

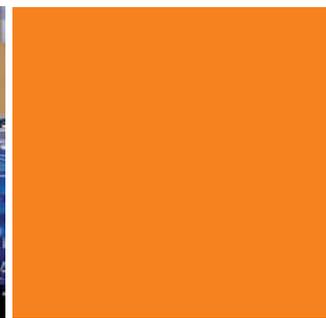
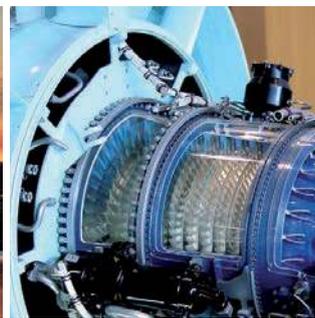


Measured values

- Absolute pressure
- Relative pressure

Applications

- Leak tests for gas supply in accordance with G469 B3
- Leak tests for water supply in accordance with W400-2 / EN 805
- Sewer leak testing according to EN 1610
- Testing of cable protection tubes
- Leak tests for process engineering / industry



DPK3 R1



Pressure test kit with one radial sensor

ESS3 R1 overview

Pressure test kits of the DPK3 R1 series are used for leak testing in pipeline and plant construction. They are also used for performing leak tests on sewers and cable protection tubes.

The battery-operated device can be removed from the case and bolted directly onto the pipeline. As a result, the case does not have to remain at the construction site during extended leak tests. Particular importance was attached to a robust design suitable for use at construction sites (ESS3 R2 protection classes up to IP 68 - watertight).

The operator control unit stores the measured values supplied by the pressure sensor in non-volatile memory for a large number of leak tests. The current measured values, the current pressure loss, and the result of the leak test is shown on a display. After completion of the test, the measured data are printed out directly at the construction site using the battery-operated printer.

The leak test report is thus immediately available on the spot.

The TfsWin III software enables all leak tests stored in the data logger to be transferred to a PC where they are available for creation of expanded test reports.

Functional scope

Application	Leak testing with gaseous media (DVGW G469/EN1610) Leak testing with liquid media (DVGW W400-2)
Display	Current test pressure Maximum and minimum value as well as pressure drop
Settings	Result of leak test and battery status, Construction site number and designation; Start time and duration of pressure test; Maximum permissible pressure drop; Minimum test pressure
Measuring rate	125 ms ... 6 h.
Meas. precision	up to 0.05 % FS
Resolution	up to 0.04 % FS, (corresponds to approx. < 1 mbar with 25 bar measuring range)
Operation	Via menu (via keyboard) Via TfsWin III software (via IrDA interface cable)
Storage	250,000 date/time values/512 kB Typical reach: approx. 50 pressure tests (through data compression)
Software	TfsWin III for parameter assignment, display, archiving of data Creation of test reports on the PC

Table 1: DPK3 R1 functional scope

DPK3 R1 kit

Scope of delivery	Lockable plastic case Data logger ESS3 R1 for pressure Built-in printer and spare paper role Power supply unit; IrDA interface cable PC software TfsWin III Connection tube 2 m (Minimess) Adapter G1/2 to Minimess Operating instructions
Schutzklasse	IP 54 (for case) IP 67 (for relative pressure data logger) IP 68 (for absolute pressure data logger)
Ex-proof	Ex II 2G Ex ib IIC T4 Gb (for data logger)
Housing	W/H/T [mm]: 412/390/135
Weight	[kg]: ca. 4,2

Table 2: DPK R1 kit

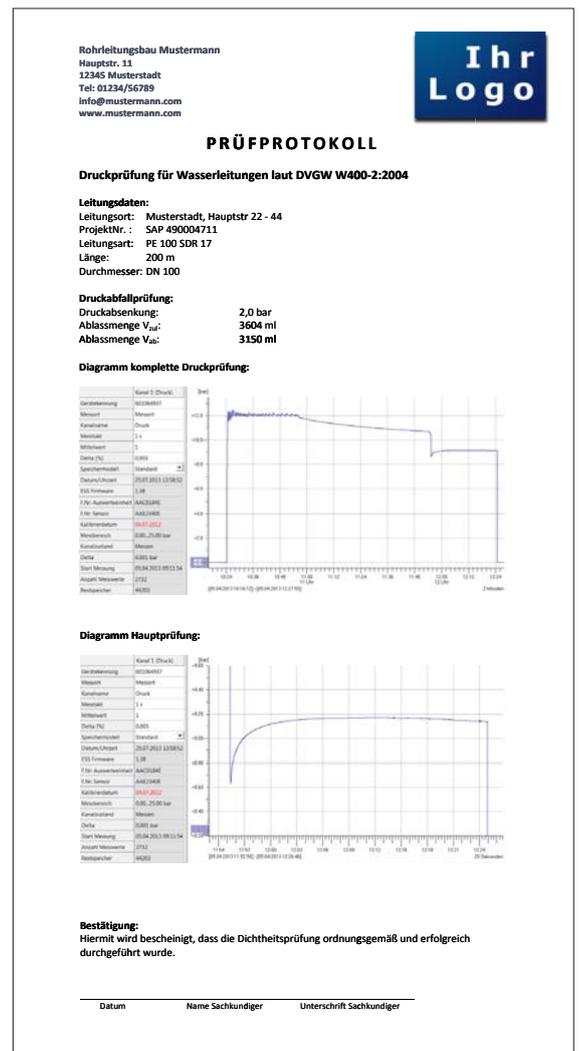


Figure 1: PC test report W400-2 (complete test and main test)

Pressure sensor

The accuracy and resolution of the sensor determines the informative value of the test. Particular importance was attached to high stability of the measured pressure values under fluctuating ambient temperature conditions.

- Stainless steel-enclosed piezoresistive sensor with high long-term stability, suitable for liquid and gaseous media, resistant to corrosive media
- High resolution of measured values (typically 1 mbar for 25 bar measuring range); multiple measuring ranges are possible for one sensor.
- Effect of ambient temperature on the measured pressure values was eliminated by a fully automatic temperature compensation of the pressure measuring cell.
- High overpressure protection and high burst pressure
- Appropriately-graduated fixed or customizable measuring ranges and various accuracy classes up to $\pm 0.05\%$ of full scale

Media compatibility: All liquids and gases that are compatible with stainless steel 1.4301 and NBR seal material.

Process connection: G1/2 external thread,
G1/8 internal thread

Measuring range	Precision [% of FS ¹]			
	Standard $\pm 0.4\%$	Premium $\pm 0.09\%$	Select $\pm 0.05\%$	Select plus $\pm 0.05\% < 5 \text{ mbar}^2$
0 ... 100 mbar relative	X	X	~	~
0 ... 250 mbar relative	X	X	~	~
0 ... 1 bar relative	X	X	X	~
0 ... 2,5 bar relative	X	X	X	~
0 ... 2,5 bar absolute	X	X	X	~
0 ... 10 bar relative	X	X	X	~
0 ... 10 bar absolute	X	X	X	~
0 ... 25 bar absolute	X	X	X	X
0 ... 100 bar absolute	X	X	X	~
100 mbar ... 14 bar relative ³⁾	X	X	X ⁴⁾	~
2,5 bar ... 200 bar absolute ³⁾	X	X	X ⁴⁾	~
0 ... 200 bar - 0 ... 700 bar	X	~	~	~
Negative pressure	X	~	~	~

1) FS: Full scale
 2) Deviation < 5 mbar at ambient temperature change of 15 K according to DVGW G469:2010 Test method C3
 3) Customized measuring range; freely selectable within these limits
 4) On request

Table 3: Pressure sensors for DPK3 R1

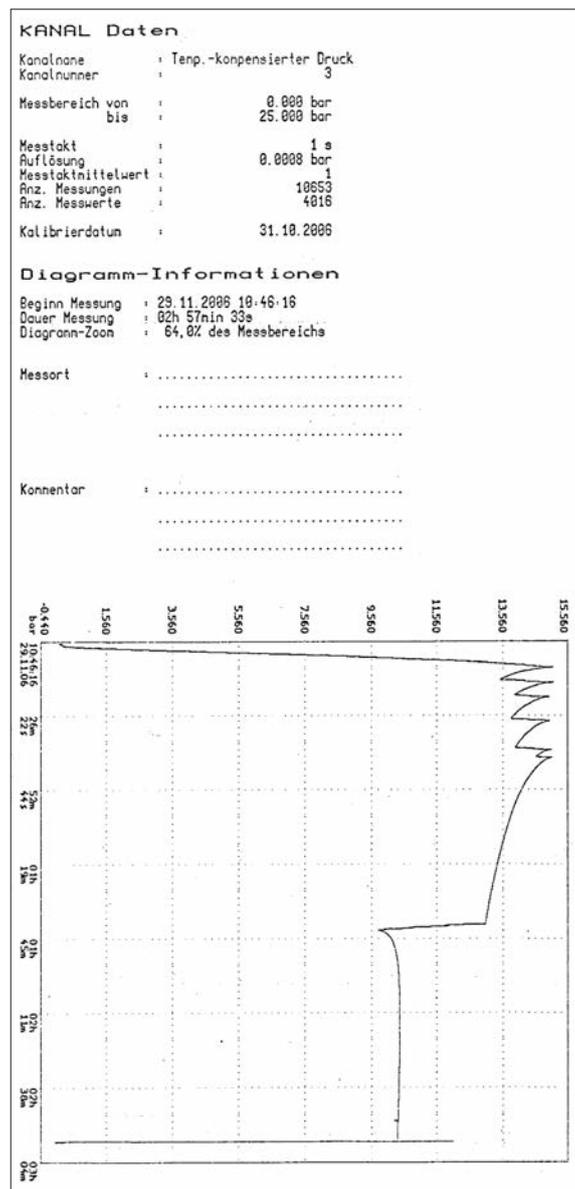


Figure 2: Battery printer test report W400-2



Figure 3: Pressure sensor



About UNION Instruments

UNION Instruments GmbH, founded in 1919, is a specialized supplier of measuring instruments in the areas of calorimetry and gas composition. Its user and customer base includes biogas producers, the chemical industry, and energy and water suppliers. The company has its headquarters in Karlsruhe and a subsidiary in Lübeck. With 30 international distributors, UNION Instruments operates worldwide. The company's core businesses include development and production as well as maintenance, service, and support.

Our service performance



Support

The **UNION-hotline** helps to solve all inquiries and urgent issues fast and easy. Device specific concerns can be solved worldwide within minutes by direct communication via TEAMVIEWER.



Original spare parts

Original spare parts for the majority of UNION's products are on stock directly at site and ready for dispatch within a few hours.



Software

For read-out of measurement and calibration data a device-specific software is available for our clients. In addition to the graphic display of measurement data its export in several database formats is possible.



Training

UNION offers individual in-house training or on-site seminars for installation, use and maintenance of our devices even at the customer's premises. Training is individually adapted to the client's requirements.



Repair service

A global service for inspection, maintenance and repair of our devices and systems is provided directly by UNION and via its distributors.



Certification

Since 20 years we have implemented the ISO9001 system. UNION's products are certified to ATEX and UL/CSA directives accordingly. Industrial safety **"Safety with System"** is part of UNION's company policy.



Engineering

In the last decades UNION compiled a very high level to the state of the art that covers many market segments. So a wide range of possible solution approaches is on-hand.



Calibration

As part of maintenance and service UNION provides the validation and re-calibration of measuring devices in conformity with certified custody transfer instruments and / or traceable perpendicular.

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