

VOLATILITY
MINIVAP ON-LINE



MINIVAP ON-LINE

The On-Line Money Saver

- On-line Compliance Monitoring for Vapor Pressure of Gasoline, LPG and Crude Oil and Vapor/Liquid-Ratio Temperature of Gasoline (V/L=20)
- [ASTM D 6378](#) - Vapor Pressure of Gasoline (VPx)
- [ASTM D 323](#), [D 4953](#), [D 5191](#) (Correlation Formulas)
- [ASTM D 6377](#) - Vapor Pressure of Crude Oil
- [ASTM D 5188](#) - V/L-Ratio: T (V/L = 20)
- [ASTM D 1267](#) - Vapor Pressure of LPG
- One Single Instrument for Up to 3 Sample Streams
- 5 Minutes Cycle Time
- Automatic Calibration
- Explosion Proof-Class I
- Low Maintenance



[click to enlarge](#)

CERTIFIED TECHNOLOGY

The measuring principle is based on the patented triple expansion method of Grabner Instruments' worldwide approved and accepted laboratory vapor pressure tester for gasoline and crude oil: MINIVAP VPS. The US-EPA declared MINIVAP as the official reference instrument for the USA in 1993.

ONE INSTRUMENT FOR ALL RELEVANT ASTM STANDARDS

With MINIVAP ON-LINE, the vapor pressure of gasoline (D 6378 / D 5191), crude oil (D 6377 / D 323), liquid petroleum gas (D 1267) and the vapor-liquid ratio temperature of gasoline (D 5188) can be determined.

With possible connection of up to 3 different sample streams, all of these measurements can be performed with one single instrument.

ON-LINE CONVENIENCE LABORATORY PRECISION

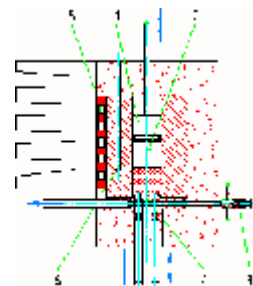
The advanced MINIVAP method considerably improves the quality of your measurement and leads to a much better accuracy. This offers the possibility to blend as close as 0.3 kPa (0.05 psi) to the official limits, saving refineries thousand of dollars each year.

REMOTE CONTROLLED

The data is transferred safely via Fiber-Optics to the central controller outside the explosion sensitive area. The controller continuously displays the actual vapor pressure and can forward the results to a LIM-system via the analog outputs.

AUTOMATIC CALIBRATION

A fully automatic calibration of the measuring unit is performed with a vapor pressure measurement of neo-hexane, or other standard liquids. It can either be started manually, or automatically in programmable intervals.



[principle of operation](#)

TECHNICAL DATA

Temperature range:	30 to 60°C (86 to 140°F)
Pressure range:	0 to 1000.0 kPa (0 to 150.00 psi)
Repeatability:	0.3 kPa (0.05 psi)
Reproducibility:	0.7 kPa (0.1 psi)
Power requirements:	100/120/230/240 V AC, 50/60 Hz, 65 W
Physical dimensions:	580 x 1060 x 260 mm 23.7" x 43.3" x 10.6"
Weight:	50 kg (110 lbs)

More Information

VAPOR PRESSUREVolatility
Instruments**MINIVAP VP****MINIVAP VPS****MINIVAP VPSH****CRUDE PACKAGE****MINIVAP LPG****MINIVAP VOC****MINIVOL LVR****MINIVAP ON-LINE consists of four main parts:****1. Sample conditioning system:**

The sample conditioning system is mounted on a stainless steel plate consisting of a manual input and output valve for the connection to the sample stream. The liquid flows in the sample loop with a minimum flow rate of 2 L/min and a maximum pressure of up to 7000 kPa (1000 psi).

The sample passes through a flow-indicator to a self-cleaning bypass-filter with a desirable, small secondary volume. The sample pressure after the filter is regulated with a pressure regulator having two pressure gauges for inlet and outlet. Then, the sample is fed via the sample outlet valve directly to the sample input of the enclosure for measurement.

An atmospheric drain outlet for the sample waste disposal and a second drain outlet with less than 100 kPa (14 psi) for the pressure relieve valve of the pressure regulator is mounted on the plate. The standard calibration liquid is contained in a 250 mL bottle secured in a stainless steel box. Up to three sample streams can be connected and monitored consecutively.

2. Purging system:

The purging system is mounted beside the measuring system. It is a pressurization or purging system which operates on a supply of compressed inert gas.

It is designed to regulate and monitor the pressure of a sealed (protected) enclosure, in order to prevent ignitable dust accumulation or remove and prevent flammable vapor accumulation within the enclosure. In Class 1 Areas, the system is designed to accomplish programmable air exchanges and maintain a "safe" pressure on the enclosure.

In addition, the system includes an electrical power control unit (EPCU) that monitors system operation and controls enclosure power. All start-up requirements must be satisfied before the EPCU will energize the power to the enclosure. These processes reduces the Hazardous (Classified) Area Rating within the enclosure, in accordance with the CENELEC 1/IIB, EN 50016 (European system) or the NEMA Class 1, BCD, Div2, Type "X", T6 (US system).

3. Measuring system:

The heart of the equipment is the measuring system with the measuring unit and the controller.

The measuring unit consists of the measuring cell which is heated and cooled by peltier elements, the piston with the pressure transducer and the piston drive. It rests on a hinge of a heavy aluminum plate and is connected to the system with 4 unmistakable connectors. The sample inlet and outlet are linked via two Swagelok quick connectors to the magnetic valves. These valves are connected to the sample conditioning system and to the calibration fluid container and control the sample flow through the cell.

The maintenance is very easy since the measuring units can be exchanged in less than one minute. The measuring units are interchangeable since the values for pressure and temperature are stored in a FLASH-RAM installed in the measuring unit. As soon as the microprocessor-controller is connected, the values are transferred. The controller with its large display is mounted on two hinges and can be turned out from the enclosure for easy access. The complete measuring system is housed in a stainless steel enclosure which is continuously purged with nitrogen.

4. Central Controller

The central controller is placed in a non-hazardous area and is connected via a glass fiber optic cable to the measuring system for remote control. Furthermore, the measured values are displayed and prepared for further data transfer. The unit is housed in a 19"/4HU (450x185x260 mm) rack with a built-in power supply and up to 6 controller inserts. For each measuring channel one insert with its own display is installed. All inserts are serially connected to a fiber optic modem, which is installed in the power supply. A complete remote control of the measuring system is possible.

Two standard RS 232 interfaces for direct connection of a printer and for remote control are incorporated in each controller.

Additionally, each controller unit accommodates independent inputs and outputs:
1 analog output 0 to 20 mA


Analog signal for the measured vapor pressure or vapor-liquid-ratio temperature (calibrated by the user)

4 digital inputs freely programmable for remote control

6 digital outputs (2 A relays) freely programmable for alarm and control.

Alarms can be programmed in the central controllers directly. The analog output may be used for simple process regulators.

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