

INTERNATIONAL ROPEWAY REVIEW 2/2009

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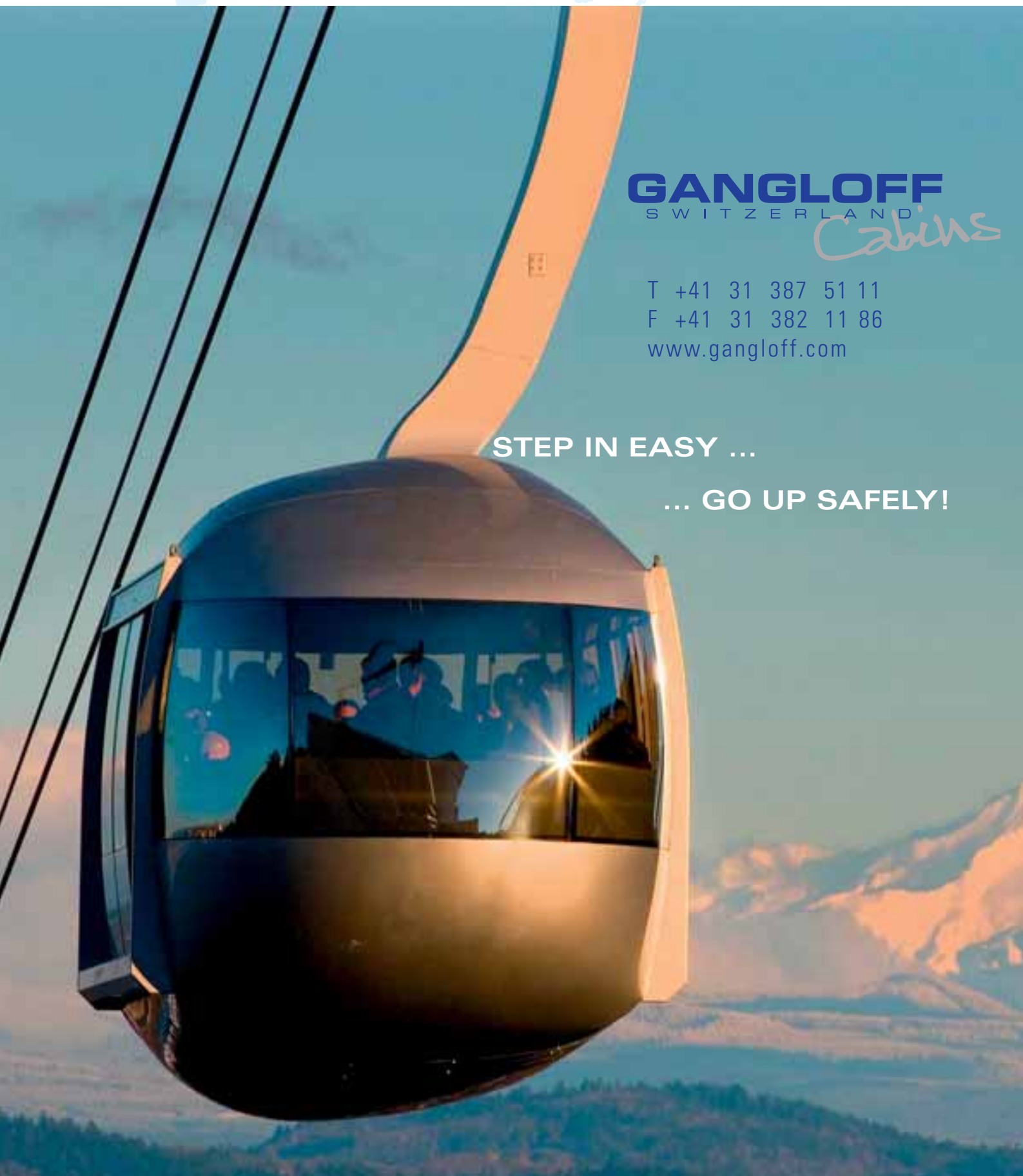
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Unloading point at the upper terminal: Passengers on the chairs alight first and exit down the unloading ramp before the gondola doors open for foot passengers to alight and board.

# Telemix for convenience combined with safety

The men's World Cup night slalom is just one of the big attractions at Schladming. With the new Sunjet-Hochwurzen, a Leitner chondola with a 3:1 mix of six-seater chairs and eight-passenger gondolas, the Styrian resort has become even more attractive for families.

**Schladming's most spectacular** ski race today is doubtless the men's World Cup night slalom, which this year drew a new record crowd of some 50,000 visitors. And the jubilant mood in Schladming has been reinforced by the decision to award the 2013 Ski World Championships to the resort. Schladming hosted the Ski World Championships once before, in 1982, and can now look forward to once again being center stage in international skiing for two whole weeks. But even for such a famous resort as Schladming, ski racing is not everything, and the Styrian ski area currently has a focus on upgrading its offering for families. A big step in that direction was taken at the beginning of the 2008/2009 winter season with the open-

ing of a new chondola, the first installation of its type to be built in Styria. The system is designed to meet the needs of the various categories of users with a combination of two different kinds of carriers, namely chairs for competent skiers and boarders who do not want to remove their gear for the ride, and gondolas for foot passengers, tobogganers and children. The carrier sequence on the new Sunjet-Hochwurzen installation is three six-seater canopy chairs with heated seats and luxury padding followed by an eight-passenger gondola. The Carvatech gondolas are obviously the ideal solution for optimum safety for children.

As far as the ropeway engineering is concerned, the chondola is a standard Leitner de-

sign with a high enclosure for the drive terminal on the mountain and a low enclosure for the various assemblies in the lower terminal with the tensioning equipment. The upper terminal also has fully automatic parking for the 51 chairs, 17 gondolas and a maintenance carrier.

Talking of the mountain terminal, what is less well known is the fact that the Leitner engineers have developed a safety system that prevents incorrect coupling on all detachable installations. A big advantage of this enhanced coupling system is that it permits the distance between the upper terminal and the first tower on the line to be reduced. That in turn is the key to improving the rope geometry in this critical section, with reduced rope





Photos: Leitner

Upper station: Thanks to the enhanced coupling system, the distance between the upper terminal and the first tower on the line can be reduced and the rope geometry improved.

clearance above the ground. The new coupling system, which has been patented and certified by TÜV Süd, plays an important role at the upper terminal of the Karlesbahn in the Kauner Valley. The line at the upper terminal of the Sunjet-Hochwurzten also benefits from Leitner's modified coupling system.

*JN*

## TECHNICAL DATA

### SUNJET-HOCHWURZTEN TELEMIX CHAIRLIFT/GONDOLA

Altitude lower terminal	1044 m
Altitude upper terminal	1452 m
Line length	1444 m
Vertical height	408 m
Haul rope diameter	46 mm
Drive terminal	upper terminal
Drive (continuous output)	455 kW
Tensioning	lower terminal
No. of carriers (chairs/gondolas)	51/17
Line speed	5.0 m/s
Transit time	4.9 min
System capacity	2315 P/h

## CONTRACTORS

Planning	Melzer & Hopfner
Ropeway engineering	Leitner
Electrical engineering	Leitner
Gondolas	Carvatech
Haul rope	Teufelberger



6-seater chair and 8-passenger gondola on the line of the Sunjet-Hochwurzten Telemix

# World-record-breaking gondola opened

On 12 December 2008 a new chapter in ropeway history was written in Whistler (British Columbia, Canada) with the official opening of the Peak-2-Peak Gondola.

**The new gondola** built by the Austrian Doppelmayr company as a link between the two peaks of Whistler and Blackcomb makes the whole resort doubly attractive to visitors in summer and in winter. For skiers and boarders it means they can change mountains at the drop of hat so as to enjoy the very best snow conditions, and summer visitors can take advantage of the new ride to enjoy spectacular views of the Rocky Mountains from two peaks in a single day.

In his opening address Dave Brownlie, President and CEO of Whistler Blackcomb, spoke of a historic day, while Transportation Minister Kevin Falcon and Sports Minister Gary Lunn spoke of the new gondola as a masterpiece of engineering and a particular-



## OPERATING REPORT

Doug Forseth, Vice-President Operations, Whistler Blackcomb, reports they had more than 561,000 visits on the Peak-2-Peak Gondola between December 13 and March 11. He says that when he rides the Peak-2-Peak there is someone in every cabin taking pictures and many are on the phone calling someone to tell them where they are and what they are experiencing. Also, the most frequent question he hears is, "How did they get the ropes in place?" Surprisingly, he seldom hears any questions about evacuation. The most frequent comment Doug hears is how smooth the ride is.

Whistler Blackcomb's busiest weekend to date was Valentine's Day weekend on February 14 and 15, with more than 22,000 visits. That translates into approximately 50% of the total for that weekend. For the Valentine weekend, the P2P lifties gave the white glove service and dressed in tuxedos and top hats for guests to act as "chauffeurs" for the red limo. Speaking of romance, there has also been a number of marriage proposals on the Peak-2-Peak Gondola, as well as a wedding. And there are more weddings booked for the future!

ly eco-friendly mode of transportation between the two ski areas. They were also agreed that the Peak-2-Peak Gondola will further enhance Whistler's reputation and assure the resort a place among the world's top ski destinations.

With the completion of the historic Peak2Peak project, this world-famous Canadian ski area has moved up to join the leaders in the international winter sport league. The decision taken by Intrawest as the operating company to further develop the resort has paid off handsomely, and Whistler Blackcomb is now classed as one of North America's premium ski and snowboard destinations. ISR has already reported in detail on Doppelmayr's 3S system and the specifications of the Peak2Peak Gondola (ISR

4/2007), but it is worth listing once again the four ropeway engineering records held by the new ropeway:

- at 3024 m, the longest span on such a system worldwide,
- at 415 m, the highest ground clearance on such a system worldwide,
- the longest connected tourist ropeway system,
- at a cost of USD 52 million, the most expensive ropeway ever built in North America.

So we can start looking forward to the 2010 Winter Olympics and Paralympics at Whistler Mountain – now the home of a veritable „must" for any serious tourist!





Warren Sparks, Doppelmayr CTEC Ltd., (l) and his team have created a new tourism icon in Whistler Mountain.



Dave Brownlie, President and CEO of Whistler Blackcomb: „The P2P will dramatically enhance the guest experience on our mountains both winter and summer.”



Felix Rhyner, CWA, Stuart Rempel, Whistler Blackcomb, and Rico Wehrli, CWA, have every right to pose so proudly in front of one of the CWA cabins on the Peak-2-Peak Gondola just before the official opening (from the left).



Dough Forseth, Vice-President Operations, Whistler Blackcomb: „We did a field trip to Kitzbühel, Austria, to see a similar 3S Gondola in operation at first hand.”



Arthur DeJong, Whistler Blackcomb, Paul E. Mathews, Ecosign, Gerlinde Wober, ISR, and Stefan Huter, Doppelmayr, were in a celebratory mood at the official opening (from the left).



Stuart Rempel, Vice-President Marketing and Sales, Whistler Blackcomb: „Whistler Blackcomb’s new Peak2Peak Gondola will become a year-round attraction. It will clearly differentiate Whistler from any other resort in North America. The Gondola will become a real tourism icon.”

# An impressive success story

Leitner Group opens its new plant in North America.



Photos: Leitner Poma

The opening ceremony with Michael Seeber, president of Leitner Technologies (middle), Governor Bill Ritter (right) and Jean Gauthier, president of Poma (left)



A big handshake between Michael Seeber (left) and Governor Ritter (right)

**With CEO Michael Seeber** and his management team from South Tyrol in attendance and Colorado Governor Bill Ritter as a very special guest of honor, Leitner Technologies officially opened their new plant in Grand Junction, Colorado, on 26 January.

The new facility is located in the immediate vicinity of the former headquarters of Leitner-Poma of America, which was bursting at the seams. Costing 15 million dollars and taking just twelve months to build, a 9000 sq.m. plant with offices for Leitner-Poma of America and a service center and spare parts store for Prinoth Groomers is now to be admired in Grand Junction.

The two affiliates of the Leitner Group are already using the new 7.3 hectare site, which gives the hundred-strong labor force twice as much space as they had before. The Leitner Group uses the Grand Junction facility to handle production planning and engineering, assembly and customer service for its North American, Australian and New Zealand markets. Additional space is also required for the latest successful products from Leitner Technologies, namely wind turbines (Leitwind) and urban light railways (MiniMetro). „In Telfs, Austria we opened a new facility a few months



The new Leitner Technologies headquarters in the USA

ago that brings our product groups closer together,” says Michael Seeber, CEO at Leitner Technologies. „And here in the USA we have also combined our various activities in one location so as to take better advantage of potential synergies.”

Governor Bill Ritter expressed his thanks for the decision to invest in Colorado and continued, „At a time when the business community

is being confronted with one piece of bad news after another, it is motivating and highly refreshing to see a real success story!”

The music for the event was provided by a five-strong wind ensemble from the Leitner Works Band in Sterzing. They took the opportunity to pay a visit to their American colleagues, which went down very well with all concerned.



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# Double chairlift for a jump hill

The ropeway manufacturer LST Loipolder Seilbahn-Technik has built the new lift for the Wielka Krokiew jump hill in Zakopane.



Ski jumpers at the lower terminal



Photos: Loipolder

3-D visualization of the compact drive-tensioning station

**In the past,** transportation to the top of the jump hill in Poland's famous ski jumping center in Zakopane took the form of what the experts would call a pulsed-movement single-seater jigback. At all events, this somewhat unusual system was no longer equal to requirements, and the Polish Ministry of Sports invited tenders for a replacement in keeping with Zakopane's ambitions as a venue for major international events.

The contract was won by LST Loipolder Seilbahn-Technik, and the German company took advantage of the situation to position its latest system on the chairlift market, namely a fixed-grip chairlift with a compact drive and tensioning terminal that is suitable for use with either double or quad chairs and a line length of up to 1000 m. The compact design reduces on-site installation work to a minimum. The complete drive terminal is pre-assembled and tested in the production plant. With the tensioning system integrated in the drive terminal, the return station has a very small footprint, which is a big advantage in steep terrain and on jump hills.

The construction work for the new double chairlift in Zakopane was handled by M&K S. C. and managed by the former Polish national ski jumper Jan Kowal. The control system was supplied by Siemens Elin of Innsbruck. The new chairlift was handed over to the client on 27 August 2008 and proved itself in its baptism of fire at the 5th International Summer Grand Prix on 30 August.

JN



## TECHNICAL DATA

### DOUBLE CHAIRLIFT FOR THE WIELKA KROKIEW JUMPHILL

Line length	346 m
Vertical height	133 m
No. of towers	6
Gage	4.0 m
Haul rope diameter	32 mm
Drive-tensioning station	lower terminal
Return station	upper terminal
Drive	55 kW
No. of chairs	50
Interval	11.8 s
Line speed	1.2 m/s
Transit time	4.5 min
Capacity	608 P/h

The return station has a minimum footprint.



## ENGINEERING



Josef Nejez

# How to prevent haul rope deropement

That was the title of an article written for ISR by Professor Josef Nejez in 1990, in which he evaluated the measures taken to reduce the risk of such incidents.

What has happened in the meantime?

“Last season’s major ropeway accidents have once again shown that the risk of deropement is the weakness in monocable circulating systems.” That is how I put it in the first sentence of my article published in ISR 5/1990. Regrettably the same can still be said today, as last year’s deropement on the Wixi-Fallboden fixed-grip double chairlift clearly shows.

In an article published in ISR in 2004 under the title „Why do haul ropes derope?” (ISR 2/2004, p. 25), Professor Gabor Oplatka presented a list of all deropement incidents reported and their respective causes. By far the most frequent cause, in a total of more than thirty cases, was „wind pressing the haul rope off the sheave train”. In the section on „Prevention” Prof. Oplatka says: „In a significant number of incidents, the haul rope must have been restrained by the sheave flange (if only briefly) prior to actual deropement. This means that sensors could be installed – as they already have on some ropeways – to detect the position of the rope on the flange and shut down the system via a safety circuit.” I will come back to that point later.

## The 1990 analysis

To return to the article I wrote in 1990: I expressed the probability of becoming a victim of deropement as the product of the probability of occurrence and the probability of harm caused by such an event, and assigned the measures needed to prevent deropement to those two partial probabilities.

The measures to be taken to reduce the probability of occurrence of deropement were defined as follows:

- Strict observation of the limit values that play a role in deropement (e.g. minimum sheave load, fleet angle) in design and construction
- Rope sheave design (e.g. groove geometry, flange shape)

- Spring-mounted counter sheaves
- Operational measures (e.g. reduced line speed)

- Wind warning systems as the basis for suitable operational measures

The measures to be taken to reduce the probability of harm caused by deropement were defined as follows:

- Rope catching devices
- Deropement switches
- Operating instructions to shut down the system in response to any irregularities that might indicate deropement (unusual rope oscillations or counterweight movement)

The fact that there are still so many cases of deropement with subsequent loss of the haul rope from the tower shows that the above measures are not sufficient to reduce the residual risk of deropement to a really satisfactory level. So what are the alternatives?

In 1990 I listed the following approaches to the problem:

1. Continued research into the interrelationships between the parameters that have a bearing on haul rope deropement
2. New mechanical measures to reduce the probability of deropement
3. New electrical measures to reduce the probability of deropement by automatically reducing line speed or shutting down the system as soon as the haul rope runs out of the sheave groove and before it passes over the rim.

## Developments since 1990

In the three fields identified as having relevance for the problem, significant developments have since been made.

Ad 1: A good example of useful research is Dr. Gábor Piskóty’s paper on „Deropement protection for sheave trains“, which was first published in German in 1995 and then printed in English in ISR 3/1996 (pp. 37f). In his article the author reported on the “position-

al stability of wire rope as a traction member resistant to bending on passage over groups of rotating sheaves, with or without a visco-elastic lining, at an incorrect angle of approach”. Ad 2: Section 18 (Mechanical devices on the line) of the 2005-01-01 edition of ropeway standard EN 13223 („Safety requirements for cableway installations designed to carry persons. Drive systems and other mechanical equipment”) makes provisions for the design engineering of the haul rope sheaves and sheave trains. The fact that deropement cannot be fully excluded in spite of these measures is clear from the following subsections of Section 18:

- 18.1.5 Deropement protection for carrying-hauling ropes (to prevent deropement of the haul rope on the inside of the line);
- 18.1.7 Rope catchers for carrying-hauling ropes (to catch the haul rope in the case of deropement on the outside of the line);
- 18.1.8 Devices for the detection of deropement (tower deropement switches to shut down the installation in the case of deropement).

There have also been suggestions for improved rope catchers, none of which have been taken beyond the prototype stage, as in the case of the central rope catcher proposed by Prof. G. Oplatka and Dr. M. Volmer (ISR 5/2000, p. 14) and the hinged rope catcher developed by Prof. E. Engel (ISR 7/2004, p. 6 and ISR 8/2004, p. 11). For understandable reasons, which cannot be gone into here, neither proposal was taken any further by the industry.

Ad 3: The idea of using electronic equipment to monitor the position of the haul rope in the groove of the sheave was not new in 1990, but at that time there were no suitable components on the market for the extremely challenging environment in which ropeways operate.

A serious attempt to develop such a rope position monitoring device was made at the Department of Railway Engineering of Vienna

Technical University in 1989 (ISR 5/1990, p. 12). Dr. Christian Mann, Assistant Professor in Prof. Engel's department, first defined the requirements to be met by an electronic rope position monitoring device. Then, in co-operation with an electrical engineering company, he developed a monitoring device on the basis of an electronic proximity switch, which passed the necessary CE-LENEC environmental tests. The devices underwent trials on a chairlift, where they were installed completely separate from the ropeway control system. Unfortunately, the ropeway authorities were not well disposed to the solution due to their basic skepticism regarding the reliability and hence the use of electronic devices on the line, an attitude that has also caused problems for subsequent developers of electronic rope position monitoring devices (although ropeway installations have been operating with such devices in North America for many years already). In the meantime the big manufacturers are offering rope position monitoring devices that are ready for series production and are suitable for use on new installations as well as for retrofitting.

## What does rope position monitoring do?

As can be seen from the above classification of measures required to prevent deropement, fitting the sheave trains with rope catchers and tower deropement switches does not reproduce the function of a rope position monitoring device. In the case of deropement on a tower fitted with a conventional system, a deropement signal is transmitted by the tower switch and the system shuts down automatically. If all goes well, the falling haul rope will be arrested by the rope catchers. Often enough that is not the case, however, firstly because there are limits to the design of the rope catchers and secondly because the lateral forces that led to deropement can combine with oscillations triggered in the rope during the deropement process and cause the haul rope to jump out of the rope catcher and continue its fall.

In terms of safety engineering, therefore, it is preferable to ensure that deropement does not occur in the first place. As experience shows (and the above article by Prof. Oplatka confirms), the measures taken hitherto to reduce the probability of deropement are not sufficient. Rope position monitoring, on the other hand, definitely reduces the probability of occurrence.

Today's standard rope position monitoring devices, namely the RPD (Rope Position Detector) used by Doppelmayr (Fig. 1) and the CPS (Cable Position Supervision) developed by Leitner (Fig. 2), both work on the same principle: On the leading and trailing evenner frames of the sheave train, a contactless electronic proximity switch is located below the path of the rope between the two sheaves. The proximity switch captures and processes the distance of the moving haul rope from its surface sensor and responds in two stages (see Fig. 3):

- Stage 1: If the haul rope runs out of the central sheave groove and contacts the flange, line speed is reduced.
- Stage 2: If the haul rope passes beyond the rim of the sheave, the installation is shut down.

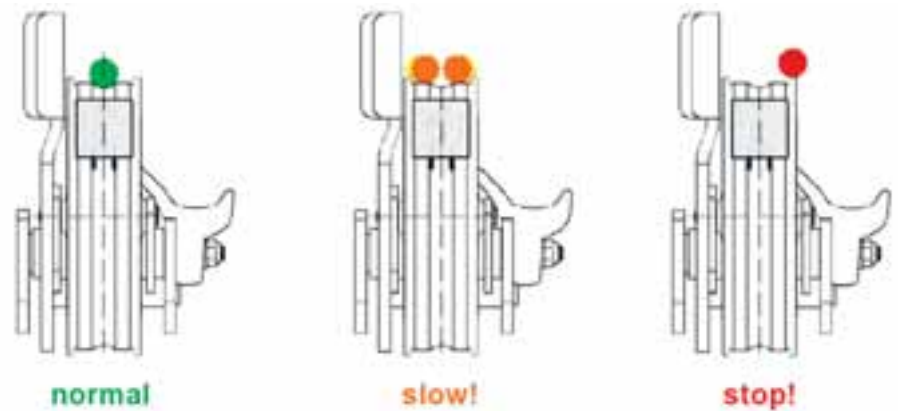


Fig. 3: The monitored positions of the haul rope on the sheaves (Source: Doppelmayr, RPD system)

The systems are also designed to recognize and indicate other fault conditions (rope too close to the proximity switch) and internal system errors.

Whereas Stage 2 basically involves the same function as a conventional tower deropement switch, i.e. it shuts down the installation in response to deropement, the functionality provided in Stage 1 is a significant advantage. First of all, automatic line speed reduction also reduces the danger that the haul rope will pass over the rim of the sheave. And second, the system makes operating personnel aware of the beginning and location (tower) of a potentially critical situation. From deropement tests it can be assumed that, where the provisions of the standards are observed, the deropement safety factor for the haul rope relative to the sheave flange will be about three times higher than for the rope running out of the groove in the sheave liner. In combination with automatic line speed reduc-

tion, the Stage 1 response of the rope position monitoring device significantly lowers the probability of deropement.

A prototype rope position monitoring device based on a completely different principle was presented by the Hima company at the 2007 Operations Manager Seminar in Oberurgl/Tyrol – an interesting proposal (see box)!

## Are rope position monitoring devices state of the art?

In 2007, an amended version of the 2003 Austrian Ropeways Act came into force (BG-Bl. I 83/2007), which among other things includes a definition of the state of the art and thus provides a legal basis for an assessment of the state of the art. The definition (in § 12a SeilbG 2003) translates as follows:

The term “state of the art” as employed in this federal law means the state of development of advanced technical processes, devices, and methods of construction and operation which are based on relevant scientific findings and whose serviceability is tried and tested. In determining the state of the art, account must be taken in particular of comparable processes, devices, and methods of construction and operation, and a reasonable balance between the inputs needed for the technical measures required for the operation involved and the resulting benefits in terms of the interests to be protected.

It can be seen that, in addition to the purely technical aspect, the definition also provides for a comparison between the costs of the necessary technical measures and the benefits in terms of their intended purpose.

The fact that rope position monitoring is not included in ropeway standard EN 13223 („Safety requirements for cableway installa-





Photo: Doppelmayr  
Fig. 1: Sensor for Doppelmayr's RPD

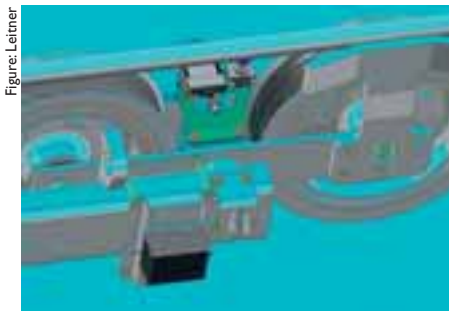


Figure: Leitner  
Fig. 2: Sensor for Leitner's CPS  
Source: Leitner

tions designed to carry persons. Drive systems and other mechanical equipment”), by the way, does not mean that rope position monitoring is not state of the art. What is decisive – for Austria at least – is the definition in the Ropeways Act. If we apply this legal definition of the state of the art to the rope position monitoring devices available today, the following assessment can be made:

- The state of development of rope position monitoring devices is based on scientific findings, and they are a tried and tested solution in terms of serviceability (more about that later).
- For a comparable device, we have to take the conventional solution of fitting the sheave trains with tower deropement switches (rope catchers are still needed on towers with rope position monitoring to reduce the element of residual risk).
- The benefit to the interests to be protected is a significant reduction of the risk that users of the ropeway could become the victims of deropement.
- The resources required to install a rope position monitoring device would seem to be reasonable in comparison with the benefits and also with the overall costs of a ropeway installation.

Personally, I am very much convinced of the benefits of rope position monitoring in terms of safety engineering. If I were involved in my capacity as an expert witness in a court case relating to a ropeway accident resulting from

deropement of the haul rope and were to be asked by the judge whether the accident could have been avoided, I would have to say and I would say – taking account of the results of the investigations, of course – that there was a high probability that the accident would not have occurred if a rope position monitoring system had been installed. From numerous talks with my peers, I can also say that my assessment of rope position monitoring meets with general agreement.

That fact that ropeway operators are also becoming increasingly convinced of the need for such safety systems is reflected in the reference list of installations fitted with RPDs:

- 1997: 1 installation (Söllereckbahn, Oberstdorf, D)
- 2000: 4 installations
- 2001: 8 installations

- 2002: 8 installations
- 2003: 10 installations
- 2004: 12 installations (including 2 retrofits)
- 2005: 21 installations (including 6 retrofits)
- 2006: 18 installations
- 2007: 24 installations (including 1 retrofit)
- 2008: 20 installations

At the end of 2008, a total of 126 gondolas and chairlifts were operating with rope position monitoring on the towers.

It is for the ropeway authorities to take a legally binding decision on the question whether ropeway position monitoring for monocable circulating ropeway systems must be classified as state of the art.

*Josef Nejez*

## INFORMATION

### THE HIMA COMPANY'S ROPE POSITION MONITORING DEVICE

The rope position monitoring device developed by the Hima company is based on the following principle. Regardless of haul rope speed and sheave radius, the sheaves of a sheave train always rotate at the same relative speed as long as the haul rope is running in the liner grooves. But if an increase in fleet angle causes the haul rope to run out of the groove of the leading sheave, effective rolling radius for the position of the haul rope also increases, and the speed of the sheave is reduced relative to a sheave in the middle of the train, for example. The trailing sheave is also included in the comparison of sheave speed (Fig. 1).

Accurate measurement of the speeds of the leading and trailing sheaves plus a sheave in the middle of the train is performed to detect any such change in relative speed (Fig. 2). The data is processed electronically and used for the automatic warning or shut-down routine. Sheave speed is measured by pulse counting using timing discs mounted on the three sheaves (Fig. 3).



Fig. 1: Effective rolling radius of leading sheave RE increases with increasing lateral misalignment of the haul rope, and sheave speed relative to reference sheave RRef changes. Trailing sheave RA is also included in the comparison of sheave speed.



Fig. 2: Speed measuring on the leading sheave of the sheave train



Fig. 3: Timing disc for measuring sheave speed  
Photos: Hima

According to the Hima company, the system offers several advantages over rope position monitoring based on a contactless proximity switch: It is independent of the type and size of the haul rope; it offers good resistance to lightning strikes and electrical discharges, and it can easily be incorporated in compression sheave trains (unlike rope position monitoring with proximity switches, where the sensor cannot be located above the haul rope because of the geometry of the grips, and an additional two-wheeler frame with counter sheaves therefore has to be fitted to permit the sensor to be located below the haul rope).



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## Birthday for a cult brand

A lot has happened in forty years, but a PistenBully will always be a PistenBully – and will keep on runnin'!

At this year's InterAlpin, PistenBully is celebrating its birthday with lots of interesting things to see. In addition to several new items, visitors will also be able to get all the information they want on the pre-used groomer offering.

More than 15,000 visitors from over forty countries are again expected at the big event in Innsbruck from 22 - 24 April. Kässbohrer Geländefahrzeug AG will naturally be there, too, and will have the latest PistenBully on show in Hall 4.

A 490 hp engine brings enormous thrust to the mountain – and makes the PistenBully 600 Polar the most powerful machine on the market, with a wide blade that enables it to move a lot of snow fast. The PistenBully 600 Polar will be presented at InterAlpin in the winch version with the optional additional 80 liter tank.

The baby in the PistenBully family, the Paana, is a cross-country trail specialist. The machine is available in a choice of widths, which also makes it the ideal solution for narrow trails. It also comes with a choice of low-profile tracks to avoid damage to the ground where the snow cover is thin.

### The revamped PistenBully 100

This all-rounder has been completely revamped and will be making its debut in the new look at InterAlpin with the new VarioTrackDesigner Competition track-setter.

And at booth no. 420 there will also be a PistenBully 400 W and a Formatic 350 as the cost-effective alternative to a real PistenBully. And so on and so on and so on.

How it all began.  
The first PistenBully PB 120 B  
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Photo: Prinoth



The Beast guarantees perfect conditions. For photos of the show go to pages 81 ff.

## Beast Night in Innsbruck

On 27 March Prinoth presented the Beast, the world's biggest and most powerful snow groomer, in the framework of a live performance on the Seegrube overlooking Innsbruck.

**Six hundred visitors** from all over the world came to enjoy the première of the Beast, which is Prinoth's new benchmark in the field of snow groomers. The Seegrube provided a spectacular setting for the performance of a science fiction thriller based on the „Beauty and the Beast” fairytale. With Hubert Lepka as the director, Lawine Torrèn

had the undivided attention of the ski area and ropeway industry representatives for a full 30 minutes. The protagonist was of course the Beast. Together with a helicopter, the cabin of the Nordkettenbahn jigback and spectacular „son et lumière” effects, a modern version of the fairytale was staged against a high-alpine backcloth.

Michael Seeber, president of the Leitner group, explains: „The symbiosis of art and engineering once more underscores our corporate philosophy.”

### New dimensions in snow grooming

„With its Beast, Prinoth has opened up a wholly new dimension in snow grooming. Thanks to its impressive thrust and hill-climbing capabilities and optimum groom-

ing capacity, the Beast offers a new standard of efficiency,” says Werner Amort, president at Prinoth.

The main argument in favor of the Beast is the available acreage per hour, which is the key factor in the total cost of grooming. The Prinoth Beast is targeted at a new market segment, with a machine that offers customers new potential in the field of grooming.

### Drivers Club and Demonstration Tour

On the following day, 400 members of the Prinoth Drivers Club took the opportunity to discover the attractions of the Beast for themselves. The Beast is now going on a Demonstration Tour of the Alps and Scandinavia and will also be the main attraction at the Prinoth booth at InterAlpin.

#### THE STEP INTO A NEW DIMENSION

- Sensational working width
- Unsurpassed grooming speed
- Optimal power transmission
- Extraordinary pushing power
- Never before seen climbing ability
- Innovative cabin comfort and user-friendliness
- Significant grooming cost savings



# Synthetic ski run numbers continue to rise

After a record-breaking 2008, even better results are expected in 2009 for new artificial downhill skiing and snowboard runs.

Visualization of the project in the United Arab Emirates

**After a very successful 2008**, with the installation of many Neveplast artificial ski-pistes in Asia and Europe, plus fifty odd snowtubing runs all around the world, new and exciting projects are planned for 2009. We would like to draw our readers' attention to two new Neveplast contracts in particular: in Hungary and the United Arab Emirates.

Neveplast has won an international tender for a 350m downhill ski run in Hungary. The customer's specifications are demanding: excellent smoothness and lateral grip. This new piste is served by an existing ski-lift, and so the Italian company has been asked to cover the lift track too, to allow for all-year-round use. Neveplast won the contract thanks to its unique features. These include excellent lateral grip, the same skiing feeling as on compact artificial snow without the lateral slip that is typical of conventional artificial snow runs. In addition, Neveplast uses a special plastic formula that permits the run to be used when temperatures plummet or rise without the need to irrigate the material. A



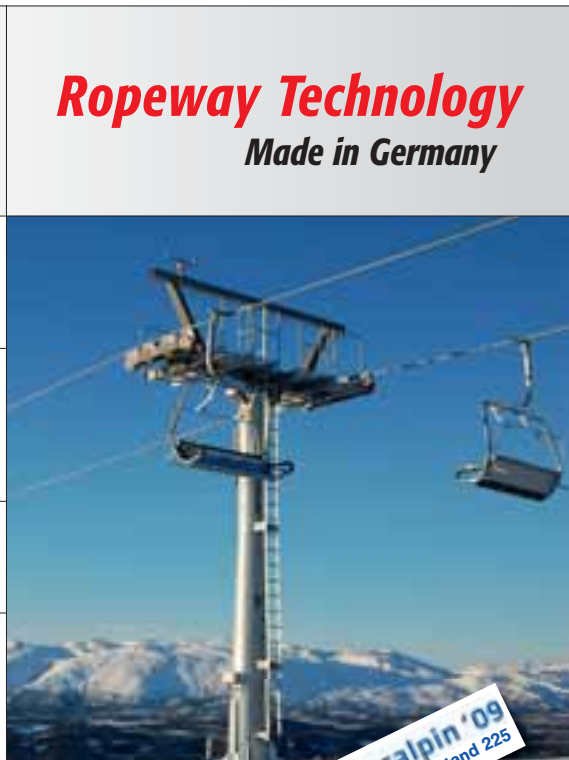
Photos: Neveplast

gradient of just 10% permits snowploughing. At gradients between 18 and 35%, pistes can be built for higher ability levels. Neveplast has a fine reputation throughout Europe and the world for its high safety standards. In fact, thanks to the evenness of the surface, there is no risk of your skis getting trapped. Its excellent slip means

you will not hurt yourself or suffer burns if you fall. And there is no need for any special gear. You simply use ordinary skis and snowboards, just as on natural snow. The authorities at Sátoraljaújhely have also commissioned Neveplast to build a conveyor lift to serve two tubing slopes, which are also being installed.

Another installation is going to be built in Al Ain (United Arab Emirates). The client, Nael & Bin Harmal Investment Co. llc, will draw on Neveplast's know-how to build a slope on a metal structure with two downhill ski pistes - one for use as a nursery slope and the other for more experienced skiers. Once again Neveplast was chosen for the above reasons. Three Tubby snowtubing runs will also be installed next to the ski slopes. This is a special project, as the client has decided to use Neveplast runs with their extremely low-cost installation and management as opposed to a more conventional programmed snow solution. Three conveyor lifts will be used to take skiers to the top (supplied by Sunkid).

The great success of Tubby snowtubing runs (winter and summer) in past years seems to be repeating itself in 2009. March has already seen the first deliveries and installation work in America and Europe.



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# The dawn of a new era

A Snowmaker is now in place and ready to snow in the Pitz Valley.

**Following successful tests** with the first Snowmaker in Israel in July 2008, the Austrian Pitztaler Gletscherbahnen company and Zermatt Bergbahnen in Switzerland have now ushered in a new and exciting age of snowmaking in Europe: The IDE Snowmaker permits snow to be produced in large quantities without chemicals at any temperature. The machines went by sea from Israel to Slovenia and from there were transported in a truck convoy to the lower terminals of the two cablecars. The crews had a hard job getting the heavy components up the mountains. When the Zermatt machine had been commissioned, the IDE engineers went to the Pitz Valley to repeat the procedure there. In both ski areas there is currently so much natural snow on the ground that it was decided to wait until the need arose later in the spring to switch the machines on again. At all events, the Pitztaler Gletscherbahnen and Zermatt Bergbahnen ropeway companies are the first to recognize the advantages of the IDE Snowmaker for their operations.

## The Zermatt project

Matterhorn Ski Paradise is the biggest and only ski area in the Alps that remains open all summer. There is only one problem: „In late autumn, from – say – the beginning of October, the glacier trail finishes some 500 m short of the cablecar station, and skiers have to walk the rest,” says Christen Baumann, CEO at Zermatt Bergbahnen AG. „That is obviously not ideal.” And Chief Tourist Officer Daniel Luggen adds, „In the last few years we have seen a decline in demand for the popular ski testing sessions we hold between October and December, so we had to do something to ensure that our visitors can be sure of enjoying their skiing to the full.”

## The Pitz Valley project

„With the help of this new snowmaking technology, our season opener in autumn is now as good as guaranteed,” says Dr. Hans Ru-



Photos: IDE

Inside the machine room of the IDE snowmaking plant in Zermatt



The IDE snowmaking plant in the Pitz Valley guarantees a punctual start to the season.

batscher, Managing Director of Pitztaler Gletscherbahnen. „The company decided to invest 1.5 million euros in an upgrade on the existing snowmaking system to make sure that in future we can deliver snow to those trail sections that get a raw deal from Mother Nature,” he adds. This means that the ski area can now open very early in the season and offer top-quality slalom trails to the squads that come to the glaciers from all over Europe for their pre-season training, while

recreational skiers will be able to make full use of all the lifts right from the start of the season.

IDE Technologies was founded in 1965 and has been highly successful in the development and construction of water purification and desalination plants and ice/snow machines. The company is a global operator, with more than 385 plants installed in over forty countries to date.



# Intelligent safety solutions

The two new Kandahar racing trails on the Kreuzeck in Garmisch-Partenkirchen are only for the brave.

**But today, even the brave** have high expectations when it comes to safety. In Garmisch-Partenkirchen, the Meingast company of Salzburg has delivered the equipment to meet those expectations. That means the German resort is now well equipped for the 2011 World Ski Championships, all the more so as they held their 2009 World Cup races and the FIS Junior World Ski Championships on the men's and the ladies' downhill trails that will be in the limelight in 2011.

According to the FIS regulations, the speed disciplines for men and women must be held on separate trails, and that is why the legendary Kandahar trail now exists in two versions. The men's downhill trail, which is 3330 m long, follows a completely new route, while the 2936 m long ladies' trail includes some of the familiar sections of the old men's downhill in addition to some new features. Neither of the trails is to

be underestimated, and such names as Panorama Jump, Ice Slope, Hell and Free Fall indicate that adrenalin levels are likely to be high!

For the world's skiing elite, safety nevertheless remains a top priority. That is why the local authorities in Garmisch-Partenkirchen have placed their trust in the tried and tested solutions available from the Meingast company, who over the years have built up a fine track record with their safety systems for the most prestigious events on the international skiing calendar. Meingast planned, supplied and installed all the A-type safety nets for the two downhill trails, which made it the biggest safety net contract in the company's history. The consulting engineer for the project was Christian Weiler of Klenkhart & Partner Consulting, who based his work on the specifications issued by the FIS, and the work was supervised by Stefan Steiner as Meingast's senior safety engineer.



The approach to Hell!

Photo: Meingast

To guarantee the safety of the competitors in the case of a fall at high speed, Meingast installed no fewer than 223 tubular steel poles varying in length between 4 and 20 meters to support the 4-meter-high A nets over a trail length of 5000 meters. 1000 meters of trail are protected by a double row of A nets, so that total length of the nets installed is 6000 meters. Installation of the nets also involved 30,000 meters of steel rope for suspending, guying and anchoring the nets, plus 5000 meters of slip sheets. All the posts, poles, nets and other materials were air-lifted up the mountain by helicopter.

Interalp 09: Halle 4 Stand 410



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# Streamline III cabins for the Engelberg-Ristis jigback

Gangloff supplied their new Streamline III cabins to the jigback from Engelberg to Ristis, which opened in December 2008.

The most striking feature of the two new cabins from Gangloff is their exclusive design, with all-round glazing reaching right down to the floor for breathtaking views of the exciting mountain scenery in Engelberg. The cabins also harmonize with the new upper and lower terminals to create an extremely attractive ensemble in terms of the formal language of design.

## New 65-passenger cabins

With the new Streamline III cabins, the Engelberg-Ristis jigback now has a capacity of 65 persons for both the uphill and the downhill ride – a significant increase over the original 40-passenger cabins. The new cabins are spacious and as a special feature have a ceiling that displays the starry skies. That creates a super atmosphere for evening rides, while for daytime services the configuration of the seating ensures that all passengers can enjoy the panoramic views of the mountains. The line between the lower terminal at Klostermatte (1.016 m) and the upper terminal

has 589 meters of vertical, and rated line speed is now 10 m/s. Apart from the exciting design, the new jigback features some very practical solutions, too. For example, the ropeway can be operated from one terminal without cabin attendants; all the monitoring systems are electronically controlled, and there is CCTV in both terminals.

Another unusual feature is to be found on the one tower on the line in the form of a hydraulically operated hinged platform at 35 meters above ground level. Access to the platform is via a tower elevator, also with full-length glazing. The Engelberg project gave Marc Pfister and his team another opportunity to demonstrate their flexible and professional style of working. Gangloff Cabins have a fine track record of exciting ropeway solutions, and a further addition is shortly to be made with the opening of a funicular for



Photo: Doppelmayr

Hong Kong's Ocean Park with the 400-passenger trainsets supplied by Gangloff (see report in this issue of ISR). The double-decker elevator for the Eiffel Tower in Paris is also a highly prestigious contract for the Swiss company, which last year celebrated its eightieth anniversary.

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