REACT P GMB

Pressure regulation damper – Gruner Modbus

QUICK FACTS

- Pressure measurement up to 1.2 inWG, recommended control range 0.08-1.16 inWG
- Rapid setting/reading of parameters via the controller's lit display
- Analog control and Modbus control
- Can be easily insulated against condensation in the duct system
- Commissioning without power possible with hand-held terminal Gruner GUIV3-M
- Variants:
  - Circular connections: Ø4-24 in
  - Rectangular connections: 8x8-55x28 in

Swegon

Content

Technical description

General

- Intended for pressure control of comfort ventilation.
- Moist, cold and aggressive environments must be avoided.
- Can be installed in both supply and exhaust air systems.
- Pressure dependent and recommended minimum duct pressure 0.08 inWG.

Design

- Analog control and Modbus control.
- Integrated pressure controller.
- Pressure measurement via measuring tube.
- Measuring tube Ø0.3/0.2 in included, length see table on pages 8 and 10.

Circular design

- Connection: Ø4-24 in.
- Always supplied with dust protection.
- Raised actuator mounting plate to facilitate condensation insulation of the duct system.
- A factory-insulated model is available on request.

Rectangular design

- Slip-clamp connection.
- Connection 8x8-55x28 in.
- Other sizes are also available on request.

Functions

- Pressure regulation.
- Illuminated display for direct reading.
- Settings can be made directly on the controller without external tools.
- Setting and reading of parameters can be performed on the controller even when the actuator is without power via the external hand-held terminal Gruner GUIV3-M.

Materials and surface treatment

- All sheet-metal parts are galvanized sheet steel (Z275).

Project design / Typical room

See separate documentation "REACT Gruner Description of functions & wiring diagrams", available for download via www.swegon.com.

Maintenance

The product does not require any maintenance/service, except for any cleaning when necessary. See the separate Instructions for Use, available on www.swegon.com.

Environment

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

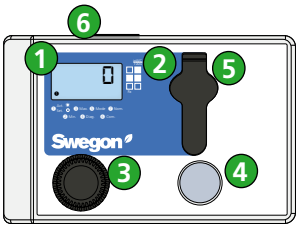
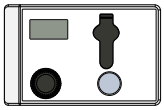


Figure 1. REACT P GMB regulator.
1. Display
2. Unit matrix
3. Value selector
4. Pushbutton and LED lighting
5. Service port
6. Release button

Accessories

FSR	Clamp for easy dismantling of the circular design for cleaning and inspection
Gruner GUIV3-M	Hand-held terminal for setting of parameters on the actuator
Measuring tube	Extra measuring tube that is available on request
DUCT ADAPTER 160-6"	Adapter for installing size 160 in a 6" circular duct
DUCT ADAPTER 315-12"	Adapter for installing size 315 in a 12" circular duct
DUCT ADAPTER 630-25"	Adapter for installing size 630 in a 25" circular duct


FSR


Gruner GUIV3-M


Measuring tube


DUCT ADAPTER 160-6"


DUCT ADAPTER 315-12"


DUCT ADAPTER 630-25"

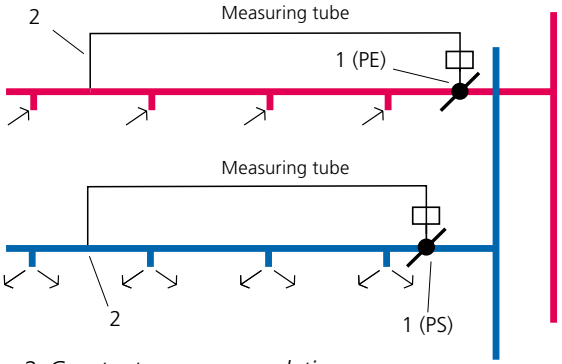


Figure 2. Constant pressure regulation.
1. REACT P GMB.
2. Pressure measurement via measuring tube.

Technical data

IP class:	IP42 (Cable installed downwards)
Corrosivity class:	C3
Pressure class:	A
Leakage classes according to SS-EN 1751	
- Leakage class, casing:	C
- Leakage class circular damper, closed:	4
- Leakage class rectangular damper, closed:	3
Running times open/close (90°):	
89 lbf.In/133 lbf.In:	150 s
Ambient temperature	
Operation:	32 – 122°F
Storage:	-4 – 176°F
RH:	5 – 95% (non condensing)
CE marking:	2006/42/EC (MD)
	2014/30/EU (EMC)
	2011/65/EU (RoHS2)

Electrical data

Power supply:	24 V AC/DC ±15% 50 - 60 Hz	
Fixed connection cable, 39.4 in with cable size.		
Supply voltage/control signal	4x18 AWG	
Modbus	2x22 AWG	
	See figure 3 below.	
Power consumption, for transformer rating:		
REACT P GMB 89 lbf.In	2.0 W	3.5 VA
REACT P GMB 133 lbf.In	2.0 W	4.0 VA

See torque in table, pages 8 and 10.

Connection

1-2 – Supply voltage	24 V AC/DC
3 – Control signal (Y)	0..10/(2..10) V DC
4 – Actual value signal (U)	0..10/(2..10) V DC
A – Modbus (-CA)	
B – Modbus (+CB)	

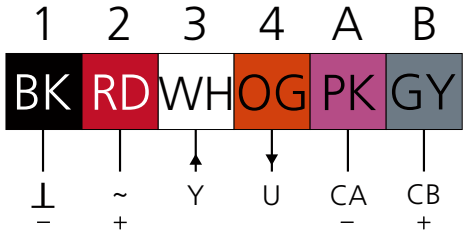


Figure 3. Connection.

Sizing

Circular design

- Note: Increased air flow gives increased duct velocity and increased sound level.

Sound data

Sound power level

- The diagrams show the a-weighted sound power (L_{WA}-dB), as a function of the air flow and pressure drop across the damper.
- Correct L_{WA} with correction factor K_{ok} from the tables below to obtain the sound power levels for each octave band ($L_W = L_{WA} + K_{ok}$).

Correction factors for conversion to sound power in octave bands:

L_{WA}= Sound level with A-filter but without room attenuation in the sizing diagram for duct product.

K_{ok} = Correction factor in octave bands.

K_{trans} = Correction factor in octave bands for transmitted sound.

Sound power in octave bands

$L_W = L_{WA} + K_{ok}$ [dB]

Correction factor, K_{ok}

Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	7	7	5	-1	-5	-10	-17	-22
125	7	9	6	-2	-4	-10	-19	-25
160	5	10	6	-3	-5	-11	-18	-24
200	5	10	5	-2	-5	-11	-19	-27
250	8	5	2	-3	-6	-10	-18	-24
315	4	6	3	-3	-6	-10	-18	-25
400	6	3	1	-3	-5	-10	-17	-26
500	3	0	-1	-3	-5	-10	-17	-28
630	3	-1	-2	-3	-5	-9	-17	-27
Tol. ±	6	3	2	2	2	2	2	2

Transmitted sound through uninsulated casing

$L_W = L_{WA} + K_{trans}$ [dB]

Correction factor, K_{trans}

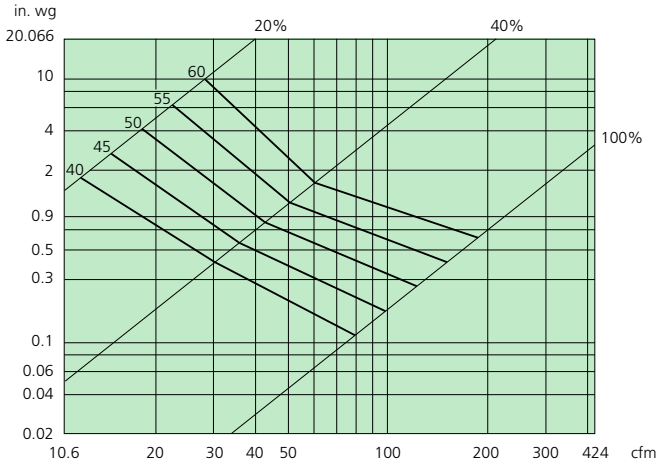
Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	-2	-9	-7	-10	-9	-10	-15	-22
125	-4	-9	-8	-13	-9	-12	-19	-27
160	-7	-9	-10	-15	-12	-15	-20	-28
200	-9	-11	-13	-16	-14	-16	-23	-32
250	-8	-18	-17	-19	-17	-17	-23	-31
315	-14	-19	-18	-21	-18	-19	-25	-34
400	-13	-23	-22	-22	-19	-21	-26	-37
500	-18	-28	-27	-24	-21	-22	-28	-40
630	-18	-27	-27	-24	-21	-21	-29	-38
Tol±	6	3	2	2	2	2	2	2

Sizing diagram

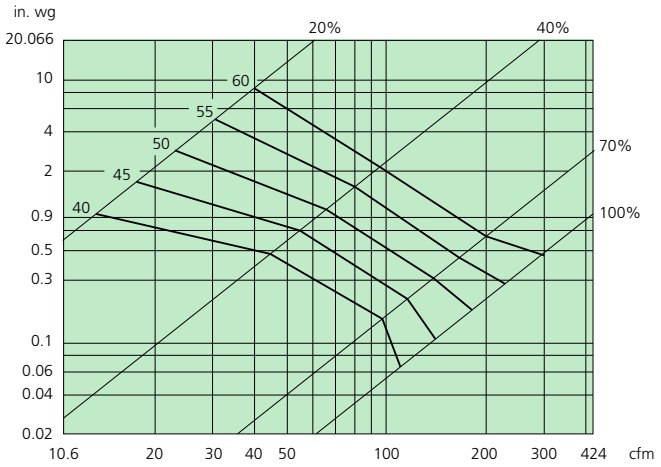
Air flow – Pressure drop – Sound level

- Specified sound levels, L_{WA}: 30, 35, 40, 45 and 50 dB.
- Data is for the sound created in the duct.
- 100% corresponds to the damper being fully open.

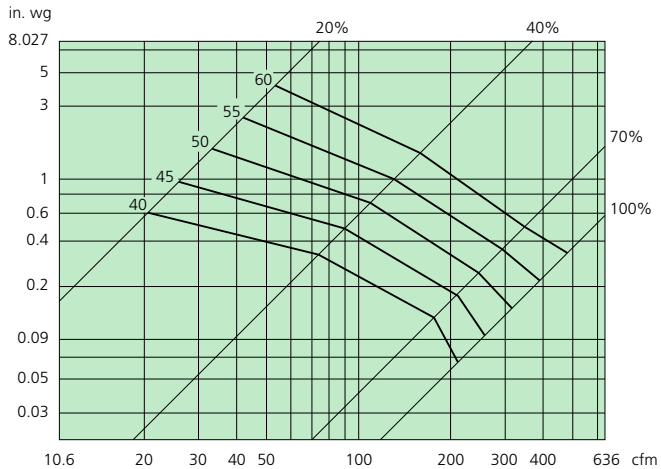
REACT P GMB 100



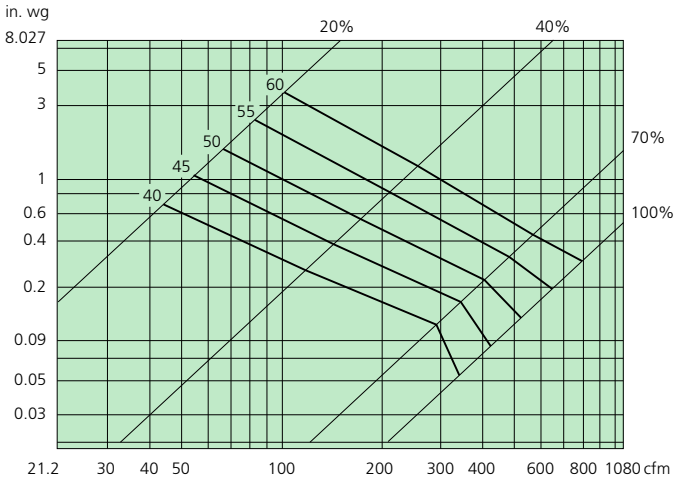
REACT P GMB 125



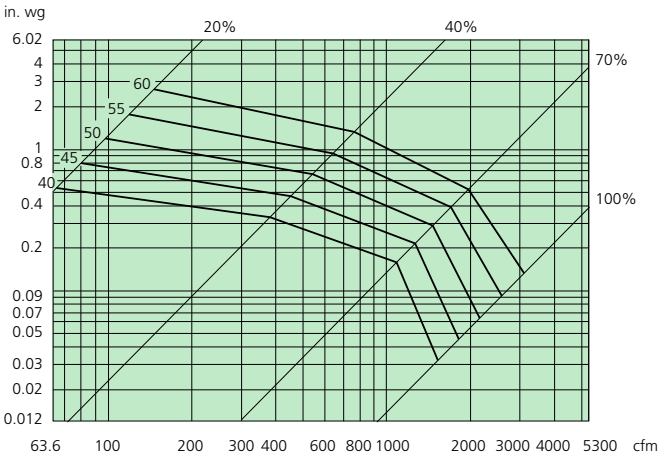
REACT P GMB 160



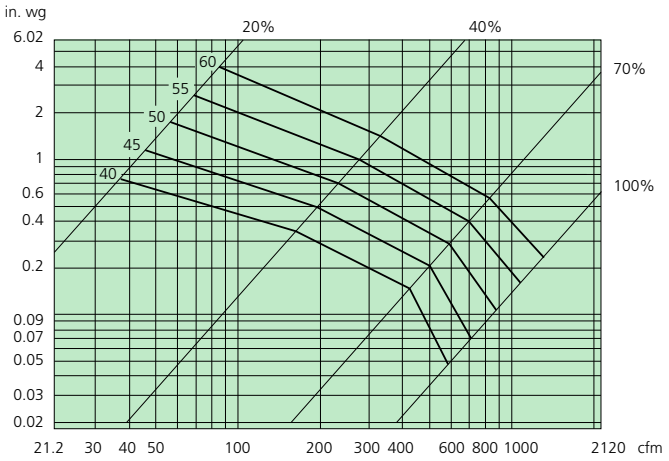
REACT P GMB 200



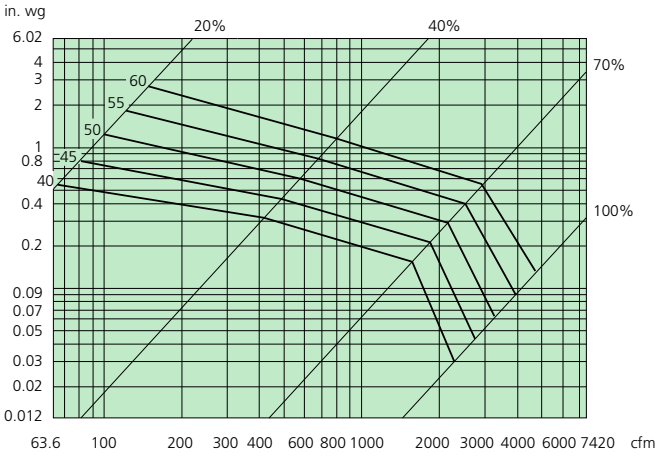
REACT P GMB 400



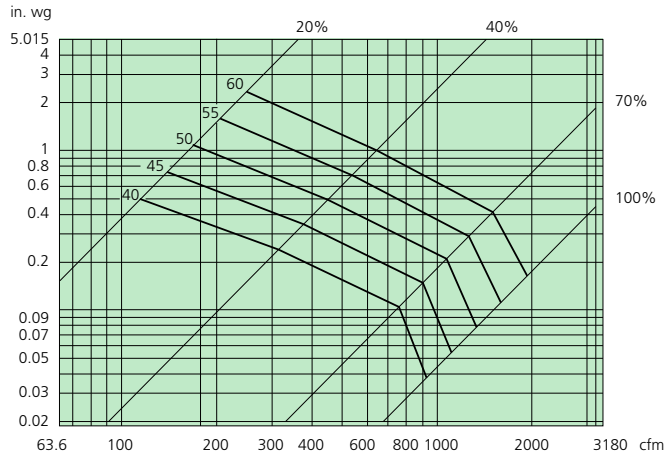
REACT P GMB 250



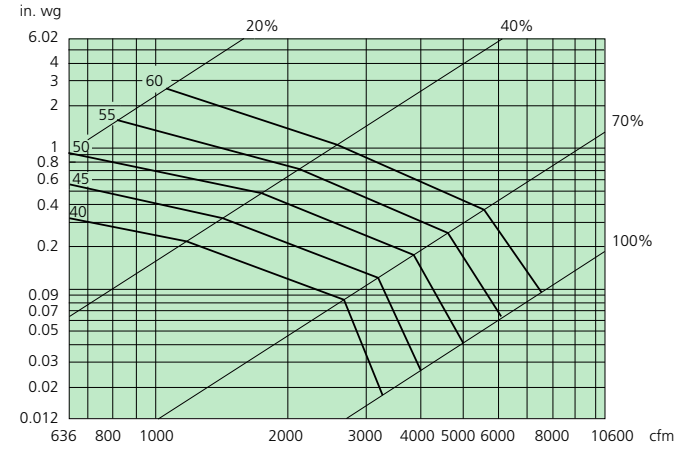
REACT P GMB 500



REACT P GMB 315



REACT P GMB 630



Rectangular design

- Note: Increased air flow gives increased duct velocity and increased sound level.

Sound data

Sound power level

- The diagram shows the a-weighted sound power (L_{WA}-dB), as a function of the air flow and pressure drop across the damper.
- Correct L_{WA} with correction factor K_{ok} from the tables below to obtain the sound power levels for each octave band ($L_W=L_{WA}+K_k+K_{ok}$).

Sound power in octave bands

$$L_W = L_{WA} + K_k + K_{ok}$$

Correction factor, K_{ok}

Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
All	7	3	1	0	-5	-14	-23	-22
Tol. ±	4	4	3	2	2	2	2	2

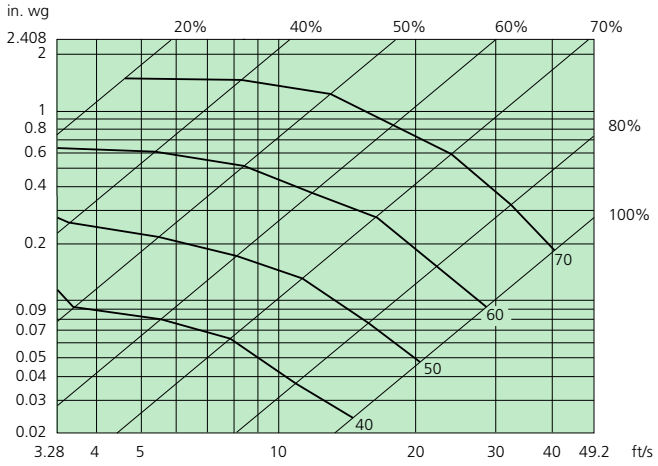
Correction factor, K_K for the front surface of the damper

Correction factor – front surface								
Area m^2	0.1	0.15	0.25	0.4	0.6	1.0	1.6	2.5
K_k	-3	-2	0	2	4	6	8	10

Sizing diagram

Velocity - Pressure drop - Sound level

- Data is for the sound created in the duct.
- Specified sound levels, L_{WA}: 40, 50, 60 and 70 dB.
- Calculate the face velocity across the damper and read the sound data and pressure drop at an appropriate damper position.
- 100% corresponds to the damper being fully open.



Installation, torque, dimensions and weights

Circular design

Dimensions

REACT P GMB Size	Duct size (Nominal) Ød (in)	Inlet diameter Ød (in)	Measuring tube length (ft)	A (in)	B (in)	C (in)	E (in)	F (in)	Torque (lbf.In.)	Weight (lb)
100	4	3.9	7	8.3	1.7	7.5	8.7	2	89	3.1
125	5	4.9	7	8.3	1.7	8.7	8.7	2	89	3.3
160	6	5.9*	7	8.3	1.7	10.2	8.7	2	89	3.5
200	8	7.8	7	8.3	1.7	11.8	8.7	2	89	4.0
250	10	9.8	7	8.3	1.7	14.0	8.7	2	89	4.4
315	12	11.8*	13	8.3	1.7	16.3	8.7	2	89	5.5
400	16	15.7	13	10.0	0.8	19.9	10.4	2	89	7.7
500	20	19.6	20	10.0	0.8	23.8	10.8	2	89	11.0
630	24	23.8*	20	10.0	0.8	28.9	10.8	2	133	14.6

*Dimensions including DUCT ADAPTER.

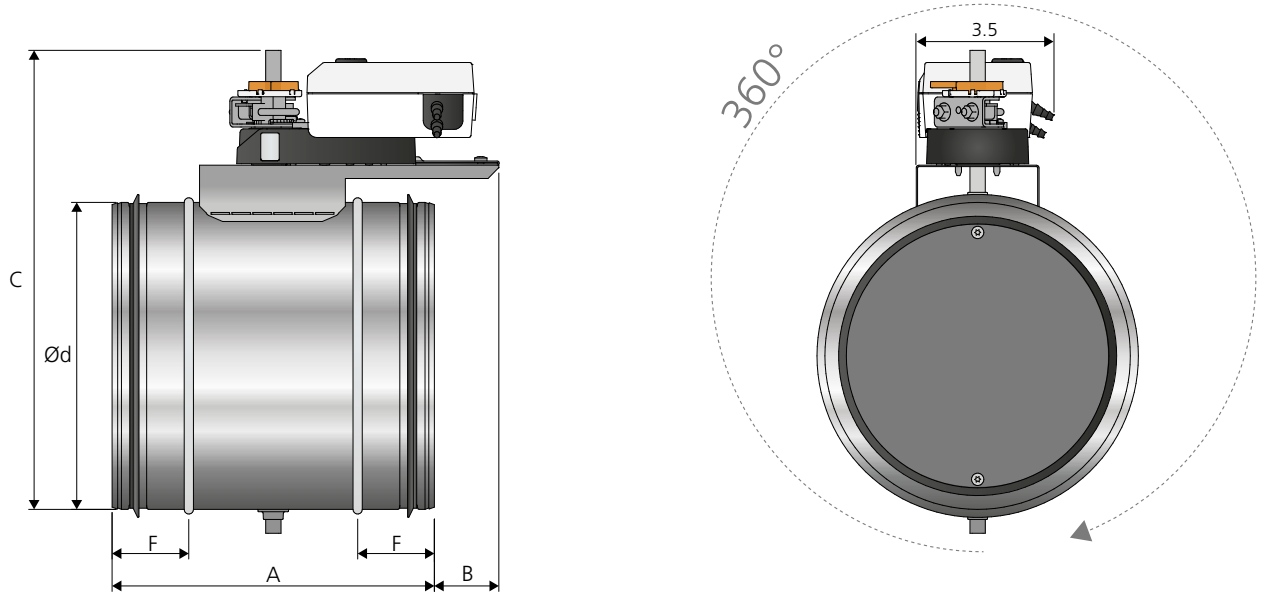


Figure 4. Dimensions (in), REACT P GMB circular. The damper can be installed at an optional angle.

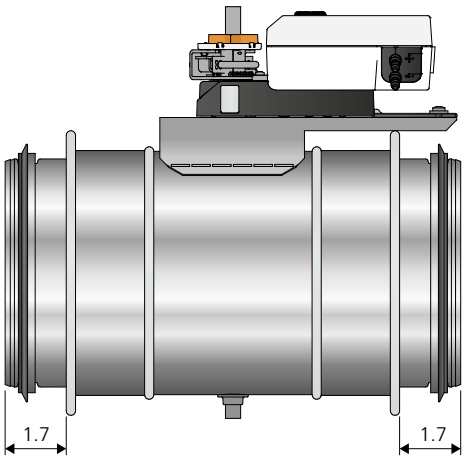


Figure 5. Dimensions (in), REACT P GMB circular with DUCT ADAPTER installed.

Installation

- The product's pressure measurement requires spacing as per the installation figures.
- In unfavourable conditions before or with disruption, the product's tolerances cannot be guaranteed.
- Installation is position independent.
- The product can be installed horizontally or vertically.
- Instructions for Use are supplied on delivery, but can also be downloaded from www.swegon.com.

Distance requirements

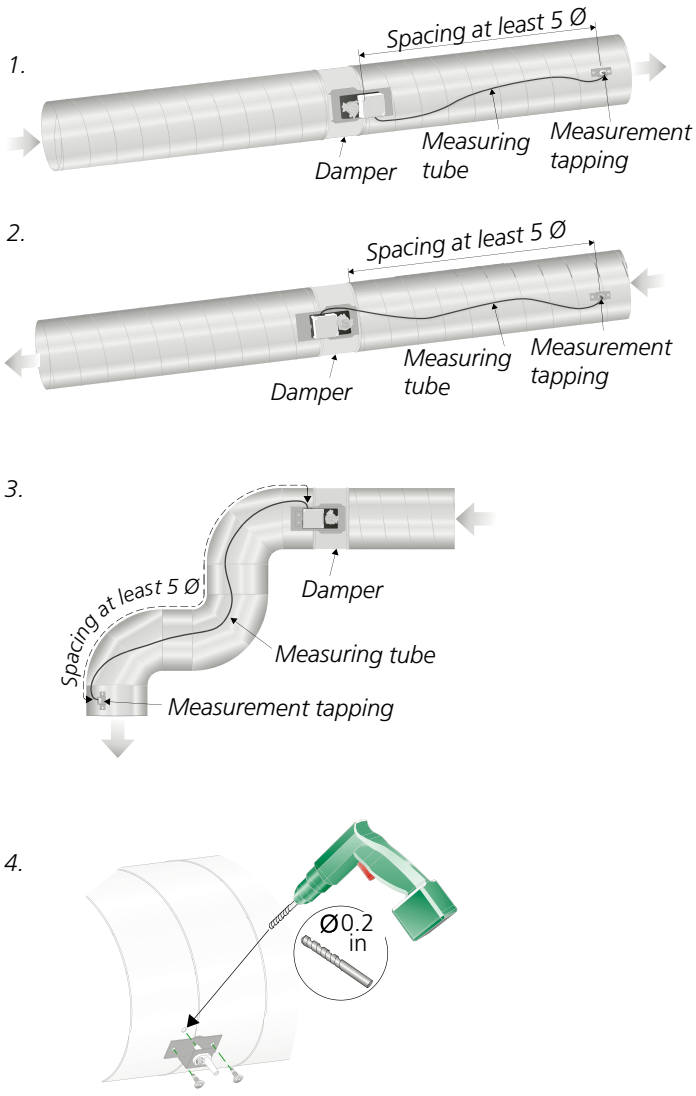


Figure 6. Distance requirements in circular ducts, number of Ø before and after product:
1. At least 5 x Ø after the damper (supply air).
2. At least 5 x Ø before the damper (exhaust air).
3. Examples of how spacing can be measured.
4. Installation of measurement tapping.

Installation in the duct system

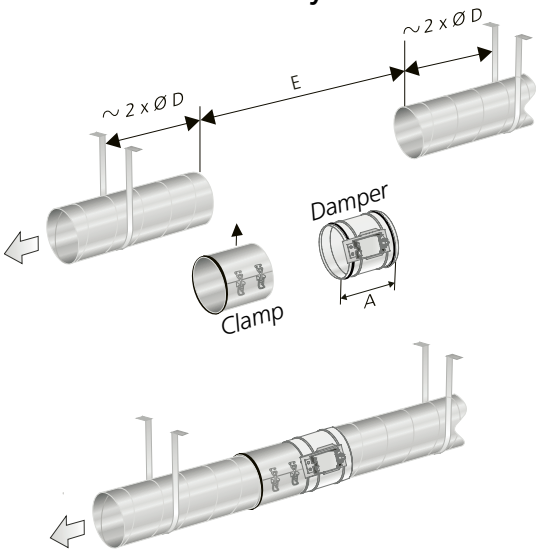
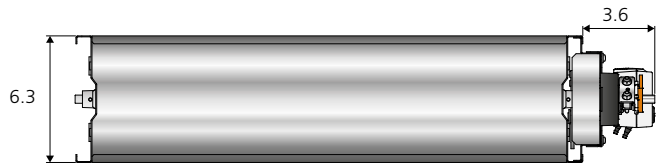


Figure 7. Installation in the duct system. The ducts must be firmly fixed to the frame of the building on each side of the product.

Rectangular design

Dimensions

REACT P GMB Size	Duct size (Nominal) (in)	Inlet dimensions BxH (in)	Measuring tube length (ft)	Torque (lbf. in.)	Weight (lb)
200x200	8x8	7.9x7.9	7	89	8.2
300x200	12x8	11.8x7.9	13	89	9.7
400x200	16x8	15.7x7.9	13	89	11.2
500x200	20x8	19.7x7.9	20	89	12.8
600x200	24x8	23.6x7.9	20	89	14.3
700x200	28x8	27.6x7.9	26	89	15.7
800x200	32x8	31.5x7.9	26	89	17.2
1000x200	39x8	39.4x7.9	39	89	20.3
300x300	12x12	11.8x11.8	13	89	12.3
400x300	16x12	15.7x11.8	13	89	14.1
500x300	20x12	19.7x11.8	20	89	15.9
600x300	24x12	23.5x11.8	20	89	17.6
700x300	28x12	27.6x11.8	26	89	19.4
800x300	32x12	31.5x11.8	26	89	21.2
1000x300	39x12	39.4x11.8	39	89	24.9
400x400	16x16	15.7x15.7	13	89	17.2
500x400	20x16	19.7x15.7	20	89	19.2
600x400	24x16	23.5x15.7	20	89	21.2
700x400	28x16	27.6x15.7	26	89	23.4
800x400	32x16	31.5x15.7	26	89	25.6
1000x400	39x16	39.4x15.7	39	89	29.8
1200x400	47x16	47.2x15.7	39	89	33.7
1400x400	55x16	55.1x15.7	52	89	37.9
1600x400	63x16	63.0x15.7	52	89	42.1
500x500	20x20	19.7x19.7	20	89	22.3
600x500	24x20	23.5x19.7	20	89	24.7
700x500	28x20	27.6x19.7	26	89	27.1
800x500	32x20	31.5x19.7	26	89	29.5
1000x500	39x20	39.4x19.7	39	89	34.2
1200x500	47x20	47.2x19.7	39	89	39.0
1400x500	55x20	55.1x19.7	52	89	43.7
1600x500	63x20	63.0x19.7	52	89	48.3
600x600	24x24	23.5x23.5	20	89	28.2
700x600	28x24	27.6x23.5	26	89	30.9
800x600	32x24	31.5x23.5	26	89	33.5
1000x600	39x24	39.4x23.5	39	89	38.8
1200x600	47x24	47.2x23.5	39	89	44.1
1400x600	55x24	55.1x23.5	52	89	50.1
1600x600	63x24	63.0x23.5	52	89	54.7
700x700	28x28	27.6x27.6	26	89	34.8
800x700	32x28	31.5x27.6	26	89	37.5
1000x700	39x28	39.4x27.6	39	89	43.4
1200x700	47x28	47.2x27.6	39	89	49.2
1400x700	55x28	55.1x27.6	52	89	55.1



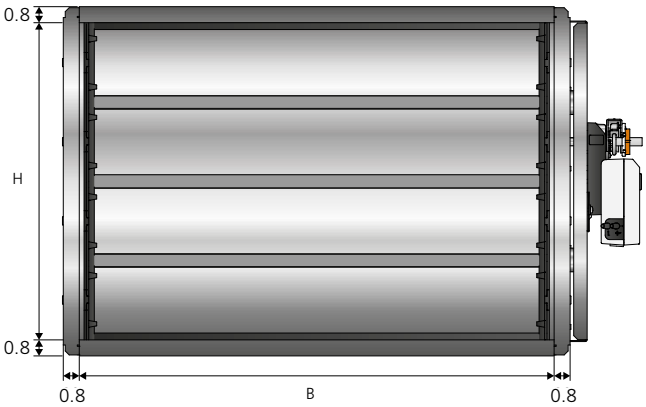


Figure 8. Dimensions (in), REACT P GMB rectangular.

Installation

- The product's pressure measurement requires spacing as per the installation figures.
- In unfavourable conditions before or with disruption, the product's tolerances cannot be guaranteed.
- Damper shafts must be installed horizontally.
- For rectangular ducts, always install the damper so that the controller/actuator is placed along the side of the duct.
- Instructions for Use are supplied on delivery, but can also be downloaded from www.swegon.com.

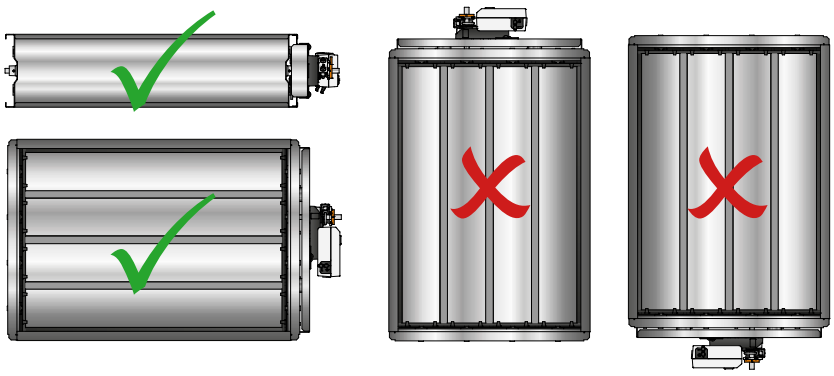


Figure 9. Installation - For rectangular ducts, always install the damper so that the controller/actuator is placed along the side of the duct.

Requirements for straight duct section and distance

Type of obstruction	E
One 90° bend	E = 2 x B
T piece	E = 2 x B

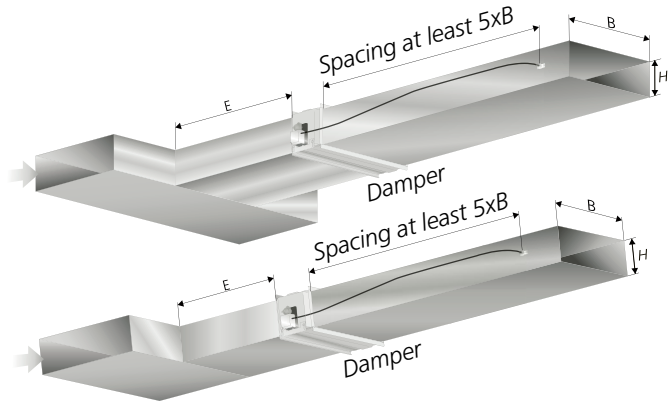


Figure 10. Requirements for straight duct section and distance in rectangular ducts.
E = Straight section
B = Width of duct
H = Height of duct

Specification

Product

Circular design

Circular pressure regulation damper	REACT P GMB	a	bbb
Version:			
Size: 100, 125, 160, 200, 250, 315, 400, 500, 630			

Rectangular design

Rectangular pressure regulation damper	REACT P GMB	a	bbb-ccc
Version:			
Size: Dimension: B x H (See table page 10)			

Accessories

FSR

Clamp for circular ventilation ducts	FSR	c	aaa
Version:			
Dimension: 100, 125, 160, 200, 250, 315, 400, 500, 630			

Gruner GUIV3-M

Hand-held terminal for controller/ actuator	Gruner GUIV3-M

DUCT ADAPTER

Adapter for installing size 160 in a 6" circular duct	DUCT ADAPTER 160-6"
Adapter for installing size 315 in a 12" circular duct	DUCT ADAPTER 315-12"
Adapter for installing size 630 in a 25" circular duct	DUCT ADAPTER 630-25"

Specification text

Example of a specification text according to VVS AMA.

QJB.11 Circular rotary damper with single blade

Make: Swegon

Type: REACT P GMB

Pressure regulating damper with the following functions:

- Integrated pressure measurement, max. 1.2 inWG.
- Integrated controller/actuator, pressure regulating.
- The damper can be ordered with factory fitted external insulation.

Must be installed with a minimum spacing as per the product sheet.

Size:	Ø 100 to Ø 630	
Specification		
Standard SS-EN 1751:	2014, Annex C	
Power supply:	24 V AC ±15% 50 - 60 Hz	
Air tightness class, casing:	C	
Air tightness class closed damper:	4	
Corrosivity class:	C3	
Pressure class:	A	
Tolerance pressure measurement:	Recommended min. 0.08 inWG	
Type:	REACT P GMBa bbb-cc xx pcs	
Accessories		
Clamp for ventilation ducts	FSRc	xx pcs
Hand-held terminal for actuator	Gruner GUIV3-M	
Adapter for installing size 160 in a 6" circular duct	DUCT ADAPTER 315-12"	
Adapter for installing size 315 in a 12" circular duct	DUCT ADAPTER 160-6"	
Adapter for installing size 630 in a 25" circular duct	DUCT ADAPTER 630-25"	

QJB.41 Louvre damper with counter-rotating blade

Make: Swegon

Type: REACT P GMB

Pressure regulating damper with the following functions:

- Integrated pressure measurement, max. 1.2 inWG.
- Integrated controller/actuator, pressure regulating.

Must be installed with a minimum straight duct section as per the product sheet.

Size:	200 x 200 to 1400 x 700
Specification	
Standard SS-EN 1751:	2014, Annex C
Power supply:	24 V AC ±15% 50 - 60 Hz
Air tightness class, casing:	C
Air tightness class closed damper:	3
Corrosivity class:	C3
Pressure class:	A
Tolerance pressure measurement:	Recommended min. 0.08 inWG
Type:	REACT P GMBa bbb-ccc-dd xx pcs
Accessories	
Hand-held terminal for actuator	Gruner GUIV3-M