

BIOMASS BOILERS



Steel Pellet Plus
Steel Pellet
Solida PL
Pyrosteel
Solida EV



The solution to energy problems

Sime, attentive to energy problems, responds to the need for renewable energy sources, placing a wide range of biomass products on the market:

- **Steel Pellet Plus:** steel pellet boilers, for heating only with power from 12 kW to 100 kW.
- **Steel Pellet:** steel pellet boilers, for heating only with power from 12 kW to 60 kW.
- **Solida PL:** cast iron pellet boilers, for heating only with power from 25 kW to 40 kW.
- **Pyrosteel:** wood gasification boilers, for heating only with power from 12 kW to 60 kW.
- **Solida EV:** solid fuel cast iron boilers for heating only with power from 23 to 67 kW.

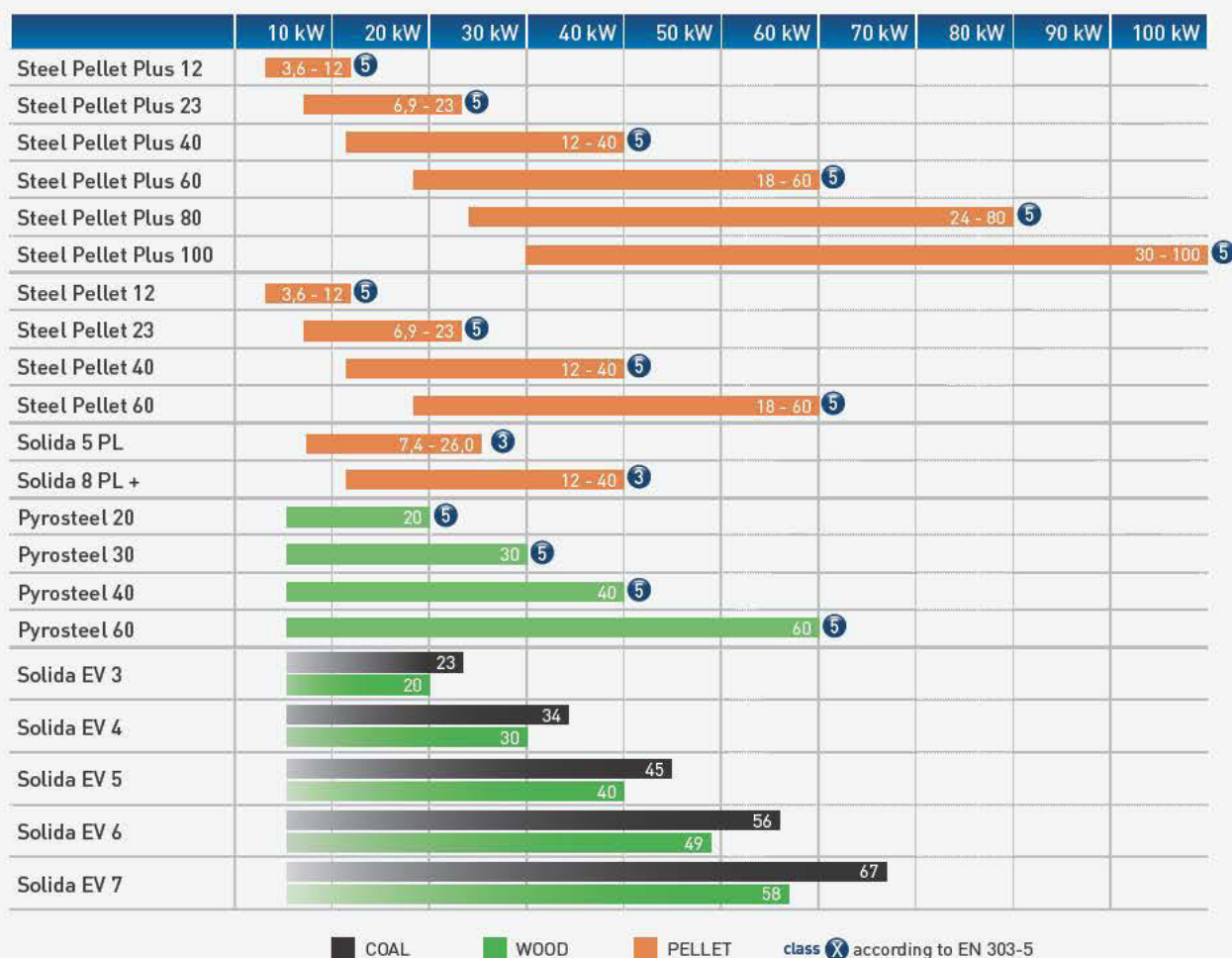
Steel Pellet Plus



Steel Pellet



The range



Solida PL



Pyrosteel



Solida EV





Product advantages

STEEL PELLET PLUS

- › Class 5 certification (EN303-5)
- › Double lighter and triple flame sensor for fast and safe ignition
- › Automatic systems to clean the burning pot, exchangers and ash container
- › Large colour touch screen control panel
- › Pellet containers from 300 to 800 litres

STEEL PELLET

- › Class 5 certification (EN303-5)
- › Automatic ignition, pellet dosage and burning pot cleaning
- › Modulating electronic fan
- › Manual system to clean the turbulators and the flue pipes
- › Large colour touch screen control panel
- › Pellet containers from 300 to 500 litres

SOLIDA PL

- › New burner with integrated electronics
- › Thermal power adjustment on five levels
- › Automatic auger and fan modulation in function

of the thermal power required

- › Class 3 certified combustion (EN 303-5)
- › 200, 300, 500 litres pellet containers

PYROSTEEL

- › Class 5 certification (EN303-5)
- › Independent regulation of the primary and secondary air flow
- › Modulating electronic fan
- › Mechanical open door detector
- › Fast, easy cleaning
- › Large combustion chamber for a power reserve of up to 7 hours
- › High efficiency thanks to a pre-heated air intake duct
- › Digital control panel

SOLIDA EV

- › Large loading capacity
- › Larger loading door to facilitate loading and cleaning operations
- › Low weight/power ratio



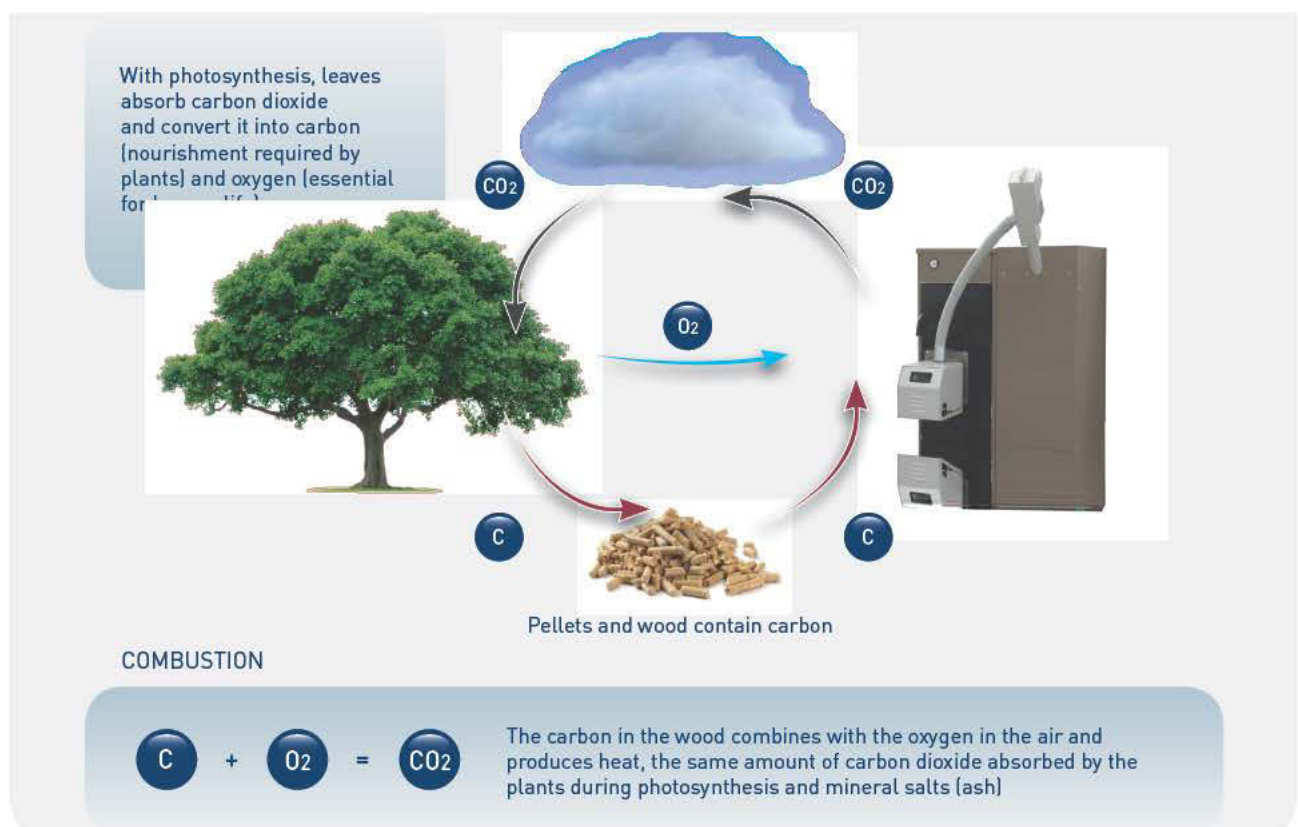
Pellet: the natural fuel with a high yield

Wood pellets are a type of fuel made from wood processing residues (shavings and sawdust), dried and then compressed in the shape of small cylinders with a diameter of a few millimetres, usually 6-8 mm. The binding capacity of the lignin contained in the wood allows to achieve a compact product without adding additives and other chemical substances. The result is natural fuel with a high yield. In fact, thanks to the pressing, the heat of combustion of the pellet, assuming the same volume, is double compared to wood. Pellets are used as fuel for boilers and heaters, instead of logs of wood.

The uniform characteristics (size, energy content...) allow for them to be used in appliances equipped with a power and combustion control system which is able to provide an optimal energy yield and a low emission of pollutants.

In fact, unlike when burning fossil fuels such as diesel fuel, gas or coal, which have a negative environmental impact, when wood burns, it releases an equal amount of carbon dioxide to that taken by the tree during its growth.

This process is called carbon cycle.



STEEL PELLET PLUS - STEEL PELLET

The ultimate in efficiency

Steel Pellet is the range of new generation automatic pellet boilers, compact in size and with generous performance.

They reach 94% energy efficiency which allows to obtain class 5 according to standard EN303-5. The system is equipped with many safety devices which preserve the product in case of malfunctions which may lead to the overheating of the boiler.

The combustion chamber features an automatic cleaning system which ensures the flow of air in the burner and helps to maintain the highest level of efficiency.

The boilers are equipped with an extraction fan, which always operates in depression, eliminating any possibility of harmful fume or gas leaks at the origin.



COMPACT BURNER UNIT: easy to dismantle, provides excellent accessibility for maintenance



DOUBLE LIGHTER AND TRIPLE FLAME DETECTION SENSORS (Steel Pellet Plus)



AUTOMATIC BURNER CLEANING SYSTEM: patented system that keeps the burning pot clean from the most stubborn dirt



HIGH-POWER MODULATING ELECTRONIC FAN: it allows for an accurate regulation of the boiler output

STEEL PELLET PLUS



ASH REMOVAL SYSTEM: it automatically collects the combustion ashes in an external container, ensuring long periods of operation

STEEL PELLET PLUS



AUTOMATIC EXCHANGER CLEANING SYSTEM: a special motorised system periodically cleans the flue pipes according to pre-established programs



LARGE TOUCH SCREEN LCD CONTROL PANEL: it clearly provides all the information on the operation of the boiler

SOLIDA PL - SOLIDA EV

Simplicity and safety



Cast iron is an alloy whose properties remain unaltered over time, and which is synonymous with reliability, durability and easy maintenance.

The configuration of the elements allows for optimal combustion, which reduces the emission of harmful gases into the environment. The proper insulation of the cast iron body, wrapped in a layer of thick, high density glass wool, ensures perfect insulation. Solida PL and Solida EV are the result of the extensive experience that Sime has gained over the years in the design of cast iron exchangers.

To all of this, the convenience of pellets can also be added. In fact, they allow for the heating system to be managed easily, similar to liquid and gaseous fuels.

The large door of Solida EV facilitates loading operations and makes it easier to access the ash container for cleaning.

The smoke extractor comes complete with a regulator to adjust draught; the adjustment of the air flow rate for combustion is guaranteed by an automatic mechanism that acts on the opening of the air hatch according to the temperature set.

Solida EV is also equipped with manual secondary air regulation for the optimisation of combustion in the case of wood with a different degree of moisture. AS an optional, there is a heat discharger for the dissipation

of any excess energy in the event that the system water circulation is suddenly blocked.



SOLIDA PL

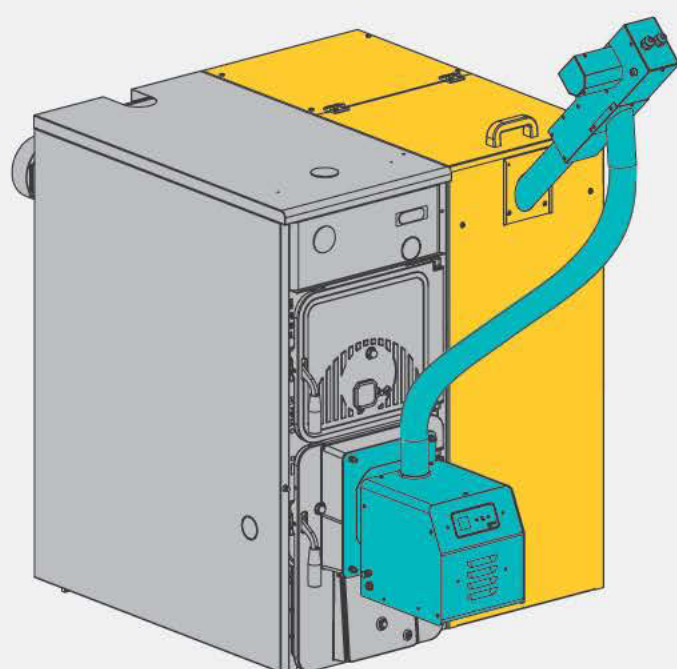
Pellets to help the environment



Solida PL is the solution for operation with pellets only. The pellet kits consist of: five-step power burner with integrated electronic control and pellet feeder with

gear motor unit.

200, 300 and 500 litres painted sheet metal tanks are available on request.



- ✓ Caldaia SOLIDA PL
- ✓ 8058541 Solida 5 PL boiler
- ✓ 8075743 Solida 8 PL+ boiler

- ✓ Galvanised sheet metal PELLETTANK kit
- ✓ 5197500 200 litre pellet tank kit
- ✓ 5197510 300 litre pellet tank kit
- ✓ 5197520 500 litre pellet tank kit

✓ PELLETT kit

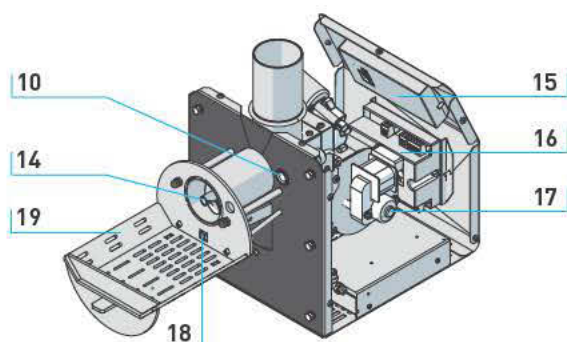
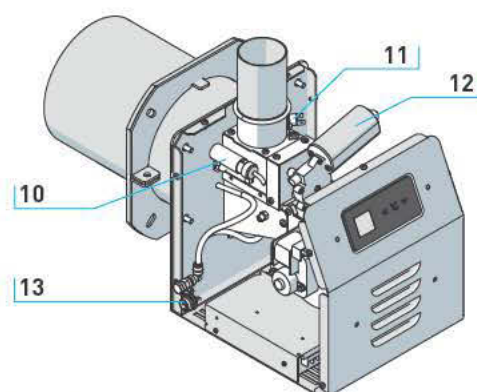
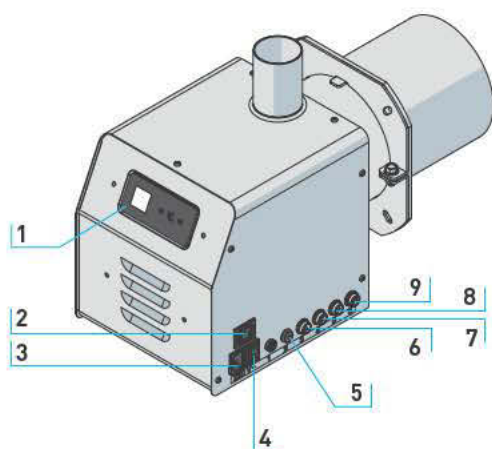
The unit includes:

- Burner with incorporated electronic control
- Pellet feeder with motor and auger

- ✓ 8075980 5 PL pellet kit
- ✓ 8075981 8 PL+ pellet kit

Pellet burner

- › Thermal power adjustment on five levels settable by the user
- › Automatic auger and fan modulation in function of the thermal power
- › Flame non-return safety thermostat in the burner
- › Ventilation system incorporated in the flame non-return auger
- › High resolution LCD colour display
- › User interface with 12 European languages
- › Main operating data shown on the display
- › Weekly heating schedule over 7 bands
- › Set-up for automatic cleaning of the burning pot using compressed air (optional)



- 1 Control panel
- 2 External auger fan power outlet
- 3 Electrical power outlet (230V)
- 4 Main switch
- 5 Manual pellet loading button
- 6 External auger motor connection
- 7 Boiler water probe connection
- 8 7-pin plug connection (Safety thermostat/Air pressure switch/Door micro)
- 9 Connection for communications with the PC
- 10 Flame detection photocell
- 11 Burner safety thermostat
- 12 Internal auger gear motor
- 13 Compressed air kit connector (optional)
- 14 Internal auger
- 15 Display data sheet
- 16 Electronic board
- 17 Burner fan
- 18 Lighter resistance
- 19 Fuel grate

PYROSTEEL

Pyrolytic combustion

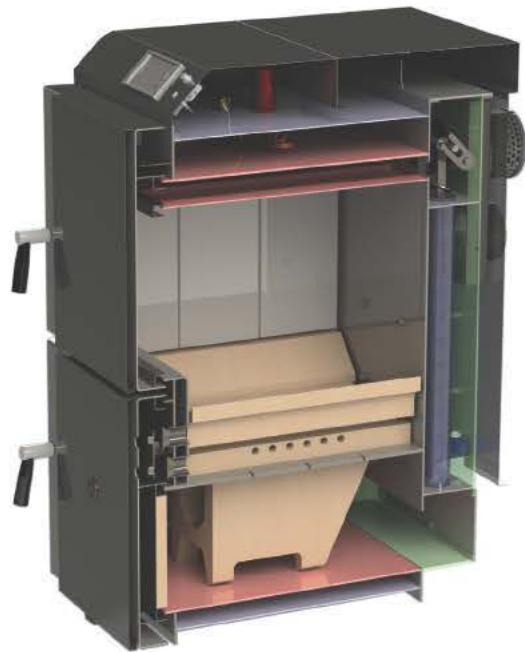
The Pyrosteel boiler exploits the principle of pyrolysis: the fuel placed in the (upper) loading chamber is dried and gasified.

The volatile substances that are released during the process generate the combustion gas which burns with a reverse flame inside the lower chamber.

The gasification of the wood and the reverse flame combustion allow for a particularly low level of emissions (class 5 according to EN 303-5).

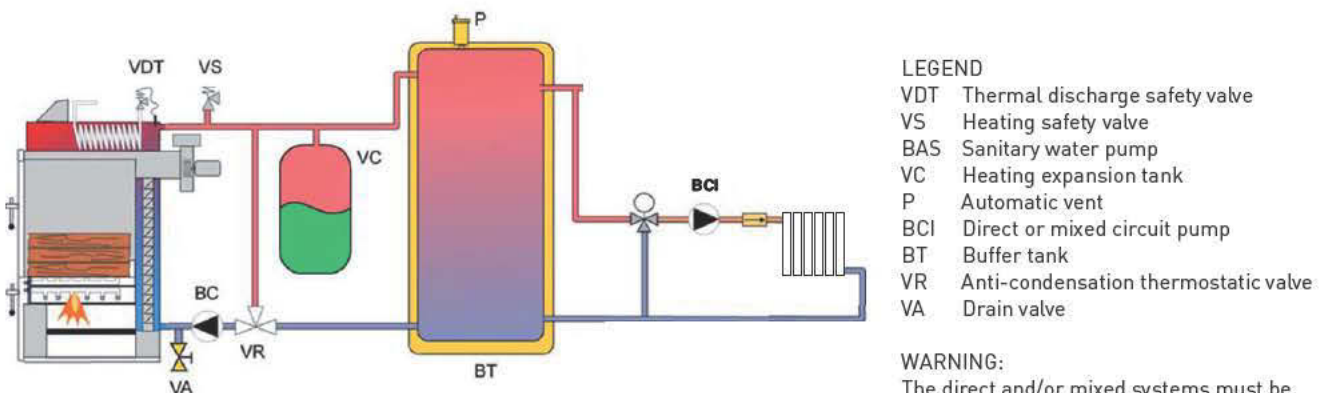
The wide exchange surface on the lower part of the generator optimises the transmission of heat to the system water.

The boiler is equipped with electronic control, for the heating and sanitary modes, and with the manual adjustment of the primary and secondary combustion air.



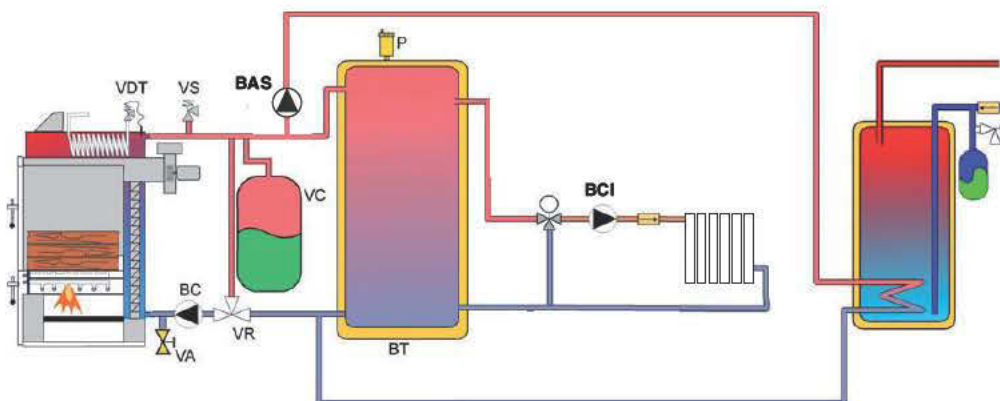
APPLICATION DIAGRAMS

WITH BUFFER TANK WITHOUT BOILER FOR SANITARY HOT WATER



WARNING:
The direct and/or mixed systems must be controlled by external regulators.
Install an ON/OFF switch to exclude the BCI pump during the summer.

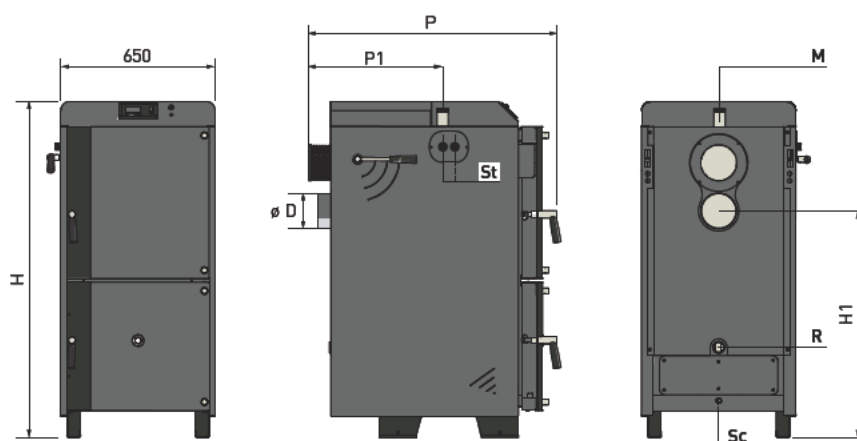
WITH BUFFER TANK AND BOILER FOR SANITARY HOT WATER



Pyrosteel

			PYROSTEEL			
Model			20	30	40	60
Nominal thermal power		kW	20,0	30,0	40,0	60,0
Class (according to EN 303-5)			5	5	5	5
Yield (indirect method)		%	> 90	> 90	> 90	> 90
Adjustment field		°C	85 - 55	85 - 55	85 - 55	85 - 55
Maximum safety temperature		°C	97	97	97	97
Minimum temperature of system return water		°C	55	55	55	55
Water content		l	90	104	104	168
Maximum operating pressure		bar	3	3	3	3
Testing pressure		bar	4,5	4,5	4,5	4,5
Type of fuel recommended			Quality wood - Moisture < 20%			
		mm	300-500	300-500	300-500	500-700
Flue draught (minimum required)		Pa	10	10	10	10
Water side resistance	Δt 20°C	mbar	11,0	3,2	5,5	23,0
	Δt 15°C	mbar	25,0	8,7	14,3	57,5
	Δt 10°C	mbar	39,0	15,9	24,7	92,0
Smoke side resistance		Pa	125	110	140	230
Smoke temperature		°C	165	136	133	146
Volume and weight of load of wood		l	89	113	137	200
		kg	30	40	50	70
Approximate operating time		h	5	5	5	5
Volume of the buffer tank suggested		l	1000	1500	2000	3000
CO at 100% of the load		mg/m³	< 700	< 700	< 700	< 700
Dead weight		kg	345	410	485	600

Overall size



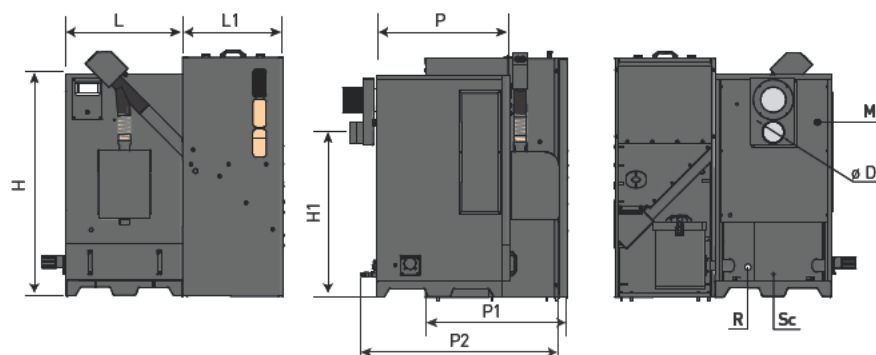
		20	30	40	60
P	Depth of the boiler (mm)	1060	1060	1060	1360
P1	Delivery connection (mm)	580	580	580	890
ø D	Ext./int flue drain (mm)	130-125	130-125	150-146	150-146
H	Height of boiler (mm)	1165	1315	1425	1465
H1	Height of flue connection (mm)	715	865	955	1005
M	System flow	1"	1"	1 1/2"	1 1/2"
R	System return	1"	1"	1 1/2"	1 1/2"
Sc	Boiler drain	1/2"	1/2"	1/2"	1/2"
St	Thermal discharge	3/4"	3/4"	3/4"	3/4"

Steel Pellet Plus

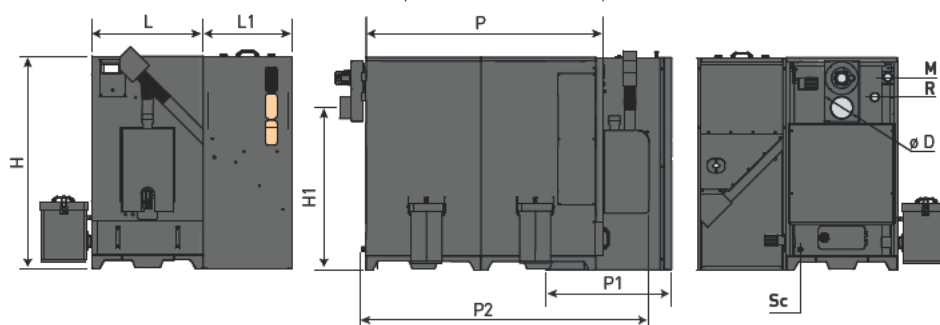
		STEEL PELLET PLUS					
Model		12	23	40	60	80	100
Nominal thermal power	kW	12,0	23,0	40,0	60,0	80,0	100,0
Minimum thermal power	kW	3,6	6,9	12,0	18,0	24,0	30,0
Class (according to EN 303-5)		5	5	5	5	5	5
Useful performance at 100% of the load	%	93,5	93,2	93,4	92,8	93,7	92,2
Useful performance at 30% of the load	%	97,2	97,2	97,1	96,9	96,0	95,5
Heating regulation range	°C	65÷80	65÷80	65÷80	65÷80	65÷80	65÷80
Maximum safety temperature	°C	95	95	95	95	95	95
Maximum operating temperature	°C	80	80	80	80	80	80
Minimum temperature of system return water	°C	55	55	55	55	55	55
Maximum operating pressure	bar	3	3	3	3	3	3
Testing pressure	bar	4,5	4,5	4,5	4,5	4,5	4,5
Water content	l	99	91	116	140	290	290
Water side resistance	Δt 20°C	mbar	5,2	3,6	5,7	140	39,0
	Δt 15°C	mbar	5,9	10,8	12,5	31,7	70,2
	Δt 10°C	mbar	10,0	19,9	26,0	57,0	127,0
Flue draught (minimum required)	Pa	8	8	8	8	8	8
Smoke temperature at 100% of load	°C	90	120	120	130	110	140
Smoke temperature at 30% of load	°C	55	55	70	70	60	65
CO at 100% of the load	mg/m³	99	22	152	176	61	105
CO at 30% of the load	mg/m³	995	82	244	54	78	13
Weight	kg	295	315	404	444	850	870

Overall size

vers. 12÷60



vers. 80-100

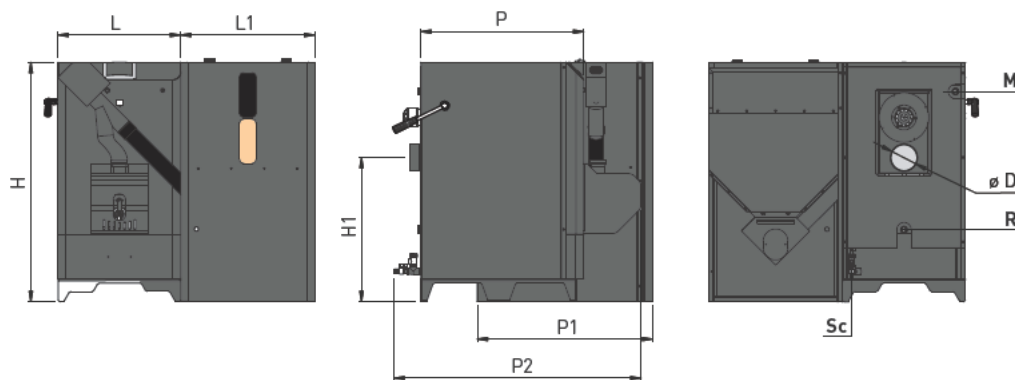


		12	23	40	60	80	100
P	Depth of the boiler (mm)	655	790	845	990	–	–
P1	Depth of tank (mm)	850	850	900	900	–	–
P2	Total depth (mm)	1280	1295	1330	1330	2125	2125
Ø D	Ext./int flue drain (mm)	130-125	130-125	150-146	150-146	180-176	180-176
L	Width of boiler (mm)	700	700	750	750	750	750
L1	Width of tank (mm)	650	650	800	800	–	–
H	Height (mm)	1333	1333	1433	1633	1435	1435
H1	Height of flue connection (mm)	745	700	860	860	–	–
M	System flow	1"	1"	1/2"	1/2"	2"	2"
R	System return	1"	1"	1 1/4"	1 1/4"	2"	2"
Sc	Boiler drain	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"

Steel Pellet

			STEEL PELLET			
Model			12	23	40	60
Nominal thermal power	kW		12,0	23,0	40,0	60,0
Minimum thermal power	kW		3,6	6,9	12,0	18,0
Class (according to EN 303-5)			5	5	5	5
Useful performance at 100% of the load	%		93,5	93,2	93,4	92,8
Useful performance at 30% of the load	%		97,2	97,2	97,1	96,9
Heating regulation range	°C		65÷80	65÷80	65÷80	65÷80
Maximum operating temperature	°C		95	95	95	95
Minimum temperature of system return water	°C		55	55	55	55
Maximum operating pressure	bar		3	3	3	3
Testing pressure	bar		4,5	4,5	4,5	4,5
Water content	l		25	50	75	110
Water side resistance	Δt 20°C	mbar	2,2	3,4	8,9	16,4
	Δt 15°C	mbar	4,2	5,6	14,5	29,9
	Δt 10°C	mbar	9,8	11,0	28,6	62,8
Flue draught (minimum required)	Pa		8	8	8	8
Smoke temperature at 100% of load	°C		141	144	137	156
Smoke temperature at 30% of load	°C		71	73	78	83
CO at 100% of the load	mg/m ³		201	273	212	116
CO at 30% of the load	mg/m ³		455	185	187	361
Weight	kg		150	190	240	290

Overall size



		12	23	40	60
P	Depth of the boiler (mm)	655	790	845	990
P1	Depth of tank (mm)	850	850	900	900
P2	Total depth (mm)	1070	1200	1280	1460
ø D	Ext./int flue drain (mm)	130-125	130-125	150-146	150-146
L	Width of boiler (mm)	515	595	595	700
L1	Width of tank (mm)	650	650	800	800
H	Height (mm)	1160	1160	1360	1360
H1	Height of flue connection (mm)	750	700	860	860
M	System flow	1"	1"	1 1/2"	1 1/2"
R	System return	1"	1"	1 1/4"	1 1/4"
Sc	Boiler drain	1/2"	1/2"	1/2"	1/2"



Solida EV

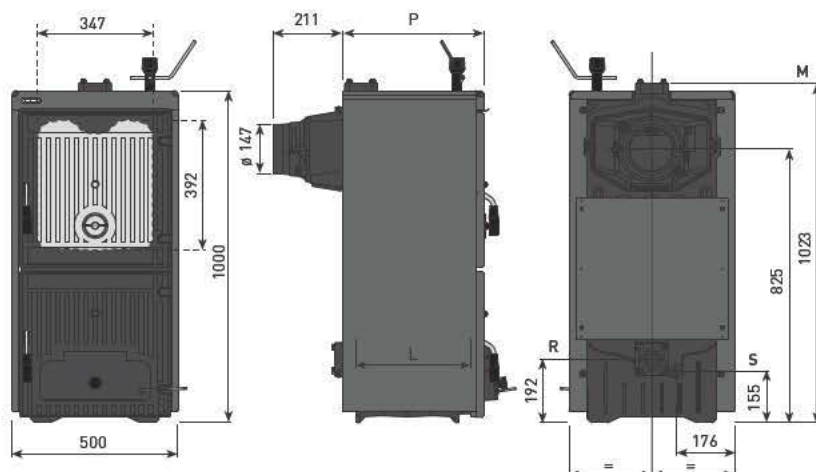
		SOLIDA EV				
Model		3	4	5	6	7
Thermal power (coal)*	kW	23,0	34,0	45,0	56,0	67,0
Elements in cast iron	n°	3	4	5	6	7
Duration of a load (coal)	h	≥ 4	≥ 4	≥ 4	≥ 4	≥ 4
Duration of a load (wood)	h	≥ 2	≥ 2	≥ 2	≥ 2	≥ 2
Load volume	dm³	42,7	66,4	90,2	113,9	137,7
Minimum depression to the fireplace	mbar	0,08	0,10	0,12	0,13	0,15
Maximum operating pressure	bar	4	4	4	4	4
Testing pressure	bar	6	6	6	6	6
Maximum operating temperature	°C	95	95	95	95	95
Minimum temperature of system return water	°C	50	50	50	50	50
Water content	l	30	39	48	57	66
P (depth)	mm	425	575	725	875	1025
L (depth of combustion chamber)	mm	346	496	646	796	946
Weight	kg	226	288	350	412	474

* For operation with hard wood (birch - oak - olive) the thermal power is reduced by about 10%

Technical specifications with Solida EV conversion kit from class 1 to class 3 according to EN 303-5/2012

Boiler conversion kit from class 1 to class 3 (EN 303-5)	cod.	8075990	8075991	8075992	8075993	8075994
Thermal power (wood)	kW	8,4	13,7	19,0	23,5	28,0
Thermal capacity (wood)	kW	11,0	17,5	24,0	29,5	35,0
Duration of a load (wood)	h	≥ 2	≥ 2	≥ 2	≥ 2	≥ 2
Load volume	dm³	37,5	58,3	79,2	100,0	120,9
Minimum depression to the fireplace	mbar	0,20	0,20	0,20	0,20	0,20

Solida EV

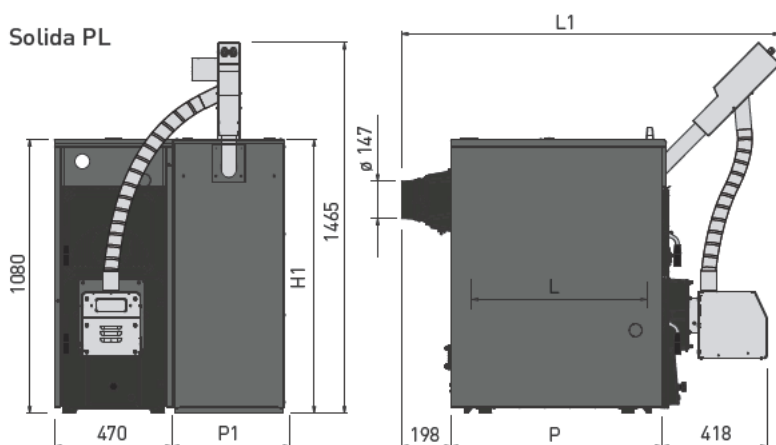


Hydraulic connections

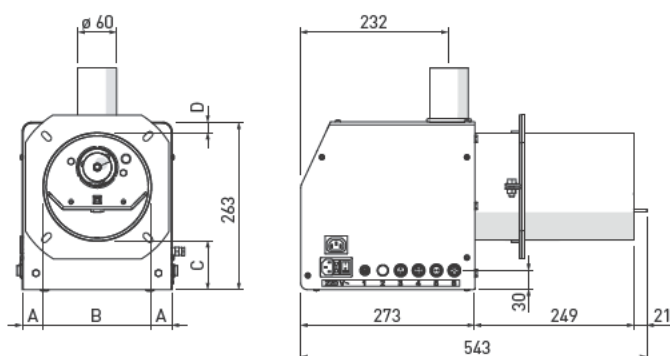
M	System flow	2"
R	System return	2"
S	Boiler drain	1/2"

Solida PL

		SOLIDA PL	
Model		5 PL	8 PL+
Maximum power of pellet burner	kW	26,0	40,0
Minimum power of pellet burner	kW	7,4	12,0
Average power consumption of burner	W	28	28
Elements in cast iron	n°	5	8
Minimum depression to the fireplace	mbar	0,20	0,20
Maximum operating pressure	bar	4	4
Testing pressure	bar	6	6
Maximum operating temperature	°C	95	95
Minimum temperature of system return water	°C	50	50
Water content	l	31	43
Weight	kg	270	350



Dimensions (mm)	P	L	L1
Solida 5 PL	535	390	1151
Solida 8 PL+	835	690	1451



mm	A	B	C	D
25 kW	47,5	140	101	2,2
50 kW	33,5	168,5	77	17,5

Pellet tanks

Model	Autonomy with one load		Dimensions (mm)	
	5 PL	8 PL	P1	H1
200 litre pellet tank kit	about 1 week	about 4 days	440	1081
300 litre pellet tank kit	about 1.5 weeks	about 1 week	440	1381
500 litre pellet tank kit	about 2 weeks	about 1.5 weeks	640	1481



Fonderie Sime. S.p.A has obtained voluntary certifications ISO 14001 and OHSAS 18001, constituting international recognition of the commitment and responsibility assumed by Sime on matters of the environment and worker safety. Through the successful achievement of this objective, Sime has materialised its corporate mission, while undertaking to continuously improve its current activities and future processes.

