

Description

The Combi is a Combined heat recovery ventilation appliance. It is equipped with high efficient supply and extract air fans, and a counter-flow heat exchanger with an efficiency of up to 95%.

The air source heat pump heats the supply air and domestic hot water, prioritising the hot water. The hot water cylinder can as an option be connected to a second heat source, eg. solar panels.

The unit is delivered with a F7 supply and G4 extract air filter and Optima 311 control.

Suitability

Combi 185 S/LS is suitable for dwellings, where a high heat recovery rate and a low energy consumption are requested, while energy of the extract air is used to heat the supply air and the domestic hot water.

The energy is recovered in the counterflow heat exchanger first and then the heat pump uses the residual energy.

Combi 185 S/LS can deliver an air volume of up to appr. 325 m³/h at an external pressure of 100 Pa.



Types

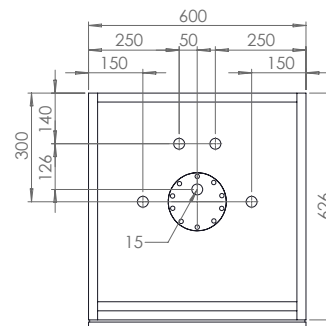
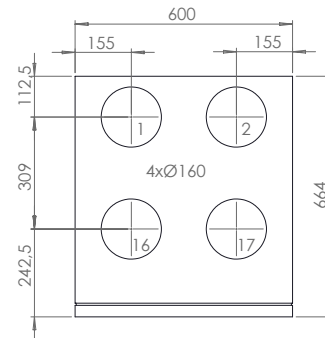
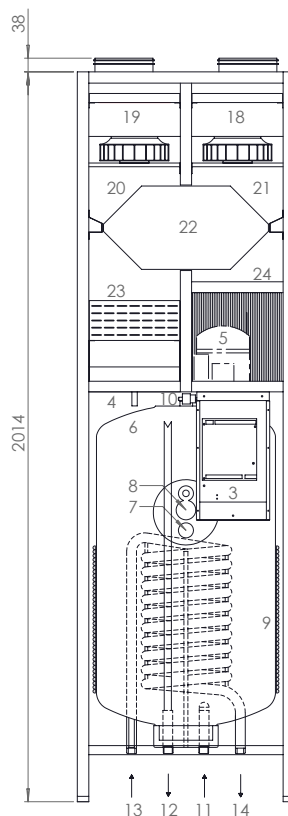
Combi 185 S: Small compressor and tank with internal heating coil (for solar)

Combi 185 LS: Large compressor and tank with internal heating coil (for solar)

Dimensions

Combi 185 S/LS
Dimensions in mm

01. Exhaust air
02. Supply air
03. Electrical connections
04. Condensation drain
05. Compressor
06. 185 l cylinder
07. 3/4" anode
08. 1 kW electrical heating element
09. Condenser spiral
10. High pressure thermostat with manuel reset
11. Cold water inlet 3/4" pipe thread
12. Hot water outlet 3/4" pipe thread
13. Connection for the internal coil 3/4" pipe thread
14. Connection for the internal coil 3/4" pipe thread
15. Hot water circulation 3/4" pipe thread
16. Fresh air
17. Extract air
18. Counter current heat exchanger
19. Filter
20. Supply air fan
21. Extract air fan
22. Evaporator
23. Condenser (supply air)
24. Sensor pocket



Technical data

Electrical connections:

Without electrical reheating

1 x 230VAC + PE + 10 A, 50 Hz

With electrical reheating (max. 1.2 kW)

1 x 230VAC + PE + 16 A, 50 Hz

Fans:

R3G 190

Motor:

EC motors with integrated electronic

Isolation class:

B

Class:

IP 44

Motor capacity (Max. per motor):

3320 Rpm

Current input (Max. per motor):

71 W

Power consumption (Max. per motor):

0.50 A

Speed control:

Individually the fans can be set to 3 different speeds.

The working area of the heat pump:

-15°/+35°C

Compressor:

NE 6170Z / NE6210Z (S/LS)

Min. Airflow:

100 m³/h / 150 m³/h (S/LS)

Effect collection (max):

331W / 585W (S/LS)

Power consumption (max):

1.9A / 3.14A (S/LS)

Average performance:

895W / 1365W (S/LS)

Average consumption:

292W / 425W (S/LS)

Cooling medier:

R134a

Filling:

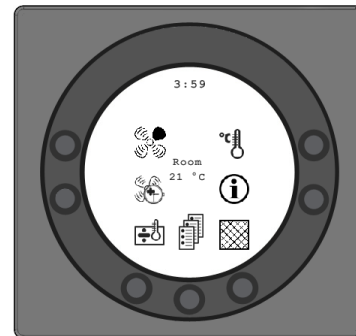
1100 gram

Automatics

The Combi is delivered with a Optima 311 control.

It is delivered with factory settings so that the appliance can be started without setting up the menu. The factory settings are standard settings that can be changed to the specific needs and demands of your living area.

Control panel



Speed (1)

Use this function to set the fan speed to levels 0-1-2-3-4.



Extended operation (2)

Use this function to set the timer to forced operation from 0 to 9 hours.



After-heat (3)

Use this function to turn on or off the supplementary afterheat.



Main menu (4)

Use this function to enter the main menu and access the sub-items date, calendar, user menu, display, information menu and service menu.



Filter (5)

Use this function to un-set the filter alarm.



Information (6)

Use this function to get a good overview of the device's current operating condition, e.g. temperature, fan setting, relay status/functions, alarm, timer etc.



Temperature (7)

Use this function to 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
Airflow (%)									
	Lo dB			Lwu dB			Lwi dB		
63 Hz	48	48	48	81	88	89	73	78	79
125 Hz	49	50	51	84	85	86	75	79	79
250 Hz	43	43	43	72	82	82	66	76	76
500 Hz	32	32	36	60	70	73	62	66	66
1000 Hz	23	24	25	55	63	65	51	55	57
2000 Hz	21	21	23	52	61	62	43	51	53
4000 Hz	-	-	-	40	54	58	43	44	46
8000 Hz	-	-	-	29	44	46	41	42	42
Average	Lo dB(A)			Lwu dB(A)			Lwi dB(A)		
	36	37	38	67	75	77	63	68	70

01. Measured at 40% of max. speed with compressor running
02. Measured at 80% of max. speed with compressor running
03. Measured at 100% of max. speed with compressor running

Construction

Size:

2,014 x 600 x 664 mm (h x l x d) ex. connecting pieces

Cabinet:

Fully closed hot galvanised plate with 30 mm Isolation.
The cylinder is fully insulated with polyurethane foam.
Plastic-coated white RAL 9010.

Duct connection:

Ø160 mm with rubber ring seal

Front:

Front with quick locks for filter service

Heat exchanger:

See water resistant aluminium

Condensation tub:

Stainless steel

Condensation drain:

Synthetic tube Ø15 mm (inside)

Protection of the boiler:

Enamel inside and magnesium anode

Protection of the internal water coil (for solar):

Enamel outside

Filters:

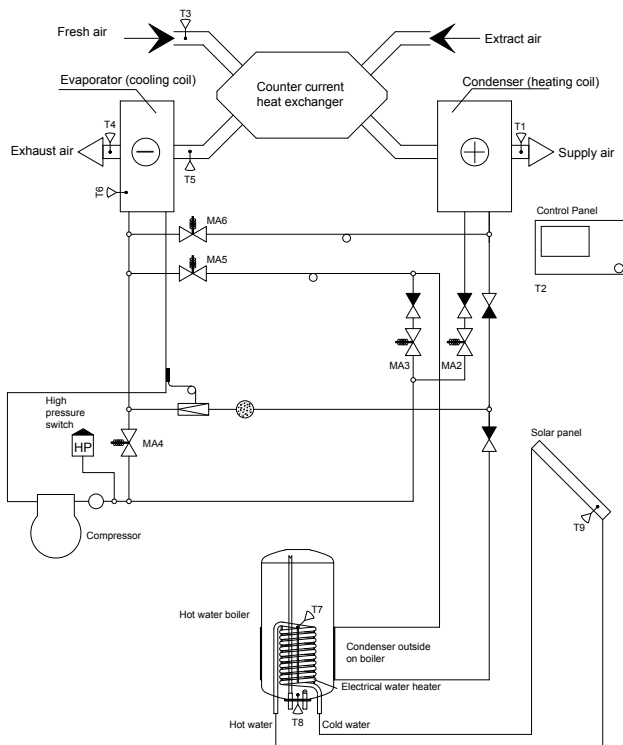
Fresh air: F7 filter

Exhaust air: G4 filter

Weight without/with water:

210/395 kg

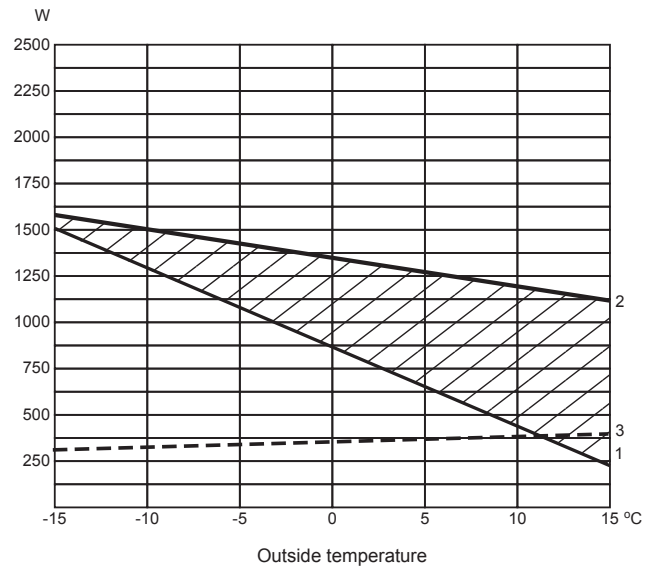
Flow diagram



Capacity

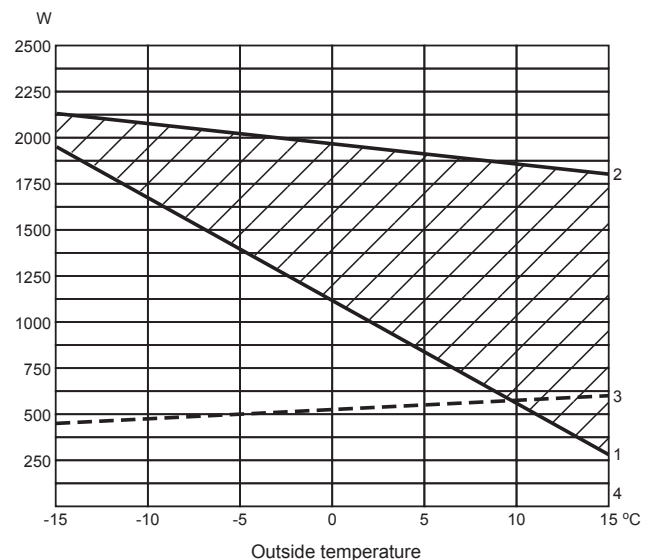
The capacity without domestic hot water
(hot water temperature 55°C)

Airflow 150 m³/h.



Appliance capacity without sanitary hot water
(hot water temperature 55°C)

Airflow 160 m³/h.



- 1) Energy consumption for heating incoming fresh air to room temperature 20°C.
- 2) Total capacity of the unit
- 3) Power input with compressor running

Water heating

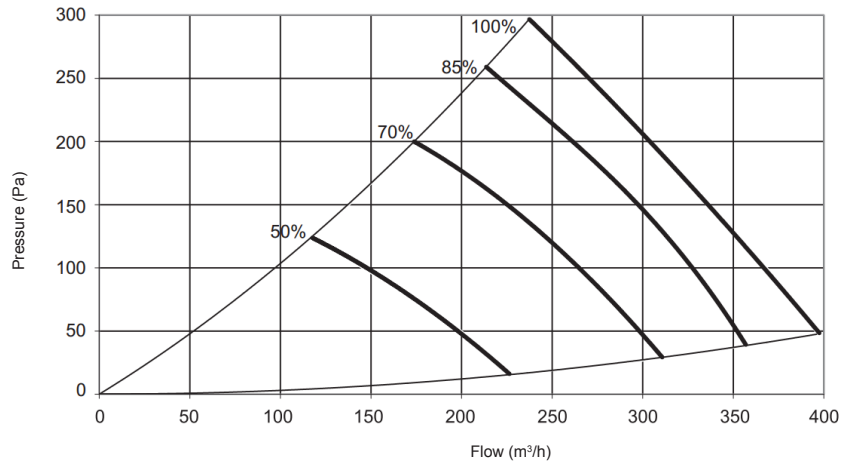
The heating pump is able to produce about 380 l. warm water per 24 hours with a temperature at 55°C. The heating time for a whole tank from 15-55°C is about 9 hours when the outdoor temperature is at 15°C.

The capacity depend on the outdoor temperature, the temperature of the coldwater and the draining off model. The heating time will be longer by a falling out door temperature.

The heating time can be reduced about 4,5 hour if you use a 1 kW electrical cartridge.

Capacity

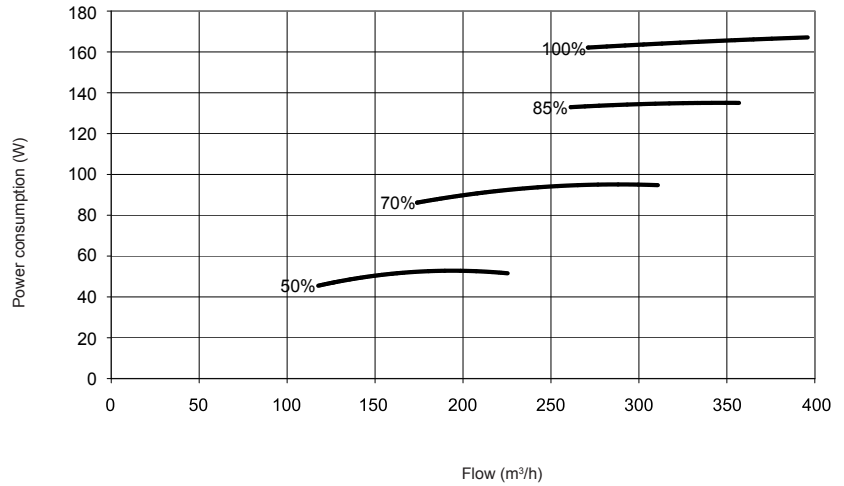
The capacity lines are based on an average of the supply and extract air volume, in a unit with filters.



Total power consumption

For both fans and control.

- 1 = 100 %
- 2 = 85 %
- 3 = 70 %
- 4 = 50 %



Heat recovery rate

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

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

- 01. = Temp: -12°C fresh air temperature
RF.: 50 %
- 02. = Temp: 4°C fresh air temperature
RF.: 50 %

