

February 2013  
No. 189 • 38th year

# Wir



*New combined surface lift belonging to the luxury hotel Lärchenhof in Tyrol includes platters and T-bars, intermediate unloading and other top-of-the-range details. p.15*



## **Solar energy for mountain transport**

6-CLD-B-S in Montafon (Austria) uses solar power. pp.6-7

## **World first on Germany's Zugspitze**

The new 6-seater chairlift has triple-rail continuous loop parking. pp.8-9

## **8-MGD in Chaibuxi National Park**

China's steepest ropeway p.13

## **World first in Zell am See (Austria)**

4-CLF with special restraining bar locks and individual footrests. pp.18-19

## **Samsung places trust in Doppelmayr**

Doppelmayr installs another ropeway at the Everland Resort in Korea. pp.20-21

## **Urban ropeways in Georgia**

Funicular in Tbilisi, 8-MGD in Black Sea city of Batumi. pp.22-23

*Austria's highest café is located in the station building of the new Wildspitzbahn, an 8-MGD in the Pitztal glacier ski area. The lift also boasts other special features. p.4*



**Doppelmayr®**

# The world's biggest urban ropeway network

**The Bolivian capital La Paz is to acquire three ropeways covering a total length of 11 kilometers and incorporating 11 stations. That's a world record for urban ropeway networks.**

In mid-September 2012, Bolivian President Evo Morales signed a contract with Doppelmayr for the construction of three 10-MGDs in La Paz.

## Up to 9,000 passengers an hour

The three independent ropeway systems are to link the Bolivian cities of La Paz and El Alto. They will each carry up to

3,000 passengers an hour in each direction. The start-up is planned for the end of 2014.

## Huge time saving

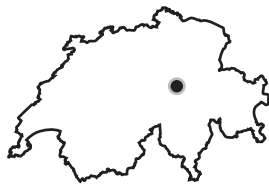
The trip between the two cities will take a maximum of 15 minutes. At peak times, it can take an hour or longer to travel the same route by car.



*Emission-free journey from the airport to the city with no risk of traffic jams. The lift line between La Paz and El Alto lies at altitudes ranging from 3,600 m to 4,000 m.*

	Linea Roja	Linea Amarilla	Linea Verde
Route	Panorámica Norte–Escuela Naval	Panorámica–San Jorge	San Jorge–Las Cholas
Route length	2,735 m	3,908 m	4,071 m
Number of stations	3	4	4
Trip time	10 min	13.5 min	16.5 min
Speed	max. 5 m/s		
Capacity	3,000 PPHPD each		
Operating hours/day	17 h		





## The world's steepest funicular

**A new funicular railway is to be built on the Alpine plateau of Stoos. This installation will feature an entirely new concept and design.**

**T**he funicular will be the steepest in the world. The trains consist of four cylindrical passenger compartments with level compensation. Each of these cabins turns in accordance with the gradient of the track, ensuring that the passenger compartment remains horizontal irrespective of slope angle. The funicular is scheduled to go into service at the end of 2014.



Each of the two trains on the Schlättli-Stoos-Schlatto funicular has four cylindrically shaped cabins which are designed to compensate the changes in gradient. The steepest section of the track has a gradient of 110 percent, which makes this funicular the steepest in the world.



### Clear number 1

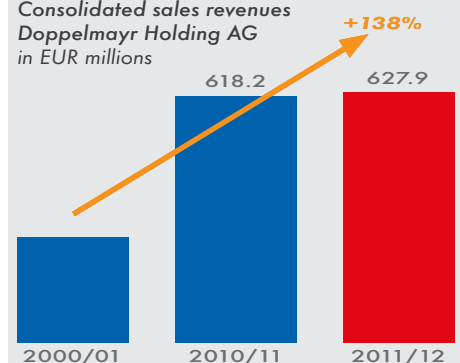
Since its very beginnings, Doppelmayr has always been regarded as very innovative and quality-conscious. Today, in the 120th year of the company's existence, Doppelmayr is the undisputed technology and market leader in the world of ropeways. In fiscal 2011/12, Doppelmayr built no less than 105 installations for 88 customers and posted sales revenues of over EUR 628 million.

Doppelmayr addresses the challenges of global markets with customer-focused product innovations and the continuous alignment of production methods and materials with the state of the art. This enables us to ensure a secure future for the company and the long-term availability of our products and services for our customers.

The development of market-oriented ropeway installations continues apace. Ropeways are reliable and comfortable means of transport which are built for the long term with minimal environmental impact. These advantages are not only put to use in the context of leisure and sports activities but also increasingly for systems which form part of integrated local transit networks serving major urban areas. We are firmly convinced that we can continue work with our customers in shaping the ropeway market and adapting to new needs.

Michael Doppelmayr

Consolidated sales revenues  
Doppelmayr Holding AG  
in EUR millions





## Wildspitzbahn sets Austrian record

**Austria's highest café (altitude 3,440 m) on the Hinterer Brunnenkogel in Tyrol's Pitztal is accessed by a new 8-passenger monocable gondola lift with heated seats: the Wildspitzbahn.**

The new 8-passenger monocable gondola lift replaces a pulsed-movement aerial ropeway dating back to 1988. Dr. Hans Rubatscher, managing director and shareholder of the operating company, Pitztaler Gletscherbahn, explains the main reasons for building the new lift: "First, the old installation no longer offered the level of comfort that guests have come to expect nowadays. Second, it was standing room only in the gondolas. And third, the intermediate loading on the old lift meant the trip took even longer." Skiers find it particularly convenient that the ski holders are fitted

inside the gondolas. This makes boarding the lift less stressful as passengers have plenty of time to carry their skis into the gondola and deposit them once inside. Unloading is also less hurried and more convenient.

---

### *World first: ski holders inside*

---

"Ski holders inside" is a world first. And there's a positive additional effect: Dr. Rubatscher points out that line capacity utilization has significantly improved.

The pulsed-movement aerial ropeway was shut down and demolished in 2012.





The construction work was spread over a two-year period as the weather can change very suddenly at this altitude and

make it impossible to carry on working. The short alpine summer also means that construction can only take place from May to September. A material ropeway was used to transport equipment and materials up to the top station.



#### 8-MGD-S Wildspitzbahn

Transport capacity	2,200 PPH
Trip time	6.7 min
Speed	6.0 m/s
Cabins	61
Interval	13.1 s
Inclined length	2,016 m
Top station altitude	3,432 m
Vertical rise	591 m
Towers	14
Drive	Bottom
Tensioning	Bottom

*Dr. Hans Rubatscher, shareholder and managing director of Pitztaler Gletscherbahn, with architect Carlo Baumschlager (who designed the stations). The new lift provides high performance, low maintenance and makes efficient use of line capacity.*

## Riding high on solar power



**The "Hüttenkopfbahn" to the top of Golm Mountain (Montafon, Vorarlberg, Austria) has been replaced. A photovoltaic plant provides a significant amount of the required drive power.**

**T**he ski resort of Golm lies at altitudes ranging from 650m to 2,124m. It offers nine lifts and 35 kilometers of ski trails for all levels of difficulty from family slopes and a world cup downhill run to a Diabolo race track, one of the steepest trails within a wide radius of the resort.

### *Top comfort and child-friendly*

The new Hüttenkopfbahn is a top-comfort 6-seater chairlift with heated seats, bubbles and individual, child-friendly footrests along with manually operated restraining bars. It replaces a double chairlift built in 1986 and went into service at the start of the 2012/13 winter season.

### *Photovoltaic power plant integrated into station building*

The special feature of the new lift is the fact that one third of its total power requirement (180,000 kWh p.a. for 1,000 operating hours) is provided by solar energy.

The solar cells are integrated into the glazing elements on the sides of the UN-I-G stations. The photovoltaic modules are mounted on brackets on the flat roof. Special fixings had to be used to withstand the hefty storms.

As well as constructing the new Hüttenkopfbahn, the snowmaking facilities have been extended in the Hüttenkopf area. The trail alignment has also been

*Top station of the Hüttenkopfbahn with integrated photovoltaic modules. Golm has the reputation of being a very family-friendly mountain. The use of solar energy fits in well with that image.*





slightly modified. Bumps have been removed and the slope has been widened in parts.

#### 6-CLD-B-S Hüttenkopfbahn

Transport capacity	2,400 PPH
Trip time	4.7 min
Speed	5.0 m/s
Chairs	63
Interval	9.0 s
Inclined length	1,306 m
Top station altitude	2,032 m
Vertical rise	395 m
Towers	12
Drive	Top
Tensioning	Bottom



Photovoltaic modules are also integrated into the bottom station building.



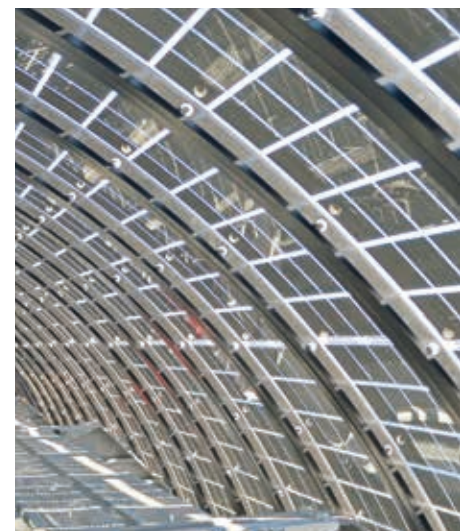
Dipl.-Ing. Harald Feldkircher, technical director of Illwerke Seilbahnbetriebsgesellschaft m.b.H.: "Our greatest USP is certainly

the integrated photovoltaic system. What's unique about it is that the solar cells have been directly built into Doppelmayr's standard stations. They blend in attractively and discreetly with the modern look of the chairlift. The acquired solar energy covers one third of the total power required to operate the lift. The lift only operates in the winter. The electricity produced in the summer is fed back into the grid."



Alukönigstahl GmbH (Vienna) produced the curved glass elements with integrated photovoltaic cells. As sales manager

Kurt-Stuart Ristl points out, this was no everyday challenge in view of the fact that "polycrystalline cells break during manufacture if you don't have the necessary know-how. In addition, the glass structure had to be able to withstand great snow and wind loads."



## Bavaria's Zugspitze boosts its appeal



**Skiers visiting Germany's highest mountain, the 2,962 m Zugspitze, are delighted with the 6-seater bubble chairlift; it replaces a T-bar dating back to 1979.**

U neven glacier melt and the associated technical problems had made it necessary to build a new lift. The lift line was extended downhill by 500m and moved slightly. The old lift line and the old top station have been entirely removed; the bottom station has been partially dismantled with only the cellar being retained for use as a transformer station.

The construction work took two summers. Peter Huber, technical director of

Bayerische Zugspitzbahn Bergbahn AG, explains that this was due to altitude, location and logistics. During the summer there are just three months when construction can go ahead, "and only if the weather permits".

Materials were transported from the valley using the cog railway and mostly at night to avoid interrupting passenger services. For the actual ropeway installation, a material ropeway was erected along the new lift line.



*The Zugspitze ski resort attracts one quarter of a million skiers a year – and as many summer guests. At the bottom station of the Wetterwand lift, 110 solar panels have been installed on the southeastern side. The electricity generated is used to run the lift in the winter. (It only operates during the ski season.) In the summer, the solar energy is fed into the power network used by the*





Operations manager  
Martin Hurm:  
"The collaboration  
with Doppelmayr  
was outstanding,  
particularly when you  
consider the

logistical challenges as all the materials  
had to be transported up the mountain  
on the cog railway and then by  
snowcats and construction vehicles to  
the construction site."

Photo: Philipp Pasolli



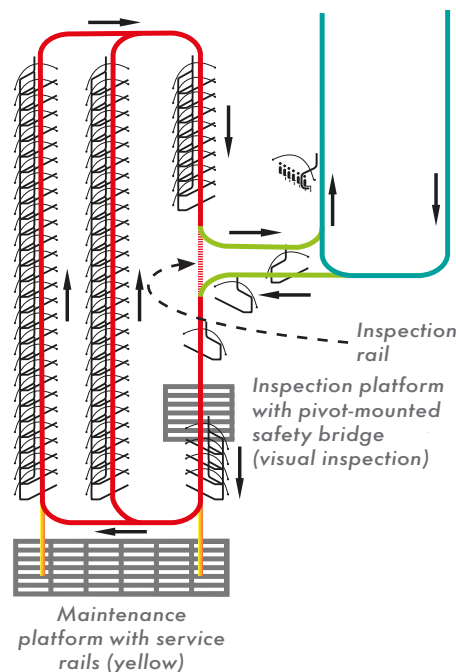
infrastructure on the glacier. The heat emitted  
by the switchgear cabinets of the modern  
DSD drive is used to help heat the building.

### World first: triple-rail continuous loop parking

For the 6-seater Wetterwanddeck chairlift,  
Doppelmayr constructed a world first: the  
triple-rail continuous loop parking facility.

The advantage of continuous loop  
parking systems is that the chairs can be  
fed back onto the line in a forward di-  
rection – rather than backward as is the  
case with dead-end parking. This is par-  
ticularly practical if there is strong wind  
and generally shortens the time required  
for loading carriers onto the line. Contin-  
uous loop parking systems nonetheless  
need more space than the dead-end vari-  
ant. Providing a third rail made it possible  
to combine the advantages of the two  
systems. Here too, carrier parking and re-  
trieval both take place in travel direction.

An inspection rail has been installed  
between the incoming and outgoing  
sides of the station so that individual  
chairs can be directed to the service plat-  
form without having to send them via the  
line. With the aid of a switch rail, a spe-  
cific chair can be removed from circula-  
tion. There are two service rails. The rear  
rail is for parking the maintenance carrier  
used to inspect the line.



### New: Automatic bubble locking on occupied chairs

The Wetterwanddeck lift is the first new-  
build 6-seater bubble<sup>1</sup> with automatic  
bubble locking on occupied chairs. There  
are three options available via a selector  
switch:

- Neutral position for operating with-  
out passengers: The bubbles are  
not closed. This is the preferred mo-  
de for maintenance or test runs.
- Automatic presence detection: A  
light barrier detects whether passen-  
gers are present and the bubbles  
are only closed on unoccupied  
chairs. Preferred mode for normal  
weather conditions without or with  
slight wind.
- Closure with automatic safety fea-  
ture, anti-trap protection, automatic  
locking: The bubbles on occupied  
chairs are also closed automatically.  
The system immediately recognizes  
if a passenger is likely to become  
trapped; the closing mechanism  
moves into neutral position and re-  
leases the bubble. Preferred mode  
for strong wind (new).

<sup>1</sup> This system has also been retrofitted  
on the 6-CLD-B Sonnenkar lift (built  
in 2003). The bottom stations of the  
two lifts are next to one another.

### 6-CLD-B Wetterwanddeckbahn

Transport capacity	2,800 PPH
Trip time	5.5 min
Speed	5.0 m/s
Chairs	85
Interval	7.7 s
Inclined length	1,514 m
Top station altitude	2,600 m
Vertical rise	287 m
Towers	14
Drive	Bottom
Tensioning	Bottom

# Choice of chair or gondola up to Grünwaldkopf



**This winter, a combined lift went into service at the well-known Austrian ski resort of Obertauern.**

**T**he Grünwaldkopf lies in the heart of the Obertauern ski area and offers ski trails with all levels of difficulty.

This part of the ski area enjoys a long tradition. Its first lift was a single-seater chairlift built in 1952. This was replaced 20 years later by a double chairlift, followed by a detachable quad with bubbles 20 years after that, and in 2012 – after another two decades – by the new combined lift.

## One of the main starting points for the Obertauern ski network

The new combined lift largely uses the lift line of its predecessor. Its bottom station lies at an altitude of 1,665 m next to a large parking lot alongside the Tauern federal road. The lift provides access to the northwestern section of the Tauern circuit, a 12 km long trail network.

## Ideal for summer and winter operation

The top station is also the starting point for hiking tours in the mountain range known as the Radstädter Tauern. Summer operation is another reason why a combined lift was the ideal solution. While gondolas only are used during the summer season, the lift runs with a mix of chairs and gondolas in the winter.



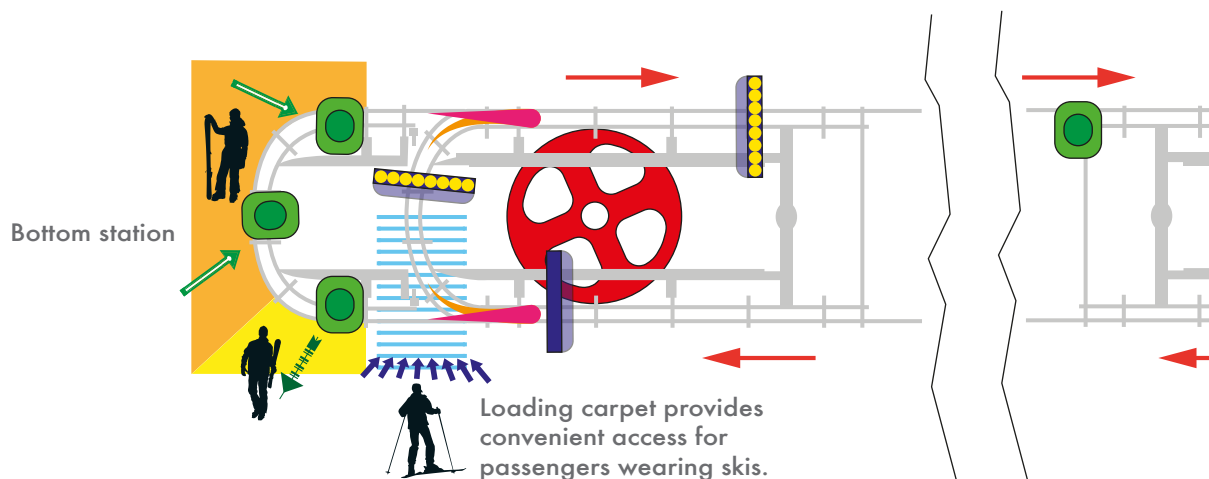
Dipl.-Ing. Klaus Steinlechner, managing director of the operating company, Tauernlift Gesellschaft m.b.H.:

"Doppelmayr is the

only supplier who provides the system we have used here of a combined lift with two curves and loading zones. I really have to say that the cooperation during the development phase for this lift was very constructive."



Only available from Doppelmayr: In the stations, chairs and gondolas run along separate curves with separate loading



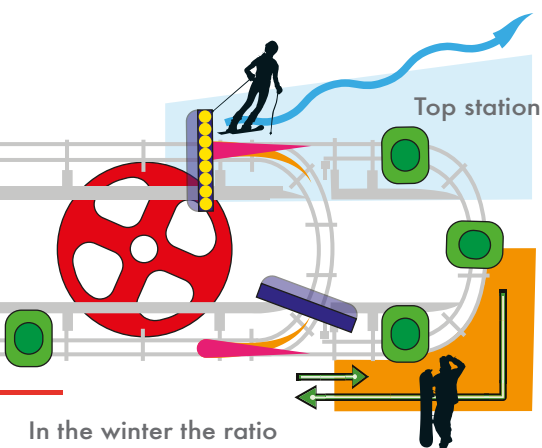


### 8/10-CGD Grünwaldkopfbahn

Transport capacity	3,500 PPH
Trip time	3.4 min
Speed	5.0 m/s
10-pax cabins / 8-pax chairs	17/39
Interval	8.8 s
Inclined length	983 m
Top station altitude	1,974 m
Vertical rise	305 m
Towers	13
Drive	Top
Tensioning	Top



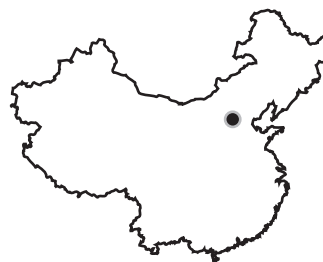
zones. This is a simple and reliable means of preventing conflicts between waiting chair passengers and arriving gondolas.



In the winter the ratio of gondolas to chairs is 3:1. In the summer, the lift uses gondolas only.



# Combined lift at Genting Secret Garden ski resort



**A 6/8 combined lift has been completed at Genting Secret Garden – formerly Beijing Secret Garden – 250 kilometers northwest of Beijing. This is the first Doppelmayr lift in China with orange bubbles and heated cabin seats.**

**G**enting Secret Garden is an all-year resort belonging to the Malaysian Genting Investment Group. Phase 1 of the development encompasses 13 ski trails with three rope-ways – a 6/8 combined lift as well as two detachable quad chairlifts with bubbles and heated seats. The two 4-CLDs were completed in December 2011; the combined lift went into service for the start of the 2012 ski season. All the lifts are from Doppelmayr.

Once the resort reaches its final development stage, it will leave the neighboring Wanlong ski area, currently China's biggest, far behind. Genting Secret Garden can be reached from Beijing in roughly four hours by car via the Jing-zhang Expressway and in six hours tak-

ing the new high-speed train to Zhangjiakou (4.4 million inhabitants) followed by a bus.

## 6/8-CGD-B Lift 1

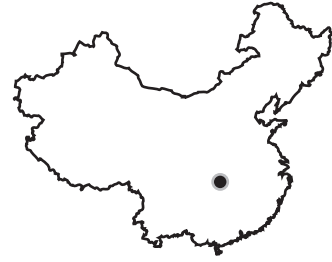
Transport capacity	2,400 PPH
Trip time	7.1 min
Speed	5.0 m/s
Cabins/Chairs	41+41
Interval	10.5 s
Inclined length	1,865 m
Vertical rise	395 m
Top station altitude	2,105 m
Towers	15
Drive	Bottom
Tensioning	Bottom



*The new lift scored an immediate hit with the public thanks to its speed and comfort. Very high volumes of passengers are also expected during the summer season.*



## 8-passenger gondola in Chaibuxi National Park



**Chaibuxi China National Forest Park in the west of Hubei Province has a new attraction: an 8-passenger gondola from Doppelmayr.**

**T**he trip to the national park takes several hours by bus. The starting point is the city of Yichang, population 4 million. Up to now, getting to the summit was only possible by driving up the narrow mountain road for 90 minutes or by walking along the same route as there was no separate footpath. The gondola ride takes less than six minutes.

### *China's steepest ropeway*

This lift is China's steepest, with a rope gradient of up to 99.64%. The inaccessible, rock-strewn terrain made installing a material ropeway for construction of the towers and foundations a challenge before the work on the lift itself was even begun.

### *Boost to the regional economy*

The catchment area of the national park is home to the Tujia, an ethnic minority with a strong cultural awareness who are widely known for their folklore, their wine and their regional cuisine. They hope to see a boost to tourism and consequently increased working and earning opportunities as a result of the new lift.

### *Owned by a private company*

The lift is owned and operated by the Sante Cableway Group, a private company which runs a large number of lifts in various regions of China; six of these were supplied by Doppelmayr.

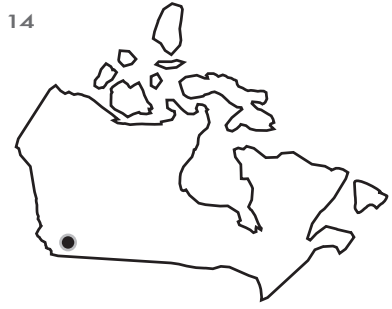


### **8-MGD Chaibuxi**

Transport capacity	1,000 PPH
Trip time	5.4 min
Speed	6.0 m/s
Cabins	23
Interval	28.8 s
Inclined length	1,608 m
Top station altitude	1,326 m
Vertical rise	793 m
Towers	11
Drive	Bottom
Tensioning	Bottom

At the heart of the Chaibuxi National Park lies the 30-kilometer-long canyon cut deep into the stunning rock formations of the "1,000 peaks" by the Chaibu river. It belongs to the catchment area of China's longest river, the Yangtze or Chang Jiang. The park's major attractions include the "rock forest" with formations that local people identify as human figures, animals and plants as well as mighty waterfalls and the idyllic pathways of the Dujiabao valley.

## New quad express in Canada



**Doppelmayr has installed  
Mt. Seymour's first high-  
speed quad chairlift, the  
Mystery Peak Express.  
It went into operation  
in December 2012.**

**M**t. Seymour is a family-owned resort located in western Canada within Mt. Seymour Provincial Park, which is managed by the government of British Columbia.

### *Top ski region in a protected area near Vancouver*

The ski and snowboard trails lie at altitudes between 1,265 m and 935 m, providing a vertical drop of 330 m. Mt. Seymour's elevation and proximity to the Pacific Ocean provide the resort with the most reliable and consistent snowfall in the region. In addition to the new quad chairlift, Mt. Seymour operates two double chairlifts and two loading carpets. Total transportation capacity is 6,700 PPH.

The Mystery Peak Express replaces a fixed-grip double chairlift that was completed in 1962 and ensures a faster turnaround for skiers and snowboarders, giving them more time on the slopes.

Geological conditions and the fact that the site was difficult to access in a protected area posed challenges for the construction work. Although the original lift line was retained, a number of tower locations had to be moved. Concrete and towers were flown in by helicopter. The stations are entirely new, and loading and unloading areas were contoured to make the lift more accessible for beginners.

The construction work, including demolition of the old lift, was largely organized and carried out by Doppelmayr.



### **4-CLD Mt. Seymour**

Transport capacity	1,400 PPH
Trip time	4.0 min
Speed	5.0 m/s
Chairs	46
Interval	10.3 s
Inclined length	1,066 m
Top station altitude	1,300 m
Vertical rise	220 m
Towers	12
Drive	Bottom
Tensioning	Top



**Eddie Wood,**  
General Manager &  
President of  
Mt. Seymour Resort:  
"The new Mystery  
Peak Express chairlift  
strengthens the

profile of skiing and snowboarding in the Vancouver area as well as making Mt. Seymour more accessible to beginners. It also provides competitive freestyle skiers and snowboarders with more training time on the slopes."



## World first for luxury hotel: combined surface lift



**The Kitzbühel Alps now boast a new attraction. The 5-star Lärchenhof Hotel in Erpfendorf has acquired a 5-star lift which is in a class of its own. It is equipped with alternating platters and T-bars.**

**T**he Kitzbühel Alps rank among the most attractive and scenic European destinations for summer and winter vacations. And this is where the Lärchenhof Hotel is to be found.

### *Combined surface lift with mid station*

The hotel has its very own surface lift offering top features for users. As well as giving them a choice of alternating platters and T-bars, the combined lift has a mid station. It is at this point that the ski slope divides into two sections: The gently inclined lower slope follows on from the more demanding upper piste. Skiers can opt to leave the lift here and ski

down to the bottom station. (There is no loading facility.)

### *WLAN for CCTV cameras; separate music speakers*

The extras on this lift are also highly impressive. The lift line is monitored by CCTV cameras mounted on masts. These deliver crystal clear images for the control room in the bottom station. The computer at the base and the cameras are linked up via a WLAN (Wireless Local Area Network) system, which meant there was no need to lay underground cables and prevented the problem of frequency interference.

Lighting, speakers for the PA system and high-performance speakers for music transmission are integrated into the towers. The sound quality of the music from these high-spec speakers is far superior to the quality level achieved if using the PA system. Needless to say, the rope-way equipment itself is also nothing but the best: from the maintenance-friendly spring pack hangers to the Doppelmayr Turbo-V spring boxes ensuring a particularly smooth launch.



### **1+2 SL Lärchenhof**

Transport capacity	890 PPH
Trip time	3.5 min
Speed	2.5 m/s
Towing units	79
Interval	6.1 s
Inclined length	589 m
Top station altitude	823 m
Vertical rise	139 m
Towers	6
Drive	Bottom
Tensioning	Bottom

*Combined surface lift: Children and single skiers prefer the platters; couples use the T-bars.*





## Kitzsteinhorn: New glacier surface lift



**The construction of the new Maurer glacier surface lift on the Kitzsteinhorn in Kaprun once again demonstrates Doppelmayr's glacier expertise.**

**D**irector Günther Brennstener from the operating company Kitzsteinhorn-Gletscherbahnen explains what motivated them to replace the T-bar lift which had been in service since 1974: "The terrain had become steeper following changes in the glacier and parts of the tow track had to be refurbished."

### *Two "floating" towers*

Extensive terrain corrections were necessary for the top terminal, tow track, ski slope and snowmaking infrastructure. Tower 7 (exit point) and Tower 6 "float"

on the ice and were secured by means of a guy rope between the return station in the top terminal and the fixed anchoring at Tower 5. Glacier movements can be compensated by readjusting the tower base.

### *Salzburg's highest ski region*

Kitzsteinhorn with its 24 lifts and 61 kilometers of ski trails is Salzburg's highest ski region rising up to 3,203 m. It also offers three fun parks and a service center at 2,450m with sports shop and ski school as well as ski and shoe lockers.





The surface lift provides access to specially formed sections of terrain with steep and very demanding black trails which represent an important portion of the resort's attractions. The slightly shorter alignment of the new lift freed up space for ski trail improvements; it also dispensed with the need for a lift crossing point. The snowmaking equipment can now be extended up to the edge of the glacier. The ski season lasts from September through to July.

### Technology pioneers

Since its foundation in 1963, Gletscherbahnen Kaprun AG (GBK) has always ranked among the technical pioneers of the ropeway world.

It was here that Doppelmayr built the world's first glacier surface lift in 1974 and the Kapruners were the first to use self-service T-bars on surface lifts (as well as helping to develop them). The Panoramabahn, an 8-passenger gondola lift built 1991, was also a record holder at the time and can carry cargo weighing up to 4.5 tons.



Günter Lechner (left; project manager and surface

lift operations manager), Ing. Günther Brennsteiner (technical director) highlight the "immaculate implementation and perfect collaboration" between Doppelmayr and GBK's specialists. The transport capacity of the new lift is perfectly matched to skier traffic in the area served.

### 2-SL Maurer

Transport capacity	1,175 PPH
Trip time	3.8 min
Speed	3.5 m/s
Towing units	82
Interval	6.1 s
Inclined length	869 m
Top station altitude	2,893 m
Vertical rise	263 m
Towers	14
Drive	Bottom
Tensioning	Bottom





## World first: Fixed-grip quad chairlift with special restraining bar locks

The Schmittenhöhe ski resort in Zell am See, province of Salzburg can now boast a world first: a fixed-grip quad chairlift with special restraining bar locks and individual footrests that started up in December 2012.

The 4-CLF "Sonnengratbahn" lies on the sunny side of the ski area and provides repeat uphill trips for skiers using the adjacent slopes as well as connecting to the lifts that take skiers back into the heart of the Schmittenhöhe area. To minimize the visual impact on the landscape in the summer, the chairs are





*Comfort and safety: A loading carpet conveys the skier to the chair loading elevator platform. At the barrier, the skier's height is electronically detected and the elevator platform is raised and angled so that the skier can take up the correct seated position with ease. Once the skier is sitting comfortably, the restraining bar is closed manually and then automatically locked. The lock is not released until arrival in the top station - automatically and accompanied by a well audible signal. The restraining bar can then be opened again by hand.*



*Dr. Erich Egger, board member of Schmittenhöhebahn AG: "With the new Sonnengratbahn we can claim the first fixed-grip quad*

*chairlift with lockable restraining bars and individual footrests here on the Schmitten."*

*The new lift replaces a double chairlift built in 1977. The lift line was retained, the old stations demolished and the new buildings carefully designed to harmonize with the overall architectural concept for the ski resort.*



stored in a parking facility built into the mountain.

### ***Concealed carrier parking***

This solution was chosen not only for aesthetics but also for sound technical reasons. Director Dr. Egger: "When the

carriers are stored in the parking facility, the grips are replaced by simple hangers. As well as keeping the grips out of harm's way, it also gives us the chance to carry out any maintenance on them. At the same time, the parking facility enables us to protect our lovely red comfort upholstery from UV light."

### **4-CLF Sonnengratbahn**

Transport capacity	2,000 PPH
Trip time	3 min
Speed	2.4 m/s
Chairs	90
Interval	7.19 s
Inclined length	763 m
Top station altitude	1,920 m
Vertical rise	229 m
Towers	10
Drive	Top
Tensioning	Bottom

## Samsung Everland trusts in Doppelmayr



**Doppelmayr has built a 10-passenger gondola lift for the Everland theme park, which is a 40-minute drive to the south of the South Korean capital Seoul.**

**T**he lift provides a convenient link from the main gate to the big show area, Carnival Square and the Grand Stage. This part of the park lies 33 m lower than the main gate, which can make the way back from an event rather tiring, particularly for visitors with baby strollers or for wheelchair users.

### *After the style of Disneyland*

Everland is a huge leisure installation divided into themed areas after the style of Disneyland. Since opening in 1976, Everland has been extended several times, awarded the Innovative Operation Prize for Customer Satisfaction in the Republic of Korea five times in a row and qualified to be part of the Customer Satisfaction Hall of Fame as well as attracting numerous national and international awards and accolades.

### *"Everland makes everyone happy!"*

The park boasts 7 million visitors a year and proudly proclaims that "Everland Resort makes everyone happy" and can be relied upon to provide "exciting and interesting services now and in the future".

That self-confidence stems not only from the resort's huge success but also from its entrepreneurial background. The park is owned and operated by a subsidiary of the multinational Samsung Group

#### **10-MGD Sky Cruise**

Transport capacity	3,000 PPH
Trip time	2.5 min
Speed	4.0 m/s
Cabins	22
Interval	12.0 s
Inclined length	255 m
Vertical rise	33 m
Towers	5
Drive	Bottom/end station
Tensioning	Bottom/end station



Arriving visitors can board the gondola at the entrance to the Everland Resort (photo bottom left). The original entrance building was expanded while retaining its imaginative

which employs 344,000 people worldwide.

### **Doppelmayr lifts at Everland since 1988**

The first Doppelmayr lifts installed at Everland date back to 1988. These were a fixed-grip double and a fixed-grip quad chairlift, and lived up to the expectations of Everland's management in every respect: "From the world's number one supplier, we received lifts which perfectly matched





architectural style. The height at which the gondolas travel was selected to give visitors an outstanding view of the park and its attractions.

our expectations in terms of safety and reliability right from the start. We can rely on their excellent service. And we are very satisfied with the strong commitment we have been shown by both Doppelmayr's Korean agent and their head office in Wolfurt."

That trust is a great tribute to Doppelmayr's capabilities and provides an excellent reference, not least because Samsung Everland is well-known for having exacting standards when it comes to technical design, safety and reliability.

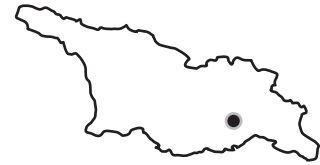


High mobility is also required for wheelchair users and parents with baby strollers. The new 10-MGD Sky Cruise is hugely popular. Everland currently has four Doppelmayr lifts in total.





# Funicular reaches the heights in Tbilisi



**The most superb view  
of the Georgian capital  
Tbilisi is from Mount  
Mtatsminda ("Holy  
Mountain"). And the  
simplest way of getting  
there is with the new  
funicular railway  
from Garaventa.**

**T**bilisi has an urban ropeway tradition stretching back 100 years. Up until the 1990s there was an aerial tram in addition to the funicular built in 1905. Since October 2012, it has once again been possible to take a ride on the funicular up to the 250m TV tower. From the viewing platform, visitors can look down on the city center with its attractive boulevard, Rustaveli Prospekt, as well as the parliament and government buildings. While the Caucasus Mountains are visible in the far distance, the adjacent amusement park with its carousels and Ferris wheel is a popular destination for the city's youth. Half way up the mountain is an intermediate station and the Church of Saint David. Many writers and public figures are buried in the surround-

ing grounds. The new funicular cabins can carry 60 passengers and offer 18 seats. The vehicles are accompanied by a driver. Virtually everything is new except for the track and infrastructure. The station buildings have been refurbished in the fin-de-siècle architectural style.

## Cabins transported through entrance hall

As it was not possible to transport the cabins around or over the terminal buildings, an unusual solution was adopted. Auxiliary rails were laid in the generously proportioned entrance hall. The cabins were then deposited in front of the building and carefully maneuvered through the wide doors.



*Aleksi Khachidze,  
project supervisor  
of the Tbilisi  
Development  
Fund, who was  
tasked with  
supervising and*

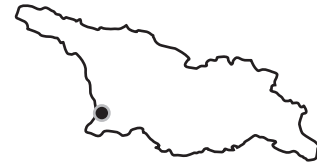
*coordinating the construction of the funicular by Tbilisi City Hall. The city sees the funicular as an important landmark linking centuries of Georgian culture and history with the modern life of the city. Garaventa's contribution was highly appreciated.*

## 60-FUL Tiflis - Mtatsminda

Transport capacity	750 PPH
Trip time	3.4 min
Stopping time in station	1.3 min
Speed	3.0 m/s
Carriers	2
Inclined length	478 m
Top station altitude	336 m
Vertical rise	228 m
Drive 160/95kW	Top
Haul rope ø	25 mm



# City of Batumi: Gondola link to entertainment center



**The Georgian city of Batumi on the Black Sea coast is developing a new entertainment complex on nearby Anuria Mountain. An 8-passenger gondola lift connects it to the city center.**

land, the port city of Batumi is surrounded by steep hills. While the suburbs are built on the hillsides, the magnificent old town borders on the sea. From here, within sight of the university and the large cargo port, a gondola lift now leads up to the site of an entertainment complex with shops, cafés and a casino which lies 250 m above the city center.

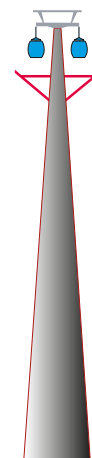
## Linking old and new

The new lift blends in with the successful symbiosis between modern and traditional architecture. The station buildings are steel-glass structures. The top station is reminiscent of the wind-filled sail of the "Argo", the ship with talking oak beam in

which 50 Greek heroes are said to have set off 3,000 years ago to retrieve the Golden Fleece from the Colchian dragon (in the present-day region of Batumi). For that reason, the gondola lift was named after the mythical ship "Argo", and became extremely popular even before it opened.

The gondola takes passengers up to an area of great natural beauty which is otherwise difficult to access and offers breathtaking views of the port and great expanse of the sea.

"Argo" passes over houses and a deep ravine with power cable. When it came to installing the rope, a helicopter was used in open terrain and in built-up areas specially made protective scaffolding was brought in from Austria.



*In the vicinity of a power cable and within the city, Doppelmayr fitted a safety structure to the towers to contain the ropes. In view of the frequent hefty thunderstorms, a lightning protection cable was spanned the length of the lift line. This method has already proved highly successful in the tropics.*

## 8-MGD Argo/Batumi Transit

Transport capacity	500 PPH
Trip time	9.6 min
Speed	5.0 m/s
Cabins	19
Interval	57.6 s
Inclined length	2,586 m
Top station altitude	250 m
Vertical rise	248 m
Towers	7
Drive	Top
Tensioning	Bottom

### Low power consumption for seat heating

The amount of electricity required to heat the seats on a 6-seater chairlift is low at 68kWh per day. Based on current prices, that costs in the region of 5 to 15 euros.

### Constantine's gondola lift attracts 12 million passengers

The 15-passenger gondola lift built in the Algerian city of Constantine in 2008 has already carried 12 million passengers. On a daily basis, 10,000 people use the transport link to travel from the outskirts of

the city into the center. The trip takes less than eight minutes – compared with an hour by car.

Over the past four years, the lift has enjoyed trouble-free operation in spite of the difficult environmental conditions of high daytime temperatures, cold nights and dust from the Sahara.

### Rolls-Royce takes tram up the Säntis (Switzerland)

For the winter exhibition "Museums Around the Säntis", the aerial tram transported a Rolls-Royce up to the Panorama Hall in the summit station (altitude 2,500 m). The valuable load weighed 2.2 tons.



## Ski fun with Skippy



Hi kids! It's me again, Skippy!

Today we're trying out the new Wildspitz lift in Tyrol.

It's the highest lift in the whole of Austria. I can't wait to get my hot chocolate in the top station at 3,440m above sea level!



Wow, Skippy, the air's so thin up here...  
It's almost like being up in space!



Ha ha! You bet! Maybe we can beat  
Felix Baumgartner at his own game!



And now off we go, you space travelers!  
Who can get back down the fastest?