

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

Tender for Universal Testing Machine of 10 kN Capacity

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT III (SPRE)/VS202100289401 dated 24-08-2021

A. Tender Details

Tender No :	VSSC/PURCHASE UNIT III (SPRE)/VS202100289401
Tender Date :	24-08-2021
Tender Classification:	GOODS
Purchase Entity :	PURCHASE UNIT III (SPRE)
Centre :	VIKRAM SARABHAI SPACE CENTRE (VSSC)

Procurement of Universal Testing Machine of 10 kN Capacity

This Tender is for the procurement of Universal Testing Machine of 10 kN Capacity

This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.

Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.

Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.

This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same.

Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.

The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.

In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General

Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law. Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

A.1 Tender Schedule

Bid Submission Start Date :	24-08-2021 15:00
Bid Clarification Due Date :	06-09-2021 14:00
Bid Submission Due Date :	30-09-2021 14:00
Bid Opening Date :	30-09-2021 14:01
Price Bid Opening Date :	12-10-2021 14:55

B. Tender Attachments

NA

Instructions To Vendors

1. This tender is proposed as a DOMESTIC PUBLIC TENDER. This tender is restricted only to Class-I and Class-II Local Suppliers as defined under DPIIT Order dtd 04/06/2020- Preference to Make in India Order-2017 Revision. Non-Local Suppliers need not quote.
2. Foreign OEMs/Agents quoting on behalf of Foreign OEMs are not permitted to quote. High Sea Sales Quotes not permitted. The bids shall be in INR only.
3. Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate break-up of components of main equipment, individual accessories and spares as desired.
4. This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same.
5. Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India.
6. The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made.
7. In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.
8. False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

9. Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.

C. Bid Templates

C.1 Technical Bid - Universal Testing Machine of 10 kN Capacity

1. Universal Testing Machines

Document : Technical specification

Common Specifications (Applicable for all items)

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Universal Testing Machine of 10 kN Capacity for conducting different mechanical tests such as tension, compression, flexure, bend, shear etc.		-		

2	General features	<p>Dual column, Screw driven Servo controlled electromechanical universal testing machine (UTM) Vertically mounted, table top 10 kN UTM in static tension /compression Digital crosshead drives system with fully variable speed control. Interchangeable load cells of 100 N and 10 kN High precision ball screw driven double acting with zero backlash drive system. Integrated digital closed-loop control and data acquisition electronics. Automatic recognition and calibration of load cells / transducers. User selectable system of units: SI, metric and US</p>	Yes / No / Explain		
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3	Load Frame	<p>1) The load capacity: 10 kN</p> <p>2) Vertical Test Space: 1300 mm or better</p> <p>3) Column spacing: Min 400 mm or better</p> <p>4) Total crosshead travel: 1300 mm or better</p> <p>5) Stiffness of the frame: 50 kN/mm (minimum)</p> <p>6) Crosshead Speed range: 0.001-1000 mm/min</p> <p>7) Return Speed Maximum: 1000 mm/min or better</p> <p>8) Accuracy of crosshead speed: 0.1 % of set speed measured over full speed range or better</p> <p>9) Drive system's Position control resolution: 0.04 m or better</p> <p>10) Position measurement accuracy: ± 0.01 mm or 0.05 % or better</p> <p>11) Cross head position repeatability: ± 0.05 mm or better</p> <p>12) Emergency stop button shall be provided</p> <p>13) Load frame should fulfil the CE conformity guidelines as per 2006/42/EG</p>	Yes / No / Explain		
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4	Load Measurement	<p>1) Two interchangeable strain gauge-based load cells for both tension and compression with capacity 10 kN and 100 N meeting calibration and accuracy class 0.5.</p> <p>2) Load range: 0.4 to 100% of the capacity</p> <p>3) Force measurement should conform to ASTM E4, ISO7500-1 Standards.</p> <p>4) Load accuracy: 0.5% of full scale to 1/250 of load cell capacity as per ISO 7500-1 and ASTM E4</p> <p>5) Output Sensitivity:1.8mV/V or higher</p> <p>6) Overload capacity without permanent zero shift: 110% of the capacity or better</p> <p>7) Zero stability: 0.05% of full rated output per hour</p> <p>8) Load cells should be able to resist the unnecessary parasitic influences like bending moment, torque, temperature fluctuations and humidity</p> <p>9) Load cells should be calibrated as per international standards</p> <p>10) The load cells shall be supplied with suitable attachment fittings /kits to fix to the crosshead. (Suitable wedge/ spherical washers for locking the load cell and Piggyback adapter to attach a low-capacity load cell without removing the Primary cell)</p> <p>11) Supplier should be able to calibrate Load cells and UTM cross head speed as per compliance to NABL norms after installation and commissioning of the UTM at VSSC.</p>	Yes / No / Explain		
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		Valid Calibration certificates for both load cells and UTM cross head speed shall be supplied with traceability.			
5	Drive system and controller	<p>1) Servo motor drive system with integrated digital closed loop control.</p> <p>2) Number of data acquisition channels: 4 or more (load, strain-1 and strain-2, etc.)</p> <p>3) Closed loop test control under three modes (position, load and strain-1 or strain-2.</p> <p>4) Calibrated, stable and repeatable ± 10 V DC output from the four principal data channels (position, load, strain-1, strain-2) to connect to recorders, plotters, etc.</p>	Yes / No / Explain		
6	Strain Measurement System	<p>1) Strain measurement accuracy: 0.6 % of reading ± 25 % of calibration point ± 1 count on the display, whichever is greater.</p> <p>2) Strain measurement system should meet ASTM E83 or ISO 9513 or both</p>	Yes / No / Explain		

7	Grips and fixtures	<p>1) Grips and fixtures as per ASTM D412, D638, D152, D882</p> <p>2) Pneumatic side action grips of capacity 10 kN and 1 kN (1 set each) with necessary coupling pins equipped with manual air switch</p> <ul style="list-style-type: none"> • Specimen thickness: 0 to 25 mm(10kN), 0 to 12 mm (1kN) • Jaw faces rubber coated (set of 3 faces) • Jaw faces serrated (set of 3 faces) <p>3) Pneumatic foot switch – 1 set capable of connecting directly to the grips</p> <ul style="list-style-type: none"> • Foot operated single pedal switch to open and close grips • Two airlines with quick disconnect fittings for grips and third airline for air supply. <p>4) Self-tightening roller grips for precision testing of elastomeric and flexible plastic materials providing non-slip gripping action with spring action</p> <p>Grip with serrated eccentric roller type clamping action.</p> <p>Sufficient force to hold the material until a load is applied and follow-up action on the roller preventing the specimen from creeping out of the grips as the load increases</p> <p>Capacity: 5 kN</p> <p>Effective length: minimum 100 mm</p> <p>Specimen thickness 0 to 8 mm</p> <p>Temperature: 20°C to 40°C</p> <p>5) Coupling pins for all the fixtures and load cells shall be provided</p>	Yes / No / Explain		
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8	Testing standards	All ASTM and ISO and other equivalent international standards. A certificate for the same should be provided.	Yes / No / Explain		
9	Data acquisition and analysis	<p>1) User selectable 1 kHz or high synchronized data logging on all channels with time, date and operator stamps.</p> <p>2) Data display: up to 4 channels simultaneous live data display. Online graphical display of user selected channels without interfering with the four channel data display. Provision to add up to more channels of data acquisition</p> <p>3) Data rates should not be affected by the number of temperature and strain channels connected.</p> <p>4) Real time display of graph and calculated results simultaneously.</p>	Yes / No / Explain		

10	Software	<p>1) Ability to perform tensile, compression, flexure cyclic, relaxation, peel, shear tests. Include appropriate calculation list for each type of test as per relevant international test standards (a list of standards should be provided). All the specimen configurations as per the relevant ASTM standards should be possible to give as input in the software.</p> <p>2) Capable of controlling the movement of the crosshead as a function of load, stress, strain or true strain in addition to displacement control.</p> <p>3) Provision for real time numerical displays (digital /analog) for test data.</p> <p>4) Capability to define correction factors such as machine compliance, slack, pretension, load and gauge length.</p> <p>5) The software should have the capability to save the test method along with the start position, limit positions etc. so that the machine automatically comes to the start position for testing when the file is opened.</p> <p>6) Generation of real time graphs and tables of processed test results</p> <p>7) Security with user passwords</p> <p>8) Saving and retrieval of test parameters and data, post-processing of raw data, report generation with basic and user defined calculation parameters. Acquired data shall be</p>	Yes / No / Explain		
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exportable to MS-Excel format.

9) Support in the customized report templates with an option for linking the test report with a test method.

10) Provision for adding new procedures and techniques by the user (User calculation creator for custom calculations)

11) Test control mode shall be displayed whenever a test is running.

12) Automatic calibration and balancing of load cells / transducers. Prompt for transducer calibration (if not already done) before starting a test.

13) System of Units: SI and Metric (user selectable). Time units: minutes and seconds

14) All Software should be provided in CD or USB drive

15) Any software updates for warranty period from the date of installation should be supplied free of cost.

16) Any bugs in calculations, reporting, logic should be addressed and necessary changes should be incorporated free of cost within the guarantee period.

17) All the software, user interface, menus and help must be in English language only.

18) Calculations library shall have different options for calculations such as modulus, UTS, etc. as well as provision for user to modify the same.

11	Accessories	<p>Factory integrated PC with latest OS and printer (latest configuration shall be quoted)</p> <ul style="list-style-type: none"> • PC with Intel Core- i7 or better preferably. • At least 8 GB RAM, 2 TB SATA HDD, DVD writer, Front and Back USB ports, with network interface • VGA graphics or better. • Wireless keyboard, wireless optical scroll mouse. • 24 inch flat wide LED monitor. • Dedicated PC interfaces for the complex process of controlling the testing system and transmitting the data . 	Yes / No / Explain		
12	Power	Power: 230 V +/-10%, 50 Hz, single phase	Yes / No / Explain		
13	Safety	<p>1) The testing machine should satisfy relevant safety requirements for testing systems. A list of same should be provided</p> <p>2) Automatic shutdown: There must be a provision to automatically shut off the electrical power to the machine when the specimen breaks</p>	Yes / No / Explain		

14	Training and User Manuals	<p>1) Training: 3 personnel need to be trained by qualified personnel of the supplier during the time of installation and commissioning (i.e., at VSSC).</p> <p>2) User manual (both operation and maintenance) and certificates: 1 soft copy in a CD/DVS/USB and 1 hard copy (optional but will be highly appreciated) of the detailed user manual, complete with circuit diagrams (mechanical, electronic and electrical) and calibration certificates.</p> <p>3) Installation files: Installation DVDs/USB for the PC and the software shall be supplied along with the equipment.</p>	Yes / No / Explain		
15	Warranty and post-supply services	<p>1) The suppliers shall confirm after sales warranty as follows:</p> <ul style="list-style-type: none"> • Supplier shall provide warranty for all the systems and sub systems for at least 36 months from the date of commissioning and acceptance at VSSC. • The first year service includes unlimited priority telephonic support free of cost <p>2) AMC Details: Non-Comprehensive AMC & calibration for 5 years after the warranty period shall be quoted separately.</p> <p>3) Service: The supplier should have an office or an associate (agent) in India to provide after sales service, support and maintenance.</p> <p>4) Undertaking shall be given for provision of after sales service, software updates and spares for a minimum period of 12 years after warranty.</p>	Yes / No / Explain		

16	Installation and Commissioning	1) Installation, Commissioning, Demonstration and testing with all features at site(VSSC). 2) Environmental conditions at installation site: • Power: 230 V +/- 10%, 50 Hz, single phase • Humidity: 90% relative humidity. • Ambient temperature: 20 to 35degC.	Yes / No / Explain		
17	Acceptance Criterion	The supplier has to demonstrate all the functions of the system according to the specifications after successful installation at VSSC	Yes / No / Explain		
18	Optional Accessories	1) Flexural fixture in accordance with ASTM D790. 2) Compression test kit as per ASTM D695 and D1621-16 with Compression platen, min.130 mm diameter , 25, 50, 100 kN with rigid coupling.	Yes / No / Explain		
19	Spares	The vendor should quote for the most common spares that will be required for 5 years of smooth operation after warranty (mention the spares, cost & use of individual items).	Yes / No / Explain		

Supporting Documents required from Vendor

1. Budgetary Quotation

2. Brochures/Catalogues of company with details

3. Unpriced Bid showing the split up of main equipment, accessories, essential spares as applicable

4. Detailed Techno commercial offer (without price details)

5. Unpriced AMC Quote in Split-up format for each year required.

6. Unpriced list of essential/ optional spares for 3 years maintenance.

7. Declaration regarding the percentage of local content (or value addition) in the item offered.

8. Detailed Compliance Matrix vis-a-vis the item specification in tenders.

9. Additional Documents from Vendor.

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	All relevant technical literature / brochures, application notes and specifications must also be provided.	Yes / No / Explain	
2	The quotation must clearly specify make and model of the equipment.	Yes / No / Explain	
3	Detailed pre-installation requirements and delivery period should be explicitly mentioned without any ambiguity.	Yes / No / Explain	
4	Party should have a strong service back-up in India with technically competent service engineers trained and certified by the factory. Documentary proof for the same has to be provided.	Yes / No / Explain	
5	User list of the quoted model in India with full contact details shall be provided. Noncompliance to this condition may lead to rejection of the offer.	Yes / No / Explain	
6	Obsolete models should not be quoted. Year of introduction of the quoted model (preferably latest) should be specified	Yes / No / Explain	
7	The instrument and accessories must be designed with all necessary safety interlocks and earthing for operator safety.	Yes / No / Explain	
8	Any software used for the system has to be supplied to VSSC in installable CD/USB drive, so that the software can be reinstalled at VSSC in case of a system crash.	Yes / No / Explain	
9	Supplier should carry out the calibration of all the transducers and sensors traceable to national or international standards after installation and commissioning at VSSC and due certificate has to be provided.	Yes / No / Explain	
10	Full certifications (ISO and calibration/traceability certificate for any standards used for calibration) has to be provided	Yes / No / Explain	
11	Detailed operational and service manuals in English including essential circuit diagrams and Trouble-shooting flowchart for all systems and subsystems have to be provided.	Yes / No / Explain	

12	Machine maintenance kit with all necessary tools has to be supplied free of cost.	Yes / No / Explain	
13	Detailed compliance matrix of our specifications and supplier specifications item by item has to be filled and provided along with the quotation.	Yes / No / Explain	
14	Quotation shall give full technical details supported by well documented catalogues/ leaflets and evidence for the compliance should be available in the catalogue; without which offer will not be considered.	Yes / No / Explain	
15	Indian agents submitting the quotation on behalf of foreign suppliers must submit the authorization letter to submit the quotation, negotiation, after sales service, maintenance and repair	Yes / No / Explain	
16	Only the manufacturer or Approved / Authorized agencies should submit the quote. Relevant certificates need to be attached.	Yes / No / Explain	
17	Split up cost for instrument, accessories and AMC should be separately provided	Yes / No / Explain	
18	Performance Bank Guarantee (PBG) Bank Guarantee @ 3% of Order Value valid till the completion of warranty period plus 2 months claim period to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indemnity Bond in lieu of BG. In the event of non-performance of warranty obligations, PBG will be forfeited).	Yes / No / Explain	
19	Payment Term: (Our Defalut payment term: For indigenou orders: 100% within 30 days after receipt and acceptance of item at our site. For import cases: 100% by Sight Draft with Bank Charges to respective accounts. NOTE: CONSEQUENT TO COVID 19 PANDEMIC AND AS PER EXTANT GUIDELINES FROM DEPARTMENT OF SPACE, NO ADVANCE PAYMENT IS PAYABLE TO THIS TENDER).	Yes / No / Explain	

20	<p>Definitions: A supplier or service provider, whose goods, services or works offered for procurement, has local content:</p> <p>a) Equal to or more than 50% : Class-I local supplier.</p> <p>b) More than 20% but less than 50% : Class-II local supplier.</p> <p>c) Less than or equal to 20% : Non-local supplier.</p> <p>Mention your category.</p>	Yes / No / Explain	
21	<p>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. Indicate extent of Minimum Local Content in offered product/service and location of such value additions.</p>	Yes / No / Explain	
22	<p>The Class-I & II local supplier should provide a Self Certification along with your offer in PDF format indicating that the item offered meets the minimum local content as called for in the tender as mentioned above and provide the % of local content along with details of the location(s) at which the local value addition is made. In case of two part tenders, it is mandatory to indicate compliance to MLC (minimum local content) in technical bid itself. Confirm attachment of Self declaration along with the offer.</p>	Yes / No / Explain	
23	<p>PO Placement Address (with Name and Contact Details of sales person concerned).</p>	-	
24	<p>Security Deposit (Applicable if Offer Value is Rs. 5 Lakhs or above. MSME/NSIC Units are NOT EXEMPTED from the payment of SD. Bank Guarantee @ 3% of Order Value valid till 60 days from the date of supply to be submitted. Mandatory compliance required. Only Government Bodies/PSUs/PSEs can submit Indentity Bond in lieu of BG. In the event of non-performance of contractual obligations, SD will be forfeited).</p>	Yes / No / Explain	
25	<p>Any Other Terms</p>	-	

26	Delivery Terms.	Yes / No / Explain	
27	Warranty (For a period of 36 months required, Confirm)	Yes / No / Explain	
28	Taxes and other costs, if any . [Note: VSSC is a Public Funded Research Institution under the administrative control of Department of Space and is eligible for partial exemption of IGST @5% vide Notfn No. 45/2017, 47/2017 dt 14.11.2017 respectively. Necessary IGST EXEMPTION CERTIFICATE shall be issued.]	Yes / No / Explain	
29	Delivery Period	Yes / No / Explain	
30	Liquidated Damages (Applicable beyond the delivery period mentioned in this tender @ 0.5% per week or part thereof on the undelivered portion subject to a maximum of 10% of the contract value. Mandatory compliance required).	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Universal Testing Machines	1.00 Nos.		-		

Common charges (Applicable for all items)

P&F Charges	
Freight charge	
Installation Charges	
Documentation & Handling charges	
Other Charges (If any)	