ALARKO

Premix Full Condensing Combi Boilers

Seradens Super
Seradens Super Plus

22 - 25 - 30 - 38 kW

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

Smaller, more elegant, more efficient, more quiet

Seradens Super & Super Plus

- Stainless steel exchanger with long service life and high resistance against condensate water
- Capacities of 22, 25, 30 and 38 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 34°C)
- Less stop and start operations, more 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

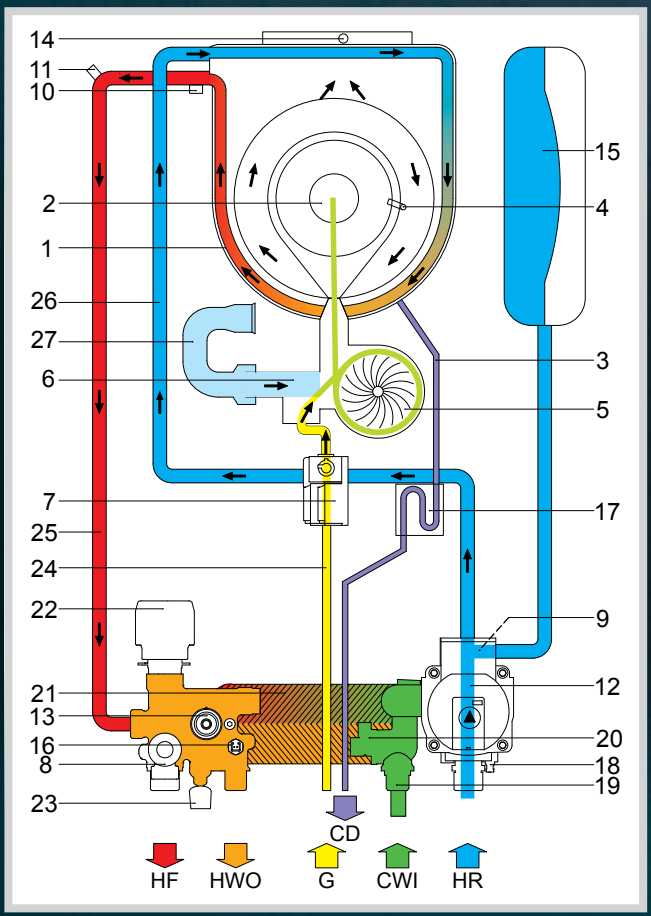
- Big expansion tank
- Capability to operate at low domestic hot water flow rates
- Wide heating modulation range and high space heating efficiency
- Unique hot water heating efficiency up to 92% and hot water flow rate up to 21 lt/min in Seradens Super Plus models
- Less fuel consumption
- White illuminated 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 Propane-LPG
- Certified for EMC (Electro Magnetic Compatibility) and LVD (Low Voltage Directive) from a certification body

Seradens Super

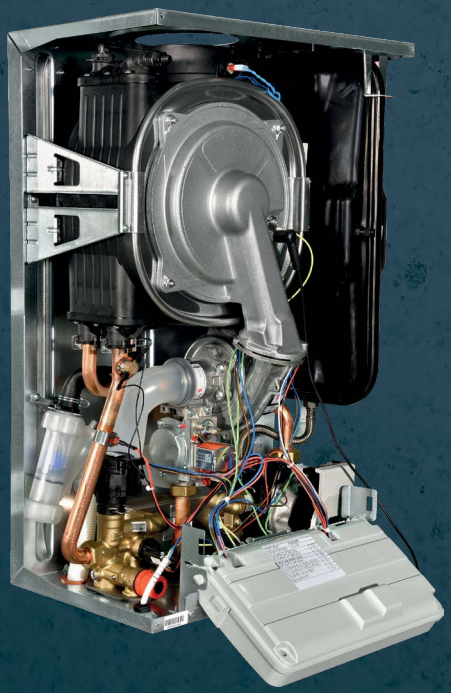
Control Panel

1. **Operating mode setting button** (Summer / Winter / Heating Only / Off / Reset)
2. **Info menu entry button**
3. **Domestic hot water temperature increase button**
4. **Domestic hot water temperature decrease button**
5. **Central heating water temperature increase button**
6. **Central heating water temperature decrease button**
7. **LCD display for temperature, error codes and operating mode**

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
27-Silencer air inlet pipe

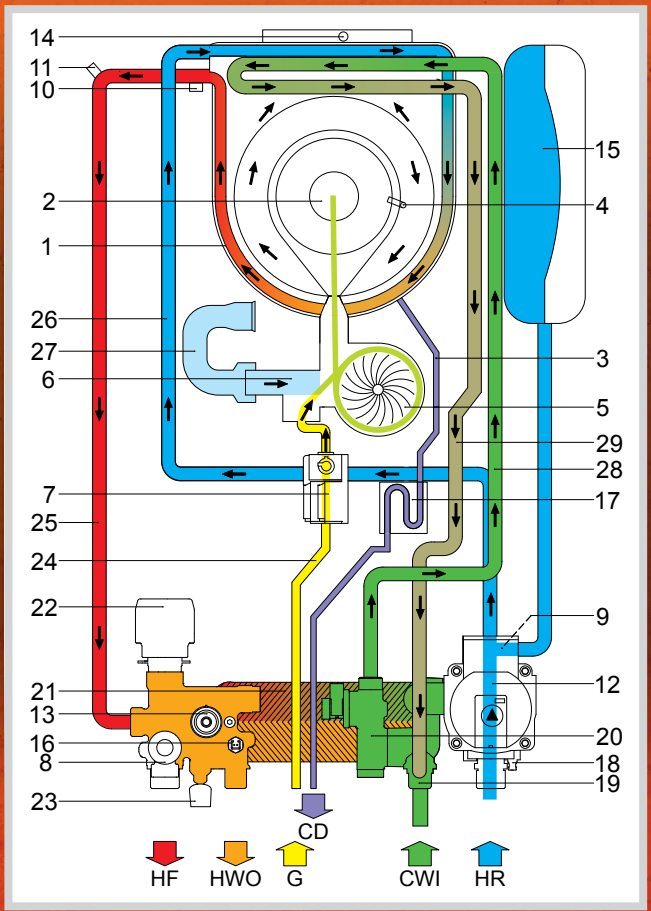


Seradens Super Plus

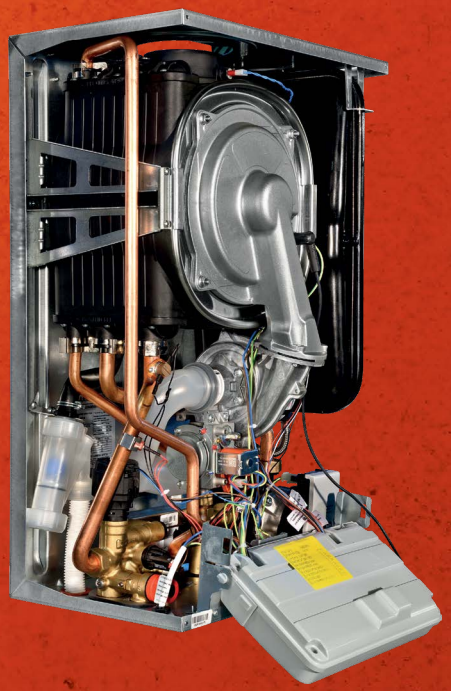
Control Panel

1. **Operating mode setting button** (Summer / Winter / Heating Only / Off / Reset)
2. **Info menu entry button**
3. **Domestic hot water temperature increase button**
4. **Domestic hot water temperature decrease button**
5. **Central heating water temperature increase button**
6. **Central heating water temperature decrease button**
7. **LCD display for temperature, error codes and operating mode**
8. **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)

Operating Diagram

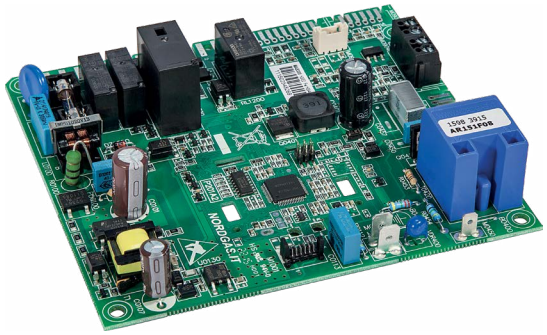


1-Main exchanger
2-Premix burner unit (gas manifold + burner)
3-Condensation drainage pipe
4-Ionization and ignition electrode
5-Fan
6-Venturi
7-Electronic gas valve
8-3 bar safety valve
9-Automatic air vent
10-Limit thermostat
11-Heating flow temperature sensor
12-High efficient class pump
13-Pressure 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
27-Silencer air inlet pipe
28-DHW water pre-heating inlet pipe
29-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

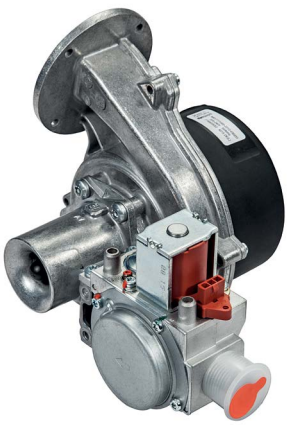
Main Exchanger

- Sermeta brand. With smooth oval pipes, made of long service lifed 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® 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

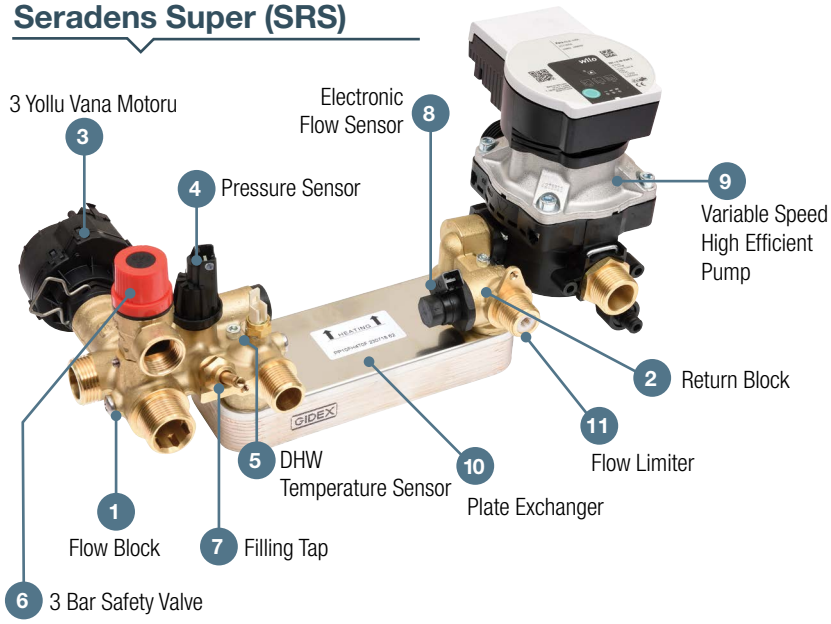


- Required amount of gas-air mixture is provided as per the boiler capacity with the EBM made modulated fan. Fan speed is increased or decreased as per capacity. Thus, low noise level is maintained besides preventing low efficiency caused by excess air.
- Gas valve provides the gas flow required for 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.

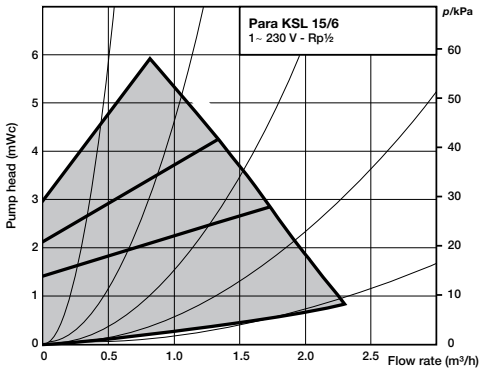
Hydraulic Circuit

- Seradens Super and Seradens Super Plus models have the same flow blocks, but different return blocks.
- Flow and return hdyraulic 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 (EEI ≤ 0,20), silent and automatic air vented circulation pumps which adjusted variable pressure operating system have up to 6 mWc pump head at SRS/SSP 20 - 24 - 28 models and 6,8 mWc pump head at SRS/SSP 36 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. SRS 20 - 24 - 28 and 36 models provide 10 - 13 - 14 - 18 liter/min, and SSP 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.

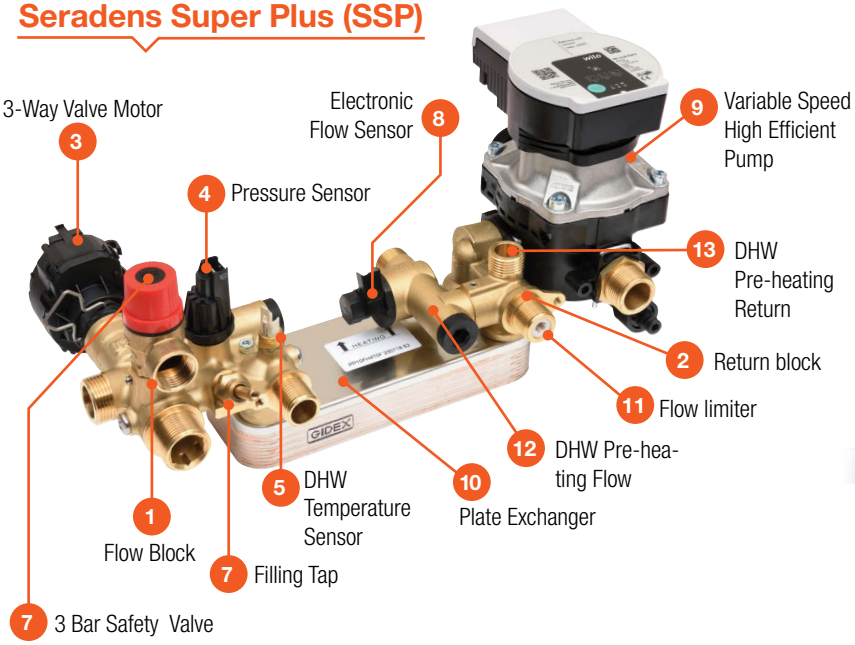
Seradens Super (SRS)



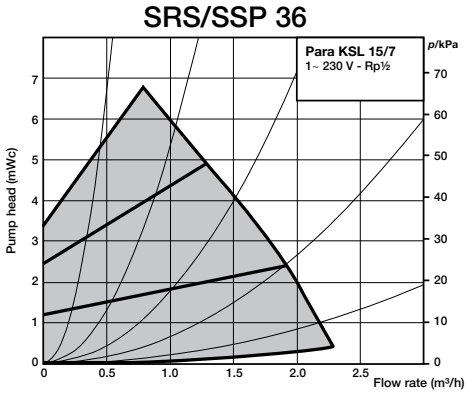
SRS/SSP 20 - 24 - 28



Seradens Super Plus (SSP)



SRS/SSP 36

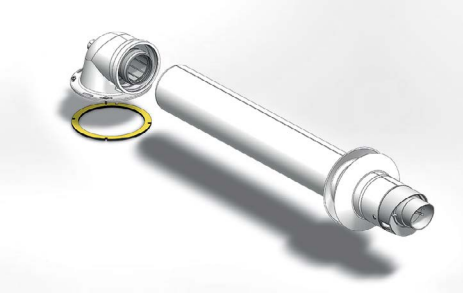


Expansion Tank

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

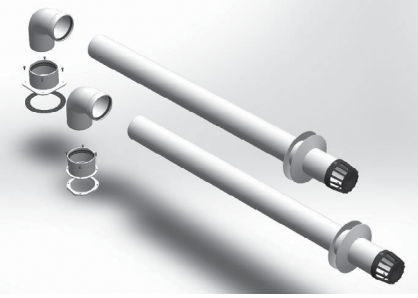
Various Flue Sets for Your Need

Ø 60/100
Horizontal Concentric Flue Set



- Provided as standard with the appliance for SRS/SSP 20, 24, 28 and 36 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.
  SRS/SSP 36: 8 m.
- Linear length of additional elbows:
  90° elbow: 0.8 m.
  45° elbow: 0.5 m.

Ø 80+80
Twin Flue Set

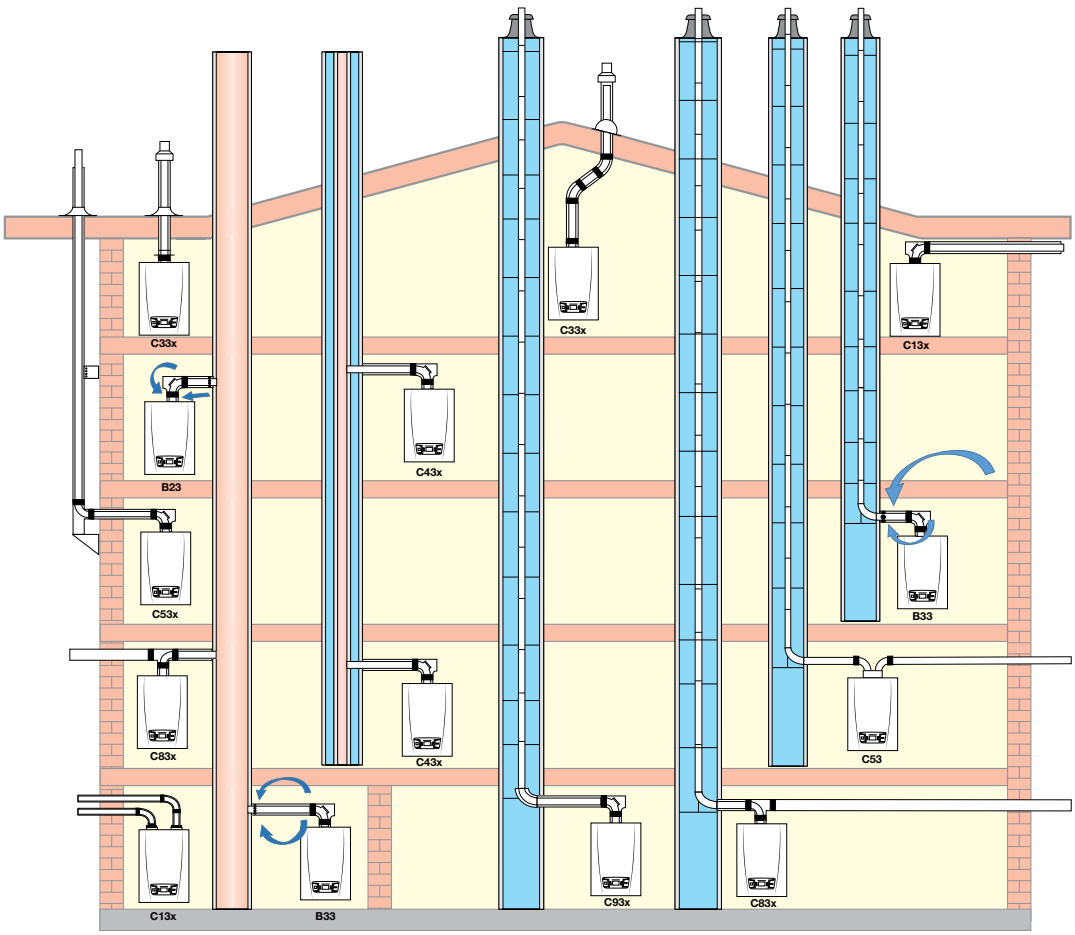


- If requested, can be changed with standard set on order
- Maximum linear flue set length:
  SRS/SSP 20/24/28/36: 50 m.
- Linear length of additional elbows:
  90° elbow: 1.5 m.
  45° elbow: 1.2 m.

Ø 60/100 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.
  SRS/SSP 36: 8 m.
- Linear length of additional elbows: 90° elbow: 0.8 m.
  45° elbow: 0.5 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.

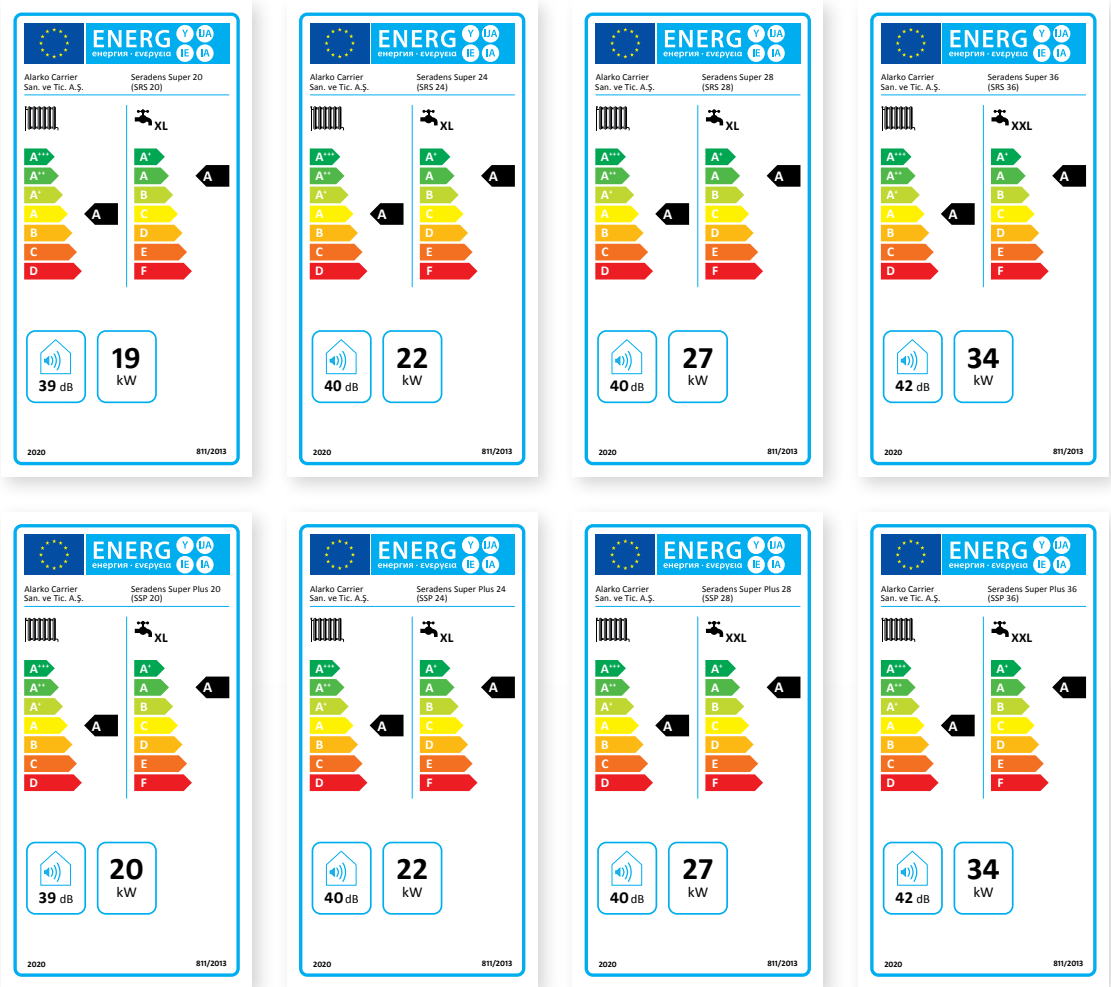
PREMIX CONDENSING TECHNOLOGY

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 wide 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 exhangers 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.

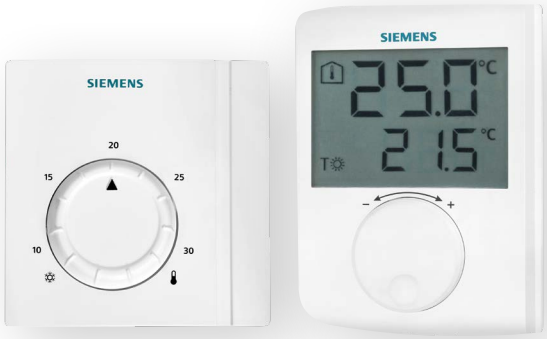
Premix condensing boilers do not perform condensing while generating domestic hot water. However, in Seradens Super Plus double condensing combi boiler models, the domestic hot water entering the boiler is passed through the full condensing stainless steel exchanger coils integrated in addition to the 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.

Energy Efficiency Labels



Automatic Control Devices for Superior Comfort and Extra Economy

Room Thermostats



Analogue and digital room thermostats are operates 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

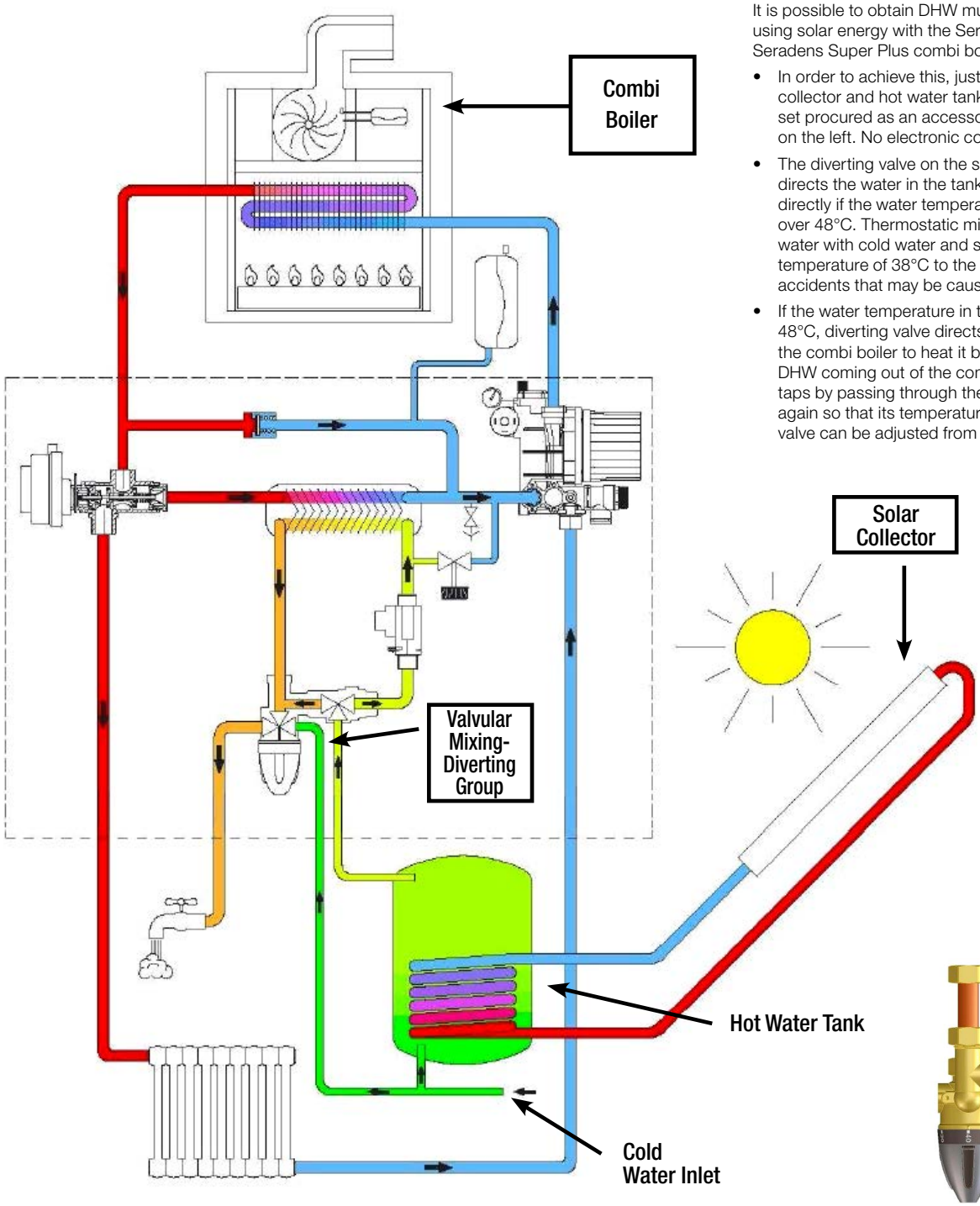
Operates the combi boiler automatically according to the weather conditions. May be used together with room thermostats or individually.

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.

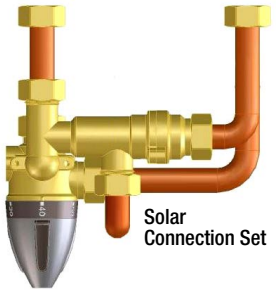
**Devices are optional.*

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 to the mixing valve 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.



Technical Specifications

		SERADENS SUPER				SERADENS SUPER PLUS			
MODEL	**UNIT**	**SRS 20**	**SRS 24**	**SRS 28**	**SRS 36**	**SSP 20**	**SSP 24**	**SSP 28**	**SSP 36**
Central Heating Technical Specifications									
Seasonal Space Heating Energy Efficiency Class		A	A	A	A	A	A	A	A
Seasonal Space Heating Energy Efficiency (η_s)	%	91	91	92	92	91	91	91	92
Useful Efficiency at 30% of Nominal Heat Output (η_1) (50-30°C)	%	97.3	96.9	97.9	97.4	97.3	97	97	97.6
Useful Efficiency at Nominal Heat Output (η_4) (80-60°C)	%	87.4	86.7	87.1	86.9	88	87.9	88	88
Rated Heat Output (P_{rated}) (80-60°C)	kW	19	22	27	34	20	22	27	34
Nominal Heat Output (P_4) (80-60°C)	kW	19.4	22.1	27.1	33.8	19.6	22.4	27.4	34.2
Minimum Heat Output (80-60°C)	kW	3.5	4.27	5.08	5.82	3.51	4.46	5.43	5.74
Nominal Heat Output (50-30°C)	kW	21.9	24.8	30	37.8	21.8	25.1	30.4	38.1
30% of Nominal Heat Output (P_1) (50-30°C)	kW	6.1	7.3	8.4	10.9	6.1	7.3	8.3	10.7
Minimum Heat Output (50-30°C)	kW	4.14	4.88	5.66	6.44	4.07	4.93	6.07	6.33
Auxiliary Electrical Consumption at Full Load (el_{max}) (80-60°C)	kW	0.073	0.083	0.084	0.088	0.08	0.081	0.084	0.093
Auxiliary Electrical Consumption at Part Load (el_{min}) (80-60°C)	kW	0.032	0.034	0.036	0.053	0.033	0.034	0.035	0.055
Annual Energy Consumption (Q_{HE})	GJ	36	42	50	62	36	43	52	62
Central Heating Temperature Setting Range (Min. - Max.)	°C	30 - 85 (Radiator Heating) / 30 - 45 (Underfloor Heating)							
Central Heating Operating Pressure (Min. - Max.)	bar	0.5 - 2.8							
Domestic Hot Water Technical Specifications									
Water Heating Energy Efficiency Class		A	A	A	A	A	A	A	A
Water Heating Energy Efficiency (η_{WH})	%	85	89	86	86	91	92	90	90
Water Heating Load Profile		XL	XL	XL	XXL	XL	XL	XXL	XXL
DHW Flow Rate at ΔT:30K	lt/min	11.5	13	14	18	12	15	17	21
Maximum DHW Flow Rate	lt/min	12	14	14	18	12	17	17	22
Daily Electrical Power Consumption (Q_{elec})	kWh	0.185	0.171	0.17	0.169	0.191	0.173	0.181	0.176
Annual Electricity Consumption (AEC)	kWh	40.748	37.659	37.489	37.155	41.958	37.989	39.761	38.676
Daily Gas Consumption (Q_{fuel})	kWh	22.838	21.589	22.442	28.059	20.824	20.746	26.711	26.902
Annual Fuel Consumption (AFC)	GJ	18	17	18	22	16	16	21	21
DHW Temperature Setting Range (Min. - Max.)	°C	30 - 60							
DHW Operating Pressure (Min. - Max.)	bar	0.5 - 10							
General Technical Specifications									
NOx Class		6	6	6	6	6	6	6	6
Emissions of Nitrogen Oxide (NO_x)	mg/kWh	36.619	37.422	44.868	34.553	34.763	47.259	36.212	33.666
Sound Power Level, Indoors (L_{WA})	dB	39	40	40	42	39	40	40	42
Auxiliary Electrical Consumption in Standby Mode (P_{SB})	kW	0.003	0.004	0.003	0.003	0.004	0.004	0.004	0.004
Standby Heat Losses (P_{stby})	kW	0.063	0.063	0.054	0.072	0.065	0.084	0.061	0.075
Ignition Burner Energy Consumption (P_{ign})	kW	0	0	0	0	0	0	0	0
Flue Gas Temperature (50-30°C, Min. - Max.)	°C	59 - 62	56 - 65	58 - 68	52 - 64	34 - 52	35 - 44	35 - 48	36 - 48
Flue Gas Temperature (80-30°C, Max.)	°C	82	75	82	82	64	60	68	66
Gas Consumption (Natural Gas - LPG)	m³/h - kg/h	1.98 - 1.28	2.43 - 1.5	2.75 - 1.85	3.57 - 2.36	2.01 - 1.19	2.39 - 1.51	2.68 - 1.83	3.48 - 2.27
Electrical Power Consumption	W	113	120	121	123	125	132	134	140
Physical Properties									
Flue Connection Types		B23 - B33 - C13 - C13(x) - C33 - C33(x) - C43 - C43(x) - C53 - C53(x) - C63 - C63(x) - C83 - C83(x) - C93 - C93(x)							
Standard Horizontal Concentric Flue System - Max. Length	ø - m	60/100 - 6		60/100 - 5	60/100 - 8	60/100 - 6		60/100 - 5	60/100 - 8
Vertical Concentric Flue System - Max. Length	ø - m	60/100 - 6		60/100 - 5	60/100 - 8	60/100 - 6		60/100 - 5	60/100 - 8
Twin Flue System - Max. Length	ø - m	80/80 - 50							
Dimensions (Width x Height x Depth)	mm	437 x 640 x 296				437 x 640 x 302		437 x 640 x 366	
Weight (Net)	kg	29	30		32	33	35		36
Expansion Tank Capacity	lt	8			10	8			10
Central Heating Flow - Return Diameters	ø	3/4"							
Cold Water Inlet - DHW Outlet Diameters	ø	1/2"							
Gas Inlet Diameter	ø	1/2"							
Gas Inlet Pressure (Natural Gas - LPG)	mbar	20 - 30							
Power Supply	V/Hz	230/50							
Protection Class	IP	X4D							

ER_AC_0165

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

ALARKO

Carrier

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