Safety pressure relief
FRSBV

4.15

Technical description
The DUNGS safety pressure relief valve, type FRSBV, is a spring-loaded safety blow-off device (SBV) with an adjustable response pressure. The safety blow-off valve corresponds to DIN 33821.

- Inlet pressures up to 1.0 bar (100 kPa)
- Large flow rate
- Safety diaphragms
- Internal sensor for response pressure as standard
- Threaded connection Rp 1

Application
Safety pressure relief valve for gas burners and gas equipment. Suitable for gases of gas families 1, 2, 3 and other neutral gaseous media. Free of non-ferrous metals, suitable for gases up to max. 0.1 vol.% H₂S, dry.

Approval
EC type test approval as per EC Gas Appliance Directive:
FRSBV CE-0085 AS0461
EC type test approval as per EC Pressure Equipment Directive:
FRSBV CE0036
Approvals in other important gas consuming countries.
Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal diameters</td>
<td>DN 25</td>
</tr>
<tr>
<td>Pipe thread as per ISO 7/1</td>
<td>Rp 1</td>
</tr>
<tr>
<td>Max. operating pressure</td>
<td>up to 1.0 bar (100 kPa)</td>
</tr>
<tr>
<td>Safety pressure relief valve</td>
<td>Safety blow-off valve as per DIN 33821</td>
</tr>
<tr>
<td>Inlet pressure range</td>
<td>up to 1.0 bar (100 kPa)</td>
</tr>
<tr>
<td>Setting range, response pressure</td>
<td>20 mbar (2 kPa) up to 1000 mbar (100 kPa) depending on the adjustable reference value spring</td>
</tr>
<tr>
<td>Materials of gas-conveying parts</td>
<td>Housing: Aluminium, steel, Seals and diaphragms: NBR</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-15 °C to +70 °C</td>
</tr>
<tr>
<td>Installation position</td>
<td>Spring mandrel from horizontally lying to vertically standing</td>
</tr>
<tr>
<td>Test connections</td>
<td>G 1/4 ISO 228 on both sides in inlet range</td>
</tr>
<tr>
<td>Pulse connection</td>
<td>Internally in inlet range</td>
</tr>
<tr>
<td>Vent line</td>
<td>Vent line only necessary in special cases since safety diaphragms are installed. Connection: G 1/4 ISO 228</td>
</tr>
</tbody>
</table>

FRSBV application, example

Selecting the spring
The response pressure results from the force of the installed setting spring and the weight of the moving parts. The safety blow-off valve is equipped with a yellow spring as standard. By replacing the reference value spring you can set other response pressures.

Control line
KH Ball valve  
GF Gas filter  
M Manometer  
R Gas pressure regulator  
SAV Safety slam-shut valve  
GW Gas pressure switch  
FRSBV Safety pressure relief valve  
DMV Double solenoid valve  
VPS Valve proving system

Do not route condensate from lines into safety blow-off valve. Protect the safety blow-off valve from contamination by using a proper dirt trap. Do not apply burnable gas or burnable gas air mixtures to the installation space of the setting spring.

<table>
<thead>
<tr>
<th>Reference value spring range [mbar]</th>
<th>Spring colour</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 … 100</td>
<td>Blue spring</td>
<td>226 381</td>
</tr>
<tr>
<td>70 … 350</td>
<td>Yellow spring</td>
<td>Standard 226 382</td>
</tr>
<tr>
<td>300 … 1000</td>
<td>Grey spring</td>
<td>226 383</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference value spring range [mbar]</th>
<th>Spring colour</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>226 382</td>
</tr>
<tr>
<td></td>
<td></td>
<td>226 383</td>
</tr>
</tbody>
</table>
Type | Order No. | P<sub>max</sub> [bar] | Rp/DN | Dimensions [mm] | Weight [kg]
--- | --- | --- | --- | --- | ---
FRSBV 1010 226 284 | 1.0 | Rp 1 | 110 145 33 190 G 1/4 G 1/4 | 310 1.20

Sectional drawing of FRSBV 1010
Safety pressure relief valve in closed position

1. Housing
2. Spindle
3. Sealing ring
4. Control disk
5. Intermediate disk
6. Operating diaphragms
7. Safety diaphragms
8. Diaphragm disk
9. Reference value spring
10. Cover
11. Adjuster
12. Protective cap
13. Vent plug
Safety pressure relief valve
FRSBV

**Flow diagram, mechanically open**

\[ \dot{V}_n \text{ [m}^3/\text{h}] \text{ Luft/ Air/ Aria } dv = 1.00 \]

\[ \dot{V}_n \text{ [m}^3/\text{h}] \text{ Erdgas/Natural gas/Gaz Naturel/Gas metano } dv = 0.65 \]

\[ f = \sqrt{\frac{\text{Dichte des verwendeten Gases}}{\text{Dichte Luft}}} \text{ or Spec. weight of gas used/Spec. weight air} \]

We reserve the right to make any changes in the interest of technical progress.

**Gasart**
- Erdgas/ Natural gas/ Gaz Naturel/ Gas metano
  - Dichte: 0.81
  - dv: 0.65
  - f: 1.24

- Stadtgas/ City gas/ Gaz de ville/ Gas città
  - Dichte: 0.58
  - dv: 0.47
  - f: 1.46

- Flüssiggas/LPG/ Gaz liquide/ Gas liquido
  - Dichte: 2.08
  - dv: 1.67
  - f: 0.77

- Luft/Air/ Air/Aria
  - Dichte: 1.24
  - dv: 1.00
  - f: 1.00

---

**Head Offices and Factory**
Karl Dungs GmbH & Co. KG
Siemensstraße 6-10
D-73660 Urbach, Germany
Telephone +49 (0)7181-804-0
Fax +49 (0)7181-804-166

**Postal address**
Karl Dungs GmbH & Co. KG
Postfach 12 29
D-73602 Schorndorf, Germany
e-mail info@dungs.com
Internet www.dungs.com