



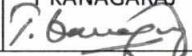
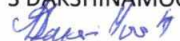


CONTROLS AND INSTRUMENTATION/QA/FB

STANDARD QUALITY PLAN FOR

PRESSURE GAUGE

(BOURDON, DIAPHRAM AND DRAFT)

REV	DATE	PREPARED	REVIEWED		APPROVED	REVISION HISTORY
00-04	21/03/2002	Sd/-	Sd/-		Sd/-	Dept. name changed CTQ requirements added & General revision.
05	08/01/2004	Sd/-	Sd/-		Sd/-	Revised to include the comments / Feedback of internal discussion / Vendors meet.
06	20/01/2009	Sd/-	Sd/-		Sd/-	Quantum of check included. Format changed
07	01/10/2009	Sd/-	Sd/-		Sd/-	Based on Inspection feedback, Quantum of check by BHEL is revised.
08	23/12/2016	AVINASH V 	RM VAIRAVAN 	T KANAGARAJ 	S DAKSHINAMOORTHY 	Reference Standards updated.

	BHARAT HEAVY ELECTRICALS LIMITED TIRUCHIRAPPALLI - 620014	QUALITY PLAN FOR PRESSURE GAUGE	QA:CI:STD:QP:01 Rev: 08 Page: 2 of 3
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Sl. No	Component & Operation	Characteristics	Class	Type of Check	Quantum of check		Ref Doc. & Acceptance STD	Format of record	AGENCY			REMARKS
					M	B/C			M	B	C	
A	FINISHED PRODUCT INSPECTION											
01	Routine test	a. Physical verification of type, scale marking, range, tag number	Major	VISU	100%	20%	Purchase spec.	TR	P	W	-	
		b. Dimensional check up	Major	MEAS	100%	20%	IS 3624/EN 837	TR	P	W	-	
		c. Body material, Sensing element	Major	CHEM	Sample	Sample	Purchase spec...	TC	P	V	-	
		d. Calibration test (Accuracy) at 5 points before and after pressure test.	Critical	MEAS	100%	30%	IS 3624 / EN837, Data sheet	TR	P	W	-	
		e. Over range protection test	Major	PHYS MECH	100%	20%	IS 3624	TR	P	W	-	
		f. Zero adjustment	Major	MECH	100%	20%	IS 3624	TR	P	W	-	
		g. Mounting, entry and process connection	Major	PHYS MECH	100%	20%	Datasheet	TR	P	W	-	
		h. Provision of Blow out disc	Major	MECH	Sample	Sample	IS 3624	TR	P	W	-	
		i. Over pressure test	Major	MECH	Sample	Sample	EN 837	TR	P	W	-	
		j. Hysteresis, Repeatability	Major	MECH	Sample	Sample	IS 3624 / EN837,	TR	P	W	-	
02	Type Test	a. Degree of enclosure protection for housing.	Critical	ENVI	One of Design	One of Design	Purchase spec.	TC	V	V	-	
		b. Endurance test	Critical	MECH	-Do-	-Do-	EN 837	TC	V	V	-	
		c. Thermal stability test	Critical	MECH	-Do-	-Do-	Note D	TC	V	V	-	
		d. Vibration test	Critical	MECH	-Do-	-Do-	EN 837	TC	V	V	-	

M- MANUFACTURER/ SUB-VENDOR; **B** - BHEL / TPI ; **C** - CUSTOMER / TPI
P - PERFORM ; **W** - WITNESS **V** - VERIFICATION ;



B.NOTES:

1.LEGENDS:

- | | | | | | |
|------|---|----------------|------|---|------------------|
| ENVI | : | Environmental; | MEAS | : | Measurement |
| ELEC | : | Electrical | LGB | : | Log Book |
| CHEM | : | Chemical | TC | : | Test certificate |
| VISU | : | Visual | TR | : | Test Report |
2. The vendor at their works shall arrange all testing facilities. Tests for which facilities are not available are to be carried out at recognized National Test Houses like ETDC/CIL/NPL/ERTL etc., at vendor cost.
 3. Through Log Book / any other documents available at the vendor's works, it shall be possible to correlate the finished product with inspection carried out.
 4. All Measuring and Testing Instruments shall be periodically calibrated from recognized test houses & certificates made available during inspection for verification.
 5. Test certificates for routine type tests are to be furnished by the vendor.
 6. Type test certificate shall not be earlier than 5 years from the date of Purchase enquiry.
 7. Vendor to give tentative inspection program in advance and confirm exact date two weeks in advance for arranging BHEL's inspection.
 8. Packing shall be as per "PACKING PROCEDURE" indicated in the specification.

C. REFERENCE STANDARDS: (For Indicated Standards Refer the Latest Version)

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|---------|---|--|
| IS 3624 | : | Specification for pressure and vacuum gauges |
| EN 837 | : | Bourdon tube pressure gauges |

D. THERMAL STABILITY TEST:

A cyclic temperature test shall be performed in a suitable test chamber by elevating the temperature to the maximum rated temperature within two hours. The instrument case shall be held at the maximum temperature for 10 hours. The case temperature shall then be lowered to the specified minimum temperature over a 2 hours period. The minimum temperature shall also be held for 10 hours.

2 cycles at third party lab (Govt. approved / NABL accredited) or 5 cycles at Manufacturer work is acceptable. Maximum and minimum temperatures are as per manufacturer's catalog. At the end of this period, there shall be no visible deterioration of the gaskets, seals, protective coating or any significant distortion of the case.

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