

INNOVATIONS

ISSUE
125

Hennecke customer magazine for technologies and trends on the polyurethane market

RIDING THE WAVES OF INNOVATION

How CorPower Ocean harnesses
the energy of the oceans – with support
from Hennecke technology

FOCUS2030

The Hennecke GROUP enters the next phase of growth
in 2025 with a clear strategy and technological strength

SMARTFLEX EVO

The smart entry into high-volume comfort
foam production with system expertise
of the Hennecke GROUP

 **CorPower
Ocean**





**GLOBAL VISION.
LOCAL STRENGTH.**

Dear customers, dear business partners,

The economic environment remains challenging. Global uncertainties, volatile markets, and evolving regulatory requirements continue to pose significant challenges for the entire industry. Nevertheless, Hennecke has successfully maintained stability and achieved an outstanding business result over the past year – thanks to a consistently executed transformation process. This confirms that we are on the right track, and we will continue to build on this success with determination.

With FOCUS2030, we have defined a clear strategy for the future. Building on the achievements of Hennecke 2.0, it positions our company for sustainable growth, technological excellence, and global strength. A key element of this strategy is our Local-for-Local approach. Through our global Centers of Excellence, we ensure close customer proximity, short supply chains, and the ability to address regional requirements effectively.

Another milestone was the successful ISO certification of all global sites. This not only establishes binding standards for quality and sustainability, but also underlines our role as an industry pioneer.

Sustainability remains at the core of everything we do. It shapes our entire product and service portfolio: Hennecke systems help users conserve resources, improve energy efficiency, and future-proof their production processes. With innovative recycling solutions like the ECOFILLER PLUS MK2, we are also making a direct contribution to circular economy within the polyurethane sector. In addition, we continuously optimize technologies that help our customers reduce costs, lower emissions, and secure long-term competitiveness.

We are confident that the Hennecke GROUP will continue to grow successfully – even in a complex environment – through close collaboration with our customers, partners, and employees around the world.

Best regards,

Thomas Wildt,
CEO Hennecke GROUP

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FOCUS2030



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Sustainable and resource-efficient

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**UPCOMING
TRADE FAIRS**

PU TECH EURASIA
November 26–28, 2025
Istanbul/Turkey

JEC WORLD
March 03–05, 2026
Paris/France

INTERZUM BOGOTÁ
May 12–15, 2026
Bogotá/Colombia

FOAM EXPO NORTH AMERICA
June 23–25, 2026
Novi/USA

FEIPLAR + FEIPUR
August 25–27, 2026
São Paulo/Brazil

FAKUMA
October 12–16, 2026
Friedrichshafen/Germany

UTECH ASIA
November 03–05, 2026
Shanghai/China

FUTURE STRATEGY FOCUS2030

THE HENNECKE GROUP ENTERS THE NEXT PHASE OF GROWTH IN 2025 WITH A CLEAR STRATEGY AND TECHNOLOGICAL STRENGTH

Despite challenging conditions, the Hennecke GROUP achieved the most successful financial year in its history in 2024 and is now consistently looking ahead: With targeted investments in technology, processes, and global structures, the company is strengthening its leading position in selected PUR markets and continuing to drive forward its growth strategy.

Fit for the challenges of the future

Even if the entire industry is feeling the headwind: The Hennecke GROUP is entering a new strategic phase with confidence and a clear direction. Following a record year in 2024 – with all-time highs in revenue and profit, as well as a further increase in order intake compared to 2023 – the company is now taking the next step. FOCUS2030 sets the course for targeted growth, technological excellence, sustainable operations, and a globally aligned organization. Central to the strategy are clearly defined market opportunities, a streamlined product offering, and targeted investments in innovation, operational excellence, and the development of a high-performing global workforce. Over the next five years, the company is aiming for profitable revenue growth of 25 to 30 percent.

The launch of this new phase comes as the industry faces growing geopolitical tensions, uncertain market conditions, and increasing trade barriers that demand adaptability and challenge the entire industry. However, the Hennecke GROUP demonstrates resilience, a result of the structural and cultural progress driven by the successful implementation of Hennecke 2.0 transformation in recent years.

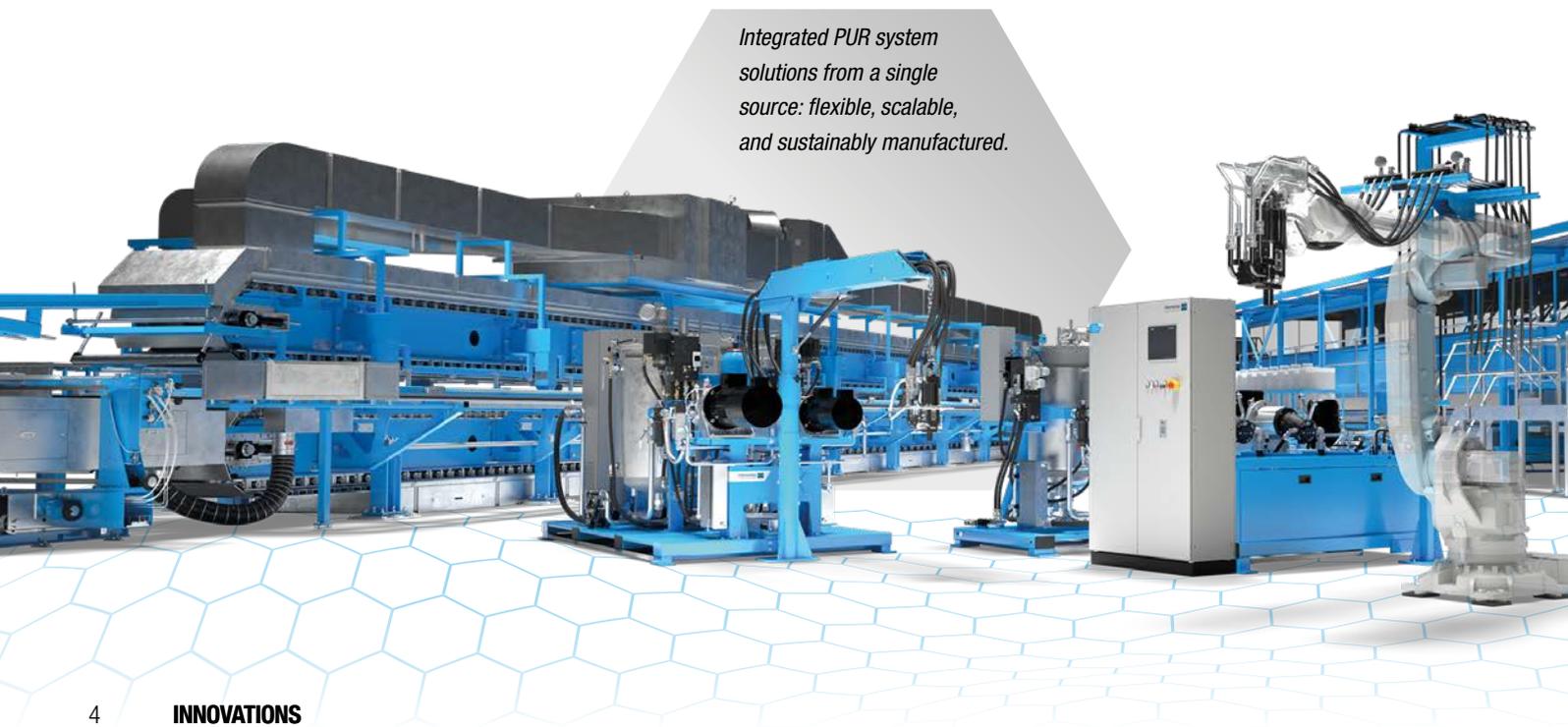
“Since 2019, we have established a solid foundation to make the company more agile, efficient, and closely aligned with our customers,” explains Thomas Wildt, CEO of the Hennecke GROUP. “With the introduction of the Hennecke Business System and its practiced culture of success, we have established a self-learning organization that can be managed globally on the basis of transparent metrics. This enables us to continuously adapt our structures to developments in the end markets. With FOCUS2030, we are taking the next logical step: proactively shaping transformation and aligning our business model with the demands of the future.”

Focus on clear core areas

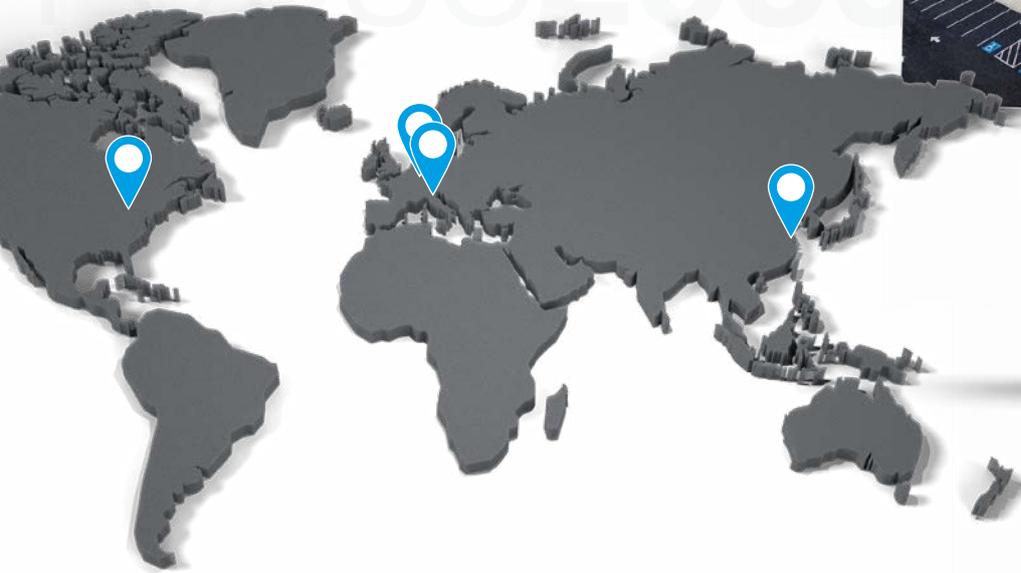
A key element of FOCUS2030 is the targeted strengthening of the Group's global positioning along with a concentration on core technological areas. The Hennecke GROUP operates through four specialized Centers of Excellence, each of which focuses on clearly defined product and technology fields, including the associated aftermarket.

In Sankt Augustin, home to the corporate group management and the Business Unit Germany (BU Germany), the company consolidates its development,

Integrated PUR system solutions from a single source: flexible, scalable, and sustainably manufactured.



FOCUS 2030



manufacturing, application technology, and system solutions for slabstock applications, technical insulation, and high- and low-pressure metering machines. Key components such as mixheads and pumps are also developed and manufactured at this site. In the dynamic and innovative composites sector, the German TECHCENTER team acts as a pioneer for its customers with comprehensive application expertise in state-of-the-art lightweight construction processes and PUR spray applications. The TECHCENTER in Sankt Augustin also houses nearly every type of high- and low-pressure machine, a press with a connected robot cell that enables automated spraying processes and the processing of glass fiber materials, as well as a continuous slabstock line. Here, customers can test and refine their individual formulations under real conditions and bring them to market maturity together with numerous specialists.

*Strengthening our global setup:
four specialized Excellence Centers with
clearly defined product and technology focus.*



Competence centers worldwide

In Verano Brianza near Milan, BU Italy focuses on the development and construction of systems for the production of insulation sandwich panels and associated turnkey system solutions. At its Pittsburgh site, BU North America is globally responsible for the technology for the conditioning and storage of raw materials using tank storage systems as well as automation solutions relating to the metering technology of the Hennecke GROUP. BU China, with sites in Jiaxing and Shanghai, specializes in the production of “dry parts” for numerous application areas (molded foam, slabstock foam, sandwich panels, and appliances) and, as part of the new “Local-for-Local” strategy, now also produces selected high- and low-pressure metering machines, for example for the refrigeration appliances industry in the APAC region.

All business units are also responsible for global service with spare parts, retrofit solutions, and customer value service for their machines and systems, supported by eight sales and service units (SSUs) in Asia and in North and South America.

This clear structure increases efficiency, enhances customer proximity, and safeguards the Group's technological leadership in key PUR end markets. It forms the basis for integrated system solutions from a single source – flexible, scalable, and sustainably produced.

“FOCUS2030 reflects our ambition to remain a technology leader – guided by strategic clarity, growing profitability, a strong willingness to invest, and a clear commitment to responsibility, sustainability, and actively shaping a sustainable future.”

Thomas Wildt,
CEO Hennecke GROUP

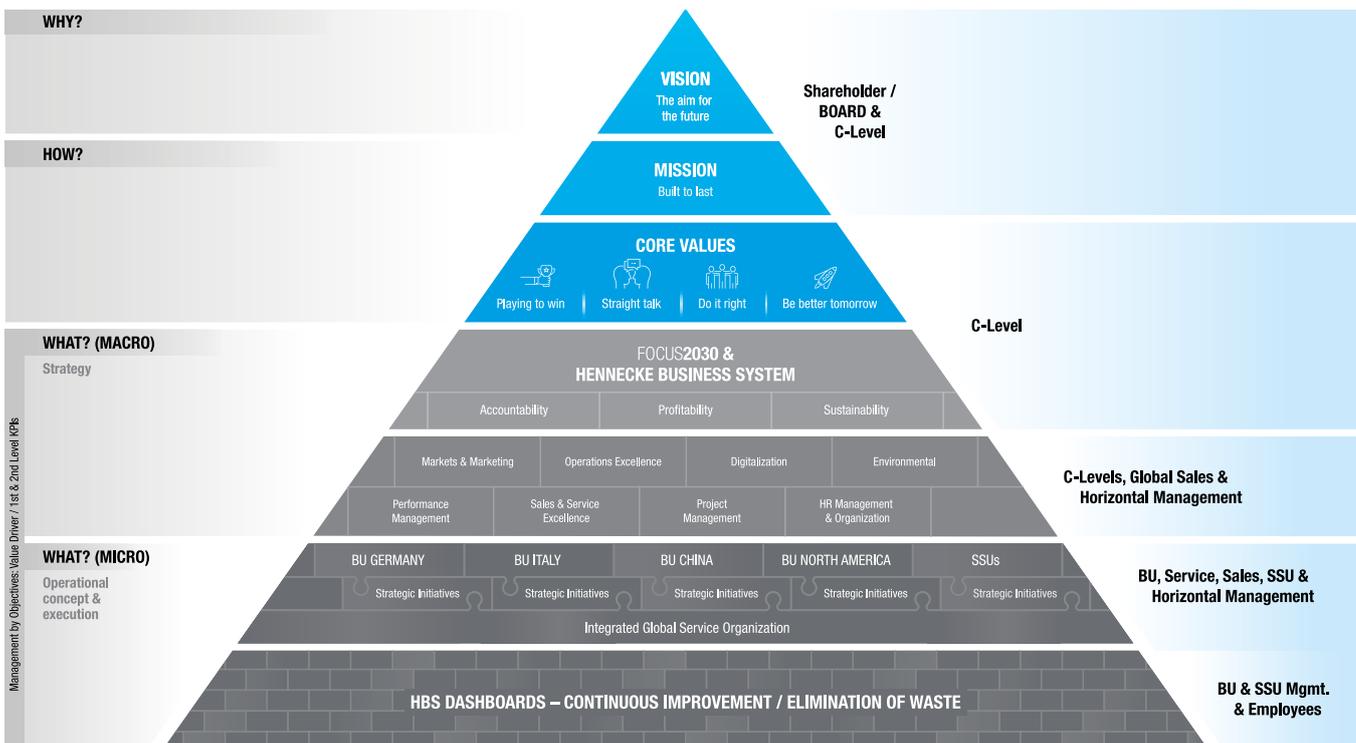
Focus as a strategic consequence

As part of its global orientation, the Hennecke GROUP is consolidating and centralizing its existing regional structures. For example, the previous roll forming division at the Kreuztal site was completely transferred to the Italian competence center at the end of June. An outsourced engineering office in Vicenza was also integrated into BU Italy at the Verano Brianza site. “These measures follow a clear principle: achieving efficiency by concentrating on our strengths,” emphasizes Wildt. „Wherever it is strategically appropriate, we merge structures, avoid redundancies, and establish seamless processes – with a strong commitment to responsibility and the long-term competitiveness of the Hennecke GROUP.”

FOCUS2030 – Agenda for sustainable growth

With FOCUS2030, the Hennecke GROUP is pursuing the goal of further expanding its technological market leadership and strengthening its position in attractive PUR market segments. The strategic agenda is based on four fields of action:

- More intensive development of existing markets with the current product and service portfolio
- Development of new solutions to increase customer benefits with a particular focus on energy efficiency, circular economy, and resource conservation
- Targeted entry into high-growth application areas – with a technological, regional, and sustainable orientation
- Consistent withdrawal from weak and unsustainable business areas – also taking ESG aspects into account



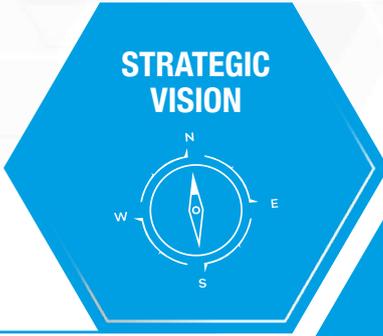
The Hennecke GROUP Strategy Pyramid: A visual statement to the close alignment of Vision & Mission, Core Values, and strategic direction – built on a strong foundation of continuous improvement.

GLOBAL VISION. LOCAL STRENGTH.

FOCUS2030

SUSTAINABLE GROWTH, TECHNOLOGICAL LEADERSHIP, AND GLOBAL RESILIENCE

Actively shaping transformation for the demand of tomorrow. Hennecke GROUP's people and their expertise are the driving force.



WHERE RESPONSIBILITY MEETS PERFORMANCE

Environmental protection, social engagement, and transparent governance – built into everything we do.

PARTNERING FOR CUSTOMER EMPOWERMENT

Together we achieve more – join the conversation!



ADVANCING POLYURETHANE SOLUTIONS WORLDWIDE

Global competence centers and integrated system solutions, tailored to a Local-for-Local approach.

To implement this agenda, the Group plans to invest more than 12 million euro in its global structure, new technologies, and digital processes by 2030. More than 100 strategic initiatives are planned, some of which will start as early as 2025. A particular focus is on the further development of sustainable solutions in line with ESG criteria – from CO₂ reduction and circular value creation to responsible supply chain and HR strategies. “With this strong commitment, the Hennecke GROUP is taking responsibility and helping shape a sustainable and competitive future,” says Wildt.

Central corporate brand “Hennecke GROUP”

The Hennecke GROUP will be presenting its new FOCUS2030 strategy in detail at the K trade fair in Düsseldorf in October 2025. Both technological and organizational cornerstones will be introduced, as well as newly developed products and services from all Centers of Excellence. Particular highlights of Hennecke's trade fair booth will include pioneering solutions for digitalization and circular economy, including innovative recycling technologies. The

trade fair appearance will be accompanied by a comprehensive rebranding campaign. “Hennecke GROUP” will become the central corporate brand for all global locations and the service portfolio. It will be complemented by the globally recognized product brands “Hennecke Polyurethane Technology” and “Hennecke-OMS” in the field of machinery and systems engineering.

Consistent expansion of the success strategy

“The Hennecke GROUP has evolved from a market player to a true shaper of the industry in recent years,” explains Wildt. “After one of the most successful years in our history, we are now taking the next step. Our global team is actively shaping the future of the Hennecke GROUP with passion, expertise, and dedication. FOCUS2030 reflects our ambition to remain a technology leader – guided by strategic clarity, growing profitability, a strong willingness to invest, and a clear commitment to responsibility, sustainability, and actively shaping a sustainable future.” ■

SMARTFLEX EVO

THE SMART ENTRY INTO
HIGH-VOLUME COMFORT FOAM
PRODUCTION WITH SYSTEM
EXPERTISE OF THE HENNECKE GROUP

A new generation makes its debut: With the SMARTFLEX evo, Hennecke presents a consistent further development of its proven plant concept for continuous slabstock foam production. The new system complements the portfolio between the compact JFLEX evo and the high-performance MULTIFLEX – and opens up new possibilities for users to economically enter the industrial production of comfort foams.

A new chapter in the Hennecke's slabstock foam portfolio

With the SMARTFLEX evo, Hennecke is expanding its range in the field of continuous slabstock foam production. The system closes the gap between the JFLEX evo – designed for small to medium production volumes – and the MULTIFLEX, which is regarded worldwide as the benchmark for productivity. “With the SMARTFLEX evo, we offer our customers a solution that combines all the key design and technological advantages from more than 70 years of experience in continuous slabstock foam production. At the same time, the system gives foam producers in the furniture and mattress industry an economically attractive entry into higher production volumes,” explains Svend Weidemann, President of the Hennecke Business Unit Germany. “We have thereby created an attractive gateway to large-scale foam production – efficient, functional, and designed for the future.”

Focus on comfort foams

The SMARTFLEX evo was developed specifically to meet the requirements of comfort foam applications – for example mattresses, upholstered furniture, or other applications in the home and furniture sector. “For technical foams, as we define them, MULTIFLEX or QFM remain the recommended systems,” explains Dr. Joachim Berthold, Senior Director Sales Molded Foam, Slabstock & Technical Insulation. “For users in the comfort segment, however, the SMARTFLEX evo is a perfectly tailored solution that combines high efficiency with proven Hennecke quality.”

Technology meets cost-efficiency

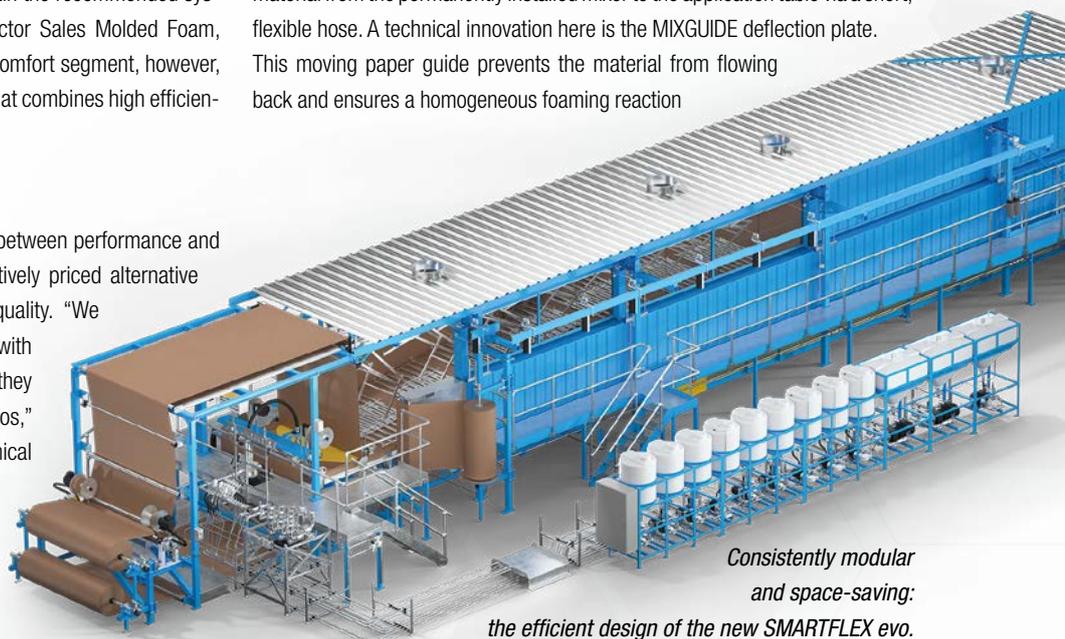
The SMARTFLEX evo offers an impressive balance between performance and investment cost. The aim was to create an attractively priced alternative to the MULTIFLEX – without compromising on quality. “We defined the technical parameters – particularly with regard to viscosity and output – in such a way that they cover a large number of typical application scenarios,” explains Dr. Florian Thiebes, Team Leader Mechanical Design Slabstock. “The result is a system that combines high productivity with an efficient use of resources – creating real added value for our customers.”

Modular design – Compact in concept, flexible in execution

As with the MULTIFLEX and QFM, the system concept of the SMARTFLEX evo also impresses with its consistently modular, yet particularly space-saving design. A high degree of standardization helps to reduce investment costs for producers. The absence of a classic portal significantly reduces the overall height – a clear advantage where hall heights are limited. At the same time, the modular design enables short delivery times and rapid commissioning. For example, the modules can be transported in larger assemblies, which can significantly reduce assembly times at the customer's premises.

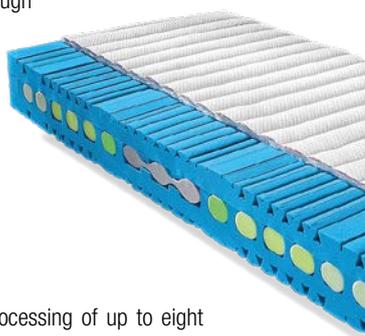
High-pressure technology as standard

The SMARTFLEX evo retains one central feature: the high-pressure metering of all isocyanates. “Precise high-pressure metering is an integral part of the SMARTFLEX evo and ensures optimum raw material utilization and excellent foam quality,” explains Dr. Thiebes. Compared to low-pressure systems, isocyanate savings of up to four percent can be achieved – a clear efficiency advantage. Hennecke also relies on proven technology for the application process, but in a revised arrangement: The indirect liquid laydown process feeds the material from the permanently installed mixer to the application table via a short, flexible hose. A technical innovation here is the MIXGUIDE deflection plate. This moving paper guide prevents the material from flowing back and ensures a homogeneous foaming reaction



*Consistently modular
and space-saving:
the efficient design of the new SMARTFLEX evo.*

of the discharged mixture across the entire foaming width. This is particularly advantageous for quick formulation changes, as waste is effectively avoided. The effective prevention of production waste is a hallmark of all Hennecke slabstock foam systems. Unlike trough systems, the SMARTFLEX evo also impresses with significantly lower waste quantities and considerably minimized cleaning effort when changing formulations, significantly improving cost-efficiency.



High flexibility and efficiency

The SMARTFLEX evo enables the processing of up to eight polyols, three isocyanates, and 24 additives. The metering pump units are optimally matched to common viscosities and output capacities. The new SMARTJECTOR injection units and the optional computer-monitored volume flow measurement of safety-relevant components ensure maximum precision. As a special feature, the system includes manually tiltable side walls as standard – optionally available with motorized adjustment. These allow precise adaptation to different foam types and, in combination with the standard FLAT-TOP system, enable an almost rectangular block shape. The result: less waste on the foam block and a significantly improved raw material yield. The SMARTFLEX evo also features an ergonomically optimized operator platform that provides improved access around the mixer for production and servicing.

Comprehensive control

Like all new slabstock lines from Hennecke, the SMARTFLEX evo is equipped with the intuitive FOAMWARE Slabstock visualization and control software.

The software runs on a powerful SIMATIC industrial PC and enables fast commissioning, efficient process control, and the complete management of production data – including remote servicing. Additional options are available for advanced requirements: for example, block height and

Rise Profile Measurement with additional sensors for enhanced process reliability.

Technology that convinces

With the SMARTFLEX evo, Hennecke has set another milestone in the polyurethane industry. The system combines proven high-performance technologies with a compact, modular design – at an economically attractive price. “Our customers receive a state-of-the-art, efficient solution that opens the door



SMARTFLEX EVO AT A GLANCE

- **Application area:** production of PUR comfort foams (HR, viscoelastic, hypersoft, etc.)
- **Foaming process:** indirect liquid laydown
- **Block shape variants:** FLAT-TOP system
- **Block geometry:** largely rectangular blocks thanks to tiltable side walls and shape correction via FLAT-TOP, waste reduction of up to 2%
- **Number of components (max.):** 8 polyols, 3 isocyanates, up to 24 additives
- **Max. production speed:** 8 m/min
- **Max. output:** 350 kg/min
- **Metering system:** high-pressure metering with SMARTJECTOR injection unit
- **Raw material savings:** up to 4% lower isocyanate consumption compared to low-pressure systems
- **Mixing system:** dynamic stirrer mixer with vertical flow
- **Foaming tunnel (foaming area):** standard: 19.5 m; optional: 22.5 m; foaming width: max. 2.3 m
- **Side walls:** standard: manually tiltable; optional: motorized adjustment
- **Control & visualization:** modular FOAMWARE Slabstock control and visualization software with remote access
- **Optional features:** block height and foam profile measurement with additional sensors
- **Process characteristics:** “Shoot-and-forget operation”: high process stability, minimal readjustment
- **Typical system dimensions:** length: approx. 37.5 m; width: approx. 7.5 m; height: approx. 4.2 m; footprint: 281 m²

to the premium comfort foam market – and benefits from the many technological strengths of Hennecke’s state-of-the-art systems,” emphasizes Dr. Berthold. The SMARTFLEX evo thus offers a perfect entry into large-scale industrial production – consistently developed and future-oriented. ■

INNOVATION MEETS EFFICIENCY

THE NEW GENERATION OF PANELMASTER STEEL PLANTS SETS NEW STANDARDS IN STEEL SANDWICH PANEL PRODUCTION

At a time when energy efficiency and sustainable construction are becoming increasingly important, high-performance insulation solutions are more in demand than ever. With the current generation of PANELMASTER STEEL systems, Hennecke-OMS presents a state-of-the-art production platform that redefines efficiency, scalability, and process reliability in steel sandwich panel production. The new generation of the system solution is the impressive result of the combined expertise within the global Hennecke GROUP competence centers and underlines Hennecke-OMS's position as a turnkey specialist when it comes to the manufacture of sandwich elements.

Consistent plant concept – highly standardized and scalable

From the outset, the PANELMASTER STEEL was designed as a largely standardized and modularly scalable plant concept. The plant offers a fully integrated production solution from a single source and is aimed at users who are looking for an economical and flexible solution for large-scale continuous production. At its heart is a seamlessly integrated plant layout in which all production stations are integrated into a central control architecture. This ensures harmonized processes, maximum system availability, and increased operational reliability. With a typical annual production capacity of more than 2,000,000 square meters, a production speed of up to 15 m/min, and a variable panel thickness in the range of 20 to 300 mm, the new generation meets even the most demanding customer expectations.

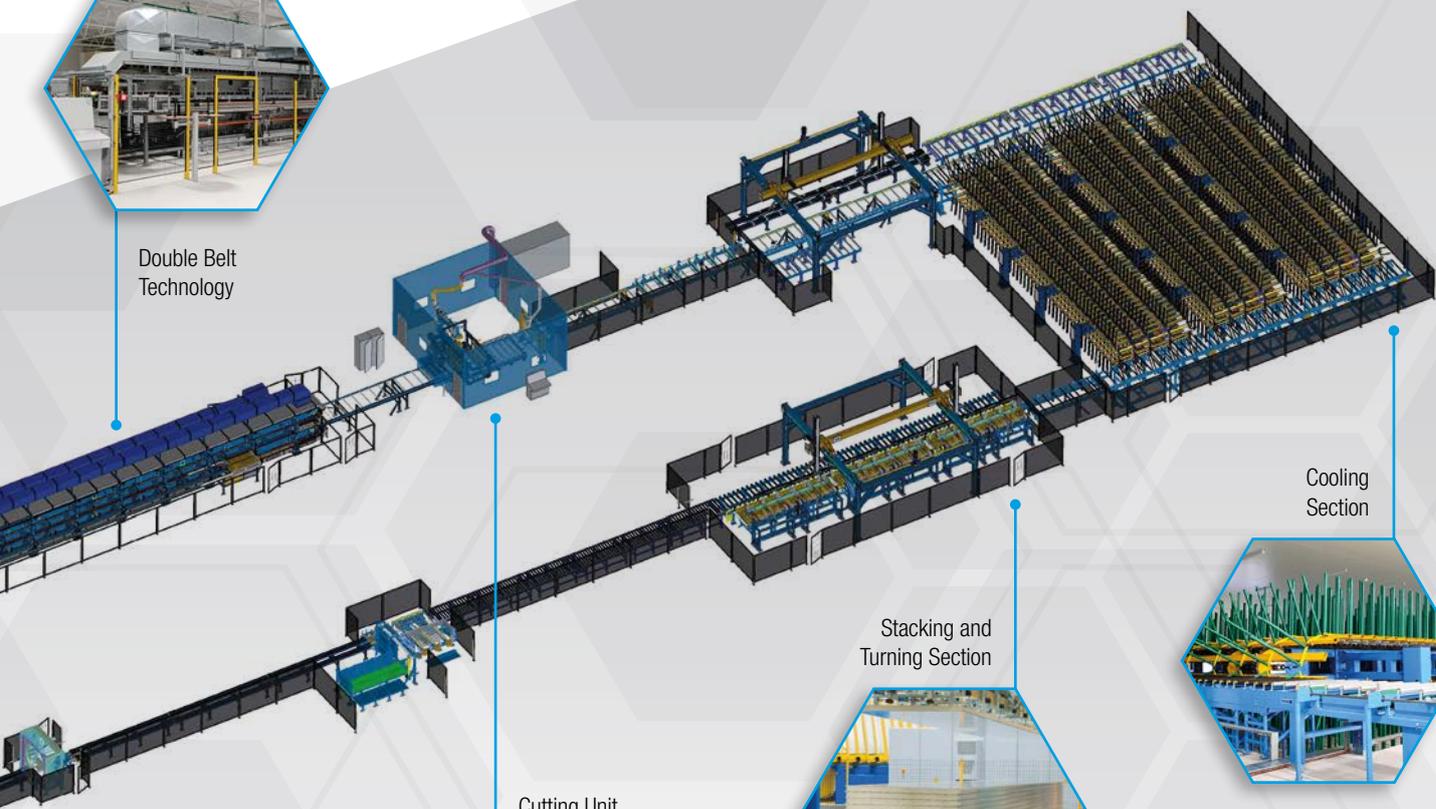
FOAMATIC: Control intelligence on a new level

At the heart of the new control technology is FOAMATIC – an advanced operating and control platform with a modern Siemens HMI interface and the latest generation SCADA interface. "FOAMATIC is a key component for future-proofing our production systems. The latest Siemens technology, combined with an intuitive user interface and our early implementation, gives us a clear advantage," emphasizes Daniele Balzi, Engineering Manager.





Double Belt Technology



Wrapping Machine



Cutting Unit



Stacking and Turning Section



Cooling Section



“Our concept combines maximum production reliability with future-proof performance.”

Smart control interface meets high-precision double belt technology: the center section of the production line.

Andreas Fischer,
Senior Director Sales Sandwich Panel Lines Hennecke GROUP

By deciding to use the powerful FOAMATIC control platform not only for metering machines but also for plant systems, Hennecke is taking a decisive step toward a uniform operating logic and menu structure throughout the entire production line. Based on powerful multi-touch HMIs, the FOAMATIC control platform offers maximum operational reliability, consistent standardization and automated product changeovers. Hennecke-OMS' own Panel Management System controls the entire production flow efficiently and centrally: from order and recipe management to seamless tracking of individual panels.

New standards in mineral wool processing

The growing demand for fire protection solutions is increasing the importance of sandwich panels with a mineral wool (MiWo) core structure. Hennecke-OMS is responding to this trend with a completely redesigned MiWo concept. “In dynamic markets in particular – especially in emerging countries – multifunctional systems that can process both PUR and mineral wool are becoming increasingly relevant,” explains Andreas Fischer, Senior Director Sales Sandwich Panel Lines. “Mineral wool also offers manufacturers higher margins and has become indispensable in this market segment.”

The new MiWo concept offers two key advantages: First, it delivers unprecedented process speed. “Our concept is designed for high production reliability and high speed across all product variants. For MiWo applications, this means an impressive range of 30 mm to 300 mm thickness at more than 10 m/min,

which no one else on the market currently offers in this combination,” explains Fischer. On the other hand, the concept impresses with its consistent retrofit capability. Customers who wish to expand to MiWo production at a later date only need to take the installation area into account – the retrofit can be carried out without major intervention in production operations. “Our concept combines maximum production reliability with future-proof performance,” emphasizes Fischer.

Technology with substance: efficiency in detail

The new generation of PANELMASTER STEEL features numerous technical innovations that underscore the focus on efficiency, precision, and sustainability:

- **Profiling:** Thanks to a high proportion of in-house production, precisely designed mechanics, and energy-efficient components, the profiling unit ensures consistently high product quality while reducing operating costs.
- **Double belt technology:** This technology is characterized by in-house slat production, which guarantees maximum accuracy and surface quality. Particularly maintenance-friendly: Individual slats are 100% replaceable – without having to completely grind the entire double belt surface.
- **Mixhead:** A patented, self-cleaning high-pressure mixhead significantly reduces material losses during changeovers, and also allows for very rapid changeovers. An optional double mixhead system allows continuous production without the need to stop the line to change the mixhead outlet device.



Sandwich panels with rigid facing: a proven standard for energy-efficient construction.

- Panel cooling and transfer: The system features a new panel transfer belt design. In addition, the cooling unit comes with an innovative design that does not require a pit to be added at the customer's facility. This significantly reduces installation costs and maintenance requirements.
- Packaging: The newly developed modular packaging system uses vacuum suction cup technology for gentle panel handling. The wrapping unit was developed in-house by the Hennecke Business Unit China. In addition, a gluing machine, also developed in-house, is currently in the implementation phase.

Everything from a single source – from concept to retrofit

Hennecke-OMS offers seamlessly integrated production lines for the manufacture of steel sandwich panels as a one-stop solution – from plant planning and control technology to packaging. Users benefit not only from a uniform software architecture, but also from a central contact person for all project phases. “For many of our customers, the most important thing is that we deliver the entire plant as a turnkey solution from a single source. This simplifies the overall process considerably and ensures smooth operation – both during implementation and later operation,” explains Thomas Hachenburg, Vice President Project Excellence.

A central element of the Hennecke approach is the comprehensive 360° SERVICE concept, which supports customers throughout the entire life cycle. Starting with installation and commissioning, it also includes process planning, documentation, ongoing production monitoring, and qualified training programs. In addition, retrofit solutions play a central role in the system concept of the new PANELMASTER STEEL. Future expandability is already taken into account in the planning phase, e.g. for the subsequent installation of a MiWo unit. This allows systems to be flexibly adapted to new market requirements without significantly affecting ongoing operations. In this way, the

PANELMASTER STEEL becomes an investment that offers not only flawless production results but also maximum long-term future security. ■



PANELMASTER STEEL AT A GLANCE

- **Standard production capacity:** > 2,000,000 m² per year (based on individual production planning)
- **Production speed:** up to 15 m/min
- **Panel thicknesses:** 20–300 mm
- **Panel length:** 2,000–18,000 mm
- **Panel width:** 600–1,200 mm (standard: 1,000 mm)
- **Facing thickness:** 0.4–0.8 mm
- **PUR/PIR foam density:** 35–42 kg/m³
- **System footprint (min.):** 140 m × 35 m × 8 m (L × W × H)
- **Control system:** FOAMATIC, SCADA, Ethernet networking
- **Mixing and metering technology:** self-cleaning high-pressure mixhead, optional dual mixhead system

SUSTAINABLE AND RESOURCE-EFFICIENT

THE NEW ECOFILLER PLUS MK2 IS A SIGNIFICANT STEP
TOWARD WASTE-FREE PRODUCTION.



As a pioneer in sustainable polyurethane technologies, the Hennecke GROUP presents the ECOFILLER PLUS MK2, a consistent further development within its Environmental Technologies product line. The revised and patented version of the ECOFILLER PLUS, which was introduced in 2022, places even greater emphasis on process optimization and resource conservation in the processing of rigid polyurethane foam.

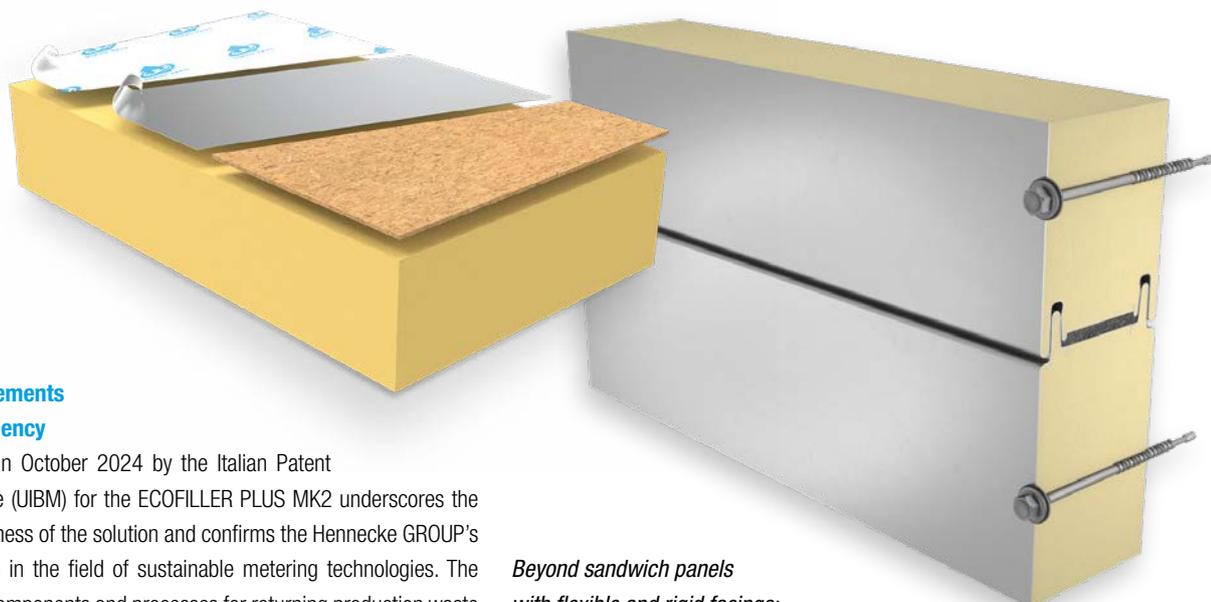


ECOFILLER PLUS MK2 AT A GLANCE

- **Flow capacity:** 1.66–18.2 l/min
- **Viscosity range:** 5,000–20,000 mPas
- **Powder size:** 50–200 µm
- **Solid metering unit:** 110 l capacity
- **Double-jacket tank:** 250 l with special agitator
- **Controls:** FOAMATIC based on SIMATIC

Strengthened leading role in the circular economy

The ECOFILLER PLUS MK2 enables precise in-line dosing and extremely homogeneous mixing of liquid and solid components. The focus is on the efficient recycling of shredded cutting residues and production waste in powder form directly back into the production process. “With the ECOFILLER PLUS MK2, we have consistently developed our vision toward waste-free production. This approach not only reduces the consumption of valuable raw materials, but also lowers our customers’ disposal costs in the long term,” explains Gianmario Bossi, Senior Director Global Sales and Service Lamination. The ECOFILLER PLUS MK2 perfectly complements the PANELMASTER STEEL and PANELMASTER FLEX systems and is offered by Hennecke-OMS as an add-on for production environments that use PUR and PIR-based raw material systems.



Innovative enhancements for maximum efficiency

The patent granted in October 2024 by the Italian Patent and Trademark Office (UIBM) for the ECOFILLER PLUS MK2 underscores the technological uniqueness of the solution and confirms the Hennecke GROUP's innovative leadership in the field of sustainable metering technologies. The patent protects key components and processes for returning production waste to the ongoing process – a decisive step towards a circular economy. The suffix “MK2” also stands for significant technological advances in the Hennecke product landscape:

- FOAMATIC machine control as a central upgrade: One of the most significant innovations is the implementation of FOAMATIC, which is used in all Hennecke “next-gen” metering machines. This advanced control system enables significantly improved harmonization of process sequences and offers intuitive operation via a SIMATIC Premium 12-inch HMI.
- Extended areas of application: The ECOFILLER PLUS MK2 is the optimal solution for an even wider range of panel types, and now explicitly supports the production of sandwich panels with rigid facings for use in the construction sector, as well as insulation boards with flexible facings, which are used, for example, for energy insulation of house walls.
- Perfected homogeneity and process control: The technical challenge of ensuring completely consistent homogeneity of solid and liquid components has been further perfected. Recipes and the ratio of polyol to powder can be adjusted at any time during production via the control system. The system significantly reduces mixing time and enables much faster production.

Safety through optimized flame protection

The ECOFILLER PLUS MK2 also plays a central role in improving the flame protection of sandwich panels. The system allows powdered flame retardants to be incorporated into the recipe in a completely homogeneous manner, ensuring that the concentration of solid components is constant throughout the end product. This enables manufacturers to develop and test their own recipes for improving fire behavior and integrate them into their formulations for mass production.

Sustainability as a core competence

With the ECOFILLER PLUS MK2, Hennecke underscores its leading role in environmentally friendly technologies in the field of reactive plastics. The system embodies the company's goal of moving closer to waste-free production and makes a significant contribution to a more sustainable industry. The Environmental Technologies product line is thus setting new standards in the polyurethane industry and paving the way for a future in which resource conservation and production efficiency are inextricably linked.

*Beyond sandwich panels
with flexible and rigid facings:*

The system also supports a wide range of rigid foam applications.

With the ECOFILLER PLUS MK2, Hennecke is sending a strong signal for sustainable production in the processing of reactive plastics. The innovative metering machine is exemplary of the company's goal of achieving increasingly waste-free production – and thus makes an active contribution to a resource-conserving industry. As part of the Environmental Technologies product line, the ECOFILLER PLUS MK2 sets new standards in the polyurethane industry and impressively demonstrates how efficiency and environmental responsibility can be intelligently combined. ■



*Core component for homogeneous mixing:
screw conveyor with downstream pin mixer.*



HIGHLINE MK2 TI SERIES – SPECIALIST FOR TECHNICAL INSULATION

HENNECKE EXPANDS ITS NEXT-GEN PORTFOLIO WITH A HIGHLY SPECIALIZED METERING MACHINE FOR PUR RIGID FOAM PROCESSING

Hennecke is continuously developing its portfolio as part of its NEXT-GEN platform strategy. With the HIGHLINE MK2 TI SERIES, the company is now presenting another new high-pressure metering machine for rigid foam processing, which, as a cost-efficient all-rounder, makes no compromises in terms of mixing quality, raw material efficiency and digitalization. It succeeds the highly successful TOPLINE HK TI machine type and marks an important milestone in the Hennecke GROUP's FOCUS2030 strategy. The company consistently pursues its Local-for-Local approach, offering the machine worldwide with identical performance data while tailoring its technical design to meet specific market requirements.

With the TI SERIES, Hennecke presents a machine line for the partially and fully automated production of energy-efficient PUR rigid foam insulation, for example in the refrigeration cabinet industry. A particular focus is on the safe handling of various blowing agent systems, from water to HFO and pentane. This means that the machine is optionally available with all the necessary equipment features for pentane processing, which can be fully integrated into Hennecke's proven PPT safety concept (Pentane Process Technology).

The new metering machine is based on the proven HIGHLINE MK2 platform with its advanced FOAMATIC control system, innovative common parts concept and integrated Blue Intelligence technology. This technological basis ensures maximum precision in metering, as well as reduced delivery times and an attractive pricing through the use of standardized components.

"This significantly improves both process and product

quality, especially when using highly reactive and demanding rigid foam systems," says Dr. Joachim Berthold, Senior Director Sales Molded Foam, Slabstock & Technical Insulation, underlining the benefits.

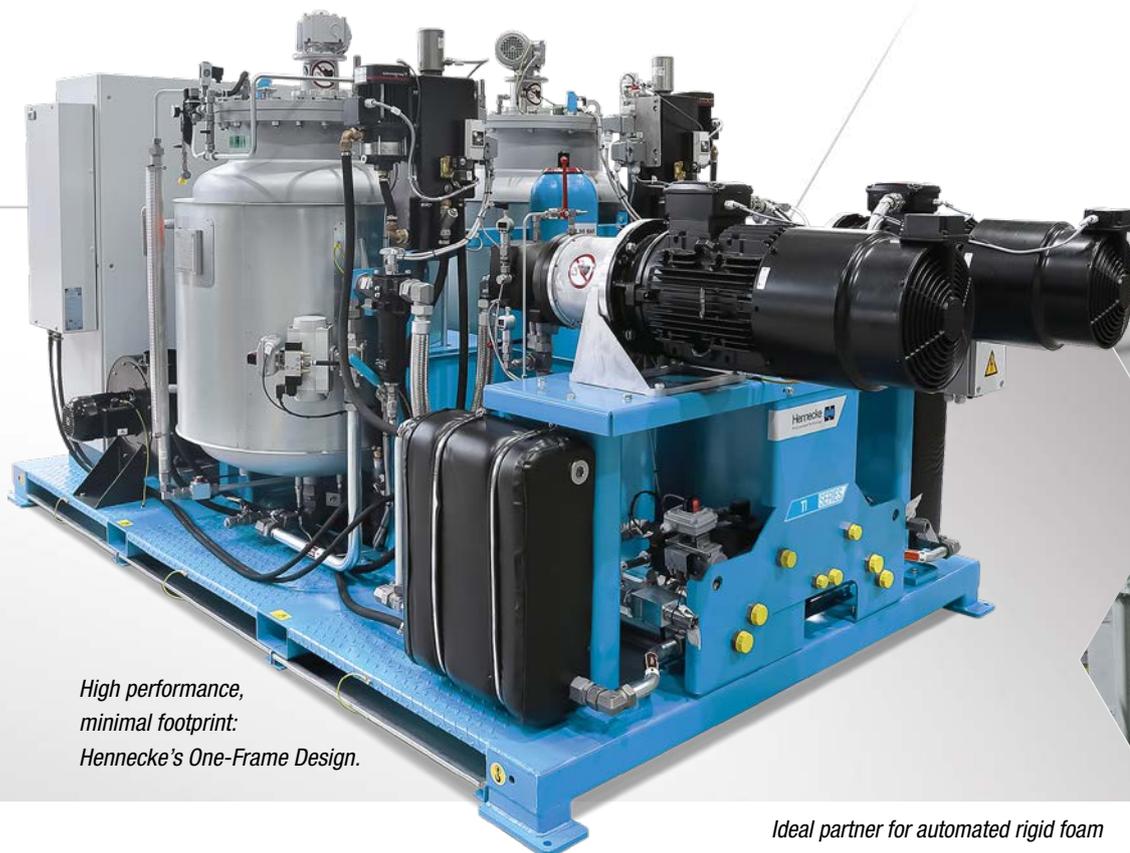
Sophisticated design for maximum efficiency

The HIGHLINE MK2 TI SERIES boasts several groundbreaking technical features that are not available in the standard configuration of the HIGHLINE MK2 series. For example, the TI SERIES offers significantly larger day tanks with a capacity of 500 liters. The double-walled tanks are equipped with liquid temperature control, refill control and agitator as standard. "TI SERIES machines have a common machine frame for day tanks and pumps. This makes the system very compact and allows it to be installed on site with significantly shorter assembly times," says Dr. Berthold, explaining the proven Hennecke one-frame design. The machine is also available with two mixheads. In this configuration, the machine is supplied with appropriate switching devices for sequential foaming, for example for use on two mixhead manipulators or on two production lines.

Despite the compact footprint of just 8.7 square meters, the machine offers very good access to the main components for maintenance. In addition, flexible and space-saving integration into existing production lines is possible, particularly when positioned on a platform. The machine can be supplied with fully customized piping and tubing for easy integration into existing plant networks. Predefined outlets make it easy to connect the required piping.



*No compromises in mixing quality:
the metering line.*



*High performance,
minimal footprint:
Hennecke's One-Frame Design.*



*Ideal partner for automated rigid foam
applications, such as in the production of boilers or refrigerated appliances.*

To maximize precision and switching accuracy, especially with long pipe and hose lines, the mixhead control valves are removed from the machine and positioned closer to the mixhead. This ensures maximum metering accuracy at all times.

Powerful equipment for industrial requirements

The hydraulics have been upgraded from 11 to 15 kW for the high shot frequencies in refrigerated appliances production. "This powerful equipment is specially dimensioned for the intensive cycle rates of industrial production," explains Dr. Berthold. The hydraulics use the quietest pumps on the market and an additional oil cooler reliably prevents overheating during continuous operation.

A particularly powerful temperature control system ensures constant raw material temperatures even in extreme production environments. An optional air conditioning unit for the control cabinet is also available for operation at extremely high ambient temperatures. For the safe processing of pentane, Hennecke relies on targeted and highly efficient local extraction instead of a large enclosure. This means that access to the machine is not impaired and maintenance is made considerably easier.

Innovation par excellence: Simultaneous mixhead operation

A special variant of the new HIGHLINE MK2 TI SERIES is equipped with four metering pumps and two mixheads. This allows both mixheads to be operated simultaneously. This is particularly important in the production of refrigerator doors with fast and particularly energy-efficient foaming systems. For example, two doors can be filled at the same time. This configuration increases production efficiency and ensures maximum productivity, particularly in demanding production systems. "With this solution, we offer manufacturers

maximum process reliability when processing modern high-performance foam systems," emphasizes Dr. Berthold. This special variant of the TI SERIES is also characterized by a very compact size thanks to the previously mentioned one-frame design.

Think globally, act locally

The TI SERIES exemplifies Hennecke's Local-for-Local approach within the FOCUS2030 strategy. The machine is offered worldwide with identical performance data, but its technical design is specifically adapted to the respective regional market requirements. "This strategic flexibility enables us to optimally serve international customers and at the same time respond to the specific needs of dynamically growing markets such as Asia," says Jorge Zazueta, Director Global Sales Appliances, explaining the approach.

A version already available for the APAC region, produced by the Hennecke GROUP Business Unit China, illustrates this strategic flexibility. This version is specially designed for Asian markets and uses locally available quality components that meet the respective standards and requirements. The performance data and product quality remain identical for all machines in the HIGHLINE MK2 TI SERIES. This regional customization enables customers to receive a cost-optimized solution with very short delivery times that is precisely tailored to their local needs.



*Optimized for high cycle rates:
powerful hydraulics.*

Proven digitalization and efficiency

All NEXT-GEN metering machines from Hennecke are equipped with the intuitive FOAMATIC control system including a practical “three-click philosophy”. The high-resolution 12-inch premium HMI enables maximum control and quick access to all relevant functions – efficient and user-friendly at all times and available in many languages. In addition, FOAMATIC offers optional IoT connectivity with access to extensive machine data and analysis tools for boosting production efficiency as well as predictive maintenance.

Hennecke’s Blue Intelligence technology – a comprehensive package of measures to increase energy efficiency – is also integrated as standard. Intelligent functions such as start-stop logic, optimized pump lead times and precise temperature control management can reduce the machine’s energy consumption depending on the respective operating conditions and lower operating costs.

Short delivery times thanks to modular platform strategy

The modular design of the MK2 platform makes it possible to cover the entire spectrum, from cost-effective standard solutions to maximally optimized high-performance requirements for complex production applications. The modular system and the common parts concept ensure significantly reduced delivery times. “The modular structure also enables attractive pricing along with a high degree of flexibility for our customers,” says Patrick Brüninghaus, Director Product Management, summarizing the advantages of the platform strategy. ■



TECHNICAL FEATURES OF THE HIGHLINE MK2 TI SERIES

- Day tanks with a capacity of 500 liters
- One-frame design for compact construction (8.7 m² footprint)
- Customized piping and tubing
- External mixhead control blocks for maximum metering precision
- Variants with two sequentially or simultaneously operated mixheads
- Large 15 kW hydraulics with extremely quiet pump for high shot frequencies
- Powerful temperature control system
- Targeted local extraction for pentane processing
- Intuitive FOAMATIC control with 12-inch HMI
- Blue Intelligence technology for even greater energy efficiency

OUTLOOK

FURTHER NEXT-GEN DEVELOPMENTS AND UPDATES

Parallel to the TI SERIES, Hennecke is expanding the NEXT-GEN series range with two more innovative metering machines for specialized applications.

The **TOPLINE MK2 MF SERIES** for multi-component processing is primarily aimed at highly automated seat production with the highest demands and extremely high shot frequencies of several million shots per year as well as the highest requirements for metering accuracy. The modular design with optimized individual frames offers very good accessibility and ease of maintenance, while its straight and short piping improves temperature control and metering quality. The machine can process up to six components and can be scaled as required for all conceivable four- or six-component applications. Here, too, a variant with two independently usable mixheads is available. The modular system also enables flexible adaptations to specific production requirements. The TOPLINE MK2 MF SERIES will also be available to order from the first quarter of 2026.

The new **TOPLINE MK2 MAX SERIES** is the specialist for very high output rates and large components, primarily in rigid foam applications. “A system that reliably reproduces such performance data in series applications requires exceptional technical expertise,” explains Patrick Brüninghaus, Director Product Management. The TOPLINE MK2 MAX SERIES combines state-of-the-art technology with the proven strengths of the MK2 platform. Here, the pump table and separately positioned tank station are dimensioned significantly larger than in the standard TOPLINE models. Naturally, the machine is also available in a pentane version. The TOPLINE MK2 MAX Series will be available for order starting in the first quarter of 2026.





RETHINKING CONTROL SYSTEMS

INNOVATIVE CONTROL SOLUTIONS FOR EFFICIENCY, TRANSPARENCY, AND FUTURE-READINESS

The demands placed on modern production processes in polyurethane processing are steadily increasing. Energy and raw material savings, digital integration, and full transparency are becoming critical factors for economic success. Amid this interplay of efficiency pressure, sustainability targets, and digitalization, Hennecke is setting new standards with its two new control systems: FOAMATIC and FOAMWARE.

As central components of the group-wide digital strategy, FOAMATIC and FOAMWARE form the technological foundation for the intelligent control, analysis, and optimization of machines and systems. Both solutions include equipment features that make an active contribution to conserving resources, increasing efficiency, and improving process quality – all in the spirit of sustainable, future-ready production.

Why new control systems?

Hennecke's previous control systems – WINTRONIC, PDE, and PURTRONIC – provided reliable process solutions for many years. But the requirements of today's industrial production go far beyond this. The underlying IT architectures – based on outdated Microsoft systems, for example – are no longer suitable for reliably supporting and further developing modern functions such as remote access, real-time data analysis, or predictive maintenance. "We have completely rethought the control logic from scratch, focusing on the requirements of our customers," explains Alexander Peters, Director Engineering & Development. The development followed the principles of practicality, efficiency, and openness to integration. The result is two modular control solutions that not only optimally equip new systems and machines, but – especially in the case of FOAMWARE – are also ideally suited for modernizing existing

systems. Both FOAMATIC and FOAMWARE enable end-to-end digitalization and ensure smooth operation across all stages of PUR production.

Platform overview: FOAMATIC and FOAMWARE

With FOAMATIC and FOAMWARE, Hennecke is introducing two independent platforms that address different production requirements but are based on a common system concept. While FOAMATIC is used as a programmable logic control at the machine level both for current metering machines and other system technology, FOAMWARE is aimed at complex system structures with high data volumes. The PC-based solution offers maximum transparency and control depth in continuous and discontinuous processes.

Both platforms support the highest IT security standards thanks to a modern system architecture, as well as significant energy savings, reduced raw material consumption, and lower pressure losses. They allow more precise and faster processes, feature modern, graphically guided user interfaces, and integrate functions such as stand-by timers and pump and temperature control. Both systems support predictive maintenance with real-time data and are Industry 4.0-compatible thanks to their open, scalable architecture.



FOAMATIC combines intuitive operation with state-of-the-art automation to improve product quality, operational safety, and resource efficiency.

FOAMATIC – Intelligent automation for PLC-based production systems

With FOAMATIC, Hennecke has developed a completely new control solution whose system architecture combines a modern human-machine interface (HMI) with a powerful programmable logic control (PLC). The platform is an integral part of all next-generation metering machines and will be used in other system types in the future. “Our aim was to make central machine

functions intuitively operable, exploit energy efficiency potential, and sustainably increase production quality and system availability,” explains Peters. The HMI impresses with an intuitive, graphically guided interface that visualizes all process statuses in real time. Clear user guidance and visual feedback reduce operator errors and enable fast parameter adjustments. A key element here is the “three-click philosophy”: All functions can be accessed with a maximum of three clicks – making operation simple and intuitive. Shortcuts and WiFi connectivity in particular enable unprecedented control options thanks to faster and, in some cases, location-independent inputs. In the background, the PLC ensures rapid response, high reliability, and seamless integration into existing production environments.

ADVANTAGES OF THE FOAMATIC CONTROL SYSTEM

- Improved energy efficiency through optimized control logic
- Raw material savings thanks to more precise metering processes based on advanced control technology
- Increased production quality and process stability
- Faster commissioning thanks to simplified user guidance
- Optimal preparation for digital services and remote maintenance
- Ready for Industry 4.0 thanks to expandable system architecture

Cloud-based extension for greater efficiency: FOAMATIC-IoT

With FOAMATIC-IoT, Hennecke is expanding its control technology with a powerful cloud solution for recording, analyzing, and visualizing process-relevant data. The platform provides an unprecedented level of transparency in PUR production – from consumption monitoring to predictive maintenance. Production data is collected, stored, and intelligently evaluated in real time. This makes it possible to identify potential savings in raw materials and energy as well as deviations in the production process or impending malfunctions.

The system is IoT-ready as standard: Connection is via secure network interfaces. The browser-based dashboard is accessible to FOAMATIC-IoT customers worldwide on all internet-enabled devices. It visually displays current and historical production data, allows comparisons, and provides concrete recommendations for action – whether for maintenance planning, optimizing system availability, or based on shot-data acquisition via an indicator system. Optional push notifications automatically inform users of system events.

Special emphasis has also been placed on data security: All information is stored in compliance with European GDPR laws on a certified infrastructure of

a German cloud provider, and customers retain full control over their data at all times. FOAMATIC-IoT is not only future-ready, but is already prepared for the use of AI-supported analysis methods. Thanks to standard hardware integration in the Hennecke NEXT-GEN metering machines, the digital functionality can be activated at any time.

FOAMWARE – Comprehensive process control for complex requirements

FOAMWARE is Hennecke's modular control solution for industrial manufacturing processes on larger production systems with large data volumes and high demands on integration and flexibility. The software was also developed from the ground up and builds on decades of experience in PUR process control. While it is designed primarily for applications in slabstock and molded foam production, its modular structure keeps it open for additional application fields in the future.

The platform offers precise control and analysis of production processes in real time. An extensive range of features is included as standard: Flow charts, process charts, and a calibration manager ensure maximum transparency. Process deviations are detected immediately, stable production processes are ensured, and all relevant parameters are centrally documented. A flexible plug-in concept is also available – for example, for Hennecke Process Analysis (HPA) or a Web Service Module for mobile monitoring. The integration of an optional third-party interface also enables bidirectional connectivity with ERP, MES, or other IT systems – ensuring seamless embedding into digital production architectures.

“FOAMWARE is also ideally suited as a retrofit solution,” adds Mahmoud Karime, Senior Director Global Service. “This not only provides users of older systems with a future-proof IT-compliant control level, but also significantly higher process reliability combined with increased efficiency and a sustainable IT infrastructure.”



FOAMATIC-IOT FREE TRIAL

Metering machines such as the HIGHLINE MK2 or TOPLINE MK2 are IoT-ready as standard. Hennecke currently offers a six-month free trial with full functionality – including all presently available IoT features.

FOAMATIC



TECHNICAL EQUIPMENT

- State-of-the-art hardware for maximum operational reliability
- High-performance SIMATIC quad-core industrial PC
- 32-inch UHD monitor, optional expansion available
- Ergonomic control panel
- Uninterruptible power supply
- Air conditioning
- Integrated printing solution
- Remote-access router for online support

FOAMWARE is the modular control system for slabstock and molded foam production, delivering real-time control, flexible integration, and maximum transparency for stable, efficient processes.



FOAMWARE

FOAMWARE

SLABSTOCK

Precision and process stability for slabstock foam production

FOAMWARE Slabstock was developed specifically for continuous slabstock foam production and is optimally adapted to the requirements of modern polyurethane processing. As an application-specific version of the modular FOAMWARE platform, it offers a highly stable control environment that ensures consistently high production quality even under varying conditions – such as fluctuations in temperature or raw materials.

The software architecture enables the precise control of complex reaction processes and creates the basis for uniform material distribution, reproducible foam heights, and reduced reject rates. Thanks to its compatibility with additional measuring and control systems, the functionality can be flexibly expanded: For example, the platform is prepared for the integration of the optional RISE PROFILE MEASUREMENT sensor system, which records the foam height at up to 30 measuring points during the rise process, enabling optimal density distribution.

The AUTO-FLAT system for automated generation of flat foam surfaces can also be integrated. The “Magic Eye” function detects metering deviations during operation and enables immediate intervention. Supplementary software elements such as the Layout Manager or individually configurable quick links ensure intuitive operation, even during operation.

Specialized for automated molded foam production

With FOAMWARE Molded Foam, Hennecke offers a tailored control solution for molded foam systems in which polyurethane is introduced into molds in precisely defined metering cycles. The software was specifically designed for highly automated applications in rotary table systems or oval conveyor plants with variable mold allocation.

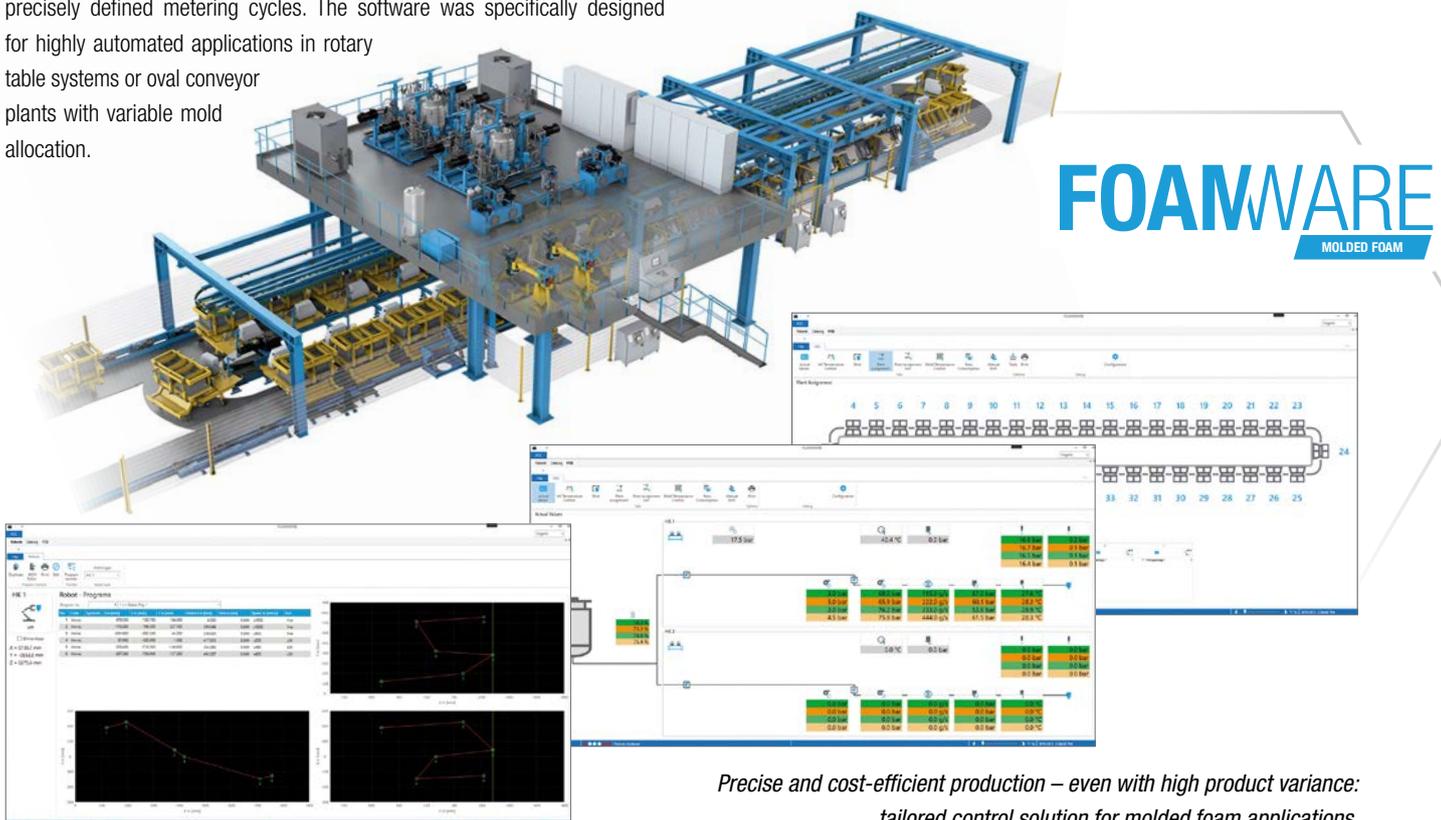
The control system supports complex production processes with varying cycle times, output volumes, and process stages, enabling precise and economical production even with high variance. A central function is the integrated shot pattern management, which allows recurring metering sequences to be configured by time, quantity, and mold. Thanks to the flow chart-based visualization of the systems, operators always maintain an overview of ongoing processes.

A particular highlight is the Robot Module, which enables travel paths to be created and edited directly within the software. The part tracking function documents the number of pieces produced per mold in real time and automatically switches off the respective position as soon as the planned quantity has been reached. Empty cycles or downtime intervals can also be scheduled in advance without risking material loss.

All in all, FOAMWARE Molded Foam enables fast, intuitive commissioning, reduces training requirements, and ensures high system efficiency with minimal raw material consumption. Targeted process guidance allows capacities to be used efficiently and significantly increases the overall cost-effectiveness of automated molded foam systems.

Ongoing development for future requirements

With FOAMATIC and FOAMWARE, Hennecke has laid the foundation for a new generation of control technologies. Both platforms embody consistent customer orientation, sustainable efficiency gains, and a sophisticated, expandable modular digitalization solution. “Our control systems grow with the requirements of our customers. As part of our strategic development, we are working closely with users and consistently developing our systems with a view to future requirements in industrial PUR production,” concludes Peters. ■



Precise and cost-efficient production – even with high product variance: tailored control solution for molded foam applications.

FOAMWARE COMPLETE CARE

GREATER SAFETY, LESS EFFORT –
WITH CLEARLY CALCULABLE COSTS

The FOAMWARE Slabstock is one of the leading technological control solutions for continuous slabstock foam production. To ensure this performance is maintained long term, regular maintenance, updates, and professional support are essential. Hennecke has developed the FOAMWARE Complete Care service package specifically for this purpose.

We spoke with Mahmoud Karime, Senior Director Global Service about it.

INNOVATIONS: Mr. Karime, what exactly can your customers expect from FOAMWARE Complete Care?

Mahmoud Karime: This is a modular service package that is consistently tailored to the requirements of our customers in slabstock foam production who use a FOAMWARE slabstock control system. At its core are annual software releases with functional enhancements, safety-related adjustments, and technical optimizations. The system documentation is also updated, ensuring that all standard requirements are met. Depending on the contract term, the range of services is supplemented by regular hardware upgrades, such as a complete hardware replacement after five years.

INNOVATIONS: What other services does the service package include?

Mahmoud Karime: It also includes a set number of hours for technical support. This gives our customers prioritized access to our experts, for example in the event of faults, operating issues, or optimization requests. Another component is our practice-oriented online training. The training courses are precisely aligned with each customer's configuration and can be carried out flexibly from anywhere. With the "Availability PLUS" option, we also offer additional security in the event of a fault – for example, by quickly providing a preconfigured replacement PC.

INNOVATIONS: And what does this service cost?

Mahmoud Karime: For quick decision-makers who sign the contract in 2025, the annual price for the Complete Care contract – depending on scope and term – starts at €6,900. We have calculated this amount to make it economically attractive for our customers and to ensure long-term planning security. Considering the effort, risks, and potential downtime costs avoided, this results in a very good price-performance ratio. Additional options such as "Availability PLUS" or the inclusion of the third-party interface can be added individually. Producers who already have the third-party interface benefit in particular from FOAMWARE Complete Care, as it also covers the sometimes complex integration into higher-level production systems via the service contract.

INNOVATIONS: You often refer to predictability and planning security. Why is this so important?

Mahmoud Karime: Because that's just what many of our customers need. With Complete Care, unpredictable update cycles, ad-hoc service calls, and individually commissioned measures are, in many cases, a thing of the past.



*Mahmoud Karime,
Senior Director Global Service*

Everything is regulated transparently – both financially and in terms of content. This creates security in day-to-day operations and makes internal budget planning easier.

INNOVATIONS: How does the offer fit into the overall context of Hennecke's service philosophy?

Mahmoud Karime: FOAMWARE Complete Care is a key component of our 360°SERVICE. It reflects a strategic understanding of service that does not rely on reactive one-off measures, but instead follows a holistic, partnership-based approach. Our aim is to work together with the customer to ensure trouble-free production operations. Customer feedback is of great importance in this regard. It provides valuable input for the continuous further development of FOAMWARE Slabstock.

INNOVATIONS: Mr. Karime, thank you very much for the interview. ■



FURTHER INFORMATION:

360°SMART Service Portal:
service.hennecke-group.com/en/contact



RIDING THE WAVES OF INNOVATION

HOW CORPOWER OCEAN HARNESSSES THE ENERGY OF THE OCEANS –
WITH SUPPORT FROM HENNECKE TECHNOLOGY

The energy transition demands reliable solutions—especially where wind and solar reach their limits. Wave energy is considered one of the most consistent renewable energy sources worldwide. With its high energy density and predictable generation profile, it has the potential to complement other renewables effectively, making power supply more independent and stable.

Swedish company CorPower Ocean has taken on this challenge with an innovative concept for converting wave motion into electricity. Supporting this effort is the Hennecke GROUP, whose polyurethane technology plays a key role in the industrialized and scalable production of the floating high-tech energy converters.

CorPower Ocean – a systematic approach to wave power

Since 2012, CorPower Ocean has been developing highly efficient wave energy converters (WECs) that transform the constant motion of the ocean into clean electricity. Over the past decade, the technology has been refined through extensive R&D and testing programs. Today, the company operates a fully functional pilot plant off the coast of northern Portugal using its C4 WEC model.

Wave energy is stable and predictable. While not enough on its own, it plays a crucial role in a resilient energy mix when combined with intermittent renewables like solar and wind. CorPower Ocean aims to accelerate the global shift to 100% renewable energy, enhance energy security, and reduce CO₂ emissions. In addition to its headquarters in Stockholm, Sweden, the company runs a composites competence center in Viana do Castelo, Portugal, where preparations are underway for the world's first commercial 10 MW wave energy project.

The CorPower Ocean Wave Energy Converter

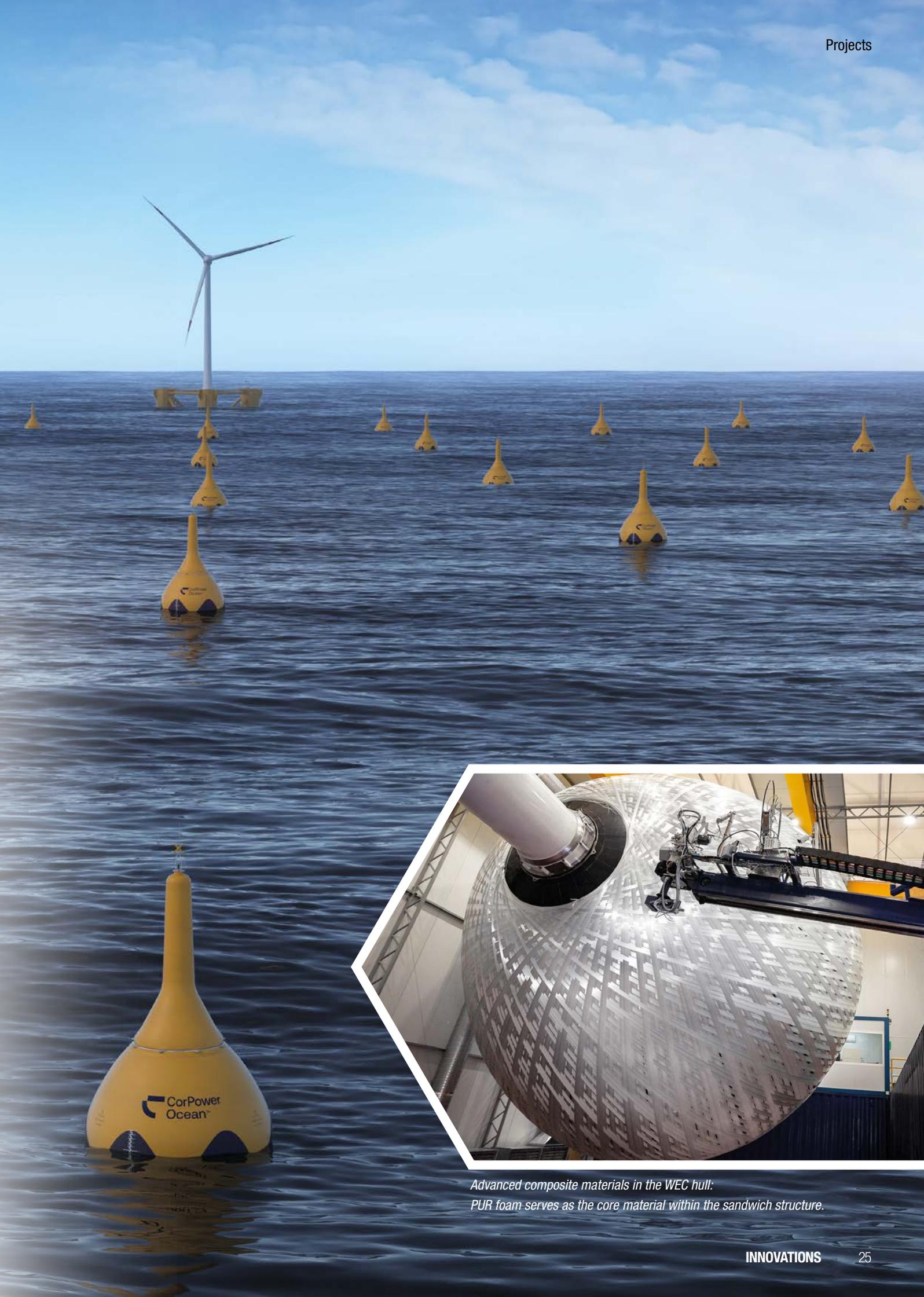
At the heart of CorPower's technology lies its patented wave energy converter. Resembling a buoy tethered to the seabed, the device rises and falls with passing waves. Inside, advanced mechanical systems convert this oscillating motion into rotational energy, driving two generators to produce electricity.

A standout feature is the "Wave Spring" technology, which allows the system to resonate with incoming waves. This resonance boosts energy capture while minimizing the size and weight of the structure. The WECs can also detune themselves during extreme weather, reducing mechanical stress and significantly increasing durability in harsh marine environments.

Challenge: A robust and lightweight hull

Wave energy converters must be both efficient and resilient – capable of withstanding years of exposure to saltwater, UV radiation, and wave pressure. At the same time, they need to be as lightweight as possible to simplify transport, installation, and operation.

CorPower Ocean relies on a sandwich-structured hull made from advanced composite materials. In Viana do Castelo, the company has



*Advanced composite materials in the WEC hull:
PUR foam serves as the core material within the sandwich structure.*

Projects

established a mobile factory concept that enables on-site production of buoy hulls – cutting logistics costs, reducing CO₂ emissions, and shortening lead times.

The hull, measuring 9 meters in diameter and covering around 270 square meters, is manufactured within 48 hours using an innovative variant of the PUR-CSM coating technology co-developed with Hennecke.

High-performance coating application – powered by Hennecke

The integration of Hennecke's polyurethane technology marks a true innovation in CorPower Ocean's manufacturing process. The PUR foam serves as the core material in the hull's sandwich structure and offers key advantages:

- Lightweight strength: High stiffness-to-weight ratio
- Thermal insulation: Protects sensitive internal systems
- Production efficiency: Fast, precise application
- Automation: Integration of PUR high-pressure metering into the filament winding machine enables approx. 80% automated hull production

Together with Hennecke, CorPower Ocean has optimized the PUR coating process for this specific application – adjusting foam density, expansion, and curing to achieve ideal mechanical and thermal properties.

“Our solution meets all requirements for lightweight construction, buoyancy, thermal insulation, and mechanical durability – while ensuring high production

efficiency,” says Dieter Müller, Sales Manager at Hennecke and project lead. “The collaboration with CorPower is a perfect example of how innovative engineering and sustainable manufacturing go hand in hand.”

From Lab to Series Production

The project began in early 2023 with tests at the Hennecke TECHCENTER. Initial prototypes were produced using a scale model and prepared for mechanical testing. Based on these results, a robust design was developed featuring a sandwich structure with a PUR core.

The biggest challenge was integrating the polyurethane metering system into the filament winding machine. Thanks to Hennecke's technical expertise, a solution was developed that allows a single machine to handle the entire production process. The system was fully commissioned in May 2025 and is currently in the testing phase. “Working with Hennecke has been a real asset,” confirms Fabio Miguel, Composite Lead Engineer at CorPower Ocean. “The solution is perfectly tailored to our processes – efficient, reliable, and sustainable.”

By developing a scalable manufacturing concept and integrating cutting-edge PUR technology, CorPower Ocean is laying the foundation for the industrial use of wave energy – supported by Hennecke. A technology that is not only clean but also reliable, and thus a vital building block for tomorrow's sustainable energy supply. ■



Preparing for the world's first 10MW wave energy project: The CorPower team - seen here just before deploying the first commercial WEC in northern Portugal.





CERTIFIED QUALITY, PRACTICED RESPONSIBILITY

HOW HENNECKE SETS GLOBAL STANDARDS WITH ISO 9001, 14001, AND 50001
AND ANCHORS THEM SUSTAINABLY THROUGH THE BUSINESS SYSTEM

In times of growing regulatory requirements, rising customer expectations and the increasing importance of ESG issues, one thing counts above all: reliability. The Hennecke GROUP meets this demand with a clearly structured, systematic approach. International certifications make this commitment visible to customers and partners, as well.

The management systems of all four international Business Units – Germany, Italy, China, and, as of this year, the US – are certified to ISO 9001. The sites in Germany, Italy, and China also already meet the requirements of ISO 14001. The certification of the U.S. site in Pittsburgh is the next step. The Business Unit Germany sends another signal: The Sankt Augustin site has been ISO 50001 certified since 2015. This standard stands for consistent and verifiable energy management.

For Sabine Rudolf, Vice President Business System & Sustainability, certifications are not an endpoint but rather a milestone – what truly matters is how they prove their worth in practice. “Certifications only bring real benefits if they are anchored in daily operations and continuously developed further,” she explains. That is exactly the case at Hennecke. This has been made possible by the group-wide implementation of the Hennecke Business System (HBS), which aligns all locations through uniform and binding working methods. This systematic framework has played a key role in supporting and accelerating the certification process at every site.

Global uniformity, implemented locally

“Take this as a signal to customers that we operate worldwide according to the same standards: quality-conscious, sustainable, and, above all, transparent –

regardless of the production site,” explains Sabine Rudolf. This is because what ISO describes as a standard is systematically put into practice at Hennecke – with identical processes, defined methods, and company-wide playbooks. The introduction of a standardized audit concept and regular reviews ensure that the requirements are not only met, but also regularly evaluated for potential improvements.

The HBS forms the bridge between normative requirements and day-to-day action. It is more than just a process map. It not only defines the what, but also the how and why: with clear responsibilities, standardized workflows, and measurable goals. This creates uniform and systematically further developed standards that provide orientation in everyday work. For customers, this means: They can rely on precisely these standards, verifiable processes, and transparent structures worldwide – regardless of location.

Structure that creates impact

A central element of the HBS is the use of proven management methods. These include, for example, project management roadmaps, which ensure uniform project planning and control, and the lessons learned process, which systematically makes knowledge from completed projects available for future projects. These methods meet the requirements of ISO 9001 with regard to



Quality-conscious, sustainable, and above all transparent: All business units work with identical processes and defined methods.

knowledge retention and continuous improvement and enable us to learn from experience and implement improvements in a structured way.

In addition, there are specific playbooks that serve as operational guidelines in key areas. The Finance Playbook, for example, defines the group-wide management of financial KPIs and processes. The group-wide Anti-Fraud Management System (AFMS) is also part of the HBS – with clearly stipulated

measures to prevent economic crime risks and strengthen internal integrity. Both instruments are not directly subject to ISO certification, but they make an important contribution to control, transparency, and structured implementation in ISO-relevant areas. They underline the holistic management approach of the HBS, which goes beyond normative requirements.

Making sustainability measurable

The extent of this approach is evident in the area of sustainability – one of the three central pillars of the HBS. The Hennecke GROUP’s ESG strategy is anchored in this pillar. It is based on the three dimensions “People, Planet, Profit” providing the foundation for responsible action along the entire value chain. All relevant ESG metrics from the areas of environment, social, and corporate governance are consolidated here and already evaluated annually. They represent the starting point for greater transparency, strategic control, and targeted further development.

In addition, the importance of sustainability is also reflected very specifically in management: As much as 15 percent of variable compensation is linked to ESG targets – a clear signal of the commitment to the topic within the company. In addition, an ESG-based supplier scoring system is in preparation, which will systematically integrate environmental and social criteria into procurement in the future. Sabine Rudolf emphasizes: “We make sustainability visible and therefore manageable – not just in our own company, but along the entire value chain.”

A central focus is on environmental protection – in particular the avoidance and reduction of emissions in accordance with ISO 14001, which requires systematic environmental management along the entire product life cycle. Emissions should not only be reduced but avoided altogether wherever possible or replaced by technological alternatives. At the same time, Hennecke is specifically developing products that help customers to avoid emissions. “Our own production accounts for only a fraction of our total emissions. In fact, more than 99 percent fall into what is known as Scope 3 – outside our direct sphere of influence. The majority of this – around 95 percent – occurs when



“We make sustainability visible and therefore manageable – not just in our own company, but along the entire value chain.”

Sabine Rudolf,
Vice President Business System & Sustainability





The Hennecke Business System has significantly accelerated the certification process at all locations.

our machines are used by customers. That's why we can't just think about sustainability internally, but have to start where the greatest leverage lies," explains Sabine Rudolf.

A system that creates trust

The HBS combines structure and clear principles. It translates strategic goals into clear processes, defined methods, and measurable targets. At the same time, it combines global requirements with local action – through clear roles, standardized procedures, and transparent processes.

The HBS gives the company stability, promotes cooperation across site boundaries, and creates a common language for quality and responsibility. For Sabine Rudolf, one thing is clear: "When we at Hennecke talk about sustainability, we don't just mean environmental aspects. It's about the interplay between quality, compliance, integrity, and social responsibility." This holistic perspective is also reflected in the structural embedding of the topic. Governance, project work, leadership, and process management follow common principles and make Hennecke a reliable partner worldwide.

The consistent application of the Hennecke Business System, complemented by solid ISO certifications, has created a foundation that goes far beyond regulatory requirements. It creates trust among customers, security for employees, and transparency for all stakeholders. ■





Signing of the cooperation agreement on July 29, 2025. From left to right: James Zhang, Deputy Managing Director YIZUMI, and Thomas Wildt, CEO of Hennecke GROUP.

PARTNERSHIP FOR INNOVATIVE PUR APPLICATIONS

HENNECKE GROUP AND YIZUMI JOINTLY DEVELOP INTEGRATED OVERMOLDING TECHNOLOGIES FOR HIGH-QUALITY, FUNCTIONAL SURFACES

The Hennecke GROUP and the Chinese engineering group YIZUMI are pooling their strengths with a new partnership.

The aim of their collaboration is to further develop the combination of injection molding and polyurethane technologies and to open up new possibilities for industrial applications. The result will be surfaces that impress both aesthetically and functionally.

Cooperation sealed in Shanghai

The agreement was signed on July 29, 2025 at Hennecke Machinery Shanghai. In attendance were James Zhang, Deputy Managing Director of YIZUMI, and Thomas Wildt, CEO of the Hennecke GROUP, accompanied by senior representatives from both companies.

Strong partnership with complementary expertise

YIZUMI brings extensive expertise in the field of injection molding applications to the partnership. This also includes an established network of polyurethane specialists and raw material suppliers in key Asian markets. Hennecke complements this with decades of experience and innovative strength in polyurethane processing. This combination creates the foundation for accelerating the industrial implementation of overmolding technologies and providing new momentum for the development of modern applications.

The Hennecke GROUP has been driving forward PUR overmolding technologies suitable for large-scale production for more than three decades. Within this field, increasing emphasis has been placed on industrial integration in a combined process step. This includes, for example, the manufacture of scratch-resistant, high-gloss surfaces for the automotive industry,

or the combination of decorative and functional elements in consumer electronics and household appliances. Hennecke actively contributes this expertise to partnerships, always with the aim of further developing innovative solutions together with machine manufacturers, raw material suppliers, and OEMs worldwide.

Focus on ReactPro technology

At the center of the cooperation are the results of YIZUMI's extensive research projects on ReactPro technology. This makes it possible to integrate PUR overmolding directly into the mold and thereby realize surfaces with high design freedom and outstanding durability. Since 2018, YIZUMI has been continuously investing in personnel, resources, and capital, has built up a professional research and development team, and established its own polymer processing center. This gives the company a solid foundation for further expanding this technology together with Hennecke.

Prospects for the PUR industry

The cooperation opens up new avenues for the production of sophisticated components that are equally impressive in terms of design and function. "The combination of injection molding and PUR opens up completely new possibilities for functional and aesthetically sophisticated components. Together with YIZUMI, we want to further develop this potential in a targeted manner," emphasizes Wildt. ■



Iconic design meets enhanced functionality: The kidney grille of the BMW iX features a combined production process, where Hennecke metering technology applies a functional PUR overmolding via the RIM process onto a thermoplastic carrier element.

TOPLINE MK2 NOW AVAILABLE IN THE NEXT-GEN STORE

With the integration of the TOPLINE MK2 into the NEXT-GEN Store, Hennecke expands its digital platform to include the flagship model of its high-pressure metering machines. For the first time, the full range of the next-generation series is available online.

The NEXT-GEN Store is the world's first online configurator for metering machines. Users can select their desired configuration, instantly receive detailed information on options and pricing, and retrieve their setup anytime using a unique code – without registration and across all devices. Another key advantage is real-time visualization: During configuration, a 3D model is generated instantly and can be displayed at the intended installation site via augmented reality (AR).

The integration of the TOPLINE MK2 marks a major milestone. As a premium series, it offers a wide range of configuration options and covers a broad spectrum of applications. With this successful implementation, Hennecke now provides a transparent, digitally supported ordering process – even for the most complex configurations. ■



EB-AWARDS: HENNECKE-OMS AMONG THE FINALISTS



Giulia Peduto, HR Business Partner, accepts the award for second place in the category People Development and Talent Acquisition.

At the Employer Branding Awards (EBA) in Italy, Hennecke GROUP's BU Italy was recognized as one of the five finalists. The competition honors companies that put people at the center and strengthen their employer brand through modern HR strategies. In the category 'Talent Attraction & Retention,' the Business Unit Italy presented its initiative Open Days for Schools. With an interdisciplinary team, the company demonstrated its commitment to fostering young talent. Through a public vote, BU Italy secured second place in the areas of People Development and Talent Acquisition.

In addition to receiving the award, the team participated in panel discussions and showcased the company's values, culture, and other successful initiatives aimed at developing skilled professionals. ■

SUSTAINABILITY REPORT PUBLISHED

With the release of the 2024 ESG Report, Hennecke presents comprehensive data on environmental impact, social responsibility, and corporate governance for the first time. This voluntarily published report underscores Hennecke's commitment to embedding sustainability into its corporate strategy.



The results show significant progress: CO₂ emissions have been reduced by 12.6% since 2023. Energy consumption has dropped by 47% since 2021, and nearly half of the electricity used now comes from renewable sources. These efforts are complemented by ISO 14001 certification at key production sites and the introduction of a new travel policy aimed at reducing flight emissions and promoting sustainable mobility.



The ESG Report provides transparency. Customers and partners gain a clear overview of the measures and achievements already made on the path toward a more sustainable future. ■

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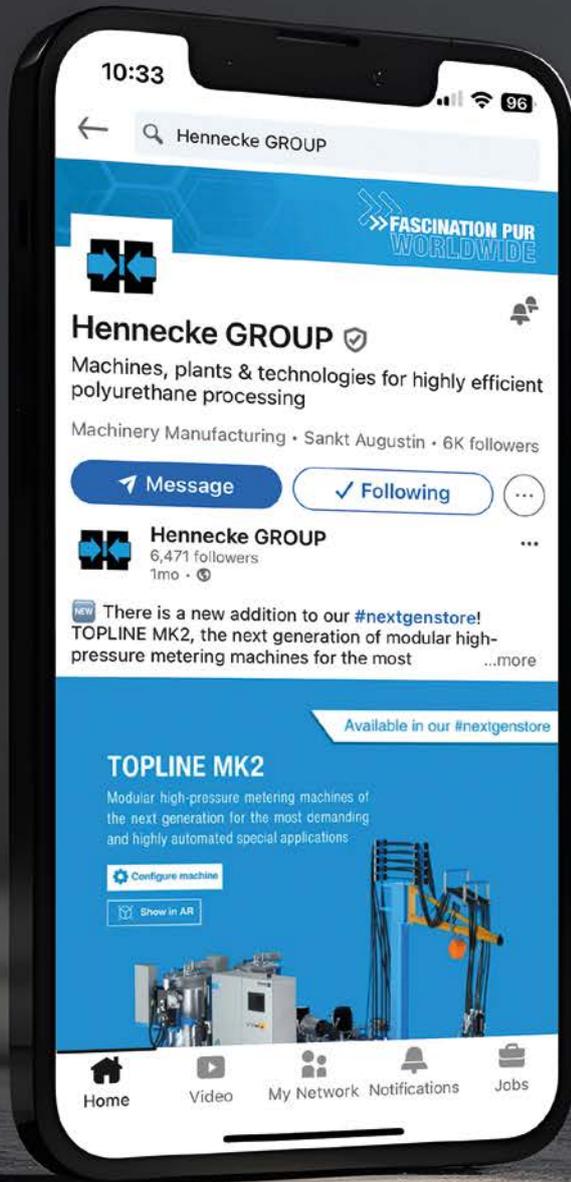
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