

LEITNER Vehicles

TECHINFO





LEITNER Vehicles

Ride comfort, safety and system availability are always the top priorities whenever LEITNER develops a vehicle. System availability is enormously important to customers, so care is taken to make every vehicle highly wind resistant, and that applies especially to the cabin design.

All of our vehicles are designed and produced in line with the latest European ropeway standards and approved by a certified body. LEITNER offers a full range of vehicles, from fixed 2-seaters and detachable 8-seaters to large cabins for the company's own aerial tramways and funicular ropeways.

LEITNER cabins stand out in the market first and foremost on account of their design, their spaciousness, and the unobstructed view they offer through large, panoramic windows.

LEITNER chairs, whether fixed or detachable, are exceptionally comfortable. The optional weather protection bubble available for automatic systems offers protection in any weather, and its convex shape gives passengers a sense of safety and comfort. A lockable safety bar with a single footrest or LEITNER KidStop® makes things significantly safer for passengers. This is reassuring for operators of ski resorts, especially ones popular with children. All LEITNER vehicles for detachable systems are available with optional heated seats.

The Diamond Cabin	04
The Diamond EVO Premium Cabin	06
The Symphony and Symphony 10 Luxury Cabin	08
The LEITNER EVO Comfort Chair	10
The LEITNER EVO Premium Chair	12
LEITNER Safety Systems and KidStop®	14
The LEITNER Grip	16
The LEITNER Vehicle Identification System	18
The LEITNER Lateral Damping System	20
LEITNER Seat Heating	21
Bike-Transport with LEITNER Chairlifts	22

The Diamond Cabin

Proven the world over

We work with the Italian design company Pininfarina to develop, design, and build cabins that are unusually spacious – and unusually beautiful.

The Diamond cabin for detachable gondola lifts is available in various sizes, from four seats to 20 standing spaces. All of our cabins are built around a supporting structure made of extruded aluminum sections. Most of the spaces between these sections are glazed, giving the cabin a unique feeling of space and an unimpeded view. The outer forms of our cabins have been wind tunnel tested and produce extremely little wind resistance, meaning they are safe and comfortable to use, even at high wind speeds. Lots of optional extras and any choice of colors gives customers a vast amount of leeway when equipping and designing their own unique cabins. Damped parallel suspension makes riding up and down the slopes and entering stations uniquely comfortable.

LEITNER cabins are remarkably stable in the wind, which noticeably improves the availability and reliability of a ropeway. The way they are constructed is also very simple, which makes inspecting and servicing them that much easier.



The Diamond EVO Premium Cabin

Design and quality

LEITNER has a range of cabins for detachable gondola lifts in its portfolio. This includes the Diamond EVO, which is the natural continuation of the long-established and highly successful Diamond cabin.

LEITNER's Diamond EVO premium cabin proves once again that clear vision in the development of ropeways means more than just technical innovation. Its all-round glazing provides passengers with an impressive panoramic view of their surroundings.

Cabin ventilation can be arranged in various ways to meet different requirements, from urban ropeways in tropical countries, to systems that carry winter sports enthusiasts up into the snow. Tilting windows can be incorporated on the valley, mountain, or tower sides. Additional ventilation slots can be incorporated if needed (such as beneath the seats).

Automatic sliding doors eliminate the need for the usual lever on the floor inside the doors, which makes the interior significantly roomier and makes things much more comfortable for passengers at the door seat, because they have more legroom. Numerous optional extras and a free choice of colors give customers a wide leeway when equipping and designing the look of their cabins.

Perfectly tailored to you. With the Diamond EVO, customization doesn't just mean style, design and function: it means perfectly tailoring it to your personal needs as a ropeway operator.

The LEITNER Diamond EVO premium cabin. Designed to amaze you and your passengers.



The SYMPHONY and SYMPHONY 10 Luxury Cabins

Incomparable and unequalled

Renowned Italian design workshop Pininfarina developed and designed the SYMPHONY 10 and its big sister, the Symphony 3S.

Ventilation has been perfected by incorporating air inlets in the lower part of the cabin, combined with a window on the tower side, to enable optimum air circulation. This prevents the windows from misting up. Design with vision – ride with vision.

The extra-wide opening created by the sliding doors makes it easy to get in and out, including with strollers, bicycles, and even wheelchairs. The automatic sliding doors are very stable, even when the ski racks are fully loaded; the additional weight does not impact operation.

Ski racks are available in different variants and of course offer space for snowboards and wide skis. A version of the cabin with ski racks on the inside is also available.

The SYMPHONY cabin sets new standards not only for LEITNER, but for the whole ropeway industry. Seats have been further widened, but small spaces remain between them, making each one a lot more comfortable.

Equipment levels can also be upgraded even further and with even more exclusivity. LEITNER sports seats, which originate in the sports car segment, are the first seats to feature heated backrests as well as bases. So now your passengers will feel even more comfortable.

Quality does not come about by chance. It is the result of careful thinking, strategic action, and believing you can develop the best product. LEITNER's SYMPHONY sets new benchmarks in spaciousness, comfort, and experience. This places it alongside the Diamond EVO as a high-end alternative in the 10-passenger cabin segment.

The SYMPHONY 10 is to the ropeway market what Wimbledon is to tennis, Rolls Royce to cars, and first class to frequent flyers.





The LEITNER Comfort Chair EVO

Safety and comfort for the best possible ride

Every automatically detachable LEITNER chair is extremely comfortable and very smooth and quiet during the ride.

A wide seat, a high backrest, and a perfectly shaped footrest make it a pleasure to sit in. A three-stage comfort suspension system consisting of springs, dampers, and a torsionally flexible joint ensure that LEITNER chairs run smoothly.

The chair's suspension and intermediate frame are connected by a torsionally elastic system; rotational movement is restricted by a spring-damper system which attenuates the impacts that happen as the unit enters the station, especially when the chair is loaded on one side.

The intermediate frame and chair frame are connected by a two-stage vibration isolator. A spring system reduces low-frequency vibrations and shocks when crossing towers, and a damper system isolates the high-frequency vibrations caused by the hauling rope.

The three-stage damping system also significantly reduces component stress, thereby greatly increasing component service life. Comfort suspension can be retrofitted to existing LEITNER chairlifts.

The LEITNER bubble chair has a specially curved weather protection bubble and offers an unimpeded panoramic view, even when closed.

TECHNICAL DATA

Vehicle capacity	For 4, 6, or 8 people
Features and equipment	<ul style="list-style-type: none"> + Comfort upholstery in a range of colors + Bubble in a range of colors (blue / yellow / bronze) + Manually / automatically locking safety bar without footrest, with standard or single footrest + KidStop® + Heated seats
Retrofitting options	<ul style="list-style-type: none"> + The bubble can be retrofitted in the case of open seats + Comfort suspension (if compatible with the total weight of the vehicle)



The LEITNER Premium Chair EVO

Elegant sports seats in genuine leather

Our exclusive premium seats are elegantly designed and combine design elements and expertise from the automotive industry with high-grade materials and the latest technology.

A wide seat, a high backrest, and a perfectly shaped footrest make them a pleasure to sit in, and a three-stage comfort suspension system consisting of springs, dampers, and a torsionally flexible joint ensure that LEITNER chairs run smoothly. Ergonomically designed seat bases clad in genuine leather don't just provide maximum comfort, they are less slippery; combined with the safety bar lock, this makes passenger transport safer.

Thanks to heated seats, passengers remain warm and comfortable even when outside temperatures are really low. Since every seat has its own heating element and a separate fuse, the system guarantees extremely high availability and reliability.

Genuine leather upholstery looks luxurious and is not as slippery as other covers. This makes things safer, especially for children.

TECHNICAL DATA

Vehicle capacity	For 4, 6 or 8 persons
Features and equipment	<ul style="list-style-type: none"> + Premium upholstery can be customized + Bubble in a range of colors (blue / yellow / bronze) + Manually / automatically locking safety bar without footrest, with standard or single footrest + KidStop® + Heated seats
Retrofitting options	+ Premium upholstery can be retrofitted if the additional weight is compatible with the total weight of the vehicle.



LEITNER Safety Bar and KidStop®

More safety without compromising on comfort

LEITNER has a range of safety systems to prevent the dreaded scenario of a passenger falling out of a chair.

The safety bar can be closed manually or automatically by a closing rail. The closed safety bar can lock itself as an option, and then unlocks only when it enters the arrival station.

The safety bar with standard footrest can be fitted with optional LEITNER KidStop®. KidStop® is fitted to the safety bar at every seat and reduces the space between the bar and the seat base. This prevents children from sliding out beneath the closed bar.

The safety bar with a central footrest can also be locked as an option; it is extremely safe, because the pipe connecting to the footrest is positioned between the legs of each passenger.

Each seating position can be separately color marked or marked with a seat divider for more convenience and safety.

The safety bar without footrest always comes with a locking mechanism and is best suited for use on short ropeways.

The lockable safety bar with its different footrest types offers excellent safety and excellent comfort.

LEITNER KidStop® prevents children from slipping out beneath the safety bar, making things even safer, especially when transporting kids.

TECHNICAL DATA

Can be used for	All chair types
Operating mechanism	Safety bar Detachable systems: automatic or manual Fixed systems: manual
Locking mechanism of safety bar	Self-locking when closed
Unlocking mechanism of safety bar	Automatic when entering the station (detachable systems) or at the last tower (fixed systems)
Retrofit option	KidStop® can be retrofitted to any existing chairlift with standard footrests



The LEITNER Grip

Highly functional, technically perfect

Simplicity and clarity are leading design principles when developing safety-critical parts. Following these principles, LEITNER grips have been developed using a minimum of components.

Each detachable grip has just one moving part, namely the moving grip jaw, which also functions as the coupling lever. The grip therefore opens and closes directly, without cams, joints, or lever systems, which is the best approach from a safety viewpoint.

The gripping force is produced by parallel coil springs. In its resting position, the grip remains closed, thus eliminating the possibility of a dead-point position. The grip geometry is designed to maintain a constant grip force, even if the rope diameter varies (e.g. at a splice).

Because of their strictly modular design, the grips can be adapted very effectively to different requirements specific to different ropeways, while retaining the same geometry. Every detachable LEITNER grip has an integrated longitudinal damping system to make the ride more comfortable. This quickly attenuates oscillating movements when crossing towers.

Parallel coil springs are arranged redundantly for maximum safety. Even if a spring fails, the grip is reliably prevented from slipping.

Exposed coil springs and minimal moving parts make the grip easy and efficient to inspect visually, so they are even safer. This simple construction principle, and the use of low-maintenance bearings, makes them very easy and cost-efficient to service.

Optimum ride comfort during the crossing of compression towers is ensured by an optimized, low upper surface of the grip and an extended grip tongue.

TECHNICAL DATA

rope diameter

MONO-CABLE SYSTEM WITH LPA GRIP:

30 – 64 mm

TWO-CABLE SYSTEM WITH LP-BD GRIP:

Carrying rope: max. 70 mm

Hauling rope: 40 – 56 mm

THREE-CABLE SYSTEM WITH LP-TD GRIP:

Carrying rope: max. 70 mm

Hauling rope: 40 – 60 mm

Maximum rope inclination

100% for all ropeway systems



LEITNER Vehicle Identification

A safety system with economic benefits

LEITNER ropeway systems can be equipped with optional automatic vehicle identification. The system consists of a transmitter-receiver module mounted in the station, which communicates at radio frequency with a transponder fitted to each vehicle.

Transponders are a technology that has been used successfully for decades and it has been adapted by LEITNER for use in detachable ropeway systems.

When a vehicle passes the transmitter-receiver module in the station, the transponder is activated by its electromagnetic field and sends its unique identifier back to the receiver module. The value measured in the station in an electronic grip force test is thus clearly allocated to a vehicle and recorded in the system controller accordingly.

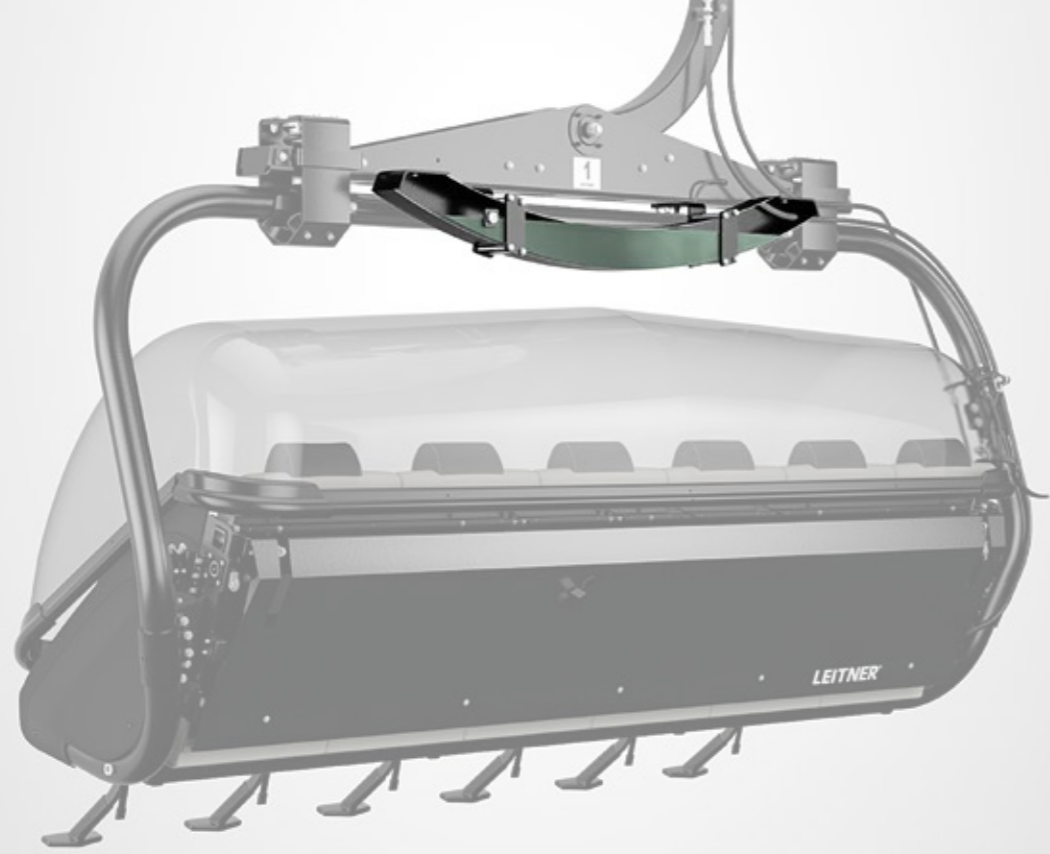
This allows changes in grip force at each individual grip to be monitored and evaluated over long periods. Weaknesses such as a reduction in grip force or an increase in internal friction at the grip are detected at an early stage and the necessary maintenance work can be planned and scheduled accordingly.

The vehicle identification system itself is entirely maintenance-free. The passive transponders attached to the vehicles do not require any power. Energy and data is only transferred via the transmitter-receiver module in the station. By detecting weaknesses at the grips at an early stage, LEITNER vehicle identification is a key factor in raising the safety and availability of the system.

LEITNER ropeways are the only ones to utilize this technology (RFID), which has been used successfully for many years elsewhere.

TECHNICAL DATA

Can be used for	Any vehicle in a detachable system
Technology	Passive transponder in the radio frequency range
Data processing	Grip force values are recorded on the control system's visualization PC, data is exported and evaluated using MS Office apps



LEITNER Lateral Damping

Keep feeling safe, even when the wind picks up

This damping system consists of a bent-up rectangular frame filled with a liquid that does not freeze. It is attached to the intermediate suspension of the chair. The curved shape of the tank causes the liquid to flow in precise opposition to the vehicle's oscillating movement, thus shifting the vehicle's center of gravity and stabilizing the vehicle's overall oscillations.

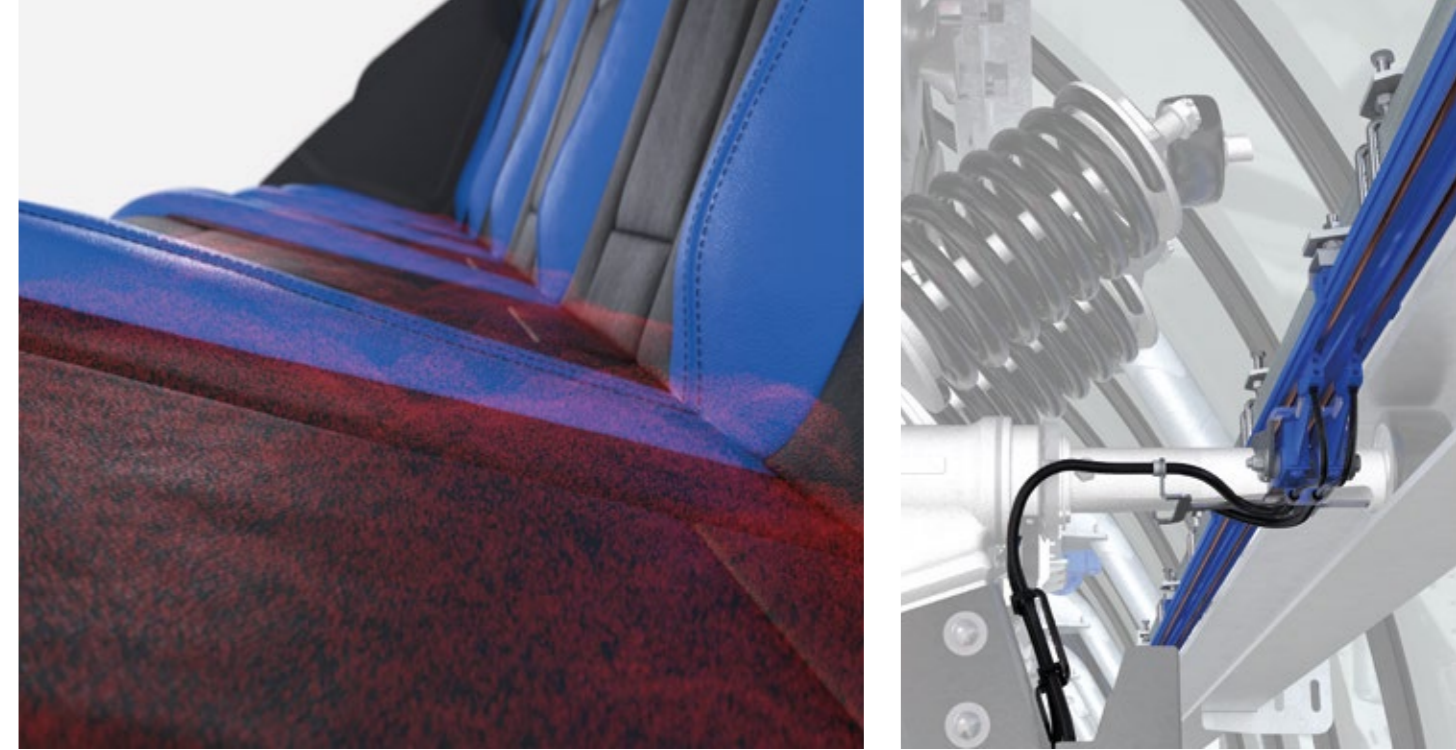
This reduces shut-downs, dead time, and outages caused by wind, thus raising the rope-way's availability considerably. The LEITNER lateral damping system significantly reduces vehicle oscillations, giving passengers a safe and comfortable feeling, even when the wind is strong.

TECHNICAL DATA

Can be used for In principle for all vehicles; especially recommended for detachable 6- and 8-seater bubble chairs. Can be retrofitted to existing systems on request (if compatible with total vehicle weight)

Liquid Non-freezing water-glycol mixture

Additional weight Approx. 22 kg – container and contents



LEITNER Seat Heating

Nice and warm – even at icy temperatures

Seat heating is almost standard issue in detachable chairlifts. And this comfortable feature is being fitted to an increasing number of gondola lifts as well. In 2008, LEITNER became the world's first supplier to offer heated seats for gondola lifts.

LEITNER seat heating consists of electrical resistance heating elements incorporated between the padding and the seat cover. As the lift passes through the station, the heating elements are supplied with electricity via current collectors on the grip; they then heat the seat upholstery. Power is supplied by conductor rails attached to the grip guide rails in the station turnaround.

The seat heating has its own controller (PLC) which is independent of the main control system. This monitors outside temperature, heating time, heating power, and other parameters, guaranteeing a pleasant seat temperature for passengers at all times. Seat heating is automatically switched off at outside temperatures above +10 °C.

TECHNICAL DATA

Power supply 110 V, direct current

Current collection Power rail at the station and moving current collector on the vehicle grip

Controller Independent fail-safe PLC

Operating temperature -30 °C to +10 °C



Bike-Transport with LEITNER Chairlifts

Easy to fit – even easier to use

LEITNER offers customized solutions for ropeways. In keeping with this philosophy, bikes can also be taken up the mountain by chairlift.

A bikes transport set is available for chairs without weather protection bubbles and can be fitted quickly and easily. The bikes mount is attached to the back of the chair. This means the vehicle is perfectly balanced and does not swing to the side. A CE-certified aluminum structure can carry up to four bikes per vehicle. Loading the chair is very quick and easy; any passenger can do it without assistance. The same applies to unloading upon arrival at the top station. The chair and bicycle are well protected against dirt while they ascend and descend, as there are no direct points of contact between the two. The set can be used to transport bikes of any type and size.

For lifts with bubble chairs, there is a separate vehicle with which the bikes can be transported. It consists of a chair frame to which the set is attached. If necessary, such as in case of a short station, the ropeway can be controlled in such a way that the transport vehicles stop briefly after arriving at the station in order to allow the bikes to be offloaded easily.

BENEFITS CE-certified aluminum structure can be fitted quickly and easily. Because the bikes carrier is so well positioned, the chair does not oscillate laterally. Passengers can lift bikes onto the bikes holder without much effort.

TECHNICAL DATA

Capacity

- + Chairs for 8 people with up to 4 bike holders
- + Chairs for 6 people with up to 3 bike holders
- + Chairs for 4 people with up to 2 bike holders

Retrofitting options This add-on kit can only be fitted to chairs without weather protection bubbles. If your chairs have weather protection bubbles, dedicated transport vehicles can be used.

LEITNER[®]

LEITNER AG

I-39049 Sterzing

Tel. +39 0472 722 111

info@leitner.com

www.leitner.com