

Gets Heavy Hydrocarbons
Full Gas Composition Analyses
Low Maintenance, Easy to Use Design
Automated Sampler Validation
ISO, EI(IP),API and ASTM compliant

Natural Gas

Automatic Sampling System

Generally, pipeline gas compositions will vary over time. Compositional variations will also occur as a result of reservoir changes and the gas treatment equipment used. KPS auto samplers are primarily used for determining the calorific value of the gas stream and to identify the contaminants contained in the gas stream. This is done to determine whether or not the stream meets the contractual specifications.

Traditional methods for auto sampling or online GCs make use of pressure reduction stations in order to collect a sample or perform an online analysis. Due to the required pressure reduction, there is a potential for condensation as described by the gas specific pressure/temperature phase boundary diagram. As soon as condensation occurs, the sample cylinders collect two-phase flow and the sample can be considered unrepresentative. Studies conducted by the API 14.1 indicate the large impact that condensation can have on the BTU or Caloric Value measurement. Moreover, it is not just the bulk of the gas stream that should be considered, but also the individual C6+ components in order to prevent a degrading of the sample being analysed. A solution must be found that reduces the risk of lower Caloric Value results.



With offshore platforms and FPSO's attempting to reduce the maintenance and skill level required, operators are faced with complicated online GCs. Apart from the amount of training and expertise required to operate an online GC, they tend to have a high failure rate and require frequent re-calibrations on a daily or weekly basis in order to remain accurate within the desired operational levels. Furthermore, operators are faced with having to store carrier bottles and calibration bottles, which takes up valuable space and creates a potential hazardous area. A solution is desired that is easy to use and has a low failure rate.



The low maintenance, user-friendly KPS automatic sampling systems are designed to prevent retrograde condensation, hence degrading of the sample. As soon as the sample receivers are filled, they are disconnected and transported to the laboratory. In the laboratory, a detailed analysis can then be conducted under ideal environmental conditions. Of course, temperature drops can occur during transport to the lab or storage of the sample receivers. The KPS CPR-01 prevents possible condensation due to temperature drops by storing the samples at high pressure. The KPS CPR-01 makes use of the floating-piston cylinder principle. A moving piston separates the sample from a buffer gas, equalising the pressure on both sides of the piston. During sampling, the floating piston is then displaced by the grabs taken using the KPS GS-01 Gas Sampler.

KPS: Your Partner in Sampling

In automatic gas sampling, it's not just about purchasing the right components; it is about integrating them to form a complete system. The proper materials must be selected based on the gas composition and possible contaminants. With its headquarters in the Netherlands, with access to all of the gas-producing platforms in the North Sea, KPS has been able to develop the capability of providing reliable and low maintenance designs to the industry. In addition to the proper sealing technology, valve seats, and special material protective measures that can be taken, KPS has developed a testing and monitoring method that doesn't just make the designs more sustainable, but also allows for the periodic validation of the KPS auto samplers.



Specification

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| Gas sampled | Natural gasses: Raw and Refined gasses |
| Line temperature range | -21 to +200°C / -6 to +392°F |
| Line pressure range | 75-2900 psi (5-200 bar). |
| Sampler size range | 0 to 0.5ml. grab sizes |
| CPR-01 volumes | 500 ml / 1000 ml |
| Max Sample rate | 30 samples/min. |
| Sampler connections | 1/8" NPT female |
| Actuation | Pneumatically operated (min air pressure 5-7 bar), can be configured to operate from pipeline gas. |
| Principle | Sample collected at line pressure using line the CPR-01 balanced sample receivers. Fully balanced GS-01 pump, which is insensitive to variation in pipeline pressure. |
| Materials of construction | NACE compliant, ASME SA479 316L Stainless Steel, Others available upon request |
| Material Seals | Viton, PTFE compounds (standard), Others available upon request |
| Certification | Suitable for hazards specified |

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OTHER KPS PRODUCTS:

- Automatic Crude Oil Sampling
- Online Analyzer Systems