

ADQ

Ceiling Diffuser with Fixed Deflectors



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Description

ADQ is a ceiling diffuser. The product is mainly intended for air supply and can be used for air extract as well. The product is installed into ceilings. The field of application is offices, shops, medical rooms, school classrooms, etc.

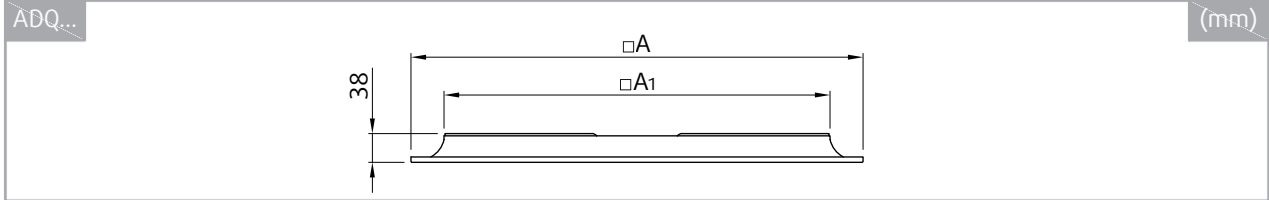
Accessories

- PB-VVK-S: Plenum Box
- UR-ADQ: Mounting Frame
- R-ADQ: Adjustment Damper

Design

ADQ is manufactured from anodized aluminium with satin finish. The product is powder painted to RAL9003 (signal white) as standard. Other RAL colours are available upon request.

Dimensions & Weights

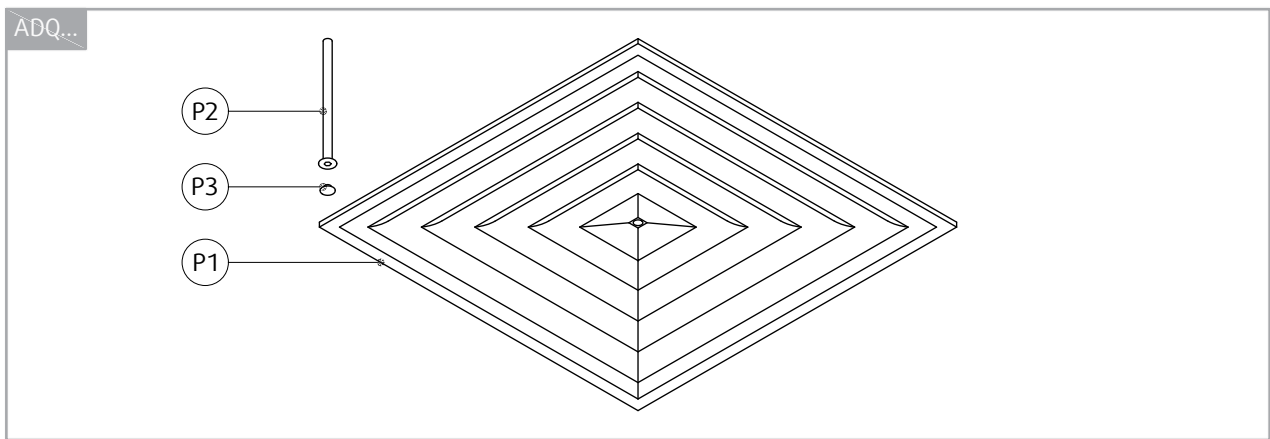


| DN | $\square A$ | $\square A1$ | A_v | m |
|-----|-------------|--------------|----------------|-----|
| | mm | | m ² | kg |
| 250 | 248 | 161 | 0,0095 | 0,6 |
| 300 | 298 | 211 | 0,0175 | 0,7 |
| 400 | 398 | 311 | 0,0370 | 1,2 |
| 500 | 498 | 411 | 0,0675 | 1,9 |
| 600 | 598 | 511 | 0,1100 | 3,0 |
| 625 | 623 | 536 | 0,1230 | 3,2 |



Air flow visualisation

Product parts



Legend

- 1 - Front panel
- 2 - Screw (DIN7991)
- 3 - Screw cap

Ordering Codes

Size (mm) ¹

250

300

400

500

600

625

600/250

600/300

600/400

600/500

Surface finish ²

SW Signal white (RAL9003, gloss 30%)

E Anodized aluminium colour paint

RALXXXX Other RAL colour

NOTES:

¹ For the ADQ types with 2 sizes (600/xxx):

The first size (600) is the overall diffuser size.

The second size determines the boundary dimensions of the diffuser effective area.

This type of diffusers is foreseen for installation in the T-bar suspended ceiling.

² If no colour is defined in ordering code, the diffuser will be delivered in signal white colour RAL9003 gloss 30.

Example of the Ordering Code

ADQ-400-SW

ADQ ceiling diffuser size 400, without damper. In signal white colour (RAL9003).

Accessories

PB-VVK-S

Plenum Box



Description

The PB-VVK-S is square face plenum box with a horizontal or a vertical connection and internal or external insulation.

Design

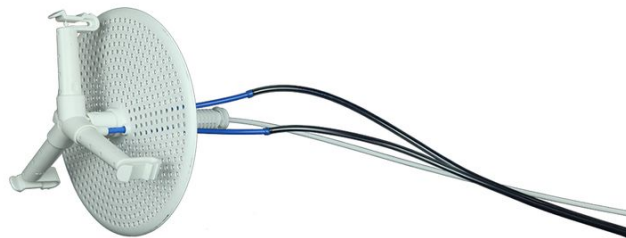
The plenum box is made of galvanized sheet as a standard.

There are 2 types of connection:

- D1: a simple spigot without a seal, with a damper
- D2: a pressed spigot with a seal including the Zeus damper

The product can be equipped by 15 mm thick internal insulation and/or 6 mm thick external insulation.

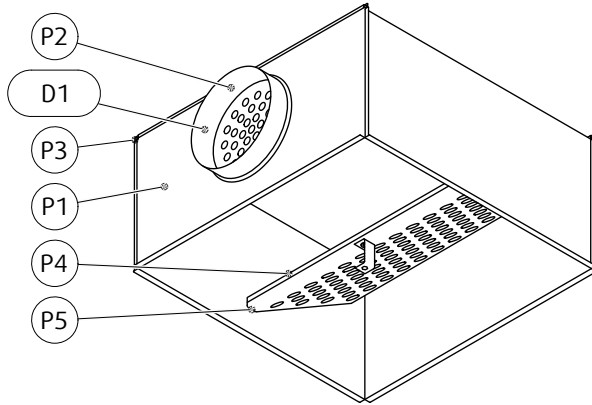
Zeus damper



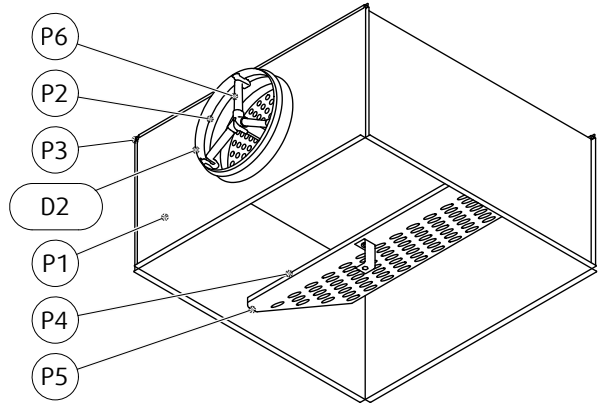
Zeus is a control damper of the PB-VVK-S...D2 plenum box. It contains impulse tubes for measuring differential pressure using a portable measuring device. It can be adjusted manually using a cable gearing.

Product Parts

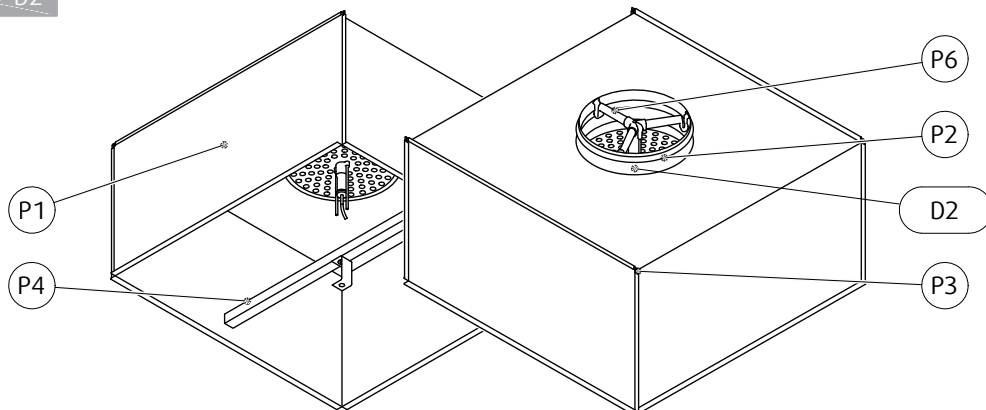
PB-VVK-S...H-D1



PB-VVK-S...H-D2



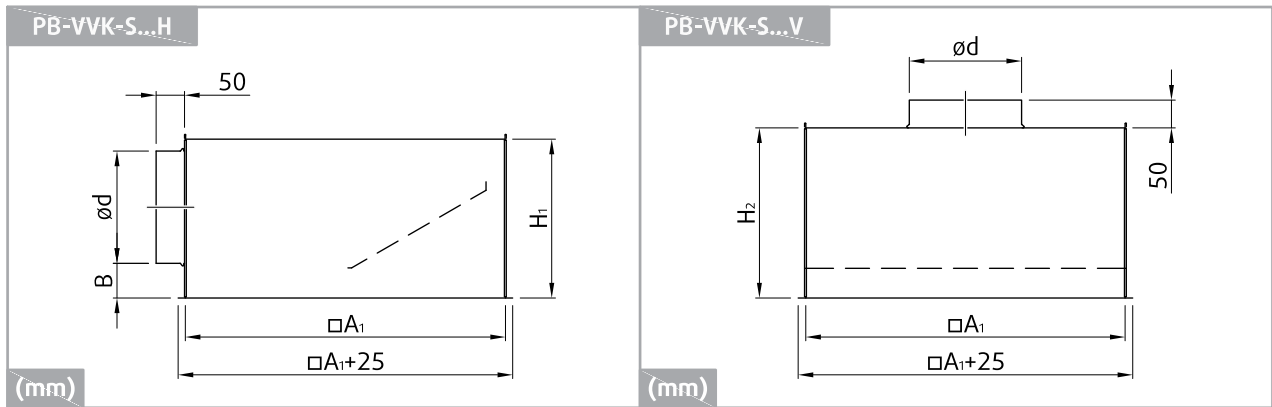
PB-VVK-S...V-D2



Legend

- P1** Casing (can be equipped by internal/external insulation)
- P2** Duct connection
- D1** Spigot without a seal
- D2** Spigot with a seal including the Zeus damper
- P3** Bendable hanger
- P4** Bridge with a connection to a diffuser
- P5** Mesh screen
- P6** Zeus damper

Dimensions



| PB-VVK-S- | □A ₁ | H ₁ | H ₂ | ød | B | m | |
|-----------|-----------------|----------------|----------------|-----|----|--------------|--------------|
| | | PB-VVK-S...H | PB-VVK-S...V | | | PB-VVK-S...H | PB-VVK-S...V |
| mm | | | | | | kg | |
| 300-160 | 274 | 240 | 200 | 158 | 62 | 2,6 | 2,4 |
| 400-160 | 366 | 240 | 200 | 158 | | 3,6 | 3,4 |
| 400-200 | 366 | 280 | 200 | 198 | | 4,0 | 3,7 |
| 500-200 | 466 | 280 | 200 | 198 | | 5,3 | 4,7 |
| 600-200 | 566 | 280 | 300 | 198 | | 6,7 | 7,2 |
| 600-250 | 566 | 330 | 300 | 248 | | 7,4 | 7,3 |
| 625-200 | 582 | 280 | 300 | 198 | | 7,1 | 7,6 |
| 625-250 | 582 | 330 | 300 | 248 | | 7,8 | 7,7 |
| 800-315 | 740 | 400 | 300 | 313 | 67 | 13,6 | 12,0 |
| 825-315 | 774 | 400 | 300 | 313 | | 14,2 | 12,6 |

Ordering Codes

Size: Inlet-Outlet

300-160

400-160

400-200

500-200

600-200

600-250

625-200

625-250

800-315

825-315

Mesh screen

S Supply with mesh screen

E Extract without mesh screen

Connection

H Horizontal (from the side)

V Vertical (from the top)

Damper

D1 Untight spigot with damper ¹

D2 Pressed tight spigot with the Zeus damper ¹

Insulation

I2 With internal insulation ²

J With external insulation ²

NOTES:

¹ If the spigot type is not entered in the ordering code, type "D1" will be supplied by default. It is not possible to order the Zeus damper for the product PB-VVK-S with horizontal connection. Plenum boxes with a vertical spigot D2 are supplied without a mesh screen.

² The internal and external insulation also can be applied together. In case the insulation type is not entered in the ordering code, the product PB-VVK-S will be supplied without insulation.

Example of the Ordering Code

PB-VVK-S-300-160-E-H-D1-I2

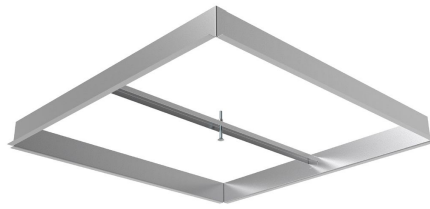
Square plenum box with nominal size 300 mm, spigot with diameter 160 mm, extract without mesh screen, horizontal connection (from the side), spigot type D1, internal insulation.

Plenum box selection diagram

| PB-VVK-S | | | | | |
|----------|----|----|----|----|---|
| | H | V | | | |
| | | | | | |
| | D1 | D2 | D1 | D2 | |
| | | | | | |
| S | | ✓ | ✓ | ✓ | |
| I2 | | ✓ | ✓ | ✓ | ✓ |
| J | | ✓ | ✓ | ✓ | ✓ |

UR-ADQ

Mounting Frame

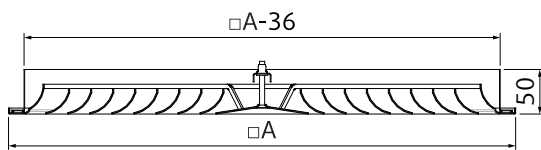


Description

UR-ADQ is a mounting frame for ADQ diffuser made from galvanized steel. It enables to install ADQ without plenum box.

NOTE: The UR-ADQ mounting frame excludes the use of any other accessory with the same diffuser.

Dimensions



| DN | □A |
|-----|-----|
| | mm |
| 250 | 248 |
| 300 | 298 |
| 400 | 398 |
| 500 | 498 |
| 600 | 598 |
| 625 | 623 |

Ordering Codes

Size A × A

250

300

400

500

600

625

Example of the Ordering Code

UR-ADQ-400

Mounting frame for ADQ, size 400.

R-ADQ

Adjustment Damper

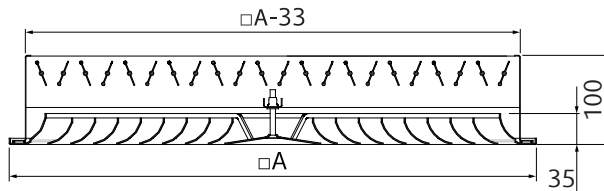


Description

R-ADQ is an opposed action blade adjustment damper for ADQ made from galvanized steel. It enables installation and flow volume adjustment on ADQ installed without plenum box.

NOTE: The R-ADQ adjustment damper excludes the use of any other accessory with the same diffuser.

Dimensions



| DN | □A |
|-----|-----|
| | mm |
| 250 | 248 |
| 300 | 298 |
| 400 | 398 |
| 500 | 498 |
| 600 | 598 |
| 625 | 623 |

Ordering Codes

Size A × A

250

300

400

500

600

625

Example of the Ordering Code

R-ADQ-400

Adjustment damper for ADQ, size 400.

Quick Selection

Air flow volume q_v at different A-weighted sound power levels L_{WA}

| Item | 25 dB(A) | | 30 dB(A) | | 35 dB(A) | |
|------------------------------------------|-------------------|-----|-------------------|-----|-------------------|-----|
| | m ³ /h | l/s | m ³ /h | l/s | m ³ /h | l/s |
| ADQ-250-SW + PB-VVK-S-250-160-S-H-D1 | 115 | 32 | 151 | 42 | 182 | 51 |
| ADQ-300-SW + PB-VVK-S-300-160-S-H-D1 | 151 | 42 | 201 | 56 | 243 | 68 |
| ADQ-400-SW + PB-VVK-S-400-200-S-H-D1 | 255 | 71 | 351 | 98 | 420 | 117 |
| ADQ-500-SW + PB-VVK-S-500-250-S-H-D1 | 438 | 122 | 559 | 155 | 657 | 182 |
| ADQ-600-SW + PB-VVK-S-600-315-S-H-D1 | 620 | 172 | 809 | 225 | 964 | 268 |
| ADQ-625-SW + PB-VVK-S-625-315-S-H-D1 | 643 | 179 | 817 | 227 | 970 | 270 |
| ADQ-600/250-SW + PB-VVK-S-250-160-S-H-D1 | 115 | 32 | 151 | 42 | 182 | 51 |
| ADQ-600/300-SW + PB-VVK-S-300-160-S-H-D1 | 151 | 42 | 201 | 56 | 243 | 68 |
| ADQ-600/400-SW + PB-VVK-S-400-200-S-H-D1 | 255 | 71 | 351 | 98 | 420 | 117 |
| ADQ-600/500-SW + PB-VVK-S-500-250-S-H-D1 | 438 | 122 | 559 | 155 | 657 | 182 |

NOTE: The working points were measured with open adjustment damper.

Air flow volume q_v at different A-weighted sound pressure levels L_{pA} with 10m² absorption area

| Item | 20 dB(A) | | 25 dB(A) | | 30 dB(A) | |
|------------------------------------------|-------------------|-----|-------------------|-----|-------------------|-----|
| | m ³ /h | l/s | m ³ /h | l/s | m ³ /h | l/s |
| ADQ-250-SW + PB-VVK-S-250-160-S-H-D1 | 105 | 29 | 144 | 40 | 176 | 49 |
| ADQ-300-SW + PB-VVK-S-300-160-S-H-D1 | 137 | 38 | 192 | 53 | 235 | 65 |
| ADQ-400-SW + PB-VVK-S-400-200-S-H-D1 | 210 | 58 | 336 | 93 | 406 | 113 |
| ADQ-500-SW + PB-VVK-S-500-250-S-H-D1 | 399 | 111 | 538 | 149 | 637 | 177 |
| ADQ-600-SW + PB-VVK-S-600-315-S-H-D1 | 566 | 157 | 776 | 216 | 934 | 259 |
| ADQ-625-SW + PB-VVK-S-625-315-S-H-D1 | 595 | 165 | 786 | 218 | 940 | 261 |
| ADQ-600/250-SW + PB-VVK-S-250-160-S-H-D1 | 105 | 29 | 144 | 40 | 176 | 49 |
| ADQ-600/300-SW + PB-VVK-S-300-160-S-H-D1 | 137 | 38 | 192 | 53 | 235 | 65 |
| ADQ-600/400-SW + PB-VVK-S-400-200-S-H-D1 | 210 | 58 | 336 | 93 | 406 | 113 |
| ADQ-600/500-SW + PB-VVK-S-500-250-S-H-D1 | 399 | 111 | 538 | 149 | 637 | 177 |

NOTE: The working points were measured with open adjustment damper.

Technical Parameters

Legend

$L_{0,2}$ (m) Air throw length with terminal velocity 0,2 m/s

L_x (m) Air throw length calculated for specific terminal velocity

x (m/s) Terminal velocity in range of 0,1 m/s ... 1 m/s

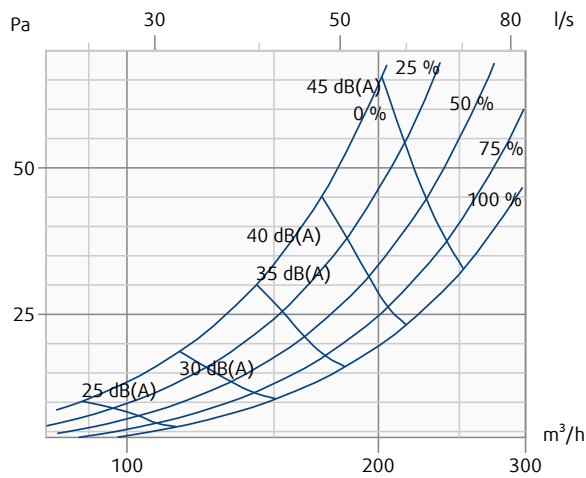
0%, 25%, 50%, 75%, 100% The plenum box damper positions in pressure drop/noise diagrams are represented as percentage. 0% is full damper restriction. 100% is fully open damper.

Calculation of Air Throw for Different Terminal Velocities

$$L_x = L_{0,2} \cdot 0,2/x$$

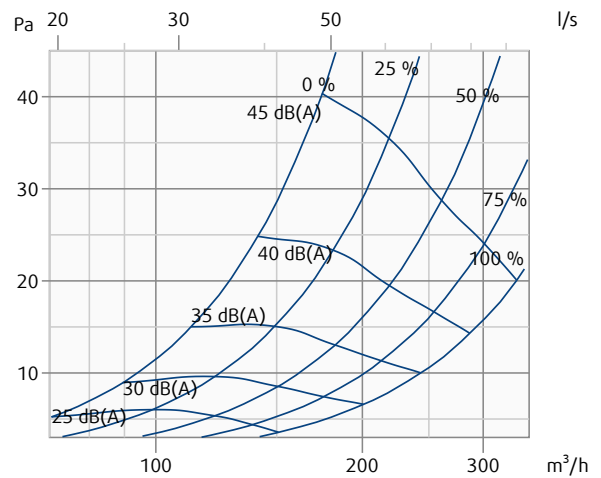
ADQ-250-SW + PB-VVK-S-250-160-S-H-D1

Pressure drop & A-weighted sound power level in dB(A)



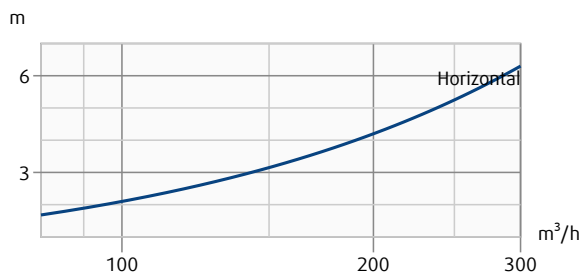
ADQ-300-SW + PB-VVK-S-300-160-S-H-D1

Pressure drop & A-weighted sound power level in dB(A)



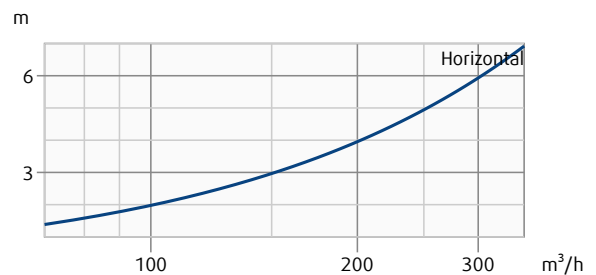
ADQ-250-SW + PB-VVK-S-250-160-S-H-D1

Throw length (terminal velocity 0.2 m/s)



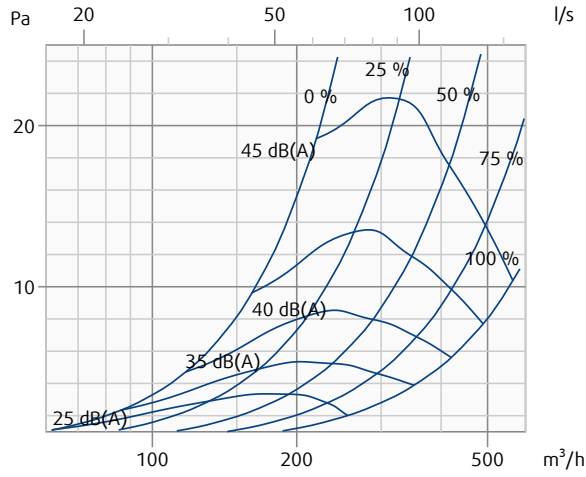
ADQ-300-SW + PB-VVK-S-300-160-S-H-D1

Throw length (terminal velocity 0.2 m/s)



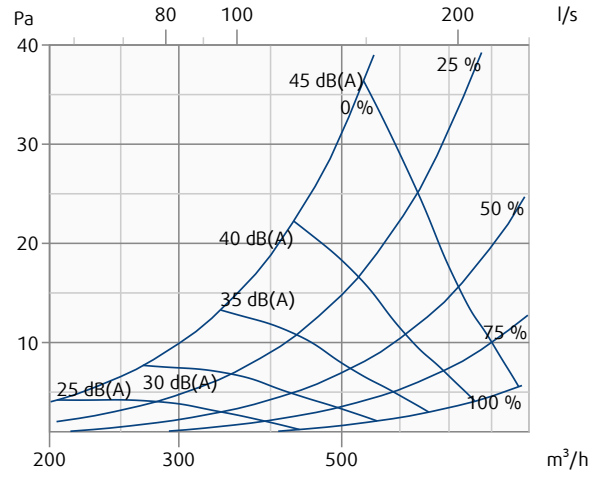
ADQ-400-SW + PB-VVK-S-400-200-S-H-D1

Pressure drop & A-weighted sound power level in dB(A)



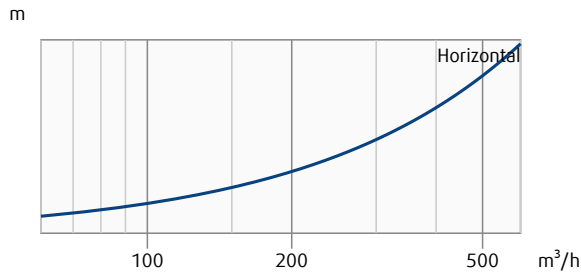
ADQ-500-SW + PB-VVK-S-500-250-S-H-D1

Pressure drop & A-weighted sound power level in dB(A)



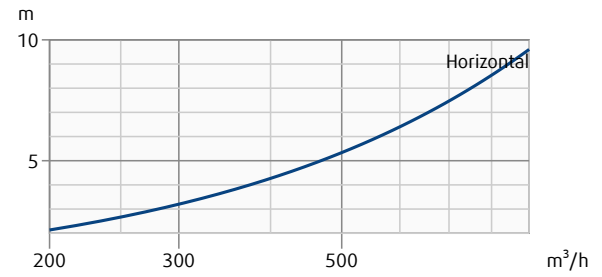
ADQ-400-SW + PB-VVK-S-400-200-S-H-D1

Throw length (terminal velocity 0.2 m/s)



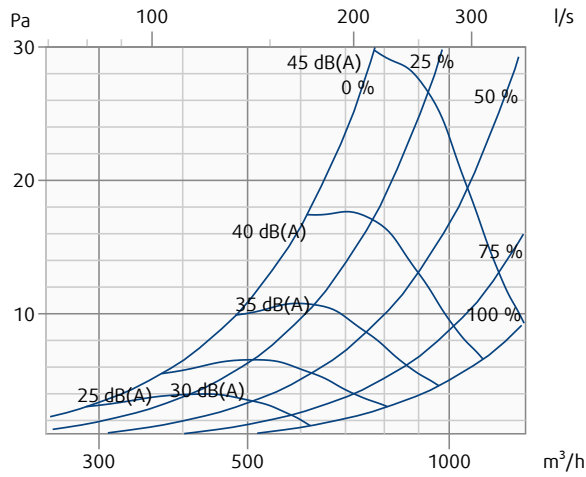
ADQ-500-SW + PB-VVK-S-500-250-S-H-D1

Throw length (terminal velocity 0.2 m/s)



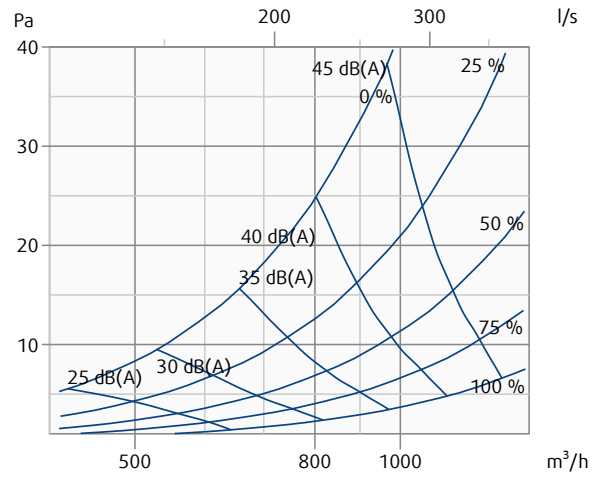
ADQ-600-SW + PB-VVK-S-600-315-S-H-D1

Pressure drop & A-weighted sound power level in dB(A)



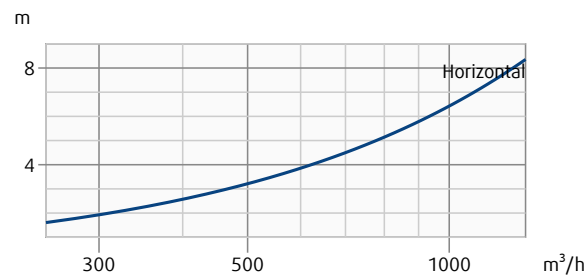
ADQ-625-SW + PB-VVK-S-625-315-S-H-D1

Pressure drop & A-weighted sound power level in dB(A)



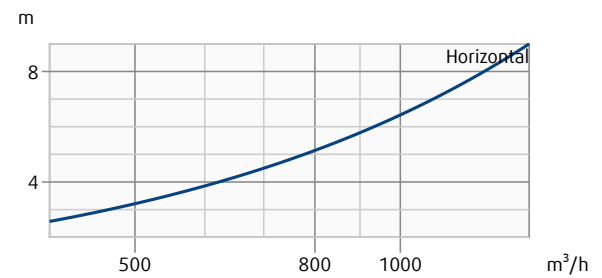
ADQ-600-SW + PB-VVK-S-600-315-S-H-D1

Throw length (terminal velocity 0.2 m/s)



ADQ-625-SW + PB-VVK-S-625-315-S-H-D1

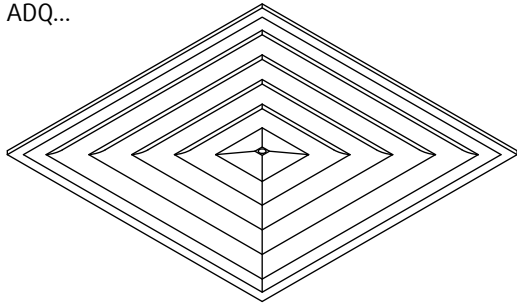
Throw length (terminal velocity 0.2 m/s)



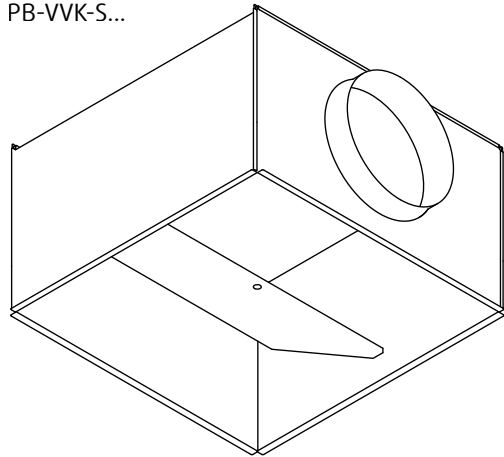
Installation



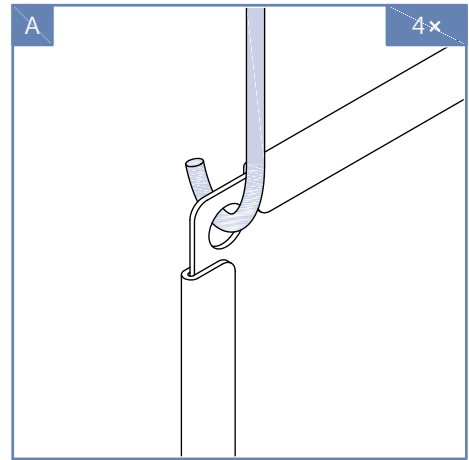
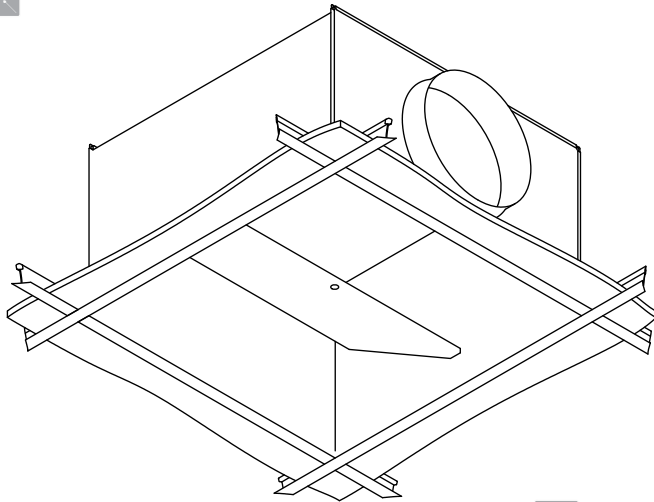
ADQ...



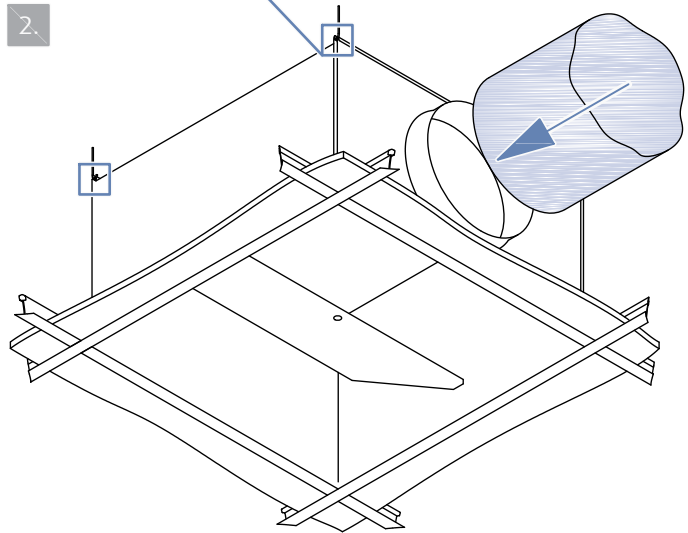
PB-VVK-S...



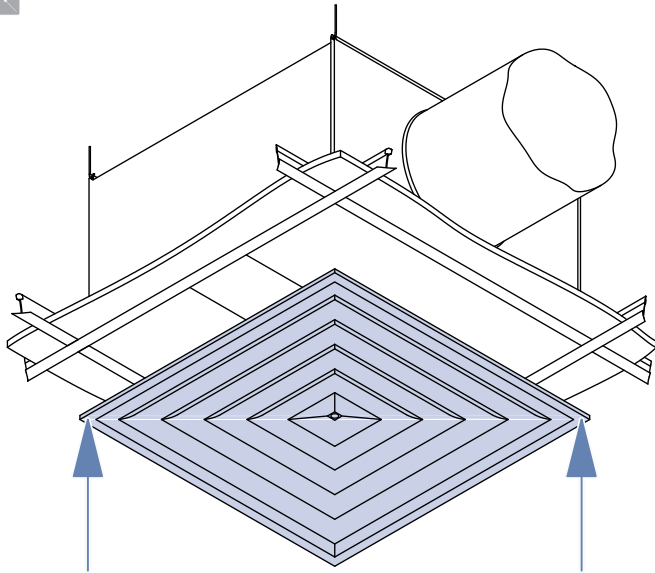
1.



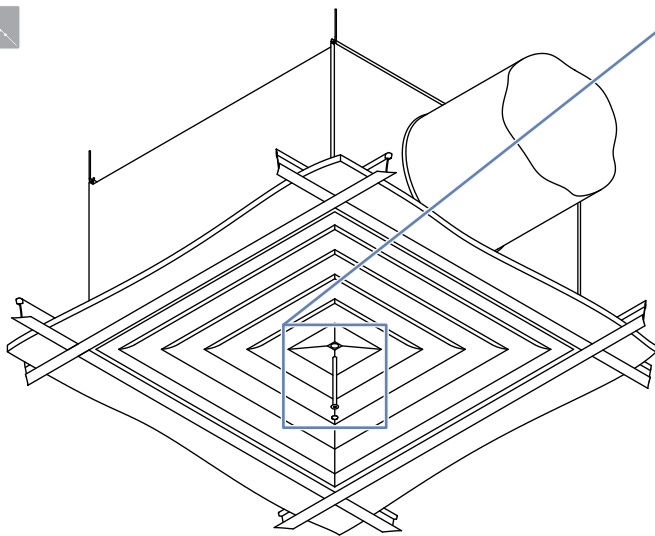
2.



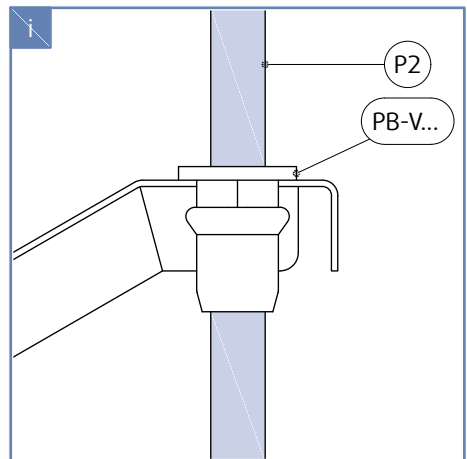
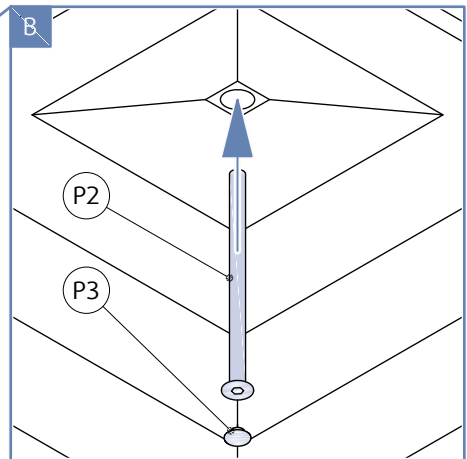
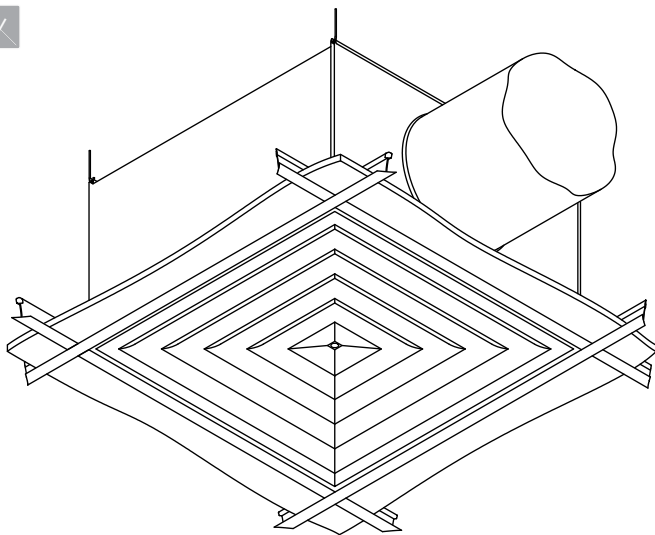
3.



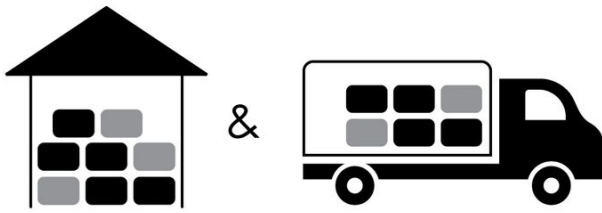
4.



✓




Transport, Storage and Operation



 °C -40 °C ... +50 °C

 % ≤ 95%



 °C -20 °C ... +50 °C

 % ≤ 95%

Supplement

Any deviations from the technical specifications contained herein and the terms should be discussed with the manufacturer. We reserve the right to make any changes to the product without prior notice, provided that these changes do not affect the quality of the product and the required parameters. Current information on all products is available on design.systemair.com.



Handbook_ADQ_en-GB

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