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Steel Wire Rope



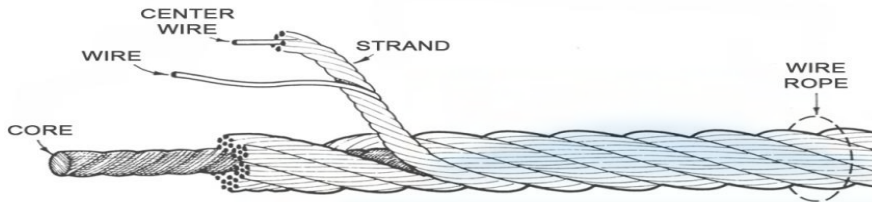
Steel Wire Rope; Wire rope is made of plaiting strands of wire, normally medium carbon steel and the strands are formed around a core. The strands in wire ropes are made of wire twisted together. Strands with smaller diameter wires are less abrasion resistant and more fatigue resistant. Strands made with thicker length of wire are more abrasion resistant and less fatigue resistant. They are produced for high load capacity and are used for a wide variety of motion transmission applications, among them: lifting, baling, tie down, hoisting, hauling, towing, mooring, anchoring, rigging, cargo control, guidance, and counterbalance. They can also be used as railing and guard railing.

DIA (MM)	Mass Kg/ 100 Mtr.		Min. Breaking		Min. Breaking		Mass kg/ 100 mtr.		Min. Breaking	
	6x19 & 6x37		Load (Ton) - 6x19		Load (Ton) - 6x37		6x36		Load (Ton) - 6x36	
	FMC	IWRC	FMC	IWRC	FMC	IWRC	FMC	IWRC	FMC	IWRC
6	12.5	13.7	2.0	2.1	2.1	2.3	-	-	-	-
8	22.1	24.4	3.5	3.8	3.3	3.6	-	-	-	-
9	28	30.8	4.4	4.8	4.2	4.6	30.8	33.9	4.7	5.1
10	34.6	38.1	5.4	5.9	5.2	5.6	38	41.8	5.8	6.3
11	41.9	46.1	6.6	7.2	6.3	6.8	46	50.6	7.1	7.6
12	49.8	54.8	7.8	8.5	7.5	8.1	54.7	60.2	8.4	9.2
13	58.5	64.4	9.2	10.0	8.8	9.5	64.3	70.7	9.9	10.6
14	67.8	74.6	10.7	1.0	10.2	11.0	74.5	82	11.4	12.4
15	77.8	85.6	12.2	13.2	11.7	12.7	85.5	94	13.1	14.3
16	88.6	97.4	13.9	15.0	13.4	14.5	97.3	107	15.0	16.2
18	112	123	17.6	19.0	17.0	18.4	123	135	19.0	20.5
19	125	137	19.6	21.2	18.9	20.4	137	151	21.2	22.9
20	138	152	21.8	23.6	21.0	22.6	152	167	23.5	25.3
22	167	184	26.3	28.5	25.4	27.4	184	202	28.4	30.6
24	199	219	31.3	33.9	30.2	32.6	219	241	33.7	36.4
25	216	238	34.0	36.8	32.7	35.3	238	261	36.6	39.5
28	271	298	42.6	46.2	41.0	44.4	298	328	46.0	49.6
30	312	343	49.0	53.0	47.2	50.9	342	376	52.8	56.9
32	354	390	55.9	60.4	53.6	57.9	389	428	60.0	64.8
36	448	493	70.7	76.3	67.8	73.3	493	542	76.0	82.0
38	500	550	78.8	85.1	75.7	81.6	549	604	84.6	91.4
40	554	609	87.3	94.3	83.8	90.5	608	669	93.7	101.3
44	670	737	105.6	114.1	101.4	109.5	736	810	113.4	122.4
50	865	951	136.5	147.3	130.9	141.4	950	1046	146.4	158.1
52	936	1029	147.6	159.3	141.6	153.0	1028	1131	158.4	171.0

- The breaking load Figures shown above in Tons.
- Maximum Safe Working Load = Breaking Load of the Rope/ Factor of Safety (Min-5).
- IWRC/FMC= Independent Wire Rope Core / Fibre Mild Core.

Construction of Wire Ropes; There are four basic components that make up the design of a finished wire rope:

1. Wires made from metal that form a singular strand.
2. Multi-wire strands laid around a core in a helical pattern.
3. A fiber or steel core.
4. Lubrication



a) **Wire;**

Wires are the smallest component of wire rope and they make up the individual strands in the rope. Wires can be made from a variety of metal materials including steel, iron, stainless steel, monel, and bronze. The wires can be manufactured in a variety of grades that relate to the strength, resistance to wear, fatigue resistance, corrosion resistance, and curve of the wire rope. The wires themselves can be coated but are most commonly available in a “bright” or uncoated finish.

b) **Strands;**

Strands of wire rope consist of two or more wires arranged and twisted in a specific arrangement. The individual strands are then laid in a helical pattern around the core of the rope.

Strands made of larger diameter wires are more resistant to abrasion, while strands made of smaller diameter wires are more flexible.

c) **Core;**

The core of a wire rope runs through the center of the rope and supports the strands and helps to maintain their relative position under loading and bending stresses. Cores can be made from a number of different materials including natural or synthetic fibers and steel.

d) **Lubrication;**

Lubrication is applied during the manufacturing process and penetrates all the way to the core. Wire rope lubrication has two primary benefits:

1. Reduces friction as the individual wires and strands move over each other
2. Provides corrosion protection and lubrication in the core, inside wires, and outside surface

Features:-

- Size – 6 mm to 52 mm.
- Material - Galvanized and Un-Galvanized or Stainless Steel, etc
- The number and size of wires in a strand, and the number of strands in a rope vary according to the work the rope has to do, Strength, flexibility, abrasion resistance and other characteristic dictate the rope you ultimately select. The equipment has also to be considered when using ropes, the type and size of drum and pulley, the load and the speed at which the rope will work, is sometimes thought that a rope with the highest breaking strength is the best of the job.
- **Uses:** For Lifting Slings, Drilling, Shipping Marine, Logging, Aircraft, Excavating, Mining, Ropeways and Suspension Structures.
- **Cores for wire ropes:**
 - a) **Steel IWRC (Independent Wire Rope Core);** The main core is an independent wire rope.
 - b) **FMC (Fibre Mild Core);** The main core is an independent Mild Steel Wire Strand and Fiber Cores are Stranded and comprise either: Natural fibers such as sisal, hemp, jute, and cotton, Synthetic fibers such as polyamide, polyethylene, and polypropylene, Asbestos fibers (heat resistant).
- **Lubrication;** Lubrication reduces internal friction of the wires and strands and protects against corrosion. Grease is applied to all ropes supplied. If special lubricants are required this must be specifically stated at time of ordering.
- **Diameter of wire ropes;** The diameter of a wire rope is the diameter of the circle which encloses all of the wires. When measuring wire rope it is important to take greatest distance of the outer limits of the 'Crowns' of two opposite strands. A measurement across the valleys will result in incorrect lower readings.