REACT PX 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 display
- Analog control and Modbus control
- Can be easily insulated against condensation in the duct system
- Variants:
  - Circular connections: Ø4-24 in
  - Rectangular connections: 8x8-55x28 in

Swegon

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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 with recommended minimum duct pressure 0.08 inWG.

Design

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

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 available on request.

Rectangular design

- Slip-clamp connection.
- Connection 8x8-55x28 in.
- 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.

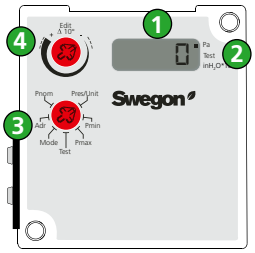


Figure 1. REACT PX GMB controller.
1. Display
2. Unit matrix
3. Function wheel
4. Edit wheel

Accessories

FSR	Clamp for easy dismantling of the circular design for cleaning and inspection
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

DUCT ADAPTER 160-6"

DUCT ADAPTER 315-12"

DUCT ADAPTER 630-25"

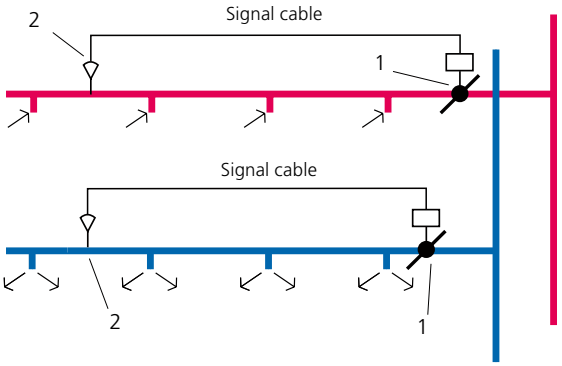


Figure 2. Pressure regulation.
1. REACT actuator connected with a signal cable to controller (2).
2. REACT PX GMB controller with integrated pressure sensor.

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°):	
89 lbf.In/133 lbf.In:	150 s
Ambient temperature	
Operation:	32–122°F
Storage:	-4–176°F
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 20-14 AWG	
	See Figure 3.	
Power consumption, for transformer rating:		
REACT PX GMB 89 lbf.In	2.6 W	4.8 VA
REACT PX GMB 133 lbf.In	2.6 W	4.8 VA

See torque in tables on pages 8 and 10.

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)	

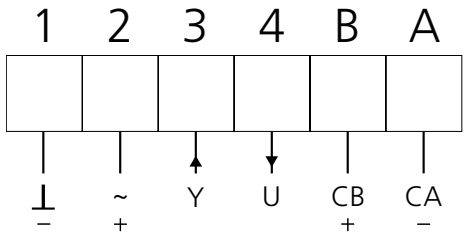


Figure 3. Connections.

Connection actuator

A signal cable is connected between the actuator and controller's connection cables as per the numbers/color coding. For example, 1 to 1, or black to black. See figure 4.

Connection points and signal cable not included.

Controller

Fixed connection cable, 39.4 in with cable size	4x18 AWG

Actuator

Fixed connection cable, 39.4 in with cable size	4x18 AWG

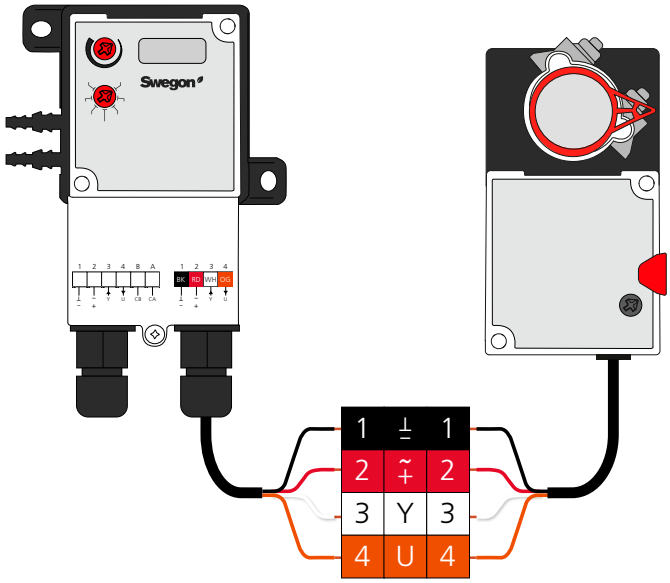


Figure 4. Connection between actuator and controller.

Length of signal cable

Max cable length between controller and actuator.

Cable area	Max. cable length
18 AWG	66 ft
17 AWG	98 ft
16 AWG	148 ft
14 AWG	246 ft

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}

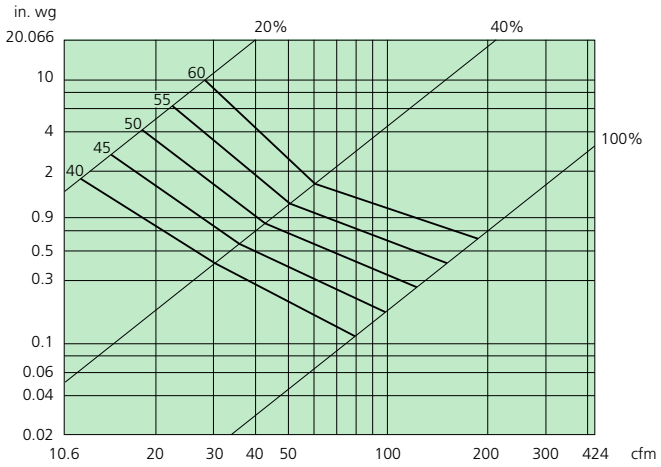
Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	-2	-9	-7	-10	-9	-10	-15	-22
125	-4	-9	-8	-13	-9	-12	-19	-27
160	-7	-9	-10	-15	-12	-15	-20	-28
200	-9	-11	-13	-16	-14	-16	-23	-32
250	-8	-18	-17	-19	-17	-17	-23	-31
315	-14	-19	-18	-21	-18	-19	-25	-34
400	-13	-23	-22	-22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

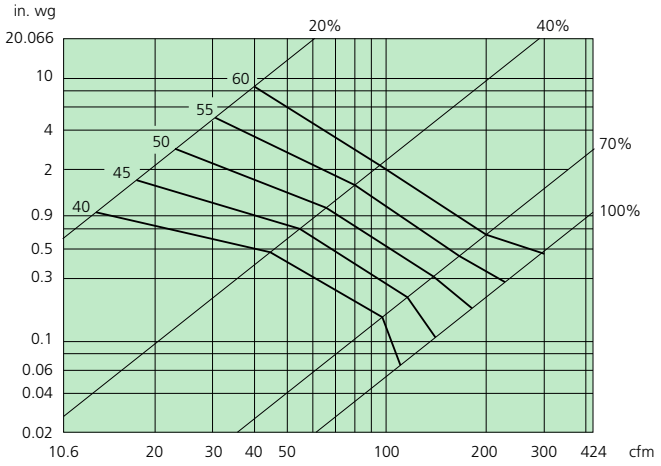
Air flow – Pressure drop – Sound level

- 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.

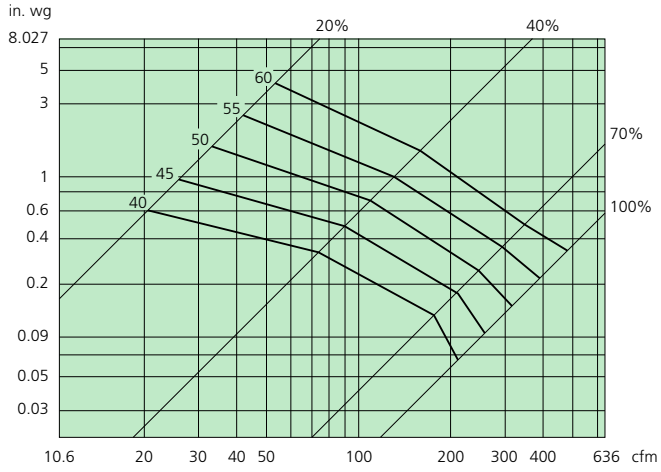
REACT PX GMB 100



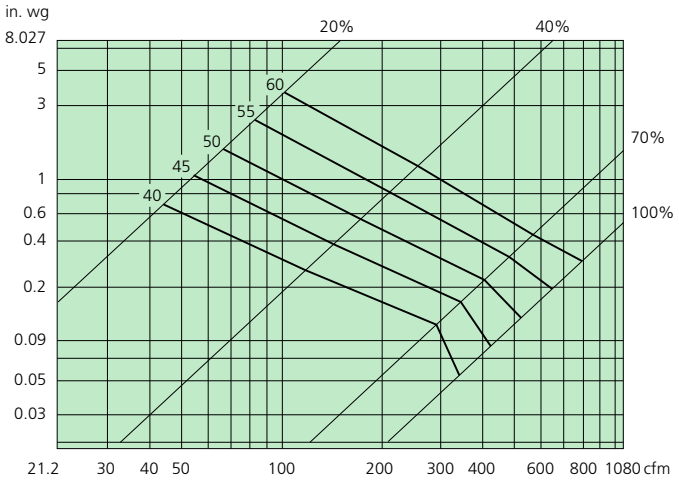
REACT PX GMB 125



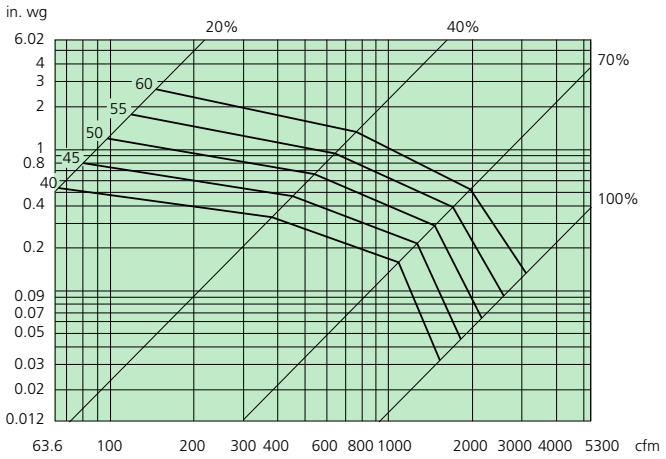
REACT PX GMB 160



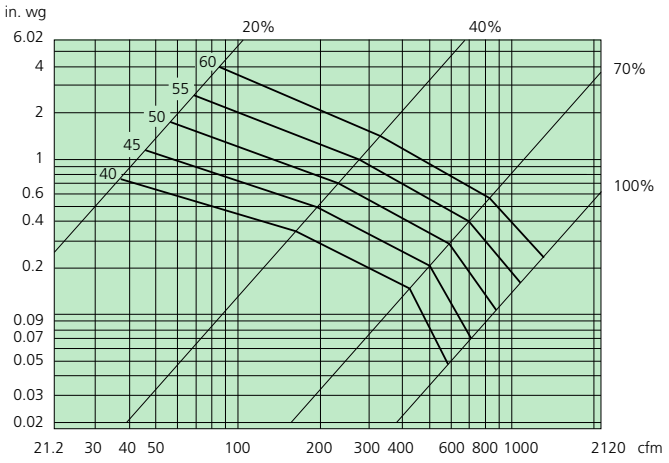
REACT PX GMB 200



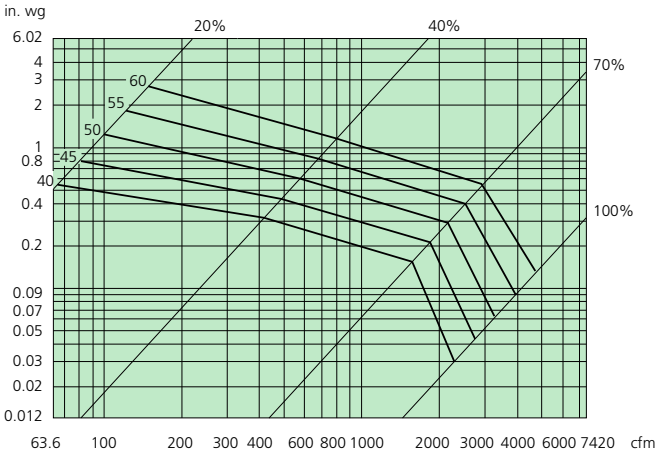
REACT PX GMB 400



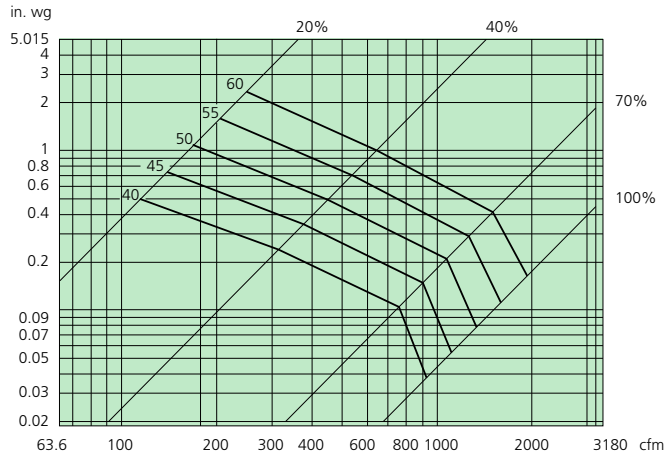
REACT PX GMB 250



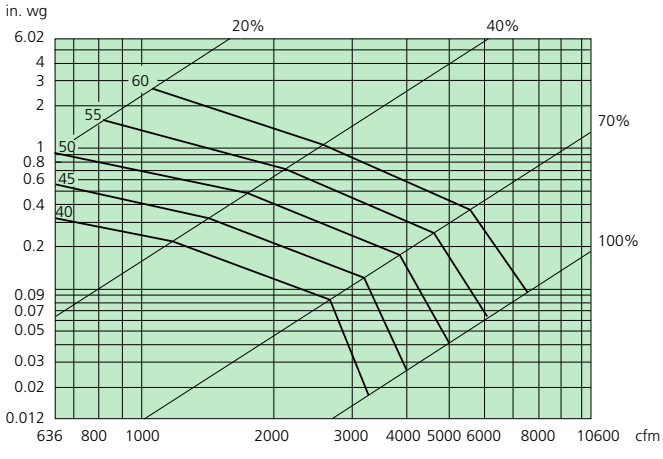
REACT PX GMB 500



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. ±	4	4	3	2	2	2	2	2

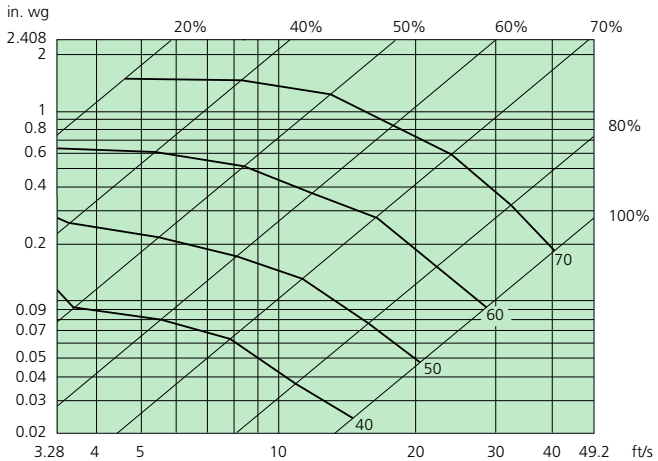
Correction factor K_K for the damper's face area

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

REACT PX GMB Size	Duct size (Nominal) Ød (in)	Inlet diameter Ød (in)	A (in)	B (in)	C (in)	E (in)	F (in)	G (in)	Torque (lbf.In.)	Weight (lb)
100	4	3.9	8.3	1.7	7.5	8.7	2	2.8	89	3.1
125	5	4.9	8.3	1.7	8.7	8.7	2	2.8	89	3.3
160	6	6.0*	8.3	1.7	10.2	8.7	2	3.1	89	3.5
200	8	7.8	8.3	1.7	11.8	8.7	2	3.1	89	4.2
250	10	9.8	8.3	1.7	14.0	8.7	2	3.1	89	4.6
315	12	12.0*	8.3	1.7	16.3	8.7	2	3.1	89	5.7
400	16	15.7	10	0.8	19.9	10.4	2	3.1	89	7.9
500	20	19.6	10	0.8	23.8	10.8	2	3.1	89	11.2
630	24	24.0*	10	0.8	28.9	10.8	2	3.1	133	14.8

*Dimensions including DUCT ADAPTER.

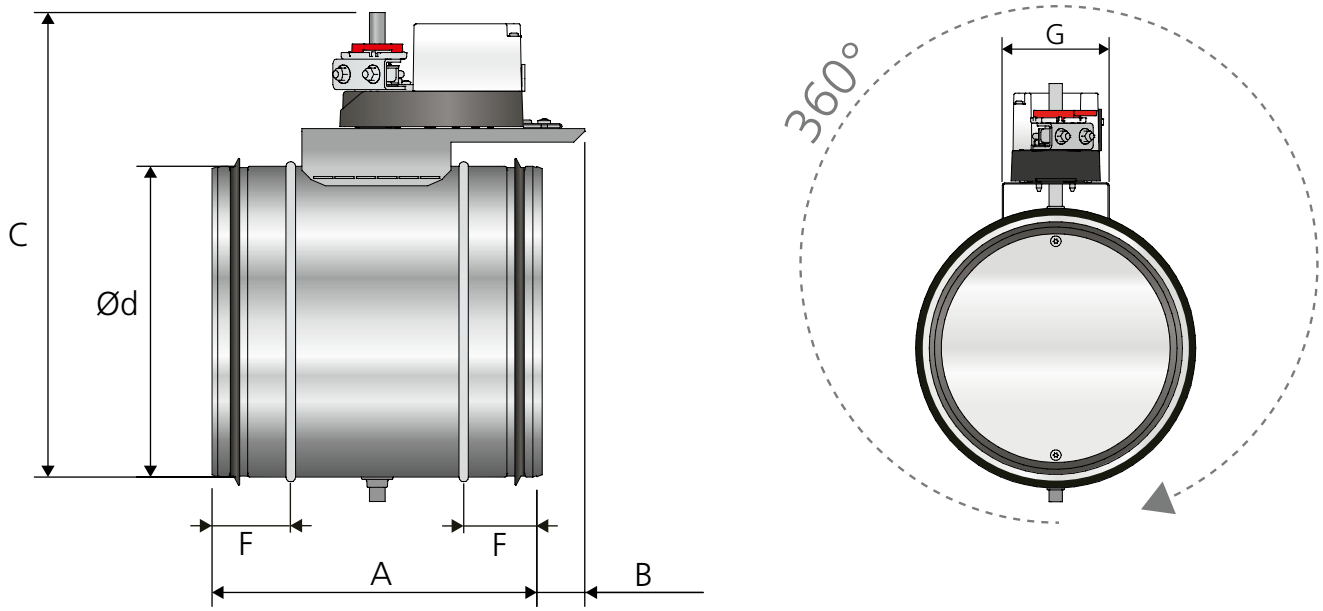


Figure 4. Dimensions (in), REACT PX GMB circular. The damper can be installed at an optional angle.

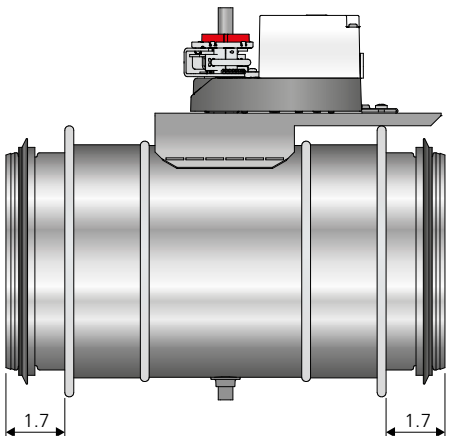


Figure 5. Dimensions (in), REACT PX GMB circular with DUCT ADAPTER installed.

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

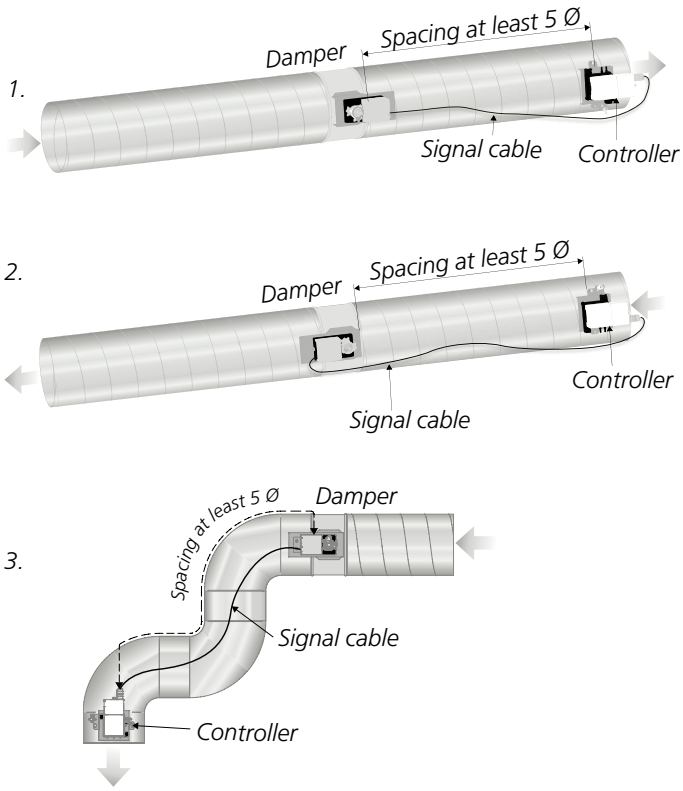


Figure 6. Distance requirements in circular ducts, number of Ø before and after product:
1. At least 5 x Ø after the damper (supply air).
2. At least 5 x Ø before the damper (exhaust air).
3. Examples of how spacing can be measured.
4. Controller installation.

Installation in the duct system

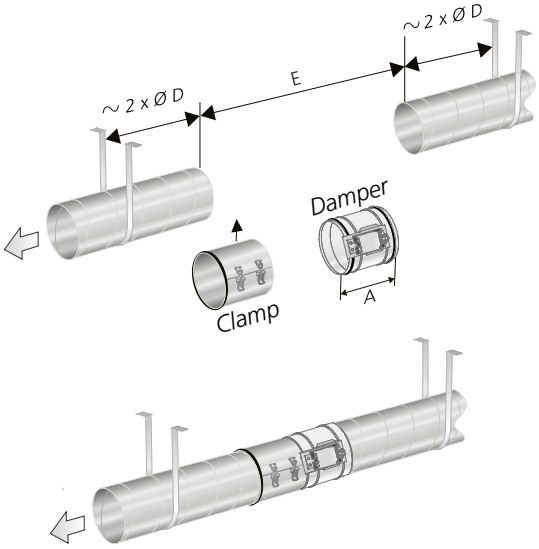


Figure 7. Installation in the duct system. The ducts must be firmly fixed to the frame of the building on each side of the product.

Rectangular design

Dimensions

REACT PX GMB Size	Duct size (Nominal) (in)	Inlet dimensions BxH (in)	Torque (lbf.In.)	Weight (lb)
200 x 200	8x8	7.9x7.9	89	9.0
300 x 200	12x8	11.8x7.9	89	10.6
400 x 200	16x8	15.7x7.9	89	12.1
500 x 200	20x8	19.7x7.9	89	13.5
600 x 200	24x8	23.6x7.9	89	15.0
700 x 200	28x8	27.6x7.9	89	16.5
800 x 200	32x8	31.5x7.9	89	18.1
1000 x 200	39x8	39.4x7.9	89	20.9
300 x 300	12x12	11.8x11.8	89	13.2
400 x 300	16x12	15.7x11.8	89	15.0
500 x 300	20x12	19.7x11.8	89	16.8
600 x 300	24x12	23.5x11.8	89	18.5
700 x 300	28x12	27.6x11.8	89	20.3
800 x 300	32x12	31.5x11.8	89	22.1
1000 x 300	39x12	39.4x11.8	89	25.6
400 x 400	16x16	15.7x15.7	89	18.1
500 x 400	20x16	19.7x15.7	89	20.1
600 x 400	24x16	23.5x15.7	89	22.1
700 x 400	28x16	27.6x15.7	89	24.0
800 x 400	32x16	31.5x15.7	89	26.2
1000 x 400	39x16	39.4x15.7	89	30.4
1200 x 400	47x16	47.2x15.7	89	34.4
1400 x 400	55x16	55.1x15.7	89	38.6
1600 x 400	63x16	63.0x15.7	89	42.8
500 x 500	20x20	19.7x19.7	89	23.2
600 x 500	24x20	23.5x19.7	89	25.6
700 x 500	28x20	27.6x19.7	89	27.8
800 x 500	32x20	31.5x19.7	89	30.2
1000 x 500	39x20	39.4x19.7	89	34.8
1200 x 500	47x20	47.2x19.7	89	39.7
1400 x 500	55x20	55.1x19.7	89	44.3
1600 x 500	63x20	63.0x19.7	89	49.0
600 x 600	24x24	23.5x23.5	89	28.9
700 x 600	28x24	27.6x23.5	89	31.5
800 x 600	32x24	31.5x23.5	89	34.2
1000 x 600	39x24	39.4x23.5	89	39.5
1200 x 600	47x24	47.2x23.5	89	44.8
1400 x 600	55x24	55.1x23.5	89	50.7
1600 x 600	63x24	63.0x23.5	89	55.3
700 x 700	28x28	27.6x27.6	89	35.1
800 x 700	32x28	31.5x27.6	89	38.1
1000 x 700	39x28	39.4x27.6	89	44.1
1200 x 700	47x28	47.2x27.6	89	49.8
1400 x 700	55x28	55.1x27.6	89	55.8

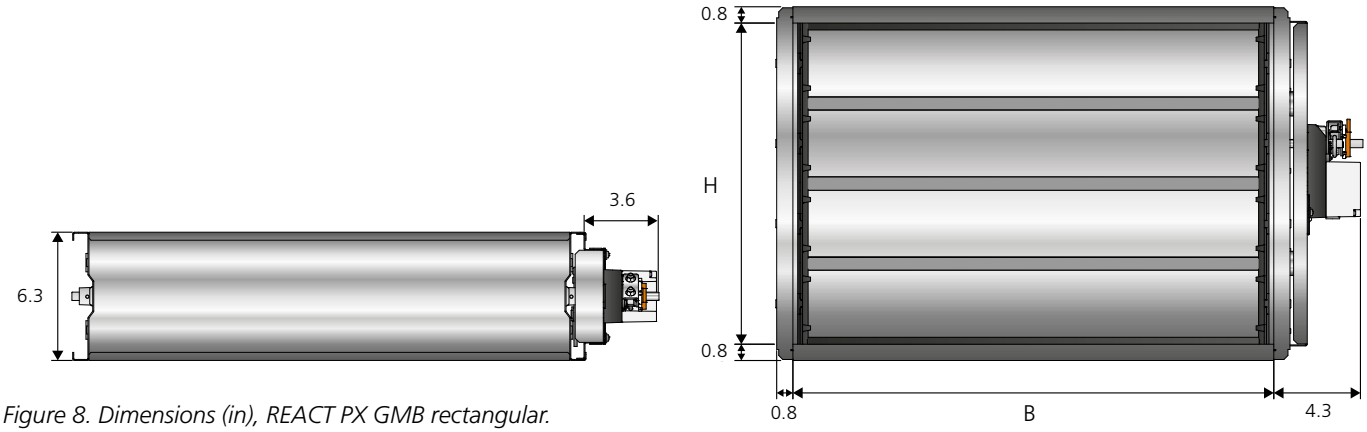


Figure 8. Dimensions (in), REACT PX GMB rectangular.

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 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.
- The user manual is supplied on delivery, but can also be downloaded from www.swegon.com.

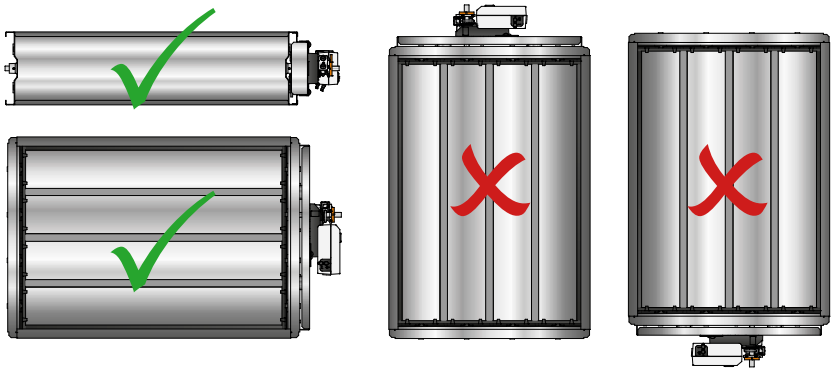


Figure 9. Installation - For rectangular ducts, always install the damper so that the controller/actuator is placed along the side of the duct.

Straight duct section and distance requirements

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

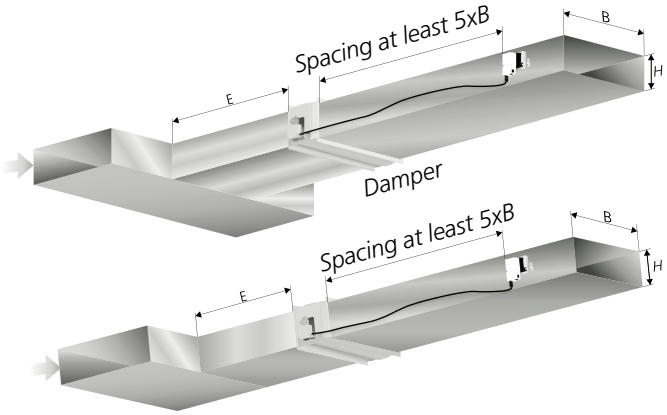


Figure 10. Straight duct section and distance requirements in rectangular ducts.
E = Straight section
B = Width of duct
H = Height of duct

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			

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 PX GMB

Regulating damper and external pressure controller with the following functions:

- Integrated pressure measurement, max. 1.2 inWG.
- 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. 0.08 inWG	
Type:	REACT PX GMBa	bbb xx pcs
Accessories		
Clamp for ventilation ducts	FSRc	xx pcs
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 PX GMB

Regulating damper and external pressure controller with the following functions:

- Integrated pressure measurement, max. 1.2 inWG.
- 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. 0.08 inWG	
Type:	REACT PX GMBb	bbb-ccc xx pcs