Safety Device according to DIN EN ISO 5175-1

Safety device (with dust filter): **ESFN-U-20**

Type ESFN-U-20 for protection of Tapping Points and Distribution Lines

The safety device ESFN-U-20 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 IBEDE Safety device ESFN-U-20:

- 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>Hydrogen (H)</th>
<th>Industrial Gas (C)</th>
<th>Natural Gas (Methane) (M)</th>
<th>Natural Gas (Propane) (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Working pressure:</strong></td>
<td>0,15 MPa 0,30 MPa</td>
<td>1,5 bar 3,0 bar</td>
<td>0,30 MPa 3,0 bar</td>
<td></td>
</tr>
<tr>
<td><strong>Cracking pressure:</strong></td>
<td>4 to 6 mbar</td>
<td>position-independent</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gas temperature:</strong></td>
<td>-20°C up to +70°C</td>
<td>(Oxygen -20°C up to +50°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ambient temperature:</strong></td>
<td>-20°C up to +70°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Threads:</strong></td>
<td>G3/4RH M/F&lt;sup&gt;3)&lt;/sup&gt;</td>
<td>G1RH M/F&lt;sup&gt;3)&lt;/sup&gt;</td>
<td>G11/4RH M/F&lt;sup&gt;3)&lt;/sup&gt;</td>
<td>G12RH M/F&lt;sup&gt;3)&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Measure and weight:</strong></td>
<td>G3/4RH</td>
<td>G1RH</td>
<td>G11/4RH</td>
<td>G11/2RH</td>
</tr>
<tr>
<td>diameter:</td>
<td>54,5 mm</td>
<td>54,5 mm</td>
<td>54,5 mm</td>
<td>54,5 mm</td>
</tr>
<tr>
<td>length:</td>
<td>164,0 mm</td>
<td>171,0 mm</td>
<td>173,0 mm</td>
<td>178,0 mm</td>
</tr>
<tr>
<td>weight:</td>
<td>ca. 1910 g</td>
<td>ca. 1940 g</td>
<td>ca. 1950 g</td>
<td>ca. 1960 g</td>
</tr>
</tbody>
</table>

**Applications:**

- 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

<sup>3</sup> F = Female, M = Male
Type: **ESFN-U-20**

**Flow rates [air]:**

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

**Conversion Factors:**

- $0.1 \text{ MPa} = 1 \text{ bar} = 100 \text{ kPa} = 14.504 \text{ psi}$
- $1 \text{ m}^3/\text{h} = 35.31 \text{ cu ft/h}$

**Conversion Factors:**

<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>$\text{C}_2\text{H}_2$</td>
<td>$\text{H}_2$</td>
<td>$\text{C}_3\text{H}_8$</td>
<td>$\text{CH}_4+\text{C}$</td>
<td>$\text{CH}_4$</td>
<td>$\text{O}_2$</td>
<td>$\text{C}_2\text{H}_4$</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 arrester
The conversion factor for free flow is 3.8.
(Reference: BAM report 220, D. Lietze)

**Example:**

$$QG = QD \times F$$

$$QG \rightarrow A = 6.4 \times 1.2 = 7.68 \text{ m}^3/\text{h} \ C_2\text{H}_2$$

$QG =$ 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)