

ALG

Linear bar grille for supply, extract or transfer air, wall or ceiling mounting



QUICK FACTS

- For supply, extract or transfer air
- Fixed spread pattern
- Can easily be cleaned
- Installed using mounting frames FHB / FHA or commissioning box TRG
- Standard colour White RAL 9003
 - 5 alternative standard colours
 - Other colours upon request

AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *)						
ALG Size	25 dB(A)		30 dB(A)		35 dB(A)	
	l/s	m ³ /h	l/s	m ³ /h	l/s	m ³ /h
200x100	27	97	40	144	53	191
300x100	42	151	49	176	85	306
400x100	44	158	55	198	95	342
500x100	68	245	78	281	140	504
300x150	61	220	70	252	135	486
400x150	98	353	125	450	170	612
500x150	96	346	120	432	175	630
400x200	90	324	115	414	150	540
500x200	150	540	180	648	340	1224
600x200	160	576	240	864	370	1332

Data in the table applies to supply air for ALG + TRG with a total pressure drop of 50 Pa.

*) L_{p10A} = Sound pressure incl. A-filter with 4 dB room attenuation and 10 m² room absorption area.

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Technical description

Design

The diffuser consists of a frame which holds in place a number of horizontal fixed bars which direct the airflow. The grille is supplied with countersunk screw holes when the sum of the width and height exceed 700 mm.

Materials and surface treatment

The grille is manufactured in extruded aluminium and painted.

- Standard colour:
 - White semi-gloss, lustre 40, RAL 9003/NCS S 0500-N
- Alternative standard colours:
 - Silver gloss, lustre 80, RAL 9006
 - Grey aluminium gloss, lustre 80, RAL 9007
 - Blanc semi-brillant, lustre 40, RAL 9010
 - Black semi-gloss, lustre 35, RAL 9005
 - Grey semi-gloss, lustre 30, RAL 7037
- Non-painted finish and other colours available on request.

Customizing

In addition to the ten sizes kept in stock, other dimensions are available to order. The maximum dimensions are 1200 x 600 mm (W x H). Please contact your nearest sales representative for further information.

Accessories

Commissioning box:

TRG. Manufactured in galvanized sheet steel. Includes removable damper, distribution plate, fixed measurement outlet and sound attenuation material with a reinforced surface layer, to Fire Resistance Class B-s1,d0 according to EN ISO 11925-2.

Mounting frame with damper:

FHA. Manufactured in galvanized sheet steel. With a sliding damper in the rear. Can be used as a simpler alternative to the TRG. N.B. No measurement function included.

Fixing frame:

FHB. Manufactured in galvanized sheet steel. Used when the commissioning box is not used.

Planning

The grille can be installed in a wall, ceiling or in a windowsill. For floor installations the universal grill models MFA, UFA or UFK are recommended instead. Please refer to separate documentation for these products. Stocked sizes according to table under the section Ordering key, see Standard range.

Free area

To obtain the free area, the nominal area of the grille is multiplied by the factor $f = 0.52$.

Example:

Grille: ALG 400 – 200

Nominal area of grille: $(0.4 - 0.02) \times (0.2 - 0.02) = 0.0684 \text{ m}^2$

Free area of grille: $0.52 \times 0.0684 = 0.036 \text{ m}^2$

Installation

The hole is cut using the nominal width and height dimensions. The mounting frame (FHA/FHB) is pushed into the duct and fixed in position using blind rivets. The grille is then pressed in place onto the mounting frame. When the TRG commissioning



box is used, the telescopic frame is first pulled out of the box. The box is then pushed into place from behind the hole and attached to the framework of the building using either perforated band or blind rivets. The telescopic mounting frame is pushed into the box from the room side and fixed to the sides using blind rivets. See figure 1.

The grille is subsequently pressed into place in the mounting frame. If the sum of the width and height of the grille exceeds 700 mm, the grille should be screwed into place on the wall through the countersunk holes.

Commissioning with TRG

This must be carried out with the grille installed. The measurement tubes and damper cords pulled through the grilles bars. The k-factor is found on the product label and is also in the relevant k-factor guide which is to be found on our website. See Figure 1.

K-factor is labeled on the product and also available in the relevant installation-commissioning-maintenance file, available for download at www.swegon.se

Maintenance

The grille can be cleaned when necessary using lukewarm water and detergent. If the TRG commissioning box is used the inside of this should be vacuum cleaned when needed. The duct system is accessible without the use of tools. The grille is first pulled off the fixing frame. The measurement plate is then taken out of the fixing frame and the damper unit is removed by turning the damper out its bayonet fastener.

Environment

The Declaration of construction materials is available at www.swegon.com.

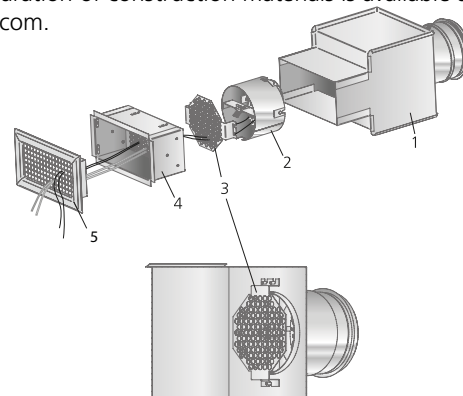


Figure 1. Installation. Commissioning.

To secure the damper action (2) in the duct connection and to secure the octagonal perforated face plate (3) against the duct connection.

1. Commissioning box
2. Damper action
3. Octagonal air distribution plate
4. Mounting frame
5. Grille

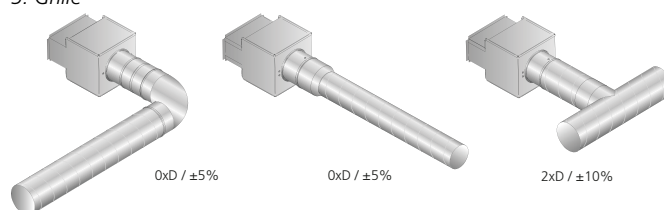


Figure 2. Installation alternatives, applies for all connections (B, K, L)

Sizing

- Sound pressure level dB(A) applies to rooms with 10 m² equivalent sound absorption area.
- Sound attenuation (ΔL) below is shown in the octave band. Orifice attenuation is included in the values.
- The throw $l_{0,2}$ is applicable to isothermal conditions. The graphs presents the data for the ALG mounted with the upper edge 200 mm from the ceiling.

- Recommended maximum under-temperature is 6 K.
- For calculating the width of the air stream, air velocities in the occupied zone or sound levels in rooms with other dimensions, please refer to our web calculation softwares available for download at www.swegon.com.

L_w = Sound power level

L_{p10A} = Sound pressure level dB (A)

K_{ok} = Correction for producing the L_w value in the octave band

$L_w = L_{p10A} + K_{OK}$ gives the frequency divided octave band

Sound data

ALG - Supply- and Extract air

Sound power level L_w (dB)

Table K_{OK}

Size	Mid-frequency (octave band) Hz							
ALG	63	125	250	500	1000	2000	4000	8000
All	2	6	5	3	-2	-8	-13	-15
ALG+TRG	Mid-frequency (octave band) Hz							
Supply Air	63	125	250	500	1000	2000	4000	8000
200-100	1	4	4	1	0	-9	-16	-24
300-100	3	7	5	1	-1	-8	-16	-20
400-100	5	9	3	1	-1	-8	-15	-22
500-100	4	8	3	1	0	-7	-17	-20
300-150	4	8	3	1	-1	-7	-15	-19
400-150	5	9	2	2	0	-7	-17	-24
500-150	5	9	2	2	-1	-7	-16	-22
400-200	3	7	1	3	-2	-7	-16	-22
500-200	4	8	2	3	0	-7	-18	-24
600-200	4	8	2	2	-1	-7	-18	-24
ALG+TRG	Mid-frequency (octave band) Hz							
Extract Air	63	125	250	500	1000	2000	4000	8000
200-100	1	4	5	1	0	-12	-23	-26
300-100	4	8	6	1	-1	-10	-19	-23
400-100	7	11	8	0	-4	-12	-17	-23
500-100	8	12	8	0	-3	-15	-21	-25
300-150	5	9	7	2	-2	-10	-18	-23
400-150	8	12	7	1	-5	-13	-23	-26
500-150	8	12	5	2	-4	-11	-19	-24
400-200	8	12	7	2	-4	-11	-18	-23
500-200	7	11	7	2	-4	-12	-20	-27
600-200	7	11	6	2	-3	-11	-19	-26
Tol ±	2	2	2	2	2	2	2	2

Sound attenuation ΔL (dB)

Table ΔL

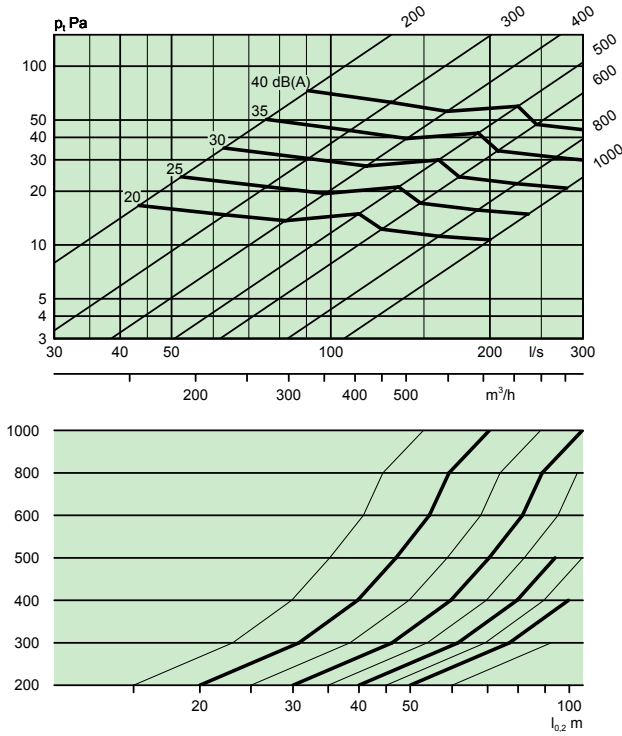
Size	Mid-frequency (octave band) Hz							
ALG	63	125	250	500	1000	2000	4000	8000
200-100	15	10	6	2	0	0	0	0
300-100	14	9	4	2	0	0	0	0
400-100	13	8	4	1	0	0	0	0
500-100	12	7	3	1	0	0	0	0
600-100	11	6	3	1	0	0	0	0
800-100	10	5	2	0	0	0	0	0
1000-100	9	4	1	0	0	0	0	0
300-150	13	8	4	1	0	0	0	0
400-150	12	7	3	1	0	0	0	0
500-150	11	6	3	1	0	0	0	0
600-150	10	5	2	0	0	0	0	0
800-150	9	4	1	0	0	0	0	0
1000-150	8	3	1	0	0	0	0	0
400-200	10	5	2	0	0	0	0	0
500-200	10	5	2	0	0	0	0	0
600-200	9	4	1	0	0	0	0	0
800-200	8	3	1	0	0	0	0	0
1000-200	8	3	1	0	0	0	0	0
ALG+TRG	Mid-frequency (octave band) Hz							
Supply and Extract Air	63	125	250	500	1000	2000	4000	8000
200-100	28	21	10	11	5	13	12	12
300-100	25	17	10	11	8	13	10	11
400-100	24	16	9	10	8	12	10	11
500-100	23	15	9	9	8	11	10	11
300-150	21	12	8	8	14	14	10	11
400-150	19	10	8	10	12	12	11	11
500-150	20	11	8	8	8	11	9	10
400-200	21	12	9	8	8	10	12	12
500-200	20	11	8	7	7	9	11	11
600-200	19	10	4	4	4	8	10	10
Tol. ±	2	2	2	2	2	2	2	2

Engineering graphs - ALG - Supply air

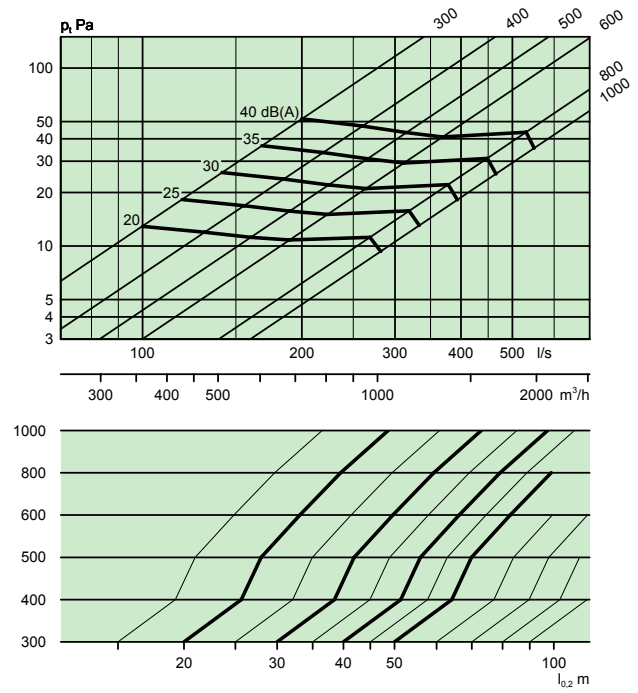
Air flow - Pressure drop - Sound level - Throw

- The graphs must not be used for commissioning.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.

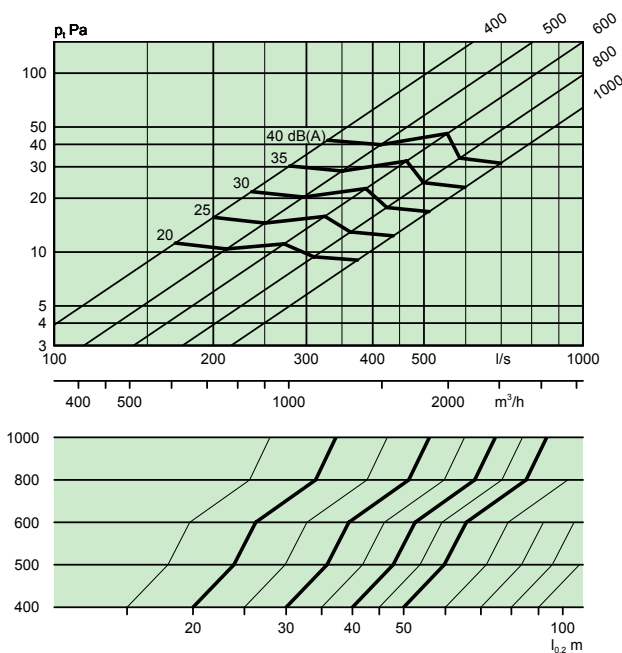
ALG + FHB, Height = 100, Supply air



ALG + FHB, Height = 150, Supply air



ALG + FHB, Height = 200, Supply air

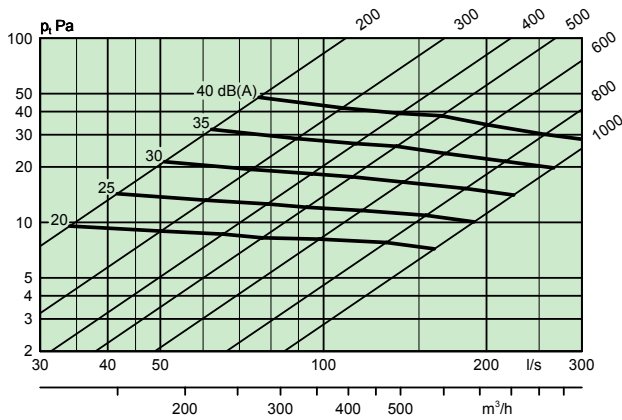


Engineering graphs - ALG - Extract air

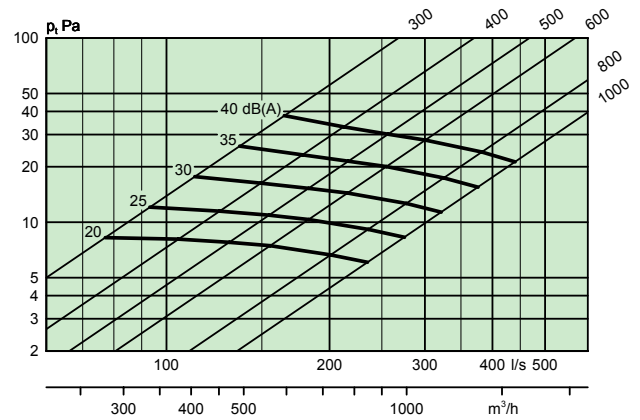
Air flow - Pressure drop - Sound level

- The graphs must not be used for commissioning.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.

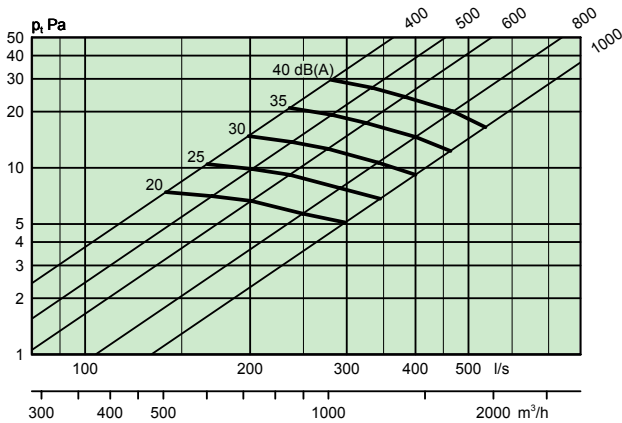
ALG + FHB, Height = 100, Extract air



ALG + FHB, Height = 150, Extract air



ALG + FHB, Height = 200, Extract air



Engineering graphs - ALG with damper FHA

Airflow - Pressure drop - Sound level

- Data apply to fully open FHA damper. Corrections for throttled damper are made in accordance with the graphs and tables under the heading Sound Data Correction. The pressure drop for the grille must be added to the data for FHA. The sound level need not be added.
- The graphs must not be used for commissioning.
- dB(A) value applies to a normally attenuated room (4 dB room attenuation).
- dB(C) value lies normally 6-9 dB above the dB(A) value.

Sound data corrections for ALG with FHA

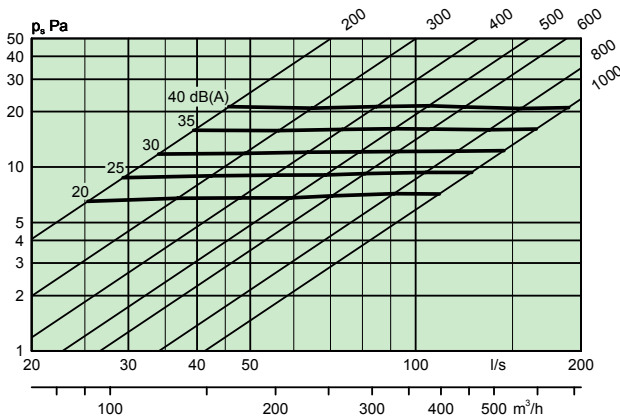
The sound values stated for the grille plus damper are valid when the damper is in the fully open position. In order to obtain the sound level for a throttled damper, first calculate the pressure drop ratio between throttled and open damper. Then go to the graph to the right. The value obtained is added to the sound level for an open damper.

The maximum throttling ratio $\Delta p_{\text{throttled}} / \Delta p_{\text{open}}$ is 4,5 for all sizes.

(1.) = dB(A)-increase

(2.) = Trottle ratio = $\Delta p_{\text{throttlex}} / \Delta p_{\text{open}}$

ALG + FHA height 100 mm, Open damper



Example:

FHA 1000 x 200. Requisite air flow is 250 l/s at 40 Pa.

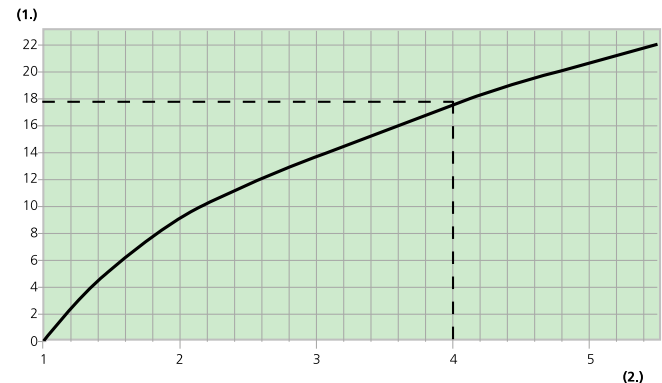
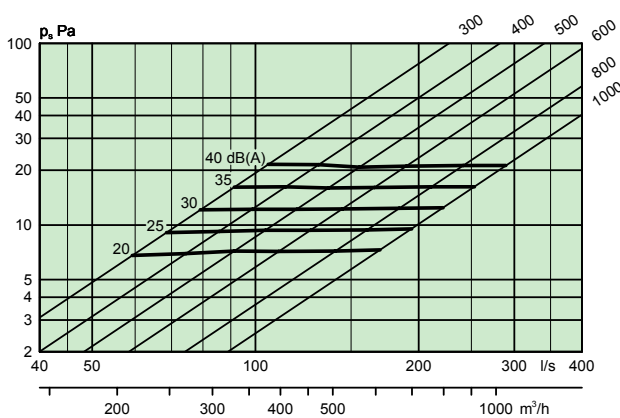
Δp open damper: 10 Pa

Δp throttling: 40 Pa

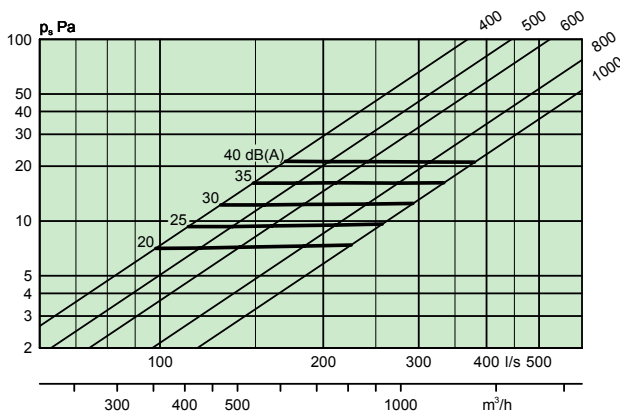
$$\frac{40}{10} = 4 \leq 4,5 \rightarrow \text{OK}$$

Sound increase according to diagram, 18 dB(A). The total sound level is then 25 + 18 = 43 dB(A).

ALG + FHA height 150 mm, Open damper



ALG + FHA height 200 mm, Open damper



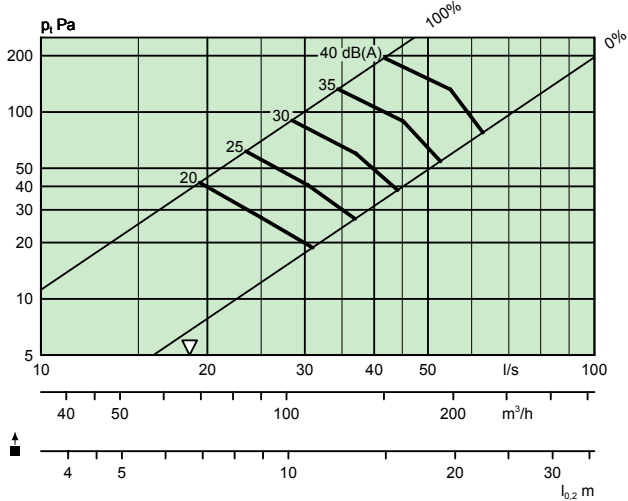
Engineering graphs - ALG + TRG - Supply air

Air flow - Pressure drop - Sound level - Throw

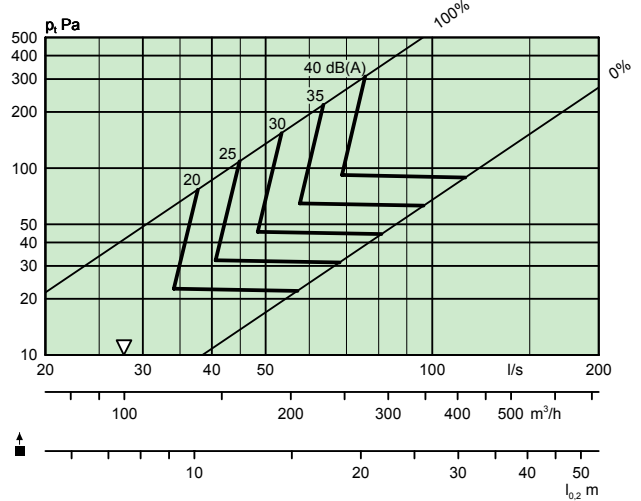
- The graphs must not be used for commissioning.
- ∇ = Minimal flow to obtain sufficient commissioning pressure.

- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB's higher than the dB(A) value.

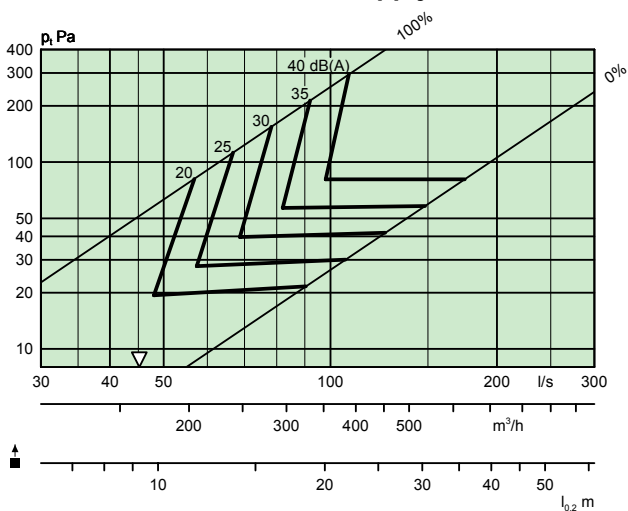
ALG 200 -100 + TRG-B Ø125, Supply air



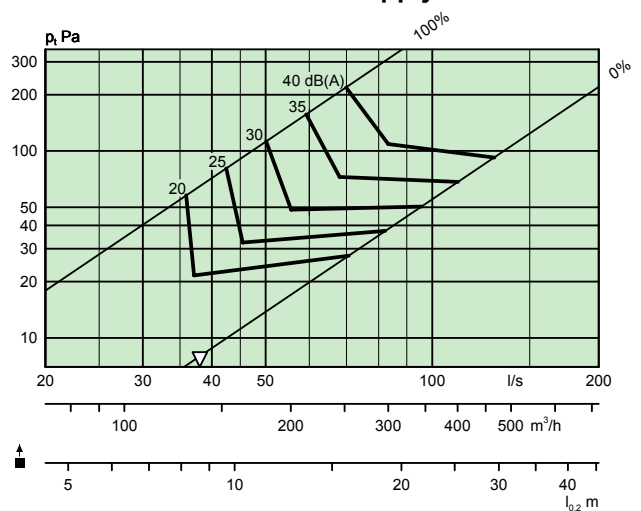
ALG 300-100 + TRG-B Ø160, Supply air



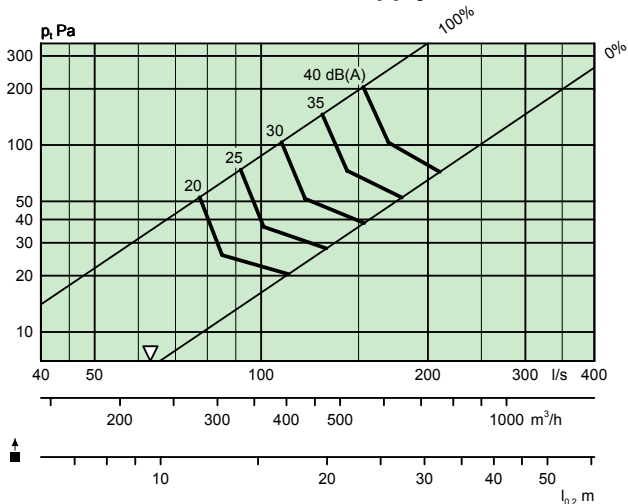
ALG 300-150 + TRG-B Ø200, Supply air



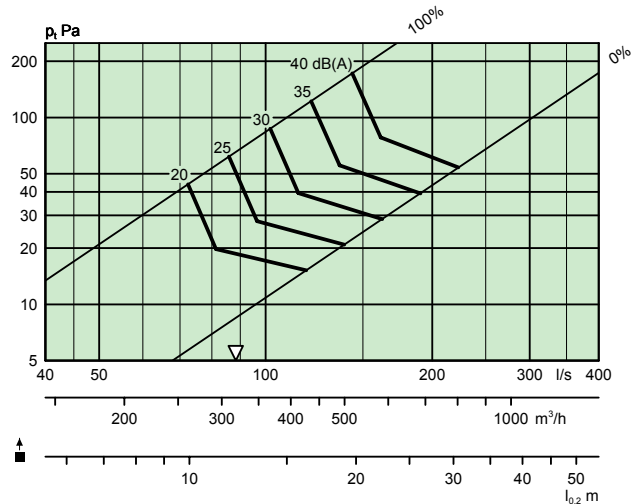
ALG 400-100 + TRG-B Ø160, Supply air



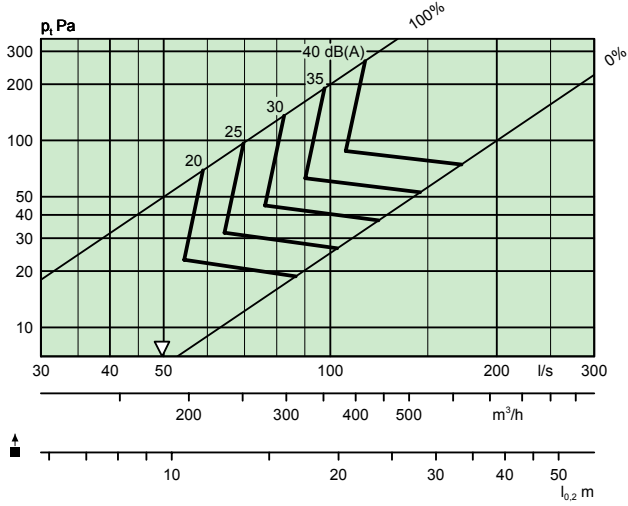
ALG 400-150 + TRG-B Ø250, Supply air



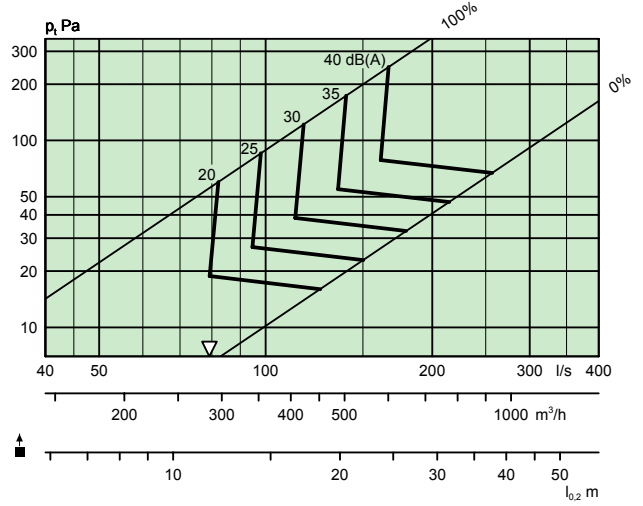
ALG 400-200 + TRG-B Ø250, Supply air



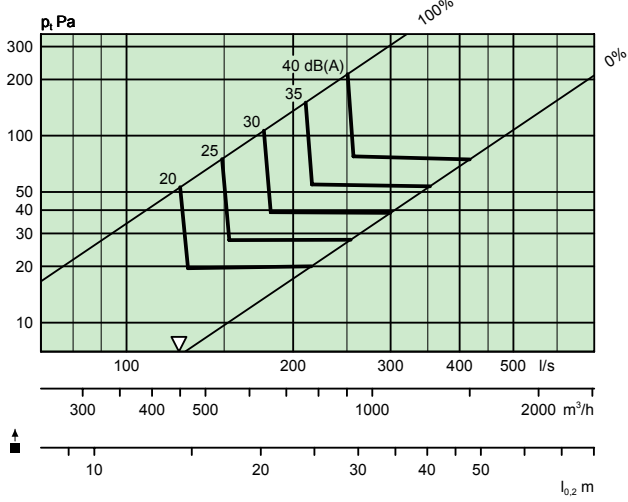
ALG 500-100 + TRG-B Ø200, Supply air



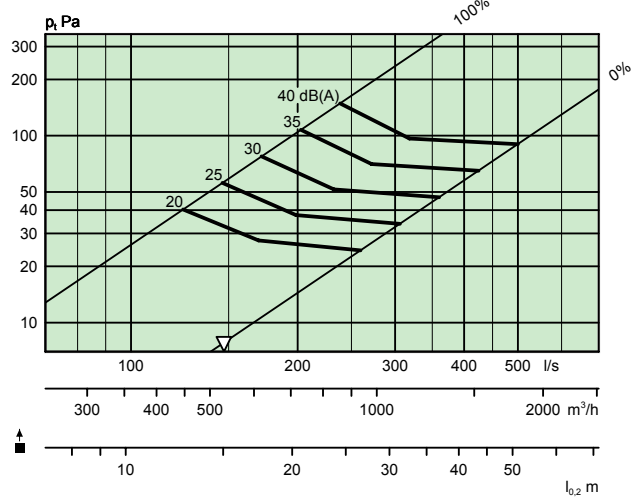
ALG 500-150 + TRG-B Ø250, Supply air



ALG 500-200 + TRG-B Ø315, Supply air



ALG 600-200 + TRG-B Ø315, Supply air

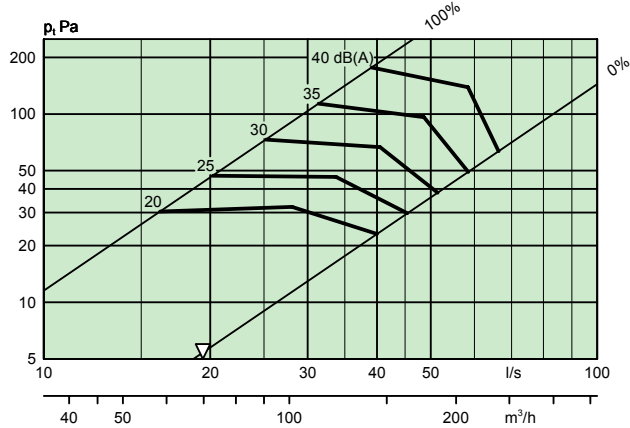


Engineering graphs - ALG + TRG - extract air

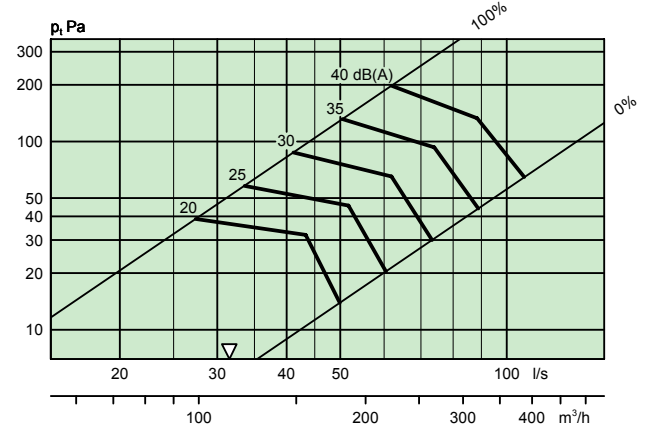
Air flow - Pressure drop - Sound level

- The graphs must not be used for commissioning.
- ▽= Minimal flow to obtain sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption of 4 dB.
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.

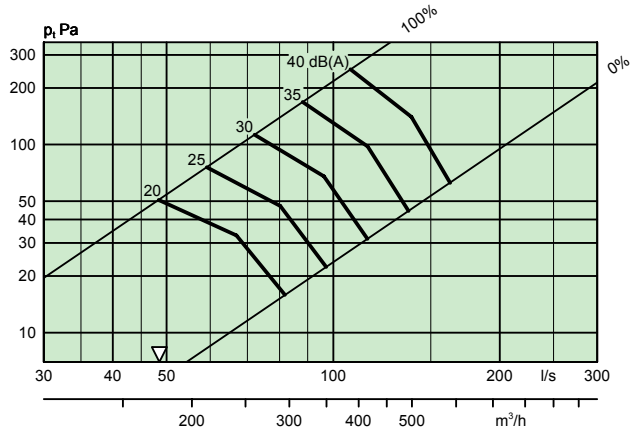
ALG 200-100 + TRG-B Ø125, Extract air



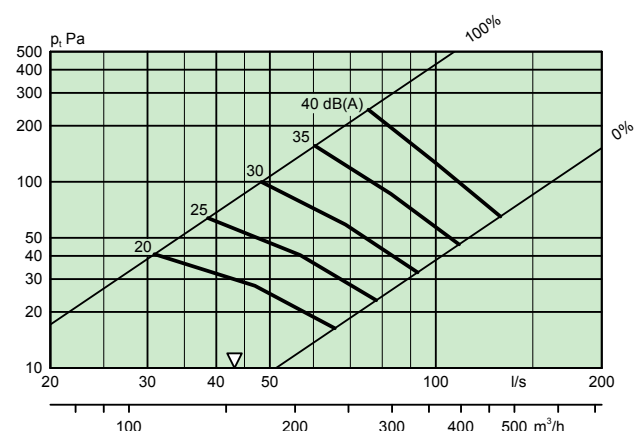
ALG 300-100 + TRG-B Ø160, Extract air



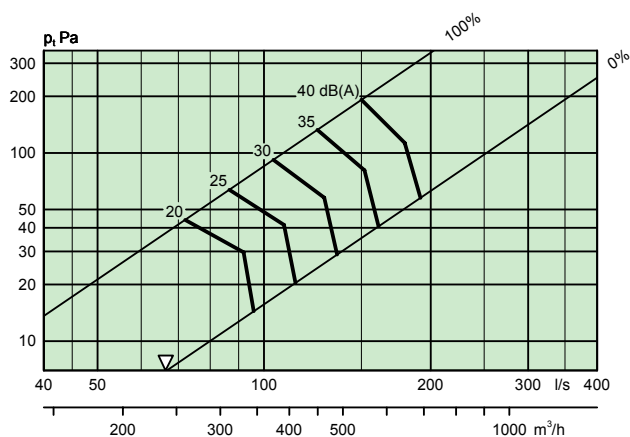
ALG 300-150 + TRG-B Ø200, Extract air



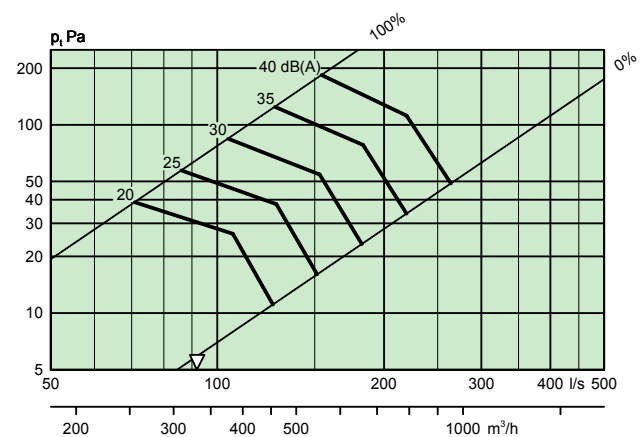
ALG 400-100 + TRG-B Ø160, Extract air



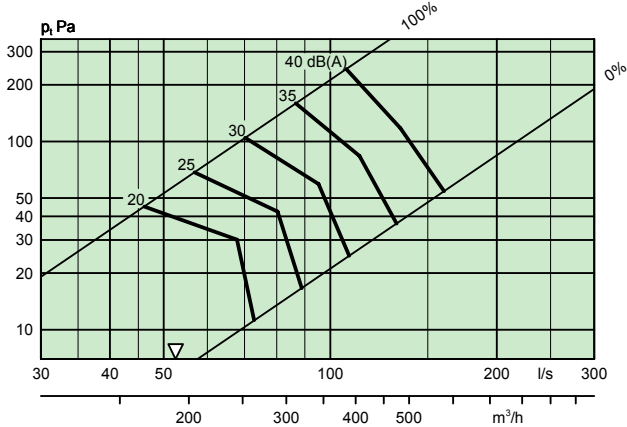
ALG 400-150 + TRG-B Ø250, Extract air



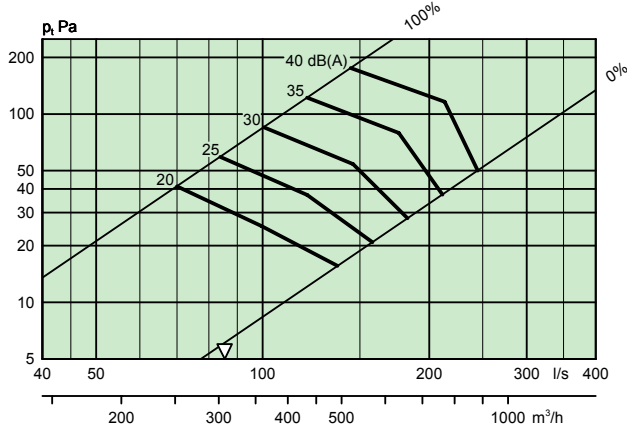
ALG 400-200 + TRG-B Ø250, Extract air



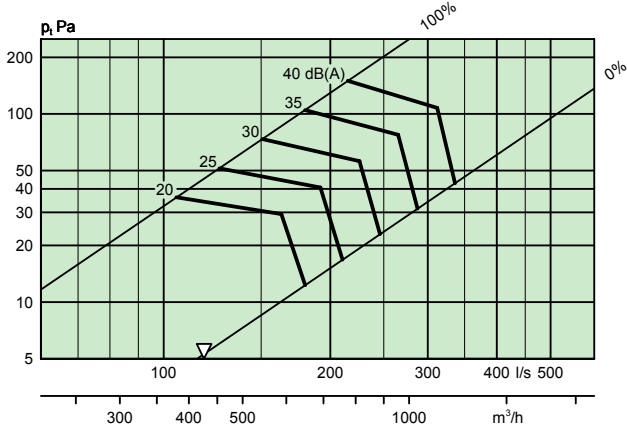
ALG 500-100 + TRG-B Ø200, Extract air



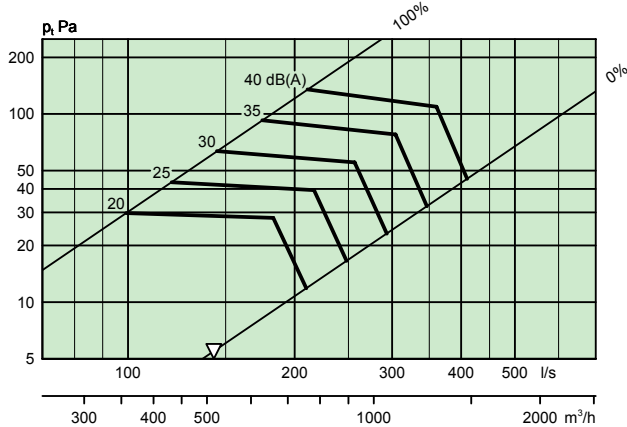
ALG 500-150 + TRG-B Ø250, Extract air



ALG 500-200 + TRG-B Ø315, Extract air



ALG 600-200 + TRG-B Ø315, Extract air



Dimensions and weight

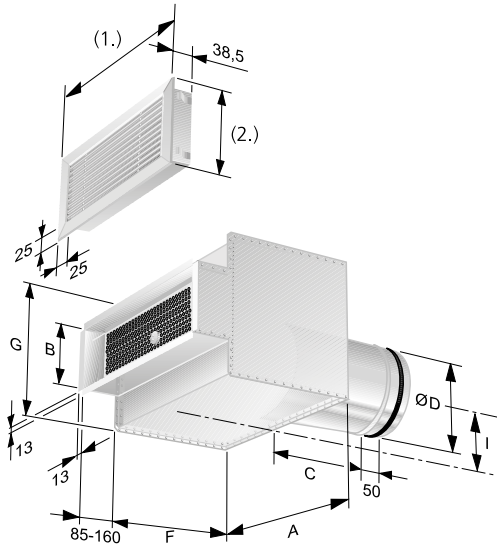


Figure 3. ALG/TRG.
 (1.) Nom. width + 30 mm
 (2.) Nom. height + 30 mm

In order to obtain the exact dimensions of the grille, the figures in the ALG diagram above must be added to the nominal dimensions.

Hole making size, fixing frame FHB = nominal dimensions.
 (Grille size designation.)

Size of the opening, TRG= nominal dimensions + 5 mm (Size designation of the grille + 5mm).

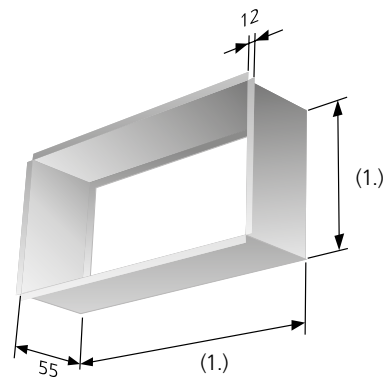


Figure 4. Fixing frame FHB. (1.) Nom. -3 mm.

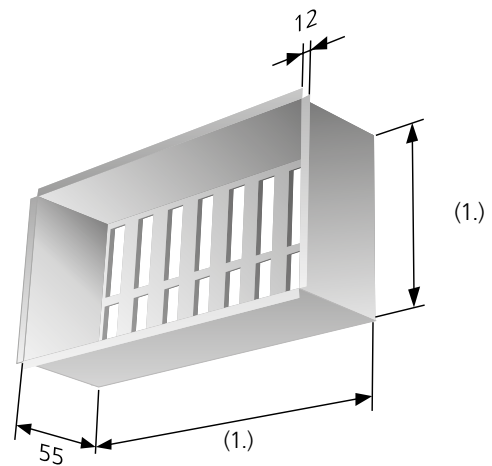


Figure 5. Fixing frame with sliding damper FHA.
 (1.) Nom. -3 mm.

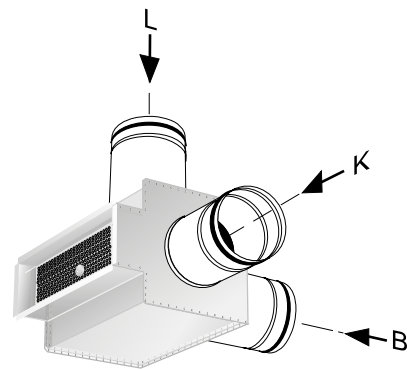


Figure 6. TRG.

Table of dimensions TRG

Size	A	B	C	ØD	F	I	G	Weight, kg
200-100	203	100	80	124	175	98	195	2,7
300-100	303	100	100	159	210	115	230	3,9
400-100	403	100	100	159	210	115	230	4,7
500-100	503	100	120	199	245	135	270	7,5
300-150	303	150	120	199	270	135	270	5,3
400-150	403	150	145	249	305	160	320	6,8
500-150	503	150	145	249	305	160	320	7,8
400-200	403	200	145	249	330	160	320	8,5
500-200	503	200	180	314	360	194	387	9,8
600-200	603	200	180	314	360	194	387	11,0

Table of dimensions ALG

Size	Weight, kg
200-100	0,4
300-100	0,5
400-100	0,6
500-100	0,7
300-150	0,7
400-150	0,8
500-150	1,0
400-200	1,1
500-200	1,3
600-200	1,5

Order key

Product

Linear bar grille ALG c -aaa -bbb

Version:

Nom. width:
See dimension table

Nom. height:
See dimension table

Accessories

Commissioning box with TRG d -aaa -bbb -ccc -d
removable damper

Version:

Nom. width:
200, 300, 400, 500, 600

Nom. height:
100, 150, 200

Mating duct dimension:
125, 160, 200, 250, 315

Connection alternatives
B = Rear side connection
K = Short side connection
L = Long side connection

Standard range:

- 200-100-125
- 300-100-160
- 300-150-200
- 400-100-160
- 400-150-250
- 400-200-250
- 500-100-200
- 500-150-250
- 500-200-315
- 600-200-315

Mounting frame with damper FHA a -aaa -bbb

Version:

Nom. width:

Nom. height:

Fixing frame FHB a -aaa -bbb

Version:

Nom. width:

Nom. height:

Specification example

Swegon's rectangular grille for wall/ceiling mounting of the type ALG with the commissioning box TRG, with the following functions:

- Fixed horizontal bars
- Powder-coated in white, RAL 9003/NCS S 0500-N
- Cleanable commissioning box TRG with removable commissioning damper including a lockable adjustment, measurement function with low method error and internal acoustic attenuation with reinforced surface layer.

Size: ALGc aaa - bbb with TRGd aaa - bbb - ccc - d xx items