Railtalk Magazine *Xtra*

Issue 178x
July 2021
ISSN 1756 - 5030

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Submissions & Contributions

Railtalk Magazine Xtra, a magazine written by the Enthusiast for the Enthusiast. So why not join the team. We are always looking for talented photographers and writers to join us at Railtalk. Be it though pictorial submissions or via a written article featuring an event or railtour, we greatly appreciate any contributions to the magazine however big or small.

Photographic Contributions

All Photographic contributions should to be sent to us via email, post or via the members section page on our website. Contact addresses are provided above.

All images should be provided at a resolution of at least 2400px x 1700px at 240dpi.

Welcome to Issue 178Xtra

Summer is here, and most countries have restored services to near normal levels, with additional summer season trains making a welcome comeback. However in some countries they will have to rely on locals to fill them as border restrictions prevent overseas tourists from entering their country. In the UK we can only wait and hope that restrictions are lifted before much longer.

Followers of rail events in the UK will have seen the recent situation regarding cracks found in both Hitachi and CAF made vehicles, well this has now spread to Norway where Norwegian operator Flytoget has withdrawn its entire fleet of CAF Oaris EMUs following the discovery of a crack in the chassis of one of the trains less than a month after they entered traffic. The trains were launched on June 5th, but on June 24th, Flytoget confirmed that all eight four-car Class 78 trains had been withdrawn from traffic following discovery of the issue during scheduled maintenance.

“We have been very much looking forward to welcoming the passengers on board,” the operator says in a statement. “Unfortunately, it will take longer than planned. Safety is our most important priority, and during the first ordinary maintenance check, a fault was discovered which is now being rectified. This has no practical consequences for travellers. CAF’s engineers are now working to correct the error but it is too early to say how extensive the error is. We are in close dialogue with CAF to solve the problems as quickly as possible. At present, it is unfortunately not possible to say when the train sets will be put back into service.”

The eight four-car Class 78s are the fastest trains to operate in Norway. The 245km/h 15kV 16.7hz AC trains were delivered in March 2019 and entered service in June this year, more than a year later than planned. They were ordered in a NKr 1.3bn ($US 160m) deal in March 2015, with testing beginning at the Velim test centre in May 2018. The trains were bought to run alongside the operator’s existing 16 Class 71 three-car EMU fleet with the aim of boosting capacity to Oslo airport by 50%.

Also this month, good news for those seeking cross border overnight services with the news that Transdev and its Swedish subsidiary Snälltåget have launched a trans-European night train linking three capitols: Stockholm, Copenhagen and Berlin. The night train, operated and financed entirely by Transdev-Snälltåget, will run daily from June 27th until September 4th and will then provide several weekly trips until the end of October.

This new ‘open-access’ service is Transdev/Snälltåget’s contribution to the debate on the development of competitive night train services in Europe which, the companies say, are essential to achieving our climate goals as a concrete alternative to air transport.

Furthermore, in order to minimise the environmental impact of the journey, the train will only use green energy from hydro, wind and solar sources.

The new Stockholm-Copenhagen-Berlin line is the first night train not only to connect the two largest Scandinavian capitals directly to Berlin, but also to connect Sweden, Denmark and Germany since the 1990s. It replaces the old Malmö-Berlin line, which Snälltåget operated between 2012 and 2019 using the ferry between Trelleborg, Sweden and Sassnitz, Germany.

The inaugural trip departed from Stockholm Central Station on June 27th and arrived at Berlin Central Station at the following day, taking 16 hours and 30 minutes.

The train will use different locomotives along the route and carriages acquired and completely renovated in 2019. Three different types of seats will be available for reservation: single or reclining seats, and compartments.

Until next month

David

This Page

SNCF Fret BB No. 407400 calls at Colliure with a Cerbere to Avignon service on September 12th 2012.

John Sloane

Front Cover

On June 4th, RRF No.18 is seen in Rotterdam working the No. 51302 feeder service from the Waalhaven Yard to the Bertschi Terminal. *Erik de Zeeuw*

CBH Group's Nos. CBH009 and CBH023 with train No. 4K03 take empty grain hoppers through Herne Hill heading to a country grain storage bin for another load for export at Kwinana. *Colin Gildersleve*

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Railtalk Magazine is published by HAD-PRINT a trading name of HAD-IT LIMITED.

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With Thanks

Once again many thanks to the many people who have contributed, it really makes our task of putting this magazine together a joy when we see so many great photos.

These issues wouldn't be possible without: Ray Anslow, Brian Battersby, Mark Bearton, Mark Bennett, Tim Blazey, Rob Boyce, Keith Chapman, Julian Churchill, Nick Clemson, Derek Elston, Mark Enderby, Tim Farmer, Dave Felton, FrontCompVids, Paul Godding, Richard Hargreaves, Jim Haywood, Keith Hookham, Colin Irwin, John Johnson, Anton Kendall, Mathijs Kok, Jyrki Lastunen, Ken Livermore, Michael Lynam, Peter Marsden, Phil Martin, Denzil Morgan, Thomas Niederl, Peter Norrell, Chris Perkins, Mark Pichowicz, David Pollock, Andy Pratt, Paul Quinlan, Railwaymedia, Alan Rigby, Bryan Roberts, Neil Scarlett, John Sloane, Stephen Simpson, Laurence Sly, Stewart Smith, Steamsounds, Steve Stepney, Mark Torkington, Gerard van Vliet and Erik de Zeeuw.

Two of Transperth's 'A' series EMUs are seen crossing the Swan River at Fremantle enroute to Perth on a beautiful autumn day. *Colin Gildersleve*

Aurizon's narrow gauge No. ACN4145 takes S3311 from Kwinana to Forrestfield probably to the wheel lathes, going by the noise of the flats on S3311.
Colin Gildersleve

Austria

An empty iron ore train, No. LGAG61007, from Linz to Eisenerz is seen near Lahrndorf on June 1st, headed by a CargoServ Taurus locomotive. *Thomas Niederl*

Austria

On June 13th, the 1888 built loco No. 298.102 is seen working the last train of the day on the Steyrtalbahn from Steyr Lokalbahn to Grünburg. The loco has been out of service for about a year for an overhaul and has returned complete with smart red wheels. *Thomas Niederl*

A pair of TXLOGISTIK locos are seen in the sweep at Sankt Jodok with a train consisting of pocket wagons loaded with semi-trailers from Verona Quadrante Europa (Italy) heading to Köln Eifeltor (Germany) on June 16th. *Erik de Zeeuw*

Austria

Lokomotion/Rail Traction Company Class 189.907 is seen in Matrei am Brenner hauling a train uphill to the Brenner Pass and on to Verona in Italy on June 15th. *Erik de Zeeuw*

Austria

ÖBB RCG and Lamborghini working together for sustainable logistics

With a transit time of just 48 hours ÖBB Rail Cargo Group is transporting Lamborghini URUS car bodies from Germany to Italy. Transport by eco-friendly rail reduces 1.903 tons of CO2 and Lamborghinis carbon footprint by 85%.

The ÖBB Rail Cargo Group (RCG) and Lamborghini have created a new rail transport concept. RCG is transporting Lamborghini URUS car bodies from the VW factory in Zwickau, Germany, to the Lamborghini headquarters in Sant'Agata Bolognese, Modena, Italy. With a transit time of just 48 hours, this is the fastest, most efficient and eco-friendly transport service from Zwickau to Modena.

In fact, road transportation will be entirely replaced by rail. The weekly transport will reduce CO^2 emissions by 85%, going from 2,234 tons to 331 (saving some 1,903 tons of carbon dioxide annually). All this while guaranteeing a total transit time of 48 hours – a record time for this type of transport – from the site in Zwickau to Modena. Again from a sustainable perspective, the only transport by wheel will take place on gas trucks (LNG) and will be that from Modena to the Sant'Agata Bolognese site, accounting for around 21 km out of the total 1,000 km journey.

"Together for sustainable logistics"
The ÖBB Rail Cargo Group's goal is to shift more freight to rail. Every tonne RCG transports by rail reduces the size of our carbon footprint and is a step towards achieving our Austrian and European climate targets. Currently, 1.1 million tonnes of CO^2 a year are avoided thanks to the ÖBB Rail Cargo Group's rail freight transport services in Austria. With this new rail transport concept, the ÖBB RCG's sustainable rail transport services helping counteract the vicious cycle of transit traffic on the Brenner Pass.

This relieves Austria, especially the Province of Tyrol and its population, of the burdens of air and noise pollution. In the European Year of Rail, this new cooperation is another significant milestone on the way to achieving our European climate targets.

ÖBB RCG and EGGER save the environment from more than 700 tonnes of CO2 emissions

Transporting glue sustainably by rail eliminates the need for more than 3,500 truck journeys every year. EGGER will continue to rely on climate-friendly rail transport in the future following the extension of its contract and thanks to the RCG's new wagon design.

The long-standing partnership between the wood-based materials manufacturer EGGER and the ÖBB Rail Cargo Group will continue this year. By transporting its glue products to its Austrian factories sustainably by rail, more than 3,500 lorry journeys are cut out a year and more than 700 tonnes of CO^2 emissions can be saved. Not only do the two companies thereby make a significant contribution to environmental protection, they also play their part in achieving Austria's, and by extension Europe's, climate protection targets.

New wagon design for EGGER
In addition to sustainable glue transportation by rail, EGGER and the ÖBB Rail Cargo Group are also putting their weight behind a new design of wagon for handling the shipments. The wagons, some of which are more than 30 years old, will gradually be replaced by new, more modern tank wagons in the future. The first eight test wagons have already been in operation since 2018 and the next seven are due to follow this year in May and June, with the eventual aim of replacing all the old wagons. By employing the latest technical standards, such as a gas displacement system, the new wagons make a significant contribution to increasing worker safety and boosting productivity during transportation. Their modern design with a lower bottom valve and a bend in the boiler allows the wagons, which have a transport volume of between 66 and 68 tonnes, to be operated from the ground and to be emptied completely.

Contract extension to 2024
EGGER has been a stable partner of RCG for years for wood supply on sustainable rail. The recent extension of the contract until 2024 is intended to further deepen the successful cooperation between the two companies. Over the next three years, around 90,000 tonnes of glue or chemical raw materials for chipboard production will be transported by rail to the production sites of the leading wood-based materials manufacturer in Lower Austria and Tyrol. As a result, ÖBB Rail Cargo Group will be contributing to further reducing the carbon footprint of the steadily growing and globally active family-owned company both in the production process and in the transport chain.

Austria

Boosting the network with Kombiverkehr

ÖBB Rail Cargo Group and Kombiverkehr have now established a service between Budapest and Neuss that runs six times a week and another that stops off at Wels and Wien Süd that runs three times a week, which between them save the CO^2 emissions of 17,000 truck journeys.

ÖBB Rail Cargo Group and Kombiverkehr have improved their existing rail freight service between the Hungarian capital Budapest and Neuss in Germany once again for the benefit of their customers. From now on, six return trips per week, spread over six working days, will connect these two important European economic centres by rail.

Three services operated in partnership by Kombiverkehr and Rail Cargo Operator also connect the terminals in Wels and Wien Süd in both directions. The other three connections are operated directly and without any intermediate stops by RCG from Budapest to Neuss and back. In total, this service allows approximately 180 loading units per week and direction to be transported by eco-friendly rail and eliminates the need for around 17,000 truck journeys each year.

International intermodal network
Thetworoutes-Budapest-Vienna-Wels-NeussandbackandBudapest-Neuss and back - are crucial corridors in the intermodal network operated by the two partners, not least with regard to incoming and outgoing consignments at the dispatch and destination terminals. It is now possible to access South Eastern Europe from Budapest on a daily basis thanks to a daily service to Turkey. Furthermore, the hub in Budapest offers a connection to China three times a week via the New Silk Road.

What's more, the terminals in Wels and Wien Süd offer even more opportunities for networking to the respective economic areas and their connections to international transport networks.

First train from China arrives at Cargo Center Graz

The ÖBB Rail Cargo Group and the Cargo Center Graz provide sustainable end-to-end logistics from China to Austria.
On June 21st, the first train from China arrived at the most modern freight transport centre south of the Alps.

On Monday June 21st, the Managing Director of Cargo Center Graz Christian Steindl and Rail Cargo Group Sales and Logistics Director Thomas Kargl welcomed the first train from China at Cargo Center Graz in Werndorf. The block train with 41 40-foot containers covered a distance of 800 to 1,000 kilometres each day.

The shipments of non-food products such as juicers, glass bowl sets, laundry basket sets, drink holders and T-shirts are destined for a leading European retail group. With the arrival of this train, RCG and Cargo Center Graz are able to highlight once again the importance of the One Belt One Road initiative, which connects economies on the Eurasian continent and is seen as an extremely sustainable alternative to air and sea freight.

Clients benefit from the efficient RCG network
RCG's rail freight transport operations have grown steadily since the first test train from China arrived in 2008. By the end of 2016, the number of departures along the Silk Road was gradually increasing, and in 2017 RCG officially entered the Chinese market. As a result of the strong demand, RCG was able to transport 35,000 TEU between Europe and Asia in each of the following two years. In 2020, a new record was set with more than 700 trains transporting approximately 70,000 TEUs.

This means that one RCG service is travelling in each direction along the new Silk Road every day, benefiting customers across the entire Eurasian continent.

At the height of Ath, EUROPORTE Vossloh Euro Class 4000 No. 4016 is seen on June 7th with 19 Fanps (53m^3) wagons loaded with crushed stone from CUV in Lessines to EQIOM Granulats in Silly-le-Long (France). Another car will being added in Ath and the train changes direction there. *Erik de Zeeuw*

SNCB/NMBS two car EMU No. 964 works train No. 4059 from Jurbise to Braine-le-Comte on June 7th. *Erik de Zeeuw*

On June 7th, SNCB/NMBS Class 21 No. 2160 departs Ath with a rake of M4 carriages working train service No. P8515 from Schaarbeek to Moeskroen. *Erik de Zeeuw*

On June 7th, SNCF BB Class 67400 Nos. 67629 and 67494, (from the depot at Longueau) passes Soignies with ballast train No. 49880 from Quenast (Belgium) to Pont-à-Vendin (France). *Erik de Zeeuw*

Belgium

Lineas strengthens presence in Ghent in North Sea Port with new dedicated connection to Milano Segrate

A dedicated service to support the industries, including a growing need for a more ecological transport alternative and a clear demand to help reduce delays due to road congestion, was in high demand.

Lineas continues to build its presence on the North-South freight corridor in response to growing customer demand.

Lineas, the largest private rail freight company in Europe, is strengthening its presence in North Sea Port in Ghent (BE) with a new direct intermodal connection to Milano Segrate (IT). The launch of the new service, which will operate five regularly scheduled return trips per week, allows Lineas to meet the growing regional customer demand for a smart and ecological alternative to road transport. The new connection is supported by 150 employees in Ghent, a key hub for Lineas, which offers several regular connections to the rest of Europe and is growing fast.

Lineas already operates a regular service to the Intermodale Milan Segrate terminal from Antwerp, Zeebrugge and Moerdijk (NL). With the new service from Ghent, the company adds capacity for its customers and strengthens the connection between Italy and the rest of Europe via Lineas' Green Xpress Network. With each scheduled train providing customers access to around 22 wagons, the new connection replaces some 11,000 return trips by truck every year. At the same time, the new connection increases capacity between Antwerp and Milano as trains no longer divert via Ghent on this line.

"The decision to connect Ghent and Segrate is driven by extensive customer insights and a deep understanding of supply chain flows to and from these regions. A dedicated service to support the industries, including a growing need for a more ecological transport alternative and a clear demand to help reduce delays due to road congestion, was in high demand. Now we deliver on this need", explains Matthias Herrebosch, Sales Director at Lineas.

Connecting two major strategic economic hubs

Ghent in North Sea Port is one of Belgium's major logistical gateways and plays an important role in the supply chain of many raw materials and additives, semi-finished and final products. Daan Schalck, CEO of North Sea Port. "With the increasing pressure on transit times, often as a result of congested roads, this rail connection makes it even easier for companies to optimize goods flows by shifting to rail. Lineas' continued commitment to Ghent as a key European hub is a reflection of the economically strategic importance we play in this region. The company has continued to grow with us over the past years and has managed to set up an impressive service infrastructure that captures the needs of their regional customers, as well as providing them access to the rest of Europe via a growing network."

"We have continuously developed our presence here and the new service from Ghent to Milano further underlines Lineas' commitment to Ghent as a key hub for its operations, connecting an ever expanding regional economy to Europe and beyond," says Xavier Verschaffel, Head of Lineas' Ghent operations.

The Intermodale Milano Segrate terminal already receives Lineas trains on a daily basis from different European locations and was chosen for it strategic location in Italy's economic heartland, close to Milan and the industrial district of Bergamo and Brescia. The terminal offers numerous connections to other destinations in the country, such as Rome, Naples and Sicily as well as cargo shipped eastward.

Lineas building a rail-based backbone for European transport driving the modal shift

Lineas has a clear growth strategy as it aims to gain speed through acquisitions and partnerships and build a true rail backbone for European freight transport that enables the modal shift. With its ever-expanding Green Xpress network, including nearly 25 regular services for both intermodal and conventional loads between European hubs, including access to seven of Europe's strategic ports Lineas is increasingly opening up rail as a powerful alternative to road transport. These connections are complemented with a growing partner enabled door-to-door offering, investments in technological innovation and over 7000 specialized wagons to transport nearly every freight type.

France

Bi-mode multiple unit Class B81500 No.81660 on a morning service from Lyon to Roanne, passes through Lozanne on June 3rd. *James Haywood*

A line up of various multiple units at Gare de Vaise depot, Lyon on afternoon of June 3rd. *James Haywood*

Germany

New freight yard saves 250,000 truck journeys: MegaHub Lehrte starts

DB and the federal government are investing 171 million euros.
DB Infrastructure Board Member Ronald Pofalla: "With every train that starts in Lehrte, we take 52 trucks off the road."
Innovative technology ensures that freight traffic speeds up.

Germany's most modern freight hub has started operations. After two years of construction and a trial run of several months, DB Infrastructure Board Member Ronald Pofalla, Parliamentary State Secretary at the Federal Minister of Transport and Digital Infrastructure Enak Ferlemann and Lower Saxony's Minister of Transport Dr. Bernd Althusmann officially opened the MegaHub Lehrte container terminal. The facility loads containers at record speed within a few minutes. This means that goods reach customers faster. The aim is to make rail freight transport more attractive. With the new container station, DB ensures more freight traffic on the environmentally friendly rail.

The MegaHub Lehrte puts together up to 13 freight trains per day - this corresponds to around 250,000 truck journeys and 120,000 tons of CO2 saved per year. The federal government and DB have invested 171 million euros in the new container terminal.

DB Infrastructure Board Member Ronald Pofalla: "Shifting transport to environmentally friendly rail is one of the most effective and simple measures for climate protection. In Lehrte, goods can be transshipped as quickly as nowhere else in Germany. With every train that starts here, we take 52 trucks off the road and automatically save CO^2."

Enak Ferlemann, Parliamentary State Secretary at the Federal Minister for Transport and Digital Infrastructure and Federal Government Commissioner for Rail Transport: "The federal government's clear policy is to shift traffic from road to rail. State-of-the-art handling facilities are required for this. The MegaHub in Lehrte is a state-of-the-art facility and is a symbol of this policy. It serves as a model for many other systems in Germany."

Lower Saxony Minister for Economy, Labor, Transport and Digitization Dr. Bernd Althusmann: "The new MegaHub is one of the most innovative projects in freight transport - this underlines the outstanding position of Lower Saxony as the logistical heart of Europe. The hub will strengthen the competitiveness of climate-friendly rail and further increase the attractiveness of Lower Saxony as a logistics location."

This is how the MegaHub works
Video gates capture the load of the train and trucks as soon as they enter the 120,000 square meter site. Three 20-meter-high cranes and twelve autonomous, electrically operated transporters sort the containers tailor-made for the freight trains. A central computer controls the loading and unloading of the containers. The MegaHub works particularly quietly and saves energy: arriving trains use their momentum as they enter and roll directly under the cranes without electricity. The system offers expansion potential for twice as many cranes and up to 20 transport vehicles.

Planning for mainline tunnel starts: 250 more trains a day to Frankfurt Central Station

The green light for the long-distance railway tunnel in Frankfurt: The metropolis on the Main is getting the long-awaited railway tunnel. In future, most long-distance trains will travel to the main station 35 meters underground and stop at the new main station. As a through connection, the tunnel relieves the currently heavily used overground tracks. This means that passengers in the Frankfurt transport hub are more reliable and faster on their way. At the same time, significantly more trains can head for the main station. Local transport in the Rhine-Main region also benefits from the greater range. After a study confirmed the feasibility of the tunnel, Deutsche Bahn (DB) is now starting concrete planning. The subsequent construction period is around ten years.

DB Infrastructure Board Member Ronald Pofalla: "The main line tunnel is another important element for the Germany cycle, which will connect the metropolises of our country every 30 minutes. Thanks to the new tunnel with two underground tracks and four platforms, we are increasing the capacity at the Frankfurt hub from 1,250 to 1,500 trains per day - that's an increase of 20 percent. We are thus strengthening the track for the urgently needed mobility and climate change in the trade fair city of Frankfurt and our country."

Enak Ferlemann, Parliamentary State Secretary at the Federal Minister for Transport and Digital Infrastructure: "This is a high point in the European Year of the Rails. We now know: The new mainline tunnel under Frankfurt is technically and economically feasible as the central core of our Germany cycle. Therefore we immediately start planning this project for more capacity in one of the largest rail hubs in Germany. In this way, we are freeing the network from chronic bottlenecks and increasing the attractiveness of the railways: Faster long-distance transport, more space for local transport and greater punctuality for everyone. The European dimension of this project is clear: whether from Berlin to Barcelona or from Prague to Paris - many TEE 2.0 trains will run through the mainline tunnel. This will make Frankfurt a pulsating hub in the Europatakt."

Tarek Al-Wazir, Hessian Minister for Economic Affairs, Energy, Transport and Housing: "The Frankfurt long-distance railway tunnel would be a huge step forward for the Frankfurt railway hub in the middle of Germany. We urgently need it in order not only to maintain mobility in the Frankfurt-Rhein-Main region for citizens, for logistics, trade fair industry and tourism, but also to significantly improve it. With the long-distance railway tunnel, the range of long-distance and local transport can be expanded: This strengthens the railways and protects the climate. In addition, the long-distance railway tunnel will shorten travel times and the Frankfurt main station will be strengthened as a central access and transfer station within Germany and Europe. In short: the mainline railway tunnel is a great success for intelligent and environmentally friendly control and processing of rail traffic."

Peter Feldmann, Lord Mayor of the City of Frankfurt am Main: "Frankfurt and the entire region are setting the course today for the future. We Frankfurters are proud of our long tradition as an international trade fair and trade center. The central location and easy accessibility have always been key success factors for us. With the decision in favor of the mainline tunnel, we are further expanding our transport hub - with more trains, fewer delays, fewer cars, fewer traffic jams, better air. I am pleased with the result of the feasibility study!"

Prof. Knut Ringat Managing Director Rhein-Main-Verkehrsverbund GmbH: "The long-distance railway tunnel opens up a phenomenal perspective for local transport in the region. It strengthens our central transfer point in the RMV network and creates space for new trips from the surrounding area, which we urgently need today. It is the piece of the puzzle that connects the many expansion projects in the region and is therefore crucial for a successful turnaround in mobility in terms of climate protection. I am delighted that the feasibility study has come to a positive result and now I hope that planning and implementation will be carried out quickly for the entire region."

Key points of the feasibility study
The feasibility study commissioned by the federal government in 2019 is based on a double-track tunnel construction that runs from the east or west towards Frankfurt Central Station and connects there with four underground tracks to a new underground station. The results of the investigation show that the Frankfurt long-distance railway tunnel and the underground through station are technically feasible. The specified cost framework of around 3.6 billion euros is currently feasible. In the study, DB examined a northern, central and southern corridor between the main train station and the east of Frankfurt for the possible route of the long-distance tunnel. The middle corridor runs under the high-rise buildings. Their foundations, which are up to 50 meters deep, make a tunnel technically difficult. The northern corridor also encounters numerous structural obstacles. The south corridor emerged from the investigation as the best variant. It leads underground past the Frankfurt skyscrapers to the main train station. Another advantage of the variant: the future tunnel can be connected twice to existing railway lines. The trains can then use the north and south main routes. This link creates optimal capacity for all trains in the direction of Hanau.

On June 1st, Paribus Rail Portfolio III Smartron Class 192.043-8, under license of CFL, passes Leutesdorf with LKW Walter semitrailers on a trip from Bettembourg (Luxembourg) to Meimersdorf/Kiel (Germany). *Erik de Zeeuw*

Germany

D&D Class V 100 No.1701 is seen in Feldkichen on its way from Oberhausen West to Heidelberg Hbf on June 1st.
Erik de Zeeuw

On June 1st, BLS Cargo Class 475.406-5 runs through Feldkirchen with train No. DGS42030 from Gallarate (Italy) to Neuss (Germany). *Erik de Zeeuw*

Germany

SBB Class 193.490-0 in HUPAC livery passes Assmanshausen with a deep sea container train from Rotterdam (Netherlands) to Milano Smistamento (Italy) on June 12th. *Erik de Zeeuw*

Germany

Alstom and Magdeburger Verkehrsbetriebe sign contract for the delivery of new Flexity trams

First order for 35 vehicles and related spare parts and maintenance valued at around 190 million euro.
Flexity trams will feature a modern, noise-optimised design and be equipped with a state-of-the-art driver assistance solution.

On June 30th, Alstom and Magdeburg, Germany's local transport authority Magdeburger Verkehrsbetriebe (MVB) signed a contract for the delivery of new Flexity trams and their accompanying spare part supply. The first call off for 35 vehicles and 24 years of parts supply is valued at around 190 million euro and includes options for a total of 28 additional vehicles. The state of Saxony-Anhalt is funding the new vehicle procurement with almost 60 million euro.

"We thank MVB for the trust they have placed in Alstom. The Flexity impresses with its unmistakably dynamic and modern appearance. It will leave a lasting mark on the cityscape. But more importantly, passengers can look forward to the highest levels of ride comfort, safety, and reliability", says Müslüm Yakisan, President of Alstom in Germany, Austria and Switzerland.

"With Alstom, we have found the ideal partner for our new generation of trams. I am pleased to be able to raise public transport in Magdeburg to a new level with the modern Flexity low-floor trams and, thanks to the new comfort, to encourage even more people to switch to our means of transport", says Birgit Münster-Rendel, Managing Director of MVB.

The Minister of Transport of the State of Saxony-Anhalt, Thomas Webel, emphasised the importance of MVB's investment, "The new trams are barrier-free and offer more space for passengers. MVB is thus making a sustainable investment in attractive public transport for the people of this city. As a state, we are supporting this major project with funding, as we are certain that the transformation of transport can only succeed if we work together."

At 38 metres, the four-car Flexity trams are eight metres longer than the vehicles currently in use with MVB. They impress with a unique and timeless design that was specifically developed for Magdeburg. Designed with passenger safety and comfort in mind, each of the new trams can transport up to 241 passengers and has two multi-purpose areas that offers ample space for strollers, bicycles, and wheelchairs. The wide, barrier-free entrance areas enable fast boarding while broad window strips running the length of the vehicle ensure that the passenger area is filled with natural light.

Inside, energy-efficient ambient illumination always provides excellent lighting and outside, LED light strips improve the visibility of the trams as they navigate urban traffic. The fully air-conditioned vehicles also score with high energy efficiency and noise-optimised design that keeps the interior quiet while in operation. Magdeburg's Flexity passengers can also look forward to enjoying free Wi-Fi access while in the trams.

The vehicles will also be equipped with the state-of-the-art driver assistance system ODAS[1] which assists the driver in detecting obstacles during operation. In addition, the newly designed and ergonomically optimised driver's stand and the driver's large vision field contribute to increased safety. MVB plans to have a mock-up of a part of the vehicle produced. The life-size 1:1 model will make it possible to experience the new Flexity tram before it goes into service. This way, passengers and various interest groups, such as the MVB Passenger Advisory Council, can contribute their suggestions, criticisms and ideas, which will then be taken into account in the manufacturing process.

The new trams are scheduled for delivery starting in 2023 and are expected to enter passenger service in 2024. They will replace old TATRA vehicles and then successively replace the city's first low-floor trams originally delivered in the 1990s.

In view of increasing passenger numbers and route extensions related to the 2nd North-South Link construction project, the tram fleet will also be expanded by ten vehicles.

With this order, the number of trams supplied by Alstom to Magdeburg will grow to a total of 118 vehicles. MVB has been using trams from Alstom since 1994, with 83 NGT8D trams delivered between 1994 and 2012. Around 1,000 Alstom Flexity trams operate in 42 German cities with more than 8,000 Alstom trams and light rail vehicles in successful passenger service, or on order worldwide.

[1] Obstacle Detection Assistance System

Photo: Alstom Flexity tram for Magdeburg. © Alstom Design and Styling

Germany

Alstom to equip 50 locomotives with Atlas on-board signalling solution for Vossloh Locomotives

Significant milestone in the digitalisation of European freight transport.

Freight locomotives will be equipped for use in Belgium, Germany, France and Luxembourg.

Alstom has signed an agreement with Vossloh Locomotives to equip 50 of their DE 18 freight locomotives with Atlas, Alstom's latest on-board signalling solution. Once equipped with this ETCS-based train control, the locomotives will be deployed in Germany, France, Luxembourg, and Belgium starting in 2022. This breakthrough signalling contract, worth almost €20 million, includes an option to equip up to 30 additional locomotives and will improve dynamic cross border freight operation between the four countries.

"As a leading company in the field of digital mobility, we are looking forward to this ground-breaking order in the freight sector. Equipping such a large number of new freight locomotives with our signalling technology is a significant milestone and will enable multi-country operation," said Michael Konias, Head of Digital & Integrated Systems at Alstom for Germany, Austria and Switzerland.

"Alstom's latest onboard signalling technology solutions will secure the competitiveness of our locomotives, which in particular guarantees more flexibility in the use of our products in international cross border freight traffic", stated Dr. Bernd Hoppe, Executive Director and General Manager of Vossloh Locomotives GmbH.

The Atlas ETCS Level 2 signalling solution deployed for Vossloh Locomotives is based on the latest Baseline 3 Release 2 standard. For Luxembourg lines, the locomotives will operate under ETCS Level 1 while the Contrôle de vitesse par balises software solution will be deployed on SNCF's French freight network. For their use in Belgium, the freight trains will be equipped with the additional Belgian Transmissie Baken-Locomotief or Transmission Balise-Locomotive (TBL1+) train control system. The three systems will then be integrated into Alstom's Tri-Standard solution (TriStd). To enable operation on the German rail network, Alstom's Atlas solution will be used to integrate and manage the German Punktförmige Zugbeeinflussung (PZB) system. The state-of-the-art solution will provide dynamic cross-border transition between the above-mentioned countries and can even be extended to operate in the Netherlands, an option which has also been agreed upon.

Vossloh Locomotives will manufacture the locomotives and install the Alstom TriStd system at its plant in Kiel, Germany. For the installation of the signalling equipment Alstom's Saint Ouen, Charleroi, Villeurbanne and Berlin locations will cooperate and conduct integration tests (T&C) of the TriStd system on all locomotives

Photo: Vossloh Locomotives | ©T. Mischke

CAF CONCLUDES TWO NEW CONTRACTS IN GERMANY

The CAF Group has secured two contracts on the German market. Firstly, it has entered into a contract with the operator Ruhrbahn GmbH to supply 51 LRVs, which will serve the cities of Essen and Mülheim an der Ruhr. Secondly, the company has won an extension of eight additional trams for the city of Freiburg. Both contracts amount to a figure of almost €200M. These contracts further attest to CAF's commitment in Germany, where, besides the aforementioned projects, it is also currently supplying electric units to the operator Schönbuchbahn. The German market also represents an important opportunity for Solaris, a subsidiary of the CAF Group, which supplied a total of 329 buses to German public transport operators in 2020, 40% of which were electric vehicles.

Supply of 51 LRV for the German Operator Ruhrbahn GmbH

CAF has reached an agreement with the German operator Ruhrbahn GmbH to execute a supply contract for the supply of 51 LRV units as well as all relevant spare parts. These units are planned to be delivered between 2024 and 2026. Ruhrbahn is the largest transport operator in the Ruhr region and manages transport in the cities of Essen and Mülheim an der Ruhr, providing services for more than 150 million passengers per year. The company operates three underground lines, eleven tram lines and 74 bus lines providing daytime and night-time services. The company is renowned for its customer-oriented, high-quality and environmentally friendly local transport. The new units will be bidirectional, 28 meter long vehicles. Passenger capacity will be at least for 173 passengers including two multipurpose places for wheelchairs or prams. In addition and for enhanced safety, the units will be fitted with a driver assistance system and rear view cameras instead of the usual mirrors. The vehicles will run on the tram network which services the cities of Essen and Mülheim and connects them to each other.

This network currently spans a total of 155 kilometres, serving as the transport backbone for the entire metropolitan area. Essen is a German city in North Rhine-Westphalia, located in the heart of the industrial region of the Ruhr river basin, one of the largest urban areas in Europe. For decades, it was known as the largest mining city in Europe until the '60s, when the city went through a major development and gradually shifted towards a new economic model, breaking away from its dependence on the mining sector to become a modern city with important cultural offerings and a service-based economy. In fact, the city received the European Green Capital City award in 2017, acknowledging its policies with regards to protecting and improving the environment and biodiversity.

Freiburg City's renewed Trust on CAF's Trams

CAF has also signed a new contract with the municipal company, VAG Freiburg, which is responsible for the operation of the Freiburg tram system. This contract is for the supply of eight trams for this German city. These new units will be added to the 17 Urbos trams that the Company previously supplied and which are already providing revenue service. This fleet extension contract was already considered when VAG Freiburg awarded CAF the initial contract. These new units will replace the GT8N vehicles, which have been running since the early '90s, providing improved accessibility and greater capacity as they are now 9 metres in length compared to the previous trams.
Freiburg is considered to be a gateway city to the Black Forest with more than 230,000 inhabitants. It is also renowned for its sustainability policies and its commitment to protecting and preserving the environment. The city's tram network has become a prominent feature of the city, a testament to its commitment to reducing the importance of the use of cars.

Germany

Alstom digitalises Stuttgart 21

130 million-euro contract is an important enabler to increasing capacity and safety in busy Stuttgart.
Alstom will equip 215 S-Bahn trains with next generation European Train Control System and Automatic Train Operation technology - an important building block for the full digitalization of the Stuttgart rail node.

Alstom has signed a contract with Deutsche Bahn's (DB) DB Regio AG to equip 215 of Stuttgart, Germany's S-Bahn trains with the European Train Control System (ETCS) and Automatic Train Operation (ATO) signalling technology. Part of the landmark rail project known as Stuttgart 21, the contract will see Alstom retrofit the BR 423 and BR 430 trains operating in the greater Stuttgart area's S-Bahn and conventional railway lines. The contract is worth around 130 million euro. Implementing ETCS Level 2 and Level 3 as well as ATO in automation level 2 (GoA 2) will ensure more sustainable operation, shorter headways and a denser train sequence, while supporting the associated relief of individual trains. With an overall smoother flow of rail traffic, passengers can look forward to more frequent service and faster connections.

"By equipping the vehicles with the latest signalling technology and the innovation partnership with Deutsche Bahn, we are jointly making a decisive contribution to the implementation of the Stuttgart 21 lighthouse project and the digitalisation of German rail transport," says Michael Konias, Head of Digital & Integrated Systems at Alstom for Germany, Austria and Switzerland. "This signalling contract for the Stuttgart S-Bahn is another demonstration of the valuable synergies resulting from Alstom's acquisition of Bombardier Transportation. The contract will also create over 150 digital rail jobs in Berlin, Braunschweig, and Mannheim," Konias added.

Initially, Alstom will retrofit and re-release two BR 423 and four BR 430 prototype vehicles with ETCS Levels 2 and 3, as well as ATO GoA2, by the end of 2023. The contract also includes the delivery of the series equipment and the supervision of the installation of a further 58 BR 423 and 151 BR 430 series vehicles. As early as January 2025, the retrofitted S-Bahn vehicles will operate on the first lines to be equipped with ETCS Level 2. At the end of 2025, ETCS Level 2 operation with ATO GoA 2 will begin on the S-Bahn main line. Once complete, the frequency of service will be increased.

When equipped with the latest ETCS signalling technology, the traction units will begin entering service in 2025, in time for the launch of the Stuttgart Digital Node, Germany's first digitalised rail hub for all train categories. A contractual agreement for the future upgrade to the next ETCS Technical Specifications for Interoperability standards has already been agreed for 2026/27. In addition, DB and Alstom are also cooperating to develop and implement further signalling technologies to continue driving the urban rail digital revolution taking place in Germany.

Together with DB, Alstom will also carry out pioneering work and define the minimum requirements for signalling technology so that the implementation of the European-defined ETCS/ATO standard can take place for the large-scale rollout in Germany. In addition to ETCS and ATO, there is close cooperation on four innovation topics, with their implementation also being part of the cooperation:

- Preparing for the introduction of Future Railway Mobile Communication System (FRMCS) technology: FRMCS follows today's GSM-R technology. It is based on 5G mobile technology and is able to transmit, process and analyse data collected by sensors and cameras in trains, at stations, and on tracks in real time through higher data rates and lower latency times.

- For the first time in Germany, various interfaces according to emerging OCORA standards are being implemented. The standardisation of the interface between ETCS/ATO and the vehicle will in particular simplify subsequent software upgrades.

- Introduction of a technology for permanent determination of train integrity (Train Integrity Monitoring System = TIMS), which is a prerequisite for later ETCS Level 3 operation. ETCS Level 3 enables an even further increase in capacity with a simultaneous reduction of track elements (e.g. axle counters).

- By introducing a technology for continuous vehicle data transmission (Capacity & Traffic Management System = CTMS) on the line, a first step is taken for a capacity-increasing dynamic traffic management system that enables optimal fleet and timetable management through complex AI algorithms.

- To meet the high performance, availability, and automation requirements of future digital railway operations, Alstom will deploy its latest and compact version of EVC (EVC-3) with integrated ATO software from the Atlas product family. Alstom will flexibly integrate the different versions of the PZB train control system (I60R or EBICAB) installed on the vehicles today and modify the vehicle control system accordingly.

The project is being managed by the Alstom signalling site in Berlin in close cooperation with the ETCS competence centre in Charleroi. Other sites are involved in the various project phases: Braunschweig, Salzgitter, Mannheim, Hennigsdorf, Bangalore, Lyon-Villeurbanne and Bucharest. The conversion of the prototype vehicles will take place at the Hennigsdorf site. The series conversion will be carried out by Deutsche Bahn itself, with Alstom providing support for the conversion and commissioning at three DB vehicle maintenance sites.

About the Stuttgart Digital Node
Stuttgart's S-Bahn main line is reaching its capacity limits. Added to this, is the large increase in the population of the Stuttgart region. The digitalisation of the railway node, as part of the major Stuttgart 21 project, is intended to increase the performance of the infrastructure, ensure increased and improved public transport, while creating the basis for future improvements, such as dynamic traffic management systems or automatic incident management. In addition, 57 km of new, mainly underground, lines and a new underground main station are being built.

Photo: BR 423 train operating in the Greater Stuttgart area.

Germany

Honored: Digital S-Bahn in Hamburg wins the German Mobility Award

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This year, the German Mobility Award goes to the Digital S-Bahn Hamburg. The team from Deutsche Bahn and Siemens Mobility is putting Germany’s first fully automated railway in service. In cooperation with the city of Hamburg, four Hamburg S-Bahn trains operating with passengers will be digitally controlled during the ITS Congress in October. The advantage of the new technology, which has been under development since 2018: More trains can operate on existing rail lines with higher reliability and lower energy consumption.

Ronald Pofalla, CEO Infrastructure at DB: “We can help alleviate the climate change only by providing reliable, convenient, and comfortable rail services. This is exactly what we are doing with the digitization of the Hamburg S-Bahn: We are making rail travel better for our passengers. I’m really pleased that this project has been honored with the German Mobility Award, and I congratulate the team on their impressive commitment and innovative spirit. The new technology marks yet another milestone for digital rail in Germany and is a decisive move for step change in mobility.”

Dr. Anjes Tjarks, Hamburg Senator for Transport and Mobility Transition: “Hamburg is actively promoting future rail transport by introducing innovative technologies in the pilot Digital S-Bahn project. The technology provides a solution that will enable the city’s S-Bahn network to grow. Over the long term, we want to equip the entire Hamburg S-Bahn system with this technology. The Senate is already investing €400 million in new trains that are being delivered with the new digital technology. My warmest congratulations to the team for their impressive work.”

Michael Peter, CEO Siemens Mobility: “I’m really pleased that the Hamburg Digital S-Bahn has been honored with the German Mobility Award. By conducting successful, highly automated test operations in the European Train Control System (ATO via ETCS) in Hamburg, we have reached an important milestone in the digitization of Germany’s rail transport in record time. Automated rail operation enables significantly higher operating frequencies and thus passenger capacity, improves the stability of timetable scheduling, and ensures lower energy consumption by optimizing driving profiles. With this project, Hamburg is a pioneer for digitized operation in Germany’s mass transit and mainline rail transport.”

The project will demonstrate digitized train operation on a 23-kilometer route in Hamburg’s S-Bahn network. The first test runs have already been successful. The highly automated system is based on the future European ATO standard operating with the Europe-wide European Train Control System (ETCS). Train crews monitor operations. The project costs of €60 million are being shared by the city of Hamburg, Siemens Mobility and Deutsche Bahn.

Germany

DB Class 294.873-5 transfers a rake of tank cars from Solvay Bad Honningen to the Koblenz Lutzel yard on June 1st.
Erik de Zeeuw

Netherlands

On June 4th, RFO Class 189.203-3 is taken in for maintenance at the Locomotive Workshop Rotterdam (LWR). *Erik de Zeeuw*

Netherlands

The V.S.O.E. was in the Netherlands from June 22th until June 24th, seen here at Haarlem due a presentation of the train at June 23th. Loco RXP No. 9901 then took the train from Haarlem to Watergraafsmeer.
Gerard van Vliet

Netherlands

On June 24th, Lineas Class 186.293 is seen working the V.S.O.E. from Amsterdam to Venice passing Schalkwijk near Utrecht, *Gerard van Vliet*

Netherlands

On June 4th, SBB Cargo Class 193.490-0 stands at LWR on the external pit specially dedicated for (accident) washing and inspection. *Erik de Zeeuw*

RRF No.4402 (1981-2021 40 years of loyal service) rolls off the Moerdijk Bridge with Lotos train No. 49788 from Bad Bentheim (Germany) to the Kijfhoek yard on June 2nd. *Erik de Zeeuw*

On May 3rd, NS Class 193.766-3 (in NS Flow livery) arrives in Amsterdam with train No. IC240 from Berlin Hbf (Germany). *Erik de Zeeuw*

On June 2nd, RTB Class 186.506-2 passes Willemsdorp with deep sea container train No. 51403 from TCT in Venlo to Rotterdam (ECT en Euromax). *Erik de Zeeuw*

Netherlands

On June 4th, RTB Cargo Vossloh G1206 No. V156 is seen shunting at the Maasvlakte yard in Rotterdam.
Erik de Zeeuw

NS Class 193.759-8 crosses the bridge over the river Lek on May 28th with ÖBB Nightjet train No. 420 from Innsbruck & Vienna (Austria) via Munich & Nuremberg (Germany) to Amsterdam Centraal station. *Erik de Zeeuw*

Netherlands

On May 30th, Foundation Crew 2454 mP No. 3029 and NSM mP No. 3031 departed the railway museum in Utrecht for a trip to Blerick. *Erik de Zeeuw*

Netherlands

Due to a few accidents on unguarded railway crossings, the Dutch Railways (NS) has decided to change the front of the SNG trains (Sprinter Next Generation) from blue to yellow. All SNG trains will get a new yellow front, also other train types will be adjusted for better visibility. Here two sets pass Weideweg in Soes, the difference between the blue and yellow fronts can been seen. *Andre Pronk*

On June 2nd, DB Cargo's No. 6416-6 is seen shunting at the yard in Sloe/Flushing. *Erik de Zeeuw*

Netherlands

Arriva Group submits first Open Access rail proposal within The Netherlands

Arriva plans first of a kind Open Access rail night services in The Netherlands, in response to EU market liberalisation.
The proposal provides unique night links with Schiphol Airport.
Plan will allow Arriva to grow using its existing fleet.
Arriva Netherlands is filing an application to operate regional rail Open Access night services, made possible by European legislation which has opened up new opportunities for operators this year.

In a unique move within the Dutch market, Arriva is applying for three new Open Access routes of which two will serve Schiphol Airport with night-time links from Groningen in the north-east and from Maastricht in the south, allowing travel by rail during the night for the first time and connecting with early morning flight departures. This has not previously been possible and has the potential to take cars off the road, reducing local airport traffic and pollution.

Domestic Open Access became possible for the first time at the start of this year, following the implementation of EU legislation and regulatory reform. If approved, this could become the first domestic Open Access service in the Netherlands and Arriva's first market outside of the UK to apply for domestic Open Access operations. This operating model means the train operator carries all the associated costs and risks with the services, without any government concession.

Anne Hettinga, Managing Director of Arriva Netherlands and Arriva Management Board member, commented: "This is a commercially smart way to bring benefits to passengers, connect the rural provinces with the urbanised western part of the country and allow our business to grow by making better use of our existing fleet of trains. Furthermore, these services have the potential to grow the market and the usage of public transport by encouraging people out of their cars. We hope to be given the green light by the Authority for Consumers and Markets so we can develop our plans. Open Access will be new territory for us but we relish the opportunity to enhance our passenger offering and add to our portfolio of public transport operations in the Netherlands."

The proposal has been submitted for consideration by ACM in the Netherlands. If approved, Arriva could start running services in December 2022.
Arriva already has considerable experience operating domestic Open Access routes through its UK Trains business unit, which includes train operating company Grand Central. Arriva also operates one international (weekend only) Open Access service between Czech Republic and Slovakia.

Carrying the new Arriva livery, No. GTW 242 is seen in Warffum with train No. 37651 heading to Roodeschool.
Gerard van Vliet

Arriva DMU No. GTW 349, working train No. 37658 to Groningen, departs from Warffum in the northernmost province of the Netherlands. *Gerard van Vliet*

RFO No. 1029 passes Papekop with container shuttle No. 63122 from Blerick to Rotterdam. *Erik de Zeeuw*

Netherlands

At the height of Portengen, RFO No.1830 is seen with a rake of Tagnpps hoppers on their way from Bad Bentheim (Germany) to the Kijfhoek yard in Zwijndrecht. *Erik de Zeeuw*

Canada

Alstom signs contract to supply 60 new Flexity streetcars for the City of Toronto

Alstom will supply a total of 60 Flexity 100% low-floor, zero-emission light rail vehicles (LRVs) to the Toronto Transit Commission (TTC) in Ontario, Canada, under a contract valued at over €275 million. The new streetcar order will be used to meet Toronto's ridership demands and growth needs.

"Alstom would like to thank our customer, the TTC, for their continued confidence in our zero-emission Flexity streetcars," said Jérôme Wallut, President, Alstom Americas. "Over the years, our innovative, reliable, Made-in-Canada rail products have established themselves as a signature element of Toronto's iconic cityscape and contribute daily to the sustainable economic and social development of our Canadian cities."

The Flexity LRVs for the TTC are five-module, uni-directional vehicles with all-wheel drive. They are based on light rail technology modified to TTC specifications and special requirements of Toronto's streetcar network. To date, 204 streetcars have been delivered to the TTC, and the additional order of 60 streetcars will help maintain jobs and expertise, particularly at Alstom's site in Thunder Bay, Ontario, which has experience assembling and testing previously delivered streetcars to the TTC.

The streetcar project will be supported by Alstom sites in St-Bruno and La Pocatière, Quebec, which will provide project management and certain component sub-assembly, respectively. It will allow Alstom to maintain 400 jobs at the Thunder Bay and La Pocatière facilities.

In addition to streetcars, Alstom has also supplied 480 Toronto Rocket subway cars to the TTC and is currently providing a communications-based train control (CBTC) railway signalling solution on Line 1 Yonge–University as well as the Toronto-York Spadina Subway Extension (TYSSE).

Globally, over 5,000 Flexity LRVs have been ordered or are already in successful revenue service. They are renowned for their ability to run smoothly in addition to their spacious interiors, wide doors, air conditioning, enhanced features for people with limited mobility and improved passenger information, all to ensure a more comfortable journey and passenger experience.

Photo: TTC streetcar in downtown Toronto © Alstom

Belgium

DE LIJN (BELGIUM) AND TRANSPORT FOR NEW SOUTH WALES (AUSTRALIA) RENEW THEIR TRUST IN CAF BY EXTENDING THEIR TRAM SUPPLY CONTRACTS

The CAF Group has again earned the trust of two customers which are benchmark companies in their countries, having secured tram supply extension contracts in Belgium and Australia. In spite of being so far away from each other geographically, these two countries are extremely demanding in terms of their transport service investment policies. Both contracts, amounting to a combined value of close to €100 million, corroborate once more the CAF Group's leading position in the international tram market. It should be pointed out that CAF trams are currently running in a long list of cities all around the world, such as Amsterdam, Budapest, Boston, Pittsburgh, Kaohsiung, Mauritius, Nantes, Belgrade, Utrecht, Edinburgh and Stockholm.

Contract extension for the supply of trams for De Lijn (Belgium)

First off, the Flanders Transport Company, De Lijn (Belgium), has approved the purchase of 18 more trams from CAF. These new trams are the fifth batch in the contract concluded with CAF in October, 2017, which comprises of the manufacturing and supply of up to 146 trams which are distributed into batches to be activated by the customer in due course. Unit now the first four batches had been activated for 24, 24, 23 and 17 units respectively.

The 18 new trains are different to the previous batches as they will be two-directional. De Lijn is the public Flemish operator for buses and trams, providing transport for close to 530 million passengers each year. The first 48 units operate on the Belgian coastline, whilst the third, fourth and the current fifth batch will run in Antwerp. It should be pointed out that over recent years, CAF has secured a significant number of major contracts in Benelux, which, aside from the aforementioned one, include the supply of metro units for Brussels, metro and tram units for Amsterdam, and trams for Luxembourg and Liège. We should also stress that CAF has already made significant progress in supplying the Dutch operator NS (Nederlandse Spoorwegen) with 206 commuter trains; one of the biggest contracts CAF has secured in Europe to date.

TFNSW awards CAF the supply of a further 4 Urbos 100 LRV units for Sydney

At the same time, Transport for New South Wales (TfNSW) has awarded CAF the supply of 4 Urbos 100 LRV 5-module units for the Inner West Light Rail Line in Sydney, as well as all the relevant spare parts. These new units will be delivered in early 2023 and will be added to the current fleet comprising of 12 CAF Urbos units that have been running on the Inner West Light Rail Line since 2014. The 32 metre long, 5-module articulated Urbos unit is equipped with cutting-edge technology and has been designed to run at a maximum speed of 80 km/h. It is 100% low floor to facilitate passenger access. With this new contract, TfNSW renews its trust in CAF, having previously awarded it the Parramatta Light Rail projects at the end of 2018 and the Regional Rail Project at the beginning of 2019, thereby consolidating the companies' relationship and CAF's commitment in the Australian market.

CAF Signalling to execute a new project in Turkey

In addition to the above, JV Salini Kolin has selected CAF Signalling as a subcontractor to install the signalling system on the section that runs between Çerkezköy and Kapikule on the line connecting Halkaki station in Istanbul to Kapikule station. This 153 km long section forms part of the high-speed line between Istanbul and the Bulgarian border, connecting the metropolitan area of the Turkish city with the Turkish-Bulgarian border with a double track that will replace the current single track. The line will be part of the Trans-European Transport Network (TEN-T), which comprises the priority transport networks used for passenger and freight transport between European Union countries and will also be integrated in the Orient/East-Med Corridor to connect Central Europe with the North, Baltic, Black and Mediterranean Sea ports.

CAF Signalling will install the company's cutting-edge electronic interlocking technology and a new CTC with the latest signalling systems compatible with the Level 1 European Train Control System (ERTMS), on a line where trains will reach speeds of up to 200 km/h. This is CAF's third signalling project in this country in recent years, and establishes the company as one of the signalling sector companies with the strongest presence in the region.

Germany

Siemens Mobility and Paribus sign framework agreement for 30 Vectron Dual Mode locomotives

Siemens Mobility and Paribus Rail Investment Management GmbH (Paribus), part of the Paribus Group, have signed a framework purchase agreement and a full-service contract for up to 30 Vectron Dual Mode locomotives.

The investment was arranged and structured by Paribus for RIVE Private Investment (RIVE), a private equity investment company headquartered in Paris. Along with the signing of the agreement, a call was placed for seven locomotives for which Northrail GmbH, also belonging to the Paribus Group, has already concluded rental contracts with German railway companies. The seven locomotives, planned for freight transport in Germany, are to be delivered beginning in September 2021. Siemens Mobility will provide full service for the locomotives for a period of up to 20 years.

"The Vectron Dual Mode is an innovative investment in the future of rail freight transport. As a sustainable alternative to conventional diesel locomotives, the Vectron Dual Mode can flexibly switch from diesel to electric operation on electrified stretches," said Gerhard Greiter, CEO Region Northeast Europe at Siemens Mobility. "With the long-term maintenance contract, we will further expand and enhance our service competence in Germany. Paribus will profit from having lifecycle costs that are optimized and can be planned, and from maximized availability of the locomotives."

"With our acquisition of the new Siemens Vectron Dual Mode locomotives, we have made an important decision toward ensuring a sustainable future for rail freight transport when it comes to energy efficiency and pollutant reduction," explained Dr. Volker Simmering, Managing Partner of Paribus Rail Investment Management GmbH and Northrail GmbH. "By expanding its fleet of locomotives to include the Vectron Dual Mode, Northrail GmbH will ensure that its customers have the highest possible operational flexibility on all route sections and at the same time save resources."
The Vectron Dual Mode is based on the proven Vectron platform and components. The locomotive has a track gauge of 1,435 mm and weighs 90 tons. It is designed to operate on a 15 kV AC voltage system and is equipped with a PZB train protection system. In both of its operating modes, traction power at the wheel rim is 2,000 kW. The fuel tank holds 2,600 litres of diesel. The locomotive's maximum speed is 160 km/h. Paribus previously signed a framework agreement with Siemens Mobility in 2019 for the delivery of 25 Smartron locomotives. To date, 16 locomotives from this agreement have been called up.

Taiwan

Siemens Mobility to upgrade and modernize 450 km of the Taiwan rail network

Siemens Mobility is pleased to announce that it has signed a €231 million contract with the Taiwan Railways Administration (TRA) for the implementation of the "Taiwan Railway Smart Electrical Systems Upgrade and Signalling Interlocking System Update Project." The project primarily consists of replacing existing Relay Interlockings with new Electronic Interlocking (or EI) Systems at 68 stations that will cover 450 km of the island's approximately 1110 km total railway network. As part of this contract, Siemens Mobility will provide 10 years of maintenance and the customer also reserves the right to procure EI systems for 10-additional stations. The modernization of the signalling system will allow the TRA to better optimize the operation and maintenance of the rail network.

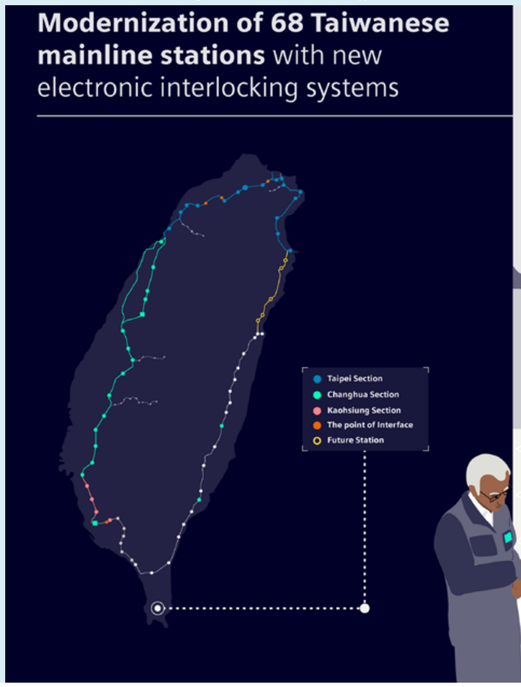
"Siemens Mobility is delighted to have been selected to upgrade a significant portion of the rail network in Taiwan. Our state-of-the-art signalling and interlocking technology will augment operations throughout the network by increasing service reliability and availability, which will enhance the passenger experience," said Andre Rodenbeck, CEO of Rail Infrastructure at Siemens Mobility. "This important project further underscores our leading position in the field for delivering automated and digital signalling systems that increases the safety and capacity of rail travel."

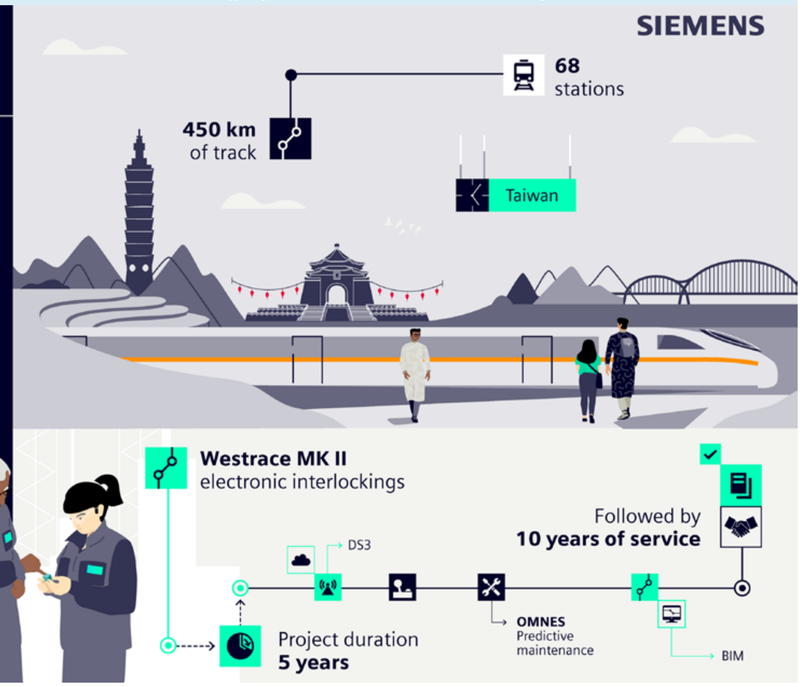
Siemens Mobility will provide its EI system Trackguard Westrace Mk II, a highly flexible, microprocessor-based interlocking system suitable for both urban and mainline rail, which has been proven in over 1,200 applications worldwide. With versatility in configuration, flexible architecture, enhanced processing power, and multitude of connectivity possibilities, Trackguard Westrace Mk II offers railway operators real benefits in terms of total cost of ownership, improved punctuality, and greater capacity.

For maintenance, Siemens Mobility will utilize the OMNES predictive maintenance solution, an innovative digital services platform for railway signalling. OMNES unifies all maintenance tools on a single platform in a secure and customizable way by using the most advanced methods of digitalization. By minimizing and anticipating the impact of incidents, OMNES improves the overall efficiency of operations, with the aim of ensuring 100% service availability. Siemens Mobility will also bring added value to this project through the usage of Building Information Modelling (BIM) methodology. BIM technology enhances the design process by enabling the digital recording of an entire rail network and uses digital models of a setting to record and manage relevant information and data. In addition, Siemens Mobility will install a prototype station with an interlocking based on the Distributed Smart

Safe System (DS3), an innovative and digitalized safety platform, which enables the usage of commercial-off-the-shelf (COTS) server hardware and offers advantages like a geographical redundancy and limitless scalability.

The rail network managed by the TRA spans approximately 1,110 km and carries over 232 million passengers and 7.7 million metric tons of freight each year, linking the cities to the countryside. This is in addition to the separately managed high-speed rail that covers 350 km along the west coast, linking the capital Taipei to the southern city of Kaohsiung, and 131 km of mass transit in Taipei. The combination of metropolitan mass rapid transit systems with mainline rail forms a highly efficient rail-based transportation network.





Turkey

Siemens Mobility completes delivery of Velaro high-speed trains for Turkey

Siemens Mobility has completed the delivery of high-speed Velaro trains ordered by the Turkish State Railways (TCDD) between 2013 and 2019. As of June 2021, the whole Velaro fleet is expected to be available for the commercial services.

“Delivering the last train of the Turkish Velaro fleet well ahead of schedule marks an important milestone in our partnership with the Turkish State Railways,” said Albrecht Neumann, CEO Rolling Stock at Siemens Mobility. “Our proven high-speed trains, developed for the global market, enhance passenger experience by providing comfort and convenience. We are proud to contribute to a project that significantly develops the infrastructure of Turkey and enables people in this large country to travel at high speed yet with a low CO2 footprint.”

Adil Karaismailoğlu, Minister of Transport and Infrastructure of the Republic of Turkey, stated that the last 12 high-speed train sets ordered from Siemens Mobility had reached Ankara. “The sets will be used on the high-speed 1,213-kilometers line and on lines that are being built and will be put into operation.”

The trains connect Ankara with Konya and Eskisehir. An additional line to Istanbul, with a total length of 533 kilometers, is planned for the future.

The first Velaro Turkey was ordered in 2013 and went into passenger service between Ankara and Konya in May 2015. At the same time, TCDD signed a second contract with Siemens for six eight-car high-speed trains. The last twelve eight-car Velaro TR trains were ordered in 2018 and 2019. The contract included maintenance, repair, and cleaning of the trains for a period of three years.

With the delivery well ahead of schedule, a record time for the start of passenger operation could be achieved. On average, the time between the contract signing and passenger operation amounts to 24 months.

The Velaro Turkey offers an optimized capacity profile and enhanced passenger experience. Passengers can choose between three car classes: The Business Class consisting of three compartments with four comfort seats each; the First Class offering 45 seats; and the Economy Class offering 426 seats. The restaurant car offers eight bistro seats in the bar and 28 seats in the restaurant.

Through innovative communication and entertainment systems on board, passengers can access services such as video on demand, e-books or games from their own mobile devices – or, in the Business and First Class – from touch displays integrated in the seats.

Italy

FS Italiane, uniting Italy from North to South

From Milan to Calabria by night with Frecciarossa. New regional connections to the sea, mountains, villages and cities of art

The Frecce trains dedicated to summer tourist traffic will make over 150 additional stops per day, with 230 connections to the cities of art, to the seaside and the mountains daily. New Intercity stops, about 1,200 regional littoral connections and 400 to destinations for nature lovers, as well as about 1,400 connections to the cities of art, for a total of over 5,800 regional journeys per day, along with about 1,000 daily Trenitalia Tper regional trains. And, amongst the main innovations, there is the Frecciarossa service now travelling at night between Milan and Reggio Calabria for the first time. With the 2021 summer timetable effective from June 13th, Trenitalia (FS Italiane Group) strengthens its commitment to tourism throughout Italy and to allowing people to plan their holidays and travel safely and sustainably by favouring the train over other means of transport. In addition to the connections already operating, the offer includes new routes – both during the week and on the weekend – along the main tourist lines and courses from Italy's North to South, also confirming the FS Italiane Group's new high-speed philosophy: the Frecce trains not only connect large urban hubs but also small-to-medium towns with great cultural and landscape appeal, effectively 'shortening' Italy. People can travel in complete safety on board the Frecce, Intercity and regional trains. A maximum capacity of 50% is confirmed for the entire fleet, as a measure that forms part of the actions implemented by Trenitalia to guarantee the safety and protect the health of the people, passengers and personnel, right from the onset of the pandemic. On the Frecce trains, in addition to the checkerboard arrangement, graphene filters have been fitted, the characteristics of which allow a significant decrease in the load of viruses and bacteria, markedly improving the quality of the air inside the train and ensuring a complete change of the air every three minutes on all Trenitalia trains.

By Frecciarossa at night

For the first time, the Frecciarossa travels at night with two night-time connections between Milan and Reggio Calabria. The departure from Milano Centrale is at 9:20 pm, with arrival in Reggio Calabria at 8:03 am. The departure from Reggio Calabria is at 9:37 pm to reach Milan at 8:22 am. Also optimised are the connections with the Blu Jet ferries at the Villa San Giovanni stop, to reach Sicily. The night-time Frecciarossa also stops in Milano Rogoredo, Reggio Emilia AV, Bologna, Firenze, Paola, Lamezia, Rosarno and Villa San Giovanni.

To the seaside with Trenitalia

From Milan to Reggio Calabria in less than nine hours. For the summer, Trenitalia also reinforces the daytime connections with the South of Italy and introduces two Frecciarossa FAST Milan-Calabria services with travel times of 7 hours and 20 minutes for Lamezia Terme and 8 hours and 40 minutes for Reggio Calabria. Intermediate stops include Bologna Centrale, Roma Termini, Napoli Afragola, Salerno, Paola, Lamezia Terme, Rosarno and Villa San Giovanni (with connections optimised for reaching Sicily). In total, 16 Frecce trains shall run between Rome and Calabria, 2 between Venice and Calabria, 8 between Milan and Calabria and 2 between Bolzano and Calabria throughout the summer period. There will also be more connections for the Adriatic coast. For the first time, Brescia will be directly connected with the Romagna Riviera and Le Marche, with a pair of Frecciarossa Brescia-Milan-Ancona trains, available each day and with intermediate stops in Milano Centrale, Bologna Centrale, Rimini, Riccione and Pesaro. On weekends, the new Frecciarossa Bolzano-Ancona connection is also available, with stops in Trento, Rovereto, Verona, Bologna, Rimini, Riccione, Cattolica, Pesaro and Senigallia. The Intercity offer from Bologna to Lecce has also been upped, with 6 connections each day thanks to the extension of a pair of Intercity Bologna-Bari trains now reaching Lecce. Between Bari and Lecce, the Intercity also stops in Polignano a Mare, Monopoli, Fasano, Ostuni and Brindisi. The Intercity offer from Milan to Livorno was then bolstered with 10 connections per day due to the extension of a couple of Intercity Milan-La Spezia via Livorno with stops in Pisa, Viareggio, Massa Centro and Carrara Avenza. Soon, 4 new Frecciabianca connections between Milan and Ponente Ligure will be available, with stops in Pavia, Voghera, Genova, Savona, Finale Ligure, Albenga, Alassio, Diano, Imperia, Sanremo and Ventimiglia. The FRECCIALink network is also extended, offering passengers an integrated Freccia + bus ticket to reach their final destination. For the seaside, 6 new connections a day are available to head to the Argentario (Porto Santo Stefano and Porto Ercole) on weekends from the Orbetello station. FRECCIALinkconnections
are additionally available for Sorrento from Napoli Afragola, for Piombino Marittima and Cecina from Firenze Santa Maria Novella and for the Salento coast thanks to the partnership between Trenitalia and Ferrovie del Sud Est. With the summer offering, the connections to the seaside with regional trains have likewise been further enhanced. Since 13 June, there are some 1,200 services. Amongst these are 112 daily connections from Florence to Pisa, 46 from Savona to Ventimiglia, 14 from Rome to Pisa, 52 from Naples to Salerno, 31 from Palermo to Cefalù, 16 from Milan to the Italian Riviera, 40 from Bari to Lecce, and 40 from Messina to Catania.

On vacation with Line and Link

The regional Line and Link connections have been confirmed, being special summer services activated to meet the needs of tourism or leisure and thus entice people to opt for the train for their travels during the holidays. The 17 Line services consist of train connections reaching the major Italian tourist resorts. The 28 Links are intermodal train + bus or train + ferry connections, thanks to which it is possible to reach the final destination by purchasing the entire trip with a single ticket. Amongst the innovations is the Cedri Line from Sapri to Cosenza, operating from 18 July and the Etruschi Line running as of 13 June between Pisa and Grosseto. In the North-West, it is possible to use the Cinque Terre Express that connects all the towns of the 5 Terre from Levanto to La Spezia or the Ponente Line that connects Turin to Ventimiglia, Savona, Albenga and Imperia. In the North-East, rather, the AlpeAdria Line makes one of the most evocative cycle paths in Italy reachable by train, with services including carriages entirely dedicated to the transport of bikes. In the Triveneto historical region, it is then possible to avail of the intermodal connections to Jesolo, Cortina, Lignano and to the Tre Cime di Lavaredo and Sottomarina di Chioggia. Many seaside resorts on the Tyrrhenian side can also be reached on the Cilento Line (from Naples to Sapri) and the port of Civitavecchia with the dedicated Express service. In Calabria, in addition to the Tropea Line from Lamezia to Rosarno, the Soverato Line from Lamezia to Soverato is in operation as of 18 July. Likewise, on the Tyrrhenian coast, it is possible to reach the destinations of choice with the Links: Costiera Link and Cilento Link in Campania and Elba Link in Tuscany. On the Adriatic side, travellers can choose from amongst the Piceno Line from Ascoli to San Benedetto del Tronto, the Marche Line from Piacenza to the Marche coast, the Trabocchi Line to admire the evocative trabocchi from Pescara to Vasto, in addition to the Conero Link and further south, the Tremiti Linktogether with the many localities of Puglia (San Giovanni Rotondo, Vieste, Grotte di Castellana, Monopoli, and the areas of the Trulli and Salento) up to Basilicata with the Matera Link. On the islands, there are the Barocco Line from Syracuse to Donnafugata, the Cefalù Line from Punta Raisi to Cefalù, the Taormina Line from Catania to Letojanni and the Links to Taormina and Etna in Sardinia, along with the Golfo Aranci Line from Olbia to Golfo Aranci. Finally, there are many other places that can be reached thanks to the FS Italiane Group's regional transport. Amongst the offerings are the Trasimeno Line from Perugia to Chiusi, the Assisi Link, Piediluco Link and Marmore Link in Umbria, as well as the Urbino Link and Fermo Link in Le Marche. In Lazio, the intermodal connections reach the Ville di Tivoli, the Abbey of Montecassino or Castel Gandolfo and as well as the Pontifical Villas. The same also goes for Campania, with the Caserta Link and Pompei Link.

By train to the mountains, hills, villages and cities of art

Connections to Valle d'Aosta, Trentino-Alto Adige and Lake Garda are increasing to allow mountain lovers to reach the main tourist destinations in complete comfort. During the summer, new Frecciarossa connections on the weekends between Milan, Trento and Bolzano depart in the morning from the Lombard capital and return in the evening, with intermediate stops in Brescia, Peschiera del Garda, Verona, Rovereto, Trento and Ora. In total, the summer timetable includes 10 Frecce trains per day travelling between Rome and Bolzano along with 2 Frecce trains per day between Milan and Bolzano. Two new connections over the weekend – with a couple of Frecciarossa round-trips – travel from Naples, Rome, Florence, Bologna, Reggio Emilia and Milan to Oulx and Bardonecchia. This summer, the Frecciarossa will also travel for the first time between Florence and Puglia, between Caserta, Benevento and Florence, and between Bologna and Milan – without needing to change trains. New for the 2021 summer timetable is the HS stop in Orte, which represents a development opportunity for the entire province of Viterbo, for Tuscia and Lazio. There will be two Frecciarossa trains connecting the main Italian cities with Orte, thus intercepting the streams of travellers from other locations such as Terni, Orvieto, Todi and Spoleto. The territories of Frosinone and Cassino are already included in the High Speed circuit, whilst the Frecciarossa stop in Chiusi-Chianciano Terme in Tuscany returns in the summer to reach the hills in the region's south, the Val d'Orcia and the Chianti Senese. For the summer, there are also four non-stop Frecciarossa connections between Milano Central and Rome Termini, with a travel time of 2 hours and 59 minutes. Connections with FRECCIALink are likewise operative. New in summer 2021 are 7 daily connections (on weekends) to Sirmione from the Desenzano sul Garda station and to visit the pristine Valleys. Starting up again this summer are the FRECCIALinks to reach the most beautiful mountain resorts in Italy, such as Madonna di Campiglio with departure from the Trento station, Cortina d'Ampezzo from Venezia Mestre, Val Gardena da Bolzano, Val di Fassa and the Val di Fiemme from the Ora station. Confirmed are the routes to the cities of art (Assisi/Perugia from Florence and Potenza/Matera from Salerno).

Intermodality: connections with ports and airports

By choosing regional trains, it is possible to reach directly or via integrated train + bus a good 15 airports and 17 ports throughout Italy. There are direct connections to the airports of Trieste, Roma Fiumicino, Cagliari Elmas, Palermo Punta Raisi, Ancona Falconara and Catania Fontanarossa and to the ports of Palermo Giachery, Genoa, Trieste Marittima, Messina Marittima, Piombino Marittima, Genoa, Villa San Giovanni, Cagliari, Golfo Aranci, Salerno, Savona, Bari, Termoli and the Venice Cruise Terminal. The intermodal train + bus solution makes it easy to reach the airports of Treviso, Pisa, Florence, Roma Ciampino, Lamezia Terme, Naples, Verona, Olbia and Alghero as well as the ports of Civitavecchia, Naples and Formia without any hassle or the need for private transport.

Special rates

For those who choose to stay in Italy and spend their holidays discovering the national territory, Trenitalia has dedicated offers in store for travelling aboard Frecce, Intercity and regional trains. For trips scheduled for summer 2021, special rates and reductions are available. To travel without bounds on all regional trains and to every destination on weekends, between noon on Fridays and noon on Mondays, there is the Estate Insieme (Summer Together) promo for 39 euro for four weekends or 99 euro for all weekends. Throughout summer 2021, children and teenagers aged up to 15 years travel free on regional trains with the Junior promo when accompanied by a fare-paying adult over 25. To organise a personalised tour to discover the Bel Paese via regional train, the summer timetable's Promo Plus offers unlimited travel for 3 days at just 29 euro or for 5 days unlimited for 49 euro. If you have a regional pass, rather, two people can travel anywhere for the price of a single ticket.

Catering services

The catering services aboard the Frecce trains resumes, after having been temporarily suspended or limited due to the health emergency. The new EASY BISTRÒ catering service, available on the main Frecciarossa and Frecciargento connections with a particular focus on lunch and dinner times, allow you to comfortably consume complete menus or enjoy products from the bar/bistro in your seat, purchasing the goods directly from personnel passing through the carriages or by placing an order through the FRECCE Portal and paying for your goods on delivery.

Integrated mobility

Trenitalia strengthens the integration of train travel with other modes of transport to ensure the development of sustainable tourism and urban mobility. With a single Trenitalia + SNAV combined ticket, it is possible to reach Naples by train then board the SNAV fast ships for the Aeolian Islands and the islands throughout the Gulf of Naples. Particular attention is also paid to soft mobility. Those who use the train for longer journeys can avail of bicycles, electric scooters and other ecological vehicles for the first and last mile to and from the stations. Folding bicycles and scooters (electric and non-electric), hoverboards and unicycles can also be taken aboard regional trains at no extra cost. The dimensions permitted have even been expanded to include the maximum number of bicycles on the market. In addition, on the new regional Rock and Pop trains, there are more spaces dedicated to two-wheelers and charging ports for electric vehicles. There are likewise spaces for bicycles on the Intercity trains. There are a whole host of services offered by Trenitalia thanks to the collaboration with the operators of shared mobility. Partnerships have been activated with Bird and Helbiz, as operators of sharing services for scooters and electric bikes, with Cooltra, an e-scooter sharing operator present in Rome and Milan, and with Wetaxi, the taxi-calling app. And in 25 cities, there is also a partnership with the BicinCittà bike sharing service. Thanks to the agreement with Fiab, regional transport customers can benefit from a minimum discount of 10% in any of the Albergabici hotels. Trenitalia customers who rent a car after travelling on board the Frecce, Intercity, IntercityNotte, Eurocity or Euronight trains can also avail of the exclusive offers from AVIS Budget Group.What's more, a plethora of new services will be activated in the summer, designed to support the restart of tourism: make luggage easy with Zyppy.it – the new baggage-forwarding service allows Trenitalia customers to travel light as their baggage awaits them directly at their destination – by taking advantage of exclusive rates dedicated to Trenitalia customers. Then there is the new luggage storage service with Stow Your Bags, offering automated lockers in deposits located near the stations, where luggage can be left so you can fully and freely enjoy the beauty of Italian cities, taking advantage of discounted rates dedicated to Trenitalia customers and to CartaFRECCIA holders.

Denmark

Alstom wins largest railway contract in Denmark's history

Alstom, global leader in smart and sustainable mobility, has won the largest train tender in Danish rail history. Part of a landmark framework agreement with Danish State Railways (DSB) valued at a total of €2.6 billion, the first firm order of 100 Coradia Stream regional trains as well as a 15-year full-service maintenance agreement amounts to a value of €1.4 billion. The framework agreement includes an additional 15 years of maintenance services and the possibility to order additional trainsets.

Delivery of DSB's "Fremtidens Tog – Nye Tog" (Trains of the Future – New Trains) is scheduled to begin in the last quarter of 2024. Once in service, this new fleet will operate as a regional and fast rail service and connect Denmark's Frederikshavn region in the north to Rødby in the southeast after passing through the capital city of Copenhagen.

"We are of course extremely pleased that DSB has selected Alstom to build their 'Trains of the Future'. This further cements Alstom's position as the reliable, world-leading train manufacturer of choice. At the same time, we already have a number of long-term maintenance agreements around Europe, which means that we come with a robust services set-up that supports the fleet's reliability," said Rob Whyte, Managing Director of Alstom Nordics.

The Coradia Stream for DSB has been specially adapted to meet the needs of the Danish rail network and its top speed of 200 km/h will help ensure swift mobility across the country. Each trainset will consist of five single- deck coaches with a total seating capacity for 300 passengers. The trains will be pre-fitted with Alstom's Atlas onboard ETCS Baseline 3[1], as well as an STM[2] interface enabling it to operate on Denmark's legacy signalling system.

"Once in service, Coradia Stream will deliver an exceptional travel experience. This modern, premium quality, and stylish electric train combines innovation, sustainability and high comfort – something we look forward to presenting to passengers in Denmark," says Rob Whyte.

Coradia Stream is a state-of-the-art, low-floor, high-performance electric multiple unit (EMU). This standardised train is a single, versatile platform which meets today's demands of regional & intercity transport. Coradia Stream offers a modular design to allow operators to choose the configuration and interior that work best for their market and commercial strategy. In total, almost 400 trains based on the Coradia Stream platform have already been ordered by Italy, Luxembourg, and the Netherlands, ensuring the trains are a well-proven product. The platform offers emission-free solutions such as battery or hydrogen for non-electrified lines. A special high-capacity solution completes the portfolio. In addition, Alstom's sustainable approach to services considers the entire life cycle of the product, from initial design to end of life, which will maximize the value of DSB's assets.

Alstom will assemble the trains for DSB at its site in Salzgitter, Germany.

[1] European Train Control System Baseline 3
[2] Specific Transmission Module

Photo: Coradia Stream for DSB, exterior view. © Alstom Design&Styling

Brasil

Rio de Janeiro's tramway completes five years of operation

On completing five years of operation this June, Rio de Janeiro's tramway (known as VLT) has figures representing its importance for mobility in the capital city. During this period, the system manufactured by Alstom transported more than 73 million people on over 760,000 trips, with a total of four million kilometers traveled in the Downtown and Porto Maravilha region, integrating into the city's mobility with the metro, suburban trains, buses, ships, ferries and the Santos Dumont airport.

When the VLT Carioca consortium ordered the manufacture of the trains in 2013, Alstom chose the Citadis tramway, which is 100% free of catenaries (distribution system and overhead power supply), which preserves the city's landscape. This, in fact, was the second city in the world to use this technology, after Dubai in the United Arab Emirates.

Based on a smart mobility concept, the VLT is powered by the Automatic Power System (APS), owned by Alstom. It is a system composed of two shoes (or power collecting pads) located at the bottom of the train, and when the vehicle passes through the locations where the Power Box equipment is installed (about 1,100), the corresponding APS rail segments are energized and power is supplied to the vehicle. There is also a set of supercapacitors that store and supply power to the vehicle in places without energized rails or in the event of a localized failure, up to the next power point, which eliminates the need for external wires, and consequently, enhances the architecture and city landscape. This is a technology first launched in Bordeaux, France, in the early 2000s, and has already been deployed in several other cities around the world. The trains used in the city of Rio de Janeiro also use fully renewable energy, with zero CO_2 emissions.

For Pierre Bercaire, General Director of Alstom Brasil, the tramway brought more mobility options to the city's population. "Alstom celebrates the five years of the Rio de Janeiro tramway knowing that, every day, thousands of passengers have a better life thanks to this transport system. During this period, we made a commitment to the city of Rio de Janeiro and worked to maintain this innovative operation that generates benefits for people, both residents and tourists who travel around the city," comments Bercaire.

Inaugurated for the 2016 Rio de Janeiro Olympics, the structure is divided between three lines (with 29 stops) and has a fleet of 32 trains with capacity for 420 passengers each. "The tramway allows the city to develop sustainable mobility, in addition to rethinking and modernizing urban areas and preserving the architectural heritage," adds the executive.
Photo: Rio Tramway. ©Marcelo_Photocarioca

Mexico

Alstom-Bombardier led consortium to supply Tren Maya railway project

The consortium made up of Alstom Transport Mexico, Bombardier Transportation México, Gami Ingeniería e Instalaciones and Construcciones Urales Procesos Industriales, will supply Mexico's Tren Maya, a large-scale intercity railway project that is set to transform sustainable mobility in the country. The total value of the contract comes to approximately €1.3 billion (over Mex$31 billion). The portion for Alstom-Bombardier amounts to nearly €1 billion. The winning bid was announced on May 26th by the National Fund for the Promotion of Tourism (Fonatur), after its technical committee endorsed the consortium's operational, technical, and economic proposals. The factors that determined Fonatur's decision to select the winning consortium were cost, degree of national integration, delivery times and design proposals.

"We are extremely proud to have been selected to supply the Tren Maya – a train for Mexico, built in Mexico – as well as its full signalling system. The design of the three types of trains - Xiinbal, Janal and P'atal - is exclusive to Mexico and inspired by the Mayan culture, where the majestic jaguar's lines, speed and beauty were inspirational elements for the train. The manufacturing of the Tren Maya will begin immediately, with Mexican labour, after the signing of the contract," said Maite Ramos, General Director of Alstom México.

The consortium led by Alstom-Bombardier will be responsible for the design, manufacture and commissioning of 42 X'trapolis trains, as well as the full signalling system including the design, supply and installation of the ETCS[1] onboard technology and over 1,500 km of trackside equipment including ETCS, interlocking, traffic management and telecommunications systems, leveraging the complete Alstom portfolio. Moreover, the consortium is responsible for the construction of the maintenance workshops and garages and the after-sales service of the system's equipment. Alstom's new X'trapolis model for Tren Maya will leverage the group's manufacturing and engineering potential to produce a train that is up-to-date, competitive and reliable in the long term, based on trains which have already proven their merits. The X'trapolis train is a robust platform with a modular interior - all configurations are possible from the same lightweight bodyshell. 5500 X'trapolis cars have been ordered so far in the world.

This train will also use components and expertise contributed by the former Bombardier, the most outstanding being its lightweight Flexx Eco bogie, designed for a maximum speed of 176 km/h. More than 8,300 units of the same bogie model have been ordered or delivered to date in countries including Saudi Arabia, Sweden, Norway, Germany, and most notably in the United Kingdom. The consortium will offer the X'trapolis in three distinct configurations: the first in a flexible and comfortable standard service set-up (Xiinbal); the second prioritising restaurant cars (Janal); and the last in long-distance sleeper configuration (P'atal). All versions offer passengers ample legroom at their seats and plenty of space to move around. Passengers will have more than enough room to store their luggage, with overhead racks borrowed from Alstom's intercity train Coradia, and vertical racks in each car. Since the floor is flat throughout, passengers with reduced mobility will have full liberty of movement. In the X'trapolis, passengers will benefit from high-performance HVAC and wide windows onto the breath-taking scenery of the Maya region.

Alstom is a major supplier of onboard and trackside ETCS equipment, representing 70% of the world's onboard rail systems in service and 18,000 kilometres of track worldwide and bringing significant advantages in terms of maintenance cost savings, safety, reliability, punctuality and traffic capacity. Tren Maya is a comprehensive 1,525-kilometre mobility project that aims to develop and connect the southeast of the country with the Yucatán Peninsula, and will be a great boost to mobility and economic growth in this region of Mexico. Overall, the project will generate 4,500 direct and 7,500 indirect jobs, which will generate significant economic development for the community. Alstom will manufacture the 42 trains at its Ciudad Sahagún Hidalgo plant.

[1] European Train Control System

Luxembourg

Luxembourg Railways chooses Alstom to equip 34 new Coradia trains with Automatic Train Operation system

Luxembourg's National Railways (CFL) have chosen Alstom to equip the 34 new Coradia regional trains, ordered in December 2018, with an Automatic Train Operation (ATO) system. The high-capacity double-deck trains will be equipped with the latest automation technology and will gradually enter commercial service on Luxembourg's national network, as well as in Belgium and France, at the end of 2021. It will be the first time in Europe that a regional train fleet is equipped with ATO at Grade of Automation level 2 (GoA2) in combination with ETCS.

"Automatic operation will make a decisive contribution to the development of a modern, attractive railway network. We are proud to work with CFL to offer this European first." Bernard Belvaux, Managing Director of Alstom Benelux

ATO is a digital system that enables varying degrees of automation of trains and aids train drivers in performing some of their tasks. Four levels of automation have been defined. The higher the degree of automation (Grade of Automation or GoA), the greater the number of tasks the system can handle. GoA4 is the highest level of automation without a driver on board, as on some metro lines. Benefits of ATO include increasing the density of trains on the network, saving energy, improving punctuality and increasing the level of safety by limiting human error.

The Coradia Stream trains for CFL will be equipped with the ATO Level GoA2 automatic operation system. GoA2 involves fully automated starting, driving and stopping, with a driver who can intervene in the event of an emergency. It increases the capacity of the network by reducing intervals between trains and saves energy by regulating traction and braking forces. The ATO GoA2 equipment will be installed on CFL's trains at Alstom's Signalling Centre of Excellence in Charleroi, Belgium.

"In the future, automated trains will optimise regional rail operations, reduce energy consumption and increase passenger comfort," explains Bernard Belvaux, Managing Director of Alstom Benelux. "Automatic operation will make a decisive contribution to the development of a modern, attractive railway network. We are proud to work with CFL to offer this European first."

Alstom has a strong track record in fully automated, driverless metro operation. Alstom, whose ambition is to automate trains on mainline networks, is leading the European ATO project as part of Shift2Rail, the joint undertaking supported by the European Commission. Alstom is also in charge of GoA3[1] tests on regional passenger trains in Germany and GoA4* tests on shunting locomotives in the Netherlands.

[1] Level GoA3 refers to fully autonomous driving and opening and closing doors, but with accompanying staff who can intervene in an emergency. Level GoA4 refers to unmanned operation of the train, but with the possibility of remote control.

Poland

PCC Intermodal Invests in four electric Traxx locomotives from Alstom

On June 29th, 2021 PCC Intermodal SA, the leading intermodal operator, and Alstom signed a contract for the delivery of four brand new Traxx MS3 multisystem locomotives together with the provision of full maintenance service. PCC Intermodal SA has contracted Alstom for the delivery of four electric locomotives in line with "The Operational Programme Infrastructure and Environment", Activity 3.2 where low emission transport solutions are approved and promoted.
The locomotives are to support operation of developing transport projects, allow smooth and fast cross border containers shipments for further intermodal network growth and will be part of the intermodal solution for Baltic-Adriatic corridor. The contract covers the production of the locomotives, the certification, the training of PCC Intermodal personnel and the provision of full maintenance service. It includes in addition the option to order one additional locomotive. The Traxx MS3 locomotives will be used in cross-border operations between Poland, Germany, Austria, the Czech Republic, and Slovakia. All four locomotives shall be put into operations before end of 2022. The MS version can be used under the four voltages commonly found in Europe and belongs to the Traxx, the most modern four axle locomotive platform in Europe. It consists of the Traxx AC3 (alternating current), the Traxx MS3 (Multi-System, for all main currents in Europe) and the Traxx DC3. The Traxx platform has been introduced 15 years ago and more than 1,750 locomotives are in operation in Europe.

"The contract with Alstom, under which PCC Intermodal orders four multimodal locomotives is the next step ahead to develop regular network of intermodal connections. For sure efficient railway modes are the key element to improve the service quality, enabling to face up the transport market demand and requirements." – says Adam Adamek, Vice President of PCC Intermodal SA.

"We are very happy that signing contracts and deliveries of modern locomotives and new rail platforms take place during the European Year of Rail. We truly believe that intermodal transport is one of the most important factors of sustainable development. This is really great that PCC Intermodal with Alstom locomotives can be a part of this modern, trans-European transport system and that we can play active role in the European Green Deal Project" – admitted full of optimism Dariusz Stefański, CEO of PCC Intermodal SA, during the contract signing in Warsaw.

"We are proud that our four Traxx MS3 locomotives will join PCC Intermodal SA fleet next year. Let's not forget that Traxx MS3 locomotives are based on the newest, most modern and innovative locomotive platform." Sławomir Nalewajka, Managing Director Poland, Ukraine and Baltic States at Alstom.

"This locomotive is characterised by its energy efficiency, its proven ability to pull higher loads than comparable locomotives, its simplified interface with the European Train Control System and improved maintainability" – underlines Sławomir Nalewajka, Managing Director Poland, Ukraine and Baltic States at Alstom.

"We are very proud and thank PCC Intermodal SA for having chosen the most modern Traxx MS3 locomotive for its intermodal transport within the European core network. We are convinced that the Traxx MS3 locomotive will strengthen PCC's Intermodal market position and improve their economic and ecological footprint" – says Peter Ammann, Head of Customer Management Locomotives at Alstom.

Spain

Alstom and Fundación ONCE renew their collaboration agreement to continue building a more accessible and universal mobility

Alstom and Fundación ONCE have renewed the collaboration framework agreement that began in 2019, to promote the social inclusion of people with disabilities in rail mobility. In these two years, both entities have collaborated to develop more accessible and inclusive projects, including the new Barcelona Metro and the future High Capacity commuter trains for Renfe. In addition, Fundación ONCE has become a strategic advisor to Alstom worldwide.

The extension of the agreement was signed by José Luis Martínez Donoso, General Director at Fundación ONCE, Reyes Torres Vicent, Human Resources Director for Alstom Spain and Portugal and Jaime Borrell Botella, Business Development Director for Alstom Spain and Portugal.

This extension provides continuity to the mobility projects initiated two years ago, with a focus to improving the usability and comfort of people with disabilities and elderly adults, as well as focusing on the development of smart mobility solutions. Alstom and Fundación ONCE have established a strategic cooperation and have launched research, development and innovation projects to adapt all railway solutions to the accessibility needs requested by passengers.

"At Alstom, we have found a partner firmly committed to developing inclusive and adapted mobility solutions for all types of passengers. We share a common objective and the constant search for innovative solutions in terms of accessibility." José Luis Martínez Donoso, CEO of Fundación ONCE

Cooperation between entities
Fundación ONCE and Alstom have collaborated in developing different proposals and projects to ensure accessibility and usability by passengers with all kinds of specific needs. These projects include the high-capacity commuter trains for Renfe, recently awarded to Alstom and the new-generation metros for TMB, currently in production
.
Jaime Borrell, responsible for business development for Alstom in Spain, emphasises that, "this is not only a local alliance, we have also been able to export several advances and initiatives to other teams. Thanks to the collaboration with Fundación ONCE, Alstom Spain has become a reference in accessibility within the group worldwide."

In fact, in 2020, the Alstom Group recognised this collaboration as a best practice in Diversity and Inclusion within the company.

"With the concept of Universal Design, we develop solutions that are accessible and easy to use for the entire population. Inclusion is also a fundamental pillar in our company and one of our corporate values. We design inclusive mobility solutions in a work environment and culture where all differences are embraced, respected and leveraged without any bias," explains Reyes Torres, Human Resources Director at Alstom in Spain and Portugal.

As part of this collaboration agreement, Alstom has also started working with Inserta Empleo, an entity specialising in training, employment and consulting programs to promote labour market integration of people with disabilities.

Azerbaijan

Alstom successfully commissioned first 7 freight locomotives in Azerbaijan

One of the most powerful electric locomotives in the world, contributing to regional railway interconnection

Alstom has successfully commissioned the first 7 Prima T8 AZ8A freight locomotives to Azerbaijan Railways (ADY). These locomotives will run on the main freight transit line, which has recently been converted from 3 kV DC to 25 kV AC.

“We are happy that our locomotives entered into commercial operation in Azerbaijan. Despite the important challenges imposed by the global pandemic we have been able to produce, conduct all necessary validation tests and deliver ready-to-run locomotives. It is a significant milestone of this key project that we are developing jointly with our partner ADY. With its strategic location, at the crossroad of the Silk Roads, this project aims at developing the railway infrastructure of the whole region. Our locomotives play a key role in boosting the freight transportation capacity within Azerbaijan, furthermore they also contribute to the ambitious goals of the country to interconnect the neighbouring countries. We are very enthusiastic and we are looking forward to developing further our strong partnership with ADY.” said Guillaume Tritter, Managing Director of Alstom in Western and Central Asia.

The Prima T8 AZ8A locomotives will be running initially on the “Silk Road” East-West corridor of Azerbaijan linking the Caspian Sea main ports to the Georgian border and later all across the country.

In 2014, ADY signed a contract with Alstom for €288 million for supplying 50 electric locomotives, including 40 Prima T8 AZ8A heavy freight locomotives which are being produced at Alstom’s JV EKZ in Nur-Sultan, Kazakhstan and 10 Prima M4 AZ4A passenger locomotives which have been produced in Belfort, France and already delivered to Azerbaijan.

Alstom’s Prima T8 is one of the most powerful electric locomotives in the world. This model is a 25 tons per axle two-section freight locomotive capable of towing up to 9,000 tons and running at 120 km/h, with installed continuous power of 8.8 Megawatts.

The Prima T8 AZ8A is designed to operate in temperatures ranging from -25°C to 50°C. It requires minimum maintenance and provides high reliability levels and low lifecycle costs thanks to its modular design.

Alstom’s Prima range is covering all market segments of locomotives from heavy-haul, freight and passenger operation and shunting or track work operation. Over the past 20 years, more than 3,200 Prima locomotives (more than 4,600 sections) have been sold worldwide.

Alstom is present in Western & Central Asia with more than 1,000 people, three country offices in Kazakhstan, Azerbaijan and Uzbekistan, five depots, repair center and two plants, EKZ in Nur-Sultan for electric locomotives manufacturing and maintenance and production of on-board transformers, and KEP in Almaty to produce point machines. Alstom is a major contributor to the revitalization of the region’s mobility industry and the development of its economy.

EKZ, a joint venture of Alstom, employs around 850 people and is working on supplying and maintaining the Prima electric locomotives ordered by KTZ, Kazakhstan’s national railway company and export markets, like Azerbaijan.

Poland

Coradia iLint: Alstom presents the world's first hydrogen passenger train in Poland

TheCoradiaiLint,world'sfirsthydrogenfuelcellpassengertrain,manufactured by Alstom, world leader in green and smart mobility, has made its debut on the Railway Research Institute's test track in Żmigród, near Wrocław in Poland.

Over two days, Alstom teams are presenting the train to a variety of local stakeholders,includingregionaloperators,transportauthorities,government decision-makers and leading media, in order to highlight the potential of the Coradia iLint for sustainable transport in Poland. The showcase comes in the wake of the announcement of Poland's National Recovery Plan, which includes provisions for the introduction of thirty low-emission trains for Polish regional operators by 2026.

Alstom Coradia iLint is the world's first and only operational passenger train powered by hydrogen fuel cells. This completely emission-free train is quiet and emits only water vapor and condensation. The train features several different innovations: clean energy conversion and efficient energy supply and storage system combined with intelligent energy management. Designed specifically for use on non-electrified lines, it enables clean, sustainable train operations.

"The Coradia iLint trains represent a huge opportunity for Poland to reduce CO2 emissions and even decarbonise rail transport. Thanks to hydrogen-powered public transport, regional operators can be beacons of modern mobility, as experienced recently in Germany, The Netherlands and Austria – that have tested and are implementing or planning to implement hydrogen trains. If Poland builds refueling stations and announces tenders for hydrogen trains, Alstom Konstal site will have all the tools necessary to manufacture such a fleet. The Coradia iLint is an exact copy of the best-selling Coradia Lint, which has been produced in Chorzów. The only difference is propulsion; diesel is replaced by fuel cells, which guarantee emission-free transport," said Sławomir Nalewajka, Managing Director of Alstom in Poland, Ukraine and Baltics.

Sustainable mobility without compromise
The world's first hydrogen train was built by Alstom in Salzgitter, Germany whereas body shells are produced at Alstom Konstal site in Katowice, Poland. The train is based on the service-proven diesel train family Coradia Lint. Replacing the diesel traction by fuel cell technology allows completely clean train operation with a performance matching that of regular Coradia Lint diesel multiple units, which means these trains can operate the same timetable as the diesel ones. Likewise, passenger capacity can reach 300 passengers and the train has a range of 1,000 kilometres, as already demonstrated during daily operational service.

Hydrogen trains for non-electrified routes
The Coradia iLint hydrogen train is specifically designed for use on non-electrified routes. Across the European Union, almost half (46%) of railway is not electrified, which leaves lines that require diesel or alternatives – e.g. hydrogen. Coradia iLint uses the existing infrastructure without the need to invest in electrification. This is important for low density lines. It provides clean and sustainable train operations while maintaining a high level of performance. This is of great importance for the environment – replacing one diesel regional train with a hydrogen train will reduce the yearly CO2 emission equivalent to 400 cars.

Hydrogen conquers the rails
The world's first two hydrogen trains successfully operated for one year and half between 2018 and 2020 in regular passenger service in Germany and covered more than 180,000 kilometres. Alstom has already sold 41 of these hydrogen-powered trains in Germany in order to replace the existing diesel fleet. The first hydrogen series trains will be in regular service in Germany from 2022.

In Italy, Alstom will supply 6 hydrogen fuel cell trains, with the option for eight more, to FNM (Ferrovie Nord Milano), the main transport and mobility group in the Italian region of Lombardy. In France, SNCF Voyageurs has placed an order with Alstom for the first 12 Regiolis hydrogen trains.

In addition, the Coradia iLint has been successfully tested in the Netherlands and in Austria. Last autumn Coradia iLint ran for three months in regular passenger service for the Austrian Federal Railways (ÖBB) on regional railway lines in the south of Lower Austria replacing a diesel train.

Direction sustainable mobility
Alstom is the pioneer of sustainable and smart mobility with full portfolio of green mobility solutions, world-first hydrogen train (Coradia iLint), as well as battery electric trains (e.g. Coradia Continental BEMU). The innovative hydrogen technologies implemented by Alstom have been recognised by the industry. In 2021, world's first hydrogen train Coradia iLint was honoured with the European Railway Award 2021. Alstom together with its partners has proven that hydrogen propulsion is a reliable and emission-free alternative to diesel-powered regional trains on non-electrified lines.

Hydrogen: a substantial opportunity for Poland
Poland's hydrogen market is substantial as Poland is the fifth largest producer of hydrogen worldwide. It produces 14% of all hydrogen generated in Europe, which is used predominantly in industrial processes. Demand for this type of fuel is growing steadily and hydrogen could become a viable, clean and widely available source of energy. As an important hydrogen producer in Europe, Poland has the opportunity to take advantage of this trend and develop its own technological and industrial solutions and to export hydrogen to other countries, e.g. Germany, which was the first in Europe to introduce hydrogen technology train for commercial use.

U.S.A.

Alstom to provide new signalling technology and other upgrades for Metromover automated people mover system in Miami, Florida

Alstom has been selected by the Miami-Dade County Department of Transportation and Public Works to provide its state-of-the-art Cityflo 650 Communications-Based Train Control (CBTC) solution for the Miami-Dade Metromover system. Under the approximately €120 million contract (around USD 140 million), Alstom will also replace or refurbish the power distribution system, the Supervisory Control and Data Acquisition (SCADA) System, guideway switches and other elements that make up the Metromover system, and introduce new features that will increase reliability and availability, lower maintenance costs, and enable more efficient operation while maximizing passenger safety.

Opened in 1986, the Miami-Dade Metromover system was the first urban application of the Westinghouse Automated People Mover (APM) technology, which is now part of the Alstom product portfolio. Over the years, the system has been expanded and the vehicle fleet has been replaced but some of the major subsystems are reaching the end of their design life.

"We are pleased to be supporting Miami-Dade County in modernizing the iconic Metromover system, which has been serving area residents and visitors for 35 years, and to be helping the County meet its future mobility requirements," said Jérôme Wallut, President, Alstom Americas. "This contract reinforces Alstom's position as one of the world's leading suppliers of CBTC technology."

The Cityflo 650 solution has been designed to meet the most stringent safety, reliability, maintainability, and availability requirements. The technology also allows a high degree of operating flexibility to accommodate peak passenger demands and will be able to connect with future mobility projects in Miami.

The first ever radio-based moving block CBTC system, Cityflo 650 was first installed in 2003 on the APM system at San Francisco International Airport. Today, the Cityflo 650 solution has been adopted on more than 30 rail lines worldwide, with nearly another 30 under implementation.

The Cityflo CBTC technology was developed in Pittsburgh, Pennsylvania. The Metromover signalling upgrade will be led out of Pittsburgh with many of the experienced CBTC developers participating, supported by a local team that will manage the project execution phase. Alstom's Miami-Dade local partners and subcontractors, including nearly a dozen Disadvantaged Business Enterprise firms, will round out the highly qualified team.

Alstom will bring and leverage its turnkey approach to the project to ensure the system's signalling, communications and wayside elements are fully integrated, and that the delivery schedule is optimized. Alstom is a global leader with 50 years of proven experience in the successful design, construction, commissioning, operations and maintenance of complete automated people mover systems for cities and airports around the world. In the U.S. alone, this includes systems in Atlanta, Dallas/Fort Worth, Denver, Houston, Las Vegas, Miami, Orlando, Phoenix, Pittsburgh, Sacramento, San Francisco, Seattle, and Tampa.

Photo: New signalling technology for Metromover APM system in Miami. ©Alstom

Australia

Alstom brings train manufacturing back to life in Western Australia

On June 7th, Alstom commenced operations at METRONET's brand-new train manufacturing facility in Perth, Western Australia (WA). The site opening, attended by WA's Premier, Mark McGowan and Minister for Transport, Rita Saffioti, is a watershed moment for rail manufacturing in WA, effectively restarting the industry in the State.

The project will create around 200 Western Australian Jobs including apprentices and aboriginal workers to manufacture, test, commission and maintain 41 x 6-car electric (EMU) and 2 x 3-car diesel (DMU) trains, which includes 20 years maintenance of the EMU trains and maintenance support services for the DMU trains. The fleet of 43 trains will be built with the support of a thriving ecosystem of local suppliers, contractors and equipment vendors. Alstom has committed to 50% local content for the vehicles, bringing additional flow on benefits beyond the delivery of the trains to the WA economy.

"Alstom is delighted to begin operating METRONET's brand-new train manufacturing facility in Bellevue, revitalising the rail industry in Western Australia." said Mark Coxon, Managing Director for Alstom in Australia & New Zealand.

"Over the coming weeks we will begin ramping up the production of these new trains in line with our commitment to deliver the latest rolling stock and maintenance technologies and develop the next generation of local, world-class railway manufacturing professionals" said Mark Coxon.

The project will see the transfer of the latest railway technologies and manufacturing processes to Western Australia, establishing one of the most technologically advanced train manufacturing and maintenance sites in Australia. Alstom will provide fast-tracked training and skills development programmes through dedicated partnerships with local TAFE and training organisations, creating a new generation of skilled railway manufacturing professionals.

The new C-Series trains will be more energy efficient and designed to accommodate future upgrades. Each train will have a capacity of approximately 1200 passengers and include three double passenger doors per car for enhanced passenger flows.

The new trains will be maintained at PTA's Nowergup depot and will utilise Alstom's innovative HealthHub predictive maintenance tools that will optimise the performance and reliability of the trains throughout their lifecycle.

From the Archives

Bulgaria

BDZ Russian built Nos. 07-123 and 07-020 provide super power for a train departing Panagyurishte for Plovdiv on May 2nd 2011. *John Sloane*

From the Archives

Cuba

FCC 50902 (a GM built in 1954) stands at Santa Clara with a train of somewhat primitive locally built 'Pioneer' stock on February 22nd 1985. *John Sloane*

From the Archives

France

SNCF BB No. 312 stands at Paris Gare de Lyon with an empty stock train on October 24th 1984. *John Sloane*

From the Archives

France

SNCF Z5 No. 170 departs Paris Montparnasse station on October 24th 1984, before the station was redeveloped for the second time. *John Sloane*

From the Archives

France

SNCF BB No. 16035 is seen at Paris Nord with a rush hour service to Lille on October 26th 1984. *John Sloane*

From the Archives

Germany

DB Class 150.020 passes Ingolstadt with a mixed freight working on August 2nd 1989. *Mark Enderby*

From the Archives

Germany

DB Nos. 194.080 and 194.031 stand at Ingolstadt on August 2nd 1989.
Mark Enderby

From the Archives

Hungary

MAV No. M63.003 passes Budafok in Budapest on October 12th 1988.
Mark Enderby

From the Archives

India

A view of Vadodara shed on March 14th 1976 with WG Class 2-8-2s Nos. 8161, 10403 and 9105 and an H Class 4-6-0 No. 24295. *John Sloane*

From the Archives

India

Metre gauge YDM3 diesel No. 6079 (GM 1962) is seen at Sabarmati marshalling yard on March 17th 1976. *John Sloane*

From the Archives

Ireland

CIE No. 190 stands at Waterford after arrival with a service from Dublin on April 1st 1996.
John Sloane

From the Archives

Italy

An ETR500 departs Venice Santa Lucia on October 18th 2011.
Mark Enderby

From the Archives

Morocco

ONCF No. E1317 stands at Marrakech in July 1995.
Mark Enderby

From the Archives

Poland

PKP Ty2-1114 stands at Nowy Targ, Poland on August 24th 1979. *Mark Enderby*

From the Archives

Poland

PKP No. Tkt 48-11 is seen at Scinawka Sredina with the branch train to Radkow on February 27th 1986. *John Sloane*

From the Archives

Portugal

CP No. 1218 stands at Faro station with an eastbound service on August 10th 1974.
John Sloane

From the Archives

Spain

FEVE Nos. 1662 and 1602 are seen stabled at Santander depot on June 3rd 2012.
John Sloane

From the Archives

Spain

Eusko Kargo electro diesel No. 2012 ‘Asua’ stands at Durango depot on June 8th 2012. *John Sloane*

From the Archives

Switzerland

SBB Re 4/4II No. 11239 calls at Geneva on June 4th 1995. *Mark Enderby*

From the Archives

Turkey

TCDD No. DE24080 stands at Konya on June 3rd 1997.
Mark Enderby

From the Archives

U.S.A.

Amtrak CF7 No. 585 is seen at Washington DC on April 9th 1994. *Mark Enderby*

From the Archives

U.S.A.

Amtrak's AEM-7 No. 931 waits departure time at Baltimore on April 9th 1994. *Mark Enderby*