

POWER COAT

E-COAT AND HIGHER DC VOLTAGE APPLICATIONS

AMERICAN

PLATING POWER



FLEXIBLE

MODULAR

REDUNDANT

SCALABLE

MAXIMUM POWER. MODULAR DESIGN.

Power Coat is a high-frequency, IGBT/MOSFET switch-mode rectifier system engineered specifically for demanding E-Coat and high-voltage applications. Designed around a scalable modular architecture, the system allows output capacity to be precisely matched to production requirements — and expanded at any time by simply adding additional power modules onsite. No complete system replacement required. Delivering efficiency levels above 95%, a power factor of up to 0.95, and a constant residual ripple of $\leq 1\%$ across the full control range, the Power Coat ensures:

- Stable voltage and current supply
- Optimized energy consumption
- Lower installation costs
- Consistent premium coating quality

Built for continuous 24/7 automotive production environments, the system combines integrated redundancy, advanced digital control, compact cabinet design, and seamless PLC integration to ensure maximum uptime and long-term reliability.

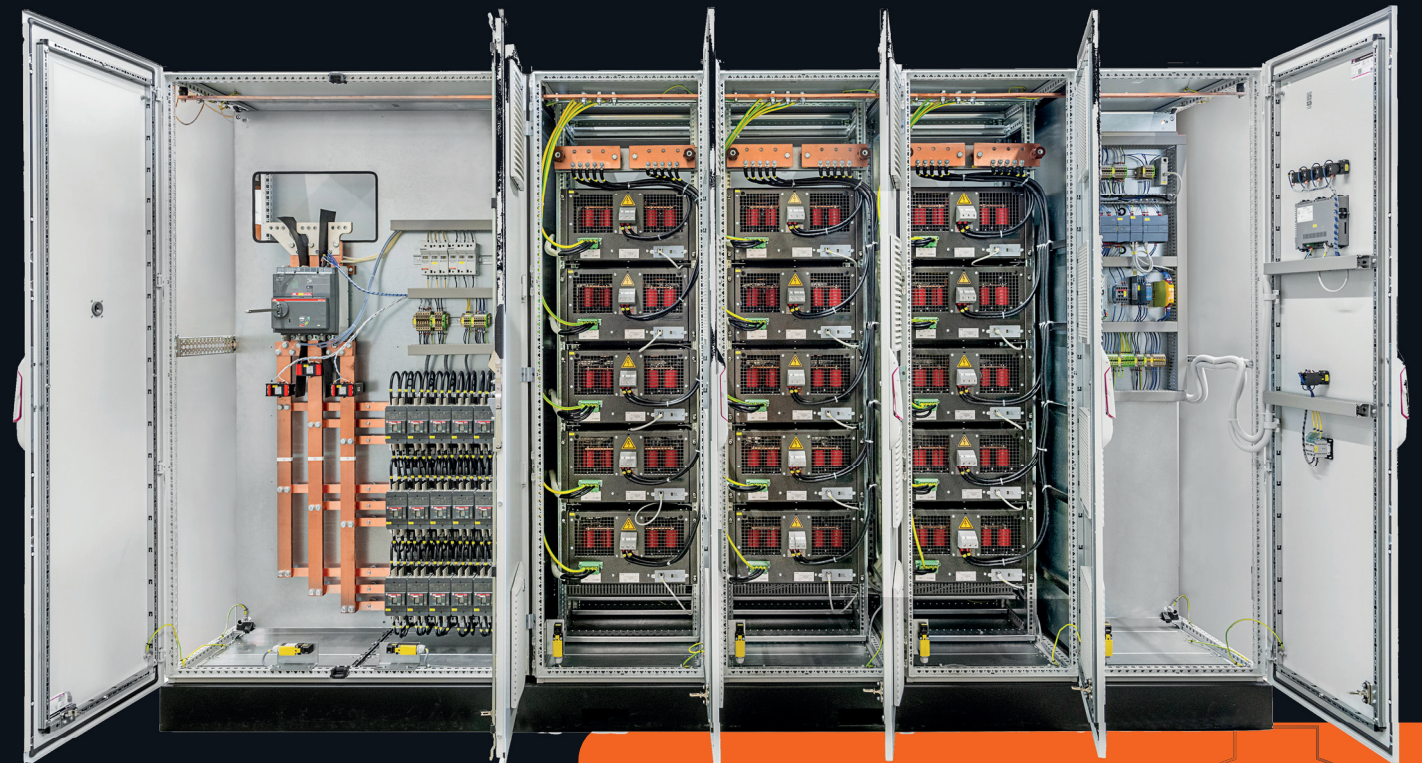
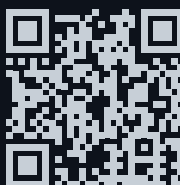
CONTACT

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EASE OF MAINTENANCE

Quick repair – no complex troubleshooting

Modular design allows quick service:

- Modules can be removed in less than 1 hour
- Full operation restored in less than 2 hours
- Self-diagnosis enables rapid fault detection
- Replaced using simple hand tools

SCALABLE MODULAR ARCHITECTURE

The system consists of parallel-connected rectifier modules that collectively supply voltage and current to the E-Coat bath. Output capacity is defined by the number of installed modules:

Up to 2,000 A per system. System expansion is possible by adding modules onsite. No complete system replacement required. Each module is a self-contained, stackable power unit with external connections for simplified installation and expansion.

Additional modules can serve as active backup units. In the event of a module failure:

- Automatic load redistribution
- No interruption of production
- Immediate fault indication via HMI

No separate backup rectifier required!



COMPATIBILITY WITH ALL LINE TYPES

The system is compatible with all common E-Coat line configurations, including batch, indexing and hoist systems, as well as continuous and monorail installations. It is equally suitable for individual anode control applications and hybrid system configurations. The modular architecture allows modules to be connected directly to individual anodes or anode pairs, providing maximum flexibility in system design. Actual current values are continuously monitored and transmitted via Ethernet I/P or other PLC communication interfaces, ensuring precise process control and full integration into existing line control systems.

ADVANCED FEATURES & SYSTEM BENEFITS

- **Anode Current Monitoring & Distribution**
 - Real-time monitoring for early fault detection
 - Optimized process visibility
 - Integrated protection and PLC integration
- **Flexible Control & Integration**
 - Custom PLC programming for all platforms
 - Remote panels for multi-rectifier control
- **Modular & Scalable Design**
 - Expandable rectifiers with N+1 redundancy
 - No need for a dedicated backup rectifier
 - Scalable for future production growth
- **Precision Process Control**
 - Multi-output modules for independent control
- **Reliability & Operational Continuity**
 - Long-term spare parts availability
 - Seamless rectifier switching
 - Integrated amp-hour counters and pump control
- **Robust & Certified Design**
 - Water cooling for harsh environments
 - SIL II / III safety designs
 - UL 508 and CSA certification

SYSTEM SPECIFICATIONS

- Control mode: V-constant (I-constant optional)
- Interface: Ethernet/IP (optional ProfiNET, and analog)
- Protection class: IP54 (control), IP43 (power)
- Ambient temperature: up to +40°C
- Installation altitude: <1000 m

PERFORMANCE OVERVIEW

- High Efficiency: > 95%
- Residual ripple: ≤ 1% (constant across full control range)
- Power factor: up to 0.95 (at painting voltage)
- Output current: up to 2,000
- DC voltage: 0–500 V
- Mains voltage: 3 × 380–480 V / 50–60 Hz

PROCESS CONTROL CAPABILITIES

- Up to 10 programmable voltage steps per program
- Up to 20 stored programs
- Ramp time & dwell time adjustment
- Ampere Second & Hour counting
- Optional coating thickness control

ABOUT AMERICAN PLATING POWER

As an authority on industrial power solutions, American Plating Power and our partners offer over 50 years of global experience in industrial power supplies, including DC, AC, and Periodic Pulse Reverse rectifiers and related equipment. We specialize in DC and AC power supplies for a wide range of industrial and commercial applications. Our SCR and switchmode rectifiers, rated up to 100,000 amps, are available in air-, water-, and oil-cooled configurations and are designed for continuous 24/7 operation, delivering reliable performance in demanding production environments.

The sales team at American Plating Power brings more than 110 combined years of experience in the sale of power conversion products for industrial applications. We offer a robust portfolio of value-added services that provide benefits many standard solution providers cannot, with solutions designed to give your company a competitive edge, supported by comprehensive service across the **USA, Mexico** and **international markets**.

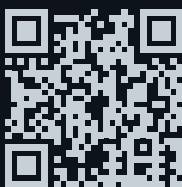
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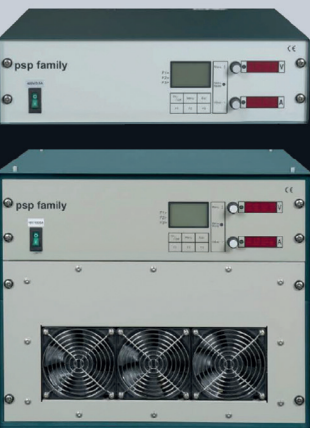
ADVANCED CONFIGURATION & INTEGRATION OPTIONS

Power Coat can be configured with a wide range of advanced features to support complex E-Coat applications and demanding production environments. Dual-output modules with independent current monitoring enable flexible individual anode control, while integrated anode current monitoring and DC distribution improve process transparency and preventive maintenance.

Sure Coat automatic voltage optimization reduces paint consumption and ensures consistent coating quality by dynamically adjusting output voltage based on bath load conditions. Flexible PLC integration, including ProfiNET, Ethernet/IP, Profibus and analog interfaces, allows seamless integration into existing automation systems, with optional custom PLC programming and remote control panels. For harsh industrial environments, water-cooled configurations are available. Additional safety options include SIL II / SIL III system designs and UL 508 / CSA certification for North American compliance. Optional DC switching between primary and backup rectifiers further increases operational reliability and system availability.

KEY ADVANTAGES

- **User-Friendly HMI:** Simple touchscreen control & monitoring.
- **Scalable Power:** Expand capacity by adding modules.
- **Low Ripple (~1%):** Smoother, higher-quality finish.
- **Easy Maintenance:** Fast module swap, minimal downtime.
- **Compact Design:** Smaller and lighter footprint.
- **Water Cooling:** Designed for the harshest factory conditions
- **Dual Outputs:** Two independently monitored outputs per module.
- **Spare Parts:** APP supplies spare parts for all rectifiers, regardless of age



Flexible Communication:
Ethernet IP | Profinet/Profibus | Analog (4-20mA / 0 to 10V)
Safety PLC | Other Types of PLC Communications

