

 BHARAT HEAVY ELECTRICAL LIMITED BHOPAL	Enquiry No. :
	Due Date :
	Supplier Qtn. No.:
	Date :

SPECIFICATION CUM COMPLIANCE CERTIFICATE OF COUPLING SHAFT TO DRAWING NUMBER 5L62472 (Rev-01)

1	NOTE:-				
a	The "Offered Parameters" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Bidder and submitted along with the offer. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications/requirements shall be treated as non-compliance.				
b	The offer and all documents enclosed with offer should be in English language only.				
c	Bidder must not be under category banned/ debarred/ hold from dealing by BHEL on tender due date.				
d	BHEL reserves the right to verify the information and documents furnished by bidder. In case the information is found to be false/ incorrect, the offer shall be rejected.				
e	The vendor meeting pre qualifying criteria as per clause 4 of this specification will be evaluated further.				
2.a	NAME & ADDRESS OF THE SUPPLIER :				
2.b	TELEPHONE NOS.:/ Mobile No.				
2.c	E-MAIL ADDRESS :				
SCOPE: SUPPLY OF COUPLING SHAFT TO DRAWING NUMBER 5L62472					
SNO	Description of requirement	Bidder to specify/ Confirm	Offered Parameters	Deviations	Remarks
4	Part -A : Pre Qualifying Criteria				
a	Bidder should have experience of successful supply of similar item during last 7 years ending 30th April 2020 for industrial applications. Similar item means epoxy moulding component.	1. Bidder to provide 3 PO copies of value not less than Rupees Ten Lakh each or 2 PO copies of value not less than Rs. Fifteen lakh each or one PO of value not less than Rs. Twenty Four lakh of within 7 years.			
b	Bidder's average annual financial turnover during the last 3 years ending 31 st March of 2018-2019 should be greater than Rs. Ten lakh.	Bidder to provide ITCC Annual report for last 3 years.			
c	Qualified Man Power having minimum ITI degree required for incoming material testing/ quality; Moulding and final testing.	Bidder to provide organisational man power chart with qualification, experience, roles & responsibilities. Man power must be assigned for incoming material testing, manufacturing, final testing and quality assurance. Record of incoming material quality, testing & final inspection shall be verified at supplier's works			

[Signature]
29/07/20

Prepared By

[Signature]
29/07/2020

DGM/SWE.

DGM/SWM

[Signature]
29/07/2020

Sr.DGM/ MWX

[Signature]
29/07/2020

AGM-HDD/SWE

SNO	Description of requirement	Bidder to specify/ Confirm	Offered Parameters	Deviations	Remarks
5	<u>Part B: General Specification</u>				
a	Bidder should have necessary testing facility to test parameters at point 10, 11 & 12 of specification SG10031. In case of absence of test facility, bidder has to specify third party testing agency for testing as per above clause.	Bidder to confirm / Specify			
b	Confirmation for BHEL visit to supplier's works before accepting their offer to verify capability of bidder. Bidders' declaration/ information can be verified.	Bidder to confirm			
6	<u>SPECIFICATION OF COUPLING SHAFT</u>				
a	Coupling shaft must be manufactured strictly as per drawing 5L62472 Rev 05 and specification SG10031 Rev 01.	Bidder to confirm			
	<u>ACCEPTANCE CRITERIA OF COUPLING SHAFT</u>				
a	Bidder shall submit quality plans to BHEL for approval before delivery of 1 st lot. However, it is sole responsibility of supplier to supply material as per our purchase order, specification and drawing within time agreed.	Bidder to confirm			
b	Dimensions & Material as per drawing and specification.	Bidder to confirm			
c	Test report for as per clause 13 of specification SG10031.	Bidder to confirm			
d	Sample for tests to be provided by supplier with each delivery as per clause 9 of specification SG10031.	Bidder to confirm			
8	<u>INSPECTION</u>				
a	Inspection at BHEL.				
9	<u>PACKING INSTRUCTIONS</u>				
a	Packing and marking as per clause 14 of specification SG 10031 Rev 01.	Bidder to confirm			
REV-01	CLAUSE 4.b REVISED				

Signature
29/7/20

Signature
29/7/2020

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PRODUCT STANDARD

SWITCHGEAR ENGINEERING DIVISION

SG 10031 REV.01

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CALCINED SILICA FLOUR REINFORCED EPOXY MOULDINGS

1. GENERAL

This specification governs the quality of calcined silica reinforced epoxy mouldings. The mouldings shall be manufactured from suitable quantity of cast epoxy resin and hardener α - α ' diamino- diphenyl-methane (DDM) system with calcined silica flour of 250/400 mesh size. The material has temperature index of at least 120.

2. APPLICATION:

Used for making components of tap changer.

3. COMPLIANCE WITH NATIONAL STANDARDS

There is no Indian Standard covering this type of material. Our withdrawn specification BP22462 rev 05 was exactly same.

4. DIMENSIONS AND TOLERANCES:

Shall be stated on order or the drawing accompanying the order.

5. COMPOSITION:

Parts by Weight

5.1 Cast epoxy resin (CY 205 of M/s CIBA GEIGY or equivalent approved by BHEL) 100

5.2 Hardener α - α diamino diphenyl methane (HT 972 of M/s CIBA GEIGY or equivalent approved by BHEL) 27

5.3 Calcined silica flour (250/400 mesh) 175 $\pm$ 25

6. COLOUR:

Natural. However any other colour can also be ordered by BHEL.

7. FINISH:

The moulded material shall be smooth, compact, bright and free from cracks, blisters, gas pockets, foreign inclusions and with uniformly distributed bond.

8. TEST METHODS:

Unless otherwise specified, the tests shall be conducted in accordance with the relevant methods of Corporate Standard AA 085 17 01.

9. SAMPLES FOR TESTS

The set of moulded test specimens, as given below, pre-pared from the same batch shall be supplied for testing and approval.

(3 $\pm$ 0.2) mm tk x (50 x 50) $\pm$ 1 mm	-	8 Nos.
(3 $\pm$ 0.2) mm tk x (150 $\pm$ 2) mm square	-	4 Nos.
15 $\pm$ 0.1 mm cube	-	5 Nos.
10 mm tk x 15 mm width x 120 mm length	-	8 Nos.
(3 $\pm$ 0.2) mm tk x (13 $\pm$ 0.5) mm x 75 mm length	-	6 Nos.

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Rev 01: 10.3 revised
Value was 130°C min

REV.	01	PRINTS TO:-		APPROVED -		
ALTD.	JAG	TCD	1	DKD		
APPD.	SKP	SWM(P)	1			
DATE.	29.07.2020	QCX	1	PREPARED	ISSUED	DATE
				SKP	APS	2.1.10



PRODUCT STANDARD

SWITCHGEAR ENGINEERING DIVISION

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10. PHYSICAL PROPERTIES:

- 10.1 Density: 1.8 ± 0.05 g/cc (By Weight/Volume Method).
- 10.2 Water Absorption at 27±2 deg.C For 24 hrs ± 1 hr : 0.2% Max
- 10.3 Marten's Heat Distortion Temperature (DIN 53462) : 115 deg.C, Min.
- 10.4 Machinability:

Shall be freely machinable and capable of being cut with an ordinary saw without showing any signs of splitting, cracking or chipping.

11. MECHANICAL PROPERTIES:

- 11.1 Compressive Strength: 170 N/mm², Min.
- 11.2 Flexural Strength : 90 N/mm², Min.
- 11.3 Impact Strength (Charpy) Un-notched : 7K J/m², Min

12. ELECTRICAL PROPERTIES:

- 12.1 Electric Stength (BDV) in oil at 90 ± 2 deg.C: 15 KV/mm, Min
- 12.2 Comparative Tracking Index: 200, Min.
- 12.3 Surfaces Resistivity: 1.3X10¹¹ ohm, Min
- 12.4 Dissipation Factor (Tan Delta) at Room Temp: 0.015, Max at 50 Hz.

13. TEST CERTIFICATE:

Unless otherwise specified, three copies of test certificates shall be supplied.

In addition, the supplier shall ensure to enclose one copy of the test certificate alongwith their dispatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following information.

SG10031 Rev 00 : Calcined Silica Flour Reinforced Epoxy Mouldings.

BHEL Order No.

Batch/Lot No.

Test values obtained/ certificates for compliance for clauses 5, 6, 7 & 10 to 12.

14. PACKING AND MARKING:

The mouldings shall be suitably packed to avoid contamination and damage during transit and storage. Each package shall be marked with the following information.

SG10031 Rev 00: Calcined Silica Flour Reinforced Epoxy Mouldings.

BHEL Order No.

Manufacturer's and /or Supplier's Name & Grade.

Batch/Lot No.

Drawing and Item Nos.

Nct & Gross Weight.

Test Certificate Reference.