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**CHRISTIAN AMTMANN**

Executive Editor

## EDITORIAL

### DEAR READERS.

Whereas a certain level of saturation in winter technologies has been reached in Austria and Switzerland, countries like Slovakia, the Czech Republic, Romania, Bulgaria and Poland are seen as especially important future markets with great potential. That is why we are so happy to be able to offer our readers in those countries a second ISR special devoted to their region. I should like to take this opportunity thank the players in this industry for their trust in our communications platform. We are also pleased to report that, in addition to postal delivery, this year's 5-Country Special is being presented for the first time at the PSNiT 2014 conference in Poland and at InterMountain in the Czech Republic.

This edition of ISR provides information on lots of new developments in the field of ropeways, snowmaking and grooming. Petre Popa Jr. of Transcablu srl Brasov, an expert on ropeways, snowmaking systems and ski-area development, gives a detailed overview of the situation (page 6) and new projects in Romania (pages 10-13). And our correspondent Roman Gric reports on new ropeways in the High and Low Tatras (page 14). There, following the 144 million euros already invested in the development of mountain tourism, Tatra Mountain Resorts – by far the biggest ski area operator in Slovakia – spent a further 45 million on its ski areas in the High and Low Tatras in the 2013/2014 season.

Environmental management is becoming an increasingly important subject for the industry. In this context, the Ulen company in Bansko (Bulgaria) has adopted an exemplary innovative approach. That is the subject of an article written by Professor Ulrike Pröbstl of the Institute for Landscape Development, Recreation and Conservation Planning at the University of Natural Resources and Applied Life Sciences in Vienna (page 33).

I hope you enjoy this edition of ISR and wish you every success with your forthcoming projects.

And I am looking forward to your feedback!

Christian Amtmann  
amtmann.zv@bohmann.at



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## 4 CONTENTS

### ROPEWAYS

- 6 Current situation of ropeways in Romania
- 10 Two new installations in Poiana Brasov
- 12 (Re-)opening of a new ski area in Romania
- 14 Two more new ropeways for the High and Low Tatras
- 17 Modern operating system
- 18 Like a bolt from the blue
- 22 Thirty-five ropeways for the Winter Olympics

### EXHIBITIONS

- 16 Leading trade show for Alpine technologies

### TICKETING

- 20 Secure and customized solutions

### PISTE

- 23 Snow Park Alliance
- 24 Perfect slopes for Sochi 2014

### PRODUCTS

- 26 2014 Winter Olympics
- 27 Strong presence at the Winter Olympics in Sochi

### SNOWMAKING

- 28 Further concentration on the snow-making market
- 30 The road to perfection
- 32 White trails guaranteed

### ENVIRONMENTAL MANAGEMENT

- 33 Bansko as a model innovative approach

# 19



# 14



# 15



## IMPRINT

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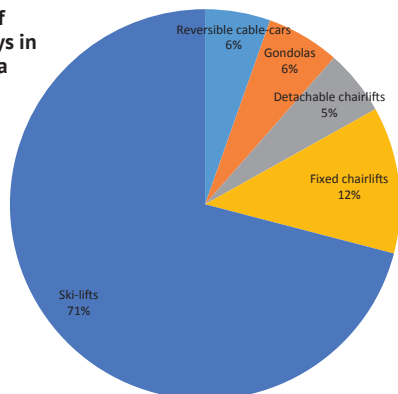
# Current situation of ropeways in Romania



Romania today has a total of 150 ropeways, one third of which are aerial ropeways of various kinds and the rest surface lifts. When and how these installations were built, and what the current situation is, are the subjects of this article.

Dipl.-Ing. Petre POPA, Jr.  
Expert for ropeways, snowmaking systems and ski area developments, Transcablu srl Brasov

Types of ropeways in Romania



**ROMANIA TODAY HAS** eight reversible cable-cars, nine gondola ropeways, eight detachable chairlifts, eight fixed-grip chairlifts, 18 fixed-grip chairlifts, 105 surface lifts and two installations with cabins for non-public passenger transportation.

About one third of these ropeways are a legacy of Romania's Communist period, i.e. they were built before 1990, namely the eight reversible cable-cars (no reversibles have been built since), the two special installations with cabins for non-public passenger transportation, ten fixed-grip chairlifts and 23 surface lifts. Five other chairlifts and one surface lift were also built before 1990 but are no longer operating. For various reasons, they were dismantled and replaced with modern, higher capacity installations (mostly gondola ropeways and detachable chairlifts). Before 1990 the big ropeways like the reversible trams or the gondola ropeways were built in cooperation with foreign companies such as Ceretti& Tanfani, Von Roll or PHB, while the smaller installations like the fixed-grip chairlifts and the surface lifts were 100% Romanian.

## DEVELOPMENTS IN THE LAST TEN YEARS

The ropeway industry in Romania only started to really develop ten years ago. The result is about two thirds of the installations that are in operation in Romania today. In those ten years a total of 91 rope-

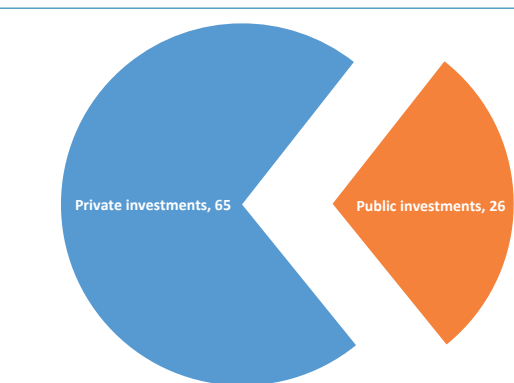
ways have been built in Romania – nine gondola ropeways, eight detachable chairlifts, eight fixed-grip chairlifts and 66 surface lifts – at an average of 2.5 aerial ropeways and 6.6 surface lifts per year.

With regard to the sources of finance, out of a total of 91 ropeways, 65 were private investments, 22 were public investments made by the national and/or local authorities and only four investments were supported out of EU funds. The private investments comprised 59 surface lifts, two gondola ropeways, and two detachable and two fixed-grip chairlifts, while the public investments included seven gondola ropeways, four detachable and four fixed-grip chairlifts and only six surface lifts. EU funds were paid to local authorities for two detachable chairlifts, one fixed-grip chairlift and one surface lift.

The above figures show that

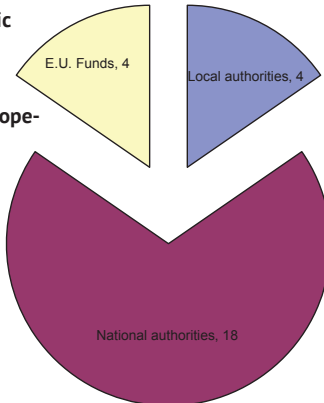
- in terms of the number of installations involved, the private sector is dominant for investments on the ropeway market, with 72% of all ropeways built in the last ten years in Romania financed privately;
- with regard to the size of the individual investments, however, the authorities were the main factor, with seven out of nine gondola ropeways, six out of eight detachable chairlifts, six out of eight fixed-grip chairlifts and seven out of 66 surface lifts financed by the local and/or national authorities.

GRAPHICS: P. POPA

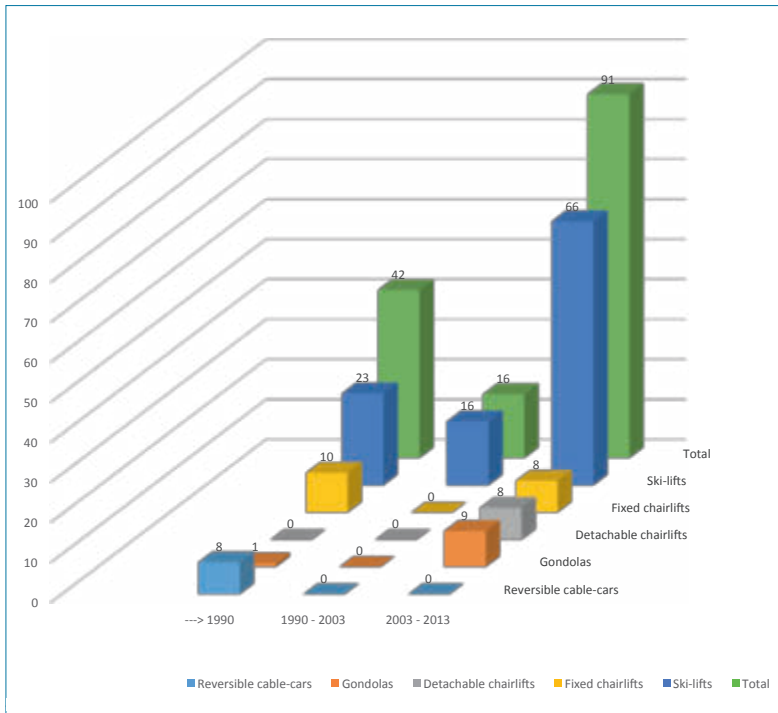


No. of ropeways: private / public investments

For the public investments, funds were provided by (number of ropeways):







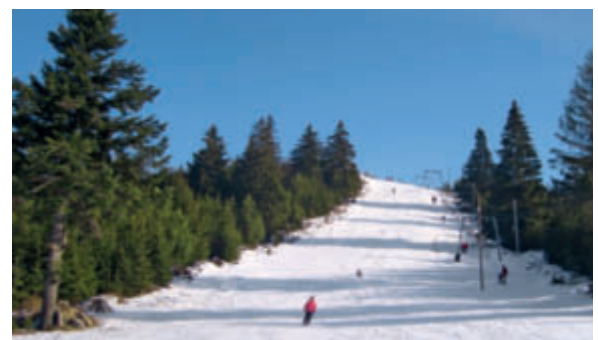
Number of ropeways built in the last ten years

The private sector in the ropeway industry is well represented throughout the country, and the number of the companies is in-

creasing year by year. Unfortunately this sector is facing problems with both finance and the bureaucracy. Ropeway installa-



Inauguration of one of the most important private investments in the Romanian ski industry, the gondola at Azuga ski area (2007)



A new private investment, the ski lift and the slopes at Ciumani, was opened for the 2013/14 ski season

PHOTOS: P. POPA

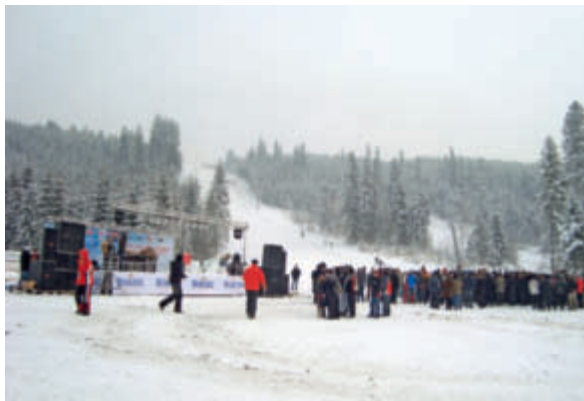
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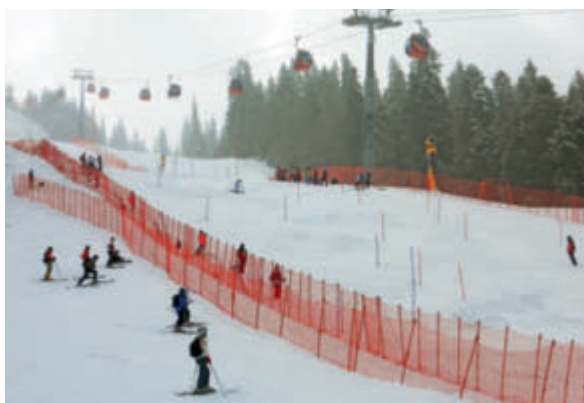
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Inauguration of a new ski destination in Romania, Borsec - a public investment (2010)



The gondola from Poiana Brasov ski resort, Postavarul Express - a major private investment for the region (2005)



In 2004 Busteni resort also became a ski destination thanks to a project financed with EU funds.

tions are comparatively expensive investments, and the EU funds available to private companies do not cover enough of the total financing requirement. As a result, only the authorities have applied for funds. On the other hand, Romania's banks have little interest in financing such investments, as the ski industry does not have such a strong tradition as in Austria, Switzerland or other Alpine countries, where more or less everyone understands the ski industry.

At the same time, the local authorities have much easier access to financial resources and also find it easier to handle the bureaucratic problems. That explains why the investments made by the authorities are so much more spectacular than as those made by private companies.

On the other hand, the private sector of the ski industry is mostly well or very well run, whereas it still remains to be seen how the local authorities will manage to operate brand-new ski areas. Will they be able to compete with the Austrian and Bulgarian ski areas, the most popular foreign ski destinations for Romanian tourists?

Petre Popa



One of the best managed ski resorts, Suior, where the first private chair lift in Romania was installed



The first section of the Sinaia Gondola, an investment made by the municipality of Sinaia in 2007



In 2012 a new gondola for easier access to the Straja ski area was built as a public investment.



Gura Humorului, a 100% new ski destination in Romania, was realized in 2009 as a project financed with EU funds.

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# Two new installations in Poiana Brasov

**DOPPELMAYR** With the opening of two new high-capacity chairlifts, a new era began for Poiana Brasov, the most modern and varied ski area in Romania.



The 8-seater gondola was one of the first major steps in the modernization of the ski area

A ski destination since 1907, Poiana Brasov hosted the first national skiing event in 1909 and the first international skiing competition in 1929. It was here that Mathias Zdarski, founder of the Lilienfeld school of skiing, gave demonstrations of the one-pole skiing technique in 1907, and Carol Luther of Munich organized a training course in 1912, which marked the introduction of the two-pole technique. The resort is just 12 km from Brasov, the seventh largest city in Romania (over 300,000 inhabitants), and about 170 km from the capital Bucharest.

The resort's accommodation capacity has been more than doubled since 1990, with a current total of over 4,000 beds, mainly in 3-, 4- and 5-star hotels. The resort has an old established ski school with about a hundred ski instructors and several sports gear rental stores.

The post-war development of Poiana Brasov received a boost in 1951, when the World University Winter Games were held there.

A second period of growth occurred in the run-up to the 11th European Youth Olympic Winter Festival, which was held there in February 2013. The trails were upgraded, and two modern high-capacity chairlifts

from Doppelmayr were installed plus a fully automatic snowmaking system from the South Tyrolean company TechnoAlpin. And for grooming the trails, four new PistenBullys were added to the existing fleet of three. Thanks to these investments, Poiana Brasov can today boast several national firsts:

- Romania's one and only 6-seater chairlift with bubbles was installed on the upper slopes of the mountain, where the most varied ski trails are also located. With a transport capacity of 2,400 p/h, this modern chairlift is one of the resort's main attractions. Four different trails are served by the chairlift, which has a line length of 1,081 m.
- Romania's one and only fixed-grip quad chairlift with a loading conveyor was installed in the lower part of the ski area. Thanks to its more sheltered location, this chairlift can be operated when all the other installations have to close down because of strong winds on the mountain.
- The resort has Romania's most complex and largest snowmaking

system, with 120 lances, 24 snow-guns (mobile and tower-mounted) and three pump stations.

The two modern chairlifts mentioned above were supplied by Doppelmayr, as was an 8-seater gondola ropeway with a line length of 2,140 m and a transport capacity of 2,400 p/h, which was built by a private investor in 2005. Poiana Brasov now has a total of twelve ropeways: two reversibles, one gondola ropeway, two chairlifts and seven surface lifts. The two new chairlifts are owned by the municipality of Brasov, as is the snowmaking system and the four new PistenBullys, all the rest being privately owned.

In another first for Romania, Poiana Brasov resort offers a combined ski-pass, which is valid for all ropeways regardless of ownership as in all Western European ski resorts.

Thanks to all these investments, Poiana Brasov is Romania's most modern and most complete ski area, offering the most varied skiing in an area with 100 % snowmaking.

Petre Popa

## TECHNICAL DATA

### 6-CLD B Ruia - Detachable 6-seater chairlift with bubbles

Altitude lower terminal	1,345 m
Altitude top terminal	1,720 m
Line length	1,081 m
Vertical height	375 m
Number of towers	9
Haul rope diameter	45 mm
Drive	370 kW
Number of carriers	53
Line speed	5.0 m/s
Transit time	3.9 min
Transport capacity	2,400 p/h
Supplier	Doppelmayr
Year of construction	2011

## TECHNICAL DATA

### 4-CLF Lupului Fix gripped quad chairlift

Altitude lower terminal	975 m
Altitude top terminal	1,185 m
Line length	825 m
Vertical height	210 m
Number of towers	9
Haul rope diameter	38 mm
Drive	143 kW
Number of carriers	81
Line speed	2.6 m/s
Transit time	5.3 min
Transport capacity	1,800 p/h
Supplier	Doppelmayr
Year of construction	2011





The fixed grip quad-chairlift located in the lower part of the ski area, Lupului Chairlift



One of the main attractions of the ski-resort: the six-seater chairlift with canopies Ruia Chairlift



The bottom station of Ruia Chairlift, loading with conveyor belt

PHOTOS: P. POPA

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# (Re-)opening of a new ski area in Romania

**LEITNER** A public investment supported by the national and local authorities made possible the opening of a new ski destination in Romania.



A skiing deer welcomes tourists at the bottom station.

## TECHNICAL DATA

### Voineasa 8-seater gondola lift – first stage

Altitude lower terminal	1,320 m
Altitude top terminal	1,833 m
Line length	1,992 m
Vertical height	513 m
Number of towers	11
Drive	520 kW
Number of carriers	59
Line speed	6.0 m/s
Transit time	5.5 min
Transport capacity	2,200 p/h
Supplier	Leitner

### Voineasa 8-seater gondola lift – second stage

Altitude lower terminal	1,833 m
Altitude top terminal	1,925 m
Line length	1,080 m
Vertical height	92 m
Number of towers	5
Drive	206 kW
Number of carriers	36
Line speed	6.0 m/s
Transit time	3.0 min
Transport capacity	2,200 p/h
Supplier	Leitner

It took only two years to open a ski area with five ropeways and about 6 km of trails, mostly covered by an automatic snowmaking system. The impressive range of ropeways and other installations was supplied by the South Tyrolean Leitner Group, namely two gondola ropeways linked with a mid-slope angled station, a quad fixed-grip chairlift, two ski tows for beginners, ten FA540 snowguns, 27 VIS lances, one pump station and 4.3 km of pipes.

The first development steps for this region date back to the 1970s, but it was not until the end of the 1980s that the first chairlift was built, a double fixed-grip chairlift. After 1990, however, the area was more or less neglected for various reasons, and according to our information the double chairlift never went into public service. The fast pace of development at Vidra-Voineasa Ski Area in the last few years was possible thanks to

public money spent by the national authorities in cooperation with the local authorities. The general idea was to offer Romanian tourists a new and modern ski area at a higher altitude. The result is a ski area with six out of seven trails located between 1,800 and 2,000 meters above sea-level, where there are also the two ski tows for beginners, the quad chairlift and the second stage of the gondola. With a line length of almost 2 km, the first stage of the gondola connects the parking lot at the bottom of the ski area with the beginners' trails, which are located between the mid-station of the gondola and the top of the mountain.

The system chosen for the gondola ropeway, with a mid-slope angled station and a choice of separate operation or through-running for the two stages, is unique in Romania. One of the reasons for the choice is that the lifts above the mid-station cannot always operate because of strong winds. In such cases, the first stage is operated alone, and skiers can enjoy a 2.3 km slope leading from the middle station down to the valley bottom. This means that skiers who have to travel a long way to

## TECHNICAL DATA

### Voineasa quad chairlift

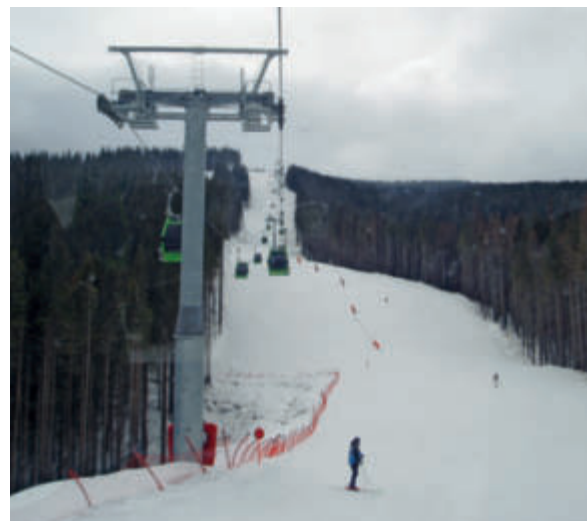
Altitude lower terminal	1,770 m
Altitude top terminal	1,943 m
Line length	1,169 m
Vertical height	173 m
Number of towers	11
Drive	92 kW
Number of carriers	100
Line speed	2.3 m/s
Transit time	8.7 min
Transport capacity	1,400 p/h
Supplier	Leitner

PHOTO: P. POPA





View from the bottom station along the line of the first stage of the gondola ropeway

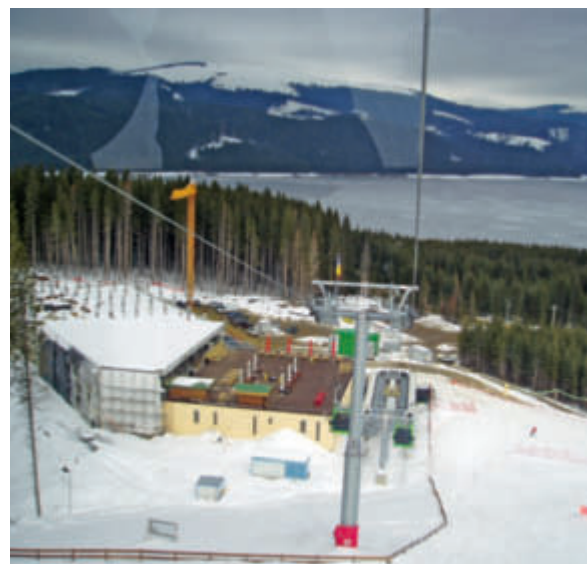


The elegant green Sigma cabins on the line over the main ski slope

reach the ski area can be sure of doing some skiing. The high transport capacity of the gondola ropeway, namely 2,200 p/h, was chosen to cope with the large number of tourists wanting to use the beginners'

trails starting at the summit. The 1,169 m long quad chairlift is also located on the higher slopes of the mountain, where it extends the beginners' area with some new trails.

Petre Popa



The bottom station of the gondola ropeway seen from the top (part of the buildings and parking lot are still under construction)

**TECHNICAL DATA**

**Voineasa Mountain 1 surface lift**

Altitude lower terminal	1,850 m
Altitude top terminal	1,943 m
Line length	688 m
Vertical height	93 m
Number of towers	7
Drive	45 kW
Number of carriers	97
Line speed	3.0 m/s
Transport capacity	700 p/h
Supplier	Leitner

**TECHNICAL DATA**

**Voineasa Mountain 2 surface lift**

Altitude lower terminal	1,320 m
Altitude top terminal	1,425 m
Line length	755 m
Vertical height	105 m
Number of towers	7
Drive	37 kW
Number of carriers	97
Line speed	3.0 m/s
Transport capacity	690 p/h
Supplier	Leitner

PHOTOS: P. POPA

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# Two more new ropeways for the High and Low Tatras

**ISR REPORT** Following the 144 million euros already invested in the development of mountain tourism, Tatra Mountain Resorts – by far the biggest ski area operator in Slovakia – spent a further 45 million on its ski areas in the High and Low Tatras in the 2013/2014 season.

## HIGH TATRAS, TATRANSKÁ LOMNICA

Development of the high mountains above the resort of Tatranská Lomnica started before the Second World War. The first ropeway was constructed to serve the second highest peak, namely Lomnický štít (2,634 m), in 1936-1940. That reversible was built in two stages, from Tatranská Lomnica to the mountain lake at Skalnaté Pleso and from there to the summit. The first stage had a line length of over 4 km and a mid-line station at Štart (a reference to the top of an old toboggan run there). The transport capacity of the reversible was low, and for that reason a bicable circulating ropeway with 4-seater cabins was added on a line parallel to the old reversible from Tatranská Lomnica to Skalnaté Pleso via Štart. That system was replaced in 1995 with a monocable gondola ropeway supplied by the Girak



Upper terminal of the new Doppelmayr 15-seater gondola ropeway from Štart to Skalnaté Pleso, with Lomnický Peak (2,634 m) in the background

company. The upper stage of that ropeway, between Štart and Skalnaté Pleso, was dismantled last autumn and replaced in November with a new 15-seater gondola ropeway erected by Doppelmayr on a slightly different line.

That makes it the fourth ropeway to serve Skalnaté Pleso. With its superior stability in side winds compared with the 4-seater gondola, the new system offers improved availability on the service to Skalnaté Pleso (operational up

## TECHNICAL DATA

### 15-seater gondola ropeway from Štart to Skalnaté Pleso

(detachable, double grips)

Altitude lower terminal	1,170 m
Altitude upper terminal	1,768 m
Line length	2,073 m
Vertical height	598 m
No. of towers	19
Gage	6.1 m
Haul rope diameter	56 mm
Drive	lower terminal
Tensioning system (hydraulic)	lower terminal
Output (start/continuous)	1,051 / 773 kW
No. of carriers	37
Carrier interval	22.5 s
Line speed	6.0 m/s
Transit time	7.1 min
Transport capacity	2,400 p/h
Cabin manufacturer	CWA Olten
Ropeway manufacturer, year	Doppelmayr, 2013



The upper terminal of the 15-seater gondola ropeway to Skalnaté Pleso was built next to the old station with direct access to the ski trails. The old terminal building has been converted into an events location, an information center and gallery, and a viewing tower.

PHOTOS: R. GRIC



to a wind speed of 24 m/s). It also scores with an uplift capacity of 2,400 people per hour compared with 900 p/h plus a more comfortable ride. The upper part of the spacious station built at Štart for the original 4-seater gondola ropeway was extended and adapted for use as a parking facility for the 37 15-seater cabins. The lower stage of the 4-seater gondola built from Tatranská Lomnica to Štart in 1995 is still operating because of the additional capacity provided there by a 6-seater chairlift (see ISR 3/2011, pp. 17 – 18). The new Omega IV-15-LVI, which has comfortable seating for ten passengers and standing room for another five, is a further development of CWA's legendary Omega IV. The Omega IV-15-LVI made its debut on the gondola ropeway from Kosodrevina to Chopok in Jasná in 2012 (see ISR 3/2013, pp. 30 – 33). The new system incorporates rope position detectors.

The UNI-G station enclosures for the new ropeway were taken from an identical installation built to serve Chopok in 2012. The enclosures there were removed after the first year of operation to permit completion of the terminal buildings above platform level.

In view of the higher capacity of the new ropeway, the existing trails were upgraded between

Skalnaté Pleso and Tatranská Lomnica and new ones added. The 2013/2014 winter was a very poor winter for snow cover on the north side of the Alpine chain, and the ski area at Tatranská Lomnica was only able to remain open throughout the season thanks to its automatic snowmaking system, which covers some 45 hectares of ski trails. In commercial terms, the season was nevertheless a big success.

As a revitalization project for the station building of the old 4-seater gondola ropeway at Skalnaté Pleso, the carrier entrance was glazed in, the ropeway equipment removed and the interior refurbished as a location for events. The former Encián Restaurant in the old reversible station was converted into an information center and gallery, and the old tensioning tower was also modified for use as a viewing tower.

**LOW TATRAS, JASNÁ**

Only one year after the big spend on a Funitel, a 15-seater gondola ropeway and an inclined elevator, another new ropeway was built in the Jasná Ski Area, too. The comfortable 6-seater chairlift from Lúčky to Vyhliadka (Priečno) is a Leitner system with heated seats, blue protective canopies and Leitner's maintenance-friendly Direct Drive. It went into service on 26 December 2013, among other things as a ski area access installation for day visitors using the car parks in Lúčky, which solves the parking problem on the north side of Chopok. The new chairlift also serves as a repeat-ride system for a new blue family trail complete with snowmaking and offers return transportation to the car parks for day visitors.

One of the most striking investments in 2013 was doubtless the construction of a modern mountain lodge on Chopok. With a circular structure in the middle, the building is reminiscent of the old top terminal of the chairlift built in the 1950s. A panorama restaurant with seating for a hundred guests,



The new Leitner 6-seater chairlift serves as an access system from the car parks in Lúčky and as a repeat-ride installation for the family trail.



Top station of the 6-seater chairlift from Lúčky to Vyhliadka



The upper terminal of the 15-seater gondola ropeway from Kosodrevina to Chopok (built in 2012) was integrated in the new mountain lodge.

a south-facing terrace and bar with 200 seats, another restaurant with room for 60 persons, passenger lounges and exclusive apartments – all that has been integrated in a convincing architectural solution, which also houses the upper terminals of the Funitel on the north side and the 15-seater gondola ropeway on the south side of Chopok.

Roman Gric

**TECHNICAL DATA**

**6-seater chairlift from Lúčky to Vyhliadka** (detachable, conveyor loading, blue canopies)

Altitude lower terminal	943 m
Altitude upper terminal	1,287 m
Line length	1,878 m
Vertical height	344 m
No. of towers	14
Haul rope diameter	46 mm
Drive	lower terminal
Tensioning system (hydraulic)	lower terminal
Output (start/continuous)	560/440 kW
No. of carriers	90
Carrier interval	8.9 s
Line speed	5.0 m/s
Transit time	6.3 min
Transport capacity	2,440 p/h
Ropeway manufacturer	Leitner
Year	2013

PHOTOS: R. GRIC

# Leading trade show for Alpine technologies

**INTERALPIN** Every two years InteralpIn, the world's leading trade show for Alpine technologies, attracts thousands of visitors from every continent to Messe Innsbruck.



InteralpIn is the world's most popular platform for lifts and ropeways, mountain development products and services, snow-making systems, winter service equipment, mountain rescue and safety, summer mountain amenities and much else besides.

InteralpIn is the trade show of choice for the presentation of the latest products and systems. It is a must for the whole industry, as reflected in its leading position in the visitor and exhibitor statistics.

The last InteralpIn, in 2013, attracted 21,600 visitors from over 70 countries and exhibitors from 45 countries. With an eleven percent increase in visitors, InteralpIn 2013 set a new record and consolidated its position as the world's leading trade show for Alpine technologies. A noted Swiss market research institute for exhi-

bitions and trade shows polled visitors and exhibitors on all three days of the event on behalf of Congress und Messe Innsbruck. Ninety percent said they considered InteralpIn good or very good and particularly praised the large numbers of new products on display, the convenience of a full industry overview, and the big and varied offering. Almost half of all visitors came with the intention to make a specific purchase. For their part, the exhibitors were pleased not only with their full order books but also with the fact that so many contracts were signed on the spot.

On April 15 - 17, 2015 the Innsbruck Fairgrounds will again be the focus of attention for the ropeway world with the 21st edition of InteralpIn. For videos on InteralpIn and the latest industry reports, go to [www.interalpIn.tv](http://www.interalpIn.tv).

PHOTO: INTERALPIN



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**SAFETY BY COMPETENCE**



# Modern operating system

**LEITNER** LeitControl improves user comfort and operating safety

The push of a button is enough to activate complex work processes. The new LeitControl control system from Leitner ropeways not only facilitates many work processes relating to ropeway operation; the high level of ergonomics and simple user guidance based on modern operating systems also reduce the risk of human error and speed up orientation for new employees.

Where complex work processes were once required, a single instruction via the computer is now all that is needed. LeitControl simplifies and improves ropeway control in many areas – with impressive results. Whereas seven operating steps were previously required to park the carriers – from positioning the system and setting the switch points to starting the conveyor chains – all that is required with LeitControl is a single press of the corresponding control button, which then begins the process completely automatically. The carrier parking system is only one example of the innovative LeitControl concept. The fact that multiple manual work steps are now performed fully automatically increases both operator convenience and safety. The design of the operator interface is based on modern operating systems.

The basic idea behind the development of LeitControl was to switch from a hardware-oriented to an application- and function-oriented operational concept. The newly developed control panel includes all the keys required for daily operation. LeitControl covers all functions and operation of the system under normal operating conditions as well as the execution of tests required for commissioning and regular inspections. "It enables the operations manager to ac-



Innovative control system from Leitner ropeways sets new standards.

cess all the data for his system and to assess each item as required," explains Günter Tschinkel, Head of Electrical Engineering at Leitner ropeways.

## USER COMFORT AND ERGONOMICS

In the event of a stoppage, key information and recommendations for a solution to the problem are displayed with maximum clarity. User convenience and ergonomics had the highest priority in the development of LeitControl. All operating elements required to operate the system are arranged on the control panel with direct line of

sight to the passenger area. Technicians and station employees can now perform the required tasks on the control panel via a multi-screen or tablet. The system has an integrated help function with a link to the circuit diagrams and operator's manual.

A feature that is especially useful for tourism facility ropeways is the optional integration of automated announcements and their visualization in various languages, which can be selected very quickly. Within a single ski area, LeitControl permits all systems to be monitored centrally from a single monitor.

# Like a bolt from the blue

**TATRALIFT** Delights for the nature lover combined with an unforgettable mountain experience – that is the core message of the business strategy pursued by the Slovak lift and summer tobogganing system manufacturer Tatalift.

Jozef Michna, Tatalift's Managing Director says "Our goal is to offer passengers an attractive, safe and comfortable ride and sense of movement in a beautiful natural setting." For the Slovak manufacturer, safe and hassle-free products go without saying. What is equally important is attractive design to appeal to visitors' emotions. "Feeling is worth more than seeing a hundred times and hearing a thousand times. With our innovative design, we combine high-grade engineering with aesthetics; we want to give visitors' endorphins a shake. That

ways and surface lifts – mostly for winter and summer tourism operations – for Slovakia, the Czech Republic, Poland, Hungary, Germany, Russia, Byelorussia, Latvia, Lithuania, Bulgaria and Romania as well as Norway, Wales, Turkey, France, Iran and China. In the light of the growing focus on top quality for tourism facilities, Tatalift operates a policy of continuous product development to generate the innovations needed on today's market. That applies to the company's ropeways as well as its successful line of surface lifts.

is also developing the system for use with 4-, 6- and 8-seater gondolas, and a new terminal design is also coming. At the Mountain Planet trade show in Grenoble, Tatalift presented its new SLO6 6-seater chair, which combines exciting design with maximum safety and comfort. The chair frame is a seamless construction bent from rectangular steel sections, while the seat is spring-mounted for additional comfort. The new chair measures 3,500 x 1,190 x 1,900 mm and has a deadweight of 550 kg for a carrying capacity of 480 kg. In addition to



Design study for the new SLO6 six-pack chair ...



... and the final product, which was unveiled at this year's Mountain Planet in Grenoble

explains the focus on strong visual communication for our products and our determination to offer customers a new generation of ropeways and surface lifts. We are currently in the transitional phase between the development and production of our new products and have already received positive feedback from our customers. The new design is a real treat, a unique eye-catcher. I'm convinced the market will love it," Jozef Michna explains. Tatalift is a well known ropeway manufacturer with a long tradition. From 1976 to the end of 2013, the company produced over 1,200 rope-

In addition to Tatalift's tried and tested fixed-grip chairlifts – with more than fifty double and quad versions with conveyor loading and rated capacities of up to 2,400 p/h sold to various ski areas – the company also offers new detachable installations as the product of in-house development (apart from three earlier detachables built under license for Jasná). The new detachable chairlifts are available in 4- and 6-seater versions, with heated seats and canopies as optionals. At the heart of the new detachable system is a further development of the proven Wopfner grip. Tatalift

ropeways, the Tatra-lift product portfolio also includes an all-year toboggan system by the name of Tatrabob, which can be admired in Teheran in the Iran and in the French ski area Les Menuires. Tatalift has received certification pursuant to ISO 9001:2008 for production quality; the provisions of the standard are implemented at all stages of the development and production process. All Tatalift technology is compliant with the safety standards of the EU and can also be employed in non-EU countries without any problems.

RG

PHOTOS: TATRALIFT (3)



The Tatrabob in Les Menuires (France)



JUDr. Jozef Michna,  
Managing Director of Tatalift



PHOTOS: TATRALIFT (2), R. POLČEK (1)

The new chair with its ergonomic seats



Tatalift is an old-established ropeway manufacturer: Here the Hrubá Voda quad chairlift in the Czech Republic, which was built in 2013.

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# Secure and customized solutions

**A X E S S** The Austrian Axess AG company specializes in the development of secure and customized solutions in ticketing and admission management.



The Axess Point of Sale system fulfills all requirements for modern efficient cash point systems. Its programs are based on decades of experience in the ticketing business.

Within the 15 years since the foundation of the company, Axess has acquired an excellent international reputation as a provider of secure and integrated solutions in ticketing and admission management and become a market leader in the implementation of admission systems for ski resorts, exhibition centers, waterparks, leisure parks, stadiums and arenas.

Axess started to offer components for electronic access systems in ski resorts and leisure parks in Eastern Europe in 1999. Since then, sales have been handled by partners who integrate Axess products (ticket printer, turnstiles, reader for bar code and RFID tickets) in their own system solutions.

## INNOVATIVE AND RELIABLE

The company's guiding principle is to offer the best technical and commercial solutions for the customer and to meet their requirements after careful analysis based on expert knowledge and industry competence. Axess systems are developed using proven state-of-the-art technologies. Wherever possible, industrial standards are observed, and systems are designed with open standard interfaces.

Axess systems are extremely robust and reliable. Innovative features like two-arm turnstiles, a format-independent ticket scanner capable of reading all sizes of barcode tickets in all directions, access terminals with online and offline capabilities, and modular plug and play components ensure a high passage capacity. The system is based on the Axess Data Center (MS Windows server) with an Oracle database in the background. The Data Center manages the operating parameters and the sales and access data, generates reports and allocations, and provides data for web shops and CRM programs. It can be operated from anywhere simply using a web browser. All sales are transferred automatically to the Data Center online. The system additionally provides state-of-the-art security features.

## FIELD-PROVEN SOLUTIONS

Axess provides a variety of gates for access control ensuring maximum reliability and security, for both the operator and the user. Optimized for outdoor access control applications, Axess Smart Gates work under all environmental conditions, from rain to snow and in extreme heat. Smart Gates are modular and therefore perfectly adapted to each application and can be adjusted for future expansion.

The SmartGate turnstile and SmartGate flap configured as floor-mounted terminals with wide-range antennae are the most popular solutions for floor installation. The wide-range antenna with its large antenna surface and the RFID vicinity module provide reliable reading of RFID chip cards to ISO 15693 without any additional action required of the person entering the access control area (hands-

free). SmartGates with single or double antennae provide the most comfortable mode of access.

The SXT SmartAxess Terminal is a field-proven solution for access control at stadiums, arenas, waterparks and leisure parks. Using a two-arm turnstile instead of a tripod makes the SXT faster than any other product on the market. As the design facilitates movement through the gate, passage capacity can be increased immensely compared to other products without detriment to security.

## PARTNER FOR INTERNATIONAL EVENTS

At major international events, such as the 2006 FIFA World Cup in Germany and the 2008 UEFA EURO in Austria and Switzerland, Axess was chosen as a reliable and flexible partner for ticketing and access control systems. Participation in those events means that Axess systems meet the requirements and guidelines of the international football associations. Furthermore, Axess systems are not just for big stadiums but also for smaller stadiums and arenas.

The international reference list of customers who trust in Axess' outstanding reliability and competence includes many famous ski resorts such as Dolomiti Superski (Italy), St. Moritz/Engadin (Switzerland), Ski Arlberg (St. Anton-Lech-Zürs/Austria), Compagnie des Alpes (France), Skistar (Sweden/Norway) plus various stadiums and arenas like Signal Iduna Park in Dortmund/Germany, Rhein Energie Stadium in Cologne/Germany, Red Bull Arena in Salzburg/Austria, Letzigrund Stadium in Zurich/Switzerland, Eden Stadium in Prague/Czech Republic and many other customers in fifty countries.



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# Thirty-five ropeways for the Winter Olympics

**DOPPELMAYR** In the 2013/14 winter season, thirty-five Doppelmayr ropeways were in operation in the Olympic region of Krasnaya Polyana in the Russian Caucasus.



An Olympic champion in its own right: the Rosa Khutor Olympic Village tricable aerial tram with 54 thirty-passenger cabins and 25 car carriers

In 2007, Russia was successful with its bid to host the 2014 Winter Olympics, and that triggered an economic boom in the whole region. Doppelmayr had already built a number of ropeways in Sochi before the resort was awarded the Olympics, but the decision gave a huge boost to plans for further installations there.

## TWO OLYMPIC SITES

To be precise, the Winter Olympics were held in two locations: in Sochi itself and in the mountains of

Krasnaya Polyana. Sochi was the venue for the indoor events, while Krasnaya Polyana was the site of the snow sport disciplines. The two centers were linked by a modern road and a brand-new railway line.

## LOGISTIC CHALLENGES

The logistic challenges for construction of the ropeways were enormous. With hundreds of companies working in the area at the same time, thorough planning was essential to avoid snarl-ups. Ski World Cup races were also hosted

in the ski area in 2013, and the construction schedules had to be made to fit around them. In addition, a lot of time was lost to fastidious security measures. So as not to fall behind the construction schedules, the various jobs and processes had to be planned with a unique combination of thoroughness and flexibility. This is where Doppelmayr's proven logistics competence came in: All the challenges were mastered with aplomb – and all ropeways completed on time.



# Snow Park Alliance

**KÄSSBOHRER** Partnership between Kässbohrer Geländefahrzeug AG and Schneestern OHG

With its ParkBully, Kässbohrer Geländefahrzeug AG has been offering a vehicle tailored to the needs of park operators and shapers since 2001. Today ParkBullys are to be found all over the world; no snow park would be complete without one. They are driven by the world's best shapers to create snow parks to the most exacting standards.

Kässbohrer Geländefahrzeug AG is continually working to develop its vehicles still further. That is why Kässbohrer Geländefahrzeug AG and Schneestern OHG have signed a partnership agreement that provides for joint snow park business activities plus development work on the vehicles and related technologies.

## JOINT PROJECTS

The first major project was the Stubai Prime Park Sessions, where the world's leading freeriders and snowboarders were offered ideal conditions to prepare for the 2014 Olympics in Austria's largest glacier ski area. There the Schneestern crew created the perfect park set-up for the athletes using a PistenBully 400 Park and a PistenBully 400 W.

## A HOUSEHOLD NAME FOR SKIERS IN 68 COUNTRIES

Kässbohrer Geländefahrzeug AG produces and sells snow groomers and beach cleaning vehicles worldwide under the PistenBully, Formatic and BeachTech brands.

Kässbohrer Geländefahrzeug AG is active not only on the market for snow grooming and beach cleaning; its vehicles are also deployed away from the ski slopes and holiday beaches: as research vehicles in the Antarctic, transport vehicles on otherwise inaccessible terrain, shifting silage, excavating peat, or mowing and mulching on sensitive ground.

## SCHNEESTERN

Run by action sport enthusiasts, Schneestern was founded in 1999 as a professional supplier for snow parks, snow park equipment and events.

"We are Schneestern." This motto is what drives the Schneestern team on a daily basis. The team's professionalism, ingenuity, collaborative approach and strong identification with action sport help to ensure that their customers' needs are recognized and individual solutions supplied. Schneestern has a broad customer base, including ski resorts, ski schools, lifestyle brands, marketing and event agen-



cies, associations, and regional and local authorities. All of which makes the company the perfect choice for cooperation with Kässbohrer.

# Perfect slopes for Sochi 2014

**PRINOTH** Prinoth official Olympic partner at Rosa Khutor

With 62 snow groomers and a contract valued at €15 million, the 2014 Winter Olympics in Sochi were an international prestige project for Prinoth. As the official partner at Rosa Khutor, all Olympic runs for the Alpine competitions were prepared using Prinoth snow groomers. Innovative technologies, impressive tilling performance and the drivers' knowhow – accumulated from numerous major events – meant that the snow groomers could guarantee perfect racing slopes. “This big order shows us that people trust in our technologies

and that our snow groomers are totally reliable. Prinoth has always committed to major sporting events, and we are pleased that our snow grooming equipment was used to provide the basis for successful races in Sochi as well,” says Werner Amort, CEO at Prinoth.

In order to ensure not only that the technology was problem-free but also that the snow groomers were used correctly and received the appropriate maintenance, Prinoth made its intelligent snow grooming knowhow available and sent two professional snow groomer drivers to Rosa Khutor. To guarantee that the event



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Prinoth snow groomers for Sochi

PHOTOS: LEITNER ROPEWAYS (L), PRINOTH (R)

could take place without any problems, Prinoth service technicians were also on site to support the company's Russian Partner Gorimpex.

More than sixty Prinoth snow groomers created Olympic quality trails at Sochi.



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# Winter Olympics 2014

**SUNKID** Top performance from Sunkid in Sochi



The Sunkid Moving Carpets® can reach a length of several hundred meters.

The 22nd edition of the Winter Games was held in Sochi, Russia, over the month of February. As always with places chosen to host the Olympic Games, the area underwent huge interventions to be ready for the crowds, the athletes and the fans that were to come. Among all the new construction, this article focusses on ten Moving Carpets® that were installed all over the area that hosted ski competitions.

In Sochi, one of the ten installations is a covered Moving Carpet® with a total length of 87m which connects one of the most luxurious

hotels in the resort to a private area next to the nearest cable car, allowing guests to reach the ski slopes (or the bleachers, in the case of Olympic spectators) with their feet dry. The ten Moving Carpet® lifts in Sochi were manufactured and installed by the Austrian Sunkid company. Their Zauberteppich conveyor lift was first developed for ski schools and with children in mind, with the goal of simplifying the first and hardest steps in the process of learning to ski. After the first installations in 1996, the system became ever longer, stronger and more comfortable, and found a

niche in the most diverse environments, bringing people to the top of tubing courses, rafting courses and even golf courses. Today, over 2800 Moving Carpets® and 4000 smaller Sunkid ski lift systems are in operation worldwide.

The Olympics worked as a good showcase for Sunkid. “Our record for the longest Zauberteppich is 400m, with a speed of 1.2 m/s,” says Sunkid CEO Emanuel Wohlfarter. “But the covered installation in Sochi is the most exclusive Moving Carpet® in the company’s history. It features our double technology, bringing together an endless rubber belt and POM link chain, and our Blue Eye anti-slip technology, plus numerous extras. And it comes covered with the Evolus gallery canopy.” The Evolus is another leap forward for Sunkid. First installed on the Planai in Schladming for the 2013 Alpine World Ski Championships, ten years after Sunkid’s first carpets with canopies, this gallery has a number of technical innovations that make it unique, the first and foremost being the possibility to adjust the spacing between the arches individually so as to adapt the gallery’s profile to the snow and wind loads in the most cost-effective manner.



Sunkid also offers products for leisure parks with its Family Rides (like the Nautic Jet in the photo).



The Sunkid Rotondo carousel goes round and round and can be adjusted for speed and direction.

PHOTOS: SUNKID



# Strong presence at the 2014 Sochi Winter Olympics

**MND** Via its products, MND entered the North Caucasus market successfully.

The MND Group's products were well represented at the Sochi Winter Olympics, as three of the Group's subsidiaries supplied the various host resorts.

Group subsidiaries TAS (preventive avalanche-release systems), MBS (ski slope safety) and LST Ropeway Systems (ski lifts) supplied equipment to three of the four resorts in the Krasnaya Polyanaya valley, where the downhill ski events were held.

TAS has been operating at the Alpika Service (bobsleigh races), Gornaya Karusel (ski-jump) and Rosa Khutor (Olympic Village and downhill ski events) resorts for a number of years, and has secured all the Olympic areas and access roads via a total of around 110 remote-controlled preventive avalanche release systems.

In the field of safety, the downhill and Super-G slopes in the Rosa Khutor resort, which hosted all the downhill ski events, were fitted with over 6 km of ISF-approved safety systems supplied by MBS.

LST Ropeway Systems built a four-seater chairlift at Rosa Khutor.

The chairlift is one kilometre long and carries up to 1,200 people per hour. It includes all of LST's latest innovations in terms of comfort and user-friendliness. These contracts, which mark the culmination of a long-established partnership with the organisers of the Olympic events, prove how rapidly the technical reputation of the Group's products and services is spreading around the globe.



Safety netting and protection pads from MND



LST chairlift at Rosa Khutor resort under construction

PHOTOS: MND

# Further concentration on the snowmaking market

**SUFAG** Snowstar, Areco and Sufag pool their strength in MND Group's snowmaking division.

In 2013 MND Group took over the Snownet group. The Sufag and Areco brands were integrated in MND's snowmaking division and thus joined Snowstar, an Italian provider of snowmaking solutions, which was acquired in 2011. With this take-over, MND Group moved up to join the big international actors in the field of man-made snow. Above all, the combined know-how of these three key players in the snowmaking industry meant that Sufag had the fullest product portfolio for snowmaking solutions.

Today Sufag operates with more than eighty employees in two production locations (Östersund in Sweden and Sainte Hélène-du-Lac in France) and eight group distribution and after-sales service subsidiaries. These teams work with advanced fan gun and lance technologies and provide the help and advice needed to enable winter resorts to offer a convincing snow guarantee.

## INTERFAB AND SUFAG PULLING TOGETHER AS OF APRIL 1

In 2013 Roderich Urschler added Interfab Snowbusiness GmbH to MND Group. Sales of all MND products in Austria and Germany are currently handled by the two distribution organizations Interfab Snowbusiness GmbH and Sufag Snowbusiness GmbH, both of them managed by Roderich Urschler.

At the start of the new business year on April 1, however, the two organizations will merge to form a single sales company, namely Sufag Snowbusiness GmbH. The objective of the merger is to implement a stronger customer orientation and a harmonized market presence as the MND sales arm for the complete product range.

The company will continue to operate with the two locations in Innsbruck and Kennelbach, and the team also remains unchanged for all commercial and technical solutions involving MND Group's products for Snowmaking, Safety and Ropeways.



Roderich Urschler,  
CEO of Sufag Snowbusiness GmbH

## MND GROUP

MND Group was founded in Sainte-Hélène-du-Lac, at the heart of the French Alps, in 2004. It is one of the few market players to have a full range of products and services for developing, equipping and maintaining ski areas and leisure parks, access roads and other items of today's mountain recreation infrastructure.

With four production plants in Europe (in France, Germany and Sweden), eight distribution subsidiaries and 50 distributors worldwide, MND Group has 264 employees and almost 3,000 customers in 49 countries. At March 31, 2013, MND Group reported pro forma revenues of 58 million euros, 65% of which derived from exports.



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# The road to perfection

**SUPERSNOW** is one of the few internationally recognized manufacturers of snowmaking systems to which no crisis is a threat. Over the years, Polish products and services have built up a fine reputation worldwide.

## THE BEGINNINGS IN PODHALE

Supersnow is currently one of the few leading manufacturers of complete snowmaking systems, having come a long way since it was founded in the year 2000. The Supersnow engineers developed their first interest in snowmaking in the first half of the 1990s. In the heart of the Podhale region, on home ground in the town of Białka Tatrzańska, they constructed their own ski resort to cater for skiing enthusiasts, and given the unpredictable weather conditions there they also had to take a look at the options for snowmaking. Back in those days, there were plenty of prominent companies on the market, but access to their products and services was limited in Poland. The logical answer to that problem was a do-it-yourself solution, and at the end of the 1990s the Supersnow people started servicing snowmaking equipment. Over the years that enabled them to build up their snowmaking knowledge and experience, leading ultimately to the development of the 900M manual snowgun and its debut on the market in 2005.



Year 2004: Company founder, at the first production facility

## SERIOUS SNOWMAKING

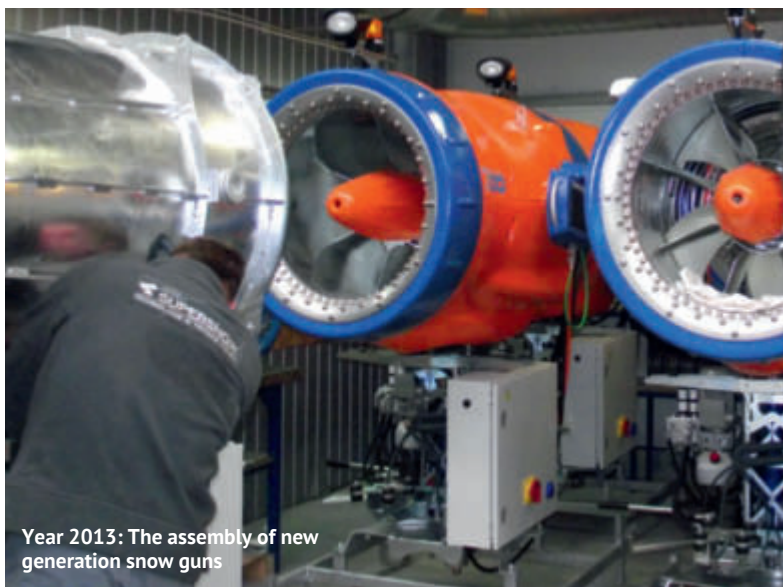
In 2006 Supersnow extended its product line to include complete snowmaking systems and also – as a product of continuous research, testing and sheer hard work – an automatic snowgun, the 900MA.

With their roots in a mountain region and experience of the skiing industry, the Supersnow people

were able to observe and understand the growth of winter sports and keep track of the latest trends. In 2011, for example, they introduced an exceptionally efficient snowgun, the 600 ECO, which is probably one of the best snowguns in the world today – as confirmed by countless tests in which the 600 ECO has consistently come out on top. A continuous development ef-



Year 2005: The designers of the first snow gun



Year 2013: The assembly of new generation snow guns

PHOTOS: SUPERSNOW



fort enabled the company to break new ground with the emergence of the 700A automatic snowgun two years later, in 2013.

Today, Supersnow offer complete snowmaking systems designed specifically to suit customers' wishes and requirements. They also produce master plans and then deliver and install the various systems on a turnkey basis. Their offering includes solutions for pumping stations, pipelines, water intake and filtration systems, cooling water systems and water retention ponds, while the actual snowmaking equipment includes automatic and manual fan guns and lances, extension arms and jibs, a central snowgun control system and various other accessories.

#### IN THE ELITE SPHERE

Today, fourteen years after the initial stages, Supersnow has 86 employees including twelve in the office, ten customer service consultants, ten service technicians, fifteen production workers, 25 snowmaking system installation workers and fourteen engineers responsible for technological innovations. Over the years, hard work and commitment have paved the way for Supersnow to extend its production facility. On 30,000 sq.m. of land, the company is building a new snowgun production facility, which is due to open in the spring of 2015. In the pro-



Year 2013: Expo stand at InterAlpin

duction plant, on 8,000 sq.m. of floor space, Supersnow equipment will be manufactured with the help of state-of-the-art technology. In addition to the production area, office building and warehouse, there will also be a training centre. Supersnow's passion for snow has made its mark on three continents: Europe, Asia and South America. Supersnow snowguns and complete snowmaking systems are to be found not only in Poland but also in the Czech Republic, Slovakia, Russia, Ukraine, Romania, Hungary, China, South Korea, Chile and Argentina. Worldwide recognition is partly the result of participation in leading international trade shows: InterAlpin in Innsbruck (Austria), Alpexpo in Grenoble (France), ExpoAndes in Santiago (Chile), Interlavex in Lip-

tovsky Mikulas (Slovakia), Intermountain in Spindlerovy Mlyn (Czech Republic), Alpitem in Beijing (China) and SkiBuild in Moscow (Russia).

Another aspect that explains the high quality of Supersnow's products and services is the fact that today they are one of the few self-sufficient manufacturers of snowmaking systems. Whilst other suppliers have been forced to merge or change the management in the light of the financial crisis, Supersnow still continues to occupy a strong position on the market – without any support from others. Looking back at the company's modest beginnings, it is clear that it is achieving its goals and making it all happen. At Supersnow, they know how significant snow is to us all.



Year 2015: Brand new Supersnow production facility

# White trails guaranteed

**DUKTUS** Val d'Isère upgrades its snowmaking equipment with Duktus pipes

From July to September 2013, the people responsible for the snowmaking equipment for the women's World Cup downhill race in Val d'Isère had their hands full. And Duktus was also involved, because its French sales partner Soval had to supply 1,600 m of snow pipes on time so that the laying teams could do their work.



The Val d'Isère snowmaking system upgrade using Duktus pipes



Val d'Isère in the French Alps operates under the slogan "Le plus bel espace de ski du monde – the most beautiful skiing resort in the world". In fact the "Espace Killy" Ski Area (named after the three-times Olympic champion Jean-Claude Killy), which combines the two winter resorts of Val d'Isère (1850 m) and Tignes (2100 m), is one of the elite among the world's classic skiing destinations. The fashionable resort lies in the heart of Savoie, is surrounded by numerous mountains reaching up to almost four thousand meters and was the venue for the men's Alpine skiing competitions for the 1992 Winter Olympics in Albertville, where the challenging Face de Bellevarde trail attracted particular attention. The 2009 Alpine World Ski Championships were also held there. Val d'Isère is the absolute point of focus for the Alpine ski World Cup. The "Criterion of the First Snow" in the French Alps has been delivered every year in December since 1955. While the men race down the legendary Face de Bellevarde, the women's competitions take place on a modified route. In order to improve the infrastructure for television broadcasting, photographers and journalists and save costs at the same time, the women's downhill trail was changed so that the finishing lines are now in the same place.

The modified section of the trail had to be equipped with the necessary snowmaking facilities. Soval reacted in good time and won the contract to supply a total of 1,600 m of DN 250 ductile snow pipes with BLS® joints.

"The pipelines for the snowmaking on this new section of the trail have to withstand a pressure of 85 bar and have the resilience to transport the snowmaking water on a long-term basis. The reliability of the Duktus cast-iron pipe system plus their guarantee to deliver within the narrow time window available was the clinching factor. The bottom line was that the piste had to be in impeccable condition in December 2013 for the World Cup skiing event. Only two months remained for the completion of the snowmaking pipeline. Added to this was the fact that, for the pipe-laying company Gravier TP, it was the first contract for installation of a high-pressure pipeline. Thanks to the high standard of collaboration between all concerned and our engineering support service, it was possible to have all the work completed on time," says Benoît Planel, Duktus Sales Manager in France.



# Bansko as a model innovative approach



In the last few years, there has been an increasing focus on ski area development in the mountain regions of CEE.

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In view of the revenue generating capacity of winter sports, ski areas are seen as an ideal vehicle for economic development there, as various examples in the Carpathians, the Caucasus and also the Pirin mountains of Bulgaria clearly show. The goal of regional development is to be achieved by attracting new groups of both European and domestic visitors. Bansko in the Bulgarian Pirin mountains is a good example of the success of this policy. The built-up area has almost doubled as a result of investments in winter sports facilities there. Incoming tourists and winter sports holiday-makers have acquired properties, and the resort is crowded in the winter months. The rapid pace of development, however, has not been wholly positive, with economic pressures and a lack of experience in the field of ski area development leading to a number of ecological problems. While the lifts and cable cars are state of the art, conservationists see room for improvement in terms of environmental protection.

The question is how to respond to these challenges. In this context, the Ulen company in Bansko has adopted a model innovative approach. In order to provide a systematic and sustainable response to the ecological challenges, the decision was taken to apply the Euro-

pean Eco-Management and Audit Scheme (EMAS). The process was prepared in collaboration with experts from the University of Natural Resources and Life Sciences in Vienna (A) and the Working Group for Land Use Planning in Polling (D), and the actual assessment was handled by LRQA Vienna (A).

The assessment performed jointly by the experts and the company's management revealed a variety of risks and requirements with regard to soil erosion, ski trail re-grassing and embankment stabilization on the one hand but also good progress made with regard to waste management and waste water treatment on the other. The results to date and tasks for the future are presented below. It is hoped that they will motivate other companies to follow Bansko's example and also adopt a targeted and long-term focus on quality assurance.

## MODEL ENVIRONMENTAL AUDIT

In a first step, a systematic inventory of areas of ecological relevance was prepared and the relevant measures identified, taking account of all aspects of ski area operation, from winter skiing and summer trail grooming to events and catering. To improve the vegetation cover on the trails, for example, an analysis was performed to find the optimum seed mix for re-grassing,

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The slope near the lower terminal in spring 2011 ...



... and following targeted re-grassing measures in autumn



Unstable slopes were tackled with soil bioengineering methods using timber and plants instead of concrete and steel. The photo shows a log cribwall on the famous Tomba Trail.

and erosion-reduction measures were implemented over wide areas. Instead of concrete and steel, soil bioengineering methods were employed using timber and plants to consolidate unstable slopes, e.g. on the famous Tomba Trail.

Another relevant factor in the context of environmental management is the resort's annual consumption of energy and water. The audit helps to keep demand and costs under control. In total, it was possible to main-

tain energy consumption for snowmaking per unit area at a more or less constant level. In the case of water, there were more pronounced fluctuations in consumption depending on the natural snow cover. Good results were achieved in particular with regard to service water supply and waste water treatment. All the company's restaurants and bars in the ski area have their own organic waste water treatment plants, and they are checked at regular intervals. The situation in the area of waste management is also exemplary, especially in the case of hazardous wastes, but scope for improvement was identified with regard to waste separation by visitors.

A differentiated environmental management program lists planned improvements and the persons responsible for their implementation. Old lifts and cable cars, for example, are to be replaced in the interest of passenger safety and comfort; an investment in staff training is required, and the results of the audit are to be made available to visitors and the authorities in the form of a brochure.

Talks with employees in the ski area showed that they identify strongly with the company and their work and are very much aware of the importance of the ropeways for the wellbeing of the region as a whole. They are proud to be a part of it. Employee participation and motivation are among the key elements of the audit; they can both make a significant contribution to successful implementation of the program.

Ulrike Pröbstl

PHOTOS: THE ULEN COMPANY

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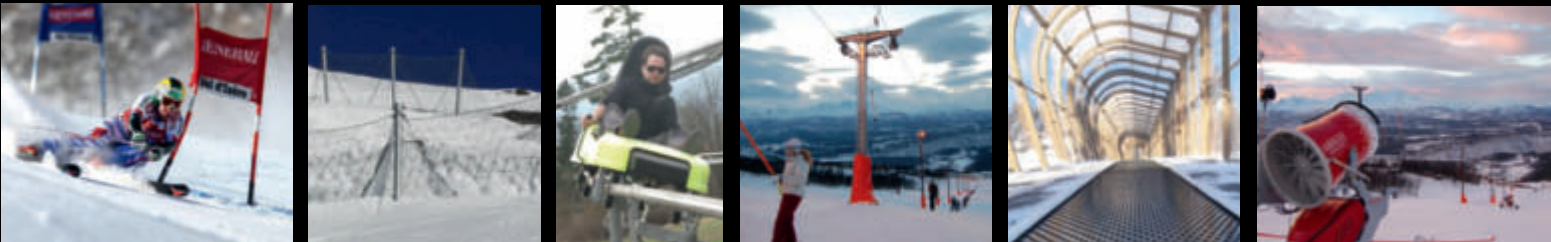


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