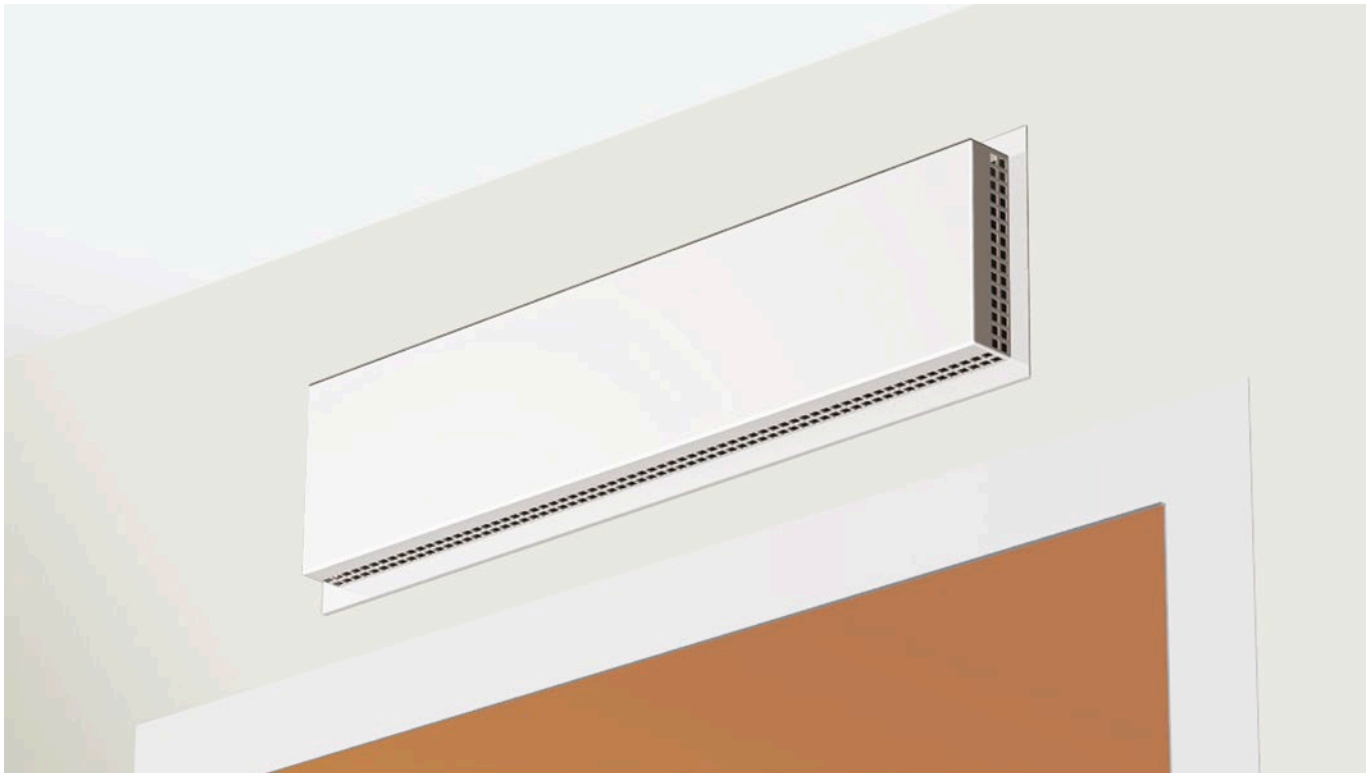
ROT

ROBUST Sound-attenuating transfer air unit



QUICK FACTS

- Robust design
- For the transfer of air through a wall
- Meets acoustic disturbance requirements in standard building constructions
- Fits in a rectangular wall opening
- Simple to install
- Standard colour White RAL 9003
  - 5 alternative standard colours
  - Other colours upon request

AIR FLOW - PRESSURE DROP - R_W-VALUE							
ROT Size	10 Pa		15 Pa		20 Pa		R_w (1 m²)
	l/s	m³/h	l/s	m³/h	l/s	m³/h	
300	18	65	22	73	25	90	33
500	32	115	38	137	45	162	31
700	45	162	55	198	65	234	29
850	58	209	70	252	80	288	29

Technical description

Design

The ROT consists of two similar rectangular baffles containing acoustic insulation. The sides of the baffles are perforated: 6 mm x 6 mm, spaced 8.3 mm apart. The baffles are fitted with a flange for screw mounting direct to the supporting surface.

Materials and surface treatment

The baffles are made of 1.5 mm thick sheet steel and 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.

Accessories

Wall sleeve:

VGR: Rectangular telescopic wall sleeve made of galvanized sheet steel.

Project planning

The transfer units are designed primarily for installation in studded walls with plasterboard covering. If the transfer unit is installed in a concrete wall, or a wall sleeve made of sheet metal is used, the reduction index (R_w) will decrease by 10 dB.

Select a transfer air unit that will not impair the sound insulating ability of the wall structure. To quickly determine this, the following rule of thumb can be used:

R_w transfer air unit = Sound classification of the wall + 5 dB(A)

To calculate the resulting R_w value of the wall structure, Examples 1 and 2 can be followed.

Table 1 shows the reduction index R, as well as the R_w value of the transfer air unit with reference to 1 metre^2 transmission area. The measurements have been carried out according to Nordtest ACOU 037.

Installation

Size of opening, see the dimension table. Secure the grilles directly against the wall surface centred over the opening. If a VGR wall sleeve is used, it can be attached to the wall structure. Separate the two telescopic halves of the wall sleeve and insert each half into either side of the wall opening to fit the wall thickness. See Figure 1.

Maintenance

Clean the transfer unit when needed, using lukewarm water with dishwashing detergent added or by vacuum cleaning using a brush nozzle.

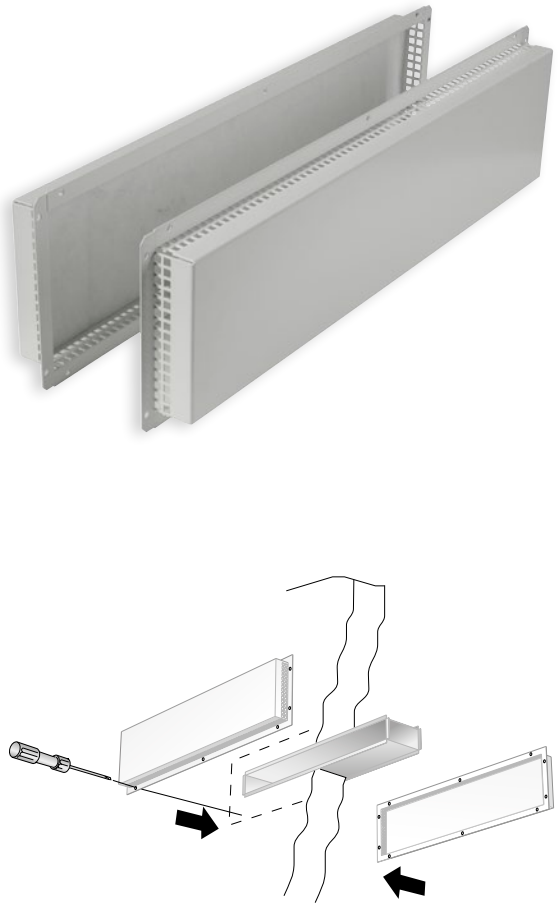


Figure 1. ROT.

Environment

The Building Materials Declaration is available from www.swegon.com.

Table 1. Reduction index and R_w value

Size	R Mid-frequency (Octave band) Hz					R_W, dB 1 m^2	*) $D_{n,ew}$, dB 10 m^2
ROT	125	250	500	1000	2000		
300	24	28	30	30	42	33	43
500	21	24	27	29	40	31	41
700	19	22	26	27	38	29	39
850	18	21	25	27	38	29	39

*) $D_{n,ew}$ - the value applies for a transmission area of 10 m^2 to compare with other air transfer diffusers

Technical description

- 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.

Acoustic data

ROT

Sound power level, L_w (dB)
Table K_{OK}

Size	Mid-frequency (Octave band) Hz							
ROT	32	125	250	500	1000	2000	4000	8000
300-850	1	6	7	2	-2	-7	-21	-21
Tol. ±	2	2	2	2	2	2	2	2

Diagram, impaired reduction index of the wall

The diagram shows the decrease in the wall's reduction index when one transfer unit is installed in it.

Example 1:

1. In a wall with a surface area of 10 m² , install one ROT 300 in the 300 x 50 mm cut wall opening (one ROT on each side of the wall).
2. R_w wall = 45 dB, R_w transfer unit = 33 dB.
3. Difference, wall - transfer unit = 12 dB.
4. Follow the points in the diagram for 12 dB on the Y axis and 10 dB on the X axis. At the intersection of these two lines, we read that the reduction index of the wall decreases by about 4 dB when the relevant transfer unit is installed.
5. In the relevant wall the total R_w value will be 41 dB. (45-4).

Example 2:

1. Install two ROTs 300 (two on each side of the wall) transfer units in a wall with a surface area of 10 m² . Each unit requires a 300 x 100 mm wall opening.
2. R_w wall = 45 dB.
   R_w transfer unit = 33 dB.
3. Difference, wall - transfer unit = 12 dB.
4. Plot from the 12 dB point on the Y axis and 10 dB point on the X axis in the diagram to the point where they intersect. Just like in Example 1, we see here that the reduction index of the wall decreases by about 4 dB. So with one transfer air unit in the wall, the resulting R_w of the wall = 41 dB.
5. To see how both transfer air units act together, we will do the same calculation again.
6. R_w wall = 41 dB, R_w transfer unit = 33 dB.
   Difference, wall - transfer unit = 8 dB. Follow the points in the diagram for 8 dB on the Y axis and 10 dB on the X axis. Here we now see that the reduction index of the wall decreases by about 2 dB.
   So with two transfer air units in the wall, the resulting R_w of the wall = 39 dB (41-2).

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

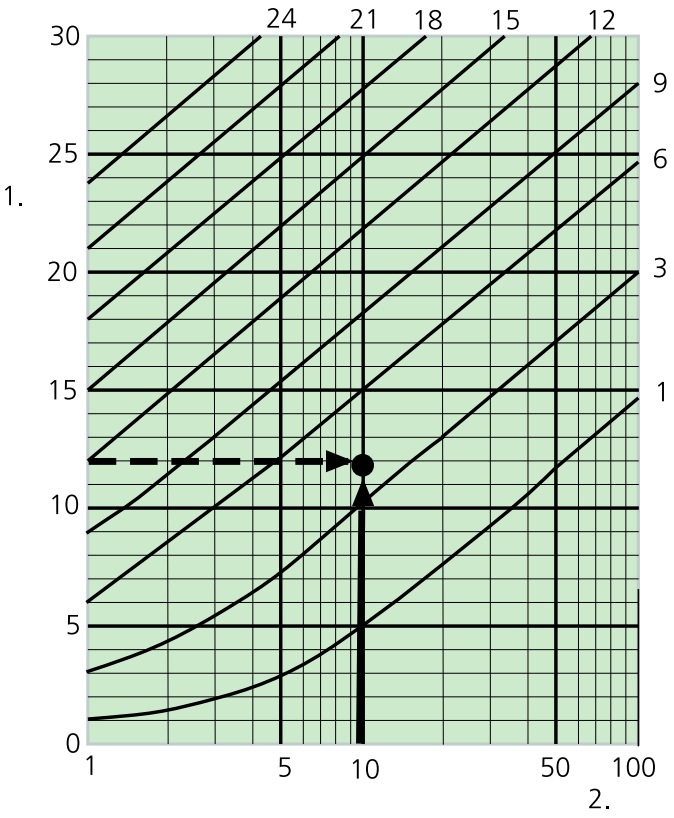
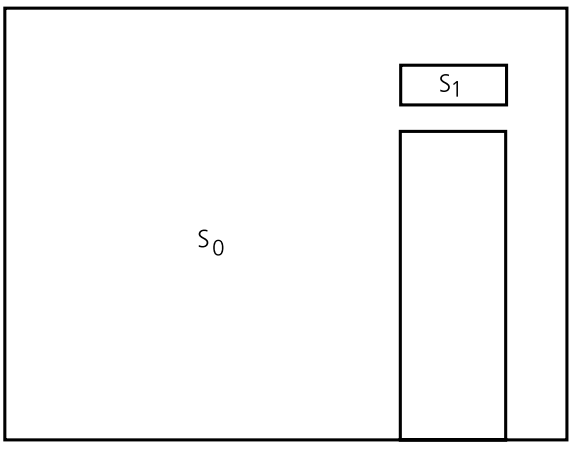


Figure 2. Diagram.
1. Difference R0 - R1 (dB)
2. Surface ratio SO/SI

Symbols used:
R_0 = Reduction index of the wall
R_1 = Reduction index of the window (door)
S_0 = Area of the wall including windows (doors)
S_1 = Reference area of the transfer unit = 1 m²



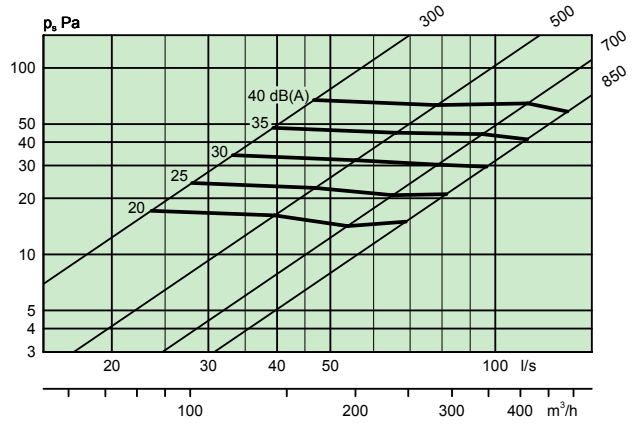
Sizing diagram

ROT – Transferred air

Airflow – Pressure drop – Sound level

- The diagrams illustrate data for two baffles installed on either side of the wall over the opening cut for them.
- The diagrams should not be used for commissioning.
- The dB(A) values apply to rooms with normal acoustic absorption (4 dB room attenuation).
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.

ROT



Dimensions and weights

Size	A	B	C	D	E	Weight, kg
300	416	160	300	50	80-150	1.9
500	592	160	500	50	80-150	2.6
700	800	160	700	50	80-150	3.5
850	960	160	850	50	80-150	4.1

Size of the opening VGR = (C + 5 mm) x (D + 5 mm)

The weight excluding the VGR.

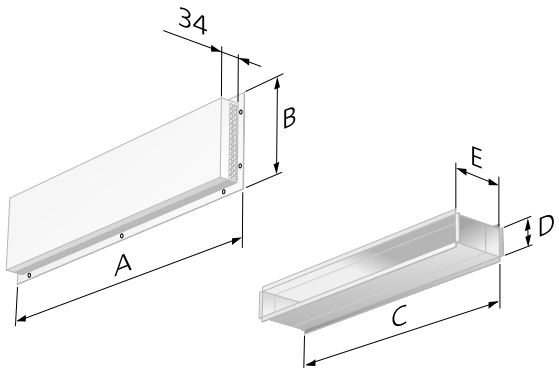


Figure 3. ROT.

Ordering key

Product

Transfer air unit (Supplied in pairs)	ROT	a	aaa
Version:			
Size: 300, 500, 700, 850			

Accessories

Wall sleeve			VGR	a	aaa
Version:					
For ROT	300: 500: 700: 850:	VGR	300 500 700 850		

Specification text

Swegon's type ROT rectangular transfer air unit of reinforced design, having the following properties:

- Made of 1,5 mm thick sheet steel
- Acoustic insulation with reinforced surface
- White powder paint sprayed and baked finish, RAL 9010

Size:	ROTa bbb	xx items
Accessories:		
Telescopic wall sleeve:	VGRa aaa	xx items