

Rope Specifications

Detailed information and
specifications for braided
rope constructions

Rope Specifications

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Rope Specifications

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Minimum Tensile Strength Minimum tensile strengths shown are for new (unused) rope and will decrease after use. All tests are performed in accordance with Cordage Institute Standard CI 1500-2. The rope strength will be reduced after use due to heat, abrasion, ultraviolet or chemical exposure. The tensile strengths may be further reduced by up to 50% as a result of knots or kinks. Minimum tensile strengths are defined as two standard deviations (typical about 10%) below the average.

Maximum Working Loads Maximum working loads are determined by dividing the tensile strength by the safety factor. The safety factor is a function of the physical properties of the rope, the age and history of the rope, the type of service it will be subjected to and the risks involved if failure occurs. For a rope manufacturer to give blanket working load recommendations would be like a car manufacturer giving the "safe driving speed" of their cars. Obviously the conditions of use far outweigh the design characteristics of the rope. Typically safety factors vary from 3:1 (for new rope used in applications with uniform loading and where failure would cause little or no risk to equipment or personnel) to 20:1 (for conditions involving moderate shock loading, possibility of snags or kinks or where failure could cause severe risk to equipment or personnel).

Rope Weights Rope weights shown are average and may vary plus or minus 5%.

Working Elongation Working elongation is shown from a preload tension of 200 times the diameter squared per the Cordage Institute Standard.

Special Requirements

Factory Splicing Various types are available for all of our ropes. Splices can be provided with various types of chafe protection or coatings.

Custom Lengths Special constructions are available on request.

Rope Terminations Cortland can provide custom terminations such as thimbles, links, rings and custom hardware. Terminations are available in plastic, bronze, stainless steel and galvanized steel. Please call, or email your requirements to cortland@cortlandcompany.com for a quotation.

Special Coatings Coatings such as polyurethane, polyethylene and vinylesters may be applied to any of the synthetic ropes to improve snag resistance, sunlight resistance or for color coding. Cortland can provide ropes with a variety of finishes to meet your needs.

Commercial and Military Specifications Certificates of compliance are supplied at no charge if requested when placing the order. Certified test reports can be provided at an additional charge when requested at the time of the order.

Plasma® is a Trademark of Cortland.

Plasma® 12-Strand

Cortland's Plasma® 12-Strand and 12x12 ropes are the culmination of 25 years of engineering expertise in the HMPE industry. Our dedication to providing customers with industry-leading synthetic line is and always has been the goal. Our continued innovation and unwavering desire are to provide the strongest and most reliable product available.

Plasma 12-Strand is delivered standard with a polyurethane finish and is easily spliced using a simple lockstitch type splice, 5-4-3 tuck splice. Its soft, torque free braided construction provides easy handling.

Features & Benefits

- Highest strength
- Lowest stretch
- Low creep
- Soft hand
- Torque-free
- Easy splicing
- Floats

Applications

- Replacement for wire rope
- Vessel mooring lines
- Inland river barge lines
- Lifting slings
- Recreational vehicle winch lines
- Utility winch and pulling lines
- Theatrical rigging

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
0.04	1	0.12	0.05	0.1	270	0.1	300	0.13
0.05	1.25	0.15	0.07	0.1	390	0.2	430	0.20
0.06	1.5	0.18	0.1	0.1	475	0.2	525	0.23
0.07	1.75	0.21	0.14	0.2	750	0.3	830	0.38
0.1	2.5	0.3	0.27	0.4	1,400	0.6	1,550	0.7
1/8	3	3/8	0.54	0.8	2,800	1.3	3,100	1.4
3/16	5	9/16	1.12	1.7	5,500	2.5	6,100	2.8
1/4	6	3/4	1.6	2.4	8,000	3.6	8,890	4.0
5/16	8	15/16	2.5	3.7	11,700	5.3	13,000	5.9
3/8	9	1-1/8	3.7	5.5	17,500	7.9	19,400	8.8

ABS and DNV Type Approved Sizes

7/16	11	1-1/4	4.2	6.3	21,000	9.5	23,400	10.6
1/2	12	1-1/2	6.4	9.5	31,300	14.2	34,800	15.8
9/16	14	1-3/4	7.9	11.8	37,900	17.2	42,100	19.1
5/8	16	2	10.6	15.8	51,400	23.3	57,100	25.9
3/4	18	2-1/4	13.3	19.8	68,500	31.1	76,300	34.6
13/16	20	2-1/2	15.9	23.7	74,000	33.6	82,200	37.2
7/8	22	2-3/4	19.6	29.2	92,600	42.0	102,900	46.7
1	24	3	23.4	34.8	110,000	49.9	122,100	55.4
1-1/16	26	3-1/4	27.5	40.9	129,200	58.6	143,500	65.1
1-1/8	28	3-1/2	31.9	47.5	147,000	66.7	163,300	74.1
1-1/4	30	3-3/4	36.2	53.9	165,000	74.9	183,100	83.1
1-5/16	32	4	41.7	62.1	196,000	88.9	217,800	98.8
1-1/2	36	4-1/2	51.7	76.9	221,000	100.3	245,500	111.3

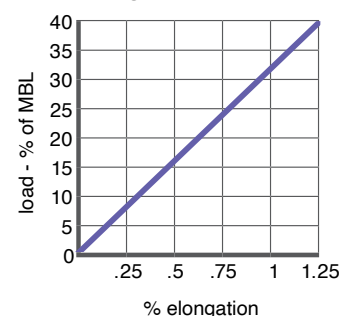
Tensile strengths are determined in accordance with Cordage Institute 1500.2. Test Methods for Fiber Rope. Minimum Tensile Strength (MTS) published assumes spliced eye terminations at each end of the rope. Weights actually calculated at linear density under stated preload (200d²) plus 4%. Diameter and circumference size published is nominal and reflects rope size after loading (10 cycles) to 50% of MTS. See reverse side for application and safety information.

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.09–0.12*
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

Plasma® 12-Strand Elongation (%)



Plasma® 12x12

Plasma® 12x12 is a 12-strand braided rope in which each of the 12 strands is, in turn, a 12-strand rope, or braided primary strand. This construction addresses the most critical properties of the fibers to provide a very high strength translation efficiency for larger ropes. The design also provides superior snag resistance compared to other 12x12 designs which is important when dragging the rope. Plasma 12x12 is supplied with our standard polyurethane finish, although other coatings can be applied to suit specific applications.

Cortland's Plasma® 12x12 ropes are the culmination of 25+ years of engineering expertise in the HMPE industry. Our dedication to providing customers with industry-leading synthetic line is and always has been the goal. Our continued innovation and unwavering desire are to provide the strongest and most reliable product available.

Features & Benefits

- World's strongest rope for its weight
- Long lengths available
- High flex fatigue and abrasion resistance
- Easy to splice, inspect, and repair
- Neutrally buoyant in water
- Select sizes are ABS & DNV type approved

Applications

- Replacement for wire rope heavy lift slings
- Tug vessel assist lines
- Vessel mooring lines
- Offshore working ropes
- Lashings

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/ 100ft	kg/ 100m	lbs	MT (tonnes)	lbs	MT (tonnes)
ABS and DNV type approved sizes – up to 4" diameter (96 mm)								
1-5/8	40	5	66	98	291,000	132	323,300	147
1-3/4	44	5-1/2	78	117	314,000	142	348,900	158
2	48	6	91	136	355,000	161	392,450	178
2-1/8	52	6-1/2	109	162	428,000	194	475,600	216
2-1/4	56	7	122	182	481,000	218	534,400	242
2-1/2	60	7-1/2	148	220	530,000	240	588,900	267
2-5/8	64	8	167	249	596,000	270	662,200	300
2-3/4	68	8-1/2	187	278	660,000	299	733,300	333
3	72	9	214	319	780,000	354	866,700	393
3-1/8	76	9-1/2	235	350	850,000	386	944,400	428
3-1/4	80	10	261	388	940,000	426	1,045,400	474
3-1/2	84	10-1/2	298	443	1,108,000	503	1,231,000	559
3-5/8	88	11	324	482	1,250,000	567	1,388,900	630
3-3/4	92	11-1/2	343	510	1,317,000	598	1,463,000	664
4	96	12	394	586	1,520,000	690	1,689,000	766
4-1/8	100	12-1/2	457	679	1,622,000	736	1,802,000	818
4-1/4	104	13	514	765	1,697,000	770	1,886,000	856
4-1/2	108	13-1/2	530	789	1,827,000	829	2,030,000	921
4-5/8	112	14	546	812	1,880,000	853	2,089,000	948
4-3/4	116	14-1/2	587	873	1,927,000	874	2,141,000	971
5	120	15	606	902	2,069,500	939	2,299,000	1043
5-1/8	124	15-1/2	657	978	2,212,000	1004	2,458,000	1115
5-1/4	128	16	703	1046	2,355,000	1069	2,617,000	1187
5-1/2	132	16-1/2	749	1114	2,497,500	1133	2,775,000	1259
5-5/8	136	17	813	1210	2,640,000	1198	2,933,000	1331
5-3/4	140	17-1/2	871	1296	2,782,500	1262	3,092,000	1403
6	144	18	932	1386	2,925,000	1327	3,250,000	1475
6-1/8	148	18-1/2	985	1465	3,068,000	1392	3,409,000	1547
6-1/4	152	19	1038	1545	3,210,500	1457	3,567,000	1618
6-1/2	156	19-1/2	1103	1642	3,353,000	1521	3,726,000	1691
6-5/8	160	20	1159	1725	3,496,000	1586	3,884,000	1762
6-3/4	164	20-1/2	1227	1827	3,638,500	1651	4,043,000	1834
7	168	21	1284	1911	3,781,000	1716	4,201,000	1906
7-1/8	172	21-1/2	1334	1986	3,963,500	1798	4,404,000	1998
7-1/4	176	22	1392	2072	4,066,000	1845	4,518,000	2050
7-1/2	180	22-1/2	1452	2161	4,209,000	1910	4,677,000	2122
7-5/8	184	23	1527	2272	4,351,500	1974	4,835,000	2194
7-3/4	188	23-1/2	1589	2365	4,494,000	2039	4,993,000	2265
8	192	24	1653	2459	4,637,000	2104	5,152,000	2338
8-1/8	196	24-1/2	1732	2578	4,779,000	2168	5,310,000	2409
8-1/4	200	25	1798	2677	4,922,000	2233	5,469,000	2481

Size: Diameter and circumference are nominal. A new unused rope in relaxed state will measure larger; loading and use compacts ropes, sets splices and lessens rope size. This is especially prevalent in sizes above 4" diameter. Published nominal sizes from 4-1/8" and larger represent stabilized or preloaded size.

Weights: Published weights of sizes 1-5/8"– 4" diameter are calculated at linear density under stated preload (200d²) plus 4%. For this chart, sizes 4-1/8"–8-1/4" diameter represent un-cycled, (non-stabilized) weights.

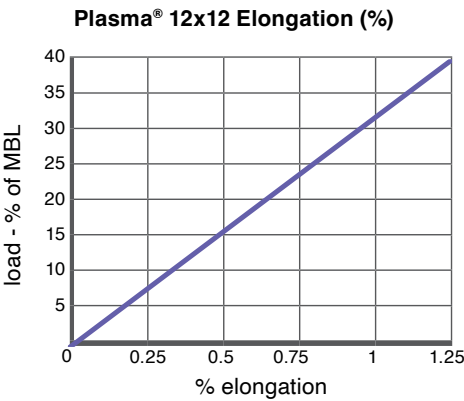
Tensile Strengths: Tensile strength determined in accordance with Cordage Institute 1500 Test Methods for Fiber Ropes and ISO 2307.

Plasma® 12x12

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.09–0.12*
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber



Plasma® LoCo 12-Strand

Plasma® LoCo 12-Strand retains all of the features and benefits of standard Plasma ropes with the added characteristic of a reduced coefficient of friction coating. The enhanced coating provides improved UV resistance and reduces internal heat build-up and abrasion associated with constant tension-tension fatigue, relative movement between the rope and fixed surfaces, and during cyclical bending.

Cortland's proprietary LoCo coating process ensures superior adherence to the braided Plasma rope, providing an effective bond for increased service life and wear especially in wet environments. The LoCo design can be quickly spliced using Cortland's recommended splicing techniques for low coefficient of friction ropes.

Cortland's Plasma 12-Strand ropes are the culmination of 25+ years of engineering expertise in the HMPE industry. Our dedication to providing customers with industry-leading synthetic line is and always has been the goal. Our continued innovation and unwavering desire are to provide the strongest and most reliable product available.

Features & Benefits

- Highest strength
- Lowest stretch
- Lightweight
- Soft hand
- Torque free
- Easy to splice and inspect
- Floats
- Long lengths available
- Excellent UV resistance
- High flex fatigue and abrasion resistance
- Neutrally buoyant in water
- Select sizes are ABS and DNV approved

Applications

- Face and wing wires for push boats
- Replacement for wire rope
- Vessel mooring lines
- Inland river barge lines
- Recreational vehicle winch lines
- Utility winch and pulling lines
- Theatrical rigging

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
0.04	1	0.12	0.05	0.1	270	0.1	300	0.13
0.05	1.25	0.15	0.07	0.1	390	0.2	430	0.20
0.06	1.5	0.18	0.1	0.1	475	0.2	525	0.23
0.07	1.75	0.21	0.14	0.2	750	0.3	830	0.38
0.1	2.5	0.3	0.27	0.4	1,400	0.6	1,550	0.7
1/8	3	3/8	0.54	0.8	2,800	1.3	3,100	1.4
3/16	5	9/16	1.12	1.7	5,500	2.5	6,100	2.8
1/4	6	3/4	1.6	2.4	8,000	3.6	8,890	4.0
5/16	8	15/16	2.5	3.7	11,700	5.3	13,000	5.9
3/8	9	1-1/8	3.7	5.5	17,500	7.9	19,400	8.8

ABS and DNV Type Approved Sizes

7/16	11	1-1/4	4.2	6.3	21,000	9.5	23,400	10.6
1/2	12	1-1/2	6.4	9.5	31,300	14.2	34,800	15.8
9/16	14	1-3/4	7.9	11.8	37,900	17.2	42,100	19.1
5/8	16	2	10.6	15.8	51,400	23.3	57,100	25.9
3/4	18	2-1/4	13.3	19.8	68,500	31.1	76,300	34.6
13/16	20	2-1/2	15.9	23.7	74,000	33.6	82,200	37.2
7/8	22	2-3/4	19.6	29.2	92,600	42.0	102,900	46.7
1	24	3	23.4	34.8	110,000	49.9	122,100	55.4
1-1/16	26	3-1/4	27.5	40.9	129,200	58.6	143,500	65.1
1-1/8	28	3-1/2	31.9	47.5	147,000	66.7	163,300	74.1
1-1/4	30	3-3/4	36.2	53.9	165,000	74.9	183,100	83.1
1-5/16	32	4	41.7	62.1	196,000	88.9	217,800	98.8
1-1/2	36	4-1/2	51.7	76.9	221,000	100.3	245,500	111.3

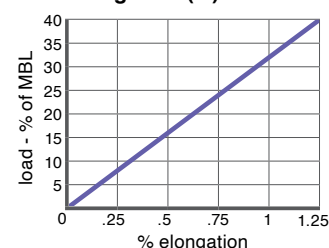
Tensile Strengths are determined in accordance with Cordage Institute 1500.2. Test Methods for Fiber Rope. Minimum Tensile Strength (MTS) published assumes spliced eye terminations at each end of the rope. Weights actually calculated at linear density under stated preload (200d²) plus 4%. Diameter and circumference size published is nominal and reflects rope size after loading (10 cycles) to 50% of MTS. See reverse side for application and safety information.

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

Plasma® LoCo 12-Strand Elongation (%)



Plasma® LoCo 12x12

Plasma® LoCo 12x12 retains all of the features & benefits of standard Plasma® ropes with the added characteristic of a reduced coefficient of friction coating. The enhanced coating provides improved UV resistance and reduces internal heat build-up and abrasion associated with constant tension-tension fatigue, relative movement between the rope and fixed surfaces, and during cyclical bending. Cortland's proprietary LoCo coating process ensures superior adherence to the braided Plasma rope, providing an effective bond for increased service life and wear especially in wet environments.

Plasma® LoCo 12x12 is a 12-strand braided rope in which each of the 12 strands is, in turn, a 12-strand rope, or braided primary strand. This construction addresses the most critical properties of the fibers to provide very high strength translation efficiency for larger ropes. This design provides superior snag resistance compared to other 12-Strand designs which is important when dragging the rope.

Features & Benefits

- Long lengths available
- High flex fatigue and abrasion resistance
- Easy to splice, inspect, and repair
- Neutrally buoyant in water
- Select sizes are ABS & DNV type approved

Applications

- Tractor tug winch mainlines/pendants
- Replacement for wire rope
- Offshore working ropes

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/ 100ft	kg/ 100m	lbs	MT (tonnes)	lbs	MT (tonnes)
ABS and DNV type approved sizes—up to 4" diameter (96 mm)								
1-5/8	40	5	66	98	291,000	132	323,300	147
1-3/4	44	5-1/2	78	117	314,000	142	348,900	158
2	48	6	91	136	355,000	161	392,450	178
2-1/8	52	6-1/2	109	162	428,000	194	475,600	216
2-1/4	56	7	122	182	481,000	218	534,400	242
2-1/2	60	7-1/2	148	220	530,000	240	588,900	267
2-5/8	64	8	167	249	596,000	270	662,200	300
2-3/4	68	8-1/2	187	278	660,000	299	733,300	333
3	72	9	214	319	780,000	354	866,700	393
3-1/8	76	9-1/2	235	350	850,000	386	944,400	428
3-1/4	80	10	261	388	940,000	426	1,045,400	474
3-1/2	84	10-1/2	298	443	1,108,000	503	1,231,000	559
3-5/8	88	11	324	482	1,250,000	567	1,388,900	630
3-3/4	92	11-1/2	343	510	1,317,000	598	1,463,000	664
4	96	12	394	586	1,520,000	690	1,689,000	766
4-1/8	100	12-1/2	457	679	1,622,000	736	1,802,000	818
4-1/4	104	13	514	765	1,697,000	770	1,886,000	856
4-1/2	108	13-1/2	530	789	1,827,000	829	2,030,000	921
4-5/8	112	14	546	812	1,880,000	853	2,089,000	948
4-3/4	116	14-1/2	587	873	1,927,000	874	2,141,000	971
5	120	15	606	902	2,069,500	939	2,299,000	1043
5-1/8	124	15-1/2	657	978	2,212,000	1004	2,458,000	1115
5-1/4	128	16	703	1046	2,355,000	1069	2,617,000	1187
5-1/2	132	16-1/2	749	1114	2,497,500	1133	2,775,000	1259
5-5/8	136	17	813	1210	2,640,000	1198	2,933,000	1331
5-3/4	140	17-1/2	871	1296	2,782,500	1262	3,092,000	1403
6	144	18	932	1386	2,925,000	1327	3,250,000	1475
6-1/8	148	18-1/2	985	1465	3,068,000	1392	3,409,000	1547
6-1/4	152	19	1038	1545	3,210,500	1457	3,567,000	1618
6-1/2	156	19-1/2	1103	1642	3,353,000	1521	3,726,000	1691
6-5/8	160	20	1159	1725	3,496,000	1586	3,884,000	1762
6-3/4	164	20-1/2	1227	1827	3,638,500	1651	4,043,000	1834
7	168	21	1284	1911	3,781,000	1716	4,201,000	1906
7-1/8	172	21-1/2	1334	1986	3,963,500	1798	4,404,000	1998
7-1/4	176	22	1392	2072	4,066,000	1845	4,518,000	2050
7-1/2	180	22-1/2	1452	2161	4,209,000	1910	4,677,000	2122
7-5/8	184	23	1527	2272	4,351,500	1974	4,835,000	2194
7-3/4	188	23-1/2	1589	2365	4,494,000	2039	4,993,000	2265
8	192	24	1653	2459	4,637,000	2104	5,152,000	2338
8-1/8	196	24-1/2	1732	2578	4,779,000	2168	5,310,000	2409
8-1/4	200	25	1798	2677	4,922,000	2233	5,469,000	2481

Size: Diameter and circumference are nominal. A new unused rope in relaxed state will measure larger; loading and use compacts ropes, sets splices and lessens rope size. This is especially prevalent in sizes above 4" diameter. Published nominal sizes from 4-1/8" and larger represent stabilized or preloaded size. **Weights:** Published weights of sizes 1-5/8"—4" diameter are calculated at linear density under stated preload (200d²) plus 4%. For this chart, sizes 4-1/8"—8-1/4" diameter represent un-cycled, (non-stabilized) weights.

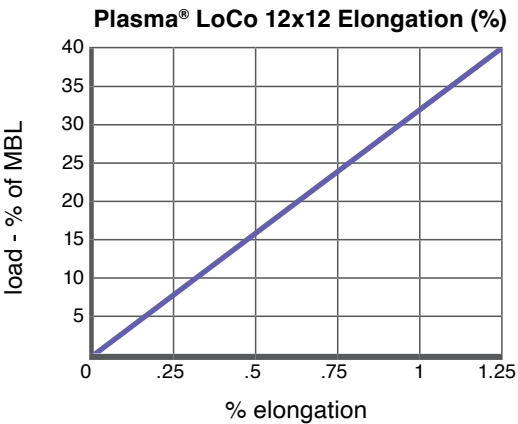
Tensile Strengths: Tensile Strength determined in accordance with Cordage Institute 1500 Test Methods for Fiber Ropes and ISO 2307.

Plasma® LoCo 12x12

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber



Plasma® HiCo 12-Strand

Plasma® HiCo 12-Strand retains all of the features and benefits of standard Plasma ropes with the added characteristic of an increased coefficient of friction coating to allow for better gripping in applications such as H-Bitt or capstan rendering, and traction winch systems.

Cortland's Plasma 12-Strand ropes are the culmination of 25+ years of engineering expertise in the HMPE industry. Our dedication to providing customers with industry-leading synthetic line is and always has been the goal. Our continued innovation and unwavering desire are to provide the strongest and most reliable product available.

Features & Benefits

- Highest strength
- Lowest stretch
- Low creep
- Soft hand
- Torque-free
- Easy splicing
- Floats

Applications

- Replacement for wire rope
- Vessel mooring lines
- Inland river barge lines
- Recreational vehicle winch lines
- Utility winch and pulling lines
- Theatrical rigging
- For use on H-bitts, capstans and traction winch systems

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
0.04	1	0.12	0.05	0.1	270	0.1	300	0.13
0.05	1.25	0.15	0.07	0.1	390	0.2	430	0.20
0.06	1.5	0.18	0.1	0.1	475	0.2	525	0.23
0.07	1.75	0.21	0.14	0.2	750	0.3	830	0.38
0.1	2.5	0.3	0.27	0.4	1,400	0.6	1,550	0.7
1/8	3	3/8	0.54	0.8	2,800	1.3	3,100	1.4
3/16	5	9/16	1.12	1.7	5,500	2.5	6,100	2.8
1/4	6	3/4	1.6	2.4	8,000	3.6	8,890	4.0
5/16	8	15/16	2.5	3.7	11,700	5.3	13,000	5.9
3/8	9	1-1/8	3.7	5.5	17,500	7.9	19,400	8.8

ABS and DNV Type Approved Sizes

7/16	11	1-1/4	4.2	6.3	21,000	9.5	23,400	10.6
1/2	12	1-1/2	6.4	9.5	31,300	14.2	34,800	15.8
9/16	14	1-3/4	7.9	11.8	37,900	17.2	42,100	19.1
5/8	16	2	10.6	15.8	51,400	23.3	57,100	25.9
3/4	18	2-1/4	13.3	19.8	68,500	31.1	76,300	34.6
13/16	20	2-1/2	15.9	23.7	74,000	33.6	82,200	37.2
7/8	22	2-3/4	19.6	29.2	92,600	42.0	102,900	46.7
1	24	3	23.4	34.8	110,000	49.9	122,100	55.4
1-1/16	26	3-1/4	27.5	40.9	129,200	58.6	143,500	65.1
1-1/8	28	3-1/2	31.9	47.5	147,000	66.7	163,300	74.1
1-1/4	30	3-3/4	36.2	53.9	165,000	74.9	183,100	83.1
1-5/16	32	4	41.7	62.1	196,000	88.9	217,800	98.8
1-1/2	36	4-1/2	51.7	76.9	221,000	100.3	245,500	111.3

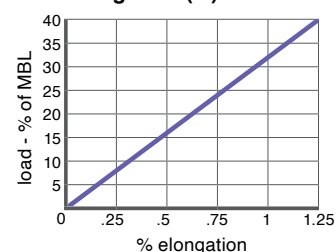
Tensile Strengths are determined in accordance with Cordage Institute 1500.2. Test Methods for Fiber Rope. Minimum Tensile Strength (MTS) published assumes spliced eye terminations at each end of the rope. Weights actually calculated at linear density under stated preload (200d²) plus 4%. Diameter and circumference size published is nominal and reflects rope size after loading (10 cycles) to 50% of MTS. See reverse side for application and safety information.

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

Plasma® HiCo 12-Strand Elongation (%)



Plasma® HiCo 12x12

Plasma® HiCo 12x12 retains all the features and benefits of standard Plasma 12x12 ropes with the added characteristic of an increased coefficient of friction coating to allow for better gripping in applications such as H-Bitt or capstan rendering, and traction winch systems.

Plasma® HiCo 12x12 is a 12-strand braided rope in which each of the 12 strands is, in turn, a 12-strand rope, or braided primary strand. This construction addresses the most critical properties of the fibers to provide very high strength translation efficiency for larger ropes. This design provides superior snag resistance compared to other 12x12 strand designs which is important when dragging the rope.

Cortland's Plasma® 12x12 ropes are the culmination of 25+ years of engineering expertise in the HMPE industry. Our dedication to providing customers with industry-leading synthetic line is and always has been the goal. Our continued innovation and unwavering desire are to provide the strongest and most reliable product available.

Features & Benefits

- World's strongest rope for its weight
- Long lengths available
- High flex fatigue and abrasion resistance
- Easy to splice, inspect, and repair
- Neutrally buoyant in water
- Select sizes are ABS & DNV type approved

Applications

- Replacement for wire rope
- Tug vessel assist lines
- Vessel mooring lines
- Offshore working ropes
- Lashings
- For use on H-bitts, capstans and traction winch systems

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/ 100ft	kg/ 100m	lbs	MT (tonnes)	lbs	MT (tonnes)
ABS and DNV type approved sizes—up to 4" diameter (96 mm)								
1-5/8	40	5	66	98	291,000	132	323,300	147
1-3/4	44	5-1/2	78	117	314,000	142	348,900	158
2	48	6	91	136	355,000	161	392,450	178
2-1/8	52	6-1/2	109	162	428,000	194	475,600	216
2-1/4	56	7	122	182	481,000	218	534,400	242
2-1/2	60	7-1/2	148	220	530,000	240	588,900	267
2-5/8	64	8	167	249	596,000	270	662,200	300
2-3/4	68	8-1/2	187	278	660,000	299	733,300	333
3	72	9	214	319	780,000	354	866,700	393
3-1/8	76	9-1/2	235	350	850,000	386	944,400	428
3-1/4	80	10	261	388	940,000	426	1,045,400	474
3-1/2	84	10-1/2	298	443	1,108,000	503	1,231,000	559
3-5/8	88	11	324	482	1,250,000	567	1,388,900	630
3-3/4	92	11-1/2	343	510	1,317,000	598	1,463,000	664
4	96	12	394	586	1,520,000	690	1,689,000	766
4-1/8	100	12-1/2	457	679	1,622,000	736	1,802,000	818
4-1/4	104	13	514	765	1,697,000	770	1,886,000	856
4-1/2	108	13-1/2	530	789	1,827,000	829	2,030,000	921
4-5/8	112	14	546	812	1,880,000	853	2,089,000	948
4-3/4	116	14-1/2	587	873	1,927,000	874	2,141,000	971
5	120	15	606	902	2,069,500	939	2,299,000	1043
5-1/8	124	15-1/2	657	978	2,212,000	1004	2,458,000	1115
5-1/4	128	16	703	1046	2,355,000	1069	2,617,000	1187
5-1/2	132	16-1/2	749	1114	2,497,500	1133	2,775,000	1259
5-5/8	136	17	813	1210	2,640,000	1198	2,933,000	1331
5-3/4	140	17-1/2	871	1296	2,782,500	1262	3,092,000	1403
6	144	18	932	1386	2,925,000	1327	3,250,000	1475
6-1/8	148	18-1/2	985	1465	3,068,000	1392	3,409,000	1547
6-1/4	152	19	1038	1545	3,210,500	1457	3,567,000	1618
6-1/2	156	19-1/2	1103	1642	3,353,000	1521	3,726,000	1691
6-5/8	160	20	1159	1725	3,496,000	1586	3,884,000	1762
6-3/4	164	20-1/2	1227	1827	3,638,500	1651	4,043,000	1834
7	168	21	1284	1911	3,781,000	1716	4,201,000	1906
7-1/8	172	21-1/2	1334	1986	3,963,500	1798	4,404,000	1998
7-1/4	176	22	1392	2072	4,066,000	1845	4,518,000	2050
7-1/2	180	22-1/2	1452	2161	4,209,000	1910	4,677,000	2122
7-5/8	184	23	1527	2272	4,351,500	1974	4,835,000	2194
7-3/4	188	23-1/2	1589	2365	4,494,000	2039	4,993,000	2265
8	192	24	1653	2459	4,637,000	2104	5,152,000	2338
8-1/8	196	24-1/2	1732	2578	4,779,000	2168	5,310,000	2409
8-1/4	200	25	1798	2677	4,922,000	2233	5,469,000	2481

Size: Diameter and circumference are nominal. A new unused rope in relaxed state will measure larger; loading and use compacts ropes, sets splices and lessens rope size. This is especially prevalent in sizes above 4" diameter. Published nominal sizes from 4-1/8" and larger represent stabilized or preloaded size. **Weights:** Published weights of sizes 1-5/8"—4" diameter are calculated at linear density under stated preload (200d²) plus 4%. For this chart, sizes 4-1/8"—8-1/4" diameter represent un-cycled, (non-stabilized) weights.

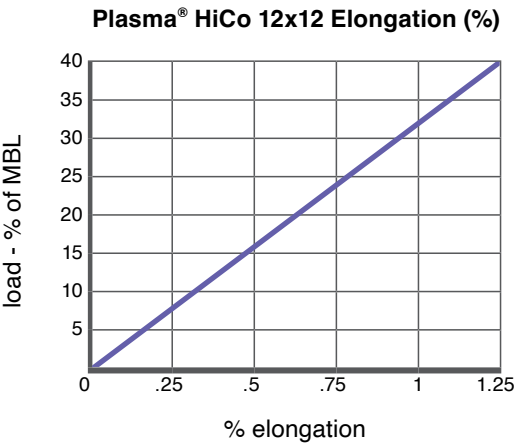
Tensile Strengths: Tensile Strength determined in accordance with Cordage Institute 1500 Test Methods for Fiber Ropes and ISO 2307.

Plasma® HiCo 12x12

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber



Toro® 12 Strand

Toro® is a 12 Strand braided rope with high strength-to-weight ratio and, size-for-size, offers the same strength as steel. Toro 12 strand is manufactured from High Modulus Polyethylene (HMPE) and is an excellent wire rope replacement with low stretch, superior flex fatigue and wear resistance.

Toro 12 strand is delivered standard with a polyurethane finish and is easily spliced using a simple lockstitch bury splice, or tuck splice. Its soft, torque free braided construction provides easy handling and inspection.

Features & Benefits

- High strength
- Lowest stretch
- Low creep
- Soft hand
- Torque-free
- Easy splicing
- Floats

Applications

- Replacement for wire rope
- Vessel mooring lines
- Tug vessel assist lines
- Offshore working ropes
- Inland river barge lines
- Lifting slings
- Recreational vehicle winch lines
- Utility winch and pulling lines

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1/8	3	3/8	0.69	1.03	2,800	1.27	3,110	1.41
3/16	5	9/16	1.20	1.79	5,500	2.49	6,110	2.77
1/4	6	3/4	1.7	2.6	8,000	3.63	8,880	4.0
5/16	8	15/16	2.6	3.8	11,700	5.31	12,990	5.9
3/8	9	1-1/8	3.6	5.3	17,500	7.94	19,440	8.8
7/16	11	1-1/4	4.8	7.1	22,000	10.0	24,400	11.1
1/2	12	1-1/2	6.1	9.1	30,500	13.8	33,800	15.4
9/16	14	1-3/4	7.6	11.3	36,500	16.6	40,500	18.4
5/8	16	2	9.4	14.1	47,800	21.7	53,100	24.1
3/4	18	2-1/4	13.5	20.1	61,800	28.0	68,600	31.1
13/16	20	2-1/2	15.8	23.5	74,000	33.6	82,200	37.3
7/8	22	2-3/4	18.5	27.5	84,300	38.2	93,600	42.5
1	24	3	23.7	35.3	105,000	47.6	116,600	52.9
1-1/16	26	3-1/4	26.9	40.0	121,600	55.1	135,000	61.3
1-1/8	28	3-1/2	30.3	45.1	137,000	62.1	152,200	69.0
1-1/4	30	3-3/4	37.2	55.4	157,000	71.2	174,400	79.1
1-5/16	32	4	41.1	61.2	176,400	80.0	195,900	88.9
1-1/2	36	4-1/2	53.8	80.1	215,000	97.5	238,800	108.3

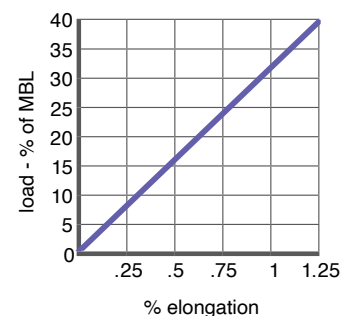
Tensile Strengths are determined in accordance with Cordage Institute CI 1500-02. Test Methods for Fiber Rope. Minimum Tensile Strength (MTS) published assumes spliced eye terminations at each end of the rope. Weights actually calculated at linear density under stated preload (200d²) plus 4%. Diameter and circumference size published is nominal and reflects rope size after loading (10 cycles) to 50% of MTS. See reverse side for application and safety information.

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.09–0.12*
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

Toro® 12 Strand Elongation (%)



Toro® 12x12

Toro® 12x12 is a 12-strand braided rope in which each of the 12 strands is, in turn, a 12-strand rope, or braided primary strand. Toro is manufactured from high tenacity High Modulus Polyethylene (HMPE).

This construction addresses the most critical properties of the fibers to provide a very high strength translation efficiency for larger ropes. This design allows for long lay lengths, making rope that is more flexible for bending applications, easy to inspect, and can be quickly spliced using standard 12 strand splicing techniques. Toro 12x12 is supplied with our standard polyurethane finish, although other coatings can be applied to suit specific applications.

Features & Benefits

- Highest strength
- Very low stretch
- Lightweight
- Soft hand
- Torque free
- Easy splicing
- Floats
- Long lengths available
- High flex fatigue and abrasion resistance
- Moderate UV resistance
- Easy to inspect and repair
- Neutrally buoyant in water

Applications

- Replacement for wire rope heavy lift slings
- Tug vessel assist lines
- Vessel mooring lines
- Offshore working ropes
- Lashings

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1-5/8	40	5	62.0	92.2	245,000	111	272,100	123
1-3/4	44	5-1/2	72.3	107.6	284,300	129	315,800	143
2	48	6	94.9	141.3	369,900	168	410,900	186
2-1/8	52	6-1/2	108.9	162.0	423,900	192	470,900	214
2-1/4	56	7	121.3	180.5	470,100	213	522,200	237
2-1/2	60	7-1/2	147.9	220.2	569,400	258	632,600	287
2-5/8	64	8	163.8	243.8	630,300	286	700,200	318
2-3/4	68	8-1/2	182.4	271.5	698,400	317	775,900	352
3	72	9	215.4	320.6	819,000	371	909,900	413
3-1/8	76	9-1/2	233.2	347.0	886,500	402	984,900	447
3-1/4	80	10	253.5	377.4	961,300	436	1,068,000	484
3-1/2	84	10-1/2	290.7	432.7	1,095,300	497	1,216,800	552
3-5/8	88	11	314.1	467.6	1,184,300	537	1,315,700	597
3-3/4	92	11-1/2	338.7	504.1	1,273,100	577	1,414,400	641
4	96	12	383.5	570.8	1,435,200	651	1,594,500	723
4-1/8	100	12-1/2	407.0	605.8	1,523,400	691	1,692,400	768
4-1/4	104	13	433.4	645.0	1,618,600	734	1,798,200	816

Size: Diameter and circumference are nominal. A new unused rope in relaxed state will measure larger; loading and use compacts ropes, sets splices and lessens rope size.

Weights: Published weights of sizes 1-5/8"– 4-1/4" diameter are calculated at linear density under stated preload (200d²) plus 4%.

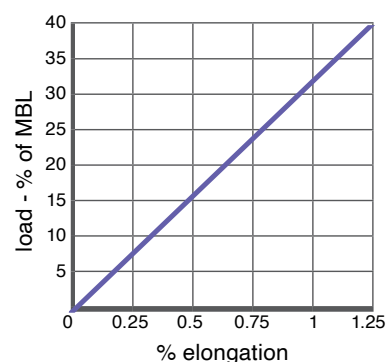
Tensile Strengths: Tensile strength determined in accordance with Cordage Institute 1500-02 Test Methods for Fiber Ropes and ISO 2307.

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.09–0.12*
Elongation at break	3%–4%
Fiber water absorption	0%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

Toro® 12x12 Elongation (%)



Reduced Recoil Plasma®

Cortland's Plasma® 12-Strand and 12x12 ropes are the culmination of 25 years of engineering expertise in the HMPE industry. Our dedication to providing customers with industry-leading synthetic line is and always has been the goal. Our continued innovation and unwavering desire are to provide the strongest and most reliable product available.

Cortland's Reduced Recoil Plasma is manufactured utilizing a combination of Plasma HMPE and Polyester fiber in either a conventional 12 Strand, or a 12x12 Strand, construction and is tested in accordance with the requirements of the latest version of Cordage Institute CI 1502, Test Methods for Reduced Recoil Risk Rope. In addition it meets or exceeds the requirements of the latest draft of CGSB-40.20-2008, Standard for Reduced Recoil Rope.

Features

- Lightweight
- Very low stretch
- Very high strength
- Soft on hands
- Torque free
- Easy to splice
- Easy to inspect
- Repairable (12x12)

Applications

- Mooring line

	Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
	inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
12 Strand	5/8	16	2	12	15.8	34,400	15.6	38,200	17.3
	3/4	18	2-1/4	15.1	19.8	45,900	20.8	50,900	23.1
	13/16	20	2-1/2	18.1	26.9	49,600	22.5	55,100	25.0
	7/8	22	2-3/4	22.3	33.2	62,000	28.1	68,800	31.2
	1	24	3	26.6	39.5	73,700	33.4	81,800	37.1
	1-1/8	28	3-1/2	36.2	54.0	98,400	44.6	109,200	49.5
	1-1/4	30	3-3/4	41.1	61.2	110,500	50.1	122,700	55.6
	1-5/16	32	4	47.4	70.6	131,300	59.5	145,700	66.0
12x12 Strand	1-1/2	36	4-1/2	58.7	87.4	148,000	67.1	164,300	74.5
	1-5/8	40	5	74.6	111.1	195,000	88.4	216,500	98.1
	1-3/4	44	5-1/2	89.1	132.6	210,300	95.4	233,400	106.0
	2	48	6	103.8	154.5	237,800	108.0	264,000	120.0
	2-1/8	52	6-1/2	123.8	184.3	286,700	130.0	318,200	144.0
	2-1/4	56	7	138.6	206.3	322,200	146.0	357,600	162.0
	2-1/2	60	7-1/2	168.1	250.2	355,100	161.0	394,200	179.0
	2-5/8	64	8	189.7	282.3	399,300	181.0	443,200	201.0
	2-3/4	68	8-1/2	212.4	316.2	442,200	201.0	490,800	223.0
	3	72	9	243.1	361.8	522,600	237.0	580,100	263.0

Tensile strengths are determined in accordance with Cordage Institute 1502, Test Methods for Reduced Recoil Risk Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%.

Technical Information

Specific gravity	1.11*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.09–0.15*
Elongation at break	3–4%
Fiber water absorption	<1%
UV resistance	very good
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Vectran® 12 Strand & 12x12

Vectran® 12 strand and 12x12 is a high strength very low stretch braided rope manufactured using Vectran LCP (Liquid Crystal Polymer) high modulus synthetic fiber yarns. This torque-free rope is popular in applications when strength, low stretch, heat resistance and zero creep in fiber are required. Vectran 12 strand and 12x12 has excellent bend and flex fatigue resistance and is easily spliced using the lock-stitch type splice, 4-3-2 or 5-4-3 tuck splice.

Vectran 12 strand and 12x12 rope is typically provided with a clear polyurethane coating. Cortland's 12x12 construction is available on Vectran braided rope from 1-1/2" (36 mm) diameter through 8-1/4" (200 mm) diameter; for strengths and weights above 4" diameter please contact Cortland.

Features & Benefits

- High strength
- Low stretch
- No creep
- Soft hand
- Torque free
- Easy splicing

Applications

- Replacement for wire rope
- Theatrical rigging
- Lifting slings
- Utility winch and pulling lines
- Recreational vehicle winch lines
- Subsea lifting and mooring lines
- Seismic

	Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
	inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
12 Strand	0.0165	0.419	0.05	0.01	0.01	50	0.02	56	0.03
	0.023	0.584	0.07	0.02	0.03	115	0.05	128	0.06
	0.045	1.143	0.14	0.08	0.12	300	0.14	333	0.15
	0.055	1.397	0.17	0.10	0.15	415	0.2	460	0.2
	1/16	1.588	3/16	0.15	0.22	870	0.4	970	0.4
	0.1	2.540	0.30	0.30	0.45	1,500	0.7	1,670	0.8
	7/64	2.778	21/64	0.46	0.69	2,250	1.0	2,500	1.1
	1/8	3	3/8	.64	0.9	2,800	1.3	3,100	1.4
	3/16	5	9/16	1.3	1.9	5,500	2.5	6,100	2.8
	1/4	6	3/4	2.1	3.1	8,000	3.6	8,900	4
	5/16	8	15/16	3.2	4.8	11,700	5.3	13,000	5.9
	3/8	9	1-1/8	5.3	7.9	17,500	7.9	19,400	8.8
	7/16	11	1-1/4	6.1	9.1	21,000	9.5	23,300	10.6
	1/2	12	1-1/2	9.2	13.7	31,300	14.2	34,800	15.8
	9/16	14	1-3/4	11.4	17.0	37,900	17.2	42,100	19.1
	5/8	16	2	15.3	22.8	51,400	23.3	57,100	25.9
	3/4	18	2-1/4	19.2	28.6	68,500	31.1	76,100	34.5
	7/8	22	2-3/4	28.3	41.6	92,600	42	102,900	46.7
	1	24	3	33.8	50.4	110,000	49.9	122,000	55.4
	1-1/8	28	3-1/2	46.0	68.7	147,000	66.7	163,000	74
	1-1/4	30	3-3/4	52.2	77.9	165,000	74.9	183,000	83
12x12 Strand	1-5/16	32	4	60.2	89.8	196,000	88.9	218,000	98.9
	1-1/2	36	4-1/2	74.6	111.3	221,000	100	246,000	112
	1-5/8	40	5	94.8	141.4	291,000	132	323,000	147
	1-3/4	44	5-1/2	113.2	168.9	314,000	142	349,000	158
	2	48	6	132	196	355,000	161	394,000	179
	2-1/8	52	6-1/2	157	235	428,000	194	476,000	216
	2-1/4	56	7	176	263	481,000	218	534,000	242
	2-5/8	64	8	241	359	596,000	270	662,000	300
	2-3/4	68	8-1/2	270	398	660,000	299	733,000	333
	3	72	9	309	443	780,000	354	867,000	393
	3-1/4	80	10	377	561	940,000	426	1,044,000	474
	3-5/8	88	11	468	697	1,250,000	567	1,389,000	630
	4	96	12	569	847	1,520,000	690	1,689,000	766

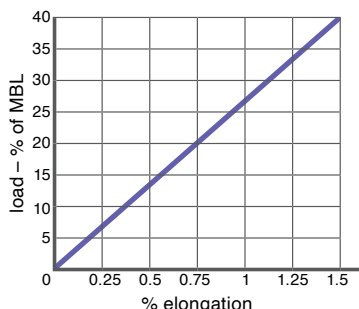
Sizes available up to 8-1/4" diameter (200 mm) and 4,900,000 lbs strength. Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information

Technical Information

Specific gravity	1.40*
Melting point	625°F (329°C)
Critical temp.	300°F (149°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	<0.1%
UV resistance	moderate
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Vectran® 12 Strand & 12x12 Elongation (%)



BOB® 12 Strand

BOB® 12 strand is a high strength, low elongating single braided patented rope construction with excellent long term creep resistance and superior cyclic fatigue performance, especially in bend-over-sheave applications. BOB® 12 Strand comes standard with a specially formulated coating that is designed to maximize the rope's durability in bending situations.

BOB® 12 Strand is easily spliced using a simple lockstitch type splice, brummel splice, 4-3-2 or 5-4-3 tuck splice. The soft, torque free braided construction provides ease of handling.

Features & Benefits

- High strength
- Low stretch
- Ultra low creep
- Soft hand
- Torque free
- Easy splicing

Applications

- Replacement for wire rope deep water lifting
- Use on drum and traction winches
- Active heave compensation systems
- Heavy lift slings
- High fatigue applications
- Seismic tow cables
- Tether applications
- Theatrical rigging

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
0.1	2.5	0.3	0.3	0.5	1,260	0.6	1,400	0.6
1/8	3	3/8	0.6	0.9	1,900	0.9	2,100	1.0
3/16	5	9/16	1.3	1.9	5,400	2.5	6,000	2.7
1/4	6	3/4	2.2	3.2	7,700	3.5	8,600	3.9
5/16	8	15/16	3.1	4.7	13,900	6.3	15,400	7.0
3/8	9	1-1/8	4.5	6.7	17,300	7.8	19,200	8.7
7/16	11	1-1/4	5.9	8.9	23,900	10.8	26,600	12.1
1/2	12	1-1/2	8.4	12.6	28,100	12.7	31,200	14.2
9/16	14	1-3/4	10.3	15.4	40,100	18.2	44,600	20.2
5/8	16	2	12.9	19.3	51,400	23.3	57,100	25.9
3/4	18	2-1/4	16.9	25.1	68,500	31.1	76,100	34.5
13/16	20	2-1/2	19.6	29.2	74,000	33.6	82,200	37.2
7/8	22	2-3/4	24.9	37.0	92,600	42	102,900	46.7
1	24	3	30.0	44.7	110,000	49.9	122,200	55.4
1-1/8	28	3-1/2	40.7	60.5	147,000	66.7	163,300	74.1

Size: Diameter and circumference are nominal. A new unused rope in relaxed state will measure larger; loading and use compacts ropes, sets splices and lessens rope size. This is especially prevalent in sizes above 4" diameter. Published nominal sizes from 4-1/8" and larger represent stabilized or preloaded size.

Weights: Published weights of sizes 1-5/8"–4" diameter are calculated at linear density under stated preload (200d²) plus 4%. For this chart, sizes 4-1/8"–8-1/4" diameter represent un-cycled, (non-stabilized) weights.

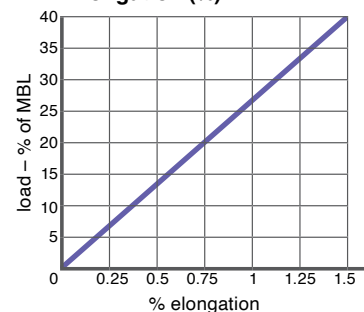
Tensile Strengths: Tensile strength determined in accordance with Cordage Institute 1500 Test Methods for Fiber Ropes and ISO 2307.

Technical Information

Specific gravity	1.18*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	<0.1%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

BOB® 12 Strand
Elongation (%)



BOB® 12x12 Strand

BOB® 12x12 Strand is a high strength, low elongating single braided patented rope construction with excellent long term creep resistance and superior cyclic fatigue performance, especially in bend-over-sheave applications. In the 12x12 strand construction, each strand consists of a smaller 12 strand rope produced using a proprietary blend of fibers. This design maximizes the strength of the fiber while allowing damaged rope strands to be removed and replaced if necessary. BOB® 12x12 Strand comes standard with a specially formulated coating that is designed to maximize the rope's durability in bending situations.

BOB 12x12 Strand is easily spliced using a lockstitch type splice, Brummel splice, 4-3-2 or 5-4-3 Tuck splice. The soft, torque free braided construction provides easy handling.

Features & Benefits

- High strength
- Low stretch
- Ultra low creep
- Soft hand
- Torque free
- Easy splicing

Applications

- Replacement for wire rope deep water lifting
- Use on drum and traction winches
- Active heave compensation systems
- Heavy lift slings
- High fatigue applications
- Seismic tow cables
- Tether applications

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1-1/4	30	3-3/4	43.4	64.6	165,000	75	183,300	83
1-5/16	32	4	53.2	79.2	196,000	89	217,800	99
1-1/2	36	4-1/2	66.6	99.1	221,000	100	245,600	111
1-5/8	40	5	81.8	121.8	291,000	132	323,300	147
1-3/4	44	5-1/2	95.9	142.7	314,000	142	348,900	158
2	48	6	120.6	179.4	355,000	161	394,400	179
2-1/8	52	6-1/2	141.6	210.8	428,000	194	475,600	216
2-1/4	56	7	158.2	235.4	481,000	218	534,400	242
2-1/2	60	7-1/2	191.3	284.7	530,000	240	588,900	267
2-5/8	64	8	210.9	313.8	596,000	270	662,200	300
2-3/4	68	8-1/2	227.9	339.3	660,000	299	733,300	333
3	72	9	269.9	401.7	780,000	354	866,700	393
3-1/4	80	10	314.5	468.0	940,000	426	1,044,000	474
3-1/2	84	10-1/2	375	588.06	1,108,000	503	1,231,000	559
3-5/8	88	11	403.3	600.2	1,250,000	567	1,389,000	630
4	96	12	531.9	791.6	1,520,000	690	1,689,000	766
4-1/8	100	12-1/2	620	923	1,622,000	736	1,802,000	818
4-1/4	104	13	697	1037	1,697,000	770	1,886,000	856
4-1/2	108	13-1/2	719	1070	1,827,000	829	2,030,000	921
4-5/8	112	14	740	1101	1,880,000	853	2,089,000	948
4-3/4	116	14-1/2	796	1185	1,927,000	874	2,141,000	971
5	120	15	822	1223	2,069,500	939	2,299,000	1043
5-1/8	124	15-1/2	891	1326	2,212,000	1004	2,458,000	1115
5-1/4	128	16	953	1418	2,355,000	1069	2,617,000	1187
5-1/2	132	16-1/2	1015	1511	2,497,500	1133	2,775,000	1259
5-5/8	136	17	1102	1640	2,640,000	1198	2,933,000	1331
5-3/4	140	17-1/2	1181	1758	2,782,500	1262	3,092,000	1403
6	144	18	1264	1881	2,925,000	1327	3,250,000	1475
6-1/8	148	18-1/2	1335	1987	3,068,000	1392	3,409,000	1547
6-1/4	152	19	1407	2094	3,210,500	1457	3,567,000	1618
6-1/2	156	19-1/2	1495	2225	3,353,000	1521	3,726,000	1691
6-5/8	160	20	1571	2338	3,496,000	1586	3,884,000	1762
6-3/4	164	20-1/2	1663	2475	3,638,500	1651	4,043,000	1834
7	168	21	1741	2591	3,781,000	1716	4,201,000	1906
7-1/8	172	21-1/2	1809	2692	3,963,500	1798	4,404,000	1998
7-1/4	176	22	1887	2808	4,066,000	1845	4,518,000	2050
7-1/2	180	22-1/2	1969	2930	4,209,000	1910	4,677,000	2122
7-5/8	184	23	2070	3081	4,351,500	1974	4,835,000	2194
7-3/4	188	23-1/2	2154	3206	4,494,000	2039	4,993,000	2265
8	192	24	2241	3335	4,637,000	2104	5,152,000	2338
8-1/8	196	24-1/2	2348	3494	4,779,000	2168	5,310,000	2409
8-1/4	200	25	2438	3628	4,922,000	2233	5,469,000	2481

Size: Diameter and circumference are nominal. A new unused rope in relaxed state will measure larger; loading and use compacts ropes, sets splices and lessens rope size. This is especially prevalent in sizes above 4" diameter. Published nominal sizes from 4-1/8" and larger represent stabilized or preloaded size. **Weights:** Published weights of sizes 1-5/8"—4" diameter are calculated at linear density under stated preload (200d²) plus 4%. For this chart, sizes 4-1/8"—8-1/4" diameter represent un-cycled, (non-stabilized) weights.

Tensile Strengths: Tensile Strength determined in accordance with Cordage Institute 1500 Test Methods for Fiber Ropes and ISO 2307.

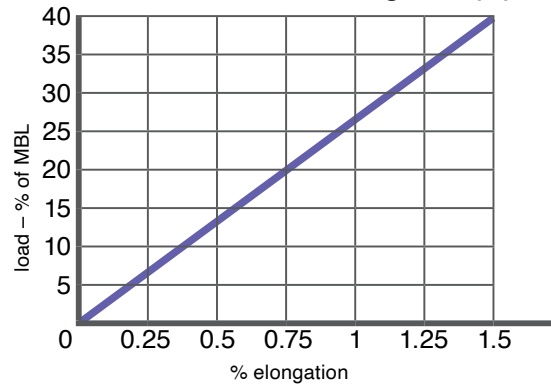
BOB® 12x12 Strand

Technical Information

Specific gravity	1.18*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	<0.1%
UV resistance	good
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

BOB® 12x12 Strand Elongation (%)



Technora® 12 Strand

Technora® 12 Strand is made with high strength light weight Technora fiber. The 12 strand braided construction is torque free, and easy to splice. Technora 12 is extremely heat and flex fatigue resistant. It has no creep making it a good choice for applications with high static loads including mooring cables, hoisting cables, and tower guy wires. Technora 12 Strand is delivered standard with a black polyurethane coating.

Features & Benefits

- Very high heat resistance
- Zero creep
- Very low stretch
- Very high strength
- Soft hand
- Torque free
- Easy splicing

Applications

- Theatrical rigging lines
- Utility winch and pulling lines
- Recreational vehicle winch lines
- Tower guy wires

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1/8	3	3/8	0.6	0.9	2,520	1.1	2,800	1.3
3/16	5	9/16	1.3	1.9	5,040	2.3	5,600	2.5
1/4	6	3/4	1.9	2.8	7,335	3.3	8,200	3.7
5/16	8	15/16	3.2	4.8	11,700	5.3	13,000	5.9
3/8	9	1-1/8	4.3	6.4	16,200	7.4	18,000	8.2
7/16	11	1-1/4	6.7	10	21,000	9.5	23,300	10.6
1/2	12	1-1/2	8.3	12.4	29,700	13.5	33,000	15.0
5/8	16	1-3/4	13.5	20.1	45,000	20.4	50,000	22.7
3/4	18	2-1/4	19.3	28.7	59,000	26.8	65,600	29.8
7/8	22	2-3/4	25.3	37.7	76,000	34.5	84,400	38.3
1	24	3	31.1	46.3	92,000	41.7	102,200	46.4
1-1/8	28	3-1/2	42.3	63	123,000	55.8	136,700	62.0
1-1/4	30	3-3/4	48.1	71.6	139,400	63.2	154,900	70.3

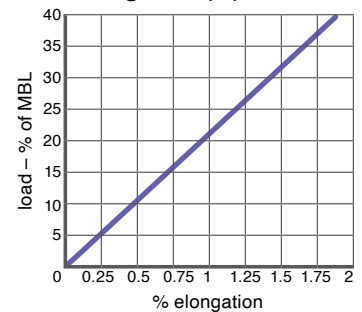
Sizes available up to 8-1/4" diameter (200 mm) and 4,900,000 lbs strength. Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.39*
Thermal decomposition	932°F (500°C)
Elongation at break	4–5%
Fiber water absorption	0%
UV resistance	moderate
Abrasion resistance	good

* value based on data supplied by the fiber manufacturer for new, dry fiber

Technora® 12 Strand Elongation (%)



Polyester 12 Strand

Polyester 12 Strand has the lowest stretch and highest strength of all polyester constructions.

Its torque free braided construction provides easy handling and prevents kinks and hockles. Polyester 12 Strand is delivered standard with a clear polyurethane finish and is easily spliced using a simple lockstitch type splice. The largest market for this rope, transmission stringing lines, typically consists of sets of ropes in four different colors.

Features & Benefits

- Low stretch
- High strength
- Soft hand
- Torque free
- Easy splicing

Applications

- Transmission stringing lines
- Underground pulling lines
- Lifting slings
- Adjustable transformer slings

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
3/8	9	1-1/8	4.2	6.3	6,100	2.8	6,800	3.1
7/16	11	1-1/4	6.3	9.4	9,000	4.1	10,000	4.5
1/2	12	1-1/2	8.5	12.6	10,900	4.9	12,100	5.5
9/16	14	1-3/4	10.1	15	13,600	6.2	15,100	6.9
5/8	16	2	13.1	19.5	17,500	7.9	19,400	8.8
3/4	18	2-1/4	17.2	25.6	21,900	9.9	24,300	11.0
7/8	22	2-3/4	25.8	38.4	28,500	12.9	31,700	14.4
1	24	3	34.5	51.3	41,000	18.6	45,600	20.7
1-1/8	28	3-1/2	40	59.5	47,500	21.6	52,800	24.0
1-1/4	30	3-3/4	44.5	66.2	56,700	25.7	63,000	28.6
1-5/16	32	4	53.1	79	59,800	27.1	66,400	30.1
1-1/2	36	4-1/2	69	102.7	69,800	31.7	77,600	35.2
1-5/8	40	5	82.5	122.8	83,000	37.7	92,200	41.8
1-3/4	44	5-1/2	96.1	143	98,000	44.5	108,900	49.4
2	48	6	117	174.1	120,000	54.4	133,300	60.5

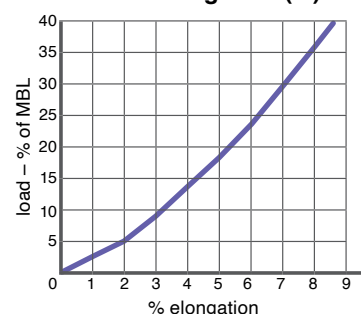
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 5%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.38*
Melting point	482°F (250°C)
Critical temp.	350°F (177°C)
Coefficient of friction	0.12–0.15*
Elongation at break	15–20%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Polyester 12 Strand Elongation (%)



Co-polymer 12 Plait

Co-polymer Olefin 12 Plait provides high strength, light weight and excellent abrasion resistance in a single braid construction.

Co-polymer Olefin 12 Plait is easily spliced using a standard tuck splice and is 40% stronger than three strand or 8 plait polypropylene. Its torque free braided construction provides easy handling and prevents kinks and hockles.

Features & Benefits

- Floats
- High strength
- Excellent abrasion resistance
- Torque free
- Easy splicing
- Excellent UV resistance

Applications

- Floating mooring lines for barges/vessels
- Floating winch lines
- Subsea buoy moorings
- Lashings

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
5/8	16	2	8.6	12.8	9,500	4.3	10,600	4.8
3/4	18	2-1/4	10.8	16.1	11,900	5.4	13,200	6.0
7/8	22	2-3/4	14	20.8	15,400	7.0	17,100	7.8
1	24	3	20.3	30.2	22,300	10.1	24,800	11.3
1-1/8	28	3-1/2	24.5	36.5	26,900	12.2	29,900	13.6
1-1/4	30	3-3/4	27	40.2	29,700	13.5	33,000	15.0
1-5/16	32	4	31.9	47.5	34,000	15.4	38,000	17.2
1-1/2	36	4-1/2	39.2	58.3	41,000	18.6	46,000	20.9
1-5/8	40	5	50.4	75	54,000	24.5	60,000	27.2
1-3/4	44	5-1/2	58.8	87.5	62,000	28.1	69,000	31.3
2	48	6	71.4	106.3	76,000	34.5	84,000	38.1
2-1/8	52	6-1/2	84	125	90,000	40.8	100,000	45.4
2-1/4	56	7	96.6	143.8	103,000	46.7	114,000	51.7
2-1/2	60	7-1/2	109	162.2	115,000	52.2	128,000	58.1
2-5/8	64	8	126	187.5	132,000	59.9	147,000	66.7
2-3/4	68	8-1/2	132	196.4	141,000	64.0	157,000	71.2
3	72	9	160	238.1	170,000	77.1	189,000	85.8
3-1/4	80	10	193	287.2	210,000	95.3	233,000	105.7
3-5/8	88	11	238	354.2	250,000	113.4	278,000	126.1
4	96	12	280	416.7	295,000	133.8	328,000	148.8

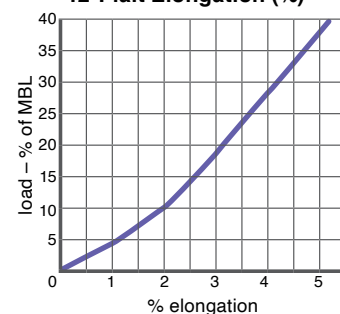
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information.

Technical Information

Specific gravity	0.94*
Melting point	279°F (137°C)
Critical temp.	140°F (60°C)
Coefficient of friction	0.16–0.018*
Elongation at break	20–25%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	very good
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Co-polymer 12-Plait Elongation (%)



PSR 2000 12 Strand

PSR 2000 12 Strand offers a high strength to weight ratio and is an excellent replacement for heavier polyester lines. It's unique blend of polyester and olefin co-polymer in each strand makes for a highly efficient construction. PSR 2000 12 Strand is torque balanced, has excellent wear resistance, and is one of the quickest ropes to splice.

PSR 2000 12 Strand is an excellent choice as mooring, tie-up and pendant lines, tug assist lines and for general purpose heavy marine applications.

Features & Benefits

- Low stretch
- High strength
- Torque free
- Easy splicing
- Soft hand
- Excellent abrasion resistance
- Lighter than 100% polyester ropes

Applications

- Vessel mooring lines
- Tug assist lines
- General purpose heavy marine applications

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1	24	3	30	44.6	25,000	11.3	27,800	12.6
1-1/8	28	3-1/2	35	52.1	32,000	14.5	35,600	16.2
1-1/4	30	3-3/4	39	58	38,000	17.2	42,200	19.1
1-5/16	32	4	47	69.9	43,000	19.5	47,800	21.7
1-1/2	36	4-1/2	60	89.3	54,000	24.5	60,000	27.2
1-5/8	40	5	72	107.2	65,000	29.5	72,200	32.8
1-3/4	44	5-1/2	84	125	75,000	34.0	83,300	37.8
2	48	6	102	151.8	92,000	41.7	102,200	46.4
2-1/8	52	6-1/2	120	178.6	108,000	49.0	120,000	54.4
2-1/4	56	7	136	202.4	125,000	56.7	138,900	63.0
2-1/2	60	7-1/2	160	238.1	147,000	66.7	163,300	74.1
2-5/8	64	8	176	261.9	158,000	71.7	175,600	79.7
2-3/4	68	8-1/2	199	296.2	184,000	83.5	204,400	92.7
3	72	9	231	343.8	207,000	93.9	230,000	104.4
3-1/4	80	10	286	425.6	252,000	114.3	280,000	127.0
3-5/8	88	11	342	509	306,000	138.8	340,000	154.3
4	96	12	413	614.6	369,000	167.4	410,000	186.0

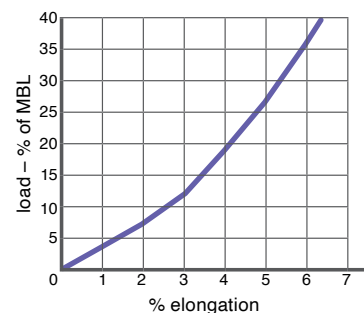
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 5%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.22*
Melting point	279°F (137°C)
Critical temp.	140°F (60°C)
Coefficient of friction	0.12–0.15*
Elongation at break	15–20%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

PSR 2000 12 Strand Elongation (%)



Polyester 12 Plait

Polyester 12 Plait provides high strength, low stretch and excellent abrasion resistance in a unique single braid construction. Polyester 12 Plait is easily spliced using a standard tuck splice and is 30% stronger than three strand or 8 plait polyester. Its torque free braided construction provides easy handling and prevents kinks and hockles.

Polyester 12 Plait is delivered standard with an overlay marine finish and is available on special order with a spliceable polyurethane finish in clear or any of six colors.

Features & Benefits

- Low stretch
- High strength
- Soft hand
- Torque free
- Easy splicing
- Meets MIL-R-24750

Applications

- Tug working lines
- Mooring pendants
- Shock lines

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
5/8	16	2	14.1	21	12,100	5.5	13,400	6.1
3/4	18	2-1/4	18.7	27.8	15,800	7.2	17,600	8.0
7/8	22	2-3/4	28.2	42	24,200	11.0	26,900	12.2
1	24	3	35.1	52.2	27,500	12.5	30,600	13.9
1-1/8	28	3-1/2	41.2	61.3	35,500	16.1	39,400	17.9
1-1/4	30	3-3/4	45.9	68.3	42,100	19.1	46,800	21.2
1-5/16	32	4	55	81.9	48,200	21.9	53,600	24.3
1-1/2	36	4-1/2	71.1	105.8	59,600	27.0	66,200	30.0
1-5/8	40	5	84.8	126.2	72,200	32.8	80,200	36.4
1-3/4	44	5-1/2	98.6	147.7	84,400	38.3	93,800	42.6
2	48	6	120	178.6	101,000	45.8	112,200	50.9
2-1/8	52	6-1/2	141	209.8	119,000	54.0	132,200	60.0
2-1/4	56	7	160	238.1	137,000	62.2	152,200	69.1
2-1/2	60	7-1/2	189	281.3	163,000	74.0	181,100	82.2
2-5/8	64	8	208	309.5	179,000	81.2	198,900	90.2
2-3/4	68	8-1/2	234	348.2	202,000	91.7	224,400	101.8
3	72	9	273	406.3	233,000	105.7	258,900	117.5
3-1/4	80	10	338	503	282,000	127.9	313,300	142.2
3-1/2	84	10.5	394	587	322,000	146.0	357,800	162.0
3-5/8	88	11	402	598.3	340,000	154.3	377,800	171.4
4	96	12	486	723.3	409,000	185.6	454,400	206.2
4-1/8	104	12.5	547	815	444,000	201.0	493,300	224.0
4-1/4	108	13	582	867	467,000	212.0	518,900	235.0

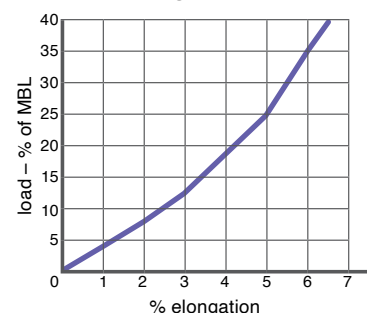
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 5%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.38*
Melting point	482°F (250°C)
Critical temp.	350°F (177°C)
Coefficient of friction	0.12–0.15*
Elongation at break	15–20%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Polyester 12 Plait Elongation (%)



Nylon 12 Plait

Nylon 12 Plait provides high strength, high elongation and excellent abrasion resistance in a single braid construction. Nylon 12 Plait is easily spliced using a standard tuck splice and is 25% stronger than three strand or 8 plait nylon. Its torque free braided construction provides easy handling and prevents kinks and hockles.

Nylon 12 Plait is available standard with an overlay marine finish.

Features & Benefits

- High stretch
- High strength
- Excellent shock absorption
- Soft hand
- Torque free
- Easy splicing

Applications

- Mooring lines
- Anchor lines
- KERR towing Lines
- Tug hawsers and stretchers
- Commercial fishing nets
- Security barriers

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
5/8	16	2	11	16.4	13,900	6.3	15,400	7.0
3/4	18	2-1/4	15	22.3	17,900	8.1	19,900	9.0
7/8	22	2-3/4	22.6	33.6	26,200	11.9	29,100	13.2
1	24	3	26.3	39.1	30,100	13.7	33,400	15.2
1-1/8	28	3-1/2	33.8	50.3	39,400	17.9	43,800	19.9
1-1/4	30	3-3/4	39.5	58.8	45,400	20.6	50,400	22.9
1-5/16	32	4	45.1	67.1	51,200	23.2	56,900	25.8
1-1/2	36	4-1/2	56.4	83.9	64,800	29.4	72,000	32.7
1-5/8	40	5	67.7	100.8	76,300	34.6	84,800	38.5
1-3/4	44	5-1/2	79	117.6	92,100	41.8	102,300	46.4
2	48	6	95.9	142.7	106,500	48.3	118,300	53.7
2-1/8	52	6-1/2	113	168.2	128,000	58.1	142,200	64.5
2-1/4	56	7	135	200.9	152,000	69.0	168,900	76.6
2-1/2	60	7-1/2	152	226.2	170,000	77.1	188,900	85.7
2-5/8	64	8	169	251.5	189,000	85.8	210,000	95.3
2-3/4	68	8-1/2	192	285.7	214,000	97.1	237,800	107.9
3	72	9	222	330.4	245,000	111.2	272,200	123.5
3-1/4	80	10	271	403.3	288,000	130.7	320,000	145.2
3-5/8	88	11	321	477.7	338,000	153.4	375,600	170.4
4	96	12	389	578.9	418,000	189.7	464,400	210.7

Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. With extended immersion in water, all nylon ropes will lose up to 10% of their strength. Weights are calculated at linear density under standard preload (200d²) plus 7%. See reverse side for application and safety information.

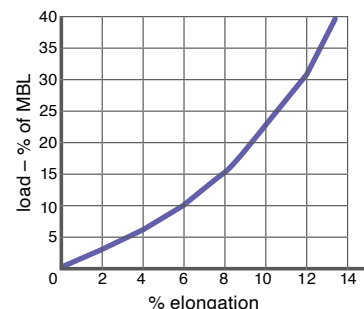
Please note that the Minimum Tensile Strengths of Black Nylon 12 Plait products are normally 15% below published specifications. Type approval of Nylon 12 Plait does not apply to Black Nylon 12 Plait.

Technical Information

Specific gravity	1.14*
Melting point	414°F (212°C)
Critical temp.	300°F (149°C)
Coefficient of friction	0.12–0.15*
Elongation at break	30–35%
Fiber water absorption	3–5%
UV resistance	good
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Nylon 12 Plait Elongation (%)



D/Z Composite Double Braid

D/Z Composite is a double braided rope with the inner core made of UHMWPE and the outer sleeve of polyester. D/Z Composite has very low elongation, high strength and the feel and handling of polyester double braid. It is identified with four external black markers.

D/Z Composite is delivered standard with an overlay marine finish. Special-order D/Z Composite is available with a spliceable polyurethane finish in clear or any of six colors.

Features & Benefits

- High strength
- Low stretch
- Soft hand
- Torque free
- Easy splicing

Applications

- Winch lines
- Crane lines
- Theatrical rigging
- Utility pulling lines

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
3/16	5	9/16	1.3	1.9	3,400	1.5	3,800	1.7
1/4	6	3/4	2.1	3.1	5,800	2.6	6,400	2.9
5/16	8	15/16	4.0	5.9	10,700	4.9	11,900	5.4
3/8	9	1-1/8	4.4	6.5	12,300	5.6	13,700	6.2
7/16	11	1-1/4	6.0	9.0	17,000	7.7	18,900	8.6
1/2	12	1-1/2	8.1	12.0	20,900	9.5	23,200	10.5
9/16	14	1-3/4	10.3	15.4	27,100	12.3	30,100	13.6
5/8	16	2	12.3	18.3	37,100	16.8	41,200	18.7
3/4	18	2-1/4	15.5	23.1	43,100	19.5	47,800	21.7
7/8	22	2-3/4	23.6	35.1	64,000	29.0	71,000	32.2
1	24	3	29.4	43.7	76,800	34.8	85,200	38.7
1-1/8	28	3-1/2	33.8	50.3	88,400	40.1	98,100	44.5
1-1/4	30	3-3/4	40.9	60.8	104,900	47.6	116,400	52.8
1-5/16	32	4	48.3	71.9	116,800	53.0	129,600	58.8
1-1/2	36	4-1/2	59.9	89.1	138,500	62.8	153,700	69.7
1-5/8	40	5	69.1	102.8	156,400	70.9	173,600	78.7
1-3/4	44	5-1/2	83.8	124.8	185,100	83.9	205,500	93.2
2	48	6	102.9	153.1	223,900	101.5	248,500	112.7

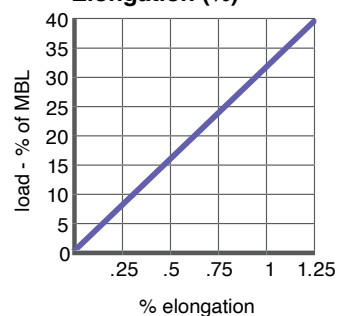
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.13*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

D/Z Composite Double Braid Elongation (%)



D/V Composite Double Braid

D/V Composite is a double braided rope with the inner braided core made of Vectran® high modulus fiber and the outer sleeve of filament polyester. Available in white or black, the resultant finished braid has very low elongation and creep, high strength and the feel and handling of a polyester double braid.

D/V Composite double braid with a black polyester cover is very popular in the theatrical rigging industry and provides excellent service as a winch line.

Standard D/V Composite is delivered with a clear-color overlay marine finish and is available on special order with a splice-able polyurethane finish in black or other colors.

Features & Benefits

- High strength
- Low stretch and creep
- Soft hand
- Torque-balanced construction
- Easy to splice –
Class II Core-Dependent Eye Splice

Applications

- Theatrical winch and rigging lines
- Utility winch lines
- Utility pulling lines
- Crane lines
- Vessel mooring lines
- Lifting slings

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
3/16	5	9/16	0.002	0.0239	3,600	1.6	4,000	1.8
1/4	6	3/4	0.025	0.0373	4,900	2.2	5,400	2.5
5/16	8	15/16	0.040	0.0597	9,200	4.2	10,200	4.6
3/8	9	1-1/8	0.077	0.1149	13,400	6.1	14,900	6.8
1/2	12	1-1/2	0.100	0.1492	16,200	7.4	18,000	8.2
3/4	19	2-1/4	0.148	0.2208	27,400	13	30,100	14.0

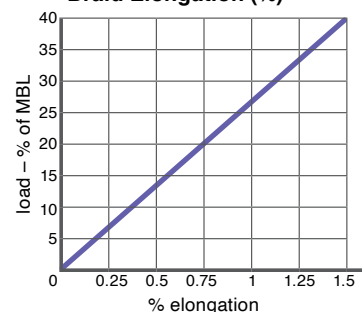
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.39*
Melting point	482°F (250°C)
Critical temp.	350°F (177°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

D/V Composite Double Braid Elongation (%)



G/T Composite Double Braid

G/T Composite ropes provide high strength, low stretch and superior abrasion resistance in a firm round jacketed construction. The ropes are constructed with a braided Plasma® core. This core is encased in a tightly braided jacket of a new generation HMPE fiber that offers the highest abrasion resistance and durability.*

G/T Composite ropes can be used in mooring applications where a very high strength, firm and round torque free rope is desired. G/T Composite can also be used in commercial fishing as wire rope replacement and helicopter longlines. These ropes are available with a polyurethane finish in clear or any of six colors, and are designed to withstand drum compression on mooring winches.

Features & Benefits

- Highest strength
- Lowest stretch
- Low creep
- Firm hand
- Torque free

Applications

- Commercial fishing lines
- Helicopter longlines
- Vessel mooring lines

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
ABS and DNV Type Approved Sizes								
3/4	18	2-1/4	16.3	24.3	53,000	24.0	58,900	26.7
7/8	22	2-3/4	20.4	30.4	70,900	32.2	78,600	35.7
1	24	3	24.5	36.5	75,600	34.3	83,900	38.1
1-1/8	28	3-1/2	33.1	49.3	95,000	43.1	105,500	47.9
1-1/4	30	3-3/4	36.0	53.6	113,000	51.3	125,600	57.0
1-5/16	32	4	49.1	73.1	157,900	71.6	175,400	79.6
1-1/2	36	4-1/2	55.7	82.9	183,400	83.2	203,800	92.5
1-5/8	40	5	64.2	95.5	201,000	91.2	223,200	101.3
1-3/4	44	5-1/2	79.5	118.3	228,800	103.8	253,900	115.2
2	48	6	88.9	132.3	242,400	110.0	269,300	122.2

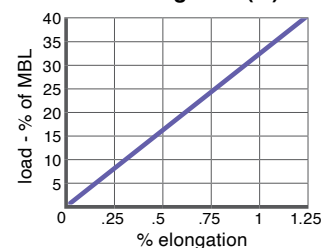
Tensile Strengths are determined in accordance with Cordage Institute CI-1500, Test Methods for Fiber Rope and ISO 2307. Published Minimum Tensile Strength (MTS) assumes spliced eye terminations at each end of the rope. Weights actually calculated at linear density under stated preload (200d²) plus 4%. Diameter and circumference size published are nominal and reflect rope size after loading (10 cycles) to 50% of MTS. See reverse side for application and safety information.

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15*
Elongation at break	3%–4%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

G/T Composite Double Braid Elongation (%)



* GT Composite ropes can also be designed with materials other than HMPE for jacketing depending on application. Linear density & external fiber properties will change depending on jacketing material but the strength will remain the same on a per size basis. Please contact Cortland for further information.

GTM Composite Double Braid

GTM Composite Double Braid ropes have very high strength, are firm with a round profile, and have extremely low stretch. These durable, torque-free synthetic ropes are excellent for replacing steel wire rope in winch applications and are designed to withstand drum compression. GTM ropes can be used in multiple applications such as vessel mooring lines for Articulated Tug & Barges (ATB's), Gilson winch lines used in commercial fishing, as well as helicopter long lines.

GTM Double Braid ropes are constructed with a braided Plasma® HMPE fiber core. This core is encased in a tightly braided jacket of a new generation HMPE fiber that offers the highest abrasion and cut resistance durability.* The final construction of core and cover work in balance to provide excellent service life.

GTM braided rope standard color is orange, but is available with a polyurethane finish in clear or any of five additional colors; black, yellow, red, blue or green.

Features & Benefits

- Highest strength
- Lowest stretch
- Low creep
- Firm hand
- Torque free

Applications

- Vessel mooring lines
- Winch lines
- Tug mainlines
- Tug pendants
- Recreational vehicle winch lines
- Utility winch and pulling lines
- Theatrical rigging

Type approved product



Nominal Diameter		Size (circ. in)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1	24	3	25.3	37.7	97,000	44	107,700	48.8
1-1/8	28	3-1/2	30.9	46.0	120,000	54.4	133,200	60.4
1-1/4	30	3-3/4	38.7	57.6	145,000	65.8	161,000	73.0
1-5/16	32	4	43.2	64.3	159,000	72.1	176,500	80.0
1-3/8	34	4-1/8	47.1	70.1	175,000	79.4	194,300	88.1
1-1/2	36	4-1/2	58.0	86.3	202,000	91.6	224,300	101.7
1-5/8	40	5	65.3	97.2	228,000	103	253,100	114.3
1-3/4	44	5-1/2	75.3	112.1	250,000	113	277,500	125.4
1-7/8	46	5-5/8	87.3	129.8	297,000	135	329,700	149.9
2	48	6	98.5	146.5	332,000	151	368,600	167.6
2-1/8	52	6-1/2	110.5	164.4	360,000	163	399,600	180.9
2-1/4	56	7	128.0	190.5	408,000	185	452,900	205.4

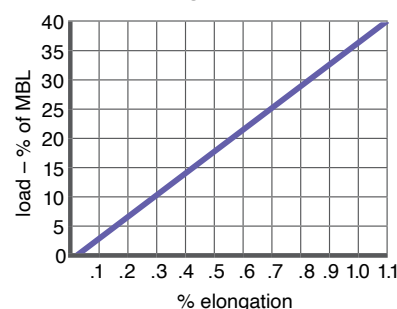
Tensile strengths are determined in accordance with Cordage Institute CI-1500, Test Methods for Fiber Rope and ISO 2307. Published Minimum Tensile Strength (MTS) assumes spliced eye terminations at each end of the rope. Weights actually calculated at linear density under stated preload (200d²) plus 4%. Diameter and circumference size published are nominal and reflect rope size after loading (10 cycles) to 50% of MTS. See reverse side for application and safety information.

Technical Information

Specific gravity	0.98*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15
Elongation at break	2.5–3.5%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	superior
Dry abrasion	superior

* value based on data supplied by the fiber manufacturer for new, dry fiber

GTM Composite Double Braid Elongation (%)



* GTM Composite ropes can also be designed with materials other than HMPE for jacketing depending on application. Linear density & external fiber properties will change depending on jacketing material but the strength will remain the same on a per size basis. Please contact Cortland for further information.

DTM Composite Double Braid

DTM Composite Double Braid ropes have very high strength, are firm with a round profile, and have extremely low stretch. These durable, torque free synthetic ropes are excellent for replacing steel wire rope in winch applications and are designed to withstand drum compression. DTM ropes can be used in multiple applications such as vessel mooring lines for Articulated Tug & Barges (ATB's), Gilson winch lines used in commercial fishing, as well as helicopter long lines.

DTM Double Braid ropes are constructed with a braided Plasma[®] HMPE fiber core. This core is encased in a tightly braided jacket of a Polyester fiber that offers high abrasion and durability. The final construction of core and cover work in balance to provide excellent service life.

Features & Benefits

- High strength
- Low stretch
- Soft hand
- Torque-free
- Easy splicing

Applications

- Vessel mooring lines
- Winch lines
- Tug mainline
- Tug pendant
- Recreational vehicle winch lines
- Utility winch and pulling lines
- Theatrical rigging

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1	24	3	28.1	41.9	97,000	44	107,700	48.8
1-1/8	28	3-1/2	36.2	53.8	120,000	54.4	133,200	60.4
1-1/4	30	3-3/4	44.1	65.6	145,000	65.8	161,000	73.0
1-5/16	32	4	48.6	72.4	159,000	72.1	176,500	80.0
1-3/8	34	4-1/8	52.8	78.5	175,000	79.4	194,300	88.1
1-1/2	36	4-1/2	65.1	96.9	202,000	91.6	224,300	101.7
1-5/8	40	5	75.5	112.3	228,000	103	253,100	114.3
1-3/4	44	5-1/2	85.4	127.1	250,000	113	277,500	125.4
1-7/8	46	5-5/8	96.5	143.5	297,000	135	329,700	149.9
2	48	6	109.9	163.6	332,000	151	368,600	167.6
2-1/8	52	6-1/2	123.2	183.4	360,000	163	399,600	180.9
2-1/4	56	7	142.0	211.3	408,000	185	452,900	205.4

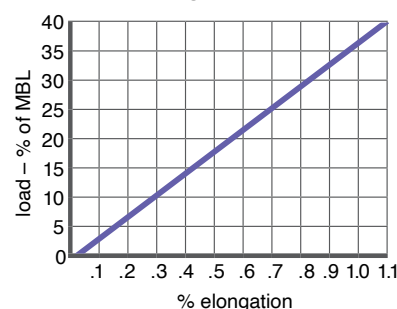
Tensile strengths are determined in accordance with Cordage Institute CI-1500, Test Methods for Fiber Rope and ISO 2307. Published Minimum Tensile Strength (MTS) assumes spliced eye terminations at each end of the rope. Weights actually calculated at linear density under stated preload (200d2) plus 4%. Diameter and circumference size published are nominal and reflect rope size after loading (10 cycles) to 50% of MTS. See reverse side for application and safety information.

Technical Information

Specific gravity	1.08*
Melting point	284°F (140°C)
Critical temp.	150°F (65°C)
Coefficient of friction	0.12–0.15*
Elongation at break	4%–5%
Fiber water absorption	0%–1%
UV resistance	excellent
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

DTM Composite Double Braid Elongation (%)



* DTM Composite ropes can also be designed with materials other than HMPE for jacketing depending on application. Linear density & external fiber properties will change depending on jacketing material but the strength will remain the same on a per size basis. Please contact Cortland for further information.

N/P Composite Double Braid

N/P Composite is a double braided rope with the inner core made of multifilament polypropylene and the outer sleeve of nylon.

N/P Composite combines the excellent sunlight and abrasion resistance of nylon with the flotation of polypropylene. It has a standard specific gravity of 1.01 and is available on special order with a specific gravity of 0.99.

N/P Composite Double Braid is delivered standard with an overlay marine finish.

Features & Benefits

- Moderate stretch
- High strength
- Soft hand
- Torque free
- Floats in sea water

Applications

- Vessel mooring lines (floating)
- Buoy lines
- Anchor lines

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
5/8	16	2	10.5	15.6	9,800	4.4	10,900	4.9
3/4	18	2-1/4	13.8	20.5	12,900	5.9	14,300	6.5
7/8	22	2-3/4	19.4	28.9	18,100	8.2	20,100	9.1
1	24	3	23.6	35.1	21,800	9.9	24,200	11.0
1-1/8	28	3-1/2	31.9	47.5	29,400	13.3	32,700	14.8
1-1/4	30	3-3/4	37.9	56.4	34,700	15.7	38,600	17.5
1-5/16	32	4	42.8	63.7	39,000	17.7	43,000	19.5
1-1/2	36	4-1/2	53.6	79.8	48,000	21.8	53,000	24.0
1-5/8	40	5	63.8	94.9	57,800	26.2	64,000	29.0
1-3/4	44	5-1/2	80.6	119.9	72,000	32.7	80,000	36.3
2	48	6	92.6	137.8	83,200	37.7	92,000	41.7
2-1/8	52	6-1/2	111	165.2	98,400	44.6	109,000	49.5
2-1/4	56	7	129	192	113,000	51.3	126,000	57.2
2-1/2	60	7-1/2	145	215.8	129,000	58.5	143,000	64.9
2-5/8	64	8	169	251	146,000	66.2	162,000	73.5
2-3/4	68	8-1/2	186	276.8	163,000	74.0	181,000	82.1
3	72	9	210	312.5	182,000	82.6	202,000	91.7
3-1/4	80	10	259	385.4	221,000	100.3	246,000	111.6
3-5/8	88	11	314	467.3	263,000	119.3	292,000	132.5
4	96	12	371	552.1	310,000	140.7	344,000	156.1
4-1/4	104	13	443	659.3	363,000	164.7	403,000	182.8

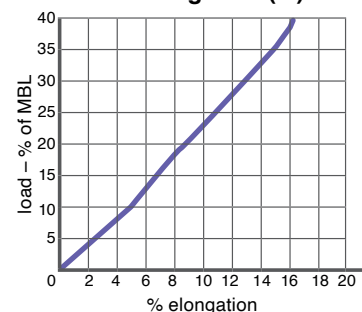
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information

Technical Information

Specific gravity	1.01*
Melting point	284°F (140°C)
Critical temp.	200°F (93°C)
Coefficient of friction	0.12–0.15*
Elongation at break	30–35%
Fiber water absorption	3–4%
UV resistance	good
Wet abrasion	good
Dry abrasion	good

* value based on data supplied by the fiber manufacturer for new, dry fiber

N/P Composite Double Braid Elongation (%)



Nylon Double Braid

Nylon Double Braid is the preferred choice for applications requiring high strength with excellent shock absorbing properties. Double Braid has good resistance to abrasion, sunlight and chemicals. Due to its high elongation, nylon is almost always used in applications involving shock loading such as anchor lines and mooring lines.

Nylon Double Braid is delivered standard with an overlay marine finish.

Features & Benefits

- High stretch
- High strength
- Excellent shock absorption
- Soft hand
- Torque free
- Meets MIL-DTL-24050

Applications

- Anchor lines
- Mooring lines
- Shock absorbers
- Pendants
- Towlines
- Towed array stretchers

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1/4	6	3/4	1.7	2.5	1,900	0.9	2,100	1.0
5/16	8	1	2.6	3.9	2,900	1.3	3,200	1.5
3/8	9	1-1/8	3.7	5.5	4,200	1.9	4,700	2.1
7/16	11	1-1/4	5.1	7.6	5,700	2.6	6,300	2.9
1/2	12	1-1/2	6.6	9.8	7,400	3.4	8,200	3.7
9/16	14	1-3/4	9	13.4	10,200	4.6	11,300	5.1

ABS and DNV Type Approved Sizes

5/8	16	2	11.6	17.2	14,800	6.7	16,400	7.4
3/4	18	2-1/4	14.7	21.9	19,000	8.6	21,100	9.6
7/8	22	2-3/4	21.8	32.4	28,300	12.8	31,400	14.2
1	24	3	26	38.7	33,500	15.2	37,200	16.9
1-1/16	26	3-1/4	31	46.1	39,000	17.7	43,300	19.6
1-1/8	28	3-1/2	35.4	52.7	44,900	20.4	49,900	22.6
1-1/4	30	3-3/4	40.7	60.6	52,300	23.7	58,100	26.4
1-5/16	32	4	46.3	68.9	58,800	26.7	65,300	29.6
1-1/2	36	4-1/2	58.4	86.9	74,000	33.6	82,200	37.3
1-5/8	40	5	72.3	107.6	92,400	41.9	102,700	46.6
1-3/4	44	5-1/2	87.7	130.5	110,900	50.3	123,200	55.9
2	48	6	103.9	154.6	131,500	59.7	146,100	66.3
2-1/8	52	6-1/2	122	181.6	152,800	69.3	169,800	77.0
2-1/4	56	7	141.2	210.1	181,000	82.1	201,100	91.2
2-1/2	60	7-1/2	162.6	242	201,000	91.2	223,300	101.3
2-5/8	64	8	185.1	275.5	222,000	100.7	246,700	111.9
2-3/4	68	8-1/2	201.2	299.4	248,000	112.5	275,600	125.0
3	72	9	234.3	348.7	277,000	125.7	307,800	139.7
3-1/4	80	10	288.9	430	341,000	154.7	378,900	171.9
3-5/8	88	11	349.9	520.7	409,000	185.6	454,400	206.2
4	96	12	416.2	619.4	475,000	215.5	527,800	239.5
4-1/4	104	13	481.5	716.6	549,000	249.1	610,000	276.8

Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information.

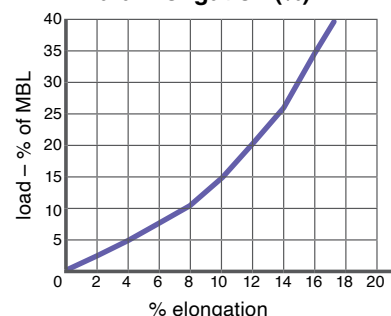
Please note that the Minimum Tensile Strengths of Black Nylon Double Braid products are normally 10% below published specifications. Type Approval of Nylon Double Braid does not apply to Black Nylon Double Braid.

Technical Information

Specific gravity	1.14*
Melting point	414°F (212°C)
Critical temp.	300°F (149°C)
Coefficient of friction	0.12–0.15*
Elongation at break	30–35%
Fiber water absorption	3–4%
UV resistance	good
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Nylon Double Braid Elongation (%)



Polyester Double Braid

Polyester Double Braid provides an excellent combination of high strength, low stretch, excellent weathering and easy handling. Of all the popular fibers polyester has the best weathering characteristics and the best wet abrasion resistance. Polyester Double Braid is identified with one external black marker.

Polyester Double Braid is delivered standard with an overlay marine finish and is available on special order with a spliceable polyurethane finish in clear or any of six colors.

Features & Benefits

- Low stretch
- High strength
- Soft hand
- Torque free
- Excellent wet strength
- Meets MIL-DTL-24677

Applications

- Winch lines
- Utility pulling lines
- Towing lines
- Offshore anchor and lifting lines
- Arborist bull ropes
- Theatrical rigging lines

Type approved product



Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
1/4	6	3/4	2.4	3.6	2,400	1.1	2,700	1.2
5/16	8	1	3.6	5.4	3,600	1.6	4,000	1.8
3/8	9	1-1/8	4.8	7.1	4,800	2.2	5,300	2.4
7/16	11	1-1/4	6.3	9.4	6,300	2.9	7,000	3.2
1/2	12	1-1/2	8.6	12.8	8,400	3.8	9,300	4.2
9/16	14	1-3/4	11.1	16.5	10,750	4.9	11,900	5.4

ABS and DNV Type Approved Sizes

5/8	16	2	13.1	19.5	12,300	5.6	13,700	6.2
3/4	18	2-1/4	18.8	28.0	17,400	7.9	19,300	8.8
7/8	22	2-3/4	25.6	38.1	24,000	10.9	26,700	12.1
1	24	3	33.5	49.9	31,200	14.2	34,700	15.7
1-1/8	28	3-1/2	42.4	63.1	39,500	17.9	43,900	19.9
1-1/4	30	3-3/4	52.3	77.8	48,100	21.8	53,400	24.2
1-5/16	32	4	57.8	86.0	53,100	24.1	59,000	26.8
1-1/2	36	4-1/2	75.4	112.2	64,300	29.2	71,400	32.4
1-5/8	40	5	88.2	131.3	77,800	35.3	86,400	39.2
1-3/4	44	5-1/2	103.0	153.3	89,200	40.5	99,100	45
2	48	6	134.0	199.4	110,000	50	122,200	55
2-1/8	52	6-1/2	151.0	224.7	124,000	56	137,800	63
2-1/4	56	7	169.0	251.5	141,000	64	156,700	71
2-1/2	60	7-1/2	209.0	311.0	170,000	77	188,900	86
2-5/8	64	8	231.0	343.8	186,000	84	206,700	94
2-3/4	68	8-1/2	265.0	394.4	206,000	94	228,900	104
3	72	9	301.0	447.9	237,000	108	263,300	120
3-1/4	80	10	354.0	526.8	292,000	133	324,400	147
3-5/8	88	11	440.0	654.8	348,000	158	386,700	176
4	96	12	536.0	797.7	401,000	182	445,600	202
4-1/4	104	13	605.0	900.4	454,000	206	504,400	229

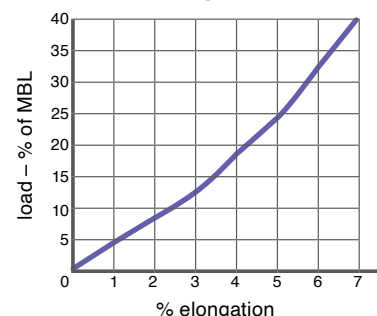
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fiber Rope. Weights are calculated at linear density under standard preload (200d²) plus 4%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.38*
Melting point	482°F (250°C)
Critical temp.	350°F (177°C)
Coefficient of friction	0.12–0.15*
Elongation at break	15–20%
Fiber water absorption	0–1%
UV resistance	excellent
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fiber manufacturer for new, dry fiber

Polyester Double Braid Elongation (%)



Spun Polyester Double Braid

Spun Polyester is a double braided rope with the inner core made of polyester continuous filament and the outer sleeve of DuPont type 77 Dacron® to give a soft easy grip surface yet the strength of continuous filament polyester. Spun polyester is easily spliced and has excellent weathering characteristics and abrasion resistance.

Features & Benefits

- Low stretch
- High strength
- Very soft hand
- Torque free
- Excellent wet strength
- Meets MIL-R-24536

Applications

- Military applications per MIL-R-24536

Nominal Diameter		Size (circ in.)	Approximate Weight		Minimum Tensile Strength Spliced Rope		Minimum Tensile Strength ISO Unspliced Rope	
inch	mm		lbs/100ft	kg/100m	lbs	MT (tonnes)	lbs	MT (tonnes)
5/8	16	2	13	19.3	10,200	4.6	11,300	5.1
3/4	18	2-1/4	16.2	24.1	12,700	5.8	14,100	6.4
7/8	22	2-3/4	24.3	36.2	17,700	8.0	19,700	8.9
1	24	3	29.3	43.6	20,300	9.2	22,600	10.3
1-1/8	28	3-1/2	40	59.5	27,000	12.3	30,000	13.6
1-1/4	30	3-3/4	45.8	68.2	30,200	13.7	33,600	15.2
1-5/16	32	4	52.4	78	33,900	15.4	37,700	17.1
1-1/2	36	4-1/2	65	96.7	45,300	20.6	50,300	22.8
1-5/8	40	5	81.5	121.3	50,400	22.9	56,000	25.4

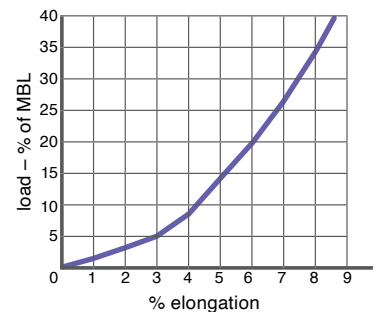
Tensile Strengths are determined in accordance with Cordage Institute 1500, Test Methods for Fibre Rope. Weights are calculated at linear density under standard preload (200d²) plus 6%. See reverse side for application and safety information.

Technical Information

Specific gravity	1.38*
Melting point	482°F (250°C)
Critical temp.	350°F (177°C)
Coefficient of friction	0.12–0.15*
Elongation at break	15–20%
Fibre water absorption	0–1%
UV resistance	excellent
Wet abrasion	excellent
Dry abrasion	excellent

* value based on data supplied by the fibre manufacturer for new, dry fibre

Spun Polyester Double Braid Elongation (%)





Wear Protection

for extended service life of fiber ropes and slings

Cortland's high performance ropes are manufactured using some of the most cut and abrasion resistant fibers available in the world today. Many users benefit from the ability to inspect a non-jacketed rope, such as Plasma®. However, when extra defense from heat, the elements, cutting, abrasion, or ingress of dirt, mud or particulates is needed, added wear protection can provide the solution. Cortland offers several wear protection options as a sacrificial layer of protection, increasing the service life of a rope or sling and ensuring a safe and successful operation.

Each application has its own characteristic requirements. To address the various issues, Cortland offers several different wear protection options which range in protective quality, weight, and cost. Contact your local Cortland technical sales representative or distributor for the proper wear protection for your specific application.

Wear gear protection types:

- SX
- Cortland Cage
- Asgard
- DXC
- XT
- PNW tubular
- PNW with hook-and-clasp securement

SX

SX wear protection is designed to offer the highest cut and abrasion resistance protection to your rope. Manufactured with HMPE (High Modulus Polyethylene), the SX wear protection is a braided tubular structure offering 100% protection to the rope. The HMPE fiber is lightweight, floats and has excellent cut resistance. SX wear protection does not absorb water and can be splice-terminated into Cortland braided ropes.



Key benefits of SX wear protection:

- Superior wet & dry protection
- Lightweight
- Flexible
- Cut resistant
- HMPE fiber
- Low coefficient of friction
- UV resistant
- Easy to handle

Rope Size (diameter)		Part Number	
inches	mm	In Eye	Over Splice
1/4–3/8	6–9 mm	—	SX10
1/2–5/8	12–16 mm	SX10	SX14
3/4–7/8	18–22 mm	SX14	SX16
1–1 1/16	24–26 mm	SX16	SX18
1 1/8–1 1/4	28–30 mm	SX18	SX21
1 5/16–1 1/2	32–36 mm	SX21	SX32
1 5/8	40 mm	SX21	SX42
1 3/4–2 1/8	44–52 mm	SX32	SX42

Rope Size (diameter)		Part Number	
inches	mm	In Eye	Over Splice
2 1/4–2 3/4	56–68 mm	SX32	SX52
3	72 mm	SX42	SX64
3 1/8–3 1/2	76–84 mm	SX52	SX64
3 5/8–4	88–96 mm	SX64	SX72
4 1/8–4 1/4	100–104 mm	SX72	SX72

Wear Protection Options

Cortland Cage

The **Cortland Cage** solution combines the lightweight, abrasion resistant, and non-water-absorbing properties of HMPE fiber in a braided cover sleeve. Cortland Cage can be secured in place by splice-termination or heavy duty whipping. The open braid pattern allows inspection of Plasma® 12x12 and reduces the total weight of the wear protection. Cortland Cage offers excellent cut and abrasion resistance of all braided wear protection. In addition a proprietary polyurethane coating provides added protection in challenging marine environments.



Key benefits of Cortland Cage:

- Extra protection against cutting and abrasion
- Open braid pattern allows inspection of rope
- Proprietary polyurethane coating
- Lightweight and floats

Rope Size (diameter)		Part Number	
inches	mm	In Eye	Over Splice
3/4–1-1/2	18–36 mm	SCAGE18	—
1–1-3/4	24–44 mm	SCAGE26	—

Rope Size (diameter)		Part Number	
inches	mm	In Eye	Over Splice
1-1/2–2-3/4	36–68 mm	SCAGE34	—
2-1/4–3-1/2	56–84 mm	SCAGE48	—

Asgard

Asgard wear protection is typically used for protection of lifting or mooring ropes and provides outstanding durability and resistance towards harsh operating conditions. The design features a strong, lightweight construction which is easy to install and retrofit on existing items. Asgard wear protection is designed according to a given diameter of the item to be protected and is provided in lengths according to client specifications.



Asgard wear protection is made from HMPE (High Modulus Polyethylene) and PNW (polyester and/or nylon) fibers in a woven, laminated and PU-coated construction and built in a layered design. The fibers utilized are the toughest of the traditional synthetic fibers. HMPE, for example, is used in personal armor products and PNW is used by the military for belts and webbing. Asgard wear protection can be delivered in a flat construction for protection of webbing, or in a circular construction, for use on mooring ropes for instance.

Asgard wear protection can be custom fabricated to other dimensions and configurations per customer requirements.

Key benefits of Asgard:

- Available with hook-and-clasp, or lace-on closures
- Custom fabricated to fit rope diameter and length requirements

Rope Size (diameter)		Part Number		
inches	mm	In Eye	Over Splice	Over Grommet
1/4–3/8	6–9 mm	AS-1.0	AS-1.0	AS-1.5
1/2–5/8	12–16 mm	AS-1.0	AS-1.5	AS-2.0
3/4–7/8	18–22 mm	AS-1.0	AS-1.5	AS-2.5
1	24 mm	AS-1.5	AS-2.0	AS-3.0
1-1/4	30 mm	AS-2.0	AS-2.0	AS-3.5
1-5/16–1-1/2	32–36 mm	AS-2.0	AS-2.5	AS-4.0

Rope Size (diameter)		Part Number		
inches	mm	In Eye	Over Splice	Over Grommet
1-5/8–1-3/4	40–44 mm	AS-2.5	AS-3.0	AS-4.5
1-3/4–6	44–152 mm	AS-2.5	AS-3.5	AS-5.0
7	177 mm	AS-2.5	AS-3.5	AS-6.0
8	203 mm	AS-3.0	AS-4.5	AS-7.0
9–10	228–254 mm	AS-3.5	AS-5.0	AS-9.0
11–13	279–330 mm	AS-5.0	AS-7.0	—

Wear Protection Options

DXC

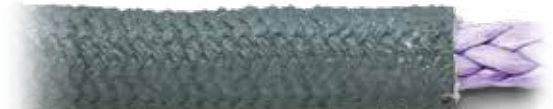
The **DXC wear protection** is a tightly braided tubular polyester sleeve with proprietary marine polyurethane coating for use in extreme applications. Excellent choice for placement in the eye or body of sling; DXC sleeves can be fabricated to be free-floating or fixed in place. The DXC sleeve covers rope sling sizes from 1/4" (6 mm) diameter through 4-1/4" (104 mm) diameter. Other sizes and colors available upon request.



Rope Size (diameter)		Part Number	
inches	mm	In Eye	Over Splice
1/4–3/8	6–9 mm	—	DX10
1/2–5/8	12–16 mm	DX10	DX14
3/4–7/8	18–22 mm	DX14	DX16
1–1-1/16	24–26 mm	DX16	DX18
1-1/8–1-1/4	28–30 mm	DX18	DX21
1-5/16–1-1/2	32–36 mm	DX21	DX32
1-5/8	40 mm	DX21	DX42
1-3/4–2-1/8	44–52 mm	DX32	DX42
2-1/4–2-3/4	56–68 mm	DX32	DX52
3	72 mm	DX42	DX64
3-1/8–3-1/2	76–84 mm	DX52	DX64
3-5/8–4	88–96 mm	DX64	DX72
4-1/8–4-1/4	100–104 mm	DX72	DX72

XT

XT wear protection is a tightly braided tubular polyester wear protection sleeve with proprietary heavy marine polyurethane coating for use in extreme applications. XT sleeves can be fabricated to be free-floating, or fixed in place. It is an excellent choice for eye terminations or selected area body placement, braid-spliced or seized in place. This wear protection option is not as flexible as SX or PNW.



Rope Size (diameter)		Part Number	
inches	mm	In Eye	Over Splice
1/4–3/8	6–9 mm	—	XT10
1/2–5/8	12–16 mm	XT14	XT14
3/4–7/8	18–22 mm	XT14	XT16
1–1-1/16	24–26 mm	XT16	XT18
1-1/8–1-1/4	28–30 mm	XT18	XT21
1-5/16–1-1/2	32–36 mm	XT21	XT32
1-5/8	40 mm	XT21	XT42
1-3/4–2-1/8	44–52 mm	XT32	XT42
2-1/4–2-3/4	56–68 mm	XT32	XT52
3	72 mm	XT42	XT64
3-1/8–3-1/2	76–84 mm	XT52	XT64
3-5/8–4	88–96 mm	XT64	XT72
4-1/8–4-1/4	100–104 mm	XT72	XT72

Wear Protection Options

PNW tubular

PNW is a woven fiber material and is the most commonly used protection for abrasion. This wear protection is a permanent installation. PNW wear protection can be customized to meet the needs of any application. Standard colors are black or orange.

Rope Size (diameter)		Part Number		
inches	mm	In Eye	Over Splice	Over Grommet
1/4–3/8	6–9 mm	51650	51623	51623
1/2–5/8	12–16 mm	51623	51570	51570
3/4–7/8	18–22 mm	51231	51232	51232
1–1-1/16	24–26 mm	51232	51234	51234
1-1/8–1-1/4	28–30 mm	51233	51477	51477
1-5/16–1-1/2	32–36 mm	51446	51235	51235
1-5/8	40 mm	51234	51236	51236
1-3/4–2-1/8	44–52 mm	51477	51237	51237
2-1/4–2-3/4	56–68 mm	51236	51692	51692
3	72 mm	50403	—	—
3-1/8–3-1/2	76–84 mm	51692	—	—
3-5/8–4	88–96 mm	—	—	—
4-1/8–4-1/4	100–104 mm	—	—	—



PNW with hook-and-clasp securement

PNW is a woven fiber material and is the most commonly used protection for abrasion. PNW protection can be customized to meet the needs of any application. This is a removable or replaceable wear protection and is available in black or orange.

Rope Size (diameter)		Part Number		
inches	mm	In Eye	Over Splice	Over Grommet
1/4–3/8	6–9 mm	custom	SL-1.0	SL-1.5
1/2–5/8	12–16 mm	SL-1.0	SL-1.5	SL-2.0
3/4–7/8	18–22 mm	SL-1.5	SL-1.75	SL-2.5
1–1-1/16	24–26 mm	SL-1.75	SL-2.5	SL-3.5
1-1/8–1-1/4	28–30 mm	SL-2.5	SL-3.0	SL-3.5
1-5/16–1-1/2	32–36 mm	SL-2.5	SL-3.0	SL-4.0
1-5/8	40 mm	SL-3.0	SL-4.0	SL-5.0
1-3/4–2-1/8	44–52 mm	SL-3.5	SL-4.5	SL-6.0
2-1/4–2-3/4	56–68 mm	SL-4.5	SL-6.0	SL-8.0
3	72 mm	SL-5.0	SL-7.0	custom
3-1/8–3-1/2	76–84 mm	SL-6.5	SL-8.0	custom
3-5/8–4	88–96 mm	SL-8.0	custom	custom
4-1/8–4-1/4	100–104 mm	custom	custom	custom



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