

CDD/CDR

Circular ceiling diffuser for supply air - Flat upper section



QUICK FACTS

- Spread pattern can be shielded
- Used with commissioning box ALS
- Cleanable
- Adjustable slot
- Perforated diffuser face = CDD
- Non-perforated diffuser face = CDR
- Standard colour White RAL 9003
 - 5 alternative standard colours
 - Other colours upon request

| AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *) | | | | | | | |
|---|---------|-----------|-------------------|-----------|-------------------|-----------|-------------------|
| CDD (CDR) | | 25 dB(A) | | 30 dB(A) | | 35 dB(A) | |
| Size | | l/s | m ³ /h | l/s | m ³ /h | l/s | m ³ /h |
| 100 | | 33 (24) | 119 (86) | 37 (28) | 133 (101) | 44 (34) | 158 (122) |
| 125 | | 44 (32) | 158 (115) | 49 (37) | 176 (133) | 56 (44) | 202 (158) |
| 160 | | 70 (61) | 252 (220) | 82 (71) | 295 (256) | 95 (81) | 342 (292) |
| 200 | | 95 (80) | 342 (288) | 110 (91) | 396 (328) | 120 (105) | 432 (378) |
| 250 | | 115 (100) | 414 (360) | 135 (120) | 486 (432) | 160 (140) | 579 (504) |
| 315 | | 150 (140) | 540 (504) | 180 (165) | 648 (594) | 210 (190) | 759 (684) |
| CDD (CDR) | ALS | 25 dB(A) | | 30 dB(A) | | 35 dB(A) | |
| Size | Size | l/s | m ³ /h | l/s | m ³ /h | l/s | m ³ /h |
| 100 | 80-100 | 20 (21) | 72 (76) | 26 (27) | 94 (97) | 32 (32) | 115 (115) |
| 125 | 100-125 | 27 (26) | 97 (94) | 35 (33) | 126 (119) | 43 (41) | 155 (148) |
| 160 | 125-160 | 46 (46) | 166 (166) | 57 (58) | 205 (209) | 70 (72) | 252 (260) |
| 200 | 160-200 | 68 (69) | 245 (248) | 82 (82) | 295 (295) | 100 (100) | 360 (360) |
| 250 | 200-250 | 92 (90) | 331(324) | 120 (110) | 432 (396) | 140 (140) | 504 (504) |
| 315 | 250-315 | 135 (140) | 486 (504) | 160 (155) | 576 (558) | 190 (190) | 684 (684) |

Data applies to 360° spread pattern. Data for CDD in combination with ALS commissioning box is stated for a total pressure drop of 50 Pa. Values in brackets are for CDR.

*) Lp10A = Sound pressure incl. A-filter with 4 dB room attenuation and 10 m² room absorption area.

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Technical description

Design

The CDR and CDD consist of two parts: a flat upper section with a connection spigot having a rubber sealing ring, and a removable diffuser face. Between the upper section and the diffuser face there is a slot which has two alternative positions. The diffuser face of the CDR is non-perforated that of the CDD is perforated. Both CDD and CDR are equipped with acoustic insulation.

Materials and surface treatment

The upper section is manufactured in galvanized sheet steel. The diffuser face is made of sheet steel. The complete diffuser is painted both internally and externally.

- 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.

Accessories

Commissioning box:

ALS. Is made of galvanized sheet steel and includes removable commissioning damper, fixed measurement unit and acoustic lining with a reinforced surface layer, to Fire Resistance Class B-s1,d0 according to EN ISO 11 925-2. Tightness class C on the housing according to SS-EN 12237.

Sector baffle:

SAV. To shield the spread pattern.

Project planning

The diffuser has a completely flat upper surface, which means that it can be mounted fully sealed onto a concrete ceiling (Dimension for hole cut = nom. connection dimension + 5 mm).

Installation

When suspended freely, the inlet spigot of the diffuser is fixed to the connecting duct with blind rivets. When mounted sealed to the ceiling, the diffuser can be screwed in place through the upper surface if the building material is suitable. The diffuser face is removed by turning the springs which grip the pins through $\frac{1}{4}$ turn. When the commissioning box ALS is used, the spigot between the ALS and the CDD or CDR can be extended using normal circular duct by up to 500 mm long without the need to extend either the measurement tubes or the damper cords. See figure 1.

Commissioning with ALS

This must be carried out with the diffuser face in place. The measurement tubes and the damper cords are pulled



out of the diffuser through the slots. The damper setting is lockable. See Figure 1.

Measurement accuracy and requirement on straight duct before the commissioning box, see Figure 1. The requirements of straight duct depends on the type of disturbance before the commissioning box. Figure 1 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 stated on the product marking, and is also available in the relevant k-factor guide which can be accessed at www.swegon.com.

Maintenance

The diffuser can be cleaned when necessary using luke warm water with added detergent. The duct system can be accessed without the use of tools. The diffuser face is removed by turning the springs which grip the pins of the diffuser face through $\frac{1}{4}$ turn. If the commissioning box ALS is used, move the diffusion plate aside and the damper unit can then be removed by unscrewing it from its fastening by hand.

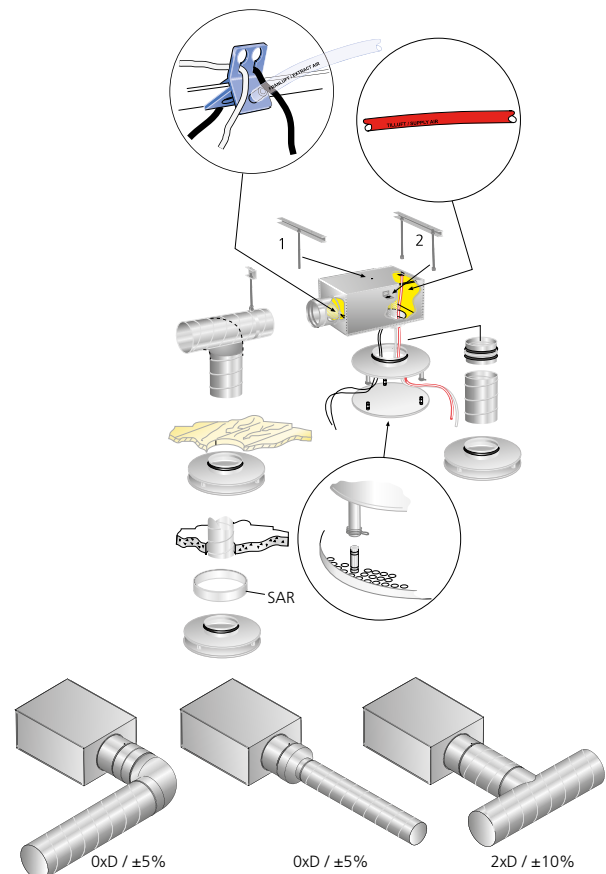


Figure 1. Installation. Commissioning.

Sizing

- Sound level dB(A) applies to rooms of 10 m² equivalent absorption area.
- The throw $l_{0,2}$ is measured under isothermal flow conditions
- Recommended maximum under temperature of 10 K.
- All technical data applies to the following slot widths:
20 mm for sizes 100 and 125.
30 mm for sizes 160, 200, 250 and 315.

- The slot widths can be increased to: 30 mm for sizes 100 and 125. 40 mm for sizes 160, 200, 250 and 315. These increased slot widths cause reduce in throw, pressure drop and sound levels by 20%. 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
- All the technical data applies to a 360° spread pattern.

Sound data

CDD – Supply air

Sound effect level L_w (dB)

Table K_{OK}

| Size CDD | Mid-frequency (octave band) Hz | | | | | | | |
|---------------------|--------------------------------|-----|-----|-----|------|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 10 | 15 | 7 | -1 | -4 | -11 | -23 | -31 |
| 125 | 10 | 13 | 6 | 0 | -2 | -8 | -22 | -31 |
| 160 | 9 | 9 | 2 | 2 | -1 | -6 | -23 | 31 |
| 200 | 11 | 10 | 4 | 5 | -6 | -13 | -28 | -31 |
| 250 | 13 | 9 | 6 | 4 | -7 | -18 | -32 | -31 |
| 315 | 14 | 12 | 8 | 4 | -10 | -23 | -33 | -31 |
| Size CDD +ALS | Mid-frequency (octave band) Hz | | | | | | | |
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 11 | 12 | 8 | 0 | -5 | -10 | -16 | -23 |
| 125 | 10 | 11 | 8 | 0 | -5 | -9 | -18 | -23 |
| 160 | 10 | 13 | 8 | 0 | -5 | -9 | -20 | -24 |
| 200 | 9 | 11 | 8 | 1 | -5 | -11 | -21 | -22 |
| 250 | 10 | 15 | 8 | -1 | -7 | -14 | -23 | -24 |
| 315 | 9 | 15 | 7 | 1 | -6 | -14 | -26 | -27 |
| Tol. ± | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

Sound attenuation ΔL (dB)

Table ΔL

| Size CDD | Mid-frequency (octave band) Hz | | | | | | | |
|---------------------|--------------------------------|-----|-----|-----|------|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 22 | 15 | 11 | 17 | 4 | 3 | 2 | 1 |
| 125 | 21 | 14 | 9 | 5 | 3 | 2 | 1 | 0 |
| 160 | 20 | 13 | 8 | 4 | 3 | 1 | 1 | 0 |
| 200 | 18 | 11 | 6 | 3 | 2 | 1 | 0 | 0 |
| 250 | 17 | 10 | 5 | 2 | 1 | 1 | 0 | 0 |
| 315 | 17 | 8 | 4 | 1 | 1 | 0 | 0 | 0 |
| Size CDD +ALS | Mid-frequency (octave band) Hz | | | | | | | |
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 18 | 14 | 13 | 16 | 26 | 16 | 10 | 11 |
| 125 | 20 | 16 | 9 | 17 | 23 | 16 | 11 | 13 |
| 160 | 20 | 14 | 10 | 17 | 19 | 12 | 10 | 12 |
| 200 | 16 | 11 | 8 | 16 | 18 | 12 | 11 | 11 |
| 250 | 18 | 8 | 8 | 16 | 17 | 12 | 12 | 13 |
| 315 | 13 | 6 | 7 | 19 | 14 | 10 | 10 | 13 |
| Tol. ± | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

CDR – Supply air

Sound effect level L_w (dB)

Table K_{OK}

| Size CDR | Mid-frequency (octave band) Hz | | | | | | | |
|---------------------|--------------------------------|-----|-----|-----|------|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 10 | 13 | 6 | 3 | -4 | -13 | -28 | -31 |
| 125 | 10 | 13 | 7 | 3 | -5 | -11 | -29 | -31 |
| 160 | 9 | 12 | 8 | 3 | -5 | -17 | -33 | 31 |
| 200 | 11 | 13 | 8 | 2 | -4 | -16 | -32 | -31 |
| 250 | 13 | 16 | 9 | 0 | -9 | -22 | -32 | -31 |
| 315 | 14 | 14 | 8 | 1 | -4 | -14 | -28 | -31 |
| Size CDR +ALS | Mid-frequency (octave band) Hz | | | | | | | |
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 11 | 15 | 8 | -1 | -5 | -14 | -17 | -22 |
| 125 | 10 | 14 | 9 | -2 | -6 | -9 | -19 | -22 |
| 160 | 10 | 15 | 8 | -2 | -5 | -11 | -20 | -25 |
| 200 | 9 | 14 | 8 | 1 | -3 | -8 | -18 | -22 |
| 250 | 10 | 16 | 7 | -2 | -6 | -12 | -19 | -22 |
| 315 | 9 | 15 | 6 | -1 | -4 | -11 | -21 | -26 |
| Tol. ± | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

Sound attenuation ΔL (dB)

Table ΔL

| Size CDR | Mid-frequency (octave band) Hz | | | | | | | |
|---------------------|--------------------------------|-----|-----|-----|------|------|------|------|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 22 | 17 | 13 | 7 | 2 | 1 | 0 | 0 |
| 125 | 21 | 16 | 12 | 7 | 2 | 0 | 0 | 0 |
| 160 | 20 | 14 | 10 | 5 | 1 | 0 | 0 | 0 |
| 200 | 18 | 13 | 9 | 4 | 0 | 0 | 0 | 0 |
| 250 | 17 | 11 | 7 | 3 | 0 | 0 | 0 | 0 |
| 315 | 17 | 10 | 6 | 2 | 0 | 0 | 0 | 0 |
| Size CDR +ALS | Mid-frequency (octave band) Hz | | | | | | | |
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 100 | 18 | 14 | 13 | 16 | 26 | 16 | 10 | 11 |
| 125 | 20 | 16 | 9 | 17 | 23 | 16 | 11 | 13 |
| 160 | 20 | 14 | 10 | 17 | 19 | 12 | 10 | 12 |
| 200 | 16 | 11 | 8 | 16 | 18 | 12 | 11 | 11 |
| 250 | 18 | 8 | 8 | 16 | 17 | 12 | 12 | 13 |
| 315 | 13 | 6 | 7 | 19 | 14 | 10 | 10 | 13 |
| Tol. ± | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

Engineering graphs

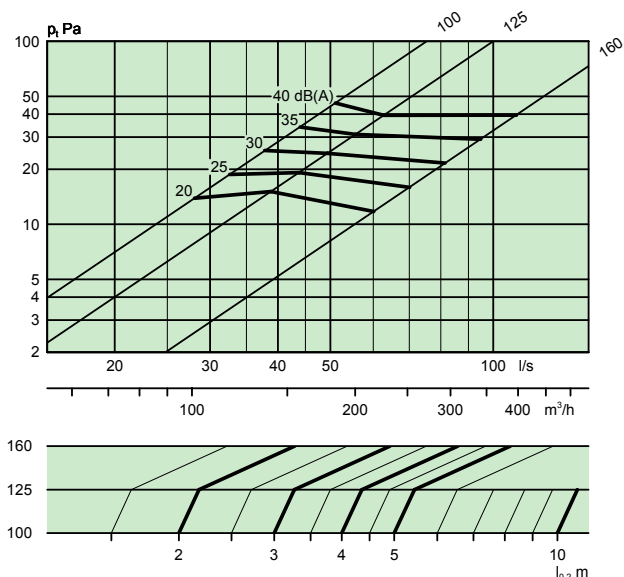
CDD, CDR with and without ALS

- The graphs apply to a diffuser installed in a ceiling.
- 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.
- Correction factor for shielded spread pattern, see graphs and examples below the dimensioning graph. Figure 2.

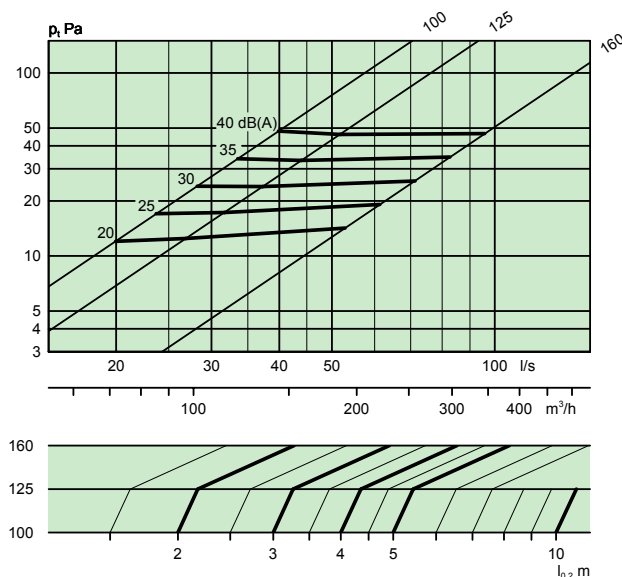
CDD/CDR – Supply air

Air diffuser only

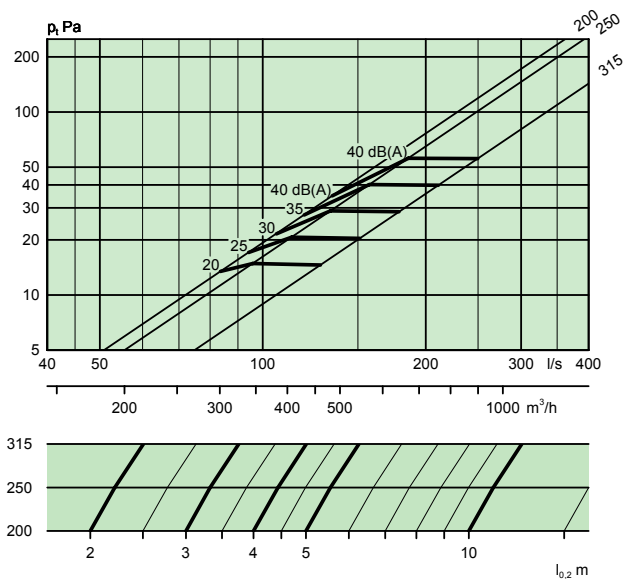
CDD 100, 125, 160



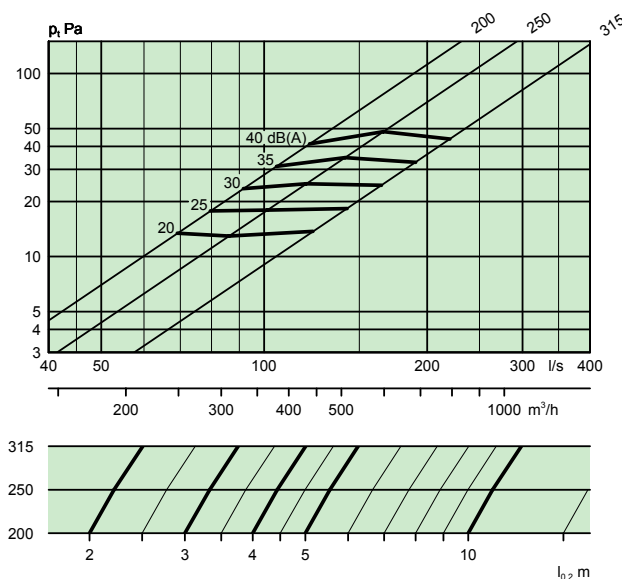
CDR 100, 125, 160



CDD 200, 250, 315



CDR 200, 250, 315

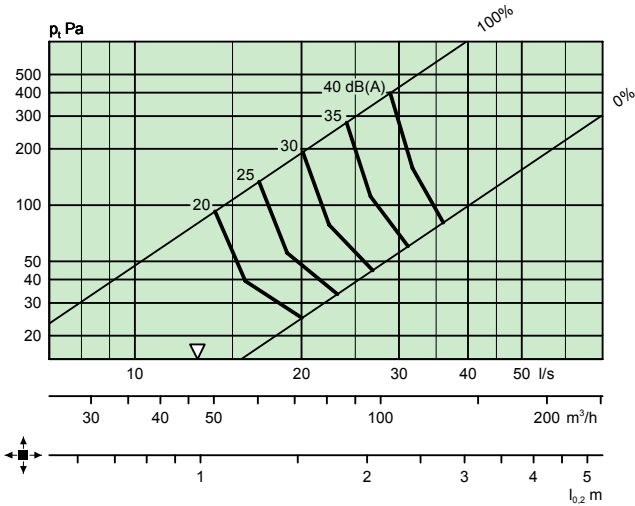


CDD with ALS – Supply air

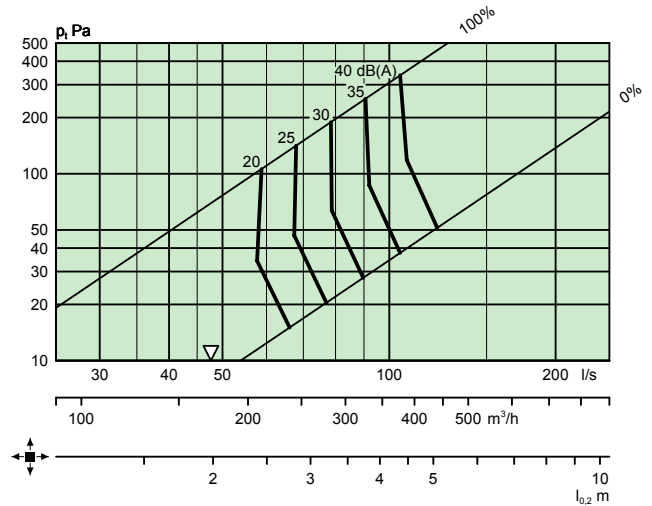
Air diffuser with commissioning box

- ▽ = the minimum flow required to obtain sufficient commissioning pressure

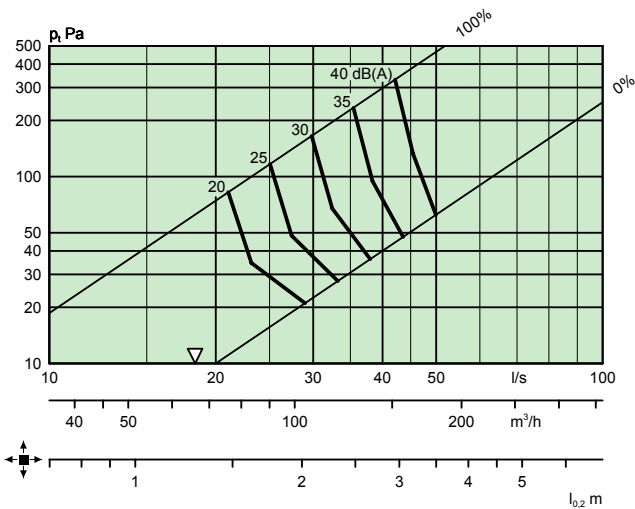
CDD 100 + ALS 80-100



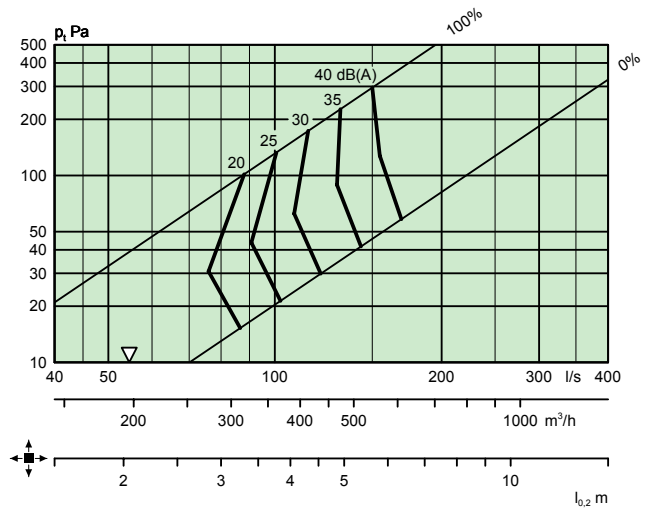
CDD 200 + ALS 160-200



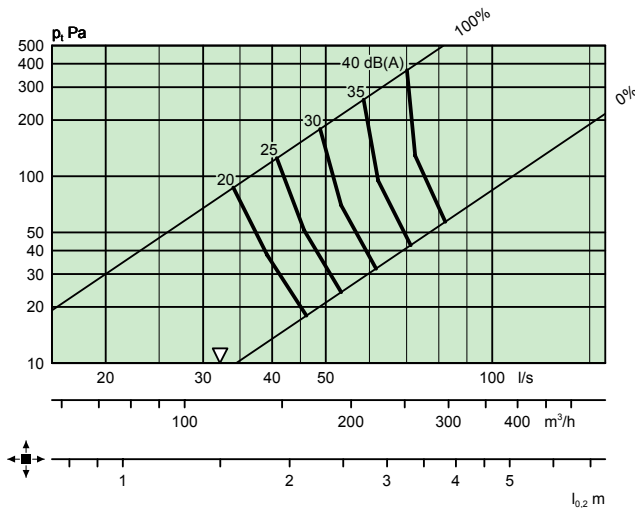
CDD 125 + ALS 100-125



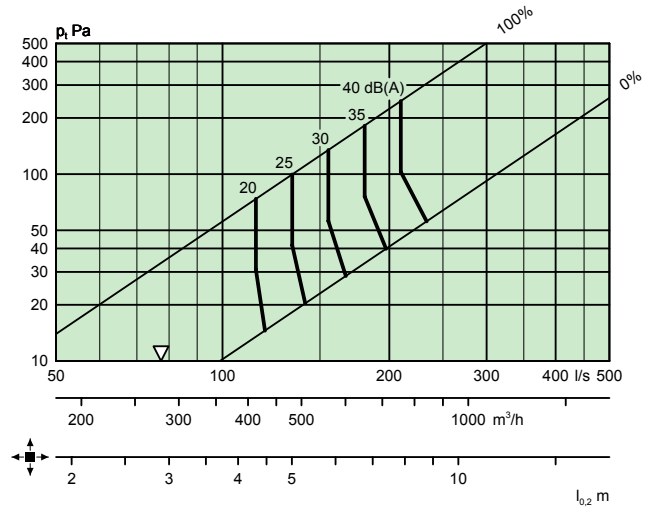
CDD 250 + ALS 200-250



CDD 160 + ALS 125-160



CDD 315 + ALS 250-315

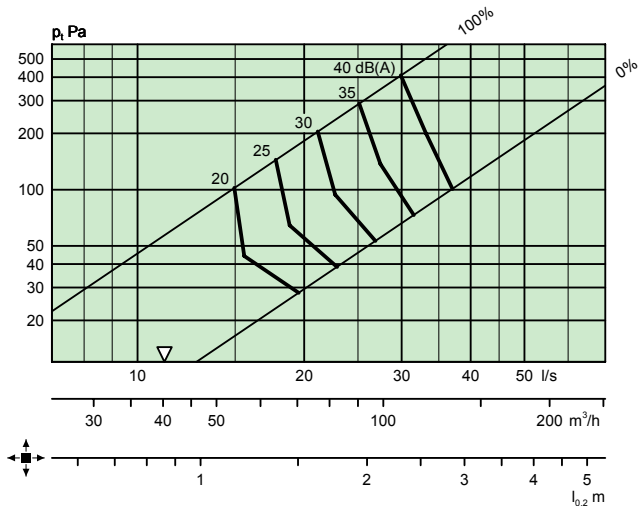


CDR with ALS – Supply air

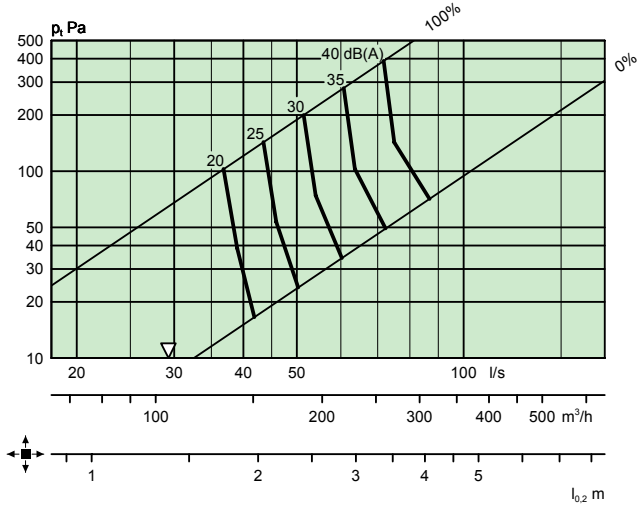
Air diffuser with commissioning box

- ▽ = the minimum flow required to obtain sufficient commissioning pressure

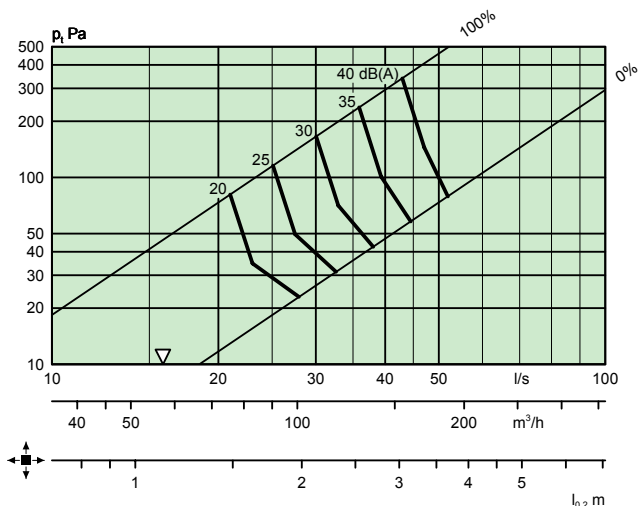
CDR 100 + ALS 80-100



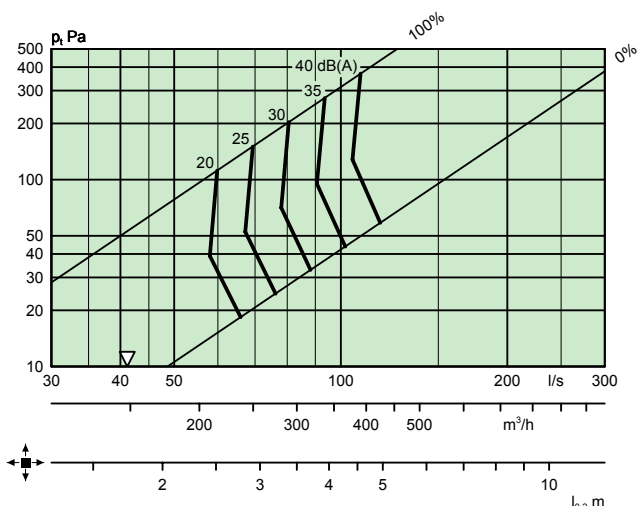
CDR 160 + ALS 125-160



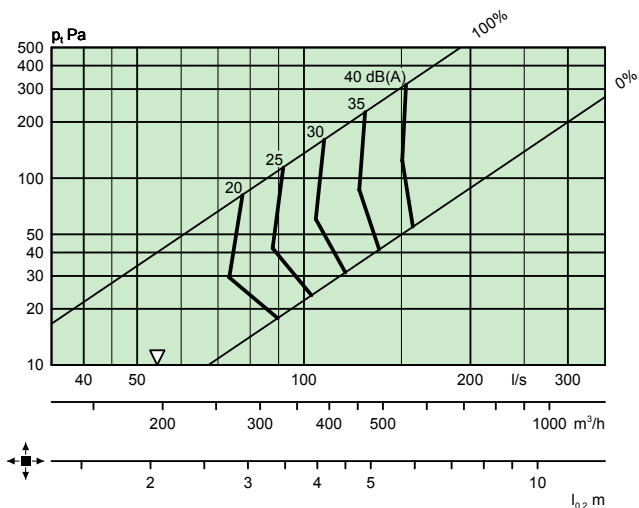
CDR 125 + ALS 100-125



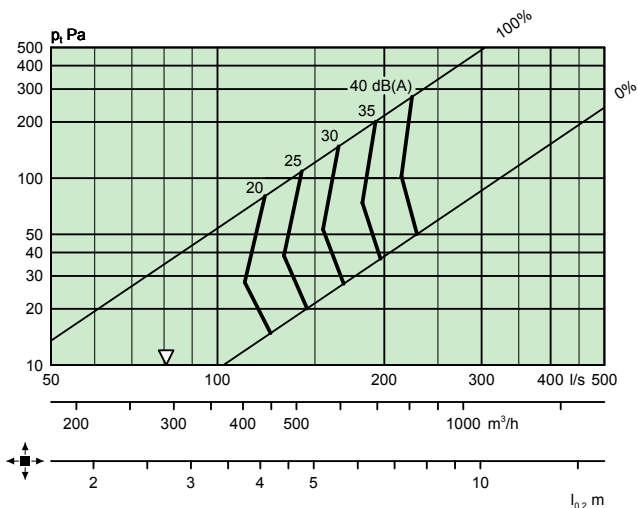
CDR 200 + ALS 160-200



CDR 250 + ALS 200-250



CDR 315 + ALS 250-315



Shielding the spread pattern

The air stream can easily be shielded if there are obstacles, walls or other objects too close to the terminal. In order to be able to use the graphs for "Airflow - Throw length" and "Airflow - Pressure drop - Sound level" when the diffuser is shielded off in one sector, the airflow is corrected as in the adjoining diagram.

Example:

Desired airflow: 100 l/s

Sector shielding: 90°

Follow the line on the graph for 90° shielding and read off the correction factor of 1,2 on the vertical axis.

Multiply the correction factor of 1,2 by the desired airflow of 100 l/s, giving 120 l/s. Use this airflow (120 l/s) when throw length, pressure drop and sound level are selected.

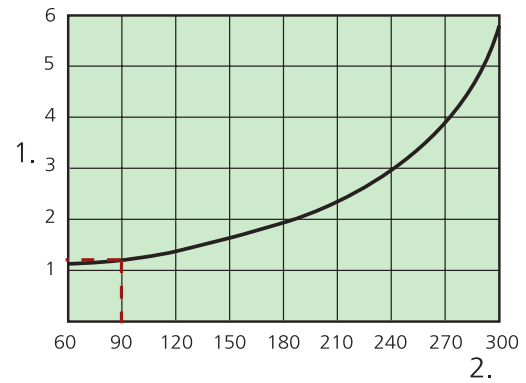


Figure 2. Correction factor for shielding.

1. Correction factor

2. Shielded (°)

Dimensions and weight

CDD/CDR

| Size | ØA | Ød | E | Slot opening | Weight, kg |
|------|-----|-----|-------|--------------|------------|
| 100 | 192 | 99 | 36/46 | 20/30 | 0,6 |
| 125 | 228 | 124 | 36/46 | 20/30 | 0,8 |
| 160 | 304 | 159 | 46/56 | 30/40 | 1,3 |
| 200 | 380 | 199 | 46/56 | 30/40 | 1,8 |
| 250 | 456 | 249 | 50/60 | 30/40 | 2,5 |
| 315 | 568 | 314 | 50/60 | 30/40 | 3,7 |

Hole-making size = $\text{Ød} + 6 \text{ mm}$.

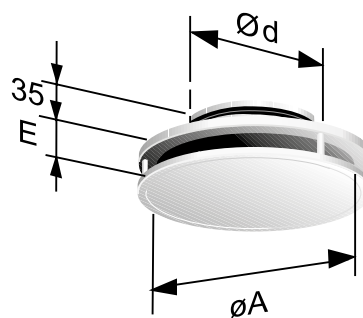


Figure 3. CDD/CDR.

CDD/CDR + ALS

| Size | ØA | B | C | ØD | E |
|------|-----|-----|-----|-----|-------|
| 100 | 192 | 227 | 192 | 79 | 36/46 |
| 125 | 228 | 282 | 217 | 99 | 36/46 |
| 160 | 304 | 342 | 252 | 124 | 46/56 |
| 200 | 380 | 404 | 288 | 159 | 46/56 |
| 250 | 456 | 504 | 332 | 199 | 50/60 |
| 315 | 568 | 622 | 388 | 249 | 50/60 |

| Size | F | G | H | K | Weight, kg |
|------|-----|-----|-----|-----|------------|
| 100 | 160 | 90 | 200 | 50 | 1,8 |
| 125 | 180 | 100 | 270 | 80 | 2,7 |
| 160 | 204 | 112 | 315 | 80 | 3,5 |
| 200 | 239 | 130 | 375 | 100 | 4,5 |
| 250 | 279 | 150 | 465 | 115 | 6,3 |
| 315 | 340 | 175 | 575 | 140 | 9,3 |

CL = Center line

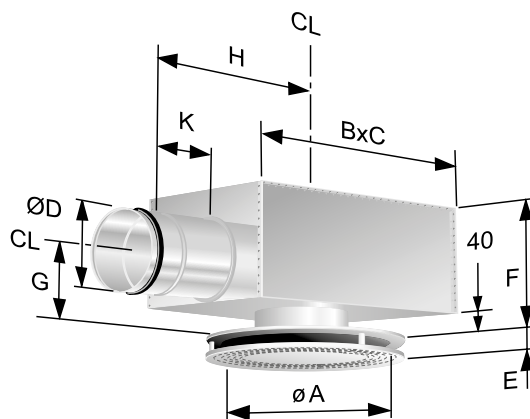


Figure 4. CDD/CDR + ALS. CL = Centerline.

Order key

Product

Circular ceiling terminal with perforated front plate for supply air CDD b -bbb

Version:

Nominal connection dimension, mm

Circular ceiling terminal with non-perforated front plate for supply air CDR b -bbb

Version:

Nominal connection dimension, mm

Standard range:

Size: 100
125
160
200
250
315

Accessories

Commissioning box ALS d -aaa -bbb

Version

| For CDD/CDR | ALS |
|-------------|---------|
| 100: | 80-100 |
| 125 | 100-125 |
| 160 | 125-160 |
| 200 | 160-200 |
| 250 | 200-250 |
| 315 | 250-315 |

Sector baffle SAV a -aaa -bbb

Version:

Shielded:
100, 125, 160, 200, 250, 315

Shielded sector: 90°, 180°

Specification example

Swegons circular ceiling diffuser of the type CDD/CDR with commissioning box ALS, with the following functions:

- Spread pattern can be shielded
- Adjustable air slot
- Cleanable
- Electrostatically powder-coated in white, RAL 9003/NCS S 0500-N
- Cleanable commissioning box ALS with removable commissioning damper, lockable setting, measurement function with low method error and internal acoustic insulation with reinforced surface layer.

Accessories:

Sector baffle: SAVa aaa - bbb xx units

Size: CDDb + ALSd aaa - bbb xx units

Size: CDRb + ALSd aaa - bbb xx units