

# PRODUCT DATA

COMFORTCT150 / CT200 BY NILAN



Horsham, West Sussex  
01403 563045



## Ventilation & passive heat recovery



Domestic



Passive  
heat recovery



Ventilation  
<200 m<sup>3</sup>/h

# COMFORT CT150 / CT200

## Product description

Comfort CT150 / CT200 is an energy-efficient ventilation system with heat recovery for homes with a ventilation requirement of up to 200 m<sup>3</sup>/h. Comfort CT150 / CT200 is particularly suitable for newly-built or renovated flats, terraced house and summer cottages where the space is limited.

Comfort CT150 / CT200 is designed for vertical or horizontal mounting, which ensures flexible installation.

Comfort CT150 / CT200 is factory tested and ready for use. Installation and commissioning must be performed by an authorized electrician.



## Flexible unit

Comfort CT150 / CT200 can be fitted horizontally, vertically and at an angle, which means that it is flexible and can be used in many different applications.



## Project model

Comfort CT150 / CT200 is also available as a project model with CTS602 control.

A project model has all connections on the side of the unit. It saves time on installation and there is no need for an electrician to connect external components as for instance a cooker hood, heating elements and valves.

Comfort CT150 / CT200 offers a choice of control units:

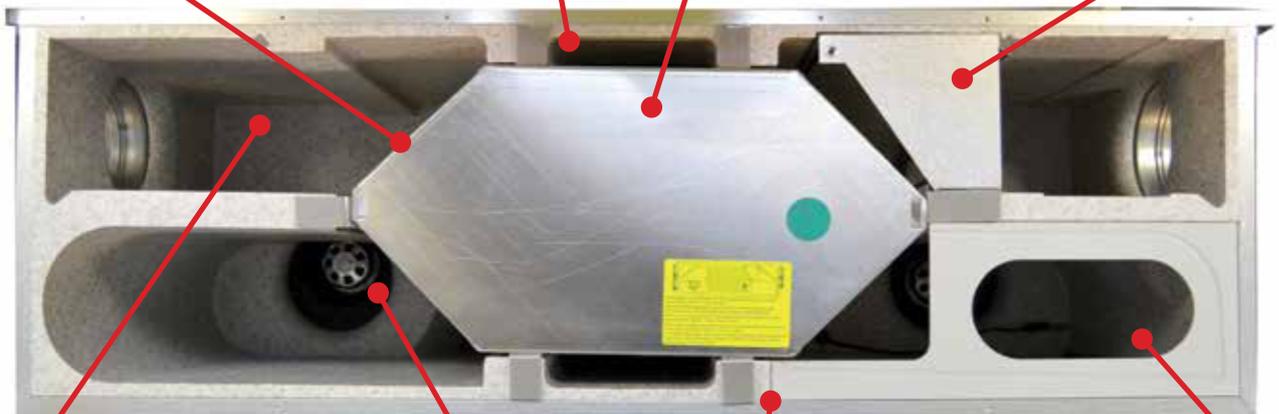
CTS150 – a control unit with a simple control panel and few functions.

CTS602 – an advanced control unit with a very user-friendly HMI touch panel.

Efficient counterflow heat exchanger providing high temperature efficiency and low pressure loss, resulting in good heat recovery and low energy consumption.

With built-in humidity control system for ventilation on demand. Low speed ventilation at low humidity levels and high speed ventilation at high humidity levels (e.g. a bath).

The automatic 100% bypass damper makes the outdoor air bypass the heat exchanger when heat recovery is not required, thereby saving energy.



Time-controlled filter change alarm.  
Easy filter replacement: to open front panels, loosen finger screws. There is plenty of space to replace filters and vacuum the filter space.

Visual alarm for filter change.

Chamber fan with B-wheel runs on energy-saving EC motors.

Stepless regulation at four different levels.

Flexible condensate drain design means that the system can be fitted horizontally, vertically or at an angle.

Comfort CT150 / CT200 is built of an aluminum housing with an EPS hub. The EPS material is easy to shape so that air is led smoothly through the system, and therefore consumes as little energy as possible.

# TECHNICAL DATA

## Comfort CT150

Dimensions (WxD xH) (*1)	1040 × 535 × 338 mm
Weight	30 kg
Plate type casing	Aluzinc steel plate
Heat exchangertype	Polyethylenterephthalat counter flow heat exchanger with aluminium casing
Fan type	EC, constant rotation
Filter class	ISO Coarse >90% (G4)
Duct connections	Ø 125 mm
Condensate drain	PVC, Ø 20×1.5 mm
Leakage classification(*2)	A1

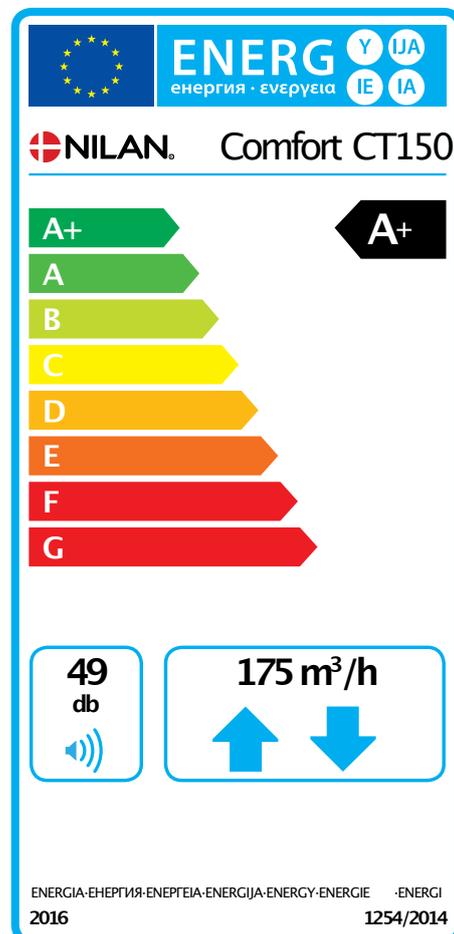
SEC* average climate	-42.7 kWh/(m <sup>2</sup> .a)
SEC* cold climate	-82.1 kWh/(m <sup>2</sup> .a)
SEC* warm climate	-17.5 kWh/(m <sup>2</sup> .a)
SEC-Class	A+
Type	Two-way ventilation unit for residential
Type of drive	Variable speed drive
Type of heat recovery system	Recuperative (counterflow heat exchanger)
Thermal efficiency of heat recovery	91,9%
Maximum flow rate	175 m <sup>3</sup> /h (100 Pa)
Electric power input of fan drive, including any motor control equipment, at maximum flow rate	55.7 W
Sound power level L <sub>WA</sub>	49 dB(A)
Reference flow rate	0.034 m <sup>3</sup> /s (122.5 m <sup>3</sup> /h)
Reference pressure difference	50 Pa
SPI	0.163 W/(m <sup>3</sup> /h)
Central demand control	0.85
Maximum internal leakage	0.19%
Maximum external leakage	0.35%
Visual filter warning	An alarm on the user panel appears when filters need changing.  To maintain the performance and energy efficiency of the unit it is very important to change filters regularly.
Disassembly instructions	www.nilan.dk

Supply voltage	230 V (±10%), 50/60 HZ
Max. input/power	70 W/0.7 A
Tightness class	IP31
Standby power	3,4 W
Ambient temperature	-20/+40 °C
Heat loss (*3)	0.96 W/m <sup>2</sup> K
Heat loss classification	T2

- \*1 338 mm with wall mounting
- \*2 Testet according to EN13141-7
- \*3 Testet according to EN1886

AEC-annualelectricity consumption	192 kWh/year (100 m <sup>2</sup> )
AHS** average climate	4681 kWh (100 m <sup>2</sup> )
AHS** cold climate	9157 kWh (100 m <sup>2</sup> )
AHS** warm climate	2117 kWh (100 m <sup>2</sup> )

\*\* Annual heating saved



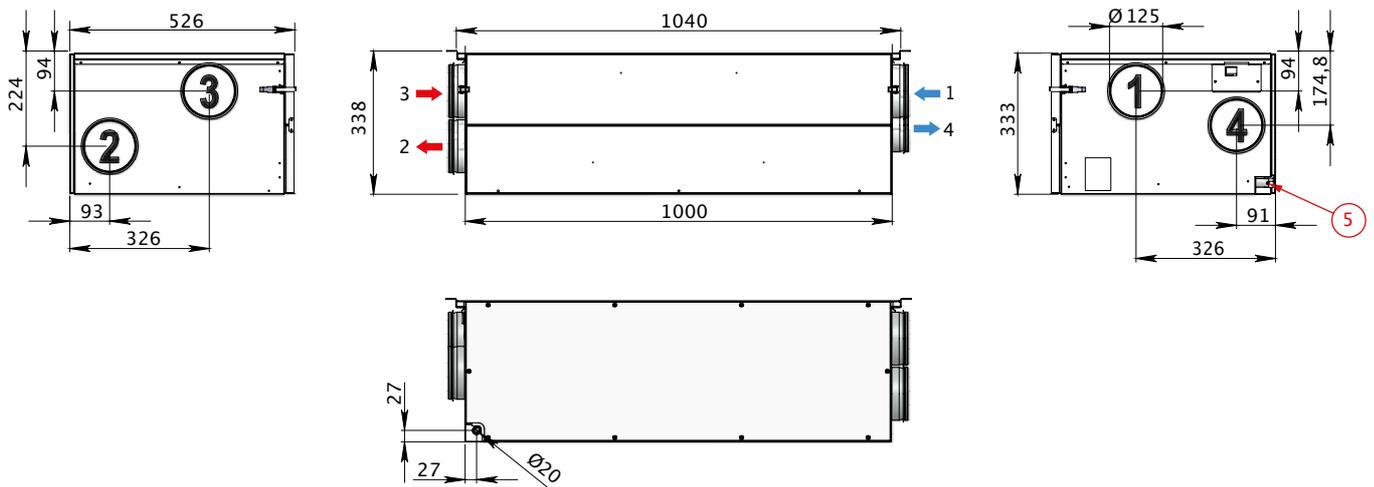
\* Specific energy consumption

## Dimensional drawing

All dimensions are in mm.

Comfort CT150 shown with inlet to the primary side (exchanger) and connection towards the left.

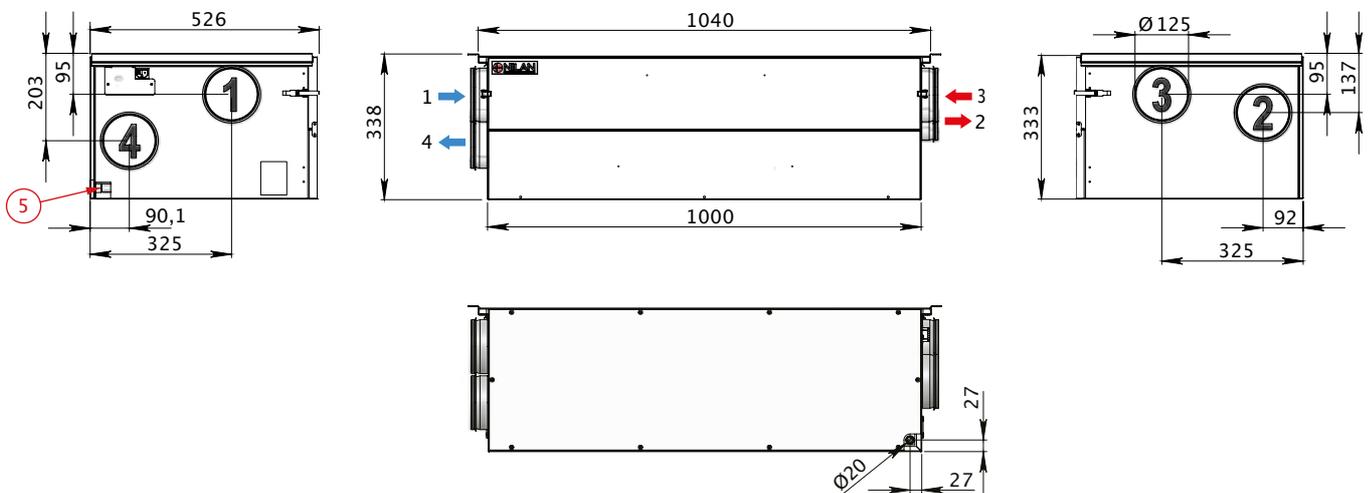
Left version:



### Connections

- 1: Fresh air
- 2: Supply air
- 3: Extract air
- 4: Discharge air
- 5: Condensation drain

Right version:



# PLANNING DATA

## Capacity

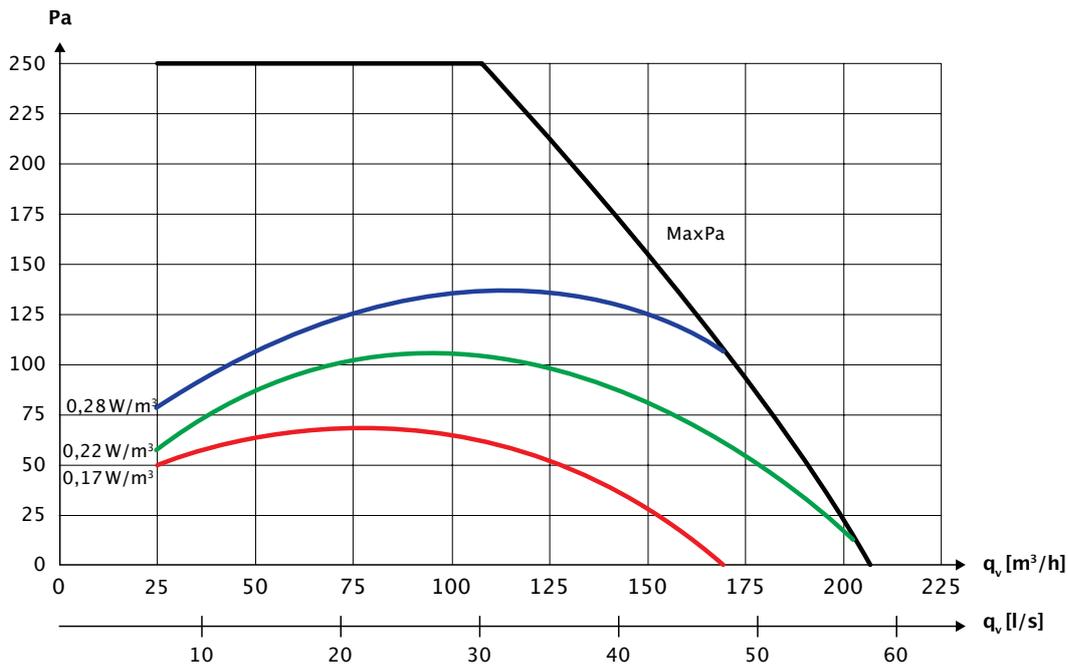
Capacity of standard unit as a function of  $q_v$  and  $P_{t,ext}$ .

SEL values according to EN 13141-7 are for standard units with ISO Coarse >90% (G4) filters and without heating element.

SEL values comprise the unit's total power consumption excl. control.

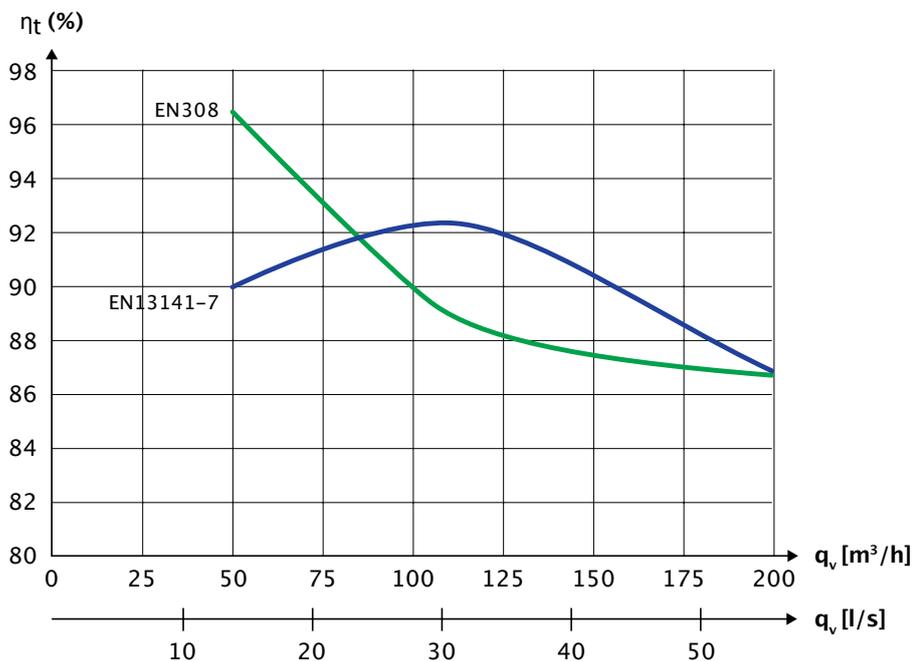
Tested according to EN 13141-7

**Attention! The SEL values are measured and stated as a total value for both fans.**



## Temperature efficiency

Temperature efficiency for units with counterflow heat exchanger according to EN308 and EN13141,7 (dry).



## Sound data

Sound data for  $q_v = 126 \text{ m}^3/\text{h}$  and  $P_{t,\text{ext}} = 75 \text{ Pa}$  according to EN 9614-2 for surfaces and EN 5136 for ducts.

Sound output level  $L_{\text{WA}}$  drops with falling air volume and falling back pressure.

Sound pressure level  $L_{\text{pA}}$  in a semi-hemisphere at a distance of 1 m from the system.

### Sound output level ( $L_{\text{WA}}$ )

Octave band Hz	Surface dB(A)	Supply air dB(A)	Extract air dB(A)
63		55	36
125		38	35
250		46	38
500		51	26
1.000		48	32
2.000		39	26
4.000		33	14
8.000		21	23
Total $\pm 2\text{dB(A)}$	46,2	57,5	42,1
$L_{\text{pA}}$	38		

## Sound data

Sound data for  $q_v = 175 \text{ m}^3/\text{h}$  and  $P_{t,\text{ext}} = 75 \text{ Pa}$  according to EN 9614-2 for surfaces and EN 5136 for ducts.

Sound output level  $L_{\text{WA}}$  drops with falling air volume and falling back pressure.

Sound pressure level  $L_{\text{pA}}$  in a semi-hemisphere at a distance of 1 m from the system.

### Sound output level ( $L_{\text{WA}}$ )

Octave band Hz	Surface dB(A)	Supply air dB(A)	Extract air dB(A)
63		40	34
125		53	38
250		60	53
500		65	56
1.000		60	45
2.000		60	40
4.000		63	39
8.000		51	11
Total $\pm 2\text{dB(A)}$	51,6	69,3	58
$L_{\text{pA}}$	44		

# TECHNICAL DATA

## Comfort CT200

Dimensions (W xD xH) (*1)	1040 × 535 × 338 mm
Weight	30 kg
Plate type casing	Aluzinc steel plate
Heat exchangertype	Polyethylenterephthalat counter flow heat exchanger with aluminium casing
Fan type	EC, constant rotation
Filter class	ISO Coarse >90% (G4)
Duct connections	Ø 125 mm
Condensate drain	PVC, Ø 20×1.5 mm
Leakage classification(*2)	A1

SEC* average climate	-41.5 kWh/(m <sup>2</sup> .a)
SEC* cold climate	-80.7 kWh/(m <sup>2</sup> .a)
SEC* warm climate	-16.4 kWh/(m <sup>2</sup> .a)
SEC-Class	A
Type	Two-way ventilation unit for residential
Type of drive	Variable speed drive
Type of heat recovery system	Recuperative (counterflow heat exchanger)
Thermal efficiency of heat recovery	91,3 %
Maximum flow rate	200 m <sup>3</sup> /h (100 Pa)
Electric power input of fan drive, including any motor control equipment, at maximum flow rate	70 W
Sound power level L <sub>WA</sub>	49 dB(A)
Reference flow rate	0.039 m <sup>3</sup> /s (140 m <sup>3</sup> /h)
Reference pressure difference	50 Pa
SPI	0.209 W/(m <sup>3</sup> /h)
Central demand control	0.85
Maximum internal leakage	0.19 %
Maximum external leakage	0.35 %
Visual filter warning	An alarm on the user panel appears when filters need changing.  To maintain the performance and energy efficiency of the unit it is very important to change filters regularly.
Disassembly instructions	www.nilan.dk

Supply voltage	230 V (±10%), 50/60 HZ
Max. input/power	70 W/0.7 A
Tightness class	IP31
Standby power	3,4 W
Ambient temperature	-20/+40 °C
Heat loss (*3)	0.96 W/m <sup>2</sup> K
Heat loss classification	T2

- \*1 338 mm with wall mounting
- \*2 Testet according to EN13141-7
- \*3 Testet according to EN1886

AEC-annualelectricity consumption	235 kWh/year (100 m <sup>2</sup> )
AHS** average climate	4665 kWh (100 m <sup>2</sup> )
AHS** cold climate	9126 kWh (100 m <sup>2</sup> )
AHS** warm climate	2109 kWh (100 m <sup>2</sup> )

\*\* Annual heating saved

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**Comfort CT200**

**49**  
db

**200 m<sup>3</sup>/h**

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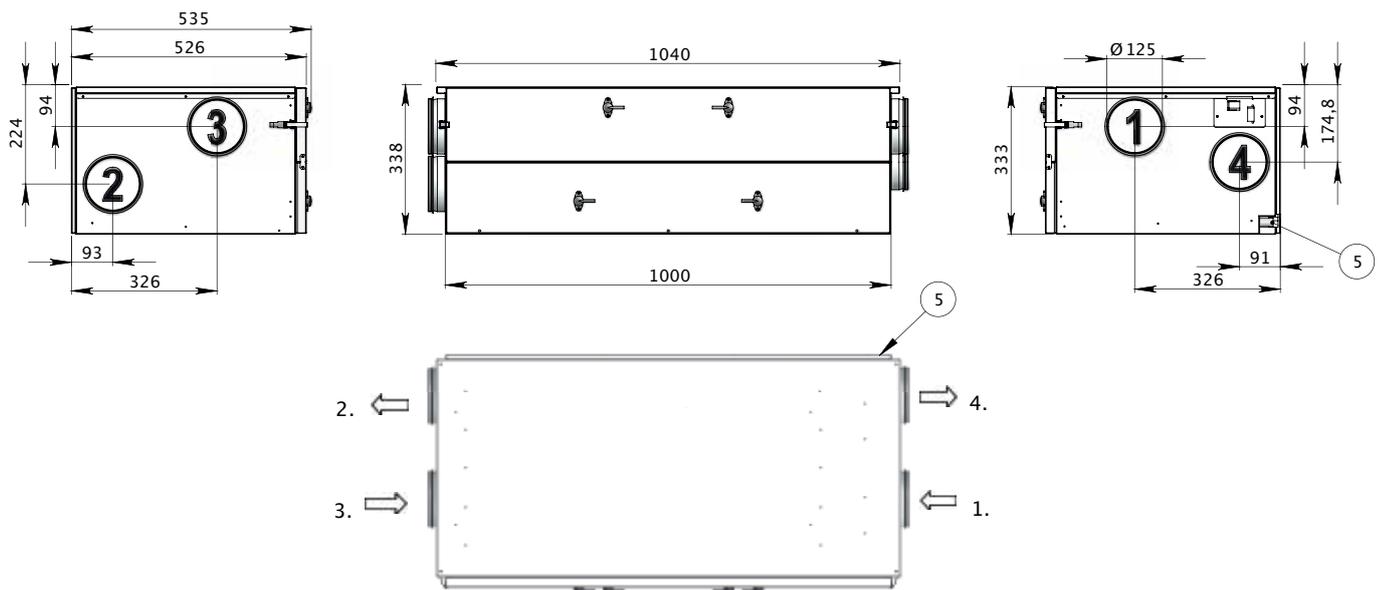
\* Specific energy consumption

## Dimensional drawing

All dimensions are in mm.

Comfort CT200 shown with inlet to the primary side (exchanger) and connection towards the left.

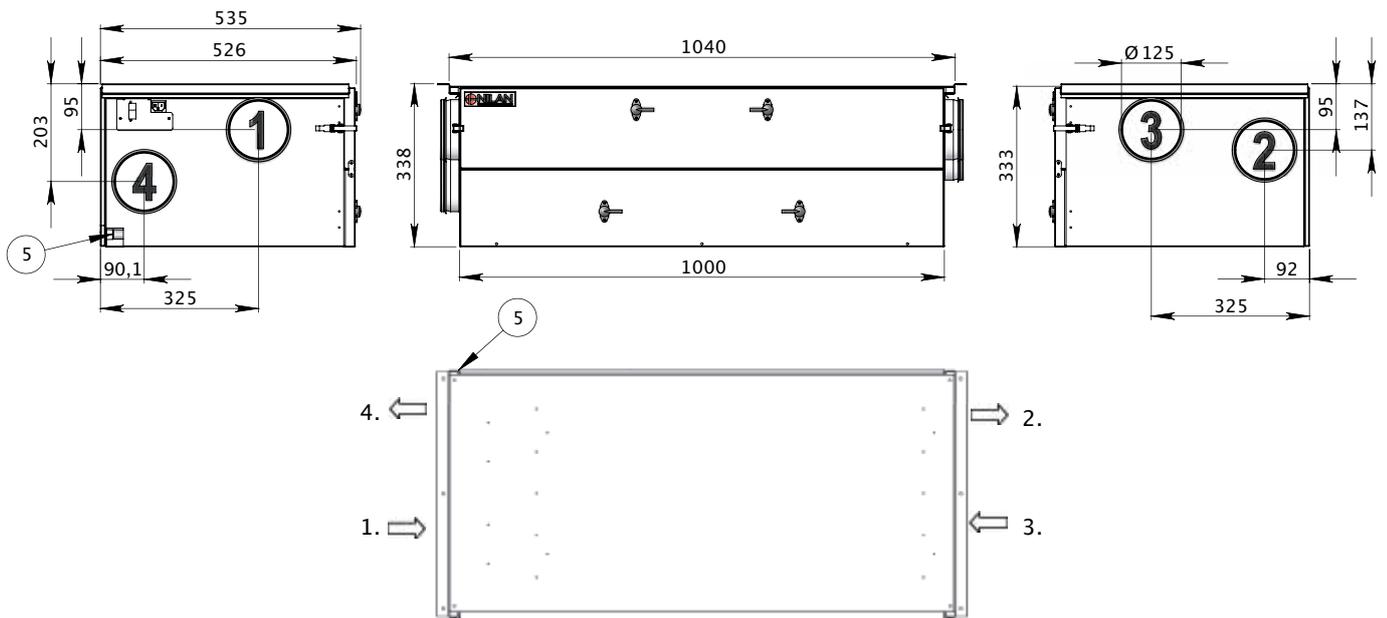
Left version:



### Connections

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- 5: Condensation drain

Right version:



# PLANNING DATA

## Capacity

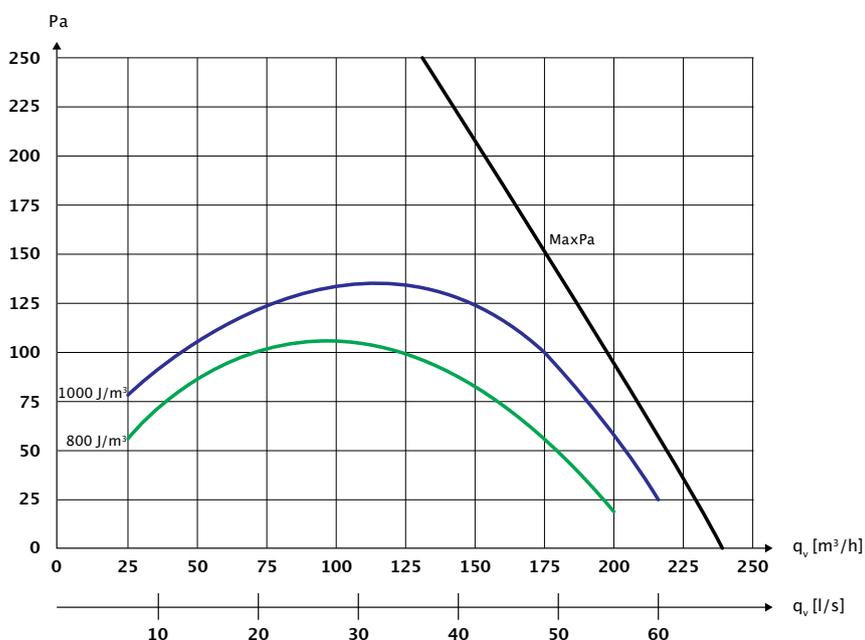
Capacity of standard unit as a function of  $q_v$  and  $P_{t,ext}$ .

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SEL values comprise the unit's total power consumption excl. control.

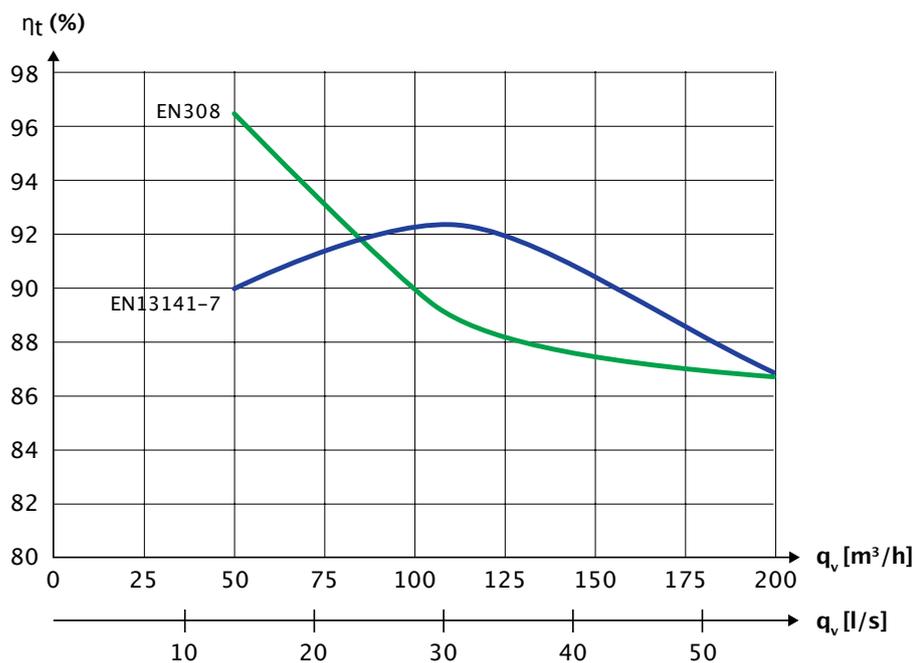
Tested according to EN 13141-7

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## Temperature efficiency

Temperature efficiency for units with counterflow heat exchanger according to EN308 and EN13141,7 (dry).



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# OPERATION

## Intelligent humidity control

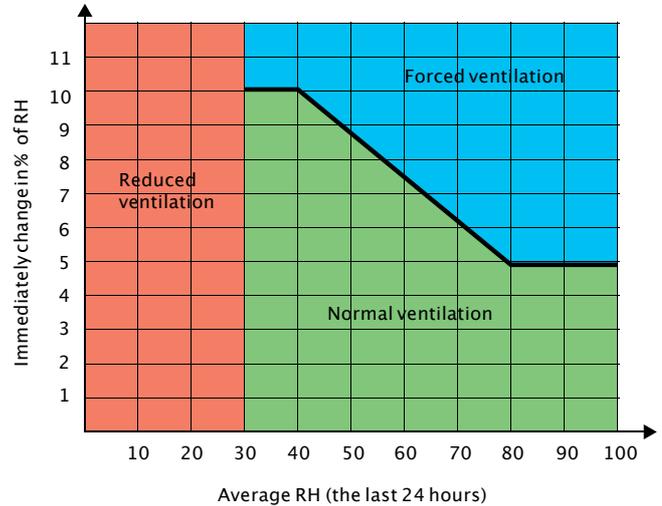
Nilan's humidity control automatically adapts to the needs of inhabitants or the building itself.

The intelligent CTS602 control unit does not require a set air humidity level (RH) to manage the air exchange. Using the integrated humidity sensor, the control unit calculates the average humidity over the past 24 hours and regulates the air flow accordingly.

Consequently the unit's efficiency is based on actual instead of theoretical air humidity levels.

Automatically adapting to air volume requirements saves energy as the number of persons in a home is relevant as to how much humidity is produced.

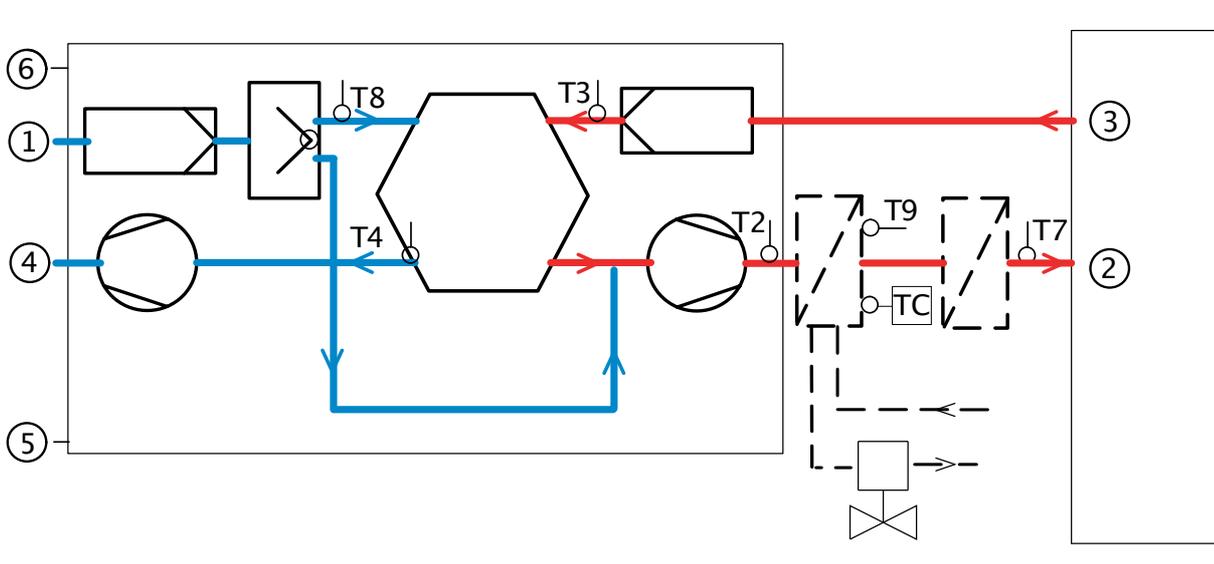
The unit also adjusts automatically to summer and winter levels.



If the air humidity changes by more than 5–10% in relation to the average level, the unit responds with a higher rate of air exchange accordingly.

When air humidity falls below 30%, ventilation scales back automatically. The percentage is adjustable from 15–45%.

## Functional diagram



### Automation

- T2/T7: Supply air sensor
- T9: Heating element
- T3: Extract air sensor
- T4: Discharge air and defrost sensor
- T8: Fresh air sensor

### Connections

- 1: Fresh air
- 2: Supply air
- 3: Extract air
- 4: Discharge air
- 5: Condensate drain
- 6: Electric and water heating

## Capacity – Heating element (accessory CTS602)

When connecting a heating element, a Comfort CT150 /CT200 must be ordered as a project model. A project model has all connections on the side of the unit.



### Electrical heating surface

The electrical heating surface is fitted in the supply air duct at a distance of min. 2 x duct diameter from the system's fresh air connection 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 0,6 kW of heat.



### Water heating element for duct fitting

The water heating element is designed to be built into the duct and must be connected to the primary heating supply and the CTS 602 control. The water heating element includes copper pipes and aluminium fins.

Capacities can be seen in the table below.

### Capacity water heating element

Temperature input/output [°C]	Water side			Air side			
	Flow [m³/h]	Pressure drop [kPa]	Output [kW]	Flow [m³/h]	Temperature before WHE* [°C]	Temperature after WHE* [°C]	Pressure drop over WHE* [Pa]
40/30	0,04	0,85	0,52	100	16	31,1	2
	0,06	1,25	0,64	135	16	29,8	3
60/40	0,04	0,69	0,94	100	16	43,5	2
	0,05	1,00	1,16	135	16	41,1	3
70/40	0,03	0,40	1,06	100	16	47,0	2
	0,04	0,58	1,30	135	16	44,2	3

\*Water heating element.

# AUTOMATION CTS150

## CTS150 Control



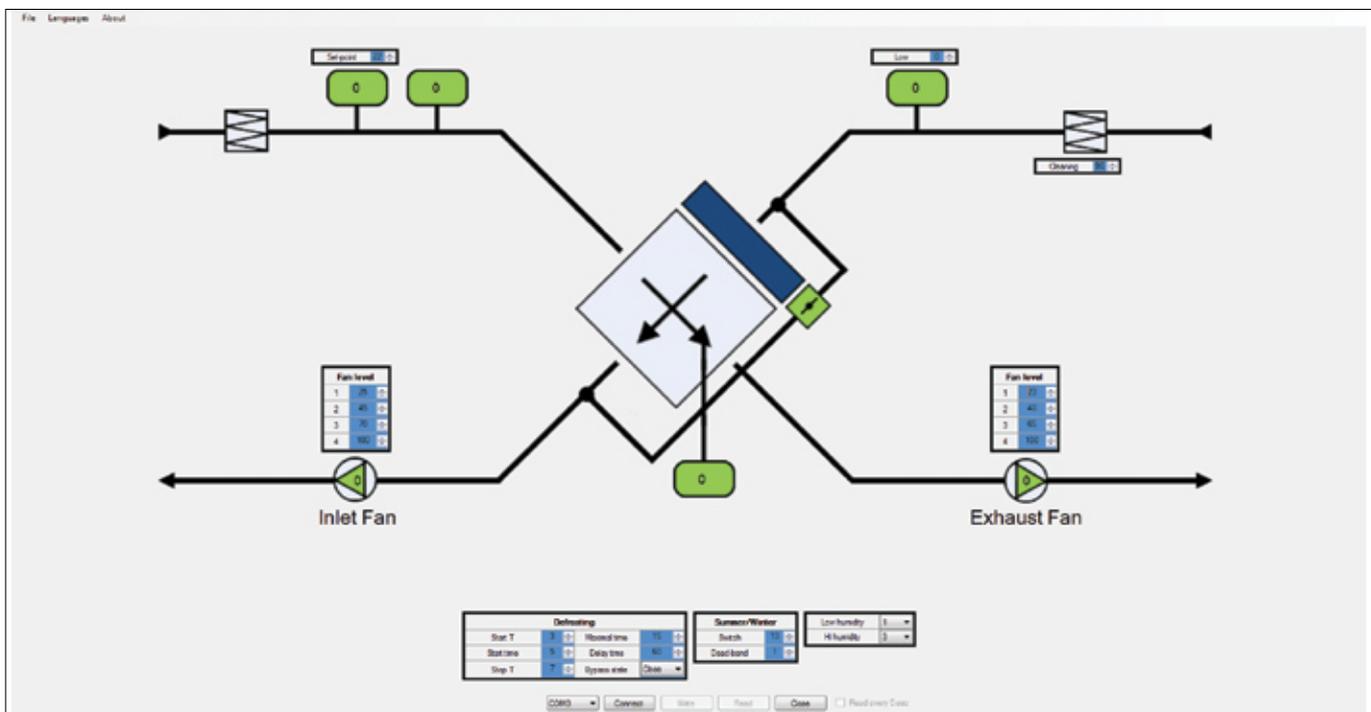
The CTS150 control unit is a simple control unit used to control the CT150 / CT200 system. It offers the user only limited access to settings.

Users can adjust the air volume and humidity levels.

The control unit also shows whether the system is working and when an alarm is triggered.

To set and regulate the system, it has to be connected to a PC via a USB flash drive. Download the software from NilanNet and install. The software can be used not only to set the system, but also to read operating data.

Functional overview		+Standard -Accessories
Filter monitor	Filter monitor with timer (factory default setting is 90 days). Adjustable to 30/90/180/360 days.	+
100% bypass	Bypassing the outdoor air reduces heat recovery when heat recovery are not required.	+
Humidity control	Allows you to set a higher or lower ventilation step in the case of high/low air humidity.	+
Summer/Winter operation	Possible to set operation for summer and winter.	+
Winter low	Allows you to select a low ventilation step in the case of low outside temperatures.	+
Defrost function	Temperature-based automatic function for defrosting the heat exchanger.	+
Temperature control	The system's overriding temperature sensor is T3 extract air.	+
Air volume	Allows you to set four ventilation steps stepless. Supply air and extract air are set individually. Step 1 <25% - Step 2 <45% - Step 3 <70% - Step 4 <100%	+
User option	It is also possible to activate user selection mode (Step 4) via a potential-free contact.	-



Software screen shot of the CTS150 automatic control and good overview on system settings.



## Electrical pre-heating element (Frost protection)

To prevent the highly efficient counterflow heat exchanger from freezing, we recommend that you fit an electrical pre-heating element. The element consumes very little energy but improves heat recovery. The net result is more cost-efficient operation. See page 18.



## User selection/Range hood solution

It is also possible to activate user selection mode (Step 4) via a potential-free contact. The set includes a cable with two RJ12 connectors. Connect the connector at the unit and connect the control panel and the 10 m of cable, for example, to a range hood, and the two-connection box.

## User selection/range hood-dampersolution

It is also possible to activate user selection mode (Step 4) via a potential-free contact. The set includes an RJ11 cable, a connection box for the range hood, damper connections as well as a 230V main supply plug.



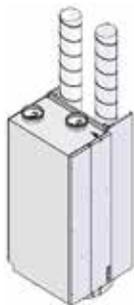
## Pollen filter ISO ePM1 50-65% (F7)

Comfort CT150 / CT200 are as standard with ISO Coarse >90% (G4) filter delivered. If there are someone in the housing which suffers of pollen allergy, it is possible to order a ISO ePM1 50-65% (F7) pollen filter to minimize the amount of Pollen in the supply-air.



## Water trap

To prevent "false" air being sucked into the system via the condensate drain, the system must be fitted with a water trap. While there is water in the condensate drain, the water trap works well. However, during the summer months when there is no condensation of extract air, the water trap will dry out (and therefore cease to prevent "false" air intake). A Nilan water trap with ball prevents "false" air flow all year round.

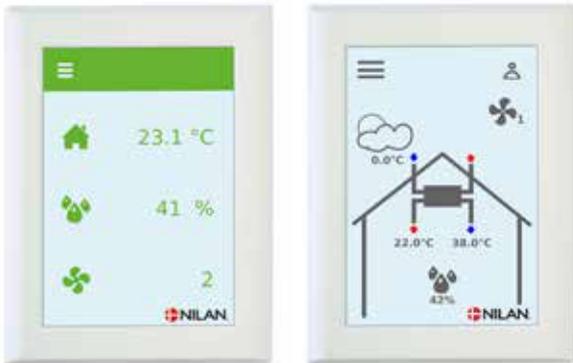


## Spacing bracket, vertical installation

For vertical installation, a wall bracket can be attached to lead and conceal the ducts. This converts the unit to a top unit. The side panels are prepared for mounting of the display panel.

# AUTOMATIK CTS602

## CTS 602 styring



The CTS602 HMI touch panel is featuring a wide range of functions, e.g., menu-controlled operation, weekly programme settings, filter monitor with timer, fan speed adjustment, summer bypass (free cooling), supply-heatingelement control, error messages etc.

The CTS602 comes with factory settings, including a default setting which can be customised to operational requirements to achieve optimum operation and utilisation of the system.

There is an option for selecting between 2 front page images for the main screen.

Operating instructions for the CTS 602 can be found in a separate user manual supplied with the unit.

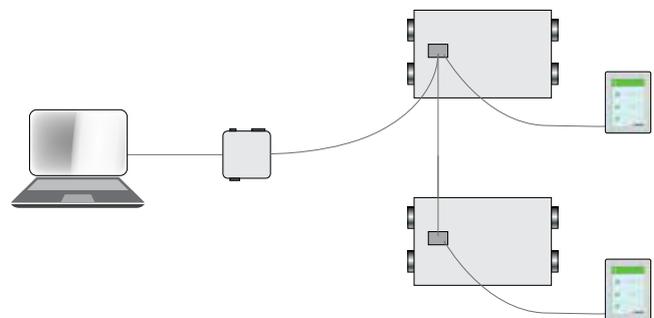
## External communication

The CTS602 control unit communicates by default with Modbus RTU RS485 communication. A CTS system using this form of communication can easily be connected to the unit.

Nilan units have an open Modbus communication, i.e. not only can the unit be monitored, but its operation can also be set in the same way as it can via the operating panel.

The protocol is by default set up for a Modbus RTU30 address; however, values can be set between 1 and 247.

A Modbus converter allows you to connect one or more units to a computer to monitor and control the unit.



Functional overview		+Standard -Accessories
3 levels	The control function is divided into 3 levels: User/Service/Factory with various options at each level	+
Weekly plan	The unit has 3 weekly programmes (with a factory setting of "off") <ul style="list-style-type: none"> <li>• Programme 1: for working families</li> <li>• Programme 2: for stay-at-home families</li> <li>• Programme 3: for businesses</li> </ul> There is also an option for you to set your own weekly programme.	+
User option 1 & 2	This allows you to override the operating mode in the main menu via an external potential-free contact or PIR sensor.	+
Datalog	Possible to log data. Capacity 46.000 logs <ul style="list-style-type: none"> <li>• Adjustable between 1 and 120 minutes</li> <li>• If "OFF", only events and alarms are logged</li> </ul>	
Filter monitor	Filter monitor with timer (factory default setting is 90 days). Adjustable to 30/90/180/360 days.	+
Bypass	Bypassing the outdoor air reduces heat recovery when heat recovery are not required.	+
Air quality	Allows you to choose whether to switch humidity sensors and/or CO <sub>2</sub> sensors on and off.	+/-
Humidity control	Allows you to set a higher or lower ventilation step in the case of high/low air humidity.	+
Summer/Winter operation	Possible to set operation for summer and winter	
Winter low	Allows you to select a low ventilation step in the case of low outside temperatures	+
Defrost function	Temperature-based automatic function for defrosting the heat exchanger.	+
Frost protection	Should a heating system fail, the unit is turned off automatically to reduce the risk of damage to the water heating coil from frost due to further cooling by the system.	+
Room low	Stops the unit when the room temperature reaches a pre-determined low, avoiding further cooling in case of a malfunction in the central heating system. The low temperature can be set from 1 -20 degrees, controlled by: <ul style="list-style-type: none"> <li>• T3 EXHAUST (extract air)</li> </ul>	+
Air volume	Allows you to set four ventilation steps stepless. Supply air and extract air are set individually. Step 1 <25% - Step 2 <45% - Step 3 <70% - Step 4 <100%	+
External fire alarm	Possible to connect the unit to external fire alarm.	+
Joint alarm	The unit can be connected to an external fire alarm.	-
Intake air control	Allows you to set the regulator to control the intake air temperature/supply air (only available if the control unit has been configured for a supply-heating element).	+
External water heating element	<ul style="list-style-type: none"> <li>• Temperature sensor T7 is an supply air sensor</li> <li>• Integrated frost protection for external water heating element</li> <li>• Motorised valve and circulation pump control unit</li> </ul>	-
External electric heating element	<ul style="list-style-type: none"> <li>• Temperature sensor T7 is an supply air sensor</li> <li>• Overheating protection</li> </ul>	-
Delayed start-up	There is a possibility for a delayed start-up by the fans, when a closing damper is installed.	+
Reset	Allows you to restore the factory settings.	+
Manual test	Allows you to test the unit's functions manually.	+
Language	Option for setting the relevant language (Danish/Finnish/Norwegian/Swedish/German/English/French/Polish).	+

# ACCESSORIES CTS602



## Electrical pre-heating element (Frost protection)

To prevent the highly efficient counterflow heat exchanger from freezing, we recommend that you fit an electrical pre-heating element. The element consumes very little energy but improves heat recovery. The net result is more cost-efficient operation.



## Electrical heating surface incl. regulation

When fitting an electrical heating surface, fresh air temperatures can be raised to desired levels at any time. The electrical heating surface is supplied ready to fit into the fresh air duct and, for easy fitting, the device is pre-fitted with all the required sensors (**expansion PCB included**).



## Water heating element incl. regulation

The supply temperature can always be raised to the required level using a water heating element. The water heating element is designed to be built into the duct and must be connected to the primary heating supply. Supplied with two-way adjustment valve, temperature sensor and frost thermostat (**expansion PCB included**).



## EM-box

The EM-box distributes extract air between kitchen and bathroom. If the range hood runs via the ventilation system and is operating, extract air flow from the bathroom is reduced to ensure that there is enough air to allow the cooker hood to extract cooking odours. To protect the system, the EM-box is fitted with a metal filter, which efficiently eliminates fat particles from range hood air.



## DBTU damper

If there is not enough space to fit an EM-box, Nilan offers a DBTU damper, which can be fitted between kitchen and bathroom. The damper functions precisely like the EM-box but requires longer cables.



## Expansion PCB

The expansion PCB provides additional functions for the CTS 602 control unit.



## Connection box

A "Connection box" has the following connection options: Connection of 1–2 fire dampers, external fire thermostat, user selection 1 (cooker hood) and Modbus communication to, for instance, CTS unit.



## Water trap

To prevent "false" air being sucked into the system via the condensate drain, the system must be fitted with a water trap. While there is water in the condensate drain, the water trap works well. However, during the summer months when there is no condensation of extract air, the water trap will dry out (and therefore cease to prevent "false" air intake). A Nilan water trap with ball prevents "false" air flow all year round.



## Vibration absorbers

It is important to ensure that the ventilation unit does not transfer vibrations to the building. The ventilation unit should therefore be placed on a vibration absorbing material. Nilan can supply effective vibration absorbers to place under the ventilation unit. They are sold in packs of 4.



## Flexible silencing

For easy fitting and excellent noise reduction between the system and the distribution box and/or between the system and roof vents.



## Pollenfilter ISO ePM1 50–65% (F7)

Comfort CT150 / CT200 is as standard with ISO Coarse >90% (G4) filter delivered. If someone in the housing suffers from pollen allergy, it is possible to order a pollenfilter ISO ePM1 50–65% (F7) to minimize the amount of Pollen in the supply-air.



## Cooker hood filter box

If the extract air needs extra filtration, Nilan can supply a Cooker hood filter box. This can provide extra protection of the ventilation unit if you connect a cooker hood that has not got good filters. It can also help air extraction from, for instance, dormitory rooms where cooker hoods are rarely installed.



## Extension cable HMI control panel

The control panel for the ventilation unit is connected up with a short wire so it can be installed close to the unit. If you place the unit so the control panel is out of sight, for instance in a cupboard or in the loft, you can order a 15 m extension cable with plug. This allows you to place the control panel where it is visible to the user.

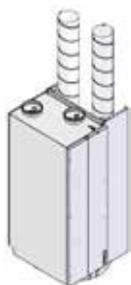
It is important that the control panel is visible so the user can see alarms when, for example, filters need replacing.



## Functional cable

The following external functions can be connected to the ventilation unit via an RJ45 connector: User selection 1 and 2 (cooker hood), Modbus communication and Fire thermostat or external fire automation system.

You can adapt an RJ45 connector yourself in line with the instructions. To facilitate installation, Nilan can supply a 10 m LAN cable with the correct RJ45 connector for the three functions.



## Spacing bracket, vertical installation

For vertical installation, a wall bracket can be attached to lead and conceal the ducts. This converts the unit to a top unit. The side panels are prepared for mounting of the display panel.



## Rear mounting brackets for vertical mounting

A wall bracket can be purchased and attached for mounting on the back of the unit. By vertical mounting the unit works as a top-unit.

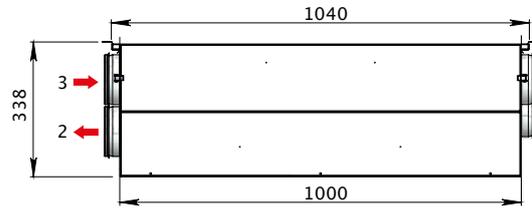
# INSTALLATION OPTIONS

## Top installation (standard)

Comfort CT150 / CT200 is delivered with two strong installation rails, which can be fastened to the ceiling or wall with suitable rawplugs and screws.

This ensures an easy installation of Comfort CT150 / CT200 because you do not have to support the unit when fastening. All you have to do is install the two rails and afterwards the unit can easily be glided in to place.

1. Install the rails where the unit has to be installed.



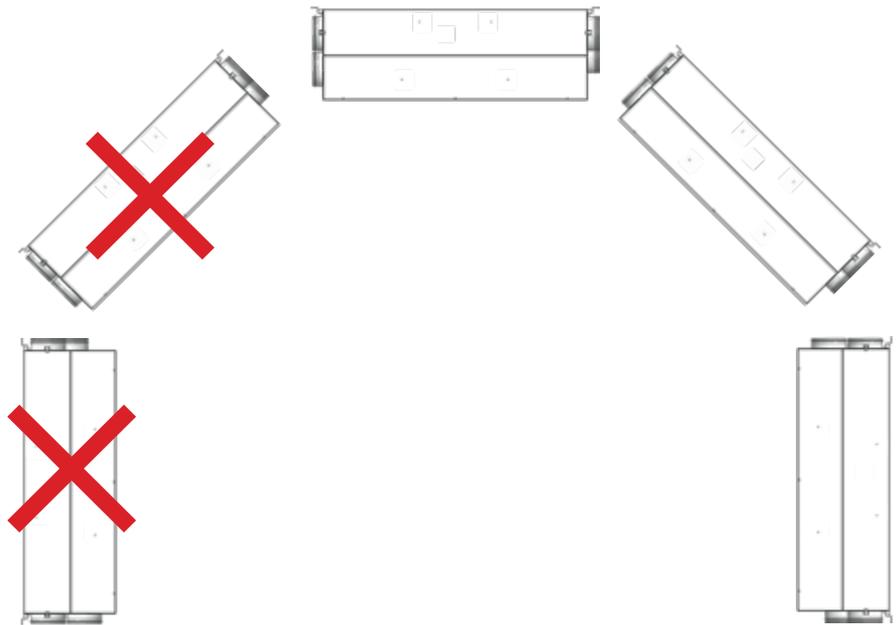
2. Glide the unit in to place in the rails

The ends of the rails are folded, and the unit is now in position

Comfort CT150 / CT200 can be installed:

- Horizontal
- Diagonal
- Vertical

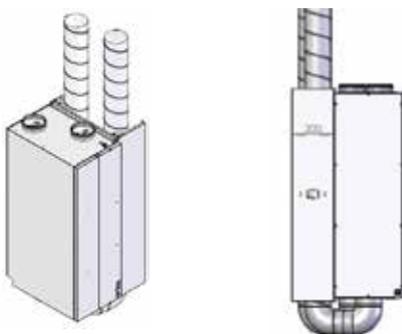
With extract air and supply air to the left/upwards.



## Side installation

When installing Comfort CT150 / CT200 sideways it is possible to purchase a wall bracket, where ducts can be lead and be hidden and protected.

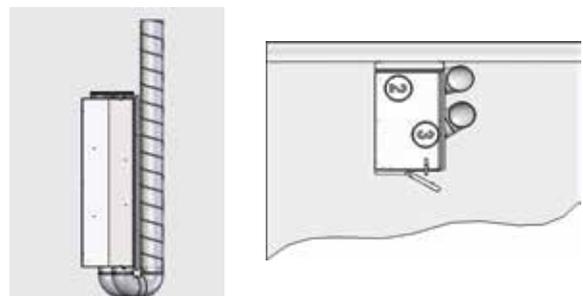
Like that is Comfort CT150 / CT200 transformed into a top unit. The side panels on the wall bracket is prepared for mounting of the display panel.



## Rear installation

When installing Comfort CT150 / CT200 on the back side it is possible to purchase a backside wall bracket. This ensures that there is enough space for the condensation drain.

Like that is Comfort CT150 / CT200 transformed into a top unit.



# OPERATION

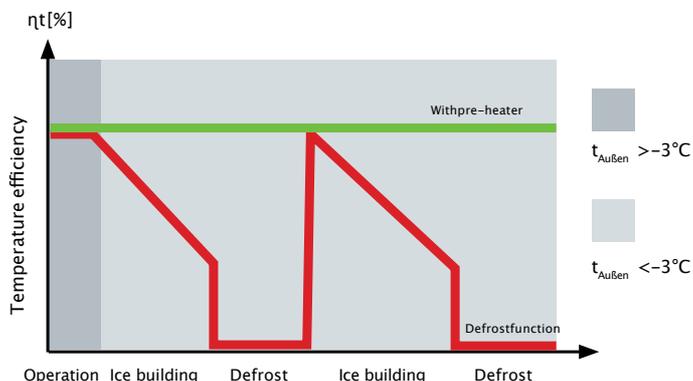
## Frost protection

All ventilation units with a counterflow heat exchanger will ice up if the outdoor temperature is below freezing for a prolonged period.

The extracted air condenses when it is cooled down during heat recovery. The high temperature efficiency will slowly turn the condensate to ice, which will block up the counterflow heat exchanger unless remedial action is taken.

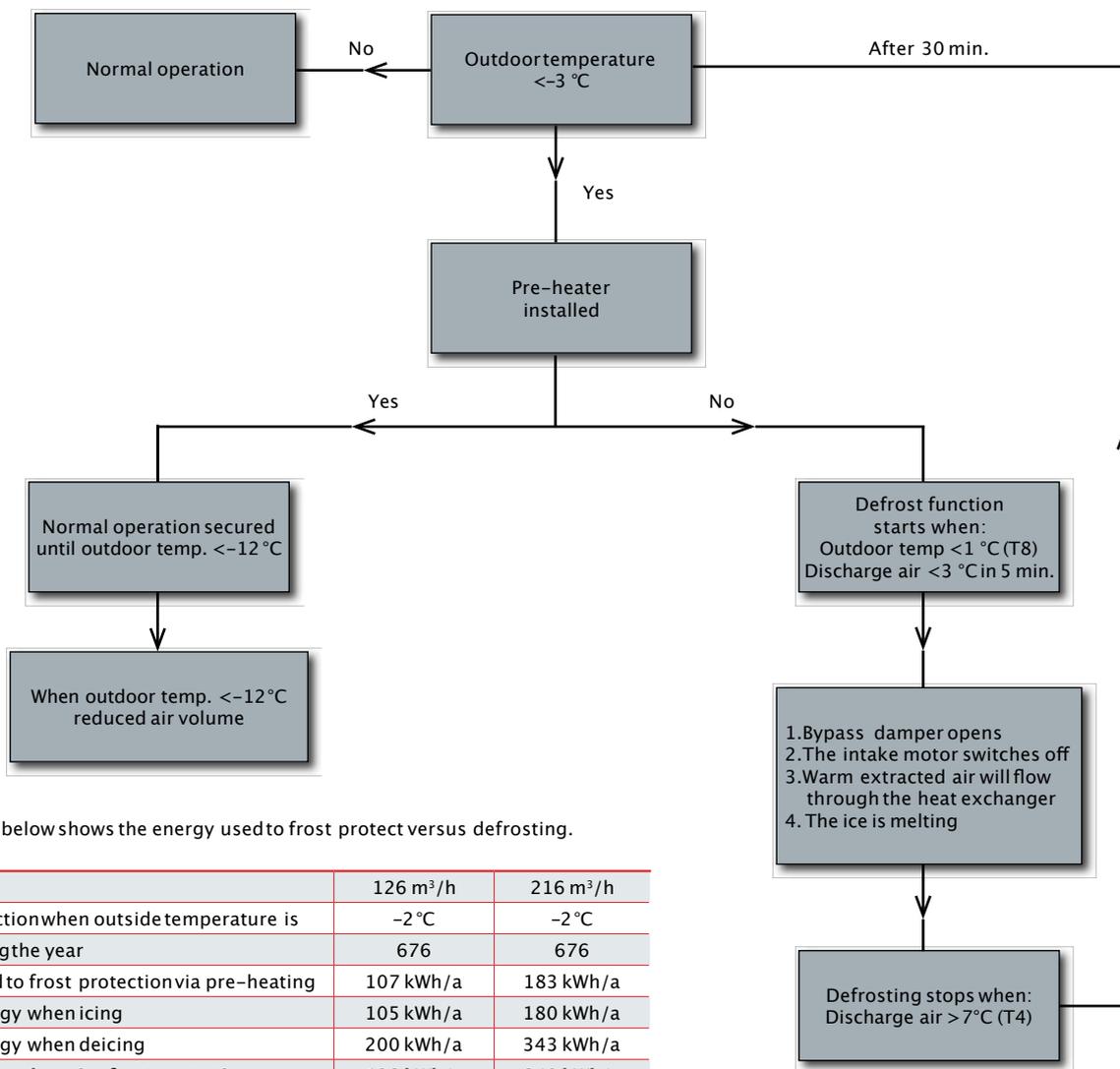
It should be considered whether the unit's operation can be protected during a lengthy period of frost or whether it is acceptable to decrease its operation.

In homes which are occupied at night, it would be advisable to protect the unit against frost when the outdoor temperature is coldest by using a pre-heating element. On the other hand, if the ventilation is for an office, it may be acceptable to decrease the operating level at night.



The energy used for the preheating is not wasted, as it ensures a constant high temperature efficiency

### Frost protection



The example below shows the energy used to frost protect versus defrosting.

Air volume	126 m <sup>3</sup> /h	216 m <sup>3</sup> /h
Frost protection when outside temperature is	-2°C	-2°C
Hours during the year	676	676
Energy used to frost protection via pre-heating	107 kWh/a	183 kWh/a
Loss of energy when icing	105 kWh/a	180 kWh/a
Loss of energy when deicing	200 kWh/a	343 kWh/a
<b>Energy savings by using frost protection</b>	<b>198 kWh/a</b>	<b>340 kWh/a</b>

Average calculation by Danish dry weather data.

# DELIVERY AND HANDLING

## Transport and storage

Comfort CT150 / CT200 is shipped in protective packaging for transport and storage.

Comfort CT150 / CT200 must be stored in a dry place in its original packaging until installation.

The packaging should only be removed immediately prior to installation.

## Installation conditions

When replacing fans and PCBs, you have to dismantle the system. These components are accessible from the rear panel.

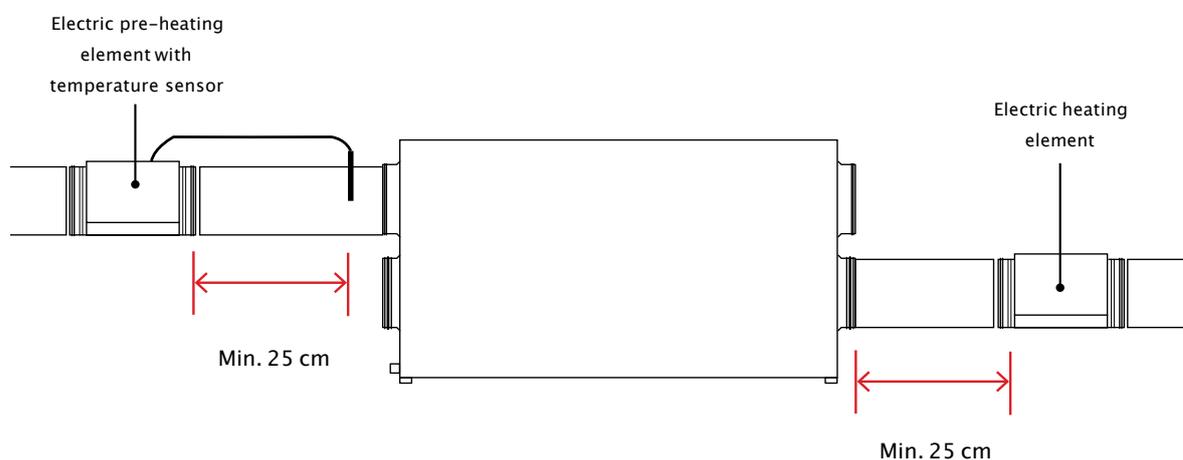
We recommend therefore that you fit Comfort CT150 / CT200 with flexible hose connections between the system and the duct-work, and that you fit the system so that it is simple and easy to take down from the brackets.

## Installation of electric heating element

Electric heating elements (accessories) are fitted in the duct.

The heating element must be insulated using fire-resistant insulation material.

The electric heating element must be connected by an authorised electrician.



# 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.



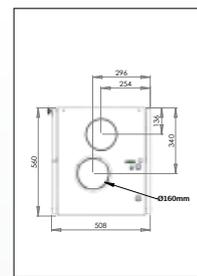
**Product data**  
Technical information to ensure correct choice of solution.



**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.



**Drawings**  
Tender documents and 3D drawings are available to download for planning purposes.



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