

Product description

Premium Preheat 500 A is an air-air heat recovery ventilation heat pump which is equipped with the following: An aluminum counter current heat exchanger, a heat pump with cooling function, preheater integrated in the heat pump, supply and extract air fans, F7 supply air filter, M4 extract air filter, and complete Optima 301 automatics with a control panel.

Premium Preheat 500 A can be delivered with the following accessories:

- Electrical reheater for Ø200 mm duct

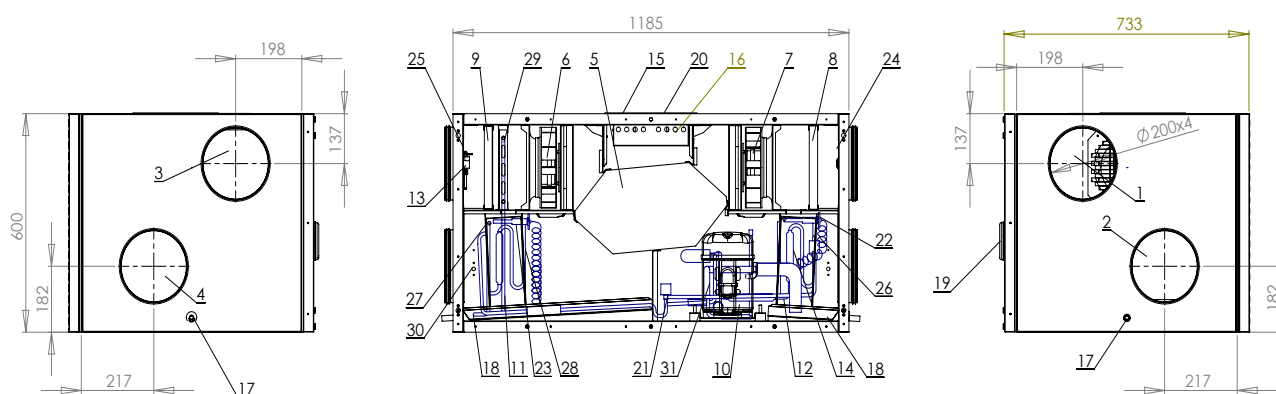


For the Optima 301/312, a control panel called Optima Design can be purchased. Optima Design is a stylish white control panel that provides access to the most important functions via a simple user interface with push buttons.

Please note that displays are sold separately.

Dimensions

Premium Preheat 500 A (right-handed)
Dimensions in mm.



01. Fresh air Ø200
02. Exhaust air Ø200
03. Extract air Ø200
04. Supply air Ø200
05. Counter current heat exch.
06. Supply air fan
07. Extract air fan
08. Extract air filter

09. Supply air filter
10. Compressor
11. Evaporator
12. Condenser
13. High pressure switch
14. Process valve
15. Cable entry
16. Electrical box

17. Condensate drain Ø15
18. Condensation tray
19. Supply air connection Ø100 at the back
20. Switch
21. Magnetic valve, defrosting
22. Thermo valve, condenser
23. Thermo valve, evaporator

24. Sensor, extract air
25. Sensor, fresh air
26. Sensor, supply air
27. Sensor, evaporator
28. Sensor, before evaporator
29. Preheater
30. Sensor, exhaust air
31. Four ways valve

Application

Premium Preheat 500 A is suitable in dwellings where a combination of heat recovery ventilation and supply of comfort heating or cooling with the supply air is desired.

Before the fresh air is drawn into the house, heat is supplied to it in the counter current heat exchanger - heat recovered from the extract air. Then additional heat is supplied to the supply air by the heat pump and thereby it contributes to the home heating. If it is desired that cooling is supplied to the air instead, this is also possible.

The supply air filter ensures that dirt and pollen is not brought into the house.

Premium Preheat 500 A can deliver an air volume of up to appr. 600 m³/h at an external pressure of 100 Pa.

Types

Premium Preheat 500 A is available in a right- or left-handed version.

Technical data

Electrical connection without electrical reheater

1 x 230 V + N + PE, 10 A, 50 Hz

Electrical connection with electrical reheater

Max. 2.2 kW

1 x 230 V + N + PE, 16 A, 50 Hz

Fans with direct drive motor

R3G 220

Motor

EC motor with integrated electronics

Isolation class, fans

B

Protection class, fans

IP 44

Fan speed (max. per fan)

3560 rpm

Power consumption (max. per fan)

150 W

Current consumption (max. per fan)

1.10 A

Fan speed control

The fans can be adjusted individually in 3 different speeds

The working area of the heat pump

-15°/+35°C

Compressor

NT 6220 GK

Min. air volume:

230 m³ /h

Power consumption (max., heat pump)

657 W

Current consumption (max., heat pump)

2.8 A

Heating perform. / COP @ 300 m³/h / 2°C fresh air temp.

3410 W / 5.19

Cooling cap. @ 26°C supply air temp. / 24°C extract air temp.

1612 W

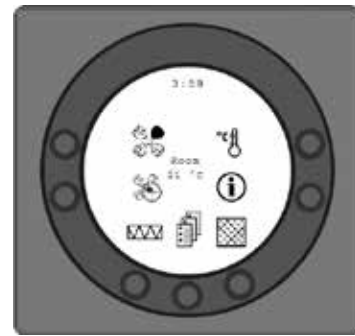
Refrigerant / filling

R407c / 1020 g

Automatics

Premium Preheat 500 A is delivered with complete Optima 301 automatics and a control panel with a display showing the operation mode of the unit and on which the settings are easy to change.

Control panel



Speed

Here the fan speed is adjustable in steps 0-1-2-3-4.



Extended operation

Here the timer to extended operation can be set between 0 to 9 hours.



Reheater

Here you can switch on and off the supplementary reheater.



Main menu

Here you can enter the main menu, in which the submenus are available.



Filter

Here you can reset the filter alarm.



Information

Here you can get a good overview of the current operating condition of the unit.



Temperature

Here you can set the room temperature.

Sound data

Measuring point	1 m in front of the unit			Extract duct			Supply duct		
	1	2	3	1	2	3	1	2	3
Air volume	Lp dB			Lwu dB			Lwi dB		
63 Hz	50	52	54	85	94	99	92	95	97
125 Hz	51	51	56	76	89	96	76	89	95
250 Hz	43	46	51	70	81	86	71	85	92
500 Hz	31	37	45	59	79	88	61	83	90
1000 Hz	24	36	40	57	73	81	57	72	83
2000 Hz	-	30	35	52	64	74	57	68	77
4000 Hz	-	21	30	46	60	66	49	52	63
8000 Hz	-	-	24	39	58	63	43	43	51
Sum	Lp dB(A)			Lwu dB(A)			Lwi dB(A)		
(A-weighted)	40	44	49	66	80	88	69	83	90

1. Measured at 40% of max. speed with compressor on: 200 m³/h
2. Measured at 70% of max. speed with compressor on: 360 m³/h
3. Measured at 100% of max. speed with compressor on: 570 m³/h

Construction

Size

(h x l x d) excl. connecting pieces:
600 x 1185 x 733 mm

Cabinet construction

Sandwich construction consisting of hot galvanized plate with 30 mm insulation. Powder coated white RAL 9010.

Duct connection

Ø200 mm (male end) with rubber sealing ring
Ø100 mm (male end) supply air connection pieces (pointing back-wards)

Front cover

Right and left cover with snap locks for filter service

Counter current heat exchanger

Aluminium

Condensation trays

Stainless steel

Condensate drain

Stainless steel Ø15 mm (exterior)

Supply air filter

F7

Extract air filter

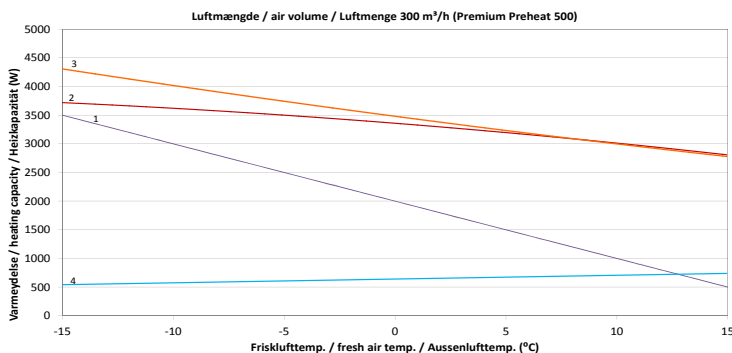
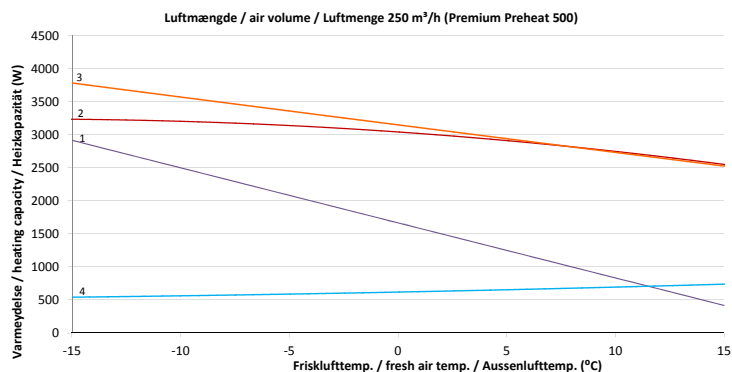
M4

Weight

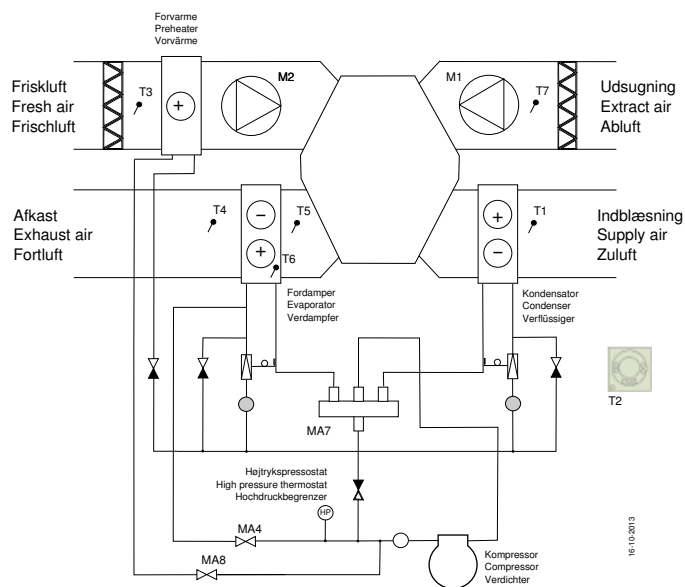
131 kg

Capacity

The capacity of Premium Preheat 500 A varies with air volume and the outdoor air temperature.



Flow diagram



Sensors:

T1: Supply air
T2: Room
T3: Fresh air
T4: Exhaust air
T5: Before the evaporator
T6: Evaporator
T7: Extract air

Magnetic valves:

MA4: Defrosting
MA7: Heating/cooling
MA8: Preheater

1. Energy consumption for heating supply air from outdoor air temperature to a room temperature of 20°C.
2. Total heating capacity of the unit with preheater OFF.
3. Total heating capacity of the unit with preheater ON.
4. Power consumption with the compressor running.

Cooling capacity:

With an outdoor air temperature of 26°C, relative humidity of 50% and max. air volume, the total cooling capacity is 1612 W.

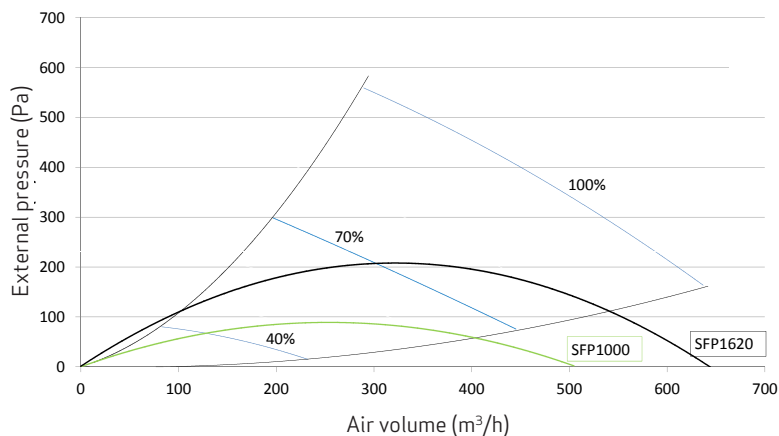
Capacity

Air volume:

The capacity lines are based on an average of the supply and extract mass flow in a unit.

The black line in the chart indicates a total power consumption for both fans and the control of 1620 J/m³ (PHI).

The curve shows the average external pressure, which is available at a given air volume.



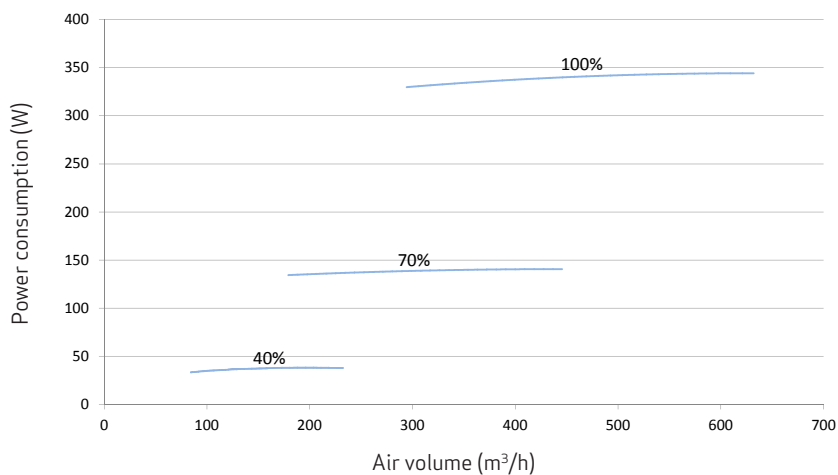
Total power consumption

For both fans and control.

1 = 100 %

2 = 70 %

4 = 40 %



Heat recovery rate

Heat recovery rate, mass flow $m_{in} = m_{out}$

Icing of the heat exchanger at low outdoor air temperatures has been left out of account.

1. Outdoor temp.: -12°C
RH: 50%

2. Outdoor temp.: 4°C
RH: 50%

