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Wir

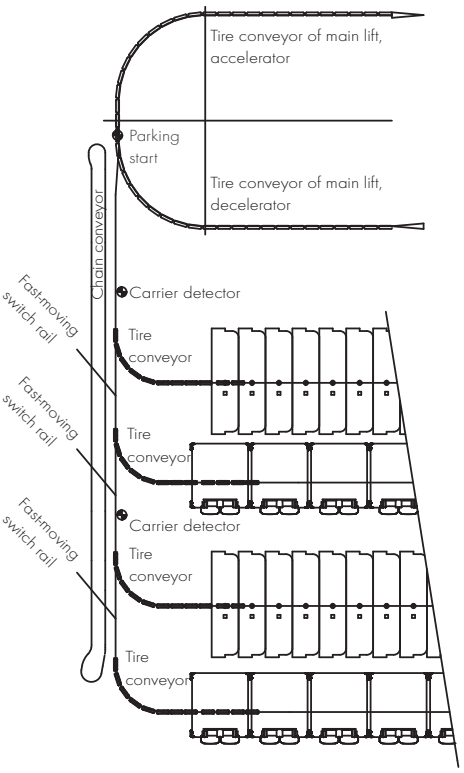
Disentis in the canton of Graubünden has the fastest reversible tramway in Switzerland. p.12

6-seater chair for one accompanying adult and five children. Approved in Austria for the first time for the 6-CLD-B-S Hachau in Wagrain. p.6

Doppelmayr®

Magazine for
Customers and Employees

In the Tyrolean resort of Außerfern, Doppelmayr built the Almkopfbahn, a combined lift consisting of 6-seater chairs and 8-seater gondolas. The parking facility is equipped with an automatic carrier sorting system.



The two directors of Berwanger Sonnalmbahnen, Günter Singer (left) and Peter Sprenger, are delighted with the new combined lift.

Combined lift with automatic carrier sorting

On the edge of Tyrol's Zugspitz Arena lies the Berwangertal ski network[1] with 13 lifts and 40 kilometers of ski trails, including 12 kilometers equipped with snow-making equipment. The ski area starts right on the B179 "Fernpass" federal road and is also easily reached by rail. – Bichlbach rail station is immediately next to the bottom station of the combined lift (altitude 1,075 m).
The lift proved to be a great success in the last winter season. Older skiers who attach particular importance to comfort, as well as ski instructors with groups of children, preferred the gondolas, while the more athletic skiers chose the chairs. Chairs with bubbles and gondolas are employed in a ratio of 2:1.

Popular all-year-round destination for trips and vacations

In the summer, the region is a popular family hiking area. At this time of the year the gondolas come into their own – due to the ease of transporting kids' buggies, the convenience for wheelchair users and the safety benefit for children.
The new combined lift replaces a Doppelmayr double chairlift built in 1977 which carried around 10 million passengers during its lifetime. Doppelmayr delivered the mechanical and electrical ropeway equipment. The construction work – line foundations, cable ditches, station modifications – was contracted out to Tyrolese firms. The old station buildings were largely retained and extended. The bottom station was used to house a parking facility for the carriers and a basement level provided. The ground floor accommodates ticket sales, offices and ancillary rooms, the upper floor a restaurant.
The operating company, Berwanger Sonnalmbahn GmbH, employs 27 people in the winter season and ten in the summer – primarily for lift operations as well as maintenance and repair work.

World first: Parking facility with automatic carrier sorting

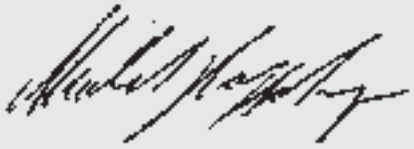
The bottom station parking facility is equipped with an automatic carrier sorting system with fast-moving switch rails. The carriers are allocated to four rails, alternating between chairs and gondolas from one rail to the next. The lift itself can be used as a combined installation or purely as a gondola lift.
In the parking area, the carriers run at low speed (0.3 m/s). At the start of operations the tire conveyor sends the carriers at the correctly timed intervals to the chain conveyor. Carrier spacing is electronically monitored. The chain conveyor then transports the carriers onto the tire conveyor of the main lift, which incorporates the accelerator unit. This sequence is reversed for the parking operation.
The carriers are sent from the tire conveyor of the main lift to the chain conveyor in the parking facility. The carrier detector positioned in front of the parking rails ensures that the carriers are correctly assigned to the respective locations – gondolas to gondola rails, chairs to chair rails.

[1] The Berwangertal ski network covers the resorts of Berwang, Bichlbach and Rinnen.

6/8-CGD Almkopfbahn	
Transport capacity	2,000 PPH
Trip time	6.5 min
Speed	5.0 m/s
Chairs + cabins	44 + 22
Interval	11.7 s
Inclined length	1,662 m
Vertical rise	571 m
Towers	19
Drive	Top
Tension	Bottom

Looking to a successful future

March 2008 marked the end of the business year 2007/08 for the Doppelmayr/Garaventa Group and a very successful year. Roughly 80% of our sales volume was generated with ropeways for winter tourism. In contrast with other voices in the industry, we are convinced that this positive trend is set to continue. It will certainly not get any easier, but together with the outstanding partners we have in our customers we can master any challenge.
In addition to our core area we also achieved major successes with products such as the Cable Liner Shuttle and the material transport system RopeCon. The four shuttle systems already built and the three under construction have won international acclaim from Las Vegas to Venice.
Completion of the longest RopeCon system ever in Jamaica also attracted a great deal of media attention. An Austrian daily newspaper described this product as the "all-singing, all-dancing conveyor", which is a catchy way of highlighting the unique bundle of benefits this system has to offer.
At the same time, however, we shall never forget where our roots lie and where we developed the necessary know-how: in winter tourism. Our thanks and recognition are due to the pioneers, visionaries and out-of-the-box thinkers in all ski resorts across the globe for their contribution. Without them, the dynamic development of our enterprise would never have been possible.



Michael Doppelmayr

New gondola lift: Boost for Obergurgl

The ski resort of Obergurgl-Hochgurgl in Tyrol's Ötztal saw the start-up of a new gondola lift, the 8-MGD Hohe Mut, in the winter season 2007/08. It has brought about a palpable upswing in the region's tourist trade, with an increase in room-nights of over 12 percent.

In Obergurgl and in Hochgurgl there are around 5,000 beds. The two villages are linked by an integrated ski infrastructure; the 23 lifts can carry 40,000 passengers an hour. The new gondola lift up to the 2,670 m peak Hohe Mut can be reached in less than ten minutes from the center of Obergurgl.

As Managing Director Peter Falkner explains, the decision was taken to build the new 8-seater gondola lift because the two old lifts which it replaces "were no longer up to date".

The slopes on Hohe Mut are the regular haunt of children's ski classes. This made a gondola lift, which children could ride on unaccompanied, the ideal solution. The lift has been very well received and has led to a marked increase in skier frequency on the trails it serves.

Access and regular uphill transport

The 8-MGD Hohe Mut provides access as well as regular uphill transport. It features two sections which roughly follow the routes of the two old chairlifts. The upper lift was a single-seater built in 1953, the lower lift a double chair dating from 1985. The mid station houses a fully automatic gondola parking facility in the basement.

Construction of the new lift was accompanied by an expansion in infrastructure: The mountain restaurant Hohe Mutalm was rebuilt and a new trail installed

Visible technology in the bottom station thanks to large glass fronts. Clarity also defines the architectural design of the mid and top stations.

8-MGD Hohe Mut	Section 1	Section 2
Transport capacity	2,400 PPH	2,400 PPH
Trip time	3.9 min	5.1 min
Speed	6 m/s	
Carriers	90	
Interval	12 s	
Inclined length	1,016 m	1,435 m
Vertical rise	161 m	575 m
Towers	7	10
Drive	Top	Bottom
Tension	Bottom	Bottom

Managing Director Peter Falkner from Liftgesellschaft Obergurgl Ges.m.b.H (right) has a high opinion of Doppelmayr: "Our first was the Steinmann surface lift built in 1957. We value the good product quality and excellent service Doppelmayr provides." Operations Manager Dietmar Holzknecht (below) also considers Doppelmayr's service to be perfect. He attaches great importance to the rapid availability of spare parts and gives an example: When the fuse failed on a frequency converter early in the morning of Sunday, March 9, i.e. at the height of the season, a fitter was on the spot with a spare in less than two and a half hours. The lift went back into operation shortly afterwards.

along with snow-making equipment. As the lift acts as a feeder for the other trails higher up the mountain in Obergurgl, the enhanced ride comfort and increased transport capacity provide a boost for the area as a whole. Virtually all the huts and lifts on the mountain have seen an improvement in capacity utilization.

The Disentis tramway is Switzerland's first EN-certified reversible aerial tramway without track rope brake. The bottom station lies at an altitude of 1,227 m, the top station at 1,863 m.

Switzerland's fastest reversible tramway

After a six-month rebuild[1] the reversible aerial tramway Disentis – Caischavedra, in the Swiss canton of Graubünden, went back into service in December 2007. With a speed of 11 m/s, it is the fastest aerial tramway in Switzerland and is also the only feeder serving the Disentis ski and hiking region. The cabins can be used without an attendant.

The aerial tramway Disentis – Caischavedra was built by Garaventa in 1970 with 80-passenger cabins. Since then it had never been rebuilt – apart from a relatively minor modification in 1992. After 37 years, the time had come for comprehensive modernization as individual components – in particular the track ropes – needed replacement and the operating license was in any case due to run out in 2013. The operating company also felt that a refurbishment would enable them to offer greater added value for customers and to optimize organization processes.

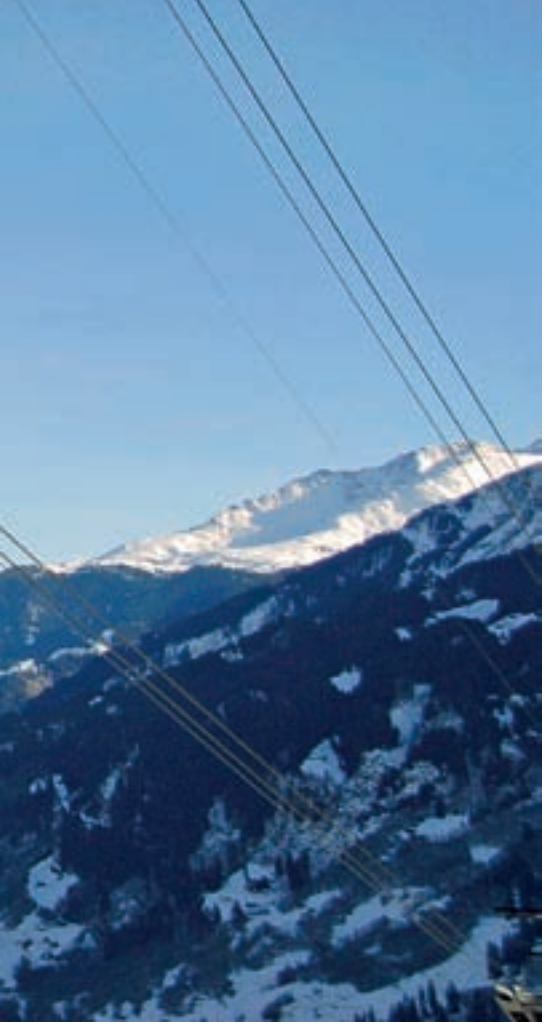
Fair partner – affordable solution

Today, modern 90-passenger cabins are in service, transport capacity has been increased by 30 percent and general comfort enhanced.

Director Martin Kreiliger praises Garaventa for the outstanding work performed not only during the execution stage but also beforehand during the planning. This made it possible to arrive at a technically perfect, long-term solution and to keep within the lift company's financial framework. The existing stations were retained; the platform installations and cabin guides in the stations are new. Passenger flow – waiting area, boarding from the outer platforms as well if necessary – has been reorganized, allowing shorter loading times. Other new features include the two lattice towers (25 m and 50 m), ropes and drive equipment.

Following thorough inspection and certification, it was possible to retain sheaves, haul rope counterweights, roller chain saddles and track rope saddles in the stations and on the towers.

The Disentis – Caischavedra tramway is



Martin Kreiliger, has been director of the operating company Bergbahnen Disentis 3000[3], founded in 1971, since 2000: "We've invested a great deal in the quality of our ski area. Thanks to the customer-oriented collaboration with Garaventa and the planning office we can take on this investment without overreaching ourselves." In addition, he appreciates the fact that Garaventa not only gives a fair price but also "has a human face" and "takes responsibility with no ifs and buts".

the first to be approved in accordance with Switzerland's revised ropeway code which has been brought in line with EN regulations. Garaventa installed all the ropeway equipment while the operating company took charge of overall coordination of the construction project.
The tramway acts as a feeder for a mid-sized ski area with six large lifts[2]. Bergbahnen Disentis 3000[3] also owns a restaurant and two sports shops in the top and bottom stations as well as two further restaurants on the mountain.

Upbeat mood in the region

The tramway owner and operator is "Bergbahnen Disentis 3000", a privately owned joint-stock corporation with 79 employees in the winter and 14 in the summer. Modernization of the tramway is seen as a sign of the investor's confidence in the future of tourism in the region. And, as Martin Kreiliger is keen to emphasize, that is not something which can be taken for granted in today's generally difficult economic climate.
The company sees itself as a flagship enterprise for the region's tourist trade. "We're too remote for day-trippers from the big cities. That's why we concentrate on guests who stay for the week. Our main catchment area is Eastern Switzerland including Zurich, Ticino and Southern Germany. What's special about our ski area is the abundance of snow and the fantastic possibilities for freeriding. We're an insider tip for skiers in the spring."
Depending on snow conditions, the season lasts from December to Ascension Day and Whitsun. Despite the fact that visitor numbers tend to drop off after Easter, Martin Kreiliger considers it necessary to add on a few weeks for promotional reasons, even if the number of skiers declines significantly from 2,500 on peak days to little more than 1,000 toward the end of the season.
The tramway also operates in the summer although only four percent of guests are carried during this period and the motors on the chairlifts are only started up for special events. "We want to show our regular guests that we're always there for them."

Stress-free journey up the mountain

For Martin Kreiliger, the tramway modernization is an investment in the attractiveness of the region. In the past, there had been times – even if infrequently – when they had been pushed to the limits of their transport capacity. But, if you position yourself in the market as a stress-free region, you have to have the appropriate infrastructure to support that claim. Kreiliger himself makes every effort to achieve the right balance between the expectations of the guests on the one hand and the quality of the ropeway and its infrastructure on the other.

[1] To be precise, modernization started with the planning work in 2003. In 2005 the bottom station was refurbished, followed by the top station in 2006. The work on the line went ahead in 2007.
[2] Reversible tramway, two detachable quad chairlifts, one fixed-grip triple chairlift, two surface lifts and three baby lifts; a conveyor of roughly 70 m in length leads from the top station of the tramway to the bottom station of the nearest chairlift.
[3] The "3000" in the company name refers to the mountain landscape: The ski area is situated on the 3,027 m Piz Ault.

90-ATW Disentis-Caischavedra	
Transport capacity	940 PPH
Trip time	4.5 min
Max. speed	11 m/s*
Speed over towers	8 m/s*
Cabin capacity	90
Stopping time in stations	68 s
Inclined length	2,059 m
Vertical rise	636 m
Towers	2
Drive 697/560 KW	Top
Haul rope counterweight	Bottom
Track rope counterweight	Bottom
Altitude of bottom station platform	1,227 m
Altitude of top station platform	1,863 m

* Approved in Switzerland for the first time. Previously, 10 m/s or 7 m/s had been the maximum.

6-CLD-B-S Hachau, Wagrain: Comfortable and child-friendly

The Hachau lift in Wagrain/Salzburg is one of Austria's most modern and comfortable 6-seater chairlifts. It features bubbles, padded and heated seats as well as specially designed child-friendly restraining bars.

The new 6-CLD operated by Bergbahn AG Wagrain replaces two surface lifts: a platter built in 1975 and a T-bar dating from 1978. And it fulfills two functions: On the one hand it provides uphill transport for the ski schools and beginners who use the wide, gentle slope to practice. Secondly, it serves as a transit lift for St. Johann im Pongau[1]. Removal of the tow track, which had previously divided the slope in two, has enlarged the skiable area and made it safer as there are no longer any towers to avoid. The bottom station has also been relocated and the loading area redesigned, making it larger and more convenient to use. The restaurant, which was previously a small alpine hut, was moved along with the bottom station. It is now housed in a handsome building adjacent to the station and connected to it by an access door. The chairs are parked in a facility in the bottom station.

Director Christoph Baumann sees child safety and the high transport capacity, "which even when the lift is run for the ski school only differs slightly from the theoretical capacity", as the most important technical features of the lift. In addition, the seat heating and bubbles are key comfort features.

One adult to accompany five children

For the first time in Austria, this lift has been approved for carrying five children accompanied by only one adult. (One accompanying adult aged 18 or above is normally mandatory for every two children of less than 125 cm in height).

This child-friendly transport has been made possible by the further development of an automatic restraining bar lock which Doppelmayr has been using on detachable lifts since 2005. The restraining bar is automatically closed and locked or unlocked and opened in the stations. It cannot be opened by passengers on the line. The locking and unlocking operation is electronically monitored.

In order to provide children with special protection, the Hachau lift is equipped with a double restraining bar without footrest. This reduces the height of the bar above the seat, making it virtually impossible for children to slip out of the chair. The special restraining bar is designed to ensure that adults can appreciate the additional security without having to dispense with any comfort.

At 330 m the trip length is relatively short. In order to make it easier for children and

One adult can ride with five children on a 6-seater chair. This facilitates ski school operations considerably.

beginners to load, it was decided that the lift should be run at very slow speed in the stations. The short distance covered by the lift also meant that speed could be reduced to 3.5 m/s over the entire line. Doppelmayr was responsible for the ropeway equipment, while the lift company, Bergbahn Wagrain, took charge of supervising and carrying out the construction work including installation on the line and provided helpers. The lift went into service in December 2007, seven months after the contract award.

[1]Wagrain belongs to the ski network "SkiAmadé" with over 276 lifts, 865 kilometers of ski trails and up to 100,000 skiers per hour.

Director Christoph Baumann, Bergbahn AG Wagrain: "We were able to rely on perfect collaboration with Doppelmayr, as with all their lifts. And that goes for both the planning and the installation work, which had to be done in adverse weather conditions."

6-CLD-B-S Hachau	
Transport capacity	2,400 PPH
Trip time	1.7 min
Speed	3.5 m/s
Chairs	28
Interval	9.0 s
Inclined length	330 m
Vertical rise	66 m
Towers	5
Drive	Top
Tension	Top

Zotter's chocolate lift

Zotter Schokoladen Manufaktur GmbH in Riegersburg, Styria, makes exclusive chocolates. Company owner Josef Zotter is famous for his creativity. And that doesn't just apply to chocolate. Since August 2007 he has been serving the guests who visit his showroom by means of a chocolate ropeway – the ultimate in "online", chocolate you might say!

Zotter produces around 150 chocolate creations. As part of the company's marketing concept, tasting sessions at hourly intervals with professionally guided tours of the factory have proven highly successful among a broad public.
These tours encompass the "chocolate theater" with six stops, each of which explains an important phase in the process of transforming a cocoa bean into the chocolate sold in the stores. The route takes visitors past large windows and a gallery where the production facilities can be viewed. Operations are split among three floors. At the top, the third floor houses one of six tasting stations known as the "Kulinarikum".

Ropeway on a scale of 1:10

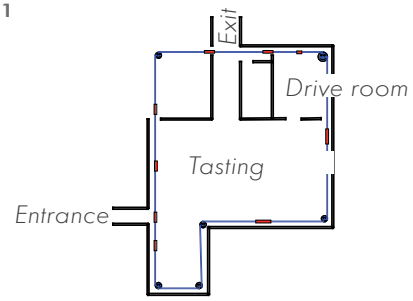
It is here that a chairlift, reproduced on a scale of 1:10, travels along the wall in a continuous loop. Guests take chocolate drinks from the chairs. (As an alternative, chocolate bars for the preparation of drinking chocolate are delivered and the hot milk is served on trays). While sipping their chocolate, visitors can enjoy the view of the sweeping countryside from the glazed terrace or look across to the logistics and shipping department.

Technical challenge

Technically, the chocolate lift is based on a fixed-grip circulating ropeway. The drive and the switchgear are located in a separate room where the chairs are also loaded with chocolate.
The curves in the corners of the room and two doors posed a technical challenge. The chairs have to be hoisted over the door frames and then lowered back down to a delivery height of 1.5 m. This problem was solved by means of articulated chairs which are attached to curve-going grips and fixed to the haul rope. They compensate both horizontal and vertical movements.

Chocolatier Josef Zotter: "Optimal solution for implementing my idea of serving chocolate 'online'."

The deflection stations (fitted to the ceiling) consist of a support structure incorporating a rotatable bullwheel arm. Support and compression sheave assemblies are provided at each rope support point. They comprise an evener frame system with four or six rope sheaves. In the case of the support sheave assemblies, lifting rails are fitted to allow passage of the chairs. The support structure of the deflection stations enables retensioning of the haul rope.
In fact, a lot of gray matter was required to arrive at a technical solution which perfectly addressed the customer's needs. And, what may come as a surprise to many readers, the lift was actually designed, built and installed by Doppelmayr



Zotter chocolate factory: The idea of serving chocolate "online" by ropeway in the "Kulinarikum" of the "Chocolate Theater" has demonstrably increased the willingness of customers to buy the company's products. Zotter has an annual output of 380 t of chocolate. Half of that figure is exported, primarily to Germany.

apprentices under the direction of Hans Kalcher, Head of Doppelmayr's Quality Management. – Which all goes to show that Doppelmayr apprentices are taking on responsibility at an early stage of their training!

Doppelmayr professionals think of everything

The ingenuity of this project clearly lies in the detail. It wasn't just a case of ensuring that movement sequences were technically optimized. On a "normal" lift, for example, who would think that the users might be tempted to put their hand into a sheave assembly and therefore a safety guard would have to be provided? Who – apart from the experienced gastronome – would realize while watching the succession of chocolate delights pass by that they were actually getting to see the complete range of products? This system is in marked contrast to a buffet where the guests have to A) stand in line, B) make sure they are not starting off with the dessert and C) are often prevented from viewing the full selection by the other guests.

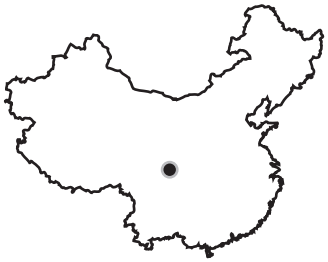
Growth in chocolate sales

Josef Zotter is well pleased. His idea has proved to be a big hit. "People have increased their appetite for chocolate." Zotter produces 380 tons a year.

Online Express for Drinking Chocolate	
Transport capacity	2,592 glasses/h
Trip time	3.8 min
Speed, infinitely variable	0 – 0.2 m/s
Chairs	60
Chair spacing	80 cm
Drive bullwheel dia.	600 mm
Deflect. bullwheel dia.	400 mm
Length	50 m
Haul rope dia.	5.2 mm
Deflection towers	5
Sheave assemblies	9
Sheave dia.	80 mm
Drive	1.1 kW

The pinnacle: The world's highest passenger ropeway

Doppelmayr has built an 8-seater gondola lift to the Dagu glacier, in China's Sichuan Province. It is the highest passenger ropeway in the world: The top station lies at 4,843 m (level for loading/ unloading).



The purchaser and operator of this lift is Aba Great Glacier Tourism Co., Ltd, part of the Aba Dajiuzhai International Group which also operates other ropeways and tourist facilities. The installation is located in Northern Sichuan, a six-hour drive due north from the provincial capital of Chengdu.

The stunningly beautiful mountain landscape attracts large numbers of visitors; the main tourist destinations are Huanglong and Jiuzhaigou which are visited by 2 million people a year (WIR Magazine No. 155, December 2001). The operators of the new gondola lift now expect to see a considerable proportion of the tourist volume taking an interest in their region. They forecast around 200,000 visitors initially, rising to between 500,000 and 700,000 later on once the infrastructure has been developed.

300 operating days

The lift affords a view of many ice-capped seven and eight-thousanders as well as a magnificent mountain lake. Operations are planned for at least 300 days in the year, including the winter months when the region is particularly beautiful.

Doppelmayr was awarded the contract in April 2005 and installation was able to begin in October 2006. During the same month the work had to be stopped due to adverse weather conditions and resumed in July 2007 only to be subsequently interrupted several times for the same reason. The lift was finally handed over on March 22 and officially went into service on May 1, 2008.

8-MGD-LWI Dagu Glacier Lift	
Transport capacity	800 PPH
Trip time	9.4 min
Speed	6.0 m/s
Cabins	36
Interval	36 s
Inclined length	2,399 m
Vertical rise	1,226 m
Towers	20
Drive	Bottom
Tension	Top

8-MGD to the Dagu glacier: The top station lies at an altitude of 4,843 m, the bottom station at 3,617 m. Oxygen cylinders and face masks are kept in the stations and in the gondolas. – At these altitudes the need for oxygen is to be expected.

Poland's only reversible tramway is from Garaventa

The only reversible aerial tramway in Poland is to be found in Zakopane. It was originally built in 1936 and underwent a general overhaul in 2007 when Garaventa was the general contractor[1].

[1] The foundation work was carried out by the Polish construction company Mostostal which has worked with Doppelmayr for many years.

The bottom station of the tramway to the 1,987 m Kasprowy Wierch is in Kuznice, five kilometers from Zakopane, Poland's "winter capital". The mountain is located in the High Tatras national park, which extends into Slovakia. The national park is only accessible to tourists in part and only with adherence to the strict environmental protection regulations. There are two chairlifts and two surface lifts, but skiing is only permitted if there is a minimum snow depth of 50 cm.

Strict environmental protection requirements

Stringent environmental protection regulations also had to be met during the construction work. As the existing buildings are considered to be of historical importance, nothing was to be changed on the exterior. This was a technical challenge in itself since it meant finding a design concept which allowed the new cabins, now more than doubled in size, to be integrated into the building structure. This was achieved by

- a shifting platform in all stations, which creates more room for waiting and disembarking passengers;
- short hangers;
- fixed anchoring for the track ropes (moving parts were dispensed with as far as possible in order to save space);
- drives with single-grooved bullwheel and
- a change of track on the line.

Plenty of room for passengers

The tramway has two sections, a track rope brake and a 16-roller carriage. A fiber optic cable for data transmission is integrated into the track rope. The cab-

The reversible tramway to Kasprowy Wierch provides access to Poland's most well-known hiking and ski region; Krakow's bishop Karol Wojtyla, later to become known as Pope John Paul II, was a regular skier here.

ins are very comfortable, with at least 0.25 m^2 for every passenger. The rebuild was long overdue in view of the crowds of visitors who flock to Kasprowy Wierch as one of Poland's most well-known ski regions. The consequence had been waiting times of up to three hours on peak days. With its 60-passenger cabins, the capacity of the new tramway has been increased to 360 passengers an hour, twice that of the old tramway with 35-passenger cabins.

A must for every Pole

The Kasprowy Wierch region is one of the most popular leisure destinations for the Polish population. Two-thirds of the tourists come in the summer, mostly from Warsaw and Krakow. Foreign visitors hail primarily from the Ukraine, Germany, Holland, Israel, Russia and the USA.

60-ATW Kasprowy Wierch	Section 1 Kuznice – Myslenickie Turnie	Section 2 Myslenickie Turnie – Kasprowy Wierch
Transport capacity	360 PPH	360 PPH
Trip time	6.1 min	6.1 min
Speed max.	7.0 m/s	8.0 m/s
Speed over towers	5.5 m/s	6.0 m/s
60-passenger cabins	2	2
Stopping time in stations	4 min	4 min
Inclined length	1,984 m	2,279 m
Vertical rise	325 m	606 m
Towers	3	3
Drive	Top	Bottom
Haul rope counterweight	Bottom	Top
Track rope fixed anchoring	Top + Bottom	Top + Bottom
Altitude of bottom station platform	1,030	1,355
Altitude of top station platform	1,355	1,960

The world's first sauna gondola in Finland

This winter, Doppelmayr completed five new ropeways in Finland[1]: an 8-seater gondola lift, a detachable 6-seater chairlift, a pulsed movement gondola lift and two fixed-grip quad chairlifts. The world's first sauna cabin went into operation in Ylläs.

In the ski resort of Ylläs near the Swedish border, Doppelmayr has built what is currently the biggest ropeway in Finland, the 8-MGD "Ylläs 1". This is Finland's second gondola lift. The first, a 6-MGD, was installed by Doppelmayr in Levi in the year 2000.

The Ylläs sauna gondola

With a length of two kilometers, the Ylläs lift is not only the longest ropeway in Finland, but also features a VIP gondola and a sauna gondola. The latter is heated electrically by means of a power outlet next to the sauna in the top station. The sauna guests don their bathing clothes and board the cabin, which is then transported to the haul rope by means of a chain conveyor and attached to the rope. The round trip takes 13 minutes. Warm clothing and a fire extinguisher are carried in the cabin in any event.

Gondola parking area as restaurant

The lift has a parking facility in the top station which is used as a restaurant during operating hours. The cabins have a ground clearance of 1.7 m. The restaurant inventory – tables and chairs – can therefore be stored under the parked gondolas; this is another of the customer's innovative ideas.

The bottom stations of the new lifts in Levi lie next to each other.

Pulsed movement gondola lift in Levi

The pulsed movement gondla lift "Levi Express" in Levi, 150 kilometers north of the polar circle, is the first of its kind in Finland and operates two groups of three 8-seater cabins.
The lift takes passengers from the village center to a complex 115 m higher up the mountain comprising hotel, exhibition venue and cultural center. Although you can actually drive there, parking spaces are limited so it is better for guests to walk from their hotel or chalet to the bottom station.
Doppelmayr also installed a detachable 6-seater chairlift, Levi North, in 2007. The loading and unloading areas of this skiers' lift are located at 90° to the rope axis. The chairs are parked in the bottom and top stations.

4-CLF Himos 10	Summer	Winter
Transport capacity	692 PPH	2,399 PPH
Trip time	6.8 min	3.9 min
Speed	1.5 m/s	2.6 m/s
Chairs	40	80
Interval	12.0 s	6.0 s
Inclined length	614 m	
Vertical rise	148 m	
Towers	9	
Drive 133/174 kW	Bottom	
Tension	Bottom	

8-MGD Ylläs 1	
Transport capacity	2,000 PPH
Trip time	6.7 min
Speed	6.0 m/s
Cabins	56
Interval	14.4 s
Inclined length	2,014 m
Vertical rise	427 m
Towers	13
Drive	Bottom
Tension	Bottom

[1] Finland has 100 large and small ski resorts with 290 lifts. If the small lifts are included, where the haul rope is guided at hip height, this figure is increased to 470.

The two-kilometer Ylläs lift is the longest ropeway in Finland.

The Levi Express also serves a ski slope and summer toboggan run. The bottom stations of the pulsed movement gondola lift and the 6-CLD "Levi North" are next to each other. The lifts share a joint command center set slightly back from the bottom stations. The roof design is the same, giving the entire complex a very harmonious visual impression. In Levi,

4-CLF in Himos and Tahko

In the ski resort of Himos in Central Finland, Doppelmayr built a fixed-grip quad chairlift. The return station and parking facility are housed in the top station, a 25 m high concrete building. The tower and the ropeway equipment were installed before the concrete block was completed. The land was then filled to form a ramp, into which part of the building structure is integrated. The bottom station had been erected in 2006; the tower foundations and the top station followed in 2007.

Tahkovuori, a ski resort 600 kilometers northeast of Helsinki on the eastern shore of Lake Tahkolahti, already has eight Doppelmayr lifts. The fixed-grip quad chairlift Tahko Vauhtirinne went into operation at Christmas 2007.

In addition to these new installations, the number of chairs was increased on the 6-CLD Ruka Express in Vuosseli (built in 2005), in the ski resort of Ruka, an hour's flight northeast of Helsinki. As a result, it was possible to raise the transport capacity from 2,600 to 3,000 passengers an hour.

2x3x8-MGFJ Levi Express	
Transport capacity	548 PPH
Trip time	2.1 min
Speed	5.0 m/s
Cabins	2x3
Interval	2.6 min
Inclined length	415 m
Vertical rise	115 m
Towers	4
Drive	Bottom
Tension	Bottom

6-CLD Levi North	
Transport capacity	2,760 PPH
Trip time	2.4 min
Speed	5.0 m/s
Chairs	37
Interval	7.8 s
Inclined length	623 m
Vertical rise	146 m
Towers	7
Drive	Bottom
Tension	Top

4-CLF Tahko Vauhtirinne	
Transport capacity	2,393 PPH
Trip time	3.8 min
Speed	2.6 m/s
Chairs	77
Interval	6.0 s
Inclined length	589 m
Vertical rise	152 m
Towers	7
Drive	Bottom
Tension	Bottom

Chairlift boom in Sweden

Doppelmayr installed two chairlifts and several surface lifts in Sweden in 2007. Of these, the 8-seater chairlift in Lindvallen and the 6-seater chairlift in Idrefjäll with angled mid station certainly rank among the most interesting projects.

Doppelmayr handed over the installations on a turnkey basis. The ropeway technology and coordination of the construction work were taken care of by Doppelmayr fitters; the electrical installations and foundation work as well as the provision of station infrastructure were contracted out to local companies.

6-CLD Idrefjäll, 8-CLD Skistar Lindvallen

8-CLD Skistar Lindvallen	
Transport capacity	4,000 PPH
Trip time	4.6 min
Speed	5.0 m/s
Cabins	76
Interval	8.0 s
Inclined length	1,204 m
Vertical rise	237 m
Towers	12
Drive	Top
Tension	Bottom

6-CLD Idrefjäll	
Transport capacity	3,200 PPH
Trip time	5.3 min
Speed	5.0 m/s
Cabins	94
Interval	33.8 s
Inclined length	1,393
Vertical rise	213 m
Towers	16
Drive	Mid station
Tension	Top

8-seater chairlift for the largest ski area

The Lindvallen and Högfjellet ski areas have linked up to form Sweden's most frequently visited ski region: The 43 lifts have an hourly capacity of 42,400 passengers and serve 56 ski slopes. Most of the guests are Scandinavian. They can look forward to a choice of chalets, hotels and apartments plus a large number of stores and restaurants. The resort is owned by Ski Star, the biggest ski area operator in Sweden.
One of the most striking features of the 8-CLD Skistar Lindvallen is the cedarwood cladding on the UNI-G stations which takes its inspiration from the region's traditional style of building. This lift has automatic parking in both stations.

New 6-CLD boosts the attractions of the Idre resort

The mid-sized ski area of Idrefjäll in central Sweden, roughly 150 kilometers to the north of Lindvallen, was established jointly by the non-profit organization Friluftsfrämjandet and the municipality of Idre in 1968. It lies at an altitude of some 600 m, enjoys plentiful snowfall and offers 42 kilometers of groomed snow trails as well as 34 lifts. The guests are drawn first and foremost from Sweden, Norway and Denmark. In peak periods the area attracts 8,000 visitors a day.

Environmentally conscious building design

When deciding the liftline for the 6-CLD Idrefjäll, special attention was focused on protecting the natural landscape, both in respect of the construction work and the completed lift.
The 6-CLD Idrefjäll is the first Doppelmayr lift with a double bullwheel drive in the mid station and has two haul rope loops.

Efficient 8-MGD for La Tzôumaz, Switzerland

In 2007, Garaventa installed an 8-seater gondola lift in the all-year tourist region of La Tzôumaz between Sion and Martigny in the Swiss canton of Wallis. This replaces a 4-MGD built in 1976.

La Tzôumaz lies high above the left bank of the River Rhône, half way between Martigny and Sion. In view of its north-facing location, the ski trails can be used until well into April.
La Tzôumaz is part of the largest ski region known as the "4 Vallées" and possesses an efficient network of ski lifts, chairlifts and other ropeways. The new lift provides a vital link to the core area of the ski region, the Verbier ski trails. In the summer, La Tzôumaz is the starting point for mountain hikes and extended mountainbike tours.

Much shorter trip time

As Operations and Technical Director Gilbert Simon explains, the old gondola lift with an hourly capacity of 700 passengers had to be replaced by the new and much more efficient 8-MGD in order to increase capacity. The bottom station had to be modified, posing a certain technical challenge for the structural engineer. The loading area is located on the third floor. In order to accommodate the new gondolas, the roof had to be raised and consequently the height of the side walls increased. The second floor is dedicated to public events and the first floor houses a swimming pool. The ticket office is located in an adjacent building.

Gilbert Simon, Director of the Operations and Technical Department at Téléverbier SA, is "very satisfied with Garaventa. We got a quality product, and our expectations in terms of the site work, adherence to deadlines and price were met to the full."

Mechanized dead end parking rail in the top station

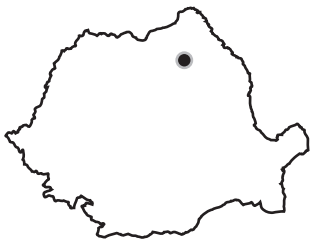
The liftline and the top station with underground vault drive are new. The gondolas are parked in a mechanized facility in the old top station. The operator merely activates a switch to actuate the rails.

8-MGD La Tzôumaz: The lift has met with an enthusiastic response; users praise above all the ride comfort and the 70% reduction in trip time to the top station.

8-MGD La Tzôumaz	
Transport capacity	1,600 PPH
Trip time	9.0 min
Speed	6.0 m/s
Cabins	58
Interval	18.0 s
Inclined length	2,782 m
Vertical rise	808 m
Towers	17
Drive	Top
Tension	Bottom

Romania: Across the city to the mountain

Since February 2008, an 8-seater gondola takes passengers across the 114,000-inhabitant city of Piatra Neamț, in Romania's Eastern Carpathians, to the nearby ski and recreational area. Further expansion of the ropeway infrastructure is currently in progress.



The goal of the city fathers – the investor is Primăria Orașului Piatra Neamț (the city council of Piatra Neamț[1]) – was to revitalize winter and summer tourism. The ropeway acts as both a sightseeing lift[2] and as a feeder for the Cozla 4-CLF, a Doppelmayr chairlift built in 2007. The installation is also integrated into the public transport network: The rail station and bus terminal are located next to the bottom station.

Enclosed carriers were the obvious choice for a sightseeing lift and a gondola lift proved to be the most cost-effective ropeway system.

Careful selection of tower locations

The lift route covers roughly one kilometer of densely populated urban area. Despite the fact that the haul rope has a height above ground of up to 60 m and the largest rope span is 430 m, it was anything but easy to arrive at an optimal liftline. Passing over the tallest building was not an option; at the same time, any obstruction of traffic or pedestrians was to be avoided. As a consequence, one 57 m lattice tower was adapted to the sidewalk to allow passers-by to walk through it and to allow access to a house entrance. Another 48 m lattice tower stands on the road; cars drive between the tower feet. The bottom station is located at a bus turning point, so the vehicles circulate around the building. In spite of these complications, the approval process with the Romanian ropeway authority ISCIR proved to be entirely straightforward.

Spectacular rope-pulling operation

Pulling the haul rope and the signal cables across the city turned out to be a spectacular feat. The first step involved flying out four auxiliary ropes with a helicopter. The haul rope and signal cables were then spliced to the first ropes, tensioned and pulled, thus avoiding the need for any special protection measures.

4-CLF Cozla: From the city to the countryside

On the outskirts of Piatra Neamț, immediately next to the top station of the urban gondola lift, Doppelmayr built the fixed-grip quad chairlift to Mount Cozla in 2007. Here again, the contract was awarded by the city government. The lift provides access to a recently constructed ski trail, the only one in the wider surroundings, and also operates in the summer. This has allowed the city fathers to expand the leisure activities available on Mount Cozla and to make it a more attractive destination[3].

The city of Piatra Neamț has a new landmark – the 8-seater gondola. The quad chairlift to Mount Cozla can be seen in the background.

8-MGD Piatra Neamț	
Transport capacity	1,200 PPH
Trip time	6.2 min
Speed	6.0 m/s
Cabins	31
Interval	24.0 s
Inclined length	1,921 m
Vertical rise	309 m
Towers	10
Drive	Top
Tension	Bottom

4-CLF Cozla	
Transport capacity	1,793 PPH
Trip time	6.0 min
Speed	2.3 m/s
Chairs	91
Interval	8.03 s
Inclined length	827 m
Vertical rise	251 m
Towers	8
Drive	Top
Tension	Bottom

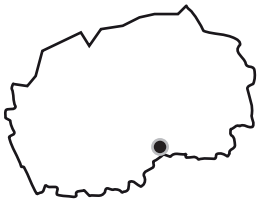
[1] The general contractor for the project was Dunărea S.A.; the operating company appointed by the city council is S.C. Perla Invest S.R.L.

[2] After Constanta on the Black Sea, the gondola lift in Piatra Neamț is Romania's second 8-MGD which is used for sightseeing over a city. Doppelmayr has built four 8-MGDs since 2004.

[3] Garaventa is currently erecting a 40-passenger reversible tramway which will link the mountains of Cozla and Pietricica. The top station of this tramway is next to the top station of the 4-CLF.

Macedonia: New ski resort

The Ski Centar Kožuf is a new ski resort which is being created in Macedonia, near the border with Greece. In December 2007, a 6-CLD-B from Doppelmayr was put into operation there.



The skiing and hiking region is located above the tree line on Mount Kožuf. As this is literally a "green field" site, everything has to be built from scratch: access road, power and water supply lines, hotel and apartments, ski slopes, etc.

The first season proved to be highly promising. While most of the guests came from Skopje, some 100 kilometers away to the northwest, resort managers hope to attract large numbers of skiers from Thessaloniki in the future. Located at a distance of just 70 kilometers, Thessaloniki is the second largest city in Greece with a population of 2 million inhabitants.

At present, the resort has two lift installations, both of them supplied by Doppelmayr. The 6-CLD-B Markovo Ezero is named after the legendary 11th century king who also gave his name to Lake Markovo, which was drained in the First World War. The 2-SL Zelen Breg, takes its name from the region's highest peak (2,200 m). Another surface lift, the SL-K92 – which is also from Doppelmayr and again named after a mountain peak – is under construction. Completion is scheduled for the middle of 2008.

Doppelmayr was responsible for project planning, delivery and installation of the electromechanical equipment as well as for providing all the foundation drawings. The customer took charge of the power supply along with the required control and service rooms, construction of the foundations and the provision of helpers, crane and helicopter. As access to the ski resort is only possible via a temporary track and traveling to the site from the nearest town would have been too difficult and time-consuming, the purchaser and operator, Ski Centar Kožuf, set up a camp for the installation crew.

Angel Nakov, the ski resort owner and operator, is full of praise for Doppelmayr. In addition to the excellent quality of the product, he was particularly impressed with the sound advice provided. At the same time, he is keen to underline the outstanding collaboration during construction.

Angel Nakov, owner and operator of the new all-year tourist resort, Ski Centar Kožuf: "The Doppelmayr lifts have been a resounding success. In a recent survey, our guests were unanimous in giving them the maximum score of 10!"

6-CLD-B Markovo Ezero	
Transport capacity	3,000 PPH
Trip time	5.0 min
Speed	5.0 m/s
Chairs	84
Interval	7.20 s
Inclined length	1,400 m
Vertical rise	460 m
Towers*	12
Drive	Top
Tension	Bottom

2-SL Zelen Breg	
Transport capacity	1,200 PPH
Trip time	2.7 min
Speed	3.0 m/s
Towing outfits	61
Interval	6.0 s
Inclined length	537 m
Vertical rise	108 m
Towers	5
Drive	Bottom
Tension	Bottom

* Two double towers

World first: Unmanned gondola operation

The two 8-seater gondola lifts Cairn and Caron in the French Alpine ski resort of Val Thorens are both served by the same bottom station and can either be run conventionally or by a single operations manager located in the Caron top station. For this "unmanned" operating mode, Doppelmayr developed a system which is both simple and safe[1].

In the loading and unloading areas the cabins are positioned close together so that they contact one another. Additional skirt panels at the outer ends of the cabin give the impression of a continuous row of carriers. The corners of the cabins are also covered in shock-absorbent plastic to protect them against damage.

Comprehensive safety measures

The close proximity of the cabins, with no intermediate gap greater than 50 mm irrespective of whether the doors are open or closed, was stipulated by the supervisory authorities in the interests of accident prevention (i.e. to stop passengers from becoming jammed or falling between the cabins). The lateral skirting with rubber end strips closes off the spaces between the cabins. At the same time, the cabins have to be fully guided (guide rollers on the hanger frame) to prevent any longitudinal or cross swing in the loading and unloading zones.

On entry into the stations, the cabins are precisely timed by an electronic control system. The cabin doors are opened by a control rail in the loading area and closed by another rail as the cabins leave the unloading area. A chain conveyor in the loading and unloading areas ensures the exact spacing of the cabins (distance between the plastic fingers which engage with the chain = carrier length). To prevent cabin oscillations, the cabins have plastic rollers which run on stabilizing rails located at the height of the cabin roof.

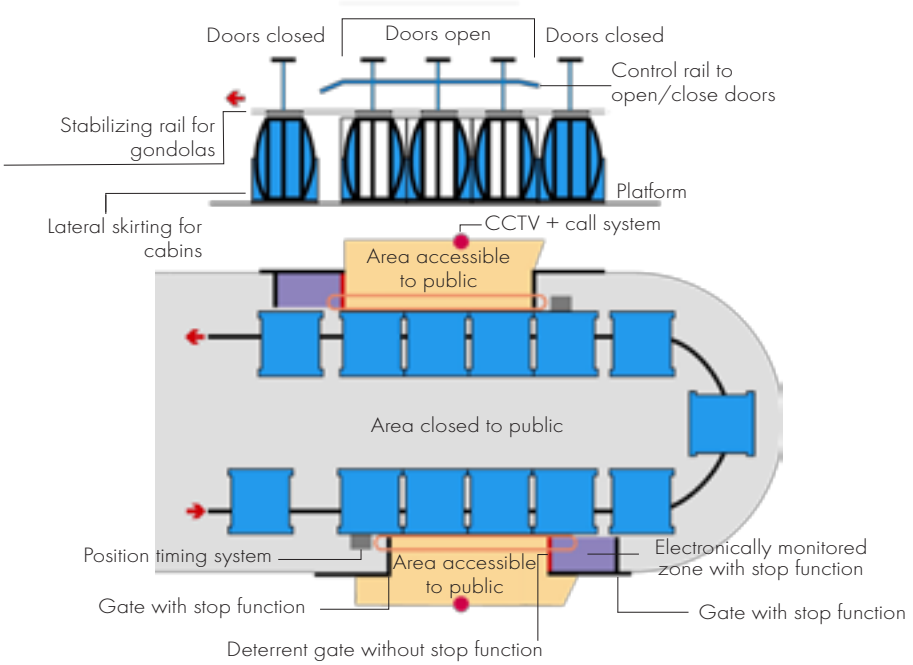
Convenient loading

The platform is higher than the lower edge of the cabin which is fitted with bumpers. Here again, a guide rail is installed to enhance the stability of the cabin. In addition, the exact vertical positioning of the cabin ensures level access for passengers.

Each station has two of these areas which lie opposite each other. As the two lifts are generally used for uphill transport only, this means there are two loading/unloading areas in the top and bottom stations. During station transit, the cabins are closed to maintain the safety of passengers who remain seated. Gates are installed to prevent access outside of the designated loading and unloading zones.

The stations are monitored by CCTV and are equipped with a call system enabling passengers to request assistance if necessary. The monitors are located in both stations of the Cairn lift and in the Caron bottom station. Announcements can be made in all stations using the PA system.

Unmanned Operation for Gondola Lifts – E.S.O.* System
**Exploitation Sans Opérateur*



[1] Photographic report in WIR Magazine No. 174, January 2008, pp.14 - 15. This is the promised technical report.

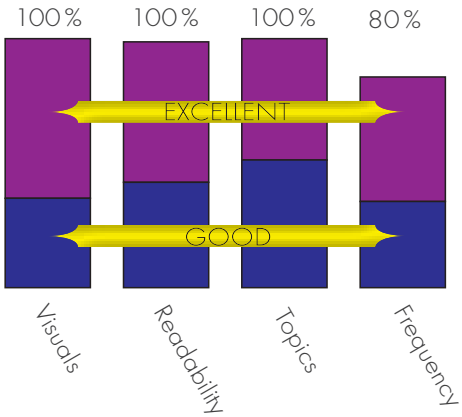
Training courses in demand

The customer training courses offered by Doppelmayr are hugely popular. The schedule for 2008 includes 24 courses in Wolfurt for ropeway operators, with translation into a total of 12 languages. In addition, Wolfurt supports group courses in five countries, quite apart from the on-the-job training provided in conjunction with the commissioning and installation of new and refurbished lifts. The number of people attending a course is limited to ensure maximum benefit for participants.

Course length is three to five days. In 2007, 250 people took part in courses in Wolfurt alone, requiring the organization of 1,000 beds, lunches and dinners. In addition to the courses at the head office, various Doppelmayr companies organize local courses for customers in their own countries. Garaventa organizes customer training as and when required. Training courses provide added value for all partners, especially in view of the lively exchange of ideas which takes place. For further information visit: http://www.doppelmayr.com, and go to "Services", "Training".

Good ratings for "WIR"

Readers gave WIR magazine a very good report in a survey conducted in September 2007. Information content, layout, readability and publication frequency were all praised. Ideas and suggestions are always welcome: wir@doppelmayr.com.



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Doppelmayr/Garaventa at SAM in Grenoble

Doppelmayr and Garaventa showcased their latest developments and high tech solutions at SAM in Grenoble (April 23 – 25). Highlights included the test rig for the world's only fail-safe rope position detection system RPD, the grip test rig, various surface lift components and the extremely comfortable 6-seater chair with orange-tinted bubble, heated seats and automatic restraining bar lock.