



EN



Operation manual

Flaring device
DN 50





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Version: 01-2024



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Foreword

Dear Customer,

Thank you for your purchase. With this flaring device, you have chosen a high-quality and easy-to-handle product. To ensure that you can work reliably and safely with this device for years to come, we would like to draw your attention to the user information presented in this manual. KROHSE GmbH has made every effort to manufacture a safe and robust product conforming to all applicable laws and regulations. Strict pre-delivery quality checks undertaken in our factory are key to maintaining our high quality standards. Please continue to maintain our standards by treating the device with care. If you have any questions on how to use the device, please contact us at any time.

We wish you every success and hope that you enjoy working safely on your supply line.

Thomas Krohse
KROHSE GmbH

1 Function and operating principle



A flaring device is designed to burn off residual gases in a controlled manner so that they do not enter the atmosphere and form ignitable mixtures or contribute to environmental pollution. In principle, the flaring device can be used for two different applications:

a) Degassing (emptying a gas line/vessel/system)

During gas line repair work, the line must be free of gas for safety reasons. After the gas supply has been shut off (e.g. by inflatable stoppers or valves), the residual gas remaining in the line is safely tapped, withdrawn and combusted in a controlled manner using a flaring device.

b) Gassing (filling a gas line/vessel/system)

When a gas line is being put into service, it is necessary to purge the pipe section of all air by the controlled introduction of gas. This means replacing the air in the line with gas. Until the line has been completely filled, an explosive gas-air mixture is released. This is drawn away and combusted in a safe and controlled manner by the flaring device.



2 Technical specification



The flaring device is suitable for use under the following conditions:

- Pressure range: 5 mbar to 5 bar / 16 bar
- Temperature range: -20 °C to +70 °C
- Flow volume: See diagram

Technical data:

- Total height (in ready-to-use condition)
Pressure range until 5 bar:
PREMIUM: 2145 mm/PREMIUM-PRO: 2270mm
Pressure range until 16 bar:
PREMIUM: 2145mm/PREMIUM-PRO: 2240 mm
- Manufactured from stainless steel 1.4301 DN 50 (2"), glass-bead blasted
- IBEDA GRS 50 gas backflow arrester/flame arrester up to 5 bar
- IBEDA GRV 50 gas backflow arrester up to 16 bar (both DVGW-certified)
- With integrated MW 0.1 mm pre-filter (integrated in the hose connection)
- Liquid gas hose OIL LPG/CORD EN 1762/D, DN 50 x 8.5 mm, PN 25, standard/approval: EN 1762:2018

Transport trolley dimensions

L x W x H: 1458 mm x 469 mm x 285 mm

Weight: 38 kg flaring device + 27 kg transport trolley including accessories

Variants

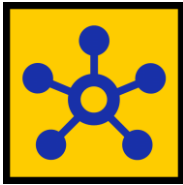
The designs of the flaring devices from KROHSE GmbH differ: With or without Venturi nozzle (to suck out the line); with or without flame monitoring (for hydrogen or flames that are difficult to see).



Figure 1: Overview of flaring device variants



3 System components



The system components are designed for use in the gas supply and have the specifications described below.



Figure 2: Transport trolley

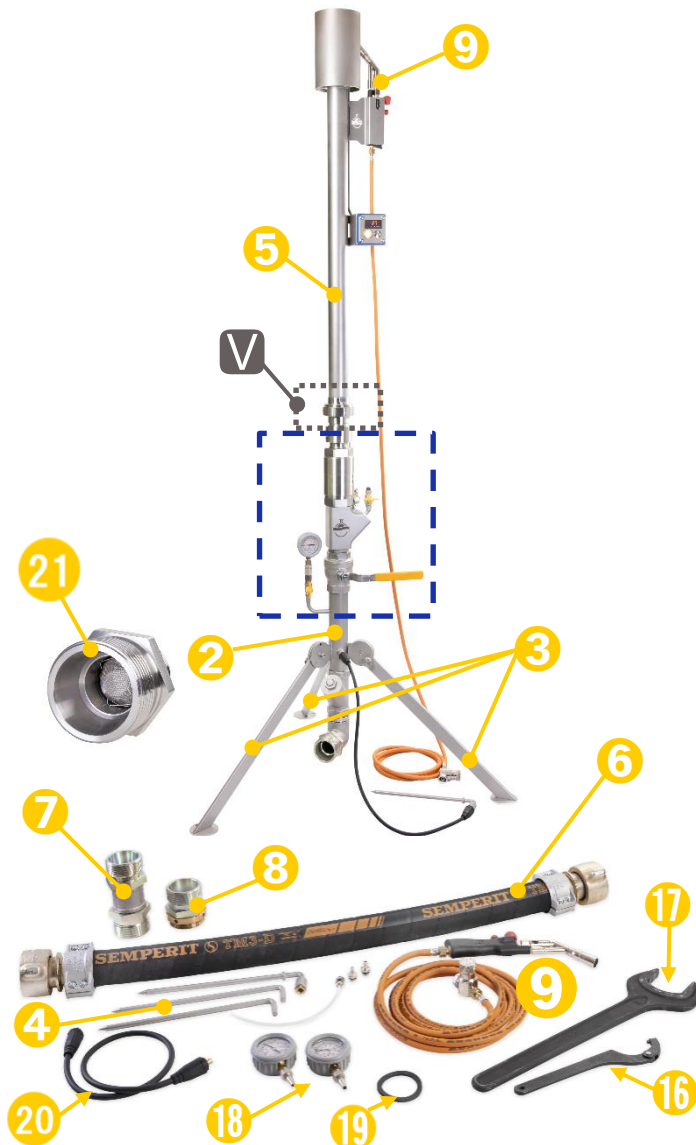


Figure 3: System components

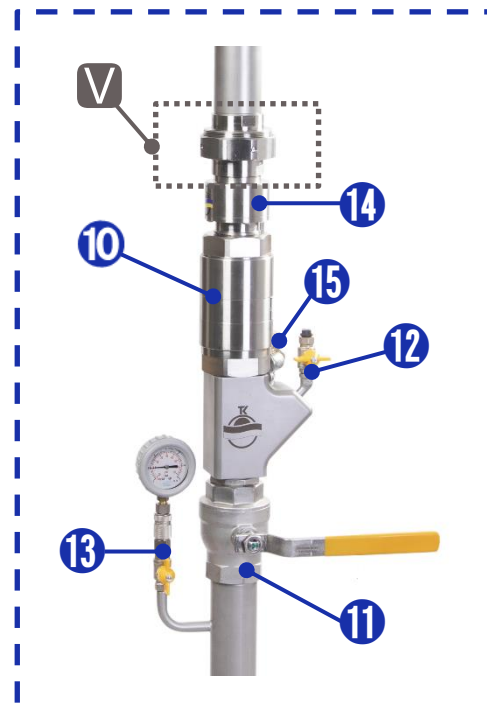


Figure 4: Main valve unit



	Components	Item no.	Specification
1	Transport trolley	9050002	HPX
2	Lower riser module with main valve unit (Z) and folding feet (3)		Stainless steel 1.4301
4	Ground pegs (2 pcs)	1420005	Stainless steel 1.4301
	Ground peg with cable socket (1 pc.)	1420045	Stainless steel 1.4301
5	Upper riser equipped for flame monitoring	1420165	Stainless steel 1.4301
6	Degassing hose	8050260	Liquid gas hose OIL LPG/CORD EN 1762/D, DN 50 x 8.5 mm, PN 25, standard/approval: EN 1762:2018, freely selectable length, galvanised on both sides with steel coupling (cone with O-ring seal)
	O-Ring	8050400	O-ring seal)
7	Coupler for degassing hose RD 75x1/6" ET (1 pc.)	1410060	Galvanised steel, with inner cone on both sides
8	Connection adapter		
	• 2" ET (1 pc.)	1410050	Galvanised steel
	• Adapter 2½" ET x 2" IT (1 pc.)	1460265	Gunmetal
9	Piezo propane burner	9060010	with plug nipple
	Regulator hose set 0.5-1.5 bar with Hose rupture protection	9060015	5 m propane gas hose with plug-in coupling and LH ¾", pressure re-ducer female thread 21.7 x 1.814 G
	Installation spanner for pressure re-ducer	9020070	SW 30 mm, Stainless steel 1.4301
Z	Main valve unit		
10	GRS50 gas backflow arrester	1430210	Stainless steel (1.4301) up to 5 bar
	GRV50 gas backflow arrester	1430260	Stainless steel (1.4301) up to 16 bar
11	Main shut-off valve*	1330010	Stainless steel 1.4408
12	Test port for measuring the gas concentration with shut-off valve* and coupling socket set	1360015	Brass ball valve G¼" IT
		1460285	Coupling socket G¼" DN 2.7
		1460290	Coupling socket G¼" DN 5
		1460130	Screw-in connection with PU hose, 6 x 4 mm
		1450000	Blanking plug PVC G¼" ET
13	Pressure gauge connection with quick coupler and shut-off valve*	7360824	Nickel-plated brass
14	VENKRO 50 (Venturi nozzle with compressed air connection (15) and shut-off valve*)	1420025	PRO
16	Hook spanner 60–90 mm	7370114	Phosphated steel with joint
17	Single open-ended spanner, 65 mm	9070065	Stainless steel 1.4301
18	Pressure gauge -1–1.5 bar	1020005	63 mm diameter, Cl. 1.6, glycerine-filled
	Pressure gauge -1–15 bar	1020025	63 mm diameter, Cl. 1.6, glycerine-filled
19	Flat seal	8050370	NBR 70 Shore A, 82 x 57 x 3 mm diameter
20	Earthing cable	1450035	90 cm, connector on both ends, 25 mm ²
21	Connection nipple with pre-filter	1420205	Stainless steel 1.4301

Table 1: Specification of system components

* All ball valves with a yellow handle, including the valve with the grey handle for the compressed-air feed at the Venturi nozzle, are DVGW-certified. A certificate is provided in Appendix 15.2.



Flaring device pressure-flow charts

The following chart describes the pressure-flow behaviour of the flaring device.

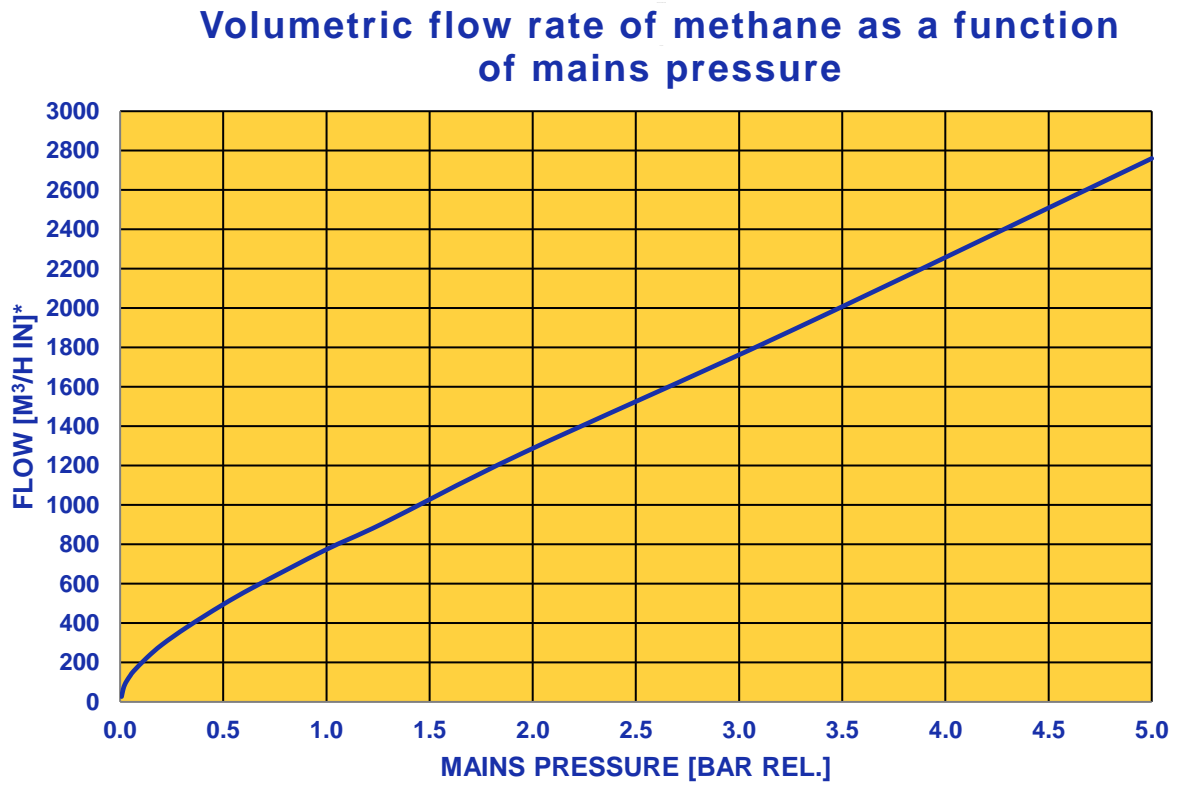


Figure 5: Volumetric flow rate of methane as a function of mains pressure

* Explanation of Y axis in Figure 5: m³/h IN \triangleq standard cubic metres per hour at 0 °C & 1013.25 mbar.



4 Safety and responsibility



This section provides an overview of all relevant safety aspects for the optimum protection of persons as well as safe and trouble-free operation. Keep the operating instructions manual with the safety information for future reference.

4.1 Warning signs

For your own safety, it is important to read and fully understand the following table with the various warning signs and their definitions.







Symbol	Definition
 DANGER	Warns of an imminent hazard that, if not avoided, will result in death or serious injury. ▶ Measures to avoid the hazard.
 WARNING	Warns of an imminent hazard that, if not avoided, could result in serious injury. ▶ Measures to avoid the hazard.
 CAUTION	Warns of a hazardous situation that, if not avoided, could result in minor or moderate injury. ▶ Measures to avoid the hazard.
	Warns of flammable materials (ISO 7010 – W021).
	Warns of explosive substances (DIN 4844-2 – D-W021).
	Warns of the presence of gas cylinders (ISO 7010 – W029).
ATTENTION	Indicates a hazardous situation that, if not avoided, could result in physical damage. However, no actions in respect of personal injury are necessary. ▶ Measures to avoid the damage.

Table 2: Warning signs

4.2 Signs and symbols



Symbol	Definition
	This sign means that your device meets the safety requirements of all applicable harmonised EU directives.
	Notes: Contain particularly important information for understanding.

Table 3: Signs and symbols



4.3 Intended use

The flaring device is designed exclusively for burning off natural gas (methane), propane, biogas, city gas and long-distance gas quantities as well as hydrogen (separate degassing hose) in a controlled manner so that these do not enter the atmosphere where and form ignitable mixtures or contribute to environmental pollutions.

The device may be operated only by trained personnel. Intended use also includes observing this instruction manual. The maintenance intervals must be strictly observed.

Have your device repaired only by qualified professionals and only with original replacement parts. This ensures that the safety of the device is maintained.

Keep the device away from rain or moisture. The ingress of dust or water into the flaring device could impair the throughflow of the medium.

For cleaning, do not use any solvents. Otherwise, the surface of the device and its seals could be damaged. Use only a silicone spray, which should also be used for lubricating the locking pins.

4.4 Improper use

Any use not described above or any use that does not comply with the technical specifications is considered improper use. The user bears sole responsibility for any damage or loss arising from improper use.

The following types of use are prohibited:

- Use of the device in environments where corrosive liquids could enter the components.
- Introduction of any objects into the medium-conveying components of the flaring device.
- The attachment of non-system-compliant components or the swapping of components is not permitted. This would invalidate the warranty, and the manufacturer shall accept no liability.

The following safety information indicates hazards of a general nature that may arise when handling the flaring device. To minimise the severity of the hazard, the user must observe all the rules of conduct listed.



Symbol	Definition
	 <p>DANGER</p> <p>Risk of fire and explosion.</p> <ul style="list-style-type: none"> ▶ Never use in enclosed spaces. ▶ Operation of the flaring device with natural gas flowing out is permitted only if full personal protective equipment is being worn (flame- and heat-resistant protective clothing including head protection, safety goggles and gloves). ▶ Never aim the flame at a person or flammable objects nearby.
Symbol	Definition
	<p>CAUTION</p> <p>Equipment damage caused by incorrect transport and storage.</p> <ul style="list-style-type: none"> ▶ For transport and storage, always use the intended carry case.

Table 4: Warnings – improper use



In this manual, you will find additional warning notes for every action that involves a potential hazard.

4.5 Product safety with factory test report

The flaring device was designed and constructed based on state-of-the-art standards and practices. KROHSE GmbH takes its responsibility as the manufacturer of this safety-critical device seriously and carries out a two-step leak test on each device before it leaves the factory. The complete fitness for purpose is confirmed in a test report enclosed with the device.

The components of the flaring device and the supplied accessories are specifically designed to work together.



DANGER

If the device is used incorrectly or in a modified way, hazards could arise for the user, third parties and the environment, for which KROHSE GmbH shall bear no responsibility.



▶ Use only the original components and replacement parts from KROHSE GmbH



▶ Do not use any other complementary goods (hoses, adapters, fittings)

▶ Observe the instructions and requirements for pressure and use. Modifications are prohibited without the written consent of the manufacturer.

The natural gas flaring device must be operated only by persons who:

- Have received appropriate training with regard to working on gas-carrying lines,
- Are aware of the danger of the above mentioned-escaping media,
- Have proficiency with the function principle of the flaring device and
- Have read and understood the operating instructions.

Standards:

- SVGW G2

Safety rules:

- SUVA "Erdgasleitungen: So arbeiten Sie sicher." (Natural gas lines: Safe working practices)
- DGUV Rule 100-500 Operation of work equipment, Section 2.31 "Work on gas lines"



4.6 Declaration of conformity

With the following declaration of conformity, KROHSE GmbH confirms that the described flaring device is in conformity with the applicable directives.

KROHSE GmbH
Gewerbstrasse 2
CH-8212 Neuhausen am Rheinfall, Switzerland

EU Declaration of Conformity

within the meaning of the Pressure Equipment Directive 2014/68/EU

Designation: Flaring device/gas flare

Device labelling: Year of manufacture/Batch no. – Device no.

Year of production: From 2024

The manufacturer bears sole responsibility for issuing this declaration of conformity.

Guideline/standard	Title
SVGW G2	Regulations – Guidelines for pipework
SUVA	“Erdgasleitungen: So arbeiten Sie sicher.” (Natural gas lines: Safe working practices)
DGUV Rule 100-500	Operation of work equipment, Section 2.31, Work on gas lines
Pressure Equipment Directive 2014/68/EU	Conformity assessment procedures > Cat. 1 = Internal production control

The object of the declaration described above complies with the relevant Union harmonisation legislation.

The harmonised standards listed above were used as a basis.

Authorised person for compiling the technical documentation:

Name: Thomas Krohse

Address: Gewerbstrasse 2, 8212 Neuhausen am Rheinfall, Switzerland

Neuhausen am Rheinfall,

.....
Signature of the person responsible
(Thomas Krohse, business owner)



4.7 Guarantee

The flaring device is covered by a guarantee of twelve (12) months. It begins from the delivery of the goods.

4.8 General terms and conditions of business

The currently valid general terms and conditions of business of KROHSE GmbH apply. These can be downloaded from www.krohse.ch/download/.



5 Kit contents



The flaring device is delivered with the following components in a robust carry case:

<p>A Riser unit with lower riser module 2, main valve unit Z, folding feet 3 and attached upper riser 5 with/without flame monitoring.</p> <p>4 Ground pegs (3 pcs)</p> <p>6 Degassing hose (length can be selected)</p> <p>7 Coupler for degassing hose</p> <p>8 Connection adapter 2" ET (1 pc.) Adapter 2½" ET x 2" IT (1 pc.)</p> <p>9 Piezo burner set with propane gas hose, pressure reducer and installation spanner</p>	<p>12 Test port connector set: - Coupling socket DN 2.7 (1 pc.) - Coupling socket DN 5 (1 pc.) - Screw-in connection with PU hose 6 x 4 mm (1 pc.) - PVC blanking plug, ¼" ET</p> <p>16 Hook spanner 60–90 mm (1 pc.) Hook spanner 68–75 mm (1 pc.)</p> <p>17 Single open-ended spanner 64 mm (1 pc.)</p> <p>18 Pressure gauge (-1–1.5 bar/-1–15 bar)</p> <p>19 Flat seal (2 pcs)</p> <p>20 Earthing cable (1 pc.)</p>
--	--



Figure 6: Kit contents

Necessary supplementary products (not included)

- Personal protective equipment (PPE) for working on gas lines
- Warning signs
- Gas detector
- Propane gas cylinder (preferably transparent for fill level checks)
- Plastic mallet or non-sparking tool for ground pegs
- Information about the affected line section (operating pressure, volume, surrounding shut-off valves, medium)

Only when using a Venturi nozzle

- Construction site compressor for oil-free compressed air with pneumatic claw coupling (min. 8 bar to max. 17 bar)



6 Assembling the flaring device

6.1 Tools for assembly/disassembly



All connections required for assembling/disassembling the flaring device can be tightened or loosened either by hand or with the supplied assembly spanners.

To secure the feet safely in the ground, you require a **plastic mallet** or a metal hammer made of a **non sparking material** to drive in the ground pegs.

6.2 Prerequisites for setting up the flaring device

Make sure that the flaring device is set up on a **flat and stable surface**. Choose a safe and hazard-free location that

- Is completely clear above the open flame.
- Is free of vegetation, electrical devices or other sources of ignition in the high-risk work area.
- Poses the lowest possible hazard potential for your own personnel and third parties.
- Can be quickly and safely evacuated and has at least two escape routes in different directions.
- As far as possible minimises noise emissions for the surrounding population.

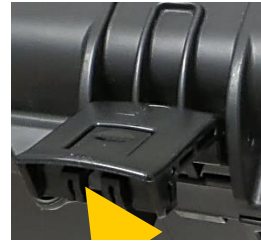
For securing on asphalt-surfaced ground, the feet must be secured to ground plates or similar.



6.3 Assembly and set-up

6.3.1 Opening the transport trolley

Place the transport trolley ① on a flat and stable surface. Open the six (6) trolley tabs by tilting the trolley tabs upwards.



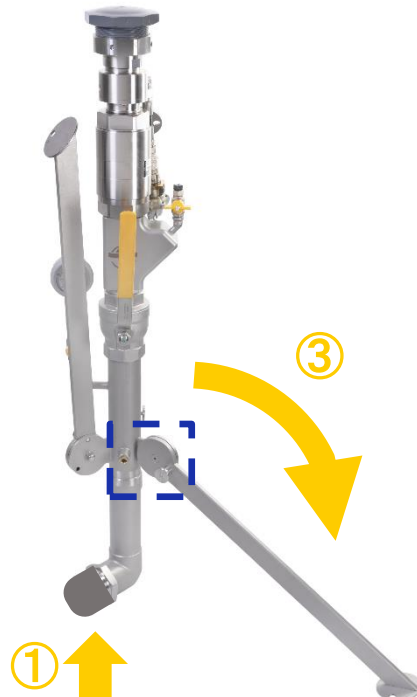
6.3.2 Erecting the lower riser module

Turn the upper riser (model with flame monitoring) upwards by approx. 70°. Set up the lower riser ② with main valve unit ④ and folding feet and lift it out of the transport trolley ①.



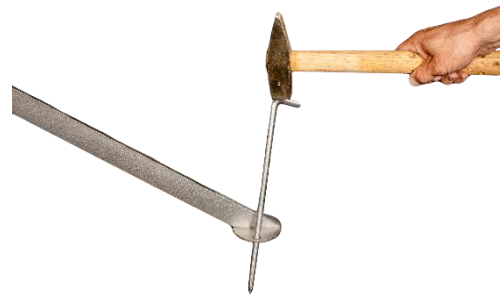
Ensure that the rubber protective cap is present on ②1 the connection nipple to prevent damage to the thread when attaching the riser.

Now place the lower riser ② vertically and carefully on the connection nipple ②1 with rubber protective cap at the selected workstation (step ①). Loosen the locking pins (step ②) and fold all three feet down (step ③) until you hear the sprung locking pins engage and the feet are locked in position.





Now ensure safe footing by driving in the ground pegs **4** using a plastic mallet or a metal hammer made of a **non-sparking material** until they are flush with the ground. Make sure that the ground peg with the earth connection is pointing towards the riser and do not connect the cable until after the peg has been driven in.



For protection against unwanted sparking, connect the black earthing cable **20** to the socket provided on the lower riser **2**, then connect the earthing cable to the earthing socket on ground peg **4**. Be sure to plug the connectors into the sockets fully and turn them clockwise to secure.



Check that all valves of the main valve unit **Z** are easy to operate. Now close all of the valves to prevent the inadvertent escape of gas during assembly.



All yellow and grey valve levers must be in the horizontal position.





6.3.3 Assembling the upper riser

Loosen and remove the grey PVC protective cap/plug and the black rubber protective cap (J, K and L) and stow them back in the transport trolley.



As you loosen the protective plug J, take care not to lose, damage or contaminate the flat seal 19 on the connection point.



Now fasten the upper riser to the lower riser at the connection point M. Ensure that

- The upper riser is aligned with the lower riser,
- The flat seal 19 is positioned centrally,
- The threaded connection can be screwed together easily.

Fasten the connection hand-tight first. Then further tighten the connection through 30–45° using the two assembly spanners 16 and 17.





6.3.4 Fitting the degassing hose

Now fasten one end of the degassing hose **6** to the elbow of the lower riser hand-tight using the threaded coupler (O-ring – taper).

The other end of the degassing hose should also be hand-tightened to the appropriate connection piece on the pipe, system or vessel.



It is essential to use the supplied connection adapter **8** 2" or 2 ½".



6.3.5 Fitting the piezo burner

Take the piezo burner set **9** from the transport trolley and attach the piezo burner to the designated bracket on the upper riser.

Swivel the burner nozzle into the designated opening in the diffuser (step **1**). Now slide the burner downwards until it fully engages in the bracket (step **2**).

Then screw the plug-in coupling on the orange propane gas hose with the piezo burner and screw the connection on the pressure reducer (at the opposite end) onto the **left-hand** thread on the propane gas cylinder and fasten gas-tight.

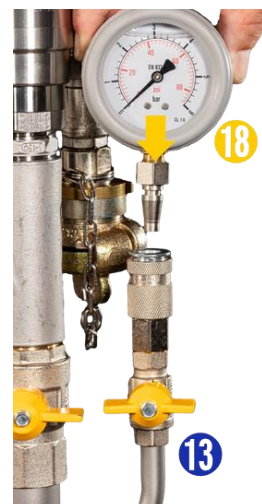


6.3.6 Pressure gauge connection

Select the appropriate pressure gauge **18** for your intended working pressure range:

- -1–1.5 bar
- -1–15 bar

Insert the inlet pressure gauge **18** at the pressure gauge connection **13** into the coupling provided, until you hear it click into place and open the ball valve on the pressure gauge connection.





7 Preparations for safe operation



DANGER

During work on live natural gas lines, there is a risk of fire and explosion.

► For this reason, the applicable national safety rules and regulations must be strictly observed.



For example:

- Swiss National Accident Insurance Fund SUVA “Erdgasleitungen: So arbeiten Sie sicher.” (Natural gas lines: Safe working practices) Or
- Occupational health and safety rules DGUV rule 100-500 Operation of work equipment, Section 2.31 “Work on gas lines”

In particular, note that:

- Work on gas lines must be carried out only by suitable, reliable and trained personnel.
- Only those persons are permitted in the hazard zone who are directly involved in the work.
- Personnel must wear the prescribed personal protective equipment (with flame- and heat-resistant protective clothing including head protection, safety goggles and gloves) during operation of the flaring device.
- There must be no sources of ignition, electrical devices or vegetation present in the work area.
- There must be no possibility of sparking, e.g. caused by passing road vehicles, railway vehicles and non-explosion-proof construction machinery or by electrical (battery change) or electrostatic discharge events.
- The hazard zone must have been clearly demarcated using appropriate warning signs.





8 Commissioning



Before your flaring device undergoes commissioning, make sure that

- The propane gas cylinder is large enough and sufficiently filled for the entire duration of the work.
- The secondary flame does not go out at any time during operation.
- The work remains possible even if there is a sudden gust of wind.

8.1 Function and leak testing before commissioning

As preventive safety measures, the following tests and function checks must be carried out before the start of the flaring process.

Test	Remedial measure
8.1.1 Propane gas line leak Open the propane gas cylinder but leave the controller on the burner closed for the time being. Now inspect the connection points.	► If leaks are found, the propane gas supply must be interrupted, the line must be vented and the connections retightened or components (seals/hoses) replaced.
8.1.2 Leak test Make sure that all valves on the flaring device are closed. Open the shut-off valve on the gas line. Now check the leak-tightness of the connection points of the degassing hose all the way to the flaring device using a gas detector or by soaping the connection points.	► If leaks are found, the gas supply at the shut-off valve of the natural gas line must be closed, the line must be vented and the connections retightened or components (seals/hoses) replaced. In case of doubt, contact KROHSE GmbH or its distributors.
8.1.3 Type verification Before starting the flaring process, check the existing type of flaring device and the installed safety valve again. GRS 50 up to max. 5 bar natural gas, biogas, propane (for further details, see page 43) GRS 50 up to max. 16 bar natural gas, biogas, propane (for further details, see page 41)	► If the pressure parameters match the specifications of the safety valve, you can start the flaring work. Otherwise, the pressure must be lowered or a suitable flaring device must be organised.

Table 5: Function tests before commissioning

For safety reasons, you must follow the procedure below precisely when commissioning your flaring device:



DANGER



During work on live gas lines, there is a risk of fire and explosion.

- Operation of the flaring device with natural gas flowing out is permitted only if full personal protective equipment is being worn (flame- and heat-resistant protective clothing including head protection, safety goggles and gloves).



8.2 Without Venturi nozzle (STANDARD)

The following procedure describes the commissioning of the flaring device variant PREMIUM-STANDARD.

8.2.1 Igniting the secondary flame

Open the valve on the propane gas cylinder.
Set the pressure reducer to the minimum working pressure.



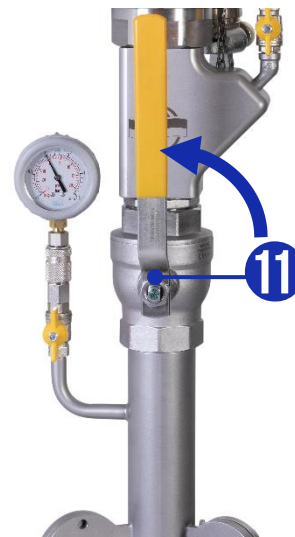
Fully anti-clockwise!

Open the valve ① on the piezo burner as far as it goes, then immediately press the igniter ② – several times if necessary – until the flame on the burner ignites and actuate the locking mechanism on the piezo burner for a permanent secondary flame.



8.2.2 Opening the gas supply

Open the shut-off valve on the natural gas line and then the main shut-off valve on the flaring device, or vice versa.



WARNING

Ball valves at high pressure must always be opened and closed slowly!



WARNING

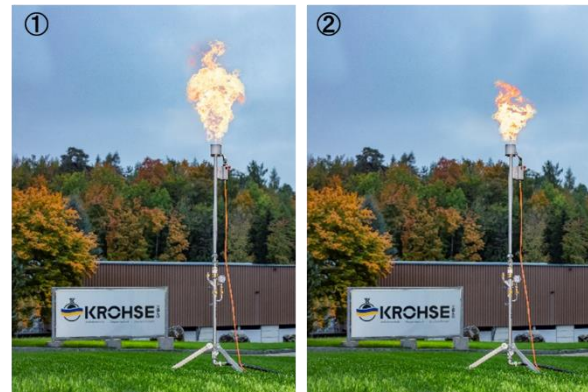
Make sure that the flame on the diffuser does increase in size but propagates as vertically as possible so as not to pose a hazard.

The secondary flame must be ignited before the main shut-off valve is opened!



8.2.3 End of the flaring process

Towards the end of the flaring process, there is a clear decline in gas pressure at the pressure gauge and the flame diminishes (image ②).



It is advisable to carry out a gas concentration measurement using the connected gas detector. To do this, connect the gas detector to the test port ⑫ using the supplied adapters and open the valve on the test port to carry out the concentration measurement.

ATTENTION: The gas concentration measurement must only be carried out if the overpressure in the flaring device at the test connection is zero. The main shut-off valve ⑪ must therefore be closed during the measurement. In addition, the gas concentration measurement must not be carried out when the Venturi nozzle is active (valve on the compressed-air connection closed).



An overview of the volumetric gas flow rate [m³/h] at different gas pressures can be found in Figure 5: on page 8.



8.2.4 Shutting down the flaring device

Close the shut-off valve on the gas pipe and then on the propane cylinder. This allows the residual gas to dissipate towards the flaring device. Now fully close the valve ① on the piezo burner.

Remove the gas detector from the test port.



Open all valves on the main valve unit to release the trace amounts of residual gas.



8.3 With Venturi nozzle (PRO)

The following procedure describes the commissioning of the PREMIUM-PRO flaring device variant. Thanks to the integrated Venturi nozzle, this variant is suitable for completely “sucking out” a pipe, e.g. for complete **degassing** during a shutdown or to set a pipe section in a shut-off state to a gas-free state before separation.

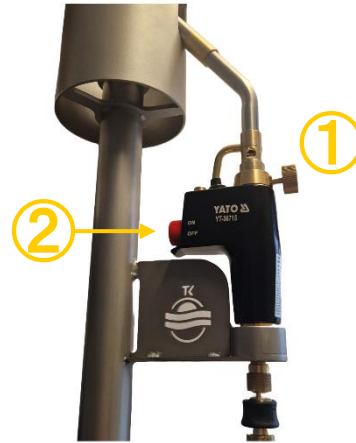
8.3.1 Igniting the secondary flame

Open the valve on the propane gas cylinder.
Set the pressure reducer to the minimum working pressure.



Fully anti-clockwise!

Open the valve ① on the piezo burner as far as it goes, then immediately press the igniter ② – several times if necessary – until the flame on the burner ignites and actuate the locking mechanism on the piezo burner for a permanent secondary flame.



8.3.2 Opening the natural gas supply

Open the shut-off valve on the natural gas line and then the main shut-off valve on the flaring device, or vice versa.



WARNING

Ball valves at high pressure must always be opened and closed slowly!



WARNING

Make sure that the flame on the diffuser does increase in size but propagates as vertically as possible so as not to pose a hazard.

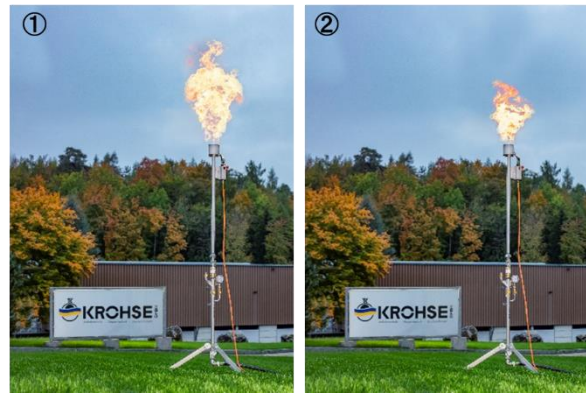


The secondary flame must be ignited before the main shut-off valve is opened!



8.3.3 End of the flaring process

Towards the end of the flaring process, there is a clear decline in gas pressure at the pressure gauge and the flame diminishes (image ②).

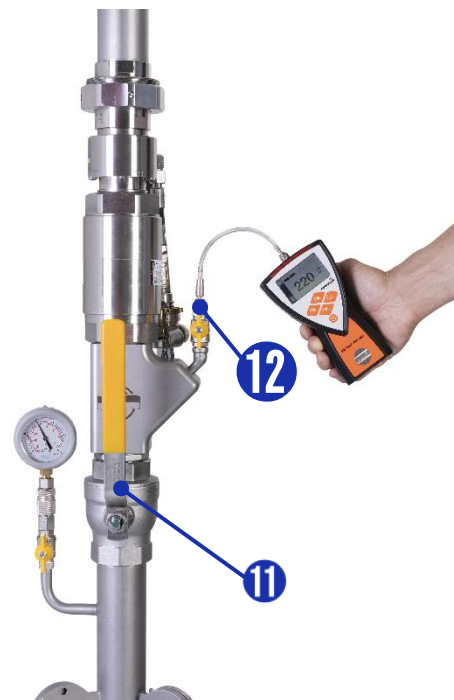


It is advisable to carry out a gas concentration measurement using the connected gas detector. To do this, connect the gas detector to the test port ⑫ using the supplied adapters and open the valve on the test port to carry out the concentration measurement.

ATTENTION: The gas concentration measurement must only be carried out if the overpressure in the flaring device at the test connection is zero. The main shut-off valve ⑪ must therefore be closed during the measurement. In addition, the gas concentration measurement must not be carried out when the Venturi nozzle is active (valve on the compressed-air connection closed).



An overview of the volumetric gas flow rate [m³/h] at different gas pressures can be found in Figure 5: on page 8.





8.3.4 Evacuating the line

To extract the residual volume of gas in the line, the Venturi effect is used: Compressed air flowing out generates a negative pressure in the line.

At the Venturi nozzle **14**, oil-free compressed air is inducted by the compressed-air connection **15**.

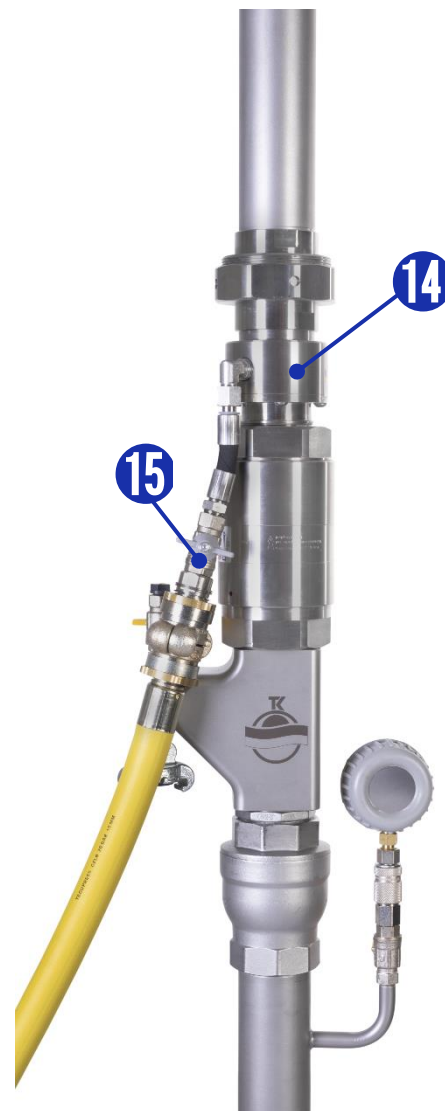


Only use pneumatic construction site compressors that permit oil-free compressed air generation and have an output pressure of at least 8 bar, but preferably max. 17 bar.

Make sure that the natural gas line can vent itself during the evacuation process. To do this, when you switch on the compressed air, simultaneously open a vent valve located on the other end of the gas line facing away from the end of the flaring device.

When the primary flame goes out, stop the supply of compressed air by closing the valve on the compressed-air connection.

Now measure the gas concentration. If the measured value is 50% below the explosive limit concentration, you can proceed with shutting down the flaring device (8.3.5). If this concentration has not yet been reached, continue to evacuate the line (in accordance with 8.3.4)



8.3.5 Shutting down the flaring device

Close the shut-off valve on the gas pipe and then on the propane cylinder. This allows the residual gas to dissipate towards the flaring device. Now fully close the valve **1** on the piezo burner.

Remove the gas detector from the test port.

Open all valves on the main valve unit to release the trace amounts of residual gas.





8.4 Flame monitoring

Flaring of hydrogen and sub-optimal solar radiation can make it difficult to see the flame. We can therefore equip our flaring device with optional flame monitoring. The radiant heat of the flame can be used to check via a light signal whether a flame is still present, the remaining gas has already been burnt or the escaping medium is no longer being ignited.

8.4.1 Installing the thermocouple

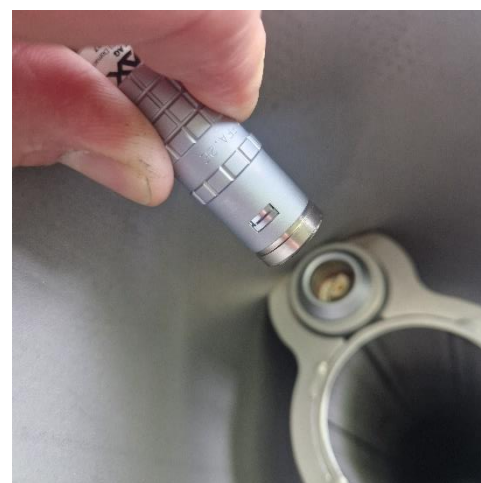
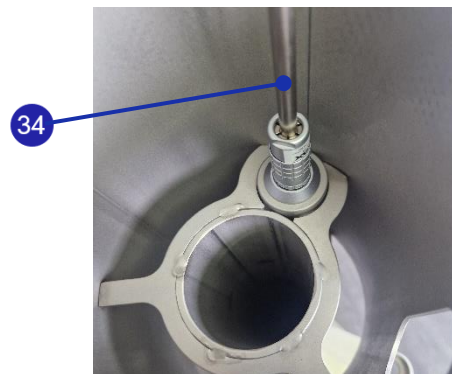
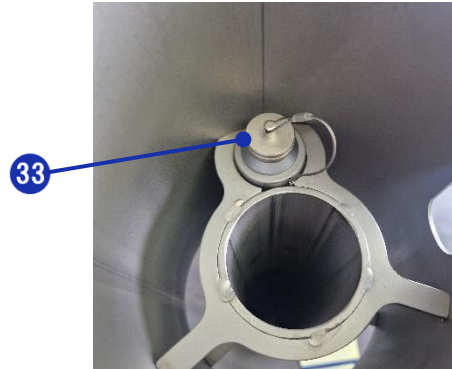
Before installing the upper riser: Remove the sealing cap **33** from the LEMO socket and insert the thermocouple **34**.

The sealing cap must be replaced after use to prevent moisture ingress. The sealing cap must be in the socket even when the flame monitoring system is not in use.

Insert the thermocouple into the LEMO socket. Please note that the thermocouple plug can only be inserted in one position. This must engage audibly and perceptibly.

Incorrect installation results in an error message on the digital display panel.

When dismantling after the flaring process and once all heated components have cooled, the sliding sleeve on the LEMO plug must be pulled back so that the thermocouple can be removed from the LEMO socket.





8.4.2 Digital control panel

Switch on the digital control panel at the main switch. The display **35** is loaded and, after a few seconds, the temperature currently detected by the thermocouple in the diffuser appears. Below, you will find a base value of 300 °C for the base temperature to be set when burning natural gas or biogas. This value may differ for different operating pressures and the user must find the base temperature values to be set.

Set the desired switching temperature:

1. Press the P button for approx. 3 seconds until the display flashes.
2. Use the arrow buttons to scroll to the A1.L1 display.
3. Briefly press the P button.
4. Now use the arrow buttons to set the required digits to achieve the desired base temperature. Each digit is confirmed with the P button.
5. Finally, the display returns to A1.L1 and after approx. 3 seconds the display changes to the standard view and the current temperature is displayed.





Basic setting of the digital control panel

This setting is available on delivery of the flaring device!

1. P button: Press for 3 seconds
2. Type: ▼▲ selection > Type > P > ▼▲ > Thermo > P > ▼▲ > Type K (H) > P
3. Button: Press ▲
4. Unit: P button > ▼▲ > °C > P
5. Button: Press ▲
6. A1.Fu: P button > ▼▲ > Lo.L1 > P
7. Button: Press ▲
8. A1.Er: P button > ▼▲ > no > P
9. Button: Press ▲
10. A1.tY: P button > ▼▲ > PnP > P
11. Button: Press ▲
12. A1.L1: P button > ▼▲ > enter the desired switching temperature > P
13. Button: Press ▲
14. BUTTON: P button > ▼▲ > no > P
15. Button: Press ▲
16. FLAS: P button > L1 – 1 > P

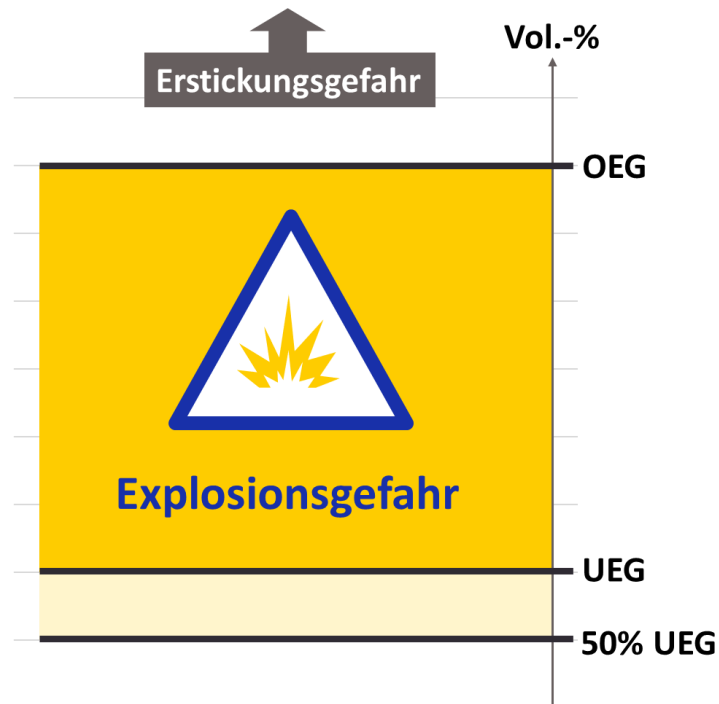
If no button is pressed for approx. 5 seconds, the current temperature display is automatically reset.

Other menu items do not need to be edited. To change the switching temperature so that the flame monitoring system responds at a cooler or warmer temperature, only point 12 needs to be adjusted (see page 28).



8.5 Explosive concentrations

During work with flammable gases, knowledge of the explosive concentration limits is vital:



Gas concentrations as volume percentage [vol. %]

Gas	Danger limit > 50% of the LEL	LEL Lower explosion limit	UEL Upper explosion limit
Natural gas	2%	4%	17%
Propane	0.8%	1.7%	12%
Butane	0.7%	1.5%	9%
Acetylene	0.7%	1.5%	82%
Hydrogen	2%	4%	76%
Petrol	0.3%	0.6%	8%

Table 6: Gas concentrations



9 Disassembling the flaring device

9.1 Tools for disassembly



All connections required for disassembling the flaring device can be loosened either by hand or with the supplied assembly spanners.

9.2 Disassembly and removal

9.2.1 Disconnecting the pressure gauge

Pull the locking sleeve on the pressure gauge connection **18** down slightly to make it possible to remove the pressure gauge **18**.

With the connection facing upwards, return the pressure gauge **18** to the designated storage compartment in the transport trolley.



9.2.2 Removing the piezo burner

Check that the shut-off valve on the gas cylinder is fully closed. Loosen the **left-hand** thread of the pressure reducer connection (at the opposite end of the orange propane gas hose) from the propane gas cylinder.

Disconnect the plug-in coupling on the propane hose from the secondary burner and push it upwards until it is released from the holder (step **1**). Then swivel the burner nozzle out of the opening in the diffuser (step **2**).

Return the cooled piezo burner set **9** to the designated compartment in the transport trolley.

ATTENTION: The piezo burner set must not be stowed in the transport trolley until it has fully cooled. → Fire hazard!





9.2.3 Removing the degassing hose

Make sure that the shut-off valve on the natural gas line/vessel/system is closed. Remove both ends of the degassing hose 6 (from the elbow of the lower riser on the flaring device) and from the other end together with the connection adapter 8 (on the natural gas line/vessel/system).

Roll up the degassing hose and bind it using the strap supplied.



9.2.4 Removing the upper riser

Now loosen the union nut at the connection point 15 using the two assembly spanners 16 and 17, and remove the upper riser 5.



Take care not to lose, damage or contaminate the flat seal 19 on the lower connection point.



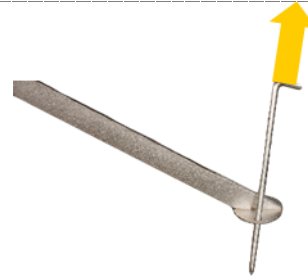
Now take all three protective caps/plugs (J, K and L) from the transport trolley and screw them into place. Place the upper riser in the transport trolley and turn the flame monitor upwards to prepare for easy stowage of the lower riser.





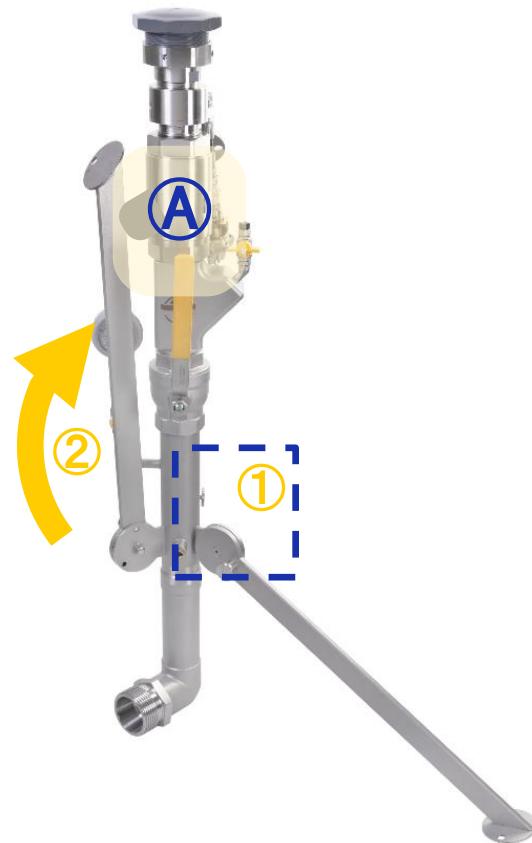
9.2.5 Pulling the ground pegs

Remove the earthing cable (20) and pull the ground pegs (4) out of the ground. Clean the ground pegs using a damp cloth and return them to the designated compartment in the transport trolley.



9.2.6 Dismantling the lower riser module

Loosen the locking pins (step 1) and fold all three feet upwards (step 2) until you hear the sprung locking pins and the feet are locked in the uppermost position.



When doing so, set the riser unit (A) = (2) carefully on the black silicone protective cap (L) that closes the connection nipple.

Finally, insert the riser unit (A) into the transport trolley (1) so that the connection bracket fits into the foam.



Note: The “KROHSE nameplate” points upwards.





10 Troubleshooting



A fault or malfunction can often be easily rectified by some simple remedial measures.

10.1 Fault causes and remedial measures

Fault cause	Description ▶ Remedial measure
Flame flickers significantly	<p>Strong wind</p> <ul style="list-style-type: none"> ▶ Find shelter from the wind or carry out the work in better weather conditions <p>Not enough propane gas in the cylinder</p> <ul style="list-style-type: none"> ▶ Replace the propane gas cylinder
Pressure does not drop to zero towards the end	<p>Gas line shut-off not 100% leak-tight</p> <ul style="list-style-type: none"> ▶ Make sure that the shut-off valve is fully closed or improve the effectiveness of the inflatable stoppers (use stoppers for higher pressures or double stoppers).
Valves leaking or stiff to move	<p>Shut-off valve no longer functioning</p> <ul style="list-style-type: none"> ▶ If the shut-off valves cannot be fully opened or closed correctly, the affected components on the flaring device must be replaced after consultation with KROHSE GmbH.
Connection point stiff to move or leaking	<p>External thread damaged (impact damage)</p> <ul style="list-style-type: none"> ▶ Rework the thread after consultation with KROHSE GmbH <p>External thread dirty</p> <ul style="list-style-type: none"> ▶ Clean the thread and then lubricate with silicone spray <p>Seal damaged/no seal fitted</p> <ul style="list-style-type: none"> ▶ Check and fit a new flat seal
Foot does not engage	<p>Locking pin not engaging (deformation of the foot)</p> <ul style="list-style-type: none"> ▶ Rework the bore hole slightly using a file ▶ Replace the foot
Sliding sleeve on the pressure gauge connection does not move	<p>Coupler operated without pressure gauge</p> <ul style="list-style-type: none"> ▶ Pull the locking sleeve back and refit the pressure gauge ▶ Lubricate the locking sleeve with silicone spray
Piezo burner not igniting	<p>Not enough propane gas in the cylinder</p> <ul style="list-style-type: none"> ▶ Replace the propane gas cylinder <p>Ignition mechanism defective</p> <ul style="list-style-type: none"> ▶ Replace the piezo burner <p>Pressure reducer defective</p> <ul style="list-style-type: none"> ▶ Replace the pressure reducer

Table 7: Fault causes and remedial measures



10.2 Technical support

Technical support for the flaring device



Watch our detailed video guide at
www.YouTube.com Search term: **“Abfackelgerät KROHSE”**



+41 (0) 52 202 10 51



info@krohse.ch

11 Storage and transport



To ensure that your flaring device is always protected from dust, dirt, moisture and damage, always keep the device safely stored in the carry case when out of use.

If it is necessary to carry the flaring device inside the transport trolley (30 kg), this should be done by two persons holding the side carry handles to avoid overexertion. If only one person is available, the transport trolley and riser unit can be carried separately.



12 Maintenance and repair

12.1 Cleaning and care



Clean your flaring device with silicone spray after it has cooled. Never use corrosive or abrasive products as this could damage the anti-corrosion protection and seals.

12.2 Maintenance

Check after use: After each use, it is necessary to inspect the KROHSE flaring device for sound condition and cleanliness of components.

Table 8 below provides an overview of the components on your flaring device that require regular maintenance:

Component	Maintenance and frequency	Maintenance level	Carried out by
Compressed-air connection on the Venturi nozzle	Regular maintenance after each use <ul style="list-style-type: none"> • Check the seal, shut-off valves and hose • Lubricate the safety clutch with silicone spray for good ease of movement 	L1	User
Degassing hose set	Regular maintenance after each use <ul style="list-style-type: none"> • Check the O-rings 	L1	User
Piezo burner set	Regular maintenance after each use <ul style="list-style-type: none"> • Check that the components are in a sound condition (no cracks in the hose, no impact damage to the burner and pressure reducer, etc.) 	L1	User
Pressure gauge, pressure gauge coupler	Regular maintenance after every 3rd use <ul style="list-style-type: none"> • Check that the connections are clean and undamaged • Lubricate with silicone spray 	L1	User
Prefilter	Regular maintenance after every third use or earlier <ul style="list-style-type: none"> • Dismantling the clamping spring • Remove the screen, clean with brake cleaner and blow out with compressed air or replace 	L1	User

Table 8: Maintenance level 1



Component	Maintenance and frequency	Maintenance level	Carried out by
Complete flaring device	Annual maintenance <ul style="list-style-type: none"> Leak test of the entire unit including pressure gauges and degassing hoses Accuracy test of the pressure gauges Cleaning and testing all installed parts (pre-filter, main filter, flame flashback arrester/gas backflow arrester) Function test of the piezo burner set 	L2	KROHSE GmbH or service partner

Table 9: Maintenance level 2

Maintenance level

L1: Carried out by the user of the flaring device.

L2: Must be carried out by a technician at KROHSE GmbH or one of its service partners.

It is prohibited for a level 2 maintenance service to be carried out by the user or by another technician not appointed by KROHSE GmbH or its service partners. This would result in instant invalidation of the guarantee and a release of liability.

Tampering with or modification to components of the device result in instant invalidation of the guarantee and a release of liability.

For the annual maintenance (L2) or repair of your KROHSE flaring device, please send the complete device including all components and accessories inside the transport trolley to the manufacturer KROHSE GmbH or one of its service partners.

12.3 Wear of components

The wear life of the degassing hose and propane gas hose is 8 (eight) years.

External factors (temperature, UV light, media contact, heavy mechanical loading, etc.) could lead to premature embrittlement of the hoses. For this reason, check these components regularly.



12.4 Cleaning/replacing the pre-filter

Clean the pre-filter of your flaring device after every third use at the latest, or more frequently if necessary.

To do this, remove the clamping spring **32** and remove the pre-filter insert from the **31** from the connection nipple. Clean both parts with brake cleaner and then with compressed air. Also remove any residue from the connection nipple on the filter seat. **2**



After removing the filter insert **31** and the clamping spring **32**, check for damage and replace these parts if necessary.

Make sure that you fit the pre-filter screen **31** in the correct position. Now reinsert the clamping spring **32** into the groove provided in the connection nipple.





13 Accessories



The following replacement parts and accessories are available.

	Component	Item no.	Specification
1	Transport trolley	9050002	HPX
3	Folding foot	1420220	Stainless steel 1.4301
4	Ground peg Ground peg with cable socket	1420005 1420045	Stainless steel 1.4301 Stainless steel 1.4301
6	Degassing hose set O-Ring	8050320 8050400	Liquid gas hose OIL LPG/CORD EN 1762/D, DN 50 x 8.5 mm, PN 25, standard/approval: EN 1762:2018, length 10 m, galvanised on both sides with steel coupling (cone with O-ring seal)
7	Coupler for degassing hose RD 75x1/6" ET	1410060	Galvanised steel, with inner cone on both sides
8	Connection adapter • 2" ET • 2½" ET	1410050 1460265	Galvanised steel Gunmetal
9	Piezo propane burner Regulator hose set 0.5-1.5 bar with Hose rupture protection Installation spanner for pressure re- ducer	9060010 9060015 9020070	with plug nipple 5 m propane gas hose with plug-in coupling and LH 3/8", pressure reducer female thread 21.7 x 1.814 G SW 30 mm, Stainless steel 1.4301
12	Blanking plug on the test port	1450000	PVC, ¼" ET
16	Hook spanner 60–90 mm	7370114	Phosphated steel with joint
17	Single open-ended spanner, 64 mm	9020064	Stainless steel 1.4301
18	Pressure gauge -1–1.5 bar Pressure gauge -1–15 bar Pressure gauge protective cap	1020000 1020005 8050040	63 mm diameter, Cl. 1.6, glycerine- filled 63 mm diameter, Cl. 1.6, glycerine- filled Rubber, grey
19	Flat seal 82 x 57 x 3 mm	8050370	NBR 70 Shore A
20	Earthing cable	1450035	90 cm, connector on both ends, 25 mm ²
21	Connection nipple with pre-filter	1420205	Stainless steel 1.4301
J	PVC plug at top of lower riser module	1450090	PVC, 3" ET
K	PVC cap at the bottom of the upper riser	1450080	PVC, 3" IT
L	Silicone cap at the bottom of the el- bow on the lower riser module	1450100	Silicone, internal diameter 73.0 mm
	Strap for the degassing hose set	80500xx	Depending on the hose length
31	Pre-filter screen 0.1 mm	1430235	Stainless steel 1.4305
32	Clamping spring for basket filter	1430245	Stainless steel 1.4305
33	Sealing cap LEMO size 2	1490055	Stainless steel 1.4305
34	Thermocouple type K, 400 mm	1490010	Stainless steel 1.4305

Table 10: Replacement parts and accessories



14 Disposal

The flaring device can be taken to a conventional disposal point offering environmentally responsible recycling of metals, plastics and special waste.



15 Appendix

15.1 Data sheet: Gas backflow arrester

Sicherheitseinrichtung



SOLUTIONS FOR GASES

Die Sicherheitseinrichtung (Gasrücktrittventil) GRV50-VA:

Modell GRV50-VA zum Absichern von Ringleitungen, Entnahmestellen und Verbrauchern

Sicherheitseinrichtung GRV50-VA:

- vermeidet gefährliche Gasgemischbildung durch ein Gasrücktrittventil (NV)
- ein Schmutzfilter schützt das Gasrücktrittventil vor Verschmutzung
- jede Sicherheitseinrichtung ist 100% überprüft
- alle metallischen Bauteile sind aus Edelstahl 1.4305 / Feder 1.4310

Sicherheitselemente der IBEDA Gasrücktrittventil GRV50-VA:

- NV Gasrücktrittventil

Zusätzliches Funktionselement:

- DF Schmutzfilter

Für weitere Informationen: <http://www.ibeda.com/de/gasruecktrittsicherungen>

Wartung:

Die Sicherheitseinrichtungen sind in bestimmten Zeitintervallen durch eine geschulte und autorisierte Person nach landesspezifischen Vorschriften zu prüfen. Mindestens einmal jährlich muss die Sicherheitseinrichtung auf Dichtheit und Sicherheit gegen Gasrücktritt geprüft werden (entsprechend TRBS 1201, Tabelle 2 - „bewährte Prüfristen für wiederkehrende Prüfungen“).

Die Sicherheitseinrichtungen dürfen nicht geöffnet werden.

Der Schmutzfilter darf von Sachkundigen selbst gewechselt werden.



NG-4390C0062

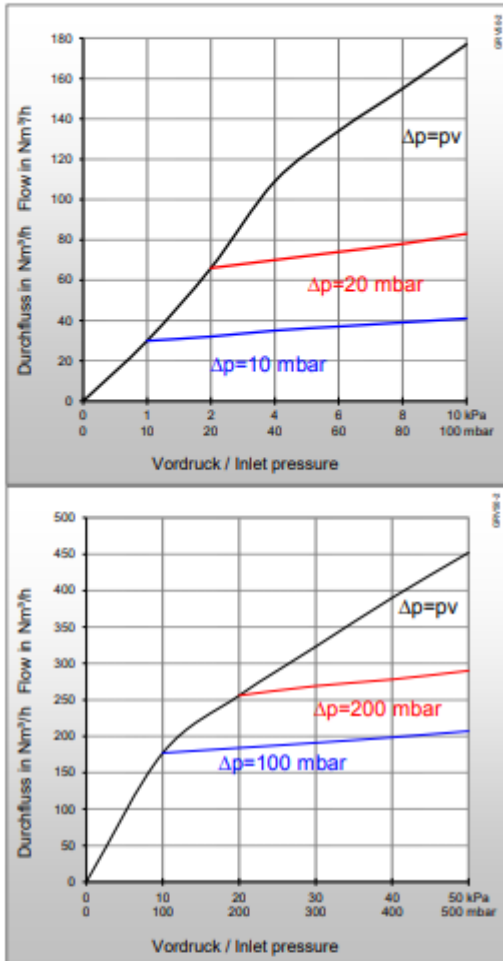
Technische Daten:							
Gasrücktrittventil GRV nach ISO 5175-2: nicht flammenddurchschlagsicher, nicht flammenddurchschlagfest							
Gasarten:	Stadt- und Ferngas (C)	Wasserstoff (H)	Erdgas (Methan) (M) Bioogas gereinigt (M)	Propan (P)	Sauerstoff (O)	Druckluft (D) Stickstoff (N) Kohlendioxid (N) Argon (N) Helium (N)	
Betriebsdrücke:	2,0 MPa 20 bar						
Öffnungsdruck:	4 bis 6 mbar lageunabhängig						
Medientemperatur:	-20°C bis +70°C (Sauerstoff -20°C bis +50°C)						
Umgebungs-temperatur:	-20°C bis +70°C						
Gewindeanschlüsse: DIN ISO 228	G2RH F/F ²⁾ G1 1/2RH F/F ³⁾ 2 NPT F/F ³⁾ 1 1/2 NPT F/F ³⁾						
Flanschanschlüsse: EN 1092-1 Typ 04	DN40 DN50						
Maße und Gewicht:	Durchmesser:	Länge:		Gewicht:			
Gewinde G11/2 – 11/2NPT :	94 mm	124 mm		3,7 kg			
Flansch DN40:	150 mm	316 mm		11,0 kg			
Gewinde G2 – 2NPT:	94 mm	145 mm		4,6 kg			
Flansch DN50:	160 mm	337 mm		11,0 kg			
Verwendung:	Wärmbrenner, Gasmisch- und Regeltechnik und Industrielle Thermoprozessanlagen nach EN 746-2						

Andere Werkstoffe, Oberflächenveredelungen, Gasarten und Gewindeanschlüsse oder -kombinationen auf Anfrage.

²⁾ F = Innengewinde, M = Außengewinde



Sicherheitseinrichtung



Beispiel Durchflusskurve Modell: GRV50-VA G2RH F/F. Werte für andere Anschlüsse auf Anfrage.

Konformitätserklärung

Wir erklären als Hersteller, dass die Sicherheitseinrichtungen die Anforderungen der aufgeführten Richtlinien und Normen erfüllen:

Richtlinie: 2014/68/EU Druckgeräterichtlinie

Normen: DIN EN ISO 5175 Teil 2

Sicherheitseinrichtungen nach DIN EN ISO 5175-2, für brennbare oder brandfördernde Gase (Gruppe 1), unterliegen dem Konformitätsverfahren nach Druckgeräterichtlinie 2014/68/EU, Kategorie I, Modul A.

Modell: GRV50-VA

Durchflussdaten [Luft]:

pv = Vordruck
ph = Hinterdruck
Δp = Vordruck minus Hinterdruck

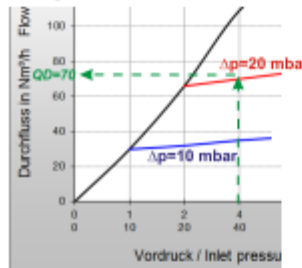
Umrechnungsfaktor:

10 kPa = 100 mbar = 0,01 MPa = 0,1 bar = 1,45 psi
1 m³/h = 35,31 cu ft/h

	H	P	L	M	M	O
QG ▶	H ₂	C ₃ H ₈	C ₃ H ₆	CH ₄ +C	CH ₄	O ₂
F	3,8*	0,90	0,92	1,25	1,4	0,95

* Umrechnungsfaktor 2,5 beim Ausströmen über eine Flammensperre. Beim Ausströmen aus einer Öffnung beträgt der Faktor 3,8. (Quelle: BAM Forschungsbericht 220, D. Lietze)

Beispiel:



QG = QD x F
QG ▶ P = 70 x 0,9 = 63 m³/h C₃H₈
QG = Durchfluss / Gasart
F = Umrechnungsfaktor
QD = Durchfluss / Luft

Zulassungen / Technische Regeln / Richtlinien

BAM Bundesanstalt für Materialforschung und-prüfung, DVGW Deutsche Vereinigung des Gas- und Wasserfaches e.V., DVS Deutscher Verband für Schweißen und verwandte Verfahren e.V., DGUV Deutsche Gesetzliche Unfallversicherung Vorschriften und Regeln, TRBS Technische Regeln für Betriebssicherheit.

Normen/ Baubestimmungen

Unternehmen zertifiziert nach ISO 9001:2015 und ISO 14001:2015, CE-Kennzeichnung gemäß: Druckgeräterichtlinie 2014/68/EU

(Änderungen vorbehalten)





Sicherheitseinrichtung



Die Sicherheitseinrichtung (Gasrücktrittsicherung) GRS50-VA:

Modell GRS50-VA zum Absichern von Ringleitungen, Entnahmestellen und Verbrauchern

Sicherheitseinrichtung GRS50-VA:

- vermeidet gefährliche Gasgemischbildung durch ein Gasrücktrittventil (NV)
- verhindert Flammendurchschlag bei Druckluft als Oxydant
- ein Schmutzfilter schützt das Gasrücktrittventil vor Verschmutzung
- jede Sicherheitseinrichtung ist 100% überprüft
- alle metallischen Bauteile sind aus Edelstahl 1.4305 / Feder 1.4310

Sicherheitselemente der IBEDA Gasrücktrittsicherung GRS50-VA:

- NV Gasrücktrittventil

Zusätzliches Funktionselement:

- DF Schmutzfilter



DG-4390CQ0061

Für weitere Informationen: <http://www.ibeda.com/de/gasruecktrittsicherungen>

Wartung:

Die Sicherheitseinrichtungen sind in bestimmten Zeitintervallen durch eine geschulte und autorisierte Person nach landesspezifischen Vorschriften zu prüfen. Mindestens einmal jährlich muss die Sicherheitseinrichtung auf Dichtheit und Sicherheit gegen Gasrücktritt geprüft werden (entsprechend TRBS 1201, Tabelle 2 - „bewährte Prüffristen für wiederkehrende Prüfungen“).

Die Sicherheitseinrichtungen dürfen nicht geöffnet werden.

Der Schmutzfilter darf von Sachkundigen selbst gewechselt werden.

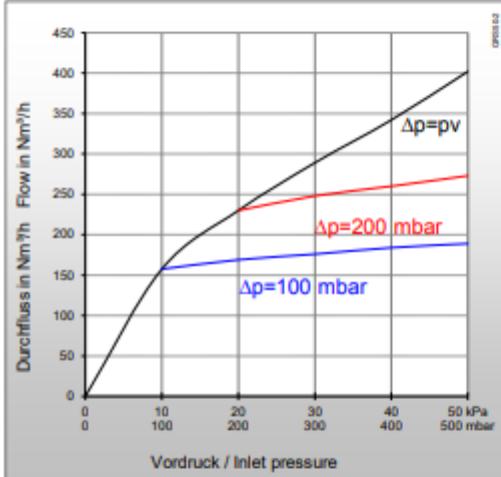
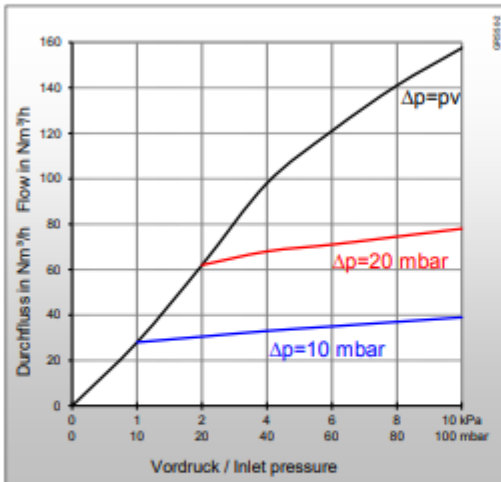
Technische Daten:							
Gasrücktrittsicherung GRS nach DIN EN ISO 5175-2: Flammendurchschlagsicher bei Betrieb mit Druckluft							
Gasarten:	Stadt- und Ferngas (C)	Wasserstoff (H)	Erdgas (Methan) (M)	Propan (P)	Biogas gereinigt (M)		
Betriebsdrücke:	0,1 MPa 1,0 bar		0,5 MPa 5 bar		0,5 MPa 5 bar		
Öffnungsdruck:	4 bis 6 mbar lageunabhängig						
Medientemperatur:	-20°C bis +70°C (Sauerstoff -20°C bis +50°C)						
Umgebungstemperatur:	-20°C bis +70°C						
Gewindeanschlüsse: DIN ISO 228	G2RH F/F ³⁾ G1 1/2RH F/F ³⁾ 2 NPT F/F ³⁾ 1 1/2 NPT F/F ³⁾						
Flanschanschlüsse: EN 1092-1 Typ 04	DN40 DN50						
Maße und Gewicht:	Durchmesser:		Länge:		Gewicht:		
Gewinde G1 1/2 – 1 1/2NPT:	94 mm		175 mm		6,0 kg		
Flansch DN40:	150 mm		367 mm		12,0 kg		
Gewinde G2 – 2NPT:	94 mm		176 mm		6,5 kg		
Flansch DN50:	160 mm		367 mm		12,0 kg		
Verwendung:	Wärmbrenner, Gasmisch- und Regeltechnik und Industrielle Thermoprozessanlagen nach EN 746-2						

Andere Werkstoffe, Oberflächenveredelungen, Gasarten und Gewindeanschlüsse oder -kombinationen auf Anfrage.

³⁾ F = Innengewinde, M = Außengewinde



Sicherheitseinrichtung



Beispiel Durchflusskurve Modell: GRS50-VA G2RH F/F. Werte für andere Anschlüsse auf Anfrage.

Konformitätserklärung

Wir erklären als Hersteller, dass die Sicherheitseinrichtungen die Anforderungen der aufgeführten Richtlinien und Normen erfüllen:

Richtlinie: 2014/68/EU Druckgeräte richtlinie

Normen: DIN EN ISO 5175 Teil 2

Sicherheitseinrichtungen nach DIN EN ISO 5175-2, für brennbare oder brandfördernde Gase (Gruppe 1), unterliegen dem Konformitätsverfahren nach Druckgeräte richtlinie 2014/68/EU, Kategorie I, Modul A.

Modell: GRS50-VA

Durchflussdaten [Luft]:

pv = Vordruck
 ph = Hinterdruck
 Δp = Vordruck minus Hinterdruck

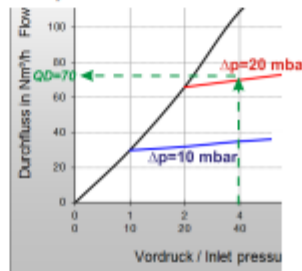
Umrechnungsfaktor:

10 kPa = 100 mbar = 0,01 MPa = 0,1 bar = 1,45 psi
 1 m³/h = 35,31 cu ft/h

	H	P	L	M	M	O
QG ▶	H ₂	C ₃ H ₈	C ₃ H ₆	CH ₄ +C	CH ₄	O ₂
F	3,8*	0,90	0,92	1,25	1,4	0,95

* Umrechnungsfaktor 2,5 beim Ausströmen über eine Flammensperre. Beim Ausströmen aus einer Öffnung beträgt der Faktor 3,8. (Quelle: BAM Forschungsbericht 220, D. Lietze)

Beispiel:



QG = QD x F
 QG ▶ P = 70 x 0,9 = 63 m³/h C₃H₈

QG = Durchfluss / Gasart
 F = Umrechnungsfaktor
 QD = Durchfluss / Luft

Zulassungen / Technische Regeln / Richtlinien

BAM Bundesanstalt für Materialforschung und -prüfung, DVGW Deutsche Vereinigung des Gas- und Wasserfaches e.V., DVS Deutscher Verband für Schweißen und verwandte Verfahren e.V., DGUV Deutsche Gesetzliche Unfallversicherung Vorschriften und Regeln, TRBS Technische Regeln für Betriebssicherheit.

Normen/ Baubestimmungen

Unternehmen zertifiziert nach ISO 9001:2015 und ISO 14001:2015, CE-Kennzeichnung gemäß: Druckgeräte richtlinie 2014/68/EU

(Änderungen vorbehalten)





15.2 Certificates: Valves, hoses



Gilt für Artikel
 IK1116xx,
 IK1126xx,
 IK1119xx
 IK1129xx



DIN-DVGW-Baumusterprüfzertifikat DIN-DVGW type examination certificate

NG-4312BN0021

Registriernummer
 registration number

Anwendungsbereich <i>field of application</i>	Produkte der Gasversorgung <i>products of gas supply</i>
Zertifikatinhaber <i>owner of certificate</i>	
Vertreiber <i>distributor</i>	
Produktart <i>product category</i>	Gasarmaturen: Absperrarmatur <= MOP 5 (4312)
Produktbezeichnung <i>product description</i>	Kugelhahn für die Gasinstallation
Modell <i>model</i>	LONDON; 060
Prüfberichte <i>test reports</i>	Baumusterprüfung: 11/272/4312/132 vom 02.08.2012 (EBI) Kontrollprüfung Labor: 1110712-001 vom 08.11.2021 (TTR)
Prüfgrundlagen <i>test basis</i>	DIN EN 331 (01.04.2016)

Ablaufdatum / AZ
date of expiry / file no. 28.01.2027 / 21-0578-GNV

31.01.2022 Wgr A-1/2

Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle
 date, issued by, sheet, head of certification body



DVGW CERT GmbH
 Zertifizierungsstelle

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 53123 Bonn

Tel. +49 228 91 88 - 888
 Fax +49 228 91 88 - 993

www.dvgw-cert.com
 info@dvgw-cert.com



A-2/2

NG-4312BN0021

Gasart <i>gas category</i>	Bemerkungen <i>remarks</i>
Brenngase nach G 260: 03.2013	

Typ <i>type</i>	Technische Daten <i>technical data</i>	Bemerkungen <i>remarks</i>
066/067/068/069/266/267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 8	
066/067/068/069/266/267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 10	
060/066/067/068/069/266/ 267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 15	
066/067/068/069/266/267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 20	
066/067/068/069/266/267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 25	
066/067/266/267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 32	
066/067/266/267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 40	
066/067/266/267	Druckklasse: MOP 5/ GT 0,1 Nennweite: DN 50	

Ausführungsvariante <i>type variation</i>	Erläuterungen <i>explanations</i>
066/067/068/069 060	Durchgangsform (Baureihe LONDON) Eckform; Anschlussart: beiderseitig Außengewinde R 1/2 nach DIN EN 10226-1, Betätigungsorgan: Flügelgriff aus Aluminium
066	Anschlussart: beiderseitig Innengewinde Rp 1/4 bis Rp 2 nach DIN EN 10226-1; Betätigungsorgan: Handhebel aus Stahl
067	Anschlussart: einerseits Innengewinde Rp 1/4 bis Rp 2, andererseits Außengewinde R 1/4 bis R 2, jeweils nach DIN EN 10226-1; Betätigungsorgan: Handhebel aus Stahl
068	Anschlussart: beiderseitig Innengewinde Rp 1/4 bis Rp 1 nach DIN EN 10226-1; Betätigungsorgan: Flügelgriff aus Aluminium
069	Anschlussart: einerseits Innengewinde Rp 1/4 bis Rp 1, andererseits Außengewinde R 1/2 bis R 1, jeweils nach DIN EN 10226-1; Betätigungsorgan: Flügelgriff aus Aluminium
266	wie 066, jedoch mit flachem Handhebel
267	wie 067, jedoch mit flachem Handhebel

zertifizierte Bauteile / Werkstoffe *certified components*

Registr.-Nr. <i>registration no.</i>	Bauteil (Produktart) <i>component</i>	Modell/Typ <i>model/type</i>	Hersteller <i>manufacturer</i>
DG-5112AS0532	Elastomerwerkstoff für Dichtungen in Gasgeräten und -anlagen	3170 FKM 70 GN/3170 FKM 70 GN	AR-TEX S.p.A.
NG-5112AR0799	Elastomerwerkstoff für Dichtungen in Gasgeräten und -anlagen	0170 NBR 70/0170 NBR 70	AR-TEX S.p.A.
NG-5146AR0617	Dichtmittel für herstellereitig zusammengefügte Gewindeverbindungen in Gasgeräten und Komponenten	LOCTITE® 2701/LOCTITE® 2701	Henkel AG & Co. KGaA

Verwendungshinweise / Bemerkungen *hints of utilization / remarks*

hints of utilization / remarks

Umgebungstemperaturbereich: -20...+60 °C

Thermische Belastbarkeit: +650° C für Betriebsdrücke bis 100 mbar (GT 0,1), Klasse B



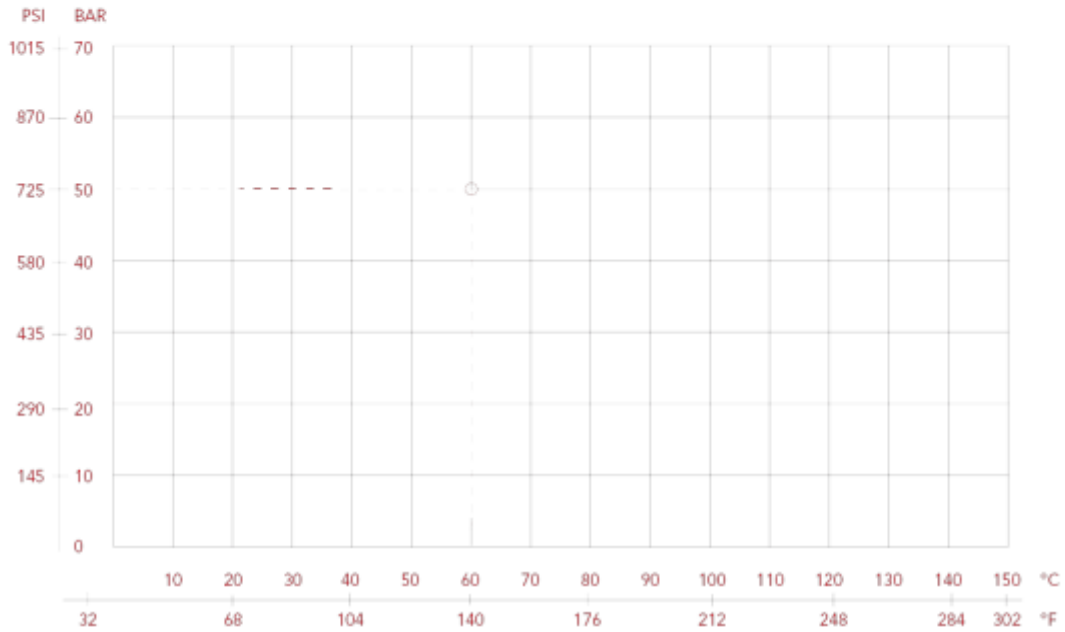


KUGELHÄHNE FÜR GAS LONDON, VOLLER DURCHGANG

068 Kugelhahn LONDON, voller Durchgang

DRUCK-TEMPERATUR-DIAGRAMM

Die Kennlinienwerte stellen die maximale Einsatzgrenze der Ventile dar.
Bei den Wertangaben handelt es sich um Richtwerte.





CERT

DVGW-Baumusterprüfzertifikat

DVGW type examination certificate

DG-4313CP0027

Registriernummer
registration number

Anwendungsbereich <i>field of application</i>	Produkte der Gasversorgung <i>products of gas supply</i>
Zertifikatinhaber <i>owner of certificate</i>	G. Bee GmbH Robert-Bosch-Straße 14, D-71691 Freiberg a.N.
Vertreiber <i>distributor</i>	G. Bee GmbH Robert-Bosch-Straße 14, D-71691 Freiberg a.N.
Produktart <i>product category</i>	Gasarmaturen: Absperrarmatur <= PN 16 (4313)
Produktbezeichnung <i>product description</i>	Kugelhahn in Durchgangsform
Modell <i>model</i>	834
Prüfberichte <i>test reports</i>	Baumusterprüfung: 13/137/4313/147 vom 04.02.2014 (EBI) Kontrollprüfung Labor: 18/1190/4313/123 vom 29.11.2018 (EBI)
Prüfgrundlagen <i>test basis</i>	DIN EN 13774 (01.05.2013)
Ablaufdatum / AZ <i>date of expiry / file no.</i>	04.02.2025 / 20-0282-GNV

1008-04-1-15

13.05.2020 K6 A-1/2

Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle
date, issued by, sheet, head of certification body

DVGW CERT GmbH ist von der DAkkS nach DIN EN ISO/IEC 17065:2013
akkreditierte Stelle für die Zertifizierung von Produkten der Energie- und
Wasserversorgung.

DVGW CERT GmbH is an accredited body by DAkkS according to DIN EN
ISO/IEC 17065:2013 for certification of products for energy and water supply
industry.



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info@dvgw-cert.com



A-2/2		DG-4313CP0027	
Gasart <i>gas category</i>		Bemerkungen <i>remarks</i>	
Brenngase nach G260 sowie G262			
Typ <i>type</i>	Technische Daten <i>technical data</i>	Bemerkungen <i>remarks</i>	
834	Nenndruckstufe: MOP 16 Nennweite: DN 15		
834	Nenndruckstufe: MOP 16 Nennweite: DN 20		
834	Nenndruckstufe: MOP 16 Nennweite: DN 25		
834	Nenndruckstufe: MOP 16 Nennweite: DN 32		
834	Nenndruckstufe: MOP 16 Nennweite: DN 40		
834	Nenndruckstufe: MOP 16 Nennweite: DN 50		
zertifizierte Bauteile / Werkstoffe <i>certified components</i>			
Registr.-Nr. <i>registration no.</i>	Bauteil (Produktart) <i>component</i>	Modell/Typ <i>model/type</i>	Hersteller <i>manufacturer</i>
NG-5146AR0573	Dichtmittel für herstellereitig zusammengefügte Gewindeverbindungen in Gasgeräten und Komponenten	LOXEAL 85-86/LOXEAL 85-86	LOXEAL S.r.l.
NG-5146AR0619	Dichtmittel für herstellereitig zusammengefügte Gewindeverbindungen in Gasgeräten und Komponenten	LOCTITE® 638/LOCTITE® 638	Henkel AG & Co. KGaA
NG-5113BS0250	Dichtungswerkstoff aus Elastomeren für VR 1/VR 1 Gasversorgungs- und Gasfernleitungen		Alwin Höfert KG
Verwendungshinweise / Bemerkungen <i>hints of utilization / remarks</i>			
Umgebungstemperaturbereich: -20...+60 °C			
Baulänge: DIN 3202-M 3			
Anschlussart: beiderseitig Innengewinde Rp 1/2...Rp 2 nach DIN EN 10226-1			



KUGELHÄHNE | Manueller Betrieb BALL VALVES | manually operated
 DURCHGANGSKUGELHÄHNE MIT GEWINDEANSCHLUSS
 2-WAY BALL VALVES WITH THREAD CONNECTIONS

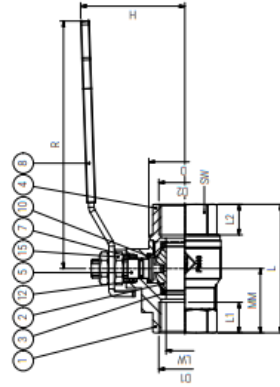
834

BESTELBEISPIEL: Kugelhahn beidseitig Innengewinde mit Hebelgriff Größe 1/2" = 834-1/2" Artikel-Nr. 0020036011015
 ORDERING EXAMPLE: Ball valve female/female thread with lever handle size 1/2" = 834-1/2" item number 0020036011015

Datentabelle data table

D1	D2	DN	LW	PN	L	L1	L2	MM	R	H	D	SW	Gewicht	Artikel-Nr.
(mm)	(mm)	(mm)	(mm)	(bar)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(kg)	Item number
Rp 1/2"	Rp 1/2"	15	14	40	63	15	15	31,5	121	48	32	25	0,259	0020036011015
Rp 3/4"	Rp 3/4"	20	19	40	70	15	15	35	121	52	40	31	0,371	0020036011020
Rp 1"	Rp 1"	25	24	40	82	19,5	19,5	41	158	66,5	46	38	0,607	0020036011025
Rp 1 1/4"	Rp 1 1/4"	32	30	25	96	21,5	21,5	48	158	71	56	48	0,910	0020036011032
Rp 1 1/2"	Rp 1 1/2"	40	38	25	107	21,5	21,5	53,5	158	77	68	54	1,260	0020036011040
Rp 2"	Rp 2"	50	47,2	25	127	26	26	63,5	158	85	85	66	2,110	0020036011050

Mäße skizze measured sketch



Materietabelle materials grid

Nr.	Bezeichnung	Werkstoff	Materialezeichnung
No.	Description	Material	Material description
1	Gehäuse	Edelstahl	1.408
2	Kugel	Edelstahl	1.408
3	Kugelhülse	Edelstahl	1.408
4	Flansch / Nippel	Edelstahl	1.408
5	Schaltwelle	Edelstahl	1.404
6	Stemmschichtung	FKM	-
7	Stemmschichtung	Edelstahl	1.404
8	Griff	Edelstahl	1.4301
9	Handfl.	Edelstahl	1.4301
10	Anschaffung	PTFE GF	-
11	Thrust washer	PTFE GF	-
12	Packung	PTFE	-
13	PTFE	PTFE	-
14	Packungsmutter	Edelstahl	-
15	Packungsnut	Edelstahl	A2

Verpackungseinheiten Packing units

DN	(mm)	1	2
15	10	1	1
20	10	1	1
25	8	1	1
32	6	1	1
40	3	1	1
50	2	1	1

KUGELHÄHNE | Manueller Betrieb BALL VALVES | manually operated
 DURCHGANGSKUGELHÄHNE MIT GEWINDEANSCHLUSS
 2-WAY BALL VALVES WITH THREAD CONNECTIONS

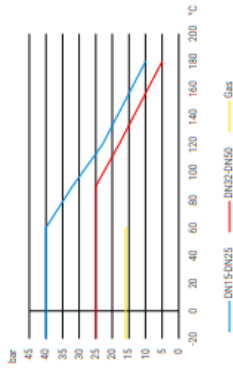
834



834.0

834.0 | Edelstahl | Hebelgriff | IG/IG | DVGW Biogas
 834.0 | Stainless steel | Lever handle | F/F | DVGW biogas

Druck-Temperatur-Diagramm pressure-temperature-diagram



Konstruktionsmerkmale Kugelhahn
 • Stößbuchsenmutter muss in zeitlichen Abständen nachgezogen werden
 • Schwimmende Kugel
 • Silikonflee
 • Gewinde nach DIN EN 10226-1
 • Einstellbare Stößbuchse
 • Ausblassbare Schaltwelle
 • Voller Durchgang nach DIN EN 1583
 • Zweiteiliges Gehäuse verschraubt

Standardtemperaturbereich
 • -20°C bis +180°C (abhängig vom Betriebsdruck)
 • Siehe Druck-Temperaturdiagramm

Zulassungstext
 • Einleitung nach PED Kategorie 1 PED 2014-68-EU, DVGW Gas Zulassung PN16 nach DIN EN 13374, DVGW Zulassung nach Gasgeräteverordnung G400/G4000 nach DIN EN 10283, LBS konform nach VDMA 24364

Design features ball valve
 • Gland nut has to be retightened within certain periods
 • Floating ball
 • Free of silicon
 • Thread acc. to DIN EN 10226-1
 • Adjustable stem packing
 • Blow our proved stem design
 • Full port acc. to DIN EN 1583
 • Two-piece body screwed design

Standard temperature range
 • -20°C to +180°C (depending on working pressure)
 • Take a look at the pressure-temperature-diagram

Approval text
 • Classification acc. to PED category 1 PED 2014-68-EU, DVGW gas approval PN16 acc. to DIN EN 13374, DVGW approval acc. to gas application regulation G400/G4000, acc. to DIN EN 10283, LBS conformity acc. to VDMA 24364

Suitable for
 general water, Compressed air, Fuels, Weak base, Weak acids, Heating oil, Heating circuits, Hydrogen, Biogas acc. to G260, Argon, Oil, Thermooil, Tyfoocor, Acetylen

Verwendung
 Wasser allgemein, Druckluft, Kraftstoffe, Schwache Laugen, Schwache Säuren, Heizöl, Heizungskreisläufe, Wasserstoff, Biogas nach G262, Gase nach G260, Argon, Öl, Thermooil, Tyfoocor, Acetylen



G. Bee GmbH
Kugelhähne und Sicherheitsarmaturen
Ball Valves and Safety Valves
www.g-bee.de



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Herstellereklärung
Supplier's declaration

23.11.2022

Betreffend Erdgas-Geräte bei Betrieb
- mit Erdgasen nach DVGW G260-September 2021 mit Wasserstoffbeimischungen oder
- mit reinem Wasserstoff
Concerning of Natural Gas (NG) devices when operated
- with Natural Gas and admixture of hydrogen or
- pure hydrogen

Name des Ausstellers: G. Bee GmbH
Issuer's name:

Anschrift des Ausstellers: Robert-Bosch-Straße 14 71691 Freiberg a.N. Deutschland
Issuer's adress:

Gegenstand der Erklärung: Gasabsperrearmaturen für Gase nach G260-2021
Object of the declaration: Valves for Gas installation Gases acc. to G260-2021

Typenbezeichnung: 984(LF), 984TAS, 87E/S, 998NG TAS, GAH20 TAS, TAS21, TAS22, TAS23, KSN75, KSN75 TAS, KSN77, 71ME, 71MS, 834
Type designation:

Betriebsdruck
Max. operating pressure

max. Druck (bar) Temperatur (°C) max. pressure (bar) Temperature (°C)	Werkstoffe für Gehäuse und Einbauteile Materials body parts Material ball and stem	Baureihen Bezeichnung Series
MOPS -20°C bis +60°C	Kupferlegierungen mit min. 55% Cu Gehalt	984(LF), 984 TAS, 998NG TAS, GAH20 TAS
MOPS -20°C bis +60°C	GJS400-18 1.0715	KSN75 TAS TAS21, TAS22, TAS23
MOP16 -20°C bis +60°C	GJS400-18 1.0619, Cr-Ni Stähle mit min. 22%Cr+Ni	KSN75, KSN77 71MS PN16, 71ME PN16, 87E/S DVGW-G, 834
MOP40 -20°C bis +60°C	Cr-Ni Stähle mit min. 22%Cr+Ni 1.0619	71ME PN40, 71MS PN40

Die oben genannten Geräte erfüllen die folgenden Anforderungen
The devices specified above comply to the following requirements

G. Bee GmbH
Kugelhähne und Sicherheitsarmaturen
Ball Valves and Safety Valves
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F +49 7141 6744-155
info@g-bee.de
www.g-bee.de
Stz: Freiberg an Neckar
Angebotstr. Stuttgart HFB 300 631
US-Nr.: DE 144839516
DUNS-Nr.: 320 389 471
EORI-Nr.: DE 4046668
Geschäftsführer: Dipl.-Ing. Norbert Layer, Dipl.-Ing. (FH) Dipl.-Wirtsch.-Ing. (FH) Rainer Fischer
Krisenplaner Ludwigsburg
Vollbank Ludwigsburg
BfW Bank
BANDE32 6346 0350 0007 0088 16, SWIFT: SOLA DE 51 180
BANDE32 6346 0350 0007 0088 16, SWIFT: SOLA DE 51 180
BANDE36 6005 0101 0008 1832 35, SWIFT: SOLA DE 51

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EORI-Nr.: DE 4046668
Geschäftsführer: Dipl.-Ing. Norbert Layer, Dipl.-Ing. (FH) Dipl.-Wirtsch.-Ing. (FH) Rainer Fischer
Krisenplaner Ludwigsburg
Vollbank Ludwigsburg
BfW Bank
BANDE32 6346 0350 0007 0088 16, SWIFT: SOLA DE 51 180
BANDE32 6346 0350 0007 0088 16, SWIFT: SOLA DE 51 180
BANDE36 6005 0101 0008 1832 35, SWIFT: SOLA DE 51



G. Bee GmbH
Kugelhähne und Sicherheitsarmaturen
Ball Valves and Safety Valves
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G. Bee GmbH
Kugelhähne und Sicherheitsarmaturen
Ball Valves and Safety Valves
www.g-bee.de

- A) Für den Betrieb mit einem Wasserstoffanteil im Erdgas von ≤ 10 Mol %
A) For operation when the hydrogen content in Natural Gas is ≤ 10 Mol %

Anforderung Requirement

Anforderung Requirement	[Vol.-%]	0% bis 10%
Maximal zulässige Schwankungsbreite des Wasserstoffanteils im Erdgas Maximum admissible band width of hydrogen content in Natural Gas	[Vol.-%]	0% bis 10%
Die Kenngrößen des Gerätes (z.B. Durchflusssbereich, Regelcharakteristik, Genauigkeit, Reproduzierbarkeit etc.) stimmen mit den Kenngrößen bei Betrieb mit Erdgas ohne Wasserstoffanteil überein. Falls „Nein“: siehe „Zusätzliche Angaben“ Performance data (flow range, control parameters, accuracy, repeatability, etc.) are as for operation with Natural Gas without Hydrogen content: If „No“: refer to „Additional Information“.		Ja Yes
Grenzwerte von Betriebsdruck / Betriebstemperatur bezüglich der Druckfestigkeit stimmen mit den Grenzwerten bei Betrieb mit Erdgas ohne Wasserstoffanteil überein. Falls „Nein“: siehe „Zusätzliche Angaben“ Limits of Operating Pressure / Operating Temperature for pressure resistance are as for operation with Natural Gas without Hydrogen content. If „No“: refer to „Additional Information“.		Ja Yes -20°C...+60°C
Gewährleistung der chemischen Beständigkeit durch Verwendung geeigneter Werkstoffe für medienberührte Teile gemäß Druckgeräte-Richtlinie 2014/68/EU (PED) Safe-guarding of chemical resistance by use of suitable materials for wetted parts acc. to Pressure Equipment Directive 2014/68/EU (PED)		Ja Yes
Die Dichtheit des Gerätes wurde geprüft mit dem 1,1fachen des maximal zulässigen Betriebsdrucks mit <input checked="" type="checkbox"/> Luft <input type="checkbox"/> Stickstoff <input checked="" type="checkbox"/> einem Gasgemisch mit mindestens 10 Vol% H ₂ oder 100% H ₂ <input type="checkbox"/> einem Gasgemisch mit mindestens 10 Vol% He oder 100% He	Luft Air >99% H ₂	Serienprüfung Series Test Baumuster Type Test

<ul style="list-style-type: none"> <input type="checkbox"/> sonstiges Verfahren, siehe „Zusätzliche Angaben“ Zutreffendes ist anzukreuzen. <p>Gas tightness of the device was tested at a test pressure of 1,1 times the max operating pressure, applying</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Air <input type="checkbox"/> Nitrogen <input type="checkbox"/> a gas mixture including a minimum of 10 Vol% H₂ or >99% H₂ <input type="checkbox"/> a gas mixture including a minimum of 10 Vol% He or >99% He <input type="checkbox"/> other method, refer to „Additional Information“ <p>Tick where applicable.</p> <p>Die Standardausführung des Gerätes ist zugelassen für den Einsatz in explosionsgefährdeten Bereichen gemäß ATEX-Richtlinie 2014/34/EU mindestens für Gasgruppe</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> IIA <input checked="" type="checkbox"/> IIB <input checked="" type="checkbox"/> IIB+H2 <input checked="" type="checkbox"/> IIC <ul style="list-style-type: none"> <input type="checkbox"/> Zulassung(en) für weitere Gasgruppen verfügbar, siehe „Zusätzliche Angaben“ <p>Zutreffendes ist anzukreuzen</p> <p>Hinweis: Die Eignung des Gerätes für den Betrieb mit Gemischen mit 10% Wasserstoff ist durch eine Gefährdungsbeurteilung des Betreibers festzustellen.</p> <p>The standard configuration of the device is approved for use in potentially explosive atmospheres acc. to ATEX-Directive 2014/34/EU minimum for gas group (minimum):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> IIA <input checked="" type="checkbox"/> IIB <input checked="" type="checkbox"/> IIB+H2 <input checked="" type="checkbox"/> IIC 		
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<ul style="list-style-type: none"> <input type="checkbox"/> Approval(s) for higher gas group(s) available, refer to "Additional Information". Tick where applicable. <p>Note: The suitability of the device for use in gas mixtures with up to 10% Hydrogen content has to be verified by a risk assessment performed by the operating company.</p>		
<p>Eignung des Gerätes für den Einsatz im geschäftlichen Verkehr gemäß der Messgeräte-Richtlinie 2014/32/EU (MID) in Verbindung mit der Technischen Richtlinie TR-G19 der Physikalisch Technischen Bundesanstalt.</p> <p>Suitability of the device for the use in commercial transactions acc. to the Measuring Instruments Directive 2014/32 / EU (MID) in conjunction with the Technical Guideline TR-G19 of the Physikalisch Technischen Bundesanstalt.</p>	Nicht Zutreffend / Not Applicable	

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B) Für den Betrieb mit einem Wasserstoffanteil im Erdgas von ≤ 20 Mol %
B) For operation when the hydrogen content in Natural Gas is ≤ 20 Mol %

Anforderung Requirement

Maximal zulässige Schwankungsbreite des Wasserstoffanteils im Erdgas Maximum admissible band width of hydrogen content in Natural Gas	[Vol.-%]	0%...20%
Die Kenngrößen des Gerätes (z.B. Durchflussmessbereich, Regelcharakteristik, Genauigkeit, Reproduzierbarkeit etc.) stimmen mit den Kenngrößen bei Betrieb mit Erdgas ohne Wasserstoffanteil überein. Falls „Nein“: siehe „Zusätzliche Angaben“ Performance data (flow range, control parameters, accuracy, repeatability, etc.) are as for operation with Natural Gas without Hydrogen content: If "No": refer to "Additional Information".		Ja Yes
Grenzwerte von Betriebsdruck / Betriebstemperatur bezüglich der Druckfestigkeit stimmen mit den Grenzwerten bei Betrieb mit Erdgas ohne Wasserstoffanteil überein. Falls „Nein“: siehe „Zusätzliche Angaben“ Limits of Operating Pressure / Operating Temperature for pressure resistance are as for operation with Natural Gas without Hydrogen content. If "No": refer to "Additional Information".		Ja Yes
Gewährleistung der chemischen Beständigkeit durch Verwendung geeigneter Werkstoffe für medienberührte Teile gemäß Druckgeräte-Richtlinie 2014/68/EU (PED) Safe-guarding of chemical resistance by use of suitable materials for wetted parts acc. to Pressure Equipment Directive 2014/68/EU (PED)		Ja Yes
Die Dichtheit des Gerätes wurde geprüft mit dem 1,1fachen des maximal zulässigen Betriebsdrucks mit <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Luft <input type="checkbox"/> Stickstoff <input checked="" type="checkbox"/> einem Gasgemisch mit mindestens 10 Vol% H₂ oder 100% H₂ <input type="checkbox"/> einem Gasgemisch mit mindestens 10 Vol% He oder 100% He 	Luft Air >99% H ₂	Serienprüfung Series Test Baumuster Type Test

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<ul style="list-style-type: none"> <input type="checkbox"/> sonstiges Verfahren, siehe „Zusätzliche Angaben“ Zutreffendes ist anzukreuzen. <p>Gas tightness of the device was tested at a test pressure of 1,1 times the max operating pressure, applying</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Air <input type="checkbox"/> Nitrogen <input type="checkbox"/> a gas mixture including a minimum of 10 Vol% H₂ or >99% H₂ <input checked="" type="checkbox"/> a gas mixture including a minimum of 10 Vol% He or >99% He <input type="checkbox"/> other method, refer to "Additional Information" <p>Tick where applicable.</p>		
<p>Die Standardausführung des Gerätes ist zugelassen für den Einsatz in explosionsgefährdeten Bereichen gemäß ATEX-Richtlinie 2014/34/EU mindestens für Gasgruppe</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> IIA <input checked="" type="checkbox"/> IIB <input checked="" type="checkbox"/> IIB+H2 <input checked="" type="checkbox"/> IIC <p><input type="checkbox"/> Zulassung(en) für weitere Gasgruppen verfügbar, siehe „Zusätzliche Angaben“</p> <p>Zutreffendes ist anzukreuzen</p> <p>Hinweis: Die Eignung des Gerätes für den Betrieb mit Gemischen mit 20% Wasserstoff ist durch eine Gefährdungsbeurteilung des Betreibers festzustellen.</p> <p>The standard configuration of the device is approved for use in potentially explosive atmospheres acc. to ATEX-Directive 2014/34/EU minimum for gas group (minimum):</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> IIA <input checked="" type="checkbox"/> IIB <input checked="" type="checkbox"/> IIB+H2 <input checked="" type="checkbox"/> IIC 	Ja Yes	Nicht Zutreffend / Not Applicable

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<ul style="list-style-type: none"> <input type="checkbox"/> Approval(s) for higher gas group(s) available, refer to "Additional Information". Tick where applicable. <p>Note: The suitability of the device for use in gas mixtures with up to 20% Hydrogen content has to be verified by a risk assessment performed by the operating company.</p>		
<p>Eignung des Gerätes für den Einsatz im geschäftlichen Verkehr gemäß der Messgeräte-Richtlinie 2014/32/EU (MID) in Verbindung mit der Technischen Richtlinie TR-G19 der Physikalisch Technischen Bundesanstalt.</p> <p>Suitability of the device for the use in commercial transactions acc. to the Measuring Instruments Directive 2014/32 / EU (MID) in conjunction with the Technical Guideline TR-G19 of the Physikalisch Technischen Bundesanstalt.</p>	Nicht Zutreffend / Not Applicable	

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- C) Für den Betrieb mit reinem Wasserstoff
- C) For operation with pure hydrogen

Anforderung Requirement

Die Kenngrößen des Gerätes (z.B. Durchflussmessbereich, Regelcharakteristik, Genauigkeit, Reproduzierbarkeit etc.) stimmen mit den Kenngrößen bei Betrieb mit Erdgas ohne Wasserstoffanteil überein. Falls „Nein“: siehe „Zusätzliche Angaben“ <i>Performance data (flow range, control parameters, accuracy, repeatability, etc.) are as for operation with Natural Gas without Hydrogen content. If „No“: refer to „Additional Information“.</i>		Ja Yes
Grenzwerte von Betriebsdruck / Betriebstemperatur bezüglich der Druckfestigkeit stimmen mit den Grenzwerten bei Betrieb mit Erdgas ohne Wasserstoffanteil überein. Falls „Nein“: siehe „Zusätzliche Angaben“ <i>Limits of Operating Pressure / Operating Temperature for pressure resistance are as for operation with Natural Gas without Hydrogen content. If „No“: refer to „Additional Information“.</i>		Ja Yes
Gewährleistung der chemischen Beständigkeit durch Verwendung geeigneter Werkstoffe für medienberührende Teile gemäß Druckgeräte-Richtlinie 2014/68/EU (PED) <i>Safe-guarding of chemical resistance by use of suitable materials for wetted parts acc. to Pressure Equipment Directive 2014/68/EU (PED)</i>		Ja Yes
Die Dichtheit des Gerätes wurde geprüft mit dem 1,1fachen des maximal zulässigen Betriebsdrucks mit <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Luft <input type="checkbox"/> Stickstoff <input checked="" type="checkbox"/> Hydrogen (>99 Vol%) <input type="checkbox"/> Helium (>99 Vol%) <input type="checkbox"/> sonstiges Verfahren, siehe „Zusätzliche Angaben“ Zutreffendes ist anzukreuzen. <i>Gas tightness of the device was tested at a test pressure of 1,1 times the max operating pressure, applying</i>	Luft Air >99% ₂ H ₂	Serienprüfung Series Test Baumuster Type Test



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<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Air <input type="checkbox"/> Nitrogen <input checked="" type="checkbox"/> Hydrogen (>99 Vol%) <input type="checkbox"/> He (>99 Vol%) <input type="checkbox"/> other method, refer to "Additional Information" Tick where applicable.			
Die Standardausführung des Gerätes ist zugelassen für den Einsatz in explosionsgefährdeten Bereichen gemäß ATEX-Richtlinie 2014/34/EU mindestens für Gasgruppe <ul style="list-style-type: none"> <input checked="" type="checkbox"/> IIB+H2 <input checked="" type="checkbox"/> IIC Zutreffendes ist anzukreuzen <i>The standard configuration of the device is approved for use in potentially explosive atmospheres acc. to ATEX-Directive 2014/34/EU minimum for gas group (minimum):</i>		Ja Yes	
Eignung des Gerätes für den Einsatz im geschäftlichen Verkehr gemäß der Messgeräte-Richtlinie 2014/32/EU (MID) in Verbindung mit der Technischen Richtlinie TR-G19 der Physikalisch Technischen Bundesanstalt. <i>Suitability of the device for the use in commercial transactions acc. to the Measuring Instruments Directive 2014/32 / EU (MID) in conjunction with the Technical Guideline TR-G19 of the Physikalisch Technischen Bundesanstalt.</i>			Nicht Zutreffend / Not Applicable

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
Zusätzliche Angaben:
Additional information:

Diese Erklärung wurde auf Grund des heutigen Kenntnisstandes im Rahmen der guten Ingenieurpraxis abgegeben. Eine umfangreiche Erprobung mit >99% Wasserstoff wurde durchgeführt. (VB-2020-05-12) Eine Haftung kann aus ihr nur abgeleitet werden, wenn einzelne oder alle Aussagen der Erklärung vorsätzlich oder grob fahrlässig wahrheitswidrig abgegeben wurden.

This declaration was made based on the current state of knowledge within the framework of sound engineering practice. Extensive testing with >99% hydrogen has been carried out. (VB-2020-05-12) Liability can only be derived from this if individual or all statements in the declaration have been made falsely with intent or by gross negligence.

Ort, Datum und Unterschrift
Place, date and signature

Freiberg 17.02.2022


Michael Boger
Konstruktion / Entwicklung

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codice	inside diameter		outside diameter		working pressure		burst pressure		weight nominal		bending radius		length max	
	mm	inch	mm	inch	bar	psi	bar	psi	kg/m	lbs/ft	mm	inch	m	ft
1425633	13	1/2	24	0,95	25	375	100	1500	0,39	0,26	100	3,9	60	200
1427482	19	3/4	32	1,26	25	375	100	1500	0,62	0,42	180	7,1	60	200
1414470	25	1	38	1,50	25	375	100	1500	0,77	0,52	200	7,9	60	200
1420321	32	1-1/4	46	1,81	25	375	100	1500	1,04	0,70	250	9,9	60	200
1420674	38	1-1/2	54	2,13	25	375	100	1500	1,35	0,91	320	12,6	60	200
1420666	50	1-31/32	67	2,64	25	375	100	1500	1,80	1,21	400	15,8	60	200
1421603	75	2-61/64	93	3,66	25	375	100	1500	2,70	1,81	650	25,6	60	200
1425730	100	4	122	4,81	25	375	100	1500	4,31	2,90	800	31,5	60	200



IT

Tube per mandata di gas

Norme: EN 1762:2018.

Applicazione: tubo cord idoneo per il passaggio di gas di petrolio liquefatto, LPG (liquido o in fase gassosa) e gas naturale.

Temperatura: da -30°C a +70°C.

Costruzione

Sottotrato: trafilato, nero, liscio, in gomma sintetica.

Rinforzo: tessuti sintetici ad alta resistenza.

Copertura: nera, liscia (ad Impresione tela), in gomma sintetica resistente agli agenti atmosferici e all'ozono. Copertura microforata per consentire la permeazione del gas.

Resistenza elettrica: resistenza elettrica inferiore a $1 \times 10^9 \Omega$ su pezzature d'impiego, garantita con la gomma di copertura (tipo Ω).

Marcatura: transfer di colore giallo "IVG - EN 1762:2018 - Type D - ID - W.P. bar - Ω - trimestre e anno di produzione"

Disponibili a richiesta: 1. Versione M con resistenza elettrica inferiore a $1 \times 10^9 \Omega$ su pezzatura d'impiego, garantita con il collegamento delle trecce al raccordi.

EN

Gas delivery hose

Standards: EN 1762:2018.

Application: softwall hose suitable for the delivery of liquefied petroleum gas, LPG (liquid or gas) and natural gas.

Temperature: from -30°C (-22°F) to +70°C (+158°F).

Construction

Tube: extruded, black, smooth, synthetic rubber.

Reinforcement: high strength synthetic cord.

Cover: black, smooth (wrapped finish), synthetic rubber, weathering and ozone resistant. Pin pricked cover to allow gas permeation.

Electrical Resistance: electrical resistance below $1 \times 10^9 \Omega$ on service length assured through the rubber of cover (type Ω).

Branding: continuous yellow brand "IVG - EN 1762:2018 - Type D - ID - W.P. bar - Ω - quarter and year of production".

Also available upon request: 1.M version, with electrical resistance below $1 \times 10^9 \Omega$ on service length assured through the connection between copper wires and the fitted couplings.

FR

Tuyau pour refoulement de gpl

Normes: EN 1762:2018.

Applications: tuyau nappé textile conçu pour le refoulement de GPL (liquide ou gazeux) et gaz naturel.

Gamme de températures: de -30°C à +70°C.

Construction

Tube: caoutchouc synthétique noir lisse extrudé.

Armature: nappes synthétiques très résistantes.

Revêtement: caoutchouc synthétique noir lisse (aspect bandelé), résistant à l'ozone et aux agents atmosphériques. Piquéé extérieurement pour la perméation des gaz.

Résistance électrique: résistance électrique inférieure à $1 \times 10^9 \Omega$ sur la longueur d'utilisation, assurée par le caoutchouc du revêtement (type Ω).

Marquage: bande transfert de couleur jaune "IVG EN 1762:2018 - Type D - DI - P.S. bar - Ω - trimestre et année de fabrication".

Disponibles sur demande: 1. Version M avec résistance électrique inférieure à $1 \times 10^9 \Omega$ sur la longueur d'utilisation, assurée par le contact des fils de masse avec les raccords équipés au flexible.

DE

Öl- und Gasdruckschlauch

Normen: EN 1762:2018.

Verwendung: Cordelinagenschlauch zur Beförderung von flüssigem Ölgas, LPG (flüssig oder in gasförmigem Zustand) und Naturgas.

Temperaturbereich: -30°C bis +70°C.

Aufbau

Seele: synthetischer Gummi, schwarz, glatt, extrudiert.

Einlagen: hochzähes synthetisches Cordgewebe.

Decke: synthetischer Gummi, schwarz, glatt (stoffgemustert), beständig gegen Ozon und Witterungseinflüsse. Mikroperforierte Decke zur Gaspermeation.

Elektrischer Widerstand: elektrischer Widerstand weniger als $1 \times 10^9 \Omega$ auf der Einsatzlänge, garantiert mittels der Deckengummimischung (Typ Ω).

Kennzeichnung: Transferstreifen gelb "IVG - EN 1762:2018 - Typ D - ID - WP bar - Ω - Herstellungsquartal und - Jahr".

Außerdem lieferbar auf Anfrage: 1.Ausführung M, mit elektrischer Leitfähigkeit weniger als $1 \times 10^9 \Omega$ auf der Einsatzlänge, garantiert mittels der Verbindung der Kupferitzen mit den Kupplungen.



data scheda/data sheet date/date de la fiche/datne-
blattsdatum: 12/05/2020

Above technical data are referring to applications at room temperature (+20°C).
IVG Colbachini is not liable for the use that differs from what is confirmed in their catalogues, product sheets, offers, order confirmations and contained recommendations. For a correct use refer to "Recommendations for the selection, storage, use and maintenance of rubber hoses" by Accogomma, available on www.ivgspa.it.
With the aim to improve the product, IVG reserves the right to modify the hose specifications without giving any prior notice.



CERT

DVGW-Baumusterprüfzertifikat DVGW type examination certificate

DG-4603CR0428

Registriernummer
registration number

Anwendungsbereich <i>field of application</i>	Produkte der Gasversorgung <i>products of gas supply</i>
Vertreiber <i>distributor</i>	GOK Regler- und Armaturen GmbH & Co. KG Obernbreiter Str. 2-18, D-97340 Marktbreit
Produktart <i>product category</i>	Bauteile für die Gasinstallation: Schlauch für Flüssiggas (4603)
Produktbezeichnung <i>product description</i>	Flüssiggasschlauch mit Einlage
Modell <i>model</i>	GOK T...
Prüfberichte <i>test reports</i>	Baumusterprüfung: 157093T2/17464 vom 14.10.2016 (GWI) Ergänzungsprüfung: 157093E4/18133 vom 25.09.2021 (GWI)
Prüfgrundlagen <i>test basis</i>	DIN EN 16436-1 (01.12.2020)

Ablaufdatum / AZ 14.10.2026 / 21-0674-GNV
date of expiry / file no.

23.11.2021 Pz B-1/2

Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle
date, issued by, sheet, head of certification body



DVGW CERT GmbH
Zertifizierungsstelle

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info@dvgw-cert.com



B-2/2

DG-4603CR0428

Typ <i>type</i>	Technische Daten <i>technical data</i>	Bemerkungen <i>remarks</i>
GOK T PS 10 bar	Druckklasse: 2 max. Betriebsdruck: 10 bar	Abmessungen: 6,3 x 3,5 mm; 9,0 x 3,5 mm, 10,0 x 5,0 mm und 12,5 x 5,0 mm
GOK T PS 30 bar	Druckklasse: 3 max. Betriebsdruck: 30 bar	Abmessungen: 6,3 x 5,0 mm und 4,0 x 4,0 mm



CE 0085



CERT

EU type examination certificate

EU-Baumusterprüfbescheinigung

CE-0085AQ0821

Product Identification No.
Produkt-Identnummer

Field of Application <i>Anwendungsbereich</i>	EU Gas Appliances Regulation (EU/2016/426) <i>EU-Gasgeräteverordnung (EU/2016/426)</i>
Owner of Certificate <i>Zertifikatinhaber</i>	GOK Regler- und Armaturen GmbH & Co. KG Obernreiter Str. 2-18, D-97340 Marktbreit
Distributor <i>Vertreiber</i>	GOK Regler- und Armaturen GmbH & Co. KG Obernreiter Str. 2-18, D-97340 Marktbreit
Product Category <i>Produktart</i>	Accessories for gas appliances/pressure equipment: Governor for LPG (4102)
Product description <i>Produktbezeichnung</i>	Pressure regulator for LPG, optionally with fixed or variable outlet pressure, optional with rupture safety device at the outlet side and/or manometer
Model <i>Modell</i>	M50...
Countries of Destination <i>Bestimmungsländer</i>	European Union, CH, GB, NO
Test reports <i>Prüfberichte</i>	Supplement test: B 19/12/3149 from 13.12.2019 (DBI)
Test basis <i>Prüfgrundlagen</i>	EU/2016/426 A III B (09.03.2016) DIN EN 16129 (01.08.2013) DIN 4811 (01.12.2017)

Date of Expiry / File No. 29.01.2028 / 23-0523-GER
Ablaufdatum / AZ

09.10.2023 Bd A-1/2

Date, Issued by, Sheet, Head of Certification Body
Datum, Bearbeiter, Blatt, Leiter der Zertifizierungsstelle

DVGW CERT GmbH - notified by the government of the Federal Republic of
Germany and officially registered by the European Commission for conformity
assessment of gas appliances

DVGW CERT GmbH - von der Deutschen Bundesregierung benannt und von
der Europäischen Kommission offiziell registrierte Stelle für die
Konformitätsbewertung von Gasgeräten

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A-2/2

CE-0085AQ0821

Gas Category <i>Gasart</i>	Remarks <i>Bemerkungen</i>	
Vaporous LPG		
Type <i>Typ</i>	Technical Data <i>Technische Daten</i>	Remarks <i>Bemerkungen</i>
M50-F; M50-F/SBS	Outlet pressure: 0,35...4,0 bar Pressure rating: PS = 16 bar	with fixed outlet pressure
M50-V; M50-V/SBS	Outlet pressure: 0,35...4,0 bar Pressure rating: PS = 16 bar	with variable outlet pressure
M50-G-F; M50-G-F/SBS	Outlet pressure: 0,35...1,4 bar Pressure rating: PS = 16 bar	with fixed outlet pressure
M50-G-V; M50-G-V/SBS	Outlet pressure: 0,35...1,4 bar Pressure rating: PS = 16 bar	with variable outlet pressure
Type Variation <i>Ausführungsvariante</i>	Explanations <i>Erläuterungen</i>	
M50-F; M50G-F	fixed outlet pressure	
M50-F/SBS; ; M50G-F/SBS	fixed outlet pressure, with rupture safety device of the ST series	
M50-V; M50G-V	variable outlet pressure	
M50-V/SBS; M50G-V/SBS	variable outlet pressure, with rupture safety device of the ST series	
M50G...	pressure regulator for the second stage with fixed inlet pressure up to 4 bar	
Hints of Utilization /Remarks <i>Verwendungshinweise / Bemerkungen</i>		
ambient temperature range: -20...+50 °C		
inlet pressure range: pd +1,5 bar up to 16 bar (max. 4 bar for variations M 50G...)		
connection: at the input side G.1, G.2, G.3, G.4, G.5, G.7, G.8, G.9, G.10, G.11, G.12, G.13, G.14, G.15, G.19, G.20, G.22, G.23, G.24, G.25, G.36, G.37, G.67 according to DIN EN 16129 respectively X.1, X.2, X.3, X.4, X.5, X.6, X.7, X.8, X.9, X.10, S.11 and X.12 according to GOK-Standard		
connection: at the outlet side H.1, H.4, H.5, H.6, H.7, H.8, H.9, H.19, H.22 H.50, H.51, H.52, H.53, H.54, H.55, H.56 according to DIN EN 16129 respectively Y.1, Y.2, Y.3, Y.4 and Y.5 according to GOK-Standard		

