

SERVICE



Škoda Group is one of the leading European companies in the field of transport engineering, with a history spanning more than 165 years. Škoda focuses on the development and production of vehicles for railway and urban public transport. Its products include primarily electric suburban train units, battery-powered trains, low-floor trams, metro trainsets, trolleybuses, electric buses, hydrogen buses, electric motors, components, passenger coaches, digital solutions, and complete drive systems for environmentally friendly public transport.

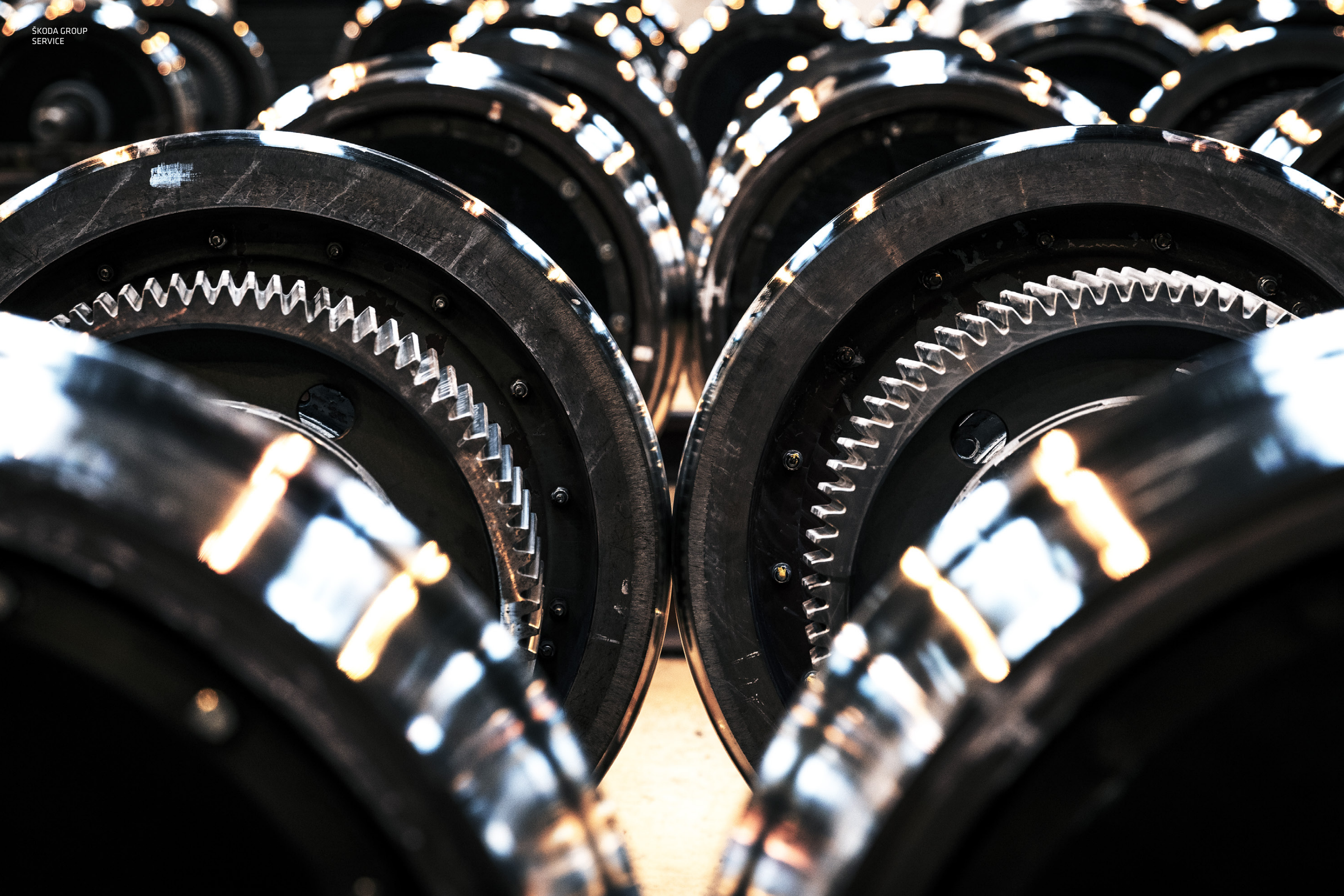
Thanks to its ecosystem of production plants, service centers, and engineering offices, the outstanding work of thousand of project engineers, and designers, and billions invested annually in its own research and development, Škoda Group boasts a portfolio of modern vehicles that meet the latest European standards. Škoda places great emphasis on the use of cutting-edge technologies for modern urban and rail transport vehicles. Škoda is also developing railway vehicles and buses with alternative propulsion systems.

Škoda Group's transport solutions are used in the Czech Republic, Slovakia, Germany, Finland, Poland, Lithuania, Latvia, Estonia, Italy, the Balkans, Australia, the USA, and many other countries around the world.

Škoda Group currently employs 10,000 people. In addition to its production sites and technology centers in the Czech Republic, Finland, and Turkey, Škoda Group also has branches in Germany, Italy, Austria, Belgium, Hungary, Poland, and Ukraine.

Škoda Group provides comprehensive transport solutions for urban, intercity, and mainline rail transport, and it continues to work to ensure that travel is comfortable, fast, sustainable, and safe. Thanks to a wide range of boarding height options, low-floor and barrier-free access is ensured in all areas where its vehicles operate.

Škoda Group is part of PPF Group, which invests in a wide range of sectors – from financial services and telecommunications to biotechnology, real estate, and engineering. PPF Group operates in Europe, Asia, Africa, and North America.



SERVICES

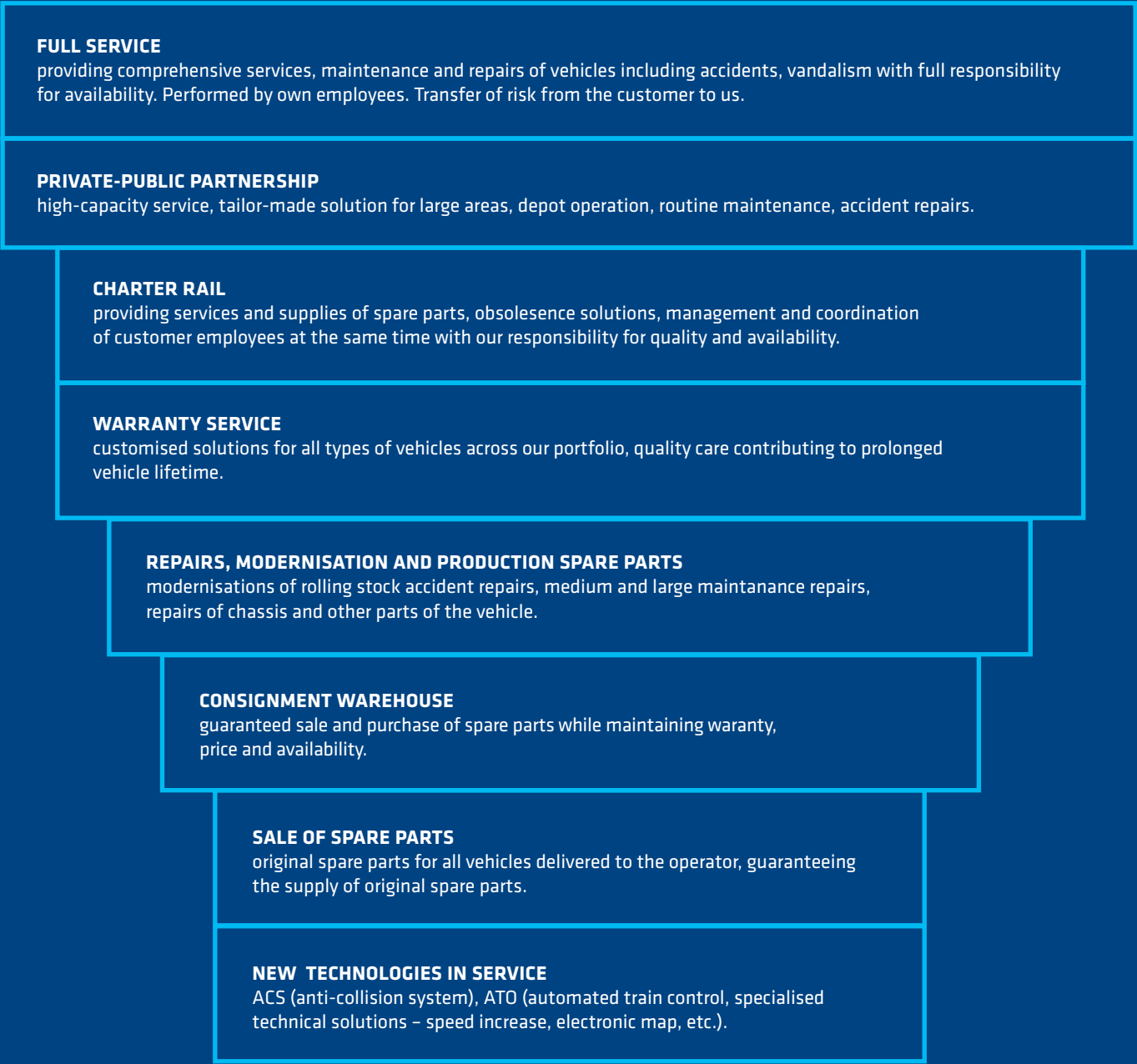
The Škoda Group provides tailor-made services for its customers, whether it is full service, charter rail, warranty service, warranty repairs and prevntive recorect maintrance not only for Škoda Vehicle even cooperation with the public sector for the maintenance of the vehicle fleet (public-private parnerships). In addition, the wide range of services includes accident repairs, modernisations, consignment warehouses for our customers and the supply of original spare parts of the highest quality.

At the same time, the Škoda Group's predictive diagnostics, extensive know-how, innovative technologies and service process methods contribute to extending the operation life of individual parts and vehicles. This reduces the environmental burden of vehicle operation, reduces the financial costs for the vehicle operator and increases the efficiency and reliability of public transport systems.

The Škoda Group makes full use of and develops new technologies, offering flexible individual solutions for each customer. At the same time, it comes up with methods that save material, emissions and time in service solutions.

More than 1,500 experienced people work in the service segment. Including a technical team dedicated directly to maintenance and upgrades.

SCOPE OF ŠKODA GROUP SERVICE ACTIVITIES



FULL SERVICE

Full service is the most comprehensive service provided according to the customer's requirements. Škoda Group provides regular maintenance and repairs on site, including repairs of damages caused by accidents or vandalism. Thanks to the full service, the guarantee of full daily availability of the vehicles is transferred from the public transport operator to the Škoda Group service staff. As part of full service, Škoda Group guarantees not only the preventive and corrective maintenance and repair of products, but also the detection and diagnosis of faults or malfunctions and a rapid response to them. Maintenance and repairs are carried out in 24/7 mode.

Škoda Group offers the high-quality performance of all work, precise adherence to service intervals and also speed in returning repaired vehicles back into operation. At the same time, as a part of full service we provide a thorough spare parts solution for transport companies and guarantee their quality and availability. In the same way, Škoda Group also guarantees the development in the field of spare parts obsolescence in cooperation with suppliers so that spare parts of the highest quality are available even after many years.

Škoda Group provides full service vehicle solutions for its clients in the Czech Republic and other European countries.



PRIVATE-PUBLIC PARTNERSHIP

As a supplier of complex solutions, we also have experience in the joint solution of tailor-made projects in cooperation with the public sector.

In cooperation with the city of Pilsen, a project to build a new depot for up to 350 trolleybuses and buses, with a repair shop and the longest 250-metre-long covered test track in Central and Eastern Europe, was carried out on the original brownfield site. The revitalisation and construction project took place in 2012–2013 and was completed one year ahead of schedule. Service in the full-service standard began in September 2014 and is planned for the next 20 years. The entire building covers more than 116,000 m².

Škoda Group not only provides maintenance and repairs for the entire fleet of trolleybuses, but also ensures the entire operation of the depot. Škoda Group also repairs and maintains all trams for the Pilsen City Transport Company, including accident repairs, standard maintenance and ensuring vehicle availability. As part of the new tram depot project, Škoda Group provides daily light maintenance for the trams.



CHARTER RAIL

Charter rail – the new trend in vehicle maintenance. This model ensures top-quality service, and guarantees the use of Škoda Group know-how and the supply of original spare parts for the purpose of vehicle maintenance and repair for the entire duration of the contract. Furthermore, we provide a wide range of service support, training and quality control of repairs and maintenance carried out in the depot by the transport company's employees under the supervision of and according to the know-how of the Škoda Group. This combination of the transport operator's and Škoda Group's workforces guarantees the quality of preventive and corrective maintenance, expert repairs and diagnostics of faults and defects, as well as the quality training of the operator's employees and the preservation of workplaces where the operator's employees would otherwise be replaced by service teams.

We thus contribute to maintaining the employment and development of the operator's employees, increasing their qualifications and deepening their knowledge in the field of servicing, while using the latest technologies in training and repair.

This method is used by many customers who are ready for this type of cooperation and have the appropriate level of background.



WARRANTY SERVICE

Škoda Group naturally provides a warranty service for its products, which focuses on rectifying common faults that occur in operation – corrective maintenance and repairs, and on providing support to the customer in the area of spare parts supply. The functioning of the warranty service is always customized to each of our customers, their needs and the specifics of the city where the vehicles are delivered.

The Škoda Group has extensive experience in providing warranty service in many countries and with many products delivered for both urban and rail transport. Through it, Škoda Group contributes to prolonging the life of products.

We provide these services in many cities and states. It is a standard within our production.

Our mobile teams take care of hundreds of our customers' vehicles every day across Europe.

We ensure full support and availability of vehicles for our customers during the warranty period. We also offer extended warranty as standard, according to our customers' requirements. We take care of hundreds of vehicles under warranty every day and in many cities. Our customers are taken care of by our mobile teams with the extensive facilities of our plants.



REPAIRS, MODERNISATION AND SPARE PARTS

The Škoda Group's services also include repairs, modernisations and the supply of original spare parts. We provide post-warranty service, accident repairs, medium and large repairs, frame repairs by untying from the frame, and the maintenance of the chassis and other tram car parts.

As a traditional company focused on the manufacture and repair of rolling stock, Škoda Group also offers repairs of trams damaged in traffic accidents, from local damage of individual parts and components of the vehicle to large-scale

damage, including damage of the frame of the vehicle itself. There is a possibility to repair the damaged part of the vehicle or the vehicle can be overhauled, with the possibility of modernisation at the same time. For heavy maintenance and repairs after accidents, not only for Skoda vehicles, service centres are used, one for Rollingstock and the other for Urban, clients are taken care of by over 1000 of our employees, including a team of technicians specially trained for repairs and upgrades.

MODERNISATION OF ROLLING STOCK

Modernisations allow operators to improve the condition and operability of their vehicles, increase the comfort and safety for passengers and drivers, and extend the life cycle of their vehicles, all at a lower cost than the cost of new vehicles. Modernisations often involve more than just safety and operational efficiency. There is also room for a change in design,

an increase in the number of seats, and the creation of barrier-free spaces, information systems and orientation elements for people with reduced visual orientation. All innovative elements can be tailored to the customer's needs, according to the development of the infrastructure and to the latest trends.

MODERNISATION – CITY TRANSPORT

TRAMS

Modernisations of trams bring customers an improved economy of operation and maintenance of the vehicle, prolongation of its operation life, easy availability of retrofitted components, higher comfort and safety of transport for passengers, and last but not least, a reduction of negative environmental impacts. We have successfully modernised hundreds of vehicles, adapting them to new safety

requirements and to the accessibility requirements of public transport for prams and people with reduced mobility.

The newest project in the field of tram safety is the ACS – anti-collision system. This gives the tram partial autonomy and helps prevent accidents, thereby increasing the safety of city dwellers and reducing repair costs.

METRO

Škoda Group has experience from a number of large-scale modernisation projects. Expert interventions and the integration of new systems can significantly extend the operational lifespan of vehicles. Modernisation may include, among other things, the installation of new traction motors with energy recuperation, the implementation of new safety systems, and much more. As a result, older modernised vehicles can be directly compared to brand-new, modern trains.

Refurbished trains can be equipped, for example, with new high-performance compressors and pneumatic systems, including air dryers and computer control.



MODERNISATION OF ROLLING STOCK

MODERNISATION – RAIL TRANSPORT

RAILWAY CARS AND LOCOMOTIVES

Škoda Group has a long tradition of modernisation and repairs of rolling stock and locomotives. We have gained thorough experience in the modernisation and repair of locomotives, passenger cars, electric units and motor cars.

Locomotives that have been modernised in Škoda Group received new, more economical and modern traction drives, and they have undergone dualisation and a complete replacement of control systems. Their operation life is extended by up to 20 years from both an operational and technological point of view.

Passenger cars for Czech and international transport companies were modernised by Škoda Group completely – including the chassis, air conditioning, interior elements and even the installation of Wi-Fi.

Škoda Group has wide experience in the modernisation of rolling stock in the field of motor cars, with a significant and very successful reconstruction of cars from the 1970s, where the interior reconstruction ensured the partial low-deck profile of the cars and a completely new interior appearance. The modernisation included the replacement of engines, which led to a significant reduction of the environmental impact and operating costs.

All of the above-mentioned modernisation projects were carried out not only for domestic, but also for foreign customers.

The modernisation also includes equipping with modern control and communication systems. Trains can be equipped with an ATO system whose primary purpose is to automate the driver's actions and plan the journey with regard to the timetable, but also energy consumption. In terms of communication, we implement the modern pan-European ETCS system on trains.



REPAIRS OF ROLLING STOCK

In addition to service, we also provide accident repairs, repairs after collisions and breakdowns, as well as medium and large repairs of vehicles, which are necessary to maintain their long operation life.

Škoda Group offers post-warranty repairs according to the operator's requirements. Thanks to its complex knowledge in the field, it can offer medium and large vehicle repairs not only for operators of Škoda Group products, but also for other manufacturers. Škoda Group offers thorough services thanks to its high-tech equipment, extensive know-how in the field of vehicle servicing and many years of experience. An integral part of the repair portfolio offered by Škoda Group are repairs of vehicles after accidents, ranging from minor damage repairs to repairs involving, for example, the replacement of the vehicle's frame construction.

Škoda Group emphasises ecology and material savings, so every repaired car undergoes a thorough inspection of individual parts and those that can be reused in terms of quality and safety are returned to the vehicle as part of the repair.

REPAIRS OF SUBASSEMBLIES AND PARTS

As part of its servicing activities, Škoda Group offers repairs of vehicle subassemblies, such as medium repairs of tram chassis, repairs of engines and traction equipment, repairs and servicing of air conditioning units and much more according to the wishes and needs of the vehicle operator. Repairs of partial units can include their modernisation at the customer's request, the replacement of outdated solutions with new ones and modifications according to the modern technological possibilities of Škoda Group.

This approach applies also to major repairs involving the replacement of the vehicle's frame. In such repairs, only those parts that have been damaged by an accident and have to be replaced are actually ordered and fitted to the new frame construction. Other parts are used from the original frame structure and mounted to the new one, if this way of repair is agreed with the customer. In this approach, customers greatly appreciate the financial savings, likewise the maximum environmental friendliness, where all usable parts are reused.

The great advantage is that, thanks to our skills and know-how, some repairs, even large ones, can be done directly at the customer's site. This saves the cost of transporting the damaged vehicle to our facilities.

Škoda Group provides long-term service for all its vehicles, through facilities at its service sites for both Mainline and Urban.

In addition, we are as helpful as possible to our customers by providing post-warranty professional service of the individual parts that were delivered to the operator as a part of the vehicle, repairs of such parts and, if necessary, modernisation.



CONSIGNMENT WAREHOUSES

The Škoda Group offers vehicle operators the possibility of setting up consignment warehouses with spare parts for preventive and corrective maintenance, together with parts that are most often damaged by minor accidents. The replenishment of parts is carried out according to an agreement with the customer so that the stable necessary amount of key parts for their vehicles is kept stable.

The consignment warehouse guarantees parts and more favourable prices with regard to the quantity of parts supplied.

SALE OF SPARE PARTS

Škoda Group supplies original spare parts for all vehicles delivered to the operator. The manufacturer is always a reliable guarantee for the supply of original spare parts. The use of original parts in the maintenance and repair of vehicles ensures full conformity and compatibility for the operator.

At the same time, it helps maintain the long life cycle and safety of the vehicles. The vehicle manufacturer is the only reliable guarantor of the quality of the spare parts, even when it is necessary to replace obsolete parts with new ones.



NEW TECHNOLOGIES IN SERVICE

Škoda Group makes full use of and develops new technologies, offering flexible solutions tailored to each customer. At the same time, Škoda Group comes up with methods that save material, emissions and time in service solutions. New systems and programs allow us to access all the vehicle data online in real time and, together with the possibility of predictive diagnostics, taking our service many steps ahead by the prediction of further necessary maintenance steps and by preventing the unnecessary waste of material, resources and working capacities.

There is an independent subsidiary directly within the Škoda Group that focuses on the development and implementation of innovative digital solutions. Its know-how is based on an experienced and growing team of experts with visions and a clear vision of the transport of the future.

MODERN DIGITAL DIAGNOSTIC TOOLS

At Škoda Group, we know that using modern diagnostic tools helps customers reduce/optimize operating costs and manage their fleets more efficiently. That is why we develop and use the latest diagnostic tools that enable us to respond rapidly and efficiently to our customers' service requests. Using a combination of these tools we can rapidly diagnose the current state of vehicles, gather data on their operation and subsequently evaluate them, in order to provide professional services and suggest the best ways to use and manage their fleets. All communication takes place through a helpdesk tool that enables us to deal with any client requests within a short period.

Thanks to these tools, we are able to monitor these data online and therefore prevent possible failure conditions.

We offer a modern application for fleet management that enables complete real-time vehicle management. We can integrate all diagnostic data, records of critical situations captured by the anti-collision system and detailed reports on vehicle consumption. In addition, our solution is open—you can easily connect third-party applications such as ERP systems or other tools you use for fleet operation and management.

The Help Desk application is designed for our customers and serves to simplify and accelerate customer support processes. Through it, users can order spare parts for Škoda Digital products, request software modifications and upgrades and resolve claims. We introduced this tool with the aim of making request management more effective and improving overall customer satisfaction.

Our fleet management application enables comprehensive real-time vehicle monitoring. It integrates all diagnostic data as well as records of critical events captured by the anti-collision system. The platform also provides detailed consumption reports and supports seamless integration with third-party applications, such as ERP systems and other operational tools.

The Help Desk application is designed for our customers to simplify and accelerate support processes. Through the platform, users can order spare parts for Škoda Digital products, request software modifications or upgrades, and manage warranty claims. This tool was introduced to ensure faster and more efficient handling of customer requests, enhancing overall service responsiveness and satisfaction.



PREDICTIVE MAINTENANCE SYSTEM (PREMIS)

IBM Maximo is a comprehensive management and planning tool that, thanks to the mobile app, allows for operational input of requests directly in the field and their subsequent rapid processing and evaluation. Connection to an ERP system such as SAP, Baan or Infor is standard. Another option is extension to include the PREMIS system, which provides the option of individual solutions for predictive diagnostics, in relation to various functional elements of a vehicle, such as bearings, manifolds, mechanical elements, etc. Thanks to the use of these predictive diagnostics, it is possible to optimise maintenance plans and replace monitored parts according to the actual condition, rather than based on a service plan, while preventing potential critical conditions caused by excessive wear or part defects.

In accordance with the latest trends, service specialists use tools enabling remote control, which, thanks to remote access to the control units in a vehicle, allows them to operatively involve the necessary specialists in service interventions, without the need for the whole team to be physically present on site.

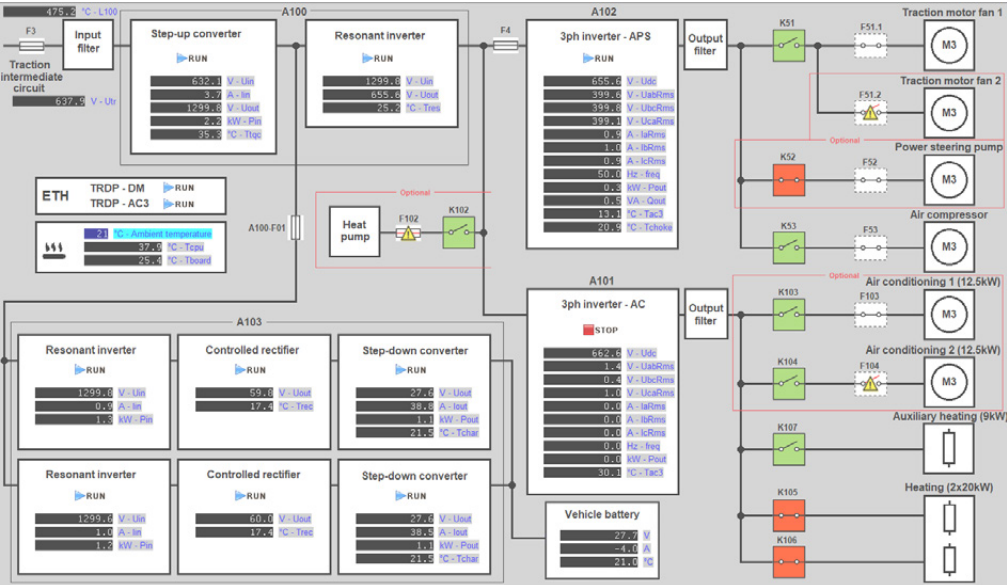


DISMON

The DISMON tool is designed for development, testing, management and maintenance of Škoda Electric products from the Škoda Group. DISMON is a modern tool drawing on 30 years' experience in vehicle development and maintenance. It is ideal for maintenance technicians, testing, service and

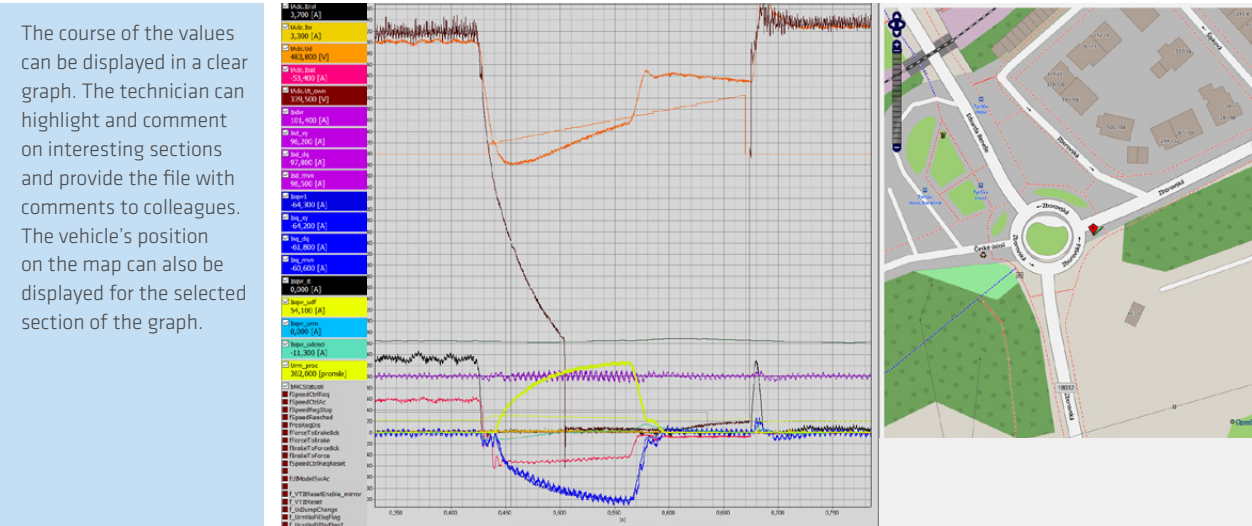
homologation specialists, developers of software and hardware products and designers of inverters and complete wheeled and rail vehicles. DISMON is fully compatible with the Microsoft Windows operating system (from version 10) and has undergone penetration testing in accordance with UN R155.

Car diagram with real-time display of values



The values of the quantities can be displayed in clear diagrams that make it easier for technicians to understand the situation.

Graphical waveforms of quantities



The course of the values can be displayed in a clear graph. The technician can highlight and comment on interesting sections and provide the file with comments to colleagues. The vehicle's position on the map can also be displayed for the selected section of the graph.



ASTRID

The Astrid system is a tool for telemetry, statistics and predictive diagnostics, all in an easy-to-use application. It offers an overview of the current status of your electric buses and trolleybuses. Easy-to-understand statistics on vehicle operation, planning and evaluation of vehicle circulation with regard to battery capacity and conditions on a route are available in the application.

Information relevant to cybersecurity and compliance with legislative requirements (NIS2, UNECE R155, R156, Cyber Resilience Act) can also be downloaded and evaluated.

Display of timetables

LINKA: 154

Typ dne: Pracovní den

Grafikon 8271 (Platí od 06/01/2025): Poloprázdňiny 2025 - 7x EbN

Prohlédnout přiřazená vozidla

Číslo pořadí	Počet směn	Čas výjezdu	Čas zátahu	Poznámka	Typ vozidla	Přiřazeno nyní/PP vozidla
3	2	04:27	00:37		368B	Praha 3001
4	2	05:07	00:56		368B	Praha 3002
5	2	05:27	00:26		368B	Praha 3004
7	2	04:50	20:24		368B	Praha 3005
8	2	04:55	19:25		368B	Praha 3007
9	1	04:47	09:45		368B	
10	1	05:52	10:54		368B	

Showing 1 to 7 of 7 entries

Linka: 154 Typ dne: Pracovní den Grafikon 8271 (Platí od 06/01/2025): Poloprázdňiny 2025 - 7x EbN

ENERGY MANAGEMENT: POŘADÍ 4

05:07 ☒ Zobrazit tabulku Prohlédnout přiřazená vozidla

Pořadí položky	Zastávka	Vzdálenost	Doba jízdy	Doba nabíjení	Čekání	Příjezd	Odjezd
1	3440_Provozovna Vrtovice	0.00	0.00	0.00	0.00		05:07
2	659_Sídliště Libuš	17.80	42.00	0.00	10.00	05:46	05:59
3	713_Straňnická	25.60	68.00	21.00	0.00	07:01	07:28
4	659_Sídliště Libuš	25.00	71.00	0.00	8.00	08:35	08:47
5	713_Straňnická	25.60	69.00	48.00	0.00	09:51	10:44
6	659_Sídliště Libuš	25.00	69.00	0.00	15.00	11:49	12:08
7	713_Straňnická	25.60	68.00	23.00	0.00	13:11	13:39
8	659_Sídliště Libuš	25.00	69.00	0.00	1.00	14:44	14:49
9	713_Straňnická	25.60	68.00	41.00	0.00	15:52	16:38
		25.00	70.00	0.00	0.00	17:45	17:48
		25.60	69.00	44.00	0.00	18:52	19:41
		25.00	67.00	0.00	11.00	20:44	20:59
		25.60	62.00	39.00	0.00	21:56	22:40
		25.00	61.00	0.00	18.00	23:37	23:59
		17.75	43.00	0.00	0.00	00:40	00:42
		6.80	14.00	0.00	0.00	00:56	

Display of timetables

ASTRID REPORTS Světlana Spiglazova MENU

Go back

Data source: ASTRID telemetry system, Škoda Electric a.s.

Period covered by this report: 2020-02-17

Report generated on: 2020-02-24 03:11:46

OVERVIEW

VEHICLE IDENTIFICATION

Type City

35Tr Crealis 18m Limoges

VEHICLE ON-LINE TIMES

Start

2020-02-17 06:03:20

DISTANCES TRAVELED AND A

Total distance [km] Distance on battery [km]

912.618 45

59% of total distance was traveled running c

SUBSYSTEMS ENERGY CONSUMI

Traction Aux propu

1934

BATTERY ENERGY FLOW

ASTRID REPORTS Světlana Spiglazova MENU

DAILY DISTANCES TRAVELED

Distance [km]

ASTRID REPORTS Světlana Spiglazova MENU

DAILY CONSUMPTION

Energy [kWh]

ASTRID REPORTS Světlana Spiglazova MENU

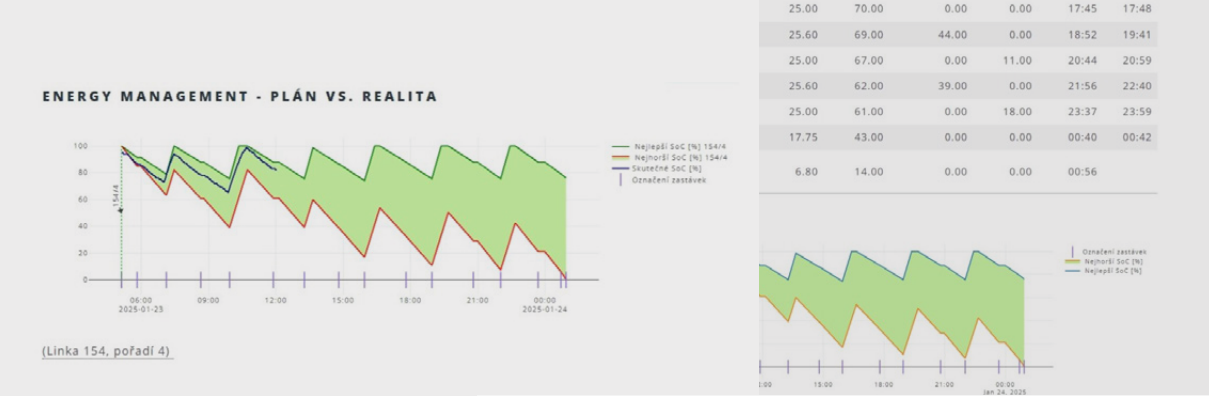
SOC GRAPH

SOC [%]

DAILY SOC MIN/MAX GRAPH

100

Display of the daily energy plan

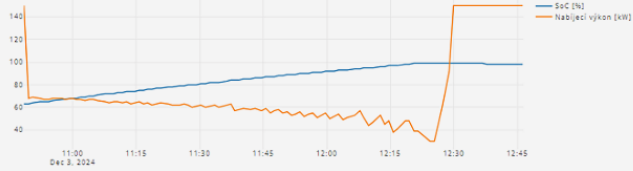


DETAIL ŘÍZENÉHO NABÍJENÍ: PRAHA 3011

Id	Vozidlo	Začátek	Plánovaný konec	Cílové SoC	Poslední změna	Poslední SoC	Stav řízení	Nabíjí
23836	Praha 3011	včera 10:47	včera 12:48	100	včera 12:48	98	FINISHED	

Priznaky nabíjení: AUTO CONT RDCV PAINT PROC

GRAF ŘÍZENÉHO NABÍJENÍ



Optimalizace rychlosti nabíjení v situaci, kdy je pro nabíjení dostatek času

PKI SERVER

A PKI server is one of several layers protecting vehicles against cyber-attacks. Using short-term certificates, it controls user access to vehicle control units and monitors the exchange of key components on vehicles. The short-term certificates are secured with asymmetric elliptic curve cryptography, and each certificate contains information about the user and the control unit accessed. The PKI server's functions are suitable for both wheeled and rail vehicles, it is a very flexible solution.

FIDES

A system for controlled distribution of software and documentation. Fides is a full-fledged substitute for e-mail transmission of software and documents. It meets the statutory requirements for the availability of documentation for customers and is very straightforward for users. Each user sees only the SW packages allocated to him/her and consents to the terms and conditions at the same time as downloading. Every user action is recorded (login, logout, download and consent). The system is important for compliance with R156 (CySe).



WHERE OUR SERVICE
ACTIVITIES ARE



-  TRAMS
-  RAIL VEHICLES
-  METRO
-  COMPONENTS





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