



BHARAT HEAVY ELECTRICALS LIMITED

TRANSMISSION BUSINESS HVDC ENGINEERING & SYSTEMS

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	TYPE OF DOC.	TECHNICAL SPECIFICATION			SIGN	-signed-	-signed-	-signed-		
	TITLE				NAME	NS	SKS	AG		
	AC Filter Current Transformer (Non-PR Class)				DATE	03/07/17	03/07/17	04/07/17		
					GROUP	HVDC	W.O. No	86006		
	CUSTOMER	Power Grid Corporation of India Ltd								
	PROJECT	±800kV, 6000MW HVDC Raigarh – Pugalur Terminals								
	CA NO.	CC-CS/651-SR2/HVDC-3063/7/G10/CA-I/5817-5821 dated 2017-01-25								
	Station	Raigarh, Chhattisgarh & Pugalur, Tamil Nadu								
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SECTION-1

Scope, Bill of Quantity, Specific Technical Requirements

1.1 Scope

This technical specification covers the requirements of design, engineering, manufacturing, assembly, stage testing, inspection, testing before supply, documentation, packing and loading at works and transportation to site of AC Filter Current Transformer (Non – PR Class) along with its accessories as mentioned in this section and in various other sections of this specification.

The equipment is required for the following project:

Name of the customer : **Power Grid Corporation of India Ltd. (POWERGRID)**

Name of the project : **±800kV, 6000MW HVDC Raigarh – Pugalur Terminals**

Site : **Raigarh, Chhattisgarh & Pugalur, Tamil Nadu, India**

***Note: The terms used in this specification namely, “Employer/Purchaser” refers to PowerGrid , “Contractor” refers to BHEL.**

In case of any conflict among the various sections of this specification, the order of precedence shall be

1. Section 1 – Scope, Bill of Quantity, Specific Technical Requirement
2. Section 2 – Requirement Specification AC Filter Current Transformer 1JNL494530 Rev B.
3. Section 3:
 - General Requirements For Main Circuit Apparatus – 1JNL355425 Rev G
 - Mechanical Requirements for Apparatuses Terminal for HVDC – 1JNL355427 Rev C
 - General Technical Requirements – Section 3 - TB-391-316-000 Rev 04



1.2 Bill of Quantities

S. No.	Item Description	Unit	Quantity
1	Raigarh – 24kV Single Phase HP12 (GND) CT (T2)	Nos	18
2	Raigarh – 24kV Single Phase HP12B (GND) CT (T2)	Nos	18
3	Raigarh – 24kV Single Phase HP24/36 (GND) CT (T2)	Nos	24
4	Raigarh – 24kV Single Phase HP24/36 (L2&R2) CT (T3)	Nos	24
5	Raigarh – 24kV Single Phase HP3 (GND) CT (T2)	Nos	12
6	Raigarh – 24kV Single Phase HP3 (R1) CT (T3)	Nos	12
7	Raigarh – 36kV Single Phase HP3 (C2) CT (T5)	Nos	12
8	Raigarh – 24kV Single Phase AC Shunt Bank (GND) CT (T2)	Nos	12
9	Spare Raigarh – 24kV Single Phase GND CT (T2)	Nos	1
10	Spare Raigarh – 24kV Single Phase HP24/36 (L2&R2) CT (T3)	Nos	1
11	Spare Raigarh – 24kV Single Phase HP3 (R1) CT (T3)	Nos	1
12	Spare Raigarh – 36kV Single Phase HP3 (C2) CT (T5)	Nos	1
13	Pugalur - 24kV Single Phase HP12 (GND) CT (T2)	Nos	12
14	Pugalur - 24kV Single Phase HP12B (GND) CT (T2)	Nos	15
15	Pugalur - 24kV Single Phase HP24/36 (GND) CT (T2)	Nos	12
16	Pugalur - 24kV Single Phase HP24/36 (L2&R2) CT (T3)	Nos	12
17	Pugalur - 24kV Single Phase HP3 (GND) CT (T2)	Nos	6
18	Pugalur - 24kV Single Phase HP3 (R1) CT (T3)	Nos	6
19	Pugalur - 36kV Single Phase HP3 (C2) CT (T5)	Nos	6
20	Pugalur - 24kV Single Phase AC Shunt Bank (GND) CT (T2)	Nos	24



S. No.	Item Description	Unit	Quantity
21	Spare Pugalur - 24kV Single Phase GND CT (T2)	Nos	1
22	Spare Pugalur - 24kV Single Phase HP24/36 (L2&R2) CT (T3)	Nos	1
23	Spare Pugalur - 24kV Single Phase HP3 (R1) CT (T3)	Nos	1
24	Spare Pugalur - 36kV Single Phase HP3 (C2) CT (T5)	Nos	1

Note – Including Hardware (Nuts, Bolts and Washers) for mounting CT on structure - 1 set for each CT.

1.3 Specific Technical Requirements

1.3.1 Qualifying Requirement

The Supplier shall offer equipment whose similar equipment for similar applications have been in service for at least two years from as on the originally scheduled date for the deadline of submission of first stage bid i.e 19th May 2015 and should have been type tested as per relevant standards.

In case the supplier offers AC switchyard equipment from manufacturer(s) who have recently established production line in India for the offered equipment(s), based on technological support of a parent company or collaborator for the respective equipment(s) can also be considered provided the parent company (Principals) or collaborator meets the qualifying requirements stipulated above. In such cases the supplier shall have to fulfil the following conditions:

- The supplier shall be fully responsible for the equipment manufactured from such works.
- Complete design and engineering of the equipment shall be the responsibility of the Supplier.
- The supplier shall furnish (jointly with the Subsidiary or collaboration partner) a legally Enforceable undertaking to guarantee quality, timely supply, performance and warranty obligations as specified.



1.3.3 Type Tests

- a. All equipment being supplied shall conform to type tests as per technical specification and shall be subject to routine tests in accordance with requirements stipulated under section II.
- b. The reports for all type tests as per technical specification shall be furnished by the bidder along with equipment / material drawings. However, type test reports of similar equipment/material already accepted in POWERGRID shall be applicable for all project with similar requirement. The type tests conducted earlier should have either been conducted in accredited laboratory (accredited based on ISO / IEC Guide 25 / 17025 or EN 45001 by the national accreditation body of the country where laboratory is located) or witnessed by POWERGRID or representative authorized by POWERGRID or Utility or representative of accredited test lab or reputed consultant.

The test reports submitted shall be of the tests conducted within last 10 (ten) years prior to the date of bid opening (28/07/2015). In case the test reports are of the test conducted earlier than 10 (ten) years prior to the date of bid opening (28/07/2015), the bidder shall repeat these test(s) at no extra cost to BHEL.

- c. In the event of any discrepancy in the test reports i.e. any test report not acceptable due to any design/manufacturing changes (including substitution of components) or due to non-compliance with the requirement stipulated in the Technical Specification or any/all type tests not carried out, same shall be carried out without any additional cost implication to the Purchaser. The bidder shall intimate the Purchaser the detailed program about the tests at least two (2) weeks in advance in case of domestic supplies & six (6) weeks in advance in case of foreign supplies. Further, in case type tests are required to be conducted / repeated and the deputation of Inspector/Purchaser's representative is required, then all the expenses shall be borne by the bidder.

1.3.4 Quality Plan

Bidder to follow valid POWERGRID approved quality plan at contract stage. In case the bidder does not have POWERGRID approved QP, it will be the bidder's responsibility to get its QP approved directly from POWERGRID.

1.3.5 Special Tools & Tackles

The bidder shall include in his proposal the deployment of all special tools and tackles required for erection, testing, commissioning and maintenance of the equipment. The Special tools and tackles shall only cover items which are specifically required for the equipment offered and are proprietary in nature. A list of all such devices shall be furnished.

1.3.6 Deviations

The bidder shall list all the deviation from the specification separately. Offers without specific deviation will be deemed to be totally in compliance with the specification and NO DEVIATION on any account will be entertained at a later date.



±800kV, 6000MW HVDC Raigarh – Pugalur Terminals
AC Filter Current Transformer
(Non-PR Class)
Doc. No. : TB-391-510-010 Rev. 01

SECTION-2

Requirement Specification

Enclosed: **Requirement Specification – AC Filter Current Transformer – 1JNL494530 Rev C**



±800kV, 6000MW HVDC Raigarh – Pugalur Terminals
AC Filter Current Transformer
(Non-PR Class)
Doc. No. : TB-391-510-010 Rev. 01

SECTION-3

Project Details and General Technical Requirements

Enclosed:

- General Requirements For Main Circuit Apparatus – 1JNL355425 Rev G
- Mechanical Requirements for Apparatuses Terminal for HVDC – 1JNL355427 Rev B
- General Technical Requirements – Section 3 - TB-391-316-000 Rev 04