

BACKFLOW DAMPERS

TYPE BFR₁ & BFC₁

Application

Backflow dampers are designed to prevent the reverse flow of Air Handling Units which are fitted with standby fans. The same damper and principle of operation may also be used in other situations where it is necessary to ensure that the backflow of air does not occur. Backflow damper type BFR is rectangular in cross section with flanged connection. Type BFC is also rectangular in cross section, but is included with circular connections. All blades operate in parallel via a mechanical linkage arm. The mechanism is designed to ensure a smooth movement of blades. The blade sealing reduces air leakage through damper blades to an absolute minimum, whilst the damper blade arrangement ensures a low pressure drop over the unit. Air leakage through the casing is negligible. The dampers are designed to operate in horizontal, vertical-up and vertical-down position.

Materials and dimensions

The backflow damper casing is fabricated from stainless steel AISI 316L. Plate thickness is 3.0 mm. The damper blades have a plate thickness of 1.5 mm with cell rubber sealant. Both Axles and bearings are made in stainless steel.

Noise data

Noise data are based on standards ISO 7244:1984 and ISO 5135:1997:

- ISO 7244:1984 Air distribution and air diffusion - Aerodynamic testing of dampers and valves.
- ISO 5135:1997 Acoustics - Determination of sound power levels of noise from air terminal devices, air terminal units, dampers and valves by measurement in reverberation room.

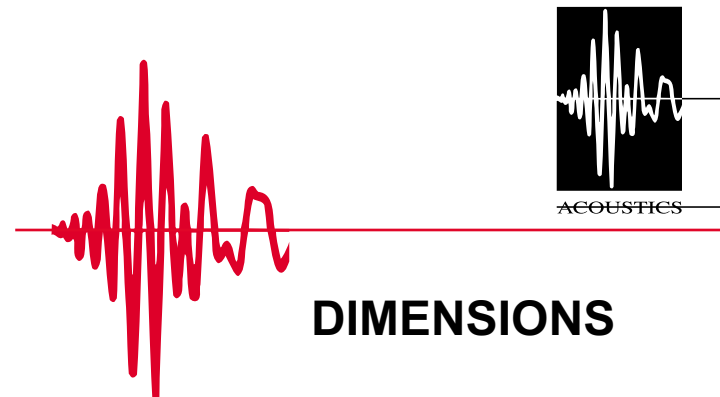
SPECIFICATIONS

BFR Backflow damper type BFR ₁	Mounting position	Nom width mm	Nom height mm	Overall length mm	Connection	Material
H=Horizontal VU=Vertical up VD=Vertical down To be specified To be specified 270 F=Flange AISI 316L/3mm						

Example: BFR₁ - H - 750W x 750H x 270L - F - AISI 316L/3mm

BFC Backflow damper type BFC ₁	Mounting position	Nom diameter mm	Overall width mm	Overall height mm	Overall length mm	Material
H=Horizontal VU=Vertical up VD=Vertical down To be specified See table 3 See table 3 S=Spigot=270 FL=loose flange=370 FS=welded flange=370 AISI 316L/3mm						

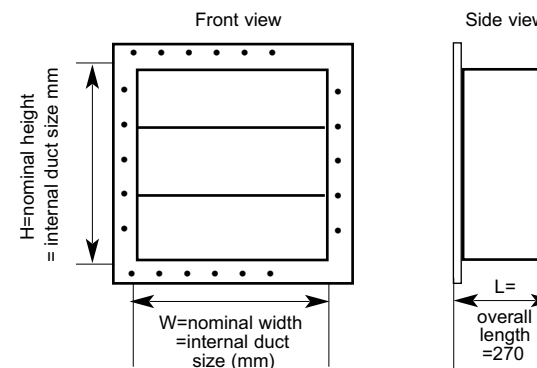
Example: BFC₁ - H - Ø500 - 700W x 700H x 370L - FS - AISI 316L



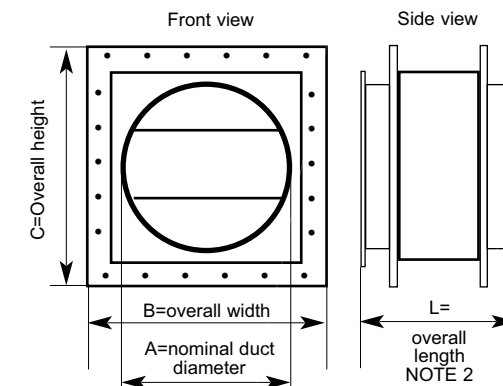
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DIMENSIONS

Rectangular type - BFR₁



Circular type - BFC₁



NOTE 2: Overall length

- Type BFC-S: 270 mm Spigot connection
- Type BFC-FL: 370 mm loose flange connection
- Type BFC-FS: 370 mm welded flange connection

Table 3

BFC	A mm	B mm	C mm
	200	400	400
	250	450	450
	315	550	550
	400	600	600
	500	700	700
	630	850	850
	800	1000	1000
	1000	1200	1200



EXAMPLE

Airflow: 13.000m³/h - 3,61 m³/s
 Selected type:
 BFR₃ - H - 750W x 750H x 270Lmm

Diagram 2 - Self generated noise

Read: SWL_{tot} = 76dB

Diagram 3 - Pressure drop

Read: 86Pa

Frequency correction - table 1

Centre band frequency, Hz ref 10⁻¹²Watt

63	125	250	500	1K	2K	4K	8K
74	69	66	64	62	58	51	44

**SELF GENERATED NOISE
 - FREQUENCY CORRECTION**

$$SWL_{\text{frequency}} = SWL_{\text{tot}} + CF$$

CORRECTION FACTORS (CF)

Add dB **TABLE 1**

FREQUENCY CORRECTION

Centre band frequency, Hz ref 10⁻¹²Watt

63	125	250	500	1K	2K	4K	8K
-2	-7	-10	-12	-14	-18	-25	-32

Note! Pressure drop values are based on air density 1,2 kg/m³ and temperature 20C °. Horizontal mounting position.

EXAMPLE

Airflow: 10620m³/h - 2,95 m³/s
 Selected type:
 BFC - H - Ø500 - 700W x 700H x 370Lmm

Diagram 4 - Self generated noise

Read: SWL_{tot} = 76dB

Diagram 4 - Pressure drop

Read: 75Pa

Frequency correction - table 2

Centre band frequency, Hz ref 10⁻¹² Watt

63	125	250	500	1K	2K	4K	8K
74	69	66	64	62	58	51	44

**SELF GENERATED NOISE
 - FREQUENCY CORRECTION**

$$SWL_{\text{frequency}} = SWL_{\text{tot}} + CF$$

CORRECTION FACTORS (CF)

Add dB **TABLE 2**

FREQUENCY CORRECTION

Centre band frequency, Hz ref 10⁻¹²Watt

63	125	250	500	1K	2K	4K	8K
-2	-7	-10	-12	-14	-18	-25	-32

Note! Pressure drop values are based on air density 1,2 kg/m³ and temperature 20C °. Horizontal mounting position.

NOTE 1: Air leakage through damper blades in closed position
 Gross area BFR: (Nominal width x Nominal height)² m
 BFC: (Overall width - 0,1) x (Overall height - 0,1)² m

