Product Sustainability Fact Sheet
Vacuum generator OVEM

General Information: Sustainability in Product Development

As an independent family-owned company, Festo has always adopted a long-term perspective and takes responsibility for current and future generations. Sustainability is therefore an integral part of our corporate philosophy and is consistently embedded in the development of all our products. Sustainability criteria have been incorporated into the product development process. Our goal is to minimize environmental impacts across the entire lifecycle, including manufacturing, sourcing, use, and end-of-life cycle of our products. We also place strong emphasis on avoiding critical and environmentally harmful substances.

Products with particularly outstanding sustainability performance are highlighted within Festo's Sustainability Portfolio basket. This designation is based on three categories:

Sustainable in Manufacturing

Products that demonstrate sustainability benefits through compact design, reduced material usage, or the use of alternative materials with a lower carbon footprint, compared with the relevant ISO standard, a predecessor product, or a comparable competitor product.

Sustainable in Operation

Products that reduce energy and resource consumption during use, for example by lowering the demand for electrical energy, compressed air, or valuable operating media such as gases and liquids. In this assessment, Festo considers not only the individual component but also its contribution to the efficiency of the overall application.

Sustainable at End of Life

Products designed to reduce resource consumption by keeping materials, components, and products in the value chain for as long as possible through reuse, repair, refurbishment, and recycling principles.

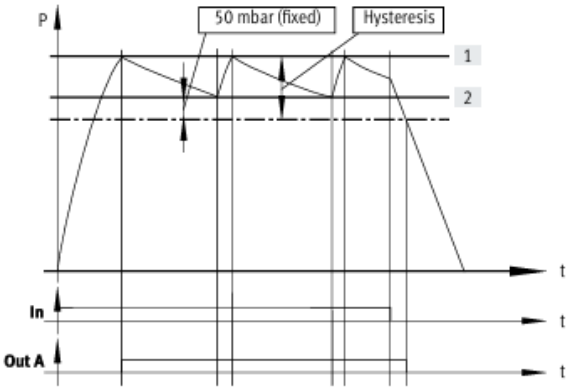
Product-Specific Sustainability Description

Vacuum generator OVEM

Sustainability Category: Sustainable operation with air-saving circuit

The Festo OVEM vacuum generator achieves significantly higher energy efficiency than a conventional vacuum generator thanks to its integrated air-saving function. Once the preset vacuum level has been reached, the compressed air supply is automatically shut off. The vacuum is maintained by an integrated check valve and vacuum generation is only reactivated when a defined pressure drop occurs. As a result, compressed air is consumed only when required.
In contrast, a vacuum generator without an air-saving function must continuously generate vacuum throughout the entire holding and transfer period, resulting in a constant consumption of compressed air. Particularly when handling airtight workpieces and smooth surfaces, compressed air consumption can be reduced significantly.

Air saving function (with OVEM-...-OE/OPE/CE/CPE-...-1PD/2P/2N/PU/PI/LK)



If the desired threshold value [1] for the vacuum is reached, vacuum generation is automatically switched off. A check valve prevents a decrease of the vacuum. Nonetheless, leakage (e.g. due to rough workpiece surfaces) will slowly reduce the vacuum. If the vacuum drops below the threshold value [2], vacuum generation is automatically switched on. Vacuum is generated until the set threshold value [1] is reached again.

Calculation example

Handling of an airtight workpiece with a smooth surface. The required vacuum should be active during the transfer of the workpiece which lasts 5 s. Of course there is a vacuum build up time that must be added to needed transfer time. A comparison between the application without air-saving function and with air-saving function will be evaluated.

Vacuum Generator Without Air-Saving Function

Vacuum build up= 0,2 s
Transfer time = 5 s

Vacuum sequence = Vacuum build up + Transfer time = 0,2 s + 5 s = 5,2 s

➔ Continuous vacuum generation throughout the entire time = <u>5,2 s</u>

Additional information: Vacuum generators without an air-saving function do not have an integrated check-valve function. Therefore the vacuum must be continuously generated throughout the entire vacuum sequence.

Vacuum Generator With Air-Saving Function

Vacuum build up = 0,2 s
Transfer time = 5 s
Leakage interval = 2 s
Re-evacuation time = 0,2 s

Vacuum sequence = Vacuum build up + Leakage interval + Re-evacuation + Leakage interval + Re-evacuation + Remaining Transfer time = 0,2 s + 2 s + 0,2 s + 2 s + 0,2 s + 0,6 s = 5,2 s

➔ Vacuum generation time = Vacuum build up + 2 * Re-evacuation = <u>0,6 s</u>

Additional information: The air-saving function requires only two re-evacuation cycles during the entire transfer period. After the second re-evacuation cycle, 0.6 s remain until the end of the transfer is reached.

Savings

A vacuum generation time of 0.6 s (with air-saving function) compared to 5,2 s of continuous vacuum generation (without air-saving function) results in about 90% reduction in vacuum generation time and compressed air consumption.