



## LOW-FLOOR LIGHT RAIL VEHICLE VARIOBAHN

Bybanen from Bergen in Norway

Since January 2008, the city of Bergen has ordered 28 Variobahn vehicles. The order was based on the decision to build a new Light rail vehicle system. The first section of the network is a 10-kilometre stretch between Bergen city centre and Nesttun. This route was expanded by two additional sections to Flesland. When the third section was built, the company exercised an option for eight seven-car vehicles and ordered the extension of the existing 20 Variobahns from five to seven cars. The bi-directional vehicles for Bergen have a maximum floor height of 350 millimetres (100% low-floor) and a gauge of 1435 millimetres. The Variobahn is a modern, modular Light rail vehicle system with a high level of flexibility in terms of length, width, gauge and catenary voltage.

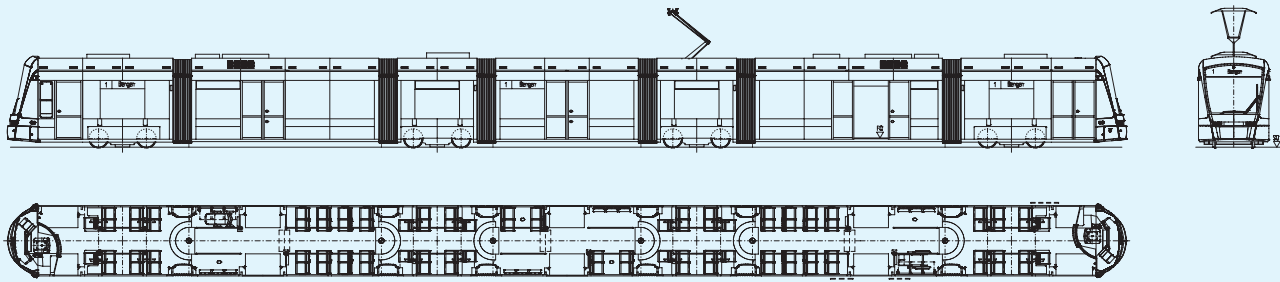
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## Technical features

### Technology

- Modular design based on main functions
- Bi-directional vehicle
- Body shell made of stainless steel
- Adhesive bonding technology for external panelling
- Length and width can be adjusted using selected modules
- Optimum use of minimum clearance outline
- Air-conditioned passenger compartments and driver's cabs
- Spacious articulated gangway with flexible interior panelling

### Comfort

- Constant floor level: 100% low-floor
- Free seat configuration in the passenger modules
- Designer interior with LED lighting

### Personnel

- Ergonomically designed driver's cab

### Reliability / Availability / Maintainability / Safety

- Fire protection for vehicles that can be operated in tunnels as per DIN 5510

## Vehicle data

<b>Customer</b>	Hordaland fylkeskommune (Bybanen)	
<b>Designation</b>	Five-car	Seven-car
<b>Area serviced</b>	Bergen city centre to Lagunen	Bergen city centre to Lagunen
<b>Number of vehicles</b>	20	8
	(Conversion to seven-car vehicles from 2016)	
<b>First delivery</b>	2009/2010/2013	2015
<b>Vehicle length</b>	32370 mm	42140 mm
<b>Vehicle width</b>	2650 mm	2650 mm
<b>Height (with roof-mounted components)</b>	3500 mm	3500 mm
<b>Access height</b>	315 mm	315 mm
<b>Floor height</b>	350 mm	350 mm
<b>Aisle width</b>	720 mm	720 mm
<b>Unladen weight</b>	41800 kg	55900 kg
<b>Wheel diameter</b>	650/570 mm (new/worn)	650/570 mm (new/worn)
<b>Driving wheels/ carrying wheels</b>	8/4	12/4
<b>Catenary voltage</b>	750 V	750 V
<b>Drive system</b>	8 × 45 kW	12 × 45 kW
<b>Max. speed</b>	70 km/h	70 km/h
<b>Seats</b>	84	98
	(incl. tip-up seats)	(incl. tip-up seats)
<b>Standing capacity (4 pers./m<sup>2</sup>)</b>	128	182
<b>Curve radius</b>	25 m	25 m