



From MOB to BLS: The GoldenPass Express variable gauge explained

Written by Peider Trippi and Roland Arnet on 11.10.2022

As Railcoor News informed earlier, on 11.12.2022, a common dream of Chemin de fer Montreux Oberland Bernois SA (MOB), Bern–Lötschberg–Simplon railway (BLS), and Swiss tourism professionals will become a reality. From this day on, thanks to the world’s first narrow meter-gauge track-changing system, the GoldenPass Express will be available daily with direct MOB/BLS trains between Interlaken Ost and Montreux and vice versa. In this article, we take a closer look at how the trains change traction and how the variable gauge system works. Plus, we bring a sneak peek from inside Prestige Class at the end.

A 150-year-old idea to become reality in 2022

The idea of connecting Lake Geneva via Gstaad with Lake Thun and Lake Brienz was addressed in a letter from the Bernese government in 1873. The three tourist magnets Montreux, Gstaad, and Interlaken already worked closely together at that time. But over time, it became more complicated with the implementation of the idea. Between 1872 and 1893, the standard-gauge flat railway line Interlaken Ost – Spiez (17 km) was built in two construction phases, implemented by the Bödeli and Lake Thun Railways. In 1897, the standard gauge line, which was extended to Zweisimmen in 1902, came into operation. The Montreux–Bernese Oberland Railway (MOB) chose the metre-gauge for its network and electrified it from the outset. Between 1901 and 1905 it built the Montreux – Zweisimmen line under 750 – 900 V DC electrification. The “Golden Pass” brand was created in 1924 and has been running daily from Montreux to Zweisimmen with a connection to Interlaken. The project for a continuous connection between Zweisimmen and Interlaken

via a third rail (standard gauge track with internal metre-gauge) to Interlaken-Ost was intensively worked on by the MOB in the 1930s, but ended up being never implemented. Today, a brand-new engineering solution to this challenge has been engineered and is currently being tested ahead of its world premiere.

Change of traction at Zweisimmen

MOB and BLS are jointly responsible for planning the GoldenPass Express on their respective sections of the route. As the owner of the rolling stock, MOB is also the promoter of the project. The rolling stock will be leased to BLS on the Zweisimmen – Interlaken route.



Arrival from Interlaken on standard gauge track at Zweisimmen station © Peider Trippi

From Interlaken-Ost, the metre-gauge luxury train will run daily, initially once (and four times from June 2023), pulled by a BLS locomotive on the standard gauge tracks to Zweisimmen. In Zweisimmen, the Re 465 (with 15 kV / 16.7 Hz AC) and the MOB interface car are switching to a side track as depicted in the image below:



With the section disconnected, the Re 465 and the intermediate Bsi-car are leaving the station for a side track © Peider Trippi

The power grid is then disconnected and now a MOB locomotive, powered by 900 V DC, takes over the onward journey to Montreux by pushing the train.

In Zweisimmen the GoldenPass Express needs 8 minutes before it is pushed over the gauge changing system towards Montreux and in a few seconds, it continues its trip as a metre-gauge train. The total journey time Interlaken-Montreux takes 3 hours and 12 minutes.



After the change of gauge within less than a minute, the MOB train continues to Montreux © Peider Trippi

Adapting bogies

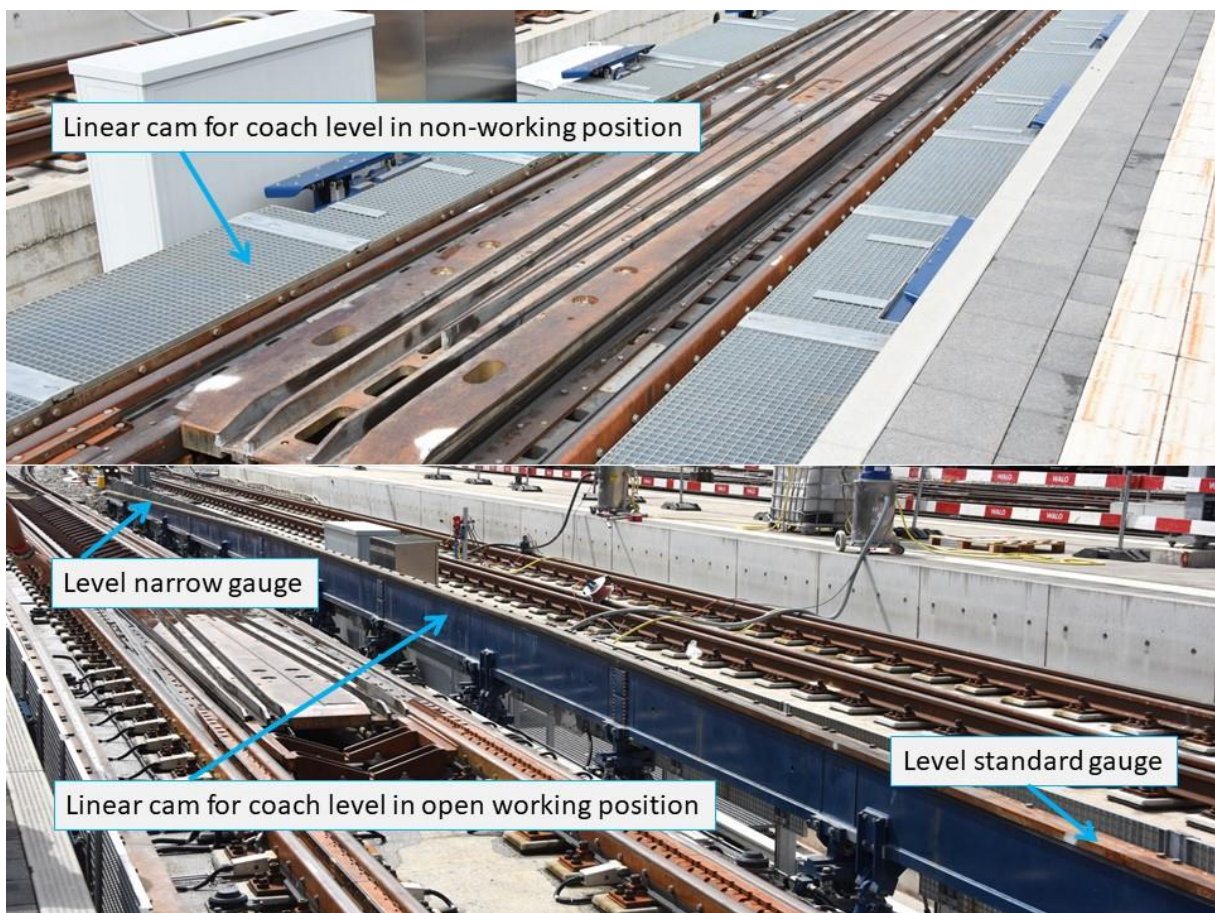
When it comes to gauge change, since 2008, MOB has had a completely new concept in mind. Instead of the third rail to Interlaken-Ost, which had been planned for decades, the idea arose to adapt the train's bogies. With a variable bogie and a re-track system, it would be possible to change the same train from one track to another.

As simple as this principle was theoretically, the practical implementation afterward resulted challenging for implementation. In January 2019, four prototype bogies were delivered and successfully tested. Only the passenger cars would be equipped with this extraordinary bogie configuration. Therefore, it was assumed that a MOB locomotive would pull (or push) the train between Montreux and Zweisimmen and that a BLS locomotive would move the same train between Zweisimmen and Interlaken Ost.

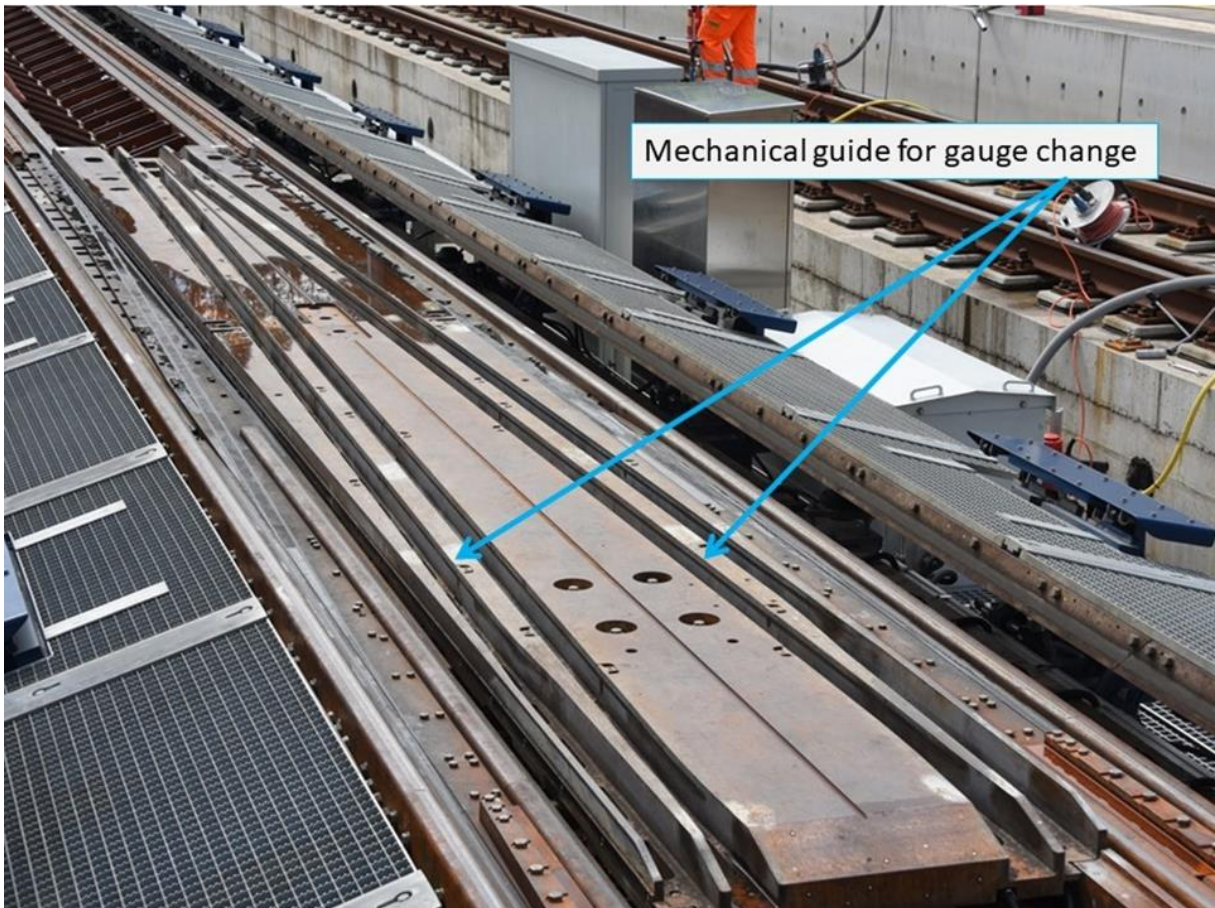
Thanks to the realignment system in Zweisimmen, the bogie width changes and allows the train to change from standard gauge to metre-

gauge and vice versa in a few seconds **while in motion** – at a maximum of 15 km/h.

But that's not all. In order to adapt to the different heights of the platforms (35 cm on the metre-gauge and 55 cm on the standard gauge), the car body is simultaneously raised/lowered by 20 cm. Never before has a bogie in the world been capable of such a performance, but the engineers at Prose/Alstom have successfully made it and received an Innovation Award for their achievement.



When driving on the realignment system at a speed of 15 km/h, flaps straighten up and support the respective car from below. Freed from the weight of the car body, the bogie changes the track width. At the same time, the body fits from the 35 cm of a metre-gauge platform to the 55 cm of a standard gauge platform and vice versa © Peider Trippi



The track width standard/metre gauge is mechanically achieved by guide pins corresponding to the guide grooves. The bogie wheels are individually suspended without a connecting axle
© Peider Trippi

EUR 93 million for 23 luxury cars

58 bogies were manufactured in the factory in Villeneuve (Alstom/Bombardier). A total of 23 cars will be built by Stadler, four of them as low-floor cars for people with reduced mobility. The estimated cost of the overall project, including the four low-floor cars to be delivered in 2024, is EUR 93 million (CHF 89 million).

The driver's cab on Interlaken (standard gauge) side has controls of BLS as well as for the MOB system – a unique solution in the train world! The one on Montreux side is with MOB controls only. Within the meter-gauge network (Montreux – Zweisimmen), the maximum capacity of the train is 184 seats (18 in Prestige class, 48 in 1st class, and 118 in 2nd class). Within the standard gauge network (Zweisimmen – Interlaken), the maximum capacity of the train is 238 seats (18 in Prestige class, 48 in 1st class, and 172 in 2nd class). The difference in-between is due to the fact that the

2nd class interface car (shown at the beginning of the article) only runs on standard gauge lines.

Certification of the new trains

Since the summer of 2020, the GoldenPass Express has been subjected to numerous homologation tests. As seen previously, the special feature of this train is that it features a new variable bogie technology. This results in a world premiere with the change of track width (+43%) and height (+20 cm) within a few seconds. The corresponding approval procedure has therefore yet to be developed.



The train section to Montreux is passing the gauge changing system at a speed of 15 km. Shown is one of the tests runs for approval. Notice the GPX logo on the nose of the train © Peider Trippi

The tests are diverse (static, dynamic) and are carried out directly by the MOB team. It is expected that they will continue until autumn 2022. The GoldenPass Express wagons will operate in compliance with the network access standards of the Railway Act, at a speed limited to 100 km/h.

A peek inside

The GoldenPass Express impresses with its appearance, as MOB has entrusted the exterior design to the prestigious Pininfarina of Italy, as well as Innova Design of the UK. Stadler Rail in Bussnang has built the luxury train which has a 2nd and a 1st class area.



First time with MOB, rotating chairs allow a new travel experience © Peider Trippi

New are the eighteen seats in the prestige class (located inside the cab car), which can be rotated freely and thus always allow the best view. The passenger thus becomes a part of the landscape. For this Prestige Class there is a reservation obligation for passengers. In fact, reservations for the first trips are open as of today.
