

भारत सरकार/GOVERNMENT OF INDIA
अंतरिक्ष विभाग/DEPARTMENT OF SPACE
विक्रम साराभाई अंतरिक्ष केंद्र/VIKRAM SARABHAI SPACE CENTRE
तिरुवनंतपुरम/THIRUVANANTHAPURAM – 695 022

NO. VSSC/P/ADVT/298/2019

20.05.2020

दिनांक 06.03.2020 के विज्ञापन सं. वीएसएससी/पी/विज्ञापन/298/2019 का शुद्धि-पत्र III
CORRIGENDUM III TO ADVT. NO. VSSC/P/ADVT/298/2019 DT. 06.03.2020

निम्नलिखित निविदाओं की प्राप्ति तथा खोलने की तिथि निम्न ब्यौरे के अनुसार एतद् द्वारा बढ़ा दी जाती है
The receipt and opening date of following tenders are hereby extended as detailed below :-

क्रम सं. Sl. No.	निविदा सं. Tender No.	वर्णन Description
01.	4553-2019-6563-01 [दो भाग / TWO PART]	डिफरेंशियल स्कैनिंग कैलरीमीटर तथा उसके उपसाधनों की आपूर्ति, संस्थापन, कमीशनिंग तथा प्रशिक्षण Supply, Installation, Commissioning and Training of Differential Scanning Calorimeter and its Accessories
Revised Specification as per Annexure		
05.	VSSC/ADMNAUX/2020E 1988801 [दो भाग / TWO PART]	प्रति कार्य आधार पर टी व एम उपकरणों के ब्रेक डाउन अनुरक्षण के लिए दर नियतन Fixation of Rate for Break Down Maintenance of T&M Equipments on per job basis

निविदा प्राप्त करने की अंतिम तिथि / Due Date for Receipt of Tender (क्रम सं. / Sl. No. 1)	30/06/2020 up to 16:00 Hrs.
निविदा खोलने की तिथि / Tender Opening Date (क्रम सं. / Sl. No. 1)	01/07/2020 at 10:00 Hrs.

क्रम सं. Sl. No.	निविदा फॉर्मों को डाउनलोड करने की समय-सीमा / Time limit for download of Tender Forms	बोली प्रस्तुत करने की समय-सीमा / Time limit for submission of Bid	बोली खोलने की तिथि Bid Opening date
05.	Upto 04.06.2020 [14:00 Hrs.]	Upto 04.06.2020 [14:00 Hrs.]	08.06.2020 [14:01 Hrs.]

मूल निविदा सूचना की सभी अन्य निबंधन एवं शर्तें अपरिवर्तित रहेंगी।

All other terms and conditions of the original tender notice shall remain unchanged.

हस्ताक्षरित/Sd/-

वरिष्ठ प्रधान, क्रय एवं भंडार / Sr. Head, Purchase & Stores

Technical Specification of Differential Scanning Calorimeter

1.0	Scope of supply
	Supply, Installation, Commissioning, and Training of Differential Scanning Calorimeter and its necessary accessories at VSSC (Purchaser), Vattiyoorkavu, Thiruvananthapuram, India with the following specifications/features,
2.0	Technical Specification
2.1	Principle of operation: Heat Flux type
2.2	DSC full temperature range: RT to 1500°C
2.3	Furnace: Metallic furnace like Platinum, tungsten and Rhodium capable of withstanding high temperature upto 1500°C
2.4	Temperature Accuracy: $\pm 1^{\circ}\text{C}$ or better
2.5	Specific heat (Cp) Accuracy: $\pm 3\%$ or better
2.6	Enthalpy Accuracy/ Precision: upto 3% or better
2.7	Cp measuring range (J/gK): upto 5J/gK
2.8	Heating/Cooling rate: 0.1 to 50° C/minute
2.9	Gas Flow & Gas switching: Equipment should have Mass flow controller(MFC) for gases (Argon, Nitrogen and Air) with gas switching provision.
2.10	Gas Atmosphere: Inert, oxidizing, static and dynamic operation
2.11	DSC sensor/Thermocouple type: Thermocouples suitable for operating range with the required accuracy. It should be chemical resistant, corrosion resistant, exchangeable type heat flow measurement.
2.12	Data acquisition/processing system: Windows based software should enable automatic/manual on-line data acquisition and display of running measurements, Calibration. The multi-tasking software should facilitate storage of both raw DSC data as well as deconvoluted data in the form of standard DSC curves. The software should have the facility of choosing different baseline e.g line, tangential, horizontal, spline, Integral tangential, polygon line etc for correct evaluation/integration of peaks. Options for Baseline correction, Data smoothening, Plot expansion, Curve overlay unlimited, Font selection etc. should be provided. Storage of results in tabular form (ASCII format) should be facilitated. Data acquisition system should have interface with the PC provided as accessory.

2.13	<p>Data analysis: Software for the analysis or evaluation of following parameters to be provided.</p> <ol style="list-style-type: none"> 1. Glass transition temperature 2. Melting transitions 3. Specific heat 4. Kinetic study 5. Purity analysis <p>Any upgradation in software mentioned in SI. No: 2.12 and 2.13 should be taken care of by the supplier.</p>
2.14	Certified Standards for temperature, specific heat and enthalpy calibration. The certified calibration standards to be tested in presence of VSSC personal during installation.
2.15	Water cooler/chiller/any other accessory required for the smooth functioning of the equipment should be quoted.
2.16	Warranty: 3 years
3.0	Accessories
3.1	Accessory for specimen preparation – Sample preparation set for high temperature range and sample press/Crucible Sealing Press for Aluminium crucibles
3.2	Alumina crucibles with lids – 10 Nos, Platinum/Rhodium crucibles with lids – 5 Nos
3.3	Thermocouple for measuring temperature in the range of 30 to 1500°C – 5 Nos
3.4	Aluminium Sample pans with lid for 1000 analysis
3.5	Certified Standards for temperature, heat capacity and enthalpy calibration in low and high temperature range
3.6	Software for Kinetic analysis
3.7	UPS: RIELLO/APC/APLAB/GE make, 5KVA, Single phase output, online, industrial grade with 1 hour back up
3.8	PC (Branded PC, i7 processor, windows 10, 23inch monitor), compatible with instrument and software and HP Colour Laser Printer
3.9	Gas cylinders and regulators for the operation of the equipment with their certificate of purity. Purity of the gases should be 99.999%.
3.10	Evacuation devices including vacuum pump to evacuate the system down to 10^{-4} mbar or better.

4.0	Offer requirements
4.1	Quotation shall be in two parts - Technical cum commercial bids
4.2	Measurement technology, accuracy, error and environmental compensation systems, controller system, safety provisions, essential accessories, etc. along with figures/drawings, relevant catalogues, photographs, brochures etc to be provided.
4.3	The supplier should be either the manufacturer or the authorized dealer.
4.4	The list of customers (with address and contact number/e-mail id) who purchased similar equipment for the last 5 years to be given.
4.5	Availability of spare parts to be assured and explicitly committed for at least 10 years after the commissioning of the system.
4.6	The list of essential spare parts for the 3(three) years along with the price shall be separately indicated.
4.7	Details of electrical power requirements (available electrical supply is 230 single phase/440V, three phase, 50 Hz) shall be provided.
4.8	Customer support facility shall be made available for at least fifteen years after the expiry of the warrantee period. Following details are to be provided in this context,
	-Service facilities and personnel availability.
	-Service personnel to attend any fault after receipt of the information, whenever called for.
4.9	Delivery time is to be included in the quotation.
5.0	The commercial offer should contain <u>item wise cost split-up</u> for the following,
5.1	DSC basic equipment with data acquisition/processing and analysis software
5.2	Accessory for specimen preparation – Sample preparation set for high temperature range and sample press/Crucible Sealing Press for Aluminium crucibles
5.3	Alumina crucibles with lids – 10 Nos, Platinum/Rhodium crucibles with lids – 5 Nos
5.4	Thermocouple for measuring temperature in the range of 30 to 1500°C – 5 Nos
5.5	Aluminium Sample pans with lids for 1000 analysis
5.6	Certified Standards for temperature, heat capacity and enthalpy calibration in low and high temperature range
5.7	Software for Kinetic analysis
5.8	Evacuation devices including vacuum pump
5.9	UPS: RIELLO/APC/APLAB/GE make, 5KVA, Single phase output, online, industrial grade with 1 hour back up
5.10	PC (Branded PC, i7 processor, windows 10, 23inch monitor) and HP Colour Laser Printer

5.11	Packaging & forwarding
5.12	Transportation to purchaser's site at Trivandrum, India
5.13	Installation and commissioning
5.14	Spares (Thermocouples) and consumables (including sample crucibles for high and low temperature applications) for 3 years
5.15	Gas cylinders and regulators for the operation of the equipment
5.16	AMC cost for three years after warranty
6.0	Training: Free training to the purchaser's representatives at the Purchaser's site for the following,
6.1	Operation of the system, including calibration and usage of software in all aspects of measurement and data analysis. Maintenance and trouble shooting.
7.0	Annual Maintenance Contract (AMC) details
7.1	Party should be willing to enter AMC for periodical verification of parameters pertaining to hardware, controllers, software etc and also comprehensive calibration of the system (as per standards) to conform to the specification. Periodicity to be indicated by the party. Tentative charges to be furnished.
7.2	Supply of necessary items like software and firmware updates/revisions, training on real time basis is also a part of AMC.

Compliance Matrix

A. Specification

Sl.No.	Specification		Supplier's Compliance	
	Parameter	Value [With tolerance if any]	Complied (Y/N) [*]	Remarks
1	Principle of operation	Heat Flux, modulated		
2	DSC full temperature range	RT to 1500°C		
3	Furnace	Metallic furnace like Platinum, tungsten and Rhodium capable of withstanding high temperature upto 1500°C		
4	Temperature Accuracy	+/- 1°C or better		
5	Specific heat (Cp) Accuracy	±3% or better		
6	Enthalpy Accuracy/precision	upto 3% or better		
7	Cp measuring range (J/gK)	upto 5J/gK		
8	Heating/Cooling rate	0.1 to 50° C/minute		
9	DSC sensor/ Thermocouple type	Thermocouples suitable for operating range with the required accuracy. It should be chemical resistant, corrosion resistant, exchangeable type heat flow measurement.		
10	Gas Flow & Gas switching	Equipment should have Mass flow controller(MFC) for gases (Argon, Nitrogen and Air) with gas switching provision.		
11	Gas Atmosphere	Inert, oxidizing, static and dynamic operation		
12	Cooling system	Water cooler/chiller/any other accessory required for the smooth functioning of the equipment should be quoted.		

13	Data acquisition/processing system	Windows based software should enable automatic / manual on-line data acquisition and display of running measurements, Calibration. The multi-tasking software should facilitate storage of both raw DSC data as well as deconvoluted data in the form of standard DSC curves. The software should have the facility of choosing different baseline e.g line, tangential, horizontal, spline, Integral tangential, polygon line etc for correct evaluation/integration of peaks. Options for Baseline correction, data smoothening, plot expansion, Curve overlay unlimited, Font selection etc. should be provided. Storage of results in tabular form (ASCII format) should be facilitated. Data acquisition system should have interface with the PC.		
14	Data analysis software	Software for the analysis or evaluation of following parameters to be provided. a) Glass transition temperature b) Melting transitions c) Specific heat d) Kinetic study e) Purity analysis Any upgradation in software should be taken care of by the supplier.		
15	Certified Standards for temperature, specific heat and enthalpy calibration. The certified calibration standards to be tested in presence of VSSC personal during installation.	Should be complied		

16	All the accessories mentioned in the indent to be provided by the party	Should be complied		
17	Free training to the purchaser's representatives at the Purchaser's site for the following, Operation of the system, including calibration and usage of software in all aspects of measurement and data analysis. Maintenance and trouble shooting.	Should be complied		

B. Specific Conditions

Sl.No.	Specific Conditions	Supplier Compliance	
		Complied (Y/N) [*]	Remarks
1	Warranty: 3 years to be provided		
2	AMC: Party should be willing to enter AMC for periodical verification of parameters pertaining to hardware, controllers, software etc and also comprehensive calibration of the system (as per standards) to conform to the specification. Periodicity to be indicated by the party. AMC cost for three years after warranty should be quoted separately		

* (Supplier shall provide reference number against each as per the Quotation / Catalogue/ Data Sheet)

Signature