



VKP 42 (Ex)

Steam Trap Testing Equipment

TRAPtest VKP 42 Ex

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Description

TRAPtest VKP 42 testing, recording and diagnostic system (VKP 42 Ex for use in potentially explosive atmospheres) for testing steam traps of **all makes** for loss of steam and banking-up of condensate.

The testing equipment consists of the **data collector**, the **Com box** with **measuring transducer** and the TRAPtest VKP local or portal diagnostic app for processing the data.

Function

The testing equipment measures and analyses ultrasonic vibrations that occur on the body of a steam trap when steam flows through it.

The sensor tip of the measuring transducer is pressed against a specific point on the body that varies for each type of steam trap. The ultrasonic vibrations it records are then converted into digital signals in the measuring transducer.

The data collector evaluates the recorded ultrasonic vibrations based on set limit values that are determined through experiments and vary depending on the type of function. The temperature of the steam trap is also measured during the test. As the operating pressures are set, the system can identify blocked steam traps (i.e. that cause condensate to bank up).

By entering specific steam costs and annual operating hours, you can use the GESTRA TRAPtestVKP app to determine the financial losses of defective steam traps as well as their CO₂ emissions. This is done on the basis of precisely measured steam losses from faulty steam traps in the laboratory.

All curves plotted for a steam trap – and the associated test results in figures, including their rating and calculation – can be saved, printed and exported. This enables you to compare test results with each other and with earlier results. Through regular tests, you can therefore find out about service life, preventive maintenance intervals and the cost of defective equipment, and also obtain information on the ideal steam trap system for your particular application.

Technical data

TRAPtest VKP local PC diagnostic app

System requirements

- Operating system Microsoft Windows 7SP1, Windows 10
- 4.2 GB space on hard drive
- Min. 4 GB RAM

Test duration

Min. 10 seconds, max. 20 seconds

Data collector

5" multi-touch colour display
 Dust and splash-proof: IP rating 68
 Resolution 720 x 1280 pixels
 Bluetooth range: 8 m
 Lithium-ion battery (capacity 4400 mAh)
 Operating voltage: 3.7 V
 LTE standby time: Up to 350 hours
 USB cable with accessories

Measuring transducer

Surface temperature measuring range: –10 to +350 °C
 Power supply via Com box battery

Com box

Lithium-ion battery (capacity 1250 mAh)
 Operating voltage: 3.7 V
 Battery life: Approx. 8 h
 USB charging cable

Scope of supply

- 1 transport case
- 1 data collector VKPN 42 (Ex)
- 1 USB cable with accessories for data collector
- 1 Com box VKPC 40plus (Ex)
- 1 USB charging cable VKPA 40plus for Com box
- 1 mains plug for Com box
- 4 mains plug adapters for different mains sockets
- 1 strap for securing the Com box
- 1 measuring transducer VKPS 40Ex with connecting cable
- 1 diagnostic app TRAPtestVKP (local: download for PC, portal: web app)
- 1 mirror
- 1 file

Materials

Component	EN
Measuring transducer body	3.7035
Com box housing	ABS (acrylonitrile butadiene styrene)
Transport case	Aluminium/plywood/TCN film/foam/cardboard
Standby bag	Cordura nylon fabric Samoa

Dimensions and weights

Component	VKP 42		VKP 42 Ex	
	Dimensions (H x W x D) [mm]	Weight [g]	Dimensions (H x W x D) [mm]	Weight [g]
Transport case, without contents	163 x 440 x 350	3400	163 x 440 x 350	3400
Transport case, complete, with contents		approx. 5100		approx. 5240
Data collector	163 x 82 x 22	400	163 x 82 x 22	400
Com box	83 x 96 x 32	160	83 x 96 x 32	approx. 560
Measuring transducer (diameter x length)	36 x 210	440	36 x 210	440

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Potentially explosive areas

ATEX and IECEx

VKP 42 Ex testing equipment is approved for use in potentially explosive atmospheres. The following components are approved for use in potentially explosive atmospheres:

- Data collector VPKN 42 Ex
- Measuring transducer VKPS 40Ex
- Com box VKPC 40plus Ex

The supplied file and adjustable mirror are not suitable for use in potentially explosive atmospheres.

You may use the equipment in zones (surrounding atmosphere in accordance with Directive 1999/92/EC) 1 and 2 (Explosion Protection Directive 2014/34/EU).

Component	Type	ATEX classification
Data collector	VPKN 42 Ex	Europe: II 2G Ex ib op is IIC T4 Gb IP64; II 2D Ex ib op is IIC T120°C Db
Com box	VKPC 40plus Ex	II 2G Ex ib IIC T4 Gb
USB charging cable for Com box	VKPA 40plus	
Measuring transducer	VKPS 40Ex	Ex ib IIC T4 Gb

Approval certification

The EU Type Examination Certificate for the TRAPtest VKP 42 Ex can be requested from us.

How to order and specify

GESTRA TRAPtest VKP 42 (Ex) local/portal

TRAPtest VKP 42 testing, recording and diagnostic system (VKP 42 Ex for use in potentially explosive atmospheres) for testing steam traps of all makes for loss of steam and banking-up of condensate.

The testing equipment consists of the data collector, the Com box with measuring transducer and the diagnostic app for processing the data.

The data collector uses a special GESTRA diagnostic app. Data is exchanged between the data collector and the Com box via Bluetooth.

The data collector communicates with the TRAPtest VKP local or portal diagnostic app, which also analyses the test results. Various report forms enable you to calculate steam losses and CO₂ emissions and draw up lists for repairs and orders.

By applying a constant pressure force, which is independent from inspection personnel, the testing system helps to achieve an objective test. The test begins when the sensor tip is applied.

Test progress is shown graphically on the multi-touch colour display. Further information important to the test is also shown. The large, backlit multi-touch colour display can be used even in conditions of poor visibility.

Please note our general terms of business.

Pressure and temperature ratings

Component	Operating temperature [°C]	Storage temperature [°C]	Air humidity
Data collector	-20 to +50	-10 to +60	0-95% (non-condensing)
Com box ¹⁾	-10 to +50	-10 to +50	0-95% (non-condensing)
Measuring transducer ¹⁾	-10 to +60	-10 to +50	0-95% (non-condensing)

¹⁾ Charging temperature: 0 to +35 °C

Measuring range when setting the point of application	Flowrate [kg/h]
Steam tracer and steam line	0 to 20
Heat exchanger	>20

Minimum upstream pressure for temperature test: 0.1 bar

Maximum differential pressure: 20 bar

Performance profile

- Universal, for steam traps of all makes
- Automated and objective diagnosis of tested steam traps, no specialist knowledge required
- Ultrasonic measuring transducer with integrated temperature sensor for detecting loss of steam and blocked steam traps
- Graphic representation of the test curve
- Normal and rapid testing
- Bluetooth® data transfer for improved handling and reliable working

GESTRA TRAPtest VKP local

- Highly efficient PC diagnostic app
- Database capable of storing over 20,000 test objects
- Diverse range of user-friendly diagnostic options
- Simple calculation of steam losses in your national currency
- Automatic calculation of CO₂ emissions
- Comprehensive data import and export features
- Large selection of adaptable report forms
- Numerous languages pre-installed, which can be individually changed
- Update feature and add-ons for models and languages



GESTRA TRAPtest VKP portal

- Highly efficient hardware-independent web app
- Database capable of storing over 20,000 test objects
- Diverse range of user-friendly diagnostic options
- Simple calculation of steam losses in your national currency
- Automatic calculation of CO₂ emissions
- Comprehensive data import and export features
- Large selection of adaptable report forms
- Numerous languages pre-installed, which can be individually changed
- Update feature and add-ons for models and languages
- Direct acquisition of test objects during the test
- Capable of handling QR and NFC codes and Geo tagging
- Optional additional services:
 - ◆ Multiple device management
 - ◆ Remote support



Annual costs due to loss of steam and opportunities for savings

Number of steam traps installed _____

Annual failure rate _____

(figure based on experience for first test approx. 15 – 25%)

A Number of defective steam traps _____

B Steam losses per steam trap [kg/h] _____

C Annual operating hours _____

D Annual steam losses A x B x C [kg] = _____

E Steam costs per ton of steam [euros/t] _____

F Annual losses D / 1000 x E [euros] = _____

G Annual savings of CO₂ D x 0.16* [kg] = _____

*) A slightly different figure may arise depending on the fuel used for steam generation and the condensate return.

Example calculation

A Number of defective steam traps 20

B Steam losses per steam trap 3 kg/h

C Annual operating hours 8,000 h

D Annual steam losses 480,000 kg

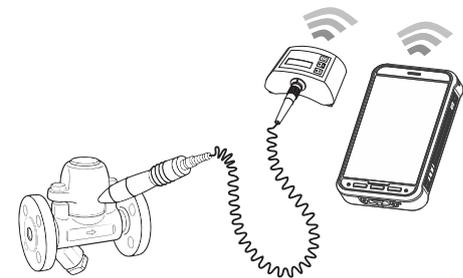
E Steam costs per ton of steam 30 euros/t

F Annual losses 14,400 euros

G Annual savings of CO₂ 76,800 kg

Data collector

- Very compact and extremely robust
- Intuitive operation
- Short test time of 10 or 20 seconds
- TRAPtest VKP 42 local (to download) or portal (web app)
- Automatic language adaptation for over 20 languages
- Stores up to 2,500 test objects
- Very bright, capacitive multi-touch colour display for safe operation even with wet fingers or when wearing gloves
- VKP 42 Ex for use in potentially explosive atmospheres
- Camera and phone feature



Testing the steam trap

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