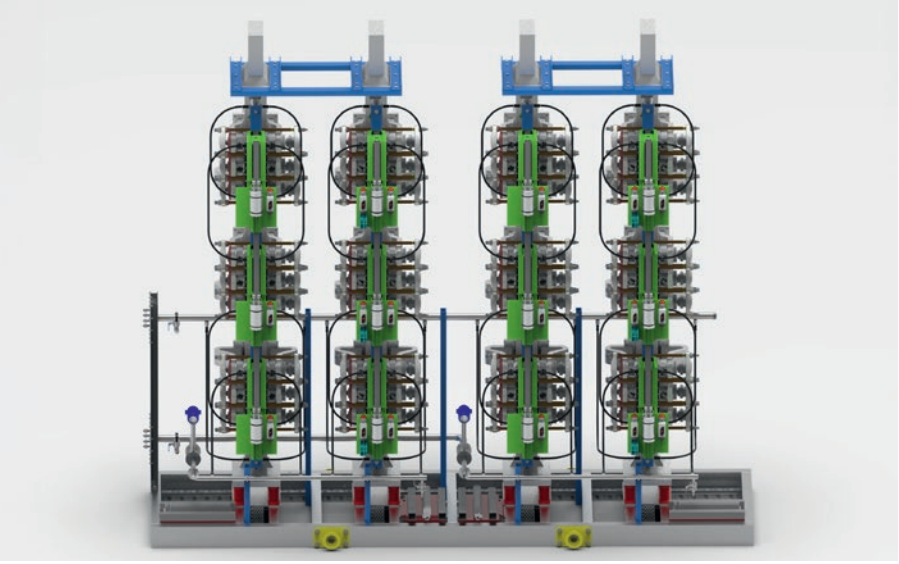
FACTSHEET

LCR900 Low Current Rectifier

5kA to 72kA up to 800VDC



Specially developed for the lower current rating applications in the electrochemical and electrowinning industries, the water-cooled Low Current Rectifier LCR900 represents our proven technology bosting features to ensure superior performance and reliability at an affordable price to our customers.

Technical summary

Through the use of smaller semiconductors, the LCR900 offers improved scalabilty at lower current ratings. The centerpiece of the LCR900 is a special designed self-supporting heat sink profile with integrated water channels for most effective cooling. Beside the function as a DC current conductor it also acts as a mechanical support and mounting area for the semiconductor clamping sets, the over-voltage protection and the thyristor gate firing electronics. The integrated water channels are routed to minimize extensive outside hose connections via highly reliable FEB hose AIGNEP connector system.

All semiconductors are double side cooled by highly efficient cooling boxes and the heat sink profile. Fuses are cooled on one side by the cooling box. Each semiconductor is equipped with a high speed current limiting fuse for selective isolation in case of a failure. This allows nominal load operation even with one semiconductor out of service. The wide range of tested semiconductor and fuse combinations meet the most demanding customer requirements. The LCR900's modularity and reduced manufacturing complexity makes it highly scalable, with high availability and easy maintenance.

To eliminate the risk for a secondary flashover or a semiconductor explosion, the semiconductors are equipped with ABB's unique semiconductor protection ring. Electrically the rectifier is protected against holestorage effect surges and overvoltage disturbances coming from the network by a suitable rated overvoltage protection.

Main technical data	
Rated DC voltage	up to 800V
Rated DC current	up to 72kA
Semiconductors	– thyristor – 2, 2.5 and 3 inch types
Semiconductors in //	2–6
Semiconductor redundancy	yes
Rectifier connection	DB or DSS
Pulse number/unit	6 or 12 pulse
Cooling media	de-ionized water/glycol mixture
Installation	– indoor as IP00 or IP21 (enclosure) – outdoor as IP54 (enclosure or container)

LCR900 portfolio

Rectifier type	Semiconductors in //	Connection mode	Pulse number	Rated DC current	Rated DC voltage
vertical  horizontal	2	DB/DSS	6P/12P	5–72 kA*	up to 800V*
	3	DB/DSS	6P/12P		
	4	DB/DSS	6P/12P	* Depends on number of semiconductors in parallel, connection mode, semi-conductor size/type and pulse number	
	5	DB/DSS	6P/12P		
	6	DB/DSS	6P/12P		* Depends on rectifier connection mode

Customer value

High reliability due to

- Use of smaller semi-conductors offers better scalability at lower end of current range
- Optimized current sharing factor (< 0.2 for 6 semiconductors in parallel)
- High EMC immunity by optical transmission of gate pulse for thyristors
- Lower thermal design resulting in reduced thermal stress
- Reliable and proven FEB cooling hose solution with AIGNEP hose connectors eliminates bacterial build-up and degradation
- In-line press pack fuses reduces mechanical strain on
- Solid mechanical structure

High level of protection due to

- Integrated RC snubber
- Coordination tests of semiconductor fuse performance
- Effective, fully integrated and separately fused over-voltage and surge protection

High level of safety due to

- Mechanical separation of positive and negative DC potential
- ABB's unique semiconductor protection ring

Low maintenance due to

- FEB cooling hoses with AIGNEP hose connectors makes maintenance activities easy
- Clamping Yoke with true force indicator

Product features

- Use of smaller semi-conductors offers better scalability at lower end of current range
- Compact rectifier footprint
- Wide selection of 2, 2.5 and 3 inch semiconductors from different suppliers
- Available for 2 to 6 semiconductors in parallel
- Wide selection of single-body fuses from different suppliers
- Double side water-cooled semiconductors
- Solid and self-supporting aluminum main-circuit structure
- Vertical and horizontal arrangement available including 5 and 6 semiconductors in parallel
- FEB cooling hose with AIGNEP hose connectors
- Modular design allowing flexible arrangement
- Applicable for DB and DSS connection types
- Applicable for 6 or 12 pulse systems
- IP00 protection class specially designed for rough industrial environment

Customer benefits

Optimized design to either ensure lowest costs or lowest losses.

Flexible modular design with improved scalability to accommodate specified customer needs, without over dimentioning

Common parts shared with ABB's other rectifier series (MCR/HCR).

Please contact your nearest ABB High Power Rectifier representative or visit us on our homepage

CONTACT AN ABB EXPERT

www.abb.com/rectifiers