DILO: Pioneering Nonwoven Excellence for the Era of Smart Manufacturing

Exhibitor Spotlight – SINCE 2025 | Booth 1A23

In an industry driven by constant innovation, **Dilo Systems GmbH** continues to define the benchmarks of excellence in nonwoven technology. As the **global leader in complete nonwoven lines**, the DiloGroup's presence at **SINCE 2025 (Shanghai International Nonwovens Conference & Exhibition)** underscores its enduring commitment to empowering smart, sustainable, and high-performance textile production.

Engineering Precision Across the Nonwoven Value Chain

The DiloGroup integrates over a century of engineering heritage with cutting-edge innovation. Its group companies — **DiloTemafa (Bergisch Gladbach)**, **DiloSpinnbau (Bremen)**, and **DiloMachines (Eberbach)** — collectively deliver end-to-end expertise spanning **fibre opening and blending**, **mechanical and aerodynamic web forming**, **crosslapping**, and **needling**.

This holistic approach allows Dilo not only to supply individual components but to deliver **complete, intelligently synchronized nonwoven lines** that define the gold standard for efficiency, reliability, and product uniformity.

1. Fibre Opening and Blending: The Foundation of Quality

Every great nonwoven product begins with impeccable fibre preparation — and this is where Dilo's precision machinery sets the tone.
DiloTemafa systems ensure optimal **opening, cleaning, dosing, and blending** for a wide range of fibres — from synthetic to natural (including flax, hemp, and kenaf). The company's feeding equipment for cards and web-forming machines enhances uniformity and throughput, while its solutions for **recycling edge trimmings and off-quality material** embody the brand's sustainability-first philosophy.

2. Carding Machines: Mastering Fibre Orientation

At SINCE 2025, Dilo highlights its universal and specialty carding systems designed for **flexibility, width, and performance**.

The product range includes **single and double doffer cards**, **double main cylinder cards**, **random and airlay cards**, and **wide-format designs up to 6000 mm**.
This suite of machinery ensures precise fibre orientation and uniform web formation — essential for industries demanding technical consistency such as **automotive, filtration, and geotextiles**.



3. Crosslappers: Where Precision Meets Performance

Dilo's reputation for crosslapping excellence

remains unmatched. Its **high-precision crosslappers** enable exact layering even at high infeed speeds, delivering consistent web structure and thickness.

For different production needs, Dilo offers tailored solutions:

- The **DLA Alpha Line** delivers efficiency at lower speeds, ideal for cost-optimized operations.
- The **Hyperlayer** technology caters to **ultra-lightweight felts** with the finest fibres, ensuring uniform layering even with minimal layers.

Through these systems, Dilo reinforces its role as the **go-to partner for precision layering technologies** in the nonwoven domain.

4. Needlelooms: The Heartbeat of Nonwoven Production



DiloMachines' range of **needlelooms** stands as the beating heart of modern nonwoven processing — available in working widths from **0.6 m to 16 m**, and **stroke frequencies up to 3,500 strokes per minute**.

Their versatility covers the entire needling spectrum — from **one-sided pre- and finish-needling** to **double needling systems** for dual-sided processing.

The **Hyperpunch** model introduces elliptical needle beam kinematics, achieving **high-speed needling with minimal draft**, enhancing both strength and surface quality.

Dilo's **DI-LOOP** and **DI-LOUR** technologies bring new design and texture dimensions to the field, while **circular and endless needling systems (RONTEX and BELTEX)** offer unmatched uniformity for roll goods and tubular fabrics.



5. MicroPunch: Green Needling for a Sustainable Tomorrow

Among Dilo's most forward-looking innovations, **MicroPunch technology** represents a paradigm shift toward **green manufacturing**.

This process is designed for lightweight nonwovens (30–150 g/m²) with up to **75% reduction in installed power**, offering remarkable energy savings without compromising performance.

With a **needle density up to 45,000 needles per meter per board** and the **X22 needle module system** for effortless insertion and exchange, MicroPunch redefines productivity while reinforcing Dilo's commitment to **low-impact, resource-efficient production**.

This technology exemplifies how **sustainability and industrial performance can coexist harmoniously** in next-generation manufacturing.

6. 3D-Lofter: Redefining Structure and Design

Perhaps the most visually striking of Dilo's innovations, the **3D-Lofter – Sliding Colors** system introduces a new dimension of functionality and creativity.

This **aerodynamic web-forming technology** enables the **3D distribution of additional fibres** on a flat needlefelt, producing **locally variable thickness, stiffness, and strength** — all without compromising the integrity of the base material.

The result is a material with **engineered performance zones**, ideal for **automotive interiors, upholstery, mattresses, apparel, and flooring**.
Moreover, the system's ability to create **colored patterning** during the forming process opens new aesthetic possibilities for technical and decorative applications alike.

In a world seeking personalization and precision, the 3D-Lofter stands as a symbol of **manufacturing intelligence in motion**.

Smart Manufacturing at Its Core

Dilo's exhibit at SINCE 2025 is more than a machinery display — it's a **showcase of integrated smart manufacturing**.

Each of its technologies contributes to a connected production environment where **data, design, and performance converge**. From fibre opening to final needling, every stage of the Dilo process is optimized through digital control, energy efficiency, and modular adaptability.

This aligns perfectly with the global movement toward **Industry 4.0**, where real-time monitoring, process optimization, and predictive maintenance ensure not only **quality consistency** but also **operational resilience**.

Innovation Rooted in Responsibility

What distinguishes Dilo is not just technological leadership, but a **responsible innovation philosophy**.

In an age where sustainability is no longer optional, the company continues to pioneer energy-saving, waste-minimizing, and resource-optimizing solutions. Whether through **recycling-oriented fibre systems** or **energy-efficient needling**, Dilo's machines demonstrate that **productivity and planet** can indeed progress together.

This ethos positions Dilo as a **trusted partner** for nonwoven manufacturers navigating global transitions — from the demands of e-mobility to the sustainability imperatives of circular textiles.

The Dilo Difference: Excellence Through Integration

By seamlessly linking all production stages — from **opening and blending** to **final needling and finishing** — Dilo delivers unmatched process control and reliability.

Its vertically integrated systems ensure not only mechanical compatibility but also a unified digital backbone, allowing customers to monitor, adjust, and improve performance in real time.

This system-level thinking defines the **Dilo Difference** — transforming standalone machines

into intelligent ecosystems capable of responding to evolving material needs and sustainability goals.

Meet Dilo at SINCE 2025: Experience Innovation in Action

Visitors to **Booth 1A23** at **SINCE 2025 (Shanghai, December 3–5, 2025)** will experience Dilo's hallmark of innovation firsthand.

From the **MicroPunch line's sustainability promise** to the **3D-Lofter's visual creativity**, the company's display embodies the synergy of **engineering precision, environmental responsibility, and manufacturing intelligence**.

The exhibition will also serve as a platform for discussing future-focused solutions — from **lightweight composites** and **functional textiles** to **smart nonwoven architectures** that cater to evolving mobility, filtration, and medical applications.

For Dilo, every innovation is more than machinery — it's a contribution to shaping the **next chapter of nonwoven evolution**.

Editorial Perspective: Dilo and the Future of Nonwovens

From an editorial lens, Dilo's consistent leadership in nonwoven machinery represents a rare blend of **technical mastery and visionary purpose**.

Its innovations — especially the MicroPunch and 3D-Lofter — redefine the parameters of sustainability, efficiency, and creativity in textile production.

As global manufacturing moves toward **digitally intelligent and circular ecosystems**, Dilo's role extends beyond equipment supply. It becomes a **technology enabler and sustainability partner**, guiding the industry toward smarter, cleaner, and more adaptive production paradigms.

At SINCE 2025, Dilo's showcase is not just a display of machinery — it is a **blueprint of what responsible innovation looks like** in the age of smart manufacturing.

Visit Dilo Systems GmbH at SINCE 2025

- **Booth No.: 1A23**
- **December 3–5, 2025 | Shanghai, China**
- **http://www.dilo.de/**

Discover how Dilo continues to shape the future of nonwovens — one innovation at a time.