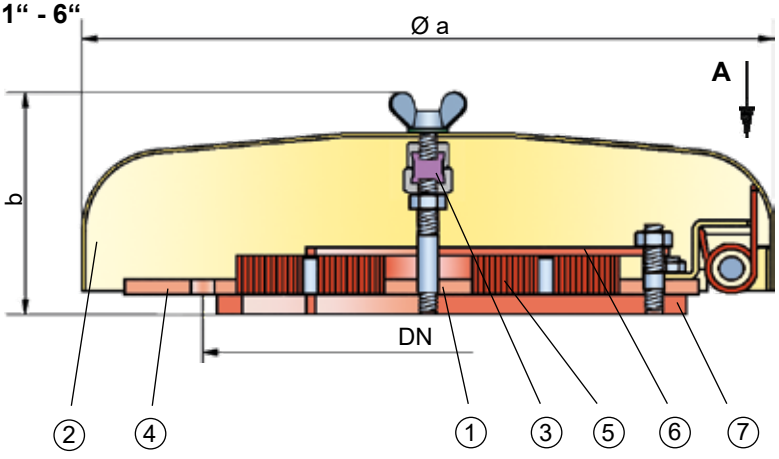
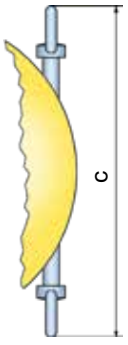
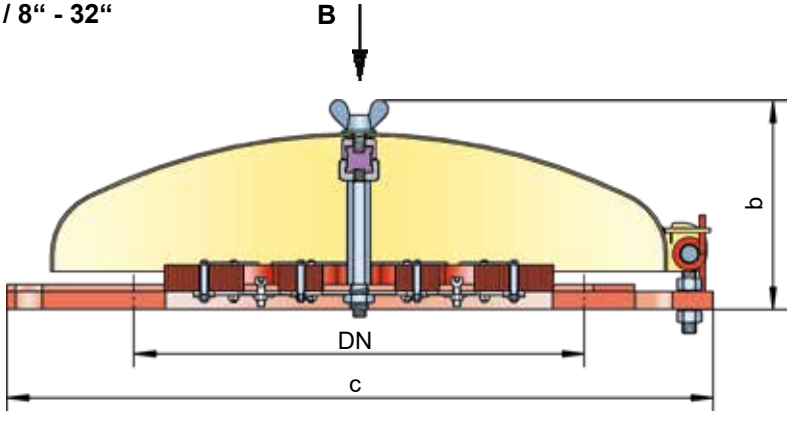
DN 25 - 150 / 1“ - 6“



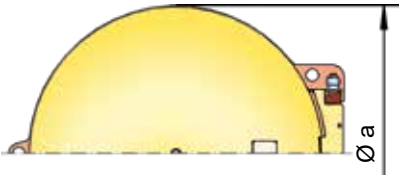
View **A**



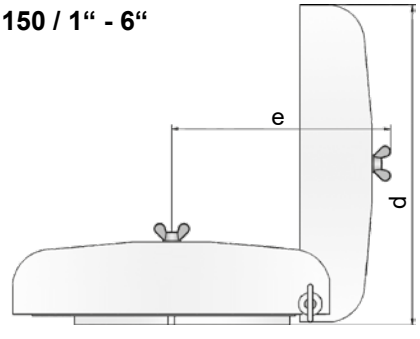
DN 200 - 800 / 8“ - 32“



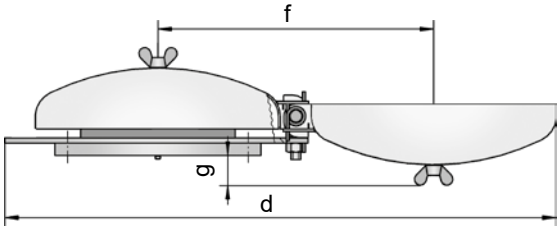
View **B**



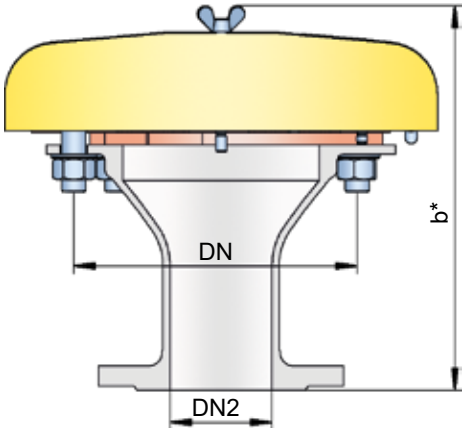
DN 25 - 150 / 1“ - 6“



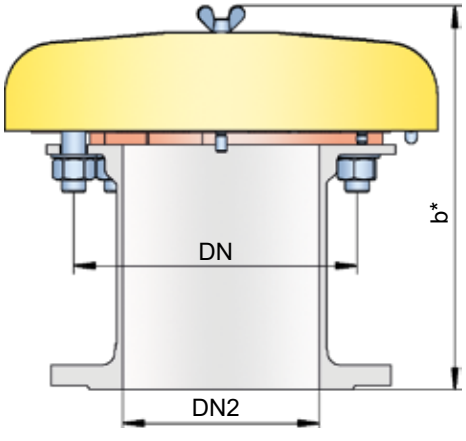
DN 200 - 800 / 8“ - 32“



EB with cone (example)



EB with nozzle (example)



PROTEGO® EB
(Flyer pdf)

Demonstration of endurance burning
Video

Function and Description

The PROTEGO® EB end-of-line deflagration flame arrester provides protection against atmospheric deflagration and long-lasting stabilized flames, called endurance burning. The device is typically installed on vent lines of vessels and plant equipment which is not pressurized. The device prevents flame transmission from endurance burning or atmospheric deflagration into the vessel or plant.

The PROTEGO® EB-IIA consists of the PROTEGO® flame arrester unit (1) and the metal weather hood (2). During normal operation, the metal weather hood is in a closed position. If a stabilized flame burns on the flame arrester element surface, the melting element (3), 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 one or more FLAMEFILTER® (5), which are installed in a FLAMEFILTER® casing (4), a fixation element (6) and an insert ring (7). The FLAMEFILTER® gap size, height, and quantity depend on the device's intended use.

The PROTEGO® EB series end-of-line deflagration flame arrester is available for substances from explosion group IIA and IIB (NEC group D and B).

The standard design can be used with an operating temperature of up to +60°C / 140°F. Devices with special approval for higher temperatures are available upon request.

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

Special Features and Advantages

- weather hood protects the PROTEGO® flame arrester unit against environmental impact, such as nesting animals and weather conditions
- in case of fire, the weather hood opens, allowing the flame to be seen from a far distance
- provides protection against atmospheric deflagrations and endurance burning of pure hydrocarbons
- centrally aligned melting element is resistant to chemicals
- modular design enables replacement of individual FLAMEFILTER® discs
- easy maintenance without disassembling of the FLAMEFILTER®
- cost-effective spare parts

Design Types and Specifications

End-of-line deflagration flame arrester, basic design	**EB**
End-of-line deflagration flame arrester, with cone	**EB - DN/DN2**
End-of-line deflagration flame arrester, with cone and heating jacket	**EB - H - DN/DN2**

Special designs available upon request.

Table 1: Dimensions DN 25 - 150 / 1"- 6"
EB-IIA and EB-IIB

Dimensions in mm / inches

To select the nominal size (DN), please use the flow capacity chart on the following page.

DN	25 / 1"	32 / 1¼"	40 / 1½"	50 / 2"	65 / 2½"	80 / 3"	100 / 4"	125 / 5"	150 / 6"
a	218 / 8.58	218 / 8.58	218 / 8.58	218 / 8.58	218 / 8.58	353 / 13.90	353 / 13.90	353 / 13.90	353 / 13.90
b	113 / 4.45	113 / 4.45	113 / 4.45	113 / 4.45	113 / 4.45	113 / 4.45	113 / 4.45	113 / 4.45	113 / 4.45
c	232 / 9.13	232 / 9.13	232 / 9.13	232 / 9.13	232 / 9.13	306 / 12.05	306 / 12.05	306 / 12.05	306 / 12.05
d	222 / 8.74	222 / 8.74	222 / 8.74	222 / 8.74	222 / 8.74	355 / 13.98	355 / 13.98	355 / 13.98	355 / 13.98
e	217 / 8.54	217 / 8.54	217 / 8.54	217 / 8.54	217 / 8.54	322 / 12.68	322 / 12.68	322 / 12.68	322 / 12.68
EB-IIA und IIB with cone/nozzle**									
DN				50 / 2"		80 / 3"	100 / 4"		150 / 6"
DN2				≤ 50 / 2"		≤ 80 / 3"	≤ 100 / 4		≤ 150 / 6"
b*				238 / 9.37		263 / 10.35	383 / 15.08		313 / 12.32

Dimensions DN 200 - 800 / 8"- 32"
EB-IIA

DN	200 / 8"	300 / 12"	400 / 16"	500 / 20"	600 / 24"	800 / 32"
a	405 / 15.94	555 / 21.85	705 / 27.75	855 /33.66	1005 / 39.57	1210 / 47.64
b	177 / 6.97	206 / 8.11	235 / 9.25	265 / 10.43	294 / 11.57	330 / 12.99
c	496 / 19.53	650 / 25.59	802 / 31.57	987 / 38.86	1137 / 44.76	1336 / 52.60
d	900 / 35.43	1200 / 47.24	1500 / 59.06	1820 / 71.65	2120 / 83.46	2525 / 99.41
f	450 / 17.72	600 / 23.62	750 / 29.53	920 / 36.22	1070 / 42.13	1270 / 50.00
g	51 / 2.01	80 / 3.15	109 / 4.29	138 / 5.43	167 / 6.57	204 / 8.03
EB-IIA with cone/nozzle**						
DN	200 / 8"	300 / 12"	400 / 16"	500 / 20"	600 / 24"	800 / 32"
DN2	≤ 200 / 8"	≤ 300 / 12"	≤ 400 / 16"	≤ 500 / 20"	≤ 600 / 24"	≤ 800 / 32"
b*	401 / 15.94	456 / 17.95	535 / 21.06	614 / 24.17	693 / 27.28	830 / 32.68

** For combinations (DN/DN2), please use the table on the following page.

PROTEGO
for safety and environment

PROTEGO® EB-IIA and IIB

Table 2: Combination (DN/DN2) for EB with cone

Remarks: Flow capacity charts for EB-DN/DN2-IIA/IIB with cone upon request.

DN	50/2“	80/3“	100/4“	150/6“	200/8“	300/12“	400/16“	500/20“	600/24“	800/32“
DN2										
20/¾“	IIA/IIB	IIA/IIB	IIA/IIB	IIA/IIB						
25/1“	IIA/IIB	IIA/IIB	IIA/IIB	IIA/IIB						
32/1¼	IIA/IIB	IIA/IIB	IIA/IIB	IIA/IIB						
40/1½	IIA/IIB	IIA/IIB	IIA/IIB	IIA/IIB						
50/2“	IIA/IIB	IIA/IIB	IIA/IIB	IIA/IIB	IIA					
65/2½“		IIA/IIB	IIA/IIB	IIA/IIB						
80/3“		IIA/ IIB	IIA/ IIB	IIA/ IIB	IIA	IIA				
100/4“			IIA/ IIB	IIA/ IIB	IIA	IIA				
125/5“				IIA/ IIB	IIA					
150/6“				IIA/ IIB	IIA	IIA	IIA			
200/8“					IIA	IIA	IIA	IIA	IIA	
250/10“						IIA	IIA	IIA		
300/12“							IIA	IIA	IIA	
350/14“								IIA	IIA	
400/16“								IIA	IIA	IIA
450/18“								IIA	IIA	IIA
500/20“									IIA	IIA
600/24“										IIA
700/28“										IIA

Table 3: Selection of explosion group

MESG	Expl. Gr. (IEC/CEN)	Gas Group (NEC)	
> 0,90 mm	IIA	D	Special approvals upon request.
≥ 0,50 mm	IIB	B	

Table 4: Specification of max. operating temperature

≤ 60°C / 140°F	Tmaximum allowable operating temperature in °C	Higher operating temperatures upon request.
-	Classification	

Table 5: Material selection for housing

Design	A	B	
Flange ring	Steel	Stainless Steel	
Weather hood	Steel	Stainless Steel	Special materials upon request.
Cone/nozzle	Steel	Stainless Steel	
Flame arrester unit	A, B, C	B, C	

Table 6: Material combinations of flame arrester unit

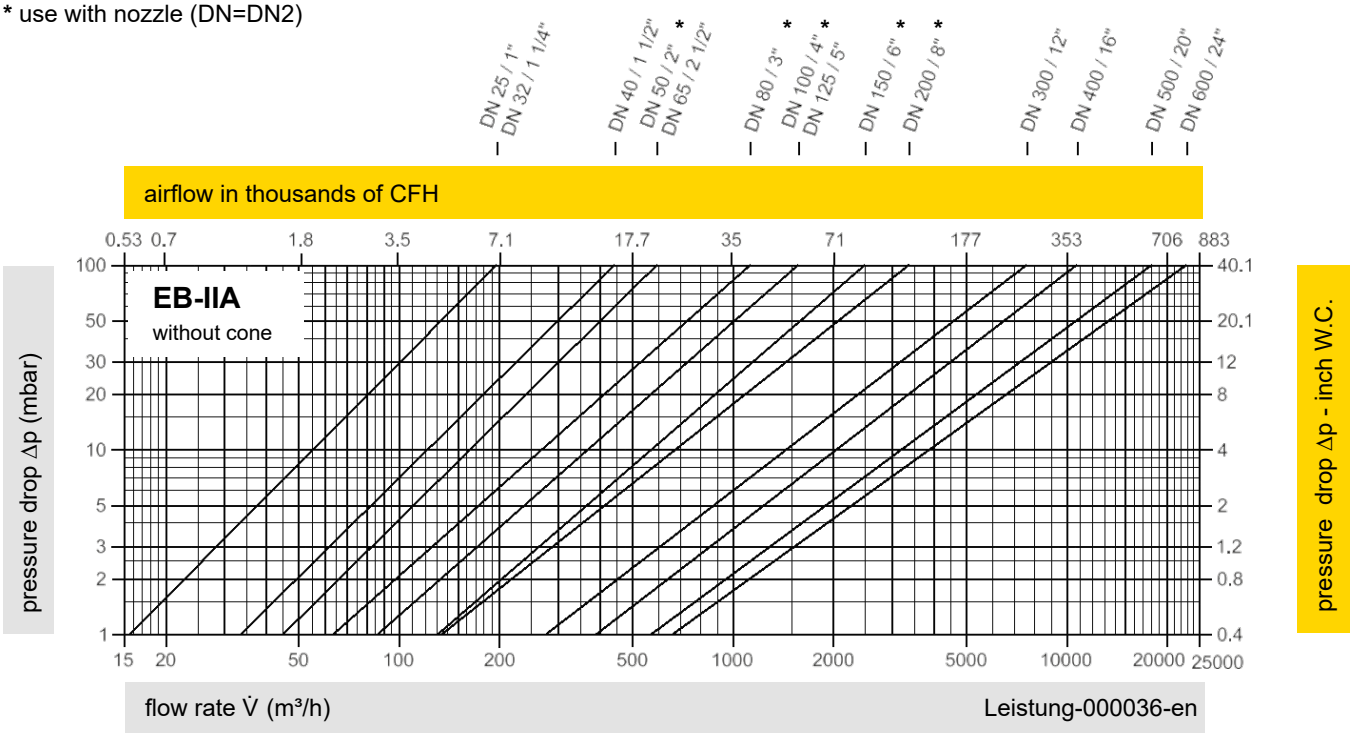
Design	A	B	C	
FLAMEFILTER® casing	Steel	Stainless Steel	Stainless Steel/Hastelloy	Special materials upon request.
FLAMEFILTER®	Stainless Steel	Stainless Steel	Hastelloy	
Insert ring/safety bar	Stainless Steel	Stainless Steel	Stainless Steel/Hastelloy	

Table 7: Flange connection type

EN 1092-1 (without cone); EN 1092-1; Form B1 (with cone/nozzle)	Other types upon request.
ASME B16.5 (without cone); ASME B16.5 CL 150 R.F. (with cone/nozzle)	

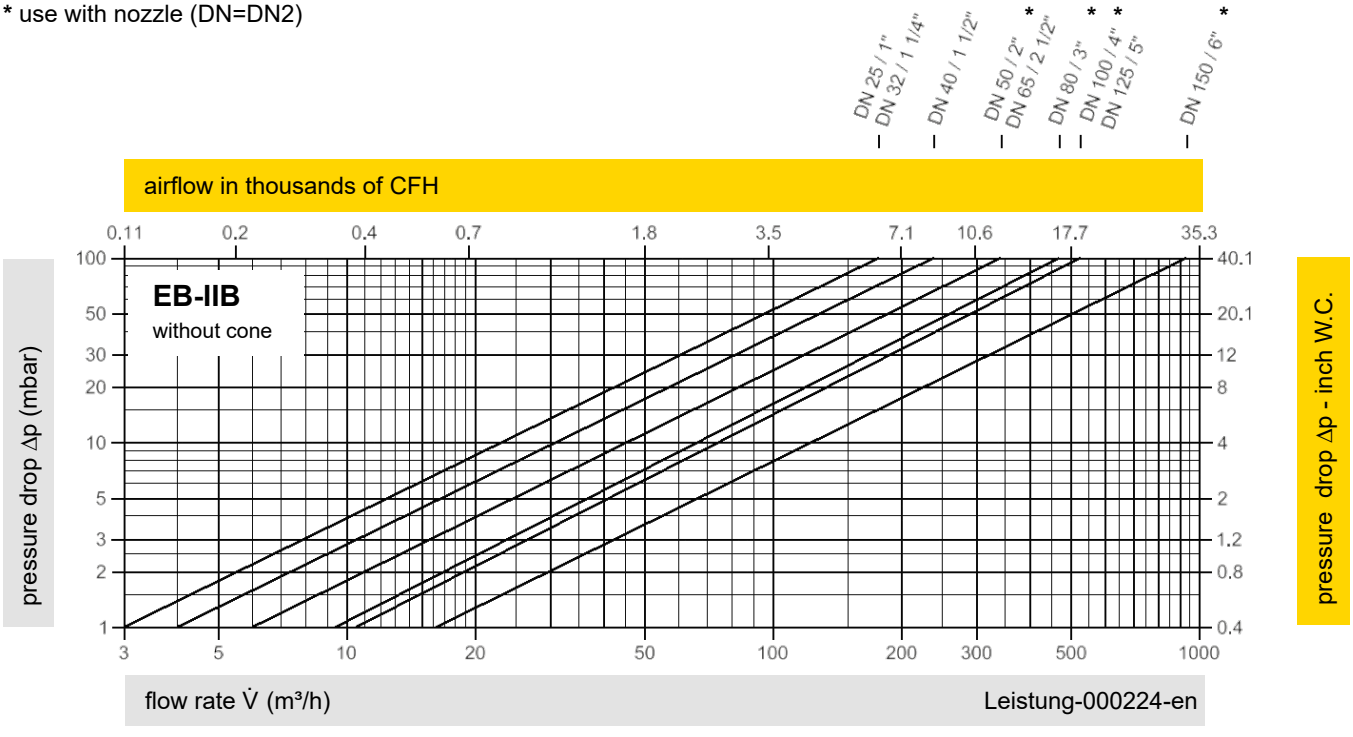
PROTEGO® EB-IIA and IIB without cone

* use with nozzle (DN=DN2)



Remark: Flow capacity charts for EB-DN/DN2-IIA/IIB with cone upon request.

* use with nozzle (DN=DN2)



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 in ISO 6358 (20°C, 1bar).
For conversion to other densities and temperatures, refer to Sec. 1: “Technical Fundamentals.”

PROTEGO
for safety and environment