CITY ON RAILS

ŠKODA

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 electric units, 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.

TRAM

The modern ForCity family of low-floor trams introduces smart public transport solutions. Altogether, several hundred of them have already been produced and can be found in several cities in the Czech Republic, Finland, Germany, Turkey, Slovakia, Latvia and Hungary, as well as China.

Škoda trams provide a sophisticated interior with plenty of seats and space for standing comfortably, and places for prams, wheelchairs or large luggage. Thanks to the low-floor concept of the ForCity line vehicles, even people with reduced mobility will find it easy travelling in them. They also include air conditioning and a clear information system enhancing passenger comfort. ForCity trams are also easy to maintain.

FULL SERVICE

Comprehensive vehicle care and maintenance - also known as full service - is the current worldwide industry trend for maintenance. Full service entails a transfer of responsibility from the operator to the company providing the service, thereby guaranteeing available vehicles every day. The full service offered by Škoda Group not only guarantees preventive and corrective maintenance as well as repairs of products, but also diagnostics of faults and defects, quick response to defects, and also development in the field of obsoleting of spare part obsolescence in cooperation with suppliers. At present, Škoda Group provides full service for trams in Pilsen, in the Hungarian city of Miskolc, in Cagliari, Italy, and in the Turkish city of Konya.

Škoda Group also offers both warranty services for its products aimed at eliminating the defects that typically arise during operation through corrective maintenance and repairs as well as support for the customer in the area of spare parts supply.

ECOLOGY

The entire ForCity vehicle production cycle, from operation to disposal, is environmentally friendly. We comply with the EN ISO 14001 standard. Significant operating cost savings are achieved due to low maintenance costs and reduced energy consumption. In addition, more than 95% of the components and elements the ForCity vehicles are made of are recyclable.

MODERNISATION

Škoda Group also undertakes tram modernisations, which, above all, extend the service life of customers' vehicles, ensure easy availability of installed components, provide greater comfort and safety during transport for passengers, and, last but not least, reduce negative environmental impacts.

The upgraded vehicles are also better adapted for transporting blind passengers and passengers with reduced mobility.

The ForCity modern tram series is state-of-the-art in the development of Škoda trams. Unlike the previous two types, Astra and Elektra, ForCity trams have a fully low-floor interior and bogies with a drive system located outside the wheels to make the vehicle entirely low-floor. The ForCity platform consists of trams with pivoting bogies, non-pivoting bogies and combinations thereof. Škoda Group has developed several technical solutions for its ForCity trams and is continuously working on their development.

The aim of setting up the ForCity platform was to satisfy a wide range of customers and to create vehicles that meet the different driving, landscape and climate conditions of different cities as well as the requirements of individual customers and modern trends in public transportation. Consequently, the ForCity trams offer tailor-made solutions for customers.

The common features of all vehicles include the same bogies, unified components, interior elements, a driver's cab and the interior layout above the bogies. Škoda Group's vast know-how includes every step of production of its vehicles from the first idea, design, all the main components of mechanical and electrical parts, final assembly, homologation, warranty and post-warranty service.

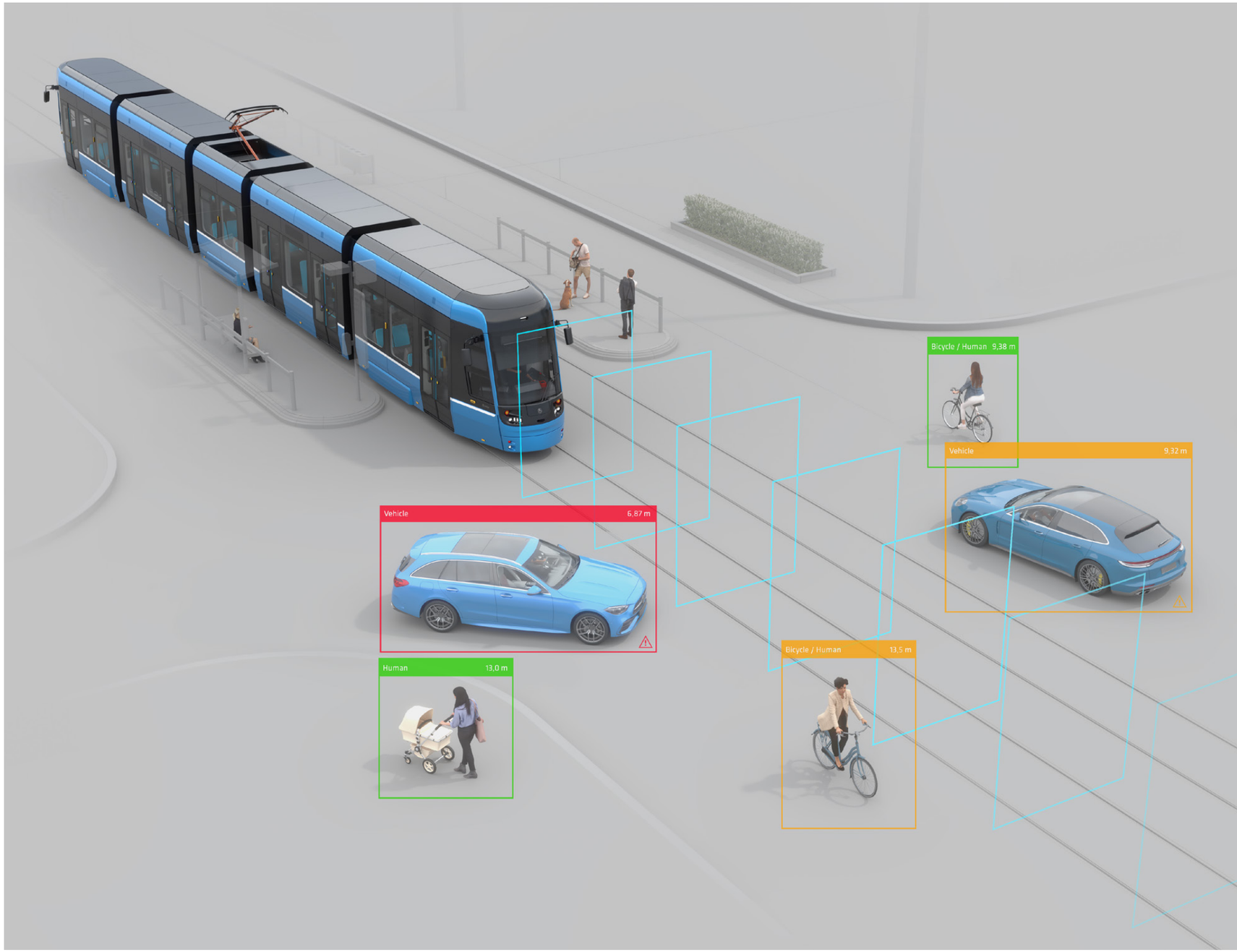
The ForCity platform is designed and supplied with pivoting and non-pivoting bogies, with partially- and fully-sprung drives and a liquid- or air-cooled engine.

The ForCity Alfa tram's bogies are all pivoting and gearless, a design suitable for lines with demanding operating conditions. ForCity Classic vehicles are designed primarily for modern and less hilly lines because of the non-pivoting bogies. ForCity Plus provides a combination of pivoting and non-pivoting bogies ideal for demanding narrow-gauge lines. ForCity Smart, a highly-developed type of tram, is the latest addition to the ForCity family.

ANTI-COLLISION SYSTEM ACCIDENT PREVENTION

Due to increasing demands on safety, each new tram will be equipped with a Škoda anti-collision system to reduce the likelihood of collisions in traffic. To do this, it uses a combination of dual LiDAR and HD-camera technology and precise localisation using off-line recorded HD maps and odometry.

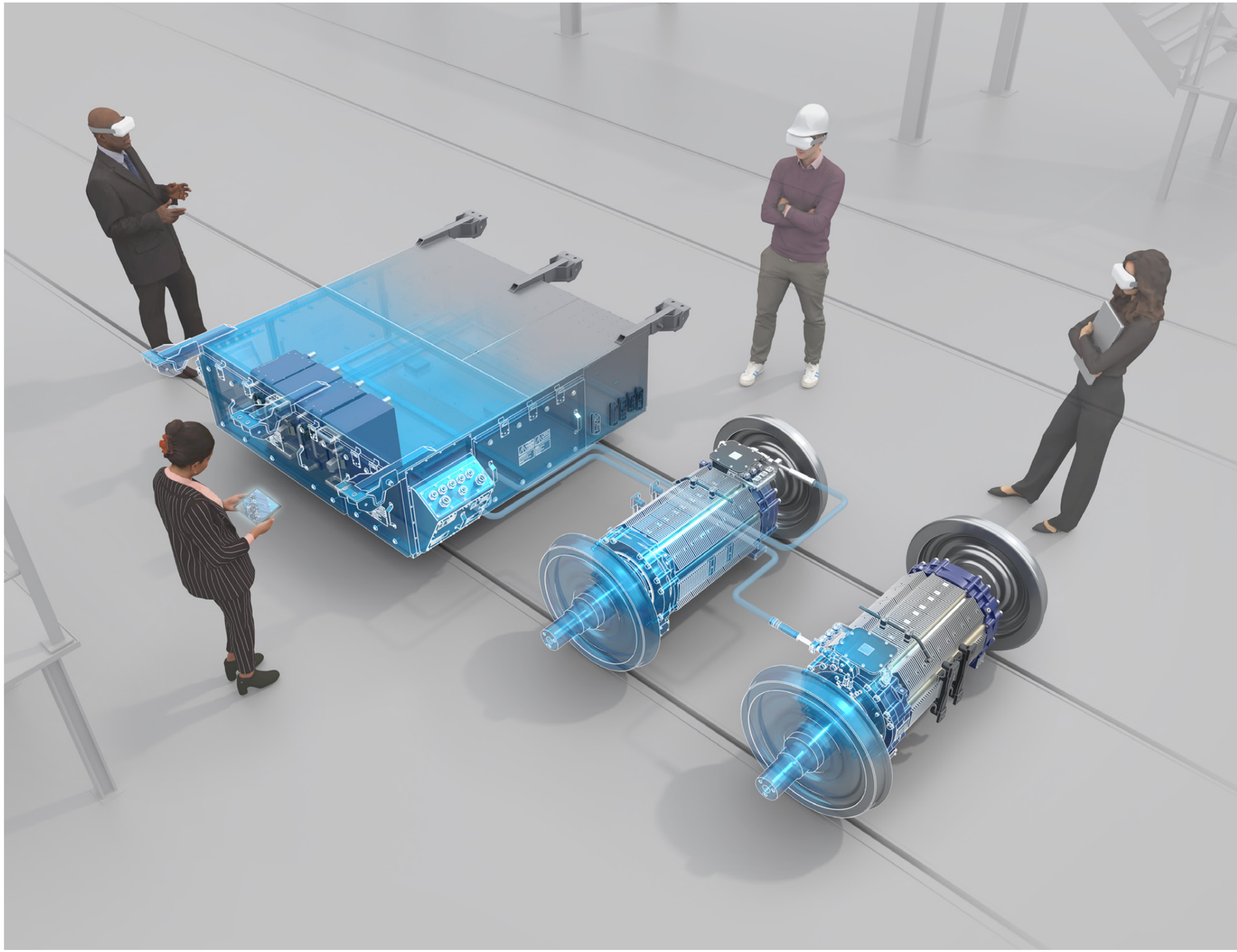
This set-up allows the system to create a virtual driving tunnel in which the tram can detect obstacles within 10 cm, provide early warnings, minimise false positive warnings, and activate the emergency brake in time. The anti-collision system will thus help prevent major accidents and damage to health and vehicles.



SUSTAINABLE BRAKING TECHNOLOGY

Some our new trams models are equipped with an electromechanical braking system, which was chosen for its efficiency and sustainability. The electromechanical brakes offer simple operation and maintenance, oil-free economy, and low operating costs. It will only function as an emergency, locking, and back-up brake. More precise and faster response and better control of deceleration smoothness will be provided by the electrodynamic motor brake, which is part of the drive and motor. The advantage of this solution is lower noise and the maximum possible rate of recuperation to a standstill.

The energy recovered from recuperation will be used primarily for servicing and operating the vehicle or returned to the grid to be used by another vehicle. This contributes to greater energy efficiency and a reduction in overall energy consumption. In addition, wear and tear on the brakes themselves and the track infrastructure is reduced. In comparison to a hydraulic brake system, it also does not contain hydraulic fluids, which not only makes it more environmentally friendly but also significantly reduces the time required for maintenance and returning the vehicle to service.



FORCITY SMART

ForCity Smart combines many benefits for passengers and operators. The vehicle configuration achieves a balanced weight distribution on all the bogies. This leads to a low axle load and, in combination with the bogies, reduces operating costs for infrastructure maintenance.

ForCity Smart has excellent running characteristics and its configuration makes it perfect for high driving comfort and convenience. The lower number of bellows not only provides better sound comfort, but also improves thermal insulation of the vehicle while reducing operating costs.

ForCity Smart also provides a high number of seats. The technical solutions of the bogies and the vehicle make it possible to ergonomically distribute sixteen seats above the bogies.

Examples of vehicle length (in mm)	BASIC VEHICLE CONFIGURATION ● non-pivoting bogie / ● pivoting bogie	Passenger capacity – seated/standing (4 persons/m²)							
		Vehicle width							
		2,300 mm		2,400 mm		2,500 mm		2,650 mm	
		1	2	1	2	1	2	1	2
16,820		38/84	31/77	43/94	36/86	44/97	36/88	44/104	36/96
26,980		58/149	45/144	65/161	52/158	68/167	52/162	68/183	52/178
37,140		78/211	63/209	89/230	72/228	92/242	72/241	92/262	72/261
43,900		92/251	77/249	103/274	88/272	108/288	88/288	108/312	88/311
53,500		138/306	113/304	153/337	128/334	154/349	132/345	154/379	136/374
15,320		31/73	28/67	35/84	32/76	36/86	32/78	36/92	32/84
21,350		49/107	42/103	55/120	48/115	56/125	48/120	56/133	48/130
29,210		65/155	56/152	73/169	64/165	74/179	64/175	74/195	64/190
35,970		79/194	70/191	89/213	80/209	90/225	80/222	90/245	80/240
47,150		117/261	100/260	125/289	112/291	126/299	116/300	126/325	120/324

1 = one-way / **2** = two-way

MAIN TECHNICAL PARAMETERS

Version	Unidirectional / Bi-directional			
Low floor	100%			
Track gauge	950–1,524 mm			
Maximal speed	80 km/h			
Contact voltage	600–750 V (+20% / -30%)			
Vehicle width	2,300–2,650 mm			
Performance	240–1,200 kW			
Longitudinal strength	up to 400 kN			
Number of tram sections	1	2	3	4
Drive – number of bogies / number of drive bogies – adhesion	2/2 – 100%	3/3 – 100%	4/4 – 100%	5/5 – 100%
	2/1 – 50%	3/2 – 65%	4/3 – 75%	5/4 – 80%
			4/2 – 50%	5/4 – 80%

FORCITY SMART

The ForCity Smart model tram type offers a combination of maximum accessibility due to its almost 100% low-floor design, passenger space and excellent driving characteristics. Its design and variability makes it suitable for demanding daily urban operation.

These trams comply with the latest European standards governing the strength of the car body or its resistance to impact, as well as the fire-resistance requirements for the materials used.

The ForCity Smart tram for the Rhein-Neckar-Verkehr GmbH transport company is a double-ended low-floor tram with swivel bogies and a wheelbase of 1,000 mm.

Škoda Group produces these trams in three lengths and with the same technical design – with three, four and six sections. Thirty-one 30-metre, thirty-seven 40-metre and twelve 60-metre trams will be put into service. The vehicles are equipped with many innovations, such as modern information systems and cameras. The maximum operating speed is 80 km/h.

In addition, these vehicles also offer wheelchair and pushchair access. These trams are operated in Mannheim, Heidelberg and Ludwigshafen, which are in three different German states. These towns are located in Baden-Württemberg, Hesse and Rhineland-Palatinate.

ForCity Smart trams for Bonn are modern, double-ended, three-section, 100% low-floor vehicles with swivel bogies. Operation is comfortable thanks to the full grip of their wheels. This ensures reliable driving characteristics even under adverse weather conditions. Transport companies also appreciate the low operating costs.

Trams with a maximum speed of 80 km/h. Five double doors on either side of the vehicle ensure fast passenger entry and exit. The trams are equipped with USB ports and are fully air-conditioned, which significantly increases passenger comfort.

Divided into three sections, the double-ended, high-capacity ForCity Smart trams for Plzeň are 100% low-floor vehicles. The trams offer, among other things, a technical solution suitable for tight curves as well as for the demanding gradients in Plzeň. The vehicles also come equipped with modern information systems and cameras, as well as other innovations. Five double doors on either side of the vehicle ensure fast passenger entry and exit.

The ForCity Smart trams for Brno have four traction bogies that improve comfort and ensure a smooth ride even in bad weather. The operator will appreciate the low operating costs of this product on the Škoda ForCity Smart platform. The tram can accommodate up to 233 passengers, is equipped with 64 seats and reaches a top speed of 70 km/h.

FORCITY SMART ARTIC

Variant of ForCity Smart trams adapted to the harsh climatic conditions of northern Europe. Thermal insulation and innovative use of brake energy to heat the vehicle are included. The chassis has also been modified, thanks to all-wheel drive can handle the demanding Nordic conditions.

Helsinki's ForCity Smart Artic tram is the first mass-produced narrow-gauge, 100% low-floor tram with fully swivelling bogies. With a length of 27.6 m and a width of 2.4 m, this single-ended tram with three sections and a gauge of 1,000 mm can accommodate 125 passengers (5 persons/m²) and is equipped with 74 fixed and 14 folding seats.

The ForCity Smart Artic double-ended tram with five to seven cars has a 1,000 mm gauge, is all low-floor and can accommodate 214 to 287 passengers (4 persons/m²) and is equipped with 82 to 108 seats depending on the number of car sections. These trams are intended for the new Raide-Jokeri line connecting the Finnish cities of Helsinki and Espoo.

The ForCity Smart Artic double-ended trams from Tampere have a gauge of 1,435 mm, are completely low-floor and can accommodate up to 264 passengers (4 people/m²). The materials and modern technologies of the vehicle's design also correspond to the Nordic climate zone and guarantee a service life of up to 40 years. The technical concept of the tram also allows the vehicle to be extended by one section, increasing the maximum capacity of the tram to 345 passengers.

FORCITY CLASSIC

The ForCity Classic tram is representative of the most widespread low-floor tram type on the market. The concept and design provide for a wide modularity of vehicle length and width, track width, number of seats and supply voltage.

ForCity Classic is a tram with non-pivoting bogies. The vehicles are equipped with a rigid axle for good running characteristics.

ForCity Classic trams are 100% low-floor vehicles, which allows for quick boarding and alighting of passengers, as well as guaranteeing barrier-free access.

Given its dimensions, the advantages of the vehicle include a high capacity, balanced distribution of entrance doors along the entire length of the vehicle and its optimal passage profile, thanks to which it can be used even in areas with limited infrastructure.

Examples of vehicle length (in mm)	BASIC VEHICLE CONFIGURATION ● non-pivoting bogie / ● pivoting bogie	Passenger capacity – seated/standing (4 persons/m²)							
		Vehicle width							
		2,300 mm		2,400 mm		2,500 mm		2,650 mm	
		1	2	1	2	1	2	1	2
20,870		38/112	30/107	42/122	34/117	43/129	34/124	46/138	36/133
31,000		59/175	46/172	65/190	52/187	66/201	52/198	72/216	56/213
41,680		80/242	66/240	88/263	74/261	89/278	74/276	98/299	80/297

1 = one-way / **2** = two-way

MAIN TECHNICAL PARAMETERS

Version	Unidirectional / Bi-directional			
Low floor	100%			
Track gauge	950–1,524 mm			
Maximal speed	70 km/h			
Contact voltage	600–750 V (+20% / -30%)			
Vehicle width	2,300–2,650 mm			
Maximum power	480–1,200 kW			
Longitudinal strength	up to 400 kN			
Number of tram sections	3	5	7	**9**
Drive – number of bogies / number of drive bogies – adhesion	2/2 – 100%	3/3 – 100%	4/4 – 100%	5/4 – 80%
		3/2 – 67 %	4/3 – 77%	5/3 – 60%
			4/2 – 55%	

FORCITY CLASSIC

The design of ForCity Classic trams is based entirely on the needs of modern metropolises. These trams offer 100% low-floor design, modularity and the possibility of incorporating a range of modern technologies.

The double-ended trams for the city of Bergamo are specifically designed for the new line that will be built in and around the city and represent a significant investment in sustainable urban transport in the area. Their design is specially adapted to local conditions and sets a new standard in urban transport thanks to its exceptional characteristics. The proven platform is fully adapted to Italian requirements and will be 100% low-floor. In addition, they are equipped with an automatic door extension that bridges the space between the edge of the platform and the tram space, making it easier for people with reduced mobility to board. The ergonomically designed driver's station offers exceptional comfort, while the wide view from the cab increases safety and situational awareness.

This double-ended tram with five sections, 31.7 m long, 2.65 m wide and 1,435 mm gauge can accommodate up to 64 people seated and 128 standing. Its chassis sits on axleless wheelsets and all wheels are driven by fully sprung gearless traction motors. The Škoda Group has delivered a total of 14 trams to the German city of Chemnitz.

The design of this tram corresponds to the model from Miskolc, mainly due to having the same components. The differences lie mainly in the smaller vehicle width (by 100 mm) and the installation of automatic couplers enabling the operation of large-capacity tram sets, as well as the use of air-conditioning units with higher power, which corresponds to the more demanding climatic conditions. This tram was also delivered in a battery version allowing it to cross sections without overhead lines.

the 30 metre long and 2.3 metre wide ForCity Classic trams operating in Eskişehir are equipped with rigid bogies and 1,000 mm wheelbase. In addition to the overhead power supply, the vehicles are equipped with traction batteries that supply energy for up to 5 km of driving. After the completion of the section of the line without overhead line in Eskişehir, a vehicle without contact wire will be able to run here as well.

The ForCity CLassic trams from Miskolc are the most common type of 100% low-floor trams, especially suitable for modern and directionally simple tram networks. The use of three chassis instead of four, with each axle carrying a higher load, allows a significant reduction in vehicle weight, proper use of the track profile and optimum operational and maintenance efficiency.

FORCITY PLUS

ForCity Plus combines the advantages of a vehicle with pivoting and non-pivoting bogies. With pivoting bogies at both ends of the vehicle, the vehicle is 100% low-floor.

The arrangement of the interior in the end sections provides for the quick entry and exit of passengers and placement of multifunctional spaces, e.g. for people with reduced mobility or passengers with prams.

Additionally, ForCity Plus has an optimal passage profile suitable for European cities.

Furthermore, thanks to the pivoting bogies located on the outer sections of the vehicle, the wear when approaching and passing through turns is reduced.

Examples of vehicle length (in mm)	BASIC VEHICLE CONFIGURATION ● non-pivoting bogie / ● pivoting bogie	Passenger capacity – seated/standing (4 persons/m²)							
		Vehicle width							
		2,300 mm		2,400 mm		2,500 mm		2,650 mm	
		1	2	1	2	1	2	1	2
30,080		57/169	42/168	63/184	48/181	68/193	48/191	68/209	48/207
41,360		78/239	58/239	86/259	66/259	91/273	66/273	98/294	72/294
23,650		51/121	42/118	57/133	48/128	58/141	48/136	58/153	48/148
34,930		72/191	58/189	80/208	66/206	81/221	66/218	88/238	72/235

1 = one-way / **2** = two-way

MAIN TECHNICAL PARAMETERS

Version	Unidirectional / Bi-directional	
Low floor	80–100%	
Track gauge	950–1,524 mm	
Maximal speed	80 km/h	
Contact voltage	600–750 V (+20% / -30%)	
Vehicle width	2,300–2,650 mm	
Maximum power	480–1,200 kW	
Longitudinal strength	up to 400 kN	
Number of tram sections	2	3
Drive – number of bogies / number of drive bogies – adhesion	3/3 – 100%	4/4 – 100%
	3/2 – 60%	4/3 – 75%
		4/2 – 50%

FORCITY PLUS

The ForCity Plus tram type offers a high degree of modularity and integration of modern solutions from the Škoda Group portfolio. These trams can be tailored to the cities for which they are intended, thanks to the different gauge widths and the width of the entire cab. They feature a maximum degree of low-floor design and well-considered planning of the interior space of the cars, to ensure that the trams are as accessible as possible to everyone.

The new tram for Prague is 32 metres long and is equipped with full-car air conditioning with environmentally friendly R290 refrigerant, an anti-collision system, automatic passenger counting, and energy-saving LED interior and exterior lighting. The interior offers 70 upholstered seats, 44 of which are rear-facing and 26 are forward-facing.

Prague, with its historic centre, is characterised by narrow streets with sharp curves and steep gradients, considerable height differences in the tram network, but also long and relatively straight sections of track. The development of the new tram for Prague took all these aspects into consideration and combined them with the technical requirements of the Prague City Transport Company, based on previous operating experience. The design of the new tram combines a multi-link vehicle with two swivel bogies under the outermost links and two partially swivel bogies under the inner links. This combination allowed for a much more accessible and airy interior with short, wide and spacious joints without any steps or other obstructions. It also ensures adaptability to any track profile and promises a smooth, comfortable and quiet ride as well as less wear and tear on wheels and tracks.

The ForCity Plus vehicle for Bratislava is designed for narrow gauge tram networks. The end sections are equipped with swivel bogies located at the ends of the vehicle and the arrangement of the inner sections and bogies is reminiscent of ForCity Classic trams. The vehicle retains the excellent handling characteristics of the swivel chassis and optimum door layout, and despite a narrow track width of just 1,000 mm, offers a spacious interior with plenty of comfortable seats.

The trams were delivered to the customer in single-ended and double-ended versions, both 32.5 m long and less than 2.5 m wide. The single-ended version can carry 207 passengers , has 69 seats and 88% of the tram is low-floor space, the double-ended version can carry 204 passengers , has 52 seats and 92% of the vehicle area is low-floor.

The new ForCity Plus trams from Škoda for Frankfurt/Oder, Cottbus, Brandenburg am Main replace the current high-floor trams that are reaching the end of their service life in these cities. Despite the great level of similarity in the requirements and conditions of these cities, there are specific requirements involving the delivery of vehicles with two different widths.

Thirteen of the 24 vehicles ordered will be delivered to Frankfurt an der Oder, four and, depending on the option, eight more to Brandenburg an der Havel and the remaining seven plus thirteen more, depending on the option, have been ordered by the City of Cottbus.

ŠKODA GROUP
CITY

METRO

METRO

Škoda Group metro trains are flexible and efficient transport solutions for large cities.

So far, the most modern metro trains are being delivered to the Polish metropolis of Warsaw, where up to 45 six-wagon metro trains are heading. Furthermore, NěVa metro trains are operating in St. Petersburg, Russia. The trains were developed with the aim of refreshing the existing fleet, and since 2013 they have been reliably running in regular traffic with passengers.

Škoda also has experience in extensively modernizing the Prague metro cars. It modernized a total of 93 trains, significantly extending their lifetime. The vehicles for the upcoming years meet all the highest safety standards, have an entirely new interior, traction motors with available recuperation functions, and a modern control system. Škoda also produced full traction equipment for metro trains in Budapest (Hungary), Kiev (Ukraine) and Kazan (Russia), as well as the Chinese city of Suzhou.

MODERN ELECTRIC EQUIPMENT

Electrical equipment based on proven IGBT technology saves a significant amount of energy compared to previously operated trains. All the equipment is placed in traction containers, which are suspended under the floor of the cars. The supply voltage of 750 V DC is supplied by the third rail to the cars via four traction collectors.

The powerful electrical equipment includes electrodynamic braking with the option to recuperate energy, which brings significant savings not only in electricity consumption, but also a reduction in operating costs for the electro-pneumatic brake.

The metro train is easy and simple for the driver to operate thanks to an ergonomically-arranged desk equipped with a controlling device, a camera system display and a superior control, which provides for the collection and processing of data from individual parts of the cars. The train is also equipped with preparation for the installation of the mobile part of the automatic train control system.

QUALITY AND COMFORT

The metro car interior is designed to create a comfortable environment for both passengers and the driver. The interior layout and audio-visual information system allow passengers to easily and quickly orient themselves in the car.

For boarding and alighting, all cars are equipped with four double doors on both sides. Additionally, the interior design of the cars provides for a maximum transport capacity of metro trains.

There are ventilation units in each car, which increase comfort when travelling by the St. Petersburg metro together with pleasant lighting.

Alternatively, an air conditioning system can be installed.

A modern camera system ensures both passenger and driver safety.

METRO

MAIN TECHNICAL PARAMETERS

Train layout	Mc+M+T+T+M+Mc
Car body material	Aluminium
Track gauge	1,435 mm
Maximum speed	90 km/h
Power voltage	750 V DC
Length of the train over the coupling	119,010 mm
Width of the wagons	2,710 mm
Floor height	1,140 mm
Wheelbase	2,100 mm
Wheel diameter maximum / minimum	850 / 770 mm
Asynchronous traction motor power	150 kW
Weight of an empty train / maximum weight	160,400 kg
Maximum axle load	140 kN
Number of seats	230 + 2
Overall capacity with 8 people/m^2	1,680
Number of doors on the car	8
The smallest radius of any curve on the route / in the depot	150 m / 70 m
Maximum climb	45%
Maximum acceleration at the start	1.2 m/s^2
Maximum braking deceleration	1.3 m/s^2

METRO

WARSAW

The new six-wagon trains for Warsaw accommodate up to 1,500 passengers. Their maximum speed is 90 km/h. The interior is designed to create a pleasant environment for passengers. The selected materials are resistant to normal wear and tear and violent damage, and they are easy to clean. The cars certainly meet the latest safety standards and are also equipped with a recording camera system.

During the development and design of the metro trains, great emphasis was placed on the safety and comfort of both passengers and staff.

The trains are designed according to EN and UIC standards, thus meeting the latest technical knowledge and requirements, e.g. in the field of fire safety. The trains provide for safe operation with minimum operating costs. In addition, there are a variety of comfort elements that make travelling more pleasant – a sufficient number of comfortable seats and a modern clear external and internal information audio-visual system; both wagons at the front are also equipped with space for disabled passengers, and each car also has space for a stroller and bicycle.

METRO

SOFIA

The Sofia metro as a very rapidly developing mean of transport plans to carry more than one million passengers a day at the final stage of its implementation. This effort will be soon supported by modern, state-of-the art metro units in four car configuration from Škoda Group, which will enter service in 2026 and will run on lines 1,2, and 4. In the Bulgarian capital, the metro also runs partly on the surface, to which the vehicle design is adapted. Given the warm climate of the region, the new vehicles will be equipped with efficient air conditioning, ensuring high comfort of transportation even during the warm summer months. In order to ensure accessibility to all passenger groups, the unit is equipped with priority seats, places dedicated to people with limited mobility and baby carriages. Smooth exchange of passengers is secured by 4 double leaf doors in each car side and levelling of the boarding edge to platform through secondary suspension. The vehicles are also equipped with a battery drive for easy manipulation in the depot (without the need to connect to the power supply).

The trains will be equipped with a safety system with automatic train operation. This system ensures safe journey on the route by regulating the speed of traffic and ensure operational safety. The trains will be powered by traction three-phase asynchronous motors, which are also produced by Škoda Group. The metro trains for Sofia will be manufactured at the production sites in Ostrava and Pilsen (Czech Republic). The Sofia metro operates on a standard gauge of 1 435 mm and is powered via a third rail and the nominal voltage is 750 V. The design speed of the new trains is 90 km/h.

COMPREHENSIVE MODERNISATION

Škoda Group not only produces new metro trains, but also modernises older vehicle fleets. The company also has extensive experience with the modernisation of the original Russian cars of the Prague metro. The new five-car trains 81–71 M, running on two metro lines, consist of two front cars, an inserted car with batteries and an inserted car with a compressor. Thanks to the renovation, it was possible to increase safety for passengers and drivers, significantly extend the lifetime of wagons and streamline maintenance and operation to such an extent that the parameters of the modernised trains are comparable to those of new vehicles. At the same time, passenger comfort has increased significantly.

The front part of the vehicle, including the driver's cab, has undergone a fundamental change. Reconstructed cars received new powerful compressors, pneumatic equipment, including air dryers and a computer control system. The cars have a modern traction drive with energy recovery during braking. They also meet the latest safety regulations, including the requirement for fire resistance and non-toxicity of the floor, interior lining and the cables used. Each of the cars houses a new modern fire alarm system. The interior of the wagons has been entirely redesigned, which provides enough comfort for seated and standing passengers, with a clear information system.

FULL SERVICE

Škoda also provides complete service of metro trains. For example, in Prague the company performs full service in the largest service center, as well as in two of the three depots of the Prague metro. These are all repairs of the entire fleet on two lines of the Prague metro, so in total the company takes care of 93 modernized 81–71 M metro trains.

Maintenance and repairs take place 24 hours a day, 7 days a week. Škoda provides a high quality of work and precise adherence to service intervals, as well as speed when returning repaired cars back into service. The company is not only responsible for the maintenance and repair of products, but also for the diagnosis of faults and defects, the cleanliness of the interior and exterior of the vehicle, including the removal of the consequences of graffiti and vandalism. The company also cooperates with suppliers on developments in the field of the replacement of obsolete spare parts.

Škoda Group
skodagroup.com