



MARKET LEADING COMMERCIAL AND DOMESTIC VENTILATION WITH HEAT RECOVERY



Nilan VPL 31-125

**Active heat recovery and cooling
(air/air)**



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Commercial ventilation with heat recovery and cooling (air/air)



About indoor climate

The Danish Working Environment Authority says:

"A poor indoor climate in the workplace can and must be prevented. Several rules, norms and standards have been set out for indoor climate conditions. A poor indoor climate can e.g. result in employees not feeling well, experiencing irritated mucous membranes, headaches and lethargy. These are symptoms which reduce employees' quality of life and increase absence due to illness."

The VPL 31-125 units are tested heat recovery units with cooling developed for industrial and comfort ventilation for air requirements of up to 12,000 m³/h.

Function

The Nilan VPL 31-125 units are active heat recovery units with cooling that extract warm, damp air and inject temperate air. This means that particles, odours and dampness are removed and a comfortable indoor climate achieved.

The energy in the exhaust air is recovered and transferred to the intake air through a combination of passive heat recovery and a heat pump which extracts energy directly from the air. The unit is supplied as standard with a reversible cooling/heating system which controls the cooling & heat recovery output modulated from 50% to 100%. Nilan VPL 31-125 comprises two fans for intake and exhaust air respectively as well as a heat pump with a compressor.

Heating surface and controls can be fitted externally. The units are compact and easy to service as all components are gathered in a single place.

The VPL 31-125 units can produce up to 12,000 m³/h (at 250 pascal). The units are controlled using the electronic CTS 6000 control system.

NILAN CTS 6000 is a newly developed and tested control system with monitoring, regulating and control options from any place in the world via an IP address. CTS 6000 also provides the option of registering and reporting back on error messages from the control system by e-mail.

Advantages

All the required sensors, fire thermostats, etc. are as far as possible built in and connected internally in the unit. Any pressure transmitters and heat surface components are fitted externally. This means that the electrical installation is simple and quick for a qualified engineer to carry out in accordance with the enclosed electrical diagrams. As no separate cooling authorisation is required for installation, the installation fee is reduced. The VPL is prepared from the factory for outdoor installation which means that further preparation is unnecessary. VPL is supplied as a single unit.

The NILAN filter unit FU is a unit produced for location in front of the heat recovery unit. The unit comprises an outdoor air filter and an exhaust air filter as well as a heat pipe which works as a passive pre-heat exchanger. Two motorized dampers are installed from the factory in the outdoor air and exhaust air sections. All sensors for pressure, temperature and baffle positions are internally connected to multiple plugs. Multiple plugs are used for the connection of each ventilation module. This ensures that incorrect installation cannot take place and reduces installation costs significantly. The whole unit is located behind a door for easy service access.



Options



VPL 31:

Renews up to 1,800 m³/h (at 250 Pa).
Temperature efficiency of 82%.
Output consumption at nominal air volume:
0.89 kW (-12°C, 50% RH)
1.59 kW (25°C, 50% RH)

VPL 35:

Renews up to 2,500 m³/h (at 250 Pa).
Temperature efficiency of 84%.
Output consumption at nominal air volume:
1.42 kW (-12°C, 50% RH)
2.40 kW (25°C, 50% RH)

VPL 45:

Renews up to 3,500 m³/h (at 250 Pa).
Temperature efficiency of 77%.
Output consumption at nominal air volume:
1.83 kW (-12°C, 50% RH)
3.31 kW (25°C, 50% RH)

VPL 55:

Renews up to 4,500 m³/h (at 250 Pa).
Temperature efficiency of 85%.
Output consumption at nominal air volume:
3.33 kW (-12°C, 50% RH)
4.97 kW (25°C, 50% RH)

VPL 65:

Renews up to 5,500 m³/h (at 250 Pa).
Temperature efficiency of 83%.
Output consumption at nominal air volume:
4.22 kW (-12°C, 50% RH)
6.47 kW (25°C, 50% RH)

VPL 75:

Renews up to 8,000 m³/h (at 250 Pa).
Temperature efficiency of 81%.
Output consumption at nominal air volume:
4.60 kW (-12°C, 50% RH)
7.59 kW (25°C, 50% RH)

VPL 85:

Renews up to 10,000 m³/h (at 250 Pa).
Temperature efficiency of 77%.
Output consumption at nominal air volume:
6.63 kW (-12°C, 50% RH)
9.91 kW (25°C, 50% RH)

VPL 125:

Renews up to 12,000 m³/h (at 250 Pa).
Temperature efficiency of 74%.
Output consumption at nominal air volume:
8.47 kW (-12°C, 50% RH)
13.06 kW (25°C, 50% RH)

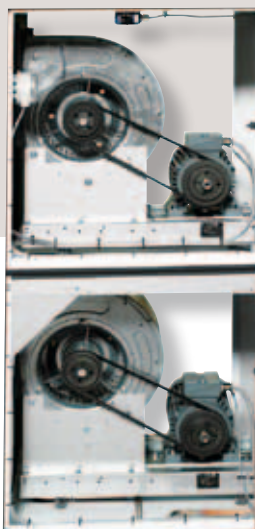
**Temperature efficiency
calculated at nominal air volume,
outside air 4°C and 0% RH**

Facts:

- Cooling function
- Heat recovery
- Renews up to 12,000 m³ per hour (at 250 Pa)
- Intake air and exhaust air
- Temperature efficiency up to 85%
- Option of supplementary heat using water or electrical heating surface

Advantages:

- No damp problems or odours
- Fresh air supply and extraction of contaminated air
- High recovery
- Low operational consumption and cost due to heat pipe



Fan section



FU + heat pipe



Online control and monitoring of Nilan VPL 31-125



CTS 6000 enables Nilan industrial units to be controlled and monitored online using a PC located anywhere in the world. CTS 6000 has been designed to meet future requirements for optimising the economy of ventilation units as well as detailed adaptation to the requirements of individual buildings.

Control

Optimum control of ventilation units assumes simple and user-friendly operation of the most important functions. Using a weekly or annual programme, units can be set for automatic operation to allow for the setting of operating times, room temperatures, ventilation speeds, alarms, etc. The weekly programme can be customised, and extended operation is possible beyond the weekly programme's operating periods. When the unit's functions and weekly programme have been set, it will run automatically without any further need for adjustment. An annual programme also permits programming for public holidays when the unit does not need to operate. Using graphic history diagrams it is possible to collect information about the unit's operation and subsequent adjustment and optimisation. Automatic, intelligent control provides optimal operating economy of the unit and ensures a comfortable indoor climate.

Monitoring

With CTS 6000 the ventilation unit can be monitored over the Internet from a PC located anywhere in the world. The unit can also be hooked up to the building's internal network or have its own dedicated Internet connection. Current operation can be followed by using trend diagrams. CTS 6000 ensures optimum monitoring of the unit's operating status as all forms of operational failures, alarms and maintenance notifications are sent automatically by e-mail or SMS to the right users. Immediate action can then be taken in the event of operational failure. This also allows for optimum maintenance and service visit planning. CTS 6000 also provides the company's service partners with the option of remote control and diagnosis of any faults.

Start-up and adjustment of Nilan automation

Start-up and adjustment of Nilan automation is an optional extra. This service includes:

- functional testing of the installation
- checking the heat pump circuit for defects that may have occurred during transport
- checking air volume (on measurement across evaporator)
- adjustment of CTS in accordance with customer requirements.

When booking start-up and adjustment of automated functions, installation must be complete, including ducts, baffles and valves. Internal and external electrical work, including control panel, must have been completed as must any plumbing work related to water surfaces.

Start-up must be booked with Nilan's service dept. approx. 14 days before required start-up.



On-site control panel

Nilan CTS 6000 is a newly designed, thoroughly tested control and monitoring programme. With CTS 6000, Nilan industrial units can be controlled either online over the Internet or on-site using a control panel. CTS 6000 also provides the option of registering and reporting back on error messages from the control system by e-mail.

Calculating operational economy



A precise analysis of weather conditions and geographical location are decisive when choosing the most efficient and economically viable ventilation system. Nilan has developed Nilan Calculator, a unique calculation software, which allows realistic and extremely precise calculations that take every factor into account.

Achieve precise calculation of operating economy

Whereas traditional calculation methods only take into account an installation's efficiency under extreme temperatures, Nilan Calculator is based on data that present a straightforward, precise picture of the climatic norms in which the installation is to function. The programme uses so-called DRY data based on extensive meteorological measurements for the locality in which the installation will be used. Variables such as day and week plans and holidays can be entered to provide a detailed picture of when and how the installation will be used.

Nilan's new calculation software ensures a precise, accurate basis for decision-making when it comes to choosing the most economical ventilation system. The programme has been thoroughly tested to achieve the greatest possible user-friendliness, and its development will continue in consultation with users. We greatly appreciate feedback so that we can ensure optimum development of future versions of the software.



To order Calculator
send an e-mail to
calculator@nilan.dk





Technical specifications



		VPL 31	VPL 35	VPL 45	VPL 55	VPL 65	VPL 75	VPL 85	VPL 125
Air volume	m³/h	900- 1,800	1,300- 2,500	2,000- 3,500	3,000- 4,500	4,000- 5,500	5,500- 8,000	7,500- 10,000	9,500- 12,000
Nominal air volume	m³/h	1,800	2,800	3,500	4,500	5,500	8,000	10,000	12,000
Main dimensions excl. connection pieces and base, LxWxH	mm	1,350x 710x 1,400	1,350x 710x 1,400	1,350x 710x 1,400	1,500x 910x 1,400	1,500x 910x 1,400	2,000x 1,260x 1,770	2,000x 1,260x 1,770	2,250x 1,260x 2,000
Total weight without packaging	kg	320	325	330	420	430	590	640	860
Power supply	A	3x16	3x20	3x25	3x35	3x35	3x50	3x63	3x63
Voltage	V	400	400	400	400	400	400	400	400
Compressor	Number	1	1	1	1	1	2	2	2
Refrigerant	type	R 407 C	R 407 C	R 407 C	R 407 C	R 407 C	R 407 C	R 407 C	R 407 C
Quantity refrigerant	g	4,300	4,300	4,300	7,200	7,200	11,000	11,000	12,500
Condenser/evaporator HxW	mm	400x 400	400x 400	400x 400	600x 600	600x 600	800x 900	800x 800	900x 900
Standard fan: Double inlet centrifugal fan									
Condensing capacity	l/h	5,2	7,0	8,7	12,0	17,5	24,5	31,5	38,5
Condensation outlet: PVC pipe	mm	Ø 20	Ø 20	Ø 20	Ø 20	Ø 20	Ø 20	Ø 20	Ø 20

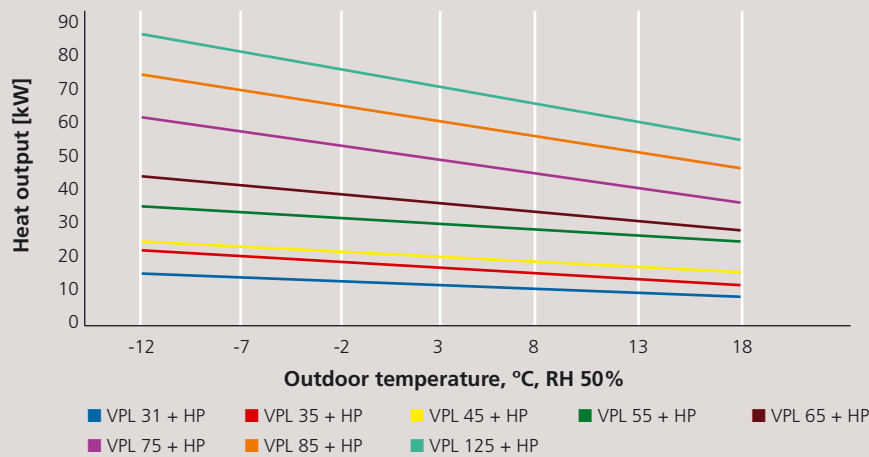


Ventilation promotes performance in the workplace



Heat output

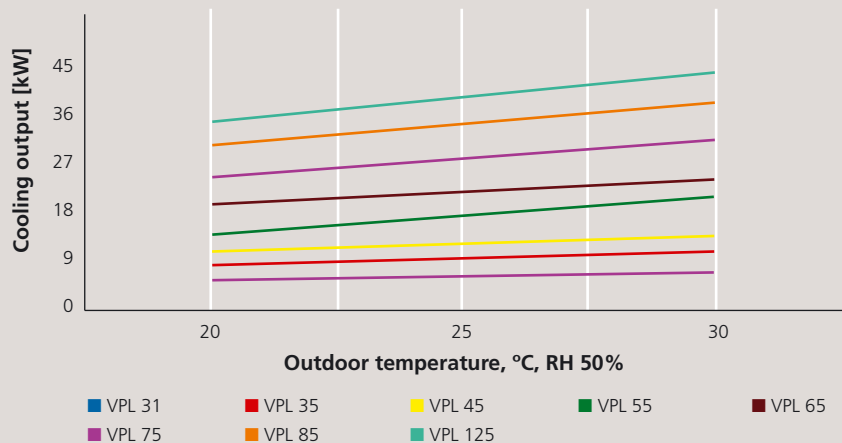
Heat output is based on an extraction temperature of 20°C and a nominal air volume of 1,800, 2,500, 3,500, 4,500, 5,500, 8,000, 10,000 and 12,000 m³/h



Cooling output

Cooling output is based on an extraction temperature of 25°C/50% and a nominal air volume of 1,800, 2,500, 3,500, 4,500, 5,500, 8,000, 10,000 and 12,000 m³/h

(total cooling performance)



Operating economy

The heat pipe (Nilan HP) is a closed evaporator/condensation circuit which transfers energy from the extracted air to the injected air without mixing the two air flows.

The transfer of energy takes place by the cooling medium evaporating when heat is added. The steam condensates into a liquid at the cold end of the circuit after which the liquid returns to the evaporation phase.

The cycle continues as long as the exhaust air is warmer than the outside air. The greater the difference in temperature between the exhaust air and the outside air, the more effective the heat pipe will be.

The cooling medium in Nilan HP is CO₂ which does not affect the ozone layer and contribute to global warming in the way that HFC gases do.



Evaporator



Condenser



About Nilan

Nilan A/S was set up in 1974 as a natural consequence of the oil crisis. As we started to insulate and seal our buildings to save energy, a need arose for good and healthy indoor climate solutions. This became the foundation of what is now Nilan A/S – one of the world's leading ventilation and heat pump technology companies. We are currently represented in all the Scandinavian countries, Germany, Austria, Switzerland, Holland and North America either through subsidiaries or dealers.

At the cutting edge of developments

Climate change and the world's excessive use of energy are at the top of the global agenda. Nilan is at the cutting edge of these developments and has manufactured heat pumps and ventilation systems for passive houses and low energy construction all over the world for many years. We are currently one of the leading suppliers in the low-energy market. It is a good example of how we always set great store by innovation and product development. All our products have also been tested and certified by TI.

Made in Denmark

Torben Andersen is the founder of Nilan A/S and managing director of the company. The company is located in Hedensted in a building with an area of 10,000 m² housing both production and offices. As one of the only companies in the industry in Denmark, we manufacture and develop all our products in Denmark, and all our control systems and automation are developed and manufactured in close partnership with our Danish sub-contractors. Our production uses state-of-the-art technology and is based on a sustainable approach focusing on the use of green materials, recycling and minimising waste.

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