INTER PLANT STANDARD – STEEL INDUSTRY		
IPSS	**SPECIFICATION FOR DRIVE ROLLER CHAINS**	**IPSS: 1-01-016-18 (First Revision)**
	Corresponding IS does not exist	Formerly-: IPSS: 1-01-016-84 (Reaffirmed in 1994)

0. FOREWORD

0.1 Interplant standardization in steel industry has been initiated under the aegis of the Indian Standards Institution (ISI) and the Steel Authority of India Limited (SAIL). The Interplant Standards prepared by the Sub-Committee on Hydraulic, Pneumatic and Lubricating Equipment, IPSS 1:1, with the active participation of the representatives of all the steel plants and established manufacturers of remote control hydraulic jacks was adopted by the Approval Committee on Consumable Stores and General Equipment, IPSS 1, on 30 March, 1984. Thereafter, this standard was reaffirmed in 1994 and revised with first revision in **November, 2018.**

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 or inventories, it is advisable to select a fewer number of sizes (or /types) from among the products mentioned in this standard for the purpose of company standards of individual steel plants. It is not desirable to make deviations in technical requirements.

1. **Scope** – This Interplant Standard covers the dimensions, tolerances and breaking load of transmission chains of simple, duplex, and triplex construction, suitable for mechanical transmission of power and other similar applications. The corresponding dimensions for the chain wheel together with tooth gap from and rim profiles are in accordance with IPSS: 1-01-017-18. It includes the chain pitches from 12.7 to 76.2 mm.

Note : This Interplant Standard is generally based on IS: 2403-1991 “Short Pitch Transmission Precision Roller Chains and Chain Wheels (Second revision)” and for convenience of reference, the clause numbers of the Indian Standard for each requirement are given in Appendix-A along with the number of the matching clauses of this standard.

2. **Terminology** – For the purpose of this standard the nomenclatures given in Fig. 1 shall apply.

3. **Dimensions**-The dimensions shall be as given in Table-1 read with Fig. 2.

4. Mechanical Properties of Chains

4.1 Breaking Load – The actual method to be used is left to the option of the manufacturer.

4.1.1 The minimum tensile breaking loads shall be as given in Table 1.

4.2 Proof Loading – All chains shall be proof loaded to 1/3rd of the minimum tensile breaking loads as given in Table 1.

4.3 Length Accuracy – Finished chains shall be measured after proof loading but before lubricating.

4.3.1 The standard length for measurement shall be 49 times the pitch of the chain or 1524 mm whichever is less and shall terminate at each end in an inner link.

4.3.2 The chain shall be supported throughout its entire length and the measuring load given in Table 1 shall be applied.

4.3.3 The tolerance on the nominal length shall be (+0.15) / (-0) percent

4.3.3.1 The length accuracy of chains which have to work in parallel shall be within the above limit but subject to agreement with the manufacturer.

4.3.3.2 The minimum bush bore d_3 shall be not less than the maximum pin body diameter d_2 plus 0.025 mm (see Fig. 2).

5. Designation

Chains shall be designated by the chain number given in Table 1, supplemented by a hyphenated suffix (1 for simple, 2 for duplex, 3 for triplex chain) and number of this standard.
Example :

A chain number 12 B and of triplex construction shall be designated as:

Chain 12 B – 3, IPSS: 1-01-016-18

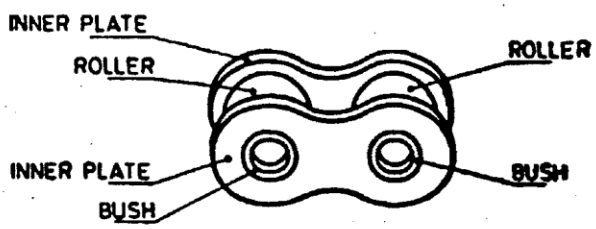
6. Marking

All chains shall be marked with:

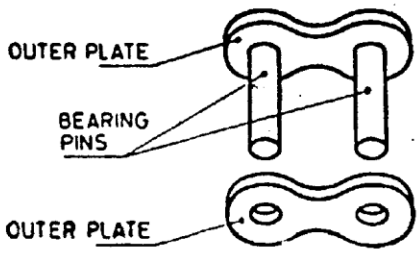
a) Manufacturers name of trade-mark, and

b) Chain designation.

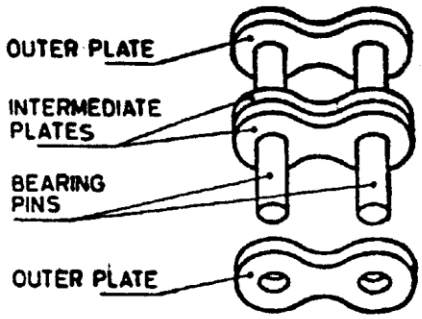
Packing – All chains shall be suitably packed and lubricated to ensure protection during transit and storage.



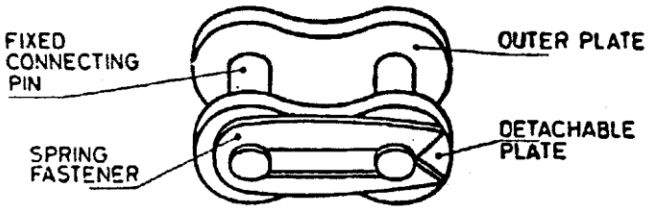
INNER LINK



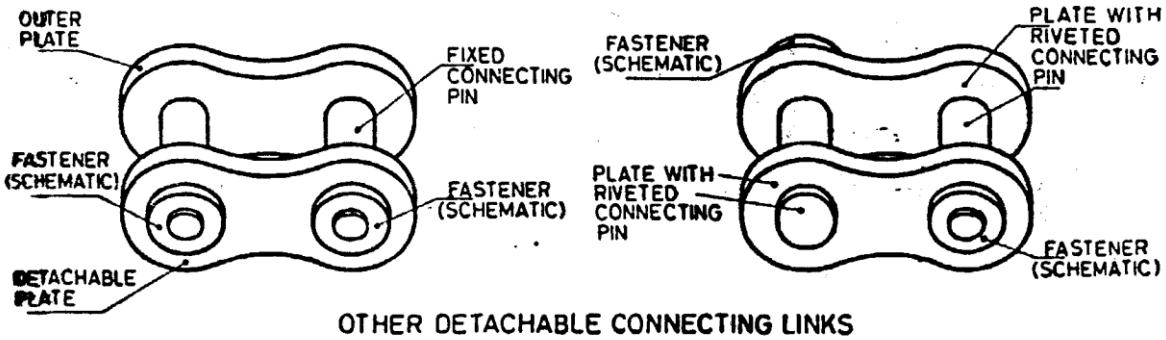
OUTER LINK, SIMPLE



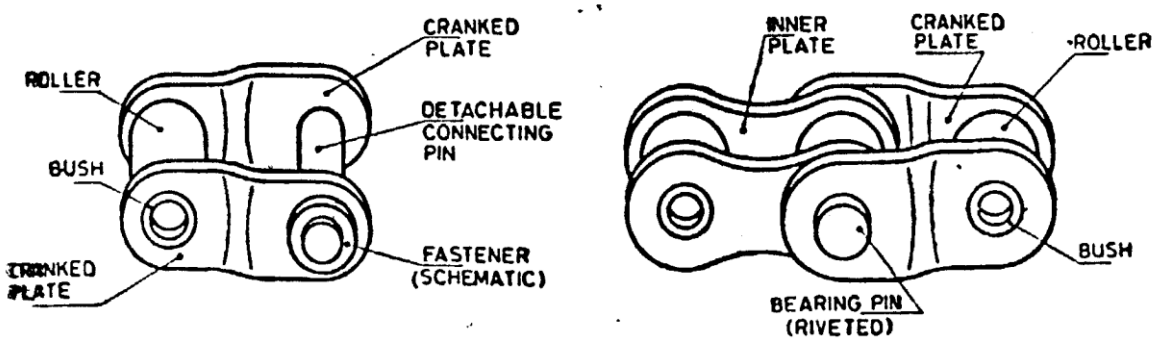
OUTER LINK, DUPLEX



CONNECTING LINK WITH SPRING FASTENER



OTHER DETACHABLE CONNECTING LINKS

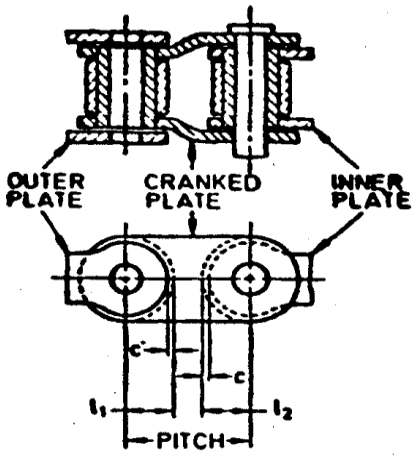


CRANKED LINK, SINGLE

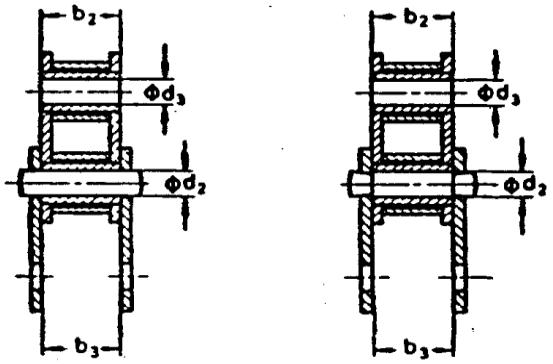
CRANKED LINK, DOUBLE

Note — Fasteners may be of various designs. Drawings indicate only their position.

FIG. 1 NOMENCLATURE OF LINKS

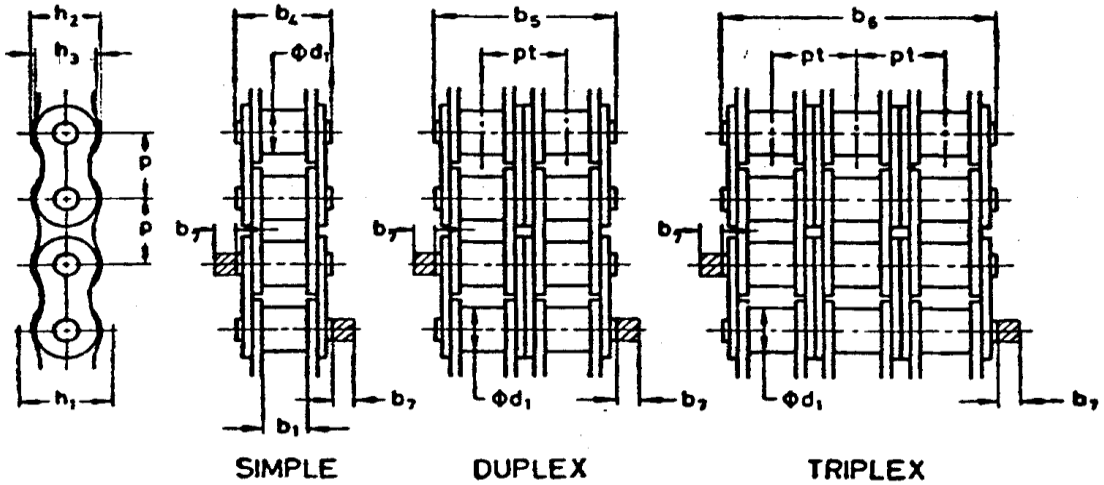


CRANKED LINK



PLAIN PIN SHOULDERED PIN

SECTION THROUGH CHAIN



SIMPLE DUPLEX TRIPLEX

Note 1 — Dimension *c* represents the clearance between the cranked link plates and the straight plates available during articulation.

Note 2 — The chain path depth h_1 is the minimum depth of channel through which the assembled chain will pass.

Note 3 — The overall width of a chain with a joint fastener is equal to the width over the bearing pins b_4, b_5, or b_6 plus b_7 for riveted pin end (or plus 1·6 b_7 for headed pin end) if fastener is on one side only, or plus $2b_7$, if fastener is on both sides.

Note 4 — The width over bearing pins for chains wider than triplex = $b_4 + pt$ (number of strands in chain-1).

FIG. 2 DIMENSIONS FOR CHAINS

TABLE 1 CHAIN DIMENSIONS, MEASURING LOADS AND BREAKING LOADS OF BASE CHAINS

(*Clauses* 3, 4.1.1, 4.2, 4.3.2, 5 *and* Fig. 1)

All dimensions in millimetres.

ISO Chain Number	Pitch p	Roller Diameter d_1 *Max*	Width Between Inner Plates b_1 *Min*	Bearing Pin Body Diameter d_2 *Max*	Chain Path Depth h_3 *Min*	Inner Plate Depth h_2 *Max*	Outer Intermedia Plate Depth h_4 *Max*	Cranked Link Dimensions*			Transverse Pitch pt	Width Over Inner Link b_3 *Max*	Width Between Outer Plates b_4 *Min*	Width Over Bearing Pins			Additional Width for Joint Fastener† b_7 *Max*	Measuring Load, kg			Breaking Load, kg		
								l_1 *Min*	l_2 *Min*	C				Simple b_5 *Max*	Duplex b_5 *Max*	Triplex b_5 *Max*		Simple	Duplex	Triplex	Simple *Min*	Duplex *Min*	Triplex *Min*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
08B	12·70	8·51	7·75	4·45	12·07	11·81	10·92	5·66	6·12	0·08	13·92	11·30	11·43	17·0	31·0	44·9	3·9	13	26	39	1 820	3 180	4 540
10B	15·875	10·16	9·65	5·08	14·99	14·73	13·72	7·11	7·62	0·10	16·39	13·28	13·41	19·6	36·2	52·8	4·1	20	40	60	2 270	4 540	6 180
12B	19·05	12·07	11·63	5·72	16·39	16·13	16·13	8·33	8·33	0·10	19·46	15·62	15·75	22·7	42·2	61·7	4·6	29	57	86	2 950	5 900	8 850
16B	25·40	15·88	17·02	8·28	21·34	21·08	21·08	11·15	11·15	0·13	31·88	25·45	25·58	36·1	68·0	99·9	5·4	51	102	152	4 310	8 620	12 930
20B	31·75	19·05	19·56	10·19	26·68	26·42	26·42	13·89	13·89	0·15	36·45	29·01	29·14	43·2	79·7	116·1	6·1	79	159	238	6 580	13 160	19 740
24B	38·10	25·40	25·40	14·63	33·73	33·40	33·40	17·55	17·55	0·18	48·36	37·92	38·05	53·4	101·8	150·2	6·6	113	227	340	9 980	19 960	29 940
28B	44·45	27·94	30·99	15·90	37·46	37·08	37·08	19·51	19·51	0·20	59·56	46·58	46·71	65·1	124·7	184·3	7·4	154	308	463	13 160	26 320	39 480
32B	50·80	29·21	30·99	17·81	42·72	42·29	42·29	22·20	22·50	0·20	58·55	45·57	45·70	67·4	126·0	184·5	7·9	204	408	612	17 240	34 480	51 720
40B	63·50	39·37	38·10	22·89	53·49	52·96	52·96	27·76	27·76	0·20	72·29	55·75	55·88	82·6	154·9	227·2	10·2	318	633	953	26 770	53 540	80 310
48B	76·20	48·26	45·72	29·24	64·52	63·88	63·88	33·45	33·45	0·20	91·21	70·56	70·69	99·1	190·4	281·6	10·5	454	907	1361	40 830	81 650	122 470

*Cranked links are not recommended for use on chains which are intended for onerous applications.

†The actual dimensions will depend on the type of fastener used but they should not exceed the dimensions in this column, details of which should be obtained by the purchaser from the manufacturer.

APPENDIX A

[*Clause* 1 (Note)]

COMPARATIVE STUDY OF IPSS : 1-01-016-84 'SPECIFICATION FOR DRIVE ROLLER CHAINS' *AND* IS : 2403-1975 'SPECIFICATION FOR TRANSMISSION STEEL ROLLER CHAINS AND CHAIN WHEELS (*FIRST REVISION*)'

Requirements		Clause Reference in IPSS	Clause Reference in ISS
Identical	Nomenclature	2 and Fig. 1	2 and Fig. 2
	Mechanical Properties of Chains	4	8
	Designation	5	9
	Packing	7	11
Selection	Dimension	3	3
Supplementary	Marking	6	10.1
Deviation	—	—	—