



Excellence in every strand



Family owned and operated for over 40 years

With a rich heritage of four decades in family ownership and operational excellence, Tyson's Ships Riggers (TSR) takes immense pride in providing an extensive range of premium products.

Our vast inventory encompasses wire ropes, mooring hawsers, synthetic ropes, marine and rigging hardware, chain, and anchor products. To cater even more effectively to your needs, our fully equipped 20,000 square foot distribution centre in the UK houses a comprehensive rigging shop capable of handling all your splicing requirements, from basic wire rope slings to intricate mooring lines.

Established in 1982 within the vibrant port of Grimsby, TSR has evolved into a comprehensive supplier of synthetic mooring ropes, steel wire ropes, and mooring equipment. Our primary focus is serving customers deeply entrenched in the maritime, industrial, oil & gas sectors.

TSR has proudly established itself as a front-runner in these industries by offering a complete spectrum of top-tier mooring equipment backed by class certification, swift delivery times, and unparalleled customer service.

Updated Terminology

Section Five "Mooring Lines" gives guidance about the selection, the care and maintenance and finally the retirement and replacement of the mooring lines.

Terminology has been updated and new tools have been created to help operators manage equipment and lines from design to retirement:

- ♦ Ship Design Minimum Breaking Load (SDMBL)
- ♦ Line Design Break Force (LDBF)
- ♦ Working Load Limit (WLL)
- ♦ Line Management Plan (LMP)

OCIMF

The Oil Companies International Marine Forum (OCIMF) is widely recognised as the voice of the oil industry providing expertise in the safe and environmentally responsible transport and setting standards for continuous improvement.

Safer mooring with your trusted supplier

Mooring Equipment Guidelines (MEG4)

OCIMF's Mooring Equipment Guidelines (MEG) was first published in 1992 and is an industry publication for the safe mooring of tankers and gas carriers at terminals, thereby also summarizing the concerns and requirements of major oil companies.

In the summer 2018, OCIMF has undertaken a major revision of the Mooring Equipment Guidelines in this fourth edition, with a focus on the safety of ship and terminal personnel.

MEG4 addresses four significant areas of interest:

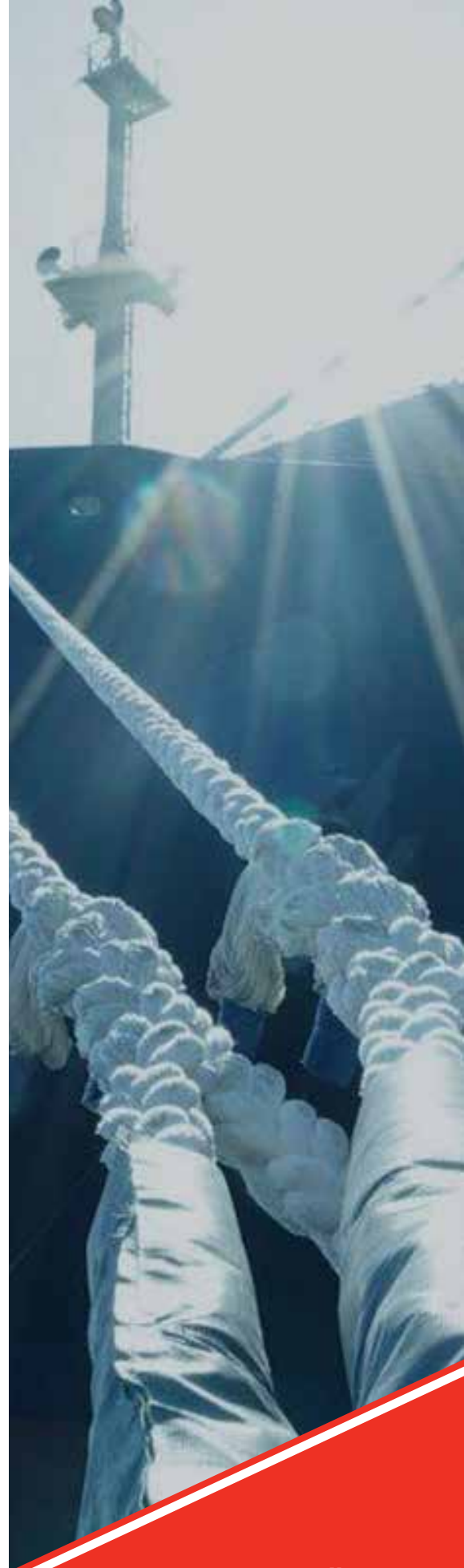
- Lessons learned from incidents; most notably from failures of HMSF mooring lines.
- Human-centred mooring designs and human factors in mooring operations.
- New and in-development regulations and guidance from the IMO on the safety of mooring.
- Alternative mooring technologies and how they can be incorporated safely into the design of mooring systems both for ships and terminals.

The new terminology defines a set of terms and test methods for mooring line Minimum Breaking Load (MBL) that can be used consistently by both line users and manufacturers when designing, specifying, testing and operating mooring lines.

The LMP contains the requirements for the management of mooring line maintenance, inspection, and retirement during the operational phase of the mooring line lifecycle.

TSR has more than 40 years of experience and understanding of mooring lines and tails, so it was a logical and obvious step for us to become one of the first companies who are able to supply mooring ropes and tails in accordance with the MEG4 Guidelines.

We can provide user guidelines for both steel wire and synthetic fibre ropes as part of the owner's LMP based on the MEG4 guidelines. To further improve safety, we can assist owners and managers in the evaluation of the remaining operational life of the mooring lines by providing residual strength testing for used lines and tails.



**TSR proudly
presents our range
of Meg 4 approved
Mooring Lines**

Forcetra HMPE

HMPE (High-modulus polyethylene) fibres are produced by gel-spinning ultra-high molecular weight polyethylene (UHMWPE).

The strength is higher than that of conventional steel wire rope and the corresponding weight is up to 7 times lower. Its better handling characteristics, buoyancy and increased safety (no lash back) are especially appreciated in towing and mooring applications.

Product Properties

Material	HMPE
Construction	12-strand
Jacketed	No
Rotating	No
Colour of Rope	Yellow or Orange
Specific Gravity	0.97 Floating
Melting Point	147°C
Corasion Resistance	Excellent
U.V. Resistance	Excellent
Chemical Resistance	Excellent
Dry & wet Conditions	Identical wet & dry strengths

Elongation at % of MBL

MBL	New	Used
25%	1.9%	0.5%
50%	2.8%	1.0%
100%	4.0%	2.0%

Dia.		Circ	Weight		MBL		LDBF	
mm	inch	inch	KGS/100m	LBS/100FT	Ton	kN	Ton	kN
20	13/16	2-1/2	26.8	18.01	41.5	407	37.4	367
22	7/8	2-3/4	32.0	21.50	50.0	491	45.0	442
24	15/16	3	37.6	25.27	58.0	569	52.2	512
26	1-1/32	3-1/4	43.1	28.96	66.0	647	59.4	583
28	1-1/8	3-1/2	48.8	32.79	74.0	726	66.6	653
30	1-3/16	3-3/4	54.6	36.69	81.5	800	73.4	720
32	1-1/4	4	60.0	40.32	88.5	868	79.7	782
34	1-11/32	4-1/4	65.6	44.08	96.0	942	86.4	848
36	1-7/16	4-1/2	71.4	47.98	104.0	1,020	93.6	918
38	1-1/2	4-3/4	77.7	52.21	112.0	1,099	100.8	989
40	1-19/32	5	88.2	59.27	127.0	1,246	114.3	1,121
42	1-21/32	5-1/4	97.7	65.65	140.0	1,373	126.0	1,236
44	1-3/4	5-1/2	107.0	71.90	152.0	1,491	136.8	1,342
46	1-13/16	5-3/4	116.0	77.95	165.0	1,619	148.5	1,457
48	1-7/8	6	127.0	85.34	179.0	1,756	161.1	1,580
50	2	6-1/4	138.0	92.73	193.0	1,893	173.7	1,704
52	2-1/16	6-1/2	148.0	99.45	206.0	2,021	185.4	1,819
56	2-1/4	7	171.0	114.90	236.0	2,315	212.4	2,084
60	2-3/8	7-1/2	184.0	123.60	252.0	2,472	226.8	2,225

It has an extremely low coefficient of friction and is extremely resistant to abrasion.



D-Flex

The Ultimate Mooring and Towing Rope.

D-Flex represents a cutting-edge mixed rope that combines high tenacity polyolefin and high-performance polyester, setting the gold standard for durability and strength in mooring and towing applications.

Product Properties

Material	High Tenacity Polyolefin & High Tenacity Polyester
Construction	8/12-strand
Jacketed	No
Rotating	No
Colour of Rope	White
Specific Gravity	0.99 Floating
Melting Point	165°C
Corasion Resistance	Very Good
U.V. Resistance	Very Good
Chemical Resistance	Very Good
Dry & wet Conditions	Identical wet & dry strengths

Composite Excellence

This rope is expertly crafted from a blend of polyolefin and polyester, ensuring a superior combination of strength and resilience.

Marine-Grade Finish

To bolster its resilience in the harsh marine environment, a special marine finish is meticulously applied, enhancing wear resistance.

Top-Tier Durability

Recognized as one of the finest and most durable ropes available, D Flex excels in mooring and towing duties.

Preferred by Professionals

Ship owners and managers alike prefer D-Flex due to its remarkable strength-to-size ratio, exceptional fatigue resistance, and abrasion resilience.

Elongation at % of MBL

MBL	New	Used
25%	9.0%	5.5%
50%	13.0%	8.0%
100%	18.0%	12.0%

Dia.		Circ	Weight		MBL		LDBF	
mm	inch	inch	KGS/100m	LBS/100FT	Ton	kN	Ton	kN
40	1-9/16	5	82.0	54.40	32.7	320.8	29.5	289.4
44	1-3/4	5-1/2	98.0	65.80	39.2	384.6	35.0	343.4
45	1-25/32	5-5/8	102.0	68.50	41.1	403.2	37.0	363.0
48	1-7/8	6	118.0	79.20	45.2	443.4	41.0	402.2
50	2	6-1/4	128.0	86.00	49.4	484.6	45.0	441.5
52	2-1/16	6-1/2	135.0	90.70	52.7	517.0	48.0	470.9
55	2-5/32	6-7/8	154.0	103.40	58.6	574.9	53.0	519.9
56	2-1/4	7	161.0	108.10	60.9	597.4	55.0	539.6
60	2-3/8	7-1/2	180.0	120.90	69.3	679.8	63.0	618.0
64	2-1/2	8	203.0	136.40	77.4	759.3	70.0	686.7
65	2-9/16	8-1/16	209.0	140.40	79.3	777.9	72.0	706.3
68	2-11/16	8-1/2	228.0	153.20	86.7	850.5	78.0	765.2
70	2-3/4	8-11/16	242.0	162.60	92.0	902.5	83.0	814.2
72	2-7/8	9	255.0	171.30	97.0	951.6	88.0	863.3
75	3	9-1/4	277.0	186.10	105.4	1,034.0	95.0	932.0
80	3-6/32	10	314.0	210.90	117.9	1,156.6	107.0	1,049.7
85	3-3/8	10-1/2	354.0	237.80	133.2	1,306.7	120.0	1,177.2
88	3-7/16	11	378.0	254.00	142.8	1,400.9	129.0	1,265.5
90	3-9/16	11-1/8	395.0	265.40	149.0	1,461.7	135.0	1,324.4
95	3-3/4	11-3/4	441.0	296.30	166.5	1,633.4	150.0	1,471.5
96	3-13/16	12	450.0	302.30	168.6	1,654.0	152.0	1,491.1
100	3-15/16	12-3/8	485.0	325.90	183.1	1,796.2	165.0	1,618.7
104	4-1/8	13	527.0	354.10	198.5	1,947.3	179.0	1,756.0
112	4-7/16	14	606.0	407.20	228.4	2,240.6	206.0	2,020.9
120	4-3/4	15	696.0	467.20	261.5	2,565.3	236.0	2,315.2



Supertec

Our PP/PE melt mix features higher breaking load and better abrasion resistance compared to regular Polypropylene. Our Supertec rope has a lower weight, floats and does not absorb water, making it easier to handle and making it an economical purchase.

Product Properties

Material	Mixed Polyolefin (PP/PE)
Construction	8-strand
Jacketed	No
Rotating	No
Colour of Rope	Green
Specific Gravity	0.92 Floating
Melting Point	165°C
Corasion Resistance	Very Good
U.V. Resistance	Very Good
Chemical Resistance	Very Good
Dry & wet Conditions	Identical wet & dry strengths

- PP/PE melt mix, floating - does not absorb water
- Improved, high-strength alternative for Polypropylene
- Higher breaking load with a lower weight and better abrasion resistance compared to regular Polypropylene

Elongation at % of MBL

MBL	New	Used
25%	7.9%	3.0%
50%	11.7%	6.0%
100%	18.3%	10.9%

Dia.		Weight	MBL		LDBF	
mm	inch	KGS/100m	Ton	kN	Ton	kN
40	1-9/16	79.1	39.9	342.4	31.4	308.1
44	1-3/4	97.7	41.7	409.1	37.5	368.2
45	1-25/32	102.0	43.5	426.7	39.2	384.1
48	1-7/8	114.5	48.9	479.7	44.0	431.7
50	2	124.5	52.2	512.1	47.0	460.9
52	2-1/16	134.0	56.5	554.3	50.9	498.8
55	2-5/32	150.5	62.6	614.1	56.3	552.7
56	2-1/4	156.0	64.9	636.7	58.4	573.0
60	2-3/8	179.0	74.4	729.9	67.0	656.9
64	2-1/2	203.6	83.9	823.1	75.5	740.8
65	2-9/16	210.0	86.5	848.6	77.9	763.7
68	2-11/16	230.0	95.4	935.9	85.9	842.3
70	2-3/4	243.5	101.1	991.8	91.0	892.6
72	2-7/8	258.0	105.5	1,035.0	95.0	931.5
75	3	279.5	114.5	1,123.2	103.1	1,010.9
80	3-6/32	319.0	129.9	1,274.3	116.9	1,146.9
85	3-3/8	360.5	146.1	1,433.2	131.5	1,289.9
88	3-7/16	386.0	156.9	1,539.2	141.2	1,385.3
90	3-9/16	403.5	164.0	1,608.8	147.6	1,448.0
95	3-3/4	449.5	180.1	1,766.8	162.1	1,590.1
96	3-13/16	459.0	184.0	1,805.0	165.6	1,624.5
100	3-15/16	498.0	199.7	1,959.1	179.7	1,763.2
104	4-1/8	536.0	216.0	2,119.0	194.4	1,907.1
112	4-7/16	623.0	250.5	2,457.4	225.5	2,211.7
120	4-3/4	718.0	287.6	2,821.4	258.8	2,539.2

Supertec is a very high-strength alternative for Polypropylene.



Goldstrand

Goldstrand is a high-strength alternative for Polypropylene. Our PP/PE melt mix features higher breaking load and better abrasion resistance compared to regular Polypropylene.

Product Properties

Material	Mixed Polyolefin (PP/PE)
Construction	8-strand
Jacketed	No
Rotating	No
Colour of Rope	Yellow/Black
Specific Gravity	0.92 Floating
Melting Point	165°C
Corasion Resistance	Good
U.V. Resistance	Good
Chemical Resistance	Good
Dry & wet Conditions	Identical wet & dry strengths

- PP/PE melt mix, floating - a lower weight, floats and does not absorb water, making it easier to handle and ensuring a longer lifespan and an economical purchase.
- Improved, high-strength alternative for Polypropylene
- Higher breaking load with a lower weight and better abrasion resistance compared to regular Polypropylene

Elongation at % of MBL

MBL	New	Used
25%	8.6%	3.8%
50%	12.8%	6.9%
100%	19.6%	12.2%

Dia.		Weight	MBL		LDBF	
mm	inch	KGS/100m	Ton	kN	Ton	kN
40	1-9/16	79.1	28.4	278.6	25.6	250.7
44	1-3/4	97.7	33.9	332.6	30.5	299.3
45	1-25/32	102.0	35.4	347.3	32.9	312.5
48	1-7/8	114.5	39.8	390.4	35.8	351.4
50	2	124.5	42.5	416.9	38.3	375.2
52	2-1/16	134.0	46.0	451.3	41.4	406.1
55	2-5/32	150.5	50.9	499.3	45.8	449.4
56	2-1/4	156.0	52.8	518.0	47.5	466.2
60	2-3/8	179.0	60.5	593.5	54.5	534.2
64	2-1/2	203.6	68.2	669.0	61.4	602.1
65	2-9/16	210.0	70.4	690.6	63.4	621.6
68	2-11/16	230.0	77.6	761.3	69.8	685.1
70	2-3/4	243.5	82.2	806.4	74.0	725.7
72	2-7/8	258.0	85.8	841.7	77.2	757.5
75	3	279.5	93.1	913.3	83.8	822.0
80	3-6/32	319.0	105.6	1,035.9	95.0	932.3
85	3-3/8	360.5	118.8	1,165.4	106.9	1,048.9
88	3-7/16	386.0	127.6	1,251.8	114.8	1,126.6
90	3-9/16	403.5	133.4	1,308.7	120.1	1,177.8
95	3-3/4	449.5	146.5	1,437.2	131.9	1,293.4
96	3-13/16	459.0	149.6	1,467.6	134.6	1,320.8
100	3-15/16	498.0	162.4	1,593.1	146.2	1,433.8
104	4-1/8	536.0	175.6	1,722.6	158.0	1,550.4
112	4-7/16	623.0	203.7	1,998.3	183.3	1,798.5
120	4-3/4	718.0	233.8	2,293.6	210.4	2,064.2

Globally renowned mooring line, instantly recognizable with its iconic yellow and black colour.



Neoflex RSB

Safety in every
strand with
Neoflex RSB

At Tyson's Ships Riggers (TSR), we recognise that mooring operations are some of the most dangerous tasks for crew and port workers. With mooring lines capable of snapping at speeds exceeding 500 mph safety cannot be compromised. "Snap back" incidents account for 53% of mooring accidents, with 1 in 7 resulting in fatalities, according to the UK P&I Club.

That's why we developed Neoflex RSB—a mooring rope engineered with "Safety in Every Strand." Its integrated core reduces dangerous snapback, ensuring the safest possible working conditions for your crew.

Product Properties

Material	High Tenacity Polyefin & High Tenacity Polyester
Construction	12-strand
Jacketed	No
Rotating	No
Colour of Rope	White
Specific Gravity	0.99 Floating
Melting Point	165°C
Corasion Resistance	Very Good
U.V. Resistance	Very Good
Chemical Resistance	Very Good
Dry & wet Conditions	Identical wet & dry strengths

- Expertly crafted from a premium blend of polyolefin and polyester, this rope offers an exceptional balance of strength and durability.
- A specialised marine finish is meticulously applied, enhancing wear resistance, and ensuring superior performance in harsh marine environments.
- Designed with a 12-strand structure and an integrated core, this rope significantly reduces snapback, providing enhanced safety and reliability.
- OCIMF-MEG4 Type Approval Successfully Obtained from Lloyd's Register.

Elongation at % of LDBF

LDBF	New	Used
25%	9.48%	3.42%
50%	13.55%	5.55%
100%	19.49%	9.66%

Dia.		Weight	MBL		LDBF	
mm	inch	KGS/100m	Ton	kN	Ton	kN
40	1-9/16	81.0	34.7	340.1	31.2	306.1
42	1-21/32	89.3	38.1	373.4	34.3	336.1
44	1-3/4	98.0	41.2	403.8	37.1	363.4
45	1-25/32	102.0	43.3	424.3	39.0	381.9
48	1-7/8	118.0	47.5	465.5	42.8	419.0
50	2	128.0	51.9	508.6	46.7	457.7
52	2-1/16	135.0	55.3	541.9	49.8	487.7
55	2-5/32	154.0	61.5	602.7	55.4	542.4
56	2-1/4	161.0	63.9	626.2	57.5	563.6
60	2-3/8	180.0	72.8	713.4	65.5	642.1
64	2-1/2	203.0	81.3	796.7	73.2	717.0
65	2-9/16	209.0	83.3	816.3	75.0	734.7
68	2-11/16	228.0	91.0	891.8	81.9	802.6
70	2-3/4	242.0	96.6	946.7	86.9	852.0
72	2-7/8	255.0	101.9	998.6	91.7	898.7
75	3	277.0	110.7	1,084.9	99.6	976.4
80	3-5/32	314.0	123.8	1,213.2	111.4	1,091.9

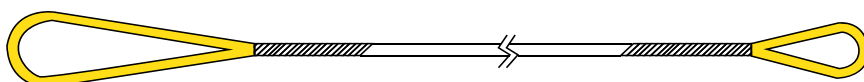
Mooring Tails and Connections

Tails or pennants will provide additional elasticity to wire and synthetic high modulus mooring lines and reduce the dynamic loads induced in the mooring line by allowing the ship to respond more freely to various combinations of wind, wave and current, as well as to ships passing nearby.

Tails will also distribute the loadings more evenly among the various mooring lines.

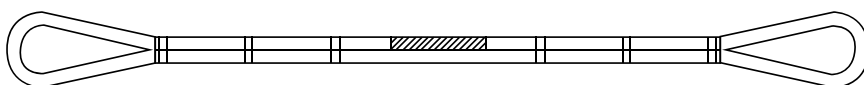
Conditions at some terminals are more challenging than others and for these circumstances we have developed the MAG NARO® Flex tails, with a higher polyester content and we are also offering the mooring tails in various sizes and configurations:

Single Leg Tail



- Standard 11m tails with 1m one end and 2m other end : adequate for sheltered pier side moorings where little or no wave induced vessel motions occur.
- 22m tails : to be used at exposed pier side moorings where significant ship motions occur;

Grommet Type Tail



- Grommet type tails are used in special applications requiring high strengths.
- The eyes are formed by lashings (seizing the two rope bodies together to form an eye).
- The strength of a Grommet mooring tail is 1,7 times the strength of a single leg (of the same material, construction and size) and its length depends on the customer's requirements.

According to MEG4 the Tail Design Break Force (TDBF) should be 125%-130% of the ship design MBL.

Tails are generally connected to mooring lines either through the use of mechanical connecting devices (i.e. mooring links and mooring shackles with steel wire ropes) or directly with the use of a cow hitch (with synthetic high modulus mooring lines).





Cow Hitch

Tails can be attached directly to HMSF mooring lines using a cow hitch, whereby a pigtail (usually a small diameter conventional fibre rope) is recommended to help separate the tail and mooring line for replacement or inspection.

Using a cow hitch with a single leg tail does not significantly affect the strength efficiency of the mooring line assembly, while a grommet will result in a higher strength reduction and therefore, we do not recommend to use a cow hitch with a grommet tail.

Oversizing of tails to account for the potential loss of strength is not recommended, due to the consequent effects on termination integrity and tail stiffness.



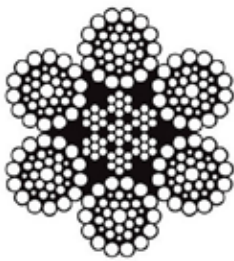
Mooring Wires

Selecting the right wire rope for mooring is essential for optimum performance and safety.

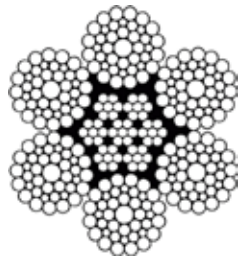
It is crucial for oversized vessels whose numbers are increasing.

OCIMF strongly recommends the use of 6x36 class drawn galvanised wire rope with independent Wire Rope Core (IWRC) as mooring lines. TSR's range of 6x36 class wire ropes strictly follows the EN10264-2 standard for galvanisation, as well as the other OCIMF guidelines.

Recommended Constructions



6 x WS(36) + IWRC



6 x WS(41) + IWRC




TSR Protection Sleeves

Ropes can be easily damaged if subjected to rough surfaces or sharp edges.

We offer innovative anti-chafe solutions to prevent strength loss and to maximise the lifespan of your fibre and wire ropes.

- Orange colour for higher visibility.
- Easy installation using extra durable velcro lining.
- Very cut resistant.
- Protection against localized abrasion.
- Improves lifespan of the rope.
- Suitable for all fibre ropes.





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