VAPOR PRESSURE

GRABNER INSTRUMENTS

MINIVAP VPXpert-L

Pioneering Precision in Vapor Pressure

The MINIVAP VPXpert-L is a unique tester for the automatic determination of the vapor pressure of low volatility compounds, gasolines and jet fuels. The instrument offers a vastly improved precision of less than 0.1 kPa for routine testing. It includes new static methods for low volatility measurements, that correlate well to the ASTM D2879 Isoteniscope Method. The instrument is optimized to test the absolute vapor pressure of pure and multi-component solvents, chemicals and flavors in a pressure range of 0.1-100 kPa.

BENEFITS

- **Low Volatility - Highest Precision!**
  Low vapor pressure is difficult to measure with standard apparatus. The VPXpert-L is optimized for a pressure range of 0.1 to 100 kPa and offers unmatched repeatability of less than 0.1 kPa!

- **Modern Replacement of Isoteniscope**
  In the MINIVAP VPXpert-L, the absolute vapor pressure is measured by the Triple Expansion method, which yields results equivalent to the ASTM D2879 Isoteniscope method.

- **All Methods for Fuels and Chemicals**
  The VPXpert-L includes all standard vapor pressure methods for testing gasoline and jet fuels. And it features new static methods for testing pure or multi-component chemicals.

- **Maintaining Sample Composition**
  To determine the absolute vapor pressure, dissolved and entrained air has to be removed from the sample. In the Isoteniscope this is done by evacuation. But even careful evacuation bears the risk that volatile constituents of the sample are being removed. The piston based technology of the VPXpert-L removes air from the measurement result and does not require a vacuum pump. Multi-component samples can be measured without changing sample composition.

- **Minimizing Residual Contamination**
  Through a clever combination of the well proven Sampling Pro™ valves and automatic rinsing, cross-contamination between samples is minimized.

- **Versatile and Easy to Use**
  Single- and multi-point measurements can be performed over a wide temperature range from 0-120°C. To generate a fast equilibrium, a shaker is installed. No experienced personnel is required to perform a test: After connecting the sample to the instrument and pressing "RUN", an automatic measurement is performed. A standard result is obtained in 5 minutes.

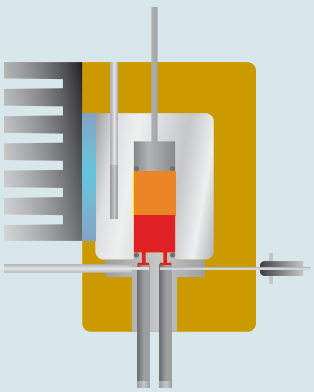
AMETEK® OIL & GAS

AVAILABLE METHODS

- Direct/Indirect VP, ASTM D5191, D5188, D6377, D6378, EN 13016-1+2, IP 394, 409, 481, JIS K2258-2, SHT 0769, GOST 52340
- Excellent correlation to ASTM D323, D2879, D4953, D5482
- **ASTM D2879 Isoteniscope Method**
  An Isoteniscope is the standard instrument for testing low absolute vapor pressures. This static method is tedious to use and requires highly skilled and experienced personnel, especially when performing the outgassing procedure. The measurement typically is time consuming and not very repeatable. Consequently, this method is not useful for routine measurements.
- **Direct VP Measurement**
  The VPXpert-L tests the absolute vapor pressure of low volatile samples directly according to the static Triple Expansion Method, which was originally developed by Dr. Grabner for Gasoline. No sample evacuation is required, thus a possible operator bias is eliminated. Full automation and high precision make the VPXpert-L the perfect replacement for the Isoteniscope. For increased precision, the maximum pressure is limited to 100 kPa.
- **Indirect/Extrapolated VP Measurement**
  Some applications require testing at pressures, that go below the range of commercially available pressure sensors. Or at temperatures, that exceed the instruments temperature range. In the VPXpert-L a special extrapolation method allows an accurate calculation of vapor pressure behavior below 0.1 kPa and for a temperature range from -99°C to +300°C.

KEY FEATURES

- Absolute vapor pressure determination (Static Triple Expansion Method)
- Highly precise results
- No vacuum pump or sample preparation
- Integrated shaker to ensure proper outgassing and faster equilibrium
- USB printer support
- USB and LIMS data transfer
- Sampling Pro™ Valve Design
- Smallest sample size (1 ml w/o rinsing)
- 5 minutes measuring time
- Maintenance free, heavy duty measurement cell
- Automatic piston lubrication
- True one button usability
- Enhanced report generation
- Portable and rugged design for field use
- Large, durable display
- User access control
- Barcode-Reader functionality



Principle of Operation

TECHNICAL DATA

Temperature Range	Measured: 0 to 120°C (30 to 250°F) Extrapolated: -99 to 300°C (-146 to 572°F)
Temperature Stability	+/- 0.01°C (0.018°F)
Temperature Profiles	Single temperature, stepped or ramped
Pressure Range	0 to 100 kPa (0 to 14 psi)
Pressure Resolution	0.01 kPa
Pressure Tolerance	0.1 kPa
Precision	Repeatability r = 0.1 kPa
Sample Volume	1 mL (2.2 mL per rinsing cycle)
Vapor/Liquid Ratio	0.02/1 to 100/1, adjustable per selected method
Interfaces	2 x USB, RS 232, PS/2 for printer, PC, LIMS and external keyboard, barcode reader
Power Supply	90-264 V AC, 45-63Hz, 200W (Switching Power Supply) Field Use: DC/AC Converter 12V / 200W (option)
Dimensions (WxHxD)	253 x 368 x 277 mm (10 x 14.5 x 10.9 inch)
Weight	9kg (20 lb)

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