



PASSENGER ROPEWAYS

High performance steel wire ropes



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⚠ WARNING!

Using these products may involve hazards. Therefore, use our products only for the purposes they are designed for. Customers must ensure that all users are familiar with their correct use and the necessary safety precautions. Please bear in mind that any product can inflict damage or harm when used incorrectly or overloaded.

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Teufelberger-Redaelli:

Leading in high performance steel wire ropes with added value

The essence of Teufelberger-Redaelli

We at Teufelberger-Redaelli understand the day-to-day challenges you are facing and work with you to tackle them. We develop and produce high performance steel wire ropes that create added value by enhancing the efficiency and safety of your applications. Expect more: of our innovative steel wire ropes, our service offerings, and our experienced experts in development, application engineering and sales – all around the globe. Being a family enterprise, we attach particular importance to building successful, long standing business relationships. Our effort is not limited to the supply of premium quality steel wire ropes. We also accompany you through your entire work process to help you improve efficiency and optimize costs.

Service and support prior to and after steel wire rope selection

We know that high performance steel wire ropes are only able to perform to their full potential if they are perfectly attuned to the ropeway system and expertly installed. Therefore, we also provide support during project planning, commissioning and, subsequently, the careful handling of the ropeway system to maximize rope lifetime. For our tensostructures, we offer our customers assembly and guying, on-site inspection and maintenance services, as the initial purchasing costs are just the tip of the iceberg.

Application-specific and field-proven expertise and product portfolio

Teufelberger-Redaelli will not leave you alone with the selection of the right kind of high performance steel wire rope. Our specialists know what matters when it comes to your specific application and are therefore able to recommend the product that best suits your needs. Every single application requires a specific, custom-tailored solution.

High performance steel wire ropes from Teufelberger-Redaelli are used for a variety of applications such as:

- passenger and cargo ropeways
- mining
- heavy duty lifting applications in construction, cargo handling in harbors and on ships, and in industrial niches
- offshore and onshore cranes, e.g., used for wind turbines
- rope systems for tensostructures in building construction and civil engineering
- forestry cranes and winches
- personal protective equipment against falls from a height

Four manufacturing sites for steel wire ropes and a combined total of more than 425 years of rope-making experience tally up to a unique wealth of expertise and an unmatched and proven production standard. This gives us a great deal of flexibility which in turn allows us to offer our customers short delivery times.



PASSENGER ROPEWAYS

Teufelberger-Redaelli steel wire ropes help make your ropeways safe and reliable.

For many years, customers from around the globe and in various climatic zones have relied on quality from and the expertise of Teufelberger-Redaelli. By continuously improving and adapting the properties of our high performance steel wire ropes, we are able to offer you custom-tailored solutions for your specific ropeway system.

The requirements demanded of passenger ropeway ropes are becoming increasingly complex: year-round tourist use, increasing integration into urban transport, many operating hours paired with long lifetimes and plannable maintenance as well as virtually silent ropes with perfect transitions. In order to meet all these requirements, you need high performance ropeway ropes from Teufelberger-Redaelli.

Choosing the right ropeway ropes is key

A ropeway project costs millions of euros. A small percentage of this money is spent on the ropes and the pertinent services, including their installation and final inspection and acceptance. Granted, it is a comparatively small percentage. However, it is one that has an enormous impact on possible long-term and follow-up costs that can be avoided by choosing the right ropes to begin with.

Steel wire ropes from Teufelberger-Redaelli make a difference

Our special rope constructions ideally cater to our customers' high expectations in terms of rope lifetime and smooth running behavior. Our trend-setting rope technologies help us achieve long maintenance intervals and thus fewer downtimes: a key success factor for ropeway operators.

Choosing the right ropeway ropes is key!

Using steel wire ropes of appropriate quality will reduce your operating expenses.

We supply to the market leaders

As their official partner, we supply ropeway ropes to the following OEMs:



TECHNOLOGY - THE BASIS OF FLAWLESS PERFORMANCE

In manufacturing, research & development, as well as in marketing & sales, Teufelberger-Redaelli focuses exclusively on high quality special purpose steel wire ropes. Breakthrough technologies and premium quality products form the basis of our success. The following brief summary gives you a glimpse of our in-depth expertise in the field of high performance steel wire ropes

SOLITEC® TECHNOLOGY

The structure of a rope determines its quality. One key distinguishing feature of the SOLITEC® technology are its unique preformed support profiles between the strands. The SOLITEC® technology offers the following advantages:

- ✓ Long service life and consistent rope properties throughout the entire life cycle
- ✓ Perfect, uniform rope geometry ensuring
 - fewer vibrations
 - visible dimensional stability
 - stable clamping properties for ropeway vehicles
- ✓ Constant geometry in the area of splices due to the inserted support profiles
- ✓ Movable support profiles:
 - no stress peaks in the core when running around bullwheels
 - breakproof cores
 - reduced fretting corrosion due to defined spacing between strands
- ✓ Movement relative to the elements (more pliable than a solid rod)
 - smooth travel around bullwheels

STRESSLESS & STRESSLESS DATA TECHNOLOGY

STRESSLESS is based on the “sliding guide process”, a method tried and tested over several decades, and offers the following key advantages:

- ✓ Easy to install due to its particularly low-twist construction
 - rope hoisting is possible without a toggle
- ✓ Safe to handle as its outer wires are securely integrated into the rope structure

Our revolutionary STRESSLESS DATA technology integrates fiber optic bundles securely into ropeway track ropes. Moreover, electric conductors can be integrated into track ropes to supply top terminals with power.

This offers the following benefits:

- ✓ highest data security
- ✓ reduced investment costs
- ✓ zero maintenance costs

DUAL CORE® TECHNOLOGY

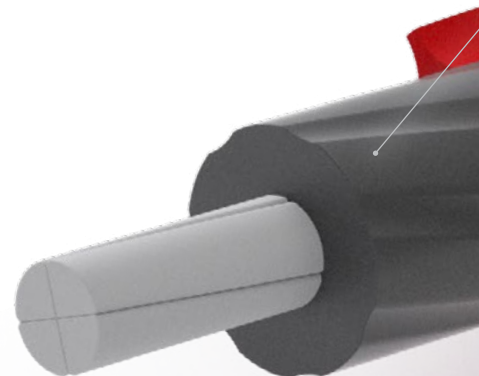
The REDMONT® DUAL CORE® consists of a core structured into two layers: The inner layer, a stranded PPC, is covered by an external, compact plastic layer. This offers the following advantages:

- ✓ Plastic embedding of the strands into the elastic core
 - increased uniformity
 - good diametral stability throughout the entire life cycle
- ✓ Little elongation
- ✓ Radial elasticity
- ✓ Little vibration thanks to the elastic core (DualCore)

SUPERFILL® - COMPACTION TECHNOLOGY

Each strand of the rope is compacted in a special process, which substantially improves the characteristics of the rope:

- ✓ Longer service life due to reduced specific load
- ✓ Less wear on the rope and on sheaves and drums, thanks to the rope's smooth surface
- ✓ Resistance to crushing in multilayer spooling scenarios



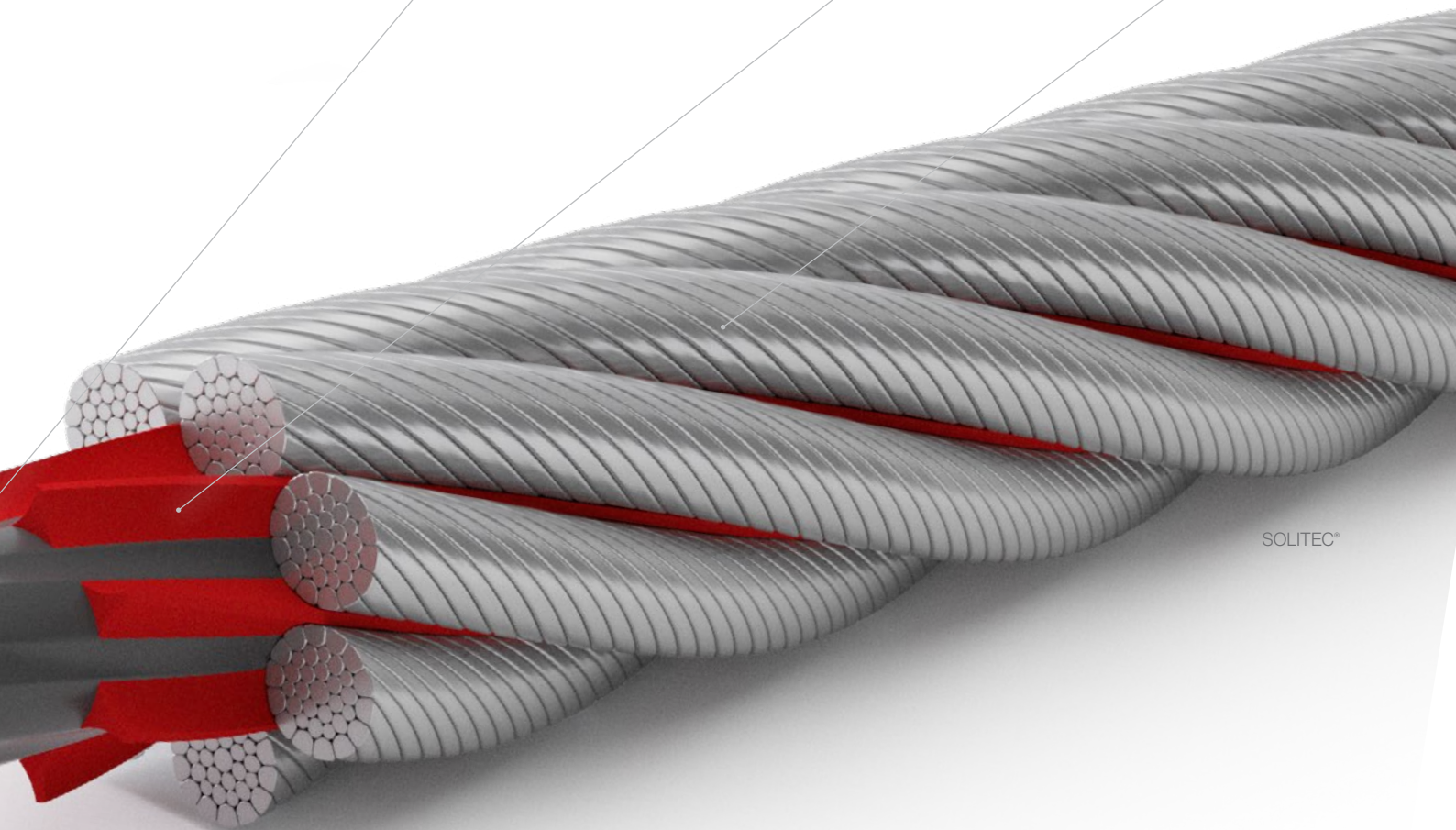
Our technologies - Your advantage.

Reliability, safety, and longevity

PLASTIC COMPOUND CORE

SUPPORT PROFILES

SUPERFILL®



SOLITEC®

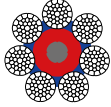
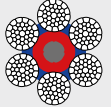
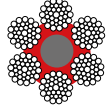
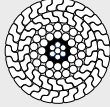
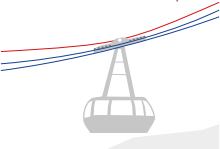
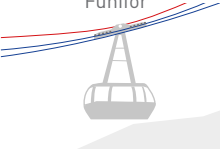
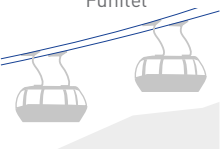
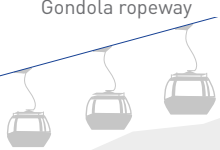
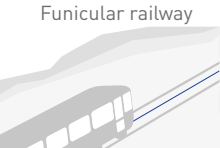
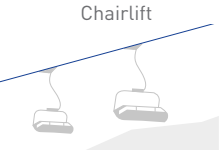
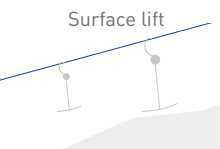


Our references speak
for themselves!



Our high performance steel wire ropes
are at work for you around the globe.

HIGH PERFORMANCE STEEL WIRE ROPES

| Ropeways | Use | Ropes | | | | |
|--|-----------------------------|--|---|---|--|--|
| | |  SOLITEC® MAX7 |  SOLITEC® |  REDMONT® DUAL CORE® |  STRESSLESS/DATA | |
| Bicable/tricable ropeway  | ■ Haul rope ■ Track rope | | ■ | ■ | ■ | |
| Reversible aerial ropeway  | ■ Haul rope ■ Track rope | ■ | ■ | ■ | ■ | |
| Funifor  | ■ Haul rope ■ Track rope | ■ | ■ | ■ | ■ | |
| Funitel  | ■ Carrying-hauling rope | ■ | ■ | ■ | | |
| Gondola ropeway  | ■ Carrying-hauling rope | ■ | ■ | ■ | | |
| Funicular railway  | ■ Haul rope | ■ | ■ | ■ | | |
| Chairlift  | ■ Carrying-hauling rope | ■ | ■ | ■ | | |
| Surface lift  | ■ Carrying-hauling rope | | ■ | ■ | | |

SOLITEC® MAX7

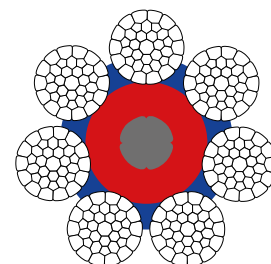
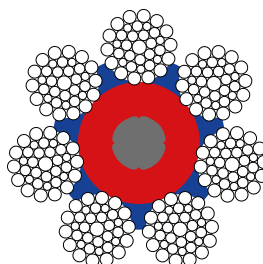
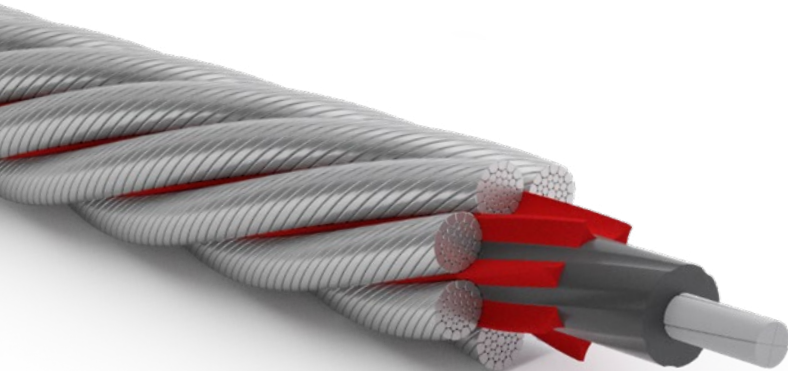
SOLITEC® Max7 is a 7-strand rope specifically developed for heavy duty applications such as urban ropeways, year-round tourist ropeways, and alpine applications that include many bending cycles. This rope was perfected by refining and upgrading the established SOLITEC® technology with support profiles.

Specifications

- Construction: Specifically adapted to the application; 7-strand, compacted and uncompacted, as well as bright and galvanized
- ✓ SUPERFILL®
- ✓ Durable plastic compound core

Advantages

- ✓ Significantly improved comfort due to
 - the reduction of vibrations by about one third
 - high running smoothness
 - hardly noticeable operating noises
- ✓ Larger service intervals and longer service life
 - better bending fatigue strength due to smaller strands
 - reduced load and wear in splice areas
- ✓ Many reference projects with 7-strand ropes



SOLITEC®

Our SOLITEC® offers a multitude of advantages! It excels with its low-vibration properties and its dimensional stability along its length due to the inserted support profiles. It is the ideal carrying-hauling rope for unidirectional monocable ropeways and the perfect haul rope for use on unidirectional multicable ropeways, reversible aerial ropeways, and funicular railways.

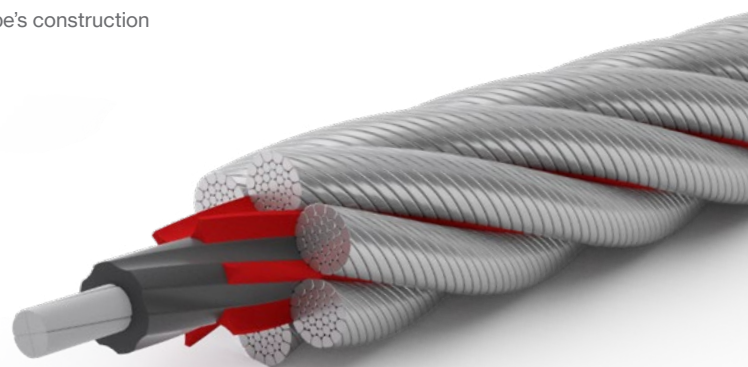
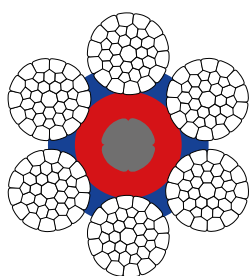
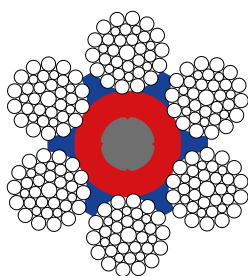
Specifications

– Construction: compacted and uncompacted, as well as bright and galvanized

- ✓ SUPERFILL®
- ✓ Durable plastic compound core

Advantages

- ✓ Long service life
- ✓ Little vibration due to perfect uniform rope geometry
- ✓ Stable clamping characteristics for ropeway vehicles thanks to the rope's construction



REDMONT® DUAL CORE®

The distinguishing feature of the REDMONT® DUAL CORE® is its elastic core. This high performance steel wire rope is used on unidirectional monocable ropeways and on unidirectional multicable ropeways, reversible aerial ropeways, and funicular railways.

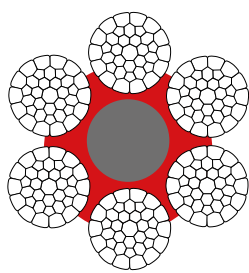
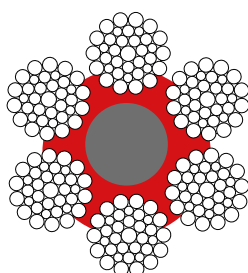
Specifications

– Construction: compacted and uncompacted, as well as bright and galvanized

- ✓ SUPERFILL®
- ✓ DUAL CORE®

Advantages

- ✓ Little vibration thanks to the elastic core (DUAL CORE®)
- ✓ Little elongation
- ✓ Long service life



STRESSLESS/DATA

STRESSLESS/DATA is *the* track rope with integrated fiber optic bundles and/or electric conductors for reversible aerial ropeways or unidirectional multicable ropeways. The special rope design and state-of-the-art production processes ensure that our STRESSLESS ropes fully live up to what is required of a track rope. Therefore, this track rope is also largely rotation resistant under tensile stress.

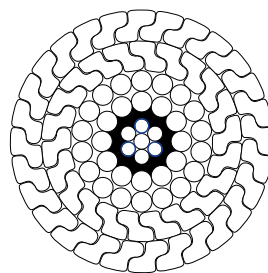
SECURE DATA TRANSMISSION

Specifications

- Construction: Specifically adapted to the application; single layer or multilayer, as well as bright and galvanized
- Versions: Without data line, with data line, and with electric conductor

Advantages

- ✓ Rope hoisting is possible without a toggle, thanks to the low-twist construction
- ✓ Highest security and reliability in data transmission & power supply due to centrally embedded electric conductor and fiber optics
 - easy to install
 - reduced mechanical load
 - consistent properties throughout the entire service life





The right ropeway rope for
your application

ALPINE CLASSICS

Every ropeway project must tackle very specific challenges. Therefore, using the right rope is the key to success. Teufelberger-Redaelli has ample expertise for every type of ropeway and definitely the right rope for you in its portfolio. In addition to the mentioned high performance steel wire ropes, our product portfolio in this segment also includes proven classics:

- ✓ surface lift ropes
- ✓ tensioning ropes
- ✓ ropes for permanently clamped-on ropeway vehicles
- ✓ surface lift hanger ropes
- ✓ pulling lines
- ✓ mounting ropes
- ✓ ropes for personal protective equipment (PPE) against falls from a height

OUR SERVICE OFFERINGS FOR YOUR PROJECT

We are your go-to partner - from your inquiry to the project planning phase and through to after-sales service & support.

Our aim is to establish long standing, successful business relationships. To this end, we offer you rope solutions that are tailored to your specific needs. Additionally, Teufelberger-Redaelli also provides services that significantly facilitate the construction or upkeep of your ropeway system.

1. Support in project planning

Teufelberger-Redaelli is a solutions provider.

As early as in the project planning phase, our rope experts can contribute valuable expertise. This allows you to plan and implement the very best solution and avoid unexpected additional costs.

2. Submission of quotes

Our rope solutions are custom-tailored to your specific needs. We are happy to actively participate in any construction project meeting to help you find the best possible solution.

3. Start of rope production

Our high performance steel wire ropes are perfectly geared to your intended use and are manufactured and inspected specifically for you. The quality of the rope is of paramount importance!

4. Optimizing of transport logistics

Teufelberger-Redaelli brings you to the top: reliably and safely! Thanks to our decades of experience in the transport of heavyweight rope reels, we are able to assist you actively and effectively in handling this very important part of your project.

5. Installation

5.1 Rope hoisting: preparation and support (supervision)

Good preparation is half the battle! Our experts support you in preparing and conducting the rope-hoisting procedure (supervision). Furthermore, one last quality check is performed before the rope is installed.

5.2 Rope installation and splicing

For this task, Teufelberger-Redaelli relies on nothing but the best: its own specialist fitters. More than 600 installation assignments worldwide per year make us uniquely qualified for the highly complex installation and splicing of ropeway ropes. Our fitters, who are true professionals at what they do, are at your beck and call 24/7: anywhere around the globe.

Your advantages

- ✓ Short response times and short-notice deployments
- ✓ Certified splicers: our team of qualified specialists is there for you. Anywhere around the globe!
- ✓ Proven durable splicing methods
- ✓ Standard specifications are not only met, but exceeded

6. Final inspection

Following the installation of the rope, the area of the splice is measured, and the measuring results are recorded in a splicing log.

7. Service and customer support

The damage appraisers and rope analysts from Teufelberger-Redaelli will answer any question regarding the condition of a damaged rope or a rope that has already been in use for a long time. Our experts offer competent advice near you. Our international service team is on call for maintenance, splicing and repair jobs.

1



Support in
project planning

2



Submission
of quotes

3



Rope production

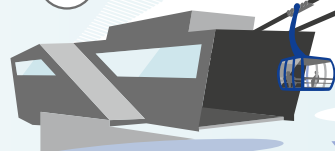
We are your competent service partner. We will provide help and answers within 24 hours.

+43 (0) 7242 615 1388 / apptec.wr@teufelberger.com



Final inspection

5



Installation

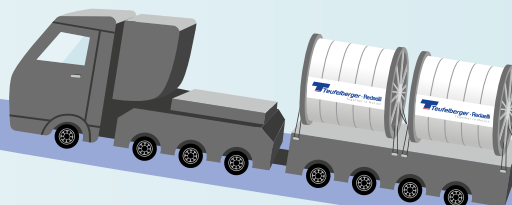
7



Service &
customer support

4

Optimizing of
transport logistics



WE LEAVE NOTHING TO CHANCE!

1. Rope archive going back more than 30 years for exact reproductions

Rope documentation and design data are archived for more than 30 years. In Teufelberger, you have a reliable partner that can also produce ropes for older ropeway systems.

2. Research & development

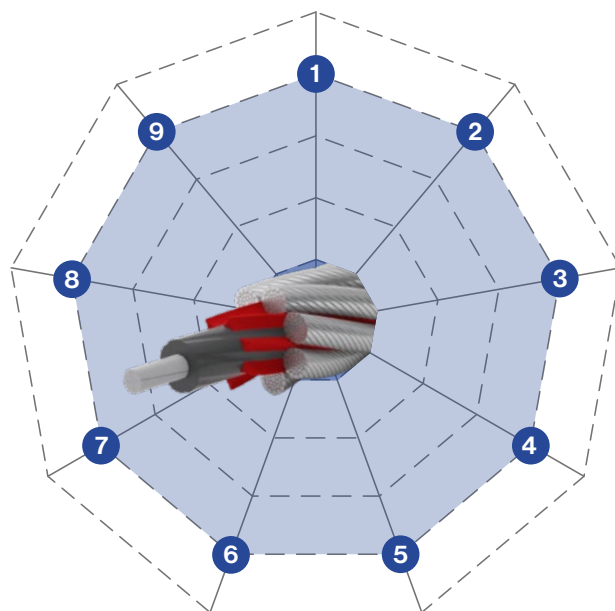
Teufelberger places great emphasis on the continuous development of its rope technologies. 4% of our staff work in research & development. We are always open to enter into development partnerships with our suppliers and customers and cooperate with a number of research institutions.

3. Active participation in standards committees

As one of the world's leading rope manufacturers, we participate in the relevant standards committees and are therefore able to actively contribute toward shaping the future.

4. Continuous process optimization

We continuously refine and upgrade our processes to maintain our consistently high product and service quality. By introducing "Total Quality Process Cableway", we started to subject all process steps from the customer's purchase order to the production of the rope and through to after-sales support to comprehensive and continuous quality control checks.



5. Unrivaled application technology team

Our unrivaled application technology (Apptec) team accompanies our ropes on the respective ropeway systems throughout their entire life cycle. We support our customers wherever they are, all around the globe.

This includes, for example, automated geometry measurements of the rope (GLD), vibration measurements, twist measurements (RnV), and elongation analyses (with our own test equipment). Following the measurements, we provide the customer with detailed measuring reports to ensure maximum transparency of the process. In this way, Teufelberger offers the best service marketwide. (For more information, see info box)

6. Precise rope dimensioning

The right construction, the right strength, the right dimensioning: Our experienced Ropetec engineers ensure that you will not just get products from our standard portfolio, but also customized ropes configured to your needs.

- ✓ Planning reliability through a service life forecast geared to the respective ropeway system
- ✓ Lay length optimization in coordination with the customer

7. Comprehensive quality assurance:

Teufelberger is a premium supplier. This is why quality is our topmost priority. Our quality management has a large repertoire of testing options that assure the quality of your rope. They include, e.g.: tensile tests on strands, continuous bending tests, and rotating bending tests. Of course, we also supply the complete CE certification.

8. In-house test ropeway

At our site in St. Aegyd, our own in-house ropeway enables us to carry out a wide range of tests. Thus, we can make the development process iterative and as short as possible. In addition, we use our test facility to conduct customized training programs.

9. More than 100 years of experience in steel wire rope manufacturing.

The production of high quality ropes requires decades of expertise and experience in rope-making and the know-how of seasoned manufacturing staff. In Teufelberger, you get an experienced partner that continuously upgrades its production processes and also focuses on long-term employee retention.

- ✓ The geometry of all our ropeway ropes is measured by default and in an automated manner (GLD).
- ✓ We have many years of experience in socketing – in-house or at our customers' sites.
- ✓ Comprehensive expertise in compacting / strand compaction.
- ✓ Many years of experience in optical fiber processing and splicing.

Interesting facts

More about our rope geometry measurements

Developed and patented by Teufelberger-Redaelli, the **Geometric LED Detector (GLD)** is an instrument for the continuous measurement of the geometric parameters of a moving rope. As compared to conventional manual measurements, the GLD is able to cover a larger area of the rope surface. This allows us to obtain a more comprehensive picture of the actual condition of the rope. The GLD is a fixture in both manufacturing sites of Teufelberger-Redaelli in order to check all stranded ropes used in passenger transport and ensure their quality.

More about our rotation & vibration sensor (RNV)

This new and uniquely compact sensor is mounted directly on site, on the rope in the ropeway system. Its compact design makes it possible to safely use the sensor during normal ropeway operation. The collected data can be transmitted easily to a smartphone via Bluetooth.

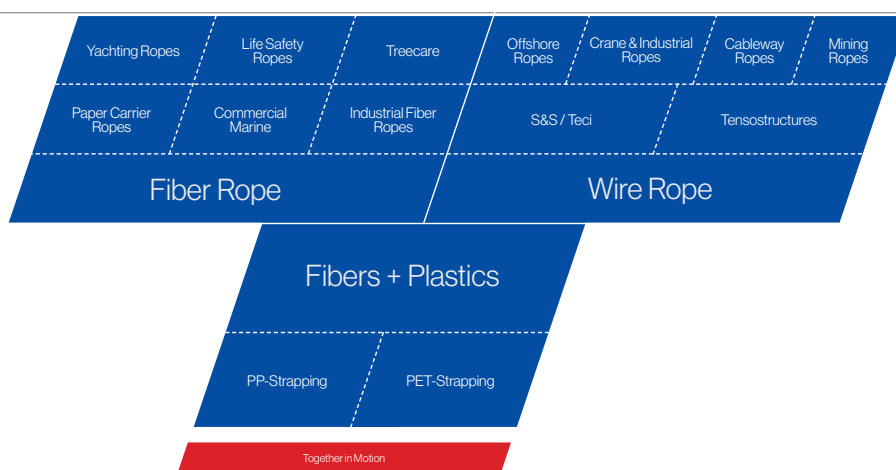


TEUFELBERGER-REDAELLI IS PART OF SOMETHING BIGGER

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 ropes, steel wire ropes, and strapping.

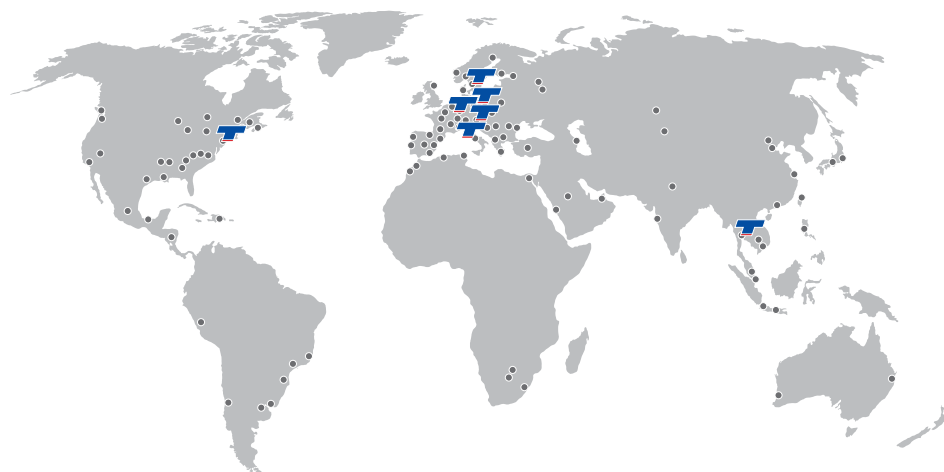
Great diversity

Our products and services are suited for a wide variety of uses ranging from cranes and marine applications to packaging and through to personal protective equipment. 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 ropes, steel wire ropes, and strapping. The spectrum of technologies in TEUFELBERGER's portfolio generates various synergies between the extrusion of thermoplastics, strapping, the braiding of high performance fibers and the processing of wires into ropes.

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.

4% of TEUFELBERGER's employees are active in research and development, making sure that our customers have access to the latest, innovative rope technologies. 10% of the entire investment volume is allocated to development and quality assurance.

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