



BHARAT HEAVY ELECTRICALS LIMITED, HARIDWAR
Control & Instrumentation Engineering (CIE)

PRE-QUALIFICATION REQUIREMENT

Dt: 16-09-2023

- 1) Conductivity transmitter W96415206940
- 2) Conductivity probe W96415203339
- 3) Flow Thru chamber W96415203347

A- Common qualification requirements for Conductivity transmitter W96415206940 & Conductivity probe W96415203339

1. Bidder shall be manufacturer or authorized supplier of Conductivity Transmitter and Probe. Letter of authorization or suitable document shall be submitted in support for the same.
2. Bidder must have supplied 15 or more Conductivity transmitters+ probe in last 5 years from date of enquiry. Out of these at least 2 orders must be of 4 or more Units each. PO copies to be provided in support of the same.

B- Technical requirement for Conductivity transmitter code W96415206940:-

(Refer Note 1 below also)

- Suitable for measuring conductivity of DM water.
- HART Smart Two wire 24V, μ P based programmable.
- Covers measuring range 0-5 μ Siemens/cm, Output signal 4-20mA.
- Protection class IP65 or better.

Permissible load burden shall be 400 Ω or better.

Bidder to submit data sheet/ document in support of above features. It should indicate important parameters linking with national/international standard.

C- Technical requirement for Conductivity Probe code W96415203339:-

(Refer Note 1 below also)

- Sensor shall be continuous flow through type with Cell constant of probe 0.05 or better.
- Material of electrodes shall be stainless steel.
- Temperature compensation thermometer Pt100 or Pt1000 shall also be fitted inside the sensor.

Bidder to submit data sheet/ document in support of above features. It should indicate important parameters linking with national/international standard.

D- PQR applicable for Flow- Thru-chamber Chamber code W96415203347:-

- Item shall be suitable for mounting the offered Probe. Item automatically qualifies, on PQR qualification of Conductivity Probe & Transmitter.

Notes: -

- (1) Conductivity transmitter and Probe work in pair. Hence both Conductivity transmitter and Probe shall qualify their respective PQR independently, for purchase of either item. Failure to qualify PQR by either transmitter or Probe shall automatically disqualify the other.
- (2) All 3 items to be procured from the same vendor.
- (3) The conductivity transmitter shall be used in Power Plant for DM water (used as cooling medium in Generator) conductivity measurement.
- (4) Bidder to provide reference list of customers of Conductivity Transmitter for our information.
- (5) Bidder to confirm specific compliance wherever asked. BHEL reserves the right to verify information submitted by Bidder. In case the information is found false/ incorrect/ incomplete, the offer shall be rejected.

Sub: Approval of Sub- Vendor M/s. in 660 MW Raghunathpur Project.

Sl. No.	Item	Description			
1.	Project Name	660 MW Generator#2 of Raghunathpur Ph-II			
2.	Package Name	STG			
3.	EPC Contractor	M/s. BHEL			
4.	Name of proposed Vendor/ Sub supplier				
5.	Brief specification of the items for which approval is requested	Hollow Copper Conductor			
6.	Existing approved vendor for the items:	Sl. No.	Vendor	Location	Approval Category
7.	Reason for consideration & Contract provision for vendor approval:				
8.	Details of proposed vendor:				
(a)	Registered Office Address:				
(b)	Contact Person Name				
(c)	Phone No.				
(d)	Email id.				
(e)	Works Address:				
(f)	Contact Person Name				
(g)	Phone No.				
(h)	Email id.				
9.	Proposed sub-supplier/ vendor's total organizational strength (Engineering, Manufacturing, Quality, Commercial, service after sales & others)				
10.	Nature of Company (Proprietary/Partnership/Private Limited/Public Limited.)				
11.	EPC Contractor Evaluation Report about proposed vendor under DR category and recommendation thereof				
12.	Details of manufacturing license for the product for which approval is asked for. Indicate approval/ certification by any National/ International standards/ agencies if applicable.				
13.	Details of foreign collaborations (if any)				
14.	Provenness Criteria/ Sub-QR compliant documents as per the NIT requirement	NA			
15.	Record of past supply by the sub-supplier/vendor for the same type of materials for which approval is asked to any Govt/Govt. Under takings/PSUs/ Reputed Private Company within last Seven years.				
(a)	Copy of Purchase Order issued from Govt./Govt Undertakings/PSUs/ Reputed Private Co.				
(b)	Copy of performance certificate issued by any Govt./Govt Undertakings/ PSUs/ Reputed Private Co.				
(c)	Other documents like approved Engineering Documents,				

Sl. No.	Item	Description
	approved MQP, MDCC, Inspection Reports etc. as required for justification towards sub-vendor approval.	
16.	Type test report for the same type of materials for which approval is asked for from any Govt. Govt. approved Laboratory/ other reputed Institutions within last five years (or as per the NIT Requirements) – if required.	
17.	Financial capability: (i) Net Worth, (ii) Annual Turnover & Profit for last three years, (iii) Limit of credit facility available from bank with documentary evidence OR The EPC declaration regarding taking the responsibility for the Sub-Vendor financial support towards scheduled delivery of the item conforming to approved Engineering Documents, Quality and other NIT requirements like guarantee, warranty and desired life of the item etc. as per NIT Requirement	
18.	Whether the sub-supplier/vendor has the following in-house facility (Enclose Documentary evidence) or otherwise (Detail to be provided):	
(a)	Design	
(b)	Research & Development	
(c)	Manufacturing/Production	
(d)	Quality Control/Inspection	
(e)	Testing Lab/Testing facilities	
(f)	If in-house testing / quality control facilities are not available, indicate source of testing / quality control with relevant details.	
19.	Compliance of Statuary / regulatory / pollution norms wherever applicable with documentary evidence.	
20.	Other documents	

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM	CONDUCTIVITY MEASURING EQUIPMENT		QP NO.	QA/BE/QP/317							
				REV.	07								
		DRG. NO.		AS PER PO									
		SPEC.		TG 60196									
		REV	AS PER PO			Page 1 of 2							
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY		REMARKS
										M	B	N	
1	2	3		4	5	6	7	8	9	D	10		11

1.0	INCOMING INSPECTION											
1.1	Conductivity sensor, conductivity transmitter and other electronic & electrical components	Visual, make, rating, model, type, valve, etc	Major	Visual	100%	TG 60196	TG60196/BOM	Internal records	√	P	V	
1.2	Flow chamber, electrode	Material	Major	Visual	100%	TG 60196	TG60196/BOM	COC	√	P	V	
1.3	Printed Circuit Boards	Visual, finish & dimensions	Major	Visual	100%	TG 60196	TG60196/BOM	Internal records	√	P	V	
1.4	Housing & enclosures	Visual defects, cutouts, drills, taps & painting	Major	Visual	100%	TG 60196	TG60196/BOM	Internal records	√	P	V	
2.0	INPROCESS INSPECTION											
2.1		Burn in test	Major	Electrical	100%	TG 60196	TG 60196 / Appd drawing	Test report		P	-	
2.2	Assembly of instruments	PCBs assemblies	Major	Visual	100%	TG 60196	TG 60196 / Appd drawing	Internal records		P	-	
2.3		Housing & enclosure assemblies	Major	Visual	100%	TG 60196	TG 60196 / Appd drawing	Internal records		P	-	
2.4		Internal layout, wiring, connections, and terminal marking	Major	Visual	100%	TG 60196	TG 60196 / Appd drawing	Internal records		P	-	
3.0	FINAL INSPECTION											
3.1	Type tests											Refer note
3.2	Routine tests											

MANUFACTURER/SUBCONTRACTOR		LEGEND:	FOR CUSTOMER USE	APPROVED BY 	SACHIN JAIN 2021.07.13 16:22:18 +05'30'
		D RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.			
		M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER IR: INSPECTION REPORT INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER			

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM	CONDUCTIVITY MEASURING EQUIPMENT	QP NO.	QA/BE/QP/317								
				REV.	07								
		DRG. NO.	AS PER PO										
		SPEC.	TG 60196										
		REV	AS PER PO		Page 2 of 2								
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY		REMARKS
										M	B	N	
1	2	3		4	5	6	7	8	9	D	10		11

3.2.1		Visual & dimension	Major	Visual/ measuremnt	100%	TG 60196	TG 60196 / Appd drawing	IR	√	P	W		
3.2.2		Insulation resistance	Major	Electrical	100%	TG 60196	TG 60196 / Appd drawing	Test report	√	P	W		
3.2.3		Burn in test	Major	Electrical	100%	TG 60196	TG 60196 / Appd drawing	Test report	√	P	V		
3.2.4		Functional/simulation test (Output signals, LED indicators & digital indications accuracy for FIVE input values in the operating range)	Major	Electrical	100%	TG 60196	TG 60196 / Appd drawing	Test report	√	P	W		
3.2.5		Compliance of technical requirements	Major	-	100%	TG 60196	TG 60196 / Appd drawing	COC	√	P	V		
3.2.6		Completeness & correctness of documents	Major	Physical	100%	TG 60196	TG 60196 / Appd drawing /SQP	Docume nts	√	P	V		
4.0	Packing & marking												
4.1		Identification & marking	Major	Physical	100%	TG 60196	TG 60196	Internal records	√	P	V		
4.2		Sturdiness of packing against transit damage	Major	Physical	100%	TG 60196	TG 60196	Internal records	√	P	-		

Note:

1. Type tests clearance from BHEL Engg to be verified (by inspection engineer) during inspection at vendor's works.
2. Manufacturer to maintain calibrated instruments having better accuracy than the item under test. Inspection engineer shall check the same.

MANUFACTURER/SUBCONTRACTOR		LEGEND:	FOR CUSTOMER USE	APPROVED BY 	SACHIN JAIN 2021.07.13 16:22:29 +05'30'
		D RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.			
		M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER IR: INSPECTION REPORT INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER			