

PROJECT: MAITREE STPP(2 X 660MW)) FGD PACKAGE CONTRACTOR: BHEL - RANIPET CONTRACT NO: BIFPCL/EPC-MAIN PLANT/NOA/2016/215		CONTRACT QUALITY REQUIREMENTS (CQR) for SCREENED CABLE MAITREE STPP(2 X 660MW)) FGD PACKAGE (BHEL CUST No: R4M8 & R4M9)	DOC.NO: BAP/QR/R4M8& R4M9 /SC:010 Rev NO. : 00 PAGE : Page 1 of 4 DATE : 17 05 2018	##Enquiry No: ##Supplier Name: ##Offer reference: ##Date:
Sl. NO.	DESCRIPTION	BHEL/NTPC Requirements		##Specific confirmations by the vendor

ITEM: SCREENED CABLE

- 01	Type test requirements	1. Vendor shall submit the type test reports of all the type tests as listed in SL NO:3 and carried out within 5 years from the date of BIFPCL bid opening (22.09.2015). These reports should be for the test conducted on the similar equipment to those proposed to be supplied under this enquiry and test(s) should have been either conducted at an independent laboratory (or) should have been witnessed by TPI/BHEL/BIFPCL/FITCHNER	
		1. However, if vendor is not able to submit the similar type test report as per above condition (or) in the case of type test reports are not found to be meeting the specification requirement, the vendor shall conduct all the tests at no additional cost to BHEL/BIFPCL/FITCHNER either at third party lab (or) own lab in the presence of TPI/BHEL/BIFPCL/FITCHNER and submit the reports for approval.	
		2. Type Test reports review and approval by BIFPCL/FITCHNER is a must.	

3.TESTING REQUIREMENTS FOR SCREENED CABLE

A. Type Test Conduction:

1. Tests for which 'T' is indicated in the 'Test Conduction Required As' column below shall be conducted as Type Test.
2. Sampling:
 - a) Type tests (except for Sl. no. b & c below) to be conducted on one size (2P,4P etc.) of each type/ lot.
 - b) Electrical tests to be conducted on each size (2P,4P etc.) of each type/ lot.
 - c) FRLS & Flammability Test to be conducted only on one sample/ lot, irrespective of size/type.

B. Acceptance Test Conduction:

1. Tests for which 'A' is indicated in the 'Test Conduction Required As' column below shall be conducted as Acceptance tests.
2. Sampling:
Sampling for acceptance tests for every lot shall be as per IEC 60502-1/ Relevant International standard.

C. Routine Test Conduction:

1. Tests for which 'R' is indicated in the 'Test Conduction Required As' column below shall be conducted as Routine tests.
2. Sampling:
Routine testing shall be conducted in line with the applicable standards and as per the Manufacturing Quality Plan approved for the project for every lot offered for inspection.

D. C&I Tests listed in S.No-8.0 shall be conducted only one size/ type / lot.

E. ADS: Approved datasheet.

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S. No.	TEST	APPLICABLE FOR	TEST CONDUCTION REQUIRED AS	REFERENCE STANDARD	REMARKS
1.0	Tests for Conductor				
I.	Annealing test	For copper conductor only	T, A	Plant Standard/ Relevant International Standard	<i>Internal in process Test Report to be furnished for acceptance test</i>
II.	Tin coating test (for tinned copper)	For copper conductor only	T, A	Plant Standard/ Relevant International Standard	
III.	Resistance test	For Cu	T, A, R	VDE 0815	
IV.	Diameter test	For conductor	T, A	ADS	
2.0	Physical Tests for PVC Insulation & PVC sheath				
I.	Test for thickness & Eccentricity	Applicable for PVC insulation, PVC inner sheath & PVC outer sheath	T, A	VDE 0472/	
II.	Tensile strength and elongation test at break	Applicable for PVC insulation & PVC outer sheath	T, A	VDE 0472	
(a)	Before ageing		T, A		
(b)	After ageing		T, A		
III.	Ageing in air oven	Applicable for PVC insulation & PVC outer sheath	T	VDE 0472	
IV.	Loss of mass in air oven test	For PVC outer sheath.	T	VDE 0472	
V.	Hot deformation test	For PVC outer sheath.	T	VDE 0472	
VI.	Heat shock test	For PVC outer sheath.	T	VDE 0472	
VII.	Shrinkage test	For PVC insulation, PVC outer sheath.	T	VDE 0472	
VIII.	Thermal stability test	For PVC outer sheath only	T	VDE 207	
3.0	Tests for Al-Mylar Shield				
I.	Continuity test	For Al-Mylar shield	T, A	Plant Standard	
II.	Shield thickness	For Al-Mylar shield	A	ADS	
III.	Overlap test	For Al-Mylar shield	A	ADS	
IV.	Constructional dimensions	For Al-Mylar shield	A	ADS	
V.	Visual, surface finish+	For Al-Mylar shield	A	Plant Standard	
VI.	Overall coverage	For Al-Mylar shield	A	Plant Standard	
VII.	Noise interference test	For Al-Mylar shield	A	ADS	
4.0	Tests for Drain Wire				
I.	Annealing test	For copper conductor only	T, A	Plant Standard/ Relevant International Standard	<i>Internal in process Test Report to be furnished for acceptance test</i>
II.	Tin coating test (for tinned copper)	For copper conductor only	T, A	Plant Standard/ Relevant International Standard	
III.	Resistance test	For Cu	T, A, R	VDE 0815	
IV.	Diameter test	For conductor	T, A	ADS	
V.	Continuity test	For Al-Mylar shield	T, A	Plant Standard	

* The Testing procedure with sketch/drawing, Test Setup shall be submitted along with detailed reference standard and acceptance norms for BHEL/BIFPCL/FITCHNER Approval.

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S. No.	TEST	APPLICABLE FOR	TEST CONDUCTION REQUIRED AS	REFERENCE STANDARD	REMARKS
5.0	FRLS Tests				
I.	Oxygen index test	For PVC outer sheath only	T, A	ASTMD 2863	
II.	Smoke density test	For PVC outer sheath only	T, A	ASTMD 2843	
III.	Acid gas generation test	For PVC outer sheath only	T, A	IEC-754-1	
IV.	Temperature Index Test	For PVC outer sheath only	T	ASTMD 2863	
6.0	Flammability Tests				
I.	Flammability test for single cable	For complete cable	T, A	IEC:60332 Part-1	
II.	Swedish chimney test	For complete cable	A	SEN SS 424 1475 (Class F3)	
III.	Flammability test	For complete cable	A	IEC:60332 Part-3, Cat-B	
7.0	Electrical Tests				
I.	High Voltage Test	For complete cable	T, A, R	VDE 0815	
II.	Insulation Resistance Test (Volume resistivity method)	For complete cable	T, A, R	Relevant International standard/ ADS	
III.	Thermal ageing test	For complete cable	T	Relevant International standard/ ADS	
8.0	C&I Tests				
I.	Cross talk	For complete cable	T, A	ADS	
II.	Attenuation	For complete cable	T, A	ADS	
III.	Characteristic Impedance	For complete cable	T, A	ADS	
IV.	Mutual capacitance	For complete cable	T, A, R	ADS	
V.	Noise interference	For complete cable	T, A	ADS	

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02	Quality Plan Requirements	1. Being an export order, MQP shall be submitted by the vendor in Customer/BIFPCL MQP format only (Copy attached) in line with specifications/approved data sheet/Drgs meeting various international standards / codes for BHEL/BIFPCL/Fichtner for review and approval. 2. All routine tests/sample test shall be clearly indicated in MQP and reference standard shall be in line with relevant IEC. This is in addition to reference documents of Specification, approved drawings and Data sheet. 3. During review and approval of MQP, in case BIFCL/Fichtner raises any clarification/Query on MQP, Vendor shall agree to visit BIFPCL/Consultant office for finalization and approval of MQP. 4. Submission of all internal inspection report for BHEL/Third party Inspector review before undertaking inspection. 5. BHEL/TPI(Third Party Inspection)/Customer/BIFPCL inspection is applicable at vendor works 6. Inspection clearance for dispatch is to be obtained from BHEL/BHEL Third Party Inspection agency(TPI) prior to dispatch of cables	
03	Document Package	Specific confirmation for Document Package in the event of an order (2 hard copies + 2 CDs in Pdf file) is to be given containing the following with proper linkages (.) a. Index Sheet b. Approved MQP c. Final Inspection Report issued by BHEL/TPI, BIFPCL/ FICHTNER(MDCC). d. Compliance certificate/report for any Nonconformance or observation made by BHEL/TPI/ BIFPCL/FICHTNER agencies during inspection at vendor works. e. Test certificates/internal reports for Verification portion as given in MQP and all the test reports etc witnessed by BHEL/TPI/Fitchner/BIFPCL f. Approved Data sheet, Spec & Drgs g. BOM with actual make used with customer approved Drgs BHEL Inspection clearance for dispatch.	
05	Packing	Sea Worthy Packing shall be ensured as per Sea Worthy Packing specification No.PE-TS-888-100-A001 which is referred in Enquiry Specifications/ Drgs and Data sheet.	
06	Important Note	No Chinese Material are to be used in this Items/Assy of export contract	

Supplier signature with seal

Necessarily to be filled up by the vendor at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirements being customer specific requirements.