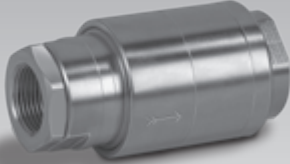


**Operating instructions**  
**Non-return gas valve GRS,**  
**Non-return valve with flame**  
**arrester GRSF**



Translation from the German  
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**Safety**

**Please read and keep in a safe place**



Please read through these instructions carefully before installing or operating. Following the installation, pass the instructions on to the operator. These instructions can also be found at www.docuthek.com.

**Explanation of symbols**

- , **1**, **2**, **3**... = Action
- ▷ = Instruction

**Liability**

We will not be held liable for damages resulting from non-observance of the instructions and non-compliant use.

**Safety instructions**

Information that is relevant for safety is indicated in the instructions as follows:

**⚠ DANGER**

Indicates potentially fatal situations.

**⚠ WARNING**

Indicates possible danger to life and limb.

**! CAUTION**

Indicates possible material damage.

All interventions may only be carried out by qualified gas technicians. Electrical interventions may only be carried out by qualified electricians.

**Conversion, spare parts**

All technical changes are prohibited. Only use OEM spare parts.

**Transport**

On receipt of the product, check that the delivery is complete (see Part designations). Report any transport damage immediately.

**Storage**

Store the product in a dry place. Ambient temperature: see Technical data.

## Checking the usage

### GRS, GRSF

Non-return gas valves to prevent gas creepage or surge, for gas, air and oxygen, DVGW tested and registered.

GRS: without flame arrester,

GRSF: with flame arrester made of sintered bronze, flame-arresting in the case of use with combustion air in the specified pressure range.

This function is only guaranteed when used within the specified limits, see [Technical data – p. 4].

Any other use is considered as non-compliant.

### Type code

Code	Description
<b>GRS</b>	Non-return gas valve
<b>GRSF</b>	Non-return gas valve with flame arrester
<b>15–80</b>	Nominal diameter
<b>R</b>	R <sub>p</sub> internal thread to ISO 7-1
<b>F</b>	PN 16 flange to ISO 7005
<b>01</b>	p <sub>e</sub> max. 0.1 bar
<b>50</b>	p <sub>e</sub> max. 5 bar

### Operation in thermoprocessing equipment with DIN-DVGW approval

Type	Safety symbol		For combustion with compressed air, approved for fuel gas					p <sub>e</sub> max. [bar]
	Flame-arresting	Not flashback proof	Butane	Natural gas	Methane	Propane	Town gas	
GRS 15	● <sup>4)</sup>	–	●	●	●	●	●	0.1
GRS 20	● <sup>4)</sup>	–	●	●	●	●	●	0.1
GRS 25	–	● <sup>2)</sup>	●	●	●	●	●	0.1
GRS 40	–	● <sup>2)</sup>	●	●	●	●	●	0.1
GRS 50	–	● <sup>2)</sup>	●	●	●	●	●	0.1
GRS 80	● <sup>5)</sup>	–	–	●	–	–	–	8
GRSF 15	● <sup>1)</sup>	–	●	●	●	●	●	5
GRSF 20	● <sup>1)</sup>	–	●	●	●	●	●	5
GRSF 25	● <sup>1)</sup>	–	●	●	●	●	●	5
GRSF 40	● <sup>3)</sup>	–	●	●	–	–	●	5
GRSF 50	● <sup>3)</sup>	–	●	●	–	–	●	5

- 1) Basis for testing: DIN EN 730-1, tested with propane/compressed air
- 2) Basis for testing: DIN EN 730-2, excluding 5.7 (no flashback test)
- 3) Basis for testing: DIN EN 730-1, tested with methane/compressed air
- 4) Basis for testing: DIN EN 730-2, tested with propane/compressed air
- 5) For use pursuant to EN 746-2 in compliance with EN 730, tested with natural gas/compressed air

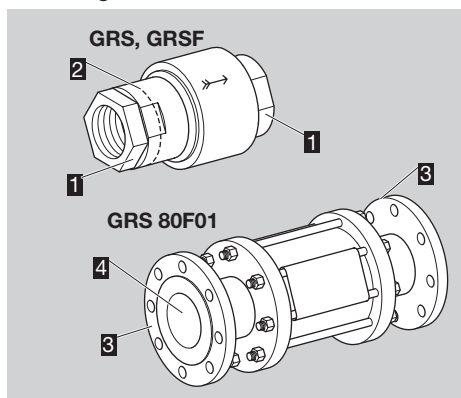
### Operation in thermoprocessing equipment without DIN-DVGW approval

Type	Safety symbol Not flashback proof	For combustion with oxygen and fuel gas					p <sub>e</sub> max. [bar]
		Butane	Natural gas	Methane	Propane	Town gas	
GRS 15	●	●	●	●	●	●	0.1
GRS 20	●	●	●	●	●	●	0.1
GRS 25	●	●	●	●	●	●	0.1
GRS 40	●	●	●	●	●	●	0.1
GRS 50	●	●	●	●	●	●	0.1
GRS 80	●	●	●	●	●	●	10
GRSF 15	●	●	●	●	●	●	0.1
GRSF 20	●	●	●	●	●	●	0.1
GRSF 25	●	●	●	●	●	●	0.1
GRSF 40	●	●	●	●	●	●	0.1
GRSF 50	●	●	●	●	●	●	0.1

### Operation other than in thermoprocessing equipment without DIN-DVGW approval

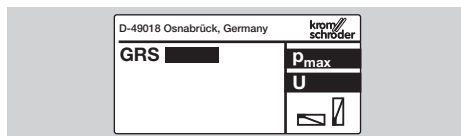
Type	Safety symbol Not flashback proof	Operation with					p <sub>e</sub> max. [bar]	
		Nitrogen	Compressed air	Oxygen	Non-combustible gases	Combustible gases		Hydrogen
GRS/GRSF	●	–	–	–	–	–	●	5
GRS/GRSF	●	●	●	●	●	●	–	10

### Part designations



- 1 Thread adapter
- 2 Inlet filter
- 3 Inlet/outlet flange
- 4 Protective cap

Gas type, inlet pressure p<sub>e</sub>, ambient temperature, installation position: see type label.

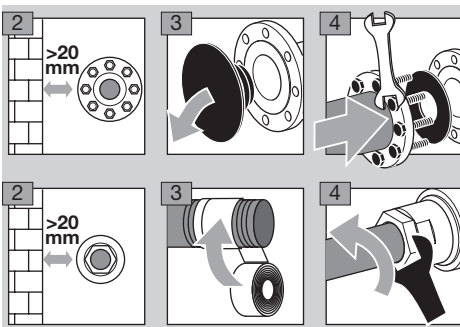


## Installation

### ! CAUTION

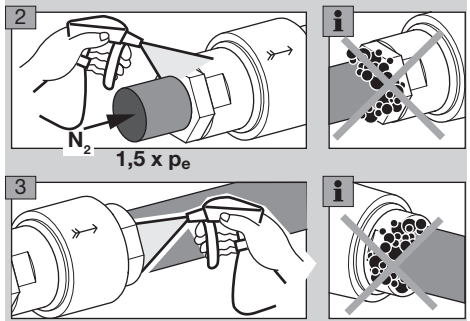
Please observe the following to ensure that the GRS, GRSF is not damaged during installation:

- Install the GRS, GRSF in a clean pipeline that is ready for operation, i.e. that has been tested.
  - Note direction of flow.
  - Sealing material, cuttings and other impurities must not be allowed to get into the housing.
  - Keep the non-return gas valve completely free of oil and grease and protect from heat radiation.
  - Only sealing materials and seals pursuant to EN 751 which are approved for the relevant gas may be used to seal the pipe connecting threads.
  - Do not remove the thread adapters which are fitted at the factory.
  - Do not damage the inlet filter.
  - Use a suitable spanner.
  - Secure the valve only on the inlet or outlet side where the connection is to be made – see Fig. 4.
  - Avoid subjecting the GRS, GRSF to strong or violent vibrations and shocks (punches).
- ▷ Any installation position.
- ▷ DIN EN 746-2: Non-return gas valves which are not flame-arresting may only be used in conjunction with an additional safety device which shuts off the gas supply in the event of a flashback. Remove the GRS, GRSF immediately after each flashback and return it to the manufacturer for inspection.
- To avoid endurance burning, the supply of fresh gas must be stopped in the event of a flashback:
- 1 Install a suitable shut-off valve upstream of the non-return gas valve, e.g. manual valve AKT.



## Tightness test

- ▷ Also after maintenance.
- 1 Block the pipeline at the inlet and outlet.
- ▷ The maximum inlet pressure  $p_{e \max}$  may be exceeded only briefly for the duration of the tightness test.
- ▷ Only apply test pressure at the inlet end.



- 4 Relieve the outlet pressure  $p_a$ . Unblock the pipeline at the outlet.

## Commissioning

To prevent the valve seals from sticking:

- ▷ If stored for a long time or if not used for a long time, blow through the GRS/GRSF with operating gas or with nitrogen at approx. 0.5 to 1 bar.

### ⚠ WARNING

A GRS/GRSF which has been used with a medium other than oxygen must not subsequently be used with oxygen – risk of explosion!

## Maintenance

In order to ensure smooth operation:

- ▷ Have the GRS/GRSF checked at least once a year by the manufacturer for functional safety and housing tightness. The user or buyer is responsible for monitoring the date on which this must be carried out. The test will be charged for.
- ▷ Remove the non-return gas valve immediately after each flashback and return it to the manufacturer for inspection.
- ▷ Check the pipe connections on the non-return gas valve for external tightness after carrying out maintenance work on the system and after installing the GRS, GRSF.

## Technical data

Gas type: natural gas, town gas, LPG (gaseous), oxygen and air. Other types of gas on request (not for acetylene and biologically produced methane).

Housing: Ms (GRS 80F01: St 37). Dirt filter made of rustproof wire mesh 1.4301 (max. mesh size 100 µm).

Connection:

GRS..R: internal thread to ISO 7-1,

GRS..F: PN 16 flange to ISO 7005.

Ambient temperature:

GRS 15-50/GRSF 15-50: -20 to +60°C,

GRS 80F01: -20 to +70°C.

GRSF: with additional flame arrester made of sintered bronze.

## Declaration of conformity



We, the manufacturer, hereby declare that the products GRSF 40R50 and GRSF 50R50 comply with the requirements of the listed Directives and Standards.

Directives:

- 97/23/EC

Standards:

- based on DIN EN 730
- DIN 8521-2

They are subject to the conformity assessment procedure pursuant to 97/23/EC, annex III, module A.

Elster GmbH

Scan of the Declaration of conformity (D, GB)

- see [www.docuthek.com](http://www.docuthek.com)

## Contact

If you have any technical questions, please contact your local branch office/agent. The addresses are available on the Internet or from Elster GmbH.

We reserve the right to make technical modifications in the interests of progress.

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