



Steam Trap Testing Equipment
VAPOPHONE

VKP 10

EN
English

Original Installation Instructions
818427-01

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Important Notes

Usage for the intended purpose

Use VKP 10 only for testing steam traps.

Safety note

The equipment must only be installed and commissioned by qualified and competent staff. Retrofitting and maintenance work must only be performed by qualified staff – who through adequate training – have achieved a recognised level of competence.



Danger

Do not use the VKP 10 in areas subject to explosion hazards!

This presents the risk of severe injuries or death!

Do **not** touch live parts with the sound probe!

This presents the risk of severe cases of electric shock!

The tip of the sound probe has a sharp edge.

This presents a danger of cuts!

Explanatory Notes

Scope of supply

The VAPOPHONE VKP 10 service case contains:

- 1 Display device
- 1 Sound probe
- 1 Leather bag
- 1 Storage battery (installed in the display device)
- 1 Battery charger with connecting cable for display device
- 1 Operating manual

Description

The steam trap testing equipment VKP 10 consists of a display device and a sound probe.

The portable ultrasonic detector VKP 10 is designed for evaluating and testing steam traps of all makes in order to detect steam losses and leaks.

Function

The testing equipment detects and evaluates ultrasonic vibrations caused by the media flowing through the steam trap. The ultrasonic vibrations are transferred to the tip of the sensor by pressing the sound probe to the specified point of reference on the trap body. The ultrasonic vibrations are then converted into electric pulses and indicated by the display device. The VAPOPHONE VKP 10 signals only vibrations within 40 – 60 kHz, as these frequencies constitute the usual vibration range associated with flowing steam. The user will evaluate the sensed ultrasonic vibrations as part of the comparison measurement carried out for reference purposes.



Attention

- Do **not** use the VAPOPHONE VKP 10 in areas subject to explosion hazards!
- The 9 V NiCd storage battery of the display device must only be replaced by the manufacturer!
- The sound probe VKPS 10 must only be used for sensing ultrasonic vibrations at the surface of the steam trap bodies.

Technical Data

VKP 10

Display device

Plastic casing with knob and analogue indicator.
Casing with integrated storage battery compartment.
One socket to plug in the connecting cable of the sound probe.
Protection IP 41.
Max. admissible service temperature: 70 °C.
Min. admissible service temperature: 0°C.

Power supply

The equipment is powered by the 9 V NiCd storage battery or by the power supply unit that comes with the VKP 10.

Sound probe

The sound probe is powered by the storage battery of the display device.

Power supply unit

230V / 50Hz (other PSU available on request)
Output 12 V

Weight

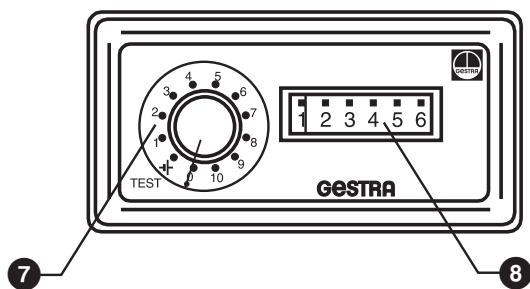
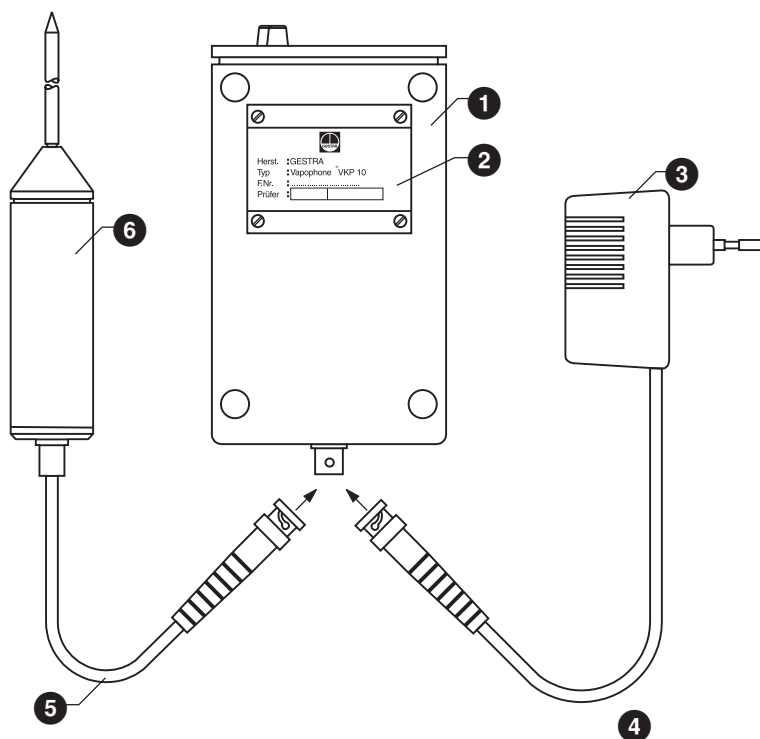
Service case with equipment approx. 2 kg

Dimensions

Leather bag: 200 mm / 190 mm / 90 mm
Display device: 90 mm / 45 mm / 160 mm
(width / height / depth)

Parts

VKP 10



Parts continued

Key


- ① Display device
- ② Name plate
- ③ Battery charger
- ④ Cable of battery charger
- ⑤ Cable of sound probe
- ⑥ Sound probe
- ⑦ Knob
- ⑧ Indicating meter

Commissioning

Commissioning of display device

The equipment can be used for testing tasks with or without the leather bag.

When using the leather bag, please open the strap at the bottom of the bag to uncover the cable entry.

- Connect the cable of the sound probe ⑤ to the display device ①.
- Check the charging capacity of the storage battery.
Set the knob ⑦ to the battery-check position .
If the indicator ⑧ shows a value below "5", re-charge the storage battery.

Operation

Steam trap testing

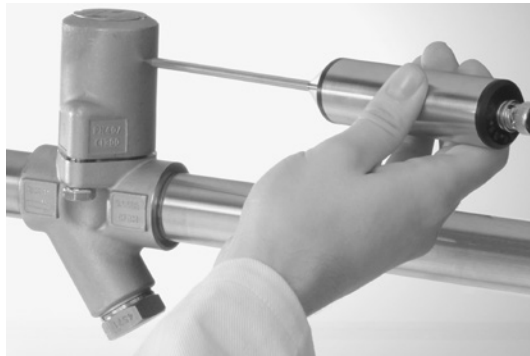
Before carrying out steam trap tests adjust the measuring sensitivity of the VKP 10 by using the knob ⑦. The highest sensitivity is obtained when the knob is set to “10”. Note that different steam trap types produce – under identical conditions and with same loss of steam – different sound levels. For GESTRA steam traps type BK we recommend the knob setting “8”, and for steam traps type MK the knob setting “7”.

Press the probe tip gently onto the trap surface. When testing traps of the same type make sure you always apply the probe at the same point of the trap body in order to be able to compare the results more easily and to discover changes when repeating the tests.

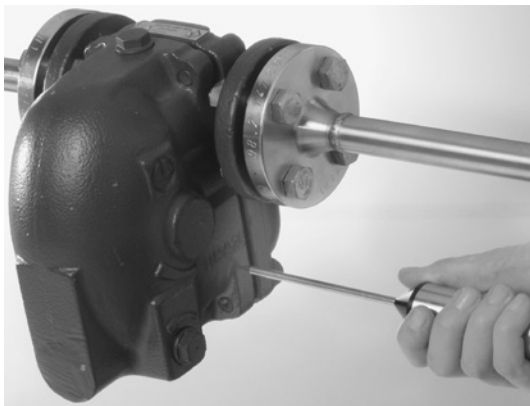
Steam traps operating continuously and discharging up to about 30 kg/hr (66 lb/hr) of condensate from steam pressures lower than 20 bar (290 psi) will cause no or only a slight deflection of the indicating meter. Any steam loss is indicated by a proportional meter deflection. The relation between steam loss and meter deflection depends on the steam trap type and the used measuring point on the trap surface. Larger condensate flowrates and higher service pressures result in louder flow-generated noises, making it necessary to reduce the sensitivity setting. To obtain meaningful readings when using the VKP 10, log and use installation-specific survey data and empirical test values.

In practice an exact quantification of the steam loss is usually only of minor importance. Normally an approximate value that allows the detection of steam loss through steam traps at a tolerable effort will suffice.

When checking the steam traps set the knob to “7” or “8”. A continuous indication between 4 and 5 on the meter scale indicates that the trap requires maintenance or replacement. Meter deflections between 4 and 5 indicate steam losses of 1 kg/hr up to 4 kg/hr.



When testing conventional steam trap bodies apply the probe at right angles to the cover of the trap.



Float traps: Apply the probe at right angles to the trap body.



GESTRA Steam traps **RHOMBUSline**: Apply the tip of the probe laterally to the trap body.



Attention

- If traps of the same type are tested take care that the probe is always applied at the **same** point of the trap body in order to be able to compare the results obtained and also to discover changes when repeating the test.

Notice

- Please take into account that ultrasonic sources, such as pumps or steam reducing stations, in the proximity of the steam trap to be tested might falsify the result. In this case "steam loss" might be indicated even though the traps operate correctly. This can be verified by scanning the adjacent pipelines. If the reflection remains unchanged or increases, this must be attributed to a foreign ultrasonic source. If possible switch off sound emitting plant components.
- Intermittently operating steam traps cause recurrent meter deflections which might even reach the end of the scale. Thermostatic traps (with bimetallic control or membrane regulators) may operate within the specified pressure and flowrate range either continuously or intermittently. In this case steam loss can usually be excluded. A recurrent meter deflection indicates here correctly operating steam traps.
- Thermodynamically controlled steam traps always operate intermittently over the complete flowrate range and might thereby cause steam loss which rises with increasing lift frequency. A clear evidence of loss is only given by a constantly large meter deflection.
- Basically the same considerations as mentioned for thermodynamic traps also apply in the case of steam traps with open floats. However, with float-operated traps inherent steam loss will definitely occur even when the trap operates intermittently.
- Before performing the tests at least an estimation should be carried out with the aid of technical plant data (service pressures, differential pressures, flowrates etc.) so as to ascertain whether the trap flowrate lies within the range that permits testing.

Maintenance

Recharging battery

Plug the battery charger ③ into the display device ①. The red and the green LED of the battery charger light up: red = charging.

For a full charge leave the charger plugged into the mains supply for approx. 14 hours.

Replacing battery

Under normal operating conditions the integrated battery has a service life of 5 to 7 years. Should the battery be faulty, please return the equipment to GESTRA in Bremen for replacement.



Attention

- Note that the 9 V NiCd battery of the display device must only be replaced by the manufacturer!



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