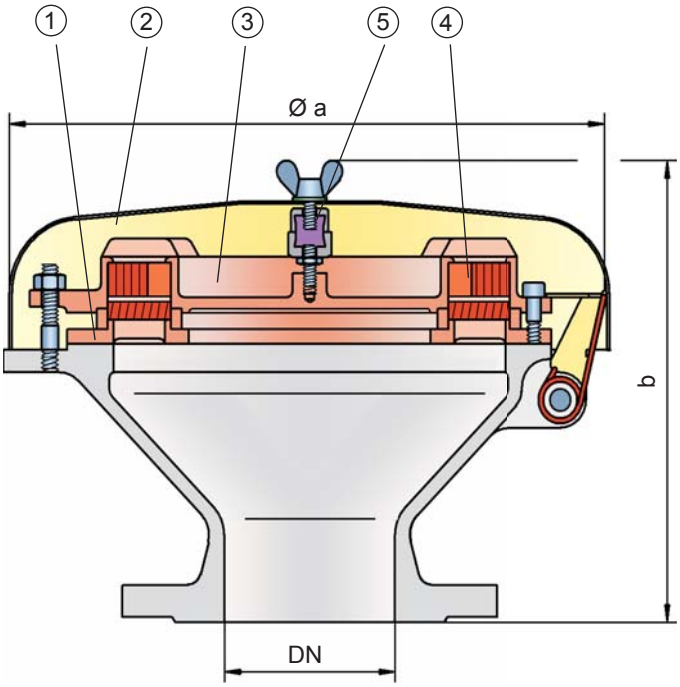
Deflagration Flame Arrester, endurance burning proof, End-of-Line

PROTEGO® BE/HR-E



Function and Description

The PROTEGO® BE/HR-E end-of-line deflagration flame arrester was specifically developed for vessels which are not pressurized and store Ethanol or other alcohols with a MESG ≥ 0,85 mm. The combustion of alcohol requires a modified flame arrester element design to provide protection against endurance burning. In addition, the device provides protection against atmospheric deflagration. Main application area is on suction and vent lines, with the goal to prevent flame transmission caused by endurance burning or atmospheric deflagration from propagating into the vessel or plant.

The PROTEGO® BE/HR-E consists of a housing (1), a weather hood (2) and the PROTEGO® flame arrester unit (3). During normal operation, the metal weather hood is in a closed position. If a flame burns on the flame arrester element surface, the fusible link (5), located in a center position, will melt and let the spring loaded weather hood move into the open position. The PROTEGO® flame arrester unit consists of two FLAMEFILTER® discs (4), which are installed in a FLAMEFILTER® cage.

The PROTEGO® BE/HR-E end-of-line deflagration flame arrester is available for alcohols and other substances with a MESG ≥ 0,85 mm.

The standard design can be used for operating temperatures up to +60°C / 140°F.

Type-approved in accordance with the current ATEX Directive and EN ISO 16852 as well as other international standards.

Special Features and Advantages

- endurance burning protection for alcohols and hydrocarbons with a MESG ≥ 0,85 mm
- weather hood protects against environmental impact (i.e. weather, bird nests, etc.)
- weather hood opens and signals the impact of a flame
- fusible link is resistant against chemicals
- modular design allows replacement of single FLAMEFILTER®
- protection against atmospheric deflagration and endurance burning
- modular design results in low spare part cost

Design Types and Specifications

There are two different designs:

End-of-line deflagration flame arrester, basic design	**BE/HR - E - –**
End-of-line deflagration flame arrester with heating jacket	**BE/HR - E - H**

Special designs available on request

Table 1: Dimensions Dimensions in mm / inches

To select the nominal size (DN), please use the flow capacity charts on the following pages

DN	80 / 3"	100 / 4"	
a	353 / 13.90	353 / 13.90	Dimensions for deflagration flame arrester with heating jacket upon request
b	250 / 9.84	250 / 9.84	

Demonstration of endurance burning
Video

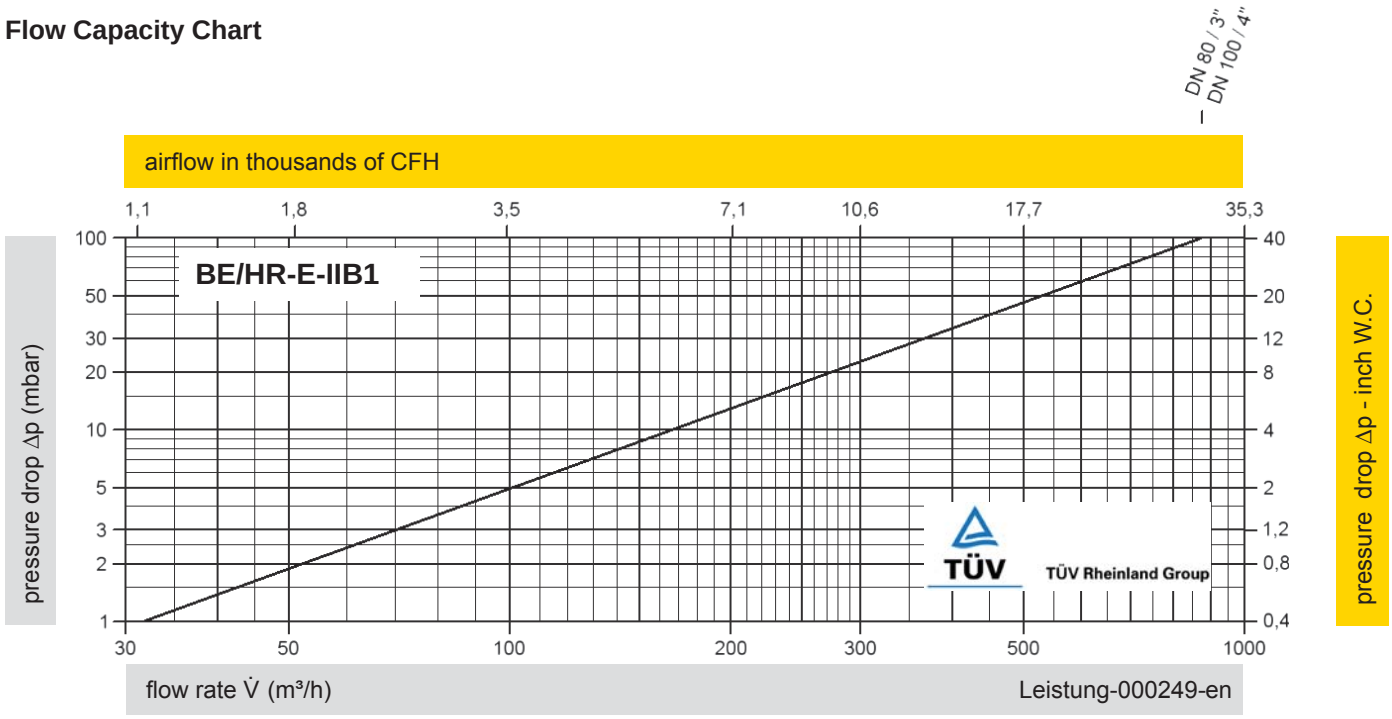
Table 2: Selection of explosion group			
MESG	Expl. Gr. (IEC/CEN)	Gas Group (NEC)	Special approvals upon request
≥ 0,85 mm	IIB1	–	

Table 3: Material selection for housing			
Design	B	C	Special materials upon request
Housing	Steel	Stainless Steel	
Weather hood	Steel	Stainless Steel	
Flame arrester unit	A	A, B	

Table 4: Material combinations of flame arrester unit			
Design	A	B	Special materials upon request
FLAMEFILTER® cage	Stainless Steel	Stainless Steel	
FLAMEFILTER®	Stainless Steel	Hastelloy	
Spacer	Stainless Steel	Hastelloy	

Table 5: Flange connection type	
EN 1092-1; Form B1	other types upon request
ASME B16.5; 150 lbs RFSF	

Flow Capacity Chart



The flow capacity charts have been determined with a calibrated and TÜV certified flow capacity test rig.
Volume flow V̇ in (m³/h) and CFH refer to the standard reference conditions of air ISO 6358 (20°C, 1bar).
Conversion to other densities and temperatures refer to Vol. 1: “Technical Fundamentals”.

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