EXP Free

Circular extract air diffuser for suspended mounting

QUICK FACTS

- Large air flow range
- Designed for installation in rooms without suspended ceiling
- If necessary, the air distribution plate can be dismantled and rectified easily in connection with installation/ commissioning.
- Fast and simple installation and commissioning with the spring loaded Quick Access front
- Can be supplied in a galvanized design
- Standard colour White RAL 9003
  - 5 alternative standard colours
  - Other colours upon request

AIR FLOW - SOUND PRESSURE ROOM (Lp10A) *)						
EXP F Size	25 dB(A)		30 dB(A)		35 dB(A)	
	l/s	m³/h	l/s	m³/h	l/s	m³/h
100	28	101	34	122	42	151
125	49	176	58	209	70	252
160	82	295	97	349	115	414
200	122	439	145	522	172	619,2
250	170	612	205	738	245	882
315	255	918	310	1116	370	1332
400	370	1332	445	1602	510	1836

The table shows data for the open damper.

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

Swegon

Technical description

Design

The extract air diffuser consists of a circular commissioning box and a removable diffuser face. The commissioning box contains a removable commissioning damper, fixed measurement tapping and sound absorbent insulation covered by a reinforced surface layer, rated to Fire resistance class B-s1, d0 conforming to EN ISO 11925-2.

Material and surface treatment

The diffuser face is made of sheet steel. The commissioning box is made of galvanized sheet steel. The diffuser is finished, 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
  - 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.

Adaptation

EXP Free is available in a clear lacquered, galvanised design. The diffuser, which is an extract air diffuser, can easily be changed to a supply air diffuser of the type COLIBRI Free and EAGLE Free. The diffuser face is then replaced with a diffuser face with nozzles. For further particulars, get in touch with your nearest Swegon representative.

Project planning

Measurement of the air flow for EXP Free occurs inside the product on the damper insert. This means the straight section is minimised, see figure 1.

NOTE! The damper insert also has two blue tubes for supply air measurement, these should only be used if the product has been converted to a supply air diffuser, see the heading Adaptation. The requirements on the straight section of ducting on the supply air are also changed. Then see each supply air diffuser.

Installation

The air diffuser is normally suspended from the ceiling. An M8 pop nut, i.e. a threaded grommet that facilitates installation, is provided at the top and in the centre of the air diffuser. On sizes 315 and 400, there are two M8 pop nuts for more stable mounting, see figure 2a.

Alternative installation in pre-punched Ø10 mm hole, see figure 2b.

Refer to the separate Installation-Commissioning-Maintenance document for detailed installation instructions.

Commissioning

Commissioning should be carried out with the wall diffuser face mounted. A transparent measuring tube for extract air should be used. Pull out the damper adjustment cords and measuring tubes through the hole in the front. The rated coefficient of performance (K-factor) is specified on the identification label of the product and in the relevant commissioning instructions at www.swegon.com.

Maintenance

- Clean the air diffuser if needed with lukewarm water and dishwashing detergent added.
- The duct system can be accessed by lightly pulling the spring-loaded diffuser face downwards and then tilting, see figure 3.
- Dismantle the perforated air distribution plate located on the inlet as shown in figure 4. If necessary, the air distribution plate can be dismantled, performed in connection with installation or commissioning.
- Loosen the damper in the inlet from its bayonet fastening by rotating to the side.

Environment

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

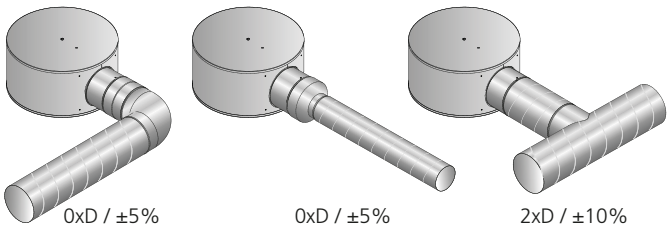


Figure 1. Length of straight section of duct

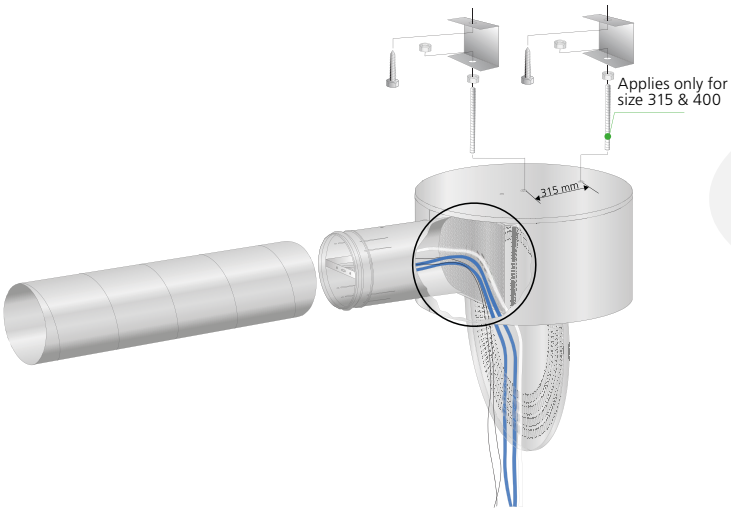


Figure 2a. Installation.

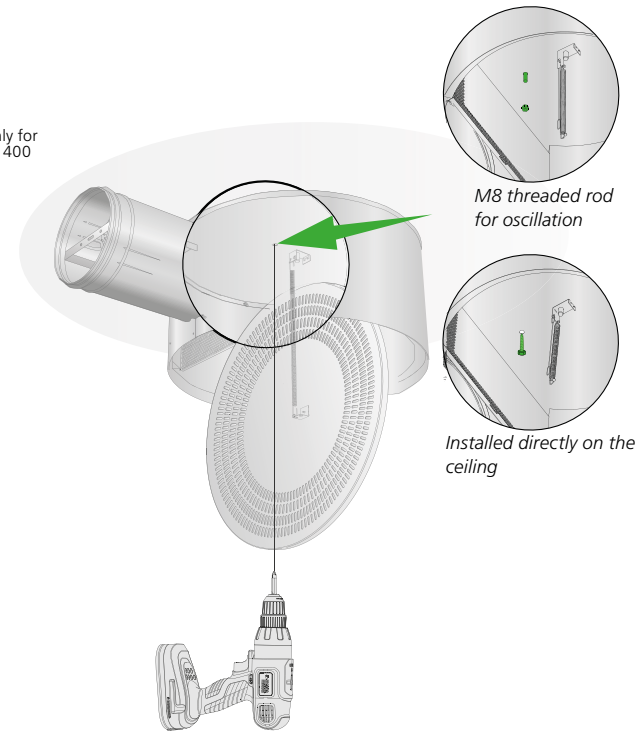


Figure 2b. Alternative installation in pre-punched Ø10 mm hole.

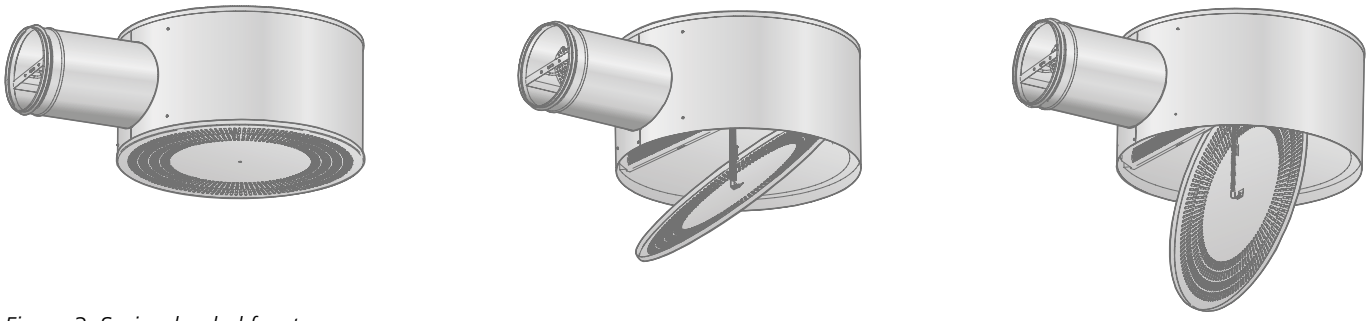


Figure 3. Spring-loaded front.

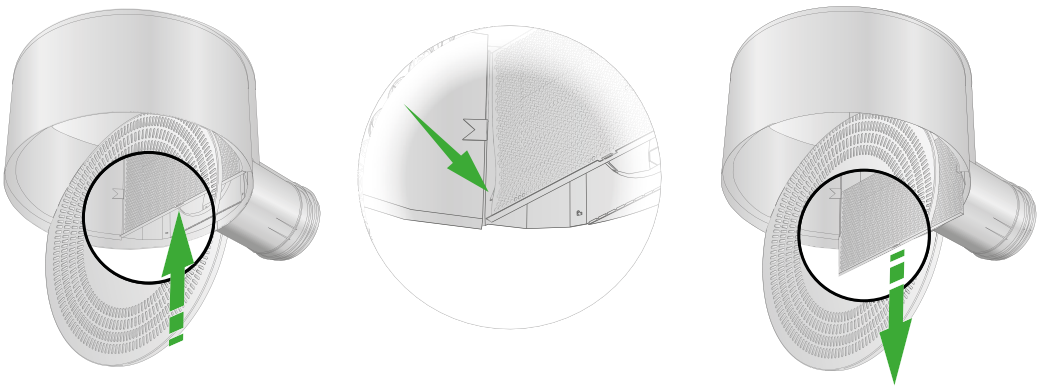
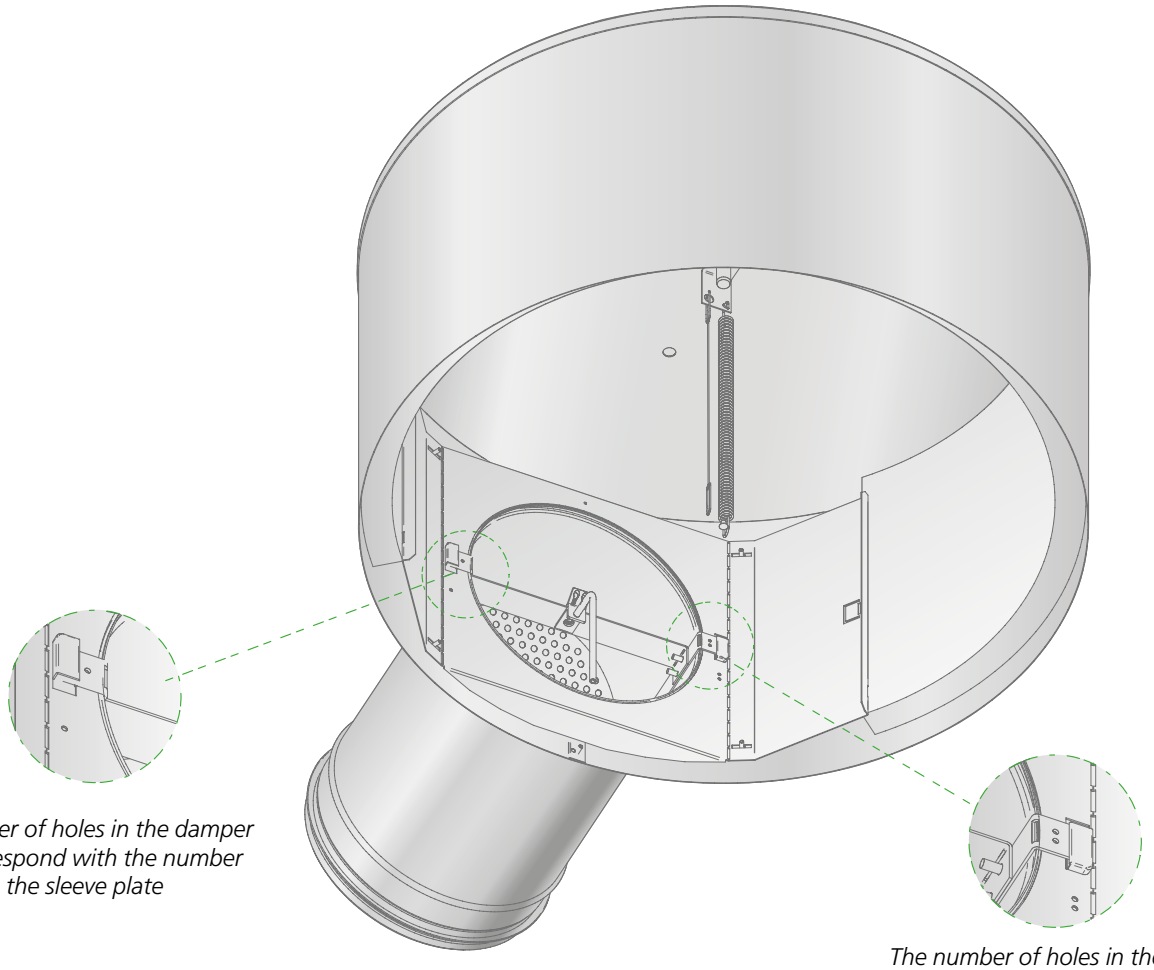


Figure 4. Dismantling the distribution plate.

Note: If necessary, the air distribution plate can be dismantled.

We recommend wearing gloves as there is a risk of cut injuries to the hands/fingers.



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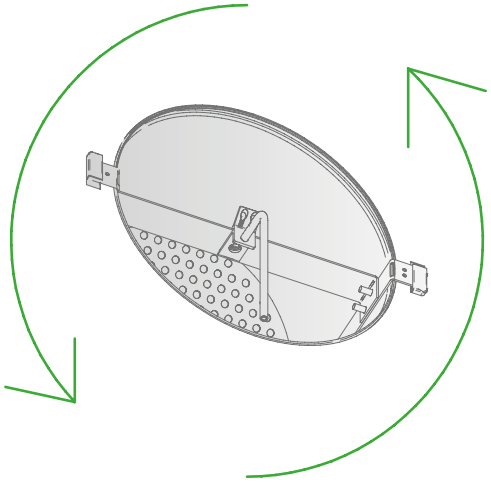


The damper is turned anticlockwise and pulled out.

Figure 5. Damper installation and dismantling.

We recommend wearing gloves as there is a risk of cut injuries to the hands/fingers.

Sizing

- Sound pressure level dB(A) applies to rooms with 10 m^2 equivalent sound absorption area.
- Sound attenuation (ΔL) below is shown in the octave band. Orifice attenuation is included in the values.
- Sound power level L_w in the octave band is obtained with the help of Table K_{ok}. The K_{ok} value includes the A-filter and room dampening.

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

Acoustic data

Extract air

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

EXP F	Mid-frequency (octave band) Hz							
Size	63	125	250	500	1000	2000	4000	8000
100	-14	7	9	-3	-5	-7	-15	-19
125	-7	9	8	-1	-6	-6	-13	-20
160	-9	9	6	-2	-3	-5	-12	-19
200	-12	10	4	-1	-2	-6	-13	-19
250	-5	10	3	-3	0	-6	-12	-20
315	-3	10	1	-1	-2	-7	-12	-17
400	2	9	1	0	-1	-6	-12	-20
Tol. ±	2	2	2	2	2	2	2	2

Sound attenuation ΔL(dB)
Table ΔL

EXP F	Mid-frequency (octave band) Hz							
Size	63	125	250	500	1000	2000	4000	8000
100	27	16	12	13	14	11	9	13
125	25	14	10	14	12	9	8	12
160	21	13	11	12	10	8	9	11
200	18	12	11	11	8	7	8	12
250	18	10	10	10	6	6	9	11
315	15	7	7	8	6	6	8	11
400	14	6	6	8	5	5	7	10
Tol. ±	2	2	2	2	2	2	2	2

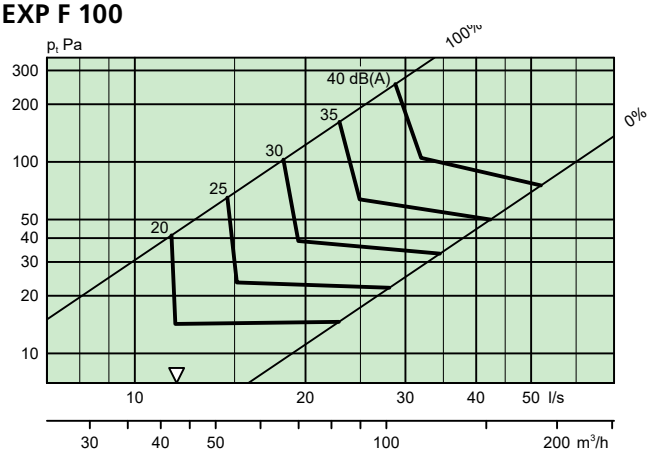
Sizing diagram

Extract air

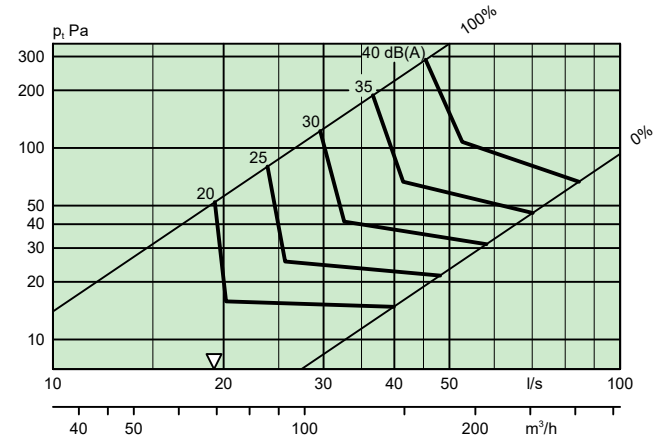
Air flow – Pressure drop – Sound level

- The dB(A) values apply to rooms with normal acoustic absorption, 4 dB room attenuation/10 m² equivalent room absorption area.
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.
- The diagrams should not be used for commissioning.
- The air diffusion plate can be dismantled to reduce blockage. K-factor and sound are not affected.

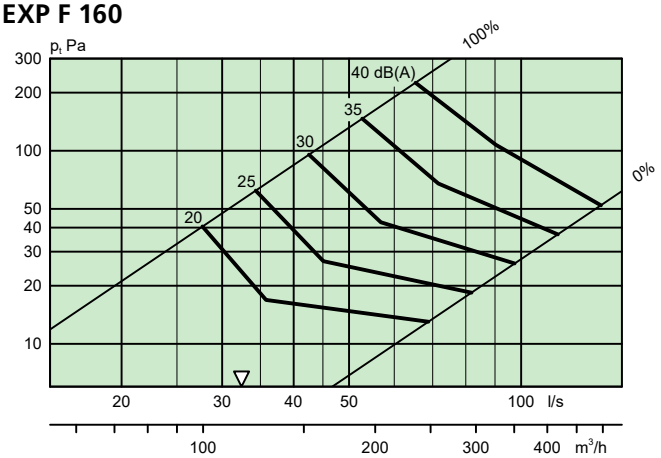
EXP F 100



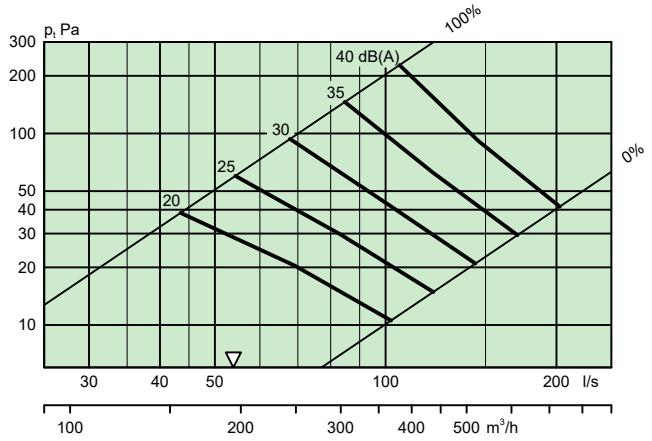
EXP F 125



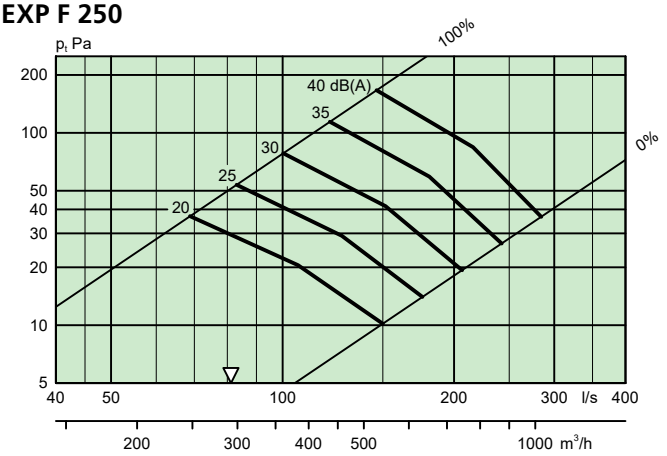
EXP F 160



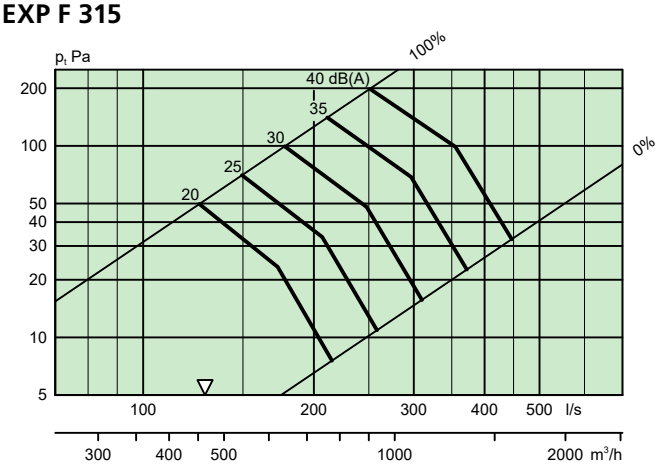
EXP F 200



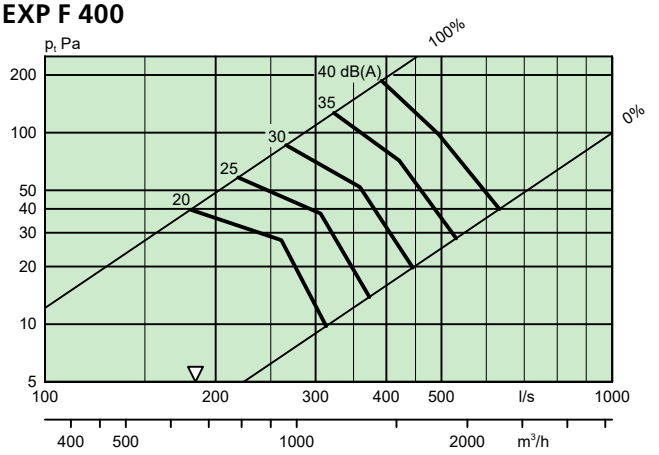
EXP F 250



EXP F 315



EXP F 400



Dimensions and weight

Size	A	B	C	D	E	Weight, kg
100	304	192	118	99	96	2,8
125	380	217	210	124	108	3,7
160	456	252	220	159	126	5,0
200	568	288	230	199	144	7,5
250	568	338	275	249	169	8,5
315	700	388	330	314	194	12,4
400	700	488	350	399	244	15,4

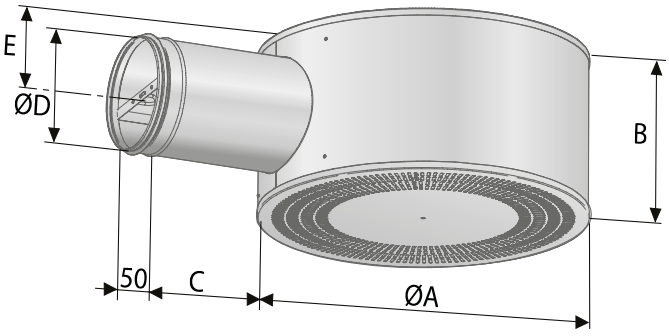


Figure 6. EXP F.

Specification

Product

Circular extract air diffuser	EXP F	b	-aaa
Version			
Nom. connection dimension, mm:			

Standard range

Size: 100
125
160
200
250
315
400

Specification text

Swegon's circular extract air diffuser for installation in rooms without suspended ceiling with the following functions:

- Compete round painted unit
- Removable commissioning damper with lockable setting
- Measurement function with low error of method
- Interior sound-absorbing lining with fibre-migration-proof surface layer
- The air distribution plate can be dismantled
- Cleanable
- Powder-painted and baked white finish, RAL 9003/NCS S 0500-N

Size: EXP Fb -aaa xx items