

ROPES, CHAINS, AND SLINGS

wire rope manufacturers be consulted for the most suitable type.

Some service conditions require rope with special qualities. Fiber cores are affected by temperatures above 212 F, under such conditions, a metallic core provides greater efficiency and safety. A zinc-coated or stainless steel wire rope effectively resists some types of corrosion. Specific corrosion problems should be referred to a wire rope manufacturer.

Since preformed wire rope does not unravel, it has advantages for certain services, such as for slings and on construction and similar heavy equipment. Preformed rope is less likely to set or kink, and broken wires do not protrude to create a hazard to the hands of workmen. However, closer inspection is necessary to detect broken wires.

It is recommended that hoisting rope have at least the strength of "improved plow steel" grade. For many applications "extra improved plow steel" grade, which is greatest in strength, should be used to provide an adequate factor of safety, and better

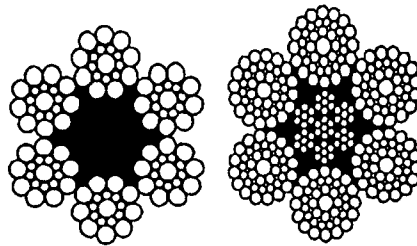


Fig. 21-1. Wire rope is made from large numbers of individual wires, most of which are not exposed. This, plus the fact that wires are continuous in any given length of rope, accounts for the high degree of dependability and uniformity. Cross sections show usual 6x19 rope containing 114 wires (left), and 6x37 classification rope made up of 313 separate wires (at right).

Courtesy John A. Roebling's Sons Corp.,
Subsidiary of The Colorado Fuel and Iron Corp.

service. It resists abrasion, shock, vibration, and fatigue (Table 21-D).

TABLE 21-D BREAKING STRENGTH IN TONS OF IMPROVED PLOW STEEL (IPS) AND EXTRA IMPROVED PLOW STEEL (EIPS) ROPES

Diameter (in.)	6 x 19 Classification			6 x 37 Classification			8 x 19 Classification
	IPS		EIPS	IPS		EIPS	IPS
	FC	IWRC	IWRC	FC	IWRC	IWRC	FC
$\frac{3}{16}$	6.10	6.56	7.55	5.77	6.20	7.14	5.24
$\frac{7}{16}$	8.27	8.89	10.20	7.82	8.41	9.67	7.09
$\frac{1}{2}$	10.70	11.50	13.30	10.20	11.00	12.60	9.23
$\frac{9}{16}$	13.50	14.50	16.80	12.90	13.90	15.90	11.60
$\frac{5}{8}$	16.70	17.90	20.60	15.80	17.00	19.60	14.90
$\frac{3}{4}$	23.80	25.60	29.40	22.60	24.30	27.90	20.50
$\frac{7}{8}$	32.20	34.60	39.80	30.60	32.90	37.80	27.70
1	41.80	44.90	51.70	39.80	42.80	49.10	36.00
$1\frac{1}{8}$	52.60	56.50	65.00	50.10	53.90	61.90	45.30
$1\frac{1}{4}$	64.60	69.40	79.90	61.50	66.10	76.10	55.70
$1\frac{3}{8}$	77.70	83.50	96.00	74.10	79.70	91.70	67.10
$1\frac{1}{2}$	92.00	98.90	114.00	87.90	94.50	109.00	79.40
$1\frac{3}{4}$	107.00	115.00	132.00	103.00	111.00	127.00	
$1\frac{7}{8}$	124.00	133.00	153.00	119.00	128.00	146.00	
2	141.00	152.00	174.00	136.00	146.00	168.00	
2	160.00	172.00	198.00	154.00	165.00	190.00	
$2\frac{1}{8}$	179.00	192.00	221.00	173.00	186.00	214.00	
$2\frac{1}{4}$	200.00	215.00	247.00	193.00	207.00	239.00	