

ALCa

ALBATROSS

Supply air terminal for large airflows



FUNCTION

ALBATROSS ALC is a supply air terminal for large airflows. The terminal can be configured for horizontal or vertical spread patterns and can supply air at under- or over-temperatures at a height of up to 15 metres. The terminal is especially suitable for comfort ventilation in premises that have a large air volume, such as foyers, airport terminals, sports arenas, shopping centres, supermarkets and factories.

QUICK FACTS

- Large airflows
- Horizontal or vertical spread pattern
- Suitable for cooling or heating
- Manual or motorised adjustment
- Pressure drop independent of selected spread pattern
- Can be used together with ALS plenum box
- Included in the MagiCAD database

QUICK GUIDE

AIR FLOW - SOUND LEVEL				
ALCa		l/s		
Size		25 dB(A)	30 dB(A)	35 dB(A)
250		140	160	190
315		180	210	245
400		235	285	350
500		290	360	430
630		580	680	800
ALCa	ALSc	l/s		
Size	Size	25 dB(A)	30 dB(A)	35 dB(A)
250	200-250	75	95	125
315	250-315	125	145	180
400	315-400	150	200	250
500	400-500	155	250	330
630	500-630	290	420	530

Data for combined ALC + ALS plenum box is valid for a total pressure drop of 50 Pa.

DESIGN (See Figure 1)

The terminal consists of an outer cone surrounding a perforated cylinder, a sleeve that can be adjusted up and down, and a connection spigot. The sleeve is located inside the perforated cylinder and its position determines the airflow direction, either horizontal or vertical spread. The terminal is available in manual or motorized versions. On the manual version the sleeve is adjusted to give the desired spread pattern with of a knob located underneath the cover, which is easily removed. The motorized version can be adjusted to suit existing requirements. The actuator is located inside the terminal and moves the sleeve relative to the perforated cylinder.

MATERIALS AND SURFACE TREATMENT

The terminal is manufactured in galvanized sheet steel and aluminium. The interior and exterior are both painted with our pure white standard paint, RAL 9010. The unit is also available in other standard colours: Dusty grey 7037, white aluminium RAL 9006, jet black RAL 9005, grey aluminium RAL 9007 and signal white RAL 9003 (NCS 0500).

ACCESSORIES**Plenum box:**

ALS. Is manufactured in galvanised sheet steel. It includes a removable commissioning damper until size 315.400. ALS 400-500 and ALS 500-630 without commissioning damper, but work well in combination with a CRP damper.

Controller for motorized air terminals:

VHC: The controller motorized air terminals that are intended for use with over- and under-temperature air. The controlling parameter is the temperature difference between supply air and room air. See separate product sheet for VHC.

PLANNING

When used in an air heating system the easiest way to calculate the spread pattern is by using our ProAir web diffuser selection program, available on our website.

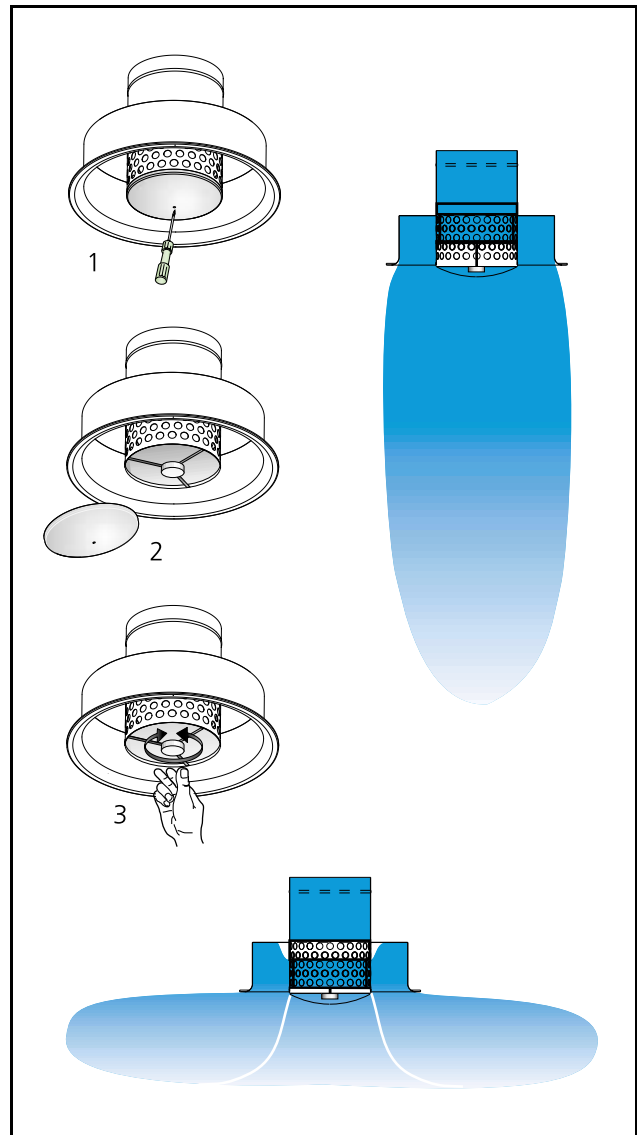


Figure 1. Version. Function.

INSTALLATION (See Figure 2)

The inlet spigot of the air terminal is fixed in the connection duct or ALS plenum box using self-tapping screws or pop rivets. The spigot between ALC and ALS can be extended using ordinary ventilation duct. Note that it may be necessary to extend the measuring tube and damper cords.

COMMISSIONING WITH ALS

Commissioning must be carried out with the diffuser section in place. The measuring tube and damper cords are pulled out through the perforations. The k-factor is shown on the product label and is also given in the relevant k-factor guide available on our website.

COMMISSIONING WITH CRP

See the catalogue sheet for CRP.

MAINTENANCE

Clean the air terminal using lukewarm water and detergent. Access to the duct system is possible. The cone unit is removed by undoing the through-bolt on the outer casing. If the ALS plenum box is used, pull the distribution plate aside and simply twist the damper out of its mounting

ENVIRONMENT

The declaration of construction materials is available on our website or may be ordered from one of our sales offices.

Key to Figure 3.

1 = Change-over switch not supplied.

Key to Figure 4.

- 1 = VHC controller
- 2 = Duct temperature sensor
- 3 = Room temperature sensor
- 4 = Adjustment of change-over temperature

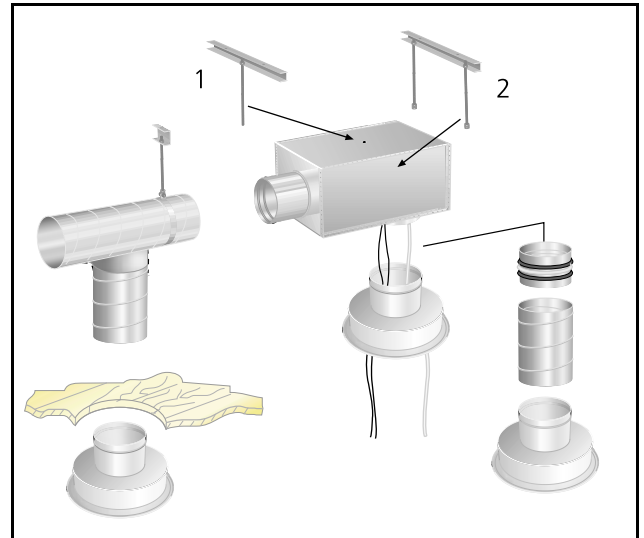


Figure 2. Installation.

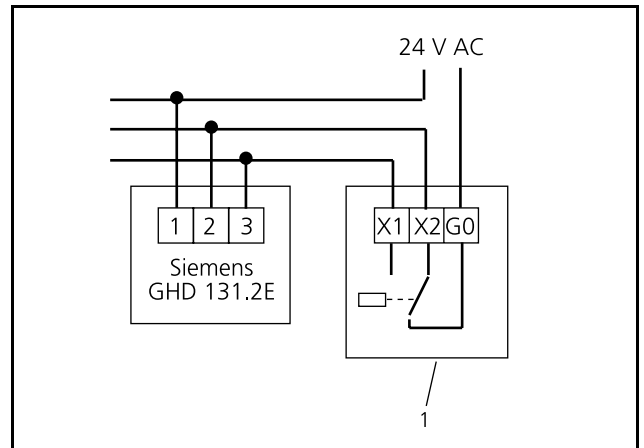


Figure 3. Wiring diagram for ALC with actuator.

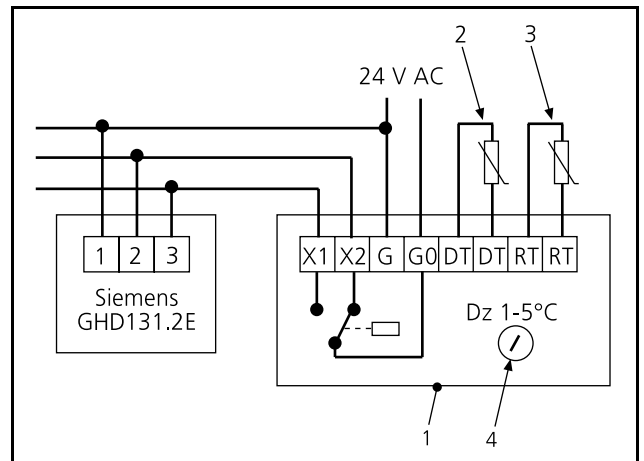


Figure 4. Wiring diagram for ALC with actuator and VHC control equipment.



TECHNICAL DATA

- The sound level dB(A) applies to rooms of 10 m² equivalent sound absorption area.
- The throw $l_{0,2}$ is measured under isothermal flow conditions.
- The maximum recommended under-temperature is 10°C.
- Horizontal spread pattern is obtained with the inner cone unit in the lower position.

- Vertical spread pattern is obtained with the inner cone unit in the upper position.
- To calculate the width of the air stream, air velocities in the occupied zone or sound levels in rooms with other dimensions, please refer to our ProAir web program, which is available on our website.

Sound data - ALC - Supply air - Horizontal spread pattern

Sound power level L_w (dB)

Table K_{OK}

Size	Mid-frequency (octave band) Hz							
ALCa	63	125	250	500	1000	2000	4000	8000
250	0	7	5	4	-2	-12	-16	-12
315	0	1	4	5	-2	-13	-15	-10
400	2	2	5	3	-2	-11	-15	-11
500	2	2	3	3	-1	-9	-15	-11
630	3	3	8	3	-4	-15	-18	-15
Size	Mid-frequency (octave band) Hz							
ALCa + ALSc	63	125	250	500	1000	2000	4000	8000
250	3	8	6	1	-5	-10	-12	-9
315	3	7	6	1	-3	-9	-11	-9
400	5	5	6	3	-4	-9	-10	-7
500	7	8	7	3	-4	-9	-13	-11
630	9	9	7	1	-3	-9	-12	-10
Tol. ±	2	2	2	2	2	2	2	2

Sound attenuation ΔL (dB)

Table ΔL

Size	Mid-frequency (octave band) Hz							
ALCa	63	125	250	500	1000	2000	4000	8000
250	16	10	2	6	5	5	5	4
315	16	10	4	2	4	4	5	5
400	10	9	5	3	4	4	4	4
500	8	4	3	1	1	1	1	1
630	6	3	3	2	1	1	0	0
Size	Mid-frequency (octave band) Hz							
ALCa + ALSc	63	125	250	500	1000	2000	4000	8000
250	17	10	7	18	19	15	15	15
315	12	5	6	20	17	17	15	15
400	10	5	8	14	11	10	11	12
500	8	4	6	12	10	9	10	10
630	6	4	5	11	9	8	10	9
Tol. ±	2	2	2	2	2	2	2	2

Sound data - ALC - Supply air - Vertical spread pattern

Sound power level L_w (dB)

Table K_{OK}

Size	Mid-frequency (octave band) Hz							
ALCa	63	125	250	500	1000	2000	4000	8000
250	0	6	3	3	-1	-10	-16	-13
315	2	4	3	1	0	-6	-13	-10
400	-1	-1	1	4	-2	-13	-16	-11
500	3	2	3	4	-2	-11	-16	-11
630	3	2	4	5	-3	-14	-19	-17
Size	Mid-frequency (octave band) Hz							
ALCa + ALSc	63	125	250	500	1000	2000	4000	8000
250	4	8	6	0	-6	-8	-11	-8
315	2	8	6	1	-1	-9	-11	-9
400	6	5	3	3	-2	-10	-11	-8
500	7	8	6	3	-3	-9	-13	-11
630	9	9	6	2	-3	-9	-12	-10
Tol. ±	2	2	2	2	2	2	2	2

Sound attenuation ΔL (dB)

Table ΔL

Size	Mid-frequency (octave band) Hz							
ALCa	63	125	250	500	1000	2000	4000	8000
250	16	10	2	6	5	5	5	4
315	16	10	4	2	4	4	5	5
400	10	9	5	3	4	4	4	4
500	8	4	3	1	1	1	1	1
630	6	3	3	2	1	1	0	0
Size	Mid-frequency (octave band) Hz							
ALCa + ALSc	63	125	250	500	1000	2000	4000	8000
250	17	10	7	18	19	15	15	15
315	12	5	6	20	17	17	15	15
400	10	5	8	14	11	10	11	12
500	8	4	6	12	10	9	10	10
630	6	4	5	11	9	8	10	9
Tol. ±	2	2	2	2	2	2	2	2

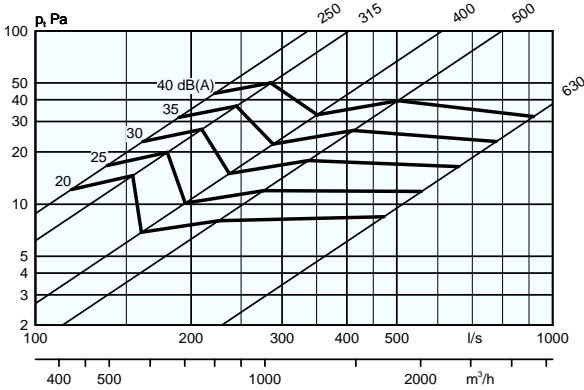
Engineering graph - ALC - Supply air

Air flow - Pressure drop - Sound level - Throw

- The graph gives data for a freely suspended ALC.
- These graphs should 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. For more accurate calculations, see the calculation template in the chapter on Acoustics in the Technical Information section of the catalogue

ALCa



Engineering graph - ALC + ALS - Supply air

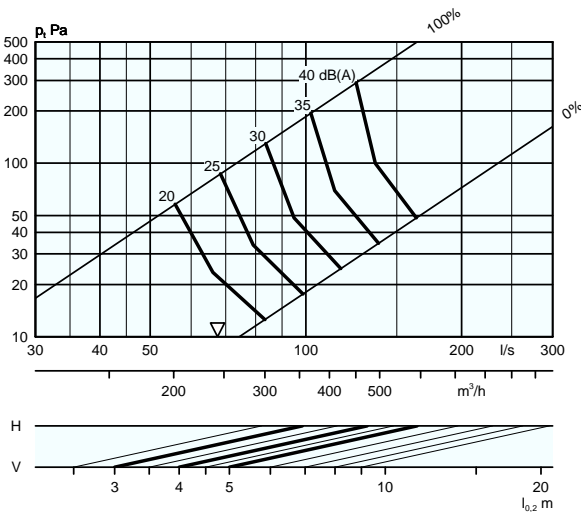
Air flow - Pressure drop - Sound level - Throw

- The graph gives data for a freely suspended ALC.
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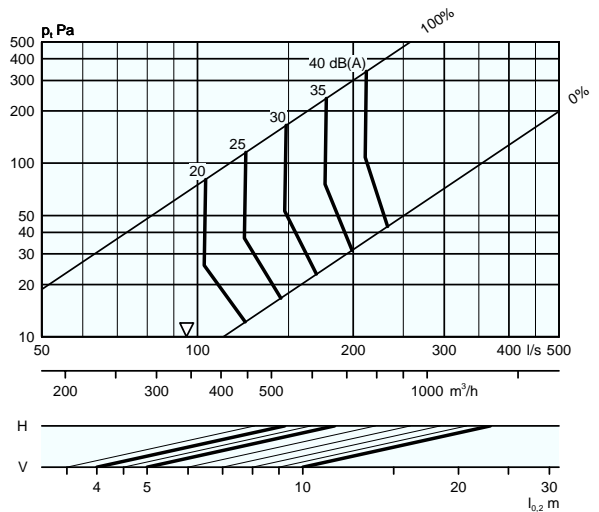
template in the chapter on Acoustics in the Technical Information section of the catalogue.

- ▽ = Min. airflow to obtain sufficient commissioning pressure.

ALCa 200 + ALSc 200-250



ALCa 315 + ALSc 250-315



ALCa

Engineering graph - ALC + ALS - Supply air

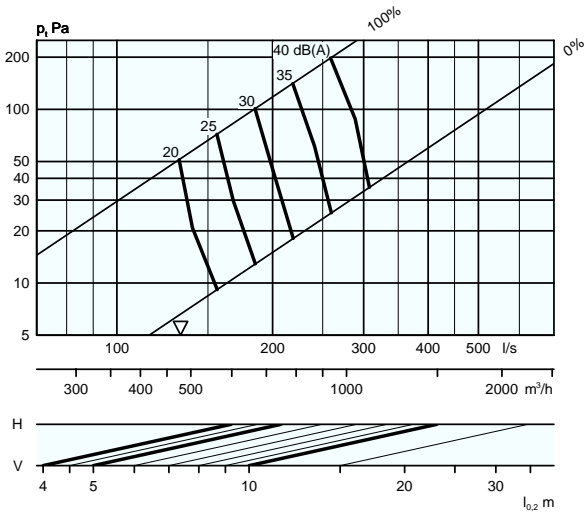
Air flow - Pressure drop - Sound level - Throw

- The graph gives data for a freely suspended ALC.
- These graphs should 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. For more accurate calculations, see the calculation

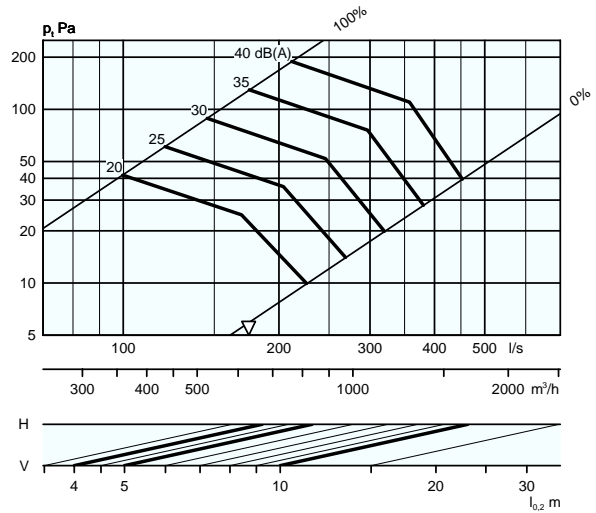
template in the chapter on Acoustics in the Technical Information section of the catalogue.

- ∇ = Min. airflow to obtain sufficient commissioning pressure.

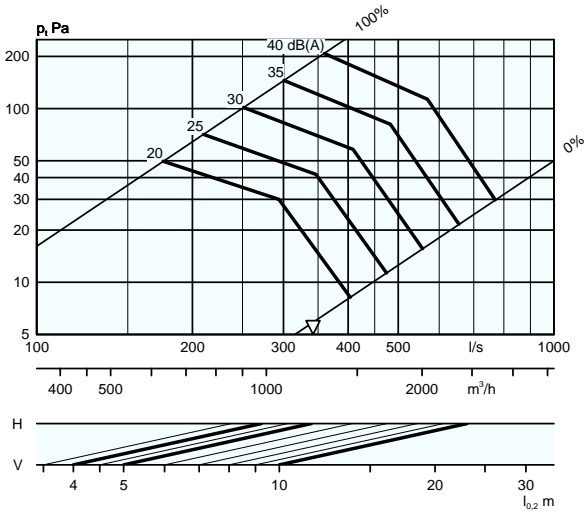
ALCa 400 + ALSc 315-400



ALCa 500 + ALSc 400-500 + CRPc-1-400



ALCa 630 + ALSc 500-630 + CRPc-1-500



DIMENSIONS

ALCa + ALSc

Size	ØA	B	C	ØD	Ød	E
250	500	504	332	199	249	679
315	600	622	388	249	314	740
400	730	767	488	314	399	800
500	900	887	588	399	499	880
630	1100	1037	718	499	629	1150

Size	F	G	H	ØJ	K	L
250	279	150	465	400	115	440
315	340	175	575	500	140	440
400	400	212	712	630	175	440
500	510	290	645	800	42	440
630	610	340	752	1000	62	600

Hole diameter = ØJ

WEIGHTS

Size ALCa	Weight, kg Manual without ALS	Weight, kg Motorized without ALS	Weight, kg Manual with ALS	Weight, kg Motorized with ALS
250	9,0	11,0	14,0	16,0
315	12,0	15,0	20,0	23,0
400	17,0	20,0	27,0	30,0
500	25,0	30,0	40,0	45,0
630	40,0	46,0	61,0	67,0

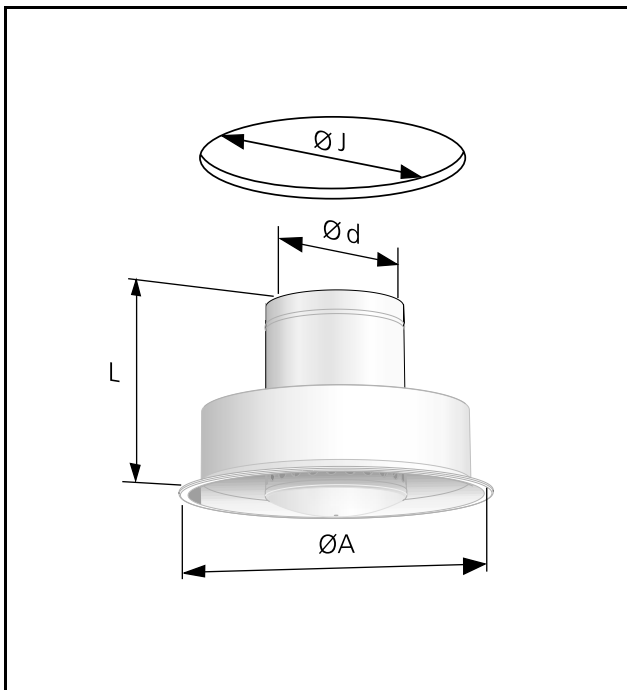


Figure 5. ALC.

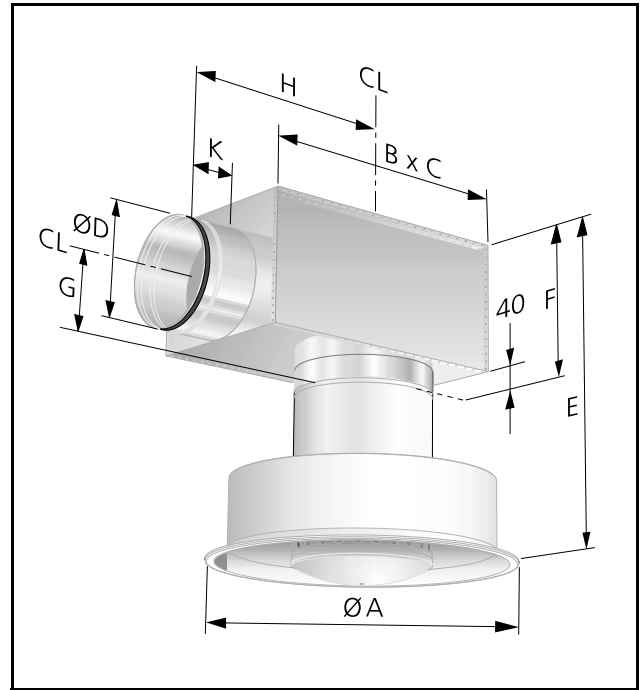


Figure 6. ALC + ALS size 200-250 to 315-400.

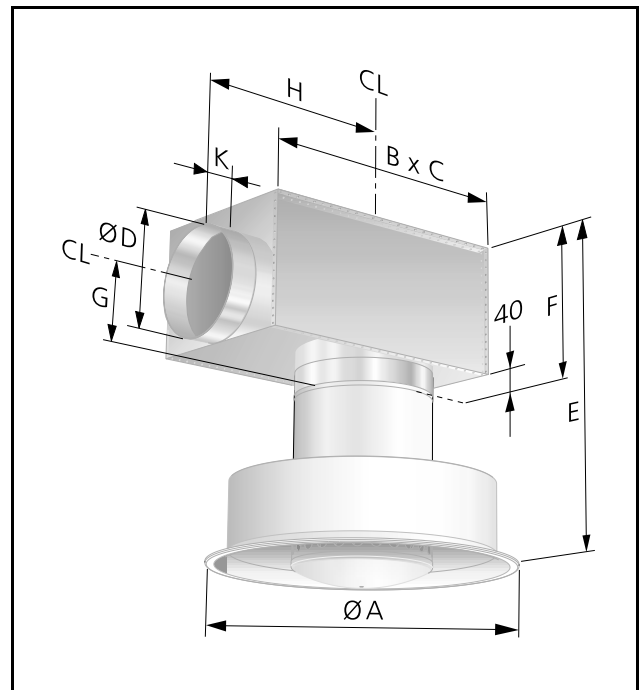


Figure 7. ALC + ALS size 400-500 and 500-630.



ALCa

ORDER KEY

Product designation

Circular ceiling terminal
for supply air ALCa -a -bbb

Manually operated: 1

Motorized: 2

Size: 250, 315, 400, 500, 630

Accessories

Plenum box ALSc -aaa -bbb

For ALCa:	250	ALSc:	200-250
	315		250-315
	400		315-400
	500		400-500
	630		500-630

Commissioning
damper CRPc-1 -bbb - 1

For ALCa:	500	CRPc-1:	400
	630		500

Controller VHCa

SPECIFICATION EXAMPLE

SD XX

Swegon's circular diffuser ALCa with ALSc plenum box, with the following functions:

- Adjustable horizontal/vertical spread pattern
- Powder coated in white
- ALS plenum box with commissioning damper with lockable adjustment, measurement function with low method error and internal acoustic lining

Size: ALCa a - bbb with ALSc aaa-bbb xx items