



Combi 185 S/LS

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 310 control.



Suitability

The Combi is used where mechanical balanced ventilation and heating of domestic water is needed and is normally used in living areas up to 514 m² (at an average room height at 2.4 m and an air exchange rate of 0,3 1/h).

Air exchange/h	Max. capacity m ³ /h	Living area m ² *
0.3	370	514
0.4	370	385
0.5	370	308

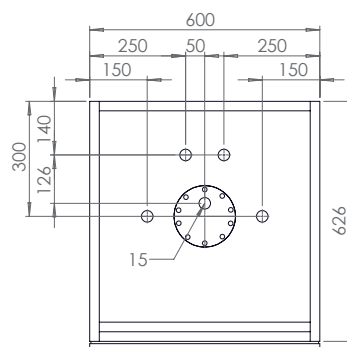
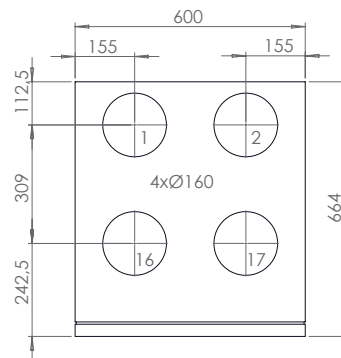
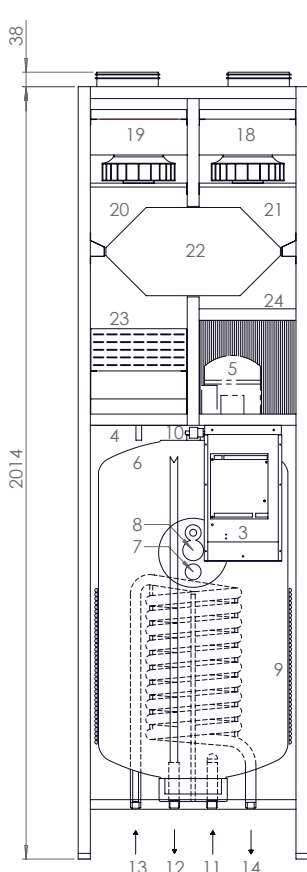
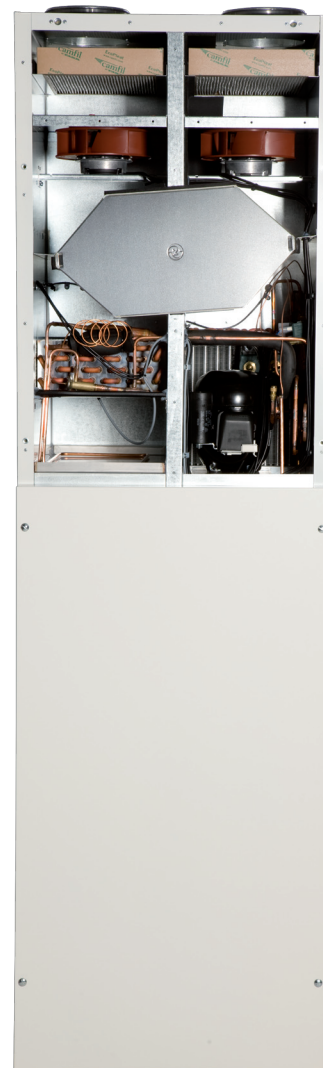
* The power consumption is not included when calculating the living area

Types

- Combi 185 EC Small compressor without internal heating coil (for solar)
- Combi 185 L EC Large compressor without internal heating coil (for solar)
- Combi 185 S EC Small compressor with internal heating coil (for solar)
- Combi 185 LS EC Large compressor with internal heating coil (for solar)

Dimensions

Combi 185 EC
Dimensions in mm



1. Exhaust air
2. Supply air
3. Electrical connections
4. Condensation drain
5. Compressor
6. 185 l cylinder
7. 3/4" anode
8. 1 kW electrical heating element
9. 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+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

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Technical data

Electrical connections:

Without electrical reheating and preheating coil

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

With electrical reheating and preheating coil

max 1.2 + 1.0 kW

1 x 230V + N + 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:

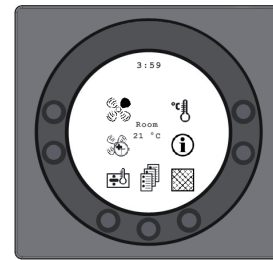
1100 gram

Automatics

The Combi is delivered with a Optima 310 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 after-heat.



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 reset the filter alarm.



Information (6)

Use this function to get a good overview of the device's current operating condition.



Temperature (7)

Use this function to set the room temperature.

Sound data

Measuring-point	1 m in front of 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

1: Measured at 40% of max. speed with compressor on

2: Measured at 70% of max. speed with compressor on

3: Measured at 100% of max. speed with compressor on



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Capacity

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

Max. Capacity:

At 100 Pa the max. capacity is: 370 m³/h.

With an average room height of 2.4 m, the living area is calculated as follows:

Living area (m²) x Room height (m) x Air exchange/h = Max. capacity

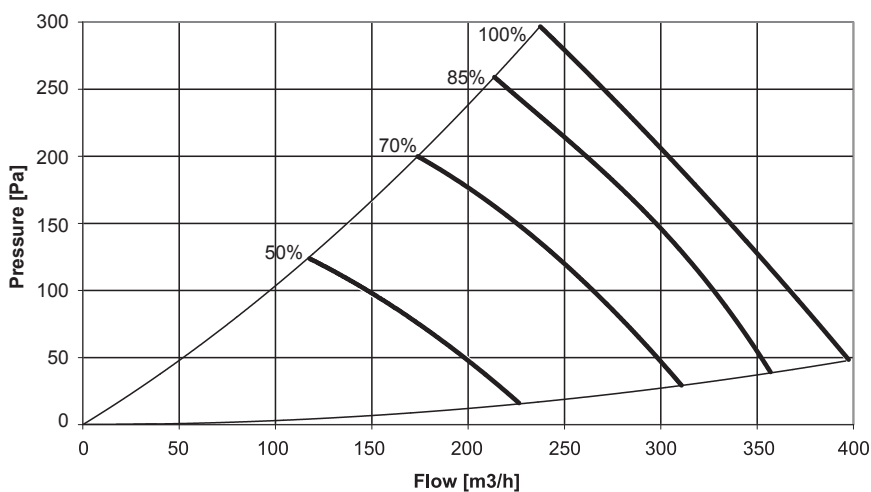
Living area (m²) =

$$\frac{\text{Max. capacity (m}^3\text{/h)}}{\text{Room height (m) x Air exchange (h}^{-1}\text{)}}$$

Example:

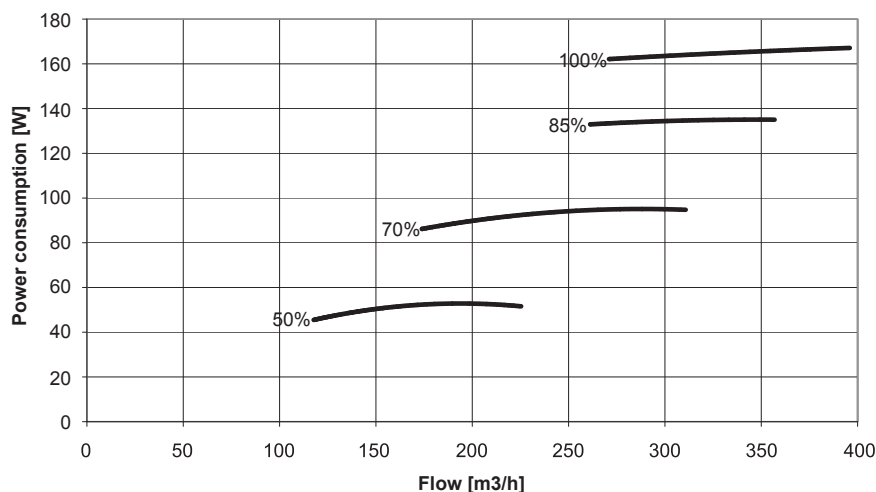
$$\text{Living area (m}^2\text{)} = \frac{370 \text{ m}^3\text{/h}}{2.4 \times 0.5 \text{ h}^{-1}} = 308 \text{ m}^2 *$$

* The power consumption is not included when calculating the living area



Total power consumption

For both fans and control.

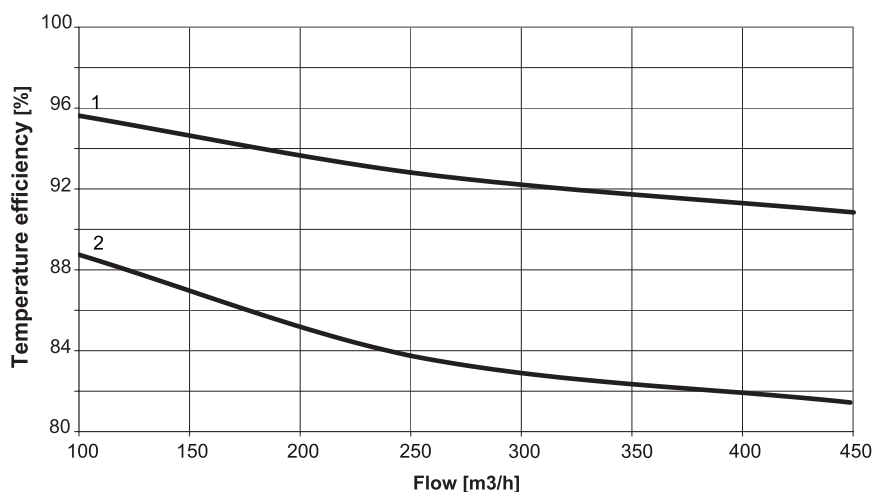


Heat recovery rate

Heat recovery rate, flow $m_{in} = m_{out}$
 Icing of the heat exchanger at low outdoor temperatures has been left out of account.

1 = Temp.: -12 °C
 RF.: 50%

2 = Temp.: 4 °C
 RF.: 50%



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Construction

Size:

2014 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:

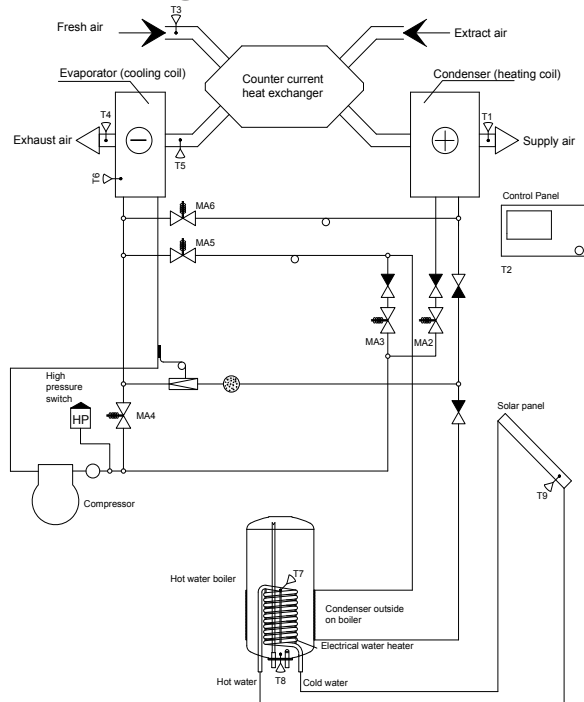
Fresh air: F7 filter

Exhaust air: G4 filter

Weight without/with water:

210/395 kg

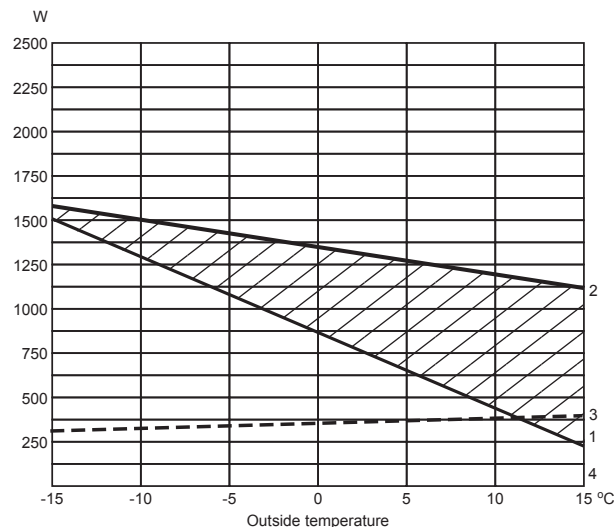
Flow diagram



Capacity

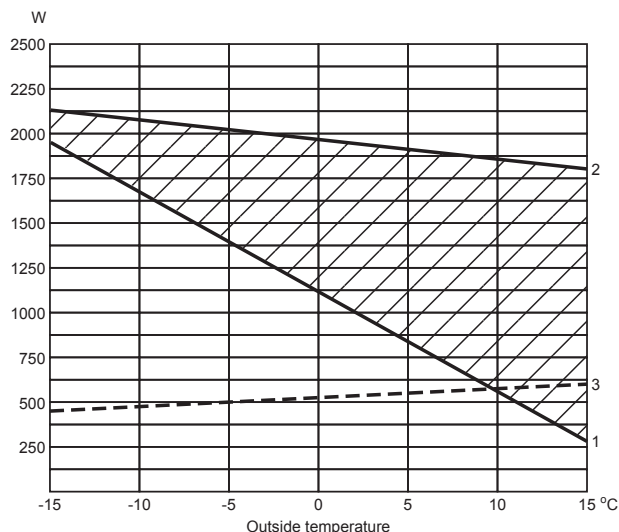
COMBI' capacity without domestic hot water (hot water temperature 55°C)

Airflow 120 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.