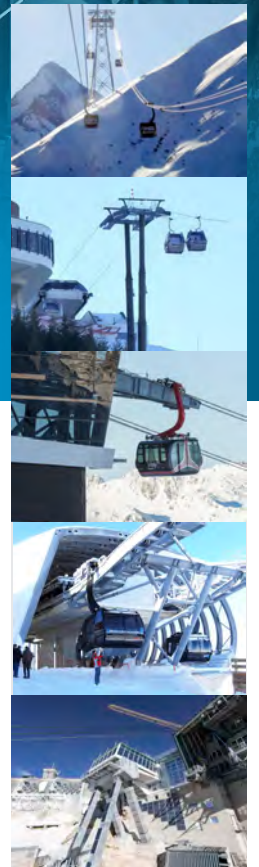


Plan Design Execute

Cable Car design and
construction



Your vision, our precise planning.

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CIVIL ENGINEERING OFFICE FOR CONSTRUCTION

In 1986, Harald Schlosser founded a civil engineering office in Zell am See. Thanks to the trust placed in the office by public and private clients and the resulting increase in workload, the foundation was laid for successful growth.

1989 Hans-Georg Leitner initiated the use of CAD software for civil engineers, which he had developed on the basis of AutoCAD. This complete switch to computer-aided design (CAD) marked an early start into the CAD age compared to other engineering firms. Since then, the civil engineering office has been one of the leading companies in this field.

In 1993, Gerald Haussteiner joined the management team as a further partner and contributed his technical expertise with equal commitment. In the same year, the engineering partnership also commenced operations in Berlin (Germany) and became a member of the Berlin Chamber of Construction.

In 1996, a further step was taken to expand the office and adapt to the market: a branch office was opened in Kitzbühel (Tyrol) under the management of Bernd Englacher. At the same time, the joint office name and thus the BauCon ZT GmbH brand was created in order to formally express that the comprehensive know-how and the entire office capacity are available at every office location.

In 1997, the company was certified to ISO-9001 for project planning, structural design, local construction supervision and project management. Four years later, the QM system was recertified in accordance with the revised ISO-9001:2000 standard.

In 2001, another "BauCon office" was opened in Bolzano (Italy) under the management of Simon Neulichedl.

In 2005, the branch office in Vienna commenced operations, with Hans-Georg Leitner taking over the management there. The level of awareness and success grew in parallel with the expansion of the company locations, and the number of employees also increased to more than 50.

Due to the large number of successfully completed projects - also internationally - BauCon founded a subsidiary in Hanoi / Vietnam in 2017.

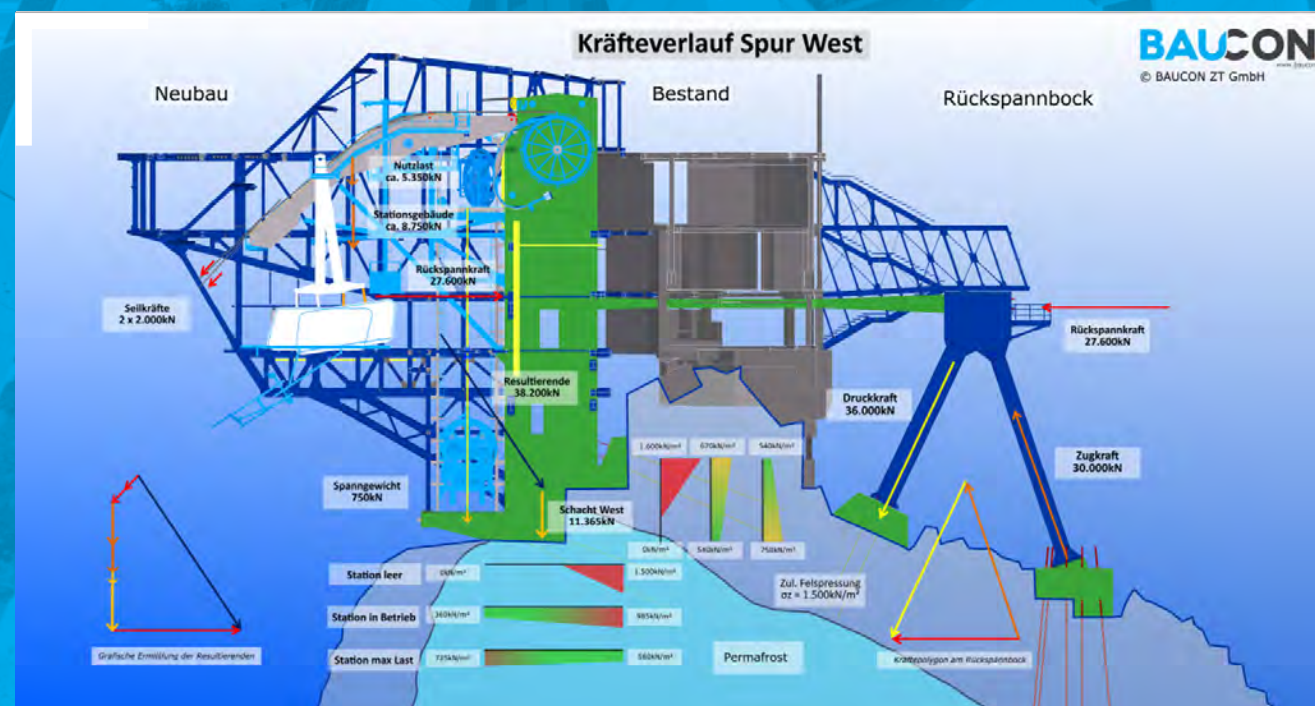
In 2018, Bernd Englacher, Jan-Peter Hasse and Hans-Martin Leitner joined the company management as additional partners. This set an important course for the company's future, with a new generation of civil engineers joining the first line of managers at the civil engineering firm BauCon.

2020 The intensive activity in the Asian region was taken into account and a further location was opened in Bangkok (Thailand).

2024 Reorganization from the office location in Vienna to BauCon International ZT GmbH with DI Dr. techn. Hans-Martin Leitner and DI Florian Jandl as managing directors.



Project Zugspitze



WORLD RECORD AERIAL TRAMWAY TO THE ZUGSPITZE IN GERMANY

December 2017 saw the opening of the new ATW cable car which runs from the valley station at Eibsee to the mountain station at the Zugspitze summit at 2,962 m and replaces the old Eibsee cable car. At almost 2,000 m, it covers the greatest difference in altitude worldwide within a single section. The two cabins, each with a capacity of 120 people, significantly reduce waiting times.

The new Eibsee cable car has only one cable car support, which at 127 m is the world's highest aerial tramway support in steel construction and the highest cable car support in Europe. At 3,213 m, the span also currently holds the world record as the longest span. The mountain station, which cantilevers up to 35 m to the north, was also a particular challenge.

BauCon developed the entire construction planning from the first static variant design with all calculations for reinforced concrete and prestressed concrete components as well as the 3D planning including workshop plans and NC data for the steel construction. The transport capacities of the material ropeway and the construction site crane had to be taken into account accordingly.

Technical data

Height of the support:	127 m
Length of the cable car:	4,467 m
Height difference:	1,945 m
Span:	3,213 m
Stations:	2
Number of cabins:	s2



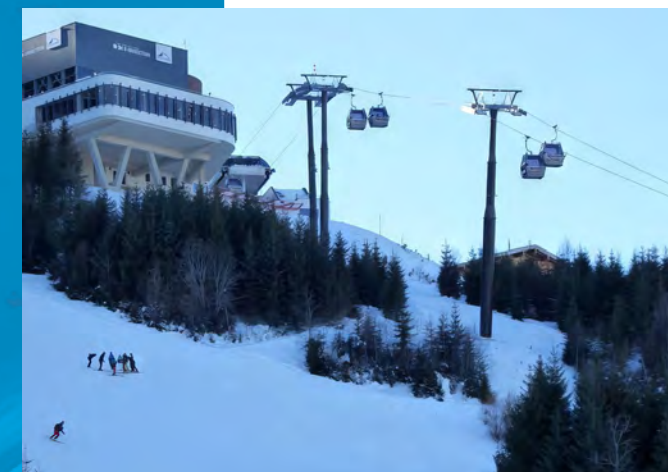
Project Kaprun

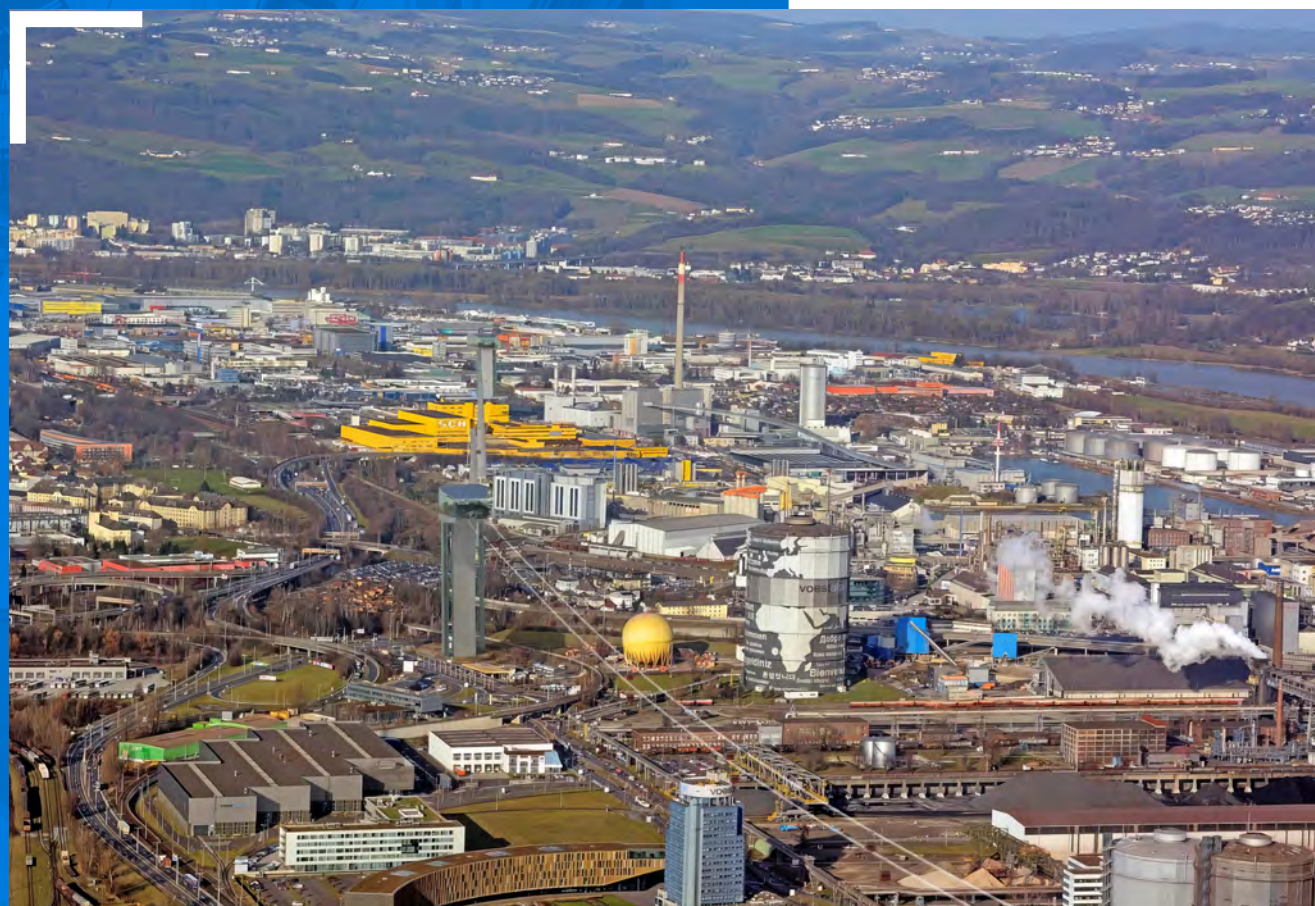
3K-KAPRUN

The Kitzsteinhorn glacier ski area has been directly connected to the village of Kaprun by a new cable car.

A new monocable gondola lift runs from the valley floor to the Saulochalm and from there a new 3S lift was built to the Langwiedboden. The 3S lift was chosen because of the large spans it offers. It bridges the avalanche-prone slopes and also provides a wind-stable cable car connection.

The 3K-Kaprun is a wonderful panoramic lift that shows visitors the area of the Hohe Tauern with the Kitzsteinhorn, Wiesbachhorn, Imbachhorn and Hoher Tenn as they ascend.





Project City cable car in Linz

THE FEASIBILITY STUDY TAKES THE FOLLOWING PARAMETERS INTO ACCOUNT:

- Legal basis
- Height development above ground
- Elaborated cable car route/location plans
- Longitudinal sections
- Traffic relations
- Stations and supports
- Cable car technology and systems
- Environmental influences in Linz
- Comparison of EUB and 3S-Bahn
- Costs and deadlines
- Visualizations

ADVANTAGES OF A CITY CABLE CAR:

- Is an additional means of public transport
- Conveys continuously (no waiting times)
- Requires very little floor space
- Relieves existing public transport
- Very environmentally friendly (no exhaust fumes)
- Also reduces exhaust fumes from combustion engines by switching from cars to cable cars
- Is not tied to the existing road and rail network
- Good connections to existing public transport
- Cost-effective means of transport
- High capacity (5,000-6,000 passengers per hour per direction)
- Panoramic effect as a side effect for tourism

DESIGN PARAMETERS:

- Houses etc. max. height currently: ≤ 45 m
- Cabin with running gear and suspension ≤ 7 m
- Minimum distance cabins - houses ≥ 15 m ("ball throw height")
Maximum cable sag per field up to 45 m
- Minimum height for supports & stations 87-112 m
- Average rope height selected approx. 80 m

PROPOSED: APPROX. 100 M HIGH STATIONS AND SUPPORTS ALONG THE INDUSTRIAL AREA AREA:

- To have reserves for future buildings (houses, industry)
- To achieve fire protection for the cable car through spacing
- Enable long cable fields with fewer supports

The proposed height of the cable car is variable in all areas and can be adjusted accordingly in a further study.



Project Pardatschgrat

1. GENERAL INFORMATION:

The mountain station of the 3S cableway Pardatschgrat, built on permafrost soil, is subject to the natural movements of the ground, which results in displacements and settlements. To meet these challenges, the station was designed back in 2014 so that it can compensate for movements by lifting and shifting. In the following years, several adjustments have already been made to ensure stability.

2. PREPARATORY WORK FOR LIFTING AND SHIFTING:

The planning for the necessary measures was carried out by the civil engineering firm Baucon. The preparatory work comprised various steps, including structural measures to install the preparatory work included various steps, including structural measures to set up the relocation equipment, surveying the uphill movements and installing safety precautions during the relocation.

3. LIFTING OF THE STATION ON JULY 2 AND 3, 2023:

The company RÖRO from Essen, Germany, was contracted to lift and move the station. This was successfully carried out in several stages on July 2 and 3, 2023. The work carried out was monitored by geologists and no undesirable subsidence occurred. The lifting not only adjusted the height of the station, but also turned it back slightly to ensure the necessary stability.

4. RELOCATION OF THE STATION ON JULY 5, 2023:

The shifting of the station took place within two hours and achieved almost exactly the planned shifting values. Due to the foresighted planning, a shift of 50% further than the existing mountain deformations was carried out in order to delay future adjustments.

5. FINAL WORK:

After completion of the lifting and shifting work, further measures were carried out, including securing the supports, producing the sub-concrete and repairing pipelines.

6. FINAL ACCEPTANCE ON AUGUST 03, 2023:

The final acceptance on August 03, 2023 revealed some outstanding work, but this was urgently addressed in order to make the station fully operational. This included the installation of certain supports, the reconnection of deformation measuring instruments and the sealing of water channels.

The Pardatschgrat mountain station was successfully adapted to the permafrost conditions and is now stable for another few years. Continuous measurements are being carried out in order to be able to make future adjustments in good time and ensure the safety of the facility.



Project Halong



WORLD RECORD AERIAL TRAMWAY ACROSS HA LONG BAY IN VIETNAM

In June 2016, pictures of the new 2,165-metre-long aerial tramway across Ha Long Bay in Vietnam went around the world. The Sun Group built two amusement parks in the city of Ha Long, which were connected by an aerial tramway across the open bay. Since its opening, around seven million visitors a year to this popular excursion destination can now cross the “Bay of the Submerging Dragon” in comfort on an aerial tramway. The bottom station of the new aerial tramway is located in the Bai Chay district of Ha Long City and leads to the top of Ba Deo Hill.

The local conditions made it necessary to build very high supports. BauCon planned the two currently highest cable car supports in reinforced concrete in the world and inspected and approved their execution. The supports are 123.45 meters and 188.88 meters high. Their height is also symbolic, as the number eight is considered a lucky number in Vietnam. Both columns are designed as curved tripods. The legs are round hollow supports with diameters of 3-5 meters. The number of people that can be transported on the Ha Long Bay is also a world record: an incredible 230 people can be transported on 2 floors in the world’s largest cable car cabin.

Technical data

Height of the columns:	123.45 m and 188.88 m
Length of the cable car:	2,165 m
Height difference:	88.5 m
Span:	1,206 m
Stations:	2
Number of cabins:	2



The 3S Cableway Koblenz was built as a feeder line from the Deutsches Eck to Ehrenbreitstein Castle for the BUGA Koblenz.

Above all, this eliminated the environmentally harmful bus journeys from the city of Koblenz to the castle.

This cable car was not dismantled after the BUGA as originally planned, but continues to fulfill its function as a tourist and inner-city railroad.

Project 3S Cableway Koblenz

Project 3S Cableway Eiger Express Grindelwald

The new Eiger Express tricable gondola takes you to the incredibly impressive world of the Swiss mountains with the Eiger, Mönch and Jungfrau in just a few minutes.

Just go and see for yourself, it's worth it!





3S CABLEWAY TIANMENSHAN CHINA

Tianmenshan Mountain, located in the province of Hunan near the city of Zhangjiajie, is famous for its "Heaven's Gate" and attracts tourists from all over the world.

The new tricable gondola lift built by Doppelmayr from the city to the mountain is technically very challenging due to the very steep terrain. Only with the 3S cableway technology was it possible to overcome the first cable field with a length of more than 1 km and an incline of almost 45 degrees.

The mountain station clings to the rock like a swallow's nest, which was also a challenge for BauCon in terms of planning and construction supervision.

Project Tianmenshan

Project Fansipan

FANSIPAN LEGEND 3S CABLEWAY PROJECT

At 3143 m, Fansipan is the highest mountain in Indochina and could only be reached on foot until 2016. It is located in the north of Vietnam near the city of Sapa. From Sapa, an ascent on foot was usually a three-day tour with an overnight stay in the jungle on the mountain.

The new Fansipan Legend tricable gondola has been in operation since 2016. At 6326 m, it is the longest 3S cableway in the world in 2016 and the difference in altitude of 1410 m is also a world record.

The construction work was a real challenge, as all the work was done by hand and not with large machines. BauCon's construction planning had to be adapted accordingly.

Something for Europeans to think about: If 300 workers shovel instead of one excavator, then 300 people earn the money they need to support their families instead of just 2-3 excavator drivers.



Managing Director of BauCon Int. ZT GmbH



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