

# कोचीन शिपयार्ड लिमिटेड/COCHIN SHIPYARD LIMITED कोच्ची/COCHIN - 682 015

## पोत निर्माण प्रभाग/SHIP BUILDING DIVISION आउटसिर्सिंग विभाग OUTSOURCING DEPARTMENT



## निविदा दस्तावेज़/TENDER DOCUMENT

**TENDER NO. SB-OSD/GEN/757/2023** Dtd: 20-03-2023

# CALIBRATION OF EQUIPMENTS OF SHIP BUILDING INSTRUMENTATION LAB



वसुधेव कुटुम्बकम् one earth • one family • one future **MARCH - 2023** 





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## निविदा सूचना / TENDER NOTICE कोचीन शिपयार्ड लिमिटेड / COCHIN SHIPYARD LIMITED पोत निर्माण प्रभाग / SHIP BUILDING DIVISION

## आउटसिर्सिंग विभाग

## **OUTSOURCING DEPARTMENT**

SB-OSD/GEN/757/2023

20th MARCH - 2023

## निविदा सूचना / TENDER NOTICE

## संक्षिप्त विवरण / BRIEF DETAILS:

निविदा जांच संख्या और तारीख Tender enquiry No. and date	SB-OSD/GEN/757/2023 Dtd: 20-03-2023
कार्य का नाम Name of work	CALIBRATION OF EQUIPMENTS OF SHIP BUILDING INSTRUMENTATION LAB
निविदाएं प्राप्त करने की अंतिम तिथि और समय  Last date & time of receipt of Tenders (भाग/Part I – तकनीकी–वाणिज्यिक बोली और भाग –  II मूल्य बोली/ Techno-Commercial Bid & Part II- Price Bid)	03 <sup>rd</sup> April - 2023 at 15.00 Hrs IST
पूर्व बोली बैठक की तारीख Date of Pre bid meeting	-
भाग I (तकनीकी–वाणिज्यिक) बोली खोलने की तिथि और समय Date & time of opening of Part I (Techno – Commercial) Bid	03 <sup>rd</sup> April - 2023 at 15.30 Hrs IST
संपर्क व्यक्ति Contact Person	For Commercial queries: Mr. Sahadevan C, Mob No:81389 01956, AM (OSD) For Technical queries: Mr. Muhammed Faizy C E, Mob. No: 98957 05126, AGM (EOF)



- 1. Cochin shipyard Limited, a leading Ship Building & ship repair industry and also well known player on the global ship building front, invites interested, reputed, resourceful and financially solvent firms/contractors to submit single stage two part bids.
- 2. The Sealed competitive tenders in the prescribed form should be as per the terms and conditions as mentioned in the annexure to tender enquiry,
- 3. The tenders are to be submitted in two bid system; **Part I : Techno Commercial Bid** and **Part II : Price Bid** as Soft copy and should reach the undersigned on or before the date and time as stipulated:

#### 4. MODE OF SUBMISSION OF BIDS

- Tender should be submitted in soft copy via E-mail only. CSL will not accept any other mode of tender considering prevailing COVID -19 SOP of CSL.
- The subject of the E mail should clearly state the tender enquiry number and due date of submission. Price Bids are to be password protected and password is not to be forwarded unless asked for.
- Tender Documents should be submitted in PDF Format and Directly openable from the PDF format. Offers not complying with the above shall be summarily rejected without further intimation.
- Tenders, Techno- commercial bid (Part-I) and Price bid( Part -II) shall be submitted separately via e mail to:
  - (i) jithu.gl@cochinshipyard.in Copy to:
  - (ii) madhu.pk@cochinshipyard.in
  - (iii) ajithkumar.n@cochinshipyard.in
- 5. The Bids shall be received at Cochin Shipyard Ltd on or before 15.00 Hrs on 03<sup>rd</sup> April 2023 and Part I Techno-Commercial Bid will be opened at 15.30 Hrs on the same day.
- 6. Late tenders / tenders with conditions will be summarily rejected.
- 7. CSL takes no responsibility for delay, loss or non-receipt of tenders sent by e-mail.
- 8. Only technically qualified bids will be considered for price bid opening. After evaluating the bids for both technical aspects and commercial terms, the technocommercially qualified bidders will be intimated regarding the date and time of opening of Part II Price Bid. Intimation will be as per prevailing SOP with respect to the COVID-19 situation, until such time COVID-19 protocol is applicable in CSL.
- 9. Merely opening of Techno-Commercial Bid cannot be construed as acceptance of offer for awarding of contract.



- 10. All rules & regulations specified by the Govt of Kerala and CSL, pertaining to the present COVID-19 pandemic situation should be adhered by the bidder.
- 11. The following shall be submitted along with Part I (Techno-commercial) Bid:
  - i. **Original tender document duly signed on all pages** including Terms & conditions of enquiry, general conditions, technical specification and drawings placed at Annexure I, II, III, IV, V & Appendix A
  - ii. The techno commercial Check List at Annexure IV filled up completely and duly signed. The non submission of duly filled techno commercial checklist will lead to the rejection of the bids.
  - iii. Copy of un-priced bid format (price bid WITHOUT prices/numerals)
  - iv. List of deviations/exclusions from the tender enquiry terms and conditions (if any).

#### 12. PRE CONTRACT INTEGRITY PACT

The bidders who are participating in the tender shall sign the pre contract integrity pact, in case the bid is above Rs 1 crore.

#### 13. MSME-PRIVILEGES

Public procurement policy initiatives of Govt. of India, pertaining to MSME's, Startup etc. as per CSL website (<u>www.cochinshipyard.in</u>) shall be applicable for this tender.

- 14. Cochin Shipyard Limited (CSL) has registered in the TReDS Portal viz., RXIL, M1xchange and Invoice Mart. Those vendors who have registered in the TReDS portal may upload the invoice in the respective portal under an intimation to concerned executing officer for processing the payment through TReDS portal. Suppliers are requested to check with the concerned executing officer regarding the Quality inspection status, where ever applicable, before uploading the invoices in TReDS portal.
- 15. General Manager, Ship Building Division, Cochin Shipyard Limited, is the authorized person to accept the tender or part thereof, who does not bind himself to accept the lowest tender and reserves the authority to reject any or all of the tenders received without assigning any reason.

पोत निर्माण बाह्यजोतीकरण कहा Ship Building Outsourcing Cell



#### ANNEXURE I

## जांच की नियम और शर्तें / TERMS & CONDITIONS OF ENQUIRY

# CALIBRATION OF EQUIPMENTS OF SHIP BUILDING INSTRUMENTATION LAB

## 1. कार्य का विवरण / DESCRIPTION OF WORK

- 1.1. This tender enquiry pertains to the awarding of contract for **Calibration of Equipments of Ship Building Instrumentation Lab.** as per the following documents:
- 1.1.1. Cochin Shipyard Ltd Terms and conditions (Annexure I)
- 1.1.2. Cochin Shipyard Ltd General conditions (Annexure II)
- 1.1.3. Enquiry specification (Annexure III)
- 1.2. The scope of work includes Calibration of Equipments as per Appendix-A and settings/correction of instruments if required and issue of calibration Certificates with NABL traceability of master equipments, CSL Terms and conditions in all respects.
- 1.3. Bidders are requested to study the scope of work before submitting their offer. Clarification, if any, required may be obtained from AGM (EOF) before quoting.

## 2. चिक्रेताओं के चिए पात्रता मानदंड / QUALIFICATION CRITERIA FOR VENDORS

The contractor should compulsorily qualify the following criteria (2.1) and (2.2).

- 2.1. The firm should have NABL accredited Lab with suitable master instruments required for the calibration of CSL equipments. Details of NABL accreditation and master instruments have to be submitted along with the offer.
- 2.2. The firm should have prior experience in the execution of calibration of instruments. The firm has to submit the documents which validate the calibration experience.
- 2.3. Relevant supporting documents shall be submitted by the contractors for validating the requirements as per (2.1) and (2.2) along with other tender documents.
- 2.4. Bidder shall not be under a declaration of ineligibility issued by Govt. of India/ State govt./ Public Sector Undertakings etc. The bidder shall not have been debarred / black listed by CSL or by any of the Public Sector Undertaking or Government department etc.



## 3. प्रस्ताव की वैधता / VALIDITY OF OFFER

3.1. The offer shall be valid for acceptance for a period of 90 days from the date of opening of the Part-I Techno-Commercial Bid.

## 4. अनुबंध प्रदान करने का तरीका / METHOD OF AWARDING CONTRACT

- 4.1. Contract will be concluded with the Bidder qualifying to techno-Commercial conditions and emerging as L1.
- 4.2. Once work order is placed successful bidder should be able to start the calibration works immediately.
- 4.3. CSL reserves the right to cancel the tender if required.

# 5. कार्य की प्रगति तथा समापन की समय – सारणी / WORK PROGRESS AND SCHEDULE OF COMPLETION

5.1. The work is of urgent nature and hence entire work shall be completed within 15 days from the date of receipt Work Order.

## 6. अनुबंध की वैधता / VALIDITY OF CONTRACT

6.1. Once the contract is awarded, the price offered and mutually agreed shall remain firm (Contract concluded price as per Annex-V) till completion of work and no escalation in rate shall be allowed by CSL on whatsoever reason thereafter.

## 7. बोलियां जमा करने के लिए दिशानिर्देश / GUIDELINES FOR SUBMISSION OF BIDS

## 7.1. Technical Bid (Part –I)

- 7.1.1. The technical bid as specified in the scope of work (Annexure III) shall be submitted in single sealed cover, super scribed by the bid No, tender No. and date.
- 7.1.2. The following shall be submitted along with technical Bid, failing which the bid may be summarily rejected:-
- 7.1.2.1. Original tender document general Terms & conditions and technical specifications placed at Annexure I, II & III duly signed on all pages.
- 7.1.2.2. The commercial Check List at Annexure IV filled up completely and duly signed
- 7.1.2.3. Copy of un-priced bid format of each category of works at Annexure V.
- 7.1.2.4. As per Govt. of India guidelines, Integrity pact (IP) should be signed for all contracts above Rs. One Crore. Accordingly IP should be signed and forwarded along with the offer.



#### The non submission of duly filled commercial checklist will lead to the rejection 7.1.3. of the bids.

#### 7.2. Price Bid (Part-II)

- 7.2.1. The bid shall be comprehensive of the nature of Installation of equipments and cable termination work shall be inclusive for all the applicable charges envisaged under the scope of the contractor as specified in the technical specification Annexure III.
- 7.2.2. Bidders shall quote total amount in figures and in words. Corrections and additions if any must be attested/ duly signed by the bidder. In the case of error in multiplication/addition in amount calculated, the rate quoted will be considered as correct and the amount will be calculated accordingly. Conditional rebates & discounts, incomplete/ ambiguous offer will be rejected.
- 7.2.3. The price bid shall be all inclusive of scope of contractor on lump sum basis and any rates on variable basis will not be accepted within the price bid and thereafter throughout the period of the contract. Any variable rates if deemed inevitable and applicable only in special cases/situations (not in the normal course of execution of contract) will only be considered for mutual agreement.
- 7.2.4. Price Bid Format: The price bids shall be prepared as per the format given in Annexure V to the enquiry. The bidder must quote all line items as per price bid format any failure in this regard will lead to the rejection of bid.
- 7.2.5. Rates of individual line items for the overall L1 is considered as L1 rate irrespective of lower rates in case of the line items of other bidders.
- 7.2.6. Currency: The price bids shall be prepared in Indian National Rupees for all bidders.
- 7.2.7. As per tender condition, the price bid which were not opened will not be returned back at any reason.
- 7.2.8. The bids which are not conforming above requirements shall be summarily rejected without any further notice.

#### 8. कर / TAXES

- 8.1. GST shall be applicable extra on the prescribed work. Bidders should indicate the applicable GST percentage and HSN code of the category in the offer. Bidders are also requested to furnish the following details in the invoice/Bill.
  - 8.1.1. Applicable rate of GST/SAC Code
  - 8.1.2. Firms GST Reg. NO



- 8.1.3. Service accounting code (SAC) as prescribed by statutory authorities.
- 8.1.4. GST Reg. No. of Cochin Shipyard Ltd (32AAACC6905B1ZD).
- 8.2. Any new tax/duty that may be made effective by the government for this work and paid by the contractor shall be reimbursed on production of documentary evidence.

## 9. भुगतान की शर्तें / PAYMENT TERMS

- 9.1. Payment will be made on 100% satisfactory completion of works on certification by the officer-in-charge.
- 9.2. All claims for payment for the work/additional work shall be submitted by the subcontractor within one month of completion of work.
- 9.3. Statutory levies such as I.T, Contribution towards PF, ESI etc., shall be deducted from the bill as applicable.
- 9.4. Payment will be made by RTGS/NEFT to the account of contractor. The name of the bank, branch, A/C No., IFSC code & other particulars shall be furnished by the contractor in the proforma of CSL.





#### **ANNEXURE-II**

## कोचीन शिपयार्ड लिमिटेड / COCHIN SHIPYARD LIMITED कोच्ची / KOCHI-682015

## आउटसोर्सिंग विभाग / OUTSOURCING DEPARTMENT सामान्य शर्तें / GENERAL CONDITIONS

- 1. The complete work to be carried out with the highest degree of workmanship and under the inspection of CSL. or any other agency nominated by the Shipyard, if required.
- 2. The contractor shall be responsible for any damage caused to the material supplied by CSL. Compensation with penalty for damage or loss of the item will be recovered from the Contractor, in the event of loss or damage.
- 3. Any particulars/literature/information/certificates required by the Shipyard in connection with the work is to be forwarded free of cost.
- 4. All correspondence with the Shipyard to be in English language. All the documents and plans to be in English and in metric units.





#### ANNEXURE III

## कार्य क्षेत्र / SCOPE OF WORK CALIBRATION OF EQUIPMENTS OF SHIP BUILDING **INSTRUMENTATION LAB**

#### 1 परिचय/INTRODUCTION

Cochin shipyard Ltd (yard) has an instrumentation lab for the calibration of instruments used onboard vessels under construction at yard. Yard intends to outsource the calibration of master equipments in ship building instrumentation lab as detailed below to competent subcontractors.

## 2 <u>काम की गुंजाइश / SCOPE OF WORK</u>

The work shall be carried out based on the contract specification, NABL standards, CSL mentioned standards and equipment manuals. The scope of contractor involves Calibration of Equipments as per Appendix-A and settings/correction of instruments if required and issue of calibration Certificates with NABL traceability of master equipments.

- a) Calibration of equipments as per Appendix-A.
- b) Configuration/settings/corrections of equipments if required prior/post calibration.
- c) Issue of calibration certificate with NABL traceability of master equipments.
- d) Certificate of calibration shall incorporate Measurement uncertainty.
- e) All master instruments/equipments used for calibration shall bear valid calibration certificates traceable to National or International standards.
- f) All tools, tackles, measuring equipments & instruments required for the work are under the scope of the contractor.
- g) Collection of the equipments from CSL for calibration and return of the equipment at CSL after calibration are to be arranged by the contractor if the contractor's Lab is in a distance of more than 150 kms from CSL.
- h) Calibration is required for Non-Contact mode only for the Tachometer Photo/Contact type, Lutron DT-2230, Sl No. I.216053 (Item No.6).
- i) Channels of 20 Channel Multiplexer temp. readout to be calibrated are 101, 102,103,104, 121 (mA) and (122 mA).



#### **TENDER ENQUIRY NOTICE** – Calibration of Equipments of Ship Building Instrumentation Lab

- Do not use hydraulic oil for pressure module calibration of Multifunction calibrator Beamex MC2MF.
- k) For Platinum Resistance Thermometer (PRT), minimum Range to be calibrated: (-) 70 to 650 Deg C. Resistance temperature chart to be provided. (Excel copy with 0.01 Deg C intervals).
- l) The bidders are to carefully go through the calibration requirements and deviations if any shall be specifically brought out in the offer.
- m) Relevant page of scope of NABL accreditation shall be submitted along with the offer for verification.

#### 2. अंशांकन मानक / CALIBRATION STANDARD

a) National Accreditation Board for Testing and Calibration Laboratories (NABL), Quality Council of India.

#### 3. सीएसएल का दायरा / SCOPE OF CSL

- a) Delivery of the equipments at contractor's Lab for calibration and return of the equipment at CSL after calibration if the contractor's Lab is within 150 kms from Cochin Shipyard Ltd.
- b) Manual/Drawing of equipments if required for calibration.

## 4.सुरक्षा / सांविधिक दायित्व / SAFETY/STATUTORY RESPONSIBILITY

- a) The contractor shall be entirely responsible for the safety of all the personnel employed by him on the work. In this regard, he should adopt all the required safety measure and strictly comply with the safety regulations in force. A copy of CSL's "Safety Rules for Contractors (Revised)" is available with SBOC Department for reference.
- b) The Contractor should arrange to suitably insure all his workmen/other personnel in this regard. CSL will not be responsible for any injury or illness to the Contractor's workmen/other personnel during execution of the works due to whatsoever reasons.
- c) In this regard, the Contractor will have to fully indemnify CSL against any claims made by his workmen/other personnel.
- d) The Contractor shall provide and maintain so as to be readily accessible during all working hours, a first aid box with prescribed contents at every place where he employs contract labour for executing the works.

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Outsourcing Cell



#### **ANNEXURE-IV**

## तकनीकी वाणिज्यिक जांच सूची / TECHNO COMMERCIAL CHECK LIST (To be submitted by the bidder)

## TENDER NO. SB-OSD/GEN/757/2023 Dtd: 20.03.2023

(Bidders may confirm acceptance of the Tender Conditions/deviations if any to be specified)

SL No.	Tender Enquiry Requirements	Confirmation from bidder (strike off whichever is not applicable)	Specific comments /Remarks
1	Scope of work as per Technical Specification/Drawings/ General Terms & conditions (Annexure III)	Agreed as per tender /Do not agree	-
2	Submission of Information/ Documents with offer	Submitted/Not submitted	
3	Offer Validity (date)	90days - Agreed as per tender/Do not agree	
4	Completion period as mentioned in the tender enquiry is acceptable	Yes/ No	-
5	Payment terms - confirm		
a	100% Payment will be paid on within 30 days of successful completion of works	Agreed as per tender/Do not agree	-
b	Any others (Specify details)		
6	Deviations from Tender conditions	No Deviations /Deviations are specified	-



हस्ताक्षर / Signature: ठेकेदार का पता / Address of the Contractor मुहर / Seal:



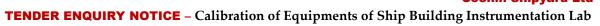
#### **ANNEXURE-V**

## मूल्य बोली प्रारूप / PRICE BID FORMAT

## TENDER NO. SB-OSD/GEN/757/2023 Dtd: 20.03.2023

## **CALIBRATION OF EQUIPMENTS OF SHIP BUILDING INSTRUMENTATION LAB**

SL/N	EQUIPMENT	PRICE/UNIT
О	EQUII WENT	I MCE/ONII
	Sika Digital pressure gauge	
1	Model:- LAB DMM,	
	Range:- 0 to 1000 Bar.	
	Precision Digital pressure gauge	
2	(0 to 700 Bar)	
	Make:BD Sensors GmbH, Model :	
	DM01 - 500HD .	
	Precision Digital pressure gauge	
3	(-1 to 20 Bar)	
	Make:-BD Sensors GmbH ,	
	DM01 - 500 .	
	Digital Pressure gauge 1400 Bar	
4	Make:- Additel . Model:-ADT681IS-05-	
	GP20K-BAR-B2,	
5	6 1/2 Digit Desktop Multimeter	
	AGILENT 34410.	
	20 Channel Multiplexer temp. readout	
6	(34972A LXI Data Acquisition switch	
0	34901A Multiplexer module 20 channel	
	Make:-:- Agilent(Keysight) .	
	Multifunction calibrator	
7	Beamex MC2MF ,	
'	with internal pressure module IPM160	
	(0 to 160 Bar).	
	Platinum Resistance Thermometer	
8	(PRT) (Reference RTD)	
	Make:-Fluke 5609,	
	Range: (-)200 to 670 Deg C,	King 1



ीन शिपयार्ड लिमिटेड									
SINCE 1972	IR Thermometer								
9	Make:Fluke,								
	Model No.Fluke -566.								
	IR Thermometer								
10	Make:Fluke,								
	Model No.62 MAX + ESPR.								
	Testo 176 P1, 5-Channel pressure,								
	temperature and humidity data logger								
11	(with internal pressure sensor,								
	humidity- temp probe). Make:-								
	Testo,								
	Lux meter,								
12	Make:Amprobe,								
	Model: LM-120,								
	Lux meter,								
13	Make:fluke, Model: 941								
	Range: 0 to 200,000 Lux.								
	Thermal Imager,								
14	Make: Fluke,								
	Model: Ti32,								
	DIGITAL SOUND LEVEL METER,								
15	Make: MECO,								
	Model: 970 P								
16	Tachometer Photo type ,								
	Lutron DT-2234B								
17	Tachometer								
	Photo/ <del>Contact</del> type, Lutron DT-2230,								
	Vane Anemometer								
18	Make: Fluke								
	Model: 925								
	Sound level meter								
10	Make: Fluke								
19	Model: 945								
	Sl No. 57830102								
SU	SUB TOTAL (SUM OF SL NO 1 TO 19)								
	GST @ 18 %								
	GRAND TOTAL  GRAND TOTAL  WITH PRINTED  WITH								



#### **TENDER ENQUIRY NOTICE** – Calibration of Equipments of Ship Building Instrumentation Lab

Gra	nd T	otal	am	our	ıt (i	n w	vor	ds)	Rι	ıpe	es.	• • • •	• • • •	 	• • • •			• • • •			• • •	• • • •	• • • •	• • • •	 
••••			••••				• • • •	• • • •	•••	• • • •		• • • •		 • • • •		• • • •	•••	• • • •	• • • •	• • • •	• • •	• • • •	• • • •	• • • •	 • • • • •
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#### **NOTE:**

- A. L1 will be determined based on Sub total Amount (Sl No. 1 to 19) excluding GST.
- B. GST as per the prevailing rate will be paid.
- C. L1 declaration will be based on the price bid verification by CSL finance dept as per the calculation specified.
- D. The rates quoted shall be also inclusive of collection of equipment from CSL, calibration, and return back to CSL. Cost includes all activities for the satisfactory completion of contract as specified in the Annexure-III of scope of work.

Signature of Contractor/authorized signature of firm or agency:

Name of contractor or authorised signatory of

firm/agency:

Designation:

Address:

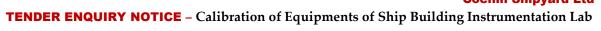
Contact No:



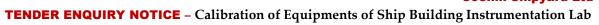


## APPENDIX - A

LIST OF EQUIPMENTS FOR CALIBRATION										
SL/ NO	DESCRIPTION	REMARKS								
1	Sika Digital pressure gauge Model:- LAB DMM, Range:- 0 to 1000 Bar. Sl No.100728253 - 914089 Accuracy:- 0.05% of FS									
2	Precision Digital pressure gauge (0 to 700 Bar) Make:BD Sensors GmbH, Model: DM01 - 500HD . Sl No . 10016219 Accuracy: 0.05% FSO									
3	Precision Digital pressure gauge (-1 to 20 Bar) Make:-BD Sensors GmbH, DM01 - 500. Sl No.10011643 Accuracy: 0.05% FSO									
4	Digital Pressure gauge 1400 Bar Make:- Additel . Model:-ADT681IS-05- GP20K-BAR-B2 , SL NO.211H18B90010. Accuracy:0.05% of FS									
5	6 1/2 Digit Desktop Multimeter AGILENT 34410. Sl No. MY53011532.									
6	20 Channel Multiplexer temp. readout (34972A LXI Data Acquisition switch Sl No.MY49019164 & 34901A Multiplexer module 20 channel Sl No. MY41233214) Make:-:- Agilent(Keysight) .	Channels to be calibrated:-Channels 101, 102,103,104, 121 (mA) and (122 mA)								
7	Multifunction calibrator Beamex MC2MF , Sl No.22176 with internal pressure module IPM160 (0 to 160 Bar).	Do not use hydraulic oil for pressure module calibration.								



चीन शिपयार्ड लिमिटेड		
8	Platinum Resistance Thermometer (PRT) (Reference RTD) Make:-Fluke 5609, Range: (-)200 to 670 Deg C, Sl No.3213.	Range to be calibrated: (-)70 to 650 Deg C. Resistance temperature chart to be provided. (Excel copy with 0.01 Deg C interval)
9	IR Thermometer Make:Fluke, Model No.Fluke -566. Sl No.16490061	
10	IR Thermometer Make:Fluke, Model No.62 MAX + ESPR. Sl No.30440188 WS	
11	Testo 176 P1, 5-Channel pressure, temperature and humidity data logger (with internal pressure sensor, humidity- temp probe). Make:-Testo, Sl No.41000206-104 with 20588794/804.	
12	Lux meter, Make:Amprobe, Model: LM-120, Sl No.15030305. Range: 0 to 200,000 Lux. Accuracy:± 3% (Calibrated to standard incandescent lamp at 2854°K)	
13	Lux meter, Make:fluke, Model: 941, Sl No.51280369. Range: 0 to 200,000 Lux. Accuracy:± 3% (Calibrated to standard incandescent lamp at 2854°K)	
14	Thermal Imager, Make: Fluke, Model: Ti32, Sl No.Ti32-12010241	



SINC	HAND EIMITED	DICITAL COUND LEVEL METER	
	15	Make: MECO, Model: 970 P Sl No.20181000	
	16	Tachometer Photo type , Lutron DT-2234B Sl No. AD91644,	
	17	Tachometer Photo/ <del>Contact</del> type, Lutron DT-2230, Sl No. I.216053	Calibration required Non-Contact mode only. (Contact mode not working)
	18	Vane Anemometer Make: Fluke Model: 925 Sl No. 1111701	
	19	Sound level meter Make: Fluke Model: 945 Sl No. 57830102	

