



Teufelberger · Redaelli

ROPES FOR HARBOUR MOBILE CRANES

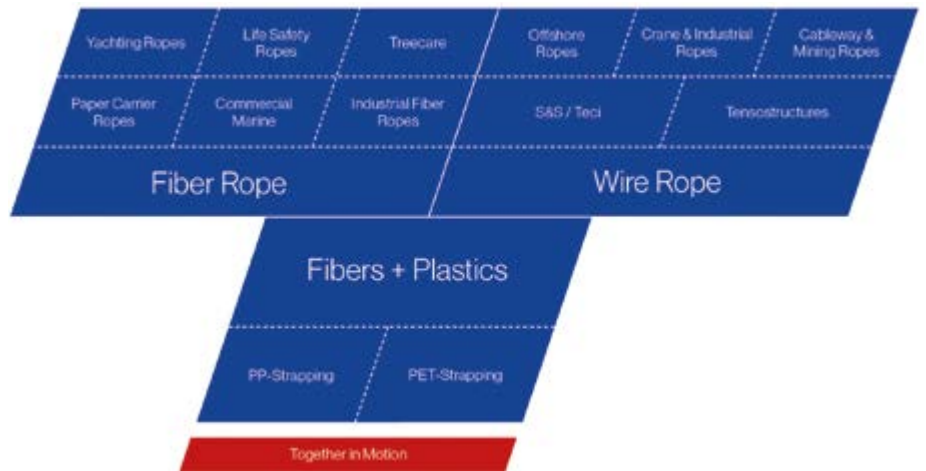
Superior performance around the globe

EXPERTISE FROM MORE THAN 225 YEARS OF EXPERIENCE

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

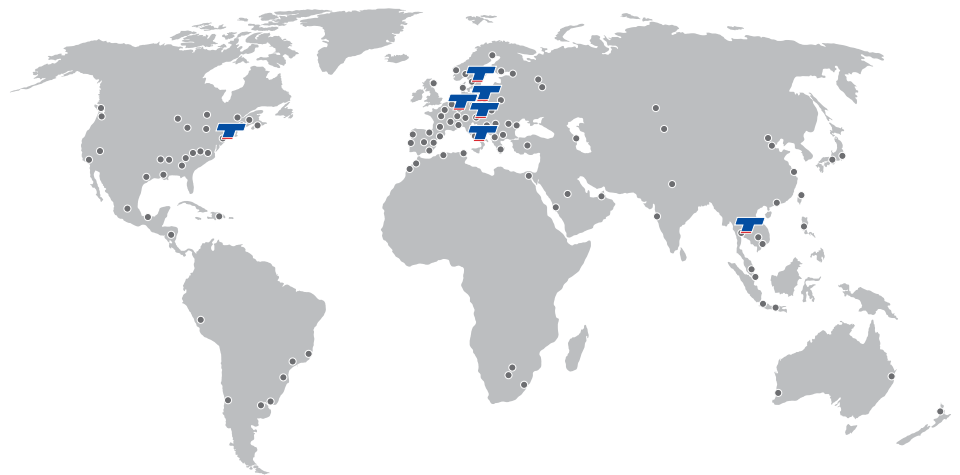
Great diversity

TEUFELBERGER's products and services are destined for a wide variety of applications ranging from cranes and marine applications to packaging and through to personal protection. The continuity and stability of a family enterprise makes us a reliable partner who, competently and effectively, supports you in mastering your day-to-day challenges.



Global presence and 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., Italy, 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 as well as strapping. The spectrum of technologies in TEUFELBERGER's portfolio generates various synergies between the extrusion of thermoplastics, the braiding of high performance fibers, and the processing of wires into ropes and strapping.

Especially fiber and steel wire products have brought 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.

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 is committed to development and quality assurance.

FOR SUPERIOR PERFORMANCE ON YOUR HARBOUR MOBILE CRANE

Day in, day out, harbour mobile cranes make sure that goods will be shipped from one place to another. No matter whether they move containers, bulk goods, or if they are operating in a multi purpose terminal , these cranes are inseparably linked to the world of harbours. The high flexibility of harbour mobile cranes contributes to their great efficiency in use.

Harbour mobile cranes can function efficiently and successfully only if also the installed ropes deliver the necessary performance. Teufelberger-Redaelli has, for decades and in cooperation with leading manufacturers of

mobile cranes, developed and upgraded ropes that are best suited for that specific type of use.

Customers from around the globe have, for many years and in various climatic conditions, relied

on quality made by Teufelberger-Redaelli. Time and time again, we have modified and adapted the characteristics of our ropes in order to provide our customers with the best and most cost-effective solution.

What matters most?

- ✓ High wear resistance
- ✓ High resistance to shock loads
- ✓ Robust against external influences such as twisting in use
- ✓ Fast availability
- ✓ Safe in use
- ✓ Increased efficiency and reduced cost



"We at Teufelberger-Redaelli pay particular attention to ensuring, especially in the case of single-layer spooling, that the discard state of our ropes is readily visible from outside in order to make using them as safe and predictable as possible".

Daniel Dornstädter - Head of Rope Technology



WARNING

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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OUR LATEST DEVELOPMENT FOR YOUR HARBOUR MOBILE CRANE: **EVOLUTION** Q9XT PLUS

A recent development from Teufelberger-Redaelli, the EVOLUTION Q9XT PLUS high performance steel wire rope unleashes its full functionality especially on cranes used to handle bulk goods. Its novel, revolutionary structure – with its 4 core strands – makes it extremely durable and long-lived.

The EVOLUTION Q9XT PLUS high performance steel wire rope is used mainly on harbour mobile cranes and ship unloaders where it achieves an exceptionally long service life.

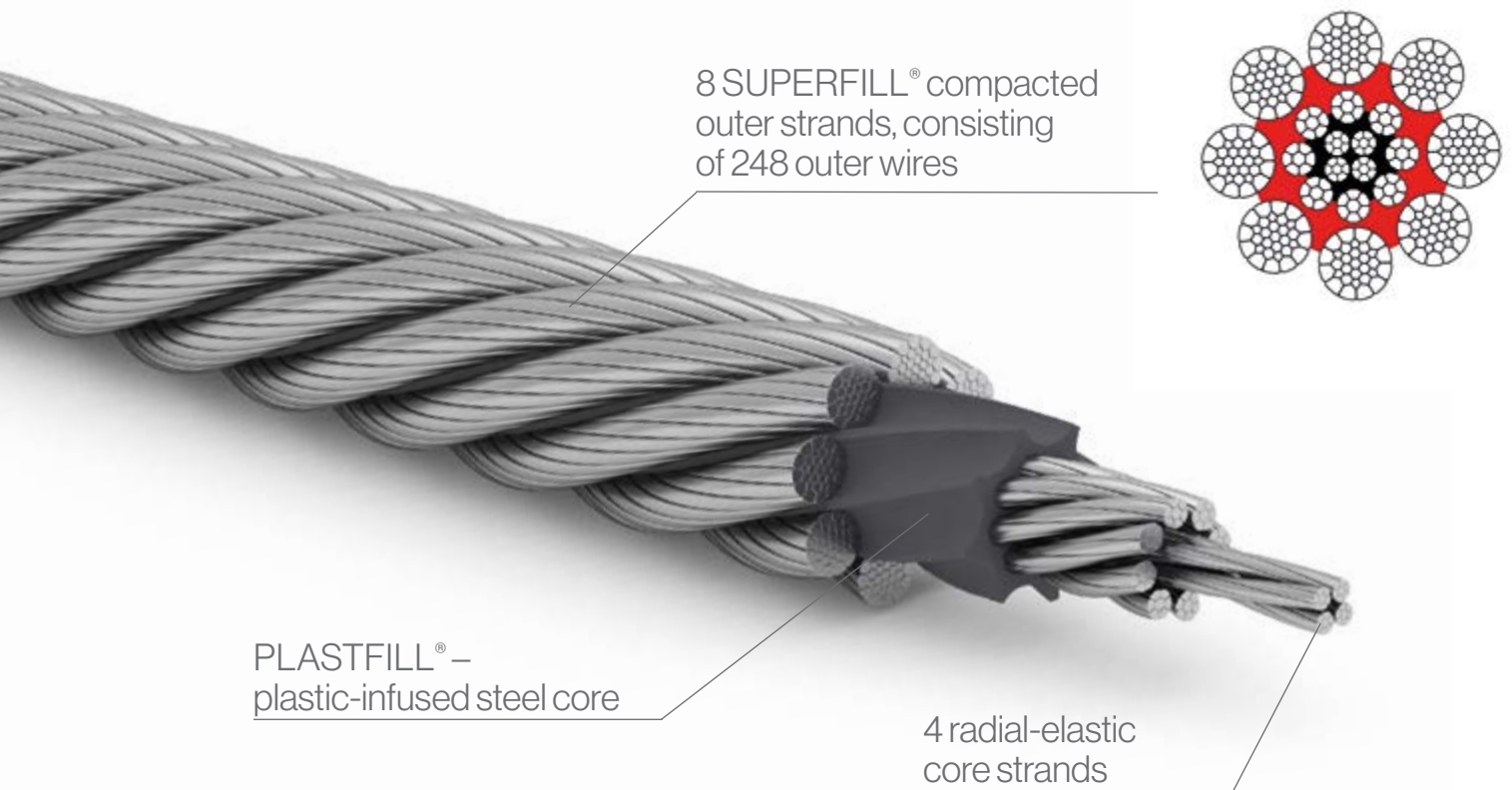
Its **4 core strands** and unique design make EVOLUTION Q9XT PLUS extremely resistant to shock loads and twisting that might occur in use. Its structure without core wire prevents potential damage to the inner rope in use. The reduced risk of the core being damaged in use

significantly increases the rope's service life. This helps minimize unexpected premature failures and markedly reduces the number of rope changes as a result of handling problems. The use of PLASTFILL® technology prevents the water trapping in the core and provides the permanent lubrication of the rope. This also protects the four SUPERFILL® compacted core strands and the inner rope from corrosion. Furthermore, it helps reduce friction between the

components. This characteristic is of particular importance when using this rope in harbour environments.

8 SUPERFILL® compacted outer strands comprising a total of 248 load bearing wires put this rope into rope category number 11 (RCN 11) that permits a high number of broken load bearing wires before the rope needs to be replaced, which results excellent bendig fatigue and higher life time.

STRUCTURE OF **EVOLUTION** Q9XT PLUS



EVOLUTION Q9XT PLUS

Specifications

- Ordinary lay, right or left lay
- 26 – 54 mm: 8 x K31 WS-EPIWRC, RCN 11
- Use without swivel

- ✓ Radial elastic core
- ✓ SUPERFILL®
- ✓ PLASTFILL®

Customer benefits

- Trouble-free operation:
Excellent absorption of shock loads due to core-strandless construction
- Extremely long lifetime:
Highest RCN number allows a big amount of outer wire breaks
- Improved visibility of discard state from outside:
Four center strands reduce the risk of damage to the rope core
- Improved permanent lubrication:
PLASTFILL® impregnation leads to less wear in the core

4 CORE STRANDS
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STRESSLESS OPERATION

Technical data

Nominal Ø	Weight	Minimum breaking force at rope grade 1,960 N/mm ²	
		mm	kg/m
26	3,02	612	
28	3,50	710	
30	4,02	815	
32	4,57	928	
34	5,16	1.047	
36	5,78	1.174	
38	6,44	1.308	
40	7,14	1.450	
42	7,87	1.598	
44	8,64	1.754	
46	9,44	1.917	
48	10,28	2.088	
50	11,16	2.265	
52	12,07	2.450	
54	13,01	2.642	

Other rope diameters are available on request.

RCN of EVOLUTION Q9XT PLUS (ISO 4309)*

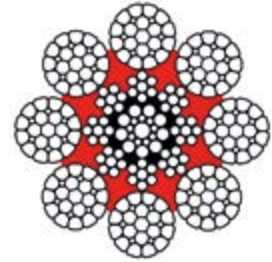
Diameter range in	Rope category number	No. of visible broken outer wires	
		Over a length of 6d**	Over a length of 30d**
26 – 54	11	10	21

* Depending on the classification of the mechanism, the number of wire breaks may be doubled - needs to be checked on a case-to-case basis

** Allowable number of visible broken outer wires on a single-layer drum in ordinary lay

EVOLUTION Q8

Endurance is everything. EVOLUTION Q8 – the high performance hoisting rope for harbour mobile cranes – impresses with its exceptionally 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

- ✓ SUPERFILL®
- ✓ PLASTFILL®

Customer benefits

- Rope caters exactly to market requirements:
OEM approved for several years
- Increased flexibility:
Filler construction delays onset of wire breaks
- Fewer inner wire breaks:
8 uncompacted core strands increase flexibility of center
- Improved permanent lubrication:
PLASTFILL® impregnation leads to less wear in the core

Technical data

Nominal Ø	Weight	Minimum breaking force at rope grade	
		1,960 N/mm ²	
mm	kg/m	kN	
32	4,65	867	
36	6,02	1.097	
40	7,41	1.355	
44	9,00	1.639	
46	9,80	1.792	
48	10,55	1.951	
50	11,44	2.117	
54	13,41	2.469	

Other rope diameters are available on request.

RCN of EVOLUTION Q8 (ISO 4309)*

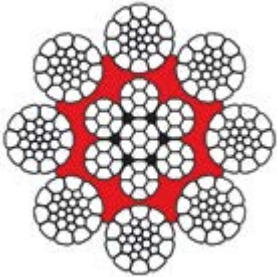
Diameter range in	Rope category number	No. of visible broken outer wires	
		Over a length of 6d**	Over a length of 30d**
mm			
28 – 50	6	6	13
52 – 54	10	10	19

* Depending on the classification of the mechanism, the number of wire breaks may be doubled - needs to be checked on a case-to-case basis

** Allowable number of visible broken outer wires on a single-layer drum in ordinary lay

EVOLUTION QS 816V

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



Specifications

- EVOLUTION QS 816V in ordinary lay configuration, right or left lay
- 36 – 42 mm: 8 x K26WS – EPIWRC (K), RCN 09
- 44 – 50 mm: 8 x K31WS – EPIWRC (K), RCN 11
- Use without rope swivel

- ✓ SUPERFILL®
- ✓ PLASTFILL®

Customer benefits

- Reliability and safety during operation:
Extremely high breaking forces and high safety factor
- Less abrasion:
Highest degree of compaction in the market
- Improved permanent lubrication:
PLASTFILL® impregnation leads to less wear in the core

Technical data

Nominal Ø	Weight	Minimum breaking force at rope grade 1,960 N/mm ²
mm	kg/m	kN
36	6,36	1.186
38	7,03	1.354
46	10,30	1.949
48	10,78	2.050

Other rope diameters are available on request.

RCN of EVOLUTION QS 816V (ISO 4309)*

Diameter range in mm	Rope category number	No. of visible broken outer wires	
		Over a length of 6d**	Over a length of 30d**
36 – 42	9	9	18
44 – 50	11	10	21

* Depending on the classification of the mechanism, the number of wire breaks may be doubled - needs to be checked on a case-to-case basis

** Allowable number of visible broken outer wires on a single-layer drum in ordinary lay

REDAELLI TECNA SPA

Via Alessandro Volta, 16
20093 Cologno Monzese (MI), Italy
Telephone: +39 0225307381
infomilano@teci.it

TEUFELBERGER Seil Ges.m.b.H.

Böhmerwaldstraße 20
4600 Wels, Austria
Telephone: +43 (0) 7242 615-0
Fax: +43 (0) 7242 605-01
wirerope@teufelberger.com

www.teufelberger-redaelli.com

