

offshore oil & gas.

Advanced rope solutions for the offshore oil & gas exploration, construction and production industries.



BRIDON · BEKAERT

THE ROPES GROUP

Bridon-Bekaert Ropes Group is the world's premier supplier of mission-critical advanced cords, steel wire ropes, and synthetic fibre ropes.

As a leading innovator, developer and producer of the best performing ropes and advanced cords globally, the Group provides superior value solutions to the oil & gas, mining, crane, elevator and other industrial sectors.

Two of the most enduring wire and rope pioneers joined forces in 2016 to make this ambition real. Bridon-Bekaert Ropes Group has a global manufacturing footprint and employs approximately 2500 people worldwide.

market leading rope solutions for offshore oil & gas.

Bridon-Bekaert is the leader in advanced rope solutions for the offshore oil and gas industry.

Our oil and gas ropes are designed to withstand the most abusive and demanding oil and gas applications, leading to cost savings through less rope changes and reduced downtime.

We create value for you by selecting and producing the rope that best suits your needs and providing you with technical support and service afterwards.

BRIDON
ScanRope
 **BlueStrand**



our brands.

a BRIDON · BEKAERT Ropes Group Brand

High Performance Brands

BRIDON[®]

WRI[®]

ScanRope[®]

Value Brands

BlueStrand[®]

CIMAF[®]

PRODINSA[®]

Ropes360[®]

Ropes 360 services:

- ✓ **Installation**
 - Expertise
 - Spooling equipment
 - Warranty assurance
 - Support new technology
- ✓ **Inspection**
 - Rope inspection
 - Magnetic Rope Testing (MRT)
 - Non Destructive Examination (NDE)
- ✓ **Maintenance**
 - Re-lubrication
 - Aftermarket equipment and lubricant supply
 - Cut-back and termination
- ✓ **Rope Life Management**
 - Safety
 - Manage downtime with planned maintenance
 - Rope lifecycle cost reductions
 - Value service offering



we are active in many markets.



BBtec

The Bridon-Bekaert Technology Centre (BBtec) is our centre of excellence for rope technology development, testing, analysis and verification.

BBtec is equipped with unique equipment capable of testing steel/synthetic ropes and wires. It has extensive forensic analysis laboratory facilities and specialists capable of conducting detailed forensic evaluation of new or retired ropes.

BBtec accelerates Bridon-Bekaert's new product development, involving the latest rope technologies to increase safety, performance and operational life of ropes working in demanding and hostile environments typical to our core markets in the Oil and Gas, Mining, and Construction sectors.

technologies.

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.

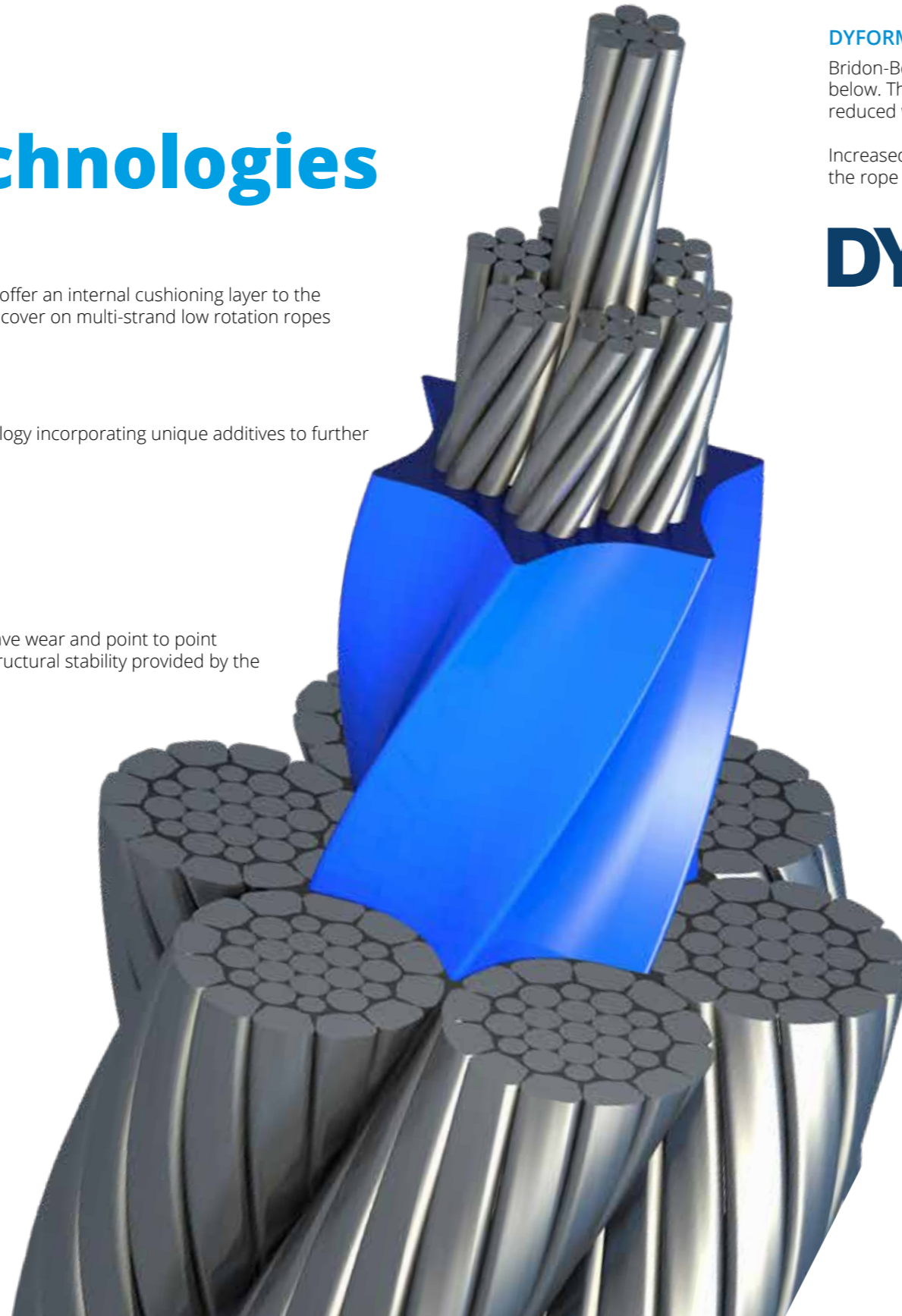
NXG

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

Bristar®

DYFORM BRISTAR 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**
Improved strand positioning significantly increases fatigue life and wear resistance
- ✓ **GREATER INTERNAL ROPE PROTECTION**
Enhanced core life
- ✓ **INCREASED ROPE STABILITY**
Enhanced diameter stability under load improves drum spooling performance and reduces rope 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 increases breaking load and improves inter-wire contact ensuring that the rope will operate with lower internal stress levels resulting in longer bending fatigue life and lower costs.

DYFORM®



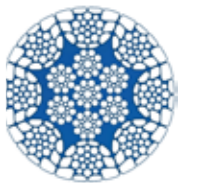
MAX TECHNOLOGY

Bridon-Bekaert manufactures ropes using rotary hammer swaging and a unique roller compaction process that compacts the outer rope surface as shown.

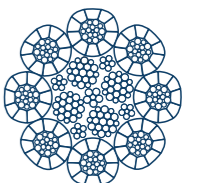
In comparison to traditional Dyform ropes the Max technology further improves rope to sheave contact and improved diameter stability leading to reduced wear on both rope and sheave.

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.



DYFORM 8 MAX



DYFORM DSC8 MAX

Bezinal® Wire Coating

To further maximize the service-life of your application, a range of advanced zinc aluminum coatings can be applied as well as traditional zinc.

Bekaert's Bezinal® 3000 coating: superior protection against corrosion, abrasion and thermal degradation. The Bezinal® coating range consists of two high-performance zinc aluminum coatings: Bezinal® and Bezinal® 3000.

Compared to zinc, Bezinal® 3000 provides a more sustainable corrosion and abrasion protection. The smooth surface and excellent thermal resistance of both Bezinal® coatings allows a safe operation of ropes and cables when exposed to high temperatures.

technologies.

NXG

Bridon-Bekaert specialist rope technology utilises Brilube Ultra lubricant specifically formulated for flow resistance at high pressure, further supported by NXG engineered polymer core offering additional friction-reducing additives.

The NXG technology package achieves superior rope performance, including extended bend fatigue life and corrosion resistance, offering considerable operational savings.

Optionally available with EU Ecolabel Certification for EAL compliance with VGP 2013.

1 LUBRICATION
(Blocking Compound)

2 POLYMER CORE
(Blocking Compound)

3 WIRE COATING
(Zinc)

EXTENDED
ROPE LIFE

Synthetic hybrid grease specifically engineered for ultra deep water applications with extreme pressure resistant additives, enhanced wash off resistance, & improved corrosion protection additives, which extend rope life.

NXG polymer core promotes the retention of lubricant inside the core whilst reducing seawater and abrasive particle ingress from outside. NXG low friction polymer technology extends fatigue life performance.

DYFORM
Bristar NXG

Hydra NXG

lubricants.

BRILUBE[®] FIT

Brilube offers the best in class traditional wire rope lubrication for high performance offshore applications.

- ✓ Traditional wire rope lubricants suitable for a wide range of offshore applications
- ✓ Corrosion protection
- ✓ Wear resistant

BRILUBE[®] ULTRA

Advanced hybrid grease suitable for operation in ultra deep waters. Offers a 3 stage corrosion protection system with a wide temperature of operation for AHC and tropical climates. Unsurpassed water wash off performance for frequent subsea operation

- ✓ Developed to perform in more challenging environments
- ✓ Enhanced rope lubricant, manufactured with a unique hybrid grease.
- ✓ A wide operating temperature range suitable for active heave compensation systems and warmer tropical climates.
- ✓ Along with a three stage corrosion protection system with a unique 'water wash off' performance.



offshore segments.

Offshore exploration



Bridon-Bekaert offers both superior steel wire and synthetic ropes and a wide range of drilling lines, marine riser tensioner lines (MRTs), offshore crane ropes, winch lines, anchor lines and life boat ropes. We create value for you by increasing the uptime of your rig fleet across the globe through maximizing the operating life of our ropes.

Offshore construction



Bridon-Bekaert offers both superior steel wire and synthetic ropes and a wide range of abandon and recovery (A&R) lines, winch lines, offshore crane ropes, anchor lines, diving bell ropes and life boat ropes. We provide offshore vessels globally with the most reliable ropes to maximize productivity and minimize operational costs.

Offshore production



Bridon-Bekaert offers both superior steel wire and synthetic ropes and a wide range of offshore crane ropes, winch lines, permanent mooring lines, and life boat ropes. We provide production platforms globally with the best performing ropes to maximize productivity and minimize operational costs.



product selection.

Product Selection

✓ INDICATES BRIDON-BEKAERT'S RECOMMENDED ROPE PER APPLICATION

■ EXPLORATION

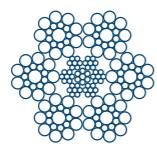
■ CONSTRUCTION

■ PRODUCTION

Drilling lines ■



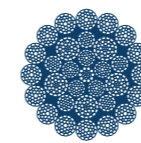
✓ Dyform Bristar 6



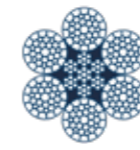
6 Series



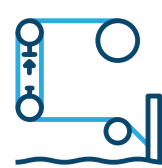
A&R lines ■



✓ Hydra Plus



Dyform 6 / PI / Bristar



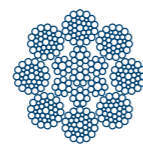
Marine riser tensioner lines ■



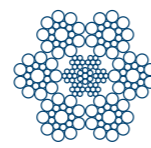
✓ Dyform Bristar 8



✓ Dyform Bristar 6



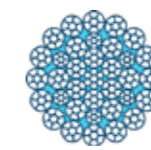
8 Series



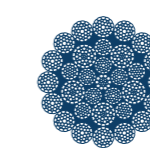
6 Series



Winch lines ■ ■ ■



✓ Dyform 34LR / PI / MAX



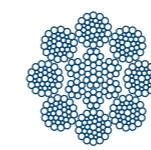
✓ Hydra Plus



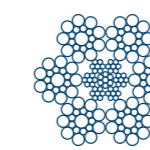
Dyform 8 / PI / Bristar / MAX



Dyform 6 / PI / Bristar



8 Series



6 Series

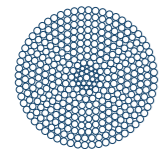
Product Selection

✓ INDICATES BRIDON-BEKAERT'S RECOMMENDED ROPE PER APPLICATION

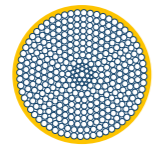
- EXPLORATION
- CONSTRUCTION
- PRODUCTION



Permanent mooring lines ■



✓ Spiral Strand



✓ Sheathed Spiral Strand



✓ MoorLine Polyester



Diamond Blue



Anchor lines ■ ■



✓ MoorLine Polyester



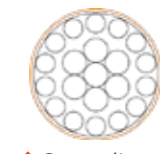
✓ Dyform DB2K



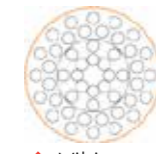
Diamond Blue



Single point mooring lines ■ ■ ■



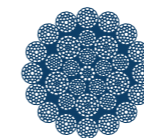
✓ Superline Nylon



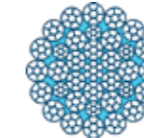
✓ Viking Braidline Nylon



Floating / barge cranes ■



✓ Hydra Plus



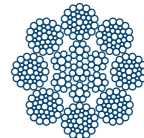
✓ Dyform 34LR / PI / MAX



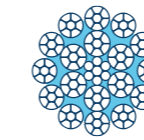
✓ Dyform 8 / PI / Bristar / MAX



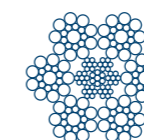
✓ Dyform 6 / PI / Bristar



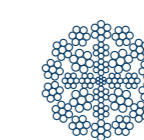
✓ 8 Series



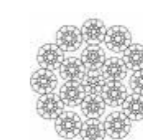
Dyform 18 / PI



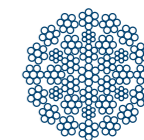
6 Series



50 DB Series



19 series

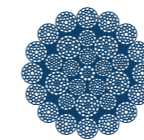


35 LS

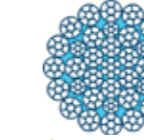


Offshore cranes ■ ■ ■

pedestal / knuckle boom / overhead / tugger / personnel hoist



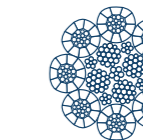
✓ Hydra Plus



✓ Dyform 34LR / PI / MAX



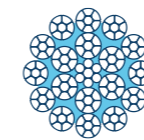
✓ Dyform 8 / PI / Bristar / MAX



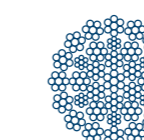
✓ Dyform DSC8 MAX
*for boom hoist only



Dyform 6 / PI / Bristar



Dyform 18 / PI



35 LS

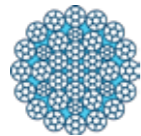
Product Selection

✓ INDICATES BRIDON-BEKAERT'S RECOMMENDED ROPE PER APPLICATION

- EXPLORATION
- CONSTRUCTION
- PRODUCTION



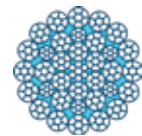
Diving bell ropes ■



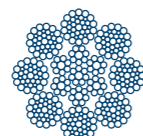
✓ Dyform 34LR / PI / MAX



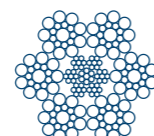
Life boat ropes ■ ■ ■



✓ Dyform 34LR / PI / MAX



8 Series



6 Series

our products.

BRIDON

Dyform 34LR series

Dyform 34 LR.....	pg. 18-19
Dyform 34 LR PI.....	pg. 18-19
Dyform 34 LR MAX.....	pg. 20-21
Dyform 34 LR MAX PI.....	pg. 20-21

Dyform 18 PI.....	pg. 22
Hydra Plus.....	pg. 23

Dyform 8 Series

Dyform 8.....	pg. 24-25
Dyform 8 PI.....	pg. 24-25
Dyform Bristar 8.....	pg. 25-25
Dyform 8 MAX / PI.....	pg. 26
Dyform DSC8 MAX.....	pg. 26

Spiral Strand.....	pg. 27
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Dyform 6 Series

Dyform 6.....	pg. 28-29
Dyform 6 PI.....	pg. 28-29
Dyform Bristar 6.....	pg. 28-29

Dyform DB2K.....	pg. 30
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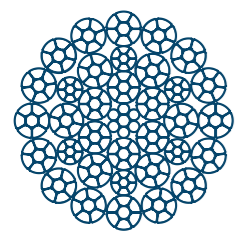
ScanRope

Steelite 12-S.....	pg. 31
Moorline Polyester.....	pg. 32
Superline Nylon.....	pg. 33
Viking Braidline Nylon.....	pg. 34

BlueStrand

Diamond Blue.....	pg. 35
35LS.....	pg. 36
50DB series.....	pg. 37
18 series.....	pg. 38
8 series.....	pg. 39
6 series.....	pg. 40

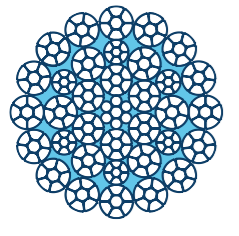
* ALL ROPES AVAILABLE IN DIFFERENT GRADS AND LAYS
 * CUSTOM ROPE CAN BE MADE AVAILABLE UPON REQUEST
 * EVERY ROPE AVAILABLE IN BRIGHT AND GALVANIZED



Dyform 34LR

The Dyform 34 LR is a high performance compacted low rotational rope that combines varying multistrand rope designs to achieve excellent rotation resistance in offshore operations.

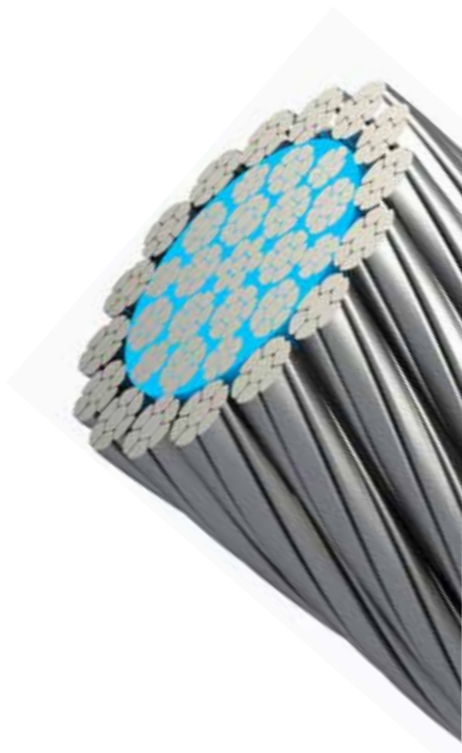
- ✓ Excellent rotation resistance
- ✓ Highly efficient due to its flexibility
- ✓ Suitable for single part and multi part reeving
- ✓ Suitable for single part reeving of an unguided load



Dyform 34LR PI

The Dyform 34 LR PI is a high performance compacted low rotational rope that combines varying multistrand rope designs to achieve excellent rotation resistance in offshore operations. It incorporates a plastic layer (PI) between the inner and outer part of the rope.

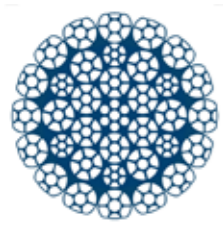
- ✓ Stable rope construction
- ✓ Higher bending fatigue performance



product table.

BRIDON Dyform 34LR / PI									
Diameter		Nominal length mass		Minimum Breaking Force					
				EIP/1960			EEIP/2160		
mm	inch	kg/m	lb/ft	kN	Tons (short)	Tonnes (metric)	kN	Tons (short)	Tonnes (metric)
	3/8	0.454	0.305	82	9.2	8.36	86	9.7	8.77
10.0		0.500	0.336	90.8	10.2	9.25	95.3	10.7	9.71
11.0		0.610	0.410	109	12.3	11.1	115	12.9	11.7
	7/16	0.610	0.410	111	12.5	11.3	117	13.2	11.9
12.0		0.720	0.484	130	14.6	13.2	137	15.4	13.9
	1/2	0.808	0.543	146	16.4	14.8	153	17.2	15.6
13.0		0.850	0.571	153	17.2	15.6	161	18.1	16.4
14.0		0.980	0.659	179	20.1	18.2	191	21.5	19.5
	9/16	1.02	0.687	185	20.8	18.8	201	22.6	20.5
15.0		1.13	0.759	204	22.9	20.8	214	24.1	21.8
	5/8	1.28	0.860	232	26.1	23.6	251	28.2	25.6
16.0		1.28	0.860	232	26.1	23.6	251	28.2	25.6
17.0		1.45	0.974	262	29.4	26.7	275	30.9	28
18.0		1.62	1.09	298	33.5	30.4	319	35.9	32.5
19.0		1.81	1.22	331	37.2	33.7	356	40.0	36.3
	3/4	1.81	1.22	331	37.2	33.7	356	40.0	36.3
20.0		2.00	1.34	370	41.6	37.7	397	44.6	40.5
21.0		2.21	1.49	400	45.0	40.7	420	47.2	42.8
22.0		2.42	1.63	442	49.7	45.1	482	54.2	49.1
	7/8	2.42	1.63	448	50.4	45.7	487	54.7	49.6
23.0		2.65	1.78	480	54.0	48.9	504	56.7	51.3
24.0		2.88	1.94	528	59.3	53.8	569	64.0	58.0
25.0		3.13	2.10	568	63.8	57.9	595	66.9	60.6
	1	3.23	2.17	586	65.9	59.7	623	70.0	63.5
26.0		3.38	2.27	618	69.5	63.0	660	74.2	67.3
27.0		3.65	2.45	662	74.4	67.5	694	78.0	70.7
28.0		3.92	2.63	712	80.0	72.6	758	85.2	77.3
	1 1/8	4.09	2.75	743	83.5	75.7	779	87.6	79.4
29.0		4.21	2.83	764	85.9	77.9	801	90.0	81.6
30.0		4.50	3.02	823	92.5	83.9	857	96.3	87.3
	1 1/4	5.12	3.44	919	103.3	93.7	1008	113.3	102.8
32.0		5.12	3.44	919	103.3	93.7	1008	113.3	102.8
34.0		5.87	3.94	1050	118.0	107	1151	129.4	117.3
	1 3/8	6.18	4.15	1100	123.6	112	1214	136.5	123.8
35.0		6.22	4.18	1110	124.8	113	1214	136.5	123.8
36.0		6.58	4.42	1170	131.5	119	1287	144.7	131.2
38.0		7.33	4.93	1310	147.2	133	1444	162.3	147.2
	1 1/2	7.36	4.95	1310	147.2	133	1444	162.3	147.2
40.0		8.12	5.46	1450	163.0	147	1590	178.7	162.1
	1 5/8	8.66	5.82	1550	174.2	158	1695	190.5	172.8
42.0		8.95	6.01	1600	179.8	163	1758	197.6	179.2
44.0		9.83	6.61	1750	196.7	178	1925	216.4	196.2
46.0		10.7	7.19	1920	215.8	195			
	1 7/8	11.5	7.73	2050	230.4	209			
48.0		11.7	7.86	2090	234.9	213			
50.0		12.7	8.53	2270	255.2	231			
50.8	2	13.1	8.80	2340	263.0	238			

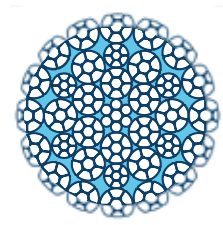
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Dyform 34LR MAX

Dyform 34 LR MAX is a high performance compacted low rotational rope that consists of varying multistrand rope designs which have undergone a final rope compacting process.

- ✓ Highest breaking strength
- ✓ Excellent rotation resistance
- ✓ Improved crush resistance
- ✓ Accurate diameter and tight diameter tolerance



Dyform 34LR PI MAX

Dyform 34 LR PI MAX is a high performance compacted low rotational rope that consists of varying multistrand rope designs which have undergone a final rope compacting process. It incorporates a plastic layer (PI) between the inner and outer part of the rope.

- ✓ Higher bending fatigue performance
- ✓ Maintenance of internal lubricant

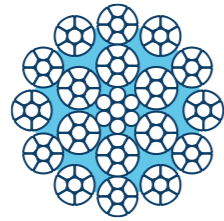


product table.

BRIDON				Dyform 34LR MAX / PI		
Diameter		Nominal length mass		Minimum Breaking Force		
mm	inch	kg/m	lb/ft	EEIP/2160		
				kN	Tons (short)	Tonnes (metric)
12.0		.740	.498	153	17.2	15.6
	1/2	.842	.566	171	19.2	17.4
13.0		.887	.596	179	20.1	18.3
14.0		1.04	.702	208	23.4	21.2
	9/16	1.09	.733	216	24.3	22.0
15.0		1.21	.814	239	26.9	24.4
	5/8	1.37	.919	272	30.6	27.7
16.0		1.37	.919	272	30.6	27.7
17.0		1.58	1.06	307	34.5	31.3
18.0		1.78	1.20	344	38.7	35.1
19.0		1.99	1.34	385	43.3	39.3
	3/4	1.99	1.34	385	43.3	39.3
20.0		2.21	1.49	424	47.7	43.2
22.0		2.69	1.81	524	58.9	53.4
	7/8	2.69	1.81	524	58.9	53.4
24.0		3.20	2.15	611	68.7	62.3
	1	3.36	2.26	684	76.9	69.7
26.0		3.56	2.39	705	79.3	71.9
28.0		4.11	2.76	818	91.9	83.0
	1 1/8	4.55	3.06	848	95.3	86.5
30.0		5.02	3.37	935	105	95.3
	1 1/4	5.57	3.74	1085	122	111
32.0		5.57	3.74	1085	122	111
34.0		6.32	4.25	1180	133	120
	1 3/8	6.79	4.56	1240	139	126
36.0		7.11	4.78	1320	148	135
38.0		7.95	5.34	1480	166	151
	1 1/2	8.07	5.42	1480	166	151
40.0		8.82	5.93	1630	183	166
	1 5/8	9.46	6.36	1730	194	176
42.0		9.72	6.53	1780	200	182
44.0		10.6	7.12	1930	217	197
	1 3/4	10.8	7.29	1930	217	197
46.0		11.6	7.77	2120	238	216
	1 7/8	12.4	8.30	2300	259	235
48.0		12.6	8.44	2300	259	235
50.0		13.6	9.17	2500	281	255
	2	14.0	9.43	2560	288	261
52.0		14.9	10.0	2720	306	277

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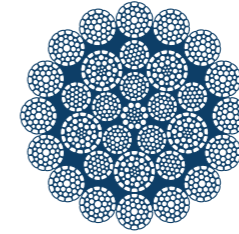
Dyform 18 PI



Dyform 18 PI is a high performance compacted rotational resistant rope which incorporates a plastic layer between the inner and outer part of the rope.

- ✓ Good wear characteristics due to its smooth exterior profile
- ✓ Plastic layer improves bending fatigue performance
- ✓ Robust and stable rope construction
- ✓ Diameter stability, requirement of multi layered spooling

Hydra Plus



The Hydra is a range of high performance multi strand low rotational ropes for offshore oil and gas applications including offshore cranes, winches, and A&R lines.

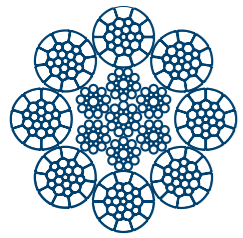
- ✓ Engineered low rotational characteristics
- ✓ Recommended for multilayer spooling
- ✓ Dyform construction for crush & wear resistance
- ✓ Low elongation
- ✓ Enhanced radial stiffness

BRIDON		Dyform 18 PI				
Diameter		Nominal length mass		Minimum Breaking Force		
mm	inch	kg/m	lb/ft	EEIP/2160		
				kN	Tons (short)	Tonnes (metric)
10.0	3/8	0.454	0.305	76.6	8.61	7.81
11.0		0.500	0.336	84.4	9.49	8.61
		0.605	0.407	104	11.7	10.6
	7/16	0.617	0.415	104	11.7	10.6
12.0		0.720	0.484	122	13.7	12.4
	1/2	0.806	0.542	136	15.3	13.9
13.0		0.845	0.568	143	16.1	14.6
14.0		0.980	0.659	165	18.5	16.8
	9/16	1.02	0.686	172	19.3	17.5
15.0		1.13	0.756	190	21.4	19.4
	5/8	1.26	0.847	216	24.3	22.0
16.0		1.28	0.860	216	24.3	22.0
17.0		1.45	0.971	244	27.4	24.9
18.0		1.62	1.09	274	30.8	27.9
19.0		1.81	1.21	306	34.4	31.2
	3/4	1.81	1.22	306	34.4	31.2
20.0		2.00	1.34	337	37.9	34.4
21.0		2.21	1.48	372	41.8	37.9
22.0		2.42	1.63	416	46.8	42.4
	7/8	2.47	1.66	416	46.8	42.4
23.0		2.65	1.78	446	50.1	45.5
24.0		2.88	1.94	486	54.6	49.6
25.0		3.13	2.10	527	59.2	53.7
	1	3.23	2.17	544	61.1	55.5
26.0		3.38	2.27	570	64.1	58.1
27.0		3.65	2.45	615	69.1	62.7
28.0		3.92	2.63	661	74.3	67.4
	1 1/8	4.08	2.74	688	77.3	70.2
29.0		4.21	2.83	709	79.7	72.3
30.0		4.50	3.02	759	85.3	77.4
	1 1/4	5.04	3.39	863	97.0	88.0
32.0		5.12	3.44	863	97.0	88.0
34.0		5.78	3.88	975	110	99.4
	1 3/8	6.10	4.10	1030	116	105
36.0		6.48	4.35	1090	123	111
38.0		7.22	4.85	1210	136	123
	1 1/2	7.26	4.88	1210	136	123

BRIDON		Hydra Plus							
Diameter		Nominal Length Mass		Minimum Breaking Force					
mm	in	kg/m	lbs/ft	EIP/1960			EEIP/2160		
				kN	Tonnes (metric)	Tons (short)	kN	Tonnes (metric)	Tons (short)
50.8	2	12.8	8.59	2330	237	261.9	2450	249	275.4
52		13.5	9.06	2450	249	275.4	2560	261	287.8
54	2 1/8	14.5	9.74	2640	269	296.7	2760	281	310.2
56		15.6	10.47	2840	289	319.2	2970	302	333.8
60		17.9	12.02	3250	331	365.3	3410	347	383.3
62		19.1	12.82	3480	354	391.2	3640	371	409.1
64		20.4	13.70	3700	377	415.9	3880	395	436.1
66		21.7	14.57	3940	401	442.9	4120	420	463.1
68		23	15.44	4180	426	469.8	4380	446	492.3
70		24.4	16.38	4430	451	497.9	4640	473	521.5
72		25.8	17.32	4680	477	526.0	4910	500	551.9
74		27.2	18.26	4950	504	556.4	5180	528	582.2
76		28.7	19.27	5220	532	586.7	5470	557	614.8
78		30.3	20.34	5490	559	617.1	5760	587	647.4
80		31.8	21.35	5780	589	649.7	6060	617	681.1
82		32.3	21.69	5890	600	662.0	6170	629	693.5
84		33.9	22.76	6180	630	694.6	6480	660	728.4
86		35.6	23.90	6480	660	728.4	6790	692	763.2
88		37.3	25.04	6780	691	762.1	7110	725	799.2
90		39	26.18	7100	724	798.0	7430	757	835.1
92		40.7	27.33	7420	756	834.0	7770	792	873.3
96		44.3	29.74	8070	822	907.1	8450	861	949.8
98		46.2	31.02	8410	857	945.3	8810	898	990.2
102		50.4	33.84	9170	935	1030.7	9600	978	1079.0
106		54.4	36.52	9910	1010	1113.9	10370	1050	1165.6
108	4 1/4	56.5	37.93	10270	1040	1154.3	10760	1090	1209.4
110		58.7	39.41	10660	1080	1198.2	11160	1130	1254.4
116		65.2	43.78	11840	1200	1330.8			
122		72.2	48.48	13100	1330	1472.4			
124		74.5	50.02	13530	1370	1520.8			
128		79.4	53.31	14410	1460	1619.7			
130		81.9	54.99	14870	1510	1671.4			
135		88.4	59.35	15290	1550	1718.6			
138		92.3	61.97	15980	1620	1796.2			
142		97.8	65.66	16910	1720	1900.7			
146	5 3/4	103	69.15	17870	1820	2008.6			
150		109	73.18	18850	1920	2118.7			
152		112	75.20	19350	1970	2174.9			

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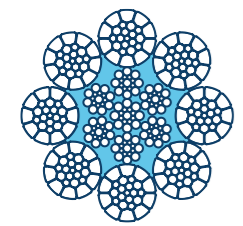
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Dyform 8

Dyform 8 is a high performance compacted single layer constructed rope with 8 outer strands.

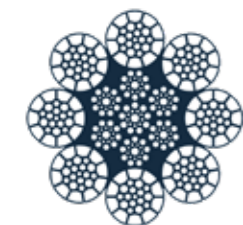
- ✓ Good bending fatigue performance
- ✓ Very flexible rope construction
- ✓ Smooth profile created by the number of outer strands



Dyform 8 PI

Dyform 8 PI is a high performance compacted single layer constructed rope which incorporates a plastic layer below the 8 outer strands.

- ✓ Improved bending fatigue performance
- ✓ Stable rope construction
- ✓ Diameter stability, requirement of multi-layered spooling



Dyform Bristar 8

Dyform Bristar 8 is a high performance compacted single layer constructed rope which incorporates an engineered extruded plastic profile between the 8 outer strands and the rope core.

- ✓ Outstanding bending fatigue performance
- ✓ Very stable rope construction
- ✓ Improved support of outer strands in service

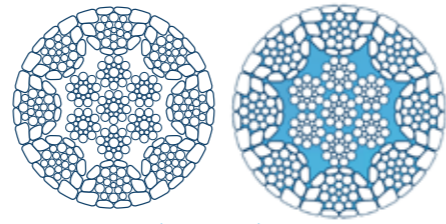


product table.

BRIDON Dyform 8 / PI / Bristar									
Diameter		Nominal length mass		Minimum Breaking Force					
				EIP/1960			EEIP/2160		
mm	inch	kg/m	lb/ft	kN	Tons (short)	Tonnes (metric)	kN	Tons (short)	Tonnes (metric)
	3/8	0.427	0.287	86.2	9.69	8.79	90.1	10.1	9.19
10.0		0.471	0.316	89.2	10.00	9.10	93.2	10.5	9.50
11.0		0.570	0.383	110	12.4	11.2	115	12.9	11.7
	7/16	0.582	0.391	110	12.4	11.2	115	12.9	11.7
12.0		0.678	0.456	128	14.4	13.1	134	15.1	13.7
	1/2	0.760	0.510	144	16.2	14.7	150	16.9	15.3
13.0		0.796	0.535	150	16.9	15.3	157	17.6	16.0
14.0		0.923	0.620	174	19.6	17.7	182	20.5	18.6
	9/16	0.961	0.646	181	20.3	18.5	189	21.2	19.3
15.0		1.06	0.712	198	22.3	20.2	207	23.3	21.1
	5/8	1.19	0.798	226	25.4	23.0	236	26.5	24.1
16.0		1.21	0.810	226	25.4	23.0	236	26.5	24.1
17.0		1.36	0.915	255	28.7	26.0	267	30	27.2
18.0		1.53	1.03	286	32.1	29.2	299	33.6	30.5
19.0		1.70	1.14	318	35.7	32.4	333	37.4	34
	3/4	1.71	1.15	318	35.7	32.4	333	37.4	34
20.0		1.88	1.27	353	39.7	36.0	369	41.5	37.6
22.0		2.28	1.53	427	48.0	43.5	446	50.1	45.5
	7/8	2.33	1.56	427	48.0	43.5	446	50.1	45.5
24.0		2.71	1.82	508	57.1	51.8	531	59.7	54.1
	1	3.04	2.04	569	64.0	58.0	595	66.9	60.7
26.0		3.18	2.14	596	67.0	60.8	623	70	63.5
28.0		3.69	2.48	691	77.7	70.5	723	81.3	73.7
	1 1/8	3.85	2.58	720	80.9	73.4	753	84.6	76.8
30.0		4.24	2.85	794	89.2	81.0	830	93.3	84.6
	1 1/4	4.75	3.19	903	102	92.1	944	106	96.3
32.0		4.82	3.24	903	102	92.1	944	106	96.3
34.0		5.44	3.66	1020	115	104	1070	120	109
	1 3/8	5.75	3.86	1080	121	110	1130	127	115
36.0		6.10	4.10	128	116	1200	135	122	
38.0		6.80	4.57	1270	143	130	1330	149	136
	1 1/2	6.84	4.59	1270	143	130	1330	149	136
40.0		7.54	5.06	1410	158	144	1480	166	151
	1 5/8	8.02	5.39	1500	169	153	1570	176	160
42.0		8.31	5.58	1560	175	159	1630	183	166
44.0		9.12	6.13	1710	192	174	1790	201	183
	1 3/4	9.31	6.25	1710	192	174	1790	201	183
46.0		9.97	6.70	1870	210	191	1950	219	199
	1 7/8	10.7	7.18	2030	228	207	2130	239	217
48.0		10.9	7.29	2030	228	207	2130	239	217
50.0		11.8	7.91	2080	248	225	2310	260	236
52.0		12.0	8.09	2260	254	230	-	-	-
54.0	2 1/8	13.0	8.72	2430	273	248	-	-	-
57.2	2 1/4	14.5	9.77	2730	307	278	-	-	-
63.5	2 1/2	17.9	12.1	3370	379	344	-	-	-
69.9	2 3/4	21.7	14.6	4080	459	416	-	-	-
73.0	2 7/8	23.7	15.9	4450	500	454	-	-	-
76.2	3	25.8	17.4	4820	542	492	-	-	-

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Dyform 8 MAX / PI



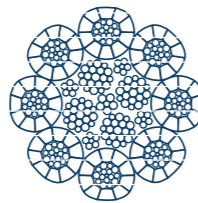
Dyform 8 Max is a high performance compacted single layer constructed rope with 8 outer strands which has undergone a final rope compaction process and performs excellent in multilayer drum applications. Optionally, it incorporates a plastic layer (PI) between the inner and outer part of the rope.

- ✓ Very high breaking strength
- ✓ Good crush resistance
- ✓ Accurate rope diameter and tight tolerance

Diameter		Nominal length mass		Minimum Breaking Force		
				MAX		
mm	inch	kg/m	lbs/ft	kN	Tons (short)	Tonnes (metric)
22		2.42	1.63	512	51.4	52.2
24		2.88	1.94	544	61.1	55.5
	1	3.23	2.17	610	68.6	62.2
26		3.38	2.27	639	71.8	65.2
28		3.92	2.64	741	83.3	75.6
	1-1/8"	4.09	2.75	773	86.9	78.8
30		4.5	3.03	851	95.7	86.8
	1-1/4"	5.04	3.39	968	109	98.7
32		5.12	3.44	968	109	98.7

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Dyform DSC8 MAX



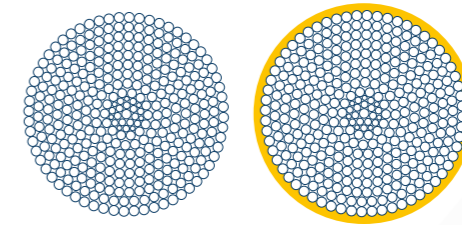
Dyform DSC8 Max is a high performance compacted double seal closed, parallel laid construction rope, with all the strands within the rope being spun/ twisted together in one operation. The rope is then subjected to a final compacting process. Ideal for high demanding boom hoisting operations. This type of rope can only be used where both ends are fixed and the load prevented from rotating.

- ✓ Highest breaking strength
- ✓ Excellent crush resistance
- ✓ Improved wear characteristics due to its smooth exterior profile

Diameter		Nominal length mass		Minimum Breaking Force		
				MAX		
mm	inch	kg/m	lbs/ft	kN	Tons (short)	Tonnes (metric)
26	1	2.33	3.46	707	79.5	72.1
28		2.44	3.63	740	83.2	75.5
	1 1/8	2.83	4.21	858	96.4	87.5
30		2.95	4.38	894	100	91.2
	1 1/4	3.25	4.83	986	111	101
32		3.64	5.41	1120	126	114
		3.7	5.5	1120	126	114

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Spiral Strand

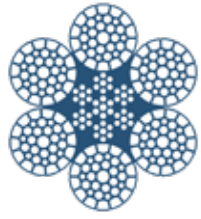


The Spiral Strand offers a torsionally balanced construction and high strength permanent mooring solution. With corrosion protection using galvanised wire and specialist lubricant/blocking compound, Brilube 2, the Spiral strand is ideal for systems with design lives of up to 15 years. The addition of polyethylene sheathing increases the design life to 25 years and above. We also offer spiral strands with double sheathing, which is used as a safety and inspection feature to identify damage to the outer coating. The Spiral strand is compliant to offshore standard DNV OS E304.

- ✓ High strength to weight ratio
- ✓ Torsionally balanced
- ✓ Excellent fatigue performance
- ✓ Excellent corrosion resistance
- ✓ Design life to suit customer requirements

Diameter		Approximate Weight ¹			Minimum Breaking Force			
		Unsheathed (in Air)	Sheathed (in Air)	Sheathed (in)	SPR2+ 1860 Grade		Xtreme 1960 Grade	
mm		kg/m	kg/m	kg/m	kN	Tonnes	kN	Tonnes
60		18.7	19.9	15.6	3820	390	4010	409
66		22.5	23.8	18.7	4590	468	4820	492
72		26.7	28.6	22.2	5470	558	5740	585
78		31.3	33.4	26.0	6410	654	6690	682
84		36.3	38.6	30.3	7450	760	7820	797
87		39.2	41.4	32.6	8010	817	8410	858
90		41.9	44.9	34.9	8580	875	8990	917
96		47.0	50.2	39.0	9590	978	10060	1026
102		53.7	57.4	44.6	10790	1100	11320	1154
108		59.6	63.5	49.5	12000	1224	12640	1289
114		67.0	71.2	55.8	13420	1368	14170	1445
120		73.8	78.1	61.4	14720	1501	15480	1579
126		81.4	86.0	67.8	16270	1659	17100	1744
132		89.3	94.0	74.3	17890	1824	18760	1913
138		97.7	102.6	81.3	19500	1988	20510	2091
144		106.2	111.3	88.4	21090	2151	22200	2264
147		110.7	115.9	92.2	21930	2236	23170	2363
For diameters above 147mm please contact Bridon-Bekaert to discuss your requirements.								
162 ²		130.2	135.8	108.5	25200	-	-	-

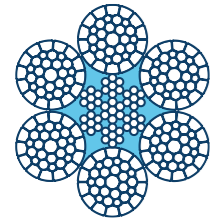
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Dyform 6

Dyform 6 is a high performance compacted single layer constructed rope for various oil and gas applications such as winch lines, offshore cranes and floating cranes.

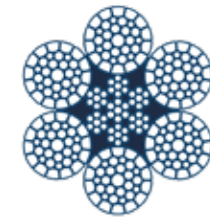
- ✓ High strength
- ✓ Robust crush resistant rope construction



Dyform 6 PI

Dyform 6 PI is a high performance compacted single layer constructed rope with a plastic layer (PI) between the 6 outer strands and the rope core for offshore cranes.

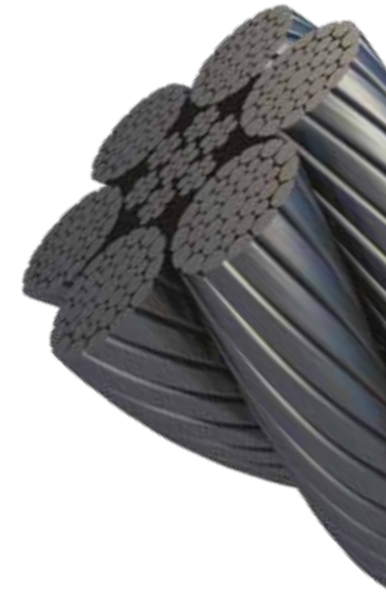
- ✓ Improved bending fatigue performance
- ✓ Better retention of internal lubrication



Dyform Bristar 6

Dyform Bristar 6 is a high performance compacted single layer constructed rope which incorporates an engineered extruded plastic profile between the 6 outer strands and the rope core for various oil and gas applications including drilling lines and marine riser tensioner lines.

- ✓ Outstanding bending fatigue performance
- ✓ Improved support of outer strands in service



product table.

BRIDON Dyform 6 / PI / Bristar									
Diameter		Nominal length mass		Minimum Breaking Force					
				EIP/1960			EEIP/2160		
mm	inch	kg/m	lb/ft	kN	Tons (short)	Tonnes (metric)	kN	Tons (short)	Tonnes (metric)
	5/16	0.289	0.194	55.2	6.20	5.63	57.5	6.46	5.86
8.00		0.294	0.197	55.2	6.20	5.63	57.5	6.46	5.86
9.00		0.372	0.250	69.9	7.86	7.13	72.8	8.18	7.42
	3/8	0.416	0.280	78.2	8.79	7.97	81.5	9.16	8.31
10.0		0.459	0.308	86.2	9.69	8.79	89.9	10.1	9.17
11.0		0.555	0.373	106	11.9	10.8	109	12.3	11.1
	7/16	0.567	0.381	106	11.9	10.8	109	12.3	11.1
12.0		0.661	0.444	124	13.9	12.6	129	14.5	13.2
	1/2	0.740	0.497	136	15.3	13.9	145	16.3	14.8
13.0		0.776	0.521	142	16.0	14.5	152	17.1	15.5
14.0		0.900	0.605	165	18.5	16.8	176	19.8	17.9
	9/16	0.937	0.630	172	19.3	17.5	183	20.6	18.7
15.0		1.03	0.694	190	21.4	19.4	202	22.7	20.6
	5/8	1.16	0.777	212	23.8	21.6	230	25.9	23.5
16.0		1.18	0.790	212	23.8	21.6	230	25.9	23.5
17.0		1.33	0.891	239	26.9	24.4	260	29.2	26.5
18.0		1.49	1.00	268	30.1	27.3	291	32.7	29.7
19.0		1.66	1.11	299	33.6	30.5	324	36.4	33.0
	3/4	1.67	1.12	299	33.6	30.5	324	36.4	33.0
20.0		1.84	1.23	331	37.2	33.8	359	40.4	36.6
22.0		2.22	1.49	401	45.1	40.9	435	48.9	44.4
	7/8	2.27	1.52	401	45.1	40.9	435	48.9	44.4
24.0		2.64	1.78	477	53.6	48.6	518	58.2	52.8
	1	2.96	1.99	534	60.0	54.5	580	65.2	59.1
26.0		3.10	2.09	560	62.9	57.1	607	68.2	61.9
28.0		3.60	2.42	649	73.0	66.2	704	79.1	71.8
	1 1/8	3.75	2.52	676	76.0	68.9	734	82.5	74.8
30.0		4.13	2.78	745	83.7	76.0	809	90.9	82.5
	1 1/4	4.63	3.11	848	95.3	86.5	920	103	93.8
32.0		4.70	3.16	848	95.3	86.5	920	103	93.8
34.0		5.31	3.57	957	108	97.6	1040	117	106
	1 3/8	5.60	3.76	1010	114	103	1100	124	112
36.0		5.95	4.00	1070	120	109	1160	130	118
38.0		6.63	4.45	1200	135	122	1300	146	133
	1 1/2	6.66	4.48	1200	135	122	1300	146	133
40.0		7.34	4.93	1320	148	135	1440	162	147
	1 5/8	7.82	5.25	1410	158	144	1530	172	156
42.0		8.10	5.44	1460	164	149	1580	178	161
44.0		8.89	5.97	1600	180	163	1740	196	177
	1 3/4	9.07	6.09	1600	180	163	1740	196	177
46.0		9.71	6.53	1750	197	178	1900	214	194
	1 7/8	10.4	7.00	1910	215	195	2070	233	211
48.0		10.6	7.11	1910	215	195	2070	233	211
50.0		11.5	7.71	2070	233	211	2250	253	229
52		12.0	8.09	2034	207	228	144	32	2.3
54	2 1/8	13.0	8.72	2194	239	246	156	35	2.6
57.2	2 1/4	14.5	9.77	2370	269	266	174	39	3.0
63.5	2 1/2	17.9	12.1	2926	312	329	215	48	4.1
69.9	2 3/4	21.7	14.6	3546	361	398	261	59	5.4
73.0	2 7/8	23.7	15.9	3867	405	434	285	64	6.2
76.2	3	25.8	17.4	4214	430	473	310	70	7.0

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Dyform DB2K



The Dyform DB2K is a 6 strand compacted galvansied high performance rope with a steel core. Dyform DB2K is also available with PI and Bristar technologies.

- ✓ Better fatigue resistance
- ✓ Reduced elongation in service
- ✓ Better strength to diameter ratio (strongest size for size rope)
- ✓ Superior crush and abrasion resistance



Steelite 12-S



Steelite-12 is a 12 strand braided construction made with "Steelite" HMPE fibres. Steelite 12's low elongation and high strength to weight ratio makes it a size for size strength match to steel wire rope.

- ✓ High strength (size for size match for steel)
- ✓ Quick and easy to splice and repair
- ✓ Load bearing material is easily visually inspected
- ✓ Does not rotate under load or lose strength when wet
- ✓ Floats

BRIDON		Dyform DB2K						
Diameter		Nominal length mass				Minimum Breaking Force		
		In air (M)		Submerged		EIP/1960		
mm	in	kg/m	lbs/ft	kg/m	lbs/ft	kN	Tonnes (metric)	Tons (short)
52		12.2	8.22	10.7	7.2	2396	244	269
54	2.1/8	13.2	8.87	11.5	7.7	2583	263	290
56		14.2	9.54	12.4	8.3	2778	283	312
57.2	2.1/4	14.8	10.0	12.9	8.7	2899	295	326
60		16.3	10.9	14.2	9.5	3189	325	358
60.3	2 3/8	16.5	11.1	14.3	9.6	3221	328	362
63.5	2 1/2	18.3	12.3	15.9	10.7	3572	364	402
64		18.6	12.5	16.1	10.8	3629	370	408
66.7	2 5/8	20.2	13.5	17.5	11.8	3941	402	443
68		20.9	14.1	18.2	12.2	4096	418	460
69.9	2 3/4	22.1	14.9	19.3	12.9	4329	441	487
72		23.5	15.8	20.4	13.7	4593	468	516
76		26.2	17.6	22.8	15.3	5117	522	575
76.2	3	26.3	17.7	22.9	15.4	5144	524	578
80		29.0	19.5	25.2	16.9	5670	578	637
82.6	3 1/4	30.9	20.8	26.9	18.1	6044	616	679
84		32.0	21.5	27.8	18.7	6251	637	703
88		35.1	23.6	30.5	20.5	6861	699	771
88.9	3 1/2	35.8	24.0	31.1	20.9	7002	714	787
92		38.3	25.7	33.4	22.4	7321	746	823
95.3	3 3/4	41.1	27.6	35.8	24.0	7856	801	883
96		41.7	28.0	36.3	24.4	7971	813	896
100		45.3	30.4	39.4	26.5	8430	859	948
101.6	4	46.8	31.4	40.7	27.3	8702	887	978

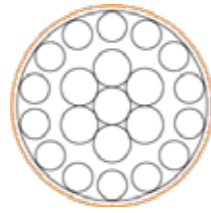
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ScanRope				Steelite 12-S								
Diameter*		Linear Weight				Minimum Breaking Force						
		In Air		In Water		Spliced**			Un-Spliced***			
mm	ins	kg/100m	lb/100ft	kg/100m	lb/100ft	kN	Tonnes (metric)	Tons (short)	kN	Tonnes (metric)	Tons (short)	
28	1 1/8	38	83.8	-1.5	-3.4	599	61.1	134,640	666	67.9	149,600	
32	1 1/3	50	110	-2.0	-4.5	783	79.8	175,860	870	88.7	195,400	
36	1 1/2	63	139	-2.6	-5.6	953	97.2	214,200	1059	108	238,000	
40	1 5/8	75	165	-3.0	-6.7	1130	115	253,800	1256	128	282,000	
44	1 3/4	87	192	-3.5	-7.8	1289	131	289,800	1432	146	322,000	
48	2	104	229	-4.2	-9.3	1492	152	334,800	1658	169	372,000	
52	2 1/8	116	256	-4.7	-10.4	1669	170	374,400	1854	189	416,000	
56	2 1/4	142	313	-5.8	-12.7	1960	200	441,000	2178	222	490,000	
60	2 1/2	158	348	-6.4	-14.1	2137	218	480,600	2374	242	534,000	
64	2 5/8	174	384	-7.1	-15.6	2410	246	541,800	2678	273	602,000	
68	2 3/4	199	439	-8.1	-17.8	2658	271	597,600	2953	301	664,000	
72	3	224	494	-9.1	-20.0	3020	308	678,600	3355	342	754,000	
76	3 1/8	249	549	-10.1	-22.3	3355	342	754,200	3728	380	838,000	
80	3 1/4	274	604	-11.1	-24.5	3664	374	822,600	4071	415	914,000	

*Nominal value. Other diameters are available. Contact fibresales@bridon-bekaert.com
 **Tested following CI1500B-2015. Elongations are immediate
 ***Tested following ISO2307:2010. A 10% reduction should be applied for spliced terminations

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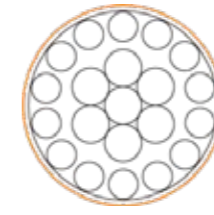
MoorLine Polyester



MoorLine Polyester is the original standard for long-term fibre rope mooring systems. Made from parallel laid, polyester sub-ropes encased in a polyester jacket with an integrated particle filter system, its design is optimized for operating life up to 25 years and beyond.

- ✓ High strength efficiency
- ✓ Damage and abrasion resistant protective braided jacket
- ✓ Patented filter system - provides protection from particles down to 5 microns in diameter
- ✓ Compact splice for fatigue life and damage integrity
- ✓ Low maintenance

Superline Nylon



The original “SuperLine” Nylon is constructed with parallel-laid, Nylon sub-ropes encased in a nylon-braided jacket. This product’s high strength, high elongation, and parallel laid cores offer an excellent tension-tension fatigue life (TCLL). Superline’s unique compact splice make it an ideal choice for shorter lengths in pendants.

- ✓ High rope elongation
- ✓ Excellent tension-tension fatigue performance translating to longer life
- ✓ Non load bearing sacrificial jacket
- ✓ High resistance to damage
- ✓ Easily repaired

ScanRope Moorline Polyester

Diameter*		Linear Weight				Minimum Breaking Force			Max Length	
		In Air		In Water		Spliced**			mmSpliced***	
mm	ins	kg/m	lb/ft	kg/m	lb/ft	kN	Tonnes (metric)	Tons (short)	m	ft
138	5 3/8	12.2	8.2	3.1	2.1	4,905	500	1,102,310	8,197	26,893
149	5 7/8	14.3	9.6	3.7	2.5	5,886	600	1,322,772	6,993	22,944
160	6 1/4	16.4	11.0	4.2	2.8	6,867	700	1,543,234	6,098	20,006
169	6 5/8	18.4	12.4	4.7	3.2	7,848	800	1,763,696	5,435	17,832
178	7	20.4	13.7	5.3	3.5	8,829	900	1,984,158	4,900	16,075
187	7 3/8	22.5	15.1	5.8	3.9	9,810	1,000	2,204,620	4,450	14,602
195	7 5/8	24.4	16.4	6.3	4.2	10,791	1,100	2,425,082	4,095	13,436
203	8	26.5	17.8	6.8	4.6	11,772	1,200	2,645,544	3,776	12,390
213	8 3/8	29.4	19.8	7.6	5.1	12,753	1,300	2,866,006	3,397	11,145
219	8 5/8	31.3	21.0	8.1	5.4	13,734	1,400	3,086,468	3,195	10,482
226	8 7/8	33.4	22.4	8.6	5.8	14,715	1,500	3,306,930	2,996	9,829
234	9 1/4	35.6	23.9	9.2	6.2	15,696	1,600	3,527,392	2,809	9,216
240	9 1/2	37.5	25.2	9.7	6.5	16,677	1,700	3,747,854	2,665	8,745
248	9 3/4	39.5	26.5	10.2	6.8	17,658	1,800	3,968,316	2,532	8,306
254	10	42.5	28.6	10.9	7.3	18,639	1,900	4,188,778	2,353	7,720
260	10 1/4	44.6	30.0	11.5	7.7	19,620	2,000	4,409,240	2,242	7,357
266	10	46.5	31.2	12.0	8.0	20,601	2,100	4,629,702	2,151	7,056
271	10	48.5	32.6	12.5	8.4	21,582	2,200	4,850,164	2,062	6,765
277	10 7/8	50.7	34.1	13.0	8.8	22,563	2,300	5,070,626	1,972	6,471
282	11 1/8	52.7	35.4	13.6	9.1	23,544	2,400	5,291,088	1,898	6,226
290	11	55.8	37.5	14.4	9.6	24,525	2,500	5,511,550	1,792	5,880
295	11	57.9	38.9	14.9	10.0	25,506	2,600	5,732,012	1,727	5,667
300	11 3/4	59.9	40.3	15.4	10.4	26,487	2,700	5,952,474	1,669	5,477
305	12	61.9	41.6	15.9	10.7	27,468	2,800	6,172,936	1,616	5,300
310	12 1/4	64.0	43.0	16.5	11.1	28,449	2,900	6,393,398	1,563	5,127
315	12	66.0	44.4	17.0	11.4	29,430	3,000	6,613,860	1,515	4,971

* Diameter and weight values shown at reference load of 1% MBF for a given break load. Other sizes available.
Contact fibresales@bridon-bekaert.com
** Tested following C11500B-2015. Elongations are immediate

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ScanRope Superline Nylon

Diameter*		Linear Weight				Minimum Breaking Force					
		In Air		In Water		Spliced**			Un-Spliced***		
mm	in	kg/100m	lb/100ft	kg/100m	lb/100ft	kN	Tonnes	lbs	kN	Ton	lbs
18	5/7	0.37	0.25	0.04	0.03	71.5	7.29	16,068	79.4	8.10	17,853
20	4/5	0.47	0.32	0.05	0.03	91.0	9.28	20,454	101	10.3	22,727
22	6/7	0.52	0.35	0.05	0.04	113	11.5	25,383	125	12.8	28,204
24	1	0.57	0.38	0.06	0.04	137	14.0	30,858	153	15.6	34,287
28	1 1/9	0.56	0.37	0.06	0.04	164	16.7	36,881	182	18.6	40,979
30	1 1/6	0.75	0.50	0.08	0.05	225	22.9	50,582	250	25.5	56,202
32	1 1/4	0.82	0.55	0.08	0.06	259	26.4	58,263	288	29.4	64,737
36	1 3/7	0.89	0.60	0.09	0.06	296	30.2	66,502	329	33.5	73,891
40	1 4/7	1.06	0.71	0.11	0.07	377	38.4	84,655	418	42.7	94,061
44	1 3/4	1.28	0.86	0.13	0.09	467	47.7	105,055	519	52.9	116,728
48	1 8/9	1.37	0.92	0.14	0.09	516	52.7	116,102	574	58.5	129,002
52	2	1.81	1.21	0.18	0.12	568	57.9	127,714	631	64.4	141,905
56	2 1/5	2.03	1.37	0.21	0.14	679	69.2	152,643	754	76.9	169,603
60	2 1/3	2.28	1.53	0.23	0.15	800	81.6	179,850	889	90.6	199,833
64	2 1/2	2.90	1.95	0.29	0.20	931	95.0	209,345	1,035	106	232,606
70	2 3/4	3.19	2.14	0.32	0.22	1,073	109	241,136	1,192	122	267,929
72	2 5/6	3.38	2.27	0.34	0.23	1,147	117	257,896	1,275	130	286,551
74	3	3.54	2.38	0.36	0.24	1,224	125	275,232	1,360	139	305,813
76	3	3.90	2.62	0.39	0.26	1,386	141	311,639	1,540	157	346,266
80	3 1/7	4.30	2.89	0.43	0.29	1,559	159	350,365	1,732	177	389,294
88	3 1/2	5.08	3.42	0.51	0.34	1,934	197	434,797	2,149	219	483,107
96	3 7/9	5.91	3.97	0.60	0.40	2,351	240	528,576	2,612	266	587,307
104	4	7.00	4.70	0.71	0.47	2,810	287	631,747	3,122	318	701,941
112	4 2/5	7.99	5.37	0.81	0.54	3,311	338	744,351	3,679	375	827,056
120	4 5/7	9.17	6.17	0.93	0.62	3,854	393	866,423	4,282	437	962,692
128	5	9.85	6.62	0.99	0.67	4,141	422	931,021	4,602	469	1,034,468
136	5 1/3	10.3	6.90	1.04	0.70	4,439	453	998,000	4,933	503	1,108,888
144	5 2/3	11.9	7.99	1.20	0.81	5,067	517	1,139,112	5,630	574	1,265,680
152	6	13.4	9.01	1.35	0.91	5,737	585	1,289,791	6,375	650	1,433,102
160	6 2/7	14.9	10.0	1.51	1.01	6,450	658	1,450,066	7,167	731	1,611,184
168	6 3/5	16.5	11.1	1.67	1.12	7,206	735	1,619,962	8,007	816	1,799,958
176	7	18.3	12.3	1.85	1.24	8,005	816	1,799,507	8,894	907	1,999,452
184	7 1/4	20.1	13.5	2.03	1.36	8,846	902	1,988,723	9,829	1,002	2,209,692
192	7 5/9	22.1	14.9	2.23	1.50	9,731	992	2,187,635	10,812	1,103	2,430,706
200	7 7/8	24.1	16.2	2.43	1.64	10,659	1,087	2,396,265	11,843	1,208	2,662,517
208	8 1/5	28.2	18.9	2.84	1.91	11,630	1,186	2,614,633	12,923	1,318	2,905,148

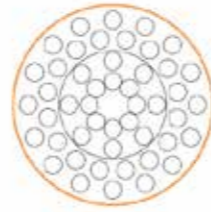
*Nominal value. Other diameters are available Contact fibresales@bridon-bekaert.com

** Tested following C11500B-2015. Elongations are wet immediate

*** Tested following ISO2307:2010. A 10% reduction should be applied for spliced terminations

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Viking Braidline Nylon



The original Viking BraidLine Nylon set the standard for safety and reliability. A true double braided construction per ISO 10554, the core and cover share the load 50/50, and is OCIMF compliant with continually upgraded materials. The rope is torque neutral and will not rotate under load.

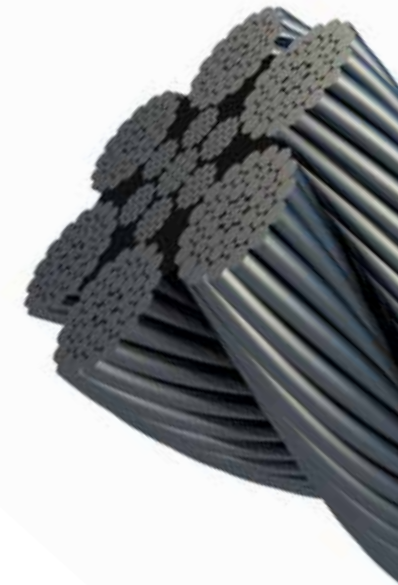
- ✓ True double braid per ISO 10554: 50/50 load sharing
- ✓ Highest rope elongation
- ✓ Highly flexible construction
- ✓ Load bearing material easily visually inspected

Diamond Blue



The Diamond Blue is a 6 strand galvanized conventional rope produced with a steel core fully lubricated during production process.

- ✓ Good strength to weight ratio
- ✓ Corrosion resistance
- ✓ Good fatigue performance



ScanRope		Viking Braidline Nylon									
Diameter*		Linear Weight				Minimum Breaking Force					
		In Air		In Water		Spliced**			Un-Spliced***		
mm	ins	kg/100m	lb/100ft	kg/100m	lb/100ft	kN	Tonnes	lbs	kN	Tonnes	lbs
96	3 7/9	5.70	3.83	0.58	0.39	2,059	210	462,970	2,288	233	514,411
104	4	6.70	4.50	0.68	0.45	2,412	246	542,337	2,680	273	602,596
112	4 2/5	7.80	5.24	0.79	0.53	2,805	286	630,521	3,116	318	700,579
120	4 5/7	8.90	5.98	0.90	0.60	3,217	328	723,115	3,574	364	803,462
128	5	10.2	6.85	1.03	0.69	3,658	373	822,323	4,064	414	913,693
136	5 1/3	11.4	7.66	1.15	0.77	4,129	421	928,145	4,587	468	1,031,272
144	5 2/3	12.8	8.60	1.29	0.87	4,629	472	1,040,581	5,143	524	1,156,201
152	6	14.3	9.61	1.44	0.97	5,158	526	1,159,630	5,731	584	1,288,478
160	6 2/7	15.8	10.6	1.59	1.07	5,717	583	1,285,293	6,353	648	1,428,104
168	6 3/5	17.4	11.7	1.76	1.18	6,304	643	1,417,130	7,004	714	1,574,589
176	7	19.1	12.8	1.93	1.29	6,918	705	1,555,139	7,686	784	1,727,932
184	7 1/4	20.9	14.0	2.11	1.42	7,561	771	1,699,762	8,401	857	1,888,624
192	7 5/9	22.8	15.3	2.30	1.55	8,233	840	1,850,778	9,147	933	2,056,421

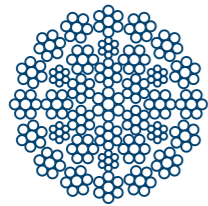
*Nominal value. Other diameters are available Contact fibresales@bridon-bekaert.com
 ** Tested following C11500B-2015. Elongations are immediate
 *** Tested following ISO2307:2010. A 10% reduction should be applied for spliced terminations

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BlueStrand		Diamond Blue						
Rope Diameter		Nominal rope length mass (M)				Minimum Breaking Force (Fmin)		
		In air (M)		Submerged		1960 grade		
mm	in	kg/m	lbs/ft	kg/m	lbs/ft	kN	Tonnes	Tons
52		11.7	7.86	10.2	6.84	2231	227	251
54	2 1/8	12.6	8.48	11.0	7.38	2406	245	270
56		13.6	9.12	11.8	7.93	2587	264	291
57.2	2 1/4	14.2	9.51	12.3	8.28	2699	275	303
60		15.6	10.5	13.6	9.11	2970	303	334
60.3	2 3/8	15.7	10.6	13.7	9.20	3000	306	337
63.5	2 1/2	17.5	11.7	15.2	10.2	3326	339	374
64		17.7	11.9	15.4	10.4	3379	344	380
66.7	2 5/8	19.3	12.9	16.8	11.3	3670	374	413
68		20.0	13.4	17.4	11.7	3815	389	429
69.9	2 3/4	21.2	14.2	18.4	12.4	4031	411	453
72		22.4	15.1	19.5	13.1	4277	436	481
76		25.0	16.8	21.8	14.6	4765	486	536
76.2	3	25.1	16.9	21.9	14.7	4790	488	538
80		27.7	18.6	24.1	16.2	5280	538	593
82.6	3 1/4	29.5	19.8	25.7	17.3	5629	574	633
84		30.6	20.5	26.6	17.8	5821	593	654
88		33.5	22.5	29.2	19.6	6389	651	718
88.9	3 1/2	34.2	23.0	29.8	20.0	6520	665	733
92		36.6	24.6	31.9	21.4	6559	669	737
95.3	3 3/4	39.3	26.4	34.2	23.0	7038	717	791
96		39.9	26.8	34.7	23.3	7142	728	803
100		43.3	29.1	37.7	25.3	7750	790	871
101.6	4	44.7	30.0	38.9	26.1	8000	815	899
108	4 1/4	50.5	33.9	43.9	29.5	8306	847	934
114.3	4 1/2	56.6	38.0	49.2	33.0	9303	948	1046
120.7	4 3/4	63.1	42.4	54.9	36.8	10374	1057	1166
127	5	69.8	46.9	60.8	40.8	11485	1171	1291

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35LS

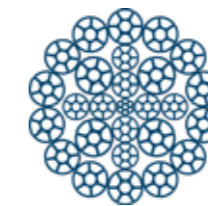


35LS is a conventional low rotation resistant rope consisting of three layers of strands: the inner two layers spun in the opposite direction to the outer layer of strands manufactured in accordance with EN 12385.

- ✓ Rotation resistant
- ✓ Flexible rope construction
- ✓ For use on single layer drums only



50 DB Series



50 DB Series ropes are compacted rotation resistant constructions consisting of an inner part with an outer layer of strands spun in the opposite direction.

- ✓ Rotation resistant
- ✓ Good wear characteristics due to its smooth exterior profile
- ✓ High category breaking strength
- ✓ Recommended for limited lifting heights only



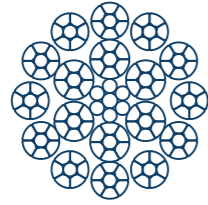
BlueStrand		35LS				
Diameter		Nominal length mass		Minimum Breaking Force		
				EIP/1960		
mm	inch	kg/m	lb/ft	kN	Tons (short)	Tonnes (metric)
10		0.45		75.5		7.69
11		0.54		91.3		9.31
12		0.65		109		11.1
13		0.76		128		13.0
14		0.88		148		15.1
15		1.01		170		17.3
16		1.15		193		19.7
18		1.46		244		24.9
19		1.62		272		27.8
20		1.80		302		30.8
21		1.98		333		33.9
22		2.18		365		37.2
23		2.38		399		40.7
24		2.59		435		44.3
25		2.81		472		48.1
26		3.04		510		52.0
28		3.53		592		60.3
32		4.61		773		78.8

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BlueStrand		50 DB Series				
Diameter		Nominal length mass		Minimum Breaking Force		
				EIP/1960		
mm	inch	kg/m	lb/ft	kN	Tons (short)	Tonnes (metric)
	5/16	0.297	0.200	57.2	6.43	5.83
8.00		0.302	0.203	57.2	6.43	5.83
9.00		0.382	0.257	72.4	8.14	7.38
	3/8	0.428	0.288	81.1	9.12	8.27
10.0		0.472	0.317	89.4	10.0	9.12
11.0		0.571	0.384	108	12.1	11.0
	7/16	0.583	0.392	108	12.1	11.0
12.0		0.680	0.457	129	14.5	13.2
	1/2	0.761	0.512	144	16.2	14.7
13.0		0.798	0.536	151	17.0	15.4
14.0		0.925	0.622	175	19.7	17.8
	9/16	0.964	0.647	183	20.6	18.7
15.0		1.06	0.714	201	22.6	20.5
	5/8	1.19	0.799	229	25.7	23.4
16.0		1.21	0.812	229	25.7	23.4
17.0		1.36	0.917	258	29.0	26.3
18.0		1.53	1.03	289	32.5	29.5
19.0		1.70	1.14	323	36.3	32.9
	3/4	1.71	1.15	323	36.3	32.9
20.0		1.89	1.27	357	40.1	36.4
21.0		2.08	1.40	393	44.2	40.1
22.0		2.28	1.54	432	48.6	44.1
	7/8	2.33	1.57	422	47.4	43.0
23.0		2.50	1.68	473	53.2	48.2
24.0		2.72	1.83	515	57.9	52.5
25.0		2.95	1.98	559	62.8	57.0
	1	3.05	2.05	576	64.7	58.7
26.0		3.19	2.14	604	67.9	61.6

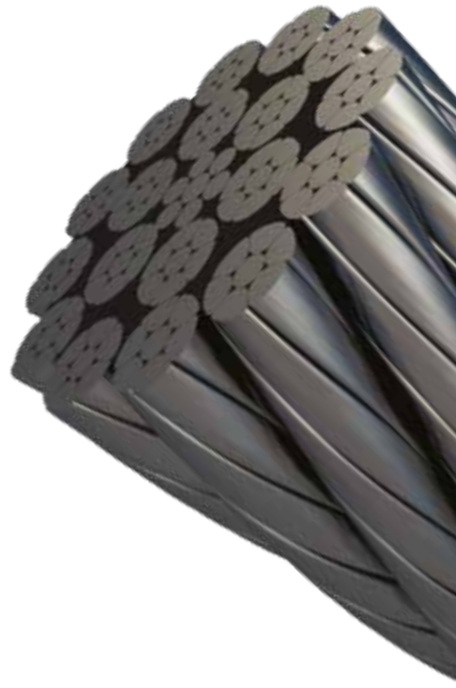
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18 Series

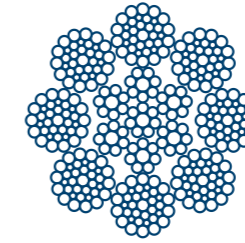


The 18 series is a compacted rotation resistant rope construction consisting of an inner part with an outer layer of strands spun in the opposite direction.

- ✓ Rotation resistant
- ✓ Good wear characteristics due to its smooth exterior profile
- ✓ High category breaking strength
- ✓ Recommended for limited lifting heights only



8 Series



The 8 Series is a range of general purpose 8 stranded galvanised ropes produced with a steel core, fully lubricated during manufacture producing in accordance with EN 12385.

- ✓ Flexible and solid rope construction
- ✓ Higher performance level compared to 6 series
- ✓ For use on single layer drums only



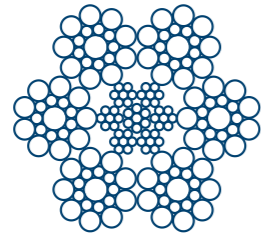
BlueStrand		18 Series				
Diameter		Nominal length mass		Minimum Breaking Force		
				EIP/1960		
mm	inch	kg/m	lb/ft	kN	Tons (short)	Tonnes (metric)
	3/8	0.454	0.305	76.6	8.61	7.81
10.0		0.500	0.336	84.4	9.49	8.61
11.0		0.605	0.407	104	11.7	10.6
	7/16	0.617	0.415	104	11.7	10.6
12.0		0.720	0.484	122	13.7	12.4
	1/2	0.806	0.542	136	15.3	13.9
13.0		0.845	0.568	143	16.1	14.6
14.0		0.980	0.659	165	18.5	16.8
	9/16	1.02	0.686	172	19.3	17.5
15.0		1.13	0.756	190	21.4	19.4
	5/8	1.26	0.847	216	24.3	22.0
16.0		1.28	0.860	216	24.3	22.0
17.0		1.45	0.971	244	27.4	24.9
18.0		1.62	1.09	274	30.8	27.9
19.0		1.81	1.21	306	34.4	31.2
	3/4	1.81	1.22	306	34.4	31.2
20.0		2.00	1.34	337	37.9	34.4
21.0		2.21	1.48	372	41.8	37.9
22.0		2.42	1.63	416	46.8	42.4
	7/8	2.47	1.66	416	46.8	42.4
23.0		2.65	1.78	446	50.1	45.5
24.0		2.88	1.94	486	54.6	49.6
25.0		3.13	2.10	527	59.2	53.7
	1	3.23	2.17	544	61.1	55.5
26.0		3.38	2.27	570	64.1	58.1
27.0		3.65	2.45	615	69.1	62.7
28.0		3.92	2.63	661	74.3	67.4
	1 1/8	4.08	2.74	688	77.3	70.2
29.0		4.21	2.83	709	79.7	72.3
30.0		4.50	3.02	759	85.3	77.4
	1 1/4	5.04	3.39	863	97.0	88.0
32.0		5.12	3.44	863	97.0	88.0
34.0		5.78	3.88	975	110	99.4
	1 3/8	6.10	4.10	1030	116	105
36.0		6.48	4.35	1090	123	111
38.0		7.22	4.85	1210	136	123
	1 1/2	7.26	4.88	1210	136	123

BlueStrand		8 Series							
Diameter		Nominal length mass		Minimum Breaking Force					
				EIP/1960			EEIP/2160		
mm	inch	kg/m	lb/ft	kN	Tons (short)	Tonnes (metric)	kN	Tons (short)	Tonnes (metric)
12.0		0.586	0.394	100	11.2	10.2	111	12.5	11.3
	1/2	0.656	0.441	113	12.7	11.5	124	13.9	12.6
13.0		0.688	0.462	118	13.3	12.0	130	14.6	13.3
14.0		0.798	0.536	137	15.4	14.0	151	17.0	15.4
	9/16	0.831	0.558	142	16.0	14.5	157	17.6	16.0
	5/8	1.03	0.689	179	20.1	18.3	197	22.1	20.1
16.0		1.04	0.700	179	20.1	18.3	197	22.1	20.1
18.0		1.32	0.886	226	25.4	23.0	249	28.0	25.4
19.0		1.47	0.987	252	28.3	25.7	278	31.2	28.3
	3/4	1.48	0.993	252	28.3	25.7	278	31.2	28.3
20.0		1.63	1.09	279	31.4	28.4	308	34.6	31.4
22.0		1.97	1.32	338	38.0	34.5	372	41.8	37.9
	7/8	2.01	1.35	338	38.0	34.5	372	41.8	37.9
24.0		2.34	1.58	402	45.2	41.0	443	49.8	45.2
	1	2.63	1.76	450	50.6	45.9	496	55.8	50.6
26.0		2.75	1.85	472	53.1	48.1	520	58.5	53.0
28.0		3.19	2.14	547	61.5	55.8	603	67.8	61.5
	1 1/8	3.32	2.23	570	64.1	58.1	628	70.6	64.0
30.0		3.66	2.46	628	70.6	64.0	692	77.8	70.6
	1 1/4	4.10	2.76	715	80.4	72.9	787	88.5	80.3
32.0		4.17	2.80	715	80.4	72.9	787	88.5	80.3
34.0		4.70	3.16	807	90.7	82.3	889	100	90.7
	1 3/8	4.96	3.34	851	95.7	86.8	938	105	95.6
36.0		5.27	3.54	904	102	92.2	997	112	102
38.0		5.88	3.95	1010	114	103	1110	125	113
	1 1/2	5.91	3.97	1010	114	103	1110	125	113

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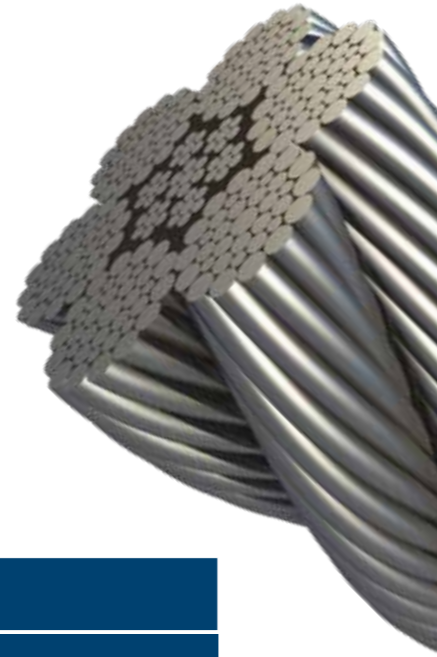
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6 Series



The 6 Series is a range of general purpose 6 stranded galvanised ropes produced with a steel core, fully lubricated during manufacture producing in accordance with EN 12385 and API 9A.

- ✓ Fit-for-purpose, robust rope construction
- ✓ Fully lubricated during manufacture
- ✓ For use on single layer drums only



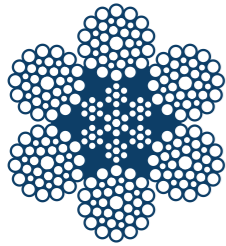
general guidance.
General guidance on rope selection

BlueStrand		6 Series									
Diameter	Nominal length mass		Minimum Breaking Force								
			IP/1770			EIP/1960			EEIP/2160		
mm	kg/m	lbs/ft	kN	Tonnes	2000lbs	kN	Tonnes	2000lbs	kN	Tonnes	2000lbs
10	0.42	0.28	69.90	7.13	7.86	77.40	7.89	8.70	85.30	8.70	9.59
12	0.61	0.41	100.00	10.19	11.24	111.00	11.31	12.48	122.00	12.44	13.71
14	0.83	0.56	137.00	13.97	15.40	151.00	15.39	16.97	167.00	17.02	18.77
16	1.08	0.73	179.00	18.25	20.12	198.00	20.18	22.26	218.00	22.22	24.50
18	1.37	0.92	226.00	23.04	25.40	250.00	25.48	28.10	276.00	28.13	31.02
20	1.69	1.13	279.00	28.44	31.36	309.00	31.50	34.73	341.00	34.76	38.33
22	2.05	1.38	338.00	34.45	37.99	374.00	38.12	42.04	413.00	42.10	46.42
24	2.44	1.64	402.00	40.98	45.18	446.00	45.46	50.13	491.00	50.05	55.19
26	2.88	1.93	476.00	48.52	53.50	527.00	53.72	59.23	581.00	59.23	65.30
32	4.37	2.93	721.00	73.50	81.04	799.00	81.45	89.81	881.00	89.81	99.02
38	6.16	4.14	1010.00	102.96	113.52	1120.00	114.17	125.89	1240.00	126.40	139.38
44	8.26	5.55	1360.00	138.63	152.86	1510.00	153.92	169.72	1660.00	169.22	186.58
48	9.90	6.65	1630.00	166.16	183.21	1810.00	184.51	203.44	1900.00	193.68	213.56
52	11.60	7.79	1910.00	194.70	214.68	2120.00	216.11	238.29	2230.00	227.32	250.65
60	15.50	10.41	2550.00	259.94	286.62	2820.00	287.46	316.97	2970.00	302.75	333.83
64	17.60	11.82	2900.00	295.62	325.96	3210.00	327.22	360.80			
72	22.30	14.97	3670.00	374.11	412.51	4070.00	414.88	457.47			
76	24.80	16.65	4090.00	416.92	459.72	4530.00	461.77	509.17			
80	27.50	18.46	4540.00	462.79	510.30	5020.00	511.72	564.25			
88	33.10	22.22	5450.00	555.56	612.58	6040.00	615.70	678.90			
92	36.20	24.30	5960.00	607.54	669.90						
96	39.40	26.45	6490.00	661.57	729.48						

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Wire rope guidance

To help you understand the complex nature of wire rope this guide aims to impart an understanding of the key factors that need to be considered and correctly balanced when choosing which type of rope will provide optimum service life and safety for a specific task, type of machinery and working environment.



An example rope nomenclature for the rope shown above is given below;

6 x 36WS - IWRC 1960 B sZ

What it means;

6 = numbers of strands

36 = number of wires in each strand

1-7-7+7-14 = Lay-up of wires in the strand

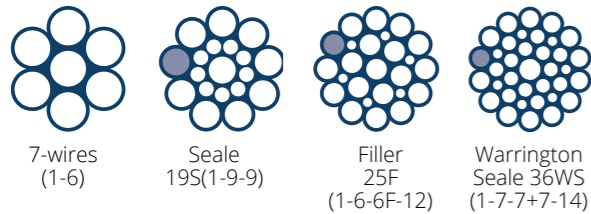
IWRC = Type of core

1960 = Rope grade

B = Drawn galvanised B(Zn)

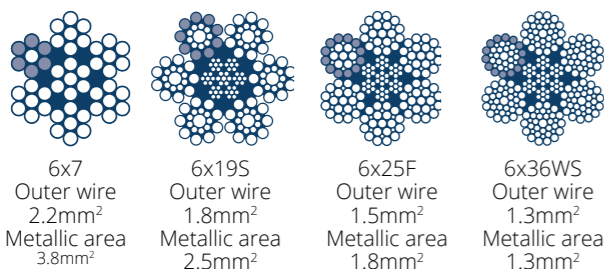
sZ = Right Hand Ordinary (RHO) Lay

Equal lay strand constructions



6-stranded rope constructions

(for example nominal diameter 22mm)



The rope lay of a wire rope may be described as;

sZ = Right hand ordinary/regular lay

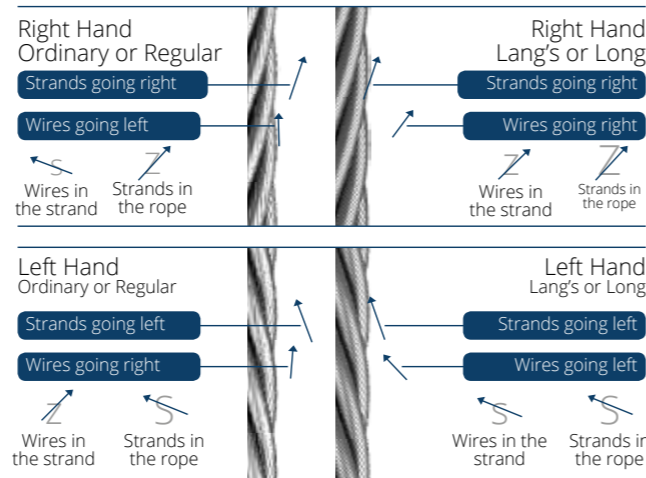
zZ = Right hand lang's lay

aZ = Right hand alternate lay

zS = Left hand ordinary/regular lay

SS = Left hand lang's lay

aS = Left hand alternate lay



Lang's lay ropes offer greater wear resistance and minimise spooling damage at the cross-over zones when multi-layer wound on winch drum.

Wire ropes can also be swaged or Dyformed after completion, further increasing the steel fill factor, whilst creating a smooth surface to the exterior of the rope.

Cores

Steel Wire ropes are supplied with either fibre or steel cores, the choice being largely dependent on the use for which the rope is intended.

The principal function of the core is to provide support to the strands and maintain them in the correct positions under working conditions.

Steel Cores

Steel cores comprise an independent wire rope (IWRC) or in the case of small ropes, a wire strand (WSC). Such cores prove advantageous in severe working conditions involving low factors of safety, high operating speeds, wide fleet angles and are more resistant to crushing on drums and pulleys. The steel core provides better support for the outer strands, so that the rope retains its shape, resulting in a more effective distribution of stress in the individual wires.

Preforming

Generally, ropes are supplied preformed. In a preformed rope the wires and strands are given the helix they take up in the completed rope.

Coatings

Zinc Coated Wire Ropes – Galvanising

Zinc coatings provide sacrificial protection to the underlying steel wire for protection against corrosion where the rope is exposed to corrosive agents – salt, water, moisture, weather etc.

Various coat weights of zinc are available for particular application; Bridon is ready to advise on the alternative procedures for achieving corrosion protection of wire rope appropriate to the particular environment and manner of usage.

Rope Grades

Rope Grade	Approximate Equivalent API 9A Grade
1770	IPS
1860	EIPS
1960	EIPS
2160	EEIP

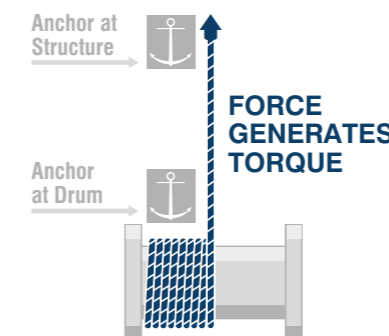
Definition of Breaking Loads and Forces

1. Minimum Breaking Force: The force, in kilonewtons or pounds force below which the rope shall not break when tested to destruction.
2. Minimum Breaking Load: The load in tonnes or tons corresponding to the minimum breaking force.
3. Minimum aggregate breaking force: The value calculated from the product of the sum of the cross-sectional metallic areas of all the individual wires in the rope and the tensile strength grades(s) of the wires.

Note: The minimum aggregate breaking force is sometimes used when Regulations permit, particularly in Europe. There is a direct relationship between minimum aggregate breaking force and minimum breaking force (through the spinning loss) and users must be absolutely sure that they are comparing like for like when ordering replacement ropes.

When selecting a steel wire rope to suit a particular application the following characteristics should be taken into consideration.

- Strength
- Rotation resistance
- Fatigue resistance
- Resistance to wear and abrasion
- Resistance to crushing
- Resistance to corrosion
- Rope extension



Strength

The responsibility for determining the minimum strength of a rope for use in a given system rests with the manufacturer of the machine, appliance, or lifting equipment. As part of this process the manufacturer of the machine, appliance or lifting equipment will need to be aware of any local regulations, standards or codes of practice which might govern the design factor of the rope (often referred to nowadays as the coefficient of utilisation), and other factors which might influence the design of sheaves and drums, the shape of the groove profiles and corresponding radius, the drum pitch and the angle of fleet, all of which have an effect on rope performance.

Once the strength (referred to as minimum breaking force or minimum breaking load) of the rope has been determined it is then necessary to consider which type of rope will be suitable for the intended duty. It is important therefore for the designer to be fully aware of the properties, characteristics and limitations on use of the many different kinds of steel wire ropes which are available.

IMPORTANT NOTE FOR CRANE OPERATORS

Bridon-Bekaert recommends that once the machine, appliance or lifting equipment has been taken into service, any replacement rope should possess the required characteristics for the duty in question and should, as a minimum, at least comply with the minimum guaranteed breaking force stated by the original equipment manufacturer.

Resistance to Rotation

It is important to determine whether there is a requirement to use a low rotation or rotation resistant rope. Such ropes are often referred to as multi-strand ropes.

Six or eight strand rope constructions are usually selected unless load rotation on a single part system or "cabling" on a multi-part reeving system are likely to cause operational problems.

When loaded, steel wire ropes will generate:

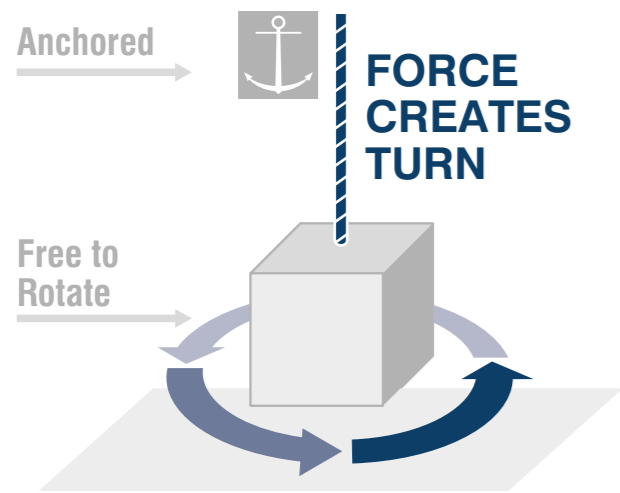
- "Torque" if both ends are fixed
- "Turn" if one end is unrestrained

Torque

When both ends of a rope are fixed, the applied force generates "torque" at the fixing points.

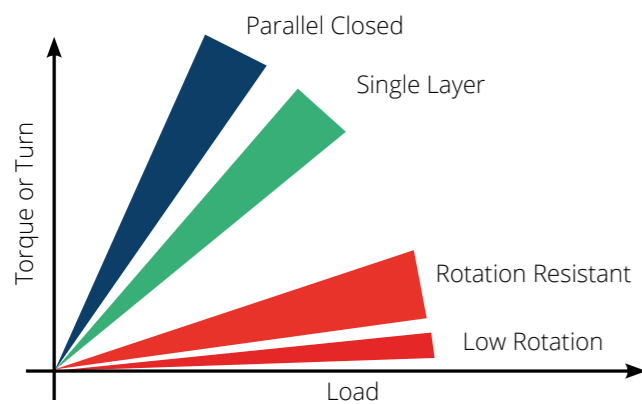
Turn

When one end of a rope is free to rotate, the applied load causes the rope to turn.



The torque or turn generated will increase as the load applied increases. The degree to which a wire rope generates torque or turn will be influenced by the construction of the rope. Having recognised what can happen when a rope is loaded it is necessary to select the correct type of rope. It should be noted that all ropes will rotate to some degree when loaded.

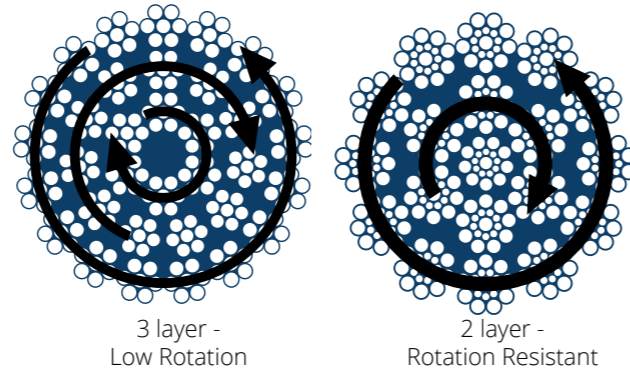
The diagram below serves to illustrate the differences in rotational properties between the four basic types of stranded rope.



Specific information including the torque factor and the turn value expressed in degrees per lay length for individual rope constructions can be found on page 47.

The tendency for any rope to turn will increase as the height of lift increases. In a multi-part reeving system the tendency for the rope to cable will increase as the spacing between the parts of rope decreases. Selection of the correct rope will help to prevent "cabling" and rotation of the load.

"Endurance" low rotation and rotation resistant ropes ensure that problems associated with cabling and load rotation are minimised.



Bridon is pleased to offer advice on any specific problems associated with rope rotation.

Fatigue Resistance

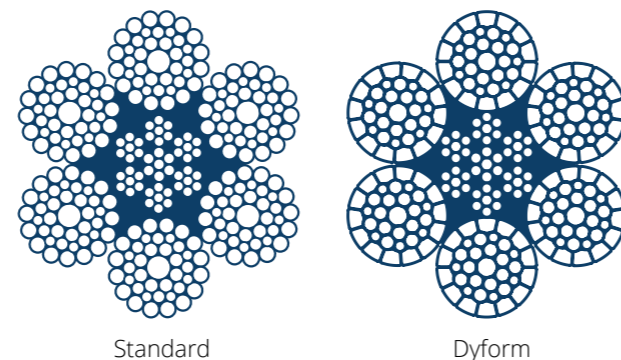
Steel wire ropes are likely to deteriorate due to bend fatigue when subjected to bending around a sheave or drum. The rate of deterioration will be influenced by the number of sheaves in the system, the diameter of the sheaves and drum, and the loading conditions.

Bridon carries out extensive testing on their products, providing comparative fatigue data to allow customers to make an informed choice.

When selecting a wire rope for an application where bending fatigue is a principal cause of deterioration it is important to select a rope containing small wires e.g.

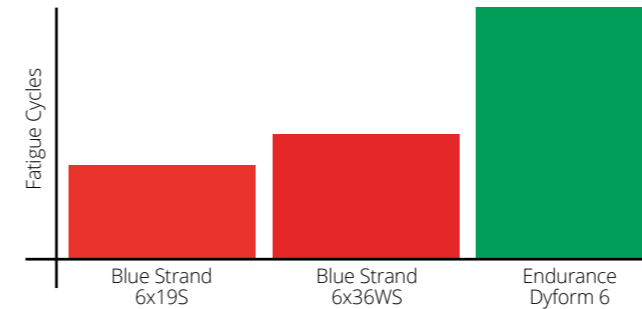
6x36WS(1-7-7+7-14) as opposed to a 6x19S(1-9-9).

Additional resistance to fatigue leading to real cost savings can be achieved by selecting a "Dyform" wire rope.



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.

This graph illustrates a "doubling" in life when moving

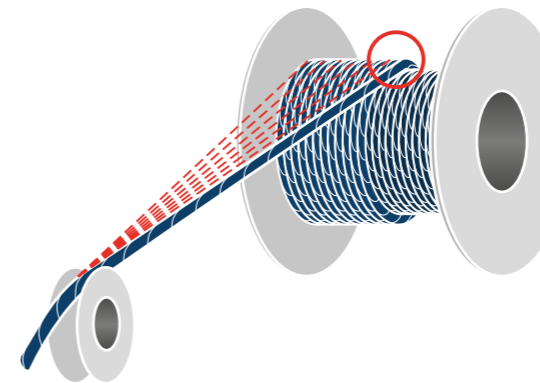


from Blue Strand 6x36 to Endurance Dyform 6. This same relationship can be found when moving from any construction into an equivalent Dyform construction e.g. 18x7 to Endurance Dyform 18 or 35x7 to Endurance Dyform 34LR.

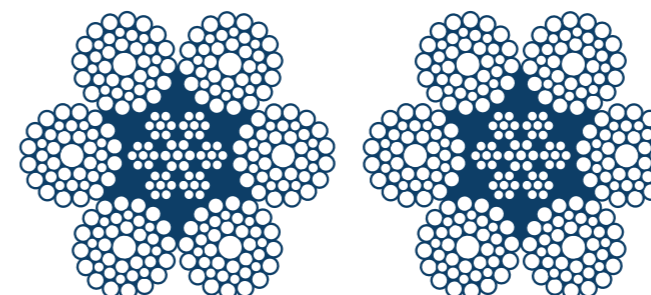
Resistance to Abrasive Wear

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.

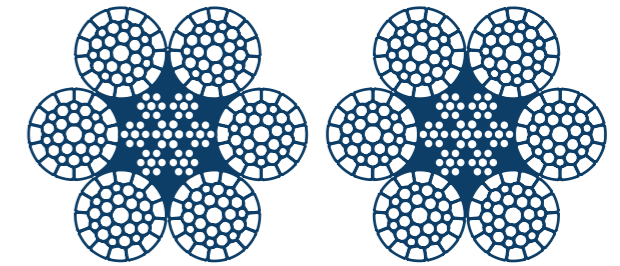


Wire rope on adjacent drum laps can cause point contact and accelerated wear.



Non Dyform wire rope on adjacent drum laps can cause point contact and accelerated wear.

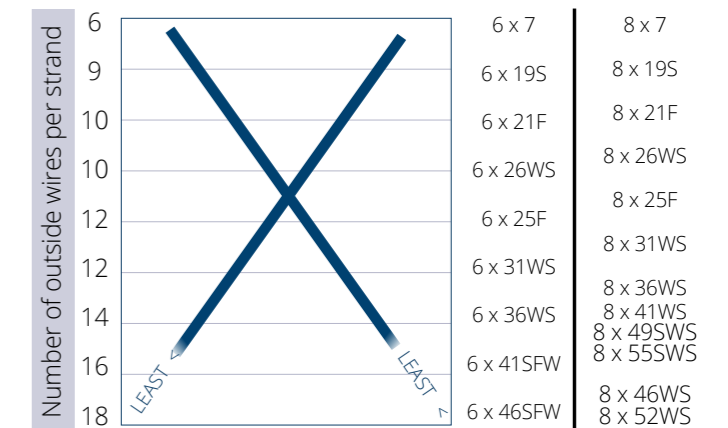
Selection of a Dyform product will reduce abrasion through improved contact conditions.



The smooth surface of Dyform rope creates better contact and leads to longer life.

Abrasion Resistance vs Bending Fatigue Resistance

When choosing a rope for a specific application it is often necessary to reach a balance between the two important rope characteristics of abrasion resistance and the resistance to bending fatigue. An established method of determining the best construction for the rope for the particular operating conditions is by use of the "X-Chart". By referring to this chart when selecting a rope, the mid-point of the "X" comes closest to a balance between resistance to abrasion and resistance to bending fatigue. As with most engineering challenges, some degree of compromise and trade off of the two properties may be required in order to choose the best rope for the application. This will ultimately depend on the prevailing conditions under which the rope will be expected to operate in and the need to reach an efficient, economical solution.

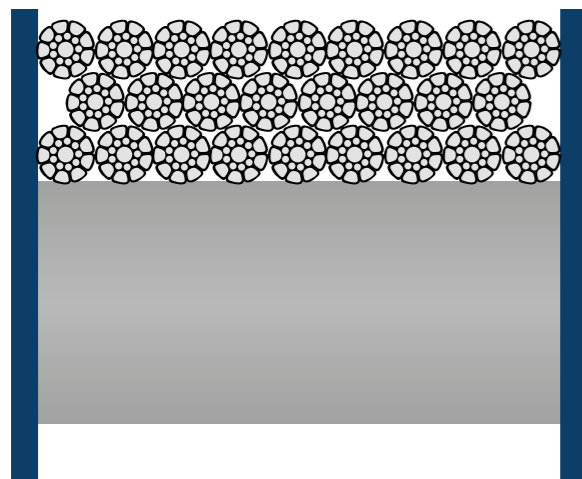


Crush Resistance

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 underlying rope layers is inevitable e.g. a boom hoist rope raising a boom from the horizontal position, severe crushing damage can be caused to underlying layers. Selection of a steel core as opposed to a fibre core will help this situation. Additional resistance to crushing is offered by a Dyform rope resulting from its high steel fill-factor.

Dyform ropes are recommended for multi-layer coiling operations where crushing on lower layers is inevitable.

Rotary hammer swaged Constructex ropes excel to combat problem spooling to minimise damage and crushing on the drum.



Corrosion resistance

If the wire rope is to be used in a corrosive environment then a galvanised coating is recommended. If corrosion is not a significant issue then a bright rope can be selected.

Where moisture can penetrate the rope and attack the core, plastic impregnation (PI) can be considered.

In order to minimise the effects of corrosion it is important to select a wire rope with a suitable manufacturing lubricant. Further advantages can be gained by lubricating the rope regularly whilst it is in service.

Properties of Extension of Steel Wire Ropes

Any assembly of steel wires spun into a helical formation either as a strand or wire rope, when subjected to a tensile load, can extend in three separate phases, depending on the magnitude of the applied load.

There are also other factors which produce rope extension which are very small and can normally be ignored.

Phase 1 - Initial or Permanent

Constructional Extension

At the commencement of loading a new rope, extension is created by the bedding down of the assembled wires with a corresponding reduction in overall diameter.

This reduction in diameter creates an excess length of wire which is accommodated by a lengthening of the helical lay. When sufficiently large bearing areas have been generated on adjacent wires to withstand the circumferential compressive loads, this mechanically created extension ceases and the extension in Phase 2 commences. The Initial Extension of any rope cannot be accurately determined by calculation and has no elastic properties.

The practical value of this characteristic depends upon many factors, the most important being the type and construction of rope, the range of loads and the number and frequency of the cycles of operation. It is not possible to quote exact values for the various constructions of rope in use, but the following approximate values may be employed to give reasonably accurate results.

	% of rope length	
	Fibre Core	Steel Core
Lightly loaded Factor of safety about 8:1	0.25	0.125
Normally loaded Factor of safety about 5:1	0.50	0.25
Heavily loaded Factor of safety about 3:1	0.75	0.50
Heavily loaded with many bends and/or deflections	Up to 2.00	Up to 1.00

The above figures are for guidance purposes. More precise figures are available upon request.

Phase 2 - Elastic Extension

Following Phase 1, the rope extends in a manner which complies approximately with Hooke's Law (stress is proportional to strain) until the Limit of Proportionality or Elastic Limit is reached.

It is important to note that wire ropes do not possess a Young's Modulus of Elasticity, but an 'apparent' Modulus of Elasticity can be determined between two fixed loads.

The Modulus of Elasticity also varies with different rope constructions, but generally increases as the cross-sectional area of steel increases.

By using the values given, it is possible to make a reasonable estimate of elastic extension, but if greater accuracy is required it is advisable to carry out a modulus test on an actual sample of the rope.

$$\text{Elastic Extension} = \frac{WL}{EA} \text{ mm}$$

W = load applied (kN)
L = rope length (m)
EA = axial stiffness MN

Phase 3 - Permanent Extension

The permanent, non-elastic extension of the steel caused by tensile loads exceeding the yield point of the material.

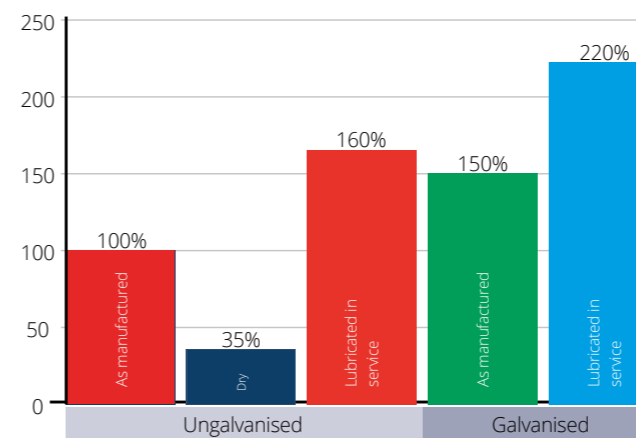
If the load exceeds the Limit of Proportionality, the rate of extension will accelerate as the load is increased, until a loading is reached at which continuous extension will commence, causing the wire rope to fracture without any further increase of load.

Lubrication

During the wire rope manufacturing process, the space between the wires is normally filled with petroleum based grease, these greases having a temperature operating range typically of 0°C to +60°C. Synthetic grease with an operating temperature range of -40°C to +90°C may be incorporated. It is important when specifying a particular rope to consider the type of lubricant required for the application and the amount of lubricant required on the exterior of the rope, as the tendency is to produce ropes with less grease on their exterior.

Lubricants may be applied to wire ropes during service to both increase their fatigue performance and protect the ropes from corrosion.

Typical wire rope bend fatigue results (Bridon Endurance Dyform 34LR)



General Notes

Galvanized

The Bridon group has the capability to offer any crane product in either Bright or Galvanized finish. Typically, cranes use Bright ropes in North American and Galvanized ropes in the European Union and the GOM. Globally, local usage standards, application conditions and preference may define the actual rope finish selected.

Smooth Drum

"When using multi-strand, rotation resistant products in multi-layer applications, the use of Lebus type grooved drums may provide superior spooling performance over smooth faced drums."

Minimum Breaking Force

Many wire rope applications, mobile cranes and deep water mooring systems in particular benefit from very high strength to weight ratios. As a result, designers are constantly pushing the specific strength envelope of the wire rope used in their products. Bridon and many other rope companies have responded to these requirements with innovative materials and manufacturing techniques to push rope strengths past the highest values listed in national and international standards.

Properties like strength, fatigue life, crush resistance and stability of physical properties are a function of the materials used, geometry of the design and manufacturing processes employed in the specific rope configuration. Optimizing the configuration to produce highest strength is not achieved without effecting other properties. Fatigue life and long term stability of physical properties are most affected by the techniques employed to produce extremely high strength wire rope. Because of these effects, characteristics of extremely high strength rope need to be understood for specific applications. Please contact Bridon Technical sales to review your specific use.

Cross Sections

The cross section image is for reference only. Actual cross sections vary due to diameter.

Assessing the safe operating condition of steel wire ropes

Bridon-Bekaert recommends that the condition assessment of wire rope be carried out by a suitably qualified competent person against the requirements of BS ISO 4309.

Table 1: Rope Category Numbers for Non-Rotation Resistant Rope

Brand Name	Rope	Strand	RCN
6 Series 6x19	6 x 19S-IWRC	1-9-9	02
	6 x 25F-IWRC	1-6-6F-12	04
	6 x 26WS-IWRC	1-5-5+5-10	06
6 Series 6x36	6 x 31 WS-IWRC	1-6-6+6-12	08
	6 x 36WS-IWRC	1-7-7+7-14	09
	6 x 41 WS-IWRC	1-8-8+8-16	11
Dyform 6 Series Dyform 6	6 x K19S-IWRC	1-9-9	02
	6 x K26WS-IWRC	1-5-5+5-10	06
	6 x K36WS-IWRC	1-7-7+7-14	09
	6 x K41WS-IWRC	1-8-8+8-16	11
Dyform 6 Series Dyform Bristar 6	6 x K19S-EPIWRC	1-9-9	02
	6 x K26WS-EPIWRC	1-5-5+5-10	06
	6 x K36WS-EPIWRC	1-7-7+7-14	09
	6 x K41WS-EPIWRC	1-8-8+8-16	11
Dyform 8 Series Dyform 8	8 x K19S-IWRC	1-9-9	04
	8 x K26WS-IWRC	1-5-5+5-10	09
	8 x K36WS-IWRC	1-7-7+7-14	13
Dyform 8 Series Dyform 8PI	8 x K19S-EPIWRC	1-9-9	04
	8 x K26WS-EPIWRC	1-5-5+5-10	09
	8 x K36WS-EPIWRC	1-7-7+7-14	13
Dyform 8 Series Dyform DSC8	8 x K19S-PWRC	1-9-9	04
	8 x K26WS-PWRC	1-5-5+5-10	09
8 Series	8 x 19S-IWRC	1-9-9	04
	8 x 25F-IWRC	1-6-6F-12	06
	8 x 36WS-IWRC	1-7-7+7-14	13
Constructex	K(3x40FC+3x24FC)-PWRC	FC-8-8-8F-16 FC-6-6F-12	06

Table 2: Rope Category Numbers for Rotation Resistant Rope

Brand Name	Rope	Strand	RCN
18 Series	18 x K7-WSC	1-6	23-1
50DB Series	26 x K7-WSC	1-6	23-1
Dyform 34LR	35(W) x K7-WSC	1-6	23-2
	35(W) x K19S-WSC	1-9-9	31
35LS	35(W) x 7-WSC	1-6	23-2
	35(W) x 19S-WSC	1-9-9	31

Discard criteria: Rotation-resistant ropes

For guidance on discard of steel wire ropes, the tables below taken from (1) should be used. When using this information in an official capacity, the latest version of the standard should be checked.

Rope category number RCN	Total number of load-bearing wires in the outer layer of strands in the rope (n)	Number of visible outer broken wires (b)			
		Sections of rope working in steel sheaves and/or spooling on a single-layer spooling drum Wire breaks randomly distributed		Sections of rope spooling on a multi-layer spooling drum (c)	
		Over a length of ed (d)	Over a length of 30d (d)	Over a length of ed (d)	Over a length of 30d (d)
21	4 strands n ≤ 100 3 or 4 strands n ≤ 100 At least 11 outer strands	2	4	2	4
23-1	71 ≤ n ≤ 100	2	4	4	8
23-2	101 ≤ n ≤ 120	3	5	5	10
23-3	121 ≤ n ≤ 140	3	5	6	11
24	141 ≤ n ≤ 160	3	6	6	13
25	161 ≤ n ≤ 180	4	7	7	14
26	181 ≤ n ≤ 200	4	8	8	16
27	121 ≤ n ≤ 220	4	9	9	18
28	221 ≤ n ≤ 240	5	10	10	19
29	241 ≤ n ≤ 260	5	10	10	21
30	261 ≤ n ≤ 280	6	11	11	22
31	281 ≤ n ≤ 300	6	12	12	24
	n > 300	6	12	12	24

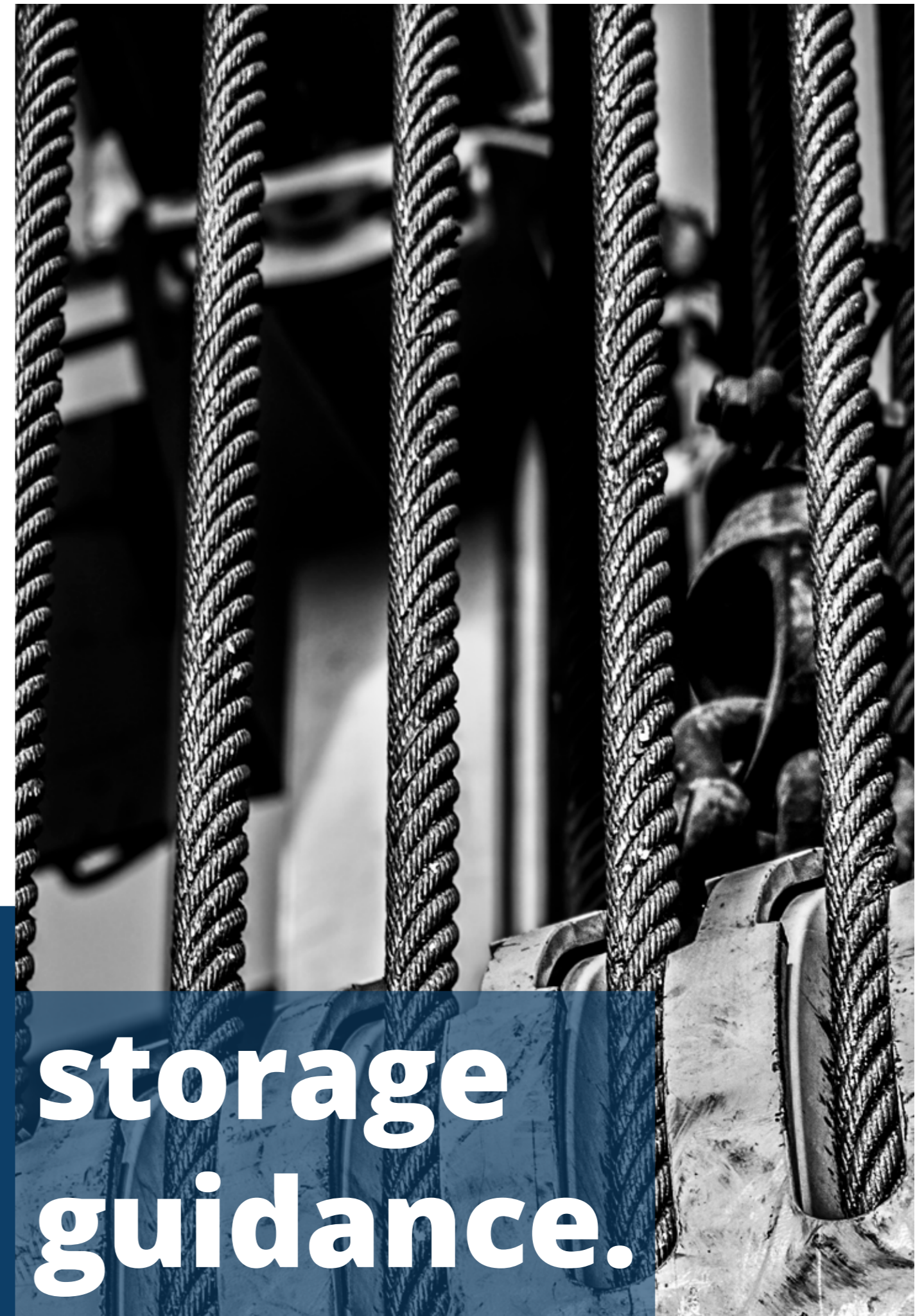
(1) BS ISO 4309 2017 Cranes- Wire Ropes- Care, Maintenance, Installation, Examination, and Discard.

Discard Criteria: Single-layer and parallel closed ropes

For guidance on discard of steel wire ropes, the tables below taken from (1) should be used. When using this information in an official capacity, the latest version of the standard should be checked.

Rope category number RCN	Total number of load-bearing wires in the outer layer of strands in the rope (n)	Number of visible outer broken wires (b)					
		Sections of rope working in steel sheaves and/or spooling on a single-layer spooling drum Wire breaks randomly distributed				Sections of rope spooling on a multi-layer spooling drum (c)	
		Classes M1 to M4 or class unknown (d)					
		Ordinary Lay		Lang's Lay		Ord & Lang's	
		Over a length of ed (e)	Over a length of 30d (e)	Over a length of ed (e)	Over a length of 30d (e)	Over a length of ed (e)	Over a length of 30d (e)
01	n ≤ 50	2	4	1	2	4	8
02	51 ≤ n ≤ 75	3	6	2	3	6	12
03	76 ≤ n ≤ 100	4	8	2	4	8	16
04	101 ≤ n ≤ 120	5	10	2	5	10	20
05	121 ≤ n ≤ 140	6	11	3	6	12	22
06	141 ≤ n ≤ 160	6	13	3	6	12	26
07	161 ≤ n ≤ 180	7	14	4	7	14	28
08	181 ≤ n ≤ 200	8	16	4	8	16	32
09	201 ≤ n ≤ 220	9	18	4	9	18	36
10	221 ≤ n ≤ 240	10	19	5	10	20	38
11	241 ≤ n ≤ 260	10	21	5	10	20	42
12	261 ≤ n ≤ 280	11	22	6	11	22	44
13	281 ≤ n ≤ 300	12	24	6	12	24	48
	n > 300	0,04 x n	0,08 x n	0,02 x n	0,04 x n	0,08 x n	

(1) BS ISO 4309 2017 Cranes- Wire Ropes- Care, Maintenance, Installation, Examination, and Discard.



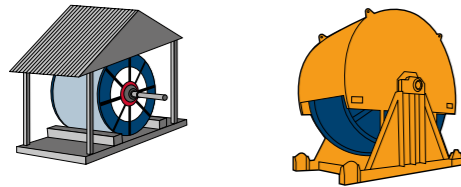
storage
guidance.

WIRE ROPE STORAGE

Ensure all ropes being taken into storage are clearly identified and are accompanied with a manufacturers certificate.

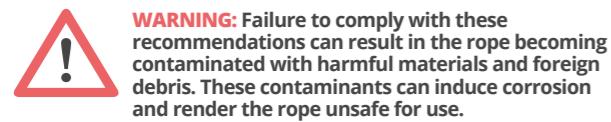
Store the rope off the ground or floor in a clean, dry, well-ventilated, covered location. If it is not possible to store it inside, cover it with waterproof material or a suitable structure to protect the rope from the sun and rain.

Note: Coverings should be such that water drains away, not become trapped.

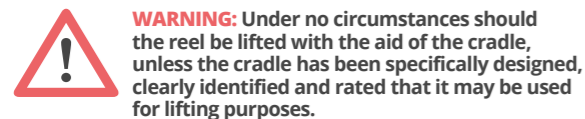
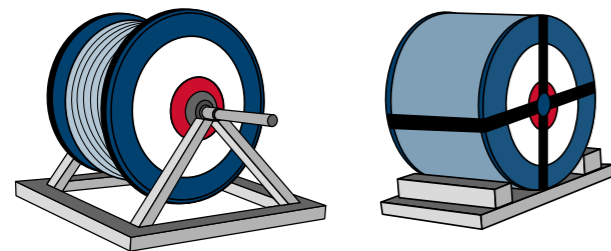


Ensure the floor or ground is level and capable of supporting the total mass of rope and reel. Bearers may be required to distribute the loading, although most steel reels will be supplied on cradles.

Make sure that there is a free flow of air around the rope and that it is isolated from direct contact with the floor or ground, chemical fumes, moisture, steam and other corrosive agents.



If supplied on a reel without a cradle, the whole package should be supported on a simple frame or cradle that is located on the ground and is capable of supporting the total mass of rope plus reel.



Rotate the reel periodically during long periods of storage, particularly in warm environments and climates, to minimise the migration of lubricant from the rope.

For very large reels of rope, where storing undercover is not practical, the reels will have been supplied on a cradle and the reel should be covered particularly for long term storage, with special protective sheet/tarpaulin to provide protection from the sun, wind, rain, etc.



WARNING: Properties of the rope may be affected i.e. reduction in breaking strength, if the rope is stored for long periods at elevated temperatures e.g. none temperature controlled warehouse; bottom of mine shaft, etc.

To minimise the possibility of condensation being trapped between the rope and the packaging, the covering may be secured direct to the cradle. This will allow air to the underside of the reel and rope.

Note 1: The picture illustrates packaging provided by Bridon-Bekaert where the wrapping on the supply reel is already anchored to the cradle and provision for ventilation is provided.

Note 2: The packaging material can be supplied with reflective outer coating and/or insulation to aid temperature control.

Reels which have been supplied fully wrapped may suffer from a build up of condensation between the rope and the packaging material, which can result in corrosion and deterioration of the rope. In these situations it may be necessary to replace the packaging or to ventilate the packaging.

Wire ropes in storage should not be exposed to temperatures above 90°C

Note: Extended exposure to high ambient temperatures can result in a significant higher rope temperature. Hence, where possible to optimise the service life of the rope, ambient temperatures should be maintained below 50°C

Make sure that the rope is protected in such a manner that it will not be exposed to any accidental damage either during storage or when placing the rope in, or taking the rope out of storage.

Wire ropes should be protected from windblown debris (sand, shot blast grit, etc) and stored away from welding activities.

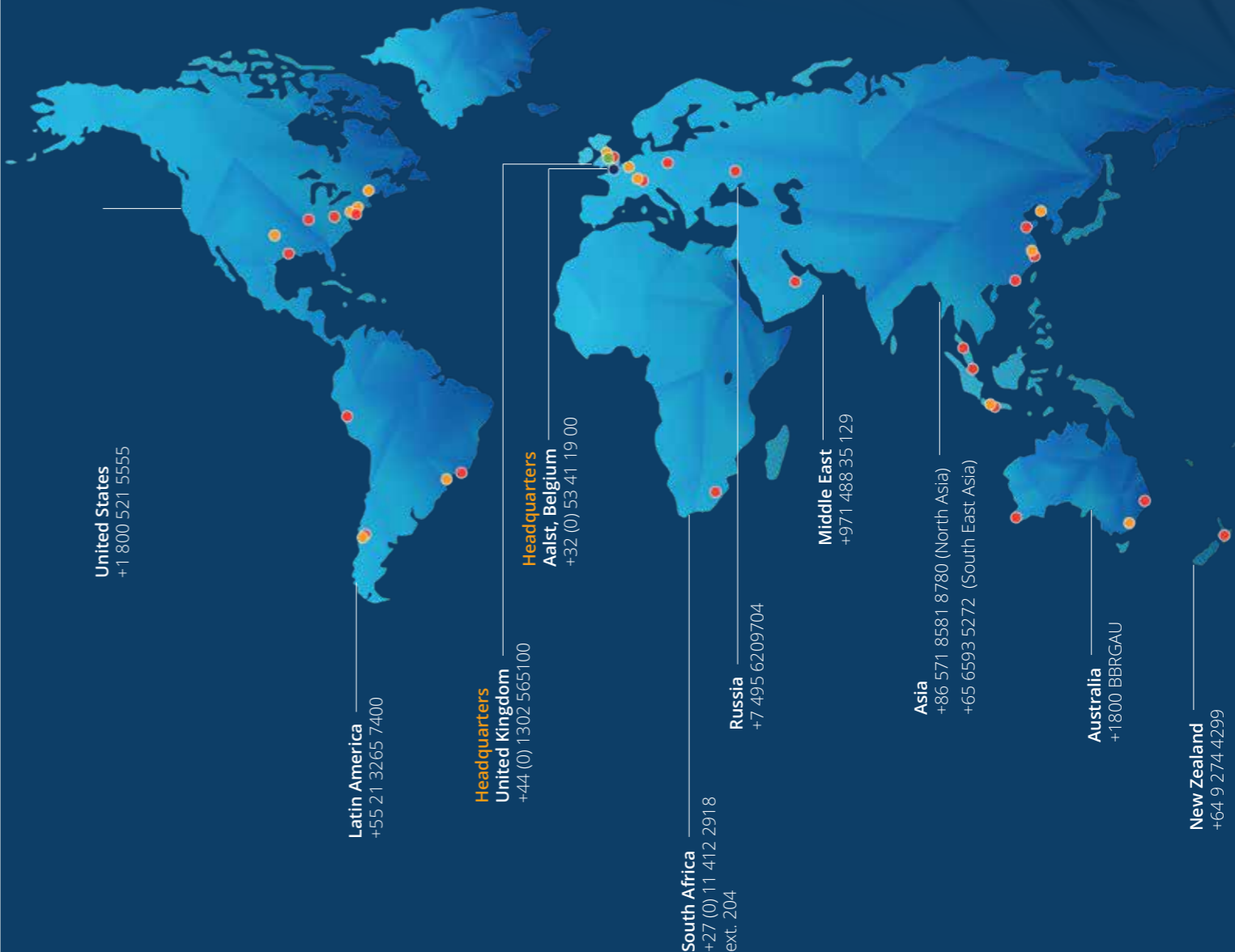
Wire ropes in storage should routinely (ideally every six months) and prior to being taken into use/service be inspected by a competent person for signs of damage/deterioration to either the rope or packaging. During the inspection, if signs of migration and/or deterioration of manufacturing lubricant are evident a suitable rope dressing which is compatible with the manufacturing lubricant should be applied. Contact Bridon-Bekaert or the rope supplier and follow the original equipment manufacturers instruction manual for guidance on recommended products or types of rope dressings, methods of application and equipment necessary to apply the dressing. Please contact Bridon-Bekaert for further advice on limitations to the storage of wire ropes.

Note: It is good practice to remove rope from the store on a 'first in, first out' basis, to minimise the time held in storage.



WARNING: Failure to apply the correct rope dressing can render the original manufacturing lubricant ineffective and reduce rope performance.

contact us.



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