Compendium of Indian Standards on Tyres and Tubes

Prepared by :

Transport Engineering Department

Bureau of Indian Standards

New Delhi

Table of Contents

Introduction

Tyres and tubes are critical components of automotive vehicles, directly influencing safety, ride comfort, fuel efficiency, and vehicle performance. Tyre is designed to bear load, absorb shocks, and provide traction. A tube, traditionally used within pneumatic tyres, acts as a sealed air container to maintain tyre pressure and ensure smooth functioning.

Modern developments in automotive technology have led to the evolution of various types of tyres and tubes, including **radial, bias-ply, tubeless, and high-performance tyres**, catering to a wide range of vehicles such as passenger cars, commercial vehicles, two- and three-wheelers, agricultural machines, and off-road equipment.

This compendium aims to provide a consolidated list of Indian Standards on **tyres and tubes**, with a brief. By compiling relevant standards into a single document, it serves as a **ready reference for manufacturers, testing agencies, regulatory bodies, and industry professionals**, facilitating the production and regulation of tyres and tubes that are efficient, durable, and safe.

For detail of standards, stakeholders are encouraged to visit www.bis.gov.in.

1. TYRE AND TUBE SPECIFICATIONS STANDARDS

1.1 IS 15627 : 2022 – *Automotive Vehicles - Pneumatic tyres for two and three - wheeled motor vehicles - Specification*

It specifies the general, dimensional and performance requirements of new diagonal and radial ply pneumatic tyres designed for two wheelers (L1 and L2 category of vehicles), three wheelers (L5 category of vehicles) ,quadricycles (L7 category), E-rickshaws and E-carts. However, it does not apply to tyres designed for competitions.

1.2 IS 15633 : 2022 – *Automotive vehicles - pneumatic tyres for passenger car vehicles - diagonal and radial ply*

It specifies the general, dimensional and performance requirements of new diagonal and radial ply pneumatic tyres designed primarily for vehicles in categories M1, T1 and T2. It does not apply to tyres designed for the equipment of vintage cars, and competitions (racings).

1.3 IS 15636 : 2022 – *Automotive vehicles - Pneumatic tyres for commercial vehicles - Diagonal and radial ply*

It specifies the general, dimensional, and performance requirements of new pneumatic tyres designed primarily, but not only, for vehicles in categories M2, M3, N, T3 and T4. However, it does not apply to tyre types identified by speed symbols corresponding to speeds below 80 km/h.

1.4 IS 13154 : 2015 – *Automotive vehicles - Tyres for agricultural vehicles and their trailers - Specification (First Revision)*

It defines the dimensions, performance, and general requirements for new pneumatic tyres primarily intended for, Agricultural and forestry vehicles, Agricultural machines (power-driven and trailed), and Agricultural trailers with speed ratings up to 65 km/h (Speed Symbol 'D'). . It does not, however, apply to certain categories of tyres as mentioned in the standard.

1.5 IS 13444 : 2024 – *Animal Drawn Vehicles — Pneumatic Tyres — Specification*

It prescribes the general requirements of tyres for animal drawn vehicles.

1.6 IS 18258 : 2023 – *Evaluation of Tyres with regard to Rolling Sound Emission and/or to adhesion on wet surface and/or to Rolling Resistance*

It applies to new pneumatic tyres of classes C1, C2 and C3 with regard to their sound emissions, rolling resistance and to adhesion performance on wet surfaces (wet adhesion). It does not, however, apply to various category of tyres as mentioned in the standard.

1.7 IS 13098:2024 *Automotive vehicles — Tubes for pneumatic tyres — Specification*

It specifies the requirements of tubes for pneumatic tyres for automotive vehicles covered by L1, L2, L5, M, N and T categories of vehicles.

2. RETREADING AND REPAIR STANDARDS

2.1 IS 13531 : 2005 – *Automotive tyres - Tyre - Retreading materials for mould cure process*

It prescribes the requirements, methods of sampling and test for tread rubber intended for retreading pneumatic tyres.

2.2 IS 15523 : 2018 – *Automotive tyres - Precured patches for repairing cross ply/ radial tyres and inner tubes - Specification*

It prescribes the requirement for precured repair patches intended for repairing pneumatic tyres and inner tubes for tyres.

2.3 IS 15524 : 2018 – *Automotive vehicles - Retreading of tyres by the pre - Cured process - Specification*

This standard covers the retreading of tyres, by the precured tread process, for passenger cars, light-trucks, trucks and buses, lays down requirements for the casings, the methods of retreading, and the equipment to be used, as well as for the finished product.

2.4 IS 15704 : 2018 – *Automotive vehicles - Retreaded pneumatic tyres for commercial vehicles - Specification*

This standard prescribes to the production of retreaded tyres intended to be fitted, but not only, for vehicles in categories M2, M3, N, T3 and T4. It does not, however, apply to certain categories of tyres as mentioned in the standard.

2.5 IS 15709 : 2018 – *Automotive vehicles - Retreaded pneumatic tyres for passenger car - Specification*

This standard prescribes the production of retreaded tyres intended to be fitted to passenger cars and their trailers used on the road. It does not, however, apply to certain categories of tyres as mentioned in the standard.

2.6 IS 15724 : 2006 – *Automotive tyres - Retreading procedure - Hot process*

This standard covers the retreading of tyres for passenger cars, light trucks, trucks and buses, tractor, off the road, passenger car radial, small commercial vehicle, sport utility vehicle, and auto categories of tyres, methods of retreading and the equipment to be used.'

2.7 IS 15725 : 2006 – *Automotive tyres - Tyre curing envelop - Cold process*

This standard prescribes requirements and methods of testing for tyre curing envelop by cold process.

2.8 IS 15731 : 2018 – *Automotive tyres - Selection and inspection of retreadable tyre casing*

This standard prescribes the selection criteria and inspection methods of retreadable tyre casing, so that each casing that passes the selection and inspection process shall be acceptable for the process of retreading.

2.9 IS 15753 : 2007 – ***Automotive tyres - Tyre curing bladder - Cold process***

It prescribes requirements and methods of testing for tyre curing bladder by cold process.

2.10 IS 15780 : 2007 – ***Automotive tyres - Repair of tyres and tubes used on motor vehicles***

It specifies the minimum requirements for performance, inspection, marking and material strength of permanent repairs to pneumatic tyres and tubes used for road vehicles. . It does not, however, apply to certain categories of tyres as mentioned in the standard.

3. PERFORMANCE AND TESTING STANDARDS

3.1 IS 14771 : 2018 – ***Truck and bus tyres - Methods of measuring tyre rolling circumference - Loaded new tyres***

It specifies two methods for measuring the rolling circumference and the number of revolutions per unit distance (kilometre) of new commercial vehicle tyres, under loaded conditions, for use on trucks and buses. It applies to all truck and bus tyres. The values thus obtained are not intended for use as levels of performance or quality.

3.2 IS 15563 : 2005 – ***Passenger car tyres - Methods for measuring rolling circumference - Loaded new tyres***

It specifies two methods for measuring, under loaded conditions, the rolling circumference and revolutions per unit distance (kilometres) of new lyres for use on passenger cars. It is applicable to all passenger car tyres. However, the values obtained from the measurements are not intended to be used as benchmarks for performance or quality.

3.3 IS 15794 : 2007 – ***Road hazard impact test for wheel and tyre assemblies (Passenger Cars, Light Trucks And Multipurpose Vehicles)***

This standard specifies the test wheel and tyre assemblies used with passenger cars, light trucks, and multipurpose vehicles, and the test is limited to a frontal (radial) impact with both wheel rim flanges being impacted simultaneously.

3.4 IS/ISO 16392 : 2017 – ***Tyres electrical resistance test method for measuring electrical resistance of tyres on a test rig***

Static charges on a vehicle sometimes need to be dissipated by way of the tyre. Electrical resistance inversely measures the ability of the tyre to dissipate static charge from the vehicle. It describes a test method to measure the electrical resistance of pneumatic and solid tyres, under load, on a test rig.

3.5 IS/ISO 18164 : 2005 – ***Passenger car, truck, bus and motorcycle tyres - Methods of measuring rolling resistance***

It specifies methods for measuring rolling resistance, under controlled laboratory conditions, for new pneumatic tyres designed primarily for use on passenger cars, trucks, buses and motorcycles. The relationship between values obtained and the fuel economy of the vehicle is undetermined, and such values are not intended to be used to indicate levels of performance or quality.

3.6 IS/ISO 28580 : 2009 – ***Passenger car, truck and bus tyres - Methods of measuring rolling resistance - Single point test and correlation of measurement results***

It specifies methods for measuring rolling resistance, under controlled laboratory conditions, for new pneumatic tyres designed primarily for use on passenger cars, trucks and buses. Tyres intended for temporary use only are not included in this Standard.

4. STORAGE AND HANDLING STANDARDS

4.1 IS 11178 : 2023 – ***Recommendations for storage and handling of pneumatic tyres for automotive vehicles***

It prescribes recommendations for storage and handling of pneumatic tyres for use on automotive vehicles including earthmoving machinery, off-the-road vehicles, industrial trucks and tractors, agricultural tractors and trailers, and it is not applicable to tyres for bicycles and rickshaws.

4.2 IS 11031:2023 ***Recommendations for storage and handling of inner tubes, tube valves and flaps for use with pneumatic tyres for automotive vehicles***

It prescribes recommendations for storage and handling of inner tubes, tube valves and flaps for use with pneumatic tyres for automotive vehicles including earthmoving machinery, off the road vehicles, industrial trucks and agricultural tractors and trailers. It is not applicable to inner tubes and tube valves for bicycles and rickshaws.