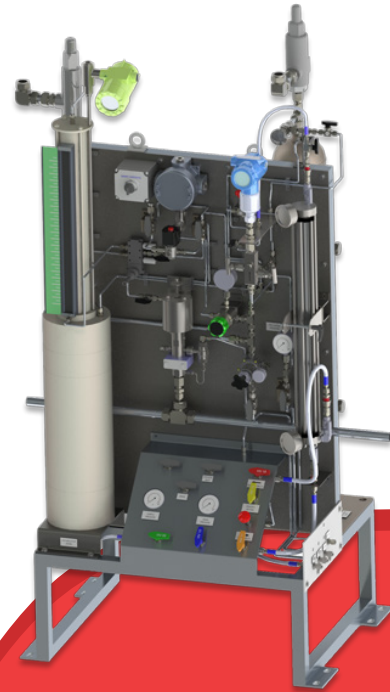


## Product Overview

The Insight Analytical Liquid Hydrocarbon Composite Sampler is a precision-engineered solution for collecting representative samples of liquid hydrocarbon streams over time. It gathers thousands of timed or event-driven sample injections and stores them in an accumulator before transferring to a sample cylinder for off-site analysis. By automating and standardizing the sampling process, the system improves sample integrity, reduces operator error, and ensures a true representation of the process stream. Ideal for crude oil, condensate, and NGLs, the composite sampler provides a reliable, low-maintenance method for capturing high-quality composite samples in compliance with API 8.2 standards.



**Maximum Pressure Rating:**  
Process: 1440 psig (9,928 kPag)  
Instrument Air: 100 psig (689 kPag)

**Inlet and Outlet Connection Size:** 3/8" NPT

**Wetted Materials:** 316L Stainless Steel

**Area Classification:** Class I, Division 1/Zone 1 Groups IIB, C, D, T3

**Power Requirements:** 120 VAC, 1 A, 24VDC Option Available

**Output Type:**  
Analog Outputs: 4-20mA for Level Indication and N2 Pressure  
Operation Maintenance Switch: Dry Contact

**Other Certifications:** CRN / AB83 and or Provincial Equivalent

## Field of Application

The Composite Sampler is engineered for use with hydrocarbon liquids ranging in density from 350 to 900 kg/m<sup>3</sup>, including crude oil, condensate, and NGLs. It is suitable for both custody transfer and process monitoring applications where time-integrated, representative samples are essential.

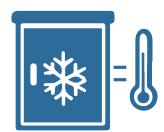
Available accumulator volumes include 1.5, 3, or 5 gallons (5.7, 11.4, or 18.9 liters), paired with a positive displacement pump capable of adjustable sample injections per stroke. An optional heated, insulated enclosure with gas detection and temperature control allows deployment in cold or hazardous environments, expanding installation options for field operations.



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## Principle of Operation

The Insight Analytical Composite Sampler uses a pneumatically actuated positive displacement pump to extract small-volume samples from a hydrocarbon stream and deposit them into an accumulator. Each stroke of the pump introduces a precise sample volume. A pre-charge pressure is maintained in the accumulator to ensure lighter hydrocarbons remain in the liquid phase and to prevent flashing.

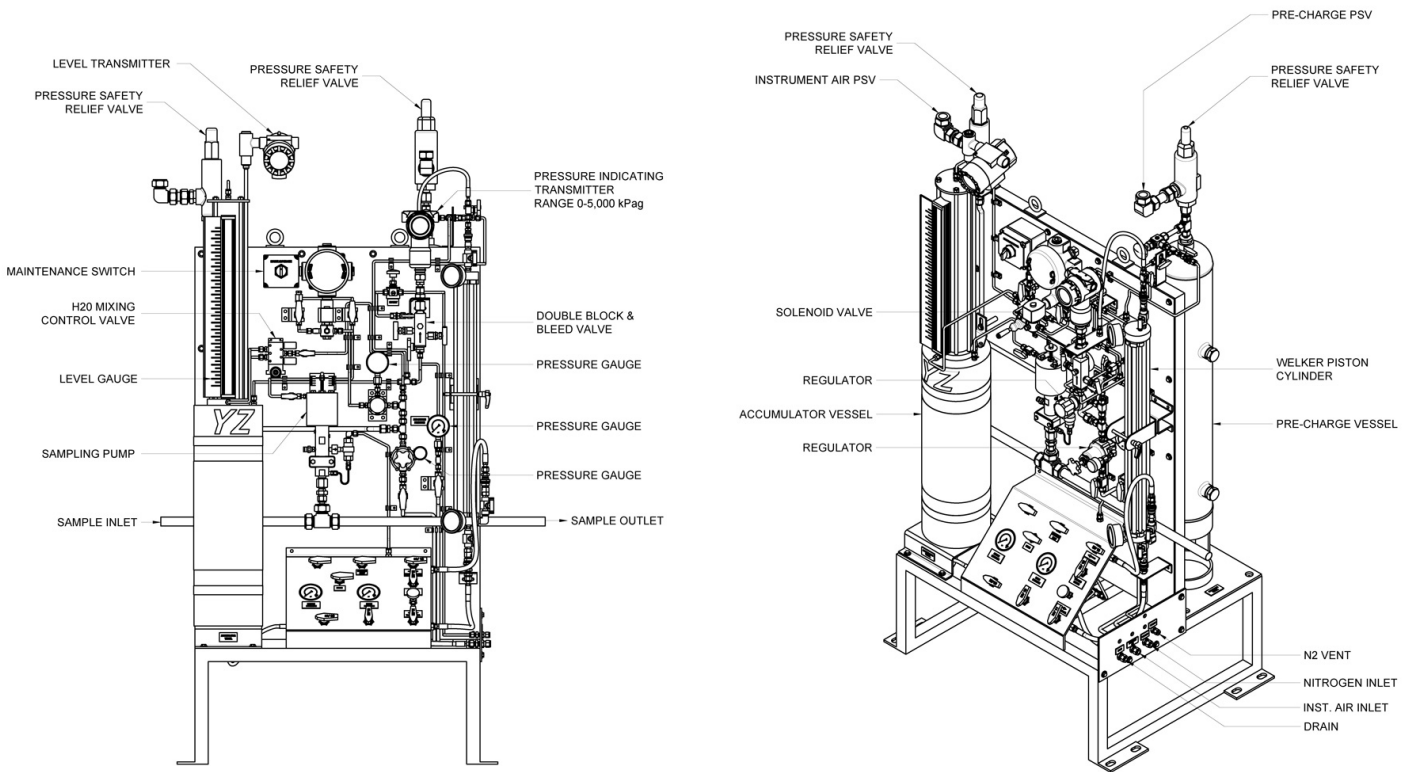
When the accumulator reaches 80% capacity, a signal is sent via analog outputs from the level and pressure transmitters to a customer-supplied PLC or flow computer. These transmitters also monitor the pre-charge pressure and help verify process integrity. An integrated position switch indicates system status—whether in sampling mode or maintenance mode—ensuring safety during cylinder changeouts.

For NGL and high vapor pressure samples, the system features a mixer-equipped accumulator and a constant-pressure piston cylinder. This eliminates the need to disconnect tubing, reducing contamination risk and improving the accuracy of off-site analysis. The system can operate with Insight Analytical or third-party piston cylinders.

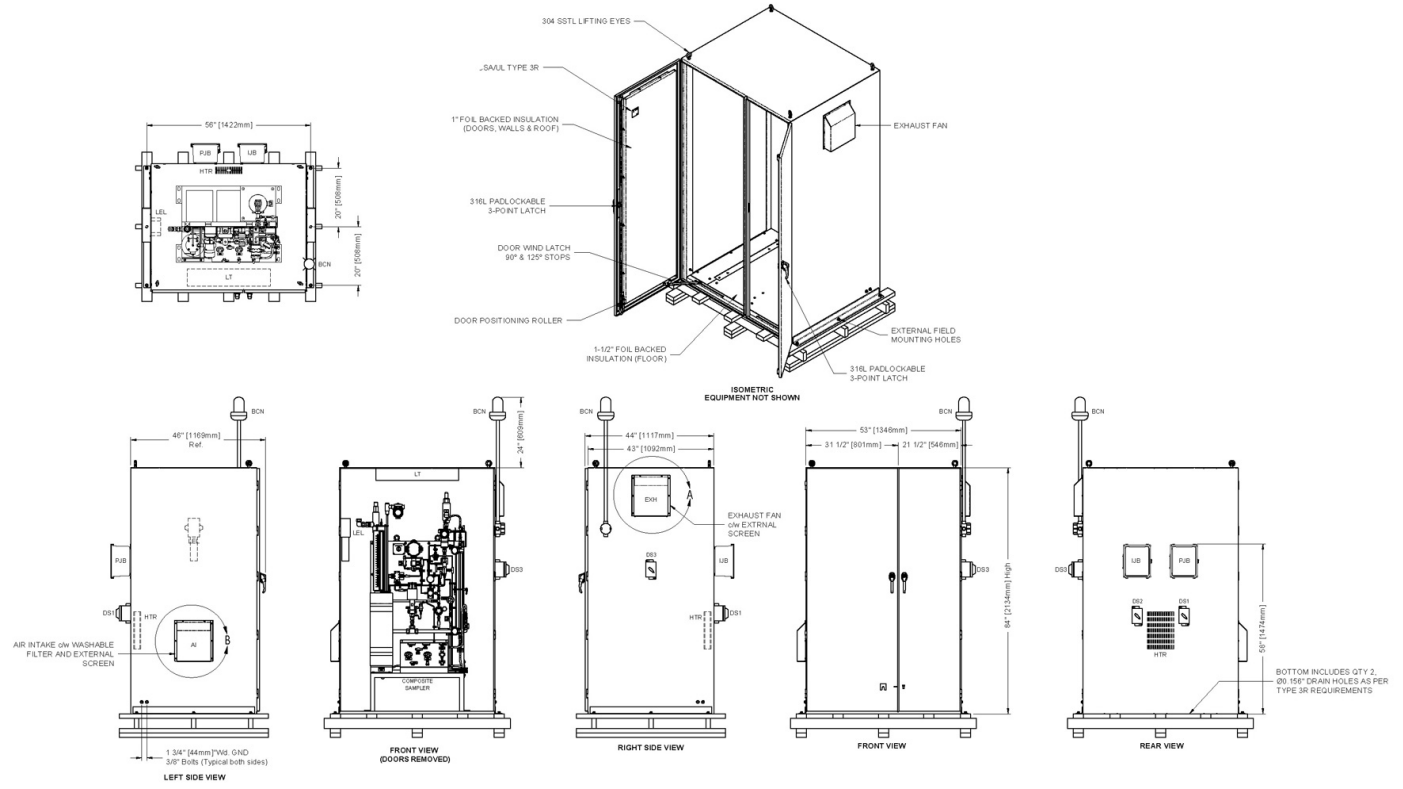
All components are mounted on a raised platform for ease of maintenance and operation. A color-coded valve arrangement and included P&ID schematic support safe and intuitive use. The full system is designed in accordance with API 8.2 composite sampling guidelines, including tubing slope, internal diameters, and fill sequence logic.

## Advantages

- ⊕ Raised platform supports easier operation and safe maintenance access in field installations.
- ⊕ Optional heated and insulated enclosure enables operation in cold climates and outdoor environments.
- ⊕ Positive displacement pump with adjustable sample volume per stroke provides precision sampling.
- ⊕ Integrated mixer in the accumulator minimizes stratification and improves sample uniformity.
- ⊕ Level transmitter with visual indicator provides local and remote (analog) accumulator monitoring.
- ⊕ Pressure transmitter monitors pre-charge pressure in both accumulator and piston cylinders to maintain sample phase.
- ⊕ Supports piston cylinder filling directly from accumulator with no tubing disconnection required.
- ⊕ Compatible with Insight Analytical and third-party piston cylinders.
- ⊕ Configurable accumulator sizes (1.5, 3, or 5 gallons) to match process conditions and sampling duration.
- ⊕ Compliant with ANSI 600# piping specifications and API 8.2 sampling guidelines.
- ⊕ Pneumatically actuated pump requires no electrical components, suitable for Class I Div 1 installations.
- ⊕ Visual schematic (P&ID) and color-coded valves simplify training and daily operations.



Composite Sampler General Arrangement Drawing



Enclosed Composite Sampler General Arrangement Drawing