

COMPACT CONVERTER

BORDLINE® CC750 DC_1500V

Propulsion converter for metros with 1.5 kVdc grid voltage

BORDLINE® CC750 DC converts the power from the 1.5 kVdc line into propulsion power for the traction motors.



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01 BORDLINE® CC750 DC
for metros

Characteristics

- High power density
- Latest IGBT technology
- Solid aluminum underfloor construction
- Integrated cooling system
- Motor converter for four parallel motors
- Powerful control platform

System overview

BORDLINE® CC750 DC Compact Converter is realized with modern IGBT technology and converts the DC line voltage into drive power for the traction motors.

BORDLINE® CC750 DC consists of:

- Line contactor
- Precharge contactor/resistor
- DC-link capacitor
- Motor inverter
- Braking chopper
- Cooling system including water to air heat exchanger, pump and fan
- AC 800PEC control module

Propulsion converter

BORDLINE® CC750 DC Compact Converter is a compact unit based on modern 3.3 kV IGBTs. It can control either one or up to four motors in parallel. The propulsion converter provides a pulse-width modulated three-phase AC voltage output for the connected traction motors.

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. The braking chopper limits the DC-link voltage to a safe value, it is used to suppress transient DC-link voltages and actively discharges the DC-link during converter shutdown.



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01 Metro Nanjing, China
02 Blockdiagramm
BORDLINE® CC750 DC

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Powerful control platform

ABB's control platform AC 800PEC is used in all traction con-verters, as well as, in a wide range of industrial applications. This unit covers control and protection functions, diagnostics and interfacing to the vehicle control unit. The fast and powerful control is based on Power PCs for the industry. The modular programming ensures quick adaption of the control software, simplicity and reliability.

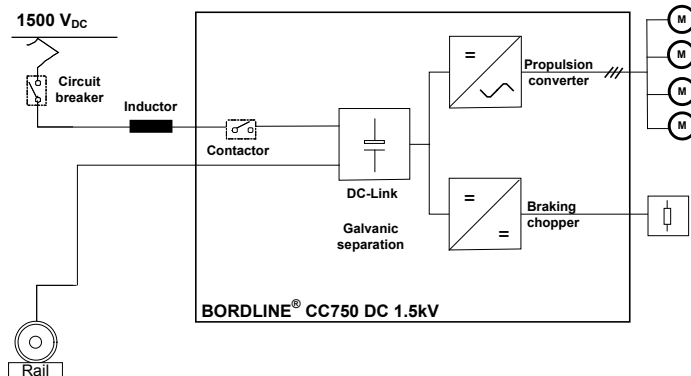
Cooling system

The power electronics is efficiently cooled using service water, making possible a very compact construction. The temperature of the coolant is lowered using a heat exchanger, which is integrated into the converter cabinet. An additional internal blower provides forced air circulation inside the cubicle, in order to avoid hot spots.

Mechanical design

BORDLINE® CC750 DC is housed in a traction proven IP65 housing, designed to be mounted under-floor. Due to its modular design, it allows an easy maintenance access.

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Diagnostic and service

The service friendly modular design with standard components ensures high reliability and low life cycle costs for maintaining the system. The Compact Converter are delivered with BORDLINE® View, a diagnostic tool to visualize signals, parameter and state of traction system. It consists of an advanced self diagnostic function, which gives advice and instruction for service and repair. BORDLINE® View is easy to use and runs on a standard PC.

Application example

BORDLINE® CC750_DC_1.5kV is mounted in the vehicle cars of Nanjing Metro, line 1 extension south serving the city of Nanjing, China. The six-car metro trains are supplied with four Compact Converter BORDLINE® CC750_DC_1.5kV. Shenzhen's Metro (SZM), China has two BORDLINE® CC750_DC_1.5kV mounted in their four-car metro trains in service on line 4.

Technical data	BORDLINE® CC750 DC_1.5kV
DC line voltage (EN 50163)	1500 Vdc
Propulsion output	0...1480 Vac, 1700 kW at wheel
Braking chopper	1500 kW
Vehicle control interface	CANopen, I/Os
Mounting position	underfloor
Dimensionen (LxWxH)	2000 x 2100 x 680 mm
Weight	950 kg

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