



PRODUCT MANUAL FOR PNEUMATIC TYRES FOR PASSENGER CAR VEHICLES - DIAGONAL AND RADIAL PLY - ACCORDING TO IS 15633:2005

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.	Product	:	IS 15633: 2005
	Title	:	PNEUMATIC TYRES FOR PASSENGER CAR VEHICLES – DIAGONAL AND RADIAL PLY
	No. of Amendments	:	4
2.	Sampling Guidelines:		
a)	Raw material	:	---
b)	Grouping guidelines	:	Each type of Tyre as per the approved Family of Tyres according to Clause 6.2.5.2 of IS 15633:2005 shall be tested for GoL/CSoL. If a Tubeless Tyre version is approved, Tube version for the same Tyre Designation may also be covered in the Scope of Licence based on the Manufacturing/Testing capabilities of the Manufacturer.
c)	Sample Size	:	4 Tyres (as per Table 20 of IS 15633:2005)
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day :		
	(i) Marking (ii) Bead Unseating Resistance Test (for Tubeless Tyres) (iii) Tyre Strength Test (Plunger Test) (iv) Tread Wear Indicators		
6.	Scope of the Licence :	:	Please refer ANNEX – C

ANNEX A**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	i. Pressure Gauge ii. Steel Tape iii. Pie Tape iv. Vernier Caliper v. Thermo Hygrometer vi. Measuring Rim	Dimensions (Cl. 4.1)
2	i. Tyre Drum Testing Machine ii. Load iii. Test Drum iv. Pressure Gauge v. Test Rim	Load/Speed Performance Test (Cl. 4.2)
3	i. Tyre Drum Testing Machine ii. Load iii. Test Drum iv. Pressure Gauge	Endurance Test (Cl. 4.3)
4	i. Testing Device (Bead Unseating Block) ii. Pressure Gauge iii. Test Rim iv. Load	Bead Unseating Resisting Test (For Tubeless Tyres) (Cl. 4.4)
5	i. Pressure Gauge ii. Depth Gauge	Tread Wear Indicators (Cl. 4.5)
6	i. Tyre Strength Test Machine ii. Pressure Gauge iii. Cylindrical Steel Plunger iv. Linear Scale v. Test Rim	Tyre Strength Test (Plunger Test) (Cl. 4.6)

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

ANNEX B

Scheme of Inspection And Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirement of IS 15633:2005.

4. CONTROL UNIT – Tyres manufactured under a same Family (upto 30000 Tyres) shall constitute a control unit. For definition of Family, clause 6.2.5.2 of IS 15633: 2005 shall apply.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 RAW MATERIAL CONTROL – All the incoming raw materials shall be tested and proper records maintained before releasing material for production. Alternatively, the raw material shall be accompanied by the test certificate of the supplier. Recommended list of various raw materials is given in [Annex I](#).

5.2 PROCESS CONTROL – The frequency of inspection and parameters shall be according to the approved plant quality audit programme. The recommendatory areas of manufacturing given in [Annex II](#) may be covered in this programme. During each stage, the given parameters and equipment set up shall be controlled, audited and recorded.

6. REJECTIONS – 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 R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause	Reference		No. of Sample	Frequency	Remarks
4.1	Tyre Dimensions	Annex B&C Table 7 to 12	IS 15633	R	One	From every Two Control Units of a Family	In case of failure in any requirement, marking shall be suspended, reasons for failure investigated and corrective actions taken. Double the number of samples indicated shall then be tested and marking and original frequency may be restored only if both the samples pass. The families which are not able to meet the frequency specified for tests under clause 4.1 to 4.6, it is to be ensured that complete testing is done at least once in a year for such families.
4.2	Load/Speed Performance Test	Annex D Table 13	IS 15633	S	One	From every Ten Control Units of a Family	
4.3	Endurance Test	Annex E Table 14	IS 15633	S	One	From every Ten Control Units of a Family	
4.4	Bead Unseating Resistance Test for Tubeless Tyres	Annex F Table 15 & 16	IS 15633	R	One	From every Ten Control Units of a Family	
4.5	Tread Wear Indicators	4.5.1 to 4.5.3	IS 15633	R	One	From every Two Control Units of a Family	
4.6	Tyre Strength (Plunger Test)	Annex G Table 17 & 18	IS 15633	R	One	From every Ten Control Units of a Family	
5	Marking	5 , Annex H & J	IS 15633	R	Each Tyre		

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: The control unit and levels of control are obligatory, to which the licensee shall comply with.

ANNEX I**RAW MATERIAL CONTROL****(Clause 5.1 of SIT)**

Sl No	Item	Tests
1	Natural Rubber	a) Visual inspection b) Moisture content c) Ash content d) Dirt content e) Viscosity
2	Synthetic Rubber	a) Moisture content b) Ash content c) Viscosity d) Compound testing
3	Lattices	a) Contents b) Viscosity c) TSC
4	Carbon Black	a) Moisture content b) Ash content c) DBP value d) Iodine number e) Sieve residue
5	Activators	a) Moisture content b) Sieve residue c) ASSAY d) Ash content e) HCL insoluble f) Acid number
6	Vulcanising Agents	a) Melting point b) Acetone insoluble c) Specific gravity d) Softening point e) Solubility
7	Process Oil	a) Aniline point b) Viscosity c) Specific gravity
8	Tyre Cord	a) Warp sheets i) Breaking strength ii) Percentage elongation iii) Twist iv) Moisture content b) Nylon square woven fabric i) Strip and grab ii) Adhesion strength iii) EPI
9	Bead Wire	a) Breaking strength b) Percentage elongation c) Torsion d) Bend test e) Adhesion f) Copper coating
10	Solvent	a) Specific gravity b) Distillation range

ANNEX II**PROCESS CONTROL****(Clause 5.2 of SIT)**

Area	Parameters to be controlled
Compounding	Ingredient weights
Mixing	Time/Temperature or Energy, Sequence
Dip Preparation	Ingredient weights, time, temperature sequence
Dipping	Temperature, stretch/tension, speed/time, width
Extrusion	Stock identification, temperature, width, dimensions
Calendering	Stock/fabric identification, temperature, width, gauge
Bead making	Stock/wire identification, diameter, No. of strands, No. of turns
Stock preparation	Stock identification, width, angle
Tyre building	Component identification, sequence
Tyre curing	Time, temperature/pressure, sequence
Final Inspection	Every tyre shall be visually examined for defects and appearance
In process Testing	
COMPOUND	
Final Batch	Specific Gravity Rapid Modulus Rheometer Test Physical Properties
DIP SOLUTION	
Final	Total solids pH value
DIPPED FABRIC	
Tyre Cord warp sheet	Breaking strength Percentage Elongation Adhesion & Dip pick up
Sq. woven nylon fabric	E.P.I. Strength Adhesion and dip pick up
CALENDERED FABRIC	
Tyre cord warp sheet	E.P.I. Gauge Sq. metre weight
Sq. woven fabric	Gauge Sq. metre weight

ANNEX C**Scope of the Licence**

Licence is granted to use Standard Mark as per IS 15633:2005 with the following scope:

Name of the Product	Pneumatic Tyres for Passenger Car Vehicles
Application Category	
Construction Type	
Structure	
Tyre Size Designation	
Speed Category	
Use of Tube	
Load Index (or Load Capacity)	
Ply Rating	
Fabric Material	