

# WIR

The Customer Magazine of the Doppelmayr/Garaventa Group Issue 3/2016

 Doppelmayr®

  
GARAVENTA

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## Ropeways for summer applications

Comfort, attraction and experience

## Aerial tramway with XXL dimensions in Ha Long Bay

One ropeway, two world records

## The experts for material transport

Profile of Doppelmayr Transport  
Technology

Historic

**200<sup>th</sup>**

issue with special  
supplement

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## Heading for the sun by aerial ropeway

A ropeway is not just a means of transport but also provides unforgettable mountain experiences for hikers, sports enthusiasts and tourists.



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## Two world records in Vietnam

The cabins and one of the two towers belonging to the Ha Long Queen Cable Car have claimed their places in the Guinness World Records.



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## Architecture meets ropeway technology

World-famous architects have designed the stations for the new gondola lift on Switzerland's Chäserrugg Mountain – entirely in keeping with the style of the region.



### La Dolce Vita in the Austrian mountains

Input® has extended the Dolce Vita Trail in Nassfeld with the addition of new Italian highlights.



### Doppelmayr Transport Technology

The Doppelmayr Group includes a company specializing in material transport of all kinds.

## Ropeways as leisure highlights



The Doppelmayr/Garaventa Group demonstrates its versatility and ability to deliver in all business areas. Our customers enable us to collaborate with them worldwide to implement outstanding projects and installations.

The Group's latest achievements in Vietnam are exceptional: 3S ropeways, detachable gondola lifts, funicular railways and a reversible aerial tramway are providing a lasting stimulus for tourism. Ropeways for summer tourism attract international attention thanks to such projects and provide impressive proof of their efficiency.

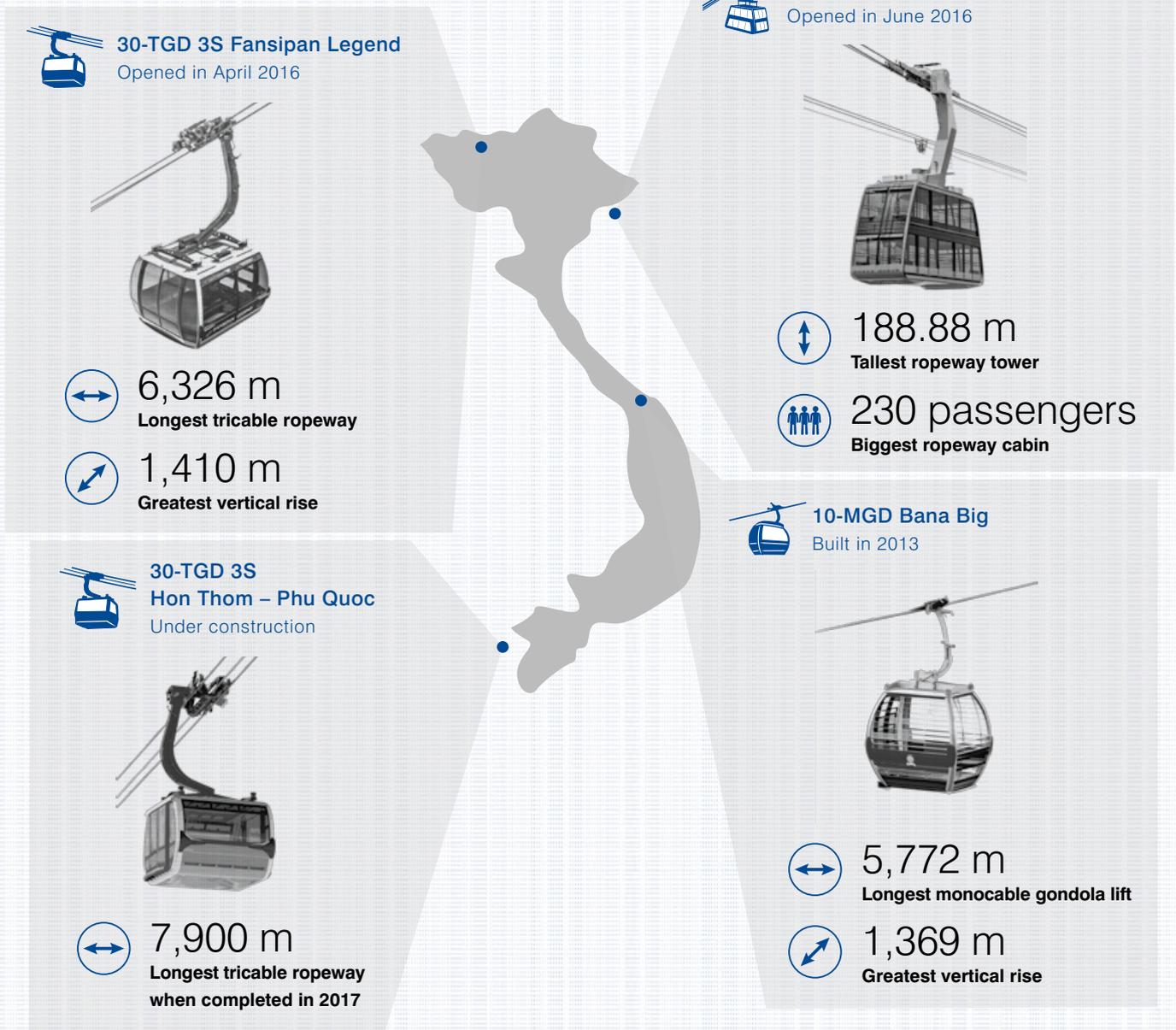
Ropeways for use in the summer season also enjoy great popularity in European latitudes, irrespective of whether they have been built explicitly for summer tourism or are used during the warmer months in addition to their winter operations. Summer ropeways are a very contemporary topic in many places as hiking, mountain biking and paragliding continue to be popular leisure activities.

Vacation destinations attach great importance to ensuring that their guests' visit is a memorable experience – for adults and children alike. We can make a valuable contribution to making that happen with our installations. Rides on the Cabrio®, in the world's biggest tramway cabin, or a safari cabin provide lasting memories of a trip or a vacation.

In the future, we shall continue to focus our efforts on building the best ropeways in the world for our customers, on adopting a farsighted and open approach to new projects, and on constantly driving forward the development of our products. This is the only way to ensure that customers of the Doppelmayr/Garaventa Group can in turn offer their guests the very best.

Michael Doppelmayr  
CEO

## World records in Vietnam



## La Paz–El Alto: 180,000 ropeway passengers in one day

On June 13, 2016, a new record was achieved in Bolivia: On that day, the world's biggest ropeway network was used by 179,876 passengers. For the operators, Mi Teleférico, this marks an absolute record for a single day since the opening of the first line. The red, yellow and green lines consequently provide impressive proof of the capabilities of ropeways in the urban environment. A total of 50 million passengers have traveled on the Doppelmayr ropeways since the first line was opened in May 2014. The ropeway network, which currently comprises eleven stations, links the two cities of La Paz and El Alto, and will be expanded by another six lines with 23 stations by 2019. 

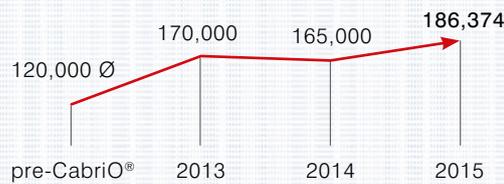


## Record year thanks to Cabrio®

The Stanserhorn tramway in Stans, Switzerland – the world’s first Cabrio® installation – is looking back on its best year to date. In 2015, some 190,000 guests used the tramway with open top deck for an impressive trip up to the local mountain in Stans. This means over 16,000 more people have enjoyed the all-round panoramic views of the Swiss Alps than in the previous record year of 2013. 82 percent of visitors came from Switzerland in 2015.

Since it first went into service in 2012, the Stanserhorn tramway has been a true visitor magnet. The region has also seen growth in group travel. As well as the increasing awareness of the area, the local hospitality sector and the good summer of 2015 were contributory factors to this success. | [1](#)

Stanserhorn tramway visitor numbers



## Austria’s summer tourism and summer ropeways at a glance

Summer vacations in Austria are enjoying increasing popularity. The past few seasons have been marked by growth, with summer ropeways making a significant contribution to this development. Austrian hospitality and the country’s geography, in particular the mountains, are the reasons why millions of guests are attracted to Austria year after year. | [1](#)

**205 ropeway companies**

of the 253 in Austria also open in the summer.

**Ten percent**

of all revenues generated by the ropeway sector are achieved in the summer.

**Double-digit growth**

Transport revenues from summer ropeways increase year by year in Austria.

**69.5 million**

room-nights were recorded in the 2015 summer season.

**Top 4 countries of origin**

- Austria 34 %
- Germany 30 %
- Switzerland 4 %
- Netherlands 4 %

**Six out of ten**

summer vacationers in Austria go hiking.

**22 million**

guests visited Austria in the summer months of 2015.



# Heading for the sun by aerial ropeway

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As well as fulfilling a transport function, ropeways provide summer visitors with an unforgettable mountain experience.

If you have ever taken a ride up a mountain on an aerial ropeway in the summer, you will know this is something quite special: the view toward the horizon on a clear day, perhaps a 360-degree panorama from the top, or a picnic at the edge of a forest – impressions such as these make the mountains the ideal setting for unforgettable experiences.

Ropeways are an important success factor not only for winter tourism; they are also an attractive mode of transport during the warmer months – as a convenient route to the mountains, as a temporary means of crossing exhibition grounds or as a permanent link to cultural attractions. These installations are an asset for tourists and local residents alike.



Spending time in the mountains is a popular vacation and weekend activity. The range of things to do is as diverse as the visitors who participate in them.





Ropeways open up new possibilities which turn a trip to the mountains into an experience.

Ropeways enable everyone to reach their destination in comfort and without barriers. And winter ropeways can also be used in the summer. They breathe life into the mountain summer season and guarantee a gentle ascent with excellent views into the bargain. In cities, ropeways provide a valuable addition to the transport network in the form of an attractive and eco-friendly connection from A to B, which tourists like to use. They can be readily adapted and equipped to meet the requirements of specific applications and aspirations. Ropeways make cities, regions and entire destinations even more interesting for vacationers. As well as

offering magnificent views, a chance to slow down and the sensation of flying, they create an experience that vacationers like to recall long after their visit.

“The ropeway is one of our modern modes of transport in the 21st century – and that is why more and more cities worldwide are using ropeways as a means of transport. For travelers in the Alps, the technical infrastructure is also key. However, people don’t go there because of the ropeways, but for the experience of visiting these great places. When these two factors can be married to form a complementary symbiosis, so much the better for the guests and



“The ropeway is one of our modern modes of transport in the 21<sup>st</sup> century.”

**Harry Gatterer,**  
CEO of the Zukunftsinstitut think-tank,  
Frankfurt am Main

the destination,” emphasizes trend researcher Harry Gatterer, CEO of the think-tank Zukunftsinstitut in Frankfurt am Main.

#### **Accessibility and attractiveness of remote destinations**

In combination with leisure activities in the mountains – including those outside of the winter season – ropeways act as an attractive link to summer toboggan runs, bike parks, huts or adventure trails. Devices can be fitted to carry sports equipment, and food and baggage can be transported on the ropeway without any problem. Hikers, families with children, wheelchair users, paragliders or seniors can all enjoy a relaxing trip requiring no major effort and with barrier-free boarding and disembarkation guaranteed.

A ropeway has the potential to enhance the attractiveness of entire regions – and that applies equally to individual tourism and to areas with high visitor numbers. When it comes to providing access to recreation areas in the mountains or to viewing points and monuments which are otherwise difficult to reach, a ropeway can be invaluable. Managers in the tourism sector are increasingly using these benefits as



Taking leisurely hikes, breathing in the mountain air, recharging the batteries – just some of the fine things alpine summers have to offer.

part of smart marketing campaigns for their locations. “Our domestic ropeways not only enable easy and comfortable access to the mountains, but in recent years have taken on an increasingly important role in the creation of the mountain experience,” says Petra Stolba, CEO of the Austrian National Tourist Office<sup>1</sup>.

#### Minimum space requirements, low CO<sub>2</sub> emissions, maximum effect

As a flexible means of transport that can be readily adapted to the individual features of a region or the terrain, ropeways have no problem coping with virtually any environment. As a major factor in its favor, a ropeway occupies a minimum of space. Right from the planning stage, Doppelmayr’s ropeway experts ensure that the installation will optimally blend in with its surroundings – and reflect the visual appearance of the location. In addition, the ropeway can also operate in poor weather. Comparatively low investment outlay as well as low operating and maintenance costs makes ropeways an economically efficient transport solution.

The fact that it pays to run a ropeway in the summer is borne out by the figures from Austria’s ropeway operating sector: “205 of the

253 ropeway companies now operate in the summer as well as in the winter and during the period from May and October carry 16 million guests into the Austrian mountains,” says Franz Hörl, Chairman of the Austrian ropeway trade association<sup>2</sup>. Alongside the ecological and economic considerations, what counts for the tourism experts is the argument that ropeways can be perfectly adapted to address the needs and requirements of the region and the passengers. And last, but not least, emission levels (particulates, CO<sub>2</sub>, etc.) are impressively low.

#### Modern ropeway technology for the summer: Transport systems of the future

Where modern transport systems are concerned, Doppelmayr continually sets milestones with top quality and innovative ropeway technology. Needless to say, these developments, such as the 3S technology with its long rope spans and high wind stability, also benefit summer ropeways. The proven installations make a valuable contribution to the success of many summer destinations, while guests and ropeway operators also benefit from the high availability and low waiting times. | 

#### Examples of ropeway use by leading tourism operations

- Feeder to a summer activity in the mountains: hiking, summer tobogganing, etc.
- Means of transport for sports enthusiasts and their equipment: paragliding, mountain biking, mountain carting, etc.
- Means of access to cultural monuments such as temples, monasteries, etc.
- Ride experience in theme parks and leisure parks
- Amenity at trade fairs and temporary exhibitions, etc.
- Attractive link to viewing platforms, etc.
- Feeder to recreation areas
- Inner-city or suburban connection to business districts or business parks, etc.

<sup>1</sup> Salzburger Nachrichten, Saturday, May 21, 2016: “Summer guests want to visit the mountains”

<sup>2</sup> Kurier, Vienna, Thursday, May 19, 2016: “Summer set to bring revenue boost”

# Partnership with a promising future

WIR talked to Đặng Minh Trường, General Director of the Sun Group.



**WIR.** The Ha Long reversible aerial tramway links the new theme park, Sun World Ha Long Park, with one of the world's biggest observation wheels. How did the idea of using an aerial tramway for this link come about?

**Mr. Đặng Minh Trường:** The Bai Chai area – the location of the theme park, water park – and the area of Ba Deo hill – the location of Ba Deo Hill Park and the highest Sunwheel in the world – are two attractions of Ha Long. A few years ago, it was difficult to travel between these two areas. A ferry was the only means of transportation. After that, the Bai Chay bridge was built to manage this problem, but in order to connect the two tourist spots in a loop, this bridge was not the best option. Setting up a cable car system to connect the two sides of the bay is a proper choice. The cable car brings visitors a completely new special experience: with the view of the Ha Long Bay from high above.

**WIR.** Over the past few years, Doppelmayr/Garaventa has built some spectacular ropeway installations at popular leisure destinations in

Vietnam – and there are more, which are about to be completed. In your view, what benefits do ropeways bring for tourists and for the local population?

**Mr. Đặng Minh Trường:** Thanks to the existing cable car systems in Ba Na, Fansipan Sapa, Ha Long and Hon Thom (Phu Quoc) in the near future, more and more people have the chance to explore the most beautiful destinations in Vietnam.

Taking Fansipan Legend as an example: In the past, it took hikers at least two days to conquer the Roof of Indochina. Those who are not in good shape would never have dreamed of reaching the top of Fansipan Mountain, not to mention elderly people and children. Now, thanks to the cable car system, tourists of all ages can enjoy the breathtaking view over the Hoang Lien Son from the height of 3,143 meters.

It is important to clearly show the benefits to the locals: Cable cars are a new tourism promoter and they play an important role in increasing

the attractiveness of destinations like Da Nang, Sa Pa, Ha Long Bay for tourists. More people come to these areas, which generate more jobs and more stable income for locals. Economic experts say that in the tourism sector, one directly originated job will indirectly create three more jobs. The benefit cable car projects bring for the regions' tourism development is undeniable.

Sun Group's business philosophy is very consistent: The development of business shall always contribute to the development of the local community.

**WIR.** The Sun Group enjoys a long and very successful partnership with Doppelmayr/Garaventa. What aspects of that relationship are particularly important to you?

**Mr. Đặng Minh Trường:** In the construction of the first cable car in Ba Na Hills resort, the Sun Group chose Doppelmayr – the world leading group in this field. We have been side by side in many projects nationwide, from the Ba Na Hills Cable Car to the Fansipan Legend, the Ha Long Queen Cable Car and now the Hon Thom cable car in Phu Quoc.

This long-term relationship has been built on the basis of trust and understanding each other. We wish to build world-class projects, helping the Vietnamese to access unique destinations and tourism facilities. Our desire is to mark Vietnam as a "must-come-destination" on the global tourism map. We have the financial resources and enthusiastic engineers who are willing to learn. Meanwhile, Doppelmayr is a professional group with leading cable car technologies.

Besides, Doppelmayr and the Sun Group share the same goal: to build the best constructions for the community.

**WIR.** Many thanks for taking the time to talk to us. | 



30-TGD Fansipan Legend, Sapa



10-MGD Indochine, Ba Na Hills

# Profile of the Sun Group

Behind the numerous record-breaking ropeways in Vietnam lies a dynamic enterprise: the Sun Group.



The Sun Group was founded in 2007 and ranks among the leading players in Vietnam’s private sector. Its goal is to implement exceptional projects aimed at promoting the socio-economic development of selected locations, particularly in Vietnam.

As part of this goal, the Sun Group wants to contribute toward raising international awareness of Vietnam as an attractive destination. All the Group’s projects meet international standards and the premium services offered are primarily focused on maximum customer enjoyment and guest satisfaction.

The Sun Group’s top-class real estate and leisure amenities have won international recognition and provide a major boost for tourism in Vietnam. Convalescence and leisure tourism in particular is gaining in popularity. The ropeways that have formed part of the construction projects, such as the installations on Mount Fansipan, in Ba Na Hills or across Ha Long Bay, have attracted huge media attention. As well as achieving an important multiplier effect, many of these ropeway installations have set world records, which have hit the headlines around the globe – turn to the Facts & Figures page for further details.

Sun Group	
Founded	<b>2007</b>
President	<b>Le Viet Lam</b>
Headcount	<b>5,000</b>
Headquarter	<b>in Danang</b>
Other locations	<b>Hanoi, Sapa, Ha Long</b>
Business areas	<b>Convalescence tourism Luxury real estate Amusement and entertainment Construction investment</b>

The Vietnamese group of companies implements projects in four different areas and incorporates ropeways not only as a means of transport but also as a magnet for visitors or as an attraction in their own right:

- Convalescence tourism
- Luxury real estate
- Amusement and entertainment
- Construction investment

Ba Na Hills in Da Nang marked the first major success of the Sun Group and also involved the collaboration of the Doppelmayr/Garaventa Group. The Fantasy Park, which is one of Asia’s five biggest indoor parks, the French Village and a ropeway holding two world records attract large numbers of visitors and have made Da Nang a popular leisure destination.



230-ATW Ha Long Queen Cable Car, Ha Long Bay



# Two records with one ropeway

One of Vietnam's most well-known tourist attractions made ropeway history in summer 2016: In Ha Long Bay, the world's biggest aerial tramway cabins travel over the world's tallest ropeway tower.

**W**ith the new reversible aerial tramway, Doppelmayr/Garaventa has created an exceptional installation in a very special place. A ropeway now crosses the strait in the famous Ha Long Bay, enabling visitors to travel in comfort to an impressive observation wheel.

Attracting over six million visitors a year, Ha Long Bay ranks among the most well-known tourist attractions in Vietnam and is also a popular destination for the local population. In addition to its new theme park, the area is a UNESCO World Heritage Site with 1,600 islands and islets that form a spectacular seascape of limestone pillars. With the new tramway, Doppelmayr/Garaventa has simultaneously broken two world records. The two double-decker carriers, each built to carry 230 passengers, are the biggest aerial tramway cabins anywhere in the world to date. Traveling at a speed of ten meters

per second, the Ha Long Queen Cable Car can carry around 2,000 passengers an hour. The steel ropes are supported by two towers, one of which is the world's tallest ropeway tower rising up to a height of 188.88 meters. Passengers enjoy breathtaking views of the unique natural scenery.

## Construction challenge mastered with flying colors

Installing the ropes was a particular challenge. As Ha Long Bay plays a major role in cargo shipping with large vessels, the entire rope installation operation had to be performed at a height of 50 meters above sea level. The equipment used included a rope pulling machine with a tractive force of 65 tons and a rope braking machine with a braking force of over 60 tons. The reversible aerial tramway experts from Garaventa were the key players in this project. | 

## 230-ATW Ha Long Queen Cable Car

Owner	<b>Sun Group</b>
Location	<b>Ha Long Bay, Quang Ninh Province (VNM)</b>
Carriers	<b>2 double-decker cabins, 230 passengers each</b>
Capacity	<b>2,000 PPH</b>
Towers	<b>2 concrete towers, 188.88 m and 123.45 m</b>
Track rope Ø	<b>78 mm</b>
Haul rope Ø	<b>57 mm</b>
Speed	<b>10.0 m/s</b>
Length	<b>2,165 m</b>
Vertical rise	<b>88.5 m</b>
Opened	<b>June 25, 2016</b>



# 15 minutes to the Roof of Indochina

The Fansipan Legend 3S lift in Vietnam is currently the world's longest tricable ropeway with the greatest vertical rise.

**A**t 3,143 m, Mount Fansipan ranks as Vietnam's highest peak and is an important destination for travelers. However, the ascent is particularly arduous. Since February 2016, a spectacular 3S lift supplied by Doppelmayr/Garaventa has provided access to a high plateau near the summit. Now, even less accomplished hikers are able to visit the "Roof of Indochina" all year round. During their trip on the 6,326-meter-long ropeway, which barely takes 15 minutes, passengers cover 1,410 vertical meters. This makes the Fansipan Legend 3S lift currently the world's longest tricable ropeway with the greatest vertical rise. Both of these records were confirmed by representatives from Guinness World Records.

#### Exceptional to the smallest detail

The exceptional nature of this installation began with the construction work. In view of the fact that only the base station could be reached by truck, the entire excavation work for the towers and stations had to be performed manually using picks and shovels. Tools and equipment had to be carried to the top station, which meant a two- to three-day trek on foot. Working together

with local labor under challenging weather and terrain conditions, the Doppelmayr/Garaventa teams achieved a remarkable feat. Each of the different-colored CWA cabins carries 30 passengers seated in comfort. This ropeway is the second installation worldwide where the cabins are supplied with power by means of a carriage wheel generator. The enormous drive power for the 3S lift is provided by a double drive with two gear units and four motors. The Doppelmayr recovery concept ensures that the cabins can always be safely returned to the station in a rescue scenario.

#### Sophisticated braking concept

Doppelmayr developed a new braking concept to handle the huge masses set in motion on the installation – in this case, up to 500 tons, which is the equivalent of roughly 330 fully occupied automobiles. Software ensures precise calculation of all braking requirements and consequently maximum ride comfort. Doppelmayr also invested a lot of time and know-how into the building concept for the stations, which impressively master the mass-induced dynamics of the installation. Fansipan Legend is the first ropeway where the safety section is incorporated

inside the station building, both at the top and at the bottom – and not, as is usually the case, after the station exit.

The Fansipan 3S lift went into service shortly before the Chinese New Year, an accomplishment which was only made possible thanks to the outstanding collaboration of all the parties involved and the Sun Group. | [↓](#)

#### 30-TGD Fansipan Legend

Owner	<b>Sun Group</b>
Location	<b>Fansipan Mountain, Sapa (VNM)</b>
Lift type	<b>3S tricable gondola lift</b>
Inclined length	<b>6,326 m</b>
Vertical rise	<b>1,410 m</b>
Capacity	<b>2,000 PPH</b>
Speed	<b>8.0 m/s</b>
Trip time	<b>14.8 min</b>
Carriers	<b>33 CWA cabins, Model Zeta-35 for 30 passengers each (all seated)</b>



## A piece of Venice in Nassfeld



With the Dolce Vita Trail, Doppelmayr subsidiary Input® brings Italian lifestyle to Madritsche Mountain.

Since summer 2015, visitors to Madritsche Mountain in Nassfeld have been able to enjoy a taste of Italian lifestyle at surprisingly close quarters. The Dolce Vita Trail on Madritsche Mountain runs along the border between Austria and Italy, and offers Italian flair at an elevation of 1,900 meters. As an extension of the existing Aqua Trail, the Dolce Vita Trail is a special attraction for families with children. The trail includes play areas and climbing stations for children, such as the 12-meter-tall replica of St. Mark's Campanile in Venice. The leisurely hiking circuit leads from the top station of the

Millennium Express across the Italian border, to the Rosskofelteich lake and back again. Guests can enjoy the mountain panorama of the Carnic and Gailal Alps from an Italian gondola on the two-hectare Rosskofelteich. A mobile espresso van is on hand to provide refreshments.

The Dolce Vita theme trail was developed by Input®, a wholly owned subsidiary of Doppelmayr, for the Carinthian tourist region of Nassfeld. The project developers specialize in creating and implementing experiential concepts for summer and mountain tourism. The attractiveness of regions like Nassfeld is boosted by individual and sustainable theme worlds, leading to benefits for operators and guests alike. | 



### Dolce Vita Trail – at a glance

Owner	<b>Bergbahnen Nassfeld Pramollo AG</b>
Location	<b>Nassfeld, Carinthia (AUT)</b>
Length	<b>2.1 km</b>
Walking time	<b>2 h</b>

### Milestones

2015	<b>Border-themed stations along the Dolce Vita Trail</b>
2014	<b>St. Mark's Campanile and Vespas on the Dolce Vita Trail</b>
2013	<b>Caffè Ape at the lake and start of construction for the Dolce Vita Trail</b>
2012	<b>Venetian gondola on the lake</b>
From 2008	<b>Construction of the Aqua Trail with continuous further development</b>

"The Dolce Vita Trail has state-of-the-art amenities and is very popular with our guests. A piece of Italy – specifically Venice – is brought to them as part of a playful experience."  
**Christian Krisper, CEO of Bergbahnen Nassfeld Pramollo AG.**

## Gondola ride with view of Lake Superior



Guests visiting the Lutsen Mountains are now able to enjoy spectacular views of Lake Superior from the comfort of a modern gondola lift built by Doppelmayr.

In the Lutsen Mountains ski and hiking region, a new 8-passenger gondola lift from Doppelmayr connects Eagle and Moose Mountains. Doppelmayr completed the turnkey ropeway installation in just five months. It replaces a 40-year-old 4-passenger gondola and operates all year round. During the summer months, hikers and nature lovers can look forward to spectacular views of the biggest of the Great

Lakes and the magnificent scenery; in the winter, skiers and snowboarders benefit from the enhanced mountain experience. The new ropeway quadruples the existing transport capacity, making the lift well equipped for years to come. "The gondola alignment crosses the Poplar River at two points and passes over a 70 m cliff. That posed a particular challenge for the design engineers and installation teams, who mastered the task with flying colors," explains Tom Rider, co-owner of the Lutsen Mountains resort. The gondola lift is the latest flagship project for Lutsen and the first 8-passenger gondola lift in the Midwestern United States. | 1



### 8-MGD Gondola

Owner	<b>Lutsen Mountains</b>
Location	<b>Lutsen, Minnesota (USA)</b>
Lift type	<b>Detachable 8-passenger gondola lift</b>
Capacity	<b>1,050 PPH</b>
Speed	<b>5.0 m/s</b>
Inclined length	<b>1,479 m</b>
Vertical rise	<b>97 m</b>
Construction	<b>July to November 2015</b>
Opened	<b>November 2015</b>

"The Doppelmayr teams did a fantastic job."

**Tom Rider, co-owner of Lutsen Mountains**



## Temple visit made easy

At the Chandragiri Hills leisure resort in Nepal, a gondola lift provides access to the beautiful hilltop and Lord Shiva's Bhaleshwore Mahadev Temple.

The leisure resort at Chandragiri Hills offers spectacular views, entertainment and recreation: a viewing tower, a children's fun park, shops and restaurants as well as other exciting attractions. These amenities make the resort a popular destination for visitors from both home and abroad. It is the main objective of Chandragiri Hills Ltd. to promote the domestic as well as international tourism business in Nepal. The recently installed 8-passenger gondola lift from Doppelmayr has made it possible for passengers to enjoy the stunning scenery of Chandragiri Hills and admire the beauty of Lord Shiva's Bhaleshwore Mahadev Temple. The nine-minute breathtaking journey from Godam-Thankot, up through the hillside that reaches high above the city is the most comfortable way of experiencing the hidden charm of this place. On a fine day, it is possible to see the panoramic view of the Himalayas including Mount Everest from here.

The tectonically unstable region and the limited availability of materials in the local area were

not the only challenges to be faced during the construction of the gondola lift. The ropeway features a vertical rise of 951 m and a particularly steep alignment. To avoid an extreme tower location in sloping terrain, Doppelmayr provided a rope span of over 870 m. The new lift went into service in August 2016. | 1



### 8-MGD Thankot–Chandragiri

Owner	<b>Chandragiri Hills Ltd.</b>
Location	<b>Thankot, Kathmandu (NPL)</b>
Lift type	<b>Detachable gondola lift</b>
Carriers	<b>38 cabins</b>
Capacity	<b>1,000 PPH</b>
Trip time	<b>9.0 min</b>
Inclined length	<b>2,461 m</b>
Vertical rise	<b>951 m</b>
Top station elevation	<b>2,550 m</b>
Opened	<b>August 2016</b>

"The Thankot–Chandragiri lift lies directly within the catchment area of Kathmandu and therefore attracts many local guests – and we aim to offer them an enjoyable stay with our range of leisure activities and the new ropeway installation." **Mr Chandra Prasad Dhakal, Chairman of Chandragiri Hills Ltd.**



## More than one million passengers per winter season

With the new Belvedere 15-passenger gondola lift, the Kronplatz ski resort at the edge of the Dolomites has raised its lift infrastructure to the state of the art.

The detachable 15-passenger Belvedere gondola lift replaces an installation built in 1993 and is one of the major ropeways in the Kronplatz ski area, carrying more than one million passengers every winter season – a figure that is set to increase with the new lift. The particular

challenge for Doppelmayr was to accommodate the new carrier parking facility inside the existing buildings rather than having to expand them. During the period from July to November 2015, Doppelmayr delivered the complete ropeway equipment including control system and parking.

With 32 cabins and a speed of six meters per second, the new installation has an uphill capacity of some 3,300 passengers an hour. | 



### 15-MGD Belvedere

Owner	<b>Kronplatz Seilbahn AG</b>
Location	<b>Kronplatz, Bruneck, Bolzano (ITA)</b>
Lift type	<b>Detachable 15-passenger gondola lift</b>
Capacity	<b>3,300 PPH</b>
Speed	<b>6.0 m/s</b>
Carriers	<b>32 cabins</b>
Inclined length	<b>1,061.9 m</b>
Vertical rise	<b>267.5 m</b>
Construction	<b>July through November 2015</b>

"The new gondola lift takes our ski resort to a new level. A major highlight for our guests is also the free WLAN inside the cabins."

**Christian Erroi,**  
Director of Kronplatz  
Seilbahn AG



## Small station put to optimal use

The Büre-Herrloh chairlift is used both for multiple uphill trips and by some of the skiers as a means of returning to the parking lot.

Since the 2015/16 winter season, the German resort of Winterberg has had a new chairlift with monitored and automatically locking restraining bars. During the construction of the new 6-passenger Büre-Herrloh chairlift, Doppelmayr helped the Klante ski lift operating company to optimize passenger flows. The results speak for themselves – the redesign of the bottom station area provides enhanced comfort for the passengers, who benefit from effortless access to the lift. Optimal use has now been made of

the bottom station, which despite its small size houses a maintenance platform as well as the carrier parking facility.

As the lift crosses a road and a river in the incoming and outgoing zones of the bottom station, it was not possible to build a tower in this area. The required hold-down sheave assembly was therefore built directly onto the station building with the aid of a beam. A ski jumping hill prevented the location of a tower in the upper section of the line. A long rope span proved to be the optimal solution for crossing the ski jump runout area. | 



### 6-CLD Büre-Herrloh

Owner	<b>Skiliftbetriebe Klante</b>
Location	<b>Winterberg, North Rhine-Westphalia (DEU)</b>
Lift type	<b>Detachable 6-passenger chairlift</b>
Carriers	<b>36 chairs</b>
Speed	<b>3.5 m/s</b>
Capacity	<b>3,000 PPH</b>
Inclined length	<b>354 m</b>
Vertical rise	<b>88 m</b>
Opened	<b>Winter season 2015/2016</b>

"Doppelmayr made optimal use of the existing situation and delivered a well-conceived solution that satisfies our wishes."

**Christoph Klante,** Managing Director of  
Skiliftbetriebe Klante



## Architecture meets ropeway technology

The new two-section gondola lift on Switzerland's Chäserrugg Mountain is superlative ropeway technology enveloped in architecture by Herzog & de Meuron.

The new 10-passenger gondola lift Espel – Stöfeli – Chäserrugg in Unterwasser replaces two ski lifts and relieves the previous bottleneck in Itios. Around 2,500 passengers an hour can now comfortably ride from Espel to the Stöfeli mid station and further on up Chäserrugg Mountain, traveling at a speed of six meters a second. Three exceptional stations, which blend in with the landscape, were created in collaboration with world-famous architects Herzog & de Meuron. The top and bottom stations adopt the architectural language of surrounding farm outbuildings in their form and color.

The mid station is reminiscent of a protective snow shed. This is the heart of the installation, which houses the drives for the two sections along with the parking facility for 78 cabins. All the stations have ground level access.

### Ambitious schedule – delivered on time

Despite the fact that the timetable for completion of the new gondola lift was tight and made for tough requirements in terms of the planning, logistics and installation, Garaventa delivered its usual top quality exactly on time. All the work operations were precisely scheduled, as was the transport. The equipment for the mid station was brought to the construction site after the close of regular operations suspended underneath the cabin of the reversible aerial tramway, as there is no road access to the mid station. ↴



### 10-MGD Espel – Stöfeli – Chäserrugg

Owner	<b>Toggenburg Bergbahnen AG</b>	
Location	<b>Unterwasser, St. Gallen (CHE)</b>	
Lift type	<b>Detachable 10-passenger gondola lift with 2 sections</b>	
Carriers	<b>78 cabins, 10 passengers each</b>	
Opened	<b>December 18, 2015</b>	
Section	<b>Espel – Stöfeli</b>	<b>Stöfeli – Chäserrugg</b>
Inclined length	<b>1,469 m</b>	<b>1,025 m</b>
Vertical rise	<b>419 m</b>	<b>390 m</b>
Speed	<b>6.0 m/s</b>	<b>6.0 m/s</b>
Carriers	<b>44</b>	<b>34</b>
Trip time	<b>5.29 min</b>	<b>4.06 min</b>
Towers	<b>10</b>	<b>9</b>
Maximum gradient	<b>62 %</b>	<b>68 %</b>
Haul rope dia.	<b>50 mm</b>	<b>50 mm</b>



"The new gondola lift gives our guests greater comfort and a relaxed means of accessing our ski and hiking region as well as Chäserrugg Mountain. It has been designed for minimum environmental impact and continues a tradition of tourism that respects the local culture and the natural surroundings of Chäserrugg."

**Mélanie Eppenberger,**  
Chair of the Board  
of Toggenburg  
Bergbahnen AG



## An experience for all the family

The new Adlerfels lift carries guests in comfort through Wurzelrudi's Adventure Park – complete with bike or mountain cart, if required.

Wurzelrudi's Adventure Park in Eibenstock is an all-year experience that has recently been enhanced through the addition of a Doppelmayr chairlift. The Adlerfels lift extends the family-friendly offering to include another means of transport. It is the first fixed-grip double chairlift with individual footrests as well as manually closing and automatically locking

restraining bars. The loading conveyor with elevating platform is a special highlight for the younger visitors in particular. The chairlift enables guests to take a relaxing trip up to Adlerfels Mountain while enjoying a magnificent view of the entire adventure park: the landscape along with bobsleigh track, sledging slope and ski school as well as the play area and maze. The chairs are fitted with a special device for carrying bikes. Every second carrier also has a special TÜV-approved hook for carrying the mountain carts for the adventure park – guests can use these carts to discover the area. 



### 2-CLF Adlerfels Lift

Owner	<b>Touristenzentrum am Adlerfels GmbH</b>	
Location	<b>Eibenstock, Saxony (DEU)</b>	
Carriers	<b>66 chairs with individual footrests and transport devices for bikes and mountain carts</b>	
	<b>Winter</b>	<b>Summer</b>
Speed	<b>2.2 m/s</b>	<b>1.0 m/s</b>
Capacity	<b>980 PPH</b>	<b>446 PPH</b>
Trip time	<b>3.9 min</b>	<b>8.7 min</b>

"From the initial idea through to the implementation, we had the perfect point of contact in Peter Hintner from Doppelmayr. As we had hoped, the lift was very well received in the winter and now in the summer as well. Both we and our guests are very pleased with its little highlights – and we look forward to a continuation of our excellent working relationship with Doppelmayr."

**Stefan Uhlmann, Managing Director**

## Bern's historic Marzilibahn funicular shines in new splendor

The funicular railway originally built in 1885 now boasts new track infrastructure along with a new lower terminal and refurbished cabins.

Since 1885, the Marzilibahn has provided the shortest way of getting from Bern railroad station to the River Aare and the Marzilbad swimming facility. The funicular is an integral part of the Bernese cityscape and, thanks to its great popularity and the short route, carries over one million passengers a year.



Top comfort awaits passengers. The Marzilibahn is now barrier-free and visitors can enjoy wider doors, which were part of the cabin refurbishment. The optimized passenger flows have positively impacted capacity and user numbers.

The funicular track is located on an unstable slope and had become distorted over the years. As part of the overhaul, the track infrastructure, which was built as a steel bridge construction, was completely replaced and the specialists from Garaventa also realigned the track. To meet the requirements for public transport systems, the entire lower terminal was also replaced.

Up until 1974, the Marzilibahn was a water-counterbalanced system – at the top terminal, a tank underneath the passenger compartment was filled with 3,500 liters of water from the local stream known as the Stadtbach. The heavier top cabin then descends, pulling the bottom cabin up the hill. The funicular was electrified in 1979. The original cabins are still

in existence: One is set up near the lower terminal, while the other is on show at the Swiss Museum of Transport in Lucerne. 



### 30-FUL Marzilibahn Funicular

Owner	<b>Drahtseilbahn Marzili-Stadt Bern</b>
Location	<b>Marzili district, Bern (CHE)</b>
Lift type	<b>Funicular railway with 30-passenger cabins</b>
Carriers	<b>2</b>
Speed	<b>3.0 m/s</b>
Capacity	<b>900 PPH (over 1 million passengers p.a.)</b>
Inclined length	<b>105 m</b>
Vertical rise	<b>32 m</b>
Opened	<b>May 2015</b>



## Safe, automatic transport

At the gold ore pit El Limón in Mexico, a RopeCon® now conveys the extracted ore safely and efficiently down to the processing plant at the base – across 1.3 km of steep terrain.

The mining company Minera Media Luna, S.A. de C.V. (MML), which is a wholly owned subsidiary of Torex Gold Resources, Inc., operates the gold mine El Limón-Guajes roughly 180 km to the southwest of Mexico City. When it came to transporting the extracted ore, MML decided on the proven RopeCon® from Doppelmayer Transport Technology. In addition to costs, operational safety and environmental impact were major considerations influencing their choice.

The open-pit mine El Limón is located on a steep ridge some 400 m above the central processing facility. This created the need for an efficient solution for transporting the ore from the extraction site down to the base. The Doppelmayer RopeCon® offered impressive benefits. The rope span between the loading station and the only tower is 1,200 m. The Doppelmayer installation team completed their work reliably and professionally in six months. The installation went into operation on schedule in March 2016.

The RopeCon® used for the El Limón project generates approximately 1 MW of “green” energy via the braking system, which reduces

the overall running costs. The avoidance of dust and noise emissions is another factor in favor of the RopeCon® system. In addition, the automatic transport system, which can be integrated into the mine’s central control system, increases the safety of operations.

Over the entire life of the mine, of roughly ten years, the RopeCon® will carry 1,000 tons of ore per hour. [↓](#)



### RPC El Limón-Guajes

Owner	<b>Minera Media Luna, S.A. de C.V. (MML)</b>
Location	<b>State of Guerrero (MEX)</b>
Speed	<b>3.3 m/s</b>
Capacity	<b>1,000 t/h</b>
Length	<b>1,308 m</b>
Vertical descent	<b>383 m</b>
Towers	<b>1</b>
Motor rating, continuous	<b>-1,026 kW</b>
Started up	<b>March 2016</b>



The only tower between the loading station and the point of discharge onto the stockpile is 44 m high.

 RopeCon® creates a direct connection from the gold mine to the base.





# The experts for material transport

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A sophisticated range of systems enables Doppelmayr Transport Technology GmbH to provide the right answer to many material transport challenges.

**T**he point of contact within the Doppelmayr Group for material transport is Doppelmayr Transport Technology. The wholly owned Doppelmayr subsidiary provides solutions for all types of bulk material and unit load transport requirements with a comprehensive portfolio of technically proven material transport systems.

Hilly terrain or a lack of infrastructure can make material transport a challenge. In such cases, Doppelmayr Transport Technology has the right solutions. The company was set up to plan, develop and handle material transport projects, and now employs 25 people. Doppelmayr

Transport Technology draws on Doppelmayr's experience in rope-based transport systems, which spans more than a century. In combination with the latest developments, this enables the company to expand the options for bulk material and unit load handling – even over the most difficult terrain. In addition to different ropeway systems, the portfolio also includes RopeCon®, a combination of proven ropeway engineering and tried and tested continuous conveying technology, and the track-based RailCon®. Doppelmayr Transport Technology not only develops and installs material transport systems but also takes charge of the planning.

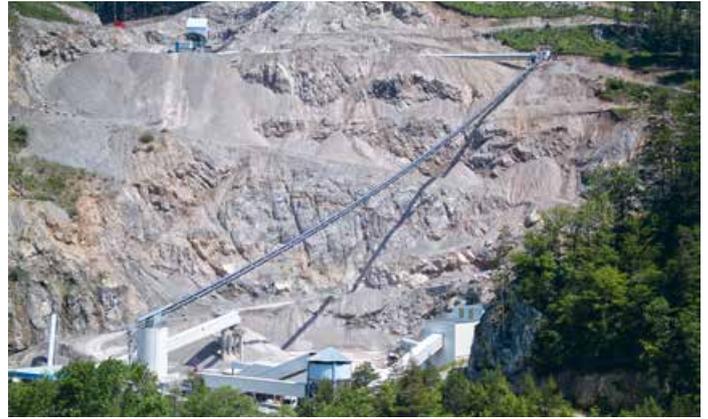
**The ideal solution – for all kinds of transport requirements**

As part of the concept, system or detailed planning, Doppelmayr Transport Technology performs a comprehensive analysis of the individual project requirements. The company's engineers examine the suitability of the various alternatives and systems for the specific project and are there to help customers right from the start to make sure the optimal solution is found to address their transport needs. A diverse range of goods and materials, inhospitable climatic conditions and seemingly impassable terrain – even in cases where conventional conveyor technology reaches its

## Examples from Doppelmayr Transport Technology's reference list



**2001** The RopeCon® system is used for the first time. Between 2001 and 2004, the installation near Strengen, Tyrol, transports around 850,000 m<sup>3</sup> of tunnel excavation waste across an expressway, a railroad line and a river.



**2006** Hans Zöchling GmbH is named project partner under the Austrian Action Program for Mobility Management, "klima:aktiv mobil", for its contribution to climate protection as a result of switching from trucks to the RopeCon® installation built for a stone-crushing plant in 2004.



**2011** A RopeCon® installation crosses the world's longest river, the Nile, which is roughly 850 m wide at this point.



**2016** The RopeCon® installation that has been operating at the Tüfentobel waste tip near St. Gallen (CHE) since 2005 is extended by a second RopeCon® incorporated directly within the rope span. Material transfer takes place at a height of roughly 20 m.

"Nature is an ingenious master builder. No route is quite like another. Our planners and design engineers always strive to make our material transport systems blend in with their natural surroundings and minimize their environmental impact. Safety, straightforward operation and low maintenance requirements are the prime criteria for every installation we build."

**Hermann Frühstück,**  
Managing Director of  
Doppelmayr Transport  
Technology



limits, Doppelmayr Transport Technology has a transport solution to offer.

**RopeCon® – the innovation in material transport**  
RopeCon® is an innovative technology for the transport of bulk material and combines the benefits of proven ropeway engineering with tried and tested continuous conveyor technology. The system was used for the first time in 2001 – with great success. During the construction of the Strengen Tunnel (AUT) on the Arlberg expressway, the excavation waste was transported away using the RopeCon®. The track ropes elevated off the ground on towers make it possible to cross obstacles such as roads, valleys, rivers and buildings without any problem. The material is carried on a flat belt with corrugated side walls. This belt performs

the haulage function and is fixed to axles arranged at regular intervals, which support the belt. Running wheels are fitted to either end of the axles. These run on track ropes with fixed anchoring and guide the belt. In 2009, Doppelmayr Transport Technology was presented with the Innovative Technology Award by the UK's International Bulk Journal (IBJ) for its achievements with RopeCon®.

Only in March 2016, a new RopeCon® installation went into operation in Mexico (see page 19). This covers a vertical descent of 400 m in a direct line from the mountain ridge to the base. Another RopeCon® is currently under construction in Guatemala. This installation will transport 2,100 tons of limestone from the quarry to the processing plant. | 

## Recognition for engineering achievement on Sentosa Cable Car

On July 1, 2016, the Institution of Engineers, Singapore (IES), named the new Sentosa Cable Car as a winner of its award in recognition of the engineering achievement in developing the installation. Engineering Feats @ IES-SG50 is a national competition which highlights the top 50 engineering achievements to have made the greatest impact on Singapore in terms of economic, infrastructural or societal contributions. Opened in 2015, the ropeway connection to Sentosa Island improves access to the western part of the island and extends its existing infrastructure to form a continuous transport network. The aerial ride to the various attractions not only brings guests away from road traffic but also provides a comfortable means of travel while enjoying the views. The new ropeway is now a major part of the transport infrastructure on Sentosa, a leisure destination that attracts almost 20 million domestic visitors and tourists on an annual basis. Prime Minister Lee Hsien Loong presented the award to Sentosa Development Corporation at the IES Golden Jubilee Gala. 



## New ropeway exhibition at the Museum of Transport in Lucerne

Since May 23, 2016, Switzerland's Museum of Transport has been running a new ropeway exhibition presenting the Swiss mountain ropeway scene. The very latest developments in the ropeway sector are on show alongside almost forgotten means of transport. One such example is the Stoosbahn funicular from Garaventa, which is currently under construction in the canton of Schwyz. An original cabin from this funicular railway, which will have a gradient of 110 percent making it the steepest of its kind worldwide, can be seen at the ropeway exhibition at the Museum of Transport in Lucerne before the funicular goes into service. A simulator in the cabin gives visitors a taste of the extreme gradient. Many other exciting exhibits are also on show – games, interactive displays and contemporary witnesses turn the fascination of the mountain world into an experience and tell the story of ropeway construction. 

 [www.verkehrshaus.ch](http://www.verkehrshaus.ch)



## 20 years of www.doppelmayr.com

The Doppelmayr website celebrated its 20 years of existence on July 16, 2016. When doppelmayr.com first went live in July 1996, it featured a slightly different design and far fewer functions. Since its launch 2 decades ago, the website has been continuously improved and extended. It now offers a comprehensive range of languages, downloads and news. In addition, it has user-friendly tools, such as the interactive ropeway configurator, or the World Ropeway Map with all Doppelmayr installations built since the year 2000. Over the years, the Doppelmayr/Garaventa Group website has become a key point of reference – for international customers, business contacts, journalists and fans. 

**Online since:** July 16, 1996

**11 languages:** German, English, Spanish, French, Italian, Portuguese, Finnish, Turkish, Russian, Chinese and Czech

**Record month:** Approx. 200,000 page views (in February 2016)

## Surface lift now also transports bikes



The operating company, Leoganger Bergbahnen, has for the first time been granted approval for the transport of wheeled sports equipment on its Riederfeld surface lift in the Mini Bike Park. This means that youngsters from the age of ten can now use the surface lift in the summer with bikes or other sports equipment with a minimum wheel diameter of 25 cm. Doppelmayr worked closely with Leoganger Bergbahnen, the Salzburg authorities and the author of the safety report on the technical upgrade of the lift and the planning of the track as well as the optimization of the loading and unloading areas. The ropeway professionals also provided their support for the prepara-

tions for the approval process. Leoganger Bergbahnen took care of all the required building modifications and obtained the necessary permits. World cup races are also a regular event at the Leogang Bike Park – in this case, the bikes are carried on the gondola lift.

This pioneering project has paved the way for other surface lift operators who might want to obtain their individual approvals for the transport of summer sports equipment in the future. | 1

## Experience concept experts Input® under new management

In April 2016, Hannes Triebnik took over as the new managing director of the wholly owned Doppelmayr subsidiary Input® Projektentwicklungs GmbH, based in Hallwang near Salzburg. He follows in the footsteps of sector pioneer Helmut Müller, who had headed the company since it was set up in 1999. Input® develops and implements all-year mountain experience concepts – and has now successfully completed 120 projects in 20 countries. In the early days, Input® specialized in summer tourism, but now also handles many winter projects. Trained architect Hannes Triebnik joined Input® in 2004 and was also instrumental in boosting the company's international profile. As its new managing director, he wants to intensify the international collaboration with Doppelmayr and significantly expand his team. Helmut Müller will continue to assist him in a consultative role. | 1



## Doppelmayr at the Vienna Technical Museum

There's no denying the fact that road traffic in conurbations is steadily increasing and pushing existing infrastructure to its limits. New transport planes – under the ground and in the air – are being used to relieve this situation. The Vienna Technical Museum is highlighting this theme with an area dedicated to "Urban Mobility" as part of its special exhibition, "The Urban Future". This gives museum visitors the opportunity to board a 10-passenger cabin and gain a fascinating impression of the ride experience on an urban aerial ropeway. A bird's-eye view of the Bolivian city of La Paz, where the world's biggest urban ropeway network is currently under construction, is presented – the sights to be seen during a trip on the gondola lift were filmed using the latest video technology. As one of the main sponsors of the exhibition, Doppelmayr has also installed a second 10-passenger cabin from the Bolivian Línea Roja above the heads of visitors in the central hall of the museum. The official opening of the exhibition took place on June 8, 2016 – and was attended by the Bolivian ambassador, Ricardo Javier Martínez Covarrubias, and the consul, Elizabeth Ana Ferrel Alvarez. | 1

### Exhibition: "The Urban Future. thinking\_forward\_"

since June 9, 2016,

at the Vienna Technical Museum



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www.doppelmayr.com

## D-Line: Welcome to first class

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**Doppelmayr defines the ropeway future:** 205 new developments, including 31 innovations and 14 patent applications. The D-Line impresses with top ride comfort, ultramodern design and unsurpassed functionality.