

# PRODUCT DATA

COMFORT CT150 BY NILAN



Ventilation & passive heat recovery



Domestic



Passive  
heat recovery



Ventilation  
< 175 m<sup>3</sup>/h

# COMFORT CT150

## Product description

Comfort CT150 is an energy-efficient ventilation system with heat recovery. This system is designed for use in residential homes with a ventilation requirement of up to 150 m<sup>3</sup>/h. Comfort CT150 is ideal for new and refurbished flats, terraced housing and holiday cottages, where there is limited space and a focus on maintaining an optimal indoor climate. If you wish to save on the cost of ducting and reduce heat and pressure loss in the duct system, Comfort CT150 is ideal used as a decentralised system, for example, if you fit two systems into one large residential housing unit.

Comfort CT150 is supplied as standard with G4 filters, a counterflow heat exchanger in either polystyrene or aluminium (both high-efficiency solutions), a fully automatic bypass damper, a CTS 602 control unit and efficient EC fans. The fan rotation is constant and can be adjusted in four steps. You can opt for a system with a display or a stepwise adjustable control panel. The system has an integrated automatic defrosting feature and filter change indicator (filter change indicator only available with display).

## Standard unit

Comfort CT150 includes the following as standard:

- G4 filters
- Fully automatic 100 % bypass damper
- Constant volume EC fans
- Polystyrene or aluminium counterflow heat exchanger
- Humidity sensor
- Filter monitor with timer (only available with display)
- Fitting brackets: Universal set including wall and ceiling brackets
- CTS 602 control system with either display or stepwise adjustable control panel

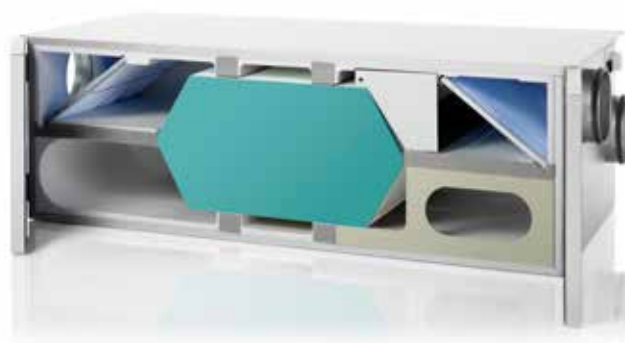
## Accessories

Comfort CT150 can be ordered with the following accessories:

- Water heating element with adjustment valve and frost protection (duct-mounted) \*1
- Electrical heating element (duct-mounted)
- Electrical pre-heating element (duct-mounted)
- Options PCB for CTS 602 control unit
- Plate filter (G4)
- Pollen filter (F7)
- Duct filter G4, initial filter for F7
- Water trap with odour lock and vacuum valve

The above electrical accessories can be connected to the CTS 602 control.

\* 1 Download of relevant software is required to control heating element



Comfort CT150 is serviced from the front. Filters are easily replaced by opening the top of the front of the unit using two thumbscrews.

Condensate which may form in the heat exchanger is transported away via the condensation drain. The drain must be fitted with water trap and frost protection if the system is installed in a cold place outside the building envelope of the home.

Comfort CT150 is supplied tested and ready for use. Installation and commissioning must be carried out by a certified electrician or plumber.

## Technical specifications

Dimensions (BxDxH)	1,000 × 524 × 333 mm
Weight (*1)	28/30 kg
Plate type housing	Aluzinc steel plate, white powder coating, RAL9016
Heat exchanger type	Counterflow heat exchanger, polystyrene or aluminium
Fan type	EC, constant volume
Filter class	Standard G4
Duct connections	Ø 125 mm
Condensation drain	PVC, Ø 20 × 1.5 mm
External leakage (*2)	<1.38 %
Internal leakage (*3)	<1.82 %
Supply voltage	230 V (+10 %), 50/60 HZ
Max. input/power (*4)	54 W/0.25 A
Tightness class	IP31
Standby power	3 W
Power consumption (*4 & 5)	195 kWh/year
Ambient temperature	-20/+40 °C

\* 1 Weighs 30 kg with aluminium heat exchanger

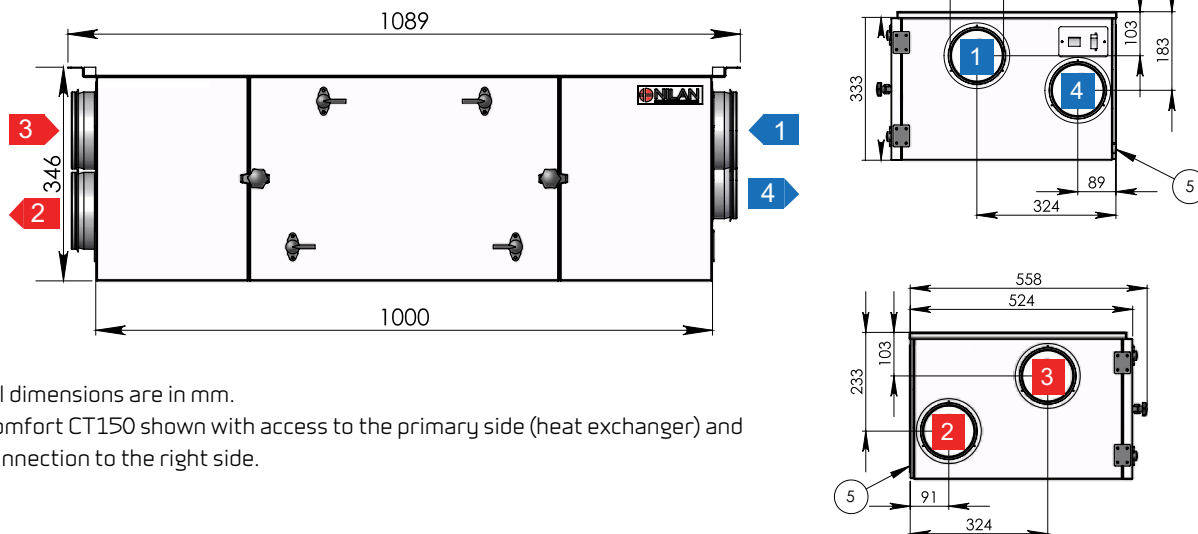
\* 2 At ± 250 Pa and 126 m<sup>3</sup>/h in compliance with EN308/EN13141-7.

\* 3 At ± 100 Pa and 126 m<sup>3</sup>/h in compliance with EN308/EN13141-7.

\* 4 Power uptake with heating element (optional extra).

\* 5 Electricity consumption on continuous operation for system with SEL value of 800 J/m<sup>3</sup> and 100 m<sup>3</sup>/h.

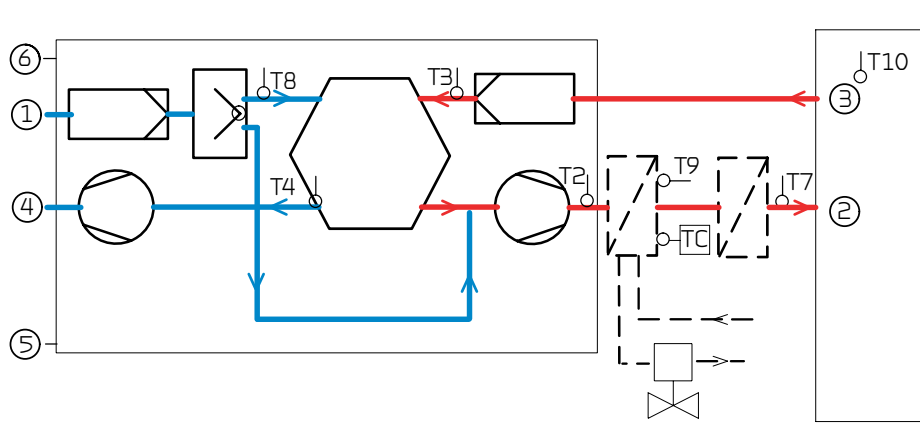
## Dimensional drawing



All dimensions are in mm.

Comfort CT150 shown with access to the primary side (heat exchanger) and connection to the right side.

## Functional diagram



### Connections

- 1: Fresh air
- 2: Supply air
- 3: Extract air
- 4: Discharge air
- 5: Condensate drain
- 6: Electrical connection

### Automation

- T2/T7: Supply air sensor
- T3: Extract air sensor
- T4: Discharge air and defrost sensor
- T8: Fresh air sensor
- T9: Heating element (frost protection)
- T10: Room sensor

## Control units

Comfort CT150 is controlled using the CTS 602 control unit which can be controlled via a display or via a stepwise adjustable control panel.

The display panel offers a wide range of different functions, including menu-controlled operation, weekly program settings, timer-controlled filter flow meter, fan speed adjustment, summer bypass (free cooling), heat element control, error messages, etc.

The stepwise-adjustable control panel facilitates adjustment of fan speed at four different levels.

The control panel is factory set. The factory settings are basic settings, which can be customised to match operational requirements and thus achieve optimal operation and utilisation of the system.

The control panel must be placed in a dry and frost-free place at least 1.5 m above floor level and at least 0.5 m from any corner. Avoid placing the panel on an external wall or in direct sunlight.

Operating instructions for CTS 602 using either a display or stepwise adjustable control panel can be found in a separate user manual supplied with the unit.



# PLANNING DATA

## Capacity

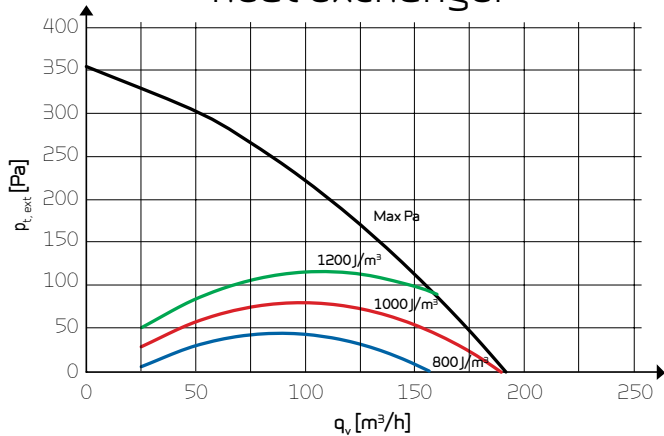
Maximum Pa capacity of standard system,  $p_{t,ext}$  as a function of  $q_v$

SFP values according to EN13141-7 are for a standard system with G4 filters and no heating element.

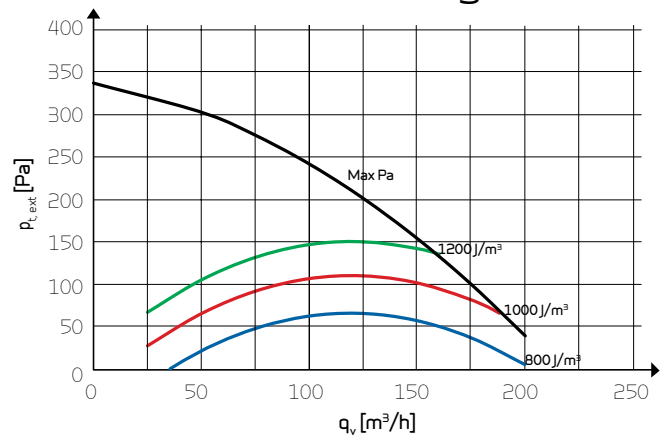
SFP values comprise the unit's total power consumption incl. control.

Conversion factor:  $J/m^3 = 3600 \times Wh/m^3 = 3600 \times W/m^3/h$ .

Polystyrene counterflow heat exchanger



Aluminium counterflow heat exchanger



## Temperature efficiency

Temperature efficiency for system with counterflow exchanger according to EN 308 and EN13141-7 for supply air.

Temperature efficiency EN 308

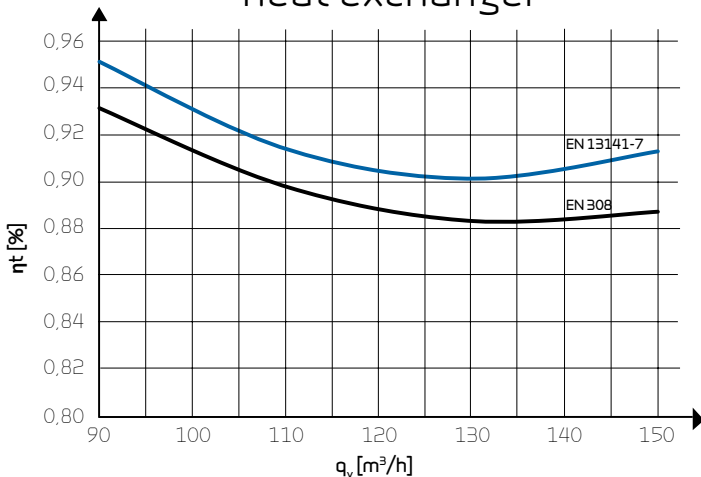
$$\eta_t = (t_{\text{supply air}} - t_{\text{fresh air}}) / (t_{\text{extract air}} - t_{\text{fresh air}}) \text{ corrected for fan heat}$$

Temperature efficiency EN13141-7 supply air (fresh air 7 °C)

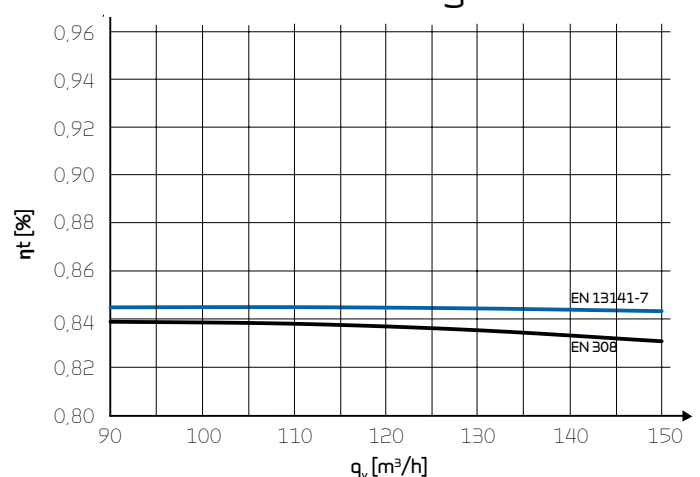
$$\eta_t = (t_{\text{supply air}} - t_{\text{fresh air}}) / (t_{\text{extract air}} - t_{\text{fresh air}}) * (q_{m \text{ supply air}} / q_{m \text{ extract air}})$$

$q_m$  is the volume air flow.

Polystyrene counterflow heat exchanger



Aluminium counterflow heat exchanger



## Sound data

Sound data for Comfort CT150 is currently being tested and accredited. Validated data will be available at the end of 2013.

## Capacity - Heating elements (accessories)



### Electric pre-heating element

The electric heating element is installed on the fresh air duct at a distance of min. 2 x duct diameter from the system's supply air pipe (usually min. 250 mm) and connected to a 230 V supply. The electric pre-heating element can produce up to 1.8 kW of heat.



### Electric heating element

The electrical heating surface is fitted in the air inlet duct at a distance of min. 2 x duct diameter from the system's fresh air inlet connecting pipe (normally min. 250 mm) and connected to the CTS 602 control panel and 230 V supply. The electrical heating surface can supply up to 0.9 kW of heat.



### Water heating element

The water heating element is installed in the supply air duct and must be connected to the primary heat supply. Capacities can be seen in the table below.

### Capacity water heating element

Water side				Air side		
Temperature forward/back [°C]	Flow [m³/h]	Pressure drop [kPa]	Output [kW]	Flow [m³/h]	Temperature after WHE* [°C]	Pressure loss over element* [Pa]
40/30	0.04	0.85	0.52	100	31.1	2
	0.06	1.25	0.64	135	29.8	3
60/40	0.04	0.69	0.94	100	43.5	2
	0.05	1.00	1.16	135	41.1	3
70/40	0.03	0.40	1.06	100	47.0	2
	0.04	0.58	1.30	135	44.2	3

\* Water heating element.

# ACCESSORIES



## Water heating element incl. regulation

The supply air temperature can always be raised to the required level using a water heating element. The water heating element is designed to be installed next to the supply air pipe and must be connected to the primary heating supply. Supplied with two-way regulation valve, temperature sensor and frost thermostat.



## Electrical heating surface incl. regulation

The supply air temperature can always be raised to the required level using an electric heating surface. The electric heating surface is supplied for installation in the duct set at the fresh air pipe and has the required sensors already fitted to allow easy installation.



## Electric pre-heating element with independent control unit

With an electric pre-heating element, the supply air temperature can be increased to reduce the need for defrosting. The electric pre-heating element is supplied for installation in the duct set next to the fresh air pipe.



## EM-box

An EM-box allows heat recovery from the air from the range hood and thereby helps to heat the supply air. The EM-box is equipped with a special filter which efficiently cleans the range hood air of fat particles and thereby protects the system.



## Expansion printed circuit board

With an expansion printed circuit board, the features of the CTS 602 control unit are expanded to include control of an EM box for heat recovery on the extractor.



## G4 filter

If you choose not to fit a pollen filter, you can fit a G4 filter to the system instead. The filter filters fresh/extract air.



## F7 pollen filter

A filter cassette for an F7 pollen filter can be fitted in the system .



## G4 duct filter

An Ø125 duct filter can be mounted in the fresh air and extract air ducts if the unit is also fitted with a pollen filter. The filter filters fresh/extract air.



## Water trap

The water trap ensures that condensate flows freely from the unit.

# DELIVERY AND HANDLING

COMFORT CT150 BY NILAN

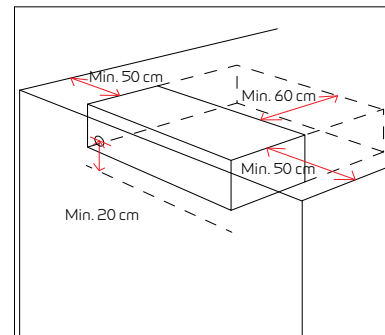
## Transport and storage

Comfort CT300 comes in factory packaging that protects it during transport and storage. Comfort CT300 must be stored in a dry place in its original packaging until installation. The packaging should only be removed immediately prior to installation.

## Installation - from the ceiling

When installing the system from the ceiling, future service and maintenance should be taken into account. We recommend a minimum gap in front of the system of 60 cm and 50 cm to both sides.

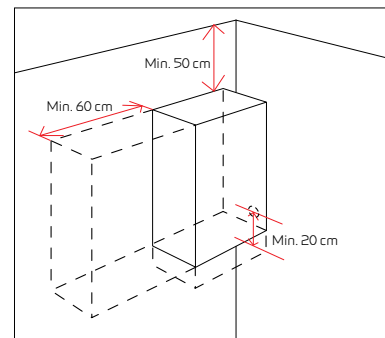
The unit must be installed level for the sake of the condensate drain. The condensate drain requires clearance of min. 20 cm under the drain nozzle.



## Installation - on the wall

When mounting the system on a wall, future service and maintenance should be taken into account. We recommend a minimum gap in front of the system of 60 cm and 50 cm to both sides.

The unit must be installed level for the sake of the condensate drain. The condensate drain requires clearance of min. 20 cm under the drain nozzle.



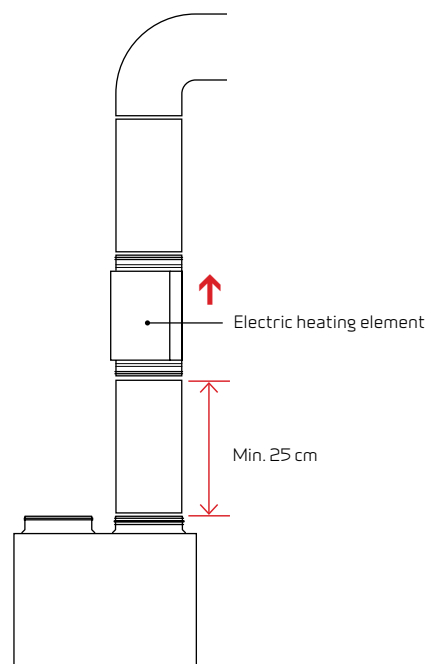
## Installation of electric heating elements

The electric heating element (accessory) is installed after Comfort CT300 in the supply air duct itself and the electric pre-heating element (accessory) in the fresh air duct.

A safety distance of a minimum of 15 cm must be observed between the electric heating element and any flammable material. The heating element must be insulated with fire-proof insulation material. The connection box should not be insulated.

The distance before and after the electric heating element to another component must be at least twice the duct diameter.

The electric heating element must be connected by a certified electrician or plumber.



# INFORMATION FROM A TO Z

Nilan develops and manufactures premium-quality, energy-saving ventilation and heat pump solutions that provide a healthy indoor climate and low-level energy consumption with the greatest consideration for the environment. In order to facilitate each step in the construction process - from choosing the solution through to planning, installation and maintenance - we have created a series of information material which is available for download at [www.nilan.dk](http://www.nilan.dk).



## Brochure

General information about the solution and its benefits.



## Product data

Technical information to ensure correct choice of solution.



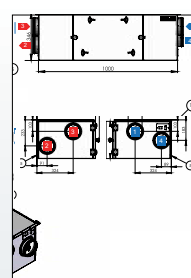
## Installation instructions

Detailed guide for installation and initial adjustment of the solution.



## User manual

Detailed guide for regulation of the solution to ensure optimum day-to-day operation.



## Drawing material

Nilan is happy to make 2D CAD drawings available for planning with the solution.

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Visit us at [www.nilan.dk](http://www.nilan.dk) to find out more about our company and solutions, download further information and find your nearest dealer.



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