INTERNATIONAL ROPEWAY REVIEW April 2011

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CABINS
INNOVATIONS FROM THE CABIN MANUFACTURERS

REVIEW
NSAA SHOW 2010

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PistenBully®

Photo: Sigma

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Photo: Gangloff

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Photo: CWA

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Photos: Sigma

A European in New York

Success for Sigma in the urban transportation sector

Based on the success of its Diamond cabins in Europe's major ski resorts throughout the Alps, Sigma has extended its field of competence to include urban transportation systems with cabins designed to meet the demands of this promising market segment.
For some years now Sigma has been present in the big cities of the world including some of the most prominent like New York. For the Roosevelt Island Tramway connecting Roosevelt Island with Manhattan across the East River, Sigma delivered two four-star cabins from its Crystal series. These cabins benefit from years of experience and development work with the Diamond cabins, which have contributed so much to Sigma's good reputation and current success in mountain resorts. The new cabins can carry 110 passengers, and the generous use of glazing ensures that they can enjoy fine views of the Manhattan skyline. The Roosevelt Island Tramway is proof of the success of Sigma's policy of diversification with its cabins, which are just as much at home over Big Apple as they are in the mountains.

Riding in a Crystal cabin from Sigma across New York's East River

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Great success in the Dolomites

Sigma's Diamond cabins continue to make their mark throughout the world.

Photo: Sigma

The Marchner Bahn from Leitner at Kronplatz was equipped with Diamond cabins in 2009 already.

Present in Europe, Asia and even South America, they remain a dominant force in the Dolomites, more precisely at Dolomiti Superski,one of the world's biggest interconnected skis areas.

For the third year running, the Italian ski resort Kronplatz has ordered new 10-seater gondolas from Sigma. In total, this makes nearly 250 Diamond cabins over three years, all equipped to the highest standards of the range (two-tone finish, heated seats, scratch-resistant glazing, etc). The new Ried gondola will be situated at the base of the Gipfelbahn, which was inaugurated in 2010, to create a real multimodal network, providing transport under the most comfortable conditions from Percha railway station to the top of the ski station without going by road – a godsend for skiers arriving from the neighboring towns of Bolzano and Innsbruck, and a real advantage in terms of fewer traffic jams and respect for the environment, which is very much in keeping with the ethos of the company concerned. Beyond the significance of the contract, this is also a sign of things to come, with lifts of all kinds being installed as sustainable public transport facilities that are adaptable to all environments, as already demonstrated by the aerial tramway in New York and the Mendola funicular, both equipped with Sigma cabins.

A mountain specialist that exports itself

In the closed world of manufacturing for cable car cabins, lifts and other rope-hauled transportation systems, France has a rare gem: Sigma – a precious pearl indeed, as this cabin engineering company has succeeded in exporting its know-how to all continents and in adapting its mountain experience to the fields of recreational amenities and public transportation.

From Medellin (Colombia), where the cabins of the aerial tram transport 1 million passengers every month, to London, where its futuristic design capsules have made the ferris wheel of the British Airways London Eye so famous, or Hong Kong, Sigma has expanded considerably, especially internationally (75% of sales), and almost tripled its sales in five years. The company intends to continue in a similar vein: after providing cabins for most of the major ski resorts in the Alps and the world, it is ready to conquer all the mountains, cities and leisure parks on the planet!

After New York, SIGMA makes a stopover in Cairo

SIGMA, for all your needs

sigmacabins.com

First orange bubbles in USA

Doppelmayr has installed the first chairlift with orange bubbles at one of the largest ski resorts in the USA.

Photos: Doppelmayr

The Canyons ski resort is proud of the Orange Bubble Express. As well as being visually striking on the outside, guests enjoy the comforts of heated seats and a stunning view on the inside: "Sitting snug and warm inside the weather- protecting orange bubble feels like being inside a giant pair of ski goggles!"

The Orange Bubble Express at Canyons in Utah is a detachable quad lift with heated seats. It was also the biggest chairlift installation in the country in 2010.

The new installation replaces the Golden Eagle lift, a fixed-grip double built in 1965. As well as being much longer than the old Golden Eagle route, which only went as far as the new mid station, the Orange Bubble Express has also increased uphill capacity by 47 percent. The location of the bottom station – now directly in front of the Grand Summit Hotel – was moved slightly and the lower section of the lift line underwent significant terrain modifications.

The successful completion of the new high-speed quad lift is all part of the biggest ever infrastructure development project planned for Canyons. "Our goal is to further increase uphill capacity and expand skiable area as well as investing in snowmaking equipment and hospitality. We are aiming for a 50 percent increase in paying guests," explains Canyons Managing Director Mike Goar in an interview with "Deseret News".

Second Cable Liner Shuttle in Las Vegas

The new APM built by Doppelmayr Cable Car (DCC) is the main means of transport for the CityCenter mega-project.

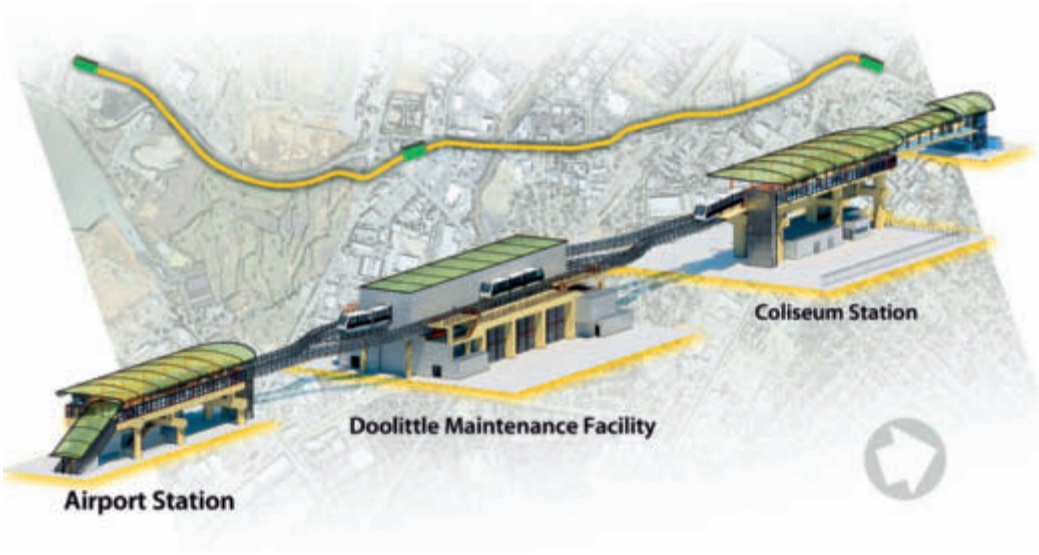
As an integral part of the Las Vegas CityCenter, a Cable Liner Shuttle has been built by DCC Doppelmayr Cable Car, a subsidiary of the Doppelmayr/Garaventa group. DCC handled the project for an APM (automated people mover) as a local public transport system in collaboration with the MGM Mirage group. The value of the contract for DCC was about USD 66 million (EUR 45 million).

After a construction period of only about three years, the huge buildings that make up the new CityCenter in Las Vegas opened their doors. The complex, which cost a total of about USD 8 billion to build, comprises 2800 luxury apartments and three hotel casinos with 5000 bedrooms and over 44,000 square meters of floor space for shopping malls, restaurants and function rooms. And they are all served by the new DCC Cable Liner Shuttle. The Cable Liner, which has a rated capacity of 3,000 pphd (persons per hour and direction), links the existing MGM Mirage hotel casinos Monte Carlo and Bellagio with a midline station at the heart of the CityCenter. The first Cable Liner Shuttle in Las Vegas, the Mandalay Bay Tram, was installed for the same client in 1998 and since then has carried no fewer than 250 million passengers in safety and comfort. "This is convincing proof that the market is more than willing to invest in a system that combines simplicity, reliability and short project handling periods with the competence, flexibility and performance capacity of the dynamic DCC team," says DCC's CEO Stephan Wabnegger.

The DCC Cable Liner in front of the huge MGM CityCenter complex

APM for Oakland

Doppelmayr Cable Car (DCC) is building an automated people mover, known as a pinched-loop Cable Liner, in Oakland (San Francisco Bay Area, USA).



The elevated dual track is 5,100m in length and 12 m above street level at its highest point. The maximum distance between towers is 58m. The system has four trains of three cars each and connects Oakland Airport with the BART Coliseum station.
Construction began at the end of 2010 and start-up is scheduled for 2014. DCC will be running the installation for 20 years.

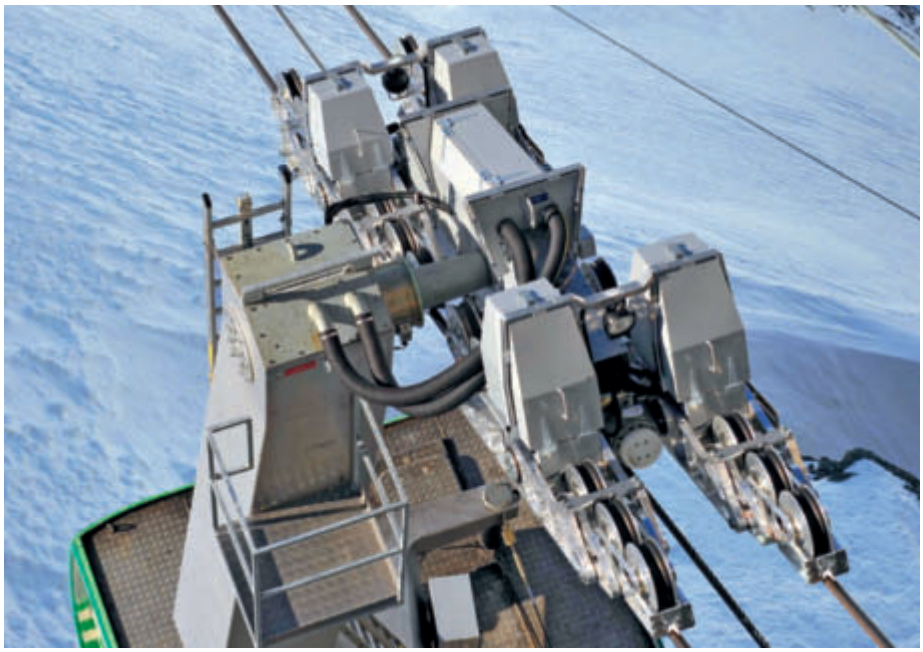
Modern technology

DCC was able to win the contract against tough international competition thanks to the proven technology, operational efficiency and environmental friendliness of the system. Improving air quality was a major factor in the award. The client is the biggest public transport operator in the San Francisco area, Bay Area Rapid Transit (BART).

Light-weight carriage engineering

In the course of the main annual inspection of the Säntis aerial tramway, the two cars were fitted with carriages with a difference: Aluminum was used for many of the components that are normally made of steel. That makes it another world first from Garaventa.

The new lightweight 24-wheel carriage from Garaventa for the Säntis aerial tram



Photos: Garaventa

A bird's eye view of the new carriage

Public services on the Säntis aerial tramway were suspended from 17 January to 5 February, and not just for the mandatory annual maintenance work but also to instal a new haul rope and replace the carriages on the two cars.

The biggest challenge in the design of the carriages was to comply with the stricter standards of safety specified in the new ropeway regulations without increasing carriage weight. According to Gregor Winiger, chief design engineer at Garaventa AG in Goldau, it was necessary to trim about 30 % off carriage weight so as to avoid having to reduce the payload of the cars and thus the capacity of the installation.

International debut for the aluminum carriage

To solve the problem, the engineers turned to the latest technologies in the field of lightweight aluminum engineering. The design process for the new carriage was handled with the help of 3D CAD, with modern calculation methods (FEM) employed for the fine-tuning. A key modification was the use of aluminum for parts of the track rope brakes and the complex system of evener frames for the 24-wheel carriage. 3D simulation made it possible to verify performance under operating conditions in the design stage already, including clearance on the towers. To engineer the various components, the design data were fed straight into a CAM metalworking machine. The aluminum parts were then milled from solid blanks and assembled in the works. As required for all new ropeway components, the complete carriage was finally subjected to a conformity assessment process pursuant to the EU Cableway Directive 2000/9/EC, and CE certification was awarded.

JN

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Showcase project in China

8-seater gondola from Leitner for the Jade Dragon Snow Mountains near Lijiang


Photos: Leitner

The three-piece tower before the upper terminal is required to handle the evacuation ropeway, with one of the two 6-passenger reversible evacuation cars parked on the lower tower.

Just 15 km from Lijiang an exciting nature experience is available – at a very great height. The Snow Mountains of Yulong Xueshan with their thirteen peaks, including the Shan-Zi-Dou at no less than 5,596 meters above sea-level, are located in the Naxi Autonomous County of Lijiang in Yunnan Province in the People's Republic of China. Yulong is Chinese for Jade Dragon. The mountain range was given the name because the line of the snow-covered mountains, which are usually veiled in cloud, twists and turns like a dragon from north to south.

In 2009 the Lijiang Yulong Snow Mountain Company awarded Leitner the contract for the construction of an 8-seater gondola for Lijiang Yulong Snow Mountains. With a line length of 2,883 m, the gondola starts at an altitude of 3,356 meters above sea-level and reaches the top station at 4,506 meters. The old 6-seater gondola built in 1996 was left in place and is now used as an evacuation ropeway, with a separate rope and two cabins running parallel to the new gondola in the to-and-fro mode. The new gondola was officially opened on 19 January 2011. That means the Yulong Snow Mountain Glacier Park, which is an all-year operation, now offers visitors an efficient and attractive means of transport.

TECHNICAL DATA

Bottom station	3,358 m
Top station	4,516 m
Line length	2,882 m
Drive	705 kW
Haul rope diameter	52 mm
Transport capacity	1,200 P/h

The lower station seen from the line, with the parking shed on the left. Above the 8-seater gondola one can again see the evacuation ropeway, with the second rescue car above a Sigma gondola in the middle of the photo.

View up the line

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Presenting: the double-decker cabriolet carrier ...

The contract for the exciting cabriolet carriers for Stanserhorn was awarded to the Swiss Gangloff company, which is currently riding a wave of success with other projects, too.

In the framework of the 2011 season opener at Stanserhorn, a presentation was made of the carriers planned for the new Cabrio-Bahn, which will go into service as a replacement for the existing Kälti – Stanserhorn jigback at the beginning of the 2012 season.
ISR 5/2009 included a detailed report on the subject of the innovative Cabrio-Bahn ropeway system developed by Garaventa to permit the use of double-decker carriers with an open top deck.
For an installation offering such spectacular views as the ropeway serving Stanserhorn, a carrier with an open top deck is obviously a big attraction. But that is not feasible with a conventional jigback design because the carrier is located beneath the carriage, and the track and haul ropes. To solve the problem, it was decided to design a wide-gage line with the twin track ropes so far apart that there is enough room for the carrier to travel between them and to mount a carriage on either side of the carrier. The fact that the carrier travels between instead of below the track ropes distinguishes the new ropeway from a Funifor, which is also a wide-gage reversible system. The carriers on the new Cabrio-Bahn accordingly have no hangers. Instead, they have a carriage mounted on either side of a frame, which supports the self-leveling double-decker structure. With regard to the haul rope, the original idea of using a single haul rope loop located in the middle of the line was finally rejected by Garaventa's design engineers in favor of a solution involving double loops for the haul and ballast ropes with the ropes located beneath the track ropes. As in the case of the Funifor system, deflection sheaves are used as a kind of moving anchor to attach the carriers to the haul rope. Among other things, that solves the problem of potential oscillation in the rope spans caused by excessive haul rope lift on the tower rope sheaves.
The engineering that goes into such an innovative ropeway carrier is one thing, the design another, all the more so as passengers are only indirectly aware of the engineering at best

Rendering: Stanserhorn-Bahn

Rendering of the cabriolet carrier for the new Cabrio-Bahn – in the exciting Gangloff design!

while the design is something they cannot miss. And the design is an aspect where the Gangloff team really made their mark: The clean lines and the elegant white metallic finish are the perfect match to the futuristic character of the Cabrio-Bahn. In this context Jürg Balsiger, General Manager at Stanserhorn-Bahn, likes to stress the similarity with the looks of the Apollo moon rocket and thus the analogy to manned space travel. In addition, quite apart from the open top deck, the generous use of glass will give passengers unrestricted views of the mountains. "We are very happy about the all-over glazing chosen for the cabin. This means we can offer visitors a unique ride with a sense of sailing through the air," says Jürg Balsiger in his assessment of the new carriers, which were ordered from Gangloff on 21 December 2010. The agreed delivery date is 15 December 2011.
Construction work on the Cabrio-Bahn has already begun. As Jürg Balsiger explains, "Thanks to good planning for the construction period, we are in a position to offer visitors a hassle-free ride and a wonderful mountain experience this year. It is the last opportunity to ride up to Stanserhorn in the old yellow cabins with the famous floral motif."


Photo: Gangloff Cabins AG

Gangloff's engineers installing the elevator cars on the west leg of the Eiffel Tower

Innovative cabin design by Gangloff for Val Thorens

The new Cabrio-Bahn will take over in the 2012 season.

Elevator cars for the Eiffel Tower

The Swiss company is also handling a prestigious contract for the famous Eiffel Tower in Paris. Gangloff Cabins' engineers are currently installing the cars on the west leg, with two passenger cars and an attendant's cab forming a combined unit. The new elevator cars, with a capacity of 2 x 56 passengers, will carry visitors from the ground floor to the second level of the tower. They were delivered in their separate parts because the complete cabins would not pass through the Eiffel Tower's trelliswork structure. Air conditioning is provided with the help of specially modified units mounted on the rear cabin walls.

New aerial tramway cabins for Val Thorens

In November 2010, Gangloff Cabins AG supplied two cabins in its new series for the Val Thorens – Cime de Caron jigback. In 1982 the company also designed and built the previous generation of cabins, which at the time were the first in the world to carry 150 passengers.
The new cabins are based on Gangloff's Streamline concept, which has undergone further innovative development for this model. The convex end- and side-walls and floor-to-ceiling glazing with laminated safety glass combine to create a completely new and dynamic look.

Demanding design engineering

For CE certification, time-consuming calculations and design engineering work were required for the light metal sections for the cabins in order to comply with the following design brief:

- Cabin weight limited to that of the previous model.
- Structural reinforcement for the roof to permit underfloor loads of up to 6 t, including snow groomers, to be carried suspended from the roof via a hatch in the cabin floor.
- Special protection for the end windows to cope with driving snow – Val Thorens is the highest ski resort in the whole of Europe – and winter conditions in the completely open terminals. Integrated spoilers made of polycarbonate provide additional protection against ice falling off the ropes.
- For maximum speed of loading and unloading, both sides of the cabins have a double door in the middle and a single door at either end.

The new cabins again have a capacity of 150 persons. They were delivered in a red and gray metallic finish. The delivery time was eight months.

Follow-up order from St. Moritz

Marc Pfister, CEO at Gangloff Cabins, reports a positive response to the new model, including a follow-up order for two cabins in the same design for Diavolezza in the Upper Engadin region of Switzerland.

Qualified engineers and skilled labor

For Marc Pfister, Gangloff is well equipped for the future: "Thanks to the qualified engineers and skilled workers who make up our labor force we have been able to position ourselves on the market as the specialists for customized solutions in the field of car and cabin engineering. In addition to the experts in our design engineering department, we have a team of skilled car body makers, metal workers and painters in the production department. We also attach particular importance to the youngsters; with a head count of sixty, we currently have ten apprentices undergoing training in the metalworking shop."

Josef Nejez/Josef Schramm

International debut at Interalpin 2011

A new benchmark cabin from CWA will be unveiled at this year's Interalpin.

CWA will be making its first joint appearance with Doppelmayr – with plenty of innovative products on show.

TARIS, the new cabin from CWA

CWA's new TARIS cabin will be making its debut before an international audience at this year's Interalpin in Innsbruck.
In a first phase of production, the TARIS, which is designed for use with 3S and Funitel systems, will be available with a capacity of 20 to 40 persons and in a wide range of configurations for mountain and urban operations, including innovative seating solutions and passenger information systems for public transportation services. The new cabin is based on a modular system. That and the timeless yet modern design are the key to short production times and maximum flexibility for customized solutions.
The first orders for the TARIS are already in the planning office, with delivery scheduled for 2012.

The new TARIS 30 at Interalpin 2011

Current production highlight

CWA is currently handling a big contract in the form of two shuttle train sets for the international airport in Doha, Qatar. The Cable Liner Shuttle will link the terminal with the gates and will be able to transport 6,000 persons per hour and direction.
At present the first of the train sets is nearing completion. Total transparency is the philosophy behind the design. Each train set comprises five interconnected cars, so that passengers can board the trains and move from one car to another.
The interior is also a customized solution. The structural frames of the cars have been designed to permit as much glass as possible to be used for the side and end walls and also for the roof – a glass train for Qatar. The train sets are due to be shipped in 2013.

The Doha Cable Liner Shuttle nearing completion

Photos: CWA

Gondola ropeway for Kolmården Zoo

CWA delivers the gondolas in a themed design.

The tiger gondola

The giraffe gondola

The unique wildlife park gondola, which is due to go into service this summer, provides a trip with a difference through Kolmården Safari Park and is an adventure in its own right. It gives visitors a close-up view of wild animals from all over the world, including lions, bears and wolves.
This airborne safari is the biggest single investment ever made at Kolmården.
Founded in 1964, the wildlife park lies 90 minutes to the south of Stockholm by car and about 30 km north of Norrköping. With an area of 250 hectares and 551,000 visitors a year, it is the biggest zoo in northern Europe.

78 OMEGA IV-8 LWI cabins

The 78 OMEGA IV-8 LWI gondolas from the famous Swiss CWA company have been finished in three themed designs: tiger, giraffe and zebra. The gondolas are fitted with a multilingual information system that provides lots of interesting facts about the park and the animals to be seen there. The new safari gondola looks set to become a big attraction for all visitors to the park.

The CWA vision

For CWA, the aim is to combine enthusiastic customers with satisfied personnel and long-term profitability. The company's success bears out the wisdom of this corporate strategy.
In 2008 1,550 cabins were shipped from the CWA works to over forty countries of the world. Since 1956, CWA Constructions SA/Corp has sold over 52,000 cabins. A focus on the customer, practical solutions, Swiss quality, integrated design, innovation and convincing after-sales service explain the high level of confidence customers place in CWA's products.

World first in Kitzbühel

Innovative PistenBully 600 TwinPower powered by an eco-friendly mix of diesel and gas.

From the left: Wolfgang Müller, Technical Director at Infinite GmbH; Peter Soukal, Kässbohrer Österreich; Dr. Josef Burger, CEO at Bergbahn AG Kitzbühel; Dr. Klaus Reisch, lawyer; Jens Rottmair, CEO at Kässbohrer Geländefahrzeug AG; Stefan Hetzenauer, Manager Snow Groomers; Johann Schmidhuber, Salzburg AG; Dipl.-Ing. Jürgen Magg, Project Manager for the Pistenbully 600 TwinPower

At this year's Hahnenkamm Race in Kitzbühel, Kässbohrer Geländefahrzeug AG presented the first groomer for series production to be powered by a mix of diesel and gas. Two years ago, Kässbohrer started development work on the project in collaboration with Salzburg AG, the Infinite company of Salzburg, and the UK company Hardstaff. Last winter, prior to the debut of the series-production vehicle in Kitzbühel, the innovative snow groomer underwent trials at Saalbach Ski Area.

Premiere in Kitzbühel

The PistenBully 600 TwinPower went into regular service with Bergbahn AG Kitzbühel last December, and CEO Dr. Josef Burger says the company is very satisfied with performance to date. Jens Rottmair, CEO at Kässbohrer Geländefahrzeug AG, sees great potential for the PistenBully 600 TwinPower. The additional capital layout for the TwinPower version pays off within four years thanks to the reduced fuel bill deriving from the use of natural gas. Peter Soukal of Kässbohrer Österreich confirms that other ski areas are already showing keen interest in the new solution.

The PistenBully 600 in the fleet at Bergbahn AG Kitzbühel was converted to the TwinPower system by the Infinite company. Salzburg AG solved the question of the gas supply by providing a mobile natural gas filling station as an environment-friendly alternative to diesel filling stations that is particularly attractive for mountain regions.

The concept of the PistenBully 600 TwinPower

The PistenBully 600 TwinPower is 9 m long and 4.2 m wide and weighs 9 t. The engine develops 400 hp (265 kW). According to Project Manager Johann Schmidhuber at Salzburg AG, gas can be mixed in with the fuel to substitute up to 70% of normal diesel consumption. The gas used is 100 % biogas and is therefore carbon-neutral. The result is a reduction in both fuel costs and exhaust

Photos: Kässbohrer

emissions. One thing is especially important for daily working on the mountain: groomer performance and power are no different from the standard diesel version.

Tomorrow's technology today

Der PistenBully 600 TwinPower is fitted with an additional tank for CNG (compressed natural gas) or biogas on the cargo deck (approx. 100 kg). That means the machine can work solo to groom the slopes. The gas is injected into the combustion air at a pressure of 4 bar and burnt with the diesel, which is needed to ensure ignition. The system can also be used in the 100% diesel mode. The switch to combined fuel operation is made automatically. The relevant signals from the engine are fed into a control unit where a processor computes the optimum gas/diesel ratio, increasing or reducing the flow of diesel accordingly. The gas is mixed with the combustion air on the intake stroke; the diesel ignites in the cylinder and burns the gas at the same time.

Retrofitting with TwinPower for all PistenBully solo groomers

Dipl.-Ing. Jürgen Magg, Kässbohrer's Project Manager for the PistenBully 600 TwinPower says, "We have developed a snow groomer that can be used just like a conventional diesel-powered model and brought it to the series production stage. Our TwinPower technology enables us to employ this eco-friendly hybrid solution with big-engined vehicles, too. So the TwinPower System can be retrofitted to all PistenBully 600 solo groomers." *JS*

The new generation winch

Prinoth proudly introduced its New Sherpa winch at the 2011 NSAA Winter Conferences and Trade Shows in North America

Prinoth, one of the world's leading manufacturers of snow grooming and tracked utility vehicles, launched the New Sherpa winch on the North American market at recent NSAA conventions. The New Sherpa is Prinoth's new generation of winch and the market-leader with 5.3 tons of pulling force plus Wincontrol. With wincontrol, i.e. automatic pulling force control, perfect grooming on extremely steep slopes is even more efficient, simple, and safe.

The New Sherpa made its North American debut at Snowbird resort, Utah, Nevada from January 18 to 20, 2011, followed by a second presentation in the east of the USA at Killington resort, Vermont on February 8 and 9, 2011.

In each case, Prinoth hosted a presentation featuring the new product and additionally explained in detail how a ski resort can increase its grooming productivity, and reduce its operating costs and carbon footprint. Then it was time for a hands-on experience for customers who wanted to discover the various features of the New Sherpa winch.

The New Sherpa offers the following advantages:

- Simple handling with Wincontrol: allows the driver to concentrate on grooming perfect slopes.
- Unique pulling force: with a maximum of 5.3 tons of pulling force, the New Sherpa is currently the world leader in its class on the winch market.
- High pulling force at high working speeds: no need to reduce pulling force at high grooming speeds.
- Optimum vehicle control: a snow groomer fitted with the New Sherpa responds perfectly to the controls because the winch has no influence on the steering.
- Systematic controls and additional safety: the New Sherpa A offers many additional features, including the ability to detect and adjust rope tension.

Prinoth has a strong network in North America, with seven regional distribution centers to serve customers, who use the vehicles for downhill slope and x-c trail grooming, snowmobile trail grooming, and various utility applications. Prinoth's vehicles provide optimum slopes for skiers and snowboarders, and trails for snowmobiles and cross-country skiing.

What the experts say

Matt Riker, Foreman of Grooming Operations Killington Mountain Resort, Vermont
"This Bison with the New Sherpa winch is an aggressive machine with a lot more power that allows me to groom more in all conditions. I really like the new automatic Wincontrol that makes all the difference and allows me to focus on grooming the trail. The manual mode provides me with all the options I need."

John Dupont, Operator Killington Mountain Resort, Vermont
"The production capabilities of this New Sherpa winch on the Beast change the game. The automation, combined with the power and the overall size of this machine, makes my job easier and the end product better."

Photo: Prinoth

Ben Finn, Operator Waterville Valley Resort, New Hampshire
"The override on the new Wincontrol allows me to fine-tune the tension, and this provides me with the diversity I need to groom a competitive mogul course here on Bobby's Run at Waterville Valley."

Isabelle Falardeau, Aspen/Snowmass Terrain Park Manager Aspen, Colorado
"I spent 10-16 hours in the machine when

The New Sherpa is Prinoth's new generation of winch

building the snow park pre-season. The controls and the design of the cabin allow me to keep my focus on the job of building one of the best snow terrain parks in North America."

Prinoth, snow groomers for the most demanding users

From the very beginning, Prinoth has been synonymous with snow groomers of the highest standard. The name stands for top slope quality, outstanding technology, and forward-looking design, plus the world's most complete selection of snow vehicles. Prinoth focuses on cost-effective snow groomer use by offering vehicles that are exceptional in terms of grooming performance and working area.

With its new business segment of tracked utility vehicles, Prinoth covers the most varied applications for year-round use under the most difficult conditions. Both snow groomers and tracked utility vehicles are designed with everyday working needs in mind. They are also available in individual configurations to meet the full range of requirements from the company's international clientele. Prinoth views itself as a competent partner, with outstanding service and close customer relations as the top priority.

A business success story

Fatzer for generations – for 175 years

In 1836, a business success story began in Romanshorn, a story of sustainable growth, tradition and innovation. The Fatzer company has grasped the secret of continually re-developing areas of business, adapting to technological progress and rising to the challenges of globalization and crisis.

Computer visualization of Fatzer's new Plant II in the final design stage

Photos: Fatzer

The Fatzer works in the 1930s

The milestones of success:

1836: Joachim Fatzer (1819-1885) founded the Fatzer rope manufacturing company before reaching the age of 17. Ropes for agricultural purposes and home use quickly achieved great popularity.

1850: With the first Swiss steamboat, a new era began for Fatzer: the first heavy-duty ropes went into production. Soon, the quality of the ropes had everyone talking.

1890: Ernst Fatzer took over his father's business and manufactured the first wire rope at the turn of the century. The first wire-rope production facility was built in 1912.

1914: The first rope-laying machine with a production capacity of 15 tons was commissioned, followed by a tubular stranding machine and a 24-reel strand-forming machine.

1948: Ernst Seiler took over the management, and the number of employees grew to 22.

1952: Production capacity was expanded and the first fully locked track rope was manufactured.

1975: The world's largest stranding machine was installed. Production capacity: 110 t rope weight.

1976: Major contract for the offshore industry: 12 cables, 79 mm in diameter, with a total weight of 1000 t.

1981: The famous cable cars of San Francisco were equipped with Fatzer cables.

1986: With a diameter of 115 mm, the thickest cable to date was produced by Fatzer.

1992: The Fatzer AG wire rope plant was incorporated into BRUGG Ropes Technology Holding Inc.

2008: Construction of Plant II was begun with a 150 t stranding machine.

2011: Fatzer has a work force of about 75 skilled employees.

And what about the future?

2013: The final construction stage of Plant II in Romanshorn is due for completion. 2011 is in the Chinese sign of the metal rabbit, which is seen as a symbol of peace, prosperity and diplomacy. That makes it the perfect year for celebrating Fatzer's 175th anniversary!

RCS - the Radio-Controlled Stop

A description of a simple, reliable and inexpensive safety device for all types of lifts: the remote stop of an installation via a radio controlled system.

Photo: P. Popa

The installation is stopped by simply pressing a dedicated button on the radio station.

"Stop, stop!"

"Too late, back it up. More, more, OK, stop now!"

"Er, a little bit forward, please!"

Familiar talk? This is an excerpt from a radio chat between a mechanic in the maintenance basket and the operator in the drive station.

Many ropeway operators, either of chairlifts, gondolas or cable cars, will certainly remember being in such situations.

Very often the operator does not react quickly enough to the request of a mechanic standing on a tower or in the maintenance basket, either because he is not right in front of the controls or because he does not hear the request correctly. Confirmation means more lost seconds, or possibly worse.

The young electronics engineer Razvan Neagoe has been working on a gondola lift in Romania since 2007, and he had often been in in the situation described above. So he decided to do something about it.

"I don't like to be driven without having some control. I'm not a roller-coaster fan. I think that if we can't have the whole dashboard and pedals, at least we must have the brake lever nearby."

With material resources limited, he tried to somehow solve the problem with what he had – like the radios that every operator and mechanic carry everywhere.

And so the RCS system was born: Radio-Controlled Stop. As an electronics engineer and a radio tech (amateur radio operator), Razvan thought of a system that allows the installation to be stopped remotely, using any of the radios available on the installation.

Some would argue that it is not a fail-safe system - forgetting that, in reality, there is no such thing as fail-safe; that is an unachievable goal. There will always be some unimagined failure mode that renders a so-called fail-safe device "fail-wrong". Reluctance to accept non-fail-safe radio control concepts leaves us with the worst of all possible alternatives: a hand-held voice radio that is hopefully in contact with a hopefully attentive person at the other end who will hopefully follow the

Photo: P. Popa

The radio station and its control buttons from the main cabinet in the control room

instructions of the person out on the lift line who needs the controls to be operated in a certain way. If you think about it, this is an at least triple normally-open AND gate - very far from the illusive fail-safe principle.

Razvan took out of the loop one of the two human factors and harnessed more of the radio link (coded digital signals travel farther than plain voice and, by their nature, are much less prone to be misunderstood through interference), and created a complementary system that does not replace the regular controls or procedures, but rather enhances them in order to allow faster response times in case of emergencies.

The prototype has been undergoing testing every day for almost a year (as of December 2010) on an installation running all year round, so far without a single hiccup (false stop or missing a stop command).

Presently mounted on an open board so as to facilitate modifications, the module is being redesigned so as to fit inside a small prototype box the size of a residential circuit breaker to permit mounting on a standard DIN rail inside the electric cabinet.

The module connects via a simple audio jack to a radio that must remain at the controls; it acts as the radio receiver for the stop command.

The RCS module is connected via an internal relay to the regular STOP button (electromagnetic braking) for a smoother stop, but it can be connected to any brake button (service brake, emergency brake or both simultaneously), either normally closed (most cases) or normally open. The module has an insignificant power draw (100 mA max, at voltages between 8 and 30 V AC or DC), and it is protected by a small 250 mA fuse so it does not trip any breakers in case it fails catastrophically (not that that is likely, but Razvan is a fan of defensive design). Also, the RCS is powered via a DPDT (double pole-double throw) switch that is connected in such a way that in the highly unlikely case of a stuck output relay (resulting in a permanent STOP state), the OFF position virtually removes the RCS system from the cabinet and restores the initial connections. This was done in order to minimize the impact over the original ropeway controls.

To be brief, the great advantages of the RCS system invented by Razvan Neagoe are as follows: minimum investment (the RCS module and programming for the radios), simple operation, ease of restoring the original controls, and adaptability for use with any installation. The requirements: an electrical STOP button and radios, an extra licensed frequency, and the need to be able to stop quickly if something goes wrong (on chairlifts, ski lifts, gondolas, overhead cranes, conveyor belts, etc).

Almost any brand of professional radio can be programmed for RCS use. The system works on a separate frequency so as to be able to function regardless of any ongoing conversations occupying the regular voice channel.

There is no need to set the channel selector before sending a STOP command: simply press the predefined button on the radio, and the signal will be transmitted on the right frequency, regardless of the channel currently in operation.

To reduce the risk of an unwanted STOP command due to radio interference, the RCS is protected by two different coding systems, one in the RCS module, and the other in the radio.

As mentioned above, in almost a year of daily operation, there have been no false stops in spite of the vicinity of a radio tower with dozens of active transmitter antennas, ranging from the 2-meter band to GSM and microwave data links.

To make sure the system works in poor radio propagation conditions, it has been programmed to send 16 redundant commands in rapid succession - a single received command being needed to bring the installation to a halt.

On the North American market there are similar systems offering more functions, but the cost is extremely high, requiring dedicated transmitter interfaces and receivers, as well as extensive integration in the control panel. In addition, it is necessary to carry an extra gizmo. And the trouble is that disaster strikes when we least expect it, and we only have available what we are actually carrying - the trusty old radio.

Also, the Bluetooth devices that are increasingly seen on the slopes today, such as those used to control snowguns, have far too little power to cover the span of a ropeway (no more than 100 milliwatts). Navigating through menus is not the thing you want to do in an emergency, either. A tough professional radio, with its 5 or 6 watts of radiated RF power and its easily accessible dedicated programmable keys, is the right beast for the job.

Razvan Neagoe considers that only the STOP command is really a necessity for safety in the industry, and has implemented the RCS system accordingly – with a minimum footprint in the electrical cabinet and low impact on the budget.

The purpose of this article is to present a simple, practical safety system with robust functionality. Variants based on this RCS system might one day become available to all lift maintenance personnel at a reasonable cost. Making them inexpensive and reliable - with no bells and whistles - is the only way to ensure that such devices come into common use in the industry, saving property from damage and, why not, lives.

For more details, eng. Razvan Neagoe can be contacted via his e-mail address razvan@wowmail.com, or via ISR.

Petre Popa

O.I.T.A.F. World Congress 2011

Between October 24 and 27, 2011, Rio de Janeiro will host the 10th International Congress for Transportation by Cable, one of the most important in the sector.

The event, promoted by O.I.T.A.F. (International Organization for Transportation by Cable) along with Companhia Caminho Aéreo Pao de Acúcar and the Doppelmayr Garaventa Group and Poma-Leitner, will take place in Latin America for the first time, with the intent of creating a greater exchange between the sectors, presenting the latest technology and establishing guidelines for transportation by cable.

Even though there are over 30 thousand ropeway installations in the world, Latin America is still not very active within O.I.T.A.F., and this is one of the challenges of the Congress, which will take place in Morro da Urca and will mark the official beginning of the celebrations for the centenary of the Sugarloaf cable car on October 27.

The event will deal with topics such as security and sustainability in the ropeway industry in the following sessions: "The development of cable installations in touristic areas", "Sustainable development, the environment and the social and economic aspects" and "Engineering and safety".

"We are certain that the Congress will be a great opportunity to discuss important themes, new concepts and tendencies, and also to close major deals among the participant companies," says Maria Ercilia Leite de Castro, General Director of Companhia Caminho Aéreo Pao de Acúcar.

What is O.I.T.A.F.?

O.I.T.A.F., the International Organization of Ropeway Transportation (Organizzazione Internazionale Trasporti a Fune), which was founded in Milan in 1959, is the only international organization of the ropeway industry. It has members from 31 different countries in all the continents of the world.

O.I.T.A.F. was created to address the interests of all three categories in the ropeway business, namely:

- Operators of cableway transport installations and ski facilities
- Manufacturers of such ropeway systems
- Public authorities and agencies representing governments and users.

O.I.T.A.F. members include the majority of the institutions working on development and research in the field of ropeway transportation such as universities and laboratories, as well as individuals whose work and interests focus on ropeway transportation.

NSAA 2010 in Orlando

For Rafi Stoffmann (right) and Samuel Kramer, the American market has plenty of potential for IDE.

John C. Gilbert (left) and Peter Müller (right) from Kässbohrer met John Hammond from Sugarbush Resort.

Rico Wehrli (left) and Raimund Baumgartner presenting the CWA project for Las Vegas

Jean Charles Faraudo and Ingo Karl promoting the 2011 O.I.T.A.F. Congress in Rio

Damien Laymond of Magnestick presenting his solution for child safety on chairlifts

Photos: C. Amtmann

Swiss quality represented by Fatzer's Max Baumann (left) and Garaventa's Maurice Andrey

Ed Dietzel (left), Johan Erling (middle) and Ken Showalter promoting Areco snowmaking at the trade show

Markus Pitscheider and Aline Lopes providing information about the 2011 O.I.T.A.F. World Congress in Rio

In spite of the orange shades, there was no hiding for three leading figures of the ropeway world: Paul Mathews (left), Michael Doppelmayr and Mark Bee (right).

Good vibes at the TechnoAlpin stand courtesy of Geir Vik (2nd right) and Karlheinz Terrabonna (far right)

ChairKid, Neveplast and Meingast with plenty to celebrate on the US market: Robert Meingast, Manfred Huber, Marc C. Wood, Ryan Locher and Niccolò Bertocchi.

Prinoth's Beast is making a big impression in the US. In the picture: Jim Coughlin, Werner Amort, Greg Clowers, Christian Martin and Oskar Schenk

Not just the right man in the cockpit at Axess: Wolfram Kocznar (right) – seen here with Peter Dermutz (left) and Guy Desrosiers – flew his own aircraft to Orlando.

Regis-Antoine Decolasse (left) and Bob Russel of Johnson Controls with a personal welcome for their clients at the NSAA Trade Show

From the left: Jean Gauthier, Rick Spear and Francis Charamel looking very happy about Poma Sigma's prestigious project for New York.

From the left: Marketing ideas for ski areas were provided by Peter Kobayashi, Coral Fraser, Peter Machalek and Grant Metson of adblocmedia.

The New LPA Grip and Station Design at Vail!!

"Vail's new High Noon Express Lift (#5) has dramatically improved skier and snowboarder circulation in Vail's Sun Up and Sun Down bowls. Leitner-Poma's innovative terminal design is very functional and we have received numerous positive comments on the appearance. We have been very pleased with the performance of this new design during its first year of operation."

Clyde Wiessner, Vail Lift Maintenance

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