

Boosting energy efficiency at aluminium smelters

Sohar Aluminium Company



Facts

Country	Oman
Customer	Sohar Aluminium
Year of delivery	2007
Location of project	Sohar

Two identical filter systems with a generation of 110 Mvar each at 220 kV 50 Hz.

Each system consists of one 3rd and one 5th harmonic 55 Mvar C-filter.

Two disconnecting circuit breakers (DCB) for 245 kV

Customer need

Sohar Aluminium houses one of the world's largest aluminium smelter potlines. Each year 375,000 tons of aluminium are produced here. The smelting process created high levels of harmonics. It was imperative to keep these under control to adhere to the grid codes and be connected to the Oman power grid without any compliance issues.

ABB solution

When Sohars Aluminium decided to interconnect to the Oman Grid, both for import, export and stability reasons, it became necessary to install harmonic filters to remove harmonics that would otherwise disturb other customers on the grid.

ABB delivered a turnkey solution, including a study of the harmonics in the plant as well as the design, supply, installation, testing and commissioning of a harmonic filter system. The power quality solution comprises four harmonic filter banks at 55 Mvar and high-voltage switchgear.

The filter system from ABB has solved power quality issues with regard to harmonics and reactive power and allows Sohars Aluminium to connect to the Oman grid without any compliance issues. The system has also improved power quality in the smelter facility and reduced electrical losses.

Sohars Aluminium also installed ABB's disconnecting circuit breaker (DCB) which provides the combined functionality of a circuit breaker and a disconnect in a single unit. The low space requirements and the low maintenance requirements makes the DCB the perfect outdoor solution for an outdoor unit like the harmonic filter system.





Customer benefits

- Execution of a complete, tailor-made, turnkey project.
- Improved power quality in the smelter facility and reduced electrical losses.
- Enabled Sohar Aluminium to connect to Oman grid without any compliance issues.
- Enabling a more flexible and reliable grid connection

For more information please contact:

ABB AB

High Voltage Products

SE-771 80 Ludvika, Sweden

Phone: +46 (0)240 78 20 00

E-mail: capacitors.info@se.abb.com

www.abb.com/highvoltage

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A complete program with comprehensive support

ABB's capacitor and filter product portfolio consists of a wide range of high, medium and low voltage capacitors and filters that can address any power quality issue of an industrial, commercial or utility installation. They help solve a variety of problems leading to customer benefits like trouble free operations of electrical system, less down-time, compliance with regulations and even possible reduction of CO2 emissions and running costs.

By partnering with ABB, customers get access to a rich experience in analysis, design and engineering skills for managing Power Quality issues.