

Just Drive On. Low-Floor Trams with Energy Storage Units for Shenyang

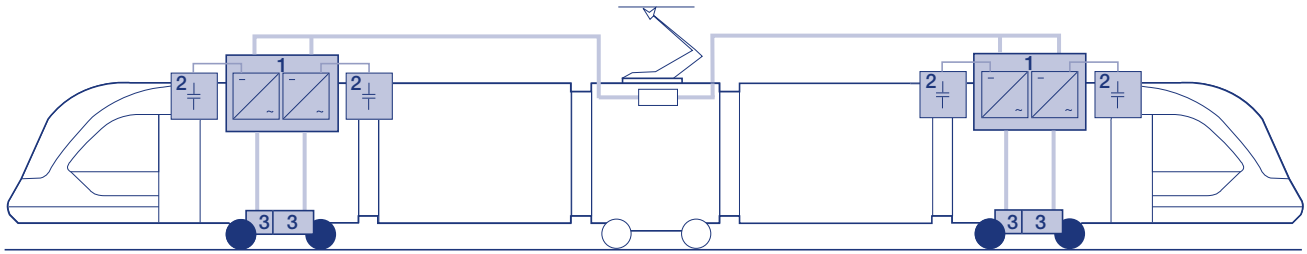


Electric traction system from Voith for 100% low-floor trams in Shenyang.

The traction equipment of the 10 modern 100% low-floor trams of the capital of Liaoning Province consists of two double traction inverter, four SuperCap energy storages and four traction motors. Additionally, Voith provides gear units and Scharfenberg coupler. The maximum power of the vehicles is 700kW. Thanks to the SuperCaps, they are able to drive for up to 700 meters on catenary free route sections. In normal operation with catenary overhead contact wire, the energy storage is used for enhancing the overall energy efficiency and to reduce the line power.

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| Vehicle manufacturer | Changchun Railway Vehicles Co., Ltd. |
| Operator | Shenyang Hunnan Modern Traffic Co., Ltd. |
| Year of construction | 2013 |
| Track gauge | 1 435 mm |
| Vehicle length | 34.8 m |
| Tara weight | 43 t |
| Axle arrangement | Bo' + 2' + Bo' |
| Maximum speed | 70 km/h |
| Catenary wire voltage | 750 VDC |
| Maximum power | 700 kW |
| Catenary free operation | up to 700 m |

Traction system



- 1 Double traction inverter
- 2 Energy storage
- 3 Traction motor

Double traction inverter EmCon DI1000-5AR

The DI1000-5AR traction inverter (with integrated brake chopper) 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, a compact and low-loss power stack design and the optimized air cooling are the technical base for the excellent performance of the traction inverter.



Energy storage

The four SuperCap sets each rated at 500 V, 15.5 F are used for driving through catenary free sections. In operation with overhead contact wire the energy storages enhance energy efficiency and reduce the line power.



Traction motor

The traction motors are mounted on Voith gearboxes. The fully suspended motor-gear unit provides 130 kW continuous power and enables a low-floor design in conjunction with high driving dynamics at all track conditions. The completely closed traction motors are cooled via self-ventilation.



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