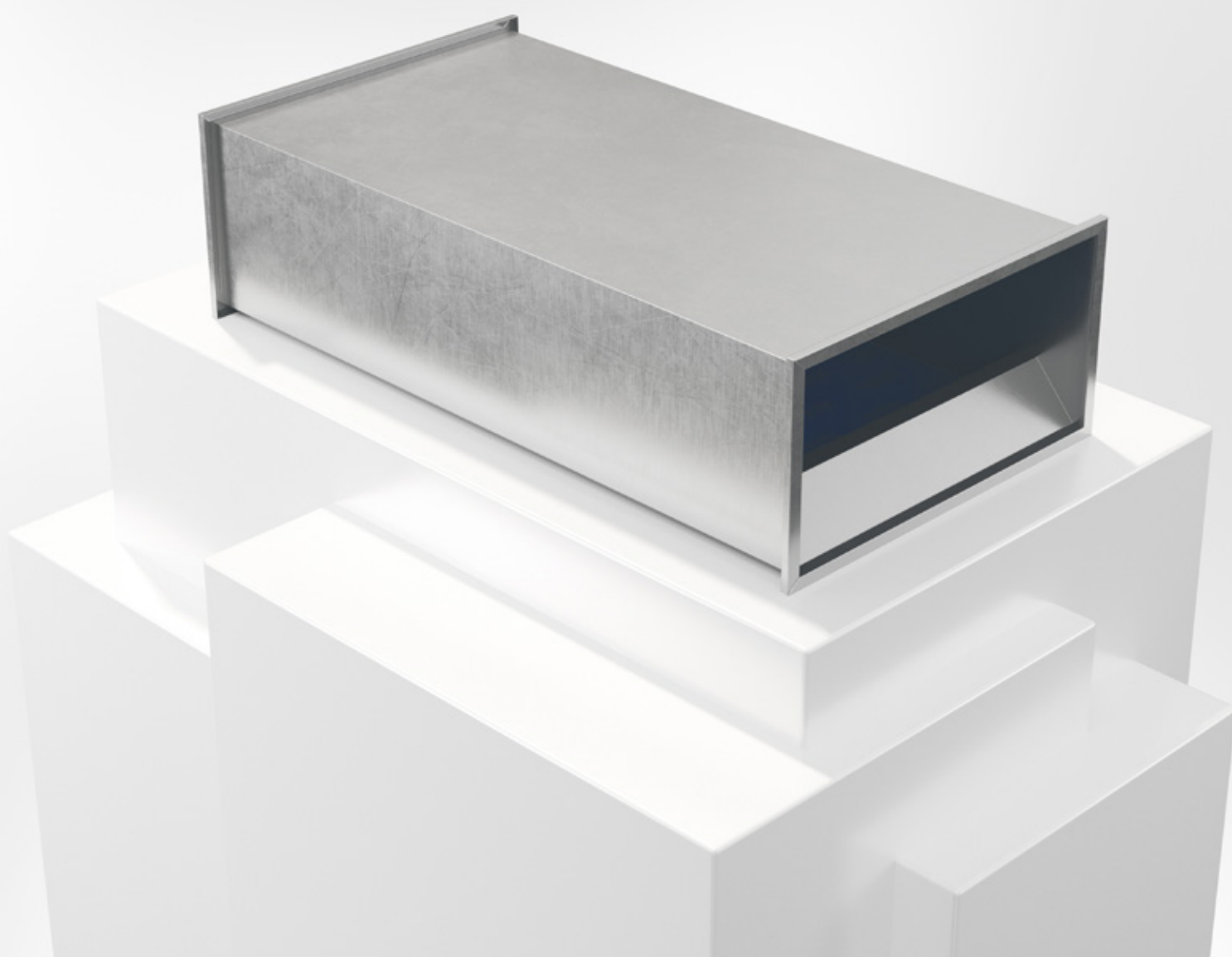


# LFAL

Rectangular silencer  
for limited spaces



SILENCERS



01/04/2025



## Low rectangular silencer LFAL



### Quick facts

- Sizes from width 150 mm to 1200 mm and height from 150 mm to 300 mm
- Type approved cleanable surface layer Protec

### Use

Silencer LFAL is intended for the attenuation of "cross-talk" sound and generated noise from, for example dampers. The low height of the sound absorbers implies that it is suitable for conversions and new building where space is limited. LFAL addresses good practice with respect to cleanability, fibre-proofing, emissions and micro-organisms. The absorption material has a type approved surface layer which is cleanable and fibre-proof.

The silencer can be installed irrespective of the direction of the air flow. It is delivered as standard with spigot connection but can also be provided with flange connection.

For more information about silencers and technical data, see "General information about silencers" at [www.bevent-rasch.com](http://www.bevent-rasch.com)

### Materials and surface treatment

LFAL is manufactured as standard in galvanised sheet steel with absorption material of mineral wool. The silencer can also be manufactured in, for example, stainless steel or Magnelis.

In the event of severely polluted air the baffles can be enclosed and provided with perforated plates.

### Specification

Example:

**Silencer**

**LFAL - 600 - 300 - 900 - 1**

Width x Height, mm

Length, mm

*Material:*

Galvanized sheet steel

= 1

Stainless AISI 316L – EN 1.4404

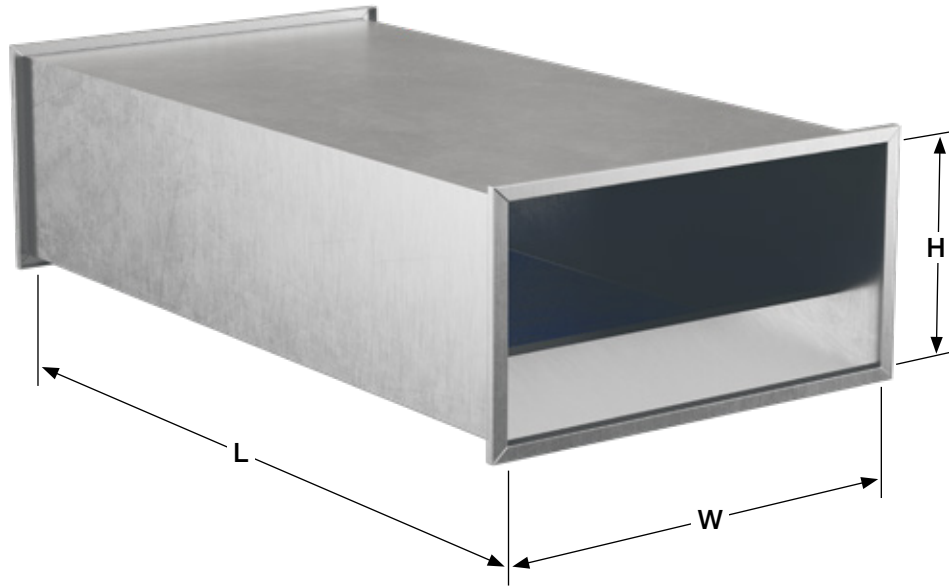
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Magnelis ZM120 (C4)

= 5



## Size and weight



Width, height and length are selected freely according to:

Width (W) = 300 - 1200 mm

Height (H) = 150 - 300 mm

Length (L) = 600 - 1200 mm. Lengths not reported in the table "Insertion Loss" are interpolated.

The weight is calculated according to:  $W \times H \times L \times 52 = \text{kg}$   
where W, H and L are given in metres



## Selection

**1.** The type of silencer is selected with respect to attenuation requirements and the available space.

Select in the first instance the width and height the same as the duct size, and the length according to attenuation requirements. Where necessary the width and/or height can be increased.

Internal insulation is integrated in the absorption material and does not influence the reported data (applies to height 250-300 mm).

**2.** Check the relevant flow line in the selection diagram and read off the pressure drop and width.

The reported working areas to the left of the selection diagram are a recommendation. For the working areas reported as a "comfort zone" the inherent sound generation is as a rule negligible.

Pressure drop according to the selection diagram refers to duct-duct connected silencers irrespective of the length.

For other installations, seen in the direction of the air, the pressure drop is multiplied by the following factor:

| LFAL, height mm   | 150-200 | 250-300 |
|-------------------|---------|---------|
| Chamber – Chamber | 2,0     | 2,4     |
| Duct – Chamber    | 1,7     | 2,0     |
| Chamber – Duct    | 1,2     | 1,3     |

**3.** The "self noise" (inherent sound generation) should be checked for larger silencers with high air velocities and critical applications for sound power levels after the silencer.  $L_{wt}$  is obtained from the pressure drop section. The correction factor  $L_{wk}$  is obtained from the lower section of the diagram, which should be adjusted to  $L_{wtot}$  as per the formula:  $L_{wt} + L_{wk} = L_{wtot}$ .

Correction of the sound power level,  $L_{Wok}$ , in octave band:

$$L_{Wok} = L_{wtot} + K_{ok}$$

| Frequency band, Hz | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|--------------------|----|-----|-----|-----|------|------|------|------|
| Factor $K_{ok}$    | -3 | -5  | -10 | -12 | -14  | -15  | -18  | -21  |

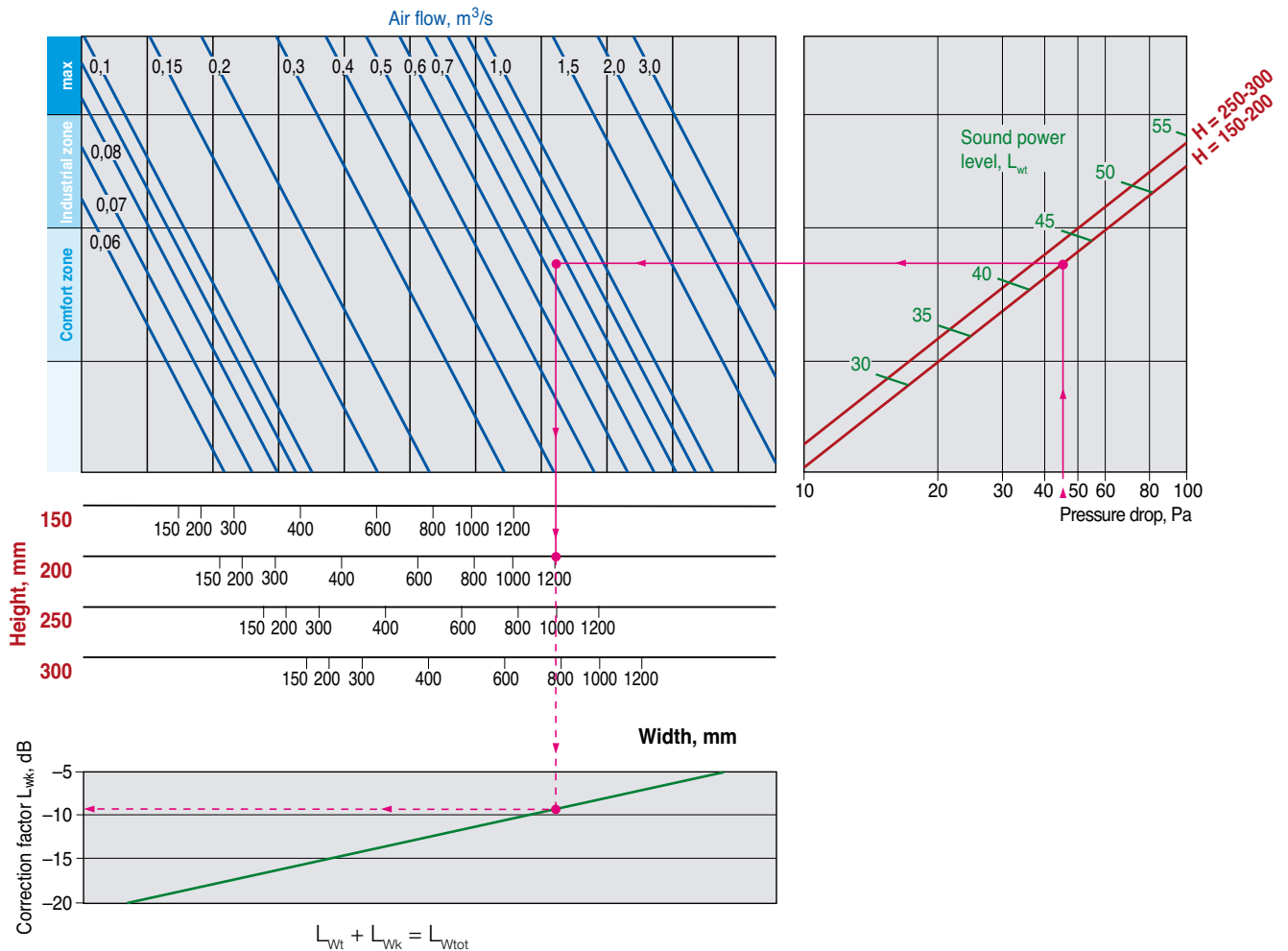
The inherent sound level should be approx. 8 dB lower than the sound level after the silencer to avoid an increase in the sound.

## Insertion loss

| Height mm | Length mm | Insertion loss in octave band dB |     |     |     |    |    |    |    |
|-----------|-----------|----------------------------------|-----|-----|-----|----|----|----|----|
|           |           | Centre frequency Hz              |     |     |     |    |    |    |    |
|           |           | 63                               | 125 | 250 | 500 | 1K | 2K | 4K | 8K |
| 150       | 600       | 2                                | 5   | 9   | 17  | 32 | 31 | 20 | 16 |
|           | 900       | 3                                | 7   | 13  | 25  | 37 | 42 | 27 | 20 |
|           | 1200      | 3                                | 9   | 17  | 30  | 39 | 44 | 34 | 22 |
| 200       | 600       | 2                                | 4   | 7   | 12  | 25 | 21 | 15 | 12 |
|           | 900       | 3                                | 6   | 10  | 18  | 32 | 30 | 19 | 15 |
|           | 1200      | 5                                | 8   | 12  | 24  | 40 | 39 | 25 | 17 |
| 250       | 600       | 2                                | 4   | 8   | 13  | 24 | 22 | 16 | 12 |
|           | 900       | 4                                | 7   | 12  | 20  | 35 | 32 | 22 | 16 |
|           | 1200      | 6                                | 9   | 18  | 26  | 38 | 39 | 25 | 17 |
| 300       | 600       | 2                                | 5   | 10  | 15  | 23 | 21 | 16 | 13 |
|           | 900       | 4                                | 7   | 14  | 21  | 34 | 32 | 21 | 16 |
|           | 1200      | 5                                | 10  | 10  | 26  | 40 | 41 | 27 | 19 |



## Selection diagram



## Selection example

Assumptions:

- Max. height 200 mm
- Air flow 0,75  $m^3/s$
- Max. pressure drop 45 Pa
- Required attenuation 12 dB (250 Hz).

Results:

- From the tables for Insertion Loss and the selection diagram the following silencers can be selected:

**1200 x 200 x 1200 mm (B x H x L)**

- According to the diagram the "self noise" (inherent sound generation)  $L_{wt} = 43$  dB.

Using the correction factor  $L_{wk}$  (–9 dB) we obtain

$$L_{wtot} = 34 \text{ dB.}$$