

# PELICAN Ceiling

Square ceiling air diffuser for supply air and extract air



## QUICK FACTS

- Flexible distribution pattern, yet the acoustic data remains the same
- One K-factor regardless of distribution pattern
- Designed for modular suspended ceilings
- Easy access
- ALS commissioning box with 1 or 2 changes in dimension between the inlet and outlet
- Available in a version with low installation height
- Standard colour White RAL 9003
  - 5 alternative standard colours
  - Other colours upon request

SUPPLY AIR - AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *)							
PELICAN CS Size	ALS Size	25 dB(A)		30 dB(A)		35 dB(A)	
		l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h
125-400/600	100-125	27	97	36	130	43	155
160-400/600	125-160	38	137	54	194	70	252
200-600	160-200	58	209	80	288	110	196
250-600	200-250	83	299	107	385	150	540
315-600	250-315	125	450	150	540	180	648
400-600	315-400	180	648	215	774	255	918

Data specified for supply air applies to 50 Pa total pressure.

\*)  $L_{p10A}$  = Sound pressure incl. A-filter with 4 dB room attenuation and 10 m<sup>2</sup> room absorption area.

EXTRACT AIR - AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *)							
PELICAN CE Size	ALS Size	25 dB(A)		30 dB(A)		35 dB(A)	
		l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h	l/s	m <sup>3</sup> /h
125-400	100-125	19	68	27	97	40	144
160-400	125-160	25	90	44	158	63	227
200-600	160-200	35*	126*	70	252	95	353
250-600	200-250	61	220	88	317	130	468
315-600	250-315	95	342	155	414	190	684
400-600	315-400	140*	504*	240	864	300	1080

Data specified for extract air applies to 50 Pa total pressure.

\*)  $L_{p10A}$  = Sound pressure incl. A-filter with 4 dB room attenuation and 10 m<sup>2</sup> room absorption area.

\*40 Pa total pressure

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# Technical Description

## Design

The square, perforated supply air diffuser consists of a diffuser backing box and a diffuser face. The air diffuser's perforated face plate is equipped with an adjustable air flow director for simple variation of the distribution pattern. The diffuser face is easy to install and remove. This enables quick and uncomplicated installation, commissioning and cleaning.

The air diffuser is also available in a low version if the space inside the ceiling void is restricted. The air diffuser is then supplied without sleeve coupling (not size 400-600).

## Materials and finish

The diffuser backing box and the diffuser face are made of sheet steel. The commissioning box is made of galvanized sheet steel. The interior and exterior surfaces of the air diffuser are 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
  - White semi-gloss, 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.

## Accessories:

### Commissioning box:

ALS commissioning box made of galvanized sheet steel. The commissioning box contains a removable commissioning damper, fixed measurement tappings and sound absorbing material with a reinforced surface layer. Tightness class C on the housing according to SS-EN 12237.

A combination for low design is also available, if installation in an extra low ceiling void is required. The air diffuser as well as the commissioning box are then supplied without any insertion joint and branch.

The commissioning box is available with 1 or 2 changes in dimension between the inlet and the outlet.

### Frame:

SAR K, for aesthetic installation of a lowered diffuser section.

### Adapter:

ADAPTER, for adaptation to various variants and makes of systemized false ceilings: Ecophon, Gyproc, Dampa etc. Also used for adaptation to optional sizes of lay-in ceilings, for instance 625 x 625 or 675 x 675. Specification in separate product sheet for ADAPTER.

## Project Design

PELICAN Ceiling is available in two connection sizes with square dimensions of 395 x 395 and 595 x 595 mm respectively. This makes the air diffusers very easy to install in suspended modular ceilings with size 600 x 600 mm insertion dimensions for modules. Position the air diffuser on the surface of the T-bar framework and then secure it to the duct system. PELICAN Ceiling is also available in a low version for installation in a ceiling void where the installation height of components must be minimized.



The air flow director can be accessed after you remove the air diffuser face from its spring retainers. It consists of a number of adjustable air deflectors and by turning these you can easily set the distribution pattern desired. See Figure 1.

## Installation

To unfasten the diffuser face, press in the spring retainers on one side of the diffuser and let the diffuser face hang on its safety cords. The inlet spigot of the diffuser backing box can be secured to the connecting ducting by means of self-tapping screws or a blind rivets. For flush-mounting in fixed ceiling constructions, secure the air diffuser by means of self-tapping sheet metal screws in the underside of the commissioning box.

For installation in modular suspended ceilings, position the air diffuser directly down in the T-bar framework, and then secure it to the building structure with hangers or mounting brackets. The distance between the commissioning box and the air diffuser can be increased by as much as 500 mm using an ordinary circular duct without having to lengthen the measuring hoses and damper adjustment cords. See Figure 2.

## Commissioning

Commissioning should be carried out with the face plate mounted. Pull the measuring tube and damper adjusting cord out through the face plate. Connect a manometer to the right measuring tube. The red + red or red + blue tube is used for supply air depending on whether a one or two-step ALS commissioning box is used. For extract air, use the transparent tube only. The required commissioning pressure can be calculated by means of the K-factor of the air diffuser/register. Adjust the damper to the correct position and tie a commissioning knot on the damper cords to indicate the damper setting.

Measurement accuracy and requirement on straight duct before the commissioning box, see Figure 2. The requirements of straight duct depends on the type of disturbance before the commissioning box. Figure 2 shows a bend, a dimensional change and a T-piece. Other types of disturbances requires at least 2xD straight (D = connection dimension) for measurement accuracy of  $\pm 10\%$  of the flow.

The K-factor is specified on the product identification plate and also in the relevant commissioning instructions available at [www.swegon.com](http://www.swegon.com).

## Maintenance

The air diffuser can be cleaned, if necessary, using lukewarm water with dishwashing detergent added. The duct system can be accessed after you have opened the air diffuser face and removed the perforated plate. If an ALS commissioning box is used, pull the distributor plate aside to enable you to grip and twist the damper unit from of its mounting. See figure 4.

# PELICAN Ceiling

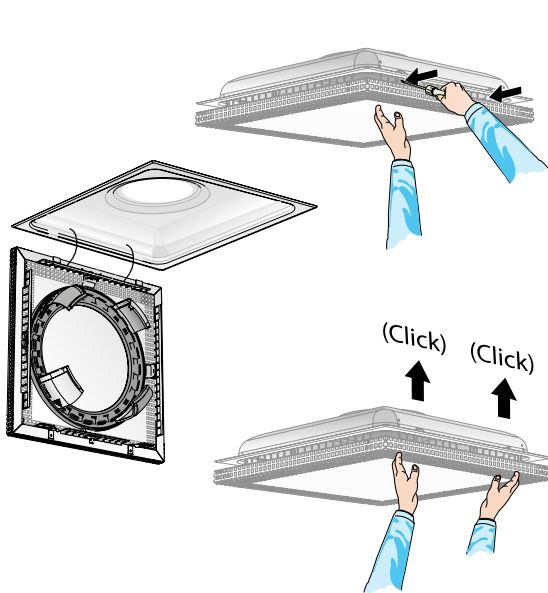


Figure 1. Quick Access.

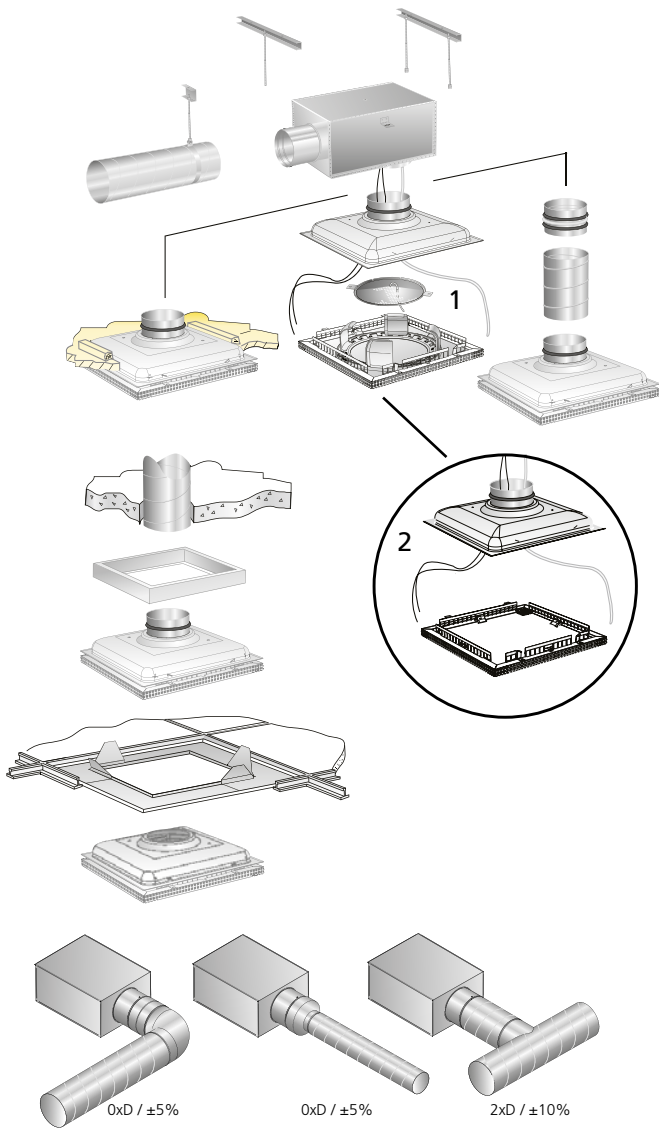


Figure 2. Installing PELICAN.  
1. Supply air.  
2. Extract air

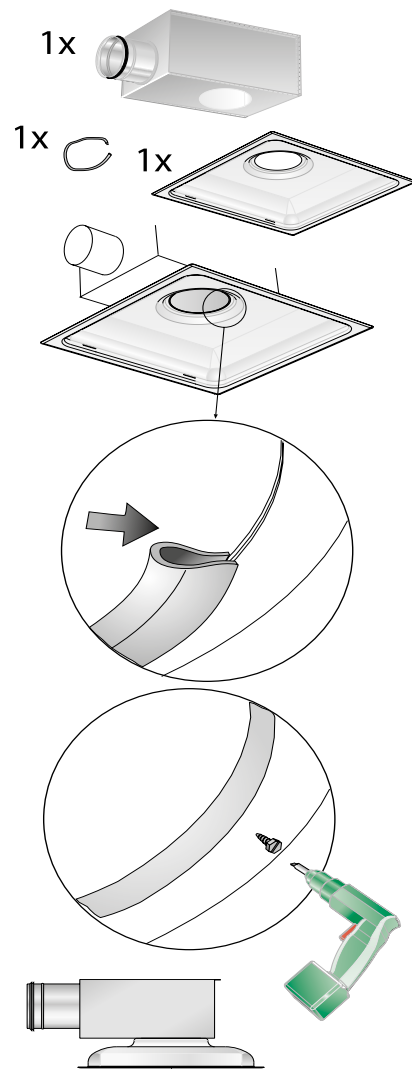


Figure 3. Installation of air diffusers and commissioning box with low installation height.

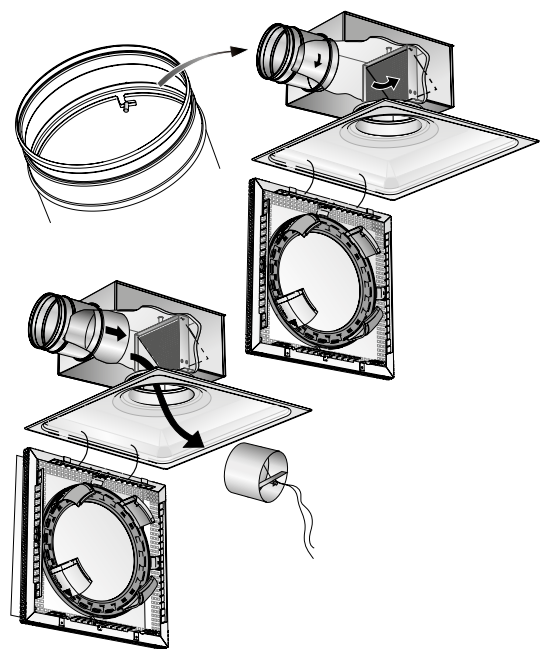


Figure 4. To dismantle the damper.

# Sizing

- Sound pressure level dB(A) applies to rooms with 10 m<sup>2</sup> equivalent sound absorption area.
- Sound attenuation (ΔL) below is shown in the octave band. Orifice attenuation is included in the values.
- Throw length I<sub>0,2</sub> is measured under isothermal discharge conditions.
- Recommended max. permissible temperature below room temperature: 10 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](http://www.swegon.com).

L<sub>w</sub> = Sound power level

L<sub>p10A</sub> = Sound pressure level dB (A)

K<sub>ok</sub> = Correction for producing the L<sub>w</sub> value in the octave band

L<sub>w</sub> = L<sub>p10A</sub> + K<sub>OK</sub> gives the frequency divided octave band

## Sound Data - Diffuser only

### PELICAN Ceiling Supply – Supply air

#### Sound power level L<sub>w</sub>(dB)

Table K<sub>OK</sub>

Size	63	125	250	500	1000	2000	4000	8000
125-400/600*	-2	4	3	2	0	-7	-13	-17
160-400/600*	0	3	3	2	0	-9	-18	-20
200-600	-6	3	3	2	0	-9	-17	-17
250-600	-3	2	3	3	0	-11	-20	-20
315-600	1	3	3	3	0	-10	-17	-16
400-600	9	8	5	4	2	-7	-20	-20

#### Sound attenuation ΔL

Table ΔL

Size	63	125	250	500	1000	2000	4000	8000
125-400/600*	20	14	9	5	3	2	1	0
160-400/600*	20	13	8	4	3	1	1	0
200-600	18	11	6	3	2	1	0	0
250-600	16	10	5	2	1	1	0	0
315-600	14	8	4	1	1	0	0	0
400-600	13	8	4	1	0	0	0	0

## Sound data - Air diffuser with commissioning box

### PELICAN Ceiling Supply + ALS - one step - Supply air

#### Sound power level L<sub>w</sub>(dB)

Table K<sub>OK</sub>

Size	63	125	250	500	1000	2000	4000	8000
125-400/600*	-1	11	11	5	-5	-5	-11	-13
160-400/600*	8	12	10	5	-1	-5	-10	-11
200-600	5	10	7	3	0	-4	-8	-10
250-600	3	10	5	3	0	-5	-9	-9
315-600	5	9	6	6	2	-6	-11	-13
400-600	8	9	4	5	2	-8	-15	-16

#### Sound attenuation ΔL

Table ΔL

Size	63	125	250	500	1000	2000	4000	8000
125-400/600*	24	16	9	17	23	16	11	13
160-400/600*	22	14	10	17	19	12	10	12
200-600	19	11	8	16	18	12	11	11
250-600	16	8	8	16	17	12	12	13
315-600	14	6	7	19	14	10	10	13
400-600	10	5	8	14	11	10	11	12

### PELICAN Ceiling Supply + ALS - two steps - Supply air

#### Sound power level L<sub>w</sub>(dB)

Table K<sub>OK</sub>

Size	63	125	250	500	1000	2000	4000	8000
160-400/600*	3	13	10	6	-3	-6	-10	-13
200-600	7	13	8	4	-2	-3	-10	-13
250-600	4	11	7	3	-1	-3	-8	-9
315-600	4	12	6	3	1	-4	-6	-12

#### Sound attenuation ΔL

Table ΔL

Size	63	125	250	500	1000	2000	4000	8000
160-400/600*	19	14	11	17	24	15	13	15
200-600	18	14	10	16	23	15	14	15
250-600	15	9	9	20	19	15	16	14
315-600	13	8	10	19	16	13	16	16

\*Size 400x400 and 600x600

## Sizing Diagram

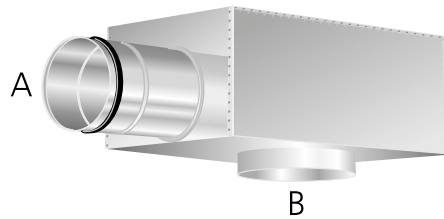
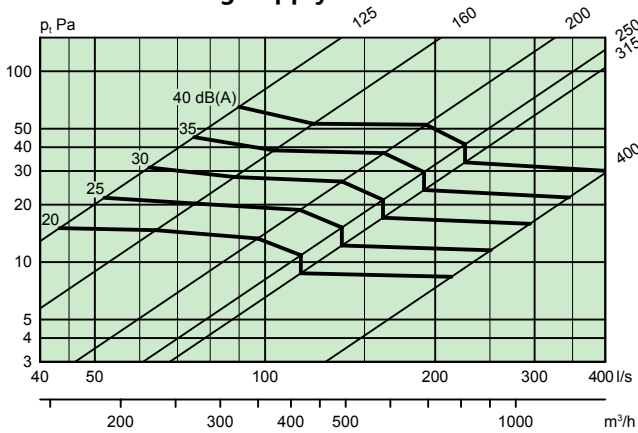
### Air flow - Pressure drop - Sound level - Throw

- The diagrams provide data for an air diffuser placed in a ceiling.
- The diagrams should not be used for commissioning.
- $\nabla$  = Min. airflow required for obtaining sufficient commissioning pressure.
- The dB(A) values are applicable to rooms with normal acoustic absorption (4 dB room attenuation).
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.

- The version for low installation height generates 3 dB(A) higher sound level than the value specified in the diagram. The following sizes are only available with 4-way spread:
  - 315-600; low installation height, no diffusion plate
  - 400-600 standard; no diffusion plate, no air deflector
- Size 400-600 is not available with low installation height

### PELICAN Ceiling Supply – supply air

#### PELICAN Ceiling Supply - All sizes



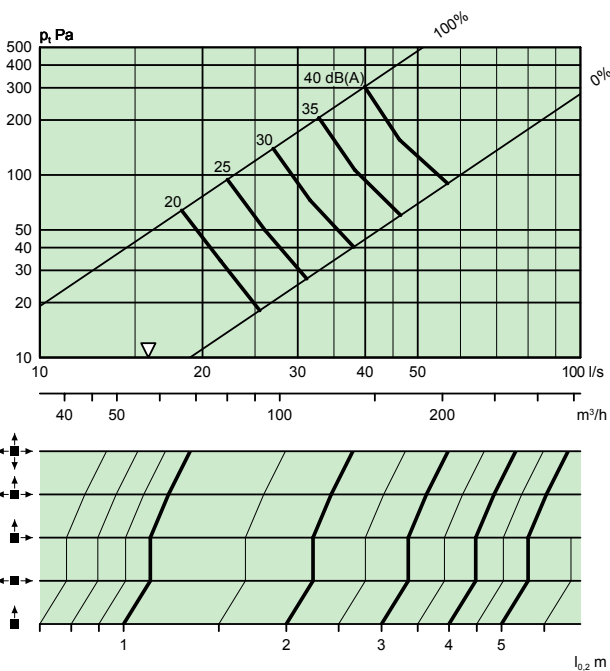
Explanation of the step model:

- One step = One dimensional change between A and B, for example, A = Ø160 mm and B = Ø200 mm.
- Two steps = Two dimensional changes between A and B, for example, A = Ø160 mm and B = Ø250 mm.

### PELICAN Ceiling Supply + ALS – supply air

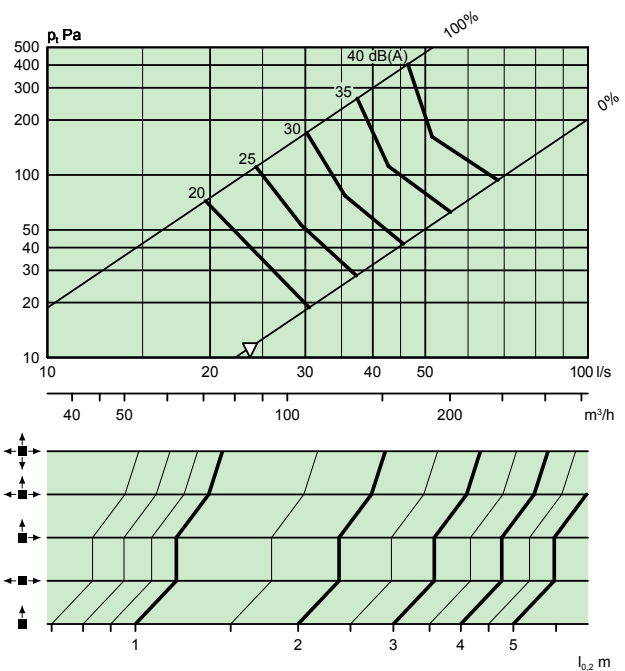
#### PELICAN Ceiling Supply 125-400/600

#### + ALS 100-125 – one step

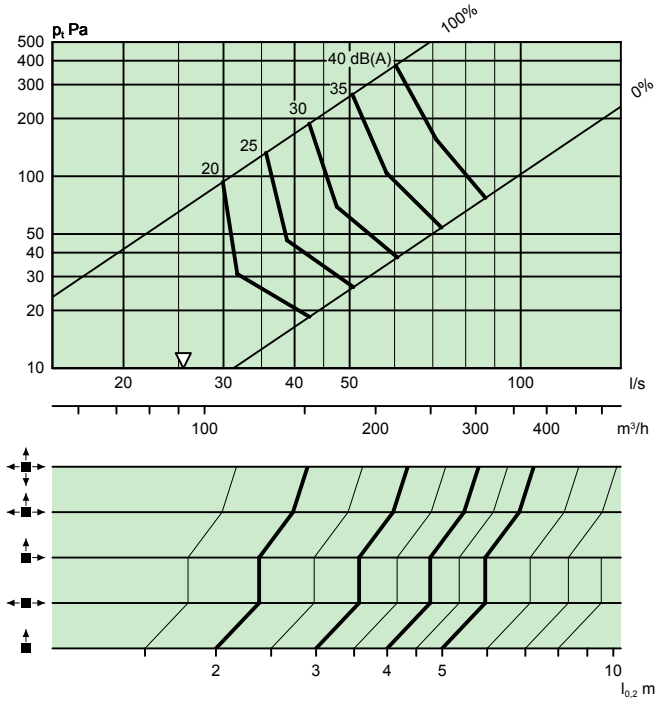


#### PELICAN Ceiling Supply 160-400/600

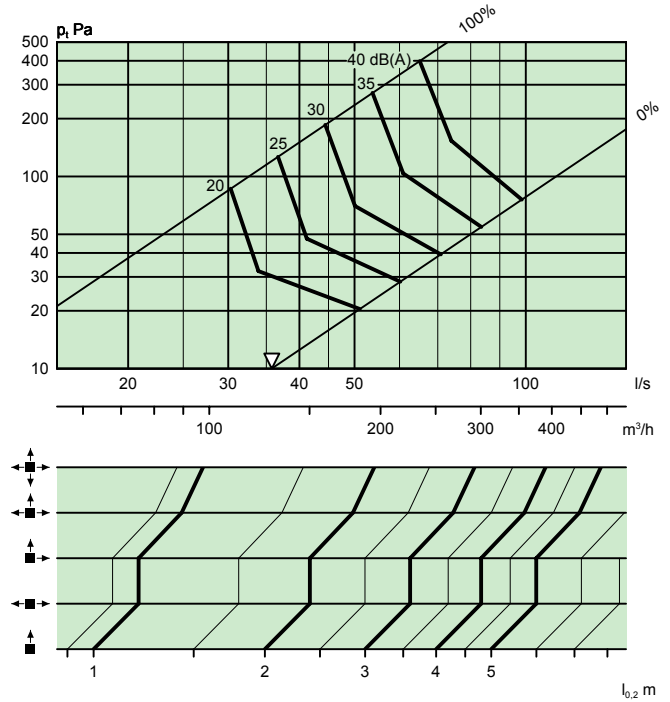
#### + ALS 100-160 – two steps



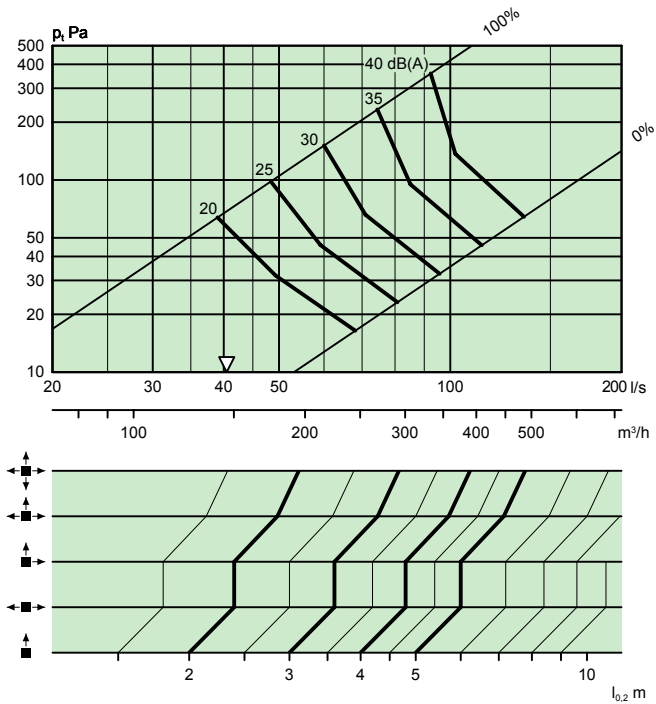
**PELICAN Ceiling Supply 160-400/600  
+ ALS 125-160 – one step**



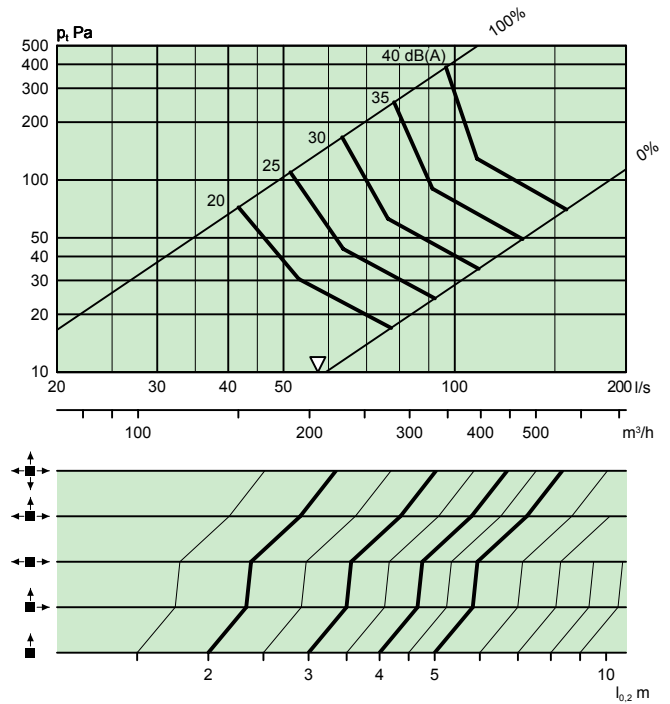
**PELICAN Ceiling Supply 200-600  
+ ALS 125-200 - two steps**



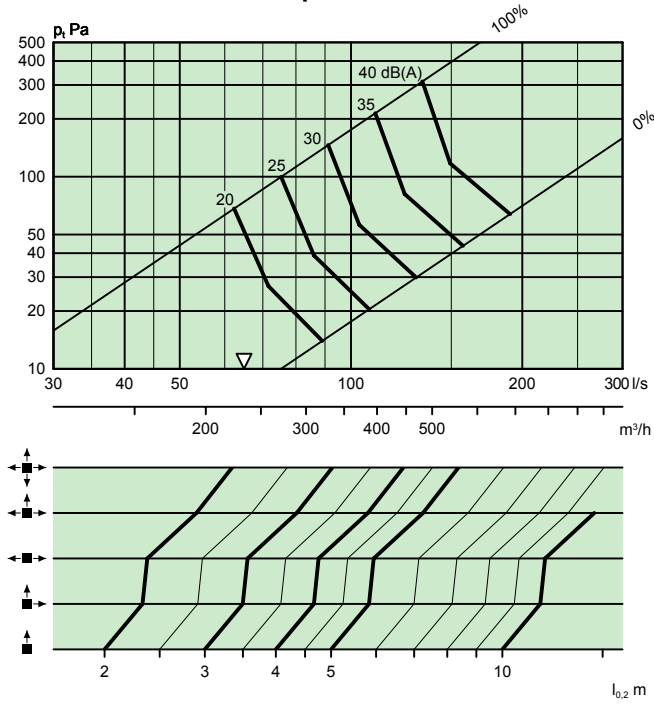
**PELICAN Ceiling Supply 200-600  
+ ALS 160-200 – one step**



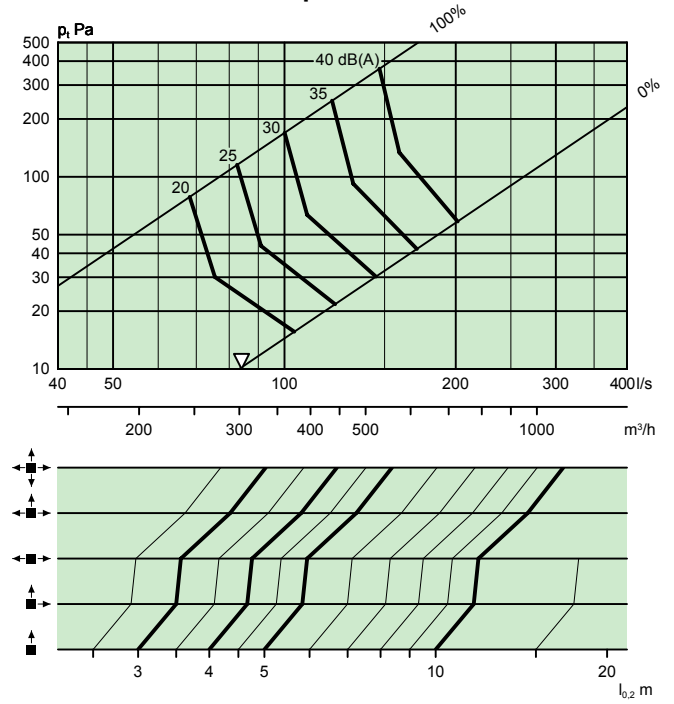
**PELICAN Ceiling Supply 250-600  
+ ALS 160-250 - two steps**



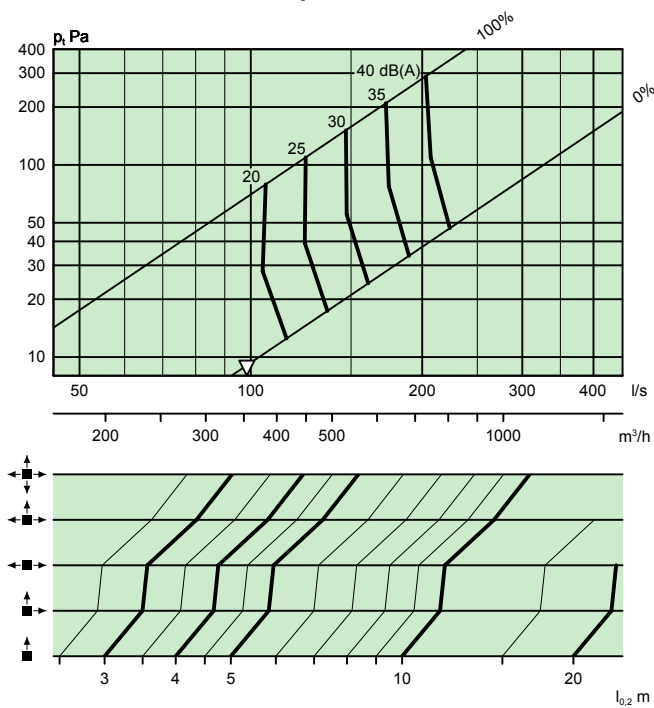
**PELICAN Ceiling Supply 250-600  
+ ALS 200-250 – one step**



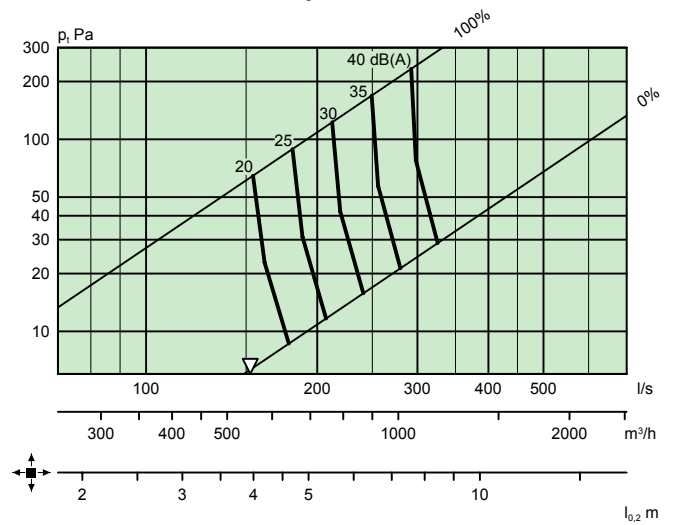
**PELICAN Ceiling Supply 315  
+ ALS 200-315 - two steps**



**PELICAN Ceiling Supply 315  
+ ALS 250-315 – one step**



**PELICAN Ceiling Supply 400  
+ ALS 315-400 – one step**



## Sizing

- Sound pressure level dB(A) applies to rooms with 10 m<sup>2</sup> equivalent sound absorption area.
- Sound attenuation ( $\Delta L$ ) below is shown in the octave band. Orifice attenuation is included in the values.
- 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](http://www.swegon.com).
- Extract Air diffuser is delivered with perforated plate and without adjustable airflow directors.

$L_w$  = 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 - Air diffuser only

### PELICAN Ceiling Extract - extract air

#### Sound power level $L_w$ (dB)

Table  $K_{OK}$

Size	63	125	250	500	1000	2000	4000	8000
125-400	-1	7	6	3	-3	-11	-13	-17
160-400	-5	8	5	2	-1	-11	-20	-21
200-600	-4	8	6	3	-3	-13	-21	-21
250-600	-2	10	6	2	-2	-13	-21	-22
315-600	4	9	5	2	-1	-10	-18	-20
400-600	7	6	6	4	2	-4	-15	-18

#### Sound attenuation $\Delta L$ (dB)

Table  $\Delta L$

Size	63	125	250	500	1000	2000	4000	8000
125-400	20	14	9	5	3	2	1	0
160-400	20	13	8	4	3	1	1	0
200-600	18	11	6	3	2	1	0	0
250-600	16	10	5	2	1	1	0	0
315-600	14	8	4	1	1	0	0	0
400-600	13	8	4	1	0	0	0	0

## Sound data - Air diffuser with commissioning box

### PELICAN Ceiling Extract + ALS

#### Sound power level $L_w$ (dB)

Table  $K_{OK}$

Size	63	125	250	500	1000	2000	4000	8000
125-400	-1	11	11	5	-5	-5	-11	-13
160-400	3	13	10	3	-4	-4	-8	-8
200-600	3	12	7	2	-1	-3	-9	-11
250-600	5	12	5	-1	-1	-4	-10	-10
315-600	7	13	5	0	1	-5	-10	-11
400-600	11	13	5	3	0	-5	-11	-17

#### Sound attenuation $\Delta L$ (dB)

Table  $\Delta L$

Size	63	125	250	500	1000	2000	4000	8000
125-400	24	16	9	17	23	16	11	13
160-400	22	14	10	17	19	12	10	12
200-600	19	11	8	16	18	12	11	11
250-600	16	8	8	16	17	12	12	13
315-600	14	6	7	19	14	10	10	13
400-600	14	5	8	14	11	10	11	12

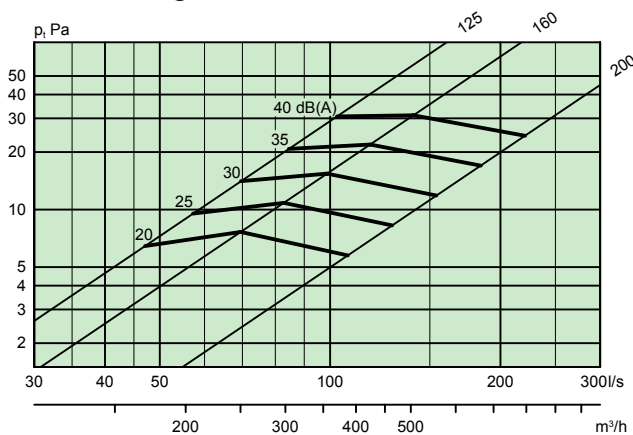
## Sizing Diagram

### PELICAN CE

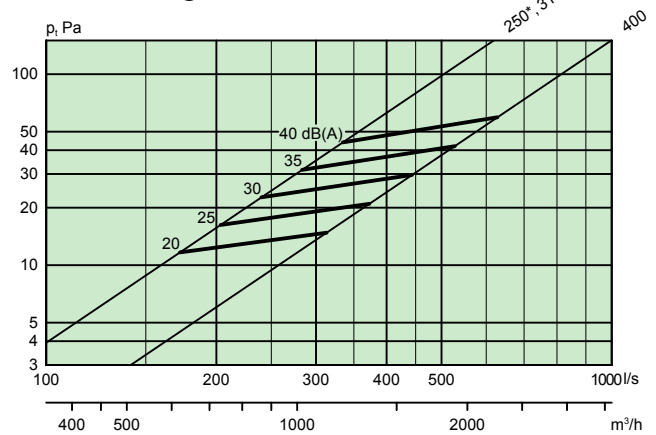
#### Air flow - Pressure drop - Sound level

- The diagrams provide data for an air diffuser placed in a ceiling.
- The diagrams should not be used for commissioning.
- $\nabla$  = Min. airflow required for obtaining sufficient commissioning pressure.
- The dB(A) values are applicable to rooms with normal acoustic absorption (4 dB room attenuation).
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.

PELICAN Ceiling Extract 125-400, 160-400, 200-600



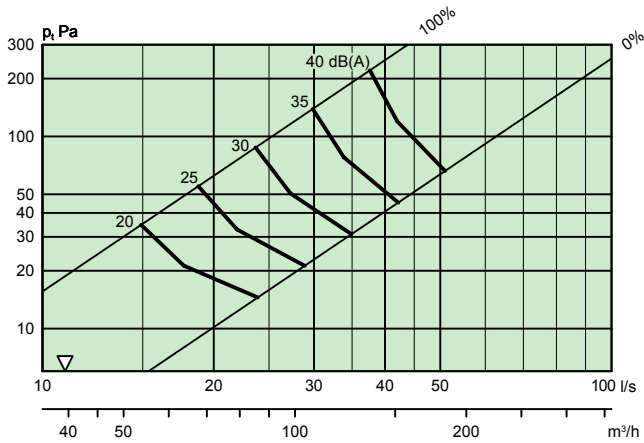
PELICAN Ceiling Extract 250-600, 315-600, 400-600<sup>\*)</sup>



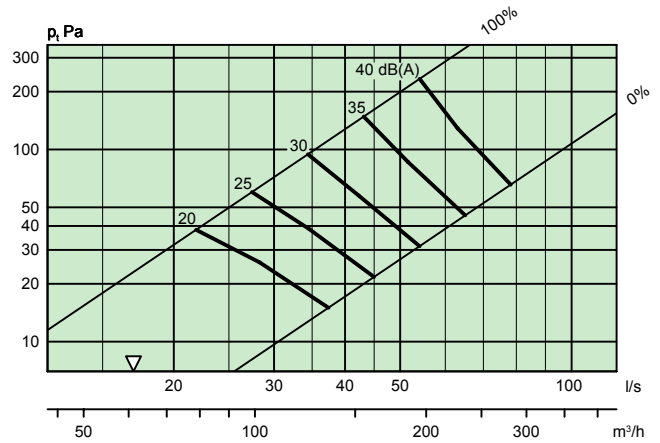
<sup>\*)</sup> PELICAN Ceiling Extract 250 and 315 have the same pressure drop. The diagram presents size 315, the sound level of the 250 is 5 dB's higher.

**PELICAN Ceiling Extract + ALS - extract air**

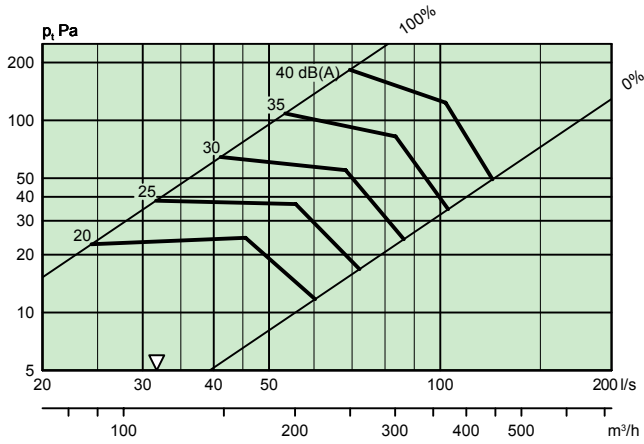
**PELICAN Ceiling Extract 125-400 + ALS 100-125**



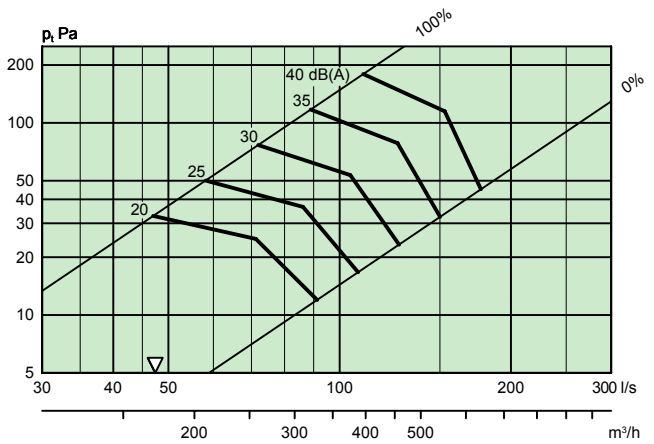
**PELICAN Ceiling Extract 160-400 + ALS 125-160**



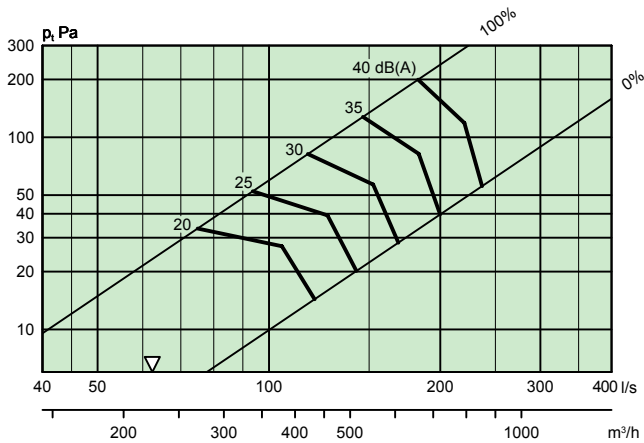
**PELICAN Ceiling Extract 200-600 + ALS 160-200**



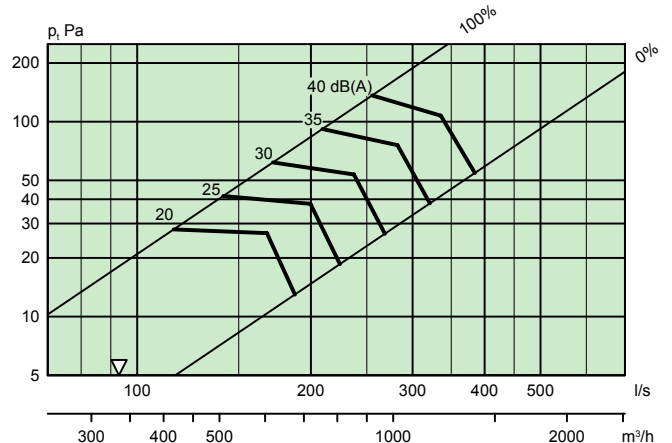
**PELICAN Ceiling Extract 250-600 + ALS 200-250**



**PELICAN Ceiling Extract 315-600 + ALS 250-315**



**PELICAN Ceiling Extract 400-600 + ALS 315-400**



# Dimensions and weights

## PELICAN Ceiling

Size	Dimensions (mm)					Weight (kg)
	A	Ød	I	M	P	
125-400	395	124	375	70	35	2,1
125-600	595	124	575	70	35	4,3
160-400	395	159	375	70	35	2,1
160-600	595	159	575	70	35	4,3
200-600	595	199	575	70	35	4,3
250-600	595	244	575	70	35	4,3
315-600	595	314	575	50	34	4,3
400-600	595	399	575	50	34	4,3

Hole cutting dimensions, I x I  
CL = Centreline of branch

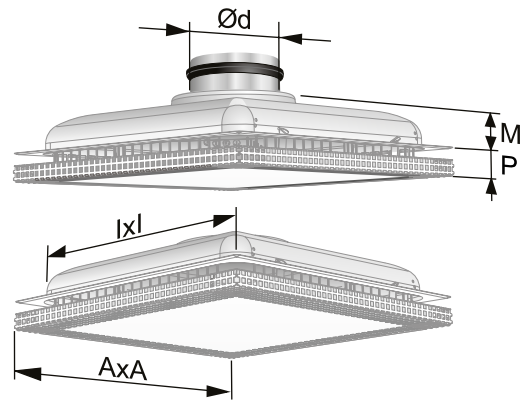


Figure 5. Dimensions, PELICAN Ceiling.

## PELICAN Ceiling with ALS, 1 step

Size	Dimensions (mm)														Weight (kg)
	A	B	C	ØD	Ød	E1	E2	F1	F2	G1	G2	H	K	Q	
125-400	395	282	217	99	125	255	212	113	70	175	132	270	80	40	3,5
125-600	595	282	217	99	125	255	212	113	70	175	132	270	80	40	5,7
160-400	395	342	252	124	160	279	236	113	70	188	145	315	80	40	4,2
160-600	595	342	252	124	160	279	236	113	70	188	145	315	80	40	5,7
200-600	595	404	288	159	200	314	271	113	70	205	162	375	100	40	7,0
250-600	595	504	332	199	250	354	311	113	70	225	182	465	115	40	8,7
315-600	595	622	388	249	315	395	352	93	50	230	187	575	140	40	11,8
400-600	595	767	488	314	400	455	-	93	-	262	-	712	175	40	15,0

## PELICAN Ceiling with ALS, 2 steps

Size	Dimensions (mm)														Weight (kg)
	A	B	C	ØD	Ød	E1	E2	F1	F2	G1	G2	H	K	Q	
160-400	395	342	252	99	160	255	212	113	70	175	132	315	80	40	4,1
160-600	595	342	252	99	160	255	212	113	70	175	132	315	80	40	5,7
200-600	595	404	288	124	200	279	236	113	70	188	145	355	80	40	5,0
250-600	595	504	332	159	250	314	271	113	70	205	162	450	100	40	7,8
315-600	595	622	388	199	315	334	291	93	50	205	162	550	115	40	9,5

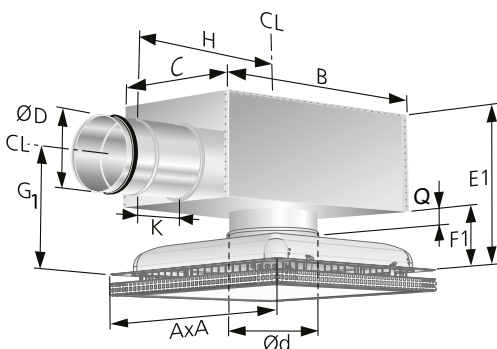


Figure 6. Dimensions, PELICAN Ceiling with ALS. CL = Centerline.

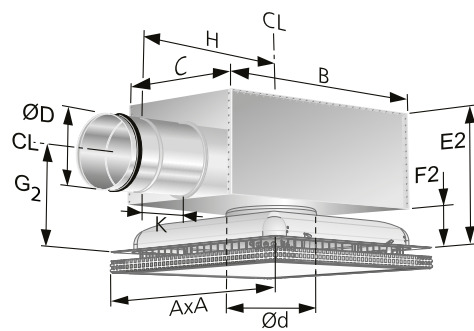


Figure 7. Dimensions, PELICAN Ceiling with ALS, low build.

## Frame – SAR K

Size	Dimensions (mm)		Weight (kg)
	L	N	
400	395	75	1.0
500	495	75	1,24
600	595	75	1.6

When installing size 315-600 and 400-600 diffusers, position the ALS box so that its branch extends 20 mm below the ceiling surface.

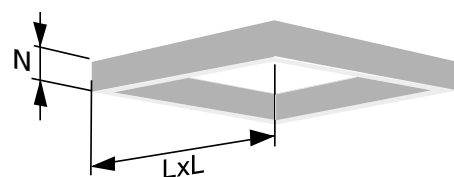


Figure 8. Dimensions, SAR K frame.

# Ordering key

## Product

Square ceiling air diffuser for supply air/extract air	PELICAN CS/CE	a	-aaa	-bbb	-c
Version					
Nominal connection size in mm: 125, 160, 200, 250, 315, 400					
Nom. square dimension, mm: 400, 600					
Low version: L					
Specify only if low installation height is required, all sizes except 400-600. (Applies to PELICAN CS)					

## Standard range

Size:	125-400
	125-600
	160-400
	160-600
	200-600
	250-600
	315-600
	400-600

## Accessories:

Commissioning box	ALS	d	-aaa -bbb	-c
Version				
For Pelican Ceiling				
125-400	ALS	100-125		
125-600	ALS	100-125		
160-400	ALS	100-160		
160-400	ALS	125-160		
160-600	ALS	100-160		
160-600	ALS	125-160		
200-600	ALS	125-200		
200-600	ALS	160-200		
250-600	ALS	160-250		
250-600	ALS	200-250		
315-600	ALS	200-315		
315-600	ALS	250-315		
400-600	ALS	315-400		
Low installation height: L				
Specify only if diffusers in the low version is selected, all sizes except 400-600.				

Frame	SARb K	b	K	-aaa
Version:				
K = Quadratic				
For size:				
125-400		400		
125-600		600		
160-400		400		
160-600		600		
200-600		600		
250-600		600		
315-600		600		
400-600		600		

ADAPTER for suspended ceiling systems. See specification in separate product sheet. ADAPTER

# Specification text

Swegon's type PELICAN Ceiling square perforated ceiling air diffuser with air deflector, complete with ALS commissioning box and the following features:

- Flexible distribution pattern, yet the sound data remain the same
- Designed for 600 x 600 mm modular suspended ceilings
- Method of measurement with low systematic error
- Powder paint sprayed and baked white finish
- Cleanable ALS commissioning box with removable adjustment damper, measuring method with low systematic error and lined inside with sound absorbing material covered with woven surface layer that prevents fibre migration.

Size: PELICAN CSa -aaa -c + ALSd aaa -bbb -c xx items

Accessories:

Frame: SARb K aaa xx items