भारतीय मानक **IS 12953 : 2024**

Indian Standard

कृषि ट्रैक्टरों के लिए ड्रॉबार — लिंक प्रकार — विशिष्टि

(पहला पुनरीक्षण)

Drawbar for Agricultural Tractors — Link Type — Specification

(First Revision)

ICS 65.060.10

भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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November 2024 **Price Group 5**

Agricultural Machinery and Equipment Sectional Committee, FAD 11

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Agricultural Machinery and Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

Link type drawbars are used in lower links of three-point linkage of agricultural wheeled tractors for pulling the implements and trailers. The dimensions and other characteristics of this type of drawbar differ considerably, due to which, the users of tractors experience difficulty in securing their implements.

This standard was first published in 1990 with a view to regulate the uniformity and the quality of indigenous production of the drawbars and ensure interchangeability. This standard superseded IS 9545 (Part 1) : 1980 'Drawbar for agricultural tractors: Part 1 Link type', and the requirements were aligned with IS 4468 : 1986 'Dimensions for three-point linkage of agricultural wheeled tractors (*second revision*)'.

Subsequently, IS 17231 : 2019/ISO 730 : 2009 'Agricultural wheeled tractors — Rear-mounted three-point linkage — Categories 1N, 1, 2N, 2, 3N, 3, 4N and 4' was published which superseded IS 4468. Accordingly, the first revision of this standard is brought out to align the requirements of link type drawbar with IS 17231 : 2019/ ISO 730 : 2009.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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.

Indian Standard

DRAWBAR FOR AGRICULTURAL TRACTORS — LINK TYPE — SPECIFICATION

(First Revision)

1 SCOPE

This standard specifies material, dimensions and other requirements for link type drawbar for agricultural wheeled tractors.

2 REFERENCES

The standards given below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards:

IS No.	*Title*
1500 (Part 1) : 2019/ISO 6506-1 : 2014	Metallic materials — Brinell hardness test: Part 1 Test method (*fifth revision*)
IS 2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (*seventh revision*)
IS 7201 (Part 1) : 1987	Methods of sampling for agricultural machinery and equipment: Part 1 Hand-tools and hand-operated/animal drawn equipment (*first revision*)

3 MATERIAL

Mild steel should be used for manufacturing of drawbar conforming to IS 2062 with minimum tensile strength of 685 MN/m^2 (70 kgf/mm^2). However, any other raw material may be used for manufacturing of drawbar, provided it shall have minimum tensile strength of 685 MN/m^2 (70 kgf/mm^2).

4 HARDNESS

The hardness of the material shall be minimum 212 HB when tested as per IS 1500 (Part 1).

5 DIMENSIONS

5.1 All the dimensions mentioned in Fig. 1, shall conform to Table 1 for various categories of three-point linkage.

5.2 The minimum value of chamfer (*see* R3 in Fig. 1) shall be 3 mm.

6 WORKMANSHIP AND FINISH

The surface of the drawbar shall be smooth and free from cracks, pits, burrs and other visual defects. Sharp corners shall be avoided.

7 MARKING AND PACKING

7.1 Marking

The drawbar shall be marked with following particulars:

a) Manufacturer's name or recognized trademark, if any;

b) Batch or code number; and

c) Category of three-point linkage.

7.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

7.3 Packing

The drawbar shall be packed as agreed to between the purchaser and the supplier.

8 SAMPLING FOR LOT ACCEPTANCE

8.1 Unless otherwise agreed to between the purchaser and the supplier, the sampling of drawbar for lot acceptance shall be done in accordance with IS 7201 (Part 1).

8.2 The classification of different requirements for the purpose of testing given below for guidance for lot acceptance is:

a) Dimensional and visual requirements — *see* 5, 6 and 7.

b) Other than dimensional and visual requirements — *see* 3 and 4.

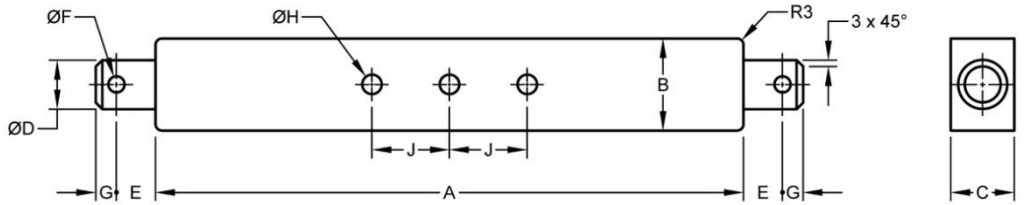

FIG. 1 LINK TYPE DRAWBAR

Table 1 Dimensions of Link Type Linkage Drawbar Parameters

(*Clause* 5.1)

(All dimensions in millimetres.)

Sl No.	Notation	Category of Three-Point Linkages							
		Cat 1N	Cat 1	Cat 2N	Cat 2	Cat 3N	Cat 3	Cat 4N	Cat 4
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	A	400 ± 1.5	683 ± 1.5	683 ± 1.5	825 ± 1.5	825 ± 1.5	965 ± 1.5	952 ± 1.5	1 166.5 ± 1.5
ii)	B	75 (-2)	75 (-2)	75 (-2)	75 (-2)	80 (-2)	80 (-2)	85 (-2)	85 (-2)
iii)	C	30 (-1.5)	30 (-1.5)	30 (-1.5)	30 (-1.5)	32 (-1.5)	32 (-1.5)	34 (-1.5)	34 (-1.5)
iv)	D ϕ	21.79 to 22.0	21.79 to 22.0	27.79 to 28.0	27.79 to 28.0	36.39 to 36.6	36.39 to 36.6	49.7 to 50.8	49.7 to 50.8
v)	E	39.0 (*Min*)	39.0 (*Min*)	49.0 (*Min*)	49.0 (*Min*)	52.0 (*Min*)	52.0 (*Min*)	68.0 (*Min*)	68.0 (*Min*)
vi)	F ϕ	12.0 (*Min*)	12.0 (*Min*)	12.0 (*Min*)	12.0 (*Min*)	12.0 (*Min*)	12.0 (*Min*)	17.0 (*Min*)	17.0 (*Min*)

Table 1 (*Concluded*)

Sl No.	Notation	Category of Three-Point Linkages							
		Cat 1N	Cat 1	Cat 2N	Cat 2	Cat 3N	Cat 3	Cat 4N	Cat 4
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
vii)	G	15.0 (*Min*)	15.0 (*Min*)	15.0 (*Min*)	15.0 (*Min*)	20.0 (*Min*)	20.0 (*Min*)	25.0 (*Min*)	25.0 (*Min*)
viii)	H ϕ	25 ± 1	25 ± 1	25 ± 1	25 ± 1	33 ± 1	33 ± 1	33.0 (*Min*)	33.0 (*Min*)
ix)	J	80 ± 1.5	80 ± 1.5	80 ± 1.5	80 ± 1.5	80 ± 1.5	80 ± 1.5	80 ± 1.5	80 ± 1.5
x)	No. of holes	5	7	7	9	9	11	10 (*Min*)	10 (*Min*)

NOTE — For B and C, value higher than mentioned in Table 1 shall also be acceptable considering special implements.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Agricultural Machinery and Equipment Sectional Committee, FAD 11

Organization	*Representative(s)*
ICAR - Central Institute of Agricultural Engineering, Bhopal	DR C. R. MEHTA **(*Chairperson*)**
Agricultural Machinery Manufacturers Association (AMMA-India), Gandhinangar	DR SURENDRA SINGH SHRI MITUL PANCHAL (*Alternate*)
All India Farmers Alliance, New Delhi	DR RAJARAM TRIPATHI SHRIMATI APURVA TRIPATHI (*Alternate*)
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ICAR - All India Coordinated Research Project on Mechanization of Animal Husbandry, Bhopal	DR S. P. SINGH
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Panel to Formulate and Review Indian Standards on Tractors, FAD11/P 5

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John Deere India Private Limited, Pune	SHRI MANSINGH JAGDALE
Kubota Agricultural Machinery India Private Limited, Faridabad	SHRI ASHISH KUMAR MALLARH
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