

HARBOUR High performance steel wire ropes

III

EXPERTISE FROM 225 YEARS OF EXPERIENCE

What started back in 1790 with simple hemp ropes has since evolved into a globally successful group of enterprises specializing in the development and production of fiber and steel wire ropes, strapping, and composites.

Vast diversity

Its products are designed for a wide variety of applications ranging from cranes and marine applications to packaging and through to the automotive sector. It is the continuity and stability of a family business that makes us the reliable partner who supports you, competently and effectively, in coping with your daily challenges.



Global presence ensures customer proximity

Manufacturing operations in various countries allow us to meet local quality and certification standards as well as customer requirements without difficulty. From our sites in Austria, the Czech Republic, the U.S., Sweden, and Thailand, and backed by a close-knit global network of distribution partners, we continue to satisfy the expectations of our customers.



Innovative solutions through synergies

TEUFELBERGER is a leading specialist for fiber and steel wire ropes, strapping, and fiber composite components. The spectrum of technologies in TEUFELBERGER's portfolio generates various synergies between the extrusion of thermoplastics, braiding of high performance fibers, and processing of wires into ropes, strapping, and lightweight composite components.

about valuable synergies with regard to both application and manufacturing technologies, which have benefited our customers tremendously. This makes TEUFELBERGER your ideal partner right from the project planning phase.

Especially fiber and steel wire products brought 5 % of TEUFELBERGER's employees are active in research and development and make sure that our customers have access to the latest, innovative rope technologies. 10 % of the entire investment volume are committed to development and quality assurance.

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Using these products may prove hazardous. Therefore, never use our products for purposes other than those they were designed for. Customers must ensure that all persons using these products are familiar with their correct use and the related necessary safety precautions. Please bear in mind that any of these products may inflict harm when used incorrectly or subjected to excessive loads.

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WE OFFER MORE.

In manufacturing, research & development, and marketing & sales, TEUFELBERGER focuses exclusively on high quality special purpose steel wire ropes. Breakthrough technologies and top quality products are the base of our success.

TEUFELBERGER Service

Expert advice

TEUFELBERGER's network of experts provides competent support close to you. This allows us to find the best possible solution for your needs. **24 h Hotline: +43 (0) 7242 615 388**

Customized solutions and products

Joint development efforts with crane and equipment manufacturers and close cooperation with our suppliers ensure that our products satisfy all your requirements. Working together with you, the team from TEUFELBERGER will determine the best solution.

Quality and expertise

Top quality

TEUFELBERGER processes only high quality raw materials in its cuttingedge manufacturing facilities. The comprehensive quality testing of primary materials and final products as well as the certification to ISO 9001 guarantee the consistent high quality of our steel wire ropes.

Competence

Our special ropes are designed to fulfill the requirements of your application. Worldwide reference projects are a testament to the high quality of our work. We provide test certificates to ABS, API, DNV-GL, BV, RINA, LR, RS, NKK, CCS – depending on your needs.



Research and development

Innovative products

As customer requirements change, our products must satisfy new, higher demands. Our R&D team drives innovation and continuous product improvement in terms of safety, reliability, and durability.

Successful partnerships

Intensive partnerships with a sizable number of key users in the sparepart market are clear examples of our focus on our customers' needs. Also, the long-standing cooperation with universities and research institutions ensure the lively exchange of ideas toward the development of new and existing products.

PLASTFILL® INSERT

The lubricated steel core is covered in a tight synthetic coat. This provides the following advantages:

- Long service life due to the permanent lubrication and the reduction of friction between the rope's core and its outer strands
- Resistance to compression and lateral pressure as well as to environmental influences and the ingress of dirt
- Higher breaking forces due to reduced surface pressures in the rope
- Reduced internal abrasion thanks to the exact positioning of strands with consistent clearances between them

SUPERFILL® COMPACTION TECHNOLOGY

Each rope strand is compacted by a special process, which significantly improves the rope's properties:

- Up to 30 % greater breaking forces than non-compacted ropes
- Prolonged service life due to lower specific loading
- Less abrasion on the rope and on reels and drums due to the rope's smooth surface
- Resistance against crushing in multilayer operations

GALVANIZED WIRES

Our steel wires are galvanized before they are drawn in order to achieve high wire precision. This ensures optimal stability and service life. In combination with the PLASTFILL® technology, this galvanization ensures exceptional corrosion resistance.

Our technology. Your benefit.

Life time, flexibility, quality, perfect spooling, rotation resistance, breaking force, safe and reliable in use.



ROPES FOR HARBOUR MOBILE CRANES

Worldwide handling of goods is continually increasing every year. Herefore the harbours operate on the boarder to their capacity limit although already working day and night. In order to make profitable use of these devices: Safety and reliability are crucial for ropes used on harbour mobile cranes.

Ropes

QS 816 V(G)

Extreme resistant 8-strand ordinary lay or lang's lay rope with PLASTFILL® insert, suited as hoisting and closing rope.

- Long service life due to PLASTFILL[®] insert and the reduced rope abrasion, resulting from the smooth rope surface
- Resistance against corrosion due to galvanized wires and the permanent lubrication provided by PLASTFILL[®] insert
- Reliability and safety in operation as a result of the highest breaking forces, especially provided by complete SUPERFILL[®] compaction technology throughout the whole cross section
- Resistance against shock loads due to the radial-elastic structured rope and PLASTFILL[®] insert
- Optimal spooling characteristics due to high resistance against radial deformations
- Reduced maintenance effort due to intensive lubrication in each production step

OEM approved for ages

EVOLUTION Q8

Flexible 8-strand rope for long service life, suited as hoisting and closing rope.

- Longer service life for best profitability due to excellent flexural fatigue properties
- Resistance against corrosion due to galvanized wires in combination with PLASTFILL[®] insert
- High flexibility due to its innovative rope construction
- Trouble-free operation due to outstanding absorption of dynamic forces such as shockloads and vibrations
- OEM approved for ages

Applications

The colored squares preceding the rope's designation refer to the illustration.

Other types of construction on request.

Harbour mobile cranes





ROPES FOR SHIP TO SHORE CRANES

The quick loading and unloading of ships is a requirement for reducing needless costs and for profitable operation. The use of high performance steel wire ropes significantly contributes to the high reliability of ship to shore cranes: 24 hours a day, 365 days a year.

Ropes

QS 816 V(G)

Extreme resistant 8-strand ordinary lay or lang's lay rope with PLASTFILL® insert, suited as hoisting rope, as well as boom hoist rope and trolley rope.

- Significant cost reduction due to reduced rope abrasion and increased service life
- Resistant against external influences as fleet angles and used sheaves due to the full compacted rope construction
- Longer service life and less (fatigue) wear of sheaves due to the smooth rope surface
- Highest resistance against shock-load due to PLASTFILL[®] insert
- Outstanding life-time performance on highspeed applications
- Reliability and safety in operation due to highest breaking forces achieved by complete SUPERFILL[®] compaction technology throughout the whole cross section
- Reduced maintenance effort due to intensive lubrication in each production step
- Simple handling and best spooling characteristics on the drum
- OEM approved for ages

Q 810 V

Flexible 8-strand ordinary lay rope with PLASTFILL[®] insert suited as hoisting rope.

- Very flexible and robust against shock loads and large fleet angles due to its special rope design with the 4-strand core
- High resistance against corrosion due to galvanized wires and the permanent lubrication provided by PLASTFILL[®] insert
- OEM approved for ages

EVOLUTION Q8

High performance 8-strand ordinary lay rope with longest service life, suited as hoisting and trolley rope.

- Best profitability due to its specially designed rope structure for highest bending cycles
- High breaking forces due to its SUPERFILL[®] compacted outer strands
- Resistance against corrosion due to galvanized wires and the permanent lubrication provided by PLASTFILL[®] insert
- Reduced maintenance effort due to intensive lubrication in each production step
- OEM approved for ages

Applications

The colored squares preceding the rope's designation refer to the illustration.

Other types of construction on request.

Ship to shore cranes







Customized solutions and products

Working together with you, the team from TEUFELBERGER will determine the best solution.



ROPES FOR ORT CRANES

Different harbour applications such as straddle-carriers, RTG's or RMG's have one thing in common: a non-scheduled downtime of a crane may cause high costs and loss. Backup cranes are rarely - if ever - available. A steel wire rope requires high service life reserves until the next planned crane inspection. TEUFELBERGER has specialized in these requirements.

Ropes

EVOLUTION Q8

High performance 8-strand ordinary lay rope with longest service life, suited as hoisting rope

- Best profitability highest bending cycles on the market for RTG's, RMG's and straddlecarriers
- Highly flexible rope-construction which also provides sufficient life-time results for a small d/D ratio
- High breaking forces due to SUPERFILL® compaction technology
- Resistance against corrosion due to galvanized wires and the permanent lubrication provided by PLASTFILL® insert
- Reduced maintenance effort due to intensive OEM approved for ages lubrication in each production step
- OEM approved for ages

Q 810 V

Flexible 8-strand ordinary lay rope with PLAST-FILL® insert suited as hoisting rope for special complex reeving systems.

- Resistant against external influences like torsion, fleet angles and small d/D ratios
- Longer service life for selected complex reeving systems
- Very flexible and robust against shock loads due to its special rope design with the 4-strand core
- High resistance against corrosion due to galvanized wires and the permanent lubrication provided by PLASTFILL® insert

Applications

The colored squares preceding the rope's designation refer to the illustration.

Other types of construction on request.

Van carrier, RTG and RMG



EVOLUTION TK16

Revolutionary design, high quality materials, and perfectly harmonized production processes – EVOLUTION TK16 combines all the characteristics needed for your application: Extreme resistance and best flexibility!





Specifications

- Ordinary lay or lang's lay, right or left lay
- 8 30 mm: 16 x K6-EPIWRC (K), RCN 23-1
- 32 42 mm: 16 x K7-EPIWRC (K), RCN 23-2

- Multilayer spooling
- SUPERFILL[®]
- ✓ PLASTFILL[®]

Technical data

Nominal Ø		Weight	Minimum breaking force at rope grade 1,770 N/mm² 1,960 N/mm² 2,160 N/mm²		2,160 N/mm ²	
mm	inch	kg/m	kN	kN	kN	
8	5/16	0.34	54	59	64	
9		0.41	67	74	78	
10		0.50	82	91	98	
11		0.61	100	111	118	
12		0.74	120	133	144	
13		0.86	141	156	170	
14	9/16	1.01	163	181	197	
15		1.16	194	215	231	
16	5/8	1.32	221	244	263	
17		1.50	241	267	290	
18		1.64	279	309	333	
19	3/4	1.85	312	345	371	
20		2.08	338	374	401	
21		2.26	373	413	444	
22	7/8	2.51	408	452	487	
24		2.94	483	535	580	
25	1	3.15	537	595	639	
26		3.49	567	627	675	
27		3.74	609	674	725	
28		4.05	655	725	780	
28,57	1 1/8	4.14	668	744	814	
29		4.27	701	777	835	
30		4.62	749	830	893	
32	1 1/4	5.24	853	944	1,016	
34		5.90	958	1,061	1,141	
36		6.65	1,072	1,187	1,277	
38	1 1/2	7.35	1,237	1,369	1,472	
40		8.13	1,317	1,458	1,568	
42		8.97	1,452	1,608	1,729	

EVOLUTION Q8

Endurance is everything. EVOLUTION Q8 – the high performance hoisting rope for harbour mobile cranes – impresses with its exceptional long service life and high breaking strength due to its innovative SUPERFILL® compaction. EVOLUTION Q8 lasts much longer!





Specifications

- Ordinary lay, right or left lay
- 12 50 mm: 8 x K25F EPIWRC, RCN 06
- 52 54 mm: 8 x K35F EPIWRC, RCN 10
- Use without rope swivel

- **x** Multilayer spooling
- ✓ SUPERFILL[®]
- ✓ PLASTFILL[®]

Technical data

Nominal Ø		Weight	Minimum break 1,770 N/mm ²	Minimum breaking force at rope grade1,770 N/mm²1,960 N/mm²		
mm	inch	kg/m	kN	kN		
12		0.64	110	122		
14	9/16	0.85	150	166		
16	5/8	1.13	196	217		
18		1.40	247	274		
20		1.78	306	339		
22	7/8	2.11	370	410		
24		2.49	441	502		
25	1	2.74	478	529		
26		2.94	517	572		
28		3.51	600	664		
29		3.72	643	712		
30		3.94	688	762		
32	1 1/4	4.65	783	867		
34		5.24	882	977		
36		6.02	999	1,097		
38	1 1/2	6.69	1,104	1,223		
40		7.41	1,223	1,355		
42		8.17	1,349	1,494		
44	1 3/4	9.00	1,480	1,639		
46		9.80	1,618	1,792		
48		10.55	1,762	1,951		
50	2	11.44	1,912	2,117		
52		12.40	2,067	2,289		
54	21/8	13.41	2,230	2,469		

EVOLUTION QS 816 V(G)

Extreme resistance to negative external influences distinguishes this rope from others. SUPERFILL® compaction technology developed by TEUFELBERGER provides high breaking forces and highest safety in use. Compaction in the core and a PLASTFILL® insert ensure stability against lateral pressure.





Specifications

- Ordinary lay, right or left lay
- 10 42 mm: 8 x K26WS EPIWRC (K), RCN 09
- 44 50 mm: 8 x K31WS EPIWRC (K), RCN 11
- 50,8 70 mm: 8 x K42WS EPIWRC (K), RCN >13
- Use without rope swivel

- Multilayer spooling
- ✓ SUPERFILL[®]
- ✓ PLASTFILL[®]

Technical data

Nominal Ø		Weight	Minimum breaking force at rope grade 1,770 N/mm² 1,960 N/mm² 2,160 N/mm²		2,160 N/mm ²		
mm	inch	kg/m	kN	kN	kN		
10		0.46	81	89	98		
11	7/16	0.55	97	107	118		
12		0.69	117	129	143		
13		0.81	141	156	172		
14	9/16	0.93	162	179	198		
15		1.06	185	205	226		
16	5/8	1.20	210	232	256		
17		1.35	235	261	287		
18		1.55	263	291	321		
19	3/4	1.71	302	335	369		
20		1.89	330	365	402		
21		2.15	374	414	457		
22	7/8	2.34	408	451	497		
23		2.54	445	492	543		
24		2.75	467	517	570		
25	1	2.97	518	574	633		
26		3.19	555	615	678		
27		3.51	595	659	727		
28		3.76	656	726	800		
28.57	1 1/8	3.98	672	745	820		
29		4.04	694	768	847		



Technical data

Nominal Ø We		Weight	Minimum breaking force at rope grade 1.770 N/mm ² 1.960 N/mm ²		2,160 N/mm ²	
mm	inch	kg/m	kN	kN	kN	
30		4.37	764	846	897	
32	1 1/4	4.90	864	957	1,072	
34		5.59	945	1,046	1,153	
36		6.36	1,071	1,186	1,284	
38	1 1/2	7.03	1,222	1,354	1,431	
40		7.81	1,342	1,486	1,545	
42		8.60	1,482	1,641	1,736	
44	1 3/4	9.27	1,596	1,768		
46		10.30	1,760	1,949		
48		10.78	1,848	2,050		
50	2	11.60	2,016	2,232		
52		12.50	2,180	2,414		
54	21/8	13.91	2,287	2,532		
56		14.50	2,529	2,850		
58		15.60	2,712	3,004		
60	23/8	16.70	2,903	3,214		
62		17.80	3,099	3,432		
64		19.74	3,303	3,657		
66	25/8	20.63	3,495	3,870		
68		21.40	3,728	4,128		
70	23/4	22.70	3,951	4,375		

PERFECTION Q 810 V

Optimizes the absorption of shock loads, knocks and vibrations due to its especially developed rope construction with the 4-strand core. PLASTFILL® insert provides permanent lubrication of the steel core and results into extreme long service life.





Specifications

- Ordinary lay, right or left lay
- 12 32 mm: 8 x 26WS EPIWRC, RCN 09
- Use without rope swivel

- × Multilayer spooling
- × SUPERFILL®
- ✓ PLASTFILL[®]

Technical data

Nominal Ø Weig		Weight	Minimum brea 1,770 N/mm ²	aking force at rope grade 1,960 N/mm²	
mm	inch	kg/m	kN	kN	
12		0.62	105	116	
13		0.73	123	136	
14	9/16	0.82	140	155	
16	5/8	1.09	188	208	
18		1.35	230	253	
20		1.68	281	311	
22	7/8	2.00	349	386	
24		2.41	413	457	
26		2.82	483	535	
28		3.28	569	630	
30		3.67	628	695	
32	11⁄4	4.39	729	807	

DISCARD CRITERIA

The discard criteria for TEUFELBERGER special steel wire ropes are defined according to:

- ISO 4309

This includes: reduction of rope diameter, corrosion and wire breaks. For assesing the discard condition based on wire breaks, the rope category number (RCN) is used. For TEUFELBERGER special steel wire ropes, this number is listed in the following tables. For further details regarding the discard criteria and general handling for wire ropes to ISO 4309, see the "Application Handbook – High Performance Offshore Ropes" at www.teufelberger.com

Rotation resistant ropes

Type of design	Diameter range	RCN*	n**
	mm		
EVOLUTION TK16	9 - 30	23-1	96
EVOLUTION TK16	32 - 42	23-2	112

Non-rotation resistant ropes

Type of design	Diameter range	RCN*	n**
	mm		
EVOLUTION Q8	12 – 50	6	152
EVOLUTION Q8	52 - 54	10	224
EVOLUTION QS 816 V(G)	10 - 42	9	208
EVOLUTION QS 816 V(G)	44 - 50	11	248
EVOLUTION QS 816 V(G)	52 - 70	>13	336
PERFECTION Q 810 V	12 – 32	9	208

*RCN = Rope Category Number **n = Number of outer strands and total number of load-bearing wires in the outer layer of strands in the rope

Highest Standards

Comprehensive quality testing of primary materials and final products as well as the certification to ISO 9001 guarantee the consistent high quality of our steel wire ropes.

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