

Mandatory Pre-Qualification requirements for Terminal Box
Material Code-W96413508302 (Drawing no-31350601182-00) and W96413510714
(Drawing no-31350601190-00) as per BHEL specification TG60708

Description:

The Terminal Box is used in generators. It is utilized for mounting the terminal block which used for terminating the connecting cables for control and power application. The Terminal Box should be of very reliable and proven design.

- 1.0** The vendor should be a regular manufacturer of such Terminal Box with minimum following requirements -

Si No.	Parameter	Value
(i)	Steel sheet thickness	Minimum 3 mm
(ii)	Pretreated By	Seven Tank process
(iii)	Steel sheet and ground bolts	Senzimier Tinned
(iv)	Terminal Block	Screw less ,32A and 500VAC
(v)	Terminal Block supplier	M/s Wago controls, M/s Elmex control and M/s industrial
(vi)	Terminal Block	Suitable for 2 conductors each cross section upto 4 mm ²
(vii)	Insulation material	Nylon or Ecuivalent (Self-extinguishing)
(viii)	Current carrying parts	Made of electrolytic copper with tin coating
(ix)	Clamp spring Material	High quality austenitic chrome nickel spring steel
(x)	Mounting rail/Channel Material	Corrosion resistant steel
(xi)	HV test	3000VAC for 1 min
(xii)	Insulation Resistance	Minimum 50 mega Ohm with 500V megger
(xiii)	Temperature rise for current carrying parts	Not exceed 45°C when tested at rated current (ref. ambient 40°C)
(xiv)	Degree of Protection	IP65

- 2.0** In support of above serial number-1, vendor shall furnish technical details of Terminal Box in below mentioned format for at least one nos. (1) of the P.O. executed in past 10 years (from date of enquiry) along with P.O. copies.

S. No.	Brief technical details	Application	Name & address of customer	Date of supply
1	-Terminal Block -Insulation, current carrying, clamp spring and mounting rail material -Electric test, Temperature raise test -Sheet Thickness and process -Degree of Protection			

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- 3.0 Vendor to furnish correlated test certificates including against one of the P.O. submitted as per clause 2.
- 4.0 Vendor to furnish acceptance certificate from the end user of Terminal Box against the P.O. submitted as per clause 2. (Original Certificate or through e-mail directly from the customer).
- 5.0 The vendor should have in-house manufacturing facilities for manufacturing of Terminal Box. Vendor to furnish details of the manufacturing facilities available at their works along with photographs
- 6.0 The vendor should have facilities for carrying out the following tests and provide details of test equipment available at their works.
 - 1) Insulation Resistance Test
 - 2) HV test
 - 3) Temperature rise Test
 - 4) Degree of protection
- 7.0 The testing facilities available at vendor's works should be duly calibrated against measurement standards traceable to national/international measurement standards. Vendor to confirm the same. Alternatively, vendor to indicate their tie-up with accredited laboratory for performing Type tests or agree to carry out at NABL/ILAC/APLAC approved lab and provide the details for the same.
- 8.0 Vendor shall confirm to meet all the technical requirements of Specification TG60708 and respective drawing.


Note: BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false / incorrect, the offer shall be rejected.

MANUFACTURER'S NAME AND ADDRESS			STANDARD QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL			
BHEL		ITEM	JUNCTION BOX, TERMINAL BOX		QP. NO.:	QA/BE/QP/008						
				REV. NO.:	02							
		DRG. NO.:	As per PO									
		SPEC. NO.:	As per PO									
		REV. NO.:	As per PO			Page 1 of 1						
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	RAW MATERIAL	CHEMICAL PROPERTIES	MAJOR	REVIEW	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	T.C.	✓	P	V		
2.0	TYPE TEST	-	-	-	-	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	T.C.	✓	P	V		NOTE 1
3.0	ROUTINE TEST												
3.1	DIMENSIONAL	BOX SIZE, CABLE GLAND SIZE AND NOS. OF HOLES, NOS. OF T.B.,	MAJOR	MEASURE MENT	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	I.R.	✓	P	W		
3.2	VISUAL CHECK OF JUNCTION/TERMINAL BOX AND TERMINAL BLOCKS	PHYSICAL VERIFICATION OF BOX, FREE FROM BURS, FINS, BLOW HOLES, DEFECTS, T.B. COLOR, EARTHING BUS BARS	MAJOR	PHYSICAL	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	I.R.	✓	P	W		
3.3	INSULATION RESISTANCE	BEFORE & AFTER H.V. TEST	MAJOR	ELECTRICAL	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	I.R.	✓	P	W		
3.4	HIGH VOLTAGE TEST	--	MAJOR	ELECTRICAL	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	I.R.	✓	P	W		
3.5	PAINT	COLOR, THICKNESS	MAJOR	TYPE TEST	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	I.R.	✓	P	V		
3.6	IDENTIFICATION AND MARKING	--	MINOR	PHYSICAL	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	-		P	V		
3.7	PACKING	--	MINOR	PHYSICAL	100%	BHEL APPD DRG/ BHEL SPEC	BHEL APPD DRG/ BHEL SPEC	-		P	-		

NOTE: 1. Type test clearance from BHEL Engineering 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 the test. Inspection engineer shall check the same.

MANUFACTURER/SUBCONTRACTOR	LEGEND: ! RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER	FOR CUSTOMER USE	APPROVED BY  Digitally signed by Sachin Jain Date: 2021.02.26 10:56:41 +05'30'
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MANUFACTURER'S NAME AND ADDRESS			QUALITY PLAN				TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM			QP NO.								
					REV								
		DRG. NO.	AS PER PO										
		SPEC.	AS PER PO										
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS	
1	2	3	4	5	6	7	8	9	D	10			11

Note: All page of inspection documents shall be numbered in chronology with the QAP clause , dully mentioning the corresponding QAP clause nos. at the top of each page. One index page containing the documents descriptions, their page no & QAP clause shall be attached upfront the inspection documents.

MANUFACTURER/SUBCONTRACTOR		LEGEND:	FOR CUSTOMER USE	
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