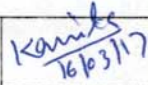
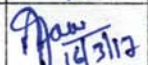
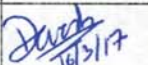


दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)	ST39019 पृष्ठ 4 का 1 Page 1 of 4																																								
SUPERSEDES INVENTORY NO. सामग्री सूची संख्या को प्रतिबिम्बित करना है। The information on this documents is the property of Bharat Heavy Electrical Limited It must not be used directly or indirectly in any way detrimental to the interest of the company	<u>PURCHASE SPECIFICATION FOR CONTROL FLUID PURIFICATION UNIT</u> Control Fluid Purification Unit is required to remove acids, particulate matters, water, alkalies as well as oxidation & decomposition product from control fluid (phosphate ester base). 1) SCOPE OF SUPPLY - Skid mounted Control Fluid Purification Unit consisting of following- - One no dry filter containing cartridges of 3 micron N ($\beta_{30}=75$). Water holding capacity of the filter should be more than 14 liters. - One (or two) no. of Fuller's Earth Filter containing fullers earth cartridges containing fuller's earth of gr 30/60 mesh. Approximate total quantity of earth in the filter/filters should be more than 150 Kg. The design of the filter housing should be such that it can accommodate cartridges of Selexorb GT or Ion exchange resin, if required at a later date. - One no polishing filter containing cartridges 1 micron N or less ($\beta_2=75$). - Interconnecting Pipes, fittings, valves and instruments. - One no. differential pressure switch cum indicator (DPS) or differential pressure gauge (DPG) across each filter. - One no. pressure gauge each at inlet and outlet of the unit. - One no. automatic vent valve on each filter. - One set of special tools and tackles. - Bolts nuts and washers for mounting and skid on the foundation. - Commissioning spares- - One set of cartridges of Dry filter. - One set of cartridges of fuller's earth of earth filters. - One set of cartridges of polishing filter. - One set of gaskets/sealing rings, O-rings used in the unit. The above commissioning spare items are required in addition to the ones supplied mounted on the skid. - Fifteen copies of data sheets, general arrangement drawings, cross sectional drawings with bill of material/part list and operation & maintenance manuals in English language.																																										
स्वत्वधिकार एवं गोपनीयता इस दस्तावेज में दी गई सुचना भारत हीवी एलिक्ट्रिकल लिमिटेड की संपत्ति है इसका प्रयोग एवं प्रसारण अन्य से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए।																																											
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P-6277		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;">CIE</th> <th style="width:15%;">Devesh Tiwari</th> <th style="width:15%;">TRANSLATED BY</th> <th style="width:15%;">NAME</th> <th style="width:15%;">SIGNATURE & DATE</th> </tr> </thead> <tbody> <tr> <td>QAX</td> <td>SK Chauhan</td> <td>WORKED BY</td> <td>HARDEEP S DOGRA</td> <td>16.03.17</td> </tr> <tr> <td>TSX</td> <td>V.Srinivasan</td> <td>CHECKED BY</td> <td>ANUJJAIN</td> <td>16/3/17</td> </tr> <tr> <td>AGREED DEPTT.</td> <td>NAME</td> <td>DATE & SIGNATURE</td> <td>RN PANJA</td> <td>16-3-17</td> </tr> <tr> <td colspan="2">SUPERSEDES</td> <td colspan="2">APPROVED : RN PANJA</td> <td>Gr. NO.</td> </tr> <tr> <td>REV.NO.</td> <td>04</td> <td colspan="2">निर्माण PREPARED : PED</td> <td>जारी ISSUED : TSX</td> </tr> <tr> <td>Date</td> <td>16.03.2017</td> <td colspan="2"></td> <td>दिनांक DATE : 27.07.02</td> </tr> <tr> <td>CHANGE ADVICE NO.</td> <td>STE(PED)-17-01</td> <td colspan="2">16.03.17</td> <td></td> </tr> </tbody> </table>		CIE	Devesh Tiwari	TRANSLATED BY	NAME	SIGNATURE & DATE	QAX	SK Chauhan	WORKED BY	HARDEEP S DOGRA	16.03.17	TSX	V.Srinivasan	CHECKED BY	ANUJJAIN	16/3/17	AGREED DEPTT.	NAME	DATE & SIGNATURE	RN PANJA	16-3-17	SUPERSEDES		APPROVED : RN PANJA		Gr. NO.	REV.NO.	04	निर्माण PREPARED : PED		जारी ISSUED : TSX	Date	16.03.2017			दिनांक DATE : 27.07.02	CHANGE ADVICE NO.	STE(PED)-17-01	16.03.17		
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SIGN & DATE ST39019	उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)		पृष्ठ 4 का 2 Page 2 of 4		
	2) TECHNICAL DETAILS i. Medium to be purified is Fire Resistant Fluid (phosphate ester base). The following Fire Resistant Fluids (FRF) have been approved: a. Trixylenyl phosphate (CAS Number- 25155-23-1). b. Tert-butylphenyl diphenyl phosphate (CAS 68937-40-6) ii. Dry filter, Fuller's Earth Filter/filters and Polishing Filter shall be in Series. iii. Pressure of fluid at the inlet of the unit= 3 bar. iv. Temperature of fluid at the inlet to the unit= 50 to 60°C. v. Fluid flow through the unit= 1000 liter/hour. vi. Gaskets/ sealings should be resistant to fire resistant fluid (phosphate ester base). vii. Filters shall be designed and stamped according to latest edition of ASME code Section VIII Div. 1, AD Merkblatter or equivalent. viii. Nameplate should be in English language. ix. The material of various items used in the skid should be compatible with fire resistant fluid (phosphate ester base).				
SUPERSEDES INVENTORY NO. COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.	3) INSTRUMENTATION i. Wiring details with nomenclature of pin numbers and wiring color used for Differential Pressure Switch-cum-gauge connection shall be provided. Also connection details of wiring between DPS and junction box/connector (if applicable) to be furnished. ii. Operating range (in Kg/cm²) and set point for alarms of DPS used across the filters shall be provided by vendor. iii. Data sheet of all instruments shall be provided by vendor for BHEL approval as per Annexure-1.				
	4) DOCUMENTS WITH THE OFFER i. Commercial offer. ii. Technical offer. iii. Four sets of General Arrangement drawing, schematic drawing, cross section drg, bill of Material, functional details, quality plan.				
स्वत्वाधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती उपकरणों के निर्यात के लिए है। इस दस्तावेज को बिना अनुमति के किसी भी प्रकार का प्रसारण, प्रकाशन या उपयोग नहीं किया जाना चाहिए।	5) CLEANING AND SURFACE PROTECTION Painting and conservation of the unit should be suitable for transportation by sea and storage at site in a tropical climate for a long duration. The successful bidder shall furnish the painting schedule or scheme for approval. Min DFT shall be 80-120 microns.				
	6) QUALITY ASSURANCE, INSPECTION AND TESTING i. The manufacturer shall conduct all tests required in compliance with the requirement of applicable codes and standards. ii. Hydraulic testing on each vessel of dry filter, fuller's earth filter and polishing filter shall be at 1.5 times of working pressure for a minimum time of 30minutes.				
SIGN & DATE 16/3/17	Rev. no. 04	निर्माणकर्ता WORKED BY:	PED: HS DOGRA CIE: KAVITA	16.3.17	16/3/17
INVENTORY NO. P-6277		जाँचकर्ता CHECKED BY:	PED: ANUJ AJAIN CIE: DEVESH	16/3/17	16/3/17

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद क्रय विनिर्देश (हीप : हरिद्वार) PRODUCT PURCHASE SPECIFICATION (HEEP: HARIDWAR)		ST39019 पृष्ठ 4 का 3 Page 3 of 4					
SUPERSEDES INVENTORY NO. इसकी पूर्ति सुझाव को अतिरिक्त करता है	iii. Complete assembly shall be checked for dimensions, leak tightness and function of all instruments. iv. Spot radiography shall be carried out on all the butt welds. v. The particulars of the proposed shop tests and procedures for the tests shall be furnished to BHEL for approval along with quality plan. This will include the test carried out on material during in process and final stage. vi. The equipment shall be dispatched after inspection & clearance of material by BHEL and approval of test certificates by BHEL. vii. Four copies of test certificates, indicating test results of material testing, NDT, hydraulic testing, dimensional report & certificate of compliance for fuller's Earth etc., shall be supplied unless otherwise stated in the order.								
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	7) GUARANTEE The supplier shall guarantee troubles free and satisfactory operation of the equipment for a period of 18 months after delivery or 12 months after commissioning, whichever is earlier. If during commissioning /erection at site any deficiency in a part is detected, BHEL / owner's site representative shall prepare the assessment report & copy shall be forwarded to the supplier. The supplier shall replace/ rectify the concerned items free of charge. 8) CROSS REFERRED STANDARDS - ASME code section VIII - AD Merkblatter								
स्वतंत्रताधिकार एवं गोपनीय इस दस्तावेज में दी गई सूचना भारत भारती एलेक्ट्रिकल लिमिटेड की संपत्ति है, प्रकाश प्रकाश एवं अवलोकन रूप से किसी भी तरह प्रयोग को कि कंपनी के हित में हानिकारक हो न किया जाए।									
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सामग्री सूची संख्या INVENTORY NO. 160277	Rev. no. 04		निर्माणकर्ता WORKED BY:	PED: HS DOGRA CIE: KAVITA	 16.03.17	जाँचकर्ता CHECKED BY:	PED: ANUJ AJAIN CIE: DEVESH	 16/3/17	 16/3/17

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		जाँचकर्ता CHECKED BY: PED: ANUJ AJAIN CIE: DEVESH		 14/3/17	 16/3/17

स्वाधिकार एवं गोपनीय
 इस दस्तावेज में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स लिमिटेड की संपत्ति है, इसका प्रयोग एवं प्रसारण अन्य से किसी भी प्रकार प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए।

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SUPERSEDES INVENTORY NO.

ANNEXURE-1

Data sheet of instruments:-

1	PRESSURE GAUGES:	
1.1	Type	
1.2	Quantity	
1.3	Location	
1.4	Range	Kg/cm ²
1.5	Accuracy	± 1% or better
1.6	Manufacturer	
2	INDICATING TYPE DIFFERENTIAL PRESSURE SWITCH (across filter)	
2.1	Type	
2.2	Quantity	
2.3	Model No.	
2.4	No. of contacts & contact rating	
2.5	Manufacturer	