PRODUCT DATA

VGU 180 EK BY NILAN

Domestic

Active heat recovery

Ventilation < 325 m³/h

Sanitary hot water production

Heating

NILAN®
OUTSTANDING INDOOR CLIMATE

VGU 180 EK

Product description

VGU 180 EK extracts the poor, humid air from kitchens, bathrooms and utility rooms. New air is supplied to the dwelling by valves in windows or exterior walls.

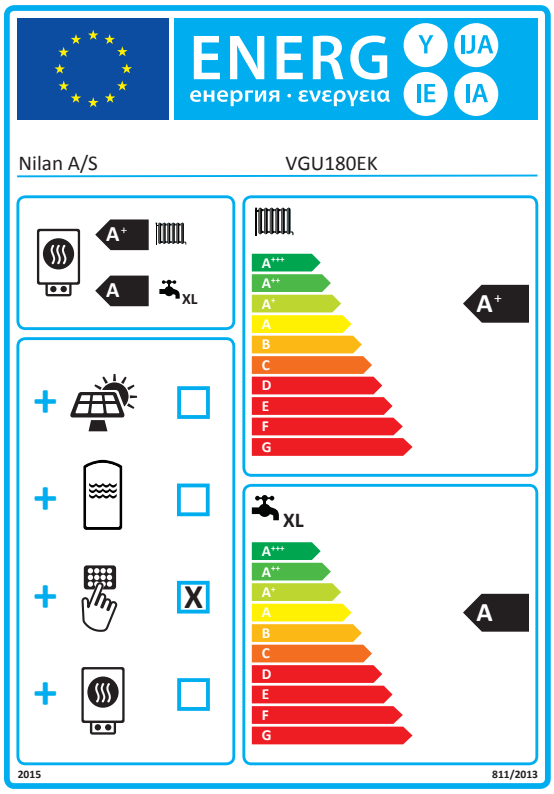
The energy from the extracted air is reused to provide heating to the dwelling by water-borne underfloor heating or low-temperature radiators and to produce domestic hot water.

VGU 180 EK has an adjustable ventilator which can be set to extracting an air volume up to 325 m^3/h.

The stainless steel hot water tank has a volume of 180 l which is perfect suitable for providing domestic hot water to an average family.

To ensure that the unit can supply enough heating during very cold periods it comes with a built-in 9 kW electrical completion for water-borne underfloor heating as well as a 1.5 kW electrical completion for the domestic hot water.

One of the great advantages of VGU 180 EK is that it eliminates the need for geothermal tubes or an outdoor air heat pump as in conventional heat pump solutions.

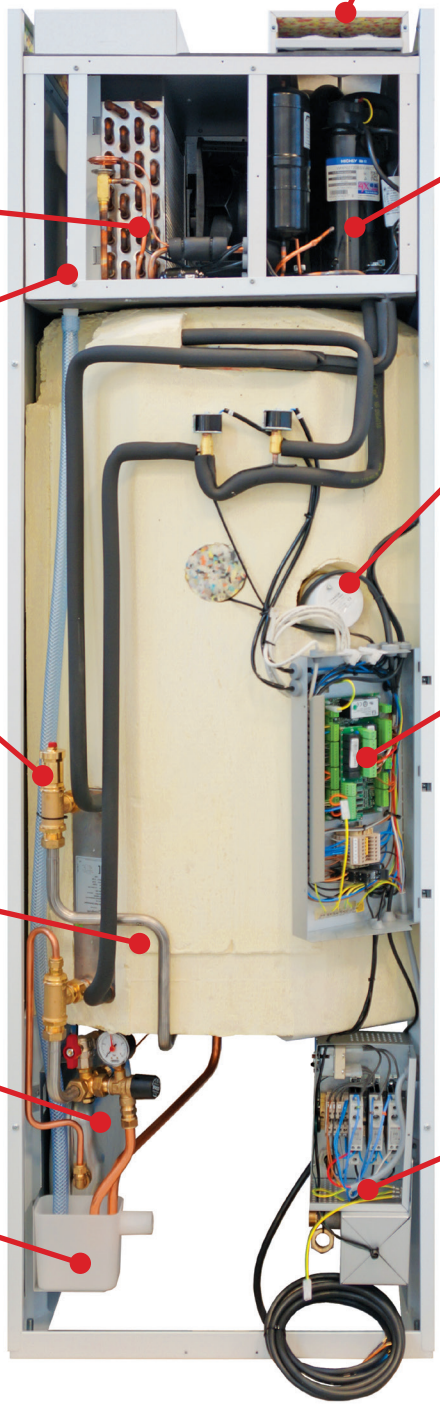


Duct connections in the top of the unit.

Low-energy EC-ventilators rotational constant adjustable in four steps.

Time-controlled filter change alarm.
The filters are easily replaced by opening the top front panel.

There is plenty of space to replace filters and to vacuum clean the filter space.



Heating pump for space heating as well as for domestic hot water production.

Hermetically sealed cooling circuit.

The cooling circuit is operated by a reliable rotary compressor.

A powder-coated condensation tray prevents the formation of "acid water", leading out the condensation water.

1.5 kW electrical completion for domestichot water.

The modern CTS 602 control runs Modbus communication.

An user-friendly HMI touch panel is mounted in the front of the unit.

Bleed valve.

180 l stainless steel hot water tank.

The hot water tank is foam-insulated, giving good insulation and saving energy.

8 l expansion tank.

9 kW electrical completion for underfloor heating.

Circulation pump for for the underfloor heating circuit.

Drip tray for condensate water and safety valve.

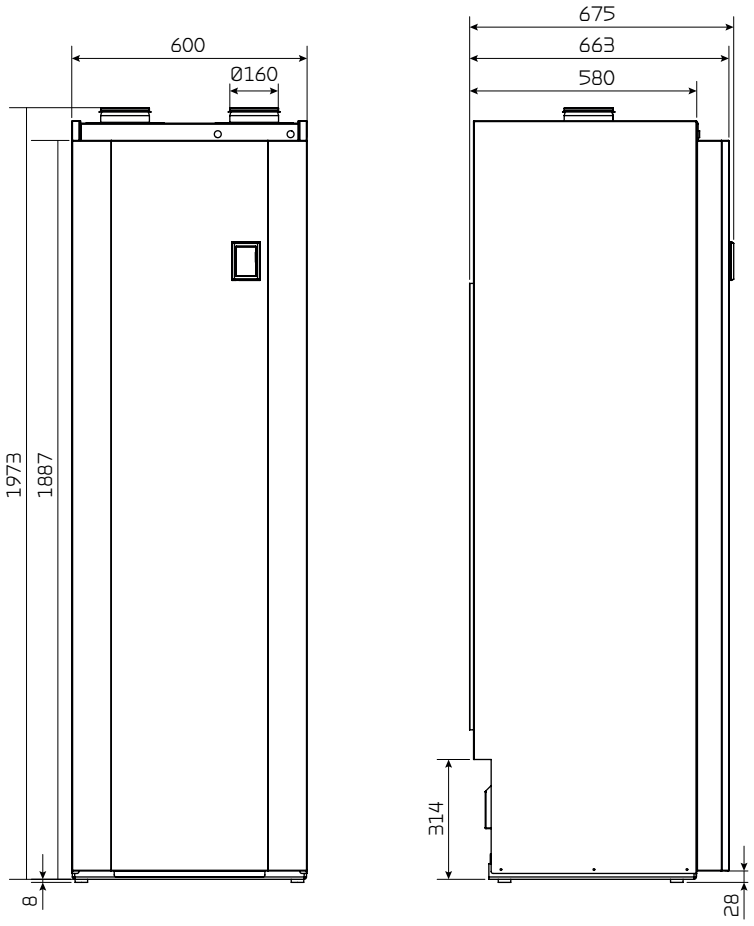
TECHNICAL DATA

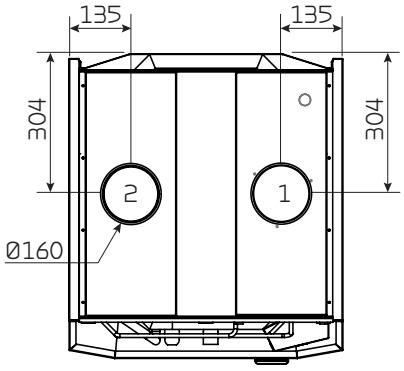
Technical specifications

Dimensions (W x D x H)	600 × 675 × 1973 mm
Weight	140 kg
Plate type casing	Aluzinc steel plate, white powder coating RAL9016
Heat loss casing	3.07 W/m² K
Duct connections	Ø 160 mm
Condensate drain	PVC, Ø 20×1,5 mm
Refrigerant	R134a
Refrigerant filling	1.7 kg
Capacity domestic hot water	180 l
Supplementary electrical heating (sanitary hot water)	1.5 kW

Supply voltage	3 x 230 / 3 x 400 V, 50 HZ
Max. input/power / pre-fuse	11 kW/16 A
Tightness class	IP31
Standby power	1 W
Ambient temperature	0/+40 °C

Dimensional drawing

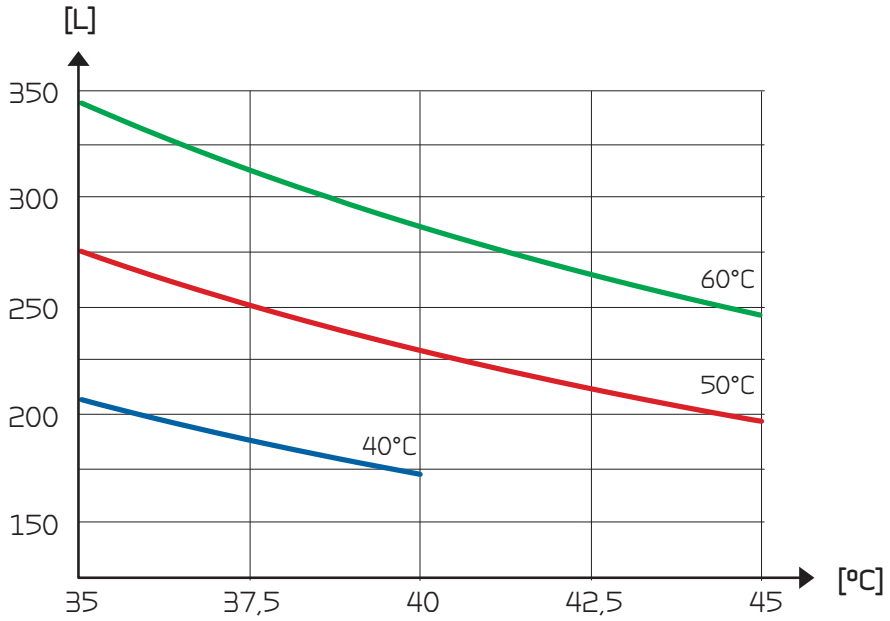




Connections:
1. Extract air
2. Discharge air

Tapped water

Tapped volume in litres V_{max} [L] from VGU 180 EK tank as a function of tapped temperature t [C°] and tank temperature at 40, 50 og 60 °C



Sound data

Sound output level L_{WA} drops with falling air volumes and falling back-pressure.

At a given distance, the sound pressure level L_{pA} will depend on the acoustic conditions at the installation site.

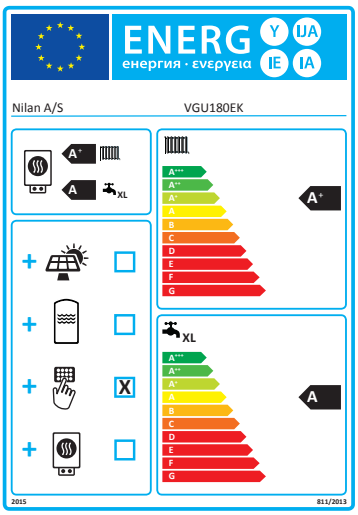
Sound output level (L_{wa})

Octave band - Hz	125	250	500	1.000	2.000	4.000	Total ±2 dB(A)
Surface - dB(A)	37.9	50.7	48.7	46.3	40	35.2	58.2
Extract air - dB(A)	39.4	47	48.3	45.7	47.7	40.1	59.1

ECODESIGN DATA

Heat pump combination for space heating and domestic hot water production - cold climate

Model	VGU180EK
Air-to-water heat pump	Yes
Water-to-water heat pump	No
Brine-to-water heat pump	No
Low-temperature heat pump	Yes
Equipped with a supplementary heater	Yes
Heat pump combination heater	Yes
Temperature control:	
Model	CTS602
Class	2
Contribution to seasonal space heating energy efficiency	2%



Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	2.3	kW
*Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature of T_j			
T_j = -7 °C	*Pdh*	2.092	kW
T_j = +2 °C	*Pdh*	2.103	kW
T_j = +7 °C	*Pdh*	2.112	kW
T_j = +12 °C	*Pdh*	2.096	kW
T_j = bivalent temperature	*Pdh*	2.077	kW
T_j = operation limit temperature	*Pdh*	2.119	kW
Operation limit temperature Tj = -15 °C (if TOL < -20 °C)	*Pdh*		kW
Bivalent temperature	T_{biv}	-6	°C
Cycling interval capacity for heating	*Pcych*		kW
Degradation co-efficient	*Cdh*	0.9	
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.0084	kW
Thermostat off-mode	P_{TO}	0.0253	kW
Standby mode	P_{SB}	0.0084	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control:	Variable compressor Variable indoor temperature adjustment		
	Permanent indoor water flow Permanent outdoor water flow		
Sound power level, indoor	L_{WA}	58,2	dB
Annual energy consumption	Q_{HE}	2148	kWh

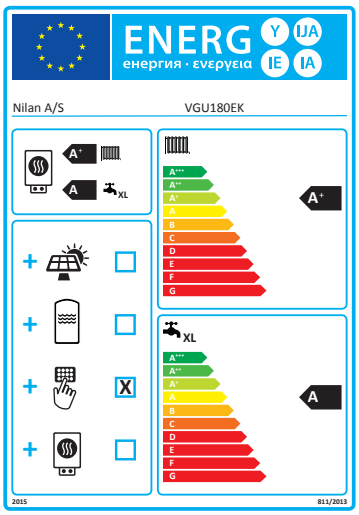
Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	147	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	*COPd*	3.82	
T_j = +2 °C	*COPd*	3.94	
T_j = +7 °C	*COPd*	4.00	
T_j = +12 °C	*COPd*	3.95	
T_j = bivalent temperature	*COPd*	3.68	
T_j = operation limit temperature	*COPd*	3.70	
For air-to-water heat pumps Tj = -15 °C (if TOL < -20 °C)	*COPd*		
For air-to-water heat pumps: Operation limit temperature	*TOL*		°C
Cycling interval capacity for heating	*COPcyc*		
Heating water operating limit temperature	*WTOL*		°C
Supplementary heater			
Rated heat output	*Psup*	9	kW
Type of energy input	Electric		
For air-to-water heat pumps: Rated air flow rate, outdoors		360	m^3/h
For water-/ brine-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			m^3/h

Specified consumer profile		XL	
Daily energy consumption	Q_{elec}	7.212	kWh
Annual energy consumption	*AEC*	1557	kWh

Energy efficiency for water heating	η_{wh}	108	%
Daily fuel consumption	Q_{fuel}		kWh

Heat pump combination for space heating and domestic hot water production - average climate

Model	VGU180EK
Air-to-water heat pump	Yes
Water-to-water heat pump	No
Brine-to-water heat pump	No
Low-temperature heat pump	Yes
Equipped with a supplementary heater	Yes
Heat pump combination heater	Yes
Temperature control:	
Model	CTS602
Class	2
Contribution to seasonal space heating energy efficiency	2%



Item	Symbol	Value	Unit
Rated heat output (*)	*Prated*	2.5	kW
*Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature of T_j			
T_j = -7 °C	*Pdh*	2.078	kW
T_j = +2 °C	*Pdh*	2.094	kW
T_j = +7 °C	*Pdh*	2.109	kW
T_j = +12 °C	*Pdh*	2.151	kW
T_j = bivalent temperature	*Pdh*	2.074	kW
T_j = operation limit temperature	*Pdh*	2.119	kW
Operation limit temperature Tj = -15 °C (if TOL < -20 °C)	*Pdh*		kW
Bivalent temperature	T_{biv}	-6	°C
Cycling interval capacity for heating	*Pcych*		kW
Degradation co-efficient	*Cdh*	0.9	
Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.0084	kW
Thermostat off-mode	P_{TO}	0.0253	kW
Standby mode	P_{SB}	0.0084	kW
Crankcase heater mode	P_{CK}	0	kW
Other items			
Capacity control:	Variable compressor Variable indoor temperature adjustment		
	Permanent indoor water flow Permanent outdoor water flow		
Sound power level, indoor	L_{WA}	58.2	dB
Annual energy consumption	Q_{HE}	1732	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	105	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = -7 °C	*COPd*	3.59	
T_j = +2 °C	*COPd*	3.77	
T_j = +7 °C	*COPd*	3.97	
T_j = +12 °C	*COPd*	4.13	
T_j = bivalent temperature	*COPd*	3.64	
T_j = operation limit temperature	*COPd*	3.70	
For air-to-water heat pumps Tj = -15 °C (if TOL < -20 °C)	*COPd*		
For air-to-water heat pumps: Operation limit temperature	*TOL*		°C
Cycling interval capacity for heating	*COPcyc*		
Heating water operating limit temperature	*WTOL*		°C
Supplementary heater			
Rated heat output	*Psup*	9	kW
Type of energy input	Elektrisk		
For air-to-water heat pumps: Rated air flow rate, outdoors		360	m^3/h
For water-/ brine-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger			m^3/h

Specified consumer profile		XL	
Daily energy consumption	Q_{elec}	7.212	kWh
Annual energy consumption	*AEC*	1557	kWh

Energy efficiency for water heating	η_{wh}	108	%
Daily fuel consumption	Q_{fuel}		kWh

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 informatio-nabout the solution and its benefits.

Product data

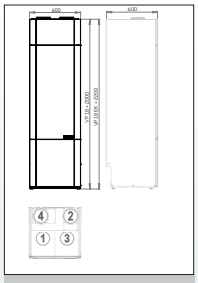
Technical information to ensure correct choice of solution.

Installation instructions

Detailed guide for instal-lation and initial adjust-ment 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 down-load for planning purposes.

WWW.NILAN.DK | Visit us at www.nilan.dk to find out more about our company and solutions, download further information and find your nearest dealer.

NILAN®
OUTSTANDING INDOOR CLIMATE

Nilan A/S
Nilanvej 2
8722 Hedensted
Denmark
Tel. +45 76 75 25 00
Fax +45 76 75 25 25
nilan@nilan.dk
www.nilan.dk