

Why it is important to optimally regulate pressure and flow

Controlled Pneumatics from Festo is the precise and energy-efficient solution

Efficiency, process stability and energy savings are key factors in modern production, especially in applications involving sensitive goods. Achieving this requires an intelligent control concept that precisely and flexibly regulates pressure and flow while minimizing energy consumption. With Controlled Pneumatics, Festo offers the perfect solution by combining proportional technology, sensor systems, and digital control.

Unlike conventional systems with fixed settings, Controlled Pneumatics continuously adjusts values in real time. The result is improved product quality, reduced compressed air consumption, and longer service life for components.

Stable processes

In practice, fluctuations in pressure and flow often lead to defective products. This is especially critical in industries such as automotive, medical technology, food, and packaging, where stable processes are essential to prevent rejects and costly rework. Inconsistent pressure across different production stations is a common issue and can cause cylinders to position components inaccurately or seals to be applied with incorrect force.

Proportional valves with closed-loop control can make a significant difference. They reliably maintain the pressure at the required level, regardless of load changes, fluctuating input pressure, or minor leaks. In practice, unstable processes often result in high reject rates. These can be drastically reduced with intelligent pressure and flow regulation.

Pushing the boundaries of pneumatics with Controlled Pneumatics

This innovative technology is opening up entirely new areas of application, especially in the precise regulation of pressure and flow. Controlled Pneumatics pushes beyond the boundaries of conventional pneumatics, resulting in solutions that are simpler, more reliable, faster, more precise, and more energy-efficient. Traditional standard pneumatics, by contrast, are typically used for straightforward applications such as point-to-point movements. Their simplicity, robustness, and cost-effectiveness continue to make them the ideal choice in many cases.

Controlled Pneumatics, however, are mechatronic pneumatic systems that incorporate advanced valve and communication technologies. These systems enable digital control combined with closed-loop regulation of sensor-based variables.

The new **proportional-pressure regulator VEAB with IO-Link** is an example of Controlled Pneumatics in action; it demonstrates just how precise and flexible modern pressure regulation can be. Based on cutting-edge piezo technology, the VEAB stands out with its exceptional control accuracy, virtually silent operation, and extensive diagnostic capabilities via IO-Link. Four customizable presets, intelligent switching functions, and easy plug-and-play commissioning make it the perfect solution for demanding applications such as web tension control, dosing processes, or force-controlled polishing.

Conclusion

For those looking to improve process reliability and product quality, precise and automated

25. June 2025

Responsible
according to press
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Christian Österle



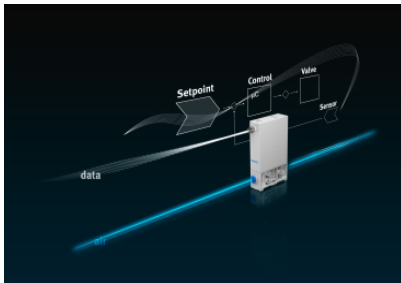
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regulation of pressure and flow is essential. It not only minimizes errors but also ensures consistently high product quality, reduces downtime, and enhances overall system efficiency. For a deeper dive into the topic, a [blog article from Festo](#) offers valuable insights into how intelligent pressure and flow regulation can cut costs, stabilize processes, and prepare companies to meet future demands.

Link to blog article:

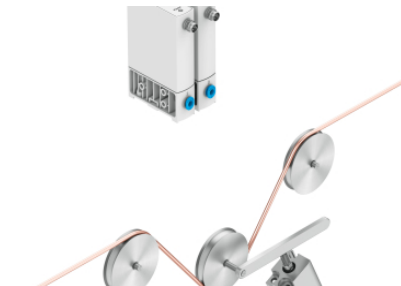
[Cleverly regulate pressure and flow rate | Festo DE](#)

Press Images



Closed control loop

Closed-loop control: Controlled Pneumatics is based on a closed control loop



Application with VEAB

Example of a Controlled Pneumatics application: web tension control with proportional-pressure regulator VEAB

About Festo

Festo is a global player and an independent family-owned company with headquarters in Esslingen am Neckar, Germany. Festo has set standards in industrial automation technology and technical education ever since its establishment, thereby making a contribution to sustainable development of the environment, the economy and society. The company supplies pneumatic and electrical automation technology to 300,000 customers of factory and process automation in over 35 industries. Digitalization, AI and the LifeTech sector with medical technology and laboratory automation are becoming increasingly important. The products and services are available in 176 countries. With about 20,600 employees in over 250 branch offices in around 60 countries worldwide, Festo achieved a turnover of around €3.45 billion in 2024. More than 8% of this turnover is invested in research and development. In this learning company, 1.5 % of turnover is invested in basic and further training. Festo Didactic SE is a leading provider of technical education and training and offers its customers worldwide comprehensive digital and physical learning solutions in the industrial environment.