For Comments only

PGD 34 (18691) WC
IS 4485: XXXX

Draft Indian Standard

TRACK SPANNERS FOR RAILWAYS— SPECIFICATIONS

(*First Revision*)

ICS 25.140.30

Last date for receipt of comment is 29/03/2021

Hand Tools Sectional Committee, PGD 34

FOREWORD

This Indian Standard (*first revision*) will be adopted by the Bureau of Indian Standards, after the draft is finalized by the Hand Tools Sectional Committee and approval by the Production and General Engineering Division Council (PGDC).

This standard was first published in 1968. The first revision has been taken up to keep pace with the latest technological developments and international practices.

This standard lays down requirements for three sizes of track spanners used for track bolts and nuts of nominal diameters 18 mm, 22 mm and 25 mm, the width across flats of these bolts and nuts conform to those of M22, M24 and M27 respectively of IS 1363 (Part 2) : 2018.

In this revision, the following changes have been made:

a) Clause on references has been added;
b) Material designations have been updated;
c) BIS product certification marking clause has been updated.

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 : 1960 ‘Rules for rounding off numerical values (revised)’.

Draft Indian Standard

TRACK SPANNERS FOR RAILWAYS— SPECIFICATIONS

(FIRST Revision)

1 SCOPE

1.1 This standard specifies the requirements for track spanners used by the railways.

2 REFERENCES

2.1 The following standards 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 editions of the standards listed below:

IS No.	*Title*
1501 (Part 1) : 2020	Metallic Materials — Vickers Hardness Test Part 1 Test Method (*Fifth Revision*)
1570 (Part 2) : 1979	Schedules for wrought steels: Part 2 carbon steels (Unalloyed Steels) (*First Revision*)

3 MATERIAL

3.1 For the manufacture of spanners, only those alloyed or unalloyed killed steels shall be used which after suitable heat treatment fulfil the requirements laid down in **4.1** and **11.1** (Some of the suitable steels are 35C4 and 40C8 of IS 1570 (Part 2) with a maximum Sulphur and Phosphorus content of 0.05 percent each).

4 HARDNESS

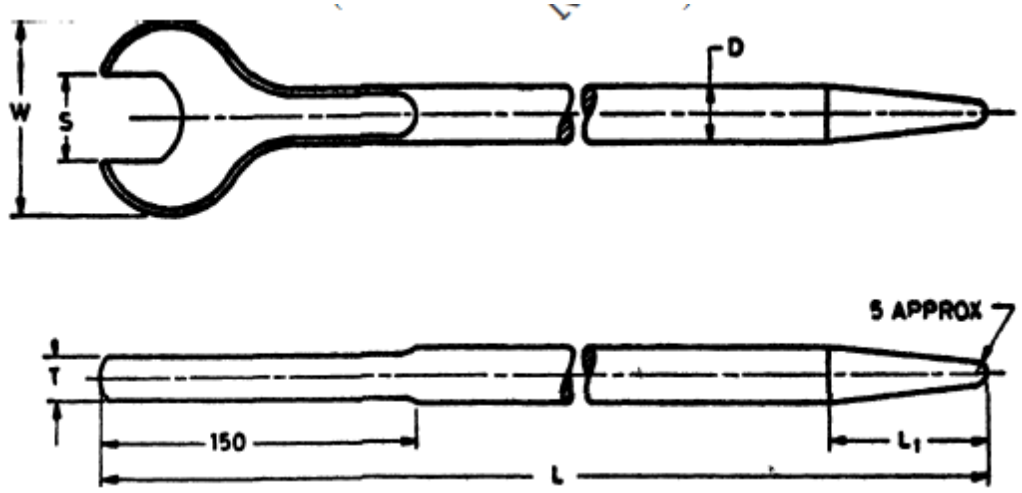
4.1 The spanners shall have a hardness of 400 to 480 HV up to a distance of 15mm from working surfaces when determined in accordance with IS 1501 (Part 1).

5 DIMENSIONS

5.1 The dimensions of spanners shall be as given in Table 1.

Table 1 Dimensions for Track Spanners for Railways

(Clause 5.1)



Nominal Width Across Flats S	S		D Nem	L ±5	L_1 Nem	T Nem	W Nem
	Max	Min					
32	32.48	32.08	18	530	65	16	66
36	36.60	26.10	22	610	65	19	83
41	41.60	41.10	25	685	75	20	92

6 WORKMANSHIP AND FINISH

6.1 The spanners shall be well-forged to shape and finished smooth all over. All sharp corners shall be removed. The spanners shall be free from manufacturing defects, such as burrs, seams, etc.

7 DESIGNATION

7.1 The spanners shall be designated by:

a) commonly used name,

b) nominal width across flats, and

c) number of this standard.

Example;

A track spanner having a nominal width across flats of 41 millimetres shall be designated as:

Spanner 41, IS 4485.

8 MARKING

8.1 Each spanner shall be marked with the nominal width across flats, and the manufacturer's name or trade-mark. The spanners may also be marked with any other marking as desired by the purchaser in enquiry and order.

8.2 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.

9 PRESERVATION AND PACKING

9.1 Spanners shall be covered with grease or mineral jelly for rust-proofing.

9.2 Each spanner shall be wrapped in non-absorbent paper and packed in accordance with best prevalent trade practice suitable for transit.

10 SAMPLING

10.1 Unless otherwise agreed to between the supplier and the purchaser, the sampling plan as given in Appendix A shall be followed.

11 TEST

11.1 **Torque Test —** For the purpose of torque test, a rigidly held bolt or a block of the same nominal width across flats as the spanner with a tolerance h9, shall be used. The open jaw of the spanner shall hold the bolt hexagon properly and appropriate torque as given in Table 2 shall be applied at opposite end at maximum possible distance from the hexagon. The application of torque shall be gradual and without jerks. At the completion of this test, the spanner shall not show any sign of damage or permanent deformation.

TABLE 2 TESTING TORQUE FOR TRACK SPANNERS FOR RAILWAYS

NOMINAL WIDTH ACROSS FLATS S mm	**TESTING TORQUE** kgf.m
32	90
36	115
41	155

APPENDIX A
(Clause 10.1)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment all the spanners of the same size and manufactured from the same material shall constitute a lot.

A-1.2 For ascertaining the conformity of the lot to the requirements of the specification, tests shall be carried out for each lot separately. The number of spanners to be selected at random for this purpose shall be in accordance with col 1 and 2 of Table 3.

TABLE 3 Scale of Sampling and Permissible Number of Defectives

(*Clauses* A-1.2, A-1.3, A-2.1.1, A-2.2 *and* A-2.2.1)

Lot Size	**For Hardness, Dimensions, Workmanship and Finish**		**For Torque Test**	
	Sample Size	Permissible No. of Defectives	Sub-sample Size	Permissible No. of Defectives
N	n			
(1)	(2)	(3)	(4)	(5)
Up to 50	5	0	2	0
51 to 100	8	0	3	0
101 to 300	13	1	5	0
301 to 500	20	1	8	0
501 to 1000	32	2	13	1
1001 to 3000	50	3	20	1
3001 and above	80	5	32	2

A-1.3 The spanners shall be selected at random, and to ensure the randomness of selection, random number tables shall be used. If the tables are not available, the following procedure is recommended for use:

Starting from any spanner in a lot, count them in one order as 1,2, 3…, up to *r* and son on where *r* is the integral part of *N/n* (*N* being the lot size and *n* the sample size indicated in col 2 of Table 3). Every *r*th spanner thus counted shall be selected to constitute the sample.

A-2. CRITERIA FOR CONFORMITY

A-2.1 The spanners selected according to **A-1.3** shall be examined for hardness (see 4**.1**) dimensions (see **5.1**) and workmanship and finish (see **6.1**). Any spanner failing to meet the requirements for any one of the characteristics shall be considered as defective.

A-2.1.1 If the number of defective spanners found in the sample is less than or equal to the corresponding permissible number of defectives given in col 3 of Table 3, then the lot shall be declared as conforming to the requirements of hardness, dimensions, workmanship and finish.

A-2.2 From those lots which are found satisfactory in accordance with A-2.1.1 a sub-sample of the size indicated in col 4 of Table 3 shall be subjected to torque test (see **10.1**)**.**

A-2.2.1 If the number of spanners failing in the torque test is less than or equal to the corresponding permissible number of defectives given in col 5 of Table 3, then the lot shall be declared as conforming to the requirements of the specification; otherwise not.