

ALD

Sound attenuating exterior wall grille



QUICK FACTS

- Excellent noise attenuation
- A robust grille that withstands severe climatic conditions
- Available in a number of different materials

Technical description

General

The ALD grille effectively reduces sound emitted from fan rooms and machine rooms, etc. to the surroundings. The sound is attenuated as the air passes through the attenuator between the sound absorbing vanes.

Function

Exterior wall grilles normally do not have a sound attenuating function. The unique feature of the ALD is that it is a sound attenuating exterior wall grille. Its main application involves use as an air intake/or exhaust air grille in ventilation systems. Other fields of application can include e.g. use as an airing grille in compressor rooms.

Design

The ALD is available in two models, single (type 1) and double (type 2) See Figure 3.

Materials and finish

The ALD is made of galvanized sheet steel or aluminium. The aerodynamically designed acoustic baffle vanes are filled with ISOVER Cleantec® PLUS sound attenuating material. If required, the grille can be surface-treated to prevent corrosion.

Installation

The grille is supplied as standard without installation accessories.

The grille can be installed among others in the following way:

1. with screws through the end walls of the grille.
2. with external flange.
3. With internal flange.

(See Figure 1)

The ALD in the double model is supplied as two single grilles for assembly at the site.

Maintenance

The ALD is under normal operating conditions a maintenance-free external wall grille. After a period of use, it will require conventional cleaning.

Environment

The declaration of construction materials is available for downloading from our website or can be ordered from one of our sales offices.

Accessories

- Wire mesh with size 10 x 10 mm mesh: ALDT 1
- Mounting flange: ALDT 2

The integral attenuation has been determined by applying the following method:

An ALD grille was installed in the exterior wall of a normally hard room. A diffused field of sound was generated in the room.

The sound level was measured on the other side of the wall, with and without sound attenuating grille. The difference was equal to the attenuation in the grille. See Figure 2.

For normal fan rooms and machine rooms, the reduction in sound emitted to the surroundings is for ALD 1 approx. 12 dB(A), and for ALD 2 approx. 17 dB(A) compared with a conventional exterior wall grille.

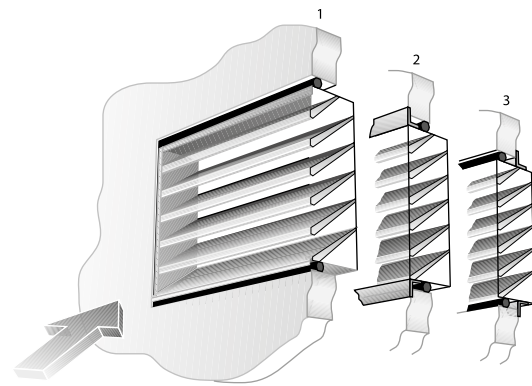


Figure 1. Installation method

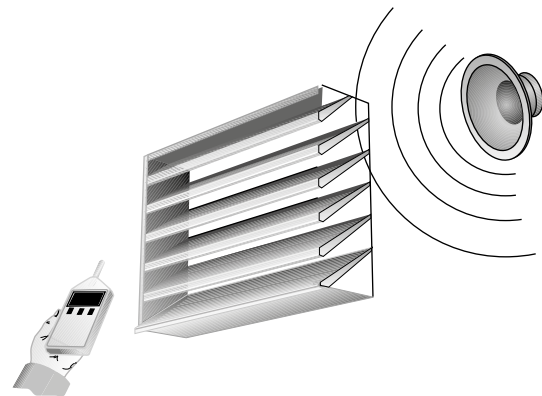


Figure 2.

Sizing

General

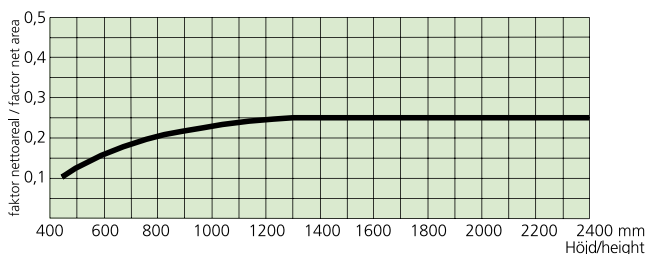
The velocity of the air flowing through the grille should be checked to prevent inherent sound and high pressure drop problems from arising. To obtain the velocity, divide the volume flow through the grille by its net area.

The velocity in the net area should not exceed 10 m/s.

The net area can be obtained by multiplying the gross area of the grille by the factor obtained from Diagram 1.

Diagram 1.

The selected grille's net area can be obtained by multiplying the factor read in the diagram below by the gross area of the grille.



Dimensions

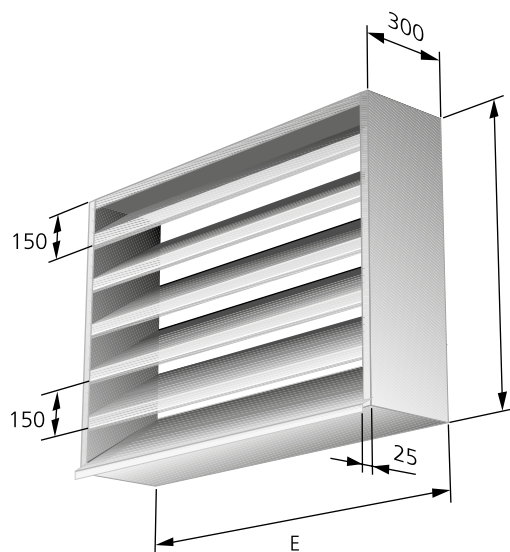


Figure 3. ALD – Dimension print

Nominal width, supplied on request.

Nominal height, supplied from 450 mm and in steps on request.

E = nominal width - 15 mm.

F = nominal height - 15 mm.

Size of opening = nominal width x nom. height.

For grilles larger than 2400 x 2400 mm report the size of opening from case to case.

weights

ALD, single model, galvanized sheet steel, approx. 50 kg/m² grille surface.

ALD, double model, galvanized sheet steel, approx. 100 kg/m² grille surface.

ALD, single model, aluminium, approx. 20 kg/m² grille surface.

ALD, double model, aluminium, approx. 40 kg/m² grille surface.

Sizing / Pressure drop

- Calculate the gross face area, B x H (m²).
- Find the relevant airflow in Diagram 2 or 3 (depending on type of grille).
- Plot vertically upward to the required size of grille (gross).
- Read the pressure drop that refers to plenum/duct installation.
- Use Diagram 1 to check that the velocity in the net area does not exceed 10 m/s. If there is no risk of rain water being sucked in, then the velocity must not exceed 2 m/s in the net area.

Acoustic data

For most ventilation systems, Swegon’s acoustic external wall grilles meet the requirements on low sound level emitted to the surroundings.

Air volume - Pressure drop

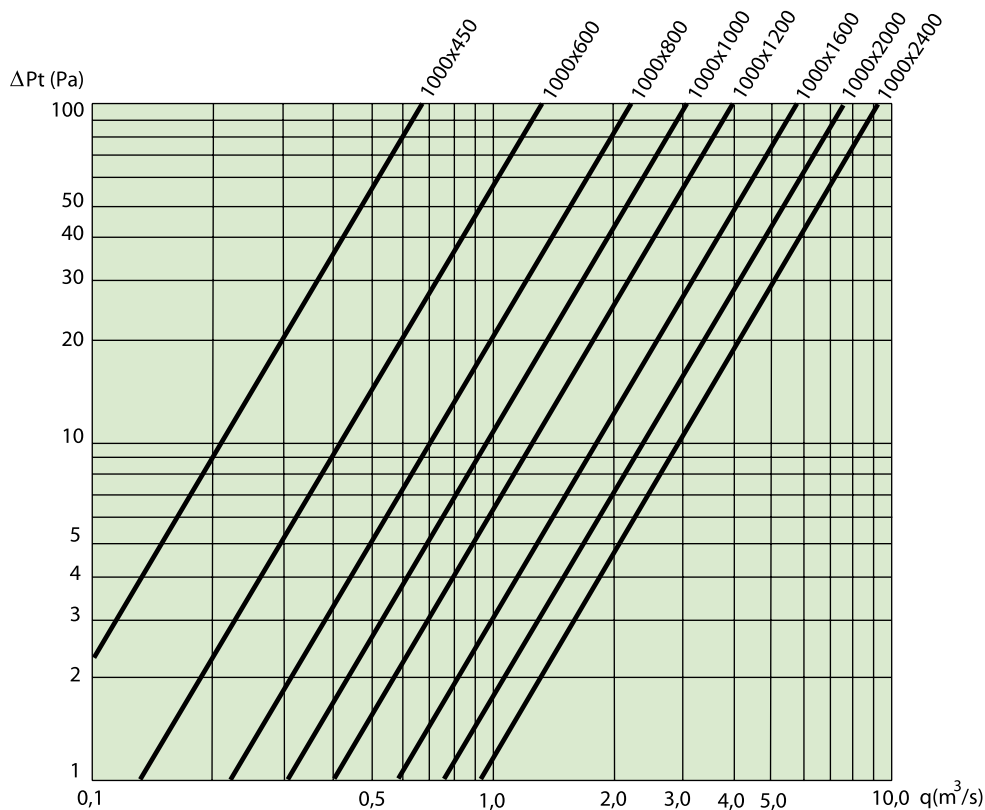
Diagram 2 and Diagram 3 show the pressure drop of the ALD with a width of B=1000 mm and various heights. If pressure drop is required for other widths, the air volume must be recalculated.

You are welcome to use our ProAc acoustic calculation software which in addition to required sound attenuation also presents inherent sound generation and pressure drop figures for individual products. ProAc is available for downloading from our home page on the Internet.

Static integrated attenuation, dB

Type	Static integral attenuation, dB to ISO 7235							
	63	125	250	500	1K	2K	4K	8K
ALD-1	2	5	7	12	18	21	16	16
ALD-2	3	9	12	21	32	34	32	32

Diagram 2. ALD type 1. Airflow – pressure drop, (gross area)



Example ALD type 2:

The distance between the external wall and the ventilation unit is too short to provide space for a traditional sound attenuator. A sound attenuating ALD, type 2 is installed as an air intake grille. The airflow is 0.3 m³/s and the grille is mounted in a duct having a width of 1000 mm and a height of 500 mm. From Diagram 3 we find that the ALD-1000-500, type 1 has a pressure drop of 24 Pa. The gross face area will be 0.5 m². Diagram 1 indicates a net factor of 0.13, which gives us a net area of 0.065 m². The net velocity will be 4.6 m/s which is too high if there is risk of rain water being sucked into the grille.

Select instead the ALD-1000x800, type 1 that has 3 Pa in pressure drop and 1.9 m/s in net velocity.

If there is no risk of rain water being sucked in, then 4,6 m/s in net area is acceptable.

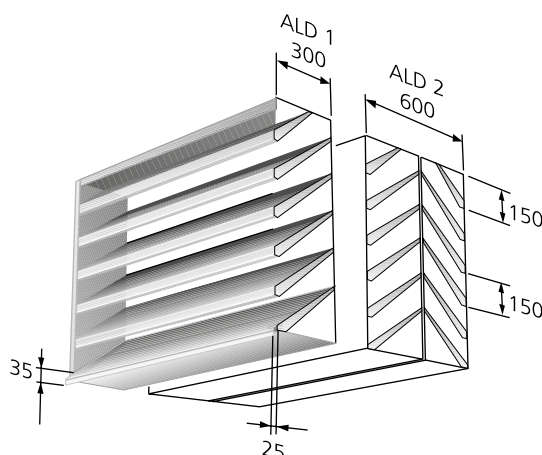
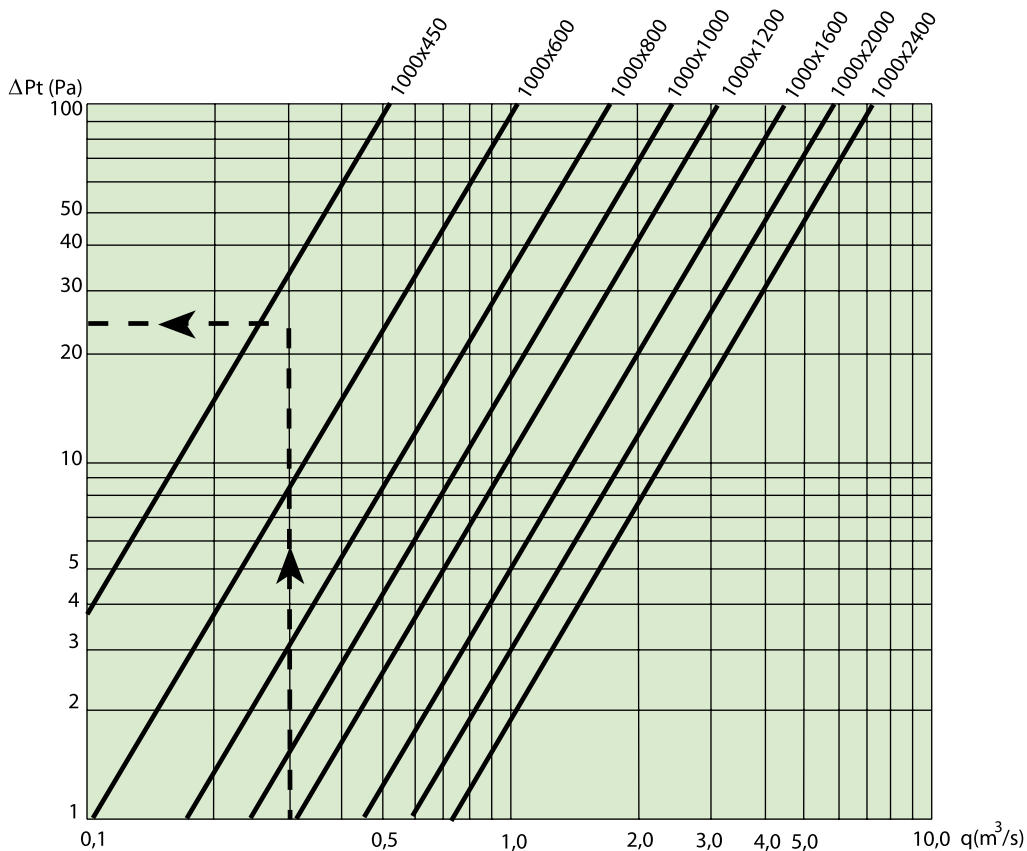


Figure 4. Models, ALD 1 and ALD 2.

Diagram 3. ALD type 2. Airflow – pressure drop, (gross area)



Ordering key

Product

Sound attenuating

ALD a aaaa- bbbb- c- d

Version

Width

Height

Model

1 = Single

2 = Double

Material

1 = galvanized sheet steel

2 = aluminium

Size ALDa aaaa - bbbb - c - d xx items

ALDa aaaa - bbbb - c - d xx items

e tc.

Accessories

Wire mesh ALDT 1

Mounting frame ALDT 2

Specification text

Example of specification text to VVS AMA.

Swegon's rectangular sound attenuating external wall grille, type ALD, with the following functions:

- Aerodynamically shaped acoustic baffle vanes for the lowest pressure drop/best sound attenuation.
- Designed for severe climate conditions.
- Type-approved, sound-insulating material, ISOVER Cleantec® PLUS.