

HLL LIFECARE LIMITED
(A Government of India Enterprise)
PEROORKADA.P.O,
THIRUVANANTHAPURAM - 695 005
KERALA, INDIA

TECHNICAL BID

**SUPPLY, INSTALLATION ,TESTING AND
COMMISSIONING OF CONTROL PANEL BOARD
INCLUDING MACHINE WIRING , EARTHING ,
ILLUMINATION AND INSTALLATION OF CONTROLS
OF CONVEYOR TYPE ELECTRONIC TESTING
MACHINE**

IFB No : HLL/CED/KFC/MET- ELE/2015
Date : 24- 08-2015

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CERTIFICATE OF CONFIDENTIALITY

We understood that HLL Lifecare Limited is the sole owner of the technology and equipment specification & drawings given to us. We hereby certify that the details given to us will be kept confidential and will not be used for any other purpose or transferred to third party.

SIGNATURE (S) OF BIDDER

(To be submitted in the letter pad of the firm indicating full name and address, telephone & fax numbers etc.)

TECHNICAL BID

1. Bid Information

- 1.1 The Technical Bid must include the following information;
- a. Proposed period of Completion.
 - b. All information requested in the bidding document.
 - c. The details specified under Technical bid evaluation criteria.

2. PRE-QUALIFICATION CRITERIA

These sheets should be filled up after reading the complete bidding document and the relevant details asked for detailed as below should be enclosed with this bid.

- 2.1. Bidders should have minimum 5 years experience in the relevant field and should have executed successfully two fabrication works, each work costing not less than Rs.10 lakhs during the last 5 years.
- 2.2. Average annual financial turnover of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least Rs.10 Lacs
- 2.3. The list of major similar jobs executed satisfactorily in last five years, giving details of type of work, name & address of client, value of job & duration including photos and copies of major orders with completion certificate from the client
- 2.4. Earnest Money Deposit in the manner specified.
- 2.5. Power of Attorney in case an authorized representative has signed the tender.
- 2.6. The duly signed acceptance form conforming that All terms & conditions, technical specifications, drawings & volume of job are understood by the bidder. Certificate that bid is in total conformity with the specifications and terms and conditions mentioned in the bid document and certificate on period of validity (sheet enclosed)
- 2.7. Deviation if any, giving reasons for the deviation.
- 2.8. List of Plant & Machinery, tools & tackles available with the contractor and intended to be used in the said job to be filled in the enclosed sheet.

- 2.9. Total list of technical staff, labour (skilled & unskilled) intended to be deployed in the said job to be filled in the enclosed sheet.
- 2.10. Information regarding projects in hand
- 2.11. Information regarding bidder such as Litigation, orders regarding expulsion or black listing, if any
- 2.12. Even though the bidder meet the above qualifying criteria, they are subject to be disqualified if they have a record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.
- 2.13. Assurance that the Contractor shall take insurance policy as mentioned in the bid jointly in the name of HLL and the Contractor, valid till completion of the awarded work.
- 2.14. HLL Lifecare Limited is the sole owner of the technology and equipment specification & drawings given along with the bidding document and drawings to be given to the Contractor. The details given to bidders and Contractor should be kept confidential and should not be used for any other purpose or should not be transferred to third party. The bidders should certify that the information given to them will not be used for any other purpose.
- 2.15. In addition to the above, HLL will evaluate the technical knowledge, fabrication facility and the potential of the party to undertake the work. The decision of HLL will be final and binding.

Note: - HLL does not bind itself to accept the lowest or any tender, and reserves to itself the right to accept or reject any or all the tenders, either in whole or in part without assigning any reason for doing so.

APPLICATION FOR PREQUALIFICATION

Name of Work : Supply, Installation ,Testing And Commissioning Of Control Panel Board Including Machine Wiring , Earthing , Illumination And Installation Of Controls Of Conveyor Type Electronic Testing Machine

A. Name of Contractor/Firm/Company :

1. Postal address :

2. Telephone No.: FAX : E-Mail :

3. Year of commencement of Contract/Year of establishment of firm/Company :

B. In the case of Firm

1. Whether proprietary or partnership firm :

2. Name of Managing Partner :

3. Name of other partners :

Note: Attested copy of partnership deed to be enclosed

C. In the case of Company

1. Whether Private Limited or Public Limited Company :

2. Name of Managing Director :

3. Names of other Directors :

Note: Attested copy of Company Registration deed to be enclosed.

- D. Bidder should have minimum 5 years experience in the relevant field and should have executed successfully two fabrication works, each work costing not less than Rs .10 lakhs/-, during the last 5 years

Enclose 2 completion certificates from the clients certified that similar fabrication works costing not less than Rs.10 lakhs/- are completed satisfactorily. The Client list shall also be enclosed.

The list of major similar jobs executed satisfactorily in last five years, giving details of type of work, name & address of client, value of job & duration including photos and copies of major orders with completion certificate from the client shall also be enclosed.

Note: Details to be furnished in **Annexure I**

- E. Information regarding projects in hand Note: Details to be furnished in **Annexure II**

- F. Average annual financial turn over of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least Rs. 10 Lakhs

- a. Annualized turn over of the Contractor/Firm/Company in the last 3 years ending 31.03.2015

- | | |
|-----------------|------|
| 1. 2012 – 2013: | INR. |
| 2. 2013 – 2014: | INR. |
| 3. 2014 - 2015: | INR. |

Note: Details to be furnished in **Annexure III**

- G. Has the Contractor/ Firm/Company ever been black listed by the Govt /or the registering authority.

i) If so, give the period and details.

- H. Details of Organization :

- | | |
|------------------------|--------------------------------|
| 1. Technical personnel | : i) No. of Graduate Engineers |
| | : ii) No. of Diploma holders : |

2. Non Technical Management

(Details to be enclosed in **Annexure IV- A & B**)

- I. Completion Period: in **Annexure V** (filled and enclosed)
- J. Acceptance Form in **Annexure VI**
- K. CERTIFICATE for authenticity of information provided with Offer as per **Annexure VII**

I/We hereby certify that the details given in the application form and Annexure I to Annexure VIII are correct to the best of my/our knowledge. I /We have no objection, in Owner (HLL Lifecare Limited) contacting any of our clients for reference.

Signature

Name and address of the Party

Place:

Date:

ANNEXURE - I**LIST OF MAJOR JOBS EXECUTED DURING THE LAST FIVE YEARS**

SL.NO	DETAILS OF WORK	CONTRACT VALUE (In Lakhs)	NAME & ADDRESS OF CLIENT	COMPLETION TIME AS PER ORDER (In months)	ACTUAL TIME TAKEN
1					
2					
3					
4					
...					

SIGNATURE OF BIDDER

Note:- Bidders should have executed successfully two fabrication works, each work costing not less than Rs.10lakhs, during the last 5 years. Enclose 2 completion certificates from the clients certified that similar fabrication works costing not less than Rs.10 Lakhs are completed satisfactorily

ANNEXURE-II

DETAILS OF ONGOING PROJECTS			
Sl. No.	Name of Client with full address, telephone numbers and nature of work	Order details such as quantity, completion time etc.	Value of works
1			
2			
3			
4			

ANNEXURE III

(ENCLOSE DETAILS OF ANNUALISED TURN OVER OF THE CONTRACTOR/FIRM/COMPANY IN THE LAST 3 YEARS ENDING 31-03-2015)

2012 - 2013: INR.

2013– 2014: INR.

2014 - 2015: INR.

(Enclose audited Balance sheets in proof for the above period)

Note: Average annual financial turn over of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least INR 10 Lacs

ANNEXURE- IV - A

BIDDER'S TECHNICAL STAFF

1. NUMBER OF QUALIFIED GRADUATE ENGINEERS WITH DISCIPLINE.
2. NUMBER OF QUALIFIED GRADUATE ENGINEER INTENDED TO BE POSTED/DEPLOYED ON THIS PROJECT
3. NUMBER OF QUALIFIED DIPLOMA ENGINEERS WITH DISCIPLINE.
4. NUMBER OF QUALIFIED DIPLOMA ENGINEERS INTENDED TO BE POSTED ON THIS PROJECT
5. NUMBER OF EXPERIENCED SUPERVISORS
6. OTHER STAFF

SIGNATURE OF BIDDER

ANNEXURE- IV - B

SKILLED, SEMI-SKILLED AND UNSKILLED LABOUR

SL.NO	CATEGORY	NOS.AVAILABLE WITH THE FIRM	NOS. INTENDED TO BE DEPLOYED IN THIS PROJECT
1.	SKILLED		
2.	SEMI-SKILLED		
3.	UNSKILLED		

SIGNATURE OF BIDDER

ANNEXURE – V
COMPLETION PERIOD

SIGNATURE OF THE BIDDER WITH SEAL

Note: - The bidder should complete the subjected work within a period of **3 WEEKS** from the date of receipt of confirmed order.

ANNEXURE-VI

ACCEPTANCE FORM

(To be submitted in the letter pad of the firm indicating full name and address, telephone & fax numbers etc.)

From

To

Associate Vice President,
Central Engineering Division,
HLL Lifecare Limited (A Government of India Enterprise),
PB No 2, Peroorkada, Thiruvananthapuram – 691005,
Kerala State, India
Phn: (++91 471) 2433374,2437270 – 501, 502, 503
Tele Fax: (++ 91 471) 2432647
E-mail: srnair@lifecarehll.com, rajeevrv@lifecarehll.com,
harikrishnankp@lifecarehll.com

Dear Sir,

I / We, hereby offer to fabricate/assemble/lead/install/integrate/test/commission as detailed in schedule hereto or such portion thereof as you may specify in the acceptance of Bid at the price given in the price bid and agree to hold this offer open till 90 days after the date of bid opening prescribed by the Owner. I/We have understood the terms and conditions mentioned in the invitation for bid and Conditions of Contract furnished by you and have thoroughly examined the specifications quoted in the bid document hereto and are fully aware of the nature of the scope of work required and my/our offer is to comply strictly in accordance with the requirement and the terms and conditions mentioned above. I/We have understood that the OWNER is the sole owner of the technology, equipment, specification and drawings given along with the bidding documents. I/we here by assure that the above information will be kept confidential and will not be used for any other purpose or will not be transferred to third party.

Yours faithfully,

SIGNATURE OF THE BIDDER

ANNEXURE VII

CERTIFICATE FOR AUTHENTICITY OF INFORMATION

I / we hereby certify that the information given with this bidding document is correct. If, at any stage, it is found to be incorrect, I / we understand that the contract will be liable to be terminated and action could be taken against me/us by the Company for damages.

SIGNATURE (S) OF BIDDER WITH SEAL

(To be submitted in the letter pad of the firm indicating full name and address, telephone & fax numbers etc.)

CHECKLIST FOR TECHNICAL BID

SI NO	PARTICULARS	ATTACHED (YES/NO)
1.	EMD as prescribed in the Tender	
2.	Certificate of Confidentiality	
3.	Application for Pre-Qualification duly filled	
4.	Annexure I	
5.	Annexure II	
6.	Annexure III	
7.	Annexure IV-A	
8.	Annexure IV-B	
9.	Annexure V	
10.	Annexure VI	
11.	Annexure VII	

**HLL LIFECARE LIMITED
(A Government of India Enterprise)
PEROORKADA.P.O,
THIRUVANANTHAPURAM - 695 005
KERALA, INDIA**

PRICE BID

**SUPPLY, INSTALLATION ,TESTING AND
COMMISSIONING OF CONTROL PANEL BOARD
INCLUDING MACHINE WIRING , ELECTRONIC
TESTING ,EARTHING , ILLUMINATION AND
INSTALLATION OF CONTROLS OF CONVEYOR
TYPE ELECTRONIC TESTING MACHINE**

IFB No : HLL/CED/KFC/MET- ELE /2015

Date : 24- 08- 2015

HLL LIFECARE LIMITED
(A Government of India Enterprise)
PEROORKADA.P.O,
THIRUVANANTHAPURAM - 695 005
KERALA, INDIA
Phn: - (++ 91 471) 2437270
Fax: - (++ 91 471) 2432647

INVITATION FOR BIDS (IFB)

IFB No : **HLL/CED/KFC/MET- ELE /2015**
Date : **24-08-2015**

HLL Lifecare Limited (HLL), a Government of India Enterprise is in the process of fabricating conveyor type electronic testing machine for testing male condoms. For the said project, sealed and super scribed bids are invited from competent and experienced Suppliers/Contractors who are capable to do the following work meeting the requirements as per our tender.

SI No	Brief description of work	Quantity	EMD (Rs.)
1	Supply, Installation ,Testing and Commissioning of Control Panel Board including Machine Wiring , Electronic Testing, Earthing , Illumination And Installation of Controls of Conveyor Type Electronic Testing Machine	As per Schedule	10,000/-

2. Eligibility criteria

- a) Minimum 5 years experience in the relevant field
 - b) The Bidder should have executed successfully two fabrication works, each work costing not less than Rs 10Lacs during the last 5 years.
 - c) Average annual financial turn over of the bidder during the last 3 years, ending 31st march of the previous financial year, should be at least Rs.10Lacs
3. A complete set of bid documents can be had from the Office of the Associate Vice President (CED), Central Engineering Division, HLL Lifecare Limited, Peroorkada Factory, Thiruvananthapuram – 695 005, Kerala, India during office hours on any working day on submission of written application.

HLL LIFECARE LIMITED

The Tender Documents can also be downloaded from our Website www.lifecarehll.com from the date of issue of tender document. Tender forms shall be filled in ink or typed. No tender filled in pencil shall be considered. The tenderer shall sign and seal the form at each page and at the end, in token of acceptance of all the terms and conditions of the tender.

4. The bid documents will be available up to 15.00 Hrs. on the previous working day of the opening of the bids.
5. The scheduled date for issue, receipt and opening of bids is as follows.
 - a) Date of issue of tender document - 24-08-2015 onwards.
 - b) Last date and time for receipt of bids - 10-09-2015 up to 15.00 Hrs.
 - c) Date and time of opening of bids - 10-09-2015 , 15.30 Hrs.
 - d) Address for communication, receipt and place of opening of bids:

Associate Vice President,
Central Engineering Division,
HLL Lifecare Limited (A Government of India Enterprise),
PB No 2, Peroorkada, Thiruvananthapuram – 691005,
Kerala State, India
Phn: (++91 471) 2433374,2437270 – 501, 502, 503
Tele Fax: (++ 91 471) 2432647
E-mail: snair@lifecarehll.com, rajeevrv@lifecarehll.com,
harikrishnankp@lifecarehll.com

6. The completed and sealed bid documents and all schedules should be submitted to Associate Vice President (CED) in the above address along with the EMD. Bids received after due date and time will be rejected. Any bid not accompanied by EMD will be rejected
7. Bids will be opened in the presence of Bidders representative(s) who choose to attend on the specified date and time, at the office of HLL at the address given in Clause '5 (d)' above.
8. In the event of the date specified for bid receipt and opening being declared as a closed holiday for Owner's office, the due date for submission of bids and opening of bids will be the following working day at the appointed times.
9. The Owner may, at its discretion, extend this deadline for submission of bids by amending the Bid Documents or any other reasons, in which case all rights and obligations of the Owner and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.
10. Owner will not be held responsible for the postal delay, if any, in the delivery of the bidding document or the non-receipt of the same. Bids sent by Telex/Fax/Telegraph will not be accepted.

HLL LIFECARE LIMITED

11. The company reserves the right to club or split the items of works, change the qualifying criteria at their discretion and to reject or cancel the Invitation for bids without assigning any reason thereof.

ASSOCIATE VICE PRESIDENT (CED)

SCHEDULE I

CONDITIONS OF BID

1. Definitions

- a. **“Invitation For Bid (IFB)”** shall mean and include the present document, and such other complements and agenda, which may subsequently be issued in this connection.
- b. **“Owner”** shall mean HLL Lifecare Limited, (Thiruvananthapuram) or its units thereof.
- c. **“Bidder”** shall mean the person, firm of Corporation submitting a bid against this Invitation for Bid and shall also include his agents and representatives.
- d. **“Contractor/Fabricator”** shall mean the bidder whose bid has been accepted and shall also include his successors and assigns, agents and representatives.
- e. **“Contract”** means signed acceptance of the Letter of Intend, if issued, and work order by the Contractor.
- f. **“Site”** means the Owner’s manufacturing facility in **Peroorkada, Trivandrum and Cochin Special Economic Zone, Kochi** in Kerala.
- g. **“The bid documents”** in addition to the invitation for bids and Conditions of Bid (Schedule I), the bid documents include the following schedules.

SCHEDULE-II : General Conditions of Contract

SCHEDULE-III : Detailed Specification

SCHEDULE-IV : Schedule of Work

SCHEDULE-V : Format of Agreement

- h. **“Eligible Bidders”** This Bid is opened to all eligible manufacturers and/or their authorized agents.
- i. **“The contract price”** means the price payable to the Contractor under the contract for the full and proper performance of its contractual obligations.
- j. **“Performance of the Contract”** means successful completion of contract.

2. Bid Information and Period of Validity

2.1 Bidders shall submit their bids in two parts (TECHNICAL BID and PRICE BID)

2.2 The Technical Bid must include the following information;

- a. The details specified under Technical bid Evaluation Criteria.
- b. All other documents/certificate/information as specified in the bidding document.

- 2.3 The Price Bid must be as per the following
- a. **“Supply, Installation ,Testing and Commissioning of Control Panel Board including Machine Wiring , Electronic Testing, Earthing , Illumination And Installation of Controls of Conveyor Type Electronic Testing Machine”** as per the Specification, Terms and Conditions as specified in the Bid Documents. The Bidder shall indicate the price in the enclosed format **(Schedule – IV)** inclusive of all the consumables, relevant taxes and duties, other levies, insurance and other local costs, loading and unloading of Contractor’s materials etc. on a turnkey basis as per the Specifications, Terms and Conditions, Schedule of Work specified in the Bid Documents. Civil work is excluded from the scope of the Contractor.
 - b. Rates should be firm without any escalation on any account till the order is completely fulfilled.
- 2.4 Bids shall remain valid for 90 days after the date of bid opening prescribed by the Owner.

3. Format and Signing of Bid

- 3.1 Bidders shall submit their bids in two parts (TECHNICAL BID and PRICE BID) as under.
- a) Technical bids, in duplicate clearly marking each “Original Bid” and “Copy Bid”, as appropriate, consisting of the deviations in specifications if any, and also clause-by-clause compliance of Technical Bid evaluation criteria, specifications and commercial terms and conditions and EMD, in separate sealed covers super scribing “Technical Bid” inside a main cover.
 - b) Price bids, in duplicate clearly marking each “Original Bid” and “Copy Bid”, as appropriate, showing only item wise rates and total prices in separate sealed covers super scribing “Price Bid” inside a main cover.
- 3.2 When the main cover is opened on the date and time scheduled for bid opening, only the technical bids will be opened.
- 3.3 Bidders whose technical bids are found substantially responsive will be informed of the date and time of opening of their price bids. Price bids of others will be returned to them unopened.

- 3.4 All pages of the bid, except for un-amended printed literature shall be signed by the person or persons signing the bid. The seal of the company shall be stamped in all pages.
- 3.5 Bids shall be made in English.
- 3.6 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be signed by the person or persons signing the bid.

4. Submission of Bids

Sealing and Marking of Bids

- 4.1 The Bidder shall seal the original and each copy of the bid in an inner and then in an outer envelope, duly marked the envelopes as “original” and “copy”.
- 4.2 The inner and outer envelopes shall be:
- (a) Addressed to the Owner in the following address and
- Associate Vice President,
Central Engineering Division,
HLL Lifecare Limited (A Government of India Enterprise),
PB No 2, Peroorkada, Thiruvananthapuram – 691005,
Kerala State, India
Phn: (++91 471) 2433374,2437270 – 501, 502, 503
Tele Fax: (++ 91 471) 2432647
E-mail: srnair@lifecarehll.com, rajeevrv@lifecarehll.com,
harikrishnankp@lifecarehll.com
- (b) Bear the Enquiry No, closing date and General description of item tendered, and the words “DO NOT OPEN BEFORE” 15.30 Hrs (IST) on ---
----- (Indicate the Closing Date).
- 4.3 The inner envelopes shall indicate the name and address of the Bidder. If the outer envelope is not sealed and marked as indicated above, the Owner will assume no responsibility for the bid’s misplacement or premature opening.
- 4.4 Bids should be hand delivered or sent by courier/mail to ensure timely receipt. Telex, Cable, E-mail or facsimile bids will be rejected.

Deadline for submission of Bids

- 4.5 The Owner in the following address will receive the bids not later than the date and time specified in the Invitation for Bids or Subsequent extended dates.

Associate Vice President,
Central Engineering Division,
HLL Lifecare Limited (A Government of India Enterprise),
PB No 2, Peroorkada, Thiruvananthapuram – 691005,
Kerala State, India
Phn: (++91 471) 2433374,2437270 – 501, 502, 503
Tele Fax: (++ 91 471) 2432647
E-mail: snair@lifecarehll.com, rajeevrv@lifecarehll.com,
harikrishnankp@lifecarehll.com

In the event of the specified date for submission of Bids being declared a holiday for the Owner, the bids will be received up to the appointed time on the next working day.

- 4.6 The Owner may, at his discretion, extend this deadline for submission of bids by amending the Bid Documents or any other reasons in which case all rights and obligations of the Owner and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.
- 4.7 It is the responsibility of the bidders to see that the completed bidding documents whether sent by post or by courier or by person are received in the **Office of the Associate Vice President (Central Engineering Division)**, in the above address by the date and time stipulated for receipt as above failing which the bid would be considered late and rejected. Owner will not be held responsible for the postal delay, if any, in the delivery of the bidding document or the non-receipt of the same. Bids received after due date and time will be rejected. Mere handing over of the bid documents at reception counter or at any other counter or room or person cannot be considered as submission of bid.

5. Clarification of Bidding Documents

1. A prospective Bidder requiring any clarification of the Bidding Documents may notify the Owner in writing, or by fax at the Owners mailing address indicated in the Invitation for Bids. The Owner will respond in writing to any request for clarification of Bidding Documents, which it receives not later than 7 days prior to the deadline for submission of Bids prescribed by the Owner.

2. Given specification is indicative only. **The bidder should visit the plant and see the machines and also make their own assessments before quoting of bids.** Prior permission from HLL shall be taken for visiting the plant. No photographs will be allowed inside the plant. The Owner will not be responsible for any wrong quotes due to inadequate information.

6. Amendment of Bidding Documents

- 6.1 At any time prior to the deadline for submission of bids, the Owner may, for any reason, modify the Bidding Documents by amendment.
- 6.2 The amendment will be notified in writing or fax or telegram or e-mail to all prospective Bidders, which have received the Bidding Documents and will be binding on them.
- 6.3 In order to afford prospective Bidders reasonable time in which to take the amendment in to account in preparing their bid, the Owner may, at its discretion, extend the deadline for the submission of bids.

7. Bid Opening by Owner

- 7.1 The Owner will open bids, in the presence of the bidders' representatives who choose to attend, at the date and time specified and in the location given in this document. The Bidders' representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of bid opening being declared a holiday for the Owner, the bids shall be opened at the appointed time and location on the next working day.
- 7.2 The Bidders' names, the presence or absence of the requisite EMD and such other details as the Owner, at his discretion, may consider appropriate will be announced at the opening.
- 7.3 The Owner will prepare appropriate bid opening register and bidders present during the opening of the bids and Owner shall sign the same.

8. Clarification of bids

To assist in the examination, evaluation and comparison of bids, the Owner may, at his discretion, ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing with a dead line date and no change in the price or substance of the bid shall be sought, offered or permitted.

9. Preliminary examination

- 9.1 The Owner will examine the bids to determine whether they are complete, whether any computational errors, have been made whether required EMD has been furnished whether the documents have been properly signed, whether the bid validity is as required and whether the bids are generally in order.
- 9.2 The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Owner deems necessary and appropriate.
- 9.3 Prior to the detailed evaluation, the Owner will determine the substantial responsiveness of each bid to the bidding documents. For the purpose of these clauses, a substantially responsive bid is one which conforms to specifications and all the terms and conditions of the bidding documents without material deviation. The Owner's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.
- 9.4 A bid determined as not substantially responsive will be rejected by the Owner and may not subsequently be made responsive by the bidder by correction of the non-conformity.
- 9.5 The Owner may waive any minor informality or non-conformity or irregularity in a bid, which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any bidder.
- 9.6 The Owner's determination as to the substantial responsiveness or otherwise of each bid or consideration of a minor informality or non-conformity or irregularity is final and conclusive.

10. Evaluation and comparison of bids.

- 10.1 The Owner reserves the right to examine the details given in the technical bid by visiting the office and fabrication workshop/facility of the bidder and take decision based on the visit.
- 10.2 The Owner will technically evaluate all bids previously determined to be responsive and open the price bids previously determined to be substantially responsive and technically acceptable with intimation.

11. Post-qualification

- 11.1 Notwithstanding the qualification requirements given in this document, the Owner will determine to its satisfaction whether the Bidder selected as having submitted the lowest evaluated responsive bid is qualified to satisfactorily perform the Contract.
- 11.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be calculated. If there is a discrepancy between the words and figures, the amount in words shall prevail.
- 11.3 The Owner reserves the right to negotiate with the lowest evaluated responsive bidder.
- 11.4 An affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event the Owner will proceed to the next lowest evaluated bid to make a similar determination of that bidder's capabilities to perform satisfactorily.

12. Award Criteria

The Owner will award the Contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily for the items offered.

13. Notification of Award

- 13.1 Prior to the expiration of the period of bid validity, the Owner will notify the successful Bidder in writing by or cable or telex or fax, to be confirmed in writing by post, that its bid has been accepted. The notification of award may be sent in the form of Letter of Intend and/or Work order.
- 13.2 The signed acceptance of the notification of award & execution of agreement in the format attached on proper stamp paper by the Contractor will constitute a concluded contract.
- 13.3 Upon the successful Bidder's furnishing of Security Deposit, the Owner will discharge EMD submitted by unsuccessful bidders.

14. Security Deposit and Agreement

14.1 Simultaneously with the execution of the contract successful bidder shall furnish a Security deposit in the form of a Demand Draft from a nationalised bank drawn in favour of HLL Lifecare Ltd, Thiruvananthapuram payable at Thiruvananthapuram or a Bank Guarantee from a nationalised bank, for an amount equal to 5% of the total contract value as Security Deposit for his faithful execution of contract. The Security deposit should be valid until successful completion of the contract and acceptance of the Equipment/works by the Owner and will be released after acceptance of the Equipment by the Owner.

In case of a delay in the works the validity of security deposit shall be extended.

14.2 Within 21 days of the receipt of notification of award from the Owner; the successful Bidder shall furnish the security deposit in the form of a Demand Draft or Bank Guarantee in the security deposit form to be sent along with the Notification Of Award.

14.3 Failure of the successful Bidder to accept the notification of award or submission of security deposit within the timeframe shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD, in which even the Owner may make the award to the next lowest evaluated bidder or call for new bids.

14.4 The successful bidder should also sign an agreement with HLL on proper stamp paper within 21 days of award of work. The agreement format is enclosed as **Schedule V**.

15. Earnest Money

15.1 Each bid must be accompanied by E.M.D.

15.2 The EMD is required to protect the Owner against risk of Bidder's conduct, which would warrant the security's forfeiture

a. The EMD shall be in the form of Demand Draft from a nationalized bank drawn in favour of HLL Lifecare Limited, Thiruvananthapuram payable at Thiruvananthapuram.

b. E.M.D. of the unsuccessful bidders will be released after tabulating tenders, keeping only the earnest money of the first three lowest bidders. The earnest money deposit of the remaining two unsuccessful

bidders will be released after the acceptance of the notification of award by the successful bidder.

- c. In the case of successful bidder, the Earnest Money will be returned after signing the agreement and submission of Demand Draft towards Security Deposit, which they will have to offer for the faithful execution of the contract.

15.3 The EMD may be forfeited:

- (a) If a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Document; or
- (b) In case of the successful Bidder, if the Bidder fails:
 - (i) to sign the agreement.
 - (ii) to furnish security deposit.
 - (iii) does not accept the correction of his bid price pointed out by HLL

SCHEDULE - II

GENERAL CONDITIONS OF CONTRACT

1. PROJECT INFORMATION

The detailed information of the project given below is as per Owner's present requirement. However, it is not binding on the Owner in any way and shall not govern the scope of works.

2. LOCATION

The machine's electrification has to be done at HLL's as per **tender specifications** and to be installed and commissioned in the HLL's factory at Cochin Special Economic Zone, Kochi.

3. PRICE

Price quoted should be firm without any escalation till the order is completely executed and should be for complete Installation ,Testing and Commissioning of Control Panel Board including Machine Wiring , Earthing , Illumination And Installation of Controls, Integration, Testing and Commissioning of Conveyor Type Electronic Testing Machine as per Schedule on a turnkey basis as per the terms and conditions of this bidding document.

4. TAXES / DUTIES / LEVIES

The rates quoted for each item should be inclusive of all applicable taxes and duties and any other levies for the successful . Installation ,Testing and Commissioning of Control Panel Board including Machine Wiring , Earthing , Illumination And Installation of Controls, Integration, Testing and Commissioning of Conveyor Type Electronic Testing Machine

5. INSURANCE

The Fabricator shall at his own expense carry and maintain insurance with reputed insurance companies to the satisfaction of the Owner as under:

i) Insurance of employees:

The Fabricator shall accept full and exclusive liability for the compliance of all obligations and responsibilities imposed by the Employees State Insurance Act, 1948 and its amendments and any liability or penalty which may be imposed by the Central, State or Local Authorities due to the reason of

violation by the Contractor or sub-Contractor of the Employees State Insurance Act, 1948 and its amendments. The Contractor shall agree to fulfill the requirement of the Employees State Insurance Corporation and maintain the declaration forms and all such forms, which may be, required in respect of the Contractor's, sub-Contractor's employees who are employed in the work provided for or those covered by E.S.I.C. from time to time under the agreement. The Owner shall retain such sum as may be necessary from the total contract value until the Contractor shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948 and its amendments have been paid by him.

ii) Workmen's Compensation:

Insurance shall be affected for all the Contractor's employees engaged for this contract. The Contractor shall also carry and maintain all other insurance, which may be required under any law or regulations from time to time. He should also carry and maintain any other insurance, which may be required by the Owner.

iii) Loss or damage and Indemnity Agreement:

The Contractor shall be responsible during the progress of work as well as guarantee period for any liability imposed by law for any damage to work or any part thereof or to any of the material or other things including those of Owner used in performing the work or for injury to any person or persons or for any property damaged in or outside the site. The Contractor shall indemnify and hold the Owner harmless against all liabilities, claims, loss or injury, including costs, expenses and attorney's fees incurred in the defense of same, arising from any allegation whether groundless or not, of damage or injury to any person or property resulting from the performance of the work or from any material used in the work or from any condition of the work or work site or from any cause whatsoever during the progress and maintenance of the work.

iv) Third party insurance:

Before commencing the execution of the works the Contractor, but without limiting his obligations and responsibilities, shall insure against his liability for any material or physical damage, loss or injury which may occur to any property, including that of the Owner, or to any person, including any representative of the Owner, by or arising out of the execution of works or in the work being carried out by the Owner, by or arising out of the provision of clause 5 (iii) here of. Such insurance shall be affected with an insurer and in terms approved by the Owner.

v) The Contractor shall take suitable **Insurance** policy, jointly in the name of HLL Lifecare Limited and the Contractor and the insurance should be valid till the satisfactory completion of the work. The copy of the policy shall be deposited with HLL before commencing the work.

6. ESCALATION

The rates quoted by the Contractor in the contract documents shall be final and shall not be subjected to any change due to the increase in labour wages or inflation in the cost of materials or any other price variations due to any reason during the stipulated time period of the contract or during the extended time period of completion.

7. PAYMENT TERMS

The payment terms are as follows:-

- a) 50% of the order value shall be released against supply & acceptance of the materials at HLL site.
- b) Balance 30% shall be released on pro rata basis after satisfactory installation, integration, testing and trial run of the Conveyor Type Electronic Testing Machine and satisfactory continuous operation for a period of 7 days.
- c) Balance 10% of the payment on pro-rate basis shall be released within 45 days of satisfactory continuous operation for 2 shift operation/days (16 hrs) / 45days validation, performance evaluation in terms of quality, quantity and commissioning, and final acceptance certificate issued by the competent authority.
- d) The balance 10% payment shall be released against a Performance guarantee valid for a period of one year from the date of the issue of final acceptance certificate of the entire system.

Tax Deduction: All statutory deductions like Service tax, Income Tax, E.S.I., P.F. or any other government imposed liabilities for this labor contract shall be borne by the Contractor (as applicable at the time of execution of job) and shall be deducted from each bill submitted by the Contractor.

Owner will not entertain the presentation of documents through Bank.

8. DEFECT LIABILITY PERIOD

The defect liability period of the work shall be 12 months from the date of completion of the work and this date will start from successful completion and handing over. If any damage or defect occurs in the work during this period then the Contractor shall rectify the damage or defect at his own expense to the satisfaction of the Owner. If the Contractor fails to do so, then the Owner shall have the authority to get the work done by other means and the expenditure incurred shall be recovered from the Contractor.

Even if Inspection and/or tests are fully carried out by Owner or their representatives, the Contractor is not absolved to any degree of his responsibility to ensure that all equipment fabricated comply strictly with the requirements as per specifications given in the order, and the Owner shall be free to point out any defect till the defect liability period is over.

9. MATERIALS:

The consumables, tools, tackles, scaffolding and testing equipments etc required for fabricating the machines are to be supplied by the Fabricator. HLL will only supply the materials for fabrication. The safe storage of materials supplied shall be the responsibility of the Contractor.

10. PERIOD OF COMPLETION

The machines should be successfully commissioned at Owners site within **6 WEEKS** from the date of notification of award.

Time being the essence of the Contract, the completion period stipulated should be strictly adhered to. Delay in erection and commissioning of the equipment will cause loss and/or damage to Owner. The completion period shall be counted from the date of sending of Owner's intimation of acceptance of the Contractor's offer (Letter of Intent (LOI) and/or Work order).

The equipment should be erected, tested, commissioned and handed over to Owner strictly within the time stipulated.

11. ELECTRIFICATION SCHEDULE

The Contractor shall furnish to Owner, a PERT/BAR CHART, within 15 days of receipt of the Order. The PERT/BAR Chart, should give all important milestones. If any of the initial or intermediary milestones gets delayed for any reasons, the Contractor shall adjust the subsequent milestones in such a way that the final date for handing over of the equipment as per the Order is not effected.

12. PROGRESS REPORT

During execution of the contract, the Contractor shall furnish bi-weekly progress reports to the Owner indicating the progress achieved during the week and the total progress up to the last week as against scheduled and anticipated completion dates in respect of key phases of the work. The Contractor shall also furnish any other information in order to ascertain progress, if called for by the Owner.

13. LIQUIDATED DAMAGES FOR DELAYS

If the equipment is not erected, commissioned and handed over to the Owner within the time stipulated in the Order, Owner may at their option, either (1) recover from the Contractor liquidated damages at the rate of 0.5 % of the total contract value for every week of delay, subject to a maximum of 7.5 % of the total contract value, or (2) at the risk and cost of the Contractor and without prejudice to the other remedies/rights as per the Contract, terminate the order wholly or partially and complete it themselves or reassign it to other contractors.

14. INSPECTION AND TESTING

HLL shall have the right to inspect and measure the progress of execution of the Order. The Fabricator should make available all tools, instruments, apparatus, equipment, facilities and services to enable the Owner's nominee to carryout such inspection/tests without obligations. Notwithstanding any such inspection/tests carried out, the equipment shall be accepted only after successful commissioning at the site and the inspection/tests carried out earlier will not relieve his contractual obligations for conforming to the specifications under the Order.

15. DEFAULT BY CONTRACTOR

If the Contractor fails to maintain progress and quality of work proportionate to time period allotted for the work in spite of notices or complete the work within the stipulated time period or extended time period, then the Owner shall have the right:

- i) To determine the contract: In this event, the contract shall be terminated by giving written notice to the Contractor and the unfinished works shall be got completed by labours engaged by the Owner or through other agency at the risk and cost of the Contractor.

- ii) Without determining the contract: In this event, the remaining works shall be got executed through a fresh Contractor in which case the Contractor shall not have any objection or claim on this account.
- iii) Before determining the contract: In this event, if the Owner finds that the defaults of the Contractor can be rectified, then an opportunity shall be given to the same Contractor to rectify the defects /defaults in the specified time.
- iv) Termination of contract for death: If the Contractor is an individual of a proprietary firm and proprietor of the firm dies and if the Contractor is a Attorney of partnership firm and dies, then the Owner has the right to terminate the contract unless and until the Owner is satisfied that the surviving partners are capable of executing and completing the remaining contract. In case of termination of contract, the legal representatives of the deceased Contractor are not entitled for any compensation or claim. Also, the Owner shall not levy any penalty against the damage caused by incomplete work.
- v) Termination of Contract in part or in full for CONTRACTORS default: If the Contractor fails to execute the work in the manner described in the contract documents or if he at any time, in the opinion of the Owner:
 - a) Fails to carry out the works in accordance with the contract conditions or as per the specifications mentioned in the documents.
 - b) Stops the execution of works without giving prior information to the Owner.
 - c) Fails to carry out the works to the satisfaction of the Owner both with respect to qualities and time schedule.
 - d) Fails to supply sufficient or suitable tools, tackles, materials and labours etc.
 - e) Commits breach of any of the provisions of the contract.
 - f) Abandons the work.
 - g) Becomes bankrupt during the continuance of the work.

The Owner can terminate the contract in part or in full.

16. DELAY IN WORK EXECUTION DUE TO REASONS BEYOND CONTRACTOR'S CONTROL

- 16.1 Force majeure: If the execution of work is delayed due to force majeure, then Owner as per the affected period may extend the time period.
- 16.2 In case work is delayed due to non-availability of stores supplied by Owner or any decision by Owner holding the progress of work, the contractor then upon any such happening causing delay shall immediately but not later than 10 days, give notice thereof in writing to the Owner, but nevertheless use constantly his best effort to prevent or make good delay. The Owner may in his discretion grant such extension of time as may appear reasonable to him and the same shall be communicated to the contractor in writing and shall be final and binding on him and the contractor shall be bound to complete the work within such extended time

17. COMMITMENT OF CONTRACTOR

1. Interpretation of Contract documents:
2. All the documents forming part of the contract are to be taken as mutually explanatory, supplementary and complementary to each other. If there is any error, omission or discrepancy in any of them, it shall be brought to the notice of the Owner. The decision of the Owner shall be final and binding. The Contractor shall execute the work accordingly.
3. The Contractor shall examine all the contract documents thoroughly including the scope, nature and magnitude of works he has to execute in accordance with the contract documents.
4. There may be change in layout of site as per technical requirements and the Contractor shall not be entitled for any claim due to such changes & should carry out such changes.

18. STAFF AND WORKERS

The Contractor shall depute qualified engineers for execution of the project. The technical staff employed by the Contractor shall be responsible for the quality and workmanship of the work as per the satisfaction of the Owner. The Contractor's supervisory staff should follow the instructions given by Owner or his authorised representative. If any of the Contractor's staff members is incapable or in-experienced, in the opinion of the Owner, then he should be removed immediately and the Contractor should do suitable substitution.

Technical staff employed should be degree holder from a government-recognized institution or equivalent with at least 3 years practical experience of work in addition to Diploma holders and other experienced supervisory staff.

If the workers or the supervising staff of the Contractor are involved in riotous or illegal activities to such an extent that it becomes necessary to hand over the matter to the police then the Contractor would be solely responsible for the case and all the expenses incurred in the legal proceedings shall be borne by the Contractor.

19. CO-OPERATION WITH OTHER AGENCIES AT SITE

The Contractor or his authorised representatives must work in close co-operation with the agencies executing other works forming the part of the project and also with the representatives of the Owner for the execution of works which are not included in the contract. Contractor shall permit free access and generally afford reasonable facilities to other agencies or departmental workmen etc.

The Contractor's quoted amount/rate shall be deemed to cater for all the above contingencies and nothing extra shall be admissible on this account.

Contractor should keep his working site clean and the materials brought for work shall be kept in a properly stacked / stored way. The work site should be swept at the end of each working day after removal of debris / left over materials. The Contractor has to take full care so as not to spoil or damage other Contractor's/ Owner's job / material.

20. SAFETY OF ADJOINING PROPERTIES

The Contractor or his authorised representatives should conduct all the operations necessary for the execution of works in such a manner that no inconvenience / damage is caused to the properties of other persons & Owner.

21. SETTLEMENT OF DISPUTES

Any disputes or differences or questions or claims arising under or relating to or touching this agreement shall be referred for arbitration to a Sole Arbitrator under the provisions of the Arbitration and Conciliation Act 1996 or any statutory modification or re-enactment thereof for the time be in force. The award passed by the arbitrator shall be final and binding on the parties hereto.

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The contract shall be deemed to have been concluded at Thiruvananthapuram, Kerala and suits and proceedings, if any, shall be only in the courts of competent jurisdiction in Thiruvananthapuram.

The venue of arbitration shall be the place from where the contract is issued.

22. EXECUTION OF WORK

General:

All the works shall be executed in accordance with the detailed drawings, specifications and instructions to be given by the Owner or mentioned in the contract document.

Drawings:

The drawings given in the tender document are as per our present requirement and are meant for the purpose of giving idea of the type and quantum of work to be executed. The Contractor has to examine the existing machines at Owner's facility and discuss with Owner for the exact requirement. He should execute the work as per the detailed working drawings given to him from time to time for execution.

Inadequate/substandard works:

If any work executed by the Contractor is found to be of bad workmanship or not as per the drawings, then the same is to be dismantled and re-executed by the Contractor without claiming any extra payment or extension in time period.

Default of Contractor in compliance:

If the Contractor or his authorised representative fails to follow the instructions given by the Owner regarding any of the works, then the same shall be got executed by other persons employed by the Owner and the expenses incurred shall be borne by the Contractor.

Discrepancies between instructions:

If any discrepancy occurs between the various instructions conveyed to Contractor or his authorised representative or if any misunderstanding arises between the Contractor's staff and Owner's staff, the Contractor shall report the matter immediately to the Owner. The decisions of Owner shall be final and binding. Moreover, no claims for losses due to discrepancies between instructions, doubts or misunderstandings shall be admissible.

Change in specifications:

If there is any variation in specification or any change in make of item, then it has got to be approved from the Owner prior to installation or execution. The rate for the works not mentioned in the schedule will be derived from the rates of similar works mentioned in the schedule of work.

Work not specified in the specification:

If, for any work, no specification has been given in the tender document, then the work will be executed as per the IS specifications, and if the work is not covered by IS specifications also, then it should be executed as per standard engineering practice, subject to the approval of the Owner.

23. LIABILITIES FOR DEFECTS AND RECTIFICATIONS

If it shall appear to the Owner that any work has been executed with imperfect or unskilled workman, or of quality inferior to that contracted for, or otherwise not in accordance with the contract, the Contractor shall on demand in writing from the Owner or his representative specifying the work, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct that work so specified at his own charges and cost, and in the event of failure to do so within a period to be specified by the Owner or his demand aforesaid, the Owner may on expiry of notice period rectify or remove, re-execute the work at the risk of Contractor and the cost shall be recovered from the Contractor. The decision of the Owner as to any question arising under this clause shall be final and conclusive.

24. CARE OF WORKS

From the commencement to the completion of works, the Contractor shall take full responsibility for the care of all works including all temporary works and in case any damage or loss occurs then the Contractor shall at his own cost repair and make good the same so that on completion of the work, the same shall be in good order in every respect in accordance with the contract and to the satisfaction of the Owner.

25. LABOUR LAWS AND SAFETY REGULATIONS

Labour Laws:

- i) Labourers below the age of 18 years shall not be employed on the work.
- ii) The Contractor shall not pay less than what is specified by the law to labourers engaged by him on the work.
- iii) The Contractor shall, at his own expenses, comply with all labour laws and the Owner shall not be responsible for any recovery/penalty imposed by the respective authorities for violating the labour laws.
- iv) If the Contractor is covered under the Contract Labour (Regulation & Abolition) Act, he shall obtain a license from the licensing authority (i.e. the Office of Labour Commissioner), by payment of the necessary prescribed fee and deposit, if any, before starting the work.
- v) The Contractor shall furnish to the Owner, the details of the workers employed on the works.
- vi) The Contractor shall comply with the provisions of the existing rules and regulations relating to labour laws.
- vii) The Owner shall on a report having been made by an inspecting officer as defined in Contract Labour (Regulation and Abolition) Act, 1980, have the power to deduct from the amount due to the Contractor any sum required or estimated to be required for making good the losses suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract for the benefit of the workers, or if deductions made from his or their wages which are not justified by the terms of contract or non-observance of the said regulations.

Minor Accident on Duty:

For cases of minor accident on duty not covered under compensation by insurance, the Contractor shall have to compensate the affected person by reimbursing these medical expenses against submission of actual expenditure document. The absence from duty, if takes place, due to such accident shall be considered as special leave and full payment shall have to be made for duration of such absence.

Provident Fund:

It shall be solely the Contractor's responsibility to complete all provident fund formalities as per statutory regulations.

26. SAFETY CODE:

Safety and Protection:

The Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions. While carrying out the work, the Contractor should provide for;

- i) Safety of personnel engaged in the construction.
- ii) Protection and safety of works and materials during their progress.
- iii) Sanitary and hygienic conditions of working and living for his workers, as required by the Owner.

Use of Safety Gadgets:

The Contractor shall have to ensure availability and use of all desired safety gadgets like safety belts, helmets, goggles, hand gloves etc.

Unsafe working condition:

If any activity is found to be progressing without proper and complete safety measures (including use of safety gadgets) being implemented, the Contractor may be asked to stop the work unless he fulfills the desired safety norms. Such delays shall not be allowed to be considered for extension in duration of the allotted time period.

First Aid:

The Contractor shall provide first aid facilities for his employees and those of his sub-CONTRACTORS. The requisite first aid box and medicines should always be available at work site.

Contractor's Barricades:

The Contractor shall erect and maintain barricades required in connection with his operations to guard or protect: -

- i) Excavations
- ii) Hoisting Areas
- iii) Areas adjudged hazardous by the Contractor's or Owner's representatives.
- iv) Charged electrical panels.

- v) Owner's existing property liable to get damaged by Contractor's operation.

Preservation of peace:

The Contractor shall take precautions to prevent any riotous or unlawful behavior by his workers, for the preservation of peace and protection of inhabitants and the security of property in the neighborhood of the work.

27. DETAILS OF WORK EXECUTION

- i) The work shall be done in such a manner so as to clear work front availability for other agencies working at site.
- ii) Finish of work shall be as per drawings & details given by Owner.
- iii) In general the complete work is to be done as per Indian Standard and esthetical norms as specified and detailed in Tender.

28. ELECTRICITY & WATER

Electricity and Water charges for fabrication works will be borne by HLL.

29. CONTRACTOR'S SCOPE OF SUPPLY

All consumables required for executing the jobs specified in the Schedule of Work, inclusive of welding gases, protective gears, all tools, tackles, scaffolding, consumables & testing equipments shall be procured and supplied by the Contractor at his own cost except for any items specified as Owner supplied.

30. RECOVERY FROM THE CONTRACTOR

- i) If the Contractor or his employees damage or destroy the property of the Owner, then the same shall be replaced/ refunded by the Contractor; otherwise the expenses may be recovered from his bill or security deposit.
- ii) All compensation & recoveries to be made as per terms of the contract shall be deducted from the Contractor's bill or security deposit.
- iii) Forfeiture of Security Deposit: Whenever any claim against the Contractor is to be recovered then the same may be made from the security deposit. If the Contractor abandons the work or leaves the work incomplete, then the Owner has the right to forfeit the security deposit.

31. SPECIAL INSTRUCTIONS

- a) The work should be carried out in truly professional manner, neatly finished with proper line, level and plumb. Cleanliness and finishing of the job is of utmost importance. Hence the job should be done most carefully with best workmanship. For all finishing jobs samples should be approved from the Owner before completely executing the work.
- b) The Owner should be immediately informed for any discrepancy in drawings, specifications and instructions in the execution of job before actual execution of particular item having discrepancy.
- c) Any item found to be having been executed with poor workmanship then the Contractor shall have to rectify /reconstruct the work as specified by Owner. No extra charge will be admissible in such case. If CONTRACTORS fails to do so, the Owner reserves the right to rectify/reconstruct the work through some other agency at the expenses of Contractor.
- d) The schedule of activities as submitted by the Contractor shall have to be strictly adhered to. Regular progress reports shall have to be submitted by the Contractor giving all details for monitoring of the schedule.
- e) Special care is to be taken for cleanliness of the site. After the end of day's work, the site should be cleaned immediately.
- f) The Contractor shall have to co-operate with the agencies executing other works in the same area.
- g) While executing the work, the Contractor shall ensure safety and security of the property of the Owner so as to avoid theft etc.

32. SECRECY

HLL Lifecare Limited is the sole owner of the technology, equipment specification and drawings given along with the bidding document and to be given to the Contractor. The details given to bidders and Contractor should be kept confidential and should not be used for any other purpose or should not be used or transferred to third party. The Contractor has to sign a secrecy agreement with the Owner.

SCHEDULE III**A.DETAILED SPECIFICATION OF CONVEYOR TYPE ELECTRONIC TESTING MACHINE**

I.	Name of Equipment	Conveyor Type Electronic Testing Machine.
1.	Quantity Required	1 No.
2.	Test item	Natural Rubber Latex Male Contraceptive Condoms
3.	Test Mandrels suitable to test following size of male condoms	Width = 49+/-2 mm, Length=170mm (Min), Thickness= 0.045 to 0.08mm and Width = 53+/-2mm, Length=180mm(Min), Thickness=0.045 to 0.08mm
4.	No. of Testing stations	4 Nos
5.	Speed	90moulds/min
6.	Capacity	0.58 MPcs/2shift
7.	Test voltage	1000V – 2000V, DC adjustable
8.	Air pressure	7 Bar (max)
9.	Process average for pinholes	Should be less than 1.5 AQL
10.	Process average for tight rolling& visual defects	should be less than 1.5 aql
11.	Final wastage (throw away) from covering operations	should be less than 0.25%
12.	Good in bad	should be less than 10%

**B.SPECIFICATION OF ELECTRICAL & INSTRUMENTATION COMPONENTS OF ET
MACHINE (4 STATION) – KFC**

SI No	Description	Preferred Make	Drawing Required	Unit	Qty	Standards required	Remarks
1	Supply and Installation of Panel Board						
a	Supply of PLC & HMI Panel Board with size 0.600x0.600x0.20 Mtrs with 2 mm Powder Coated CRCA Sheet (Wiring should be as per IS 732 & earthing of panel should be as per IS 3043/IEC 60364 , Panel should be as per IS 8437(Part 1&2) / IEC 60479-1&2 , IS 60529/IEC 60529 , IS 9409/IEC 61140 ,IS 9676, IS 5216 with Test Certificates)	Rittal/ Schneider/ ABB	Yes	Nos	2	Wiring should be as per IS 732 & Earthing of Panel should be as per IS 3043/IEC 60364, Panel should be as per IS 8437(Part 1&2) / IEC 60479-1&2, IS 60529/IEC 60529, IS 9409/IEC 61140, IS 9676, IS 5216 with Test Certificate.	HMI PV Component Graphical Terminal , Illuminated PB's ,Terminal blocks, Illumination lamps required with the panel.
b	Supply of VFD Panel Board with size 0.600x0.600x0.20 Mtrs with 2 mm Powder Coated CRCA Sheet (Wiring should be as per IS 732 & Earthing of Panel should be as per IS 3043/IEC 60364 , Panel should be as per IS 8437(Part 1&2) / IEC 60479-1&2 , IS 60529/IEC 60529 , IS 9409/IEC 61140 ,IS 9676, IS 5216 with Test Certificates)	Rittal/ Schneider/ABB	Yes	Nos	1	Wiring should be as per IS 732 & Earthing of Panel should be as per IS 3043/IEC 60364, Panel should be as per IS 8437(Part 1&2) / IEC 60479-1&2, IS 60529/IEC 60529, IS 9409/IEC 61140, IS 9676, IS 5216 with Test Certificate.	Input choke , Terminal blocks, Illumination lamps required with the panel.
c	Supply of Auxiliary Panel Board with size 0.500x0.500x0.20 Mtrs with 2 mm Powder Coated CRCA Sheet (Wiring should be as per IS 732 & Earthing of	Rittal/ Schneider/ABB	Yes	Nos	2	(Wiring should be as per IS 732 & Earthing of Panel should be as per IS 3043/IEC 60364 , Panel should be as per IS 8437(Part	Terminal blocks, Illumination lamps required with the panel.

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	Panel should be as per IS 3043/IEC 60364 , Panel should be as per IS 8437(Part 1&2) / IEC 60479-1&2 , IS 60529/IEC 60529 , IS 9409/IEC 61140 ,IS 9676, IS 5216 with Test Certificates)					1&2) / IEC 60479-1&2 , IS 60529/IEC 60529 , IS 9409/IEC 61140 ,IS 9676, IS 5216 with Test Certificates)	
2	Supply and Installation of PLC with HMI						
a	PLC (32 point Controller) with High and low voltage interface unit , Relay patch card , SMPS, selector switch , terminal block and (As per IEC 61131-3/IEC 61499/IEC 61508 with test and calibration certificates) Detailed specification is attached as per Annexure-1	Siemens/ ABB/ Allen Bradley/ Mitsubishi/L&T	Yes	Set	2	As per IEC 61131-3/IEC 61499/IEC 61508 with test and calibration certificates.	PLC (32 point Controller) with High and Low voltage card, relay patch card, selector switch, terminal block and SMPS.
b	HMI (7"to 10" Colour Display) Touch Screen Type, HMI PV Component graphic terminal, illuminated PBs , Terminal block (As per IEC 60297/IEC 60571/IEC 60812/IEC 61508/IEC 61131-1/IEC UL 61010-1/IEC 608NF & IS 2500 with Test & calibration certificates)	Siemens/ ABB/ Allen Bradley/ Mitsubishi/L&T	Yes	Set	2	As per IEC 60297/IEC 60571/IEC 60812/IEC 61508/IEC 61131-1/IEC UL 61010-1/IEC 608NF & IS 2500 with Test & calibration certificates.	HMI (7" to 10" Colour Display) Touch Screen Type, HMI PV Component graphic terminal, illuminated PBs , Terminal block
4	Supply and Installation of Main MCCB (As per IS 13032 , IS 13947/IEC 60947-5-2 , IS 9409/IEC 61140 , IS 8623 (part 1 to 3)/IEC 60439(1to 3), IS 8504/IEC 60216-4-2 , IS 60715/IEC 60715 ,IS 60898/IEC 60898 , IS 60947(Part 1&2)/IEC 60947, IS 10118(Part 1 to 4) , IS 60529/IEC					As per IS 13032, IS 13947/IEC 60947-5-2, IS 9409/IEC 61140, IS 8623 (part 1 to 3)/IEC 60439(1to 3), IS 8504/IEC 60216-4-2, IS 60715/IEC 60715, IS 60898/IEC 60898, IS 60947(Part 1&2)/IEC 60947, IS	

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	60529 , IS 9676) with Test Certificates.					10118(Part 1 to 4), IS 60529/IEC 60529, IS 9676) with Test Certificates.	
a	100 A, 4 Pole ,450 V MCCB , CAT A	L&T/ Siemens/ LS/Hager/ ABB	Yes	Nos	2		
5	Supply and Installation of Main Contactor(Digital) (As per IS 9676 , IS 9409/IEC 61140 , IS 13947/IEC 60947-5-2 ,IS 60715/IEC 60715 , IS 60947(Part 1&2)/IEC 60947,IS 10118(Part 1 to4) with Test Certificates					As per IS 9676 , IS 9409/IEC 61140 , IS 13947/IEC 60947-5-2 ,IS 60715/IEC 60715 , IS 60947(Part 1&2)/IEC 60947,IS 10118(Part 1 to4) with	
a	95 A, 3 Pole ,450 V, 230V Coil , DINRAIL	LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager	Yes	Nos	2		
6	Supply and Installation of MCB (As per IS 13032 , IS 13947/IEC 60947-5-2 , IS 9409/IEC 61140 , IS 8623 (part 1 to 3)/IEC 60439(1to 3), IS 8504/IEC 60216-4-2 , IS 60715/IEC 60715 ,IS 60898/IEC 60898 , IS 60947(Part 1&2)/IEC 60947, IS 10118(Part 1 to 4) , IS 60529/IEC 60529 , IS 9676) with Test Certificates					As per IS 13032 , IS 13947/IEC 60947-5-2 , IS 9409/IEC 61140 , IS 8623 (part 1 to 3)/IEC 60439(1to 3), IS 8504/IEC 60216-4-2 , IS 60715/IEC 60715 ,IS 60898/IEC 60898 , IS 60947(Part 1&2)/IEC 60947, IS 10118(Part 1 to 4) , IS 60529/IEC 60529 , IS 9676) with Test Certificates	
a	16 A , 4 Pole ,450 V	L&T/ Siemens/ LS/Hager/ABB	Yes	Nos	4		
b	10 A , 3 Pole,450 V	L&T/ Siemens/ LS/Hager/ABB	Yes	Nos	14		

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c	10A, 2 Pole ,230 V	L&T/ Siemens/ LS/Hager/ABB	Yes	Nos	12		
d	10A,2Pole , 24 V DC	L&T/ Siemens/ LS/Hager/ABB	Yes	Nos	6		
e	6A,2Pole , 24 V DC	L&T/ Siemens/ LS/Hager/ABB	Yes	Nos	12		
7	Supply and Installation of Contactor(Digital) (As per IS 9676 , IS 9409/IEC 61140 , IS 13947/IEC 60947-5-2 ,IS 60715/IEC 60715 , IS 60947(Part 1&2)/IEC 60947,IS 10118(Part 1 to4) with Test Certificates					As per IS 9676 , IS 9409/IEC 61140 , IS 13947/IEC 60947-5-2 ,IS 60715/IEC 60715 , IS 60947(Part 1&2)/IEC 60947,IS 10118(Part 1 to4) with Test Certificates	
a	10 A, 3 Pole ,450 V, 230V Coil , DINRAIL	LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager	Yes	Nos	8		
b	6 A, 3 Pole ,450 V, 230V Coil , DINRAIL	LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager	Yes	Nos	12		
8	Supply and Installation of Soft Starters (As per IS 60947(Part 4 & Section 2)/IEC 60947-4-1 & 2) with Test Certificates)					As per IS 60947(Part 4 & Section 2)/IEC 60947-4-1 & 2) with Test Certificates.	
a	0-5 A,3P,450V (1 HP)	LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager	Yes	Nos	10		
b	0-2 A,3P,450V (0.5 HP)	LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager	Yes	Nos	4		
9	Supply and Installation of Emergency Push Button Stop (with display and alarm) (As					As per IEC 60947-5-5) with Test Certificates.	

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	per IEC 60947-5-5) with Test Certificates						
a	Emergency Push Button Stop (with display and alarm) 5A, 450V,22.5MM OD	ABB/EAO/Schneider	Yes	Set	8		
10	Supply and Installation of illuminated Control Button (As per IEC 60947-5-1/ IEC 60947-5-2 & IS 60529/IEC 60529 with Test Certificates)					As per IEC 60947-5-1/ IEC 60947-5-2 & IS 60529/IEC 60529 with Test Certificates.	
a	Illuminated Control Button with JB	ABB/Schneider	Yes	Nos	8		
11	Supply and Installation of Power Supply(24 V DC) (As per IEC 61850-3/IEC 60950-1) with Test & Calibration Certificates					As per IEC 61850-3/IEC 60950-1) with Test & Calibration Certificates.	
a	Power Supply(24 V DC)	Meanwell/GE/MT L	Yes	Nos	1		
12	Supply and Installation of Variable Frequency Drive (VFD) (As per IEC 60034-2-3) with input choke with Test & Calibration Certificates					As per IEC 60034-2-3) with input choke with Test & Calibration Certificates.	
a	1 HP VFD , 3Ph with input choke	ABB/Allen Bradley/GE/Moeller/Vagon	Yes	Nos	1		
13	Supply and Installation of Digital Multi Function Meter (Trivector Meter) (As per IS/IEC 60870-5-101/104 / IEC 62053-22) with Test & Calibration Certificates					As per IS/IEC 60870-5-101/104 / IEC 62053-22) with Test & Calibration Certificates.	
a	Digital Multi Function Meter (Trivector Meter)	L&T/ Secure/ Rishab/	Yes	Set	4		

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		Convers					
14	Supply and Installation of illuminated Push Button (As per IS/IEC 60947-5-1/IEC61058-1) with Test Certificates					As per IS/IEC 60947-5-1/IEC61058-1) with Test Certificates.	
a	illuminated Push Button (Red & Green)	ABB/ Schneider	Yes	Nos	4(ea ch)		
15	Supply and Installation of Solenoid Valve Control (As per IS/IEC 61508/IEC 61511) with Test Certificates					As per IS/IEC 61508/IEC 61511) with Test Certificates.	
a	Solenoid Valve Control with 2/2(8 No's) , 1/2 , 5/2(4 No's) valves and 150 Mtrs Each 6mm and 8mm PU (Poly UrathaneTube) and with suitable end connectors for the same	Festo	Yes	Set	12		
16	Supply and Installation of Air Regulators (As per IS/IEC 61508/IEC 61511) with Test Certificates					As per IS/IEC 61508/IEC 61511 with Test Certificates	
a	Air Regulators(25 Gauge)	Festo	Yes	Set	6		
17	Supply and Installation of Cables and Accessories (As Per IS 649/ IEC 60227, IS 1255, IS 10810 (Part 0 to 64), IEC 60189 (1 to 3), IEC 60304, IEC 60028, IEC 60332-3, IEC 60227(1 to 5), IEC 60719, IEC 60228.) with test certificates					As Per IS 649/ IEC 60227, IS 1255, IS 10810 (Part 0 to 64), IEC 60189 (1 to 3) , IEC 60304, IEC 60028 , IEC 60332-3,IEC 60227(1 to 5), IEC 60719 , IEC 60228.) with test certificates	
a	4x2.5 sq mm Cu cable	Lapkabel	Yes	Mtr	175		

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b	3x1.5 sq mm Cu cable	Lapkabel	Yes	Mtr	150		
18	Supply and Installation of Current Transformer (CT) (As per IS 2705 (Part 1 to 4)/IEC 60185) with test certificates					As per IS 2705 (Part 1 to 4)/IEC 60185) with test certificates	
a	CT	Rittal/ Schneider/ ABB	Yes	Set	12		
19	Supply and Installation of Junction Boxes (As per IS 60529/IEC 60529) With test certificates.					As per IS 60529/IEC 60529) With test certificates.	
a	Junction Boxes	Reputed make	Yes	Nos	10		
20	Supply and Installation of Other Panel Accessories						
a	Cabin Fan (0.06 Kw , 230 V)	CGL/ Havels/ Bajaj	Yes	Nos	8	As per relevant IS/IEC Standards	
b	Filter 6"	Reputed make	Yes	Nos	8	As per relevant IS/IEC Standards	
c	Plug & Socket	Havels/ Anchor	Yes	Nos	8	As per relevant IS/IEC Standards	
d	Panel Light	Philips/ Havels	Yes	Nos	8	As per relevant IS/IEC Standards	
e	Junction Box	Rittal	Yes	Nos	8	As per IS 60529/IEC 60529) With test certificates.	
21	Supply and installation of Earthing Materials for Machine Earthing					Earthing should be as per IS 3043/IEC 60364	
a	Double stranded Cu flat (25x3mm) earthing of machine with double earthing to all the motors, Junction boxes and Panels.	Reputed make	Yes	Mtr	60		

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b	Panel Door Earthing(Braided Cu cable)	Reputed make	Yes	Mtr	15		
22	Supply and Installation of Earth Leakage Relay (Digital) (As per IS 9249 (Part 1 to 2) /IEC 60414) with test and calibration certificates						
a	Earth Leakage Relay (Digital with display).	Schneider/ Provac Devices/ Minilec	Yes	Set	4		
23	Supply and Installation of Hooter (As per IS 2148/IEC 60079-1 , IEC 60529, IEC 61140) with test and calibration certificates					As per IS 2148/IEC 60079-1 , IEC 60529, IEC 61140) with test and calibration certificates	
a	Panel On/Off, Emergency, Trip and reset with 3 Different alarms for Different purpose, 230 V AC with Mount bracket and base.	Baliga/ Schneider/ Provac	Yes	Set	1		
24	Supply and Installation of Tower Light (As per IS/IEC60947-5-1,IEC 60529/IEC 61140) with test certificates					As per IS/IEC60947-5-1,IEC 60529/IEC 61140) with test certificates	
a	230 V AC Type with buzzer and Flash light with base and mount bracket.	Schneider/ L&T	Yes	Set	1		
25	Surge Protection Device(SPD) (As per IS/IEC 61643-1,IEC 60364-4-44 , IEC 60529/IEC 62305(1 to 5)with test and calibration certificates					As per IS/IEC 61643-1,IEC 60364-4-44 , IEC 60529/IEC 62305(1 to 5) with test and calibration certificates	
a	Surge Protection Device(SPD)	L&T/Hager/ Schneider/	Yes	Nos	4		

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		ABB					
26	Supply and Installation of Isolators					As per relevant IS/IEC Standards	
a	63 A Isolator Switch(Digital)	L&T/ABB/Siemens	Yes	Set	1		
27	Supply and Installation of Safety Guard Sensor					As per relevant IS/IEC Standards	
a	Safety Guard Sensor	Omron/IFM	Yes	Nos	8		
28	Supply and Installation of Nozzle type Air Ionizers					As per relevant IS/IEC Standards	
a	Nozzle type Air Ionizers	Valance	Yes	Nos	4		
29	Supply and Installation of Ionizer Controller (Common for 2Nozzles)					As per relevant IS/IEC Standards	
a	Ionizer Controller (Common for 2Nozzles)	Valance	Yes	Nos	4		
30	Supply and Installation of Digital Display board(LED)					As per relevant IS/IEC Standards	
a	Digital display board (LED) Re-programmable type.	Sony/Samsung	Yes	Set	4		
31	All the Electrical & Instrumentation work should be executed as per Annexure -2						
32	Optional SCADA gate way specifications given as Annexure-3						

SCHEDULE

B.SPECIFICATIONS OF TESTING UNIT FOR ET MACHINE

a) CPU Specifications

Environmental Specifications

The tables in this section provide Environmental specifications for Micrologix 1400 controller

Attributes	Processor
Temperature, Operating	-20...60 °C (-4...140 °F)
Storage Temperature	-40...85 °C (-40...185 °F)
Relative humidity	5...95%, non condensing
Vibration	10...500 Hz, 3 g, 0.015 in. max peak-to-peak
Shock, Operating	30 g; 3 pulses each direction, each axis
Shock, Non-Operating	50 g panel mounted (40 g Din Rail mounted); 3 pulses each direction, each axis
Surge transient immunity	±1 kV line-earth (CM) on communication ports
Conducted RF immunity	EN 61000-4-6 10V, 150 kHz...80 MHz

b)Certifications

The tables in this section provide certifications for Micrologix 1400 controller

Certification	Processor
cULus	C-UL Listed Industrial Control Equipment for use in India

CE	CE marked for all applicable directives
C-Tick	C-Tick marked for all applicable acts

c) Technical Specifications

The tables in this section provide Technical specifications for Micrologix 1400 controller

Attribute	Processor
Input Power	24 V DC
Memory	non-volatile battery backed RAM
User Program/ User Data Space	10K/10K Configurable
Data logging / Recipe storage	128 K (without Recipe) / upto 64K (after subtracting Data Logging)
Back-up Memory module	Provided
Digital Inputs	(12) Fast 24 V DC (8) Normal 24V DC
Digital Outputs	(6) Relay (3) Fast DC (3) Normal DC
Analog Inputs/Outputs	(4) Voltage Inputs/ (2) Voltage Outputs
Serial Ports	(1) RS232C/RS485, (1) RS232C
Serial Protocols	DF1 Full Duplex, DF1 Half Duplex Master/Slave, DF1 Radio Modem, DH-485, Modbus RTU Master/Slave, ASCII, DNP 3 slave
Ethernet Ports	(1) 10/100 EtherNet/IP port
Ethernet Protocols	EtherNet/IP messaging, DNP3 over IP and Modbus TCP/IP
Trim Potentiometers	2 Digital
High-Speed Inputs	Up to 6 channels @ 100 kHz
Real Time Clock	Yes, embedded

PID	Yes (limited by loop and stack memory)
PWM/PTO	3 channel PTO (100kHz)\PWM (40kHz)
Embedded LCD	Yes
Floating Point Math	Yes (algorithm available)
Online editing	Yes
Operating temperature	-20°C...+60°C
Storage temperature	-40°C (or -30°C)...+85°C

D.PANEL VIEW COMPONENT SPECIFICATIONS

(e) Environmental Specifications

The tables in this section provide Environmental specifications for Panel View component Terminals

Attribute	Panel view
Temperature, Operating	IEC 60068-2-1(Tested Ad, Operating Cold), 0.....50°C (32...122°F)
Temperature, surrounding, max	50°C(122°F)
Heat Dissipation	24 BTU/hr
Relative humidity	5...95% non condensing
Vibration	2g at 10...500Hz
Shock, Operating	15g at 11ms
Shock, Non-Operating	30g
Surge transient immunity	±500V line-line (DM) and ±1 kV line-earth (CM) on DC power ports ±1kV line-earth(CM) on communication

	ports
Conducted RF immunity	10V rms with 1kHz sine-wave 80% AM from 150kHz....80MHz
Enclosure type ratings	Meets NEMA/UL Type 4X(indoor) 12,13

(b) Certifications

The tables in this section provide certifications for Panel View component Terminals

Certification ^(a)	Panel View
cULus	UL Listed Industrial Control Equipment, certified for US and India. UL Listed for Class 1, Division 2, Group A, B, C, D, Hazardous Locations, certified for U.S. and India.
CE	European Union 2004/108/EC EMC Directive, in compliance with: EN 61000-6-2; Industrial Immunity En 61000-6-4; Industrial Emissions
C-Tick	Australian Radio communications Act, in compliance with : AS/NZS CISPR 11; Industrial Emissions
KCC	Korea Registration of Broadcasting and Communications Equipment, in compliance with: Article 58-2 of Radio Waves Act, Clause 3

(c) Technical Specifications

The tables in this section provide Technical specifications for Panel View component Terminals

Attribute	Panel view
Display Type	Color transmissive TFT active matrix LCD
Display Size	7-in.
Display Area (WxH)	(6.74 x 4 in.)
Resolution	480 x 272
Operator Input	Analog touch
Real-time Clock Battery life	Battery backup 5-year min at 25 °C (77 °F)
Programming port	USB device port or Ethernet port
Communication ports	RS-232 (DH-485), RS-232 (DF1), RS-485, Ethernet Multi-vendor communication available for Modbus, Modbus/TCP, and Siemens MPI devices
Memory card	USB flash drive
Software	Design Station software, version 2.0 or later Web-enabled software resident in terminal accessed through web browser Browser support: Firefox 3.0, Internet Explorer 7 or 8
Input Voltage, DC	18...30V DC (24V DC nom)

E.HIGH VOLTAGE INTERFACE UNIT SPECIFICATIONS**(a) Environmental Specifications**

The tables in this section provide Environmental specifications for HV Cards

Attribute	HV Card
Temperature, Operating	0.....50°C (32...122°F)
Vibration	2g at 10...500Hz
Shock, Operating	15g at 11ms
Shock, Non-Operating	30g
Protection	IP:0-0(used inside enclosure)

(a) Technical Specifications

The tables in this section provide Technical specifications for HV Cards

Attribute	HV Card
Test Method	Sigma Star
Sampling Speed	820 μ s
RTS	2-10 ms max (4 typical)
Operating Voltage	24V DC
Wave Form	Modulated on 4KHz
Logging Rate	4000 Samples/Sec
Filter	10/30
No. of Channels	1
Output	Digital Control
Analog Resolution	12 bit
Test Range	2000 V DC max
	9 W

Power Consumption	
IR	600V DC
Terminal Configuration	RTB

F.RELAY PATCH CARDS SPECIFICATIONS

(a) Environmental Specifications

The tables in this section provide Environmental specifications for Relay Patch Card

Attribute	Relay Patch Card
Vibration resistance	10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)
Shock resistance	Destruction: 1,000 m/s ² Malfunction: 200 m/s ² when energized; : 100m/s ² when no energized
Ambient operating temperature	-40°C to 70°C (with no icing)
Ambient operating humidity	5% to 85%
Enclosure rating	Flux protection (T-type is an enclosed relay)

(b) Technical Specifications

The tables in this section provide Technical specifications for Relay Patch Card

Attribute	Relay Patch Card
Relay Function	Single-side stable
Number of poles	1-pole
Contact Form	NO/NC
Contact Type	Single
Relay Type	Form C
Terminal Shape	PCB terminals
Rated coil voltage	24 V DC
Rated current	21.8mA
Coil resistance	1100 Ω
Power consumption	Approx. 0.53 VA
Contact resistance	30 m Ω max.
Operate time	15 ms max.
Release time	5 ms max
Max. operating frequency	1,800 operations/hr
Surge Protection	400 V max
Freewheel	Yes
LED Indication	Green
Mounting	DIN Rail
Dielectric strength	Between coil and contacts : 5,000 VAC, 50/60 Hz for 1 min Between contacts of the same polarity : 1,000 VAC, 50/60 Hz for 1 min

(c) Certifications

The tables in this section provide certifications for Relay Patch Cards

Certification^(a)	Relay Patch Card
UL Recognized	Approval rating for overseas
CSA Certified	Product has been tested to a Canadian or U.S. standard

(G) SMPS UNIT SPECIFICATIONS**Environmental Specifications**

The tables in this section provide Environmental specifications for SMPS

Attribute	SMPS Unit
Working Temp	-10 ~ +60°C (Refer to "De rating Curve")
Working Humidity	20 ~ 90% RH non-condensing
Storage Temp., Humidity	-20 ~ +85°C, 10 ~ 95% RH
Temp Coefficient	±0.03%/°C (0 ~ 50°C)
Vibration	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes

(a) Technical Specifications

The tables in this section provide Technical specifications for SMPS

Attribute	SMPS Unit
AC input voltage range	90 ~132/180 ~264 V AC selectable by switch
AC inrush current (230 V AC)	40A at 230V AC

DC adjustment range	24 ~ 28 V
Overload Protection	105 % ~150 % constant current limiting, auto-recovery
Over temp. protection	Shut down output voltage, recovers automatically after temperature goes down
Connection	I/P : 3 poles, O/P : 4 poles screw DIN terminals
Output	24V, 0 ~5.0 A
Tolerance	±1 %
R&N	80 mV
Efficiency	84%

(b)Certifications

The tables in this section provide certifications for SMPS

Certification ^(a)	SMPS UNIT
UL 508	Industrial Control Equipment
TUV EN60950-1	Approved
EMC EMISSION	Compliance to EN55011,EN55022 (CISPR22) Class B, EN61000-3-2,-3
EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2 (EN50082-2), heavy industry level, criteria A

(H) ANALOG I/O MODULE SPECIFICATIONS

The tables in this section provide Environmental specifications for Analog I/O module

Attributes	Analog I/O modules
Temperature, Operating	-20...60 °C (-4...140 °F)
Storage Temperature	-40...85 °C (-40...185 °F)
Relative humidity	5...95%, non condensing
Vibration	10...500 Hz, 3 g, 0.015 in. max peak-to-peak
Shock, Operating	30 g; 3 pulses each direction, each axis
Shock, Non-Operating	50 g panel mounted (40 g Din Rail mounted); 3 pulses each direction, each axis
Surge transient immunity	±1 kV line-earth (CM) on communication ports
Conducted RF immunity	EN 61000-4-6 10V, 150 kHz...80 MHz

(a) ANALOG INPUT MODULE SPECIFICATIONS

Technical Specifications

The tables in this section provide Technical specifications for Analog Input module

Attributes	Analog Input modules
Bus Current Draw, max	40 mA @ 5V DC 50 mA @ 24V DC
Analog Normal Operating Range	Voltage: -10...10V DC Current: 4...20 mA
Full Scale Analog Ranges	Voltage: -10.5...10.5V DC Current: -21...21 mA
Resolution	15 bits (bipolar)

Repeatability	±0.12%
Number of Inputs	4 differential (bipolar)
Update Time (typical)	130, 250, 290, 450, 530 ms (selectable)
A/D Converter Type	Successive approximation
Common Mode Rejection	> 55 dB @ 50 and 60 Hz
Non-linearity (in percent full scale)	±0.12%
Typical Overall Accuracy	±0.32% full scale @ -20...65 °C (-4...149 °F) ±0.24% full scale @ 25 °C (77 °F)
Input Impedance	Voltage Terminal: 200 kΩ, Current Terminal: 275 Ω
Current Input Protection	±32 mA
Voltage Input Protection	±30V
Channel Diagnostics	Over or under range or open circuit condition by bit reporting for analog inputs.

(b) ANALOG OUTPUT MODULE SPECIFICATIONS

Technical Specifications

The tables in this section provide Technical specifications for Analog Output module

Attributes	Analog Output modules
Bus Current Draw, max	40 mA @ 5V DC 165 mA @ 24V DC
Analog Normal Operating Range	Voltage: 0...0V DC Current: 4...20 mA
Full Scale Analog Ranges	Voltage: 0...0.5V DC

	Current: 0...21 mA
Resolution	12 bits (uni polar)
Repeatability	±0.12%
Number of Outputs	4 single-ended (uni polar)
Update Time (typical) D/A Converter Type	2.5 ms R-2R Ladder Voltage Switching
Typical Overall Accuracy	±1.17% full scale @ -20...65 °C (- 4...149 °F) ±0.5% full scale @ 25°C
Non-linearity (in percent full scale)	< ±0.59%
Open and Short-circuit Protection	Continuous
Output Protection	±32 mA

(c) Certifications

The tables in this section provide certifications for Analog I/O modules

Certification ^(a)	Analog I/O modules
cULus	C-UL Listed Industrial Control Equipment for use in Canada
CE	CE marked for all applicable directives
C-Tick	C-Tick marked for all applicable acts

Environmental Specifications

The tables in this section provide Environmental specifications for HV Cards

Attribute	HV Card
-----------	---------

Temperature, Operating	0.....50°C (32...122°F)
Vibration	2g at 10...500Hz
Shock, Operating	15g at 11ms
Shock, Non-Operating	30g
Protection	IP:0-0(used inside enclosure)

Technical Specifications

The tables in this section provide Technical specifications for HV Cards

Attribute	HV Card
Test Method	Sigma Star
Sampling Speed	820 μ s
RTS	2-10 ms max (4 typical)
Wave Form	Modulated on 4KHz
Logging Rate	4000 Samples/Sec
Filter	10/30
No. of Channel	1
Output	Digital Control
Voltage	Adjustable
Analog Resolution	12 bit
Test Range	5-3000 V DC
Power Consumption	10.5 W
IR	600V DC
Terminal Configuration	RTB

Annexure-2

1. All the Test and Calibration certificates should be provided at the time supply and only after receiving all the test certificates payment will be processed.
2. The busbars provided in the panels should be able to with stand a current up to 200 A
3. Ferruling (As per **IS/IEC 61754-5**) with printed Ferrules is Mandatory for panel internal wiring and all Incoming and out going cables.
4. Tagging of all components in the panel is also mandatory.
5. All the VFD should be mounted on the panel, earthing from VFD end should be get connected with the earthing of Machine.
6. Naming and Control switches, board should be provided for all MCB , Incoming and out going cables should be dressed properly with suitable cable ties(As per **IS/IEC 62275**) , all the cables should confirm **IS 1554 & IS 694** ,all wiring should be as per **IS 732,IS 694** ,all wiring should be as per **IS 732**.
7. All safety measures should be taken at site As per **IS 5216 (Part 1&2), IS 9249/IEC 60414, IS 8437(Part 1&2)/IEC 60479-1&2, IS 9409/IEC 61140, IS 9676**.
8. Earthing is mandatory on all components it should be as per **IS 3043/IEC 60364** and earthing should be provided for Panels , Motors , JB's , and Entire Machine parts with double strand Cu Flat earthing. Earthing Connection with Machine has to be clamped with suitable SS clamps at each 750 mm Interval; the earthing continuity should be maintained by interconnection between earthing flats with suitable Cu connectors.
9. Cables should be provided with Proper Lugs (As per **IS/IEC 61238**), Ties&Tags (As per **IS/IEC 62275**), Ferruling (As per **IS/IEC 61754-5**).
10. During cable lugging proper heat resistant paste should be provided on the lugging area to avoid the expansion during heating process.
11. Proper Glanding/Gromets(Heat resistant type) (As per **IS/IEC 60079**) should be provided for all incoming/out going cables with Gland Earthing it is mandatory also .
12. Suitable heat resistant/Flame proof ceramic connectors (**As per IS/IEC 61754-7**) should be provided were ever it is necessary.
13. Cable Tray has to be fixed on the panel by the contactor with out any additional Pay.
14. Panel erection is also included under the above work.
13. Adequate Tolls and Tackles has to be provided by the Contactor(Welding Machine ,Drilling set , Cutting Machine , Grinding Set , Ferruling machine , Tool set) etc.
14. Other than the above what ever small works which are coming under the part of Commissioning has to attend by the Contractor-(small fabrication, welding, cutting, drilling, bending etc).
15. During the above work all safety gadgets for the working personals at site as per HLL Norms should be provided by the Contractor.
16. Strict Vigilance should be maintained for Safety during entire project execution as per HLL Norms.
17. Working personal in the project are strictly liable to follow all rules and regulation under the HLL Norms.
18. All Documents as per HLL Norms has to be provided by the Contactor for processing the current bills.

Annexure-3 (OPTIONAL)**SCADA Software Specifications****General Specifications**

Attributes	Software
Display Versatile Tools	30 stations •Application Documenter • Application Manager • Desk Lock • FTVIEWUSER Account Reset • Graphic Strings Search and Replace • Legacy Tag Database Conversion • ME Firmware Upgrade Wizard • ME Transfer Utility •Tag Import and Export Wizard
Application Level	Machine-level operator interface devices
Services	Data-logging capabilities Greater flexibility for reusable components Simplified run-time tasks ActiveX control that improves access to terminal information.
Redundancy Features	Available
Multi-language applications	Supported
Reduce Design and Commissioning Time	Simplified Install Search and Replace Cross Reference
Alarm and monitoring	Factory Talk Alarms and Events and HMI tag alarms.
EDIT Applications From Remote Locations	Deploy applications remotely from any computer on the network

Processor Specifications

Environmental Specifications

The tables in this section provide Environmental specifications for Processor

Attribute	Processor
Temperature, operating	-20...60 °C (-4...140 °F)
Relative humidity	5...95% non condensing
Vibration	2 g @ 10...500 Hz
Operating shock	30 g
Emissions	Class A
Surge transient immunity	+ 1 kV line-line (DM) and + 2 kV line earth (CM) on power ports + 1 kV line-line (DM) and + 2 kV line earth (CM) on signal ports +2 kV line-earth (CM) on communication ports
Conducted RF immunity	10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz

Technical Specifications

The tables in this section provide Technical specifications for Processor

Attribute	Processor
Controller tasks: • Continuous • Periodic	• 32 tasks • 100 programs/task
Built-in communication ports	• Two Ethernet/IP ports • One USB port
Communication options	Ethernet/IP
Ethernet/IP node, max	Up to four nodes
Controller connections	256
Embedded I/O modules	• 16 DC digital inputs • 16 DC digital outputs
Programming languages	• Relay ladder

	<ul style="list-style-type: none"> • Structured text • Function block • SFC
User memory	384 KB
Power dissipation, max	11.5 W
Embedded power supply	24V DC input, isolated

Certifications

The tables in this section provide Certifications for Processor

Attribute	Processor
cULus	UL Listed Industrial Control Equipment, certified for US and Canada. UL Listed for Class 1, Division 2, Group A, B, C, D, Hazardous Locations, certified for U.S. and Canada.
CE	European Union 2004/108/EC EMC Directive, in compliance with EN 61000-6-2; Industrial Immunity En 61000-6-4; Industrial Emissions
C-Tick	Australian Radio communications Act, in compliance with : AS/NZS CISPR 11; Industrial Emissions

Ethernet Switch Specifications

Environmental Specifications

The tables in this section provide Environmental specifications for Ethernet Switch

Attribute	Ethernet Switch
Temperature, operating	0...60 °C (32...140 °F)
Relative humidity	5...95% non condensing
Vibration	2 g @ 10...500 Hz
Operating shock	15 g

Emissions	Class A
Surge transient immunity	±1 kV line-line (DM) and ±2 kV line-earth (CM) on DC power ports ±2 kV line-earth (CM) on shielded Ethernet port
Conducted RF immunity	10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz
Voltage variation	10 ms interruption on DC supply ports

Technical Specifications

The tables in this section provide Technical specifications for Ethernet Switch

Attribute	Ethernet Switch
Power requirements	250 mA @ 24V DC (12...48V DC) CL 2/SELV
Power dissipation, max	5.8 W
Network ports	8 RJ45 10/100 full/half duplex ports, optional SFP transceiver port
Protocols	TCP/IP, EtherNet/IP, Telnet, Http, DHCP, BOOTP, FTP, IGMP, SMTP
Indicators	16 port indicators 3 status indicators
Switch features	VLAN, IGMP snooping, IGMP query V1 and V2, DHCP server, BOOTP server, QoS, port mirroring
Options	1 GB fiber-optic transceiver
Inrush current, max	2.2 A
SFP modules	<ul style="list-style-type: none"> • 1783-SFP1GSX • 1783-SFP1GLX

Certifications

The tables in this section provide Certifications for Ethernet Switch

Attribute	Ethernet Switch
cULus	UL Listed Industrial Control Equipment, certified for US and Canada. UL Listed for Class 1, Division 2, Group A, B, C, D, Hazardous Locations, certified for U.S. and Canada.
CE	European Union 2004/108/EC EMC Directive, in compliance with EN 61000-6-2; Industrial Immunity En 61000-6-4; Industrial Emissions
C-Tick	Australian Radio communications Act, in compliance with : AS/NZS CISPR 11; Industrial Emissions
KCC	Korea Registration of Broadcasting and Communications Equipment, in compliance with: Article 58-2 of Radio Waves Act, Clause 3

SCHEDULE

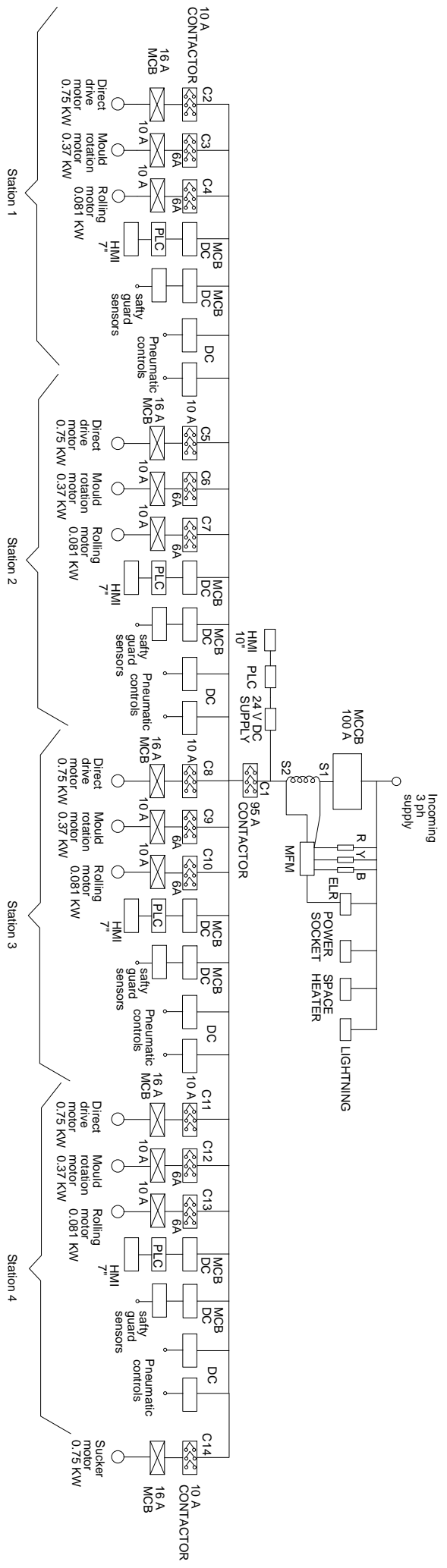
Sub: Supply & Installation of Panel Board ,Controls including machine wiring for CTET Machine

SI No	Item/Work Description	Unit	Quantity	Rate in Rs	Amount in Rs
I.	Supply & Installation of following items as per specifications for CTET Machine(Wiring should be as per IS 732 & earthing of panel should be as per IS 3043/IEC 60364 , Panel should be as per IS 8437(Part 1&2) / IEC 60479-1&2 , IS 60529/IEC 60529 , IS 9409/IEC 61140 ,IS 9676, IS 5216 with Test Certificates)				
1	Supply of PLC & HMI Panel Board with size 600X600X20MM with 2 mm Powder Coated CRCA Sheet Make :Rittal/Schneider/ABB HMI PV Component Graphical Terminal , Illuminated PB's ,Terminal blocks, Illumination lamps required with the panel.	Nos.	2.00		
a)	Installation charges for the above	Nos.	2.00		
2	Supply of VFD Panel Board with size 600X600X20MM with 2 mm Powder Coated CRCA Sheet Make :Rittal/Schneider/ABB Input choke , Terminal blocks,Illumination lamps required with the panel.	Nos.	1.00		
a)	Installation charges for the above	Nos.	1.00		
3	Supply of Auxiliary Panel Board with size 500X500X20MM Mtrs with 2 mm Powder Coated CRCA Sheet Make :Rittal/Schneider/ABB Terminal blocks,Illumination lamps required with the panel.	Nos.	1.00		
a)	Installation charges for the above	Nos.	1.00		
4	Supply of PLC (32 point Controller) with High and low voltage interface unit , Relay patch card , SMPS, selector switch , terminal block and (As per IEC 61131-3/IEC 61499/IEC 61508 with test and calibration certificates) Detailed specification is attached as per Annexure-1 Make : Siemens/ ABB/AllenBradley/Mitsubishi/ L&T	set	2.00		
a)	Installation charges for the above	set	2.00		
5	Supply of HMI (7" to 10" Colour Display) Touch Screen Type, HMI PV Component graphic terminal, illuminated PBs , Terminal block (As per IEC 60297/IEC 60571/IEC 60812/IEC 61508/IEC 61131-1/IEC UL 61010-1/IEC 608NF & IS 2500 with Test & calibration certificates) Make:Siemens/ABB/Allen Bradley/Mitsubishi/L&T	set	2.00		
a)	Installation charges for the above	set	2.00		
6	Supply of Main MCCB (As per IS 13032 , IS 13947/IEC 60947-5-2 , IS 9409/IEC 61140 , IS 8623 (part 1 to 3)/IEC 60439(1to 3), IS 8504/IEC 60216-4-2 , IS 60715/IEC 60715 ,IS 60898/IEC 60898 , IS 60947(Part 1&2)/IEC 60947, IS 10118(Part 1 to 4) , IS 60529/IEC 60529 , IS 9676) with Test Certificates.				
a)	100 A, 4 Pole, 450 V MCCB, CAT A, MAKE: L&T/ Siemens/LS/Hager/ABB	Nos.	2.00		
b)	Installation charges for the above	Nos.	2.00		
7	Supply of Main Contactor(Digital) (As per IS 9676 , IS 9409/IEC 61140 , IS 13947/IEC 60947-5-2 ,IS 60715/IEC 60715 , IS 60947(Part 1&2)/IEC 60947,IS 10118(Part 1 to 4)) with Test Certificates				

a)	95 A, 3 Pole, 450 V, 230 V Coil, DINRAIL MAKE: LS/GE/ABB/Siemens/Moeller/L&T/Hager	Nos.	2.00		
b)	Installation charges for the above	Nos.	2.00		
b)	Supply of MCB (As per IS 13032 , IS 13947/IEC 60947-5-2 , IS 9409/IEC 61140 , IS 8623 (part 1 to 3)/IEC 60439(1to 3), IS 8504/IEC 60216-4-2 , IS 60715/IEC 60715 ,IS 60898/IEC 60898 , IS 60947(Part 1&2)/IEC 60947, IS 10118(Part 1 to 4) , IS 60529/IEC 60529 , IS 9676) with Test Certificates				
a)	16 A , 4 Pole ,450 V MAKE: L&T/Siemens/LS/Hager/ABB	Nos.	4.00		
b)	10 A , 3 Pole,450 V MAKE:L&T/Siemens/LS/Hager/ABB	Nos.	14.00		
c)	10A, 2 Pole ,230 V MAKE:L&T/Siemens/LS/Hager/ABB	Nos.	12.00		
d)	10A, 2 Pole ,24 V DC MAKE:L&T/Siemens/LS/Hager/ABB	Nos.	6.00		
e)	6A, 2 Pole ,24 V DC MAKE:L&T/Siemens/LS/Hager/ABB	Nos.	12.00		
f)	Installation charges for the above	Nos.	48.00		
9)	Supply of Contactor(Digital) (As per IS 9676 , IS 9409/IEC 61140 , IS 13947/IEC 60947-5-2 ,IS 60715/IEC 60715 , IS 60947(Part 1&2)/IEC 60947,IS 10118(Part 1 to4) with Test Certificates				
a)	10A, 3 Pole, 450 V, 230 V Coil, DINRAIL MAKE: LS/GE/ABB/Siemens/Moeller/L&T/Hager	Nos.	8.00		
b)	6A, 3 Pole, 450 V, 230 V Coil, DINRAIL MAKE: LS/GE/ABB/Siemens/Moeller/L&T/Hager	Nos.	12.00		
c)	Installation charges for the above	Nos.	20.00		
10)	Supply of Soft Starters (As per IS 60947(Part 4 & Section 2)/IEC 60947-4-1 & 2) with Test Certificates)				
a)	0-5 A,3P,450V (1 HP) MAKE:LS/GE/ABB/Siemens/Moeller/L&T/Hager	Nos.	10.00		
b)	0-2 A,3P,450V (0.5 HP) MAKE:LS/GE/ABB/Siemens/Moeller/L&T/Hager	Nos.	4.00		
c)	Installation charges for the above	Nos.	14.00		
11)	Supply of Emergency Push Button Stop (with display and alarm) (As per IEC 60947-5-5) with Test Certificates				
a)	Emergency Push Button Stop (with display and alarm) 5A, 450V,22.5MM OD MAKE:ABB/EAO/Schneider	set	8.00		
b)	Installation charges for the above	set	8.00		
12)	Supply of illuminated Control Button with JB (As per IEC 60947-5-1/ IEC 60947-5-2 & IS 60529/IEC 60529 with Test Certificates) MAKE:ABB/Schneider	Nos.	8.00		
a)	Installation charges for the above	Nos.	8.00		
13)	Supply of Power Supply(24 V DC) (As per IEC 61850-3/IEC 60950-1) with Test & Calibration Certificates MAKE: Meanwell/GE/MTL	Nos.	1.00		
a)	Installation charges for the above	Nos.	1.00		
14)	Supply of Variable Frequency Drive (VFD) (As per IEC 60034-2-3) with input choke with Test &Calibration Certificates				
a)	1 HP VFD , 3Ph with input choke MAKE:ABB/Allen Bradley/ GE/Moeller/Vagon	Nos.	1.00		

b)	Installation charges for the above	Nos.	1.00		
15)	Supply of Digital Multi Function Meter (Trivector Meter) (As per IS/IEC 60870-5-101/104 / IEC 62053-22) with Test & Calibration Certificates				
a)	Digital Multi Function Meter (Trivector Meter) MAKE:L&T/Secure/ Rishab/Convers	set	4.00		
b)	Installation charges for the above	set	4.00		
16)	Supply of illuminated Push Button (As per IS/IEC 60947-5-1/IEC61058-1) with Test Certificates				
a)	illuminated Push Button (Red & Green) MAKE:ABB/Schneider	Nos.	4(each)		
b)	Installation charges for the above	Nos.	4.00		
17)	Supply of Solenoid Valve Control (As per IS/IEC 61508/IEC 61511) with Test Certificates				
a)	Solenoid Valve Control with 2/2(8 No's) , 1/2 , 5/2(4 No's) valves and 150 Mtrs Each 6mm and 8mm PU (Poly UrathaneTube) and with suitable end connectors for the same MAKE: Festo	set	12.00		
b)	Installation charges for the above	set	12.00		
18)	Supply and Installation of Air Regulators (As per IS/IEC 61508/IEC 61511) with Test Certificates				
a)	Air Regulators(25 Gauge) MAKE:Festo	set	6.00		
b)	Installation charges for the above	set	6.00		
19)	Supply of Cables and Accessories (As Per IS 649/ IEC 60227, IS 1255, IS 10810 (Part 0 to 64), IEC 60189 (1 to 3), IEC 60304, IEC 60028, IEC 60332-3, IEC 60227(1 to 5), IEC 60719, IEC 60228.) with test certificates				
a)	4x2.5 sq mm Cu cable MAKE:Lapkabel	Mtr	175.00		
b)	3x1.5 sq mm Cu cable MAKE:Lapkabel	Mtr	150.00		
c)	Installation charges for the above	Mtr	325.00		
20)	Supply of Current Transformer (CT) (As per IS 2705 (Part 1 to 4)/IEC 60185) with test MAKE:Rittal/Schneider/ABBcertificates	set	12.00		
a)	Installation charges for the above	set	12.00		
21)	Supply of Junction Boxes (As per IS 60529/IEC 60529) With test certificates MAKE:Reputed make	Nos.	10.00		
a)	Installation charges for the above	Nos.	10.00		
22)	Supply of Other Panel Accessories				
a)	Cabin Fan (0.06 Kw ,230 V) MAKE:CGL/Havels/Bajaj	Nos.	8.00		
b)	Filter 6" MAKE:Reputed make	Nos.	8.00		
c)	Plug & Socket MAKE:Havels/Anchor	Nos.	8.00		
d)	Panel Light , MAKE:HavelsPhilips/	Nos.	8.00		
e)	Junction Box MAKE:Rittal	Nos.	8.00		
f)	Installation charges for the above	Nos.	40.00		
23)	Supply of Earthing Materials for Machine Earthing				
a)	Double stranded Cu flat (25x3mm) earthing of machine with double earthing to all the motors, Junction boxes and Panels. MAKE:Reputed make	Mtr	60.00		
b)	Panel Door Earthing(Braided Cu cable) MAKE:Reputed make	Mtr	15.00		

c)	Installation charges for the above	Mtr	75.00		
24)	Supply of Earth Leakage Relay (Digital) (As per IS 9249 (Part 1 to 2) /IEC 60414) with test and calibration certificates MAKE:Schneider/Provac Devices/Minilec	set	4.00		
a)	Installation charges for the above	set	4.00		
25)	Supply of Hooter (As per IS 2148/IEC 60079-1 , IEC 60529, IEC 61140) with test and calibration certificates				
a)	Panel On/Off, Emergency, Trip and reset with 3 Different alarms for Different purpose, 230 V AC with Mount bracket and base. MAKE:Baliga/Schneider/Provac	set	1.00		
b)	Installation charges for the above	set	1.00		
26)	Supply of Tower Light(As per IS/IEC60947-5-1,IEC 60529/IEC 61140) with test certificates 230 V AC Type with buzzer and Flash light with base and mount bracket. MAKE:Schneider/L&T	set	1.00		
a)	Installation charges for the above	set	1.00		
27)	Supply of Surge Protection Device(SPD) (As per IS/IEC 61643-1,IEC 60364-4-44 , IEC 60529/IEC 62305(1 to 5)with test and calibration certificates MAKE:L&T/Hager/Schneider/ABB	Nos.	4.00		
a)	Installation charges for the above	Nos.	4.00		
28)	Supply of Isolators 63 A Isolator Switch(Digital) MAKE:L&T/ABB/Siemens	set	1.00		
a)	Installation charges for the above	set	1.00		
29)	Supply of Safety Guard Sensor MAKE:Omron/IFM	Nos.	8.00		
a)	Installation charges for the above	Nos.	8.00		
30)	Supply of Nozzle type Air Ionizers MAKE:Valance	Nos.	4.00		
a)	Installation charges for the above	Nos.	4.00		
31)	Supply of Ionizer Controller (Common for 2Nozzles) MAKE:Valance	Nos.	4.00		
a)	Installation charges for the above	Nos.	4.00		
32)	Supply and Installation of Digital Display board(LED) Re-programmable type. MAKE:Sony/Samsung	set	4.00		
a)	Installation charges for the above	set	4.00		
	Total Amount in Rs				
	Taxes if any				
	GROSS AMOUNT IN RS				



MATERIAL:	HLL LIFECARE LIMITED		NO.OFF.
	Thiruvananthapuram-5		
DRAWN BY:	ANU MARIA JOSE	TITLE:-	
CHECKED BY:		ET MACHINE ELECTRICAL SCHEMATIC DWG	
APPROVED BY:		Drg.no. HLL-CED -ELE-ET-001	
DATE:	28-5-2015	SHEET NO.1	REV:-
SCALE:			
ALL DIMENSIONS ARE IN MM			

