

## FOREWORD

This Indian Standard (Sixth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Wire Ropes and Wire Products Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1963 and subsequently revised in 1970, 1977, 1989, 2002 and 2019. The standard is being revised again for incorporating the modifications found necessary as a result of experience gained with the use of this standard. Also, the major changes in the standard in this revision are given below:

- a) The scope of the standard has been modified;
- b) Provision for rope size and tolerance has been modified;
- c) Requirements for minimum breaking force of wire has been modified in [5](#);
- d) Wire construction, core and galvanization requirement has been modified in [7](#), [8](#) and [10](#) respectively;
- e) Tables for rope construction have been modified; and
- f) **Clause 13 packing requirements has also been modified.** [delete](#)

The composition of the Committee responsible for the formulation of this standard is given in [Annex A](#).

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 shall be rounded-off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded-off value should be the same as that of the specified value in this standard

Class	Construction	Type	Rope Grade				Core		Size Range (Diameter, in mm)	Ref to Table
			1570	1770	1960	2160	Fibre	Steel		
	8 × 49SF (16-16-8F-8-1)		x	x	x	x	x	x	28 to 68	9
	8 × 50SFS (14-14-7F-7-7-1)		x	x	x	x	x	x	28 to 68	9
	8 × 55SF (18-18-9F-9-1)		x	x	x	x	x	x	28 to 68	9
	8 × 57SFS (16-16-8F-8-8-1)		x	x	x	x	x	x	28 to 68	9
18 × 7	17 × 7 [11 × 7(6-1): 6 × 7(6-1)]		x	x	x	x	x	x	6 to 40	10
	18 × 7 [12 × 7(6-1): 6 × 7(6-1)]		x	x	x	x	x	x	6 to 40	10
34(M) × 7	34 × 7 [17 × 7(6-1): 11 × 7(6-1)/6 × 7(6-1)]		x	x	x	x	x	x	12 to 56	11
	36 × 7 [18 × 7(6-1): 12 × 7(6-1)/6 × 7(6-1)]		x	x	x	x	x	x	12 to 56	11
15 × 7	15 × 7 (6-1)		x	x	x	x	-	x	8 to 20	14
	16 × 7 (6-1)		x	x	x	x	-	x	8 to 20	14
35(W) × 7	28 × 7 [16 (6-1) : 4 (6-1) + 4 (6-1) – 4 (6-1)]		x	x	x	x	-		8 to 20	14
	29 × 7 [16 (6-1) : 6F (6-1) – 6 (6-1) – 1 (6-1)]		x	x	x	x	-	x	8 to 60	14
	35 × 7 [16 (6-1) : 6 (6-1) + 6 (6-1) – 6 (6-1) – 1 (6-1)]		x	x	x	x	-	x	8 to 60	14
	40 × 7 [18 (6-1) : 7 (6-1) + 7 (6-1) – 7 (6-1) – 1 (6-1)]		x	x	x	x	-	x	8 to 60	14
35(W) × 19	35 × 19S [16 (9-9-1) : 6 (9-9-1) + 6 (9-9-1) – 6 (9-9-1) – 1 (9-9-1)]		x	x	x	x	-	x	40 to 60	14
	12 × 6 (6-0): 3 × 24 (15/9-Fibre)	Oval	x	x	x	-	x	x	8 to 40	12

the highlighted text to be changed as shown in the attached page

18 × 7	17 × 7 [11 × 7 (6-1): 6 × 7(6-1) – FC]		x	x	x	x	x	x	6 to 40	10
	17 × 7[11×7(6-1): 6 × 7(6-1) - 1×7 (6×7)]		x	x	x	x	x	x	6 to 40	10
	18 × 7 [12 × 7(6-1): 6 × 7 (6-1)]		x	x	x	x	x	x	6 to 40	10
	18 × 7[12 × 7(6-1): 6×7(6-1)-FC]		x	x	x	x	x	x	6 to 40	10
	18 × 19S [12 × 19S(9-9-1): 6×19S(9-9-1) – FC]		x	x	x	x	x	x	6 to 40	10
	18 × 19S [12 × 19S(9-9-1): 6×19S(9-9-1) – 1× 19S (9-9-1)]		x	x	x	x	x	x	6 to 40	10

The highlighted text in the draft document of IS 2266 at page no 03 having class 18 × 7 to be changed as shown in the above fig. (i.e., Earlier it had only two construction types but now it will have six construction types of ropes)

Class	Construction	Type	Rope Grade				Core		Size Range (Diameter, in mm)	Ref to Table
			1570	1770	1960	2160	Fibre	Steel		
	6 × V25 (12/12-Δ)	Flatten ed strand	x	x	x	-	x	x	12 to 48	13

## 2 REFERENCES

The standards given below 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 edition of these standards:

IS No.	Title
IS 1804 : 2004	Steel wire ropes — Fibre main cores ( <i>fourth revision</i> )
IS 1835 : 1976	Specification for round steel wires for ropes ( <i>third revision</i> )
IS 6594 : 2018	Technical supply conditions for steel wire ropes and strands ( <i>third revision</i> )

## 3 TERMINOLOGY

For the purpose of this standard the terms given in IS 2363 shall apply.

## 4 ROPE SIZE AND TOLERANCE

Purchaser shall specify the size of the rope designated as 'Nominal Diameter'. The most common rope sizes are given in [Table 1](#) to [Table 15](#), however other sizes may be supplied as agreed between manufacturer and purchaser. The actual diameter of the rope as supplied shall be within following percent of the nominal diameter.

Sl No.	Nominal Diameter of Rope 'd' mm	Tolerance as Percentage of Nominal Diameter
(1)	(2)	(3)
i)	$2 \leq d < 4$	- 0, + 8
ii)	$4 \leq d < 6$	- 0, + 7
iii)	$6 \leq d < 8$	- 0, + 6
iv)	$d \geq 8$	- 0, + 5

NOTE — Some specific applications of wire ropes may require specific rope diameter tolerances, for example, plastic valley filled ropes and combination ropes for fishing application, swaged ropes for logging application and wire ropes for marble cutting application hence such specific ropes applications may have rope diameter tolerances

different to the mentioned in table above and agreed between manufacturer and purchaser.

## 5 MINIMUM BREAKING FORCE

The values of minimum breaking force:

- a) Shall not be less than as specified in [Table 1](#) to [Table 15](#), given for more common construction and sizes and grades. For intermediate rope diameters, the values shall not be less than those obtained using formula in **6.6** of IS 6594.

or

- b) As agreed between manufacture and purchaser (for the constructions not covered in [Table 1](#) to [Table 13](#) and other specially developed wire ropes for example, **compacted** **competed** ropes, cushion core ropes. Plastic valley filled wire ropes, swaged ropes and combination ropes etc).

NOTE — Rope grade shall be 1570, 1770, 1960, 2160 or intermediate grades as agreed between manufacturer and purchaser.

## 6 GENERAL REQUIREMENT

The wire rope shall conform to IS 6594 and shall meet the following requirements.

## 7 CONSTRUCTION

The rope construction may be chosen from [1](#). However, considering wide range of engineering application other varieties of construction may be developed, manufactured and supplied with the consent of users.

Special developed ropes like compacted ropes, cushion core ropes, plastic valley filled ropes, swaged ropes, combination rope, parallel closed etc. may also be supplied to fulfil special requirement of the customer as agreed between manufacture and supplier.

## 8 CORE

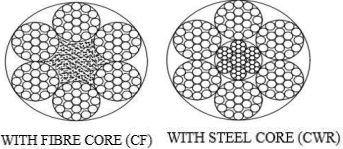
Cores of single layer stranded rope shall normally be of steel or fibre, although other types such as composites (for example, steel plus fibre or steel plus polymers) or solid polymer may also be

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Table 2 Mass and Breaking Force for 6 × 19 M(12/6-1) Construction Ropes

(Clauses 1, 4 and 5)

	Typical Construction	
	Rope Construction	Strand Construction
	6 × 19M	12/6-1

SI No.	Nominal Diameter	Approximate Mass		Minimum Braking Force Corresponding to Rope Grade of					
				1570		1770		1960	
		Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core	Fibre Core	Steel Core
		(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)	(CF)	(CWR)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	mm	kg/100 m	kg/100 m	kN	kN	kN	kN	kN	kN
i)	3	3.11	3.43	4.3	4.7	4.9	5.3	5.4	5.9
ii)	4	5.54	6.09	7.7	8.3	8.7	9.4	9.6	10.4
iii)	5	8.65	9.52	12.1	13	13.6	14.7	15.1	16.3
iv)	6	12.5	13.7	17.4	18.8	19.6	21	22	23
v)	7	17	18.6	23.6	25.5	27	29	30	32
vi)	8	22.1	24.4	31	33	35	38	39	42
vii)	9	28	30.8	39	42	44	48	49	53
viii)	10	34.6	38.1	48	52	54	59	60	65
ix)	11	41.9	46.1	58	63	66	71	73	79
x)	12	49.8	54.8	69	75	78	85	87	94
xi)	13	58.5	64.3	82	88	92	99	102	110
xii)	14	67.8	74.6	95	102	107	115	118	128
xiii)	16	88.6	97.4	124	133	139	150	154	167
xiv)	18	112	123	156	169	176	190	195	211
xv)	19	125	137	174	188	196	212	217	235
xvi)	20	138	152	193	208	218	235	241	260
xvii)	22	167	184	234	252	263	284	292	315
xviii)	24	199	219	278	300	313	338	347	375
xix)	25	216	238	302	326	340	367	376	407
xx)	26	234	257	326	352	368	397	407	440
xxi)	28	271	298	378	409	426	461	472	510
xxii)	32	354	390	494	534	557	602	617	666
xxiii)	36	448	493	625	675	705	761	781	843
xxiv)	38	500	550	697	752	785	848	870	939
xxv)	40	554	609	772	834	870	940	964	1 041
xxvi)	44	670	737	934	1 009	1 053	1 137	1 166	1 259
xxvii)	48	797	877	1 112	1 201	1 253	1 354	1 388	1 499
xxviii)	52	936	1 029	1 305	1 409	1 471	1 588	1 629	1 759

NOTE — To calculate the aggregate breaking force multiply the figures given in col (5), (7) and (9) by 1.212 and in col (6), (8) and (10) by 1.302. Wire strand core (CWS) may be used for rope diameter 12 mm and below. 1.163