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InnoTrans 2022: world premieres from Stadler

Stadler will present world premieres featuring innovative and sustainable drive solutions in rail transport at its large station at InnoTrans in Berlin. As well as unveiling its hydrogen-powered FLIRT H₂ multiple unit for American passenger transport, Stadler will be displaying other vehicles including the world record-breaking battery-powered FLIRT train, the EURO9000 model, which is the most powerful hybrid locomotive in Europe, and the next-generation TINA tram. In addition, visitors to Stadler's exhibition stands will gain a comprehensive insight into the company's innovative solutions in the fields of rail vehicle construction, service and signalling technology.

Climate change, population growth and digitalisation are shaping the mobility of today and tomorrow. Stadler has always built rail vehicles that focus on reliability, precision, energy efficiency, healthy mobility and first-class service. In combination with its innovative solutions in the fields of signalling, service and digitalisation, Stadler enables rail operators to achieve maximum sustainable mobility from a single source – both now and in the future.

Stadler will be presenting no fewer than seven vehicles featuring sustainable drive solutions at InnoTrans 2022. All seven models will be revealed to the specialist and general public for the first time. The Stadler vehicles, which will be displayed on over 350 metres of track in the open-air grounds, set new benchmarks in terms of energy efficiency, performance and passenger comfort. All the vehicles can be viewed from both inside and out.

In addition to sustainable vehicle concepts, Stadler will be providing a detailed insight into its service and signalling solutions at its exhibition stands in Hall 2.2 (stand 160) and Hall hub27 (stand 750).

For the first time, Stadler will be represented at InnoTrans with a separate exhibition stand (Hall hub27, stand 750) dedicated to its extensive signalling portfolio. This includes solutions in the areas of automatic train operation (ATO), train protection (ETCS), driverless metro trains (CBTC) and railway safety systems. With over 500 employees at several locations in Switzerland and Germany, Stadler develops and delivers tailor-made signalling solutions that enable customers worldwide to run efficient, digital and sustainable rail operations.

Hydrogen-powered FLIRT H₂ multiple unit for the San Bernadino County Transportation Authority, USA

The FLIRT H₂ multiple unit for the San Bernardino County Transportation Authority (SBCTA) is the first hydrogen-powered passenger train for the USA and is instrumental in bringing zero-emission rail technology to the USA. The FLIRT H₂ multiple unit is intended for passenger service for the Redlands Passenger Rail Project in California. The Redlands Passenger Rail Project is a 14-kilometre link between Redlands and the San Bernardino Metrolink station. The FLIRT H₂ vehicle consists of two cars and a middle section referred to as the “PowerPack”. This holds the fuel cells and the hydrogen tanks. In the “PowerPack”, hydrogen is converted into electric current, which is stored in a traction battery. The battery then supplies the vehicle’s drive system, HVAC system and other comfort facilities with power. In this configuration, the train can also recover kinetic energy when braking, so that this can also be re-used to drive the train. The train can seat 108 passengers and offers plenty of additional standing room. It can reach a maximum speed of 130 kilometres per hour (79 mph).

FLIRT H₂ vehicle presentation
Track T09/40, 20 September 2022, 2.00 p.m

FLIRT battery-powered multiple unit for NAH.SH, Germany

Stadler’s two-car battery-powered FLIRT train is the first series-produced multiple unit for the first decarbonised, non-electrified rail network in Germany. Designed for non-electrified or only partially electrified routes, the battery-powered FLIRT vehicle is extremely versatile. The batteries can be charged while the train is travelling under overhead contact lines as well as at electrified stops. Charging is also possible with standardised UIC preheating devices. In addition, kinetic energy is recovered during braking. This means that this latest generation of battery vehicle can be used much more flexibly than the traditional battery trains that have characterised railway operations for generations. During a track test, Stadler set the world record of 224 kilometres travelled in battery operation with the battery-powered FLIRT prototype. The 46-metre-long multiple unit has 124 seats as well as two spacious and fully accessible multifunctional zones for wheelchairs, pushchairs and bicycles. The entirely air-conditioned and step-free regional vehicles have bright, spacious passenger compartments and are equipped with a wheelchair-accessible toilet. 55 battery-electric FLIRT multiple units are included in the order that Nahverkehrsverbund Schleswig-Holstein GmbH (NAH.SH) awarded to Stadler in 2019 as part of the first open-technology tender ever organised in Germany for traction vehicles with alternative drive technologies.

Battery-powered FLIRT vehicle presentation
Track T08/40, 20 September 2022, 3.30 p.m

Latest generation TINA tram for HEAG Mobilo GmbH, Germany

HEAG Mobilo GmbH ordered 14 trams of the latest TINA model from Stadler in January 2020, and went on to exercise an option for a further 11 vehicles in 2021. TINA is the German acronym for “total integrated low-floor drive”. For the first time, this totally integrated drive allows a completely new interior concept to be adopted without steps and seat boxes above the drives, offering passengers previously unknown levels of comfort. With a length of 43 metres, the five-car unidirectional vehicle offers space for 272 passengers, with seats for 101 of them. The optimised passenger compartment allows unrestricted access to the seats from every vehicle door. Large panoramic windows provide a clear view and, together with the high ceiling, create a feeling of spaciousness. The tram is fully equipped with modern HVAC systems that use the natural coolant CO₂. This means that they have the lowest possible ozone depletion potential as well as the lowest global warming potential. A driver assistance system with traffic sign recognition also increases vehicle transport safety. The new trams will start passenger service in autumn 2023.

*TINA vehicle presentation
Track T09/50, 21 September 2022, 11.00 a.m*

New EURO9000 locomotive family for the European Loc Pool (ELP), Switzerland

Stadler is presenting the latest and most innovative locomotive for rail freight transport in Europe at InnoTrans 2022 in the form of the EURO9000 model. The six-axle locomotives are TSI compliant and have been ordered with multi-system configuration for Germany, Austria, Switzerland, Italy, the Netherlands and Belgium (15 kV + 25 kV AC and 1.5 kV + 3 kV DC). The vehicles are intended for use on the main European rail corridors and are fitted with ETCS and a radio remote control system as standard. The modular design of the EURO9000 vehicle allows up to three different drive systems to be installed together: electric drive, diesel drive with two energy-saving 950 kW engines, and batteries enabling environmentally friendly operation on non-electrified routes. Thanks to a power range of up to 9 MW and an outstanding tractive force of up to 500 kN, operation with just one locomotive will be possible in many situations that currently require two standard locomotives. Rail operators will benefit from a higher payload and lower traction costs as a result.

The EURO9000 is versatile, economical and environmentally friendly, combining energy efficiency, performance and reliability, resulting in optimal lifecycle costs and increasing the long-term cost efficiency of rail operations. ELP is Stadler's first customer to opt for the new EURO9000 model. ELP has ordered 30 EURO9000 electric locomotives from Stadler since May 2019. The vehicles are part of a framework agreement between Stadler and ELP for at least 100 locomotives and are leased by ELP to rail freight companies from various countries. The locomotive on display will be operated by the Dutch freight operator Rail Force One, the first railway company to lease the EURO9000 vehicle from ELP.

*EURO9000 vehicle presentation:
Track 04/19, 21 September 2022, 2.00 p.m*

FLIRT (trimodal) vehicle for Transport for Wales, Great Britain

The British rail operator Transport for Wales ordered 35 FLIRT multiple units from Stadler in January 2019. Of these, 24 trains have a trimodal drive and can be operated fully electrically under overhead contact lines, electrically by battery, or in hybrid mode with a diesel drive. The diesel drive is only intended for exceptional use; regular operation should be entirely electric. The fleet of trimodal FLIRT vehicles consists of 7 three-car and 17 four-car trains. The vehicles comply with the latest TSI standards and have been designed specifically to meet the requirements of Transport for Wales and the local infrastructure. The low-floor design allows level access at every door, making it easier and faster for passengers to get on and off. The ergonomically designed seats increase passenger comfort and are all fitted with a power outlet. All trains are equipped with air conditioning, storage areas for wheelchairs, pushchairs and bicycles, as well as passenger information systems and Wi-Fi. The first trimodal FLIRT vehicles are currently completing test journeys and are scheduled to start passenger service before the end of the year.

*FLIRT (trimodal) vehicle presentation
Track T08/50, 22 September 2022, 11.00 a.m*

CITYLINK for Transport for Wales, Great Britain

In January 2019, Stadler was awarded a contract for the manufacture and delivery of 36 CITYLINK tram-trains for Transport for Wales. Stadler's CITYLINK is a modular, accessible light rail system that connects

city centres with the surrounding agglomerations without passengers having to change trains. It allows operation on electrified lines and on non-electrified lines using batteries. The vehicles are designed in such a way that they can be used on mainline railway lines as well as on metro and light rail lines. Thanks to the lithium-ion traction battery system, no expensive investments in infrastructure are necessary for the customer. The CITYLINK vehicle is 40 metres long and can transport 252 passengers. The high-floor vehicle has a driver's stand on each side and can reach a speed of 100 kilometres per hour. The bright, air-conditioned passenger compartments also offer multifunctional zones with room for bicycles, seats for persons with reduced mobility and two spaces for wheelchairs. The CITYLINK vehicle enables passengers to travel safely and comfortably without having to change trains.

CITYLINK vehicle presentation

Track T10/70, 22 September 2022, 11.00 a.m

METRO (IPEMU) for Liverpool City Region Combined Authority and Merseytravel, Great Britain

The Liverpool City Region has ordered 53 METRO trains from Stadler, seven of which are Independent Powered Electrical Multiple Units (IPEMU). These will be the first IPEMUs to be introduced into passenger service in the UK. These innovative and environmentally friendly trains are based on the original Class 777 METRO vehicles and enable operations to be expanded to non-electrified routes. With IPEMUs, infrastructure work can be avoided and passenger numbers can be increased thanks to an integrated travel experience. IPEMUs can replace diesel-powered trains, helping regional and national authorities to meet CO₂ reduction targets. In addition, IPEMUs eliminate the need to change trains, resulting in an improved travel experience and reduced journey times for passengers. Each IPEMU is equipped with a battery-based power storage system. The new battery traction equipment is housed in the underframe. While an IPEMU is driving on the electrified network, the batteries are charged via the third rail or by regenerative braking. The charging time is less than 15 minutes, and one battery is designed for more than 10,000 charge and discharge cycles. The transition from all-electric to IPEMU drive is smooth and not noticeable to passengers during the journey.

METRO (IPEMU) vehicle presentation

Track T09/60, 22 September 2022, 2.00 p.m

Where to find Stadler at InnoTrans 2022:

Main Station: Hall 2.2, stand 160

Digital Station: Hall hub27, stand 750

Career Station:

Train Station:

- T04/105
- T08/40
- T08/50
- T09/40
- T09/50
- T09/60
- T10/70

About Stadler

Stadler has been building trains for 80 years. The provider of mobility solutions in rail vehicle construction, service and signalling technology has its headquarters in Bussnang, eastern Switzerland. It has a workforce of over 13,000 based in various production and engineering locations as well as more than 70 service locations. The company is conscious of its social responsibility for sustainable mobility and therefore stands for innovative, sustainable and durable quality products. The product range in the field of mainline railways and city transport includes high-speed trains, intercity trains, regional and suburban trains, metros, tramways and trams. Stadler also manufactures main-line locomotives, shunting locomotives and passenger carriages. It is the world's leading manufacturer in the rack-and-pinion rail vehicle industry.

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