



PRODUCT MANUAL FOR BICYCLE –FRAMES ACCORDING TO IS 623:2025

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 623 :2025
	Title	:	Bicycle Frames
	No. of Amendments	:	-
2.	Sampling Guidelines:		
a)	Raw material	:	As per Clause 4 of IS 623 <i>In case material as below is used, following conformity shall be ensured:</i> • <i>Steel Frame Tubes</i> – IS 2039 (Part 1 to 3) • <i>Mild Steel Liners</i> – Mild Steel (with sulphur and phosphorus content,each not exceeding 0.060 percent) • <i>Mild Steel Lugs</i> - Mild Steel (with sulphur and phosphorus content,each not exceeding 0.060 percent) • <i>Whiteheart Malleable Iron casting Lugs</i>: Grade WM 350 of IS 14329
b)	Grouping guidelines	:	Please refer ANNEX – A.
c)	Sample Size	:	Five Bicycle Frames
3.	List of Test Equipment	:	Please refer ANNEX – B.
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C.
5.	Requirements which can be tested in a day :		
	i) Dimensions (<i>Clause 5</i>) ii) Trueness of Frame (<i>Clause 8.1</i>) iii) Impact Test on Frame –Fork Assembly (<i>Clause 8.2</i>) iv) Suspension Frame- Tyre Clearance Test		

6.	Scope of the Licence :	
	“Licence is granted to use Standard Mark as per IS 623:2008 with the following scope:	
	Name of the product	Bicycle Frame
	Type of bicycle in which frame will be fitted	➤ Young children’s bicycles, ➤ Young adult bicycles, ➤ City and trekking, ➤ Roadster, ➤ Sports light roadster (SLR) bicycles, ➤ Mountain bicycles, ➤ Racing bicycles, ➤ BMX bicycles, and ➤ Electrically power-assisted (EPAC) bicycles
	Type of Frame	➤ Standard frame ➤ Suspension frame
	Material	Steel/ Aluminium alloy/ Carbon fibre reinforced polymer/ Titanium alloy/ Magnesium alloy or any other material (<i>to be declared by manufacturer</i>)
7.	Any other Product Specific Guidelines	Please refer <u>ANNEX-D</u> on Guidelines on sharing of manufacturing facilities between BIS licensees

Annex- A

Grouping Guidelines

1. Bicycles Frames as per IS 623:2025 can be classified into different varieties on the basis of following parameters:
 - a) Type of bicycle in which frame will be fitted:
 - Young children's bicycles,
 - Young adult bicycles,
 - City and trekking,
 - Roadster,
 - Sports light roadster (SLR) bicycles,
 - Mountain bicycles,
 - Racing bicycles,
 - BMX bicycles, and
 - Electrically power-assisted bicycles (EPAC)

Grouping based on types of bicycle:

Group 1	Group 2	Group 3	Group 4	Group 5
Young children's bicycles	➤ Young adult bicycles, ➤ City and trekking, ➤ Roadster, ➤ Sports light roadster (SLR) bicycles, ➤ Racing bicycles	➤ Mountain bicycles,	BMX bicycles	Electrically power-assisted bicycles (EPAC)
<i>as per IS 15533/ISO 8098</i>	<i>as per IS 10613</i>	<i>as per IS 10613</i>	<i>as per IS 19034</i>	<i>as per IS 19035 (Part 1)</i>

- b) Material :
Steel/ Aluminium alloy/ Carbon fibre reinforced polymer/ Titanium alloy/ Magnesium alloy or any other material (*to be declared by manufacturer*)
 - c) Shapes and dimensions: *as declared by the manufacturer*
2. Considering the above, following sampling guidelines shall be followed for Grant of Licence/Change in Scope of Licence:
- a) Frames of each group of bicycle type as above, shall be tested separately. In case of Group 2, if frame for 'Racing bicycles' has been offered in the scope, the same shall be tested to cover frames for all other bicycle types under the group. However, if racing bicycles are not intended to be covered, any of the remaining frames listed under the group may be tested to cover frames for all bicycle types in that group.
 - b) Frame of each type (Standard/Suspension) shall be tested separately
 - c) Material of frame shall be declared by the manufacturer. Frame made of each material shall be tested separately.
 - d) Shapes and dimensions of frames of all types and material intended to be covered in scope of licence, shall be declared by manufacturer. Frame of any shape and dimension may be tested as per above criteria, to cover all shapes and dimensions.

3. Manufacturer shall declare all varieties of frames intended to be covered in scope of licence. Scope of the licence shall be restricted based on the manufacturing and testing facilities available.
4. During the operation of the licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible.

ANNEX - B**List of Test Equipment**

Indicative list of major test equipment required to test as per the Indian Standard (For guidance only)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Dimensions as per <i>clause 5</i>	a) Digital Vernier Caliper b) Micrometer c) Tube micrometer d) Scale e) Thread Ring Gauge (GO/NO-GO) f) Plug Gauge (GO/NO-GO) g) Height Gauge
2.	Manufacture as per <i>clause 6</i> Trueness of Frame as per <i>clause 8.1</i>	a) Surface Plate b) Gauge Block c) Gauge Block Fixture d) Micrometer
3.	Impact Test (Falling Mass) as per <i>clause 8.2.1</i>	Test set up as per Cl. 4.9.1 of IS 15533/ISO 8098., Test set up as per Cl. 4.6.2 of IS 10613 Test set up as per 4.10.2 of IS 19034 Test set up as per 4.3.7.2 of IS 19305 (Part 1). <i>as applicable</i>
4.	Impact Test (Falling Frame and Fork Assembly) as per <i>clause 8.2.2</i>	Test set up as per Cl. 4.9.2 of IS 15533/ISO 8098., Test set up as per Cl. 4.6.3 of IS 10613 Test set up as per 4.10.3 of IS 19034 Test set up as per 4.3.7.3 of IS 19305 (Part 1). <i>as applicable</i>
5.	Fatigue Test with Pedalling Forces (Not Applicable to Young Children's Bicycles) as per <i>clause 8.3.1</i>	Test set up as per Cl. 4.6.4 of IS 10613 Test set up as per 4.10.4 of IS 19034 Test set up as per IS 19305 (Part 1). <i>as applicable</i>
6.	Fatigue test with Horizontal Forces (Not Applicable to Young Children's Bicycles) as per <i>clause 8.3.2</i>	Test set up as per Cl. 4.6.5 of IS 10613 Test set up as per 4.10.5 of IS 19034 Test set up as per IS 19305 (Part 1). <i>as applicable</i>
7.	Fatigue Test with Vertical Forces (Not applicable to Young Children's Bicycles and BMX Bicycles) as per Clause 8.3.3	Test set up as per Cl. 4.6.6 of IS 10613 Test set up as per IS 19305 (Part 1). <i>as applicable</i>
8.	Vibration Test on Frame-Fork Assembly as per <i>clause 8.4</i>	Test set up as per Annex-C of IS 15533/ISO 8098., Test set up as per Cl. 4.6.7 of IS 10613 Test set up as per 4.10.6 of IS 19034 Test set up as per IS 19305 (Part 1). <i>as applicable</i>

9.	Suspension Frames — Tyre Clearance Test (Applicable for Suspension Frames Only) as per <i>Clause 8.5</i>	Test set up as per Annex F of IS 10613 Test set up as per IS 19305 (Part 1). <i>as applicable</i>
10.	Test of Finish as per <i>clause 8.6.1</i>	a) Solid Steel Ball b) Scale
	Chemical Test as per <i>clause 8.6.2</i>	a) Mild Steel Tank with rubber lining b) Thermocouple c) Temperature Controller d) Common salt solution e) Stop Watch f) Salt spray chamber and appropriate salt solution

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/Batch No./Code No.:** For the guidance of manufacturers, the recommended definition of Control Unit is quantity of Bicycle frames of same type and of same material manufactured under identical conditions in a week.

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

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.

1.5 In case of supplying the semi-finished product under agreement between 2 manufacturers (both holding BIS license for this product), guidelines given in **Annex D** of this Manual shall be followed.

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) is also 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. (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/empanelled 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. Please refer ANNEX-C also regarding guidelines on Sharing of manufacturing facilities between BIS licensees for carrying out certain specific manufacturing activities.

3. LABELLING AND MARKING – As per the requirements of IS 623: 2025. In addition, each frame shall carry Batch number or code number for traceability. The Standard Mark, as given in the Schedule of the licence, shall be marked on each Frame provided always that the frame 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. 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) S: Sub-contracting permitted	No. of Sample	Frequency	Remarks
		Clause	Reference				
4	Material	4	IS 623 IS 2039 (Part 1 to 3)	S	—	Each Consignment	No further testing is required, if accompanied with test certificate or ISI marked
5	Shapes and Dimensions	5.1, 5.2, 5.3	IS 623 IS 2039 (Part 1 to Part 3)	R	Firm should exercise adequate control so that whole production should meet the requirements. Appropriate records shall be maintained		
6	Manufacture	6	IS 623	R	Firm should exercise adequate control so that whole production should meet the requirements. Appropriate records shall be maintained		
7	Finish	7	IS 623	R	Firm should exercise adequate control so that whole production should meet the requirements. Appropriate records shall be maintained		

8	TESTS						
8.1.	Trueness of Frame	8.1	IS 623	R	One Frame	Every Control unit	
8.2.1	Impact Test (Falling Mass)	8.2.1 4.9.1 4.6.2 4.10.2 4.3.7.2	IS 623 IS 15533/ISO 8098 IS 10613 IS 19034 19305 (Part 1).	R	One Frame	Every Control unit	
8.2.2	Impact Test (Falling Frame and Fork Assembly)	8.2.2 4.9.2 4.6.3 4.10.3 4.3.7.3	IS 623 IS 15533/ISO 8098 IS 10613 IS 19034 19305 (Part 1).	R	One Frame	Every Control unit	
8.3.1	Fatigue Test with Pedalling Forces (Not Applicable to Young Children's Bicycles)	8.3.1 4.6.4 4.10.4	IS 623 IS 10613 IS 19034 IS 19305 (Part 1).	S	One	Once in six months	Testing shall be done in such a way that at least one sample of frame of each type of bicycle and of each material, which are manufactured in six months shall be tested.
8.3.2	Fatigue test with Horizontal Forces (Not Applicable to Young Children's	8.3.2 4.6.5 4.10.5	IS 623 IS 10613 IS 19034 IS 19305 (Part 1)	S	One	Once in six months	Testing shall be done in such a way that at least one sample of frame of each type of bicycle and of each material, which are manufactured in six months shall be tested.

	Bicycles)						
8.3.3	Fatigue Test with Vertical Forces (Not applicable to Young Children's Bicycles and BMX Bicycles)	8.3.3 4.6.6	IS 623 IS 10613 IS 19305 (Part 1)	S	One	Once in six months	Testing shall be done in such a way that at least one sample of frame of each type of bicycle and of each material, which are manufactured in six months shall be tested.
8.4	Vibration Test on Frame-Fork Assembly	8.4 Annex-C 4.6.7 of 4.10.6 of	IS 623 IS 15533/ISO 8098 IS 10613 IS 19034 IS 19305 (Part 1)	S	One	Once in six months	Testing shall be done in such a way that at least one sample of frame of each type of bicycle and of each material, which are manufactured in six months shall be tested.
8.5	Suspension Frames — Tyre Clearance Test (Applicable for Suspension Frames Only)	8.5 Annex F	IS 623 IS 10613 IS 19305 (Part 1).	S	One	Once in six months	Testing shall be done in such a way that at least one sample of frame of each type of bicycle and of each material, which are manufactured in six months shall be tested.
8.6	Test for Finish						
8.6.1	Physical test	8.6.1	IS 623	S	One	Once in a month	Testing shall be done in such a way that at least one sample of frame of each type of bicycle and of each material, which are manufactured in one month shall be tested.

8.6.2	Chemical test	8.6.2	IS 623	S	One	Once in six months	Testing shall be done in such a way that at least one sample of frame of each type of bicycle and of each material, which are manufactured in six months shall be tested.
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NOTE-1: In case of agreement between two 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. 4, 5, 6, 8.1, 8.2, 8.3, 8.4, 8.5 (*as applicable on product*) of IS 623. 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 facilities between BIS licensees for carrying out certain specific manufacturing activities for Bicycle frames as per IS 623

Definitions:

- a) **Pre- Painting stages:** Manufacturing processes including Cutting of Tubes, Assembly and Brazing, 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 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 frames as per IS 623: 2025.
- 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. 4, 5, 6, 8.1, 8.2, 8.3, 8.4, 8.5 (*as applicable on product*) of IS 623 and also will supply copy of Records of these tests to the receiver licensee along with the each consignment supplied in semi-finished state. 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.