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## Aeris Redefines Air as a Process Variable in Textile, Technical Textile and Nonwoven Manufacturing

### Beyond Utilities to Process-Critical Solutions

In modern textile and nonwoven manufacturing, some of the most critical factors influencing performance are often the least visible. Air—carrying fibres, dust, humidity, and temperature variations—plays a decisive role in determining product quality, operational stability, and energy efficiency.

Traditionally treated as a utility, air management is now being redefined as a core process variable, particularly in high-performance textile and nonwoven applications. At the forefront of this transformation is Aeris, delivering engineered air treatment solutions that integrate seamlessly into production processes, enabling manufacturers to achieve higher levels of precision, efficiency, and sustainability.

### Engineering Integrated Air Solutions for Modern Manufacturing

Aeris' approach is built on the understanding that air treatment cannot be addressed in isolation. Instead, it must be designed as an integrated system encompassing filtration, thermo-hygrometric control, humidification, evaporative cooling, and energy recovery. Aeris enables manufacturers to optimise:

- Product quality and consistency
- Production reliability and uptime
- Workplace safety and compliance
- Energy consumption and operational costs
- Efficient fibre and dust separation
- Optimised air recirculation
- Stable thermo-hygrometric conditions

This integrated philosophy is particularly relevant in industries where even minor fluctuations in environmental conditions can lead to significant variations in output quality.

### Advanced Solutions for Nonwoven Production

Aeris' capabilities are clearly demonstrated in its recent collaboration with Tatra Textil s.r.o., a specialist in high-performance nonwoven insulation materials. The project involved the supply of an advanced air filtration and humidification system for a thermobonding line, highlighting the growing importance of air management in nonwoven processes. The solution is engineered to manage technological air suction, air balancing, and humidity control, ensuring:

Such control is critical in thermobonding processes, where consistency in fibre distribution and bonding conditions directly impacts product performance in applications ranging from apparel insulation to advanced technical uses.

### IHS® Technology: A Breakthrough in Industrial Humidification

At the core of Aeris' offering is its proprietary IHS® (Induction Humidification System)—a next-generation solution that redefines efficiency and reliability in industrial humidification. Unlike conventional systems, IHS® ensures:

- 100% water absorption, eliminating waste
- Completely dry air ducts, with no risk of condensation
- Significant reduction in water and energy consumption
- Enhanced process reliability and hygiene



Aeris-Tatra Textil Team at Techtextil

With water savings exceeding 60% and energy reductions of over 40%, the technology delivers both operational and environmental benefits. Its recognition as a Solar Impulse Efficient Solution further reinforces its value in meeting global ESG and sustainability benchmarks.

**Addressing the Complexities of Technical Textiles**

The importance of Aeris’ solutions becomes even more pronounced in the processing of advanced technical fibres such as aramid, carbon, basalt, UHMWPE, and PTFE. These high-performance materials are increasingly used across industries including aerospace, automotive, and protective textiles. However, their processing presents unique challenges:

- **Generation of ultra-fine dust**
- **Complex emissions**
- **Sensitivity to environmental conditions**

In such scenarios, air management is no longer peripheral—it becomes central to maintaining process integrity. Aeris’ systems are designed to handle these complexities, ensuring clean environments, stable conditions, and consistent output quality.

**Optimising Natural Fibre Processing**

Aeris is involved in natural fiber processing projects, focusing on linen and hemp, which are increasingly important in sustainable textiles.

In one such large-scale European project, Aeris is implementing integrated filtration and humidification systems for a new spinning line, focusing on:

- **Maintaining thermo-hygrometric stability across departments**
- **Centralised management of fibres and dust**
- **Energy optimisation and reduced maintenance**
- **Continuous process monitoring through PLC systems**

These solutions ensure that even inherently variable natural materials can be processed with high levels of consistency and efficiency.

**Driving Sustainability Through Engineering**

Sustainability is not treated as an add-on but is embedded within Aeris’ engineering approach. By reducing water and energy consumption, improving air quality, and enabling efficient resource utilisation, Aeris helps manufacturers align with global environmental standards while maintaining high productivity. The integration of energy recovery systems and intelligent control mechanisms further enhances the sustainability profile of its solutions.

**Air as the New Frontier of Performance**

As textile, technical textile, and nonwoven manufacturing evolve toward higher levels of performance and sustainability, the role of air management is undergoing a fundamental shift. No longer a background utility, it is emerging as a key driver of quality, efficiency, and innovation. Through its integrated solutions and advanced technologies such as IHS®, Aeris is enabling manufacturers to harness this critical variable—transforming air from an invisible factor into a powerful lever of industrial performance.

**In doing so, Aeris is not just improving processes—it is redefining how modern textile manufacturing environments are engineered for the future.**



**66 YEARS OF LEGACY**

