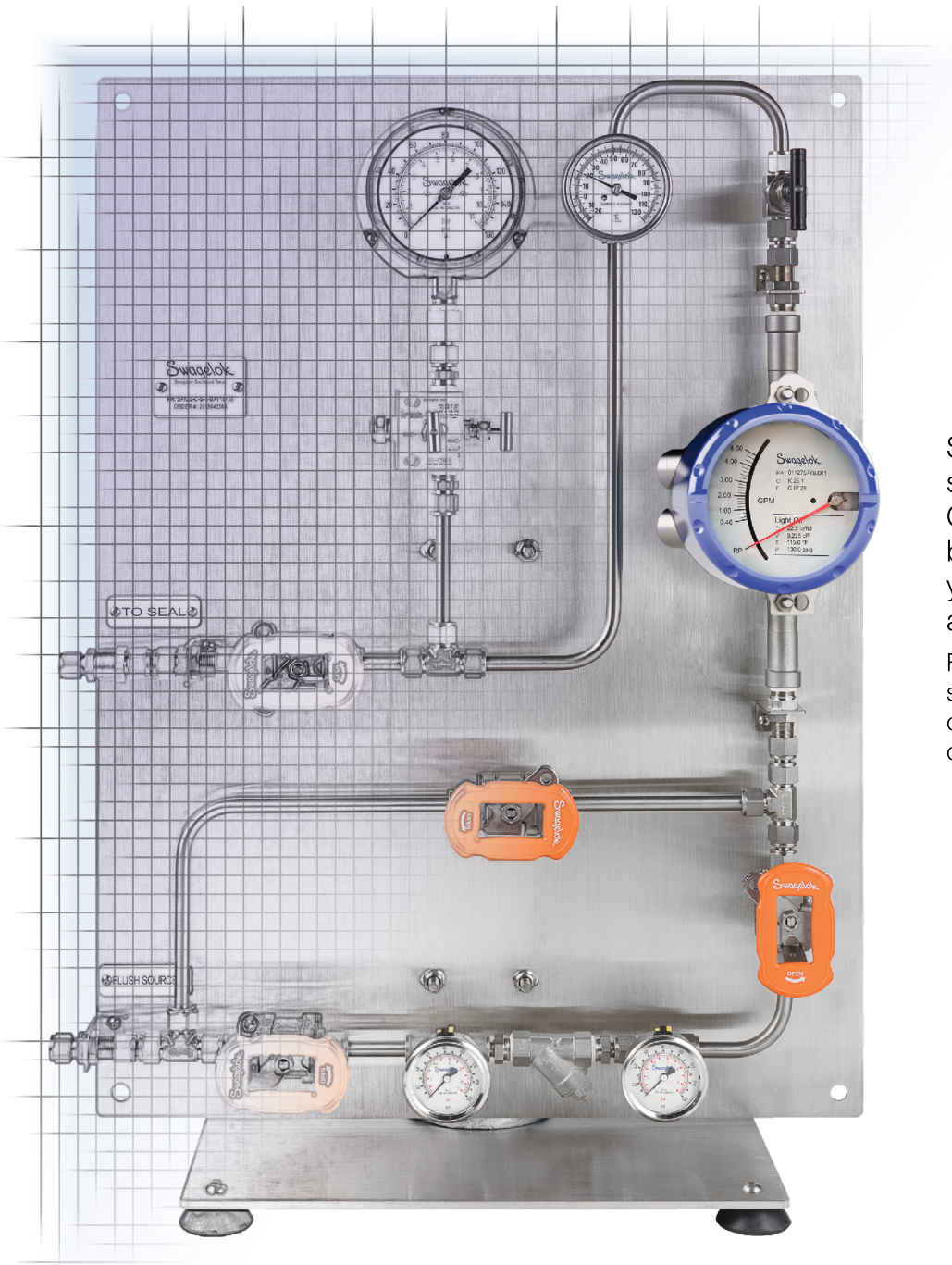


Mechanical Seal Support Systems

API 682 Seal Plan Customer Testimonials



Swagelok® seal support systems are better by design. Our easy-to-configure, locally built, and reliable solutions help you reduce costs, save time, and improve safety.

Find out how our mechanical seal support systems have helped our customers meet their toughest challenges.

Configurable. Local. Reliable.

Swagelok

Learn How Our Customers Save Money, Reduce Labor, and Improve Safety

Less Leakage Reduces Labor and Increases Uptime

Leaking process shaft seals on a centrifugal liquid ring compressor in critical service meant more frequent maintenance for a US refinery. To reach their goals of improved quality, regulated and monitored flushing fluids, and increased mean time between leaks, the refinery's Rotating Equipment & Reliability team consulted their local Swagelok team. As a result, drawings for a Dual Plan 32 seal flush panel were created and reviewed, and the plan was implemented.

The Plan 32 seal flush panel is now easily monitored by operations and requires minor interaction. The cabinet panel is designed to fit inside the required footprint. It provides heat and protects the components from harsh environments. The cabinet features strainers that can be serviced online, along with flowmeters and pressure gauges that can be viewed externally. A piping connection was incorporated in the design, so that an alternative flush fluid or source could be used.

Voice of the Customer

“Our refinery is now benefiting from improved seal flushes to the seals and can easily see if there is an issue. The shaft seal leaks no longer dictate our refinery's maintenance interval and we consider the Swagelok Plan 32 panel a reliable system.”

—Reliability Manager, Refinery (US)



All case studies and testimonials have been provided by the customer. The views and comments expressed are those of the contributor.

Calgary
403.243.5646

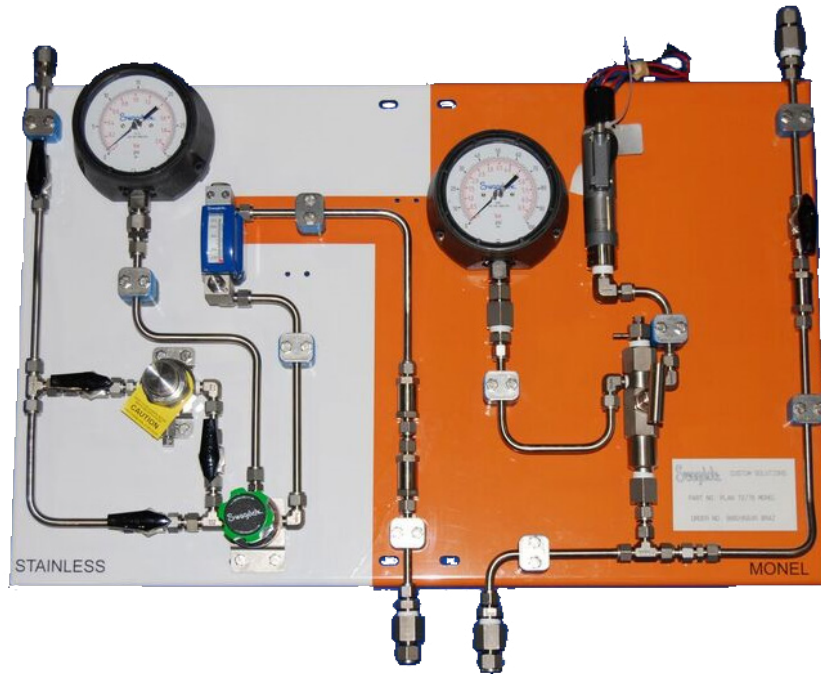
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Quick Delivery Enables Disaster Recovery

After a fire in an alkylation unit at a US refinery caused significant damage, plant management identified their local Swagelok team as a critical path supplier for seal support systems on all new pump installations. While on-time delivery was important, the refinery also wanted to standardize these systems and upgrade their design standards.

Delivery on these Monel® panels was originally required in six weeks. After reassessing, the refinery challenged Swagelok to begin shipping the Plan 72/76 and Plan 74/76 panels in just two weeks. To upgrade the design, the panels were fabricated with a color-coded wrap for easy identification of the stainless steel and Monel components. Through a collaborative effort, system upgrades were made, with an aggressive delivery date.

Voice of the Customer

“Swagelok was instrumental in providing critical support during an unplanned outage. With Swagelok’s support, we were able to have a seamless and on-time startup of a critical unit. Swagelok worked diligently to design standards, improve lead times, and deliver panels by our very aggressive need date.”

—Reliability/Rotating Equipment Engineer, Chem/Refining (US)

System Updates Improve Performance

A US refinery had several antiquated lubricating oil systems on older gearboxes in the plant. Constructed of carbon steel piping, these systems used outdated coolers and filtration systems. Over time, as the coolers have failed and filter housings wore out and needed replacement, the refinery was forced to modify the systems in the field, or purchase outdated coolers and replacement filters due to the difficulty in retrofitting newer units into the existing piping systems.

Working with the local Swagelok team, the refinery devised a plan to upgrade the oil systems by using Swagelok stainless steel tubing and fittings, with modern coolers and filtration. Swagelok drafted the gearboxes and new oil systems in 3D and figured out how to fit the required components in the limited space available, while including upgrades like temperature control valves and pressure control valves. Once the designs were complete and components purchased, the gearboxes were shipped directly to Swagelok. New systems were installed and pressure checked then delivered to the refinery to install. Turnaround times were kept to a minimum due to Swagelok's ability to draft the systems in detail and accurately design the new systems.

Voice of the Customer

“The new lube systems are compact, operator friendly, and equipped with modern filtration and coolers that are readily available. In addition, they are neat, clean, and leak-free. The cleanliness and temperature of the delivered oil is markedly improved. The installation will no doubt improve the reliability and maintainability of these gearboxes going forward.”

— Machine Shop Operator, Chem/Refining (US)



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Local Resources Provide Timely Solution

While securing a large order for 12 Type 53A cabinets, a mechanical seal company in Australia was also relocating their fabrication services to New Zealand. With a tight delivery schedule for the cabinets, they contacted their local Swagelok trained and certified Custom Solutions team to complete the fabrication work.

Swagelok reviewed the system design and assisted the company with a fabrication timeline that met their delivery expectations. The team assembled and delivered all panels with zero leaks, on time, on budget, and with all supporting documentation.



Voice of the Customer

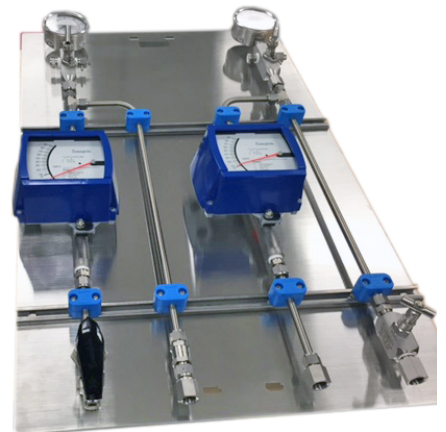
“During this transitional period for our company, we were able to rely on Swagelok’s quality and performance to fully meet our customer’s needs.”

—Project Manager, Mining (Australia)

Standard Panels Reduce Operating Issues

A chemical plant in the US had panels on their rotating equipment throughout the plant that distributed fluid to mechanical seals located on pumps and compressors. The panel designs were not consistent, which was a partial reason for the operators experiencing pressure issues, leakage, and process contamination. The plant’s Rotating Equipment group met with Swagelok to express their desire to standardize the panels.

Using 3D CAD models and concept drawings, Swagelok presented the plant with standardized seal support panels based on Plan 32 and Plan 54.



Voice of the Customer

“Swagelok’s ability to identify our existing pain points demonstrates their product and application knowledge.”

—Reciprocating Engineer, Chem/Refining (US)

**Shorter
Lead Times
Maximize
Uptime**

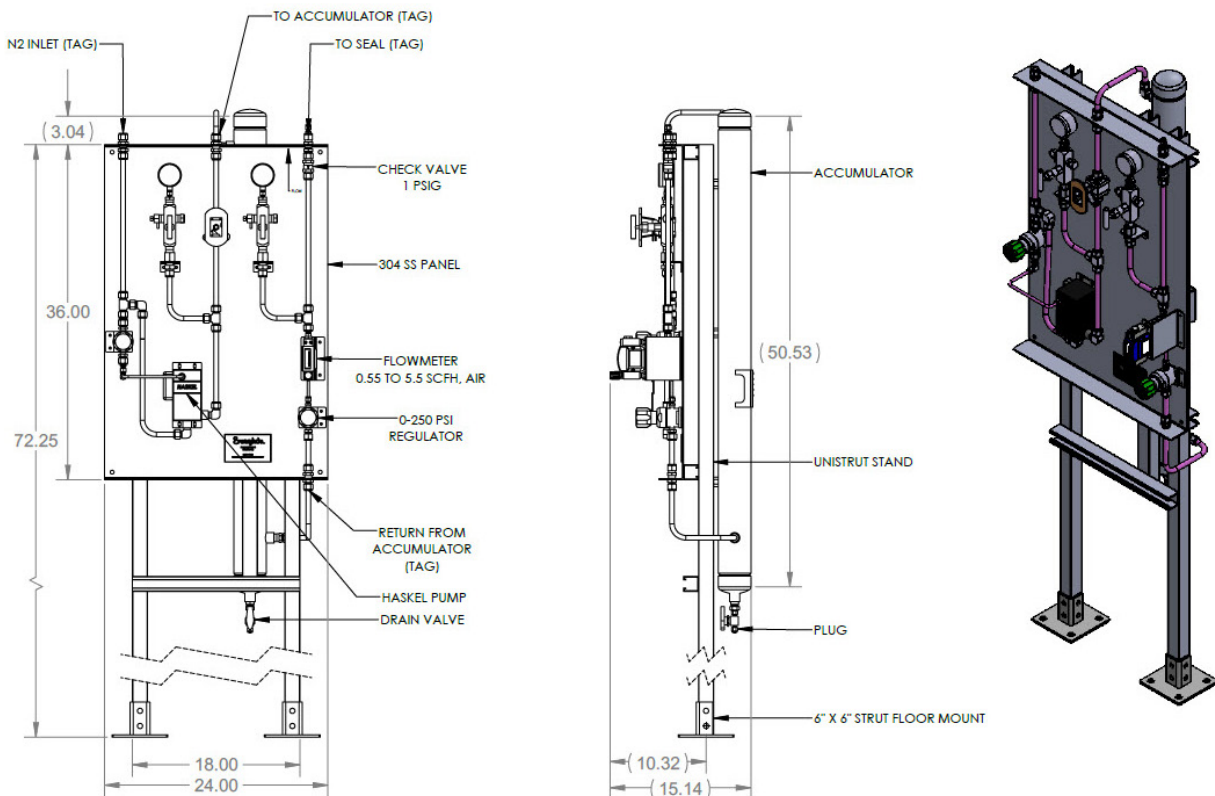
A chemical plant in Texas required a customized Plan 21 layout for their mechanical seals, which had been provided previously by a supplier other than Swagelok. Because the layout was not a standard seal plan design, this supplier's version was expensive and required long lead times. During a meeting with the chemical plant's engineers, planners, and key managers, Swagelok discussed providing fabricated assemblies tailored specifically to the plant's needs. The proposed solution would decrease lead times, eliminate cost uncertainty, and ensure a consistent quality of workmanship.

Realizing Swagelok could meet their tight lead times and deliver a solution that exceeded their operational goals, the company selected Swagelok as the sole supplier for their customized seal plan.

**Voice of the
Customer**

“Swagelok was able to deliver a tailored solution to meet our needs, while saving valuable time and capital.”

—Reliability Engineer, Chem/Refining (US)

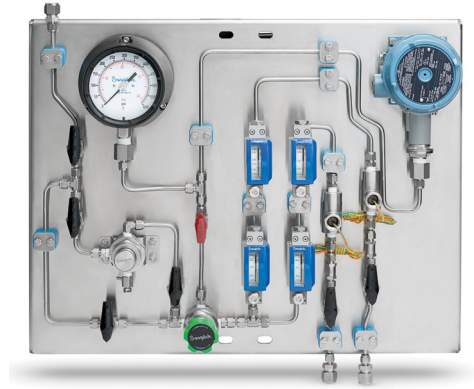


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Less Seal Failure and Operator Error Save Costs

A chemical production company in Canada wanted to eliminate high costs from seal failure due to no or low flow to mechanical seals. They also wanted to eliminate the possibility of operator error as a cause of failure.

The local Swagelok team's ability to be onsite quickly allowed them to fully understand the company's key operational concerns and needs. The strong technical and application knowledge demonstrated by Swagelok Field Engineers gave the company an even greater level of trust and confidence in Swagelok's problem-solving abilities.



Voice of the Customer

“Standardization was a key driver to improve ease-of-use, consistency, and safety when dealing with multiple sites. Offering custom L porting tandem bypass valves to eliminate operator error and bleed off valves so operators can simulate a seal leak to test high flow alarms were just some of the improvements Swagelok helped deliver.”

—Mechanical Design Engineer, Chem/Petro (Canada)

Fewer Leak Points Improve Safety

Refineries dedicate a considerable amount of time, money, and other resources in an attempt to control the fugitive release of Volatile Organic Compounds (VOCs). Many pumps have complex seal systems installed to help reduce VOCs. These systems have pipe attachments that are often a source of potential leaks. A US refinery's previous installations have involved using off-the-shelf pipe fittings, usually with more joints, and therefore, more leak potential.

Swagelok's extended male connector was used in place of pipe joints. Because the connector's 4- or 6-inch lengths connect the gland to a tubing run in one piece, potential leak points were eliminated with a single fitting.



Voice of the Customer

“Swagelok's customized extended male connector fitting has allowed the simplification of these installations. This arrangement not only looks cleaner, it eliminates several pipe joints that no longer need to be monitored for potential leaks.”

—Rotating Equipment Reliability Manager, Chem/Refining (US)



Local Solutions, Global Support.

Mechanical seal failures account for nearly 40%¹ of unscheduled critical pump shutdowns. When rotating equipment fails, it's often due to a seal failure.

To prevent this, you need a seal support system customized to your exact needs, available locally, and unfailingly reliable. That is where Swagelok comes in.

Configurable. Local. Reliable.

¹http://machining.grundfos.com/media/16611/shaftseal_chapter5.pdf

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