

PROJECT PLANNING GUIDE - HEATING, COOLING & VENTILATION

Swegon WISE



Demand-controlled indoor
climate has never been easier

Swegon 

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Complete overall solution at all levels

For many years now, Swegon's system for demand-controlled ventilation has set the standard for combining optimum indoor climate with minimum energy use. Over time knowledge regarding demand control and user friendliness has been expanded. This was vital as development within the industry is moving towards significantly increased demands – be it environmental,

net operating income or comfort. Based on experience, we have developed the WISE system from scratch, where all products interact with each other to meet both current and future demands. WISE is based on unique technologies, which combine to form a reliable and flexible system.



Documentation structure

To support installation of a WISE system, Swegon has created a documentation structure.

System guide

The system guide provides the designer with help and advice on the structure of systems and rooms.



System guide

Project planning guides

Our project planning guides provide assistance to the respective disciplines involved with issues that can arise when designing their part of a system.



Heating, Cooling & Ventilation



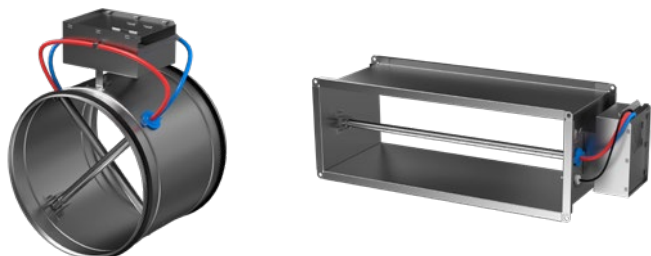
Electricity & control

Climate products for zones and rooms

WISE Measure

Measurement unit that measures air flow in the air duct, communicates by radio to WISE DIR.

Available in a circular or rectangular designs. Measurement units are used on both room and zone levels.



WISE Damper

Damper and flow measurement, communicates by radio to DIR. Regulates, via internal regulator, the damper to the set point value (pressure or flow set point value).

WISE DIR sends the set point value to WISE Damper. Available in a circular or rectangular designs. Dampers are used on both room and zone levels.

On delivery all dampers are set to maintain a fixed damper position (50% degree of opening).

The air flow is measured and presented in SuperWISE. Available in a circular or rectangular designs.

The pressure sensor WISE DPS is used for pressure regulation of ventilation ducts.



Active WISE air diffusers and comfort modules

Flow regulation and flow measurement on room level. Communicates by radio to DIR that sends the set point values to products in the room. On delivery all room products are set to maintain a fixed damper position (50% degree of opening). At start-up the product begins flow regulation.



Climate beams and passive air diffusers

The WISE system can also comprise rooms with passive air diffusers and climate beams with fixed nozzle settings. Rooms can be designed as a constant flow room without active flow regulation or flow regulation via damper (WISE Damper).



For detailed information and complete product description, see each product sheet.

A WISE system can include up to 30 air handling units.

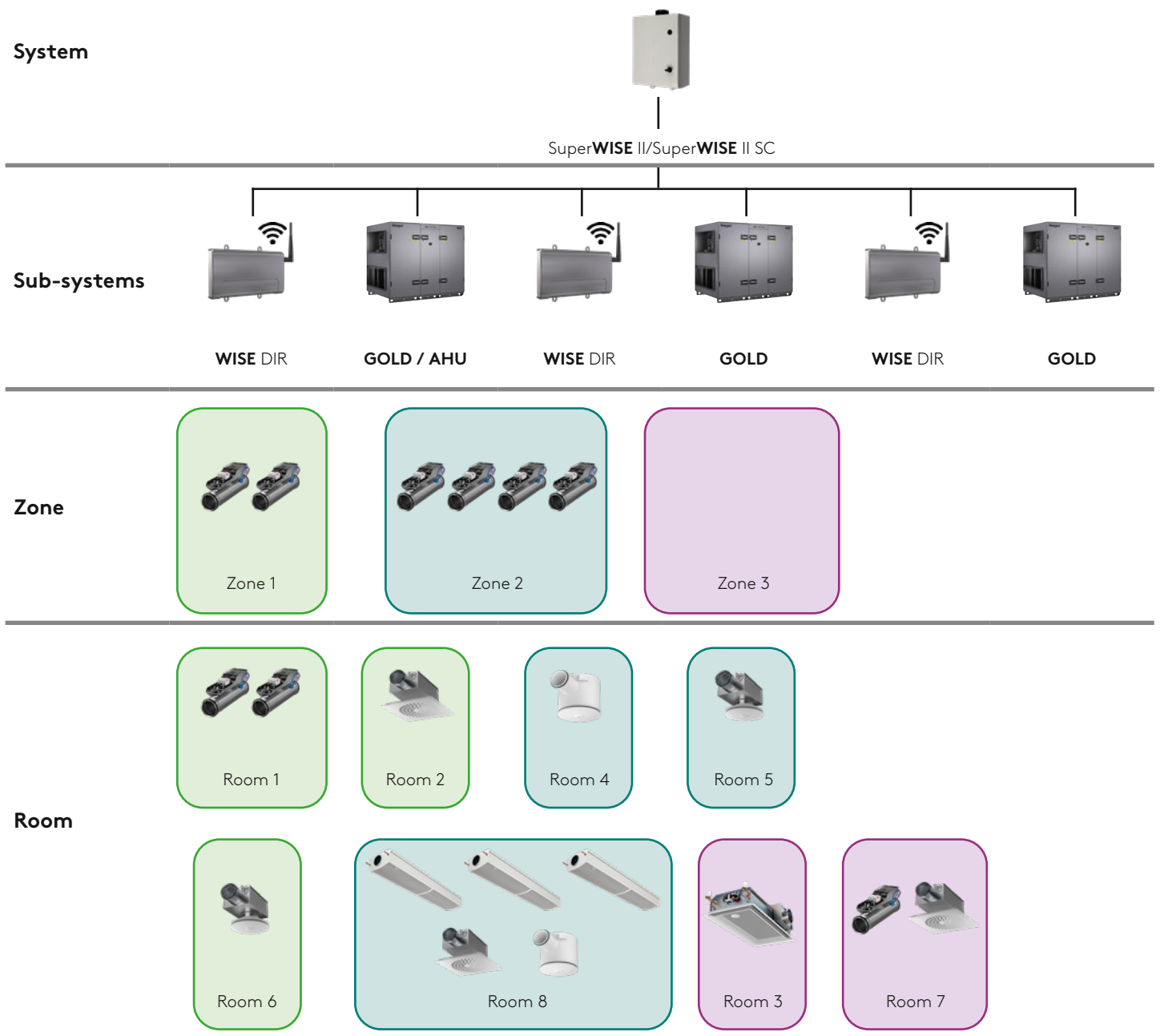
Each air handling unit is divided into one or more zones (ventilation groups).

The advantages of dividing up the ventilation system are several.

- Among others, is the economic benefit to have the option to lower the duct pressure in those ducts that require a lower pressure than other parts of the system.
- It will also reduce the sound effect from the ventilation system. The fan motors in the air handling unit do not need to work so hard when they do not need to keep the whole system at max. pressure.
- One zone can contain a zone damper to distribute the air within the group, but a zone can also be without a zone damper.

- WISE Damper is used as the zone dampers, these are configured to have a pressure regulating or flow regulating function. A flow regulating damper can either maintain a specific flow constant or have a balancing function in a group or zone.
- There is also a possibility to measure a flow via a measurement unit and use the measured flow to create balance in the zone.

One or more rooms are then connected to each zone. These rooms contain active ventilation products (regulating WISE air diffusers, damper or climate beams), be a room with constant flows (passive products) or a room completely without ventilation.



NOTE! This WISE-system is solely an example of how the system can be built up. The WISE system is built up depending on the need and function in the building project.

Zones, control functions

Pressure control

WISE Damper can be configured as a pressure controlled supply air damper (PS) or pressure controlled extract air (PE).
On delivery all dampers are set to maintain a fixed damper position (50% degree of opening).

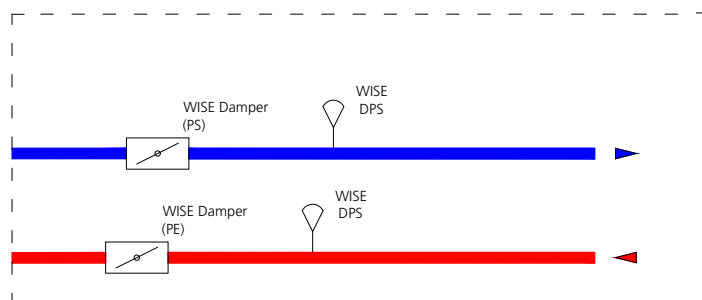
After start up the damper is regulated to maintain its given pressure in a supply air or extract air duct.

Pressure sensor (WISE DPS) mounted in the duct and connected via RJ12 cable to the damper (WISE Damper).

The current air flow is always measured in the damper and presented in SuperWISE.

Emergency mode: A special pressure set point value for emergency mode can be set on the damper with the specified duct pressure sensor.

Emergency mode has the highest priority of all operating modes and there is no flow restriction in emergency mode.



Flow control

WISE Damper can be configured as flow controlled supply air damper (FS) or flow controlled extract air (FE).

On delivery all dampers are set to maintain a fixed damper position (50% degree of opening).

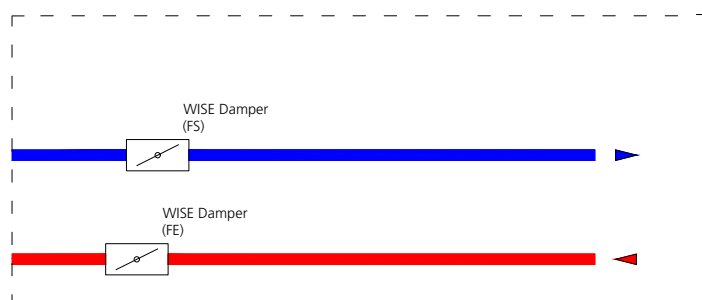
After start up the damper is regulated to maintain its given flow set point value in a supply air or extract air duct.

One or more flow controlled extract air dampers can also be configured to ensure balance in the zone.

The current air flow is always measured in the damper and presented in SuperWISE.

Emergency mode: A special flow set point value for emergency mode can be set.

Emergency mode has the highest priority of all operating modes.



Measurement/balancing

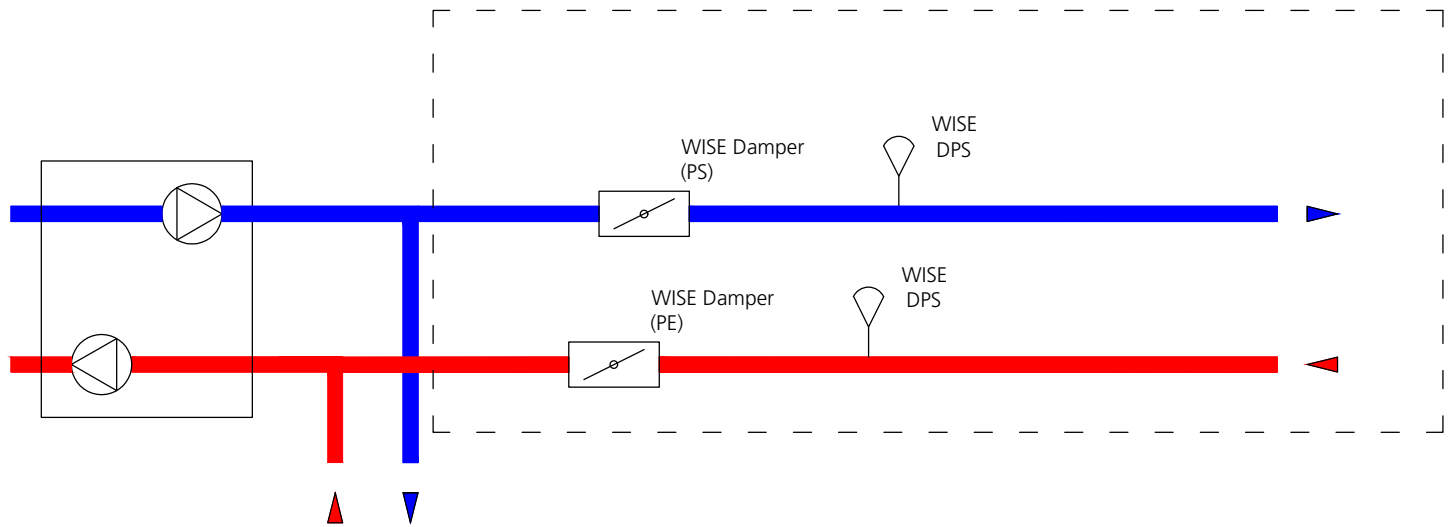
WISE Measure (MS) measures the air flow that passes the measurement unit on the supply air duct and via flow controlled damper WISE Damper (FE) on the extract air duct ensures balance in the zone.

On delivery all dampers are set to maintain a fixed damper position (50% degree of opening).

After start up, the damper regulates to maintain the same flow as measured in the supply air duct, there is a possibility to state an offset flow to compensate for flows that are not measured or regulated by the WISE system.



Zone - pressure control



Example of a zone with a pressure controlled supply air duct and a pressure controlled extract air duct.

WISE Damper for pressure control of the supply air duct (PS) mounted at the start of the duct system (close to the air handling unit) to divide up the duct system in the building as effectively as possible.

WISE Damper for pressure control of the extract air duct (PE) mounted at the start of the duct system (close to the air handling unit) to divide up the duct system in the building as effectively as possible.

Possible modifications

- Number of pressure controlled dampers in a zone can be reduced or increased as required.

For detailed information and complete function description, see the system and function guides.

Products

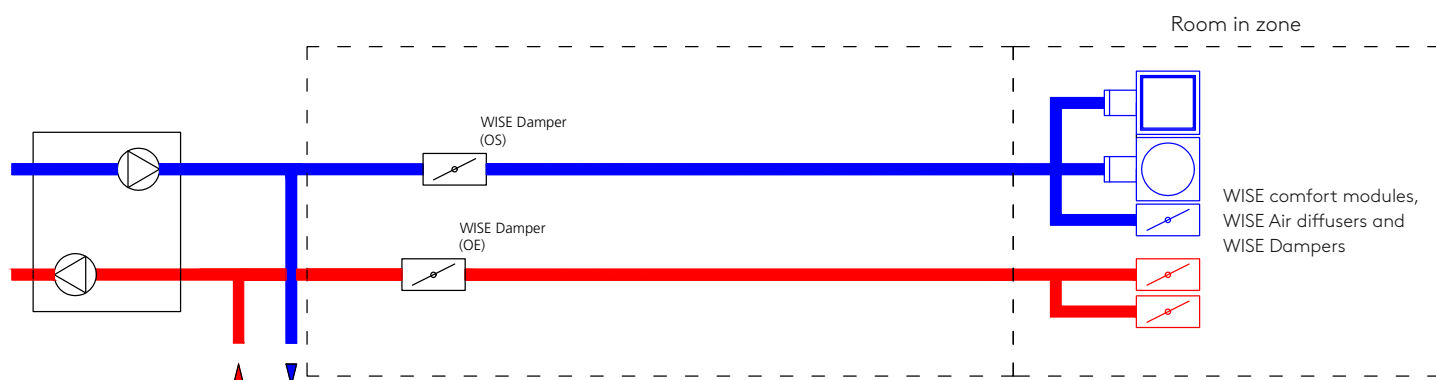
Supply air

- WISE Damper
- WISE DPS

Extract air

- WISE Damper
- WISE DPS

Zone - position optimization



Example of a zone with position optimisation of the zone damper.

With this type of control, active WISE products (dampers, air diffusers or comfort modules) need to be connected to all connected duct parts under an optimising zone damper. By using position optimisation as the control type, a demand-controlled duct system is regulated in an energy efficient and economical manner.

WISE Damper for position optimisation of the supply air duct (OS) is mounted at the start (close to the air handling unit) of the duct part to be regulated. This is to take the pressure drop from the air handling unit early in the system. The degree of opening on the zone damper is adapted to the need in the underlying duct system (open and closed depending on the underlying room product's degree of opening).

WISE Damper for position optimisation of the extract air duct (OE) is mounted at the start (close to the air handling unit) of the duct part to be regulated. This is to take the pressure drop from the air handling unit early in the system. The degree of opening on the zone damper is adapted to the need in the underlying duct system (open and closed depending on the underlying room product's degree of opening).

Possible modifications

- Number of optimising dampers in a zone can be reduced or increased as required.

For detailed information and complete function description, see the system and function guides.

Products

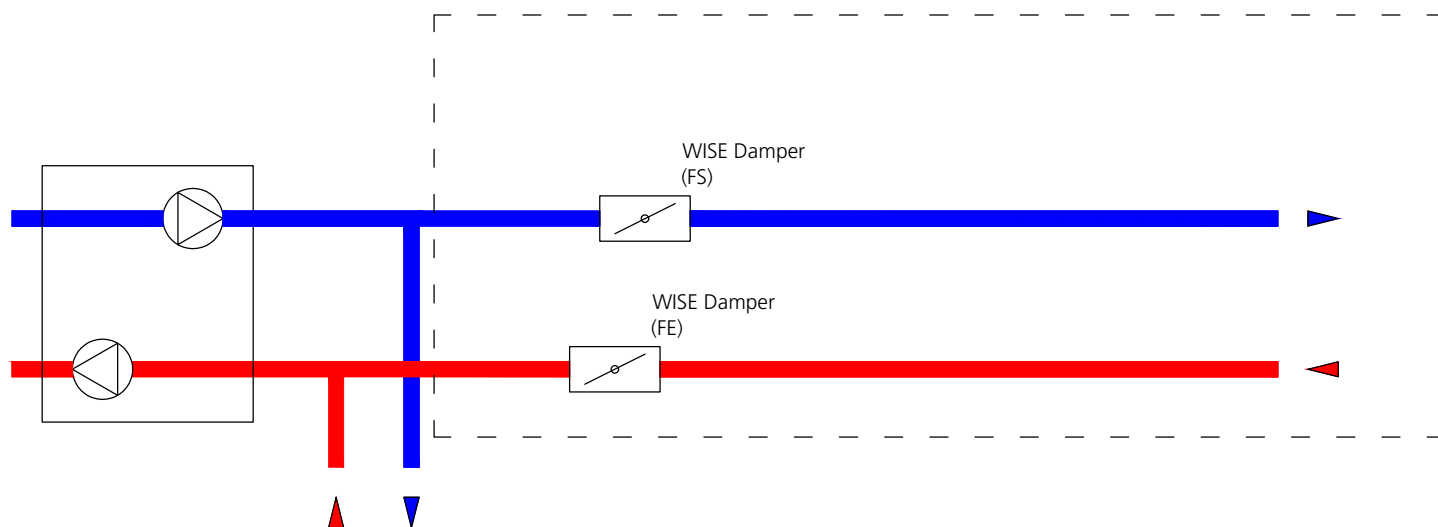
Supply air

WISE Damper

Extract air

WISE Damper

Zone - flow control



Example of a zone with a flow controlled supply air duct and a flow controlled extract air duct.

WISE Damper for flow control of the supply air duct (FS) is mounted at the start (close to the air handling unit) of the duct part to be regulated. This is to take the pressure drop from the air handling unit early in the system.

WISE Damper for flow control of the extract air duct (FE) is mounted at the start (close to the air handling unit) of the duct part to be regulated. This is to take the pressure drop from the air handling unit early in the system.

Possible modifications

- Number of flow controlled dampers in a zone can be reduced or increased as required.

For detailed information and complete function description, see the system and function guides.

Products

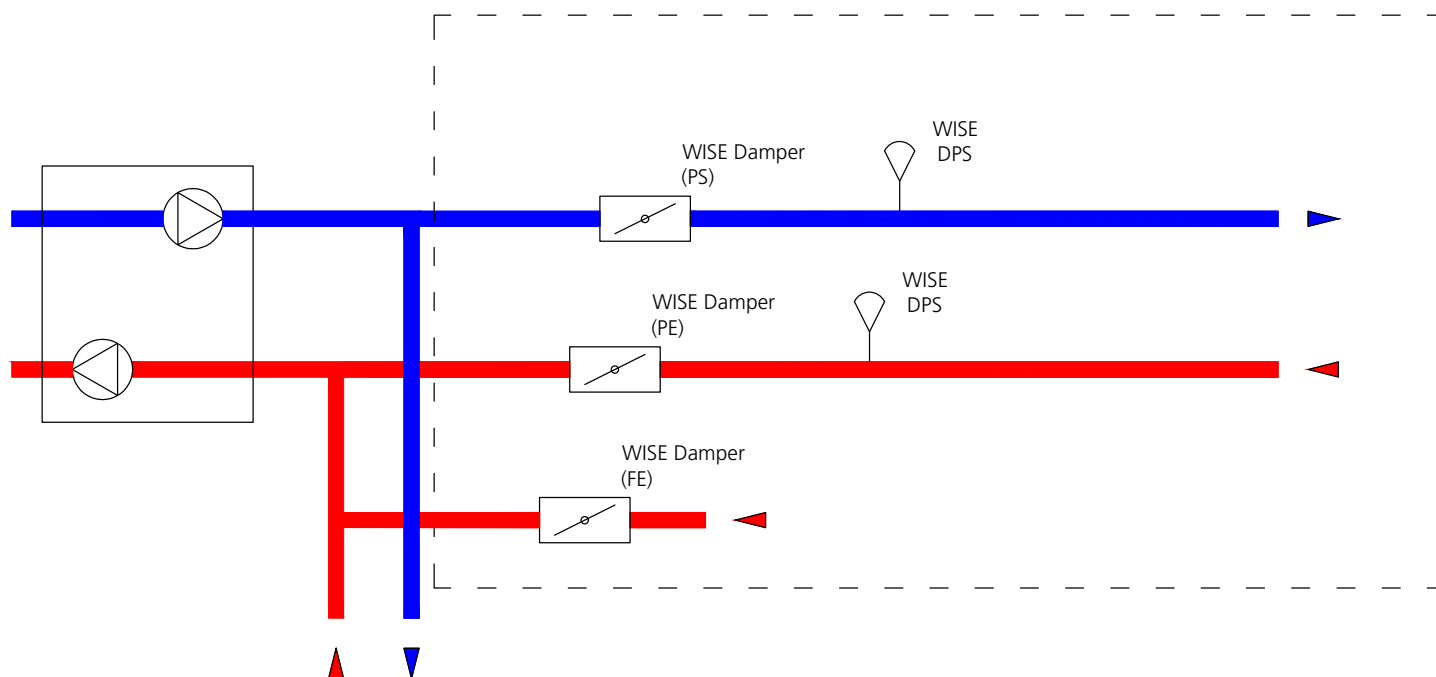
Supply air

WISE Damper

Extract air

WISE Damper

Zone - pressure control with central flow balancing



Example of a zone with a pressure controlled supply air duct and a pressure controlled extract air duct with flow balanced central extract air.

WISE Damper (PS) pressure controlled supply air duct with connected air products where a constant air pressure in the duct guarantees the right function on the connected room products/air diffusers.

WISE Damper (PE) pressure controlled extract air duct with connected air products where a constant air pressure in the duct guarantees the right function on the connected room products/air diffusers.

WISE Damper (FE) ensures balance in the group/zone. All measured flows in the supply air ducts are added to all measured extract air flows in the pressure controlled and constant flow regulating dampers. The difference between these flows is sent as a set point value to the balancing damper in the zone. If there is more than one balancing damper in the zone, the flow is then divided between the dampers proportionally depending on the size of the damper.

Possible modifications

- Number of pressure controlled and flow controlled dampers in a zone can be reduced or increased as required.
- Required differences between measured air flows and the balanced air flow can be set as an offset in the zone.

For detailed information and complete function description, see the system and function guides.

Products

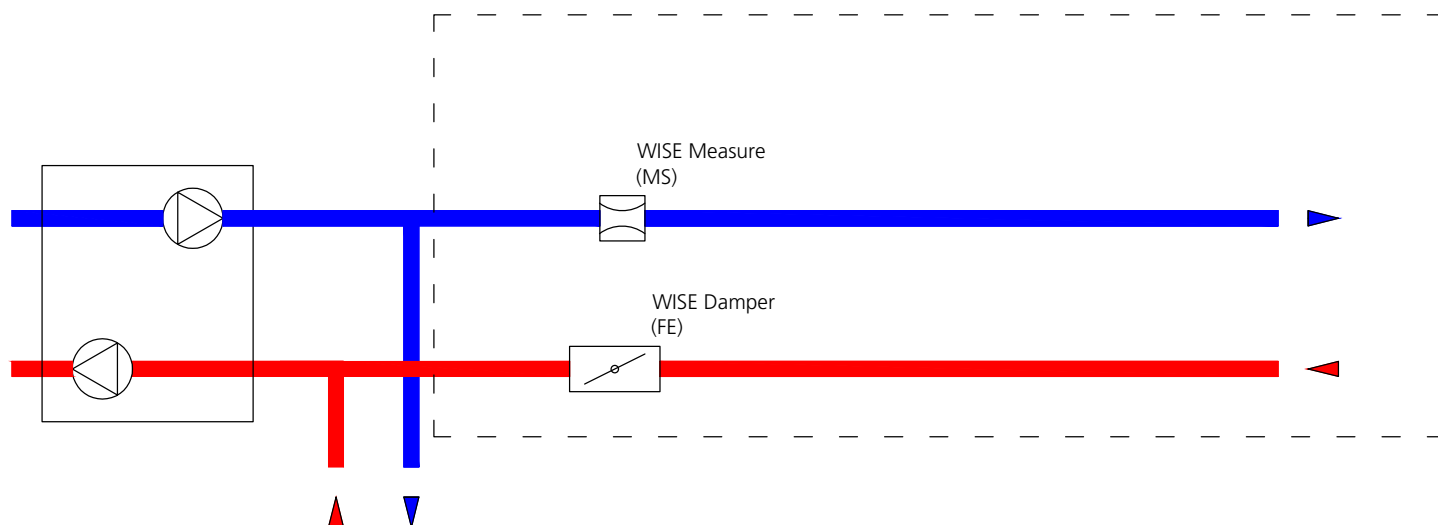
Supply air

WISE Damper

Extract air

WISE Damper

Zone - measurement and balancing



Example of a zone with a supply air flow that is not regulated on a zone level and where the measured flow is balanced via a flow controlled extract air duct.

WISE Measure (MS) measurement unit in the supply air duct to measure air flows that can be used, for example, to balance the air flows in the group/zone.

WISE Damper (FE) ensures balance in the group/zone. All measured flows in the supply air ducts are added together and sent as a set point value to the balancing damper in the zone. If there is more than one balancing damper in the zone, the flow is then divided between the dampers proportionally depending on the size of the damper.

Possible modifications

- The number of measurement units and flow controlled dampers in a zone can be increased as needed.
- Required differences between measured air flows and the balanced air flow can be set as an offset in the zone.

For detailed information and complete function description, see the system and function guides.

Products

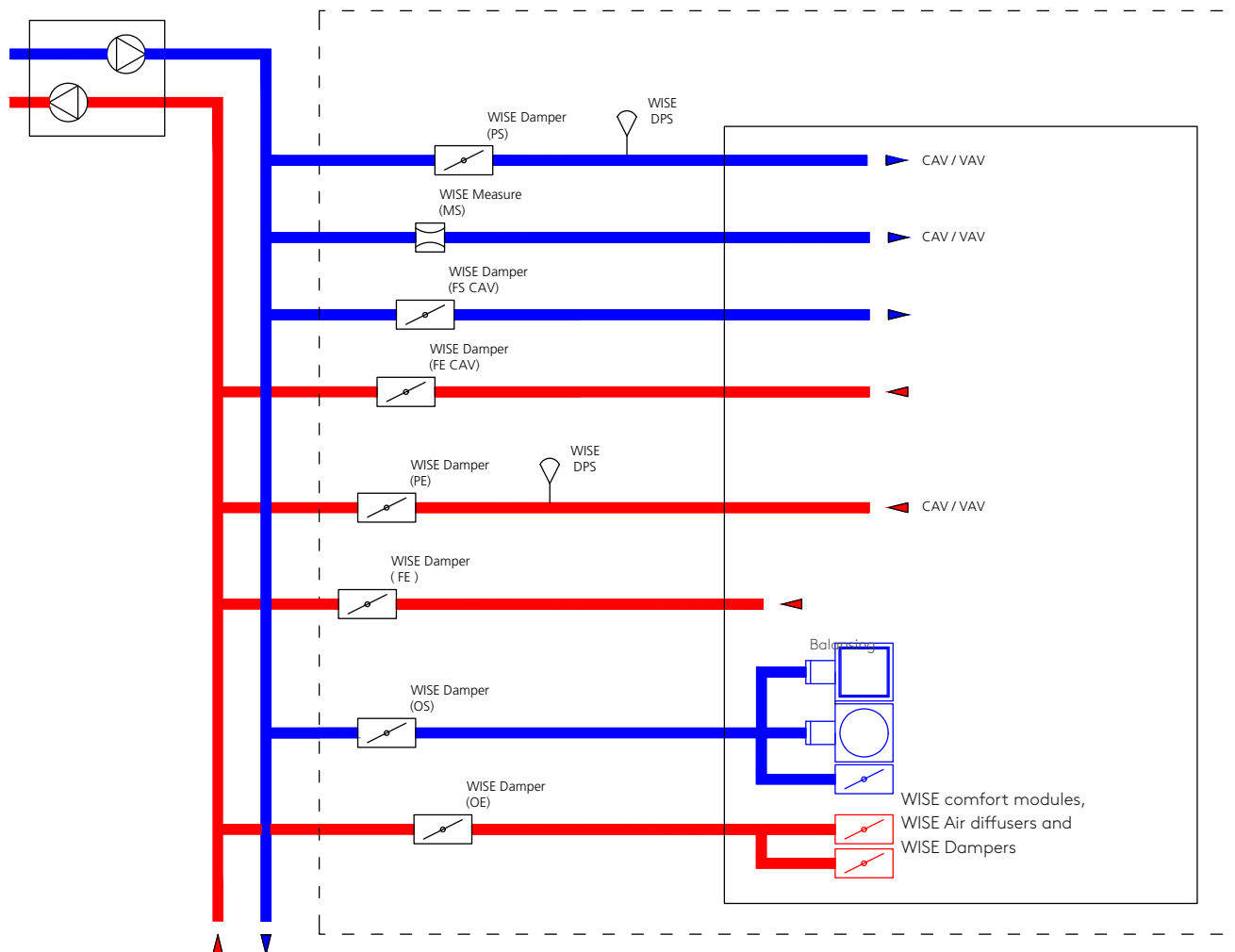
Supply air

WISE Measure

Extract air

WISE Damper

Zone - combinations



Example of an zone that is combined of measured flows, pressure controlled ducts together with flow controlled and position optimised dampers. All functions interact to create maximum freedom in the system and ensure flow balance in groups/zones.

WISE Measure (MS) measurement unit is mounted in the supply air duct to measure air flows that are regulated/controlled on a room level.

WISE Damper (PS) pressure controlled supply air duct with connected air products where a constant air pressure in the duct guarantees the right function on the connected room products/air diffusers.

WISE Damper (FS CAV) flow regulates the supply air duct with connected air products and diffusers, and maintains the set flow constant.

WISE Damper (OS) optimises its degree of opening continuously by adapting to the current requirement from the underlying products (active WISE dampers, comfort modules or air diffusers).

WISE Damper (PE) pressure controlled extract air duct with connected air products where a constant air pressure in the duct guarantees the right function on the connected room products/air diffusers.

WISE Damper (FE CAV) flow regulates the extract air duct with connected air products and diffusers, and maintains the set flow constant.

WISE Damper (OE) optimises its degree of opening continuously by adapting to the current requirement from the underlying products (active WISE dampers).

WISE Damper (FE) ensures balance in the group/zone. All measured flows in the supply air ducts are added to all measured extract air flows in the pressure controlled and constant flow regulating dampers. The difference between these flows is sent as a set point value to the balancing damper in the zone. If there is more than one balancing damper in the zone, the flow is then divided between the dampers proportionally depending on the size of the damper.

Possible modifications

- The number of measurement units and regulating dampers in a zone can be increased or reduced as needed.
- Required differences between measured air flows and the balanced air flow can be set as an offset in the zone.

For detailed information and complete function description, see the system and function guides.

Products

Supply air

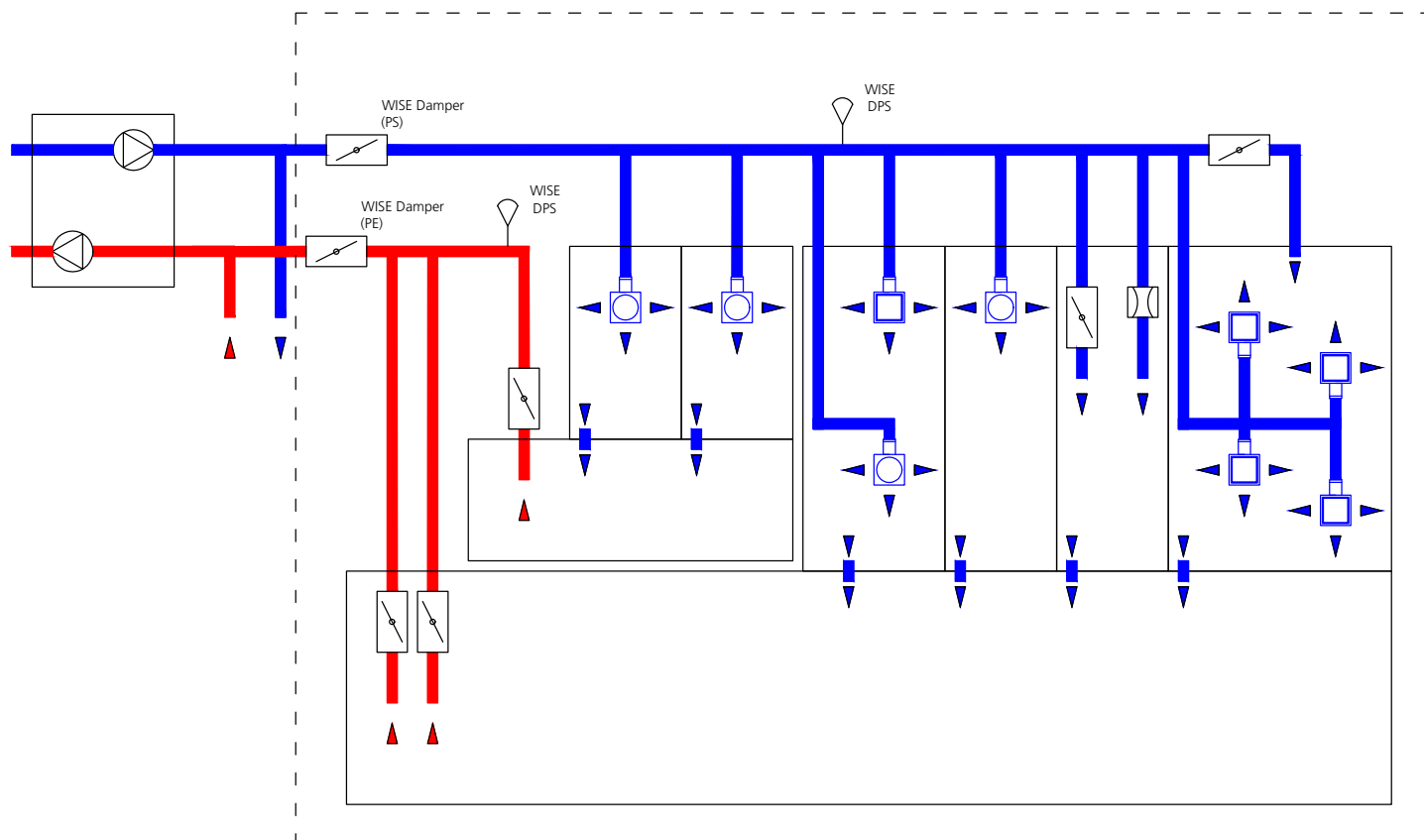
WISE Measure

WISE Damper

Extract air

WISE Damper

Zone - ventilation group



To create flow balance in a zone or in a group of rooms it is possible to create air balancing groups.

The balancing group contains 2 or more rooms with supply air products (regulating and/or measuring) and a room with an extract air damper.

The added supply air flow is balanced against the adjacent room, for example, a corridor that contains the extract air damper.

The balancing room contains one or more extract air dampers.

If there are several extract air dampers that share the added flow, the flow is shared as a percentage depending on the size of these dampers. It is also possible to add a positive or negative offset flow if there are fixed flows in the group that are not measured via the WISE system.

Possible modifications

- Number of rooms in a balancing group can be reduced or increased as required.
- Number of dampers/diffusers/comfort modules/measurement units in rooms that are included in the balancing group can be reduced or increased as required.

For detailed information and complete function description, see the system and function guides.

Products

Supply air

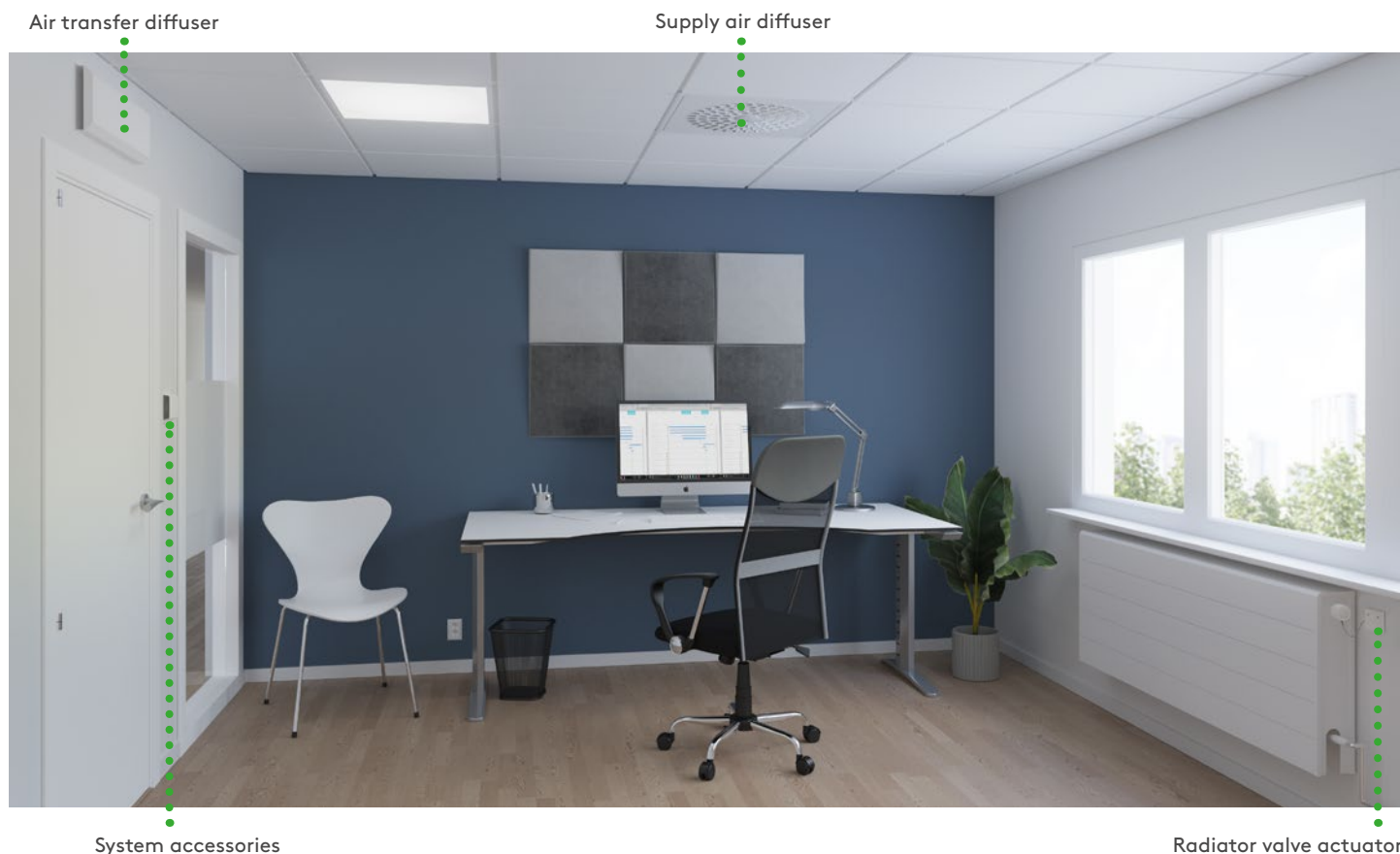
- WISE Damper
- WISE Air diffuser
- WISE Comfort module
- WISE Measure

Extract air

- WISE Damper

Typical room

Offices with airborne climate



Proposed office solution with one or more active supply air diffusers and transfer air

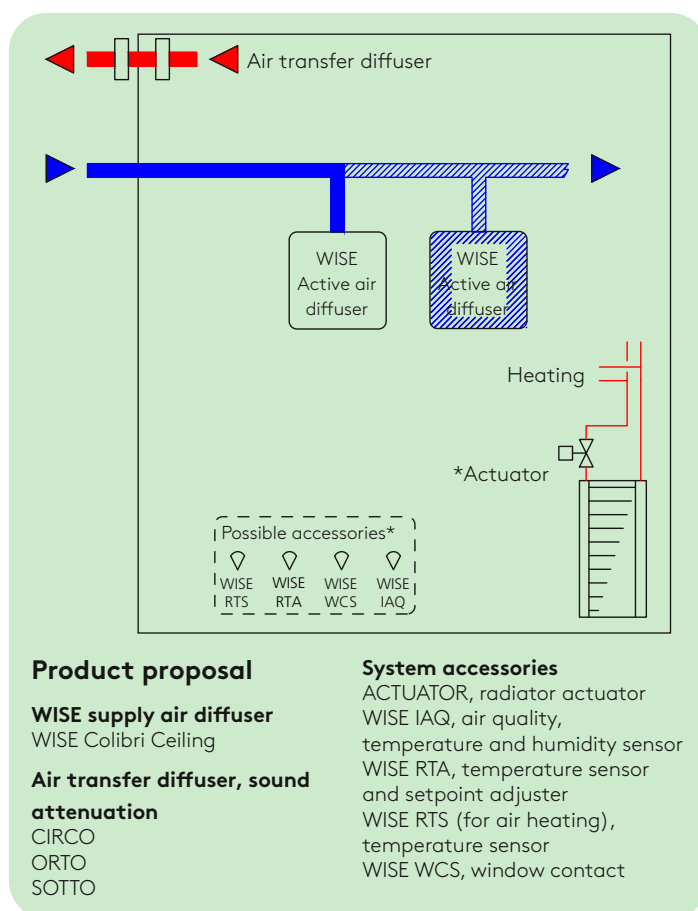
Presence detection and temperature measurements are made in the active supply air diffuser, the diffuser regulates the quantity of supply air so that the set room climate is achieved.

Extract air via sound attenuated air transfer diffuser to the corridor with central extract air.

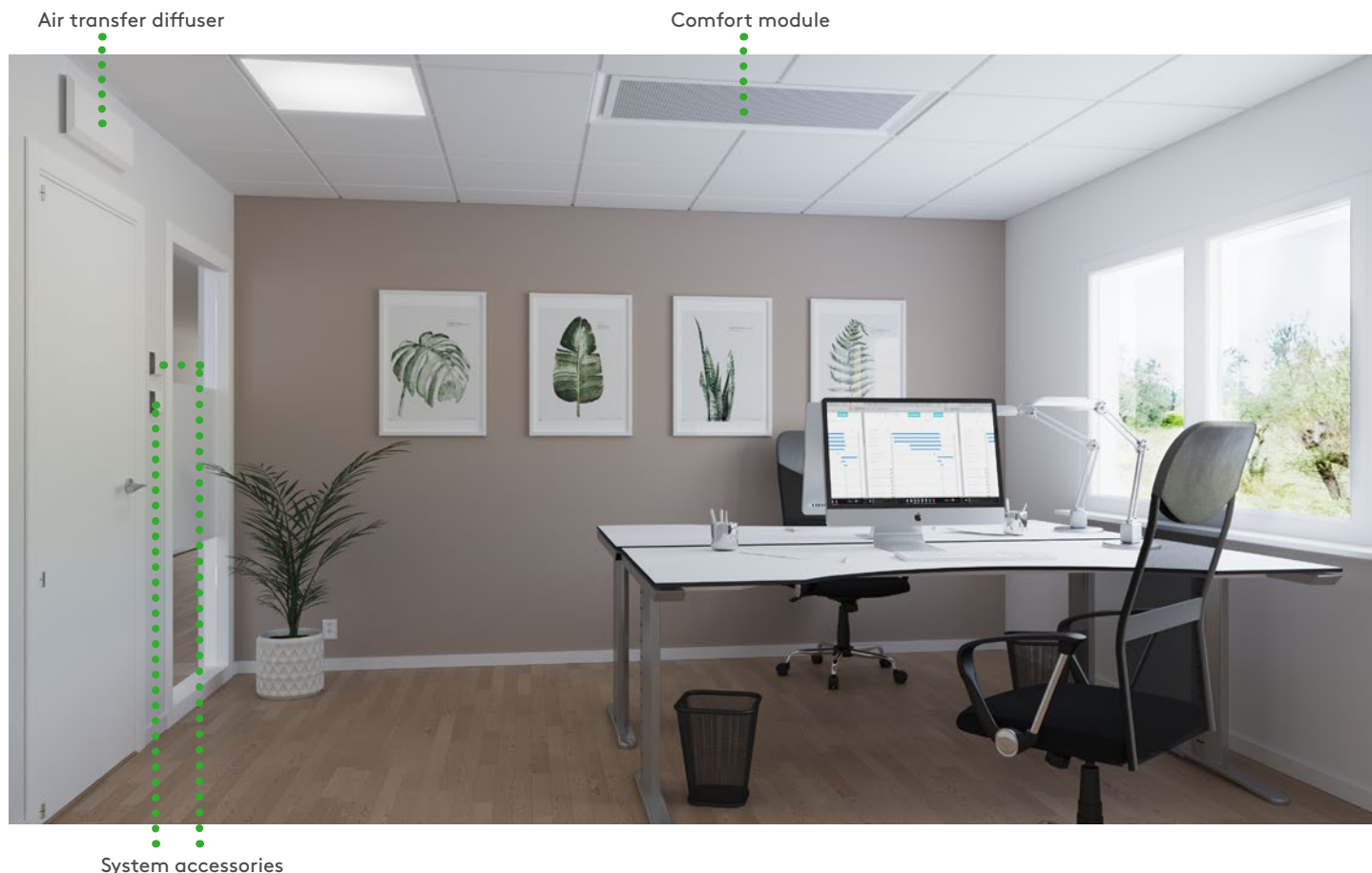
Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system.
- Heating via above room temperature supply air.
- Individual temperature setting via set point value converter.
- Window detection for shutting off the ventilation for an open window.
- Air quality and humidity detection with regulation.

For detailed information and complete function description, see the system and function guides.



Office with waterborne climate CAV



Proposed office solution with one or more comfort modules with constant supply air flow and air transfer

The temperature in the room is regulated via the comfort module's control system that controls cooling and/or heating so that the set room climate is achieved.

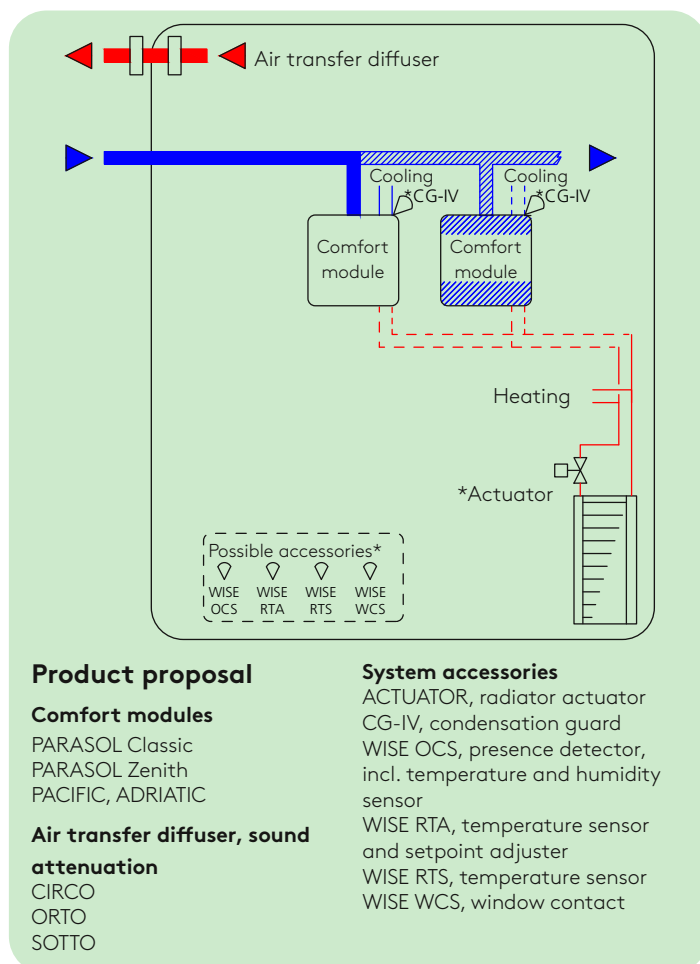
Temperature measurement in the office occurs via one of the WISE system's wall mounted accessories, room sensors, setpoint adjusters or presence detectors.

Extract air via sound attenuated air transfer diffuser to the corridor with central extract air.

Possible options*

- Heating of rooms via a heating coil in the comfort module. Alternative with heating via radiators and radiator valve actuators connected to the WISE system.
- Presence detection for separate temperature settings for presence and absence in the office.
- Individual temperature setting via setpoint adjuster.
- Temperature measurement and regulation, wall mounted.
- Window detection for shutting off the cooling circuit for an open window.
- Condensation guard for cooling circuit.

For detailed information and complete function description, see the system and function guides.



Product proposal

Comfort modules

PARASOL Classic
PARASOL Zenith
PACIFIC, ADRIATIC

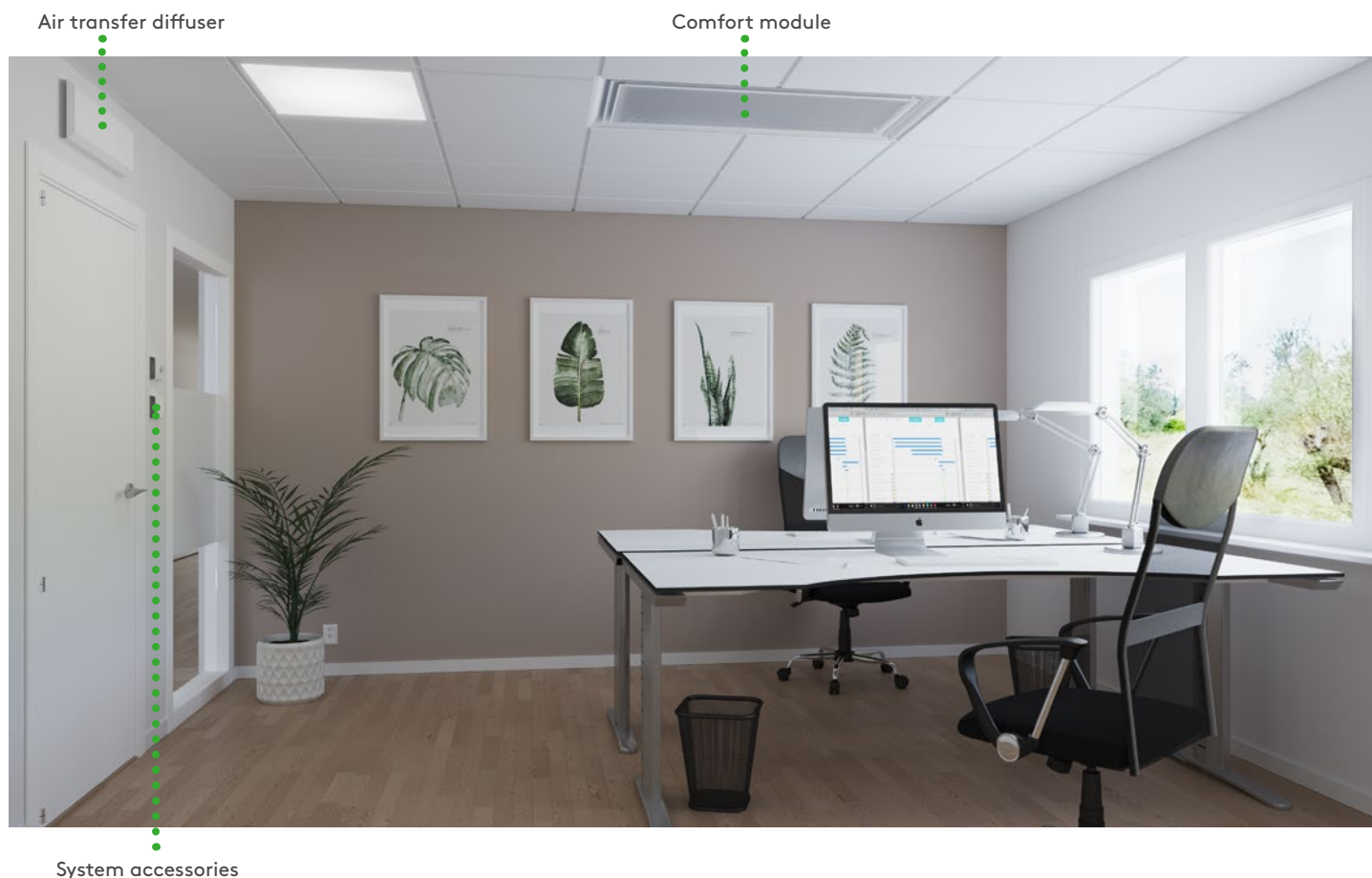
Air transfer diffuser, sound attenuation

CIRCO
ORTO
SOTTO

System accessories

ACTUATOR, radiator actuator
CG-IV, condensation guard
WISE OCS, presence detector, incl. temperature and humidity sensor
WISE RTA, temperature sensor and setpoint adjuster
WISE RTS, temperature sensor
WISE WCS, window contact

Office with waterborne climate DCV



Proposed office solution with one or more active comfort modules with variable supply air flow and air transfer

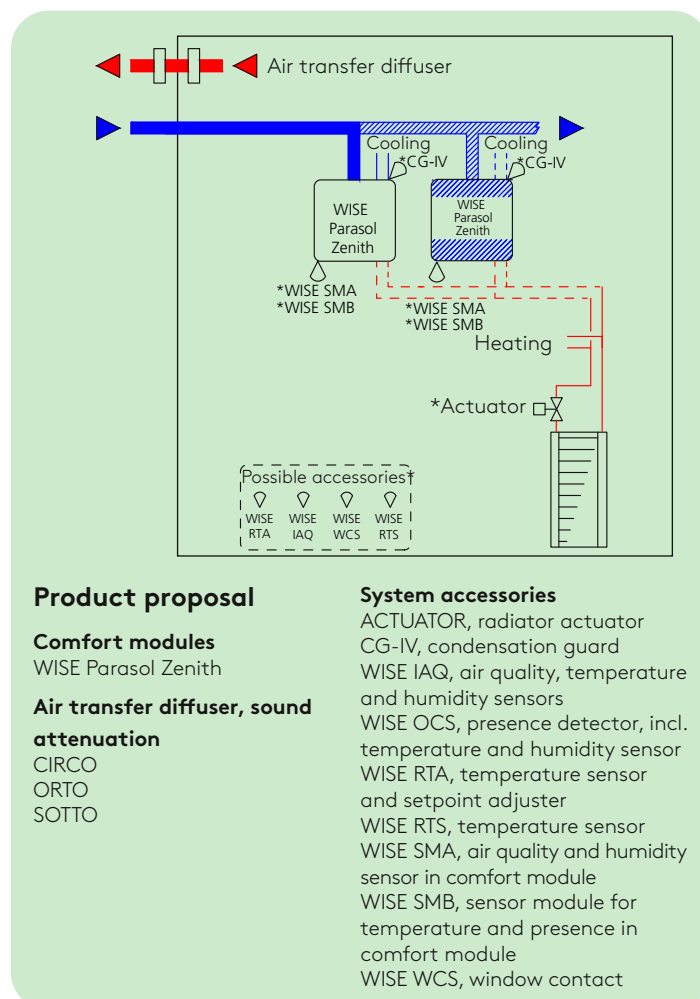
Presence detection and temperature measurements are made in the active comfort module, that regulates the quantity of supply air as well as cooling and/or heating so that the set room climate is achieved. A commissioning damper is not needed as WISE Parasol Zenith has an integrated damper in the product that variably regulates the air flow and pressure independently.

Extract air via sound attenuated air transfer diffuser to the corridor with central extract air.

Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system. Alternative with heating via a heating coil in the comfort module.
- Presence detection and temperature measurements in the comfort module.
- Presence detection and temperature measurements, wall mounted.
- Individual temperature setting via setpoint adjuster.
- Temperature measurement and regulation, wall mounted.
- Air quality and humidity detection with regulation, wall mounted.
- Air quality and humidity detection in the comfort module.
- Window detection for shutting off the cooling circuit for an open window.
- Condensation guard for cooling circuit.

For detailed information and complete function description, see the system and function guides.



Product proposal

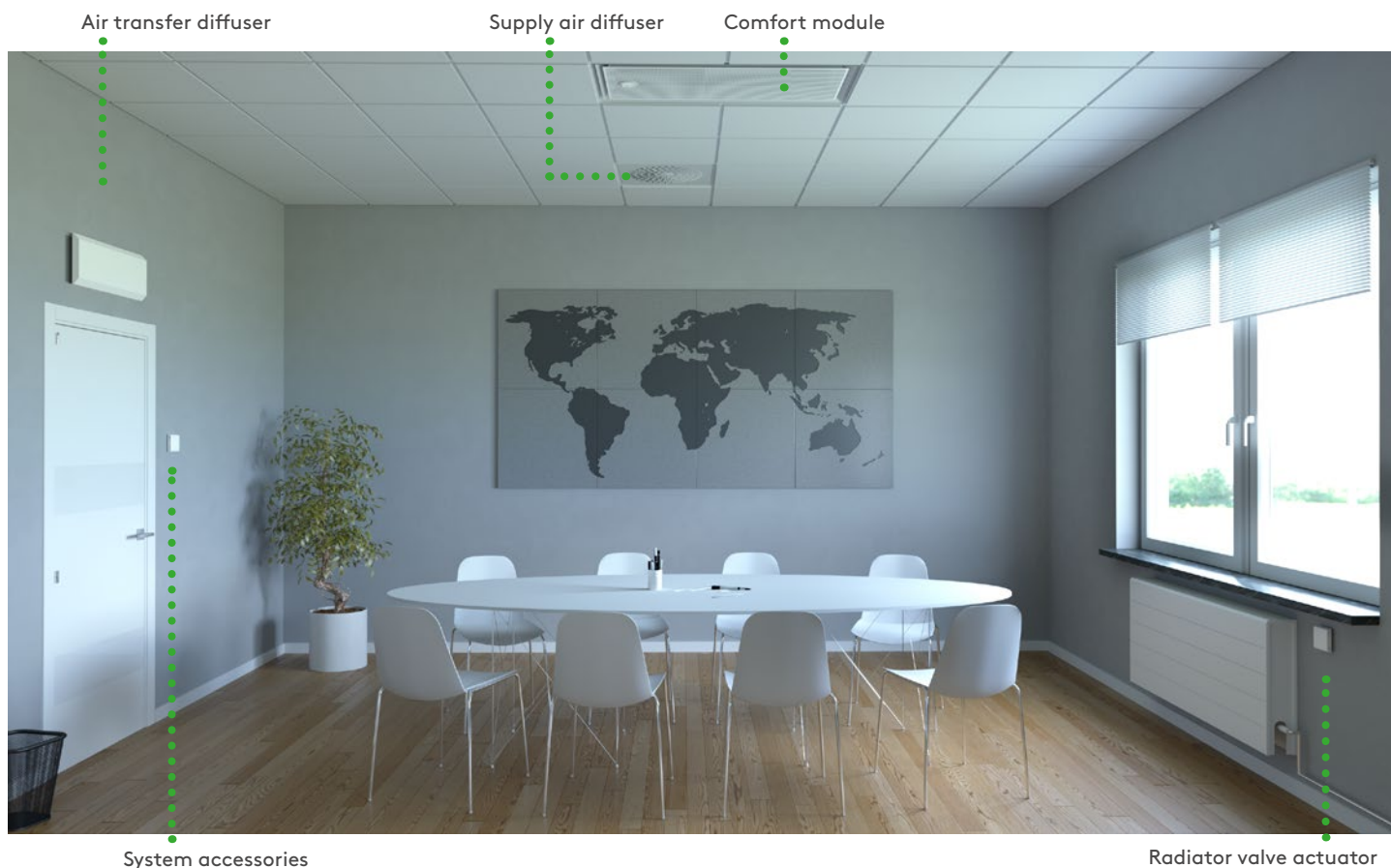
Comfort modules
WISE Parasol Zenith

Air transfer diffuser, sound attenuation
CIRCO
ORTO
SOTTO

System accessories

ACTUATOR, radiator actuator
CG-IV, condensation guard
WISE IAQ, air quality, temperature and humidity sensors
WISE OCS, presence detector, incl. temperature and humidity sensor
WISE RTA, temperature sensor and setpoint adjuster
WISE RTS, temperature sensor
WISE SMA, air quality and humidity sensor in comfort module
WISE SMB, sensor module for temperature and presence in comfort module
WISE WCS, window contact

Conference room with water and airborne climate



Proposed conference room solution with one or more active comfort modules together with one or more active supply air diffuser. The room has variable supply air flow and extract air via transfer air.

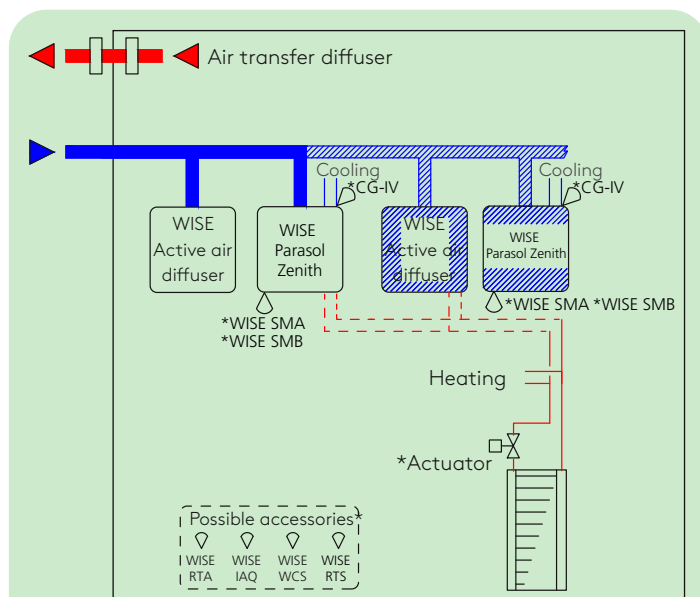
Presence detection and temperature measurements are made in the active supply air diffuser or the comfort module, these co-regulate so that the correct quantity of air is supplied to the room as well as cooling and/or heating so that the set room climate is achieved.

Extract air via sound attenuated air transfer diffuser, adapted for the higher air flows to the corridor with central extract air.

Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system. Alternative with heating via a heating coil in the comfort module.
- Presence detection and temperature measurements in the comfort module.
- Individual temperature setting via setpoint adjuster.
- Temperature measurement and regulation, wall mounted.
- Air quality and humidity detection with regulation, wall mounted.
- Air quality and humidity detection in the comfort module.
- Window detection for shutting off the cooling circuit for an open window.
- Condensation guard for cooling circuit.

For detailed information and complete function description, see the system and function guides.



Product proposal

Comfort modules
WISE Parabol Zenith

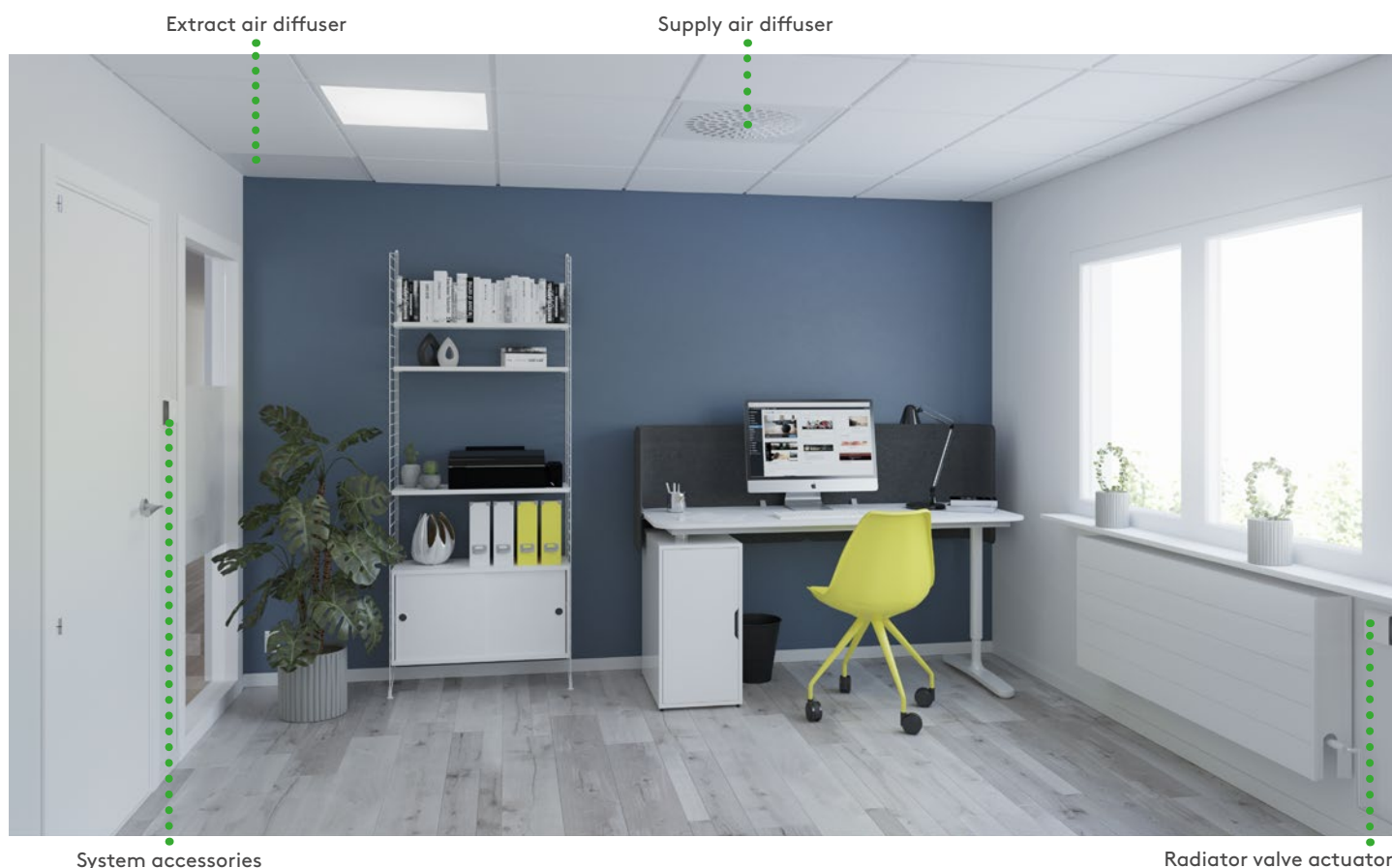
WISE Supply air diffuser
WISE Colibri Ceiling

Air transfer diffuser, high flows
CTK
CTM

System accessories

ACTUATOR, radiator actuator
CG-IV, condensation guard
WISE IAQ, air quality, temperature and humidity sensors
WISE RTA, temperature sensor and setpoint adjuster
WISE RTS, temperature sensor
WISE SMA, air quality and humidity sensor in comfort module
WISE SMB, sensor module for temperature and presence in comfort module
WISE WCS, window contact

Office with airborne climate in balance



Proposed office solution with one or more active supply air diffusers and extract air in balance

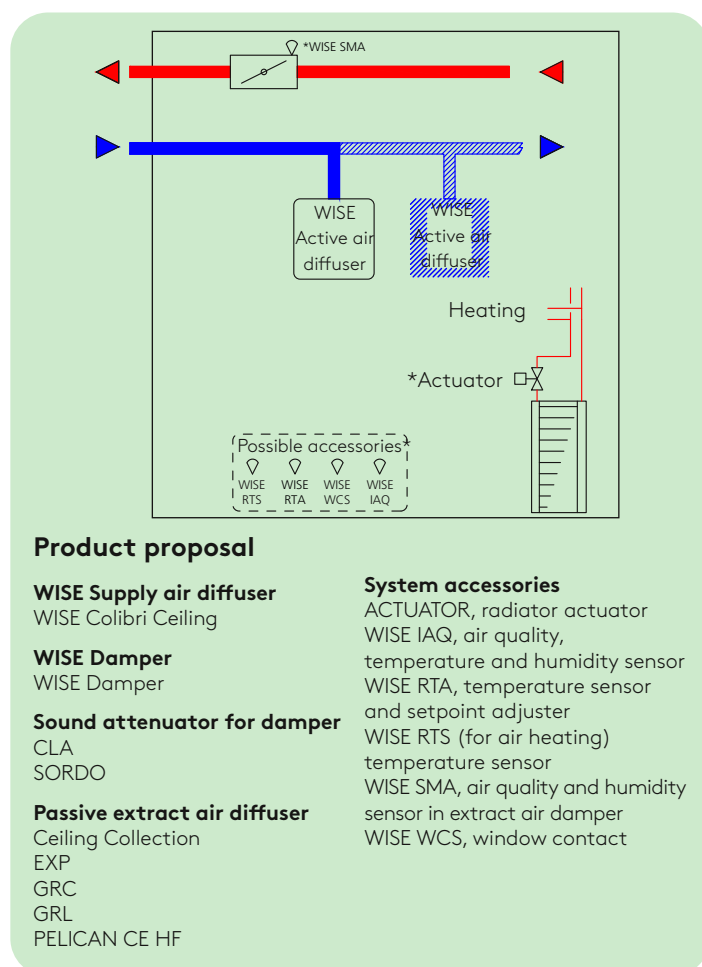
Presence detection and temperature measurements are made in the active supply air diffuser, the diffuser regulates the quantity of supply air so that the set room climate is achieved.

Extract air via extract air damper and passive extract air diffuser.

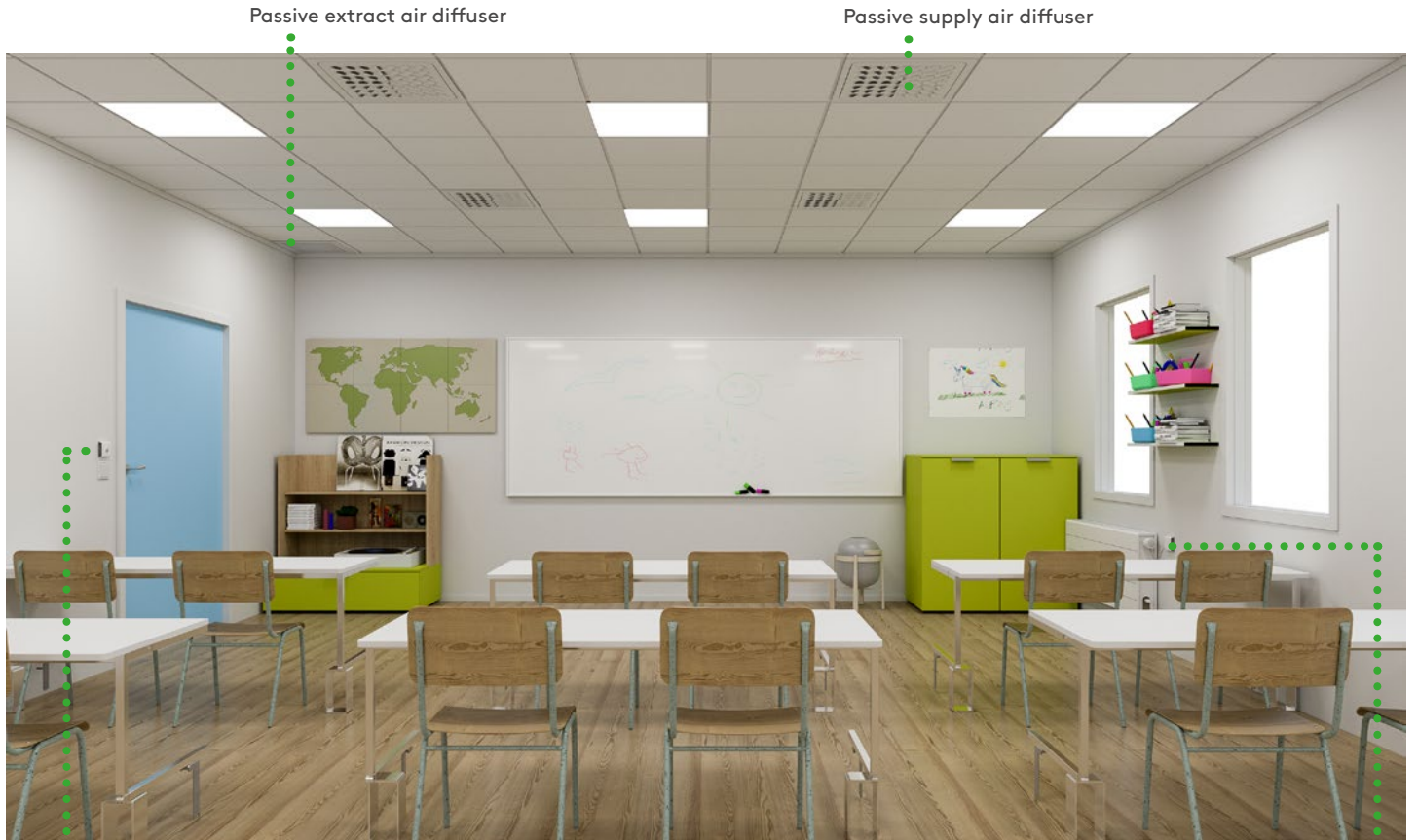
Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system.
- Heating via above room temperature supply air.
- Individual temperature setting via setpoint adjuster.
- Window detection for shutting off the ventilation for an open window.
- Air quality and humidity detection with regulation, wall mounted.
- Air quality and humidity detection with regulation in the extract air damper.

For detailed information and complete function description, see the system and function guides.



Classroom with airborne climate in balance



System accessories

Radiator valve actuator

Proposed classroom solution, separate WISE damper for supply air and extract air, one or more passive supply air and extract air diffusers. The room has variable supply air flow and extract air flow in balance.

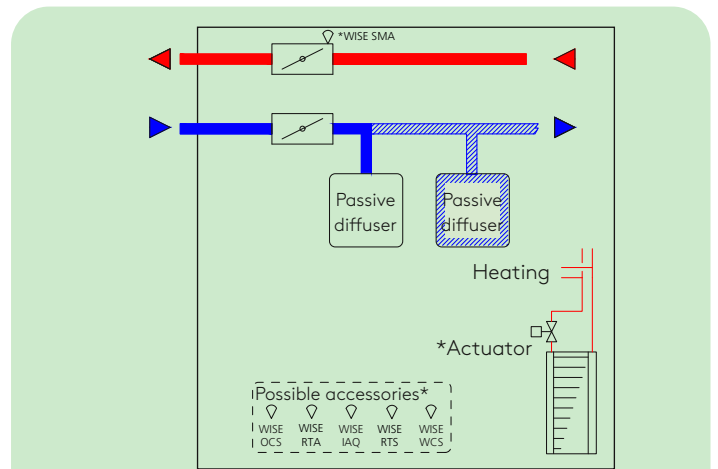
Temperature measurement of the room air is performed in the extract air damper and the system regulates the quantity of supply and extract air in the classroom so that the right room climate is achieved.

Supply and extract air is supplied with passive supply and extract air diffusers.

Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system.
- Heating via above room temperature supply air.
- Presence detection for separate air flow and temperature settings for presence and absence in the classroom.
- Individual temperature setting via setpoint adjuster.
- Temperature measurement and regulation, wall mounted.
- Air quality and humidity detection with regulation in the extract air damper.
- Air quality and humidity detection with regulation, wall mounted.
- Window detection for shutting off the ventilation for an open window.

For detailed information and complete function description, see the system and function guides.



Product proposal

WISE Damper
WISE Damper

Sound attenuator for damper
CLA
SORDO

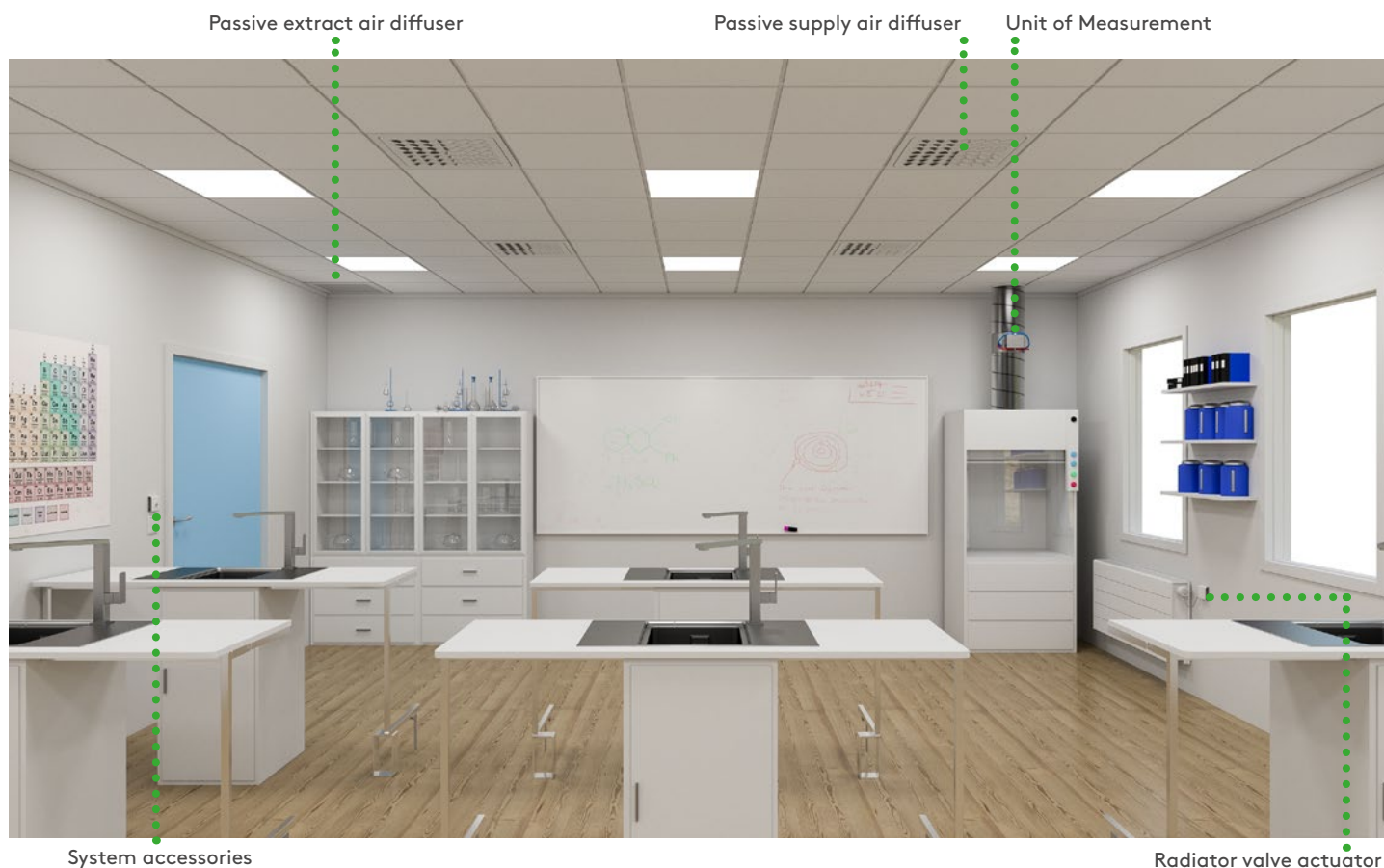
Passive supply air diffuser
Ceiling Collection

Passive extract air diffuser
Ceiling Collection
EXP
GRC
GRL
PELICAN CE HF

System accessories

ACTUATOR, radiator actuator
WISE IAQ, air quality, temperature and humidity sensor
WISE OCS, presence detector incl. temperature and humidity sensors
WISE RTA, temperature sensor and setpoint adjuster
WISE RTS, temperature sensor
WISE SMA, air quality and humidity sensor in extract air damper
WISE WCS, window contact

Classroom with airborne climate with fume hood ventilation in balance



Proposed classroom solution, with separate WISE damper for supply air and extract air, one or more passive supply air and extract air diffusers. The room has variable supply and extract air flow in balance with fume hood ventilation.

Temperature measurement of the room air is performed in the extract air damper and the system regulates the quantity of supply and extract air in the classroom so that the right room climate is achieved.

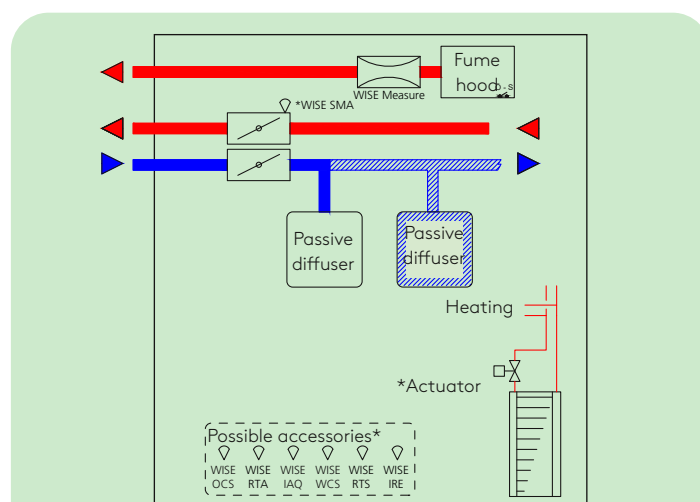
Measurement of the fume hood ventilation is performed via measurement flange that balances by first reducing the extract air, if this is not sufficient so the supply air will increase to balance the air flows in the room. Alternatively, flow balancing can be performed via indication from the fume hood.

Supply and extract air is supplied with passive supply and extract air diffusers.

Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system.
- Heating via above room temperature supply air.
- Presence detection for separate air flow and temperature settings for presence and absence in the classroom.
- Individual temperature setting via setpoint adjuster.
- Temperature measurement and regulation, wall mounted.
- Air quality and humidity detection with regulation, wall mounted.
- Air quality and humidity detection with regulation in the extract air damper.
- Fume hood indication to the WISE system via contact.
- Window detection for shutting off the ventilation for an open window.

For detailed information and complete function description, see the system and function guides.



Product proposal

WISE Damper/measurement unit
 WISE Damper
 WISE Measure

Sound attenuator for damper
 CLA
 SORDO

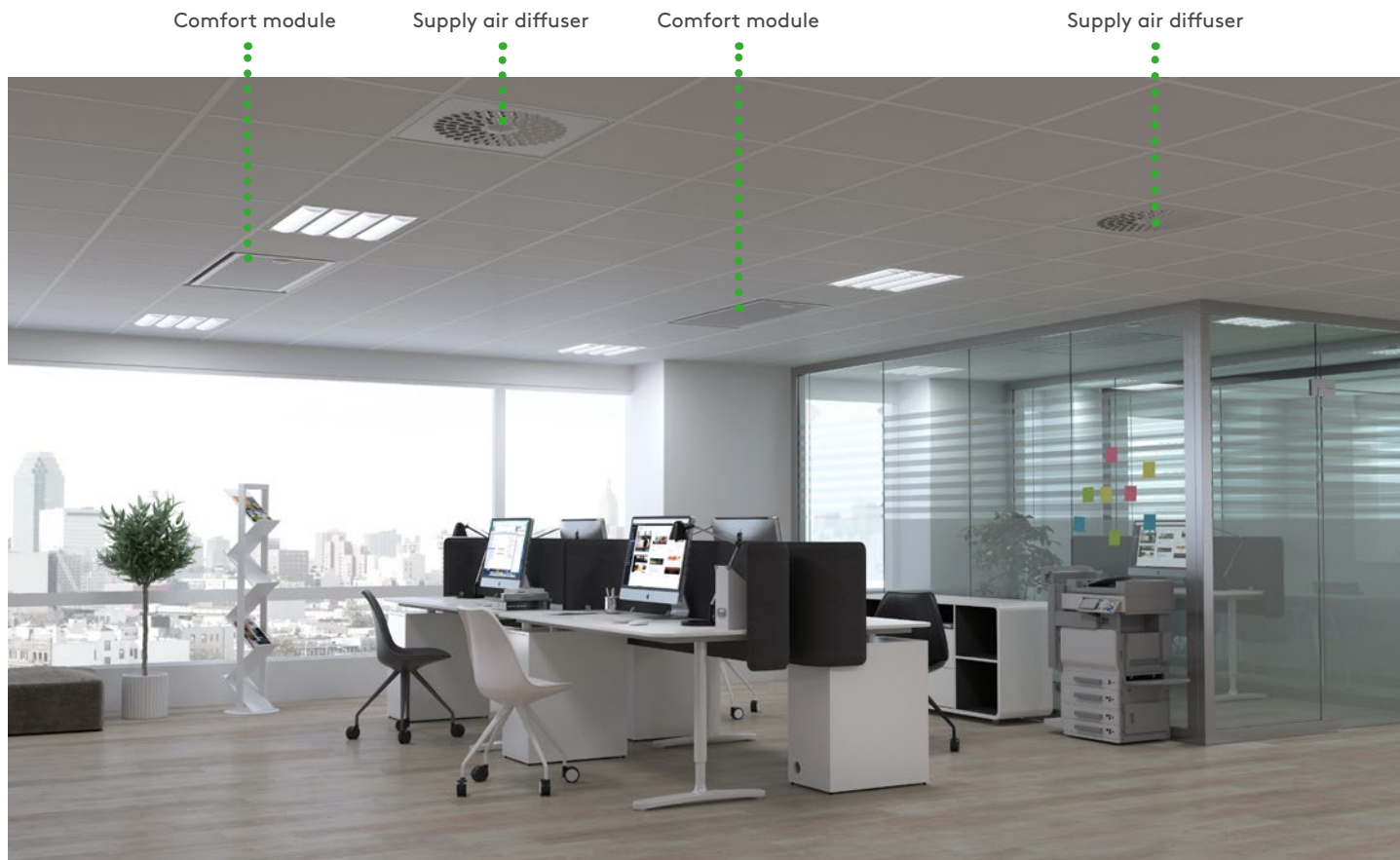
Passive supply air diffuser
 Ceiling Collection

Passive extract air diffuser
 Ceiling Collection
 EXP
 GRC
 GRL
 PELICAN CE HF

System accessories

ACTUATOR, radiator actuator
 WISE IAQ, air quality, temperature and humidity sensor
 WISE IRE, input module
 WISE OCS, presence detector incl. temperature and humidity sensors
 WISE RTA, temperature sensor and setpoint adjuster
 WISE RTS, temperature sensor
 WISE SMA, air quality and humidity sensor in extract air damper
 WISE WCS, window contact

Open-plan office with water and airborne climate with balanced extract air



Proposed open office solution with one or more active comfort modules together with one or more active supply air diffuser or damper. The room has variable supply air flow and extract air that is balanced via damper and extract air diffuser.

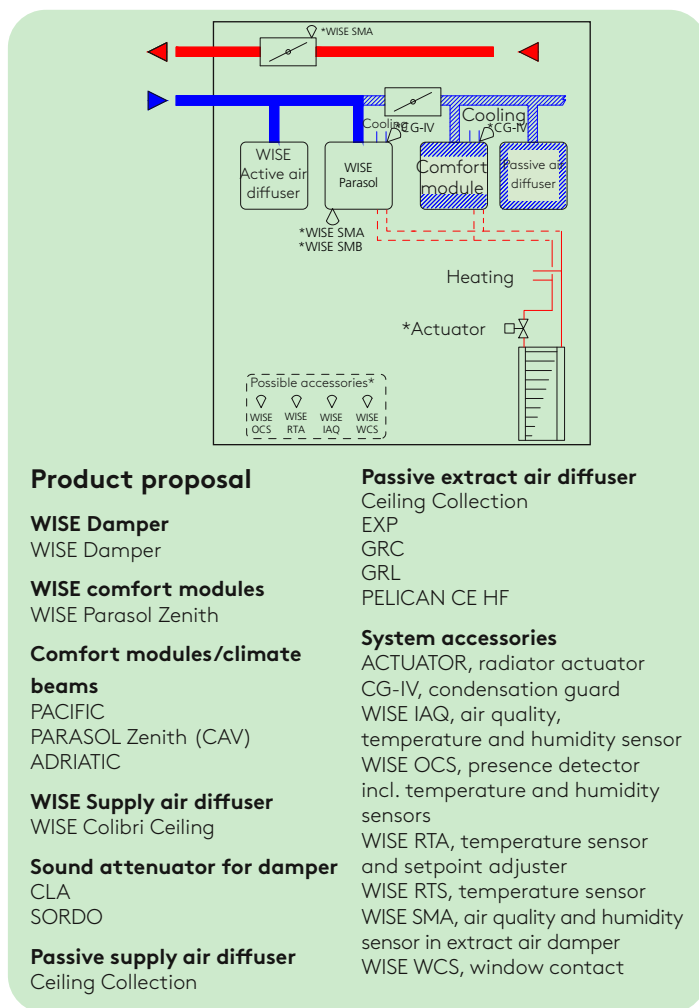
Presence detection and temperature measurements are made in the active supply air diffuser or the comfort module, these co-regulate so that the correct quantity of air is supplied to the room as well as cooling and/or heating so that the set room climate is achieved.

Extract air via separate extract air damper and passive extract air diffuser.

Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system. Alternative with heating via a heating coil in the comfort module.
- Presence detection for separate air flow and temperature settings for presence and absence.
- Individual temperature setting via setpoint adjuster.
- Temperature measurement and regulation, wall mounted.
- Air quality and humidity detection with regulation, wall mounted.
- Air quality and humidity detection with regulation in the extract air damper.
- Window detection for shutting off the cooling circuit for an open window.
- Condensation guard for cooling circuit.

For detailed information and complete function description, see the system and function guides.



Product proposal

WISE Damper
WISE Damper

WISE comfort modules
WISE Parasol Zenith

Comfort modules/climate beams
PACIFIC
PARASOL Zenith (CAV)
ADRIATIC

WISE Supply air diffuser
WISE Colibri Ceiling

Sound attenuator for damper
CLA
SORDO

Passive supply air diffuser
Ceiling Collection

Passive extract air diffuser

Ceiling Collection
EXP
GRC
GRL
PELICAN CE HF

System accessories

ACTUATOR, radiator actuator
CG-IV, condensation guard
WISE IAQ, air quality, temperature and humidity sensor
WISE OCS, presence detector incl. temperature and humidity sensors
WISE RTA, temperature sensor and setpoint adjuster
WISE RTS, temperature sensor
WISE SMA, air quality and humidity sensor in extract air damper
WISE WCS, window contact

Hotel room

Extract air damper bathroom (not pictured)

Supply air damper (not pictured)

Comfort module for hotel



System accessories

Key card holder SYST SENSO II with WISE IRE

Proposed hotel room solution, the room has variable supply air flow and extract air that is balanced via damper on the supply and extract air.

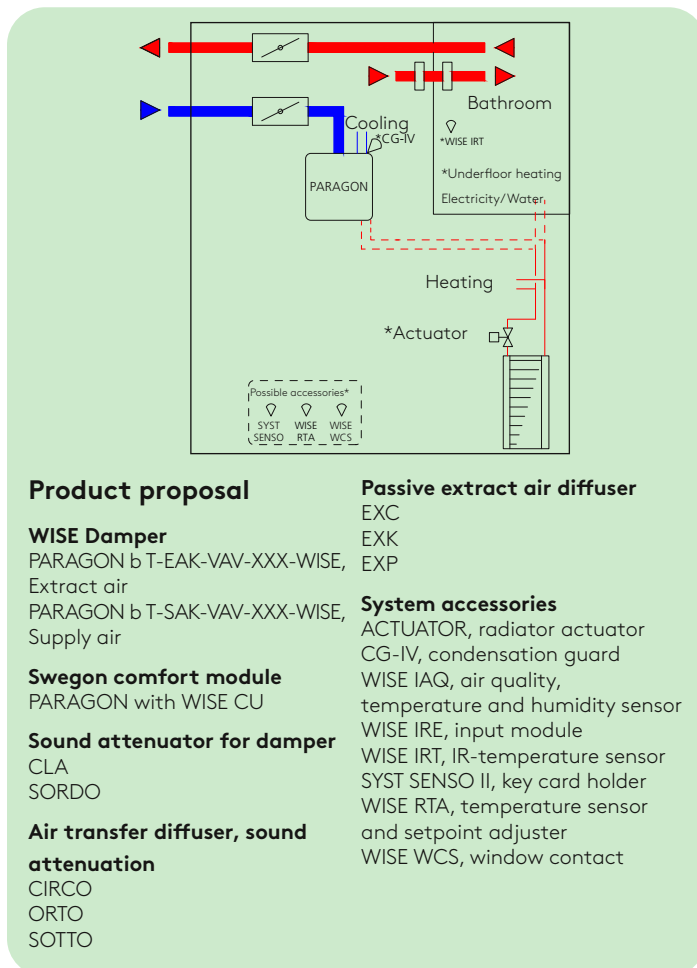
The comfort module is regulated so that the correct quantity of air is supplied to the room as well as cooling and/or heating so that the set room climate is achieved.

Extract air via separate extract air damper and passive extract air diffuser in the bathroom.

Possible options*

- Heating of the room via radiators and radiator valve actuators connected to the WISE system. Alternative with heating via a heating coil in the comfort module.
- Presence indication via key card holder.
- Individual temperature setting via setpoint adjuster.
- Window detection for shutting off the cooling circuit for an open window.
- Condensation guard for cooling circuit.
- Underfloor heating in the bathroom.

For detailed information and complete function description, see the system and function guides.



HVAC

Valves and actuator

Function

An actuator and valve can be regulated either via WISE IORE or via WISE CU. Actuators and valves can be mounted on certain products from the factory, or bought as accessories. Alternatively, they can be bought separately. However, all actuators must be powered by DC current, as that is what is supported by the WISE system.

Actuator NO/NC

The actuator for control valves in Swegon's system can be set to normally open, NO, or normally closed, NC. This means that the valve actuator either opens or closes when there is no electrical current.

NO Normally open, open when there is no current

Used for systems where water circulation through the room apparatus is required, even when there is a power cut. Recommended on heating systems as frost protection.

NC Normally closed, closed when there is no current

For systems where flow through the room apparatus should not be possible in the event of a power cut. E.g. chilled beam systems on which dew point and condensation regulation cease to work if there is no electricity.

Activating valves

The function requires regular automatic activation of the water valves to avoid them beginning to stiffen or stick. During activation, all valves connected to the regulator are opened for a maximum of 6 minutes, and then closed. The valves for the cooling system are activated first, followed by those for the heating system.

Valve range

Swegon can supply a range of different valves. For example, anything from metered control valves to on/off valves.

Contact your local Swegon office for more details.

Regulation of control valves

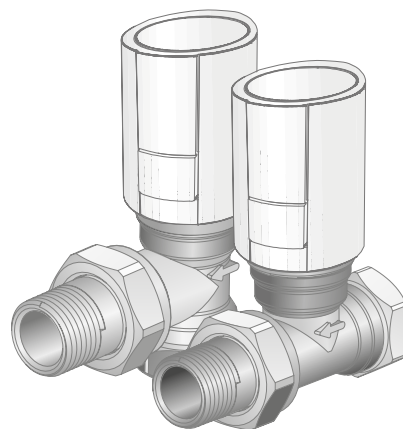
Swegon's standard valves for waterborne products can be used for commissioning a water circuit.

Adjustment of valves

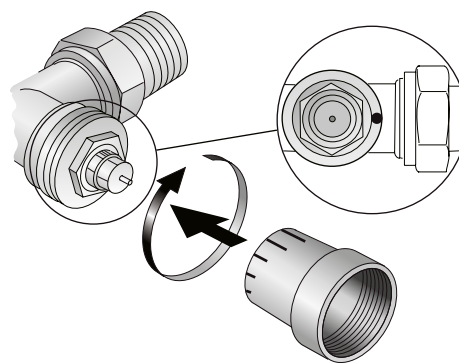
The valves supplied for waterborne products are delivered set to fully open.

The required kv-value is set during commissioning. See the data sheet for the valve in question.

The flow rate is set by adjusting the valve cone. This is performed simply using the protective caps supplied, on which each kv-value is marked by different length stripes. The lift height is always the same, regardless of setting.



VEN valve (angle valve) and VDN valve (straight valve) with actuator

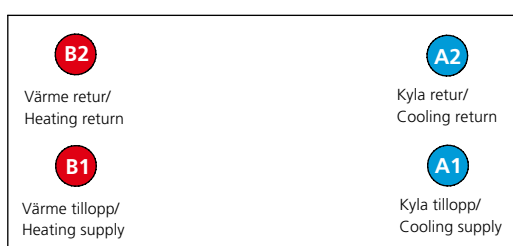
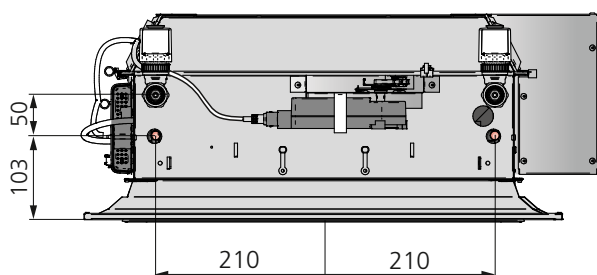


Adjustment of valves

Connecting cooling/heating

WISE Parasol Zenith

Water connection WISE Parasol Zenith 600, 1200 and 1800, irrespective of air connection side.



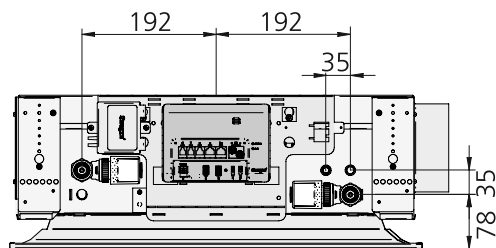
- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

Coupling table

| Component | Version | Length | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|----------------|-----------------------|-----------|--------------------|------------|--|-------------|--|
| WISE Parasol Z | A cooling only | 600, 1200 | Actuator and valve | Return | DN20, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol Z | B Cooling/ Heating | 600, 1200 | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol Z | A cooling only | 1800 | Actuator and valve | Return | DN20, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol Z | B Cooling/ Heating | 1800 | Actuator and valve | Return | DN20, male thread/ DN15, male thread | Supply pipe | Plain pipe 15 x 1.0 mm Plain pipe 12 x 1.0 mm |
| WISE Parasol Z | A cooling only | 600, 1200 | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol Z | B Cooling/ Heating | 600, 1200 | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol Z | A cooling only | 1800 | - | Return | Plain pipe 15 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol Z | B Cooling/ Heating | 1800 | - | Return | Plain pipe 15 x 1.0 mm Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 15 x 1.0 mm Plain pipe 12 x 1.0 mm |

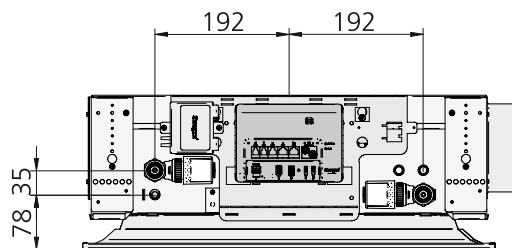
WISE Parasol

Water connection, WISE Parasol 600

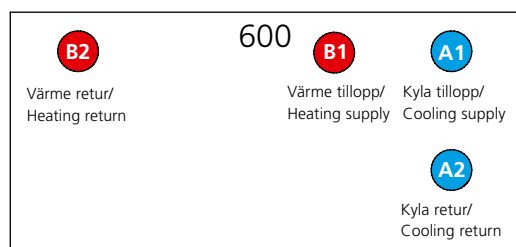


WISE Parasol 600

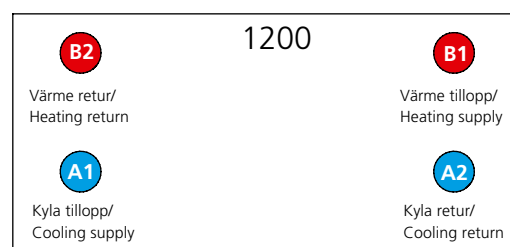
Water connection, WISE Parasol 1200



WISE Parasol 1200



- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water



- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

NB:

For the single-module unit, it is important that the cooling water is connected correctly to the right connection pipes. Flow direction is important for achieving full capacity. Water flow direction is marked on the unit end with directional arrows.

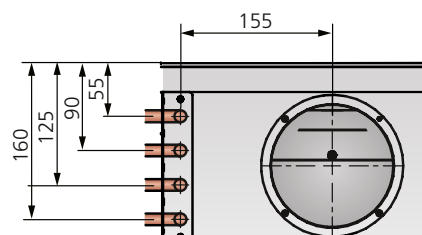
Coupling table

| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|--------------|-------------------|--------------------|------------|------------------------|-------------|------------------------|
| WISE Parasol | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol | B Cooling/heating | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol | B Cooling/heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

WISE Parasol EX

Water connection, WISE Parasol EX 690/1290

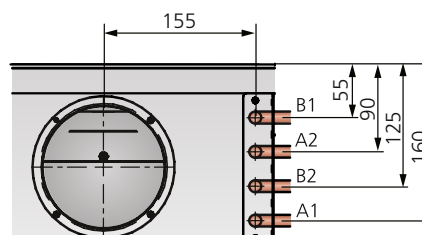
Air connection on side 2 (standard)



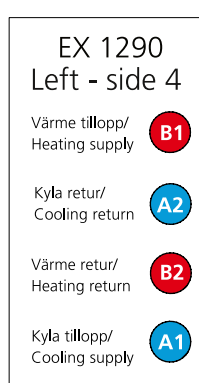
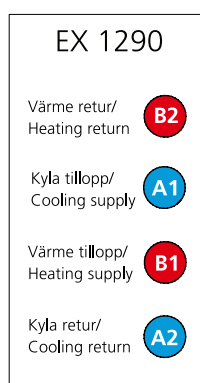
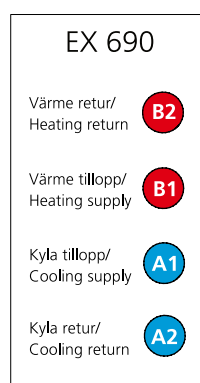
WISE Parasol EX 690/1290, view side 2

Water connection WISE Parasol EX 1290

Air connection on side 4 (left)



WISE Parasol EX 1290 - Left, view side 4



A1 = Supply cooling water
A2 = Return cooling water
B1 = Supply heating water
B2 = Return heating water

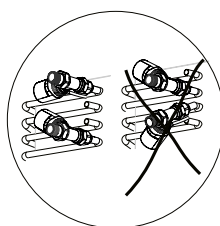
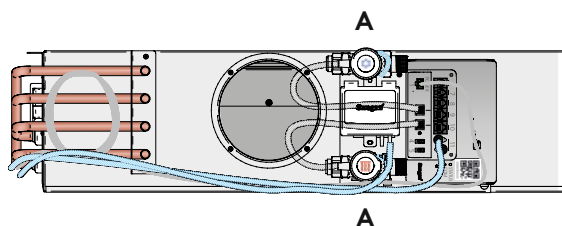
A1 = Supply cooling water
A2 = Return cooling water
B1 = Supply heating water
B2 = Return heating water

A1 = Supply cooling water
A2 = Return cooling water
B1 = Supply heating water
B2 = Return heating water

Valve kit installation

If the product is ordered with valve kits, these are supplied connected to the control unit and are temporarily attached with the help of cable ties.

- Cut off the cable ties (A) and mount the valve kit on the pipes for cooling return and heating return according to the label for the product in question.
- Mount the valve kit so that the actuators are aligned as illustrated below.

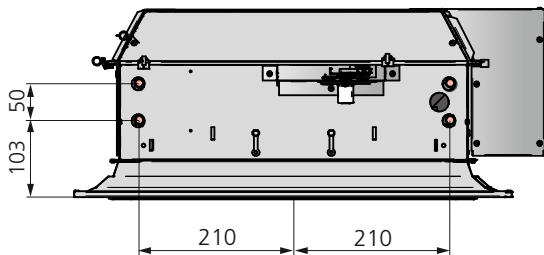


Coupling table

| Component | Version | Supplied/ connected | Connection | Coupling type | Connection | Coupling type |
|-----------------|-------------------|------------------------|------------|------------------------|-------------|------------------------|
| WISE Parasol EX | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol EX | B Cooling/heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol EX | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| WISE Parasol EX | B Cooling/heating | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |

PARASOL Zenith c

Water connection Parasol Zenith 600, 1200 and 1800, irrespective of air connection side.



- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

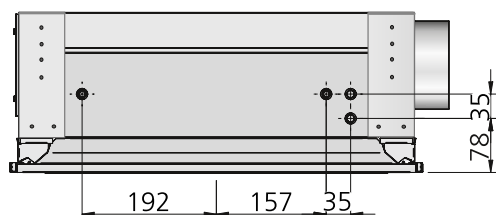
NB:
 It is important that the cooling water is connected to the right connection pipe.
 Flow direction is important for achieving full capacity.
 Water flow direction is marked on the unit end with directional arrows.

Coupling table

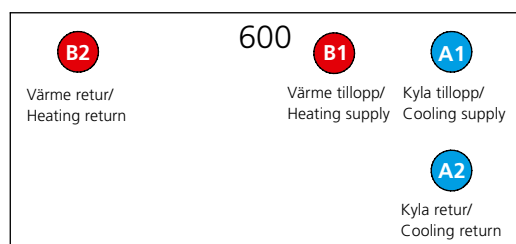
| Component | Version | Length | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|----------------|-----------------------|-----------|--------------------|------------|--|-------------|--|
| PARASOL Zenith | A cooling only | 600, 1200 | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12x1.0 mm |
| PARASOL Zenith | B Cooling/ Heating | 600, 1200 | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12x1.0 mm |
| PARASOL Zenith | A cooling only | 1800 | Actuator and valve | Return | DN20, male thread | Supply pipe | Plain pipe 15x1.0 mm |
| PARASOL Zenith | B Cooling/ Heating | 1800 | Actuator and valve | Return | DN20, male thread/ DN15, male thread | Supply pipe | Plain pipe 15x1.0 mm Plain pipe 12x1.0 mm |
| PARASOL Zenith | A cooling only | 600, 1200 | - | Return | Plain pipe 12x1.0 mm | Supply pipe | Plain pipe 12x1.0 mm |
| PARASOL Zenith | B Cooling/ Heating | 600, 1200 | - | Return | Plain pipe 12x1.0 mm | Supply pipe | Plain pipe 12x1.0 mm |
| PARASOL Zenith | A cooling only | 1800 | - | Return | Plain pipe 15x1.0 mm | Supply pipe | Plain pipe 15x1.0 mm |
| PARASOL Zenith | B Cooling/ Heating | 1800 | - | Return | Plain pipe 15x1.0 mm Plain pipe 12x1.0 mm | Supply pipe | Plain pipe 15x1.0 mm Plain pipe 12x1.0 mm |

PARASOL Classic

Water connection, PARASOL 600

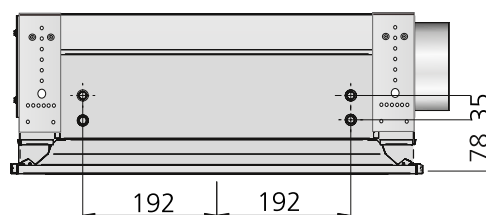


PARASOL 600, end view

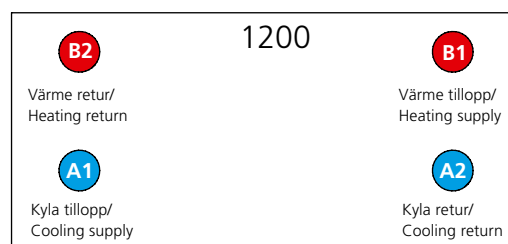


- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

Water connection, PARASOL 1200



PARASOL 1200, end view



- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

NB:

It is important that the cooling water is connected to the correct connection pipe for the single module unit. Flow direction is important for achieving full capacity. Water flow direction is marked on the unit end with directional arrows.

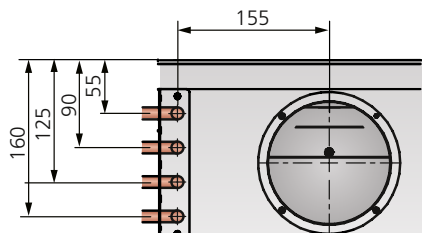
Coupling table

| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|-----------|-------------------|--------------------|------------|------------------------|-------------|------------------------|
| PARASOL | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARASOL | B Cooling/heating | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARASOL | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARASOL | B Cooling/heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

PARASOL EX

Water connection, PARASOL EX 690/1290

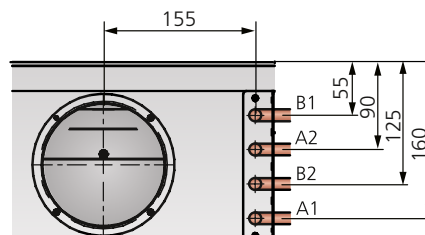
Air connection on side 2 (standard)



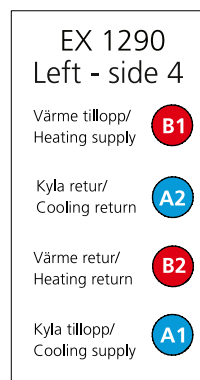
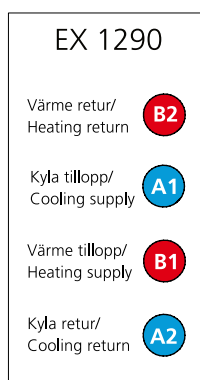
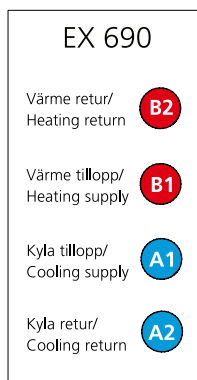
PARASOL EX 690/1290 - Standard, view side 2

Water connection, PARASOL EX 1290

Air connection on side 4 (left)



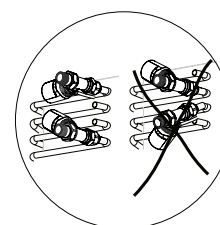
PARASOL EX 1290 - Left, view side 4



- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water



Coupling table

| Component | Version | Supplied/ connected | Connection | Coupling type | Connection | Coupling type |
|------------|-------------------|------------------------|------------|------------------------|-------------|------------------------|
| PARASOL EX | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARASOL EX | B Cooling/heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARASOL EX | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARASOL EX | B Cooling/heating | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |

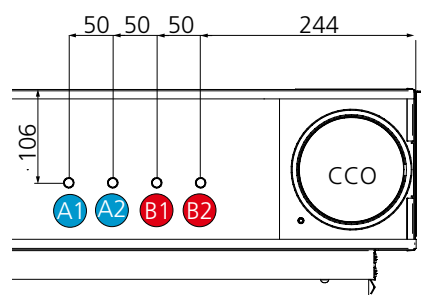
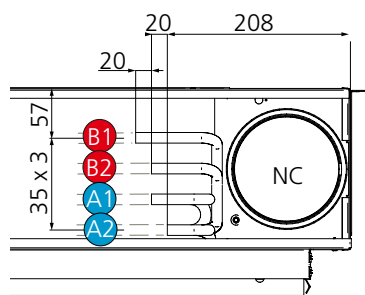
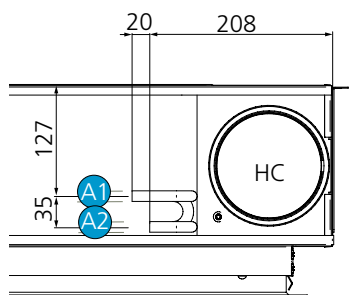
PARAGON

Connection on right side -R, for variants HC, NC and CCO

Recommended limit values

Max. recommended working pressure: 1600 kPa

Max. supply flow temperature: 60°C

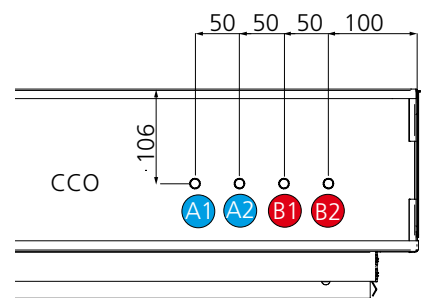
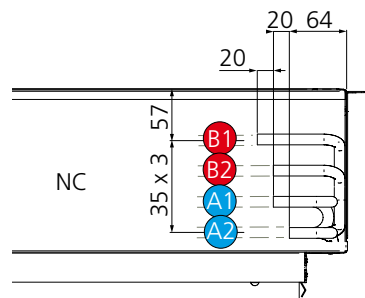
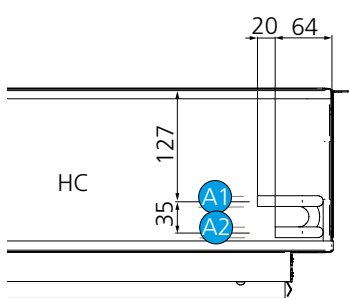


Rear view, water connection.

A1 = Supply cooling water
A2 = Return cooling water

B1 = Supply heating water
B2 = Return heating water

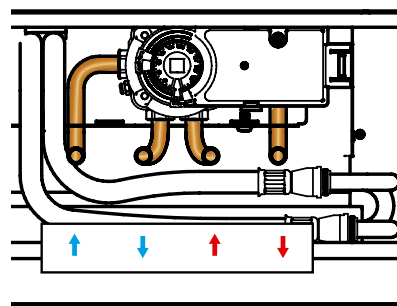
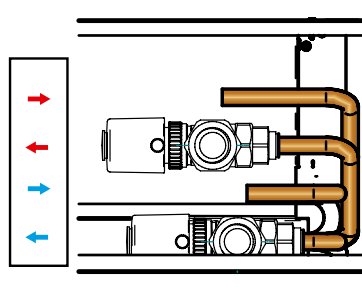
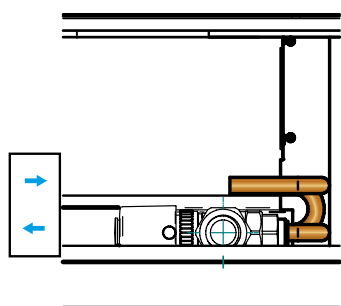
Connection on left side -L, for variants HC, NC and CCO



Rear view, water connection.

A1 = Supply cooling water
A2 = Return cooling water

B1 = Supply heating water
B2 = Return heating water



Coupling table

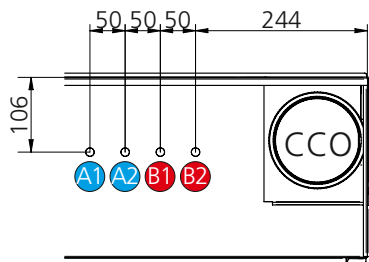
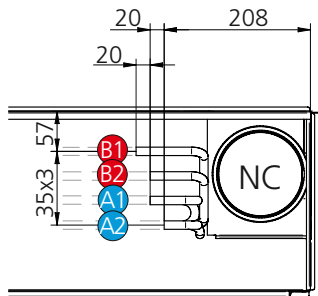
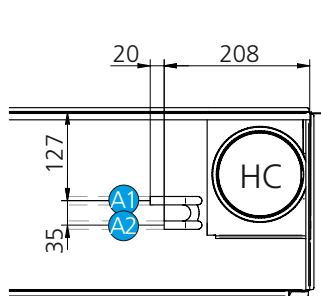
| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|----------------|-------------------|--------------------|------------|------------------------|-------------|------------------------|
| PARAGON HC | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON HC | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON NC | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON NC | B Cooling/heating | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON NC | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON NC | B Cooling/heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON HC CCO | B Cooling/heating | CCO valve | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

PARAGON Wall

Connection on right side -R, for variants HC, NC and CCO

Recommended limit values

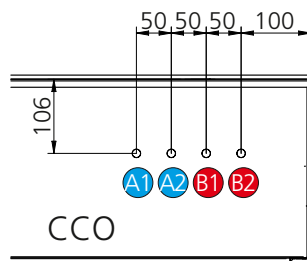
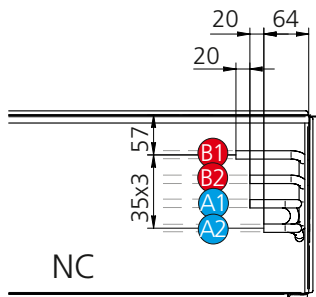
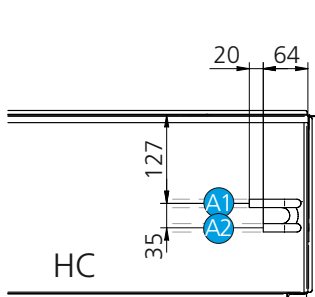
Max. recommended working pressure: 1600 kPa
 Max. supply flow temperature: 60°C



Rear view, water connection.

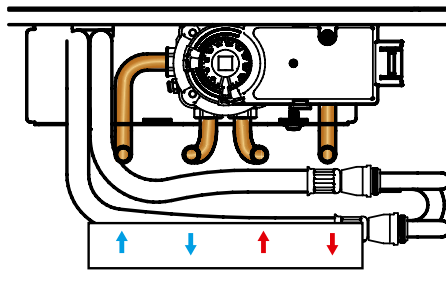
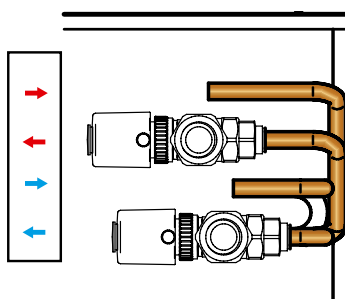
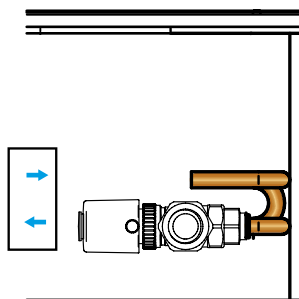
- A1 = Supply cooling water B1 = Supply heating water
- A2 = Return cooling water B2 = Return heating water

Connection on left side -L, for variants HC, NC and CCO



Rear view, water connection.

- A1 = Supply cooling water B1 = Supply heating water
- A2 = Return cooling water B2 = Return heating water

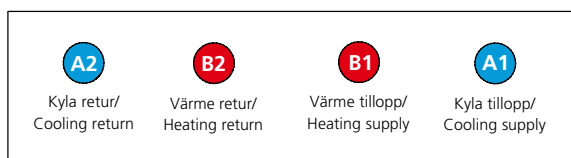
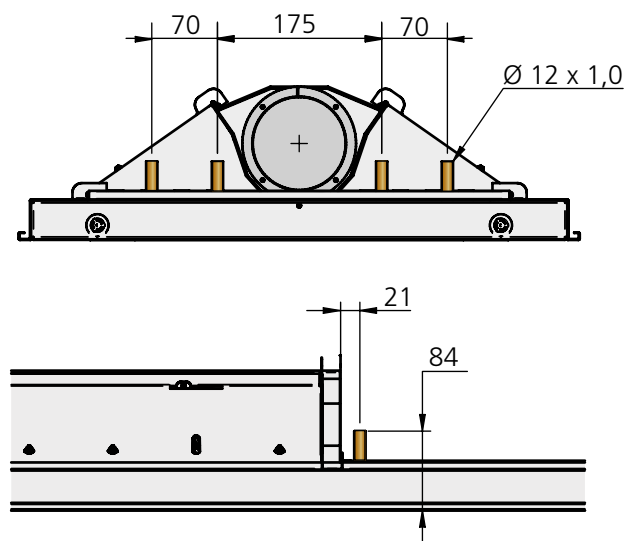


Coupling table

| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|------------------|-------------------|--------------------|------------|------------------------|-------------|------------------------|
| PARAGON W HC | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON W HC | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON W NC | A cooling only | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON W NC | B Cooling/heating | Actuator and valve | Return | DN15, male thread | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON W NC | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON W NC | B Cooling/heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PARAGON W HC CCO | B Cooling/heating | CCO valve | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

PACIFIC

Water connection, PACIFIC

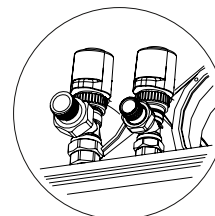


Recommended limit values

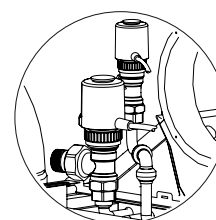
Max. recommended working pressure: 1600 kPa

Max. supply flow temperature: 60°C

PACIFIC



PACIFIC Ø 160



PACIFIC, water connection, end view

- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

NB:

It is important that the cooling water is connected to the right connection pipe.

Flow direction is important for achieving full capacity.

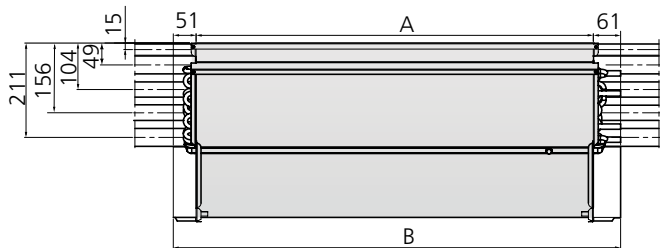
Water flow direction is marked on the unit end with directional arrows.

Coupling table

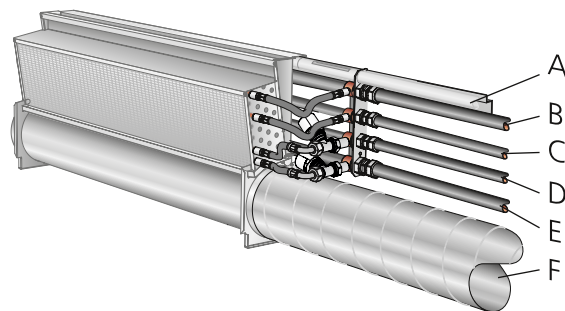
| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|-----------|-----------------------|--------------------|------------|----------------------------|-------------|------------------------|
| PACIFIC | A cooling only | Actuator and valve | Return | DN20 external threads | Supply pipe | Plain pipe 12 x 1.0 mm |
| PACIFIC | B Cooling/ heating | Actuator and valve | Return | DN20/DN15 external threads | Supply pipe | Plain pipe 12 x 1.0 mm |
| PACIFIC | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| PACIFIC | B Cooling/ heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

PRIMO

Water connection, PRIMO

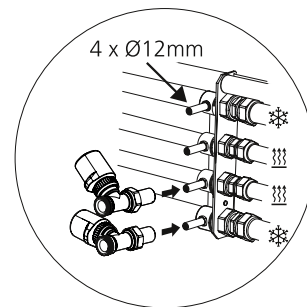
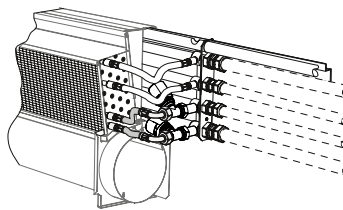
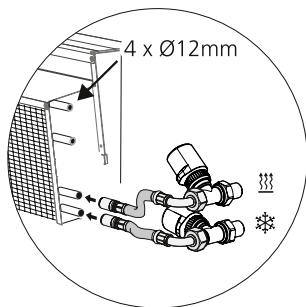
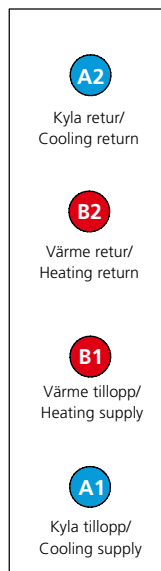


Primo front view.
A = Drain nozzle, B = Length



Connection dimensions.

- A. Sheath, control cable Ø25 mm
- B. Return cooling Ø28 mm
- C. Return heating Ø22 mm
- D. Supply heating Ø22 mm
- E. Supply cooling Ø28 mm
- F. Air duct Ø125, 160 or 200 mm



NB:

It is important that the cooling water is connected to the right connection pipe. Flow direction is important for achieving full capacity. Water flow direction is marked on the unit end with directional arrows.

PRIMO, Water connection, end view

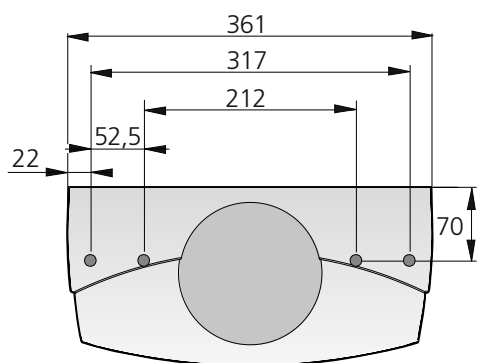
- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

Coupling table

| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|-----------|-----------|----------------|------------|----------------------------|-------------|----------------------------|
| PRIMO | B Cooling | - | Return | Flat pipe end Ø28 x 1.0 mm | Supply pipe | Flat pipe end Ø28 x 1.0 mm |
| PRIMO | B Heating | - | Return | Flat pipe end Ø22 x 1.0 mm | Supply pipe | Flat pipe end Ø22 x 1.0 mm |

ADRIATIC VF

Water connection, ADRIATIC

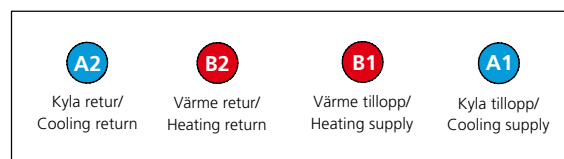


ADRIATIC, end view.

Recommended limit values

Max. recommended working pressure: 1600 kPa

Max. supply flow temperature: 60°C



ADRIATIC, water connection

- A1 = Supply cooling water
- A2 = Return cooling water
- B1 = Supply heating water
- B2 = Return heating water

NB:

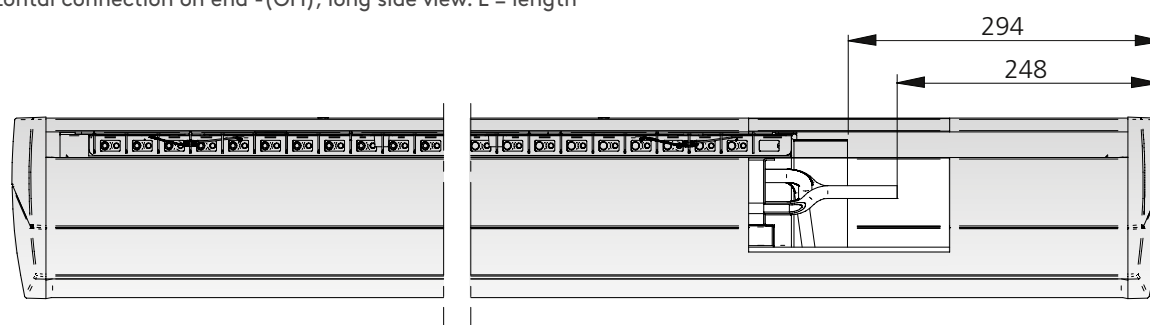
It is important that the cooling water is connected to the right connection pipe.

Flow direction is important for achieving full capacity.

Water flow direction is marked on the unit end with directional arrows.



Horizontal connection on end -(OH), long side view. L = length



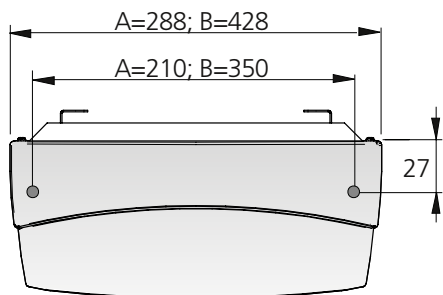
Internal connection (-I), long side view. L = length

Coupling table

| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|-----------|-------------------|----------------|------------|------------------------|-------------|------------------------|
| ADRIATIC | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |
| ADRIATIC | B Cooling/heating | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

FRB

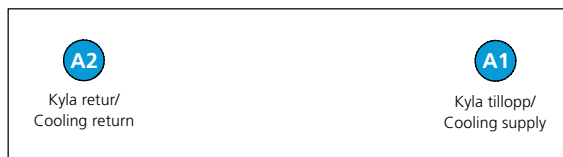
FRB 290 and 430



FRB, end view. A = FRB 290, B = FRB 430.

Recommended limit values

Max. recommended working pressure: 1600 kPa



FRB, water connection

A1 = Supply cooling water

A2 = Return cooling water

NB:

It is important that the cooling water is connected to the right connection pipe.

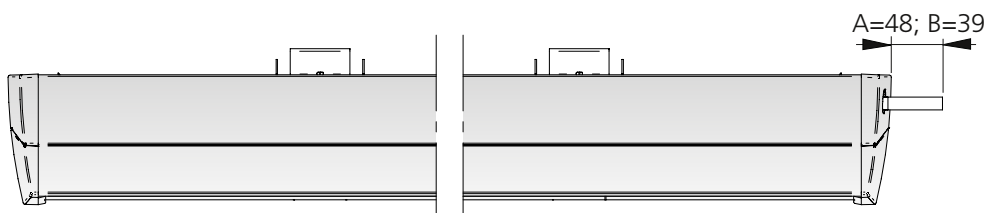
Flow direction is important for achieving full capacity.

Water flow direction is marked on the unit end with directional arrows.



Internal connection (-I), long side view.

A = FRB 290, B = FRB 430



Horizontal connection on end, (-H) long side view.

A = FRB 290, B = FRB 430

Coupling table

| Component | Version | Factory-fitted | Connection | Coupling type | Connection | Coupling type |
|-----------|----------------|----------------|------------|------------------------|-------------|------------------------|
| FRB | A cooling only | - | Return | Plain pipe 12 x 1.0 mm | Supply pipe | Plain pipe 12 x 1.0 mm |

Ventilation

Quick Guide

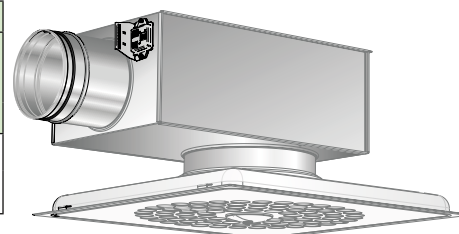
Air diffuser

WISE Colibri Ceiling

Air diffuser with integrated radio module for regulation of the air flow – variable alternative constant flow.

| AIR FLOW - SOUND LEVEL - COOLING EFFECT | | | | | | | | |
|---|-------|-------------------|------------------|-------------------|-----------------|-------------------|-------------------|------------------|
| WISE Colibri C Size | Min.* | | 50 Pa/ 30 dB (A) | | | 150 Pa/ 35 dB (A) | | |
| | l/s | m ³ /h | l/s | m ³ /h | P Δt=8K W | l/s | m ³ /h | P Δt =8K W |
| 160 | 5 | 18 | 72 | 260 | 694 | 75 | 270 | 722 |
| 250 | 10 | 36 | 105 | 378 | 1011 | 120 | 432 | 1156 |

*The product can regulate below min. but the measurement accuracy cannot be guaranteed, for tolerances see separate product sheet.



WISE Sphere Ceiling

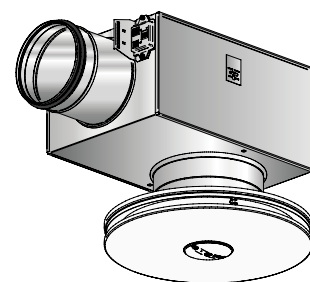
Air diffuser with integrated radio module for regulation of the air flow – variable alternative constant flow.

| AIR FLOW - SOUND LEVEL - COOLING CAPACITY max Q (l/s) | | | | | | | | |
|--|-------|---------------------|----------|---------------------|---------------|-----------|---------------------|----------------|
| WISE Sphere C Size | Min. | | 30 dB(A) | | | 35 dB (A) | | |
| | (l/s) | (m ³ /h) | (l/s) | (m ³ /h) | pΔt=8K (W) | (l/s) | (m ³ /h) | pΔt =8K (W) |
| 160 | 5 | 18 | 95 | 342 | 912 | 115 | 414 | 1104 |
| 200 | 10 | 36 | 140 | 504 | 1344 | 165 | 594 | 1584 |

The table shows data for the open damper.

The product can regulate below min. but the measurement accuracy cannot be guaranteed, for tolerances see separate product sheet. NOTE for a high pressure drop across the product, it may be difficult to reach the min. flow, at the same time as the sound generation increases, see separate product sheet.

Max cooling capacity is calculated at Δt=8K and for the air flow at 100% and 30 dB(A).



WISE Sphere Free

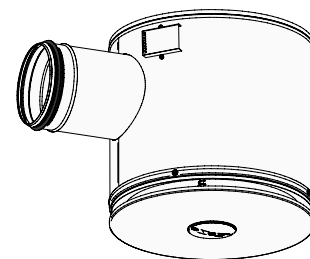
Air diffuser with integrated radio module for regulation of the air flow – variable alternative constant flow.

| AIR FLOW - SOUND LEVEL - COOLING CAPACITY max Q (l/s) | | | | | | | | |
|--|-------|---------------------|----------|---------------------|---------------|-----------|---------------------|----------------|
| WISE Sphere F Size | min. | | 30 dB(A) | | | 35 dB (A) | | |
| | (l/s) | (m ³ /h) | (l/s) | (m ³ /h) | pΔt=8K (W) | (l/s) | (m ³ /h) | pΔt =8K (W) |
| 160 | 5 | 18 | 80 | 288 | 768 | 95 | 342 | 912 |
| 200 | 10 | 36 | 130 | 468 | 1248 | 150 | 540 | 1440 |

The table shows data for the open damper.

The product can regulate below min. but the measurement accuracy cannot be guaranteed, for tolerances see separate product sheet. NOTE for a high pressure drop across the product, it may be difficult to reach the min. flow, at the same time as the sound generation increases, see separate product sheet.

Max cooling capacity is calculated at Δt=8K and for the air flow at 100% and 30 dB(A).



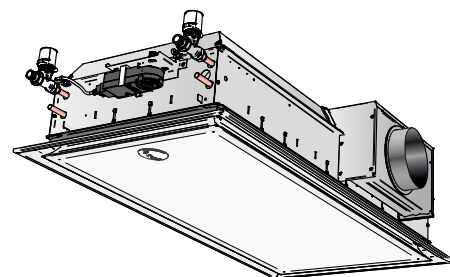
Comfort module

WISE Parasol Zenith

Comfort module with integrated radio module that demand controls the air flow as well as cools and heats waterborne water for the best energy efficiency and comfort.

| Size (mm)* | Primary air flow l/s | Pressure range Pa | Total cooling capacity (75 Pa) W | Heating capacity Water $\Delta t_{mv,35}$ |
|-----------------|-------------------------|----------------------|-------------------------------------|---|
| 600, 1200, 1800 | ≤ 10-100 | 20-200 | 2135 | 3750 |

*With adaptations for several ceiling systems.



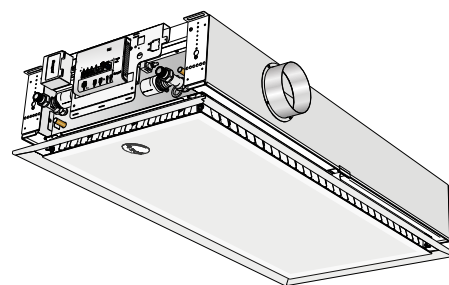
| Nozzle pressure Recommended minimum nozzle pressure, cooling | 20-200 Pa Air flow l/s | Nozzle pressure (Pa) |
|---|---------------------------|----------------------|
| For occupancy | < 10 | 50 |
| For night-time operation | 10-30 | 25 |
| For night-time operation | >30 | 20 |
| Recommended min. nozzle pressure if coil heating is used | | 70 |

WISE Parasol

Comfort module with integrated radio module that demand controls the air flow as well as cools and heats waterborne water for the best energy efficiency and comfort.

| Size (mm)* | Primary air flow l/s | Pressure range Pa | Total cooling capacity (75 Pa) W | Heating capacity Water $\Delta t_{mv,35}$ |
|------------|-------------------------|----------------------|-------------------------------------|---|
| 600, 1200 | ≤ 85 | 50-150 | ≤ 2055 | ≤ 2700 |

*With adaptations for several ceiling systems.



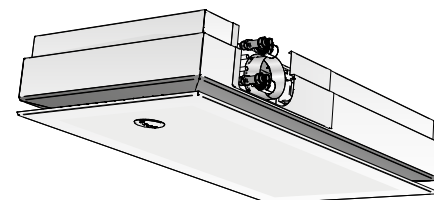
| Nozzle pressure Recommended minimum nozzle pressure, cooling | 50-150 Pa Air flow l/s | Nozzle pressure (Pa) |
|---|------------------------------|----------------------|
| | For occupancy <10 | 50 |
| | For night-time operation >10 | 25 |
| Recommended min. nozzle pressure if coil heating is used | | 70 |

WISE Parasol EX

Suspended comfort module with integrated radio module that demand controls the air flow as well as cools and heats waterborne for the best energy efficiency and comfort.

| Size (mm)* | Primary air flow l/s | Pressure range Pa | Total cooling capacity (75 Pa) W | Heating capacity Water $\Delta t_{mv,35}$ |
|------------|-------------------------|----------------------|-------------------------------------|---|
| 690, 1290 | ≤ 55 | 50-150 | ≤ 1930 | ≤ 2450 |

*With adaptations for several ceiling systems.



| Nozzle pressure Recommended minimum nozzle pressure, cooling | 50-150 Pa Air flow l/s | Nozzle pressure (Pa) |
|---|------------------------------|----------------------|
| | For occupancy <10 | 50 |
| | For night-time operation >10 | 25 |
| Recommended min. nozzle pressure if coil heating is used | | 70 |

Damper/measurement unit – Circular design

WISE Damper

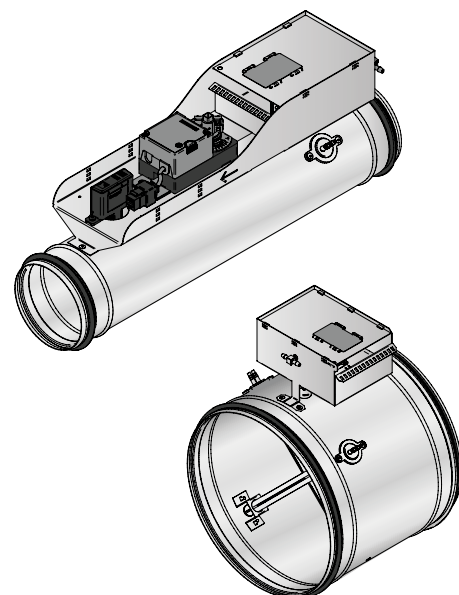
Damper with integrated radio module, can be flow controlled, pressure controlled or have optimised functionality together with other products. Measures the current duct temperature.

WISE Measure (measurement unit)

Measurement unit with integrated radio module. Measures air flow and temperature.

| Size | FLOW RANGE | | | |
|------|----------------|-------------------|----------------|-------------------|
| | Min. (0.6m/s)* | | Max. (10 m/s)* | |
| | l/s | m ³ /h | l/s | m ³ /h |
| 100 | 5 | 18 | 79 | 285 |
| 125 | 7 | 26 | 123 | 443 |
| 160 | 11 | 40 | 202 | 728 |
| 200 | 18 | 65 | 315 | 1134 |
| 250 | 30 | 108 | 491 | 1768 |
| 315 | 50 | 180 | 780 | 2808 |
| 400 | 87 | 314 | 1257 | 4526 |
| 500 | 135 | 486 | 1964 | 7071 |
| 630 | 187 | 674 | 3118 | 11225 |

*The product can regulate below min. but the measurement accuracy cannot be guaranteed, for tolerances see separate product sheet.



Damper/measurement unit – Rectangular design

WISE Damper

| Size WxH (mm) | Normal motor | | Spring return | | Flow range | | | | Tolerance Q' ±5% with at least ±x l/s |
|---------------|--------------|-------------|---------------|-------------|--------------|------|---------------|-------|---------------------------------------|
| | Torque (Nm) | Weight (kg) | Torque (Nm) | Weight (kg) | Min. (1 m/s) | | Max. (10 m/s) | | |
| | | | | | 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

WISE Measure

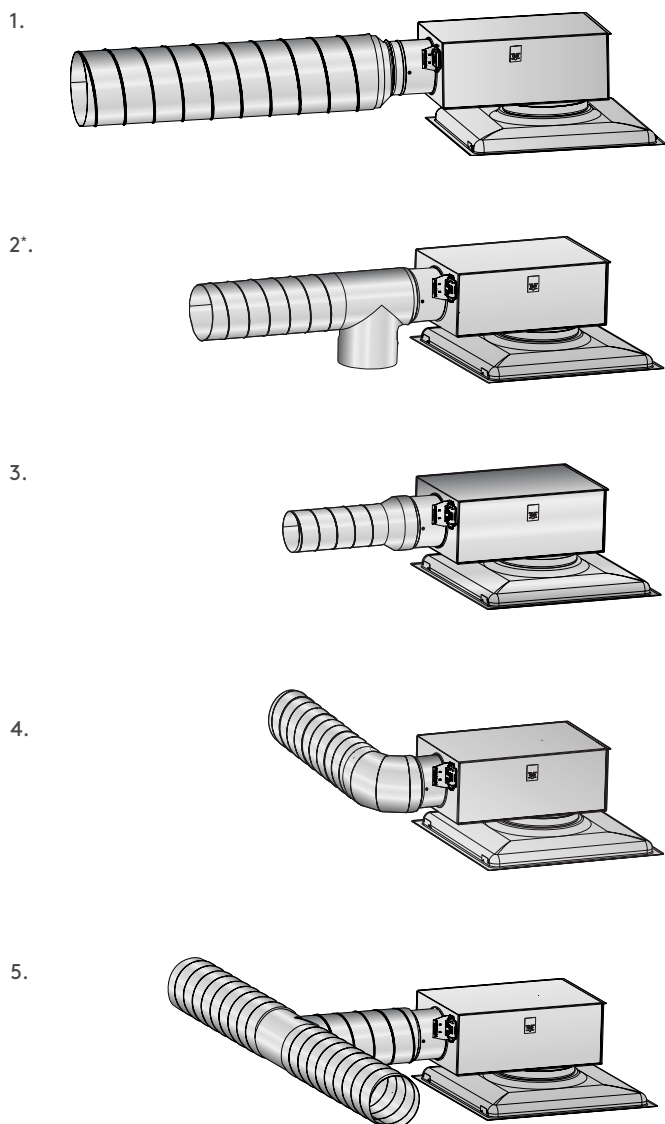
| Size WxH (mm) | Weight (kg) | Flow range | | | | Tolerance Q' ±5% with at least ±x l/s |
|---------------|-------------|--------------|------|---------------|-------|---------------------------------------|
| | | Min. (1 m/s) | | Max. (10 m/s) | | |
| | | l/s | m³/h | l/s | m³/h | |
| | | | | | | |
| 200 x 200 | 2.5 | 34 | 123 | 400 | 1440 | 4 |
| 300 x 200 | 3.0 | 50 | 180 | 600 | 2160 | 6 |
| 400 x 200 | 3.4 | 67 | 242 | 800 | 2880 | 8 |
| 500 x 200 | 3.9 | 84 | 303 | 1000 | 3600 | 10 |
| 600 x 200 | 4.3 | 100 | 360 | 1200 | 4320 | 12 |
| 700 x 200 | 4.8 | 117 | 422 | 1400 | 5040 | 14 |
| 800 x 200 | 5.3 | 133 | 479 | 1600 | 5760 | 16 |
| 1000 x 200 | 6.2 | 167 | 602 | 2000 | 7200 | 20 |
| 300 x 300 | 3.4 | 76 | 274 | 900 | 3240 | 9 |
| 400 x 300 | 3.8 | 102 | 368 | 1200 | 4320 | 12 |
| 500 x 300 | 4.3 | 127 | 458 | 1500 | 5400 | 15 |
| 600 x 300 | 4.8 | 152 | 548 | 1800 | 6480 | 18 |
| 700 x 300 | 5.1 | 178 | 641 | 2100 | 7560 | 21 |
| 800 x 300 | 5.7 | 203 | 731 | 2400 | 8640 | 24 |
| 1000 x 300 | 6.6 | 254 | 915 | 3000 | 10800 | 30 |
| 400 x 400 | 4.4 | 136 | 490 | 1600 | 5760 | 16 |
| 500 x 400 | 4.9 | 171 | 616 | 2000 | 7200 | 20 |
| 600 x 400 | 5.3 | 205 | 738 | 2400 | 8640 | 24 |
| 700 x 400 | 5.9 | 250 | 900 | 2800 | 10080 | 28 |
| 800 x 400 | 6.4 | 273 | 983 | 3200 | 11520 | 32 |
| 1000 x 400 | 7.3 | 341 | 1228 | 4000 | 14400 | 40 |
| 1200 x 400 | 8.3 | 409 | 1473 | 4800 | 17280 | 48 |
| 1400 x 400 | 9.2 | 478 | 1721 | 5600 | 20160 | 56 |
| 1600 x 400 | 10.2 | 546 | 1966 | 6400 | 23040 | 64 |
| 500 x 500 | 5.3 | 214 | 771 | 2500 | 9000 | 25 |
| 600 x 500 | 5.7 | 257 | 926 | 3000 | 10800 | 30 |
| 700 x 500 | 6.3 | 300 | 1080 | 3500 | 12600 | 35 |
| 800 x 500 | 6.7 | 343 | 1235 | 4000 | 14400 | 40 |
| 1000 x 500 | 7.7 | 429 | 1545 | 5000 | 18000 | 50 |
| 1200 x 500 | 8.7 | 514 | 1851 | 6000 | 21600 | 60 |
| 1400 x 500 | 9.7 | 600 | 2160 | 7000 | 25200 | 70 |
| 1600 x 500 | 10.7 | 686 | 2470 | 8000 | 28800 | 80 |
| 600 x 600 | 6.4 | 309 | 1113 | 3600 | 12960 | 36 |
| 700 x 600 | 7.0 | 361 | 1300 | 4200 | 15120 | 42 |
| 800 x 600 | 7.4 | 412 | 1484 | 4800 | 17280 | 48 |
| 1000 x 600 | 8.5 | 515 | 1854 | 6000 | 21600 | 60 |
| 1200 x 600 | 9.5 | 618 | 2225 | 7200 | 25920 | 72 |
| 1400 x 600 | 10.5 | 722 | 2600 | 8,400 | 30240 | 84 |
| 1600 x 600 | 11.6 | 825 | 2970 | 9600 | 34560 | 96 |
| 700 x 700 | 7.4 | 422 | 1520 | 4900 | 17640 | 49 |
| 800 x 700 | 7.9 | 482 | 1736 | 5600 | 20160 | 56 |
| 1000 x 700 | 8.9 | 603 | 2171 | 7000 | 25200 | 70 |
| 1200 x 700 | 9.9 | 723 | 2603 | 8,400 | 30240 | 84 |
| 1400 x 700 | 11.0 | 844 | 3039 | 9800 | 35280 | 98 |
| 1600 x 700 | 12.0 | 964 | 3471 | 11200 | 40320 | 112 |

*Installed according to the instructions

Installation Options

Straight duct connection to the air diffuser

WISE Colibri Ceiling



Straight section requirements, circular ducts.

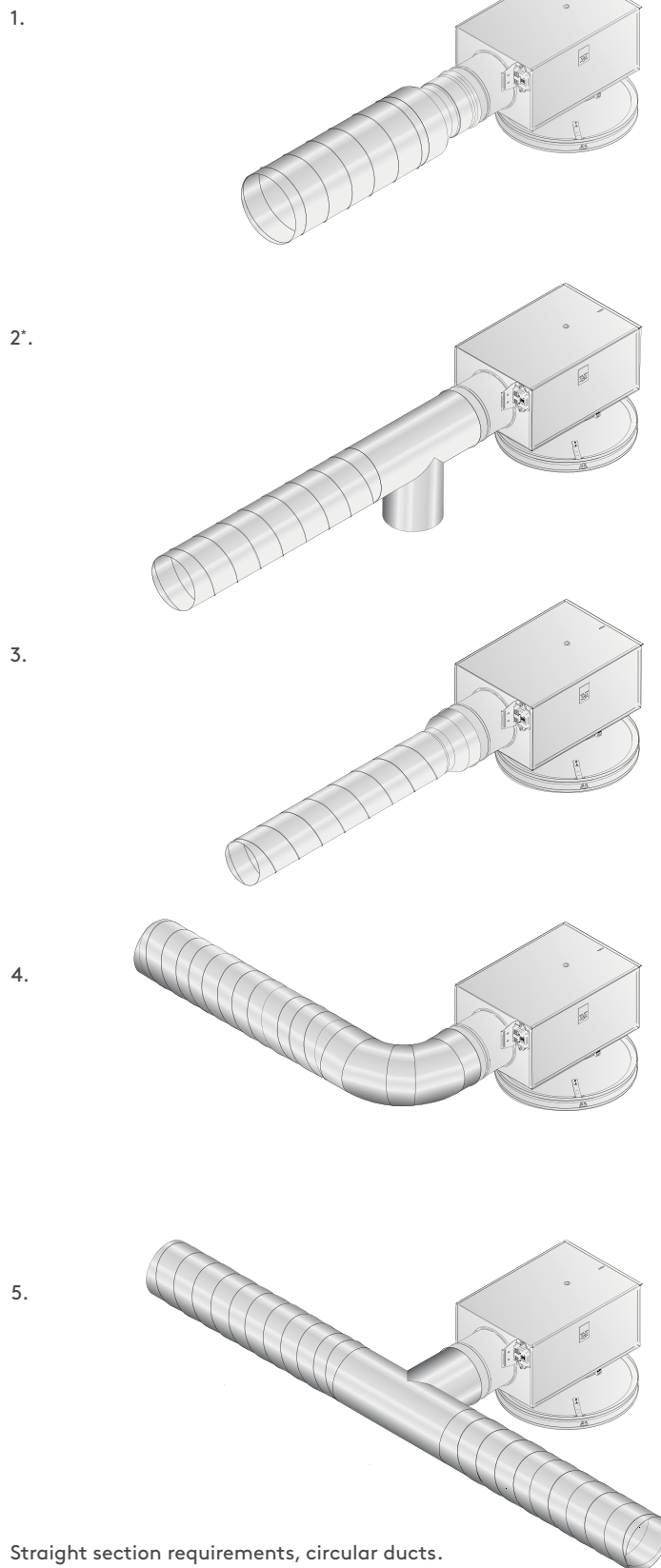
1-3: Quantity Ø before the product: 0 x Ø.

4: Quantity Ø before the product: 1 x Ø.

5: Quantity Ø before the product: 2 x Ø.

*Cleaning hatch

WISE Sphere Ceiling



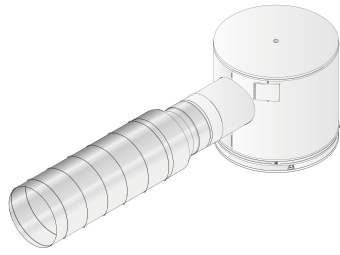
Straight section requirements, circular ducts.

1-5: Quantity Ø before the product: 0 x Ø.

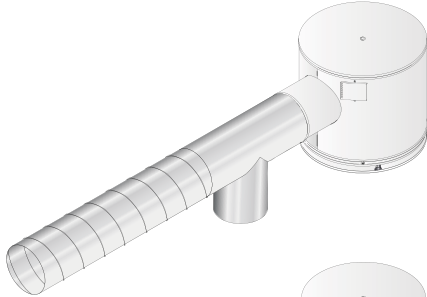
*Cleaning hatch

WISE Sphere Free

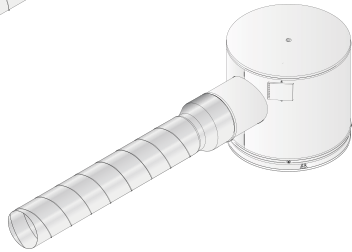
1.



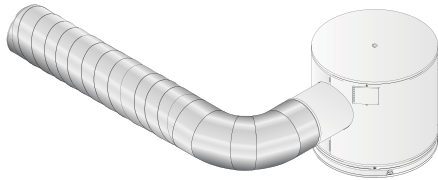
2*



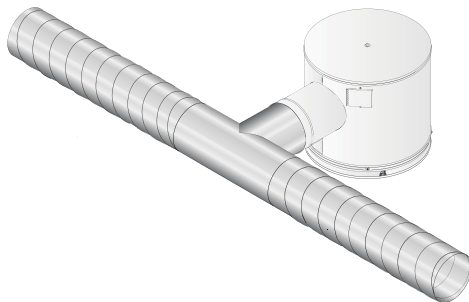
3.



4.



5.

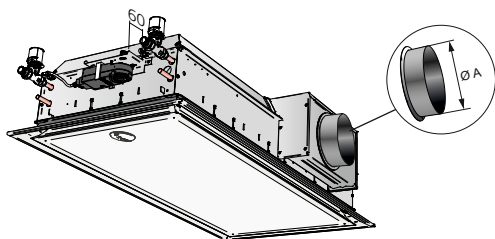


Straight section requirements, circular ducts.

1-5: Quantity Ø before the product: 0 x Ø.

*Cleaning hatch

Connection on WISE Parasol Zenith and PARASOL Zenith with four optional sides

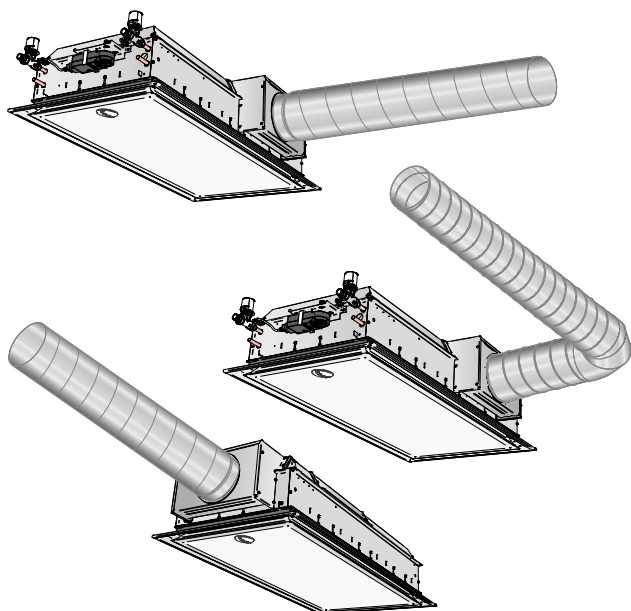


Connection dimensions

| Unit | A: Diameter Ø | | |
|-----------|---------------|-----|-----|
| 600, 1200 | 125 | 160 | |
| 1800 | | | 200 |

Air connection

Air connection side 2 and 1 are shown in the example.

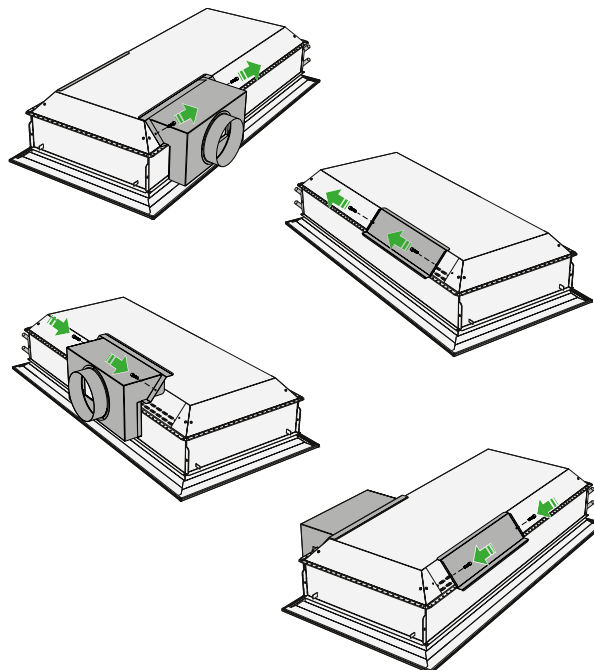


Alternative air connection side

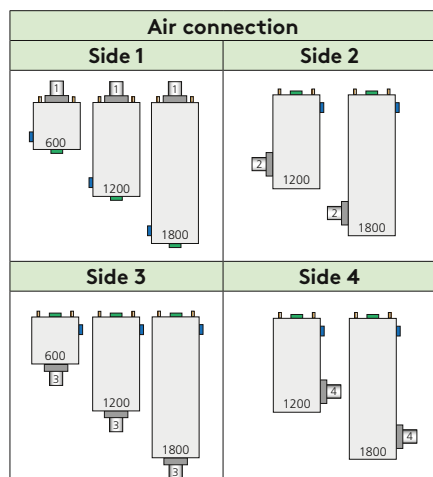
If you subsequently want to change the air connection side than that ordered, you can change the positions of the cover and connection sleeve as set out below.

Possibility to change the connection side

- From side 1 to side 2 or 4 (Does not apply to length 600)
- From side 2 to side 3 or 4
- From side 3 to side 2 or 4 (Does not apply to length 600)
- From side 4 to side 2 or 3



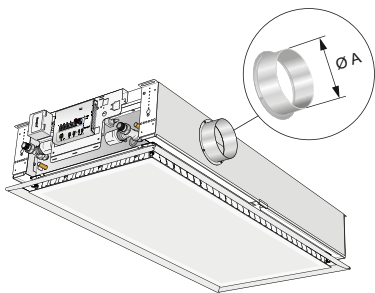
1. Unscrew the screws from the sleeve and cover.
2. Change the location of the sleeve and cover.
3. Screw on the sleeve and cover on the new side.



Symbol explanation

- Water pipe
- Actuator
- WISE CU
- Air connection

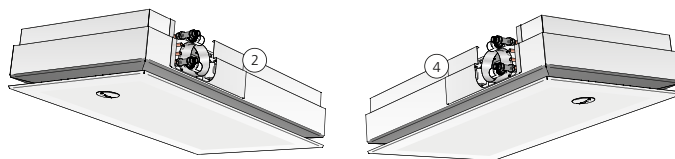
Connection on WISE Parasol both right and left side



Connection dimensions

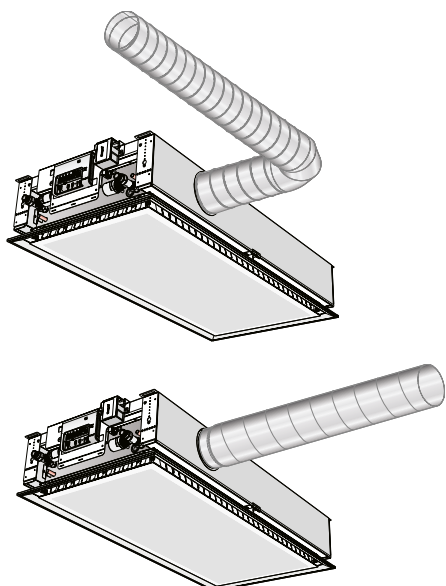
| Unit | A |
|----------------------|-------|
| WISE Parasol 600 MF | Ø 125 |
| WISE Parasol 600 PF | Ø 160 |
| WISE Parasol 1200 HF | Ø 125 |
| WISE Parasol 1200 PF | Ø 160 |

Connection on WISE Parasol EX both right and left side

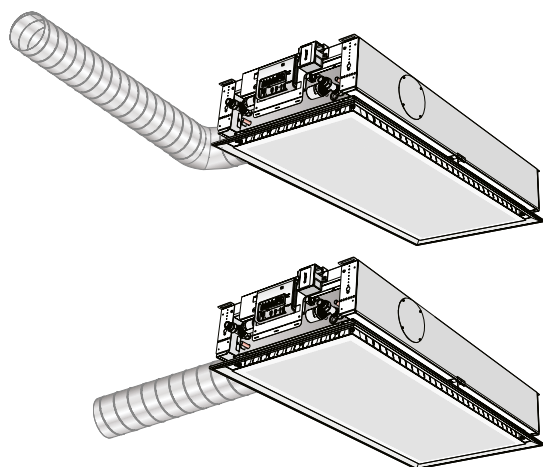


Connection dimensions

| Unit | A |
|-------------------------|-------|
| WISE Parasol EX 690 | Ø 125 |
| WISE Parasol EX 690 PF | Ø 160 |
| WISE Parasol EX 1290 | Ø 125 |
| WISE Parasol EX 1290 PF | Ø 160 |

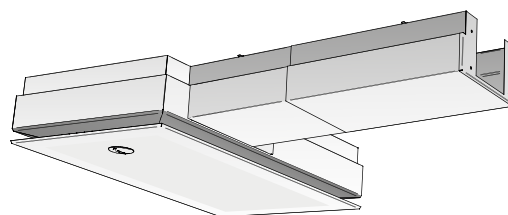


Alternative air connection side



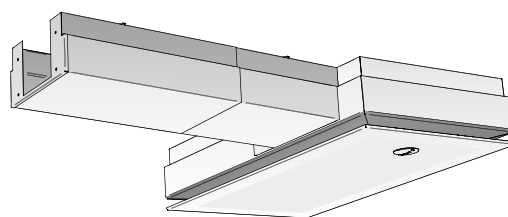
1. Unscrew four screws each from the spigot and cover.
2. Change the location of the spigot and cover.
3. Screw the spigot and cover in position each with four screws on the new side.

Air connection side 2 (standard)



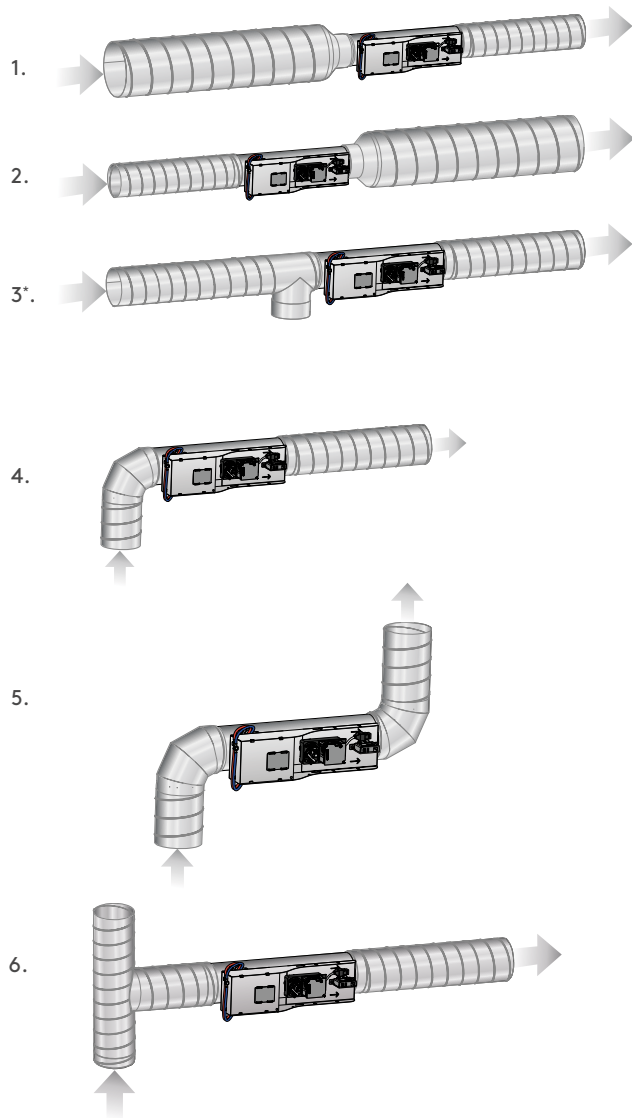
The figure shows the product with connection casing

Air connection side 4 (left)



The figure shows the product with connection casing

Straight duct connection to the damper - Circular design



Straight section requirements, circular ducts.

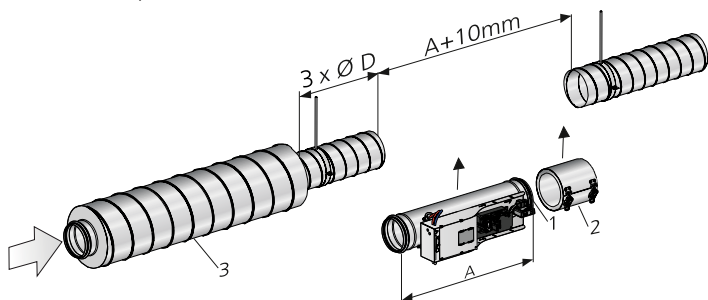
1-5: Quantity Ø before the product: 0 x Ø.

6: Quantity Ø before the product: 2 x Ø.

*Cleaning hatch

FSR Clamp

Use clamp FSR to be able to easily dismantle the damper for service or repair.



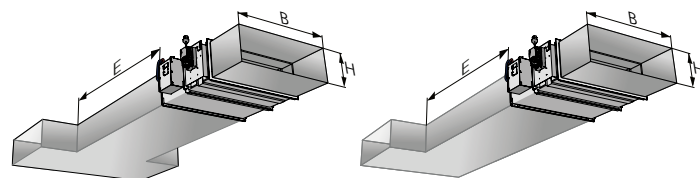
- 1. WISE Damper
- 2. FSR Clamp
- 3. Sound attenuator

Straight duct connection to the damper - Rectangular design

NOTE! Damper spindles must be installed horizontally.

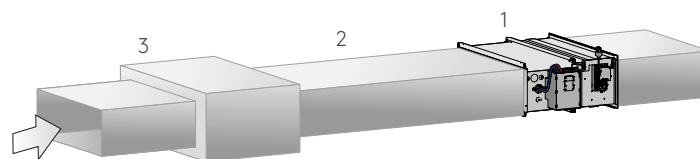
Straight section before WISE Damper in rectangular ducts

| 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 |



Straight section requirements, rectangular ducts.

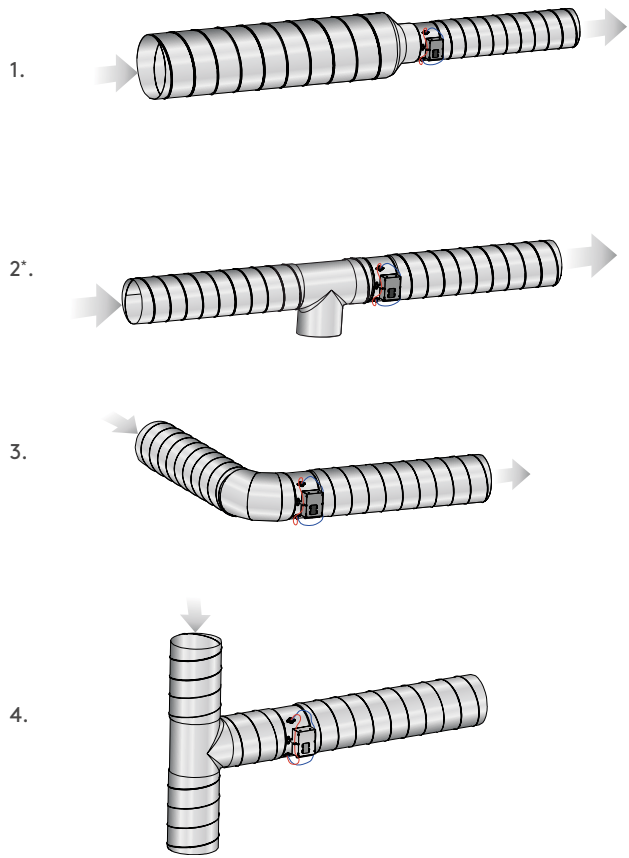
Straight section before/after WISE Damper – sound attenuator with baffle



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 ≥500 mm.
- 3 = Sound attenuator with baffle.

Straight duct connection to measurement unit - Circular design



Straight section requirements, circular ducts.

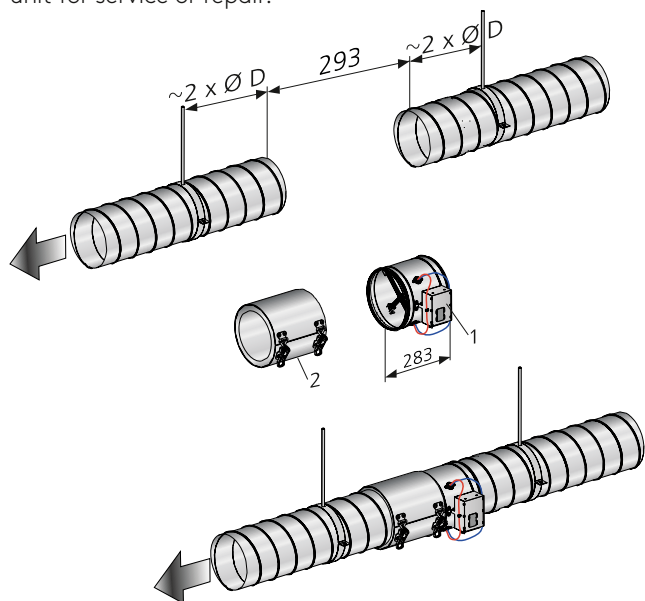
1-3: Quantity \emptyset before the product: $0 \times \emptyset$.

4: Quantity \emptyset before the product: $2 \times \emptyset$.

*Cleaning hatch

FSR Clamp

Use clamp FSR to be able to easily dismantle the measurement unit for service or repair.



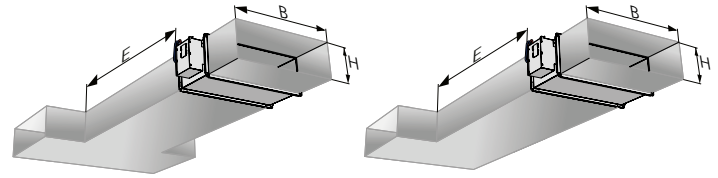
1. WISE Measure

2. FSR Clamp

Straight duct connection to measurement unit - Rectangular design

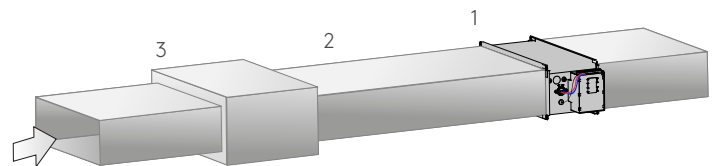
Straight section before WISE Measure in rectangular ducts

| 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 |



Straight section requirements, rectangular ducts.

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



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

1 = Rectangular WISE Measure.

2 = Straight duct $\geq 3 \times B$.

3 = Sound attenuator with baffle.

Feel good **inside**



Swegon 