

DIR

VARIZON® Displacement unit with adjustable spread pattern



QUICK FACTS

- Adjustable spread pattern and affected area
- Suitable for all types of rooms
- Simple to install
- Cleanable
- Concealed fixing
- Standard colour White RAL 9003
 - 5 alternative standard colours
 - Other colours upon request

| DIR Size | AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *) | | | | | |
|----------|---|-------------------|----------|-------------------|----------|-------------------|
| | 25 dB(A) | | 30 dB(A) | | 35 dB(A) | |
| | l/s | m ³ /h | l/s | m ³ /h | l/s | m ³ /h |
| 400 | 34 | 122 | 40 | 144 | 48 | 173 |
| 500 | 47 | 169 | 57 | 205 | 66 | 238 |
| 600 | 60 | 216 | 71 | 256 | 85 | 306 |
| 900 | 110 | 396 | 130 | 468 | 148 | 533 |

The sound data applies to the displacement unit together with the connection duct.

**) L_{p10A} = Sound pressure incl. A-filter with 4 dB room attenuation and 10 m² room absorption area.*

Technical description

Design

The DIR is a complete, flat displacement unit for mounting recessed into studded walls. The unit consists of a two parts: the plenum box and the perforated front plate. The plenum box is equipped with an air volume measuring point, or mounting frame and a rectangular connection spigot. The telescopic mounting frame has a distribution plate which is equipped with a number of adjustable deflectors. This plate is removable for access to the duct system. The perforated front plate is fixed to the mounting frame.

Materials and surface treatment

The displacement unit is manufactured in galvanised sheet steel and is coated with paint.

- 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.

Customisation

In addition to the standard sizes, these displacement units are available in special dimensions, with reinforced front panels etc. Please contact your nearest sales representative for further information.

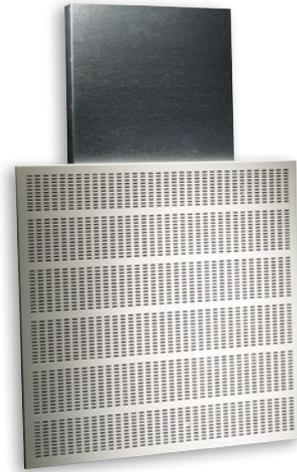
Accessories

Connection duct:

DIRT 4a. A rectangular connection duct with a circular duct connection and a rubber seal. The connection duct is telescopic by 300 mm in height.

Planning

It is possible to modify the affected area by adjusting the deflectors behind the perforated front plate. This does not affect the air flow, pressure drop or sound level. This flexibility simplifies any future changes in the furnishing of the room etc.



Installation

The plenum box is mounted before the wall board is fixed. The plenum box is screwed into place through the sides. The hole for the connection sleeve inlet is cut as illustrated in the diagram. The wall board is then fixed in place, the mounting frame pushed inside the displacement unit and fixed using screws. Finally the front panel is hung in place on the mounting frame. See Figure 1.

Commissioning

The measurement outlet is on the lower edge of the displacement unit. The k-factor of the unit is stated in the product label, and can also be found on our website in the relevant k-factor guide. It is recommended that a measurement unit and commissioning damper is used to regulate the air flow. It should be placed before the inlet of the connection duct. See Figure 2.

Maintenance

The displacement unit can be cleaned when necessary using luke warm water with added detergent. The duct system is accessed by removing the perforated front plate and the distribution plate. See Figure 2.

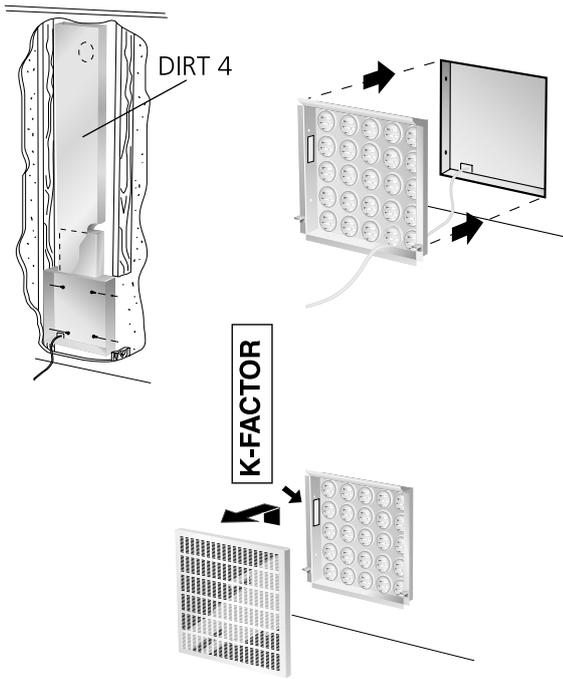


Figure 1. Installation.

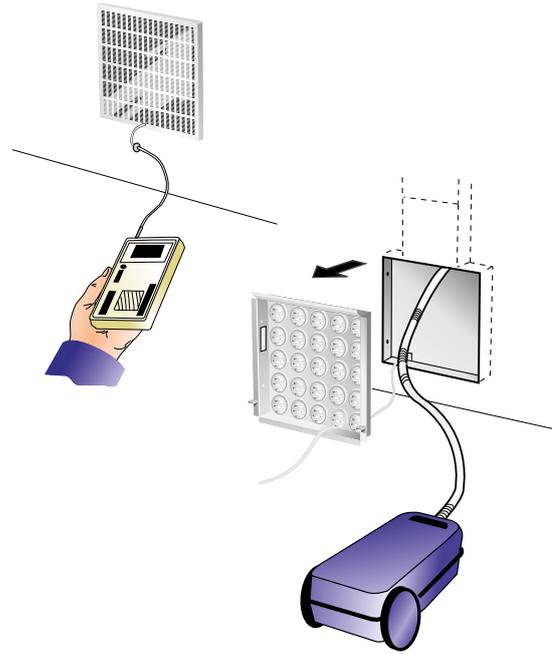


Figure 2. Commissioning. Maintenance.

Technical data

- Sound pressure level dB(A) applies to rooms with 10 m² equivalent sound absorption area.
- Sound attenuation (ΔL) below is shown in the octave band. Orifice attenuation is included in the values.
- Recommended maximum under temperature 6 K.
- To calculate the width of the spread pattern, air velocities in the zone of occupation or sound levels in rooms with other dimensions, please refer to our calculation programmes ProAir web, which is available for download at 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 - DIR

Sound power level L_w (dB)

Table K_{OK}

| Size | Mid-frequency (octave band) Hz | | | | | | | | |
|--------|--------------------------------|----|-----|-----|-----|------|------|------|------|
| | DIR | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 400 | | -6 | 9 | 2 | 4 | -2 | -12 | -19 | -20 |
| 500 | | 3 | 5 | 2 | 4 | -1 | -11 | -18 | -19 |
| 600 | | -1 | -2 | 0 | 3 | 1 | -10 | -17 | -19 |
| 900 | | -8 | 1 | 1 | 4 | -1 | -11 | -19 | -18 |
| Tol. ± | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

Sound attenuation ΔL (dB)

Table ΔL

| Size | Mid-frequency (octave band) Hz | | | | | | | | |
|--------|--------------------------------|----|-----|-----|-----|------|------|------|------|
| | DIR | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 400 | | 18 | 13 | 10 | 7 | 9 | 4 | 8 | 7 |
| 500 | | 18 | 13 | 10 | 6 | 9 | 5 | 8 | 7 |
| 600 | | 18 | 13 | 7 | 4 | 7 | 6 | 7 | 6 |
| 900 | | 13 | 8 | 4 | 2 | 1 | 0 | 0 | 0 |
| Tol. ± | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

Engineering graphs

Air flow – Pressure drop – Sound level – Affected area

- The size of the affected area is related to the isovel limit of 0.2 m/s at Δt 3 K and 6 K. Δt in this case signifies the difference between the room air temperature measured at 1.2 m above the floor and the supply air temperature, it is not the difference between the exhaust air and the supply air temperatures. The air velocity is measured with the displacement unit 0.5 m above the floor.
- The graphs are not to be used for commissioning.
- ∇ = min. air flow to obtain sufficient commissioning pressure.
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.
- For $\Delta t = 6$ K the measurements $a_{0,20}$ and $b_{0,20}$ are increased by approx. 20%.

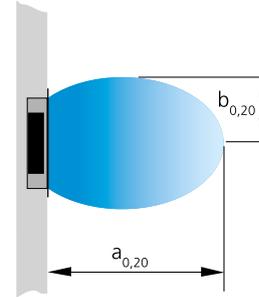
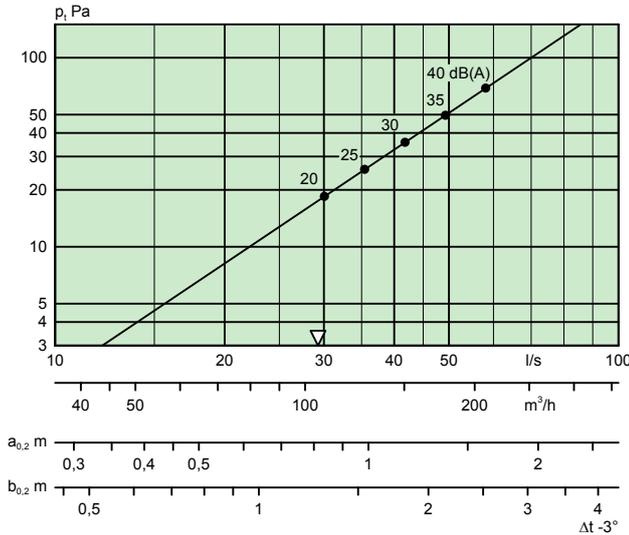
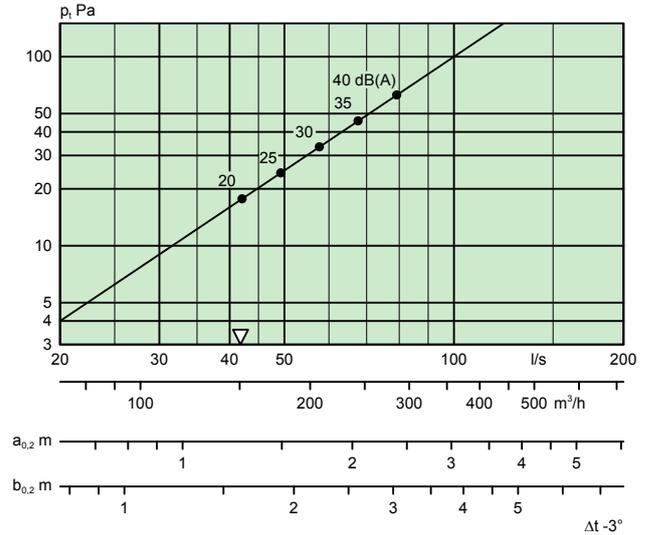


Figure 3. Affected area.

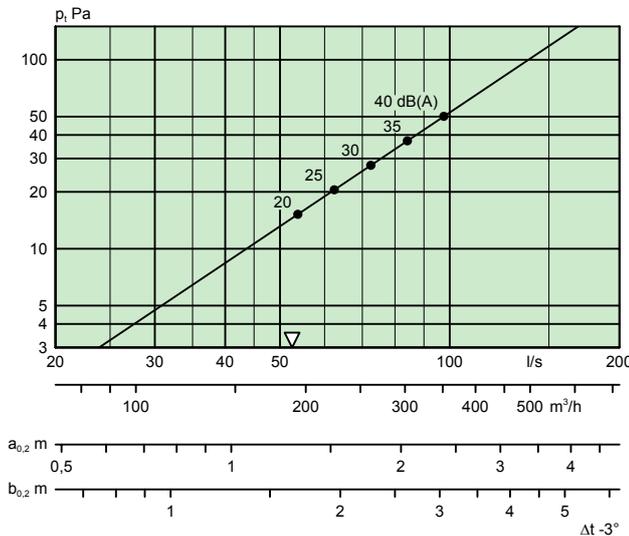
DIR 400



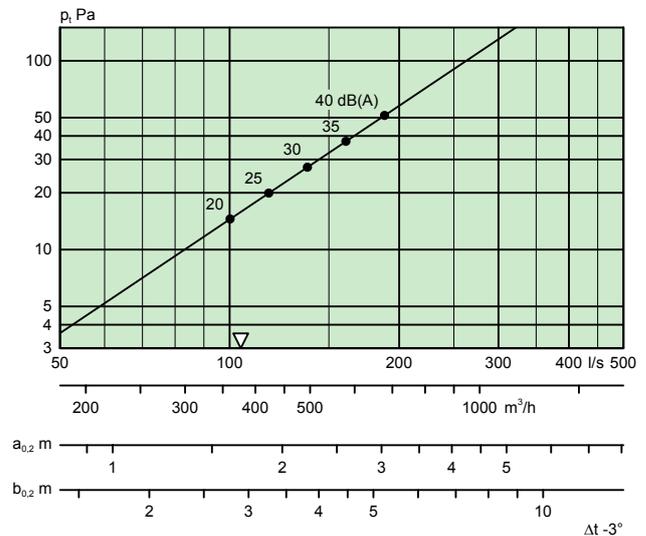
DIR 500



DIR 600



DIR 900



Dimensions and weights

DIR

| Size | A | B | D | E | F | G | ØH |
|------|-----|-----|-----|-----|----|-----|-----|
| 400 | 402 | 343 | 402 | 345 | 50 | 80 | 99 |
| 500 | 502 | 443 | 502 | 445 | 50 | 80 | 124 |
| 600 | 602 | 543 | 602 | 545 | 50 | 80 | 159 |
| 900 | 602 | 543 | 902 | 845 | 70 | 100 | 199 |

| Size | J | K | L | M | N | Weight, kg Diffuser | Weight, kg Duct |
|------|-----|---------|-----|-----|----|------------------------|--------------------|
| 400 | 72 | 80-102 | 254 | 252 | 54 | 5 | 5 |
| 500 | 86 | 80-102 | 304 | 302 | 54 | 8 | 7 |
| 600 | 105 | 80-102 | 354 | 352 | 54 | 10 | 10 |
| 900 | 125 | 100-122 | 504 | 502 | 74 | 15 | 12 |

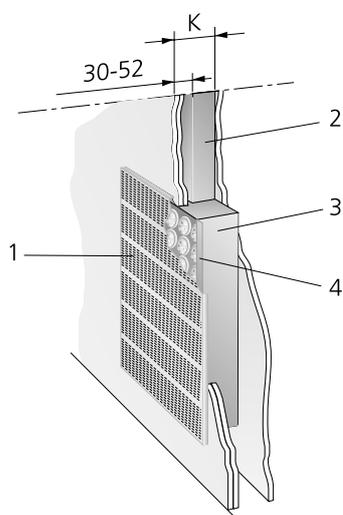


Figure 4. Flush mounting measurements for the DIR.

1. Front panel
2. Connection sleeve
3. Commissioning box
4. Fixing frame

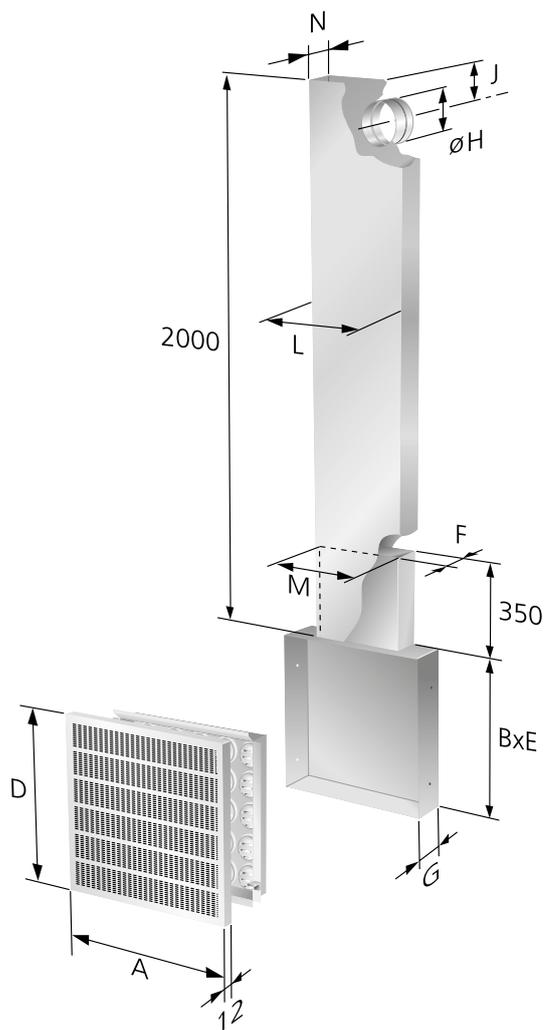


Figure 5. DIR and DIRT 4.

Order key

Product

| | | | |
|---------------------------------|-----|---|------|
| Flush-mounted displacement unit | DIR | c | -aaa |
| Version | | | |
| Size: 400, 500, 600, 900 | | | |

Accessories

| | | | |
|--------------------------|--------|---|------|
| Connection duct | DIRT 4 | a | -aaa |
| Version | | | |
| Size: 400, 500, 600, 900 | | | |

Specification example

Swegons VARIZON® rectangular low velocity terminal for flush mounting in walls, of type DIR, with the following functions:

- Adjustable spread pattern and affected area
- Air volume measuring point
- Cleanable
- Telescopic mounting frame
- Telescopic connection duct
- Powder coated in white, RAL 9003/NCS S 0500-N

Accessories:

Connection duct: DIRT 4 aaa xx items

Size: DIRc aaa xx items