



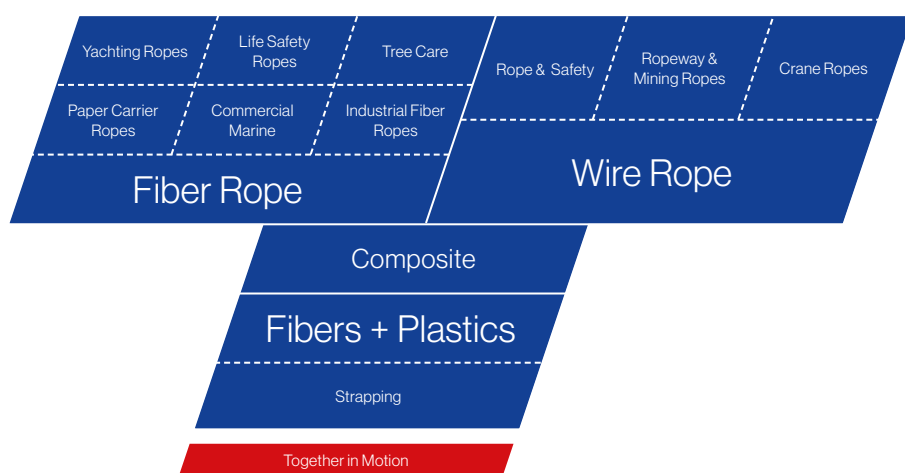
HIGH PERFORMANCE STEEL WIRE ROPES

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.

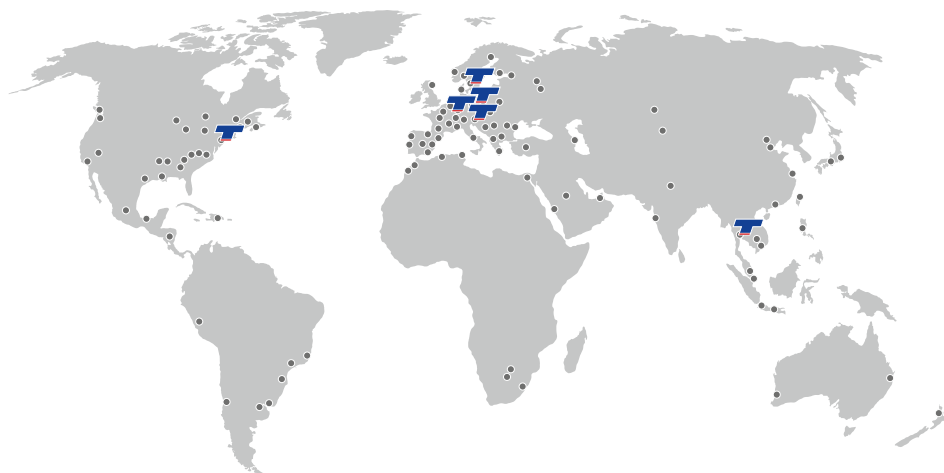
Vast diversity

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.

Especially fiber and steel wire products 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 are committed to development and quality assurance.

CONTENTS

About TEUFELBERGER	4
Non-rotation resistant ropes	6
EVOLUTION QS 816 V(G)	6
EVOLUTION Q8	7
Q 810 V	8
Q 812 F	9
EVOLUTION Q9 FIRE	10
EVOLUTION QS STEEL	11
EVOLUTION P9	12
EXECUTION Q6s	13
Information	14
Discard criteria	14

 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.

TEUFELBERGER®, 拖飞宝®, PLASTFILL®, SUPERFILL® and DUOFILL® are internationally registered trademarks of TEUFELBERGER Group. Subject to technical modifications, typesetting and printing errors.

WE OFFER MORE ...

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

TEUFELBERGER Service

Expert advice

With TEUFELBERGER's wide network of consultants, there is always a competent partner near you. You can reach us at all times via our 24-hour hotline.

24-hour 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 elaborate the best solution.

Quality & Expertise

Top quality

TEUFELBERGER processes only high quality raw materials in its cutting edge manufacturing facilities. Comprehensive quality testing of primary materials and final products as well as ISO 9001 certification guarantee the consistently high quality of our steel wire ropes.

Competence

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

Research & Development

Innovative products

As customer requirements increase, our products must satisfy new, higher demands. Our R & D department provides innovation and permanent product improvement in terms of safety, reliability, and durability.

Successful partnerships

Our intensive cooperation with long standing key customers bears testimony to our strong commitment to user needs. And, our close collaboration with universities and research institutes promotes the lively exchange of ideas toward the development of our existing and new 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 against pressing and lateral pressures 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 by exact strand position with consistent interstices

SUPERFILL® - COMPACTION TECHNOLOGY

Each rope strand is compacted in a special process in order to significantly improve the rope's properties:

- Up to 30% greater breaking forces than in 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

DUOFILL® - COMPACTION TECHNOLOGY

DUOFILL® is a special double compaction technology, developed by TEUFELBERGER. Each individual rope strand as well as the entire rope itself are compacted by a special manufacturing process in order to achieve the following advantages:

- Highest breaking strength due to maximum compaction
- Improved service life for multilayer applications with extreme line pulls due to the very smooth surface
- Advanced resistance against crushing due to high dimensional stability

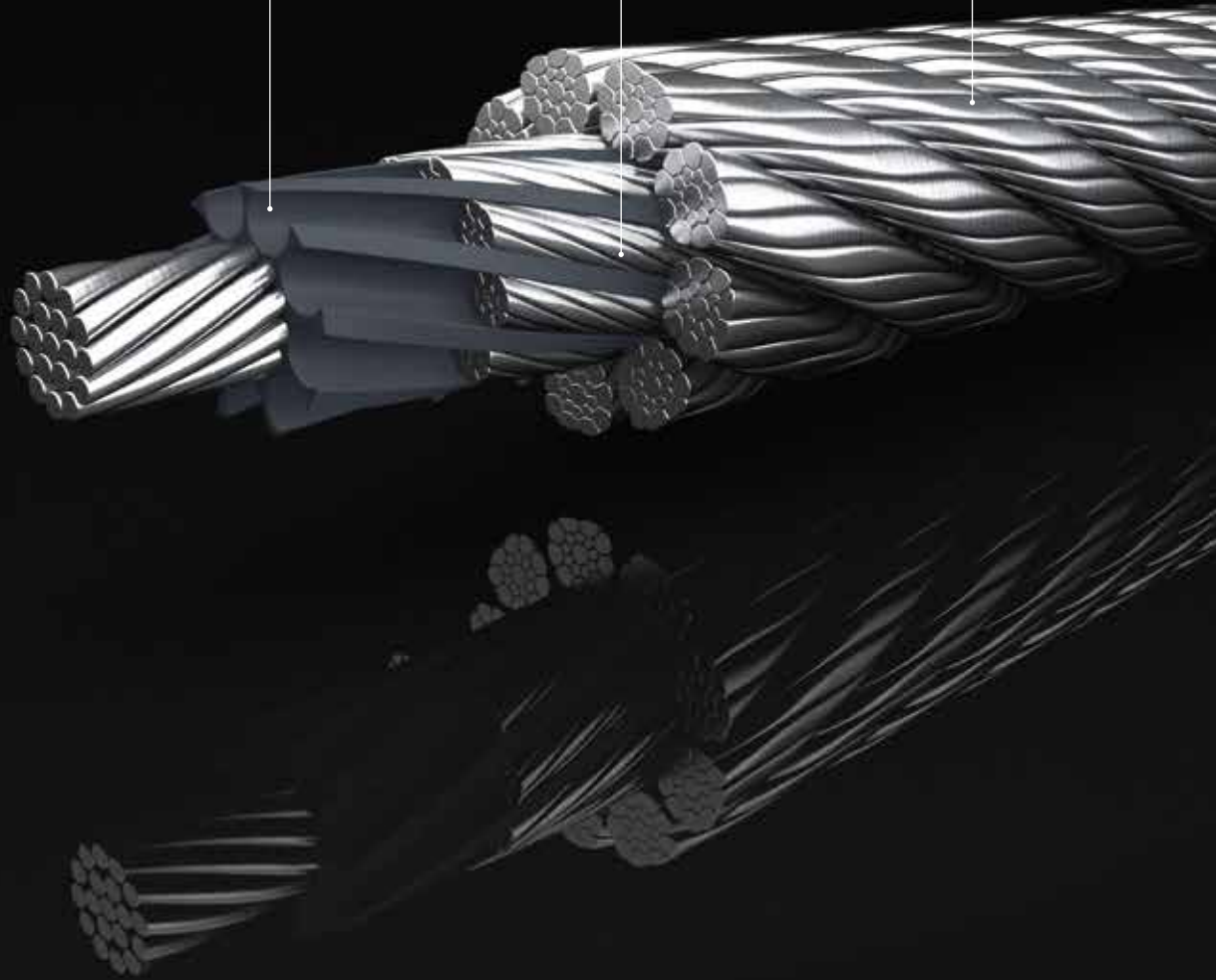
Our technologies. Your benefit.

Safe use-reliable, flexible, quality, perfect spooling, rotation resistance, breaking force and life time.

PLASTFILL®

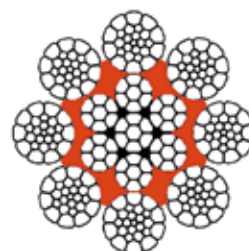
SUPERFILL®

DUOFILL®



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 result in stability against lateral pressure.



Specifications

- Ordinary lay or lang's lay, right or left lay
- 22–42mm: 8 x K26WS - EPIWRC (K), RCN 09
- 44–50mm: 8 x K31WS - EPIWRC (K), RCN 11
- Use without rope swivel

- ✓ Multilayer Spooling
- ✓ SUPERFILL®
- ✓ PLASTFILL®

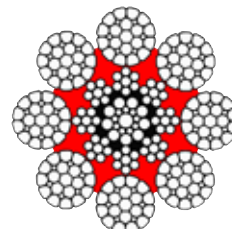
Technical data

Nominal Ø	Weight	Minimum breaking forces at rope grade		
		1,770 N/mm ²	1,960 N/mm ²	2,160 N/mm ²
mm	kg/m	kN	kN	kN
10	0.46	81	89	98
11	0.55	97	107	118
12	0.69	117	129	143
13	0.81	141	156	172
14	0.93	162	179	198
15	1.06	185	205	226
16	1.20	210	232	256
17	1.35	235	261	287
18	1.55	263	291	321
19	1.71	302	335	369
20	1.89	330	365	402
21	2.15	374	414	457
22	2.34	408	451	497
23	2.54	445	492	543
24	2.75	467	517	570
25	2.97	518	574	633
26	3.19	555	615	678
27	3.51	595	659	727
28	3.76	656	726	800
29	3.98	694	768	847
30	4.37	764	846	897
32	4.90	864	957	1,072
34	5.59	945	1,046	1,153
36	6.36	1,071	1,186	1,284
38	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	9.27	1,596	1,768	n. a.
46	10.30	1,760	1,949	n. a.
48	10.78	1,848	2,050	n. a.
50	11.60	2,016	2,232	n. a.

Other rope diameters are available on request.

EVOLUTION Q8

Endurance is everything. EVOLUTION Q8 – the high-performance all-round hoisting rope for various cranes – impresses with its exceptional long service life and high breaking strength. These outstanding properties are achieved by the innovative SUPERFILL® compaction technology.



Specifications

- Ordinary lay, right or left lay
 - 12–50mm: 8 x K25F - EPIWRC (K), RCN 06
 - 52–54mm: 8 x K35F - EPIWRC (K), RCN 10
 - Use without rope swivel
- ✗ Multilayer Spooling
 - ✓ SUPERFILL®
 - ✓ PLASTFILL®

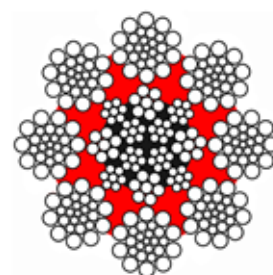
Technical data

Nominal Ø	Weight	Minimum breaking forces at rope grade	
		1,770 N/mm ²	1,960 N/mm ²
mm	kg/m	kN	kN
12	0.64	110	122
14	0.85	150	166
16	1.13	196	217
18	1.40	247	274
20	1.78	306	339
22	2.11	370	410
24	2.49	441	502
25	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	4.65	783	867
34	5.24	882	977
36	6.02	999	1,097
38	6.69	1,104	1,223
40	7.41	1,223	1,355
42	8.17	1,349	1,494
44	9.00	1,480	1,639
46	9.80	1,618	1,792
48	10.55	1,762	1,951
50	11.44	1,912	2,117
52	12.40	2,067	2,289
54	13.41	2,230	2,469

Other rope diameters are available on request.

Q 810 V

Optimizes the absorption of shock loads and vibrations in combination with higher fleet angles, 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. This rope is mainly used on RMGs, RTGs and ASCs with challenging reeving system.



Specifications

- Ordinary lay, right or left lay
- 12–32mm: 8 x 26WS - EPIWRC, RCN 09
- Use without rope swivel
- ✗ Multilayer Spooling
- ✗ SUPERFILL®
- ✓ PLASTFILL®

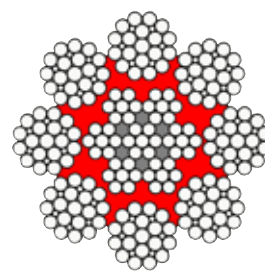
Technical data

Nominal Ø	Weight	Minimum breaking force at rope grade	
		1,770 N/mm ²	1,960 N/mm ²
mm	kg/m	kN	kN
12	0.62	105	116
13	0.73	123	136
14	0.82	140	155
16	1.09	188	208
18	1.35	230	253
20	1.68	281	311
22	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	4.39	729	807

Other rope diameters are available on request.

Q 812 F

Trouble-free operation due to high absorption of negative dynamic influences of shock loads and vibrations. The solidly embedded outer strands in the plastic bed due to the PLASTFILL® insert results in longer service life.



Specifications

- Ordinary lay, right or left lay
- 12–50mm: 8 x 25F - EPIWRC, RCN 06
- Use without rope swivel
- ✗ Multilayer Spooling
- ✗ SUPERFILL®
- ✓ PLASTFILL®

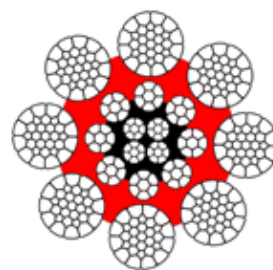
Technical data

Nominal Ø	Weight	Minimum breaking force at rope grade	
		1,770 N/mm ²	1,960 N/mm ²
mm	kg/m	kN	kN
12	0.59	100	111
13	0.75	120	133
14	0.80	139	154
15	0.96	168	186
16	1.10	192	213
17	1.23	213	236
18	1.37	242	267
19	1.52	262	290
20	1.71	290	321
21	1.88	317	351
22	2.04	363	402
24	2.41	425	470
26	2.86	507	561
28	3.36	574	636
30	3.94	667	739
32	4.44	737	816
34	5.07	857	949
36	5.76	955	1,058
38	6.32	1,083	1,199
40	7.00	1,190	1,318
42	7.64	1,312	1,453
44	8.46	1,438	1,593
46	9.27	1,559	1,727
48	10.02	1,688	1,869
50	10.85	1,840	2,037
52	11.73	1,990	2,204
54	12.65	2,146	2,377

Other rope diameters are available on request.

EVOLUTION Q9 FIRE

The extreme high number of wires in the outer strands provide highest wear resistance with maximal flexibility for this galvanized rope. TEUFELBERGER's SUPERFILL® compaction technology guarantees high breaking forces, translating to best operational safety. Its use – even in the inner rope – results in high resistance against abrasion, a stable diameter and a long service life.



Specifications

- Ordinary lay, right or left lay
- 8 x K31WS - EPIWRC, RCN 11
- Use without rope swivel
- ✗ Multilayer Spooling
- ✓ SUPERFILL®
- ✓ PLASTFILL®

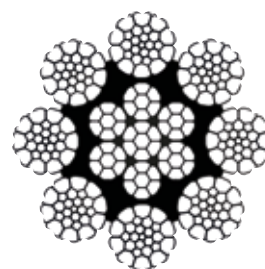
Technical data

Nominal Ø	Weight	Minimum breaking forces at rope grade	
		1,770 N/mm ²	1,960 N/mm ²
mm	kg/m	kN	kN
32	4.70	772	855
34	5.63	939	1,040
36	6.08	964	1,068
38	6.56	1,063	1,177
40	7.27	1,178	1,304
42	8.02	1,298	1,438
44	8.95	1,453	1,609
48	10.47	1,696	1,878

Other rope diameters are available on request.

EVOLUTION QS STEEL

Safety and reliability are vital characteristics for steel wire ropes used in industrial installations such as steel mills or gantry cranes. 24 hours a day, 365 days a year. Unexpected failures may shut down entire production lines and end up being quite costly. Spare standby facilities are rarely, if ever, available. Ropes need to have large service life reserves lasting beyond the next scheduled inspection. Therefore the TEUFELBERGER EVOLUTION QS STEEL is the first choice.



Specifications

- Ordinary lay or lang's lay, right or left lay
- 22mm: 8 x K26WS - IWRC (K), RCN 09
- 24–50mm: 8 x K31WS - IWRC (K), RCN 11
- Use without rope swivel
- ✓ Multilayer Spooling
- ✓ SUPERFILL®
- ✗ PLASTIFILL®

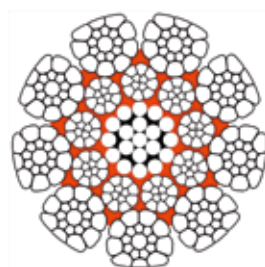
Technical data

Nominal Ø		Weight		Minimum breaking force at rope grade	
				1,770 N/mm ²	1,960 N/mm ²
mm	kg/m	kN	kN		
22	2.33	409	457		
23	2.55	447	500		
24	2.78	486	544		
25	3.01	528	590		
26	3.26	571	638		
27	3.51	616	688		
28	3.78	662	740		
29	4.05	710	794		
30	4.34	760	850		
32	4.93	865	967		
34	5.57	976	1,092		
36	6.24	1,094	1,224		
38	6.96	1,219	1,364		
40	7.71	1,351	1,511		
42	8.50	1,489	1,666		
44	9.33	1,635	1,828		
46	10.19	1,787	1,998		
48	11.10	1,945	2,176		
50	12.04	2,111	2,361		

Other rope diameters are available on request.

EVOLUTION P9

Highest resistance to crushing and deformation! EVOLUTION P9 – the high performance boom hoist rope impresses with highest dimensional stability and breaking forces with a maximum in flexibility. The innovative 9-strand construction with the improved TEUFELBERGER compaction Technology DUOFILL® makes that happen.



Specifications

- Ordinary lay, right or left lay
- 16–40mm: K9 x K19S - EPIWRC, RCN 07, ungalvanized

- ✓ Multilayer Spooling
- ✓ PLASTFILL®
- ✓ DUOFILL®

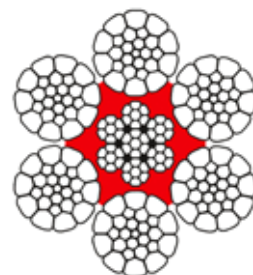
Technical data

Nominal Ø	Weight	Minimum breaking forces at rope grade	
		1,960 N/mm ²	2,160 N/mm ²
mm	kg/m	kN	kN
16	1.45	268	284
18	1.84	339	359
19	2.05	378	400
20	2.27	419	443
22	2.74	507	536
24	3.27	603	638
25	3.54	654	693
26	3.83	708	749
28	4.45	821	869
30	5.10	942	998
32	5.81	1,072	1,135
34	6.56	1,210	1,281
36	7.35	1,357	1,436
38	8.19	1,512	1,600
40	9.07	1,675	1,773

Other rope diameters are available on request.

EXECUTION Q6s

Flexibility, resistance to mechanical wear and high breaking force: these are the qualities a 6-strand high performance rope must possess. This rope with SUPERFILL® compaction technology and a PLASTFILL® insert combines all these characteristics for perfect operations.



Specifications

- Ordinary lay, right or left lay
- class 6 x 36
- ✓ Multilayer Spooling
- ✓ SUPERFILL®
- ✓ PLASTFILL®

Technical data

Nominal Ø	Weight	Minimum breaking force at rope grade	
		1,770 N/mm ²	1,960 N/mm ²
mm	kg/m	kN	kN
20	1.79	303	336
22	2.16	367	406
24	2.57	436	483
25	2.79	474	524
26	3.02	512	567
28	3.50	594	658
30	4.02	682	755
32	4.58	776	859
34	5.17	876	970
36	5.79	982	1,087
38	6.45	1,094	1,211
40	7.15	1,212	1,342
42	7.89	1,336	1,480
44	8.65	1,467	1,624
46	9.46	1,603	1,775
48	10.30	1,746	1,933
50	11.18	1,894	2,097
52	12.09	2,049	2,269
54	13.03	2,209	2,446
56	14.02	2,376	2,631
58	15.04	2,549	2,822
60	16.09	2,727	3,020
62	17.18	2,912	3,225
64	18.31	3,103	3,436
66	19.47	3,300	3,655
68	20.67	3,503	3,879
70	21.90	3,712	4,111

Other rope diameters are available on request.

DISCARD CRITERIA OF SPECIAL STEEL WIRE ROPES

The discard criteria for TEUFELBERGER special steel wire ropes are defined according to ISO 4309. This includes reduction of the rope diameter, corrosion and wire breaks. For assessing 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 for wire ropes to ISO 4309, see the "Application Handbook – High Performance Crane Ropes" at www.teufelberger.com

Non-rotation-resistant ropes

Type of design	Diameter range	RCN*	n**
	mm		
EVOLUTION P9***	22–38	5	171
EVOLUTION QS 816 V(G)	10–42	9	208
	44–50	11	248
EVOLUTION Q8	12–50	6	152
	52–54	10	224
Q 810 V	12–32	9	208
Q 812 F	12–54	6	152
EVOLUTION Q9 FIRE	32–48	11	248
EVOLUTION QS STEEL	22	9	208
	24–50	11	248

*RCN = rope category number, ** n = total number of load bearing wires in the rope's outer strand layer. *** Seale construction of outer strands

Customized solutions and products

TEUFELBERGER high performance steel wire ropes will determine the best solution



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.com