



RhB Presents Capricorn EMUs

In late June 2016 Rhätische Bahn placed a 285 million CHF order with Stadler for 27 low floor four-car metre-gauge EMUs, with an option clause for 20 more (see R 4/16, p. 58). Later, nine more units were ordered, increasing the value of the contract to 361 million CHF, thus making it the largest single order that RhB has ever awarded. The fleet will be designated ABe 4/16 3111 to 3146 and branded Capricorn. The capricorn is the heraldic figure on the coat of arms of Gotteshausbund („The League of God's House“), now part of the Graubünden canton, the largest in Switzerland.

On 15 April 2019 Stadler presented the second train, 3112, at its Altenrhein works, where the batch is now being built. These trains, formed by a powered end car and three trailers, one a driving trailer, are designated as Flügeltriebzüge (FTZ - translates as „Winged Powered Trains“). The first are scheduled to be put in service in late autumn 2019 between Landquart, Davos and Filisur, and will from 2021 be used in multiple to provide services between Landquart, Klosters and Davos/St. Moritz, splitting and coupling up en route to serve the two destinations.

For this purpose the end cars are fitted with automatic couplings. Between Landquart and Klosters the ability to split and couple up formations quickly will enable half-hourly services to be introduced on the mostly single track line, without the need to enhance infrastructure capacity, and with the aim to reduce the number of drivers. However, this line is about to be doubled, and work is already in progress between Landquart

and Malans. The Capricorns are also to be used on local services in the Surselva (Chur - Disentis) and Unterengadin (Sagliains - Scuol) districts.

Essentially the new trains are similar in design to the existing 20 Stadler-built Class ABe 8/12 and ABe 4/16 Allegra EMUs, which entered service between 2010 and 2012. 76,432 mm long over couplings, the FTZ EMUs, designed for operation off 11 kV AC 16.7 Hz, are 2,670 mm wide and 3,780 mm high above rail top. Maximum approved speed will be 120 km/h, but in regular service only 100 km/h will be possible. The trains have a continuous rating of 1,000 kW and a one-hour rating of 1,400 kW. Tractive effort is 150 kN, and starting acceleration is 0.95 m/s². Dry air-cooled traction transformers are installed.

Only one end car is powered, resulting in a Bo'Bo' + 2'2' + 2'2' + 2'2' axle arrangement. While the two powered bogies and the trailer bogie under the outer end of the end driving trailer have a 2,000 mm wheelbase, all remaining bogies have one of 1,600 mm. All wheels have a diameter of 810 mm when new. The bodyshells are made of lightweight aluminium, able to withstand an end-on compressive force of 800 kN.

The trains will represent a significant advance in travel comfort for passengers using RhB services in Graubünden canton and also meet the requirements of the BehiG (Behinderten-gleichstellungsgesetz - Swiss Disability Equality Act). Each car is provided with one, centrally-located pair of 1,200 mm wide double-leaf entrance doors, with a threshold height of 450 mm above rail top. Above the powered bogies floor height rises to 1,053 mm above rail top. Passenger accommodation of two classes is provided. **The first class saloons have**



35 seats, with 2,050 mm between seat backs, mostly in 2 + 1 bays, with 1,800 mm between seat backs, in 2 + 2 configuration, and also in bays. 18 tip-up seats are also provided, and there is room for up to 179 standees.

There is also a generous provision of power sockets for personal electronic equipment. A modern passenger information system is installed, the video screens being linked to a front end located camera recording footage of the driver's eye view of the journey. Although the passenger accommodation is air conditioned, a number of the windows can be opened - ideal for enjoying the fresh air in summer and for taking photographs of the landscape. This, however is a useful - and practical - feature on most of RhB's trains.

Spacious multi-purpose areas are provided, with stowage space for bikes, luggage, prams and skis. One of these areas is adjacent to a wheelchair accessible WC cubicle, and has two wheelchair harness points. There is also a second, standard-size WC cubicle, also incorporating a water-saving urinal for use by gentlemen. Tactile information is provided for partially-sighted and blind passengers.

The Capricorns carry a similar red livery to that worn by RhB's earlier Stadler-built „Alvra“ (the Romansch name for „Albula“) seven-car articulated push-pull trains. These have been in service since 2016 and are also referred to as AGZs (Albula Gliederzüge - Albula Articulated Trains).

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Photos: Jürg D. Lüthard



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In mid-April 2019 Italian train manufacturer **AnsaldoBreda** has paid Dutch state railways (**NS**) additionally **21 million EUR compensation** in the framework of the dismantling of the Fyra high speed trains contract. This additional payment was to be made by AnsaldoBreda under the condition that the V250 Fyra EMUs had been sold to another company. That has happened meanwhile: Trenitalia has taken over the trainsets, redesignated Class ETR 700 (see R 1/19, p. 23), and is soon to operate train services in Italy.

Due to the additional payment the loss on the Fyra project will drop for NS down to 67 million EUR. The total repayment is 146 million EUR now. AnsaldoBreda paid NS initially 125 million EUR for compensation which has now increased by 21 million EUR.

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