CASE STUDY

Power Control and EMC components successfully deployed in industrial sulfuric acid concentration plants

How REOTRON power controllers and high-current EMC filters from REO ensure stable process control and compliance with EMC standards in sulfuric acid concentration plants

Initial Situation / Challenge

Industrial sulfuric acid concentration plants require precise control of energy supply for thermal processes, as fluctuations have a direct impact on product quality, energy efficiency and safety. At the same time, high-power control systems inherently generate electromagnetic interference and harmonics, which:

- deteriorate power quality
- may interfere with sensitive measurement and control equipment
- can jeopardize the EMC certification of the entire system

For applications in the chemical industry, a solution was therefore required that:

- precisely controls large loads
- minimizes power supply disturbances
- meets EMC requirements
- ensures high plant availability

Objective

Provision of a component solution that:

- ensures precise power control for the thermal process
- ensures EMC compliance in accordance with EN 55011 and EN 61800-3
- supports long-term operational reliability and plant efficiency
- can be integrated without extensive system modifications

Summary

Application: Industrial sulfuric acid concentration plant / Chemical industry

Country: Switzerland

Products: REOTRON MDW 700 & CNW 107 high-current EMC filter

Objective: Stabilization of the thermal process and reliable EMC management

Result: High process stability, significant reduction in mains interference and long-term system availability

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Solution

REOTRON 3-phase thyristor power controller in combination with a high-current EMC filter

Power control with REOTRON MDW 700

The REOTRON MDW 700 thyristor controller provides precise power control within the thermal process. The MDW series is a modern, microprocessor-controlled 3-phase power control system equipped with internal voltage, current and power regulators to maintain stable output even under demanding conditions.

Protection against power supply interferences using the CNW 107 high-current EMC filter

The use of the CNW 107 high-current EMC filter ensures effective reduction of electromagnetic interference and mains disturbances typically associated with thyristor control systems. The filter is specifically designed for high-current industrial applications and, thanks to its compact design, could be easily integrated into the existing system.

Results

The combined use of a power controller and an EMC filter achieved the following results:

- High process stability in energy-intensive thermal processes
- Significant reduction in power supply disturbances and harmonics
- Increased system availability thanks to robust components
- Long-term operational reliability in demanding chemical environments
- Standards-compliant operation through effective EMC management

The solution has been successfully integrated into the customer-specific industrial process plant, where it contributes to optimized production on a long-term basis.

Conclusion

In industrial chemical processes, such as sulfuric acid concentration plants, reliable power control and targeted EMC management are key factors for success. The combination of high-performance thyristor control and effective filter technology provides a stable industrial solution that:

- reliably fulfils control tasks
- effectively minimizes electromagnetic interference
- enables long-term stable and standard-compliant plant processes

This allows an efficient, safe and reliable process environment to be achieved even under high loads and demanding industrial conditions.

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FAQ´s

Why is EMC management important in chemical industrial plants?

EMC measures minimize conducted interference and harmonics, protect sensitive electronics and support compliance with regulatory EMC standards. This prevents malfunctions and production downtime, thereby increasing plant efficiency.

What kind of interference can be caused by thyristor control in an industrial process?

Thyristor control systems typically generate harmonic distortion and electromagnetic interference (EMI), which can negatively affect power quality and sensitive control equipment.

What role does the REOTRON MDW 700 play in the process?

The thyristor power controller precisely regulates the energy supply to thermal loads, ensuring stable process control even with fluctuating mains loads.

What function does the CNW 107 high-current mains filter fulfill?

The CNW 107 reduces conducted interference and attenuates high-frequency noise in the power network. This improves electromagnetic compatibility (EMC), protects sensitive control equipment and enhances mains quality.

Why is the combination of power controller and EMC filter particularly effective?

The combination delivers optimal results: the power controller precisely regulates energy input, while the EMC filter reduces the resulting interference. This ensures stable, efficient and standard-compliant system operation.

Contact & Information

- Learn more about REO solutions for industrial power electronics
- Learn more about REO solutions for EMC filters
- Contact us now
- Download the “Drive Technology” brochure
- Download the “REOTRON” brochure