

PREMIUM PREHEAT 250 CS/CL A

Datasheet

Product description

Premium Preheat 250 CS/CL 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, a pre-heater 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 250 CS/CL A can be delivered with the following accessories:

- Electrical reheater for Ø160 mm duct



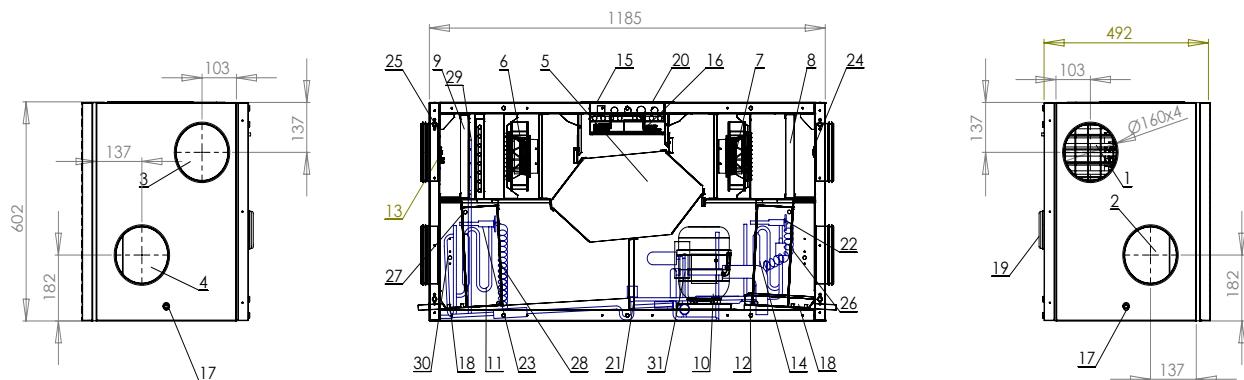
For the Optima 301/312, a control panel called Optima Design can be purchased. Optima Design is a stylish white control panel that provides access to the most important functions via a simple user interface with push buttons.

Please note that displays are sold separately.

Dimensions

Premium Preheat 250 CS/CL A (right-handed)

Dimensions in mm.



01. Fresh air Ø160	09. Supply air filter	17. Condensate drain Ø15	24. Sensor, extract air
02. Exhaust air Ø160	10. Compressor	18. Condensation tray	25. Sensor, fresh air
03. Extract air Ø160	11. Evaporator	19. Supply air connection Ø100 at the back	26. Sensor, supply air
04. Supply air Ø160	12. Condenser	20. Switch	27. Sensor, evaporator
05. Counter current heat exch.	13. High pressure switch	21. Magnetic valve, defrosting	28. Sensor, before evaporator
06. Supply air fan	14. Process valve	22. Thermo valve, condenser	29. Preheater
07. Extract air fan	15. Cable entry	23. Thermo valve, evaporator	30. Sensor, exhaust air
08. Extract air filter	16. Electrical box		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. 1.8 kW
1 x 230 V + N + PE, 16 A, 50 Hz

Fans with direct drive motor
R3G 190

Motor

EC motor with integrated electronics

Isolation class, fans
B

Protection class, fans
IP 44

Fan speed (max. per fan)
3320 rpm

Power consumption (max. per fan)
71 W

Current consumption (max. per fan)
0.50 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
NB 6165 GK / NEK 6210 GK (CS/CL)

Min. air volume
100/150 m³/h (CS/CL)

Power consumption (max., heat pump)
302/473 W (CS/CL)

Current consumption (max., heat pump)
1.3/2.1 A (CS/CL)

Heating perform. @ 300 m³/h / 2°C fresh air temp.
2370/2530 W (CS/CL)

COP @ 300 m³/h / 2°C fresh air temp.
7.84/5.35 (CS/CL)

Cooling cap. @ 26°C supply air temp. / 24°C extract air temp.
823/1110 W (CS/CL)

Refrigerant / filling
R407c / 1000 g

Automatics

Premium Preheat 250 CS/CL 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.

Re heater

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		
	Air volume	1	2	3	1	2	3	1	2
	Lp dB			Lwu dB			Lwi dB		
63 Hz	44	48	60	93	95	98	85	89	93
125 Hz	41	44	60	87	95	97	81	88	91
250 Hz	39	44	51	84	91	95	78	83	87
500 Hz	34	37	44	66	77	84	60	73	83
1000 Hz	-	-	34	60	70	76	58	68	73
2000 Hz	-	-	-	57	68	73	54	63	68
4000 Hz	-	-	-	44	61	67	43	50	55
8000 Hz	-	-	-	32	49	58	39	40	43
Sum (A-weighted)	Lp dB(A)			Lwu dB(A)			Lwi dB(A)		
	34	38	49	77	85	89	71	78	84

1. Measured at 40% of max. speed with compressor on: 131 m³/h

2. Measured at 70% of max. speed with compressor on: 216 m³/h

3. Measured at 100% of max. speed with compressor on: 310 m³/h

Construction

Size

(h x l x d) excl. connecting pieces:
600 x 1185 x 492 mm

Cabinet construction

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

Duct connection

Ø160 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

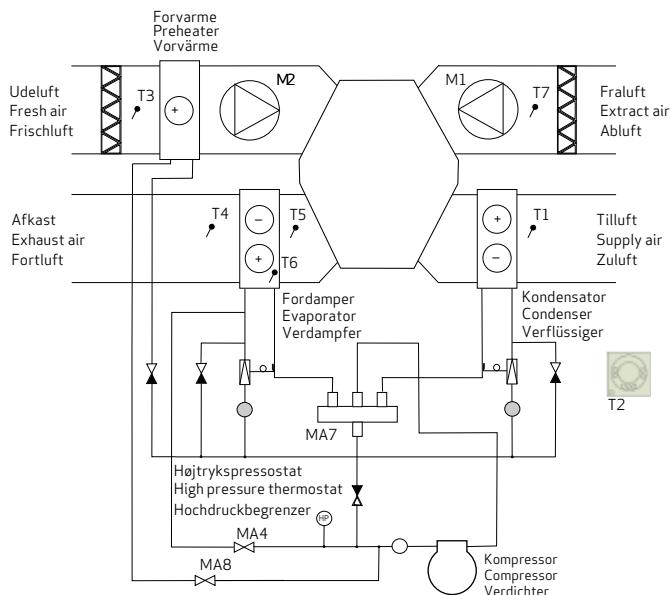
Extract air filter

M4

Weight

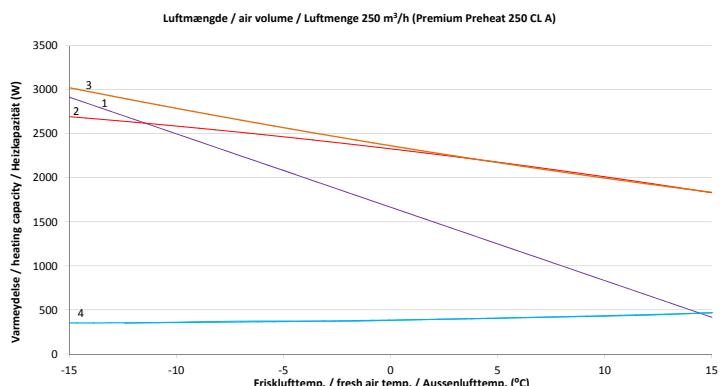
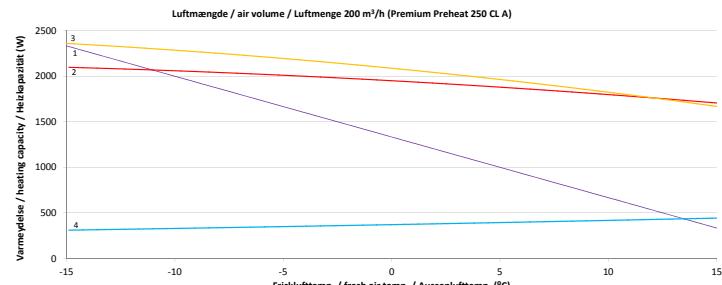
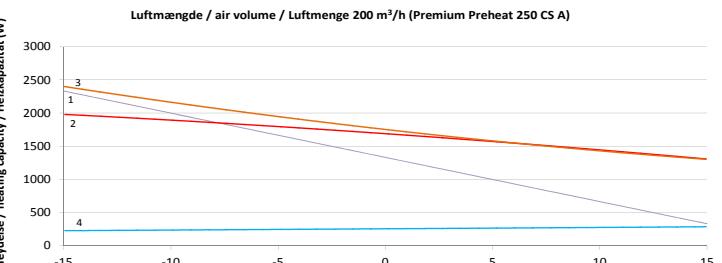
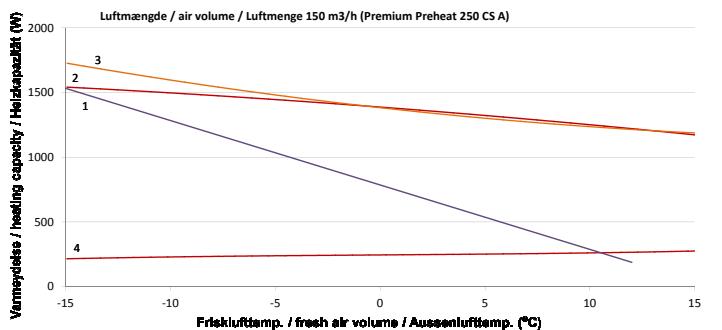
97 kg

Flow diagram



Capacity

The capacity of Premium Preheat 250 CS/CL A varies with air volume and the outdoor air temperature.



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 823/1110 W (CS/CL).

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

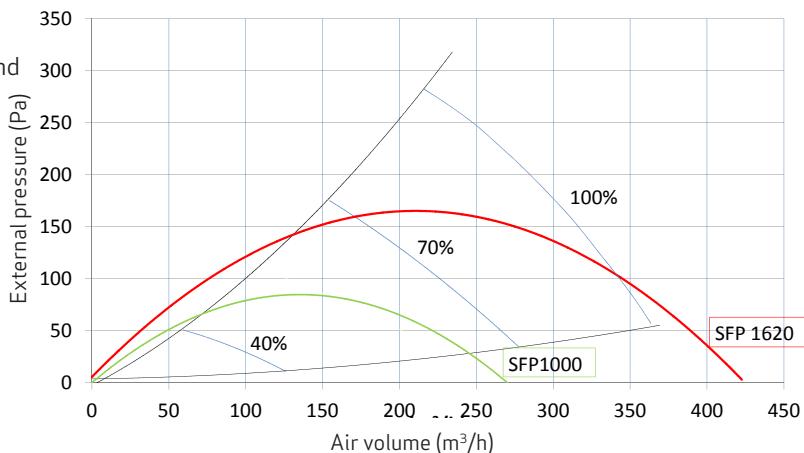
Capacity

Air volume

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

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

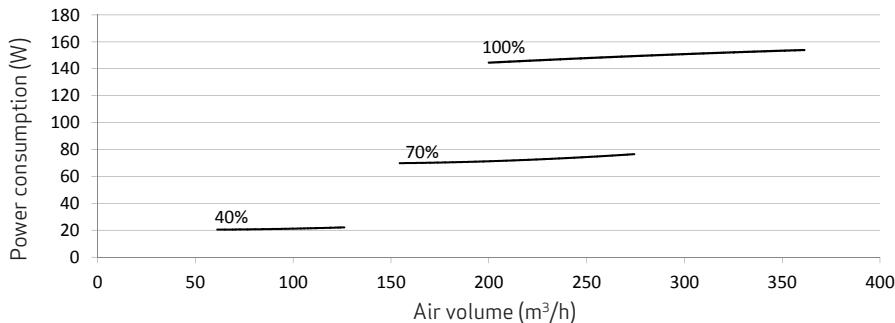
The curve shows the average external pressure, which is available at a given air volume.



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.

01. Outdoor temp.: -12°C
RH: 50%
02. Outdoor temp.: 4°C
RH: 50%

