



FACT SHEET

# New XXL trains for the Munich S-Bahn

## Overview of the key facts, figures, and dates

Length	ca. 202 meters
Width	ca. 3 meters
Weight	365 tons
Drive power	7.8 MW
Top speed	160 km/h
Number of cars	13 car bodies
Number of axes	28 axes
Seats	480
Maximum capacity	1,841 passengers
Passenger info displays	166 (104 in the interior, 62 above the doors outside)
Number of doors	31 doors on each side of the train

## Equipment and comfort

- Various seating areas throughout the 200-meter length:
  - 2 family and group areas at each end of the train
  - 80 folding seats in the multipurpose areas
  - 376 seats in classic 2-, 3-, and 4-seat arrangements
- 1.40-meter-wide doors are 20 cm wider than in older trains and – together with the spacious boarding areas – ensure improved distribution of the passengers.
- Five large multipurpose areas with automatically locking folding seats enable either additional seating or storage space as needed.
- Multipurpose areas are evenly distributed throughout the train and have three doors: Even when the train is full, the next door remains easily accessible, even with bicycles.
- Seats have a 10-cm pitch for extra legroom, as well as storage shelves, power sockets and USB sockets.
- All trains are equipped with free WiFi service.



- The trains are equipped with a powerful air conditioning system operating with environmentally friendly refrigerants and capable of handling ambient temperatures ranging from -25 to +45 degrees C.

### Accessibility

- Trains meet all accessibility standards and were designed together with the relevant associations.
- In addition to the five multipurpose zones, the trains have dedicated wheelchair areas at each end equipped with, among other things, their own displays with information about the next stations. The doors for the wheelchair areas are also equipped with automatic sliding steps (on demand) to bridge the gap with the platform.
- The spacious, distributed multipurpose areas can also be easily accessed by passengers with restricted mobility. Wider doors and generous entry space make them easier to use.
- Hearing-impaired passengers can connect their hearing aids with the train's PA system via Bluetooth so they don't miss any announcements. The passenger information displays can be seen from all seating positions.

### Passenger information

- LED strips on the car exterior show the color of the respective S-Bahn line so one can immediately identify the train's line.
- Announcements in the train can be limited to selected parts of the train depending on the situation.
- A total of 166 displays ensures comprehensive real-time passenger information:
  - 104 displays are located above the doors, along the ceiling, in the car transitions, and on the rear walls of the two driver's cabs. Among other things, they provide information about the next station, the course of the journey, current service disruptions, and space for the passenger TV.
  - 62 external displays above the doors provide information about the line, destination, and intermediate stations. Thanks to their high resolution, additional information – such as the train's current capacity or locked doors – can also be displayed when needed.
  - 4 large displays are located on the rear walls of the driver cabs.
- Displays above the doors provide information about the next station and indicate if elevator or subway access is to the right or left of the door when exiting.



## Technology and innovation

- The new trains are more innovative, digitalized and networked than ever before.
- The focus was on minimizing lifecycle costs through maximum energy efficiency, lower maintenance costs, and optimized operational support.
- This includes the use of SiC semiconductors, an innovative drive system, and an efficient transformer without oil as a coolant in combination with intelligent control software. The train's lightweight construction and aerodynamic design ensure lower energy requirements.
- The trains have a large number of redundant components and are equipped with the Railigent X system that enables condition-based, predictive maintenance and guarantees maximum train availability.
- The new trains are equipped with advanced diagnostics systems that continuously monitor and record the status of various key components during operation, such as door controls, air conditioning, etc. This data is processed and findings that are essential for operation are directly transmitted to the operation center and depot. This way, trains can be taken out of service in good time and maintenance can be more efficiently planned.
- **Up-dated software at all times**
  - Through a long-term software maintenance contract until 2034.
  - This way, Siemens Mobility and DB can jointly develop future-proof train software.
  - Software updates no longer have to be manually installed in the depot, which is time-consuming, but are transmitted to the trains via a secure online connection as part of the maintenance.
  - This online networking also enables the direct transmission of camera images to the operation center.
- **A train control system fit for the future**
  - The trains are equipped with the European Train Control System (ETCS), an Automatic Train Operation system, and a Train Integrity Monitoring system.
  - By integrating the ATO system over ETCS, the new S-Bahn trains are fit for rail transport of the future.
- **Sustainability and energy efficiency**
  - Use of SiC semiconductors
  - An innovative drive system and efficient transformer without oil as a coolant in combination with intelligent control software
  - Lightweight construction and an aerodynamic design
- Material recyclability was taken into account in the design and construction of the train. 98% of the materials used can be recycled.



- **From Bavaria, for Bavaria**
  - Around 52,000 people work for Siemens in Bavaria, including nearly 28,000 in production, 8,700 in research and development, and around 15,000 in sales and administration.
  - The company's locations in Munich, Erlangen, Nuremberg and Luhe-Wildenau play an important role in the research and development and engineering of the new S-Bahn trains for Munich along with its components.