Safety Device: **ESF-VA**

**Type ESF-VA for protection of Tapping Points and Distribution Lines**

The safety device ESF-VA according to DIN EN ISO 5175-1:
- avoids dangerous gas mixtures by a gas non-return valve (NV)
- stops flashback through flame arrestor (FA)
- a dust filter protects the gas non-return valve against contamination
- every safety device is 100% tested
- all metal components in stainless steel 1.4305 / spring 1.4310

**Safety elements of the IBERA Safety Device ESF-VA:**
- NV  Gas non-return valve
- FA  Flame arrestor

**Additional features:**
- DF  Dust filter

**Maintenance:**

The safety devices are to be tested by a qualified and authorised person at regular intervals according to country specific regulations. The safety device is to be tested for gas tightness, gas flow and gas return at least once a year.

We would be pleased to offer you the flashback arrestor testing unit model PVGD.

It is not allowed to open the safety devices.

**Technical Data:**

<table>
<thead>
<tr>
<th>Gas-Types:</th>
<th>Hydrogen Industrial Gas (H)</th>
<th>Natural Gas (Methane) (M)</th>
<th>Oxygen (O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working pressure:</td>
<td>0,30 MPa 3,0 bar</td>
<td>0,50 MPa 5,0 bar</td>
<td>max. 2,0 MPa 20,0 bar</td>
</tr>
<tr>
<td>Cracking pressure:</td>
<td>≤ 10 mbar position-independent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas temperature:</td>
<td>-20°C up to +70°C (Oxygen -20°C up to +50°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature:</td>
<td>-20°C up to +70°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threads:</td>
<td>EN 560, ISO / TR 28821</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3/4 NPT F/F³</td>
<td>3/4 NPT F/F³</td>
<td></td>
</tr>
<tr>
<td>Measure and weight:</td>
<td>diameter: 55,00 mm</td>
<td>length: 130,00 mm</td>
<td>weight: 1458,00 g</td>
</tr>
<tr>
<td>Applications:</td>
<td>Process: welding cutting heating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>up to 30 mm &gt; 700 mm &gt; 100 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other materials, surface finishing, gas types and additional connections available on request.

*The flashback arrestor meets the test criteria of the Australian standard AS4603:1999*

³) F = Female, M = Male
**Safety Device according to DIN EN ISO 5175-1**

**Type:** ESF-VA

**Flow rates [air]:**
- $p_v =$ Primary pressure
- $p_h =$ Secondary pressure
- $\Delta p =$ Primary pressure minus Secondary pressure

**Conversion Factors:**

0.1 MPa = 1 bar = 100 kpa = 14,504 psi
1 m$^3$/h = 35.3 cu ft/h

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>H</th>
<th>P</th>
<th>M</th>
<th>M</th>
<th>O</th>
<th>E</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>QG</td>
<td>C$_2$H$_2$</td>
<td>H$_2$</td>
<td>C$_3$H$_8$</td>
<td>CH$_4$ + C</td>
<td>CH$_4$</td>
<td>O$_2$</td>
<td>C$_2$H$_4$</td>
<td>C$_6$H$_6$</td>
</tr>
<tr>
<td>F</td>
<td>1,2</td>
<td>3,8*</td>
<td>0,90</td>
<td>1,25</td>
<td>1,4</td>
<td>0,95</td>
<td>1,02</td>
<td>0,92</td>
</tr>
</tbody>
</table>

*Conversion factor 2.5 for devices comprising a flame arrestor. The conversion factor for free flow is 3.8. (Reference: BAM report 220, D. Lietze)*

**Example:**

$$Q_G = Q_D \times F$$

$$Q_G \rightarrow A = 6,4 \times 1,2 = 7,68 \text{ m}^3/\text{h} \text{ C}_2\text{H}_2$$

$Q_G =$ flow / gas type
$F =$ conversion factor
$Q_D =$ flow / air

**Certification/ Technical Standards/ Rules**

TRBS German Technical rules for operation safety, DVS German Association for Welding, Cutting and Allied Processes, DGUV German Employer’s liability insurance association rules and regulations.

**Standards/ Approvals**


(Subject to change without notice)