



Europe is changing, with increasing amounts of goods flowing across more and more borders. For rail transportation, this means high standards are required in terms of technical flexibility and economic planning, with the market demanding greater investment security and functionality as well as retrofit and conversion capabilities. These requirements were the basis for the development of Vectron, the first systematically market-oriented product on the European locomotive market.

#### Country packages as a series feature for borderless mobility

Vectron's innovative smart train protection concept guarantees flexibility in European systems, both now and into the future. Vectron is preconfigured for deployment in virtually all European countries. The overall concept integrates the train protection systems used throughout Europe, and takes into account the integration of the GSM-R and analog train radio system for the 450 MHz and 160 MHz range. Preferred variants which are pre-tested and certified are quickly available for short delivery times.

#### Long-standing locomotive expertise for market-leading performance

Vectron relies on proven strengths combined with future-oriented strategies and innovations. Vectron was developed on the basis of the experience gained from over 1,600 Europrinters and Eurorunners. Features like the transmission of tractive effort via pivot pins, high traction power, and very effective utilization of tractive effort have been continued in the Vectron. The front end – with its crash-absorbing crumple zone – has already been in use successfully for several generations. The list of proven technologies also includes the pinion hollow shaft drive, which has been further developed for the Vectron into the high-performance class.

#### Sustainable convertibility for exceptional investment protection

National systems that can be configured for specific countries and are easy to exchange are linked intelligently and flexibly to an ETCS kernel for the first time in the Vectron. Adding or removing train control systems is easy with the right preliminary equipment package. Future-oriented design features also make for easy upgrading and conversion. This means, for example, that classic screw couplings with side buffers can be integrated in the headpiece, as can center buffer couplings.

#### Technical data

Length	18,980 mm
Width	3,012 mm
Height	4,248 mm
Wheel arrangement	Bo'Bo'
Starting tractive effort	300 kN
Max. axle load	22.5 t
Wheel diameter new / worn	1,250 / 1,170 mm
Profile	UIC 505-1

# Vectron

A universal locomotive for the European market

# Vectron. Creating Corridors

## Components

- Brake rack
- Traction-motor blowers
- Fire-extinguishing system
- Auxiliary equipment rack
- Low-voltage equipment cabinet
- Dynamic braking resistor
- Oil and water cooler
- Auxiliary transformer rack
- Traction converter
- Compressed-air equipment rack
- AC high-voltage equipment cabinet
- DC high-voltage equipment cabinet
- Train-protection cabinet 3
- Train-protection cabinet 1/2



## Multi-system locomotive

Wheel arrangement	Bo'Bo'
Voltage system	AC 25 kV, 50 Hz AC 15 kV, 16.67 Hz DC 3 kV DC 1.5 kV
Max. power (kW)	6,400
Starting tractive effort (kN)	300
Maximum speed (km/h)	160 / 200
Weight* (t)	ca. 87



## AC locomotive, high power

Wheel arrangement	Bo'Bo'
Voltage system	AC 25 kV, 50 Hz AC 15 kV, 16.67 Hz
Max. power (kW)	6,400
Starting tractive effort (kN)	300
Höchstgeschwindigkeit (km/h)	160 / 200
Weight* (t)	ca. 85



\* depending on configuration and ballast



## Options

- ▮ Sanding axle 2 and 3
- ▮ Axle isolating switches (MS, AC high power)
- ▮ Active rotary damper
- ▮ Auxiliary driver's control panel
- ▮ External power supply 1- and 3-phase on both sides
- ▮ Thermoelectric hot / cold box
- ▮ Rear-view system (camera)
- ▮ Remote data transmission
- ▮ Fire extinguishing system
- ▮ Pressure protection
- ▮ Oil-free compressor

### AC locomotive, medium power

Wheel arrangement	Bo'Bo'	
Voltage system	AC 25 kV, 50 Hz AC 15 kV, 16.67 Hz	
Max. power (kW)	5,200	
Starting tractive effort (kN)	300	
Maximum speed (km/h)	160	
Weight* (t)	ca. 82	

### DC locomotive

Wheel arrangement	Bo'Bo'	
Voltage system	DC 3 kV	
Max. power (kW)	5,200	
Starting tractive effort (kN)	300	
Maximum speed (km/h)	160 / 200	
Weight* (t)	ca. 80	

### Traffic mission oriented portfolio for long-term cost-efficiency

Vectron has been designed for all types of transportation needs. Whether you operate nationally or across borders, with passenger or freight traffic, Vectron can meet all your traction needs efficiently and cost-effectively. A variety of performance classes and voltage systems with AC, DC, or multisystem variants allow for flexible configuration. Vectron's modular concept also permits cost-optimized basic variants.

### Environmentally friendly concept for a clean future

The protection and preservation of the environment is an urgent matter for our society. Environmentally friendly vehicles – which at the same time ensure cost efficiency over the long term – support our market positioning as a sustainable mobility provider. Vectron is a vehicle that has been systematically designed for optimal environmental-friendliness, and not just because of its highly efficient utilization of braking energy and maximum recyclability.

### Needs-based service for highest availability

Maintenance needs vary from customer to customer. That's why, the Vectron Railcover service concept is built on a modular concept based on a total of 1,000 contractual years of experience in global maintenance projects. Every customer can choose from a large number of carefully conceived modules and assemble a service package adapted to their specific requirements.



#### Spare parts supply

The focus is on reducing downtimes of rail vehicles – and Siemens ensures that your vehicle fleet is back in operation quickly with new parts, exchange parts, and regular maintenance packages. A central material warehouse containing all important parts allows us to quickly react to customers' parts requirements.

#### Maintenance

Whether you're seeking preventive or corrective maintenance, Railcover ensures Vectron's maximum availability throughout Europe. With a dense network of Siemens' own service locations and contract workshops, there will always be a service depot in your area. Customers can concentrate their resources on operations while Siemens ensures that their trains run smoothly.

#### Support

The Siemens Rail Support Center is available around the clock, and if necessary can dispatch a mobile service technician to the site of the locomotive, along with the necessary parts. Assisted by remote diagnosis, and with the help of development engineers if needed, Siemens' locomotive experts can rectify complex technical faults in a very short time.

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The information in this document contains general descriptions of the technical options available, which do not have to be present in all individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.