

COMPACT CONVERTER

## BORDLINE® CC750 DC\_1500V

For regional trains (EMU) with 1500 Vdc grid voltage



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BORDLINE® CC750 DC  
for regional trains (EMU)

### System overview

BORDLINE® CC750 DC Compact Converter is connected to the 1500 Vdc catenary via an external line inductor and the main circuit breaker.

BORDLINE® CC750 DC consists of:

- 1 or 2 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 one or two motors in parallel.

BORDLINE® CC750 DC can alternatively be equipped with two separate motor converter modules. This enables individual axle control of two motors which simplifies the wheel maintenance and increases the adhesion exploitation.

BORDLINE® CC750 DC converts the power from the 1500 Vdc line into propulsion power for the traction motors and auxiliary power for onboard consumers (AC, DC and battery).

### 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. To comply with the safety standards, it is galvanically separated from the main DC-link.



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01 FLIRT by Stadler for Arriva in the Netherlands

02 Main circuit of BORDLINE® CC750 DC\_1500V\_M

ABB Switzerland Ltd  
Traction  
Austrasse  
5300 Turgi, Switzerland  
sales.traction@ch.abb.com

[abb.com/railway](http://abb.com/railway)  
[abb.com/tractionconverters](http://abb.com/tractionconverters)

### 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.

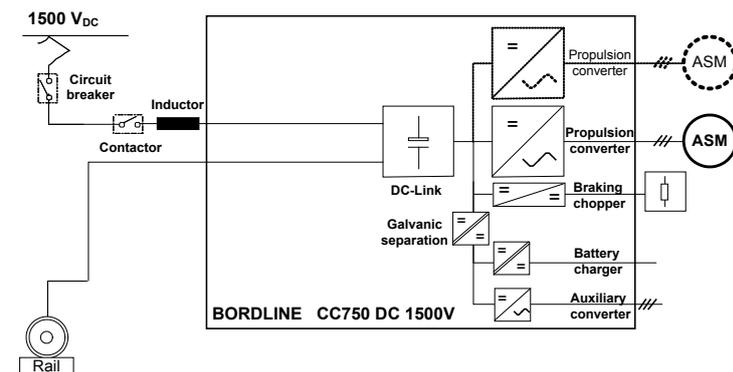
### Mechanical design

BORDLINE® CC750 DC is compatible with different vehicle designs and comes in a machine room mounted (IP54) and roof or under-floor version (IP65). 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.

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### Application example

The machine room mounted design of BORDLINE® CC750 DC is for example in operation for the regional train type FLIRT in the Netherlands, while the under-floor mounted version is in operation for the rack railway of Zugspitzbahn, Germany.

Technical data	BORDLINE® CC750 DC_1500V	
DC line voltage (EN 50163)	1500 Vdc	
Propulsion output	0...1150 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	
BORDLINE® CC750 DC_1500V_M		
Mounting position	machine room, IP54	
Dimensions (L x W x H)	900 x 850 x 2000 mm	
Weight	800 kg	
BORDLINE® CC750 DC_1500V_U		
Mounting position	under-floor, IP65	
Dimensions (L x W x H)	2100 x 1300 x 625 mm	
Weight	860 kg	
BORDLINE® CC750 DC_1500V_R		
Mounting position	roof, IP65	
Dimensions (L x W x H)	2370 x 1710 x 640 mm	
Weight	920 kg	

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