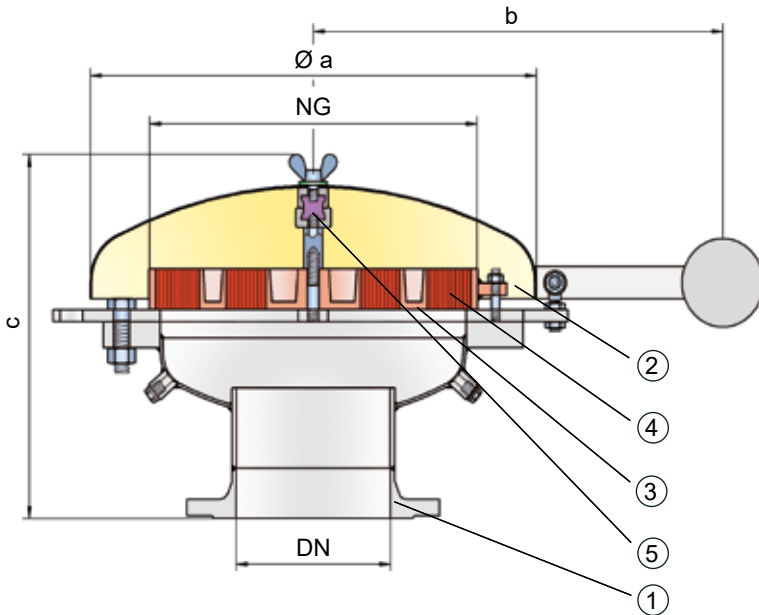


# Deflagration Flame Arrester- Endurance burning-proof, End-of-Line

## PROTEGO® BE/HR-400



### Function and Description

The PROTEGO® BE/HR-400 end-of-line deflagration flame arrester is designed to protect large vessels and process engineering apparatus which are not pressurized. The device provides protection against flame transmission through atmospheric deflagration and stabilized flames which can burn for very long time on the flame arrester element surface, so called endurance burning. Main application area is on in- and out-breathing 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 BE/HR-400 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 stabilized flame burns on the flame arrester element surface, the fusible link (5), located in a center position, will melt and an external counterweight will move the weather hood into the open position. The PROTEGO® flame arrester unit consists of two FLAMEFILTER® discs (4), which are installed in a FLAMEFILTER® casing. The FLAMEFILTER® discs are arranged concentrically and are manufactured in a patented process. The FLAMEFILTER® casing has integrated cooling channels to allow heat to be transferred away from the center of the device. The PROTEGO® BE/HR-400 end-of-line deflagration flame arrester is available for substances from explosion group IIA (NEC group D).

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

Type-approved according to ATEX Directive and EN ISO 16852 as well as other international standards.

### Special Features and Advantages

- protection against atmospheric deflagration and endurance burning
- endurance burning protection hydrocarbons of explosion group IIA (NEC group D)
- 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
- maintenance friendly design

### Design Types and Specifications

There are two different designs:

End-of-line deflagration flame arrester, basic design **BE/HR - □**

End-of-line deflagration flame arrester with heating coil **BE/HR - R**

Special designs available upon 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 | 150 / 6"    | 200 / 8"    |
| NG | 400 / 16"   | 400 / 16"   |
| a  | 600 / 23.62 | 600 / 23.62 |
| b  | 545 / 21.46 | 545 / 21.46 |
| c  | 485 / 19.09 | 485 / 19.09 |

Dimensions for deflagration flame arrester  
with integrated heating coil upon request.

**Table 2: Selection of explosion group**

| MESG      | Expl. Gr. (IEC/CEN) | Gas Group (NEC) |                                 |
|-----------|---------------------|-----------------|---------------------------------|
| > 0,90 mm | IIA                 | D               | Special approvals upon request. |

**Table 3: Material selection for housing**

| Design              | A     | B               |                                 |
|---------------------|-------|-----------------|---------------------------------|
| Housing             | Steel | Stainless Steel | Special materials upon request. |
| Weather hood        | Steel | Stainless Steel |                                 |
| Flame arrester unit | A, B  | B               |                                 |

**Table 4: Material combination of flame arrester unit**

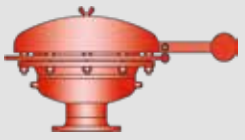
| Design              | A               | B               |                                 |
|---------------------|-----------------|-----------------|---------------------------------|
| FLAMEFILTER® casing | Steel           | Stainless Steel | Special materials upon request. |
| FLAMEFILTER®        | Stainless Steel | Stainless Steel |                                 |

**Table 5: Flange connection type**

|                        |                           |
|------------------------|---------------------------|
| EN 1092-1; Form B1     | Other types upon request. |
| ASME B16.5 CL 150 R.F. |                           |



for safety and environment

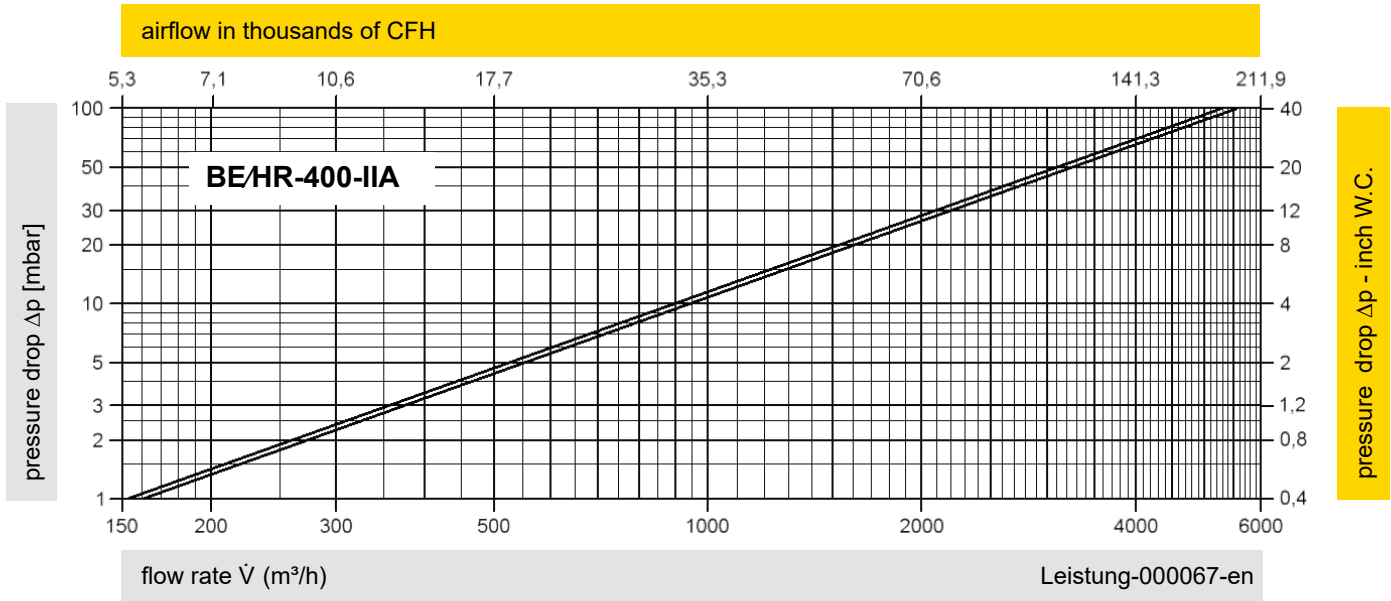


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## Flow Capacity Chart

### PROTEGO® BE/HR-400

DN 150 / 6"  
DN 200 / 8"



The flow capacity charts have been determined with a calibrated and TÜV certified flow capacity test rig. Volume flow  $\dot{V}$  in (m³/h) and CFH refer to the standard reference conditions of air in ISO 6358 (20°C, 1bar). For conversion to other densities and temperatures, refer to Sec. 1: "Technical Fundamentals."