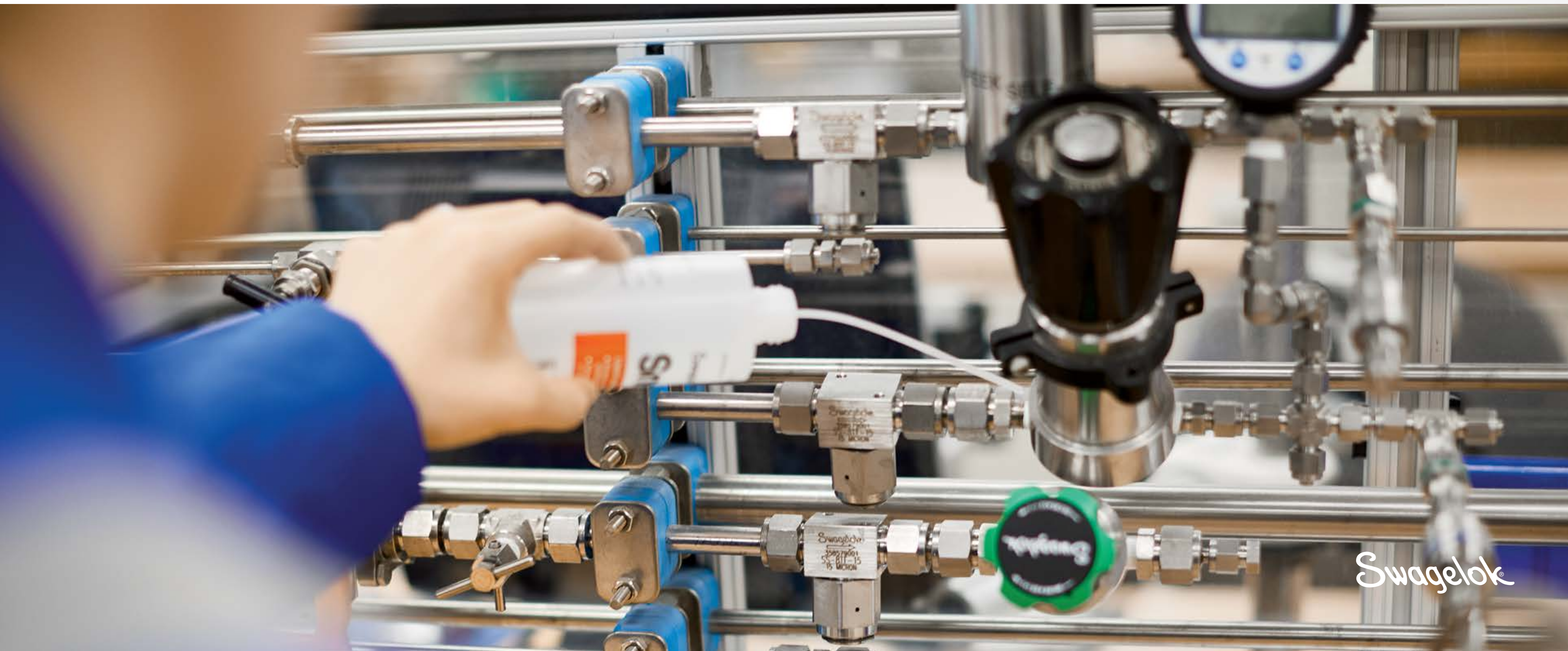


Swagelok® Gas Distribution Program

Improving Safety and Performance of Gas Systems



Swagelok®

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Prioritize Gas Distribution Improvement

Overlooked gas distribution system issues can result not only in loss of gases, but also in lost process efficiency, downtime, or safety hazards. When system operation is not intuitive, when leaks are a concern, or when your gas panels are difficult to service, it is time to take action to avoid compounding costs.

Swagelok® gas distribution program services are designed to help you:

-  Ensure the safety and well-being of system operators and all team members
-  Increase uptime and improve process accuracy and repeatability
-  Reduce costs by avoiding leakage and unplanned maintenance
-  Focus your time and resources where they are needed most

Improve Safety

The Swagelok® gas distribution program can help improve the safety of delivery systems by providing:

- Certified pressure control fluid system advisors who can evaluate existing systems to identify leaks, potential design issues, and proper product selection to help ensure the safety of the system and the well-being of system operators
- Gas distribution system designs that inherently take safety into account as they are fully assembled and tested by fluid system experts with high-quality, leak-tight Swagelok components

Increase Uptime

The Swagelok® gas distribution program can help increase uptime in industrial facilities by providing:

- Certified pressure control fluid system advisors who can evaluate existing systems to identify leaks and design issues that can disrupt operations or impede process efficiency
- Gas distribution systems that are designed and fully assembled using high-quality, leak-tight Swagelok components that are tested prior to installation to ensure they will work reliably



Configurable. Local. Reliable.



Reduce Costs

The Swagelok® gas distribution program can help reduce or avoid costs entirely by providing:

- Certified pressure control fluid system advisors who can evaluate existing systems to identify costly leaks and recommend appropriate products to avoid wasting money on reworks or replacement systems
- Gas distribution system designs that make it easier to ensure you are getting the most usage of the gas in your supply bottles. Systems are fully assembled using reliable, leak-tight Swagelok components and tested prior to installation.



Maximize Resources

The Swagelok® gas distribution program helps maximize your time and resources by providing:

- Certified pressure control fluid system advisors who can evaluate existing systems and make design and product recommendations that reduce the time required to maintain systems, helping to free up your staff to focus on other tasks
- A fully engineered subsystem that's easy to order using a single part number from our [application guide](#), saving engineering time in specification and procurement of new systems
- Gas distribution systems that are designed and fully assembled using high-quality, leak-tight Swagelok components, then tested prior to installation to help ensure less time is needed for troubleshooting and maintenance, whether you are improving existing systems or building new ones



Configurable. Local. Reliable.



Evaluation and Advisory Services

Swagelok® evaluation and advisory services provide critical analysis to inform proper regulator selection, identify system upgrades, and guide the design and assembly of standard and customized solutions. Following a thorough assessment of your gas delivery systems, you will receive a full report that documents among other considerations:

- System performance and fitness for function of existing componentry
- Required vs. actual flow rates
- **Compressed gas leaks** and the money that is lost
- Safety, environmental, and reliability scoring for each system
- Areas for improvement and suggestions for suitable solutions
- Recommendations to help maximize gas bottle usage

Gas Distribution Systems

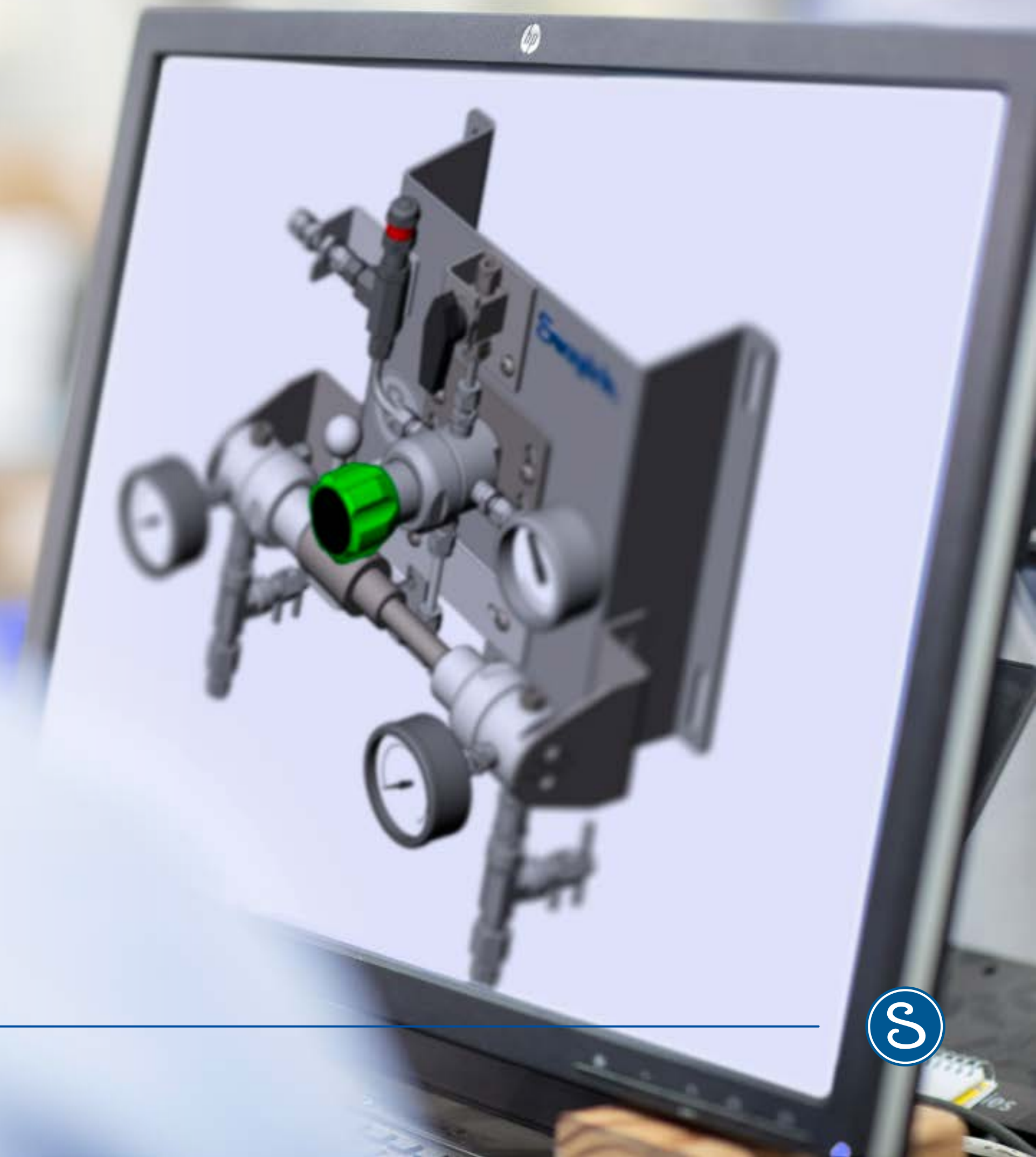
Swagelok® gas distribution systems can be built in many configurations to suit the needs of your application. Whether a standard solution or custom arrangement, we can design and assemble a system that meets your exact requirements. Our advisors, in collaboration with your team, will deliver a fully engineered system that is:

- Fully assembled and tested prior to installation
- Built with minimal threaded connections to avoid leaks
- Clearly labeled for safety and functionality
- Easy to understand and operate
- Simple to troubleshoot and perform routine service
- Delivered on time

We also support you after the sale so you can be sure your system will continue to operate with precision. Our gas distribution systems are backed by the Swagelok **Limited Lifetime Warranty**.

About Safer, More Effective Connections

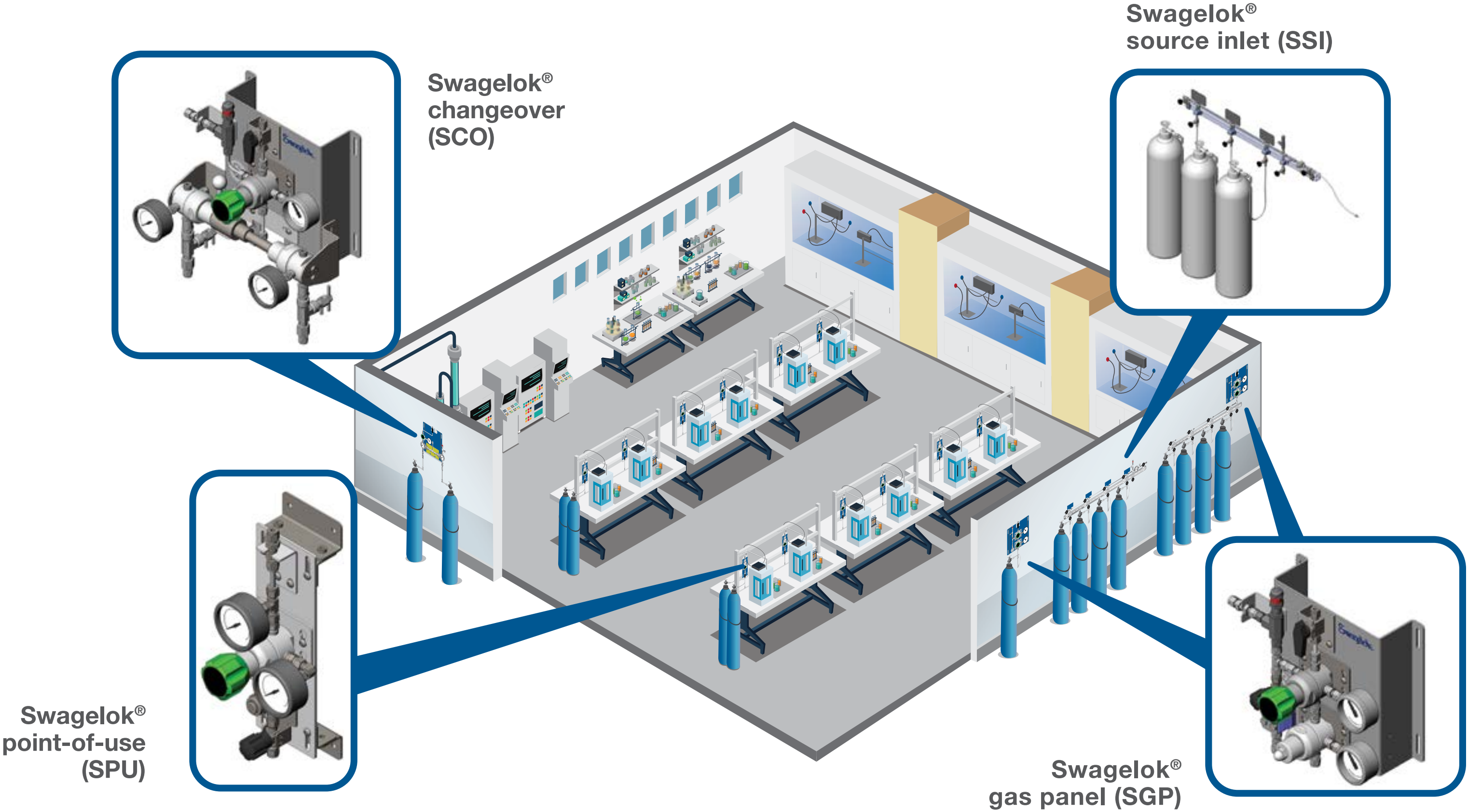
When connections with tapered threads are installed incorrectly, there is increased potential for system damage and safety risks. We minimize threaded connections where possible, using leak-tight Swagelok tube fittings and tube adapters to ensure components are correctly positioned without risking under- or overtightening components. Designing assemblies in this way can significantly decrease the risk of downtime or personnel exposure to system fluid.



Gas Distribution Systems – Overview

Gas distribution systems must effectively deliver gases from a high-pressure source to the facility at the pressure and flow rate required by each application. Systems are built around one or a series of pressure regulation steps and may include four typical subsystems:

- _____
- _____
- _____
- _____



Swagelok® Source Inlet (SSI)

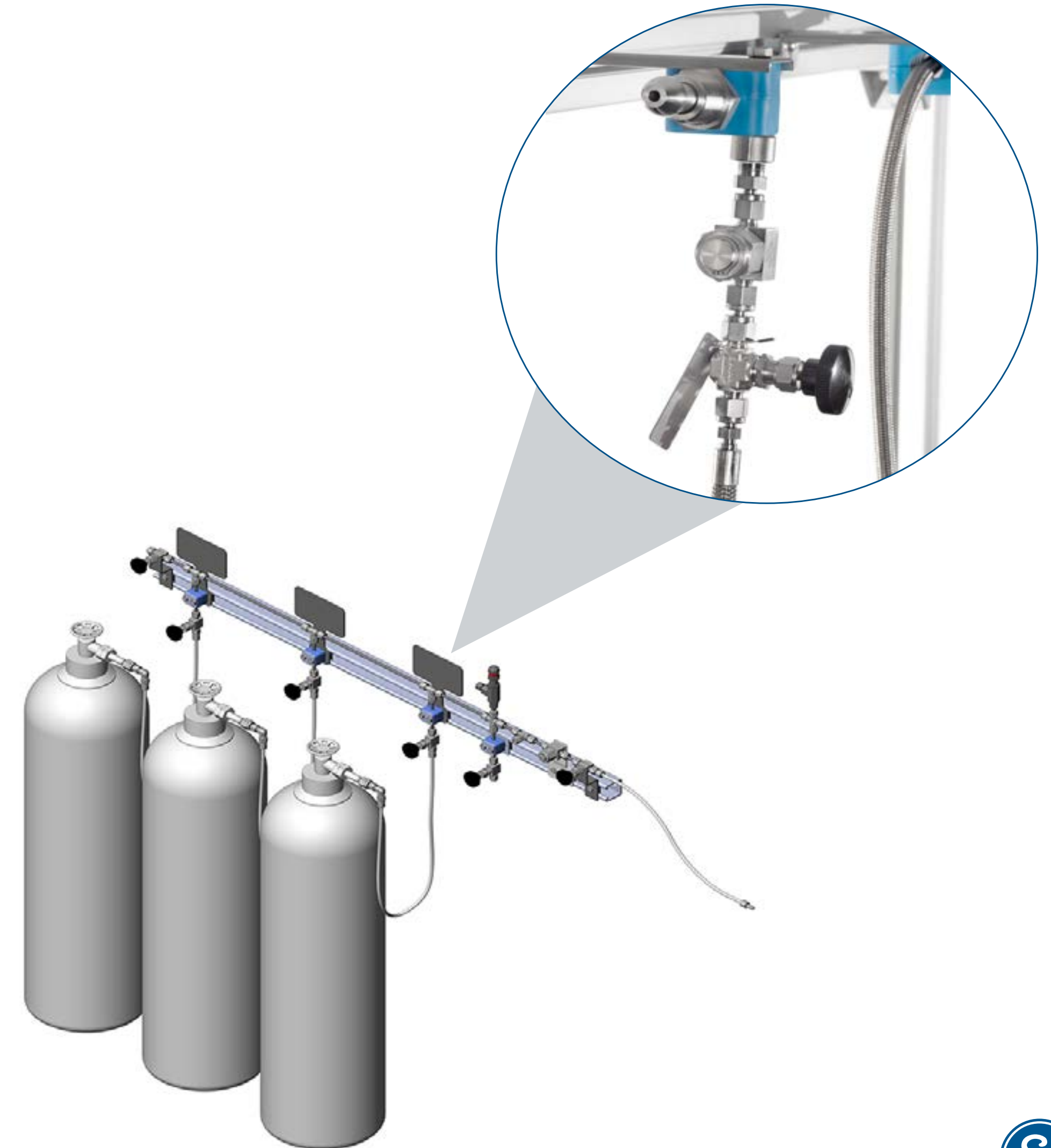
The source inlet establishes a connection between the high-pressure gas source and the distribution system. It is important the inlet is built with appropriate cylinder connections, hoses, tubing, filters, and vent, purge, and relief functions to ensure that gas can be safely fed into the primary gas pressure control or automatic changeover. For a single gas cylinder, the assembly can be as simple as a hose and connector, while multiple cylinders may require a manifold incorporating many hoses and valves.

- Highly configurable options to purge or vent gases when changing bottles, always ensuring operator safety
- Available option to vent individual lines to maximize uptime



How Swagelok Advisors Can Help

Customers often assume the source inlet will come standard with a new gas panel and will use the correct cylinder connector, but this is not always the case. Swagelok gas distribution advisors will ensure all componentry is included and correctly specified with minimal connection points, hoses that do not drop to the ground, and properly supported components. Additionally, we can advise when certain gases may require the use of special hoses.



Swagelok® Gas Panel (SGP)

As the primary gas pressure control, the SGP completes the first pressure reduction of the source gas and ensures it is delivered at the correct flow rate to the next stage of the system. Pressure reduction is accomplished in either one stage with a single pressure regulator or two stages through a dual pressure regulator arrangement.

- Modular panel is easy to service and maintain as any part can be removed via a Swagelok connection, so the panel never needs to be removed
- Options can be implemented around the regulator and valves for color-coding if required for your site

How Swagelok Advisors Can Help

Pinpointing correct inlet and delivery pressures can be difficult—your Swagelok advisor will clearly explain considerations for different media [for instance, the variances between ammonia that is bottled around 116 psi (8 bar) and nitrogen that can be bottled at 4351 psi (300 bar)]. We also help customers understand where a two-stage regulator is required—many customers are surprised to learn most bottles do not require a twin-stage solution.



Swagelok® Changeover (SCO)

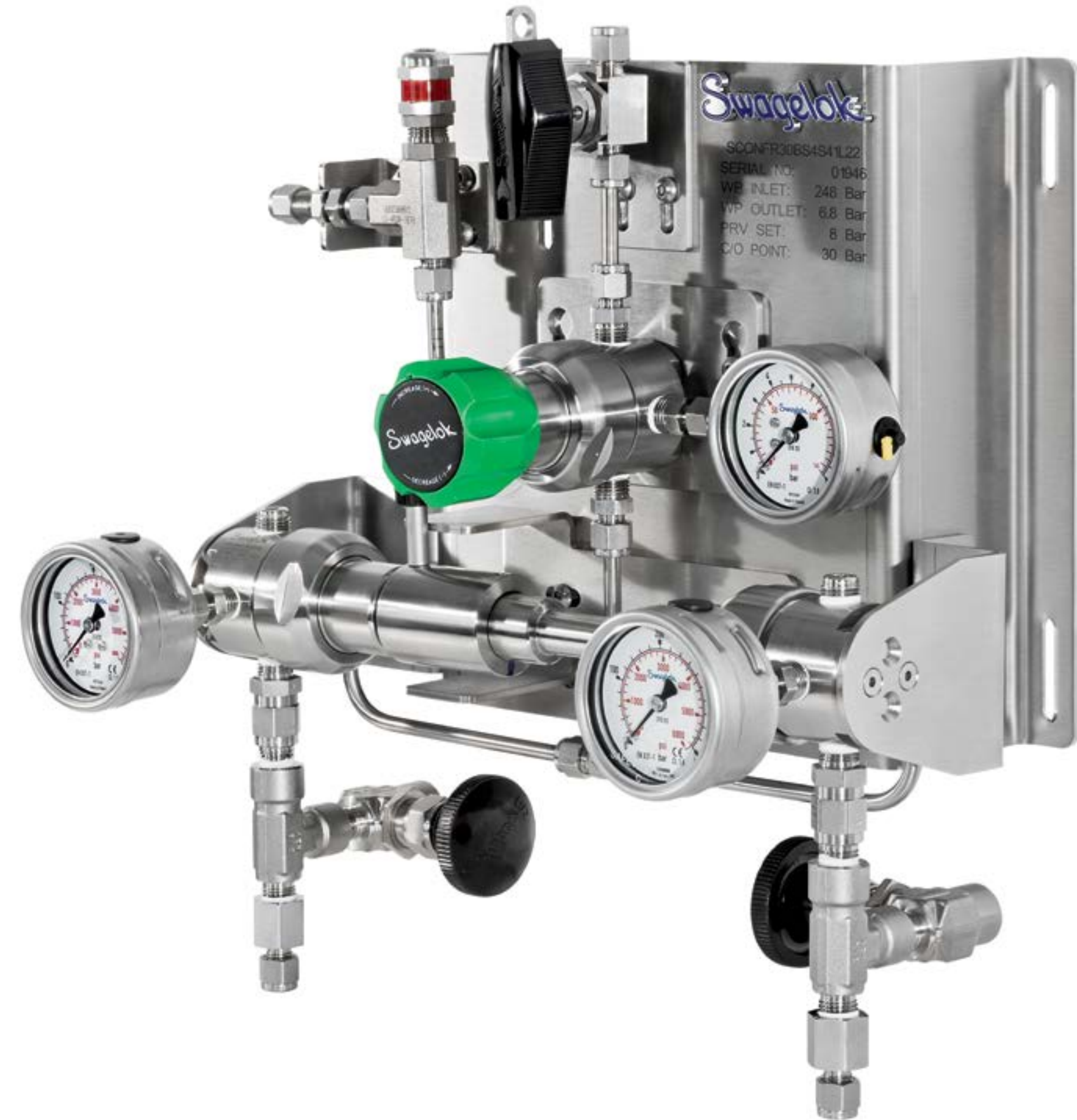
The automatic changeover system seamlessly switches from one gas source to another to ensure an uninterrupted supply. This is accomplished through staggered set points of two pressure regulators, allowing the system to continue to operate as the primary gas source is changed. Our changeover station allows for custom changeover set points to help reduce wasted gas left in cylinders.

- Changeover point remains constant
- Optional line regulation available if your system incorporates a point-of-use regulator downstream, eliminating additional cost of a regulator on the SCO
- Flexibility to set changeover pressure to your specification



How Swagelok Advisors Can Help

Automatic changeover systems are widely used but often not well understood. Additionally, oftentimes a “one size fits all” solution is applied to many different systems where parameters and needs may vary. Your Swagelok team can ensure that operators, technicians, and users fully understand how their automatic changeover system works, making operation, troubleshooting, and maintenance efficient.



Swagelok® Point-of-Use (SPU)

The point-of-use system provides the critical last stage of pressure control prior to the gas being used. These are often the least complex of the four main subsystems, typically having a pressure regulator, gauge, and isolation valve. Point-of-use systems give operators and technicians a convenient and accurate method of adjusting pressure to meet their test bench or equipment needs.

- Provides standardization and consistent operation at the point of use
- Can be set up for either top-to-bottom or bottom-to-top flow to meet your setup needs
- Compact design
- Mounting options include flat plate, bottom mount, top mount, wall mount

How Swagelok Advisors Can Help

Having more product options gives you more flexibility to monitor a wider range of pressures or make modifications like adding an inlet gauge to your panels. We can also show you how to save on initial costs and maintenance by using a single-stage SGP where varying line pressure between the SGP and SPU is acceptable. All Swagelok® subsystems are highly configurable to your requirements, and our gas distribution advisors will help you select the best components for the job. We can also ensure you'll get the appropriate mounting of the system to minimize damage from torque applied to connections due to cycling valves, regulators, or changing filter elements.



Build Confidence in Your Delivery Systems

Our team will design, assemble, and test a solution to your specifications that provides long-lasting performance. When systems are leak-tight, easily configurable, and ultimately reliable, you can maximize uptime, allowing your team to focus on other priorities.

- Lab and reliability managers can be confident site gases will be delivered safely and with minimal leak potential. All panels come fully assembled and tested.
- Engineering and design managers can streamline the procurement of subsystems that often cost less than panels assembled onsite. Our advisors can boost your understanding of existing systems.
- Operations and analytical managers can enjoy peace of mind that critical instruments will have the continuous gas supply they need. Maximizing process accuracy and gas bottle usage is essential.



The Support You Need

Swagelok gas distribution advisors will work with you to tailor a solution that meets your business requirements, which may include component analysis, onsite support, or professional training with hands-on instruction. Services level options include:

- Regulator sizing and selection analysis
- Onsite or virtual training and education
- Inventory management
- Leak detection services
- Asset identification and tagging
- Complete system evaluations
- Troubleshooting and risk analysis
- Regulator management program (complete identification and use audit)
- Panel design and assembly services
- Regular onsite surveys



Onsite Assistance

The Swagelok® gas distribution program is delivered by Swagelok-certified associates who have met specific requirements to become a systems advisor. Our highly qualified associates have extensive onsite experience solving gas delivery challenges like yours and, when necessary, can draw on the collective knowledge of our global field engineering team to diagnose problems quickly.

When choosing Swagelok, you can be sure our advisor:

- Has completed all Swagelok regulator selection training
- Possesses a system-level understanding
- Has completed written and practical exams to demonstrate learning
- Has the sizing and selection knowledge to ensure that the solution ultimately recommended will perform properly
- Is primarily interested in your system performance and will make recommendations that may only require minor modifications to your existing system rather than a new purchase

Stronger With Swagelok

Since 1947, **Swagelok fittings** have set the standard for leak-tight performance. Today, our complete product line includes regulators, valves, hoses, tubing, measurement devices, and more that customers count on to deliver a higher level of confidence in critical applications.

When a problem occurs, it can be difficult to know exactly where the issue lies. Our **global team of field engineers** brings bring powerful technical knowledge to the jobsite. Together, we will engineer a safer, more efficient operation with:

- **Customized solutions** for meeting specific requirements
- **Comprehensive training** including compressed gas leak detection surveys
- **Proactive maintenance** allowing you to focus resources elsewhere
- **Expertise** that conveys actionable fluid system knowledge
- **Purchase and inventory management support**, simplifying procurement



Start a Conversation

Whether you are working to refit your space with a new gas distribution system or simply want to improve the performance of your existing assets, we can connect you with a stronger solution.

Your local authorized sales and service center is the place to start. Contact an advisor or message to info@london.swagelok.com take greater ownership of your gas distribution systems with Swagelok.

