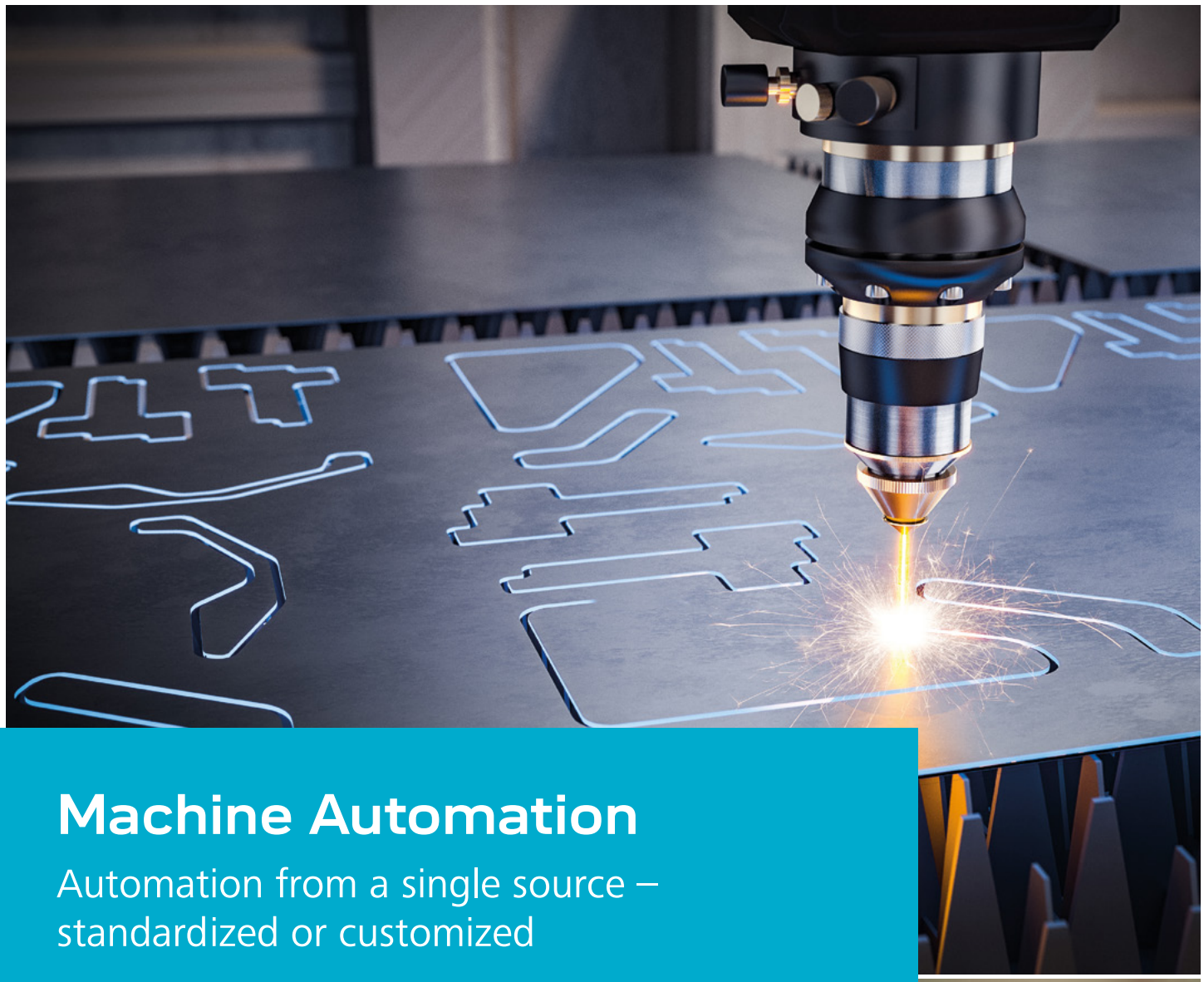
Eckelmann Group



Machine Automation

Automation from a single source –
standardized or customized





Eckelmann Group – Machine Automation

For our valued machine manufacturing OEM-Partners we supply highly specialized automation systems for industry and technology specific applications.

HiThus, we combine our robust and high-performance hardware platforms with customizeable software to perfectly match with your mechanical system.

As creating USPs in global competition can be challenging we develop, produce and deliver economic solutions for perfectly coordinated automation systems and digitalization.

From simple 1-axis Machines to highly complex multi-axis Machining Centers

Automation and IoT/ Industry 4.0 from a single source

Based on outstanding industry knowledge and specially designed technologies.

Whether milling, drilling, cutting or grinding: With our components, automation solutions and individual fast-paced customer service you achieve high quality results.

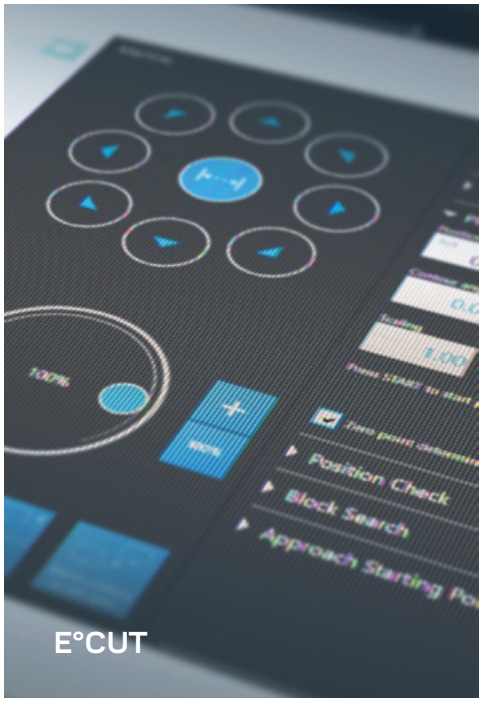
Aluminum, steel, wood, composites, stone or glass/ceramics: We master the requirements in order to process a wide variety of materials.

Shopfloor data acquisition following standard protocols such as OPC-UA and MQTT enables the creation of extensive data bases and evaluations.

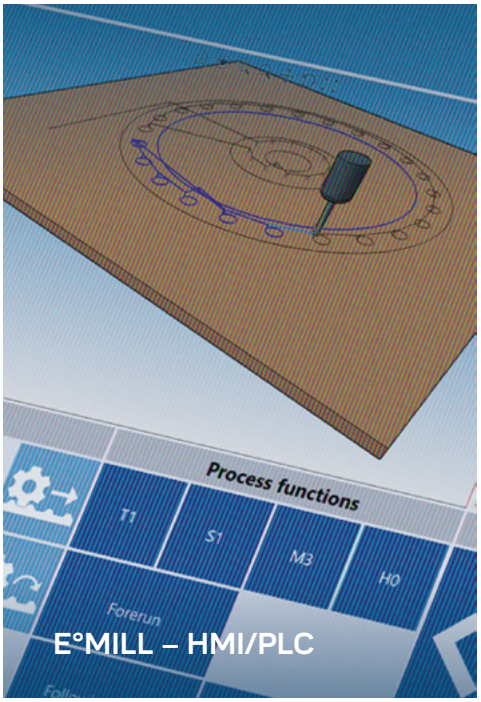
Efficient. Networked. Future-proof.

Eckelmann makes machine automation individual and efficient: our own CNC, PLC, and servo drive systems ensure the highest quality and smooth operation worldwide.

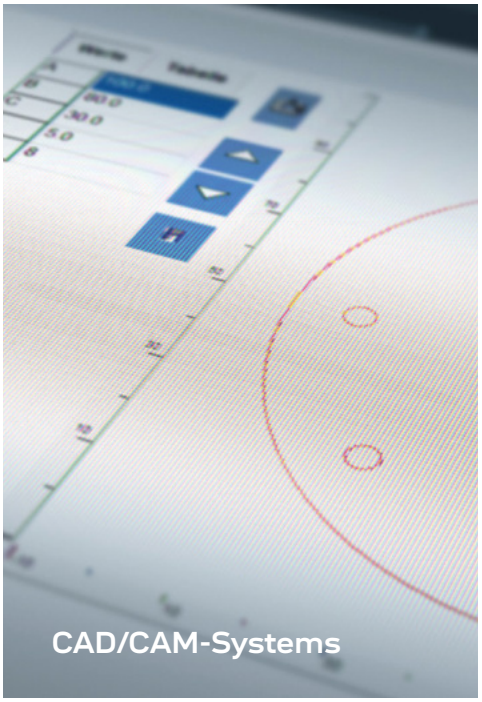




E°CUT



E°MILL – HMI/PLC



CAD/CAM-Systems



Control Systems &
Safe Control Technology



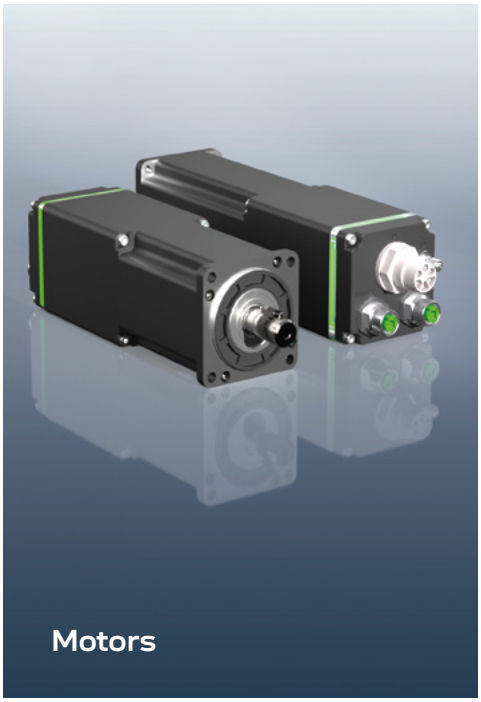
Drive Controllers &
Safe Drive Technology



Energy Storage



Panels & IPCs



Motors

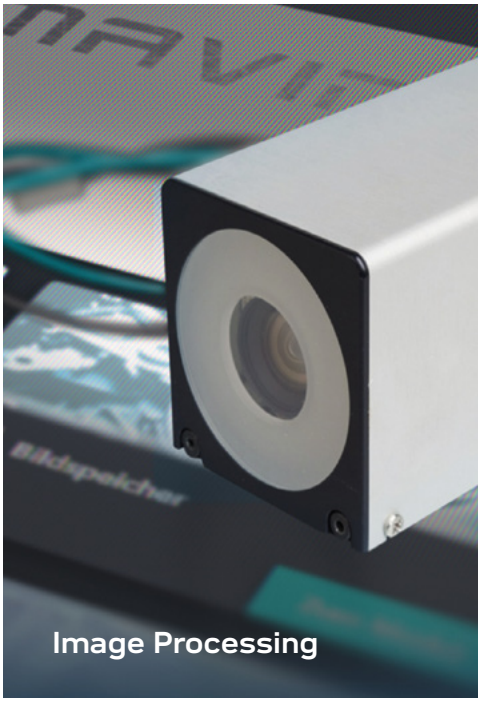


Image Processing

From components to complete solutions – everything from a single source

HMI Software Package

- Touch-optimized and application-specific user interface
- Import of CAD/CAM data
- Simulation including runtime calculation
- Fast online optimization
- Digital twin can be integrated

Control Technology

- Embedded Controller mit bis zu 32 CNC Achsen und 64 Motion Achsen
- Integrated functional safety up to SIL3 and PL e
- Future-proof with OPC UA and MQTT
- Digital and analog E/A modules
- Web visualization

Drive Technology

- Performance area: 50 W to 33 kW
- Spindle controller up to 40,000 rpm and integrated standstill monitor
- Energy recovery KERS
- Extensive safety functions up to SIL3 and PL e (EN 61800-5-2)

Energy Storage

- Recovering energy: Using braking energy to increase efficiency
- Reducing load peaks: Peak shaving reduces connected loads
- Compact & simple: Space-saving installation in the control cabinet
- Grid stability: No voltage fluctuations due to energy feedback
- Flexible: Optional control unit for parameterization and evaluation

Industrial PCs

- Development of OEM devices with individual design
- Scalable panel PC or box PC with extender set and remote panel
- Touch display in widescreen format from 15“ to 24“

Motors

- Wide range of applications: For high rated speeds, various inertias and constant torque
- Flexible: Various encoder interfaces available
- The right motor for every requirement: standard or custom solutions depending on the application
- Complete system support: Advice on design and dimensioning, including gearboxes and EXC control systems

Image Processing

- Personalized consultation: Selecting the right components for your vision solution
- Comprehensive portfolio: cameras, optics, lighting, industrial PCs, and software
- Integration & Programming: Integration into your application, including configuration
- Optimal image quality: lighting and optics precisely tailored to the application
- Flexible solutions: standard components or customized image processing systems





E°MILL –
Complete Solution for CNC Machining Centers

From the simple 3-axes machine to complex multi-axes machining center with on up to 8 NC channels and special kinematics – we combine the right automation package for you. Facilitated by our powerful CNC core with a variety of functions enable you to master almost every application case.

Thanks to its modular design, our E°EXC controller with expandable I/Os and optional safety control is open for modifications matching the requirements of your machine.

Quickly ready to use

E°MILL is a package for machining centers, it offers solutions for various application cases and machine types. It includes all hardware and software components required for automation, from the controller including PLC and HMI to the drive technology.

Perfectly Tailored User Interface

With the E°MILL HMI you get a modern user interface optimally adapted to state of the art technology. Customer-specific options as well as a wide range of correction options for increasing precision are implemented – individually designable due to its modular structure.

Ready for Industry 4.0

Ready for the digital factory floor through extensive production data acquisition with standard protocols such as OPC/UA and MQTT. This allows you to create extensive data bases and evaluations according to your needs.


3D Printing


Milling

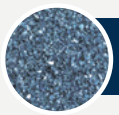

Drilling


Tapping


Sawing

Machinable Materials


Metal


Plastic, Resin


Glass


Wood


Stone, Ceramics





E°CUT –
Complete Solution for Cutting Applications

E°CUT is your solution for all cutting technologies and the prime standard in sheet metal processing. Supporting you and your machine concept with a ready to use solution including controls & safety, servo drives & motors as well as software and the most intuitive HMI in the entire in industry.

Ready to use

E°CUT offers turnkey solutions for all cutting technologies and machine setups. No programming work is required, just select the right configuration and you are ready to go.

Intuitive User Interface

The E°CUT HMI the user interface with the highest level of intiutivity in the industry, created for separation applications with full touch optimization and fully integrated interface management. It offers a modern user interface with extensive functionalities and many customer-specific options.

From Drawing to Cutting at Lightning Speed

The Eckelmann cncCUT CAD/CAM software suite for efficient nesting.
Available fully integrated into the E°CUT HMI or as a separate desktop version.

Integrated Support for Many Cutting Components

E°CUT supports all interfaces and technology data for plasma and laser sources as well as cutting heads and oxyfuel systems (Kjellberg, Hypertherm, IHT, IPG, Precitec and many more).

E°CUT HMI

The E°CUT solution is available in three performance levels.

- **E°CUT Elements** for the Light industrial Segment
- **E°CUT ECO** for high-resolution cutting machines
- **E°CUT PRO** for high-end and combination machines



Getting started made easy: with the space-saving Elements Box.
The plug-and-play box supports machines with a plasma or oxyfuel cutting head as well as marking.
A complete package that is ready for immediate use.


Laser Cutting



Marking


Drilling

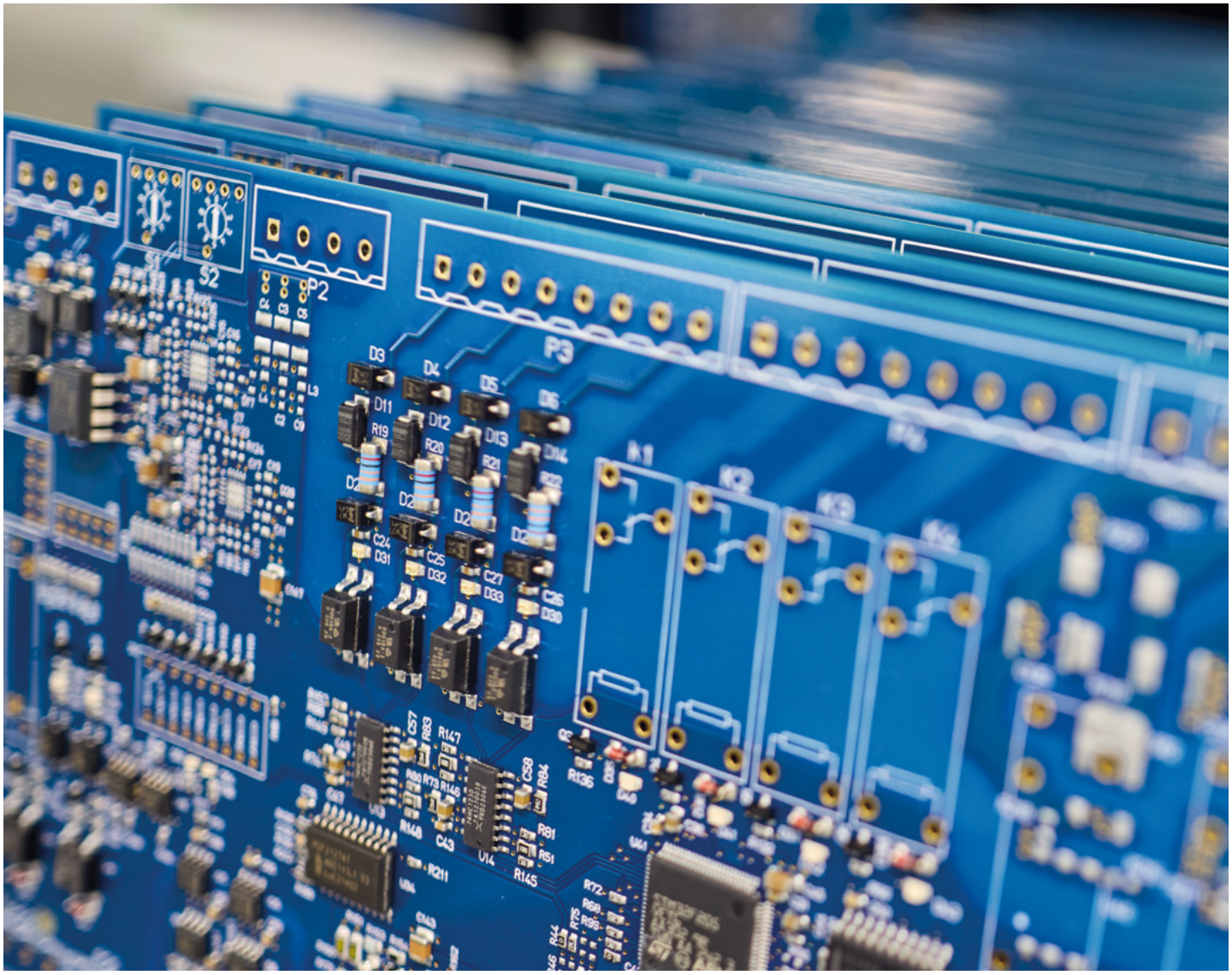

Plasma Cutting


Waterjet Cutting


CAD/CAM


Bevel Cutting


Oxyfuel Cutting


S1
S2
P2
P3
D3
D4
D5
D11
D12
D13
D14
R19
R20
R21
K1
K2
K3
C24
C25
C26
C27
D31
D32
D33
D30
R147
R146
R148
R145
R144
R211
U14
U13
U4
C43
C58
R84
R83
R136
R72
R51
R61



Customized Automation Solutions

With its Customized Automation Solutions business unit, Eckelmann AG develops, manufactures and maintains hardware and (system) software for application-optimized controllers for particularly harsh environmental conditions.

Performance

Collaborate together with our automation experts to develop application- and cost-optimized hardware, firmware and software solutions during concept phase, prototyping and full scale series production for your application.

Customer Centric Development and ECC

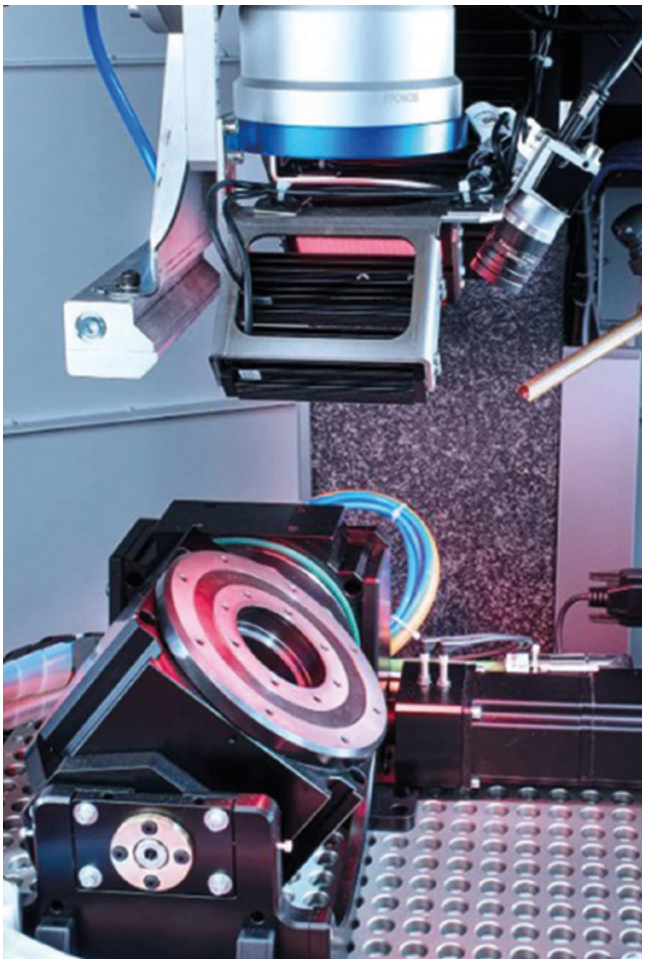
Eckelmann customized controls hard- and software are developed with a special emphasis on customer centricity. Eckelmann AG builds on more than 40 years of experience in electronics and controls development, on comprehensive circuit and component libraries as well as the Eckelmann embedded custom controls platform (ECC). A strong development team forms the basis for long-term and trusting partnerships.

Manufacturing

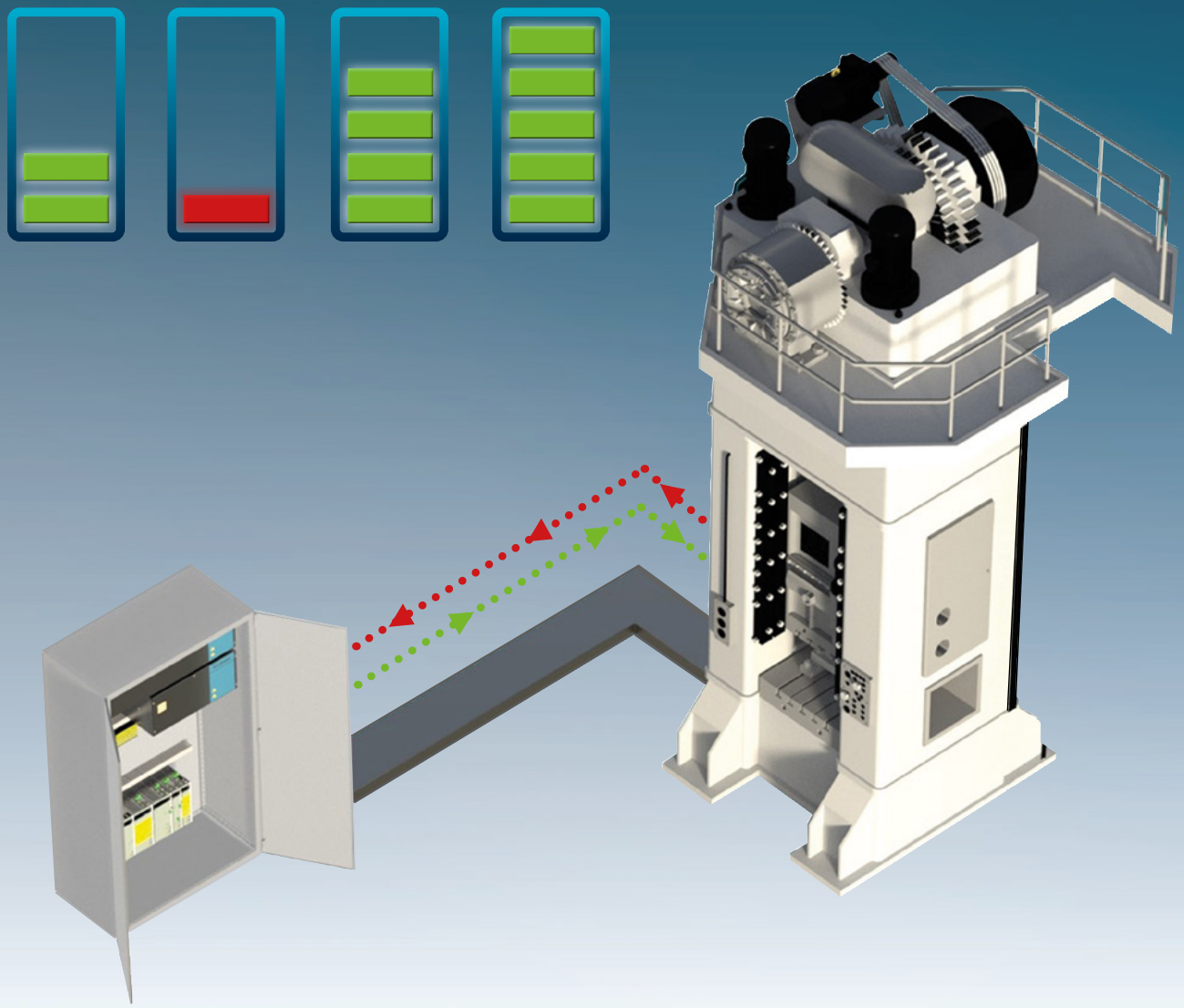
Professional in-house production lines (SMD and THT) at the Eckelmann head quarters Wiesbaden, Germany, as well as an integrated 100% end-of-line testings enable highest quality standards, responsive development support also in after-sales, traceability and obsolesence management.

The Benefits of ECC to You

- Customer- and application-specific controls and electronics
- Based on high-end ARM architecture and Linux embedded concept
- Access to state-of-the-art Eckelmann SOM platforms
- Access to series-proven Eckelmann AG circuit libraries
- Continuous integration and board support by Eckelmann
- Design according to CE, UL, EAC
- Environment-specific housing concept customizable up to IP67



Energy Recovery



Using Energy wisely

- w+w+Saves up to 40% energy and CO_2 emissions
- Interception of peak loads (peak shaving)
- Manufacturer independent integration of servo drives and FIs possible
- Stable and uninterruptible power supply to the drives
- Controlled shutdown of axes in case of power failure – for maximum service life and reduced downtimes
- Reduced braking resistance
- Minimized energy costs for control cabinet cooling
- Ready-to-connect solution for easy commissioning and low installation costs
- Service optimized rapid unloading
- Optional control part for Profinet for energy management according to ISO 50001

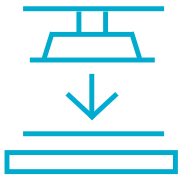
Save Energy with Intelligent Drive Technology

Manufacturing companies with high energy consumption are in need to focus on energy efficiency.
The E°Darc DCB energy storage units are the essence of regenerative drive technology for all applications with energy peaks.

The compact DC link capacitor modules store short-term electrical energy generated by regenerative drive controllers during braking recuperation. The energy storage system equips the drive system with the energy for the next acceleration process. E°Darc DCB significantly increases energy efficiency of your drive system, reduces energy consumption and peak load strain on hte power feed.

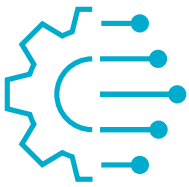
In addition, peak loads can be significantly reduced with the E°Darc DCB by means of an appropriate pre-charging option – this is referred to as „peak shaving".

The E°Darc DCB can fully demonstrate its advantages wherever drives regularly brake and accelerate.
Whether in series machines, special systems, or modernization projects, the capacitor module increases energy efficiency, reduces grid loads, and protects your components.



Servo presses &
Punching machines

High braking performance
with short cycle times



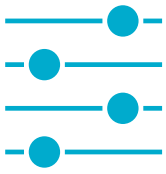
Machining centers
with multiple axes

DC link energy storage protects
the grid and hardware



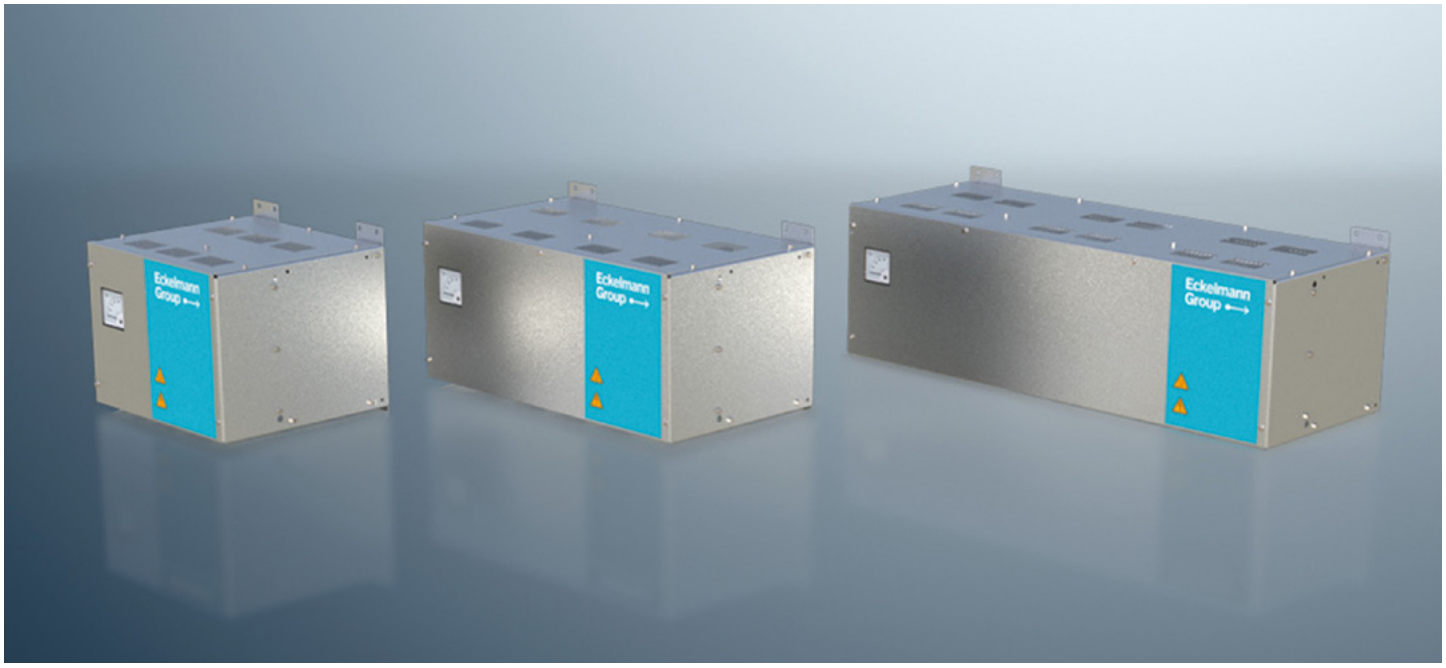
X-ray machines

Medical technology,
safety engineering,
material and
material testing



Assembly machines &
Conveyor technology/
Intralogistics

Synchronized movements
with great savings potential



Standard or customized solutions: individually tailored to customer requirements

Hardware Development

The Eckelmann hardware portfolio includes motors, controllers, industrial PCs, control systems and everything in between. All devices are standard to extensive testing.
For requirements that go beyond the standard, we are happy to extend technology functions according to your demand.

In the sense of partnership we support you in order to develop customized industrial PCs, controllers produced and optimized especially for your application.

Software Development

Software excellence is garantueed using our experience and our extensive libraries for machine and controller functionality, integration of customer-specific user interfaces for intuitive machine operation builds on a modular software base, long-term experience and user interface design.

Manufacturing and Assembly

In-house production of electronic components, controllers, IPCs, control cabinets of highest quality standards is a high priority at Eckelmann.

As a UL listed control cabinet manufacturer according to UL file E233027 and E507253 we design and produce custom-made control cabinets.

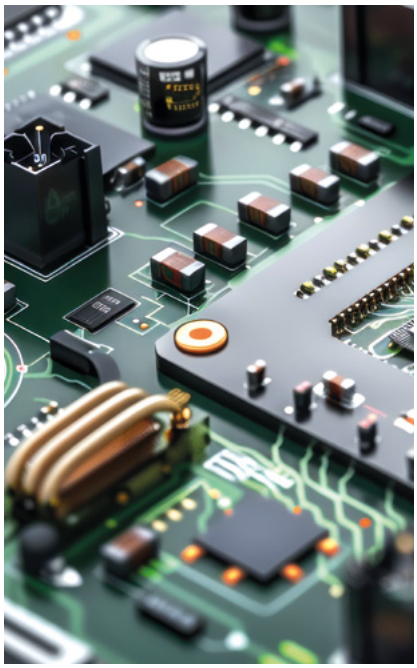
Consulting

Engineering

Hardware

Software Solutions

Digital Twin





Reliable support that goes the extra mile: our team provides you with unbureaucratic & practical assistance.

Quality

We are DIN ISO 9001 and EN ISO 13485 certified.

Our processes are constantly being further developed and all products undergo in-house function and load tests.

Training

We are happy to compile tailored training packages on hardware and software operation for your staff – just get in touch!

Commissioning

Our understanding: Innovative machines and plants require not only special knowledge during development and design, but also during commissioning.

Our service department will provide you with competent support during commissioning to ensure that our control and drive technology offers the greatest precision and benefit for your machine – on site, via remote maintenance and also for service calls worldwide!

Servicing and Remote Maintenance

The smooth running of your production processes must be guaranteed at all times. Hence, our experienced service team is available to support you at any time.

Lifecycle Management

Control Cabinet Construction

Training

Worldwide Service





Eckelmann Group

About us

Eckelmann is your system partner for precise solutions in the field of automation and digitization.
As a strategic partner in digital transformation, Eckelmann leverages the opportunities of digitization and secures sustainable competitive advantages for its customers by creating suitable solutions in machine automation.

Sites & partnerships – national & international
480 + employees



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