PRODUCT MANUAL FOR
BICYCLE RIMS
ACCORDING TO IS 624:2003

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 624:2003
	Title	:	BICYCLE RIMS
	No. of Amendments	:	Nil
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	As per clause 4 of IS 624: 2003
b)	**Grouping guidelines**	:	Please refer ANNEX- A
c)	**Sample Size**	:	Two pair of Rims (Both front and rear)
3.	**List of Test Equipment**	:	Please refer ANNEX – B
4.	**Scheme of Inspection and Testing**	:	Please refer ANNEX –C
5.	**Possible tests in a day:**		a) Shape and dimensions (Cl. 3) b) Manufacture (Cl. 6) c) Finish (Cl. 7) d) Compression test (Cl. 9)
6.	**Scope of the Licence:**		
	"Licence is granted to use Standard Mark as per IS 624:2003 with the following scope:		
	Name of the product		Bicycle Rims
	Profile		
	Material		
	Nominal diameter code		
	Nominal width code		
7.	Any other product specific guidelines		Please refer ANNEX-D on Guidelines on sharing of manufacturing facilities between BIS licensees for carrying out certain specific manufacturing activities

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ANNEX A

GROUPING GUIDELINES

1) Bicycle Rims covered under IS 624: 2003 can be classified on the basis of thefollowing:

   a) **Profile:** Beaded Edge (BE)/ Straight Side (SS)/ Hooked Bead (HB)/ Crotchet (C)
   b) Nominal Diameter Code & Nominal Width Code
   c) **Material**: Steel/ Aluminium alloy

2) Sample of highest nominal diameter of any nominal width, for each profile type and material shall be tested to cover Rims of all nominal width for that particular type and material for nominal diameter up to and including the diameter of tested Rim.

3) The Firm shall declare the Varieties of Rims they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.

4) During the operation of license, it shall be ensured that all varieties covered in the license are tested in rotation, to the extent possible.

ANNEX B

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.	Shape & Dimensions (Cl. 3.1, 3.2, 3.2.1 Table 1 to 6, Fig 1 to 4 & 6.1 to 6.4)	1. Micro meter 2. Vernier caliper 3. Valve hole gauges 4. Circumference tapes 5. Spoke hole gauges 6. Feeler gauge 7. Radius gauges 8. Measuring tape 9. Angle gauge
2.	Finish (Cl. 7)	1. Thickness tester 2. Salt spray test setup, 3. Hygrometer 4. Air Pressure gauge 5. Bench Vice & File, **Chemicals** 1. Copper sulphate 2. Ferric chloride 3. Hydrochloric acid 4. Antimony trioxide 5. Sodium chloride
3.	Compression test (Cl. 9)	Compression test setup as per Fig. 7

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

ANNEX C

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 equipment.

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 624:2003. The Standard Mark, as given in the Schedule of the licence, shall be marked on each Rim provided always that the rim 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 as follows: "For details of BIS certification please visit www.bis.gov.in"

4. 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. Please refer ANNEX-D also regarding guidelines on Sharing of manufacturing facilities between BIS licensees for carrying out certain specific manufacturing activities.

4.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

5. 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 Method**			**No. of Sample**	**Frequency**	**Remarks**
		Clause	**Reference**				
4	**Material**			S			No further testing is required if the material is ISI Marked or accompanied with a test certificate.
4.1	**Steel**						
4.1.1 3.2.2	i. Ultimate tensile strength ii. Yield stress iii. Elongation iv. Flatness v. Thickness		IS 1608 IS 1599 IS 513		One	Every 10 coils of strip steel or part thereof from each batch of supply.	
4.2	**Aluminum Alloy**						
	i. Tensile strength ii. Yield strength iii. Elongation iv. Hardness v Specific gravity vi. Joining pin				One	Each consignment	

3	**Shapes and Dimensions**						
3	Shape and dimensions	3.1, 3.2, 3.2.1, 3.2.2 Table 1 to 6, Fig.1 to 4	IS 624	R	One	Every 50 rims or part thereof produced	Measurements may be made with the help of gauges and tapes.
6	Manufacture	6.1 to 6.4	IS 624	R	One	Every 50 rims or part thereof produced	
9.	Compression test	9.2	IS 624	R	One	One day production for each type and material	
7	**Finish**						
	Appearance	7.1	IS 1068	R	All finished rims		
	Thickness of coating	9.1	IS 1068	R	One	All the rims electroplated together in every shift	In case of failure of the sample, one rim from every batch electroplated in that shift may be tested and only those batches found conforming may bemarked.
	Adhesion of coating	9.2	IS 1068	R	One	All the rims electroplated together in every shift	
	Corrosion resistance	9.3	IS 1068 IS 6009 IS 6910	R	One	Every 7^{th} batch of electroplating	

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

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

NOTE-3: In case of agreement between 2 manufacturers (holding BIS license for this product) for supplying the semi-finished product, then the supplier

licensee will carry out all tests as per Cl 3,4,6 and 9 of IS 624. Receiver licensee will carry out all tests as per SIT in his factory and bear the responsibility for the final quality of the product dispatched and sold with BIS Standard Mark. Please refer ANNEX-D of this Manual for details.

ANNEX-D

Guidelines on sharing of manufacturing facility between BIS licensee manufacturers for carrying out certain specific manufacturing activities for Bicycle Rims as per IS 624: 2003

Definitions:

a) **Pre- Painting stages**: Manufacturing processes including Cutting, Forming and welding of Sheets, Punching of Spoke and Valve Holes, etc. till the stage from where the surface preparation for finishing operation starts.

b) **Painting stages:-** Manufacturing processes including Surface preparation, phosphating, painting and final labeling and marking.

c) **Supplier licensee**:- Licensee who shares his pre-painting facility and supplies semi-finished goods (up to Pre-painting stages) to another licensee (called Receiver licensee) for painting operations.

d) **Receiver licensee**: Licensee who carries out painting activities on semi-finished goods received from another licensee (called Supplier licensee).

Guidelines:

If two or more than two BIS licensees agree among themselves to share their manufacturing facilities for Pre-painting and Painting stages among each other, then the same may be permitted, subject to fulfillment of the following:

i) All such manufacturers who intend to share the facilities, shall have BIS licence for Bicycle Rims as per IS 624: 2003.

ii) The product shall be marked with BIS Certification Marks licence no. of the receiver licensee.

iii) Information for all such semi-finished products shall be submitted by both supplier as well as receiver licensee to BIS. List of consignees along with details of goods shall be submitted by supplier licensee on quarterly basis to BIS. The receiver licensee shall also submit the list of all suppliers with details of goods received to BIS on quarterly basis.

iv) There shall be proper record maintenance of all such semi-finished products indicating quantity, Batch No./ Date of manufacturing, date of supply and receipt etc. both at supplier as well as receiver licensee end. Records of in-process inspections shall be maintained. The supplier licensee will carry out all tests as per Cl 3,4, 6 and 9 of IS 624. Receiver licensee will carry out all tests as per SIT in his factory and bear the responsibility for the final quality of the product dispatched and sold with BIS Standard Mark.

v) In case of failure of products or complaints on quality of products, actions as per BIS Rules shall be taken against the receiver licensee as the product is to be marked with his licence number and he bears the onus for final quality of the product