

High performance culture



The Hornell Engineering Team, supported by a 3D Catia design office, works in real time with Alstom's worldwide design team to deliver designs which meet all customer specifications, regulatory requirements and provide industry-leading reliability. Colocation ensures that designs incorporate tooling, process improvements, packaging, shop layout and capacity analysis. The car assembly plant can produce up to 50 metro cars per month, and has run up to four major projects simultaneously. Since 1983 it has manufactured and refurbished over 6,000 passenger rail cars and locomotives. The propulsion plant is certified to manufacture any type of traction system for light rail vehicles, heavy rail vehicles, power cars, high-speed locomotives and diesel-electric locomotives. Alstom's traction motors are recognized as among the most reliable in the world, designed to provide 20 million failure-free kilometers.



The site in local terms

Located in Western New York State, the city of Hornell is in the southwest corner of the Finger Lakes Region. It is nestled in the Canisteo Valley, surrounded by tree-covered hillsides, with a population of about 10,000.

The Alstom site is a mainstay of the city's employment, and over 60% of Alstom's supply base is in New York State. Hornell is in close proximity to some of the largest cities in New York State: 60 miles from Rochester, 40 miles from Corning and 93 miles from Buffalo.



Where we are

- By plane: Fly to Rochester, NY and then drive 69 miles, taking I-390 South and NY-36 South to the Hornell site.

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Hornell Manufacturing Center of Excellence Creating the Future of Rail Transportation

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Hornell - Manufacturing Center of Excellence

Creating the Future of Rail Transportation

Key dates

- 1851** ■ Site begins operation, one year after the first Erie Railroad wood-burning locomotive arrives in Hornell
- 1997** ■ Alstom acquires the site from Morrison Knudsen and begins investing an eventual \$50+ million
- 1998** ■ Upgrades the motor shop to manufacture and test propulsion controller equipment in addition to AC and DC traction motors
- 2003** ■ Adds a new 70,000 sq ft rail car facility
- 2004** ■ Launches APSYS (Alstom Production SYStem) to implement "lean manufacturing", reducing cycle time, increasing quality and promoting team involvement
- 2008** ■ Delivers the 30,000th traction motor
- 2009** ■ Builds 40 R160 transit cars each month for NYC MTA, on contract for over 1,000 cars



Customers served include:

- **New York City Transit (NYCT)** 1,002 new metro cars (R160 series)
- **Washington Metropolitan Area Transit Authority (WMATA)** 364 remanufactured metro cars (2000/3000 Series); 184 new metro cars (6000 Series)
- **New Jersey Transit (NJ Transit)** 33 new diesel-electric passenger locomotives; 265 new Comet V push/pull commuter cars
- **Chicago Transit Authority (CTA)** 598 remanufactured metro cars (2600 Series)
- **Metropolitan Atlanta Rapid Transit Authority (MARTA)** 218 refurbished metro cars (98 CQ310 Series and 120 CQ311 Series)
- **Amtrak** 40 new "Pacific Surfliner" passenger rail cars; propulsion for new Acela trainsets

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Key figures

- **700,000 sq. ft.** total three facilities
- **2,000 employees** maximum capacity
- **100,000** man-hours of **Production** per month
- Proven rail car capacity **50 Transit Cars** per month
- Proven motor capacity **280 Traction Motors** per month
- Up to **110** production of **Trucks (bogies)** per month

Versatile productivity

Hornell, NY is home of the largest passenger rail car facility in the US. This Alstom Manufacturing Center of Excellence includes an engineering department, a car assembly plant, a propulsion plant and a truck plant. Home to railroad manufacturing since 1851, the Hornell site designs, produces and assembles the most reliable new and refurbished rolling stock in the US: rapid transit metro cars, commuter and intercity coaches and passenger locomotives. It also produces AC & DC propulsion and traction motors as well as electrical rotating equipment and other components. Alstom is the only manufacturer in North America to perform total on-site testing. The facility has a complete multiple voltage, 40 MPH test track, and includes the US's only climate room for testing and validating all types of rail cars for operations over an extreme range of climate conditions, from -20 to +140 degrees F and 5 to 95% humidity.

Alstom Transport is a worldwide leader in the rail transportation market for equipment and services. The company is number 1 in high-speed and very high-speed trains, and number 2 in urban transportation. One metro out of four currently in operation has been built by Alstom.

Delivering quality

Hornell's Business Excellence Department is entirely devoted to quality control, to ensure customer satisfaction by delivering quality products, on time and on budget. These objectives are achieved by: supporting the way each department manages its work, verifying the application and efficiency of the processes, procedures and instructions through audits, ensuring compliance with standards: ISO 9001, ISO 14001 and IRIS (International Railway Industry Standard).

The Business Excellence team implements the Quality Policy within the organization through Key Performance Indicators and common objectives, and conducts monthly performance reviews. Controls on product quality throughout the manufacturing process include, for example, more than 15 inspection steps during metro car production before product release and shipment. The Supplier Quality group controls the quality of parts and sub-assemblies delivered to Alstom, through supplier process validation and critical inspections.

It is responsible for quality within each project, acting as interface with the customer for all quality matters, coordinating the quality network, piloting the design for validation and supporting operations in problem-solving.

Extensive testing in both the propulsion plant and the car assembly plant includes dynamic track tests, thorough water tests and a total of 34 static tests throughout the facility. The plants have the capacity for testing 44 trainsets per month.

The APSYS advantage

The Hornell site employs the Alstom Production SYStem (APSYS), which ensures sustainable and effective production. APSYS is defined by its standardization of operations, problem-solving, operator involvement and management of methods and tools for continual improvement. Use of common reference tools facilitates sharing of best practices across Alstom's global operations. APSYS enables Alstom to ensure flexibility in its manufacturing processes, reduce cycle time, achieve productivity gains and deliver consistently high quality and factory safety. Thanks to APSYS, ISO quality certification is supported throughout all Alstom activities.



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- 1 - Amtrak Surfliner
- 2 - WMATA 6000
- 3 - New Jersey Transit PL42-AC
- 4 - NYCT R160