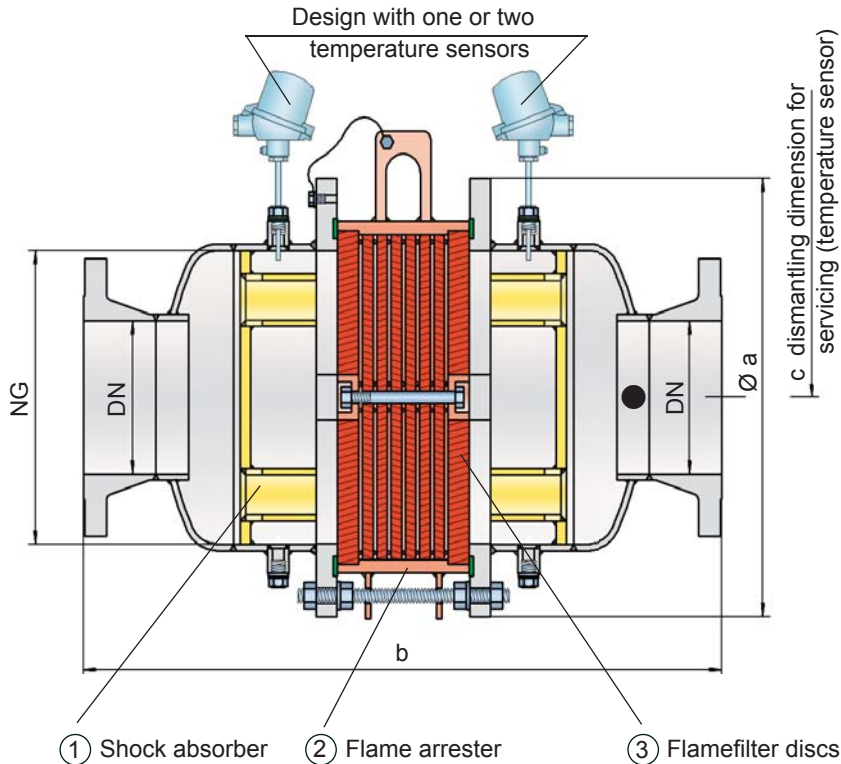


In-Line Detonation Flame Arrester

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

PROTEGO® DA-CG



● Connection to the protected side (only for type DA-CG-T-....)

Function and Description

The DA-CG series of detonation arresters was developed especially for the North American market and optimized to meet the demands of the US Coast Guard. The devices are symmetrical and offer bidirectional flame arresting for deflagrations, stable and unstable detonations.

The speed of incoming detonations is greatly reduced by the effective shock absorber (1). This improves the flame extinction in the narrow gaps of the original PROTEGO flamefilter (2).

The arrester essentially consists of two housing halves (4) with an integrated shock absorber (1) and the PROTEGO flame arrester (2) in the center. The flame arrester is modular and consists of several flamefilter discs (3) firmly held in a filter cage. The number of flamefilters and their gap size depends on the arrester's conditions of use. By indicating the operating parameters such as the temperature, pressure and explosion group and the composition of the fluid, the optimum detonation arrester can be selected. Type DA-CG flame arresters are available for explosion groups IIA to IIB3 (NFPA group D and C ≥ 0.65 mm MESG).

The standard design can work at an operating temperature of + 60°C / 140°F and an absolute operating pressure up to 1.2 bar / 17.4 psi. Devices with special permits can be obtained for higher pressures.

The flame arresters have been approved according to the American Standard 33 CFR part 154 and are accepted by the US Coast Guard.

Special Features and Advantages

- Offers protection against deflagrations, stable and unstable detonations
- The modular design enables individual flamefilter discs to be replaced
- Cost efficient spare parts
- Service-friendly design
- Low life-cycle costs
- Few flamefilters are needed due to the effective shock absorber
- Also available for large nominal sizes and high operating pressures
- Bidirectional operation as well as any direction of flow and insertion position

Design Types and Specifications

There are three different designs

Basic in-line detonation flame arrester

DA-CG-

In-line detonation flame arrester with integrated temperature sensor* as additional protection against short time burning of one side.

DA-CG-

Detonation arrester with two integrated temperature sensors* for additional protection against short time burning from both sides

DA-CG- -

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

Series 1 (standard)

DN	50/2"	80/3"	100/4"	150/6"	200/8"	250/10"	300/12"	350/14"	400/16"	500/20"	600/24"
NG	150/6"	150/6"	200/8"	300/12"	400/16"	500/20"	600/24"	700/28"	800/32"	1000/40"	1200/48"
a	285 / 11.22	285 / 11.22	340 / 13.39	460 / 11.18	580 / 22.83	715 / 28.15	840 / 33.07	1025 / 40.35	1025 / 40.35	1255 / 49.41	1485 / 58.46
b	650 / 25.59	650 / 25.59	700 / 27.56	800 / 31.50	900 / 35.43	1100 / 43.31	1250 / 49.21	1500 / 59.06	1500 / 59.06	1700 / 66.93	2000 / 78.74
c	300 / 11.81	300 / 11.81	330 / 12.99	380 / 14.96	490 / 19.29	540 / 21.26	590 / 23.23	690 / 27.17	690 / 27.17	790 / 31.10	880 / 34.65

Series 2 (special design for improved flow)

DN	50/2"	80/3"	100/4"	150/6"	200/8"	250/10"	300/12"	350/14"	400/16"	500/20"	600/20"
NG	200/8"	200/8"	300/12"	400/16"	500/20"	600/24"	800/32"	800/32"	1000/40"	1200/48"	1400/52"
a	340 / 13.39	340 / 13.39	460 / 11.18	580 / 22.83	715 / 28.15	840 / 33.07	1025 / 40.35	1025 / 40.35	1255 / 49.41	1485 / 58.46	1675 / 65.94
b	500 / 19.69	700 / 27.56	800 / 31.50	900 / 35.43	1100 / 43.31	1250 / 49.21	1500 / 59.06	1500 / 59.06	1700 / 66.93	2000 / 78.74	2050 / 80.71
c	330 / 12.99	330 / 12.99	380 / 14.96	490 / 19.29	540 / 21.26	590 / 23.23	690 / 27.17	690 / 27.17	790 / 31.10	880 / 34.65	980 / 38.58

Series 3 (special design for superior flow)

DN	50/2"	80/3"	100/4"	150/6"	200/8"	250/10"	300/12"	350/14"	400/16"	500/20"	600/20"
NG	300/12"	300/12"	400/16"	500/20"	600/24"	800/32"	1000/40"	1000/40"	1200/48"	1400/52"	1600/56"
a	460 / 18.11	460 / 18.11	580 / 22.83	715 / 28.15	840 / 33.07	1025 / 40.35	1025 / 40.35	1255 / 49.41	1485 / 58.46	1685 / 66.34	1930 / 75.34
b	800 / 31.50	800 / 31.50	900 / 35.43	1100 / 43.31	1250 / 49.21	1500 / 59.06	1500 / 59.06	1700 / 66.93	2000 / 78.74	2050 / 80.71	2100 / 82.68
c	380 / 14.96	380 / 14.96	490 / 19.29	540 / 21.26	590 / 23.23	690 / 27.17	690 / 27.17	790 / 31.10	880 / 34.65	980 / 38.58	1080 / 42.52

Table 2: Selection of the explosion group

MESG	Expl. Gr. (IEC/CEN)	Gas Group (NEC/NFPA)	Special approvals upon request
> 0,90 mm	IIA	D	
≥ 0,65 mm	IIB3	C	

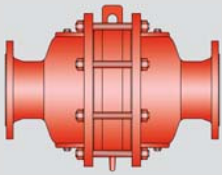
Table 3: Selection of max. operating pressure (bar / psi)

		DN	50/2"	80/3"	100/4"	150/6"	200/8"	250/10"	300/12"	350/14"	400/ 6"	500/20"	600/24"
		NG	150/6"	150/6"	200/8"	300/12"	400/16"	500/20"	600/24"	700/28"	800/32"	1000/40"	1200/48"
Expl. Gr.	IIA	P	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4	1.2 / 17.4
	IIB3	P	1.6 / 23.2	1.6 / 23.2	1.6 / 23.2	1.6 / 23.2	1.6 / 23.2	1.6 / 23.2	1.6 / 23.2	1.6 / 23.2	1.6 / 23.26	1.6 / 23.2	1.6 / 23.2

P = maximum allowable operating pressure in bar / psi (absolute), higher operating pressure upon request



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Table 4: Selection of max. operating temperature (°C / °F)

≤ 60 / 140	≤ 100 / 212	≤ 150 / 302	≤ 180 / 356	≤ 200 / 392	≤ 250 / 482	*upon request
(Standard)	X0 *	X1 *	X2 *	X3 *	X4 *	

Table 5: Material selection for housing

Design	A	B	* for devices exposed to elevated temperatures above 150°C / 302°F (X2), gaskets made of PTFE.
Housing	Carbon Steel	Stainless Steel	
Gasket	WS 3822 *	PTFE	
Flame arrester	A	B	

Special materials upon request.

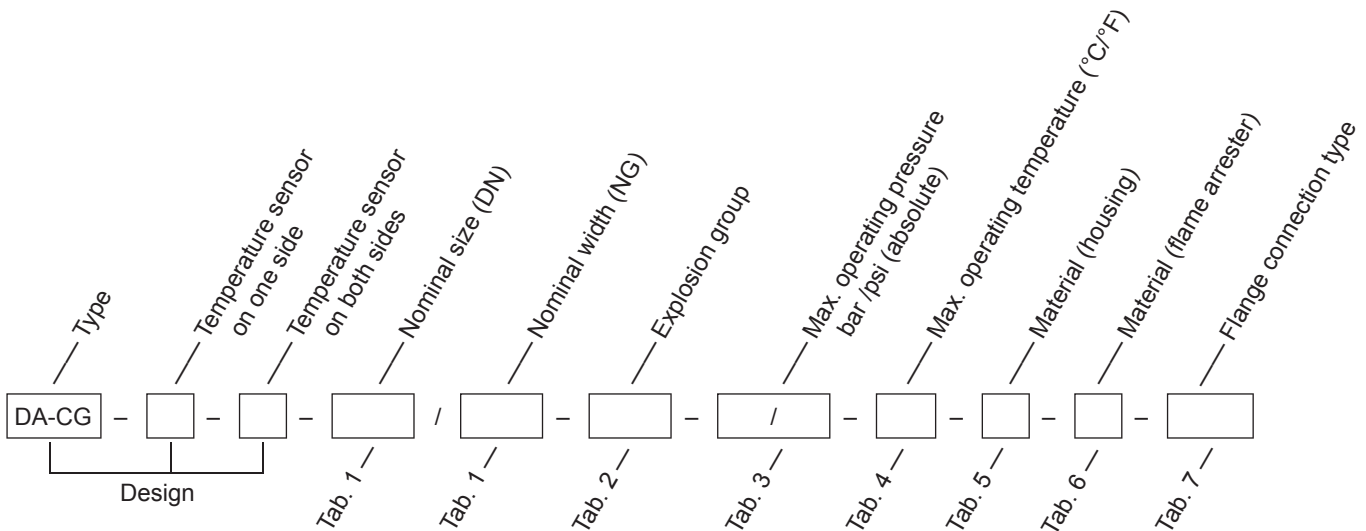
Table 6: Material combinations of the flame arrester

Design	A	B	*the flamefilters are also available in the materials Tantalum, Inconel, Copper, etc. when the listed housing and cage materials are used.
Flamefilter cage	Carbon Steel	Stainless Steel	
Flamefilter *	Stainless Steel	Stainless Steel	
Spacer	Stainless Steel	Stainless Steel	

Special materials upon request.

Table 7: Flange connection type

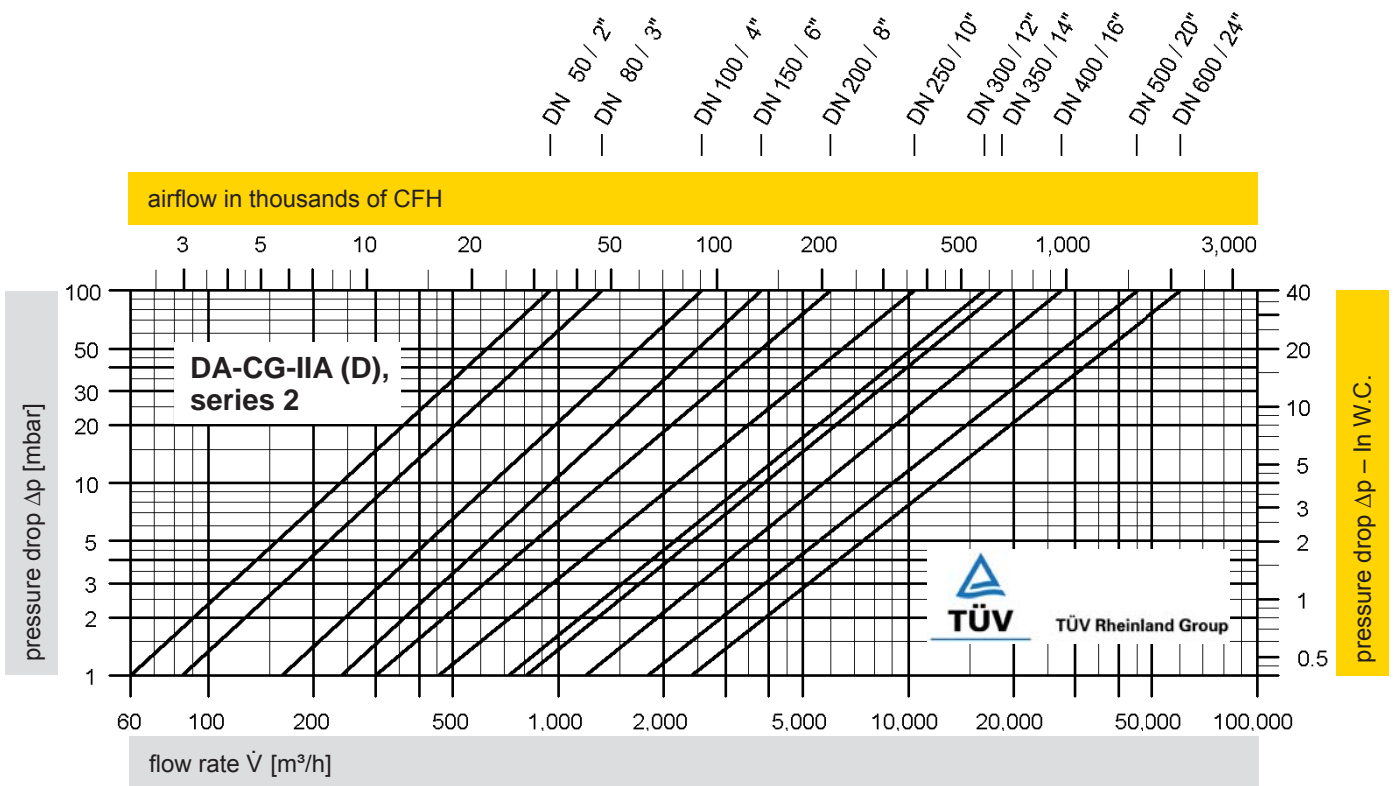
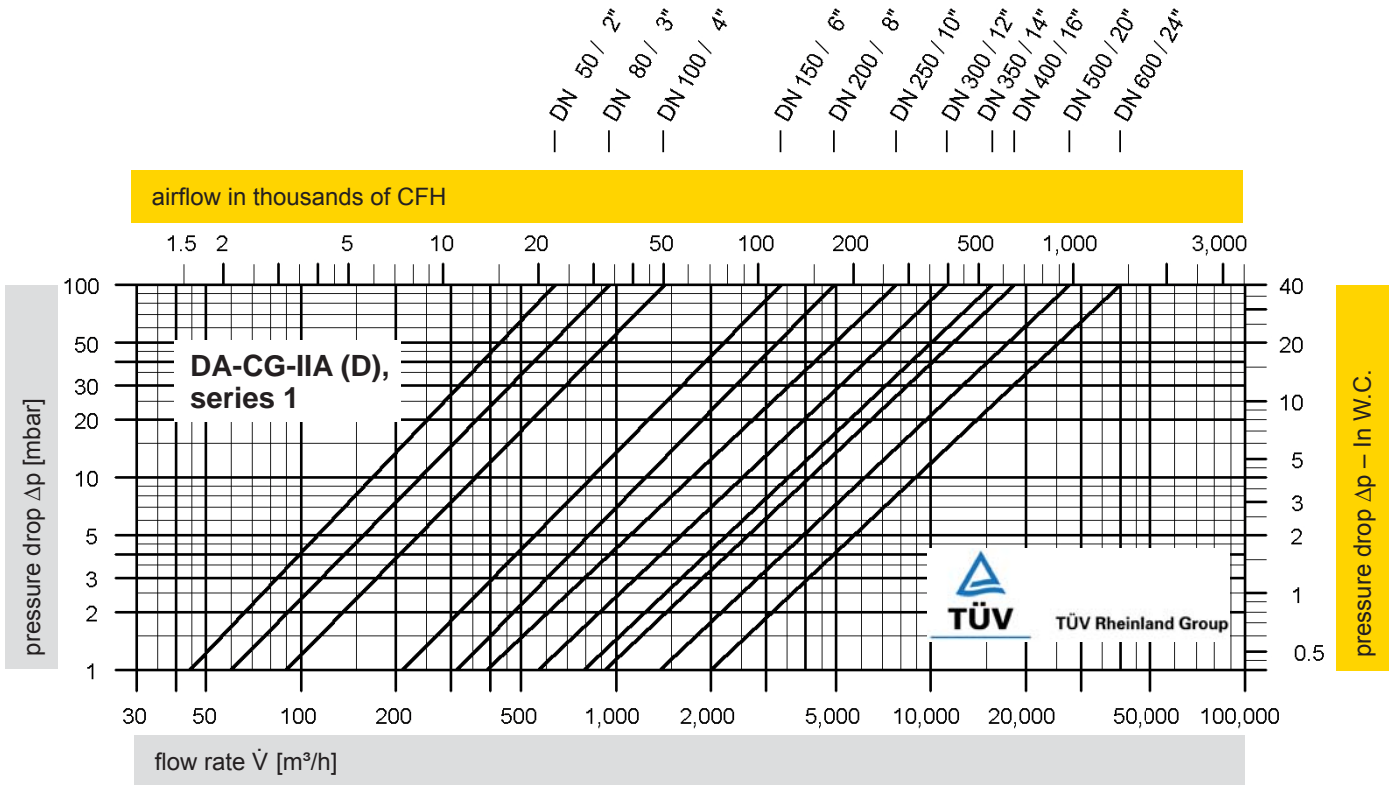
DIN 2501, Form C, PN 16; from DN 200 PN10	DIN	other types upon request
ANSI 150 lbs RFSF	ANSI	



Order example

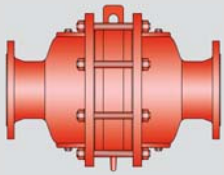
DA-SB - T - B - 1200 / 600 - IIB3 - / - (std) - B - B - DIN

Materials and chemical resistance: Technical Information upon request



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 SCFH refer to the Technical Standard ISO 6358 (20°C, 1bar). Conversion to other densities and temperatures refer to Technical Fundamentals.

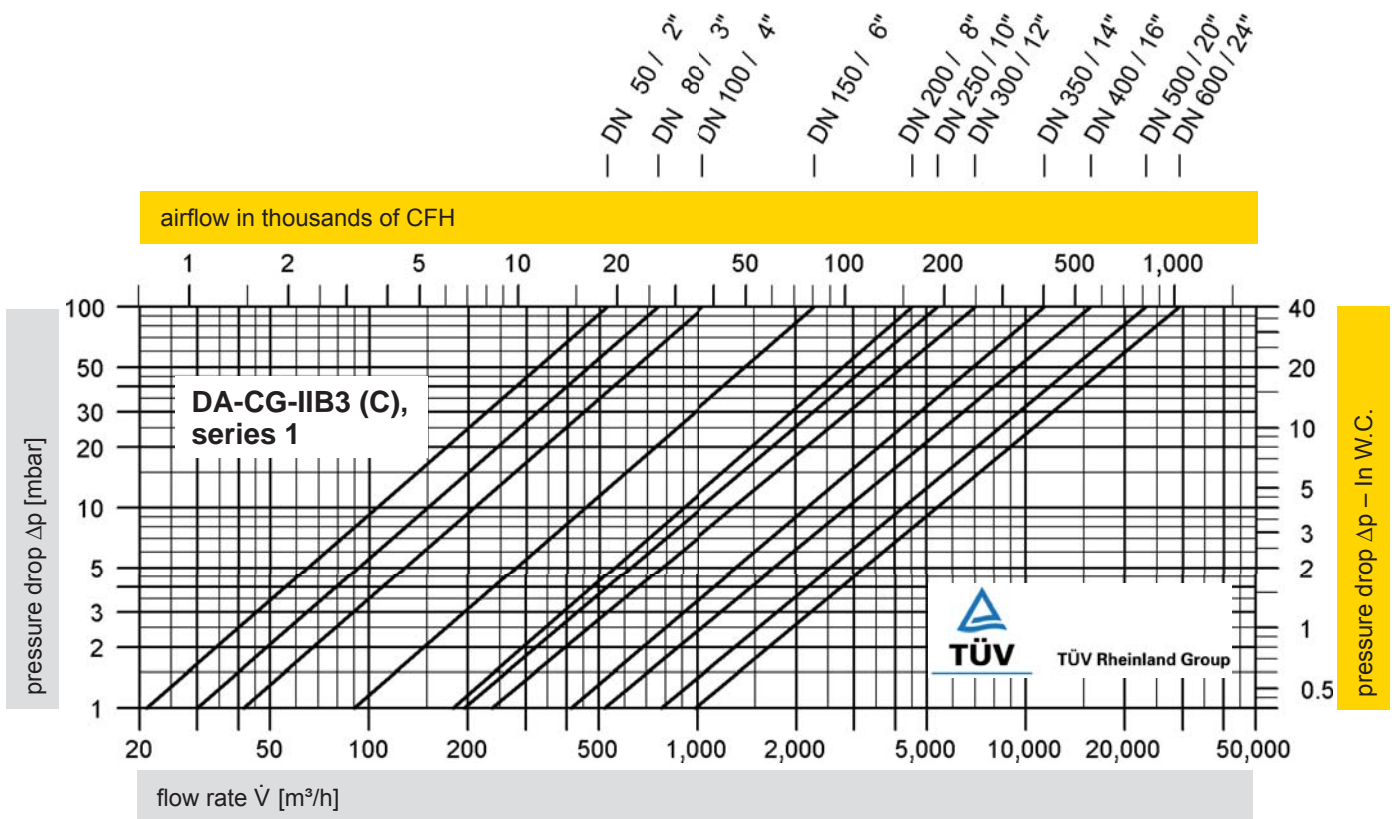
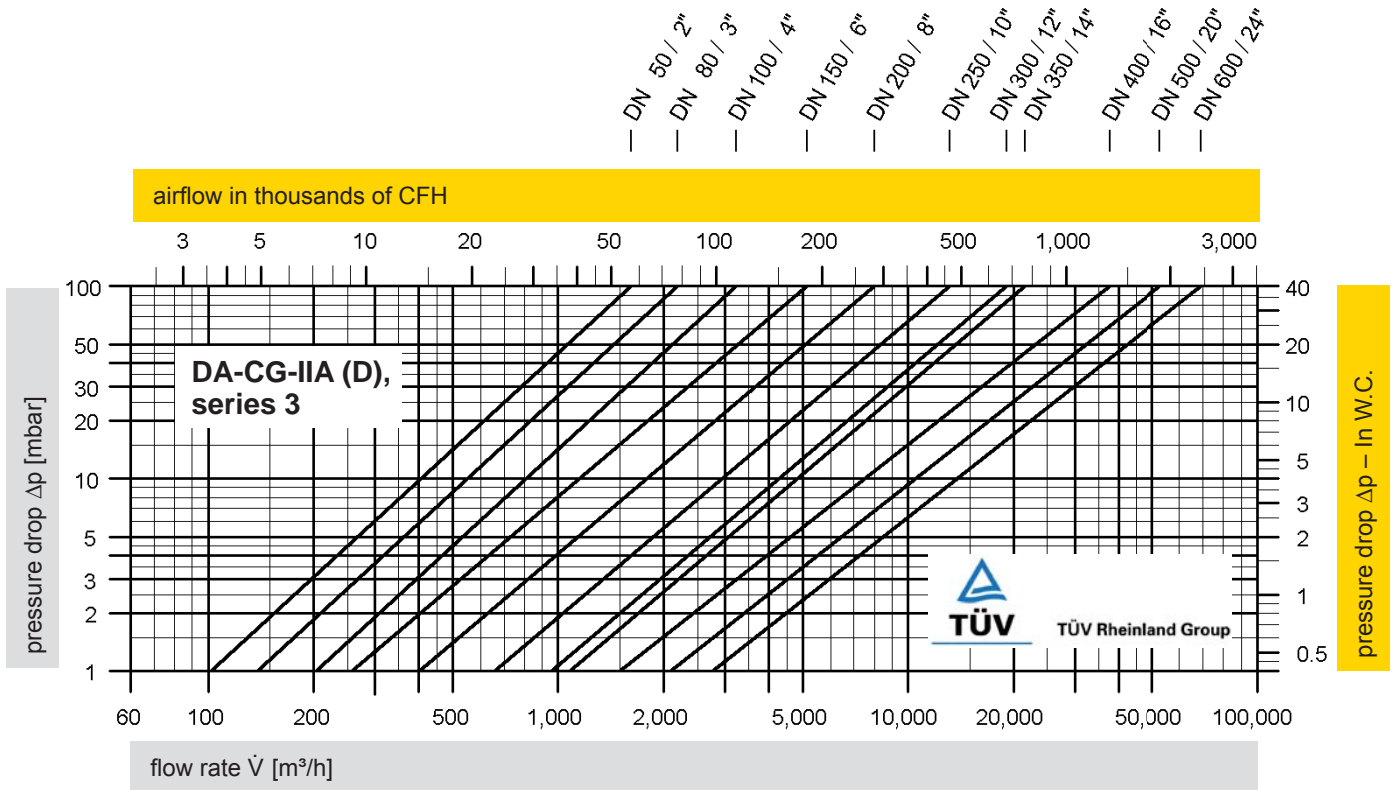




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Flow Capacity Chart

PROTEGO® DA-CG

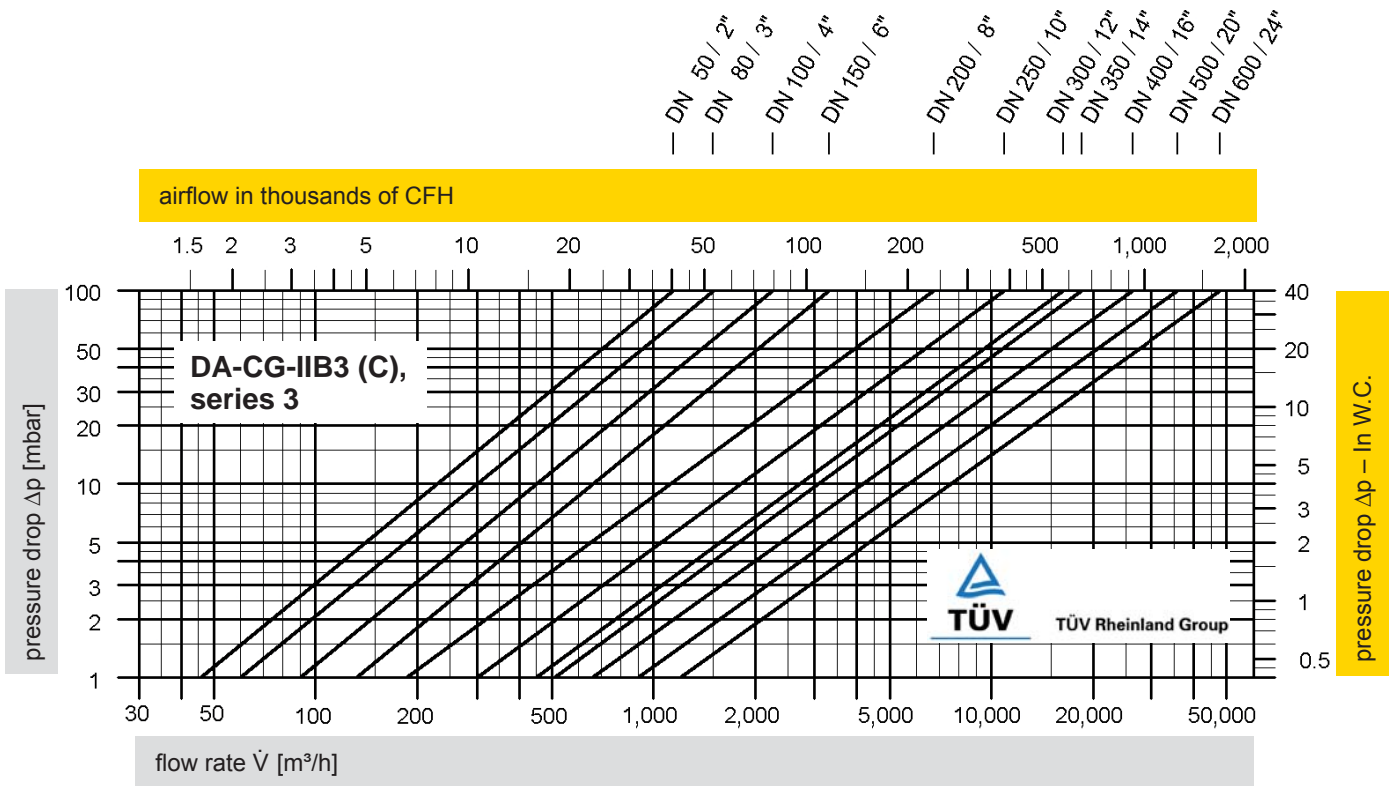
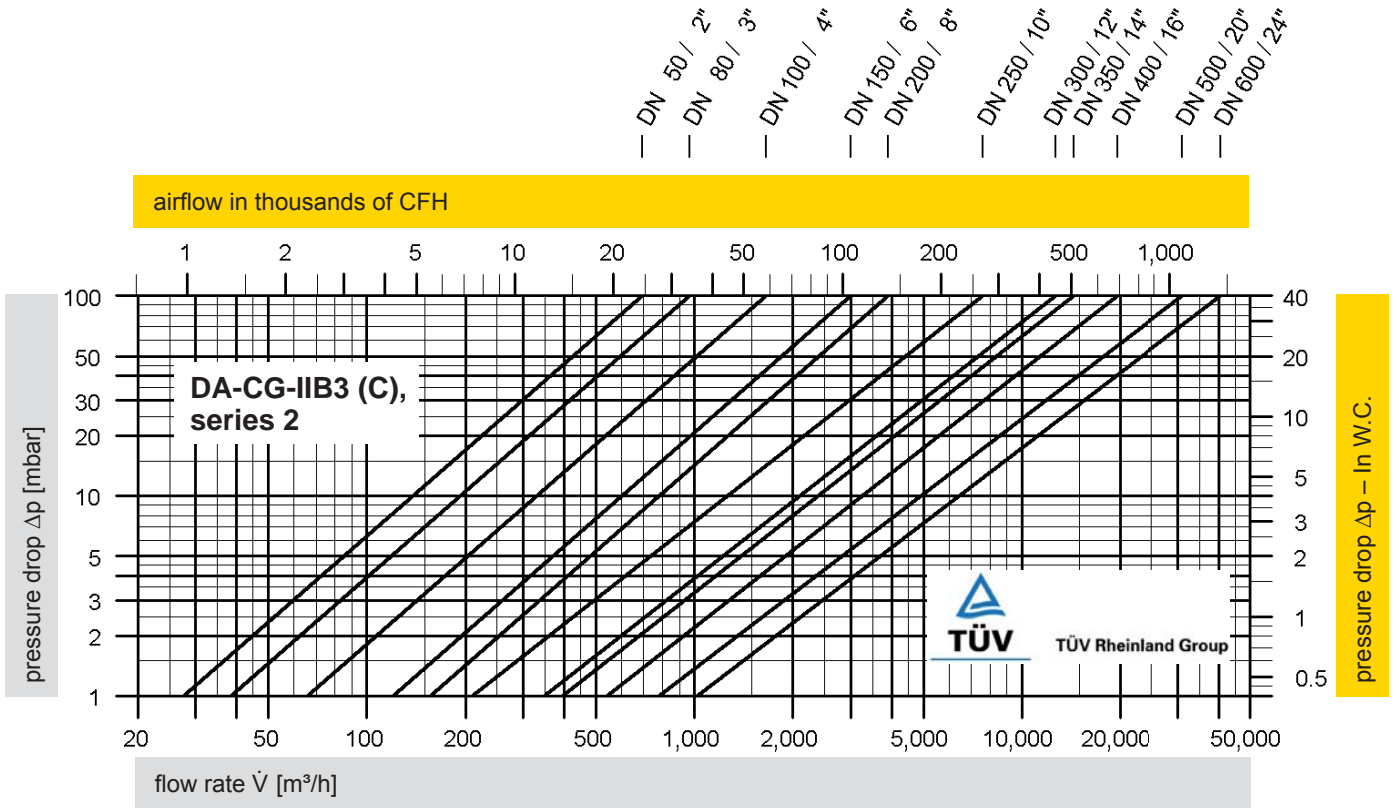


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Flow Capacity Chart

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