FEC1150

HIGH EFFICIENCY 1150 KVA BACK-TO-BACK CONVERTER

The four-quadrant converter FEC1150 is designed as a building block for power conversion as full scale converter for wind turbines.

The FEC1150 cabinet comprises all devices needed to build up a converter system:

- *Pulse rectifier and inverter based on IGBT modules on water-cooled, easy-to-change power stacks*
- *DC-link made of film-capacitors*
- *Break chopper and break resistor*
- *Controller boards linked via fast bus system (EtherCAT)*
- *Grid main contactor and precharge-circuit*
- *Generator-side filter (du/dt) and grid-side filter*
- *Heat exchanger air-to-water for cooling of all passive parts: cabinet has IP54*

The concept is suitable for electrical as well as permanent magnet excited synchronous generators and also valid for asynchronous generators

The main advantages can be summarised as follows:

- *Combines high power density with reasonable costs.*
- *Protection class and cooling type allow offshore use.*
- *All serviceable parts are easy to replace.*
- *Reduced grid current harmonics.*
- *New control algorithm allows managing symmetric and asymmetric voltage drops.*

FEC1150

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Datasheet rev. 1.0

PRELIMINARY TECHNICAL DATA OF THE FEC1150

Inverter (grid side)

Rated power	920 kW	
Rated voltage	690 V, 3-phase, 50 Hz	Other values on request.
Rated output current	771 A	
Maximum apparent power	1150 kVA	At rated voltage.
Maximum output current	963 A	
Switching frequency	2.5 kHz	

DC-link

Rated DC-link voltage	1050 V	
Operating DC-link voltage	1000 V…1150 V	IGBTs are released.
Maximum DC-link voltage	1400 V	IGBTs are blocked.
Maximum breaking energy	1200 kJ	Other values on request.

Pulse Rectifier (generator side)

Rated input power	945 kW	
Generator voltage	typical 620 V, 3-phase	Other values on request.
Rated Frequency	typical 50 Hz	
Rated input current	typical 978 A	
Maximum input current	1075 A	For 1 minute.
cos ϕ	typical -0.90	
Switching frequency	2.5 kHz	

General Data

Rated losses	25 kW	At rated power and cos ϕ = 1.0
Rated efficiency	97.4 %	At rated conditions
Maximum losses	29 kW	At minimum voltage and cos ϕ = 0.9
Cooling type	Water cooling	
Temperature range	-20 °C...+50 °C	Other values on request.
Storage temperature range	-30 °C...+60 °C	
Water temperature range	-20 °C...+50 °C	Other values on request.
Coolant medium	Water-Glycol (50 %/50 %)	
Rate of flow	50 ℓ/min	
Pressure loss	1.0 bar	
Dimensions (H × W × T)	(2005 × 1205 × 805) mm	
Weight	< 1100 kg	

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