NORTHEAST AND KEYSTONE CORRIDORS

ACS-64 Amtrak Cities Sprinter
Electric Locomotive

In October 2010, Amtrak – the National Passenger Railroad Corporation of the United States, ordered 70 new high-speed electric passenger locomotives from Siemens Mobility to complement Amtrak's passenger service on the Northeast Corridor (NEC) between Boston, Mass. and Washington D.C. and the Keystone Corridor between Philadelphia and Pittsburgh, Pa.

The electric locomotive is designed to fully comply with all U.S. federal standards and regulations. The monocoque carbody structure on this locomotive is reinforced to fulfill the specified 800,000 pounds buff strength while offering full-width anti-climber engagement and push-back couplers that are part of the locomotive's integrated crash energy management (CEM) system, providing enhanced safety to its occupants.

This locomotive is a wide-body, double-cab design, suited for push/pull operation without turning, and is equipped with a FastBrake New York Air Brake System and electronically controlled pneumatic brake system.

The electrical traction system is based on Siemens Mobility's technologically advanced designs utilizing service proven and reliable components. This latest version of locomotives technology used in the electric locomotive offers significant advantages to the customer, such as increased performance and efficiency, higher recuperative braking power, enhanced operability with a high level of component redundancy, and a modular maintenance design for faster servicing.

The machine room layout is based on the Siemens European Vectron locomotive, providing the benefit of a clean and spacious design, successfully proven under various operating conditions in applications worldwide.

Performance and Capacity

Maximum speed	125 mph
Catenary voltage and frequency	25 kV 60 Hz / 12.5 kV 60 Hz 12 kV 25 Hz
Rated power	6,400 kW maximum / 5,000 kW continuous
Head end power	1,000 kVA
Tractive effort (max.)	72 klbs

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To further enhance reliability, all wiring, cabling and piping is routed under the center aisle walkway within the locomotive carbody machine room for easy access and protected from external elements.

To keep up with Amtrak's Acela high-speed trains on the NEC, the ACS-64 electric locomotive has excellent acceleration capabilities and reaches a maximum speed of 125 mph with 18 Amfleet coaches while at the same time providing up to 1 MVA of head-end power for train auxiliary equipment.

These locomotives are equipped with regenerative braking, that allows energy to be fed into the power system for use by other trains. When fully deployed and operated as designed, the regenerative braking feature will result in significant energy savings over its lifespan.

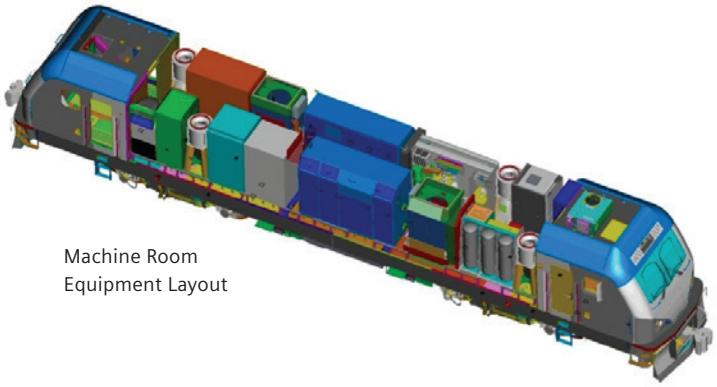
Traction and locomotive control is performed by the proven SIBAS® 32 control system. The core of the control system is the multi-function vehicle bus, interfacing with locomotive subsystem control computers and all the I/O stations as well as the man-machine interfaces, such as controls and displays on the engineer's console. New on this locomotive is the installation of the Advanced Civil Speed Enforcement System control unit, including train radio, automatic train control and positive train control.

The engineers cab and amenities have been ergonomically designed to meet the expectations of Amtrak's Brotherhood of Engineers Cab Committee.

The locomotive truck has a center pin and traction pivot design, offering a low connection to the carbody, and the truck frame is an integral welded structure.

The locomotive propulsion unit consists of a pinion hollow shaft drive with traction motors that are fully suspended, and gearboxes partially suspended for improved stability and ride quality. The primary and secondary suspension springs utilize the flexicoil system, a well-proven design used on hundreds of Siemens Mobility trucks worldwide. A triangular tie rod assures stable wheelset guidance.

Use of pivot elements and lateral mounting of secondary suspension springs significantly reduces the rotation stiffness of the truck, resulting in considerable reduction of wheel and rail wear.



Machine Room
Equipment Layout

Vehicle Dimensions and Weight

Weight	217,000 lbs	98000 kg
Length	67.9 ft	20690 mm
Width (incl. handrails)	10.2 ft	3104 mm
Height (without pantograph)	14.5 ft	4422 mm
Distance between truck centers	31.8 ft	9700 mm
Wheel diameter (new)	44 in	1117 mm
Wheel arrangement	Bo'Bo'	
Minimum curve radius	250 ft	76 m

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