

REID Vapor Pressure: RVP & PA

ASTM D323-A, ASTM D323-C, ASTM D323-D, ASTM D4953, ISO 3007-A, ISO 3007-C, ISO 3007-D, IP 69-A, IP 69-C, IP 69-D, JIS K 2258

Product group(s): Volatility

User group(s): Fuel, Gasoline, Jet Fuel, Solvent

Scope: These methods cover procedures for the determination of vapor pressure of gasoline, volatile crude oil, and other volatile petroleum products. They are used to determine the vapor pressure at 37.8 °C (100 °F) of petroleum products and crude oils with initial boiling point above 0 °C (32 °F).

Overview of REID Vapor Pressure Methods:

Procedure A:

Applicable to products with a pressure **below 1.8 bar** (180 kPa / 26 psi). Filled at ambient pressure. Utilizing 1-opening liquid chambers immersed in a **vertical bath**.

Procedure B:

Applicable to products with a pressure **below 1.8 bar** (180 kPa / 26 psi). Filled at ambient pressure. Utilizing a semi-automatic apparatus immersed in a **horizontal bath and rotated** while attaining equilibrium.

Procedure C:

Applicable to products with a pressure **above 1.8 bar** (180 kPa / 26 psi). Utilizing **2-valve liquid chambers** immersed in a vertical bath.

Procedure D:

Applicable to aviation gasolines with a pressure of **approx. 0.5 bar** (50 kPa / 7 psi). Filled at ambient pressure. Utilizing 1-opening liquid chambers immersed in a vertical bath.

Modular System

Baths with 3 or 6 test places

Digital & Analog Manometers

Liquid Chambers with 1 or 2 openings



Vapor Pressure Test Equipment

to be composed of:

- **REID-Vapor Pressure Vessel**
(air chamber & liquid chamber (valveless or 2 valves))
- **Thermostatic Bath**
(round shape for 1-3 or rectangular shape for 1-6 vessels)
- **Digital Manometer PA-REID**
(precision made, manufacturer or official certified)
(for analog ASTM & ISO manometers see separate datasheet!)

Main Unit

13-0201 / 107034

Vapor Pressure Vessel - REID

Gasoline (Wet-Method):

ASTM D 323-A+B+D, ISO 3007-A+B+D, IP69-A+B+D

Gasoline-Oxygenate Blends (Dry-Method): ASTM D 4953-A

For a pressure **less than 1.8 bar** (180 kPa)

Consisting of:

liquid chamber (valveless) made of stainless steel, air chamber with G 1/2" female manometer coupling and lowering chain

Note: Manometer and bath are required.



13-0202 / 107035

Vapor Pressure Vessel - REID (with 2 valves)

Gasoline (Wet-Method): ASTM D 323-C, ISO 3007-C, IP 69-C

For a pressure **above 1.8 bar** (180 kPa)

Consisting of:

liquid chamber (with two valves) made of stainless steel, air chamber with R 1/4" male thread for inlet line and R 1/2" female thread for manometer coupling.

Note: Manometer and bath are required.



13-0211 / 113211

Thermostatic Bath REID/LPG, 6-place (rectangular shape)

Consisting of:

bath made of stainless steel with digital thermostat and a thermometer ASTM 18C (+34 to +42 : 0.1°C)

... for tempering 1 to 6 vapor pressure vessel

Note: Drain Cock 16-0720 will be recommended

Power supply: 230 V, 50/60 Hz (115 V not available)



16-0720 / 106673

Drain Cock for thermostatic baths (G 1/4")

13-0215 / 106542

Thermostatic Bath REID/LPG, 3-place (round shape)

Consisting of:

bath made of stainless steel with digital thermostat and a thermometer ASTM 18C (+34 to +42 : 0.1°C)

... for tempering 1 to 3 vapor pressure vessel

Power supply: 230 V, 50/60 Hz



13-0216 / 130645

Thermostatic Bath REID/LPG, 3-place

like 13-0215 but:

Power supply: 115 V, 50/60 Hz

Options & Accessories

13-2250 / 107021

Digital Manometer PA-REID (precision made)

suitable for: Vapor Pressure of

- Fuel acc. REID: ASTM D 323 - ISO 3007 - IP 69 - EN 12 - FTM 791-1201
- Fuel acc. Dry Method: ASTM D 4953 (modified REID)

Features:

Non programmable manometer with 4 1/2 digit LCD, sample wetted materials made of stainless steel, FPM sealings, pressure connection at the bottom (G 1/4" male thread, opening Ø 6 mm). For automatic pressure determination with a REID-vapor pressure vessel.

Supplied with:

"Minimum/Maximum-Mode"-firmware, coin cell battery

Technical Data:

Pressure measurement range: 0 ... 8 bar

Indication: pressure (bar)

Display resolution: 1 mbar

Connections: --- (PC & Pt1000 connection **not** possible!)

Dimensions: Ø 75 mm x D 45 mm

Power supply: coin cell (internal)



13-2251 / 107022

Digital Manometer PA-REID (manufacturer certified)

Like 13-2250 but:

with manufacturer's calibration certificate

13-2252 / 107023

Digital Manometer PA-REID (official certified)

Like 13-2250 but:

with official (DKD) calibration certificate

13-0250 / 107073

Adapter (G 1/4" female to G 1/2" male thread) twistable

13-2130 / 107081 Rubber-Protection-Collar for PA-Manometer

13-0205 / 130704 U-Tube Manometer (750-0-750 mm scale)
 acrylic tube fitted on a metal plate for wall mounting. Suitable for measuring pressures up to 14.7 kPa (147 mbar) with water filling or 200 kPa (2.00 bar) with mercury filling.
Note! Mercury is not included (needed quantity approx. 500 g).

13-0203 / Coupling (G 1/2" thread & tube clip) with mounting device
 to connect pre-pressurized manometer and U-tube manometer.

Spare Parts

13-0241 / 109335 Liquid Chamber (for immersion sampling)
 air-tight, brazed nickel-plated brass, 1 opening

13-0242 / 109336 Liquid Chamber (for pressure sampling)
 air-tight, brazed nickel-plated brass, with 2 valves

13-0243 / 109337 Vapor Chamber - REID
 air-tight, brazed nickel-plated brass

13-0245 / 107069 Gaskets PTFE (18 x 10 x 3 mm), for G 1/2", pack of 10

13-0246 / 107070 Lowering Chain, 2 m
 complete with stirrup and ring, all parts of nickel-plated brass

13-2253 / 107024 Battery, coin cell (CR 2430)
 fits: PA-REID Manometer (13-2250 etc.)

10-0383 / 130700 Thermometer DIN 12775 - E0,1/0/50
 Range: 0 to +50 : 0.1 °C
 Length: 220 mm, Immersion: --, Ø 8 mm

10-0384 / 106187 Thermometer DIN 12775 - E0,1/0/50
 Range: 0 to +50 : 0.1 °C (officially certified)

21-0602 / 109428 Thermometer ASTM 18C / IP 23C
 Range: +34 to +42 : 0.1 °C
 Length: 275 mm, Immersion: total, Ø 6.5 mm

21-0608 / 128299 Thermometer ASTM 18C / IP 23C
 Range: +34 to +42 : 0.1 °C (officially certified)

25-0602 / 129159 Heating Element DP, 2000 W, 230 V

Order Guideline

Minimum equipment: 1x Vapor Pressure Chamber, 1x Thermostatic Bath,
 1x Manometer & Adapter at choice
 Spares (approx. 1 year): 13-0245, 13-2253, Thermometer
 Additional requirements: