FlowGrid for Axial and Centrifugal Fans
Less noise – more quality of life
FlowGrid stands for efficient noise protection features in cooling, ventilation and air-conditioning technology. 

ebm-papst offers a future-oriented solution for the problem of high-performance technology generating disturbing noise: FlowGrid for axial and centrifugal fans. The grille on the air-inlet side drastically reduces the noise emissions and minimises disturbing low frequency tones.

There are often problems wherever people and technology share space. The movement of air, for example, often goes hand in hand with noise. With FlowGrid, noise-generating disturbances in the fan inflow are a thing of the past!!

Noise disturbances – Cause and solution

**Situation**

Excess noise is the result of the inflow of air to a fan being disturbed. Asymmetrical suction conditions, such as the walls of a device being at different distances from the fan, create powerful vortices. In the narrowest areas, these combine to form so-called vortex strings. These turbulences then hit the rotating blades of the fan, generating noise – specifically a broadband noise and additional narrowband, tonal frequency components, known as propeller noise or tonal noise.

**Noise spectrum**

The tonal noise consists of the blade-passing noise and its harmonics. The frequency of the blade-passing noise can be calculated as the sum of the fan speed and the number of blades. The harmonics of the blade-passing noise are integer multiples of it. An axial fan with five blades and 1,200 rpm, for example, would result in a blade-passing noise with a frequency of 100 Hz. The respective frequency of the blade-passing noise and its harmonics result in high elevations in the sound pressure level, especially in the low-frequency range. But it is exactly this level where it is particularly difficult to reduce noise. Passive noise-reduction measures often mean large space requirements and high costs.

**Solution**

FlowGrid, the grille on the air intake side, drastically reduces the noise-generating disturbances. The vortex strings are split when hitting the grille and considerably weakened as they flow through it. This reduces the sound pressure in the entire frequency range, but particularly the disturbing low frequency tonal range. The result is a considerably lower sound pressure level and a noise which is less disturbing. This means that noise regulations can be complied with more easily and the well-being of people in the direct vicinity is not affected.

Whether it’s heat pumps in the garden, supermarket condensers or ventilation systems on an industrial estate: FlowGrid, the innovative air-inlet grille from ebm-papst, combines high technical performance with drastic noise reduction.
As a global player, we consider global issues. This is no surprise then that FlowGrid has a patent pending. The measurement results are highly repeatable, confirming the established benefits of FlowGrid. The measurement results are highly repeatable, confirming the established benefits of FlowGrid.

### Benefits of FlowGrid

**Reduced noise range**

- **Sound power level**
- **Sound pressure level**

**Energy**

- **Low input power**
- **High energy efficiency**

**Noise reduction**

- **Lower noise level**
- **Reduced noise range**

**Compact design**

- **Quick assembly**
- **Robust design**

**Low installation cost**

- **Low space requirements**
- **Compactness**

**Sustainability**

- **Environmentally friendly operation**
- **Robust design**

**FlowGrid – Always a good solution**

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**Design**

- **Central ventilation and aeration of rooms**
- **Ventilation and aeration of rooms**

**Function**

- **Low noise**
- **High air performance**

**Low noise emissions**

- **Drastically reduced tonal noise**
- **Lower noise level**

**Noise reduction**

- **3.9 dB(A)**
- **4 dB**

**Low installation cost**

- **Low space requirements**
- **Compactness**

**Sustainability**

- **Environmentally friendly operation**
- **Robust design**

**FlowGrid – Always a good solution**