ROC

ROBUST Circular supply and exhaust air terminal

QUICK FACTS

- Robust design
- Supply or extract air
- Easy wall or ceiling mounting
- Guide vane perforation
- Can be used with commissioning box ALS
- Standard colour White RAL 9003
  - 5 alternative standard colours
  - Other colours upon request

AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *)							
ROC Size		25 dB(A)		30 dB(A)		35 dB(A)	
		l/s	m³/h	l/s	m³/h	l/s	m³/h
125		32	115	37	133	42	151
160		46	166	54	194	62	223
ROC Size	**ALS Size**	**25 dB(A)**		**30 dB(A)**		**35 dB(A)**	
		l/s	**m³/h**	**l/s**	**m³/h**	**l/s**	**m³/h**
125	100-125	18	65	23	83	29	104
160	125-160	30	108	38	137	45	162

The table presents data for ROC without and with commissioning box ALS at a total pressure of 50 Pa.

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

Technical description

Design

The circular perforated supply air terminal consists of two parts, the diffuser box and the diffuser face. The diffuser face has guide vane perforations in a swirl pattern. The diffuser section is attached to the diffuser box using steel pop rivets; which prevents the terminal from being opened.

Materials and surface treatment

The diffuser face and diffuser box are manufactured in 1,5 mm sheet steel. The complete terminal is powder coated with our pure white standard paint, RAL 9003/NCS S 0500-N. The unit is also available in other standard colours: Dusty grey 7037, white aluminium RAL 9006, jet black RAL 9005, grey aluminium RAL 9007 and white RAL 9010.

Accessories

Commissioning box:

ALS: Manufactured of galvanized sheet steel. Includes removable commissioning damper, fixed measurement unit and sound attenuating lining with reinforced surface layer, to Fire Resistance Class B-s1,d0 according to EN ISO 11925-2. Tightness class C on the housing according to SS-EN 12237 and VVS/AMA 12.

Planning/Installation

The diffuser box is screwed tightly to the ceiling or the wall. The connecting duct is fixed to the spigot with pop rivets.

When the commissioning box ALS is used, this should be secured to the building structure with drop-rods or installation band. The distance between the commissioning box ALS and the diffuser can be extended by up to 500 mm without the need of extending the measurement hose and damper control. The diffuser face is pop riveted to the diffuser box using steel pop rivets. See Figure 1.

Commissioning with ALS

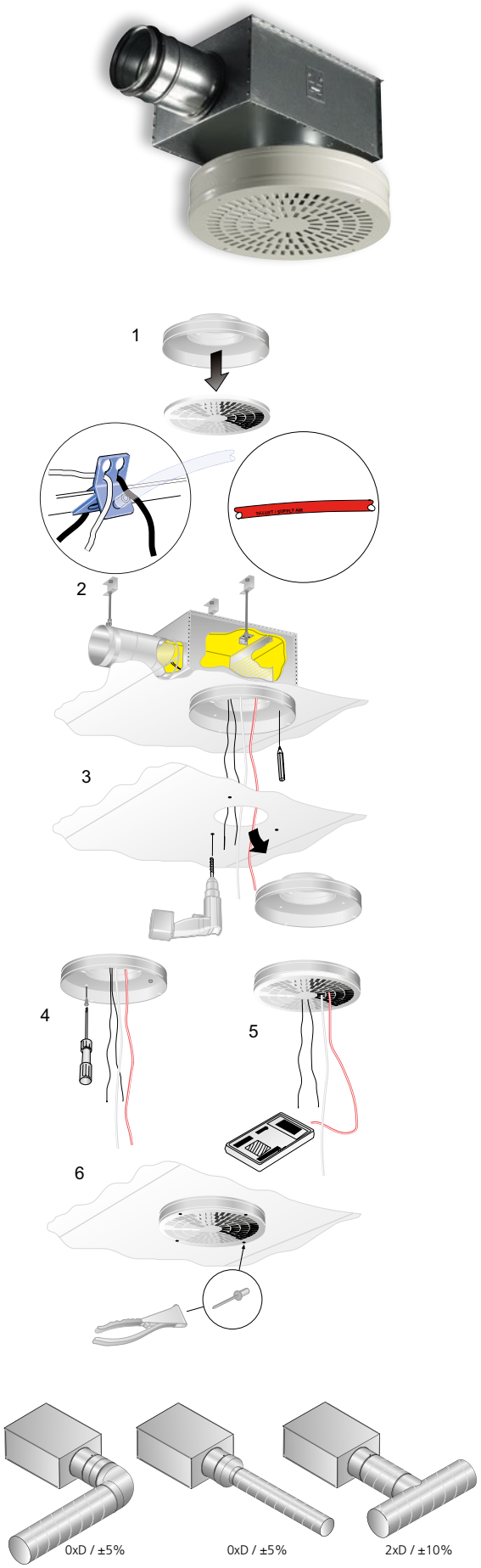
Commissioning should be done with the diffuser face assembled. The measurement hose and damper control is pulled out through the perforation of the diffuser face. A manometer is connected to the measurement hose. The desired commissioning pressure can be calculated with the help of the terminal's K-factor. The damper is set in the right position, an adjustment knot is tied on the damper chords to indicate the damper position. To lock the commissioned damper position, the damper cords are fixed with the cord screw in the top part of the diffuser box.

Measurement accuracy and requirement on straight duct before the commisioning box, see Figure 1. The requirements of straigh 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 ± 10% of the flow.

The K-factor is stated on the product's label, as well as in the current commissioning instructions, which can be downloaded from from www.swegon.com. See Figure 1.

Maintenance

The diffuser is cleaned if necessary with tepid water and a detergent. Access to the duct system is possible by drilling out the steel pop rivets, the diffuser face is then released from its spring clips. When the commissioning box ALS is used, the distribution plate in the box is moved to the side, to gain access to the commissioning damper. The damper unit is then turned anticlockwise and pulled out of its holder.



Figur 1. ROC + ALS.

Sizing

- Sound level dB(A) applies for rooms with 10 m^2 equivalent absorption area.
- Throw length $l_{0.2}$ is measured with isothermal supply air temperature.
- Recommended max under temperature for ROC is 10 K.
- 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.

Sound data – ROC – Supply air

Sound power level L_w(dB)

Table K_{OK}

Size	Mid-frequency (octave band) Hz							
ROC	63	125	250	500	1000	2000	4000	8000
125	-12	0	1	2	1	-12	-22	-21
160	-11	-3	0	2	2	-15	-23	-22
Size	Mid-frequency (octave band) Hz							
ROC + ALS	63	125	250	500	1000	2000	4000	8000
125	1	6	5	2	-1	-11	-15	-15
160	-3	5	5	3	-1	-12	-16	-16
Tol. ±	2	2	2	2	2	2	2	2

Sound attenuation ΔL(dB)

Table ΔL

Size	Mid-frequency (octave band) Hz							
ROC	63	125	250	500	1000	2000	4000	8000
125	20	15	10	5	3	5	5	4
160	19	14	9	4	3	5	5	4
Size	Mid-frequency (octave band) Hz							
ROC + ALS	63	125	250	500	1000	2000	4000	8000
125	21	16	9	17	23	16	11	13
160	19	14	10	17	19	12	10	12
Tol. ±	2	2	2	2	2	2	2	2

Sound data – ROC – Extract air

Sound power level L_w(dB)

Table K_{OK}

Size	Mid-frequency (octave band) Hz							
ROC	63	125	250	500	1000	2000	4000	8000
125	-6	5	0	0	2	-8	-16	-20
160	-4	4	0	0	2	-7	-15	-20
Size	Mid-frequency (octave band) Hz							
ROC + ALS	63	125	250	500	1000	2000	4000	8000
125	0	8	8	0	-7	-8	-13	-17
160	-8	8	7	0	-6	-7	-12	-17
Tol. ±	2	2	2	2	2	2	2	2

Sound attenuation ΔL(dB)

Table ΔL

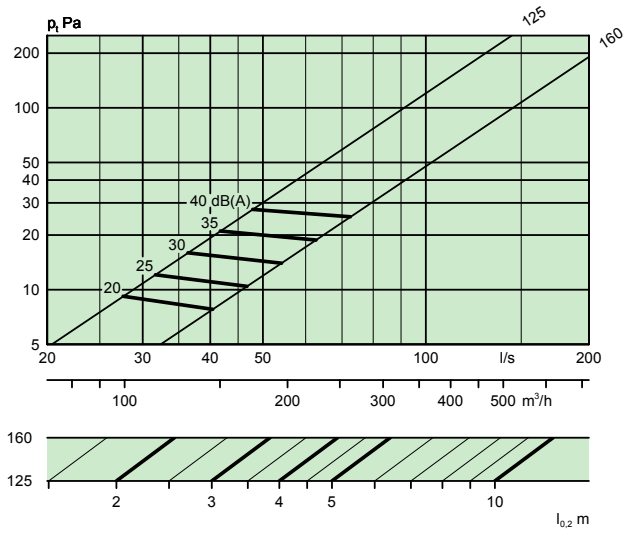
Size	Mid-frequency (octave band) Hz							
ROC	63	125	250	500	1000	2000	4000	8000
125	20	15	10	5	3	5	5	4
160	19	14	9	4	3	5	5	4
Size	Mid-frequency (octave band) Hz							
ROC + ALS	63	125	250	500	1000	2000	4000	8000
125	21	16	9	17	23	16	11	13
160	19	14	9	4	3	5	5	4
Tol. ±	2	2	2	2	2	2	2	2

Engineering graphs – ROC – Supply air

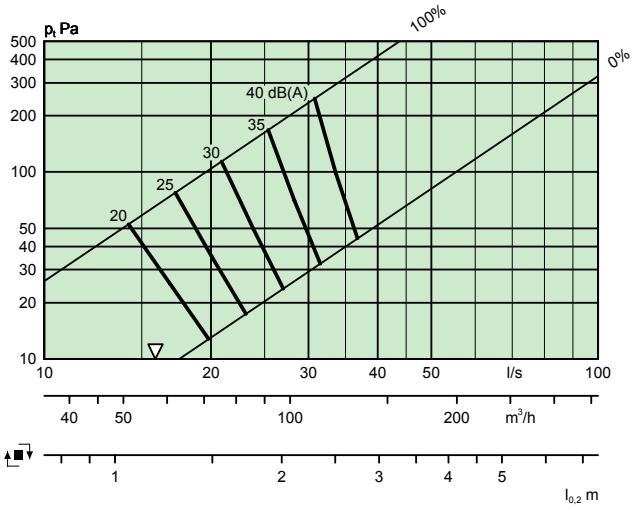
Airflow – Pressure drop – Sound level – Throw

- The diagrams show data for ROC recessed in the ceiling.
- The diagrams should not be used for commissioning.
- ∇ = Min flow to obtain sufficient commissioning pressure.
- dB(A) applies for a normally attenuated room (4 dB room attenuation).
- dB(C) the value normally lies 6-9 dB higher than the dB(A) value.

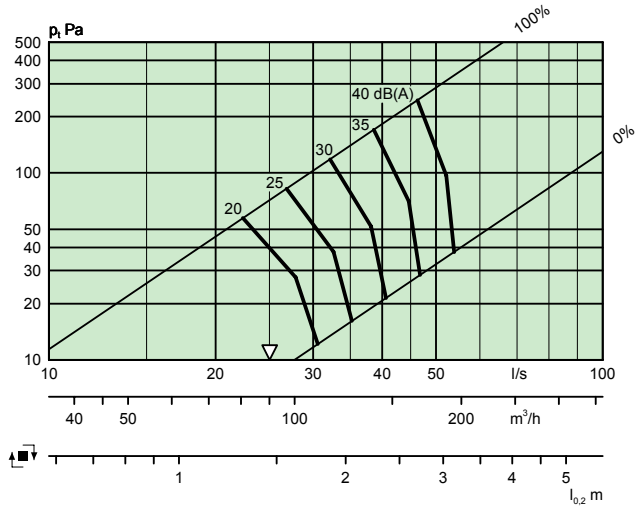
ROC 125, 160, Supply air



ROC 125 + ALS 100-125, Supply air



ROC 160 + ALS 125-160, Supply air

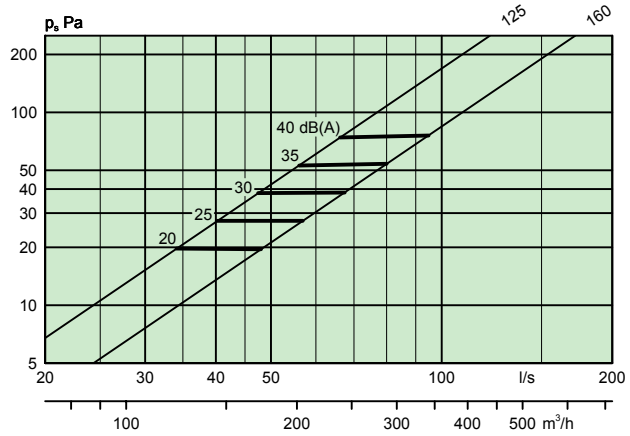


Engineering graphs – ROC – Extract air

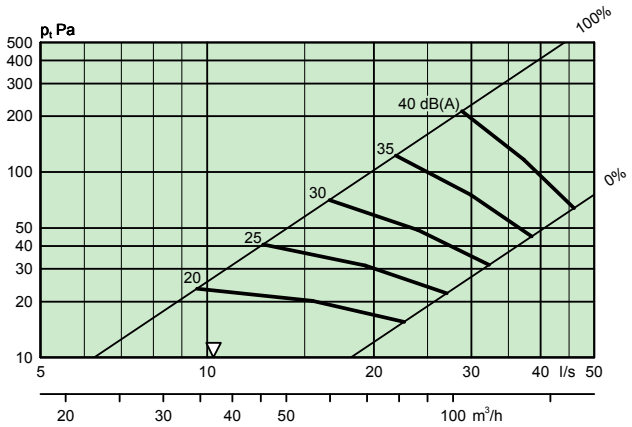
Air flow – Pressure drop – Sound level

- The diagrams show data for ROC recessed in the ceiling.
- The diagrams should not be used for commissioning.
- B(A) applies for a normally attenuated room (4 dB room attenuation).
- dB(C) the value normally lies 6-9 dB higher than the dB(A) value.

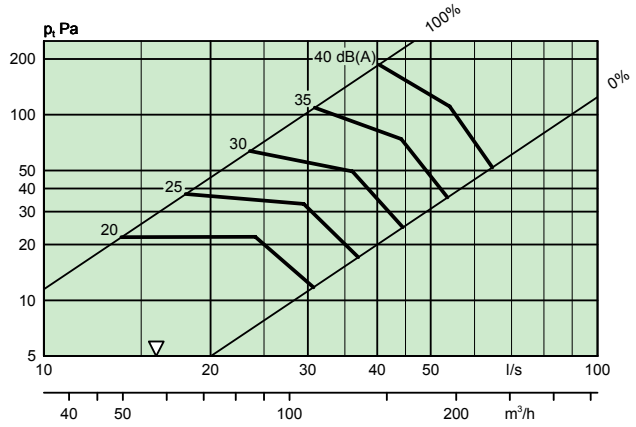
ROC 125, 160, Extract air



ROC 125 + ALS 100-125, Extract air



ROC 160 + ALS 125-160, Extract air



Dimensions and weight

Size	A	B	C	ØD	Ød	E	F	G	H	K	Weight, kg
125	304	282	217	99	124	60	180	100	270	80	1.6
160	380	342	252	124	159	60	204	112	315	80	2.1

CL = Center line

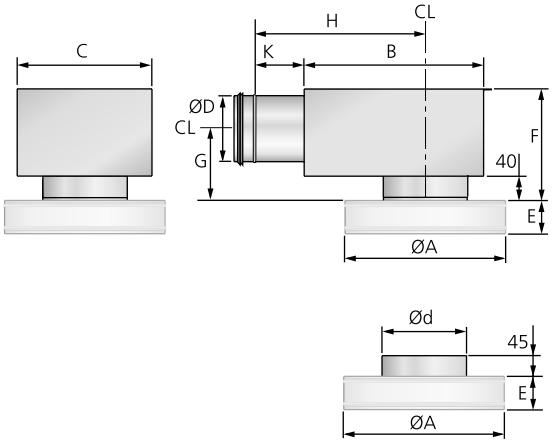


Figure 2. ROC + ALS.

Order key

Product

Circular ceiling/wall terminal with guide vane perforations	ROC	a	-aaa
Version			
Nom. connection dimension, mm: 125, 160			

Accessories

Commissioning box			ALS	d	-aaa -bbb
Version					
For ROC	125	ALS	100-125		
	160		125-160		

Specification example

TD XX
Swegons reinforced circular terminal type ROCa with commissioning box ALS and the following functions:

- Design in 1.5 mm sheet steel
- Guide vane perforations
- Removable adjustment damper with lockable position
- Measurement function with low method error
- Internal sound attenuating lining with reinforced surface layer
- Powder coated white RAL 9003/NCS S 0500-N

Size:	ROCa 160	xx items
Accessory:	ALSd 125-160	xx items