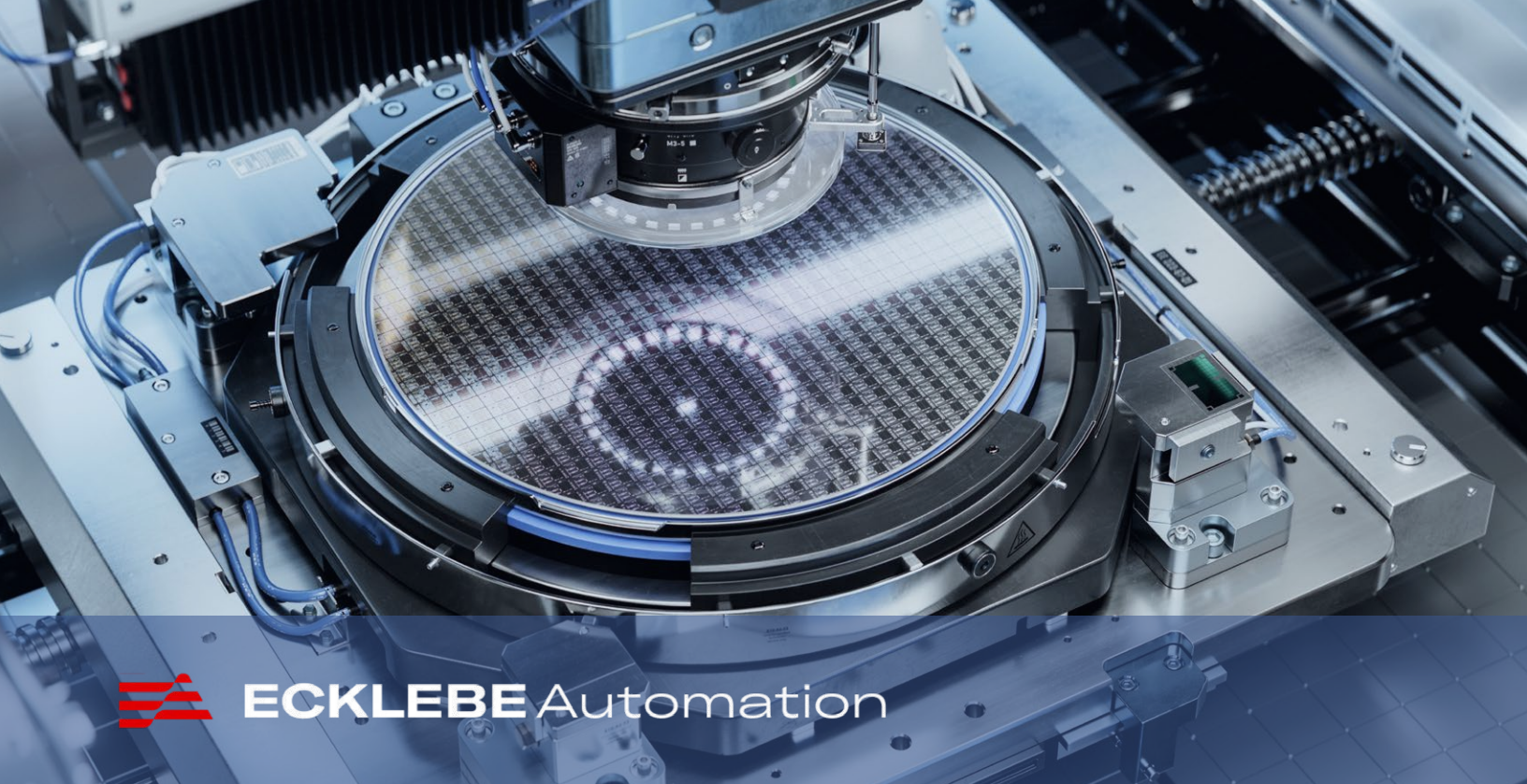




## CASE STUDY · PHOTOLITHOGRAPHIC COATING

# Precision Automation for the Tightest Tolerances in Specialty Manufacturing

ECKLEBE Automation provides precision automation, motion control, and digitalization solutions for photolithographic film coating lines, ensuring stable, repeatable, and high-performance processes for demanding specialty manufacturing applications worldwide.

## The Challenge

Photolithographic coating lines operate under tight process tolerances, where small variability can compromise an entire production run. Legacy automation platforms introduce this variability, increase scrap rates over time, and add maintenance complexity that erodes product quality and operational efficiency. In precision-driven processes, outdated automation systems pose a direct risk to product quality, not just operational efficiency.

# The Solution

ECKLEBE developed an integrated, high-precision automation system using redundant architectures and multi-axis servo motion control, designed for reliability, coating accuracy, and long-term maintainability. The project scope included:

- Integrated PLC-based control systems, SCADA, and HMIs
- High-precision multi-axis servo motion control
- Redundant server and client architectures for maximum system reliability
- Full system engineering, commissioning, and optimization

Redundancy was intentionally incorporated, as high-precision coating lines cannot tolerate unplanned interruptions.

# The Results

The new system achieved significant results:

**10–25%**

Increase in production throughput through optimized motion synchronization and process control

**20–40%**

Reduction in scrap and coating defects driven by improved precision and repeatability

**10–20%**

Reduction in maintenance costs due to standardizing the automation platform

Upon project completion, the facility gained a more reliable foundation for its most demanding production lines.