



PLANT PURCHASING SPECIFICATION BHOPAL

BP 59893

Rev. No.03

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SUPERSEDES
BP 59893 Rev.02

NITRILE RUBBER GASKETS AND MOULDINGS - ELECTRICAL GRADE (Hardness : 60 & 70 IRHD)

1. General:

This specification governs the quality of Electrical Grade Nitrile Rubber Gasket and Mouldings having a hardness of 60 or 70 IRHD as stated on the order / drawing.

2. APPLICATION:

Used as gaskets, cable bushes, cleats and mouldings in Traction Machines.

3. COMPLIANCE WITH NATIONAL STANDARDS:

There is no Indian Standard covering this type of material.
However, assistance has been derived from:

BS: 2751:2001 : Acrylonitrile-Butadiene Rubber Compounds
Gr: Electrical

4. DIMENSIONS AND TOLERANCES:

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

5. FINISH:

Material shall have smooth finish.

6. FREEDOM FROM DEFECTS:

All ingredients of the mix shall be free from grit and extraneous matter. The selection and processing of the ingredients shall be such that the vulcanizate is free from surface imperfections, vulcanizate blisters, porosity, voids, inclusions, flow marks, inadequate joint of moulding blank and other defects which would impair the satisfactory performance.

The material shall not develop excessive bloom on storage under normal temperature condition.

Revision:
Reviewed & brought upto date.

Issued by:

STANDARDS AND MATERIALS GROUP
TECHNICAL SERVICES DEPARTMENT

Rev. 03

Date :12.03.2022

Date of first Issue : July' 1989



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7. CHEMICAL COMPOSITION:

Sheets, gaskets and mouldings shall be made out of vulcanizates based on Butadiene acrylonitrile copolymer suitable for electrical application reinforced only with carbon black, vulcanized with sulphur /organic accelerator, activated with stearic acid and rubber containing at least 4 parts per hundred of zinc oxide and 2 parts per hundred of a suitable antioxidant.

No factice or other extender, reclaimed or ground vulcanized rubber shall be used.

8. IDENTIFICATION:

The material, when identified by Infrared spectrometer or by any other convenient method, shall be of Butadiene acrylonitrile copolymer.

9. TEST SAMPLES:

Five samples of sheets, four of size 150x150x2.0 mm thick and one of size 150x150x6.0 mm thickness prepared from the same batch and vulcanized to the same degree as the consignment concerned shall be supplied for testing along with components.

10. PROPERTIES:

When tested in accordance with the Indian Standards/British Standard shown against each, the test samples shall show the following properties:

10.1 Hardness (B.S. 903: Part A 26: Method N, 2 Plies, 6 mm $\pm$ 2 mm with The Thicker Ply On Top):

60 $\pm$ 5 IRHD and 70 $\pm$ 5 IRHD.

10.2 Tensile Strength (IS: 3400, Part I, Dumb-bell):

60 IRHD : 8.4 N/mm², Minimum.

70 IRHD : 12 N/mm², Minimum.

10.3 Elongation At Break (IS: 3400, Part I, Dumb-bell):

60 IRHD : 400% Minimum.

70 IRHD : 250% Minimum.

10.4 Compression Set At 70 $\pm$ 2 Deg. C (IS:3400, Part X):

17% Maximum.



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10.5 Volume Change (B.S. ISO: 1817): Volumetric Method,

Liquid B, 22 Hours At 40 ± 2 deg. C): - 0 + 25 percent.

10.6 Adhesion to And Corrosion Of Metals (B.S. 2751):

Three shall be no corrosion or pitting of the metals and the material shall not adhere to the metal surfaces or show any sign of liquid exudation. Discoloration of the metal surfaces shall not be considered to be objectionable.

10.7 Accelerated Ageing (IS : 3400, Part IV) :

10.7.1 Ageing In Air:

Four test specimens (where possible 25 mm wide and of suitable length) shall be cut from each sheet in the sample from widely separated positions. The specimens shall be aged in air for 168 hours, at 110 ± 4 deg. C.

After ageing in air, when tested in accordance with the method specified at clause 10.1 above, the change in hardness shall not be more than 10 IRHD over the values obtained at clause 10.1

10.7.2 Ageing in Oil:

Two test specimens, each of 25 mm width and of suitable length, shall be cut from each sheet in the sample from widely separated positions. The specimens shall be aged in Insulating Oil conforming to IS: 335, for 168 hours at 100 ± 2 deg. C.

After the oil is wiped by blotting paper, the specimens shall show the following properties.

10.7.2.1 Oil Absorption (Calculated On the Original Weight of the Specimen): 10%, Maximum.

10.7.2.2 Change in Dimensions:

Thickness : 4% Maximum
Length & Width : 6% Maximum

10.8 Electric Strength – Break Down Voltage (BS: 903, Part C 4):

1 kV/mm Min.

10.9 Surface Resistivity (BS:903, Part C1) : 0.5×10^9 ohm, Min.

10.10 Volume Resistivity (BS:903, Part C2) 11 : 2×10^9 ohm - cm, Min.



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10.11 Insulation Resistance On the Components:

50 Megohms, Min when tested with 1000 volt Meggar.

11. TEST CERTIFICATE:

Unless otherwise stated, three copies of test certificate shall be supplied giving the following information:

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

BP 59893 Rev. 03: Nitrile Rubber Gaskets & Mouldings.
Electrical Grade (Hardness: 60 & 70 IRHD)

BHEL Order No.

DRAWING No. & Item No. if any.

Supplier's Name & Trade Mark, if any,

Test results of clauses 4, 8 & 10.

12. PACKING & MARKING:

Material shall be suitably packed to prevent damage from contamination and handling during transit. Each package shall be legibly marked with the following information:

BP 59893 : Nitrile Rubber Gaskets & Mouldings-
Electrical Grade (Hardness: 60 & 70 IRHD)

BHEL Order No.

Manufacture's / Supplier's Name

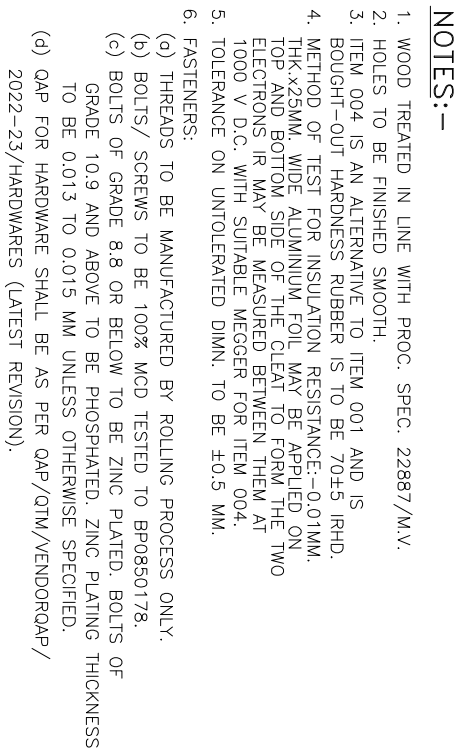
Trade mark, if any.

Batch No.

Quantity

13. KEEPING PROPERTIES:

When stored in a covered area under normal storage conditions, the compound shall not show any sign of deterioration like hair line cracks, swelling, porosity, flow lines, etc. for a period of 12 months from the date of manufacture which shall be subsequent to the date of placing the order.



ALL OTHER DIMS. ARE AS PER IT.001

28 → CARD TYPE-328 → CARD TYPE-128 → CARD TYPE-2(Co

TM4601AZ/BZ, TM4603AZ/BZ
TM4501AZ & TM4509AZ

S LTD.	DRN	NAME	
		CKSB	
	CKD	SGD	

N	DATE	N
d-	26.10.88	
d-	27.10.88	

SKB	REF. TO ASSY.DRG.
	04393041001

29.10.00	ITEM NO.
	025

DRAWING NO.	3 439 30
SHT. NO.	01

NO. OF SHT.	41	014
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