COMPACT CONVERTER

BORDLINE® CC750 DC_1.5kV
For metro vehicles with 1.5 kVdc line voltage

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

Characteristics
- High power density
- Motor converter for four parallel motors
- Air cooling system
- Solid aluminum underfloor construction
- State-of-the-art power module with maintenance tool
- Modular concept based on standard ABB power modules
- Powerful control platform

System overview
The BORDLINE® CC750 converters are compact, modular, rugged units based on state-of-the-art IGBT technology and designed for metro vehicle applications.

BORDLINE® CC750 DC contains:
- Line filter
- Line and precharge contactor/resistor
- DC-link capacitors (integrated in power module)
- Motor converter
- Braking chopper
- Forced air cooling system
- AC 800PEC control module

Propulsion power
BORDLINE® CC750 DC is a compact unit based on state-of-the-art 3.3 kV IGBTs. It can control either one or up to four motors in parallel. During braking operation, the energy will be recuperated or, if the line is not receptive, dissipated in the resistors by the braking chopper.

Power module
The highly integrated power modules are used in both, air-cooled traction and auxiliary converters and complemented with a versatile service tool to allow for quick and easy replacement. The power modules have been designed to cope with a very high peak power to support electrodynamic braking at very high motor speeds.
Mechanical design
The BORDLINE® CC750 DC is housed in a lightweight aluminum cabinet, with an IP65 area intended for power electronics and an IP21 area where the inductor is located. The equipment is designed for under-floor mounting. Due to its modular design, it offers easy maintenance access.

Cooling system
The equipment is efficiently cooled using forced air. Electronically controlled fan enables noise optimized operation. Forced cooling of all power components with a common airflow yields a very compact and noise efficient design.

Powerful control platform
ABB traction converters are built on the AC 800PEC control platform, one of the most powerful modular controllers 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 submicrosecond 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.

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® WebView, 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® Web-View is easy to use and runs with standard web browser, no special software tool is needed.

Application example
ABB’s air-cooled Compact Converter platform has been chosen for the new metro vehicles built by Bozankaya and serving the line to connect the cities of Gebze and Darıca in Kocaeli Province, Turkey.

Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>BORDLINE® CC750 DC_1.5kV_U</th>
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<tbody>
<tr>
<td>DC line voltage</td>
<td>1500 Vdc</td>
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<tr>
<td>Propulsion output</td>
<td>0…1100 Vac, 1000 kW at wheel</td>
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<tr>
<td>Braking output</td>
<td>1700 kW at wheel</td>
</tr>
<tr>
<td>Vehicle control interface</td>
<td>CANopen, MVB, TRDP, Profinet, I/Os</td>
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<tr>
<td>Mounting</td>
<td>underfloor</td>
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<tr>
<td>Dimensions (L x W x H)</td>
<td>2200 x 1530 x 600 mm</td>
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<tr>
<td>Weight</td>
<td>725 kg</td>
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