



Premix Full Condensing Combi Boilers  
**Seradens Super**  
**Seradens Super Plus**



20 - 24 - 28 - 36 kW

**THE FIRST CONDENSING  
TECHNOLOGY IN TURKEY  
BOTH IN HEATING AND DOMESTIC HOT WATER**



# Smaller, more elegant and efficient Seradens Super & Super Plus

- Stainless steel exchanger with long service life and high resistance against condensate water
- Capacities of 20, 24, 28 and 36 kW ( at 50/30°C)
- Ideal gas-air mixture, high efficiency, low noise level, low flue gas temperature and low emission rate thanks to the premix system, environmentally friendly product
- High efficiency proved by the very low flue gas temperature (flue gas temperature reduced up to 40°C)
- Minimum stop and start operations, maximum fuel saving with the very extensive heating modulation range that goes from 17% to 100%
- Capability to make use of solar energy in the heating of domestic hot water with the solar energy connection set (using optional solar connection set and an additional hot water tank)
- Pre-heating function for domestic hot water
- Less power consumption, thanks to the high efficient class pump (EEI ≤0,20)
- High pump head



✓ **Full condensing  
in central heating**

Seradens  
**Super**

# Premix Full Condensing Combi Boilers

- Big expansion tank
- Capability to operate at low domestic hot water flow rates
- Wide heating modulation range and high space heating efficiency
- Unique hot water heating efficiency up to 92% and hot water flow rate up to 21 lt/min in Seradens Super Plus models
- Less fuel consumption
- White illuminated LCD display
- Digital manometer
- Eco mod allows practical and economic setting of both central heating and domestic hot water in Seradens Super Plus models
- Ease of demonstration and explanation in showrooms with the demo mode
- Opentherm remote control connection
- Very low sound level (39-42 dB)
- Complies with EN 15502 norm (gas fired boilers with a rated heat load under 1,000 kW)
- Compatible for natural gas and LPG
- Certified for EMC (Electro Magnetic Compatibility) and LVD (Low Voltage Directive) from a certification body

Seradens  
**Super Plus**



✓ *Full condensing both in central heating and domestic hot water*

✓ *Maximum domestic hot water comfort thanks to much higher hot water flow rate*







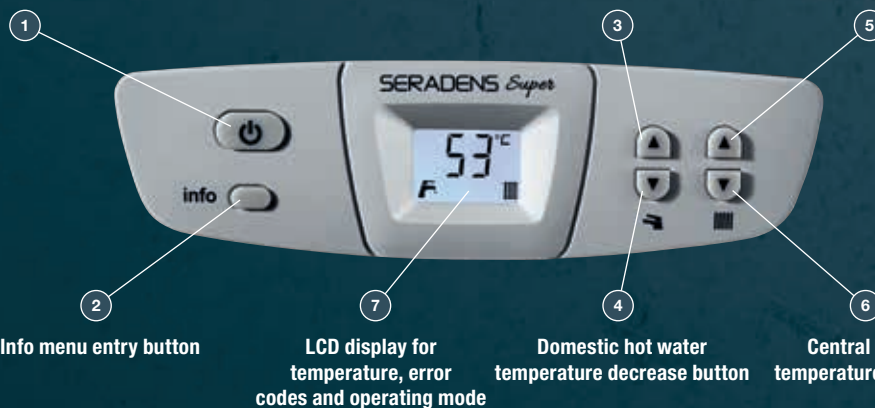
ALARKO

### Control Panel

**Operating mode setting button**  
(Summer / Winter / Heating Only / Off / Reset)

**Domestic hot water temperature increase button**

**Central heating water temperature increase button**



**Info menu entry button**

**LCD display for temperature, error codes and operating mode**

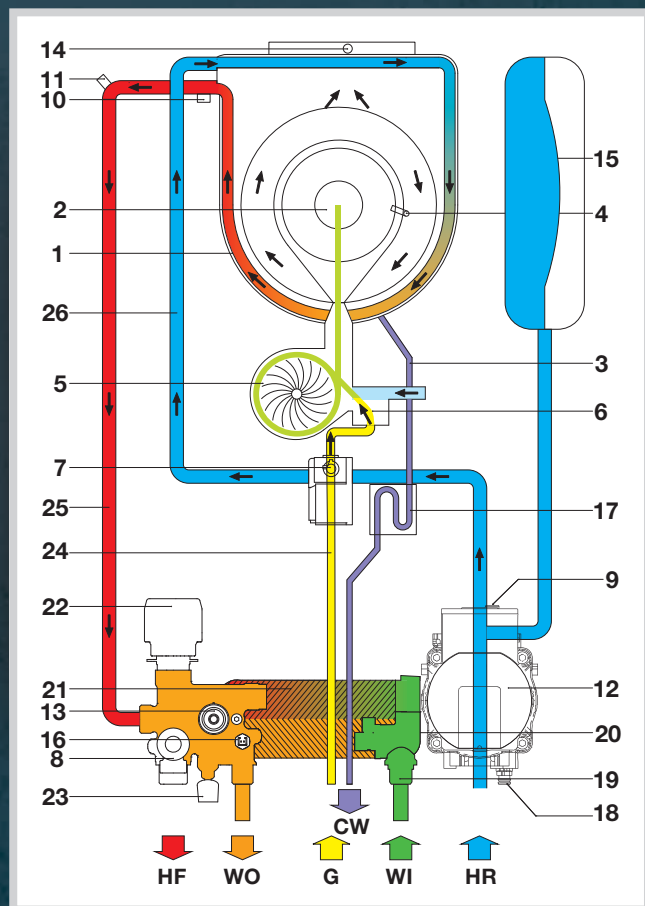
**Domestic hot water temperature decrease button**

**Central heating water temperature decrease button**



# Seradens Super

## Operating Diagram



- 1- Main exchanger 2- Premix burner unit (gas manifold + burner) 3- Condensation drainage pipe 4- Ionization and ignition electrode 5- Fan 6- Venturi 7- Electronic gas valve
- 8- 3 bar safety valve 9- Automatic air vent 10- Limit thermostat 11- Heating flow temperature sensor 12- High efficient class pump 13- Pressure sensor 14- Flue fuse
- 15- Expansion tank 16- DHW temperature sensor 17- Siphon 18- Drainage tap
- 19- Flow limiter 20- Electronic flow sensor 21- DHW plate exchanger
- 22- 3 way valve motor 23- Water filling tap 24- Gas inlet pipe 25- Heating flow pipe
- 26- Heating return pipe



### Control Panel

**Operating mode setting button**  
(Summer / Winter / Heating Only / Off / Reset)

**Domestic hot water temperature increase button**

**Central heating water temperature increase button**

**Info menu entry button**

1

3

5

2



4

7

6

8

**Domestic hot water temperature decrease button**

**LCD display for temperature, error codes and operating mode**

**Central heating water temperature decrease button**

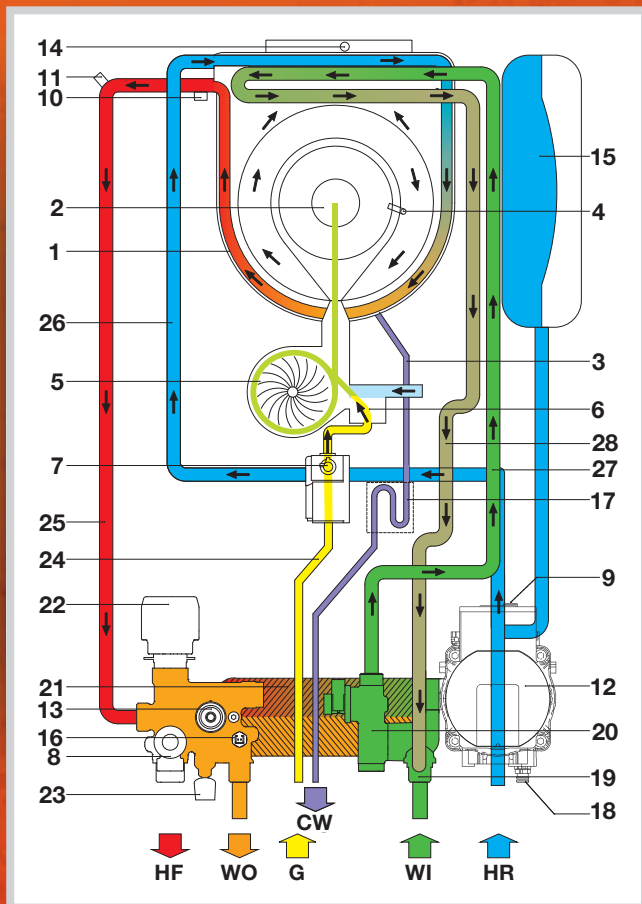
**eco (economy) mode on-off button**  
(upper limit as 50°C for radiator system and 38°C for underfloor heating system, fixed 45°C for domestic hot water)





# Seradens Super Plus

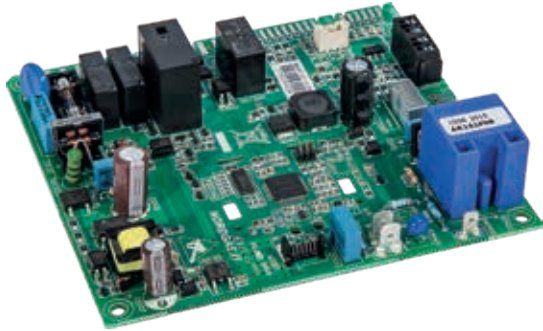
## Operating Diagram



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- 8- 3 bar safety valve 9- Automatic air vent 10- Limit thermostat 11- Heating flow temperature sensor 12- High efficient class pump 13- Pressure sensor 14- Flue fuse 15- Expansion tank
- 16- DHW temperature sensor 17- Siphon 18- Drainage tap 19- Flow limiter 20- Electronic flow sensor 21- DHW plate exchanger 22- 3 way valve motor 23- Water filling tap 24- Gas inlet pipe
- 25- Heating flow pipe 26- Heating return pipe 27- DHW water pre-heating inlet pipe 28- DHW water pre-heating outlet pipe

# Main Components

## Electronic Card



Seradens Super and Seradens Super Plus series combi boilers use state-of-the-art electronic board by Nordgas. Electronic board allows displaying of operating modes and temperatures, ambient temperature, warnings and error messages on the elegant, white LDC display. Monitors the boiler continuously for safe, comfortable and high efficiency operation.

- Compatible both for radiator and underfloor heating systems with standard (30-85°C) / reduced (30-45°C) heating temperatures
- User info menu
- Service info menu
- Seradens Super Plus models have eco mode
- Demo mode
- Continuous flame modulation during heating and domestic hot water cycles
- Automatic flame control system
- Initial power increase time (ramp time) setting for heating cycle
- Pre-heating function for domestic hot water
- Activation delay period setting for heating cycle
- Heating anti-freeze function
- Domestic hot water anti-freeze function
- Circulation pump anti-locking function
- 3-way diverting valve anti-locking function
- Pump overrun feature for heating cycle
- Pump overrun feature for domestic hot water cycle
- Heating circuit low water pressure safety
- Heating circuit high water pressure safety (two stages)
- Fault reporting with error codes (self-diagnostic)
- Remote controller communication channel (opentherm protocol)
- Outside temperature compensation function (with using optional outside sensor)
- Selection of gas type
- Chimney sweeper function
- Parameters programming function

## Main Exchanger



- Sermeta brand. With smooth oval pipes, made of long service life stainless steel resistant against condensate water.
- Highly efficient, durable, resistant against shocks.
- Seradens Super Plus models have additional exchanger coils for condensation in domestic hot water generation.
- Efficiency is increased even more with less radiation losses thanks to the cold burner door on the front cover side.
- Provides maximum safety for you and your boiler with the integrated flue and safety fuses.
- Exchanger's burner is the patented, very quiet Bluejet<sup>®</sup> burner with a long service life developed by Sermeta. CO and NOx emissions caused by burning are reduced to minimum level.
- Quick maintenance is possible with easy access to combustion chamber by removing a few nuts.



Seradens Super Exchanger



Seradens Super Plus Exchanger

## Fan-Venturi-Gas Valve Assembly



- Required amount of gas-air mixture is provided as per the boiler capacity with the EBM made modulated fan integrated in the assembly. Fan speed is increased or decreased as per capacity. Thus, low noise level is maintained besides preventing low efficiency caused by excess air.
- Gas valve provides the gas flow required for combustion safely as per the modulating fan that changes according to the capacity
- With the venturi, ideal gas-air mixture rate of 1:10 is provided in a fixed fashion throughout whole capacity range. This is the most important point that ensures efficient and clean burning.



## Hydraulic Circuit

- Seradens Super and Seradens Super Plus models have the same flow blocks, but different return blocks.
- Flow and return hydraulic blocks made of brass are much more durable and have a longer service life than plastic blocks. Service interventions, removal and installation operations are performed more easily and safely.
- Variable speed, high efficient class ( $EEL \leq 0,20$ ), silent and automatic air vented circulation pumps

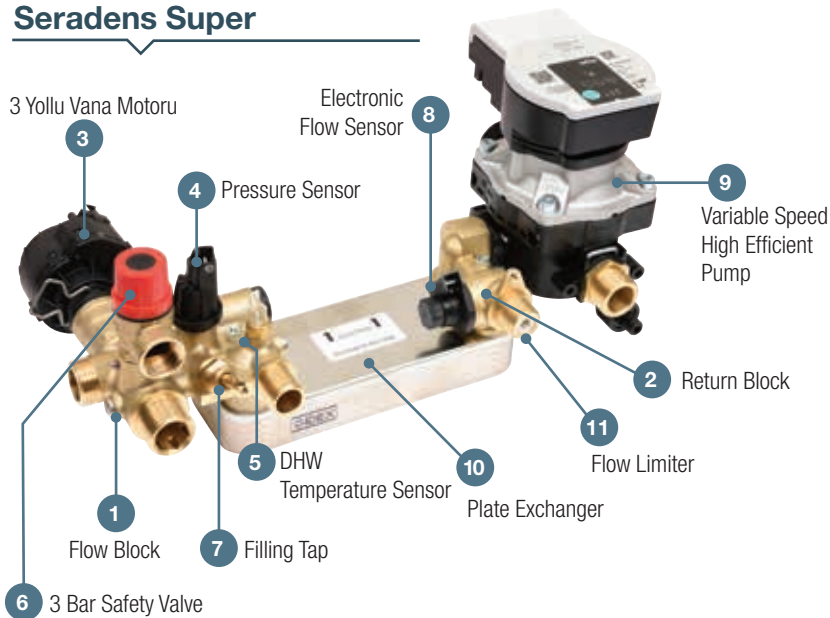
which adjusted variable pressure operating system have up to 6 mWc pump head at 20, 24, 28 kW capacity models and 6,8 mWc pump head at 36 kW capacity models. No pump problems even in duplex or triplex houses.

- Stainless steel plate exchangers are used for comfortable, abundant and instant domestic hot water production. 20, 24, 28 and 36 kW Seradens Super models provide 10, 13, 14, 18 liter/min, and Seradens Super Plus models

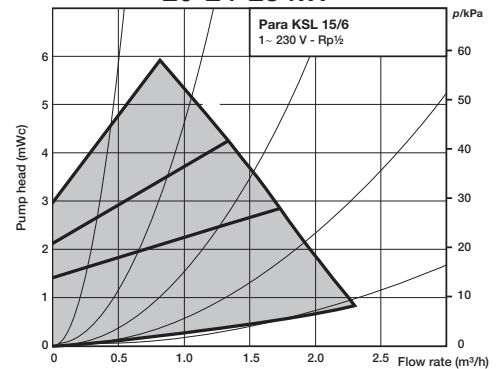
provide 12, 15, 17, 21 liter/min. This ensures a unique domestic hot water comfort.

- Automatic bypass that takes place through the plate exchanger allows continued circulation even if all radiator valves are closed. It prevents blocking of the boiler.

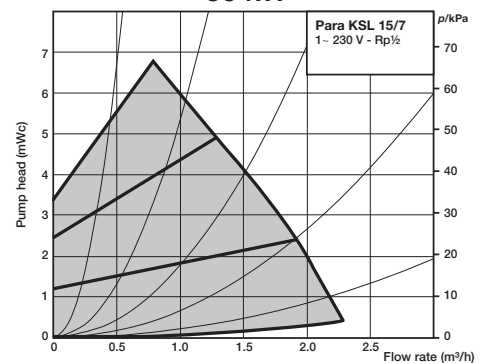
### Seradens Super



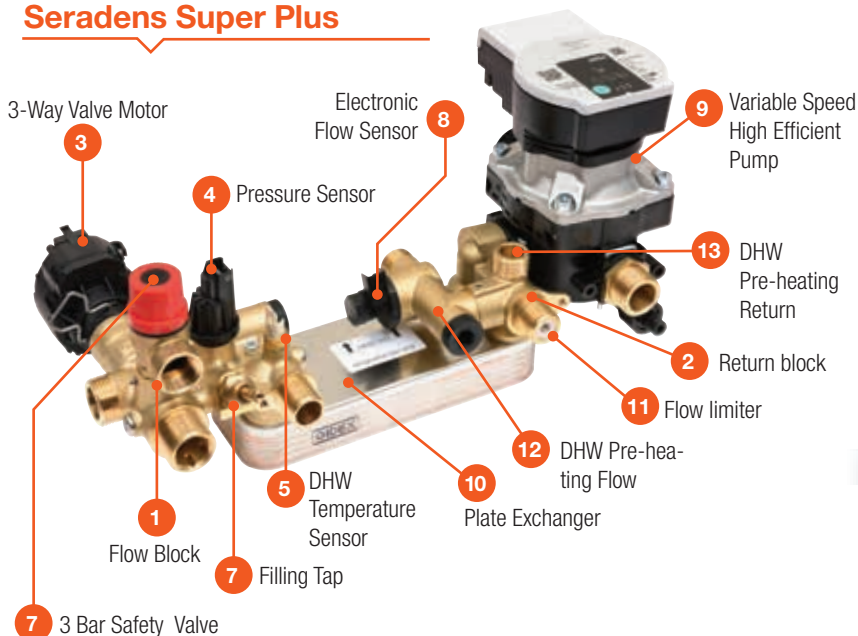
#### 20-24-28 kW



#### 36 kW



### Seradens Super Plus



## Expansion Tank

Expansions tanks with a capacity of 8 litre used for 20, 24 and 28 kW models and 10 litre used for 36 kW models allow expansion of very large installations, no problem occurs.

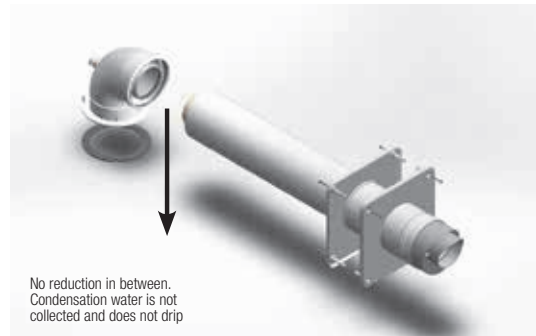
# Various Flue Sets for Your Need

## Ø 60/100 Horizontal Concentric Flue Set



- Provided as standard with the appliance for SRS/SSP 20, 24 and 28 types
- If requested, can be changed with another set on order
- Maximum linear flue set length:  
SRS/SSP 20/24: 6 m.  
SRS/SSP 28: 5 m.
- Linear length of additional elbows:  
90° elbow: 0.8 m.  
45° elbow: 0.5 m.

## Ø 80/125 Horizontal Concentric Flue Set



- Provided as standard with the appliance for SRS/SSP 36 type
- If requested, can be changed with another set on order
- Maximum linear flue set length:  
SRS/SSP 36: 8 m.
- Linear length of additional elbows:  
90° elbow: 0.8 m.  
45° elbow: 0.5 m.

## Ø60/100 Vertical Concentric Flue Set



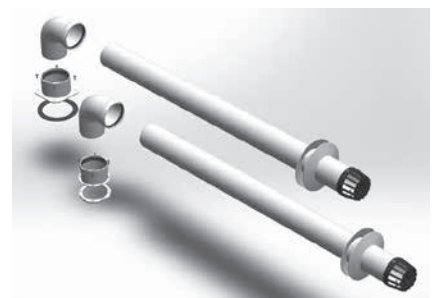
- If requested, can be changed with standard set on order
- Maximum linear flue set length:  
SRS/SSP 20/24: 6 m.  
SRS/SSP 28: 5 m.
- Linear length of additional elbows:  
90° elbow: 0.8 m.  
45° elbow: 0.5 m.

## Ø80/125 Vertical Concentric Flue Set



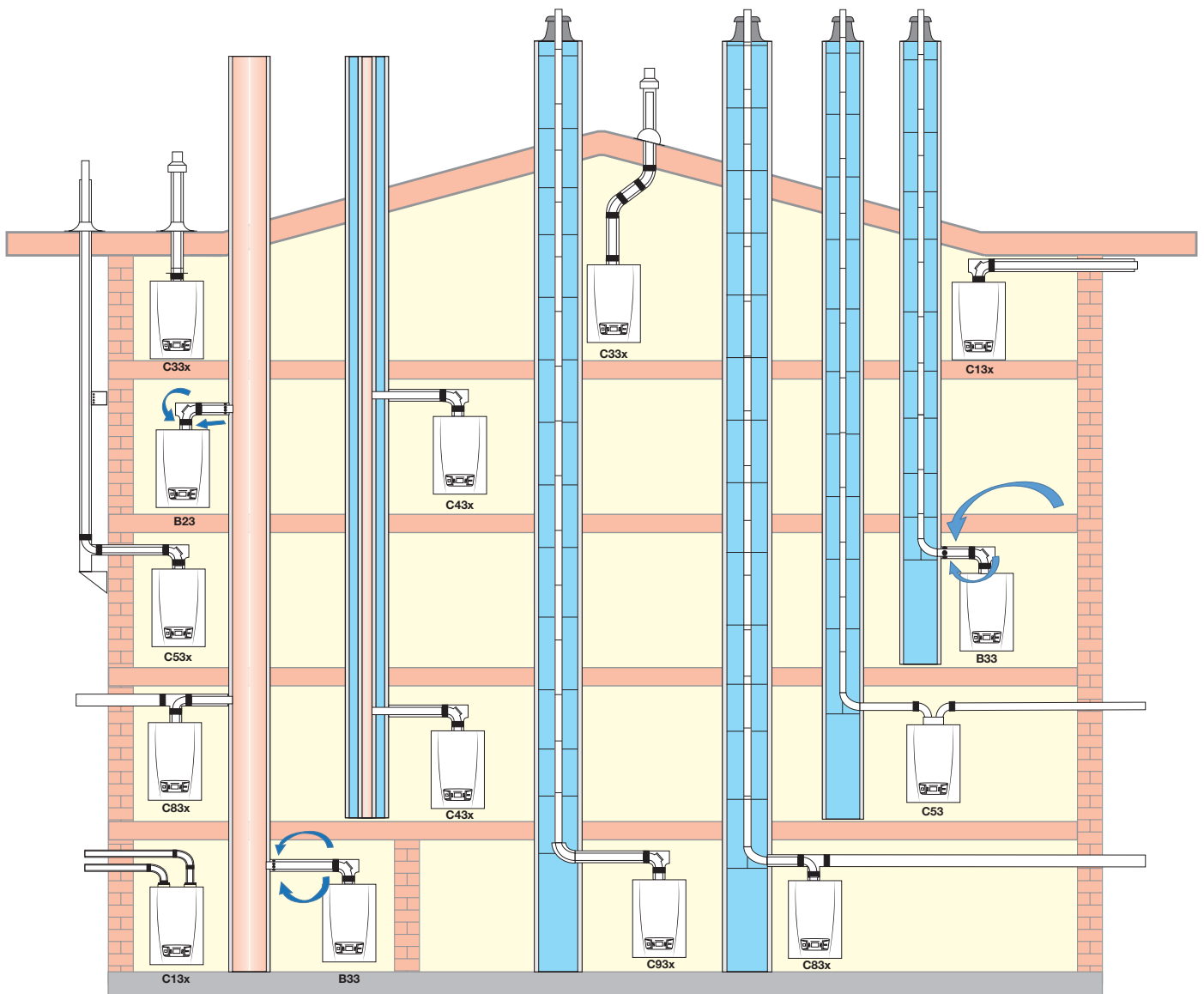
- If requested, can be changed with standard set on order
- Maximum linear flue set length:  
SRS/SSP 36: 8 m.
- Linear length of additional elbows:  
90° elbow: 0.8 m.  
45° elbow: 0.5 m.

## Ø80+80 Twin Flue Set



- If requested, can be changed with standard set on order
- Maximum linear flue set length:  
SRS/SSP 20/24/28/36: 50 m.
- Linear length of additional elbows:  
90° elbow: 1.5 m.  
45° elbow: 1.2 m.

# Flue Connection Types



Flue Type	Description
B23	Flue gas pipe through the chimney, combustion air directly from the location through the device (open type).
B33	Flue gas pipe through the chimney, combustion air from the location, with horizontal concentric connection (open type).
C13(x)	Horizontal combustion air intake and flue gas discharge through side face or from the roof. Outlets are close to each other, at the same pressure area.
C33(x)	Combustion air intake and flue gas discharge with vertical outlet. Outlets are close to each other, at the same pressure area.
C43(x)	Combustion air and flue gas connections connected to multiple air-flue gas chimney system.
C53(x)	Combustion air intake and flue gas discharge with different lines. Outlets are at different pressure areas.
C63(x)	Connection design as per appliances where combustion air intake and flue gas discharge cannot be measured.
C83(x)	Flue gas installation is independent or with multiple connections (under pressure) and intake of independent combustion air from external environment.
C93(x)	Similar to C33 type combustion air intake and discharge of flue gas from the roof. Outlets are close to each other, at the same pressure area. Combustion air intake is through the building shaft on the roof partially or as a whole.



# Automatic Control Devices for Superior Comfort and Extra Economy

## Room Thermostats



Analogue and digital room thermostats operate the combi boiler according to the required room temperature.

## Wired and Wireless Weekly Programmable Room Thermostats



Operates the combi boiler according to the required room temperature in the required weekly schedules.

## Phone Control Interface Devices



These allow remote controlling of combi boilers in a simple way, such as on or off. There are two models that can work with fixed lines or GSM lines.

## Outside Temperature Sensor



Operates the combi boiler automatically according to the weather conditions. May be used together with room thermostats or individually.

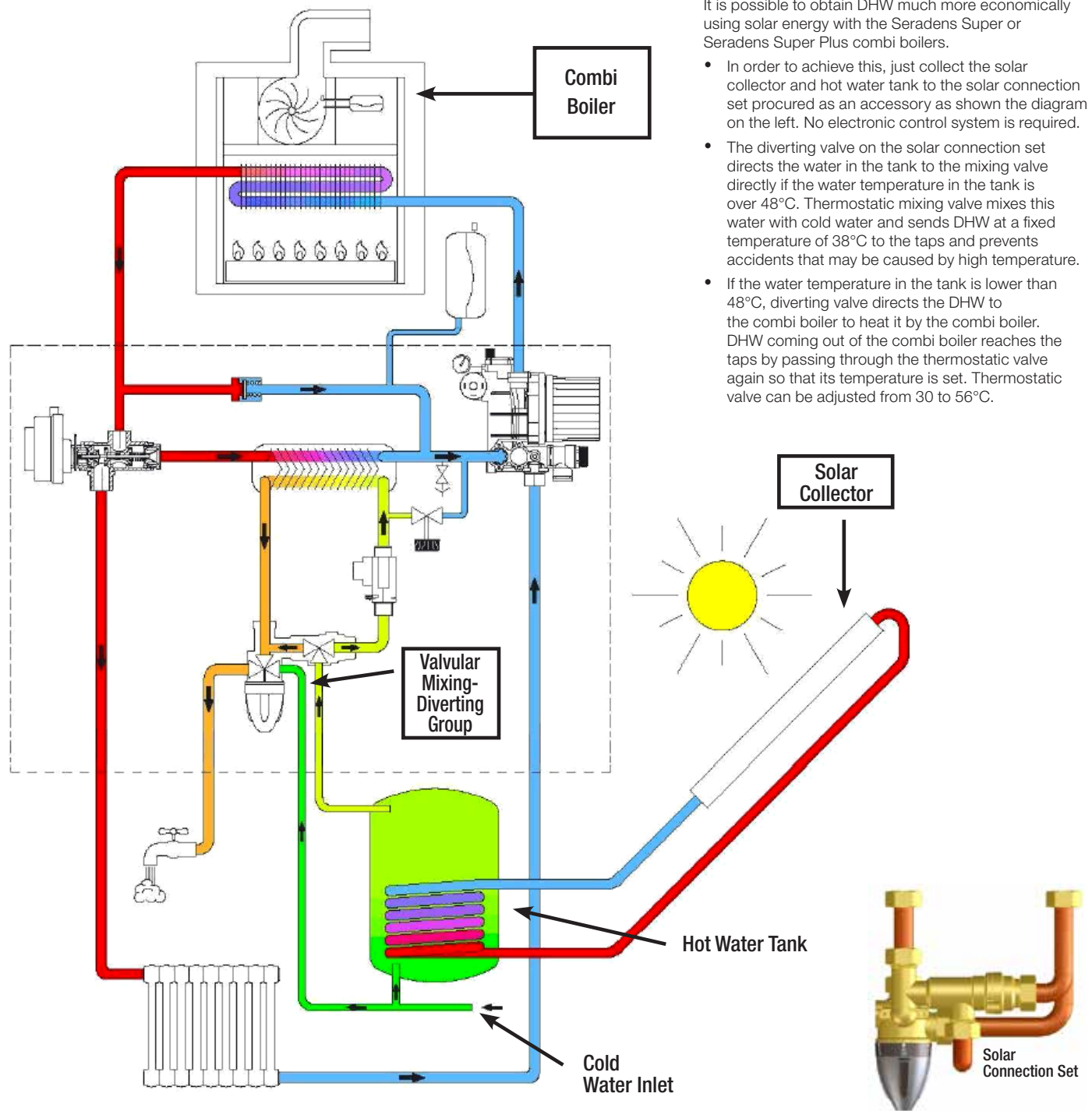
## Smart Thermostat Set



With your smart thermostat, you may control your combi boiler from your smart phone or tablet wherever you are in the world. You may access and change the current temperature settings or timing schedules.

*\*Devices are optional.*

## Solar Connection Set (Accessory)



It is possible to obtain DHW much more economically using solar energy with the Seradens Super or Seradens Super Plus combi boilers.

- In order to achieve this, just collect the solar collector and hot water tank to the solar connection set procured as an accessory as shown the diagram on the left. No electronic control system is required.
- The diverting valve on the solar connection set directs the water in the tank directly if the water temperature in the tank is over 48°C. Thermostatic mixing valve mixes this water with cold water and sends DHW at a fixed temperature of 38°C to the taps and prevents accidents that may be caused by high temperature.
- If the water temperature in the tank is lower than 48°C, diverting valve directs the DHW to the combi boiler to heat it by the combi boiler. DHW coming out of the combi boiler reaches the taps by passing through the thermostatic valve again so that its temperature is set. Thermostatic valve can be adjusted from 30 to 56°C.



# THE DIFFERENCE OF PREMIX CONDENSING TECHNOLOGY

The temperature of flue gas generated by the combustion for conventional (non-condensing) combi boilers with copper or titanium exchanger is about 120 to 150°C regardless of the operating temperature of the boiler. With this high temperature, energy and fuel cost on the water vapor inside the flue gas just flies away, too. However, for premix, i.e. full condensing combi boiler with gas-air pre-mixing feature, flue gas temperature are lowered under 55°C while generating flow water temperature at about 50°C and lower thanks to the exchangers with much wider heat transfer surface.

For flue gas temperatures under 55°C, the water vapour inside the flue gas condenses, i.e. transforms to liquid from gas form. Thus, energy is captured before going out of the flue, and transferred to the water inside the exchanger. This is called concealed heat energy. By regeneration of energy inside the water vapour, it is possible to save up to 30% from fuel costs. As the condensate water is acidic, main exchangers to premix full condensing combi boilers shall be made of stainless steel or aluminium alloy resistant to acidic condensate water. Alarko Seradens Super and Seradens Super Plus condensing combi boilers use stainless steel main exchanger with very high resistance against condensate water.

Combustion is always performed ideally with the premix system, i.e. premixing of gas and air at the ideal ratio of 1:10 before the combustion. This is ensured by the modulating fan which adjusts its speed as per the capacity requirement and the venturi which mixes the gas taken by the drawing of the fan from the modulating gas valve and air in the ideal ratio.

Premix condensing boilers do not perform condensing while

generating domestic hot water. However, in Seradens Super Plus double condensing combi boiler models, the domestic hot water entering the boiler is passed through the full condensing stainless steel exchanger coils integrated in addition to the main exchanger, and thus both pre-heating and condensing are achieved. Flue gas temperatures are reduced up to 18°C while generating domestic hot water for these models.

This proves how efficiently the appliance operates.

However, gas and air mixture cannot be performed at ideal ratios in conventional (non-condensing) combi boilers.

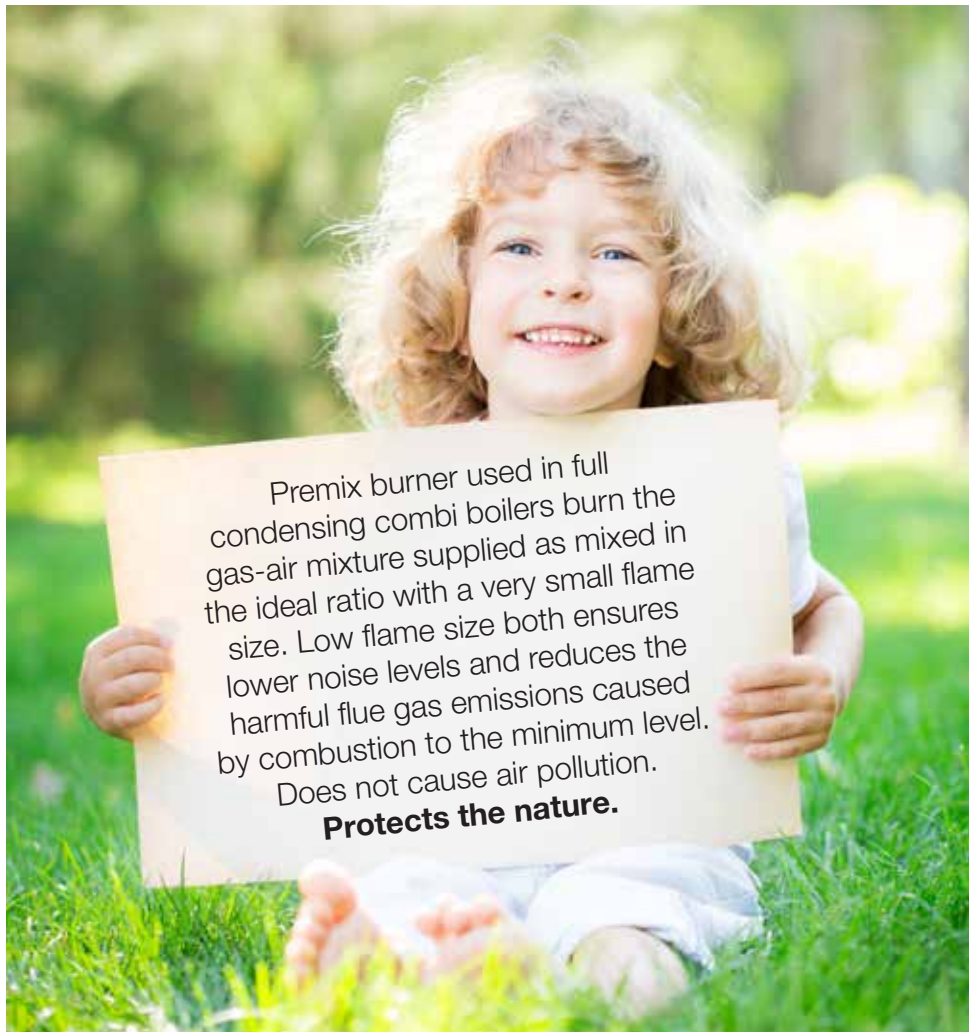
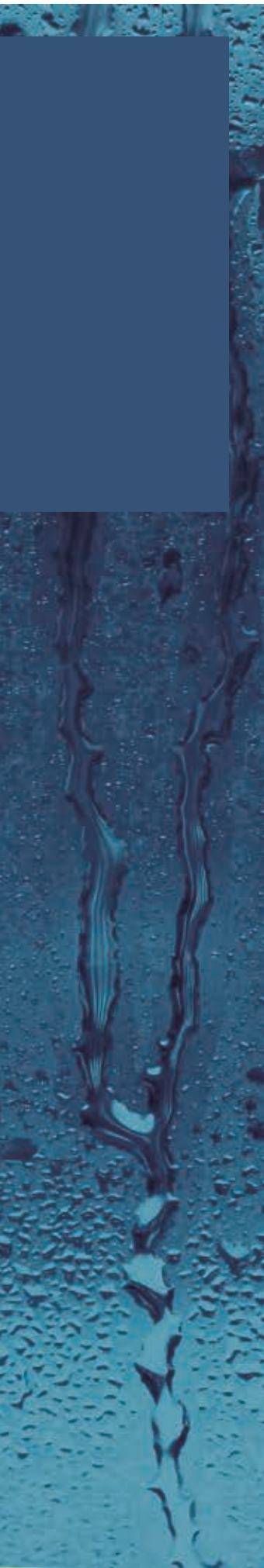
Because, the fan providing the air has only one stage.

Even if gas is drawn less or more as per the capacity requirement from the modulating gas valve, fan always blows the air at maximum capacity. Therefore, efficiency is lower a great deal for these type of boiler as the air is provided more than normal especially while working in lower capacities.

Fuel costs are increased. Noise levels are higher.

As copper exchangers that are not resistant to condensate water are used for boilers with recuperators, i.e. boilers with an additional small exchanger to the main exchanger of the boiler, also known as boilers with three exchangers, condensation does not occur on the main exchanger. Flue gas is put through the combi boiler return water in the additional exchanger, and thus a small amount of condensation occurs. However, as modulating fan, venturi and premix burner are not available in boilers with three exchangers, flue gas temperature, harmful flue gas emissions and noise level are much higher than premix condensing boiler, and efficiency is much lower. These types of boilers can achieve 102-103% efficiency level.





Premix burner used in full condensing combi boilers burn the gas-air mixture supplied as mixed in the ideal ratio with a very small flame size. Low flame size both ensures lower noise levels and reduces the harmful flue gas emissions caused by combustion to the minimum level. Does not cause air pollution.  
**Protects the nature.**

### Energy Efficiency Labels



# Technical Specifications

MODEL	UNIT	SERADENS SUPER				SERADENS SUPER PLUS			
		SRS 20	SRS 24	SRS 28	SRS 36	SSP 20	SSP 24	SSP 28	SSP 36
Flue Connection System	Type	B23 - B33 - C13 - C13(x) - C33 - C33(x) - C43 - C43(x) - C53 - C53(x) - C63 - C63(x) - C83 - C83(x) - C93 - C93(x)							
DHW Load Max.	kW	18.85	23.8	25.4	32.4	20.6	25.55	27.6	34.9
Heating Load Max. (50/30°C)	kW	18.5	22.4	26.0	32.8	18.54	22.16	26.11	32.86
Heating Power Max. (50/30°C)	kW	20.1	24.1	27.9	35.3	20.18	24.15	27.90	35.72
Heating Load Min. (50/30°C) (G20 - G30)	kW	3.9 - 5.5	4.7 - 6.78	5.5 - 8.15	5.7 - 8.89	3.92 - 4.44	4.84 - 5.91	5.57 - 7.36	5.79 - 7.84
Heating Power Min. (50/30°C) (G20 - G30)	kW	4.0 - 3.74	5 - 5.22	5.7 - 5.19	6.0 - 6.78	4.01 - 3.04	5.06 - 4.38	5.97 - 5.59	6.17 - 5.92
Efficiency at 100% - at 30% Load (50/30°C)	%	109.2 - 106.8	107.5 - 106.9	107.3 - 106.3	107.6 - 105.9	108.8 - 108.7	109 - 108.6	108.7 - 107.2	108.7 - 107.7
Heating Modulation Range (50/30°C) (G20)	%	19.9 - 100	20.7 - 100	20.4 - 100	17.0 - 100	19.9 - 100	20.9 - 100	21.4 - 100	17.3 - 100
Heating Power Max. (80/60°C)	kW	18.1	21.2	25.5	32.2	18.15	21.3	25.86	33
Heating Power Min. (80/60°C) (G20 - G30)	kW	3.7 - 2.92	4.3 - 4.62	5.3 - 5.19	5.5 - 5.98	3.52 - 2.67	4.47 - 4.19	5.33 - 5.05	5.47 - 5.48
Efficiency at 100% Load (80/60°C)	%	97.9	97.6	97.9	98.03	97.82	98.59	98.82	99.23
Flue Gas Temperature (50/30°C.min-max)	°C	50 - 59	52 - 64	44 - 67	55 - 63	44 - 49	41 - 41	40 - 49	43 - 49
Flue Gas Temperature (80/60°C.max)	°C	82	75	82	82	64	60	68	66
<b>ErP Data</b>									
Space Heating - Temperature Application		Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Water Heating - Declared Load Profile		XL	XL	XL	XXL	XL	XL	XXL	XXL
Seasonal Space Heating Energy Efficiency Class		A	A	A	A	A	A	A	A
Water Heating Energy Efficiency Class		A	A	A	A	A	A	A	A
Rated Heat Output	kW	20	24	28	35	20	24	28	36
Annual Fuel Consumption	GJ	18	17	18	22	16	16	21	21
Annual Electricity Consumption	kWh	41	38	37	37	42	38	40	39
Seasonal Space Heating Energy Efficiency	%	93	93	93	93	94	93	94	94
Water Heating Energy Efficiency	%	85	89	86	86	91	92	90	90
Sound Power Level L <sub>wa</sub> , Indoors	dB	39	40	40	42	39	40	40	42
<b>Heating Circuit</b>									
Heating Temperature Setting Range (min. - max.)	°C	30-85 (Radiator Heating) / 30-45 (Underfloor Heating)							
Max. Heating Operating Temperature	°C	95±4	95±4	95±4	95±4	95±4	95±4	95±4	95±4
Expansion Tank Capacity	lt	8	8	8	10	8	8	8	10
Max. Operating Pressure (Heating)	bar	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Min. Operating Pressure (Heating)	bar	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<b>DHW Circuit (Automatic bypass feature)</b>									
DHW Temperature Setting Range (min. - max.)	°C	30-60	30-60	30-60	30-60	30-60	30-60	30-60	30-60
Max. Hot Water Operating Pressure	bar	10	10	10	10	10	10	10	10
Min. Hot Water Operating Pressure	bar	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Hot Water Flow Rate at ΔT 30 K	lt/min	10	13	14	18	12	15	17	21
<b>Dimensions</b>									
Width	mm	437	437	437	437	437	437	437	437
Height	mm	640	640	640	640	640	640	640	640
Depth	mm	296	296	296	296	302	366	366	366
Weight (net)	kg	29	30	30	32	33	35	35	36
<b>Hydraulic Connections</b>									
Heating Flow - Return	Ø	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Cold Water Inlet - DHW Outlet	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Gas Inlet	Ø	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
<b>Flue Systems</b>									
Horizontal - Concentric Flue System	Ø mm	60/100	60/100	60/100	80/125	60/100	60/100	60/100	80/125
Max. Flue Length	m	6	6	5	8	6	6	5	8
Twin Flue System	Ø mm	80+80	80+80	80+80	80+80	80+80	80+80	80+80	80+80
Max. Flue Length (from terminal to terminal)	m	50	50	50	50	50	50	50	50
Vertical Concentric Flue System	Ø mm	60/100	60/100	60/100	80/125	60/100	60/100	60/100	80/125
Max. Flue Length	m	6	6	5	8	6	6	5	8
<b>Gas Supply</b>									
Inlet Pressure (Natural Gas - LPG)	mbar	20 - 30	20 - 30	20 / 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
Gas Consumption (Natural Gas - LPG)	m <sup>3</sup> /h - kg/h	2 - 1.28	2.42 - 1.5	2.8 - 1.85	3.57 - 2.36	2 - 1.19	2.39 - 1.51	2.82 - 1.83	3.55 - 2.27
<b>Power Supply</b>									
Electrical Connection	V/Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50
Power Consumption	W	113	120	121	123	125	132	134	140
Protection Class	IP	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D



Manufacturer reserves the right to change any product specifications without notice.



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