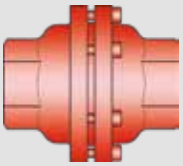
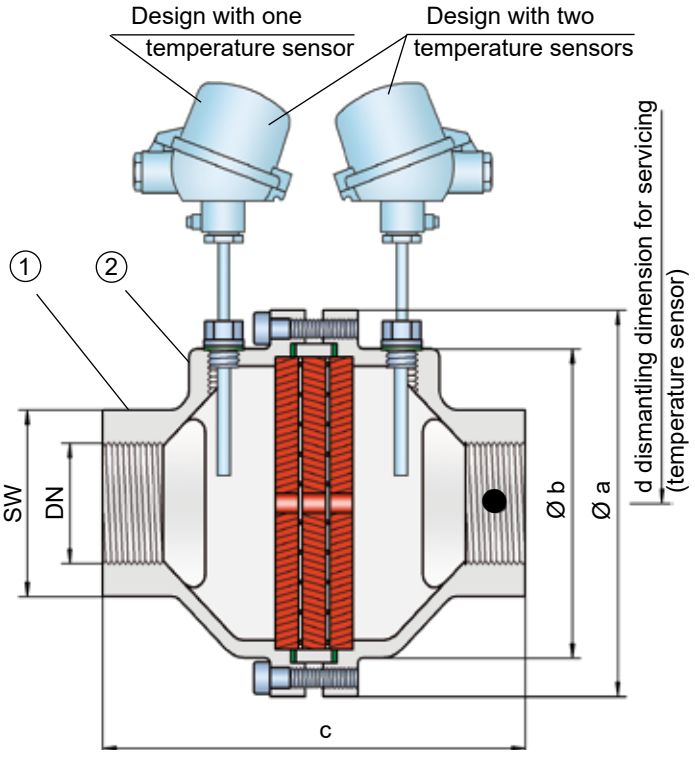


In-Line Deflagration Flame Arrester

concentric design,
bi-directional

PROTEGO® FA-G



● Connection to the protected side (only for type FA-G-T-...)

Function and Description

The compact design of the PROTEGO® FA-G in-line deflagration flame arrester makes it the state-of-the-art technology for installation in pipes with diameters of up to 2". The devices are installed with minimal distance to the burner to prevent flash-back into the fuel feed lines. When installing the deflagration flame arrester, make sure that the distance between potential ignition sources and the location of the installed device does not exceed the L/D ratio (pipe length/pipe diameter) for which the device was approved. As per EN ISO 16852, the L/D ratio is limited to (L/D)max ≤ 50 for deflagration flame arresters of explosion groups IIA and IIB3 (NEC groups D and C {MESG ≥ 0.65 mm}) and to (L/D)max ≤ 30 for explosion group IIC (NEC group B).

The in-line deflagration flame arrester is symmetrical and offers bi-directional flame transmission protection. The device consists of two housing parts (1) and a PROTEGO® flame arrester unit or a FLAMEFILTER® (2) and spacers in the center. The number of FLAMEFILTER® discs and their gap size depend on the operating conditions, such as the temperature, pressure, explosion group, and the composition of the fluid. The PROTEGO® FA-G series in-line deflagration flame arresters is available for explosion groups IIA, IIB3, and IIC (NEC groups D, C {MESG ≥ 0.65 mm} and B).

The standard design can be used with an operating temperature of up to+60°C / 140°F and an absolute operating pressure acc. to table 3. Devices with special approval for higher pressures and 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

- different application possibilities
- modular design
- the individual FLAMEFILTER® can be quickly removed and installed
- threaded connection for direct mounting into pipeline
- bi-directional flame transmission proof design
- protects against deflagrations for all explosion groups
- use of temperature sensors for G 1½ and G 2 is possible
- cost efficient spare parts

Design and Specifications

There are three different designs:

Basic in-line deflagration flame arrester (size ½" to 2") **FA-G- [–]**

In-line deflagration flame arrester with integrated temperature sensor* for additional protection against short-time burning from one side (size 1½" to 2") **FA-G- [T]**

In-line deflagration flame arrester with two integrated temperature sensors* for additional protection against short-time burning from both sides (size 1½" to 2") **FA-G- [TB]**

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

Flange connection available upon request

Stabilized FLAMEFILTER®
Discs (Flyer pdf)

Table 1: Dimensions Dimensions in mm / inches, SW = width across flats

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

DN	G ½	G ¾	G 1	G 1 ¼	G 1 ½	G 2
a	80 / 3.15	80 / 3.15	100 / 3.94	100 / 3.94	155 / 6.10	155 / 6.10
b	55 / 2.17	55 / 2.17	76 / 2.99	76 / 2.99	124 / 4.88	124 / 4.88
c (IIA up to IIB3)	100 / 3.94	100 / 3.94	110 / 4.33	110 / 4.33	170 / 6.69	170 / 6.69
c (IIB and IIC)	112 / 4.41	112 / 4.41	122 / 4.80	122 / 4.80	170 / 6.69	170 / 6.69
d	—	—	—	—	400 / 15.75	400 / 15.75
SW	32 / 1.26	32 / 1.26	50 / 1.97	50 / 1.97	75 / 2.95	75 / 2.95

Table 2: Selection of the explosion group

MESG	Expl. Gr. (IEC/CEN)	Gas Group (NEC)
> 0.90 mm	IIA	D
≥ 0.65 mm	IIB3	C
< 0.50 mm	IIC	B

Special approvals upon request.

Table 3: Selection of max. operating pressure

		DN	G ½	G ¾	G 1	G 1 ¼	G 1 ½	G 2
Expl. Gr.	IIA	P_{max}	1.4/20.3	1.4/20.3	1.4/20.3	1.4/20.3	1.5/21.7	1.5/21.7
	IIB3	P_{max}	1.2/17.4	1.2/17.4	1.2/17.4	1.2/17.4	1.2/17.4	1.2/17.4
	IIC	P_{max}	1.1/15.9	1.1/15.9	1.1/15.9	1.1/15.9	1.1/15.9	1.1/15.9

P_{max} = maximum allowable operating pressure in bar / psi absolute, higher operating pressure upon request.

Table 4: Specification of max. operating temperature

≤ 60°C / 140°F	Tmaximum allowable operating temperature in °C
-	Classification

Higher operating temperatures upon request.

Table 5: Material selection

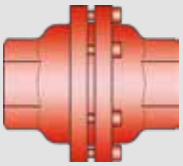
Design	B	C
Housing	Stainless Steel	Hastelloy
Gasket	PTFE	PTFE
FLAMEFILTER®*	Stainless Steel	Hastelloy

* the FLAMEFILTER® is also available in Tantalum, Inconel, Copper, etc. when the listed housing materials are used.

Special materials upon request.

Table 6: Type of connection

Pipe thread DIN ISO 228-1	DIN	Other types of thread upon request.

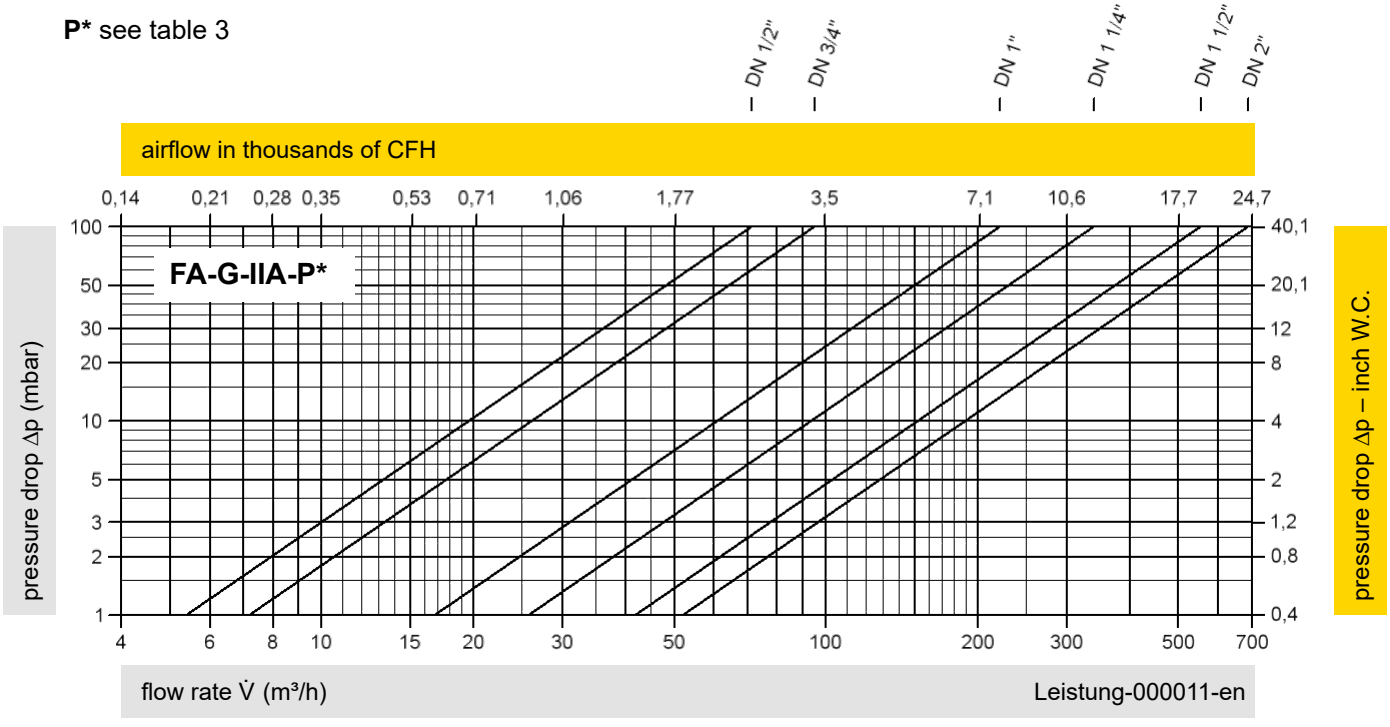


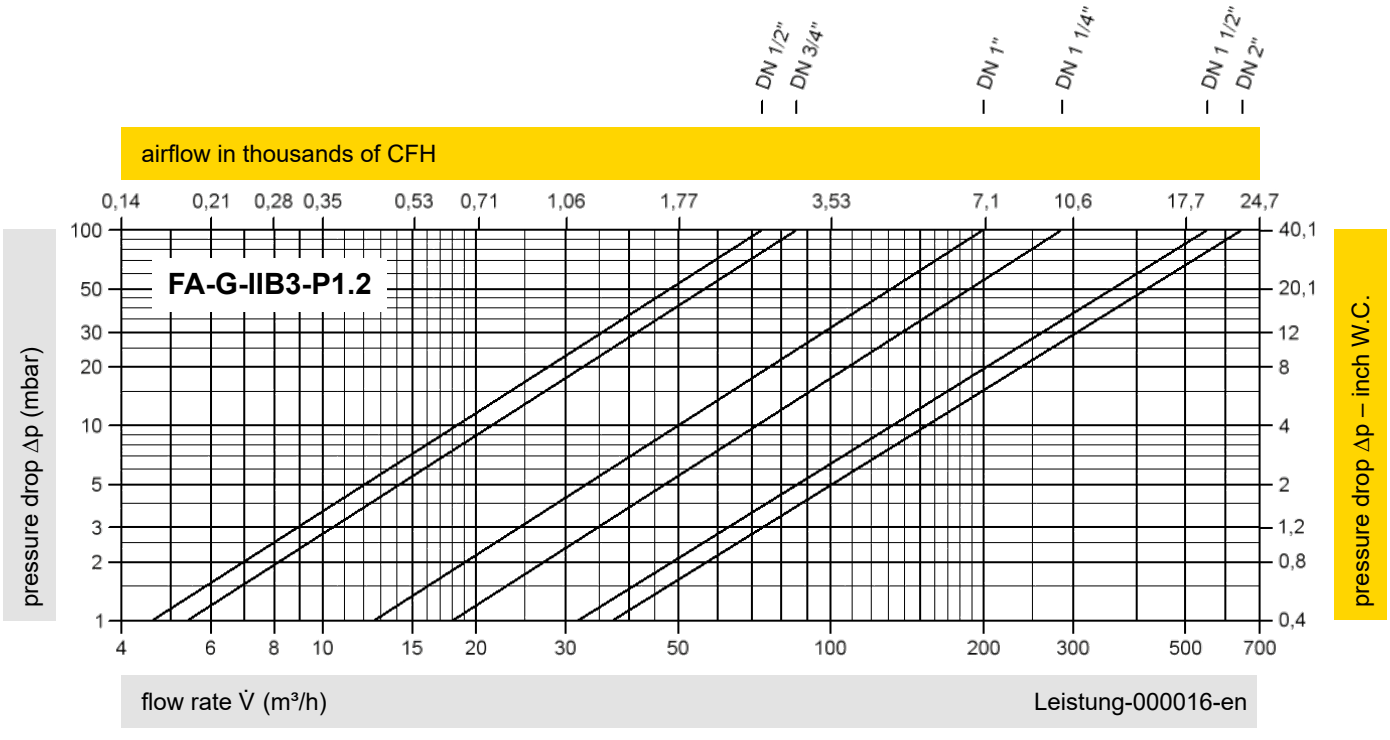
In-Line Deflagration Flame Arrester

Flow Capacity Charts

PROTEGO® FA-G-IIA, IIB3 and IIC

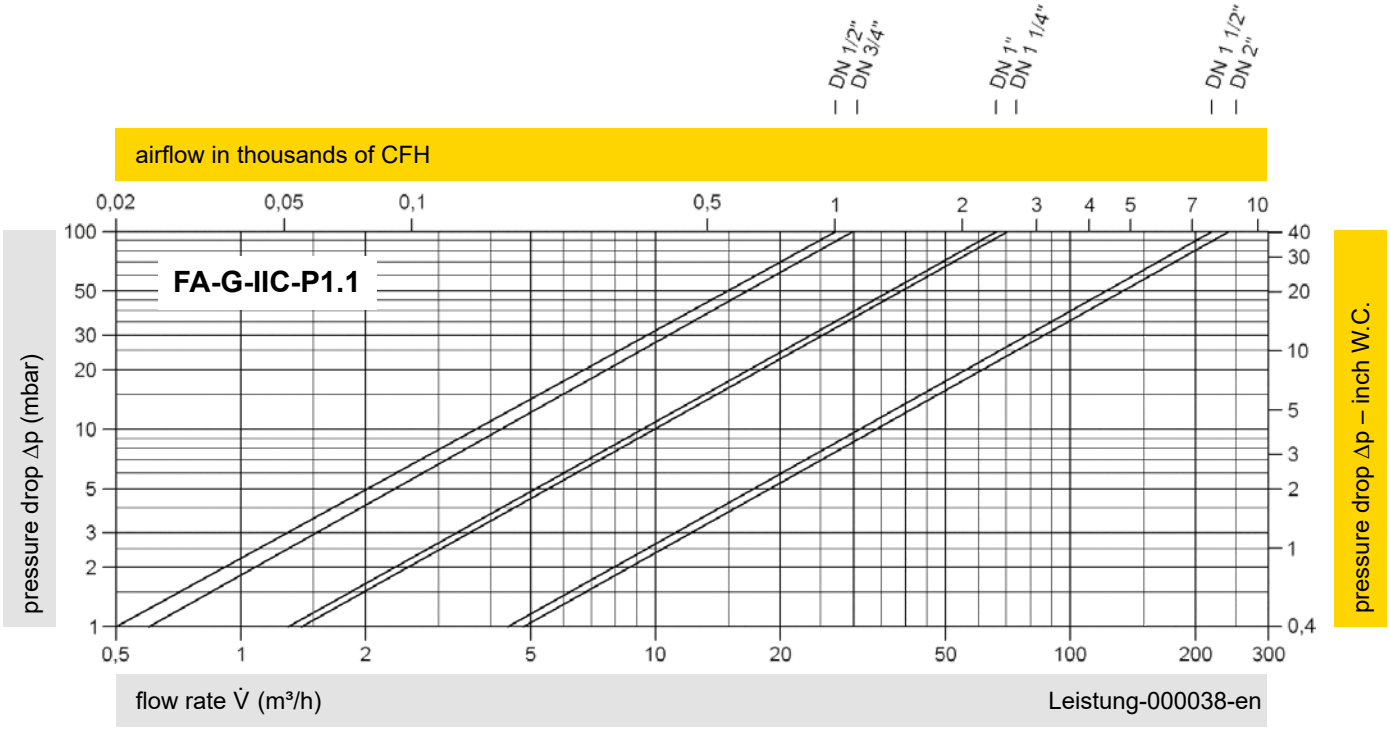
P* see table 3





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.”


DN 1/2"
DN 3/4"
DN 1"
DN 1 1/4"
DN 1 1/2"
DN 2"
airflow in thousands of CFH
FA-G-IIC-P1.1
pressure drop Δp (mbar)
pressure drop Δp – inch W.C.
flow rate V̇ (m³/h)
Leistung-000038-en