

verope ®

# PORT INDUSTRY

verope® special wire ropes

veropro 8



Mobile Harbor  
Crane



Gantry Crane  
(STS)



Straddle Carrier



RTG Crane



## APPLICATIONS

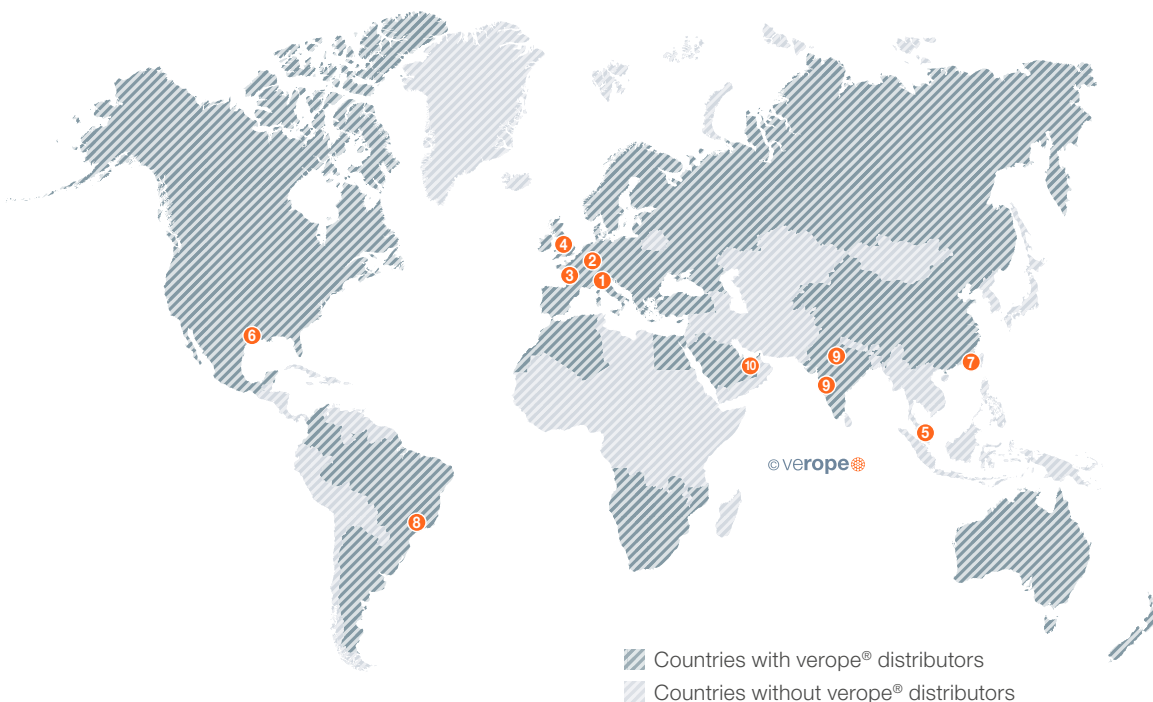
# PORT INDUSTRY

verope® offers various ropes, rope end fittings and customized solutions for port industry applications. verope® provides a global distribution network for special wire ropes to serve the customers wherever the products are needed.

### verope® offers the following services:

- Technical customer service
  - Technical advice including analysis, e.g. theoretical lifetime calculations
  - Rope & crane inspections (reeving system) and Reporting
  - Damage analysis
  - Training and Seminar
- A broad range of rope tests in our own testing facilities such as:
    - Tensile test up to 2500 kN
    - Bending fatigue test for various rope diameters
    - Various tests to determine the rotational behavior of ropes
    - Elongation measurement
    - Modulus of elasticity determination
    - Rope flexibility tests
    - Measurement of the diameter reduction under load
    - Radial Stability
    - Tension-tension fatigue test

### verope® worldwide



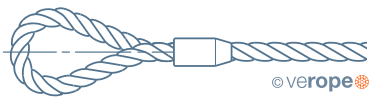
- |  |   |
|--|---|
| <b>1 verope® AG (Headquarters)</b> , Zug, Switzerland        | <b>6 verope® USA</b> , Houston, USA   |
| <b>2 verope® Service Center GmbH</b> , Contwig, Germany      | <b>7 LTI Steel Wire Rope Co., Ltd.</b> , Shanghai, China                      |
| <b>3 verope® France</b> , Paris, France                      | <b>8 verope® do Brasil</b> , Resende, RJ, Brazil                              |
| <b>4 verope® UK</b> , Birmingham, UK                         | <b>9 verope® Steel Wire Ropes Private Limited</b> , Mumbai & New Delhi, India |
| <b>5 verope® Distribution Singapore Pte. Ltd</b> , Singapore | <b>10 verope® Middle East</b> , Dubai, UAE                                    |

# STANDARD ROPE END CONNECTIONS

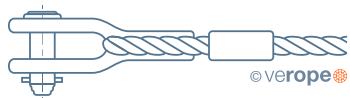


We are able to offer customized ropes with the correct end connections for crane brands such as:

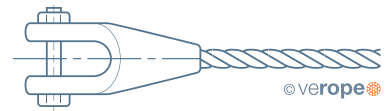
- Liebherr • Terex • Sennebogen • Tadano Faun • Manitowoc • And much more



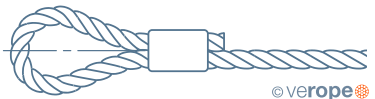
Flemish eye ferrule-secured termination



Ferrule-secured open thimble termination



Open spelter socket: Metal or resin socketing



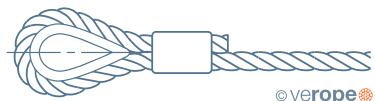
Ferrule-secured eye termination



End stop: either metal/resin socketing or swaged



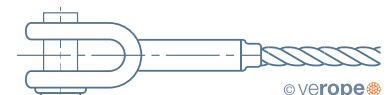
Closed end socket: Metal or cast synthetic resin



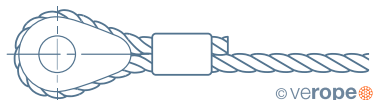
Ferrule-secured thimble termination



Threaded socket swaged



Open socket swaged



Ferrule-secured solid thimble termination



Closed socket swaged



Pad eye



Seized and cut



Fused and tapered

verope® can also offer customer-specific solutions in addition to the standard rope end connections. Special solutions on request.

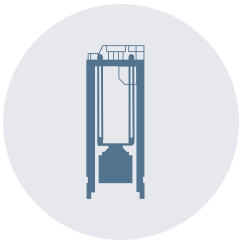
# ROPE APPLICATIONS FOR PORT INDUSTRY



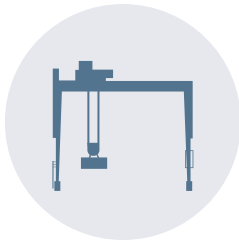
Mobile Harbor Crane



Gantry Crane (STS)

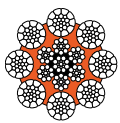
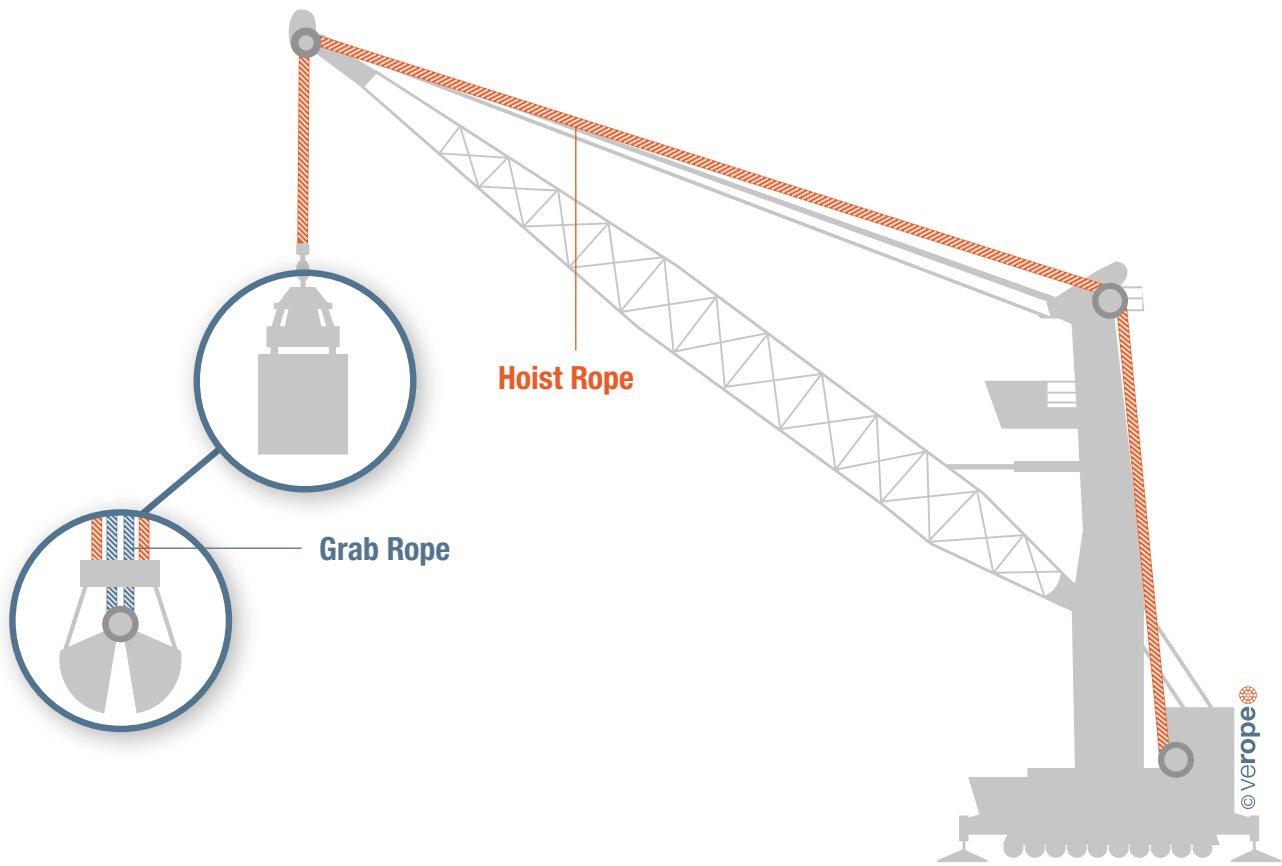


Straddle Carrier

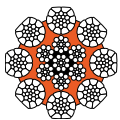


RTG Crane

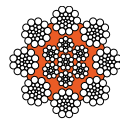
# MOBILE HARBOR CRANE



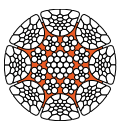
**veropro 8** is an 8-strand, non-rotation-resistant rope with compacted outer strands and a rope core covered with a plastic layer.



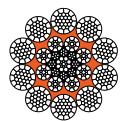
**veropro 8 RS** is a rotary swaged 8-strand, non-rotation resistant rope with compacted outer strands and a rope core covered with a plastic layer.



**verostar 8<sup>2</sup>** is an 8-strand, non-rotation-resistant rope with conventional strands and a rope core covered with a plastic layer.



**veropower 8<sup>1</sup>** is a rotary swaged 8-strand, non-rotation resistant rope in parallel lay construction with compacted outer strands and a rope core covered with a plastic layer.

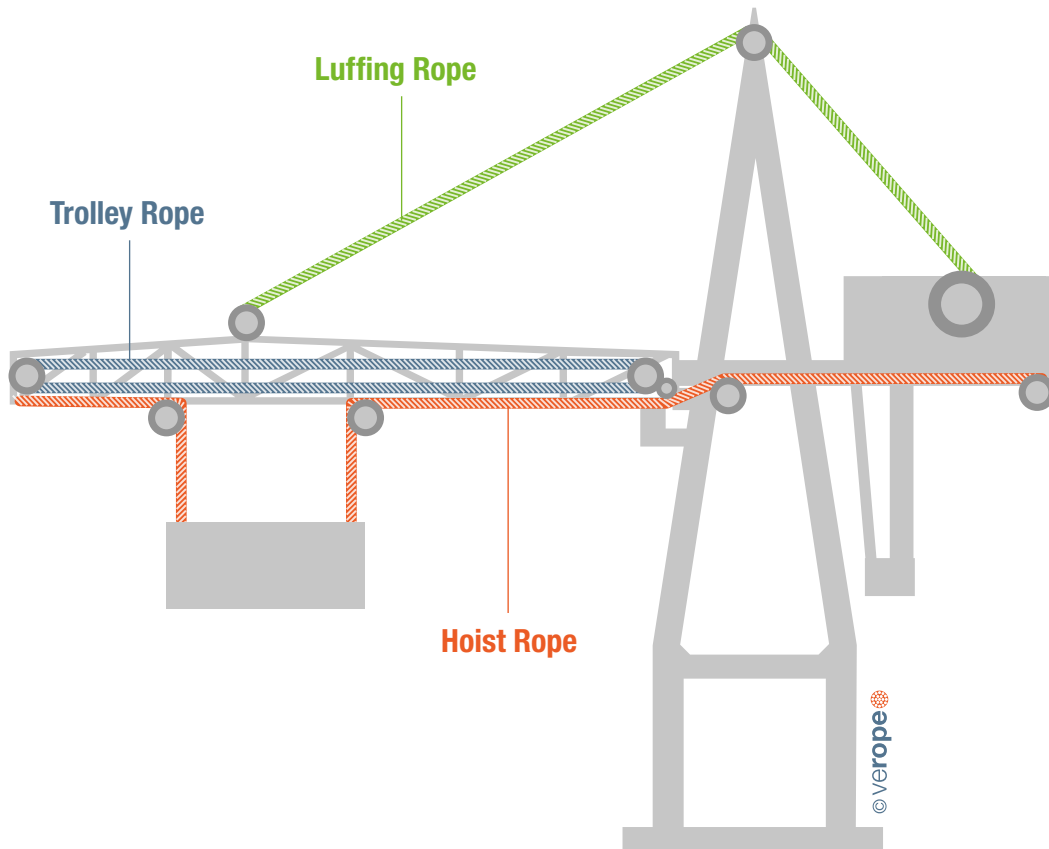


**veropro 10<sup>3</sup>** is a very flexible 10-strand, non-rotation-resistant rope with compacted strands and a rope core covered with a plastic layer.

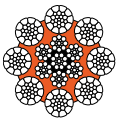


<sup>1</sup> For special applications | <sup>2</sup> Preferably for single-layer winding | <sup>3</sup> Only available from 30 mm diameter

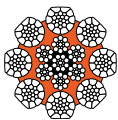
# GANTRY CRANE (STS)



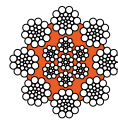
In general, the special wire ropes are used in pairs, means right- and left-hand lay construction, for hoist rope application.



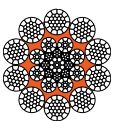
**veropro 8** is an 8-strand, non-rotation-resistant rope with compacted outer strands and a rope core covered with a plastic layer.



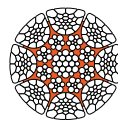
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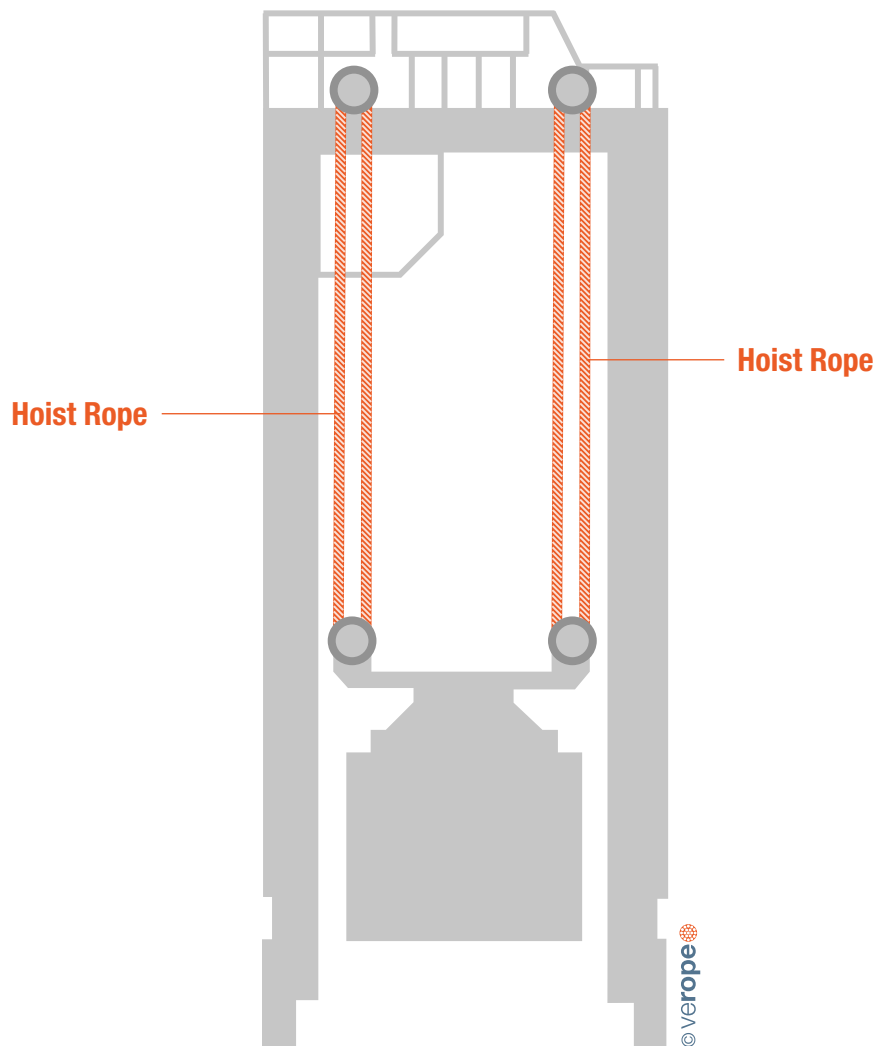


**veropower 8<sup>3</sup>** is a rotary swaged 8-strand, non-rotation resistant rope in parallel lay construction with compacted outer strands and a rope core covered with a plastic layer.

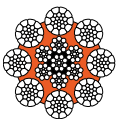


<sup>1</sup> Only available from 30 mm diameter | <sup>2</sup> Preferably for single-layer winding | <sup>3</sup> For special applications

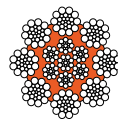
# STRADDLE CARRIER



In general, the special wire ropes are used in pairs, means right- and left-hand lay construction, for hoist rope application.



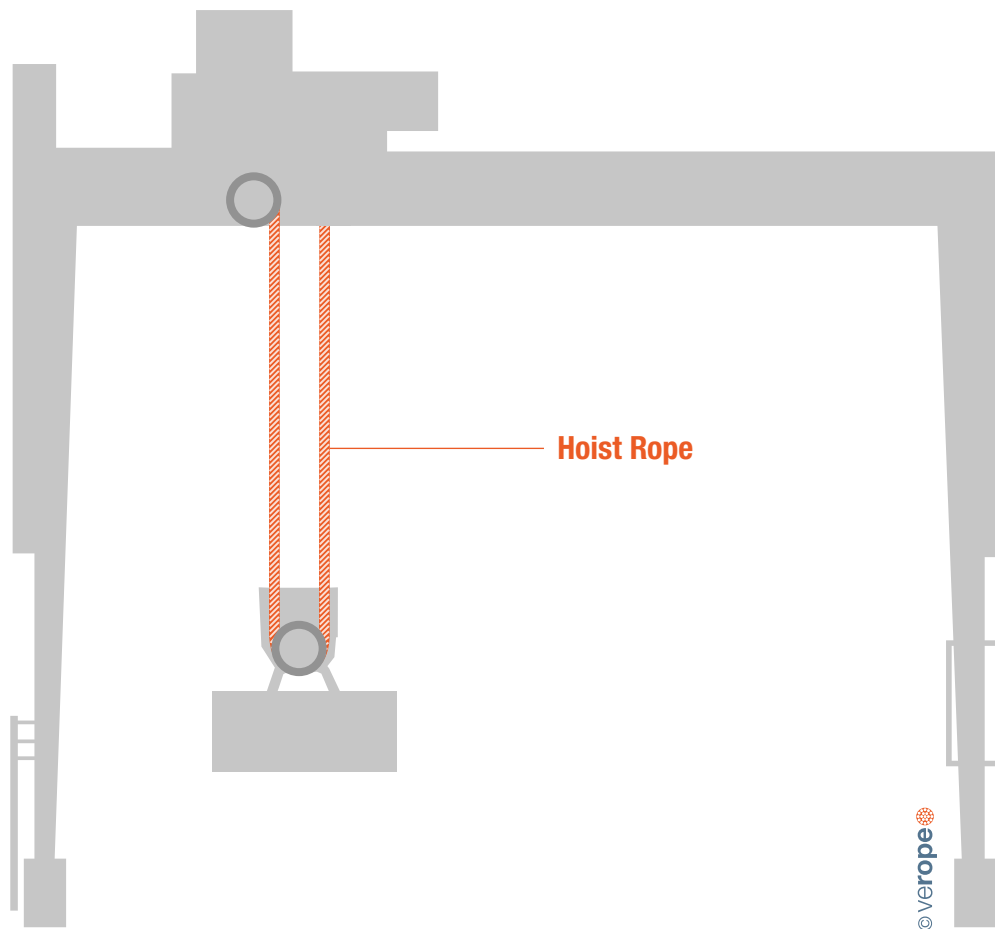
**veropro 8** is an 8-strand, non-rotation-resistant rope with compacted outer strands and a rope core covered with a plastic layer.



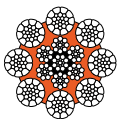
**verostar 8<sup>1</sup>** is an 8-strand, non-rotation-resistant rope with conventional strands and a rope core covered with a plastic layer.

<sup>1</sup> Preferably for single-layer winding

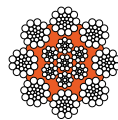
# RTG CRANE



In general, the special wire ropes are used in pairs, means right- and left-hand lay construction, for hoist rope application.



**veropro 8** is an 8-strand, non-rotation-resistant rope with compacted outer strands and a rope core covered with a plastic layer.



**verostar 8<sup>1</sup>** is an 8-strand, non-rotation-resistant rope with conventional strands and a rope core covered with a plastic layer.

<sup>1</sup> Preferably for single-layer winding



ADVERTISEMENT

# TECHNICAL BROCHURE

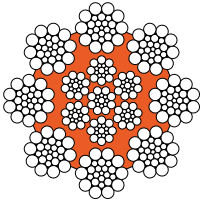
## verope® special wire ropes

The new and completely revised “Technical Brochure” is aimed at all customers, distributors and rope users. The brochure is available in German and English and provides useful information on the correct handling of special wire ropes by means of numerous graphics and tables.

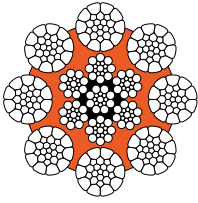
**Order here:** [marketing@verope.com](mailto:marketing@verope.com)  
[www.verope.com](http://www.verope.com)



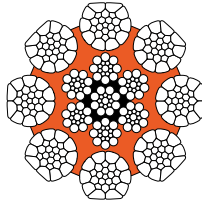
# SPECIAL WIRE ROPE APPLICATIONS FOR PORT INDUSTRY



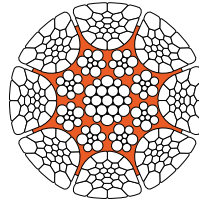
verostar 8



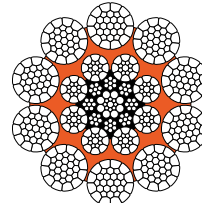
veropro 8



veropro 8 RS



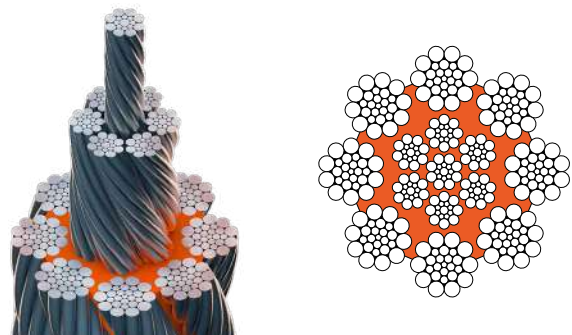
veropower 8



veropro 10

# VEROSTAR 8

achieves best service life in reeving systems with single layer drums.



Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1770		1960	
mm*	Inch	kg/m	kN	t	kN	t
8	5/16	0.276	47.9	4.9	53.0	5.4
9		0.349	60.6	6.2	67.1	6.8
10		0.431	74.8	7.6	82.8	8.4
11	7/16	0.522	90.5	9.2	100.2	10.2
12		0.621	107.7	11	119.3	12.2
12.7	1/2	0.695	120.6	12.3	133.6	13.6
13		0.729	126.4	12.9	140.0	14.3
14		0.845	146.6	14.9	162.3	16.5
15		0.970	168.3	17.1	186.3	19
16	5/8	1.104	191.5	19.5	212.0	21.6
17		1.246	216.2	22	239.4	24.4
18		1.397	242.3	24.7	268.3	27.3
19	3/4	1.557	270.0	27.5	299.0	30.5
20		1.725	299.2	30.5	331.3	33.8
21		1.902	329.8	33.6	365.2	37.2
22		2.087	362.0	36.9	400.9	40.8
22.4		2.164	375.3	38.2	415.6	42.3
23		2.281	395.7	40.3	438.1	44.6
24		2.484	430.8	43.9	477.1	48.6
25		2.695	467.5	47.6	517.6	52.7
25.4	1	2.782	482.5	49.2	534.3	54.4
26		2.915	505.6	51.5	559.9	57.1
27		3.143	545.2	55.6	603.8	61.5
28		3.380	586.4	59.8	649.3	66.2
28.6	1-1/8	3.527	611.8	62.3	677.4	69
29		3.626	629.0	64.1	696.5	71
30		3.881	673.1	68.6	745.4	76
31		4.144	718.8	73.2	795.9	81.1
32	1-1/4	4.415	765.9	78	848.1	86.4
33		4.696	814.5	83	901.9	91.9
34		4.984	864.6	88.1	957.4	97.6
35	1-3/8	5.282	916.2	93.4	1015	103.4
36		5.588	969.3	98.8	1073	109.4
38	1-1/2	6.226	1080	110.1	1196	121.9
40		6.899	1197	121.9	1325	135
41.3	1-5/8	7.355	1276	130	1413	144
42		7.606	1319	134.4	1461	148.9
44		8.348	1448	147.6	1603	163.4
45	1-3/4	8.731	1515	154.3	1677	170.9
46		9.124	1583	161.3	1753	178.6
47.5	1-7/8	9.729	1688	172	1869	190.4
48		9.934	1723	175.6	1908	194.4
50	2	10.780	1870	190.5	2071	211
52		11.659	2022	206.1	2239	228.2
54	2-1/8	12.573	2181	222.2	2415	246.1
56		13.522	2346	239	2597	264.7
58		14.505	2516	256.4	2786	283.9
60	2-3/8	15.523	2693	274.4	2982	303.8

Nominal rope diameter		Approx mass		Minimum breaking force tons <sup>1</sup> of 2000 lbs	
				Rope grade	
				1770	1960
mm*	Inch	lb/ft <sup>1</sup>	kg/ft <sup>1</sup>	1770	1960
8	5/16	0.19	0.08	5.4	6
9		0.23	0.11	6.8	7.5
10		0.29	0.13	8.4	9.3
11	7/16	0.35	0.16	10.2	11.3
12		0.42	0.19	12.1	13.4
12.7	1/2	0.47	0.21	13.6	15
13		0.49	0.22	14.2	15.7
14		0.57	0.26	16.5	18.2
15		0.65	0.3	18.9	20.9
16	5/8	0.74	0.34	21.5	23.8
17		0.84	0.38	24.3	26.9
18		0.94	0.43	27.2	30.2
19	3/4	1.05	0.47	30.3	33.6
20		1.16	0.53	33.6	37.2
21		1.28	0.58	37.1	41.1
22		1.4	0.64	40.7	45.1
22.4		1.45	0.66	42.2	46.7
23		1.53	0.7	44.5	49.2
24		1.67	0.76	48.4	53.6
25		1.81	0.82	52.5	58.2
25.4	1	1.87	0.85	54.2	60.1
26		1.96	0.89	56.8	62.9
27		2.11	0.96	61.3	67.9
28		2.27	1.03	65.9	73
28.6	1-1/8	2.37	1.08	68.8	76.1
29		2.44	1.11	70.7	78.3
30		2.61	1.18	75.7	83.8
31		2.78	1.26	80.8	89.5
32	1-1/4	2.97	1.35	86.1	95.3
33		3.16	1.43	91.5	101.4
34		3.35	1.52	97.2	107.6
35	1-3/8	3.55	1.61	103	114
36		3.76	1.7	109	120.6
38	1-1/2	4.18	1.9	121.4	134.4
40		4.64	2.1	134.5	148.9
41.3	1-5/8	4.94	2.24	143.4	158.8
42		5.11	2.32	148.3	164.2
44		5.61	2.55	162.8	180.2
45	1-3/4	5.87	2.66	170.2	188.5
46		6.13	2.78	177.9	197
47.5	1-7/8	6.54	2.97	189.7	210
48		6.68	3.03	193.7	214.5
50	2	7.24	3.29	210.2	232.7
52		7.83	3.55	227.3	251.7
54	2-1/8	8.45	3.83	245.1	271.5
56		9.09	4.12	263.6	291.9
58		9.75	4.42	282.8	313.2
60	2-3/8	10.43	4.73	302.6	335.1

verostar 8/2015/10/v2.0

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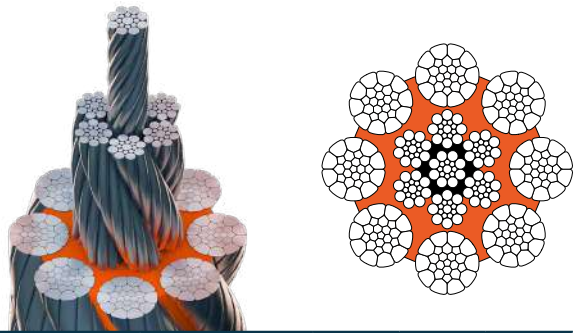
\* Standard tolerance: +2% to 4%, other tolerances possible upon agreement. Other and special rope diameters are available upon request.

1) The values are indicative only. Authoritative figures remain the metric ones! Errors and omissions excepted! The cross-section shows a typical rope diameter and can vary within the range. Subject to modifications, this may change the specifications.

Relevant is our website [www.verope.com](http://www.verope.com)

# VEROPRO 8

has very high structural stability, achieves excellent bending fatigue results.



Nominal rope diameter		Approx mass	Minimum breaking force						Nominal rope diameter		Approx mass	Minimum breaking force tons <sup>1</sup> of 2000 lbs			
mm*	Inch		Rope grade						mm*	Inch		Rope grade			
			1770		1960		2160					1770	1960	2160	
		kg/m	kN	t	kN	t	kN	t			lb/ft <sup>1</sup>	kg/ft <sup>1</sup>			
8	5/16	0.288	52.1	5.3	57.7	5.9	60.6	6.2	8	5/16	0.19	0.09	5.9	6.5	6.8
9		0.364	66.0	6.7	73.0	7.4	76.7	7.8	9		0.24	0.11	7.4	8.2	8.6
10		0.450	81.5	8.3	90.1	9.2	94.7	9.6	10		0.3	0.14	9.2	10.1	10.6
11	7/16	0.544	98.6	10	109.1	11.1	114.6	11.7	11	7/16	0.37	0.17	11.1	12.3	12.9
12		0.648	117.3	12	129.8	13.2	136.3	13.9	12		0.44	0.2	13.2	14.6	15.3
12.7	1/2	0.726	131.4	13.4	145.4	14.8	152.7	15.6	12.7	1/2	0.49	0.22	14.8	16.3	17.2
13		0.760	137.7	14	152.3	15.5	160.0	16.3	13		0.51	0.23	15.5	17.1	18
14		0.882	159.7	16.3	176.7	18	185.6	18.9	14		0.59	0.27	18	19.9	20.9
15		1.012	183.3	18.7	202.8	20.7	213.0	21.7	15		0.68	0.31	20.6	22.8	23.9
16	5/8	1.152	208.6	21.3	230.7	23.5	242.4	24.7	16	5/8	0.77	0.35	23.4	25.9	27.2
17		1.300	235.5	24	260.5	26.5	273.6	27.9	17		0.87	0.4	26.5	29.3	30.8
18		1.457	264.0	26.9	292.0	29.8	306.8	31.3	18		0.98	0.44	29.7	32.8	34.5
19	3/4	1.624	294.2	30	325.4	33.2	341.8	34.8	19	3/4	1.09	0.5	33.1	36.6	38.4
20		1.799	325.9	33.2	360.5	36.7	378.7	38.6	20		1.21	0.55	36.6	40.5	42.6
21		1.984	359.3	36.6	397.5	40.5	417.5	42.5	21		1.33	0.6	40.4	44.7	46.9
22		2.177	394.4	40.2	436.2	44.5	458.3	46.7	22		1.46	0.66	44.3	49	51.5
22.4		2.257	408.9	41.7	452.2	46.1	475.1	48.4	22.4		1.52	0.69	46	50.8	53.4
23		2.380	431.0	43.9	476.8	48.6	500.9	51	23		1.6	0.73	48.4	53.6	56.3
24		2.591	469.3	47.8	519.1	52.9	545.4	55.6	24		1.74	0.79	52.8	58.4	61.3
25		2.812	509.3	51.9	563.3	57.4	591.8	60.3	25		1.89	0.86	57.2	63.3	66.5
25.4	1	2.902	525.7	53.6	581.5	59.3	610.8	62.2	25.4	1	1.95	0.88	59.1	65.4	68.7
26		3.041	550.8	56.1	609.3	62.1	640.0	65.2	26		2.04	0.93	61.9	68.5	71.9
27		3.279	594.0	60.5	657.0	67	690.2	70.3	27		2.2	1	66.8	73.9	77.6
28		3.527	638.8	65.1	706.6	72	742.3	75.6	28		2.37	1.08	71.8	79.4	83.4
28.6	1-1/8	3.680	666.5	67.9	737.2	75.1	774.5	78.9	28.6	1-1/8	2.47	1.12	74.9	82.9	87
29		3.783	685.3	69.8	758.0	77.2	796.3	81.1	29		2.54	1.15	77	85.2	89.5
30		4.049	733.4	74.7	811.1	82.7	852.1	86.8	30		2.72	1.23	82.4	91.2	95.8
31		4.323	783.1	79.8	866.1	88.3	909.9	92.7	31		2.9	1.32	88	97.4	102.3
32	1-1/4	4.606	834.4	85	922.9	94	969.5	98.8	32	1-1/4	3.1	1.4	93.8	103.7	109
33		4.899	887.4	90.4	981.5	100	1031	105.1	33		3.29	1.49	99.7	110.3	115.9
34		5.200	941.9	96	1042	106.2	1095	111.5	34		3.49	1.59	105.9	117.1	123
35	1-3/8	5.511	998.2	101.7	1104	112.5	1160	118.2	35	1-3/8	3.7	1.68	112.2	124.1	130.4
36		5.830	1056	107.6	1168	119	1227	125	36		3.92	1.78	118.7	131.3	137.9
38	1-1/2	6.496	1177	119.9	1301	132.6	1367	139.3	38	1-1/2	4.36	1.98	132.3	146.3	153.7
40		7.198	1304	132.9	1442	146.9	1515	154.4	40		4.84	2.19	146.5	162.1	170.3
41.3	1-5/8	7.673	1390	141.6	1537	156.7	1615	164.6	41.3	1-5/8	5.16	2.34	156.2	172.8	181.5
42		7.935	1437	146.5	1590	162	1670	170.2	42		5.33	2.42	161.6	178.7	187.7
44		8.709	1578	160.7	1745	177.8	1833	186.8	44		5.85	2.66	177.3	196.1	206
45	1-3/4	9.109	1650	168.1	1825	186	1917	195.4	45	1-3/4	6.12	2.78	185.5	205.1	215.5
46		9.519	1724	175.7	1907	194.3	2003	204.2	46		6.4	2.9	193.8	214.4	225.2
47.5	1-7/8	10.150	1838	187.3	2034	207.2	2136	217.7	47.5	1-7/8	6.82	3.09	206.6	228.6	240.1
48		10.364	1877	191.3	2077	211.6	2181	222.3	48		6.96	3.16	211	233.4	245.2
50	2	11.246	2037	207.6	2253	229.6	2367	241.2	50	2	7.56	3.43	229	253.3	266.1
52		12.164	2203	224.5	2437	248.3	2560	260.9	52		8.17	3.71	247.7	273.9	287.8
54	2-1/8	13.117	2376	242.1	2628	267.8	2761	281.3	54	2-1/8	8.81	4	267.1	295.4	310.3
56		14.107	2555	260.4	2826	288			56		9.48	4.3	287.2	317.7	
58		15.133	2741	279.3	3032	309			58		10.17	4.61	308.1	340.8	
60	2-3/8	16.194	2933	298.9	3245	330.6			60	2-3/8	10.88	4.94	329.7	364.7	

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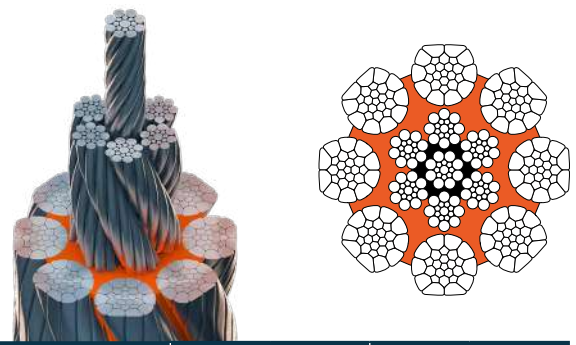
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# VEROPRO 8 RS

provides excellent resistance to abrasion and has a very high breaking strength.



Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1960		2160	
mm*	Inch	kg/m	kN	t	kN	t
12		0.666	134.4	13.7	144.7	14.7
12.7	1/2	0.746	150.5	15.3	162.1	16.5
13		0.782	157.7	16.1	169.9	17.3
14		0.907	182.9	18.6	197.0	20.1
15		1.041	210.0	21.4	226.1	23
16	5/8	1.184	238.9	24.3	257.3	26.2
17		1.337	269.7	27.5	290.5	29.6
18		1.499	302.4	30.8	325.6	33.2
19	3/4	1.670	336.9	34.3	362.8	37
20		1.851	373.3	38	402.0	41
21		2.040	411.5	41.9	443.2	45.2
22		2.239	451.7	46	486.5	49.6
22.4		2.322	468.2	47.7	504.3	51.4
23		2.448	493.7	50.3	531.7	54.2
24		2.665	537.5	54.8	578.9	59
25		2.892	583.3	59.4	628.2	64
25.4	1	2.985	602.1	61.4	648.4	66.1
26		3.128	630.9	64.3	679.4	69.2
27		3.373	680.3	69.3	732.7	74.7
28		3.627	731.6	74.6	788.0	80.3
28.6	1-1/8	3.785	763.3	77.8	822.1	83.8
29		3.891	784.8	80	845.3	86.1
30		4.164	839.9	85.6	904.6	92.2
31		4.446	896.8	91.4	965.9	98.4
32	1-1/4	4.738	955.6	97.4	1029	104.9
33		5.039	1016	103.6	1095	111.5
34		5.349	1079	109.9	1162	118.4
35	1-3/8	5.668	1143	116.5	1231	125.5
36		5.996	1209	123.2	1303	132.7
38	1-1/2	6.681	1348	137.3	1451	147.9
40		7.403	1493	152.2	1608	163.9
41.3	1-5/8	7.892	1592	162.2	1714	174.7
42		8.162	1646	167.7	1773	180.7
44		8.957	1807	184.1	1946	198.3
45	1-3/4	9.369	1890	192.6	2035	207.4
46		9.790	1975	201.2	2127	216.7
47.5	1-7/8	10.439	2106	214.6	2268	231.1
48		10.660	2150	219.1	2316	236

Nominal rope diameter		Approx mass		Minimum breaking force tons <sup>1</sup> of 2000 lbs	
				Rope grade	
				1960	2160
mm*	Inch	lb/ft <sup>1</sup>	kg/ft <sup>1</sup>	1960	2160
12		0.45	0.2	15.1	16.3
12.7	1/2	0.5	0.23	16.9	18.2
13		0.53	0.24	17.7	19.1
14		0.61	0.28	20.6	22.1
15		0.7	0.32	23.6	25.4
16	5/8	0.8	0.36	26.9	28.9
17		0.9	0.41	30.3	32.6
18		1.01	0.46	34	36.6
19	3/4	1.12	0.51	37.9	40.8
20		1.24	0.56	42	45.2
21		1.37	0.62	46.3	49.8
22		1.5	0.68	50.8	54.7
22.4		1.56	0.71	52.6	56.7
23		1.64	0.75	55.5	59.8
24		1.79	0.81	60.4	65.1
25		1.94	0.88	65.6	70.6
25.4	1	2.01	0.91	67.7	72.9
26		2.1	0.95	70.9	76.4
27		2.27	1.03	76.5	82.4
28		2.44	1.11	82.2	88.6
28.6	1-1/8	2.54	1.15	85.8	92.4
29		2.61	1.19	88.2	95
30		2.8	1.27	94.4	101.7
31		2.99	1.36	100.8	108.6
32	1-1/4	3.18	1.44	107.4	115.7
33		3.39	1.54	114.2	123
34		3.59	1.63	121.3	130.6
35	1-3/8	3.81	1.73	128.5	138.4
36		4.03	1.83	135.9	146.4
38	1-1/2	4.49	2.04	151.5	163.1
40		4.97	2.26	167.8	180.8
41.3	1-5/8	5.3	2.41	178.9	192.7
42		5.48	2.49	185	199.3
44		6.02	2.73	203.1	218.7
45	1-3/4	6.3	2.86	212.4	228.8
46		6.58	2.98	222	239
47.5	1-7/8	7.01	3.18	236.7	254.9
48		7.16	3.25	241.7	260.3

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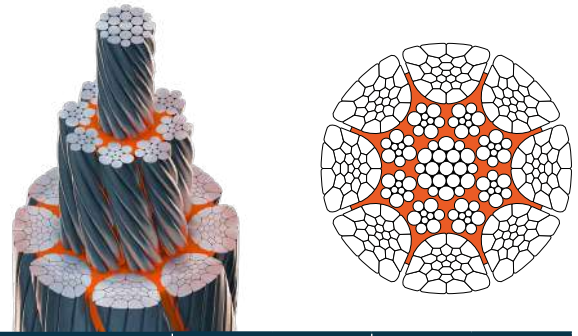
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# VEROPOWER 8

has very high structural stability, achieves excellent bending fatigue results.



Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1960		2160	
mm*	Inch	kg/m	kN	t	kN	t
12		0.717	147.4	15	158.8	16.2
12.7	1/2	0.803	165.1	16.8	177.9	18.1
13		0.842	173.0	17.6	186.4	19
14		0.976	200.6	20.4	216.2	22
15		1.121	230.3	23.5	248.2	25.3
16	5/8	1.275	262.0	26.7	282.3	28.8
17		1.440	295.8	30.1	318.7	32.5
18		1.614	331.6	33.8	357.3	36.4
19	3/4	1.798	369.5	37.6	398.1	40.6
20		1.992	409.4	41.7	441.2	45
21		2.197	451.3	46	486.4	49.6
22		2.411	495.3	50.5	533.8	54.4
22.4		2.499	513.5	52.3	553.4	56.4
23		2.635	541.4	55.2	583.4	59.5
24		2.869	589.5	60.1	635.3	64.7
25		3.113	639.6	65.2	689.3	70.2
25.4	1	3.214	660.3	67.3	711.5	72.5
26		3.367	691.8	70.5	745.6	76
27		3.631	746.1	76	804.0	81.9
28		3.905	802.4	81.8	864.7	88.1
28.6	1-1/8	4.074	837.1	85.3	902.1	91.9
29		4.189	860.7	87.7	927.5	94.5
30		4.483	921.1	93.9	992.6	101.1
31		4.787	983.5	100.2	1060	108
32	1-1/4	5.101	1048	106.8	1129	115.1
33		5.424	1115	113.6	1201	122.4
34		5.758	1183	120.6	1275	129.9
35	1-3/8	6.102	1254	127.8	1351	137.7
36		6.455	1326	135.2	1429	145.7
38	1-1/2	7.193	1478	150.6	1593	162.3
40		7.970	1637	166.9	1765	179.8
41.3	1-5/8	8.496	1746	177.9	1881	191.7
42		8.787	1805	184	1946	198.2
44		9.643	1981	201.9	2135	217.6
45	1-3/4	10.09	2072	211.2	2233	227.6
46		10.54	2166	220.7	2334	237.8
47.5	1-7/8	11.24	2309	235.3	2488	253.6
48		11.48	2358	240.3	2541	258.9

Nominal rope diameter		Approx mass		Minimum breaking force tons' of 2000 lbs	
				Rope grade	
				1960	2160
mm*	Inch	lb/ft <sup>1</sup>	kg/ft <sup>1</sup>	1960	2160
12		0.48	0.22	16.6	17.9
12.7	1/2	0.54	0.24	18.6	20
13		0.57	0.26	19.4	21
14		0.66	0.3	22.5	24.3
15		0.75	0.34	25.9	27.9
16	5/8	0.86	0.39	29.4	31.7
17		0.97	0.44	33.2	35.8
18		1.08	0.49	37.3	40.2
19	3/4	1.21	0.55	41.5	44.8
20		1.34	0.61	46	49.6
21		1.48	0.67	50.7	54.7
22		1.62	0.74	55.7	60
22.4		1.68	0.76	57.7	62.2
23		1.77	0.8	60.9	65.6
24		1.93	0.87	66.3	71.4
25		2.09	0.95	71.9	77.5
25.4	1	2.16	0.98	74.2	80
26		2.26	1.03	77.8	83.8
27		2.44	1.11	83.9	90.4
28		2.62	1.19	90.2	97.2
28.6	1-1/8	2.74	1.24	94.1	101.4
29		2.81	1.28	96.7	104.3
30		3.01	1.37	103.5	111.6
31		3.22	1.46	110.5	119.1
32	1-1/4	3.43	1.56	117.8	126.9
33		3.64	1.65	125.3	135
34		3.87	1.76	133	143.3
35	1-3/8	4.1	1.86	140.9	151.9
36		4.34	1.97	149.1	160.7
38	1-1/2	4.83	2.19	166.1	179
40		5.36	2.43	184.1	198.3
41.3	1-5/8	5.71	2.59	196.2	211.4
42		5.9	2.68	202.9	218.7
44		6.48	2.94	222.7	240
45	1-3/4	6.78	3.08	232.9	251
46		7.08	3.21	243.4	262.3
47.5	1-7/8	7.55	3.43	259.5	279.7
48		7.71	3.5	265	285.6

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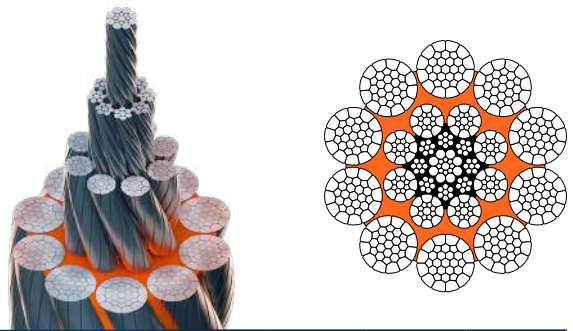
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## VEROPRO 10

is an extremely flexible rope with very high breaking strength and achieves excellent bending fatigue results.



Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1960		2160	
mm*	Inch	kg/m	kN	t	kN	t
30		4.152	828.0	84.4	891.6	90.9
32	1-1/4	4.724	942.1	96	1014.4	103.4
34		5.333	1063.5	108.4	1145.2	116.7
36		5.979	1192.3	121.5	1283.9	130.8
38	1-1/2	6.662	1328.4	135.4	1430.5	145.8
40		7.381	1472.0	150	1585.1	161.5
42		8.138	1622.8	165.4	1747.5	178.1
44		8.931	1781.1	181.5	1917.9	195.4
46		9.762	1946.7	198.4	2096.3	213.6
48		10.629	2119.6	216	2282.5	232.6
50	2	11.533	2299.9	234.4	2476.7	252.4
52		12.474	2487.6	253.5	2678.8	273
54	2-1/8	13.452	2682.6	273.4	2888.8	294.4
56		14.467	2885.0	294	3106.8	316.6
58		15.519	3094.8	315.4	3332.6	339.6
60	2-3/8	16.608	3311.9	337.5	3566.4	363.4
62		17.733	3536.4	360.4	3808.1	388.1
64	2-1/2	18.896	3768.2	384	4057.8	413.5
66	2-5/8	20.095	4007.4	408.4	4315.4	439.7
68		21.332	4254.0	433.5	4580.9	466.8
70	2-3/4	22.605	4507.9	459.4	4854.3	494.7

Nominal rope diameter		Approx mass		Minimum breaking force tons' of 2000 lbs	
				Rope grade	
				1960	2160
mm*	Inch	lb/ft <sup>1</sup>	kg/ft <sup>1</sup>	1960	2160
30	1-1/4	2.79	1.27	93.1	100.2
32		3.17	1.44	105.9	114
34		3.58	1.63	119.5	128.7
36	1-1/2	4.02	1.82	134	144.3
38		4.48	2.03	149.3	160.8
40		4.96	2.25	165.4	178.2
42		5.47	2.48	182.4	196.4
44		6	2.72	200.2	215.6
46		6.56	2.98	218.8	235.6
48	2	7.14	3.24	238.2	256.6
50		7.75	3.52	258.5	278.4
52	2-1/8	8.38	3.8	279.6	301.1
54		9.04	4.1	301.5	324.7
56		9.72	4.41	324.3	349.2
58	2-3/8	10.43	4.73	347.9	374.6
60		11.16	5.06	372.3	400.9
62	2-1/2	11.92	5.41	397.5	428
64	2-5/8	12.7	5.76	423.5	456.1
66		13.5	6.13	450.4	485
68	2-3/4	14.33	6.5	478.1	514.9
70		15.19	6.89	506.7	545.6

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