Swagelok Sweden

Why Fluid System Filters are Critical for Reliable Operations

Contamination - one of the most common causes of valve and regulator malfunction and one of the most common reasons that fluid system operators return such components to the manufacturer - can be remedied by installing the right filters.

The importance of filters

Filters can help eliminate common contaminants that can damage fluid system components, potentially leading to operational and safety issues. For example:

- Contaminants can cause premature wear and damage and interfere with the component's desired operation
- A worn or damaged seat in a valve may fail to completely shut off flow
- A damaged pressure reducing regulator seat can lead to excessive downstream pressures
- In backpressure regulators, damage can cause upstream pressure loss

Where filters should be installed

Filters should generally be installed at a few common locations in most industrial fluid systems. These locations include:

- Near cylinder gas dispensing to prevent flakes from damaged cylinder interiors from migrating downstream
- Directly upstream from critical valves, regulators and other points of use
- Near pumps with their many moving parts that can generate small debris over time
- Near online analyzers, which are particularly sensitive pieces of equipment where contaminants can interfere with sample integrity
- Where they are readily seen, accessible, and protected from damage

The different types of filters

It's important to select the right type of filter to suit the needs of your fluid system. Available filters typically include:

- Particulate filters - common filters used to remove particulate contaminants, suitable for general industrial gas and liquid filtration
- Coalescing filters - typically designed for online analyzer applications, suitable for gas filtration
- High-purity filters - for applications where purity must be maintained at all costs, mainly semiconductor applications

Your filter should be compatible with the right type of end connections and materials for your needs. The technical advisors at Swagelok Sweden can guide your selection.

Best practices for installation and maintenance

To be confident in your filter's performance, it is important to install it properly. Filters typically install similarly to tube fittings.

- Always follow the flow arrow to determine directional flow
- Follow the manufacturer's instructions
- Uninstall the filter that comes standard with Swagelok's K Series and order RS(H)2 Series regulators without the filter when using liquids. Filters can be installed further upstream to prevent air bubbles that can affect the regulator's performance in liquid systems
- When installing a filter before a valve or regulator, valves should be mounted so their weight is supported by the bracket, rather than the tube or pipe
- The mounting bracket should be substantial enough to absorb the torque of removing the element
- Filters must be cleaned and maintained regularly to operate effectively