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भारतीय मानक मसौदा

**बल्क प्रहस्तन उपस्कर — वैगन विन्यास उपस्कर — सिराहीन
रस्सी टाइप — आंकड़ा शीट**

(आई एस 13113 का पहला पुनरीक्षण)

Draft Indian Standard

**BULK HANDLING EQUIPMENT — WAGON MARSHALLING
EQUIPMENT — ENDLESS ROPE TYPE — DATA SHEET**

(First Revision of IS 13113)

ICS 53.020.01

**Earth Moving Equipment and Material
Handling Sectional Committee, MED 07**

**Last date for receipt of comments is
17 December 2022**

FOREWORD

(Formal clause to be added later)

This Indian Standard was adopted by the Bureau of Indian Standards in 1991, after the draft finalized by the Earth Moving Equipment and Material Handling Sectional Committee (MED 07) had been approved by the Mechanical Engineering Division Council.

This Standard was first published in 1991. The first revision of this standard incorporates modifications found necessary as a result of the experience gained with the use of the standard and to bring the standard in line with the present good practices being followed in the country and abroad.

This data sheet lays down the data/information to be given by the purchaser to the manufacturer as well as data/information to be supplied by the manufacturer to the purchaser. The information given may be helpful for the selection and use of endless rope wagon marshalling equipment. This standard is expected to provide a uniform practice for furnishing the data/information for the aforesaid equipment. General requirements for endless rope type marshalling equipment are covered in IS 13065.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**BULK HANDLING EQUIPMENT — WAGON MARSHALLING
EQUIPMENT — ENDLESS ROPE TYPE — DATA SHEET**

(First Revision of IS 13113)

1 SCOPE

This standard lays down the data and information to be supplied by the purchaser and the manufacturer for endless rope type wagon marshalling equipment.

2 DATA/INFORMATION TO BE SUPPLIED BY THE PURCHASER

- a) Loading/unloading rate in tonnes per hour.....
- b) Parameters of rake to be loaded:
 - 1) Numbers of wagons in a rake.....
 - 2) Pay load of wagon in tonne.....
 - 3) Tare mass in tonne.....and
 - 4) Dimensions such as inside length, width, height and buffer to buffer distance.....
- c) Condition of track that is, well maintained or not well maintained.....
- d) Numbers, degrees and radius of curves.....
- e) Gradient of track—The gradient is against/in favour of loaded wagon:
 - 1)in 1 000 for.....m length
 - 2)in 1 000 for.....m length
 - 3)in 1 000 for.....m length
- f) Track layout showing position of loading point, weigh bridge, and preferable location of haulage tensioning arrangement. The track layout shall also show direction of inhaul and outhaul side.
- g) Marshalling speed in m/min:
 - 1) Speed for loaded wagons.....
 - 2) Speed for empty wagons hitch rope.....
 - 3) Whether infinitely variable speed required for wagon loading/unloading.....
 - 4) Whether constant speeds required for wagon loading, unloading and.....

- 5) Track gauge.....
- h) Whether it is required to haul a rake of wagons on one track only or rake of wagon on one track and equal rake of wagons in opposite direction on other track.....
- j) Voltage, number of phases and frequency of power supply.....
- k) Whether fully automatic controlled system or manually operated system with remote and local control is required.
- m) Number of starts per hour.....
- n) The purchaser may mention any other features required and may provide the necessary data/information for such features.....

3 INFORMATION TO BE SUPPLIED BY THE MANUFACTURER

3.1 General Specifications

- a) Number and capacity of loaded and empty wagons that could be hauled on one track only or number and capacity of loaded wagons that could be hauled on one track and number of empty wagons that could be hauled on other track in opposite direction.....
- b) Marshalling speed in m/s:
 - 1) Speed for loaded wagons.....
 - 2) Speed for empty wagons/hitch rope, and.....
 - 3) Whether the system is operated at infinitely variable speed or constant speed while wagon loading.....

3.2 Rope

- a) Details of rope such as:
 - 1) Length required for replacement purpose.....
 - 2) Nominal diameter in mm.....
 - 3) Minimum breaking load in kg.....
 - 4) Nominal mass in kg/m of rope.....
 - 5) Quality of material and nominal tensile strength of wire, if galvanized Type A or Type Z.....
 - 6) Details of construction:

- i) Number and arrangement of strands.....
 - ii) Number and arrangement of wires in each strand.....
 - iii) Material of main core.....
 - iv) Round strand or flattened strand, Lang’s lay or ordinary lay, right hand or left hand, preformed or non-preformed.....
- b) Hitch rope:
- 1) Length.....
 - 2) Arrangement for attaching the hitch rope with endless rope.....
 - 3) Arrangement for attaching the hitch rope with wagon.....

3.3 Haulage Unit

- a) Type of drive.....
- b) Angle of wrap.....
- c) Number of wrap.....

3.4 Drum

- a) Number.....
- b) Drum diameter (mm)
- c) Flange diameter (mm)
- d) Number of grooves.....
- e) Shaft diameter (mm)

3.5 Dimension

- a) Overall length (mm)
- b) Overall width (mm)
- c) Overall height (mm)
- d) Mass (total) (tonne)

- e) Mass of heaviest part (tonne)

3.6 Power Unit

- a) Location of power unit.....
- b) Electric motors.....
- c) Manufacturer.....
- d) Power rating (kW)
- e) Rated speed (rev/min) (I).....(II).....
- f) Starting and full load torque.....
- g) Power factor.....
- h) Current.....
- j) Volts.....Phases.....Cycles.....
- k) Enclosure.....

3.7 Speed Reducer

- a) Manufacturer.....
- b) Thermal horse power (kW)
- c) Mechanical horse power (kW)
- d) Class of service.....
- e) Type and size.....
- f) Ratio.....

3.8 Starter/Controller

- a) Manufacturer.....
- b) Volts.....Phases.....Cycles.....
- c) Type and size.....
- d) Enclosure.....

e) Mounting.....Reversing Manual.....Magnetic.....

f) Other features.....

3.9 Coupling

a) Type.....

b) Make.....

c) Size.....

3.10 Take-up

a) Type of take-up.....

b) Pulleys.....

1) Fixed

i) Number.....

ii) Diameter (mm).....

iii) Shaft dia. (mm).....

iv) Shell Thickness (mm).....

2) Movable

i) Number.....

ii) Diameter (mm)

iii) Shaft dia. (mm)

iv) Shell thickness (mm)

c) Dimensions:

i) Overall length (mm)

ii) Overall width (mm)

iii) Overall height (mm)

d) i) Take-up movement (mm)

ii) Take-up mass (kg)

3.11 Sheaves

- a) Type.....
- b) Diameter (mm)
- c) Numbers.....

3.12 Track Rollers

- a) Roller spacing (m)
- b) Numbers.....
- c) Length over flange (mm)
- d) Roll diameter (mm)
- e) Material.....
- f) Bearing.....
- g) Shaft diameter (mm)
- h) Lubrication.....

3.13 Dummy Wagon

- a) Type/size.....
- b) Manufacturer.....
- c) Total operating mass.....
- d) Ballast mass.....
- e) Number of axles.....
- f) Wheel load.....
- g) Arrangement for attaching the endless rope with dummy wagon.....
- h) Arrangement for attaching the dummy wagon with wagon.....

3.14 Any Other Data/Information

The manufacturer may give any other data/information about specific features of the equipment not covered in **3.1** to **3.13**.