

Description of the unit



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Description of the unit



General

The SILVER C RX/PX/CX air handling units are complete with direct-driven supply air and extract air fans, supply air and extract air filters and heat exchanger. The heat exchanger is either a rotary heat exchanger (RX), counter-flow heat exchanger (PX) or coil heat exchanger (CX).

The SILVER C SD supply air and extract air units are single-direction air handling units with one direct-driven supply air or extract air fan. Optional filters are available for all sizes. Coil heat exchangers and unmounted pipework packages can be selected for the size 012-120 units.

If supplementary function sections such as dampers and air coolers are required, they must be installed in the ductwork (duct accessories). Unit sections such as e.g. the multisection and air bypass section can be installed in the air handling unit arrangement of the size 004-120 RX/PX/CX units.

Application area

The SILVER C units are designed for use in comfort ventilation applications. Depending on the variant selected, the SILVER C units can be utilised in buildings such as office buildings, schools, day nurseries, public buildings, shops, residential buildings, etc.

SILVER C units equipped with counterflow-/coil heat exchanger (PX/CX) and separate supply air and extract air handling units (SD) can also be used for the ventilation of moderately humid buildings; however not where the humidity is continuously high, such as in indoor swimming baths.

Sensor designations and colours of arrows in this publication conform to IEC 81346-1

The separate SILVER C supply air and extract air handling units (SD) are designed for applications in which the supply air and extract air flows need to be completely separated from one another or where, due to limited available space, separate units for supply air and extract air respectively are needed. They can also be used individually if only one of the variants is needed.

The SILVER C units equipped with the roof, air intake section and exhaust air hood accessories can be installed outdoors.

The SILVER C is designed and tested for temperatures, in the surroundings and the air stream, from -40°C to +40°C.

GOLD conforms to the requirements set out in the hygiene design regulations VDI 6022, see the separate guide.

Certification

Swegon AB has a certified Quality Assurance System that conforms to ISO 9001 Standard and a certified Environmental Management System to ISO 14001. The SILVER C air handling system is also certificated by Eurovent, No. AHU-14-09-003.



www.eurovent-certification.com
www.certiflash.com

Description of the unit

Mechanical design

Casing of the SILVER C RX/PX/CX

Composed of flush-mounted cover panels and inspection doors. The outer skin is made of galvanized sheet steel, re-painted in Swegon's own grey metallic paint (closest comparable RAL colour: 9007). The inner skin is made of aluminium-zinc plated sheet steel. The entire air handling unit conforms to Environmental Class C4. CE marked. Conform to the provisions of EN 61000-6-2 and EN 61000-6-3 Standards. Panel thickness of 52 mm with intervening insulation consisting of mineral wool.

The inspection doors are hung on hinges and are fitted with flush-mounted door handles. The door handles must be opened in two steps to equalise the pressure before the door can be opened completely.

Casing performance

Air leakage, class: L1(M).

Thermal bridges: TB2.

Thermal transmission: T2.

Mechanical strength D3 (M).

Applicable to sizes 004/005 and 007/008 inside a common casing:

Common casing with two inspection doors. One of the door handles of each inspection door can be locked.

Circular duct connections for insertion joints fitted with a rubber seal ring as standard.

The SILVER C RX with rotary heat exchanger can be mounted on base beams, a foundation or on a stand. Pre-fitted base beams are obtainable as optional equipment; a stand supplied unmounted is available as an accessory.

SILVER C PX units with counterflow heat exchanger are supplied with base beams. A set of legs (four legs) to be secured with screwed into the base beams is available as an accessory.

Applicable to sizes 004/005 and 007/008 in split version as well as size 011-120:

The basic arrangement of the size 004-080 units consists of three unit sections (two fan/filter sections and one heat exchanger section). The size 100/120 units consist of five (RX) or six (CX) sections.

Each section/unit section has one or two inspection doors. One of the handles for each one of both outer inspection doors is lockable. On the size 120 units, the inspection door of the heat exchanger section (SILVER C RX) is also lockable.

The size 014-120 units are equipped with rectangular duct connections for slip-clamp jointing as standard. The size 004-012 units are equipped with circular duct connections for insertion joints fitted with a rubber seal ring as standard.

The unit is equipped with base beams.



SILVER C RX, size 008



SILVER C PX, size 030

Description of the Air Handling Unit

Mechanical Design

Casing of the SILVER C SD

Composed of flush-mounted cover panels and inspection doors. The outer skin is made of galvanized sheet steel, re-painted in Swegon's own grey metallic paint (closest comparable RAL colour: 9007). The inner skin is made of aluminium-zinc plated sheet steel. The entire air handling unit conforms to Environmental Class C4. CE marked. Conform to the provisions of EN 61000-6-2 and EN 61000-6-3 Standards. Panel thickness of 52 mm with intervening insulation consisting of mineral wool.

The inspection doors are hung on hinges and are fitted with flush-mounted door handles. The door handles must be opened in two steps to equalise the pressure before the door can be opened completely.

Casing performance

Air leakage, class: L1(M).

Thermal bridges: TB2.

Thermal transmission: T2.

Mechanical strength D3 (M).

Applicable to sizes 004/005 and 008:

Common casing with one inspection door. The handles are lockable.

Space for pleated filters of Filter Class ePM10 60% (M5) or ePM1 50% (F7) is available and can be ordered as an accessory (not included as standard).

Circular duct connections for insertion joints fitted with a rubber seal ring as standard.

The SILVER C SD units can be mounted on base beams, a foundation or on a stand. Prefitted base beams are obtainable as optional equipment; a stand supplied unmounted is available as an accessory.

Applicable to sizes 012:

Composed of one or two sections depending on the variant selected. Possible variants are fan (with space for a filter) or fan (with space for a filter) + coil heat exchanger.

The fan section casing has two inspection doors. The handles are lockable.

Space for a pleated filter of Filter Class ePM10 60% (M5) or ePM1 50% (F7) is available and can be ordered as an accessory.

Circular duct connections for insertion joints fitted with a rubber seal ring as standard.

The unit is equipped with base beams.

Applicable to sizes 014-120:

Composed of one to three sections depending on the variant selected. Possible variants are fan, filter + fan or filter + coil heat exchanger + fan.

The sections for fan and filter have their own inspection door. One of the door handles of the outer inspection door can be locked.

Rectangular duct connections for slip-clamp joint connection as standard.

The unit is equipped with base beams.



Sizes 004/005 and 008



Size 030
Version with coil heat exchanger shown.

Description of the unit

Mechanical design

Fans

The direct-driven fans are of Wing+ type, unique axial-centrifugal fans with the focus on excellent power efficiency, uniform airflow and low noise level. The Wing+ is patented. Functional sections such as air coolers and bends can be connected directly against the air handling unit without appreciable pressure losses. This saves space in the fan room.

The fans are driven by high-efficiency EC motors, which together with a motor control system perform with extremely high efficiency.

The fans are approved for operation in temperatures of up to 40°C.

The fan motors have a motor control system (0-10 V) for variable speed regulation and the fans have measurement tappings for continuous measurement and regulation of the airflow.

The fans are effectively vibration-isolated from the casing by means of rubber bushings/flexible connections or steel-spring anti-vibration mountings/flexible connections.

The fans are fixed in their positions by means of locking knobs/screws and clamping bands. These fasteners can easily be loosened, after which the entire fan assembly can be withdrawn for inspection and maintenance.



Filters

The filter material is glass fibre. The filter holder has a filter locking system designed for effective sealing and complies with the requirements for bypass leakage to Class ePM1 85% (F9). All filters can be selected as ePM10 60% (M5) or ePM1 50% (F7) filters.

The size 014–030 SILVER C RX/PX one-piece units with rotary or counterflow heat exchanger with air intake from above, and the size 004-012 SILVER C RX Top units are equipped with pleated filters.

The separate SILVER C SD supply air and extract air handling units in sizes 004-012 can have pleated filters as an option.

The units in other sizes have bag filters of ample proportions on both the supply air and outdoor air sides.

Pre-filter inside air handling units

As an optional extra, pre-filters can be mounted inside the air handling unit to special order (does not apply to the type RX Top units).

The pre-filter is used in ventilation systems, in which the extract air and/or the outdoor air is heavily polluted and it is desirable to prevent the fine filter inside the SILVER C unit from becoming clogged after a short period of use.

The filters are of woven aluminium type or Class Coarse 65% (G4) compact filters.

Hose nipples for measuring the pressure drop across filters are provided.



Description of the unit

Mechanical design

Heat exchanger

Rotary heat exchanger

RECOeconomic/RECOsorption rotary heat exchanger with a temperature efficiency of up to 85%. The heating load is regulated by automatically and variably regulating the speed of the heat exchanger. Motor control system (0 -10 V) is included.

The rotary heat exchanger effectively recovers cooling energy as well.

It is available in a sorption version (RECOsorption) for moisture recovery, which reduces operating and investment costs for cooling and improves indoor comfort levels in the winter, as well as in an epoxy-treated version.

Purging sector, commissioning plates and pressure measurement tapings as standard, ensure that the extract air will not be carried over to the supply air.

The RECOeconomic/RECOsorption heat exchanger is patented.



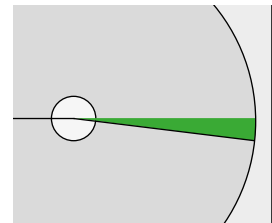
Counterflow heat exchanger

The counterflow heat exchanger is as standard equipped with one centre-mounted bypass damper and two heat exchanger dampers, including mounted damper actuators.

The counterflow heat exchanger is available in two versions: Normal efficiency (MPE, Maximum Pressure Efficiency) and high efficiency (MTE, Maximum Temperature Efficiency) respectively. In the MPE version, the focus is on low pressure drop across the heat exchanger. In the MTE version, priority is given to high temperature efficiency.

Internal leakage between air streams conforms to the provisions of Ductwork leakage class L2.

Controls for section defrosting and temperature sensors can be obtained as an accessory.



Renblåsningssektor



Description of the unit

Mechanical design

Coil heat exchangers

The coil heat exchanger is supplied in empty condition from the factory. Unmounted pipework package is available as accessory.

Description of the unit

Mechanical design

Duct connections

Are for sizes 004/005, 007/008 and 011/012 circular and designed for connection to ducts with nipples fitted with a rubber ring seal. Duct bends fit directly into duct connections. The duct connections are horizontally and vertically offset to enable ducts to be run in any direction without being in the way of one another. The size 004/005, 008 and 012 units are also available in a top-fed variant, the SILVER C RX Top, with all the duct connections upward.

The size 014-120 units have rectangular duct connections with a fixed connection frame for slip-clamp joint connection. Type METU connection frames are available as an accessories.

To further reduce pressure losses, a full face end connection with larger rectangular duct connection is also offered as an accessory (all sizes).

The Wing+ fans of the unit produce a uniform airflow immediately downstream of the outlet, making it possible to connect duct bends and functional sections, such as air coolers, directly against the unit without appreciable pressure losses.

If insulated duct accessories are selected, they should be docked directly against the air handling unit. The air handling unit is then supplied without end connection panel for the relevant inlet/outlet.

Commissioning plates

(Applies to SILVER C with rotary heat exchanger only)

To ensure that purging through the heat exchanger works as intended, the unit is supplied with commissioning plates. Using these, the correct pressure balance can be set so that the purging airflow passes in the right direction.

The commissioning plates are supplied uninstalled, and must be positioned at the extract air inlet of the unit.

Environmental Product Declaration

Swegon AB has a certified environmental management system that conforms to ISO 14001 Standard and is registered on the REPA Register, no. 5560778465.

A Building Material Declaration with a complete list of constituent materials is available on Swegon's home page.



Circular duct connections



*Circular duct connections
SILVER C RX Top*



Rectangular duct connections

Wiring

On the size 004-020 SILVER C RX units, the electrical and control equipment must be wired via the junction hood on the top of the air handling unit.

On all the other variants/sizes, the electrical and control equipment must be wired via the panel on the centre section of the air handling unit.

Use of an earth fault circuit breaker

The earth fault circuit breaker, if required, should only serve the air handling unit and must be of a type designed for use with the control system of the EC motor.

Power supply to junction box

Power supply to junction box (accessory) can be selected for the SILVER C RX 004-120, PX 004-030, CX 035-040 and SD 004-080. Depending on the variant/size selected, the wiring terminals are located on the DIN rail in the air handling unit's junction box or in the electrical equipment cubicle in the center section of the AHU.

Description of the unit

Delivery Version

RX/PX/CX, sizes 004-080

The SILVER C RX/PX/CX units are composed of unit sections.

The unit sections are as follows:

- Fan/filter section
- Heat exchanger section (RX, PX, CX and RX/HC respectively)
- Air recirculation section
- Air bypass section
- Multisection
- Duct crossover section (PX)

The basic arrangement of the SILVER C RX/PX/CX units consists of two fan/filter sections and one heat exchanger section. The other air handling unit sections are optional, see also the section entitled Complements and Accessories.

The unit sections in an air handling unit arrangement can be selected for delivery as separate or already fitted together with one or several other unit sections, however with restrictions specified below:

- The fan/filter section with the fan in the upper section is always supplied already fitted together with another unit section.
- The heat exchanger section, RX and CX, is always supplied already fitted together with another unit section.
- The air recirculation, air bypass, multi and duct crossover sections are always supplied already fitted together with another unit section.
- The max. length of a delivery unit is 3,000 mm.
- An air handling unit arrangement may at most be divided into four delivery units (sizes 004-060).
- An air handling unit arrangement may at most consist of seven unit sections (sizes 004-060).
- The heat exchanger section, PX, is always supplied as one separate unit.

See also Swegon's air handling unit software: AHU Design.

