verope®

HEAVY INDUSTRY

verope® **special wire ropes**

APPLICATIONS

HEAVY INDUSTRY

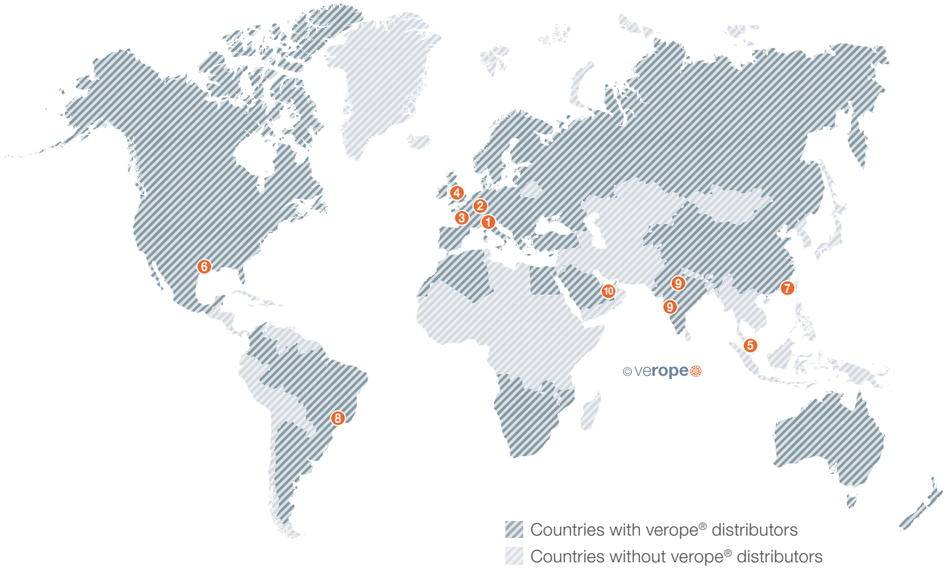
Wire ropes must be capable of withstanding extreme ambient conditions and mechanical stresses present in heavy industry applications. verope® offers various ropes, rope end fittings and customer-specific special solutions specifically for the heavy industry. verope® provides a global distribution network 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

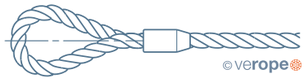
verope® worldwide



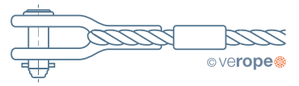
1. **verope® AG (Headquarters),** Zug, Switzerland
2. **verope® Service Center GmbH,** Contwig, Germany
3. **verope® France,** Paris, France
4. **verope® UK,** Birmingham, UK
5. **verope® Distribution Singapore Pte. Ltd,** Singapore
6. **verope® USA,** Houston, USA
7. **LTI Steel Wire Rope Co., Ltd.,**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

STANDARD ROPE END CONNECTIONS

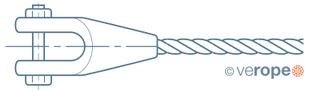
We are able to offer customized ropes with the correct end connections for crane brands such as:
• Liebherr • Terex • Sennebogen • Tadano Faun • Manitowoc • And much more



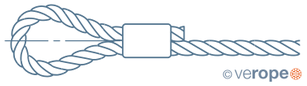
Flemish eye ferrule-secured termination



Ferrule-secured open thimble termination

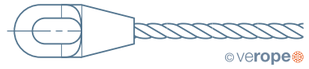


Open spelter socket: Metal or resin socketing

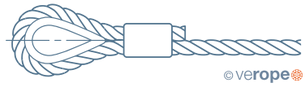


Ferrule-secured eye termination

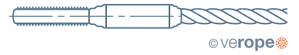
End stop: either metal/resin socketing or swaged



Closed end socket: Metal or cast synthetic resin

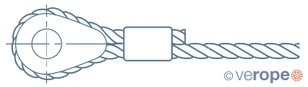


Ferrule-secured thimble termination



Threaded socket swaged

Open socket swaged



Ferrule-secured solid thimble termination

Closed socket swaged

Pad eye

Seized and cut

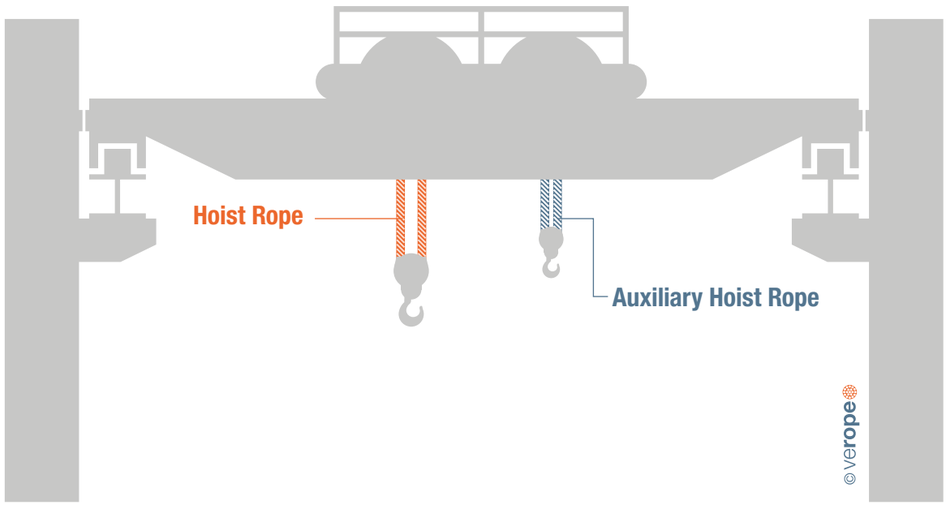
Fused and tapered

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

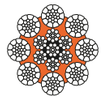
ROPE APPLICATIONS FOR HEAVY INDUSTRY

Overhead Crane | Ladle Crane | Jib Crane

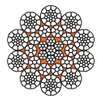
OVERHEAD CRANE



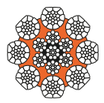
Overhead crane in cold operation.



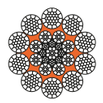
vero**pro 8** is an 8-strand, non-rotation-resistant rope with compacted outer strands and a rope core covered with a plastic layer.



vero**tech 10**[1] is a very flexible 10-strand, non-rotation resistant rope in parallel lay construction with compacted strands and a rope core covered with a plastic layer.

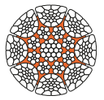


vero**pro 8 RS** is a rotary swaged 8-strand, non-rotation resistant rope with compacted outer strands and a rope core covered with a plastic layer.

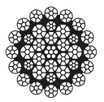


vero**pro 10**[2] is a very flexible 10-strand, non-rotation-resistant rope with compacted strands and a rope core covered with a plastic layer.

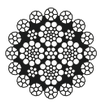
vero**star 8**[3] is an 8-strand, non-rotation-resistant rope with conventional strands and a rope core covered with a plastic layer.



vero**power 8**[1] 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.



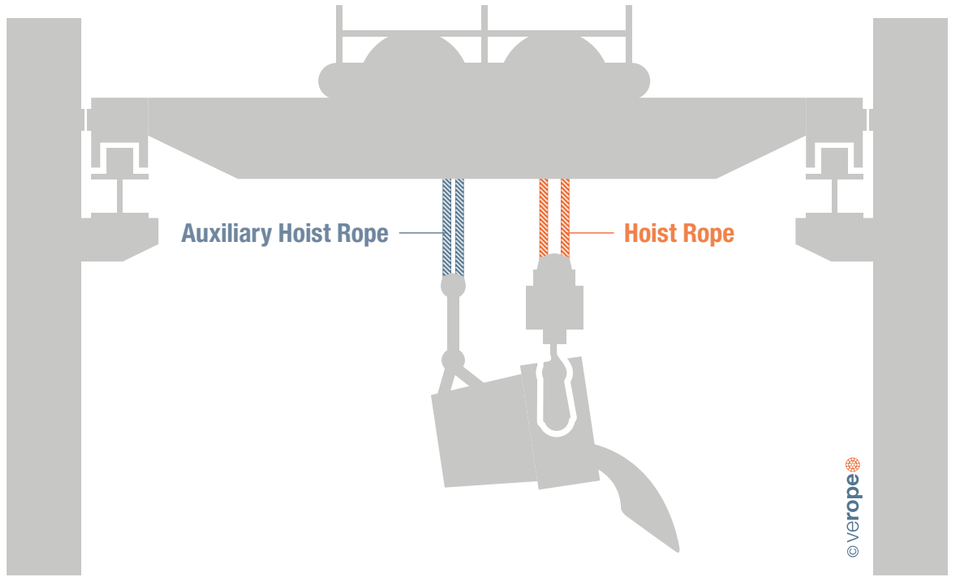
vero**top**[4] is a very flexible rotation-resistant rope with compacted strands.



vero**top E**[4] is a flexible rotation-resistant rope with compacted outer strands.

[1] For special applications | [2] Only available from 30 mm diameter
[3] Preferably for single-layer winding | [4] When a rotation-resistant rope is required

LADLE CRANE



Ladle crane in warm operation.

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

verost**eel 8**[2] is an 8-strand, non-rotation-resistant rope with compacted outer strands.

verop**ro 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.

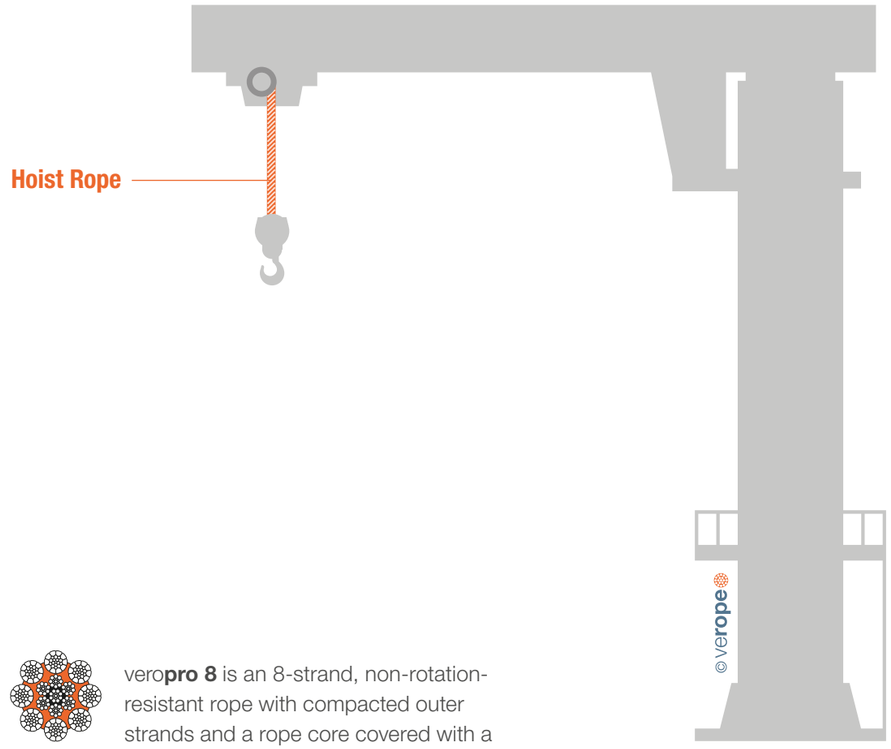
verost**ar 8**[3] is an 8-strand, non-rotation-resistant rope with conventional strands and a rope core covered with a plastic layer.

verop**ro 10**[1] is a very flexible 10-strand, non-rotation-resistant rope with compacted strands and a rope core covered with a plastic layer.

verop**ower 8**[4] 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.

[1] Only available from 30 mm diameter | [2] Casting crane with high temperatures
[3] Preferably for single-layer winding | [4] For special applications

JIB CRANE



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

verot**ech 10**[1] is a very flexible 10-strand, non-rotation resistant rope in parallel lay construction with compacted strands and a rope core covered with a plastic layer.

verop**ower 8**[1] 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.

verost**ar 8**[2] is an 8-strand, non-rotation-resistant rope with conventional strands and a rope core covered with a plastic layer.

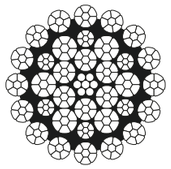
verot**op**[3] is a very flexible rotation-resistant rope with compacted strands.

verop**ro 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.

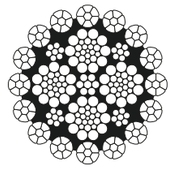
verot**op E**[3] is a flexible rotation-resistant rope with compacted outer strands.

[1] For special applications | [2] Preferably for single-layer winding | [3] When a rotation-resistant rope is required

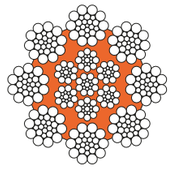
SPECIAL WIRE ROPE APPLICATIONS FOR THE HEAVY INDUSTRY



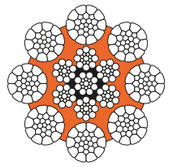
verotop



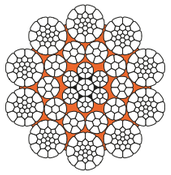
verotop E



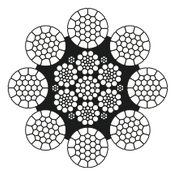
verostar 8



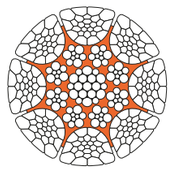
veropro 8



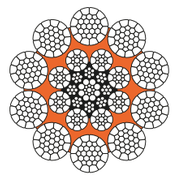
verotech 10



verosteel 8



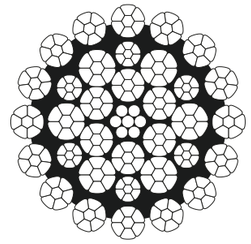
veropower 8



veropro 10

VEROTOP

provides a very stable rope structure and achieves excellent bending fatigue results.



Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1960		2160	
mm²	Inch	kg/m	kN	t	kN	t
8	5/16	0.313	61.1	6.2	62.7	6.4
9		0.397	77.3	7.9	79.4	8.1
10		0.490	95.4	9.7	98.0	10
11	7/16	0.593	115.5	11.8	118.6	12.1
12		0.705	137.4	14	141.2	14.4
12.7	1/2	0.790	153.9	15.7	158.1	16.1
13		0.828	161.3	16.4	165.7	16.9
14		0.960	187.0	19.1	192.2	19.6
15		1.102	214.7	21.9	220.6	22.5
16	5/8	1.254	244.3	24.9	251.0	25.6
17		1.415	275.8	28.1	283.3	28.9
18		1.587	309.2	31.5	317.7	32.4
19	3/4	1.768	344.5	35.1	353.9	36.1
20		1.959	381.7	38.9	392.2	40
21		2.160	420.8	42.9	432.4	44.1
22		2.371	461.9	47.1	474.5	48.4
22.4		2.458	478.8	48.8	491.9	50.1
23		2.591	504.8	51.4	518.6	52.9
24		2.821	549.7	56	564.7	57.5
25		3.061	596.4	60.8	612.8	62.4
25.4	1	3.160	615.7	62.7	632.5	64.5
26		3.311	645.1	65.7	662.8	67.5
27		3.571	695.7	70.9	714.7	72.8
28		3.840	748.2	76.2	768.7	78.3
28.6	1-1/8	4.006	780.6	79.5	802.0	81.7
29		4.119	802.6	81.8	824.5	84
30		4.408	858.9	87.5	882.4	89.9
31		4.707	917.1	93.4	942.2	96
32	1-1/4	5.015	977.2	99.6	1004	102.3
33		5.334	1039	105.9	1068	108.8
34		5.662	1103	112.4	1133	115.5
35	1-3/8	6.000	1169	119.1	1201	122.4
36		6.348	1237	126	1271	129.5
38	1-1/2	7.072	1378	140.4	1416	144.3
40		7.837	1527	155.6	1569	159.8
41		8.233	1604	163.5	1648	167.9
42		8.640	1683	171.5	1729	176.2
43		9.056	1764	179.8	1813	184.7
44		9.482	1848	188.3	1898	193.4
45	1-3/4	9.918	1932	196.9	1985	202.3
46		10.364	2019	205.8	2075	211.4
48		11.285	2199	224	2259	230.2
50	2	12.245	2386	243.1	2451	249.8
52		13.244	2580	262.9	2651	270.1
54	2-1/8	14.282	2783	283.6		
56		15.360	2993	305		
58		17.01	3098	315.9	3258²	332.2²
60		18.20	3333	339.9	3505²	357.4²
62		19.44	3517	358.6	3698²	377.1²
64		20.71	3775	384.9	3969²	404.7²
66		21.37	3972	405	4094²	417.5²
68		23.38	4251	433.5	4470²	455.8²
70	2-3/4	24.78	4535	462.4	4769²	486.3²
72		26.21	4809	490	5057²	515.7²

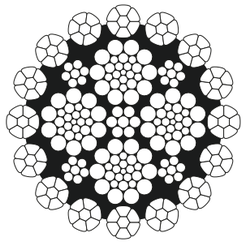
Nominal rope diameter		Approx mass		Minimum breaking force tons[1] of 2000 lbs	
				Rope grade	
mm*	Inch	lb/ft[1]	kg/ft[1]	1960	2160
8	5/16	0.21	0.1	6.9	7.1
9		0.27	0.12	8.7	8.9
10		0.33	0.15	10.7	11
11	7/16	0.4	0.18	13	13.3
12		0.47	0.22	15.4	15.9
12.7	1/2	0.53	0.24	17.3	17.8
13		0.56	0.25	18.1	18.6
14		0.65	0.29	21	21.6
15		0.74	0.34	24.1	24.8
16	5/8	0.84	0.38	27.5	28.2
17		0.95	0.43	31	31.8
18		1.07	0.48	34.8	35.7
19	3/4	1.19	0.54	38.7	39.8
20		1.32	0.6	42.9	44.1
21		1.45	0.66	47.3	48.6
22		1.59	0.72	51.9	53.3
22.4		1.65	0.75	53.8	55.3
23		1.74	0.79	56.7	58.3
24		1.9	0.86	61.8	63.5
25		2.06	0.93	67	68.9
25.4	1	2.12	0.96	69.2	71.1
26		2.22	1.01	72.5	74.5
27		2.4	1.09	78.2	80.3
28		2.58	1.17	84.1	86.4
28.6	1-1/8	2.69	1.22	87.7	90.1
29		2.77	1.26	90.2	92.7
30		2.96	1.34	96.5	99.2
31		3.16	1.44	103.1	105.9
32	1-1/4	3.37	1.53	109.8	112.8
33		3.58	1.63	116.8	120
34		3.8	1.73	124	127.4
35	1-3/8	4.03	1.83	131.4	135
36		4.27	1.94	139	142.8
38	1-1/2	4.75	2.16	154.9	159.1
40		5.27	2.39	171.6	176.3
41		5.53	2.51	180.3	185.2
42		5.81	2.63	189.2	194.4
43		6.09	2.76	198.3	203.8
44		6.37	2.89	207.7	213.3
45	1-3/4	6.66	3.02	217.2	223.2
46		6.96	3.16	227	233.2
48		7.58	3.44	247.1	253.9
50	2	8.23	3.73	268.2	275.5
52		8.9	4.04	290	298
54	2-1/8	9.6	4.35	312.8	
56		10.32	4.68	336.4	
58		11.43	5.18	348.2	366.2²
60		12.23	5.54	374.6	394²
62		13.06	5.93	395.3	415.7²
64		13.91	6.31	424.3	446.1²
66		14.36	6.51	446.5	460.2²
68		15.71	7.13	477.8	502.4²
70	2-3/4	16.65	7.55	509.8	536.1²
72		17.61	7.99	540.6	568.4²

*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

VEROTOP E

combines high breaking strength and good rotation resistance with remarkable efficiency.



Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1960		2160	
mm*	Inch	kg/m	kN	t	kN	t
8	5/16	0.305	55.2	5.6	60.2	6.1
9		0.387	69.8	7.1	76.2	7.8
10		0.477	86.2	8.8	94.1	9.6
11	7/16	0.577	104.3	10.6	113.9	11.6
12		0.687	124.1	12.6	135.5	13.8
13		0.806	145.7	14.8	159.1	16.2
14		0.935	169.0	17.2	184.5	18.8
15		1.074	194.0	19.8	211.8	21.6
16	5/8	1.222	220.7	22.5	241.0	24.6
18		1.546	279.3	28.5	305.0	31.1
19	3/4	1.723	311.2	31.7	339.8	34.6
20		1.909	344.8	35.1	376.5	38.4
22		2.310	417.2	42.5	455.6	46.4
23		2.524	456.0	46.5	497.9	50.7
24		2.749	496.5	50.6	542.1	55.2
25		2.983	538.8	54.9	588.3	59.9
26		3.226	582.7	59.4	636.3	64.8
27		3.479	628.4	64	686.2	69.9
28		3.741	675.8	68.9	737.9	75.2
29		4.013	725.0	73.9	791.6	80.7
30		4.295	775.8	79.1	847.1	86.3
32	1-1/4	4.887	882.7	90	963.8	98.2
34		5.517	983.8	100.3	1077	109.8
35	1-3/8	5.846	1043	106.2	1142	116.3
36		6.185	1103	112.4	1208	123.1
38	1-1/2	6.891	1229	125.2	1346	137.1
40		7.635	1362	138.8	1491	151.9

Nominal rope diameter		Approx mass		Minimum breaking force tons[1] of 2000 lbs	
				Rope grade	
mm*	Inch	lb/ft[1]	kg/ft[1]	1960	2160
8	5/16	0.21	0.09	6.2	6.8
9		0.26	0.12	7.8	8.6
10		0.32	0.15	9.7	10.6
11	7/16	0.39	0.18	11.7	12.8
12		0.46	0.21	14	15.2
13		0.54	0.25	16.4	17.9
14		0.63	0.29	19	20.7
15		0.72	0.33	21.8	23.8
16	5/8	0.82	0.37	24.8	27.1
18		1.04	0.47	31.4	34.3
19	3/4	1.16	0.53	35	38.2
20		1.28	0.58	38.8	42.3
22		1.55	0.7	46.9	51.2
23		1.7	0.77	51.3	56
24		1.85	0.84	55.8	60.9
25		2	0.91	60.6	66.1
26		2.17	0.98	65.5	71.5
27		2.34	1.06	70.6	77.1
28		2.51	1.14	76	82.9
29		2.7	1.22	81.5	89
30		2.89	1.31	87.2	95.2
32	1-1/4	3.28	1.49	99.2	108.3
34		3.71	1.68	110.6	121.1
35	1-3/8	3.93	1.78	117.2	128.3
36		4.16	1.89	124	135.8
38	1-1/2	4.63	2.1	138.1	151.3
40		5.13	2.33	153.1	167.6

*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.
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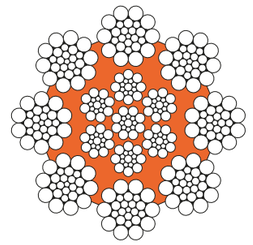
VEROSTAR 8

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
6		0.155	26.9	2.74	29.8	3
7		0.211	36.6	3.73	40.6	4.1
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[1] of 2000 lbs	
				Rope grade	
mm*	Inch	lb/ft[1]	kg/ft[1]	1770	1960
6		0.104	0.047	3.0	3.3
7		0.142	0.064	4.1	4.6
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

*Standard tolerance: +2% to 4%, other tolerances possible upon agreement. Other and special rope diameters are available upon request.
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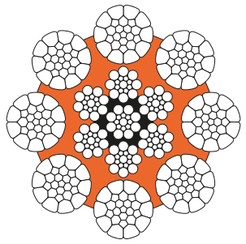
has very high structural stability, achieves excellent bending fatigue results.



Nominal rope diameter		Approx mass	Minimum breaking force					
			Rope grade					
			1770		1960		2160	
mm*	Inch	kg/m	kN	t	kN	t	kN	t
6		0.162	29.3	2.99	32.4	3.30	34.1	3.48
6.4		0.184	33.4	3.41	36.9	3.76	38.8	3.96
7		0.220	39.9	4.07	44.2	4.51	46.4	4.73
8	5/16	0.288	52.1	5.3	57.7	5.9	60.6	6.2
9		0.364	66.0	6.7	73.0	7.4	76.7	7.8
10		0.450	81.5	8.3	90.1	9.2	94.7	9.6
11	7/16	0.544	98.6	10	109.1	11.1	114.6	11.7
12		0.648	117.3	12	129.8	13.2	136.3	13.9
12.7	1/2	0.726	131.4	13.4	145.4	14.8	152.7	15.6
13		0.760	137.7	14	152.3	15.5	160.0	16.3
14		0.882	159.7	16.3	176.7	18	185.6	18.9
15		1.012	183.3	18.7	202.8	20.7	213.0	21.7
16	5/8	1.152	208.6	21.3	230.7	23.5	242.4	24.7
17		1.300	235.5	24	260.5	26.5	273.6	27.9
18		1.457	264.0	26.9	292.0	29.8	306.8	31.3
19	3/4	1.624	294.2	30	325.4	33.2	341.8	34.8
20		1.799	325.9	33.2	360.5	36.7	378.7	38.6
21		1.984	359.3	36.6	397.5	40.5	417.5	42.5
22		2.177	394.4	40.2	436.2	44.5	458.3	46.7
22.4		2.257	408.9	41.7	452.2	46.1	475.1	48.4
23		2.380	431.0	43.9	476.8	48.6	500.9	51
24		2.591	469.3	47.8	519.1	52.9	545.4	55.6
25		2.812	509.3	51.9	563.3	57.4	591.8	60.3
25.4	1	2.902	525.7	53.6	581.5	59.3	610.8	62.2
26		3.041	550.8	56.1	609.3	62.1	640.0	65.2
27		3.279	594.0	60.5	657.0	67	690.2	70.3
28		3.527	638.8	65.1	706.6	72	742.3	75.6
28.6	1-1/8	3.680	666.5	67.9	737.2	75.1	774.5	78.9
29		3.783	685.3	69.8	758.0	77.2	796.3	81.1
30		4.049	733.4	74.7	811.1	82.7	852.1	86.8
31		4.323	783.1	79.8	866.1	88.3	909.9	92.7
32	1-1/4	4.606	834.4	85	922.9	94	969.5	98.8
33		4.899	887.4	90.4	981.5	100	1031	105.1
34		5.200	941.9	96	1042	106.2	1095	111.5
35	1-3/8	5.511	998.2	101.7	1104	112.5	1160	118.2
36		5.830	1056	107.6	1168	119	1227	125
38	1-1/2	6.496	1177	119.9	1301	132.6	1367	139.3
40		7.198	1304	132.9	1442	146.9	1515	154.4
41.3	1-5/8	7.673	1390	141.6	1537	156.7	1615	164.6
42		7.935	1437	146.5	1590	162	1670	170.2
44		8.709	1578	160.7	1745	177.8	1833	186.8
45	1-3/4	9.109	1650	168.1	1825	186	1917	195.4
46		9.519	1724	175.7	1907	194.3	2003	204.2
47.5	1-7/8	10.150	1838	187.3	2034	207.2	2136	217.7
48		10.364	1877	191.3	2077	211.6	2181	222.3
50	2	11.246	2037	207.6	2253	229.6	2367	241.2
52		12.164	2203	224.5	2437	248.3	2560	260.9
54	2-1/8	13.117	2376	242.1	2628	267.8	2761	281.3
56		14.107	2555	260.4	2826	288		
58		15.133	2741	279.3	3032	309		
60	2-3/8	16.194	2933	298.9	3245	330.6		
62		18.10			3520	358.9		
64		19.10			3718	379.1		
66		20.40			3946	402.4		
68		21.60			4189	427.2		
70	2-3/4	22.90			4463	455.1		
72		24.20			4728	482.1		

Nominal rope diameter		Approx mass		Minimum breaking force tons[1] of 2000 lbs		
				Rope grade		
mm*	Inch	lb/ft[1]	kg/ft[1]	1770	1960	2160
6		0.11	0.049	3.29	3.64	3.83
6.4		0.12	0.056	3.75	4.15	4.36
7		0.15	0.067	4.48	4.97	5.22
8	5/16	0.19	0.09	5.9	6.5	6.8
9		0.24	0.11	7.4	8.2	8.6
10		0.3	0.14	9.2	10.1	10.6
11	7/16	0.37	0.17	11.1	12.3	12.9
12		0.44	0.2	13.2	14.6	15.3
12.7	1/2	0.49	0.22	14.8	16.3	17.2
13		0.51	0.23	15.5	17.1	18
14		0.59	0.27	18	19.9	20.9
15		0.68	0.31	20.6	22.8	23.9
16	5/8	0.77	0.35	23.4	25.9	27.2
17		0.87	0.4	26.5	29.3	30.8
18		0.98	0.44	29.7	32.8	34.5
19	3/4	1.09	0.5	33.1	36.6	38.4
20		1.21	0.55	36.6	40.5	42.6
21		1.33	0.6	40.4	44.7	46.9
22		1.46	0.66	44.3	49	51.5
22.4		1.52	0.69	46	50.8	53.4
23		1.6	0.73	48.4	53.6	56.3
24		1.74	0.79	52.8	58.4	61.3
25		1.89	0.86	57.2	63.3	66.5
25.4	1	1.95	0.88	59.1	65.4	68.7
26		2.04	0.93	61.9	68.5	71.9
27		2.2	1	66.8	73.9	77.6
28		2.37	1.08	71.8	79.4	83.4
28.6	1-1/8	2.47	1.12	74.9	82.9	87
29		2.54	1.15	77	85.2	89.5
30		2.72	1.23	82.4	91.2	95.8
31		2.9	1.32	88	97.4	102.3
32	1-1/4	3.1	1.4	93.8	103.7	109
33		3.29	1.49	99.7	110.3	115.9
34		3.49	1.59	105.9	117.1	123
35	1-3/8	3.7	1.68	112.2	124.1	130.4
36		3.92	1.78	118.7	131.3	137.9
38	1-1/2	4.36	1.98	132.3	146.3	153.7
40		4.84	2.19	146.5	162.1	170.3
41.3	1-5/8	5.16	2.34	156.2	172.8	181.5
42		5.33	2.42	161.6	178.7	187.7
44		5.85	2.66	177.3	196.1	206
45	1-3/4	6.12	2.78	185.5	205.1	215.5
46		6.4	2.9	193.8	214.4	225.2
47.5	1-7/8	6.82	3.09	206.6	228.6	240.1
48		6.96	3.16	211	233.4	245.2
50	2	7.56	3.43	229	253.3	266.1
52		8.17	3.71	247.7	273.9	287.8
54	2-1/8	8.81	4	267.1	295.4	310.3
56		9.48	4.3	287.2	317.7	
58		10.17	4.61	308.1	340.8	
60	2-3/8	10.88	4.94	329.7	364.7	
62		12.16	5.52		395.7	
64		12.83	5.82		417.9	
66		13.71	6.22		443.5	
68		14.51	6.58		470.9	
70	2-3/4	15.39	6.98		501.7	
72		16.26	7.38		531.4	

*Standard tolerance: +2% to 4%, other tolerances possible upon agreement. Other and special rope diameters are available upon request.
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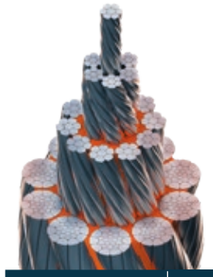
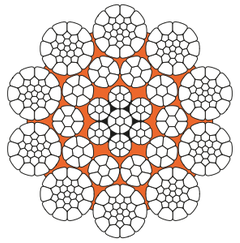
VEROTECH 10

Combines unmatched bending fatigue resistance with excellent breaking strength.





Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1960		2160	
mm*	Inch	kg/m	kN	t	kN	t
6		0.178	34.9	3.6	38.0	3.9
7		0.242	47.5	4.8	51.7	5.3
8	5/16	0.316	62.0	6.3	67.6	6.9
9		0.400	78.5	8	85.5	8.7
10		0.494	96.9	9.9	105.6	10.8
11	7/16	0.598	117.3	12	127.7	13
12		0.712	139.5	14.2	152.0	15.5
12.7	1/2	0.797	156.3	15.9	170.2	17.3
13		0.836	163.8	16.7	178.4	18.2
14		0.969	189.9	19.4	206.9	21.1
15		1.112	218.0	22.2	237.5	24.2
16	5/8	1.266	248.1	25.3	270.2	27.5
17		1.429	280.1	28.5	305.1	31.1
18		1.602	314.0	32	342.0	34.8
19	3/4	1.785	349.8	35.6	381.0	38.8
20		1.978	387.6	39.5	422.2	43
21		2.180	427.4	43.6	465.5	47.4
22		2.393	469.0	47.8	510.9	52.1
22.4		2.481	486.2	49.5	529.6	54
23		2.616	512.6	52.2	558.4	56.9
24		2.848	558.2	56.9	608.0	62
25		3.090	605.7	61.7	659.7	67.2
25.4	1	3.190	625.2	63.7	681.0	69.4
26		3.342	655.1	66.8	713.5	72.7
27		3.604	706.5	72	769.5	78.4
28		3.876	759.8	77.4	827.5	84.3
28.6	1-1/8	4.044	792.7	80.8	863.4	88
29		4.158	815.0	83	887.7	90.5
30		4.450	872.2	88.9	950.0	96.8
31		4.751	931.3	94.9	1014	103.3
32	1-1/4	5.063	992.3	101.1	1081	110.2
33		5.384	1055	107.5	1149	117.1
34		5.716	1120	114.1	1220	124.3

Nominal rope diameter		Approx mass		Minimum breaking force tons[1] of 2000 lbs	
				Rope grade	
mm*	Inch	lb/ft[1]	kg/ft[1]	1960	2160
6		0.12	0.05	3.9	4.3
7		0.16	0.07	5.3	5.8
8	5/16	0.21	0.1	7	7.6
9		0.27	0.12	8.8	9.6
10		0.33	0.15	10.9	11.9
11	7/16	0.4	0.18	13.2	14.4
12		0.48	0.22	15.7	17.1
12.7	1/2	0.54	0.24	17.6	19.1
13		0.56	0.25	18.4	20.1
14		0.65	0.3	21.3	23.3
15		0.75	0.34	24.5	26.7
16	5/8	0.85	0.39	27.9	30.4
17		0.96	0.44	31.5	34.3
18		1.08	0.49	35.3	38.4
19	3/4	1.2	0.54	39.3	42.8
20		1.33	0.6	43.6	47.5
21		1.47	0.66	48	52.3
22		1.61	0.73	52.7	57.4
22.4		1.67	0.76	54.6	59.5
23		1.76	0.8	57.6	62.8
24		1.91	0.87	62.7	68.3
25		2.08	0.94	68.1	74.2
25.4	1	2.14	0.97	70.3	76.5
26		2.25	1.02	73.6	80.2
27		2.42	1.1	79.4	86.5
28		2.6	1.18	85.4	93
28.6	1-1/8	2.72	1.23	89.1	97
29		2.79	1.27	91.6	99.8
30		2.99	1.36	98	106.8
31		3.19	1.45	104.7	114
32	1-1/4	3.4	1.54	111.5	121.5
33		3.62	1.64	118.6	129.1
34		3.84	1.74	125.9	137.1

*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.
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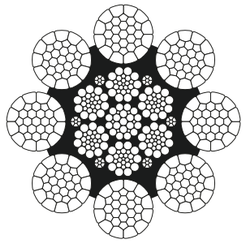
VEROSTEEL 8

Offers best general properties
at high ambient temperatures.



Nominal rope diameter		Approx mass	Minimum breaking force			
			Rope grade			
			1960		2160	
mm*	Inch	kg/m	kN	t	kN	t
16	5/8	1.164	235.1	24	254.4	25.9
17		1.315	265.5	27.1	287.2	29.3
18		1.474	297.6	30.3	322.0	32.8
19	3/4	1.642	331.6	33.8	358.7	36.6
20		1.819	367.4	37.4	397.5	40.5
21		2.006	405.1	41.3	438.2	44.7
22		2.202	444.6	45.3	481.0	49
23		2.406	485.9	49.5	525.7	53.6
24		2.620	529.1	53.9	572.4	58.3
25		2.843	574.1	58.5	621.1	63.3
26		3.075	620.9	63.3	671.7	68.5
27		3.316	669.6	68.2	724.4	73.8
28		3.566	720.1	73.4	779.1	79.4
29		3.825	772.5	78.7	835.7	85.2
30		4.094	826.7	84.2	894.3	91.1
31		4.371	882.7	89.9	954.9	97.3
32	1-1/4	4.658	940.6	95.8	1018	103.7
33		4.953	1000	101.9	1082	110.3
34		5.258	1062	108.2	1149	117.1
35	1-3/8	5.572	1125	114.7	1217	124
36		5.895	1190	121.3	1288	131.2
37		6.227	1257	128.1	1360	138.6
38	1-1/2	6.568	1326	135.2	1435	146.2
39		6.918	1397	142.4	1511	154
40		7.278	1470	149.8	1590	162
41		7.646	1544	157.3	1670	170.2
42		8.024	1620	165.1	1753	178.6
43		8.410	1698	173.1	1837	187.2
44		8.806	1778	181.2	1924	196
45	1-3/4	9.211	1860	189.5	2012	205
46		9.625	1944	198.1	2103	214.3
47		10.05	2029	206.8	2195	223.7
48		10.48	2116	215.7	2289	233.3
49		10.92	2205	224.7	2386	243.1
50	2	11.37	2296	234	2484	253.1

Nominal rope diameter		Approx mass		Minimum breaking force tons[1] of 2000 lbs	
				Rope grade	
mm*	Inch	lb/ft[1]	kg/ft[1]	1960	2160
16	5/8	0.78	0.36	26.4	28.6
17		0.88	0.4	29.8	32.3
18		0.99	0.45	33.5	36.2
19	3/4	1.1	0.5	37.3	40.3
20		1.22	0.55	41.3	44.7
21		1.35	0.61	45.5	49.3
22		1.48	0.67	50	54.1
23		1.62	0.73	54.6	59.1
24		1.76	0.8	59.5	64.3
25		1.91	0.87	64.5	69.8
26		2.07	0.94	69.8	75.5
27		2.23	1.01	75.3	81.4
28		2.4	1.09	80.9	87.6
29		2.57	1.17	86.8	93.9
30		2.75	1.25	92.9	100.5
31		2.94	1.33	99.2	107.3
32	1-1/4	3.13	1.42	105.7	114.4
33		3.33	1.51	112.4	121.6
34		3.53	1.6	119.4	129.1
35	1-3/8	3.74	1.7	126.5	136.8
36		3.96	1.8	133.8	144.8
37		4.18	1.9	141.3	152.9
38	1-1/2	4.41	2	149.1	161.3
39		4.65	2.11	157	169.9
40		4.89	2.22	165.2	178.7
41		5.14	2.33	173.6	187.8
42		5.39	2.45	182.1	197
43		5.65	2.56	190.9	206.5
44		5.92	2.68	199.9	216.2
45	1-3/4	6.19	2.81	209.1	226.2
46		6.47	2.93	218.5	236.3
47		6.75	3.06	228.1	246.7
48		7.04	3.2	237.9	257.3
49		7.34	3.33	247.9	268.2
50	2	7.64	3.47	258.1	279.2

*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.
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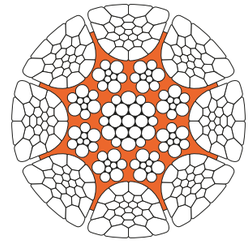
VEROPOWER 8

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[1] of 2000 lbs	
				Rope grade	
mm*	Inch	lb/ft[1]	kg/ft[1]	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

*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.
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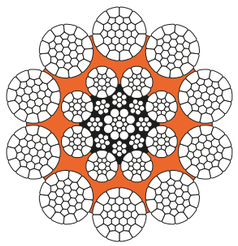
VEROPRO 10

is an extremely flexible rope with very high breaking strength and achieves excelent 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[1] of 2000 lbs	
				Rope grade	
mm*	Inch	lb/ft[1]	kg/ft[1]	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

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