

**SPECIFICATION FOR OIL BATH WITH TEMPERATURE READOUT & SPRT**

Code No.: ZWG070601011

Indent No.: C6360/20156655/T

SN	PARAMETER	SPECIFICATION	ACCEPTED	REMARKS
			(YES/NO)	
1	RANGE	40°C To 300°C		Vendor to Comply
2	STABILITY FOR 1 YEAR	0.015° C or Better for whole Range without equilizing Block		Vendor to Comply & Provide Details
3	UNIFORMITY	0.025° C or Better for whole Range without equilizing Block		Vendor to Comply & Provide Details
4	HEATING TIME	Max 150 Minutes to reach from 40° C to 300° C		Vendor to Comply
5	STABILIZATION TIME	Max 20 Minutes		Vendor to Comply
6	SET POINT RESOLUTION	0.01° C or Better		Vendor to Comply
7	DISPLAY RESOLUTION	0.01° C or Better		Vendor to Comply
8	IMMERSION DEPTH	Minimum 450mm		Vendor to Comply
9	VOLUME	Oil Capacity maximum 20 Litres		Vendor to Comply
10	DISPLAY UNIT	Local display on Oil bath along with sperate 20 channel Display Unit		<b>As Per Attached Specifiacion ANNEXURE-A</b>
11	POWER SUPPLY	230 VAC (± 10 %),50 Hz		Vendor to Comply
12	COMMUNICATION	RS 232/RS-485 Interface		Vendor to Comply
13	SENSOR	External Pt-100(392) RTD Sensor		<b>As Per Attached Specification ANNEXURE-B</b>
14	ACCESS OPENING AREA	Min 150 cm <sup>2</sup> calibration area is required in which Temperature sensors have to be placed.		Vendor to Comply
15	WETTED PARTS	Stainless Steel		Vendor to Comply
16	TANK BATH BODY	Stainless Steel		Vendor to Comply
17	ACCESSORIES	Sensor Support Kit/Sensor Holder-3 Nos.		Vendor to Comply
18	TRAINING	Vendor has to Provide Training of atleast 3 days at BHEL Works		Vendor to Comply
19	DOCUMENT & MANUAL	Original documents & manual is required in Hard & soft copy		Vendor to Comply
20	CALIBRATION	Accredited certificate for stability & uniformity required from National / International Traceable Laboratory. Calibration from NABL accredited laboratory will be witnessed by M/s BHEL.		Vendor to Comply & Provide Details
21	WARRANTY	Minimum 1 Year from Date of commissioning		Vendor to Comply
22	OIL TYPE	Silicon Oil should have Viscocity more than 50 Cst & suitable for 5000 Hrs. operation( Approx 5 Years operation) without changing the oil in Bath.		Vendor to comply & Provide Details
23	SPARE	Min. 50% of Same type of oil used in Bath		Vendor to Comply
24	MAKE OF OIL BATH	<b>FLUKE/ISOTECH/JULABO/AMETEK/WIKA/TEMPSEN</b>		Vendor to Comply & Provide Details
25	PRE DISPATCH INSPECTION	M/s BHEL shall inspect the product before dispatch at supplier's work.		Vendor to Comply
		Vendor to perform calibration of atleast 02 Nos. of instruments in class-A accuracy covering whole Temp range.		
		Vendor to prove all features of bath physically.		

*Sarvani Roy Choudhury*  
 Sarvani Roy Choudhury  
 23/03/18  
 DGM(WEX-INST.)

*Shailish*  
 29/03/18  
 Shailish Kumar Sharma  
 Sr. Engineer(WEX-INST.)

**SPECIFICATION FOR READOUT FOR INTERFACE TO OIL BATH**

SN	PARAMETER	TYPE	SPECIFICATION	ACCEPTED(Y/N)	REMARKS
1	I/P RANGE	K-TYPE	-270 TO 1372° C		Vendor to comply
		T-TYPE	0 TO 400° C		Vendor to comply
		R-TYPE	-0 TO 1760° C		Vendor to comply
		PRT	-200 TO 850° C		Vendor to comply
		RESISTANCE	0-1000Ω		Vendor to comply
		VOLTAGE(mV)	0-115mV		Vendor to comply
2	CHANNEL CAPACITY	RTD	RTD I/Ps-10 Nos.(MIN.)		Vendor to comply
		THERMOCOUPLE	TC I/Ps-10 N0s.(MIN.)		Vendor to comply
		RESISTANCE	Min. 10 Nos.(INBUILT OR SELECTABLE VIA RTD I/P)		Vendor to comply
		VOLTAGE(mV)	Min. 10 Nos.(INBUILT OR SELECTABLE VIA TC I/P)		Vendor to comply
3	UNITS	DISPLAY UNITS	°C, °F,Ω, mV(User selectable)		Vendor to comply
4	DISPLAY	LCD/LED	6½ DIGIT OR BETTER		Vendor to comply
5	ACCURACY (1 YEAR)	K-TYPE	MIN 0.32°C (INTERNAL CJC)		Vendor to comply
		T-TYPE	MIN 0.30°C(INTERNAL CJC)		Vendor to comply
		R-TYPE	MIN 0.70°C(INTERNAL CJC)		Vendor to comply
		PRT	MIN 0.015°C		Vendor to comply
		RESISTANCE	MIN 0.005% FS		Vendor to comply
		VOLTAGE(mV)	MIN 0.005% FS		Vendor to comply
6	SAMPLING RATE	AUTO	AUTO/MANUAL SELECTION FEATURE IN MENU		Vendor to comply
		MANUAL			
7	I/P CONNECTOR	RTD-GOLD PLATED CONTACTS			Vendor to comply
		THERMOCOUPLE-TC SOCKET			Vendor to comply
8	TERMINAL ADAPTER	ADAPTOR FOR CONNECTING BARE WIRE, SPADES OR BANANA PLUGS			Vendor to comply
9	INTERFACE	DATA RETRIEVAL	USB PORT WITH MIN 4GB USB STORAGE		Vendor to comply
10	AUTOMATION	CALIBRATION	AUTOMATIC CALIBRATION FACILITY		Vendor to comply & Provide Details
11	LOGGING	INTERNAL MEMORY	SUITABLE TO STORE MIN 100 DAYS DATA		Vendor to comply
12	POWER	AC SUPPLY	250 VAC, 50 Hz ±10%		Vendor to comply
13	OPERATING CONDITION	ENVIRONMENTAL	TEMP-0-45°C,HUMIDITY 10-90%		Vendor to comply
14	CARRYING CASE	CARRYING CASE FOR PORTABILITY			Vendor to comply
15	CALIBRATION	ACCREDITED CALIBRATION CERTIFICATE FROM NATIONAL/INTERNATIONAL TRACABLE LABORATORY. CALIBRATION FROM NABL ACCREDITED LABORATORY WILL BE WITNESSED BY M/S BHEL			Vendor to comply

*Seeba by Chandhury*  
29/03/16

*Chaitan*  
29/03/2016

**SPECIFICATION FOR SPRT (PT100-392) FOR INTERFACE TO OIL BATH**

SN	PARAMETER	SPECIFICATION	ACCEPTED(Y/N)	REMARKS
1	Temperature Range	-40°C to 550°C		Vendor to comply
2	Nominal Resistance at 0.01°C	100Ω ± 1Ω		Vendor to comply
3	Temperature Co-efficient	0.0032950 Ω/Ω/°C		Vendor to comply
4	Uncertainty for 1Year @k=2	Min 0.015°C or Better for Whole Range		Vendor to comply & Provide sample Calibration Certificate
5	Resistance Ratio W(Ga)	≥1.11807°C		Vendor to comply
6	Stability	± 0.005°C or Better for Whole Range		Vendor to comply
7	Long Term Drift	Less than 0.04°C/500 Hrs. at max temp		Vendor to comply
8	Sensor Length	35mm - 65 mm		Vendor to comply
9	Sheath Material	Metallic/Inconel 600		Vendor to comply
10	Stem Length/Immersion Length	Minimum 450 mm		Vendor to comply
11	Nominal Diameter	Minimum 6mm		Vendor to comply
12	Internal Leads	4-Wire Super Flex PVC		Vendor to comply
13	External Leads	Minimum 1.5m		Vendor to comply
14	Termination	Gold Plated Spade Lugs		Vendor to comply
15	Lead wire temperature range	0°C to 80°C		Vendor to comply
16	Documents & Manuals	Soft Copy & Hard Copy Required		Vendor to comply
17	Accessories	Carrying case required		Vendor to comply
18	Calibration	Accredited Calibration Certificate from National/International Traceable Laboratory. Calibration from NABL accredited Laboratory will be witnessed by M/s BHEL.		Vendor to comply & Provide Details

*Sanku Raj Chaudhary*  
29/03/14

*Khair Kh*  
29/03/14

**Sub.: PRE QUALIFYING REQUIREMENT OF VENDOR FOR OIL BATH WITH TEMPERATURE READOUT & SPRT of Code No.:  
ZWG070601011 Indent No. C6360/20156655/T**

SN	Pre Qualifying Criteria	Document Required
1	Vendor should be OEM or Authorised dealer or subsidiary or authorized service provider of OEM for offered Product	A. OEM Confirmation letter from Vendor for the product offered B. In case vendor is authorised dealer or subsidiary or authorized service provider of OEM, copy of authorisation from OEM required.
2	Vendor should have supplied similar item to other customer in last five years from the date of submitting their offer. Similar item means Items having same or better accuracy, stability, uniformity & immersion depth specification as per M/s BHEL Haridwar requirement.	A. Atleast one PO copy against which similar item is supplied along with detailed technical specification of the items supplied. B. Vendor has to submit the PO copy for each item either supplied individually or completely along with detailed technical specification. C. Performance certificate of satisfactorily performance from the customer for the items supplied against that very PO issued within last 1 year from the date of submitting their offer. D. BHEL reserves the right to inspect the supplied product to verify its performance ,if required. Vendor to facilitate.
3	Offered model should be Regular model & in current manufacturing Range at the time of submitting their offer.	A. Latest original technical brochure or scanned copy of original technical brochure showing their complete specification viz Accuracy, Range, stability, uniformity ,Immersion depth etc. B. Offered model should be mentioned on Technical Brochure as well as their official website. Vendor to specify their official website URL. C. Any customisation in Regular model Product offered by the Vendor will only be accepted, if same product has been supplied to other customer with same Accuracy, Range, Uniformity, Stability & Imersion depth specification within last five years from the date of submitting their offer. Vendor to provide relevant PO copy along with technical details of the product & Performance certificate of satisfactorily performance from customer for the item. D. Sample accredited calibration certificate for the Regular customised product supplied against that very PO, if offered .

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