ROLLING STOCK
For nearly 100 years, Hitachi has worked in partnership with railway operators, supplying highly reliable and safe products for total railway integration. Partnership is the key to any successful railway project and we’ll listen carefully to your business requirements, using our extensive rail expertise to deliver a reliable and enjoyable train experience for your customers.

At Hitachi we’re totally focused on delivering trains which exceed our customers’ expectations. Our design and attention to detail provide the ultimate rail experience and the passion we put into our products, along with our exceptional service delivery, combine to create a unique rail experience.

Proudly built in Europe
Hitachi is continuing its long-term commitment to the UK and Europe with a major investment in a European manufacturing facility. Based in Newton Aycliffe in the North East of England, this site will employ over 700 people and will include a R&D facility.

Our factories are set up to deliver at least 60 cars per month and, as our product development and testing is carried out on-site at the design and build stage, we can guarantee delivery on time.
The A-train design concept is based on a flexible system capable of adapting to all kinds of rail vehicles.

Interior and exterior options are available to create a fully flexible unit to meet every rail requirement.

The A-Train Family consists of the train types to meet every requirement. The AT-100 Metro, AT-200 Regional and the AT-300 High Speed (including the iconic Class 395 which provided the Javelin train service for the Olympics).
AT-100 METRO

Efficient, High Capacity Commuting

The AT-100 has been developed to meet the operational conditions and requirements of the Metro. With a 160 km/h top speed, it’s also suitable for longer, inner suburban journeys.

**Fully flexible layout**

The layout is designed to cope with the mass movement of commuters, to make the daily commute comfortable and enjoyable, whether a few stops or a 40-minute journey. Interior space is fully flexible and optimised to support customer requirements. Longitudinal seating format is offered but other arrangements are available, including 2+2 or a mixture of longitudinal and transverse.

**Short, reliable dwell times**

The spacious interior makes boarding and disembarking practical and easy. The interior gangway can be open, to allow free movement between carriages, or partitioned by a door. Every available space is utilised for the comfort of passengers and also to enable fast cleaning.

**Flexible door positions**

The bodyshell is designed for up to three doors per side, providing maximum movement for passengers getting on and off the train. Other door configurations are also available.

**Infotainment systems**

On-board infotainment systems are available to help passengers track their journey, or deliver advertising revenue and give real-time information, such as station connections.

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**AT-100 Technical Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max speed</td>
<td>160 km/h</td>
</tr>
<tr>
<td>Car length</td>
<td>20 to 25 metres</td>
</tr>
<tr>
<td>No of cars per set</td>
<td>3 to 12</td>
</tr>
<tr>
<td>Infotainment</td>
<td>Passenger information and LCD advertisement</td>
</tr>
<tr>
<td>Seating arrangement</td>
<td>Seating plan to suit your business</td>
</tr>
<tr>
<td>Toilets</td>
<td>UAT and space saving options</td>
</tr>
<tr>
<td>Doors</td>
<td>3 double leaf per side</td>
</tr>
<tr>
<td>Catering</td>
<td>Trolley options or buffet style counter service</td>
</tr>
<tr>
<td>Gangway arrangement</td>
<td>Open wide gangways or sliding door partitions</td>
</tr>
<tr>
<td>Car body</td>
<td>Extruded aluminium alloy with welded or bolted assembly</td>
</tr>
<tr>
<td>Acceleration</td>
<td>Up to 1m/s²</td>
</tr>
<tr>
<td>Deceleration</td>
<td>0.9m/s² (service brake), 1.2m/s² (emergency brake)</td>
</tr>
<tr>
<td>Regenerative braking</td>
<td>Nominal 12% reduction in energy consumption</td>
</tr>
<tr>
<td>Traction system</td>
<td>IGBT converter and Induction motors</td>
</tr>
<tr>
<td>Signalling</td>
<td>TPWS and AWS with ETCS 2 options</td>
</tr>
<tr>
<td>ATO control</td>
<td>Accuracy to 0.3 metres</td>
</tr>
<tr>
<td>Crew requirement</td>
<td>Driver only operation and selective door operation (SDO)</td>
</tr>
</tbody>
</table>
AT-200 REGIONAL

Travelling for Business and Leisure

The AT-200 is designed to meet needs of the regional or outer suburban customer, who typically has a 50 to 80 minute journey. The 160 km/h train efficiently connects those from larger conurbations to city centres.

Space to work or relax
The interior configuration of the AT-200 is designed to be flexible, to accommodate diverse customer needs. Special features are available such as additional space for luggage, extra tables, transverse seating, well-designed lighting, laptop power points and on-board WiFi.

Meeting market needs
The AT-200 can provide First Class facilities, with reclining seats and a relaxed 2 + 1 seating format if required. Door layout is specifically designed for these services, with two each side to cope with peak times, enabling dwell times within the 60 to 90 second range to be achieved.

Flexible by design
The versatility of the AT-200 and the flexibility that can be built into its design makes it the ideal solution to the demands of today’s rail passengers.

AT-200 Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td>Max speed</td>
<td>160 km/h</td>
</tr>
<tr>
<td>Car length</td>
<td>20 to 25 metres</td>
</tr>
<tr>
<td>No of cars per set</td>
<td>3 to 12</td>
</tr>
<tr>
<td>Infotainment</td>
<td>Passenger information and LCD advertisement</td>
</tr>
<tr>
<td>Seating arrangement</td>
<td>Seating plan to suit your business</td>
</tr>
<tr>
<td>Toilets</td>
<td>UAT and space saving options</td>
</tr>
<tr>
<td>Doors</td>
<td>2 double leaf per side</td>
</tr>
<tr>
<td>Catering</td>
<td>Trolley options or buffet style counter service</td>
</tr>
<tr>
<td>Gangway arrangement</td>
<td>Open wide gangways or sliding door partitions</td>
</tr>
<tr>
<td>Car body</td>
<td>Extruded aluminium alloy with welded or bolted assembly</td>
</tr>
<tr>
<td>Acceleration</td>
<td>Up to 1m/s²</td>
</tr>
<tr>
<td>Deceleration</td>
<td>0.9m/s² (service brake), 1.2m/s² (emergency brake)</td>
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<tr>
<td>Regenerative braking</td>
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<tr>
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<tr>
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<tr>
<td>Crew requirement</td>
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</tr>
</tbody>
</table>
High speed and longer journeys
Hitachi’s newest AT-300 derivative builds upon the tradition of the iconic British Rail-designed High Speed Train.

Fully flexible inside and out
The versatile bodyshell design and system options on the AT-300 deliver speeds of 225 km/h, with options up to 250 km/h available. A diverse range of interiors and door configurations meet the needs of the interurban passenger.

Stylish comfort
The AT-300 offers different levels of comfort and amenities for a variety of class types, with extra features for passenger comfort. Bespoke catering can be accommodated, which can be rapidly upgraded and refreshed.

AT-300 Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Max speed</td>
<td>200 to 240 km/h</td>
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<tr>
<td>Car length</td>
<td>20 to 25 metres</td>
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<tr>
<td>No of cars per set</td>
<td>5 to 12</td>
</tr>
<tr>
<td>Infotainment</td>
<td>Passenger information</td>
</tr>
<tr>
<td>Seating arrangement</td>
<td>Seating plan to suit your business</td>
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<tr>
<td>Toilets</td>
<td>UAT and space saving options</td>
</tr>
<tr>
<td>Doors</td>
<td>2 single leaf per side, corner or 1/3 and 2/3 positions</td>
</tr>
<tr>
<td>Catering</td>
<td>Trolley options or buffet and shop style counter service</td>
</tr>
<tr>
<td>Gangway arrangement</td>
<td>Sliding door partitions</td>
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<td>Crew requirement</td>
<td>Driver and train crew plus selective door operation (SDO)</td>
</tr>
</tbody>
</table>

Class 395

Contemporary icon
Our very successful Class 395 is the first in Hitachi’s family of AT-300 units and its introduction to HS1 in 2009 continues to be a success story. It has set new standards for performance in High Speed trains in the UK.

On time delivery
The early units were delivered nine months early, with the entire fleet supplied to programme and entering service in December 2009. Passenger satisfaction surveys have proved how a new train can increase passenger numbers.

Cutting edge design
The layout of the interior provides a premium environment, with increased legroom for every passenger and special features designed for high speed commuting.

The newest AT-300 derivative the ‘Super Express’
Driving Revenue

New trains, more passengers

There’s a significant opportunity to increase passenger growth and reduce costs on today’s railway.

Increasing passenger demand
Our experience with the introduction of the Class 395, along with other new train fleet introductions in the UK such as West Coast, demonstrates that new rolling stock does have a significant impact on increased passenger numbers and drives revenue. Evidence also suggests that this isn’t just a short-term gain, but a trigger for longer-term growth that can launch a distinguishable and specific brand.

Customer Satisfaction Assured
Hitachi know that frequency of service, speed, safety and usable space promote passenger satisfaction and sustained growth. Tangible operational advantages are also achieved in design, dwell time, acceleration, multiple working, through gangways, driver-only operation and high unit availability. We can work with you to produce the right design to maximise your passenger growth potential.

14% of passengers say they are travelling more frequently because of Class 395
Train Operator Research

InterCity West Coast (since 2003)

Train Miles (m)  Passenger Journeys (m)

Increasing passenger demand

Working in partnership
We have invested time in understanding the train-operating business, listened to many industry stakeholders and applied lessons learnt from our UK work to new projects. Working in partnership, our extensive experience will help drive your business growth.
DELIVERING PERFORMANCE

Reliable technology

100 years of Hitachi precision engineering and innovation means we are committed to the latest proven technology and providing ultra-reliable, modern train systems that are fit for purpose and pave the way for future growth.

Maximising utilisation
Our highly reliable trains will improve both your service targets and confidence. This means you can rest assured, knowing that your timetable is achievable.

We’re continuously improving our maintenance strategy to ensure that trains are presented for service in a fault-free, clean and customer-ready condition. We ensure there’s always capacity in the availability forecast to deal with the unexpected.

Reliability from day one
Our Class 395 train was acknowledged to work “out of the box” by industry specialists, immediately delivering 50,000 km (30,000 miles) between technical casualties with every unit in the fleet. Such consistency demonstrates the high level of repeatability in our design and manufacturing processes.

In service, the class 395 has continuously delivered outstanding levels of reliability.

Shorter dwell times
The efficient movement of people is crucial to achieving capacity, being punctual and avoiding unnecessary penalties. Before manufacture, we can model ingress and egress and optimise the design, such as varying the dimensions, layout and number of doors, to minimise station dwell times.

94% of Passengers are very satisfied with the Class 395 Service

Train Operator Research

Moving Annual Average (Southeastern Class 395)

- Km
- 120,000
- 110,000
- 100,000
- 90,000
- 80,000
- 70,000
- 60,000
- 50,000
- 40,000
- 30,000
- 20,000
- 10,000

REDUCING COSTS

Class-leading efficiency

Hitachi is committed to reducing ‘cost of ownership’ and helping our customers get the best possible return on investment.

Energy-efficient technology
The cost and availability of energy remains a challenge for train operators. Hitachi understands the importance of conserving energy and even generating it. Options in our current product range include aids to monitor and guide the driver in efficient driving techniques, regenerative braking to give a 12% reduction in electricity bills and efficient diesel engine solutions to give class-leading fuel usage per passenger mile.

Delivering Performance
Hitachi eliminates train obsolescence by designing away problems without impacting on service requirements. Design, manufacture and management of materials and spares is all part of our service, removing potential expense from your risk profile.

Our trains are quick and easy to maintain, so are less demanding on facilities and resources.

50% MORE TRACK FRIENDLY THAN CURRENT HIGH SPEED DIESEL TRAINS

Using VTISM Computer Modelling
FLEXIBLE DESIGN

Modular approach
Our train construction principles are based on modularity, with a range of interchangeable building blocks to achieve a design that is right for your operation. This keeps design costs low, allows us to offer trains from the factory in industry-leading timescales and, as your business grows, deliver revisions with a minimum of re-engineering.

Fully customisable
The flexibility of our construction allows you to provide your customers with the facilities they require and position your brand in the market place.

For example, if the train’s external appearance is a key part of your marketing strategy, we can offer styling whilst keeping costs low.

Interior architecture
The interior system building blocks offered by Hitachi are fully integrated into a single interior architecture to give a fluent and cohesive design, which can also be updated. A choice of luggage rack, lighting, passenger information, tables, seats, etc. is available to suit any particular requirements.

Industry-leading timescales
Our modular and flexible approach to construction guarantees a fully-functional train in only 24 months and service operation just eight months later.
INTERIOR DESIGN

Delivering the best rail experience

We know that your train’s interior will directly affect your passengers’ perceptions about their journey and your brand. Hitachi offers interiors that are functional and meet all necessary standards of legislation, performance, maintainability and durability.

One Standard Vehicle Platform
Hitachi focuses on achieving the right design aesthetic for each AT train and marketplace, whilst retaining quality and reliability.

We will provide appropriate interior design elements, both visible and functional, to satisfy passenger expectations.

Latest features
- Fully cantilevered seats, allowing for a clean and simple floor area, free from rubbish traps.
- Underfloor heating which provides a clutter-free footwell area and uniform heating throughout the saloon.
- Indirect, low maintenance, LED lighting to reduce power consumption and increase lighting unit life.

Changing needs
As your business grows, new markets may emerge with different needs or other routes might be required for growth. Hitachi can re-configure our vehicles to meet these demands, as part of our business partnership.

Changes can be made whilst maintaining standards of service so that existing business isn’t disrupted.

Information is Key to Growing Revenue
Passenger infotainment systems offer high-quality travel information and are also a potential source of revenue as they can be used for advertising.

Hitachi is a world leader in the innovation of communications and control technology and we can provide the latest solutions including:
- ceiling-mounted, double-sided panels giving route information
- large monitors in draught screens and interior screens, showing news and advertising as well as geographical information
- pelmet panels giving seat reservation information as well as advertising displays
- exterior screens providing service and route information
- WiFi systems and at-seat power points for digital devices
“HITACHI HAS RESPONDED IN AN EXEMPLARY WAY TO THE GOVERNMENT’S COMMITMENT TO HIGH SPEED RAIL...”

Philip Hammond, Secretary of State for Transport 2011

“THE 395 WAS AN IMPORTANT MILESTONE FOR US, AND OUR FIRST OPPORTUNITY TO FULLY DEMONSTRATE THE CALIBRE OF OUR HIGH-QUALITY ROLLING STOCK THAT WE CAN OFFER THE UK AND EUROPE”

Alistair Dormer, Hitachi Rail Europe

“I’VE WORKED FOR OVER 25 YEARS IN THE UK RAIL INDUSTRY, AND CLASS 395 HAS BEEN THE SMOOHEST NEW TRAIN INTRODUCTION I’VE EVER EXPERIENCED”

Charles Horton, Managing Director, Southeastern