ŠKODA

METRO

LOW OPERATION COSTS
CHEAP AND SIMPLE MAINTENANCE
EXTENDED LIFESPAN
HIGH RELIABILITY
SOPHISTICATED DESIGN

The metro trains produced by Škoda Transportation provide flexible and efficient transport solutions for large cities. Škoda has extensive experience in the modernization of Prague's metro cars amounting to 93 units in total. The lifespan of these units has been significantly extended. The vehicles meet all the highest safety standards required for the foreseeable future; they have a completely new interior, traction engines with the possibility of energy recuperation and a modern control system. Škoda has also manufactured complete traction equipment for metro trains in Budapest, Kiev and Kazan as well as the Chinese city of Suzhou.

The latest NěVa metro trains are designed for St. Petersburg, Russia. Škoda Transportation manufactures them in cooperation with the Russian company Vagonmash in St. Petersburg. The metro trains were developed with the aim of renewing the existing vehicle fleet and they have been in regular operation since 2013. The latest contract to supply seven new metro trainset was concluded in 2017.

METRO NĚVA

The basic configuration for St. Petersburg's new generation metro is a a six-car vehicle using eight traction bogies and four conventional bogies. Alternative metro trains can be made up out of a front engine vehicle and various combinations of integrated motorized vehicles and integrated non-motorized vehicles (from three to eight-car train units). 66% of the axles are equipped with traction drive.

Metro cars and their individual components are designed to be high-performing, reliable, and with an emphasis on low weight. This, along with high energy efficiency, results in low operating costs for the entire life of the units. There is easy access to individual devices and components of the car for maintenance purposes.

3-car train unit

6-car train unit

8-car train unit

MAIN TECHNICAL PARAMETERS

PARAMETER	„NĚVA“ METRO TRAIN
Arrangement of the metro train	**Mh-M-T-T-M-Mh**
Arrangement of the wheel set	**B'oB'o+B'oB'o+2'2'+2'2'+B'oB'o+B'oB'o**
Material of car cabinets	**steel with increased corrosion resistance**
Track gauge	**1,520 mm / 1,432 mm**
Maximum speed	**90 km/h**
Power voltage	**750 V DC / 3rd rail**
The vehicle length over couplings	**116,540 mm**
Width of the cars	**2,700 mm**
Floor height	**1,150 above TK**
Bogie weight traction / common	**6,500 kg / 4,300 kg**
Wheelbase of the bogie	**2,100 mm**
Wheel diameter maximum / minimum	**850 mm / 770 mm**
Asynchronous traction engine output	**167 kW**
Weight of the set of train cars mh / m / t	**29,9 t / 29,5 t / 22 t**
Weight of the empty train unit / maximum weight	**162,8 t / 274,38 t (8 passengers/m²)**
Maximum axle load	**12,5 t**
Number of seats	**276 persons**
Total capacity with 8 persons/m²	**1,594 persons**
Number of doors on the car	**8**
The smallest radius of curvature on the route / depot	**100 m / 60 m**
Maximum ascent	**60 ‰**
Maximum start acceleration	**1,3 m/s²**
Maximum braking rate	**1,4 m/s²**

MODERN TRAIN UNITS CAN BE UP TO 25 PER CENT MORE EFFICIENT THAN OLDER TRAIN UNITS.

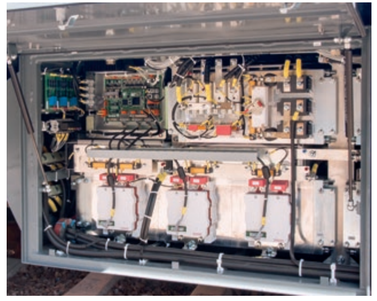
QUALITY AND COMFORT

The interior space of Škoda Transportation metro cars is designed to offer a comfortable environment for both passengers and driver. The interior layout and audiovisual information system helps the passengers to orientate themselves easily and quickly in the car.

All cars are equipped with four double doors on both sides for boarding and exiting. The interior design of the car maximizes the number of passengers that the metro train can transport.

Each vehicle is fitted with ventilation units, warm lighting which increases the comfort while travelling on the St. Petersburg metro. Alternatively, you can also have air conditioning systems installed.

The safety of both passengers and driver is monitored by an advanced camera system.



MODERN ELECTRIC EQUIPMENT

The electrical equipment that is based on proven IGBT technology saves significantly more energy compared to previous trains. All equipment is carried in traction containers which are suspended under the floor of the cars. A voltage of 750 v DC is provided from a third rail to the car using four traction collectors.

The powerful electrical system allows energy recovery while breaking which reduces the energy consumption and the operating costs for the electrical-pneumatic breaks.

The metro trains are easy and simple to drive thanks to an ergonomically designed control panel which is equipped with a controller, camera system display and a superior master controller which provides an overview over of data from various sections of the cars. The train unit has the necessary fitting for a mobile control panel which could be used for the automatic service of the vehicle.

COMPLEX MODERNIZATION

Škoda Transportation offers both the production of new metro train and the modernization of older fleets. The company has gained experience from the extensive and comprehensive upgrade of the original Russian metro cars. The new 81-71 M five-car trains, which run on two metro lines, consist of two front cars, an additional car fitted with batteries and additional cars fitted with a compressor. Within the modernization we have managed to improve the safety of the passengers and drivers, we have significantly expanded the lifetime of the vehicles and made the maintenance more efficient, so the cars are now comparable with modern vehicles. Passenger comfort has been greatly improved as well.

Most of the modernization procedures were taken at and in the front part of the vehicle. The refurbished cars were equipped with new compressors, pneumatic equipment including air dryers and computer control. Modern metro cars are equipped with a traction drive and a regenerative braking system. They also comply with the latest safety regulations, including requirements for fire resistance and non-toxicity of the floor, internal linings and cables. Each of the cars has a new modern fire alarm system. The interior design of the car is particularly new, providing generous standards of comfort to standing and seated passengers, and of course there is a user-friendly information system.

FULL SERVICE

The Škoda Transportation company also offers a complete metro train service facility. For example, in Prague the company performs the full-service for vehicles in the largest of its service centres and also at two of the three Prague Metro depots. Full repairs of the complete fleet of two Prague Metro lines are performed, i.e. a total of 93 modernized 81-71 M metro trains.

Maintenance and repairs take place on a 24 hour a day basis, 7 days a week. Škoda Transportation offers high-quality work, strict compliance with service intervals, as well as the quick return of repaired vehicles. The company is responsible for both maintenance and repairs of products and for diagnosing faults and malfunctions and for the cleanliness of the interior and exterior of the vehicle, including the removal of graffiti and repairing of any vandalism. The company also cooperates with suppliers in the development of replacements of obsolete spare parts.

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