WISE Damper a

Instructions for Use

20210310
Art. 1546002

Symbol key

Symbols on the machine

This product complies with applicable EU directives

Symbols in this user manual

Warning/Caution!

Risk of crushing

Application area

The product is a variable flow damper, constant flow damper or a constant pressure damper with integrated radio transmitter designed for comfort ventilation indoors within Swegon's system for demand-controlled ventilation WISE. The product is used to regulate supply or extract air flow, alternatively constant pressure hold a static pressure in the ventilation duct.

The product may not be used for anything other than its intended use.

General

Read through the entire instructions for use before you install/use the product and save the instructions for future reference. It is not permissible to make changes or modify this product other than those specified in this document.

The packaging contains the following items:

1 x WISE Damper

1 x Instructions for use

Protective equipment

Always use appropriate personal protective equipment for the work in question, in the form of gloves, respirators and protective glasses during handling, installation, cleaning and service/maintenance.

Electrical safety

Permitted voltage, see "Electrical data".

It is not permissible to insert foreign objects into the product's contactor connections or the electronics's ventilation openings; risk for short circuiting.

24 V isolation transformer to be connected should comply with the provisions of IEC 61558-1.

Cable sizing must be carried out for cabling between the product and the power supply source.

Disconnect the power supply when working on products that are not required to run in production.

Always follow the local/national rules for who shall be permitted to carry out this type of electrical installation.

If the product is equipped with a spring return actuator there is no release button, manual control is performed using the supplied hex key where the damper blade is cranked to the required position and then locked. Do not forget to disable the lock after working on it.

Other risk

When the product is voltage fed, the damper will be either open or close and there can be a certain risk for pinch injuries, for example, on the fingers if these are placed between the damper blade and ventilation duct when the damper blade rotates.

The product's actuator is equipped with a release button that permits manual control of the damper blade, always ensure this is activated before working on the internal parts of the damper.

Handling

- Always use appropriate transport and lifting devices when the product is to be handled to reduce ergonomic loads.
- The product must be handled with care.
- It is not permissible to carry the product by the measuring tube.

Installation

- Moist, cold and aggressive environments must be avoided.
- Avoid installing the product near a heat source.
- Assemble the product according to applicable industry regulations.
- Install the product so that it is not accessible by unauthorized persons, for example above a suspended ceiling.
- Install the product for easy access during service/maintenance.
- Supplement the duct system with a cleaning hatch in the vicinity of the product to facilitate cleaning.
- If the product is mounted above a fixed ceiling, the inspection hatch must be located so that the product is accessible for inspection.
- If the product is mounted so that it is possible to gain access to the inside of the product, it must be supplemented with appropriate protection, for example, a ventilation unit.
- If the product is mounted in cold areas, the whole product must be insulated on the outside against condensation.
- For installation, the accessory FSR is recommended.
- The product can be installed position-independent.
- It is recommended to mount the product so that the product's cover is visible from the floor.
- The product must be laid down prior to installation so that it cannot fall over.
- Check to make sure that the product does not have any visible defects.
- Check that the product is properly secured after it has been installed.
- Use the product's eyes to secure the cables with cable ties.
- Check that all cables are properly secured in place after installation.
- Check that the cover is properly mounted in place.

The document was originally written in Swedish.

Installation, torque, dimensions and weights

Circular design

Size Ø (mm)	A (mm)	B (mm)	Installation dimensions (mm)	Normal motor		Spring return			Flow range				Tolerance Q* ±5% with at least ±x l/s
									Min. (0.6 m/s)		Max. (10 m/s)		
				Torque (Nm)	Weight (kg)	C (mm)	Torque (Nm)	Weight (kg)	l/s	m³/h	l/s	m³/h	
100	574	50	584	5	2.5	11	5	3.0	5	18	79	285	2
125	574	50	584	5	2.8	24	5	3.3	7	26	123	443	2
160	574	50	584	5	3.2	33	5	3.7	11	40	202	728	2
200	574	50	584	5	3.7	19	5	4.2	18	65	315	1134	3
250	574	50	584	5	4.3	13	5	4.8	30	108	491	1768	5
315	600	50	610	10	5.2	0	10	6.2	50	180	780	2808	8
400	830	60	850	10	8.0	0	10	9.0	87	314	1257	4526	13
500	830	60	850	10	9.9	0	10	10.9	135	486	1964	7071	20
630	915	60	935	15	13.5	0	20	14.5	187	674	3118	11225	32

*Installed according to the instructions

Installation – all designs

- WISE Dampers' air flow measurement requires a straight section before the product according to the installation figures.
- Instructions for Use are supplied with the product on delivery, but can also be downloaded from www.swegon.com.

Installation – circular version

- Installation is position dependent.

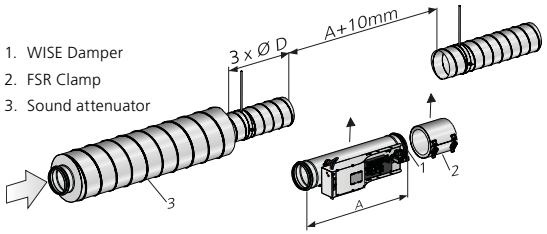


Figure 1. Requires a straight section of 3 x Ø for sound attenuators with baffle or centre body.

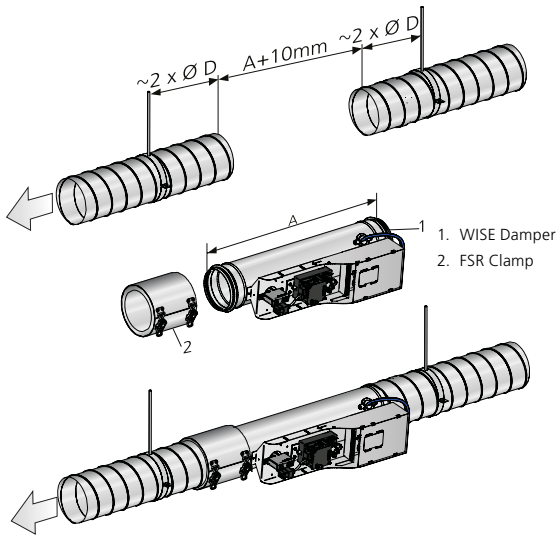


Figure 2. Installation in the duct system The ducts must be firmly fixed to the frame of the building on each side of WISE Damper.

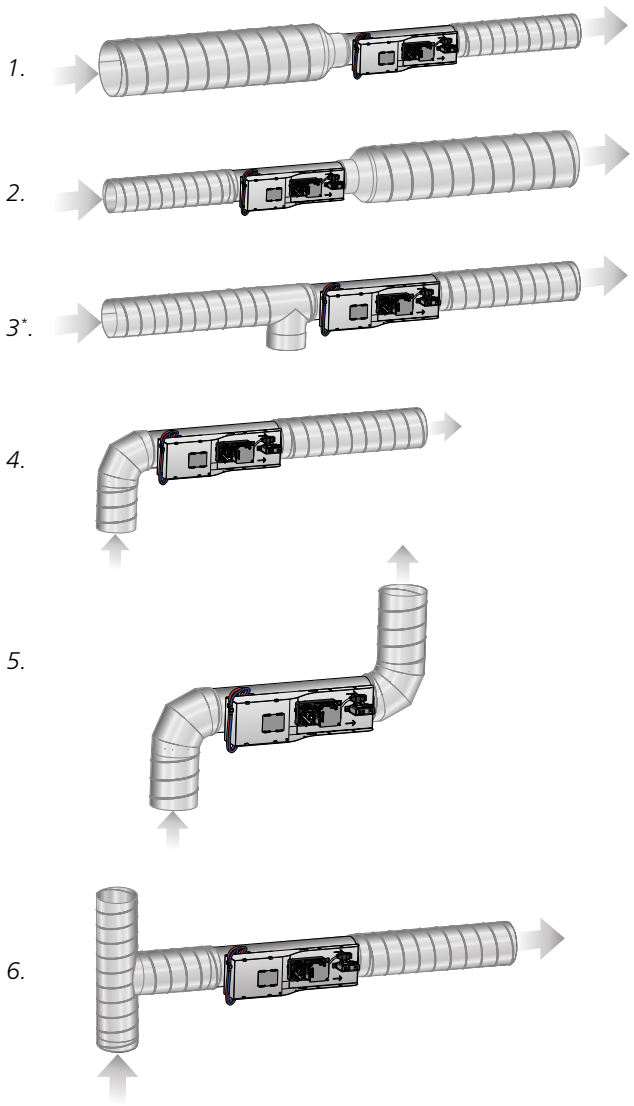


Figure 3. Straight section requirements, circular ducts.
1-5: Quantity Ø before the product: 0 x Ø.
6: Quantity Ø before the product: 2 x Ø.
**Cleaning hatch*

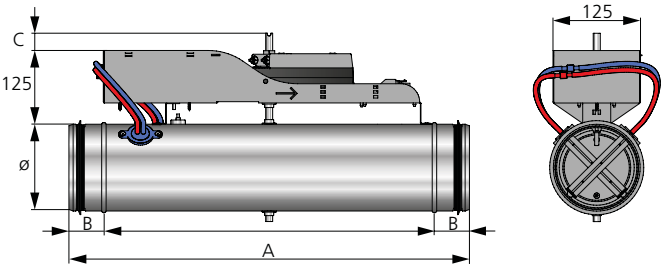


Figure 4. Dimensions, WISE Damper circular and WISE Damper circular with spring return.

Swegon reserves the right to alter specifications.

Rectangular design

Size BXH (mm)	Normal motor		Spring return		Flow range				Tolerance Q* ±5% with at least ±x l/s
					Min. (1 m/s)		Max. (10 m/s)		
	Torque (Nm)	Weight (kg)	Torque (Nm)	Weight (kg)	l/s	m³/h	l/s	m³/h	
200 x 200	5	7.2	5	8.0	34	123	400	1440	4
300 x 200	5	8.4	5	9.2	50	180	600	2160	6
400 x 200	5	9.9	5	10.7	67	242	800	2880	8
500 x 200	5	11.4	5	12.2	84	303	1000	3600	10
600 x 200	5	12.9	5	13.7	100	360	1200	4320	12
700 x 200	5	14.4	5	15.2	117	422	1400	5040	14
800 x 200	5	15.4	5	16.2	133	479	1600	5760	16
1000 x 200	10	18.4	10	19.9	167	602	2000	7200	20
300 x 300	5	10.9	5	11.3	76	274	900	3240	9
400 x 300	5	12.4	5	12.9	102	368	1200	4320	12
500 x 300	5	13.9	5	14.4	127	458	1500	5400	15
600 x 300	5	15.4	5	15.9	152	548	1800	6480	18
700 x 300	10	16.8	10	17.8	178	641	2100	7560	21
800 x 300	10	18.4	10	19.4	203	731	2400	8640	24
1000 x 300	10	21.4	10	22.4	254	915	3000	10800	30
400 x 400	5	14.0	5	14.5	136	490	1600	5760	16
500 x 400	10	16.0	10	18.0	171	616	2000	7200	20
600 x 400	10	17.4	10	18.5	205	738	2400	8640	24
700 x 400	10	19.6	10	20.6	250	900	2800	10080	28
800 x 400	10	21.1	10	22.2	273	983	3200	11520	32
1000 x 400	10	24.2	10	25.2	341	1228	4000	14400	40
1200 x 400	15	27.2	20	29.2	409	1473	4800	17280	48
1400 x 400	15	30.3	20	32.2	478	1721	5600	20160	56
1600 x 400	15	33.3	20	35.3	546	1966	6400	23040	64
500 x 500	10	18.5	10	19.5	214	771	2500	9000	25
600 x 500	10	20.5	10	21.6	257	926	3000	10800	30
700 x 500	10	22.6	10	23.6	300	1080	3500	12600	35
800 x 500	10	24.6	10	25.6	343	1235	4000	14400	40
1000 x 500	15	28.6	20	30.6	429	1545	5000	18000	50
1200 x 500	15	32.7	20	34.6	514	1851	6000	21600	60
1400 x 500	15	36.8	20	38.7	600	2160	7000	25200	70
1600 x 500	15	40.8	20	42.8	686	2470	8000	28800	80
600 x 600	10	22.7	10	23.7	309	1113	3600	12960	36
700 x 600	10	24.8	10	25.8	361	1300	4200	15120	42
800 x 600	15	26.8	20	27.8	412	1484	4800	17280	48
1000 x 600	15	30.9	20	32.9	515	1854	6000	21600	60
1200 x 600	15	35.0	20	37.0	618	2225	7200	25920	72
1400 x 600	15	39.2	20	41.1	722	2600	8,400	30240	84
1600 x 600	15	43.3	20	45.2	825	2970	9600	34560	96
700 x 700	15	27.6	20	29.5	422	1520	4900	17640	49
800 x 700	15	30.3	20	32.2	482	1736	5600	20160	56
1000 x 700	15	34.9	20	36.8	603	2171	7000	25200	70
1200 x 700	15	40.6	20	42.6	723	2603	8,400	30240	84
1400 x 700	15	45.7	20	47.7	844	3039	9800	35280	98
1600 x 700	15	51.0	20	52.9	964	3471	11200	40320	112

*Installed according to the instructions

Installation – rectangular design

Dimension B in the figure and table below is found in the table "Rectangular design" to the left.

NOTE! Damper spindles must be installed horizontally.

Straight section before WISE Damper in rectangular ducts

Type of disruption	E (m_2=5%)	E (m_2=10%)
One 90° bend	E = 3 x B	E = 2 x B
T piece	E = 3 x B	E = 2 x B

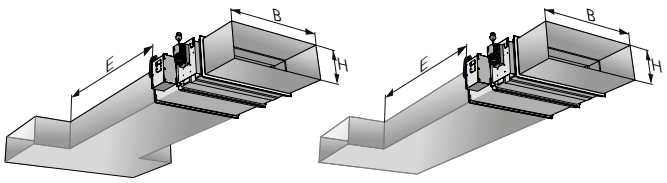


Figure 5. Straight section requirements, rectangular ducts.

Straight section before/after WISE Damper – sound attenuator with baffle

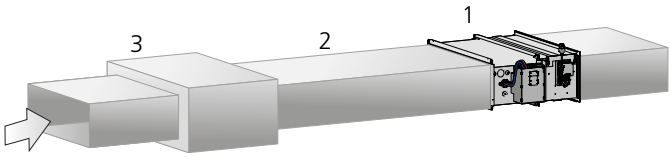


Figure 6. Straight section requirements, rectangular WISE Damper and sound attenuator with baffle. Installation with straight section applies both to supply and extract air.

1 = Rectangular WISE Damper.
2 = Straight duct ≥3xB.
3 = Sound attenuator with baffle.

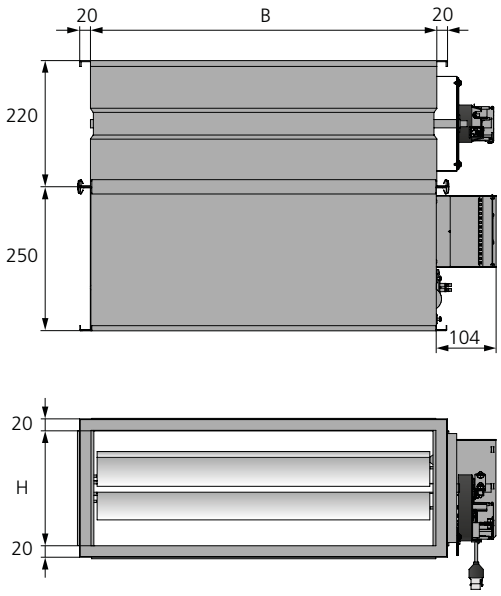


Figure 7. Dimensions, WISE Damper rectangular and WISE Damper rectangular with spring return.

Connections

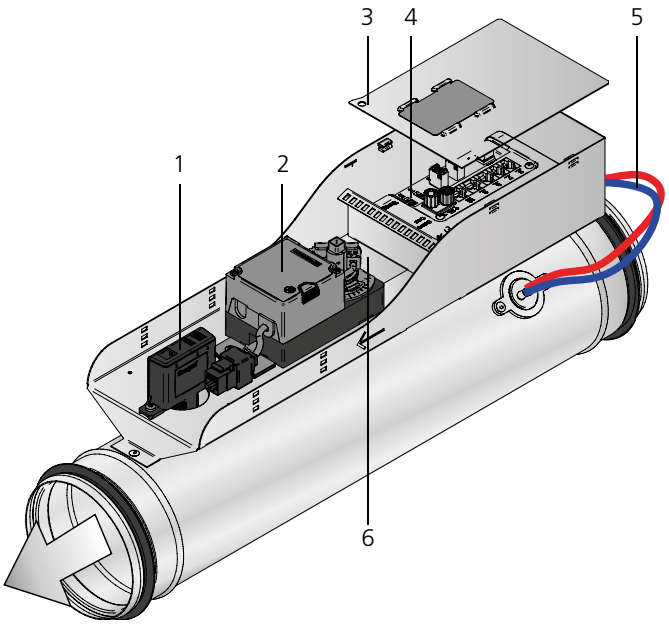


Figure 8. WISE Damper
1. *WISE SMA (Sensor Module Advanced), accessory*
2. *Damper motor*
3. *Cover*
4. *WISE CU (Controller Unit)*
5. *Measuring tubes*
6. *Temperature sensor*

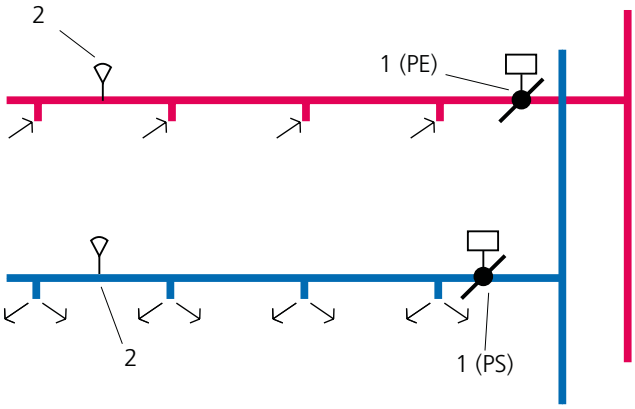


Figure 10. Constant pressure regulation. WISE Damper can be used to maintain a constant pressure, supplement with WISE DPS.
1. *WISE Damper*
2. *WISE DPS*

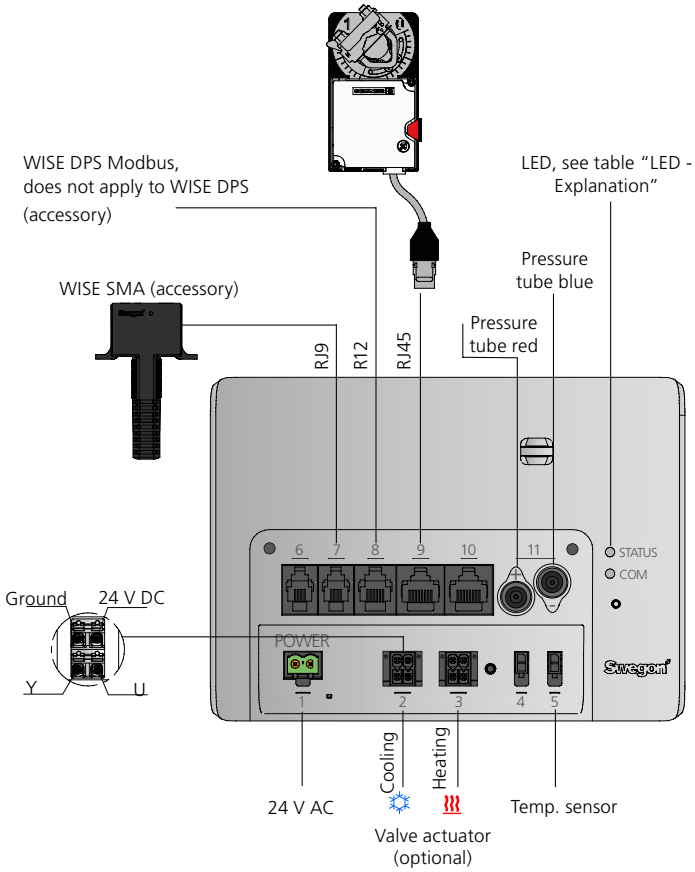


Figure 9. WISE Damper, connections.

LED - Explanation

Not paired

	Colour	Type
Energized	White	Permanent
Selected in TuneWISE	White	Flashing, fast
Prepared to be added to the system	White	Flashing, slowly
To be added to the system	White	Flashing, fast for 5 s

Paired

	Colour	Type
Normal operation	Green	Permanent
Restart	Blue	Permanent for 10 s
Initiation	Blue	Flashing
Air commissioning	Orange	Permanent
Water commissioning	Violet	Permanent
Commissioning air/ water	Orange/Violet	Alternating
Emergency mode	Green/Red	Alternating
Service mode	Blue	Short flash every 5 s

Swegon reserves the right to alter specifications.

Use

Use TuneWISE for commissioning. Commissioning must be performed by qualified and trained WISE service engineers.

Use SuperWISE for settings, reading alarms, etc. refer to the documentation for SuperWISE II / SuperWISE II SC.

Trouble shooting

The product is not shown in the system:

- Make sure that the product is energized. (e.g. diode).
- Make sure that the product is paired.
- Make sure the product is in the right radio network.

The product shows incorrect/no air flow/pressure

- Make sure that the product is installed according to the recommended distance to disruptions, see "Installation".
- Check that there is air flow/pressure.
- Make sure that the product is correctly oriented in terms of air direction. The air flow must follow the instructions on the product.
- Check that the measuring tube is mounted correctly, plus to plus (red), minus to minus (blue).
- Check that the measuring tubes are undamaged.

The product does not regulate the air flow/pressure

- Check that the damper motor has not become detached from the damper spindle.
- Check that the damper motor works by pressing in the motor's release button, turn the damper spindle, release the release knob and then see whether the damper motor starts to move.
- Check that the damper motor is connected to the right input.

The product shows incorrect/no temperature

- Make sure that the temperature sensor does not hang outside the product.
- Check that the temperature sensor is connected to the right input.

The product shows incorrect/no VOC

- Make sure that this product is delivered with this type of sensor, this is evident from the product label where it states "SMA".
- Make sure that the VOC sensor does not hang outside the product.
- Check that the VOC sensor is connected to the right input.

Cleaning

Ideally the product should be cleaned in connection with the cleaning of the rest of the ventilation system.

Cleaning of electrical components

- If needed, use a dry cloth to clean the components.
- Never use water, detergent and cleaning solvent or a vacuum cleaner.

External cleaning

- If necessary use tepid water and a well-wrung cloth.
- Never use detergent and cleaning solvent or a vacuum cleaner.

Internal cleaning

- When cleaning the ventilation system, the product must be dismantled if there are no cleaning hatches close to the product.
- Cleaning equipment such as whisks and the like must not be fed through the damper.
- If necessary remove dust and other particles that can be present in the product.
- Never use detergent and cleaning solvent or a vacuum cleaner.

Service/maintenance

- The product does not require any maintenance, except for any cleaning when necessary.
- In connection with a service, mandatory ventilation inspection or cleaning of the ventilation system, check that the general condition of the products looks ok. Pay particular attention to the suspension, cables and that they sit firmly in place.
- It is not permissible to open or repair electrical components.
- If you suspect that the product or a component is defective, please contact Swegon.
- A defective product or component must be replaced by an original spare part from Swegon.

Materials and surface treatment

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

Disposal

Waste must be handled according to local regulations.

Product warranty

The product warranty or service agreement will not be in effect/will not be extended if: (1) the product is repaired, modified or changed, unless such repair, modification or change has been approved by Swegon AB; or (2) the serial number on the product has been made illegible or is missing.

Supplementary installation WISE SMA

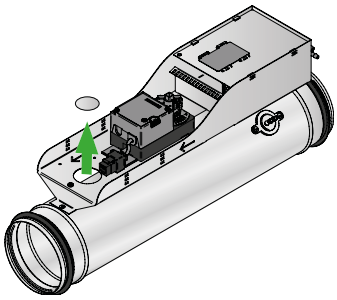


Figure 11. Dismantle the sealing plug from tubular damper casing.

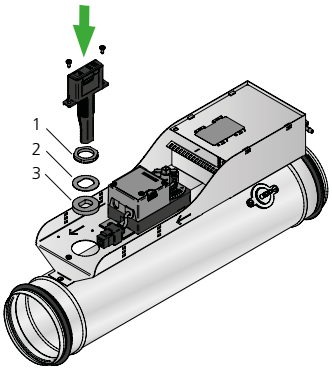


Figure 12. Install WISE SMA in the following order:
1. Counter-nut
2. Flat washer
3. Seal
4. Screw WISE SMA on the shelf (screw: TX20).

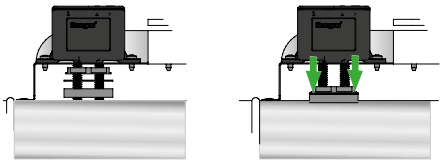


Figure 13. Tighten the counter nut against the tubular damper casing so that it presses the seal against the tubular damper casing.

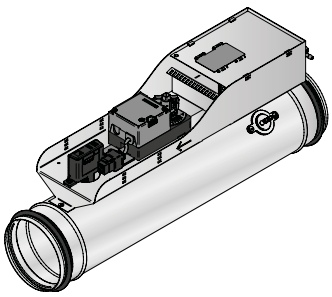


Figure 14. WISE SMA installed. Electrical connection see "Connection".

Replacing the damper motor

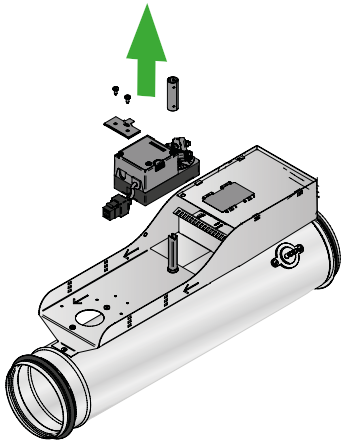
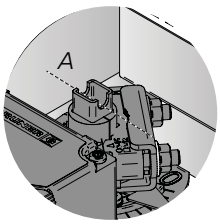
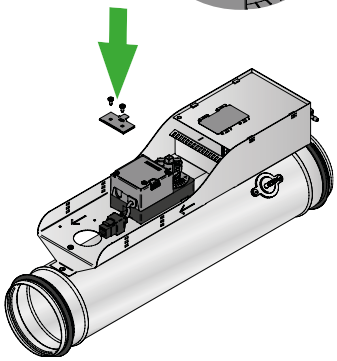
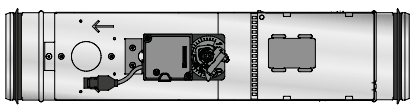


Figure 15. Dismantling the damper motor.
1. Disconnect the cable.
2. Loosen the nuts on the spindle clamp (nuts: 8mm).
3. Dismantle 2 screws for the locking strip (screws: TX20).
4. Lift off the damper motor and spindle adapter.







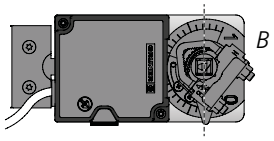


Figure 16.
1. Fit the damper motor and spindle adapter on the damper spindle.
2. Fit the locking strip.
3. Make sure that the cut-out on the spindle is as on A (damper is then closed).
4. Spindle clamp on the damper motor must be directed towards 0, see B.
5. Tighten nuts on the spindle clamp.
6. Connect the cable.

Replacement of WISE CU

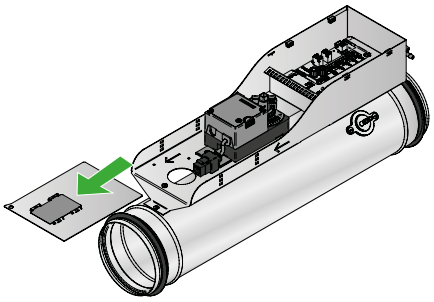


Figure 17. Dismantle the cover on the motor shelf by pulling it out of the slot in the motor shelf.

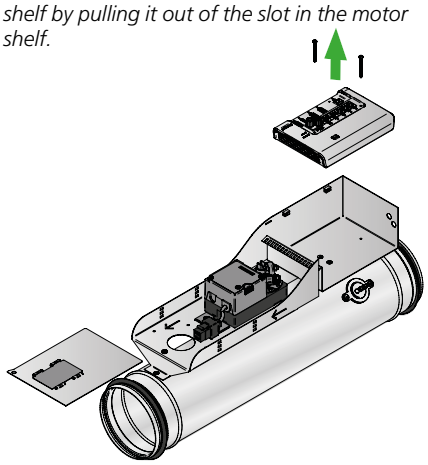


Figure 18. Remove hoses and contactors from WISE CU. Unscrew 2 screws holding WISE CU in place (screw: PH1).

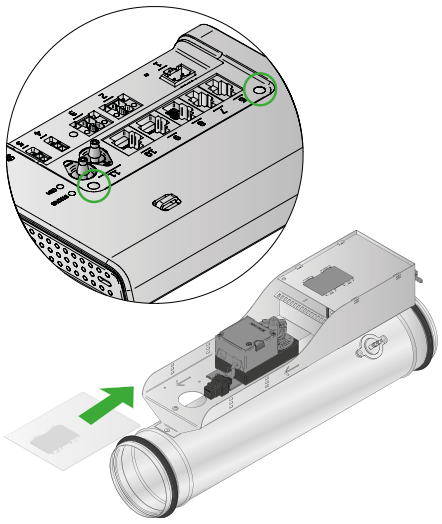


Figure 19.
1. Screw the WISE CU on the motor shelf.
2. Connect hoses and contactors from WISE CU, see "Connection".
3. Insert the lock in the slot until it "snaps into place".
4. Apply the new supplied QR codes over the existing QR codes on the product.

Swegon reserves the right to alter specifications.

Replacing the spring return actuator - Rectangular damper

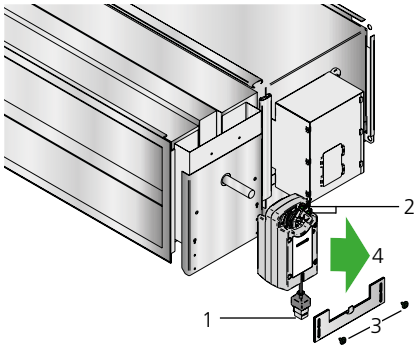


Figure 20. Dismantling the spring return actuator.
1. Disconnect the cable.
2. Loosen the nuts on the spindle clamp (nuts 8 mm).
3. Dismantle 2 screws for the locking strip (screws TX20).
4. Lift off the motor.

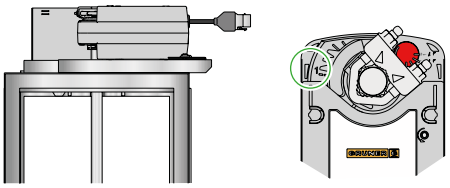


Figure 21. For damper position "Normally closed" the damper should be closed during installation of the spring return actuator. The spindle clamp then sits as shown above.

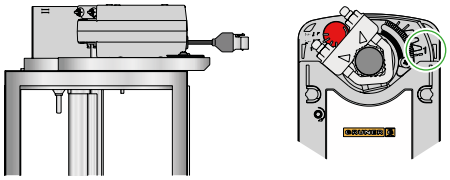


Figure 22. For damper position "Normally open" the damper should be open during installation of the spring return actuator. The spindle clamp then sits as shown above. NOTE! The spindle clamp needs to be moved to the rear of the motor, see figure 28-30.

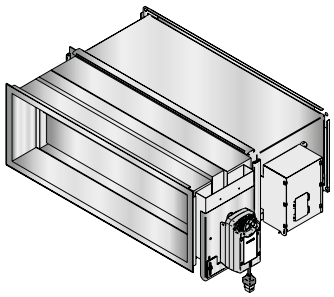


Figure 23. Install the new spring return actuator.
1. Fit the motor on the damper spindle.
2. Fit the locking strip.
3. Make sure that the spindle clamp on the motor is fitted according to one of the designs shown in figure 21 or 22.
4. Tighten the nuts on the spindle clamp.
5. Connect the cable.

Replacing the spring return actuator - Circular damper

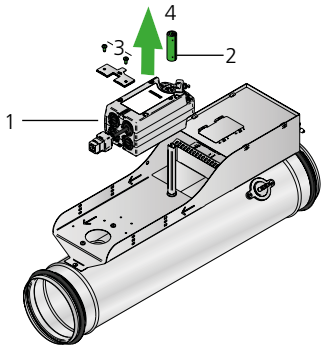


Figure 24. Dismantling the spring return actuator.
1. Disconnect the cable.
2. Loosen the nuts on the spindle clamp (nuts 8 mm).
3. Dismantle 2 screws for the locking strip (screws TX 20).
4. Lift off the motor and spindle adapter.

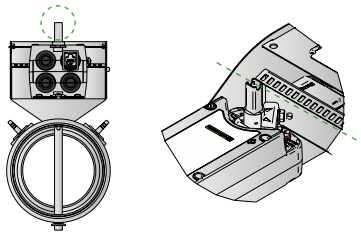


Figure 25. Damper blade position "Normally closed".

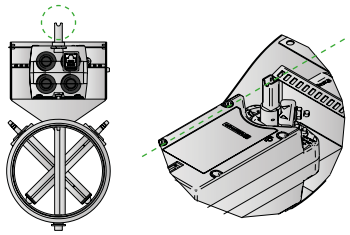


Figure 26. Damper blade position "Normally open".

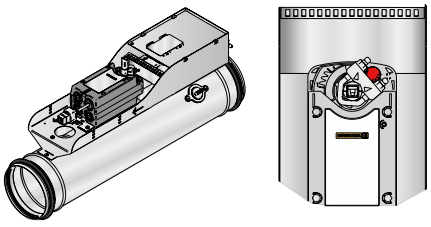


Figure 27. Install the new spring return actuator.
1. Fit the motor and spindle adapter on the damper spindle.
2. Fit the locking strip.
3. Makes sure that the position of the damper blade is correct, see figure 25 or 26. NOTE! The spindle clamp is always fitted in the direction as set out above on the circular damper.
4. Tighten the nuts on the spindle clamp.
5. Connect the cable.

Changing the running direction of the spring return actuator

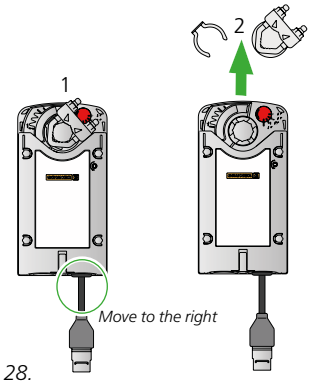


Figure 28.
1. Standard installation of the spindle clamp.
2. Dismantle the circlip and spindle clamp.

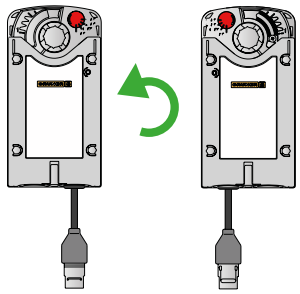


Figure 29. Reverse the motor.

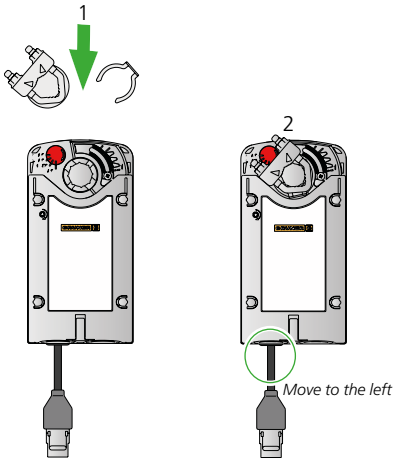


Figure 30.
1. Fit the spindle clamp and circlip as shown above.
2. Mounted with the spindle clamp.

NOTE! Settings must be changed on the product in SuperWISE. See settings below.

Output 1, settings	De-energized	
	Closed (Default)	Open
Voltage at 0% on analogue output	2000 mV	10000 mV
Voltage at 100% on analogue output	10000 mV	2000 mV
Voltage at 0% on analogue feedback signal	2000 mV	10000 mV
Voltage at 100% on analogue feedback signal	10000 mV	2000 mV

Technical data

Output (ERP):	50 mW
Frequency band:	2.45 GHz, IMS band (2400-2483 MHz)
Temperature sensor:	0 - 50°C ± 0.5°C
Pressure sensor:	0 - 300 Pa
With SMA	
VOC sensor	450 - 2000 ppm
RH sensor:	0 - 100 RH%
IP class:	IP20
Corrosivity class:	C3
Pressure class:	A
Leakage class according to SS-EN 1751	
- Air tightness class, casing:	C
- Air tightness class circular damper, closed:	4
- Air tightness class rectangular damper, closed:	3
Running time open/close (90°):	120 s
Spring return actuator, running time electricity (90°):	120 s
Return time spring:	max. 20 s (90°)
Ambient temperature	
Operation:	0 – 50°C
Storage:	-20 – +50°C
RH:	10 - 95% (non-condensing)
CE marking:	2016/42/EC (MD)
	2014/53/EU (RED)
	2011/65/EU (RoHS)

Electrical data

Power supply:	24V AC ±15% 50 - 60Hz
Connections pipe dim.	
Power:	Screw terminal max. 2.5mm^2
Valve actuator:	Push-in spring force connections, max. 1.5 mm^2
Max. power consumption:	See table below

Variant	Motor	VA			
		Default	+1 valve actuator	+2 valve actuator	+3 valve actuator
Normal	5 Nm 10 Nm 15 Nm	8	15	22	29*
Spring return	5 Nm 10 Nm	12	19	26*	
	20 Nm	16	23	30*	

**Applies to products with CU ver. 2, delivered from 10/01/2019.*

Declaration of Conformity

Swegon AB hereby affirms that

WISE Damper with integrated radio, complies with the essential characteristic demands and relevant regulations specified in the following directives: 2006/42/EC (MD), 2014/53/EU (RED) and 2011/65/EU (RoHS2):

The following standards have been observed:

EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk mitigation
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: Generic standards
EN 60730-1:2011	Automatic electrical controls for household and similar use - Part 1 Generic standards
EN 60730-2-14:2009	Automatic electrical controls for household and similar use - Part 2 Particular requirements for electric actuators
IEC 60529:1992+A2:2013	Degrees of protection provided by enclosures (IP code)
EN 61000-6-2:2007	Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments
EN 61000-6-3:2007	Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments
EN 300328 V1.9.2, V1.9.1, V1.8.1	Electromagnetic compatibility and Radio spectrum Matters (ERM) - Wideband Transmission systems - Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques

CE

Person responsible for this declaration:

Name: Ingvar Hagström, Factory Manager Tomelilla

Address: Industrigatan 5, 273 21 Tomelilla, Sweden

Date: 170131

This declaration is applicable only if the product has been installed according to the instructions in this document and if no modifications or changes have been made on this product.

References

www.swegon.com

Building Materials Declaration

WISE Damper product data sheet

WISE System Guide

SuperWISE II / SuperWISE II SC User Manual

WISE Project Planning Guide VS & Cooling, Electric & Control and Ventilation