

# HIGH SPEED TRAINS

## AVELIA PENDOLINO

### SINGLE DECK HST

## PRODUCT SHEET



Pendolino, designed for high-speed lines as well as for conventional networks, provides great flexibility, smooth cross-border operations and enhanced passenger comfort.

### GENERAL DESCRIPTION

Avelia Pendolino is part of the Avelia range, based on proven technology used in more than 1,450 high-speed trains in service worldwide. The train is designed to run at up to 250 km/h and optimized for both conventional lines and high-speed lines. Its distributed traction offers a great flexibility, in terms of length and number of cars. Pendolino can be equipped with Tiltronix, Alstom's tilting technology, to reduce journey time on winding networks.

### CUSTOMER BENEFITS

#### Great versatility

Avelia Pendolino can be fully customized from interior layout to the number of cars (from 4 to 11), voltage power supplies, loading and track gauges. Furthermore, Alstom's expertise allows operators to even plan the future evolution of their train and to modernize them with minimum impact on operation.

Pendolino can reach speeds of 250 km/h, on dedicated high-speed track, with only 75% of its available traction power and track-friendly bogies.

#### Short-time delivery

Alstom is committed to deliver according to the schedule fixed with the customer, while matching with high quality standards, European certification and high customer satisfaction. This has been demonstrated with the new Pendolino for NTV .italo in Italy which entered in commercial service 2 years after the signature of the contract.

#### Enhanced passenger experience

Pendolino offers flexible configurations: Different ambiances, areas dedicated to persons with reduced mobility, catering facilities, areas for children, dynamic passenger information systems, wide corridors and gangways. Pendolino provides optimum traveling experience even under extreme climate conditions. It offers high-performance air conditioning, thermal insulation systems, winterization (up to -45°C) and protection against snow.

#### Truly cross-border

Avelia trains are already running in 21 different countries, crossing 16 borders. The Avelia trains integrate ERTMS and national signalling systems. They are designed to run with 4 different voltages. Pendolino is certified to operate in 14 countries, including 7 cross-border journeys. Avelia Pendolino was the first train in commercial service compliant with the latest European TSI (Technical Specifications for Interoperability).

### KEY BENEFITS / KEY FIGURES

- Alstom Avelia's proven technology: used in 1/4 high speed trains in service in the world
- Over 400 Pendolino HST running in 14 countries and crossing 7 borders
- Avelia Pendolino allows speed increase by up to 30% in curves, thanks to tilting option
- Over 300 trains equipped with Tiltronix tilting system running in Europe and North America

# AVELIA PENDOLINO

## TECHNICAL SPECIFICATIONS

Architecture	Distributed traction; non-articulated From 4-car to 11-car configuration
Capacity	430 to 530 passengers (in 7-car version)
Service speed	250 km/h
Power	5.5 MW (reference solution 7-car)
Power supply	25 kV AC / 15 kV AC / 3 kV DC / 1.5 kV DC
Length	187 m (reference solution 7-car)
Dynamic Gauge	Standard UIC 505-1 G1
Track Gauge	Delivered on standard UIC 1435, Russian 1520, Iberian 1668
Platform height compatibility	550 mm or 760 mm, with autonomous access for wheelchair users
Tilting technology in option	Up to 8° angle Up to 2 m/s <sup>2</sup> track non-compensated acceleration



## TILTING TECHNOLOGY

To reduce journey time on conventional winding networks, with guaranteed passenger comfort, Pendolino can be equipped with Tiltronix, Alstom's anticipative tilting technology. This option enables the train to run at speeds 30 to 35% faster on curves than a standard train, without extensive upgrade of infrastructure. With less braking needed, it also avoids losing energy.

## CERTIFIED IN 14 COUNTRIES

- Austria
- China
- Czech Republic
- Finland
- Germany
- Italy
- Poland
- Portugal
- Russia
- Slovakia
- Slovenia
- Spain
- Switzerland
- The United Kingdom

## ENERGY EFFICIENCY

- Aerodynamics improvement
- IGBT traction converters (AGV technology)
- Enhanced braking energy recovery
- Metering system
- Automatic closure of doors & Eco-driving available
- Full LED lighting



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