INTER PLANT STANDARD - STEEL INDUSTRY

IPSS	SPECIFICATON FOR TURN BUCKLES	IPSS:1-07-054-95
	Based on IS 3121:1981	

0. FOREWORD

0.1 This Interplant Standard prepared by the Standards Committee on Paints and Portable Maintenance Equipment, IPSS 1:7 with the active participation of the representatives of all the steel plants and established manufacturers of Turn Buckles and was adopted in May 1995.

0.2 This standard is based on IS 3121:1981 'Specification for rigging screws and stretching screws (first revision)'. This IPSS Standard covers only the requirements of double ended turn buckles (stretching screws) from the above IS.

1. SCOPE

1.1 This standard specifies materials, components, dimensions, finishing and tests for Turn Buckles (stretching screws) double ended of nominal sizes M 6 to M 52.

2. MATERIAL

2.1 Turn buckles

2.1.1 The body and the screw eyes shall be weldless, and shall be made of steel conforming to designation 20C8 of IS 1570 (Part 2):1979.

3. CONSTRUCTION

3.1 Turn buckles of the double ended type shall consist of a central open body provided with an identical short screw eye at each end, one screw eye being threaded right hand and other left hand.

4. SHAPE AND DIMENSIONS

4.1 The shape and dimensions of open body and screw eyes shall be as shown in Fig-1 and Table-1.

4.2 The dimensions for the cross-section of the sides of the body are such that the combined cross-sectional area is about twice the area at the bottom of the thread of the screw eye shank.

4.3 Tolerances

4.3.1 Permissible variation from any of the dimensions shall not exceed plus or minus 5 percent than specified.

4.3.2 The threads on the screw eye shall conform to the coarse tolerance class specified in IS 4218 (part 4):1976 'ISO Metric screw threads: Part 4 Tolerancing system *(first revision)*'

5. GENERAL REQUIREMENTS

5.1 Heat Treatment - Screw eyes shall be normalized after completion of all forging operations and before machining. A suitable normalizing treatment is to uniformly heat them in a furnace until the whole of the metal has attained a temperature between 880°C and 910°C. They are then withdrawn from the furnace and allowed to cool in still air.

5.2 Galvanizing - Unless otherwise specified, all components of the assembled turn buckle shall be supplied galvanized by hot process and shall consist of a continuous coating of zinc of a purity not less than 98.5 percent. All screw threads shall be brush or spun galvanized.

5.3 Workmanship

5.3.1 Body - The body shall be a solid forging without weld, neatly and cleanly made and finished. Flashes or fins produced in manufacture shall be dressed to a level surface. The faces of each boss of the body shall be machined.

The tolerances specified in 4.3.1 shall apply after galvanizing.

5.3.2 Screw eye - The screw eye shall be a solid forging without weld, neatly made and finished. Flashes or fins produced in manufacture shall be dressed to a level surface. The length of the thread on the screwed shanks shall be such that the shank ends of the screw eyes shall meet when screwed home.

5.4 Each component of the completed turn buckle shall be free from any visible flaw or defect.

5.5 Certificate of Test - The manufacturer shall supply a certificate of test with every delivery of turn buckle.

6. TESTS

6.1 Proof Testing - Each completed turn buckle shall be subjected to the appropriate proof load given in Table 1 which it shall withstand without any sign of defect.

6.2 Tests of Galvanizing - When specified by the purchaser, samples of each component of the completed turn buckle, shall be tested in accordance with IS 2633:1986 & IS 6745:1972

7. MARKING

7.1 Each turn buckle shall be permanently and legibly stamped with:

i) Identification mark of the manufacturer & the year of manufacture
ii) Safe working load and
iii) Number of IPSS standard

7.2 The stamps used shall have a concave surface where applicable and it is neither too sharp nor excessive in depth.

8. PACKING

8.1 The turn buckle shall be securely packed to avoid, damage specially to threaded portion during transit.

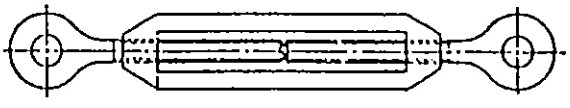
TABLE 1

DIMENSIONS FOR DOUBLE ENDED TURN BUCKLES

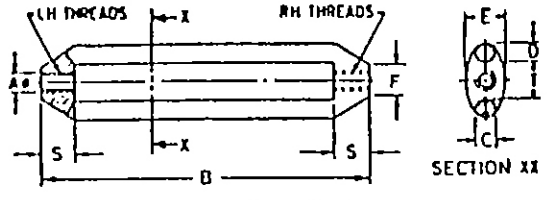
(Ref Std - IS 3121:1981, Table-6)

All dimensions in mm

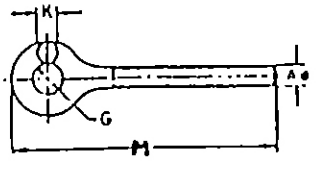
Nominal Size	Assembly and Body							Screw Eyes			Safe Working Load kN	Proof Load kN
A	B	C	D	E	F	S	T	G	K	H		
M6	100	6	5	12	9	10	11	9	6	80	1.0	2.0
M8	125	8	6	16	13	13	13	13	8	100	1.5	3.0
M10	160	10	8	19	15	15	15	16	10	130	3.0	6.0
M12	200	12	10	22	19	18	18	19	12	150	4.5	9.0
M14	225	15	12	25	22	21	22	22	12	175	6.0	12.0
M16	250	18	14	29	24	24	24	24	14	200	7.6	15.2
M20	315	20	16	33	30	30	30	30	16	230	11.2	22.4
M22	355	22	18	41	33	32	32	33	18	270	16.2	32.4
M24	400	24	20	43	36	35	35	36	18	310	20.0	40.0
M30	450	30	22	50	45	42	42	44	24	350	31.5	63.0
M36	450	36	28	60	55	50	50	52	28	380	45.0	90.0
M45	450	40	36	75	58	60	60	67	35	415	71.0	142.0
M52	450	45	40	100	75	70	70	80	42	450	95.0	190.0



Assembly of Double Ended Type Stretching Screw



Open Body



Short Screw Eye

FIG - 1