VALVE OPTIMIZATION:

Your First Step is a Comprehensive Maintenance Plan

Valves – Ball, Needle, Plug, Metering, Check, Relief…

…are essential to the safety and performance of any fluid system, especially for controlling and sustaining maximum flow levels. But all too often, operators fail to implement or follow a routine schedule to ensure reliable and effective functionality of these critical components.

Here are some best practices around Valve operations:

Step 1:

Properly install your valves.
First, always follow the manufacturer's instructions to the letter. Read the manual, attend training sessions, even watch videos, if available. Learn how to assemble and disassemble and check for leaks. Fully know your system's capabilities and operating parameters so that, as an example, you never place a valve into service when your system's temperature/pressure exceeds the ratings of the valve. Next, place valves in easily accessible locations as valve maintenance and/or repair is usually a hands-on activity. Always mount valves to fixed areas – and make sure to add tubing or piping supports on both sides of the valve to minimize vibration. Check valve orientation so media flows in the intended direction. Lastly, add filters to your system to remove particulates and avoid contaminants, not to mention major seat damage.

Step 2:

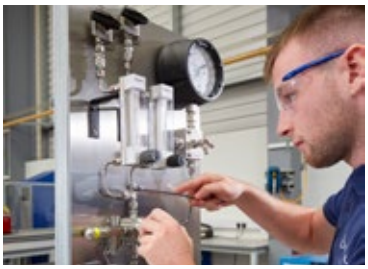
Establish a preventative maintenance schedule based on the particularities of your system: pressure, temperature, process fluid's chemistry, on/off cycles the valve will encounter within a certain timeframe...
Doing so will significantly reduce the troubleshooting you'll have to do over the life of the valve. Tip: Check with your componentry supplier for additional maintenance recommendations.

Step 3:

Be vigilant of leakage.
Whether you can smell a gas leak or hear or see one on any media line, repair the connection before a far greater issue arises. Usual causes include unreliable metal-to-metal seals, system contaminants, improperly installed end connections, and poor tubing selection/preparation.

Step 4:

Employ troubleshooting techniques to determine repair/replace actions. First, ***test*** the valve. If leaking, is it a problem with the seat or shell? Regardless, if a connected fitting is losing six drops of hydraulic fluid per minute, you could be losing over $700 in a year (assuming $4/liter). Next, ***inspect*** the valve. In particular, closely observe the seats, O-rings, and stem tips for wear or damage. If necessary, ***repair*** the valve. Perhaps the seats, packing, and stems can simply be replaced? Or do you need to overhaul the valve and, thus, replace all the internal hardware? At this point, maybe adjust your upkeep timeframes to optimally ***maintain*** the valve. Adding tags to your process provides ideal visual indicators for your techs to make changes to your inspection frequencies. Finally, if excessive corrosion, contamination, or end connection damage has occurred – compromising your valve's pressure-retaining capabilities – it's time to ***replace*** the component.



Support:

Visit swagelok.com/en/blog/valve-maintenance-and-troubleshooting

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