

INTERPLANT STANDARD — STEEL INDUSTRY



SPECIFICATION FOR BELT FASTENERS — PLATE TYPE

IPSS : 1-01-009-84

BASED ON IS : 10288-1982

AUTHENTICATED COPY

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0. Foreword

0.1 Interplant standardization activity in steel industry has been initiated under the aegis of the Indian Standards Institution (ISI) and the Steel Authority of India Limited (SAIL). This Interplant Standard prepared by the Standards Committee on Mechanical Drives, IPSS 1:1, with the active participation of the representatives of all the steel plants and established manufacturers of belt fasteners was adopted by the Approval Committee on Consumable Stores and General Equipment, IPSS 1, on 7 March 1984.

0.2 Interplant Standards for steel industry primarily aim at achieving rationalization and unification of parts and sub-assemblies used in steel plant equipment and accessories, and provide guidance in indenting stores or equipment for existing or new installations by individual steel plants. For exercising effective control on the inventories, it is advisable to select a fewer number of sizes (or types) from among those mentioned in this standard for the purpose of company standards of individual steel plants. It is not desirable to make deviations in technical requirements.

0.3 This Interplant Standard has been formulated with view to rationalizing the main dimensions of the belt fasteners of different makes to render them interchangeable and to reduce the varieties of tools required for making the belt joints.

1. Scope — This Interplant Standard covers the requirements of heavy duty plate type belt fasteners used in joining conveyor belts and is generally based on IS : 10288-1982 'Specification for belt-fasteners, plate type'. For convenience of reference, the clause numbers of the Indian Standard for each requirement are given in Appendix A, along with the number of matching clauses of this standard.

2. Nomenclature — For the purpose of this standard, the nomenclature of different parts of belt fasteners shall be as given in Fig. 1.

3. Dimensions — The dimensions of upper and lower plates, retaining clips and screws and nuts shall be as given in Table 1 to 3 read with Fig. 2 to 4 respectively.

TABLE 1 DIMENSIONS OF UPPER AND LOWER PLATE

(Clause 3)

All dimensions in millimetres and are to be read with Fig. 2.

Sl No.	Nominal Size	L	N	A	B	C	$d_1 \pm 0.25$	$d_2 \pm 0.25$	$l \pm 0.06$	f	h	t_1	t_2	S	W
i)	25	25 ± 0.10	22	47.5 ± 0.2	18	5	10	17	2	4	6.5	4	1	4	9
ii)	42.5	42.5 ± 0.15	28	69 ± 0.3	30	5	11	19	2	5	9.5	5	1.5	4.5	10
iii)	53	53 ± 0.15	29	83.5 ± 0.3	30	5	11	21	2.5	6	10.5	5.5	1.5	4.5	10
iv)	63	63 ± 0.20	38.5	102 ± 0.4	45	10	13.5	22	3	6	11.5	7	2	6	12.5
v)	76.2	76.2 ± 0.20	38.5	115 ± 0.5	46	10	14.5	27	3	8	13.5	7	2	6	12.5

Note — The other dimensions of the lower plate are same as of the upper plate.

Amendments Issued (to be filled up by the user department) :

No.	Date of Issue	No.	Date of Issue
1		3	
2		4	

UDC 621.85.052.7

TABLE 2 DIMENSIONS OF RETAINING CLIP

(Clause 3)

All dimensions in millimetres and are to be read with Fig. 3.

Sl No.	Nominal Size	L_1	L_2	P	Q	R	W	e	f	g	h	S	A	B	C
i)	25	29	22	12	9	8	12	0.3	2	3	7.5	5	25	21	22.5
ii)	42.5	51	40	17	19	15	13	0.5	2.75	3	10	8	31	27	28.5
iii)	53	55	45	20	19	16	14	0.5	3	4	10	9	32	28	29.5
iv)	63	73	63	28	24	21	18	0.6	3	4	14	10	43	37	39.5
v)	76.2	73	63	28	24	21	18	0.6	3	4	14	10	43	37	39.5

TABLE 3 DIMENSIONS OF SCREW AND NUT

(Clause 3)

All dimensions in millimetres and are to be read with Fig. 4.

Sl No.	Nominal Size	Screw				Nut					
		L	d	d_1	Slot x	Z	M	N	W	d_2	Slot $S_1 \times S_2$
i)	25	26	13	M 6	4.5	8	5	3	11	M 6	3 × 2
ii)	42.5	38	15	M 8	5.5	8.5	6.5	3.5	14	M 8	4 × 2
iii)	53	47	15	M 8	5.5	8.5	6.5	3.5	14	M 8	4 × 2
iv)	63	64	20	M 10	7	11	8	4	17	M 10	4 × 2
v)	76.2	64	20	M 10	7	11	8	4	17	M 10	4 × 2

4. Material

4.1 *Plates and Retaining Clips*—The plates and retaining clips shall be manufactured from Grade D annealed steel of IS : 4030-1973 'Specification for cold rolled carbon steel strip for general engineering purposes (first revision)'.

4.2 *Screws and Nuts*—The material for screws and nuts shall conform to property class 4.6 of IS : 1367-1967 'Technical supply conditions for threaded fasteners (first revision)'. The threads shall conform to IS : 4218 'Specification for ISO metric screw threads'.

5. General Requirements

5.1 The slots in the head of countersunk screw shall match with the projections in the lower plates.

5.2 The head of the countersunk screw shall sit squarely in the countersunk portion of the lower plate without protruding.

5.3 The threads of the countersunk screw and nut shall be a close fit. The nut shall not slip while being tightened.

5.4 The upper plate, lower plate and the retainers clip shall be properly finished to prevent them from striking against conveyor pulleys and idlers.

5.5 The nut shall sit squarely in countersunk portion of the upper plate.

5.6 The screw shall be such that it can be broken after making the joint by bending it a few times by a pipe.

5.7 The components shall be bright finished and protected from corrosion. Coating if applied on screws shall be easily removable at site before making the joint.

4. **Tests** — The fasteners shall be subjected to breaking strength test as laid down in IS : 9405-1980 'Method of test for conveyor belt fastners'. The breaking strength shall be as agreed to between the purchaser and the supplier.

7. **Selection of Fasteners** — The selection of fasteners shall be made in accordance with Table 4.

8. **Packing** — The fastners shall be packed in card board boxes. Each box shall contain ten sets of fasteners.

9. **Marking** — The size of fastener and the trade mark of the manufacturer shall be marked on the upper and lower plates. The size of the fastner shall be marked on the card board carton also.

TABLE 4 SELECTION OF FASTNERS

(Clause 7)

Size	Belt Thick- ness in mm	Minimum pulley Dia in mm	Numbers of Sets Required for Various Width in mm of Belting											
			203	254	305	406	456	508	609	762	915	1 220	1 524	1 830
25	6 to 11	300	6	8	10	13	15	16	20	25	30	40	50	60
42.5	9.5 to 17.5	450	—	—	8	10	12	13	16	20	24	32	40	48
53	12.5 to 20.5	750	—	—	—	9	10	11	14	17	21	28	35	42
63	17.5 to 25.5	1 050	—	—	—	—	9	10	13	16	19	26	32	39
76.2	20.5 to 30	1 250	—	—	—	—	—	10	13	16	19	26	32	39

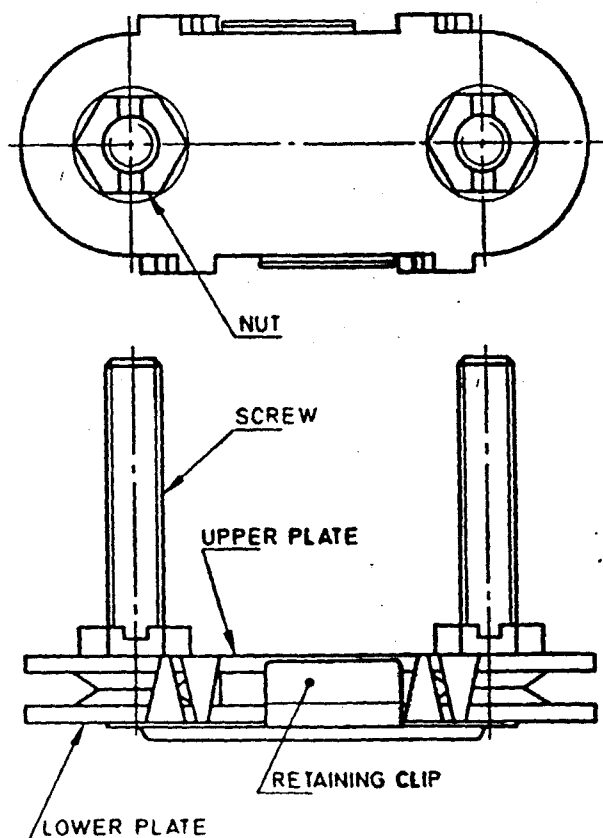


FIG. 1 NOMENCLATURE OF BELT FASTENERS

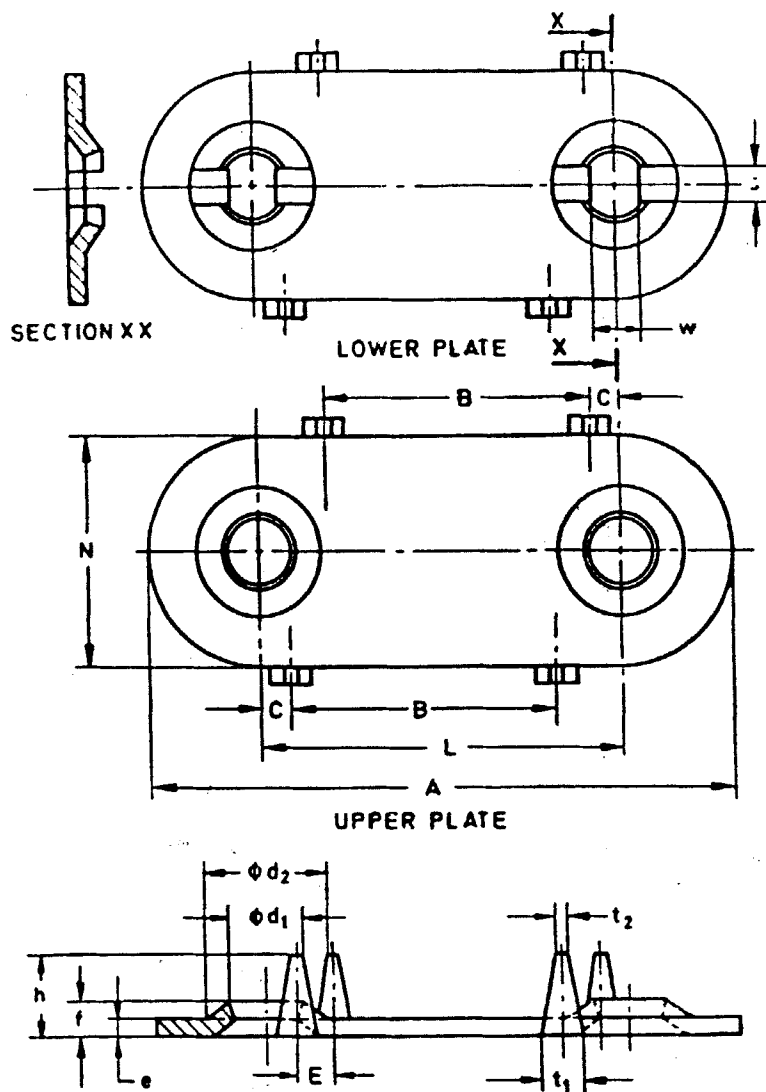


FIG. 2 UPPER AND LOWER PLATE

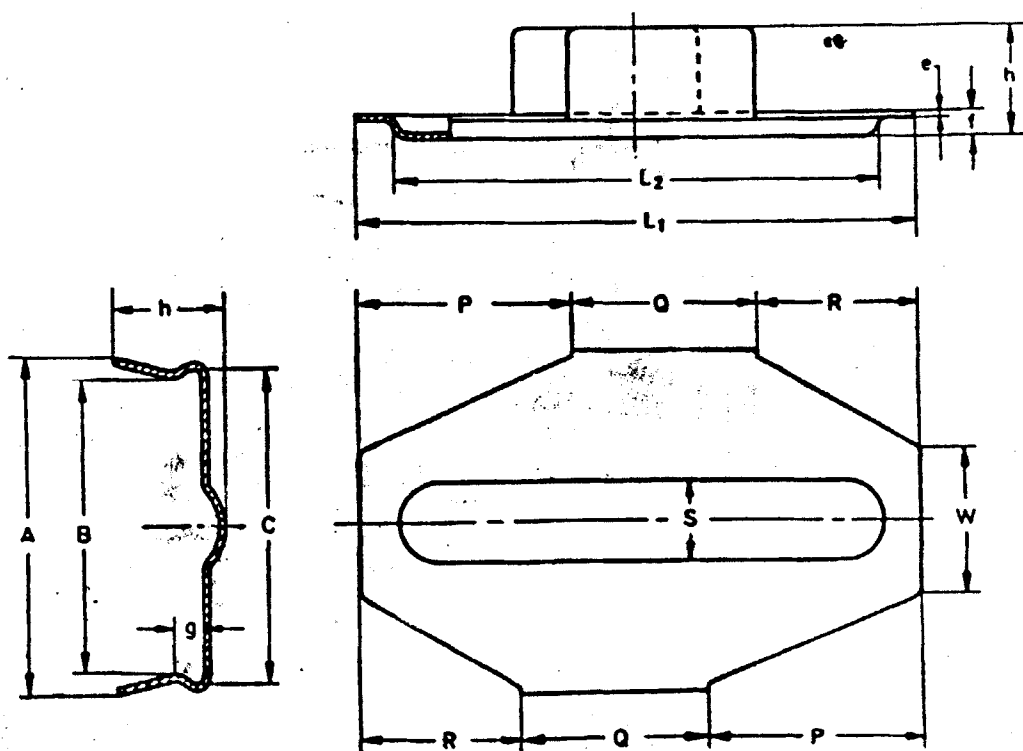


FIG. 3 RETAINING CLIP

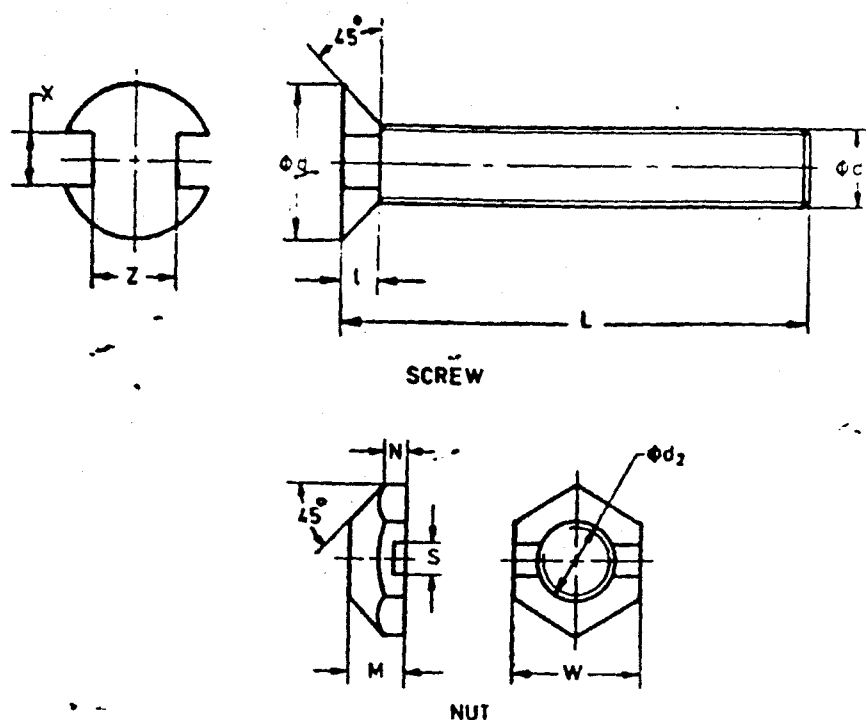


FIG. 4 SCREWS & NUTS

APPENDIX A

(Clause 1)

COMPARATIVE STUDY OF IPSS : 1-01-009-83 'SPECIFICATION FOR BELT-FASTENERS—PLATE TYPE'

AND

IS : 10288-1982 'SPECIFICATION FOR BELT-FASTENERS, PLATE TYPE'

Requirements		Clause Reference in IPSS	Clause Reference in ISS
Requirements which are identical between IPSS and ISS	Nomenclature	2	2
	Dimension	3	3
	Screws and nuts	4.2	5
	Test	6	7 & 7.1
	Selection of fasteners (material)	7	7.2
Requirements selected for steel plant use out of several choices given in ISS	Plates and retaining clip (material)	4.1	4
Supplementary requirements not contradicting ISS	General requirement	5	—
	Packing	8	—
	Marking	9	—
Deviation from ISS	Nil	—	—