


INTER PLANT STANDARD – STEEL INDUSTRY		
IP SS 	SPECIFICATION FOR STEEL WIRE ROPES FOR GENERAL USE	IPSS:1-08-011-18 (Third Revision)
	CORRESPONDING INDIAN STANDARD DOES NOT EXIST	FORMERLY : IPSS:1-08-011-14 (Second Revision)

0. FOREWORD

0.1 This Interplant Standard has been prepared by the Standard Committee on Lifting and Hoisting Equipment, IPSS 1:8 with the active participation of the representatives of all the steel plants and established manufacturers and was adopted with second revision in June 2014. This Standard discussed again in presence of experts from SAIL, RINL, TATA STEEL, ESSAR, JSPL and Consultants of MECON, HEC & DASTURCO and revised with third revision in **August, 2018**.

0.2 Interplant Standards for steel industry primarily aim at achieving rationalization and unification of parts and assemblies used in steel plant equipment and provide guidance in indenting stores or equipment by individual steel plants. For exercising effective control on inventories, it is advisable to select a fewer number of sizes/ types from those mentioned in this standard. These limited sizes / types *can* be adopted as Plant Standards for on individual steel plant. It is not desirable to make deviations in technical requirements.

0.3 This Interplant standard was first issued in 1984. This first revision has been done, to delete the wire ropes sizes 10, 12 and 14 mm from Table-2 and 5 and 7 mm from Table-3. The construction of wire ropes given

under Table-2 has been changed to 8 x 19 (9/9/1). The second revision done in March 2014.

0.4 Standard was again reviewed in January, 2014 by expert Panel. Committee decided that Table – 1 needs revision w.r.t. tensile strength of wire and this shall be revised as per the latest version of IS: 2266-2002.

1. SCOPE

1.1 This Interplant Standard covers the requirements of steel wire ropes for general use (other than cranes) in steel industry for three specific applications as given below:

- i) Steel wire ropes for general engineering purpose (IS: 2266:2002 Steel wire ropes for general engineering purposes - Specification (fourth revision).
- ii) Steel wire suspension ropes for lifts, elevators, and hoists (IS 2365:1977 Specification for steel wire suspension ropes for lifts, elevators and hoists (first revision)
- iii) Small wire ropes [IS 3459:2004 Specification for small wire ropes (first revision)].

1.2 The general requirements are applicable as in the above standards.

2. CONSTRUCTION

2.1 All wire ropes shall generally be ordinary lay right hand preformed and ungalvanized.

2.2 Four constructions, that is 6x37 (18/12/6/11) and 6x36 (14/7 and 7/7/1) in wire rope for general engineering purposes, 8x19 (9/9/1) in steel wire suspension ropes for lifts & elevators and 6x19 (12/6/1) in case of small

wire ropes, as given in Tables 1, 2 and 3 shall be followed. Special needs for individual steel plants shall be met by their company standards. Compact Ropes can be used, if desired by the purchaser/ User.

- 2.3 Wire rope used in acidic/ water/ humid atmosphere shall be galvanized.
- 2.4 Steel core wire ropes shall be used in humid / corrosive atmosphere and for hot application.

3. **FACTOR OF SAFETY**

- 3.1 The factor of safety for steel wire rope shall be considered depending upon the applications. These are as follows:-

- i) For haulage = 5 to 7
- ii) For winding = 8 to 10

The minimum factor of safety for lifts carrying persons shall be 12 and for lifts for goods shall be 10.

- 4. The supply of wire ropes shall conform to IS 6594:2001 `Technical supply conditions for steel wire ropes and strands.

TABLE 1**DETAILS OF WIRE ROPES FOR GENERAL ENGINEERING PURPOSES
(Clause 2.2)**

Sl. No.	Construction	Tensile Designation of wire	Diameter of Rope in mm +4% -1%	Minimum Breaking Load		Approximate Mass in kg/100 m	
				Fibre core	Steel core	Fibre core	Steel core
				kN	kN		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	6x37 (18/12/6/11)	1960	12	75	81	49.80	54.80
2	6x36 (14/7 and 7/7/1)	-do-	14	114	124	74.50	82.00
3	-do-	-do-	16	149	161	97.30	107.00
4	-do-	-do-	20	234	252	152.00	167.00
5	-do-	-do-	22	283	305	184.00	202.00
6	-do-	-do-	26	395	426	257.00	283.00
7	-do-	-do-	32	598	646	389.00	428.00
8	-do-	-do-	36	757	817	493.00	542.00
9	-do-	-do-	38*	843	911	549.00	604.00
10	-do-	-do-	40	934	1009	608.00	669.00
11	-do-	-do-	44	1131	1221	736.00	810.00
12	-do-	-do-	52	1579	1705	1028.00	1131.00
Note- However, if required, plant can decide particular size as per their requirement and special need. Text figure to be verified w.r.t. BIS Standard							

TABLE 2**DETAILS OF STEEL WIRE SUSPENSION ROPES FOR LIFTS, ELEVATORS AND HOISTS (FIBRE CORE)
(Clause 2.2)**

Sl. No.	Construction	Tensile Designation	Diameter of Rope in mm +4% -1%	Minimum Breaking Load in kN	Approximate Mass in kg/100 m
(1)	(2)	(3)	(4)	(5)	(6)
1	8x19 (9/9/1)	1570 (1230)	13	76 (60)	58.9
2	-do-	-do- (1230)	16	115 (90)	89.2
3	-do-	-do-	18	146	113.0
4	-do-	-do-	20	180	139.0

TABLE 3**DETAILS OF SMALL WIRE ROPES
(Clause 2.2)**

Sl. No.	Construction	Tensile Designation	Diameter of Wire Rope in mm	Tolerance Nominal Diameter %	Minimum Breaking Load in kN	Approximate Mass in Fibre Core in kg/100 m
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	6x19 (12/6/1)	1770	3	+7 - 1	4.9	3.11
2	-do-	-do-	4	+6 - 1	8.7	5.54
3	-do-	-do-	6	+5 - 1	19.6	12.5