

COMPACT CONVERTER

## BORDLINE® CC1500 DE

For diesel-electric power cars for intercity trains



BORDLINE® CC1500 DE converts diesel generator power into propulsion power for the traction motors and auxiliary power for onboard consumers.

— BORDLINE® CC1500 DE

### Characteristics

- Designed according Russian standard GOST
- High energy efficiency
- Highly compact design (integration of head end power supply into propulsion converter)
- Controls up to four motors
- Optimized switching frequency for harmonic loss and EMC (electromagnetic compatibility) reduction

### System overview

BORDLINE® CC1500 DE converts the various generator voltages into drive power for the traction motors, three-phase auxiliary power supply for the power cars.

BORDLINE® CC1500 DE consists of:

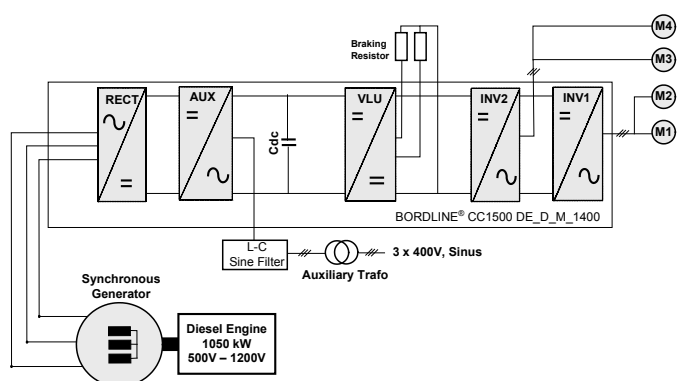
- 1 active rectifier
- 2 inverters
- 2 braking choppers
- 1 head end power supply

### Propulsion converter

BORDLINE® CC1500 DE is a robust and solid unit incorporating modern IGBT technology. Each motor inverter can drive one or two motors. With optimized switching patterns and switching frequency, BORDLINE® CC1500 DE generates a quasi-sinusoidal current waveform, which reduces the harmonic losses, the audible noise and the mechanical stress on the traction motors and the gear boxes.

### Head end power supply

The head end power module supplies the electric energy for the power car itself, as well for the connected passenger cars. The head end power module feeds the 3-phase 50 Hz 400 V train power supply line through a sine filter and an auxiliary transformer.



— Block diagram  
BORDLINE® CC1500 DE

### Powerful control platform

ABB traction converters are built on the AC 800PEC control platform, one of the most powerful modular controller for high-speed performance on the market. This control platform is also used in a wide range of industrial applications. The AC 800PEC software is implemented on three performance levels, thus providing an excellent range of control and communication functionality, in cycle times that extend from the sub-microsecond to the millisecond level. Compared to most other commercially available traction control systems, the modular application software in the AC 800PEC reduces train commissioning time significantly.

### Cooling system

The equipment is efficiently liquid cooled, allowing for a very compact construction. The temperature of the coolant is lowered using an external heat exchanger. An internal blower provides forced air circulation inside the cubicle, and passes the losses via an internal air/liquid heat exchanger to the main cooling circuit. An additional external ventilation of the power section can thus be dispensed with.

### Mechanical design

BORDLINE® CC1500 DE is housed in an IP54 cabinet, designed for mounting within the machine room. Due to its modular design, it allows for easy access for maintenance.

### Diagnostics and service

The service-friendly modular design with highly standardized components ensures high reliability, excellent spare parts availability, and optimized life-cycle costs. The Compact Converter is delivered with BORDLINE® View, a diagnostic tool that visualizes signals, various parameters and the state of the traction system. It consists of an advanced self-diagnosis function, which provides advice and instructions for service and repair. BORDLINE® View is easy to use and runs on a standard PC.

### Application example

BORDLINE® CC1500 DE is mounted in Stadler's power cars for Russian Railways (RZD).

Technical data	BORDLINE® CC1500 DE_D_M_1400
Generator voltage	3 x 470 - 1200 V / 23 - 60 Hz
Propulsion output	3 x 0...1250 Vac, 2 x 800 kW at wheel
Braking chopper	2 x 700 kW
Head end power supply	3 x 400 V / 50 Hz, up to 300 kVA
Vehicle control interface	CANopen
Mounting position	machine room
Dimensionen (L x W x H)	1394 x 900 x 2055 mm
Weight	1200 kg