

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO INERTIAL SYSTEMS UNIT (IISU)
THIRUVANANTHAPURAM**

**Tender for Precision Angular contact Ball Bearings-size 20 mm x 42
mm x 12 mm BSPEC/20-42-12/5_REV2**

Bids to be submitted online

**Tender No.: IISU/PURCHASE UNIT IX (IISU PURCHASE)/IU202400552001 dated
06-12-2024**

A. Tender Details

Tender No :	IISU/PURCHASE UNIT IX (IISU PURCHASE)/IU202400552001
Tender Date :	06-12-2024
Tender Classification:	GOODS
Purchase Entity :	PURCHASE UNIT IX (IISU PURCHASE)
Centre :	ISRO INERTIAL SYSTEMS UNIT (IISU)

Precision Angular contact Ball Bearings-size 20 mm x 42 mm x 12 mm BSPEC/20-42-12/5_REV2

Only online tenders will be accepted. No manual / Postal / e-mail / fax offers will be entertained. No manual tender document will be issued. Bidders can seek help from help desk 0471-2565454 also as provided in the home page of e-procurement portal in case of any problem for bid submitting and subsequent process.

Important Notice : Tender will be automatically closed on the due date, if at least one offer is received. If the tender could not be opened on the first day due to any technical snag, it will be opened on the subsequent day as per the schedule.

A.1 Tender Schedule

Bid Submission Start Date :	06-12-2024 17:30
Bid Clarification Due Date :	13-12-2024 17:10
Bid Submission Due Date :	30-12-2024 15:00
Bid Opening Date :	30-12-2024 16:00
Price Bid Opening Date :	03-01-2025 15:45

B. Tender Attachments

NA

Instructions To Vendors

1. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA

1. Any bidder from a country which shares a land border with India will be eligible to bid in this tender, only if the bidder is registered with the Competent Authority.

Competent Authority for the purpose of registration shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).

2. Any false declaration and non-compliance of the above would be a ground for immediate rejection of offer or termination of the contract and further legal action in accordance with the laws.

3. Validity of Registration: Registration should be valid at the time of submission of bids and should be valid at the time of placement of order.

2. PPP Make in India(Non- Divisible Items-All Classes of Suppliers)

1. A committee (with an external expert from a practicing cost accountant or practicing chartered accountant, if required) constituted for independent verification shall verify the self-declarations & auditor's / accountant's certificates on random basis, as per the requirements.

2. a) The subject item falls under Non-divisible category. b) The offers are sought from all classes of suppliers.

3. Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content: i. Equal to or more than 50%: Class-I local supplier. ii. More than 20% but less than 50%: Class-II local supplier. iii. Less than or equal to 20%: Non-local supplier.

4. False declarations will be in breach of code of the integrity for which a bidder or its successor's will not be eligible/debarred for purchase preference from further tenders / pending tenders for two years along with other actions as may be applicable.

5. In case of a complaint received from any local supplier indicating a need for review / verification of Local content of successful vendor / awarded vendor, for accepting a complaint from such complainant

(w.r.t the false declaration given by the successful vendor on the local content), a complaint fee of Rs.2Lakhs or 1% of the locally manufactured items being procured (subject to a maximum Rs. 5Lakhs), whichever was higher, to be paid by demand draft by the complainant. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.

6. In cases the quoted price is in excess of Rs.1000 Lakhs (including duties, taxes and freight & Insurance) the 'Class-I & II local supplier shall provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in case of suppliers other than companies) giving the percentage of local content.

7. In line with Public Procurement (Preference to Make in India), Order 2017 & its amendments issued by Govt. of India from time to time with a view to support the Indian industries, ISRO has implemented "Purchase Preference Policy". The "Purchase Preference" is applicable for the "Class-I Local Supplier" for the goods/ services/ works covered in this tender, subject to the following terms & conditions:-

8. 'L1' means the lowest technically accepted tender / bid / quotation (i.e. lowest landed cost including duties, taxes and freight & Insurance).

9. 'Local content' means the amount of value added in India (i.e. indigenous items/services added in the offered products/ services/ works) be the total value of the item offered (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties/IGST) as a proportion of the total value (excluding net domestic indirect taxes), in percent.

10. 'Margin of purchase preference' means the maximum extent to which the price quoted by the "Class-I local supplier" above the L1 (landed cost).

11. Purchase Preference Policy:- Goods/Works which are not divisible (ie., required quantity is 1 or as a package) and Services:

a) If L1 is from a 'Class-I local supplier', the contract will be awarded to L1 bidder.

b) If L1 is not from a 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference (i.e. 20%) and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price (inclusive of duties, taxes and freight & insurance).

c) In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on, and order/contract shall be awarded accordingly. In case where none of the 'Class-I local supplier' within the margin of purchase preference agree to match the L1 price, then the order/contract shall be awarded to the original L1 Bidder.

12. The 'Class-I & II local supplier' should provide a "Self Certification" along with technical offer indicating that the item offered meets the minimum local content [as per Sl. No.(3)] as called for in the tender and provide the percentage of local content along with details of the location(s) at which the local value addition is made. In case of two bid tenders, it is mandatory to indicate compliance to MLC(minimum Local Content) in technical bid zone.

13. The ink-signed certificate shall be provided on vendors letter head along with the offer (in case of online tender, copy of ink-signed certificate shall be uploaded along with your offer under concerned tab. Original in Hard copy shall be produced on request). In case of non-submission of certificate, the purchase preference shall not apply.

14. The margin of Purchase Preference shall be up to 20%.

15. The Public Procurement (Preference to Make in India), Order 2017 issued by Govt. of India indicates that if there are any general or specific restrictive clauses to restrict participation of Indian companies in those countries procurement tenders, reciprocity clause need to be invoked as per the order. Hence, if ISRO or Govt. of India come across that Indian suppliers of an item are not allowed to participate and / or compete in procurement by your government, the bid submitted by you will be not be considered and excluded from eligibility for procurement. Please note this point.

16. Works means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'. Works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

3. INSTRUCTIONS TO TENDERERS AND TERMS & CONDITIONS OF TENDER for imported stores items

1. I. INSTRUCTIONS TO TENDERERS

1. The Tenderers should submit quotations in duplicate in a sealed envelope, super scribing the Tender No. and due date of opening and complete in all respects with technical specifications, including pamphlets and catalogues.

2. A Proforma Invoice may also be given which should contain the following information:

a) The FOB/FCA value, the C & F value for import by Sea freight / Air freight up to and for air parcel post up to should be separately indicated.

b) Agency Commission: The amount of commission included in the price and payable to the Indian Agent of the Contractor shall be paid directly to the Indian Agent 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 Agent immediately after Customs clearance of the goods in India.

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 will be paid to the Indian Agent 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, address, telephone/fax Nos. & e-Mail ID of the Contractor.

f) The approximate net 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/FCA and C & F prices quoted should be inclusive of all taxes, levies, duties arising in the tenderer's country.

4. The offer should be valid for a minimum period of 120 days from the due 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 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 Import Licence 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 offer 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 writing by the Purchaser.

13. a) Part shipment is not allowed unless specifically agreed to by us.

b) As far as possible stores should be despatched 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/damage 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 AND CONDITIONS

1. DEFINITIONS:

(a) The term 'Purchaser' shall mean the President of India or his successors or assignees.

(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 '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 the 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 equipment of part thereof.

(d) The term '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 the 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 undermentioned 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 Certificate/s vide Clause 20 hereinbelow

4. IMPORTANT LICENCE:

Reference to Import License No. & date and Contract number & 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 a 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 date specified therein.

8. INSPECTION AND ACCEPTANCE TEST:

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 manufactured 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 subcontractors, the Contractor shall provide free of cost assistance, labour, material, electricity, fuel and instruments as may be required or as may be reasonably needed by the purchaser's representative to carry out the tests efficiently.

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

9. MODE OF DESPATCH:

Generally, stores should be despatched through 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 packages.

10. PORT OF ENTRY:

Thiruvananthapuram/Chennai/Mumbai/Hyderabad/Bangalore

11. CONSIGNEE:

Purchase & Stores Officer, Stores, _____,

12. SHIPPING MARKS.

The mark on the shipping documents such as invoice, bill of lading and on the packages should be as follow:

PURCHASE ORDER NO. DATED. GOVERNMENT OF INDIA DEPARTMENT OF SPACE
..... (name of the Centre/Unit) Destination: & Port of Entry:
.....

13. INSURANCE OF THE STORES:

The necessity or otherwise of insurance will be as indicated in the Purchase Order.

14. CONTRACTOR'S DEFAULT LIABILITY:

14.1 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 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 judgment of the Purchaser the Contractor fails to comply with any of the other provisions of this Contract.

15. In the event the Purchaser terminates the Contract in whole or in part as provided in Clause 14 the Purchaser reserves the right to Purchase, 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 Purchaser for any additional costs for such similar stores and/or for liquidated damages for delay as defined in Clause 19 until such reasonable time as may be required for the final supply of stores.

15.1 If this Contract is terminated as provided in Clause 14 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 clauses in the manner and as directed by the Purchaser:

a) Any completed stores.

b) Such partially completed stores, drawing, information and Contract rights (hereinafter 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 material delivered and accepted.

15.2 In the event the Purchaser does not terminate the Contract as provided in Clause 14, 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 or 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 the Contractor within a reasonable time to avoid unnecessary delay in the intended usage of the Stores. In case the purchaser agrees, the price towards 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.

17. REJECTION:

In the event that any of the stores supplied by the Contractor is found defective in material or workmanship or otherwise not in conformity with the requirements of the Contract specifications, 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 14 above, or
- c) acquire the defective stores at a reduced price considered equitable under the circumstances. The provision 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 restriction, strikes, freight embargoes, etc., 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, if 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 of one 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. Stores will be deemed to have been delivered only when all their component parts are also delivered. If certain components are not delivered in time, the stores will be considered as delayed until such time 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, the 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 parts thereof are faulty.
- c) If in the opinion of the purchaser it becomes necessary to replace or renew any defective stores, such replacements or renewals 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 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 the 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 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 format enclosed) from a Bank approved by the purchaser for 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 stores 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, and in such cases, the period of 14 months referred to in Clause 20 (b) and (c) shall be asked for guarantee period plus two months.

21 REQUIREMENTS OF ADDITIONAL NUMBERS OF THE STORES/SPARE PARTS ORDERED:

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

22. PACKING:

- a) The Contractor wherever 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 practices and in such a manner so as to protect it from damage and deterioration in transit by road, rail or sea for space qualified stores. The Contractors shall be held responsible for all damages due to improper packing.
- b) The Contractor shall ensure that each box / unit of shipment is legible and properly marked for correct identification. The failure to comply with 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 the 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.

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

23. ARBITRATION:

If at any time any question, dispute or difference whatsoever shall arise between the purchaser and the Contractor upon or in connection with this Contract, either party may forthwith 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 specification, schedule, notice, 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, copyright 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 accident or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfilment 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 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 payable to his Bankers including the cheques towards advising amendment commissions.

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 processes throughout the manufacturing period of the Contract / stores, number of such personnel to be mutually agreed upon.

30. APPLICABLE LAW:

The Contract shall be interpreted, construed and governed by the laws of India.

C. Bid Templates

C.1 Technical Bid - Precision Angular contact Ball Bearings-size 20 mm x 42 mm x 12 mm BSPEC/20-42-12/5_REV2

1. Precision angular contact ball bearings - 20mmx42mmx12mm

Item specifications for Precision angular contact ball bearings - 20mmx42mmx12mm

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Type	Separable and inner ring relieved angular contact ball bearing to be supplied as non-interchangeable matched rings for specified radial internal clearance and contact angle.	Yes / No / Explain		
2	Application	Bearings for high speed rotating mechanisms for communication spacecraft payloads	Yes / No / Explain		
3	Maximum operating speed	6000 RPM	Yes / No / Explain		
4	Operating temperature	-15 deg C to +80 deg C	Yes / No / Explain		
5	Operating environment	15 mbar Helium atmosphere	Yes / No / Explain		
6	Mounting arrangement in mechanism	The bearings will be assembled in back to back (DB) arrangement with a set of equal length spacers (hard preloading)	Yes / No / Explain		
7	Size	Bore 20 mm x OD 42 mm x Width 12 mm	Yes / No / Explain		
8	Ball complement	11 nos. x 6.35 mm diameter	Yes / No / Explain		
9	Cage	One piece machined outer ring land piloted. Cage pockets shall be non-ball retaining type (cylindrical).	Yes / No / Explain		

10	Contact angle	15 deg +/-2.5 deg at 50 N axial load	Yes / No / Explain		
11	Internal clearance	18 to 32 μ m (diametrical clearance)	Yes / No / Explain		
12	Inner Ring Race Curvature	Inner ring cross race radius : 3.302 \pm 0.013 mm	Yes / No / Explain		
13	Outer Ring Race Curvature	Outer ring cross race radius : 3.404 \pm 0.013 mm	Yes / No / Explain		
14	Matching requirements of bearing pairs	Inner ring and outer ring of a bearing will be matched to get the desired radial internal clearance and contact angle	Yes / No / Explain		
15	Ring Tolerances	Bearing Rings shall conform to ABEC – 9P (ANSI/ ABMA 12.2:1992) and complementary tolerances as in Table- 1 & Table- 2 and bearing race drawings as per annexure A2 of BSPEC/20-42-12/5 REV2	Yes / No / Explain		
16	Ball Tolerances	The ball tolerances shall confirm to grade 3 of of ANSI/ABMA/ISO 3290-1:2014 as given in Table 3 of BSPEC/20-42-12/5 REV2	Yes / No / Explain		
17	Races and Balls Material	AISI 440C stainless steel CEVM (VAR) per AMS 5618 with hardness minimum 58 RC	Yes / No / Explain		
18	Cage Material	Extra fine weave Cotton based phenolic composite	Yes / No / Explain		
19	Lubrication	Aerospace qualified synthetic hydrocarbon or polyalphaolefin oils. The oil shall be ultra-filtered apt for spacecraft applications. Cages shall be vacuum impregnated with oil	Yes / No / Explain		

20	Inspection Procedure	All bearing rings and cages shall be inspected as per procedures given in annexure-A1 of BSPEC/20-42-12/5_REV2. All the bearings in the lot shall be subjected to 100% visual inspection covering the inner race, outer race, balls and retainer	Yes / No / Explain		
21	Final visual check	Final visual check of the 100% inner and outer rings shall be done, as per specified magnification, just prior to packing of the bearings after all other activities, and confirm that the ring raceways meet the required visual quality as specified.	Yes / No / Explain		
22	Passivation	The surfaces of bearing steels shall be passivated after final machining to reduce the risk of corrosion. The passivation shall be carried out in rings as per Federal spec QQ-P-35 type 8 after final grind and before honing.	Yes / No / Explain		
23	TCP Treatment	All metal parts of the bearings (inner ring, outer ring and balls) shall be treated with TCP and wettability test shall be carried out on all the treated bearing rings and 5% of the treated balls as per standard space flight qualified processes. All the tested rings and balls shall pass the wettability test indicating that the rings and balls are highly wettable.	Yes / No / Explain		
24	Full Documentation Requirements	as per 4.4.1 of BSPEC/20-42-12/5_REV2	Yes / No / Explain		

25	Limited Documentation Requirements	as per 4.4.2 of BSPEC/20-42-12/5_REV2	Yes / No / Explain		
26	Limited Documentation Components supply	The bearing components for which the limited documentation is carried out (two numbers, each of inner rings and outer rings randomly picked up from the lot and five balls) will NOT be supplied as matched bearing sets. They will be packed separately and supplied along with the other bearings with the marking 'Bearing components for Limited documentation'	Yes / No / Explain		
27	Material Conformity Certificates	as per 4.4.3 of BSPEC/20-42-12/5_REV1 for races, balls, lubricating oil, cage material and TCP	Yes / No / Explain		
28	Marking of bearings	The inner and outer bearing rings of each bearing shall bear the unique bearing number on the outboard faces. Outboard faces implies that the markings are visible on both inner and outer rings appear on the same side in the assembled condition of bearing. LASER marking shall be used & Vibro-etch marking is strictly avoided. The high points of radial runout of outer rings and inner rings shall be marked with two parallel lines or dot marks	Yes / No / Explain		

29	Packaging of Bearings	<p>(1) Final visual check of the 100% inner and outer rings shall be done, as per specified magnification, just prior to packing of the bearings after all other activities, and confirm that the ring raceways meet the required visual quality as specified.</p> <p>(2) Bearing components shall be packed in disassembled condition (strip packing). The inner race, outer race, cage and balls of each bearing shall be vacuum packed such that none of the components including balls come into contact with each other.</p> <p>(3) Each bearing component shall be packed with excess lubricant for storage.</p> <p>(4) Lubrication and packaging of the bearings shall be carried out only in a class 100 clean room.</p> <p>(5) Packaging materials (The packaging must prevent contamination and corrosion of the bearings): Clean materials, which do not contain additives, plasticisers or release agents. Acceptable materials are polythene, polyolefins, polypropylenes, fluorocarbons, polyimides and metallic foils.</p> <p>(6) Packaged bearings must be securely boxed, and suitably restrained to prevent vibration of components in transit.</p> <p>(7) Packages</p>	Yes / No / Explain		
----	-----------------------	---	--------------------	--	--

		must also be labelled with a clear indication of contents and any special precautions required during opening.(8) Package marking shall have bearing ID number. (9) Two such bearings shall be packed in a single box and supplied as a pair.			
30	Package Marking	Each bearing package shall contain the following information: Bearing ID Number , Bore diameter (to the nearest 0.0005 mm), Outer diameter (to the nearest 0.0005 mm), oil, date of packing	Yes / No / Explain		
31	Drawing conformance	Supplied races will conform to drawings of bearing inner race and outer race as given in annexure A-2 of BSPEC/20-42-12/5 REV2	Yes / No / Explain		

32	Other conditions	<p>(1) Party shall mention the make and country of origin of the offered bearings. (2) In case of parties quoting on behalf of original manufacturers, letter of authorisation from the original manufacturer (for the offered item) shall be submitted along with the offer. Offers without the letter of authorisation from original manufacturer will NOT be accepted. (3) The party shall have history of supplying similar angular contact ball bearings of ABEC9 class with AISI440C CEVM material to any of the centres within ISRO within last five years. The party shall submit minimum one number of completed purchase order copy of supplying angular contact ball bearings of ABEC 9 class with AISI440C CEVM material to any of the ISRO centres within last five years. Offers without the valid proof will NOT be accepted. (4) Terms of Warranty : After the receipt of the items at IISU, all relevant documents including the certificate of conformance, material certificates, inspection reports etc will be verified and sample testing will be carried out. The item will be cleared and warranty conditions fulfilled once the documents and sample testing is found satisfactory and conforming to</p>	Yes / No / Explain		
----	------------------	---	--------------------	--	--

our procurement specifications. This clearance will be effected within 30 days after the date of receipt of the items at IISU.

Document : BSPEC_20-42-12-5_REV2

Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Type	Separable and inner ring relieved angular contact ball bearing to be supplied as non-interchangeable matched rings for specified radial internal clearance and contact angle.	Yes / No / Explain		
2	Application	Bearings for high speed rotating mechanisms for communication spacecraft payloads	Yes / No / Explain		
3	Maximum operating speed	6000 RPM	Yes / No / Explain		
4	Operating temperature	-15 deg C to +80 deg C	Yes / No / Explain		
5	Operating environment	15 mbar Helium atmosphere	Yes / No / Explain		
6	Mounting arrangement in mechanism	The bearings will be assembled in back to back (DB) arrangement with a set of equal length spacers (hard preloading)	Yes / No / Explain		
7	Size	Bore 20 mm x OD 42 mm x Width 12 mm	Yes / No / Explain		
8	Ball complement	11 nos. x 6.35 mm diameter	Yes / No / Explain		
9	Cage	One piece machined outer ring land piloted. Cage pockets shall be non-ball retaining type (cylindrical).	Yes / No / Explain		
10	Contact angle	15 deg +/-2.5 deg at 50 N axial load	Yes / No / Explain		

11	Internal clearance	18 to 32 μm (diametrical clearance)	Yes / No / Explain		
12	Inner Ring Race Curvature	Inner ring cross race radius : 3.302 ± 0.013 mm	Yes / No / Explain		
13	Outer Ring Race Curvature	Outer ring cross race radius : 3.404 ± 0.013 mm	Yes / No / Explain		
14	Matching requirements of bearing pairs	Inner ring and outer ring of a bearing will be matched to get the desired radial internal clearance and contact angle	Yes / No / Explain		
15	Ring Tolerances	Bearing Rings shall conform to ABEC – 9P (ANSI/ ABMA 12.2:1992) and complementary tolerances as in Table- 1 & Table- 2 and bearing race drawings as per annexure A2 of BSPEC/20-42-12/5 REV2	Yes / No / Explain		
16	Ball Tolerances	The ball tolerances shall confirm to grade 3 of of ANSI/ABMA/ISO 3290-1:2014 as given in Table 3 of BSPEC/20-42-12/5 REV2	Yes / No / Explain		
17	Races and Balls Material	AISI 440C stainless steel CEVM (VAR) per AMS 5618 with hardness minimum 58 RC	Yes / No / Explain		
18	Cage Material	Extra fine weave Cotton based phenolic composite	Yes / No / Explain		
19	Lubrication	Aerospace qualified synthetic hydrocarbon or polyalphaolefin oils. The oil shall be ultra-filtered apt for spacecraft applications. Cages shall be vacuum impregnated with oil	Yes / No / Explain		

20	Inspection Procedure	All bearing rings and cages shall be inspected as per procedures given in annexure-A1 of BSPEC/20-42-12/5_REV2. All the bearings in the lot shall be subjected to 100% visual inspection covering the inner race, outer race, balls and retainer	Yes / No / Explain		
21	Final visual check	Final visual check of the 100% inner and outer rings shall be done, as per specified magnification, just prior to packing of the bearings after all other activities, and confirm that the ring raceways meet the required visual quality as specified.	Yes / No / Explain		
22	Passivation	The surfaces of bearing steels shall be passivated after final machining to reduce the risk of corrosion. The passivation shall be carried out in rings as per Federal spec QQ-P-35 type 8 after final grind and before honing.	Yes / No / Explain		
23	TCP Treatment	All metal parts of the bearings (inner ring, outer ring and balls) shall be treated with TCP and wettability test shall be carried out on all the treated bearing rings and 5% of the treated balls as per standard space flight qualified processes. All the tested rings and balls shall pass the wettability test indicating that the rings and balls are highly wettable.	Yes / No / Explain		
24	Full Documentation Requirements	as per 4.4.1 of BSPEC/20-42-12/5_REV2	Yes / No / Explain		

25	Limited Documentation Requirements	as per 4.4.2 of BSPEC/20-42-12/5_REV2	Yes / No / Explain		
26	Limited Documentation Components supply	The bearing components for which the limited documentation is carried out (two numbers, each of inner rings and outer rings randomly picked up from the lot and five balls) will NOT be supplied as matched bearing sets. They will be packed separately and supplied along with the other bearings with the marking 'Bearing components for Limited documentation'	Yes / No / Explain		
27	Material Conformity Certificates	as per 4.4.3 of BSPEC/20-42-12/5_REV2 for races, balls, lubricating oil, cage material and TCP	Yes / No / Explain		
28	Marking of bearings	The inner and outer bearing rings of each bearing shall bear the unique bearing number on the outboard faces. Outboard faces implies that the markings are visible on both inner and outer rings appear on the same side in the assembled condition of bearing. LASER marking shall be used & Vibro-etch marking is strictly avoided. The high points of radial runout of outer rings and inner rings shall be marked with two parallel lines or dot marks	Yes / No / Explain		

29	Packaging of Bearings	<p>(1) Final visual check of the 100% inner and outer rings shall be done, as per specified magnification, just prior to packing of the bearings after all other activities, and confirm that the ring raceways meet the required visual quality as specified. (2) Bearing components shall be packed in disassembled condition (strip packing). The inner race, outer race, cage and balls of each bearing shall be vacuum packed such that none of the components including balls come into contact with each other. (3) Each bearing component shall be packed with excess lubricant for storage. (4) Lubrication and packaging of the bearings shall be carried out only in a class 100 clean room. (5) Packaging materials (The packaging must prevent contamination and corrosion of the bearings): Clean materials, which do not contain additives, plasticisers or release agents. Acceptable materials are polythene, polyolefins, polypropylenes, fluorocarbons, polyimides and metallic foils. (6) Packaged bearings must be securely boxed, and suitably restrained to prevent vibration of components in transit. (7) Packages must also be labelled with a clear indication of contents and any special precautions required during</p>	Yes / No / Explain		
----	-----------------------	---	--------------------	--	--

		opening.(8) Package marking shall have bearing ID number. (9) Two such bearings shall be packed in a single box and supplied as a pair.			
30	Package Marking	Each bearing package shall contain the following information: Bearing ID Number , Bore diameter (to the nearest 0.0005 mm), Outer diameter (to the nearest 0.0005 mm), oil, date of packing	Yes / No / Explain		
31	Drawing conformance	Supplied races will conform to drawings of bearing inner race and outer race as given in annexure A-2 of BSPEC/20-42-12/5 REV2	Yes / No / Explain		

32	Other conditions	<p>(1) Party shall mention the make and country of origin of the offered bearings. (2) In case of parties quoting on behalf of original manufacturers, letter of authorisation from the original manufacturer (for the offered item) shall be submitted along with the offer. Offers without the letter of authorisation from original manufacturer will NOT be accepted. (3) The party shall have history of supplying similar angular contact ball bearings of ABEC9 class with AISI440C CEVM material to any of the centres within ISRO within last five years. The party shall submit minimum one number of completed purchase order copy of supplying angular contact ball bearings of ABEC 9 class with AISI440C CEVM material to any of the ISRO centres within last five years. Offers without the valid proof will NOT be accepted. (4) Terms of Warranty : After the receipt of the items at IISU, all relevant documents including the certificate of conformance, material certificates, inspection reports etc will be verified and sample testing will be carried out. The item will be cleared and warranty conditions fulfilled once the documents and sample testing is found satisfactory and conforming to our procurement specifications. This clearance will be effected within 30 days after the date of</p>	Yes / No / Explain		
----	------------------	--	--------------------	--	--

		receipt of the items at IISU.			
--	--	-------------------------------	--	--	--

Supporting Documents required from Vendor

1. As per BSPEC/20-42-12/5_REV2

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	As per BSPEC/20-42-12/5_REV2	Yes / No / Explain	
2	Delivery Term: FOR IISU. In case of Ex-Works, please indicate Air worthy packing, forwarding & freight charges up to IISU , separately.	Yes / No / Explain	
3	Delivery period	Yes / No / Explain	
4	Payment term: 100% within 30 days after receipt and acceptance of item for indigenous/Sight Draft for import cases.	Yes / No / Explain	
5	No insurance is required at our cost.	Yes / No / Explain	
6	Mode of despatch	Yes / No / Explain	
7	Authorization letter / certificate from the manufacturer	Yes / No / Explain	
8	PO ordering address in full with Contact Person Name, E-mail id, Phone No. [also attach your Quotation in PDF format]	Yes / No / Explain	
9	Please furnish your Bank details, Account No., SWIFT code, IFSC code etc for PFMS verification for payment, in case of PO.	Yes / No / Explain	
10	This is a Public Tender (Two part) . Techno commercial bid and price bid shall not be submitted together. No price details should be mentioned in the Techno-commercial bid.	Yes / No / Explain	
11	We do not open PART-II (Price Bid), if PART-I (Technical & commercial Offer) does not meet with our technical specification requirements.	Yes / No / Explain	
12	The technical documents need to be attached online as a single pdf file without any price information, technical bid containing price details will be treated as rejected.	Yes / No / Explain	
13	Price bid opening date indicated in the schedule is tentative only. Actual date will determine after evaluation of techno commercial bid.	Yes / No / Explain	

14	Liquidated Damages(L/D clause @ 0.5% subject to maximum 10% of the order value is applicable beyond the promised delivery schedule.)	Yes / No / Explain	
15	Security Deposit: In the event of placement of order, you should submit Security Deposit at 3% of the order value of the P.O. The Security Deposit shall valid for a period of 60 days beyond the date of completion and acceptance of P.O/Contract. The Security Deposit will be discharged without any interest after completion and acceptance of the Contractual obligations.	Yes / No / Explain	
16	Quote Validity: Minimum 120 days	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Precision angular contact ball bearings - 20mmx42mm x12mm	100.00 Pair		-		

Common charges (Applicable for all items)

Freight charge	
P&F Charges	