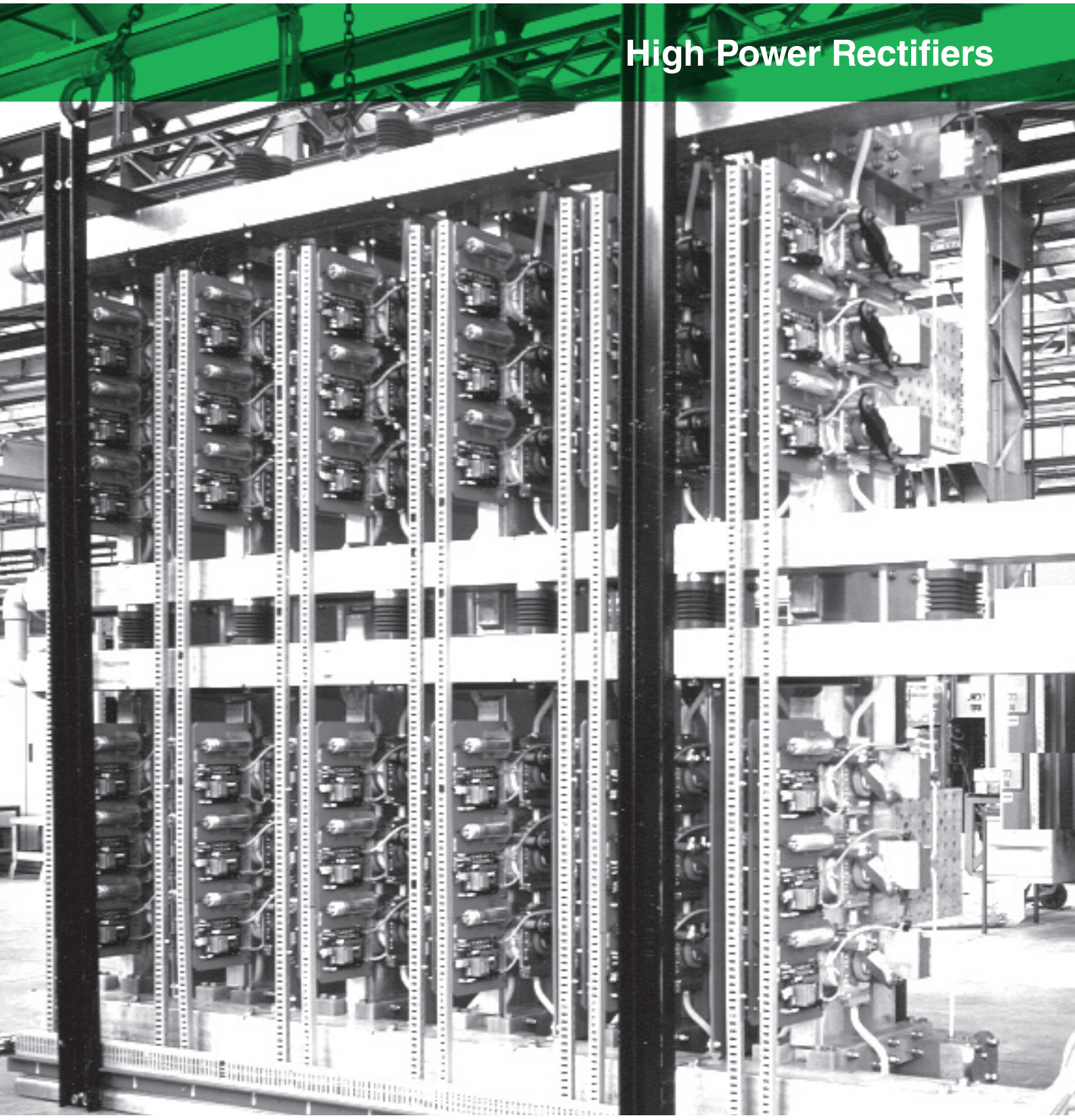
Nidec

All for dreams

High Power Rectifiers



Turnkey Systems and Retrofits

Applications

- **ElectroMetallurgy Al, Cu, Mg & Zn**
- **ElectroChemical Chlor Alkali**
- **DC arc furnaces**
- **Testing and research facilities**
- **Sodium Chlorate**

Our engineering strengths in customizing solutions for customers' needs make us the ideal choice for retrofitting projects.

Our SILCOMAX DC power systems are designed to provide your process with an ultra reliable DC current source.

With our own in-house rectifier technology, Nidec designs systems fully tailored to your needs.

Our power systems team draws on over 30 years of experience in the field of medium and large DC power converters.

We have the technology and experience to ensure your project comes in on-time and on-budget and with the highest regard for safety.

Nidec is able to handle the complete electrical design of your power system including software engineering, mechanical engineering, HV/MV transformer and switchgear, rectifier design, thyristor units, harmonic filters, control panel and monitoring system.

We also provide on-site activities and supervision for erection, installation and commisioning.

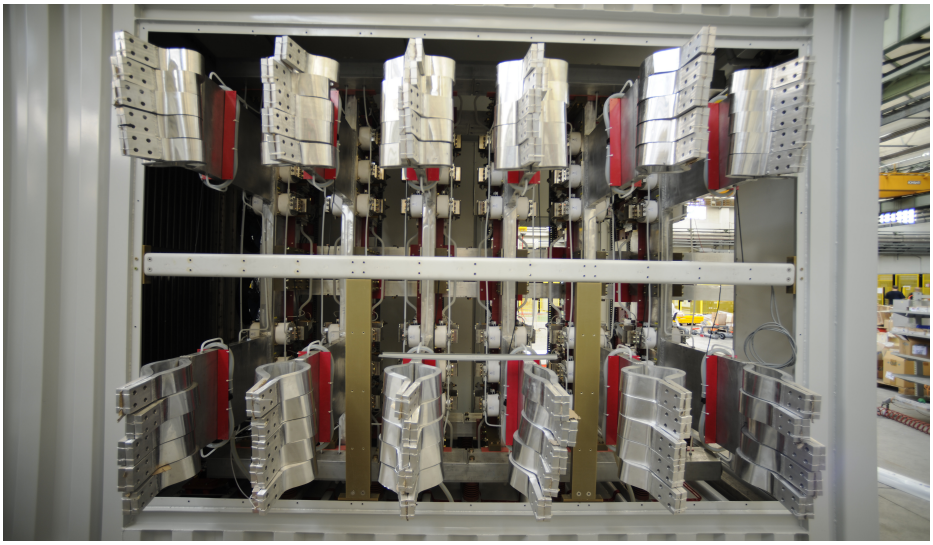
Retrofitting can offer significant advantages in terms of:

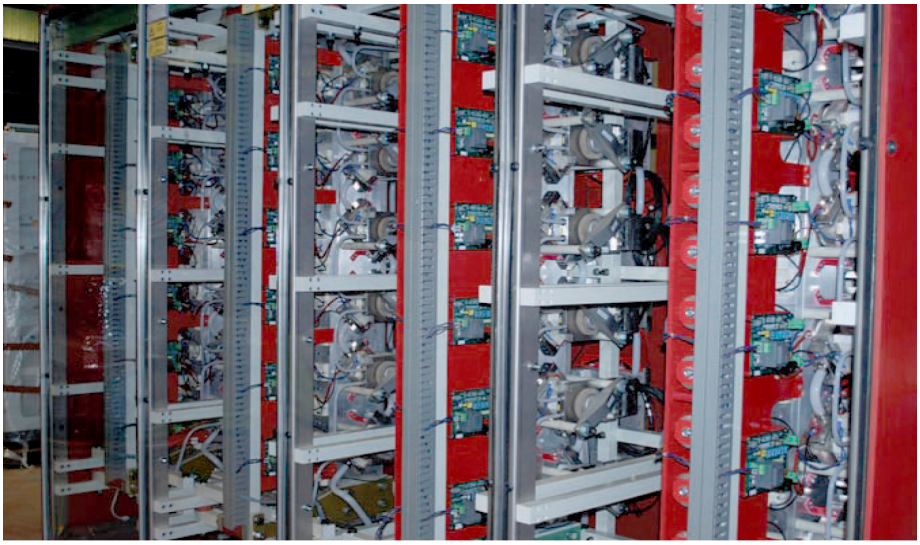
- Prolonging life of existing equipment
- Reducing installation downtime
- Reducing cost of replacing overall system
- Eliminating analog drift
- Engineering diagnostics
- Improving MTBF & MTTR

Technical Information

Silcomax Large

- Up to 60kA for each 6 pulse double phase connection
- Up to 100kA for each 6 pulse single phase connection
- 6 / 12 pulses reaction (higher pulses reaction upon request)
- Up to 1600 Volts
- Horizontal thyristor/diode bar layout
- Optical firing and monitoring
- Advanced water cooling
- Open or containerized solutions





Silcomax Light

- Up to 25kA for each 6 pulse double way connection
- Up to 50kA for each 6 pulse single way connection
- 6 / 12 pulse reaction (higher pulses reaction upon request)
- Up to 1000 Volts
- Vertical thyristor bars layout
- Press-pack fuses and thyristors
- Optical firing and monitoring
- Water cooled designs
- Cabinet (up to IP54) and container solutions

Reliable

- Conservatively rated power semiconductors
- Thyristor redundancy
- Fiber optic system with individual monitoring
- Optional, additional redundancy at all levels

Highly Efficient

- Low loss designs and components
- Equalized current sharing in branches
- Minimized thermal heating due to magnetic coupling

Easy Maintenance

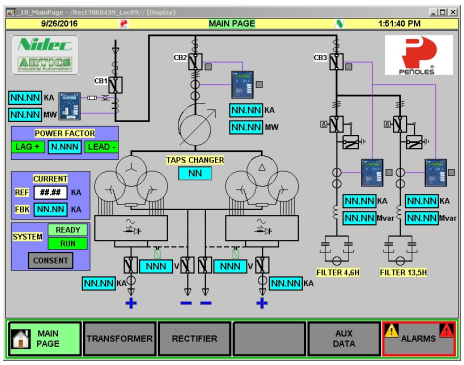
- Modular construction
- Proprietary thyristor clamping technology

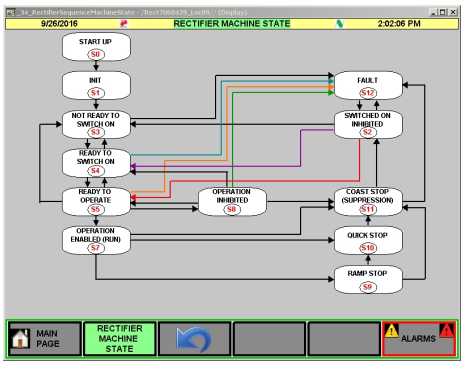
Control & Diagnostics

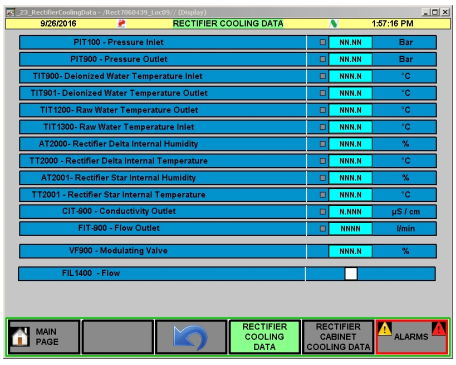
Nidec's Industrial Power Rectifiers are equipped with the latest state-of-the-art features including:

- High performance, fully digital control platform
- Power semiconductor devices with silicon diameter up to 125 mm
- Advanced water cooling systems
- Optical firing and feedback circuits
- Device level monitoring and diagnostics

Whether a new installation or an upgrade to an existing unit, we build systems to your specifications. With Nidec systems, the choice of PLC, HMI and communications network is always yours.



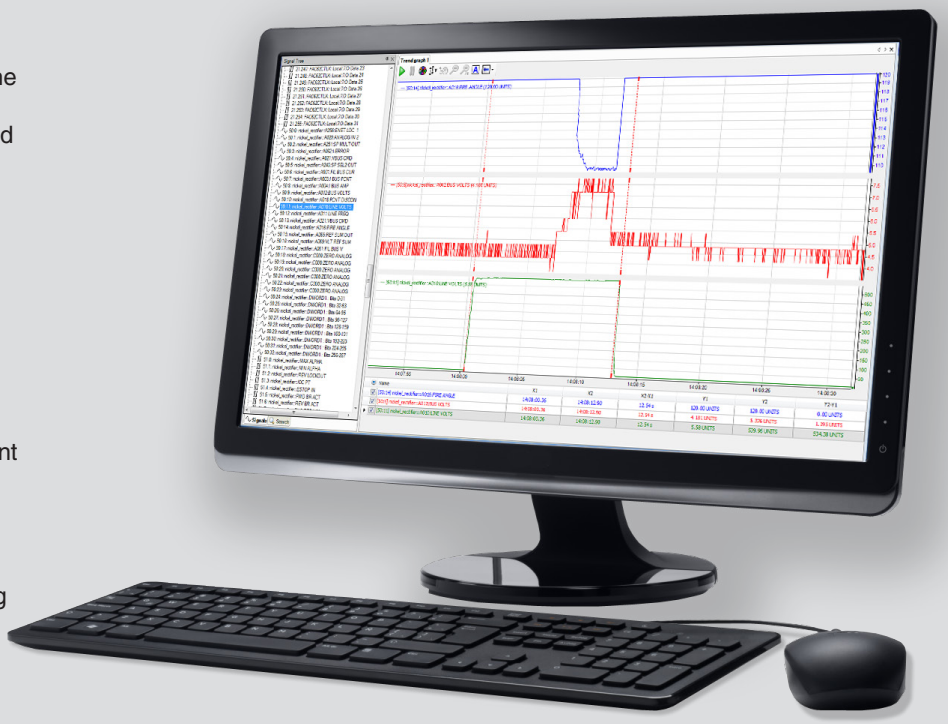




PerformanceVew 2.0

PerformanceView 2.0 collects and stores data from your complete rectifier control system. All analog and digital data from the power stacks, PLC, HMI and associated process I/O is time stamped, synchronized and stored in a single database.

- PerformanceView 2.0 is your 24/7/365 watchdog
- Quickly determine the source of a problem – operational, electrical or process
- Identifying root cause after initial event avoids costly reoccurrences of problems
- Access to reliable event data improves hand-off between operating and maintenance personnel

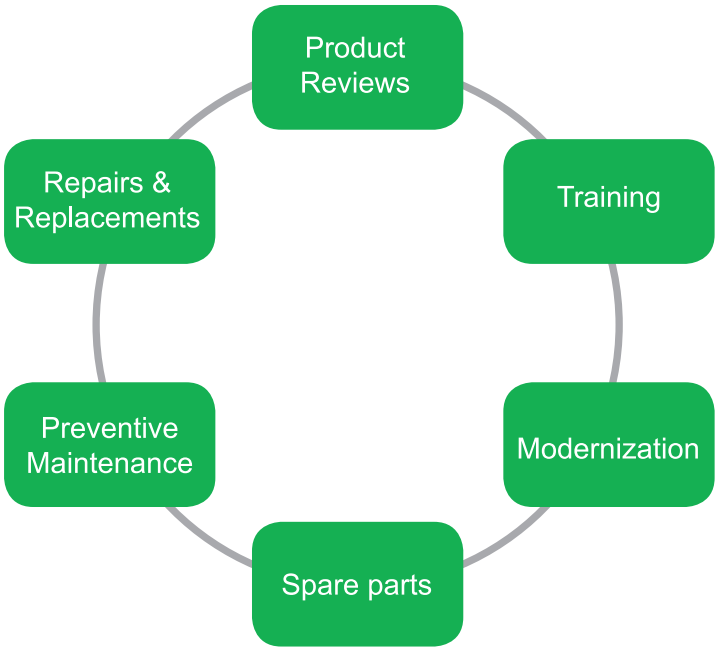


Service & Support

A Remote Diagnostics connection allows Nidec engineers to access your control system in real time, 24/7/365.

Looking at the same diagnostic screens as your technicians, our engineers can help determine the root cause of a problem.

They can guide you through a repair of your equipment and return it to service before a service tech could travel to your site.



Increased Availability

- Improved mean time to repair
- Problem resolution begins remotely, immediately

Reduced Maintenance Costs

- Eliminate the need for a site visit
- Avoid unscheduled down time by monitoring device wear
- Get back into production faster

Expert Support

- Compare data from multiple machines and sites
- Improve utilization of equipment by optimizing performance

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