REACT V SKNX

Variable flow damper – Siemens KNX

QUICK FACTS

- Variable or constant flow regulation
- Can be mounted directly at bends and duct transitions/ reductions (circular)
- Setting/reading of parameters via the hand-held terminal Siemens AST20 or KNX
- KNX control
- Can be easily insulated against condensation in the duct system
- Variants:
  - Circular connections: Ø100-630 mm
  - Rectangular connections: 200x200-1400x700 mm

FLOW RANGE			
REACT V SKNX Size	Duct size in	Min. cfm	Max. cfm
100	4	11	123
125	5	19	206
160	6	34	360
200	8	53	576
250	10	85	928
315	12	133	1504
400	16	216	2447
500	20	347	3920
630	24	636	6187

**Nominal flow (Vnom), based on 0.5 inWG in pressure reading.*

Swegon

Contents

Technical description

General

- Intended for flow regulation of comfort ventilation.
- Moist, cold and aggressive environments must be avoided.
- Can be installed in both supply and exhaust air systems.
- Pressure independent but recommended working range between minimum pressure drop of 0.04 inWG to 1.2 inWG over the damper.
- The minimum air flow must be considered during planning.
- For good regulation, a minimum difference between Vmin and Vmax of 20% of the product's Vnom is recommended.

Design

- Integrated air flow sensor.
- KNX control (KNX S-Mode, LTE-Mode and PL-Link).

Circular design

- Connection: Ø4–24 in.
- Always supplied with dust protection.
- Actuator mounting plate with 1 in spacer 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

- Variable or constant flow regulation.
- Measurement of air flow.
- Setting and reading of parameters on the controller via the external hand-held terminal Siemens AST20.

Materials and surface treatment

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

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.

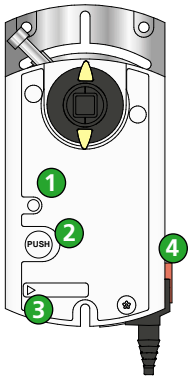
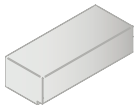


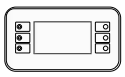
Figure 1. REACT V SKNX controller.
1. LED lighting
2. Pushbutton
3. Service port
4. Release button

Accessories

REACT V COVER CIRCULAR	Cover panel for circular design in case of visible installation
FSR	Clamp for easy dismantling of a circular design for cleaning and inspection
Siemens AST20	Hand-held terminal for setting of parameters on the actuator
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


REACT V COVER CIRCULAR


FSR


Siemens AST20


DUCT ADAPTER 160-6"

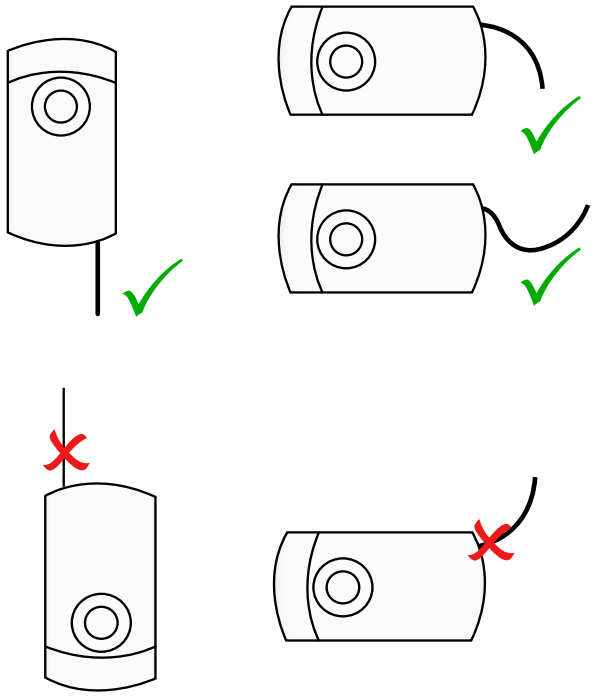

DUCT ADAPTER 315-12"


DUCT ADAPTER 630-25"

Technical data

IP class:	IP54
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/closed (90°):	
44 / 89 lbf. in:	150 s (50 Hz)
44 / 89 lbf. in:	125 s (60 Hz)
Ambient temperature	
Operation:	32 – 122°F
Storage:	23 – 113°F
RH:	5 – 95% (non condensing)
CE marking:	2006/42/EC (MD)
	2014/30/EU (EMC)
	2011/65/EU (RoHS2)

To retain enclosure class (IP54), the actuator must be installed as follows.



Electrical data

Power supply:	24 V AC ±20% 50 - 60 Hz	
Fixed connection cable, 35 in with cable size	2 x 18AWG	
	See figure 2 below.	
Communication:		
Fixed connection cable, 35 in with cable size	2 x 18AWG	
	See figure 2 below.	
Power consumption, sizing of transformer:		
REACT V SKNX 44 lbf. in	2.5 W	3.0 VA
REACT V SKNX 89 lbf. in	2.5 W	3.0 VA

See torque in tables on pages 8 and 10.

Connection

Communication (green cable)

1 – KNX-TP CE+

2 – KNX-TP CE-

Communication is galvanically insulated.

Supply voltage (black cable)

1 – G	24 V AC
2 – G0	24 V AC

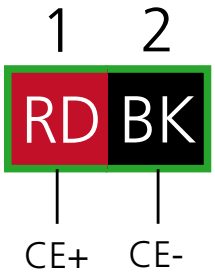


Figure 2. Communication (green cable).

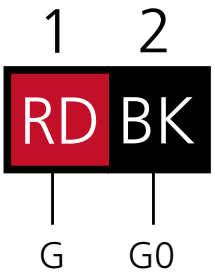


Figure 3. Supply voltage (black cable).

Sizing

Circular design

- Important: 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}

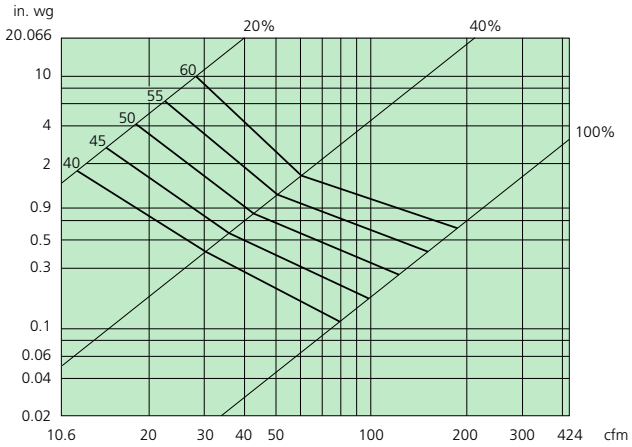
Size	Mid-frequency (octave band) Hz							
	63	125	250	500	1000	2000	4000	8000
100	-2	-9	-7	-10	-9	-10	-15	-22
125	-4	-9	-8	-13	-9	-12	-19	-27
160	-7	-9	-10	-15	-12	-15	-20	-28
200	-9	-11	-13	-16	-14	-16	-23	-32
250	-8	-18	-17	-19	-17	-17	-23	-31
315	-14	-19	-18	-21	-18	-19	-25	-34
400	-13	-23	-22	-22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

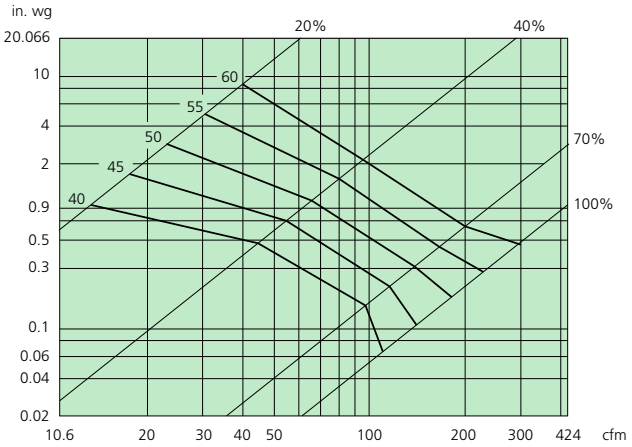
Air flow – Pressure drop – Sound level

- Specified sound levels, L_{WA}: 30, 35, 40, 45 and 50 dB(A).
- Data is valid for sound created in the ducts.
- 100% corresponds to the damper being fully open.
- ∇ = Min. air flow.

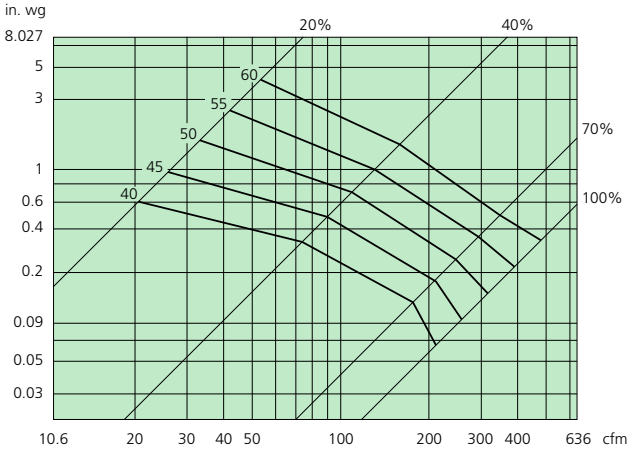
REACT V SKNX 100



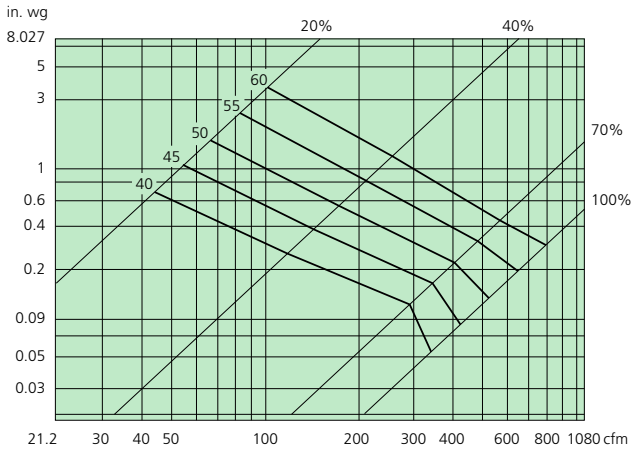
REACT V SKNX 125



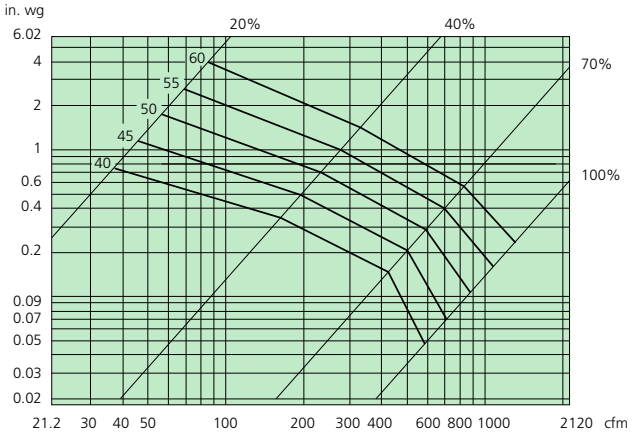
REACT V SKNX 160



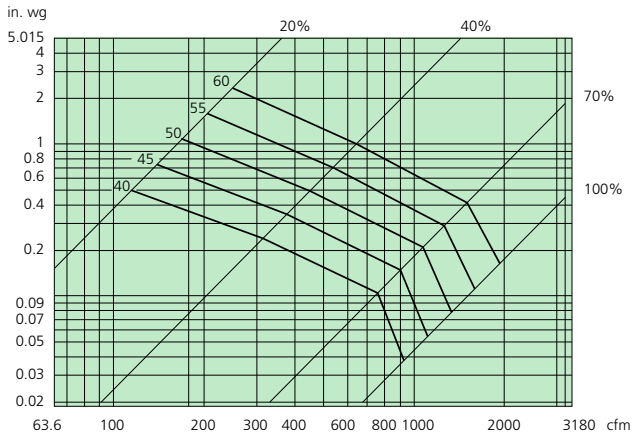
REACT V SKNX 200



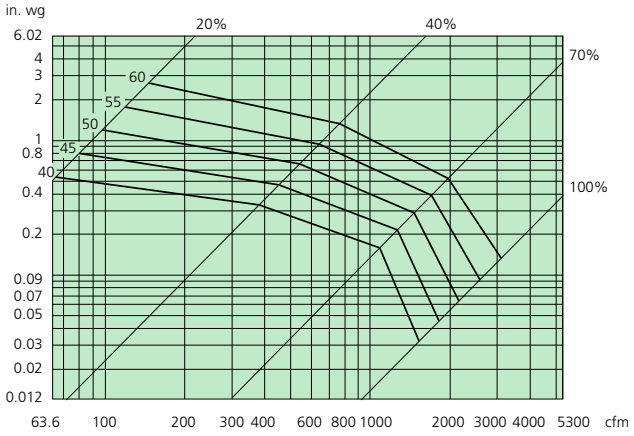
REACT V SKNX 250



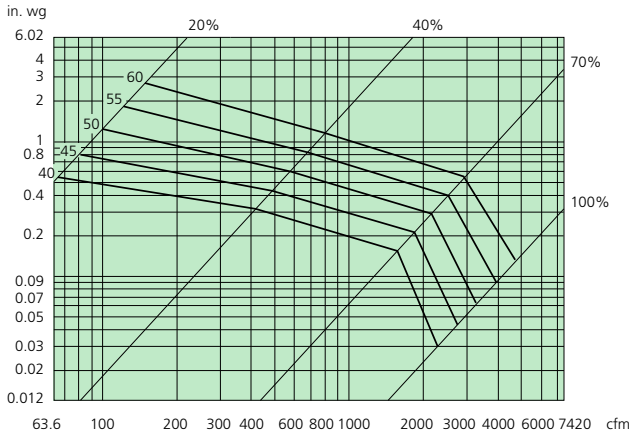
REACT V SKNX 315



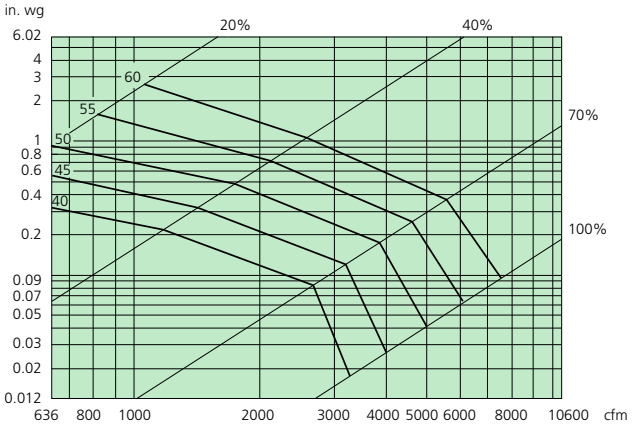
REACT V SKNX 400



REACT V SKNX 500



REACT V SKNX 630



Rectangular design

- Important: 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

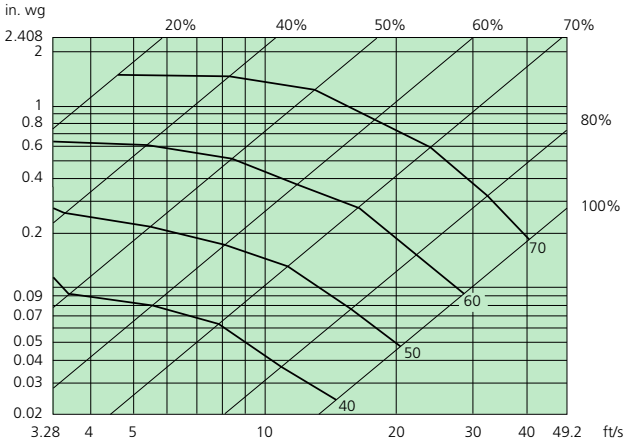
Correction factor K_K for the damper's face area

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

- Data is valid for sound created in the 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 V SKNX Size	Duct size (Nominal) Ød (in)	Inlet diameter Ød (in)	A (in)	B (in)	C (in)	E (in)	Torque (lbf. In.)	Weight (lb)	Flow range (cfm)		Tolerance Q[2] ±5% (cfm)
									Min.	Max = Vnom[1]	
100	4	3.9	18.7	19.1	7.5	2	44	3.7	11	123	4
125	5	4.9	18.7	19.1	8.5	2	44	4.2	19	201	4
160	6	5.9*	18.7	19.1	10.0	2	44	4.9	34	360	4
200	8	7.8	18.7	19.1	11.8	2	44	6.2	53	593	6
250	10	9.8	20.7	21.1	13.8	2	44	7.7	85	943	11
315	12	11.8*	22.0	22.4	16.3	2	89	10.1	133	1547	17
400	16	15.7	27.4	27.8	19.9	2.4	89	14.6	216	2521	28
500	20	19.6	32.3	33.1	23.8	2.4	89	20.3	347	3962	42
630	24	23.8*	36.0	36.8	28.9	2.4	89	31.1	636	6187	68

*Dimensions including DUCT ADAPTER.

[1]Vnom at 0.5 inWG in pressure reading.

[2]Installed according to the instructions.

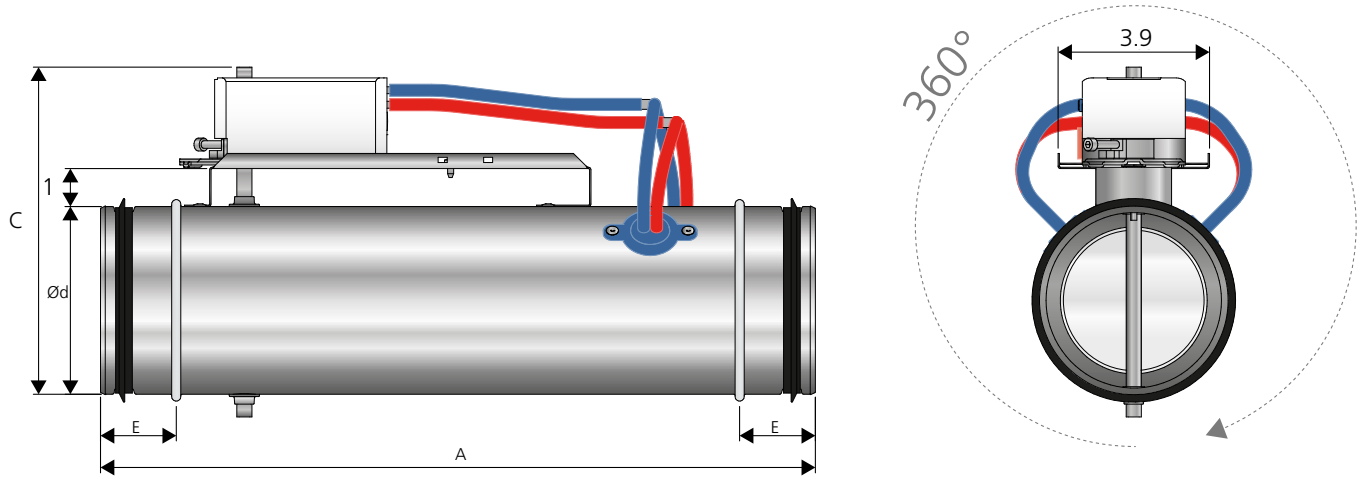


Figure 4. Dimensions (in), REACT V SKNX circular. The damper can be installed at an optional angle.

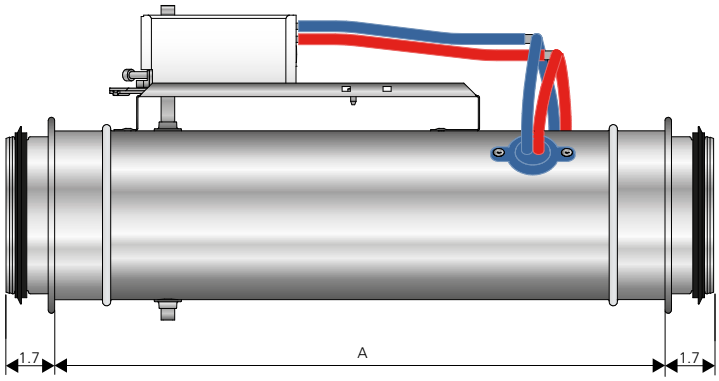


Figure 5. Dimensions with DUCT ADAPTER installed, REACT V SKNX circular.

Installation

- The product's air flow measurement requires a straight duct section 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.

Straight duct section requirements

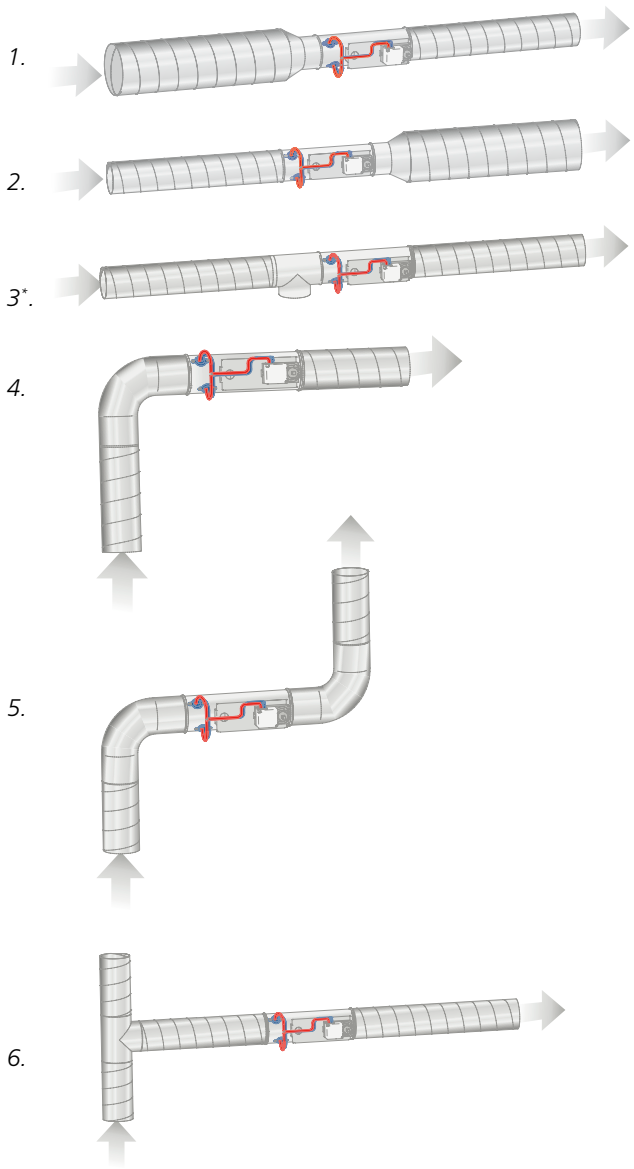


Figure 6. Straight duct section requirements in circular ducts, number of Ø before product:
Images 1-5 require no straight duct section (image 3 illustrates a T piece with cleaning hatch).*
Image 6 requires a straight duct section before the damper equivalent to 4 x the diameter of the duct.

Straight duct section requirements in case of sound attenuator with baffle

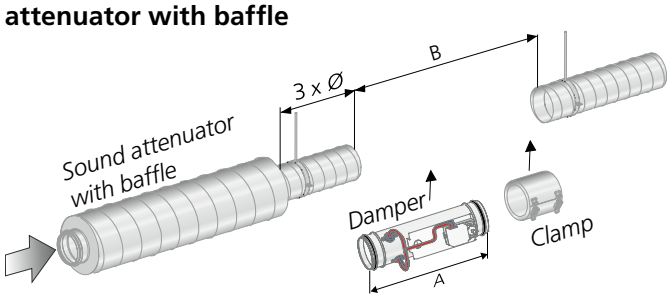


Figure 7. Straight duct section requirement of 3 x Ø for sound attenuator with baffle or centre body.

Installation in the duct system

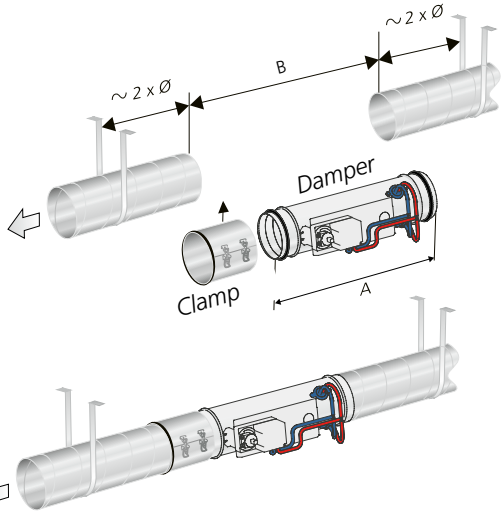


Figure 8. Installation in the duct system. The ducts must be firmly fixed to the frame of the building on each side of the product.

Rectangular design

Dimensions

REACT V SKNX Size	Duct size (Nominal) (in)	Inlet dimensions BxH (in)	Torque (lbf. in.)	Weight (lb)	Flow range (cfm)		Tolerance Q* ±5% (cfm)
					Min.	Max = Vnom*)	
200x200	8x8	7.9x7.9	44	13.4	142	773	17
300x200	12x8	11.8x7.9	44	16.1	212	1161	25
400x200	16x8	15.7x7.9	44	18.5	282	1547	36
500x200	20x8	19.7x7.9	44	21.2	354	1934	44
600x200	24x8	23.6x7.9	44	23.4	424	2320	53
700x200	28x8	27.6x7.9	44	26.0	494	2708	61
800x200	32x8	31.5x7.9	44	28.7	566	3093	70
1000x200	39x8	39.4x7.9	44	33.5	706	3867	89
300x300	12x12	11.8x11.8	44	19.6	322	1767	40
400x300	16x12	15.7x11.8	44	22.3	430	2356	53
500x300	20x12	19.7x11.8	44	25.1	538	2945	68
600x300	24x12	23.5x11.8	44	28.0	646	3534	81
700x300	28x12	27.6x11.8	44	30.4	752	4123	93
800x300	32x12	31.5x11.8	44	33.5	860	4712	108
1000x300	39x12	39.4x11.8	44	39.0	1076	5890	133
400x400	16x16	15.7x15.7	44	26.7	578	3168	72
500x400	20x16	19.7x15.7	44	29.8	723	3960	91
600x400	24x16	23.5x15.7	44	32.6	867	4752	108
700x400	28x16	27.6x15.7	44	36.2	1013	5543	127
800x400	32x16	31.5x15.7	44	39.2	1157	6335	144
1000x400	39x16	39.4x15.7	44	45.4	1445	7920	180
1200x400	47x16	47.2x15.7	89	51.6	1735	9503	216
1400x400	55x16	55.1x15.7	89	57.8	2023	11088	252
1600x400	63x16	63.0x15.7	89	64.2	2314	12670	288
500x500	20x20	19.7x19.7	44	33.7	909	4973	114
600x500	24x20	23.5x19.7	44	37.0	1089	5967	136
700x500	27x20	27.6x19.7	89	40.8	1271	6962	159
800x500	32x20	31.5x19.7	89	43.9	1453	7956	182
1000x500	39x20	39.4x19.7	89	51.0	1816	9946	227
1200x500	47x120	47.2x19.7	89	57.8	2178	11935	273
1400x500	55x20	55.1x19.7	89	64.6	2543	13925	318
1600x500	63x20	63.0x19.7	89	71.4	2905	15912	362
600x600	24x24	23.5x23.5	89	42.1	1309	7178	163
700x600	27x24	27.6x23.5	89	46.1	1530	8373	191
800x600	32x24	31.5x23.5	89	49.4	1748	9571	218
1000x600	39x24	39.4x23.5	89	57.3	2184	11963	273
1200x600	47x24	47.2x23.5	89	64.6	2621	14355	328
1400x600	55x24	55.1x19.7	89	73.2	3057	16747	381
1600x600	63x24	63.0x19.7	89	79.8	3494	19139	436
700x700	28x28	27.6x27.6	89	48.7	1788	9793	222
800x700	32x28	31.5x27.6	89	54.7	2043	11192	256
1000x700	39x28	39.4x27.6	89	62.6	2553	13988	320
1200x700	47x28	47.2x27.6	89	70.8	3064	16787	384
1400x700	55x28	55.1x27.6	89	78.9	3577	19584	447

*)Vnom at 0.5 inWG in pressure reading.

*Installed according to the instructions.

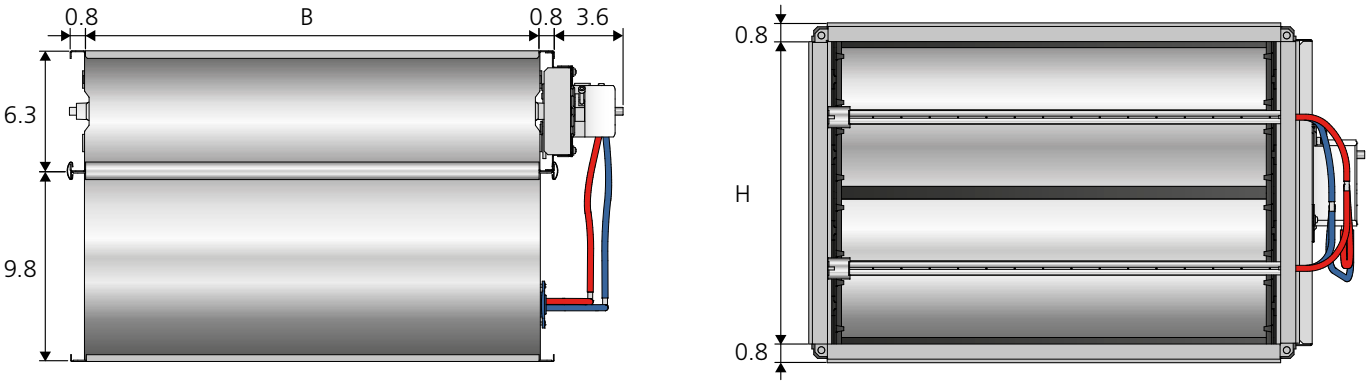


Figure 9. Dimensions (in), REACT V SKNX rectangular.

Installation

- The product's air flow measurement requires a straight duct section 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, the damper is always installed 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.

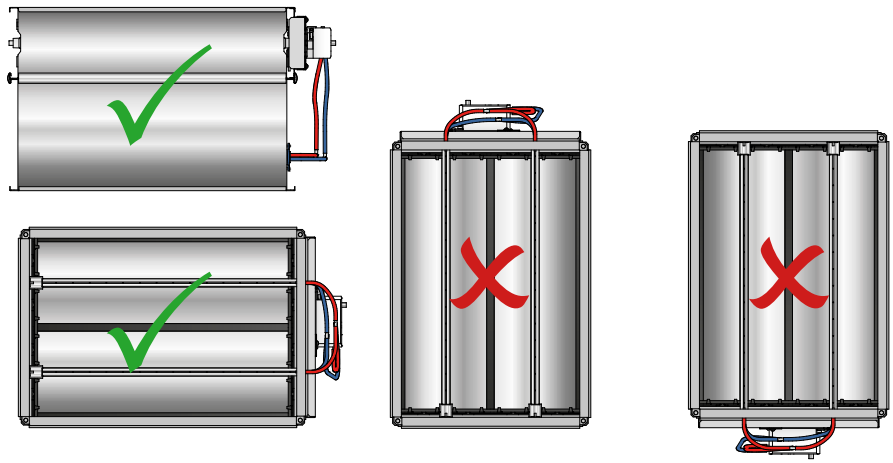


Figure 10. Installation - For rectangular ducts, the damper is always installed so that the controller/actuator is placed along the side of the duct.

Straight duct section requirements

Type of disruption	Tolerance Q ±5%	Tolerance Q ±10%
One 90° bend	E = 3 x B	E = 2 x B
T piece	E = 3 x B	E = 2 x B

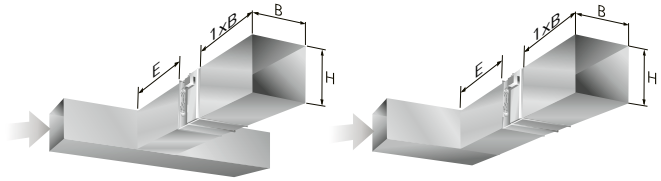


Figure 11. Straight duct section requirements in rectangular ducts.
E = Straight duct section
B = Width of duct
H = Height of duct

Straight duct section requirements in case of sound attenuator with baffle

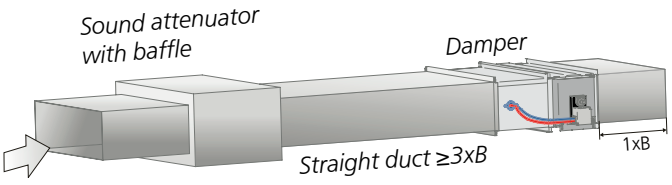


Figure 12. Straight duct section requirements 3 x B in case of sound attenuator with baffle. Applies to both supply and exhaust air.

Specification

Product

Circular design

Circular variable flow damper	REACT V SKNX	a	bbb
Version:			
Size: 100, 125, 160, 200, 250, 315, 400, 500, 630			

REACT V SKNX factory setting -
Vmax = Vnom l/s and Vmin = 0 l/s

Rectangular design

Rectangular variable flow damper	REACT V SKNX	b	bbb-ccc
Version:			
Size: Dimensions: B x H (see table on page 10)			

REACT V SKNX factory setting -
Vmax = Vnom l/s and Vmin = 0 l/s

Accessories

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"

FSR

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

REACT V COVER CIRCULAR

Cover panel for visible installation	REACT V COVER CIRCULAR

For circular design, all sizes

Siemens AST20

Hand-held terminal for actuator	Siemens AST20

Specification text

Example of a specification text according to VVS AMA.

QJB.11 Circular rotary damper with single blade

Make: Swegon

Type: REACT V SKNX

Variable flow damper with the following functions:

- Pressure independent VAV unit for demand-controlled ventilation.
- Integrated flow measurement.
- Integrated controller, flow regulating.
- The damper can be ordered with factory fitted external insulation.

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

Size:	Ø 100 to Ø 630	
Specification		
Standard SS-EN 1751:	2014, Annex C	
Power supply:	24 V AC ±20% 50 - 60 Hz	
Air tightness class, casing:	C	
Air tightness class, closed damper:	4	
Corrosivity class:	C3	
Pressure class:	A	
Tolerance, flow measurement:	±5%, however at least ±X according to the table in the product sheet	
Type:	REACT V SKNXa	bbb-cc xx pcs
Accessories		
Clamp for ventilation ducts	FSRc	xx pcs
Cover panel for visible installation	REACT V COVER CIRCULAR	
Hand-held terminal for actuator	Siemens AST20	
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"	

QJB.41 Louvre damper with counter-rotating blade

Make: Swegon

Type: REACT V SKNX

Variable flow damper with the following functions:

- Pressure independent VAV unit for demand-controlled ventilation.
- Integrated flow measurement.
- Integrated controller, flow regulating.

Must be installed with a minimum straight duct section on the inlet side 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 ±20% 50 - 60 Hz	
Air tightness class, casing:	C	
Air tightness class, closed damper:	3	
Corrosivity class:	C3	
Pressure class:	A	
Tolerance, flow measurement:	±5%, however at least ±X according to the table in the product sheet	
Type:	REACT V SKNXb	bbb-ccc-dd xx pcs
Accessories		
Hand-held terminal for actuator	Siemens AST20	