

REACT PX GMB

Pressure regulation damper – Gruner Modbus



QUICK FACTS

- Pressure measurement up to 300 Pa, recommended regulation area 20-290 Pa
- Rapid setting/reading of parameters via the controller's display
- Analogue control and Modbus control
- Can be easily insulated against condensation in the duct system
- Variants:
 - Circular connections: Ø100-630 mm
 - Rectangular connections: 200x200-1400x700 mm

Content

Technical description	3
General.....	3
Design	3
Circular design	3
Rectangular design	3
Functions.....	3
Materials and surface treatment.....	3
Project design / Typical room.....	3
Maintenance.....	3
Environment	3
Accessories	3
Technical data.....	4
Electrical data	4
Connection.....	4
Sizing	5
Circular design	5
Sound data.....	5
Sizing diagram	5
Rectangular design	7
Sound data.....	7
Sizing diagram	7
Installation, torque, dimensions and weights..	8
Circular design	8
Dimensions.....	8
Installation.....	9
Rectangular design	10
Dimensions.....	10
Installation	11
Specification.....	12
Specification text.....	13

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 extract air systems.
- Pressure dependent with recommended minimum duct pressure 20 Pa.

Design

- External controller with integrated pressure sensor.
- Signal cable (4 conductor) connects between the components, not included.
- Analogue control and Modbus control.

Circular design

- Connection: Ø100-630 mm.
- Always supplied with dust protection.
- Raised motor shelf to facilitate condensation insulation of the duct system.
- A factory-insulated model available on request.

Rectangular design

- Slip-clamp connection.
- Connection 200x200-1400x700 mm.
- Other sizes are also available on request.

Functions

- Pressure regulation.
- Display for direct reading.
- Settings can be made directly on the controller with the help of a screwdriver.

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.

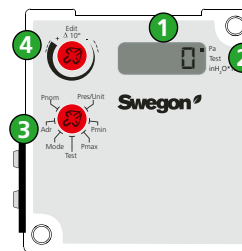
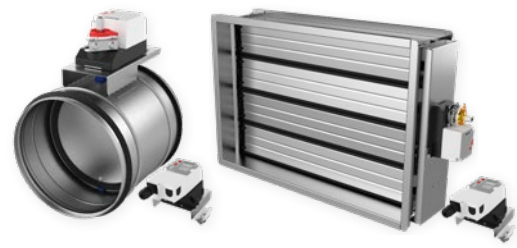


Figure 1. REACT PX GMB controller.

1. Display
2. Unit matrix
3. Function wheel
4. Edit wheel

Accessories

FSR

Clamp/quick coupling for easy dismantling of a circular design for cleaning and inspection

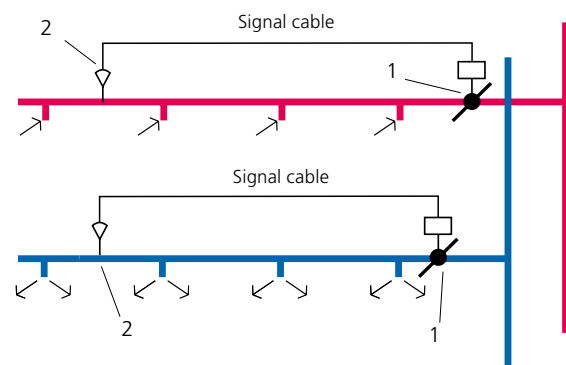


Figure 2. Pressure regulation.

1. REACT actuator connected with a signal cable to controller (2).
2. REACT PX GMB controller with integrated pressure sensor.

Technical data

IP class:	IP42
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°):	
10 / 15 Nm:	150 s
Ambient temperature	
Operation:	0 – +50 °C
Storage:	-20 – +50°C
RH:	10 - 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
Connection to screw terminals, cable size	6 x 0.5-2.5 mm ² <i>See Figure 3.</i>
Power consumption, for transformer rating:	
REACT PX GMB 10 Nm	2.6 W 4.8 VA
REACT PX GMB 15 Nm	2.6 W 4.8 VA
<i>See torque in tables on pages 8 and 10.</i>	

Connections

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)	

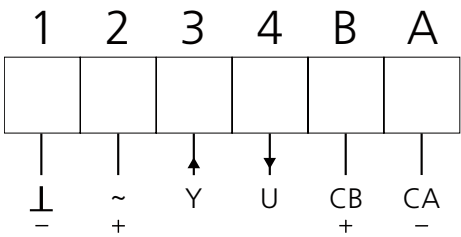


Figure 3. Connections.

Connection actuator

A signal cable is connected between the actuator and controller's connection cables as per the numbers/colour coding. For example, 1 to 1, or black to black. See figure 4. Connection points and signal cable not included.

Controller

Fixed connection cable, 1000 mm with cable size	4 x 0.75 mm ²
---	--------------------------

Actuator

Fixed connection cable, 1000 mm with cable size	4 x 0.75 mm ²
---	--------------------------

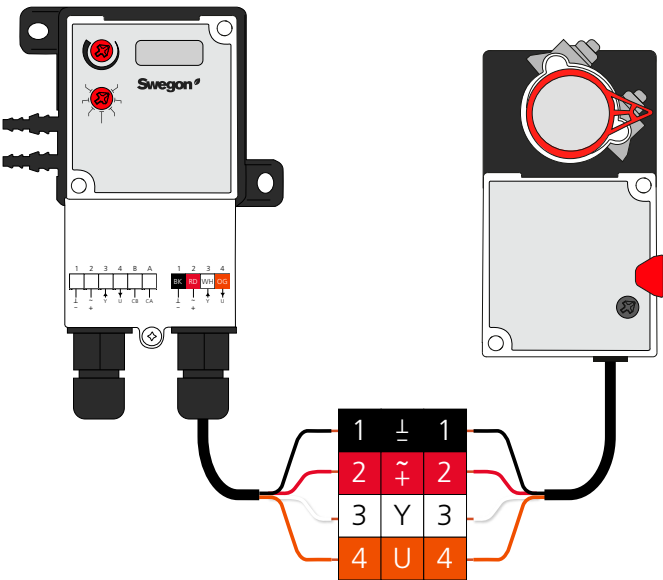


Figure 4. Connection between actuator and controller.

Length of signal cable

Max cable length between controller and actuator.

Cable area	Max. cable length
0.75 mm ²	20 m
1.0 mm ²	30 m
1.5 mm ²	45 m
2.5 mm ²	75 m

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 products.

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}

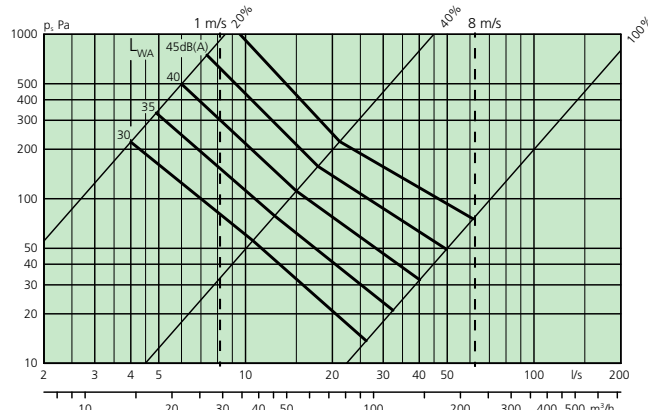
Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	-2	-9	-7	-10	-9	-10	-15	-22
125	-4	-9	-8	-13	-9	-12	-19	-27
160	-7	-9	-10	-15	-12	-15	-20	-28
200	-9	-11	-13	-16	-14	-16	-23	-32
250	-8	-18	-17	-19	-17	-17	-23	-31
315	-14	-19	-18	-21	-18	-19	-25	-34
400	-13	-23	-22	-22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

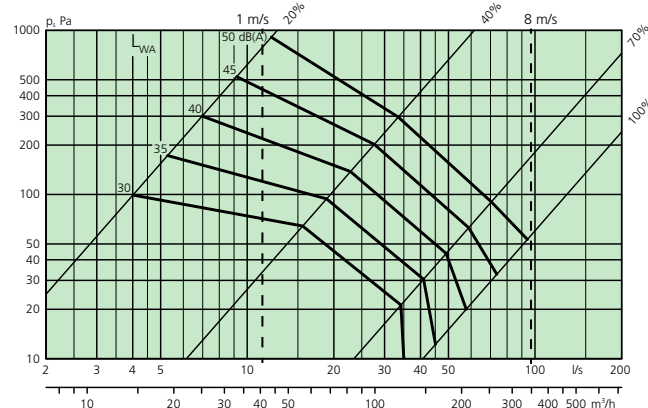
Air flow – Pressure drop – Sound level

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

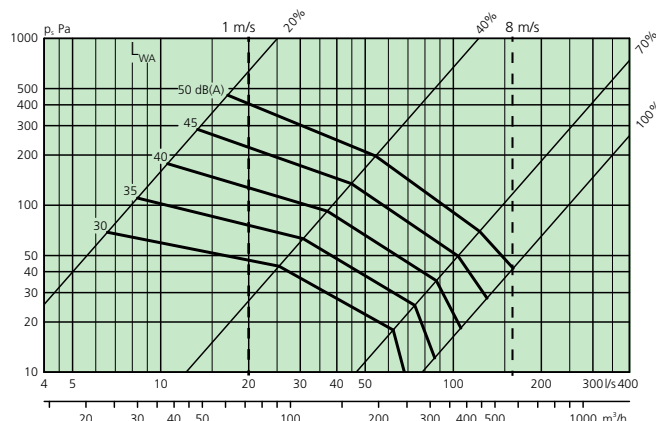
REACT PX GMB 100



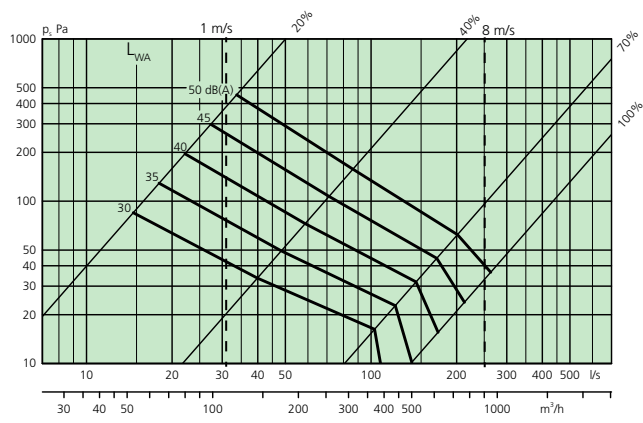
REACT PX GMB 125



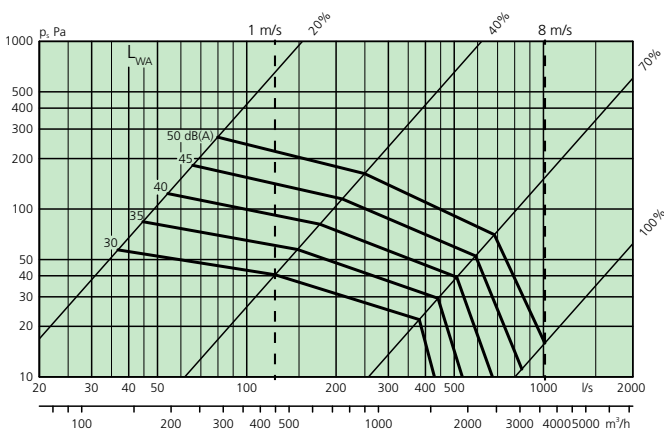
REACT PX GMB 160



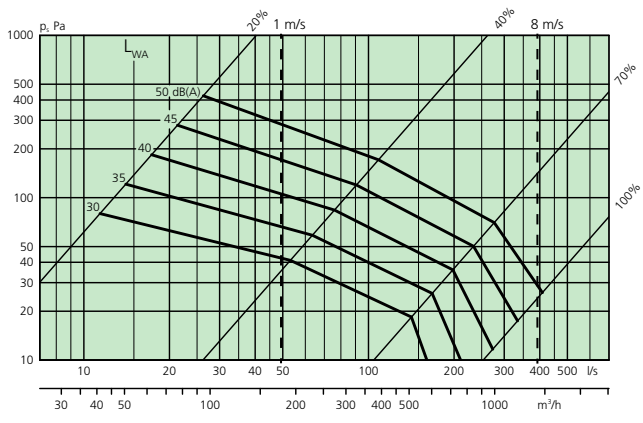
REACT PX GMB 200



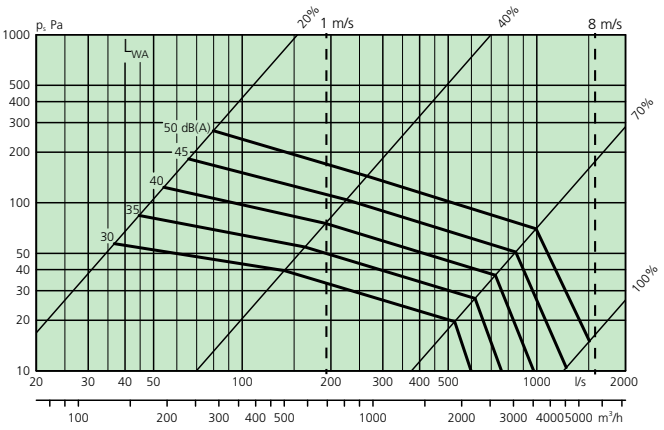
REACT PX GMB 400



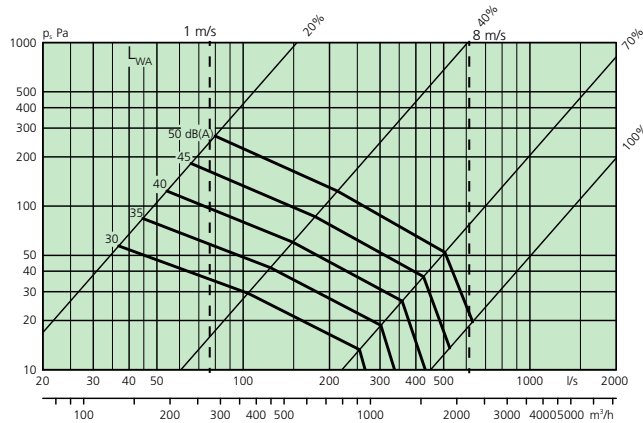
REACT PX GMB 250



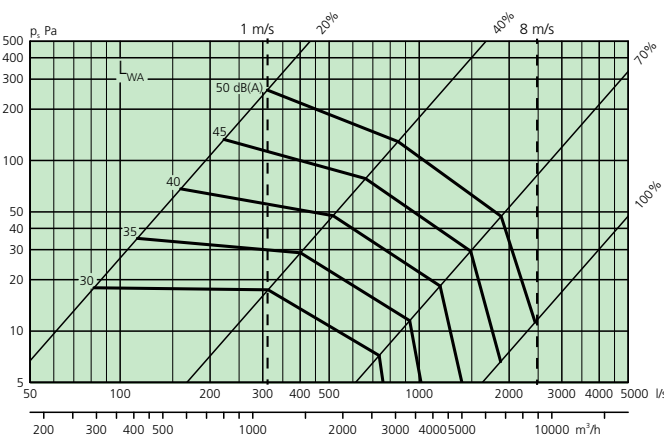
REACT PX GMB 500



REACT PX GMB 315



REACT PX 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. $\pm$	4	4	3	2	2	2	2	2

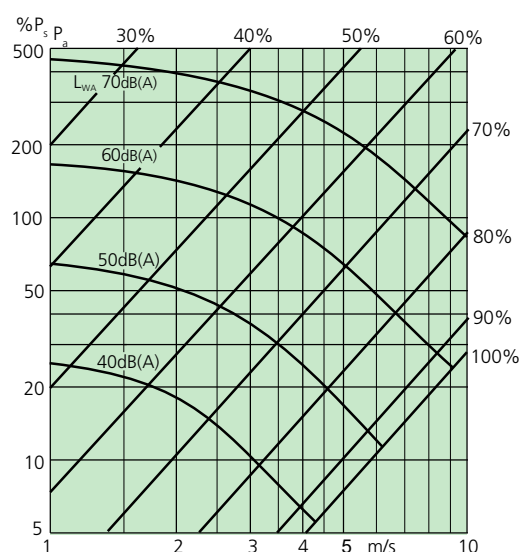
Correction factor K_k for the damper's face area

Correction factor – face area								
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

- The data is for the sound created in ducts.
- 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

Size Ød (mm)	A (mm)	B (mm)	C (mm)	E (mm)	F (mm)	G (mm)	Torque (Nm)	Weight (kg)
100	210	42	190	220	50	70	10	1.4
125	210	42	220	220	50	70	10	1.5
160	210	42	260	220	50	80	10	1.6
200	210	42	300	220	50	80	10	1.9
250	210	42	355	220	50	80	10	2.1
315	210	42	415	220	50	80	10	2.6
400	255	20	505	265	50	80	10	3.6
500	255	20	605	275	50	80	10	5.1
630	255	20	735	275	50	80	15	6.7

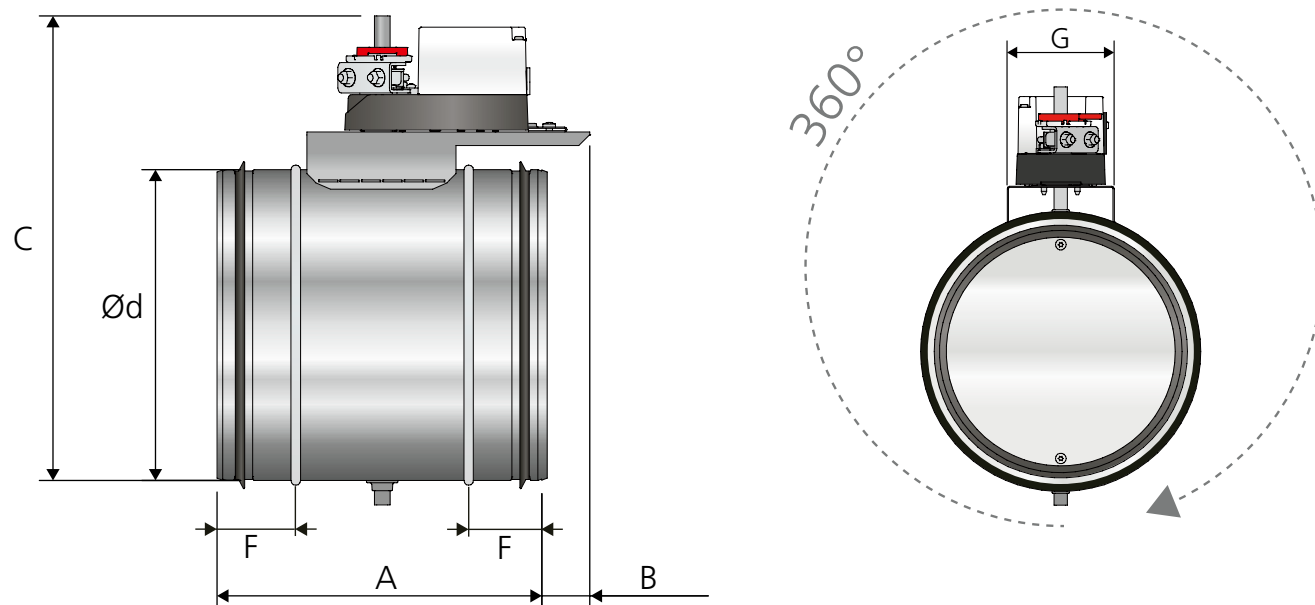


Figure 4. Dimensions (mm), REACT PX GMB circular. The damper can be installed at an optional angle.

Installation

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

Distance requirements

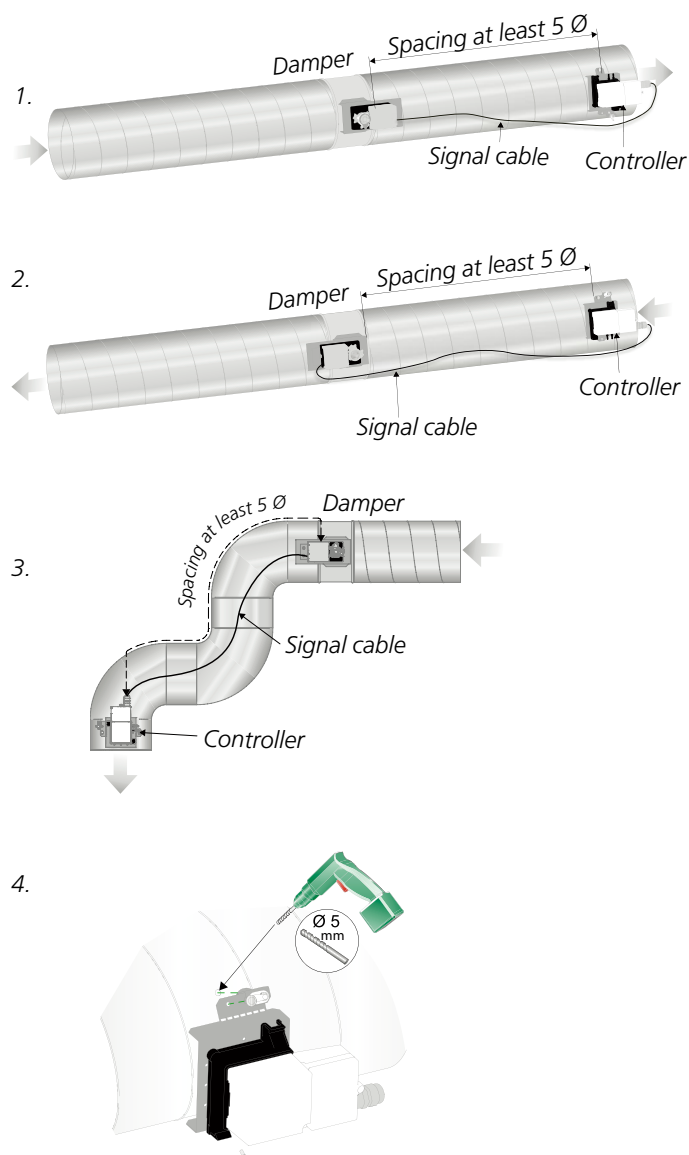


Figure 5. Distance requirements in circular ducts, number of Ø before and after product:

1. At least $5 \times \text{Ø}$ after the damper (supply air).
2. At least $5 \times \text{Ø}$ before the damper (extract air).
3. Examples of how spacing can be measured.
4. Controller installation.

Installation in the duct system

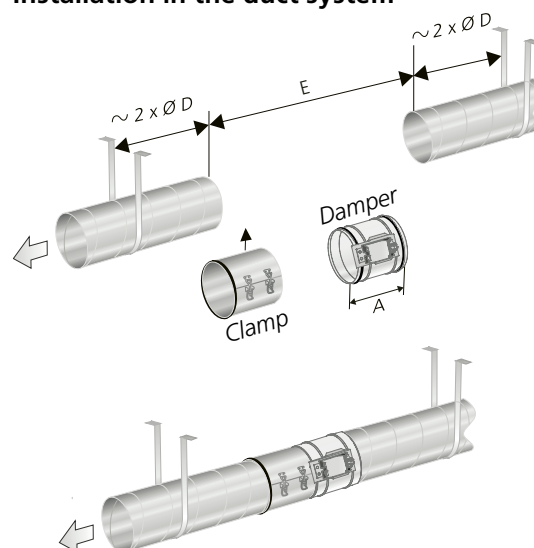


Figure 6. Installation in the duct system. The ducts must be firmly fixed to the frame of the building on each side of the product.

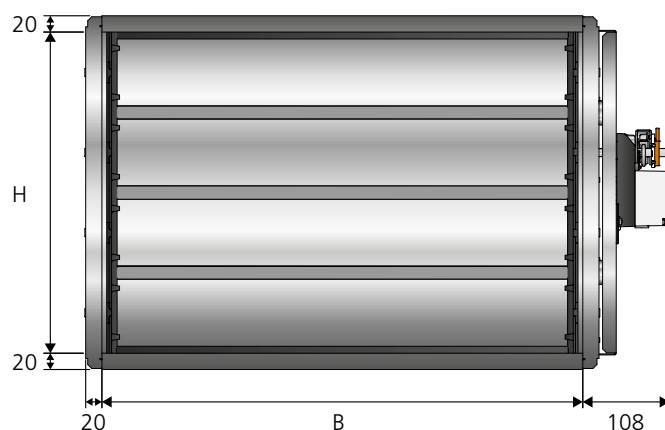
Rectangular design

Dimensions

Size BxH (mm)	Torque (Nm)	Weight (kg)
200 x 200	10	4.1
300 x 200	10	4.8
400 x 200	10	5.5
500 x 200	10	6.1
600 x 200	10	6.8
700 x 200	10	7.5
800 x 200	10	8.2
1000 x 200	10	9.5
300 x 300	10	6.0
400 x 300	10	6.8
500 x 300	10	7.6
600 x 300	10	8.4
700 x 300	10	9.2
800 x 300	10	10.0
1000 x 300	10	11.6
400 x 400	10	8.2
500 x 400	10	9.1
600 x 400	10	10.0
700 x 400	10	10.9
800 x 400	10	11.9
1000 x 400	10	13.8
1200 x 400	10	15.6
1400 x 400	10	17.5
1600 x 400	10	19.4
500 x 500	10	10.5
600 x 500	10	11.6
700 x 500	10	12.6
800 x 500	10	13.7
1000 x 500	10	15.8
1200 x 500	10	18.0
1400 x 500	10	20.1
1600 x 500	10	22.2
600 x 600	10	13.1
700 x 600	10	14.3
800 x 600	10	15.5
1000 x 600	10	17.9
1200 x 600	10	20.3
1400 x 600	10	23.0
1600 x 600	10	25.1
700 x 700	10	15.9
800 x 700	10	17.3
1000 x 700	10	20.0
1200 x 700	10	22.6
1400 x 700	10	25.3



Figure 7. Dimensions (mm), REACT PX 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 spindles must be installed horizontally.
- For rectangular ducts, always install the damper so that the controller/actuator is placed along the side of the duct.
- The user manual is supplied on delivery, but can also be downloaded from www.swegon.com.

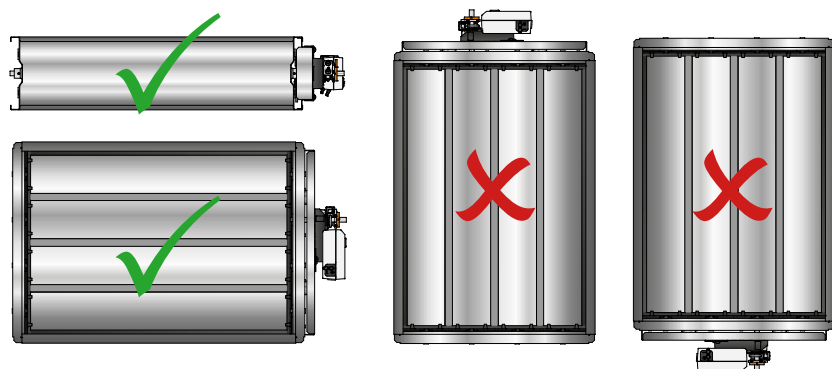


Figure 8. Installation - For rectangular ducts, always install the damper so that the controller/actuator is placed along the side of the duct.

Straight duct section and distance requirements

Type of obstruction	E
One 90° bend	$E = 2 \times B$
T piece	$E = 2 \times B$

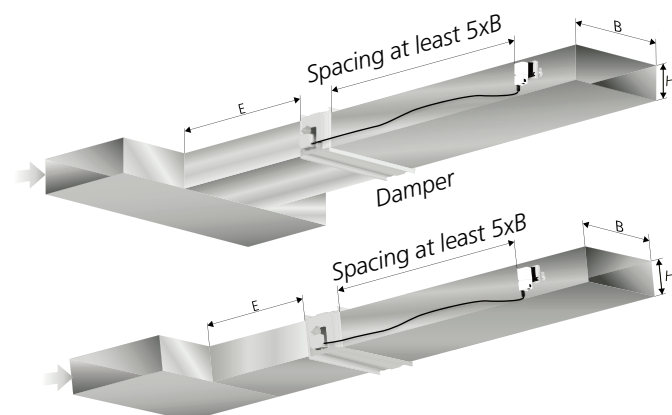


Figure 9. Straight duct section and distance requirements in rectangular ducts.

E = Straight section

B = Width of duct

H = Height of duct

Specification

Product

Circular design

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

Rectangular design

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

Accessories

FSR

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

Specification text

Example of a specification text according to VVS AMA.

QJB.11 Circular rotary damper with single blade

Make: Swegon

Type: REACT PX GMB

Regulating damper and external pressure controller with the following functions:

- Integrated pressure measurement, max. 300 Pa.
- Integrated controller, 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. 20 Pa

Type: REACT PX GMBa bbb xx pcs

Accessories

Clamp for ventilation ducts FSRc xx pcs

QJB.41 Louvre damper with counter-rotating blade

Make: Swegon

Type: REACT PX GMB

Regulating damper and external pressure controller with the following functions:

- Integrated pressure measurement, max. 300 Pa.
- Integrated controller, 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. 20 Pa

Type: REACT PX GMBb bbb-ccc xx pcs