



## PRODUCT MANUAL FOR AUTOMOTIVE VEHICLES-TUBES FOR PNEUMATIC TYRES ACCORDING TO IS 13098: 2024

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.*

|    |                                                                                                                                                                                                                                               |                                                   |                                                                                                   |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 1. | <b>Product</b>                                                                                                                                                                                                                                | :                                                 | IS 13098: 2024                                                                                    |
|    | <b>Title</b>                                                                                                                                                                                                                                  | :                                                 | Automotive Vehicles –Tubes For Pneumatic Tyres                                                    |
|    | <b>No. of Amendments</b>                                                                                                                                                                                                                      | :                                                 | Nil                                                                                               |
| 2. | <b>Sampling Guidelines:</b>                                                                                                                                                                                                                   |                                                   |                                                                                                   |
| a) | <b>Raw material</b>                                                                                                                                                                                                                           | :                                                 | -                                                                                                 |
| b) | <b>Grouping guidelines</b>                                                                                                                                                                                                                    | :                                                 | Please refer <u>ANNEX – A</u>                                                                     |
| c) | <b>Sample Size</b>                                                                                                                                                                                                                            | :                                                 | 3 tubes along with 3 valves, 1 tyre of same size as that of tube for form and fit test (Cl. 3.3). |
| 3. | <b>List of Test Equipment</b>                                                                                                                                                                                                                 | :                                                 | Please refer <u>ANNEX – B.</u>                                                                    |
| 4. | <b>Scheme of Inspection and Testing</b>                                                                                                                                                                                                       | :                                                 | Please refer <u>ANNEX – C.</u>                                                                    |
| 5. | <b>Requirements which can be tested in a day :</b>                                                                                                                                                                                            |                                                   |                                                                                                   |
|    | (i) Form and fit test ( <i>clause 3.3</i> )<br>(ii) Thickness uniformity ( <i>clause 3.3.1, 3.3.2</i> )<br>(iii)Elongation ( <i>clause 4.1.1</i> )<br>(iv)Strength of splice ( <i>clause 4.1.2</i> )<br>(v) Air tightness ( <i>clause 5</i> ) |                                                   |                                                                                                   |
| 6. | <b>Scope of the Licence :</b>                                                                                                                                                                                                                 |                                                   |                                                                                                   |
|    | “Licence is granted to use Standard Mark as per IS 13098 : 2024 with the following scope:                                                                                                                                                     |                                                   |                                                                                                   |
|    | Name of the product                                                                                                                                                                                                                           | Tubes for pneumatic tyres for Automotive vehicles |                                                                                                   |
|    | Class                                                                                                                                                                                                                                         | Class A or Class B                                |                                                                                                   |
|    | Size                                                                                                                                                                                                                                          | Range of sizes to be declared                     |                                                                                                   |

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ANNEX A

**Grouping Guidelines**

1. The parameters as given below shall be considered for grouping of Tubes for pneumatic tyres for Automotive vehicles as per IS 13098 : 2024 for Grant of licence/Inclusion of new varieties:

**Class of Tubes- *Class A* or *Class B***

2. The Firm shall declare the Class of various tubes they intend to cover in the Licence.
3. Tubes with different sizes shall be considered as one group, provided the Class remains the same. Any one Size from each Class shall be tested for covering all the sizes of tubes in that group. The Firm shall declare sizes intended to be covered in scope of licence.
4. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the types and sizes covered in the Licence are tested in rotation, to the extent possible.

ANNEX BList of Test Equipments

*Guidance list of major test equipment required to test as per the Indian Standard*

| Sl. No. | Tests used in with Clause Reference                    | Test Equipment                                                                                                          |
|---------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 1.      | Form and fit as per <i>clause 3.3</i>                  | a) Tyre of marked size<br>b) Air compressor and pressure gauge                                                          |
| 2.      | Thickness Uniformity as per <i>clause 3.3.1, 3.3.2</i> | a) Dial thickness gauge                                                                                                 |
| 3.      | Elongation as per <i>clause 4.1.1</i>                  | a) Dumb-bell cutter                                                                                                     |
| 4.      | Strength of splice as per <i>clause 4.1.2</i>          | b) Tensile testing machine<br>c) Vernier caliper<br>d) Extensometer<br>e) Micrometer                                    |
| 5.      | Set after Ageing as per <i>clause 4.1.3</i>            | a) Dumb-bell cutter<br>b) Tensile testing machine<br>c) Vernier caliper<br>d) Extensometer<br>e) Micrometer             |
| 6.      | Accelerated Ageing as per <i>clause 4.1.4</i>          | f) Hot air oven (thermostatically controlled) with Digital temperature indicator<br>g) Stop watch                       |
| 7.      | Air tightness as per <i>clause 5</i>                   | a) Air Compressor or vacuum pump with pressure indicator<br>b) Water tank of suitable size to accommodate inflated tube |
| 8.      | Lab conditions for Tensile test                        | a) Air conditioner                                                                                                      |

*The above list is indicative only and may not be treated as exhaustive.*

ANNEX - C**Scheme of Inspection and Testing****1. QUALITY ASSURANCE PLAN**

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit i.e. Batch and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4 below.

**1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:**

1.3.1 **Control Unit:** For the guidance of manufacturers, the recommended definition of Control unit is quantity of Tubes of same class produced in a day, from each rubber compound.

1.3.2 **Levels of Control:** For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

**2. ENSURING COMPLIANCE THROUGH TESTING-** It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in-house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer, and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in-house as “R” or other tests which can be sub-contracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

**2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) also is optional.**

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

**2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1),** where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website [www.bis.gov.in](http://www.bis.gov.in). (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

**2.4 TEST RECORDS-** The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

**3. LABELLING AND MARKING** – As per the requirement of IS 13098: 2024. The Standard Mark, as given in the Schedule of the licence, shall be marked on each Tube provided always that the product thus marked conforms to all the requirement of the specification. In addition, the licence no. CM/L-\_\_\_\_\_ and details of BIS website shall be marked at an appropriate place on product or package as follows: “For details of BIS certification please visit [www.bis.gov.in](http://www.bis.gov.in)”.

**4. REJECTION** - All the production which conforms to the Indian Standard and covered under scope of the licence shall be marked with Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act,2016

TABLE 1

| (1)           |                        |                |                                  | (2)                                              | (3)                                                                               |                                                    |                                                                                                                                                                                                                                                                                            |
|---------------|------------------------|----------------|----------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Details  |                        |                |                                  | Test equipment requirement                       | Levels of Control                                                                 |                                                    |                                                                                                                                                                                                                                                                                            |
| Cl.           | Requirement            | Test Methods   |                                  | R: required (or)<br>S: Sub-contracting permitted | No. of Sample                                                                     | Frequency                                          | Remarks                                                                                                                                                                                                                                                                                    |
|               |                        | Clause         | Reference                        |                                                  |                                                                                   |                                                    |                                                                                                                                                                                                                                                                                            |
| 3.1           | Tube Valve or Spud     |                | IS 9081                          | S                                                | —                                                                                 | Each Consignment                                   | No further testing is required, if accompanied with test certificate or ISI marked                                                                                                                                                                                                         |
| 3.3           | General & Form and Fit | 3.3            | IS 13098                         | R                                                | At the time of initial approval or whenever there is any inclusion of new variety |                                                    |                                                                                                                                                                                                                                                                                            |
| 3.3.1 & 3.3.2 | Thickness Uniformity   | 3.3.1, 3.3.2   | IS 13098                         | R                                                | One                                                                               | Every Tyre Size Designation from each Control Unit | In case of failure, the entire production from particular die shall be rejected, failure investigated and corrective actions shall be taken. After resetting the die, 10 pieces from continuous production shall be checked and if found satisfactory, original frequency may be restored. |
| 4.1.1         | Elongation             | 4.1.1, Annex A | IS 13098<br><br>IS 3400 (Part 1) | R                                                | Two                                                                               | Every Control unit                                 | In case of failure, the entire production of such control unit shall be rejected.                                                                                                                                                                                                          |

|       |                    |                 |                                                       |   |           |                    |                                                |
|-------|--------------------|-----------------|-------------------------------------------------------|---|-----------|--------------------|------------------------------------------------|
| 4.1.2 | Strength of Splice | 4.1.2 , Annex A | IS 13098<br>IS 3400 (Part 1)                          | R | Two       | Every Control unit |                                                |
| 4.1.3 | Set After Ageing   | 4.1.3, Annex B  | IS 13098                                              | R | Two       | Once in a week     | —                                              |
| 4.1.4 | Accelerated Ageing | 4.1.4, Annex C  | IS 13098<br><br>IS 3400 (Part 1) and IS 3400 (Part 4) | R | Two       | Once in a week     | —                                              |
| 5     | Air Tightness      | 5               | IS 13098                                              | R | Each tube |                    | In case of failure the tube shall be rejected. |