ABSORPTION
SONODAMP BAFFLE SILENCERS

Product description

The purpose of Sonodamp baffle silencers is to reduce the sound that spreads in a flowing gaseous medium.
The medium flows between the baffles, converting the sound energy in the baffles into heat.
As standard, the shocker housing is made of single-sheet thermal galvanized steel plate.
As standard, the baffle silencers are fitted with 30-mm compression flanges.
The baffles consist of a single-sheet thermal galvanized steel frame in which several layers of special sound-absorbing glass wool are fitted.
Depending on the degree of required silencing, absorption -or combined absorption- resonance baffles are applied.
Standard baffle thicknesses are 100, 200 and 300 mm.
The choice of the various baffle thicknesses is determined by the frequency distribution of the sound spectrum that requires silencing.
A choice is always made for the shortest silencer length.
At higher speeds the absorption material is equipped with single-sheet thermal galvanized perforated steel plate.

Properties

- Absorption baffles, type CA, have the highest silencing values in the range of 550 – 8000 Hz
- Combined absorption-resonance baffles, type CR, have their highest silencing values between 200 – 4000 Hz
- Standard baffle silencers are suitable for flow velocities up to max 15 m/s
- At higher speeds the absorption material is equipped with single-sheet thermal galvanized perforated steel plate

Application

Air duct systems, ventilation systems, etc.
Special baffle silencers for:

- Medium with a high relative humidity
- High temperatures
- Other types of material

Dimensions

Dimensions of the silencer are determined by the volume flow, the permissible resistance across the silencer and the required silencing.

Loss of pressure

Loss of pressure across the silencer depends on the velocity V of the medium between the baffles, the gap width S between the baffles, the thickness D of the baffles and to a lesser extent the length of the silencer.

Below, the formulas for the calculation of loss of pressure for the different applications and gap width - baffle thickness ratio.

S/D = 0.25

Inlet silencer	:	**0.85 x V^2** Pa
Duct silencer	:	**0.70 x V^2** Pa
Pressure silencer	:	**1.08 x V^2** Pa

S/D = 0.50

Inlet silencer	:	**0.60 x V^2** Pa
Duct silencer	:	**0.50 x V^2** Pa
Pressure silencer	:	**0.93 x V^2** Pa

S/D = 0.75

Inlet silencer	:	**0.39 x V^2** Pa
Duct silencer	:	**0.32 x V^2** Pa
Pressure silencer	:	**0.81 x V^2** Pa

S/D = 1.00

Inlet silencer	:	**0.29 x V^2** Pa
Duct silencer	:	**0.22 x V^2** Pa
Pressure silencer	:	**0.78 x V^2** Pa

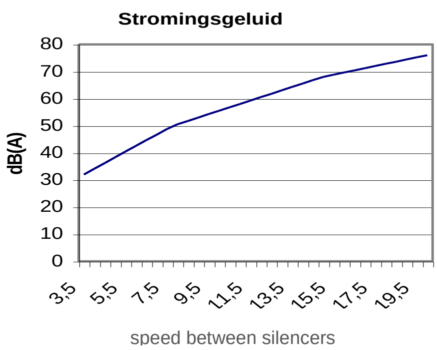
The result is the loss of pressure in Pascal.

Regenerated sound

The sound level after the silencer as a result of this regenerated sound must be at least 7 dB(A) lower than the sound of the source, as the regenerated sound will otherwise be dominant.

Because the medium flows between the baffles, it produces sound itself.

The diagram below represents the sound level in dB(A) after the silencer as a function of the speed of flow between the baffles.



Correction table for regenerated sound

The accompanying frequency spectrum can be estimated using the following correction table.

Freq	63	125	250	500	1000	2000	4000	8000	Hz
Correction	**0**	**-1**	**-1**	**-4**	**-5**	**-6**	**-10**	**-14**	dB

Selection tables

The silencing values in the following tables have been measured in a measurement setup where a rectangular duct with sound-insulating walls was used.
A noise generator was used as a source of sound, thus generating an approximate diffuse sound field with a constant volume.
The values in the tables are the difference between the values measured with and without inbuilt baffles, in the same place and under the same conditions.

Measured values above 50 dB per octave band have not been included in the tables, because when an uninsulated shocker housing is used, the maximum achievable silencing per octave band, as a result of e.g. sound transmission via the duct wall, stays limited to approx. 50 dB.

2019 version 01

ATIS International B.V.
Noordhoek 33
3351 LD Papendrecht
Postbus 14
3350 AA Papendrecht

T 31 (0)78 615 00 44
F 31 (0)78 615 49 48
info@atis-international.com
www.atis-international.com