Oil hand pump electrically operated

Annexure 1

Material No.	1502000
Material Description	Oil hand pump electrically operated
UoM	SET
Technical specifications	**Requirements**
Horsepower	0.33 HP
Max Flow Rate	10 gal./Minute
Power Cord	12' w/ Plug
Powered By	Electric
Power Requirements	230V/50 Hz
Speed	Dual Speed
Temperature Limit	Maximum Temperature 212°F (100°C)
Weight	10.95 lbs/5 kg
Composition	Motor: Steel, Plastic Pick-Up Tube: 316 Stainless Steel Shaft: 316 Stainless Steel O-ring: FKM Impeller: ETFE Hose: Reinforced PVC Drum Adapter: Stainless Steel
Includes	1 - FTI .33 HP Electric Pump Motor 1 – 5M FTI EFS Pick-Up Tube 1 - int. dia. 0.75" x 5' L PVC Discharge Hose 1 - FTI IPS Adapter
Note	- The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. - The equipment shall not be of refurbished kind in any case. - The instruction Manual should be included with the equipment.
Inspection requirement	Inspections (virtual / physically) shall be carried out before despatching the equipment.

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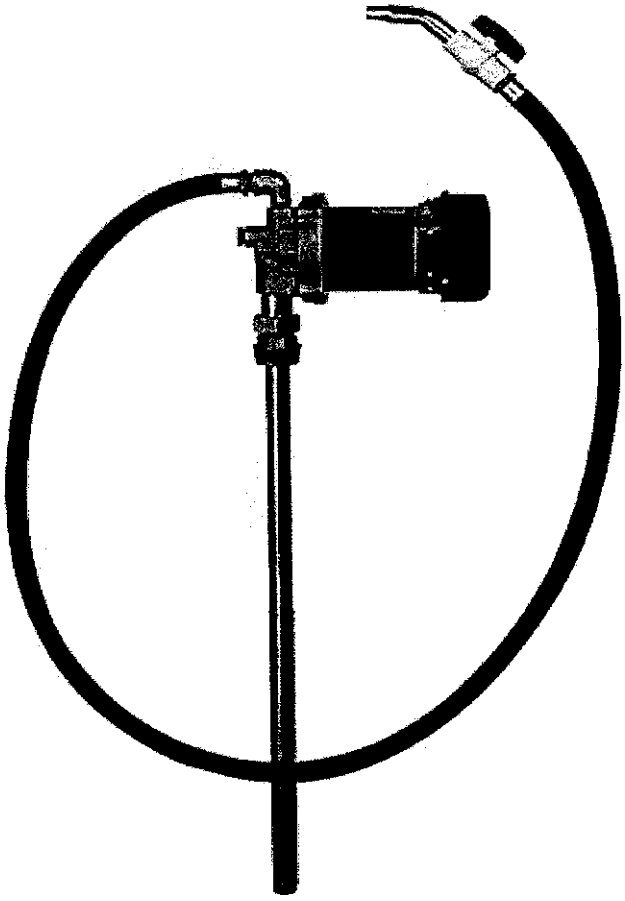
Sample picture of oil pump	

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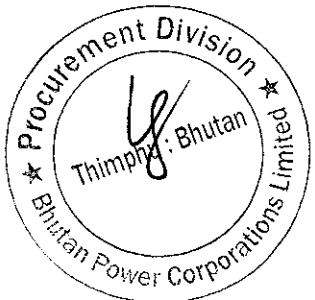
HT Coil Winding Machines (Semi auto)

Annexure 2

Material No	1503292
Material description	HT coil winding machine (semi Automatic)
UoM	Set
Particulars	**Specification**
COMPONENTS	
Coil diameter	Not less than 450mm
Coil Length	Not less than 400mm
Wire Size	At least 0.1mm to 3.6mm of Cu (Copper)
Conductor type	Copper/Aluminium (Bare/DPC)
Coil weight	50kgs (Including madreal)
Component loading height	900mm
No of turns	Programmable
HEAD STOCK	
Distance between centers	Not less than 600mm
Winding spindle speed	Not less than 350RPM
Spindle Motor	AC induction motor
TAIL STOCK	
Tail stock	Sliding type, manually operated

Axial movement of the tail stock centre	280mm
TENSION CONTROL	
Wire Tensioner	Standard Wire Tensioner (0.1 to 0.5mm) & self compensating
	Tensioner (0.5 to 2mm) & staggered pulley tensioner for DPC wire (optional)
TRAVERSE	
Traverse stroke length	Not less than 400mm
INSULATION PAPER	
Insulation paper width	Not less than 450mm
Insulation paper thickness	0.1mm-Plain paper
	0.3mm-Edge folded paper
No of paper fidders	2 Nos for plain paper/Edge folder paper
Paper feeder mounting	Cone type for plain paper
Plain roller with both sides flange for end fill paper	
Inner dia of paper spool	Not less than 75mm
	Plastic Sleeve for plain roller
	With sleeve for edge folded paper
Outer dia of paper spool	Not less than 400mm (both plain & edge folded paper)
PAPER FEEDER	
Feed mechanism	Rubberized roller drive through geared motor

Paper length feeding	Automatically calculated as per coil build
PAPER CUTTER	
Cutter Mechanism	Rolling shear with circular blade drive through geared motor
CONTROLLER	PLC based controller (Siemens/Fuji)
UTILITIES	
Power Supply	230V AC, Single Phase, 50Hz
Power Consumption	2kW Approx
Dimensions	1300 X 1300 X 1500 (LxWxH) Approx with necessaries
Weight	900 KGs (Approx)
NOTE	The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before despatching the equipment.



HT Coil Winding Machines (Manual)

Annexure 3

Material No.	1503104
Type of Machine	Transformer Coil Winding Machine
Power Supply	230V AC, 50 Hz
Capacity	1000 KVA
Winding Motor Power	Not less than 2 HP
Max Speed	800 rpm
Body Material	MS Steel CI Casting
Usage/Application	Industrial
NOTE	The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before despatching the equipment

Features:

- Various wire guide options for strips and wire
- Variable speed control with optional foot pedal control
- Easy installation
- Virtual inspections shall be carried out before despatch

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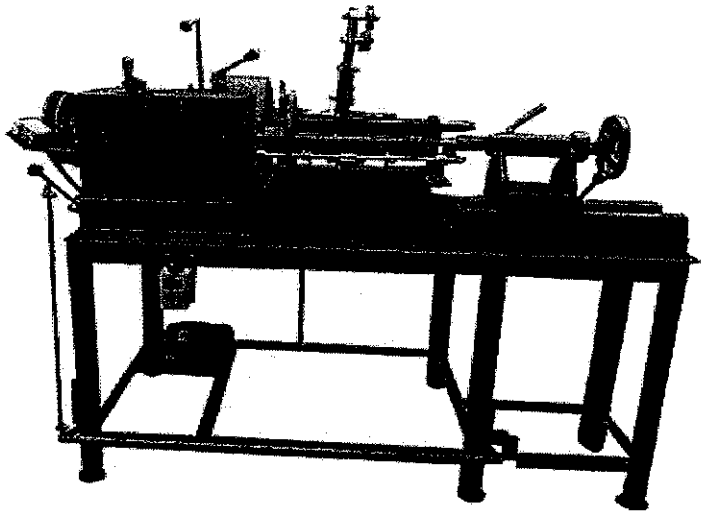

Sample picture

LT High Voltage test Kit (up to 3kV)

Annexure 4

Material No.	1503272
Material Description	LT High Voltage test Kit (up to 3kV)
UoM	SET

Technical Specification

Sl. No	Particulars	Specification
1	Input Supply to Tester	**230 VAC** ±10 %
2	Minimum Test Voltage	300VAC
3	Maximum Test Voltage	3 kV
4	Minimum Trip Current	5 mA
5	Maximum Trip Current	30 mA
6	Accuracy of Test Voltage	±2 %
7	Accuracy of Current Measurement	±1 %

Key Features:

KV Meter to read the Output Voltage, Millimetre to show leakage current, Speedy and Accurate testing of Breakdown/Withstand Test of Electrical and Electronic Components, Materials, Equipment, Panel Board Etc.

Included Accessories

- Instruction Manual

- Virtual inspections shall be carried out before despatch

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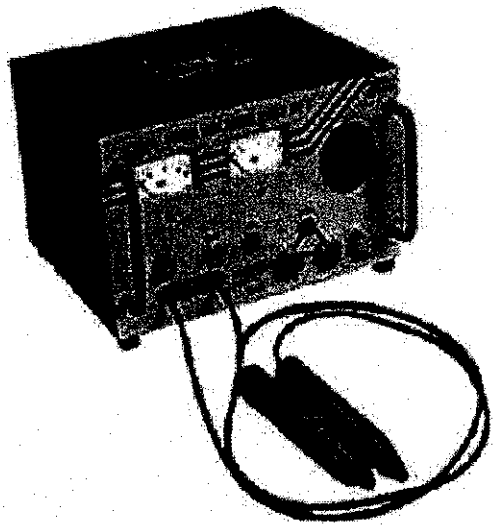
Sample Picture	
NOTE	The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before despatching the equipment

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3P Transformer DC resistance test kit (MTO210 Megger)

Annexure 5

Material No.	1503274
Material Description	3P Transformer DC resistance test kit (MTO210 Megger)
UoM	SET
Technical Specification	• **Transformer Ohmmeter 120/240 volt, 50/60 Hz input** • Direct 2-channel digital reading (10 μΩ to 2000 μΩ) • DC test current up to 10 A maximum. • Integrated demagnetization feature • Tests operation of on-load tap-changers • Fast auto safety discharge circuit **Input:** • 85-264 V, 47-63 Hz, 720 VA **DC Output** • User Selectable Current Ranges: up to 10 mA, up to 100 mA, up to 1 A, up to 10 A • Open-Circuit Test Voltage: 40 V dc • Measurement Voltage: up to 20 V dc • Max Power: 200 VA continuous

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Resistance Measurement/Display

- Resistance:

10 A	10 μΩ to 0.2 Ω	0.000001
10 A	0.2 Ω to 2 Ω	0.0001
1 A	100 μΩ to 2 Ω	0.00001
1 A	2Ω to 20 Ω	0.001
100mA	1 mΩ to 20 Ω	0.0001
100mA	20 Ω to 200 Ω	0.01
10 mA	10 mΩ to 200 Ω	0.001
10 mA	200 Ω to 2000 Ω	0.1

- Typical accuracy: ±0.10% Range ±0.10% Rdg
- Guaranteed accuracy: ±0.25% Range ±0.25% Rdg
- Resolution: Up to 4 digits

Make Before Break Settings

- L0 - OFF
- L1 - 2 ms
- L2 - 20 ms
- L3 - 40 ms
- L4 - 80 ms

Displays

- Two 1" high, 6 character, 7-segment, LCDs
- One 0.71" high, 6 character, 7-segment, LCD

User Interface

- B&W alphanumeric displays, keypad

Computer Interface (for downloading results)

- Via RS-232 port

- **Internal Data Storage**
  Up to 10,000 data sets

Internal Data Storage

- Up to 10,000 data sets

Environmental

- Operating: 14° F to 122° F (-10° C to 50° C)
- Storage: -40° F to 158° F (-40° C to +70° C)
- Relative Humidity: 0-90% non-condensing
- Ingress Protection (lid closed): IP 52

Safety

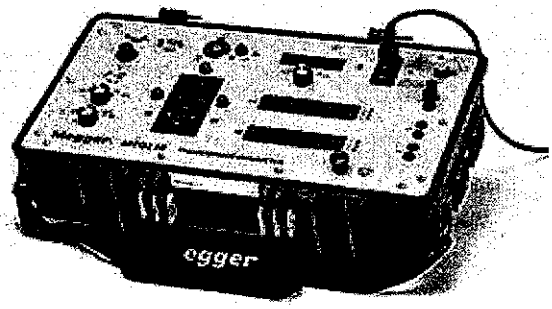
- Meets the requirements of EN61010-1:2001
- EMC: Meets the requirements of EN61326-1:1998 for use in heavy industrial areas.

Dimensions

- 8.5 H x 21.5 W x 13 D in (216 H x 546 W x 330 D mm)

Weight

- Net 29 lb (13.1 kg)

Included Accessories	• V1 Potential Lead Set: 60 ft (18 m) • V2 Potential Lead Set: 60 ft (18 m Current Lead Set: 60 ft (18 m) • Jumper Lead Set: 30 ft (9 m) • Ground Lead: 15 ft (4.5 m) RS232 Cable for connecting to a PC and Printer • Remote Hand Switch • Universal AC power cord set • Quick Start Guide • Backpack Lead Bag: • Ethernet Cable: • Instruction Manual • Power DB LITE, Computer Software
Sample picture	

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Portable DGA (Dissolved Gas Analysis) Test Kit

Annexure 6

Material No.	1503275
Material Description	Portable DGA (Dissolved Gas Analysis) Test Kit
UoM	SET
Technical Specification	Standalone DGA field instrument capable of measuring seven diagnostic gases and moisture. Calibration and consumable gas free design for autonomous field operation. **MEASUREMENT RANGE** • Hydrogen (H_2): 5 – 5,000 ppm • Carbon Monoxide (CO): 2 – 50,000 ppm • Carbon Dioxide (CO_2): 40 – 50,000 ppm • Methane (CH_4): 2 - 50,000 ppm • Acetylene (C_2H_2): 0.5 - 50,000 ppm • Ethane (C_2H_6): 2 - 50,000 ppm • Ethylene (C_2H_4): 2 - 50,000 ppm • Measurement Accuracy: ±5 % or ±LDL (whichever is greater) • Moisture (H_2O): 0-100 % relative humidity • Moisture in Oil Accuracy ±3ppm or ±3.5 %RH **ENVIRONMENT** • Operating Ambient Temperature: 5 ~ 50 °C (+41 to +122 °F) • Operating Altitude Maximum: 2,000m • Operating Pressure: 760 - 1040 millibar • Operating Humidity: 10 - 95 % RH non-condensing • Power Supply: 115 ~ 230 V AC 50/60 Hz; 40 W • Enclosure: IP67 (when closed) IP20 (when operating) • Oil Sample Volume: 50 ml (Oil) • Gas Sample Volume: 5 ml (Buchholz Gas) • Dimensions: 429 mm x 328 mm x 236 mm (16.9 in. x 12.9 in. x 9.3 in.) • Weight: less than 9 kg (20 lb)

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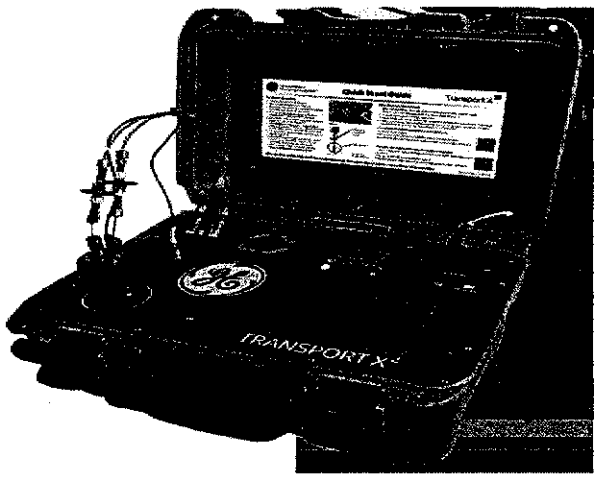
Features	• LCD Size: 6.5 inch color touch screen • LCD Type: Resistive touch screen • Screen Resolution: 640 x 480 • Computer interface: USB • Measurement Download: USB 2.0 Memory Stick Direct Perception Sync • Log file Retrieval: USB 2.0 Memory Stick and Perception • Output: CSV file format and Screen • Hardcopy: 2 inch thermal printer
NOTE	The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before despatching the equipment
Sample Picture	

Potable Battery Operated Transformer Trans Ratio Tester (Model : TTR100-1)

Annexure 7

Material No.	1502369	
Material Description	Potable Battery Operated Transformer Trans Ratio Tester (Model : TTR100-1)	
UoM	SET	
	Model	TTR100-1
	Type of Power	Rechargeable NiMH battery pack, 3.6 V dc, 3800 mAh
	Battery Life	15 hours of field operation
	Charger input voltage	100-250 V ac, 50/60 Hz ±2 Hz Unit can be operated while charging. Charging time is approximately three hours
	Optional charger source	Optional inverter 12 V dc to 115 V ac for powering a charger from vehicle battery (non CE marked)
	Excitation voltage	8 V rms for testing distribution or power transformers, PTs; 1.5 V ac RMS, or 8 V ac RMS for testing CTs. The excitation voltage is switched automatically if excitation current exceeds a preset value.
	Test frequency	55 Hz internally generated providing a universal 50/60 Hz test set
	Excitation current range	0 to 100 mA, 4-digit resolution
	Turns ratio range	8 V ac: 0.8 to 20,000, 5 digit resolution (for transformers and PT testing)
		1.5 V ac: 5.0 to 2200, 5 digit resolution (for CT testing)
	Phase deviation range	±90º, 1 decimal point for the minutes display, 2 decimal points for the degree display, or for the centi radian display
	Winding resistance range	0 to 2000 Ω, 4 digit resolution
	Transformer vector group	1PH0 or 1PH6
	Transformer polarity	Additive or Subtractive
	Current (rms) accuracy	±(2% of reading + 1 digit)
	Phase deviation accuracy	±3 minutes
	Turns Ratio accuracy	±0.1% (0.8 to 2000)
		±0.15% (2001 to 4000)
		±0.20% (4001 to 10,000)
		±0.25% (10,001 to 20.000)

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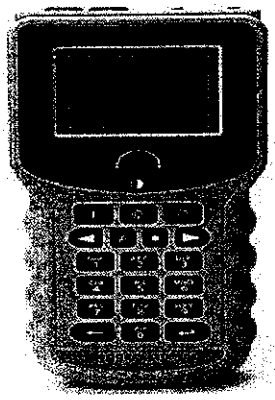
Technical Specification	Winding resistance accuracy	±(10% of reading + 1 digit) for 10 Ω to 2000 Ω range
		±(10% ±1 mΩ) for 10 mΩ to 9.99 Ω range
		±(10% ±0.5 mΩ) for 0.1 mΩ to 9.99 mΩ range
	PC/Printer interface	RS232C port, 9-pin, 57.6 Kbaud (19.2 Kbaud for the printer)
	Display full graphics	LCD module, wide temperature range, 128 x 64 dots (21 characters by 8 lines)
	Test result storage	Internal, non volatile memory for storing up to 200 sets of single phase measured and calculated ratio, exciting current, phase, ratio error, winding resistance, polarity, vector group, plus header information (company, substation, transformer manufacturer, transformer rating, instrument serial number, temperature, relative humidity, and operator name) In addition, up to 100 user-defined transformer settings can be stored.
	Computer software	Included software for downloading of data to a PC, data storage to database and report printout.
	Test Leads	Supplied with one complete set of single-phase leads, 6 ft (1.8 m) in length
	Transformer winding phase relationship	ANSI C57.12.70-1978 CEI/IEC 76-1:1993 and Publication 616:1978 AS-2374, Part 4-1982 (Australian Standard)
	Safety/EMS/Vibration	Meets the requirements of IEC-1010-1, CE and ASTM D999.75
	Temperature range	Operating: -4º F to 131º F (-20º C to 55º C)
		Storage: -58º F to 140º F (-50º C to 60º C)
	Relative humidity	Operating: 0 to 90% non condensing
		Storage: 0 to 95% non condensing
	Protective devices	High voltage side shorting relays, transient voltage suppressors and gas surge voltage protectors
	Measuring time	8 to 20 seconds for a single-phase distribution transformer
	Measurement method	ANSI/IEEE C57.12.90
	Dimensions	9.5 H x 4.5W x1.875D in (241 Hx115 Wx48 D mm)
	Weight	Approx.3.3 lbs1.5kg)instrument only without leads
	Protect instrument carrying case	Neoprene case with carrying strap and attachable pouch for universal charger and 6 ft. (1.8 m) test leads, single-phase connection (two leads for the H winding and three leads for the secondary winding with tap) • Virtual inspections shall be carried out before despatch

Sample Picture	

TRANSFORMER OVEN

Annexure 8

Material No	1503103		
Material description	Transformer Drying Oven		
UoM	Set		
Application	Batch oven for drying the solid insulation of electric transformers.		
Concept	Heating system which makes effective use of convection heating process. A conceptual drawing shall be submitted along with the technical specification.		
Product and Process Data.			
Object Description	Solid insulation of transformer windings		
Temp. Required	Design variable temp. up to maximum 150°C.		
Time cycle	Variable		
Basic Features of The System			
Installed Heat Load	36 KW and with high-efficiency electric heating materials to reduce energy costs		
Heating Medium	Electric tubular air heater with incoloy sheath.		
Supply Voltage required	415V3Ph, 4 wire system.		
Approx. Dimensions in mm	Width	Depth	Height
Chamber (inner)	2500	2600	1600
Chamber (outer)	3000	2800	1950
Overall space requirement	3500	3000	2500
Overall space requirement shall include space required for Heating chamber / Cooling Chamber / Control Panel /fans, ducts, support.			
Detailed Description			

Heating Chamber.	
Layout	The system should be a Batch Convection oven with design considerations for easy access to process areas and oven components, access to the interior of the oven, fan, and heating chamber.
	Should include triple walls insulated chamber with 100 mm Rockwool Insulation.
	Inner and outer chamber shall be powder coat painted.
	Motorized vertical lifting insulated doors fitted with gear box-brake Motors 2HP x 2Nos. Shall have large double wide-opening swing door, hinged on the either sides with quick release
Support Structure	The system shall be is self-supporting and built with robust structural oven frames and component supports. Oven shall be equipped with transport castors
Internal Wiring	All wiring shall be external, and shall be done in FG coated heat resistant wires complete up to terminal boxes mounted on the system enclosure.
	Cable trays shall be provided for all external cables to route from terminal boxes to Main Panel and all cabling works shall be carried out as per ISO standards.
Temperature Sensing	Contact air temp. Sensor shall be provided for sensing chamber air temperature at two locations.
Control Scheme	Manual on/off with the help of selector switches.
	Main Power indication lamps.
	SSR for switching ON/OFF heater banks.
Material Handling trolley	Shall be of MS Sturdy rigid design structure with checker plate on top.
	Max. Weight carrying capacity: 4T.
	Manual trolley on wheels and tracks.
	Sizes in mm: 2300L x 240D x 1000H approx.
Control Panel.	Control panel shall consists of the following materials:
	Mains ELCB switch.

	Contactors for switching ON/OFF Heater supply in one zone.
	Starter with MCB protection for switching ON/OFF HAC Fans.
	Starter with MCB protection for switching ON/OFF Cooling Blower.
	Starters with MCB protection for switching ON/OFF Conveyor Chain.
	Other switchgears like MCB, fuses, relays & push buttons for control logic sequence and interlocks provided.
	Electronic digital display temperature controllers, 02 Nos for process & excess temp controls with alarm signal. Horizontal forced air circulation results in temperature uniformity according to DIN 17052-1 better than +/- 5 °C in the empty oven (with closed exhaust air Flap). Over-temperature limiter with adjustable cutout temperature for thermal protection class 2 in accordance with EN 60519-2 as temperature limiter to protect the oven and load.
	Digital timer with 0-999 min. controlling process heating cycle.
	All control panel wiring will be of good quality wires, lugs, glands & cables etc and shall be carried out as per ISO standard.
Cabinet	Self-Standing Powder Coated.
Mains Switch	Through rotary isolator switch.
Safety features	Emergency push button and necessary safety interlocks provided for logical sequence controls.
Temp. control	Two Nos. digital controllers with PT-100 sensor for process temp. controller in automatic closed loop control and interlocks to be provided
Air Handling Unit.	
Purpose	Hot air circulation and Cooling.
Circulation	Force Air Circulation shall be done with 1.5HP axial direct driven Fans x 2Nos. The fans shall be placed on topside for uniform air handling inside chamber. Recirculation fans with high efficiency motors to reduce energy consumption.
Cooling	Centrifugal blower 3Hp shall be provided for rapid cooling of products after heat treatment.

Exhaust	Exhaust/intake ports with dampers shall be provided. Recirculation ductwork shall be designs to provide precise airflow to specific areas of the product resulting in uniform distribution of heated air all around the chamber.

Makes of components and finish.

Only reputed bought-out components shall be used. All oven components are shall be specially designed for high temperature applications.

Components	**Finish.**
Heating System	Inner and Outer powered coat painted.
Control Panel	MS Powder Coated.
Electric Heaters	Built in with SS 304.

Erection & Commissioning Services

*Assistance **IF REQUIRED** (either virtually or physically at the site) is needed during erection and commissioning of the equipment.*

Packing and Transportation.

The main heating system shall be packed in fully assembled and prewired condition and packed in a wooden create / box.

Warranty

The equipment shall be guaranteed against any manufacturing or workmanship defects for a period of 12 months from the date of supply.

Documentation: Following documents shall be submitted.

Manual – One copy in the dispatch. One copy will be carried by our commissioning engineer and will be handed over to concerned person.

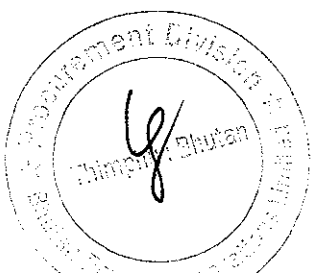
Validation sheet inspected.

Commissioning and handling report (to be signed by both parties.)

NOTE : The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc.

The equipment shall not be of refurbished kind in any case.
The instruction Manual should be included with the equipment.

Inspections (virtual / physically) shall be carried out before dispatch the equipment



Pry injection Kit

Annexure :9

Material No.	1503281
Material Description	Pry injection Kit (HISAC Prima2/Equivalent)
UoM	No.

Technical Specification

Sl. No	Particulars	Specification
1	Output current	0-2000A
2	Accuracy	±.5% of Reading ±0.5% of Range, Timing: ±0.5%
3	Resolution	Pry: 0.1A, Secondary:0.1mA
3	Timer	9.999 Second to 999.9 hr.
4	Mains supply	230Vac,50Hz ±10 %, Single Phase
5	Operation	Front panel
6	Cooling	Natural Air cooled
7	Environment	Operating tempt: 10 °C to 50 °C, humidity upto 95% RH(non-condensing)
8	Dimension	520mm(L)X500mm(W)X600mm(H) Loading CT:230mm(dia)X130mm(H)
9	Weight	Control: 38KG, loading 19KG, test leads: 20KG

Included Accessories

- Instruction Manual/ leads
- Virtual inspections shall be carried out before despatch

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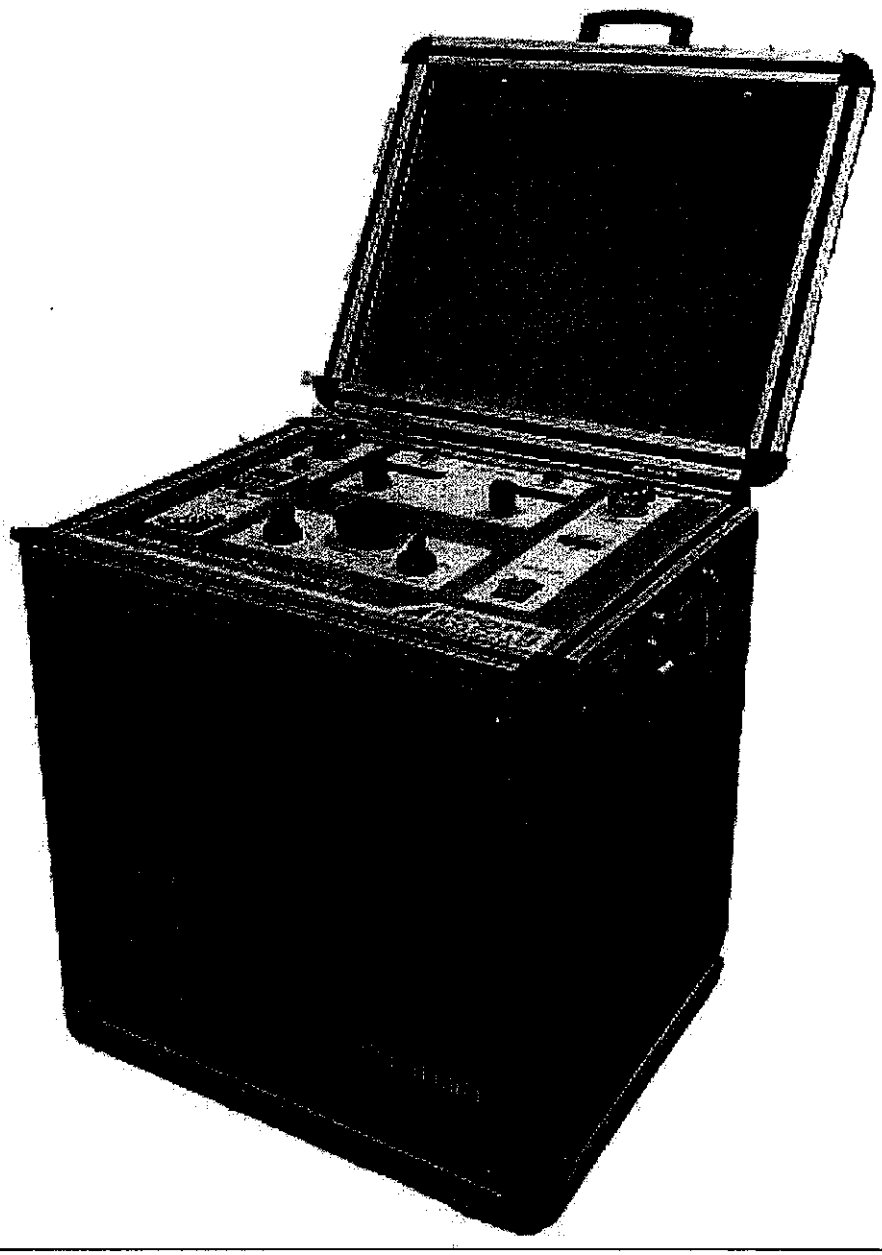
Sample Picture	

Breaker Timer Analyser *Annexure 10*

Material No.	1503282
Material Description	Breaker Timer Analyser (HISAC SWIFT)/Equivalent
UoM	No.

Technical Specification

Sl. No	Particulars	Specification
1	Contact Channels	6.1 Main+1PIR pole, 3 Pole simultaneously
2	Sampling Speed	20KC, 10KC, 5KC, 2KC & 1KC Selectable
3	Trigger option	Open, Close, C-O, O-C,O-C-O, delay between operations selectable
3	Auxiliary Contacts	2: Dry/Wet Selectable: 15V to 300V DC (For Wet Channels)
4	Coil Current	1:Trip/ Close Coil Current, 1,2,5,10,25 & 50A DC
5	Contact Resistance	3: Multiplexed channels, 10A Max
7	Breaker Control	Two solid state contacts rated at 50A, 300V AC/DC for breaker operation
6	Display	320X240 pixel, 5,7" color TFT LCD with LED back-lit, Touchscreen
7	Power	90-260V AC, 47-63Hz, 25VA
8	Communication	USB port, for data download
9	Environment	0 to 50°C, upto 95%RH(Non condensing)
10	Dimensions	415X230X200mm
11	Instrument weight	10KG

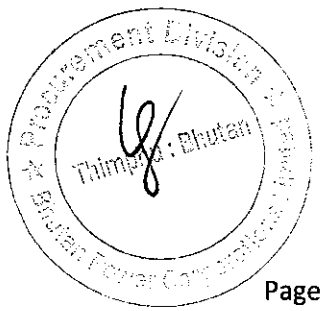
Sample Picture	
NOTE	The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before dispatch the equipment

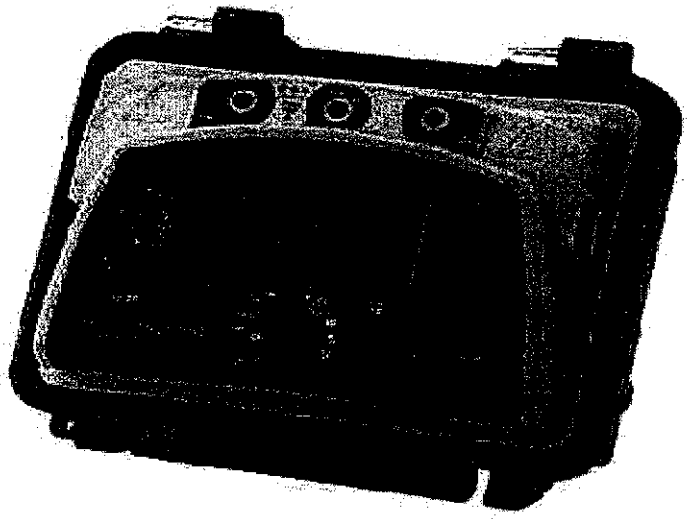
Insulation resistance tester (IR) 10kV *Annexure :11*

Material No.	1500332
Material Description	Insulation resistance tester (IR) 10kV
UoM	No.

Technical Specification

Sl. No	Particulars	Specification
1	IR Tester type	**Digital Megohmmeter (megger)**
2	Output voltage (max)	10 kV
3	IR Testing resistance range (max)	20Tohm
3	Accuracy (+- 5%)	2TO /+-20% to 20TO)
4	Screen	Large LCD with automatic backlight
5	Built in timer	0-99 min
7	Weight	15 lb
6	Dimension	12.7 x 6 x 14.2"



Sample Picture	
Key Features	MIT1025 with a VF2 Voltage Detector, Extra long 16.5ft Lead set Timed IR plus PI, DAR, DD, SV and ramp tests maximize diagnostic testing capability CATIV 600 V safety rating on all terminals for safe use in wide range of applications Operate from line power when battery fully discharged (charges while operating) Large LCD with automatic backlight
NOTE	The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before dispatch the equipment

Procurement Division
Thimphu : Bhutan
Bhutan Power Corporations Limited

Inverter (5kVA) *Annexure :12*

Material No.	1503284
Material Description	Inverter (5kVA)
UoM	No.

Technical Specification

Sl. No	Particulars	Specification
1	Capacity	5kVA/4kW
2	Power factor/frequency	0.8 / 50 Hz ± (with battery)
3	Phase	DC input /single phase AC output
3	Working input Voltage	DC40V-60V
4	Out put volyage	230Vac ± 2%
5	THD	<3%(linear load)
7	Wave	Sine wave
6	Dynamic characteristic	<±5% (0←→100% load)
7	Recover time	<10ms
8	Over load	125% 1min, 150% 3S
9	efficiency	>85% (Full load)
10	General protection	Output Short; Over Voltage ; Overload; Low BATT Voltage
11	Communication	RS232/RS485

NOTE : The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc.

The equipment shall not be of refurbished kind in any case.
The instruction Manual should be included with the equipment.

Inspections (virtual / physically) shall be carried out before dispatch the equipment

Procurement Division * Thimphu : Bhutan *

Sample Picture	

Material No.	4000428
Material Description	CO2 Extinguisher
UoM	NUMBER
Technical Specification	**CARBON DIOXIDE FIRE EXTINGUISHER,** • CAPACITY (4KG) • FIRE RATING (21B) • EXTINGUISHING MEDIUM (Co2 Gas I:S No.15222) • TEMPERATURE RANGE (-30ºC to +55ºC) • TEST PRESSURE (250 BAR) • DISCHARGE TIME (MORE THAN 08 S) • DISCHARGE RANGE (MORE THAN 02 M) • IS No. FOR Co2 GAS : 15222 • IS No. FOR MANUFACTURER : 15683
NOTE	The equipment shall be new with proper name plate displaying the company's name, product number, safety warning, general information, the physical terminal arrangement, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before dispatch the equipment
Sample Picture	

VPN Router *Annexure 14*

Material No.	3000834
Material Description	VPN Router
UoM	Number
Technical Specification	**Features** - Supports five SSL tunnels for remote user connectivity and one IPsec gateway-to-gateway tunnel - SPI firewall for maximum security - 4-port 10/100 switch supports automatic medium dependent interface (MDI) and MDI crossover (MDI-X) and up to 200 Mbps of throughput per port - IP filtering allows for restricted access to the Internet and other network resources - Management via web : Simple Network Management Protocol (SNMP), and setup wizards make setup easy for administrators
NOTE	The equipment shall be new displaying the company's name, product number, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case. The instruction Manual should be included with the equipment. Inspections (virtual / physically) shall be carried out before dispatch the equipment
Sample Picture	Figure 1. Cisco RVL200 4-Port SSL/IPsec VPN Router 

Material No.	3000833
Material Description	Managed Switch 8-Port 10/100/1000 + 2 x 1GE copper/SFP combo
UoM	Number

Technical Specification

Feature	Description
Fixed Port	8x10/100/1000BaseT/TX 2x10/100/1000Base-T/TX RJ45+SFP
POE Ports	1-8 support PoE
Console and USB Ports	Cisco Standard mini-USB Type-B / RJ45 console port, USB Type-A slot on the front panel of the switch for easy file and image management
Cabling type	Unshielded Twisted Pair (UTP) Category 5e or better for 1000BASE-T
Flash, DRAM	256MB, 512MB
Packet Buffer	1.5MB
CPU	800 MHz ARM
Switching Capacity	20Gbps
Forwarding Mode	14.88mpps
VLAN Support	Support for up to 4,094 VLANs simultaneously Port-based and 802.1Q tag-based VLANs; MAC-based VLAN; protocol based VLAN; IP subnet-based VLAN Management VLAN Private VLAN with promiscuous, isolated, and community port Private VLAN Edge (PVE), also known as protected ports, with multiple uplinks Guest VLAN, unauthenticated VLAN Dynamic VLAN assignment via RADIUS server along with 802.1x client authentication CPE VLAN

Power Supply	100-240V 50-60 Hz
Power Consumption (worst case)	110V = 13.84W, 220V=14.31W without PoE 110V = 80.79W, 220V=80.86W with PoE
Certification	UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A
Operating Temperature / Humidity	23° to 122°F (-5° to 50°C), 10% to 90%, relative, non condensing
Storage temperature / Humidity	-13° to 158°F (-25° to 70°C), 10% to 90%, relative, non condensing
Net weight	3.5kg
Unit Dimension	268 x 185 x 44 mm (10.56 x 7.28 x 1.73 in)
Warranty	Limited lifetime with next business day advance replacement (where available)

The equipment shall be new displaying the company's name, product number, a schematic diagram and etc. The equipment shall not be of refurbished kind in any case.

The instruction Manual should be included with the equipment.
Inspections (virtual / physically) shall be carried out before dispatch the equipment

Sample Picture