

Amendment no.1

7th Sept.2015

Sub : Amendment to the tender for the 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

Ref : IFB No:HLL/CED/KFC/MET- ELE /2015 Dtd.24-08-2015

With reference to the above, we here by incorporate the following amendment to the tender documents as detailed below :

Amendment no.1

The last date of date for receipt and opening of bid of the above referred tender has been amended as follows.

- (a) Last date and time of receipt of tender : 17-09-2015,15.00Hrs
- (b) Date and time of opening tender : 17-09-2015, 15.30Hrs
- (c) Schedule III

Existing

SCHEDULE III

A.DETAILED SPECIFICATION OF CONVEYOR TYPE ELECTRONIC TESTING MACHINE

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| 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 |

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| 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 | 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. |

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|----------|--|------------------------------------|-----|-----|---|--|---|
| | Certificates) | | | | | | |
| 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 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 Certificates) | Terminal blocks, Illumination lamps required with the panel. |
| 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 | Siemens/ ABB/ Allen Bradley/ | 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, |

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|----------|---|--|-----|-----|---|--|--|
| | block and (As per IEC 61131-3/IEC 61499/IEC 61508 with test and calibration certificates) Detailed specification is attached as per Annexure-1 | Mitsubishi/L&T | | | | | 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 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 | 100 A, 4 Pole ,450 V MCCB , CAT A | L&T/ Siemens/LS/Hager/ | Yes | Nos | 2 | | |

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|----------|---|---|-----|-----|---|--|--|
| | | ABB | | | | | |
| 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/ | Yes | Nos | 4 | | |

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|----------|--|---|-----|-----|----|---|--|
| | | LS/Hager/ABB | | | | | |
| b | 10 A , 3 Pole,450 V | L&T/ Siemens/ LS/Hager/ABB | Yes | Nos | 14 | | |
| 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/ | Yes | Nos | 12 | | |

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|-----------|---|---|-----|-----|----|--|--|
| | | ABB/ Siemens/ Moeller/ L&T/Hager | | | | | |
| 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 per IEC 60947-5-5) with Test Certificates | | | | | As 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 | | | | | | |

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|-----------|--|--|-----|-----|---|---|--|
| | 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/ | Yes | Set | 4 | | |

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| | | Secure/ Rishab/ 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 | | | | | 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 | |

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| | 60332-3, IEC 60227(1 to 5), IEC 60719, IEC 60228.) with test certificates | | | | | 60228.) with test certificates | |
| a | 4x2.5 sq mm Cu cable | Lapkabel | Yes | Mtr | 175 | | |
| 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 | |

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| | | | | | | 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 | | |
| 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 | | | | | As per IS/IEC60947-5- | |

| | | | | | | | |
|----|--|---------------------------------|-----|-----|---|---|--|
| | IS/IEC60947-5-1,IEC 60529/IEC 61140) with test certificates | | | | | 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/ ABB | Yes | Nos | 4 | | |
| 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 | | |

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|-----------|--|--------------|-----|-----|---|----------------------------------|--|
| 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 | | | | | | |

READ AS

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 | Rittal/ | Yes | Nos | 1 | Wiring should be as | Input choke , |

| | | | | | | | |
|----------|--|--|-----|-----|---|--|---|
| | 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) | Schneider/ABB | | | | 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. | 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 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 Certificates) | Terminal blocks, Illumination lamps required with the panel. |
| 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 | Siemens/ ABB/ Allen Bradley/ Mitsubishi/L&T | Yes | Set | 3 | 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 |

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|----------|---|--|-----|-----|---|--|--|
| | calibration certificates) Detailed specification is attached as per Annexure-1 | | | | | | 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 | 3 | 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 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 | 63 A, 4 Pole ,450 V MCCB , CAT A | L&T/ Siemens/ LS/Hager/ ABB/ | Yes | Nos | 1 | | |

| | | | | | | | |
|----------|---|---|-----|-----|---|--|--|
| | | Allen Bradley | | | | | |
| 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 | 63 A, 3 Pole ,450 V, 230V Coil , DINRAIL | LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager/ Allen Bradley | Yes | Nos | 1 | | |
| 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/ | Yes | Nos | 4 | | |

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|----------|--|--|-----|-----|----|---|--|
| | | Siemens/ LS/Hager/ABB/ Allen Bradley | | | | | |
| b | 10 A , 3 Pole,450 V | L&T/ Siemens/ LS/Hager/ABB Allen Bradley | Yes | Nos | 10 | | |
| c | 10A, 2 Pole ,230 V | L&T/ Siemens/ LS/Hager/ABB Allen Bradley | Yes | Nos | 4 | | |
| d | 10A,2Pole , 24 V DC | L&T/ Siemens/ LS/Hager/ABB Allen Bradley | Yes | Nos | 6 | | |
| e | 6A,2Pole , 24 V DC | L&T/ Siemens/ LS/Hager/ABB/ Allen Bradley | 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/ | Yes | Nos | 6 | | |

| | | | | | | | |
|----------|---|---|-----|-----|----|--|--|
| | | Siemens/ Moeller/ L&T/Hager/ Allen Bradley | | | | | |
| b | 6 A, 3 Pole ,450 V, 230V Coil , DINRAIL | LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager/ Allen Bradley | Yes | Nos | 10 | | |
| 8 | Supply and Installation of MPCB (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/ Allen Bradley | Yes | Nos | 10 | | |
| b | 0-2 A,3P,450V (0.5 HP) | LS/GE/ ABB/ Siemens/ Moeller/ L&T/Hager/ Allen Bradley | Yes | Nos | 4 | | |

| | | | | | | | |
|-----------|---|-------------------------------|-----|-----|---|--|--|
| 9 | Supply and Installation of Emergency Push Button Stop (with display and alarm) (As per IEC 60947-5-5) with Test Certificates | | | | | As 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/ | Yes | Nos | 5 | | |

| | | | | | | | |
|-----------|--|-------------------|-----|-----|-------------|--|--|
| | | Moeller/ Vagon | | | | | |
| 13 | 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) | | |
| 14 | 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 | | |
| 15 | 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 | | |
| 16 | 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 | | | | | 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 | |

| | | | | | | | |
|-----------|--|--------------------------|-----|-----|-----|--|--|
| | 60332-3, IEC 60227(1 to 5), IEC 60719, IEC 60228.) with test certificates | | | | | 60228.) with test certificates | |
| a | 4x2.5 sq mm Cu cable | Lapkabel | Yes | Mtr | 175 | | |
| b | 3x1.5 sq mm Cu cable | Lapkabel | Yes | Mtr | 150 | | |
| c | Communication cables | Lapkabel | Yes | Lot | 1 | | |
| 17 | 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 | | |
| 18 | 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 | |
| 19 | 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 | Reputed make | Yes | Mtr | 60 | | |

| | | | | | | | |
|-----------|--|---------------------------------|-----|-----|----|---|--|
| | Panels. | | | | | | |
| b | Panel Door Earthing(Braided Cu cable) | Reputed make | Yes | Mtr | 15 | | |
| 20 | 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 2 Different alarms for Different purpose, 230 V AC with Mount bracket and base. | Baliga/ Schneider/ Provac | Yes | Set | 1 | | |
| 21 | 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 | | |
| 22 | 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/ ABB | Yes | Nos | 1 | | |
| 23 | Supply and Installation of Isolators | | | | | As per relevant IS/IEC Standards | |

| | | | | | | | |
|-----------|--|---------------------|-----|-----|---|----------------------------------|--|
| | | | | | | | |
| a | 63 A Isolator Switch(Digital) | L&T/ABB/ Siemens | Yes | Set | 1 | | |
| 24 | Supply and Installation of Safety Guard Sensor | | | | | As per relevant IS/IEC Standards | |
| a | Safety Guard Sensor | Omron/IFM | Yes | Nos | 8 | | |
| 25 | All the Electrical & Instrumentation work should be executed as per Annexure -2 | | | | | | |

d) Annexure -3(Optional) is cancelled.

e) Shedule IV (Schedule of work)

EXISTING**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 | | |

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|-----|---|------|---------|--|--|
| 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 | | | | | |

(RUPEES IN WORDS)

I hereby agree to supply/execute the item/work specified at the above quoted rate/amount.

SUPPLIER/CONTRACTOR

READ AS

SCHEDULE IV

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 | 3.00 | | |
| 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 | 3.00 | | |
| 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) | 63 A, 4 Pole, 450 V MCCB, CAT A, MAKE: L&T/ Siemens/LS/Hager/ABB/Allen Bradely | Nos. | 1.00 | | |
| b) | Installation charges for the above | Nos. | 1.00 | | |
| 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) | 63 A, 3 Pole, 450 V, 230 V Coil, DINRAIL MAKE: LS/GE/ABB/Siemens/Moeller/L&T/Hager/Allen Bradely | Nos. | 1.00 | | |
| b) | Installation charges for the above | Nos. | 1.00 | | |
| 8) | 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/Allen Bradely | Nos. | 4.00 | | |
| b) | 10 A , 3 Pole,450 V MAKE:L&T/Siemens/LS/Hager/ABB/Allen Bradely | Nos. | 10.00 | | |
| c) | 10A, 2 Pole ,230 V MAKE:L&T/Siemens/LS/Hager/ABB/Allen Bradely | Nos. | 4.00 | | |
| d) | 10A, 2 Pole ,24 V DC MAKE:L&T/Siemens/LS/Hager/ABB/Allen Bradely | Nos. | 6.00 | | |
| e) | 6A, 2 Pole ,24 V DC MAKE:L&T/Siemens/LS/Hager/ABB/Allen Bradely | Nos. | 12.00 | | |
| f) | Installation charges for the above | Nos. | 36.00 | | |
| 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/Allen Bradely | Nos. | 6.00 | | |
| b) | 6A, 3 Pole, 450 V, 230 V Coil, DINRAIL MAKE: LS/GE/ABB/Siemens/Moeller/L&T/Hager/Allen Bradely | Nos. | 12.00 | | |
| c) | Installation charges for the above | Nos. | 18.00 | | |
| 10) | Supply of MPCB (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/ Allen Bradely | Nos. | 10.00 | | |
| b) | 0-2 A,3P,450V (0.5 HP) MAKE:LS/GE/ABB/Siemens/Moeller/L&T/Hager/ Allen Bradely | 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. | 5.00 | | |
| b) | Installation charges for the above | Nos. | 1.00 | | |
| 15) | 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 | | |
| 16) | 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 | | |
| 17) | 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 | | |
| 18) | 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) | Communicatiojn cable MAKE:Lapkabel | Lot | 1.00 | | |
| d) | Installation charges for the above | Mtr | 326.00 | | |
| 19) | 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 | | |
| 20) | 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 | | |
| 21) | 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 | | |
| 22) | Supply of Hooter (As per IS 2148/IEC 60079-1 , IEC 60529, IEC 61140) with test and calibration certificates | | | | |

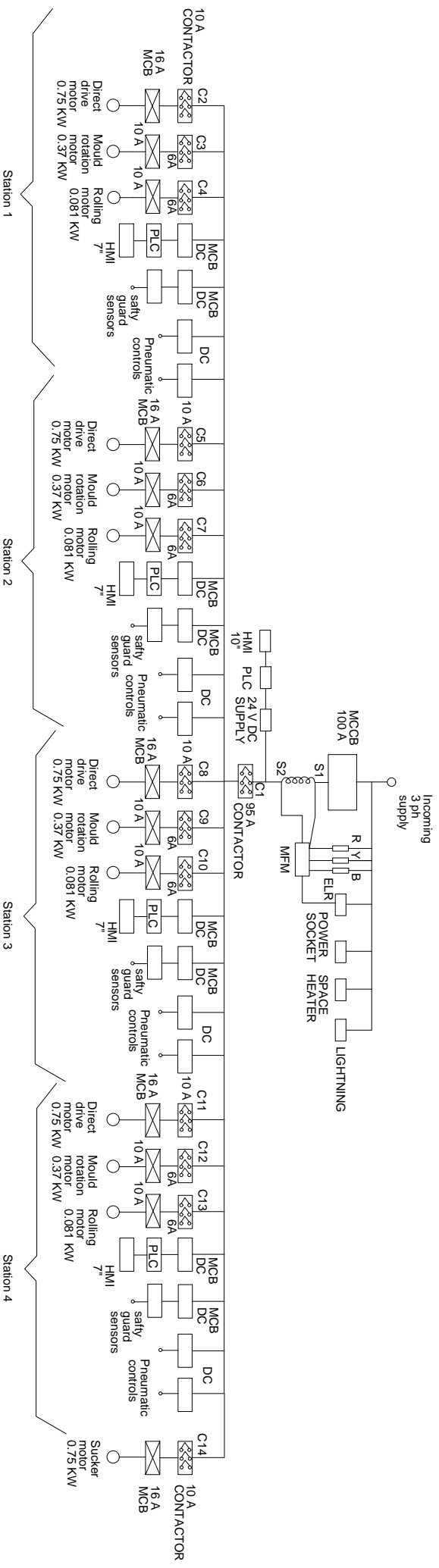
| | | | | | |
|-----|---|------|------|--|--|
| a) | Panel On/Off, Emergency, Trip and reset with 3 Different alarms for Different purpose, 230 V AC with Mount bracket and base. MAKE:Baliga/Schneider/Provac | set | 1.00 | | |
| b) | Installation charges for the above | set | 1.00 | | |
| 23) | Supply 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 | | |
| 24) | 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 | | |
| 25) | 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 | | |
| 26) | Supply of Safety Guard Sensor MAKE:Omron/IFM | Nos. | 8.00 | | |
| a) | Installation charges for the above | Nos. | 8.00 | | |
| | Total Amount in Rs | | | | |
| | Taxes if any | | | | |
| | GROSS AMOUNT IN RS | | | | |

(RUPEES IN WORDS)

I hereby agree to supply/execute the item/work specified at the above quoted rate/amount.

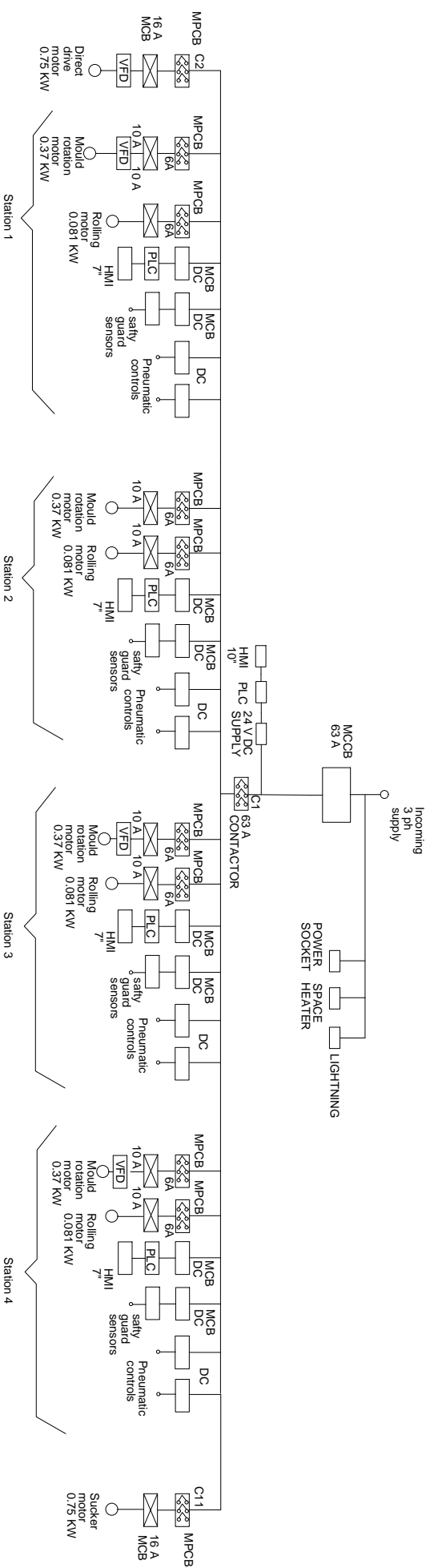
SUPPLIER/CONTRACTOR


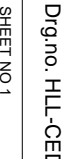
EXISTING DRAWING



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|--------------------------|-----------------------------|--|---------|
| 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 | | | |

READ AS



| | | | |
|---|------------------------------|---|-------------------------------------|
| MATERIAL: | HILL LIFECARE LIMITED | | NO-OFF: |
| | Thiruvananthapuram-5 | | |
| DRAWN BY: | ANU MARIA JOSE | TITLE: | ET MACHINE ELECTRICAL SCHEMATIC DWG |
| CHECKED BY: | | DATE: | 28-5-2015 |
| APPROVED BY: | | SCALE: | |
| ALL DIMENSIONS ARE IN MM | | | |
|  | |  | |
| Drg.no. HLL-CED-ELE-ET-001 | | SHEET NO. 1 | |
| REV:-02 | | DATE:7-9-2015 | |

All other conditions are as per the original IFB No:HLL/CED/KFC/MET- ELE /2015 Dtd.24-08-2015

ASSOCIATE VICE PRESIDENT