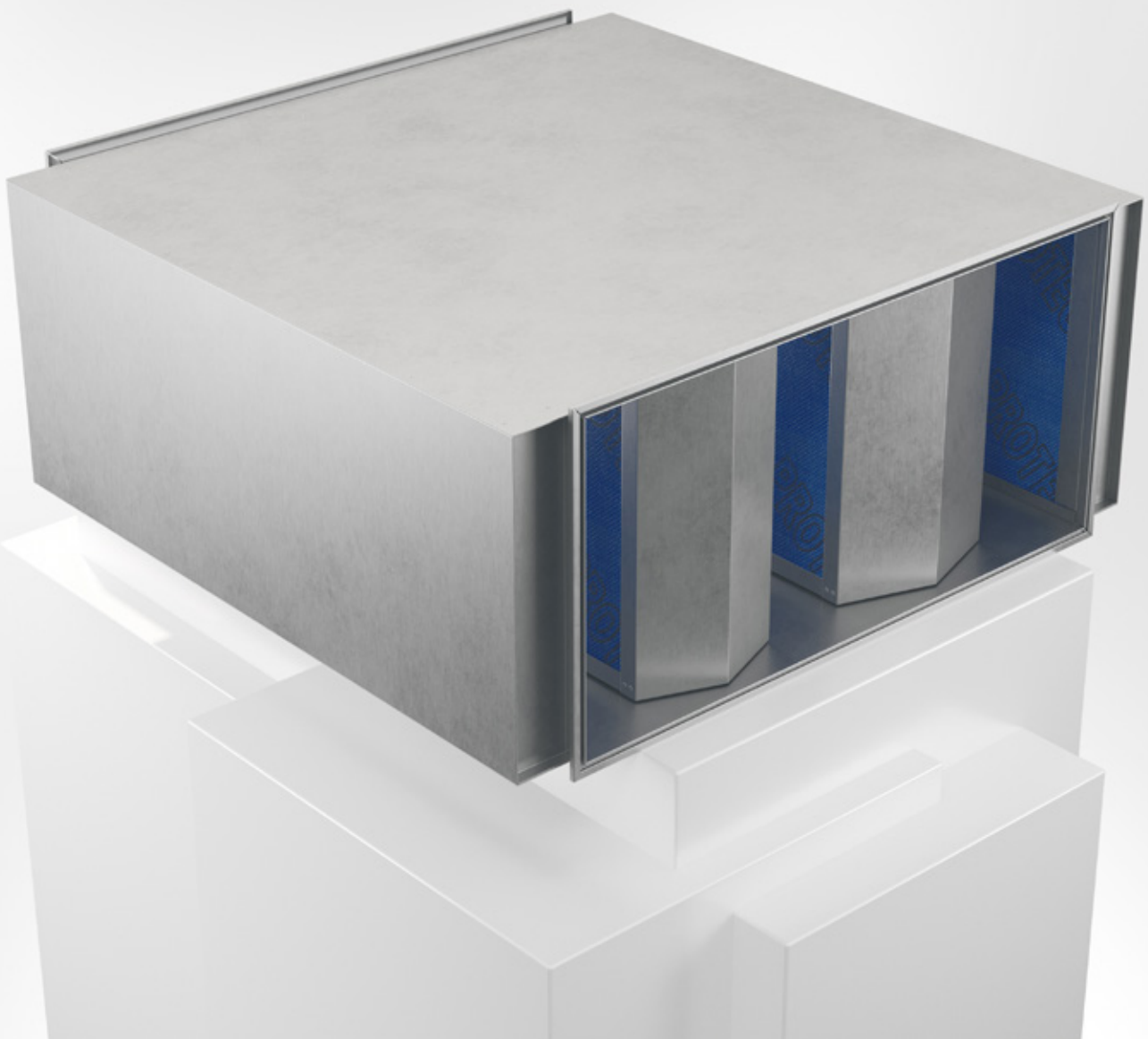


LFIK

Rectangular silencer



SILENCERS



11/01/2021

www.bevent-rasch.com



BEVENT RASCH

AIR SOLUTIONS – FOR A BETTER TOMORROW



Quick facts

- Sizes from width 300 mm to 2000 mm and height from 300 mm to 2000 mm
- Three standard types in 5 different lengths
- Indented connection for low pressure drop
- Type approved cleanable surface layer Protec
- Available with inspection panel
- Can be manufactured in many special versions

Use

Silencer LFIK is intended for the attenuation of fan noise in ventilation ducts. LFIK addresses good practice with respect to cleanability, fibre-proofing, emissions and micro-organisms.

LFIK is manufactured in three attenuation classes (type 1, 3 and 5), where type 1 has the best attenuation. The inlet and outlet sides of the baffles are provided with angled profiles to limit the pressure drop. The absorption material has a type approved surface layer which is cleanable and fibre-proof. LFIK can where necessary be fitted with an inspection panel (must be clearly stated when ordering). 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 (must be clearly stated when ordering). For larger sizes or restricted transport openings the silencer can be delivered in sections for site assembly.

For more information about silencers and technical data, see "General information about silencers" at www.bevent-rasch.com

Materials and surface treatment

LFIK 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 Aluzinc and with or without surface treatment.

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

Special

The silencer can be manufactured in many different versions, regarding dimensions, materials etc.

Contact Bevent Rasch for further information.

Specification

Example:

Silencer LFIK - 3 - 1000 - 500 - 1200 - 1

Type, 1-3-5

Width x Height, mm

Length, mm

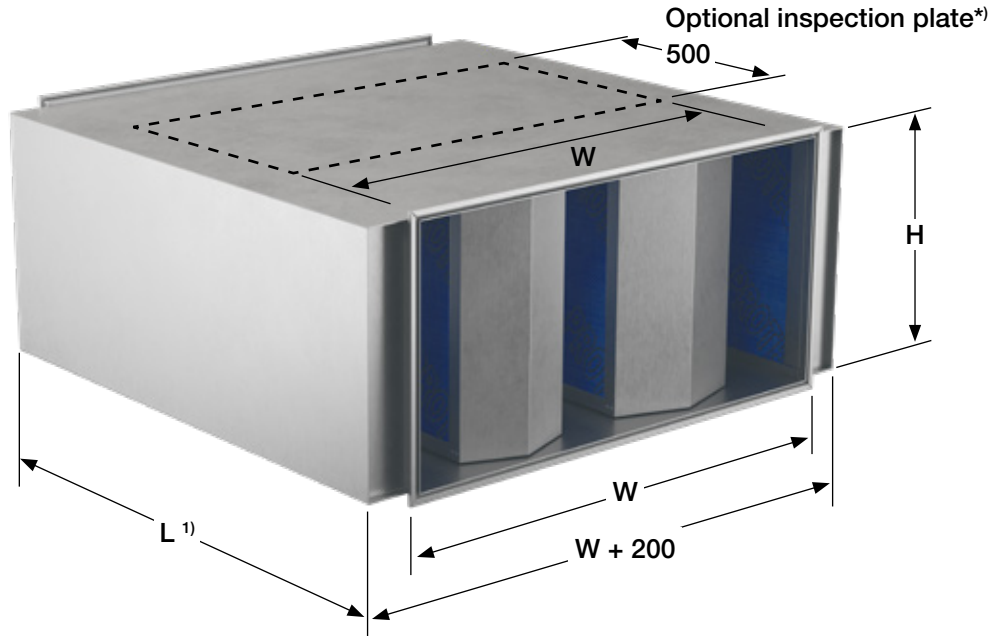
Material:

Galvanized sheet steel	= 1
Stainless AISI 3041 – EN 1.4301	= 2
Stainless AISI 316L – EN 1.4404	= 3
Aluzinc AZ185	= 4

Note! If inspection panel is required, this must be clearly stated when ordering.



Size and weight



Width, height and length are selected freely according to (for standard dimensions, see table):
 Width (W) = 300 - 2000 mm
 Height (H) = 300 - 2000 mm
 Length (L) = 600 - 2400 mm. Lengths not reported in the table "Insertion Loss" are interpolated.

¹) When fitted with a flange connection, the BRGF accessory must be used, which increases the length (L) by approx. 130 mm.

The weight is calculated according to: $(W+0,2) \times H \times L \times F_v = \text{kg}$
 where W, H and L are given in metres

LFIK	Type 1	Type 3	Type 5
Factor F_v	96	62	42

*) Wide silencers, broader than 1400 mm, are provided with two inspection plates.



Selection

1. The type of silencer is selected with respect to attenuation requirements, duct area and length. Type 1 has the best attenuation. 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.

2. Check the relevant flow line in the selection diagram and read off the pressure drop and gross area for the selected type of silencer.

3. Determine the silencer's width and height with respect to the gross area, duct dimension, and available space.

The reported working areas to the left of the selection diagram are a recommendation. For the working areas reported as a "comfort zone" the "self noise" (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:

LFIK	Type 1	Type 3	Type 5
Chamber – Chamber	2,0	2,9	3,5
Duct – Chamber	1,7	2,4	2,9
Chamber – Duct	1,2	1,5	1,7

4. 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 sound absorber. L_{wt} is obtained from the pressure drop section of the selection diagram. 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

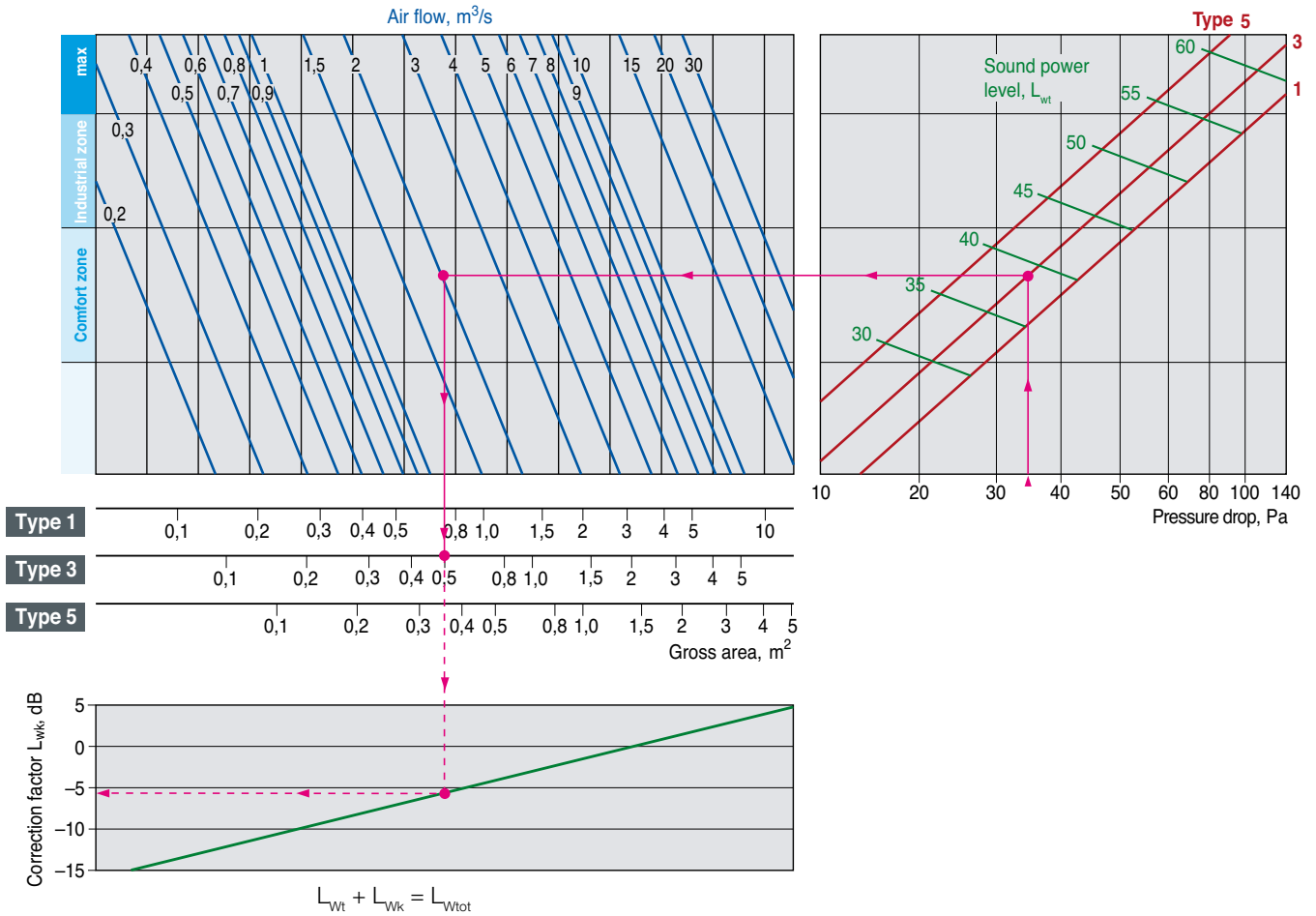
Type 1	Length mm	Insertion loss in octave band dB							
		Centre frequency Hz							
		63	125	250	500	1K	2K	4K	8K
	600	7	14	20	26	30	30	26	20
	900	8	16	25	36	40	39	31	25
	1200	8	18	30	41	50	50	40	28
	1500	10	20	35	49	50	50	50	34
	1800	13	23	40	50	50	50	50	40

Type 3	Length mm	Insertion loss in octave band dB							
		Centre frequency Hz							
		63	125	250	500	1K	2K	4K	8K
	600	4	7	10	16	21	17	12	9
	900	5	9	15	23	28	23	17	11
	1200	6	13	19	26	35	26	20	13
	1500	7	16	22	30	40	30	22	16
	1800	9	17	26	38	46	35	24	18

Type 5	Length mm	Insertion loss in octave band dB							
		Centre frequency Hz							
		63	125	250	500	1K	2K	4K	8K
	600	4	5	7	12	15	10	7	6
	900	4	6	9	15	20	13	9	7
	1200	4	7	12	18	25	16	12	9
	1500	5	9	14	22	30	18	12	10
	1800	5	10	17	27	35	21	12	12



Selection diagram



Selection example

Assumptions:

- Air flow 2 m^3/s
- Max. pressure drop 35 Pa
- Required attenuation 19 dB (250 Hz).
- The size of the connecting duct (W x H) is 1000 x 400 mm with space for an increase in height (max 800 mm) and L = max 1500 mm.

Results:

- From the tables for Insertion loss we obtain:
 - **Type 3, length 1200 mm**
- From the selection diagram we obtain:
 - **Type 3 = 0,5 m^2 , select (W x H) 1000 x 500 mm**
- According to the diagram the "self noise" (inherent sound generation) $L_{wt} = 38$ dB. Using the correction factor L_{wk} (-6 dB) we obtain $L_{wtot} = 32$ dB.