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International railway fair in the area 1520 “PRO//Motion.Expo”*

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ABSTRACT The article reviews the framework work of the International Salon “PRO//Motion.Expo-2025”, held on August 28–31, 2025 in St. Petersburg in Russian Railway Museum and Baltiyskiy railway station. The event, organized by JSC Russian Railways every two years, has become a key platform for demonstrating the achievements of domestic and foreign railway engineering.

The salon program included “Business Days” (August 28–29) and “Open Road Days” (August 30–31) with workshops, lectures and an exhibitions of equipment. Over 130 companies, including JSC Transmashholding, JSC Sinara — Transport Machines, NPC United Wagon Company and foreign companies from China and CIS countries, presented their developments on an area of over 5,000 m^2. High–speed highways were especially important in the discussions: educational programs for training 500 specialists by 2028 was announced, and infrastructure solutions for the Moscow – St. Petersburg high-speed railway were presented. Emperor Alexander I Petersburg State Transport University demonstrated robotic platforms and interactive simulators. Treaties were signed, panel discussions on technological sovereignty and digitalization were held, and a dynamic exposition of historical rolling stock dedicated to the 80th anniversary of the Victory in the Great Patriotic War was presented. The railway fair confirmed the status of the largest exhibition in the 1520 railway zone.

KEYWORDS: “PRO//Motion.Expo”; JSC Russian Railways; HSR (high-speed railway); railway engineering; robotic platforms; digitalization; personnel training; international treaties

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Заметка

Международный салон «PRO//Движение.Экспо» 2025*

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АННОТАЦИЯ Освещена работа Международного салона «PRO//Движение.Экспо-2025», прошедший 28–31 августа 2025 г. в Санкт-Петербурге в Музее железных дорог России и на станции Санкт-Петербург Балтийский. Мероприятие, организуемое ОАО «РЖД» один раз в два года, стало ключевой площадкой для демонстрации достижений отечественного и зарубежного железнодорожного машиностроения.

Программа салона включала «Деловые дни» (28–29 августа) и «Дни открытых дорог» (30–31 августа) с мастер-классами, лекциями и выставкой техники. На площади свыше 5000 м2 представили разработки свыше 130 компаний, включая АО «Трансмашхолдинг», Группу «Синара», НПК «ОВК» и зарубежные фирмы из Китая и стран СНГ. Центральное место в обсуждениях заняла тема высокоскоростных магистралей: анонсирован запуск образовательных программ для подготовки 500 специалистов к 2028 г., представлены инфраструктурные решения для ВСМ Москва – Санкт-Петербург. ПГУПС продемонстрировал роботизированные платформы и интерактивные тренажеры. Также состоялись подписания соглашений, панельные дискуссии о технологическом суверенитете и цифровизации, динамическая экспозиция исторического подвижного состава к 80-летию Победы. Салон подтвердил статус крупнейшей выставки в зоне железных дорог 1520.

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КЛЮЧЕВЫЕ СЛОВА: «PRO//Движение.Экспо»; ОАО «РЖД»; ВСМ (высокоскоростная магистраль); железнодорожное машиностроение; роботизированные платформы; цифровизация; подготовка кадров; международные соглашения

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On August 28–31, 2025, the international railway fair "PRO//Motion.Expo" was held in St. Petersburg. JSC Russian Railways traditionally organizes it every two years. These forums are railway exhibitions, and, starting in 2019, they were held on experimental ring territory of the JSC Railway Research Institute (JSC "VNIIZHT") at Shcherbinka station near Moscow. Since 2023, the railway fairs "PRO// Motion.Expo" are held in St. Petersburg at the Museum of Russian Railways and on the tracks of the St. Petersburg Baltiysky railway station.

The 2025 international railway fair was attended by Oleg Belozerov, General Director and Chairman of the Management Board of JSC Russian Railways, Alexey Shilo, Deputy Minister of Transport of the Russian Federation, Kirill Polyakov, Vice Governor of St. Petersburg, Valery Tanaev, Deputy General Director and Chief Engineer of JSC Russian Railways, Sergey Saratov, Deputy General Directors of JSC Russian Railways and Evgeny Charkin, Rector of Emperor Alexander I Petersburg State Transport University Oleg Valinsky, Rector of Volga Region State Transport University Maxim Garanin, Rector of Irkutsk State Transport University Yuri Trofimov, Head of the Technical Policy Department of JSC Russian Railways Vladimir Andreev, General Director of JSC Transmashholding Kirill Lipa, General Director of JSC Sinara — Transport Machines Viktor Lesh, Director of SPB GUP GorElectroTrans Denis Minkin, Head of State Unitary Enterprise St. Petersburg Metro Evgeny Kozin and other officials.

Back in August 1845, the first batch of steam locomotives was produced in Russia for the railway between St. Petersburg and Moscow. Exactly 180 years later, from August 28 to 31, the St. Petersburg Museum of Russian Railways hosted the International Railway Salon "PRO//Motion.Expo". It celebrated the achievements of Russian railway engineering, including the production of locomotives.

The railway fair program was divided into two parts: "Business Days" and "Open Road Days". The first one took place on August 28 and 29. On August 30 and 31, the general public was allowed to visit the railway fair — guests could attend workshops, thematic lectures and an exhibition of ancient railway techniques.

General view of the open exhibition area of the railway fair "PRO//Motion.Expo" 2025.
Photo by Arkady Shapovalov, JSC Russian Railways Press Service

Railway fair "PRO//Motion.Expo" 2025.
The stand of JSC Firma Tvema.
Photo from Photobank of JSC Gudok Publishing House

Railway fair "PRO//Motion.Expo" 2025.
The stand of the Chinese electrotechnical company
Zhejiang Yonggui Electric.
Photo from Photobank of JSC Gudok Publishing House

About 70 samples of modern and rare railway equipment were demonstrated at the Museum of Russian Railways as a part of the railway fair. About 130 exhibiting companies, including foreign ones, presented their stands on an area of more than 5,000 m^2. Among these are JSC Russian Railways and the flagships of the Russian and global railway engineering: JSC Transmashholding, PTK Group, JSC Sinara — Transport Machines, NPC United Wagon Company, JSC Natsproektstroy, JSC Firma Tvema, JSC RPC INFOTRANS, JSC Research and Design Institute for Information Technology, Automation and Communication in Railway Transport, JSC Radioavionika and other large manufacturing and technological enterprises from Russia, China and the CIS countries. Railway-profiled universities also presented their achievements at the exhibition.

High-speed rail traffic is a key direction in the development of our country's land transport. Oleg Belozerov, General Director and Chairman of the Management Board of JSC Russian Railways, and Alexey Shilo, Deputy Minister of Transport, discussed this in detail in their speeches.

To date, 23 regulations on the construction and operation of the high-speed railway have been adopted. They cover the rules of technical operation, requirements for rolling stock, rights and obligations of infrastructure operators, etc. Basically, legislation for highways with speeds exceeding 300 km/h is being adopted. The concept of HSR is official in Russian Federation with a law that came into force on September 1, 2025.

This year has really been breakthrough for the HSR sector — the implementation of the highway project between the two main cities of the country has begun. The Moscow—St. Petersburg high-speed railway has become the most important topic of discussion at the salon as a priority national project. Ballast-free plates

The meeting devoted to the issues of high-speed rail traffic, held under the motto: "High-speed rail in Russia: transition to a new technological order. The challenges for the industry are the potential for the country". General Director and Chairman of the Management Board of JSC Russian Railways, O.V. Belozerov, takes the floor. August 29, 2025
Photo Photobank of JSC Gudok Publishing House

A model of a Russian high-speed electric train
for the Moscow–Saint Petersburg high-speed railway.
Photo from Photobank of JSC Gudok Publishing House

and other road and infrastructure solutions applicable to high-speed railways were demonstrated. Chinese colleagues also "see the potential in the high-speed highway space as a market for high speeds and innovative components" and expressed a desire to assist in the implementation of the ambitious project of the Russian Federation. For example, Chinese partner companies Sinomac and RailMac (they demonstrated their traction equipment, battery system and digital solutions during the railway fair), showed interest in the 1520 market and their solutions adaptation to Russian conditions, such as cold climate.

The past has not been forgotten either. Thus, the ROLLINGSTOCK Agency prepared a magazine with a review of the "World of High-speed Trains" specifically for the railway fair. It presented a kind of retrospective of the HSR from the 1960s to 2025.

HSR is not only a transport project, but also a system platform. It requires simultaneous standards development, technical and digital solutions adoption, and, finally, personnel training. In this regard, the Ministry of Transport announced new educational programs: first engineers of the relevant profile are expected to graduate in 2 years, and by 2028 at least 500 specialists should be trained. The panel discussion for discussing these complex tasks was established in PRO//Motion. PRO//Education. Research Bridge", held within the framework of the International railway fair "PRO//Mo-

Concrete slab of ballast–free contracting of the Moscow – Saint Petersburg HSR route.
Photo from Photobank of JSC Gudok Publishing House

Participants of "Research Bridge" panel discussion. Photo by Daria Korshunova

"Research Bridge" panel discussion. Oleg Valinsky, an expert of the panel and rector of the Emperor Alexander I Petersburg State Transport University is speaking. Photo by Daria Korshunova

tion.Expo" August 28, 2025 The key question is whether the education system is ready for the challenges of the HSR and how universities should transform in order to train specialists not only for current needs, but also for 2030+ technologies. Young researchers from Emperor Alexander I Petersburg State Transport University, Russian University of Transport, Irkutsk State Transport University, Volga State Transport University, Ural State University of Railway Transport.

The experts were Sergey Saratov, Deputy General Director of JSC Russian Railways, Evgeny Charkin, Deputy General Director of JSC Russian Railways, Vladimir Andreev, Head of the Technical Policy Department of JSC Russian Railways, Oleg Valinsky, Rector of Emperor Alexander I Petersburg State Transport University, Viktor Lesh, General Director JSC Sinara — Transport Machines, Maxim Garanin, Rector of Volga State Transport University, Yuri Trofimov, Vice-Rector of Ural State University of Railway Transport Oleg Balagin, Director of the Advanced Engineering School "VSM Academy AES" in Russian University of Transport Oleg Pokusaev. Together with the participants, they discussed if the education system is ready for the challenges of high-speed transport, as well as what, from the point of view of customers — key industrial partners of universities — should be the training program for high-speed communication. The issue of competencies students should have and requirements needed to launch the program was also raised.

"The focus is now on personnel training for the HSR. In order to succeed, we need different specialties and jobs, from workers to managers and engineers. Therefore, we work systematically in three areas of personnel training: working personnel — in technical schools, The Russian University of Transport and the Emperor Alexander I Petersburg State Transport University, management engineers — in the HSR Academy and ISKRA ("Integrated System of integrated distributed architecture") Advanced Engineering School. The JSC Russian Railways Corporate University will train current employees. The roadmap has been developed accordingly, and we are carefully following the points and deadlines in it. We are confident that we will be prepared for the launch of the HSR in terms of personnel for operating and managing the vehicles", Sergey Saratov, Deputy General Director of JSC Russian Railways, said.

We have fewer and fewer design engineers. We are in need of engineers who understand the technology. Systems engineers that already know how mechanisms work. And the technologies should be breakthrough, meaning it's pointless to waste research resources on something that someone else has been trying to create for a long time. Moreover, we have to formulate the task of these breakthrough technologies ourselves", Viktor Lesh, General Director of JSC Sinara — Transport Machines, declared.

Denis Kravchenko, moderator of the discussion and Editor-in-Chief of JSC Gudok Publishing House, while summing up the results, stressed that the forum turned out to be eventful and informative. Young researchers, together with front-line experts, have created an incredible symbiosis of science and practice. He thanked the young researchers and representatives of specialized universities for their presentations and projects, and also highlighted the contribution of experts who created the very research bridge between real production and science.

The St. Petersburg – Moscow high-speed railway is scheduled to be commissioned in 2028, and Denis Kravchenko expressed confidence that transport universities are keeping the situation under control and making efforts to successfully implement this large-scale project.

The St. Petersburg State University of Railways of Emperor Alexander I presented its developments at the exhibition: robotic platforms for the inspection of metal structures and industrial facilities, as well as interactive laboratory installations and 3D atlases.

The robotic inspection platform for metal structures was developed jointly by the staff of the Department of "Ground Transport and Technological Complexes" of Emperor Alexander I Petersburg State Transport University and LLC Robocont within the framework

The unmanned platform on a combined course "Sputnik-ZhD" (Sputnik railway platform) that was developed by specialists from Emperor Alexander I Petersburg State Transport University's Department of "Ground transport and Technological Complexes". Photo by Tatiana Arzamastseva

of the strategic academic leadership federal program "Priority-2030".

The device helps with diagnosing the technical condition of gantry cranes, overhead cranes and supporting elements of various structures. The robot is able to move under metal structures and overcome 90-degree bends along box-shaped beams.

Another robotic platform, RASTRUB, is designed for internal inspection of extended industrial facilities and pipelines with nominal diameters of 500–1200 mm. The device provides high-precision monitoring on long sections of highways.

The platforms are equipped with modern navigation tools and data collection systems, which makes them effective for monitoring the infrastructure and preventing emergencies.

The unmanned platform on a combined course "Sputnik-ZhD" (Sputnik railway platform) was developed by specialists from Emperor Alexander I Petersburg State Transport University's Department of "Ground transport and Technological Complexes". The prototype was created at the end of 2024. The design and elements of the combined stroke were manufactured at the Experimental Plant of the Oktyabrskaya Railway — Branch of JSC Russian Railways. It can be used to transport work crews, track mechanized tools, materials for high-speed trains, ultrasonic and magnetic monitoring of railway condition. When connecting several platforms, 12.5 m and 25 m rails can be transported.

It is convenient to use such self-propelled rolling stock, first of all, on low-intensity lines, as well as during repair work on closed tracks. The platform can move off the track on stages without any additional devices and devices and independently enter the rails. The movement of the device is provided by four traction electric motors powered by a high-power lithium battery. With a mass of about 1 ton, the platform can take the same load.

The digital technologies developed by Emperor Alexander I Petersburg State Transport University researchers aroused the keen interest of the transport industry specialists during the exhibition. For example, the University Branch Research Laboratory (ONIL) "Automation of maintenance, diagnostics and monitoring of harvester systems" showed interactive simulators and training manuals for builders, construction workers, wagon workers and track workers.

Simulators are, in fact, interactive 3D models that open up a lot of learning opportunities. Thus, the laboratory installation "Design and installation of a culvert" allows you to get acquainted with the stages of laying communications, as well as to understand what equipment and equipment are necessary for the safe performance of work. The Signaling relay equipment installation is designed to study the maintenance and components of electromagnetic relays. 3D atlases of freight wagons and railway tracks help to study the design of rolling stock and tracks, and then check how much knowledge has been acquired. At the same time, you can examine the device in detail, even see what is hidden for visual inspection.

It is also worth-noting how relations with foreign colleagues were strengthened during the "Business Days" of the forum. The exhibition is believed to be the largest in the 1520 railway zone (Russia + CIS) with the participation of foreign companies. Both Asian and European delegations participated. In total, seven agreements were signed, including one concerning cooperation between JSC Russian Railways and the State Association "Belarusian Railway".

The guests from China also presented the latest developments and expressed their opinion about the exhibits presented at the forum. "Over the four-day exhibition, exhibitors showcased cutting-edge technologies and innovative achievements in the railway transportation industry", Chinese edition of Emac wrote, noting the high level of the event and the productivity of discussions[1].

"PRO//Motion.The Expo" discussed the prospects for the development of railway engineering, especially in a multipolar world. Other issues highlighted were

[1] https://ccec-engine.com/deeply-cultivate-the-international-market-empowering-the-future-of-rail-focus-pro-motion-expo-2025-sinomac-exhibition-highlights-review/

The newest Russian locomotives and wagons: In the photo from left to right: a two-section multifunctional diesel vehicle of the Pioneer-Integral project, designed to diagnose infrastructure devices, by JSC Firma Tvema; EP2M suburban DC electric train by Demikhovo Machine-Building Plant; two-section electric locomotive with asynchronous traction electric motors 2TE35A by JSC Sinara — Transport Machines; main cargo electric locomotive of alternating current 2ES11 "Orlets" with asynchronous traction drive by Ural Locomotives LLC. Photo Photobank of JSC Gudok Publishing House

Retro equipment exhibition. A unique steam locomotive of the OP 7587 series, produced in 1907 at the Putilov Plant in St. Petersburg. August 29, 2025.
Photo Photobank of JSC Gudok Publishing House

Retro equipment exhibition.
The steam locomotive of the FD20-1675 series, produced in 1937 by October Revolution Voroshilovgrad Diesel Locomotive Construction Works. August 29, 2025.
Photo Photobank of JSC Gudok Publishing House

Theatrical performance "Victory" at the site of Russian Railway Museum. August 29, 2025. Retro equipment exhibition.
A unique steam locomotive of the OP 7587 series, produced in 1907 at the Putilov plant in St. Petersburg.
Photo Photobank of JSC Gudok Publishing House

the conditions for achieving Russia's technological sovereignty and mutually beneficial cooperation, as well as the introduction of new technologies, such as domestic production of locomotives, digitalization and unmanned transport systems. Unique domestic developments were presented during the event. Among them are specialized freight wagons, modern "smart" locomotives, updated first-class carriages and the latest T-size wagon for passenger transportation.

At the end of the railway fair, a dynamic exposition of historical rolling stock was presented. It was dedicated to the 80th anniversary of the Great Victory and the 180th anniversary of the Russian locomotive industry. 11 steam locomotives passed through the tracks of the Baltic Railway Station.

The program ended with a theatrical performance recreating the the return of soldiers from the Great Patriotic War and the Victory celebration.

Bionotes

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