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SI.	Product / Material	Specific Test	Test Method Specification	Range of Testing /
	of Test	Performed	against which tests are	Limits of Detection
			performed	

MECHANICAL TESTING

١.	MECHANICAL PR	OPERTIES OF METALS		
1.	Metal	Hardness Rockwell	IS 1586 (Part 1)	
	(Ferrous & Non Ferrous)	Scale 'A' 'B'		20 HRA to 88 HRA 20 HRB to 100 HRB
		'C'		20 HRC to 70 HRC
II.	PERFORMANCE/	OURABILITY/SAFETY TES	Т	
1.	Hydraulic Jack	Testing of Hydraulic Jack	IS 4552 (Part 2)	Max 736 kN
		Visual	Clause 7.1.1	Qualitative
		Dimensional check (i) Max Closed Height (ii) Min total lift (iii) Min Extended Height (iv) Saddle Width / Dia	Clause 7.1.2	Upto 300 mm
		No load	Clause 7.1.3	Qualitative
		Overload test before Performance	Clause 7.1.4	Qualitative
		Performance	Clause 7.1.5	Qualitative
		Safety Valve opening	Clause 7.1.6	Qualitative
		Overload test after Performance	Clause 7.1.7	Qualitative
		Load sustaining	Clause 7.1.8	Upto 300 mm
		Operating torque	Clause 7.1.9	Upto 30 kg
2.	Portable Jack	Visual	IS 4552 (Part 1) Clause 7.1.1	Qualitative
		Dimensional Check	Clause 7.1.2	Qualitative
		No Load	Clause 7.1.3	Qualitative
		Over Load	Clause 7.1.4 & 7.1.6	Upto 39.24 kN

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SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Performance	Clause 7.1.5	Upto 39.24 kN
		Operating Torque	Clause 7.1.7	Upto500kgf.cm
111.	RUBBER & RUBBE	R PRODUCTS		
1.	Vulcanized	Tensile strength	IS 3400 (Part 1)	Upto 25 MPa
	Rubber Products	Elongation at break		Upto 800 %
		Accelerated Ageing	IS 3400 (Part 4)	<u> </u>
		Change in Hardness		20 Shore A to 90 Shore A
		Change in Tensile Strength & % Elongation		5 % to 90 %
		Permeability of Gases- Constant Pressure Method	IS 3400 (Part 21)	Upto 10x 10 ⁻¹⁷ m²/Pa.S
		Splice Flex Strength	IND/VEH/2081/2011/b	Qualitative
		for Tubes	Issue No. 02,	
		L	Issue Date 27/01/2012	[
		Shore 'A' Hardness	IS 3400 (Part 23)	20 Shore 'A' to 90 Shore 'A'
		Tension Set (%)	IS 3400 (Part 13)	5 % to 95 %
2.	Pneumatic Tube	Pull Out Strength of Rubber Based Valves	IS 9081 Clause 6.4	5 kg to 250 kg
3.	Vulcanized Rubber Products	Ash Content	IS 3400 (Part 22) Clause 8-A	Upto 50 %
4.	Rubber - NR, SBR, NBR, CR & IIR	Compression Set	IS 3400 (Part 10) (Method B)	5 % to 90 %
		Resistance to the Action of Liquid	IS 3400 (Part 6)	
		-Change in Mass	Clause 8.2	5 % to 90 %
		-Change in Volume	Clause 8.3	5 % to 90 %
		-Change in Hardness	Clause 8.6	5 % to 90 %
		-Change in Tensile Strength & % Elongation	Clause 8.7	5 % to 90 %

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SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Identification of Vulcanized Rubber	IS 3400 (Part 22)	Qualitative
5.	Rubber Hoses	Testing of Rubber Hoses	IS 443	
		-Tensile Stress-Strain Properties	Clause 5	Upto 34.335 MPa
		-Accelerated Aging	Clause 6	5 % to 95 %
		-Hydrostatic Pressure	Clause 8	Upto 300 kg/cm ² 29.42MPa
		-Effect of Chemicals on Hose Lining and Cover	Clause 9	5 % to 95 %
		-Effect of Liquids on Hose-Change in Physical Properties	Clause 10	5 % to 95 %
		-Resistance to Oil	Clause 11	Qualitative
6.	Rubber - NR, SBR, NBR, CR & IIR	Density	IS 3400 (Part 9) (Method A)	0.5 g/cm ³ to 5.0 g/cm ³
7.	Automotive Tyres	Visual and Marking	IS 15627	Qualitative
	(Two & Three	Tyre Dimensions:	IND/VEH/2079/2018	300 mm
	Wheeled Motor	Section width	Issue No. 02,	800 mm
	Vehicles)	Outer Diameter	Issue date Jan 2018	<u></u>
		Endurance		Upto Load 90 kN & Drum Speed 100 km/h / 300 rpm
		Load/Speed	4	Upto Load 90 kN & Drum
		Performance		Speed 100 km/h / 300 rpm
		Tread Wear Indicators		Upto 3 mm
8.	Automotive Tyres	Visual and Marking	IS 15633	Qualitative
	(Passenger Car	Tyre Dimensions:	IND/VEH/2079/2018	300 mm
	Vehicles)	Section width	Issue No. 02,	800 mm
		Outer Diameter	Issue date Jan 2018	<u> </u>
		Endurance		Upto 90 kN & Drum Speed 100 km/h/300 rpm
		Load/Speed	1	Upto 90 kN & Drum Speed
		Performance		100 km/h/300 rpm

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SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tread Wear Indicators		Upto 3 mm
9.	Automotive Tyres (Commercial Vehicles)	Visual and Marking Tyre Dimensions: Section width Outer Diameter Endurance Load/Speed	IS 15636 IND/VEH/2079/2018 Issue No. 02, Issue date Jan 2018	Qualitative 300 mm 800 mm Up to Load 90 kN & Drum Speed 100 km/h / 300 rpm Up to Load 90 kN & Drum
40	. .	Performance Tread Wear Indicators		Speed 100 km/h / 300 rpm Upto 3 mm
10.	Automotive Tyres (Two & Three Wheeled Motor Vehicles, Passenger Car Vehicles & Commercial Vehicles)	Tyre Strength (Plunger Test)	IS 15627 clause 4.4 IS 15633 clause 4.6 IS 15636 clause 4.5 IND/VEH/2079/2018 Issue No 2 clause 7.10	Upto 1100 mm
11.	Rubber & Rubber Products	Abrasion Resistance Relative Volume Loss.	IS 3400 (Part 3)	Upto 200 mg
12.	Tube for Pneumatic Tyres	Air Tightens Fitment Thickness Uniformity	IS:13098 a) Clause 5 b) Clause 3.3 c) Clause 3.3.1	Qualitative Qualitative 0.01mm to 20.00 mm
13.	Valves and Valve Accessories for Pneumatic Tubes & Tyres	-Dimensions and Design Features -Material -Adhesion -Valve Core Leakage	IS:9081 a) Clause 4. 0 b) Clause 6.1 & 8.0 c) Clause 6.5 d) Clause 8.2	0.01 to 300 mm Qualitative (Identification of Brass & Natural Rubber) Qualitative Qualitative
IV.	AUTOMOTIVE COM	PONENTS		
1.	Starter Motor Sub Assembly	High Voltage Insulation Resistance	IS 3141(Para 7.4) IS 3141 (Para 7.5)	500 V AC 500 V DC

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SI.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Light Running for Performance Check	IS 3141 (Para 7.6.1)	12V & 24 V DC upto 200 A and 10,000 rpm
2.	Alternator	High Speed Check	IS 8925 (Para 6.5)	12V & 24 V DC upto 200 A and 10,000 rpm
		Performance	IS 8925 (Para 6.7)	12V & 24 V DC upto 200 A and 10,000 rpm
3.	Alternator Sub	Flash	IS 8925 (Para 6.3)	500 V AC
	Assembly	Output Characteristic (Cold) Check of Alternator	IS 8925 (Para 6.4)	12V & 24 V DC upto 200 A and 10,000 rpm
4.	Electrical Horn	High Voltage	IS 1884 (Para 8.3)	500V AC
		Current Drawn	IS 1884 (Para 8.4)	At Rated Voltage Current Measurement upto 15A
		Operating Voltage	IS 1884 (Para 8.6)	From 5 to 30 V DC
		Sound Pressure Level	IS 1884 (Para 8.6)	80 dB to 125 dB
		Endurance	IS 1884 (Para 8.8)	ON for 1 s OFF for 3 s
		Continuous Operating	IS 1884 (Para 8.11)	80 to 125 dB
5.	Speedometer Assembly	Visual Examination	IS 11086 Clause 6.2	Qualitative
		Accuracy	Clause 6.3	Upto 9999 rpm
		Hysteresis	Clause 6.4	Qualitative
		Endurance	Clause 6.5	Upto 9999 rpm
6.	Speedometer Cable Assembly	Visual Inspection	IS 4278 Clause 7.1 m	Qualitative
		Service Uses	Clause 7.2	Upto 9999 rpm
		Roll (Inner Cable)	Clause 7.4	Qualitative
		Locking Diameter	Clause 7.5	Qualitative