

	Thermovacuum Chambers सी) उपर्युक्त कक्षों के लिए अनिवार्य पुर्जे c) Essential spares for the above chambers ब्योरेवार विनिर्देशन संलग्नक के अनुसार । Detailed Specifications as per Annexure.	
	क्रम सं. 2, 3, 5 एवं 6 दो भाग निविदा मामले हैं। भाग- 1 [तकनीकी-वाणिज्यिक] भाग- 2 [मूल्य बोली] Sl. Nos. 2, 3, 5 & 6 cases are TWO-PART TENDER CASES. Part -1 [Technical & Commercial] Part-2 [Price Bid]	

निविदा शुल्क / Tender Fee	₹ 227/-
निविदा फॉर्म जारी करने की अंतिम तिथि / Last Date for issue of Tender Forms	07/01/2013 16.00 बजे तक/up to 16.00 Hrs.
निविदा स्वीकृति की नियत तिथि / Due Date for Receipt of Tender	08/01/2013 16.00 बजे तक/up to 16.00 Hrs.
निविदा खोलने की तिथि / Tender Opening Date	09/01/2013 10.00 बजे/at 10.00 Hrs.

इसरो वेब साइट www.isro.gov.in / वीएसएससी वेब साइट www.vssc.gov.in में निविदा दस्तावेज़ उपलब्ध हैं। इच्छुक निविदाकार इन वेब साइटों से अपनी इच्छा के अनुसार निविदा दस्तावेज़ों को डाउनलोड करें और निविदा अधिसूचना में दिए गए विवरणों के अनुसार अपने प्रस्तावों को निर्धारित निविदा लागत के साथ (रेखित डिमांड ड्राफ्ट के रूप में) प्रस्तुत करें।

Tender documents are available on ISRO web site www.isro.gov.in / VSSC web site www.vssc.gov.in. Interested tenderers may, at their option download the tender documents from the web sites and submit their offers along with the prescribed tender cost [in the form of CROSSED DEMAND DRAFT] as per details given in the tender notification.

हस्ताक्षरित/Sd/-

वरिष्ठ क्रय एवं भंडार अधिकारी, वीएसएससी/Senior Purchase & Stores Officer, VSSC

नोट/Note :

1. सामग्री के संपूर्ण ब्यौरे तथा विनिर्देश एवं निविदा प्रस्तुत करने के संबंध में पालन किए जाने के सामान्य अनुदेश निविदा दस्तावेजों में दिए गए हैं।

Full details and specifications of the items and general instructions to be followed regarding submission of tenders are indicated in the tender documents.

2. अनुरोध पर और निविदा शुल्क देकर निम्नलिखित पते से निविदा दस्तावेज प्राप्त किए जा सकते हैं।

Tender Documents can also be obtained from the following address on request and submission of tender fee :

क्रम सं. 1, 2 तथा 3 के लिए: वरि. क्रय एवं भंडार अधिकारी, क्रय यूनिट- III, पीआरएसओ क्रय, आरएफएफ क्षेत्र, वीएसएससी, इसरो, तिरुवनंतपुरम – 695 022 फोन : 0471-2563775

For Sl. No. 1, 2 & 3 : Sr. Purchase & Stores Officer, Purchase Unit-III, PRSO Purchase, RFF Area, Thiruvananthapuram – 695 022, Ph : 0471-2563775.

क्रम सं. 4: क्रय एवं भंडार अधिकारी, सीएमएसई क्रय, वट्टियूरकावु पी ओ, तिरुवनंतपुरम – 695 013 फोन : 0471-2569290

For Sl. No. 4 : Purchase & Stores Officer, CMSE Purchase, Vattiyookavu PO, Thiruvananthapuram – 695 013, Ph : 0471-2569290.

क्रम सं. 5 तथा 6 के लिए: वरि. क्रय एवं भंडार अधिकारी, आइआइएसयू क्रय, वट्टियूरकावु पी ओ, तिरुवनंतपुरम – 695 013 फोन : 0471-2569317

For Sl. No. 5 & 6 : Sr. Purchase & Stores Officer, IISU Purchase, Vattiyookavu PO, Thiruvananthapuram - 695 013, Ph : 0471-2569317.

निविदा दस्तावेजों के लिए अनुरोध करते समय लिफाफे पर “निविदा दस्तावेजों के लिए अनुरोध- निविदा सं. --- ----- दिनांक -----” का उल्लेख करें।

While requesting for Tender Documents please indicate on the envelope as “Request for Tender Documents- Tender No..... dt.....”.

3. निविदा शुल्क का भुगतान मात्र रेखित डिमांड ड्राफ्ट के रूप में किया जाए। अन्य विधि का भुगतान स्वीकार्य नहीं है। यह डिमांड ड्राफ्ट (क्रम सं. 1, 2 तथा 3 में दी गई मदों हेतु) वरि. लेखा अधिकारी, पीआरएसओ / पीसीएम लेखा, वीएसएससी के नाम पर भारतीय स्टेट बैंक, तुंबा शाखा, तिरुवनंतपुरम-695 022 पर देय, (क्रम सं. 4 में दी गई मद हेतु) लेखा अधिकारी, सीएमएसई लेखा, वट्टियूरकावु पी ओ, तिरुवनंतपुरम – 695 013 के नाम पर तथा (क्रम सं. 5 तथा 6 में दी गई मदों हेतु) वरि. लेखा अधिकारी, आइआइएसयू लेखा, वट्टियूरकावु पी ओ, तिरुवनंतपुरम – 695 013 के नाम पर भारतीय स्टेट बैंक, मुख्य शाखा, स्टैच्यु, तिरुवनंतपुरम पर देय होना चाहिए।

Tender Fee shall be paid in the form of CROSSED DEMAND DRAFT ONLY. Other mode of payment is not acceptable. **The Demand Draft should be in favour of : Sr. Accounts Officer, PRSO / PCM Accounts, VSSC (for item under Sl. No. 1, 2 & 3) payable at State Bank of India, Thumba Branch, Thiruvananthapuram – 695 022, Accounts Officer, CMSE Accounts, Vattiyookavu (for item under Sl. No. 4) & Sr. Accounts Officer, IISU Accounts, Vattiyookavu PO, Trivandrum – 695 013 (for items under Sl. No. 5 & 6) payable at State Bank of India, Main Branch, Statue, Trivandrum.** [निविदा शुल्क अप्रतिदेय है। The tender fee is NON-REFUNDABLE]

4. अपने प्रस्ताव को प्रस्तुत करते समय लिफाफे पर स्पष्ट रूप से निविदा सं. तथा नियत तिथि उत्कीर्ण करें तथा निम्नलिखित पते पर भेजा जाए।

While submitting your offer, the envelope shall be clearly superscribed with Tender No. and Due Date and to be sent to the following address.

क्रम सं. 1, 2 तथा 3 के लिए: वरि. क्रय एवं भंडार अधिकारी, क्रय यूनिट- III, पीआरएसओ क्रय, आरएफएफ क्षेत्र, वीएसएससी, इसरो, तिरुवनंतपुरम – 695 022 फोन : 0471-2563775

For Sl. No. 1, 2 & 3 : Sr. Purchase & Stores Officer, Purchase Unit-III, PRSO Purchase, RFF Area, Thiruvananthapuram – 695 022, Ph : 0471-2563775.

क्रम सं. 4: क्रय एवं भंडार अधिकारी, सीएमएसई क्रय, वट्टियूरकावु पी ओ, तिरुवनंतपुरम – 695 013 फोन : 0471-2569290

For Sl. No. 4 : Purchase & Stores Officer, CMSE Purchase, Vattiyoor kavu PO, Thiruvananthapuram – 695 013, Ph : 0471-2569290.

क्रम सं. 5 तथा 6 के लिए: वरि. क्रय एवं भंडार अधिकारी, आइआइएसयू क्रय, वट्टियूरकावु पी ओ, तिरुवनंतपुरम – 695 013 फोन : 0471-2569317

For Sl. No. 5 & 6 : Sr. Purchase & Stores Officer, IISU Purchase, Vattiyoor kavu PO, Thiruvananthapuram - 695 013, Ph : 0471-2569317.

5. नियत तिथि/समय के बाद प्राप्त होनेवाली दर सूचियों पर विचार नहीं किया जाएगा।

Quotations received after the Due Date/Time will not be considered.

6. डाक व्यवस्था के कारण, दस्तावेज़ प्राप्ति में होनेवाले किसी विलंब/अप्राप्ति के लिए वीएसएससी, तिरुवनंतपुरम उत्तरदायी नहीं है।

VSSC, Thiruvananthapuram is not responsible for any postal delay/loss of documents in transit.

7. प्रधान, क्रय एवं भंडार, वीएसएससी, तिरुवनंतपुरम को यह अधिकार होगा कि वे कोई कारण बताए बिना किसी या सभी निविदाओं को आंशिक या पूर्ण रूप से स्वीकार या अस्वीकार करें।

Head Purchase & Stores, VSSC, Thiruvananthapuram reserves the right to accept or reject any/or all the tenders in part or full without assigning any reasons thereof.

Specifications

1. Purity

PROPERTY	SPECIFICATION
Appearance	: Colourless, clear liquid, free from suspended matter.
Purity	: 99.7% (min)
Water Content	: 0.10% (max.)
Distillation range	: 81.8 - 82.8 ⁰ C
Specific gravity at 20 ⁰ C	: 0.785 - 0.788 gm/cc

2. General Conditions :

- a) Party has to ensure supply of the full quantity in single lot.
- b) Packing : In 160 Kg sealed, corrosion proof, leak proof, airtight New SS or non corrosive MS drums (with epoxy coating inside) heavy duty barrels with proper labels.
- c) Party shall provide the material purity certificate along with each supply lot.
- d) Payment terms :- Price ruling at the time of dispatch shall be applicable.

NOTE :-

1. Excise duty :- We are exempted from payment of Excise Duty / Customs Duty. Please quote accordingly.
2. The facility of Inter-State Purchase by Government Departments against Form-D stands withdrawn w.e.f. 01/04/2007. As such please indicate the CST/VAT applicable without 'D' form.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE
PURCHASE UNIT III, PRSO, RFF AREA
ISRO PO, Thiruvananthapuram – 695 022

INVITATION TO TENDER

To

M/s.
.....

Dear Sir,

The Head, Purchase & Stores / Purchase Officer for and on behalf of the President of India (The Purchaser) invites sealed tender for the supply of stores detailed in the tender form here to annexed. The conditions of contract which will govern any contract made are printed on the reverse / enclosed. If you are in a position to quote for the supply in accordance with the stated requirements, please submit your quotation in the attached tender form.

Your tender must reach us on or before the due date and time as indicated in the attached tender schedule.

Yours faithfully,

For and on behalf of the President of India
(The Purchaser)

INSTRUCTIONS TO TENDERS

1. Tenders should be sent in sealed envelopes superscribing the relevant tender No. and the due date of opening. Only one tender should be sent in each envelope.
2. Late tenders will not be considered.
3. Sales Tax / VAT and / or other duties / levies where legally leviable and intended to be claimed should be distinctly shown separately in the tender.
4. As a Government of India Department this office is exempted from the payment of Octroi and similar local levies. Tenderers shall ensure that necessary exemption certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.
5.
 - a) Your quotation should be valid for 90 days from the date of opening of the 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.
6. Preference will be given to those tenders offering supplies from ready stocks and on basis of FOR destination / delivery at site.
7.
 - a) All available technical literature catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
 - b) Samples if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender will have to remove the samples at his own expense.
 - c) Approximate net and gross weight of the items offered shall be indicated in your offer, if dimensional details are available the same should also be indicated in your offer.
 - d) Specifications :- Stores offered should strictly conform to our specifications. Deviations, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make / Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary along with the quotations. Test Certificate wherever necessary should be forwarded along with supplies. Whenever options are called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate response for the same.

8. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderer shall supply the same at the rates quoted.
9. 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.
10. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.
11. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.
12. The authority of the person signing the tender, if called for should be produced.

TERMS AND CONDITIONS OF CONTRACT

1. Definitions :-

- a) The term 'Purchaser' shall mean the President of India or his successors or assigns.
- b) The term 'Contractor' shall mean, the person, firm or company with whom or with which the Order for the supply of stores is placed and shall be deemed to include the Contractor's successors, representatives, heirs, executors and administrators unless excluded by the contract.
- c) The term 'Stores' shall mean, what Contractor agrees to supply under the contract as specified in the Purchase Order including erection of plant and machinery and subsequent testing should such a condition be included in the Purchase Order.
- d) The term 'Purchase Order' shall mean, the communication signed on behalf of the Purchaser by an Officer duly authorized intimating the acceptance on behalf of the purchaser on the terms and conditions mentioned or referred to in the said communication accepting the Tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

2. Prices

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at a time of tendering and also the formula for any such variations.

3. Security Deposit

On acceptance of tender, the Contractor shall, at the option of the Purchaser and within the period specified by him deposit with him in cash or in any other form as the Purchaser may determine security deposit not exceeding ten percent of the value of the contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the contract and the Purchaser shall be entitled to make other arrangement for the re-purchase of the stores contracted for at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause 10(b) hereof and / or to recover from the Contractor damages arising from such cancellation.

4. Guarantee and Replacement

- a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the Purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- c) If in the opinion of the Purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the Contractor of the defect is given by the Purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- d) The Contractor fail to rectify the defects, the Purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- e) The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the stores supplied by the Contractor are defective or any defects has developed within the said period of 12 months or as to whether nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.

- f) To fulfil guarantee conditions outlined in clause 4 (a) to (e) above, the Contractor shall, at the option of the Purchaser furnish a Bank Guarantee (as prescribed by the Purchaser) from a Bank approved by the Purchaser from an amount equivalent to 10% of the value of the contract along with first shipment documents. On the performance and completion of the contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
 - g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of store at purchaser's site.
 - h) Even While the 12 months guarantee applies to all stores in case where a greater period is called for by our specifications then such a specification shall apply in such cases the period of 14 months referred to in para 4 (b) & (c) shall be asked for guarantee period plus two months.
5. Packing, Forwarding & Insurance
The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor. The Purchaser will not pay separately for transit insurance all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the contract.
6. Despatches
The Contractor is responsible for obtaining a clear receipt from the transport authorities specifying the goods dispatched. The consignment should be despatched with clear Railway Receipt / Lorry Receipt. If sent in any other mode it is at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on said to contain basis. Purchase shall pay for only such stores as are actually received by them in accordance with the contract.
7. Test Certificate
Whenever required, test certificates should be sent along with the despatch documents.
8. Acceptance of stores
 - a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the Purchaser at the contractor's own risk, expense and cost.
 - b) It is expressly agreed that the acceptance of the stores contracted for is subject to final approval by the Purchaser, whose decision shall be final.
 - c) If, in the opinion of the Purchaser all or any of the stores that do not meet the performance or quality requirements specified in the purchase order, they may be either rejected or accepted at a price to be fixed by the Purchaser and his decision as to rejection and the prices to be fixed shall be final binding on the Contractor.
 - d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. 8 (c) above the Purchaser shall be at liberty with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor, stores meeting the necessary performance and quality contracted for in place of those rejected, provided that either the purchase or the agreement to purchase from another supplier is made within six months from the date of rejection of the stores as aforesaid.
9. Rejected stores
Rejected stores will remain at destination at the contractor's risk and responsibility, if instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the Purchaser or his representative has, at his discretion the right to scrap or sell or consign the rejected stores to contractor's address at the contractor's entire risk and expense Freight being payable by the Contractor at actuals.
10. Delivery
 - a) The time for and the date of delivery of the stores stipulated in the purchase order shall be deemed to be essence of the contract and delivery must be completed on or before the specified dates.
 - b) Should the Contractor fail to deliver the stores or any consignment there of within the period prescribed for such delivery, the Purchaser shall be entitled at his option either.
 - i. to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 0.5% per week subject to a maximum of 10% of the order value. or
 - ii. to purchase elsewhere, without notice to the Contractor on the account and at the risk of the Contractor the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not in the opinion of the Purchaser readily procurable, such opinion being final) without cancelling the contract in respect of the consignment (s) not yet due for delivery, or
 - iii. to cancel the contract of a portion thereof and if so desired to purchase or authorize the purchase of stores not so delivered or others of a similar description (where others exactly complying with the particulars are

not in the opinion of the Purchaser readily procurable such opinion final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) & (iii) of clause 10 above, the Contractor, shall be liable for any loss which the Purchaser may sustain on that account, provided that the re-purchase, or if there is an agreement to re purchase then such agreements is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re-purchase shall be at the discretion of the Purchaser, whose decision shall be final. It shall not be necessary for the Purchaser to serve a notice of such re-purchase on the defaulting Contractor. This right shall be without prejudice to the right of the Purchaser to recover damages or breach of contract by the Contractor.

11. Extension of time

As soon as it is apparent that contract dates cannot be adhered to an application shall be sent by the Contractor to the Purchaser if failure, on the part of the Contractor to deliver the stores 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 circumstances of the case without prejudice to the purchaser's rights to recover liquidated damages under clause 10 thereof.

12. Erection of Plant & Machinery

Wherever erection of a plant or machinery is the responsibility of the Contractor as per the terms of the contract and in case of Contractor fails to carry out the erection as and when called upon to do so within the period specified by the Purchaser, the Purchaser shall have the right to get the erection done through any source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the Purchaser is liable to incur towards erection. The Contractor shall, however, not be entitled to any gain due to such an action by the Purchaser.

13. Payment

Contractor's bill will be passed for payment only after the stores have been received, inspected and accepted by the Purchaser.

14. Mode of payment

Normally payment will be made for the accepted stores within 30 days from the date of receipt of the materials.

15. Recovery of sums due

Whenever any claim for the payment of whether liquidated or not, money arising out of under this contract against the Contractor, the Purchaser shall be entitled to recover such sum by appropriating. In part or whole the security deposited by the Contractor, if a security is taken against the contract. In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable, as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under this or any other contract with the Purchaser. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the Purchaser on demand the remaining balance due. Similarly, if the Purchaser has or makes any claim, whether liquidated or not, against the Contractor under any other contract with the Purchaser, the payment of all moneys payable under the contract to the Contractor including the security deposit shall be with-held till such claims of the Purchaser are finally adjudicated upon and paid by the Contractor.

16. Indemnity

The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any Patent, Copyright or Trademark, and shall at all times indemnify the Purchaser against all claims which may be made in respect of the stores for infringement of any right protected by Patent Registration of design or Trade mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfillment of the contract.

17. Arbitration

In the event of any question, dispute or difference arising under these conditions or any conditions contained in the purchase order or in connection with this contract, (except as to any matter the decision of which is specially provided for by these conditions) the same shall be referred to the sole arbitration of the Head of the Purchase office or of some other person appointed by him. It will be no objection that the Arbitrator is a Government servant, that he had to deal with matter to which the contract relates or that in the course of his duties as Government servant he has expressed views on all or any other matters in dispute or difference. The award of the Arbitrator shall be final and binding on the parties of this contract.

It is a term of this contract

- a) If the arbitrator be the Head of the Purchase Office

- (i) In the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor-in-office either to proceed with reference himself, or to appoint another person as Arbitrator, or
- (ii) In the event of his being unwilling or unable to act for any reason, it shall be lawful or the Head of the Purchase Office to appoint another person as arbitrator, or
- b) If the arbitrator be a person appointed by the Head of the Purchase Office in the event of his dying, neglecting or refusing to act or resigning or being unable to act, for any reason it shall be lawful for the Head of the Purchase office either to proceed with the reference himself or appoint another person as arbitrator in place of the outgoing Arbitrator.

Subject as aforesaid the Arbitration and Conciliation Act 1996 and the rules thereunder and any statutory modifications there of for the time being in force shall be deemed to apply to the arbitration proceedings under this Clause. The Arbitrator shall have the power to extend with the consent of the Purchaser and the Contractor the time for making and publishing the award. The venue of arbitration shall be the place as Purchaser is his absolute discretion may determine. Work under the contract shall, if reasonably possible continue during Arbitration proceedings.

18. Counter Terms and Condition of Suppliers

Where counter terms and conditions / printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

19. Security for Purchaser's Materials

Successful tenderer will have to furnish in the form of a bank guarantee or any other form as called for by the Purchaser towards adequate security for the materials / property provided by the Purchaser for the due execution of the contract.

Detailed Specification of 50kN Universal Testing Machine

Requirement: Supply, installation and performance demonstration of a universal testing machine. This machine is intended for testing of material in tension, compression and bending loads for non-metallic materials like polymers, fibers, ceramics and composite samples. Capabilities of the machine & test methods are to be demonstrated.

Specifications

1 Major Parameters

- ❖ Type of construction : Dual column bench top
- ❖ Capacity : 50 kN
- ❖ Cross head speed : 0.001 to 600 mm/min or better
- ❖ Cross head travel : 1300 mm minimum
- ❖ Cross return speed : 500 mm/min with built-in deceleration for precise crosshead positioning
- ❖ Maximum speed at full load : 600 mm/min
- ❖ Maximum load at full speed : 50 kN
- ❖ Load frame stiffness : 180 kN/mm minimum
- ❖ Distance between the column : 400 mm minimum

2 Drive system

- ❖ Servo electro-mechanical with integrated digital closed loop control.
- ❖ No. of data acquisition channels: 4 (position, load, strain 1 and strain 2).
- ❖ Test control under position, load and strain
- ❖ Cross head speed accuracy: $\pm 0.1\%$ of set speed
- ❖ Position control resolution: 0.05 μm or better
- ❖ Mechanical limit switches for crosshead travel (upper and lower)

3 Control Panel

- ❖ Manual control through control panel interface with soft keys, result display, test start, test stop, return, test status indication and variable speed up/down jog buttons, fine position up/down buttons and specimen protection features.
- ❖ Emergency OFF switch at safe reach of operator.

4 Data Acquisition

- ❖ Latest configuration factory integrated computer system compatible to software/equipment with DVD writer, US keyboard, windows 7 professional operating system and 19 inch flat panel LCD monitor.
- ❖ Data acquisition rate at the PC up to 1kHz simultaneous on load, extension and strain channels.
- ❖ Data display: up to 4 channel simultaneous live data display at minimum 4 ½ digit resolution. Online graphical display of user selected channels without interfering with the 4 channel data display.
- ❖ Digital signal processor: with 32 bit features like self test diagnostics, real time system status, real time closed loop control, real time data acquisition and display.
- ❖ Two additional conditioner boards: to accommodate additional transducers input/output. $\pm 10\text{V}$ analogue output for connections to recorders, plotters, oscilloscopes.

- ❖ Four digital inputs: for synchronization with external event detectors and for digital outputs for triggering external equipments
- ❖ Two strain sensor cards: for strain-1 and strain-2.
- ❖ +/- 10 V DC output from the four principal data channels.

5 Software

- ❖ Machine control through software:
 - computer interface cards and suitable cabling
 - automatic recognition and calibration of transducers.
 - Complete software packages for conducting various tests like tension, compression, bend, flexural, shear, simple cycling, peel test, creep, stress relaxation etc. as per relevant standards.
 - The software should have the capacity to setup the test control parameters, data acquisition parameter, online results display, setting up of limits, transducers calibration and balancing features, online graphical display of test plots with auto scaling, zoom-in/out, report generation, data archival and reanalysis features.
 - Analysis module for data analysis
 - Saving and retrieval of test methods and data
 - Should support multiple test specimens under a single test data file.
 - Acquired data shall be exportable to MS-excel for further analysis.
 - Test control mode shall be displayed whenever a test is running.
 - Prompt for transducer calibration (if not already done) before starting a test.
 - System of units: SI, metric (user selectable)

6 Load cell

- ❖ Load cell 50 kN and 5kN capacity
 - ±50 kN and ±5kN static capacity load cell with suitable attachments fittings/ kits to fix to the crosshead (shall include wedge washers or circle washers for locking the load cell mechanically to the cross head).
 - Self identifiable and auto electrical calibration
 - Overload protection: more than 150% of the capacity without permanent zero shift
 - Zero stability: 0.001% of full rated output/hr.
 - Accuracy better than ±0.5% of the reading down to 1/500 of load cell capacity.

7 Grips

- ❖ Mechanical wedge action grip of 50kN capacity with suitable jaw face holders to hold specimens of flat and round cross section and suitable fittings to attach it to the machine.
Operating temperature range of -70°C to 250°C
Flat and serrated faces for specimen thickness 0-25 mm and width 25mm to 50 mm and round specimen grip diameter 0-25 mm
- ❖ Flexural (3 point bending) and inter laminar shear fixtures of capacity 10kN operating temperature range -70 °C to 250 °C.
- ❖ Variable peel test fixtures (max load 5kN)
- ❖ Drum peel test fixture (max load 3kN)
- ❖ Double notch compression and shear fixture as per ASTM C 1292 for testing at RT.

Optional (to be quoted separately)

- ❖ Self tightening grips for elastomers (max load 5kN) as per ASTM D 412.
- ❖ Compression plates of 50kN capacity with spherical ball seating.
- ❖ Screw action grip (max load 10kN).

General Conditions:

1. Breakup cost of each item should be provided along with the quotations.
2. Technical data sheets in English should be provided for all the items.
3. Compliance matrix should also be provided with the quotations for all parameters mentioned in the quotation. **The compliance matrix should be filled with actual numbers and supporting documents (original catalogue/datasheets) are to be provided. Quotation without proper compliance matrix will be rejected.**
4. Power requirement for the machine should match the Indian power supply system i.e. 230 V 50Hz.
5. On-site training installation and commissioning of the machine should be done by the supplier.
6. Two years warranty and minimum three years AMC thereafter should be provided. Quote separately for additional warranty as well as for AMC after expiry of normal warranty.
7. List of spares and consumables for five years of operation of the machine should be quoted as optional.
8. Availability of spares for minimum 10 years has to be ensured.
9. Operating manuals of machine and the software in English language should be provided along with the machine.
10. Pre-installation site requirement like electrical, civil, etc. should be provided in advance.
11. All necessary tools for maintenance of the equipment should be provided by the party.
12. All necessary safety interlock and earthing should be properly provided for the safety of the operator.
13. Calibration certificate along with traceability should be provided for the load cell supplied.
14. User list in India to be provided.

NOTE :-

- 1. Excise duty :- We are exempted from payment of Excise Duty / Customs Duty. Please quote accordingly.**
- 2. The facility of Inter-State Purchase by Government Departments against Form-D stands withdrawn w.e.f. 01/04/2007. As such please indicate the CST/VAT applicable without 'D' form.**

SPECIAL CONDITIONS IN RESPECT OF TWO-PART TENDERS

I. PART I - TECHNICAL AND COMMERCIAL BID (In duplicate) in one cover.

Technical and commercial part should clearly indicate the technical details, scope of supply, payment terms, delivery terms. [FOB/FOR/Ex-Works] delivery period, taxes and duties. Warranty, guarantee, security deposit, performance bank guarantee, etc. under separate heads. Please note that the price should NOT be indicated in the Technical and Commercial Offer. **Tender Fee, by way of Demand Draft should be enclosed with Technical Bid, failing which the offer will not be considered.**

Complete literature/leaflets/catalogues or brochures relevant to the offered models are to be enclosed with the Technical and Commercial Part of the Tender.

The cover should clearly be super scribed "Technical and Commercial Bid". The Tender Number - due Date and Time should also be indicated on the cover.

II. PART II - PRICE BID in one cover:-

Price alone should be indicated (in duplicate). Wherever installation/commissioning is involved, such charges may be indicated separately in the Price Bid.

The cover should clearly be super scribed "Price Bid". The Tender Number - Due Date and Time should also be indicated on the cover.

- III. The "Technical and Commercial Bid" and the "Price Bid" are to be in separate sealed covers and they should be put into a single envelope super scribed with the Tender Number, Due Date and Time. The cover thus prepared should be sent to the following address so as to reach us on or before the due date and time specified in the tender form.

**The Senior Purchase & Stores Officer
Purchase Unit III, PRSO Purchase
Vikram Sarabhai Space Centre,
ISRO PO, Thumba, Trivandrum - 695022**

- IV. Where an agent participate in a tender on behalf of one manufacturer, he should not to quote on behalf of another manufacturer along with first manufacturer in a subsequent / parallel tender for the same item. However the Indian agents at their option can quote on behalf of one or more principals/manufacturers provided the items pertains to different Brands/Makes and/or with different options.
- V. Tenders may be hand delivered or sent by post or through couriers. Levels of responsibility and reliability among couriers with respect to the delivery to VSSC are not entirely satisfactory and tenderers shall therefore choose the couriers with particular case.
- VI. The offer should be valid for a minimum period of 120 days from the due date.
- VII. **TENDER OPENING** : The Technical and commercial Bid will be opened on the specified day and in case any further clarification/discussions are required, such clarifications/discussions shall be called for before opening the Price Bid.
- VIII. Late and Delayed Tenders will not be considered. Therefore, please ensure that your tender is posted well in time to reach us before the due date and time.
- IX. Tenders which are not prepared in terms of these instructions are liable to be rejected.
- X. **Fax offers shall not be considered for TWO PART BIDS.**
- XI. All the pages of your offer should be signed / initialed by competent authority and affixed with your Company's Seal.

INSTRUCTIONS TO TENDERERS AND GENERAL TERMS AND CONDITIONS OF PURCHASE

I. INSTRUCTIONS TO TENDERERS

1. The Tenderers should submit quotation in duplicate in a sealed envelope, superscribing the Tender No. and due date of opening and complete in all respects with technical specifications, including pamphlets and catalogues. In case the tenders are by telex / Fax at the last minute, please, show the due date.
2. A Proforma invoice may also be given which should contain the following information.
 - a) The FOB Value, the C & F Value for import by sea-freight / Air freight upto and for air parcel post upto should be separately indicated.
 - b) Agency Commission: The amount of commission included in the price and payable to the Indian Agents of the Contractor shall be paid directly to the Indian Agents by the Purchaser in equivalent Indian Rupees on the basis of an Invoice from him applying T.T. buying rate of exchange ruling on the date of placement of the Purchase Order and which shall not be subject to any further exchange variations. This payment will be released to the Indian Agents within 30 days from the date of receipt and acceptance of Stores.
 - c) The Contractor shall invoice only for the net amount payable to him after deducting the amount of Agency Commission included in the invoice which would be paid to the Indian Agents directly by the Purchaser. However, the contractor's invoice should separately reflect the amount of commission payable to his Indian Agent.
 - d) The earliest delivery period and country of origin of the Stores.
 - e) Banker's name and address of the Contractor.
 - f) The approximate nett and gross weight and dimensions of packages / cases.
 - g) Recommended spares for satisfactory operation for a minimum period of one year.
 - h) Details of any technical service, if required for erection, assembly, Commissioning and demonstration.
3. The FOB and C & F prices quoted should be inclusive of all taxes, levies duties arising in the tenderers country.
4. The offer should be valid for a minimum period 120 days from the due date / date of opening of the tender.
5. Samples, if called for, should be sent free of all charges.
6. Late and delayed tenders will not be considered. Quotations by cable tax must be followed by detailed offers.
7. Offers made by Indian Agents on behalf of their Principals, should be supported by the Proforma Invoice of their Principals.
8. The details of Imports License will be furnished in the Purchase Order.
9. The authority of person signing the tender, if called for, shall be produced.
10. Instructions/Operation Manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents / correspondence should be in English language only.
11. The Purchaser reserves the right to accept or reject the lowest or any other in whole or part without assigning any reason.
12. It is expressly agreed that the acceptance of the Stores contracted for is subject to final approval in wiring by the Purchaser.
 - a) Part shipment is not allowed unless specifically agreed to by us.
 - b) As far as possible stores should be dispatched by Indian Flag Vessels / Air India through any Agency nominated by us.
14. Inspection / Test Certificate should be provided for the goods after testing it thoroughly at the contractor's works. If any inspection by Lloyds or any other testing agency is considered necessary, it shall be arranged by contractors.
15. Where erection or assembly or commissioning is a part of the contract it should be done immediately on notification. The contractor shall be responsible for any loss/damages sustained due to delay in fulfilling this responsibility.
16. For items having shelf life, those with maximum shelf life should be supplied if order is placed.

II. TERMS & CONDITIONS

1. DEFINITIONS:

- a) The term 'Purchaser' shall mean the Vikram Sarabhai Space Centre or their successors or assignees.
- b) The term 'Contractor' shall mean, the person, firm or company with whom or with which the order for supply of stores placed and shall be deemed to include the Contractor's Successors, representatives, heirs, executors and administrators unless excluded by the contract.

- c) The terms 'Purchase Order' shall mean, the communication, signed on behalf of the Purchaser by an officer duly authorised intimating the acceptance on behalf of the Purchaser on terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores of plant, machinery or part thereof.
- d) The terms 'Stores' shall mean, what the Contractor agrees to supply under the contract as specified in the Purchase Order.

2. PRICES:

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.

3. TERMS OF PAYMENT:

3.1 Being a Department of Government of India, the normal terms of payment are by Sight Draft. However, other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon.

3.2 The Sight Draft/Letter of Credit will be operative on presentation of the under mentioned documents –

- a) Original Bill of Lading / Airway Bill
- b) Commercially certified invoices describing the stores delivered, quantity, unit rate and their total value in triplicate. The invoice should indicate the discounts, if any, and Agency Commission separately.
- c) Packing List showing individual dimensions and weight of packages.
- d) Country of Origin Certificate in duplicate.
- e) Test Certificate.
- f) Declaration by the Seller that the contents in each case are not less than those entered in the invoices and the quality of the Stores are guaranteed as per the specifications asked for by the Purchaser.
- g) Warrantee and guarantee certificates vide clause 20.

4. IMPORT LICENSE:

Reference to Import Licence No. and date and contract number and date shall be prominently / indicated in all the documents vide para 3.2.

5. DEMURRAGE:

Supplier shall bear demurrage charges, if any, incurred by the purchaser due to delayed presentation of shipping documents as prescribed in para 3.2 to the Bankers within reasonable time (say within 10-12 days) from the date of bill of lading for sea consignments and within 3-4 days from the date of Air Way Bill for Air consignments.

6. ADDRESS OF INDIAN AGENTS:

.....
.....
.....

7. GUARANTEED TIME DELIVERY:

The time for and the date of delivery stipulated in the Purchase order shall be deemed to be the essence of the contract. Delivery must be completed within the dates specified therein.

8. INSPECTION AND ACCEPTANCE TESTS:

8.1 The purchaser's representatives shall also be entitled at all reasonable times during manufacture to inspect, examine and test on the Contractor's premises the material and workmanship of all stores to be supplied under this contract and if part of the said stores is being manufactured on other premises, the contractor shall obtain for the purchaser's representative permission to inspect, examine, and test as if the equipment were being manufacture on the contractor's premises. Such inspection, examination and testing shall not release the contractor from the obligations under this contract.

8.2 For tests on the premises of the contractor or of any of his sub-contractors, the contractor shall provide free of cost assistance, labour, materials, electricity, fuel and instruments as may be required or as may be reasonably needed by purchaser's representative to carry out the tests efficiently.

8.3 When the stores have passed the specified test, the purchaser's representatives shall furnish a certificate to the effect in writing to this Contractor. The contractor shall provide copies of the tests certificates to the purchaser as may be required.

9. MODE OF DESPATCH:

Generally, stores should be despatched by Indian Flagged Vessel / Air, India or through any other Agency nominated by the purchaser. A copy of the invoice and packing list should invariably be kept inside each of the package.

10. PORT OF ENTRY:

Madras / Trivandrum

11. **PORT CONSIGNEE:**
Purchase & Stores Officer, CRS, VSSC, Thiruvananthapuram – 695 022.
12. **ULTIMATE CONSIGNEE:**
Purchase & Stores Officer, CRS, VSSC, Thiruvananthapuram – 695 022
13. **SHIPPING MARKS:**
The mark on the shipping documents such as invoice bill of lading and on the packages should be as follows:-
PURCHASE ORDER NO.....DT:

**PURCHASE UNIT III
GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

DESTINATION:
PORT OF ENTRY:

14. INSURANCE OF THE STORES

The purchaser shall be responsible for insuring the Stores, wherever considered necessary. The contractor shall however be responsible for notifying as per proforma enclosed, to the purchaser or the insurers nominated by the Purchaser, the complete details of the proposed shipments, including the value of each shipment and other relevant data, immediately after shipment to enable the Purchaser of the insurers to arrange for the insurance policy, if required. The necessity or otherwise of insurance will be as indicated in the Purchase Order.

15. CONTRACTOR'S DEFAULT LIABILITY:

15.1 The Purchaser may upon written notice of default to the Contractor terminate the Contract in whole or in part in circumstances detailed hereunder:-

- a) If in the judgement of the Purchaser the Contractor fails to make delivery of Stores within the time of specified in the Contract Agreement or within the period for which extension has been granted by the Purchaser to the Contractor.
- b) If in the judgement of the Purchaser the Contractor fails to comply with any of the other provisions of this contract.

15.2 In the event the purchaser terminates the contract in whole or in part as provided in Clause 15.1 the purchaser reserves the right to purchases upon such terms and in such a manner as he may deem appropriate Stores similar to that terminated and the contractor shall be liable to the Purchase for any additional costs for such similar stores and / or for liquidated damages for delay as defined in Clause 19 until such reasonable as may be required for the final supply of Stores.

15.3 If this contract is terminated as provided in Clause 15.1 the Purchaser in addition to any other rights provided in this Article, may require the Contractor to transfer title and deliver to the Purchaser under any of the following cases in the manner and as directed by the Purchaser.

- a) Any completed Stores.
- b) Such partially completed Stores, drawing, information and contract rights (herein after called manufacturing material) as the Contractor has specifically produced or acquired for the performance of the contract as terminated. The Purchaser shall pay to the Contractor the contract price for completed stores delivered to and accepted by the purchaser and for manufacturing materials delivered and accepted.

15.4 In the event the Purchaser does not terminate the contract as provided in Clause 15.1, the Contractor shall continue the performance of the contract, in which case he shall be liable to the Purchaser for liquidated damages for delay as set out in Clause 19 until the stores are accepted.

16. REPLACEMENT

If the stores or any portion thereof is damaged lost during transit, the purchaser shall give notice to the Contractor setting forth particulars of such stores damaged or lost during transit. The replacement of such stores shall be effected by contractor within reasonable time to avoid unnecessary delay in the intended usage of the stores. The price of replacement items shall be paid by the Purchaser on the basis of original price quoted in the tender or as reasonably worked out from the tender. The cost of damages will however be claimed by the purchaser from the insurance company. The import License/Customs Clearance Permit for the replacement will be provided by the purchaser.

17. REJECTION

In the event that any of the Stores supplied by the contractor is found defective in material or workmanship otherwise not in conformity with the requirements of the contract specification, the purchaser shall either reject the stores or request the contractor, in writing to rectify the same. The contractor, on receipt of such notification shall either rectify or replace the defective stores free of cost to the purchaser. If the contractor fails to do so, the purchaser may at his option either;

- a) Replace or rectify such defective Stores and recover the extra cost so involved from the Contractor, or
- b) Terminate the contract for default as provided under clause 15 above.

- c) Acquire the defective stores at a reduced price considered equitable under the circumstances. The provisions of this article shall not prejudice the purchaser's rights under clause 19.

18. EXTENSION OF TIME

If the completion of supply of stores is delayed due to reason of Force Majeure such as acts of God acts of public enemy, acts of Government fires, floods, epidemics, quarantine, restrictions, strikes and freight embargoes the contractor shall give notice within 15 days to the purchaser in writing of his claim for an extension of time. The Purchaser on receipt of such notice after verification of necessary, may agree to extend the contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.

19. DELAY IN COMPLETION / LIQUIDATED DAMAGES

If the contractor fails to deliver the stores within the time specified in the contract or any extension thereof the Purchaser shall recover from the contractor as liquidated damages a sum of one half percent (0.5 percent) of the contract price of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the contract price of the unit or units so delayed. If certain components are not delivered in time the stores will be considered as delayed until such times as the missing parts are delivered.

20. GUARANTEE & REPLACEMENT

- a) The contractor shall guarantee that the stores supplied shall comply fully with, the specifications laid down for material, workmanship and performance.
- b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein are found to have developed under proper use arising from faulty materials, design or workmanship contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the dated of acceptance thereof by the Purchaser who shall state in writing in what respect the Stores or any part thereof are faulty.
- c) If in the opinion of the Purchaser it becomes necessary to replace or renew any defective Stores such replacement or renewal shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- d) Should the Contractor fail to rectify the defects, the Purchaser, shall have the right to reject or repaid or replace at the cost of the contractor the whole or any portion of the defective stores.
- e) The decision of the purchaser, notwithstanding any prior approval of acceptance or inspection thereof on behalf of the purchaser, as to whether or not the stores supplied by the contractor are defective or any defect has developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement shall be final, conclusive and binding on the contractor.
- f) To fulfill guarantee conditions outlined in Clause 20 (a) to (e) above the contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser-Bank Guarantee enclosed) from a Bank approved by the purchaser for an amount equivalent to 10% of the value of the contract along with first shipment document. On the performance and completion of the contract in all respects the Bank Guarantee will be returned to the Contractor without any interest.
- g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of stores at purchaser's site.
- h) Even while the 12 months guarantee applies to all stores in case where a greater period is called forth by our specifications then such a specification shall apply; in such cases the period of 14 months referred to in Clause 20 (b) and (c) shall be the 'asked for' guarantee period plus two months.

21. REQUIREMENT OF ADDITIONAL NUMBERS OF THE STORES/SPARE PARTS ORDERED

The contractor shall also undertake the supply of additional numbers of items covered by the order as considered necessary by the purchaser at the later date. The actual price to be paid shall be mutually agreed to after negotiations.

22. PACKING

- a) The Contractor whatever applicable shall pack and crate all stores for sea / air shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practice and in such a manner so as to protect it from damage and deterioration in transit by road rail or sea for space qualified store. The contractors shall be held responsible for all damages due to improper packing.
- b) The contractor shall ensure that each box/unit of shipmen is legible and properly marked for correct identification. The failure to comply this requirement shall make the contractor liable for additional expenses involved.
- c) The contractor shall notify the Purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.
- d) The contractor shall give complete shipment information concerning the weight, size, content of each packages etc.
- e) Transshipment of equipment shall not be permitted except with written permission of the purchaser.

- f) Apart from the despatch documents negotiated through Bank, the following documents shall also be airmailed to the purchaser within 7 days from the date of shipment by sea and within 3 days in case of air consignments.
- a) Commercial Bill of Lading/Air Way Bill/Post Parcel Receipt (two non-negotiable copies)
 - b) Invoice (3 copies)
 - c) Packing List (3 copies)
 - d) Test Certificate (3 copies)
 - e) Certificate of Origin
- Contractor shall also ensure that one copy of the packing list is enclosed in each case.

23. ARBITRATION

If at any time any question, disputes or differences whatsoever shall arise between the purchaser and the contractor upon or in connection with this contract, either party may forth with give to the other notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudication of two arbitrators, one to be nominated by purchaser other by a contractor and in the event of any difference, of opinion, the arbitrators will refer the matter to the umpire. The arbitration shall be conducted. In accordance with the rules and procedure for arbitration of the International Chamber of Commerce at Paris. The expenses of the arbitrators and umpire shall be paid as may be determined by them. However, the venue of such arbitration should be in India.

24. LANGUAGE AND MEASURES

All documents pertaining to the contract including specifications, schedule notices, correspondence, operating and maintenance instructions drawings or any other writings shall be written in English language. The metric system of measurement shall be used exclusively in the contract.

25. INDEMNITY

The contractor shall warrant and be deemed to have warranted that all Stores supplied against this contract are free and clean of infringement of any patent, copy right or trade mark and shall at all times indemnify the Purchaser against all claims which may be made in respect of stores for infringement of any right protected by patent. Registration of design or Trade Mark and shall take all risk of accidents or damage which may cause a failure of the supply form whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfillment of the contract.

26. COUNTER TERMS AND CONDITIONS OF SUPPLIERS

Where counter terms and conditions / printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the purchaser, unless specific written acceptance thereof is obtained.

27. SECURITY INTEREST

On each item to be delivered under this contract; including an item of work in progress in respect of which payments have been made in accordance with the terms of the contract, purchaser shall have a security interest in such items which shall be deemed to be released only at the time when the applicable deliverable item is finally accepted and delivered to the purchaser in accordance with the terms of the contract. Such security interest of the purchaser shall constitute a prior charge as against any other charge or interest created in respect of such items by any other entity.

28. BANK CHARGES

While the purchaser shall bear the bank charge payable to his Bankers (State Bank of India) the contractor shall bear the Bank charges advising amendment commission.

29. TRAINING

The contractor shall, if required by the Purchaser, provide facilities for the practical training of purchaser's engineering. Technical personnel from India and for their active association on the manufacturing period of the contract/stores, number of such personnel to be mutually agreed upon.

30. APPLICABLE LAW

The contract shall be interpreted, constructed and governed by the laws of India.

Supply of Agitated Nutsche Filter of working volume 3000 lits.

Annexure

1. FUNCTIONAL PARAMETERS

- a) PRODUCT TO BE FILTERED : Ammonium Perchlorate which is a crystalline solid
- b) TYPE OF PRODUCT : Strong oxidizer
- c) DENSITY OF THE PRODUCT : True density is 1.95 g/cc
Bulk density is 1.3 g/cc
- d) % SOLIDS IN SLURRY : 40-70%
- e) BATCH CAPACITY OF FILTER CAKE : 2000 KG approx
- f) DURATION OF FILTRATION : 2-3 hrs
- g) MOISTURE CONTENT OF WET CAKE : 3-5 %
- h) USEFUL RECOVERY : Both residue and filtrate are useful products
- i) PARTICLE SIZE OF SOLID : 45-600 micron
Average particle size is 320 micron
- j) WORKING VOLUME : 3000 Lits.approx
- k) FILTRATION AREA : 3 m² approx.
- l) OPERATION : Batch
- m) AGITATOR LIFT (Stroke) : 400 mm approx.

2. CONSTRUCTION TYPE

a	Top dish	Torispherical dish end welded to shell
b	Shell	Cylindrical construction
c	Bottom	Fixed, Flat end, monoblock design without heating arrangement
d	Blades & Shaft	Solid & sturdy design. Special "S" shaped solid blades.
e	Shaft sealing	Stuffing box with gland packing and teflon bush
f	Supports	Lug supports, 4 nos.
g	Discharge valve	Hydraulically operated, plug type valve flush with inside of vessel for automatic product discharge. The discharge valve should have hinged connection to open completely for thorough cleaning.
h	Filtering arrangement	Filter cloth: Filter cloth should be fixed and held in place with fixing strips and SS holders over SS wire mesh.
i	Top Assembly	The top assembly consists of the drive unit mounted on a rigid frame that moves up and down on 4 pillar guide bars along with the agitator assembly.

3. MAJOR DIMENSIONS:

a) Shell

I.D. = 2000 mm
Thk = 8 mm
Ht = 1000 mm (Above filter plate)

b) Dish

I.D. = 2000 mm
Thk = 10 mm

c) Shaft Dia. = 120 mm

4. OPERATING CONDITIONS

Operating Vacuum : 710 mm Hg
Operating temperature : 5°C to 100°C

5. MATERIAL OF CONSTRUCTION

a	Shell	S.S. 316 L
b	Top Dish	S.S. 316 L
c	Filter Plate	S.S. 316 L Segmental type
d	Shaft & Blades	S.S. 316 L
e	Washing Coil	S.S. 316 L
f	Washing Coil vertical supports & clamps	S.S. 316 L
g	Vessel nozzles pipes and flanges	S.S. 316 L flanges and S.S.316L Seamless pipes
h	Internal wetted parts, contact parts	S.S. 316 L
i	Gaskets	Viton
j	'O' Rings	Viton
k	Filter cloth	Polypropylene cloth (Mesh size suitable to filter Ammonium Perchlorate crystals with Particle size ranging from 45-600 micron)
l	Sight glass	Toughened borosilicate glass with Teflon wiper for cleaning
m	Supporting legs	M.S. should be painted with anti corrosive paint
n	Nuts, bolts, washers	S.S. 316 L (contact parts)
		S.S.304 (non-contact parts)

All the MS parts should be painted with anti corrosive paint

6. NOZZLES

All nozzles shall be made of SS 316L as per ASME B16.5 Class 150 SCH 40 and as given in the table below:

Sl no.	Application	Size	Position
a	Feed	100 NB	On Dish
c	Nozzles for cake washing (4nos)	50 NB	On Dish
d	Sight glass (2 nos)	150 NB	On Dish
e	Filtrate Outlet	80 NB	Bottom
f	Vent	40 NB	On Dish
g	Spare	50 NB	On Dish
h	Vacuum gauge nozzle	40 NB	On Dish
i	Extra Nozzle	100 NB	On Dish
j	Reslurry Nozzle	50 NB	On shell
k	Extra nozzle	80 NB	On shell
l	Manhole (8mm thick) 2 nos on diagonally opposite sides	500 NB	On shell

The exact position of the nozzles shall be indicated by us before commencement of the work

All the nozzles are to be covered with suitable SS316L blind flanges with bolts, nuts and washers.

7. DRIVE DETAILS

a). Main Motor:

Flame proof, Squirrel cage TEFC, Flange mounted

Make: Should be of reputed make such as Crompton /Siemens/ NGEF/Hindustan/ BBL

Power = 10 H.P RPM = 1440 Supply: 415 V, AC, 3 Phase, 50 Hz.

Gear Box: Should be of reputed make such as Reggiana / Elicon / Shanti / Radicon

Type = Inline Planetary, Agitator RPM = 10

b). Hyd. Power Pack Motor:

Flame proof, Squirrel cage TEFC, Flange mounted

Make: Crompton /Siemens/ NGEF/Hindustan/ BBL

Power = 1 H.P RPM = 1440 Supply: 415 V, AC, 3 Phase, 50 Hz.

8. HYDRAULIC POWER PACK

a. Operation type: Lever operated

b. Controls: Agitator Up/Down and Discharge valve Open/Close

c. Accessories: Power pack should contain check valves, flow control valve, flow divider, pressure gauge, counter balance valve, pressure relief valve, electric motor, hydraulic pump, oil reservoir and hydraulic piping

d. MOC of piping, cylinders and main unit is to be S.S. 304

9. ELECTRICAL PANEL AND INSTRUMENTATION

- a) Local Flame proof push button station/panel: Should contain Agitator motor On/Off, Hydraulic motor On/Off, Agitator Reverse/Forward/Stop.
- b) Remote Non-Flame proof panel: Should contain Isolating M.C.B., M.C.B.'s for motor, Contactors and Overload relays, Indicating lamps.
- c) The distance between remote panel and local station is about 50m and the required electrical cabling should be provided by the supplier.

10. ACCESSORIES:

- a) Position indicator with scale for agitator
- b) Spray assembly for cake washing
- c) Sight glasses

11 . SAFTEY DEVICES

- a) Pressure relief valve for hydraulic power pack
- b) Hydraulic & Mechanical locks for discharge valve
- c) Mechanical stoppers for the vertical travel of the agitator
- d) Electrical overload relays with circuit breakers for all the motors
- e) All moving, rotating parts are to be covered with S.S. cover for safety standards

12. SPARES

Party shall indicate the essential spares for the ANF and has to quote separately, the cost of the items offered.

13. INSPECTION, TESTING & APPROVAL

- a. The ANF shall be subject to inspection and testing in accordance with latest standards.
- b. The raw materials for the fabrication of the equipment will be inspected by our engineers and the samples collected will be tested in our lab.
- c. Running trial shall be carried out in presence of customer's representative at the place of manufacture before delivery.
- d. ANF & piping shall be hydro-tested at works.

Party should intimate well in advance the readiness for our inspection at different stages. All the facility and arrangements required for the inspection should be provided by the contractor. The equipment shall be dispatched only after our final inspection.

14. GUARANTEE

The supplier shall guarantee the following

- a) The ANF shall be guaranteed for trouble free operation for a period of 12 months from the date of commissioning or 18 months from the date of acceptance, whichever is early, against any manufacturing defects / inferior material quality / faulty workman ship.
- b) Any defect due to manufacturing / inferior material quality / faulty workman ship shall be rectified free of cost to the entire satisfaction of the purchaser.
- c) The party has to furnish Bank guarantee from nationalised bank for 10% of the basic order value for the performance guarantee. This will be valid till the end of guarantee period

15. ERECTION, TRIAL RUN AND COMMISSIONING

- a) The party may quote separately for erection, trial run and commissioning of the item at APEP, Aluva. Since the concerned building work is under progress, the exact time of erection cannot be predicted now. However it is the full responsibility of the party for erection and commissioning of the item at our site if ISRO demands.
- b) Detailed civil works required for the erection of the item to be furnished.
- c) If required, the party can visit APEP, Aluva before giving quotation.

16. DOCUMENTS TO BE PROVIDED

- a) Three Hard copies of detailed fabrication drawing along with the soft copy in CD shall be submitted for our approval of the fabrication in four weeks time from the date of placement of order. The work has to be completed in all respect within four months from the date of receipt of order.
- b) Installation, Operation and Maintenance manual with delivery of the equipment
- c) Inspection report and pressure test report.
- d) Detailed Drawing of civil works required.

17. ELIGIBILITY CRITERIA

- a) The party shall be a reputed manufacturer of ANF and have supplied the equipment of at least 2000 kg capacity.
- b) The party shall furnish the details regarding their earlier supply of ANF including the Name& address of Client, Year of supply and brief specification of supplied ANF.
- c) The party shall provide the information on total number of ANF supplied so far and the year of supply.
- d) The party shall provide letters of reference from at least two clients.

Note :-

- 1) The party has to submit detailed technical catalogue / brochure of the offered ANF, with out which the offer will not be considered.
- 2) List of essential spares and their prizes shall be quoted separately as optional items.
- 3) The party may quote separately for erection, trial run and commissioning of the item at APEP, Aluva. Since the concerned building work is under progress, the exact time of erection cannot be predicted now. However it is the full responsibility of the party for erection and commissioning of the item at our site if ISRO demands.
- 4) Installation required at our site.
- 5) **Excise duty :- We are exempted from payment of Excise Duty / Customs Duty. Please quote accordingly.**
- 6) The facility of Inter-State Purchase by Government Departments against Form-D stands withdrawn w.e.f. 01/04/2007. As such please indicate the CST/VAT applicable without 'D' form.
- 7) **Please confirm acceptance of our payment term ie. 100% within 30 days on receipt and acceptance of item at our site.**

SPECIAL CONDITIONS IN RESPECT OF TWO-PART TENDERS

I. PART I - TECHNICAL AND COMMERCIAL BID (In duplicate) in one cover.

Technical and commercial part should clearly indicate the technical details, scope of supply, payment terms, delivery terms. [FOB/FOR/Ex-Works] delivery period, taxes and duties. Warranty, guarantee, security deposit, performance bank guarantee, etc. under separate heads. Please note that the price should NOT be indicated in the Technical and Commercial Offer. **Tender Fee, by way of Demand Draft should be enclosed with Technical Bid, failing which the offer will not be considered.**

Complete literature/leaflets/catalogues or brochures relevant to the offered models are to be enclosed with the Technical and Commercial Part of the Tender.

The cover should clearly be super scribed "Technical and Commercial Bid". The Tender Number - due Date and Time should also be indicated on the cover.

II. PART II - PRICE BID in one cover:-

Price alone should be indicated (in duplicate). Wherever installation/commissioning is involved, such charges may be indicated separately in the Price Bid.

The cover should clearly be super scribed "Price Bid". The Tender Number - Due Date and Time should also be indicated on the cover.

III. The "Technical and Commercial Bid" and the "Price Bid" are to be in separate sealed covers and they should be put into a single envelope super scribed with the Tender Number, Due Date and Time. The cover thus prepared should be sent to the following address so as to reach us on or before the due date and time specified in the tender form.

**The Senior Purchase & Stores Officer
Purchase Unit III, PRSO Purchase
Vikram Sarabhai Space Centre,
ISRO PO, Thumba, Trivandrum - 695022**

- IV. Where an agent participate in a tender on behalf of one manufacturer, he should not to quote on behalf of another manufacturer along with first manufacturer in a subsequent / parallel tender for the same item. However the Indian agents at their option can quote on behalf of one or more principals/manufacturers provided the items pertains to different Brands/Makes and/or with different options.
- V. Tenders may be hand delivered or sent by post or through couriers. Levels of responsibility and reliability among couriers with respect to the delivery to VSSC are not entirely satisfactory and tenderers shall therefore choose the couriers with particular case.
- VI. The offer should be valid for a minimum period of 120 days from the due date.
- VII. **TENDER OPENING** : The Technical and commercial Bid will be opened on the specified day and in case any further clarification/discussions are required, such clarifications/discussions shall be called for before opening the Price Bid.
- VIII. Late and Delayed Tenders will not be considered. Therefore, please ensure that your tender is posted well in time to reach us before the due date and time.
- IX. Tenders which are not prepared in terms of these instructions are liable to be rejected.
- X. **Fax offers shall not be considered for TWO PART BIDS.**
- XI. All the pages of your offer should be signed / initialed by competent authority and affixed with your Company's Seal.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE
PURCHASE UNIT III, PRSO, RFF AREA
ISRO PO, Thiruvananthapuram – 695 022

INVITATION TO TENDER

To

M/s.
.....

Dear Sir,

The Head, Purchase & Stores / Purchase Officer for and on behalf of the President of India (The Purchaser) invites sealed tender for the supply of stores detailed in the tender form here to annexed. The conditions of contract which will govern any contract made are printed on the reverse / enclosed. If you are in a position to quote for the supply in accordance with the stated requirements, please submit your quotation in the attached tender form.

Your tender must reach us on or before the due date and time as indicated in the attached tender schedule.

Yours faithfully,

For and on behalf of the President of India
(The Purchaser)

INSTRUCTIONS TO TENDERS

1. Tenders should be sent in sealed envelopes superscribing the relevant tender No. and the due date of opening. Only one tender should be sent in each envelope.
2. Late tenders will not be considered.
3. Sales Tax / VAT and / or other duties / levies where legally leviable and intended to be claimed should be distinctly shown separately in the tender.
4. As a Government of India Department this office is exempted from the payment of Octroi and similar local levies. Tenderers shall ensure that necessary exemption certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.
5. a) Your quotation should be valid for 90 days from the date of opening of the 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.
6. Preference will be given to those tenders offering supplies from ready stocks and on basis of FOR destination / delivery at site.
7. a) All available technical literature catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
b) Samples if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender will have to remove the samples at his own expense.

- c) Approximate net and gross weight of the items offered shall be indicated in your offer, if dimensional details are available the same should also be indicated in your offer.
 - d) Specifications :- Stores offered should strictly conform to our specifications. Deviations, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make / Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary along with the quotations. Test Certificate wherever necessary should be forwarded along with supplies. Whenever options are called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate response for the same.
8. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderer shall supply the same at the rates quoted.
 9. 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.
 10. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.
 11. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.
 12. The authority of the person signing the tender, if called for should be produced.

TERMS AND CONDITONS OF CONTRACT

1. Definitions :-

- a) The term 'Purchaser' shall mean the President of India or his successors or assigns.
- b) The term 'Contractor' shall mean, the person, firm or company with whom or with which the Order for the supply of stores is placed and shall be deemed to include the Contractor's successors, representatives, heirs, executors and administrators unless excluded by the contract.
- c) The term 'Stores' shall mean, what Contractor agrees to supply under the contract as specified in the Purchase Order including erection of plant and machinery and subsequent testing should such a condition be included in the Purchase Order.
- d) The term 'Purchase Order' shall mean, the communication signed on behalf of the Purchaser by an Officer duly authorized intimating the acceptance on behalf of the purchaser on the terms and conditions mentioned or referred to in the said communication accepting the Tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

2. Prices

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at a time of tendering and also the formula for any such variations.

3. Security Deposit

On acceptance of tender, the Contractor shall, at the option of the Purchaser and within the period specified by him deposit with him in cash or in any other form as the Purchaser may determine security deposit not exceeding ten percent of the value of the contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security with in the period specified, such failure shall constitute a breach of the contract and the Purchaser shall be entitled to make other arrangement for the re-purchase of the stores contracted for at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause 10(b) hereof and / or to recover from the Contractor damages arising from such cancellation.

4. Guarantee and Replacement

- a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the Purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- c) If in the opinion of the Purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the Contractor of the defect is given by the Purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- d) The Contractor fail to rectify the defects, the Purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- e) The decision of the Purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the Purchaser, as to whether or not the stores supplied by the Contractor are defective or any defects has developed within the said period of 12 months or as to whether nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- f) To fulfil guarantee conditions outlined in clause 4 (a) to (e) above, the Contractor shall, at the option of the Purchaser furnish a Bank Guarantee (as prescribed by the Purchaser) from a Bank approved by the Purchaser from an amount equivalent to 10% of the value of the contract along with first shipment documents. On the performance and completion of the contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
- g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of store at purchaser's site.
- h) Even While the 12 months guarantee applies to all stores in case where a greater period is called for by our specifications then such a specification shall apply in such cases the period of 14 months referred to in para 4 (b) & (c) shall be asked for guarantee period plus two months.

5. Packing, Forwarding & Insurance

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor. The Purchaser will not pay separately for transit insurance all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the contract.

6. Despatches

The Contractor is responsible for obtaining a clear receipt from the transport authorities specifying the goods despatched. The consignment should be despatched with clear Railway Receipt / Lorry Receipt. If sent in any other mode it is at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on said to contain basis. Purchase shall pay for only such stores as are actually received by them in accordance with the contract.

7. Test Certificate

Whenever required, test certificates should be sent along with the despatch documents.

8. Acceptance of stores

- a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the Purchaser at the contractor's own risk, expense and cost.
- b) It is expressly agreed that the acceptance of the stores contracted for is subject to final approval by the Purchaser, whose decision shall be final.

- c) If, in the opinion of the Purchaser all or any of the stores that do not meet the performance or quality requirements specified in the purchase order, they may be either rejected or accepted at a price to be fixed by the Purchaser and his decision as to rejection and the prices to be fixed shall be final binding on the Contractor.
- d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. 8 (c) above the Purchaser shall be at liberty with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor, stores meeting the necessary performance and quality contracted for in place of those rejected, provided that either the purchase or the agreement to purchase from another supplier is made within six months from the date of rejection of the stores as aforesaid.

9. Rejected stores

Rejected stores will remain at destination at the contractor's risk and responsibility, if instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the Purchaser or his representative has, at his discretion the right to scrap or sell or consign the rejected stores to contractor's address at the contractor's entire risk and expense Freight being payable by the Contractor at actuals.

10. Delivery

- a) The time for and the date of delivery of the stores stipulated in the purchase order shall be deemed to be essence of the contract and delivery must be completed on or before the specified dates.
- b) Should the Contractor fail to deliver the stores or any consignment there of within the period prescribed for such delivery, the Purchaser shall be entitled at his option either.
 - i. to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 0.5% per week subject to a maximum of 10% of the order value. or
 - ii. to purchase elsewhere, without notice to the Contractor on the account and at the risk of the Contractor the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not in the opinion of the Purchaser readily procurable, such opinion being final) without cancelling the contract in respect of the consignment (s) not yet due for delivery, or
 - iii. to cancel the contract of a portion thereof and if so desired to purchase or authorize the purchase of stores not so delivered or others of a similar description (where others exactly complying with the particulars are not in the opinion of the Purchaser readily procurable such opinion final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) & (iii) of clause 10 above, the Contractor, shall be liable for any loss which the Purchaser may sustain on that account, provided that the re-purchase, or if there is an agreement to re purchase then such agreements is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re-purchase shall be at the discretion of the Purchaser, whose decision shall be final. It shall not be necessary for the Purchaser to serve a notice of such re-purchase on the defaulting Contractor. This right shall be without prejudice to the right of the Purchaser to recover damages or breach of contract by the Contractor.

11. Extension of time

As soon as it is apparent that contract dates cannot be adhered to an application shall be sent by the Contractor to the Purchaser if failure, on the part of the Contractor to deliver the stores 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 circumstances of the case without prejudice to the purchaser's rights to recover liquidated damages under clause 10 thereof.

12. Erection of Plant & Machinery

Wherever erection of a plant or machinery is the responsibility of the Contractor as per the terms of the contract and in case of Contractor fails to carry out the erection as and when called upon to do so within the period specified by the Purchaser, the Purchaser shall have the right to get the erection done through any

source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the Purchaser is liable to incur towards erection. The Contractor shall, however, not be entitled to any gain due to such an action by the Purchaser.

13. Payment

Contractor's bill will be passed for payment only after the stores have been received, inspected and accepted by the Purchaser.

14. Mode of payment

Normally payment will be made for the accepted stores within 30 days from the date of receipt of the materials.

15. Recovery of sums due

Whenever any claim for the payment of whether liquidated or not, money arising out of under this contract against the Contractor, the Purchaser shall be entitled to recover such sum by appropriating. In part or whole the security deposited by the Contractor, if a security is taken against the contract. In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable, as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under this or any other contract with the Purchaser. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the Purchaser on demand the remaining balance due. Similarly, if the Purchaser has or makes any claim, whether liquidated or not, against the Contractor under any other contract with the Purchaser, the payment of all moneys payable under the contract to the Contractor including the security deposit shall be with-held till such claims of the Purchaser are finally adjudicated upon and paid by the Contractor.

16. Indemnity

The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and clean of infringement of any Patent, Copyright or Trademark, and shall at all times indemnify the Purchaser against all claims which may be made in respect of the stores for infringement of any right protected by Patent Registration of design or Trade mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfillment of the contract.

17. Arbitration

In the event of any question, dispute or difference arising under these conditions or any conditions contained in the purchase order or in connection with this contract, (except as to any matter the decision of which is specially provided for by these conditions) the same shall be referred to the sole arbitration of the Head of the Purchase office or of some other person appointed by him. It will be no objection that the Arbitrator is a Government servant, that he had to deal with matter to which the contract relates or that in the course of his duties as Government servant he has expressed views on all or any other matters in dispute or difference. The award of the Arbitrator shall be final and binding on the parties of this contract.

It is a term of this contract

- a) If the arbitrator be the Head of the Purchase Office
 - (i) In the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor-in-office either to proceed with reference himself, or to appoint another person as Arbitrator, or
 - (ii) In the event of his being unwilling or unable to act for any reason, it shall be lawful or the Head of the Purchase Office to appoint another person as arbitrator, or
- b) If the arbitrator be a person appointed by the Head of the Purchase Office in the event of his dying, neglecting or refusing to act or resigning or being unable to act, for any reason it shall be lawful for the Head of the Purchase office either to proceed with the reference himself or appoint another person as arbitrator in place of the outgoing Arbitrator.

Subject as aforesaid the Arbitration and Conciliation Act 1996 and the rules thereunder and any statutory modifications there of for the time being in force shall be deemed to apply to the arbitration proceedings under this Clause. The Arbitrator shall have the power to extend with the consent of the Purchaser and the Contractor the time for making and publishing the award. The venue of arbitration shall be the place as Purchaser is his absolute discretion may determine. Work under the contract shall, if reasonably possible continue during Arbitration proceedings.

18. Counter Terms and Condition of Suppliers

Where counter terms and conditions / printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

19. Security for Purchaser's Materials

Successful tenderer will have to furnish in the form of a bank guarantee or any other form as called for by the Purchaser towards adequate security for the materials / property provided by the Purchaser for the due execution of the contract.

Supply Carbon Fibre Bidirectional Prepreg - 600 m²**Specifications :****Fibre:- T300 (3K) Toray fibre or equivalent****Resin :- Space qualified Epoxy resin of having 175⁰C curing temperature****Resin Content : 40 % by Weight****Weave: 5H Satin****Weight distribution: Warp - 50% , Weft - 50%****Construction: 7 yarns/cm in warp & 7 picks/cm in weft****Nominal prepreg Area Weight : 460 – 500 g/m²****Curing : Compatible for vacuum curing (oven Curing) and pressure curing (4 to 7 Bar) in Autoclave.****Shelf life of the prepreg : At -18⁰C, 18 months is desirable, but minimum 12 months is required.****At 25⁰C - 30 Days is required.****Cured Ply thickness : 250-300 microns****Total Mass Loss (TML) should be less than 1%****Collective Volatile Condensed Material (CVCM) should be less than 0.1%****Service Temperature : -50⁰C to 150⁰C****Width : 1200mm****Pack : 50m²****Quantity : 600m²****Mechanical properties : As per table-1****Table1: Mechanical properties at room temperature**

SI No.	Properties	Specification (min)	Test method (ASTM)
1	Longitudinal tensile strength, MPa	600	D3039/D3039M-08
2	Transverse tensile strength, MPa	600	
3	Longitudinal tensile modulus, GPa	60	
4	Transverse tensile modulus, GPa	60	
5	Longitudinal Compressive strength, MPa	600	D3410/D3410M-03 (Reapproved-08)
6	Transverse Compressive strength, MPa	600	
7	Longitudinal Compressive modulus, GPa	55	
8	Transverse Compressive modulus, GPa	55	
9	Flexural strength, MPa	600	D790-10
10	Flexural modulus, GPa	55	

11	ILSS, MPa	60	D2344/D2344M-00 (Reapproved- 2006)
12	In-plane shear modulus, GPa	4.0	D3518/D3518M-94 (Reapproved- 2007)
13	In-plane shear strength, MPa	70	

Terms and conditions

1. The prepreg data sheet including fabric/resin details and mechanical properties as mentioned in table-1 should be supplied along with quotation.
2. Material to be supplied in lots. First lot of 100m² by March 2013, second lot of 500m² by June 2013.
3. **1st lot will be subjected to acceptance test at our site. Delivery of 2nd lot to be initiated only after acceptance and confirmation from our side.**
4. If 1st lot is not meeting the requirement at our site, the purchase order will be cancelled.
5. Party shall ensure full wetting of fibres with resin. Partial wetting of the fibres is not acceptable.
6. Thickness variation along the width of the roll shall be within 5%.
7. Test certificate to be supplied along with the material for the properties mentioned in table -2.

Table-2

SI No.	Properties	Remarks
1	Mechanical properties at RT (Ref. Table 1)	Along with quotation
2	Mechanical properties at 120 ^o C (Ref. Table 1)	Along with 1 st lot
3	CTE along longitudinal & transverse direction	Along with 1 st lot
4	% Elongation in fibre direction	Along with 1 st lot
5	Glass transition temperature	Along with 1 st lot
6	Cured density of the laminate	Along with quotation
7	Cured matrix properties	Along with quotation
8	Strength and modulus for tension (0 ^o , 90 ^o) flexural	Along with every lot

8. Party should supply the recommended curing cycle for different laminate thickness and different type of constructions.
9. The protection film of the prepreg shall be easily removable during lay-up.
10. Safety data sheet should be supplied along with material.
11. Item to be packed with dry ice and temperature recorder.
12. Item to be despatched immediately after manufacture.
13. Consignment to be booked directly to Trivandrum.
14. Date of manufacture to be intimated in advance before dispatch by fax.
15. Dispatch details to be intimated in advance by fax.
16. Whenever transshipment is needed, consignment to be kept in cold storage at **-18^oc.**
17. Partial shipment is allowed.
18. Quantity variation of **+/- 5 %** is allowed.

NOTE :-

- 1. Detailed Tech. Details / Catalogue / Data Sheets should be sent along with the offer.**
- 2. Excise duty :- We are exempted from payment of Excise Duty / Customs Duty. Please quote accordingly.**
- 3. The facility of Inter-State Purchase by Government Departments against Form-D stands withdrawn w.e.f. 01/04/2007. As such please indicate the CST/VAT applicable without 'D' form.**

INSTRUCTIONS TO TENDERERS AND GENERAL TERMS AND CONDITIONS OF PURCHASE**I. INSTRUCTIONS TO TENDERERS**

1. The Tenderers should submit quotation in duplicate in a sealed envelope, superscribing the Tender No. and due date of opening and complete in all respects with technical specifications, including pamphlets and catalogues. In case the tenders are by telex / Fax at the last minute, please, show the due date.
2. A Proforma invoice may also be given which should contain the following information.
 - a) The FOB Value, the C & F Value for import by sea-freight / Air freight upto and for air parcel post upto should be separately indicated.
 - b) Agency Commission: The amount of commission included in the price and payable to the Indian Agents of the Contractor shall be paid directly to the Indian Agents by the Purchaser in equivalent Indian Rupees on the basis of an Invoice from him applying T.T. buying rate of exchange ruling on the date of placement of the Purchase Order and which shall not be subject to any further exchange variations. This payment will be released to the Indian Agents within 30 days from the date of receipt and acceptance of Stores.
 - c) The Contractor shall invoice only for the net amount payable to him after deducting the amount of Agency Commission included in the invoice which would be paid to the Indian Agents directly by the Purchaser. However, the contractor's invoice should separately reflect the amount of commission payable to his Indian Agent.
 - d) The earliest delivery period and country of origin of the Stores.
 - e) Banker's name and address of the Contractor.
 - f) The approximate nett and gross weight and dimensions of packages / cases.
 - g) Recommended spares for satisfactory operation for a minimum period of one year.
 - h) Details of any technical service, if required for erection, assembly, Commissioning and demonstration.
3. The FOB and C & F prices quoted should be inclusive of all taxes, levies duties arising in the tenderers country.
4. The offer should be valid for a minimum period 120 days from the due date / date of opening of the tender.
5. Samples, if called for, should be sent free of all charges.
6. Late and delayed tenders will not be considered. Quotations by cable tax must be followed by detailed offers.
7. Offers made by Indian Agents on behalf of their Principals, should be supported by the Proforma Invoice of their Principals.
8. The details of Imports License will be furnished in the Purchase Order.
9. The authority of person signing the tender, if called for, shall be produced.
10. Instructions/Operation Manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents / correspondence should be in English language only.
11. The Purchaser reserves the right to accept or reject the lowest or any other in whole or part without assigning any reason.
12. It is expressly agreed that the acceptance of the Stores contracted for is subject to final approval in wiring by the Purchaser.
13.
 - a) Part shipment is not allowed unless specifically agreed to by us.
 - b) As far as possible stores should be dispatched by Indian Flag Vessels / Air India through any Agency nominated by us.
14. Inspection / Test Certificate should be provided for the goods after testing it thoroughly at the contractor's works. If any inspection by Lloyds or any other testing agency is considered necessary, it shall be arranged by contractors.
15. Where erection or assembly or commissioning is a part of the contract it should be done immediately on notification. The contractor shall be responsible for any loss/damages sustained due to delay in fulfilling this responsibility.
16. For items having shelf life, those with maximum shelf life should be supplied if order is placed.

II. TERMS & CONDITIONS**1. DEFINITIONS:**

- a) The term 'Purchaser' shall mean the Vikram Sarabhai Space Centre or their successors or assignees.
- b) The term 'Contractor' shall mean, the person, firm or company with whom or with which the order for supply of stores placed and shall be deemed to include the Contractor's Successors, representatives, heirs, executors and administrators unless excluded by the contract.
- c) The terms 'Purchase Order' shall mean, the communication, signed on behalf of the Purchaser by an officer duly authorised intimating the acceptance on behalf of the Purchaser on terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores of plant, machinery or part thereof.
- d) The terms 'Stores' shall mean, what the Contractor agrees to supply under the contract as specified in the Purchase Order.

2. PRICES:

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.

3. TERMS OF PAYMENT:

- 3.1 Being a Department of Government of India, the normal terms of payment are by Sight Draft. However, other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon.

- 3.2 The Sight Draft/Letter of Credit will be operative on presentation of the under mentioned documents –
- a) Original Bill of Lading / Airway Bill
 - b) Commercially certified invoices describing the stores delivered, quantity, unit rate and their total value in triplicate. The invoice should indicate the discounts, if any, and Agency Commission separately.
 - c) Packing List showing individual dimensions and weight of packages.
 - d) Country of Origin Certificate in duplicate.
 - e) Test Certificate.
 - f) Declaration by the Seller that the contents in each case are not less than those entered in the invoices and the quality of the Stores are guaranteed as per the specifications asked for by the Purchaser.
 - g) Warrantee and guarantee certificates vide clause 20.
4. **IMPORT LICENSE:**
Reference to Import Licence No. and date and contract number and date shall be prominently / indicated in all the documents vide para 3.2.
5. **DEMURRAGE:**
Supplier shall bear demurrage charges, if any, incurred by the purchaser due to delayed presentation of shipping documents as prescribed in para 3.2 to the Bankers within reasonable time (say within 10-12 days) from the date of bill of lading for sea consignments and within 3-4 days from the date of Air Way Bill for Air consignments.
6. **ADDRESS OF INDIAN AGENTS:**
.....
.....
.....
7. **GUARANTEED TIME DELIVERY:**
The time for and the date of delivery stipulated in the Purchase order shall be deemed to be the essence of the contract. Delivery must be completed within the dates specified therein.
8. **INSPECTION AND ACCEPTANCE TESTS:**
- 8.1 The purchaser's representatives shall also be entitled at all reasonable times during manufacture to inspect, examine and test on the Contractor's premises the material and workmanship of all stores to be supplied under this contract and if part of the said stores is being manufactured on other premises, the contractor shall obtain for the purchaser's representative permission to inspect, examine, and test as if the equipment were being manufacture on the contractor's premises. Such inspection, examination and testing shall not release the contractor from the obligations under this contract.
 - 8.2 For tests on the premises of the contractor or of any of his sub-contractors, the contractor shall provide free of cost assistance, labour, materials, electricity, fuel and instruments as may be required or as may be reasonably needed by purchaser's representative to carry out the tests efficiently.
 - 8.3 When the stores have passed the specified test, the purchaser's representatives shall furnish a certificate to the effect in writing to this Contractor. The contractor shall provide copies of the tests certificates to the purchaser as may be required.
9. **MODE OF DESPATCH:**
Generally, stores should be despatched by Indian Flaged Vessel / Air, India or through any other Agency nominated by the purchaser. A copy of the invoice and packing list should invariably be kept inside each of the package.
10. **PORT OF ENTRY:**
Madras / Trivandrum / Cochin
11. **PORT CONSIGNEE:**
Purchase & Stores Officer, CMSE Stores, VSSC, Thiruvananthapuram – 695 013.
12. **ULTIMATE CONSIGNEE:**
Purchase & Stores Officer, CMSE Stores, VSSC, Thiruvananthapuram – 695 013.
13. **SHIPPING MARKS:**
The mark on the shipping documents such as invoice bill of lading and on the packages should be as follows:-
PURCHASE ORDER NO.....DT:
- GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
CMSE PURCHASE
VIKRAM SARABHIA SPACE CENTRE
THIRUVANANTHAPURAM - 695013
- DESTINATION:
PORT OF ENTRY:
14. **INSURANCE OF THE STORES**
The purchaser shall be responsible for insuring the Stores, wherever considered necessary. The contractor shall however be responsible for notifying as per proforma enclosed, to the purchaser or the insurers nominated by the Purchaser, the complete details of the proposed shipments, including the value of each shipment and other relevant data, immediately after shipment to

enable the Purchaser of the insurers to arrange for the insurance policy, if required. The necessity or otherwise of insurance will be as indicated in the Purchase Order.

15. CONTRACTOR'S DEFAULT LIABILITY:

15.1 The Purchaser may upon written notice of default to the Contractor terminate the Contract in whole or in part in circumstances detailed hereunder:-

a) If in the judgement of the Purchaser the Contractor fails to make delivery of Stores within the time of specified in the Contract Agreement or within the period for which extension has been granted by the Purchaser to the Contractor.

b) If in the judgement of the Purchaser the Contractor fails to comply with any of the other provisions of this contract.

15.2 In the event the purchaser terminates the contract in whole or in part as provided in Clause 15.1 the purchaser reserves the right to purchases upon such terms and in such a manner as he may deem appropriate Stores similar to that terminated and the contractor shall be liable to the Purchase for any additional costs for such similar stores and / or for liquidated damages for delay as defined in Clause 19 until such reasonable as may be required for the final supply of Stores.

15.3 If this contract is terminated as provided in Clause 15.1 the Purchaser in addition to any other rights provided in this Article, may require the Contractor to transfer title and deliver to the Purchaser under any of the following cases in the manner and as directed by the Purchaser.

a) Any completed Stores.

b) Such partially completed Stores, drawing, information and contract rights (herein after called manufacturing material) as the Contractor has specifically produced or acquired for the performance of the contract as terminated. The Purchaser shall pay to the Contractor the contract price for completed stores delivered to and accepted by the purchaser and for manufacturing materials delivered and accepted.

15.4 In the event the Purchaser does not terminate the contract as provided in Clause 15.1, the Contractor shall continue the performance of the contract, in which case he shall be liable to the Purchaser for liquidated damages for delay as set out in Clause 19 until the stores are accepted.

16. REPLACEMENT

If the stores or any portion thereof is damaged lost during transit, the purchaser shall give notice to the Contractor setting forth particulars of such stores damaged or lost during transit. The replacement of such stores shall be effected by contractor within reasonable time to avoid unnecessary delay in the intended usage of the stores. The price of replacement items shall be paid by the Purchaser on the basis of original price quoted in the tender or as reasonably worked out from the tender. The cost of damages will however be claimed by the purchaser from the insurance company. The import License/Customs Clearance Permit for the replacement will be provided by the purchaser.

17. REJECTION

In the event that any of the Stores supplied by the contractor is found defective in material or workmanship otherwise not in conformity with the requirements of the contract specification, the purchaser shall either reject the stores or request the contractor, in writing to rectify the same. The contractor, on receipt of such notification shall either rectify or replace the defective stores free of cost to the purchaser. If the contractor fails to do so, the purchaser may at his option either;

a) Replace or rectify such defective Stores and recover the extra cost so involved from the Contractor, or

b) Terminate the contract for default as provided under clause 15 above.

c) Acquire the defective stores at a reduced price considered equitable under the circumstances. The provisions of this article shall not prejudice the purchaser's rights under clause 19.

18. EXTENSION OF TIME

If the completion of supply of stores is delayed due to reason of Force Majeure such as acts of God acts of public enemy, acts of Government fires, floods, epidemics, quarantine, restrictions, strikes and freight embargoes the contractor shall give notice within 15 days to the purchaser in writing of his claim for an extension of time. The Purchaser on receipt of such notice after verification of necessary, may agree to extend the contract delivery date as may be reasonable but without prejudice to other terms and conditions of the contract.

19. DELAY IN COMPLETION / LIQUIDATED DAMAGES

If the contractor fails to deliver the stores within the time specified in the contract or any extension thereof the Purchaser shall recover from the contractor as liquidated damages a sum of one half percent (0.5 percent) of the contract price of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the contract price of the unit or units so delayed. If certain components are not delivered in time the stores will be considered as delayed until such times as the missing parts are delivered.

20. GUARANTEE & REPLACEMENT

a) The contractor shall guarantee that the stores supplied shall comply fully with, the specifications laid down for material, workmanship and performance.

b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein are found to have developed under proper use arising from faulty materials, design or workmanship contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the dated of acceptance thereof by the Purchaser who shall state in writing in what respect the Stores or any part thereof are faulty.

- c) If in the opinion of the Purchaser it becomes necessary to replace or renew any defective Stores such replacement or renewal shall be made by the Contractor free of all costs to the Purchaser provided the notice informing the contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- d) Should the Contractor fail to rectify the defects, the Purchaser, shall have the right to reject or repair or replace at the cost of the contractor the whole or any portion of the defective stores.
- e) The decision of the purchaser, notwithstanding any prior approval of acceptance or inspection thereof on behalf of the purchaser, as to whether or not the stores supplied by the contractor are defective or any defect has developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement shall be final, conclusive and binding on the contractor.
- f) To fulfill guarantee conditions outlined in Clause 20 (a) to (e) above the contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser-Bank Guarantee enclosed) from a Bank approved by the purchaser for an amount equivalent to 10% of the value of the contract along with first shipment document. On the performance and completion of the contract in all respects the Bank Guarantee will be returned to the Contractor without any interest.
- g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of stores at purchaser's site.
- h) Even while the 12 months guarantee applies to all stores in case where a greater period is called forth by our specifications then such a specification shall apply; in such cases the period of 14 months referred to in Clause 20 (b) and (c) shall be the 'asked for' guarantee period plus two months.

21. REQUIREMENT OF ADDITIONAL NUMBERS OF THE STORES/SPARE PARTS ORDERED

The contractor shall also undertake the supply of additional numbers of items covered by the order as considered necessary by the purchaser at the later date. The actual price to be paid shall be mutually agreed to after negotiations.

22. PACKING

- a) The Contractor whatever applicable shall pack and crate all stores for sea / air shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practice and in such a manner so as to protect it from damage and deterioration in transit by road rail or sea for space qualified store. The contractors shall be held responsible for all damages due to improper packing.
- b) The contractor shall ensure that each box/unit of shipmen is legible and properly marked for correct identification. The failure to comply this requirement shall make the contractor liable for additional expenses involved.
- c) The contractor shall notify the Purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.
- d) The contractor shall give complete shipment information concerning the weight, size, content of each packages etc.
- e) Transshipment of equipment shall not be permitted except with written permission of the purchaser.
- f) Apart from the despatch documents negotiated through Bank, the following documents shall also be airmailed to the purchaser within 7 days from the date of shipment by sea and within 3 days in case of air consignments.
 - a) Commercial Bill of Lading/Air Way Bill/Post Parcel Receipt (two non-negotiable copies)
 - b) Invoice (3 copies)
 - c) Packing List (3 copies)
 - d) Test Certificate (3 copies)
 - e) Certificate of Origin

Contractor shall also ensure that one copy of the packing list is enclosed in each case.

23. ARBITRATION

If at any time any question, disputes or differences whatsoever shall arise between the purchaser and the contractor upon or in connection with this contract, either party may forth with give to the other notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudication of two arbitrators, one to be nominated by purchaser other by a contractor and in the event of any difference, of opinion, the arbitrators will refer the matter to the umpire. The arbitration shall be conducted. In accordance with the rules and procedure for arbitration of the International Chamber of Commerce at Paris. The expenses of the arbitrators and umpire shall be paid as may be determined by them. However, the venue of such arbitration should be in India.

24. LANGUAGE AND MEASURES

All documents pertaining to the contract including specifications, schedule notices, correspondence, operating and maintenance instructions drawings or any other writings shall be written in English language. The metric system of measurement shall be used exclusively in the contract.

25. INDEMNITY

The contractor shall warrant and be deemed to have warranted that all Stores supplied against this contract are free and clean of infringement of any patent, copy right or trade mark and shall at all times indemnify the Purchaser against all claims which may be made in respect of stores for infringement of any right protected by patent. Registration of design or Trade Mark and shall take all risk of accidents or damage which may cause a failure of the supply form whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfillment of the contract.

26. COUNTER TERMS AND CONDITIONS OF SUPPLIERS

Where counter terms and conditions / printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the purchaser, unless specific written acceptance thereof is obtained.

27. SECURITY INTEREST

On each item to be delivered under this contract; including an item of work in progress in respect of which payments have been made in accordance with the terms of the contract, purchaser shall have a security interest in such items which shall be deemed to be released only at the time when the applicable deliverable item is finally accepted and delivered to the purchaser in accordance with the terms of the contract. Such security interest of the purchaser shall constitute a prior charge as against any other charge or interest created in respect of such items by any other entity.

28. BANK CHARGES

While the purchaser shall bear the bank charge payable to his Bankers (State Bank of India) the contractor shall bear the Bank charges advising amendment commission.

29. TRAINING

The contractor shall, if required by the Purchaser, provide facilities for the practical training of purchaser's engineering. Technical personnel from India and for their active association on the manufacturing period of the contract/stores, number of such personnel to be mutually agreed upon.

30. APPLICABLE LAW

The contract shall be interpreted, constructed and governed by the laws of India.

V] Tender No. 8223-2012-4384

Requirement for the purchase of
FABRICATED PRECISION GEARS
OF AGMA-13 QUALITY

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1. Introduction

This document stipulates the general purchase specifications for the fabrication and inspection of spur gear set of AGMA-13 (ISO-5 / DIN-5) class. The gear sets are supposed to be used in vacuum environment with periodic temperature fluctuation between -20°C and +100°C. The fabricated gears are required to have longer service lives, smoother performance characteristics, accurate pitch control, accurate profile and low backlash. Very high reliability, high efficiency and low torque ripple are utmost requirements for the performance of space quality gears.

The gear manufacturer whoever proposes to submit their offer should adhere to the conditions as specified in section-2. In case of a vendor whoever proposes to submit their offer, should provide the details of original gear manufacturer, their origin, their capability, quality standards and **original manufacturer's certificate**. The original gear manufacturer in turn should adhere to the conditions as specified in section-2.

2. Gear Manufacturer Requirements

1. The manufacturer/vendor/allied companies should have prior experience in manufacturing of quality precision gears of AGMA-13 (ISO-5 / DIN-5) class or better. Documentary evidence for the same should be provided.
2. Summary of available manufacturing facilities with respect to manufacturing of AGMA-13 class gears should be provided.
3. A well established gear grinding facility capable of grinding involute teeth profile to AGMA13 class tolerance is a mandatory requirement.
4. The manufacturer/vendor/allied companies should have necessary metrological setup required for inspecting the gear profile, gear finish and tooth geometry. Relevant certificates as specified in the section-9 to be provided.
5. The manufacturer shall maintain ISO 9001-2000 certification or equivalent quality management system.
6. On-site inspection of the manufacturing/inspection process at specified checkpoints as requested from time to time should be allowed.

3. Quantity

Table 1: Quantity of Gears Required

S.NO	Name of the Component	Drawing No	Quantity Required
1.	Spur Gear-1 (A)	CEL 04 20 00 11	50 Nos
2.	Spur Gear-2 (B)	CEL 04 44 00 04	20 Nos
3.	Motor Shaft (C)	CEL 04 20 05 03	50 Nos
4.	Gear Shaft-1 (D)	CEL 04 20 05 10	50 Nos
5.	Gear Shaft-2 (E)	CEL 04 44 05 10	20 Nos
6.	Pinion Shaft (F)	CEL 04 47 05 06	20 Nos
7.	Gear Shaft-3 (G)	CEL 04 20 05 07	50 Nos

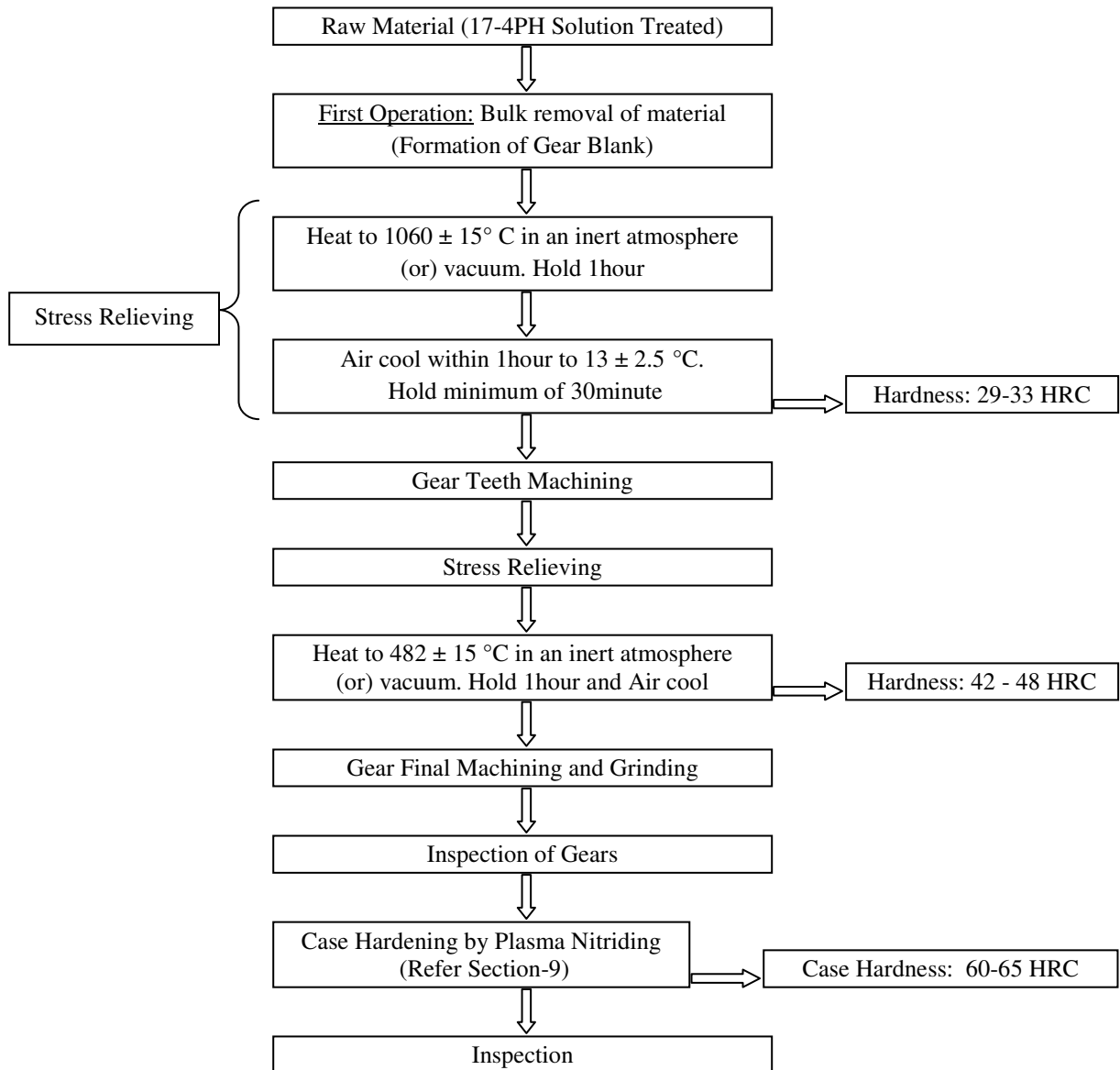
The party may also quote their minimum order quantity (MOQ). The same will be considered for order placement.

4. Sample Requirement

The party should make an initial supply of 3 Nos of gear from each drawing, for inspection and clearance. The clearance of bulk production of the gears will be effected immediately upon evaluation of the sample gears. The sample quantity is inclusive of the order quantity.

5. Fabrication Procedure

The general fabrication procedure is outlined in the flowchart. Any change in the process to be cleared before implementation.



6. Material

17-4 PH stainless steel (AISI 630 / UNS S 17400): Martensitic precipitation Hardened.

6.1 Chemical Composition

The chemical composition of 17-4 PH stainless steel is given in Table-1. The material test certificate should contain all the details as given in the table.

Composition	%
Carbon	0.07 max.
Manganese	1.00 max.
Phosphorus	0.040 max.
Sulfur	0.030 max.
Silicon	1.00 max.
Chromium	15.50-17.50
Nickel	3.00-5.00
Copper	3.00-5.00
Columbium + Tantalum	0.15-0.45
Iron	Balance

Table 2: Chemical Composition of 17-4 PH stainless steel

6.2 Physical Properties

The typical physical properties of 17-4 PH stainless steel are given in Table-2.

Material Dimension	Condition	Cast No	Density Kg/m ³	UTS (MPa)	0.2 % YS (MPa)	% El	HRC
	A (Solution treated)		7.8	1275	1100	10	32
	H 900			1384	1225	10	42

Table 3: Typical Physical properties of 17-4 PH stainless steel

Test certificate should be provided for each batch of raw material

6.3 Physical Condition

To be stress relieved after each machining stages. To be precipitation hardened to H900 condition (Core Hardness HRC 42-48). This should be followed by profile grinding and Plasma nitriding. **Heat treatment should be carried in an inert/vacuum environment.** Hardness may be evaluated on coupons.

6.4 Plasma Nitriding

The gears are to be surface hardened by plasma nitriding process.

Effective case depth after grinding flank is 0.2 mm. Minimum effective case depth at root is 0.16mm. Maximum effective case depth at tip is 0.40mm. Maximum white layer thickness should be 5 µm after plasma nitriding. White layer should be completely removed by vapor washing or eliminated during plasma nitriding process itself. The case hardness of the gear should be in the range of 60-65 HRC. The party should maintain the log of the process of heat treatment and plasma nitriding. A certificate of plasma nitriding should be provided at the time of delivery.

6.5 Note

Manufacturer who doesn't have their own heat treatment and plasma nitriding facilities may take a third party support and details have to be provided. **In any case, the cost of heat treatment and plasma nitriding process should be quoted separately.**

7. Special Note

In case of 12 teeth pinion as shown in the drawing D to G, the party may consider for a relaxation of quality to AGMA-11(ISO-7), if they feel gear grinding is difficult. But the party who is capable of fabricating the gear with in AGMA-13 guidelines either by grinding or other suitable finishing operations will be given the highest priority for selection irrespective of other considerations.

8. Drawing

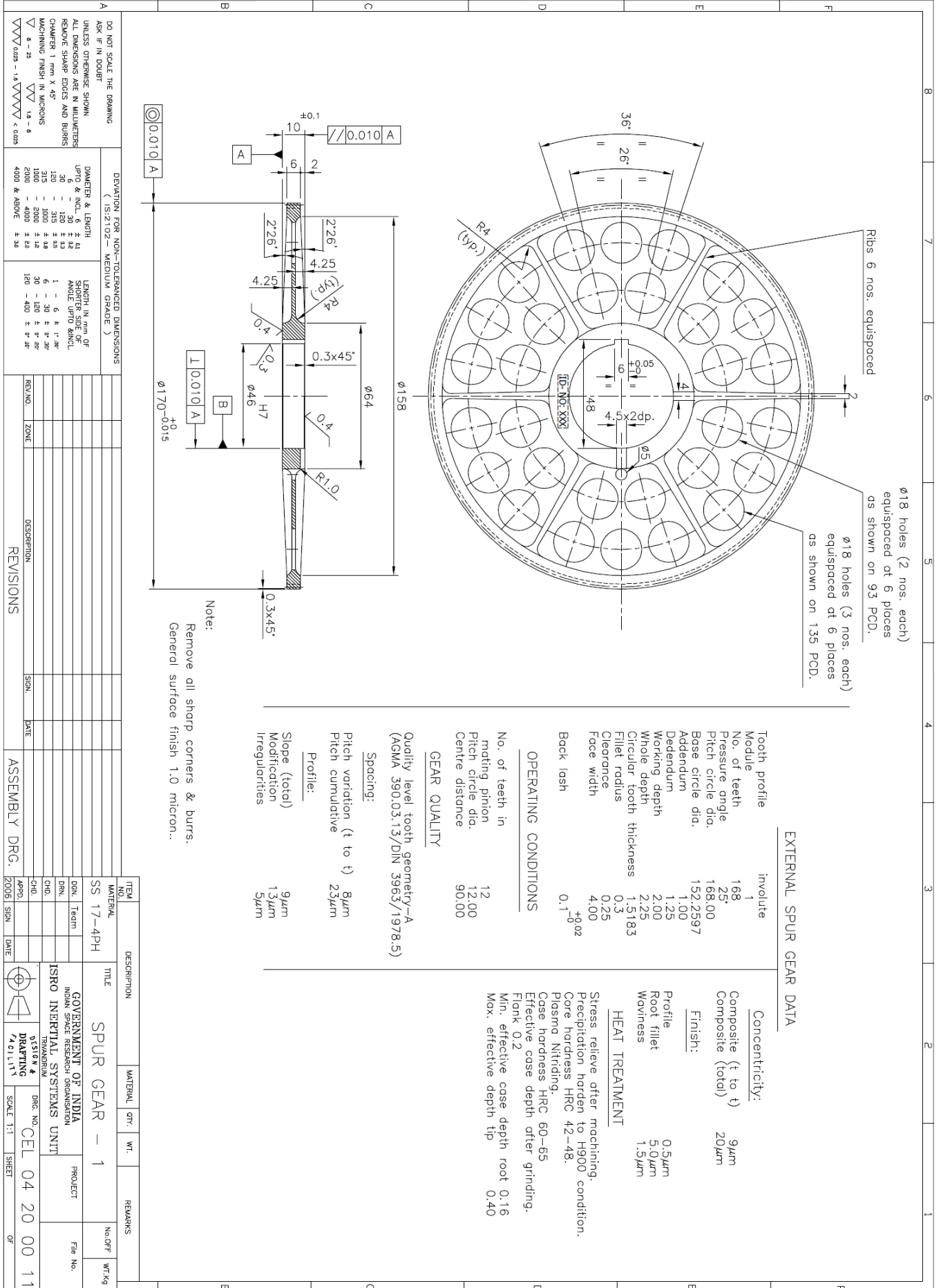


Figure 1: Spur Gear-1 (A): CEL 04 20 00 11

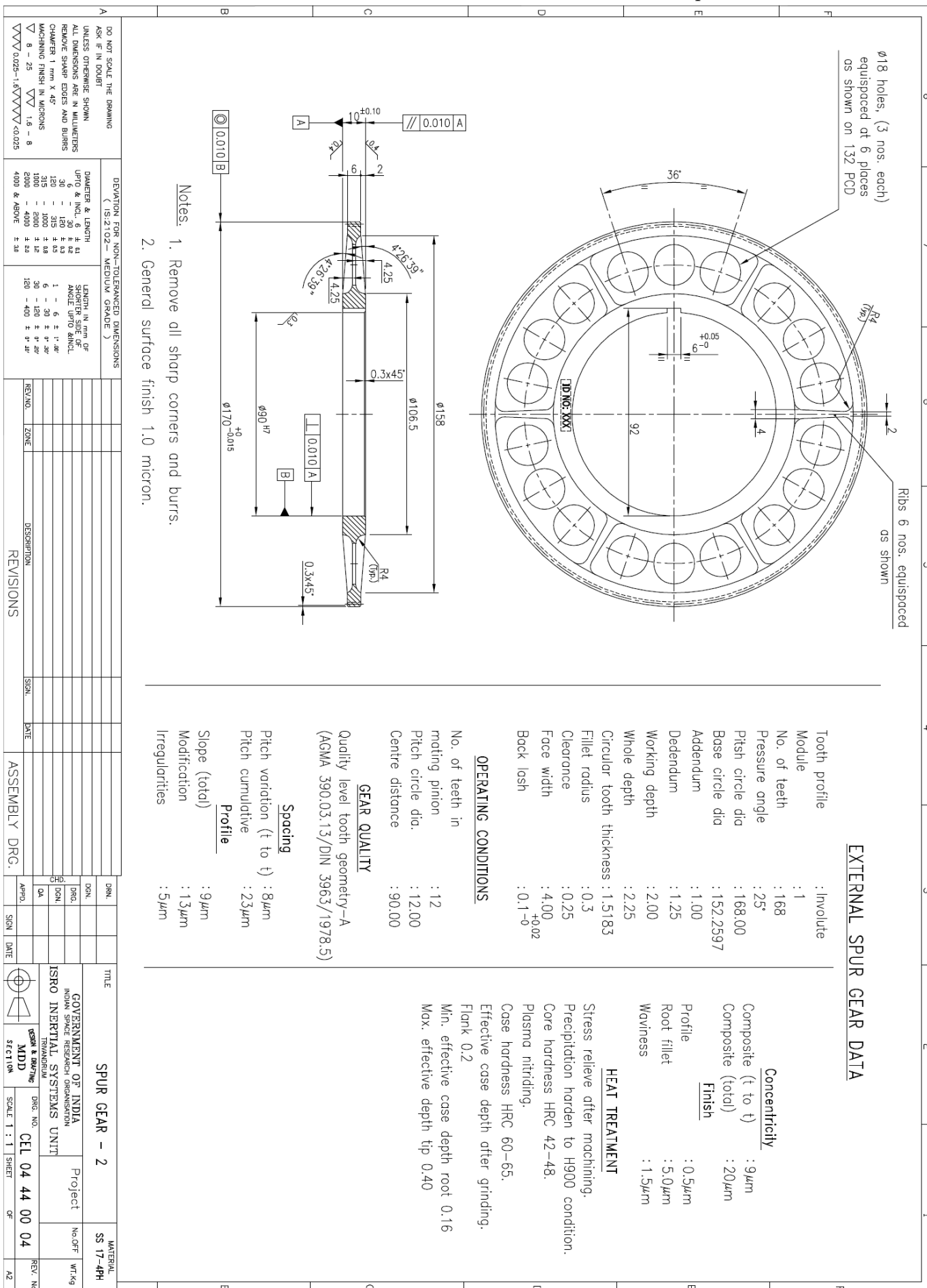


Figure 2: Spur Gear-2 (B): CEL 04 44 00 04

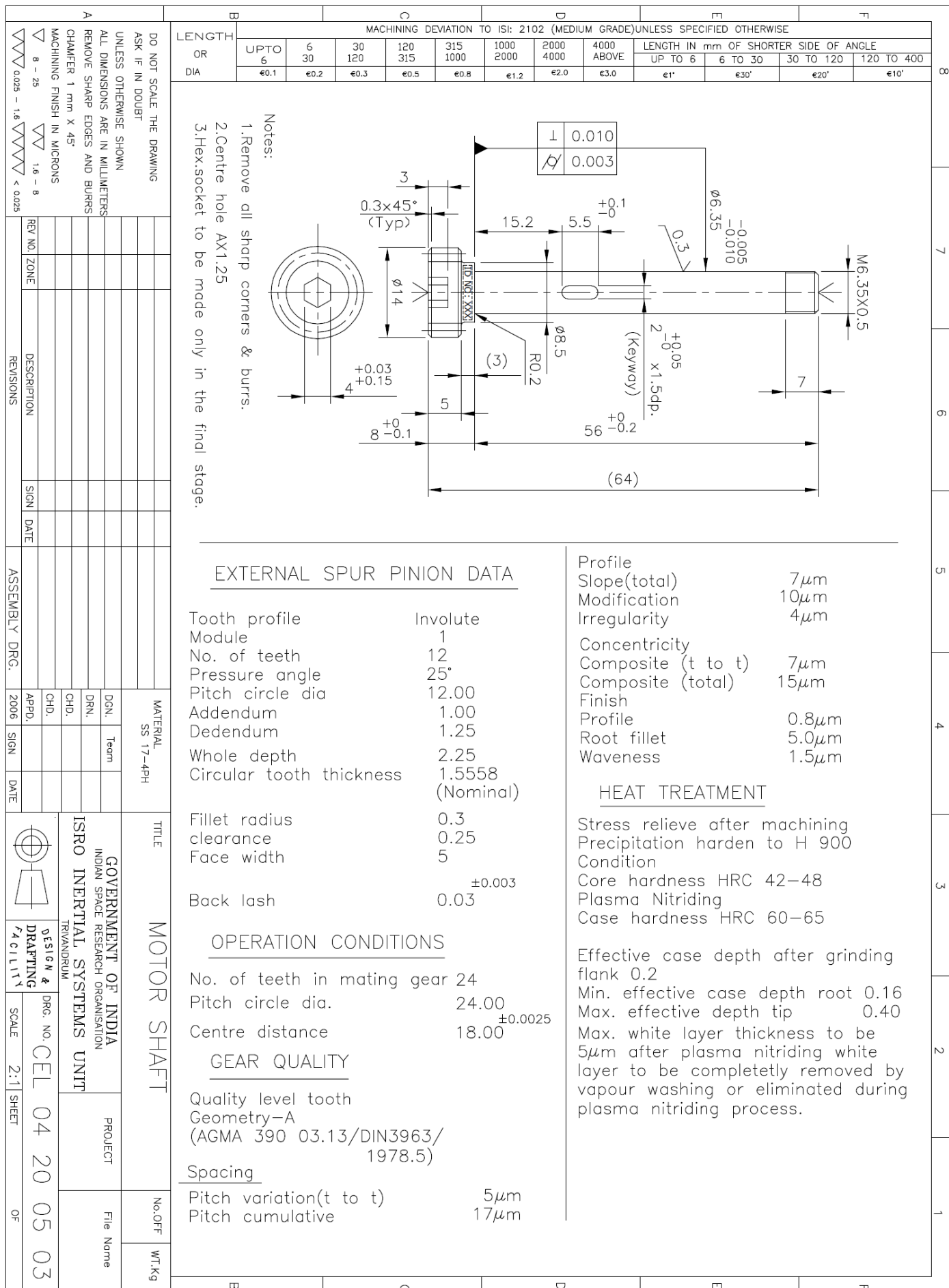


Figure 3: Motor Shaft (C): CEL 04 20 05 03

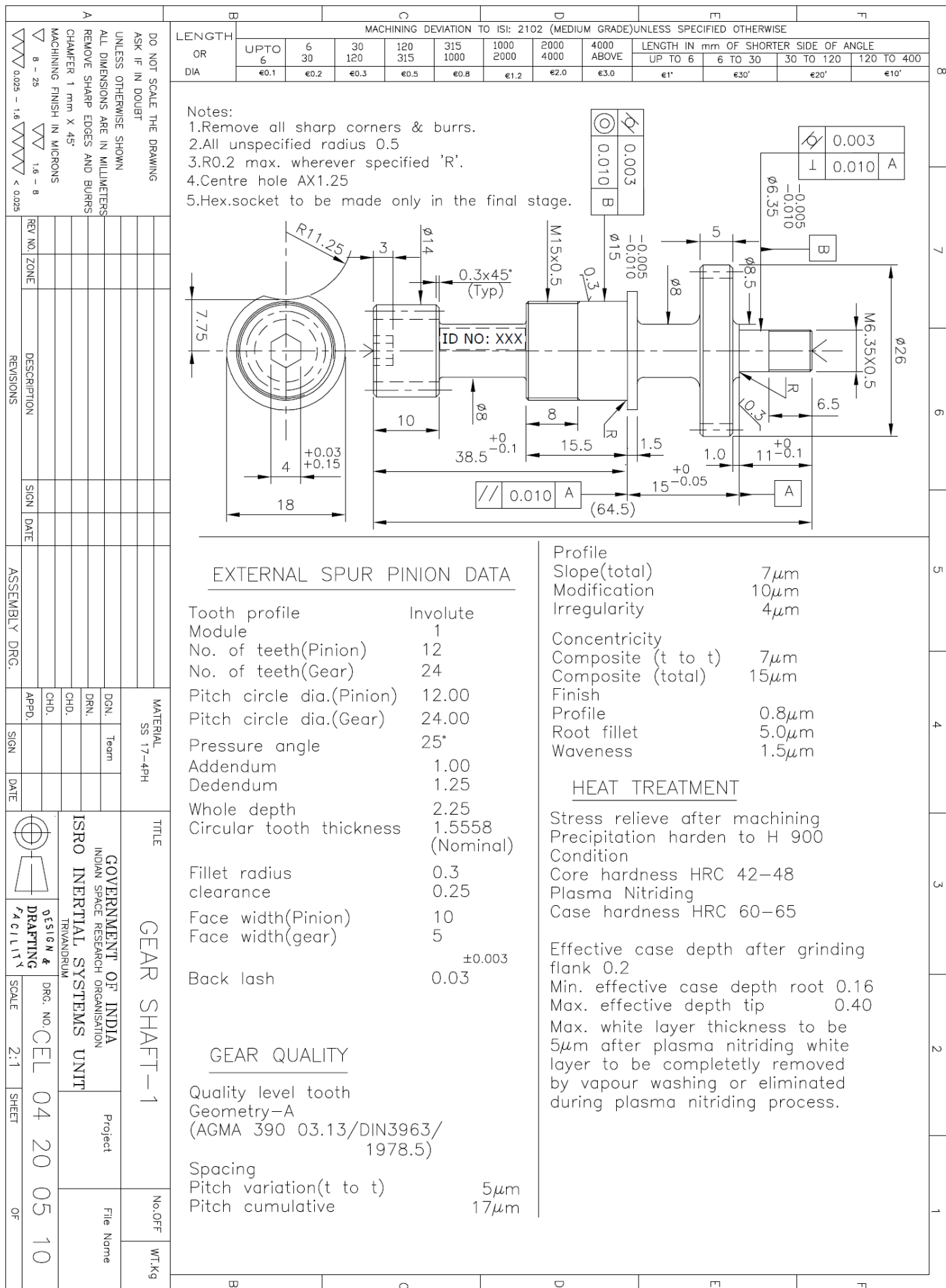


Figure 4: Gear Shaft-1 (D): CEL 04 20 05 10