

SPECIFICATION No. RDSO/M&C/RP-119/2020(Revision 1.0)

Government of India
Ministry of Railways

Indian Railway Standard Specification for
Plunger of Piston Assembly of Bolster Friction Device for BG Flexi coil
Mark-I Bogie (Revision 1.0)

M&C Directorate
Research Designs & Standards Organization
Lucknow - 226011

FOREWARD:

- 0.1 This Specification is issued under fixed Sl. No. RDSO/M&C/RP-119/2020 (Revision 1.0) , the final number indicates the year of adoption as standard or in case of revision, the year of last revision.
- 0.2 This specification was first adopted in year 1981 and has been revised mainly for incorporating quality control practices and method of tests for density, hardness and co-efficient of friction. A code of practice for quality control and inspection of rubber and plastic components (Appendix 'A') is incorporated to ensure satisfactory process and quality control at the works of the manufacturers.
- 0.3 This specification is intended to cover the technical provisions relating to materials, constructions and tests, and does not include all the necessary provisions of the contracts.
- 0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value observed on calculated, expressing the result of a test or analysis, shall be rounded off in accordance with the IS:2:1960 (Reaffirmed 2016). The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.
- 0.5 The specification contained a code of practice for quality control and inspection of rubber and plastic component (Appendix 'A') to ensure satisfactory process and quality control at the works of the manufacture. The provision of this code shall be applicable for all the rubber & plastic components being used in the railways.

SCOPE

The specification covers the technical requirements and tests of Plunger used in Bolster friction device of flexi coil bogie.

REQUIREMENTS

- 2.1 Material – The friction device shall be made of phenolic material suitably compounded with asbestos, copper in the form of fine wires/filings, oxides of lead, iron, calcium & magnesium, etc. to meet the requirements of the specification.

- 2.2 Workmanship and finish : The surface shall be smooth, free from porosity, pittings and other moulding defects.
- 2.3 Construction- The friction device shall be provided with pin guide and Dowel of steel to IS:2062 :2011(Reaffirmed 2016) as per the relevant drawing during moulding.
- 2.4 Dimensions and tolerances

The dimensions and tolerances shall be as per the drawing.

2.5 Tests

Note: The tests shall be carried out using the test specimen cut from the finished product where practicable or from the prepared test slab moulded to the required size using the same composition cured to the same degree.

	<u>Physical properties</u>	Specified value	Method of test
a)	Density	2 ±0.2	BS 2782 Pt 6-1980 Method 620A
b)	Hardness (Rockwell-R)	110-120	ASTM D-785-1965
c)	Compressive strength proof load (Kg/cm ²), min. crushing strength (kg/cm ²), min.	150 1500	ASTM D-695-77 -
d)	Water absorption (w/w%) max.	0.5	IS 2046: 1995 (Reaffirmed 2015)
e)	Co-efficient of friction against steel	0.4 ± 0.05	ASTM D-1894-78

3. SAMPLING AND CRITERIA FOR CONFORMITY

- 3.1 A minimum of six test samples or 1% of the lot offered for inspection whichever is more shall be drawn for the tests. 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.

- 3.2 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.

4. INSPECTION AND TESTING FACILITIES

- 4.1 The purchaser or the inspecting officer shall have access, at all reasonable time to the works where the material or where fittings are manufactured and 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 the prescribed tests, 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.

5. MARKING

- 5.1 Each component shall be marked with the manufacturer's initial, year of manufacturer embossed with raised letters on the tail end.

6. PACKING

- 6.1 The components shall be properly packed in wooden boxes to avoid any damage during transit.

- 7.0 "Firm should comply Make in India policy and Public Procurement (Preference to Make in India) order -2017 under this specification" and subsequent amendment done time to time.

APPENDIX 'A'CODE OF PRACTICE FOR QUALITY CONTROL AND INSPECTION OF
RUBBER AND PLASTIC COMPONENTS

A.1 THE SYSTEM

A.2 RECORDS, TESTS & SAMPLING:

A.2.1 The manufacturer shall furnish the Purchasing/Inspecting authorities the detail of tests and inspection records and other relevant records as required under the quality control systems in force. These records and reports shall be maintained by the Competent Technical Authority of the manufacturers and shall be open to examine by the Purchasing/Inspecting authorities at all reasonable time. The Purchasing/Inspecting authorities at their discretion may draw samples of materials used in manufacture and products at any stage of production for conforming tests either at the works of the manufacturers or in an approved laboratory. In case the samples do not conform to the requirements of the specification double the number of samples from the same lot/batch shall be drawn for re-tests. Should any one of the re-test a sample does not conform to the requirements, the entire lot/batch shall be rejected.

A.3 APPROVED MANUFACTURERS:

A.3.1 The manufacturer should have complete manufacturing and quality control facilities as per the specification at their works.

A.3.2 For reasonable quality assurance, it is desirable that the components are procured from manufacturers approved by Research Designs & Standards Organization (RDSO), Lucknow or by any other agency as assigned by the Purchasing Authority, based on evaluation of the components as per the specification, manufacturing and quality control facilities and quality assurance programme. However, such approval does not guarantee the supply of consistent quality of material/components and therefore every lot offered shall be subjected to inspection and testing as per the specification.

A.3.3 The approved manufacturers shall be subjected to periodical re-appraisal (periodicity for each component shall be assigned by the approving authority). In case of withdrawal of any manufacturing and quality control facilities provided at the time of approval of the component produced at the time of re-appraisal are not conforming to the specification, the manufacturers are liable to be withdrawn from the approved list. The approving authority reserves the right to withdraw the manufacturers from the approved list without assigning any reason.

A.3.4 The consignee may also periodically arrange testing if so desired, at RDSO or in an approved laboratory for confirmatory tests within six months from the date of receipt of the supplies, in their original packing. In case of samples do not conform to the specification, the consignee may at their discretion suspend the manufacturer for further supply and the fact brought to the notice of approving/inspecting authorities for appropriate action.
