

Media release

DOCUMENT 3  
SUPPLEMENTS Pictures, documents

Bussnang, 25 March 2025

## **The Matterhorn Gotthard Railway and Stadler present the world fastest rack-and-pinion railway**

**Today, the Matterhorn Gotthard Railway (MGBahn) and Stadler proudly unveiled the world's fastest rack-and-pinion railway. This achievement is made possible by a newly developed braking system, allowing the cogwheel trains to descend the Andermatt - Göschenen route at unprecedented speeds. Developed as part of an innovative project, this state-of-the-art system ensures passengers enjoy faster and more punctual connections.**

An innovative collaboration between Matterhorn Gotthard Railway (MGBahn) and Stadler has led to the development of the new "v+" rack-and-pinion braking system. Today in Andermatt, the two partners unveiled the first Stadler ORION multiple-unit train equipped with this cutting-edge technology to the public. The vehicle fitted with the new braking system is now in operation on the Andermatt - Göschenen line (Canton of Uri), which features a gradient of 181‰. The new system allows trains to travel downhill at speeds of up to 30 km/h, significantly faster than before. Additionally, the enhanced braking force ensures the train can come to a standstill within the required specifications. Previously, ORION multiple units were limited to downhill speeds of 21 km/h on rack-and-pinion tracks with the same gradient, as per railway ordinance requirements.

Thanks to the new braking system, the cogwheel trains now reach their destination faster, enhancing punctuality, reliability, and operational stability. Passengers benefit from a 4-minute reduction in journey times (from the current 15 minutes). Consequently, MGBahn can operate the half-hourly service on the Andermatt - Göschenen section with just one vehicle in rotation instead of two. For now, the time savings will be used to stabilize the timetable and ensure better connections.

"The new rack-and-pinion braking system offers significant added value for both railway operators and passengers. This innovative system enables shorter journey times, more efficient intervals, and consequently, more stable timetables. From now on, other rack railways can also benefit from

and use the new innovative braking system for new purchases," explains Christoph Leiterer, Head of Engineering for the area Tailor Made at Stadler. "Today, we celebrate innovation. A heartfelt thank you to MGBahn for their outstanding collaboration. "

### **One project, two specialists**

"v+" stands for "higher speed." The new rack-and-pinion braking system is the result of the initiative between MGBahn and Stadler. The project's goal was to leverage existing technologies to meet the demands of railway operators and passengers for higher frequencies and more punctual trains. One of the latest multiple-unit trains supplied by Stadler to MGBahn served as the prototype for this project. The innovation was spearheaded by MGBahn and developed in partnership with Stadler. The federal government provided financial support, and the Federal Office of Transport (FOT) granted authorization.

Ivan Pfammatter, Head of Rolling Stock & Traction at MGBahn, says he is very satisfied with the result of the project: "Our ambition and the associated goals have been realised - we will be travelling faster in the future, guests will benefit from faster and more stable connections and the new technology will enable us to make noticeable operational upgrades."

Following the successful commissioning of the new rack-and-pinion braking system, MGBahn has decided to equip the 25 newly ordered ORION multiple-unit trains, set for delivery starting in 2026, directly with the new "v+" technology. Additionally, the existing fleet of 11 ORION multiple-unit trains will be retrofitted with this advanced braking system.

## **About Stadler**

*Stadler has been building trains for over 80 years. The provider of mobility solutions in rail vehicle construction, service and signalling technology has its headquarters in Bussnang in eastern Switzerland. More than 15,000 employees work at several production and engineering sites and over 80 service locations, including over 5,600 employees in Switzerland. The company is aware of its social responsibility for sustainable mobility and therefore stands for innovative, sustainable and durable quality products. The product range in the mainline and urban transport sector includes high-speed trains, intercity trains, regional and suburban trains, underground trains, tram-trains and trams. Stadler also manufactures mainline locomotives, shunting locomotives and passenger coaches. Stadler is the world's leading manufacturer of rack-and-pinion railway vehicles.*

Follow Stadler on [LinkedIn](#), [Instagram](#), [YouTube](#), and

Media contact

### **Stadler Rail Group**

Alessandra Silvestri

Communications specialist Stadler

Phone: +41 71 626 19 19

E-Mail: [medien@stadlerrail.com](mailto:medien@stadlerrail.com)

[www.stadlerrail.com](http://www.stadlerrail.com)