



SAMPLE SECURITISER

Pressure Facility Re-invented



Support for highly accurate LPG Analysis

Focus on safety by Safety Centered Design

Easy handling by flexible cylinder connection

Fully compliant with PED and ATEX directives



LPG ANALYSIS WITH A SAMPLE SECURITISER

The analysis of volatile and medium-volatile components in Liquefied Petroleum Gas is widely performed in many laboratories.

Liquid injection of LPG samples 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.

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.

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.

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 adequate directives is required. At least the Pressure Equipment Directive (PED 97/23/EG) and the ATEX Directive (94/9/EG) are compulsory.

PED

The Sample Securitiser has been analysed using the PED Directive (97/23/EC) 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
(BUT NOT THE CE MARKING)

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.

ATEX

Equipment and safety systems for use in potentially explosive atmospheres should be designed such that it is not capable of igniting the surrounding atmosphere. The Sample Securitiser will be used in laboratories that are non-hazardous. Internally, however, the unit might release explosive substances. By design our unit does not have any ignition sources, however, some subcomponents are utilised with ATEX approval. For this reason the Sample Securitiser is internally fully compliant with the directive 94/9/EC.

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.



TECHNICAL SPECIFICATIONS

Max pressure:	24 bar (certified and tested; up to 50 bar on request)
Temperature heated pressure regulator:	Ambient to 190 °C
Size (width * depth * height):	21 * 46 * 70 cm
Weight:	13 kg
Power:	240V AC through standard mains power cable, no mains switch.
Inlet particle filters (2 pieces):	15µm and 7µm
Applicable directives:	EMC (2004/108/EC), ATEX (94/9/EC and 99/92/EC), PED (97/23/EC), Low Voltage (2006/95/EC).

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
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Rear panel:

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

N ₂ or He (preferable).	
Max pressure:	24 bar; typical 10-20 bar, depending on sample type

Sample cylinder

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

Options

Safety rail with chain for securing top quick-connector
Mounting bracket for fixed positioning of the Sample Securitiser
Additional waste valve for sample release in case of blocked inlet filters

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