

Advanced **Energy** Technologies





TECHNOLOGIES FOR THE FUTURE OF ENERGY.

Holism is our approach – sustainable innovation our passion.

By focusing on the business areas **Machinery & Plants, Automation, Drives & CE-Safety** and **Digital**, Jagenberg Group pursues the overarching goal of developing innovative solutions with high technological standards.

A key position in generating new products and business models that meet current and future requirements of our customers is the development of advanced solutions for the future of energy.

Together, we work on solutions for the challenges of today and tomorrow.

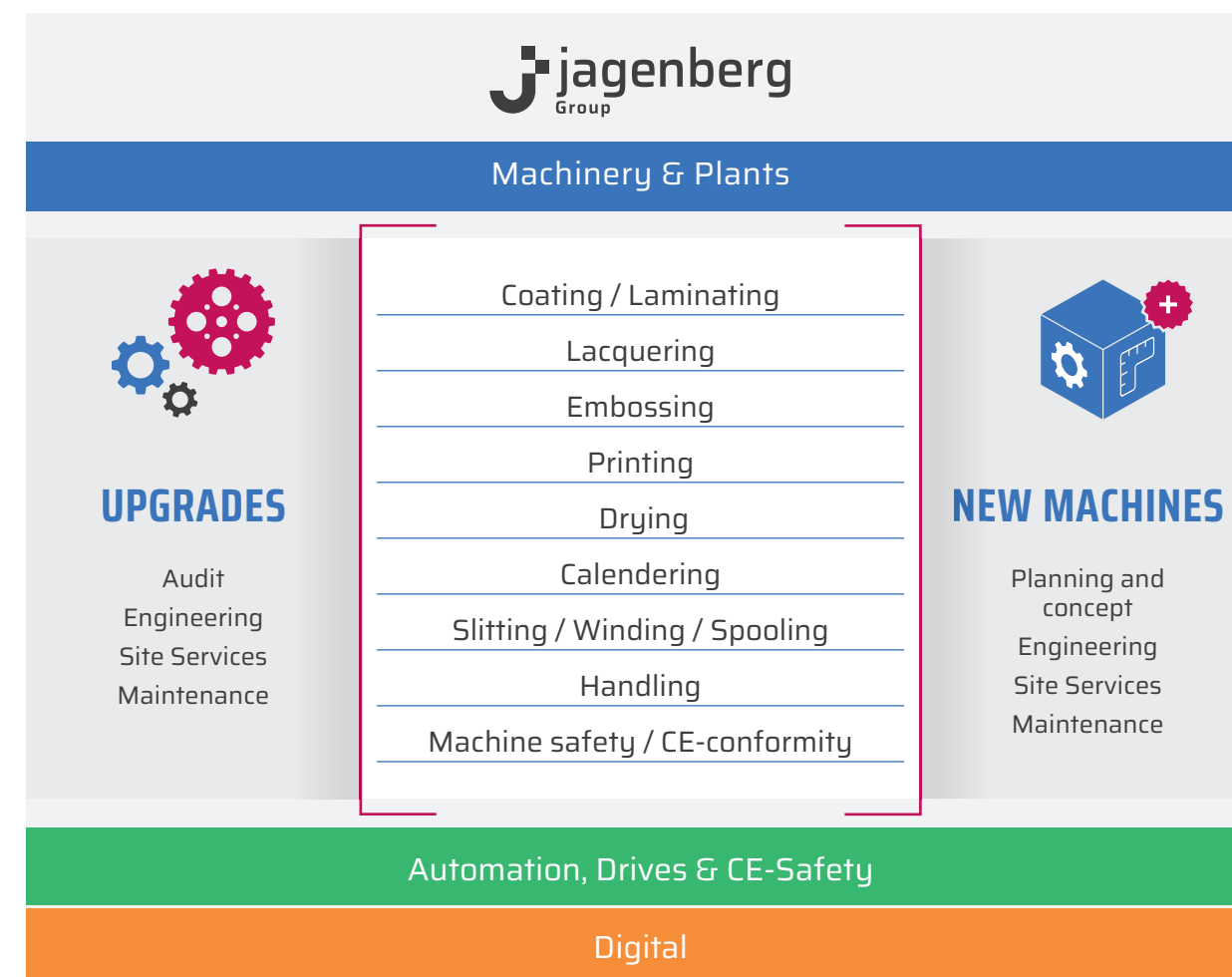
CREATE.FUTURE.TOGETHER.



PERSPECTIVES.INSIDE.

Whether it's a new machine or an upgrade, we build the future into every plant.

As a group of experts, we are not limited to one specific area, but specialize in comprehensive solutions for every industry. As a group of companies, we have comprehensive technologies, services and competencies with regard to the processing and finishing of web-shaped materials – safe, efficient and, above all, focused on future solutions.



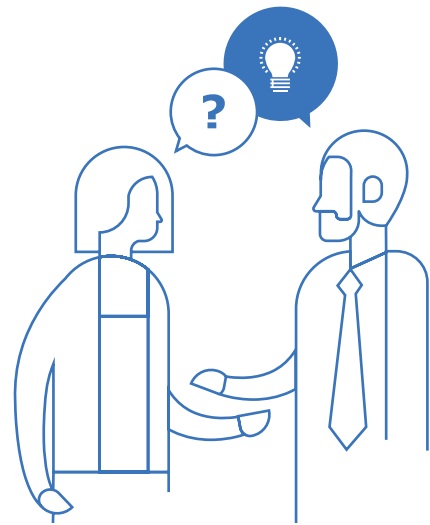
ADDED VALUE. MADE EASY.

Your solution from a single source: Rely on the **safety** and **experience** of a **single source** for system planning, installation and commissioning. To this end, Jagenberg Group combines 160 years of experience and expertise with the flexibility and creative power of strong individual companies to offer innovative solutions specifically for energy applications.



“Companies of Jagenberg Group not only supply machines, but also act as turnkey suppliers. This allows us to utilize the comprehensive know-how of the entire group and offer solutions as a general contractor.”

Dr. Stephan Witt
Executive Board Jagenberg Group



jagenberg
Converting Solutions

kampf lsf
Jagenberg Group

kampf
Jagenberg Group

lebbling
Jagenberg Group

jagenberg
Digital Solutions



Your solution from a single source.

We accompany solutions: not only during planning and installation, but also afterwards. Our experts are there for you when it matters – around the clock and every day.

Service is best provided where the equipment is running. Therefore, our service experts are based in Europe and at our service branches around the world.

**Worldwide
24/7 service**

Training

**Commissioning and
process optimization**

Turnkey installation

Project planning

Design

Jagenberg Converting Solutions is an integrated part of a long-established and dynamic group of companies. It offers innovations, such as highly sophisticated coating systems for the energy industry with turnkey solutions from a single source.



jagenberg
Converting Solutions



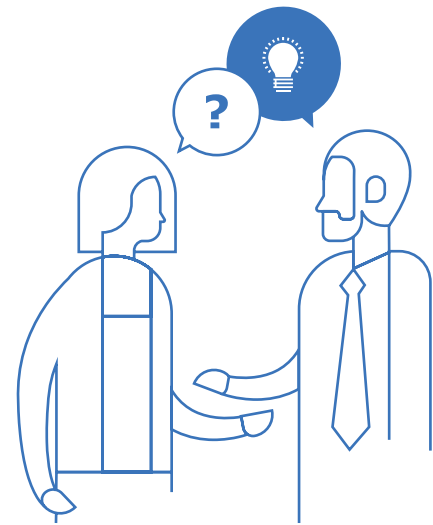
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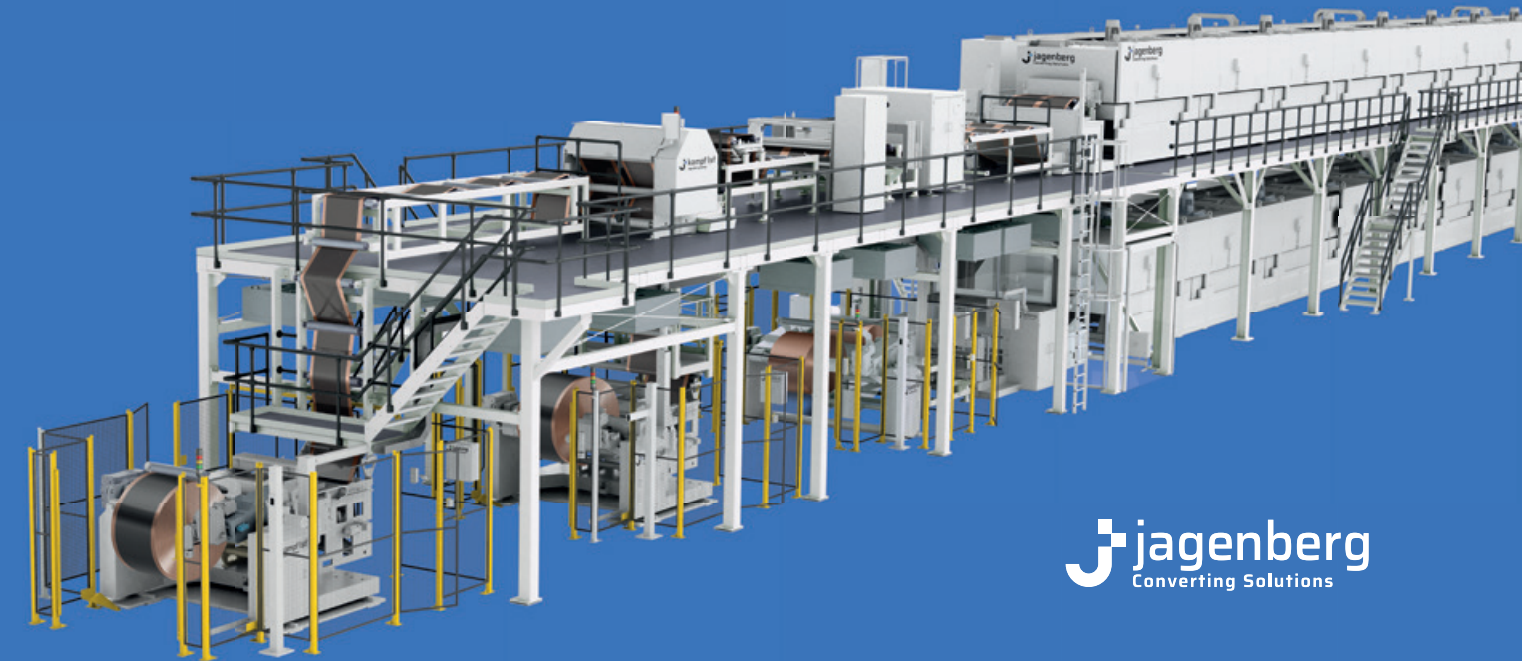
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Innovation in flow. Anode-cathode.

Jagenberg Converting Solutions tandem coating line with center-cut cutting unit for lithium-ion batteries.



Jagenberg Converting Solutions is an integrated part of a long-established and dynamic group of companies. It offers **innovations** such as **highly sophisticated coating systems** for the **energy industry** with **turnkey solutions** from a single source.

INTEGRATE.CONVERTING. COMPETENCES.

JAGENBERG CONVERTING SOLUTIONS GMBH

Jagenberg Converting Solutions is your **turnkey solution provider** when it comes to **coating** of **innovative films** for **decorative applications**, **electronics**, **batteries** and **fuel cells**.

We bundle the experience and know-how of the entire Jagenberg Group and complement it with competencies of strategic partners.

Your partner for intelligent solutions for coating



Advanced
Surface Technologies



Advanced
Energy Technologies

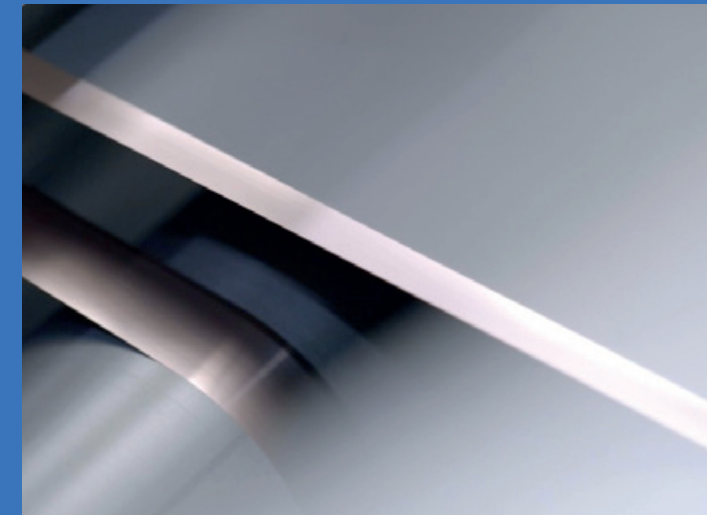
Our advanced technologies include:

- Process technology ■ Overall project management
- Integrator ■ Turnkey provider



“ We create added value for your production. Our innovative and sustainable solutions improve your productivity, make costs more predictable over the entire life cycle, ensure less scrap in production and reduce your carbon footprint.”

Thomas Lebbing
Managing Director
Jagenberg Converting Solutions



jagenberg
Converting Solutions

→ For more detailed information please visit our website www.jagenberg-converting.com

Create. Opportunities.

We see ourselves as an enabler for advanced technologies. For the energy technology sector, our portfolio includes the installation of all machine components as well as process engineering, drive and automation technologies, CE-compliant design, documentation, training and digital integration. We call it

Integrate. Converting. Competences.

Our focus on:



Advanced
solutions



Increasing
productivity



Total cost of
ownership



Reduction
of waste



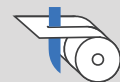
CO₂
Carbon
footprint

SLITTER.WINDER.KAMPF.

KAMPF GMBH

Good advice pays off - **slitting and winding technology** has been our **core competence** for more than 100 years. Based on our experience and competence we advise and support you in the selection of suitable machines and the corresponding solutions in the surrounding area.

Your partner in the field of energy for slitting and winding



Development and production of slitting and winding machines



Process technology for slitting and winding



Digital customer solutions, life cycle services



Automation solutions

Primary and secondary slitting and winding technology, non-stop winders and data-based customer solutions for the production and finishing of:

- Battery separator foils ■ Capacitors ■ Special foils
- Electrodes (anode and cathode) ■ Flexible foils ■ Flexible composites
- Aluminum foils ■ Label applications



“Kampf is also an expert in the energy sector and has already successfully installed numerous machines. With our in-house technical center, we can secure new projects already in the trial phase - that's how smooth cooperation works for us!”

Dipl.-Wirt.-Ing.
Markus Vollmer
CEO Kampf

Share. Competence.

Our competence center specializes in concepts for applications in the energy sector. Here, we consider the entire process chain of lithium-ion battery production. For this purpose, we offer a new generation of machines that covers all slitting and winding processes in the production of battery separator foils and in all other necessary materials. **Slitter.Winder.Kampf.**



kampf
Jagenberg Group

→ For more detailed information please visit our website www.kampf.de

CONVERTING.PROCESSING. UNLIMITED.

KAMPF LSF GMBH & CO. KG

For **more than 100 years**, our business has been the successful **development** and **manufacture** of **machines** and systems for the **finishing** and **processing** of sophisticated **films and papers**. Special solutions adapted to the individual requirements of our customers in the decor and packaging printing industry are our best references.

Your partner in the field of energy for



Project planning
and consulting



Installation and
commissioning



Design of slitting
and winding solutions



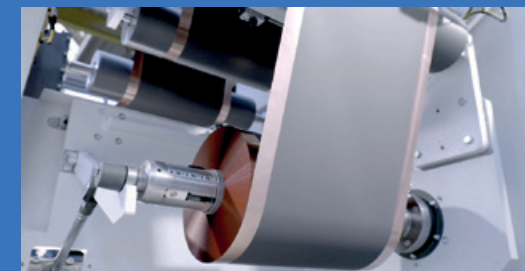
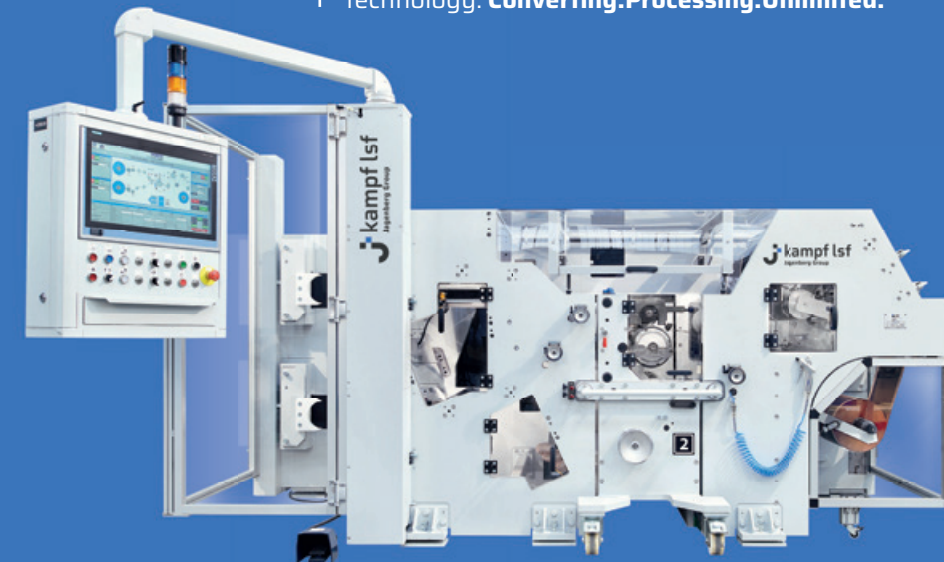
Lifecycle service of
machines and systems

Customized project planning, design, manufacturing and commissioning of LIB winding and LIB cutting machines:

- Cutting applications for anode/cathode battery foils
- Inline cutting modules for electrode foils
- Automatic non-stop turret unwinders and turret rewinders
- Integration of customized logistics systems
- Process consulting for slitting and winding solutions

Energy. Unlimited.

Under the motto ENERGY.UNLIMITED. the special machine builder Kampf LSF is driving innovation opportunities in the field of lithium-ion batteries (LIB) in a competence team with Kampf. The experts bring in-depth know-how and a wealth of experience in customer-specific solutions with production-proven machines and systems in the industrial environment of battery manufacturing as well as in cutting and winding technology. **Converting.Processing.Unlimited.**



kampf lsf
Jagenberg Group

→ For more detailed information please visit our website www.kampf-lsf.com

AUTOMATION.DRIVES.FUTURE.

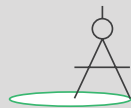
LEBBING AUTOMATION & DRIVES GMBH

We are specialized in turnkey drive and automation solutions for endless web production facilities. For us, only a **holistic approach** provides the best results. Therefore, we always work hand in hand with the **mechanical engineering partners**.

Your partner for turnkey control and automation solutions



Conceptual design
and project planning



Engineering
panel shop



Commissioning
and 24/7 service

Solutions for drive and control technology as well as process control and data systems for coating & printing machines:

- Drive Technology ■ Control Technology ■ Data Systems ■ Electrical System Design
- Electrical installations and commissioning ■ Manufacturing ■ UL Panel Shop
- Retrofitting ■ Safety and Security



“ We work absolutely solution-oriented. Especially endless web guiding systems with innovative foils, such as those required for battery production or fuel cells, benefit from the know-how and the 360-degree view we take as a partner of mechanical engineering and machine operators.”

Guido Lebbing
Managing Director
Lebbing

Technical. Leading.

Lebbing's know-how is not limited to drive and automation technology for new plants. We also support the modernization and optimization (retrofitting) of existing machine technology as well as the application of converting technologies and the use of data-based services, because **Automation.Drives.Future.**

Lebbing automation & drives is committed to providing the best individual service: In addition to remote services, we also offer worldwide on-site service and maintenance by our experts.



→ For more detailed information please visit our website www.lebbing.com



AUTOMATION.DRIVES.FUTURE.

LEBBING AUTOMATION & DRIVES GMBH (CE-SAFETY)

We are your partner for **comprehensive advice** on **CE marking**. Our **team of experts** has been developing safety solutions for more than 25 years that are as simple as practicable. We know the **laws, regulations** and **standards** that your **machines** and **plants** must comply with in order to obtain the **CE mark**. We advise you on the topics of risk assessment, operating instructions and the development of **control technology safety** concepts for functional safety.

We offer you our experience for your safety.

Your partner for machine and system safety



CE marking
Risk assessment



Safety assessment



Functional safety



Operating and
assembly instructions

Safety and operating concepts as well as CE-compliant documentation:

- CE marking, risk assessment
- Explosion Protection
- Functional safety, verification and validation
- Safety assessment of modified equipment
- Training courses and workshops
- Operating manuals and assembly instructions
- CE Software



Our CE-Safety Team



Safety. Planning.

When it comes to planning complex machines and plants, safety is a key factor. Therefore, it is essential to consider all safety aspects right from the start. To this end, Lebbing automation & drives with its Business Unit CE-Safety in Coesfeld, as part of Jagenberg Group, provides comprehensive know-how.



CONNECT.DEVELOP.ADVANCE.

JAGENBERG DIGITAL SOLUTIONS GMBH

Added value for an efficient and transparent production network: This is the drive of **Jagenberg Digital Solutions**. With the integrative Industrial Internet of Things platform **the@vanced**, the software experts in the Jagenberg Group have a powerful basis for the **digital networking of machines, components and planning systems** – for a wide range of industries.

The focus is on the continuous **optimization** of the **value chain** of companies that process **web-shaped materials**: Through **digitized processes, smart data** handling and **intelligent linking**.

Your partner for comprehensive digital customer solutions



Productivity



Availability



Connectivity and Interoperability

Integrative IIoT platform the@vanced for added value:

- Order planning
- Monitoring & Reporting
- Maintenance planning
- Connectivity to ERP, MES and SCADA systems and machines as well as their networking
- Comprehensive documentation

my@vanced customer portal for added value:

- Software upgrades
- Spare parts order
- Current and further information
- Booking of the@vanced packages and trainings
- Access to order-related documents



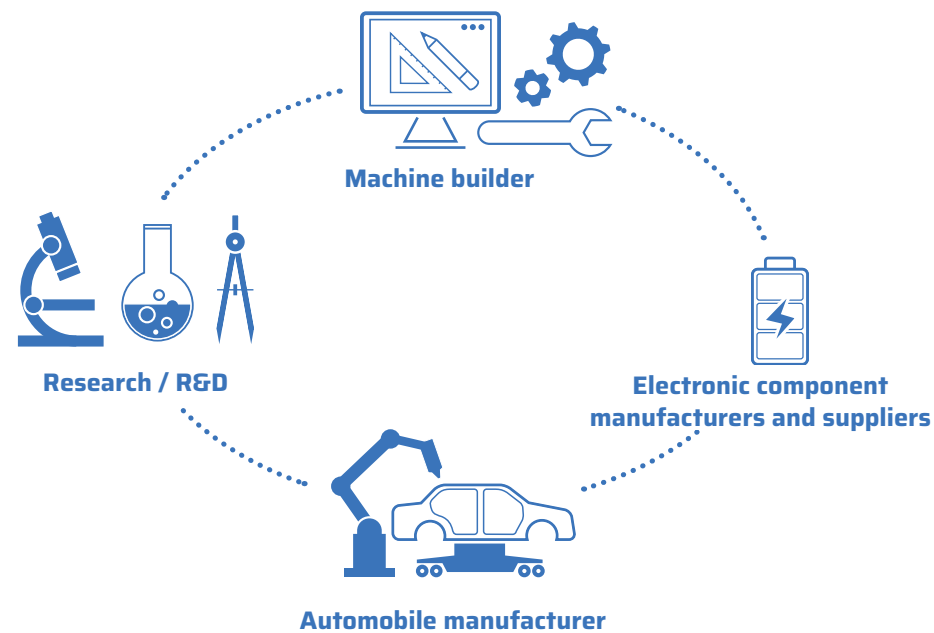
Sustainable. Digital.

Jagenberg Digital Solutions intelligent services enable innovative energy companies to manufacture at a level that meets their demand for innovation and sustainability

Connect.Develop.Advance.

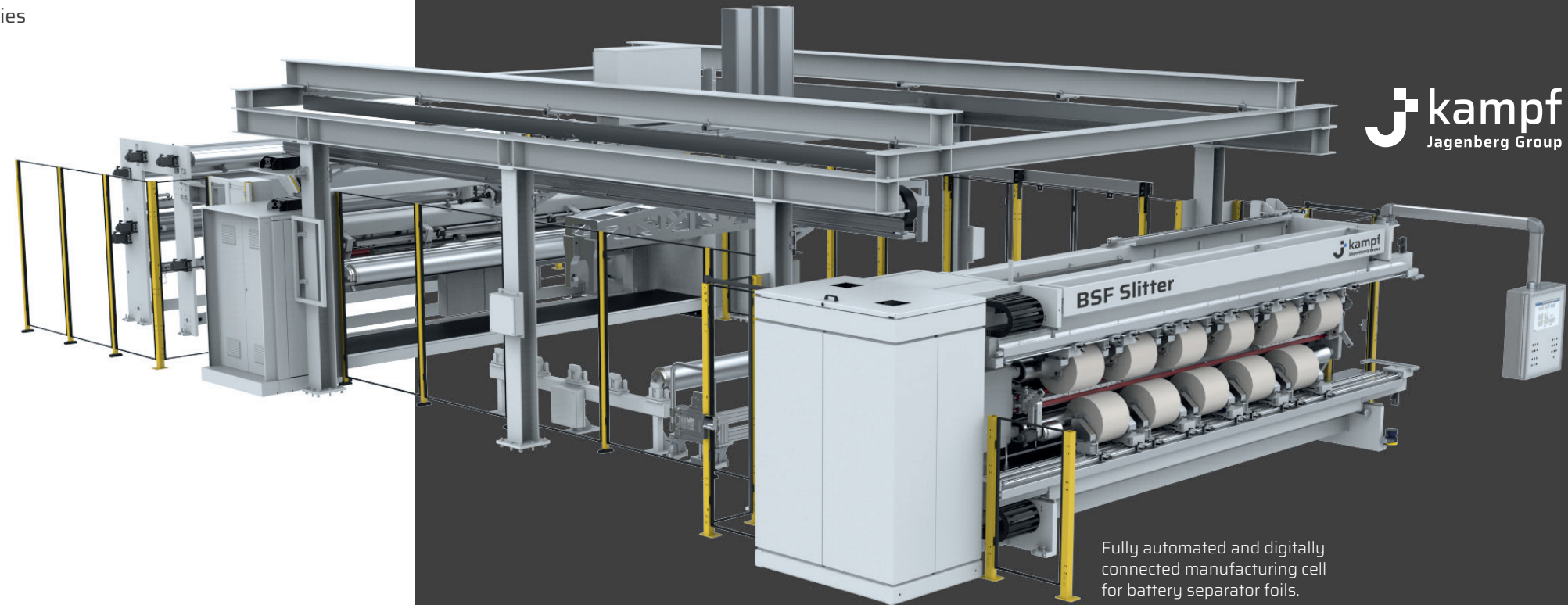
COMPETENCE. PARTNERSHIP.

Our customers appreciate our **holistic approach** and broad offering. Each of our group companies may **support individually** with their renowned products and services. Together, we may also **provide complete plant equipment** as a **turnkey provider**, bundeling the products and competencies from our group companies and strategic partners. **You have the choice!**



References

Plants from Jagenberg Group are used by leading component suppliers, automotive manufacturers and producers of electronic components, batteries and fuel cells worldwide.



kampf
Jagenberg Group

Fully automated and digitally connected manufacturing cell for battery separator foils.

WORLDWIDE. ON SITE.

As an **international** group of companies with sites and production facilities in **Europe, Asia** and **North America**, Jagenberg Group stands for short distances, good accessibility and fast delivery times.

Wherever and **whenever** customers need our support: someone of **Jagenberg Group** is most likely **just around the corner**.



The in-house production of core components for machines ensures highest quality.



Your strong partner worldwide.



Group Headquarters: Krefeld / DE

Sales

Engineering / Manufacturing

Service

It is important for you to know that our production and service offerings are close to you: secure supply chains, legal aspects and short distances are decisive competitive advantages that we offer you. And our arguments, which we fill with life!

Jagenberg
Gr
reate.de

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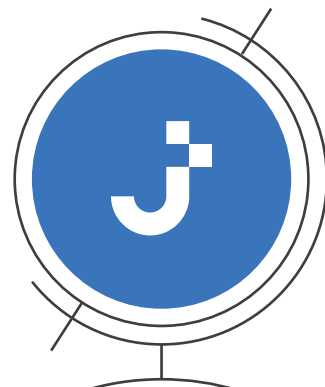


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INTERNATIONALLY ACTIVE. FAMILY-MINDED.

We are the **Jagenberg Group**. We focus on the core business areas of **machines** and **plants, automation** and **control technology**, and **digital solutions for processing web-shaped materials** such as **films** or **paper**.


What sets us apart is a fair, trusting exchange with our customers and our high willingness to develop **individual solutions** along the entire **value chain**. We meet the increasing demand for bundled services for **Advanced Energy Technologies** from a single source by offering a wide range of products and services from the entire Jagenberg Group.



Create.Future.Together.

The thoughts and actions of Jagenberg Group are shaped by our mission statement **Create.Future.Together**. “**Create**” means that we design creative and future-oriented solutions for our customers. Our agile organization enables us to take successful steps into the future quickly and decisively. “**Future**” stands for our will to face the dynamic changes that the future holds - be it technological progress, digitalization or climate change. “**Together**” reflects our conviction that only together we can be strong! Jointly with our customers, suppliers and partners, we learn from each other and build long-term and reliable relationships.

Jagenberg AG

 Kleinewefersstraße 1
47803 Krefeld
Germany

 +49 2151 93 40 99-0

 info@jagenberg.com

 www.jagenberg.com

