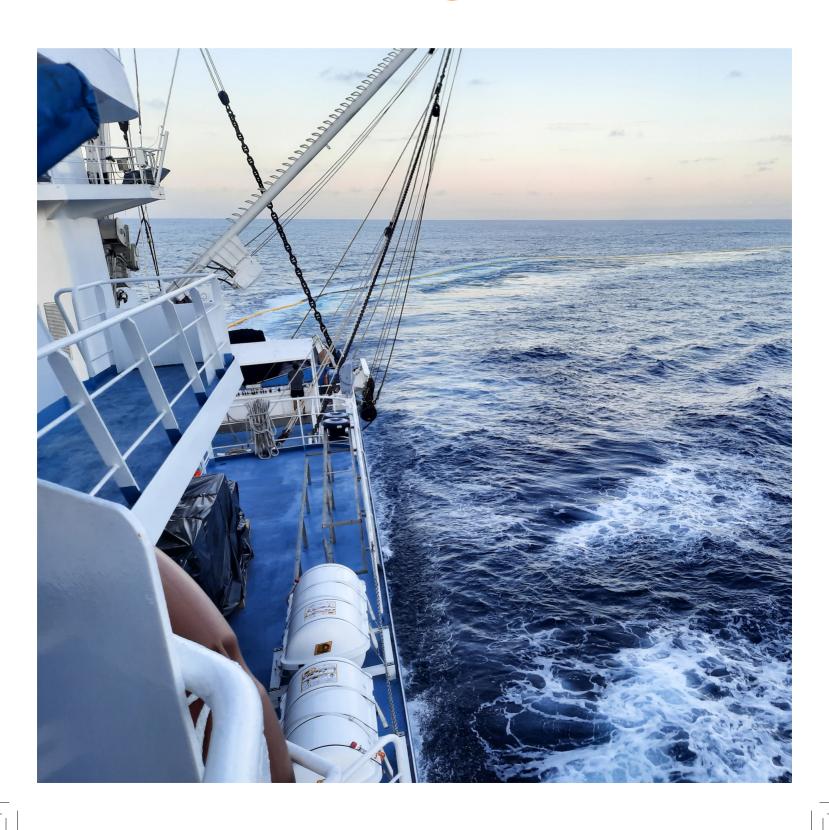


Bridon®

Improve your fleet efficiency & productivity



Market leading rope solutions for the Fishing Industry

Introduction

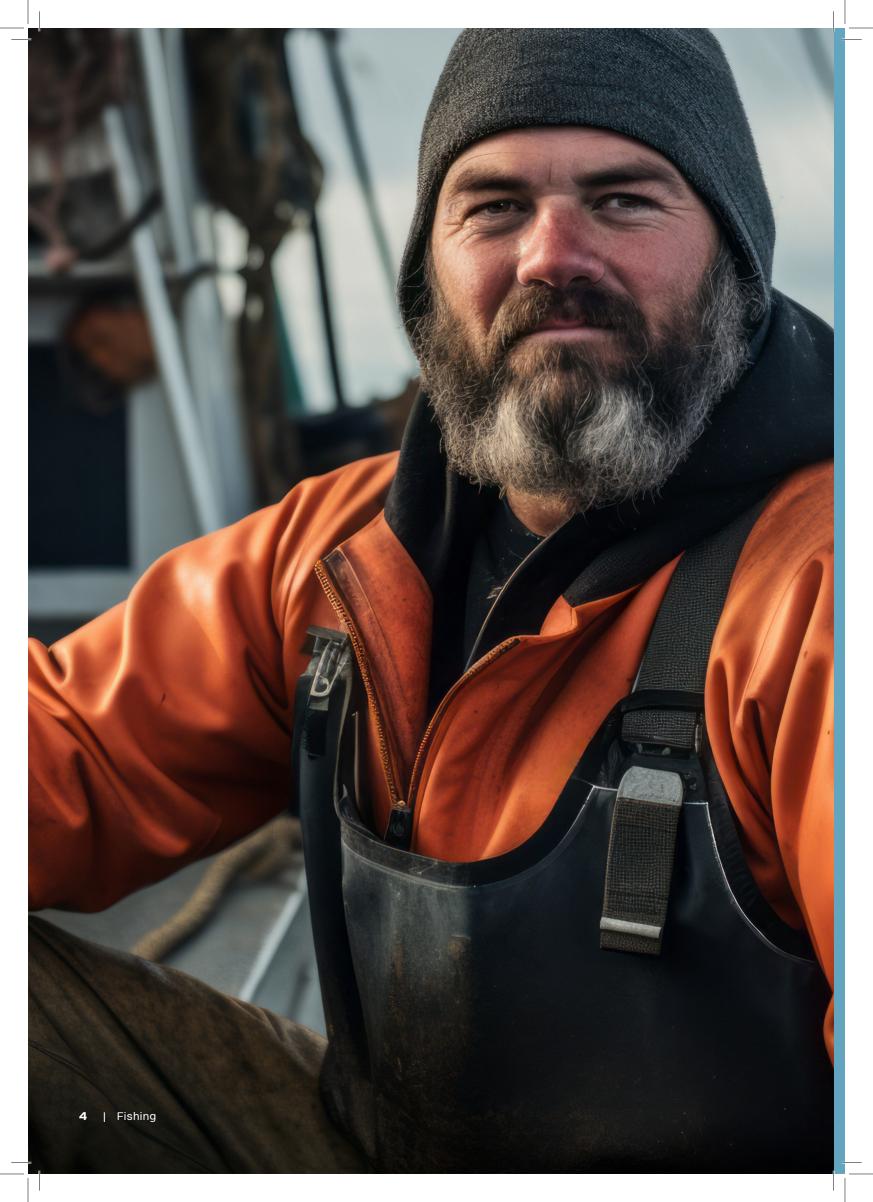
Technologies

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Product Safety



A brief introduction

Bekaert's ambition is to be the leading partner for shaping the way we live and move, and to always do this in a way that is safe, smart, and sustainable. As a global market and technology leader in material science of steel wire transformation and coating technologies, Bekaert also applies its expertise beyond steel to create new solutions with innovative materials and services for markets including new mobility, low-carbon construction, and green energy. Founded in 1880, with its headquarters in Belgium, Bekaert (Euronext Brussels, BEKB) is a global company whose 27,000 employees worldwide together generated almost € 7 billion in combined revenue in 2022.

Todays advanced fishing technologies demand high rope performance, that is why Bridon-Bekaert's specifically engineered trawl ropes offer ultimate rope performance with reduced pulley wear and increased abrasion resistance to maximize fleet efficiency and productivity.

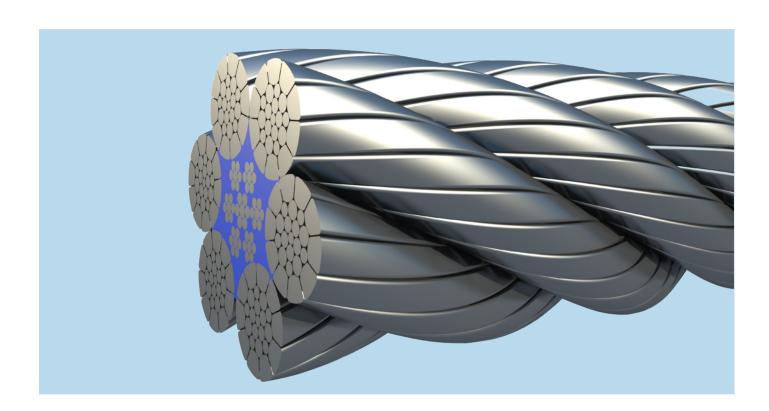
Polymer technologies

Plastic Impregnation

High performance plastic impregnation is designed to offer an internal cushioning layer to the inter-strand contact points especially between core to cover on multi-strand low rotation ropes improving bend fatigue and core service life.

NXG

Advanced next generation low friction polymer technology incorporating unique additives to further enhance fatigue life of plasticated ropes.



Our premiere product offering with polymer technology.

Starfish®

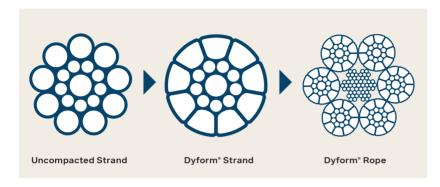
Starfish® ropes construction reduces sheave wear and point to point loading, which combined with the superior dynamic structural stability provided by the Bristar core, ensures exceptional performance.

High performance construction	Greater internal rope protection	Increased rope stability
Improved strand positioning significantly increases fatigue life and wear resistance	Enhanced core life	Enhanced diameter stability under load improves drum spooling performance and reduces crushing

Rope Compaction

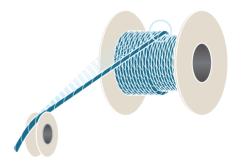
Dyform®

Bridon-Bekaert manufactures ropes using a unique dyforming process that compacts the strands as shown below. The smooth surface of the "Dyform" product provides improved rope to sheave contact leading to reduced wear on both rope and sheave. Increased cross-sectional steel area and improved inter - wire contact ensures that the rope will operate with lower internal stress levels resulting in longer bending fatigue life and lower costs.



Resistance to absrasive wear

Abrasive wear can take place between rope and sheave and between rope and drum but the greatest cause of abrasion is often through "interference" at the drum.



If abrasion is determined to be a major factor in rope deterioration, then a wire rope with relatively large outer wires should be selected.

Non Dyform wire rope on adjacent drum laps can cause point contact and accelerated wear. Selection of a Dyform product will reduce abrasion through improved contact of the smooth surfaces, creating better contact and longer rope life.



Dyform ropes also reduce rope to sheave abrasion through increased contact of the periphery of the rope with the sheave as shown below.





Crush resistance

In multi-layer coiling applications where there is more than one layer of rope on the drum it is essential to install the rope with some back tension. Bridon recommends a minimum

installation tension of between 2.5% and 10% of the minimum breaking force of the rope.

If this is not achieved, or in certain applications where high pressure on the underlying rope layers is inevitable, severe crushing damage can be caused to underlying layers.





Installation

- Expertise
- Equipment hire
- Warranty assurance
- Support new technology



Inspection

- Rope inspection
- MRT/NDE



Maintenance

- Re-lubrication
- Aftermarket equipment and lubricant sales
- Cut-back and termination



Rope Life Management

- Safety
- Manage downtime with planned mainenance
- Rope lifecycle cost reductions
- Value service offering

Bekaert Ropes Technology Centre

The Bekaert Ropes Technology Center is a world leading centre of excellence for rope technology development, testing, analysis, and verification. Bekaert Ropes Technology Center is equipped with unique equipment capable of testing steel/synthetic ropes and wires. With extensive forensic analysis laboratory facilities and specialists capable of conducting detailed forensic evaluation of new, retired or samples of inservice ropes, Bekaert Ropes Technology Center is an integral part of the Ropes 360 program

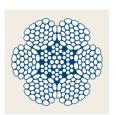


Product Selection

indicates bridon-bekaert's recommended rope per application



Trawl Warps



Hydra Blue



Dyform Starfish 6x26 Poly Core



Dyform Starfish 6x26 IWRC



Dyform 6x26 Poly Core



Dyform 6x26 **IWRC**



Marblue 6x19 Poly Core



Marblue 6x19 **IWRC**



SeaBeam 6x26 **IWRC** (or Poly Core)



Dyform 6x19 Poly Core



Dyform 6x19 **IWRC**



Pacific Blue Plus **IWRC** (or Poly Core)



Pacific Blue **IWRC** (or Poly Core)



Purse Seining



Dyform SeaPurse 6x19 Poly Core



Dyform SeaPurse 6x19 IWRC



Dyform RL



Dyform 6x26 Poly Core

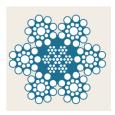


Dyform 6x26 **IWRC**

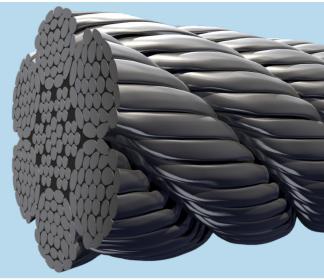




Pacific Blue Plus **IWRC** (or Poly Core)



Pacific Blue **IWRC** (or Poly Core)



Hydra Blue®

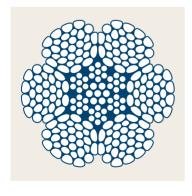


Bekaert manufactures rope using a unique roller compaction process that compacts the outer rope surface. Hydra Blue® (Double Dyform®) is a high performance compacted single layer constructed rope with 6 outer strands, which has undergone a final rope compaction process and performs excellent in multilayer drum applications.

Optionally, it can incorporate a plastic layer (PI) between the inner and outer part of the rope. In comparison to traditional Dyform® ropes, it further improves rope to sheave contact and improved diameter stability leading to reduced wear on both rope and sheave. Further increased cross-sectional steel area provides a robust construction with high breaking force and excellent crush resistance.

Improved inter-wire contact ensures optimum spooling performance, offering maximum resistance to damage for exceptional service life in the most demanding multi-layer drum applications.

6X26 (10/5&5/5/1) IWRC



Diameter	Weight	Minimum breaking load
mm	kg/m	Tonnes
24	2.98	48.8
26	3.26	55.5
28	4.05	68.29
30	4.33	73.7
32	4.91	83.6
34	5.44	96
36	6.77	110
38	6.97	119
40	7.71	131
42	9.02	147
44	9.96	162

Dyform Starfish®



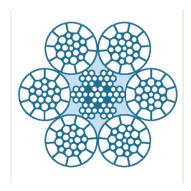
High strength and proven extended rope life - preventing core corrosion and maintaining design diameter.

6X26 (10/5&5/5/1) **POLY CORE**



Diameter	Weight	Minimum bi	eaking load
mm	kg/100 mtr	Tonnes	kN
20	159.7	26.7	262
22	191.7	32.3	317
24	224.8	38.5	377
26	271.5	45.1	443
28	317.4	52.4	514
30	357.3	60.1	590
32	408.8	68.4	671
34	468.2	77.2	757
36	514.5	86.6	849
38	578.6	96.4	946
40	635.2	106.9	1048
42	700.3	117.8	1155
44	768.5	129.3	1268

6X26 (10/5&5/5/1) **IWRC**



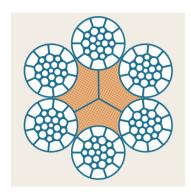
Diameter	Weight	Minimum br	eaking load
mm	kg/100 mtr	Tonnes	kN
20	183	29.8	292
22	216.6	36.0	353
24	254.7	42.9	420
26	307.2	50.3	493
28	351.7	58.4	572
30	403.8	67.0	657
32	461.1	76.2	748
34	527.2	86.0	844
36	599.4	96.5	946
38	661.1	107.5	1054
40	725.4	119.1	1168
42	799.3	131.3	1288
44	838	144.1	1413

Dyform®



High strength and proven extended rope life - preventing core corrosion and maintaining design diameter.

6X26 (10/5&5/5/1) **POLY CORE**



Diameter	Weight	Minimum br	reaking load
mm	kg/100 mtr	Tonnes	kN
16	103.3	17.1	168
18	129.1	21.6	212
20	159.7	26.7	262
22	191.7	32.3	317
24	224.8	38.5	377
26	271.5	45.1	443
28	317.4	52.4	514
30	357.3	60.1	590
32	408.8	68.4	671
34	468.2	77.2	757
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40	635.2	106.9	1048
42	700.3	117.8	1155
44	768.5	129.3	1268

6X26 (10/5&5/5/1) **IWRC**



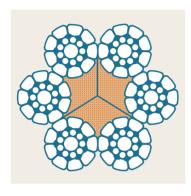
Diameter	Weight	Minimum br	eaking load
mm	kg/100 mtr	Tonnes	kN
16	115.5	19.1	187
18	145.3	24.1	237
20	183	29.8	292
22	216.6	36.0	353
24	254.7	42.9	420
26	307.2	50.3	493
28	351.7	58.4	572
30	403.8	67.0	657
32	461.1	76.2	748
34	527.2	86.0	844
36	599.4	96.5	946
38	661.1	107.5	1054
40	725.4	119.1	1168
42	799.3	131.3	1288
44	876.3	144.1	1413

Dyform SeaPurse®



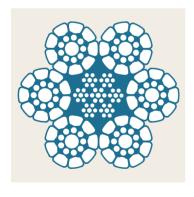
Specially designed purse wires with large outer wires for increased abrasion resistance and a smooth surface suitable for purse rings.

6X19 (9/9/1) **POLY CORE**



Diameter	Weight	Minimum bi	reaking load
mm	kg/100 mtr	Tonnes	kN
14	79.30	11.80	115.7
16	105.50	17.40	170.6
18	131.50	18.60	182.4
20	159.20	22.90	224.6
22	192.7	32.1	315
24	231.1	38.2	374
26	269.1	44.8	439
28	310.5	52.0	510
30	358.5	59.7	585

6X19 (9/9/1) **IWRC**



Diameter	Weight	Minimum br	eaking load
mm	kg/100 mtr	Tonnes	kN
18	144.70	21.30	208.9
20	182.70	26.50	259.9
22	219.1	31.0	317
24	256.7	39.4	377
26	305.4	46.6	443
28	350.4	58.4	514
30	415.9	62.2	590

Pacific Blue Plus®

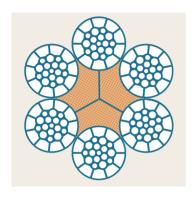
Compacted rope



6X26 (10/5&5/5/1)

(also available in 6x19)

POLY CORE

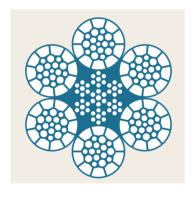


Diameter	Weight	Minimum br	eaking load
mm	kg/100 mtr	Tonnes	kN
14	80.4	13.7	134.5
16	103.3	17.1	168
18	129.1	21.6	212
20	159.7	26.7	262
22	191.7	32.3	317
24	224.8	38.5	377

6X26 (10/5&5/5/1)

(also available in 6x19)

IWRC



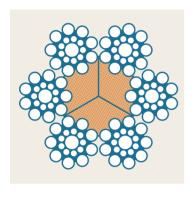
Diameter	Weight	Minimum bro	eaking load
mm	kg/100 mtr	Tonnes	kN
14	90.0	14.9	146
16	115.5	19.1	187
18	145.3	24.1	237
20	183.0	29.8	292
22	216.6	36.0	353
24	254.7	42.9	420

Marblue[®]



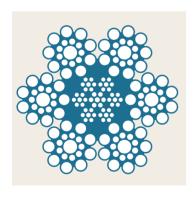
Large outer wires for increased wear and abrasion resistance.

6X19 (9/9/1) **POLY CORE**



Diameter	Weight	Minimum br	eaking load
mm	kg/100 mtr	Tonnes	kN
14	70.3	10.4	102
16	90.9	14.9	146
18	116.8	18.8	185
20	144.2	23.2	228
22	175.1	25.6	276
24	205.4	33.5	328
26	241.4	39.3	385
27	261.8	42.4	416
28	279.2	45.6	447
30	315.6	52.3	513
32	370	59.5	584

6X19 (9/9/1) **IWRC**



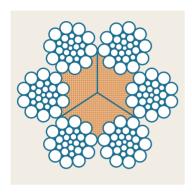
Diameter	Weight	Minimum br	eaking load
mm	kg/100 mtr	Tonnes	kN
14	82.7	12.6	123
16	102	16.1	157
18	128.9	20.3	199
20	164.6	25.1	246
22	199.7	30.4	298
24	235.4	36.1	354
26	276.9	42.4	416
27	294.9	45.7	448
28	318.9	49.2	482
30	383.2	56.4	554
32	411	64.2	630

Seabeam[®]

Proven design for all Beam Trawling applications.

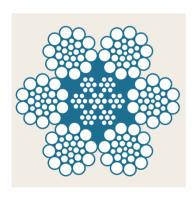


6X26 (10/5&5/5/1) **POLY CORE**



Diameter	Weight	Minimum breaking load	
mm	kg/100 mtr	Tonnes	kN
22	174.4	25.7	252
24	202.9	30.5	300
26	240.6	35.8	352
28	280.7	41.6	408
30	324.6	47.7	468
32	362.6	54.3	532

6X26 (10/5&5/5/1) **IWRC**



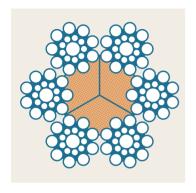
Diameter	Weight	Minimum breaking load	
mm	kg/100 mtr	Tonnes	kN
22	199.4	27.6	271
24	236.5	32.9	323
26	276.2	38.6	379
28	320.5	44.8	439
30	369.7	51.4	504
32	415	58.5	573

Pacific Blue®



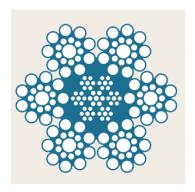
Large outer wires for increased wear and abrasion resistance.

6X19 (9/9/1) **POLY CORE**

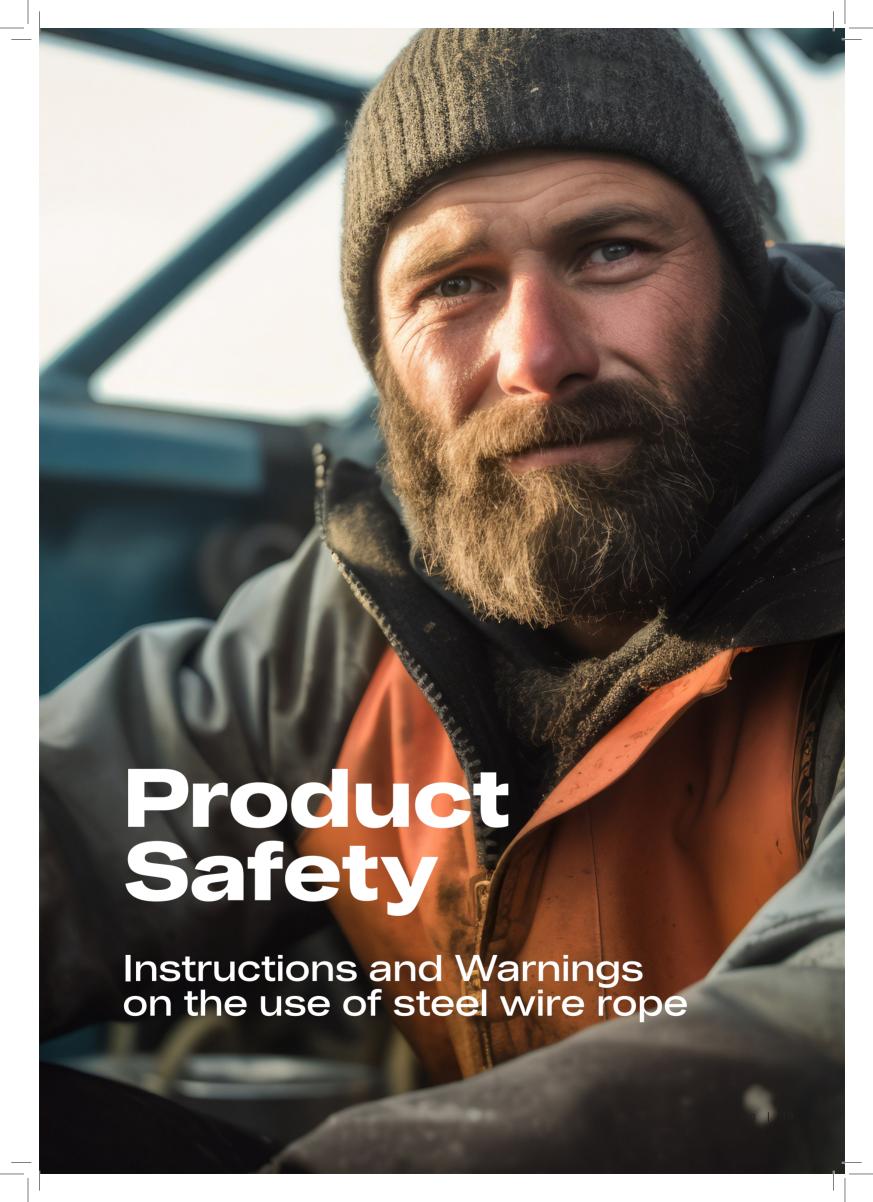


Diameter	Weight	Minimum breaking load	
mm	kg/100 mtr	Tonnes	kN
14	70.3	10.4	102
16	90.9	14.9	146
18	116.8	18.8	185
20	144.2	23.2	228
22	175.1	25.6	276
24	205.4	33.5	328

6X19 (9/9/1) **IWRC**



Diameter	Weight	Minimum breaking load	
mm	kg/100 mtr	Tonnes	kN
14	82.7	12.6	123
16	102	16.1	157
18	128.9	20.3	199
20	164.6	25.1	246
22	199.7	30.4	298
24	235.4	36.1	354



The following Instructions and Warnings combine to form guidance on Product Safety and are intended for use by those with a working knowledge of wire as well as the new user. They should be read, followed and passed on to others.

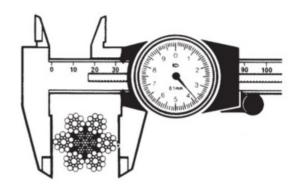
Failure to read, understand and follow these instructions could result in harmful and damaging consequences. A "Warning" statement indicates a potential hazardous situation which could result in a significant reduction in rope performance and/or put at risk, either directly or indirectly, the safety or health of those persons within the danger zone of the rope and its associated equipment.

STORAGE

Unwrap the rope and examine immediately after delivery to verify that it is in accordance with the details on delivery documents.

Measurement of rope diameter should be carried out as shown in Fig 1.

Select a clean, well ventilated, dry area for storage, cover with waterproof material if conditions preclude inside storage. Rotate the reel periodically during long periods of storage, particularly in warm environments, to prevent migration of lubricant from the rope.





Warning

Never store wire rope in areas subject to elevated temperatures as this may seriously affect its future performance. In extreme cases its original as-manufactured strength may be severely reduced rendering it unfit for safe use. Support the reel clear of the floor so that there is a clear passage of air under the reel. Ensure that the rope is stored where it is not likely to be affected by chemical fumes, steam or other corrosive agents.

Failure to do so may result in the rope becoming contaminated with foreign matter and start the onset of corrosion before the rope is put to work. Ensure the rope is stored and protected in such a way that it will not be exposed to accidental damage either during storage or in placing the rope into or taking it out of storage.

HANDLING AND INSTALLATION

Handling, similar to installation of the rope, should be carried out in accordance with a detailed plan and should be supervised by a competent person. Suitable protective clothing and equipment should be worn.

Incorrectly supervised handling and installation procedures may result in serious injury to persons in the vicinity of the operation as well as those directly involved in the process

Before installation

Examine the rope visually to ensure that no damage or deterioration has occurred during storage or transportation. Check the working area for potential hazards that may affect the safe installation of the rope. Check the condition of the rope related equipment on the vessel. Include the following:

DRUM

Check the general condition of the winch drum to ensure that it is in good condition with no damage or areas that will cause damage to the rope.

SHEAVES (PULLEYS)

Ensure that the groove is the correct shape and size for the new rope. Check that sheaves are free to rotate and in good condition. When a new rope is fitted a variation in size compared with the old worn rope will be apparent. The new rope may not fit correctly into the previously worn groove profile and unnecessary wear and rope damage may occur. This may be remedied by machining out the grooves before the new rope is fitted. Before this is done care should be taken to ensure that sufficient material is present to maintain strength in the sheave after machining.

STRUCTURE

Ensure that no part of the vessel's steelwork is positioned such that it will lie in the path of the rope between the installation drum and winch

Warning

Failure to carry out any of the above could result in unsatisfactory and unsafe rope performance.

Installation

Installation of the rope should be carried out in the following manner:

Place the reel in a suitable stand that allows it to rotate and be braked to avoid overrun during installation. The rope must be transferred from reel to winch drum in the correct manner, top to top or bottom to bottom. Fig 2.

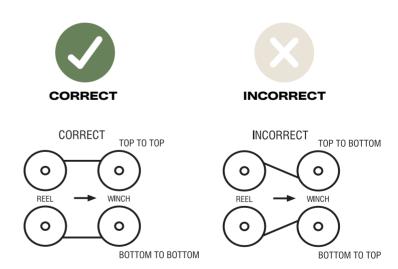
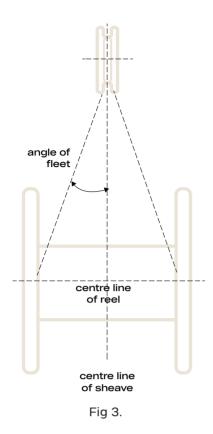


Fig 2.



The reel stand should be positioned to maintain a maximum fleet angle of 1.5 degrees. Correct block alignment and control of fleet angle is essential to avoid inducing "turn" in the rope Fig 3

Proper method of locating rope anchorage point on a plain drum

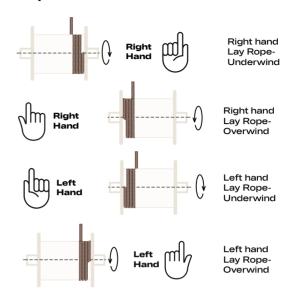


Fig 4.

The direction of coiling on the drum is important and should be related to the direction of lay of the rope to ensure close coiling. The correct method of locating the rope anchorage point on the winch drum is shown in Fig 4

When transferring a rope on to a plain or smooth drum, it is essential that the first (bottom) layer of rope is installed correctly as this layer provides the grooving for any subsequent layer of rope wound over the top of it. The rope wraps should be installed under tension (Bridon would recommend applying 5-10% of the M.B.L of the rope as back tension, when installing the rope onto the winch) uniformly avoiding any gaps between the wraps as Fig 5.

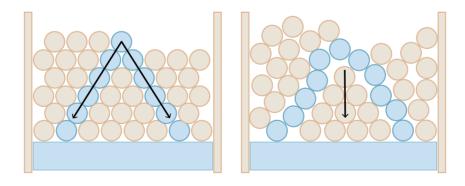


Fig 5.

A soft hammer or piece of wood may be used to carefully knock the rope together during installation to ensure they are tight: however excessive force should be avoided.

Any gaps left at the ends should be spread out evenly over the width of the drum using soft packing to prevent subsequent movement. Once installed correctly this bottom layer should not be unwound.

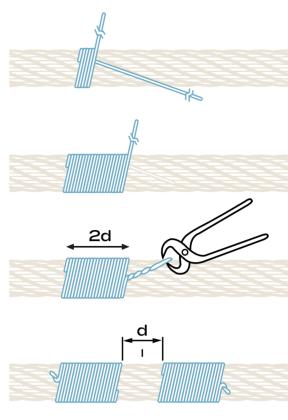
Warning

Any looseness or uneven coiling will result in one or all of the following:excessive wear, crushing and distortion of the rope, a reduction in rope performance, and a reduction in the strength of the rope. In addition, it will be more difficult for the operator to control the load as the rope is more likely to spool incorrectly and pull into underlying layers, resulting in shock loading and damage to the rope, Fig.5

Warning

Care must be taken to avoid free end rotation of the rope end, which may cause un-laying or elongation.

Take particular care when the rope has to be cut. Apply secure servings on both sides of the cut mark using wire or strong twine. Each serving should be at least two rope diameters. Fig 6. Arrange and position the rope in such a manner that when cut the rope ends will remain in position, avoiding any backlash or other undesirable movement. Failure to control could result in injury.



Fia 6. d = diameter

Warning

Rope produced from carbon steel wires in the form shipped is not considered a health hazard. During subsequent processing (e.g. cutting, grinding and cleaning) dust and fumes may be produced which contain elements which may affect exposed workers. Ideally cut the rope with an abrasive disc cutter, other suitable mechanical and hydraulic shearing equipment may be used if necessary. Ensure adequate ventilation during cutting to avoid any build up of fumes from the rope or any of its constituents.

Warning

Some special ropes contain synthetic material which, when heated to temperatures above normal processing temperatures may decompose and give off toxic fumes.

