

Analyser & Sampling Systems

Product Sampling

360[®]
KAS

Our product sampling systems for oil, gas or condensate are custom designed to withdraw, prepare and store samples according specific client requirements and expectations.

At every location where processing, distribution or transfer of gaseous and/or liquid hydrocarbons takes place, a representative sample must be withdrawn from the process flow line and stored for further property and/or composition analysis.

Product sampling systems are designed to capture and combine thousands of individual samples into a representative, composite sample flowing through a pipeline.

360°KAS has a long track record, in designing, engineering and producing special, non-standard on-line product composite sample conditioning and grab sampling systems for oil, gas and condensate. Typical applications include the sampling of natural gas, light hydrocarbons and crude oil.

The key feature of our products is that we know how to design and precondition a sampling system, keeping them simple but functional within the normal levels of costing, operability and maintainability; all in line with our client's requirements to improve the return on investment.

360°KAS can apply various sampling techniques and can select from a wide range of high quality sampling products as instrument probe regulators, sample pumps and storage cylinders (constant pressure or atmospheric). The systems can be designed as skid, rack or cabinet installed.

We have experience with several component/equipment manufacturers required for sampling systems, e.g. Welker Engineering, Swagelok, Hoke etc.

Extensive experience and knowledge of explosion-proof equipment ensures that the appropriate equipment is installed fully to the latest requirements.

360°KAS has built many systems for most oil and gas applications. All recognised national and international design standards can be applied to ensure maximum adaptation to customers' design and performance demands.

360°KAS can meet international recognised standards such as ISO 3171, ISO 10715, ISO 4257, ISO 8943, GPA 2166-05, API 8.2, IP 6.2 and various construction standards (e.g. ASME/ANSI, EN, NACE and IEC/ATEX).

The design of these systems can be:

- Manual.
- Automatic (time or flow proportional).
- Off-line or in-line.

The design of these systems can include:

- PED Compliance.
- NACE Compliance.

The systems can be manufactured in a wide range of materials: e.g. SS316/316L (Sulfinert coated), SS304/304L, Monel, Inconel, Duplex, Hastelloy C4, 6 MO etc.

Applications:

- Gas Sampling.
- Condensate Sampling.
- Crude Oil Sampling.
- Refined Product Sampling.
- LPG Sampling.
- LNG Sampling (described in separate brochure).

Gas Sampling

To avoid composition changes affecting laboratory results, pressure and temperature must be controlled so Isokinetic hydrocarbon gas samplers are designed to maintain sample composition throughout the sampling and handling process fluctuations.



Example of a fully automatic sample collection system for natural gas with individual Grab Sample Pumps to extract sample from the bypass loop and collection into a Constant Pressure Sample Cylinders where they are kept at line pressure ready for laboratory analysis.

Condensate Sampling

For representative high-pressure condensate sampling, either onshore or offshore, systems must be designed to minimise the effects of process changes. For custody transfer, fiscal, allocation or quality measurement purposes Condensate sampling and mixing systems should be in accordance with sampling standards of ISO 3171, ASTM D 4177, API 8.2 and IP 6.2.



Example of a pipe spool for a Condensate Sampling System containing a Static Mixer, a manual sample take off, an automatic isokinetic grab sampler connection, a dual density measurement probe, a dissolved water in oil probe and a thermowell / PT100 connection.

Crude Oil Sampling

For reliable allocation, custody transfer or BS&W measurement Crude Oil Sampling systems are designed in accordance with the international sampling standards.



Example of an Automatic Crude Oil Sampling System comprising of a stainless-steel enclosure with heater, grab sample pump, bypass vanishing chamber sampler and an auto switchover mechanism to switch between the duty and standby sample container. A stationary mixing bench for mixing contents of sample containers was also part of the scope of supply.

Refined Product Sampling

For sampling refined products like diesel, gasoline, naphtha or aviation fuel sampling systems must be designed to produce representative samples from which quality and/or density can be analysed quickly to provide a Certificate of Quality.

LPG Sampling

For sampling at low temperature and high pressure of liquefied hydrocarbon gases the system must be designed to correctly handle the liquid gas avoiding pressure drops and the associated 'flashing-off' of liquid to gas using high quality materials and special sample handling equipment.



Example of a grab sampling system for flow proportional low temperature (-40/-50 °C) propane/butane sampling including take-off probe and bottle racks for precharge gasses. The LPG sampling system was supplied as part of a liquid metering package.

The following Analyser & Sampling product sheets are available:

- Power-Pye (Pye-Gas Sampler)
- Product Sampling (for oil, gas and condensate)



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