

144
No. SPEC/E-4/01

TECHNICAL SPECIFICATION
FOR
'U' SECTION RINGS (PART NO.2302)
OF
SMGR OF TAP CHANGER TYPE NC32
FOR
ELECTRIC LOCOMOTIVES

DATED : NOVEMBER, 1985.

ISSUED BY
RESEARCH DESIGNS & STANDARDS ORGN.
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1. SCOPE

- 1.1 This standard prescribes the technical requirements and tests for 'U' Section Rings used in Air Motor of NC-32 tap changer on electric locomotives. The ring is mounted on a piston and subjected to reciprocating movement in the cylinder, under the air pressure of about 3.5 kg/cm^2 at temperature upto 70°C in presence of greases. The recommended greases are: Lithium base grease Shell Alvania-2, Bharat MP2 or Servo Gem 2 (IOC) or Lithon 2 (HPC).

2. REQUIREMENTS

- 2.1 The rubber used for manufacture of the 'U' Section Ring shall be based on Polyurethane elastomer suitably compounded so as to conform to the requirements as laid down in this specification.

2.2 Workmanship

The surface of the ring shall be smooth and free from air bubbles and other moulding defects.

2.3 Dimensions and tolerances

The dimensions and tolerances of the ring shall be in accordance with SKEL 3-63 enclosed.

3. TESTS

All test procedure shall be as per IS:3400. The test shall be carried out wherever practicable from the finished product or from prepared test slabs of approximately same degree of vulcanisation and using the same compound.

3.1 Physical properties of the material

	Values	Test to be conducted on
a) Hardness (Shore 'A')	85 ± 5	Finished product
b) Tensile Strength (Kg/cm^2) Min.	200	Test slabs
c) Elongation at break (%), Min	175	-do-
d) Compression set (%) Max. at $80 \pm 1^\circ\text{C}$ for 24+Q) -2 Hrs.)	25	-do-

3.2 Accelerated Ageing test

After ageing for 72 ± 8 Hrs. at $100 \pm 1^\circ\text{C}$ in an air oven, the hardness, tensile strength and elongation at break shall not vary from the values obtained ~~fr~~ before ageing by more than the following:

- | | | | |
|----|---------------------|----------------|------------------|
| a) | Hardness(Shore 'A') | = +5
-0 | Finished Product |
| b) | Tensile Strength | = +10%
-15% | Test Slabs |
| c) | Elongation at break | = +10%
-20 | -do- |

3.3 Oil Resistance Test

- (a) The swelling, as determined by the method in IS:3400 (Part vi) using an immersion time of 72+0 hours at 100°+1°C in grease/shall be within +5% -2 Test specimen shall be prepared from the finished product.
- (b) The change in hardness(Shore 'A') measured after the test shall not be more than -5(unit).

3.4 Resistance to Hydrolysis

On boiling in distilled water at atmospheric pressure for 72+0 hours, the hardness, tensile strength and

elongation at break percent shall not vary from values obtained before boiling by more than the following:

- | | | | |
|----|----------------------|--------|------------------|
| a) | Hardness (Shore 'A') | = +5% | Finished Product |
| b) | Tensile Strength | = +20% | Test slabs |
| c) | Elongation at break | = +20% | -do- |

4. SAMPLING AND CRITERIA FOR CONFORMITY

- 4.1 A minimum of six test samples or 1% of the lot offered for inspection whichever is more shall be drawn for the tests indicated in the relevant component specification for rubber fittings. Should any of the test samples fail to meet the requirements, an additional two sets of samples from the same lot shall be drawn for retesting. Should any of the retest samples fail to meet the requirements, the entire lot shall be rejected.

- 4.2 In the event of the rejection of the entire lot, after the retest of samples, the entire lot offered for inspection shall be made unusable, in the presence of the Inspecting Officer/Purchaser.

5. INSPECTION AND TESTING FACILITIES

The purchaser or the Inspecting Officer shall have access, at all reasonable time to the Works where the material or fittings are being manufactured or

where fittings are stored. The manufacturer shall supply all equipment required for testing, free of charge, and shall at his own cost, supply labour and apparatus for such testing as may be carried out at his premises. Should the manufacturer fail to provide facilities at his own works for carrying out these prescribed tests ~~xxxxxx~~ he shall bear the cost of carrying out these tests elsewhere by an approved testing authority. Confirmatory test samples in addition, may be drawn by the Inspecting Officer and submitted for tests to the approved testing authorities.

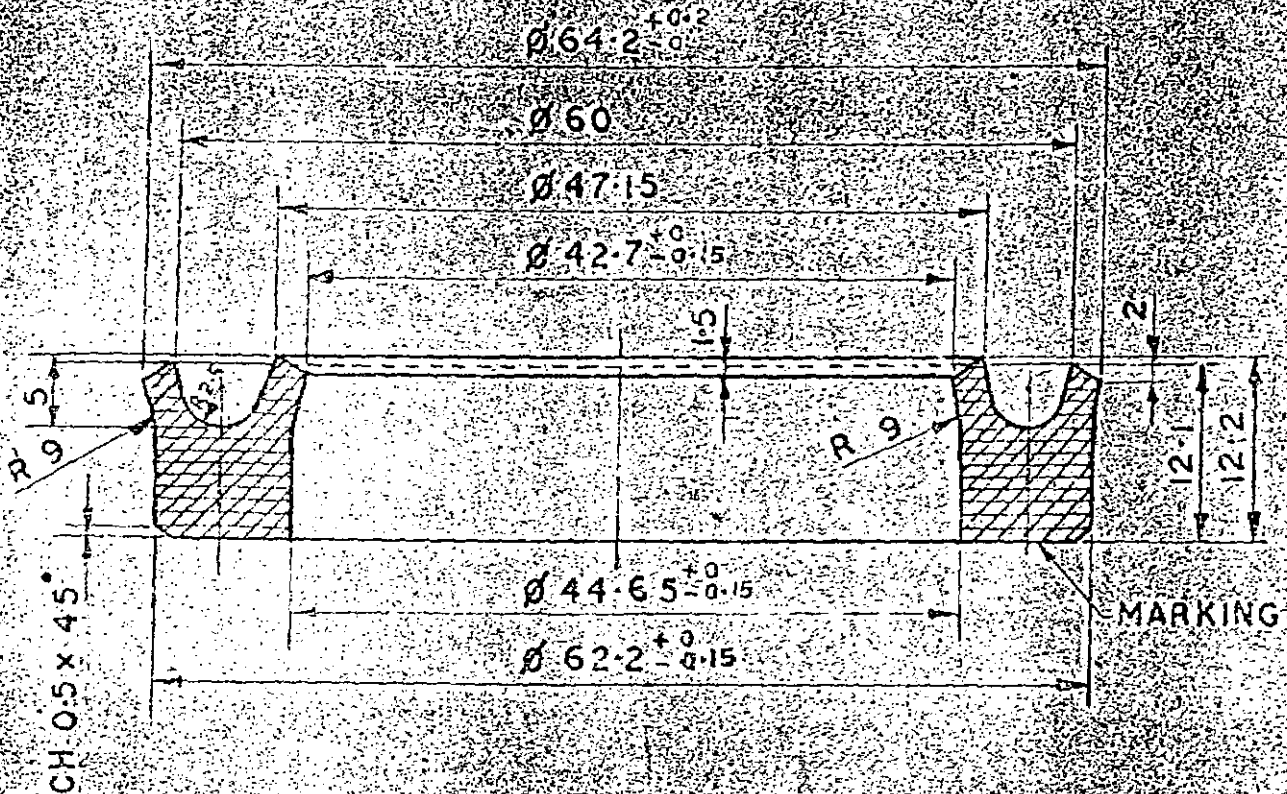
6. MARKING

Rings shall be marked in raised letter 0.2mm with the letters IRS, Manufacturer's name or initials or trade mark and the quarter/year of Manufacturer, on the portion shown in the Drawing SKEL 3463.

7. PACKING

Rings shall be securely packed in wooden boxes to avoid distortion and to prevent any damage during transit and storage. The boxes shall be suitably sealed by the Inspecting Authority and shall carry markings similar to Clause 6.

SK EL 3463



NOTE:-

1. ALL DIMENSIONS ARE IN mm.
2. MATERIAL AS PER R D S O SPECIFICATION
No SPEC/TECH/CH
3. THIS DRAWING SUPERSEDES R D S O SKEL 3220

REF	SCALE 2:1	APPROVED
'U' SECTION RING OF TAP CHANGER TYPE NO 32		
RD.SO.ELEC. DTE. SK EL. 3463		

19.3.82