Teufelberger · Redaelli

Products & Solutions for Offshore Applications

High Performance Steel Wire Ropes for the Oil & Gas and Renewable Energy Industries

Explanation of symbols

Options on request

Different wire surface coatings:
ungalvanized, drawn galvanized, hot dip galvanized or Zn95Al5 alloy

Prestretched:
in line prestretching process in order to minimize permanent elongation available for ropes diameter up to 80 mm

PLASTFILL® technology:
extrusion process to create a plastic layer around the rope core

EAL (biodegradable):
environmentally acceptable rope lubricant, VGP compliant

Wide operating temperature lubricant:
special rope lubricant capable of withstanding temperatures from -60 °C up to 150 °C

Double plastic sheathed:
extruded or co-extruded High Density Polyethylene (HDPE) sheathing

NDT during rope closing:
Magnetic Rope Testing (MRT)

Special accessories:
forged long term mooring sockets, bending stiffeners, etc.

Modular transport reel:
dismountable reusable reel, allowing huge cost savings

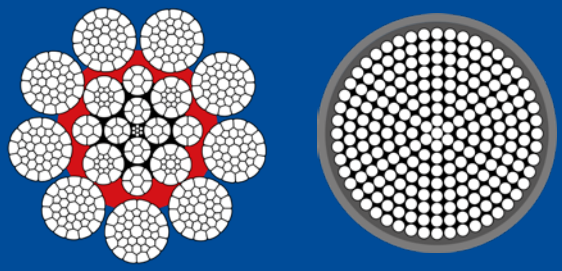
Reinforced transport reel:
reel specifically designed to withstand significant back tension up to 25 t

Longitudinal line:
axial line mark on sheathed ropes

Application engineering:
extensive technical and reliable analysis developed with our own models, based on lifting system, load spectrum and other input data

Cross section

- PLASTFILL® insert
- Lubricant
- Double plastic sheathing



Content

We are Teufelberger

Teufelberger Group CEO:
Florian Teufelberger

Family-owned for 7 generations

1,400

employees

14

locations around the globe

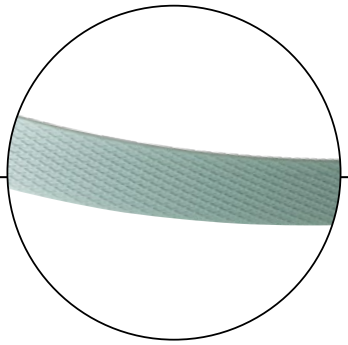
One Company – Infinite Possibilities

What started back in 1790 as a simple shop making hemp ropes has since evolved into a globally successful group of enterprises developing custom-tailored solutions for fiber ropes, steel wire ropes, and strapping. The continuity and stability of our family-owned group make us a reliable partner. We support you in tackling your day-to-day challenges and cooperate with you in the spirit of mutual respect and equality.

Global network and market proximity

Our global network and our 14 locations around the globe, with production sites in Austria, Italy, Poland, Thailand, the Czech Republic and the US, enable us to cooperate closely with our customers and to cater to the specific needs of the various markets in which the Teufelberger Group is present.

It's our joint success
that counts



Fiber Rope

Safety & Rescue Ropes
Treecare & Forestry Ropes
Yachting Ropes & Kite Lines
Industrial Fiber Ropes
Climbing Ropes

Wire Rope

Cableway Ropes
Crane & Industrial Ropes
Offshore Ropes
Mining Ropes
S&S / Teci
Tensostructures

Strapping Solutions

PET Strapping
PP Strapping
better.collect

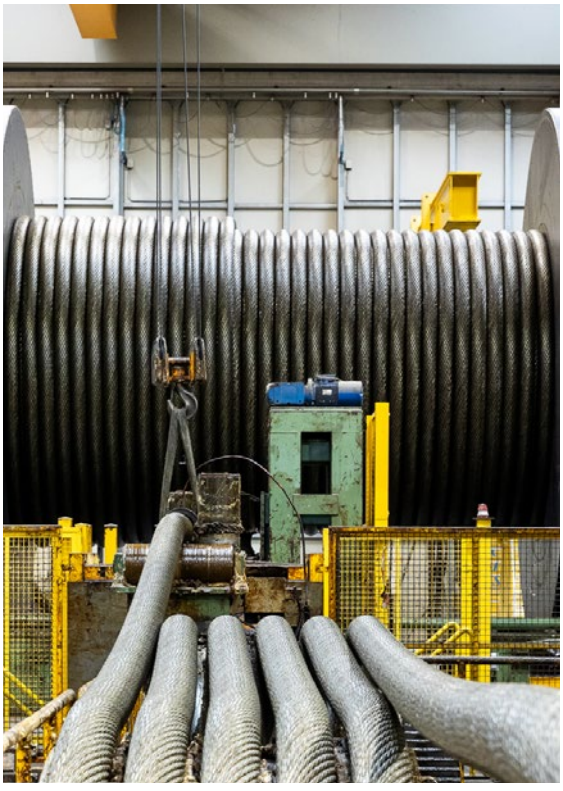
Innovative products of superior quality

Our expertise in a wide range of technologies has generated numerous synergies between our various divisions, much to the benefit of our customers. By assigning five percent of our workforce to research and development, we ensure that our customers have always access to cutting-edge technologies. In addition to ensuring the consistently high quality of all our products across all segments, we also attach great importance to upholding social and environmental standards in our day-to-day work.

Solutions that fit your needs

We at Teufelberger-Redaelli develop and produce high performance steel wire ropes in close cooperation with our customers. Together, we develop solutions that create added value by enhancing the efficiency and safety of your applications.

Being a family enterprise, we attach particular importance to building successful, long-standing business relationships. Our task is not limited to the delivery of premium-quality steel wire ropes. Rather, our experts in product development, application technology and sales support you throughout your entire work process.



The "Giant" machine in Trieste factory, specialized in producing ropes for the Offshore market.

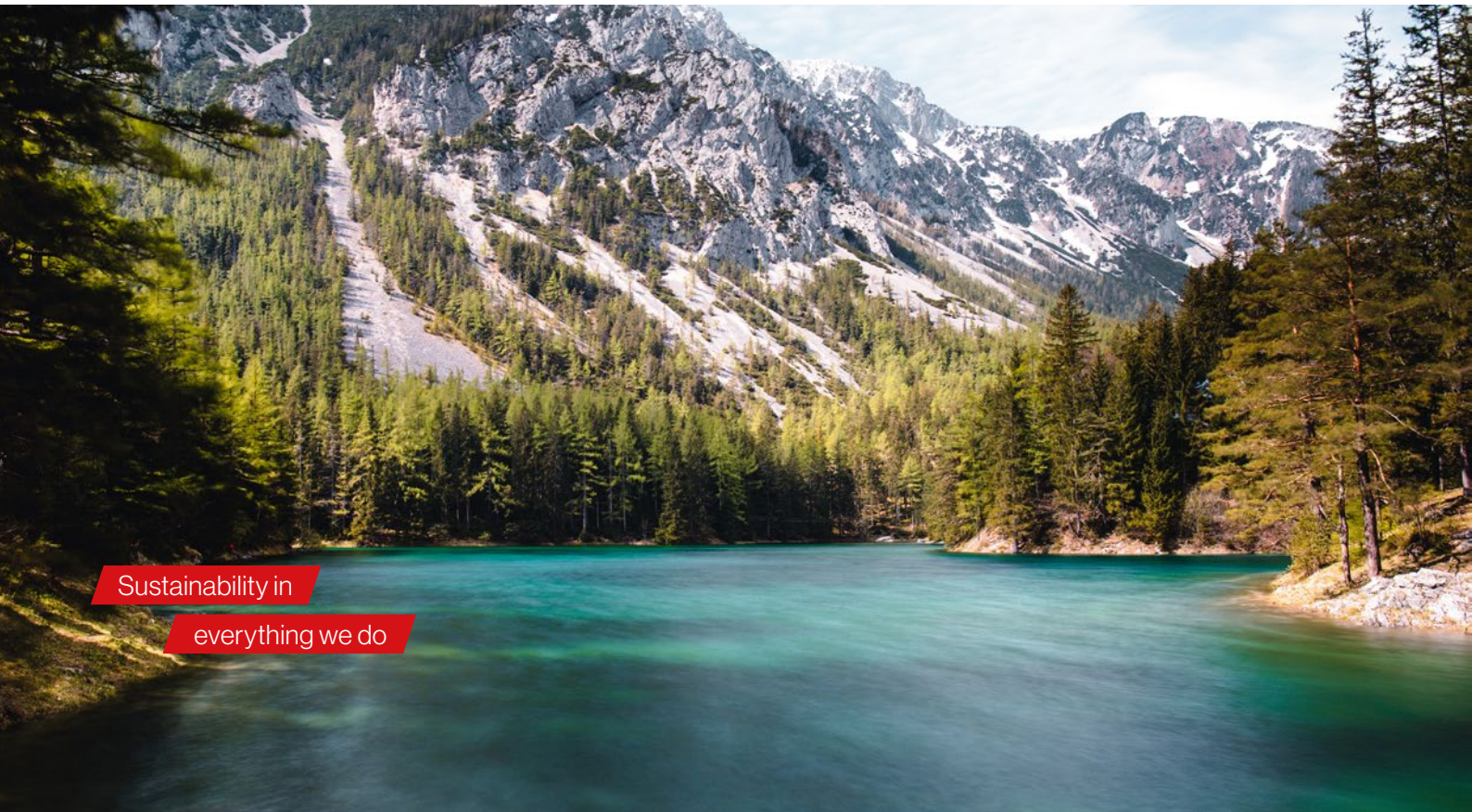
Sustainability at Teufelberger

Our commitments

With its Agenda 2030 for Sustainable Development, the United Nations has set a milestone for the future when it comes to spurring worldwide economic progress in harmony with social justice and the ecological limits of our planet. Based on the goals of this agenda, Teufelberger has developed five relevant, group-wide commitments in order to promote sustainability:

1 To **create** added **value** for employees and the region

2 To **protect** our **resources**



Teufelberger, a 7th generation family-run business, looks back on more then 230 years of company history. Its continued successful development over such a long period of time has only been made possible through resource-saving and sustainable thinking and acting. “Sustainability in everything we do” has been a principle guiding us since 1790. In order to ensure the future existence of our company, we are now setting the course for the future, with a strong focus on sustainability.

3 To **use** energy **sustainably**

4 To increase **safety** and **security**

5 To achieve **progress** through **innovation** and **technology**

Our goals

An essential part of a successful sustainability strategy is to set ambitious goals and to pursue them consistently. Teufelberger has defined the following group goals for the period until 2030:

- to reduce our company’s carbon footprint by 35 %
- to reduce production waste by 20 %
- to only use electric power generated from renewable energy sources
- to only use packaging made from recycled materials
- to implement sustainability plans for all departments
- to promote lifelong learning

In addition to these group-wide goals, every division has also defined various specific goals aligned with, and contributing toward, the group-wide goals. Going forward, the Wire Rope Division will be focussing on the following sustainability goals and projects:

To provide a fully electric infrastructure for its employees

Our vehicle fleet will consist of 100 % EVs. In order to put the necessary infrastructure in place, our plan is to equip one location per year with charging stations for EVs. In addition, we plan to provide e-bikes for travel to and from the local public transport network.

To equip our manufacturing sites with solar power systems

We go beyond electricity from renewable sources (where available) and move toward true sustainability and self-sufficiency.

To reduce production waste by 40 %

This results in an average scrap rate of 4 % of the input materials.

"Doing big small things" program

Every year, we will select at least one activity and one investment idea from employee suggestions in order to address the sustainability issue, take the employee perspective into account, and continuously improve our attractiveness as an employer (employer branding).

Segments we serve

Steel wire ropes for highest demands – around the globe

All around the world, Teufelberger-Redaelli is renowned for the development, production and supply of innovative high-performance steel wire ropes that perform reliably in oil & gas, renewable energy and subsea mining industries. Our ropes are engineered in close cooperation with system and crane manufacturers and a team of experts possessing extensive application expertise. Specifically designed for demanding applications, they excel through outstanding quality, longevity, and precise production processes. Tailor-made solutions and in-depth know-how ensure that our products deliver top-notch performances in these specific environments.

1. Offshore cranes & lifting

A range of products specifically designed for offshore multi-reeved cranes (pedestal, mast, leg encircling cranes, etc.), single/double fall cranes (KBC), subsea linear and traction winches and L&R systems for deep sea mining:

- Flexpack® series
- Evolution series
- Pack series
- Marine

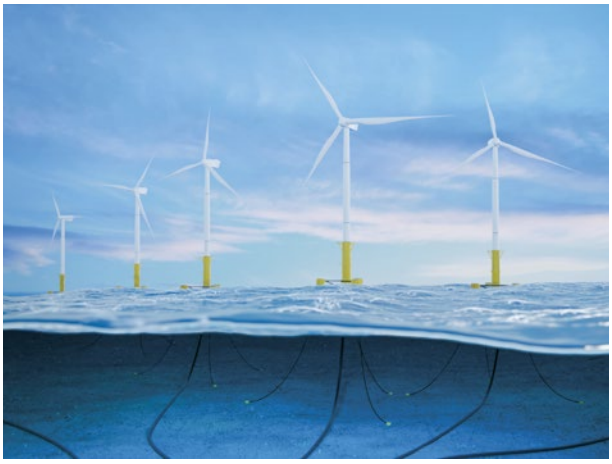

1

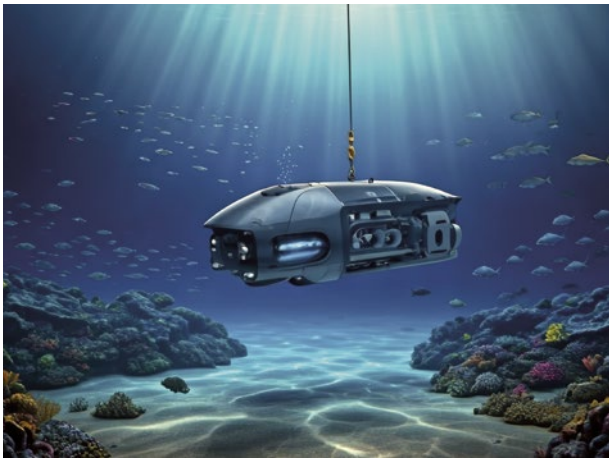
2. Offshore drilling / MRT lines

A range of products fullfilling the demanding oil & gas exploration industry:

- Execution series


2


3


4

3. Offshore mooring systems

A family of steel wire ropes for mobile and permanent mooring lines to ensure a long service lifetime:

- Marine
- Spiral series
- Pack series

4. Oceanographic research

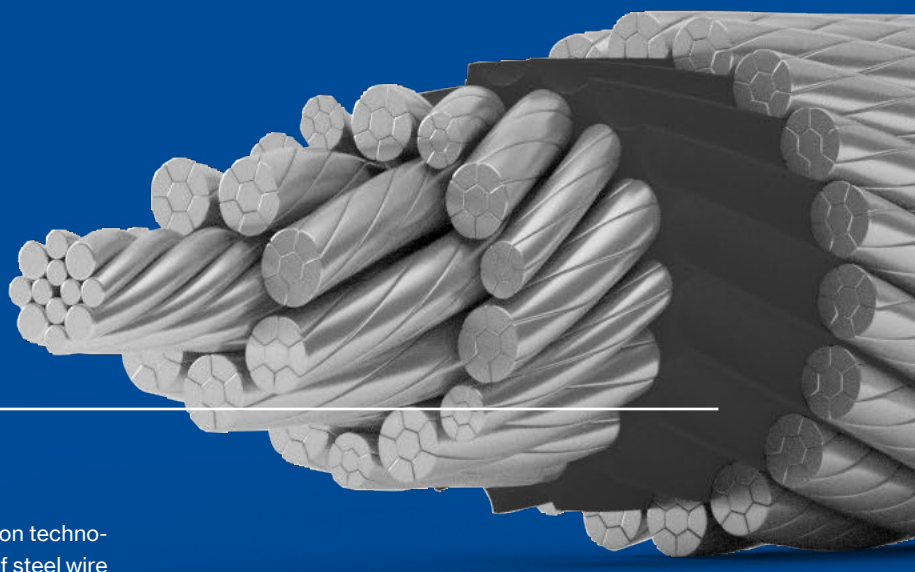
A products range for guiding ROVs or other equipments exploring the depths of our oceans for research purposes:

- Ocean 3
- Flexpack® series
- Evolution series

A technology

that sets new standards

Making high-quality special-purpose steel wire ropes requires precision technologies and comprehensive know-how. That is why we rely on state-of-the-art processes and the highest quality standards, from research and development to production. Our expertise in high-performance steel wire ropes forms the basis for top-notch performance and long-term success.



PLASTFILL® technology

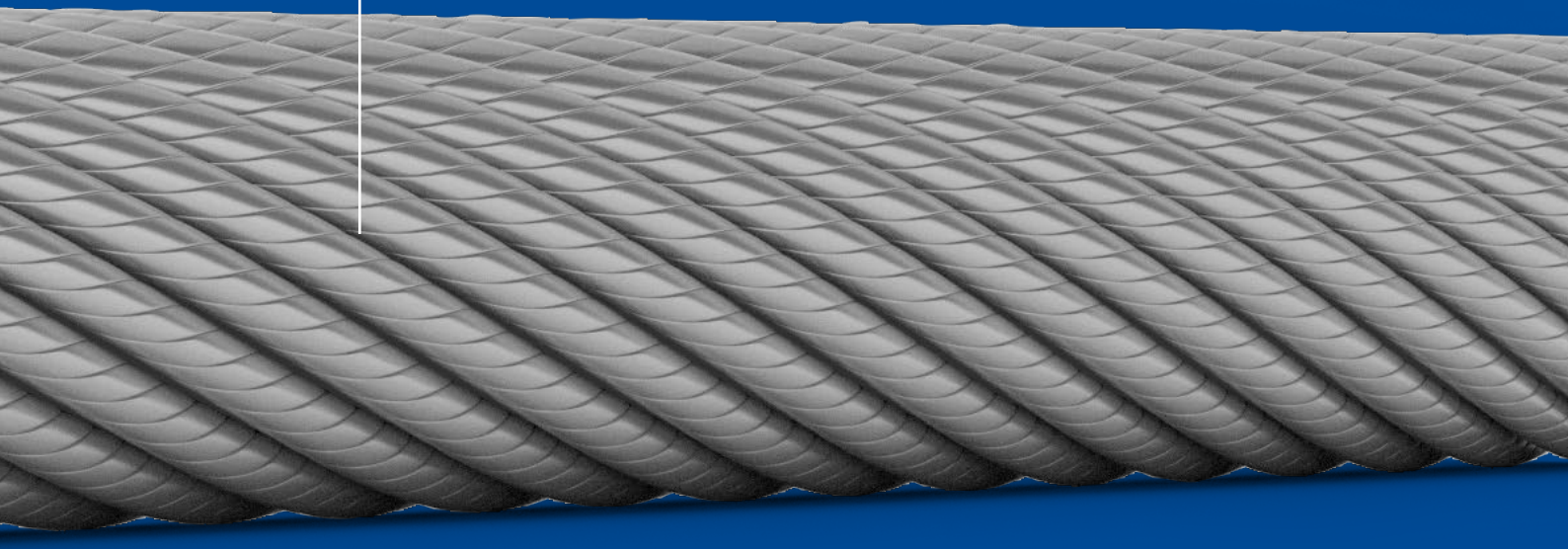
PLASTFILL® is an advanced plastic impregnation technology designed to enhance the characteristics of steel wire ropes, significantly extending their service life. This process involves the extrusion of a sealing thermoplastic material to fill the interstices between individual strands, creating a protective layer around the core, slightly heated during the final closing in order to preserve connections with the outer strands. This technology has specific advantages:

- Creates a mechanical joint that stabilizes and supports the positions of the individual components of the rope while allowing necessary movement.
- Makes the rope less vulnerable to shock loads, high fleet angles, and high transversal pressure.
- Filling the free space between exterior strands noticeably prevents friction wear damage.
- Drastically reduces internal corrosion processes by restricting the ingress of polluting agents.

SUPERFILL® compaction technology

Strand compaction is a cold deformation process achieved by the passage of the strand through a set of rollers, significantly improving the following rope properties:

- Higher breaking forces due to increased strand fill factor resulting in higher metallic area.
- Longer service life: the reduced specific load enhances the durability of the strands.
- Increased wear resistance: the smooth rope surface ensures excellent running behavior on sheaves and drums.
- Higher resistance to crushing in multi-layer spooling systems.



Special surface coatings

All products can be manufactured with different wire surface coatings as ungalvanized, drawn galvanized, hot dip galvanized or Zn95Al5 alloy, depending on specific customer requirement and environmental condition.

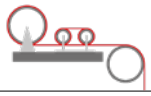
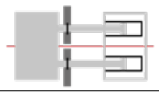
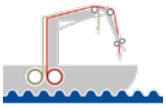
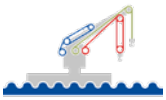
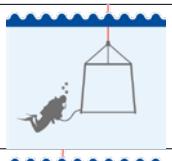
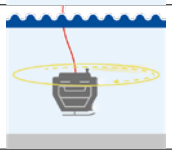
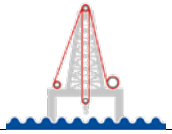
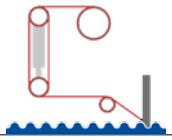
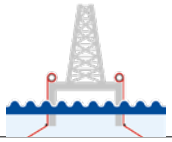
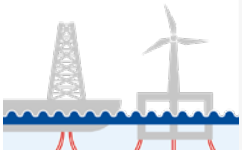
Zn95Al5 alloy provides improved corrosion resistance in comparison to a conventional galvanized coating, combining the passive corrosion inhibition of alluminium oxidation with the active and passive effects of zinc.

EAL lubrication

On request our ropes can be lubricated with a specific EAL grease compliant to US vessel general permit (VGP) with superior performance:

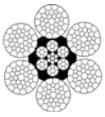
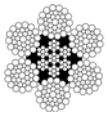
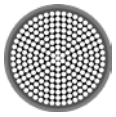
- Superior wash off resistance in deep waters
- Zinc and Zn95A15 coating of the steel wire unaffected
- Enhanced corrosion protection of the steel wire rope
- High drop point (150 °C) for compatibility with AHC
- Wide operating temperature range (from -60 °C to +150 °C)
- Extended rope lifetime due to excellent wear protection

High-performance wire ropes at a glance

Applications				Flexpack®	Evolution TK®	Pack 9	Evolution QS816V
Subsea winches	Traction winch		Hoist	✓		✓	
Subsea winches	Linear winch		Hoist	✓		✓	
Single/double falls subsea cranes	Knuckle boom crane		Main hoist Whip hoist	✓	✓		
Offshore heavy lifting cranes	Multi-reeved crane		Main hoist Auxilary hoist rope	✓	✓	✓	✓
Offshore heavy lifting cranes			Boom hoist			✓	✓
Diving operations			Diving bell	✓	✓		
Oceano-graphic operations			Hoist	✓	✓		
Offshore drilling			Drilling lines				
Marine riser tensioners			MRT lines				
Offshore mooring systems			Mobile mooring lines			✓	
Offshore mooring systems			Long term mooring lines				

✓ optimal application ✓ possible application

Rope Type

 Execution M6	 Execution D6 / D6S / D7S	 Pack 1	 Marine	 Ocean 3	 OSS Mooring	 FLC Mooring
		✓				
		✓				
		✓	✓			
		✓				
				✓		
	✓					
✓						
		✓	✓			
					✓	✓

Flexpack® series

'Giant' ropes for the offshore sector

When the Trieste factory officially opened in 2009, Teufelberger-Redaelli accepted the challenge to design and manufacture high performance "Giant" ropes for offshore and subsea applications in ultra-deep waters up to 550 tons in a continuos individual length.

The strategic position of this manufacturing facility, next to the Trieste dock, provides direct access to the sea, enhanches our ability to satisfy demands for larger, longer and heavier ropes in the world.

Flexpack® is our state-of-the-art product.

This wire rope represents the Teufelberger-Redaelli consolidated proposal for oil & gas and renewable offshore applications.

The specific design, based on a modular strand concept, together with the compaction of all strands provides the perfect combination to achieve top performance.

This non-rotating rope construction provides a very high flexibility, extremely high resistance to transversal pressure and wear.

Trieste plant is strategically located thanks to its direct access to the sea.

Flexpack®, the world record steel wire rope

- ✓ Based on a modular strands design.
- ✓ Compacted strands design concept that allows high minimum breaking force values.
- ✓ Excellent non-rotational properties due to its specific construction.
- ✓ Superior axial, radial and torsional stiffness.
- ✓ Strong transversal stability.

The steel wire ropes developed to satisfy the most demanding requirements of offshore heavy lifting

Flexpack®, a top of the range product giving high performance and able to overcome the most extreme situations, in terms of load, size, depth and weight. This product meets the most extreme level of performance required by the latest heavy lifting system of the offshore industry.

Flexpack® is typically used for, but not limited to subsea and deepsea operations like lifting and lowering of any type of subsea equipment, abandoning and recovery activities, pipe laying operations.

Moreover, our Flexpack® series also represents an excellent solution for the increased demand for wire ropes dedicated to lifting operations in the renewables and offshore wind markets, with an increasing focus on the use of EAL or VGP compliant lubricants, to reduce environmental impact.

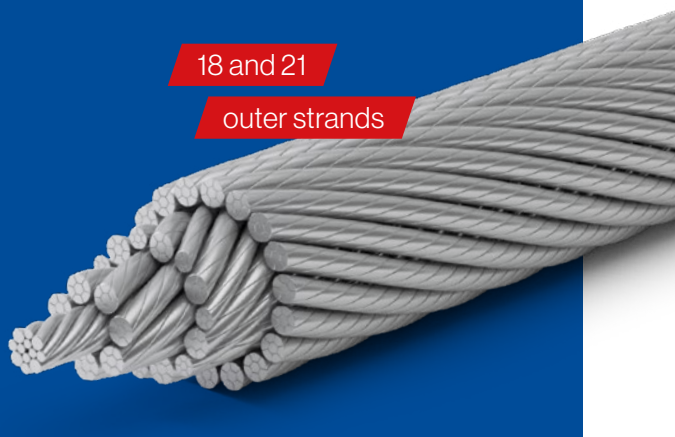
Flexpack® 1000: facing the abyss

Offering the highest breaking force to both diameter and weight ratio, Flexpack® 1000 safeguards all the characteristics which have made Flexpack® the technical benchmark for offshore winches and single fall cranes.

This rope offers very high MBF without affecting the tensile strength which is confirmed to be grade 1960 N/mm² (minimum 1770 - not exceeding 2160 N/mm² - EN10264-2 EN 12385-4) thanks to the selection of special rods, process control and application of very high discard criteria supported by continuous development and competence.

Flexpack® (P)

Rope construction:
39(W)xK7
54(W)xK7-WSC



The very well known and recognized rotation resistant construction in the oil & gas and renewable energy industries, satisfying the strictest subsea and payload requests in ultra deep waters.

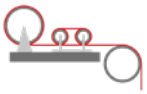
Options on request

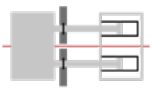
- PLASTFILL® technology (P)
- Different wires surface coatings
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing
- Application engineering
- Modular transport reel
- Reinforced transport reel

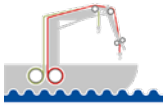
Benefits

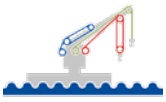
- ✓ Superior rotation resistance property for subsea applications.
- ✓ Enhanced MBF to weight and diameter ratio.
- ✓ Outstanding resistance to crushing and abrasion, combined with diameter stability as required for multi- layered spooling.
- ✓ Excellent axial and radial stiffness.

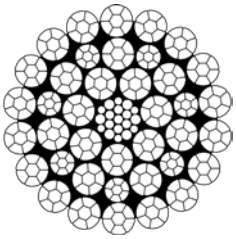
Applications

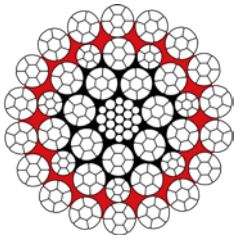

Traction winch

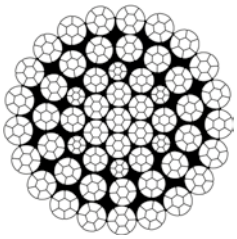

Linear winch


Knuckle boom crane


Multi-reeved crane


Flexpack® 18


Flexpack® 18 P


Flexpack® 21

Technical data

Nominal rope Ø		Metallic area	Axial stiffness	Torque at 20 % MBF		Nominal rope mass*				MBF at rope grade 1960			
				Flexpack®	Flexpack® 1000	in air		in water		Flexpack®		Flexpack® 1000	
mm	inch	mm²	MN	Nm	Nm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes	kN	tonnes
41.28	1 5/8	1,002	130	215	222	8.38	5.63	7.05	4.74	1,584	162	1,632	166
42		1,038	135	226	234	8.67	5.83	7.30	4.91	1,640	167	1,690	172
44		1,139	148	260	269	9.52	6.40	8.01	5.38	1,800	184	1,854	189
44.45	1 3/4	1,162	151	268	277	9.72	6.53	8.18	5.50	1,837	187	1,892	193
46		1,245	162	297	307	10.40	6.99	8.76	5.89	1,967	201	2,027	207
47.63	1 7/8	1,334	173	330	341	11.15	7.49	9.39	6.31	2,109	215	2,173	222
48		1,355	176	337	349	11.33	7.61	9.53	6.40	2,142	218	2,207	225
50		1,470	191	381	394	12.29	8.26	10.35	6.95	2,324	237	2,395	244
50.80	2	1,518	197	400	413	12.69	8.53	10.68	7.18	2,399	245	2,472	252
52		1,590	207	429	443	13.30	8.94	11.19	7.52	2,514	256	2,590	264

Nominal rope Ø		Metallic area	Axial stiffness	Torque at 20 % MBF		Nominal rope mass*				MBF at rope grade 1960			
				Flexpack®	Flexpack® 1000	in air		in water		Flexpack®		Flexpack® 1000	
mm	inch	mm²	MN	Nm	Nm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes	kN	tonnes
54	2 1/8	1,715	223	480	496	14.34	9.64	12.07	8.11	2,711	276	2,793	285
56		1,845	240	536	554	15.42	10.36	12.98	8.72	2,916	297	3,004	306
57.15	2 1/4	1,921	250	569	588	16.06	10.79	13.52	9.09	3,037	310	3,128	319
58		1,979	257	595	615	16.54	11.11	13.92	9.35	3,128	319	3,222	329
60		2,117	275	659	681	17.70	11.89	14.90	10.01	3,347	341	3,448	352
60.33	2 3/8	2,141	278	670	692	17.90	12.03	15.06	10.12	3,384	345	3,486	355
62		2,261	294	727	751	18.90	12.70	15.91	10.69	3,574	364	3,682	375
63.50	2 1/2	2,372	308	781	807	19.83	13.33	16.69	11.22	3,749	382	3,862	394
64		2,409	313	800	826	20.14	13.53	16.95	11.39	3,808	388	3,923	400
66		2,562	333	877	906	21.42	14.39	18.03	12.12	4,037	412	4,158	424
66.68	2 5/8	2,615	340	904	935	21.86	14.69	18.40	12.36	4,120	420	4,244	433
68		2,720	354	959	991	22.74	15.28	19.14	12.86	4,285	437	4,414	450
70	2 3/4	2,882	375	1,046	1,081	24.09	16.19	20.28	13.63	4,541	463	4,677	477
72		3,049	396	1,139	1,177	25.49	17.13	21.45	14.41	4,804	490	4,949	505
73	2 7/8	3,134	407	1,187	1,226	26.20	17.61	22.05	14.82	4,938	504	5,087	519
74		3,221	419	1,236	1,278	26.93	18.10	22.66	15.23	5,075	518	5,227	533
76		3,397	442	1,339	1,384	28.40	19.08	23.90	16.06	5,353	546	5,514	562
76.20	3	3,415	444	1,350	1,395	28.55	19.18	24.03	16.15	5,381	549	5,543	565
77		3,487	453	1,392	1,439	29.15	19.59	24.54	16.49	5,431	554	5,602	571
78		3,578	465	1,448	1,496	29.92	20.11	25.18	16.92	5,573	568	5,749	586
79.38	3 1/8	3,706	482	1,526	1,577	30.98	20.82	26.08	17.52	5,771	588	5,954	607
80		3,764	489	1,562	1,614	31.47	21.15	26.48	17.79	5,862	598	6,047	617
82		3,955	514	1,682	1,738	33.06	22.22	27.83	18.70	5,943	606	6,210	633
82.55	3 1/4	4,008	521	1,716	1,774	33.51	22.52	28.20	18.95	6,023	614	6,294	642
84		4,150	540	1,724	1,808	34.69	23.31	29.20	19.62	6,236	636	6,517	665
85.73	3 3/8	4,323	562	1,833	1,922	36.14	24.28	30.41	20.43	6,496	662	6,788	692
86		4,350	566	1,850	1,940	36.37	24.44	30.61	20.57	6,537	667	6,831	697
88		4,555	592	1,982	2,079	38.08	25.59	32.05	21.54	6,844	698	7,153	729
89	3 1/2	4,659	606	2,051	2,150	38.95	26.17	32.78	22.03	7,001	714	7,316	746
90		4,764	619	2,121	2,224	39.83	26.76	33.52	22.52	7,159	730	7,432	758
92	3 5/8	4,978	647	2,265	2,375	41.62	27.97	35.03	23.54	7,481	763	7,765	792
94		5,197	676	2,416	2,533	43.45	29.20	36.57	24.57	7,693	784	7,998	816
95.25	3 3/4	5,336	694	2,514	2,636	44.61	29.98	37.54	25.23	7,899	805	8,212	837
96		5,421	705	2,574	2,699	45.32	30.45	38.14	25.63	7,903	806	8,143	830
98		5,649	734	2,738	2,871	47.22	31.73	39.74	26.70	8,236	840	8,486	865
98.43	3 7/8	5,699	741	2,774	2,909	47.64	32.01	40.09	26.94	8,308	847	8,561	873
100		5,882	765	2,895	2,964	49.17	33.04	41.38	27.81	8,575	874	8,836	901
101.60	4	6,072	789	3,036	3,109	50.76	34.11	42.72	28.71	8,852	903	9,121	930
102		6,119	795	3,072	3,146	51.16	34.38	43.05	28.93	8,922	910	9,193	937
104		6,362	827	3,256	3,334	53.18	35.74	44.76	30.08	9,275	946	9,557	975
105	4 1/8	6,485	843	3,351	3,431	54.21	36.43	45.62	30.66	9,454	964	9,742	993
106		6,609	859	3,448	3,530	55.25	37.13	46.50	31.25	9,635	982	9,928	1,012
108	4 1/4	6,861	892	3,647	3,734	57.35	38.54	48.27	32.44	10,002	1,020	10,306	1,051
109		6,988	908	3,749	3,839	58.42	39.26	49.17	33.04	10,188	1,039	10,498	1,070
110		7,117	925	3,685	3,853	59.50	39.98	50.07	33.65	10,177	1,038	10,606	1,082
111	4 3/8	7,247	942	3,786	3,959	60.58	40.71	50.99	34.26	10,362	1,057	10,799	1,101
112		7,378	959	3,889	4,067	61.68	41.45	51.91	34.88	10,550	1,076	10,995	1,121
114		7,644	994	4,101	4,289	63.90	42.94	53.78	36.14	10,930	1,115	11,391	1,162
114.30	4 1/2	7,684	999	4,134	4,322	64.24	43.17	54.06	36.33	10,988	1,120	11,451	1,168
115		7,779	1,011	4,210	4,402	65.03	43.70	54.73	36.78	11,123	1,134	11,592	1,182
116		7,915	1,029	4,321	4,518	66.16	44.46	55.68	37.42	11,317	1,154	11,794	1,203

Nominal rope Ø		Metallic area	Axial stiffness	Torque at 20 % MBF		Nominal rope mass*				MBF at rope grade 1960			
				Flexpack®	Flexpack® 1000	in air		in water		Flexpack®		Flexpack® 1000	
mm	inch	mm²	MN	Nm	Nm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes	kN	tonnes
117.48	4 5/8	8,118	1,055	4,489	4,693	67.86	45.60	57.11	38.38	11,608	1,184	12,097	1,234
118		8,190	1,065	4,549	4,756	68.46	46.00	57.62	38.72	11,711	1,194	12,204	1,244
119		8,329	1,083	4,665	4,878	69.63	46.79	58.60	39.38	11,910	1,214	12,412	1,266
120		8,470	1,101	4,784	5,002	70.81	47.58	59.59	40.04	12,111	1,235	12,622	1,287
120.65	4 3/4	8,562	1,113	4,862	5,084	71.57	48.09	60.24	40.48	12,243	1,248	12,759	1,301
122		8,754	1,138	5,027	5,256	73.19	49.18	61.59	41.39	12,477	1,272	12,872	1,313
124	4 7/8	9,044	1,176	5,278	5,519	75.60	50.80	63.63	42.76	12,889	1,314	13,297	1,356
125		9,190	1,195	5,407	5,654	76.83	51.63	64.66	43.45	13,098	1,336	13,513	1,378
126		9,338	1,214	5,538	5,791	78.06	52.45	65.70	44.15	13,308	1,357	13,730	1,400
127	**5**	9,487	1,233	5,671	5,929	79.31	53.29	66.75	44.85	13,520	1,379	13,949	1,422
128		9,637	1,253	5,806	6,071	80.56	54.13	67.80	45.56	13,734	1,400	14,169	1,445
130	**5 1/8**	9,655	1,255	1,282	1,320	81.61	54.84	68.22	45.84	13,924	1,420	14,335	1,462
132		9,954	1,294	1,342	1,382	84.14	56.54	70.33	47.26	14,356	1,464	14,779	1,507
133.35	5 1/4	10,159	1,321	1,384	1,425	85.87	57.70	71.78	48.23	14,651	1,494	15,083	1,538
134		10,258	1,334	1,404	1,446	86.70	58.26	72.48	48.70	14,794	1,509	15,230	1,553
135		10,412	1,354	1,436	1,479	88.00	59.13	73.57	49.44	15,016	1,531	15,458	1,576
136		10,566	1,374	1,468	1,512	89.31	60.01	74.66	50.17	15,239	1,554	15,688	1,600
136.53	5 3/8	10,649	1,384	1,485	1,529	90.01	60.48	75.24	50.56	15,358	1,566	15,811	1,612
138		10,879	1,414	1,534		91.96	61.79	76.87	51.65	15,691	1,600		
139		11,038	1,435	1,567		93.30	62.69	77.99	52.41	15,919	1,623		
140	**5 1/2**	11,197	1,456	1,602		94.64	63.60	79.12	53.17	16,149	1,647		
142		11,519	1,497	1,671		97.37	65.43	81.39	54.69	16,613	1,694		
143	**5 5/8**	11,682	1,519	1,707		98.74	66.35	82.55	55.47	16,848	1,718		
144		11,846	1,540	1,743		100.13	67.28	83.70	56.24	17,085	1,742		
146	**5 3/4**	12,177	1,583	1,816		102.93	69.17	86.05	57.82	17,563	1,791		
148		12,513	1,627	1,892		105.77	71.07	88.42	59.42	18,047	1,840		
149	5 7/8	12,683	1,649	1,931		107.20	72.04	89.62	60.22	18,292	1,865		
150		12,854	1,671	1,970		108.65	73.01	90.82	61.03	18,538	1,890		
152		13,199	1,716	2,050		111.56	74.96	93.26	62.67	19,036	1,941		
152.40	**6**	13,268	1,725	2,066		112.15	75.36	93.75	63.00	19,136	1,951		
154		13,548	1,761	2,132		114.52	76.95	95.73	64.33	19,540	1,993		
155.58	**6 1/8**	13,828	1,798	2,198		116.88	78.54	97.71	65.66	19,943	2,034		
156		13,903	1,807	2,216		117.51	78.96	98.24	66.01	20,051	2,045		
158		14,261	1,854	2,302		120.54	81.00	100.77	67.71	20,568	2,097		
159	6 1/4	14,442	1,877	2,346		122.08	82.03	102.05	68.57	20,829	2,124		
160		14,625	1,901	2,391		123.62	83.07	103.34	69.44	21,092	2,151		
162	6 3/8	14,993	1,949	2,378		126.73	85.16	105.94	71.19	20,795	2,120		
164		15,365	1,997	2,467		129.87	87.27	108.57	72.96	21,312	2,173		
165	6 1/2	15,553	2,022	2,513		131.46	88.34	109.90	73.85	21,573	2,200		
166		15,742	2,046	2,559		133.06	89.41	111.23	74.74	21,720	2,215		
168	6 5/8	16,124	2,096	2,652		136.29	91.58	113.93	76.56	22,247	2,269		
170		16,510	2,146	2,748		139.55	93.77	116.66	78.39	22,779	2,323		
171.45	6 3/4	16,793	2,183	2,819		141.94	95.38	118.66	79.74	22,965	2,342		
172		16,901	2,197	2,846		142.85	95.99	119.42	80.25	23,113	2,357		
174		17,296	2,248	2,947		146.19	98.24	122.21	82.12	23,317	2,378		
174.63	6 7/8	17,421	2,265	2,979		147.26	98.95	123.10	82.72	23,359	2,382		
176		17,696	2,300	3,049		149.58	100.51	125.04	84.02	23,727	2,419		
178	7	18,100	2,353	3,155		152.99	102.80	127.90	85.94	24,269	2,475		
180		18,509	2,406	3,262		156.45	105.13	130.79	87.89	24,818	2,531		

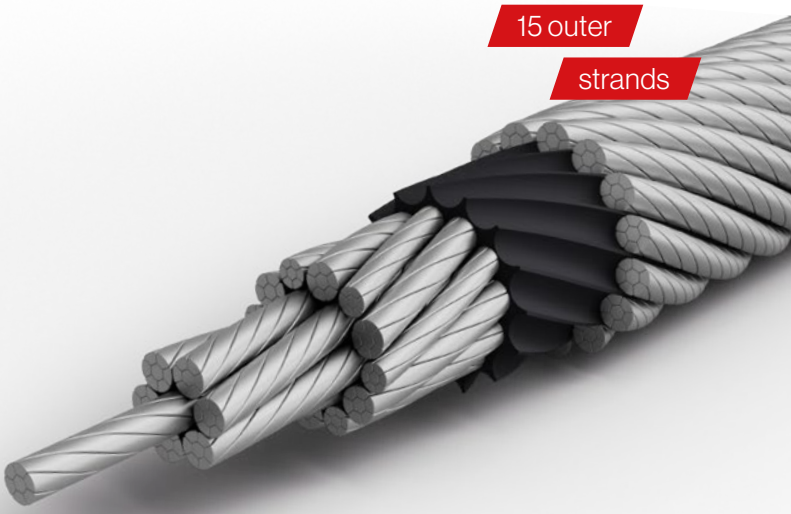
MBF on request

MBF on request

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +2 %. **Other rope diameters are available on request.

Flexpack® (P)

Rope construction: 34(W)xK7

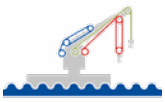


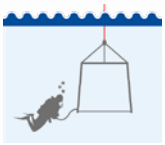
Options on request

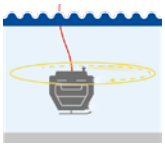
- PLASTFILL® technology (P)
- Different wire surface coatings
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing

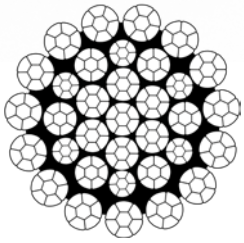
Applications

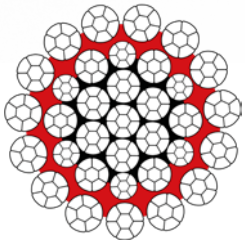

Knuckle boom crane


Multi-reeved crane


Diving operations


Oceanographic operations


Flexpack® 15


Flexpack® 15P

Technical data

Nominal rope Ø		Metallic area	Axial stiffness	Torque at 20 % MBF		Nominal rope mass*				MBF at rope grade 1960			
				Flexpack®	Flexpack® 1000	in air		in water		Flexpack®		Flexpack® 1000	
mm	inch	mm²	MN	Nm	Nm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes	kN	tonnes
25.40	1	425	57	138	143	3.31	2.22	2.81	1.89	620	63	642	65
26		446	60	148	153	3.47	2.33	2.94	1.98	649	66	673	69
28		517	70	185	191	4.03	2.71	3.41	2.29	753	77	781	80
28.58	1 1/8	539	73	196	203	4.20	2.82	3.56	2.39	785	80	813	83
30		593	80	227	235	4.62	3.10	3.92	2.63	865	88	896	91
31.75	1 1/4	665	90	269	279	5.18	3.48	4.39	2.95	968	99	1,004	102
32		675	91	276	286	5.26	3.53	4.46	3.00	984	100	1,020	104
34		762	103	330	343	5.94	3.99	5.03	3.38	1,110	113	1,151	117
35	1 3/8	808	109	361	374	6.29	4.23	5.33	3.58	1,177	120	1,220	124
36		854	115	392	407	6.66	4.48	5.64	3.79	1,245	127	1,291	132
38	1 1/2	952	129	461	473	7.42	4.99	6.29	4.23	1,387	141	1,423	145
40		1,055	142	538	552	8.22	5.52	6.96	4.68	1,537	157	1,577	161

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +2 %. Other rope diameters are available on request.


Teufelberger · Redaelli
WORLDS
HEAVIEST
ROPE
Teufelberger Redaelli

200 years of
record performance

The world's heaviest steel wire rope

Records are made to be broken. Every year, with our quality, innovation and high-tech expertise, we reach and surpass the highest benchmarks in the world. Even our own.

With **more than 200 years experience** as a wire rope manufacturer, Teufelberger-Redaelli is one of the leading hi-tech steel wire rope producers. The Trieste plant is capable of producing what are presently the biggest state of the art steel wire ropes in the world. The location of the plant at the dockside of the Trieste harbour allows the loading of huge reels without any preliminary land transport.

Since 2010 Teufelberger-Redaelli and the record-breaking Flexpack® rope have been awarded the world record in the engineering and technology area for the heaviest wire rope ever manufactured in the world - **for the fifth time in a row!**

Teufelberger-Redaelli breaks the World Records again in 2023 with Flexpack®. This rope has a diameter of 160 mm, a lengh of over 4,010.126 meters and weighs an impressive 495.9162 tons. It represents the most advanced steel rope technology innovation in the world today.

A 360° improvement

Flexpack® Deep Tech

Rope construction: 62(M)xK7-WSC

The top of the range in the family of rotation resistant ropes for offshore applications due to its characteristics and high performance, as a result of new engineering tools and advances in production processes.

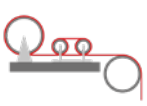
Benefits

- ✓ Incomparable breaking force due to improved rope efficiency.
- ✓ Excellent combination of axial and transversal stability section.
- ✓ Reliable design ensuring visual discard criteria.

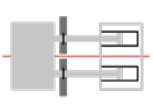
Options on request

- Different wire surface coatings
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing
- Modular transport reel
- Reinforced transport reel
- Application engineering

Applications

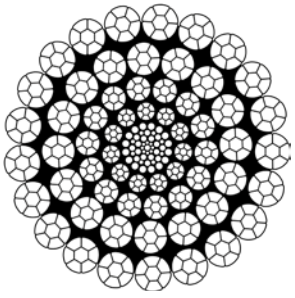


Traction winch



Linear winch

Knuckle boom crane



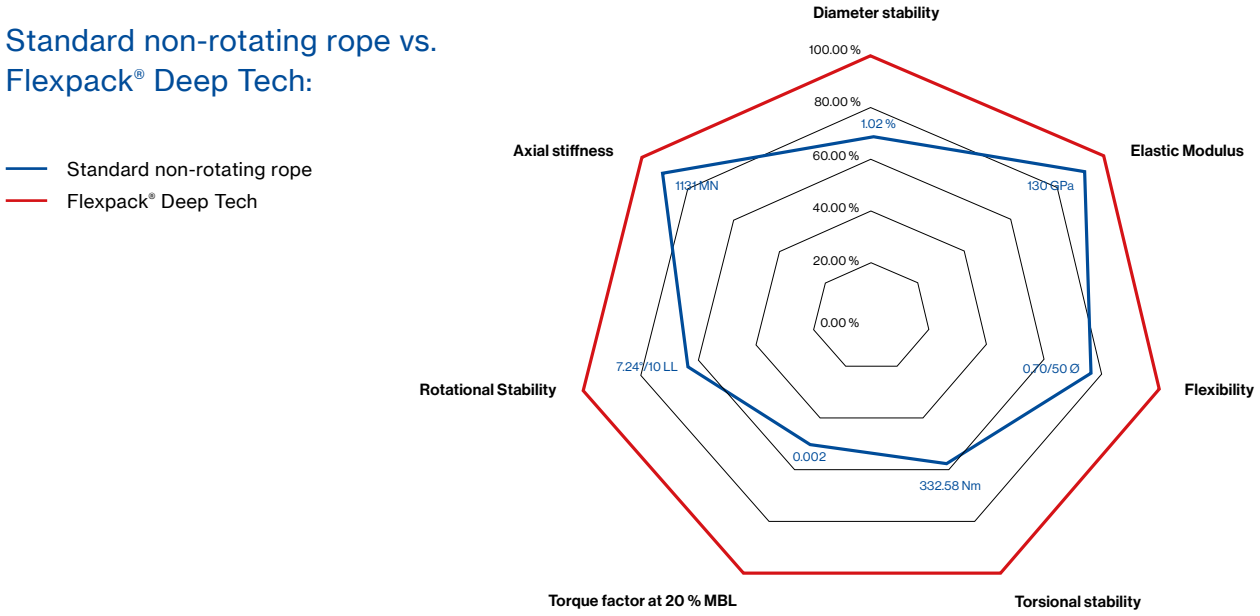
Flexpack® Deep Tech

Technical data

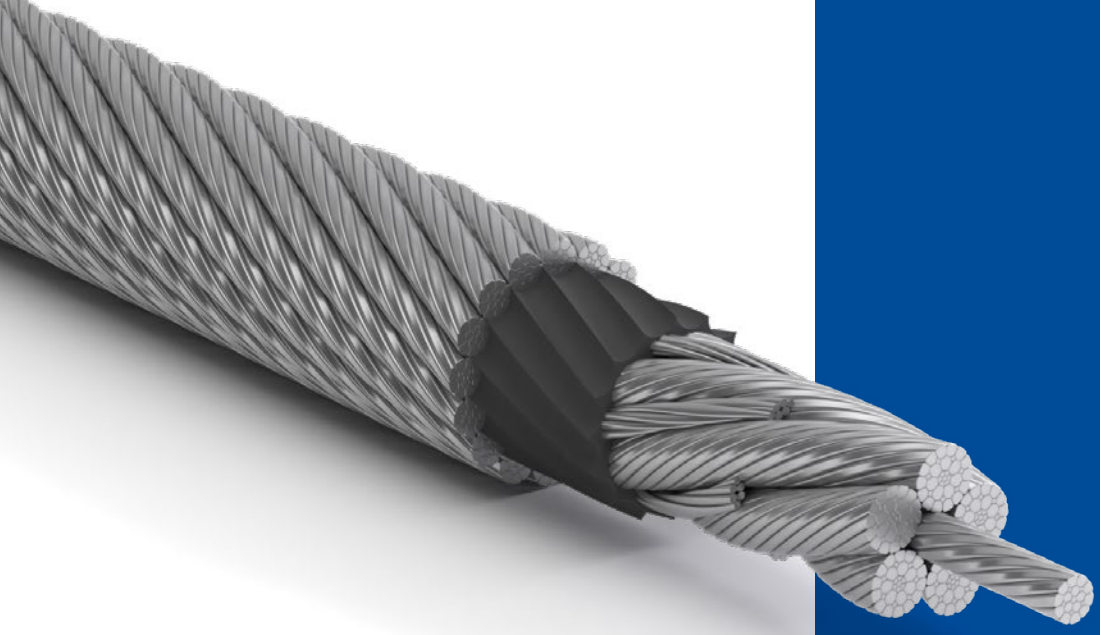
Nominal rope Ø		Outer wire Ø	Metallic area	Axial stiffness	Torque at 20 % MBF	Nominal rope mass*				MBF at rope grade	
						in air		in water		1960	
mm	inch	mm	mm²	MN	Nm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
138		6.32	11170	1452	1319	93.81	63.04	78.34	52.64	16300	1662
140	5 1/2	6.41	11496	1494	1377	96.54	64.87	80.63	54.18	16776	1711
142		6.50	11827	1538	1437	99.32	66.74	82.95	55.74	17258	1760
143	5 5/8	6.55	11994	1559	1467	100.73	67.69	84.12	56.53	17502	1785
144		6.59	12162	1581	1498	102.14	68.63	85.31	57.33	17748	1810
146	5 3/4	6.69	12503	1625	1562	105.00	70.56	87.69	58.92	18244	1860
148		6.78	12848	1670	1627	107.89	72.50	90.11	60.55	18748	1912
149	5 7/8	6.82	13022	1693	1660	109.36	73.49	91.33	61.37	19002	1938
150		6.87	13197	1716	1694	110.83	74.47	92.56	62.20	19258	1964
152		6.96	13551	1762	1762	113.80	76.47	95.05	63.87	19775	2016
154		7.05	13910	1808	1833	116.82	78.50	97.56	65.56	20298	2070
156		7.14	14274	1856	1905	119.87	80.55	100.12	67.28	20829	2124
158		7.23	14642	1903	1979	122.97	82.63	102.70	69.01	21367	2179
159	6 1/4	7.28	14828	1928	2017	124.53	83.68	104.00	69.88	21638	2206
160		7.33	15015	1952	2055	126.10	84.74	105.32	70.77	21911	2234
162	6 3/8	7.42	15393	2001	2057	129.27	86.87	107.96	72.55	21654	2208
164		7.51	15776	2051	2134	132.48	89.02	110.65	74.35	22192	2263
165	6 1/2	7.56	15969	2076	2173	134.10	90.11	112.00	75.26	22464	2291
166		7.60	16163	2101	2192	135.73	91.21	113.36	76.17	22525	2297
168	6 5/8	7.69	16555	2152	2272	139.02	93.42	116.11	78.02	23071	2353
170		7.78	16951	2204	2354	142.35	95.65	118.89	79.89	23623	2409
171.45	6 3/4	7.85	17241	2241	2383	144.79	97.29	120.93	81.26	23711	2418
172		7.88	17352	2256	2406	145.72	97.92	121.71	81.79	23863	2433
174		7.97	17758	2309	2453	149.13	100.21	124.55	83.69	24049	2452
174.63	6 7/8	8.00	17887	2325	2466	150.21	100.94	125.46	84.31	24082	2456
176		8.06	18169	2362	2524	152.58	102.53	127.43	85.63	24462	2494
178	7	8.15	18584	2416	2611	156.07	104.87	130.34	87.58	25021	2551
180		8.24	19004	2471	2700	159.59	107.24	133.29	89.57	25586	2609

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +2 %. Other rope diameters are available on request.

Standard non-rotating rope vs. Flexpack® Deep Tech:



Evolution series



Excellent
dimensional stability

Evolution TK® 18

Rope class: 23xK19

An effective asset on large offshore cranes and subsea winches, able to withstand extremely rough environmental conditions. Reliability and safety are significant properieties of this product.

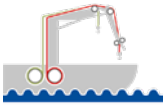
Benefits

- ✓ High breaking forces due to SUPERFILL® compaction technology.
- ✓ Improved fleet angle and bending fatigue resistance with PLASTFILL® technology.
- ✓ Excellent spooling characteristics thanks to very high dimensional stability under lateral pressure, even in multi-layer spooling operations.
- ✓ High rotation resistance due to advanced balanced design, suitable for high lifting heights and deep water operations.

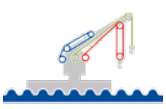
Options on request

- Different wire surface coatings
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing

Applications



Knuckle boom crane

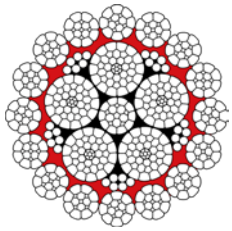


Multi-reeved crane

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Axial stiffness	Torque at 20 % MBF	Nominal rope mass*				MBF at rope grade	
						in air		in water		1960	
mm	inch	mm	mm²	MN	Nm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
44		1.93	1,094	120	503	9.49	6.38	8.0	5.4	1,779	181
44.45	1 3/4	1.95	1,117	123	518	9.63	6.47	8.1	5.5	1,817	185
45		2.00	1,149	126	538	9.90	6.65	8.4	5.6	1,865	190
46		2.05	1,199	132	574	10.33	6.94	8.7	5.9	1,960	200
48		2.10	1,303	143	653	11.22	7.54	9.5	6.4	2,119	216
50		2.20	1,420	156	738	12.23	8.22	10.3	6.9	2,299	234
50.8	2	2.25	1,478	163	774	12.71	8.54	10.7	7.2	2,374	242
51		2.25	1,474	162	783	12.70	8.54	10.7	7.2	2,386	243
52		2.30	1,544	170	830	13.30	8.94	11.2	7.6	2,487	254
54	2 1/8	2.40	1,669	184	948	14.36	9.65	12.1	8.2	2,682	273
56		2.50	1,789	197	1015	15.41	10.35	13.0	8.8	2,884	294
57.15	2 1/4	2.55	1,863	205	1102	16.01	10.76	13.5	9.1	3,002	306
58		2.55	1,921	211	1152	16.53	11.11	14.0	9.4	3,094	316
60		2.65	2,058	226	1275	17.71	11.90	15.0	10.1	3,311	338
60.33	2 3/8	2.67	2,080	229	1296	17.84	11.99	15.1	10.1	3,345	341
63.5	2 1/2	2.80	2,304	253	1512	19.77	13.28	16.7	11.2	3,706	378
64		2.85	2,340	257	1548	20.16	13.55	17.0	11.5	3,767	384
65		2.90	2,420	266	1593	20.85	14.01	17.6	11.8	3,876	395
66		2.90	2,475	272	1668	21.31	14.32	18.0	12.1	4,006	408
66.68	2 5/8	2.95	2,526	278	1720	21.80	14.65	18.4	12.4	4,086	417
68		3.00	2,628	289	1824	22.62	15.20	19.1	12.8	4,253	434
70	2 3/4	3.10	2,801	308	1955	24.10	16.20	20.4	13.7	4,507	460
72		3.20	2,950	325	2128	25.40	17.07	21.5	14.4	4,768	486
73	2 7/8	3.25	3,032	334	2218	26.13	17.56	22.1	14.8	4,897	499
76		3.35	3,286	361	2502	28.30	19.01	23.9	16.1	5,313	542

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Other rope diameters are available on request.



Evolution TK® 18
(44-76 mm)

High flexibility and
extreme durability

Evolution TK® 16

Rope class: 23xK7

The result of a revolutionary design, high quality materials, and perfectly harmonized production processes. This high performance steel wire rope combines all the characteristics a rotation resistant rope needs for your application: excellent durability and best flexibility.

Benefits

- ✓ High breaking forces due to SUPERFILL® compaction technology.
- ✓ High rotation resistance due to advanced balanced design.
- ✓ Improved fleet angle and bending fatigue resistance with PLASTFILL® technology.
- ✓ Excellent spooling characteristics thanks to very high dimensional stability under lateral pressure, even in multi-layer spooling operations.
- ✓ Long service life even in case of shock loads due to the 4 strand design of the rope core.

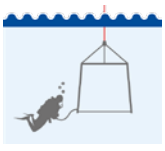
Options on request

- Different wire surface coatings
- Wide operating temperature lubricant
- EAL (biodegradable)
- NDT during rope closing

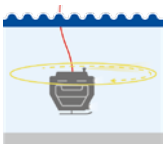
Applications

Knuckle boom crane

Multi-reeved crane



Diving operations

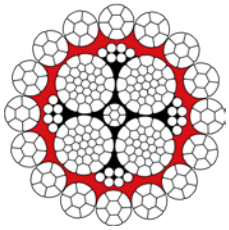


Oceanographic operations

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Axial stiffness	Torque at 20 % MBF	Nominal rope mass				MBF at rope grade	
						in air		in water		1960	
mm	inch	mm	mm²	MN	Nm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
31.75	1 1/4	1.75	590	68	192	5.01	3.36	4.23	2.84	978	100
32		1.76	600	69	199	5.09	3.42	4.3	2.89	993	101
34		1.89	682	78	244	5.78	3.88	4.88	3.28	1,141	116
35	1 3/8	1.95	718	83	254	6.08	4.09	5.14	3.45	1,188	121
36		2	754	87	276	6.39	4.3	5.4	3.63	1,257	128
38	1 1/2	2.1	846	97	336	7.17	4.82	6.06	4.07	1,369	140
40		2.2	935	108	376	7.94	5.33	6.71	4.51	1,517	155
42		2.35	1,039	119	436	8.8	5.92	7.44	5	1,672	170

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
Other rope diameters are available on request.



Evolution TK®16
(31.75-42 mm)

Robust &
trust worthy

Evolution QS816V

Rope class: 8xK19/8xK36

Extremely versatile, robust and durable. This rope is a valid choice as boom hoist rope in single-layer and multi-layer configuration.

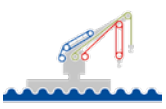
Options on request

- Different wires surface coatings
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing

Benefits

- ✓ High breaking forces due to SUPERFILL® compaction technology.
- ✓ Long service life due to the wear-optimized design and the PLASTFILL® technology and reduced rope abrasion.
- ✓ Excellent winding behaviour in multi-layer spooling due to the high dimensional stability against lateral pressure.
- ✓ Operational safety and reliability due to excellent resistance to shocks and vibrations.

Applications

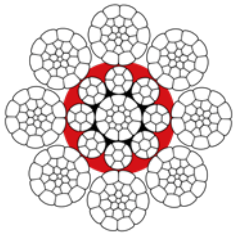


Multi-reeved crane

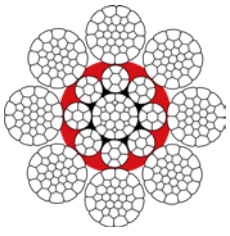
Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
30		1.97	509	4.30	2.89	3.59	2.41	846	86
31.75	1 1/4	2.05	556	4.83	3.24	4.03	2.71	931	95
32		2.10	576	4.86	3.27	4.06	2.73	957	98
34		2.23	648	5.48	3.68	4.58	3.08	1,068	109
35	1 3/8	2.30	687	5.80	3.90	4.84	3.25	1,131	115
36		2.38	732	6.18	4.16	5.16	3.47	1,197	122
38	1 1/2	2.50	816	6.89	4.63	5.75	3.86	1,354	138
40		2.65	910	7.67	5.16	6.40	4.30	1,486	152
41		2.70	947	8.00	5.38	6.68	4.49	1,553	158
42		2.78	1,003	8.46	5.69	7.06	4.74	1,641	167
44		2.48	1,082	9.10	6.11	7.60	5.11	1,788	182
44.45	1 3/4	2.50	1,107	9.31	6.26	7.77	5.22	1,825	186
46		2.60	1,189	10.00	6.72	8.35	5.61	1,954	199
48		2.70	1,285	10.81	7.26	9.03	6.07	2,128	217
50		2.80	1,392	11.71	7.87	9.78	6.57	2,309	235
50.8	2	2.50	1,446	12.05	8.09	10.06	6.76	2,344	239
52		2.57	1,514	12.61	8.47	10.53	7.08	2,456	250
54	2 1/8	2.67	1,625	13.55	9.10	11.31	7.60	2,648	270
56		2.75	1,751	14.59	9.81	12.18	8.18	2,848	290
57.15	2 1/4	2.80	1,819	15.16	10.19	12.66	8.51	2,966	302
58		2.85	1,872	15.61	10.49	13.03	8.76	3,055	312
60		2.95	2,010	16.75	11.26	13.99	9.40	3,270	333
60.33	2 3/8	2.98	2,026	16.89	11.35	14.10	9.47	3,305	337
64		3.15	2,251	19.00	12.77	15.87	10.66	3,720	379
66		3.25	2,372	20.23	13.60	16.89	11.35	3,956	403

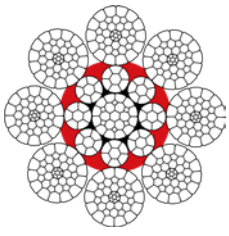
Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Other rope diameters are available on request.



QS816V (30-42 mm)

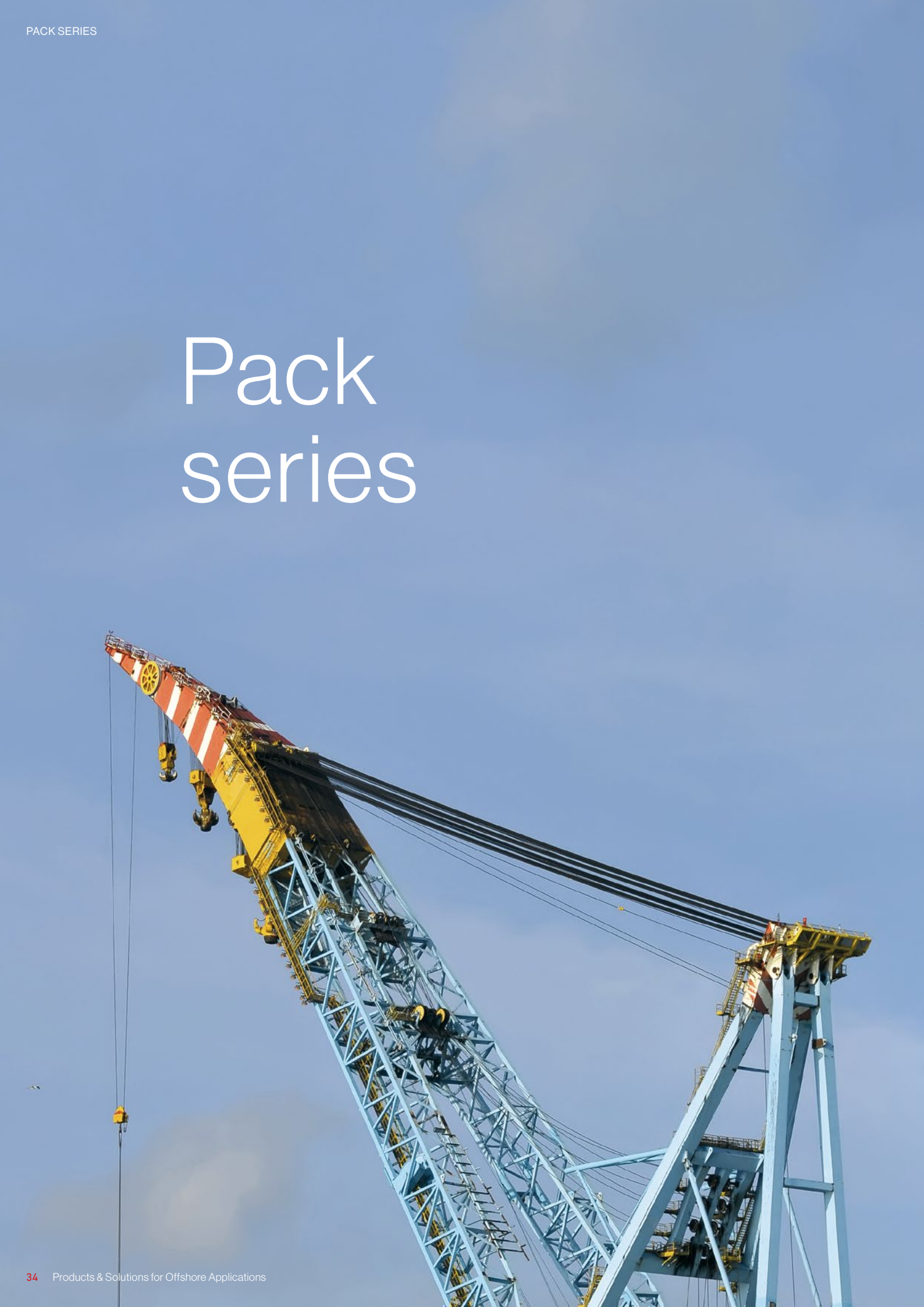


QS816V (44-50 mm)



QS816V (50.8-66 mm)

Pack series



Pack 1(P)

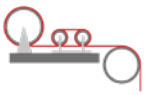
Rope class: 6xK36

A robust and versatile 6 compacted strands solution suitable for a variety of applications in the offshore industry. Improved lifetime and easy handling in all environments are significant properties of this product.

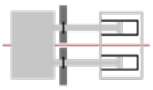
Options on request

- PLASTFILL® technology (P)
- Different wires surface coatings
- Prestretched
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing
- Modular transport reel
- Reinforced transport reel

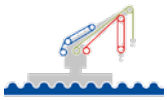
Applications



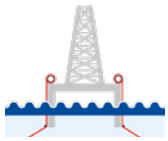
Traction winch



Linear winch



Multi-reeved crane



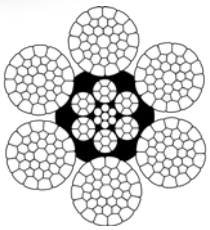
Mobile mooring lines

Technical data

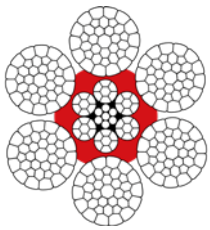
Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
40		2.35	862	7.12	4.78	6.08	4.09	1,447	148
41.28	1 5/8	2.43	918	7.58	5.09	6.48	4.35	1,541	157
42		2.47	950	7.85	5.27	6.71	4.51	1,595	163
44		2.59	1,043	8.61	5.79	7.36	4.95	1,751	179
44.45	1 3/4	2.61	1,064	8.79	5.91	7.51	5.05	1,787	182
46		2.70	1,140	9.41	6.32	8.05	5.41	1,914	195
47.63	1 7/8	2.80	1,222	10.09	6.78	8.63	5.80	2,052	209
48		2.82	1,241	10.25	6.89	8.76	5.89	2,084	213
50		2.94	1,347	11.12	7.47	9.51	6.39	2,261	231
50.80	2	2.99	1,390	11.48	7.71	9.81	6.59	2,305	235
52		3.06	1,457	12.03	8.08	10.28	6.91	2,415	246
54	2 1/8	3.17	1,571	12.97	8.72	11.09	7.45	2,604	266
56		3.29	1,690	13.95	9.37	11.92	8.01	2,801	286
57.15	2 1/4	3.36	1,760	14.53	9.76	12.42	8.35	2,917	297
58		3.41	1,812	14.96	10.05	12.79	8.59	3,004	306
60		3.53	1,940	16.01	10.76	13.69	9.20	3,215	328
60.33	2 3/8	3.55	1,961	16.19	10.88	13.84	9.30	3,251	332
62		3.64	2,071	17.10	11.49	14.62	9.82	3,433	350
63.50	2 1/2	3.73	2,172	17.93	12.05	15.33	10.30	3,601	367
64		3.76	2,207	18.22	12.24	15.58	10.47	3,658	373
66		3.88	2,347	19.37	13.02	16.56	11.13	3,841	392
66.68	2 5/8	3.92	2,395	19.77	13.28	16.91	11.36	3,921	400
68		4.00	2,491	20.56	13.82	17.58	11.81	4,077	416
70	2 3/4	4.11	2,640	21.79	14.64	18.63	12.52	4,321	441
72		4.23	2,793	23.06	15.50	19.71	13.24	4,571	466
73	2 7/8	4.29	2,871	23.70	15.93	20.26	13.61	4,699	479
74		4.35	2,950	24.35	16.36	20.82	13.99	4,829	492
76		4.47	3,112	25.69	17.26	21.96	14.76	5,093	519
76.20	3	4.48	3,128	25.82	17.35	22.08	14.84	5,120	522

Benefits

- ✓ High breaking force due to SUPERFILL® compaction technology.
- ✓ High wear and crushing resistance.
- ✓ Good dimensional stability with PLASTFILL® technology.
- ✓ Improved fleet angle and bending fatigue resistance with PLASTFILL® technology.



Pack 1



Pack 1P

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
77		4.52	3,194	26.37	17.72	22.55	15.15	5,228	533
78		4.58	3,278	27.06	18.18	23.13	15.54	5,301	541
79.38	3 1/8	4.66	3,395	28.02	18.83	23.96	16.10	5,490	560
80		4.70	3,448	28.46	19.12	24.34	16.36	5,576	569
82		4.82	3,623	29.90	20.09	25.57	17.18	5,859	597
82.55	3 1/4	4.85	3,671	30.31	20.37	25.91	17.41	5,937	605
84		4.94	3,801	31.38	21.09	26.83	18.03	6,148	627
85.73	3 3/8	5.04	3,960	32.69	21.97	27.95	18.78	6,404	653
86		5.05	3,985	32.89	22.10	28.12	18.90	6,444	657
88		5.17	4,172	34.44	23.14	29.45	19.79	6,747	688
89	3 1/2	5.23	4,268	35.23	23.67	30.12	20.24	6,901	704
90		5.29	4,364	36.02	24.20	30.80	20.70	7,057	720
92	3 5/8	4.81	4,525	38.04	25.56	32.54	21.87	7,322	747
94		4.91	4,724	39.71	26.68	33.97	22.83	7,644	779
95.25	3 3/4	4.98	4,851	40.77	27.40	34.88	23.44	7,849	800
96		5.02	4,928	41.42	27.83	35.43	23.81	7,874	803
98		5.12	5,135	43.16	29.00	36.92	24.81	8,205	837
98.43	3 7/8	5.15	5,180	43.54	29.26	37.25	25.03	8,277	844
100		5.23	5,347	44.94	30.20	38.44	25.83	8,451	862
101.60	4	5.31	5,519	46.39	31.17	39.68	26.66	8,724	890
102		5.33	5,563	46.75	31.41	40.00	26.88	8,793	897
104		5.44	5,783	48.61	32.66	41.58	27.94	9,141	932
105	4 1/8	5.49	5,895	49.55	33.30	42.39	28.48	9,165	935
106		5.54	6,008	50.49	33.93	43.20	29.03	9,340	952
108	4 1/4	5.65	6,236	52.42	35.22	44.84	30.13	9,355	954
109		5.70	6,352	53.39	35.88	45.68	30.70	9,529	972
110		5.75	6,470	54.38	36.54	46.52	31.26	9,580	977
112		5.86	6,707	56.37	37.88	48.22	32.40	9,678	987

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +4 %. Other rope diameters are available on request.

Pack 9(P)

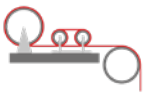
Rope class: 9xK19/9xK36

Designed with nine outer compacted strands for a very smooth profile and higher load capacity, Pack 9 is a valid and robust construction on demanding offshore multi-layer winches. Improved bending fatigue performance, wear and crushing resistance, are some of the main characteristics of this product.

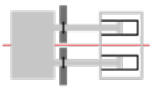
Options on request

- PLASTFILL® technology (P)
- Different wires surface coatings
- Modular transport reel
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing
- Reinforced transport reel

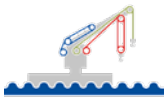
Applications



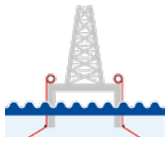
Traction winch



Linear winch



Multi-reeved crane



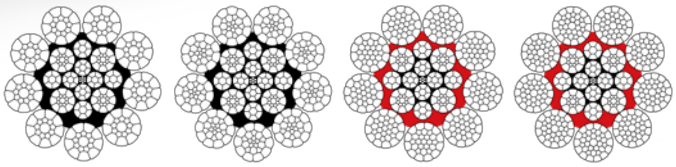
Mobile mooring lines

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
30		1.93	529	4.37	2.94	3.72	2.50	862	88
32		2.06	602	4.97	3.34	4.23	2.84	981	100
34		2.19	680	5.62	3.78	4.78	3.21	1,107	113
36		2.32	762	6.30	4.23	5.36	3.60	1,241	127
38	1 1/2	2.44	849	7.02	4.72	5.97	4.01	1,383	141
40		2.57	940	7.77	5.22	6.62	4.45	1,532	156
41.28	1 5/8	2.66	1,002	8.28	5.56	7.05	4.74	1,632	166
42		2.70	1,037	8.57	5.76	7.29	4.90	1,690	172
44		2.83	1,138	9.41	6.32	8.01	5.38	1,854	189
44.45	1 3/4	2.86	1,161	9.60	6.45	8.17	5.49	1,892	193
46		2.37	1,215	10.19	6.85	8.66	5.82	1,986	203
47.63	1 7/8	2.46	1,302	10.92	7.34	9.29	6.24	2,129	217
48		2.48	1,323	11.09	7.45	9.43	6.34	2,162	220
50		2.58	1,435	12.04	8.09	10.23	6.87	2,346	239
50.80	2	2.62	1,481	12.43	8.35	10.56	7.10	2,422	247
52		2.68	1,552	13.02	8.75	11.07	7.44	2,537	259
54	2 1/8	2.79	1,674	14.04	9.43	11.94	8.02	2,736	279
56		2.89	1,800	15.10	10.15	12.84	8.63	2,943	300
57.15	2 1/4	2.95	1,875	15.73	10.57	13.37	8.98	3,065	313
58		2.99	1,931	16.20	10.89	13.77	9.25	3,157	322
60		3.10	2,066	17.34	11.65	14.74	9.90	3,378	344
62		2.77	2,177	18.21	12.24	15.44	10.38	3,539	361
63.50	2 1/2	2.84	2,283	19.10	12.83	16.20	10.89	3,712	379
64		2.86	2,320	19.40	13.04	16.45	11.05	3,771	385
66		2.95	2,467	20.63	13.86	17.50	11.76	4,010	409
66.68	2 5/8	2.98	2,518	21.06	14.15	17.86	12.00	4,093	417

Benefits

- ✓ Higher breaking force due to SUPERFILL® technology.
- ✓ Excellent wear and crushing resistance.
- ✓ Improved dimensional stability with PLASTFILL® technology.
- ✓ Outstanding fleet angle resistance with PLASTFILL® technology.
- ✓ Great compromise between abrasion and bending fatigue resistance.

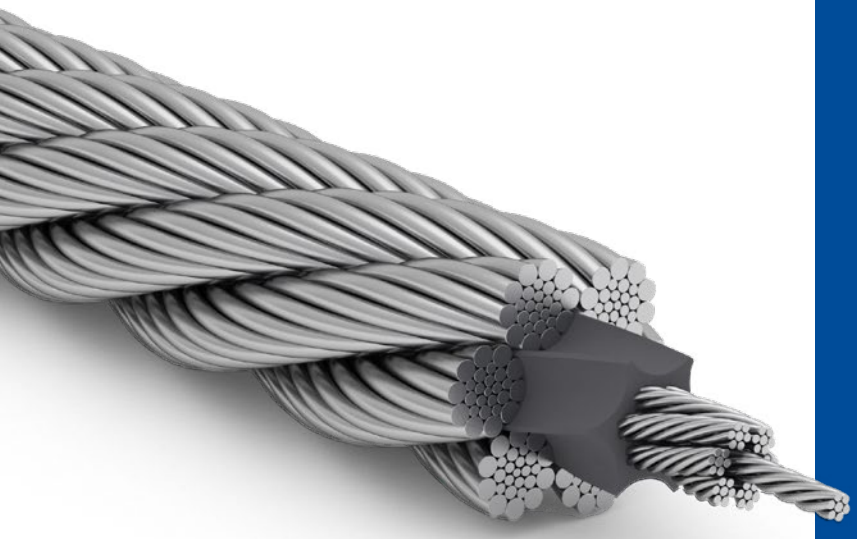


Pack 9 (9xK19S) | Pack 9 (9xK26WS) | Pack 9P (9xK31WS) | Pack 9P (9xK36WS)

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
68		3.04	2,619	21.90	14.72	18.57	12.48	4,257	434
70	2 3/4	3.13	2,775	23.21	15.60	19.68	13.22	4,511	460
72		3.22	2,936	24.56	16.50	20.82	13.99	4,772	487
73	2 7/8	3.27	3,018	25.24	16.96	21.40	14.38	4,906	500
74		3.31	3,101	25.94	17.43	22.00	14.78	5,041	514
76		3.40	3,271	27.36	18.39	23.20	15.59	5,317	542
76.20	3	3.41	3,288	27.50	18.48	23.32	15.67	5,345	545
79.38	3 1/8	3.55	3,568	29.85	20.06	25.31	17.01	5,519	563
80		3.58	3,624	30.32	20.37	25.71	17.28	5,606	572
82.55	3 1/4	3.28	3,832	32.56	21.88	27.83	18.70	5,969	609
84		3.34	3,967	33.71	22.65	28.82	19.37	6,180	630
85.73	3 3/8	3.41	4,133	35.11	23.59	30.02	20.17	6,438	656
86		3.42	4,159	35.34	23.75	30.21	20.30	6,478	661
88		3.50	4,354	37.00	24.86	31.63	21.25	6,783	692
89	3 1/2	3.54	4,454	37.84	25.43	32.35	21.74	6,938	707
90		3.58	4,555	38.70	26.01	33.09	22.24	7,095	723
92	3 5/8	3.65	4,759	40.44	27.17	34.57	23.23	7,414	756
94		3.73	4,968	42.22	28.37	36.09	24.25	7,740	789
95.25	3 3/4	3.78	5,101	43.35	29.13	37.06	24.90	7,947	810
96		3.81	5,182	44.03	29.59	37.64	25.29	8,072	823
98		3.89	5,400	45.88	30.83	39.23	26.36	8,412	858
98.43	3 7/8	3.91	5,448	46.29	31.11	39.57	26.59	8,486	865
100		3.97	5,623	47.78	32.11	40.85	27.45	8,759	893
104		4.13	6,082	51.68	34.73	44.18	29.69	8,990	917
106		4.21	6,318	53.68	36.07	45.90	30.84	9,192	937
108	4 1/4	4.29	6,559	55.73	37.45	47.64	32.01	9,542	973

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +2 %. Other rope diameters are available on request.

Execution series



Execution D6

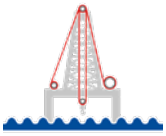
Rope class: 6x19

Ensuring the constant availability of offshore drilling rigs and avoiding unscheduled downtimes is what customers operating such systems expect. The Execution D6 high performance steel wire rope meets these expectations on offshore drilling platforms where the breaking forces of non-compacted ropes prove sufficient.

Benefits

- Robust and extremely resistant construction due to PLASTFILL® technology.
- High operational safety thanks to this rope's excellent performance under reverse bending cycles.
- Perfect spooling in reeving arrangements thanks to the flexibility provided by this rope's construction.
- Low sensitivity to vibrations due to the PLASTFILL® technology.

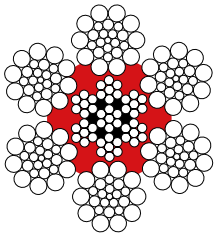
Applications



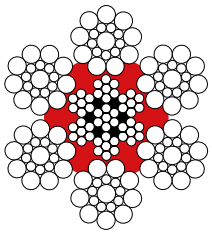
Drilling lines

Options on request

- Different wires surface coatings
- NDT during rope closing
- Wide operating temperature lubricant



Execution D6 (6x26WS)



Execution D6 (6x19S)

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass in air*		MBF at rope grade			
						EIP		EEIP	
mm	inch	mm	mm²	kg/m	lbs/ft	kN	tonnes	kN	tonnes
25.40	1	2.05	304	2.7	1.8	487	50	525	54
28.58	1 1/8	2.30	384	3.5	2.3	616	63	665	68
31.75	1 1/4	2.56	474	4.3	2.9	760	78	821	84
35	1 3/8	2.82	576	5.2	3.5	924	94	998	102
38.10	1 1/2	3.07	683	6.1	4.1	1,095	112	1,182	121
41.28	1 5/8	3.07	808	7.3	4.9	1,175	120	1,301	133
44.45	1 3/4	3.31	937	8.4	5.7	1,362	139	1,509	154
47.63	1 7/8	3.55	1,075	9.7	6.5	1,564	159	1,732	177
50.80	2	3.78	1,223	11.0	7.4	1,779	181	1,970	201
54	2 1/8	4.00	1,382	12.4	8.3	2,011	205	2,226	227
57.15	2 1/4	4.26	1,548	13.9	9.3	2,252	230	2,494	254

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +4 %. Other rope diameters are available on request.

Execution D6s

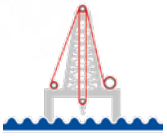
Rope class: 6xK19/6xK36

Extreme environmental conditions and bending over sheaves at high loads present challenging application scenarios for drilling lines on platforms. The use of this high performance steel wire rope significantly contributes to the high reliability of the offshore platforms.

Benefits

- ✓ High breaking force for excellent operational reliability and safety due to SUPERFILL® compaction technology.
- ✓ Extremely robust and outstanding resistance to wear and tear thanks to PLASTFILL® insert.
- ✓ Optimum spooling results and great ease of handling due to the flexibility of the rope.
- ✓ Longer service life due to reduced rope abrasion as a result of the rope's smooth surface.

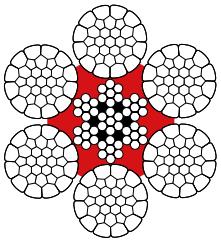
Applications



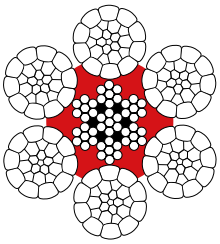
Drilling lines

Options on request

- Different wires surface coatings
- NDT during rope closing
- Wide operating temperature lubricant



Execution D6s (6xK31WS)

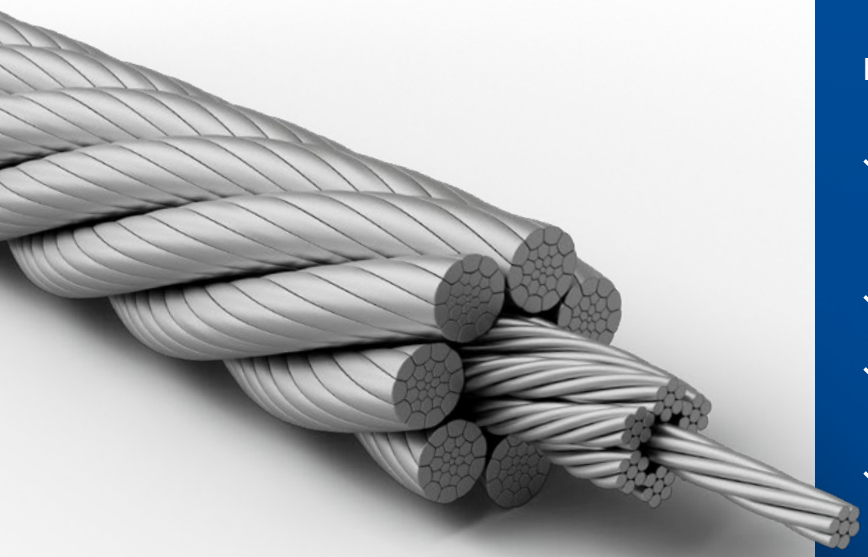


Execution D6s (6xK26WS)

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass in air*		MBF at rope grade 1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kN	tonnes
35	1 3/8	2.75	638	5.5	3.7	1,050	107
38.10	1 1/2	2.99	756	6.5	4.3	1,245	127
41.28	1 5/8	3.25	890	7.6	5.1	1,461	149
44.45	1 3/4	3.49	1,032	8.8	5.9	1,694	173
47.63	1 7/8	3.75	1,187	10.1	6.8	1,945	198
50.80	2	3.45	1,358	11.6	7.8	2,213	226
54	2 1/8	3.68	1,543	13.2	8.9	2,500	255
56		3.80	1,653	14.1	9.5	2,689	274
57.15	2 1/4	3.89	1,727	14.8	9.9	2,800	286

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +4 %. Other rope diameters are available on request.



Execution D7s

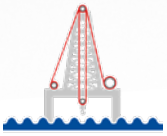
Rope class: 7xK19

The demanding drilling operations on various types of offshore drilling rigs require ropes with high breaking load, extreme wear resistance and excellent spooling behaviour. This is a valid alternative to conventional 6 strands rope on offshore platforms.

Benefits

- ✓ High breaking force with low wire grade compared to conventional 6 strand ropes due to SUPERFILL® technology.
- ✓ Excellent wear and fatigue resistance.
- ✓ Improved surface contacts with grooves due to rounder surface compared to 6 strand rope.
- ✓ Better radial stability.

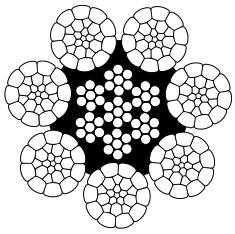
Applications



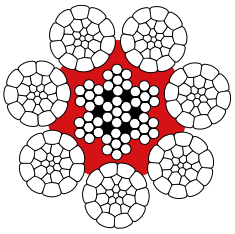
Drilling lines

Options on request

- Different wires surface coatings
- Wide operating temperature lubricant
- NDT during rope closing



Execution D7s (7xK26WS)



Execution D7s (7xK26WS)

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass in air*		MBF at rope grade 1770		MBF at rope grade 1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kN	tonnes	kN	tonnes
35	1 3/8	2.49	642	5.7	3.8	886	90	981	100
38.10	1 1/2	2.71	761	6.7	4.5	1,049	107	1,162	118
41.28	1 5/8	2.94	894	7.9	5.3	1,232	126	1,364	139
44.45	1 3/4	3.17	1,036	9.2	6.2	1,428	146	1,582	161
47.63	1 7/8	3.39	1,190	10.5	7.1	1,640	167	1,816	185
50.80	2	3.62	1,354	12.0	8.0	1,865	190	2,066	211
54	2 1/8	3.85	1,529	13.5	9.1	2,108	215	2,334	238
57.15	2 1/4	4.07	1,713	15.1	10.2	2,361	241	2,614	267

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +4 %. Other rope diameters are available on request.

Specifically designed for marine riser tensioner

Execution M6

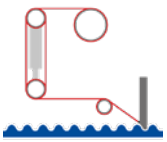
Rope class: 6xK36

The permanent exposure to tensile loads and high bending cycles in harsh environmental conditions represent a big challenge for MRT ropes. The M6 has been specifically developed in order to ensure enhance fatigue performance and excellent wear resistance.

Benefits

- ✓ High breaking force due to SUPERFILL® technology in the outer strands.
- ✓ Excellent bending fatigue performance and high flexibility due to outer strands construction.
- ✓ Longer service life due to reduced rope abrasion as result of the rope's smooth surface.
- ✓ Improved dimentional stability and fatigue performance due to PLASTFILL® technology.

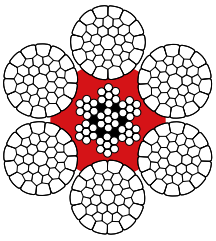
Applications



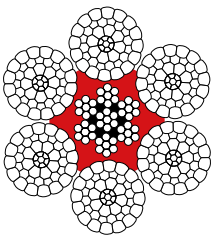
Marine riser tensioners

Options on request

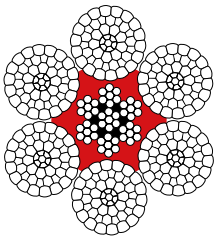
- Different wires surface coatings
- Wide operating temperature lubricant
- NDT during rope closing



Execution M6 (6xK36WS)



Execution M6 (6xK41WS)



Execution M6 (6xK46WS)

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass in air*		MBF at rope grade 1670	
mm	inch	mm	mm²	kg/m	lbs/ft	kN	tonnes
38.1	1 1/2	2.25	745	6.35	4.27	1,053	107
41.28	1 5/8	2.43	872	7.43	4.99	1,236	126
44.45	1 3/4	2.62	1,013	8.63	5.8	1,433	146
47.63	1 7/8	2.81	1,162	9.91	6.66	1,645	168
50.8	2	2.68	1,318	11.25	7.56	1,872	191
54	2 1/8	2.85	1,490	12.73	8.55	2,115	216
57.15	2 1/4	3.01	1,666	14.23	9.56	2,369	242
60.33	2 3/8	3.18	1,860	15.88	10.67	2,640	269
63.5	2 1/2	3.35	2,060	17.59	11.82	2,925	298
66.68	2 5/8	3.18	2,277	19.46	13.08	3,225	329
69.85	2 3/4	3.33	2,498	21.35	14.35	3,539	361
73	2 7/8	3.48	2,727	23.31	15.66	3,865	394

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +4 %. Other rope diameters are available on request.

Mooring series

Marine (P)

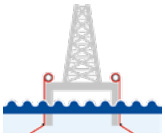
Rope class: 6x36

Marine is a conventional rope for different applications in the offshore industry. Either in mobile mooring systems or heavy lifting offshore cranes, it represents a robust and effective solution.

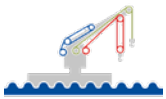
Options on request

- Different wires surface coatings
- Prestretched
- PLASTFILL® technology
- EAL (biodegradable)
- Modular transport reel
- Reinforced transport reel
- NDT during rope closing

Applications



Mobile mooring lines



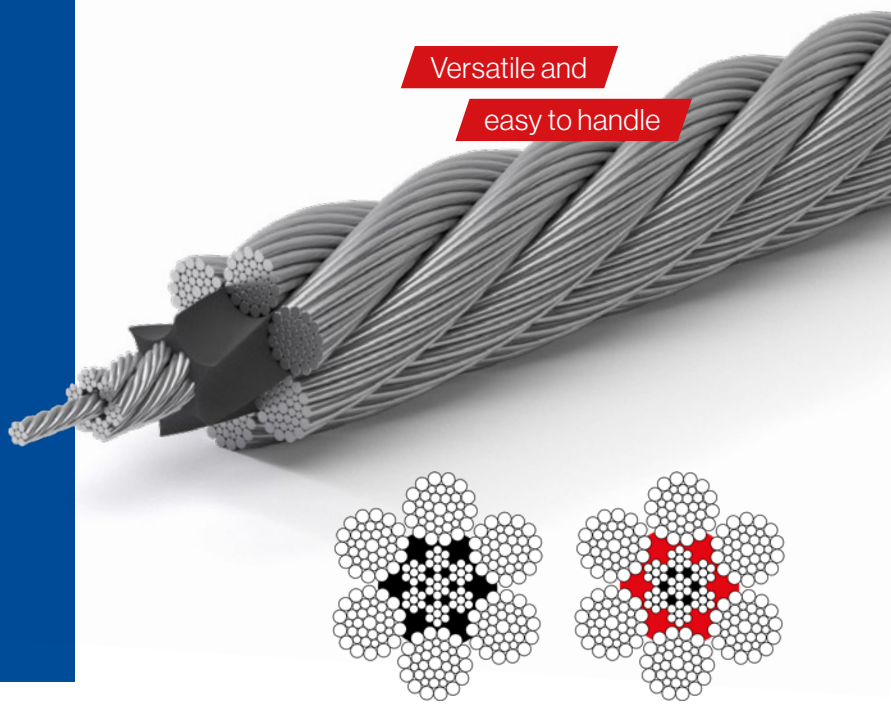
Multi-reeved crane

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
32		1.83	506	4.37	2.94	3.71	2.49	867	88
34		1.94	571	4.93	3.31	4.19	2.82	979	100
35	1 3/8	2.00	605	5.22	3.51	4.44	2.98	1,037	106
36		2.06	640	5.53	3.72	4.70	3.16	1,097	112
38	1 1/2	2.17	713	6.16	4.14	5.23	3.51	1,222	125
40		2.29	790	6.82	4.58	5.80	3.90	1,354	138
41.28	1 5/8	2.36	842	7.27	4.89	6.18	4.15	1,443	147
42		2.40	871	7.52	5.05	6.39	4.29	1,493	152
44		2.51	956	8.26	5.55	7.02	4.72	1,639	167
44.45	1 3/4	2.54	976	8.42	5.66	7.16	4.81	1,673	171
46		2.63	1,045	9.02	6.06	7.67	5.15	1,791	183
47.63	1 7/8	2.72	1,120	9.67	6.50	8.22	5.52	1,920	196
48		2.74	1,138	9.82	6.60	8.35	5.61	1,950	199
50		2.86	1,235	10.66	7.16	9.06	6.09	2,116	216
50.8	2	2.90	1,274	11.00	7.39	9.35	6.28	2,185	223
52		2.97	1,335	11.53	7.75	9.80	6.59	2,289	233
54	2 1/8	3.09	1,440	12.43	8.35	10.57	7.10	2,354	240
56		3.20	1,549	13.37	8.98	11.37	7.64	2,532	258
57.15	2 1/4	3.27	1,613	13.93	9.36	11.84	7.96	2,637	269
58		3.31	1,661	14.34	9.64	12.19	8.19	2,716	277
60		3.43	1,778	15.35	10.31	13.05	8.77	2,906	296
60.33	2 3/8	3.45	1,797	15.52	10.43	13.19	8.86	2,938	300
62		3.54	1,898	16.39	11.01	13.93	9.36	3,103	316
63.5	2 1/2	3.63	1,991	17.19	11.55	14.62	9.82	3,255	332
64		3.66	2,023	17.47	11.74	14.85	9.98	3,307	337
66		3.77	2,151	18.57	12.48	15.79	10.61	3,517	359
66.68	2 5/8	3.81	2,196	18.96	12.74	16.12	10.83	3,590	366
68		3.89	2,283	19.72	13.25	16.76	11.26	3,733	381
70	2 3/4	4.00	2,420	20.89	14.04	17.76	11.93	3,956	403
72		4.11	2,560	22.10	14.85	18.79	12.63	4,030	411
73	2 7/8	4.17	2,632	22.72	15.27	19.32	12.98	4,143	422
74		4.23	2,704	23.35	15.69	19.85	13.34	4,257	434

Benefits

- ✓ Robust construction.
- ✓ High flexibility and easy handling.
- ✓ Good breaking force.



Marine

Marine P

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm²	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
76		4.34	2,852	24.63	16.55	20.94	14.07	4,490	458
76.2	3	4.35	2,867	24.76	16.64	21.05	14.14	4,514	460
77		4.40	2,928	25.28	16.99	21.49	14.44	4,609	470
78		4.46	3,004	25.94	17.43	22.05	14.82	4,730	482
79.38	3 1/8	4.54	3,112	26.87	18.06	22.84	15.35	4,898	499
80		4.57	3,160	27.29	18.34	23.20	15.59	4,975	507
82		4.69	3,320	28.67	19.27	24.37	16.38	5,227	533
82.55	3 1/4	4.72	3,365	29.06	19.53	24.70	16.60	5,298	540
84		4.80	3,484	30.09	20.22	25.58	17.19	5,485	559
85.73	3 3/8	4.90	3,629	31.34	21.06	26.64	17.90	5,714	583
86		4.91	3,652	31.54	21.19	26.81	18.02	5,750	586
88		4.49	3,830	33.08	22.23	28.12	18.90	5,901	602
89	3 1/2	4.54	3,918	33.83	22.73	28.77	19.33	6,036	616
90		4.59	4,006	34.60	23.25	29.42	19.77	6,172	629
92	3 5/8	4.69	4,186	36.15	24.29	30.74	20.66	6,450	658
94		4.79	4,370	37.74	25.36	32.09	21.56	6,733	687
95.25	3 3/4	4.86	4,487	38.75	26.04	32.95	22.14	6,913	705
96		4.89	4,558	39.36	26.45	33.47	22.49	7,023	716
98		5.00	4,750	41.02	27.56	34.88	23.44	7,318	746
98.43	3 7/8	5.02	4,792	41.38	27.81	35.19	23.65	7,383	753
100		5.10	4,946	42.71	28.70	36.32	24.41	7,620	777
101.6	4	5.18	5,106	44.09	29.63	37.49	25.19	7,866	802
102		5.20	5,146	44.44	29.86	37.78	25.39	7,928	808
104		5.30	5,350	46.20	31.04	39.28	26.39	8,125	829
105	4 1/8	5.35	5,453	47.09	31.64	40.04	26.91	8,282	845
106		5.40	5,558	47.99	32.25	40.81	27.42	8,441	861
108	4 1/4	5.51	5,769	49.82	33.48	42.36	28.46	8,762	893
109		5.56	5,877	50.75	34.10	43.15	29.00	8,925	910
110		5.61	5,985	51.68	34.73	43.94	29.53	8,978	916
112		5.71	6,205	53.58	36.00	45.56	30.61	9,307	949

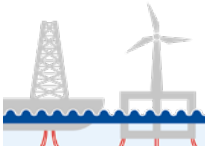
Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Additional mass for plastic covered core is up to +4 %. Other rope diameters are available on request.

OSS Mooring

Open spiral strand

A torsionally balanced construction in order to reach high performances, extremely long service lifetime with HDPE sheathing, corrosion resistance and stability: the Open Spiral Strands HP and XF series represent the optimum solution for permanent mooring lines in the oil & gas and renewable energy industry.

Applications



Long term mooring lines

Options on request

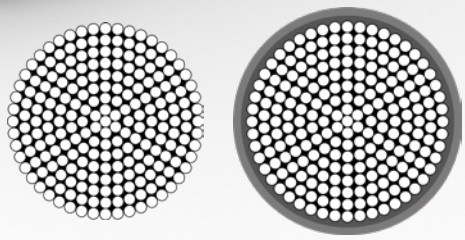
- Different wires surface coatings
- Double plastic sheathed
- NDT during rope closing
- Special accessories
- Longitudinal line
- Modular transport reel
- Reinforced transport reel

Technical data

Nominal rope Ø		Metallic area	Axial stiffness	Nominal rope mass unsheathed*				Sheathing thickness*	Nominal rope mass sheathed*				MBF**			
				in air		in water			in air		in water		HP high performance		XF extra force	
mm	inch	mm²	MN	kg/m	lbs/ft	kg/m	lbs/ft	mm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes	kN	tonnes
60		2,259	351	18.49	12.42	15.89	10.68	7	19.93	13.39	15.72	10.56	3,760	383	3,962	404
60.33	2 3/8	2,284	355	18.7	12.57	16.06	10.79	7	20.15	13.54	15.9	10.68	3,802	388	4,006	408
62		2,413	375	19.75	13.27	16.97	11.4	7	21.24	14.27	16.76	11.26	4,015	409	4,231	431
63.5	2 1/2	2,531	393	20.71	13.92	17.8	11.96	7	22.23	14.94	17.54	11.79	4,212	430	4,438	453
64		2,571	400	21.04	14.14	18.08	12.15	7	22.57	15.17	17.81	11.97	4,278	436	4,508	460
66		2,734	425	22.38	15.04	19.23	12.92	8	24.2	16.26	19.09	12.83	4,550	464	4,794	489
66.68	2 5/8	2,791	434	22.84	15.35	19.62	13.18	8	24.68	16.58	19.47	13.08	4,644	474	4,894	499
68		2,902	451	23.75	15.96	20.41	13.71	8	25.62	17.22	20.21	13.58	4,830	493	5,089	519
70	2 3/4	3,075	478	25.17	16.91	21.63	14.53	8	27.09	18.2	21.37	14.36	5,118	522	5,393	550
72		3,254	506	26.63	17.89	22.88	15.37	8	28.6	19.22	22.57	15.17	5,415	552	5,706	582
73	2 7/8	3,345	520	27.37	18.39	23.52	15.8	8	29.37	19.74	23.17	15.57	5,566	568	5,865	598
74		3,437	534	28.13	18.9	24.17	16.24	9	30.43	20.45	24.01	16.13	5,720	583	6,027	615
76	3	3,625	563	29.67	19.94	25.49	17.13	9	32.03	21.52	25.27	16.98	6,033	615	6,357	648
77		3,721	578	30.46	20.47	26.17	17.59	9	32.84	22.07	25.91	17.41	6,193	632	6,526	665
78		3,818	593	31.25	21	26.85	18.04	9	33.66	22.62	26.56	17.85	6,355	648	6,696	683
79.38	3 1/8	3,955	615	32.37	21.75	27.81	18.69	9	34.82	23.4	27.47	18.46	6,582	671	6,935	707
80		4,017	624	32.88	22.09	28.25	18.98	9	35.35	23.75	27.89	18.74	6,685	682	7,044	718
82		4,220	656	34.54	23.21	29.68	19.94	9	37.06	24.9	29.24	19.65	7,023	716	7,401	755
82.55	3 1/4	4,277	665	35	23.52	30.08	20.21	9	37.54	25.23	29.62	19.9	7,118	726	7,500	765
84		4,429	688	36.25	24.36	31.14	20.93	10	39.14	26.3	30.88	20.75	7,370	752	7,766	792
86	3 3/8	4,642	721	37.99	25.53	32.64	21.93	10	40.95	27.52	32.31	21.71	7,725	788	8,140	830

Benefits

- ✓ High breaking force due to increased metallic area.
- ✓ Excellent durability and corrosion resistance.
- ✓ Torsionally balanced construction due to layers wound in opposite direction.
- ✓ Design life to suit customer requirements.



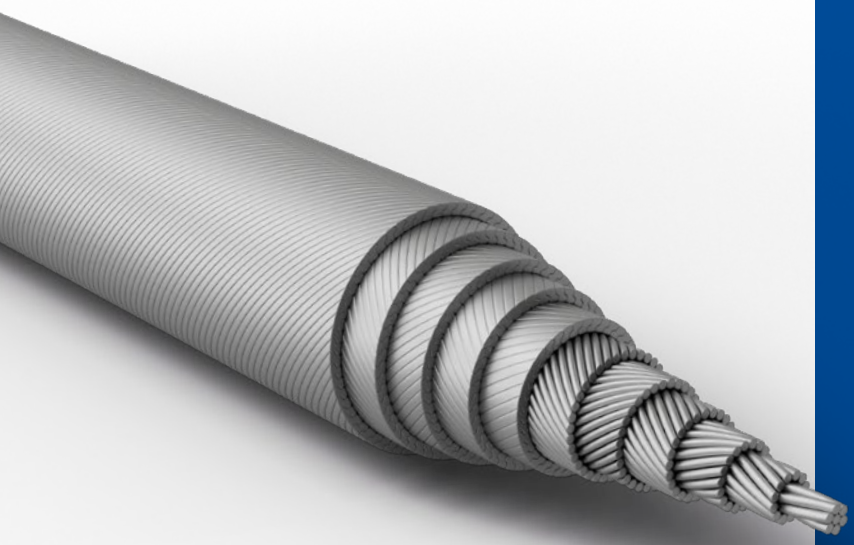
OSS Mooring

OSS Mooring sheathed

Nominal rope Ø		Metallic area	Axial stiffness	Nominal rope mass unsheathed*				Sheathing thickness*	Nominal rope mass sheathed*				MBF**			
				in air		in water			in air		in water		HP high performance		XF extra force	
mm	inch	mm²	MN	kg/m	lbs/ft	kg/m	lbs/ft	mm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes	kN	tonnes
88		4,860	755	39.78	26.73	34.18	22.97	10	42.8	28.76	33.77	22.69	8,089	825	8,523	869
90		5,084	790	41.61	27.96	35.75	24.02	10	44.69	30.03	35.26	23.69	8,460	863	8,915	909
94		5,546	862	45.39	30.5	39	26.21	11	48.95	32.89	38.62	25.95	9,229	941	9,657	985
95	3 3/4	5,664	880	46.36	31.15	39.83	26.76	11	49.95	33.56	39.41	26.48	9,427	961	9,864	1,006
96		5,784	899	47.34	31.81	40.68	27.34	11	50.96	34.24	40.21	27.02	9,626	982	10,073	1,027
98	3 7/8	6,028	937	49.33	33.15	42.39	28.48	11	53.02	35.63	41.83	28.11	10,031	1,023	10,497	1,070
100		6,276	975	51.37	34.52	44.14	29.66	12	55.51	37.3	43.8	29.43	10,445	1,065	10,930	1,115
102	4	6,530	1,015	53.44	35.91	45.92	30.86	12	57.65	38.74	45.49	30.57	10,867	1,108	11,291	1,151
104		6,788	1,055	55.56	37.33	47.74	32.08	12	59.85	40.22	47.22	31.73	11,297	1,152	11,738	1,197
105	4 1/8	6,920	1,075	56.63	38.05	48.66	32.7	12	60.95	40.96	48.09	32.31	11,516	1,174	11,965	1,220
106		7,052	1,096	57.72	38.79	49.59	33.32	12	62.08	41.72	48.98	32.91	11,736	1,197	12,194	1,243
108	4 1/4	7,321	1,138	59.92	40.26	51.48	34.59	12	64.35	43.24	50.77	34.12	12,183	1,242	12,659	1,291
109		7,457	1,159	61.03	41.01	52.44	35.24	13	65.91	44.29	52	34.94	12,410	1,265	12,894	1,315
110		7,594	1,180	62.16	41.77	53.41	35.89	13	67.08	45.08	52.93	35.57	12,638	1,289	13,132	1,339
112		7,873	1,224	64.44	43.3	55.36	37.2	13	69.44	46.66	54.79	36.82	12,040	1,228	12,504	1,275
114	4 1/2	8,157	1,268	66.76	44.86	57.36	38.54	13	71.84	48.27	56.68	38.09	12,257	1,250	12,730	1,298
115		8,300	1,290	67.93	45.65	58.37	39.22	13	73.05	49.09	57.64	38.73	12,699	1,295	13,189	1,345
116		8,445	1,312	69.12	46.45	59.39	39.91	13	74.28	49.91	58.61	39.38	12,923	1,318	13,421	1,369
118		8,739	1,358	71.53	48.07	61.46	41.3	14	77.22	51.89	60.93	40.94	13,149	1,341	13,655	1,392
119		8,888	1,381	72.74	48.88	62.5	42	14	78.47	52.73	61.91	41.6	13,837	1,411	14,371	1,465

* Sheathing radial thickness can be modified on specific request.

**Above MBF values refer to class B zinc wire coating. For A zinc coating or Zn95Al5 alloy coating requests, MBF values can be delivered on request.



FLC Mooring

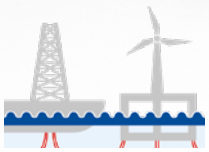
Full locked coil rope

A torsionally balanced construction to ensure the highest strength. This construction is a valid alternative to open spiral strands ropes, when higher breaking force is required, in permanent mooring lines for FPSOs and floating wind farm. Teufelberger-Redaelli always guarantees high performances, resistance and stability. The addition of HDPE sheathing ensures higher service lifetime.

Benefits

- ✓ Excellent breaking force due to increased metallic area.
- ✓ Excellent durability and corrosion resistance.
- ✓ Torsionally balanced construction due to layers wound in opposite direction.
- ✓ Design life to suit customer requirements.
- ✓ Double plastic HDPE sheathing allow to identify damages in service.

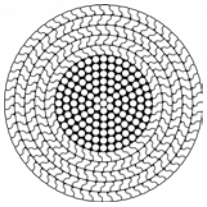
Applications



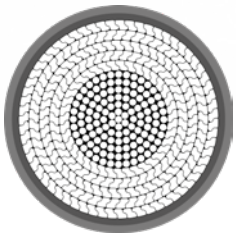
Long term mooring lines

Options on request

- Different wires surface coatings
- Longitudinal line
- Double plastic sheathed
- Special accessories
- Modular transport reel
- Reinforced transport reel



FLC



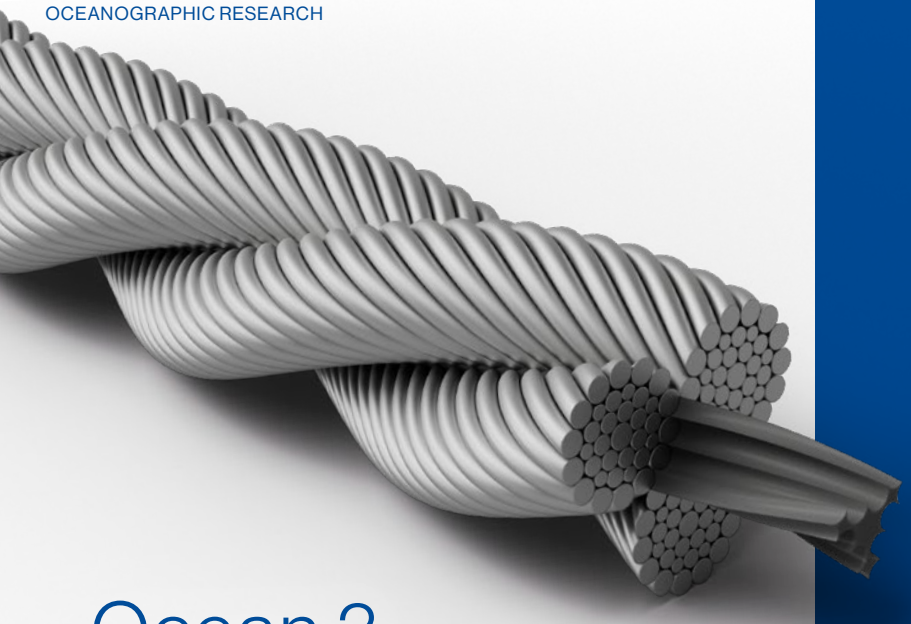
FLC sheathed

Technical data

Nominal rope Ø	Metallic area	Axial stiffness	Nominal rope mass unsheathed*				Sheathing thickness**	Nominal rope mass sheathed*				MBF	
			in air		in water			in air		in water			
mm	mm²	MN	kg/m	lbs/ft	kg/m	lbs/ft	mm	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
100	6,890	1,123	57.3	38.5	48.71	32.73	12	61.37	41.24	48.42	32.54	10,075	1,027
104	7,452	1,215	62	41.66	52.7	35.41	12	66.21	44.49	52.24	35.10	10,880	1,109
108	8,037	1,310	66.9	44.95	56.87	38.21	12	71.26	47.88	56.22	37.78	11,725	1,196
112	8,744	1,425	72.8	48.92	61.88	41.58	13	77.72	52.23	61.32	41.21	12,745	1,300
116	9,379	1,529	78	52.41	66.3	44.55	13	83.07	55.82	65.54	44.04	13,660	1,393
120	10,037	1,636	83.5	56.11	70.98	47.7	14	89.18	59.93	70.36	47.28	14,605	1,489
124	10,718	1,747	89.2	59.94	75.82	50.95	14	95.04	63.86	74.99	50.39	15,585	1,589
128	11,551	1,883	96.1	64.58	81.69	54.89	15	102.59	68.94	80.94	54.39	16,790	1,712
132	12,285	1,966	102.2	68.68	86.87	58.37	15	108.87	73.16	85.9	57.72	17,845	1,820
136	13,040	2,086	108.5	72.91	92.23	61.98	16	115.86	77.85	91.41	61.42	18,935	1,931
140	13,819	2,211	115	77.28	97.75	65.68	16	122.55	82.35	96.69	64.97	20,055	2,045
144	14,620	2,339	121.7	81.78	103.45	69.52	17	129.98	87.34	102.55	68.91	21,205	2,162
148	15,443	2,471	128.5	86.35	109.23	73.4	17	136.99	92.05	108.09	72.63	22,395	2,284
152	16,289	2,606	135.5	91.05	115.18	77.4	17	144.19	96.89	113.77	76.45	23,610	2,408
156	17,158	2,745	142.8	95.96	121.38	81.56	18	152.28	102.33	120.15	80.74	24,860	2,535

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Other rope diameters are available on request.
** Sheathing radiali thickness can be modified on specific request.

Oceanographic research



Solution for
deep water research

Ocean 3

Rope class: 3x19 / 3x36

A solution specifically designed for oceanographic working environments that need to withstand factors such as cold temperatures, flexing, bend cycling, corrosion, fish bite, marine abrasion and compression.

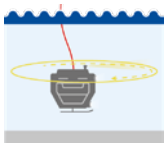
Benefits

- ✓ Torsionally balanced wire rope construction to reduce the tendency to twist under load.
- ✓ High corrosion resistance due to good lubrication.
- ✓ Improved shock loads resistance and low elongation under load.

Options on request

- Different wires surface coatings
- EAL (biodegradable)
- Wide operating temperature lubricant
- NDT during rope closing

Applications

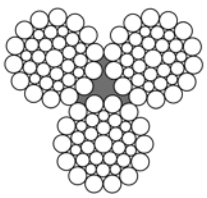


Oceanographic operations

Technical data

Nominal rope Ø		Outer wire Ø	Metallic area	Nominal rope mass*				MBF at rope grade	
				in air		in water		1960	
mm	inch	mm	mm^2	kg/m	lbs/ft	kg/m	lbs/ft	kN	tonnes
19	3/4	1.55	154	1.38	0.93	1.1	0.74	261	27
20		1.63	170	1.53	1.03	1.22	0.82	289	29
21		1.71	188	1.69	1.14	1.34	0.9	319	33
22		1.79	206	1.85	1.24	1.47	0.99	350	36
22.23	7/8	1.81	210	1.89	1.27	1.5	1.01	358	37
23		1.87	225	2.02	1.36	1.61	1.08	383	39
24		1.95	245	2.2	1.48	1.75	1.18	417	43
25		2.04	266	2.39	1.61	1.9	1.28	452	46
25.4	1	2.07	274	2.47	1.66	1.96	1.32	467	48
26		2.12	288	2.59	1.74	2.05	1.38	489	50
27		2.2	310	2.79	1.87	2.22	1.49	527	54
28		2.28	333	3	2.02	2.38	1.6	567	58
28.58	1 1/8	2.33	347	3.13	2.1	2.48	1.67	591	60
29		2.36	358	3.22	2.16	2.56	1.72	608	62
30		2.44	383	3.44	2.31	2.74	1.84	651	66

Figures shown in this page represent the characteristics of the standard products. Other constructions can be customized to suit specific applications and requirements.
*Other rope diameters are available on request.

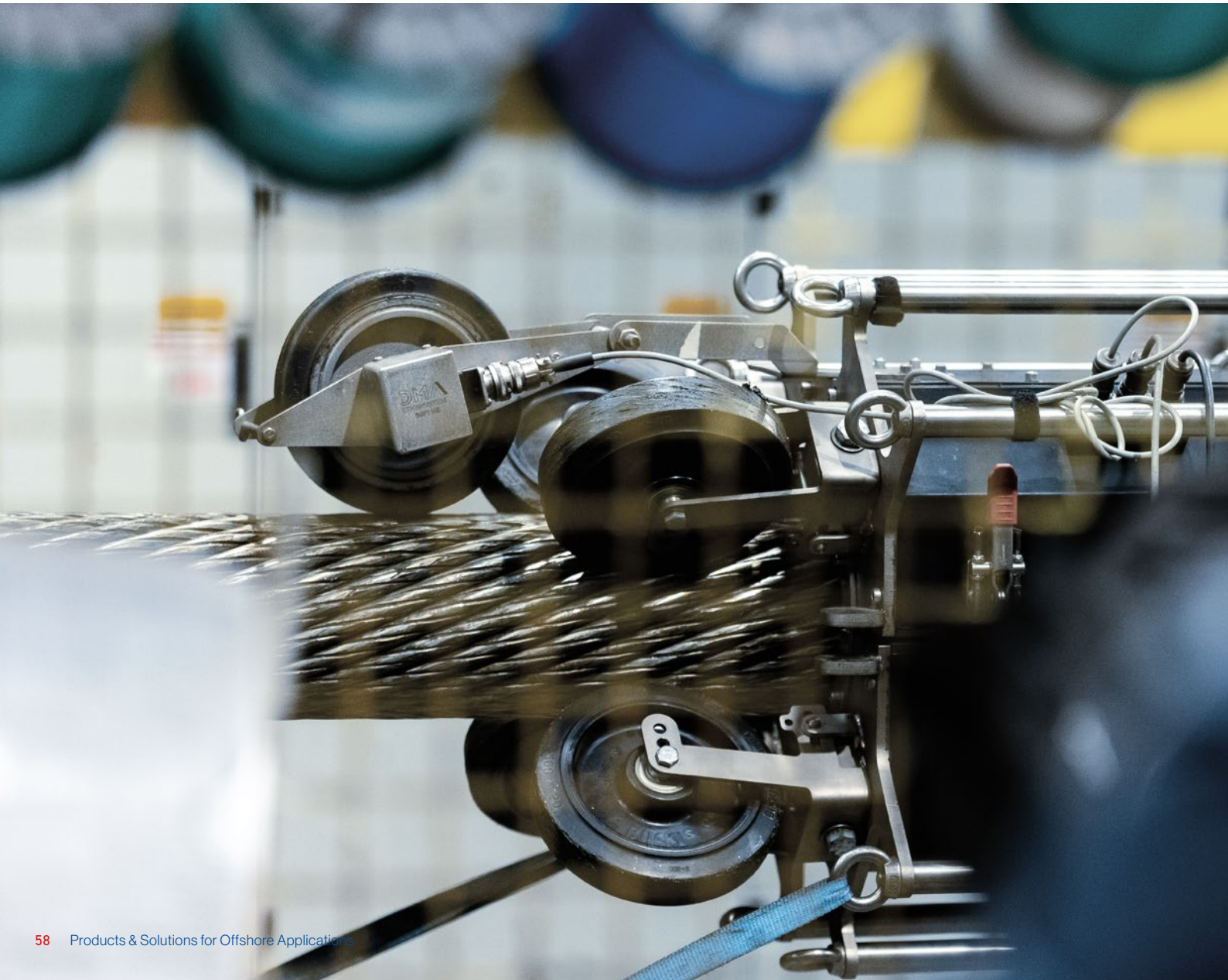


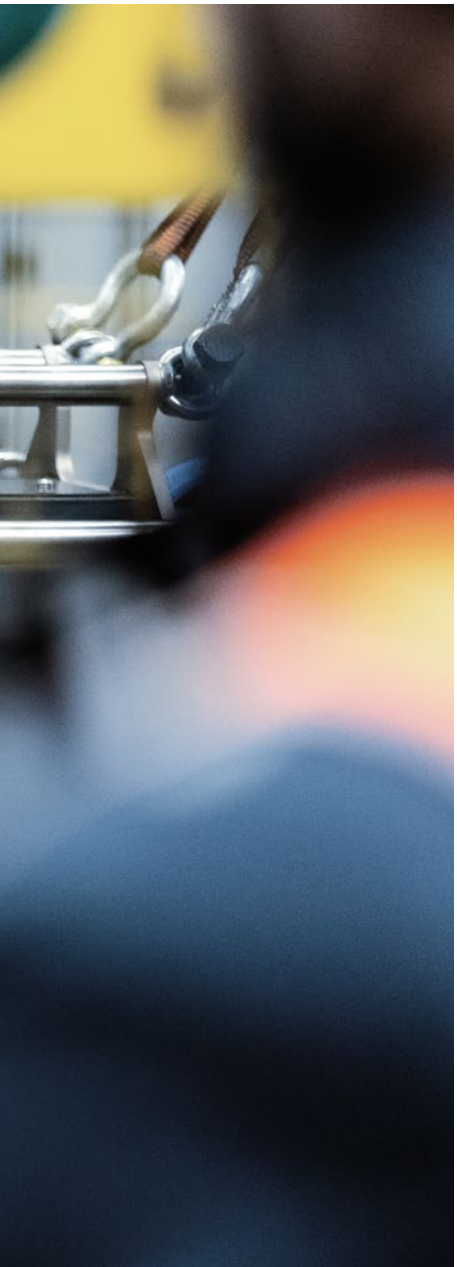
Ocean 3

More than just a product

We deliver solutions that fit your needs

From the first technical specifications through manufacturing to training, inspections on site or post-retirement assessments, our goal is to provide solutions that meet your highest expectations.





1. Technical consulting

Highly competent rope technicians and engineers offer technical support with the aid of internally developed models to provide reliable rope performance even in the most challenging applications.

2. From specifications to the design

Choosing the right rope requires a precise analysis of requirements and operating conditions. Our structured solution-finding process ensures that all requirements are translated into a custom-tailored, efficient solution.

3. Manufacturing & certification management

We ensure consistency and quality control in production, monitoring and controlling all the process steps used to transform raw material into a finished product and we can provide a complete record of the production process.

4. Education & Training

Our practice-based and comprehensive training courses equip you with the know-how you need to get the most out of your ropes. Our experienced field engineers will provide you with both theoretical knowledge and practical tips that you can directly apply in your daily work.

5. Rope installation & commissioning supervision

We offer expert advise and supervision during installation and commissioning to ensure that the installation of wire ropes is carried out in a safe and correct procedure.

6. Inspections, maintenance & examinations

A network of technicians can provide operational support making site visits, periodical inspections to wire ropes during service and maintenance operations with specific NDE or re-lubrication equipment. Combining inspection results with extensive application knowledge, allows us to give wire rope condition assessments either on discarded ropes, or on in-service ropes, to maximize the lifetimes.

Please scan here for our original operation & maintenence instruction:

Reference Standard

Teufelberger-Redaelli ropes for offshore applications are designed and manufactured in accordance with current issue of the following standards:

EN12385-1: - Steel wire ropes - Safety Part 1: General requirements

EN 12385-2: – Steel wire ropes – Safety Part 2: Definitions, designation and classification

EN 12385-3: – Steel wire ropes – Safety Part 3: Information for use and maintenance

EN 12385-4: – Steel wire ropes – Safety Part 4: Stranded ropes for general lifting applications

EN10244-2: – Steel wire and wire products – Non ferrous metallic coatings on steel wire – Zinc or zinc alloy coatings

EN 10264-1: – Steel wire and wire products – Steel wire for ropes – General requirements

EN 10264-2: – Steel wire and wire products – Steel wire for ropes – Cold drawn non-alloyed steel wire for ropes for general applications

API 9A/ISO 10425: – Steel wire ropes for the petroleum and natural gas industries – Minimum requirements and terms of acceptance

Please always refer to the latest issue.

Various standards or codes of practice for rope use, examination and discard:

ISO 4309: – Cranes – Wire ropes – Care and maintenance, inspection and discard

EN12927-Part 8 – Magnetic rope testing

IMCA M171 – Crane specification document

IMCA M187 – Guidelines for lifting operations

IMCA M194 – Wire rope integrity management for vessels in the offshore industry

IMCA M197 – Guidance on non-destructive examination (NDE) by means of magnetic rope testing

API RP 9B: – American Petroleum Institute recommended practice for application, care and use of wire rope for oilfield services

ASTM E 1571-06 – American Society for Testing of Materials – Standard practice for electromagnetic examination of ferro-magnetic steel wire ropes

Rope category number (RCN)

For assessing the discard condition based on wire breaks use the following rope category number (RCN) in compliance with ISO 4309:

Rope	Construction	Class	RCN	n*
Flexpack®15	34(W)xK7	35(W)xK7	23-2	105
Flexpack®18	39(W)xK7-WSC	35(W)xK7	23-3	126
Flexpack®21	54(M)xK7-WSC	54(M)xK7-WSC	24	147
Flexpack® Deep Tech	62(M)xK7-WSC	62(M)xK7	24	147
Evolution TK®16	16xK7-EPIWRC	23xK7	23-2	112
Evolution TK®18	16xK17F-EPIWRC	23xK19	27	208
Pack 9P	9xK19S-EPIWRC	9xK19	05	171
	9xK26WS-EPIWRC(K)	9xK19	10	234
	9xK31WS-EPIWRC(K)	9xK36	12	279
	9xK36WS-EPIWRC(K)	9xK36	14	324
	9xK41WS-EPIWRC(K)	9xK36	14	369
Evolution QS816V	8xK26WS-EPIWRC(K)	8xK19	09	208
	8xK31WS-EPIWRC(K)	8xK36	11	248
	8xK36WS-EPIWRC(K)	8xK36	13	288
Execution M6	6xK36WS-EPIWRC	6xK36	09	216
	6xK41WS-EPIWRC	6xK36	11	246
	6xK46WS-EPIWRC	6xK36	12	276
Execution D6	6x19S-EPIWRC	6x19	02	114
	6x26WS-EPIWRC	6x19	06	156
Execution D6s	6xK26WS-EPIWRC	6xK19	06	156
	6xK31WS-EPIWRC	6xK36	08	186
Execution D7s	7xK26WS-IWRC	7xK19	08	182
Marine	6x36WS-IWRC	6x36	09	216
	6x49SWS-IWRC	6x36	13	294
Pack 1	6xK36WS-IWRC(K)	6xK36	09	216
	6xK41WS-IWRC(K)	6xK36	11	246
Ocean 3	3x19S-FC	3x19	22	57
	3x36WS-FC	3x36	22	108

* Total number of load-bearing wires in the outer layer of the rope.

Teufelberger Seil Ges.m.b.H.
Böhmerwaldstraße 20
4600 Wels, Austria
T +43 (0) 7242 413-0
E wirerope@teufelberger.com

Redaelli Tecna S.p.A.
Via Alessandro Volta, 16
20093 Cologno Monzese (MI), Italy
T +39 (0) 2 253071
E wireropes@redaelli.com

www.teufelberger-redaelli.com