Safety Device according to DIN EN ISO 5175-1

Safety device (with dust filter): **ESFN-3**

**Type ESFN-3 for protection of Tapping Points and Distribution Lines**

The safety device ESFN-3 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 temperature-sensitive cut-off valve stops the gas flow when a predetermined temperature is exceeded (TV)
- a dust filter protects the gas non-return valve against contamination
- every safety device is 100% tested
- all metal components in brass 2.0401 / spring 1.4310

**Safety elements of the IBEDA Safety device ESFN-3:**

- NV  Gas non-return valve
- FA  Flame arrestor
- TV  Temperature-sensitive cut-off valve

**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>Acetylene (A)</th>
<th>Hydrogen Industrial gas (H) (C)</th>
<th>Natural Gas (Methane) (M) (P)</th>
<th>Oxygen (O)</th>
<th>Compressed Air (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working pressure:</td>
<td>0.15 MPa 1,5 bar</td>
<td>0.30 MPa 3.0 bar</td>
<td>0.40 MPa 4.0 bar</td>
<td>2.0 MPa 20.0 bar</td>
<td>2.0 MPa 20.0 bar</td>
</tr>
<tr>
<td>Cracking pressure:</td>
<td>4 to 6 mbar</td>
<td>position-independent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature:</td>
<td>-20°C up to +70°C (Oxygen -20°C up to +50°C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure and weight:</td>
<td>diameter:</td>
<td>length:</td>
<td>weight:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1/2RH F:</td>
<td>54,5 mm</td>
<td>132,5 mm</td>
<td>ca. 1470 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G3/4RH F:</td>
<td>54,5 mm</td>
<td>132,5 mm</td>
<td>ca. 1420 g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1 RH F:</td>
<td>54,5 mm</td>
<td>132,5 mm</td>
<td>ca. 1345 g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Applications:**

- Process: welding cutting heating
  - up to 30 mm > 700 mm > 100 mm

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
Type: ESFN-3

Flow rates [air]:

- $p_v =$ Primary pressure
- $ph =$ Secondary pressure
- $\Delta p =$ Primary pressure minus Secondary pressure

Conversion Factors:

- 0.1 MPa = 1 bar = 100 kpa = 14,504 psi
- 1 m³/h = 35.31 cu ft/h

<table>
<thead>
<tr>
<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>C₂H₂</td>
<td>H₂</td>
<td>C₃H₈</td>
<td>CH₄+C</td>
<td>CH₄</td>
<td>O₂</td>
<td>C₂H₄</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>
</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:

$$Q_G = Q_D \times F$$

$$Q_G \quad A = 6,4 \times 1,2 = 7,68 \; m^3/h \; C_2H_2$$

QG = flow / gas type
F = conversion factor
QD = 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

Company certified according to ISO 9001:2015 and ISO 14001:2015,
CE-marking according to: Pressure Equipment Directive 2014/68/EU

(Subject to change without notice)