



Compact P

Installation Manual

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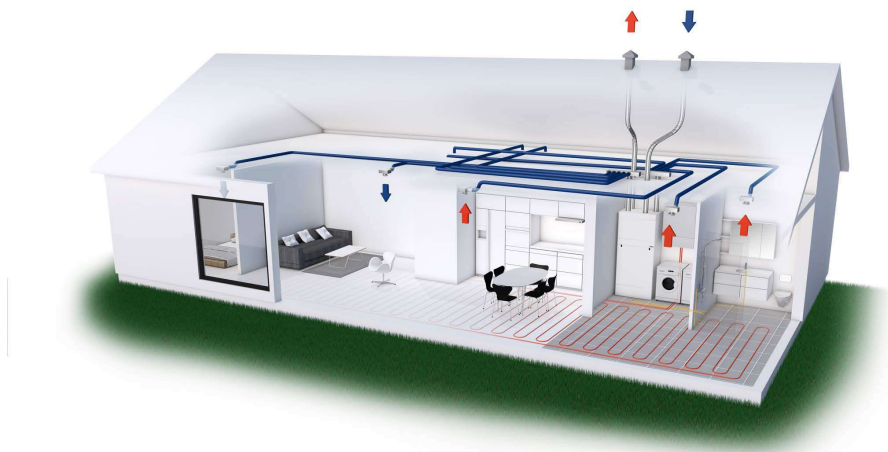
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PRODUCT DESCRIPTION

The Nilan Compact P is a ventilation unit with heat recovery, that has a built-in heat pump, which is used for the production of domestic hot water, and is also

able to heat and cool the home via the ventilation air. The Compact P is designed for air flows of up to 425 m³/h at 75 Pa external counter-pressure. (XL Version) It ventilates the home by drawing out the moist and stale air via valves in the bathrooms, toilet, kitchen and utility room, and introduces fresh filtered outdoor air via valves in rooms such as the, living room, bedrooms and dining room. The outdoor air is heated via the high-efficiency counterflow heat exchanger by heat transfer from the hot exhaust air. All of the energy in the exhaust air is utilized. In the winter, the built-in heat pump can heat the supply air up to 34 ° C, and thus contribute to heating the home. When the supply air is heated, at the same time a little heat is deposited in the hot water tank and ensures a constant high hot water temperature. The heat pump has a reversible cooling circuit, which means that it can cool the supply air in the summer. The Compact P can cool the supply air by up to 10 ° C in relation to the outdoor air. Due to the low air exchange, it will not act as an air conditioning system.




However, when in cooling mode, any moisture in the supply air is removed, which results in a lower humidity in the home. The lower humidity means that it is easier to withstand a slightly higher temperature, which therefore provides good comfort conditions in the home. When the Compact P cools the supply air, the energy is deposited in the hot water tank, and it can thus be said that “free” domestic hot water is produced during those periods.



1. A Typical Installation

GENERAL INFORMATION

SAFETY

	CAUTION Always disconnect the power supply to the unit if an error occurs that cannot be rectified via the control panel
	CAUTION Always disconnect the power to supply to the unit before opening the unit doors, for instance for installation, inspection, cleaning and filter change.
	CAUTION Avoid direct contact with the heating system pipes in the heat pump as they can get very hot.

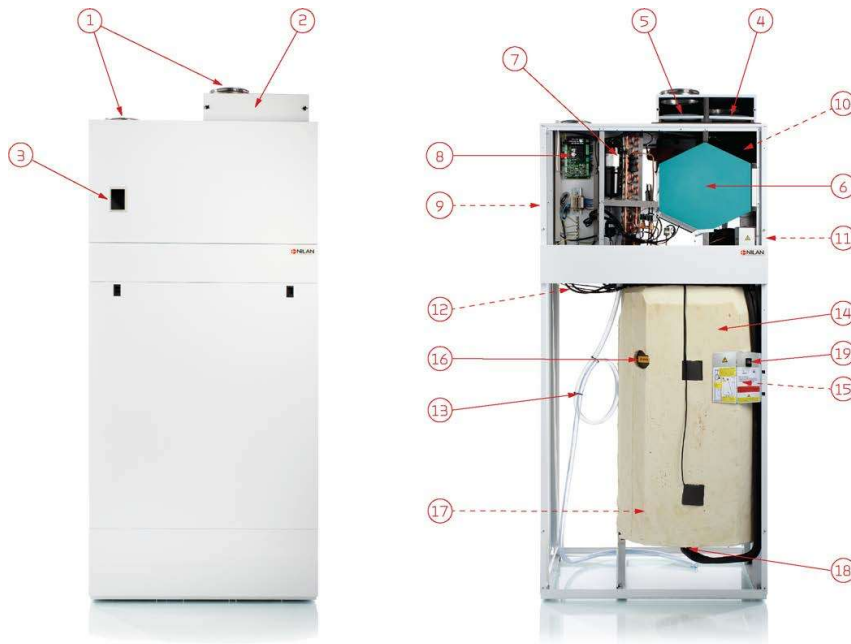
WATER QUALITY REQUIREMENTS

The hot water tank in the Nilan unit is of steel construction, with a double enamel coating, to ensure an extra long service life. In addition, the tank is equipped with a sacrificial anode as extra protection. It is important that the sacrificial anode is replaced regularly. The unit is equipped with an electronic monitoring sacrificial anode, which gives an alarm on the user panel when it requires replacement. In order for the sacrificial anode to function and protect the tank, it is required that the water quality complies with the following:

- Electrical conductivity (EC): Between 30 mS/m and 150 mS/m (millisiemens pr. m) @ 25 °C
- Chloride must be below 250 mg/L @ 65 °C

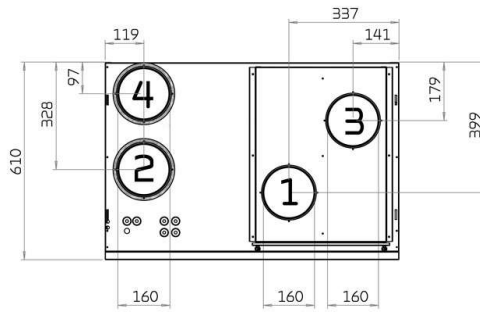
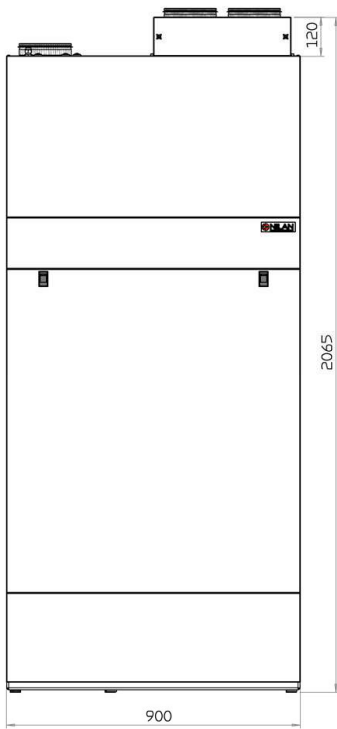
If the above criteria are not met, the sacrificial anode will not work as intended, resulting in premature corrosion of the tank.

THE UNIT



2. The Unit Components.

1. Duct connections	8. Controller CTS602	15. 1,5 kW immersion heater (with overheat protection)
2. Filter change cover	9. Fans	16. Electronically monitored sacrificial anode
3. Control panel (HMI touch-panel)	10. 100% bypass damper	17. Supplementary coil (only SOL version)
4. Extract Air Filter	11. Pre Heating Element (Polar Version Only)	18. Plumbing Connections
5. Outdoor air filter (can be replaced with pollen filter if required)	12. USB Cable (for connection to PC)	19. Selection Switch (domestic hot water)
6. Counterflow heat exchanger	13. Condensate Drain with trap	
7. Heat pump	14. 180 l hot water tank	



All dimensions are in mm.

Connections:

1. Outdoor air
2. Supply air
3. Extract air
4. Discharge air

3. The Unit Dimensions

INSTALLATION

LIFTING & TRANSPORTING THE UNIT



The Compact P is supplied in one piece on a pallet, packed in cardboard.

The unit can be removed from the pallet with the Nilan lifting trolley, allowing it to then be manoeuvred on a level surface as required. If the filter box is removed, the unit can be manoeuvred through an standard door opening.

The unit is fitted at the factory with 4 lifting straps, one for each of the corners.

This makes it possible to lift the unit with a crane.

When lifting the units with the supplied straps, these must be at an angle of max. 45° from the vertical.



ATTENTION

When setting up the unit, consideration must always be given to future servicing and maintenance, therefore a free space in front of the unit of at least 60 cm is recommended.



ATTENTION

To achieve suitable run off from the condense tray the unit must be installed level.



At the lower rear and sides of the unit, there are punched areas which can be clipped out, so that no on site penetrations need to be cut.

The rear angle iron on the base frame can be removed, allowing the unit to be pushed closer to the wall, thereby concealing the water connections.

REMOVING THE FRONT PANELS

The largest cover is removed first by pressing the two recessed black clips located on the upper half of the panel to the lower position and moving the top of the panel outwards prior to lifting up and setting aside safely to avoid damage.

The top panel should be removed next by removing and setting aside the Torx screws on the top front corners. A TX20 bit will be required to facilitate this. Once removed the top of the panel can be pulled forward before removing and setting aside safely to avoid damage. **NOTE:** *Care should be taken not to damage the controller or its connection lead when removing this cover.*

The remaining middle and bottom panels are fixed by means of a keyhole slot on each side. Lifting the panels slightly will allow them to be easily removed before setting aside safely to avoid damage.

ELECTRICAL INSTALLATION



ATTENTION

All electrical works must only be carried out by a suitably qualified electrician to the current edition of the IEE regulations and amendments.



ATTENTION

All electrical supplies must be isolated prior to working on the unit or removing the covers.



ATTENTION

The unit must have a suitable Earth connection.

The unit will require a dedicated radial circuit from the consumer unit, protected by means of a 20Amp C type circuit breaker. This circuit should terminate in a 20Amp Double Pole Isolator Switch adjacent to the unit.

An additional dedicated radial circuit from the consumer unit, protected by means of a 16Amp B Type circuit breaker will be required where the Gateway unit is to be installed. This circuit should be terminated in a 13Amp Unswitched Fused Connection Unit, mounted adjacent to the Gateway to the top right of the Compact P.

MAINS ELECTRICAL CONNECTION

The unit will require a 230Volt Single Phase supply. The Compact P is provided with a pre-installed mains connection lead incorporating an EU plug. This plug should be removed and discarded. The mains connection lead can then be suitably terminated to the load side of the 20Amp Double Pole Isolator Switch.

GATEWAY ELECTRICAL CONNECTION .

The Gateway is supplied with a figure of eight mains connection lead, provided in a separate bag. This lead will plug in to the rear of the gateway, with the other end suitably connected to the load side of the 13Amp Unswitched Fused Connection Unit.

An additional lead is supplied with the unit for connection of the Gateway to the unit. This lead is fitted with an 8 way Weiland connector on one end. This plugs in to a female socket located to the top of the Compact P, left front edge. The other end of the lead is terminated with an RJ45 plug for connection to the Gateway socket marked MODBUS. For remote monitoring an operational Broadband service should be connected to the LAN port on the Gateway by means of an RJ45 connector



4. Connections to the Gateway

PANEL HEATER ELECTRICAL CONNECTION.

The Compact P has the facility to control external electrical panel convector heaters. Relay R8 located on the internal PCB is used to control the external heaters. Access to the electrical PCB connections is gained by removing the galvanized steel cover plates to the front of the machine. This is secured by means of Torx screws, a TW20 bit will be required to remove and replace these screws.



4. Access to the Electrical Connections

Any additional heat sources should be connected to a dedicated radial circuit from the consumer unit via means of a suitably rated N/O Contactor with a 230V coil. The connections for Relay R8 can be found on the front auxiliary PCB to the left. A loop is to be installed from the incoming Live conductor, to one side of relay R8 within the Compact P. The other side of relay R8 will be the live connection to energise the heater contactor coil. The neutral supply to the heater contactor coil should be connected to the incoming neutral conductor within the Compact P. (see electrical schematic)

PLUMBING INSTALLATION

DRAINAGE.

The Compact P is fitted with a flexible reinforced hose to drain the condensate from the tray above. A suitable drain with a fall of at least 1cm per metre will need to be installed to accept the discharge from this hose. This hose is configured with a loop secured with cable ties. This loop acts as an air trap and it is essential that the loop remains intact.

A drainage connection will also be required for the pressure relief valves from both the hot water cylinder and the safety valve (both supplied). The cylinder pressure relief valve should discharge in to the tundish (supplied). The pressure relief connection from the safety valve can tee in to this line below the tundish. The position of the tundish should correspond with the position of the vision panel on the front case of the unit, in order that any discharge is visible when the Compact P is operational.



5. Cylinder Pressure Relief Valve & Tundish

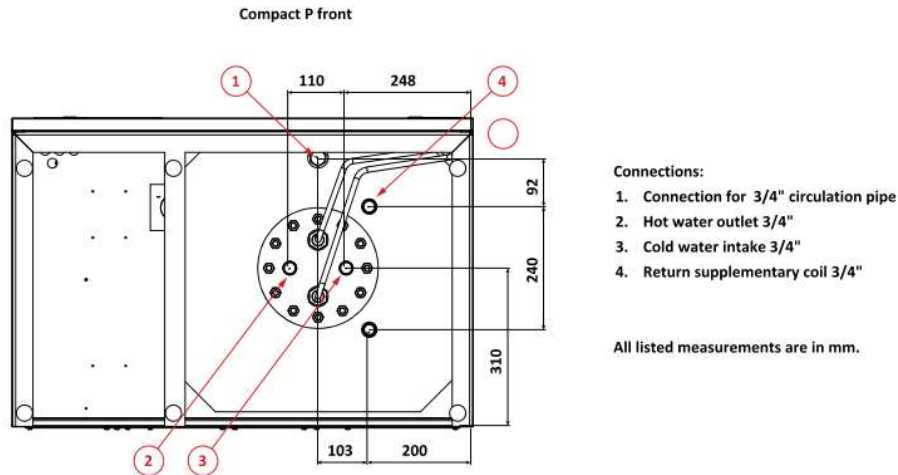
WATER CONNECTIONS.

The Compact P hot water storage tank is double-enamelled, ensuring long life. The efficient foam insulation protects against unnecessary heat loss. Care should be taken to ensure that the insulation remains intact and undamaged.

Plumbing connections can be found on the bottom of the hot water cylinder. All connections have 3/4" BSP threads.

The tank is also fitted with an electronically monitored sacrificial anode that automatically displays a warning on the display when it needs changing.

Connection overview



6. Plumbing Connections below the Cylinder



The Compact P should be fitted with a 12liter expansion vessel and safety valve. These are supplied with the unit in separate packaging. They should be fitted in accordance with the plumbing schematic diagram. There is sufficient space to locate these within the housing of the Compact P to the left of the hot water cylinder

7. The Expansion Vessel In Situ

The hot gas pipework to the cylinder coil are preinstalled within the unit and no connections are required to these.

Stored water temperatures could reach 70 degrees C when the unit is in operation, therefore it is essential that the domestic hot water is blended with cold water in order to achieve a safe temperature at all outlets. A suitable thermostatic blending valve (not supplied) should be fitted at the base of the unit. The cold water supply to this blending valve should be derived from the balanced cold water supply from the safety valve as shown in the plumbing schematic.



CAUTION

Changing the anode when notified on the display is important. Failure to do so can void the warranty on the hot water tank.



ATTENTION

The Compact P must not be switched on before the unit is filled with water.



CAUTION

De-mineralised water (double ion exchange) must not be used, as the tank will quickly corrode. De-mineralised is also referred to as desalinated and de-ionised water.



CAUTION

The Compact P must never be installed without the expansion vessel and safety group valve being correctly fitted.

If a water softener is installed, the following must be observed:

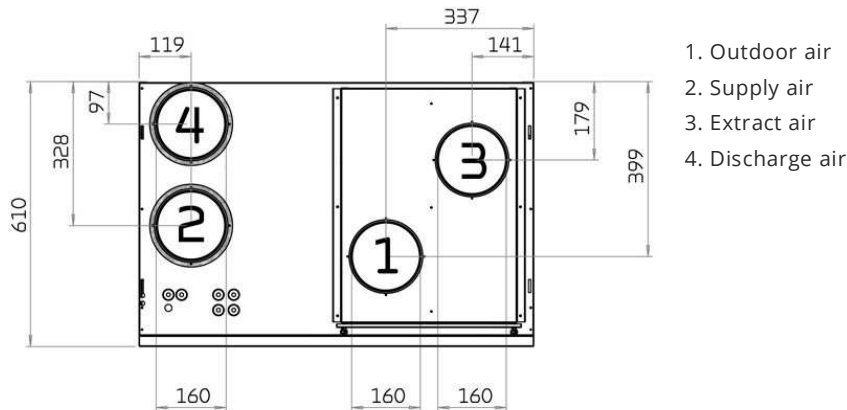
- The conductivity must be between 30 mS/m og 150 mS/m (millisiemens per m)
- The chlorine content must be under 250 mg Cl/l

If the above criteria are exceeded, the anode current will be too high, the anode will break down too quickly and the water will develop an odour.

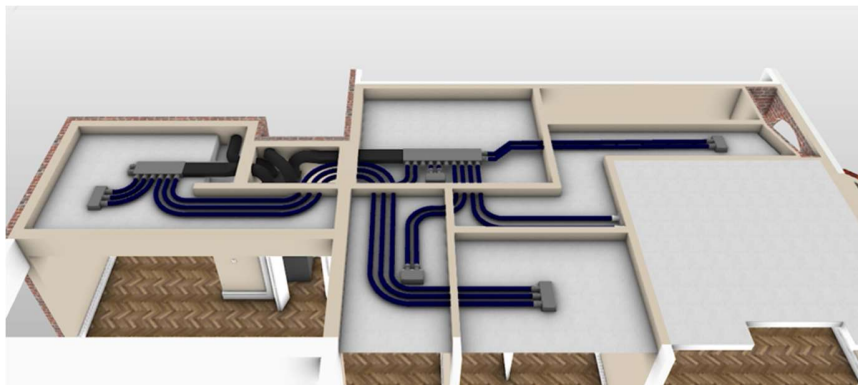
DUCTWORK INSTALLATION

DUCT LAYOUT.

There are four duct connections to the top of the Compact P.



The ductwork should be installed in accordance with the site specific design. Generally, this will consist of an arrangement that incorporates a manifold fitted to each of the supply and extract duct lines. Ductwork from the unit to the manifold should be 160mm ID insulated to avoid condensation. The ductwork from the manifold to the ceiling boxes should be 75mm semi rigid duct such as Nilair. Standard supply and extract ceiling valves are fitted to the ceiling below into the ceiling box within the ceiling void.



8. A Typical Duct Layout.

Discharge and Fresh Air ductwork should be installed from the unit to suitably sized external grilles a minimum of 1500mm apart. This ductwork should be 160mm ID insulated to avoid condensation.

Final connection to the Compact P should be made by means of 160mmID acoustic flex. This should be suitably insulated to avoid condensation.

This is to avoid vibrations from the unit being transmitted to the duct system.

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