Global Analyser Solutions

Sample Securitiser

- Support for highly accurate analysis of LPG and other matrices
- Focus on safety by Safety Centered Design
- Easy handling by flexible cylinder connection
- Fully compliant with PED directive

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The analysis of volatile and medium-volatile components in Liquefied Petroleum Gas and other liquefied matrices is widely performed in many laboratories. This process ensures the quality and safety of the gas before it is distributed. Accurate monitoring is crucial for compliance with industry standards. Advanced equipment like the Sample Securitiser enhances the reliability and efficiency of these analyses.

Liquefied samples

Liquid injection of LPG and other liquefied matrices is preferred over gas injection, especially to avoid loss of heavier components like C_6-C_{10} hydrocarbons. Pressures up to 20 bar are used to secure the liquid sample state for obtaining accurate results. When such high pressures are applied in laboratories, safe sample handling is essential.

Control of pressure in Liquid Sampling Valve

The liquid sample is injected by LSV (Liquid Sampling Valve) into the heated Split injector for fast evaporation before entering the analysis column. For reliable quantitative results, it is essential that the sample loop is completely filled with liquid sample and no (partial) evaporation occurs prior to injection. This is achieved by raising and controlling the pressure at the sample cylinder and LSV above the sample pressure.

Adaptable couplings

The Sample Securitiser takes a variety of sample cylinders and allows for safe hook up and accurate handling. Samples are taken from the process line by means of special sample cylinders. The ¼" NPT couplings allow for a wide range of (quick) connectors to adapt to specific user conditions.

Configuration

The Sample Securitiser is equipped with two gauges to monitor the pressure of the pressurising gas and the sample. It also contains a liquid rotameter, providing a visual check of the sample flow and purge gas flow at every moment. With two clearly visible on/off valves, the operation is easy, straightforward and safe.

Figure 1 Sample Securitiser

Safety specifications

Handling of LPG needs careful treatment! Both the high pressure cylinders and the flammability of LPG create hazardous situations. For this reason compliance with Pressure Equipment Directive (PED 2014/68/EU) is compulsory.

PED

The Sample Securitiser has been analysed using the PED Directive (2014/68/EU) and the result is that the pressurised equipment is categorised under Clause 3, sub 3, which is below the base pressure and volume thresholds. The directive states that pressure equipment and assemblies below the specific pressure and volume thresholds must:

BE SAFE

BE DESIGNED AND MANUFACTURED ACCORDING TO SOUND ENGINEERING PRACTICE

BEAR SPECIFIED MARKINGS

To make sure that the product is compliant with the directive we have used the harmonised standard EN 13445 for our product design. All possible risks are considered while designing it.

Earth Bonding Point (EBP)

Another safety feature of the Sample Securitiser is its Earth Bonding Point (EPD), which assures proper earthing of the equipment, and minimises electrical risks.

Focus on Safety: Safety Centered Design - SCD

During and at the end of our design process we have, together with some main end users (Exxon, Inspectorate, Lanxess, Borealis, BP, Shell, Lyondell, SCS, Zeeland Refinery, Messer and Intertek), performed several dedicated risk investigations and evaluations. Virtually all possible circumstances that involve hazards have been taken into consideration. The result is a fully safe Sample Securitiser, both during preparation and operation and more specifically whilst handling the sample cylinders.

Figure 2 Thermo Trace 1600 GC and Sample Securitiser

Technical specifications

Dimensions

Size (width * depth * height):	21 * 46 * 70 cm
Weight:	13 kg

Pressures, gases

Max pressure:	20 bar; typical 10-20 bar, depending on sample type 34.5 bar optional
Pressurising gas:	N_2 or He (preferable)

Sample cylinder

Max diameter:	15 cm
Max height:	70 cm (including valves and connectors)

Filters

Inlet particle filters	(2 pieces): 15µm and 7µm

Safety

Applicable directives:	PED (2014/68/EU)
Electrical safety:	Earth Bonding Point

Sample suitability

C_3, C_4, C_5 liquefied gases
Analysed components up to C_{10}, max 0.5%

Connections

Front panel:

Sample cylinder:	¼" NPT male standard, can be extended with various types of Quick-connectors on request
Flexible hose:	¼" NPT male standard, can be extended with various types of Quick-connectors on request

Top panel:

Connections to LSV:	1/16" Swagelok

Rear panel:

Pressurising gas, sample vent, relief valve out:	1/8" Swagelok

Ordering information: AL123 - ABCD (example: AL100-DG = Sample Securitiser, Cold version, with Quick Connect and mouting bracket

version	code 2	power	code 3	options	code ABCD
Cold version	0	n.a. (cold version)	0	500ml bottle with Quick Connect and shutoff valve (Swagelok)	A
ATEX heated	1	230 V	1	Bottle clamp	B
High pressure	2	115 V	2	Flex hose chain	C
Combi with Vaporiser	3			Quick connect on bombe foot	D
				Extra shut-off valve for repeated analysis from one cylinder	E
				Mounting bracket for fixed position of the Sample Securitiser	F

About GAS

Global Analyser Solutions provides GC & GC-MS solutions for Energy, Refinery, Chemical and Environmental markets. Our analysers address a broad spectrum of measuring requirements with high precision and reliability. Please reach out for more information on our website.

www.gas-site.com