PRODUCT DATA

VPM 120-560 BY NILAN

Ventilation & active heat recovery

Commercial

Active heat recovery

Ventilation < 8000 m^3/h

Comfort heating

Comfort cooling

NILAN®
OUTSTANDING INDOOR CLIMATE

VPM 120-560

VPM 120-560 is a series of ventilation units with heat recovery useful for ventilation of schools, offices and business premises with a ventilation requirement of up to 8,000 m³/h, and where cooling may also be required.

Heat recovery takes place via a heat pump that recovers up to 100% of the heat in the extracted air. The heat pump has a reversible cooling circuit, which means that the unit can also provide cooling.

If the unit is dimensioned for cooling requirements, in most cases the heat pump will be able to provide enough heating to make a supplementary heating element superfluous.

Heat pipe
The unit's heat pipe functions as a pre-heat exchanger, significantly increasing the unit's output.

The heat pipe system is self-regulating and has uniform recovery across the full area. Energy-intensive de-icing or frost-proofing systems are therefore not required.

The heat pipe's temperature efficiency is included in the unit's total COP, in accordance with EN14511.

Heating elements
Supplementary water heating or electrical heating elements can be added on, and these are regulated via the CTS 602i control.

The heating elements can be integrated into the unit. The automatic control can also operate external heating elements.

Low internal counter pressure
The air's straight path through the unit ensures a unit with very low internal counter pressure.

Filters
VPM 120-560 is supplied with bag filters and as standard with an ISO ePM10 >60% (M5) filter in the extracted air and an ISO ePM1 50% (F7) filter in the outdoor air.

The CTS 602i control has a time-controlled filter change alarm. It is possible to install a pressure-controlled filter alarm as an accessorie.

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Automation
As standard, VPM 120-560 is delivered with an integrated CTS 602i control, which is operated via the supplied HMI touch panel.

The modern CTS 602i control features Modbus RTU RS485 communication, and a building management system that uses this communication method can easily be connected to the unit.

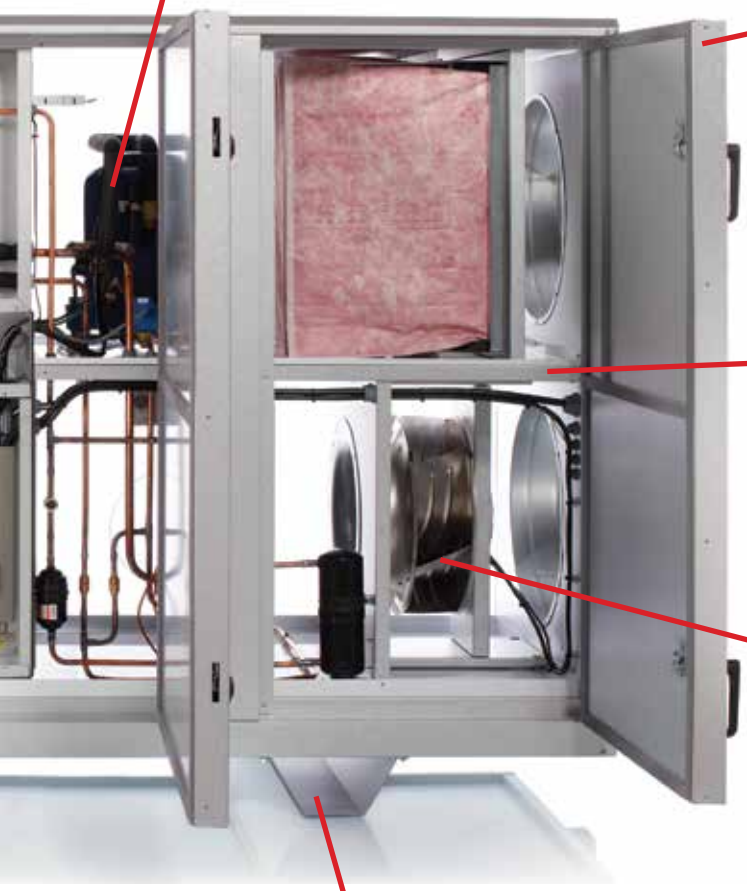
As an accessorie, VPM 240-560 can be equipped with Nilan's CTS 6000 control, which has a web interface and allows for LON communication.

No refrigeration technician on assembly
(Hermetically closed refrigeration circuit)

Heat pump
Heat recovery takes place via a heat pump operated by an on/off compressor that can contribute with more heat to the building than it extracts.

VPM 120-560 has a reversible cooling circuit, and can therefore also cool the supply air.

For VPM 240-560, the heat pump can be ordered with a frequency-controlled compressor, to achieve a lower energy consumption.



Doors
The large doors give good access to replace filters, and to service the unit.

Separate airways
The VPM-series is designed with separate airways, which prevents the transfer of odour particles from e.g. cooking, smoking, toilets or photocopying machines.

Chamber fans
The two fan sections consist of energy-saving EC motors with built-in motor controls, regulated via a 0-10 V signal.

The effective fan wheel has rear-facing blades, with low noise emission.

ecodesign
ErP ready

Design
VPM 120-560 is built into a strong frame structure in 0.9 and 1.5 mm aluzinc, with 50 mm insulation.

VPM 120-560 is delivered with a strong, integrated base, with powder-coated condensation water trays.

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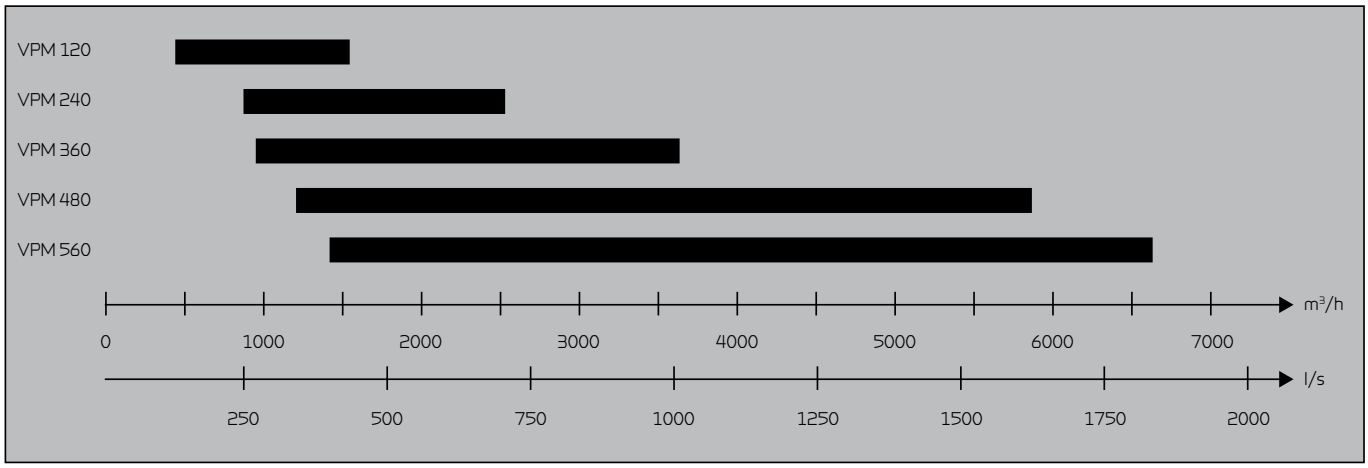
Quick selection

The following VPM 120-560 overview,
with minimum and maximum capacities, makes
it simple to select the right unit.



COOLING AND HEATING

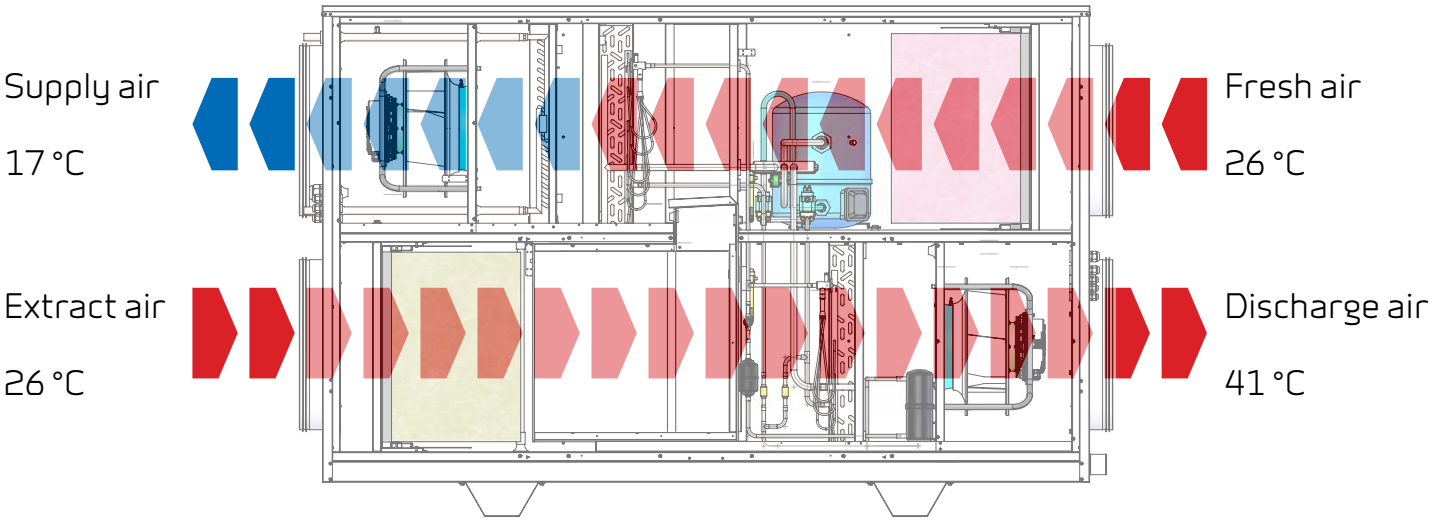
If VPM 120-560 is designed according to the refrigeration requirement, in many cases it will not be necessary to install a heating element.

In the following example, a VPM 360 is designed with an air change six times per hour in the summer and three times per hour in the winter.

It can be seen that the unit can handle an air supply air temperature of 21 °C at a temperature right down to -12 °C, and therefore a heating element is not necessary.

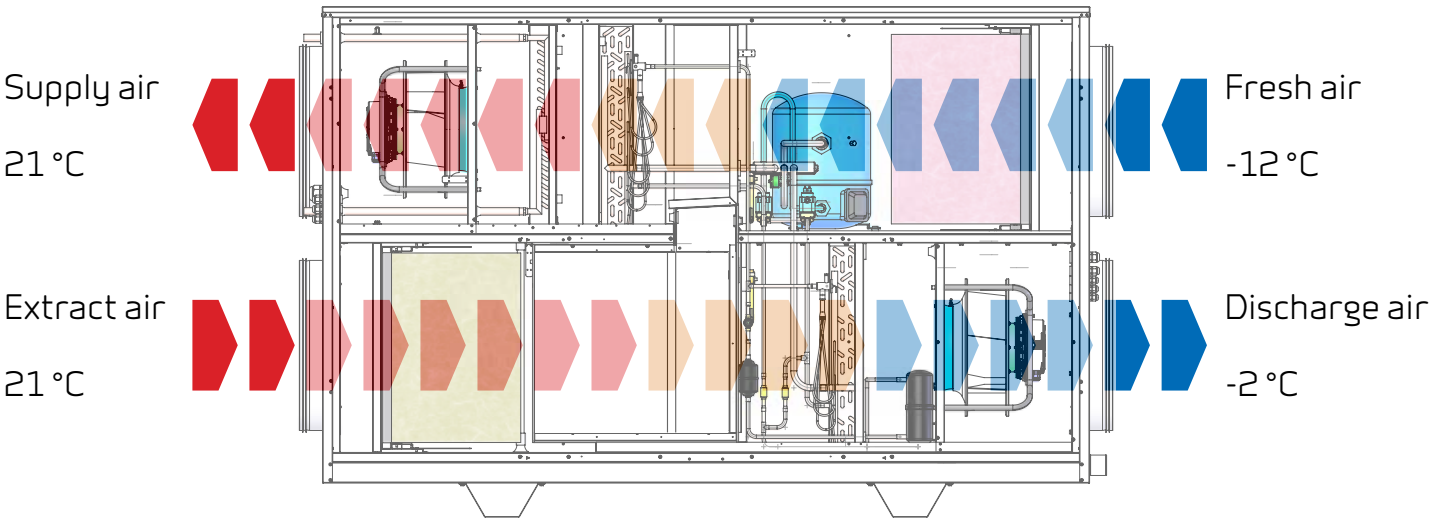
Summer operation

Volume flow: 3200 m³/h



Winter operation

Volume flow: 1600 m³/h



VPM 120

Technical specifications

Dimensions (W x D x H) excl. base	1975 x 675 x 990 mm
Weight	250 kg
Min. airflow	400 m^3/h
Max. airflow	2150 m^3/h
Power consumption	2.3 kW
Power supply	3 x 400V + N, 50 Hz
Max. phase current	3 x 13 A
Plate type casing	Aluzinc steel plate
Refrigerant heatpipe	R744 / 1.95 kg
Compressor	on/off, Maneurop type: MTZ 18
Refrigerant cooling circuit	R 407 C / 1.95 kg
Condenser/evaporator (HxW)	405 x 385 mm
Condensation capacity	2.5 l/h (25 °C / 70% RH, nominal air volume)
Condensation outlet	PVC, Ø 20×1.5 mm
Filter class	Standard bagfilter ISO ePM10 >60% (M5) extract air and ISO ePM1 50% (F7) fresh air
Duct connections	Ø 315 mm
Tightness class DS/EN 1886	L2

Motor and motorcontrol

Motor type	EC-motor
Motor class according to IEC 60034-30	IE3 (Premium efficiency)
Voltage input	1 x 230 V
Current overload protection	Built-in
Control signal	0 - 10 V DC
Fluid temperature (air)	-20 / +40 °C
Ambient temperature (operating)	-20 / +40 °C

Data for ecodesign

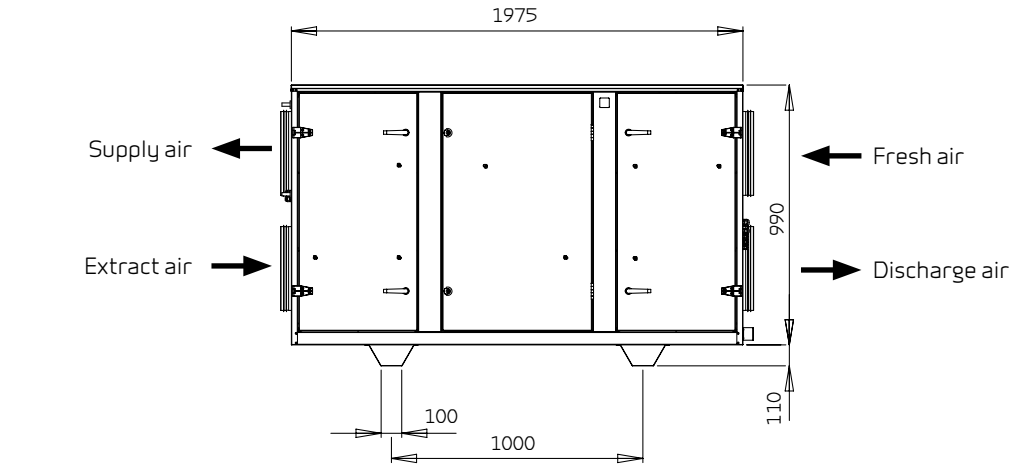
Overall efficiency	67.6 %
Measurement category	A
Efficiency category	Static
Efficiency grade N	81.1
Variable speed drive	Yes
Power consumption P_{ed}	0.52 kW
Air flow q_v	1750 m^3/h
Pressure increase	653 Pa
Speed n	3075
Specific racio	1.01

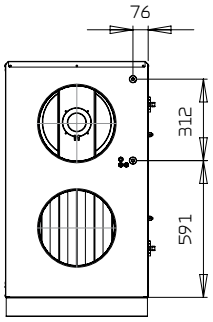
Conditions according to EC327/2011

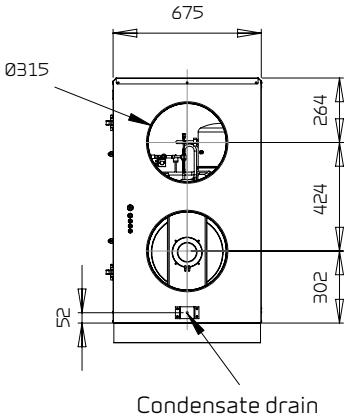
Dimensional drawing

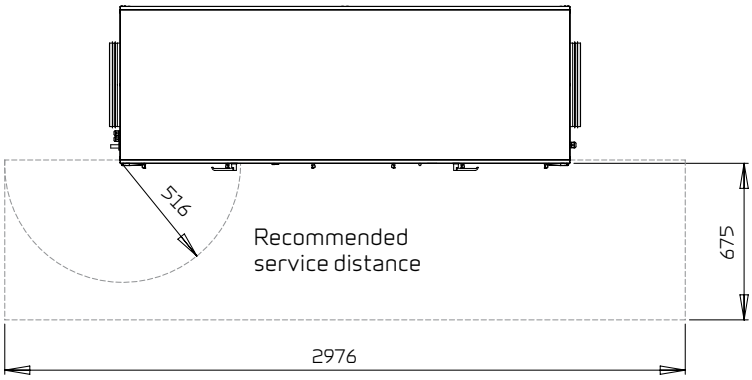
All dimensions are shown in mm.

The dimensional drawing is for a left version.
The unit can also be delivered in a right version.









VPM 120

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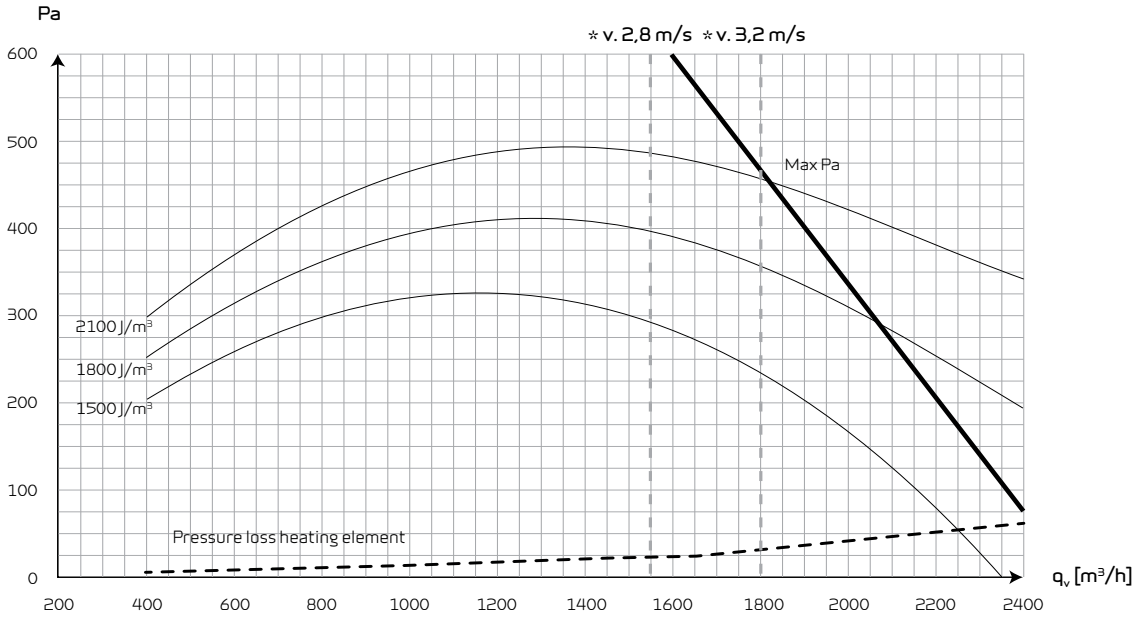
Capacity

Max Pa capacity of standard unit, $P_{t,ext}$ as a function of q_v, with regard to SFP-values.

SFP-values according to EN13414-7 for a standard unit with ISO ePM10 >60% (M5) & ISO ePM1 50% (F7) filters an no heating element.

* Airflow speed above evaporator is measured at meters per second.

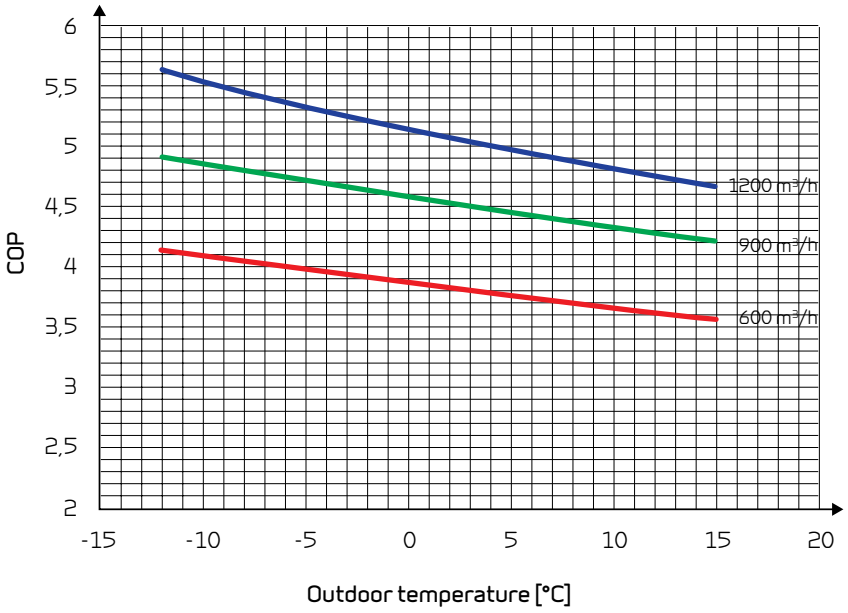
Attention! The SFP values are measured and stated as a total value for both fans.



COP (heating)

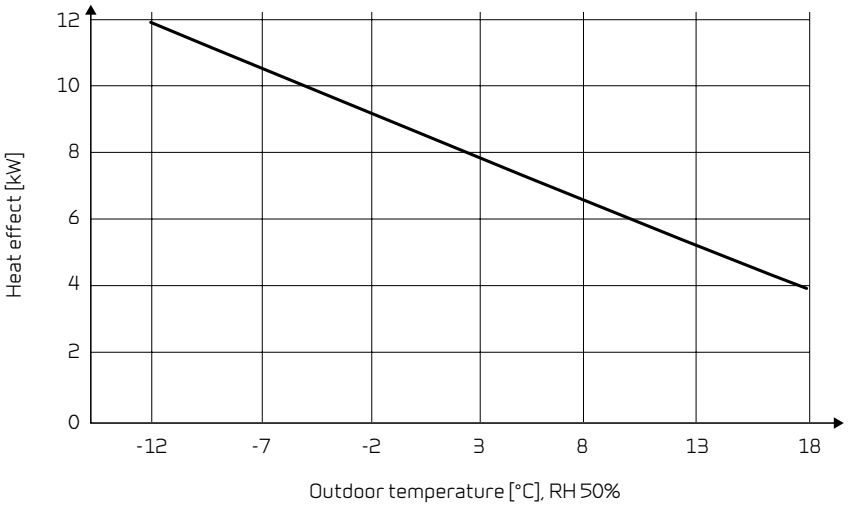
Heat effect factor COP [-] supply air as function of outdoor temperature [°C] and volume flow q_v [m³/h].

According to EN14511, extract air = 21 °C.



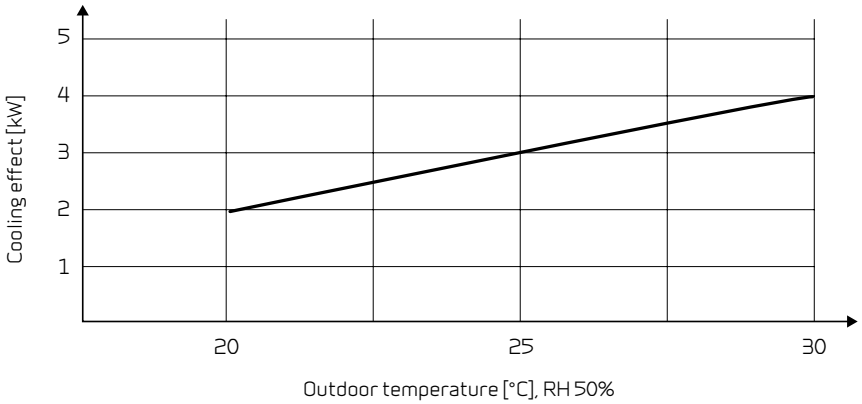
Heat effect (supply air)

Heat effect Q_c [W] as a function of q_v 1200 m³/h and outdoor air temperature [°C].
According to EN 14511, extract air = 21 °C



Cooling effect

Supply air temperature [°C] as a function of outdoor air temperature [°C] and volume flow q_v 1200 m³/h balanced flow.
Extract air temperature = 24 °C



Sound data

Sound data for q_V = 1200 m³/h and $P_{t,ext}$ = 250 Pa according to EN 9614-2 for surfaces and EN 5136 for ducts.

Sound output level L_{WA} drops with falling air volume and falling back pressure.
Sound output level L_{pA} at a given distance will depend on acoustic conditions in the place of installation.

Sound output level (L_{WA})

Octave band Hz	Surface dB(A)	Supply air dB(A)	Extract air dB(A)	Fresh air dB(A)	Discharge air dB(A)
125	58.8	75.5	67.2	67.8	73.9
250	51.7	78.0	69.4	70.7	75.9
500	41.6	78.8	65.2	66.6	76.4
1.000	34.3	80.5	59.7	59.3	78.7
2.000	34.9	78.5	51.3	49.9	76.9
4.000	32.2	72.6	38.2	37.2	70.8
Total ±2 dB(A)	60.0	86.0	73.0	74.0	84.0

VPM 240

Technical specifications

Dimensions (W x D x H) excl. base	2155 x 750 x 1240 mm
Weight	340 kg
Min. airflow	800 m^3/h
Max. airflow	2850 m^3/h
Power consumption	4.5 kW
Power supply	3 x 400V + N, 50 Hz
Max. phase current	3 x 16 A
Plate type casing	Aluzinc steel plate
Refrigerant heatpipe	R 744 / 2.8 kg
Compressor	on/off, Maneurop type: MTZ 32
Variable compressor (accessorie)	Frequency controlled Maneurop type: VTZ 38
Refrigerant cooling circuit	R 407 C / 2.95 g
Condenser/evaporator (HxB)	525 x 462 mm
Condensation capacity	5.5 l/h (25 °C / 70% RH, nominal air volume)
Condensation outlet	PVC, Ø 20×1.5 mm
Filter class	Standard bagfilter ISO ePM10 >60% (M5) extract air and ISO ePM1 50% (F7) fresh air
Duct connections	Ø 400 mm
Tightness class DS/EN 1886	L2

Motor and motorcontrol

Motor type	EC-motor
Motor class according to IEC 60034-30	IE3 (Premium efficiency)
Voltage input	1 x 230 V
Current overload protection	Built-in
Control signal	0 - 10 V DC
Fluid temperature (air)	-20 / +40 °C
Ambient temperature (operating)	-20 / +40 °C

Data for ecodesign

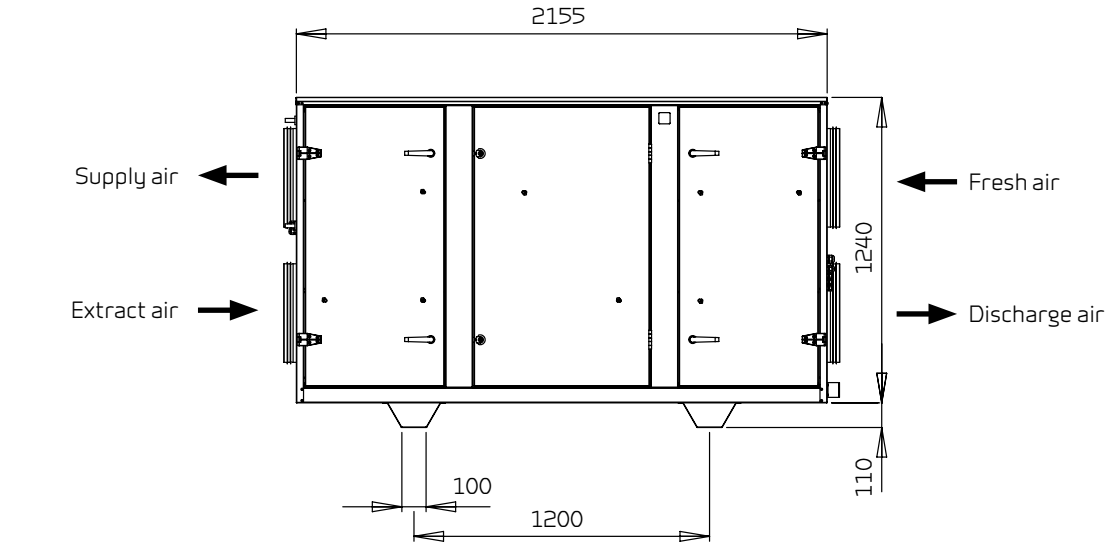
Overall efficiency	67.6 %
Measurement category	A
Efficiency category	Static
Efficiency grade N	79.6
Variable speed drive	Yes
Power consumption P_{ed}	0.72 kW
Air flow q_v	2400 m^3/h
Pressure increase	665 Pa
Speed n	2990
Specific racio	1.01

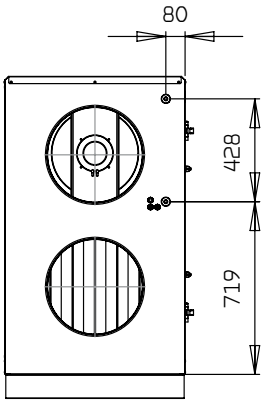
Conditions according to EC327/2011

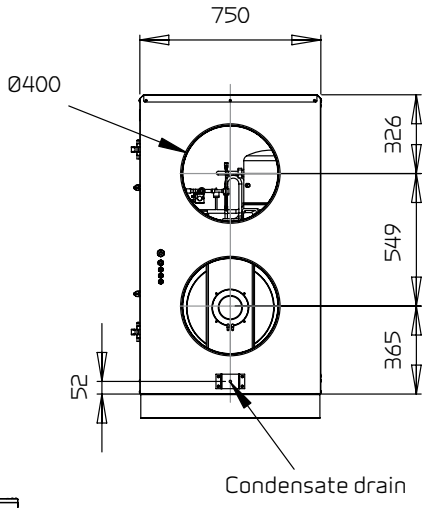
Dimensional drawing

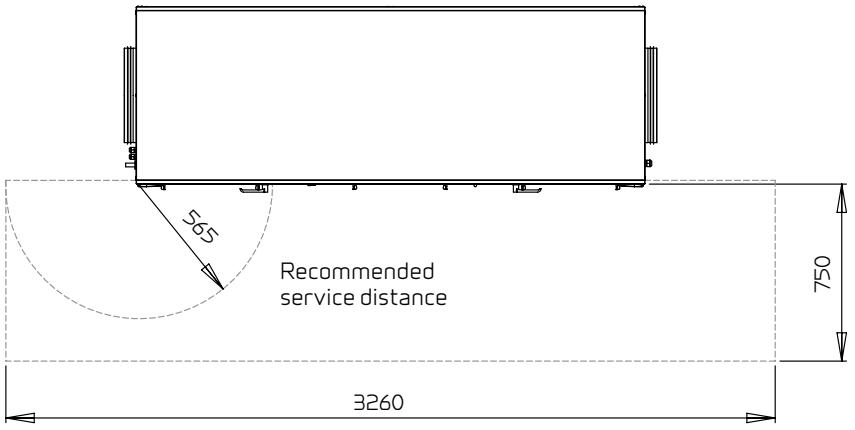
All dimensions are shown in mm.

The dimensional drawing is for a left version.
The unit can also be delivered in a right version.









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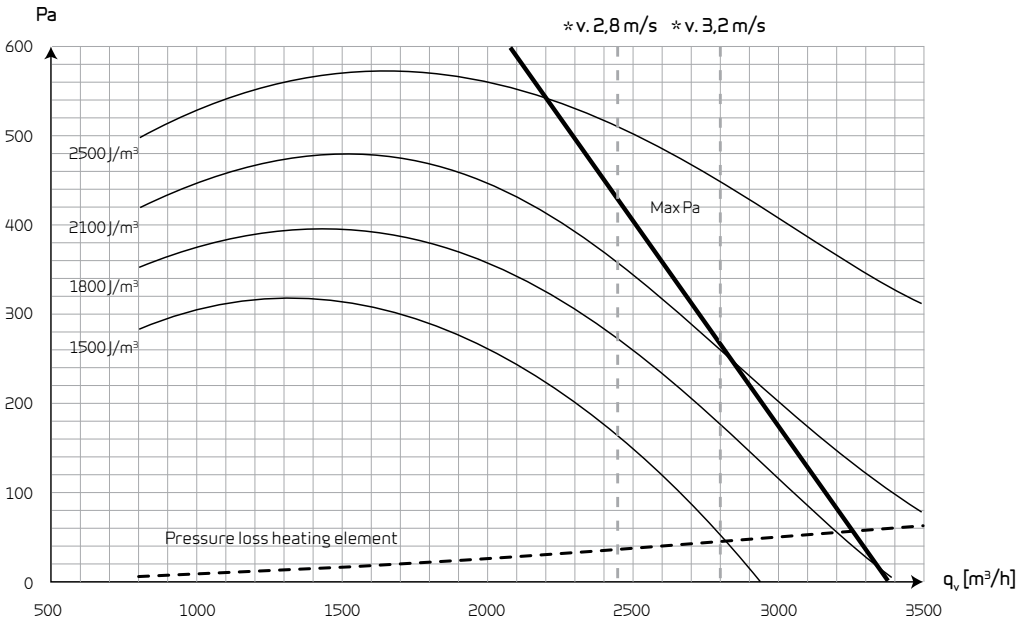
Capacity

Max Pa capacity of standard unit, $P_{t,ext}$ as a function of q_v, with regard to SFP-values.

SFP-values according to EN13414-7 for a standard unit with ISO ePM10 >60% (M5) & ISO ePM1 50% (F7) filters an no heating element.

* Airflow speed above evaporator is measured at meters per second.

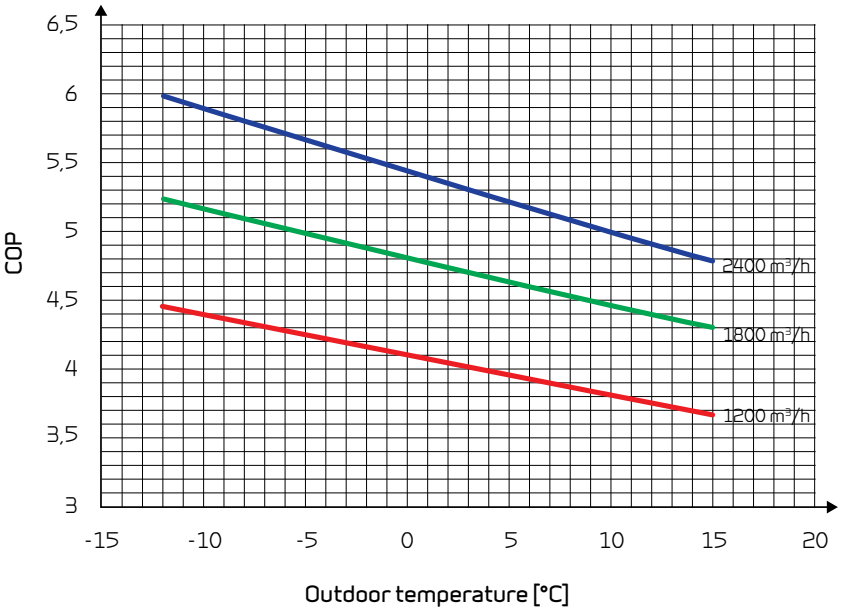
Attention! The SFP values are measured and stated as a total value for both fans.



COP (heating)

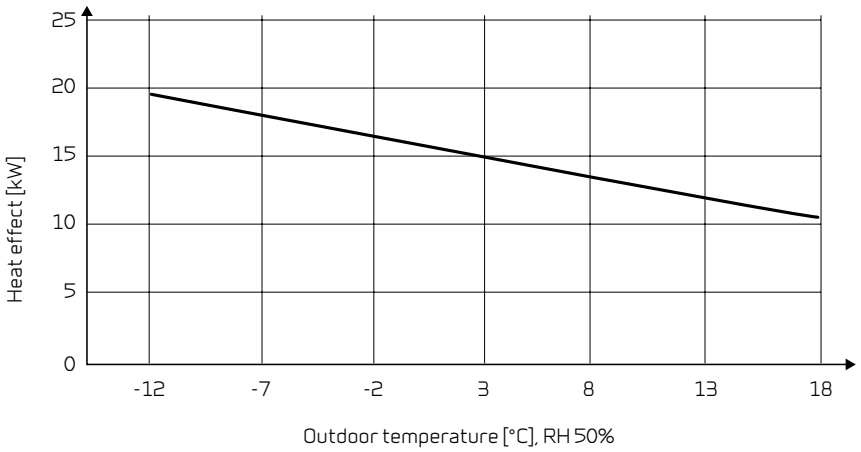
Heat effect factor COP [-] supply air as function of outdoor temperature [°C] and volume flow q_v [m³/h].

According to EN14511, extract air = 21 °C.



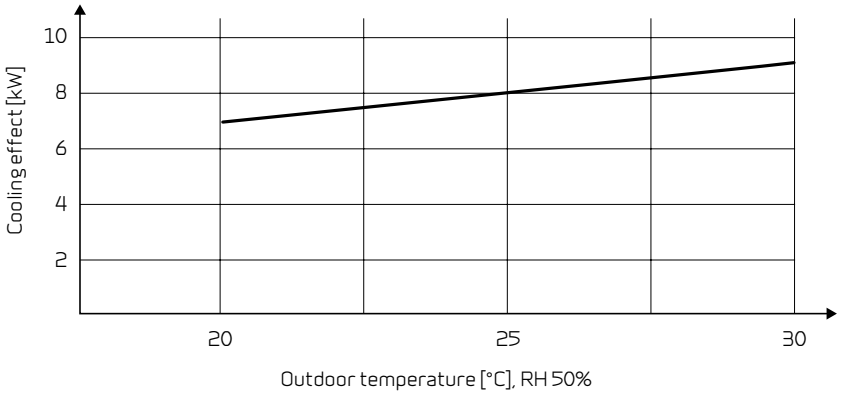
Heat effect (supply air)

Heat effect Q_c [W] as a function of q_v 2400 m³/h and outdoor air temperature [°C].
According to EN 14511, extract air = 21 °C



Cooling effect

Supply air temperature [°C] as a function of outdoor air temperature [°C] and volume flow q_v 2400 m³/h balanced flow.
Extract air temperature = 24 °C



Sound data

Sound data for q_V = 2400 m³/h and $P_{t, ext}$ = 250 Pa according to EN 9614-2 for surfaces and EN 5136 for ducts.

Sound output level L_{WA} drops with falling air volume and falling back pressure.
Sound output level L_{pA} at a given distance will depend on acoustic conditions in the place of installation.

Sound output level (L_{WA})

Oktave band Hz	Surface dB(A)	Supply air dB(A)	Extract air dB(A)	Fresh air dB(A)	Discharge air dB(A)
125	58.8	75.5	67.2	67.8	73.9
250	51.7	78.0	69.4	70.7	75.9
500	41.6	78.8	65.2	66.6	76.4
1.000	34.3	80.5	59.7	59.3	78.7
2.000	34.9	78.5	51.3	49.9	76.9
4.000	32.2	72.6	38.2	37.2	70.8
Total ±2 dB(A)	60.0	86.0	73.0	74.0	84.0

VPM 360

Technical specifications

Dimensions (W x D x H) excl. base	2255 x 940 x 1400 mm
Weight	480 kg
Min. airflow	900 m³/h
Max. airflow	4400 m³/h
Power consumption	6.5 kW
Power supply	3 x 400V + N, 50 Hz
Max. phase current	3 x 16 A
Plate type casing	Aluzinc steel plate
Refrigerant heatpipe	R 744 / 4.5 kg
Compressor	on/off, Maneurop type: MTZ 44
Variable compressor (accessorie)	Frequency controlled Maneurop type: VTZ 54
Refrigerant cooling circuit	R 407 C / 3.5 kg
Condenser/evaporator (HxB)	600 x 655 mm
Condensation capacity	8.0 l/h (25 °C / 70% RH, nominal air volume)
Condensation outlet	PVC, Ø 20×1.5 mm
Filter class	Standard bagfilter ISO ePM10 >60% (M5) extract air and ISO ePM1 50% (F7) fresh air
Duct connections	Ø 500 mm
Tightness class DS/EN 1886	L2

Motor and motorcontrol

Motor type	EC-motor
Motor class according to IEC 60034-30	IE3 (Premium efficiency)
Voltage input	3 x 400 V
Current overload protection	Built-in
Control signal	0 - 10 V DC
Fluid temperature (air)	-20 / +40 °C
Ambient temperature (operating)	-20 / +40 °C

Data for ecodesign

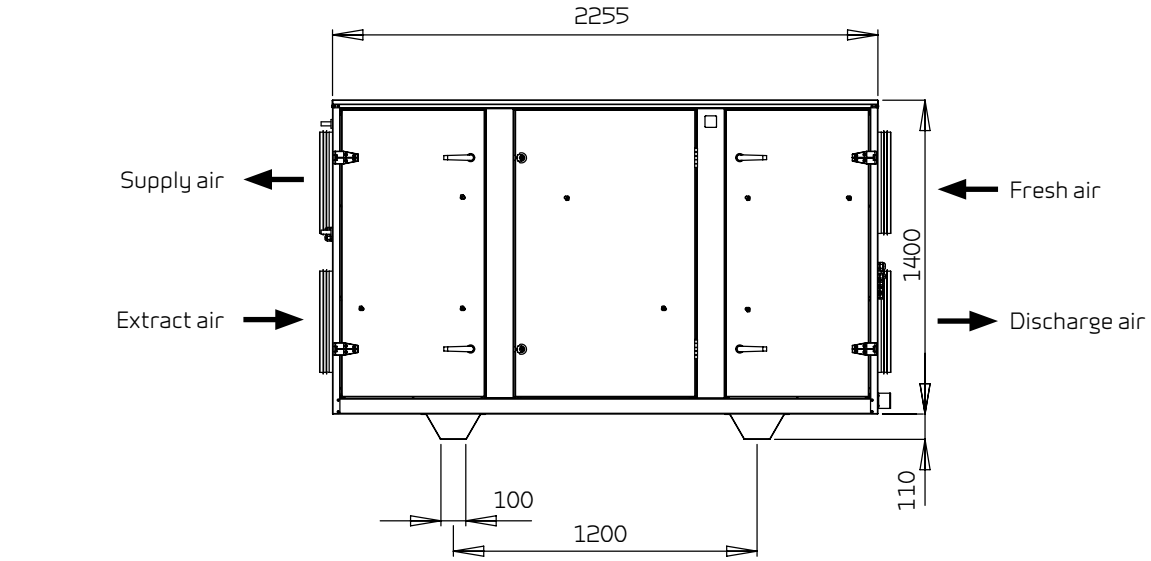
Overall efficiency	69.2 %
Measurement category	A
Efficiency category	Static
Efficiency grade N	79.3
Variable speed drive	Yes
Power consumption P_{ed}	1.09 kW
Air flow q_v	3655 m³/h
Pressure increase	692 Pa
Speed n	2405
Specific racio	1.01

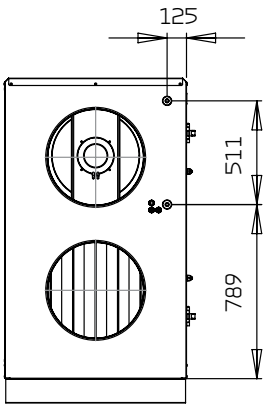
Conditions according to EC327/2011

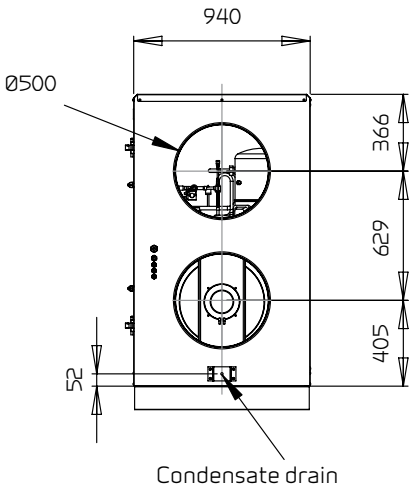
Dimensional drawing

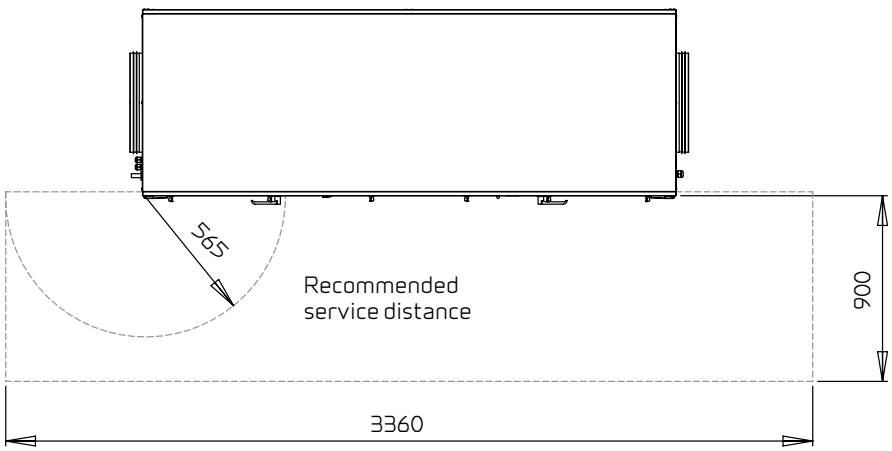
All dimensions are shown in mm.

The dimensional drawing is for a left version.
The unit can also be delivered in a right version.









VPM 360

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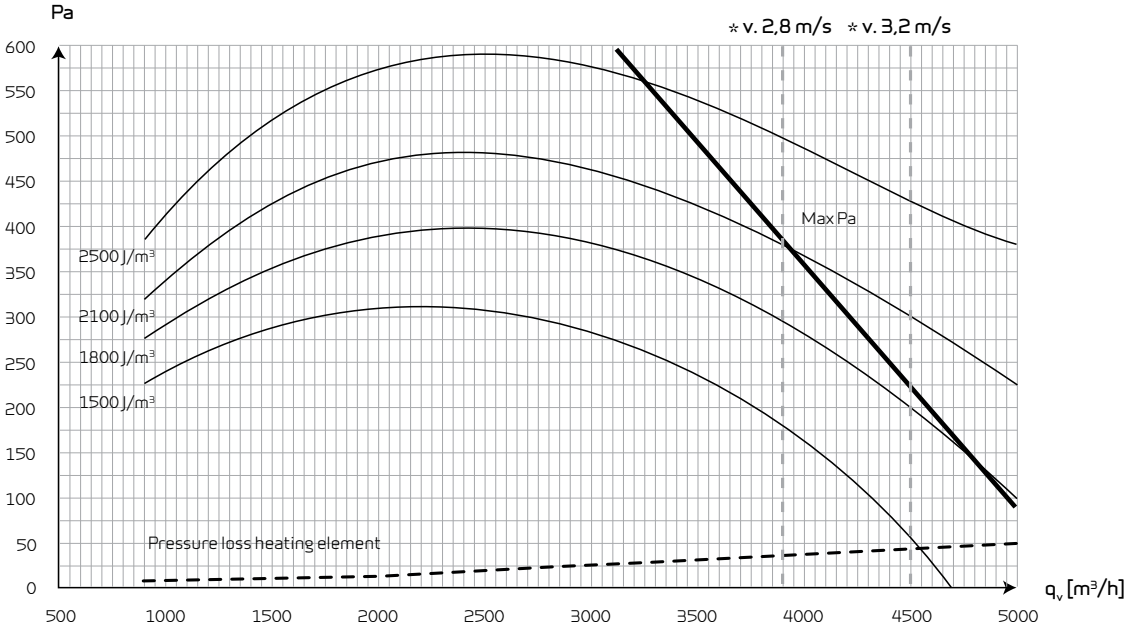
Capacity

Max Pa capacity of standard unit, $P_{t,ext}$ as a function of q_v, with regard to SFP-values.

SFP-values according to EN13414-7 for a standard unit with ISO ePM10 >60% (M5) & ISO ePM1 50% (F7) filters an no heating element.

* Airflow speed above evaporator is measured at meters per second.

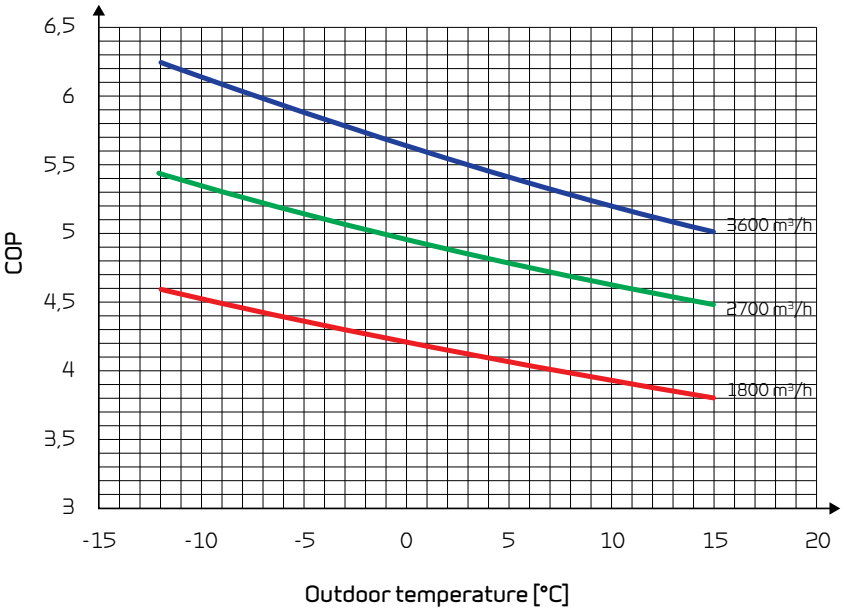
Attention! The SFP values are measured and stated as a total value for both fans.



COP (heating)

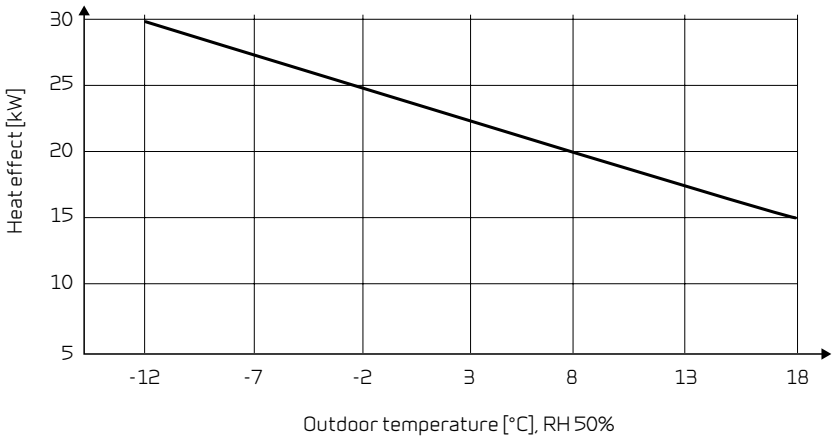
Heat effect factor COP [-] supply air as function of outdoor temperature [°C] and volume flow q_v [m³/h].

According to EN14511, extract air = 21°C.



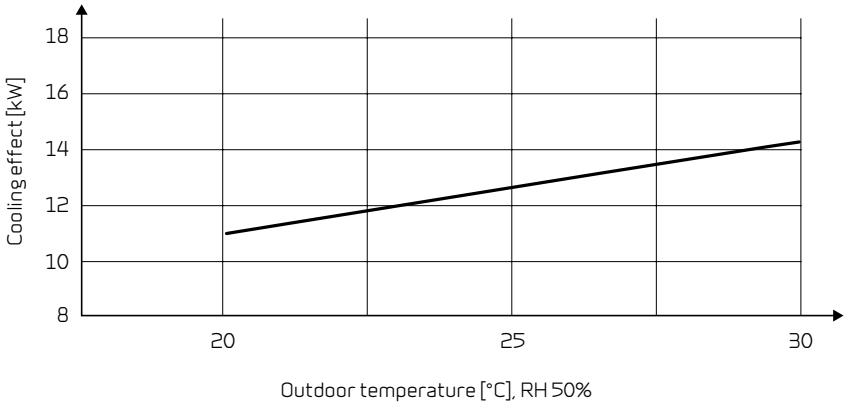
Heat effect (supply air)

Heat effect Q_c [W] as a function of q_v 3600 m³/h and outdoor air temperature [°C].
According to EN 14511, extract air = 21 °C



Cooling effect

Supply air temperature [°C] as a function of outdoor air temperature [°C] and volume flow q_v 3600 m³/h balanced flow.
Extract air temperature = 24 °C



Sound data

Sound data for q_V = 3600 m³/h and $P_{t, ext}$ = 250 Pa according to EN 9614-2 for surfaces and EN 5136 for ducts.

Sound output level L_{WA} drops with falling air volume and falling back pressure.
Sound output level L_{pA} at a given distance will depend on acoustic conditions in the place of installation.

Sound output level (L_{WA})

Oktave band Hz	Surface dB(A)	Supply air dB(A)	Extract dB(A)	Fresh air dB(A)	Discharge air dB(A)
125	59.5	77.5	69.0	68.5	77.0
250	52.8	80.7	72.2	71.8	79.9
500	42.6	80.8	67.9	67.6	80.0
1.000	30.4	79.7	56.9	55.4	79.0
2.000	30.0	75.2	46.9	45.0	74.3
4.000	28.0	68.7	34.9	33.0	67.8
Total ±2 dB(A)	60.0	86.0	75.0	75.0	86.0

VPM 480

Technical specifications

Dimensions (W x D x H) excl. base	2255 x 1140 x 1400 mm
Weight	610 kg
Min. airflow	1200 m^3/h
Max. airflow	5800 m^3/h
Power consumption	10.25 kW
Power supply	3 x 400V + N, 50 Hz
Max. phase current	3 x 25 A
Plate type casing	Aluzinc steel plate
Refrigerant heatpipe	R 744 / 5.5 kg
Compressor	on/off, Maneurop type: MTZ 64
Variable compressor (accessorie)	Frequency controlled Maneurop type: VTZ 54
Refrigerant cooling circuit	R 407 C / 5.5 kg
Condenser/evaporator (HxB)	605 x 900 mm
Condensation capacity	11.5 l/h (25°C / 70% RH, nominal airflow)
Condensation outlet	PVC, Ø 20×1.5 mm
Filter class	Standard bagfilter ISO ePM10 >60% (M5) extract air and ISO ePM1 50% (F7) fresh air
Duct connections	500 x 600 mm
Tightness class DS/EN 1886	L2

Motor and motorcontrol

Motor type	EC-motor
Motor class according to IEC 60034-30	IE3 (Premium efficiency)
Voltage input	3 x 400 V
Current overload protection	Built-in
Control signal	0 - 10 V DC
Fluid temperature (air)	-20 / +40 °C
Ambient temperature (operating)	-20 / +40 °C

Data for ecodesign

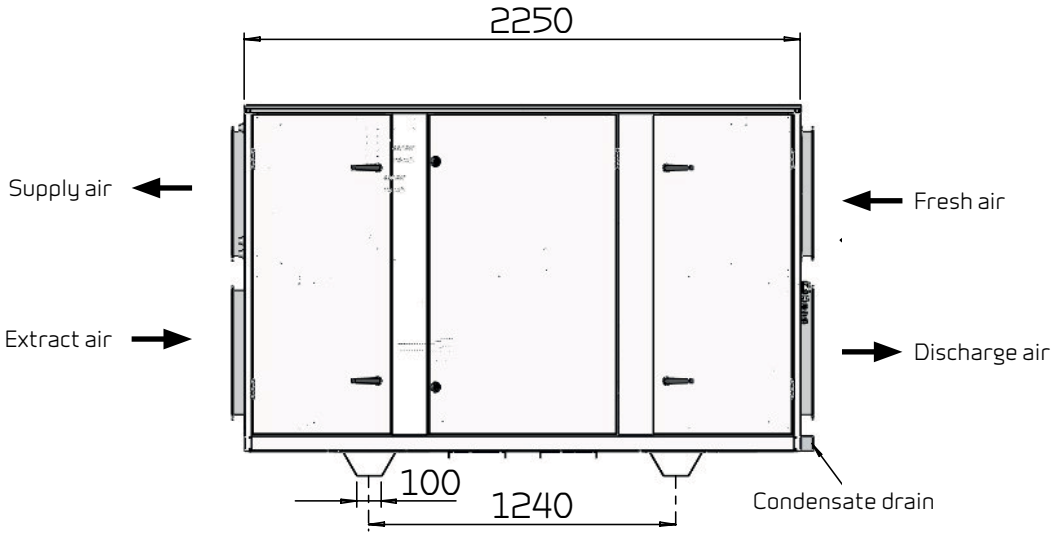
Overall efficiency	68.8 %
Measurement category	A
Efficiency category	Static
Efficiency grade N	76.4
Variable speed drive	Yes
Power consumption P_{ed}	1.89 kW
Air flow q_v	4470 m^3/h
Pressure increase	991 Pa
Speed n	2895
Specific racio	1.01

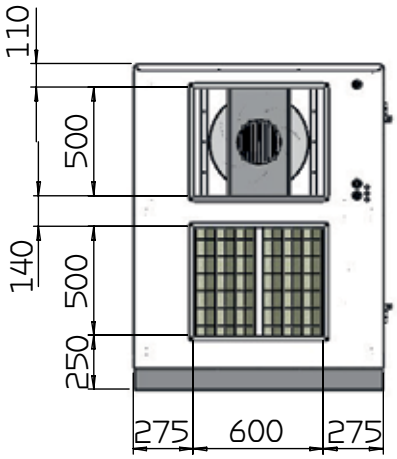
Conditions according to EC327/2011

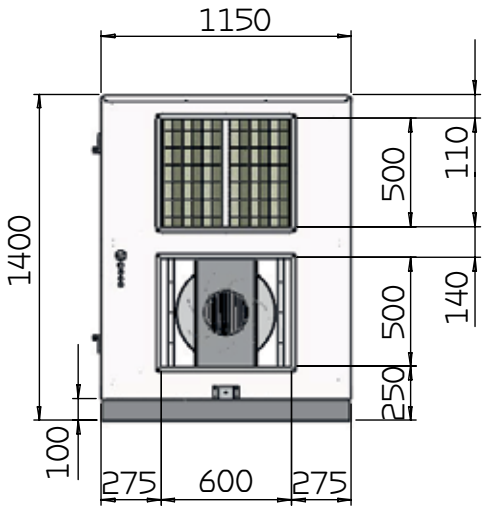
Dimensional drawing

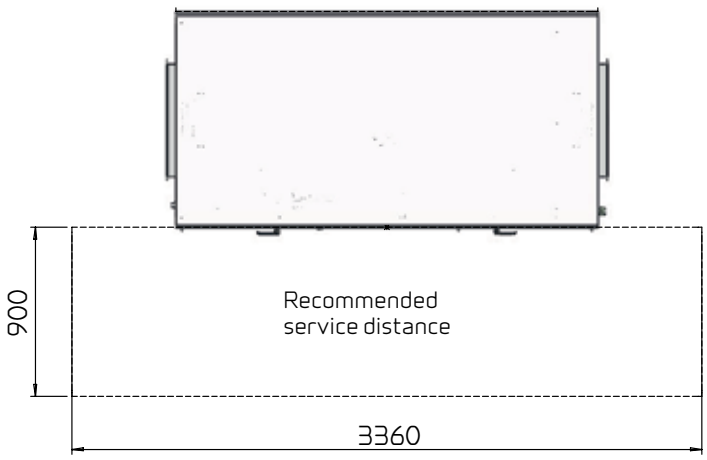
All dimensions are shown in mm.

The dimensional drawing is for a left version.
The unit can also be delivered in a right version.









VPM 480

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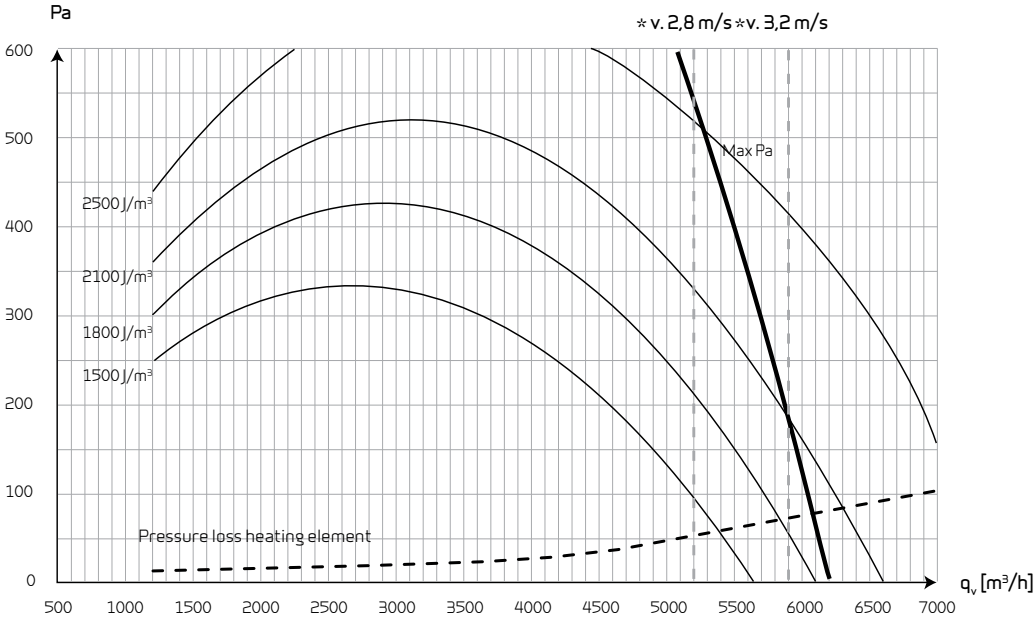
Capacity

Max Pa capacity of standard unit, $P_{t,ext}$ as a function of q_v, with regard to SFP-values.

SFP-values according to EN13414-7 for a standard unit with ISO ePM10 >60% (M5) & ISO ePM1 50% (F7) filters an no heating element.

* Airflow speed above evaporator is measured at meters per second.

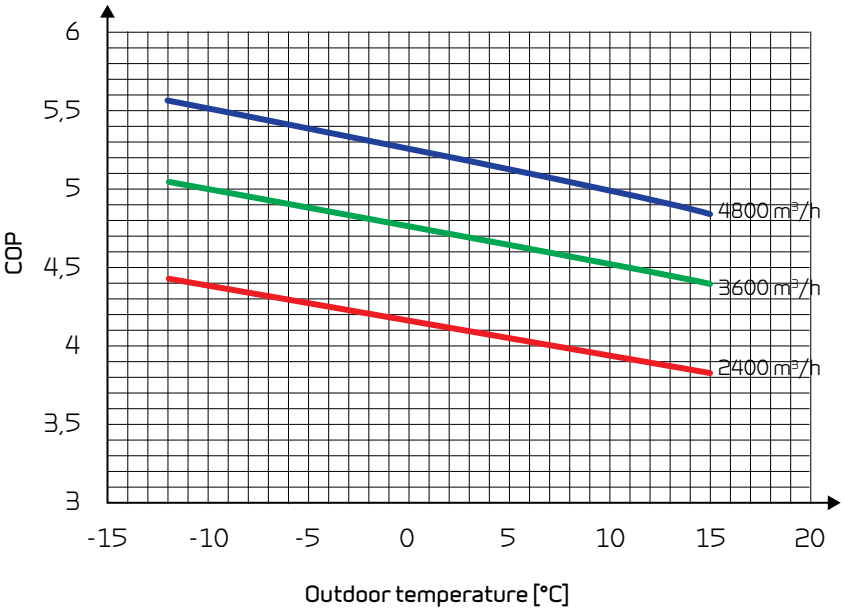
Attention! The SFP values are measured and stated as a total value for both fans.



COP (heating)

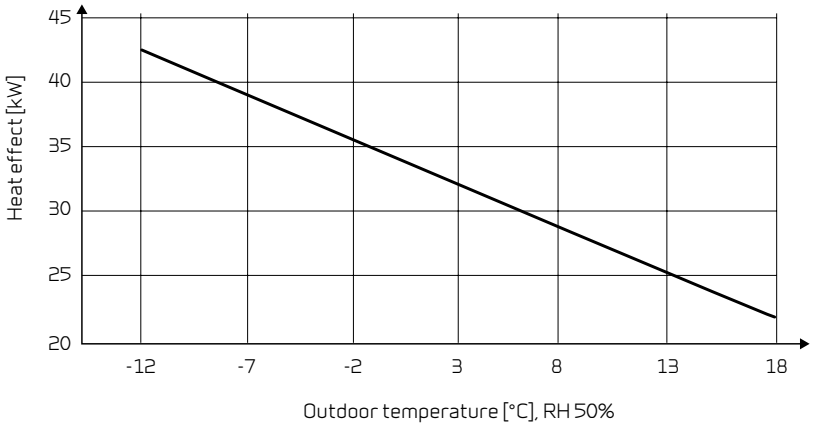
Heat effect factor COP [-] supply air as function of outdoor temperature [°C] and volume flow q_v [m³/h].

According to EN14511, extract air = 21 °C.



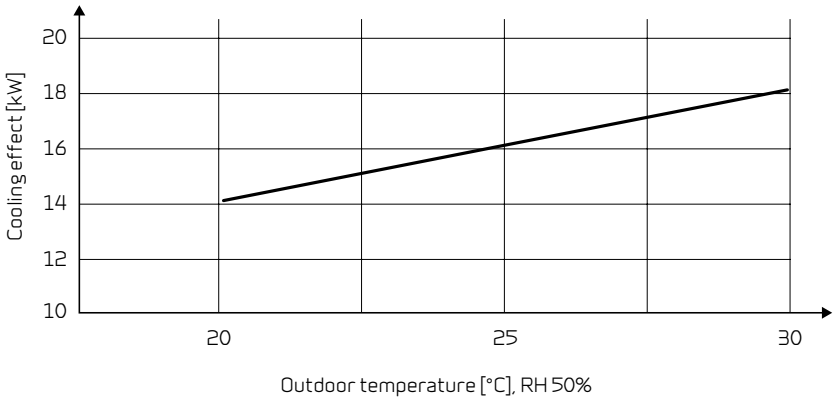
Heat effect (supply air)

Heat effect Q_c [W] as a function of q_v 4800 m³/h and outdoor air temperature [°C].
According to EN 14511, extract air = 21 °C



Cooling effect

Supply air temperature [°C] as a function of outdoor air temperature [°C] and volume flow q_v 4800 m³/h balanced flow.
Extract air temperature = 24 °C



Sound data

Sound data for q_v = 4800 m³/h and $P_{t, ext}$ = 250 Pa according to EN 9614-2 for surfaces and EN 5136 for ducts.

Sound output level L_{WA} drops with falling air volume and falling back pressure.
Sound output level L_{pA} at a given distance will depend on acoustic conditions in the place of installation.

Sound output level (L_{WA})

Oktave band Hz	Surface dB(A)	Supply air dB(A)	Extract air dB(A)	Fresh air dB(A)	Discharge air dB(A)
125	59.5	77.5	69.0	68.5	77.0
250	52.8	80.7	72.2	71.8	79.9
500	42.6	80.8	67.9	67.6	80.0
1.000	30.4	79.7	56.9	55.4	79.0
2.000	30.0	75.2	46.9	45.0	74.3
4.000	28.0	68.7	34.9	33.0	67.8
Total ±2 dB(A)	60.0	86.0	75.0	75.0	86.0

VPM 560

Technical specifications

Dimensions (W x D x H) excl. base	2255 x 1140 x 1400 mm
Weight	615 kg
Min. airflow	1400 m^3/h
Max. airflow	8000 m^3/h
Power consumption	12 kW
Power supply	3 x 400V + N, 50 Hz
Max. phase current	3 x 32 A
Plate type casing	Aluzinc steel plate
Refrigerant heatpipe	R 744 / 5.5 kg
Compressor	on/off, Maneurop type: MTZ 80
Variable compressor (accessorie)	Frequency controlled Maneurop type: VTZ 86
Refrigerant cooling circuit	R 407 C / 5.5 kg
Condenser/evaporator (HxB)	605 x 900 mm
Condensation capacity	13.5 l/h (25 °C / 70% RH, nominal airvolume)
Condensation outlet	PVC, Ø 20×1.5 mm
Filter class	Standard bagfilter ISO ePM10 >60% (M5) extract air and ISO ePM1 50% (F7) fresh air
Duct connections	500 x 600 mm
Tightness class DS/EN 1886	L2

Motor and motorcontrol

Motor type	EC-motor
Motor class according to IEC 60034-30	IE3 (Premium efficiency)
Voltage input	3 x 400 V
Current overload protection	Built-in
Control signal	0 - 10 V DC
Fluid temperature (air)	-20 / +40 °C
Ambient temperature (operating)	-20 / +40 °C

Data for ecodesign

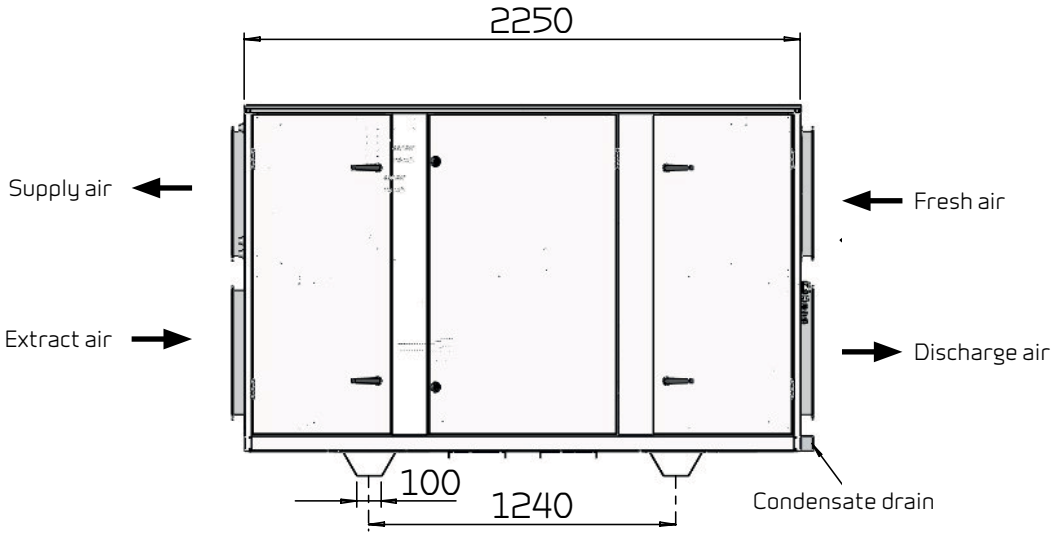
Overall efficiency	67.9 %
Measurement category	A
Efficiency category	Static
Efficiency grade N	74.1
Variable speed drive	Yes
Power consumption P_{ed}	2.59 kW
Air flow q_v	5525 m^3/h
Pressure increase	1075 Pa
Speed n	3245
Specific racio	1.01

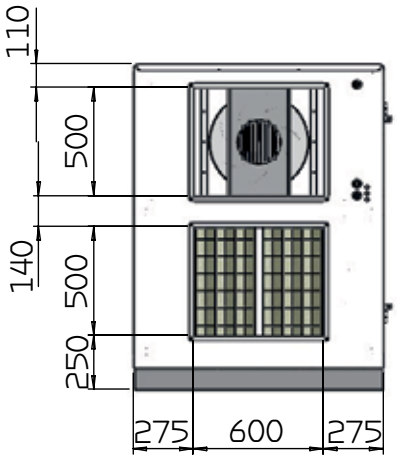
Conditions according to EC327/2011

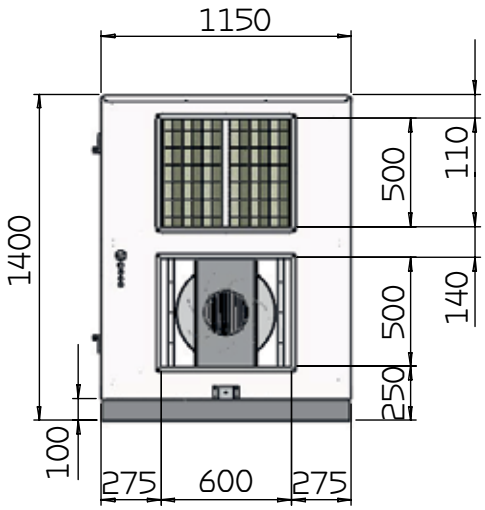
Dimensional drawing

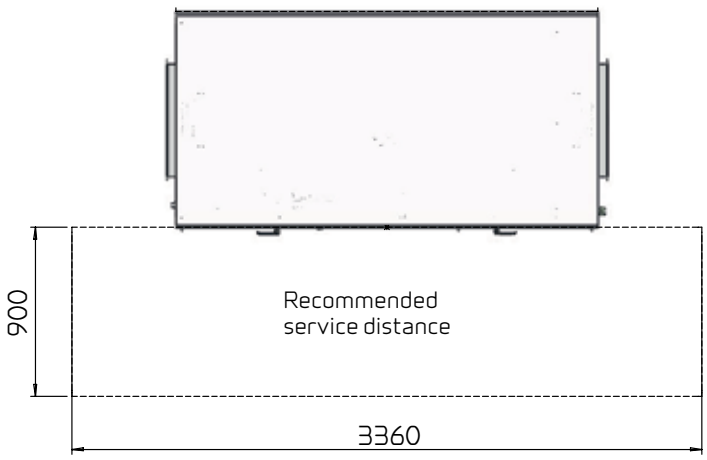
All dimensions are shown in mm.

The dimensional drawing is for a left version.
The unit can also be delivered in a right version.









VPM 560

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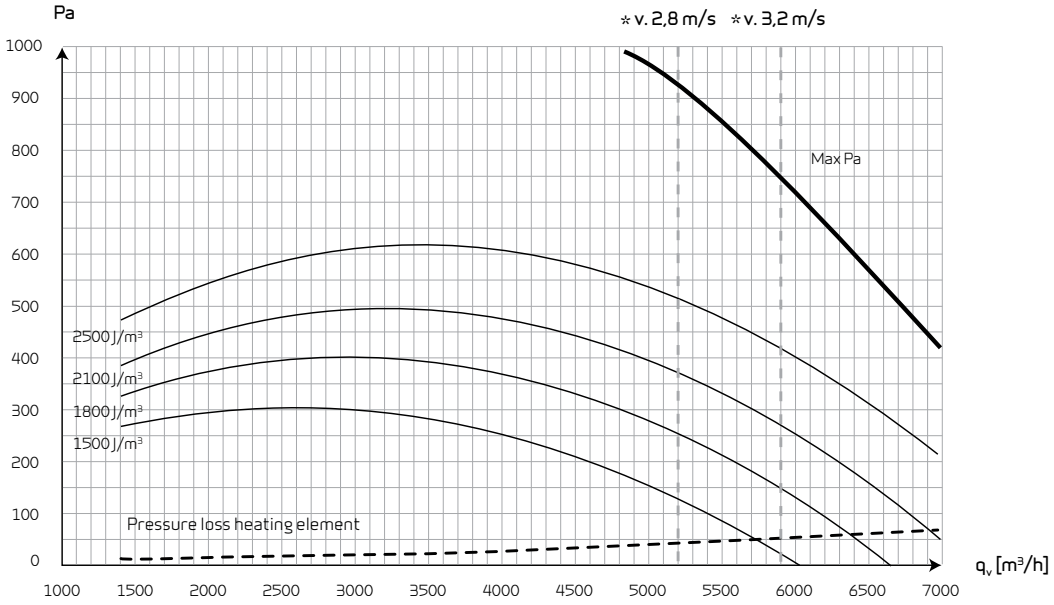
Capacity

Max Pa capacity of standard unit, $P_{t,ext}$ as a function of q_v, with regard to SFP-values.

SFP-values according to EN13414-7 for a standard unit with ISO ePM10 >60% (M5) & ISO ePM1 50% (F7) filters an no heating element.

* Airflow speed above evaporator is measured at meters per second.

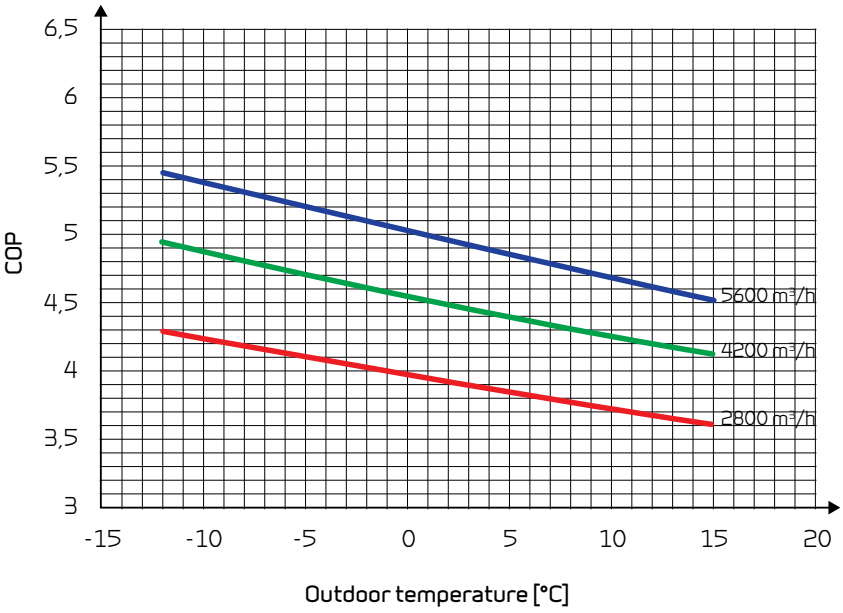
Attention! The SFP values are measured and stated as a total value for both fans.



COP (heating)

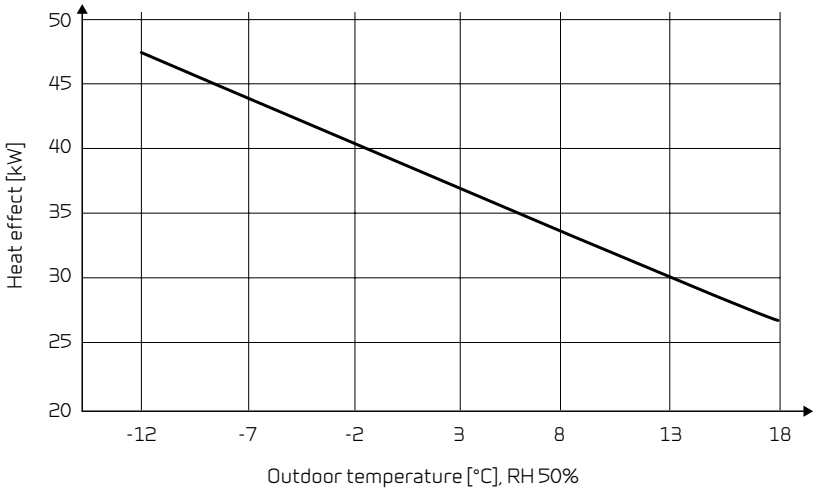
Heat effect factor COP [-] supply air as function of outdoor temperature [°C] and volume flow q_v [m³/h].

According to EN14511, extract air = 21 °C.



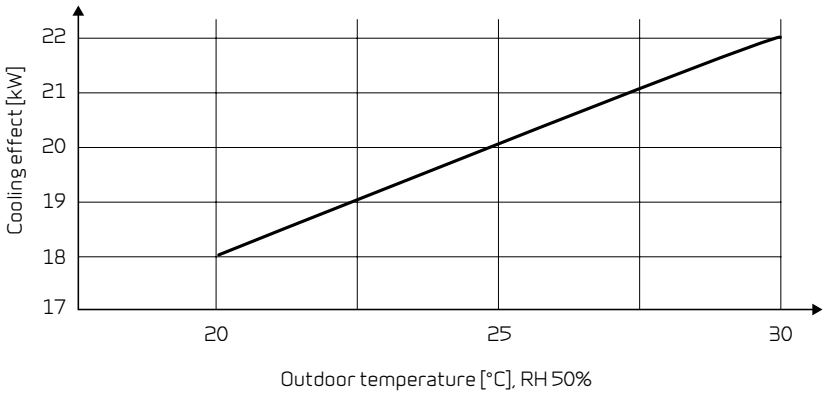
Heat effect (supply air)

Heat effect Q_c [W] as a function of q_v 5600 m³/h and outdoor air temperature [°C].
According to EN 14511, extract air = 21 °C



Cooling effect

Supply air temperature [°C] as a function of outdoor air temperature [°C] and volume flow q_v 5600 m³/h balanced flow.
Extract air temperature = 24 °C



Sound data

Sound data for q_V = 5600 m³/h and $P_{t, ext}$ = 250 Pa according to EN 9614-2 for surfaces and EN 5136 for ducts.

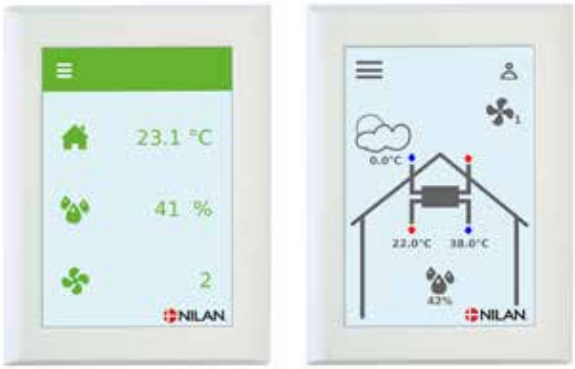
Sound output level L_{WA} drops with falling air volume and falling back pressure.
Sound output level L_{pA} at a given distance will depend on acoustic conditions in the place of installation.

Sound output level (L_{WA})

Oktave band Hz	Surface dB(A)	Supply air dB(A)	Extract air dB(A)	Fresh air dB(A)	Discharge dB(A)
125	61.3	79.7	70.8	70.3	79.1
250	56.1	85.0	75.5	75.1	84.4
500	47.5	85.0	72.6	72.5	84.3
1.000	39.1	88.7	65.1	64.1	88.0
2.000	39.9	87.2	56.9	54.9	85.5
4.000	43.9	84.5	51.8	48.9	84.0
Total ±2 dB(A)	63.0	94.0	78.0	78.0	93.0

AUTOMATION

CTS 602i Control

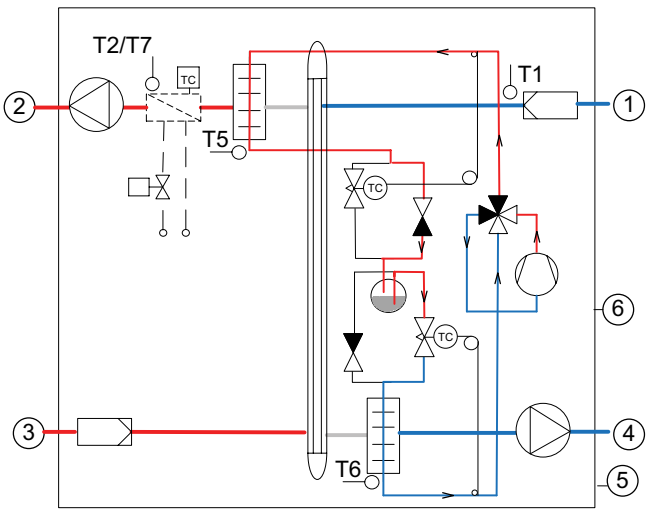


The VPM 120-560 range is controlled using its CTS 602i HMI touch panel, featuring a wide range of functions, e.g., menu-controlled operation, weekly programme settings, filter monitor with timer, fan speed adjustment, summer bypass, post-heating element control, error messages etc.

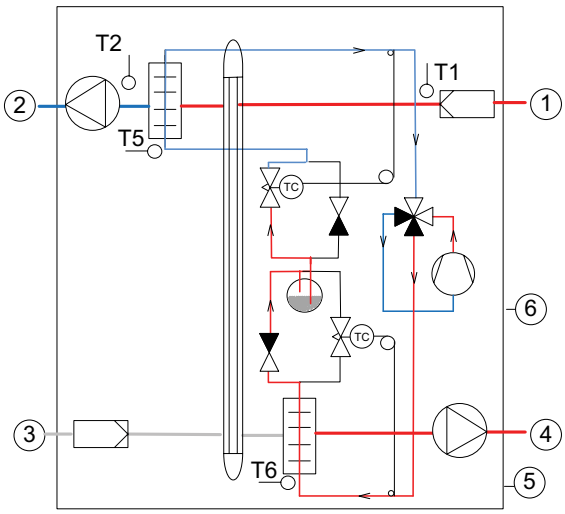
The CTS 602i comes with factory settings, including a default setting which can be customised to operational requirements to achieve optimum operation and utilisation of the system.

Functional diagrams

Heating



Cooling



Connections

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

Automatik

T1: Outdoor air sensor
T2/T7: Supply air sensor
T9: Heating element frost protection
T5: Capacitor sensor
T6: Evaporator sensor
T10: Room sensor

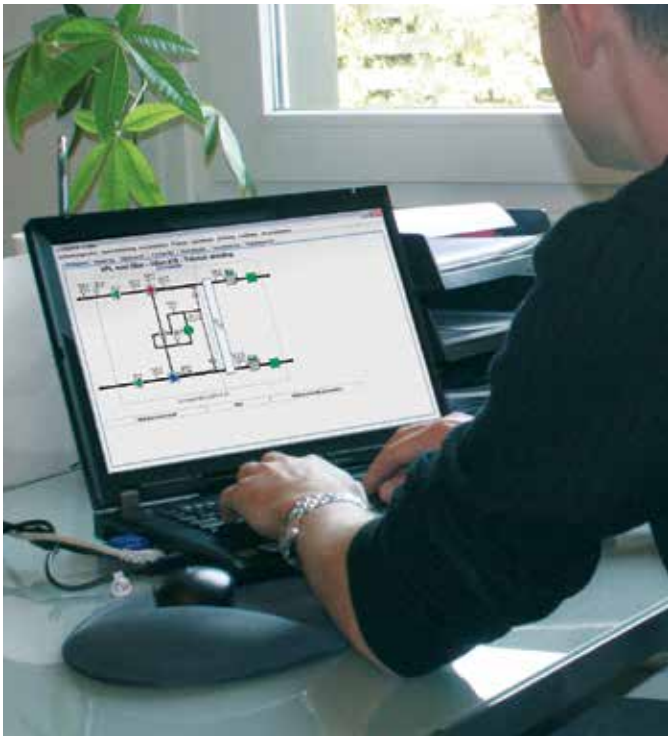
Functional overview		+ Standard - Accessories
3 levels	The control function is divided into 3 levels: User/Service/Factory with various options at each level	+
Weekly plan	The unit has 3 weekly programmes (with a factory setting of "off") • Programme 1: for working families • Programme 2: for stay-at-home families • Programme 3: for businesses There is also an option for you to set your own weekly programme.	+
User option 1	This allows you to overwrite the operating mode in the main menu via an external potential-free contact or PIR sensor.	+
Alarms	Alarm log featuring the last 16 alarms.	+
Filter monitor	Filter monitor with timer (factory setting of 90 days). Adjustable to 30/90/180/360 days.	+
Bypass	Bypassing the outdoor air reduces heat recovery, enabling the desired supply air temperature to be maintained spring, summer and autumn.	+
Air quality	Allows you to choose whether to switch humidity sensors and/or CO_2 sensors on and off.	-
Humidity control	Allows you to set a higher or lower ventilation step in the case of high/low air humidity.	+
CO_2 control	Allows you to set a higher or lower ventilation step in the case of a high/low CO_2 level.	-
Air exchange	Allows you to select a low ventilation step in the case of low outside temperatures and air humidity.	+
Frostprotection	In case of failing heating system, the unit is turned off to avoid further cooling with a risk of the water heating coil frost bursting.	+
Temperature control	Allows you to select the temperature sensor which will control the unit. • T10 EXT (fitted in a representative extraction valve) • T3 EXHAUST (extract air)	+
Room low	Stops the unit at a low room temperature. Hereby is cooling of the home avoided in case of a failing central heating system. Standard set to OFF. Can be set from 1 to 20 degrees and is controlled by: • T10 EXT (fitted in a representative extraction valve) • T3 EXHAUST (extract air)	+
Room control	Allows you to set the regulator to control the room temperature.	+
Air volume	Allows you to set four ventilation steps. Supply air and extract air are set individually. Step 1 < 25% - Step 2 < 45% - Step 3 < 70% - Step 4 < 100%	+
Fire alarm	This allows you to connect fire-detecting thermostats, smoke detectors and other fire alarm contacts. In case of an alarm, smoke dampers are closed and the unit stops.	+
Joint alarm	Outlet for joint alarm	+
Constant pressure control	Allows control from both the extract air and supply air side.	-
Cooling	The heat pump has a reversible cooling circuit, which means that the cooling circuit can be reversed, with the unit cooling instead of heating the supply air.	+
Night cooling	It is possible the set the control to run night cooling.	+
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 heating element	• Temperature sensor T7 is an supply air sensor • Integrated frost protection for external water heating element • Motorised valve and circulation pump control unit	-
External electric heating element	• Temperature sensor T7 is an supply air sensor • Overheating protection	-
Delayed start-up	There is a possibility for a delayed start-up by the fans, when a closing damper is installed.	+
Expansion PCB	Allows you to make additional connections, e.g. • User option 2 overrides User option 1 (e.g. connecting an EM box) • Up to 500 W direct • Can give the signal for external heating if the defrost function is used • Switching the central heating system on/off	-
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).	+

ONLINE AUTOMATION

CTS 6000 Control

An add-on CTS 6000 control for VPM 240-560 makes it possible to control and monitor the unit online via a computer, no matter where in the world the unit is located.

CTS 6000 is developed to meet future requirements for greater opportunities to optimise the ventilation units' operating economy, as well as detailed adjustment to each building's requirements.



Control

Ideal control of ventilation units requires simple, user-friendly operation of the key functions. Based on a weekly or annual program, automatic operation can be set, including the opportunity to set times for operation, room temperatures, ventilation rates, alarms, etc.

An annual program makes it possible to set a program points for fixed public holidays, when the unit must be non-operational. For several units, this setting can be made on a centralised basis.

On-site control panel

The unit can be controlled directly via the CTS 6000 control panel.

This can be installed at the unit, but also located centrally in the building ventilated by the unit.

The user level makes it possible to briefly overrun the weekly or annual program.

Simple unit setting
- Setting of air volume
- Setting of temperature
- See alarms

Monitoring

With the CTS 6000, the ventilation unit can be monitored from a computer via the Internet. The unit can also be connected to the building's internal network, or can have its own separate connection.

Trend graphs make it possible to monitor the current operation. CTS 6000 ensures optimum monitoring of the unit's operating status, since all types of operational disruptions, alarms and maintenance reports are alerted automatically via e-mail to the right users. This means that operational disruptions can be addressed quickly, but also ensures optimum maintenance and planning of service visits.

CTS 6000 allows for remote support and diagnosis of any faults to the company's service partners.

CTS 6000 Online control and monitoring

VPM 240-560 with CTS 6000 has the same functions as for CTS602i,
but CTS 6000 expands the opportunity for online control and monitoring.

Functions

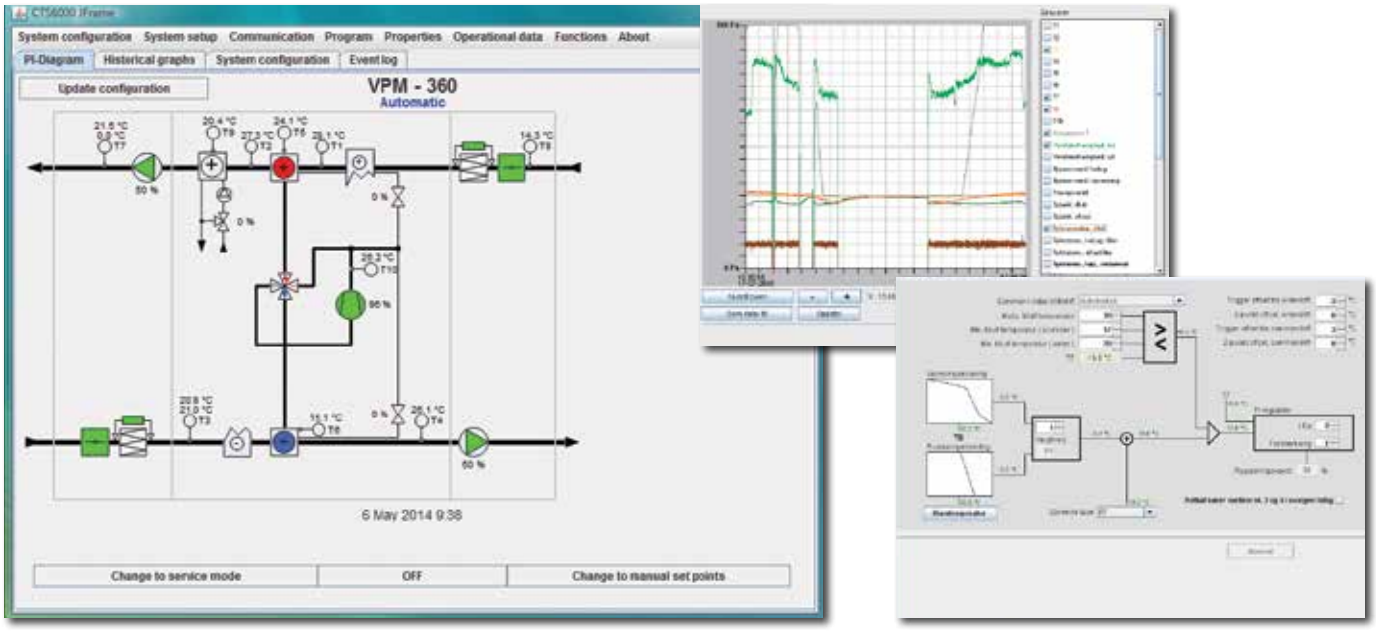
- Online control and monitoring program for Nilan commercial units
- Computer-based control and monitoring
- Automatic control via weekly or annual program
- Setting of temperature control, night cooling, pressure limits, alarms, fan speed, etc.
- Graphic history curves for temperature, air volume and heating and cooling requirement
- Trend graphs showing the unit's current operational status
- Automatic alarm messages concerning operational status, faults and maintenance by e-mail
- Connection to room controls and frequency converters
- Opportunity to adapt the user interface to various user levels

Advantages

- The units can be controlled and monitored from all over the world
- A weekly or annual program ensures detailed adjustment of the indoor climate to the individual building's requirements
- Automatic, intelligent control ensures optimised operating economy
- History graphs make it possible to optimise operation and indoor climate
- Rapid diagnosis of any operational disruptions or faults allows action to be taken quickly
- Improved opportunity to provide remote support and thereby plan service visits
- User-friendly operation whereby the user interface can be adapted to personal preferences

Add-on

It is possible to add on a LON/Modbus card, so that the unit can also be connected to an external building management system with LON or Modbus communication.



EXTERNAL COMMUNICATION

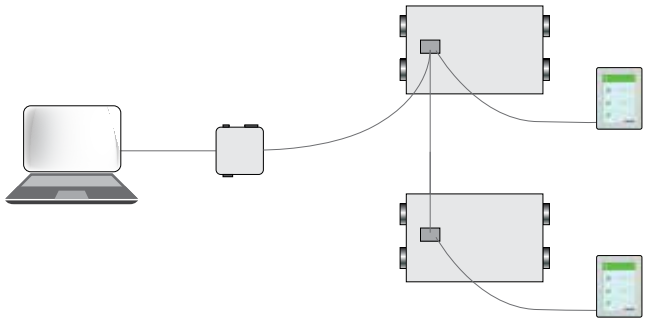
CTS 602i Control

The CTS 602i 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 set up by default for a Modbus RTU 30 address, but can be set to a value between 1 and 247.

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



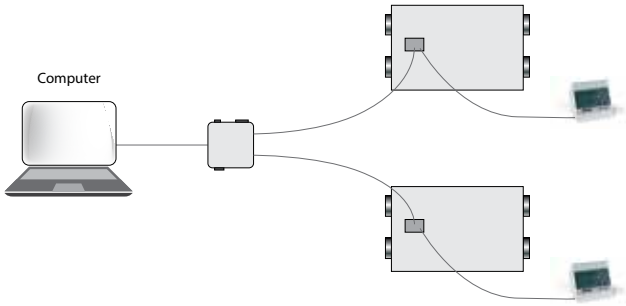
CTS 6000 Control

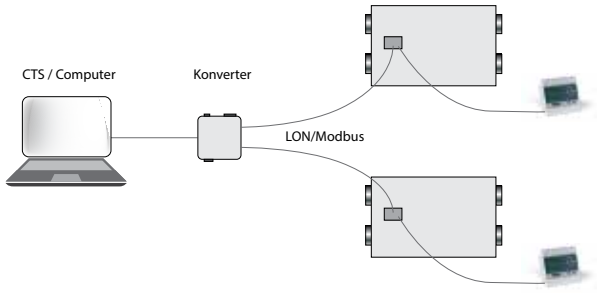
As standard, CTS 6000 communicates via a LAN link and can be connected to a computer via the Internet, internal network or direct link.

With an add-on, the automatic control can be connected to a building management system with Lon or Modbus communication.

CTS 6000 modbus communication is RTU RS485. As standard, the protocol is set up for a Modbus RTU 30 address, but can be set for a value between 1 and 247.

VPM 120 cannot be ordered with CTS 6000 automatic control.





CALCULATION

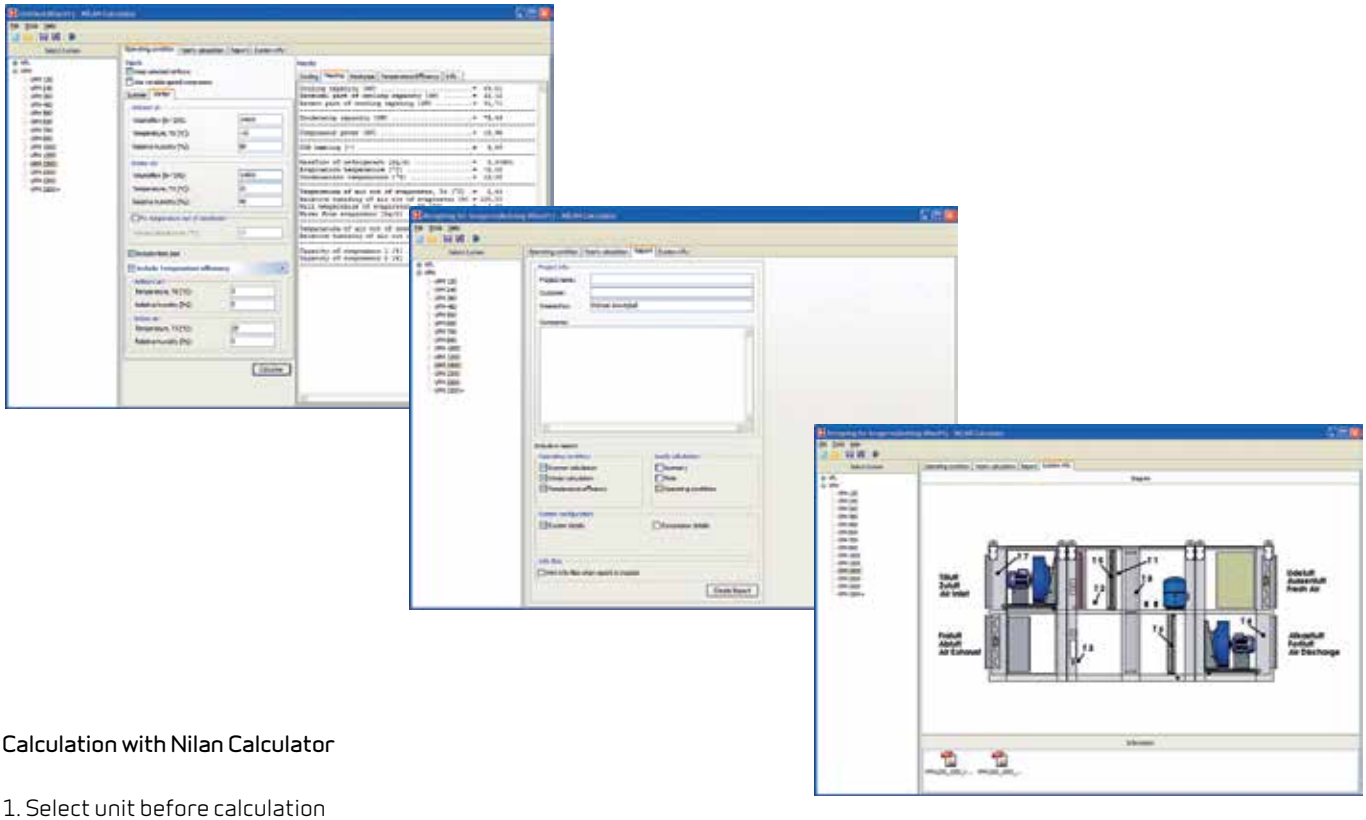
Correct calculation

Precise analysis of weather conditions and geographical location is vital on selecting the most effective and economic ventilation system. Nilan has developed a calculation program that allows for realistic and extremely precise calculations that take all factors into consideration. The program uses DRY data, which is based on extensive meteorological measurements for the local area in which the unit is to be used.

While traditional calculation methods solely take account of the unit's efficiency in extreme temperature conditions, Nilan's calculation program is based on data that gives an exact picture of the normal climatic conditions in which the unit is typically required to operate. Variables such as daily and weekly plans and holidays can also be entered, to give a detailed picture of when and how the unit is to be used.

Nilan's calculation program ensures a precise and accurate basis for selecting the most economical ventilation system. The program is tested to ensure the greatest possible user-friendliness, and will also be continuously developed, in dialogue with the users. We value feedback, in order to ensure optimum development of future versions of the program.

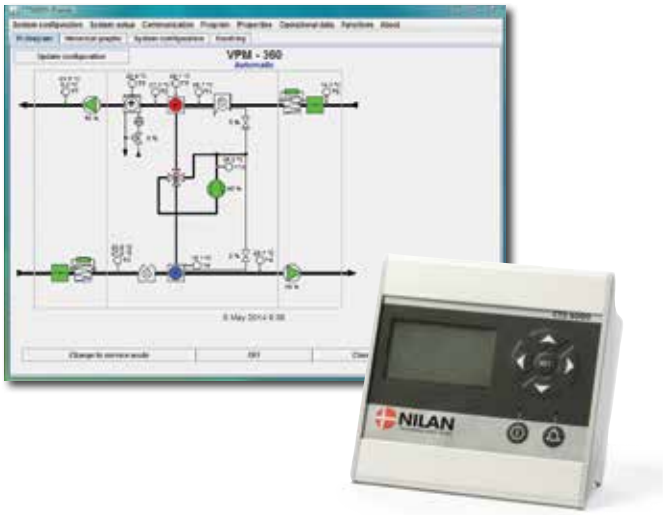
You can order Nilan Calculator by sending an e-mail to calculator@nilan.dk



Calculation with Nilan Calculator

1. Select unit before calculation
2. Setting up calculation method
3. Enter conditions: air volumes, temperatures and humidities for summer and winter operation
4. The program performs calculation and the result is displayed on the screen
5. The result can be printed out as a report, stating the project name and customer data
6. Unit information with simplified diagram, scale drawing, capacity curves, etc. can be downloaded

ACCESSORIES



CTS 6000 Control

For online monitoring and control of the unit, Nilan's CTS 6000 Automatic control can be used (See description of the automatic control on pages 28 and 29).

Cannot be ordered for VPM 120

LON/Modbus card

CTS 6000 automatic control can be connected to an external building management system with LON or Modbus communication. This card is an accessory to the CTS 6000 automatic control.

VTZ compressor

VTZ is a frequency-controlled compressor with constant, stable regulation. The compressor adapts its operation to the cooling or heating requirement, and will thereby achieve a high COP value, and low energy consumption.

The VTZ compressor can only be used with the CTS 6000 automatic control.

Cannot be ordered for VPM 120

Pressure regulation

The motor for the extraction and/or air intake fan can be regulated by one or two pressure transmitters mounted in the extraction and/or supply air duct.

In the standard version, the pressure transmitters are delivered with a 5-m cable, including power supply.

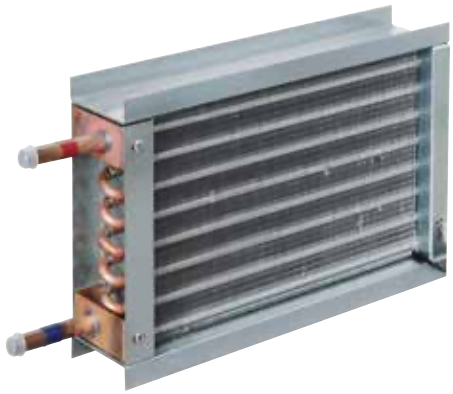
Pressure-regulated filter alarm

Measures the pressure drop across the filter and alerts when the filter is to be replaced.

Shut-off damper

Damper for external installation is provided in a set of two, with attached servomotor.

- For CTS 602i a 230-V servomotor is included.
- For CTS 6000 a 24-V servomotor is included



Heating elements

A heating element can raise the supply air temperature to the required level VPM 120-560 is available with integrated water-heating or electrical residual heating element.

Both automatic controls can also regulate external heating elements.

If VPM 120-560 is designed according to the cooling requirement, there will often be no need for a heating element.

Humidity control

Integrated humidity control can be ordered for the unit, to control the ventilation according to the relative humidity in the extracted air.

CO_2-control

Integrated CO_2 control can be included in the unit, to control the ventilation according to a defined CO_2 level in the extracted air.

Top cover

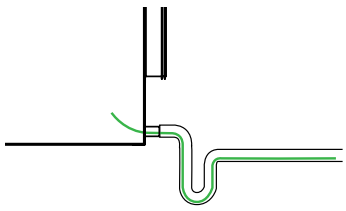
If VPM 120-560 is installed outdoors, a top cover for protection from rain and snow can be ordered.

Vibration dampers

A set of four vibration dampers can be included.

Water seal

The water seal is intended for negative pressure and has a ball to ensure that the water seal is tight even when not filled with water.



Heat cable

For frost-proofing of the condensate water drain, a 3-m self-regulating heat cable is available.

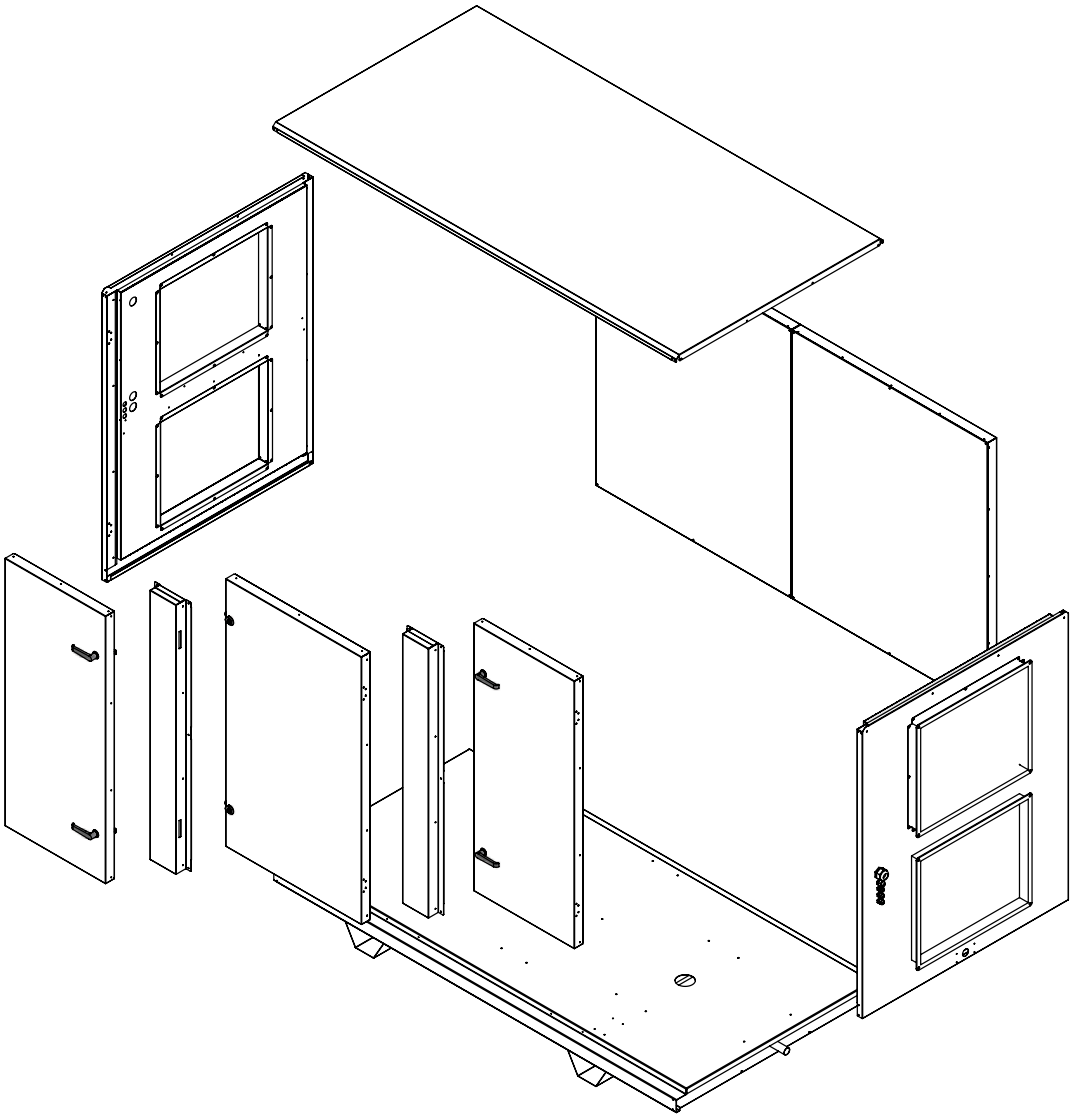
ON-SITE INSTALLATION

Split-unit

If there is insufficient space to bring in the unit in full size, VPM units for on-site installation are available.

This means that the unit is delivered unassembled on pallets. The parts are carried into the building where the unit is to be located. Nilan will send two technicians to assemble the unit on-site.

Once the unit has been assembled, it will be subject to quality and functional testing.



DELIVERY AND HANDLING

Transport and storage

VPM comes in factory packaging that protects it during transport and storage.
VPM must be stored in a dry place in its original packaging until installation.

The packaging should only be removed immediately prior to installation.

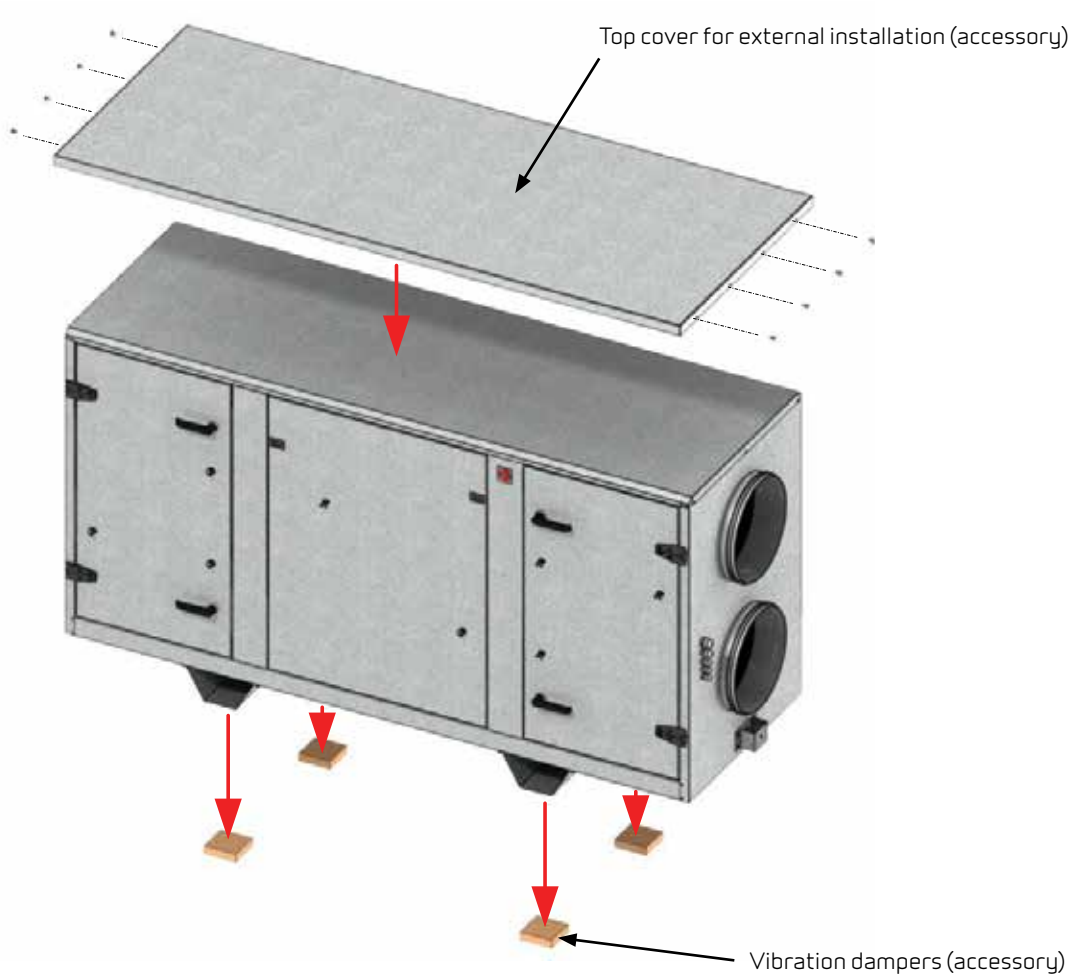
Installation conditions

On installation, allowance should be made for future service and maintenance. We recommend a minimum free space in front of the unit of 67 to 90 cm.

It must be ensured that the unit is level, due to the condensation drain. The condensation drain requires clearance of minimum 12.5 cm under the drain spout.

The unit is quiet, with low vibration, although account must also be taken of any vibration that might be transmitted to the building fabric.

It is recommended to place the unit on vibration dampers, in order to separate the unit from the base.



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.

Brochure

General information about the solution and its benefits.

Product data

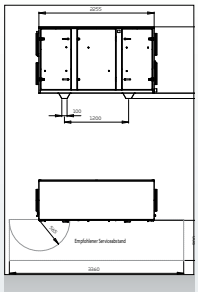
Technical information to ensure correct choice of solution.

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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