

Section 7

SYNTHETIC ROPE

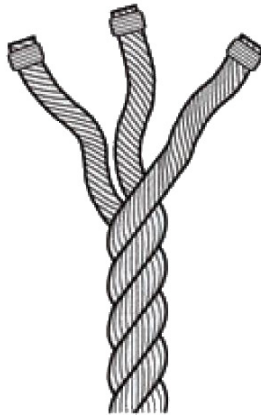
Introduction

While natural fibre ropes such as hemp, manila and sisal are still in use they have in large been replaced by man-made fibre ropes using synthetic materials. Synthetic ropes are generally manufactured from nylon, polypropylene, polyester, HMPE or a combination. The ropes are constructed in either a three strand lay, eight or twelve strand plaited or braided. There are other constructions but these three are the main ones used. Fibre lines are much more flexible than wire rope but not as high in strength. Three strand laid rope is a multi-purpose rope used for many different types of tasks. Eight or twelve strand plaited rope is generally used as vessel mooring and winch ropes. More modern materials such as Kevlar, Aramid and HMPE yarns can be added to the above ropes to provide different characteristics such as high strength. Should you require information on special mooring ropes please do not hesitate to contact Viking Moorings. Circumference is often used to express the size of a rope and standard coils of rope are 220 metres long.

7.1



Braided Construction



3 Strand Laid



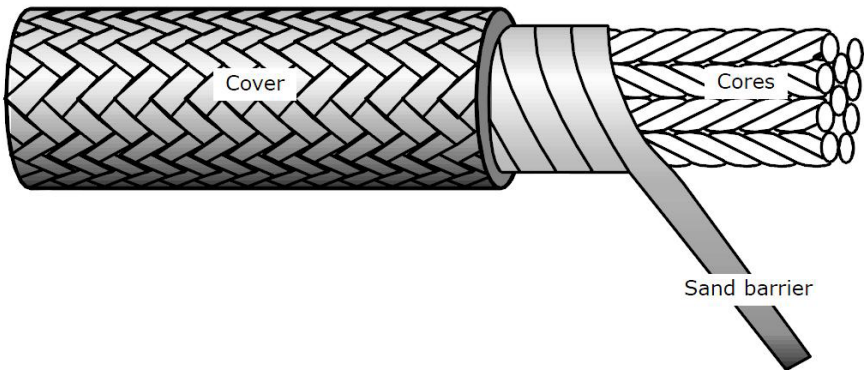
8 Strand Plaited

SYNTHETIC ROPE

Bexco ropes

DeepRope® Polyester

The DeepRope® line for mooring applications is a so-called parallel core construction. This construction consists of three parts, namely the core elements, sand and mud barrier and the cover (see figure).



7.2

The core elements are three-strand ropes that are oriented parallel to the longitudinal axis of the rope. The three-strand core design is used, because of its strength efficiency and spliceability. Every sub-rope is spliced back into itself to make the rope more damage resistant.

Depending on the installation procedure there may be a potential risk that the rope is dropped on the seabed. Although this in itself has no effect on the rope it is possible that sea-bed particles may diffuse into the rope. These particles will have a deteriorating effect on the strength over the life of the rope due to their abrasive nature. To avoid this a filter material is inserted between the cover and the core. The filter stops particles of 5 µm or bigger. Typically the cover will be some seven millimetres thick. For special applications alternative materials and different thickness are also possible.

Bexco ropes

DeepRope® Polyester continued... Material properties

Polyester is a particularly reliable fibre with mechanical properties quite close to those of nylon. The abrasion resistance of polyester is better than that of nylon and so is the tension-tension fatigue performance. Since both fibres are quite similar to polyester should generally be preferred. In favour of nylon is its lower density (1,14 vs 1,38) and higher energy absorption.

Features

Material: Polyester

Construction: Load bearing cores with a protective cover of polyester yarn

Treatment: Marine finish

Colour: White with marker yarns

Approx spec density: 1,38 non floating

Melting point: 251°C

Abrasion resistance: Excellent

UV resistance: Excellent due to jacket

Temp resistance: 120°C max continuous

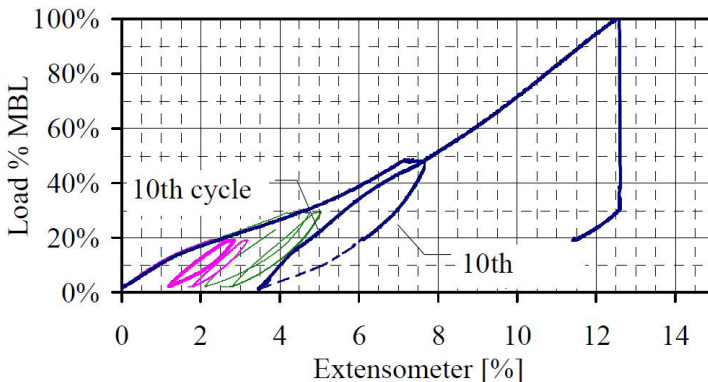
Chemical resistance: Good, bases and solvents may have a mild effect

Water uptake: ±30%

Dry/wet conditions: Wet strength equals dry strength

Range of use: Deepwater moorings

Initial to 20%, 30% & 50 % MBL & break test



Bexco ropes

DeepRope® Polyester mooring line Strength table

Material: Acordis Polyester 855TN
Total weight is in air:
conform to ISO (@1-2% MBL)

Minimum breaking load in spliced condition
Submerged weight is in seawater (p-1,05kg/l)
conform PetroBras spec (@20% MBL)

Ø Dia mm	MBL		Weight (kg/m)		Submerged weight		Stiffness (kN)		
	tf	kN	@2% MBL	@20% MBL	@20% MBL	@20% MBL	¹ EA	² EA	³ EA
113	380	3723	8,8	8,62	2,11	2,06	7,19E+04	8,43E+04	1,10E+05
117	414	4061	9,49	9,3	2,27	2,22	7,84E+04	9,20E+04	1,20E+05
126	483	4738	10,86	10,63	2,6	2,54	9,15E+04	1,07E+05	1,40E+05
130	518	5077	11,54	11,3	2,76	2,7	9,80E+04	1,15E+05	1,50E+05
133	552	5415	12,21	11,96	2,92	2,86	1,05E+05	1,23E+05	1,60E+05
137	587	5754	12,88	12,62	3,08	3,02	1,11E+05	1,30E+05	1,70E+05
141	621	6092	13,56	13,27	3,24	3,17	1,18E+05	1,38E+05	1,80E+05
144	656	6430	14,22	13,92	3,4	3,33	1,24E+05	1,46E+05	1,90E+05
147	690	6769	14,89	14,58	3,56	3,49	1,31E+05	1,53E+05	2,00E+05
151	725	7107	15,55	15,23	3,72	3,64	1,37E+05	1,61E+05	2,10E+05
154	759	7446	16,22	15,87	3,88	3,8	1,44E+05	1,69E+05	2,20E+05
157	794	7784	16,88	16,52	4,04	3,95	1,50E+05	1,76E+05	2,30E+05
160	828	8123	17,54	17,17	4,19	4,1	1,57E+05	1,84E+05	2,40E+05
163	863	8461	18,2	17,81	4,35	4,26	1,63E+05	1,92E+05	2,49E+05
166	897	8800	18,86	18,45	4,51	4,41	1,70E+05	1,99E+05	2,59E+05
169	932	9138	19,51	19,09	4,67	4,57	1,76E+05	2,07E+05	2,69E+05
172	966	9476	20,17	19,73	4,82	4,72	1,83E+05	2,15E+05	2,79E+05
175	1001	9815	20,82	20,37	4,98	4,87	1,89E+05	2,22E+05	2,89E+05
177	1035	10153	21,47	21,01	5,13	5,02	1,96E+05	2,30E+05	2,99E+05
180	1070	10492	22,13	21,65	5,29	5,18	2,03E+05	2,38E+05	3,09E+05
183	1104	10830	22,78	22,29	5,45	5,33	2,09E+05	2,45E+05	3,19E+05
185	1139	11169	23,43	22,92	5,6	5,48	2,16E+05	2,53E+05	3,29E+05
188	1173	11507	24,08	23,56	5,76	5,63	2,22E+05	2,61E+05	3,39E+05
190	1208	11846	24,72	24,19	5,91	5,78	2,29E+05	2,68E+05	3,49E+05

7.4

Bexco ropes

DeepRope® Polyester mooring line
Strength table continued...

Ø Dia mm	MBL		Weight (kg/m)		Submerged weight		Stiffness (kN)		
	tf	kN	@2% MBL	@20% MBL	@20% MBL	@20% MBL	EA ¹	EA ²	EA ³
193	1200	11772	25,3	23,6	6,05	5,64	2,61E+05	3,07E+05	3,99E+05
195	1233	12096	25,9	24,2	6,2	5,78	2,74E+05	3,22E+05	4,19E+05
198	1267	12429	26,6	24,8	6,36	5,92	2,81E+05	3,29E+05	4,29E+05
200	1300	12753	27,2	25,4	6,51	6,07	2,87E+05	3,37E+05	4,39E+05
203	1333	13077	27,9	26	6,67	6,21	2,94E+05	3,45E+05	4,49E+05
205	1367	13410	28,5	26,6	6,82	6,35	3,01E+05	3,52E+05	4,59E+05
207	1400	13734	29,2	27,2	6,97	6,49	3,14E+05	3,68E+05	4,79E+05
210	1433	14058	29,8	27,8	7,13	6,64	3,20E+05	3,75E+05	4,89E+05
212	1467	14391	30,4	28,3	7,28	6,78	3,27E+05	3,83E+05	4,99E+05
214	1500	14715	31,1	28,9	7,43	6,92	3,33E+05	3,91E+05	5,09E+05
221	1600	15696	33	30,7	7,89	7,35	3,40E+05	3,98E+05	5,19E+05
227	1700	16677	34,9	32,5	8,35	7,77	3,53E+05	4,14E+05	5,39E+05
233	1800	17658	36,8	34,3	8,81	8,2	3,59E+05	4,21E+05	5,49E+05
239	1900	18639	38,7	36,1	9,26	8,62	3,66E+05	4,29E+05	5,59E+05
245	2000	19620	40,6	37,8	9,72	9,04	3,72E+05	4,37E+05	5,69E+05

Dynamic Modulus based on type of approval tests for BV and PertoBras:

- 1 Cycling between 10-30% MBL
- 2 Cycling between 20-30% MBL
- 3 Cycling between 40-50% MBL

SYNTHETIC ROPE

Oliveira ropes

OLIVEIRA SÁ have developed a polyester fiber rope intended for use as components of anchoring lines forming the station keeping system of permanent or mobile offshore floating structures, or similar application. The rope is a torque neutral parallel construction with cover and sub ropes. It is made with the highest quality polyester yarn with Marine finish. Our Corona Line® DW-PET was designed with a number of 8 strands plaited sub ropes parallel assembled forming the core. The core of this construction is torque neutral and was designed to have the best behavior in strength efficiency and stiffness. The Corona Line® DW-PET have a protective circular braided jacket over the core which was designed to have the best wear and abrasion resistance. In order to give an extra protection on the inner cores, we apply a filter over-wrapped between the core and cover as fig. 1 exemplifies.

7.6

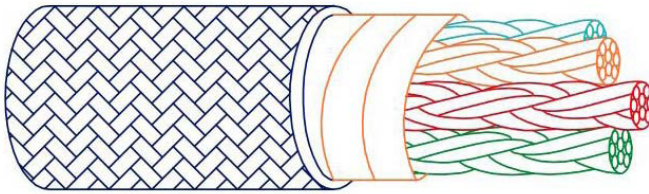


Fig. 1

Our Corona Line® DW-PET is a parallel-Sub Ropes assembled on a circular braided type rope. The 12 Sub Ropes parallel laid are made of 8 strands (4x2) plaited torque balanced Sub Ropes. These subropes are held together by an over wrapped braided jacket. For this application it was applied a filter cloth wrapped between the core subropes and the jacket. The next pictures shows the cross section and an explicative scheme of the Sub Ropes, filter and jacket.

Oliveira ropes

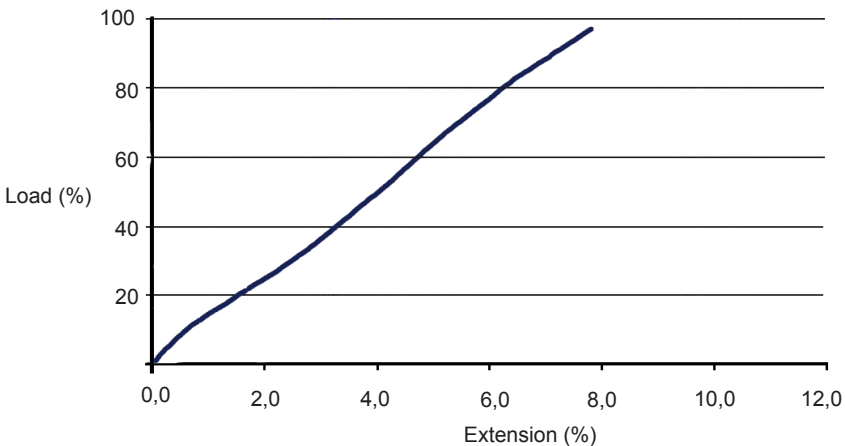
Strength table

Nominal Diameter mm	Nominal Weight Kg/100m	Minimum Breaking Load tonf
96	821	340
104	926	395
112	1.043	440
120	1.167	485
136	1.490	637
144	1.639	690
152	1.796	750
160	1.962	825
176	2.219	935
184	2.410	1.030
192	2.609	1.100
200	2.817	1.200
208	3.033	1.250
216	3.257	1.350
224	3.490	1.450
232	3.731	1.560
240	3.981	1.650
248	4.239	1.790
256	4.505	1.926

All dimensions are approximate

Load vs Extension

Final pull of rope break test after removing the permanent elongation.



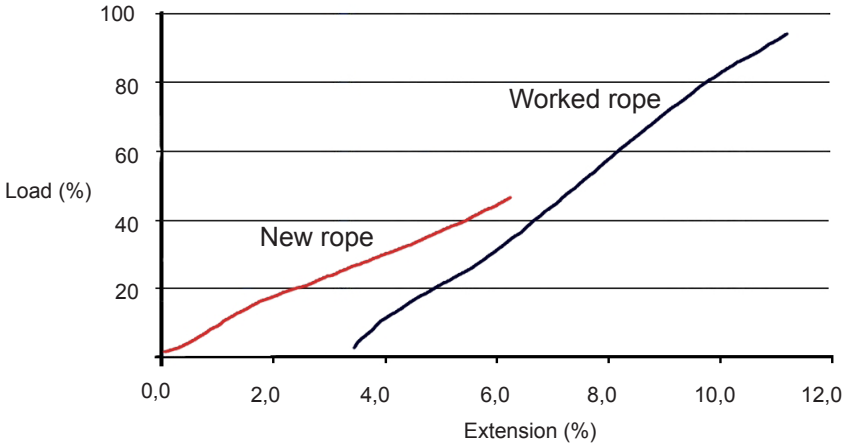
SYNTHETIC ROPE

Oliveira ropes

PERMANENT ENLARGATION

Final pull of rope break test after removing the permanent elongation. Permanent elongation is the remaining elongation (mainly due to the rope construction), after rope bedding in.

- New rope / Worked rope



MATERIAL

Corona Line DW-PET is 100% polyester. This material is a particularly reliable fibre with a very good tension-tension fatigue performance, an excellent resistance and a good chemical resistance. The high strength Polyester yarn used has a special marine finish which reduces the yarn on yarn abrasion and therefore enhances the safety of the rope and improves its durability.

Fibre density	1.39 g/cm ³
Melting Point	258°
Chemical Resistance to:	
Oil & Gas	: Good
Acid	: Good
Alkalis	: Moderate

Oliveira ropes

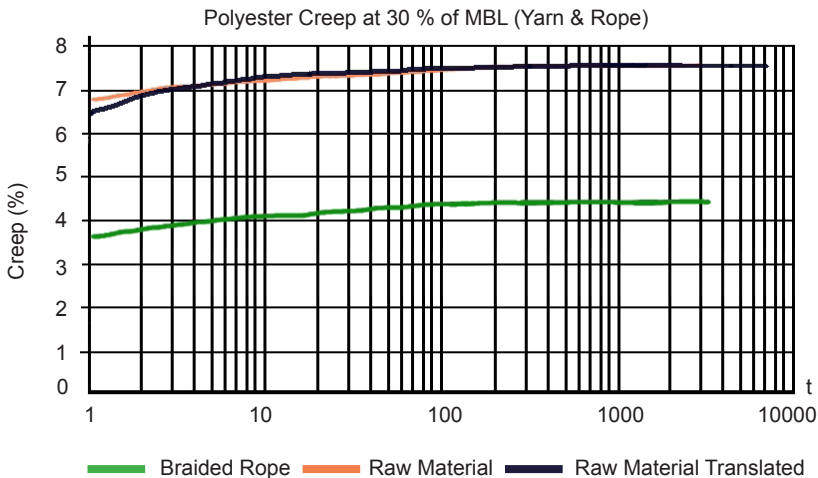
CREEP

Creep is the effect on the elongation of a rope of a permanently applied stress, which can lead to failure of the rope. This elongation is non recoverable, and occurs after the initial constructional stretch causing permanent set has been taken out of the rope, and the time dependent recoverable extension (shown as hysteresis loop on the load/elongation curve) .

The creep is then basically due to the material used. All fibre ropes will fail after long times under loads less than the break load but with polyester the time involved is extremely long.

Polyester yarn creep rate is considered constant after 100 seconds, after this, the Polyester yarn creep is 0,15%/decade at 50% of the breaking strength (decade = log (time in seconds)). It would thus take many decades for the rope to fail due to this phenomenon, if proper safety factors are implemented. We advise not to exceed the 60% MBL at any time.

7.9

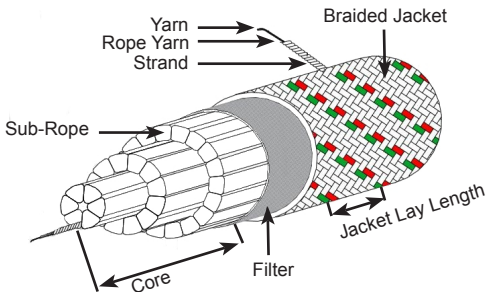


SYNTHETIC ROPE

Lankhorst ropes

Design

Moduline® polyester ropes are made from high efficiency 3-strand sub-rope cores laid parallel within an outer braided jacket. Moduline® ropes are manufactured from equal numbers of S & Z (left and right hand) lay sub-ropes to provide a torque neutral construction.



Particle Filter

Filter elements are included between jacket and sub-rope cores. They are effective in filtering out particles greater than 5 microns whilst allowing free flooding of the rope. Filter systems can be provided to allow for ropes to be pre-installed on the seabed prior to vessel hook-up.

Length

Lankhorst Ropes' equipment can in theory manufacture ropes of infinite length, but at present our limiting capacity is the reel take-up stand which is designed to handle single piece weights of up to 80 tonnes gross (rope and reel). This can be upgraded if warranted by project specific requirements. Maximum length is a function of the maximum reel weight and the linear weight of the rope which is dictated by the required breaking load.

Lankhorst ropes

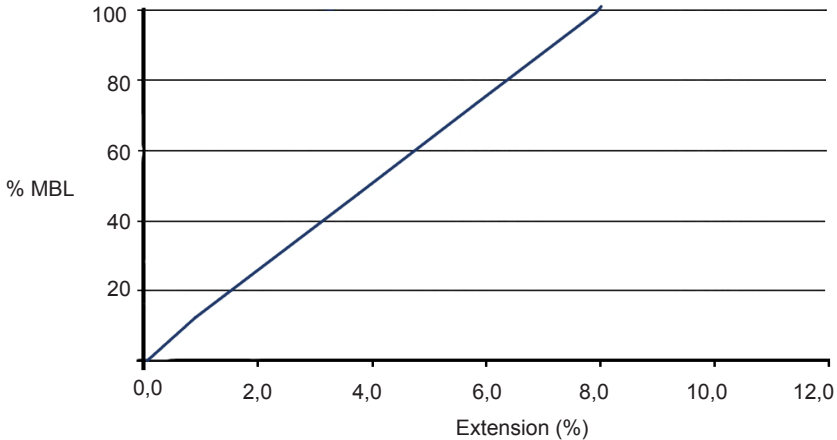
Strength table

Minimum Breaking Load	ø	Mass in Air	Mass in Water	Stiffness (kN)		
				Cycling between 10-30% MBL	Cycling between 20-30% MBL	Cycling between 40-50% MBL
TF	(mm)	(kg/m)	(kg/m)	MN	MN	MN
400	117	9,6	2,5	62	89	107
500	131	11,9	3	77	111	134
600	143	14,3	3,7	92	134	161
700	155	16,7	4,3	108	156	187
800	166	19,3	4,9	123	178	214
900	175	21,4	5,5	139	200	241
1000	185	23,7	6,1	154	223	268

All dimensions are approximate

Moduline Polyester (Worked rope)

Load Extension Curve.



POLYESTER MOORING ROPES

Nominal Circ. (inches)	Nominal Diameter (mm)	Minimum Break Load (tonnes)	Mass (kg/100m)
2	16	6	19
2 1/4	18	8	22,5
-	21	11	39
3	24	15	50
3 1/2	28	18,5	68
4	32	25	88,5
4 1/2	36	29	112
5	40	35	122
5 1/2	44	40,5	147
6	48	50	176
6 1/2	52	56	205
7	56	64	238
7 1/2	60	77	274
8	64	84	312
9	72	108	395
10	80	133	487
11	88	158	591
12	96	182	702
13	104	209	825
14	112	240	956
15	120	275	1100
16	128	299	1250
17	136	337	1410
18	144	378	1580
19	152	421	1760
20	160	467	1950
21	168	513	2150
22	176	563	2360
23	184	615	2580
24	192	670	2810
27	216	848	3560
30	240	1047	4390

All dimensions are approximate

SPECIAL POLYMER

Diameter		Standard coils - 220m	
mm	Inc C	Weight (kg)	MB L Kg
6	3/4	3,74	770
8	1	6,6	1360
10	1 1/4	9,9	2035
12	1 1/2	14,3	2900
14	1 3/4	19,8	3905
16	2	25,3	4910
18	2 1/4	32,56	6305
20	2 1/2	39,6	7600
22	2 3/4	48,4	8905
24	3	57,2	10490
26	3 1/4	67,1	12320
28	3 1/2	78,1	13910
30	3 3/4	89,1	16070
32	4	101,2	17540
36	4 1/2	128,7	22080
40	5	158,4	26860
44	5 1/2	193,6	31780
48	6	228,6	37180
52	6 1/2	268,4	43195
56	7	312,4	49380
60	7 1/2	358,6	56680
64	8	407	64140
68	8 1/2	460,9	76062
72	9	514,8	80225
80	10	638	99050

All Dimension are approximate

Available as: Mooring Ropes, Twisted Ropes, Pot Ropes.

This new polymer, is light, strong - a tenacity of more than 9g/Den for the filament of 1500 Den - and with a good abrasion resistance.

Other Information

Density: 0.94
 Melting Point: 185°C
 Stretch: low elongation
 Chemical resistance:
 Resistant to most acids, alkalis and oils.
 Not affected by water.

POLYPROPYLENE

Diameter		Standard coils - 220m	
mm	Inc C	Weight (kg)	MB L Kg
6	3/4	3,7	550
8	1	6,6	960
10	1 1/4	10	1425
12	1 1/2	14,5	2030
14	1 3/4	20	2790
16	2	25,5	3500
18	2 1/4	32,5	4450
20	2 1/2	40	5370
22	2 3/4	48,5	6500
24	3	57	7600
26	3 1/4	67	8850
28	3 1/2	78	10100
30	3 3/4	90	11500
32	4	101	12800
36	4 1/2	129	16100
40	5	158	19400
44	5 1/2	194	23400
48	6	229	27200
52	6 1/2	268	31500
56	7	312	36000
60	7 1/2	359	41200
64	8	407	46600
68	8 1/2	460	52600
72	9	515	58500
80	10	638	72000

All Dimension are approximate

PP Ropes available as: PP Mono, PP Split Film, PP Multifilament, PP Staple Spun.

Construction for PP ropes: Twisted 3 or 4 strand
 Plated 8 strand

Other Information

Density: 0.91
 Melts at: 330°F
 Stretch: low elongation
 Chemical resistance:
 Resistant to most acids, alkalis and oils.
 Not affected by water..

SYNTHETIC ROPE

POLYETHYLENE

Diameter		Standard coils - 220m	
mm	Inc C	Weight (kg)	MB L Kg
6	3/4	4	400
8	1	7	700
10	1 1/4	11	1090
12	1 1/2	16	1540
14	1 3/4	21	2090
16	2	28	2800
18	2 1/4	35	3500
20	2 1/2	44	4300
22	2 3/4	53	5100
24	3	65	6100
26	3 1/4	75	7000
28	3 1/2	86	8000
30	3 3/4	100	9150
32	4	115	10400
36	4 1/2	145	13000
40	5	175	15600
44	5 1/2	209	18800
48	6	253	22400
52	6 1/2	295	26200
56	7	348	30200
60	7 1/2	396	34200
64	8	449	38600
68	8 1/2	506	43500
72	9	572	48500
80	10	702	59700

All dimensions are approximate

Construction for PE Mono:

Twisted 3 or 4 strand ropes

Plated 8 strand ropes

Very popular for commercial fishing and marine applications.

Other Information

Density: 0.95

Melts at: 285°F

Stretch: low elongation

Chemical resistance: Resistant to most acids, and alkalis.

Very good abrasion resistance. Not as strong as Polypropylene.

Does not absorb water.

NYLON

Diameter		Standard coils - 220m	
mm	Inc C	Weight (kg)	MB L Kg
6	3/4	5.2	750
8	1	9.3	1350
10	1 1/4	14.3	2080
12	1 1/2	20.6	3000
14	1 3/4	28	4100
16	2	36.5	5300
18	2 1/4	46	6700
20	2 1/2	57	8300
22	2 3/4	69	10000
24	3	82	12000
26	3 1/4	97	13900
28	3 1/2	112	15800
30	3 3/4	129	17900
32	4	146	20000
36	4 1/2	184	24800
40	5	228	30000
44	5 1/2	276	35800
48	6	330	42000
52	6 1/2	384	48800
56	7	446	56000
60	7 1/2	512	63800
64	8	582	72000
68	8 1/2	660	81000
72	9	738	90000
80	10	911	110000

All dimensions are approximate

Nylon ropes available:

Twisted 3 or 4 strand

Plates 8 strand

Other Information

Density: 1.14

Melts at: 480°F

Stretch: High elasticity. This means that a large amount of energy is stored within the rope.

Precautions must be taken.

Chemical resistance: At normal temperatures

good resistance to alkalis. Limited resistance to acids.

7.14

WINCHLINE

Splicing instructions

The tools you will need:

sharp knife, tape, marker pen and ruler (tape measure), nylon seizing thread (hollow braid), 5mm diameter for ropes up to 5" circ, 6mm dia for larger sizes, large needle.

Description

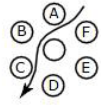
- This splice is made in a 7-strand rope with a cover-braided jacket
- The jacket has to be removed in two places
- Start with marking the rope. The first mark should be placed at the end of the rope measuring back upwards for 45 times the diameter, place a mark here
- Then mark the length of the eye, this part will stay on, and finally mark the splicing area, which should cover a length of 35 times the diameter of the rope
- Make sure the core is not damaged when removing the jacket
- Strip the jacket of the first marked area of the outer cover (length approx. 45 times rope diameter) to expose the 7 strand core
- Tape each of the 7 strands to keep yarns together
- The part of the jacket covering the eye should remain intact.
- Now strip the jacket of the splicing area (length approx 35 times the rope diameter)
- Bend the rope to form the eye and use tape or a whipping to keep the two rope parts together at the start point of the splice

SYNTHETIC ROPE

STARTING THE SPLICE

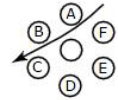
First strand tuck

For the first tuck use strand 1, being closed to the running part and which does not disturb the rope construction. Tuck this strand under 3 strands (A,B,C) WITH the lay of the rope (Right Hand Lay).



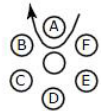
Second strand tuck

Use strand no 2 and tuck this one under two strands (A and B) WITH the lay of the rope.



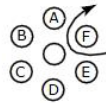
Third strand tuck

Strand no 3 has to be tucked under strand (A) WITH the lay of the rope. The core is now released.



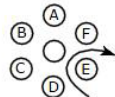
Fourth strand tuck

Strand no 4 together with the core is tucked under one strand (F) WITH the lay of the rope.



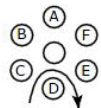
Fifth strand tuck

Strand no 5 is tucked under the following strand of the rope (E), WITH the lay of the cable.



Sixth strand tuck

Strand no 6 is tucked under the remaining strand (D) WITH the lay of the cable.



Second till eighth series of tucks

Every strand (starting with strand 1) is tucked over one strand AGAINST the lay and under two strands WITH the lay of the cable. The core is cut after the third tuck.

NOW THE SPLICE IS COMPLETED.

COVERING THE SPLICE

- First start with securing the jacket to the core. Stitch a large needle with thread through the jacket and core
- The ends of the thread must be tucked back into the splice. Do this at both ends of the formed eye as well as at the start of the jacket after the splice
- Ensure that at least 3 full tucks are made
- Now cover the splicing area with a whipping. Sometimes its easier to first cover the splicing area with tape before starting with the whipping

THE ROPE IS NOW READY FOR USE.

Splicing instructions

The tools you will need: sharp knife, tape and a spike

Description: this splice is suitable for 12 strand ropes, braided one over one

START:

- Start with measuring the length of the tail. It should at least be 12 full braiding pitches long. Wrap a tape around rope at the start point of the splice
- Tape the individual ends to keep yarns together. Then unlay the tail for the full 12 braiding pitches
- Bend the rope to form the eye and add eye protection if required. A seizing or whipping may be used to keep two rope parts together at the start point of the splice
- Divide the 12 strands into 6 pairs. 3 pairs of left hand lay and 3 pairs of right hand lay strands

SYNTHETIC ROPE

SPLICING

NB - always tuck right hand lay strands under right hand lay strands and left under left

- Tuck from the first pair (1R right red), the 1e strand under 6 strands (2 right, 2 left, 2 right) of the body
- Tuck the 2e right hand strand from this pair under 5 strands
- Continue tucking these strands under the same 5e and 6e right hand strand of the body. (over one, under one, over one)
- Both strands are tucked in the same way 3 times in total. Only with the second strand a fourth tuck is made over one under two
- The second pair of strands (2L, left, grey), are tucked under the 4th and 3rd strand of the body. Continue here as well with tucking these strands over and under the same 4th and 3rd strand of the body. Again, only the second strand is tucked for a fourth time over one, under 2
- The third pair (3R, right, yellow), are tucked under the 2nd and 1st strand of the body. Then follow the same procedure as described before
- The fourth pair (4L, left, black), go under the 1st and 2nd strands of the body (calculated from the tucks made at F). Then follow same procedure.
- The 5th set (5R, right, white), are both tucked under one strand, then follow same procedure
- The last pair (6L, left, blue) are tucked under 2 and 3 strands, then follow the same procedure
- The splice is now finished. Tape the two most close laying ends together (if the procedure has been followed correctly then such pair will consist out of a left and right hand laid strand) and cut off the over length

THE CABLE IS NOW READY FOR USE.

Splicing instructions 8 Strand Plaited Ropes

Determining splice length:

5 full braid length are required for the splice.

Form the eye and seize the end of the rope to the main body of the 6th full braid length.

Final Preparation

An 8 strand rope consists out of 4 left hand lay(S) and 4 right hand lay(Z) strands. Always keep the left(S) and right hand lay(Z) strands apart(S) by (S) and (Z) by (Z). Tape each individual strand at the end in order to avoid untwisting. Then unlay the strands up to the point where the eye is formed and where the seizing is placed.

STARTING THE SPLICE

- Tuck two S-lay strands under two Z-lay strands of the body of the splice
- Tuck the first Z-lay strand under the two preceding Z-lay strands of the body. Tuck the second Z-lay strand only under the first Z-lay strand
- Tuck the third S-lay strand under the first S-lay strand of the body and tuck the 4th S-lay strand under the next S-lay strand of the body
- The third Z-lay strand is tucked under the out Z-lay strand of the body and the fourth Z-lay strand is tucked under the inner Z-lay strand of the body
- We're back to the first 2 S-lay strands (A). Tuck the first S-lay strand under the outer S-lay strand of the body and tuck the second S-lay strand under the inner S-lay strand of the body
- All strands have now been tucked into the right position. Make sure that S-lay strands are tucked under S-lay strands of the body and that Z-lay strands are tucked under the Z-lay strands of the body
- Continue with tucking two S-lay strands under S-lay strands and two Z-lay strands under the Z-lay strands of the body
- Turn the rope and continue by tucking two S Under S and two Z under Z. Repeat steps G and H, and all strands are tucked 3 times
- To finalise; tuck the first S-lay strand under first S-lay strand of the body and the second S-lay strand under the second S-lay strand of the body
- Do the same with the first two Z-lay strands
- Turn the rope and repeat steps J and K with the remaining strands
- Seize the out sticking strands in pairs and cut off the over length

THE SPLICE IS NOW COMPLETE.

SYNTHETIC ROPE

ROPE INFORMATION

Weight, length and diameter are measured in accordance with EN 919. The Breaking force of new, unused synthetic ropes, both standard and high performance, are in accordance with EN 919. Phillystran ropes are in accordance with manufacturers standard test methods.

All data in this brochure is provided for technical reference and guidance only, it does not constitute a guarantee. Viking Moorings reserves the right to amend details of their specifications in line with technical developments. For calculation purposes customers should consult Lankhorst sales staff for in-depth and up to date technical details.

It can be expected that a rope's strength will decrease as soon as taken into service. Avoid using rope that shows signs of wear and abrasions. If in doubt contact the manufacturer or take the rope out of use.

7.20

Joints and knots can cause loss of strength, in extreme cases up to 50%. When ropes are running over pulleys or sheaves, one also should take care of proper D/d ratio's as well as grooves. If in doubt about any of the mentioned actions please contact our sales staff for details.

CONSTRUCTIONS

3 and 4 strand

3 and 4 strand hawser laid constructions are easy to splice and have an excellent abrasion resistance.

8 strand plaited

A 100% torque balanced rope due to the 4 left and 4 right hand lay constructed strands. This construction does not kink, is easy to terminate and has a great abrasion resistance.

Cover braids

Cover braided constructions can be offered with a variety of cores. In most cases the jacket (cover) does not contribute to the ropes strength. The non load bearing jacket provides a protection to the rope's core, this being the strength member. If the jacket is damaged this does not automatically mean loss of strength. The larger sizes of cover braids especially, will retain their breaking strength even if the jacket is completely abraded. Our cover braids offer maximum strength at a minimal diameter and thus weight.

Extruded jackets

Extruded jackets can be provided upon request depending upon the application. However for certain application they are provided as standard, like for instance our tower guys (HPTG). In order to provide a die-electric strength member the rope core is surrounded by an abrasion and UV resistant, water proof jacket. Extruded jackets (PP, PE, PA, PUR) normally provide a more abrasion resistant cover but restrain the rope's use due to less flexibility (higher stiffness).

Specialities

Many varieties on above constructions can be provided. Plaited cores with braided jackets as well as extruded jackets can be supplied if the application demands a special design.