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MAG. CHRISTIAN AMTMANN

Executive Editor

EDITORIAL

DEAR READERS,

It gives me great pleasure to again be able to present you with our ISR Five Countries Special. This special edition of ISR is targeted at Bulgaria, Slovakia, the Czech Republic, Poland and Romania, countries where there is still great potential in the field of mountain tourism. The new OITAF President Jörg Schröttner has a similar opinion on the subject and in this issue he comments on his plans for the years ahead.

OITAF – the International Organization for Transportation by Rope – and its 30 member countries constitute a platform that makes a major contribution to a common response to technical, economic and legal challenges confronting the industry well beyond the borders of Europe.

For more than 60 years, ISR has stood for knowledge transfer with scientifically grounded information, and we are therefore highly committed to supporting OITAF in pursuit of its laudable goals. We attach particular importance to providing a deeper insight into the activities of OITAF and to encouraging the ropeway operators and their associations as an important stakeholder group alongside the ropeway manufacturers and the supervisory authorities to play an even more active role. For that reason, ISR resumed its role as the official mouthpiece of OITAF in February 2018 with the objective of making a contribution to the worldwide dialogue, because only by working together can the best results be achieved for the successful further development of the international ropeway industry.

Christian Amtmann
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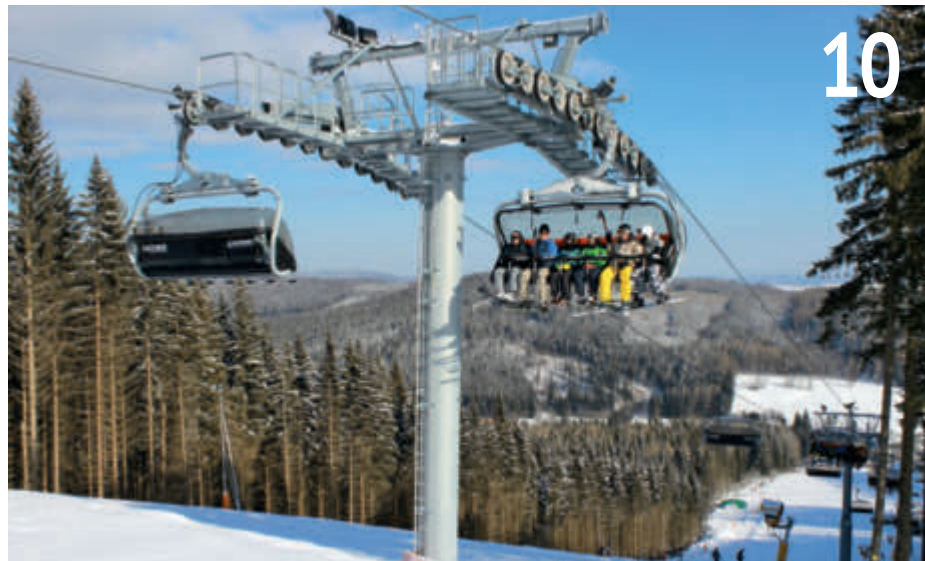
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 **DEMACLENKO**

How a mountain, a ropeway and a hotel became symbols of a city

ISR REPORT The only ropeway in the Czech Republic to be run by Czech Railways (ČD), the *Ještěd* reversible, has been serving Liberec's local mountain for 85 years now.

Line of the *Ještěd* reversible with the dominant summit structure of the hotel and transmission mast



BEGINNINGS OF TOURISM ON JEŠTĚD

The 1,012 m high rocky peak of *Ještěd* (German: Jeschken) has always been an attraction for the locals and visitors to the city of Liberec (German: Reichenberg), which is accordingly known as the “City beneath *Ještěd*”. An observation tower was built on the mountain back in 1867

followed by a hotel in 1906. In 1924 the *Deutscher Gebirgsverein für das Jeschken und Isergebirge* (German Mountaineering Club for the Jeschken and Iser Mountains), which owned the hotel, proposed the construction of a ropeway to the summit. (Liberec or Reichenberg became part of Czechoslovakia in 1918 but until 1945 the majority of its inhabitants were Sudeten Germans.) The *Czech Tourist Club* also supported the idea, and the *Czechoslovak Railway Ministry* in Prague offered to provide the lion's share of the finance so as to acquire a majority holding in the ropeway, which thus looked set to become Czechoslovakia's first aerial tramway for passenger transportation. But the project was delayed by various problems including objections raised by the landowners Prince Rohan and Count Franz Clam-Gallas with the result that the *Janské Lázně – Černá hora* ropeway became the country's first aerial tramway in 1928 (since re-

placed by an 8-seater gondola lift, see ISR 3/2007, pp. 49-50).

CONSTRUCTION AND THE FIRST YEARS OF OPERATION

After the building permit had been issued, construction of this second Czechoslovak aerial tramway began on 15 June 1932. The work was handled to such a tight schedule that the ropeway was ready for commissioning just twelve months later. It was very much a product of Czechoslovakia's highly developed pre-war industry: The ropeway engineering was performed by the František Wiesner company from Chrudim; the ropes were supplied by *Kablo Kladno*, the electrical equipment by *Škoda Plzeň* and the cabins by *Bohemia Česká Lípa*, while the building works were entrusted to the *Karel Marvan* company from *Hradec Králové*. The ropeway was officially opened on 27 June 1933.

The ropeway was designed as a twin-track reversible system with one track rope and two haul ropes. The unusual rope configuration was something of a Wiesner speciality: In order to avoid the need for track rope brakes in accordance with the standards of the time, the system was built with twin haul ropes, each with a safety factor calculated for safe return of the cabins to the terminals in the case of failure of one of the ropes. During the first years of operation until the occupation of Czechoslo-



The old *Ještěd* reversible with Liberec in the background



View of the complete line of the old reversible from the bottom station



Top station of the old ropeway (right) and old hotel (left)



The same location with the new ropeway plus hotel and transmission mast

vakia by Nazi Germany, the ropeway, which was managed by the Czechoslovak State Railways (ČSD), was in regular service. The fact that the tram terminus in Horní Hanychov was so close to the bottom station of the ropeway contributed to its popularity. During the occupation of Czechoslovakia, the reversible was administered by the Deutsche Reichsbahnen and from 1943-1945 by Liberec Electric Trams. The German public also wanted to make use of the ropeway, which therefore continued to operate. After the end of the war in 1945, the reversible was returned to the ČSD. Public interest in this attractive amenity remained keen, above all because the fares were adjusted to take account of people's limited financial means after the war.

In the 1960s, following positive feedback from ropeways in other countries such as the Kampenwandbahn in Aschau, the carriage

wheels were fitted with polyamide linings to protect the track ropes (except for one wheel so as to ensure grounding of the cabin). Thanks to careful maintenance and the regular replacement of wearing parts, the ropeway was in operation virtually unchanged until it was rebuilt in 1971.

THE MOUNTAIN HOTEL OLD AND NEW

In addition to the beautiful scenery, the observation tower and the mountain hotel opened in 1906 also attracted visitors to Ještěd. In January 1963, careless handling of a blowtorch caused a devastating fire in the hotel. No lives were lost, but the hotel was completely destroyed. For the new hotel, which was also to house a TV mast, an architectural competition was held, which was won by the architect Karel Hubáček and his team. The building, which is in the shape of a hyperboloid, contains the restaurant

and hotel rooms on the lower five floors and the telecommunications equipment on the top floors. Visually, the structure suggests an extension of the line of the mountain right up to the top of the 99.9 m high transmission mast.

In 1969, before the construction work was completed, Karel Hubáček became the only Czech in history to receive the highest accolade from the *International Union of Architects*, the *Prix Auguste Perret*, for his combined hotel and transmission mast on Ještěd. Under the conditions of Real Socialism, construction of this unique building took from 1966 to 1973, although the transmitter went into operation in 1971. In 2000, the hotel plus transmitter on Ještěd was officially declared *the most important Czech building of the 20th century*.

THE NEW ROPEWAY

In view of the obsolete technology and low transport capacity, the



In 1973 Transporta Chrudim showed the new cabin for the Ještěd ropeway at the International Engineering Fair in Brno. In the photo: the author at the age of 13!



Following reopening of the reversible, the new cabins were originally painted red and cream.



The cabins at the mid-point of the line, with the unusual steel-plate tower on the left



The bottom station is just a few hundred meters from the tram terminus in Horní Hanychov.



The 205 kW drive in the top station

decision was taken to completely refurbish the old reversible after 38 years of operation, with 7.9 million passengers transported, and public services were terminated on November 1, 1971. The contract for the new ropeway system was awarded to Transporta Chrudim as the successor to the original manufacturer František Wiesner. The new ropeway was again designed as a twin-track reversible, this time with one track rope and one haul rope and the use of track rope brakes. The track ropes are deflected into the tensioning shaft in the bottom station by means of roller chains and tensioned with counterweights. The structural fab-

ric of the two original stations was retained with a number of modifications. The two towers on the old line were replaced by a single steel-plate tower located near the midpoint of the line. Line speed was increased to 10 m/s (7.0 m/s on the tower) and cabin capacity to 35 passengers for an increase in transport capacity to 525 pphd. The only foreign supplier was the Austrian Schrack company, which supplied its communication technology for the control system (which is still in perfect working order today). The reversible has three identical cabins, which permits a thorough cabin inspection to be performed without interrupting operations with the other two cabins.

The long duration of the refurbishment from 1971 to 1975 was normal in those days, especially as it was a prototype system for the ropeway manufacturer.

Today, 85 years after the first visitors rode up to the summit of Ještěd and 43 years after the refurbishment was completed, the reversible is in very good condition thanks to the careful maintenance carried out by the operator České dráhy (ČD) as the successor to the ČSD. ČD maintains the ropeway like a piece of the family silver. For today's tourists, a visit to Liberec without a ride up Ještěd, which is visible from all sides, is almost unthinkable in fine weather.

The reversible is right next to the Ještěd ski area (see ISR 5/2007, pp.44-45), but there is no ski trail from the summit and the reversible is not integrated into the ski area.

Roman Gric

PHOTOS: RADIM POLČEK (3)

TECHNICAL DATA

Horní Hanychov - Ještěd, Liberec

	Old reversible with one track rope and two haul ropes	New reversible with one track rope and one haul rope
Altitude bottom station	595 m	595 m
Altitude top station	995 m	995 m
Line length	1,183 m	1,188 m
Vertical difference	400 m	400 m
Number of towers	2	1
Track rope diameter	45 mm	50 mm
Haul rope diameter	2 x 22.0 mm	22.4 mm
Counter rope diameter	2 x 17.0 mm	22.4 mm
Drive	top station	top station
Rated output	100 kW	205 kW
Tensioning	bottom station, counterweight	bottom station, counterweight
Cabin capacity	32 + 1 pax	34 + 1 pax
Number of cabins	2	2
Transit time	5.0 min	4.0 min
Maximum line speed	5.0 m/s	10.0 m/s
Rated transport capacity	330 pph	525 pph
Operational	1933 - 1971	since 1975

Contractors

Ropeway engineering	Fr.Wiesner Chrudim	Transporta Chrudim
Ropes	Kablo Kladno	Teufelberger
Cabins	Bohemia Česká Lípa	Navika Praha
Electrical equipment	Škoda Plzeň	Elektromontážní závody Praha

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Kopřivná – upgrade for a family ski area

ISR REPORT In 2017 a new detachable 6-seater chairlift was built by Leitner ropeways in Kopřivná, a popular family ski area in the Czech Republic, as a replacement for a fixed-grip quad chairlift that was only five years old and was also supplied by Leitner ropeways.



Small is beautiful – view of the Kopřivná family ski area from the top station



Bottom station with the two compression towers

YOUNG SKI AREA IN THE JESENÍKY MOUNTAINS

Kopřivná is a relatively new ski area located near the village of Malá Morávka in the Jeseníky Mountains. The first up-hill installation, a short surface lift

engineered by a Czechoslovak company, was built in the 1980s. It was replaced in 2006 by a 450 m T-bar lift built by Snowtech, which is still in operation today. In 2012 the ski area was significantly enlarged. In the record time of just three months, Leitner ropeways built a new 907 m fixed-grip quad chairlift (Unifix) parallel to the surface lift with a loading carpet and a capacity of 2,000 pph. On the mountain, the blue trail was extended to a total length of 1,350 m and the existing Kopřivná Inn was converted into a three-star mountain hotel.

BIG SUCCESS FOR A FAMILY SKI AREA

These investments triggered a pronounced increase in total visitors to the ski area. At the same time,

however, it was found that the fixed-grip chairlift was not running to full capacity because of the number of novice skiers having problems with boarding and causing brief interruptions to operations. For that reason, after only five years of operation, the ski area management decided to replace the quad chairlift with a modern detachable 6-seater chairlift from Leitner ropeways. The new ropeway has everything one would expect of a modern chairlift including canopies for the chairs and heated seats, deropement switches (CPS cable position supervision) and a loading carpet for maximum loading efficiency. With regard to the comfort and safety of the ride, the seats are generously padded and fitted with automatic retaining bars with central footrests to prevent small children slipping off the seats.

TRIED AND TESTED DIRECT DRIVE

The new chairlift has a line length of just under a kilometer with a total of nine towers including two compression towers and one combination tower. Only the concrete footings of towers 3 – 8 were retained from the quad chairlift. All the new towers were erected with the help of a mobile crane. That was a saving in terms of construction costs compared to the use of a helicopter when the fixed-grip chairlift was built in 2012.

In addition to the 6-seater chairlifts *Hofmanky Express* (*Janské Lázně*) and *Pláň* (*Špindlerův Mlýn*) in *Krkonoše* (*Giant Mountains*) – see ISR 5 Country/2016 pp. 8-11 –

PHOTOS: MĀDĀM POLČER (2)



90° loading in the bottom station with the height-adjustable loading carpet that matches the children's height to the approaching chair



Top station with the compact enclosure is located at 881 m a.s.l.; on the left one of the new TF10 snow guns from Technoalpin



Lower section of the line of the 6-seater chairlift, with the new heated bistro with seating for 140 persons in the center



Top station of the fixed-grip quad chairlift built in 2012, which will reopen in the Mosty u Jablunkova Ski Area in the winter of 2018/19

the new installation for the Kopřivná Ski Area is the third ropeway in the Czech Republic to be fitted with Leitner's gearless DirectDrive. In addition to the drive, the bottom station – with its high enclosure for convenient maintenance – also houses the hydraulic tensioning system and charging system for the heated seats. There is room for 19 chairs to be parked on the turnaround in the bottom station, while the other 26 chairs are parked on an

open rail adjoining the station. The top station is a fixed return station with a compact enclosure. The new chairlift is designed for a final capacity of 2,400 pph at 5.0 m/s.

HEIGHT-ADJUSTABLE LOADING CARPET

To make boarding easier for children, the loading carpet incorporates a height-adjustable platform to ensure that small children

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The bottom station houses the direct drive with a continuous output of 347 kW.

have no problems with the height of the approaching seat. To save space, the bottom station has 90° loading. Like its predecessor installation, the new chairlift is in operation all year round. In summer it is used by tourists and also carries mountain bikers to the popular local bike park.

NEW TRAIL AND MORE SNOW GUNS

Together with the new chairlift, a second ski trail was constructed parallel to the line of the lift. It is 920 m long and classified as a red trail in the upper section and blue at the bottom. That means visitors can now choose between two downhill trails, which are especially popular with families with small children. Evening skiing plays an important role in the ski area’s operations and both trails are accordingly illuminated. Construction of the new trail also called for extensions to the snowmaking system, and eight TF10s were acquired from Technoalpin in addition to the twelve already in operation. Fourteen of the snow guns are mounted on 4 m towers. The snowmaking system is fully automatic and operates with a peak flow of 100 liters of water per second. A new 2 MW transformer was also added to consolidate the power supply. The trails are groomed twice a day using a PistenBully PB600 and a PB400 ParkPro. The trails have a total surface area of 11 ha.

In addition to a spacious car park offering free parking for 400 automobiles, the bottom station area is also the location of a new heated bistro with seating for 140 persons, an après-ski bar, a ski rental facility and a ski school complete with a conveyor lift. At the upper station, the Panorama Bar is popular with visitors. The facilities in the ski area also include Snowtubing and Big Air Bag installations.

INITIAL RESULTS

The new ropeway was opened on 26 December 2017 as the fourth 6-seater chairlift in the Czech Republic. The total cost of this the biggest ski area capital spending project in the Czech Republic in 2017 amounted to 5.9 million euros (including 4.3 million euros for the chairlift). It was financed with equity and borrowed capital without any public money. “In the first season in 2017/2018, our new six-pack proved highly popular with skiers. It gives visitors a faster and more comfortable ride to the

trails, and that has strengthened Kopřivná’s position as a family ski area. With the detachable system, actual transport capacity has also increased,” says Libor Petřů, Technical Director at Kopřivná. The fixed-grip quad chairlift built in 2012 was dismantled and sold to the *Mosty u Jablunkova* Ski Area in the Beskids, where it will do duty as a replacement for two old surface lifts as of the upcoming winter season.

Radim Polcer/Roman Gric

TECHNICAL DATA

Kopřivná 6-seater chairlift, Malá Morávka

(detachable, with protective canopies, heated seats, CPS deropement switches, height-adjustable loading carpet, and automatic retaining bars with central footrests)

Altitude bottom station	695 m
Altitude top station	881 m
Line length	908 m
Vertical difference	186 m
Number of towers	9
Haul rope diameter	42 mm
Drive	bottom station
Rated output (starting / continuous)	401 / 347 kW
Tensioning	bottom station (hydraulic)
Number of chairs	45
Carrier spacing	45.1 m
Carrier interval	10.7 s (9.0 s) *
Transit time	3.6 min (3.0 min) *
Maximum line speed	4.2 m/s (5.0 m/s) *
Rated transport capacity	2,000 pph (2,400 pph) *
Operational since	26 December 2017

Contractors

Ropeway engineering and controls	Leitner ropeways
Rope	Fatzer
Construction Work	Tlachač s.r.o. Svoboda n. Úpou, Hydrospol s.r.o. St. Město u Bruntálu
Planning	Leitner ropeways

* Final design figures in brackets

PHOTO: RADIM POLCER

Tourism boom in Montenegro

LEITNER ROPEWAYS With two new ropeways as part of a major development program in the north of the country, Leitner is making its contribution to the tourism industry in Montenegro.



Martin Leitner (left) on his visit to Montenegro's Prime Minister Duško Marković

In recent years Montenegro has done much to position itself as a tourist destination. While the south of the country is already well developed in terms of infrastructure, the north is still lagging behind. A major government investment program is now set to change all that. In the Bjelasica Mountains, several ski resorts are being created, and a ropeway is to be built to serve a visitor attraction. Leitner ropeways have won contracts for two ropeways to be built in the region by the fall of 2019: One is a 6-seater chairlift, which will become the centerpiece of a

new ski area, and the other is a reversible that will connect Podvrh Monastery with the Dalović Cave. The 6-seater Cmiljaca Z7 chairlift will feature the Leitner DirectDrive and heated seats and will have a transport capacity of 2,600 pph. The ropeway in the ski area near the town of Bijelo Polje will provide perfect access to the newly created slopes. The *Djalovica Pecina* reversible, with its two cabins, will cross the gorge of the Bistrice River in an 800-meter span. The new ropeway will solve today's problems of access to a cave system that has still

not been fully explored. About 16 kilometers of underground passages have been discovered, but the system is thought to have a total length of about 200 kilometers. The importance of the two installations for the development of the country's tourist industry was underscored by Martin Leitner's recent visit to Montenegro's Prime Minister Duško Marković. "With Leitner ropeways we have found an excellent partner for our strategic development projects in the north. This not only creates the basis for more tourism but also new jobs. I'm delighted that one of the world's leading ropeway manufacturers will be handling not one but two projects in our country."

TECHNICAL DATA

Cmiljaca Z7 6-seater chairlift

(detachable)	
Line length	1,671 m
Vertical difference	15 m
Line speed	5.0 m/s
Rated capacity	2,600 pph

Djalovica Pecina reversible

Line length	1,622 m
Vertical difference	337 m
Number of cabins	2
Cabin capacity	8 pax
Line speed	5.0 m/s
Rated capacity	75 pph

PHOTO: GOV.ME

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From the coasts of the seas to the highest mountain peaks, Doppelmayr/Garaventa is seen as a reliable partner worldwide.

For Doppelmayr/Garaventa, customer service not only means providing support for the ropeway operator from the planning stage to the building permit application and through to commissioning as well as during the entire operating life of the ropeway installation; in addition Doppelmayr/Garaventa has always successfully represented the inter-

ests of the ropeway industry on various committees – at home, in Europe and worldwide.

As well as developing and building ropeways, Doppelmayr/Garaventa supports customers worldwide in their dealings with authorities and represents the interests of the ropeway industry with regard to statutory and technical requirements. This has also led to innova-

tions – technical, organizational and administrative – that make life easier for passengers, customers and the ropeway manufacturer.

The ropeway professionals collaborate proactively on the development of standards and directives. When the CEN ropeway standards were created in Europe, the close involvement of a handful of Doppelmayr specialists enabled them

PHOTO: DOPPELMAYR

to contribute their know-how and experience. Playing an active role in defining legislation and the associated technical provisions is crucial because, ultimately, this has an impact on further developments as well as on passenger safety. “From April 2018, the new cableway regulation comes into force. Above all, it has the advantage of being already embedded in the EU cableway directive, i.e. it creates more leeway for innovations. When we can prove that a new development achieves the same safety level as the current state of the art, then – thanks to the statutory leeway – it can be used,” emphasizes Michael Mathis, Doppelmayr’s technical director. “Even if it takes a lot of manpower to deliver the proof, it’s worth the effort. Because you can only achieve genuine improvements for the future in the sector if you play an active role in development. That’s important for us.” “In terms of ropeway approval processes and project handling, the new EU directive will not mean any significant changes in the requirements as compared with previous procedures. The fundamental concept of the EC Directive from the year 2000 and the associated statutory and technical framework have basically been retained. There are merely changes to some of the details,” explains Egon Böhler, salesman and senior project engineer at Doppelmayr.

IMPROVING HANDLING AND COMFORT THROUGH INNOVATION

The officially approved deactivation concept that is integrated into the Doppelmayr Connect control system is a good example of technical achievement. The TÜV-certified concept as used, for example, on the areitXpress means that, in the event of a sensor defect, the operator has the choice between the emergency drive or continuing to operate with the main drive. By using defined substitute measures, the safety function can simply be deactivated. The recovery concept



A new highlight of modern ropeway technology - Doppelmayr's Connect control system

developed by Doppelmayr/Garaventa in 2008 and used on the Vietnamese ropeway Hòn Thom, among others, means that instead of the passengers being subjected to the stress of being rescued, they can be returned to the stations while remaining in the cabins.

It has also been possible to develop a major simplification of the annual load tests. This brings a lot of benefits for the operator. A lot has been accomplished in the area of child safety. Doppelmayr developed a chair series to enable seven children to ride on a chairlift accompanied by just one adult.

Various safety features, such as automatic closure of the restraining bar or restraining bar monitoring in combination with individual footrests, have made it possible to amend and approve the statutory requirements for passenger carriage – a great improvement for ropeway operators and users.

The experience of the Alpine countries is hugely important in the context of legislation at EU level. That is why it is necessary for these countries to engage in this area in a big way. Doppelmayr/Garaventa is accordingly putting a lot of effort into taking the interests of all parties into consideration and contributing its experience and expertise to that end. Examples here include the requirements for spare parts handling – especially in the case of ropeways that were not built in line with EU criteria and

second-hand ropeways that are installed at a new location.

HELP WITH THE OFFICIAL CHANNELS

Doppelmayr/Garaventa assists customers in their dealings with the authorities when it comes to technical matters, above all in conjunction with permits for ropeway installations. That assistance ranges from questions arising prior to submitting the building permit application and the hearing for the permit through to the commissioning and obtaining the operating license for the ropeway. The ropeway professionals help to prepare the relevant information and documents needed to obtain the building permit and for the operating license procedure. This reduces the administrative workload for customers because they can rely on the ropeway manufacturer's experience in this area. The many years of professional collaboration between Doppelmayr/Garaventa and the authorities have made it possible to establish sustainable relationships of trust, which simplify ropeway construction projects for all concerned. For the future, Doppelmayr/Garaventa is committed to continuing in its efforts to assist customers and the authorities and to contributing its innovative capability in the interest of the ropeway industry.



MAG. JÖRG SCHRÖTTNER

President of OITAF



OITAF – PAST, PRESENT AND FUTURE

OITAF – the International Organization for Transportation by Rope – was founded 59 years ago as an umbrella organization for ropeway operators, manufacturers, authorities, and institutions in the field of research and development with the aim of working together to make progress with technical, economic and legal developments, including their challenges and problems.

On June 6 of last year I had the honor of taking over the leadership of OITAF from Martin Leitner. As President for the next few years, I should like to share the following thoughts with you:

First of all, I want to thank Martin Leitner, who devoted so much energy, passion and time to this volunteer activity during his term of office from 2011 to 2017. His outstanding organizational skills were last demonstrated at the 2017 International OITAF Congress in Bolzano, which is also the seat of the OITAF General Secretariat. Fortunately, he and Laurent Reynaud will continue to serve as Vice-Presidents of OITAF.

Throughout its almost 60-year history, OITAF has been a close observer of the ropeway industry and has always been actively involved in many new developments. Such developments also call on OITAF and its members to commit to a process of rethinking and realignment, and OITAF and its work committees have to continually face and adapt to new challenges. Reorientation and redesign are fundamental to further development.

There are several facets to today's interest in transportation by rope. In urban areas, ropeways are becoming increasingly important as residential areas spread and traffic congestion increases. This field of application involves difficulties and obstacles that are very different

from those encountered in mountain regions or tourist areas.

In addition to winter tourism, ropeways also have increasing potential in the context of summer tourism.

At the global level, the ropeway market continues to grow. In the urban sector, substantial investments are being made above all in South America, such as in Medellin (Colombia) or in La Paz (Bolivia), which now boasts the world's largest urban ropeway network. At the same time, new ski resorts are emerging in Eastern Europe, Russia and China.

These international developments show that OITAF still has an important role to play today: A high standard of ropeway safety must be established and upheld worldwide.

OITAF recommendations are particularly relevant in countries that do not have their own ropeway regulations, as in the case of the recommendation on the erection or relocation of existing installations. The provisions of such OITAF documents often facilitate project implementation for all concerned.

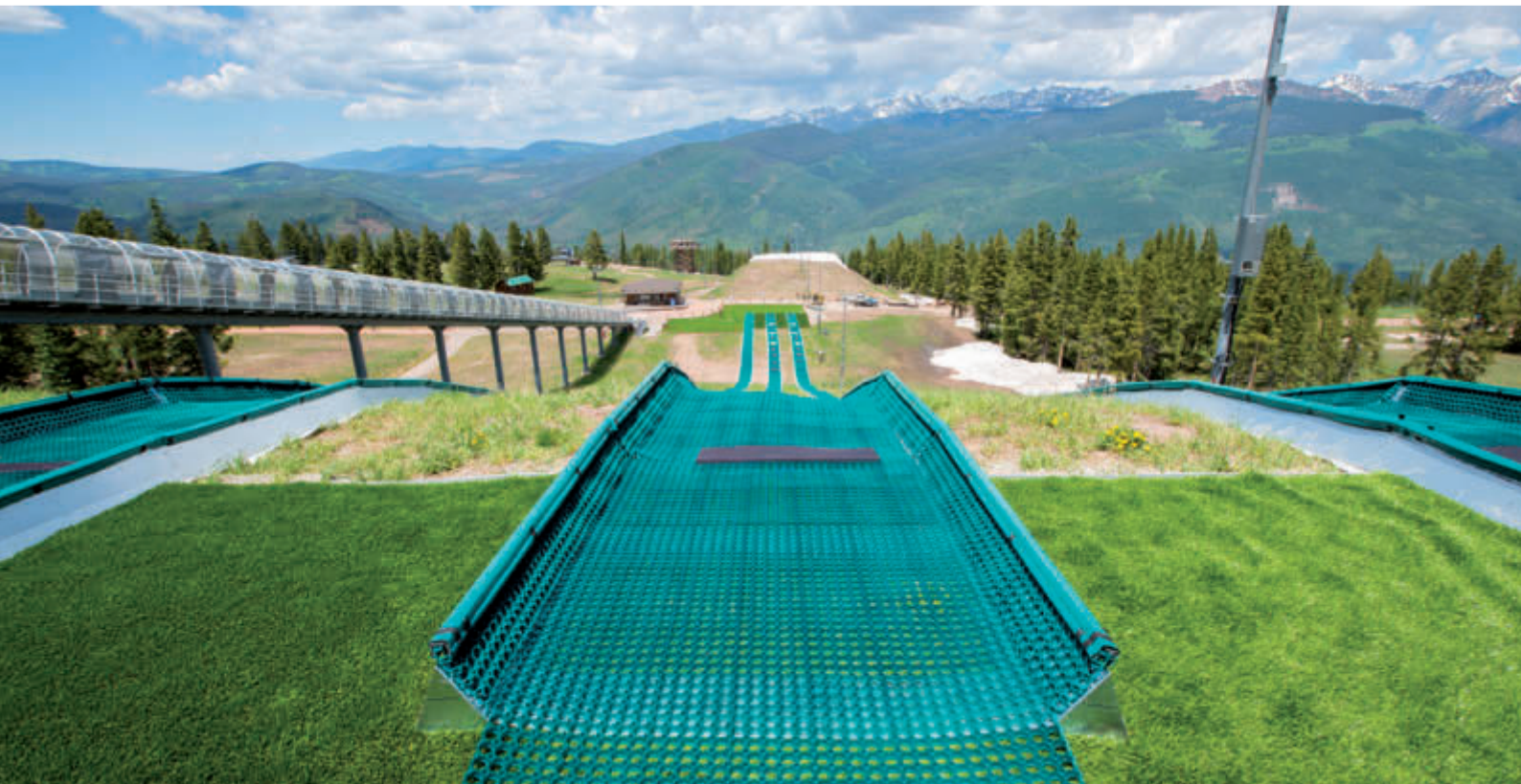
We also have a responsibility to ensure not only the safety of ropeways but also their sustainable operation in order to protect ecological, economic and social interests. Sustainability is more than a modern buzzword; it is relevant for all aspects of life.

Finally, I hope that interested parties and potential new members will be attracted by the upcoming redesign of the OITAF website (www.oitaf.org).

Jörg Schröttner

PHOTO: PROVIDED BY MAG. JÖRG SCHRÖTTNER





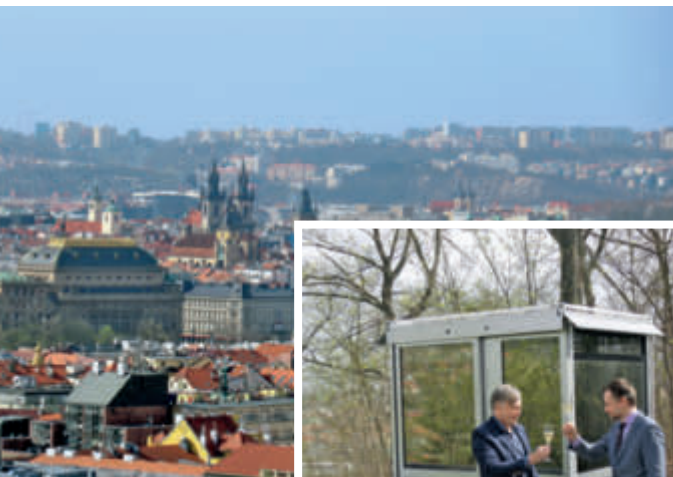
YOUR TUBING SOLUTION

MORE THAN 1700 INSTALLATIONS WORLDWIDE



A new hallmark for Prague

INAUEN-SCHÄTTI AG April 12, 2018 saw the official opening of a new inclined elevator as the life-line between two buildings of the four-star NH Prague City hotel in the Czech capital. Apart from the installation's key passenger transportation role, it is also an attraction in its own right, especially at night when it is illuminated. The contract for the new elevator was awarded to the Swiss company Inauen-Schätti AG.



On April 12, 2018 the new inclined elevator at the NH Prague City hotel was officially opened with a sekt christening. The role of godfather was played by the Czech actor Michal Dlouhý (left), who drank to a successful service life with the hotel's manager Petr Nešpůrek.



The well-known NH Prague City hotel in Prague's Smíchov district has been part of the international NH Hotel Group since October 2012. It consists of two buildings: The main building is located at the foot of Mrázovka hill, which is designated as a "quiet zone", while the other

building is located on the top of the hill in the middle of a park, which offers a magnificent view of the city. The hotel has 445 rooms, 15 meeting and conference rooms, two restaurants, two bars and a fitness center. The newly equipped wellness center – complete with pool with counter-current swimming, sauna and whirlpool – is also popular with the Czech national football team.

Since 1996, an inclined elevator has been used to connect the two buildings of the NH Prague City hotel. It is used not only by the hotel's guests and employ-

ees but also – free of charge – by local residents traveling to and from the top of Mrázovka. Apart from the inclined elevator, there is only a road with limited access plus a footpath leading up the hill, and rideage is correspondingly high on this life line, which had come to the end of its useful life after 22 years and has now been replaced by a new inclined elevator. Dr. Karl Glatzel, the principal owner of the hotel, says: "Without the link, the upper hotel is not viable in the long term. From 1996, the old installation made more than 3.7 million trips and carried almost 15 million passengers. For the new elevator, we turned to Inauen-Schätti AG. The chief technician of our hotel, Aleš

The inclined elevator with a *Comfort* cabin connects the two buildings of the NH Prague City hotel in the Prague suburb of Smíchov. It leads from the bottom station in the main building at the foot of Mrázovka hill to a second hotel building on the top of the hill. It has a transport capacity of 186 persons per hour.

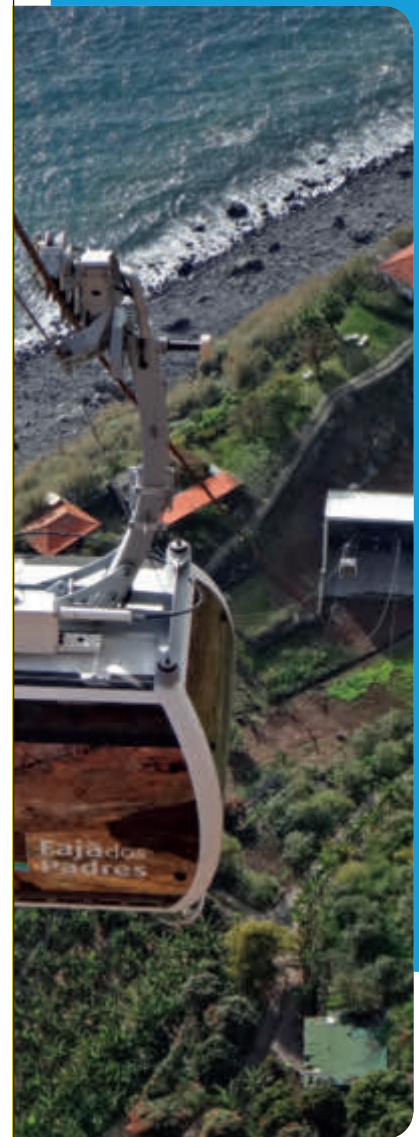
Karbusický, drew my attention to an article he read in ISR about an inclined elevator built by the Swiss company in the Romanian city of Râșnov. Inauen-Schätti made a good impression on me not only with their product but also through their style of doing business. With the contract awarded, work started on dismantling the old elevator on January 3, 2018."

WORKING UNDER THE PRESSURE OF TIME

Dismantling the old elevator took from January 3 to January 12; construction of the new installation began on January 15, and the test runs took place in the week starting February 19 already. The load tests were held on February 27 and the acceptance tests by the authorities on March 9. The official opening, with leading figures from the worlds of politics, business and entertainment, was on April 12. With reference to the very tight time schedule, Patrick Bächler, project manager at Inauen-Schätti AG, spoke of his company's "fastest moving project" this year. Thanks to the company's wealth of experience and know-how in the field of inclined elevators, however, they were able to take the challenge in their stride. The extremely confined space available for the construction work and the status of Mrázovka hill as a "quiet zone" called for intelligent solutions for the logistics, as Karbusický explains: "Apart from one large truck that had to do some precision maneuvering on the construction site, the dolly of the old elevator was converted into a materials-handling ropeway and used for installing the new track."



Impressive at every hillside location



Compact trams by Inauen-Schätti AG

The key to success: Individual configuration based on standard components.

www.seilbahnen.ch



Dr. Karl Glatzel, principal owner of the NH Prague City hotel (center) with his chief technician Aleš Karbusický (right) and Patrick Bächler, project manager at Inauen-Schätti AG, in the revamped hotel lobby.

**COMFORT BY NAME,
COMFORT FOR THE RIDE**

The line and line length (155.9 m) are identical with the old installation, and the top and bottom stations are in the same positions. The bottom station is integrated in the hotel lobby. The elevated steel structure for the track and the concrete footings were retained following a thorough inspection and refurbishment. Project manager Bächler explains: “We mounted our sturdy tried-and-tested guideway with the two rails on the existing box-section support for an increase in gage from 600 to 900 mm. That makes for a very comfortable ride at a line speed of 2.5 m/s. In addition we installed an evacuation and maintenance stairway with handrail over the full length of the line.” From the extensive Inauen-Schätti product portfolio, the client chose the *Comfort* cabin, which is suitable for outdoor installations and has a number of attractive features. In this case the *Comfort* cabin is designed to carry twelve standing passengers and has level walk-in, which makes it ideal for strollers and wheelchairs and passengers with limited mobility. And that is not all, as Karbusický explains: “The level walk-in facility was important for us because we prepare dishes in the main kitchen in the hotel down in the valley and then use the elevator to transport them up to the restaurant on large

serving trolleys.” Due to the differences in gradient on the line (31° maximum gradient on the line and 15.5° on the arc) the cabin had to be fitted with hydraulic self-leveling: “In most cases the self-leveling system has to be designed for passage over one arc, but this elevator is a special case in that the line has two arcs, and the software was developed specially to handle this unusual situation,” says Bächler. The hydraulic tensioning system and 45 kW drive are located in the bottom station, while the top station only houses the return sheave. The new and modern inclined elevator is a convincing solution in a robust, weather-proof and low-maintenance design. It is in full compliance with the relevant codes and safety requirements. In terms of controls, the *Comfort* cabin is designed like a normal modern elevator for operation without an attendant, and there is closed circuit video monitoring over the full length of the line. The various safety features include a GSM emergency alarm system, which is connected to the hotel hotline, and remote monitoring and maintenance via mobile, tablet or PC. As an additional service, passengers can observe cabin travel on the line on an LCD display, which also shows the remaining time to arrival in the station. At copy date for this edition of *ISR* (July 2), the new inclined elevator at the NH Prague City hotel has already made 50,000 trips since it was opened on April 12.

Claudia Mantona



Striking exterior lighting makes the new elevator an attraction by night in the city of Prague.

Complete turnkey installations

DEMACLENKO The basis for the success of Demaclenko is complete turnkey snowmaking installations individually tailored to the customer's needs.



Titan 3.0



Ventus 4.0



EOS

From efficient snow guns and powerful pumping stations including cooling to advanced control software that can be combined with other platforms, Demaclenko offers the perfect solution for every requirement.

For years now Demaclenko has been a reliable and competent partner for the implementation of customized snowmaking systems and, as an integrated system supplier, offers a wide range of products and services that turn every project into a successful solution. Fan guns, snow lances, pumping and compressor stations, cooling systems, line equipment, control software – Demaclenko supplies turnkey solutions for perfect trails in a class of their own. A coordinated team of

qualified engineers is the key to trouble-free handling of the planning and installation phases and guarantees a seamless supply chain – a decisive factor for punctual commissioning of the installation. Demaclenko's top priority is to ensure that every project is completed on time, reliably, for the best price and in accordance with the customer's expectations. After completion of the contract, the company's professional after-sales service guarantees optimum support and assistance throughout the entire service life of the installation. The new snowmaking system on the Kitzbüheler Horn is a good example – a customized all-in-one solution that was commissioned after a construction period of just five months.

SUCCESS THROUGH LONG-TERM PARTNERSHIPS

The quality and reliability of the Demaclenko brand are reflected in the many long-standing partnerships that the company maintains at home and abroad. In Austria, for example, Silvretta Montafon in Vorarlberg has relied on the company's expertise for many years now and is continually extending its snowmaking system. In 2017, the ski area took delivery of its

500th snow gun – in a special design to mark the occasion. And delivery of 30 new fan guns and pits has been confirmed for the upcoming season. In addition, the control systems for the snowmaking installations in Silvretta Montafon were harmonized, with nine systems from different suppliers integrated into a single control system: Demaclenko's Snowvisual. The customer was able to specify their wishes and requirements, and all aspects were implemented to their full satisfaction.

DIGITALIZATION: NEW APPROACHES FOR SKI AREA MANAGEMENT

With its Snowvisual 4.0 control software, Demaclenko has long had the perfect answer to the growing demand for digitalization and automated work processes in ski areas. Snowvisual offers fully automatic control and monitoring of the entire snowmaking system and its individual components. That makes it possible to take advantage of every window for snowmaking and make efficient use of resources. In addition, cooperation with Demaclenko's two sister companies Leitner Ropeways (ropeways) and Prinoth (snow groomers) opens up completely new approaches to ski area management. For example, an integrated platform already enables the Snowvisual snow management software from Demaclenko to be linked with Prinoth's Snow-How software for groomer fleet management and snow depth measurement. That gives the ski area operator access to a unique information pool for optimum coordination of the various operations. The results are more efficient work processes on the slopes, maximum product performance and the optimum use of

resources. This combined system will be in operation next season, for example, at Krings Bergbahnen and in the St. Johann ski area in the Tyrol.

PERFORMANCE, TECHNOLOGY AND DESIGN

Outstanding snow quality, maximum output and an unbeatable energy balance – this is what the Demacenko snow guns stand for, not to mention user-friendly operation and easy maintenance. In addition to efficiency, sustainability and functionality, Demacenko snow guns also stand out in terms of design. The Ventus 4.0 is particularly impressive with an output of up to 90 cu.m. of snow per hour and low energy consumption of only 20 kilowatts – plus eye-catching looks created by the famous Pininfarina design studio. In the upcoming season, 25 new Ventus 4.0 snow guns will provide guaranteed snow cover on the ski slopes of Mayrhofner Bergbahnen in Tyrol, for example.

OUTSTANDING SNOW QUALITY

Another Demacenko product is the most powerful snow gun on the market: the Titan 3.0, which has an output of 110 cu.m. per hour. The excellent quality of the snow and the impressive throw also speak for Demacenko's bestseller, which has many enthusiastic users all over the world. Where there are residential buildings in the vicinity, the Titan Silent has proved highly successful, with the attraction of quiet operation without reducing snow output. The low noise emissions are the result of the special shape of the blades and design of the fan, which was developed in cooperation with the Fraunhofer Research Institute.

The best-known customers for Titan snow guns include Bergbahnen Kitzbühel, where they deliver snow to the world-famous Streif trail, and the Grossglockner resort of Kals-Matrei.

The Titan X 3.0's Multi Nozzle system provides superior results at marginal temperatures, in high humidity and for operations in a low pressure range. The Titan X, with its mature technology, has been in operation for some years now in Flachau (Snowspace Salzburg), for example.

COMPACT, ENERGY-EFFICIENT AND FULLY AUTOMATIC

With its compact design, the Evo 3.0 guarantees versatile and resource-efficient operation combined with optimum transportability. It has a snow output of 70 cu.m. per hour and a throw of 60 meters. In 2017 that was enough to convince Skilifte Warth, for example, who had a large number installed for all-over snowmaking on the slopes.

In the case of the EOS generation of lances, it is fair to speak of a veritable revolution in efficiency. The use of special nozzles and oil-free compressor technology reduces energy consumption to less than 2 kilowatts while achieving an output of up to 61 cu.m. of snow per hour. The management of the Maria Alm - Hochkönig ski area were clearly convinced by this impressive energy consumption to snow output ratio: For the coming winter season, the existing lances there are being replaced by EOS models, and additional new lances are being installed to upgrade the snowmaking network to a total of 89 lances.

All Demacenko snow guns have a



user-friendly touch screen and can be controlled via the proven Demacenko Control cabinet and via WiFi. The latest updated version of the operating software, SnowVisual 4.0, offers the finishing touch for fully automated snowmaking.

SNOW4EVER: INCREASING DEMAND FOR ABOVE-ZERO SNOWMAKING

Demacenko's Snow4Ever permits snow to be produced at temperatures well above freezing point. The texture and high quality of the snow produced by this machine are particularly impressive. This is achieved with the help of a scientific innovation incorporated in the system, in which real snowflakes are created through crystallization irrespective of the outside temperature and without the use of chemical additives. Snow4Ever was recently seen in action by an astonished audience at this year's Mountain Planet in Grenoble, where the machine produced snow of the best quality in bright sunshine and almost summer temperatures. Two machines with a daily output of 100 cu.m. will be in operation next season in Seefeld in the Tyrol to ensure reliable snow cover for the trails at the 2019 Nordic World Ski Championships.

PHOTO: DEMACENKO

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HOLZHAUSEN
Der Verlag



The secret of success

SUPERSNOW Winter with the 700 A snow gun.



Supersnow guarantees white winters.

At the end of the 1990s the Supersnow success story began in Białka Tatrzańska, a small town in Poland. Initially the company focused on servicing snow guns. Twenty years have passed since then, and Supersnow has become one of the world leaders in the production of complete snowmaking systems.

Every now and then the company surprises the industry with innovative solutions in snowmaking – which is not an easy market. Every few years, Supersnow launches new and constantly improved equipment that quickly captures both markets and the hearts of the ski resort managers. One of the latest innovations is the 700 A SE snow gun - an improved version of the 700A, which has been popular for several years now.



The practical control panel can be removed or repositioned at any time.

WHAT'S NEW?

First of all, the 700 A SE snow gun is impressive for its efficiency; it can produce 80 cu.m. of snow an hour! That is largely thanks to the newly designed ring, which has heaters

and a more effective nozzle arrangement. It also features highly reliable ceramic TwinC nozzles. Another improvement in the design of the snow gun is a completely new 10-blade aluminum fan with an in-

PHOTOS: SUPERSNOW

novative geometry, which was created in cooperation with experts in aerodynamics from the Polish University of Science and Technology. The use of aluminum contributes to the lower noised levels; more rigid blades means reduced vibrations and thus quieter operation.

PRIORITIES

With the 700 A SE, Supersnow’s design engineers had a twin focus on efficiency and low-cost snow production. The result is a machine which keeps costs to a minimum. The new snow gun consumes 30% less energy than previous models and up to 50% less than other manufacturers’ products! To that extent the 700 A SE represents a breakthrough for the entire industry. Another objective was to make the snow gun easier to use in challenging weather conditions, and again the mission has been accomplished: The 700 A SE is extremely simple to operate thanks to the intuitive control panel with its graphic display. That gives users a fast overview of the snowmaking parameters and operation of the various components and to quickly make any changes required. The mechanical disconnect on the oscillation drive makes manual maneuvering of the snow gun a fast and easy process.



The 700 A snow gun is impressive for its efficiency.

WHAT'S NEXT?

The Supersnow success story is impressive: The previously unknown Polish company has become one of the main players on the snowmaking market worldwide. Supersnow’s orange snow guns can be found everywhere today; they are present in most European countries, in South America and even in far away Asia. The company is constantly developing and investing in modern solutions. In 2017, a new plant

was opened in Roppen, at the heart of the Austrian Tyrol. So what is their recipe for success? “Meeting the customer’s needs is the most important thing,” says Damian Dziubasik, the company’s proprietor, “and the snow, of course – producing the best quality snow.” What else does the company have up its sleeve? Supersnow is certainly not short of ideas. We look forward to reporting on more new products!

PHOTO: SUPERSNOW



Beautifully clever

KÄSSBOHRER Now definitely on its way all over the world – the new PistenBully 600. It certainly impressed the public at the kick-off event on the Nebelhorn.



Beautifully clever – the new PistenBully 600

From customers from the Allgäu to PistenBully representatives from New Zealand – everyone came to see the impressive innovations of the new generation. These include fully developed patents, technical innovations with a wow factor and the highest quality standards. It is no exaggeration to say the new PistenBully 600 is writing technology history. Everyone who has had the chance to try it so far has become a fervent admirer. No other snow groomer in its class has more inner value.

The most innovative and intuitive operating concept on the market – and extremely comfortable

Challenging snow grooming demands the highest concentration at work, including at night or in poor visibility. A snow groomer that is as comfortable as it is easy to steer and that is impressively quiet is just the right tool for the job.

- Clearly configured and self-explanatory iTerminal with touch control
- Ergonomic double-jointed joystick for four simultaneous blade movements
- Comfortable seat with integrated armrest as standard

- More space, comfort and freedom of movement
- Convenient one-handed control of all attachments
- Quieter thanks to optimized cab insulation
- High-quality easy-care interior
- Optimized cab design for maximum safety (ROPS 14.5 t)
- Standardized layout of controls across all models for fast orientation after a vehicle change
- SNOWsat-ready

BEST GRADABILITY AND THRUST

Robust and yet lightweight – the PistenBully 600 makes a great impression. That is very clear from all the significant performance data:

- Lightest machine in its class with the highest gradability and thrust
- Best power-to-weight ratio in its class: lower weight but increased power
- More torque than previous model
- Reinforced cab with 14.5 t ROPS weight
- Increased chassis stability
- Heaviest payloads
- Highly flexible use

The world's first snow groomer with EU Stage 5 engine – they do not come cleaner and quieter than this!

The sparing use of resources and excellent performance do not have to be mutually exclusive. The PistenBully 600 has a very special engine: the first on the market to comply with EU Stage V.

- Powerful engine with diesel particle filter
- Uncomplicated, low-maintenance engine for reduced downtime and increased availability
- Less noise thanks to quieter engine
- Greater range thanks to larger tank and lower fuel consumption

INTUITIVE SNOW GROOMING – ERGONOMIC AND EFFICIENT

Electronic assistance systems make things easier for drivers in lots of situations. In the new PistenBully 600 they are not just optimized but are also more intelligent than ever – for even greater safety, efficiency and user-friendliness.

- Automatic winch rope pull control: most reliable winch, unique uninterrupted 360° rotation of the winch without twisting the rope
- AutoTracer: active bend support, steering support, automatic lateral slope compensation
- SNOWtronic: intelligent vehicle control; rear equipment rack can be used as combi or parallel rack, enormous range of motion, simplified control

FULL OF INNOVATIONS

The latest generation of snow groomers is packed with all the experience and enthusiasm of PistenBully's engineers. The large number of patents is impressive proof of this. The innovative technology and intelligent features have been developed in close collaboration with customers – typical Kässbohrer.

There are no limits to creativity

KÄSSBOHRER The Audi Nines in Sölden – courtesy of Schneestern and PistenBully

The Audi Nines 2018 are proof that you can always think bigger in freestyle winter sports. Completely new for this year: slopestyle and snowcross merged into one course. The SlopeX concept combines the best elements of both disciplines: speed and creativity. More than 100,000 m³ of snow was used at the Sölden resort in Tyrol to create a structure that defies categorization – built by Schneestern with PistenBully.

IMPRESSIVE FIGURES

Eleven different obstacles, a mix of freestyle and ski/boardercross, 200-meter vertical difference and one kilometer long. Such facts and figures may sound a little abstract at first but when seen in context they show where the Audi Nines sit compared with other modern snow projects. It took six weeks to move 107,000 m³ of snow. That is longer than was spent on the slopestyle course for the Winter Olympics in Pyeongchang. Around half that time was spent moving snow to the right places, using two powerful machines continuously, a PistenBully 400 W and a ParkPro. Then it



PistenBully 600 in action

was time for a 20-man team from Schneestern to get this snow into shape. They needed three diggers and countless working hours – and also up to five PistenBullys, from the ParkPro to the new PistenBully 600. They put on an impressive show in the park in their own right.

SUCCESSFUL EVENT

The result: extremely steep banked curves, wave runs, a snow tunnel and kickers. The skiers and snowboarders gave their all on the inno-

vative course in perfect weather and in front of 3,000 spectators, helping to drive the development of the sport. For many, the highlight of the many innovative elements on the SlopeX course was the extremely rare snow loop with a height of 3.5 meters – built by Schneestern, with the concentrated power of PistenBully: perfect teamwork on a project that shows the spectacular snow projects that can be achieved when you just think that little bit bigger.



Impressive figures for the Audi Nines in Sölden

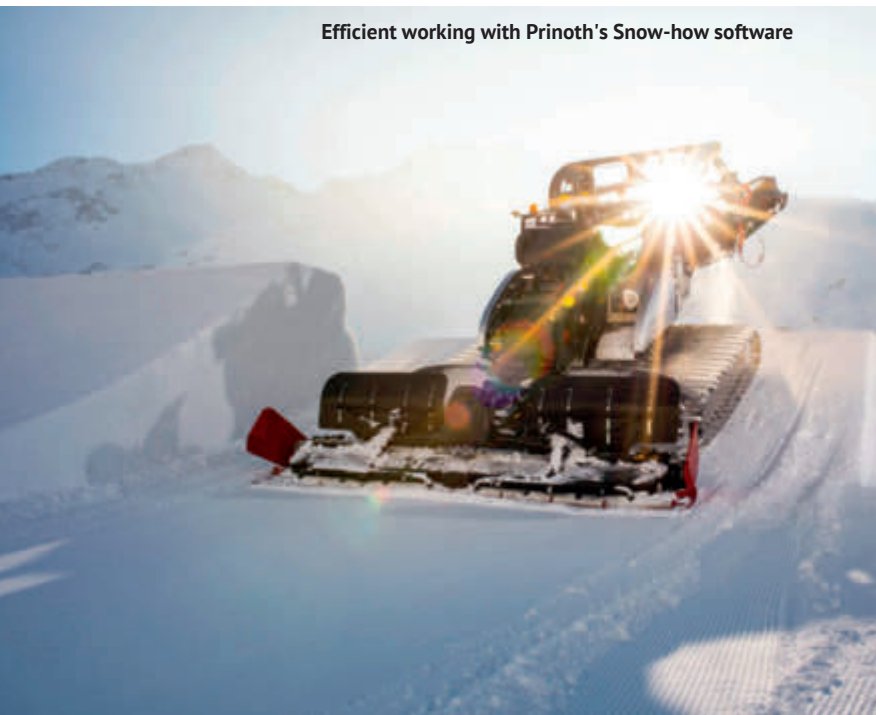


Schneestern's shapers at work on the course

For perfect pistes

PRINOTH The *Snow-how* software from the house of Prinoth brings high-tech to the mountain.

Efficient working with Prinoth's *Snow-how* software



Prinoth's *Snow-how* technology enables ski resort operators and snow grooming vehicle drivers to focus fully on what really matters: efficient working on the slopes, maximum performance and optimum exploitation of the available snow cover. The *Snow-how* software combines snow depth measurement by Leica Geosystems with Prinoth's fleet management software. The innovative software solutions are designed to generate savings of up to 20 percent and an up to 15 percent increase in efficiency.

SNOW DEPTH MEASUREMENT

With the modern snow depth measurement facility, the cockpit of a Prinoth snow groomer is a high-end command centre. During the development phase, the focus was on trials conducted by drivers in ski resorts in many countries and on cooperation with the best technology part-

ners. As a result, in collaboration with Leica Geosystems, Prinoth now offers the world's most accurate snow measuring system. At the same time, the company cooperates closely with its customers in the interest of further developments and enhancements to the software. That is the key to cutting-edge technology which delivers the precision data needed for increased productivity in an intuitive, user-friendly system.

This focus on the people who do the actual work on the slopes clearly pays off – in the form of mature programs capable of providing optimized fleet management in the harsh conditions of the mountain environment based on the three pillars of cost savings, efficient workflows and top-quality snow management.

FLEET MANAGEMENT

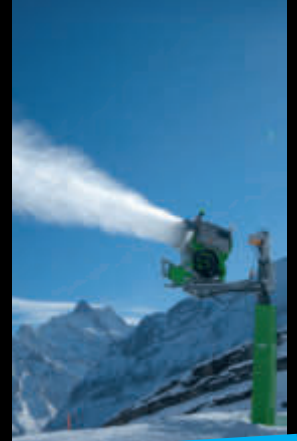
Prinoth's comprehensive fleet management solution is a data transfer and tracking system for

all brands of snow grooming vehicles and for a ski resort's complete fleet, with optimum data quality for the highest standard of slope grooming and snow management. With real-time transmission and display of the relevant data for snow movements, vehicle efficiency, fuel consumption and much else besides, the targeted savings are in the region of up to 20 percent and a 15 percent increase in efficiency.

USER INTERFACE

Prinoth's groundbreaking *Snow-how* is a software solution that delivers where it counts – in everyday working on the slopes in all conditions.

With a single interface, the user can switch as required between views of snow depth measurement, fleet management and snowmaking systems. That is the dawning of a new digital age of slope management.



SAFETY

**OUTDOOR
LEISURE**

ROPEWAYS

SNOWMAKING



One partner, many solutions

Developing and designing innovative
solutions for mountainous areas



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*...thinking in **solutions***

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