




**TYPE APPROVAL CERTIFICATE**  
No. MAC359917XG

**This is to certify that the product identified below is in compliance with the regulations herewith specified.**

<i>Description</i>	<b>DEVICES TO PREVENT THE PASSAGE OF FLAME INTO CARGO TANKS OF TANKERS</b>
<i>Type</i>	<b>Deflagration Flame Arrester Type: PROTEGO FA-E-DN-IIA-P1,2 PROTEGO FA-E-T-DN-IIA-P1,2 PROTEGO FA-E-TB-DN-IIA-P1,2</b>
<i>Applicant</i>	<b>Braunschweiger Flammenfilter GmbH Industriestrasse 11 38110 Braunschweig GERMANY</b>
<i>Manufacturer</i> <i>Place of manufacture</i>	<b>Braunschweiger Flammenfilter GmbH Industriestrasse 11 38110 Braunschweig GERMANY</b>
<i>Reference standards</i>	<b>RINA Rules for the Classification of Ships Part E, Chapter 7 Appendix 1, IMO Resolution MSC/Circ.677 as amended by IMO Resolution MSC.1/Circ.1324 and IMO Resolution MSC.1/Circ.1325, Standard EN ISO 16852:2010.</b>
<i>Reference documents</i>	<b>RINA TYPE APPROVAL SYSTEM</b>

*Issued in* **HAMBURG** on **January 19, 2018**. *This Certificate is valid until* **January 18, 2023**

  
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RINA Services S.p.A.  
**Giuseppe Russo**

This certificate consists of this page and 1 enclosure



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**Deflagration Flame Arrester Type:**

**PROTEGO FA-E-DN-IIA-P1,2**

**PROTEGO FA-E-T-DN-IIA-P1,2**

**PROTEGO FA-E-TB-DN-IIA-P1,2**

**Reference documents:**

Data Sheets filed for information under RINA dwg no. HMMC-10585.  
Operating Instruction filed for information under RINA dwg no. HMMC-10586.  
Test Reports filed for information under RINA dwg no. HMMC-10587.  
PTB Statement filed for information under RINA dwg no. HMMC-10588.

**Technical characteristics:**

This is in-line deflagration flame arrester with an eccentric housing as per RINA dwg no. HMMC-10585.  
Size range: ND 25 to ND 300.  
Maximum operating pressure: 1,2 bar  
Maximum operating temperature: 60°C.  
Material of components as per RINA dwg no. HMMC-10585.  
Distance L between ignition point and this product shall be L/D equal or below 50.

**Fields of application:**

This product can be installed in venting lines of cargo tanks containing crude oil, petroleum products and flammable chemicals of the Explosion Group IIA with a MESG greater than 0.90 mm.

**Acceptance conditions:**

This product is to be subjected to a corrosion test after installation on board as per IMO Res MSC/Circ.677 par. 3.5.1.

**Remarks:**

1. This product is to be provided with Manufacturer's instruction manual which should include:
  - installation instructions,
  - operating instructions,
  - maintenance requirements including cleaning,
  - copy of the test Laboratory report as per IMO Res MSC/Circ.677 paragraph 4.2,
  - flow test data, including flow rates, operating sensitivity, flow resistance and velocity.
2. This product is to be permanently marked or have a permanently fixed tag made of stainless steel or other corrosion resistant material indicating:
  - manufacturer's name or trade mark,
  - style, type, model or other manufacturer's designation for the device,
  - size of the outlet for which the device is approved,
  - approved location for installation,
  - indication of the test laboratory and report number.
  - compliance with the requirements of MSC/Circ.677.

**HAMBURG January 19, 2018**

