

Mandatory Pre-Qualification requirements for Terminal Box
As per BHEL specification TG60708, TG60182, TG60072 and TG60045

Description:

The Terminal Box is used in generators/Exciter. 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 -

Sl No.	Parameter	Value
(i)	Steel sheet thickness	Minimum 2 mm
(ii)	Pretreated By	Seven Tank process
(iii)	Terminal Block	Screw less ,20A and 240VAC(Minimum)
(iv)	Terminal Block	Suitable for conductors each cross section upto 4 mm ²
(v)	Terminal Housing Insulation material	Nylon or Equivalent (Self-extinguishing)
(vi)	Current carrying parts	Made of electrolytic copper with tin coating
(vii)	Clamp spring Material	High quality austenitic chrome nickel spring steel
(viii)	Mounting rail/Channel Material	Corrosion resistant steel
(ix)	HV test	2000VAC for 1 minute (Minimum)
(x)	Insulation Resistance	Minimum 50 mega Ohm with 500V magger
(xi)	Temperature rise for current carrying parts	Not exceed 45°C when tested at rated current (ref. ambient 40°C)
(xii)	Degree of Protection	IP54(Minimum)

- 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.

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.

Mandatory Pre-Qualification requirements for Terminal Box
Material Code-W96413507756 as per Drawing-31350601178

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. The vendor should be a regular manufacturer of such Terminal Box with minimum following requirements –

Si No.	Parameter	Value
(i)	Box and Cover material	Aluminum
(ii)	Sealing Material	Soft Rubber

2. In support of above serial number-1, vendor shall furnish technical details of Terminal Box in below mentioned format for at least one no. (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 Box			

3. 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). Acceptance certificate should contain information like item details and its application or correlation with P.O.
4. The vendor should have in-house manufacturing facilities for manufacturing of Terminal Box. Vendor to Confirm.
5. Vendor to confirm the detailed technical requirements given in the required BHEL Drawing 31350601178-00.

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.

Mandatory Pre-Qualification requirements for Terminal Box (W96414200093 and W96414501689)

Mandatory requirements:

- 1.0 Vendor should have manufactured and supplied Terminal box in last 10 years from the date of enquiry. The supplied terminal boxes should also have terminal blocks of reputed make like M/S Tosha, M/S Elmex Control Pvt. Ltd., M/s Wago & Controls(India) Ltd. or equivalent. The terminal box should be made of Aluminum die casting or light weight metal alloy.

- 1.1 In support of above, vendor shall furnish their experience as per the following format:

SI No	PO No.	Quantity (Nos.)	No. of terminal Block in terminal box	Name & address of customer	Date of supply

- 1.2 Vendor should furnish copy of one PO (unpriced) from the above list along-with customer acceptance letter or material receipt of customer.

- 2.0 Vendor to also furnish test certificates against P.O. submitted as per clause 1.2.
- 3.0 **Manufacturing Facilities:** Vendor shall confirm that they have manufacturing facilities suitable to manufacture the Terminal box as per enquiry and furnish details of the manufacturing facilities available at their works. If the vendor plans to outsource any activity particulars of the same along with details of the sub-vendor/laboratory are to be furnished to BHEL.
- 4.0 **Testing Facilities:** Details of in-house testing facilities (like dimensional measurement, High voltage test etc.) as per the requirement of drawing/enquiry specification to be submitted with offer. In case of outsourcing of tests, vendor to agree for testing at Government/International agency's accredited labs only.
- 5.0 Vendor shall confirm to meet all the technical requirements of Drg.21450801010 and 31421901001.

Note:


- 1) All correspondence shall be in English/Hindi Language.
- 2) If any document provided by vendor is in any language other than English/Hindi, it must be supported with its English translation.

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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