

REGULATOR TROUBLESHOOTING



Three Simple Steps to System Optimization

Even the most challenging Regulator problems can be solved with our basic troubleshooting process – to, ultimately, prevent dangerous and costly Regulator failure:

A drop or increase in downstream pressure means that the safety and integrity of your process could likely be compromised. But getting to the root of sudden pressure variations will usually eliminate any larger system issue. ***And that evaluation procedure starts with your Regulators.***

First Step: Fully understand the needs of your specific process to determine exactly which type of Regulator will work best for you.

Examine your process requirements – flow, pressure, temperature, sensitivity, and media – so that if you need to control pressure before it arrives at your primary process, you choose a pressure-reducing model; if you must control pressure from upstream, a back-pressure regulator is your choice.

Second Step: Determine the exact nature of your problem.

For example, is pressure rising above your set pressure upstream... or is it dropping below such downstream? If the former, then creep is likely the culprit, where contaminants have created a fine gap between the regulator's seat and poppet, thus enabling media to flow across the seat, causing an unwanted pressure increase downstream.

Potential fixes: upstream filtration and/or a spares kit.



Another potential reason for a pressure increase is Supply Pressure Effect (SPE). This occurs when there is a change in outlet pressure due to a change in inlet pressure.

If your set pressure drops downstream, it's probably because your selected regulator is undersized for your application's necessary flow. If flow increases without any compensating adjustments made to your regulator, droop is created.

Suggested fix: Apply our Flow Generator Tool to ensure that your regulator is properly sized for your specific application.



Third Step: *Explore alternative Regulator options.*

For SPE, a regulator with a balanced poppet design minimizes the area on which inlet pressure has an effect. Or, a two-stage pressure-reduction scheme – installing two single-stage regulators in a series or combining them into a single assembly – also helps reduce SPE in many applications.

If you've undersized your regulator, changing to one with a higher flow coefficient could result in far less likelihood of unwanted outlet pressure drops. Lastly, a switch from a spring-loaded model to one that loads via a dome could yield better set pressure consistency on jobs subject to multiple flow variations.



Support: Visit www.swagelok.com/en/blog/troubleshoot-common-regulator-problems

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