VOITH

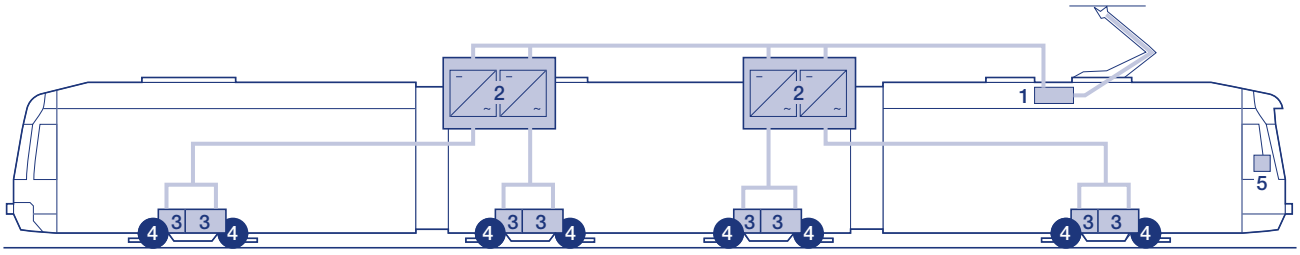
Runs More Efficiently.
Artic Low-Floor Tram for Helsinki City Transport

Electric traction system from Voith for Artic low floor trams in Helsinki

The 40 low-floor trams for Helsinki combine the traditional freely turning bogie design with modern low floor car body. Specific climatic and track conditions for Helsinki operation are particular considered. The tram has a highly energy efficient electric traction system where each bogie is powered independently. It consists of high voltage equipment, two double traction inverter and eight fully equipped drivelines including motor-gear units and the complete wheelsets. Additionally, the Voith scope contains the monitoring- and diagnostic system of the whole vehicle.

Vehicle manufacturer	Transtech / Škoda, Finland
Operator	Helsinki City Transport, Finland
Year of construction	2013
Track gauge	1000 mm
Vehicle length	27.6 m
Tara weight	41.6 t
Axle arrangement	(Bo')+(Bo' Bo')+(Bo')
Maximum speed	80 km/h
Catenary wire voltage	600 VDC
Maximum power	675 kW

Traction system



1 High voltage equipment
2 Double traction inverter
3 Motor-gear unit
4 Complete wheelset
5 Monitoring and diagnostics system

Double traction inverter EmCon DI1000-5AR

The DI1000-5AR traction inverter with 2 x 245 kVA continuous power and a max. short time power of 2 x 440 kVA is the core product of the traction system. State-of-the-art power electronics, compact and low-inductive power stack design with best switching characteristics and a high-performance air cooling circuit are the technical base for the excellent performance of the traction inverter.

Monitoring and diagnostics system

The control functions of the tram are mainly hard-wired. In addition, Voith delivers the vehicle control system for further functions including a tailor-made monitoring- and diagnostics system for the whole vehicle.

Motor-gear unit and complete wheelset

The fully suspended motor-gear unit provides 65 kW continuous power and enables a low floor design in conjunction with high driving dynamic at all track conditions. The tram is able to cross water flooded sections, up to 20 cm above rail level and up to 200 m long, without causing any disturbances in the electric or mechanic components. The complete wheelset contains wheels, axle and axle bearings.

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