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Wir

Double T-bar lift Chekeril 1 and 2 near Izhevsk in Central Russia, to the west of the Urals, built in 2006. More about Russia on p.14

One of the Doppelmayr/Garaventa Group's most unusual installations is the 78-passenger reversible tram Marquam Hill in the city of Portland, Oregon/USA. p.20

Doppelmayr®

Magazine for
Customers and Employees

Fully automatic station parking

Fieberbrunn describes itself as "Austria's best hidden ski resort". But in view of the highly innovative technology used on the lifts, Bergbahnen Fieberbrunn certainly has no reason to hide. On the new 8-MGD Reckmoos, the company has installed Doppelmayr's first fully automatic station parking system.

MD Toni Niederwieser, Bergbahnen Fieberbrunn: "We're highly satisfied with Doppelmayr!"

The new 8-passenger gondola lift Reckmoos provides access to idyllic sunny slopes above 2,000 m. The lift is fitted with RPD.

Less construction volume

The technical highlight of the installation is the automatic station parking system[1]. The cabins are accommodated by dividing them equally between the top station, the bottom station and the parking facility.

The parking operation is as follows: Once the operating mode has been switched over to "parking", the carriers run at normal speed as far as the accelerator assembly. The station curve, the accelerator and finally the decelerator are then filled at low speed (1.5 m/s). The entire process is completed in 28 minutes.

Positioning the carriers on the rope at the start of operations is also performed automatically.

Both during the parking operation and when feeding the carriers onto the line, positioning and transport are performed by a chain conveyor in the area of the decelerator and accelerator. The chain conveyor itself is housed under cover at the side of the standard station enclosure and is readily accessible.

Very reliable parking system

The parking system has very few parts and is very reliable. Manual parking of the carriers is nonetheless possible whenever necessary. In the evening, after passenger service has been closed down and the cabins have been parked, the lift operator can ride up to the top station in a convoy with two cabins, as stipulated by the regulations.

Managing Director Toni Niederwieser from Bergbahnen Fieberbrunn is full of praise for Doppelmayr. "Quite apart from the fact that the installation crew did an excellent job and the transport logistics worked without a hitch, we were

8-MGD Reckmoos	
Transport capacity	2,200 PPH
Trip time	4.9 min
Travel speed	6.0 m/s
Carriers	53
Interval	13.1 s
Inclined length	1,725 m
Vertical rise	590 m
Towers	10
Drive	Top
Tension	Bottom

[1] A further development of Doppelmayr's proven hydraulic parking system which was introduced onto the market for the first time in 1995.

Being– and staying – successful

Efficient utilization of construction volume with the fully automatic station parking system from Doppelmayr. With 53 carriers to accommodate, a small parking facility was a necessity in view of the unusually high number of cabins. The UNI-G permits a total of 40 cabins to be housed in the bottom and top stations.

particularly impressed by Doppelmayr's flexibility during the planning and negotiating phase."

Fast – simple – always available
The key features of Doppelmayr's automatic station parking system for chairlifts and gondola lifts

1.) Always available – Carrier positioning is automatic; in exceptional cases, manual parking can be performed very easily. The parking technology and the main ropeway system are independent of each other.
2.) Maintenance-friendly – When the V-belts on the tire conveyor are retightened, there is no need to move the proximity switches or reprogram the control system.
3.) Simple principle – Few electronic parts such as switches, contactors, pneumatic valves, etc.
4.) Very rapid parking and launching onto the line.

Interalpin confirmed that Doppelmayr is on the right track. Together with our customers, we bear joint responsibility for the economic and ecological future of our industry. This applies not only to tourist resorts but also to urban agglomerations.
We aim to meet that commitment through our constant drive for innovation and technology leadership.
The over 17,000 visitors to our exhibition stand were given an impressive demonstration of our pole position in the global ropeway market. Items showcased included our seat heating systems, our RPD rope position detection system and large carriages for heavy reversible aerial tramways. Our sister companies – such as CWA – also exemplified the high level of technology and design which are standard throughout the Doppelmayr/Garaventa Group.
We came away from the Interalpin show with a great deal of recognition and a host of ideas. Those ideas have immediately been incorporated into our plans for the future. Every Doppelmayr/Garaventa customer can be sure that their concerns will be taken seriously and the appropriate steps conscientiously implemented.
We want to be the best possible partner for our customers and thus ensure that we are always recommended as being the best.

Michael Doppelmayr

Germany: Indoor ski centers are a growing trend

Germany currently has five indoor ski centers which are open all year round. In the late fall of 2006, the facilities in Bispingen (Lower Saxony) and Wittenburg (Mecklenburg-Vorpommern) went into operation. Bispingen hopes to attract 360,000 visitors a year, while Wittenburg expects to see 730,000.

Both centers stay open until late into the night. They offer the atmosphere of an Austrian ski village with restaurants decorated in the appropriate style. In addition, they house shops where ski equipment can be hired and purchased, ski schools and an efficiently run infrastructure[1] of conference, hotel, wellness and leisure amenities which are either incorporated into the center or located close by. The SnowDome/Bispingen has a workforce of 180, the Snow Funpark/Wittenburg employs over 300 people.

To Sölden via the SnowDome

The SnowDome in Bispingen, 60 km south of Hamburg, goes back to an idea of Jakob Falkner, Managing Director of Bergbahnen Sölden. As he explains: "Sölden already has a lot of visitors from the Hamburg region. We want to create an even stronger market position for ourselves 'at the source'." Another major consideration was the fact that 6.5 million people with relatively high purchasing power live within an hour's drive away. This meant that the conditions were right for the center to be economically viable, particularly as the guests would not only include active skiers but also those who just wanted to enjoy the hospitality services.

The lifts are fixed to the roof structure

The SnowDome is seen as Europe's top-notch ski center - in part because it is the only one with a detachable ski lift. The slope is up to 100 m wide and 300 m long, with a gradient of between 9% and 20%. The Dome covers an area of 23,000 m².
The detachable 6-seater chairlift and the platter lift are fixed to the roof structure. A height-adjustable loading carpet makes boarding the chairlift particularly convenient for children.

Jakob Falkner, Managing Director of Bergbahnen Sölden and the SnowDome in Bispingen (photo right): "We are entirely satisfied with Doppelmayr."

Automatic locking of the restraining bar

The automatically locking restraining bars[2] which cannot be opened during the trip[3] represent a safety enhancement which is first and foremost for the benefit of children. Furthermore, an additional cross bar underneath the restraining bar cuts the risk of small children slipping out of the seat. To ensure optimal use of the available space in the center the loading and unloading areas are at 90° to the ropeway axis.

Snow Funpark Wittenburg – Europe's biggest indoor ski center

The Snow Funpark Wittenburg, an hour's drive to the east of Hamburg, is Europe's biggest indoor ski center. Cooperation has already been agreed with the European sport region of Zell am See/Kaprun. Discussions with other famous Alpine resorts are ongoing.

Columns structure the interior and serve as lift towers

The center lies directly alongside the A 24 between Hamburg and Berlin. It offers 30,000 m² of ski slope and an FIS-approved halfpipe. Supporting columns in the center of the Funpark split the area in two, with the halfpipe on one side and the main slope, which is 330 m long and 40 m wide, on the other.
The lifts are fixed to the supporting columns. There are gently sloping ski runs and one steep descent. Beginners and

[1] In Bispingen, for example, Ralph Schumacher runs a go-cart track next to the SnowDome.
[2] Proper locking is monitored automatically
[3] In the event of excessive resistance against the restraining bar in the station (e.g. if a passenger becomes stuck), the opening or closing rail will lower or rise respectively and the lift is automatically shut down.

Hamburg entrepreneur Hans-Gerd Hanel is the general proprietor and driving force behind the indoor ski center in Wittenburg

children can enjoy themselves on a 90 m long and 40 m wide practice slope. The ski runs are served by one fixed-grip quad chairlift, a platter lift and several conveyors.

Hans-Gerd Hanel, general proprietor of the "Winterwelt Wittenburg", has great admiration for Doppelmayr's expertise. This was all the more important because the customer had no previous experience with chairlifts or surface lifts of this type. They also appreciated the adaptability that Doppelmayr showed when faced with the need to coordinate the large numbers of workmen operating within a comparatively small area and to make sure that all the work ran smoothly.

1-SL Ötzilift, Bispingen	
Transport capacity	710 PPH
Trip time	2.1 min
Travel speed	2.0 m/s
Towing outfits	52
Interval	5.1 s
Inclined length	242 m
Vertical rise	38 m
Yoke suspensions	3
Drive	Bottom
Tension	Bottom

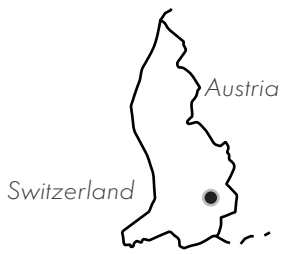
6-CLD Bispingen	
Transport capacity	3,000 PPH
Trip time	1.8 min
Travel speed	3.0 m/s
Carriers	30
Interval	7.2 s
Inclined length	242 m
Vertical rise	38 m
Yoke suspensions	6
Drive	Bottom
Tension	Top

4-CLF Snow Funpark	
Transport capacity	2,375 PPH
Trip time	2.6 min
Travel speed	1.8 m/s
Carriers	55
Interval	6.1 s
Inclined length	288 m
Vertical rise	56 m
Towers	6
Drive	Bottom
Tension	Bottom

2-SL Snow Funpark	
Transport capacity	1,200 PPH
Trip time	1.5 min
Travel speed	2.5 m/s
Towing outfits	36
Interval	6 s
Inclined length	260 m
Vertical rise	49 m
Towers	4
Drive	Bottom
Tension	Bottom

Two new lifts in Liechtenstein

Winter 2006/07 saw the addition of two chairlifts in the ski resort of Malbun in the Principality of Liechtenstein: The 4-CLD Hochegg and the 6-CLD-B-S Täli with bubbles and seat heating.



The village of Malbun is a major cornerstone of Liechtenstein's tourist industry. It positions itself as a child and family-friendly recreational area for the local communities. Guests are mainly drawn from within the Principality, the Austrian and Swiss Rhine Valley, and the Lake Constance region.

The ski resort has five lifts: One 6-seater chairlift, two quad chairlifts and two surface lifts. Since the 2006/07 season, this infrastructure has been expanded to include the detachable 6-seater chairlift Täli, which is equipped with seat heating and bubbles, and the 4-CLD Hochegg. These two lifts replace four surface lifts dating from the 1960s and 70s.

Since Malbun is Liechtenstein's only ski resort, it has great significance for all 11 municipalities. It was also for this reason that financing for the extensive modernization of the ski resort won support from the government, the municipalities and – as borne out by the subscription to new shares – broad sections of the population. The entire project is to be completed in stages by 2008.

The first investment phase encompassed the two lifts and a four-kilometer-long snowmaking facility. Peter Sparber, the board member responsible for implementing the project, attributes the decision in favor of Doppelmayr/Garaventa to the "persuasive price-performance

The two new lifts provide a strong boost to Liechtenstein's tourist trade. The photograph shows the 6-CD-B-S Täli.

ratio". Moreover, previous experience with Doppelmayr had also been good and the operating personnel have every confidence in Doppelmayr and Garaventa. Both locations, Goldau/Schwyz and Wolfurt/Vorarlberg, are only about an hour's drive away and help can be called in rapidly if needed. And finally, Peter Sparber points out that "cooperation during the installation of the lifts was excellent".

Garaventa was responsible for planning, delivery and installation as well as providing the lift operating company with assistance for the civil engineering work and building construction.

Board member Peter Sparber: Garaventa convinced us.

	6-CLD-B-S Täli	4-CLD Hochegg
Transport capacity	2,500 PPH	1,500 PPH
Trip time	5.7 min	3.8 min
Travel speed	5.0 m/s	5.0 m/s
Carriers	78	47
Interval	8.6 s	9.6 s
Inclined length	1,575 m	1,039 m
Vertical rise	326 m	340 m
Towers	14	9
Drive	Bottom	Bottom
Tension	Bottom	Bottom

The Grütschalpbahn belongs to Jungfrau Holding AG.
It travels from an altitude of 800 m to 1,486 m.
The four towers are 25 m, 42 m, 48 m and 19 m in height.

New reversible tramway to mountain village

The funicular railway between Lauterbrunnen and Grütschalp in Berner Oberland (Switzerland) opened in 1891 has been replaced by a reversible aerial tramway. Garaventa carried out the rebuild in 2006.

The Lauterbrunnen–Mürren Mountain Railway ("BLM") links Mürren[1] (1,639 m) with Lauterbrunnen (797 m). In 1889, it was decided that a transport link should be built in the form of two independent systems: A funicular railway with water ballast drive was to go from Lauterbrunnen to Grütschalp (1,486 m), and from there an electric narrow gauge adhesion railway was to cover the remaining four kilometers to Mürren. The railway was opened in 1891.

Over the course of time, the funicular underwent several upgrades. In the 1990s, a growing risk of landslides was identified. For that reason the decision was taken to replace the railway with a reversible aerial tramway. The sections of the mountainside threatened with slope failure were to be stabilized with netting. The BLM submitted its application for planning permission in November 2005. In April 2006, work began on the construction. Seven and a half months later, transport was resumed.

Jürg Lauper-Balmer, Head of Engineering at Jungfraubahn AG[2], who was in charge of the project, praises the dedicated efforts of the authorities and the perfect collaboration between the planners and the building contractors, which made it possible to complete the project in such a short time.

The route of the new tram follows the line of the old funicular. As the slope remains unstable, technical protection measures had to be adopted. The bottom and top stations remain in the same locations as

In the bottom station the material transport basket is loaded and unloaded using a fork-lift truck. In the top station goods are transferred from the tram to the adhesion railway and vice versa as before using the existing inclined elevator / fork-lift truck system.

Jürg Lauper, Head of Engineering at Jungfraubahn AG: "We are very pleased with Garaventa, and the new tramway has also met with an enthusiastic response from our customers."

before but have been adapted to meet the new requirements. The machinery room is new.

Cargo transported beneath the cabin

A basket is fitted to the underside of the cabin for material transport. The cabin is designed to take 100 passengers plus a cargo payload of 6 tonnes. Under full load, the total weight including dead weight amounts to 26 tonnes.
In view of the importance of cargo handling for Mürren, a regular 12-minute service is operated, which corresponds to an hourly capacity of 600 passengers and 30 tonnes of cargo in each direction.

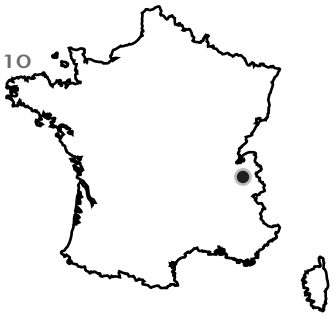
The transport capacity of the 100-ATW is significantly higher than that of the old funicular railway (320 passengers per hour and direction) and even exceeds that of the adhesion railway (360 PPH).
The tram has a winch-driven rescue carrier for 26 passengers with diesel-hydraulic drive in the top station. Passengers are evacuated from the tram cabin by means of the window on the uphill side of the carrier. The hanger of the rescue carrier can be height adjusted for this purpose, depending on the track rope gradient.

Innovative brake philosophy

Both the emergency brake and the service brake are operated by two independent brake units. This prevents overbraking of the installation in the event of rapid brake closure. Actuation of the track rope brake is direction-dependent. In the case of downhill travel, the brake engages immediately. In the uphill direction, the brake engages when the cabin is coasting, shortly before it comes to a standstill.

[1] During the construction, the Schilthornbahn – also an aerial ropeway – was Mürren's sole transport link with the rest of Switzerland.
[2] The BLM belongs to Jungfraubahn Holding AG. It is managed jointly by Berner Oberland-Bahnen and Jungfraubahn.

100 ATW Lauterbrunnen – Grütschalp	
Transport capacity	600 PPH + 30 t cargo
Trip time	3.5 min
Travel speed	
Rope span	10 m/s
Tower	7 m/s
Carriers	1 cabin for 100 P + 1 material basket for 6 t
Inclined length	1,433 m
Vertical rise	686 m
Towers	4
Drive	Top
Fixed track rope anchoring in the stations	



Tignes on Doppelmayr: Reliable, sturdy, safe

Tignes is an all-year tourist region. Attractions include skiing on the glacier until August, an 18-hole golf course, plenty of possibilities for hiking and two lakes for water sports – the smaller lake at 2,100 m, the other in the valley.The region also has an excellent lift infrastructure.

The Alpine community of Tignes is located in the French département of Savoy in the upper reaches of the River Isère and consists of three districts: Le Lavachet, Tignes-le-Lac and Val Claret. This all-year tourist region covers a wide area and is linked with the Val d'Isère to create the "Espace Killy". In Tignes, eight ropeways operate in the summer and 35 in the winter. The Espace Killy has 96 lifts in total. Just over half of the visitors are French nationals. Most of the foreign guests come from the UK and to a lesser extent from the Benelux countries. They appreciate the high level of comfort the area offers, with a ski lift virtually at the door!

The resort of Tignes is run by STGM (Société des Téléphériques de la Grande Motte). Its president since 2001 is Bernard Genevray, who started off his career with the company as general manager in 1980.

11 Doppelmayr lifts already in place

A soft spot for Doppelmayr: Bernard Genevray, President of Société des Téléphériques de la Grande Motte.

Bernard Genevray has been in the business for a long time and knows it inside out. So what does he expect from a ropeway? His response is brief and to the point: It has to be reliable, sturdy and provide a high level of safety. In his view, these are precisely the features which distinguish Doppelmayr installations. In 1993, STGM purchased its first Doppelmayr ropeway for these very reasons. Since then, Bernard Genevray has installed 11 Doppelmayr

Tignes in the French Alps, not far from Albertville, is an extensive all-year tourist region with a well-developed lift infrastructure.

lifts, all of them detachable systems: "All our detachable ropeways are exclusively from Doppelmayr!" STGM likes to take advantage of the performance features of modern ropeways not only to increase comfort for the passengers, but also to reduce the number of installations required. Thanks to the high transport capacities of the latest systems, older lifts can be replaced by a smaller number of new ones. That means fewer towers on the mountain, which pleases skiers and nature lovers alike.

40 years of STGM

On February 2, the ski resort of Tignes celebrated the 40th anniversary of its lift operating company. There were grandiose festivities with many prominent speakers. The presence of STGM founder Pierre Schnebelen, now 76, gave this event a particularly special note.

The 6-CLD Palafour replaces two fixed-grip 3-seater chairlifts built in 1982.

Fast Doppelmayr 6-seater for Tignes

Various lifts in Tignes not only provide uphill transportation for skiers using the adjacent slopes but – like the 6-CLD Palafour – also link up the various sectors. The bottom station of the 6-CLD Tichots, for example, (built by Doppelmayr in 2005[1]) starts off in Val Claret. The 6-CLD Bollin Fresse provides the connection with Val d'Isère. The 8-CLD Tommeuses is used to return from Val d'Isère to Tignes-Center and Tignes-Val Claret, etc.

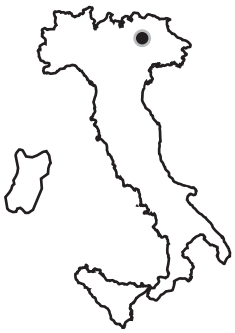
The new chairlift runs from Tignes-le-Lac to l'Aiguille Perceé at an altitude of 2,760 m. It acts both as a feeder (for Val Claret) and as an activity lift (serving the ski trails of Anémone and Combe).

The bottom station has 90-degree loading with a loading conveyor, which has permitted an increase in transport capacity to 3,600 PPH, compared with 2,700 PPH for the two lifts which were replaced.

The overall construction work was coordinated by STGM. Doppelmayr took five months to complete the installation (including the electrical equipment). Within eight months of the contract being signed, the lift was ready to go into service.

[1] Doppelmayr "WIR" Magazine, No. 169, June 2006

6-CLD Palafour	
Transport capacity	3,600 PPH
Trip time	4.9 min
Travel speed	5.0 m/s
Carriers	98
Interval	6.0 s
Inclined length	1,320 m
Vertical rise	471 m
Towers	15
Drive	Top
Tension	Bottom



Doppelmayr replaces the world's oldest aerial tramway

Bolzano boasts the oldest aerial passenger tram in the world. It has now been replaced by Doppelmayr Italia, just two years before its 100th birthday.

The Bolzano–Colle tramway went into operation on June 29, 1908. It had two cabins with raked seating and steps, room for six passengers and wooden towers – and was such a great success that the decision to modernize this "aerial transport lift" was already taken in 1913. The new system was to have cabins for 20 passengers and what was for the time a complex safety concept consisting of two hauling ropes and two track ropes for each path of travel.

In 1943, during the Second World War, the bottom station situated not far from the railroad station was destroyed. It was not until 1965 that the tram was repaired by ropeway supplier Hölzl (now Doppelmayr Italia). The new cabins could hold 15 passengers.

In 2006, Doppelmayr Italia once again carried out an extensive rebuild. Cabins, electrical, signaling and safety equipment, bull wheels, drive, carriages and other electro-mechanical components were overhauled and in some cases replaced. The gold-colored aluminum cabins now carry 20 passengers. They have sound insulation, lighting, music and two bench seats. Travel speed has been increased from 4 to 6 m/s.

Bolzano City Council, which owns the tram, has established a sports zone to promote tourism at the top station. Left: Illustration of the tram on a postcard dating from 1908.

20-ATW Bolzano–Colle	
Transport capacity	196 PPH
Trip time	5.0 min
Travel speed	6.0 m/s
Inclined length	1,655 m
Vertical rise	841 m
Towers	4
Drive	Top
Tension	Bottom

Kopaonik extends its lift infrastructure

On March 8, the 4-CLD Duboka 1 was opened in the Serbian ski resort of Kopaonik. This takes the number of chairlifts which Doppelmayr has installed there since 2004 to a total of four.

Kopaonik is an all-year tourist region in the Central Balkans. In the past three years, Doppelmayr has built five new ski lifts which transport 10,000 passengers on an hourly basis. The region has a total of 16 lifts with an hourly capacity of 15,000 skiers. Its hotel infrastructure offers around 15,000 beds.

Duboka 1 is an activity lift. It enables skiers who use the Pancicev Vrh installation for the uphill trip from the hotels to use additional ski trails on the mountain.

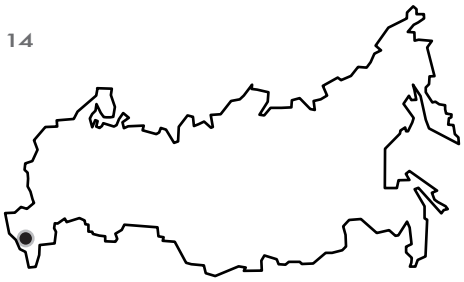
The new lift features a "ccw-right" system: the chairs leave the station on the right-hand side and the bull wheels rotate in a counterclockwise direction. The mid station is angled to circumvent a conservation area. Passengers can leave the lift in the mid station, a possibility which is used to access the FIS run.

The order was placed in July 2006. Thanks to the unusually low snowfall in winter 2006/07, work was able to proceed apace in December and January. Doppelmayr performed the installation of the mechanical and electrical ropeway equipment, and the customer, the holding company Skijalista Srbije which was founded specifically to operate Serbia's 20 ski resorts, provided auxiliary personnel.

4-CLD Duboka 1	
Transport capacity	2,400 PPH
Trip time	4.8 min
Travel speed	5.0 m/s
Carriers	80/95
Interval	7.2 s
Inclined length	1,296 m
Vertical rise	373 m
Towers (3 of them double towers)	13
Drive	Bottom
Tension	Bottom

With Duboka 1 the possibilities for using the resort's ski trails have been significantly improved. Skiers can pass the bottom station of Duboka 1 to reach the bottom stations of Duboka 2 and Krcmar which are immediately next to each other. The 4-CLD Duboka 2 was opened on January 8, 2007. It is required, for instance, to get back to the slopes from which visitors can ski down to their hotels.

Caucasus Mountains: Up-and-coming ski region



The well-known Russian ski village of Dombai lies at an altitude of 1,600 m in the Greater Caucasus Mountain Range. It has recently redefined itself as a resort for summer and winter tourism based on a concept developed by Ecosign and upgraded its facilities through the addition of two modern Doppelmayr lifts.

Dombai is nestled in a high-lying valley surrounded by four-thousand-meter-high mountains. Since Christmas 2006, an 8-MGD from Doppelmayr has been operating as a feeder, taking passengers from the village center to a plateau located at 2,777 m. From here, a new Doppelmayr 6-CLD built at the same time as the gondola lift provides access to a recently developed area with a series of attractive ski trails.

Soaring snow-capped mountains

The plateau offers a breathtaking all-round view of the rock formations and glaciers which form the Caucasus Mountains. The 5,642 m Elbrus, a dormant twin-peaked volcano with 70 glaciers, rises majestically on the horizon, just 60 kilometers away.

Improvement in comfort and capacity

The two modern Doppelmayr lifts not only improve ride comfort for skiers and hikers, but also significantly increase transport capacity. A shorter, Russian-built jig-back running parallel to the new 8-seater gondola lift remains in operation. From its top station, skiers have the option of several chairlifts and surface lifts to take them to a long-established ski area.

The first lattice towers from Doppelmayr Russia

The extreme topography of the region meant that building the ropeways was far from easy. One of the greatest challenges posed by the rough terrain was the rope-pulling operation. The construction work was performed by a company owned by the Russian Republic of Karachay-Cherkessia. The lattice towers were manufactured at Doppelmayr's Russian plant in Samara for the first time. Dombai can be reached in a three-hour drive from the airport of Mineralni Vodoi. The majority of visitors are drawn from Russia's cities.

Sustainable upswing in tourism

The region can look forward to a bright future, in no small measure thanks to the visionary master plan elaborated by Ecosign Mountain Resort Planners Ltd. (Vancouver), which encompasses both the ski resort itself and the complete hotel and transport infrastructure.
The Doppelmayr lifts are making a significant contribution to the success of Dombai's tourist industry.

8-MGD Dombai 1	
Transport capacity	2,400 PPH
Trip time	6.1 min
Travel speed	6.0 m/s
Carriers	60
Interval	12.0 s
Inclined length	1,811 m
Vertical rise	687 m
Towers	9
Drive	Top
Tension	Bottom

6-CLD Dombai 2	
Transport capacity	2,000 PPH
Trip time	7.6 min
Travel speed	5.0 m/s
Carriers	85
Interval	10.8 s
Inclined length	2,183 m
Vertical rise	731 m
Towers	16
Drive	Bottom
Tension	Bottom

Summer and winter visitors alike can enjoy a breathtaking panorama of soaring mountain peaks in the popular tourist resort of Dombai in Karachay-Cherkessia, Russia.

Elsar Appakov (left) as representative of the customer (the company Arkada) assures Managing Director of Skado (Doppelmayr Russia), Alexander Koslovsky, of his satisfaction with the quality of the lift installations and the way the contract was handled.

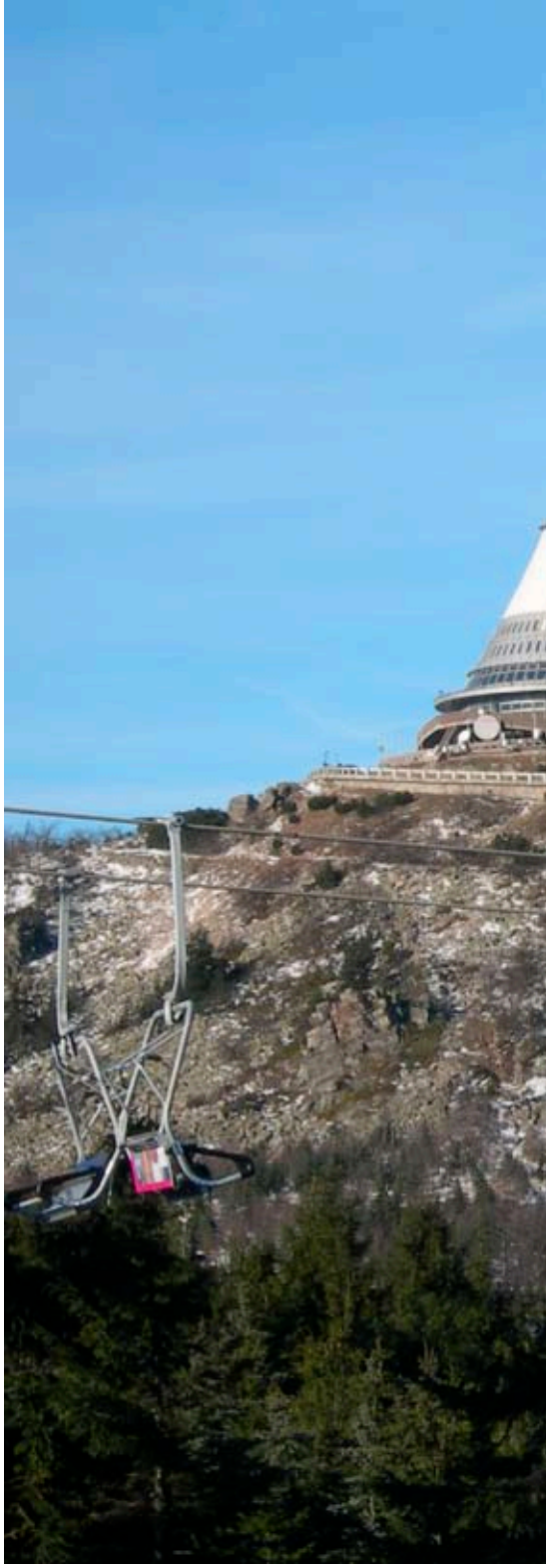
New momentum for Liberec

Ještěd, the local mountain of the Northern Bohemian city of Liberec, has long been a popular skiing and hiking area. Its attractions have now received a considerable boost with the construction and rebuild of three chairlifts and four surface lifts.

Liberec is located in a picturesque valley between Jizerské hory (Jizera Mountains) and Lužické hory (Lusatian Mountains). The symbol of the city is the Ještěd mountain (1,012 m) with its hotel tower which tapers to a height of 90 m and incorporates a TV transmitter at the top. Built in 1973, the tower has an original shape based on a hyperboloid of revolution and is designed to withstand hefty storms and colossal icing.
The hotel is served by a ropeway which provides access to an attractive ski slope and a magnificent hiking area. To the west of the Ještěd, the mountain crest leads to another two peaks, the Černý vrch (944 m) and the Skalka (896 m). These are now served by two new quad chairlifts from Doppelmayr, a detachable and a fixed-grip installation.

New 4-CLD built in record time

The 4-CLD Skalka is a completely new ropeway which was completed in record time. For one thing, the contract was awarded very late, namely in June. Secondly, it took a long time to obtain planning permission, largely due to the fact that the ropeways also take tourists into the conservation area of Jizerské hory. This meant that it was not possible to clear the liftline until mid October. Despite this, the lift was handed over to the customer on December 17. (The other ropeways had already been completed a few weeks before.)
The 4-CLF Černý vrch replaces a double chairlift from Doppelmayr which was just five years old. This has been overhauled and rebuilt under the name of "Nové Plán " on the north-west face of the Skalka where it is used as an activity lift. The connection to the Skalka summit – necessary for the return trip with the chairlift or on the family slope – is provided by a surface lift which Doppelmayr equipped with modern spring boxes.
The tight time schedule was a tough challenge for construction management and fitters alike. The customer, Snowhill spol. s.r.o. of Prague, took charge of construction. Doppelmayr provided supervision and support for the installation work.



Visitors from across the border

The region of Liberec attracts day-trippers from Prague as well as visitors from German and Polish cities close to the border. The lifts can easily be reached using public transportation. The bottom station of the Skalka lift, for example, is less than 100 m from the tram station.

	4-CLD Skalka	4-CLF Černy Vrch	2-CLF Nové Pláně (Relocated)
Transport capacity	2,400 PPH	2,007 PPH	1,188 PPH
Trip time	5.2 min	5.2 min	4.1 min
Travel speed	5.0 m/s	2.6 m/s	2.5 m/s
Carriers	104	88	83
Interval	6.0 s	7.2 s	6.1 s
Inclined length	1,472 m	808 m	618 m
Vertical rise	351 m	287 m	168 m
Towers	14	12	9
Drive	Bottom	Bottom	Bottom
Tension	Bottom	Bottom	Bottom

Above: 4-CLF Černý vrch against the impressive backdrop of the Ještěd summit.
Small photo: 4-CLD Skalka. In 2009, the Liberec region is to host the Nordic World Ski Championships.

First combined lift in the USA: Fun for all at Northstar

Northstar at Tahoe is the resort where Doppelmayr CTEC has built the first combined lift in the USA, with a mix of 6-passenger chairs and 8-passenger gondolas.

Northstar at Tahoe is an all-year resort in the North Lake Tahoe region of California's Sierra Nevada mountains. In 2006, the lift infrastructure was expanded to include two Doppelmayr CTEC installations: the 6/8-CGD Tahoe Zephyr and the Lookout Link platter lift, which provides access to the advanced terrain and impressive panoramic views of Lookout Mountain. The new Tahoe Zephyr lift is located at the top station of the "Big Springs Express Gondola", a 6-MGD which acts as feeder. This latest lift serves the new Shaffer's Camp Restaurant and 13 ski trails. Half of these runs have been newly built. One of these provides direct access to the popular Backside terrain. Previously, guests were required to ride two lifts from mid mountain to the top of Mt. Pluto (2,624 m) to enjoy the Backside.
"These two lifts significantly improve uphill capacity and circulation on the mountain," comments Tim Silva, Northstar Resort's General Manager.

"With Doppelmayr CTEC we are offering our guests the best"

When asked why Doppelmayr CTEC was selected for this contract, Tim Silva responds as follows: "As General Manager, one of my roles is to assure that the team is able to provide the best possible experience to our guests on a consistent basis. The ropeway supplier plays a critical part by providing a reliable and user-friendly product.

	6/8-CGD Tahoe Zephyr	1-SL Lookout Link
Transport capacity	2,340 PPH	600 PPH
Trip time	5.1 min	3.4 min
Travel speed	5 m/s	2.03 m/s
Carriers/towing outfits		75
6-seater chairs	51	
8-seater cabins	17	
Interval	10.0 s	6,0 s
Inclined length	1,558 m	413 m
Vertical rise	324 m	40.4 m
Towers	17	9
Drive	Top	Top
Tension	Bottom	Top

8 Doppelmayr ropeways

Northstar at Tahoe initially chose Doppelmayr in 1985 for the resort's first detachable lift, a 6-MGD, due to Doppelmayr's reputation for world-class engineering and product support. We currently have eight Doppelmayr ropeways including a combined lift, a gondola, five detachable quads and a platter lift."

The new combined lift in the particularly family-friendly and service-oriented Northstar-at-Tahoe ski resort is described by resort executive Julie Maurer as the "single most important improvement of the last 25 years in terms of improving the flow of traffic on the mountain". Northstar has 17 lifts and covers roughly 1,000 ha of terrain.

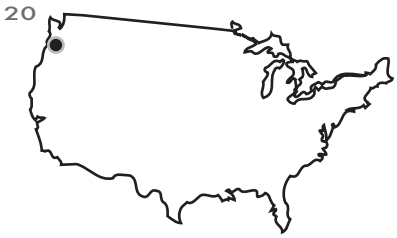
Good experience with Doppelmayr CTEC

The resort's long-term satisfaction with the Doppelmayr product was the determining factor for once again choosing Doppelmayr CTEC in the case of the Tahoe Zephyr Express.
Tim Silva was not disappointed: "Innovation requires extra effort. Our lift maintenance staff worked very closely with Doppelmayr CTEC and our state tramway inspectors to assure all technical requirements were met on this unique installation.

The guests love the 'TZ'

The bottom line is that our guests love the 'TZ', whether they are going skiing, sightseeing and dining or taking advantage of the great terrain served by this lift."
The Tahoe Zephyr and the Lookout Link were ordered in May 2006. Construction began on July 1 and the two lifts went into operation in December.

Vice President and General Manager Tim Silva is impressed by the quality, modern design and teamwork provided by Doppelmayr CTEC.



Portland: Urban development by tram

The City of Portland in Oregon, USA, sees its new aerial tramway as a catalyst for redevelopment of the South Waterfront District. This 78-passenger aerial tramway with its striking architectural design was opened in mid December 2006 and connects the Oregon Health and Science University (OHSU) with the South Waterfront District on the Willamette River.

The OHSU is a top-tier medical research institution which also operates an outstanding hospital facility and is the city's largest employer. Portland itself has a population of 500,000, while over 2 million people live in the metropolitan area.

Integrated public transport system

Urban development and the expansion of the university will be given a decisive boost by the new tram which is an integral part of the public transport system. Over the next twenty years, planners expect to see the creation of 10,000 new jobs and between 3,000 and 5,000 new apartments. In addition, a gynecological clinic is to be built at the bottom of Marquam Hill, where there is ample room for construction. The aerial tram will then provide the ideal connection.

Visually impressive

The new tram is visually impressive. Passengers reach the terminal via a glazed bridge from the ninth story of the 14-story main building. From here, they enjoy a 3,300-foot (1-kilometer) trip down to the parking lot.
The 140-foot (43-meter) upper terminal is a pyramid of glass, steel and concrete, which widens out toward the top and is described by the architects as being "as gracious as a ballet dancer". The counterweight is located between the seventh and ninth stories.
The cabins are perfectly matched with this elegant construction. While providing space for eight seated and 70 standing passengers, the cabins appear light and airy "like soap bubbles in the sky". They refract and reflect the daylight and do not carry any advertising text which is visible from the ground. Their "visual presence is minimal", as a spokesman from the Portland Aerial Transportation, Inc. (PATI), is keen to emphasize. PATI is a private non-profit organization set up by the City of Portland to oversee the design and construction of the Portland Aerial Tram. Operation is the joint responsibility of the OHSU and the City.
The South Waterfront station was designed as the "earthly" counterpoint to the upper terminal on the hill which is "of the air". It is here that the drive system is located along with the command center. The entire line is readily visible. In addition, there is an audio-video link to the cabins.

24/7 standby service

Doppelmayr CTEC guarantees a round-the-clock standby service and high availability.

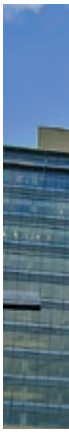
Temporary towers and bridges

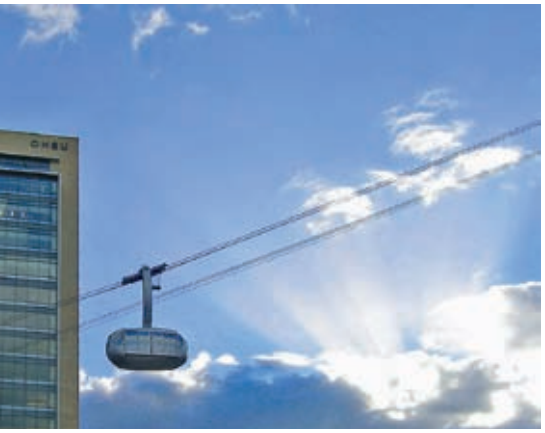
In order to avoid disrupting the traffic during the rope pulling operation, all streets were crossed with the aid of seven temporary towers and two rope bridges. Traffic flows were nevertheless maintained, in particular on the Interstate 5, a major route in the US highway system.

78-ATW Marquam Hill Aerial Tram	
Transport capacity	1,014 PPH
Trip time	3 min
Travel speed max.	10 m/s
Inclined length	1,027 m
Vertical rise	151 m
Towers	1
Drive	Bottom
Tension	Top

The 180-foot (55 m) intermediate tower measures 24 feet (7 m) across at its triangular footprint. From its base the tower tapers to a width of eight feet (2.5 m) approximately three-quarters of the way up, then widens again and angles slightly, with a maintenance platform installed at the very top.

Model of the top station

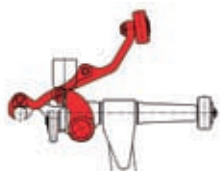




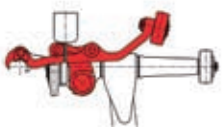
45,000 torsion bar grips in use

Doppelmayr has been using torsion bar grips (DT grips) on detachable ropeways since 1993. Today, some 700 installations are fitted with these grips[1].

Torsion bar grips are simple in construction and therefore not prone to malfunction. At the heart of the concept are four torsion bars made of high-strength steel. They have a square cross section at the ends and in the center.
The grip force of the grips is generated by eight elements. Once the carrier has entered the station, a rail presses down on the grip operating roller on the movable grip jaw. The operating roller is pressed down until the movable grip jaw is below its dead center position. – The grip remains open, detaches from the rope and travels around the station curve in the



Grip closed



Grip open

open position. As the carrier leaves the station, the movable grip jaw is moved above its dead center position. The grip then closes as a result of the spring forces and attaches to the rope.

Fewer closing operations – less wear

Other grip types (without dead center position) detach from the haul rope on entering the station and are then closed again before passing through the station. Prior to the carrier leaving the station the grip has to be opened again before attaching to the rope.

Cost-effective and reliable

This means that the torsion bar grip is only exposed to half as many opening and closing operations and consequently sustains less wear.

For this reason, the torsion bar grip system, which is used by Doppelmayr and Garaventa, is also very cost-effective.
For grips, Doppelmayr stipulates five random inspections per year for each ropeway. Within a period of five years or 50,000 station cycles, every grip has to be inspected and serviced at least once. In the case of ropeways built in the EU after 2003, the maintenance intervals set forth by the CEN standard are to be observed. 25 per cent of the grips have to be stripped down and inspected annually.

Long-term rust protection

Generally speaking, the recommended maintenance intervals are sufficient. Extreme environmental conditions may call for shorter maintenance intervals, for example due to the onset of rust formation in industrial zones with high concentrations of SO_2 in the atmosphere and low environmental protection requirements, or in coastal areas with frequent occurrence of strong winds and high levels of humidity. Rust can also occur as a consequence

Customers give top marks

Manfred Merten, Operations Manager at Arlberger Bergbahnen: "I've had torsion bar grips in service for 11 years, and my experience with them has been very good. The DT grips are exceptionally maintenance-friendly and are made of top-grade materials. That means very low wear. Up to now, I have never had any problems with this grip."

[1] There are roughly 45,000 torsion bars in operation on these installations.

of condensation in the case of strong and frequent fluctuations in temperature. However, the rust protection on torsion bars lasts a very long time. In addition to the surface treatment of the bars themselves, the square-section contact zones are lubricated with special grease.

The utmost safety for passengers

Even if a torsion bar were to fracture, passenger safety would not be impaired. The DT grips are designed to generate three times the grip force necessary to prevent the carrier from sliding on the rope. One fracture in one half of a torsion bar would only lead to a 12.5% reduction in grip force. In order to ensure that any drop in grip force is detected in good time, each grip is automatically tested before leaving the station. Any discrepancy would automatically cause the installation to shut down.

Operations managers are full of praise for the reliability and maintenance-friendliness of torsion bar grips

Hans Speckle, former Operations Manager at Bergbahnen Sölden (36 years of service in Sölden, seven and a half in Obergurgl, two and a half in Zürs; retired since 2005): "Our Silberbründl lift, a detachable quad chairlift, was the first in Austria to be equipped with torsion bar grips. The ropeway is 1,700 m long and handles 1.5 million passenger trips a year. We haven't had any problems up to now."

Martin Werle, Operations Manager at Illwerke-Seilbahnen: "Here at Illwerke we've never had a problem with either the DS (cup spring) grip or the DT (torsion bar) grip. But the DT grip has fewer parts, and that's why it takes much less time for inspection and service. We've had DT grips in operation on the Golmerbahn since 1995. That lift runs summer and winter, and has 30,000 operating hours to its name. I'm really happy with the DT grip."

Benjamin Eberle, Sareiserbahn, Bergbahnen AG Malbun (Liechtenstein): "We've had the torsion bar grip in service for 12 years on the Sareiserbahn, a 4-CLD. The lift operates in the summer and in the winter. The grip is reliable and maintenance-friendly. We've never had a problem with it and we're very satisfied."

New: LTW subsidiary in the USA

LTW is the Wolfurt-based member of Doppelmayr Group specializing in warehouse management systems. Its new office in Emigsville, a small town in Pennsylvania roughly half way between New York and Pittsburgh, opened in September 2006.
"LTW Systems Inc." is dedicated to the sale of track-bound LTW stacker cranes and project planning for high-rise warehouses. The stacker cranes are manufactured in Wolfurt/Austria.
Service will still be performed by LTW's US agent whose core business is the sale and maintenance of Hyster fork-lift trucks. As this company did not want to intensify its sales activities in the area of high-rise warehouses, LTW decided to establish its own subsidiary.
LTW Systems Inc. has three employees. There are currently 37 track-bound stacker cranes from Wolfurt operating in the USA. LTW has already sold over 1,200 worldwide.
The US market shows great interest in LTW stacker cranes, as borne out by recent trade fairs where LTW has exhibited for the first time under its own name. LTW customers in the USA include furniture stores (IKEA in California and Maryland), fruit juice manufacturers (Gregory Packaging in New Jersey and Arizona), cold stores (Landshire, Illinois) and pharmaceuticals corporations (PCI in Pennsylvania).

LTW USA: Ricky Stephens, Daryl Hull (President), Erika Sanders

Cooperation with Nippon Cable renewed

Nippon Cable and Doppelmayr have handled the Japanese market jointly since 1977. A new agreement has now been signed between Doppelmayr/Garaventa and Nippon Cable. In the photo Masayoshi Ohkubo (Nippon Cable, center) with Werner Inderbitzin and Hanno Ulmer from the Doppelmayr/Garaventa Group's Management Board.

Interalpin 2007 a great success

The Doppelmayr/Garaventa contribution to this year's Interalpin in Innsbruck proved to be a great success. The presentation of the new UNI-GV station formed the focal point on the stand. A full-scale demonstration of the electronic rope position detection system RPD provided the highlight for visitors with a special interest in technology.

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