



उत्पाद मैनुअल

आई एस 16192 (Part 2): 2014 के अनुसार

स्वचलन वाहन - दो और तीन पहिये वाले वाहनों के लिए व्हील रीम -
शीट धातु व्हील रीम- परीक्षणों एवं अपेक्षाओं की पद्धति के लिए

दस्तावेज संख्या – पी एम/आई एस 16192 (Part 2)/4/ अगस्त 2024

भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) व्यवस्थित, 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीतित और पारदर्शिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसि द्वारा संद्वि सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/ प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इसका उपयोग किया जा सकता है

PRODUCT MANUAL FOR WHEEL RIMS FOR TWO AND THREE WHEELED VEHICLES- SHEET METAL WHEEL RIMS - METHOD OF TESTS AND REQUIREMENTS ACCORDING to IS 16192(Part 2):2014

Document No.- PM/IS 16192 (Part 2)/4/August 2024

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.

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, ९, बहादुर शाह ज़फ़र मार्ग
Manak Bhawan, 9, Bahadur Shah Zafar Marg
नई दिल्ली- ११०००२
New Delhi – 110002



**PRODUCT MANUAL FOR
AUTOMOTIVE VEHICLES - WHEEL RIMS FOR TWO AND THREE
WHEELED VEHICLES - SHEET METAL WHEEL RIMS –
METHOD OF TESTS AND REQUIREMENTS
ACCORDING TO IS 16192 (Part 2): 2014**

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 16192 (Part 2) :2014
	Title	:	Automotive Vehicles - Wheel Rims for two and three wheeled vehicles – Sheet Metal wheel rims - Method of tests and requirements
	No. of Amendments	:	Two
2.	Sampling Guidelines:		
a)	Raw material	:	---
b)	Grouping guidelines	:	Please refer ANNEX – <u>A</u>
c)	Sample Size	:	As per Cl. 5.1.2 of IS 16192 (Part 2)
3.	List of Test Equipment	:	Please refer ANNEX – <u>B</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>C</u>
5.	Possible tests in a day: General Requirements (Cl. 4.1), Radial impact resistance (Cl. 4.4 of IS 16192-1), Torsion Moment (Cl. 4.5 of IS 16192-1), Air leakage (Cl. 4.6 of IS 16192-1), Dynamic Cornering Fatigue Test (Cl. 4.2.3/ 4.2 of IS 16192-1)		
6.	Scope of the Licence	:	Please refer ANNEX – <u>D</u>

BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar
Marg, New Delhi – 110002

ANNEX A

Grouping Guidelines

1. Following guidelines shall be followed for grant of licence and change in scope of licence:

- i. Every variety of wheel rim is required to be tested. Appropriate reduction in testing, as decided by testing agency in accordance with Cl. 5.2 and Cl. 5.3 of IS 16192 (Part 2), shall be applicable.
- ii. The manufacturer shall declare all the varieties which are intended to be covered in the scope of licence and submit the technical specification in accordance with Annex F of IS 16192 (Part 2) for each variety of wheel rim intended to be manufactured by him. In addition to the details as per Annex B of IS 16192 (Part 2), the manufacturer shall also submit following technical specification for each variety of wheel rim intended to be manufactured by him: a) Type of Wheel Rim (Composite construction- Type1/Type 2, Hybrid construction), b) Vehicle type with which rim is to be used (Two wheeled/three wheeled) c) Design d) Thickness*, e) Inset/Outset.
- iii. For inclusion of additional variety, every modification in technical specification in accordance with Annex B along with modification in Vehicle type with which rim is to be used (Two wheeled/three wheeled) , Design, Thickness, Material, and Inset/Outset shall be declared by manufacturer to BIS.
- iv. In case any reduction in testing in accordance with Cl. 5.2 and Cl. 5.3 of IS 16192 (Part 2) is sought at the time of grant of licence or inclusion, the same shall be declared by the manufacturer to BIS and the testing lab carrying out the testing.

2. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

* Till the time declaration on thickness of rim is brought in the Standard, manufacturers shall declare thickness at critical areas of rim such as wheel rim well area, bead area, disc / spokes and hub area. Change in thickness at these areas to be evaluated for applicability of tests as per existing criterion given in Cl. 5.2 and Cl. 5.3 of IS 16192 (Part 2).

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	Dynamic Cornering Fatigue Test (Cl. 4.2.3)	Equipment as per 4.2.3.1 of IS 16192 (Part 2): 2014
2	Dynamic Radial Fatigue Test (Cl. 4.2.4)	Equipment as per 4.2.4.1 of IS 16192 (Part 2): 2014

Note: For tests as per Cl. 4 of IS 16192-1 on applicable varieties, please refer to list of equipment given in Product Manual of IS 16192-1.

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

ANNEX D

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

1.3.2 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.

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.

3. **LABELLING AND MARKING** – As per the requirement of IS 16192 (Part 2):2014. The Standard Mark, as given in the Schedule of the licence, shall be marked on each Rim provided always that the product 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 on product or package 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
(For Composite Wheel Rim of Type 1- Cl. 3.2.1 (a) of IS 16192-2)

(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				
4.1	General Requirements	4.1	IS 16192 (Part 2): 2014	-	Each rim	Each rim	-
4.2.3	Dynamic Cornering Fatigue Test	4.2.3		S	One sample	Once in a year for each size designation, material, type, design load and type of vehicle on which rim is to be used, covered in the scope and manufactured during the year	
4.2.4	Dynamic Radial Fatigue Test	4.2.4					

Table 1 Continued
(For Composite Wheel Rim of Type 2 (Cl. 3.2.1 (b)) & Hybrid Wheel Rim (Cl. 3.2.2 of IS 16192-2)

(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				
4.1	General Requirements	4.1	IS 16192 (Part 1): 2014	-	Each Rim		-
4.2	Rotating Bending Fatigue (Dynamic Cornering Fatigue) Test	4.2 Annex A		S	One sample	Once in a year for each size designation, material, type, design load covered in the scope and manufactured during the year .	
4.3	Radial load Durability Test	4.3 Annex B					
4.4	Radial Impact resistance test	4.4 Annex C					
4.5	Torsion Moment Test	4.5 Annex D					
4.6	Air Leak Test	4.6 Annex E		R	Each Rim		For rims designed for tubeless tyres

ANNEX E
Scope of Licence

Licence is granted to use Standard Mark as per IS 16192 (Part 2):2014 with the following scope:				
Name of the product: Automotive Vehicles - Wheel Rims for two and three wheeled vehicles – Sheet Metal wheel rims - Method of tests and requirements				
	Variety 1	Variety 2	Variety 3	Variety 4
Part Number				
Type of Wheel Rim: • Composite construction-Type1 • Composite construction-Type 2, • Hybrid construction				
Maximum Design Load (N)				
Size designation				
Type of Vehicle with which Rim is to be used				
Material grade, as applicable for • Rim • Ring • Spoke/disc • Hub motor casing				
Rim thickness				
Inset/Outset (mm)				
Design of Mounting of Motor for Hybrid wheels (applicable for Hybrid construction)				

