



MARKET LEADING COMMERCIAL AND DOMESTIC VENTILATION WITH HEAT RECOVERY



## Nilan VPM 120-560

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





# Nilan VPM 120-560

## Industrial ventilation with heat recovery and cooling (air/air)



The VPM 120-560 units are tested heat recovery units with cooling developed for industrial and comfort ventilation for air requirements of up to 5,600 m<sup>3</sup>/h.

### Function

The Nilan VPM 120-560 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 extracted air is recovered and transferred to the injected air via a combination of passive heat recovery and a heat pump that recovers energy directly from the air. During the summer the process is reversed so that the injected air is cooled.

The Nilan VPM 120-560 units consist of two energy-saving EC chamber fans for air injection and extraction, a heat pipe, a heat pump, a compressor and two bag filters to ensure against dust particles. These filters can be cleaned and/or replaced as required.

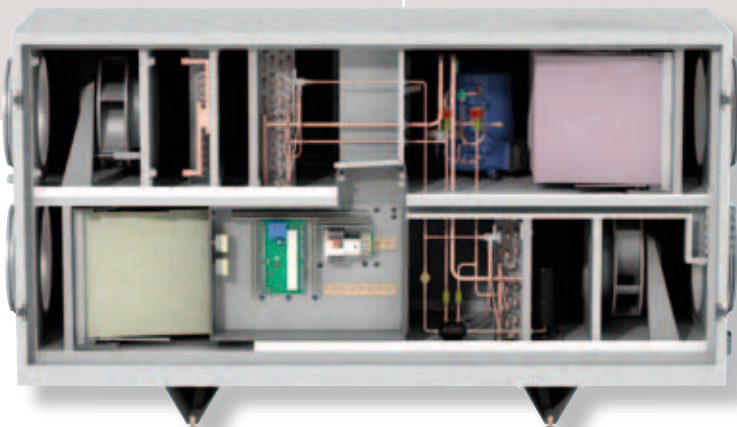
Heating surface and controls can be built in. The units are compact and easy to service as all components are gathered in a single place.

The VPM 120-560 units can produce up to 5,600 m<sup>3</sup>/h (at 300 pascal). The units are controlled using the electronic CTS 600 control system.

### Advantages

The Nilan VPM 120-560 units are compact heat recovery units designed for use in spaces where ventilation with highly efficient heat recovery and cooling is required. The units can be located in tight spaces as the units are very compact.

The VPM 120-560 units are supplied fully assembled with Nilan HP, a heat pipe exchanger, used as a preheat exchanger. The main advantage of using a heat pipe is a significantly reduced requirement for after-heat and major operational savings. As the heat pipe system is self-regulating and has the same heat recovery in the whole area, it does not require complicated and energy-hungry defrosting and bypass systems.



# Ventilation promotes performance in the workplace



## Technical specifications:

		VPM 120	VPM 240	VPM 360	VPM 480	VPM 560
Air volume	m <sup>3</sup> /h	400-1.400	800-2.400	900-3.600	1.200-4.800	1.400-5.600
Nominal air volume	m <sup>3</sup> /h	1.200	2.400	3.600	4.800	5.600
Main dimensions excl. connection pieces LxWxH excl. base	mm	1.975x675 x990	2.155x750 x1.240	2.255x940 x1.400	2.255x1.140 x1.400	2.255x1.140 x1.400
Total weight without packaging	Kg	250	375	480	610	615
Power supply	A	3x13	3x16	3x16	3x32	3x32
Voltage	V	3x400 (50 Hz)	3x400 (50 Hz)	3x400 (50 Hz)	3x400 (50Hz)	3x400 (50Hz)
1 hermetic compressor						
Refrigerant		R 407 C	R 407 C	R 407 C	R 407 C	R 407 C
Volume R 407 C	g	1.850	2.800	3.300	5.500	5.500
Condenser/evaporator, height x width	mm	405x385	525x462	600x655	605x900	605x900
Standard fan: EC radial fan		4 steps (freely adjustable)				
Maximum external pressure at nominal air volume	Pa	250	100	250	350	300
Condensation capacity (25°C/70% RH, nominal air volume)	l/h	2,5	5,5	8	11,5	13,5
Condensation outlet: PVC pipe	mm	Ø20	Ø20	Ø20	Ø32	Ø32

Inspection: Via 2 doors.

Filter type: F5 on extraction, F7 on injection.

The units are designed with self-supporting housing.

Materials: 0.9 and 1.5 mm hot-galvanised steel plates/aluzinc. For further protection against corrosion the condensation water trays have been powder-coated.

## About indoor climate

### The Danish Working Environment Authority says:

"A poor indoor climate in the workplace can and must be prevented. Rules, norms and standards have been set out for indoor climate conditions.

A poor indoor climate can result in e.g. feeling unwell, irritated mucous membranes, headache and fatigue among employees. These are symptoms that reduce employees' quality of life and increase their absence due to illness."

### DTU, Centre for Indoor Climate:

"Research results document that the learning capacity of schoolchildren increases by up to 15% when the indoor climate is right."

Source: PressPort >>Danvak A/S<< Children learn more easily in a good indoor climate.

## Control panel for VPM 120-560

The CTS 600 control system can be used to set a weekly programme for night reduction, automatic temperature regulation (cooling/heating), adjustment of fan speeds and the user's own requirements.

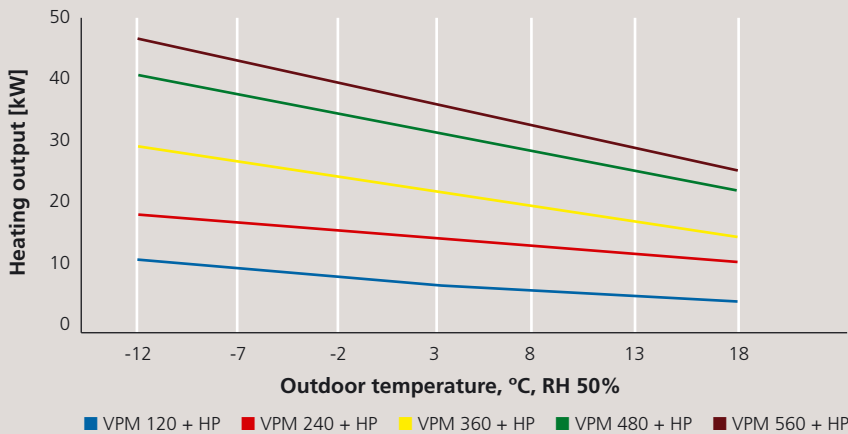


*A poor indoor climate is a working environment problem which will affect more and more employees as technology develops.*



## Heating output

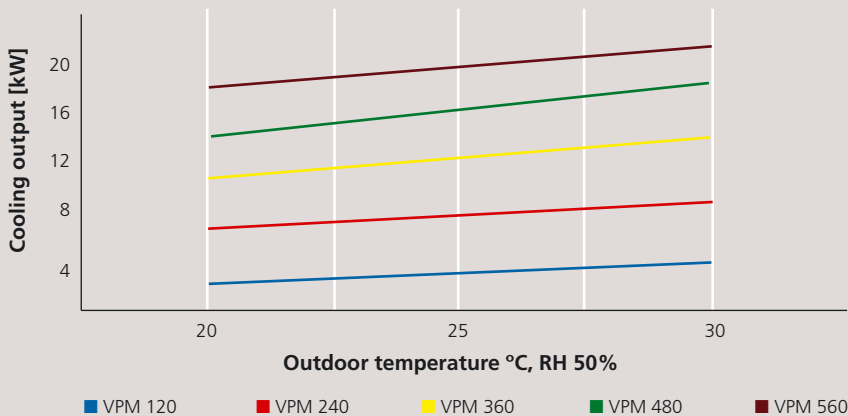
Heat output is based on an extraction air temperature of 20 °C, and a nominal air volume of 1,200 m<sup>3</sup>/h, 2,400 m<sup>3</sup>/h, 3,600 m<sup>3</sup>/h, 4,800 m<sup>3</sup>/h, and 5,600 m<sup>3</sup>/h respectively.



## Cooling output

The cooling output is based on an extraction temperature of 25°C/50% RH and a nominal air volume of 1,200 m<sup>3</sup>/h, 2,400 m<sup>3</sup>/h and 3,600 m<sup>3</sup>/h respectively.

(total cooling performance)



## Pressure drop in Pa

Air volumes [m <sup>3</sup> /h]	1.200	2.400	3.600	4.800	5.600
<b>Components</b>					
Filter F5	48	69	61	51	72
Filter F7	90	108	97	99	115
Heat-pipe	51	76	71	70	87
Evaporator/condenser	32	51	44	51	66
<b>Total</b>	<b>221</b>	<b>304</b>	<b>273</b>	<b>271</b>	<b>340</b>

## Operating economy

The Nilan HP heat pipe 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 extracted air is warmer than the outside air. The greater the difference in temperature between the extracted air and the outside air, the more effective the heat pipe will be.

The cooling medium in Nilan HP is CO<sub>2</sub> which does not affect the ozone layer and contribute to global warming in the way that HFC gases do.

# Nilan brings fresh air and well-being into every room



## Options:

**All data at nominal air volume and fresh air at 4°C and 0% RH.**

### VPM 120:

Renews up to 1,200 m<sup>3</sup>/h (at 250 Pa)  
Temperature efficiency of 86%  
(at 1,200 m<sup>3</sup>/h, room temperature 21°C )  
Output consumption at nominal air volume:  
0.95 kW (-12°C, 50% RH)  
1.30 kW (25°, 50% RH)

### VPM 240:

Renews up to 2,400 m<sup>3</sup>/h (at 250 Pa)  
Temperature efficiency of 81%  
(at 2,400 m<sup>3</sup>/h, room temperature 21°C)  
Output consumption at nominal air volume:  
1.95 kW (-12°C, 50% RH)  
2.70 kW (25°, 50% RH)

### VPM 360:

Renews up to 3,600 m<sup>3</sup>/h (at 300 Pa)  
Temperature efficiency of 84%  
(at 3,600 m<sup>3</sup>/h, room temperature 21°C)  
Output consumption at nominal air volume:  
2.50 kW (-12°C, 50% RH)  
3.55 kW (25°, 50% RH)

### VPM 480:

Renews up to 4,800 m<sup>3</sup>/h (at 350 Pa)  
Temperature efficiency of 94%  
(at 4,800 m<sup>3</sup>/h, room temperature 21°C)  
Output consumption at nominal air volume:  
3.31 kW (-12°C, 50% RH)  
5.00 kW (25°, 50% RH)

### VPM 560:

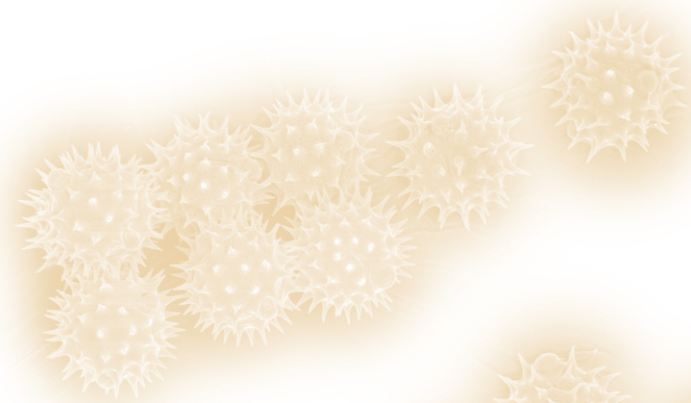
Renews up to 5,600 m<sup>3</sup>/h (at 350 Pa)  
Temperature efficiency of 93%  
(at 5,600 m<sup>3</sup>/h, room temperature 21°C)  
Output consumption at nominal air volume:  
4.22 kW (-12°C, 50% RH)  
6.56 kW (25°, 50% RH)

## Facts:

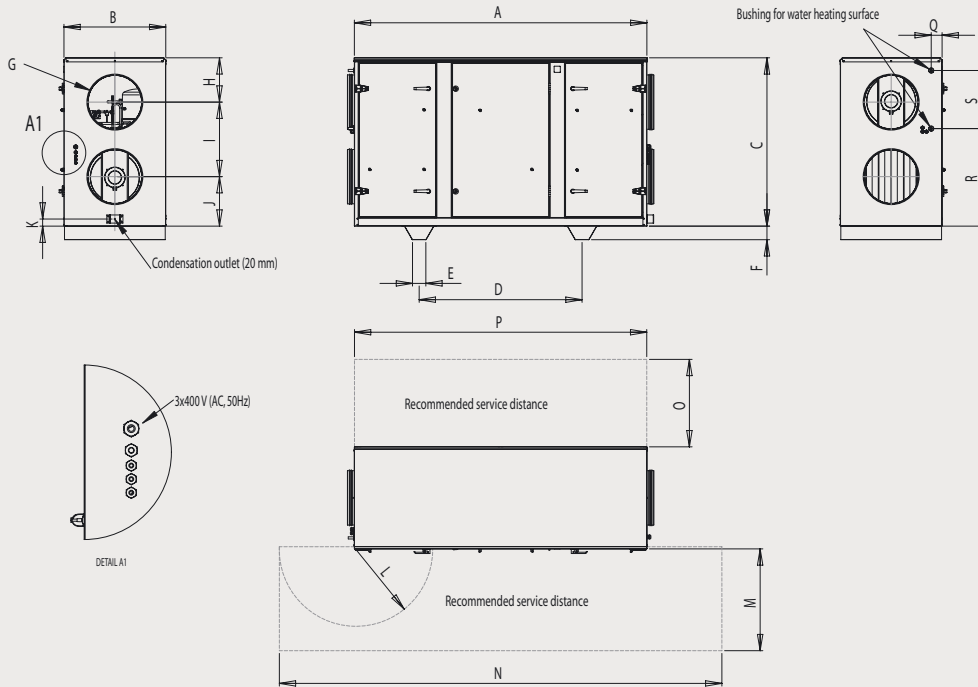
- Cooling function
- Heat recovery
- Renews up to 5,600 m<sup>3</sup> per hour (at 350 pascal)
- Injection and extraction
- Temperature efficiency up to 94%
- Option of supplementary heat using water or electrical heating surface
- Duct connections 500x600 diameter 500 mm / diameter 400 mm / diameter 315 mm

## Advantages:

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



### Dimensioned drawing:



The dimensioned drawing shown is a left version: Injection on left seen from operator side.  
The system is also available in a right version: Injection on right seen from operator side.

	A	B	C	D	E	F	G	H	I	J
VPM 120	1.975	675	990	1.000	100	110	Ø315	264	424	302
VPM 240	2.155	750	1.240	1.200	100	110	Ø400	326	549	365
VPM 360	2.255	940	1.400	1.200	100	110	Ø500	366	629	405
VPM 480	2.255	1.140	1.400	1.200	100	110	HxW	350	760	380
VPM 560	2.255	1.140	1.400	1.200	100	110	500x600	350	760	380

	K	L	M	N	O	P	Q	R	S
VPM 120	52	516	675	2.976	500	1.975	76	591	312
VPM 240	52	565	750	3.260	750	2.155	80	719	428
VPM 360	52	565	900	3.360	900	2.255	125	789	511
VPM 480	35	565	900	3.360	900	2.255	125	789	511
VPM 560	35	565	900	3.360	900	2.255	125	789	511

### Nilan A/S

Nilanvej 2  
DK-8722 Hedensted  
Tel. +45 76 75 25 00  
Fax +45 76 75 25 25  
nilan@nilan.dk  
www.nilan.dk

Distributor: