

VEGABAR sensors and SA's paper industry

Pulp and paper manufacturing is an intricate, multi-stage process that depends on consistent monitoring and control of pressure at every stage. This article highlights the role of the VEGABAR range of sensors in monitoring and controlling pressure during the papermaking process.



The VEGABAR 82 and VEGABAR 83 deliver precise, real-time pressure measurements, allowing paper mill operators to optimise their production processes.

In chemical pulping, where wood chips are cooked in large digesters with chemicals such as sodium hydroxide and sodium sulphide, precise pressure control is crucial. Pressure inconsistencies can lead to poor-quality pulp or process interruptions, resulting in wasted energy and raw materials. Additionally, the corrosive chemicals and extreme temperatures place immense demands on pressure sensors.

Other challenges lie in the pressing and drying stages. During pressing, water is mechanically removed from the pulp sheets, while the drying phase requires precise management of steam pressure to ensure uniform drying. Any pressure fluctuations can cause product defects and inefficiencies.

South Africa's pulp and paper mills also face significant challenges in wastewater treatment. Pressure monitoring in settling tanks, filtration systems, and pipelines is critical for ensuring compliance with environmental standards, particularly in regions such as KwaZulu-Natal and Mpumalanga, where mills operate near sensitive water sources. Inaccurate pressure readings can lead to leaks, overflows or suboptimal treatment, resulting in environmental damage and regulatory fines.

Vega's instruments

VEGABAR pressure transmitters are designed to address the unique challenges faced by the pulp and paper industry. Built for durability and precision, the VEGABAR range ensures reliable pressure monitoring in aggressive, high-temperature and high-pressure environments, making it ideal for critical pulp and paper applications.

One of the standout products is the VEGABAR 82 pressure transmitter. Equipped with a ceramic-capacitive measuring cell, the VEGABAR 82 is particularly well suited

to the harsh environments of pulp digesters and chemical processing tanks. Its ceramic sensor offers excellent resistance to corrosion and abrasion, essential for withstanding the aggressive chemicals used in kraft/sulphate pulping processes. For South African mills operating in high-humidity and high-temperature conditions, the VEGABAR 82's stability and durability ensure long-term reliability, reducing maintenance needs and operational disruptions. The sensor also provides high accuracy, which is critical for maintaining optimal cooking pressure in digesters. This improves the quality of pulp while reducing chemical and energy consumption, helping mills optimise production costs.

In the pressing and drying stages of paper production, where steam pressure control is crucial, the VEGABAR 83 provides an ideal solution. Featuring a robust metal measuring cell, the VEGABAR 83 withstands extreme temperatures and pressures commonly encountered in steam pipelines and drying cylinders. Its high-temperature resistance, coupled with accurate measurements, allows operators to maintain consistent steam pressures, ensuring uniform paper drying.

For mills in KwaZulu-Natal, where energy costs can account for up to 20-30% of production expenses, efficient steam management enabled by VEGABAR 83 can significantly reduce energy consumption. By preventing steam pressure fluctuations, mills also minimise defects and increase throughput, improving overall productivity and profitability.

Wastewater treatment is a critical process in pulp and paper production, particularly in the South African context, where water scarcity demands efficient resource management. Pressure measurement in wastewater treatment systems ensures optimal operation of pumps, filtration units, and settling tanks. The VEGABAR 81 differential pressure transmitter is particularly effective for monitoring pressure drops in filtration systems, enabling operators to detect blockages or performance issues in real-time.

The VEGABAR 81's chemical-resistant materials make it suitable for handling treated and untreated wastewater, ensuring long-term performance in harsh conditions. By improving pressure monitoring in wastewater processes, South African mills can reduce water losses, optimise treatment efficiency, and comply with strict environmental regulations.



Above: The VEGABAR 81 differential pressure transmitter is particularly effective for monitoring pressure drops in filtration systems.

Improving efficiency and process optimisation

One of the primary advantages of the VEGABAR range is improved process control and efficiency. The VEGABAR 82 and VEGABAR 83 deliver precise, real-time pressure measurements that allow operators to optimise production processes, from chemical pulping to steam drying. This can reduce energy consumption, minimise material waste, and enhance overall product quality – a crucial factor for mills competing in both local and export markets.

The robust design of the VEGABAR range ensures reliable performance in the demanding conditions of pulp and paper operations. With corrosion-resistant ceramic and metal measuring cells, VEGABAR transmitters can withstand high pressures, temperatures and aggressive chemicals, reducing maintenance costs and downtime. This is particularly valuable in South Africa, where mills operate under tight production schedules and cannot afford frequent disruptions.

By enabling accurate pressure monitoring in wastewater treatment processes, VEGABAR transmitters help mills optimise water usage and comply with environmental regulations. This is essential for mills operating in water-stressed regions, where responsible water management is a top priority.

VEGA instrumentation integrates seamlessly with digital control systems, enabling mills to implement smart process monitoring and predictive maintenance strategies. This enhances operational visibility, allowing mills to identify and address potential issues before they impact production.

By improving pressure monitoring in chemical pulping, steam drying and wastewater treatment, the VEGABAR range enables South African mills to enhance process efficiency, reduce operational costs, and achieve environmental compliance. As the industry continues to grow and modernise, VEGA's instrumentation will play a crucial role in supporting sustainable and efficient pulp and paper production in South Africa.

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