

Power^{IT} Compact Rectifier

Success Story: Steel Wire



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MAIN FEATURES

The Power^{IT} Compact Rectifiers are complete all-in-one, cabinet-mounted rectifier units including LV-transformer, rectifier, cooling, controller and operator panel facilities.

BACKGROUND

Since 1998 ABB Compact Rectifier are used in plants of the largest steel wire plant manufacturer. Our customer is building these plants around the world and needs a reliable rectifier during the degreasing process of the steel wires. During this process, up to 48 steel wires are continuously passing through a bath of caustic soda.

The choice fell for the ABB Compact Rectifier due to our large know how in rectifier applications and our 100 year of experience.



Power Electronics
High Power Rectifiers

As the rectifier is installed just beside the process in very aggressive environment, special environmental protection needs to be enforced upon to protect the rectifier from corrosive gases such as H₂SO₄ and NaOH.

ABB Compact Rectifiers are manufactured on highest quality standards based on proven designs. All components are carefully selected for maximum efficiency and lifelong operation.

On special request of the customer, the ABB Compact Rectifier for the present application is made of stainless steel and features a special glass window on the panel to protect the local controls.

To seal the inside from the ambient aggressive air, the rectifiers enclosure is IP54 protected. This airtight enclosure imposes water-cooling of the ABB Compact Rectifier, whereas the Thyristors are water cooled and the inside air is re-cooled by a water to air heat exchanger.

Besides the controls of the rectifier, the control cabinet is also fitted with a PLC for full control of an adjacent rinsing bath used during the same process. The rectifier and rinsing bath do form a stand-alone system including their own control.

TECHNICAL SUMMARY

Basic Data

- Rated supply voltage: 400 Vac 3-ph
- Rated frequency: 50 Hz
- DC current: 4'000 A
- DC voltage: 10 V
- Output: Bipolar
- Ripple: < 5 % at full output power
- Control: 0 ... 100% of I_n
- Number of pulses: 6
- Cooling: water-cooling
- Degree of protection: IP54
- Controller: ABB DCS 500

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