

# Building Long-Term Connections

High-performance ropes for ropeways





## Hòn Thơm

This ropeway connects the two resort islands of Hòn Thơm and Phú Quốc. It runs directly over the sea and makes an important contribution towards developing tourism in this region.

**Customer:** Sunworld Phu Quoc

**Ropeway builder:** Doppelmayr/Garaventa

**Track ropes:** INTEGRA DATA,  $\varnothing$  58 mm, 4 x 8'275 m

**Hauling rope:** COMPACTA,  $\varnothing$  52 mm, 16'524 m



Customized rope solutions  
for maximum performance.

# Flying high with high-performance ropes

Safely flying high with ropes from FATZER. We demonstrate each and every day how sustainable mobility can be designed with innovative rope solutions in winter sports regions, hiking areas, and urban centers all over the world. Our ropes also ensure maximum performance in the industrial and mining sectors. We support our customers from the planning stage through to installation, inspection and maintenance.

Mobility in the future will require innovative solutions. Ropeways play an important role with this as a sustainable alternative to other means of transport in many locations around the world. Ropeway ropes from FATZER are adapted to customer requirements and to local conditions. This means that as a ropeway operator you benefit both from maximum performance as well as from optimum values when it comes to lifetime costs. You also provide a pleasant and safe journey to your passengers at all times. Ropeway builders appreciate the collaboration in particular due to our support with designing splicing works and other services that guarantee safety right from the start of the warranty phase.

## Industrial rope applications

FATZER's high-performance ropes are also perfectly suited for use in the mining and raw materials industries thanks to their reliability and resilience. This applies to material ropeways as well as to conveyor belt and shaft installations pulled or guided by ropes. The steel wire ropes are cost-effective and durable solutions that provide optimum lasting service and help to ensure that industrial processes run smoothly.

## From ropes to services

With FATZER, you have a partner who can ensure that the performance of the ropeway ropes meets the highest expectations over the long term. This starts with the innovative design and high quality of our steel ropes. We also provide you with a wide range of services from consulting to monitoring and maintenance of the ropes. This makes an investment in ropes from FATZER a financial investment that will always pay off for many years to come.



"Most world record ropeways are equipped with high-performance ropes from FATZER. And there's a good reason for that."

**Martin Bechtold** – CEO FATZER AG

Quality material for ropeways  
and sustainable urban mobility.

# Steel cables in the fight against city center congestion

More and more people are living in large city centers where getting around is becoming a challenge in many places. Innovative ropeway solutions for urban environments provide the perfect answer to the needs of many cities and their inhabitants, including when it comes to environmental issues. High-performance ropes and services from FATZER play a key role in this process, ensuring that passengers can get around safely and guaranteeing the availability of the transportation.

Gondolas, 3S ropeways, and reversible ropeways are playing an increasingly significant role in urban environments. More and more urban planners are recognizing the benefits that hovering locomotion can offer to users of public transportation: Ropeways can overcome obstructions to traffic just as easily as they can with rivers, infrastructure or other obstacles, and are very environmentally friendly at the same time. However, their individual components are crucial for them to provide the best service with reliability, especially when it comes to the ropes used.

## **Quality ropes for urban ropeways**

FATZER provides various rope solutions for ropeways in urban environments. We produce high-performance ropes of the best quality customized to the needs of ropeway builders and operators. Our steel ropes excel through their high reliability in use, which can avoid any unplanned downtimes. They also reduce noise emissions, thus ensuring quiet operation. We already do what we can to keep the lifetime costs for ropeway operators as low as possible at the rope calculation stage, thereby playing our part in ensuring a cost-effective transport solution.

## **From planning through to monitoring**

We also provide all the services that make planning, installation and operation easier for you over the long term. Our innovative splicing solution for instance enables ropes for ropeways to be connected easily, including in highly compact spaces. We also use modern and extremely customer-friendly monitoring solutions to support you in maintaining an overview of all the important safety factors at all times, so that the ropes meet the highest requirements over the long term.





## Guayaquil

The "aerovia" gondola connects the cities of Durán and Guayaquil via various stations, with part of the ropeway leading over the Guayas River in spectacular fashion.

**Customer:** aerovia

**Ropeway builder:** Poma

**Carrying-hauling ropes:** PERFORMA/COMPACTA,  
Ø 52 mm, in sections, total 8,490 m





## Pardatschgratbahn

This modern ropeway has two track ropes with integrated fiber optic cables and two track ropes with four electrical conductors each. Reliable and resilient and with low elongation, the ropes provide the perfect support for operating the ropeway.

**Customer:** Silvrettaseilbahn AG, Ischgl

**Ropeway builder:** Doppelmayr / Garaventa

**Track ropes:** INTEGRA DATA,  $\varnothing$  58 mm, 4 x 3'910 m

**Hauling rope:** COMPACTA,  $\varnothing$  55 mm, 7'650 m

High-performance ropes  
for ropeways

High-performance ropes  
for ropeways in tourist areas.

# So close to heaven – by ropeway

Whether it's ski areas, hiking regions or viewing platforms: chairlifts, gondolas, reversible ropeways and funiculars are the perfect way to get around for tourists wanting to explore the world and for sports enthusiasts wanting to pursue their hobbies. High-performance ropes of the best quality are crucial when it comes to ropeway journeys that remain positive memories. FATZER also supports ropeway builders and operators with planning and installation, monitoring, and all maintenance work.

Ropeways can also provide easier access to remote winter sports areas or viewing points that are otherwise hard to reach. They can help entire regions benefit from increased tourism. In order for them to achieve this, FATZER supports ropeway builders and operators with high-performance ropes in various designs. These also provide a whole range of benefits: from their durability and adaptability to customer requirements through to the associated services, which are all offered from one single source.

## **High-performance ropes for tourist areas**

Whether track ropes or carrying-hauling ropes, or ropes for energy or data transmission: the FATZER product range includes a variety of high-performance ropes for a whole host of different requirements. Our steel ropes ensure that passengers can get around safely, including in very difficult terrain. They also ensure reliable operation thanks to their certified high quality levels, especially when combined with our user-friendly monitoring solutions for permanent surveillance.

## **Expertise in all areas**

Our knowledge of working with rope comes from a 190-year history as a company, and our consistent focus on customer requirements that enable us to provide the precise services you need, including support with planning or installation, with innovative solutions for maximum safety or with on-site maintenance. All of FATZER's services are also available as a package on request, allowing customers to plan the costs for ropeway operation over the long term.

Steel ropes deliver maximum performance for industry.

# Maximum reliability for material ropeways and industrial applications

Material ropeways, shafts and industrial conveyor belt systems help companies all over the world to mine raw materials efficiently and in an environmentally friendly manner and to transport these, sometimes over long distances. Steel ropes are also crucial components in other industrial applications. FATZER already ensures at the planning stage that the ropes will prove themselves in practice. We also offer all the services that customers in this segment require for optimum operation.

Material ropeways, shaft installations and industrial conveyor belt systems are available in a wide variety of designs depending on the area of application. Many of them span large areas, often in mountainous regions or deep into the ground. Steel ropes that allow even heavy loads to be transported are among the key elements when it comes to reliable functioning of industrial ropeways. This is also crucially important in other industrial applications. High-performance ropes from FATZER are perfectly suited for use in industrial environments. You can be sure that our ropes will reliably move even the heaviest of loads thanks to their certified high quality and extensive materials testing.

## **Steel ropes for industry**

FATZER's product range includes various rope solutions that include track ropes as well as carrying-hauling ropes and guide ropes. Hard-wearing and durable, they are easy to install and also to maintain when needed. We examine any individual challenges intensively and produce ropes designed to overcome these in order to ensure that the steel ropes are perfectly aligned with their intended use. We focus on the lowest possible life cycle costs when calculating the ropes, which allows ropeway operators to protect their finances over the long term.

## **Comprehensive services for ropeway operators**

Do you need steel ropes in a specific design? Are you facing challenges with the logistics at your mining or quarry site? Or do you need support with monitoring the ropes used? We can support you from planning and production to logistics through to assembly, monitoring and maintenance thanks to our many years in the business and extensive expertise. This allows you to benefit from the best quality at all levels over the long term and all over the world.





## RopeCon, Tüfentobel

This "flying" conveyor belt, which is supported and guided by six track ropes from FATZER, enables excavated material to be transported from the surrounding construction sites within the landfill site in an environmentally-friendly and efficient manner.

**Customer:** Entsorgungsamts St. Gallen

**Ropeway builder:** Doppelmayr Transport  
Technology GmbH

**Track ropes:** INTEGRA,  $\varnothing$  52 mm, 2 x 1'280 m  
INTEGRA,  $\varnothing$  42 mm, 4 x 1'280 m

From planning to logistics through to assembly and support.

# 360° expertise with high-performance ropes

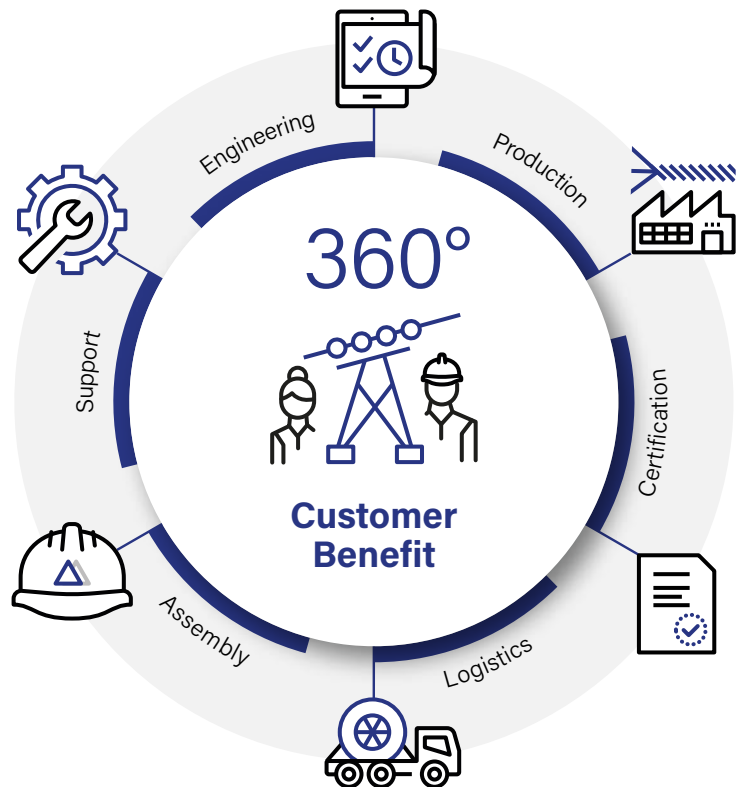
In addition to producing the best steel ropes in the world, FATZER also aims to let its customers benefit from services at the highest level from the very start. Our 360° expertise ranges from planning through to assembly and regular servicing for the ropes used. We also provide all our services combined in one package with 360° Customer Benefit.

## 360° Customer Benefit

We provide an all-round carefree package through our 360° Customer Benefit service: with this you receive our steel ropes including transport and logistics and also benefit from needs-based maintenance, all at one set price. We will also be happy to assist you with additional support services by arrangement. 360° Customer Benefit also ensures that you are perfectly equipped if the unexpected happens.

### How our 360° Customer Benefit can benefit you

- Ability to plan deployment costs for steel ropes and regular maintenance
- Excellent values with Total Cost of Ownership (TCO)
- Maximum reliability when it comes to ropeway operations
- Various support services







## Engineering

FATZER is the right place for any questions regarding rope. Our many years of experience and specialization in the manufacture of ropeway ropes means that we have industry-specific expertise which we can use to provide optimum support to ropeway system builders and rope users. The customer receives expert assistance in selecting the ideal rope, planning maintenance intervals, calculating costs, and other issues.

### How our engineering services can benefit you

- Ability to plan rope maintenance and rope changes
- Forecasts of costs over the scheduled rope and plant lifetime as a basis for making decisions on products
- Financial planning
- Optimized procedures for noise generation
- Maximum availability
- Aftersales service
- Approximate calculations of rope service lifetimes

## Production

All steel ropes from FATZER are manufactured to the highest standards at the Swiss factory according to individual requirements. Random tensile, displacement, resistance and fatigue tests ensure that the ropes will prove themselves in practice. We also have highly stable processes and complete traceability at our disposal thanks to workflows supported by digital technology.

### How our production processes can benefit you

- Swiss quality manufacturing
- Customized ultra-precise production
- Comprehensive materials testing





## Certification

At FATZER we can support you with all certificates required for commissioning. This includes factory certificates and certificates from tensile tests to determine the effective breaking force, as well as acceptance certificates from external inspection bodies. Our customers receive the complete documentation in each case, including commissioning documents, and operating and maintenance instructions.

### How our certification can benefit you

- Certified high quality for all ropes and components
- Availability of digital data in the Online Cockpit



## Logistics

The higher the individual weights of the ropes, the greater the logistical challenge these represent. FATZER assumes responsibility for the shipping, coordinating orders with reliable partners in the process. Expert support during the entire delivery is all part of our service.

### How our logistics can benefit you

- Smooth transportation management through holistic planning, processing and monitoring of shipments
- Special logistics solutions
- Processing of international customs formalities

## Assembly

We ensure that ropeways can be put into operation immediately with our assembly services. Our TRUsplice or TRUsplice ES systems are among the elements used here which allow the rope ends to be connected by a splice to form an endless loop. This is also possible in compact spaces.

### How our assembly services can benefit you

- Greater system availability
- Increased splice service life
- Smoother running
- Maximum flexibility through high level of responsiveness



## Support

The reliability and efficiency of a ropeway crucially depend on maintenance of the system components. Preventive maintenance helps in identifying any problems with the ropes. This results in fewer repairs and unscheduled downtimes. If repairs to the rope or splice should ever be necessary, our experts take on this work with maximum efficiency. Maintenance agreements allow you to increase availability while reducing operating costs at the same time.

### How our rope maintenance can benefit you

- Increased reliability and availability
- Minimization of risks to operations
- Minimization of downtimes
- Optimization of system performance
- Fulfillment of safety standards and regulations
- Local presence globally
- Customized maintenance agreements
- Guaranteed response and intervention times with service agreements
- Ability to plan costs



High-performance ropes for applications  
all over the world.

# The right rope for any purpose

## Mount Huashan

The Huashan gondola is located in Shaanxi Province and provides access to a tourist destination located at high altitude. Our ropes negotiate these extreme rock faces safely.

**Customer:** Ropeway & Highway Company Limited

**Ropeway builder:** Poma

**Carrying-hauling rope 1. Section:**

STABILO, Ø56 mm, 3'800 m

**Carrying-hauling rope 2. Section:**

STABILO, Ø56 mm, 4'900 m



## Hauling and carrying-hauling ropes

### STABILO

The durable entry-level product with low elongation for ropeways.

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### COMPACTA

The high-performance rope with compacted strands for an increased service life.

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### OCTURA

The rope for short installations and installations with high levels of operating hours.

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### PERFORMA-DT

The perfect solution for urban high-performance applications and for engageable installations with high conveyor capacities.

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## Track ropes

### INTEGRA / INTEGRA-DATA

The low-tension track ropes with an exceptionally long service life.

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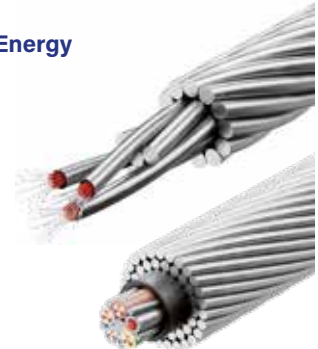


## Telecom rope

### BRUtelecom / BRUtelecom Energy

The range of ropes for conveying data and electrical energy.

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## Guide ropes for mining and Industry

### INTEGRA-HV (HLCGR)

Guide ropes for cost-effective system solutions in shaft installations.

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Hauling and carrying-hauling rope

# STABILO

With the STABILO high-performance rope, the inner space surrounding the strands is completely filled. The polyethylene core rod is heated during stranding and the plastic is pressed between the strands. This results in a supporting body that supports and stabilizes the strands. It keeps the strands apart at the same time, including at equal distances thanks to restraint-guided stranding. This results in multiple benefits, including minimal rope elongation over the entire service life.



## Area of application

STABILO ropes are traditionally used in gondolas where downtimes for rope shortening are only acceptable in certain periods that can be planned or at the longest possible intervals. These include e.g. chairlifts or hauling ropes on reversible ropeways. STABILO is the entry-level product for ropeways.



## Furka-Zipper, Davos

The Furka Zipper connects the two ski resorts of Gotschna Klosters and Parsenn Davos.

**Customer:** Davos Klosters Bergbahnen AG

**Ropeway builder:** Doppelmayr/Garaventa

**Carrying-hauling rope:** STABILO, Ø 47 mm, 3'350 m

## How STABILO can benefit you

Time course for the elongation can be calculated within narrow tolerances

Embedding of the strands to the strand shoulder level

High service life expectancy thanks to lubricated strands

High level of diameter consistency and stability

Less shortening required

Rope elongation can be calculated and predicted



## G-Link, Salzburg

The spliced STABILO hauling rope pulls two 130-passenger cabins on the G-Link reversible ropeway, which connects the two skiing mountains of Griessenkareck and Grafenberg.

**Customer:** Snow Space Salzburg Bergbahnen AG

**Ropeway builder:** Doppelmayr/Garaventa

**Hauling rope:** STABILO, Ø 43 mm, 5'000 m

Hauling and carrying-hauling rope

# COMPACTA

The COMPACTA high-performance rope is characterized by an increase in the metallic cross-section for the compacted strands. This results in some positive effects, as the rope diameter decreases, the breaking force increases by around 10 percent, and the service life of the rope is extended. At the same time, you benefit from minimal rope elongation over the entire service life. The flattened contours of the outer wires result in smaller surface pressures in the clamping and roller areas. The larger contact area also leads to lower tension peaks in the event of contact with the strand.



## Area of application

COMPACTA ropes are more stable in diameter and more resistant to torsional and twisting forces compared with conventional ropes. They have a virtually smooth surface which guarantees improved frictional contact with drive elements, thus reducing wear and tear of guide rollers, clamps, and sheaves. This makes these ropes perfectly suited for use with chairlifts, gondolas, reversible ropeways, and cable cars.

## How COMPACTA can benefit you

- Higher rope breaking force for a given diameter or reduced diameter with the same rope breaking force
- Less wear and tear on guide rollers, clamps, driving and return sheaves
- Higher torsional stability and stability against lateral pressure
- Improved damping of rope oscillations and vibrations
- Increased fatigue strength thanks to reduced internal strand tension



## Línea Roja 1 and 2, La Paz

Both of these lines are part of an overall ropeway system around 34 km in length which serves the main public transportation system.

**Customer:** MI Teleférico

**Ropeway builder:** Doppelmayr/Garaventa

**Carrying-hauling rope Section 1:**

COMPACTA, Ø 50 mm, 2'370 m

**Carrying-hauling rope Section 2:**

COMPACTA, Ø 50 mm, 2'690 m



## Awana SkyWay, Genting

The high-performance gondola takes passengers up to the 1,760 m high Genting Highlands over three sections. The mountain provides access to countless attractions for visitors.

**Customer:** Leitner Asia

**Ropeway builder:** Leitner

**Carrying-hauling rope:** COMPACTA, Ø 60 mm, total on 5,980 m in three sections





## 200-FUL, Zermatt

The funicular railroad takes visitors underground on a direct route to Sunnegga where a magnificent view of the Matterhorn awaits once they reach the top.

**Customer:** Zermatt Bergbahnen AG

**Ropeway builder:** Doppelmayr/Garaventa

**Carrying-hauling rope:** COMPACTA, Ø 47,5 mm, 1'650 m



## IFS Cloud, London

The ropeway offers beautiful views of many attractions, the sunset over the river, and of the city coming to life during night flights.

**Customer:** IFS Cloud Cable Car

**Ropeway builder:** Doppelmayr/Garaventa

**Carrying-hauling rope:** COMPACTA, Ø 50 mm, 2'340 m

Hauling and carrying-hauling rope

# OCTURA

The OCTURA high-performance rope is the solution for short installations or installations with high levels of operating hours and minimum downtimes which place above-average stress on the ropes. It makes sense to use a compacted 8-stranded rope with a solid plastic core in these applications and thus increase the rope's service life. The 8-stranded compacted OCTURA is the basis for a long service life and manages to double this thanks to FATZER's TRUsplice system.

### Area of application

The OCTURA carrying-hauling rope is specially designed for short installations and installations that are subject to intensive use. The area of application is very versatile with this and ranges from innovative gondolas to modern funiculars.



### How OCTURA can benefit you

- Low strand-induced vibrations
- Very smooth running
- Minimal elongation behavior and increased diameter consistency
- Less shortening required
- Rope elongation can be calculated and predicted
- No strand contact and therefore significantly longer service life

Hauling and carrying-hauling rope

# PERFORMA-DT

With the PERFORMA-DT high-performance ropes, plastic profiles are stranded between the strands in order to reduce strand-induced vibrations significantly during traction or conveying operations. The rope runs over rollers and sheaves with practically no vibration and with low noise levels thanks to the virtually cylindrical surface structure. The major reduction in settlement is equally compelling.



## Area of application

Using the PERFORMADT carrying-hauling ropes makes particular sense in installations with high conveying capacities. They are also a sensible option wherever vibrations and noise have a negative impact on the comfort and well-being of passengers, residents and passers-by, e.g. on gondola lifts in urban areas.

## How PERFORMA-DT can benefit you

- Low strand-induced vibrations
- Very smooth running
- Minimal elongation behavior and increased diameter consistency
- Less shortening required
- Rope elongation can be calculated and predicted
- No strand contact and therefore significantly longer service life
- Little wear and tear on the rollers



## Mexico City

Cablebús 1 installations in Mexico City are connected as a Y-axis in public transportation and serve as feeder routes for subway and bus connections.

**Customer:** Sistema de Transporte Público Cablebús

**Ropeway builder:** Doppelmayr/Garaventa

**Carrying-hauling rope Section 1:**

PERFORMA, Ø 54 mm, 8'380 m

**Carrying-hauling rope Section 2:**

PERFORMA, Ø 54 mm, 7'270 m



## Alpe Express, Alpe d'Huez

A semi-urban feeder system with a total of three intermediate stations connecting the village of Huez with the ski lifts in Alpe d'Huez.

**Customer:** Sata

**Ropeway builder:** Poma

**Carrying-hauling rope:** PERFORMA, Ø 48 mm, 4'710 m





© Bayerische Zugspitzbahn Bergbahn AG

## Zugspitze

The reversible ropeway holds three world records and connects the Eibsee lake with Germany's highest peak.

**Customer:** Bayerische Zugspitzbahn Bergbahn AG

**Ropeway builder:** Doppelmayr/Garaventa

**Track ropes:** INTEGRA, Ø72 mm, 4 × 4'900 m

**Hauling ropes:** COMPACTA, Ø47/41 mm, 2 × 5'000 m



## Baoquan

Reversible ropeway with glass floor for special views. From the upper terminus you can hike to the popular cliff walk and take a panoramic elevator down to the Baoquan waterfall landscape.

**Customer:** Henan Baoquan Tourism Co., Ltd.

**Ropeway builder:** Doppelmayr/Garaventa

**Track ropes:** INTEGRA, Ø72 mm, 4 × 1'430 m

**Hauling ropes:** COMPACTA, Ø45 mm, 2'480 m

Track ropes

# INTEGRA/INTEGRA-DATA

The fully locked INTEGRA ropes are manufactured with a twisted design. The profiled wires are preformed into their subsequent spiral position in this process. This results in a low-tension rope that is easy to guide when pulled. With the INTEGRA-DATA high-performance rope, additional copper conductors or optical fibers are incorporated for data transmission purposes.



### Area of application

Thanks to their high reliability and load capacity, INTEGRA and INTEGRA-DATA high-performance ropes are perfectly suited for use in reversible ropeways as well as 2S and 3S ropeways.

### How INTEGRA/INTEGRA-DATA can benefit you

Replaces additional signal and control cables exposed to external influences

Low tension and non-twisting thanks to their twisted design

Fast and safe retraction

Universal data connection between the upper terminus and lower terminus

Reliable signal and data transmission

Durable and resistant to wear and tear

Telecom ropes

# BRUtelecom BRUtelecom Energy

BRUtelecom ropes enable the transmission of data and electrical energy via optical fibers and copper conductors between the lower terminus and upper terminus. While only the optical fibers are stranded in the BRUtelecom high-performance rope, BRUtelecom Energy comes with additional copper conductors for energy transmission. All BRUtelecom products are offered as a complete package that includes tensioning material, accessories, as well as optical fiber splicing and measurement services.

## Area of application

BRUtelecom ropes are used in many modern ropeway installations. Functions such as data supplies for ropeway control systems, ticketing systems, WiFi, mobile radio antennas, webcams, point-of-sale systems, and displays are in demand for various installations.



## Cát Bà

Cát Bà is the largest island at the southeastern edge of LanHa Bay. It is a popular destination for day trippers and is located less than 20 kilometers to the east of Vietnam's third largest city Hải Phòng City.

**Customer:** Sunworld Cat Ba

**Ropeway builder:** Doppelmayr/Garaventa

**Track ropes:** INTEGRA-DATA Ø 58 mm, 4 x 4'315 m

**Hauling rope:** COMPACTA, Ø 52 mm, 8'350 m

**Telecom rope:** BRUtelecom Energy, Ø 30 mm, 2'450 m



## How BRUtelecom/BRUtelecom Energy can benefit you

Data transmission with optical fibers and copper conductors

Energy transmission between the lower terminus and upper terminus

High levels of mechanical strength and durability

Complete packages with accessories, and splicing and measurement services



## Andermatt/Sedrun

With its direct connection to Andermatt station, this installation sets new standards and provides an impressive demonstration of how ropeways can be integrated into modern mobility concepts.

**Customer:** Andermatt Sedrun Sport AG

**Ropeway builder:** Doppelmayr/Garaventa

**Carrying-hauling rope:** STABILO, Ø 50 mm, 2'321 m



Guide rope

# INTEGRA-HV (HLCGR)

INTEGRA ropes from FATZER have already stood the test of time for decades and are continuously being optimized. With its resistance to wear and tear and its durability, the INTEGRA-HV semi-enclosed guide rope is specially tailored to the demanding environment of raw material extraction and also stands out through its easy installation and maintenance.



## Area of application

The INTEGRA-HV guide rope in particular represents a cost-effective system solution for shaft hoisting. This rope is perfect for shafts with difficult shaft ventilation conditions in particular.

## How INTEGRA-HV can benefit you

Non-twisting and low-tension through its twisted design

Fast and safe installation

In the event wire breakages, the broken wires remain within the network



Whether used in transport systems for power plant construction or in raw material extraction, the ropes are subjected to enormous tensile forces and adverse environmental conditions. Hauling and carrying-hauling ropes as well as track and guide ropes are designed and manufactured to meet relevant requirements. This is possible up to a unit weight of 200 t and a diameter of 150 mm.

## Minera Saucita

Shaft with 44 mm semi-enclosed guide ropes. A semi-enclosed outer wire layer encloses the round wire spiral core.

**Installation:** Minera Saucito

**Customer:** Minera Saucito

**Ropeway builder:** Saucito



# TRUsplice



The service life for a splice can be more than doubled with TRUsplice.

FATZER has developed its own method for splicing, whereby the original insert remains in the splice center and the tails are wrapped with the pressure-resistant FATZER splicing tape. TRUsplice is a customized tuck inlay with a shape that is specially adapted to the rope. This reduces the strand friction in the tuck to a minimum and more than doubles the service life of the splice.

### Area of application

Two rope ends are connected by a splice to form an endless loop in all aerial ropeways, such as gondolas and chairlifts. TRUsplice provides some major benefits with these applications.

### How TRUsplice can benefit you

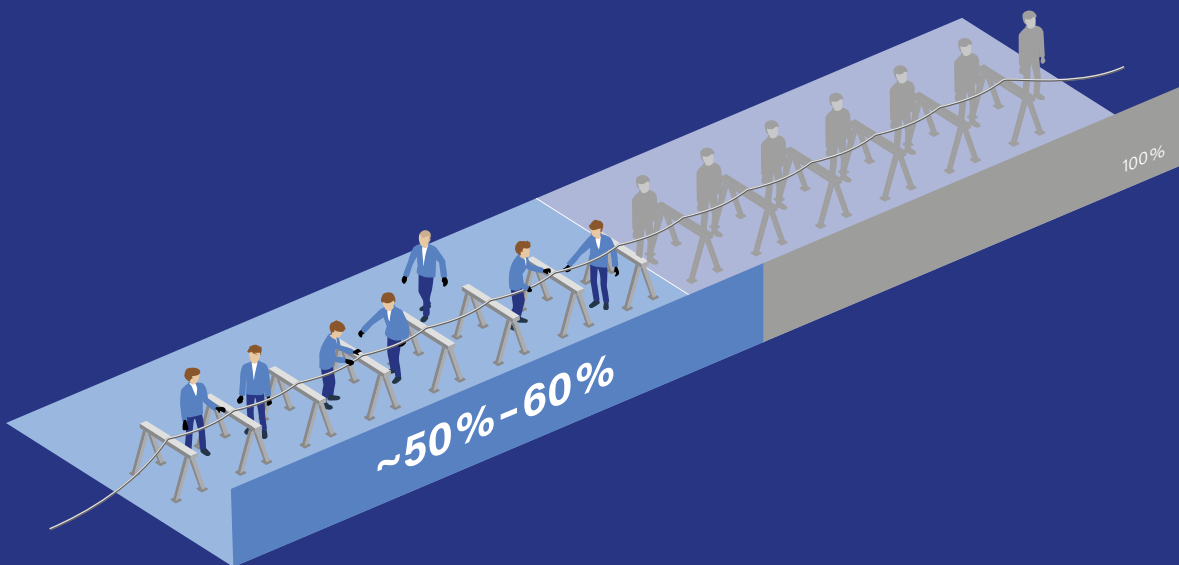
- Reduced operating costs during the rope's service life
- Increased splice service life
- Greater system availability
- Smoother running
- Potential saving of a repair piece





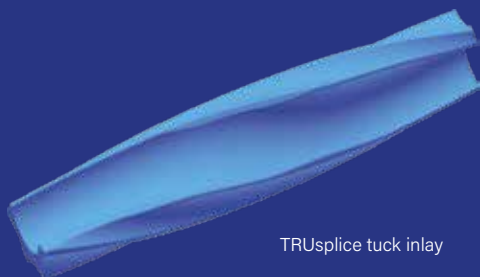
# TRUsplice Engineered Solution

TRUsplice Engineered Solution (ES) is the next generation of the splice. FATZER makes it possible to reduce the total splice length by half. It goes without saying that this has no negative effect on safety or service life, as can be seen by many years of tests and investigations. TRUsplice ES is an engineering service that evaluates the specific splice load and calculates a specific potential splice length from this. TRUsplice ES reduces the time required for initial splicing, shortening, and splice regeneration by up to 30%. The need for auxiliary staff is also significantly reduced. TRUsplice ES also allows splices to be implemented in places where splicing work is not feasible today due to the significant length involved.



## Area of application

Whether they involve rough terrain in mountainous areas or heavily populated urban centers, various ropeways require splicing work in restricted spaces. TRUsplice ES is the perfect solution under these conditions.



TRUsplice tuck inlay

## How TRUsplice ES can benefit you

- Less auxiliary staff required
- Savings through reduced assembly times
- Very short splice length and therefore savings on expensive splice frames
- Station splices enabled in some cases



Strong teamwork for customer project in Zermatt.

## Logistic is a challenge? Not for FATZER

After 40 years it was time: the Furi-Trockener Steg reversible ropeway in Zermatt needed new track ropes. This lift now has two 70-ton ropes in use from FATZER. The customer Zermatt Bergbahnen AG was not just delighted at the quality and accuracy of the fit for these. The fact that one contact was able to handle all of the process steps and solve the logistical challenges smoothly with partners also ensured a high level of customer satisfaction.





Mountainous regions often involve the need to overcome tight curves and limited load-bearing bridges. The ropes are therefore distributed among several carriers with these types of heavy loads.

There are many good reasons to choose steel ropes from FATZER. With us you receive a rope that fits your installation precisely rather than just any old product. Or in the case of the Fluri-Trockener Steg reversible ropeway in Zermatt, one that is equipped with new ropes, two 70-ton ropes with a total length of 3,810 meters. In addition to this, you enjoy the benefit of having a contact partner who also provides expert support for individual challenges across all process steps, from consulting to logistics and service.

**Strong partnerships for rope projects**

The complexity of this customer project primarily related to the transportation. The route to Zermatt involved traveling via highways, through the middle of Bern, Montreux, and Zermatt. Our shipping company and long-standing partner Wipfli was responsible for clarifying the selected route. FATZER also has a long-standing relationship with Garaventa, the ropeway manufacturer responsible for rope installation, which was a benefit to this project. Any outstanding queries were clarified between the three companies with FATZER

acting as coordinator. Our tasks also included communication with the authorities.

**Delivery on schedule thanks to some good preparatory work**

FATZER was present onsite multiple times beforehand in order to ensure that the process of shipping the ropes ran smoothly. We clarified the special shipping conditions for this, in particular the conditions for the bridges that needed to be crossed due to the total weight of 70 tons per rope distributed over two bobbins. A flexible solution was required for two of the bridges, as the truck could not drive over these due to the heavy weight involved. The shipping process ran smoothly in the end thanks to rewinding of the ropes that were 56 millimeters in thickness. As a result, we once again managed to meet the deadline and provide a full range of services to our satisfied customer.



The process for shipping the ropes was implemented without any problems thanks to elaborate planning and a flexible solution.



“The shipping went very smoothly. This is due to the good preparatory work performed by the staff at FATZER, who came to our site in Zermatt several times to review the route.”

**Reinhard Lauber** – Head of Technology at Zermatt Bergbahnen AG



Fully automated rope testing  
for maximum safety.

# TRUscan conquers the world of urban ropeways

One of the biggest challenges facing fast-growing cities with over a million inhabitants is expanding the public transportation systems. Solutions involving ropeways offer huge potential in this respect. Rope monitoring and maintenance must be implemented with maximum efficiency in order for this potential to be exploited in full. The innovative TRUscan testing device creates the perfect conditions for this.



Cablebus 2 © Leitner



The TRUscan project team in Mexico (from left to right): Oliver Reinelt, Matthias Stacher, and Tobias Weiss.

Ropeways can solve public transportation problems in cities with millions of inhabitants worldwide when used intelligently. This is the case for instance in Mexico City, where three ropeway lines have recently gone into operation. These have increased the mobility options enormously for tens of thousands of residents from areas with poor infrastructures. Integrated into the public transportation network, the ropeways connect key parts of the city practically 24/7. Further ropeways are already being planned to expand the network.

#### Detecting wire breakages with millimeter precision

Ropes subject to heavy strain must also be tested accordingly in order to ensure safety. Since urban ropeways can only be maintained at night during a restricted period of time, this must also be planned down to the minute in order to avoid delays and interruptions to operations. This means that condition monitoring is a very high priority for urban ropeways. The same is also true for FATZER's innovative TRUscan magnetic inductive testing device. This system provides an insight into the inner workings of a running rope using scattered magnetic fields. It allows wire breakages to be detected with millimeter precision before being collated in a damage point list. The data are made available to the operator within a very short period of time as part of a fully automated process. It is also possible e.g. for tests to be triggered at the push of a button following thunderstorms. This guarantees operational safety at all times, including without time-consuming visual inspections.



Ropeway network with TRUscan in Mexico City.

#### TRUscan proves its worth in Mexico

FATZER has equipped all rope sections of the current urban ropeways in Mexico City with TRUscan over the last few months. This has of course also taken place at night and coordinated to the minute. The operator has had the rope analyses available ever since this point, either automatically at brief intervals or individually at the push of a button, allowing it to fulfill its duty of care. FATZER's Monitoring Center is informed immediately of any significant damage developments recorded during the inspection. This enables a proactive assessment of the situation with the ropeway operator, even permitting any surprises to be managed effectively. Predictive maintenance planning is also supported from the very first day of operations. This allows the second most important factor for urban ropeways to be fulfilled after safety, i.e. availability. As such, the sensors and automated evaluation by TRUscan represent a major innovative step for ropeway operators.



Any significant deviations appear automatically in the Monitoring Center.



"The fully automated inspection by TRUscan enables the two most important criteria for urban ropeways to be fulfilled: maximum safety and availability."

**Philippe Bieri** – Project Manager at FATZER AG

A passion for steel ropes meets  
a firm focus on the customer.

# FATZER AG. Steel rope innovations with tradition

FATZER has specialized in the production of top quality ropes for around the last 190 years. It focuses today on developing, manufacturing, and selling technically sophisticated ropes for ropeways, buildings, and other structures. Customer service plays a special role in this process. This way, customers benefit from various services at the highest level, whether through the planning for ropeways, logistics, commissioning, or with the issue of monitoring and maintenance.



## Never far away from you

People rely on FATZER's steel ropes all over the world, including for ropeways across major cities as well as for imposing steel structures. We are never far away from you thanks to our manufacturing sites on three continents and representatives all over the world. We provide services that cover all processes in addition to the development and sale of steel ropes. We can support you from the planning stage for your project to the inspection and maintenance of steel ropes.

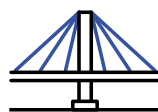
## FATZER as part of the BRUGG Group

FATZER is part of the international BRUGG Group. In addition to rope technology, the Group also specializes in cable systems, pipe systems and process control technology. Together we represent the best quality and customer service that covers all needs. We would be happy to talk to you and show you how you can benefit from our combined expertise.



## Rope monitoring

Take advantage of our innovative steel rope monitoring solutions. How maximum safety and lower maintenance costs can benefit you.



## Rope construction

Use our steel ropes for facades, bridges, roofs and more, combining aesthetics with the highest standards of quality and safety in the process.





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**BRUGG**  
Fatzer 

**Building  
Strong  
Connections**