

# The Next Level of Mobility Connection to Your Attraction



## The Doppelmayr Group

High-performance ropeways, efficient material transport systems and high-tech intralogistics solutions belong to the Group's core products. From the initial idea through construction to customer support, our experts offer in-depth know-how throughout the entire lifetime of the product – a comprehensive no-hassle package for our customers. Excellence in technology and quality enables the Doppelmayr Group to achieve an outstanding market position.

The company looks back on a 130-year history and a century of ropeway experience. The proven, continuously evolving technology and the reliability achieved as a result have contributed to the ropeway becoming a popular and highly efficient means of transport – in ski and recreation areas and increasingly in cities as well. Modern carriers such as cabins and chairs not only offer comfort for passengers but also continually impress with new features in terms of design, infotainment and safety.



**15.300**

Installations on six continents



**1893**

Founding year

**50**

More than  
countries with subsidiaries  
and agents

**96**


Countries in which  
the Doppelmayr Group  
has built ropeways

**7**


Production sites





# World records in Vietnam



**30-TGD 3S Fansipan Legend**  
Opened in April 2016


 **6,326 m**  
Longest tricable ropeway

 **1,410 m**  
Greatest vertical rise






**30-TGD Hon Thom**  
Opened in February 2018


 **7,900 m**  
Longest tricable ropeway

**230-ATW Ha Long Queen Cable Car**  
Opened in June 2016

 **188.88 m**  
Tallest ropeway tower

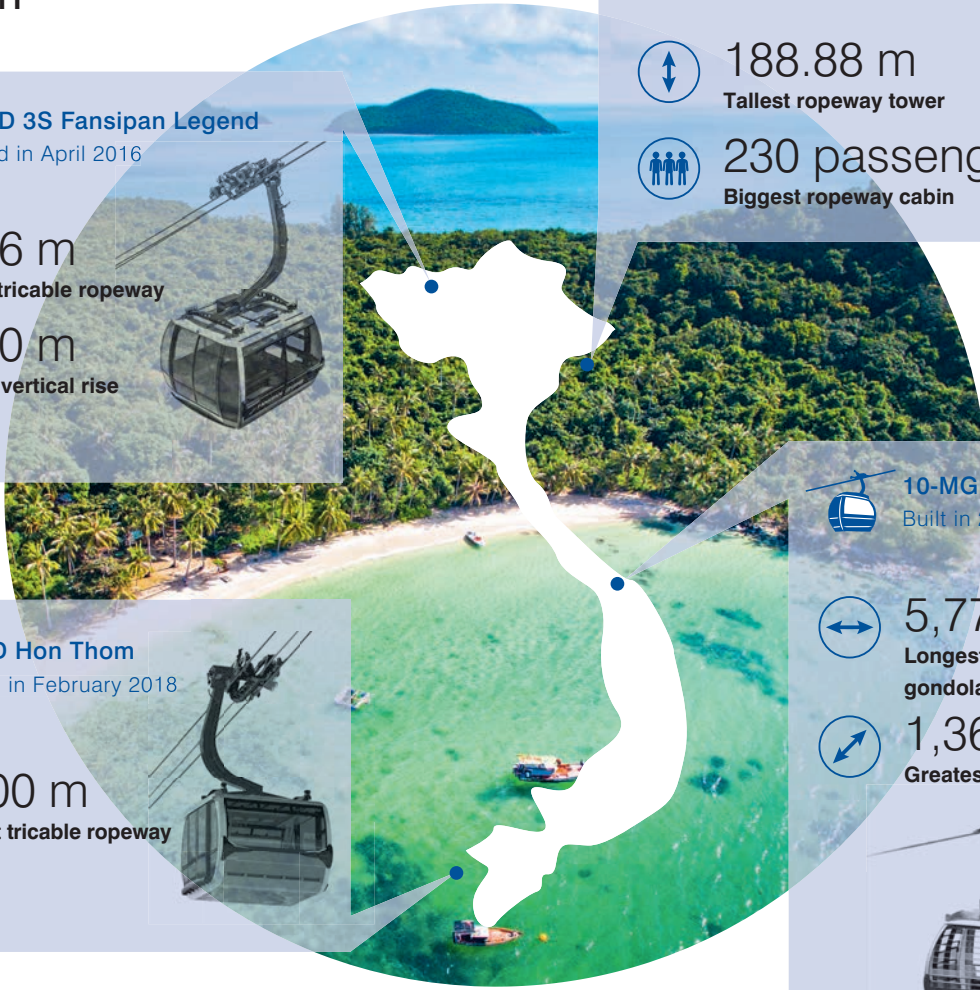
 **230 passengers**  
Biggest ropeway cabin



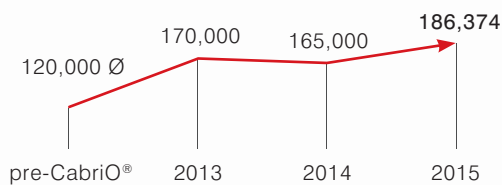

**10-MGD Bana Big**  
Built in 2013

 **5,772 m**  
Longest monocable gondola lift

 **1,369 m**  
Greatest vertical rise

Stanserhorn tramway visitor numbers



## 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.

# Development and implementation of experiential concepts



Input®, a wholly owned subsidiary of Doppelmayr, specializes in the development and implementation of integrated experiential concepts for national and international organizations. Input designs and creates attractions for mountain resorts, regions and valleys as well as near the sea or in urban areas. The focus is always on authenticity and the interplay between the concept and nature along with technology, architecture and design – this is also the foundation for long-term success.



## Nature's wonders

Input® always designs and creates experiences in harmony with nature and the natural surroundings of the particular location. The goal is to preserve the cultural and living environment for future generations and to conserve resources. And moreover: The authenticity of the natural world is an integral part of any new concept.

## Trendsetting technology

A love of innovative technology and digital advance shapes the corporate culture of Input and is also an inherent feature of the Doppelmayr Group. The smart use of technical and digital innovations as an additional creative element along the storyline enables experiences of the natural world to be enhanced and amplified.



## Innovative concept

Creative concepts for any organization, company or destination need to be visionary if they are to ensure commercial success for the future and differentiate the respective offer from that of competitors. Authenticity plays an essential role in this context. When integrating and optimizing specific experiential concepts, Input builds on the client's identity and existing potentials, which it promotes while simultaneously adding new and innovative ideas and approaches to enhance the attractiveness of the offer.



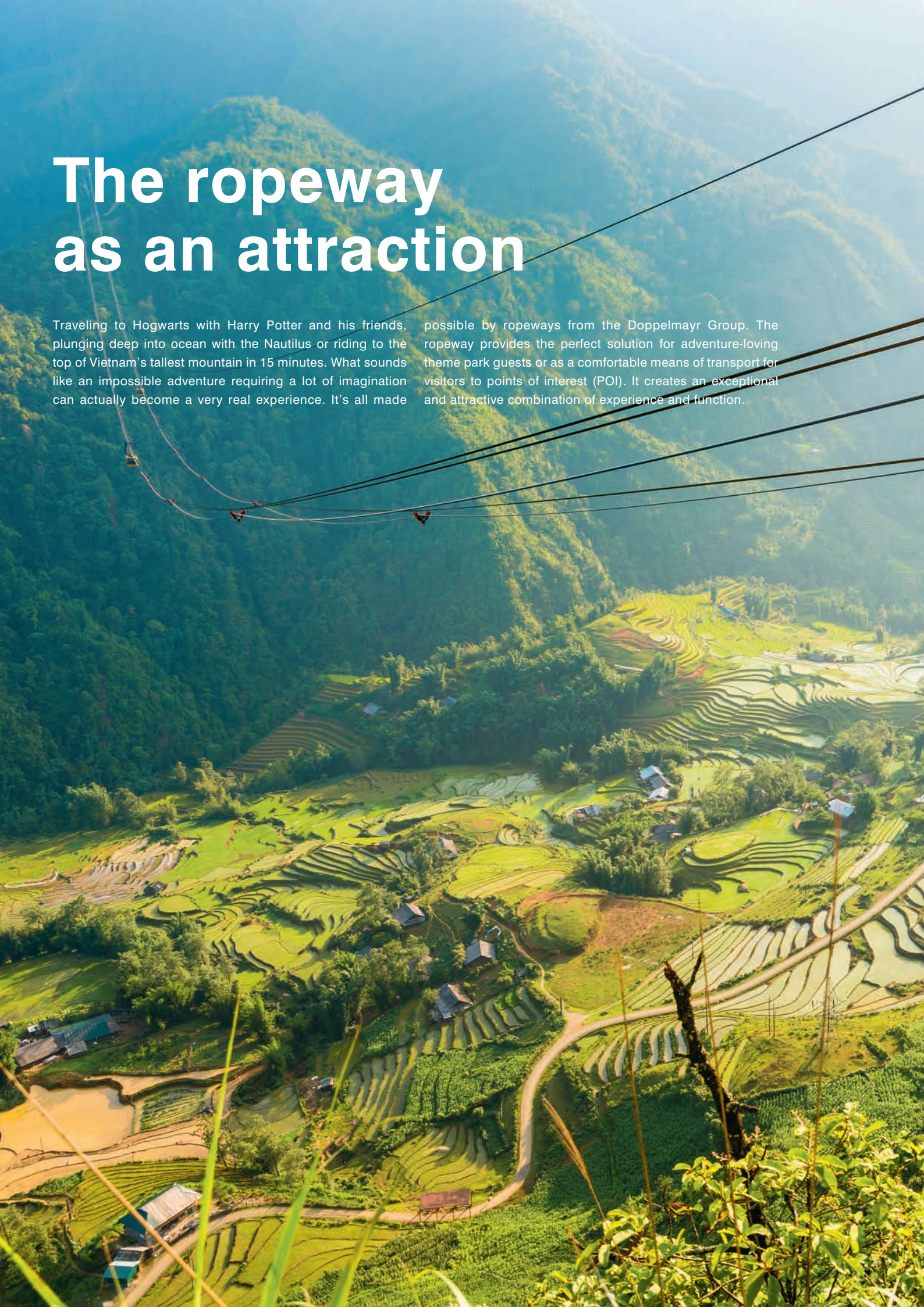
## Sophisticated design

As well as providing a wow factor with state-of-the-art design and innovative architecture, Input® also looks at the interaction with the conceptual alignment along the storyline during the process of design and planning. Factors such as existing infrastructure, visitor flows, aftersales activities and functionality are just as important as the thematic design of the individual elements. The ultimate result should not only be good to look at but also express the "golden thread" that is continued all the way through to the smallest detail.

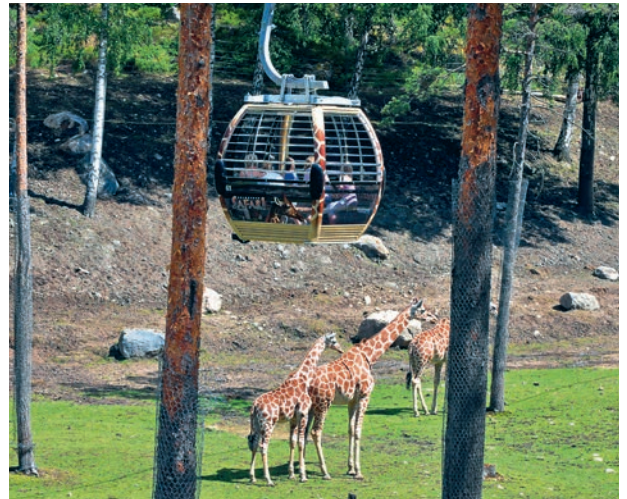
# The ropeway as an attraction

Traveling to Hogwarts with Harry Potter and his friends, plunging deep into ocean with the Nautilus or riding to the top of Vietnam's tallest mountain in 15 minutes. What sounds like an impossible adventure requiring a lot of imagination can actually become a very real experience. It's all made

possible by ropeways from the Doppelmayr Group. The ropeway provides the perfect solution for adventure-loving theme park guests or as a comfortable means of transport for visitors to points of interest (POI). It creates an exceptional and attractive combination of experience and function.







Familiar around the globe from the world of winter sports, the ropeway has evolved to become a highly popular means of passenger transport in locations far removed from the ski slopes. In mountainous areas, ropeways have been used for decades to overcome differences in elevation – providing alpinists with fast and convenient access to the world of mountains and ski slopes. The merits of ropeways in many other applications are borne out by a large number of international projects.

In cases where a ropeway is used for a point of interest, it usually serves more than just a transport function. It becomes an attraction in its own right, already creating an unforgettable experience for passengers during the ride. The Doppelmayr Group offers an extensive product portfolio that is as diverse as the possible applications for ropeways themselves. This opens up boundless opportunities for customers and gives free rein to the imagination. Revolving cabins, a funicular railway that is a perfect replica of a heavy old steam

train, or a connection offering breathtaking views of the ocean and a station underneath a Ferris wheel are merely a few examples of how ropeways can be used at points of interest.

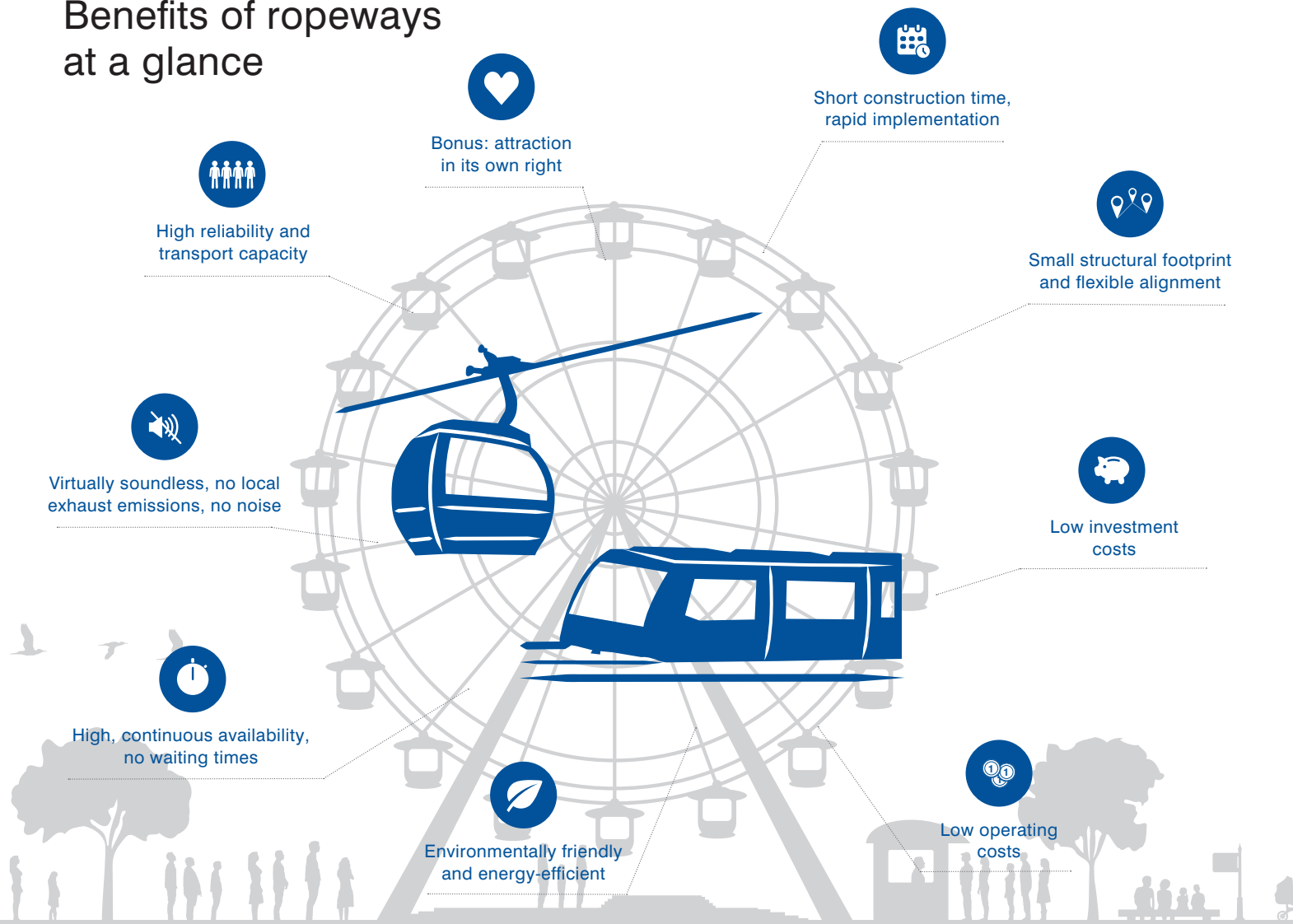
Every ropeway from Doppelmayr is unique and results from individual planning and implementation for the specific customer – with the aim of achieving the best possible ride experience and maximum value-added for the customer's guests. The Doppelmayr engineers address customer wishes when implementing a ropeway installation. Whether it's in the design or the equipment, the ropeway manufacturers always draw on their long and successful track record to come up with new ideas for creating the ultimate experience. Many world firsts have been developed in close collaboration with the customer. Special attractions and exceptional experiences make cities, regions and vacation destinations all the more exciting for tourists. That is precisely what ropeways have to offer. They are neither weather- nor climate-dependent and can cope

with virtually any terrain. As a connection across a bay, providing access to a leisure destination or as an attraction in an amusement park, the ropeway is versatile, efficient and popular. Leading-edge ropeway systems set new benchmarks for tourism value-added. A gondola lift with glass-bottomed cabins and a tower standing on the seabed, the CabriO® aerial tramway in Switzerland, or a safari lift in Sweden enabling passengers to see the animals from a new perspective all provide impressive proof of this fact.

Ropeway installations are cost-effective, attractive and versatile. Level boarding and disembarkation enable passengers with wheelchairs, baby strollers or bicycles to share the fun of riding on a ropeway. As well as offering high capacity and an environmentally friendly way of getting from A to B, ropeways also put a smile on the faces of passengers who use them.



## Benefits of ropeways at a glance



## Applications for ropeways at points of interest

- Attractive link to viewing platforms, etc.
- Means of access to cultural monuments such as temples, monasteries, etc.
- Feeder to recreation areas
- Ride experience, feeder and distributor in theme parks and leisure parks
- 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.
- Amenity at trade fairs and temporary exhibitions, etc.



# 10-MGD Busan Air Cruise

## Impressive gondola lift across the ocean



Daewon Plus Construction Co., Ltd  
Songdo, Busan | South Korea

 1,645 m  54 m  1,400 PPH  5.0 m/s  39 10-passenger cabins, incl. 13 with glass floors  06/2017

Doppelmayr has successfully completed a showcase project in Korea's second largest city, Busan, which has two towers built in the sea and cabins with glass floors.

Even as far back as the 1960s, the region around Songdo Beach in Busan ranked among the most popular tourist destinations in Korea. A new ropeway is now set to provide a fresh boost to the attractiveness of this region by offering an unforgettable experience for visitors and local residents alike. The new 10-passenger Busan Air Cruise is Korea's first ropeway that directly crosses the ocean. A spectacular view is guaranteed. For the ultimate ride experience and an unhindered view of the sea, some of the cabins are fitted with glass floors.

The proven recovery system developed by Doppelmayr has been incorporated in view of this unusual location. Passenger safety and comfort take top priority for the customer as well as for the Doppelmayr Group.


As a great deal of experience and know-how was required to implement this challenging

project, both in terms of safety and technical design, the contract was awarded to Doppelmayr. In addition to the ropeway technology, installation and supervision, Doppelmayr provided the ropeway professionals who gave the customer help and advice during the preparation phase.

Songdo Doppelmayr World opened in Busan to coincide with the inauguration. Here, visitors can experience the world of ropeways and discover the history of ropeway technology.

„The Busan Air Cruise is a highlight for the region and for our guests.“

**Sam Seob Choi,**  
President of Daewon Plus Group

 Further impressions of Busan Air Cruise in the making can be found here (text in Korean)







# 8-MGD Intra Island Cableway

## Eco-friendly mobility on Sentosa Island

Sentosa Development Corporation / Mount Faber Leisure Group  
Sentosa Island | Singapore

↗ 880 m    👤 2,200 PPH    ⌚ 4.0 m/s    🚡 51 8-passenger cabins    ✂ July 2015



Singapore's popular resort island has expanded its infrastructure to include its second cable car system.

With 20 million visitors to Sentosa Island in Singapore, the new Sentosa Line featuring a detachable 8-passenger gondola system will go a long way in facilitating the convenient commute of island visitors to key attraction zones. As an emission-free means of transport for the tourist destination, the ropeway helps to reduce its carbon footprint while ensuring a balanced distribution of visitors over the island. It is an impressive trip across jungle, beach and sea and gives riders a bird's eye view of all the various action and experiences happening on the ground below. The ropeway is not only a welcome alternative to the diesel buses but adds a burst of color to the Sentosa skyline with CWA's eye-catching cabins in five different colors.

Together with the existing Mount Faber Line, which has transported visitors from Faber Peak Singapore across the highway and harbor and into Sentosa Island since 1974, the two cable car systems form the Singapore Cable Car Sky Network. The new Sentosa Line will connect guests to three new stations (Merlion, Imbiah Lookout and Siloso Point) and main attraction clusters in Sentosa Island. The existing



Mount Faber Line was built by Doppelmayr in 2010 and 'flies' visitors between Faber Peak Singapore and Sentosa Island for leisure, attraction hopping or dining on a hilltop. In 2005, Doppelmayr also built a chairlift as part of the Sentosa Skyline and Luge attraction.

„The new Sentosa Cable Car line will add great value to our guests riding on our Cable Car Sky Network. It offers a serene

ride over our beautiful island. We expect it will become the preferred mode of transport for our guests. It is also a great complement to our walking trails on Mount Imbiah and Siloso Point.”

**Mike Barclay, CEO**  
Sentosa Development Corporation

### Other References in Brief



#### 8-MGD California Trail Gondola

Location **Oakland, CA, USA**  
Customer **East Bay Zoological Society / Oakland Zoo**  
Year of construction **2017**  
Inclined length **171 m**  
Vertical rise **29 m**  
Speed **3.0 m/s**  
Capacity **976 PPHPD**

**Highlight** Provides access to a new section of the zoo with optimal views of San Francisco Bay and the animals in the park.



#### 8-MGD Sky Cruise

Location **Yongin-City, South Korea**  
Customer **Samsung Everland Inc.**  
Year of construction **2012**  
Inclined length **255 m**  
Vertical rise **33 m**  
Speed **4.0 m/s**  
Capacity **3.000 PPHPD**

**Highlight** As both a means of transport and an attraction, the Sky Cruise connects two areas of the Everland theme park.



#### 8-MGD Badaling North Line

Location **Badaling, China**  
Customer **Beijing Badaling Ropeway Co., Ltd.**  
Year of construction **2014**  
Inclined length **709 m**  
Vertical rise **180 m**  
Speed **6.0 m/s**  
Capacity **2.400 PPHPD**

**Highlight** The gondola lift brings passengers direct to the Great Wall of China.

# 30-TGD Lushan

## China's first tricable ropeway

Jiujiang Lushan Mountain Cableway Operation and Management Co., Ltd.  
Lushan, Jiujiang | China



 2,864 m  873 m  4,000 PPHPD  7.0 m/s  approx. 7.5 min  39 30-passenger cabins

In Lushan, the Doppelmayr Group has set yet another milestone in the ropeway industry: the very first tricable ropeway installation in China.

Visitors to Lushan can enjoy the region's particularly agreeable climate. The fact that it is always significantly cooler than in the lower-lying areas around the city of Jiujiang makes Lushan an ideal place for rest and relaxation, especially at the height of the summer. With many guesthouses and hotels to choose from as well as the outstanding natural surroundings, guests have every reason to spend time here. The new ropeway installation provides a significant improvement in comfort for visitors. It will operate in the summer and winter, and

replaces a bus service that covered a very winding, 15-kilometer road to Lushan.

The tricable ropeway is a detachable continuous-movement system that was chosen specifically for the project in Lushan. The region was designated a UNESCO World Heritage Site in the 1990s. The 3S lift crosses the protected area with ease as the ropeway engineers created an unsupported rope span of almost 1,600 meters in length between two towers. In conjunction with the required transport capacity, this was the only ropeway system that was able to meet the high requirements.







# 30-TGD Fansipan Legend

## 15 minutes to the Roof of Indochina

Sun Group  
Fansipan Mountain, Sapa | Vietnam

↗ 6,326 m   ↕ 1,410 m   👤 2,000 PPHPD   ⌚ 8.0 m/s   ⌚ 14.8 min  
🚡 33 CWA cabins, Model Zeta-35 for 30 passengers each (all seated)



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

At 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 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 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.

### Extract from reference list



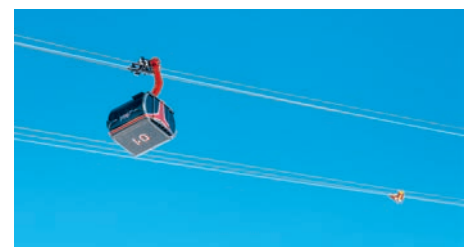
#### 30-TGD Hòn Thom

Location **Phu Quoc, Vietnam**  
Customer **Sun Group Corporation**  
Built **2017**  
Inclined length **7,900 m**  
Vertical rise **6 m**  
Speed **8.5 m/s**  
Capacity **3,500 PPHPD**  
**Highlight** The world's longest tricable gondola lift connects vacation islands and includes a luxurious VIP cabin.



#### 30-TGD 3S Penkenbahn

Location **Mayrhofen, Austria**  
Customer **Mayrhofner Bergbahnen AG**  
Built **2015**  
Inclined length **2,903 m**  
Vertical rise **1,135 m**  
Speed **7.5 m/s**  
Capacity **3,360 PPHPD**  
**Highlight** 3S lift travels along a curve and offers guests WiFi in the cabins.



#### 28-TGD 3S Pardatschgrat











Location **Ischgl, Austria**  
Customer **Silvrettaseilbahn AG**  
Built **2014**  
Inclined length **3,424 m**  
Vertical rise **1,251 m**  
Speed **7.0 m/s**  
Capacity **2,800 PPHPD**  
**Highlight** A carriage wheel generator provides an autonomous power supply to the cabins during the trip.

# 230-ATW Ha Long Queen Cable Car

## Two records with one ropeway

Sun Group Corporation  
Ha Long Bay, Quang Ninh Province | Vietnam



 2,165 m  88.5 m  2 concrete towers: 188.88 m  WR and 123.45 m  2,000 PPH  
 10.0 m/s  approx. 20 min  double-decker cabins, 230 passengers each  WR  June 2016

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.

With the new reversible aerial tramway, 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, 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.



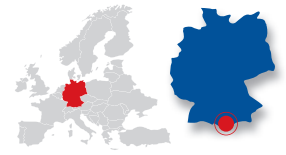




# 120-ATW Seilbahn Zugspitze

## Top comfort for Top of Germany

Bayerische Zugspitzbahn Bergbahn AG  
Grainau | Germany



4,467 m
 1,945 m WR
 1 tower at 127 m WR
 3,213 m WR
 580 PPH
 10.6 m/s
 approx. 20 min

2 cabins, each for 120 passengers + 1 attendant
 December 2017

The Zugspitze is Germany's highest mountain. Since winter season 2017/2018, it also boasts a reversible aerial tramway of superlatives. This ropeway has the greatest overall vertical rise of 1,945 m in one section, the world's tallest lattice tower at 127 m and the longest unsupported rope span of 3,213 m. Every year, the Zugspitze attracts around one-half million visitors. With the new tram, they are able to reach the mountain quickly, even at peak periods. The new cabins have a capacity of 120 passengers – compared to just 44 on the old Eibsee tram.

### Unhindered view of mountain and lake

The Zugspitze tram also brings entirely new perspectives. The platforms are fully glazed. In

the entrance zone to the wheelchair-accessible lower terminal, visitors already get to enjoy a unique panorama of mountain and lake. Once they reach the terrace of the new upper terminal, a direct view of the summit opens up before them. Both tramway cabins have floor-to-roof glazing and during the trip provide unrestricted vistas of the Eibsee lake, the border between Germany and Austria, and the Alpspitze. As the windows are heated, they do not fog up in cold weather.

### Year-round experience

The Zugspitze tram operates all year round. There is plenty to discover in summer and winter: Two ski areas offering 60 kilometers of ski trails lie around Germany's highest mountain

as well as hiking paths with different levels of difficulty. For anyone wanting to experience the mountain from the other side, the glacier tram and the Tyrolean Zugspitze tram can be reached from the three levels of the upper terminal of the Zugspitze tramway. Those who prefer to travel closer to the ground can also take the rack-and-pinion railway to the glacier.

### Eibsee tram goes into retirement

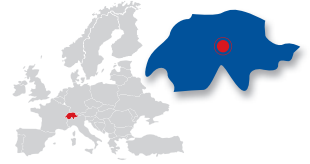
The opening of the Zugspitze tramway also marks the end of an era. A total of 21.3 million visitors traveled up the mountain from Bavaria's Eibsee lake on the old Eibsee tram. In its time, it was without equal. Now, after 54 years of service, it is taking its well-earned retirement.

↗ Watch the video of the spectacular Zugspitze tramway here









# 75-ATW Stand–Titlis

## Breathtaking panoramic view



Bergbahnen Engelberg-Trübsee-Titlis AG (BET)  
Engelberg, Obwalden | Switzerland

 1,493 m  597 m  74 passengers + 1 cabin attendant  10 m/s  
 2 new Rotair cabins (CWA Constructions S.A.)  November 2014

The reversible aerial tramway up to the summit of Mount Titlis amazes guests with new cabins that rotate fully about their own axis.

The Rotair made history as the first aerial tramway with rotating cabin floors. The cabins supplied in 1992 have now been replaced. The new models made by CWA Constructions S.A. also incorporate a special

feature. During the trip from the bottom terminal up to the Titlis, the entire cabin – and not just the cabin floor – revolves 360° about its axis. This opens up a unique panoramic view of the glacier landscape during the five-minute ride.

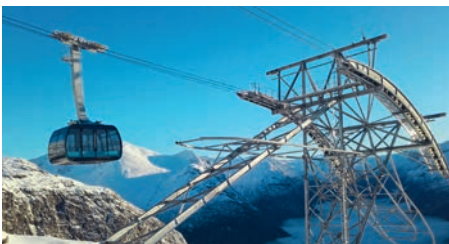
The rotation mechanism is located on the cabin roof. Thanks to this novel system, it was possible to dispense with the dominant cen-

tral column in the cabin. For the passengers, that means more room and therefore greater comfort. The tanks for carrying water up to the summit restaurant have been retained as an integral feature of the new cabins.

Mount Titlis is internationally well-known and every year attracts many guests from around the world.



### Extract from reference list



#### 45-ATW Loen Skylift

Location **Loen, Norway**  
Customer **Loen Skylift AS**  
Built **2016**  
Inclined length **1,530 m**  
Vertical rise **990 m**  
Speed **7.0 m/s**  
Capacity **460 PPHPD**

**Highlight** Climbs an inclination of 127% from the ship's landing stage to the viewing platform overlooking the fjord.



#### 85-ATW Scenic Skyway

Location **Katoomba, Australia**  
Customer **Scenic World**  
Built **2017**  
Inclined length **390 m**  
Vertical rise **14 m**  
Speed **4.0 m/s**  
Capacity **670 PPHPD**

**Highlight** Tram ride with 360° views of rain forest, glass-bottomed cabins and WiFi.



#### 55-ATW Fräckmüntegg–Pilatus Kulm (Dragon Ride)

Location **Kriens, Switzerland**  
Customer **Pilatus-Bahnen AG**  
Built **2015**  
Inclined length **1,387 m**  
Vertical rise **647 m**  
Speed **9.0 m/s**  
Capacity **590 PPHPD**

**Highlight** Guests enjoy panoramic vistas and the sensation of flying on a fun trip up the mountain.



# 400-FUL Ocean Express Funicular as attraction at Ocean Park

Ocean Park Corporation  
Hong Kong | Hong Kong



 1,276 m  115 m  5,000 PPH  10 m/s  3.1min  2 trains, each consisting of 2 cars

Garaventa installed a funicular inspired by Jules Verne at Ocean Park in Hong Kong, one of the world's biggest theme parks. During the three-minute ride through a 1.3-kilometer-long tunnel, passengers are given the sensation of a submarine dive into the deep sea. The concept was developed in collaboration with Input® Projektentwicklungs GmbH.

Hong Kong's extensive Ocean Park is one of the biggest and most spectacular marine-themed amusement parks in the world. One section of the park, overlooked by a hill, is also popular for its amusement rides which include roller coasters and white water rafting. The new funicular installation links the Waterfront and Summit areas of the park, which are located on either side of the hill. Its task is to cut down waiting times at the two existing gondola lifts, which run roughly parallel to one another, and to put guests in the mood for the topic of ocean worlds with an adventure show.

## Perfect submarine illusion

Both the trains and the stations of the funicular feature a special design inspired by

Jules Verne's Nautilus in "20,000 Leagues under the Sea". The idea is to create the impression that the visitor is arriving at a dockyard (the station) and about to experience a submarine dive into the ocean. The cars have screens incorporated in the ceilings to create the sensation of watching the underwater world through the panorama roof of a submarine. Wavelights, stroboscopic effects and sound system enhance the feeling. The car suspension has also been specially designed to minimize the rolling noises generated between wheel and rail which might otherwise spoil the illusion of being under the sea. With the exception of the passing loop, the entire track runs in a straight line and at a constant inclination.

The Ocean Park funicular incorporates a whole host of innovations and high-tech features. Garaventa was also responsible for the sophisticated peripheral equipment used. As well as creating the perfect illusion of a submarine voyage, the entire communications systems – CCTV monitoring of the stations, car interior and exterior plus the PA system

– were adapted in line with the stringent requirements of the Ocean Park management before leaving Switzerland. The two trains are 40 m long and each consists of two cars.

The funicular is a key element in the Ocean Park Master Redevelopment Project. As well as being an attraction in itself, thanks to its high transport capacity, the funicular also dispenses with the long waiting times previously experienced by visitors when crossing the site using the two gondola lifts.

## Maximum availability

The entire route of the funicular is tunneled. To enable the system to meet maximum availability requirements, the funicular drive features a back-up system so that an immediate switchover to the second system is possible in the event of drive failure. Special attention was focused on fire protection. The entire line has an escape tunnel at one side in which an air overpressure can be generated in the event of a fire to prevent the ingress of smoke.







# 168-FUL Hogwarts Express

## Funicular railway enchants Harry Potter fans

Universal Studios Orlando  
Orlando, FL | USA

↗ 676 m    👤 1,450 PPHPD    ⌚ 3.0 m/s    ⌚ 4 min    🚗 2    ✂ July 2014



Universal Orlando Resort has a new attraction: the Hogwarts Express. Hiding behind the detailed reproduction of the renowned steam train is a modern funicular railway.

Since July 8, 2014, the Hogwarts Express has been transporting guests between Hogsmeade Station at The Wizarding World of Harry Potter – Hogsmeade, in Islands of Adventure, to King's Cross Station and The Wizarding World of Harry Potter – Diagon Alley, in Universal Studios Florida. The two lands are expansive, themed areas that include shops, restaurants and attractions. The Hogwarts Express, composed of two carriage sets, is a faithful reproduction of the iconic locomotive from the Harry Potter films. The train is made up of a steam locomotive, a coal tender and three passenger carriages. When visitors take the four-minute train journey, they immerse themselves in the world of the young wizard. This is made possible by LED screens that replace the windows in the trains. Just like Harry and his friends, passengers travel through London, over bridges and through forests.

The Doppelmayr Group entered into new territory in building the Hogwarts Express as a funicular railway in this form had

never been built before. Unlike other installations of this type, the project posed special challenges for the design engineers in terms of very tight curve radii, the significant weight of the train (overall length around 70 meters) and high rope tension. CWA was commissioned to achieve a faithful visual

reproduction. The carriage set is constructed to look as if made of solid, heavy iron and wood sections, and the interiors of the carriages are accurately lit and equipped with best-in-class entertainment systems that guarantee the most realistic images, sound and acoustics.



### Extracts from reference list



#### 200-FUL Sa Pa (Fansipan)

Location **Sa Pa, Lao Cai, Vietnam**  
Customer **Sun Group Corporation**  
Built **2018**  
Inclined length **1,684 m**  
Vertical rise **115 m**  
Speed **10.0 m/s**  
Capacity **2,114 PPHD**

**Highlight** Funicular up to Vietnam's tallest mountain with custom car and station design to harmonize with the mountain experience.



#### 40-FUL Falls Incline Railway

Location **The Niagara Parks Commission**  
Customer **Niagara Falls, ON, Canada**  
Built **2013**  
Inclined length **57 m**  
Vertical rise **34 m**  
Speed **1.0 m/s**  
Capacity **1,050 PPHPD**

**Highlight** Offers year-round operation, barrier-free access and views of Niagara Falls.



#### 25-FUL Moses Mabhidha Sky Car

Location **City of Durban**  
Customer **Durban, South Africa**  
Built **2009**  
Inclined length **213 m**  
Vertical rise **105 m**  
Speed **2.0 m/s**  
Capacity **230 PPHPD**

**Highlight** The funicular travels above the roof of a football stadium

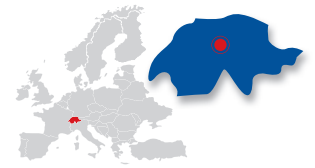


# 60-ATW CabriO® Kälti–Stanserhorn

## World first: the CabriO® up to the Stanserhorn

Stanserhornbahn AG  
Stans | Switzerland

↗ 2,319 m   ↕ 1,139 m   🚶 465 PPH   ⌚ 8.0 m/s



We used our placemats to sketch all our ideas and every conceivable thought plus a series of possible solutions, some of which seemed pretty utopian,” says Stanserhornbahn AG director Jürg Balsiger recalling his meeting with ropeway engineer Reto Canale. They were discussing how to replace the outmoded Stanserhorn reversible aerial tramway. Who would have thought that the foundation for a world first would be laid that very evening?

The Stanserhorn is one of the most popular mountain destinations in central Switzerland with stunning all-round views of the Alps.

Visitors get to enjoy the superb scenery before they reach the summit, thanks to the world’s first open-top tram cabin. Known as the CabriO®, this double-decker cabin marked the beginning of a brand-new era for the Stanserhornbahn AG.

To enable passengers to experience the typical open-top experience, visionary solutions had to be found for the new aerial tram. These included carriages and track ropes that are located at the side of the cabin, rather than above it as is usually the case. This was a challenge that the developers from Garaventa were well equipped to meet.

„During the course of the invitation to tender, we soon realized that only the technology leader would be capable of meeting the requirements of a double-decker tram.”

**Jürg Balsiger, Director of  
Stanserhornbahn AG**





## Hans in luck – the fairytale-themed ropeway **Input®**

At Ski Welt Söll, everything is inspired by the story of Hans in Luck. The new D-Line gondola lift in the Austrian province of Tyrol brings winter guests to an entertaining ski trail that has been styled after the fairytale by the Brothers Grimm. Figures and key elements from the story, such as milk cans, clover leaves and goose feathers, adorn the trail. Every second

cabin bears a picture taken from the fairytale. Even the station building has been styled to reflect the theme.

The Doppelmayr subsidiary Input® implemented the themed project in collaboration with SkiWelt Söll. Ski tunnels, jumps and bridges make the trail an enjoyable skiing ex-

perience for all the family. There is also plenty to discover in the summer, with a lovingly designed water world that invites young and old to enjoy another experience on the mountain. The lift with the children's Hans in Luck ski trail is a perfect example of the creativity with which new concepts can be used to revitalize tourist regions.



## On her Majesty's secret service

A unique installation centering on the most famous secret agent in cinema history has been created in the Austrian resort Sölden under the theme title "007 Elements". The choice of location is no accident as Sölden provided one of the settings for the James Bond film "Spectre". Visitors travel in style with a 3S lift to the experiential world inside the Gaislachkogel mountain at an elevation of 3,000 meters – riding in one of the two cabins that have been specially fitted out for the exhibition experience. Input® Projektentwicklungs GmbH was involved in implementing this project.

The classic John Barry film music from four powerful loudspeakers sets the mood during the trip. True to style, the soundtrack begins as the ropeway accelerates. Input® developed a custom color especially for the cabins: platinum gold. This was applied using a custom-manufactured, top-quality film and gives the lift an elegant Bond flair. The cabin concept was developed, designed and recorded in collaboration with Neal Callow, art director for the last four Bond films.

## 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.



## Two rankings in the top 10 “Best Family Rides in America”



In the middle of last year, the Theme Park Insider, an online guide to the world's favorite theme parks written by the consumers themselves, named the most popular family-friendly amusement and theme parks in the USA. With the Bayside Skyride at SeaWorld in San Diego (9<sup>th</sup> place) and Harry Potter's Hogwarts Express at Universal Studios in Florida (1<sup>st</sup> place), two ropeways from the Doppelmayr Group with CWA cabins have been honored.

### Rankings

**1<sup>st</sup> place:** Harry Potter's Hogwarts Express, Universal Orlando Resort, Orlando/Florida

**9<sup>th</sup> place:** Bayside Skyride at SeaWorld, San Diego/California

[www.themeparkinsider.com/flume/201408/4172/](http://www.themeparkinsider.com/flume/201408/4172/)



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