

GESTRA Steam Systems

Test Set for Monitoring Steam Traps VKE with Test Chamber

Description

The test set VKE is used for monitoring steam traps to detect leakage of live steam, either by measuring locally with the manual test unit or by automatic remote monitoring.

Indication by light-emitting diodes: green LED = steam trap operating correctly, red LED = steam trap blowing steam.

In the case of remote monitoring continuous supervision of up to 18 steam traps with one test unit is possible.

For steam traps that are not easily accessible the manual test unit may be connected via the wall-mounting connection box.

The test unit can monitor steam traps of all types and makes.

It is wear-resistant and maintenance-free.

For horizontal pipelines.

Design

The test set consists of a test chamber with electrode connected to the automatic remote test unit type NRA 1-1 or to the manual test unit type NRA 1-2.

Test Chamber VKE 16

The test chamber is installed directly upstream of the steam trap to be monitored with horizontal flow through the test chamber. It is fitted with a connection for a conductivity electrode that can be provided on the left or right (seen in the direction of flow). The position has to be stated when ordering.

The electrode type NRG 16-19 is provided with a 2 m PTFE cable which can be connected to the wall-mounting connection box or directly to the remote test unit via a terminal box for longer distances. The electrode type NRG 16-21 is fitted with a jack socket.

The electrode cable can be extended to 500 m on site using a screened signal line.

Remote Test Unit NRA 1-1

With 18 channels for continuous monitoring of up to 18 steam traps.

Each channel has a LED for alarm indication. A single potential-free contact is used for signalling an alarm condition. Case for wall or panel mounting.

Manual Test Unit NRA 1-2

Robust, hand-held unit with test cable fitted with a jack plug.

The cable can be plugged directly into the test chamber or into the wall-mounting connection box. Lamps are checked before and after each measurement. The unit is battery powered.

Operation

The electrode in the test chamber signals the states "steam" or "condensate" to the manual or remote test unit. If the steam trap is operating correctly, condensate flows around the electrode. This condition is indicated by the green LED.

In the case of steam losses across the trap the electrode will emerge from the condensate and the red LED lights up. Simultaneously the relay contact of the remote test unit will switch over to the alarm position.

Technical Data

Test Chamber VKE 16

Available designs:

Electrode connection on the right or left, please indicate when ordering.

Pressure / Temperature Rating				
Test Chamber PN 40				
Max. service pressure	barg psig	32 465	22 320	21 305
Related temperature	°C °F	250 482	385 725	400 782
Electrodes				
Max. service pressure	barg psig		32 465	
Max. temperature	°C °F		238 460	

Materials

Body	Cast Steel GS-C25
Flange	Forged Steel C22.8
Electrode	Stainless steel

Connections

Scewed sockets: BSP or NPT (API).

Flanges: DIN (BS 4504) PN 40.

Nominal sizes: DN 15, 20, 25 mm; ½", ¾", 1".
DN 40, 50 mm; 1½", 2" on request.

Electrodes

For connection to NRA 1-1:

Type NRG 16-19 with 2 m PTFE cable

For connection to NRA 1-2:

Type NRG 16-21 with jack socket or type NRG 16-19 with 2 m PTFE cable for wall-mounting connection box.

Remote Test Unit NRA 1-1

Supply voltage

110/220 V (switch-selected), 50 – 60 Hz, 5 VA

Measuring voltage

12 V AC

Measuring frequency

10 Hz

Switchpoint resistance

approx. 100 kΩ

(Sensitivity of response of electrode ~ 10 µS/cm)

Delay of response

approx. 30 s

Input for up to 18 test chambers

Indicators

19 LEDs: 1 green LED for signalling "steam traps operate correctly";

18 red LEDs for signalling "steam trap(s) defective"

Output

Potential-free relay contact, 250 V, 3 A, 500 VA

Permissible ambient temperature

0 – 55 °C

Protection

IP 65

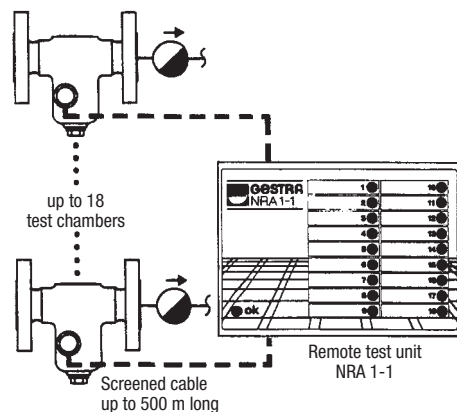
Available designs

NRA 1-1a for wall mounting

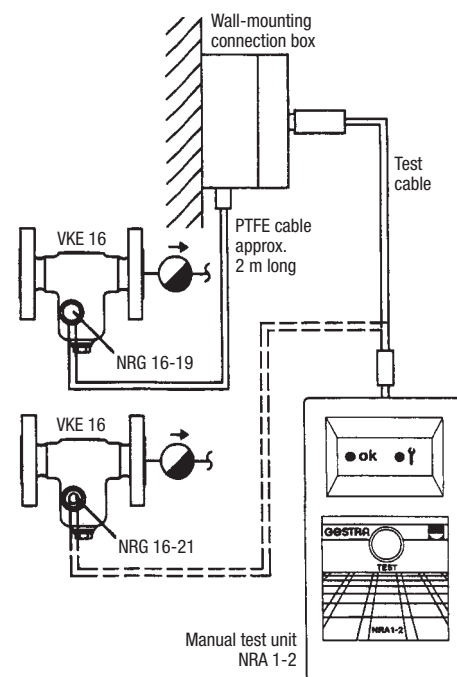
NRA 1-1e for panel mounting

Product Range A1

VKE



Automatic monitoring with remote test unit type NRA 1-1



Monitoring with manual test unit type NRA 1-2

Test Set for Monitoring Steam Traps
VKE
with Test Chamber

Technical Data – continued –
Manual Test Unit NRA 1-2

Supply
9 V flat battery, DIN/IEC 6F 22, PP3 etc.

Measuring voltage
4 V AC

Measuring frequency
400 Hz

Switchpoint resistance
100 kΩ
(Sensibility of response of electrode ~ 10 μS/cm)

Indicators
2 LEDs: green = “steam trap operating correctly”;
red = “steam trap defective”

Connection
directly to the electrode or to wall-mounting connection
box

Permissible ambient temperature
0 – 55 °C

Protection
IP 40

Order and Enquiry Specifications

GESTRA Test Set VKE
for automatic remote monitoring
consisting of:

- 1. Test chamber type VKE 16, PN 40.
Flanged ends DN 15, 20, 25 mm (½", ¾", 1").
Screwed sockets ½", ¾", 1" BSP or NPT.
Body material: cast steel GS-C 25.
Electrode connection on the left or right.
- 2. Electrode type NRG 16-19
with 2 m PTFE cable for connection to terminal box.
- 3. Remote test unit type NRA 1-1 for checking up to 18
steam traps.
NRA 1-1a for wall mounting,
NRA 1-1e for panel mounting.
1 LED for each channel as signal indicator.
Potential-free contact output.
Supply voltage: 110/220 V (switch-selected),
50 – 60 Hz.
Ambient temperature 0 – 55 °C.

GESTRA Test Set VKE
for manual monitoring
consisting of:

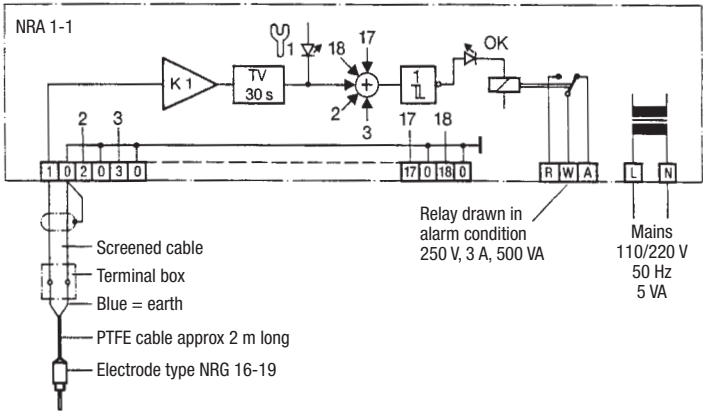
- 1. Test chamber type VKE 16, otherwise as above.
- 2. Electrode type NRG 16-21
with jack socket or type NRG 16-19 with 2 m PTFE
cable for wall-mounting connection box.
- 3. Manual test unit type NRS 1-2.
Battery-operated, 9 V flat battery.
Indication by 2 LEDs red/green.
Ambient temperature 0 – 55 °C.
- 4. Wall-mounting connection box with jack socket.

Important Notes

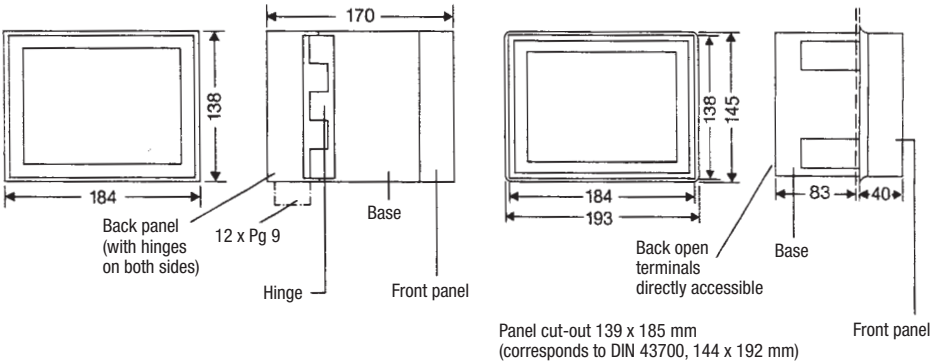
Recommended connecting cable: screened cable,
e.g. 2 x 0.5 mm².

Supply in accordance with our general terms
of business.

Wiring Diagram for Remote Test Unit NRA 1-1



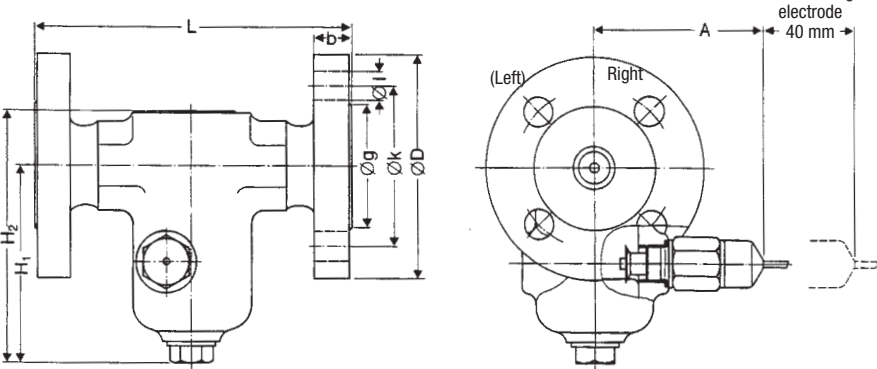
Dimensions of Remote Test Unit NRA 1-1



NRA 1-1a for wall mounting

NRA 1-1e for panel mounting

Test Chamber VKE 16



Dimensions in mm		End connections									
		Flanged to DIN					Screwed				
DN	[mm] [in]	15 ½	20 ¾	25 1	40 1½	50 2	15 ½	20 ¾	25 1	40 1½	50 2
Length	L	150	150 80 ~ 93	160	on request		95			on request	
Height	A H ₁ H ₂						~ 118				
Flange dimensions	D	95	105	115							
	b	16	18	18							
	k	65	75	85							
	g	45	58	68							
	l	14	14	14							
Number of bolts		4	4	4							

GESTRA AG

P. O. Box 10 54 60, D-28054 Bremen
Münchener Str. 77, D-28215 Bremen
Telephone +49 (0) 421 35 03 - 0, Fax +49 (0) 421 35 03-393
E-Mail gestra.ag@flowserve.com, Internet www.gestra.de



GESTRA