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# Wir



Garaventa installed Switzerland's first chair lift with heated seats in the ski region of Laax. p 10



**Good business results**  
for the Doppelmayr Group p.2

**CABLE Liner Shuttle for Mexico City Airport**

DCC has now sold the third installation of this type to an airport p.3

**4 gondola systems for Kronplatz**

and several more besides in South Tyrol and Piedmont p.8

**Speed control unit for spacing regulation**

New development from Doppelmayr for detachable chair lifts p.17

8MGD Speikboden in South Tyrol p.6

 **Doppelmayr®**

Magazine for  
Customers and Employees

## Stable growth

**In fiscal 2004/2005 the Doppelmayr Group increased sales volume by 5.5 percent to EUR 489.7 million, thus consolidating its position as world leader of the ropeway construction industry.**

With 2099 employees worldwide, a total of 170 ropeway projects were completed and EUR 10.3m was invested in property, plant and equipment (previous year EUR 18.7m). The Group posted net income of EUR 4.6m for the past fiscal year (previous year EUR 3.0m). The Doppelmayr Group's core markets remain the European alpine countries and North America. Markets with very high potential are the growth markets in Eastern, South-Eastern and Central Europe which made a significant contribution to the Group's good results.

### *Technological leadership*

Doppelmayr continues to be the only manufacturer who not only includes all well-known passenger ropeway systems in their portfolio but has actually installed them. The most technically demanding projects in fiscal 2004/2005 included:

- The market launch of the world's first seat heating system for chair lifts on a total of five installations in Lech am Arlberg and Schröcken in the Bregenzerwald. This pioneering innovation, which is also suitable for retrofitting, is now being ordered around the globe.
- The tri-cable ropeway in Kitzbühel, the only one of its kind worldwide, which covers an approximate length of 3 km and features just one tower, a 2.5 km rope span and a maximum ground clearance of 400 meters.
- The Funifor ropeway "Pianalunga - Passo dei Salati" in the Monte Rosa Massif which ascends to a height of 3700 m and provides the flexibility to run each section at the capacity which best suits the needs of skiers.

Interesting projects were also developed and implemented in the area of material

ropeways. These included the installation of a bulk material conveyor ("RopeCon" system) linking a quarry with a stone-crushing plant in Zöchling, Lower Austria.

### *High level of investment*

Doppelmayr invested EUR 10.3m in plant and machinery during the past fiscal (previous year: EUR 18.7m). The Hohe Brücke plant, Wolfurt, accounted for the most capital-intensive investments which were primarily geared to further quality improvements.

### *Headcount remains constant*

The number of employees showed little change over the past fiscal: in 2005 Doppelmayr counted a highly qualified workforce of 2099 employees worldwide, maintaining virtually the same level as in 2004 (2102). The goal of the Group's future-oriented HR policy is to assert and expand its technology, innovation and quality leadership.

### *Confident outlook for the year ahead*

In spite of tough price competition and high energy and steel prices, the Doppelmayr Group is well equipped for the years to come. Orders in hand and capacity utilization for the current fiscal are excellent, and order intake for the next fiscal gives every reason for confidence.

	2004/05	2003/04
Sales	EUR 489.7m	EUR 464.0m
Employees	2099	2102

## CABLE Liner Shuttle for Mexico's largest airport

**DCC Doppelmayr Cable Car has won the contract for a turnkey project to build a three-kilometer long CABLE Liner Shuttle for the international airport in Mexico City.**

The order volume is EUR 52m and commissioning is scheduled for January 2007. The CABLE Liner Shuttle will link the existing Terminal 1 with the yet-to-be built Terminal 2. The system will feature a trip time of 4.5 minutes and transport 540 passengers an hour in each direction, with the possibility of expanding capacity to 800 PPH. 17 months are envisaged for completion.

Mexico City's international airport currently handles 24 million passengers a year. The new terminal will be designed to cater for another 12 million.

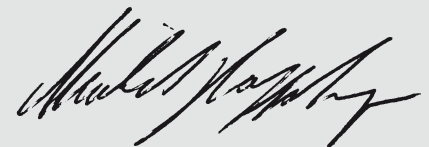
CABLE Liner Shuttle, Mexico City Airport	
Purchaser	ASA - Aeropuertos y Servicios Auxiliares
Supplier	Consortium comprising DCC Doppelmayr Cable Car GmbH & Co and Ingenieros Civiles Asociados (ICA)
Length	3025 m
System capacity	540 passengers/hour/direction
Vehicles	1 train with 4 vehicles
Travel speed	12.5 m/sec (= 46 km/h)
Trip time	4.5 min

### Success not left to chance

Fiscal 2004/2005 marked a considerable achievement for Doppelmayr/Garaventa. 170 new ropeway installations were completed, including some sensational and truly demanding projects such as the 3S gondola lift in Kitzbühel, the 2S lift in La Massana, Andorra, and the reversible aerial tram in Katoomba, Australia, to name but a few. We built funicular railways and a Funifor as well as chair lifts of all sizes and surface lifts. Technical innovations were employed, such as the revolving gondola technology on the 8MGD Rondo-Stuckli in Switzerland or the world's first seat heating system for detachable chair lifts. We are also in the process of developing further innovations jointly with our customers.

Thanks to the commitment of all our employees and the confidence of our customers, we have largely been able to maintain if not improve our position in our core markets as well as achieving an excellent position in the flourishing markets in the new EU member states and in Eastern Europe.

This development appears to be continuing in the current year, enabling us to be a strong partner for our customers and a solid employer for our workforce. And that is precisely what we shall aim to be in the future.

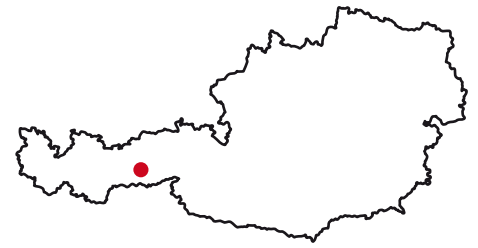


Michael Doppelmayr



After the AirRail Shuttle at Birmingham International Airport in the UK and the Airport LINK at Pearson International Airport in Toronto, Canada, DCC is to build its third airport APM system at Mexico City Airport. Toronto's Airport LINK is due to go into service in spring 2006

# Maintenance-friendly innovation: Glacier surface lift



**Doppelmayr has used a new surface lift system on the Hintertux Glacier. Adapting to the changing terrain is now much easier and faster than with previous systems.**

The Hintertux Glacier at an altitude of over 3000 m is one of the biggest all-year ski areas in the Alps: the "glacier tour" alone offers 72 km of downhill slopes; the entire ski region boasts 225 km of trails and 62 lifts with a total capacity of 108,000 PPH.

## *High-performance surface lifts on the glacier are a big hit*

The two Kaserer surface lifts are to be found at the center of the summertime glacier ski experience. The new "Kaserer 1" has been in operation since mid September. The old angle surface lift dating from 1977 was demolished in summer 2005<sup>1</sup> and the new lifeline positioned virtually parallel to Kaserer 2.

## *Technical fine points speed up maintenance*

This project obviously appealed to the ingenuity of Doppelmayr's engineers: as well as being safe for skiers and snowboarders, the new glacier surface was to offer more convenient maintenance. The result speaks for itself.

This is largely thanks to the new torsion-resistant portal towers made of steel. Sheave assemblies and tower feet (where they stand on the ice) are tilt-mounted. The sheave assemblies can be moved in all directions. The glacier towers stand on steel rails. They can be inclined in all directions and shifted sideways. A tilt gauge fixed to the towers is particularly helpful for checking and adjusting purposes. As the glacier ice flows downhill – but at different speeds and not always in the same direction – the towers have to be excavated from time to time, pulled uphill and realigned. The rails are designed to ensure that this can be accomplished using a snowcat and less effort than with the type of construction generally used in the past. The same applies to the return station. This structure stands on

the ice and is – like all 12 glacier towers – secured by a guy rope which is fixed to four massive rock anchors; one would suffice, but safety is paramount. The drive is located on rock and just in front of it the mast for guy rope tensioning.

The drive is also a new development. In view of the considerable length of the installation a very strong motor was required. With its 250 kW (340 PS), this particular motor could be used on a fixed-grip quad chair lift of comparable length.

The decision of the operating company, Zillertaler Gletscherbahnen, in favor of a surface lift rather than a chair lift was motivated by practical considerations: firstly, the huge amount of ice that forms as a result of the local climate is easier to remove every morning on a surface lift; secondly, a chair lift would have meant colossal foundation work in view of the brittle permafrost subsoil.

The lift complies with the provisions of the new ropeway directive, which facilitates any future expansions, rebuilds or repairs. The foundation work was performed by the customer; Doppelmayr was responsible for supplying the ropeway and installing the mechanical and electrical equipment.

<sup>1</sup> Skiers were able to use Kaserer 2 (built 1982). However, this lift was out of operation for a few days due to the modernization of the return station. Both Kaserer 1 and 2 were supplied by Doppelmayr.

Specifications for the Kaserer 1 surface lift	
Track length	1430 m
Vertical rise	490 m
Guy rope diameter	26 mm
Haul rope diameter	30 mm
Gauge	3.6 m
No. of towers of which glacier towers	14
No. of hangers	12
Travel speed	178
Transport capacity	3.3 m/sec
	1414 PPH





Glacier tower: Tower feet and sheave assemblies can be shifted sideways and are tilt-mounted. They can be inclined in any direction.



An Mi26-T, the world's heaviest freight helicopter manufactured in series, was used for the installation work. It has eight rotor blades, two 8350kW engines (in total 22,400 PS) and measures 46 m in length. With a take-off weight of 56 tonnes, it can transport up to 20 tonnes of freight.



Bottom terminal of Kaserer 1 below the Hintertux Glacier at an altitude of 2705 m: at the front the mast for guy rope tensioning, behind it the drive with 230 kW DC motor and hydraulically operated platform for relocating the grips.

Return terminal at an altitude of 3188 m, tilt-mounted on the ice; behind it the guy rope tensioning system with a tensioning force of 21.5 tonnes; retensioning is performed at the bottom terminal. The haul rope is tensioned with 30 tonnes by means of a hydraulic cylinder at the bottom terminal.



# Speikboden 8MGD: Eight minutes to skiers' paradise

**Everything has speeded up since November 2005. With the new 8-seater gondola lift up to Speikboden, mountain tourists, hikers, sun worshippers, skiers, snowboarders and carving enthusiasts whiz up to their seventh heaven – and enjoy the view of the 80 three-thousanders which ring the Tauferer Ahrntal.**



The Ahrn Valley in South Tyrol, a good hour's drive to the north-east of Bolzano, is a popular all-year tourist attraction. The region offers 10,000 beds. 60% of visitors come from Germany, 20% from Italy, another fifth from the Benelux countries and the new EU member states.

They – and the local day-trippers who arrive on the free ski bus service which runs every 15 minutes and covers a 40-kilometer radius – have a wide infrastructure to choose from: an 8-seater gondola lift, three detachable quad bubble lifts, a quad and a 2-seater fixed-grip lift plus a surface (beginners') lift with a low rope-line. – These lifts have a transport capacity of 11,900 PPH. The trails cover an area of 70 ha over a total length of 20 km.

*For 30 years every lift in the Ahrn Valley has come from Doppelmayr*

It was here on December 3, 2005 that the Speikboden lift was opened, an 8-seater monocabable gondola lift which travels from an altitude of 938 m in the valley up to 1960 m. This installation is the only feeder into the Speikboden ski region. It replaces the Michelreis detachable quad, built in 1989, as well as the Speikboden detachable triple chair, built in 1984: both of these were Doppelmayr lifts, the latter being Italy's first detachable Doppelmayr chair lift. – In fact, Doppelmayr has supplied all the ropeways in this area since the 1970s; the new Speikboden 8MGD is thus the third generation of ropeways from Doppelmayr!

Speikboden AG stipulated that the lift should feature a slight angle of roughly 5°. This made it possible to continue using the ropelines of the old chair lifts, retain the locations of the top and bottom stations and avoid crossing a farmhouse. The deflection angle is spread over ten towers. The ropeway is equipped with the Doppelmayr rope position monitoring system RPD.

Specifications for the Speikboden 8MGD	
Drive station as underfloor drive at the top	
Return-tension station at the bottom	
Steel parking structure at the top	
Inclined length	2883 m
Vertical rise	1022 m
Haul rope diameter	54 mm
No. of towers	28
Carriers: CWA OMEGA III LWI	90
Transport capacity	2400 PPH
Travel speed	6 m/sec
Trip time	8 min



The Speikboden 8MGD replaces two chair lifts. The photograph shows (from left to right) Marco Cioccarelli (head of the electrical contractor), Hansjörg Trafoier (project manager at Doppelmayr Italia) and lift manager Anton Schneider (Speikboden AG). The contract was awarded in spring 2005. Speikboden AG began with the demolition of the old lifts and the concreting work at the beginning of July. Doppelmayr started to install the electro-mechanical equipment in mid-August and final approval was completed on November 18.



## Olympic fever

The new Doppelmayr 8MGD from Bardonecchia (Piedmont) to Monte Jafferau (2801 m) replaces a 30-year-old 2-seater chair lift (built in 1976). Bardonecchia is to host the Olympic snowboard disciplines in 2006. Snowboarding has been recognized as a winter Olympic sport since 1995. Following the half pipe and parallel giant slalom competitions, 2006 will see the first ever snowboard cross competition in Turin. The Winter Olympics will be held in the Turin region from February 10 - 26. Seven chair lifts and one gondola lift make Doppelmayr Italia the major ropeway supplier. The photograph below shows the site manager commissioned by the Comune di Bardonecchia, Francesco Belmondo, with the new CWA gondolas.



*The ropeline circumvents a farmhouse. Bottom photograph: the modern bottom station of the Speikboden gondola lift*







## Four new 8-seater gondola systems for Kronplatz

**The ski region on Kronplatz (Südtirol), the mountain between Bruneck, Olang and St. Vigil used by skiers and hikers, has 24 ropeways<sup>1</sup> with an hourly capacity of 63,000 passengers. Two-thirds of these installations originate from Doppelmayr, including four new 8-seater gondola lifts.**

The new Doppelmayr ropeways, all 8MGDs, are Piz de Plaies with two sections, Lorenzi and Cianross.

*Piz de Plaies and Pedagá: some of the gondolas on these 8MGDs can be directed downhill in the mid station when required*

The circulating ropeway on Piz de Plaies replaces two chair lifts. The bottom station features two separate entrances: one for the uphill trip to Hof Pedagá, in other words for the first leg only, and a second which is exclusively for the trip all the way up to the peak of Piz de Plaies. Passengers who use this entrance cannot disembark in the mid station as the doors remain closed.

The twin entrances for a gondola lift are certainly a new feature, but by far the most interesting technical innovation is the fact that one third of the gondolas are redirected in the mid station and sent back downhill. The remaining gondolas travel on up to the top station. All this is made possible by using a specially developed and particularly fast switch

rail: depending on current requirements, the door opening control system can be switched to select a certain number of carriers to run as far as the mid station or up to the top station. This means that the transport capacity to the top or mid station can be varied.

The ropeline of the new installation initially follows that of the old Pedagá chair lift. However, the mid station has been moved uphill and the ropeline then takes a new route to reach the top station of the present Piz de Plaies chair lift. The mid station houses both drive and tension systems, the parking facility for the gondolas, the control center, electrical rooms with medium voltage and transformer cubicles, emergency power generators and a garaging facility for snow-grooming vehicles.

Specifications for the Piz de Plaies 8MGD		
	Section 1	Section 2
Drive / tension	Top	Bottom
Return station	Bottom	Top
Inclined length	631.75 m	752.39 m
Haul rope diameter	50mm	50mm
Travel speed	6 m/sec	6 m/sec
Transport capacity	3200 PPH	2400 PPH
Trip time	1.45 min	2.05 min







### *Children-friendly: The world's shortest detachable gondola lift*

At just 295 m, the new "Cianross" is the shortest detachable 8-seater gondola lift in the world. This decision was taken primarily to facilitate safe carriage of the many children on the children-friendly slope and the transportation of toboggans.

In order to protect the visual impression of the local environment the bottom station has a lower enclosure than usual. No garaging facility is provided for the gondolas; they can be parked in the stations.

Specifications for the Cianross 8MGD	
Vertical rise	104 m
Inclined length	295.46 m
Travel speed	4.00 m/sec
Transport capacity	1200 PPH
Haul rope diameter	50mm

### *The new "Lorenzi" feeder lift*

The prime task of the new Lorenzi 8-seater gondola lift is to eliminate waiting times on the feeder lift OLANG I+II to Kronplatz<sup>2</sup>.

Specifications for the Lorenzi 8MGD	
Drive station	Top
Return station	Bottom
Vertical rise	503 m
Inclined length	1568.42 m
Travel speed	6.00 m/sec
Transport capacity	2400 PPH
No. of towers	21
Haul rope diameter	54 mm



Piz de Plaies (left), Lorenzi, top stations; Cianross bottom station (bottom photo)

<sup>1</sup> 18 gondola lifts, 5 detachable chair lifts, 1 fixed-grip chair lift  
<sup>2</sup> Doppelmayr 6MGD built in 1989. Italy's first 6-seater monocabable gondola lift with single grip.



## Switzerland's first chair lift with heated seats

**In December the first chair lift in Switzerland to be equipped with seat heating went into operation in the Alpine Arena of Flims/Laax/Falera.**

Weisse Arena Bergbahnen AG is offering top ride comfort with the new detachable 6-seater chair lift Scansinas – Mutta Rodunda. In addition to the cozy warmth provided by the heated seat pads, bubbles protect passengers against inclement weather. The high-capacity lift (3200 PPH) replaces the two ski lifts Mutta Rodunda I and II in the Nagens-La Siala area.

### *Lowerable loading gate*

The bottom station of the chair lift is equipped with another technical "nicety".

Specifications for the 6-seater chair lift Scansinas – Mutta Rodunda	
Drive station	Top
Hydraulic tension system	Bottom
Return station	Bottom
Inclined length	2090 m
Vertical rise	536 m
Travel speed	0–5 m/sec
Trip time	7.39 min
Transport capacity	3200 PPH
Haul rope diameter	54mm
No. of towers	18

The loading gate is not fixed, as is usually the case, but can be lowered into the floor. The reasons for this configuration

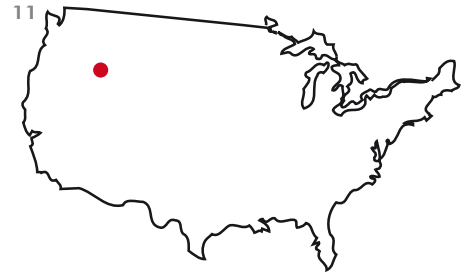
were the conditions on site and the requirement to ensure a time-efficient parking operation for the carriers. As a space-saving solution, the chair parking facility forms a "U" around the bottom station. In order to transfer the chairs from the haul rope they have to be fed through the loading area. Consequently, the loading gate would be in the way and has to be removed beforehand. While this could be done manually, automating the operation means that time can be saved (with added convenience for the operating crew). The loading gate is hydraulically lowered into a shaft which is then covered – again automatically – by a sturdy plate. The entire operation takes less than a minute!



The detachable 6-seater chair lift Scansinas – Mutta Rodunda, Laax, Switzerland, is equipped with a modern seat heating system. The seat pads are heated up as the chairs pass through the bottom station and provide cozy warmth during the trip. Bubbles fitted to the chairs make for additional ride comfort. Doppelmayr/Garaventa can install the seat heating system on either new or older chair lifts.



# Tamarack – the new ski resort in Idaho



**Winter 2004/05 saw the opening of the Tamarack ski resort in central Idaho – named after the tamarack tree, an American variety of larch.**

Tamarack is the first four-season resort to open in the USA since 1981. It lies close to the shores of Lake Cascade – providing opportunities for water sports – and has a golf course as well as offering hiking and mountain biking, not to mention 30 kilometers of Nordic trails and 50 kilometers of downhill slopes. The resort is undergoing expansion. Four ropeways were installed in 2004, and another two quad chair lifts from Doppelmayr went

into service at the start of the winter season: the White Water fixed grip quad and the Wildwood detachable quad. Together, they will open up an additional 300 acres of terrain. Last year Doppelmayr CTEC installed the fixed grip beginner quad.

The lifts are all part of the region's tourism development plans. This year they include the addition of a 47-room hotel to complement the current infrastructure of over 65 single-family cottages and chalets. The White Water lift provides direct access to and from the new residential development as well as a beginner teaching trail. The Wildwood detachable quad adds advanced trail and tree skiing. Within the US, visitors to the region are primarily drawn from the states of Idaho, Washington, Oregon, California, Arizona and Montana, while Canada, Mexico and Europe (in particular the UK and France) account for most of the foreign visitors.

There were three major factors which enabled Doppelmayr CTEC to seal the contract: firstly, our good reputation for customer service; secondly, our ability to offer competitive prices and and thirdly, our short lead times, particularly in view of the added difficulty that the installation had to be performed before the mountain construction was completed.

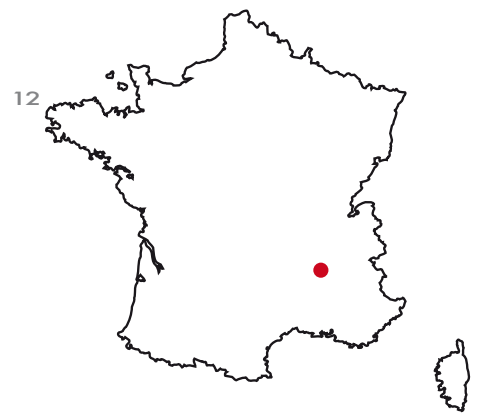
The purchase contract was signed at the end of June, following sales negotiations which had begun in January, and installation was underway by mid July. The load tests went ahead in November. Wolfurt supplied the detachable grips, Doppelmayr CTEC St. Jérôme the terminals (UNI-STAR for White Water, UNI-GS for Wildwood), drives and sheave assemblies, while the terminal enclosures, towers, control systems, etc. came from Doppelmayr CTEC in Salt Lake City. It was also Salt Lake City which was responsible for coordinating the installation work and the subcontractors.

Technical Specifications Tamarack	4CLF White Water	4CLD Wildwood
Drive	Top	Top
Return/tension station	Bottom	Bottom
Vertical rise	101 m	495 m
Horizontal length	713 m	1562 m
Travel speed	2.4 m/sec	5.8 m/sec
Transport capacity	800 PPH	1800 PPH
No. of towers	10	18
Carriers	34	84



4CLD Wildwood,  
Tamarack, Idaho, USA





## Child safety writ large

**France's first Doppelmayr combination lift is to be found in the ski resort of Les 7 Laux in the French Alps, Département Isère. The installation incorporates 8-seater gondolas and 6-seater chairs. For the operating company, SIVOM des Sept Laux (Syndicat Intercommunal à Vocations Multiples), the safety that can be provided for children thanks to the gondolas was a major argument in favor of this solution.**

The lift replaces a fixed-grip quad chair. The UNI-G stations ensure safe and convenient access to the new combination lift.

In the winter, experienced lift users who prefer not to remove their skis can use the chairs – and they account for three-quarters of the passengers. In the summer season there is an even split between gondolas and chairs in order to satisfy both hikers and free riders (on the glacier).

### *France: Strict requirements pertaining to the carriage of children*

Its high level of child safety makes the new lift particularly popular with families and ski school courses.

The importance attached to providing children-friendly carriers in France is illustrated by the regulation which states that children who are less than 1.25 m in height may only use a chair lift if accompanied by an adult. – On the other hand, they can travel in cabins without supervision.

### *Half a million winter visitors – and virtually no waiting time*

The Les 7 Laux region (1350 m – 2400 m) offers magnificent panoramic views of the massifs La Chartreuse and Belledonne with seven mountain lakes. As a recreation area it attracts local visitors all year round: Grenoble is half an hour's drive away; 80 percent of visitors travel a maximum distance of two hours' drive to get there. The villages Le Pleyne, Prapoutel and Pipay offer 6500 beds. Over half a million skiers make the trip during the roughly 130-day winter season. Nonetheless, with its 120 kilometers of trails, the area does not get overcrowded and there is virtually no waiting time at the lifts. Four of the 22 lifts operate in the summer.

***Doppelmayr is rated highly as a reliable partner "both before and after selling you the lift!"***

Almost two-thirds of the ropeways in the ski region – all run by the Société des Téléphériques des 7 Laux – come from Doppelmayr. For Monsieur Georges Marchand, director of the operating company since 1991 and also director of the tourist board, the most important criterion when assessing a ropeway supplier is "the quality of the equipment as well as the customer care once it has been installed". He emphasizes that this is where Doppelmayr fits the bill. "Doppelmayr enjoys an excellent relationship with us. We have the feeling that we are dealing with people and not with some faceless institution." – Doppelmayr installed its first lift with Monsieur Marchand in 1996. (That was a surface lift). Since then, a great bond of trust and mutual respect



*Monsieur Georges Marchand, director of Société des Téléphériques des 7 Laux: "As far as company size is concerned, Doppelmayr is just right for us and they have a human element that gives you the certainty of being a welcome and respected partner."*

*Child safety is a particularly important aspect of the combined 8-seater gondola / 6-seater chair lift Le Grand Cerf in the French Alps. Children who are less than 1.25m tall can only use a chair lift if accompanied by an adult.*

Specifications for the 8/6-CGD Le Grand Cerf	
Vertical rise	1542 m
Inclined length	551 m
Travel speed	5.0 m/sec
No of 8er-gondolas/ 6er-chairs	14/52
Transport capacity	2100/PPH



has been forged between the two companies. With some manufacturers Monsieur Marchard got the impression that his ski resort was too small to be taken seriously while others gave a positive impression but were such small outfits that they were likely to be forced out of the market. "Doppelmayr is exactly the right size for us."

The sales record posted for the 2003/04 season made the decision to build the

new combination lift relatively easy. And 2004/05 marked another 7.5 percent increase, taking sales volume to EUR 8.25m. But as Monsieur Marchard points out, you need luck as well as good management: luck with the weather or conveniently timed school vacations and school-free days. And you also need reliable lift installations.



## Slovakian flagship project: Chleb 8MGD



**One of the most interesting Doppelmayr projects completed for the winter season 2005/06 is the 8-seater gondola lift Chleb in the ski region of Vrátna near Terchová. It is run for sightseers in the summer and for sports practitioners in the winter.**

The ropeway replaces a 50-year-old detachable Von-Roll 2-seater chair where the passengers sat sideways on. Two freight carriers are also used and have been specially equipped to carry water (to supply the top station restaurant with service water).

The lift – Slovakia's second modern monocable ropeway installation from Doppelmayr – is located in the Malá Fatra National Park.

The operating company, Omnitrade a.s., decided in favor of Doppelmayr following the positive experience gained with

the fixed-grip quad chair Paseky delivered eight years ago. "In addition, our advice and project engineering for the gondola lift project gave Doppelmayr the winning edge," sums up Michael Bitterl, manager of Doppelmayr Stetten; Stetten looked after the project management while Doppelmayr Wolfurt was responsible for production and installation. Doppelmayr acted as general contractor for the construction of the foundations for the ropeway as well as the supply and installation of the electromechanical equipment. The greatest challenge was

## With Doppelmayr to the sunshine mountains of Serbia

**In the Central Serbian ski resort of Kopaonik, some 230 kilometers south of Belgrade, Doppelmayr built the two quad chair lifts "Mali Karaman" and "Pancicev Vrh" in 2005.**

Both replace chair lifts, the "Pancicev Vrh" takes over from the ski resort's oldest chair lift, a Girak installation dating from 1964. With 120 kilometers in length, up to 60 kilometers in width and a surface area of 2800 km<sup>2</sup>, the mountain region of Kopaonik is Serbia's largest mountain range. In view of the area's good weather conditions – 160 days of snow assured and over 200 sunny days a year – it is also referred to as the "sunshine and snow mountains".



14th centuries; or the Studenica monastery, a UNESCO world heritage site which goes back to the 12th century. The monastery is considered to be Serbia's birthplace as it was from here that the first archbishop of the Serbian Orthodox Church succeeded in uniting the Serbian tribes to form a state.

### *Four-season tourism*

Kopaonik boasts 80 kilometers of ski trails and 22 ski lifts with an hourly capacity of 20,000 passengers. In the summer, the conditions are ideal for climbing tours, mountain biking, rafting and paragliding. There are also medicinal springs and places of historical interest: here the visitor will find Zvečan, Serbia's oldest preserved medieval settlement dating from the period between the 11th and

Specifications for 4CLD Pancicev Vrh	
Vertical rise	248 m
Inclined length	1389 m
Travel speed	5.0 m/sec
Trip time	5 min
Transport capacity	1800 PPH
No. of towers	13
Haul rope diameter	38mm
Drive station	Bottom
Tension system	Bottom
No. of quad chairs	74/99





the short time frame for implementation.  
– The contract was not awarded until July 12, 2005.

Vrátna dolina is one of the most picturesque valleys in Malá (Little) Fatra: it has 16 surface lifts, a quad chair lift from Doppelmayr, built in 1997, and the new

gondola lift. In the past few years there have been major investments in the tourist infrastructure and in particular in winter tourism. The ski region lies between 600 m and 1700 m, the highest peak being the Velky Krivan (1709 m).

Total transport capacity is 11,604 PPH. There are 17 ski trails with a total length of 10.6km, including a night slope and a boarder cross trail. Extensive trekking tours are offered in the summer months.

Specifications for 8MGD Chleb	
Drive/tension system in the bottom station, fixed return system in the top station	
Manually operated dead-end parking on ground floor in the bottom station	
Inclined length	1816 m
Vertical rise	750 m
Travel speed	6 m/sec
Trip time	6.07 min
No. of carriers	23
Transport capacity	900 PPH
Haul rope diameter	47mm



Milorad Savicevic (center), General Director of International CG, the parent company of TC Kopaonik (ropeway operators), its director Ljubisa Radovanovic (left) with Michael Bitterl, manager of Doppelmayr Stetten at the Doppelmayr plant Hohe Brücke.

Specifications for 4CLFMali Karaman	
Vertical rise	193 m
Inclined length	1061 m
Travel speed	2.6 m/sec
Trip time	6.8 min
Transport capacity	1800 PPH
No. of towers	11
Haul rope diameter	41 mm
Drive station	Bottom
Tension system	Bottom
No. of quad chairs	103/137



The ski resort of Kopaonik – which lies between 1650 m and 2017 m – has a long tradition: it was created in 1935 and rapidly developed into an important destination for winter sports and recreation. In the post-war period its fortunes waned. In 1980 the decision was taken to expand the area into a modern tourist center. In 1981 it became a member of the international federation of ski centers. The photograph shows the 4CLF “Karaman Greben” which Doppelmayr installed in 2004.

## “Intercontinental” gondola lift in Russia



**The Eastern Russian city of Orenburg has a gondola lift of a special kind: the Europe-Asia ropeway. It links the city center situated to the west of the Ural River, in other words in Europe, with a recreation park on the eastern bank in Asia.**

Orenburg in the southern Ural massif lies on the Ural River and constitutes Europe's last outpost. The city, which goes back 400 years, has a population of 600,000 inhabitants and is well-known for its food industry. The name “Orenburg” not only sounds German but is actually derived from the German words *Ohr* (ear) and *Burg* (castle). In the first hundred years of its existence, Orenburg was a fortress which the Tsarist Empire used as a listening post for Asia before Siberia was colonized by the Russians.

Up to now, the city has had very little tourism. That may well change not least as a result of the new fixed-grip pulsed movement aerial ropeway. In the initial phase

it will be equipped with two 8-seater gondolas, with the option of adding another carrier to each.

One station is located in the city center, the other in a popular recreation park. With a rope span of 224 m, the lift crosses the meandering Ural which has numerous tributaries in this area.

The driving force behind the new “intercontinental” ropeway between Europe and Asia was the city's mayor Juri Misch-erjakov. He expects to see enhanced attractiveness for a city already praised in guide books for its quality of life and unspoilt environment.

## Skiing in the Central Russian highlands

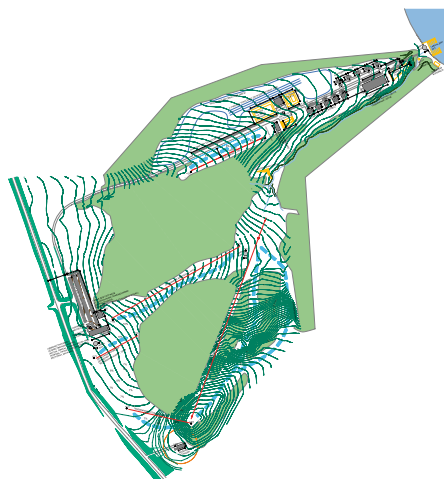


**The Central Russian industrial city of Izhevsk is the capital of the Russian republic of Udmurtia. And it has recently become a skiing center with a fixed-grip quad chair lift from Doppelmayr.**

Izhevsk counts 650,000 inhabitants, a university, an airport, a river port from which ships head for the Baltic and the Black Sea, a major engineering and weapons industry (it is here that the “Kalashnikov” automatic assault rifle is made) and ranks as Russia's center for e-music.

Skiing in the hilly region of Central Russia would not be possible without great entrepreneurial vision to make it happen. That's

precisely what the operators had - and it was their enthusiasm for alpine skiing that gave them the idea of establishing a ski resort here in the first place. Needless to say, Doppelmayr's extensive know-how came in handy. After all, without the right infrastructure, a chair lift alone is unlikely to attract skiers in sufficient numbers. The infrastructure was finally planned in close collaboration with the Innsbruck-based firm of architects “krenn architekten”. The construction work went ahead without a hitch and was coordinated by Doppelmayr Skado. Earthworks were necessary to achieve the required 1-kilometer slope length while the towers have piled foundations and thus stand on solid ground. The installations currently include a baby lift; further expansion of the area is planned.



*Master plan of the Izhevsk ski resort*

## Satisfactory construction site audit

**At the beginning of November the SQS (Swiss Association for Quality and Management Systems) carried out a "construction site audit" at the 4MGD Klosters-Madrisa – a repeat audit for installation and commissioning. The conclusion: faultless.**

As head of Doppelmayr's Quality Management Hans Kalcher explains, this proves that Doppelmayr Wolfurt and Garaventa are already closer to achieving their goal of harmonized QM processes.

In Klosters the installation work was performed by Inauen-Schätti under contract to Garaventa. Documentation and execution were totally in compliance with quality management specifications; no deviations were found.

The ultimate aim for the foreseeable future is to ensure that all Doppelmayr/Garaventa companies meet a uniform and constantly up-to-date QM standard. This will also make cross-border collaboration much easier.

Moreover, the adherence to QM regulations positively impacts both the safety of

employees on site and subsequently that of the ropeway itself.



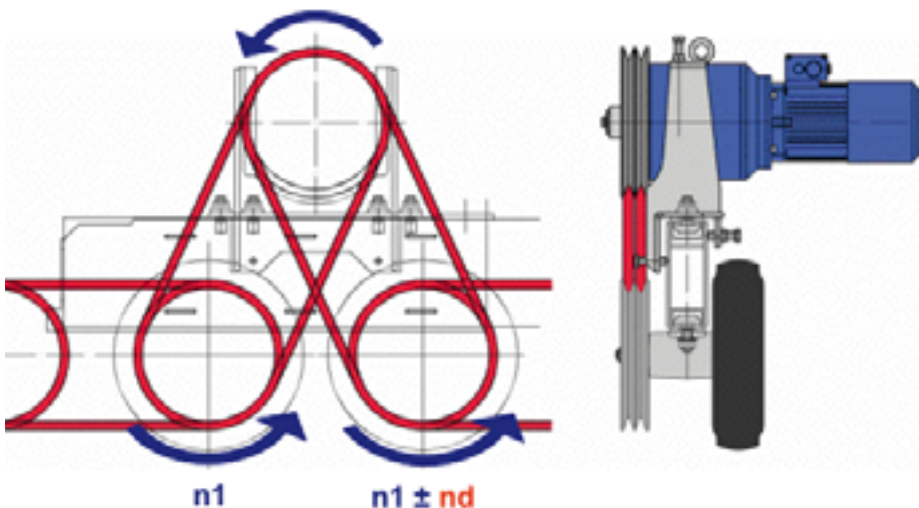
*Project manager Gian Reto Caluori (Garaventa) and fitter Kilian Schmid from Inauen-Schätti. Kilian Schmid performed the installation work on the 4MGD Klosters-Madrisa. He kept strictly to Garaventa's specifications.*

## New speed control unit

**Doppelmayr has developed a new speed control unit for the carrier spacing regulation system on detachable chair lifts.**

The carrier spacing is controlled by means of a tire conveyor section ("regulating line") which can be switched to normal, fast or slow. The regulating line is located in the incoming curve of the tire conveyor in the bottom station.

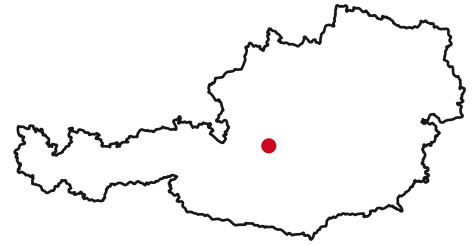
The regulating line is directly driven by the tire conveyor with the aid of a speed modulation gearbox (Cyclo gearbox). With a 3-phase AC asynchronous motor on the speed modulation gearbox it is possible to alter the speed of the regulating line. When the motor is actuated in the direction of rotation of the tire conveyor, the speed of the regulating line increases; when actuated in the opposite direction to that of the tire conveyor, the speed of the regulating line decreases. At normal speed the motor is deactivated and the spring-applied brake serves as torque support for the gearbox.



*Speed control unit • speed modulation gearbox with 3-phase AC asynchronous motor*



## Long relationship – new friendship



**Doppelmayr erected the new Karkogelbahn in Abtenau, a combination lift currently with eighteen 6-seater chairs and 8-seater gondolas. The customer – to be exact – is the entire market town, the driving force behind the project was steel fabricator and self-made man Josef Brandauer.**

“Brandauer Sepp” – as he is known throughout Salzburger Land and far beyond – is a go-getter who has known Doppelmayr for a long time. For one thing, he sees Doppelmayr as a supplier of welded structures. He is, after all, one of the region’s steel fabricators who are regularly contracted for ropeway station constructions.

### *Doppelmayr gets it right in terms of quality, delivery and price*

There is a perfectly rational explanation for Brandauer being a Doppelmayr fan, especially as “when you’re a lift manager you see things from a different perspective than when you’re a contractor for a lift operating company.” – And also when you’re a toboggan manufacturer: Brandauer has already built 17 monorail toboggan runs: 1996 in Abtenau was his first; his most recent is the “Fisser Flitzer” in Tyrol, built in 2005. “We chose Doppelmayr because Doppelmayr was the company that was best placed to meet our requirements regarding quality, delivery and price.” It’s that simple.

### *Comfort for trend sports enthusiasts, safety for children*

The fact that the combination lift was built at all is attributable to a whole raft of marketing considerations: “We can’t and won’t compete with the big ski resorts that are immediately or relatively close to us. That’s why we decided to concentrate on day-trippers who prefer a winter sports and holiday region that is reasonably priced and on a smaller scale - in other words, families with small children; skiers and snowboarders who find other ski resorts too overcrowded; school groups, company outings, hikers: in a nutshell, people who live within a radius of 100 km. That means the region encompassing Salzburg, Freilassing and

Berchtesgaden as well as Pinzgau and Pongau.”

### *Unique financing model*

The greatest feat of this project was actually the financing. It was here that Brandauer Sepp’s talent for organization came into play, despite the fact that he was not on board from the outset. First, the lift company had tried in vain to drum up enough financial backers, then a group of Abtenau businessmen took another shot at it. They were the ones who finally persuaded Josef Brandauer to join the “new Karkogelbahn” project. Together, they developed a financing concept involving private households, businesses and the local council. Finally, after investing a huge amount of time and energy, they succeeded in convincing a large proportion of the local population and companies, the council, the Raiffeisenverband (a cooperative federation), the local credit cooperatives and the Province of Salzburg to participate.

### *Doppelmayr’s speed and flexibility made it possible to take advantage of tax credits*

The Abtenau businessmen were able to put the ropeway project out to tender in 2003 with the aim of claiming the government investment growth tax credit

Specifications for the 8/6CGD Karkogel	
Vertical rise	397 m
Inclined length	1346 m
Haul rope diameter	45 mm
Drive station	Bottom
Return system	Top
No. of gondolas	18
No. of chairs	18
Carrier headway	12 sec
Travel speed	5.0 m/sec
Trip time	5.64 m
Transport capacity	1326 PPH



(which now no longer applies) for investments exceeding the previous year's level. Doppelmayr started production after the letter of intent was issued on April 13, 2004 and the final construction contract was awarded at the end of October. This meant that the customer could comply with the fiscal time frame. (The fact that Doppelmayr started production before the contract was actually signed attests to the great trust which Doppelmayr places in the word of Brandauer Sepp). Installation was then able to go ahead on May 31; on December 8, the public holiday to celebrate the Feast of the Immaculate Conception, the lift went into operation.



*Great confidence in Doppelmayr's reliability: Sepp Brandauer, Director of Abtenauer Bergbahnen*



Abtenauer Bergbahnen makes a significant contribution to the local economy: tourism generates 40 percent of economic output; the hotels, guesthouses and private houses together offer 2700 beds

## High-rise warehouse in Wolfurt undergoes modernization

At the close of 2005, Doppelmayr re-furnished the 20-year-old high-rise warehouse for ropeway components and work materials at the Kella plant in Wolfurt.

The warehouse holds 5000 Euro pallets as well as shallow racking for bolts and other small parts. The five racking aisles have been equipped with two new track-bound, curve-going stacker cranes. The storage location is selected by the crane driver, while registration is performed by warehouse administration. Stock placement and removal operations are assisted by two conveyors. Fork-lift trucks are used for loading and



*A roller conveyor transports pallets from the deposit point to the warehouse interior which for safety reasons is not accessible; there the pallets are picked up by the stacker crane and stored. Retrieved goods are handled in the same way in the reverse direction.*



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During the International Congress for Transportation by Rope in Innsbruck (September 27 to October 1, 2005), OITAF's North American committee visited Doppelmayr Wolfurt. The US delegation named their trip "heavy metal". They also went to see the 3S gondola lift in Kitzbühel as well as other Doppelmayr and Garaventa ropeways in Austria and Switzerland.