

# EAGLE Wall

Wall air diffusers with nozzles for supply air and flush mounting



## QUICK FACTS

- Rotatable nozzles
- 100% flexible distribution pattern
- Cleanable
- Adjustable slot for enhanced capacity
- Simple adjustment
- Used together with ALV commissioning box
- Standard colour White RAL 9003
  - 5 alternative standard colours
  - Other colours upon request

AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *)							
EAGLE Wall 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
300-150	300-150-100-B	15	54	20	72	33	119
400-150	400-150-125-B	24	86	29	104	42	151
400-200	400-200-160-B	37	133	46	166	60	216
550-250	550-250-200-B	52	187	70	252	85	306
550-300	550-300-250-B	90	324	105	378	120	432

The data specified in the table is applicable to 50 Pa total pressure when the slot is closed.

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

# Technical description

## Design

Rectangular supply air diffusers for installation in a wall. The diffuser face is equipped with aerodynamically shaped nozzles that are rotatable. The upper edge of the nozzle plate can be pulled out to expose a slot along the upper edge of the plate for enhanced air diffusion capacity.

## Materials and surface treatment

The diffuser face is made of sheet steel and aluminium. The ALV commissioning box is made of galvanized sheet steel. The interior and exterior surfaces of the air diffusers 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.

The nozzles are made of plastic (PP-polypropylene).

## Accessories

### Commissioning box:

ALV. Made of galvanized sheet steel. Contains removable commissioning damper, fixed measurement tapping and air distribution baffle. The commissioning box is available with two different connection options: rear and side connection respectively.

### Frame:

ALVT 1. For the aesthetic installation of the ALV commissioning box.

## Planning

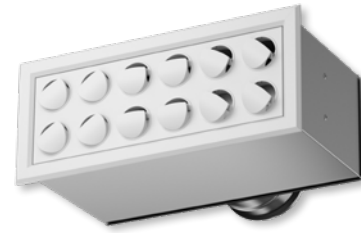
Each individual nozzle is rotatable through 360°. This offers an infinite number of air distribution direction options without changing the pressure drop and level of flow-generated sound emitted to the room. The diffuser face can be pulled down from the upper edge. This opens a perforated slot. This function can be utilised when enhanced air diffusion capacity is desirable.

If the air diffuser for some reason is situated near an inside corner, a satisfactory air distribution pattern can still be maintained by rotating nozzles to appropriate settings. For this purpose, use the optional 45° distribution pattern

The ALV commissioning box is well-suited for installation in 1200 mm plasterboard walls (600 mm centre to centre) and 900 mm plasterboard walls (450 mm centre to centre).

## Installation

1. Cut an opening in the wall according to the wall opening dimensions specified.
2. Place the commissioning box in the opening.
3. Sealant is applied between the commissioning box and mounting frame to avoid leakage. Insert the mounting frame into the commissioning box and secure it by means of screws in the short sides to the commissioning box and to the wall structure.
4. The assembly and dismantling of the component parts are shown in Figure 1.
5. Press the diffuser face to engage it in the mounting frame. See Figure 1.



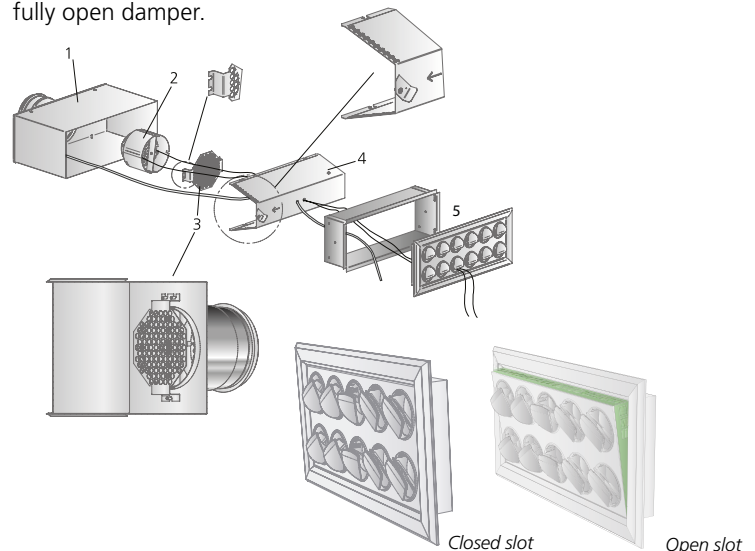
## Commissioning

Commissioning must be carried out with the diffuser face in place. Pull the measuring hose and damper adjustment cords out of the air diffuser through a nozzle. Connect a manometer to the measurement hose. The desired commissioning pressure be computed by applying the rated coefficient of performance of the air diffuser. Set the damper to the correct blade position, tie a commissioning knot in the damper cords to indicate the damper position. Then lock the cords against the locking screw in the air distribution baffle.

The rated coefficient of performance (K-factor) is specified on the identification label of the product and in the relevant commissioning instructions at [www.swegon.com](http://www.swegon.com).

## Maintenance

Clean the air diffuser when necessary using lukewarm water with added detergent. The duct system can be accessed after opening the diffuser face by pulling it down from the upper edge, withdrawing the air distribution baffle and lowering the fully open damper.



To secure baffle (4) in bayonet catch and to secure the octagonal perforated face plate (3) against the duct connection.

1. Commissioning box
2. Damper action, bayonet catch
3. Octagonal air distribution plate
4. Air distribution plate
5. Mounting frame + air diffuser

Figure 1. Installation.

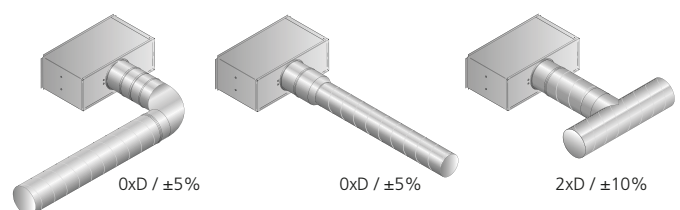


Figure 2. Installation alternatives, applies for all connections (B, K)

## 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.
- The throw,  $l_{0,2}$ , is measured under isothermal conditions.
- The diagrams illustrate data for the EAGLE W mounted with its top edge 200 mm from the ceiling.
- Recommended max. permissible temperature below room temp.: 12 K for standard nozzle settings.
- 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).

$L_w$  = 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

### EAGLE W + ALV - Supply Air

Sound power level,  $L_w$  (dB)

Table,  $K_{ok}$

Size	Mid-frequency (octave band) Hz							
EAGLE W + ALV	63	125	250	500	1000	2000	4000	8000
300-150	-2	7	5	-2	0	-5	-15	-21
400-150	-1	5	5	0	-1	-6	-15	-20
400-200	1	6	6	0	0	-7	-16	-21
550-250	-3	6	6	1	-1	-7	-15	-19
550-300	0	7	4	3	-1	-9	-17	-20
Tol. $\pm$	2	2	2	2	2	2	2	2

Sound Attenuation  $\Delta L$  (dB)

Table,  $\Delta L$

Size	Mid-frequency (octave band) Hz							
EAGLE W + ALV	63	125	250	500	1000	2000	4000	8000
300-150	20	12	8	2	6	13	7	7
400-150	18	8	7	5	6	7	10	12
400-200	14	11	4	3	5	7	5	5
550-250	11	11	3	4	2	3	5	8
550-300	13	9	2	3	5	3	4	5
Tol. $\pm$	2	2	2	2	2	2	2	2

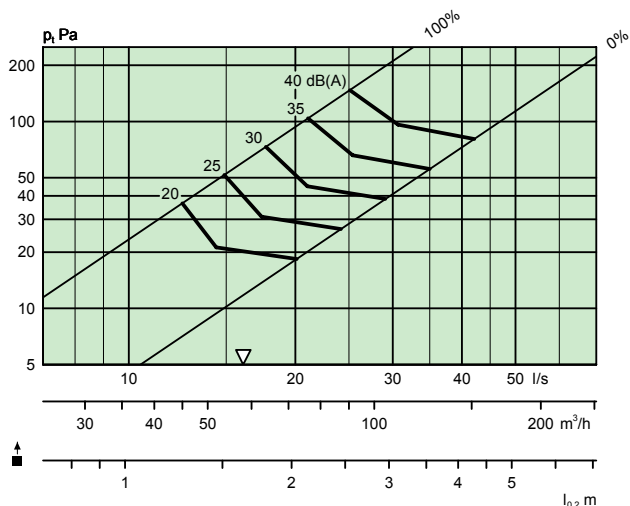
## Sizing diagram

### EAGLE W + ALV - Supply Air

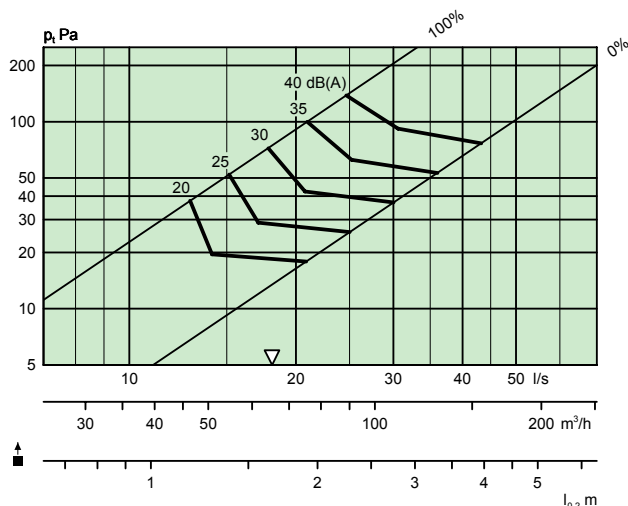
#### Air flow - Pressure drop - Sound level - Throw

- The diagrams should not be used for commissioning.
- $\nabla$  = Min. airflow required for obtaining sufficient commissioning pressure.
- The dB(A) values are for rooms with normal acoustic absorption (4 dB room attenuation).
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.
- Nozzle setting for long throw length: lengthen the  $l_{0,2}$  factor;  $1.8 \times l_{0,2}$ . See figure: Nozzle settings.

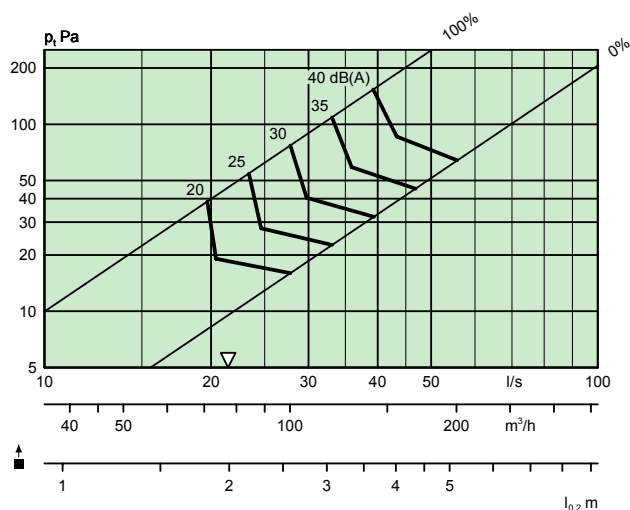
EAGLE W 300-150 + ALV 300-150-100-B/K, Closed slot



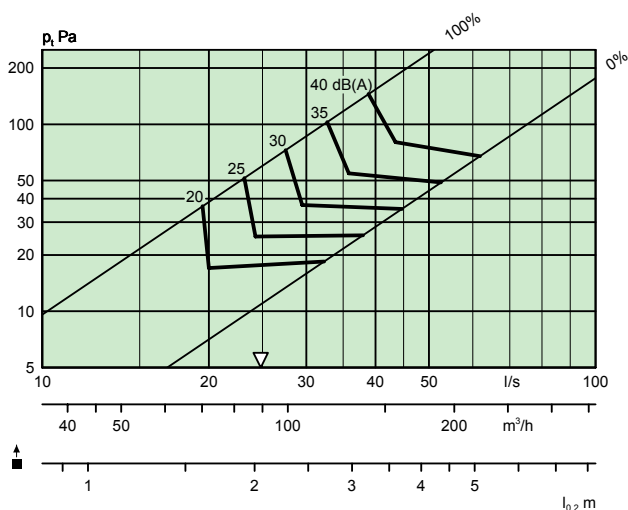
EAGLE W 300-150 + ALV 300-150-100-B/K, Open slot



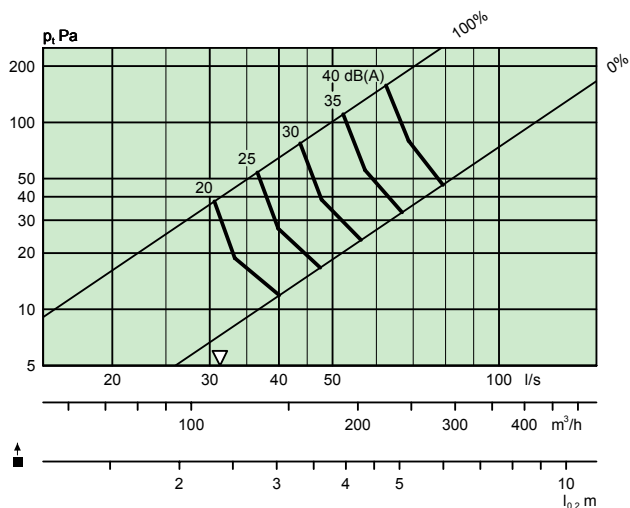
EAGLE W 400-150 + ALV 400-150-125-B/K, Closed slot



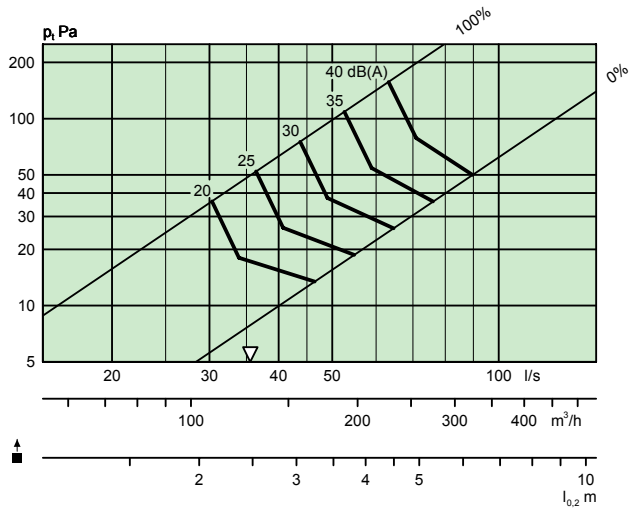
EAGLE W 400-150 + ALV 400-150-125-B/K, Open slot



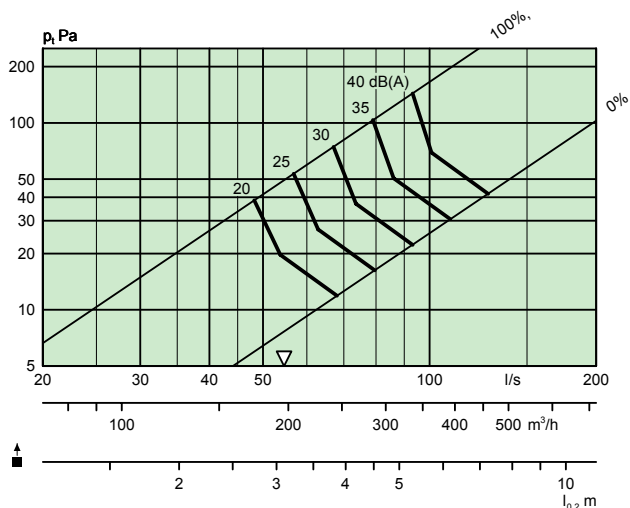
EAGLE W 400-200 + ALV 400-200-160-B/K, Closed slot



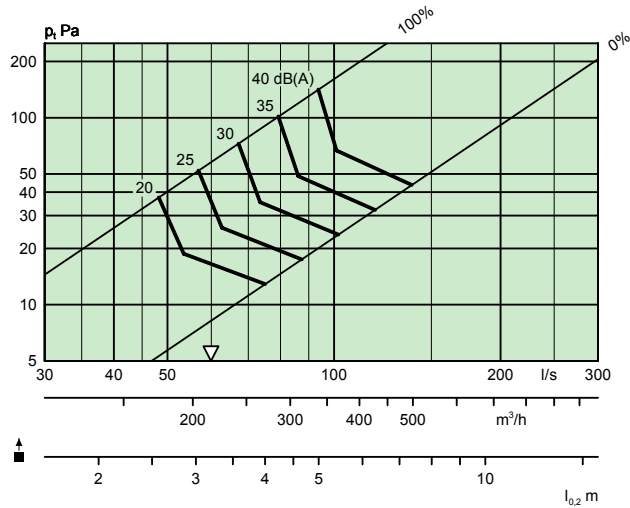
EAGLE W 400-200 + ALV 400-200-160-B/K, Open slot



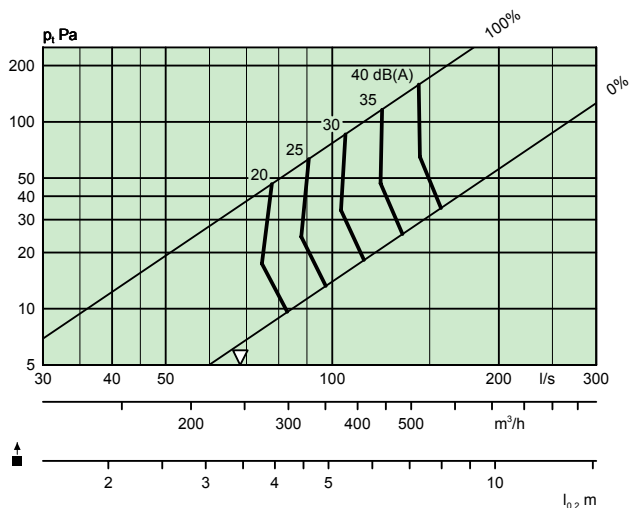
EAGLE W 550-250 + ALV 550-250-200-B/K, Closed slot



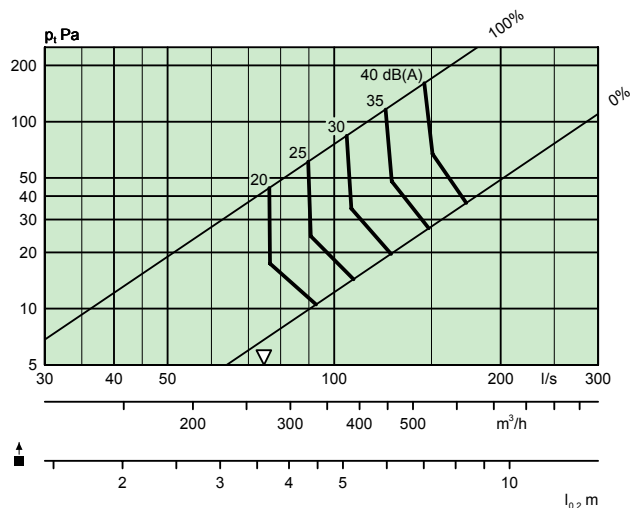
EAGLE W 550-250 + ALV 550-250-200-B/K, Open slot



EAGLE W 550-300 + ALV 550-300-250, Closed slot



EAGLE W 550-300 + ALV 550-300-250, Open slot



# Dimensions and weight

## EAGLE W

Size	A	B	ØD	F	G	G2	K	L	M	I x J	Weight, kg
300-150	330	180	99	295-375	225-305	270-350	85	145-225	195-275	305 x 155	3,0
400-150	430	180	124	295-375	225-305	331-411	85	180-260	240-320	405 x 155	3,5
400-200	430	230	159	315-395	225-305	331-411	100	145-225	225-305	405 x 205	4,0
550-250	580	280	199	360-440	251-331	371-451	120	145-225	245-325	555 x 255	6,5
550-300	580	330	249	385-465	251-331	425-505	145	145-225	275-355	555 x 305	7,5

Size of opening = I x J

The G2, K, L and M dimensions are applicable to a side-connected commissioning box.

## ALVT 1. frame

Size	A	B	L
300-150	330	180	230
400-150	430	180	230
400-200	430	230	230
550-250	580	280	255
550-300	580	330	255

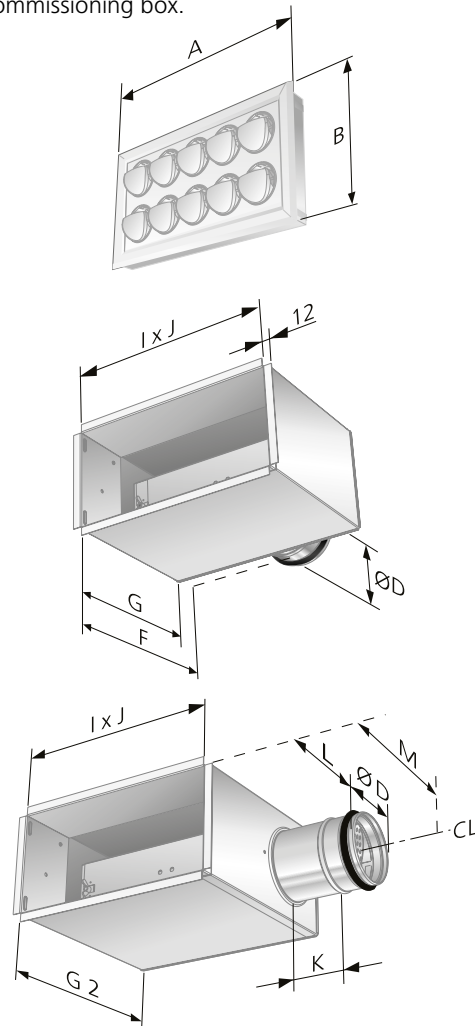


Figure 3. EAGLE W with ALV commissioning box.  
CL = Centerline.

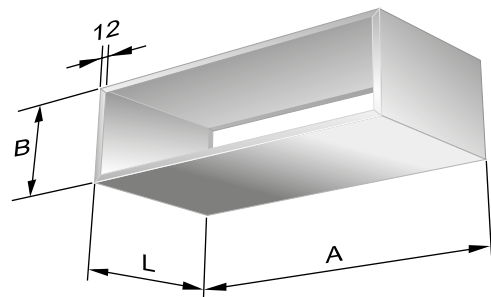


Figure 4. ALVT 1d frame.

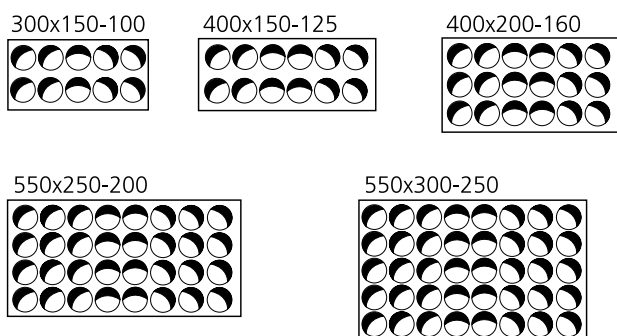


Figure 5. Standard nozzle pattern. Short throw length.

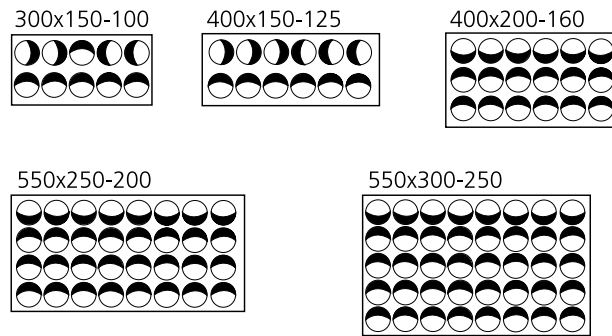


Figure 6. Nozzle pattern, long throw length.

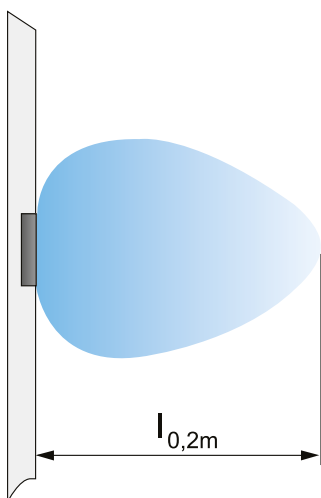


Figure 7. Isovel. Standard distribution pattern. Short throw length).

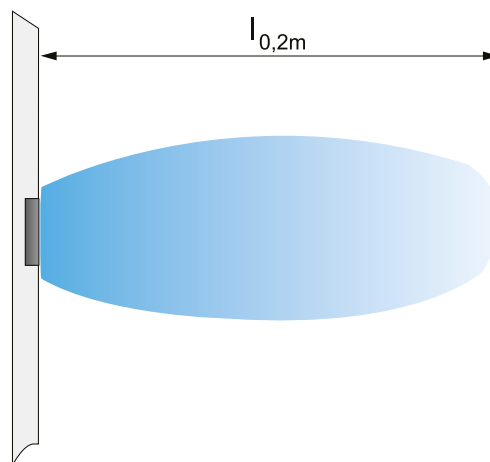


Figure 8. Isovel. Distribution pattern, long throw length.

# Order key

## Product

Rectangular wall diffuser with nozzles      EAGLE W   b   -aaa   -bbb

Version

Nom. Width in mm:  
300, 400, 550

Nom. height in mm:  
150, 200, 250, 300

Standard range

- Size: 300-150
- 400-150
- 400-200
- 550-250
- 550-300

## Accessories

Commissioning box      ALV   e   -aaa-bbb-ccc   -d

Version:

For size:	ALV
300-150	300-150-100
400-150	400-150-125
400-200	400-200-160
550-250	550-250-200
550-300	550-300-250

Connection alternatives:

- Rear = B
- Short side = K

Frame      ALVT 1   e   -aaa - bbb

Version:

- Size: 300-150
- 400-150
- 400-200
- 550-250
- 550-300

# Specification example

Swegon's complete rectangular type EAGLE W nozzle air diffusers for wall mounting with type ALV commissioning box and the following functions:

- 100% flexible distribution pattern
- Individually adjustable nozzles
- Powder paint sprayed and baked white finish
- Cleanable ALV commissioning box with removable adjustment damper, measuring method with low systematic error.

Size:                    EAGLE Wb - aaa - bbb with      xx items  
                                 ALVe aaa - bbb - ccc - d

Accessories:

Frame:                ALVT 1e -aaa - bbb                    xx items