

**AUTOMOTIVE INDUSTRY STANDARD**

**Type Approval Requirement for  
Moped with Three Wheels of  
category L1-1**

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ON BEHALF OF  
AUTOMOTIVE INDUSTRY STANDARDS COMMITTEE

UNDER  
CENTRAL MOTOR VEHICLE RULES – TECHNICAL STANDING COMMITTEE

SET-UP BY  
MINISTRY OF ROAD TRANSPORT and HIGHWAYS  
GOVERNMENT OF INDIA

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## INTRODUCTION

The Government of India felt the need for a permanent agency to expedite the publication of standards and development of test facilities in parallel when the work on the preparation of the standards is going on, as the development of improved safety critical parts can be undertaken only after the publication of the standard and commissioning of test facilities. To this end, the erstwhile Ministry of Surface Transport (MoST) has constituted a permanent Automotive Industry Standards Committee (AISC) vide order No. RT-11028/11/97-MVL dated September 15, 1997. The standards prepared by AISC will be approved by the permanent CMVR Technical Standing Committee (CTSC). After approval, the Automotive Research Association of India (ARAI), Pune, being the secretariat of the AIS Committee, has published this standard. For better dissemination of this information ARAI may publish this document on their Web site.

The topic was first raised in 57<sup>th</sup> CMVR-TSC. Government has received number of presentations from person with disabilities, highlighting the problem being faced by them due to non-availability of disability friendly mobility scooters in the market. It was decided to deliberate the subject in AISC to propose a way forward. In 65<sup>th</sup> AISC secretariat requested panel to study the requirements of this vehicle and adoption in India. ICAT was nominated as a panel convener. In 59<sup>th</sup> CMVR-TSC, panel was informed to formulate a new standard and recommend the required changes in CMVR. In 66<sup>th</sup> AISC, secretariat agreed for EU boundary conditions.

This Standard prescribes the requirements for the construction and functional safety of L1-1 category Vehicles. While formulating this standard a considerable assistance has been derived from the criteria & requirements specified for L2e category in Regulation (EU) 168/2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles.

The Committee responsible for preparation of this standard is given in the Annex- A and Annex-B.

**Type Approval Requirement for Moped with Three Wheels of category L1-1**

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## Type Approval Requirement for Moped with Three Wheels of category L1-1

### 1.0 SCOPE

1.1 This standard lays down the type approval requirements applicable to moped with three wheels of category L1-1.

**Note:** Vehicles fitted with pedal assistance and tyres (other than referred in IS 15627) are not covered under the scope of this standard.

### 2.0 REFERENCES

2.1 IS 14272:2011 – Automotive Vehicles – Types – Terminology

2.2 AIS-065:2005 - Statutory Plates and Inscriptions for Motor Vehicles, their Location and Method of attachment Vehicle Identification Numbering System

### 3.0 DEFINITIONS

3.1 **“Arm Rest”** means a padded support for forearms of the occupants, as attached to the seat of the vehicle.

3.2 **“Mass in running order”** means a vehicle kerb weight as determined in accordance with IS 11422: 2001 as amended by time to time.

3.3 **Category L1-1** means a moped with three wheels having:

- (i) Engine capacity not exceeding 50 cc in case of thermic engines or Maximum net power not exceeding 4 kW if fitted with electric power train; and
- (ii) Maximum design vehicle speed not exceeding 45km/h; and
- (iii) Kerb weight not exceeding 270 kg (excluding mass of traction batteries); and
- (iv) Equipped with a maximum of two seating positions, including the seating position for the driver (75 kg).

3.3.1 **Category L1-1M** means a category L1-1 vehicle on account of its technical features intended to carry passengers.

- 3.3.2 **Category L1-1N** means a category L-1-1 vehicle on account of its technical features intended to carry goods that meets the following criteria:
- (a)  $\text{length}_{\text{loading bed}} \times \text{width}_{\text{loading bed}} = 0.3 \times \text{Length}_{\text{vehicle}} \times \text{maximum Width}_{\text{vehicle}}$ ; or
  - (b) An equivalent loading bed area as defined above in order to install machines and/or equipment; and
  - (c) Designed with a loading bed area which is clearly separated by a rigid partition from the area reserved for the vehicle occupant; and
  - (d) The loading bed area shall be able to carry a minimum volume represented by a 600 mm cube, maximum permissible pay-mass of 300 kg in addition to driver.”
- 3.4 **“Pay-mass”** means the difference between the technically permissible maximum laden mass and the actual mass of the vehicle;
- 3.5 **“Seating”** may be classified based on:
- 3.5.1 **“Continuous Seat Vehicle”** means L1-1M category vehicle with single seat over the vehicle length with seating capacity of two persons only.
  - 3.5.2 **“Split Seat Vehicle”** means L1-1M category vehicle with two separate seats (refer Fig. 1) complying with the requirements of Table 1.
- 3.6 For definitions related to Type Approval terminologies i.e. Manufacturer, type approval, base vehicle, etc. the definitions given in AIS-017 shall apply.
- 4.0 GENERAL REQUIREMENTS**
- 4.1 **Dimensional Requirements:** The overall dimension of the L1-1 category vehicle shall be as notified under rule 93 of CMVR 1989.
- 5.0 APPLICATION FOR TYPE APPROVAL**
- 5.1 Application for Type Approval shall be submitted to the test agency as specified in Table 1 of this standard.
- 5.1.1 Vehicle manufacturer shall submit Information in AIS-007 (Rev. 5) as amended from time to time.
- 6.0 TYPE APPROVAL REQUIREMENTS**
- 6.1 The L1-1 category vehicle manufacturers shall submit their prototype vehicle to any of the testing agencies as referred in CMV rule 126.

6.1.1 All L1-1 category vehicle shall comply with the provisions specified under clause 6.2 below.

6.2 **CMVR Requirements for L1-1 category Vehicles.**

6.2.1 L1-1 category vehicle as defined in this standard shall comply with the requirements of Table - 1 of this standard.

6.2.2 The L1-1 category vehicle shall comply with test requirements as per this standard, in addition to those notified under CMVR 1989. Wherever, there is difference in the test requirements given in other standards notified under CMVR 1989 and this standard, then requirements of this standard shall be applicable.

6.3 **Specific Requirements**

6.3.1 All vehicles of L1-1 category shall be tested as per category 3-2 referred in IS 14664:2010 for brake performance. In case vehicle maximum speed is less than 25 km/h, then IS 14664:1999 shall be applicable.

6.3.2 All vehicles of L1-1 category shall not exceed 75 dB noise limit when tested as per IS 3028:1998.

6.3.3 Arm rest shall be provided such that the right arm rest shall be fixed and left arm rest shall be swivel along the vertical axis for the movement of the passenger, in case of split seat vehicles.

6.3.4 In case of split seat vehicles of L1-1M category, left arm rest shall comply with the load requirements of AIS-046.

6.4 **Seat Requirements (refer Fig. 1)**

6.4.1 Seat requirement shall meet the requirements of this clause.  
Seats shall be installed in such a way that occupant shall always face towards the steering control of the vehicle.

6.4.2 Seat Base height for both driver and passenger shall be between 300mm to 450mm

(This height may however be reduced to not less than 250 mm in case of body design constraints such as wheel arches, engine compartment, battery compartment, etc.)

6.4.3 **Seat width:** 350 mm to 450mm for both driver and passenger (if applicable)..

6.4.4 **Seat back height:** Minimum height of upper edge of seat back shall be 325 mm measured from H-point. The seat back height shall be 200 mm minimum

- 6.4.5 **Leg Space for passenger seat:** A minimum Leg space of 280 mm shall be provided measuring from the front edge of the seat cushion to any part of the vehicle towards front.
- 6.4.6 A minimum foot/floor space of 280 mm shall be provided for each passenger.



**Figure 1**

## **7.0 CRITERIA FOR EXTENSION OF APPROVAL**

- 7.1 Every modification to the type approved vehicle shall be intimated by the manufacturer to the Testing Agency.
- 7.2 On review of the modifications carried out, the Test Agency shall grant the extension of type approval or conduct additional tests as required for granting extension of type approval.

**Note:** In case of additional tests required only those parameters need to be tested which are modified.

- 7.3 For the purpose of clause 7.2, Changes in parameter affecting performance requirements of CMVR (e.g. brakes, noise etc.) shall be as per details given in the individual standards.

**Table -1**  
**Requirements for Type Approval of L1-1 category Vehicles**  
**(Clause 6.2.1)**

(1)	(2)	(3)	(4)	(5)
S. No.	Parameters	CMV Rule	Reference Standard	Test Applicability
1	Overall Dimensions of the vehicle	93	-	✓
2	Selection and fitment of tyres	95	AIS 050:2004	✓
3	Size and Ply ratings of Tyres	95	IS:15627:2005	✓
4	Brake test	96	IS: 14664: 2010 or IS 14664 : 1999	✓
5	Fitted with ABS or CBS if vehicle's Maximum design speed $\geq$ 25 Km/h			✓
6	Forward and Backward motion	99	-	✓
7	Signaling Device, Direction indicators and Stop Light	102	-	✓
8	Position of indicator	103	-	✓
9	Fitment of Reflectors	104	-	✓
10	Automatic head lamp ON (AHO) / DRL	105	-	✓
11	Deflection of Light	106	-	✓
12	Use of Red or White lights	108	-	✓
13	Parking Light	109	-	✓
14	Prohibition of spot light	111	-	✓
15	Exhaust gases	114	-	✓
16	Location of Exhaust Pipes	114	-	✓
17	Emission Test	115	AIS 137 (Part 1)	✓
18	Specific Requirements for L Category Electric Power Train Vehicles	124	AIS 156	✓
19	Speedometer calibration	117	IS:11827:2008	✓
20	Horn Installation	119	IS:15796:2008	✓

21	Horn Performance		IS:1884:1993	✓
22	Pass by Noise Measurement	120	IS 3028:1998	✓
23	Embossment of the chassis number and Engine number or in case of Battery operated Vehicles, motor number and month of manufacture(VIN)	122	AIS-065-2005	✓
24	Safety devices in Motor cycle (saree guard)	123	AIS 166	✓
25	Pillion Hand holds	123	IS:14495:1998 or AIS-046:2005	✓
26	Footrests as designed for the rider and footrests on both the sides for pillion rider	123	AIS-148:2018	✓
27	2W External projection	123	AIS-147:2018	✓
28	Brake hose (if fitted)	124	IS : 7079:2008	✓
29	Brake fluid (if fitted)	124	IS : 8654 :1986	✓
30	Control Cables fitted on engine capacity less than 50 cc	124	IS 10791:1983	✓
31	Tell-tale symbols	124	AIS 126:2014	✓
32	EMC (including electric power train vehicles)	124	AIS 004 (Part 3) : 2009	✓
33	Gradeability	124(1) (23)	AIS-003-1999	✓
34	Installation requirements for Lighting and Signaling devices	124	AIS 009 (Rev 1):2011	✓
35	*Spray Suppression System (less than 11kW)	124	AIS-103-2009	✓
36	Rear View Mirror - Specification	125	AIS-001- Rev.1:2011	✓
37	Rear View Mirror - Installation	125	AIS-002- Rev.1:2011	✓
38	Seat Requirements	125	AIS-134-2016	✓
39	*Windscreen Wiping System	124	AIS-045-2004	✓
40	*Windscreen Wiper Blade	101	IS 15802:2008	✓

41	*Safety Glass	100	IS 2553 (Part 2) (Rev. 1): 2019 (Windows may be of acrylic or plastic transparent sheet)	✓
42	Wheel Rims	124	AIS- 073- 2005  Or IS 16192	✓
43	Measurement of Electrical Energy Consumption	124	AIS-039 (Rev.1)-2015	✓
44	Method of Measuring the Range	124	AIS-040 (Rev.1)-2015	✓
45	Measurement of Net Power and Maximum 30 Minute Power	124	AIS-041 (Rev.1)-2015	✓
46	Lighting and Light Signaling Devices (Performance)	124	AIS-010- Rev1:2010	✓
47	Fitment of Lamps	105	-	✓
48	Anti-Theft device	124	AIS-074-2005	✓
49	Traction batteries	124	AIS-048-2009 or AIS 156:2020	✓
50	Vehicle Weighment	-	IS: 11825 :1986	✓
51	Type Approval requirements for Electric power train vehicles	124	AIS-049 (Rev. 1)	✓

\* Component, if fitted to comply with the requirements

**Note :** All the standards (AIS/IS) referred above in the Table shall be applicable as amended and revised from time to time.

**ANNEX A**  
**COMPOSITION OF AISC PANEL ON\***  
(See Introduction)

<b>Convener</b>	
Ms. Vijayanta Ahuja	International Centre for Automotive Technology
<b>Members</b>	<b>Representing</b>
Mr. Manoj Desai	The Automotive Research Association of India
Ms. Sheetal Bakle	The Automotive Research Association of India
Mr. S. H. Nikam	The Automotive Research Association of India
Mr. V. P. Rawal	The Automotive Research Association of India
Mr. Konaki Ramu	The Automotive Research Association of India
Ms. Shubhangi Dalvi	Central Institute of Road Transport
Mr. V. M. Dhanasekar	Global Automotive Research Centre
Mr. Tarun Sharma	International Centre for Automotive Technology
Mr. Mayank Sharma	International Centre for Automotive Technology
Mr. Arvind Kumbhar	SIAM (Bajaj Auto Ltd.)
Mr. Piyush Chowdhry	SIAM (Hero Moto. Corp. Ltd.)
Mr. Danish Gazali	SIAM (Hero Moto. Corp. Ltd.)
Mr. Navneet Kaushik	SIAM (Honda Motorcycle & Scooter India Pvt. Ltd.)
Mr. Subrat Dash	SIAM (Hero Moto. Corp. Ltd.)
Mr. Karan Rajput	SIAM (Honda Motorcycle & Scooter India Pvt. Ltd.)
Mr. R. S. Mulay	SIAM (Piaggio Motor )
Mr. M. S. Anandkumar	SIAM (TVS Motor Company Ltd.)
Mr. S. Gururajan	SIAM (TVS Motor Company Ltd.)
Mr. Pawan Kumar	SIAM (India Yamaha Motor Pvt. Ltd.)
Mr. M. Kansal	SIAM (India Yamaha Motor Pvt. Ltd.)
Representative from M/s Tunwal	M/s Tunwal
Mr. Nikhil	TEMPL
Mr. Santosh Meghani	SIAM (Ather Energy)

**ANNEX B**

(See Introduction)

**COMMITTEE COMPOSITION \*****Automotive Industry Standards Committee**

<b>Chairperson</b>	
Dr. Reji Mathai	Director, The Automotive Research Association of India
<b>Members</b>	<b>Representing</b>
Representative from	Ministry of Road Transport and Highways
Representative from	Ministry of Heavy Industries
Representative from	Office of the Development Commissioner, MSME, Ministry of Micro, Small and Medium Enterprises
Shri Shrikant R. Marathe	Former Chairman, AISC
Head TED	Bureau of Indian Standards
Director	Central Institute of Road Transport
Director	Global Automotive Research Centre
Director	International Centre for Automotive Technology
Director	Indian Institute of Petroleum
Director	Vehicles Research and Development Establishment
Director	Indian Rubber Manufacturers Research Association
Representatives from	Society of Indian Automobile Manufacturers
Representative from	Tractor and Mechanization Association
Representative from	Automotive Components Manufacturers Association of India
Representative from	Indian Construction Equipment Manufacturers' Association
<b>Member Secretary</b>	
Shri Vikram Tandon	The Automotive Research Association of India

\* At the time of approval of this Automotive Industry Standard (AIS)