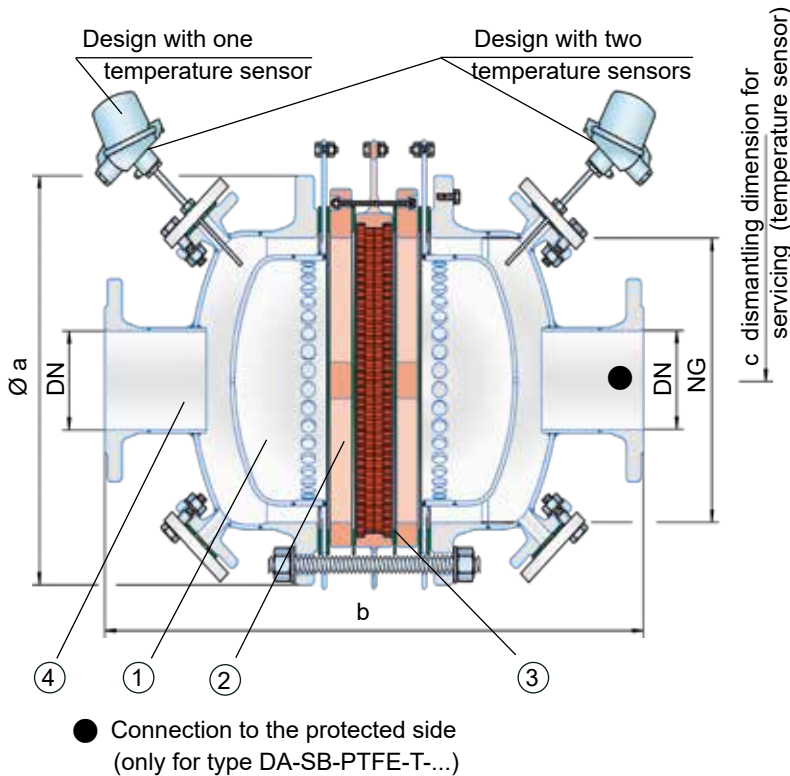


In-Line Detonation Flame Arrester

for stable detonations and deflagrations in a straight through design
with shock absorber, bidirectional

PROTEGO® DA-SB-PTFE



Special Features and Advantages

- build up of adhesive materials is prevented by the smooth surfaces
- application especially for corrosive and polymerising media
- minimum number of FLAMEFILTER® discs due to the effective shock absorber
- different series allow increase of FLAMEFILTER® size for given flange connection resulting in lower pressure drop across the device
- service-friendly design
- the modular design enables each individual FLAMEFILTER® to be replaced
- bidirectional operation as well as any direction of flow and installation position
- Installation of temperature sensors is possible
- less soiling of the device lowers service, operating and life-cycle cost
- minimum pressure loss and associated low operating and life-cycle cost

Function and Description

The in-line detonation flame arresters type PROTEGO® DA-SB-PTFE are the latest generation of flame arresters and are distinguished by its unique resistance to adhesive and corrosive media. The use of fluoroplastics as a high-tech housing coating and as solid material for the flame arrester element is unique throughout the world.

The speed of incoming detonations is highly reduced by the effective shock absorber (1) and result in an equal pressure distribution across the FLAMEFILTER® surface. This improves the flame extinction in the narrow gaps of the original PTFE-FLAMEFILTER® (3).

The devices are symmetrical and offer bidirectional flame arresting for deflagrations and stable detonations. The arrester essentially consists of two coated housing parts (4), two coated shock absorbers and the PROTEGO® flame arrester unit (2) in the center. The PROTEGO® flame arrester unit is modular and consists of several FLAMEFILTER® discs and spacers firmly held in a FLAMEFILTER® cage. The number of FLAMEFILTER® discs and their gap size depends on the arrester's conditions of use.

The detonation arrester PROTEGO® DA-SB-PTFE can be used for explosion group IIA (NFA group D). The standard design is approved at an operating temperature up to +60°C / 140°F. The maximum allowable operating pressure depends on nominal diameter (DN) and nominal size (NG) and amounts to a maximum of 2.4 bar / 34.8 psi absolute (for DN50 / 2" see table 3). Type-approved according to ATEX Directive and EN ISO 16852 as well as other international standards.

Design Types and Specifications

There are three different designs available:

- | | |
|---|--|
| Basic in-line detonation flame arrester | DA-SB-PTFE - <input type="checkbox"/> |
| In-line detonation flame arrester with integrated temperature sensor* as additional protection against short time burning from one side | DA-SB-PTFE - <input type="checkbox"/> |
| In-line detonation flame arrester with two integrated temperature sensors* for additional protection against short time burning from both sides | DA-SB-PTFE - <input type="checkbox"/> |

Additional special flame arresters upon request.

*Resistance thermometer for device group II, category (1) 2 (GII cat. (1) 2)

Table 1: Dimensions

Dimensions in mm / inches

To select nominal width/nominal size (NG/DN) - combination, please use the flow capacity chart on the following pages.

NG	150 / 6"	150 / 6"	200 / 8"	300 / 12"
DN	50 / 2"	80 / 3"	80 / 3"	100 / 4"
a	287 / 11.30	287 / 11.30	342 / 13.46	447 / 17.60
b	407 / 15.75	407 / 15.75	497 / 19.57	645 / 25.39
c	400 / 15.75	400 / 15.75	530 / 20.87	530 / 20.87

Table 2: Selection of the explosion group

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

Table 3: Selection of max. operating pressure

NG	150 / 6"	150 / 6"	200 / 8"	300 / 12"
DN	50 / 2"	80 / 3"	80 / 3"	100 / 4"
P _{max}	2.4 / 34.8	1.1 / 15.9	1.2 / 17.4	1.2 / 17.4

P_{max} = allowable operating pressure in bar / psi absolut, higher operating pressure upon request.**Table 4: Specification of max. operating temperature**

≤ 60°C / 140°F	T _{maximum allowable operating temperature in °C}	Higher operating temperatures upon request.
-	Classification	

Table 5: Material for housing

Design	A	Special materials upon request.
Housing	Steel with an ECTFE coating	
Shock absorber	Steel with an ECTFE coating	
Gasket	PTFE	
Flame arrester unit	A, B, C	

Table 6: Material combinations of the flame arrester unit

Design	A	B	C
FLAMEFILTER® cage	Steel with an ECTFE coating	Hastelloy	Stainless Steel
Spider rings	Steel with an ECTFE coating	Hastelloy	Stainless Steel
FLAMEFILTER® *	PTFE*	PTFE*	PTFE*
Spacer	PEEK / ETFE / FEP	PEEK / ETFE / FEP	PEEK / ETFE / FEP

Special materials upon request.

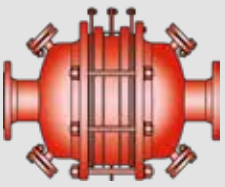
* electrically conductive

Table 7: Flange connection type

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



for safety and environment



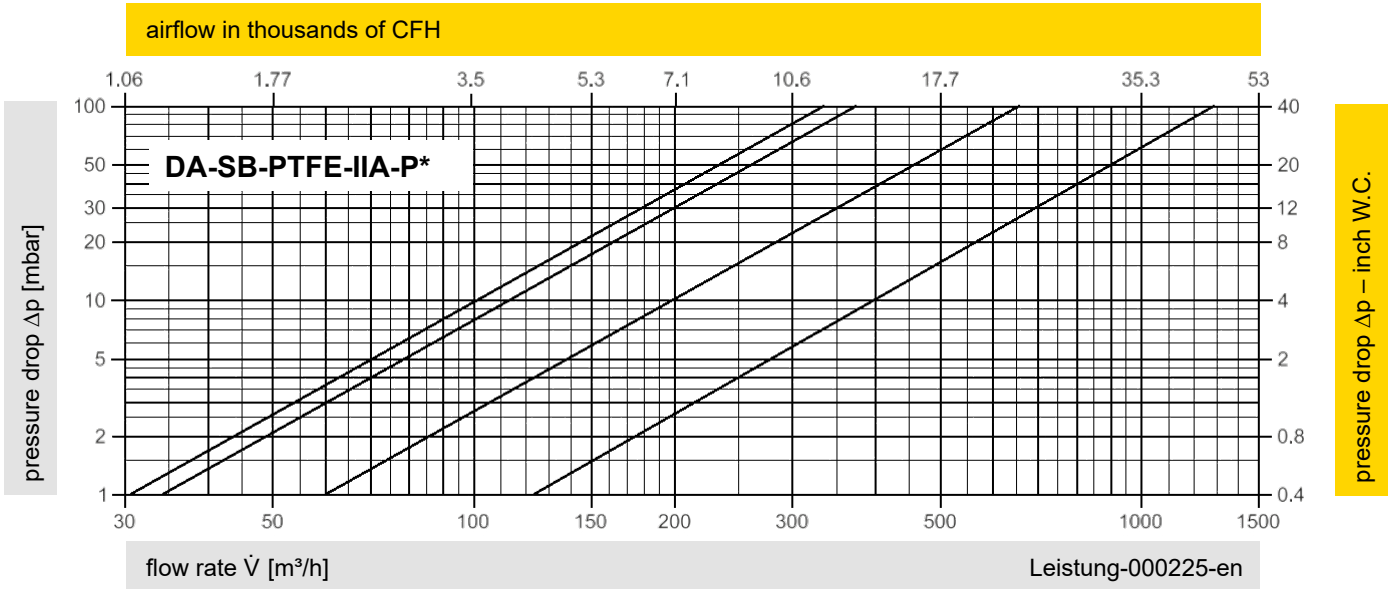
In-Line Detonation Flame Arrester

Flow Capacity Chart

PROTEGO® DA-SB-PTFE

P* see table 3

NG / DN
 150,50 (6" / 2")
 150,80 (6" / 3")
 200,80 (8" / 3")
 300,100 (12" / 4")



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."