Unical

GASOGEN 3 2S

PYROLYTIC WOOD FIRED BOILER
WITH PUSHING FAN

AMI
Absolutely Made in Italy

The evolution of a "must"

GASOGEN 3 2S is the evolution of the wood logs fired range of boilers:

- *total gasification*
- *reversed flame*
- *with blown air fan*

There are 8, high efficiency, available models, with maximum outputs ranging from 29 to 93 kW, made by two elliptical elements, one into the other.

In the inter-space between the two elements there is the water which is the thermal carrier fluid. The wood logs are stored in the room placed above a special grate which separates it from the underlying combustion chamber, equipped with ***strengthened refractory catalyst***, which improves the combustion.
The lower part of this one is made by a steel cradle, on whose reverse side there are special channels through which the combustion products complete their run to the smoke chamber, from which they are sent to the chimney.

GASOGEN 3 2S

Reversed flame combustion and gasification

In order to obtain the log wood gasification, we exploited a particular technology, so called "*at reversed flame*" which, on the contrary of what normally happens, reverses the flame direction *up-down*.
For this purpose the help of a blowing fan, placed upstream the combustion chamber, is necessary, because the natural draught of a normal chimney doesn't allow to firmly check the phenomenon.

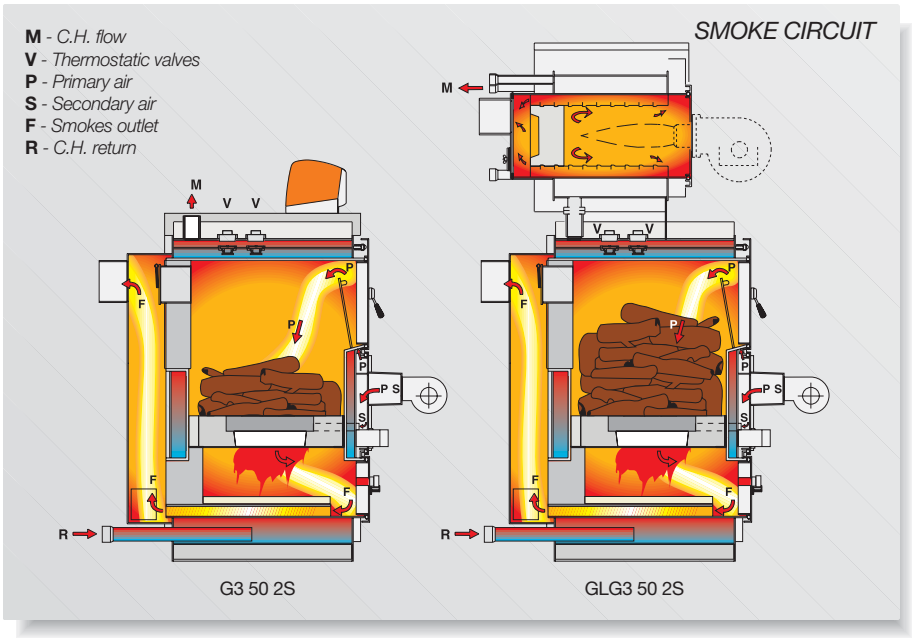
Thanks, therefore, to the fan and to the possibility to regulate the combustive air, the wood logs develop a particular form of combustion, called "Pyrolysis" that, through the elevated temperature, transforms the cellulose in simpler compounds that burn in the underlying combustion chamber, with a flame entirely similar to that of the natural gas, with particularly elevated efficiencies.

The fan allows, besides, to eliminate the problems of cold starts, to reduce the smoke ways, subsequently increasing the efficiency.

GASOGEN LG3 2S an extra safety

In the range are available also three models of the version "LG3", endowed with an auxiliary overlying boiler.
The peculiarities are the same of the basic version, but, in addition, there is the safety of an auxiliary pressurized boiler, for oil or gas pressure jet burner, ready to enter in operation when the wood is finished (if programmed) or on request of the user, if managed with manual program.

Ancient resources for new energies



Protection from corrosion

By foreseeing the use of woody fuels not always of first quality, therefore richer in humidity, GASOGEN 3 2S needs to defend itself from the corrosion phenomena that could derive from them. Therefore Unical has adopted, on all the models,

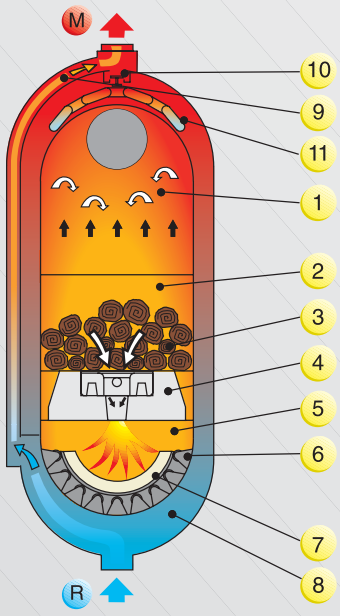
- *carbon steel sheets with 8 mm thickness*
- *special* ***anti-condensing thermostatic valves*** *(one for models 25 and 40, and 2 for models 50 to 80), positioned in the upper part of the inter-space between the two elliptical elements.*

These allow to maintain constantly high the temperature around the log wood store. Placed on the C.H. flow of the boiler, they intercept the water circuit in the starting phase of the boiler until the water temperature is not stabilized around the 70 °C, i.e. out of the smoke dew temperature. In this case the stoppage phenomena in the smoke circuits and in the combustion chamber and, with the gradual opening of the valves, also the thermal shocks between boiler and C.H. installation are reduced. Besides, not to delay the steady state of the C.H. system, a special bypass has been introduced, in order to guarantee, also during the starting phase, warm water in the flow connection. Placed between the exit of the thermostatic valves and the external element of the boiler inter-space, it allows the water, coming from the lower part, and heated first thanks to the reversed flame, to be directly introduced in C.H. system flow, while the boiler is reaching the optimal temperature.

To reduce the heat losses through the casing, *a rock wool insulation of 60 mm*, protected by an anti-tear textile covering, is used.

Thermostatic valves
Unical *patent*

WATER CIRCUIT AND BY-PASS



1 - *Wood store, drying zone*
2 - *Gasification zone*
3 - *Ember zone*
4 - *Main refractory stone*
5 - *Combustion chamber*
6 - *Heat exchange surface*
7 - *Strengthened refractory catalyst*
8 - *Boiler water*
9 - *Hot water by-pass*
10 - *Thermostatic valve system*
11 - *Safety heat exchanger*
M - *C.H. flow*
R - *C.H. return*

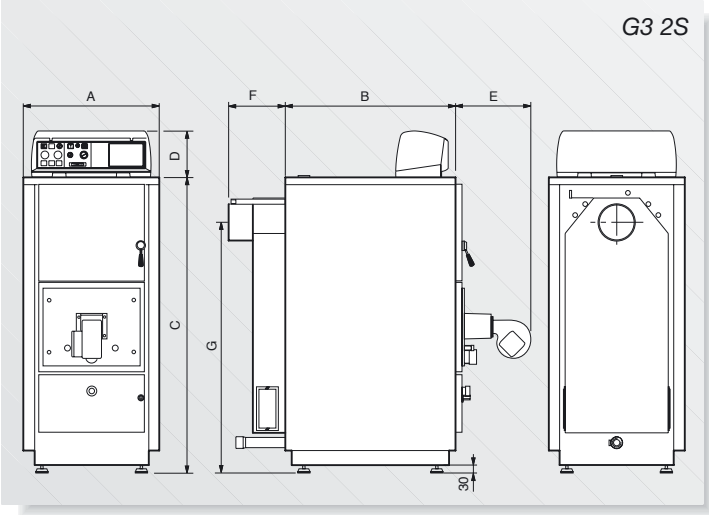
The panel board

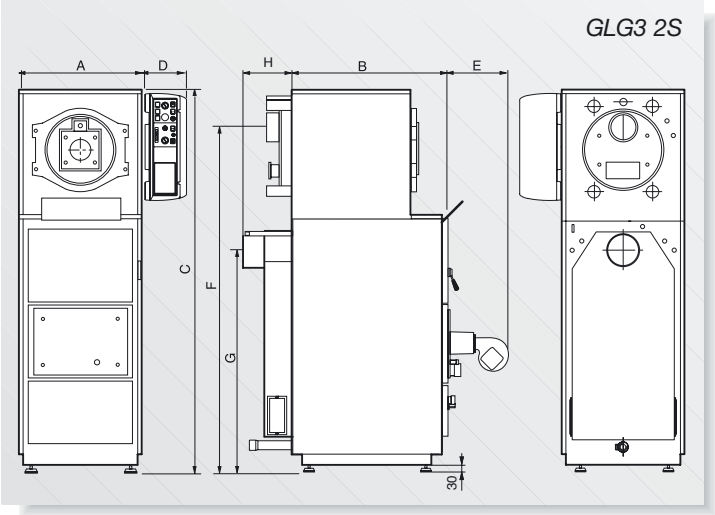
The ***electromechanical panel board*** is supplied as standard on the models G3 2S and it allows to automatically manage the pushing fan that, starting and stopping according to the working temperature set on the boiler thermostat, controls the combustion, reducing therefore the consumption of the wood.

The GLG3 2S version is endowed with an ***electronic panel board*** that manages, both, in automatic and manual mode, the lighting of an auxiliary (oil or gas fired) boiler.

** only for GLG3 models*

Dimensions and technical data





GASOGEN	Min. Output for wood operation	Nominal Output for wood operation*	Max. Output for wood operation	Nominal Output for oil/gas operation	Nominal Input for oil/gas operation	Max. Input for wood operation	Boiler water content	Pressure drop water side**	Pressure drop smoke side for oil/gas operation	Pressure drop smoke side for wood operation	Boiler Max work. pressure	Wood log store volume	Wood loading opening	Wood logs lenght	Weight	Dimensions							
																A	B	C	D	E	F	G	H
model	kW	kW	kW	kW	kW	kW	l	m w.c.	mm w.c.	mm w.c.	bar	l	mm	cm	kg	mm	mm	mm	mm	mm	mm	mm	mm
G3 25 2S	15	26	29	-	-	34	90	0,10	0,3	-	3	95	290 x 340	50	350	560	700	1225	190	315	245	1030	--
G3 40 2S	23	37	47	-	-	55	110	0,08	0,4	-	3	135	350 x 440	50	430	655	700	1355	190	315	245	1140	-
G3 50 2S	29	47	58	-	-	69	140	0,12	0,6	-	3	185	350 x 440	70	520	655	900	1355	190	315	245	1140	-
G3 65 2S	41	64	76	-	-	88	170	0,06	0,3	-	3	235	340 x 520	70	630	755	955	1405	190	315	245	1180	-
G3 80 2S	52	76	93	-	-	109	220	0,10	0,5	-	3	325	340 x 520	100	850	755	1255	1405	190	315	245	1180	-
GLG3 25 2S	15	26	29	26	28	34	120	0,19	0,3	1,6	3	95	290 x 340	50	470	560	700	1775	190	520	1575	1030	245
GLG3 40 2S	23	37	47	35	38	55	155	0,20	0,4	2,0	3	135	350 x 440	50	570	655	700	1955	190	520	1720	1140	245
GLG3 50 2S	29	47	58	52	57	69	195	0,27	0,6	2,2	3	185	350 x 440	70	730	655	900	2005	190	570	1775	1140	245

(*) Output obtained with good quality wood, containing a humidity of 15%. (**) Pressure losses with a flow rate corresponding to a Δt of 15K.

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