



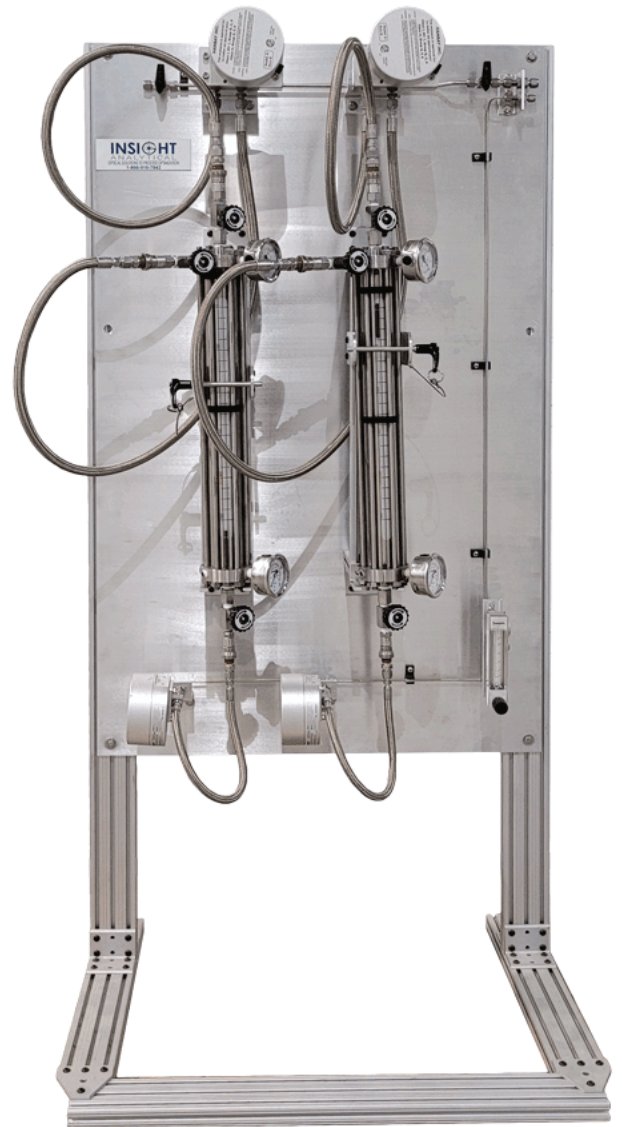
Automatic Sampling For Hydrocarbon Liquids

Manual sampling of hydrocarbon liquids, crude oil, condensate and Natural Gas Liquids (NGLs) is usually left up to operations.

Sampling procedures may be inconsistent from one operator to another introducing sampling errors and time stamping issues. Automating the entire sampling process can reduce safety concerns associated with manual sampling, improve measurement quality, provide date & time stamped samples for fiscal accounting, along with freeing up operations or sampling at times when facilities are unmanned. Automated sampling provides a solution to ensuring quality standards are met, regardless of when trucks arrive.

Why Automatic Sampling?

- ⦿ Minimized reliability and maintenance issues.
- ⦿ Sampling terminates at the 80% level without operator intervention
- ⦿ Automated quality measurement with a 24-hour solution.
- ⦿ Single cylinder or multi-cylinder sample panel options .
- ⦿ Multiple ways to initiate sampling both manually and automatically.
- ⦿ Controlled cylinder fill rate consistent with best practices as described by API 8.1.
- ⦿ Automatic recording of chain of custody information in the data historian.
- ⦿ Consistent sampling for all types of liquid hydrocarbons at unmanned facilities.
- ⦿ No required maintenance time from Instrument personnel or excessive time from operations.
- ⦿ One system may have up to 20 sample cylinders mounted in a building, typically in groups of 4 per panel.



Glycol Filled Cylinders or Piston Cylinders

Glycol displacement cylinders are commonly used for crude oil, condensate and NGL samples. They can be filled under pressure, ensuring that volatile components like ethane, propane or butane are not lost from the sample or allowed to flash. Glycol filled sampling is not suitable when water or BS&W are required measurements.

Piston cylinders (also referred to as constant pressure cylinders) are more costly but suitable for all liquid hydro-carbons samples including water in oil or condensate. Nitrogen is allowed to bleed off from one end of the cylinder allowing sample to enter at the other. This maintains pressure while liquid sample enters the cylinder. A slow bleed of the nitrogen ensures the piston fills under constant pressure and no components are allowed to flash.

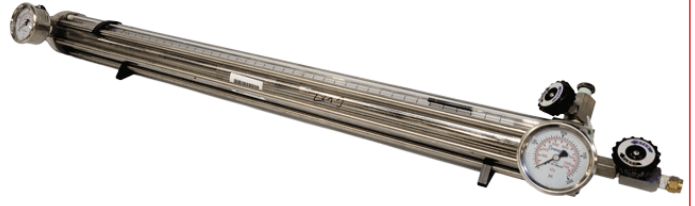
Glycol Filled Cylinders for Condensate Samples



Features

- Internal neck formed for easy cleaning.
- Heavy wall neck to prevent splitting and flaring.
- Body made of seamless stainless steel tubing.
- Aircraft quality NPT threads.
- Working pressures to 1,800 psig
- 316L stainless steel.

Floating Piston Cylinders for NGL Samples



Features

- ANSI 600# Max working pressures up to 1440psig
- Slow n_2 bleed ensuring the piston fills under constant pressure.
- Suitable for all hydrocarbon composition & physical property analysis.
- Suitable for determination of moisture in oil or condensate

Specifications

Cylinder Sizes:

Piston Cylinder Sizes: 300cc, 500cc, 1000cc
Glycol Cylinder Sizes: 500cc, 1000cc

Sample Panel Control PLC:

Power: 120 VAC, 60Hz, 24VDC
Area Class: Class 1 Div 2 / Zone 2

Pneumatic Sample Actuation:

Electrical Power: 120 VAC, 60Hz, 24 VDC
Sample Inlet: Pneumatically Operated
Utility Gas Requirement: 100 PSIG Air on N_2
Pressure Rating: Max 1440 PSIG (600# ANSI)
Temperature Rating: 90°C (194°F)
Area Class: Class 1 Div 1 / Zone 1