

## A Sampling of Our APPLICATION EXPERTISE

(Part 2)

Swagelok Leak-Tight, Premium-Quality Instrumentation Panels and Trusted, Proven Technical Advice can help you achieve Grab Sampling optimization.

***Last time, we detailed our Sampling solutions for nonvolatile liquids...but sampling gases and volatile liquids requires vastly different considerations:***

### Sample Cylinders



First, you must choose an appropriate cylinder to accommodate the phase changes inherent with these types of potentially dangerous media. It's imperative that you employ sample cylinders – to protect your technicians/the environment and to preserve sample representativeness – versus the less-expensive, unpressurized glass bottles we discussed in our Part 1 blast.

### ***To select the optimum cylinder for your application, choose one with...***

- ...easily operable quick-connects to ensure safe and effective sampling point connections and disconnects
- ...a smooth internal neck transition to help eliminate trapped fluids and to enable quick, simple cleanings and reuses
- ...overpressure protection for maximum operator safety
- ...ideal material composition and finish
- ...incorporated bypass lines to assist with the purging of toxic sample remnants
- ...durable design and construction to adequately address distant transports for analysis



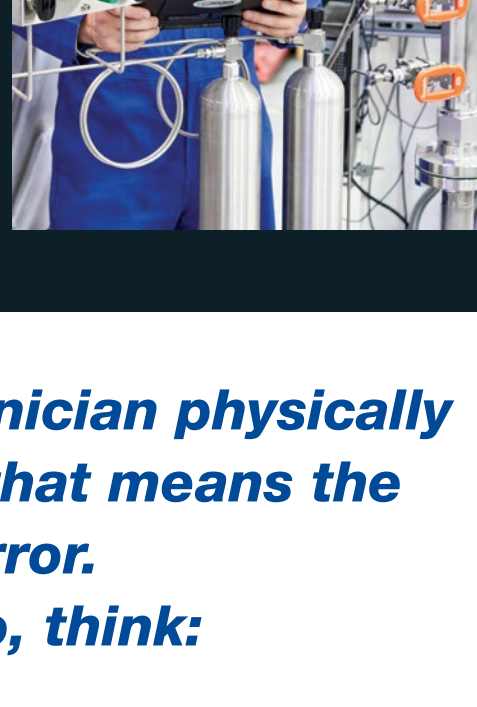
### ***Here's why to always fill a sample cylinder in a vertical orientation:***

- For a volatile liquid, fill bottom to top to enable any trapped cylinder gas to be flushed out of the top during filling (usually through an outage tube)
- For gases, fill top to bottom to ensure that any line condensation can be flushed through the bottom



***Sample cylinders, of course, are prone to normal operational wear and tear. At a minimum, they should be inspected and pressure-tested yearly. Every five years, they should be recertified. In the interim, though, watch closely for:***

- Leakage across key components
- Corrosion from sample compatibility issues
- Internal surface conditions and absorption
- Improperly installed valves, quick-connects, and accessories



***Still, grab sampling involves a technician physically drawing a process sample – and that means the possibility of human error.***

***To combat such a scenario, think:***

**Documentation.** For example, an engraved placard on the grab sampling

panel could tell an operator, especially a new one, how to operate the panel

and how to order replacement parts

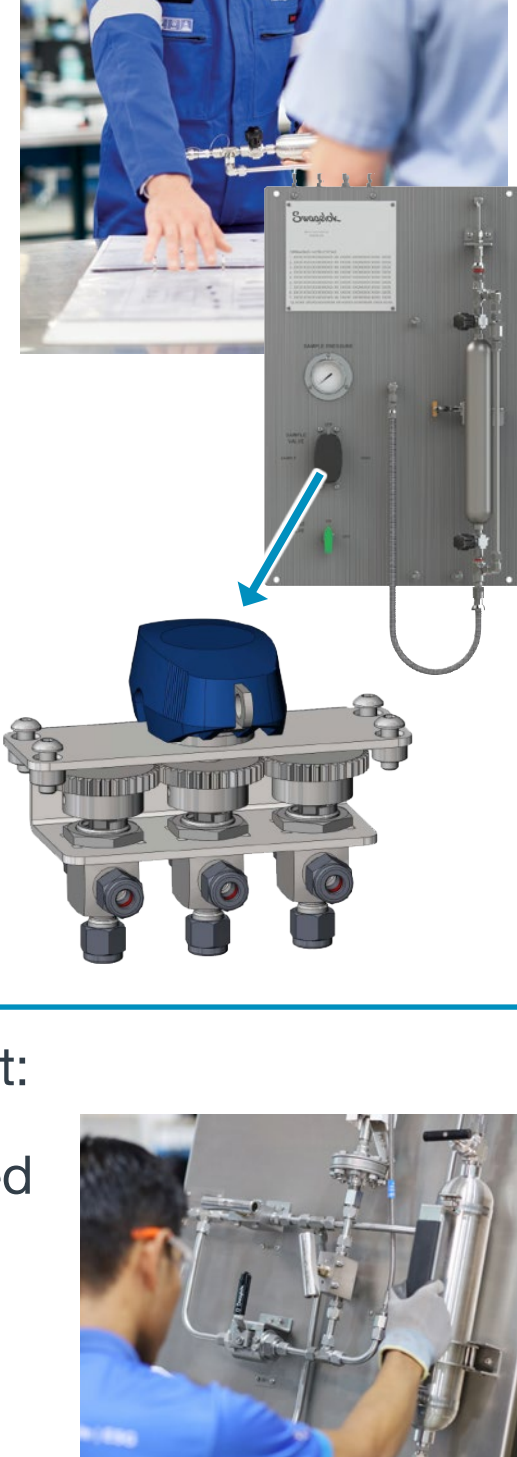
when necessary.



**Simplification.** The cleaner the design, the less chance for operator error, including cylinder orientation and top-down sample collection.

### Swagelok's unique Geared Valve Assembly...

- ...features an **error-proof design** that simultaneously actuates your 2-way or 3-way valves to prevent accidental emissions or unwanted purge gas into your process
- ...incorporates Swagelok 40-Series, third-party **certified Low-E valves**
- ...means **safe and simple operation:** just one valve handle to actuate to perform a full sampling cycle



**Automation.** No better way to ensure that:

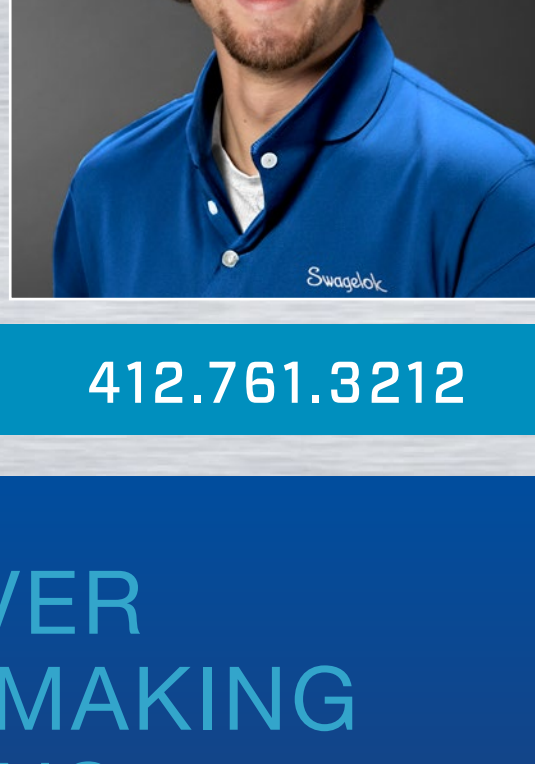
1. ...the enclosure door is securely closed
2. ...the valves are opening correctly and in the intended sequence
3. ...product and purge flow and pressure are precisely maintained



***Put our team alongside yours***

**For complete details on Swagelok Custom Fabrication Services, contact:**

**Tim Davis,**  
**Applications Engineer**



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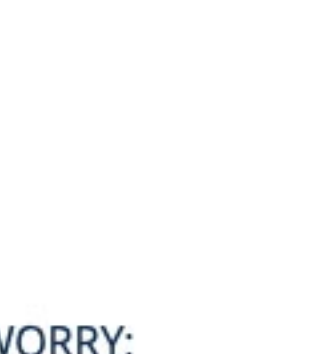
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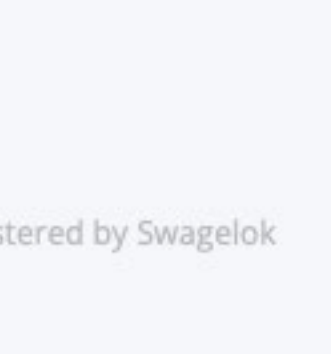
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**Comprehensive Hose Advisories**



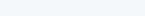
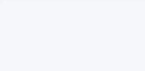
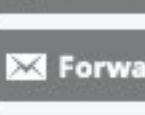
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