

GRC

Circular egg crate grille for transfer/extract air and wall/ceiling mounting



QUICK FACTS

- For exhaust air
- 91% free area
- Handles large airflows
- Cleanable
- 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) *)							
GRC Size		25 dB(A)		30 dB(A)		35 dB(A)	
		l/s	m³/h	l/s	m³/h	l/s	m³/h
100		29	104	35	126	42	151
125		45	162	53	191	63	227
160		69	248	80	288	94	338
200		106	382	123	443	142	511
250		156	562	181	652	209	752
315		238	857	275	990	319	1148
400		345	1242	407	1465	480	1728
500		494	1778	590	2124	703	2531
630		752	2707	895	3222	1065	3834
GRC Size	ALS Size	25 dB(A)		30 dB(A)		35 dB(A)	
		l/s	m³/h	l/s	m³/h	l/s	m³/h
100	80-100	21	76	25	90	30	108
125	100-125	31	112	37	133	44	158
160	125-160	42	151	51	184	61	220
200	160-200	63	227	76	274	92	331
250	200-250	101	364	121	436	145	522
315	250-315	165	594	198	713	237	853
400	315-400	265	954	312	1123	367	1321
500	400-500	406	1462	476	1714	559	2012
630	Size 630 does not have any commissioning box						

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

The table shows data for fully open damper position.

Technical description

Design

The GRC is supplied with push-in connection and without screw holes.

Materials and surface treatment

The raster grille is made of aluminium with an outer frame of cold-rolled sheet steel, these parts are finished. The duct connection sleeve is made of zinc plated sheet steel.

- 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

Commissioning box:

ALS. Manufactured in galvanized sheet steel. The commissioning box includes a removable damper, fixed measurement tapping and sound absorbent insulation covered by a reinforced surface layer, to Fire Resistance Class B-s1,d0 according to EN ISO 11925-2.

Project planning

The grille can be installed in a walls or ceilings. Stocked sizes according to table under the section Ordering key, see Standard range.

Free area

To obtain the free area, the inner area of the grille is multiplied by the factor $f = 0.91$.

Example:

Grille: GRL GRC 200

Inner area of grille (ØB-measurement):

$$A = (\text{ØB}^2 \times 3,14) / 4$$

$$(0,18^2 \times 3,14) / 4 = 0,0254 \text{ m}^2$$

Free area of grille:

$$0,91 \times 0,0254 = 0,023 \text{ m}^2$$

Installation

The grille can be pressed directly into the duct. When commissioning box is used, secure it to the building structure with hangers or mounting brackets. The distance between the commissioning box and the air diffuser can be increased by as much as 500 mm using an ordinary circular duct without having to lengthen the measuring tube and damper adjustment cords. See figure 1.

Commissioning

Commissioning must be carried out with the grille installed. The transparent measurement tube and damper cords are pulled through the grille. Connect a manometer to the



transparent measuring tube. The required commissioning pressure can be calculated by means of the K-factor of the air diffuser/register. Adjust the damper to the correct position and tie a commissioning knot on the damper cords to indicate the damper setting.

The k-factor is found in the product label and can also be found in the relevant k-factor guide which is to be found at www.swegon.com.

Maintenance

The grille can be cleaned when necessary using lukewarm water and detergent.

If the ALS commissioning box is used, the inside of this should be vacuum cleaned when needed.

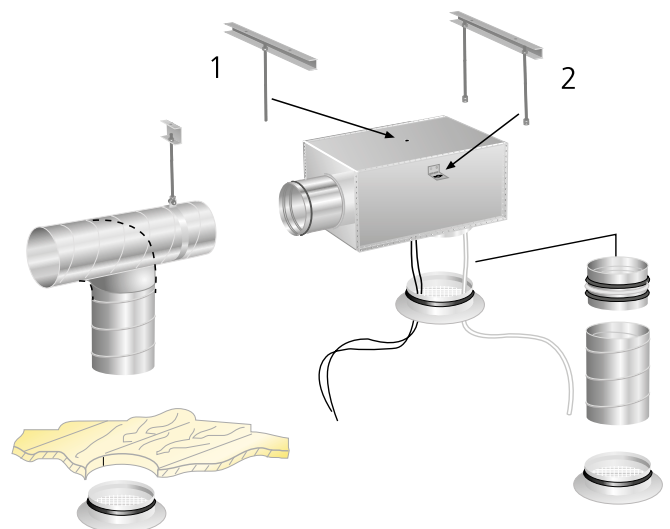


Figure 1. Installation.

Sizing

- 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.

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

GRC – Extract air

Sound power level L_w (dB)

Table K_{OK}

Size GRC	Mid-frequency (Octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	-13	-5	-5	-6	-4	-1	-4	-18
125	-12	1	-2	-6	-5	-1	-5	-19
160	-6	-4	-6	-6	-2	-1	-6	-21
200	-8	-6	-5	-5	-2	-1	-7	-22
250	-13	-8	0	-4	-1	-1	-10	-24
315	-10	-6	1	0	-1	-3	-13	-24
400	-10	-3	4	0	-1	-5	-16	-24
500	-3	-3	6	1	-2	-7	-20	-27
630	5	3	6	3	-2	-9	-22	-29
Tol. $\pm$	2	2	2	2	2	2	2	2

Sound attenuation L_w (dB)

Table ΔL

Size GRC	Mid-frequency (Octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	21	15	11	7	4	3	0	0
125	20	14	10	5	3	2	0	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
400	13	8	4	1	1	0	0	0
500	9	4	3	1	1	1	0	0
630	7	3	2	1	1	1	0	0
Tol. $\pm$	2	2	2	2	2	2	2	2

GRC + ALS – Extract air

Sound power level L_w (dB)

Table K_{OK}

Size GRC + ALS	Mid-frequency (Octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	-7	6	6	0	-4	-5	-7	-17
125	-5	10	8	0	-5	-6	-12	-19
160	-7	10	8	-1	-6	-6	-12	-20
200	-4	9	6	-2	-5	-5	-12	-22
250	-6	7	3	-5	-5	-3	-11	-23
315	0	10	4	-4	-3	-6	-11	-22
400	0	7	1	-2	-1	-5	-15	-27
500	9	8	0	0	-1	-4	-13	-21
Tol. $\pm$	2	2	2	2	2	2	2	2

Sound attenuation L_w (dB)

Table ΔL

Size GRC + ALS	Mid-frequency (Octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	14	14	13	16	26	16	10	11
125	18	16	9	17	23	16	11	13
160	22	14	10	17	19	12	10	12
200	19	11	8	16	18	12	11	11
250	16	8	8	16	17	12	12	13
315	14	6	7	19	14	10	10	13
400	14	5	8	14	11	10	11	12
500	8	4	6	12	10	9	10	10
Tol. $\pm$	2	2	2	2	2	2	2	2

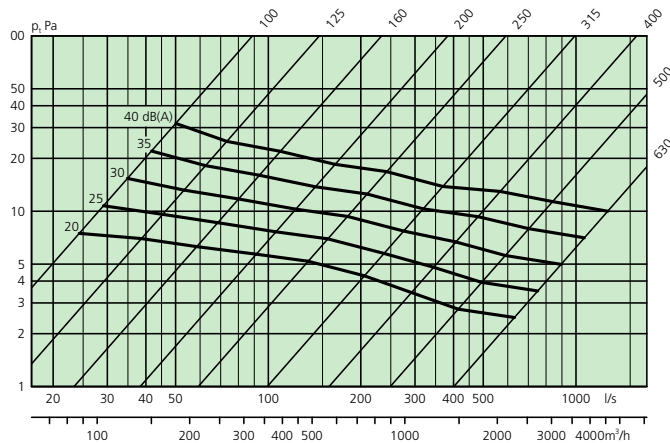
Sizing diagram

- The dB(A) values are for rooms with normal acoustic absorption (4 dB room attenuation).
- The dB(C) value is normally 6-9 dB higher than the dB(A) value.
- The diagrams should not be used for commissioning.

Extract air - Air diffuser only

Airflow – Pressure drop – Sound level

GRC 100-630, Extract air

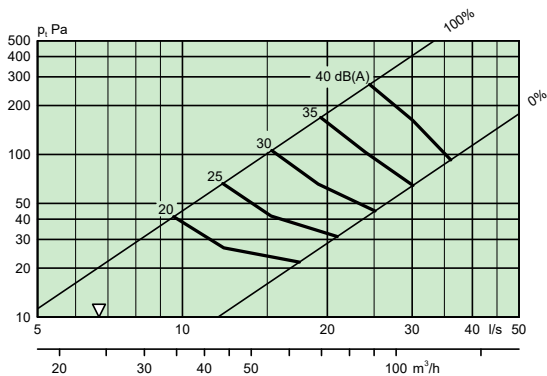


Extract air - Air diffuser with commissioning box

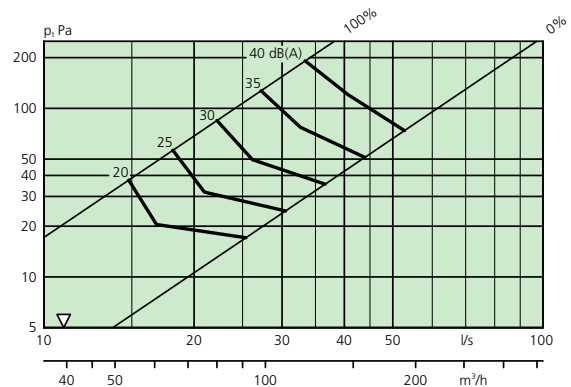
Airflow – Pressure drop – Sound level

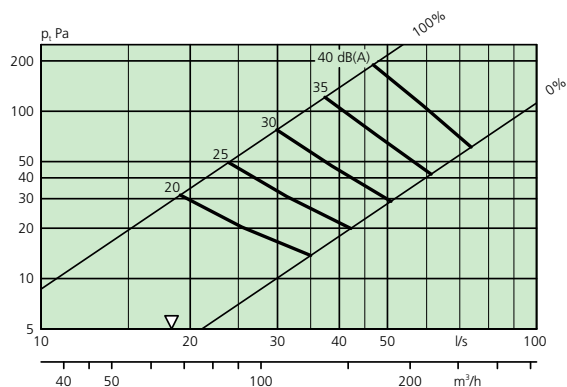
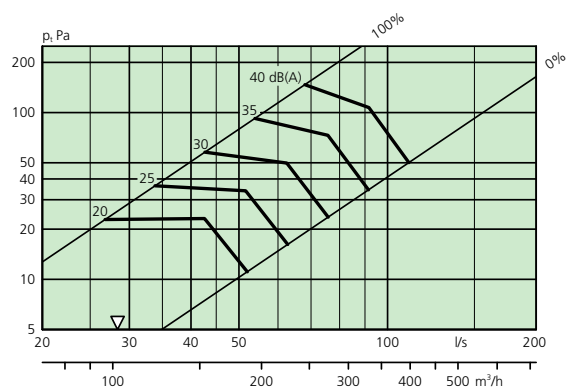
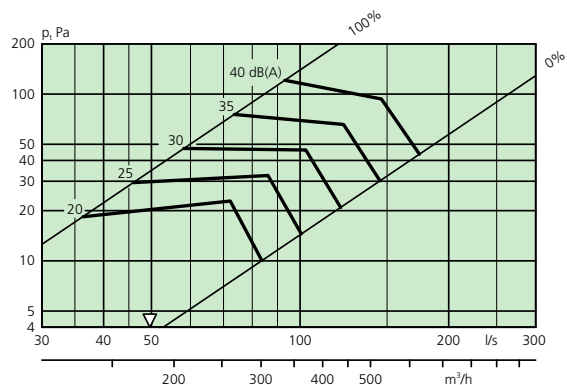
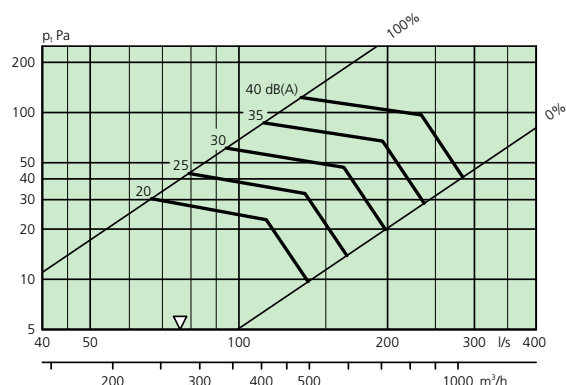
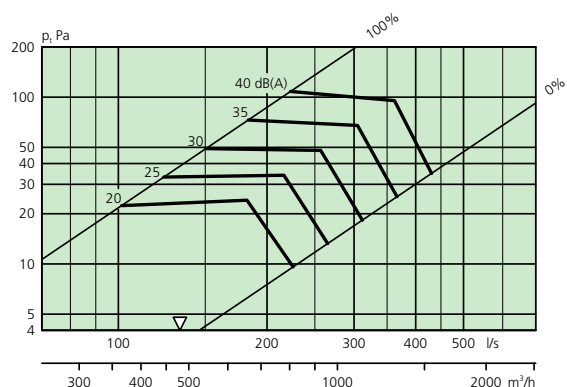
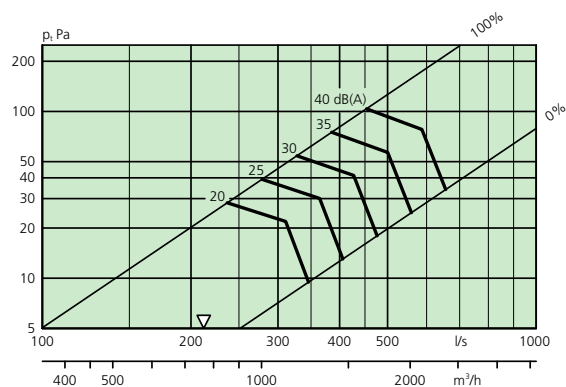
- ▽ = Min. airflow required for obtaining sufficient commissioning pressure.

GRC 100 ALS 80-100, Extract air



GRC 125 ALS 100-125, Extract air



GRC 160 ALS 125-160, Extract air**GRC 200 ALS 160-200, Extract air****GRC 250 ALS 200-250, Extract air****GRC 315 ALS 250-315, Extract air****GRC 400 ALS 315-400, Extract air****GRC 500 ALS 400-500, Extract air**

Dimensions and weights

Table of dimensions – GRC

Size	ØA	ØB	ØC	L	Weight (kg)
100	138	93	99	36	0.2
125	163	118	124	53	0.2
160	203	148	159	53	0.3
200	243	188	199	53	0.4
250	293	238	249	53	0.5
315	363	303	314	70	0.9
400	448	388	399	75	1.2
500	548	488	499	75	1.6
630	678	618	629	75	2.5

Dimensions of opening = $\text{ØC} + 11 \text{ mm}$

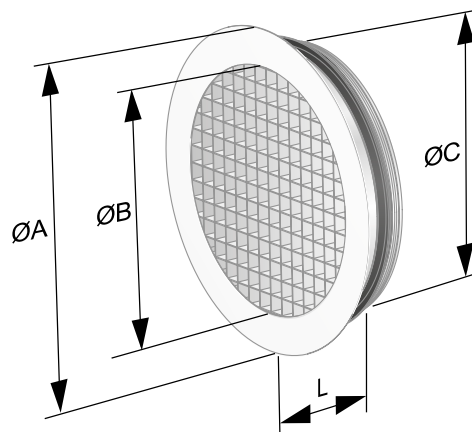


Figure 2. GRC.

Table of dimensions GRC + ALS

Size	ØA	B	C	ØD	Ød	E	F	G	H	K	Weight (kg)
100	138	227	192	79	100	162	40	90	200	50	1.5
125	163	282	217	99	125	182	40	100	270	80	2.2
160	203	342	252	124	160	204	40	112	315	80	3.0
200	243	404	288	159	200	239	40	130	375	100	3.9
250	293	504	332	199	250	279	40	150	465	115	5.7
315	363	622	388	249	315	340	40	175	575	140	8.9
400	448	767	488	314	400	400	40	212	712	175	11.6
500	548	887	588	399	500	510	60	280	795	50	12.1

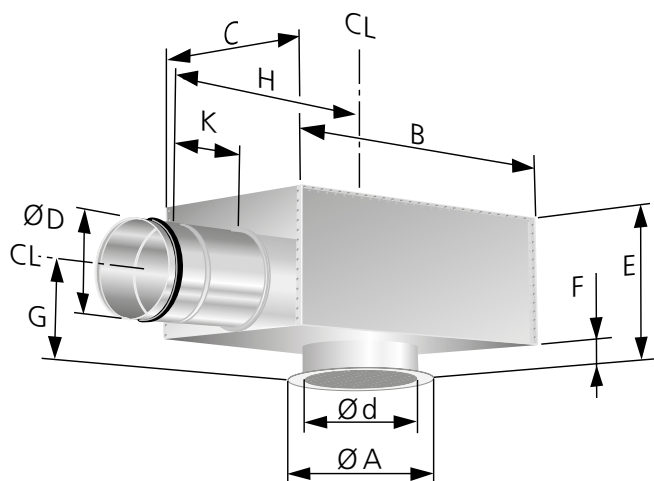


Figure 3. GRC with commissioning box ALS. CL = Centerline.

Ordering key

Product

Grille for wall and ceiling GRC b aaa

Version:

Size: 100, 125, 160, 200, 250, 315, 400, 500 and 630

Accessories

Commissioning box ALS d aaa-bbb

Version:

For GRC	ALS
100	80-100
125	100-125
160	125-160
200	160-200
250	200-250
315	250-315
400	315-400
500	400-500
630	500-630

Specification example

Swegon's circular grille for wall/ceiling mounting of the type GRC with the commissioning box ALS, having the following functions:

- Fixed circular egg crate core.
- Powder-coated in white, RAL 9003/NCS S 0500-N.
- Cleanable commissioning box ALS with removable commissioning damper including a lockable adjustment, measurement function with low method error and internal acoustic attenuation with reinforced surface layer.

Size: GRCb aaa with ALSd aaa-bbb xx items