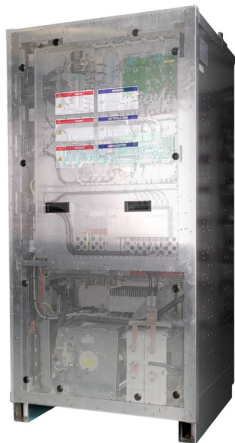


COMPACT CONVERTER

BORDLINE® CC750 DC_3kV

For regional trains (EMUs) with 3 kVdc grid voltage



BORDLINE® CC750 DC converts the power from the 3 kVdc line into propulsion power for the traction motors and auxiliary power for onboard consumers (AC, DC and battery).

01

01 BORDLINE® CC750 DC for regional trains (EMUs)

02 Comparison of motor phase current for 3-level topology with 3.3 kV/2200 A IGBTs (left) and for 2-level topology with 6.5 kV/600 A IGBTs (right)

System overview

BORDLINE® CC750 DC Compact Converter is connected to the 3 kVDC catenary via an external line inductor and the main circuit breaker.

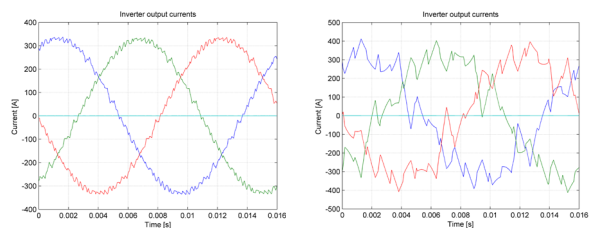
BORDLINE® CC750 DC consists of:

- 1 propulsion converter
- 1 braking chopper
- Integrated auxiliary power converter
- Integrated battery charger
- AC 800PEC control module

Propulsion converter

BORDLINE® CC750 DC Compact Converter is a rugged unit based on modern 3.3 kV IGBTs. It can control either a single motor or two motors in parallel.

This Compact Converter makes use of ABB's well-proven 3-level topology, which has several advantages over conventional 2-level solutions: It is better for the motor, better for the grid, and it saves energy!



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Braking chopper

In case the DC catenary is not receptive for recuperative energy, a braking chopper with corresponding resistors is installed. The braking chopper is able to consume the total braking energy in order to ensure safe operation in all cases.

Auxiliary converter, battery charger

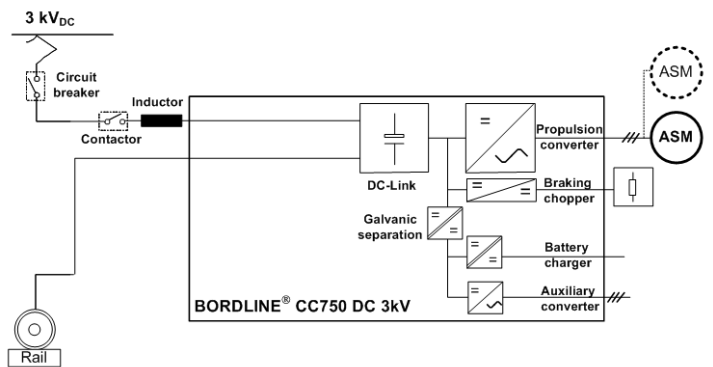
The auxiliary converter provides a three-phase sinusoidal AC voltage output and a DC voltage output for charging the battery. It is directly coupled to the main DC-link.



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01 Stadler FLIRT in Mazovia, Poland

02 Main circuit of BORDLINE® CC750 DC



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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 cooled using service water, allowing a very compact construction. The temperature of the coolant is lowered using an external heat exchanger.

Mechanical design

BORDLINE® CC750 DC is housed in a traction proven IP54 cabinet, designed for mounting in the machine room. The modular design 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® CC750 DC_3kV is in operation in Stadler's electrical multiple unit FLIRT in Mazovia (Poland) and Italy.

Technical data	BORDLINE® CC750 DC_3kV_M_700
DC line voltage (EN 50163)	3 kVdc
Propulsion output	0...2100 VAC, 690 kW at wheel
Braking chopper	600 kW
Auxiliary converter	3 x 400 V/50 Hz, 70 kVA
Battery charger	24/36/72/110 Vdc, 8 kW
Vehicle control interface	CANopen, I/Os
Dimensions (L x W x H)	900 x 850 x 2000 mm
Weight	850 kg

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