



## Volumetric Representative Multiphase Sampling



### Operating principle

The Mirmorax In-line Multiphase Sampling System provides the operator with a sample that, independent of flow regime and compositional mix, is a true volumetric representation of the flow. By taking the multiphase sample in-line the main pipe and maintaining original process pressures, the system avoids the errors and limitations of side branch sampling points and delivers true volumetric, representative multiphase sampling.

A highly reliable shutter system isolates the sample from the main flow without affecting the composition or pressure. The sample is then transported under isobaric conditions into a sampling bottle that maintains stable pressure conditions all the way to the laboratory.

Based on a large number of small samples, the sampling system produces a sample representative for the duration of the time the sample was taken with this time series directly compared to fractional values from water cuts, multiphase, wet-gas or test separators. In this way, the Mirmorax Topside Multiphase Sampling System is a high quality calibration or verification tool.

### Model Features

The High Pressure and High Temperature (HP/HT) robustness of the Mirmorax Multiphase Sampling System enables sampling at any location in the topside production system up to 15 000 PSI / 1000 Bar and 350 °F / 180 °C,

making it possible for you to select the best location for the sampling, irrespective of pressure and temperature considerations. A benefit with sampling at higher pressures is obtaining line condition samples and higher accuracies for PVT analysis. The system is non-intrusive and installed as part of the main piping system, reducing footprint and ensuring that production is uninterrupted throughout the whole sampling process. The HPHT15KX model comes with double pressure barriers, sour service compliant alloys and metal seals for optimal safety.

### Design

The Mirmorax Multiphase Sampling System includes three modules: the in-line sampling system integrated directly into the production system, the sampling bottle with docking station, and the operator control console (OCC). This modularization allows for flexibility in integration by maintaining a small footprint and light weight for the in-line sampling module and enables a distance to be set between the sampling bottle and the OCC. The system is supplied as an automated system with pre-programmed sampling sequences and is operated from a touch display panel on the OCC. It also has a manual override functionality allowing single samples to be manually taken at any time.



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### Facts

Key features for the Mirmorax Topside Multiphase Sampling System are:

- High-pressure, High-temperature design
- Volumetric representation of each phase
- Isobaric sampling process and transport
- Directly or remotely controlled
- In-line, non-intrusive system
- Reliable and robust
- Accurate and high resolution time series samples
- Low maintenance
- Direct read-out of oil, gas and water fractions
- Provides best possible sample for full compositional PVT analysis

### General

Type	• Multiphase Sampling System
Manufacturer model no	• HP15KX
Operating Temp. Limit	• 0-180 °C
Operating Press. Limit	• In-Line Full Range NI
Mounting	• Flanged or welded
Weight	• 34 kg

### Sampler characteristics

Nominal uncertainty	
Liquid fraction	• $\pm 1.5$ % rel
Gas fraction	• $\pm 2.0$ % rel
Water cut	• $\pm 0.5$ % abs
Sampling time	• From 60 sec
Adjustable range	• Independent
Grab size	• 5 cl to 20 cl
Liquid type	• 17-34 API
Pressure rating	• 300 / 5000 / 10 000 PSI

### Mechanical properties

Bore sizes available	• 1" to 6"
Connections	• Flanged, Grayloc or Welded
Sampling line size	• 1/4" Swagelok
Design codes	• ASME B31.3 / ASME IX
Sour service spec.	• MR0175 / ISO15156
Material body	• AISI316L or UNS S31803 Duplex

### Sampling bottle

Mounting	• Docking Station Hub
Dimension	• 800mm Long x $\varnothing$ 120mm
Material	• AISI 316 L or Titanium Gr2
Volume	• 1000 or on request
Pressure qualification	• 300 / 900 / 5000 / 10k PSI
Manufactur model:	• Isobaric/ Ni Balanced

### Sampler power and comm

Function	• On line
Output signal	• RS485 Modbus/4-20 mA /Ethernet
Output action	• Continuous
Consumption	• 30W
Load limitation	• Min. 2.8 A
Power supply	• 24VDC/11-230 AC

