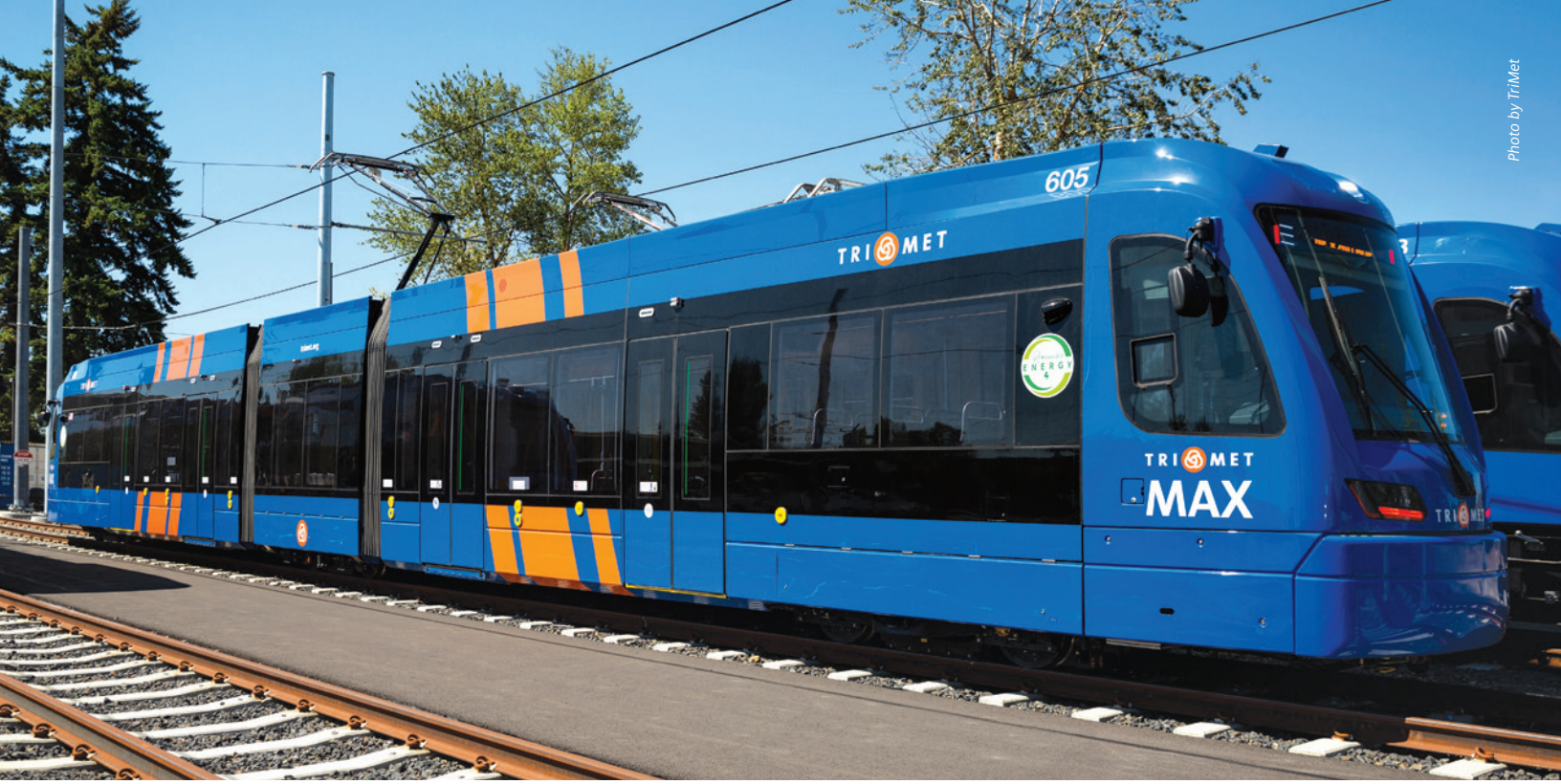


Photo by TriMet

PORTLAND, OREGON

S700 Low-Floor Light Rail Vehicle

Portland opened its Westside light rail extension in 1998 with North America's first fleet of 46 low-floor vehicles from Siemens Mobility. The success of that initial order and the increase in overall ridership over the years has prompted Portland to expand their system to nearly 60 miles of track and operate in excess of 140 light rail vehicles (LRV), which Siemens Mobility has delivered over the past 20 years. TriMet updated their fleet in 2019 to include 26 S700 low-floor light rail vehicles.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor allows access for all passengers including those in the ADA community; better sightlines for security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and doorway ramps to assist in the boarding and exiting of disabled passengers.

Performance and Capacity

Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	65 mph	105 km/h
Service acceleration and deceleration	3.0 mphps	1.34 m/s^2
Emergency braking rate	5.0 mphps	2.24 m/s^2
Passenger capacity	66 seats Approx. 220 total passengers 4 wheelchair spaces and 4 bicycle racks	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

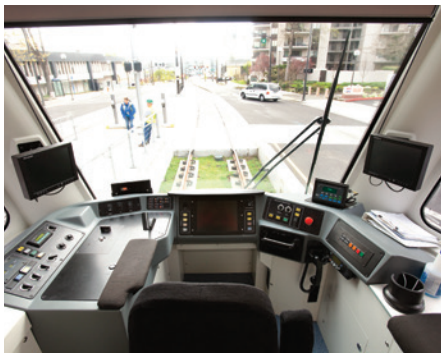
SIEMENS

To accommodate Portland's extensive bicycle population, this S700 incorporates four bicycle racks located adjacent to each forward doorway. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV. In addition, the HVAC systems include fresh air dampers that automatically adjust based on the number of people in the vehicle, keeping compartments more comfortable for riders and increasing the HVAC system's efficiency.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Maintenance improvements made include rearrangement of systems to increase access to key components on the vehicles. The diagnostic systems have also been improved to allow maintenance employees to troubleshoot and test each system from one point rather than visiting every device along the rail vehicle.



Each LRV is electrically powered from an overhead catenary system (OCS) and for Portland operates at speeds up to 55 mph, carrying up to 220 passengers in each vehicle with the ability to operate in multiple vehicle consists called married pairs. These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.

Vehicle Dimensions and Weight

Length over coupler	96.4 ft	29400 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down) (ice cutter)	12.3 ft 12.8 ft	3759 mm 3908 mm
Maximum pantograph height	up to 22.3 ft	6790 mm
Vehicle empty weight	105,000 lbs	47600 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	366 mm (threshold) 391 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks) (center truck)	6.2 ft 5.9 ft	1900 mm 1800 mm

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