

ISO 9001-2015	Document No.:TM/SM/16 (Rev 02 Of 2022)	Version-01	Date Effective From:24/05/2022
Document Title: Specification of Light Weight Rail (Mono)Cum Road Trolley			



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**SPECIFICATION OF LIGHT WEIGHT RAIL (MONO) CUM ROAD
TROLLEY**

(Spec. No. TM/SM/16 dt.31.03.1992)
(Revision 02 of 2022)

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1.0 Scope :

This specification covers the requirement of material, functions, technical features and testing criteria of Light Weight Rail (Mono) Cum Road Trolley. This trolley is used to carry track fittings; small track machines etc. in the field either on cess/ road or on rail (mono). For convenience, the term “Light Weight Rail (Mono) Cum Road Trolley” will be referred as ‘trolley’ in the specification. This specification chiefly covers the technical provisions having no connections with necessary contractual provisions.

2.0 Reference: Following BIS codes have been referred to in this specification. Updated copy of these codes shall be available at the works of the firm.

- i) IS : 2062 : 2011(7th : Hot Rolled Medium And High Tensile Structural Steel — Revision) Specification.
- ii) IS : 432 (Part-I) : Specification for Mild steel and Medium Tensile Steel Bars and Hard-Drawn steel wire for concrete reinforcement. Pt. 1-Mild Steel and Medium Tensile Steel bars.
- iii) IS : 1239 (Part-I) : : Steel Tubes Tubulars & Other Wrought Steel – Fitting Specification. Part-1: Steel Tubes.

3.0 Material, Processing and Workmanship :

3.1 Trolley Frame : The trolley frame shall be made of tubular/other suitable section of light weight aluminum alloy / mild or alloy steel or any other suitable material having sufficient mechanical strength to withstand the technical functional requirements as mentioned in preceding clauses. When mild steel tubes are used, the same shall conform to IS : 1239 (Part-I) :2004.

3.2 Trolley platform : The trolley platform shall be made of square mesh of mild steel flats having thickness 1.5 to 2.0 mm and approx. width 25 mm conforming to IS : 2062 : 2011 Alternately suitable wire mesh may be used the mechanical strength of which shall be enough to serve the purpose of the trolley. The wire shall be hard drawn of mild steel grade-I conforming to IS : 432 (Part-I) – 1982(Re-affirmed-2004).

3.3 Trolley Handle : The handle of the trolley shall be T-shaped and shall be made of mild steel/suitable light weight aluminum alloy tube. The handle shall have two rubber grips at the top ends.

3.4 Trolley wheels : The trolley shall be fitted with four nylon wheels for moving on cess/ road and a pair of double flanged wheel made of mild steel conforming to IS : 2062 : 2011 or suitable aluminum alloy/ steel having sufficient mechanical strength. The nylon shall be good quality having high impact strength.

4.0 Functional Requirements:

- 4.1 The trolley shall have rugged & robust construction for serving the purpose for entire life of the trolley.
- 4.2 The trolley shall be capable of moving on cess without tilting, with ease by pushing/pulling the handle on cess as well as on rail (mono).
- 4.3 The double flange wheels provided at central axles of the trolley shall be capable of negotiating the curved track, point and crossing and level crossing.

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- 4.4 Suitable arrangement shall be made so that the nylon wheels do not infringe to any portion of point and crossing, diamond crossing and level crossing while the trolley moves on rail.
- 4.5 The handle shall be fitted in such a manner that the trolley can be pushed or pulled by the operator without leaning down.
- 4.6 Mono rail wheel and Nylon wheel shall not interfere with the movement of each other.
- 4.7 Nylon/rubber wheels shall be such that it can negotiate any rough terrain/ cess with minimum of wear and tear.
- 4.8 Trolley shall be capable of traveling /moving with easy in loaded condition on all types of rail section and track structure.

5.0 Technical Features:

i)	Trolley size (L x B)	650 mm x 400 mm (approx.)
ii)	Dimensions of mono rail wheel (double flanged) (As per drg. at Annexure-A)	a) Tread dia. –60 mm (min.)
		b) Flange depth-12mm (min.)
		c) Flange thickness-5mm (min.)
		d) Width -85mm (min.) [excluding flange thickness]
iii)	Dimensions of Nylon wheel	a) Wheel dia. – 150 Ø (approx.)
		b) Wheel base-450mm (approx.)
		c) Distance between two wheels (across the width of the trolley) - 250 mm(min.)
iv)	Dimension of handle	a) Length : 700 mm(approx.)
		b) Width at top : 500 mm(approx.)
v)	Weight	20 kg (max.)
vi)	Pay load	100kg (approx.)

6.0 Acceptance tests :

Acceptance tests shall be carried out at the factory premises and field as per following details on each trolley:

- i) Visual and Dimensional check :The trolley shall be dimensionally checked as per para 5.0. The trolley shall be visually checked for proper assembly, soundness of fittings, proper welding etc. Weight shall also be checked.
- ii) Test for the movement of trolley on road/cess : The trolley shall be tested by moving on road/cess with pay load of 100 kg. The movement of the trolley shall be even and trouble-free .
- iii) Test for the movement of the trolley on rail :The trolley shall be tested by moving on rail (mono) with pay load of 100 kg. The movement of the trolley shall be even, smooth and trouble free. Movement of the trolley under loaded condition shall be checked on Point and crossing and level crossing also.

7.0 Inspection :

- 7.1 The inspection of the trolley shall be carried out by the purchaser / zonal railway or any representative authorized by the purchaser/CTE of the zonal railway. Minimum level of the inspecting official shall be SE (Section Engineer).The cost of inspection and testing shall be borne by the supplier/manufacturer.
- 7.2 Each trolley per PO shall be inspected for its performance as mentioned in clause 6.0 (ii & iii).

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7.3 Compliance to the specification shall be verified at the time of inspection.

8.0 Warranty & AMC :

Any part of the trolley failing or proving unsatisfactory in service due to defective design, material or workmanship within 12 months from the date of commissioning shall be replaced by supplier/manufacturer at his own expenses

9.0 Service Facility and Spare Parts (including tools):

- 9.1 The supplier/manufacturer shall provide the service of competent service engineer free of cost during commissioning and warranty period of the trolley. The service engineer shall guide the operating and maintenance staff during commissioning and within warranty period of the trolley for proper handling and operation.
- 9.2 The manufacturer/supplier shall have a good service network throughout the country for quick and easy access to the users. A prompt response to the call of the customer is expected in case of any problem experienced in field.
- 9.3 A complete list of tools and a catalogue of spare parts shall be supplied along with the procedure of fitting to be used with each trolley.
- 9.4 Each set of trolley shall be supplied with the following spares.
- i) Two sets of ball bearings for nylon wheel as well as for mono rail wheels respectively.
 - ii) Two sets of nylon wheels.
- 9.5 The supplier shall ensure prompt and consistent service and delivery of spare parts for a minimum period of five years after expiry of the warranty.

10.0 Documentations:

- 10.1 Detailed operating manual, maintenance and service manual shall be specially prepared and two copies each of the same shall be supplied with each trolley.
- 10.2 Copies of the maker's certificate as guaranteeing the performance of the trolley should be supplied in duplicate along with the delivery of each trolley.
- 10.3 In order to facilitate subsequent maintenance in service, the manufacturer shall supply one set of drawing legible and indelible quality. The drawings shall exhibit clearly the materials mentioning relevant codes/specification, if any that are necessary for the manufacture of these items. In case of any proprietary items, the supplier shall indicate terms and conditions under which such drawing and technical know-how can be made available to the purchaser.

11.0 Training and Commissioning:

Adequate training for operation and maintenance of the trolley shall be imparted at consignee's end or at manufacturers premises as mutually agreed between the manufacturer and the purchaser at the rate of one operator per trolley during supply which shall be treated as commissioning.

12.0 Marking & Packaging:

- 12.1 The trolley shall be legibly and indelibly marked with:
- i) Name, initials and trade-marks of manufacturer/supplier.
 - ii) Contact details of manufacturer/supplier
 - iii) Pay load capacity.

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- iv) Serial number of the trolley.
- v) Date of Supply.

12.2 All steel/metallic parts of the trolley shall be painted in desired color as per best trade practice.

12.3 The trolley, during supply shall be covered with plastic sheet and packed in wooden/suitable carton as per best trade practices to avoid any damage during transportation & loading/unloading.

13.0 Manufacturer/ supplier have sole responsibility to maintain the quality of the product supplied to Railways and other units.

14.0 Preference to Make in India: The Government of India policy on 'Make in India' shall be applicable.

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