

Industry: Electroplating
Products: Modular controllers
(MELSEC System Q automation platform),
frequency inverter drivers (FR-F740 and FR-E540 series)

Reliable Process Management for Electroplating Applications

ERO Montage und Anlagenbau GmbH in Herrnhut, Germany, designs, builds and installs custom systems for electroplating and other surface finishing applications. Modular programmable logic controllers and frequency inverter drives from Mitsubishi Electric ensure that the systems run smoothly and reliably.



ERO GmbH is one of Germany's leading manufacturers of systems for electroplating, anodising, black oxide finishing, phosphatising and surface coating. The company offers a full range of products for surface finishing, from individual containers to turnkey industrial plants. ERO's customers are both large and small firms in many different industries; in addition to electroplating services they include companies in the automotive, rail and aerospace industries. The exacting quality standards in these industries require fully-automated production systems that can perform surface finishing economically, at high throughput rates and with consistent quality for both jobbing electroplating services and in manufacturing industry.

One of the most common processes used in surface finishing is chemical or electro-chemical treatment of components in aqueous solutions of metal salts, complemented by pre-treatment and post-treatment baths for steps like cleaning, de-greasing and sealing. Constant conditions are essential in all the process steps to meet DIN EN ISO 9000 quality assurance requirements. Parameters like bath temperature, current density and electrolyte concentration and also immersion time and rinsing criteria all affect the quality of the surface finish. Comprehensive documentation of all production cycles is also required, and this can only be achieved with a seamless flow of information across all levels from the field level to the control level.

The MELSEC System Q automation platform from Mitsubishi Electric is the brain of the ERO systems. The modular PLC system controls all the components – the transport and metering systems, the rectifiers, the heating, cooling and ventilation systems, the process water and waste water treatment systems – via a Profibus DP network and is connected to the control level with an Ethernet link. The modular controller systems are custom-configured with the expansion and special function modules needed for each system type. Nearly a hundred different I/O, special function and network modules are available. In addition, Mitsubishi Electric frequency inverters of the FR-E540 und FR-F740 series are used for transporting the parts through the electroplating baths.

ERO's control systems include special software modules developed specifically for the needs of electroplating applications. The eroDAT package manages all process and production data, eroVIS Pro provides clear process visualisation support and eroGAL optimises the flows of goods and materials. Together, these systems ensure full transparency for all functions and process and production data, from the source to management. The combination of modular controller and visualisation technology enables flexible solutions for all jobbing and manufacturing electroplating tasks, including both the new systems and modernisation of existing installations. The advanced modern technology enables fully-automated production with high throughput rates and comprehensive quality control.

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Mitsubishi Electric is a competent partner that provides comprehensive technical support, even in the planning phase. The MELSEC System Q controller system is powerful and very reliable, and the GX IEC Developer programming software package is a user-friendly development tool that makes PLC programming really enjoyable.

**(Thomas Fux, Programmer,
 ERO Montage und Anlagenbau GmbH,
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