

## 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 re heater for Ø200 mm duct



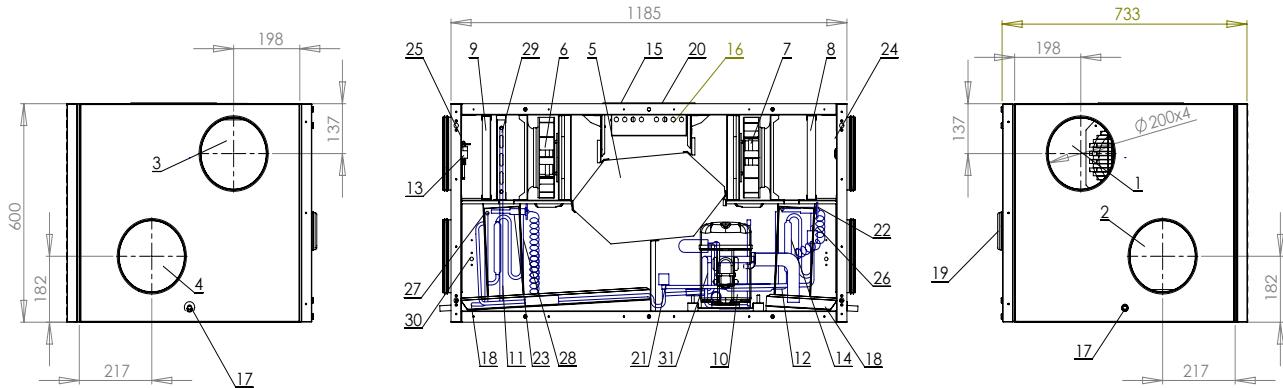
For the Optima 301/312, a control panel called Optima Design can be purchased. Optima Design is a stylish white control panel that provides access to the most important functions via a simple user interface with push buttons.

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

## Technical data

**Electrical connection without electrical re heater**  
1 x 230 V + N + PE, 10 A, 50 Hz

**Electrical connection with electrical re heater**  
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 m<sup>3</sup> /h

**Power consumption (max., heat pump)**  
657 W

**Current consumption (max., heat pump)**  
2.8 A

**Heating perform. / COP @ 300 m<sup>3</sup>/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 re-heater.

### 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 (A-weighted)	Lp dB(A)			Lwu dB(A)			Lwi dB(A)		
	40	44	49	66	80	88	69	83	90

1. Measured at 40% of max. speed with compressor on: 200 m<sup>3</sup>/h
2. Measured at 70% of max. speed with compressor on: 360 m<sup>3</sup>/h
3. Measured at 100% of max. speed with compressor on: 570 m<sup>3</sup>/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 backwards)

### 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

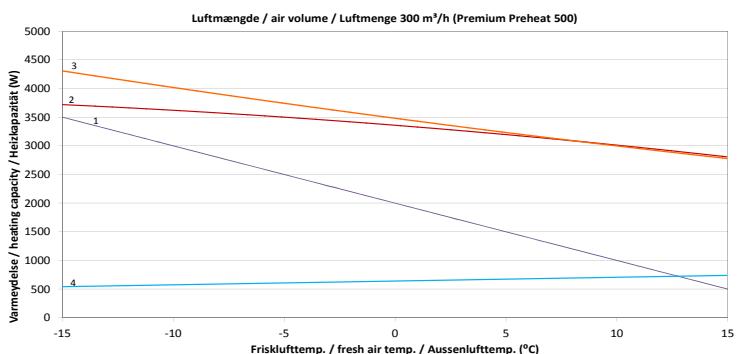
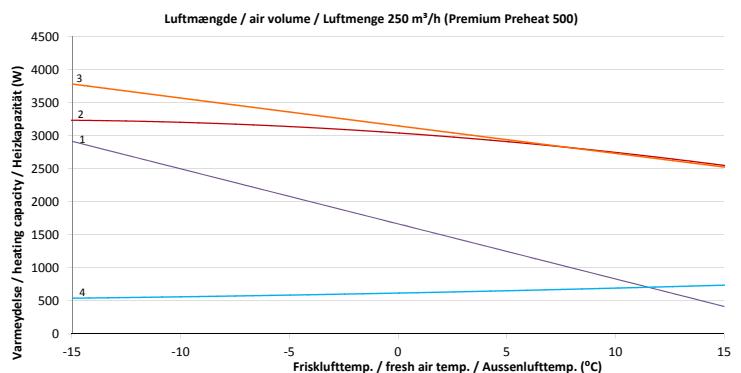
M4

### Weight

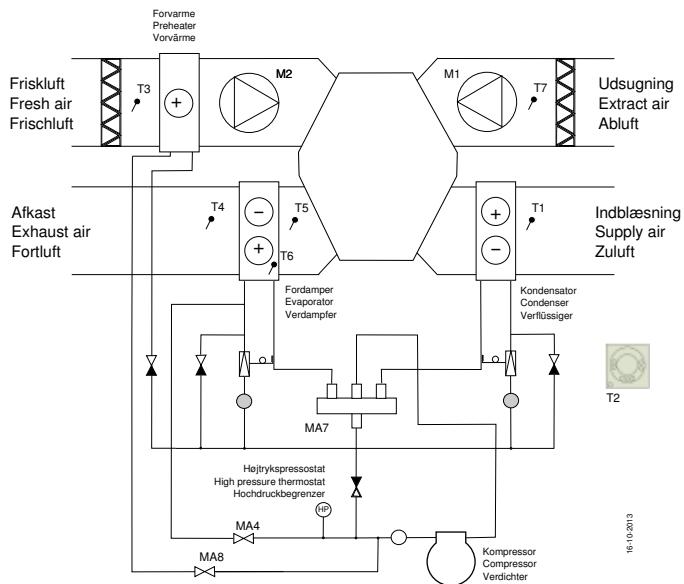
131 kg

## 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 1612W.

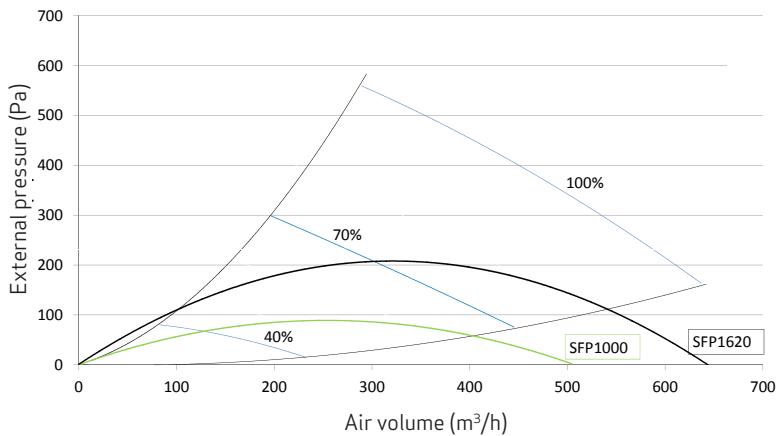
## Capacity

### 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/m<sup>3</sup> (PHI).

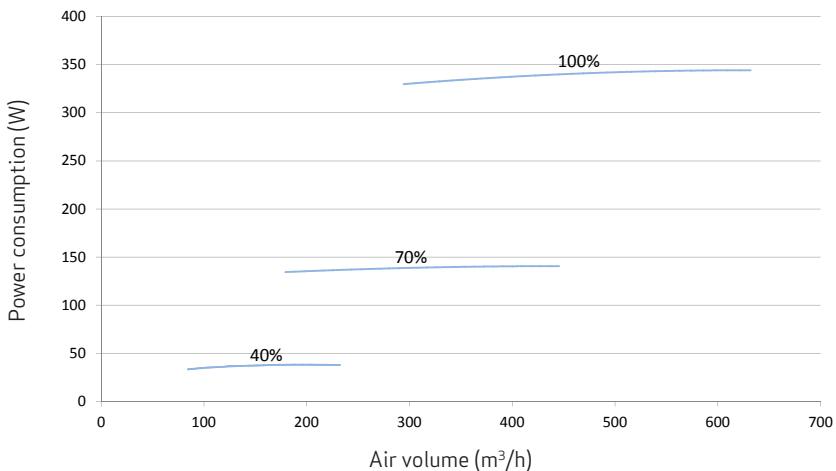
The curve shows the average external pressure, which is available at a given air volume.



## 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%

