HIGH OUTPUT RANGE

Light drop design

BOSCH

Vulcano

Skin design

JUNKERS

e.l.m. leblanc

Trim design

Buderus

BOSCH
Invented for life

Product Introduction

Product Presence Worlwide

BOSCH

Product Presentation

Bosch Model

Commercial Name:

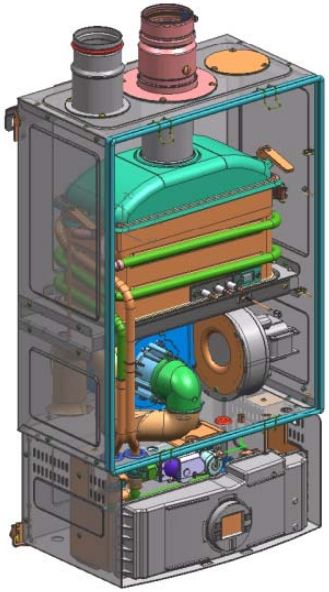
GWHC 27

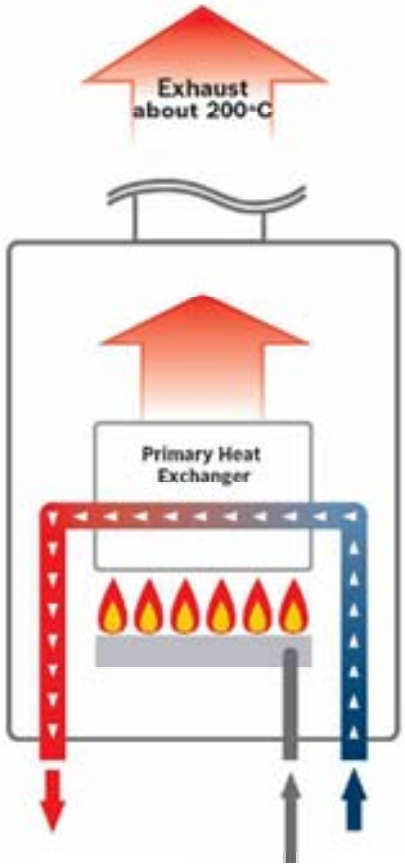
BOSCH

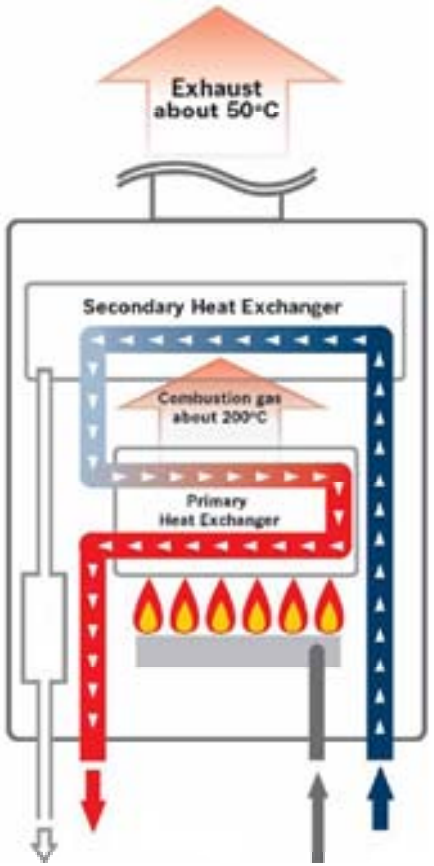
Product Presentation

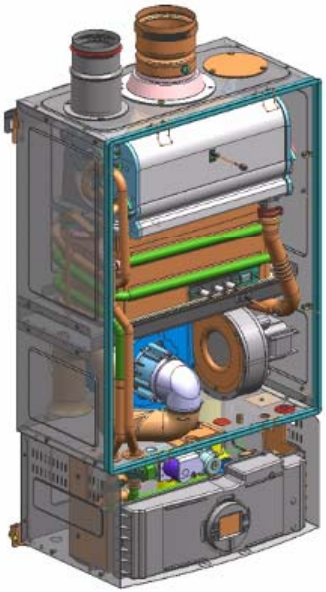
Product Design

System Diagram Comparison









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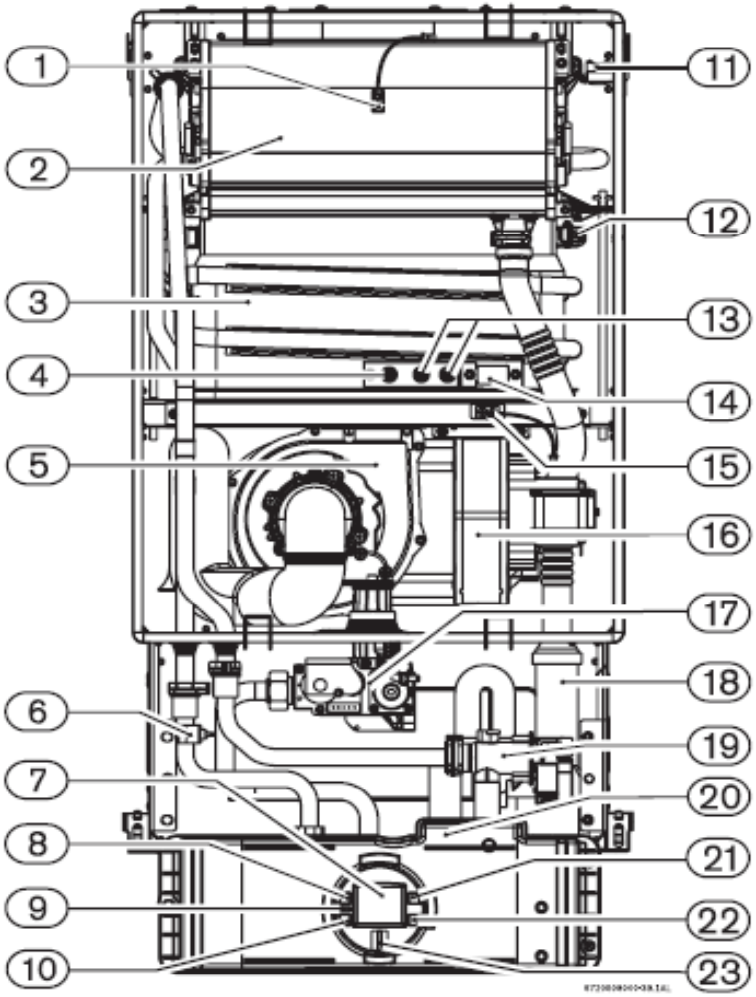
System Diagram –
Condensing model

1	Exhaust temperature sensor
2	Flue gas collector
3	Heat exchanger
4	Ionization sensor
5	Primary fan
6	Hot water temperature sensor
7	LCD display
8	On/off button
9	Reset button
10	Program key
11	Flue gas limiter
12	Heat exchanger overheat sensor (ECO)
13	Ignition electrodes
14	Observation window
15	Backflow temperature sensor
16	Secondary air fan
17	Gas valve
18	Condensate trap
19	Water valve with flow sensor and cold water temperature sensor
20	Control unit
21	Up button
22	Down button
23	LED



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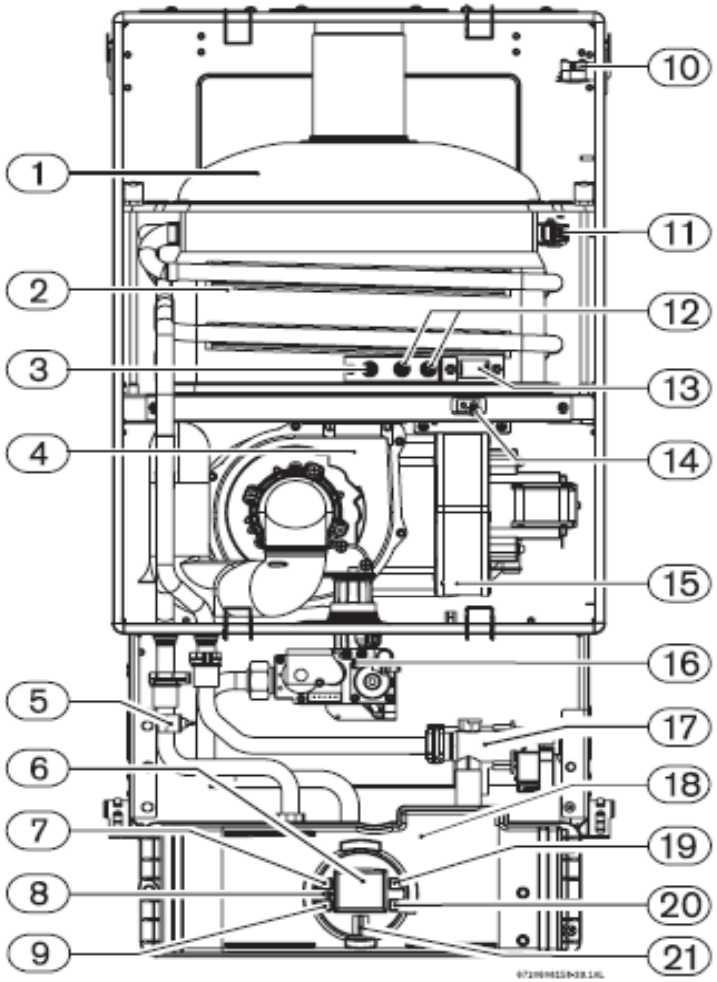
System Diagram –
Non-Condensing model

1	Flue gas collector
2	Heat exchanger
3	Ionization sensor
4	Primary fan
5	Hot water temperature sensor
6	LCD display
7	On/off button
8	Reset button
9	Program key
10	Flue gas limiter
11	Heat exchanger overheat sensor (ECO)
12	Ignition electrodes
13	Observation window
14	Backflow temperature sensor
15	Secondary air fan
16	Gas valve
17	Water valve with flow sensor and cold water temperature sensor
18	Control unit
19	Up button
20	Down button
21	LED



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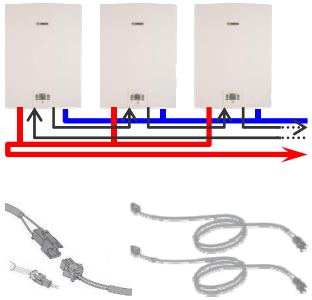
Range & Characteristics

Optional Accessories

Intelligent Cascading



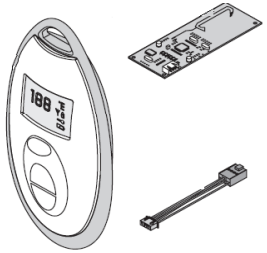
- Up to 12 units
- 1.9 to 324l/min
- Master rotation after 100h of operation
- Failure redundant

High Set Temperature

38ºC
60ºC
84ºC

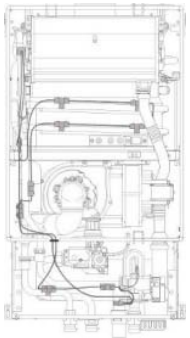
- Default range from 38ºC to 60ºC
- Unlock up to 84ºC for higher and special demanding applications

Remote Control



- Temperature control and functional status
- Up to 6 remotes on the same unit
- 30m distance working range

Outdoor & Anti Freeze



- Outdoor kit with IPX5D protection level
- Anti freeze protection effective down to -15ºC

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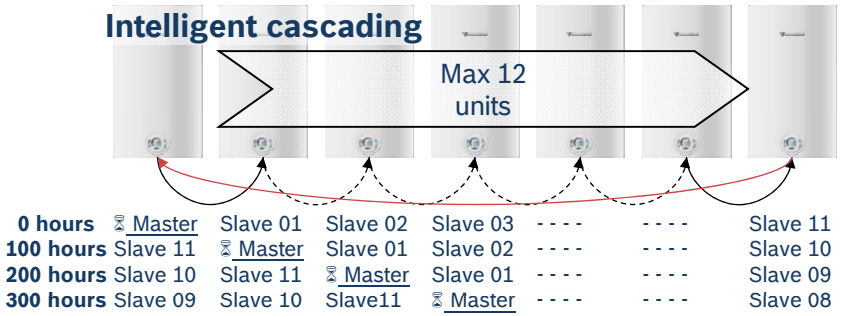
Range & Characteristics

Optional Accessories



Intelligent cascading software

The software has the ability of automatically rotating the Master unit at each 100 hours of functioning

Advantages

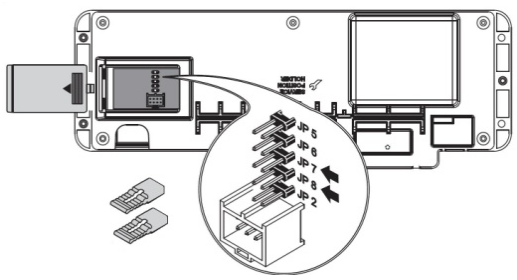
- Redistribution of the work load of the installation equally trough all units installed
- Extension of the maximum number of appliances installed in the cascade from 4 to 12

Requirements and limitations

- Require a cascade kit, with the TTNr: 7 736 500 272; the kit is composed by two connecting cables to close the loop between the first and the last unit installed
- The factory supply is set for *Intelligent Cascade Mode*. Compatibility with the previous software, requires the setting on the PCB to be changed for *Simple Cascade Mode*

Range & Characteristics

Optional Accessories



Higher set point

With a optional kit, it will be possible to reach higher set temperatures up to 84ºC

Advantages

- Change is effective on both condensing and non condensing units
- Units become suitable for high temperature demanding applications

Requirements and limitations

- Requires a optional kit, with the TTNr: 7 736 500 605
- The kit is composed by two jumpers, to be placed on *JP7* and *JP8*

Benefits…

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Benefits and USPs for End Customers

- ➔ High volumes of hot water to serve unique commercial applications
  - Up to 27L / minute at a 25ºC rise
- ➔ Energy savings to reduce utility costs
  - Condensing technology
- ➔ Space savings compared to large storage tanks common to commercial applications
- ➔ Cost savings due to ability to use plastic venting (condensing model only)

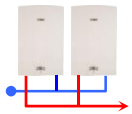
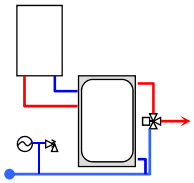
Range & Characteristics

Case Studies

Canteen

- Consumption of 2.000L at 40ºC
- Peaks of 50l/min during 20 minutes
- No central heating

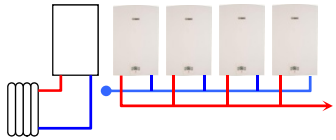
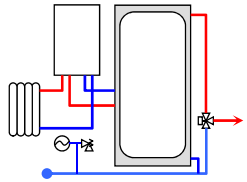
	Bosch Solution	Traditional Solution	Savings
Installation space	1.5 m²	3.0 m²	**-50.0 %**
Total energy consumption	1.060 MJ	1.285 MJ	**-17.5%**
Equipment costs	70	100	**-30%**

Bosch Solution	Trad. Solution
	
2 x 27L condensing W2's	1 x 24kW boiler 1 x 400L storage tank

15 room hotel

- Consumption of 5.000L at 40ºC
- Peaks of 80l/min during 45 minutes
- Central heating required

	Bosch Solution	Traditional Solution	Savings
Installation space	3.2 m2	5.2 m2	**-38.5 %**
Total energy consumption	4.456 MJ	4.517 ML	**-1.4%**
Equipment costs	88	100	**-12%**

Bosch Solution	Trad. Solution
	
4 x 27L condensing W2's 1 x 65kW condensing boiler	1 x 100kW cond. boiler 1 x 1.000L storage tank

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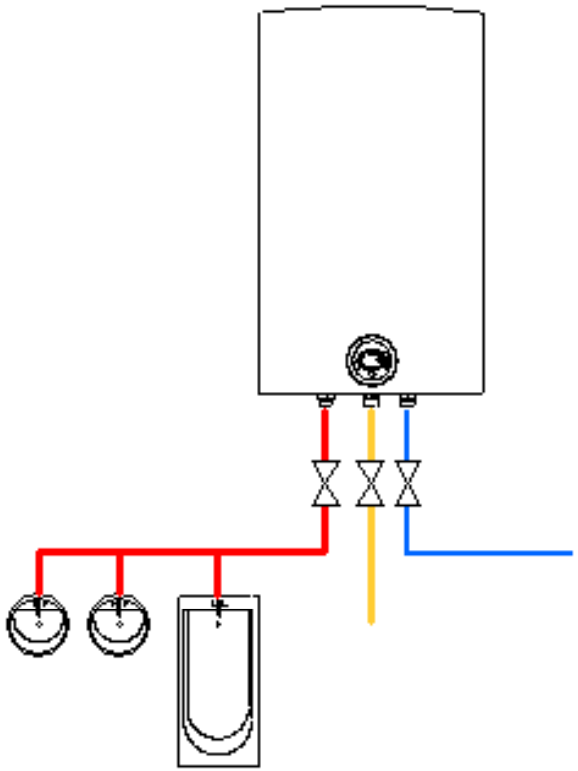
Product Description

Invented for life

Characteristics

Appliance designed for multiple and simultaneous points of use



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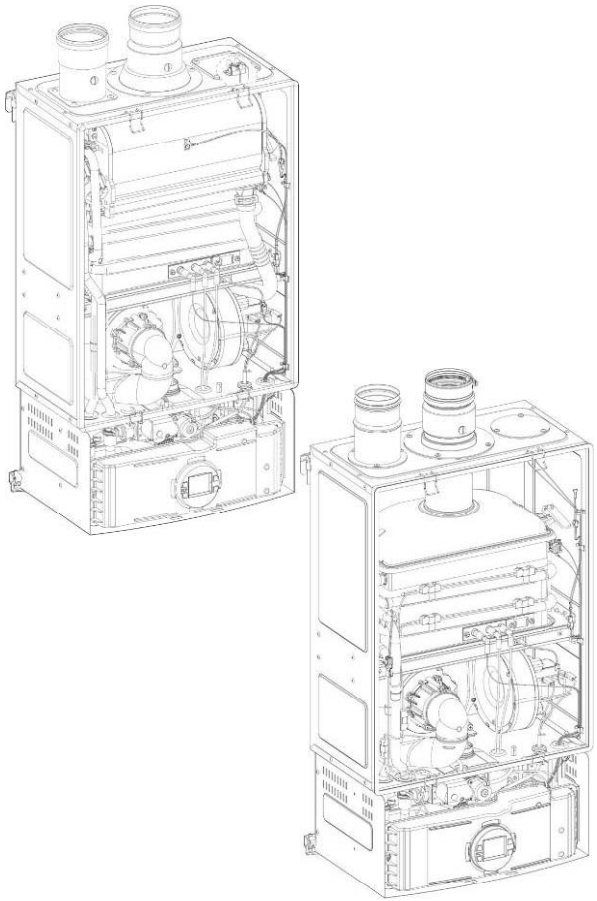
Range & Characteristics



Capacity

- ➔ 27 litres, condensing
- ➔ 24 litres, non-condensing

- Room sealed platform
- Standard 80/80 and 80/125 TT flue accessories
- Low NOx emissions burner
- Fault diagnose and service mode
- Thermostatic with priority to set temperature
- Capacity grows proportionally when in cascade

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Control Panel

On/Off button

Error / Reset button

Program button

Increase button

Decrease button

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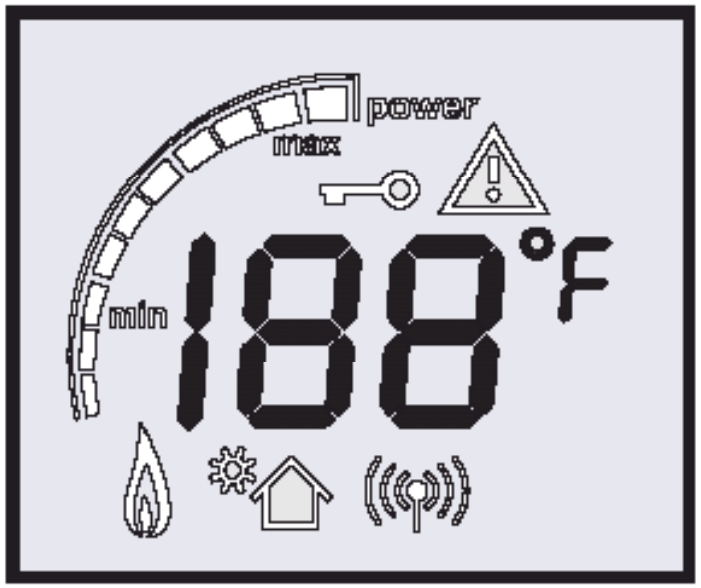
Digital Display



Flame indicator

Power bar indicator

Solar application

Lock symbol

Temperature indicator

Error symbol

Remote Control

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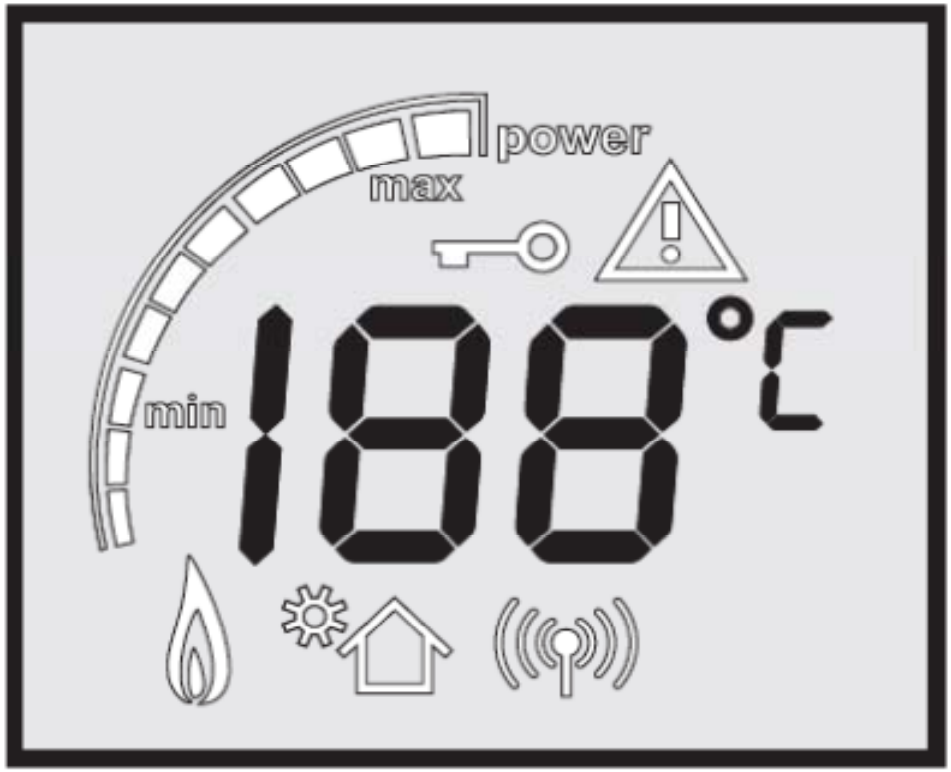
Digital Display



Temperature indicator:

ºC or F

Possible selection

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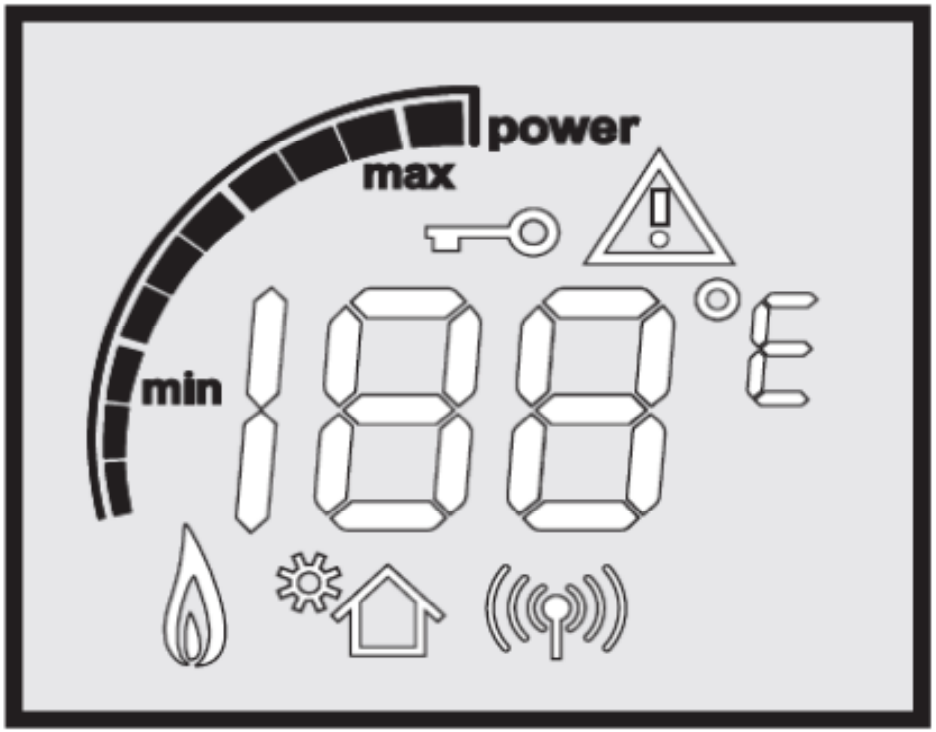
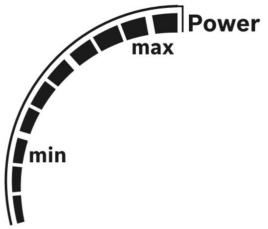
Digital Display



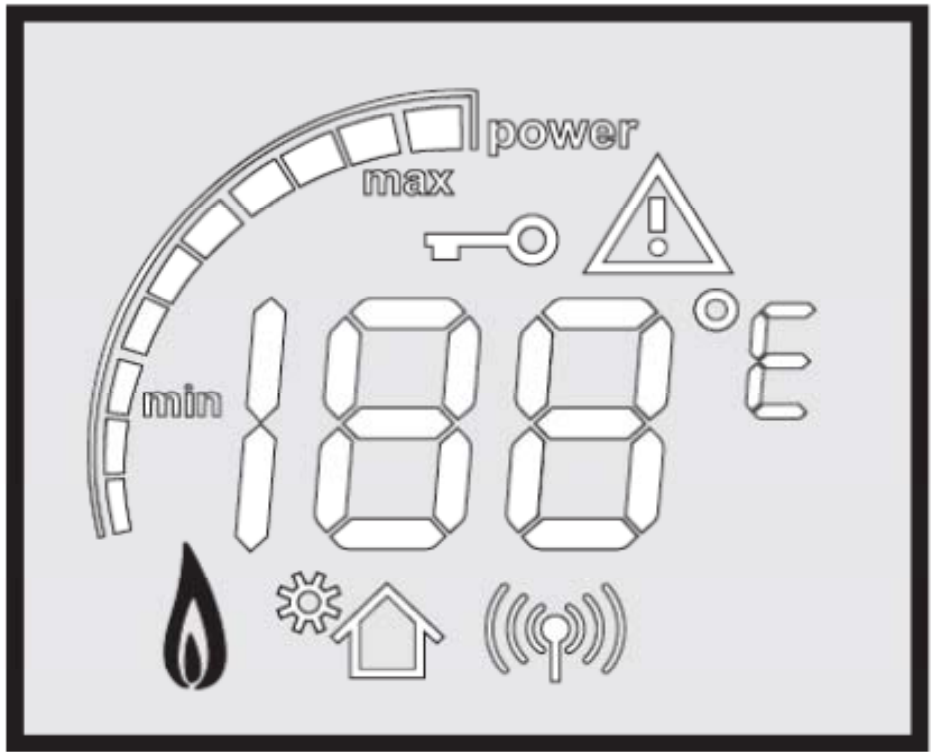
Power bar indicator:

Indication of the current operation power



BOSCH

Digital Display



Flame indication:

Lights when the burner is on

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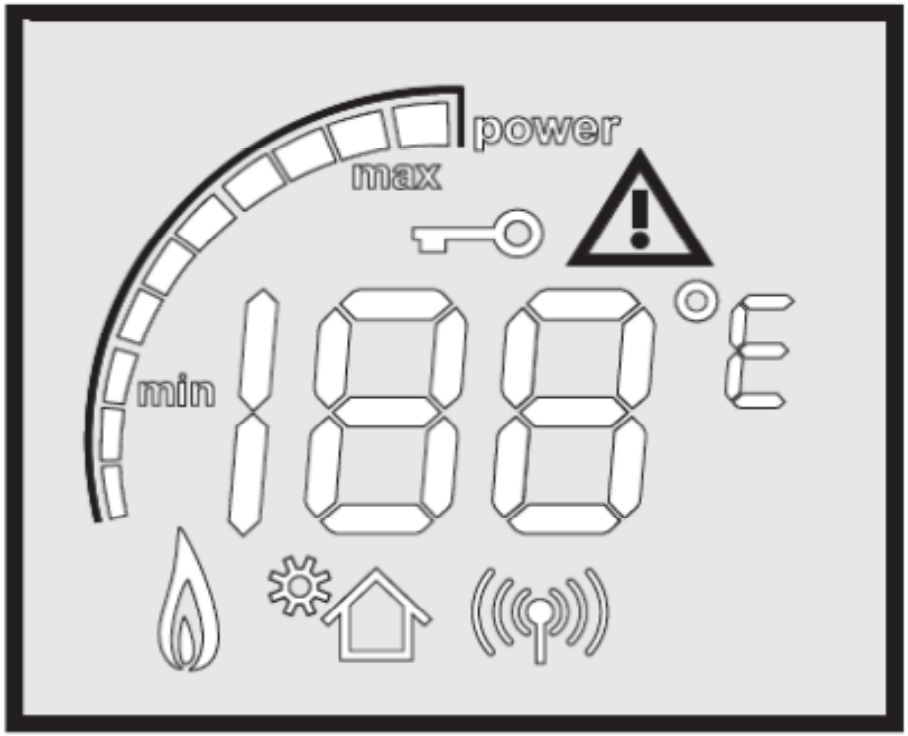
Digital Display

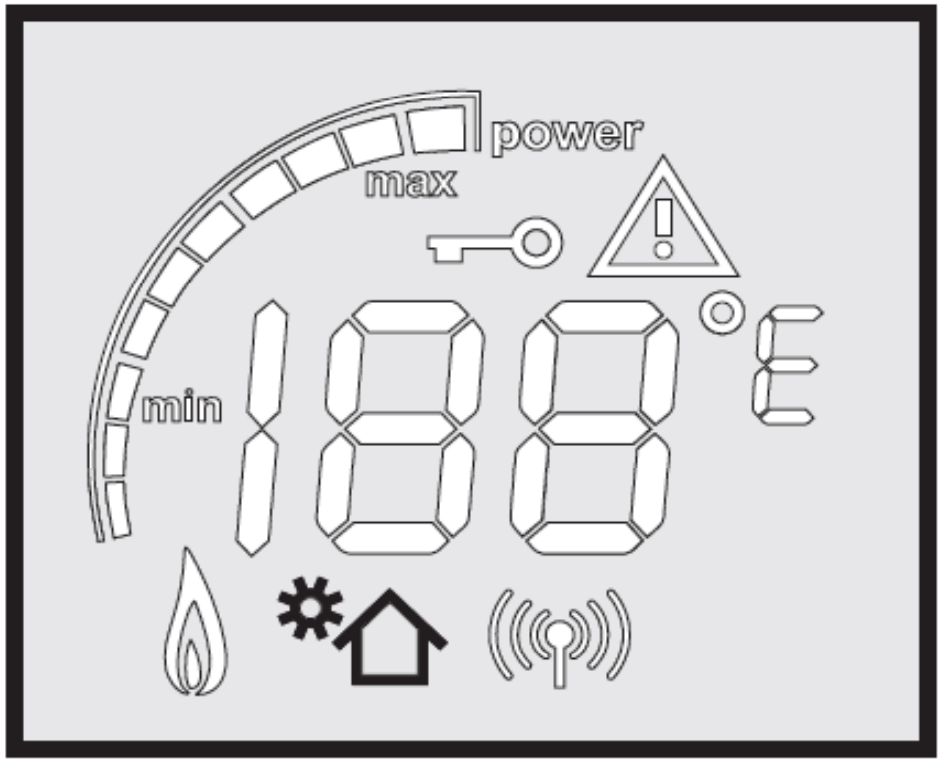


Warning symbol:

Indication that an error has occurred or, that during normal working, something is out of the safety range

BOSCH

Digital Display



Solar application:

Indication that the automatic solar function is activated and, as the appliance is receiving pre-heated hot water, the burner will not start

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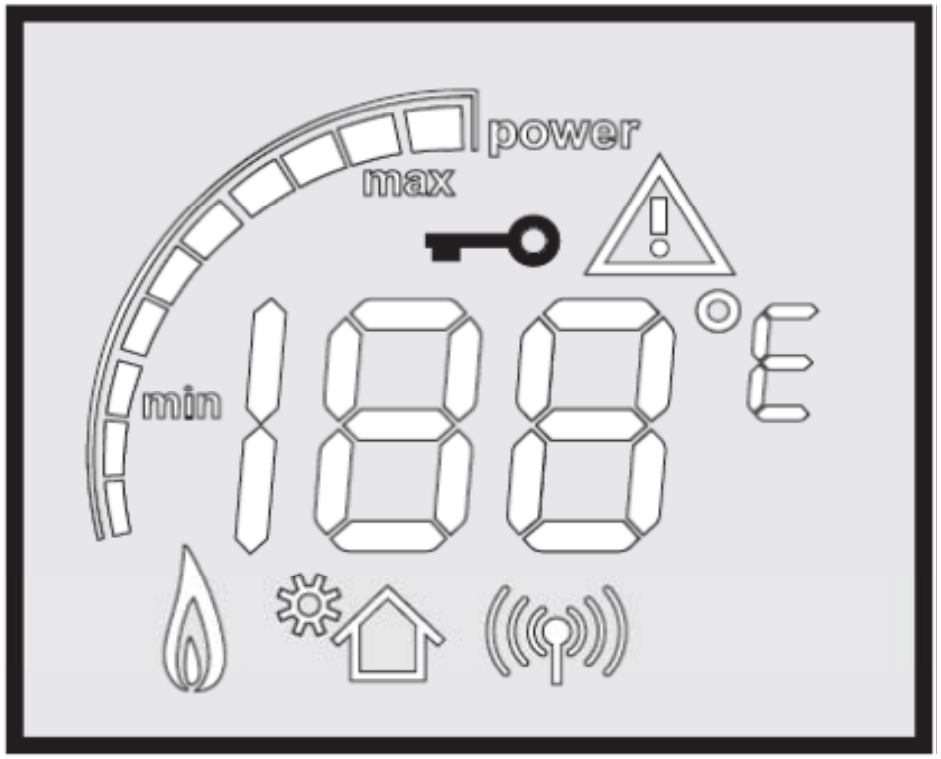
Digital Display



Lock symbol:

Indication of locked control, as another user got the remote control priority

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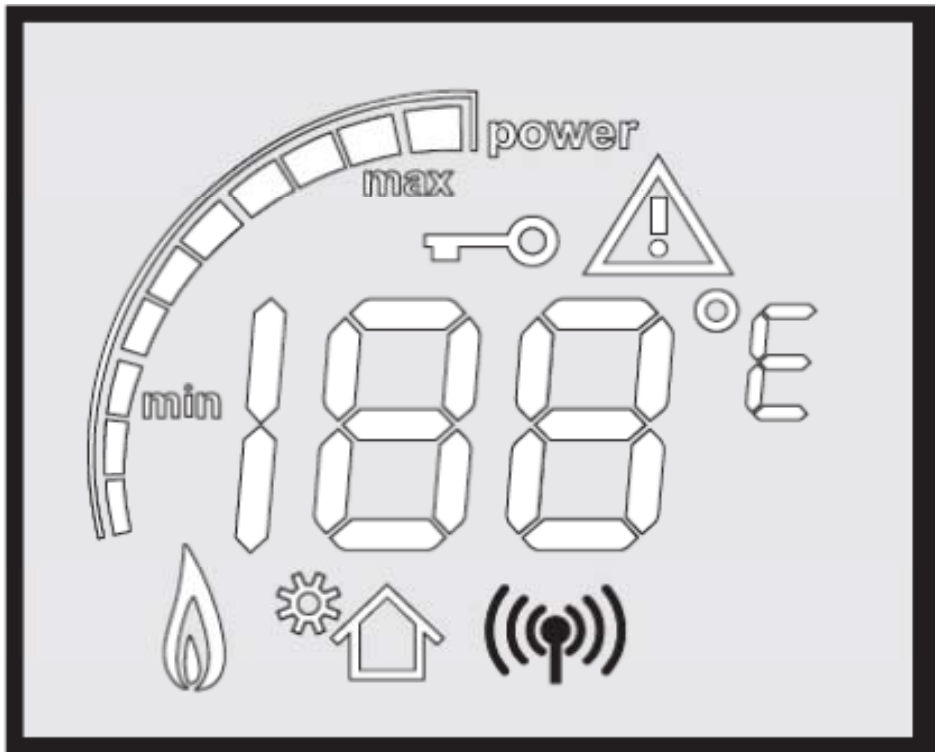
Digital Display



Radio Frequency signal:

Indication that remote control signal is activated.

In case of cascading applications indicates the appliance currently as master

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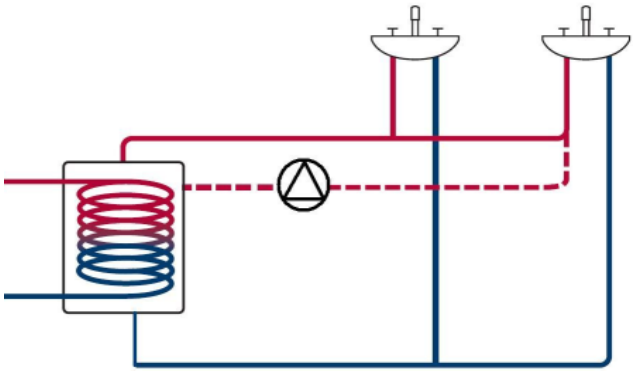
Product Features

Remote Control

A wireless remote control allows the end user to adjust the temperature or see error codes from up to 30m away. A total of 6 remotes can be used with any single appliance.

Characteristics

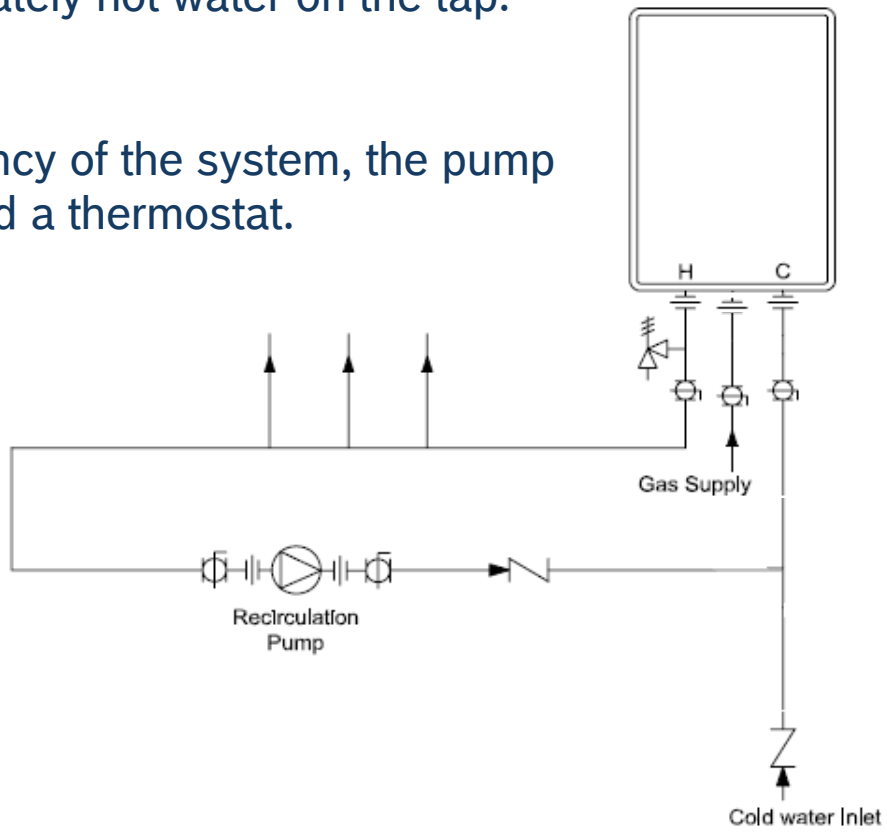
Recirculation through the heater is possible and a good solution, in case of an installation with very long pipes to the consumption points of use, allowing water savings



Characteristics

The end user can have immediately hot water on the tap.

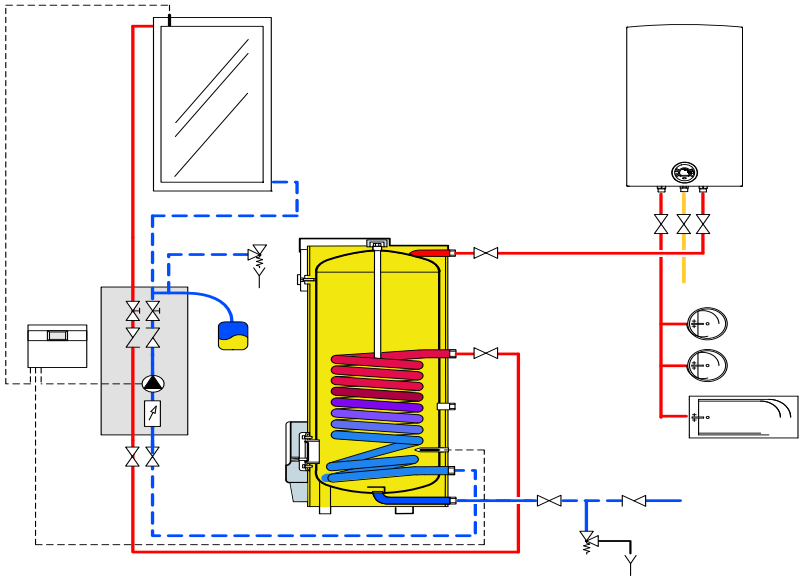
<u>Important:</u>
In order to get an optimal efficiency of the system, the pump shall be controlled by a timer and a thermostat.

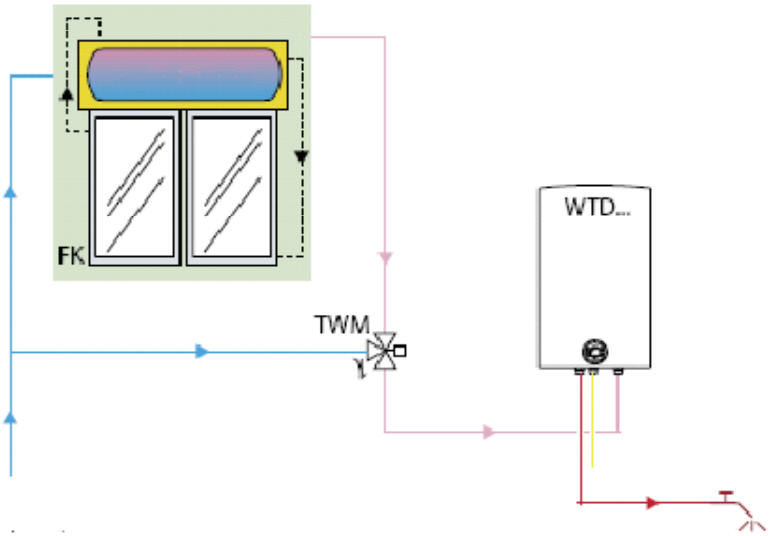


Characteristics

Solar Application

The water heater allow the use of pre-heated water and suitable as backup and compatible with solar applications with both thermo siphon and / or forced systems





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Characteristics

Solar Application

Functionality:

T_{set} : 45ºC

T_{in} = T set - 5ºC (burner stop)

In case the inlet water temperature is within a range of ± 5ºC of the set point temperature, the appliance will not turn on and the solar symbol appears on the LCD.

The maximum inlet temperature to the water heater is **60ºC**.

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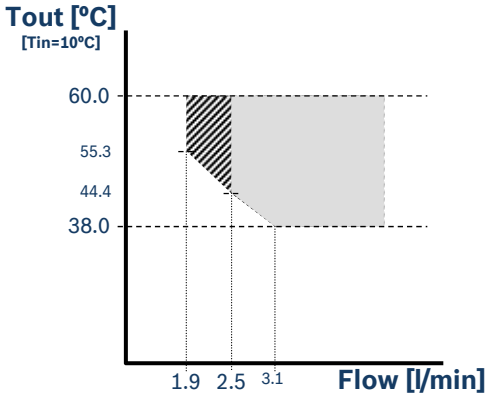
Characteristics

$$A.F._{[l/m]} = Max\left\{\frac{86.12}{T_{set[^oC]} + 5 - T_{in[^oC]}}; 2.5\right\}$$

$$A.F._{[l/m]} = Max\left\{\frac{86.12}{T_{set[^oC]} + 5 - T_{in[^oC]}}; 1.9\right\}$$



Decrease activation flow

Activation flow was reduced from 2.5 l/min to 1.9 l/min, respecting the activation conditions of the solar mode

Advantages

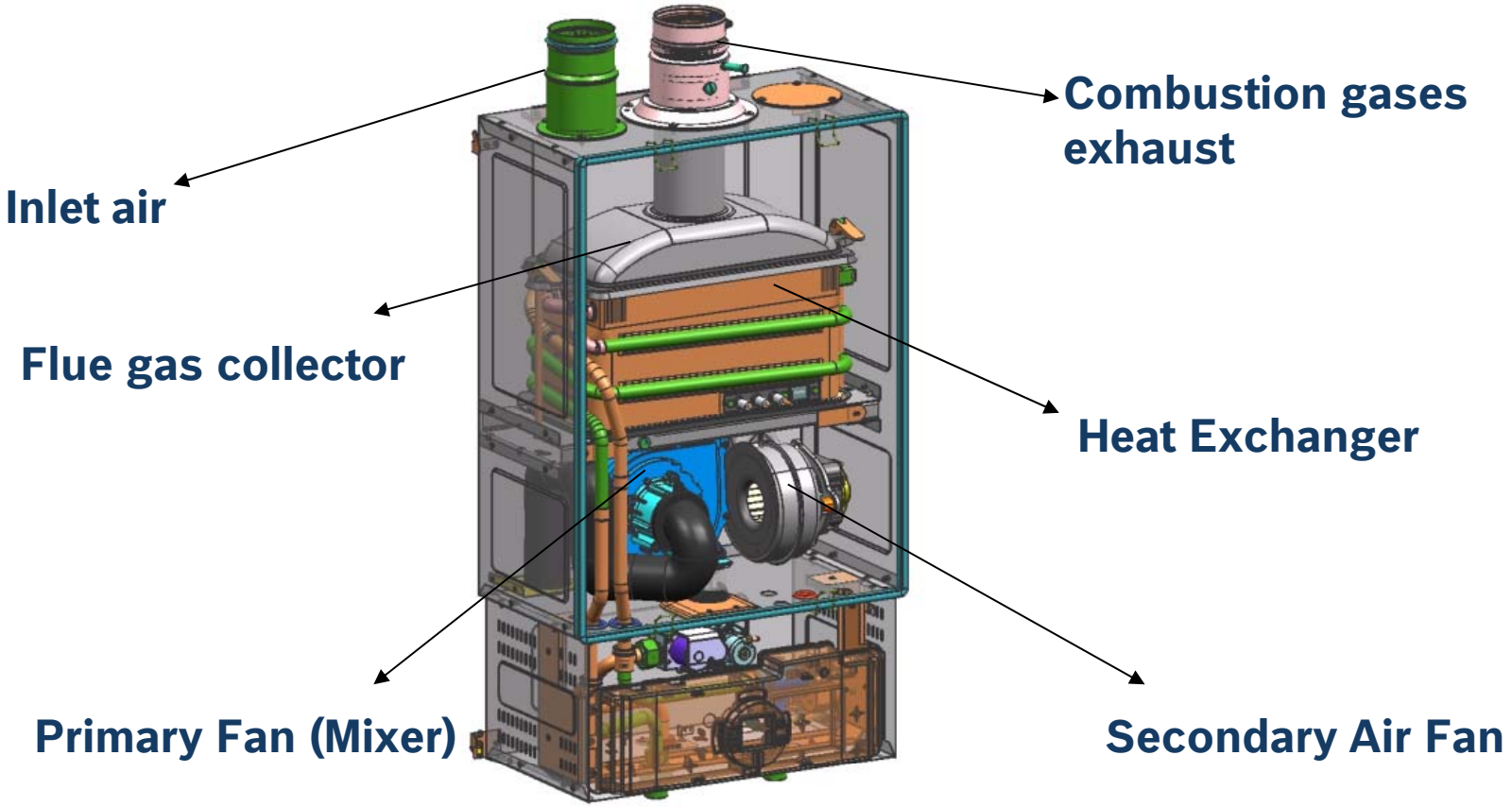
- Wider response flow range of the unit

Limitations

- Increase of the minimum outlet temperature for minimum water flow

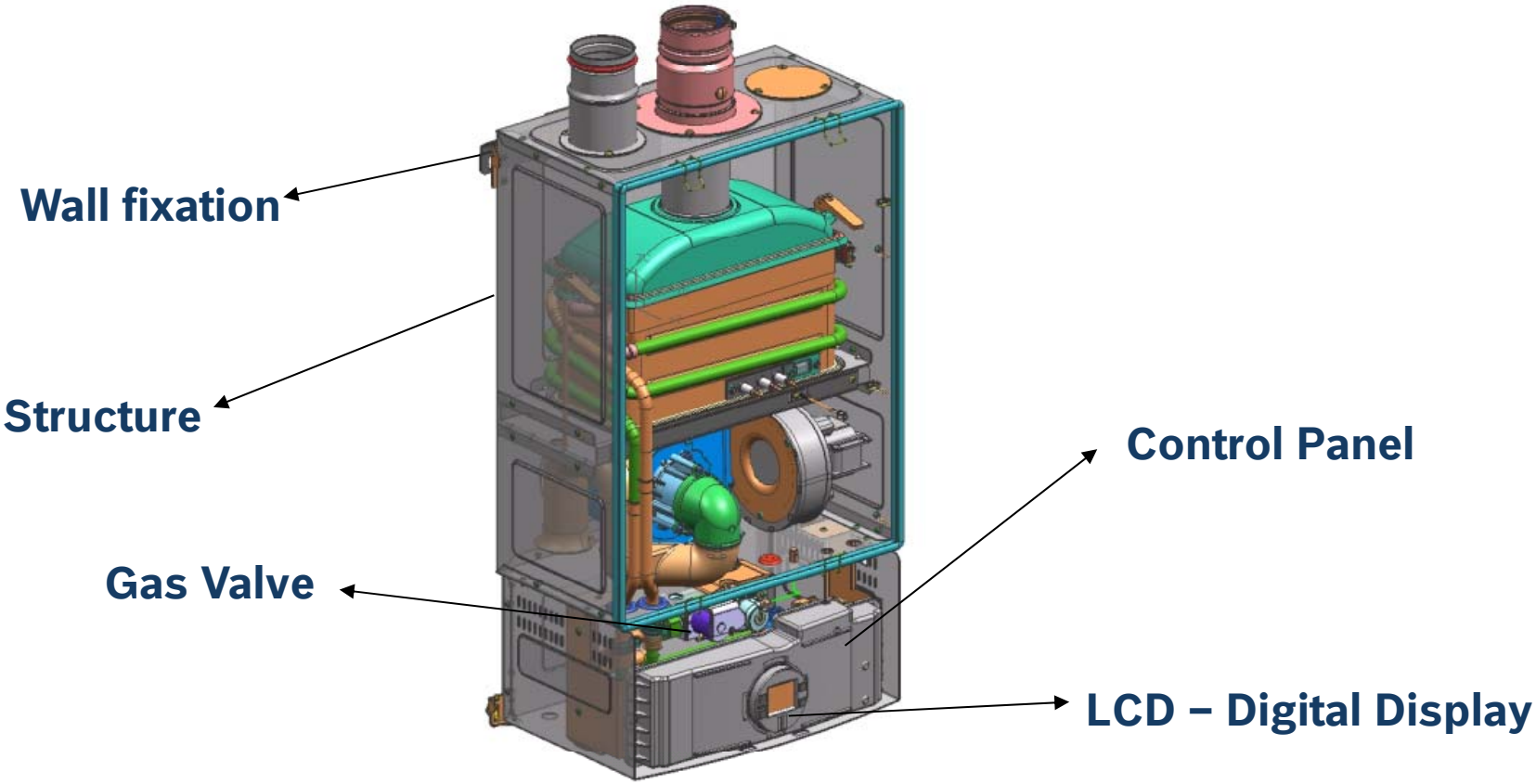
Components overview

Non Condensing appliance



Components overview

Non Condensing appliance



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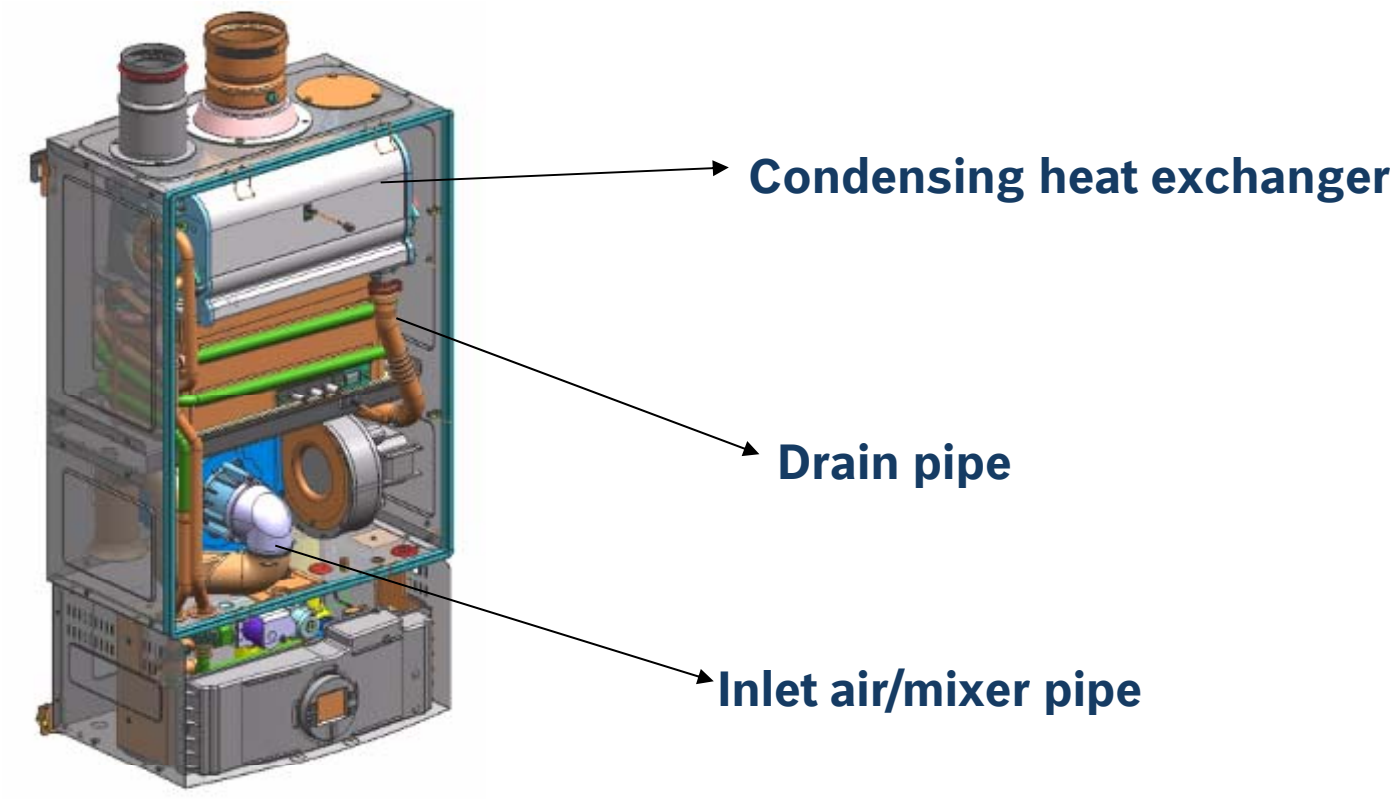
Components overview

Condensing appliance

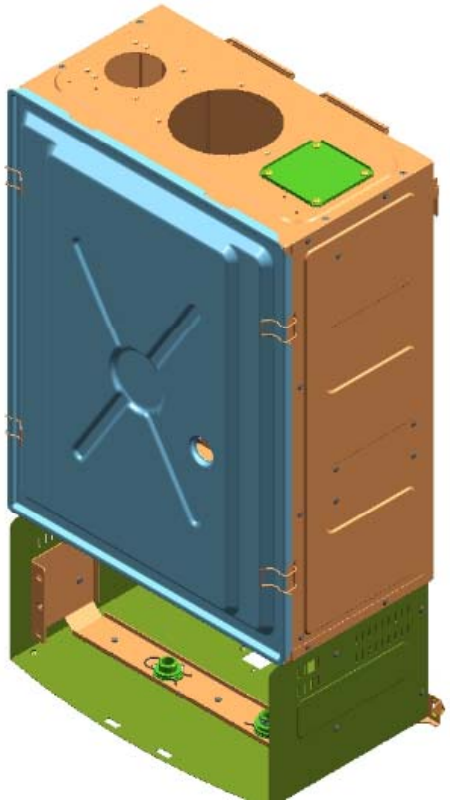


Components Characteristics

Separate chambers

Outer case

Combustion chamber cover



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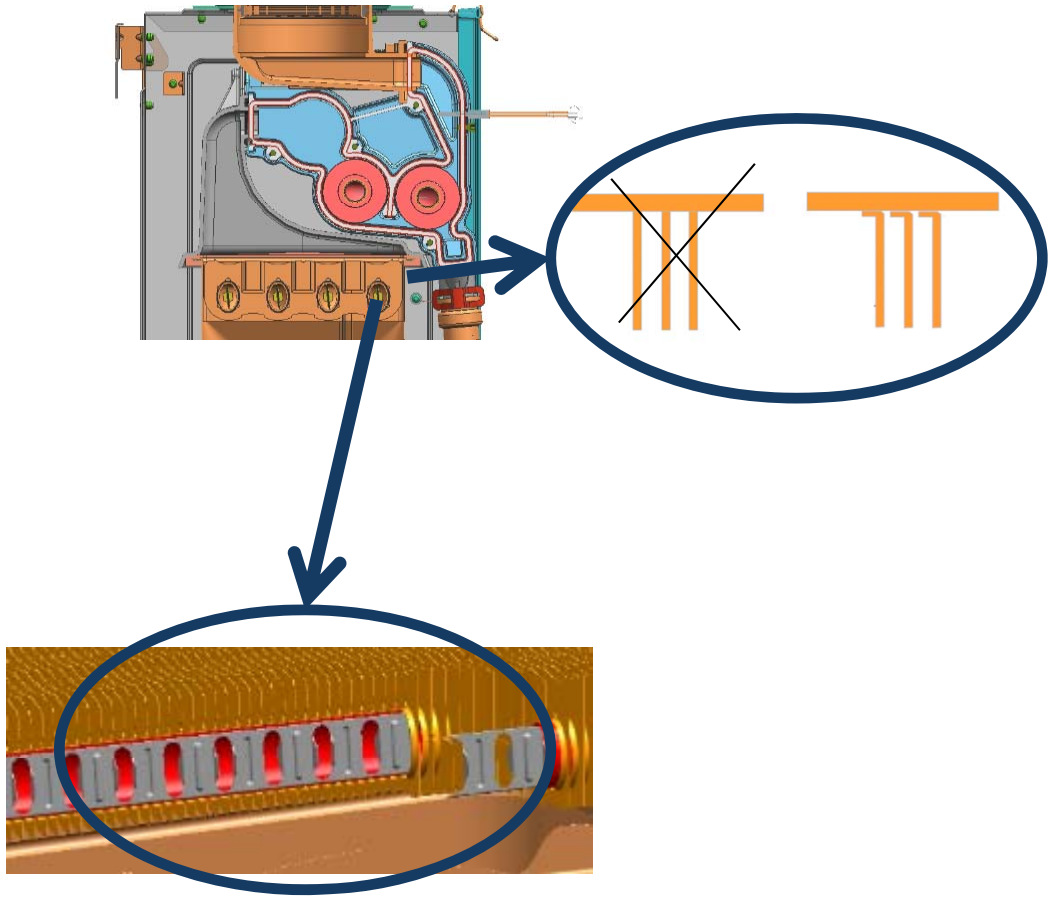
Components Characteristics

Heat Exchanger

Fins soldering

Turbulators



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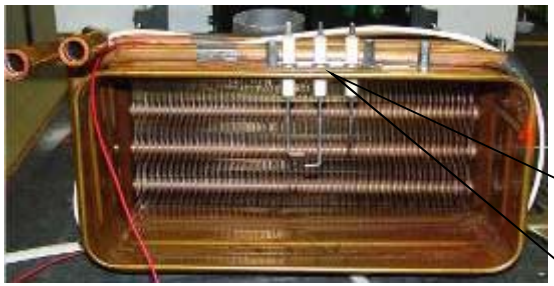
Components Characteristics

Heat Exchanger

Increased number of fins and fixed fixation of electrodes



Ionization Electrode

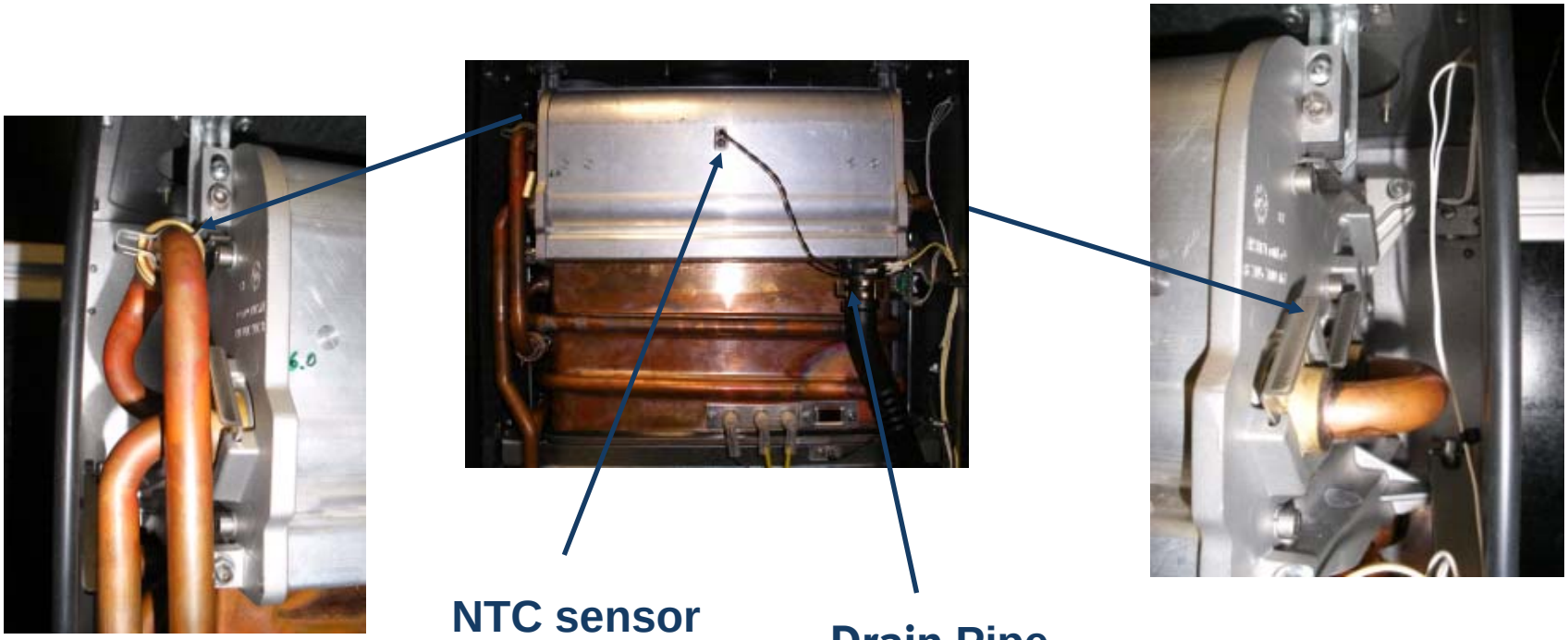
Spark plug

Electrodes kept in position when dismounting HE

Components Characteristics

Condensing Heat Exchanger

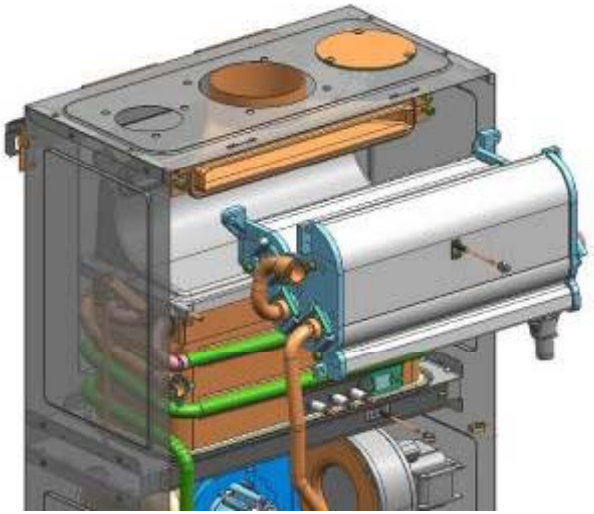
Easy connections – clips and plug in & out cables – SERVICE FRIENDLY



BOSCH

Components Characteristics

Condensing Heat Exchanger



Condensing

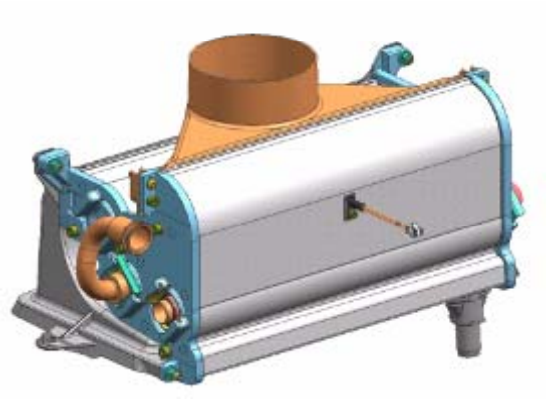
The use of a condensing appliance contributes to achieve higher efficiency by incorporating a secondary (cast aluminum) heat exchanger.

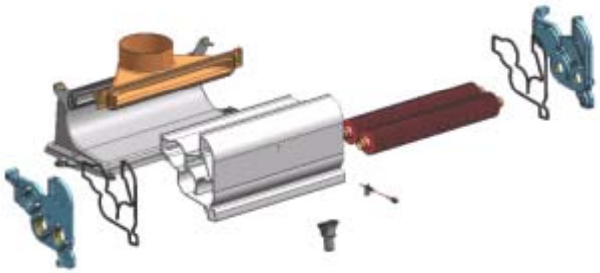
Functionality:

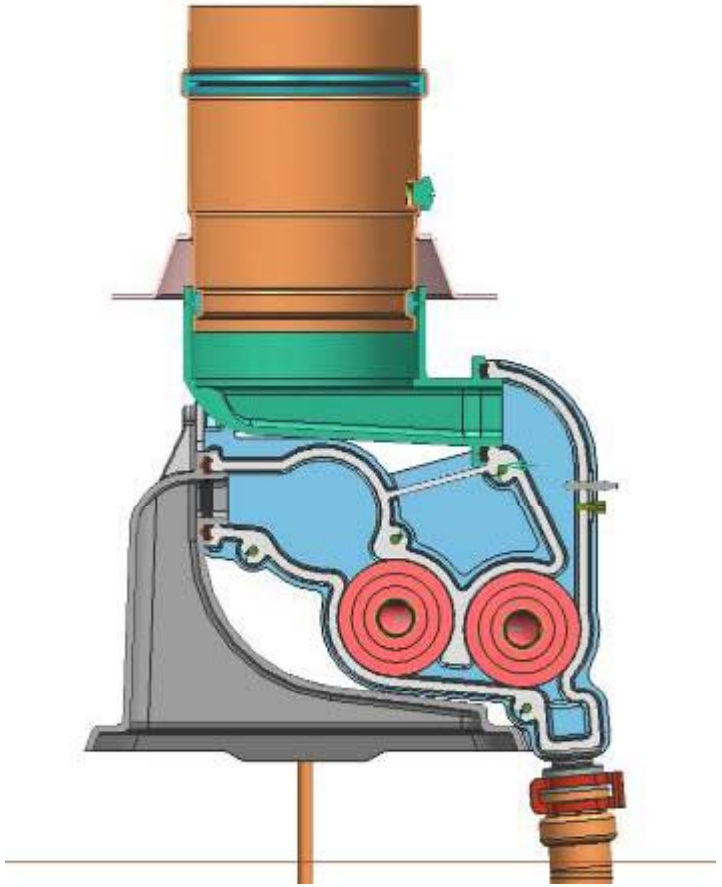
The heat in the exhaust gases is used to preheat the inlet water, and uses the energy that would, otherwise, be lost. The water vapor produced by the consumption of gas condenses back into liquid water, which needs to be safely drained due to its impurity.

Components Characteristics

Condensing Heat Exchanger







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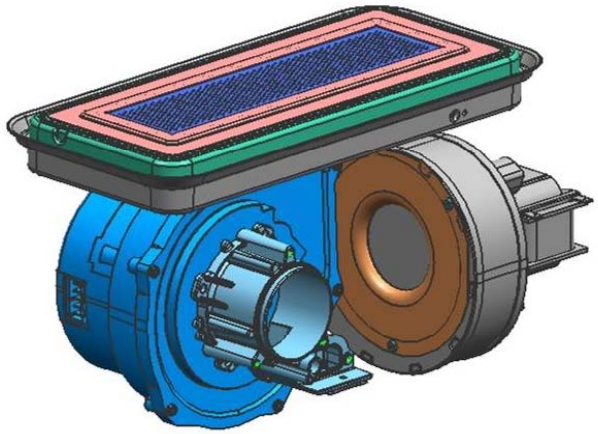
Components Characteristics

Burner and Fans



Low NOx Pre-mix Burner

This gas water heater has Class 4 NOx emissions (less than 100mg/kWh)

Functionality:

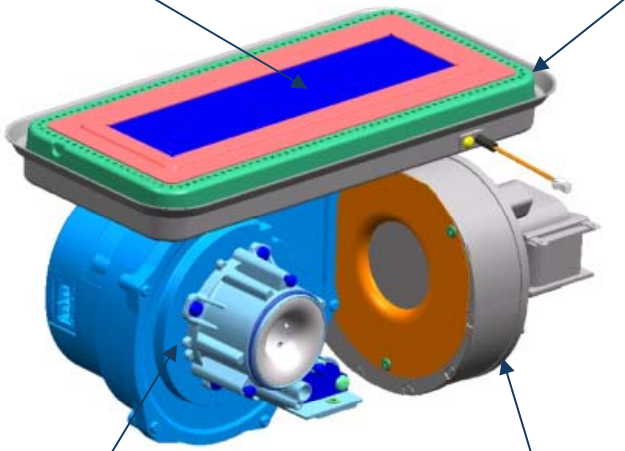
The pre-mixed burner technology combines the air and gas into the optimal ratio before entering the burner, ensuring a clean and efficient combustion.

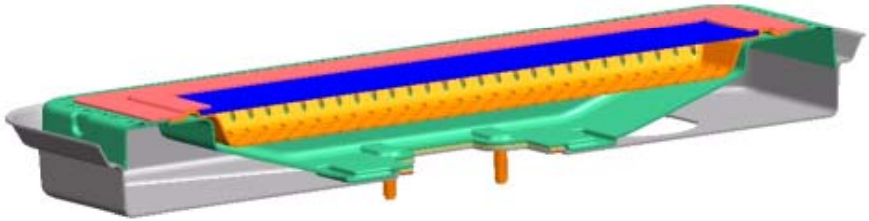
Components Characteristics

Burner and Fans

Pre-mix burner

Secondary air area





Primary fan: air and gas mixture

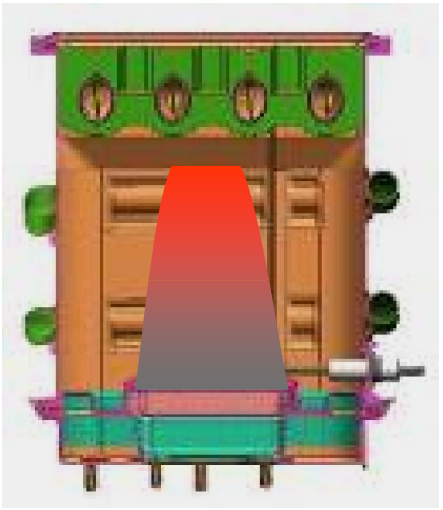
Secondary fan: air injection

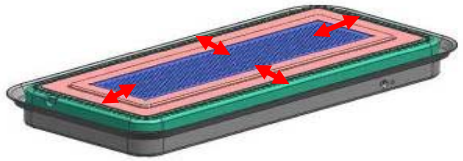
BOSCH

Components Characteristics

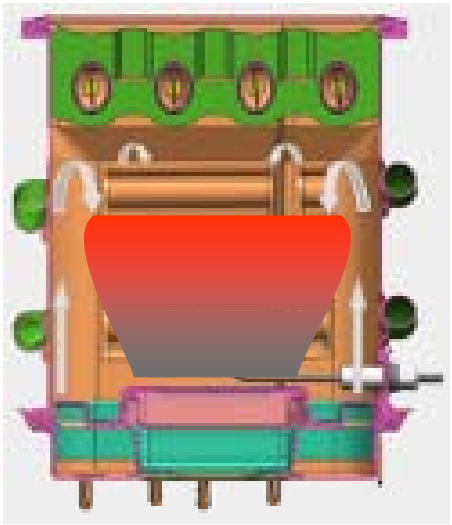
Burner and Fans

Flame without secondary air (concentrated heat points)





Flame with secondary air - homogeneous temperature distribution through the fins.



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