

Unical

FOKOLUS.



# FOKOLUS



MODEL	Nominal heat output min/max kW	Wood storage kg	Autonomy hrs
FOKOLUS 20	15 ÷ 20	60	5-7
FOKOLUS 30	23 ÷ 30	70	5-7
FOKOLUS 40	31 ÷ 38	90	5-7

## *The force of steel, the heating energy of stone*

Obtaining energy for heating in different ways is essential, not only for the whole country, but also for each individual who has the opportunity.

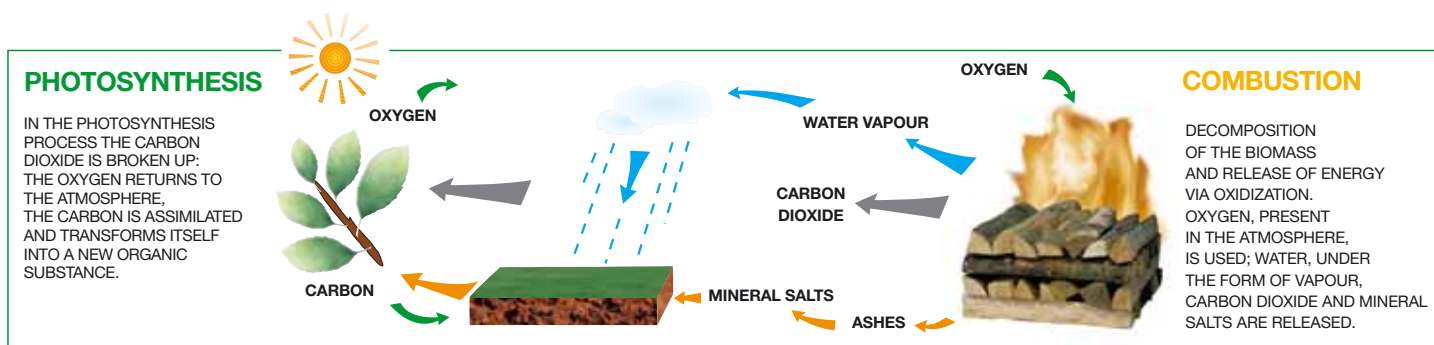
As part of Unical's programme for exploiting biomass in order to attain a major harmony with the environment, we are pleased to present three new log boilers, ideal for those consumers who are aware of the energy problems we are facing, desire products easy to use, with high performances and reduced fuel consumption, without having to resort to onerous investments.

## *Simplicity and perfection*

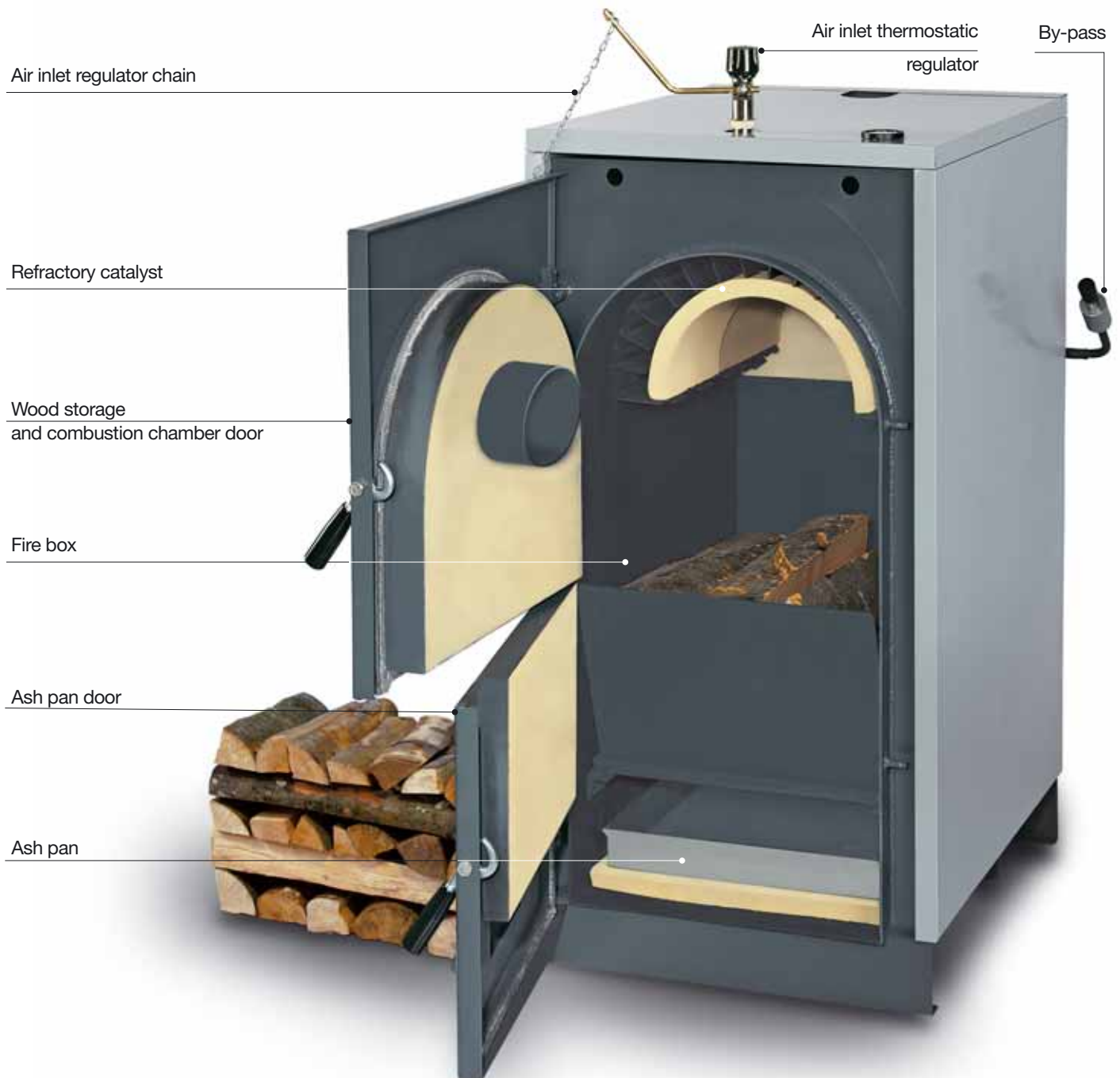
The range of FOKOLUS boilers sums up the most primitive features which wood evokes. On one hand nature and on the other the technology which Unical has been able to develop.

With the combustion process, the whole cycle which characterizes renewable energies comes to a close.

The results are: comfort, economics, friendly environmental, all offered "naturally" by FOKOLUS.



# *The secrets*



The range of FOKOLUS boilers is entirely constructed in thick carbon steel. It has been designed to heat homes measuring from 80 to 300 square metres. The fire box has a classical design. The wood is loaded onto the grate.

Easy access to the inside of the boiler via two large doors: one to gain access to the wood storage and combustion chamber and one to gain access to the ash pan.

# *The features ...*

## *Controlled combustion, long boiler operation and reduced emissions*

The optimization of combustion is guaranteed by the thermostatic primary air inlet regulator (photo 1) and by the micrometric secondary air regulator.

However, it is the use of a special refractory catalyst (photo 2, positioned in the combustion chamber's upper vault, which favours the pyrolysis process of the cellulose and the reduction of CO emissions. Once this real and proper "stone catalyst" has reached the working temperature, it contributes determinedly to the wood's complete combustion.

The organic molecules are thus transformed in primary gaseous elements and solid residual products. The first are burnt, the latter, in the intensive heat, burn thanks to the secondary air, with the so called "slow flame", which enables the boiler to operate for longer, and so reduces the need of refuelling.



Photo 1

*Air inlet regulator*

At the end of the process, the non-combustible ashes will fall into a large ash pan placed underneath the grate (photo 3).

The passage of the flue gasses takes place vertically, from the bottom to the topmost direction, then they enter the "tunnel" in the vault, built in a special refractory catalyst material, and enter head-on into the hollow space between the latter and the arched vault, soaked by the system's water, then they flow out through the rear outlet.

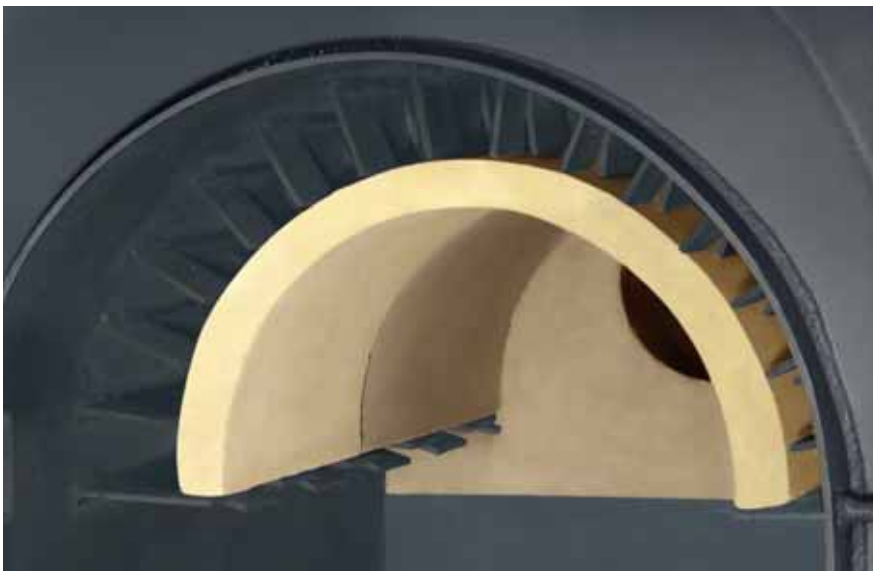


Photo 2

*A detailed view of the refractory catalyst*



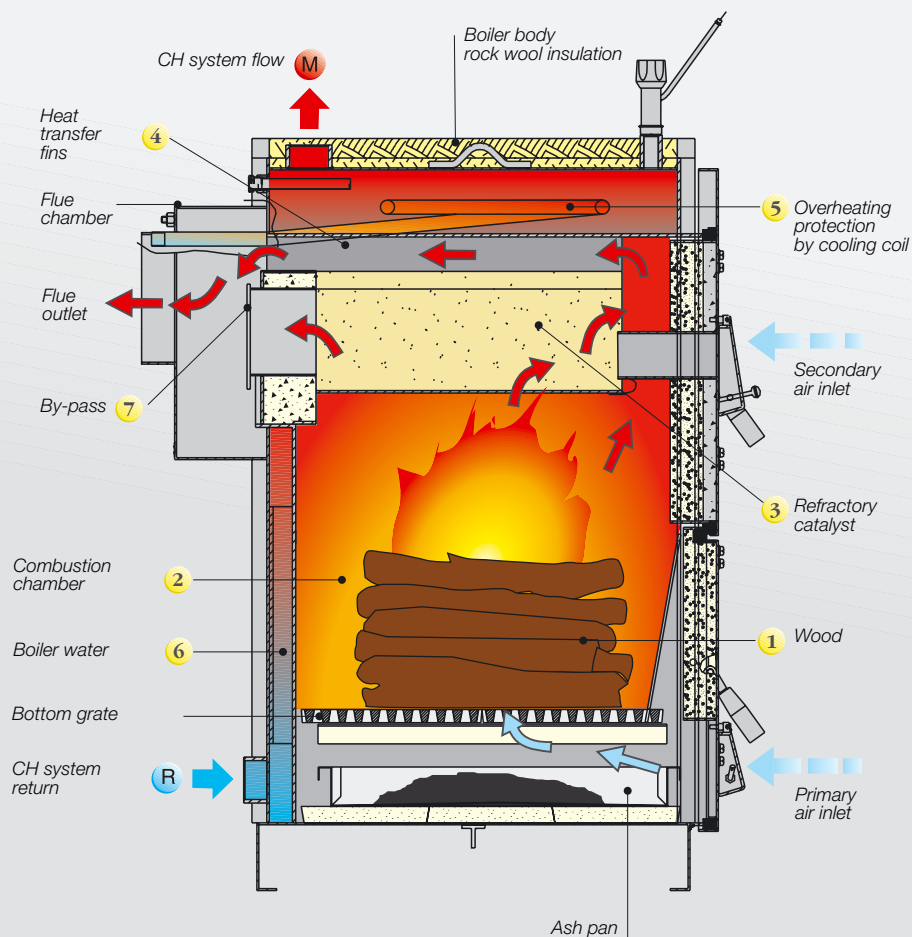
Photo 3

*A detailed view of the ash pan*

# ...of FOKOLUS

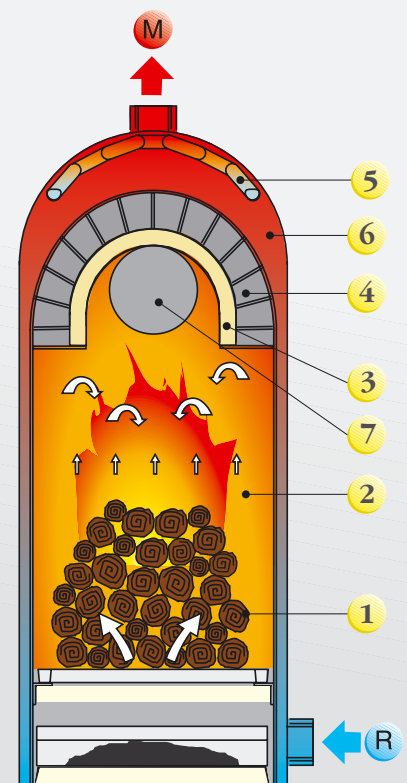
## FOKOLUS

### CROSS SECTION VIEW



## FOKOLUS

### BOILER BODY



## Insulation for high efficiency

The casing is insulated with 60 mm thick, anti-tear, rock wool material which guarantees minimum heat loss and thus ensures high efficiencies.

## Safety above all else

An over heating safety system, composed of a steel heat exchanger (coil) immersed directly in the boiler water and of a thermal drainage valve, protects the boiler from overheating.

# *Natural boiler operation*



*Rear view*

## *Easy to use*

A by-pass permits the flue gasses to discharge directly through the chimney during the ignition and loading operations. In this way the air inlet and combustion are favoured, thus avoiding the release of flue gasses through the front door. The thermostatic adjustments are simple and quick and aided by a practical air inlet regulator.

Once the required temperature has been set with the appropriate control knob, the most is made of the dilatation of a waxy substance which opens and closes the combustion air's apertures. This air regulation modulates the combustion, maintaining the set temperature level until the fuel has all been used up.

## *Boiler operation with natural circulation*

The range of FOKOLUS boilers does not need electrical power.

No fans, no systems which depend on electricity.

It can even operate with a natural circulation, without a system pump, due to the flow and return connetions of 2 inches.



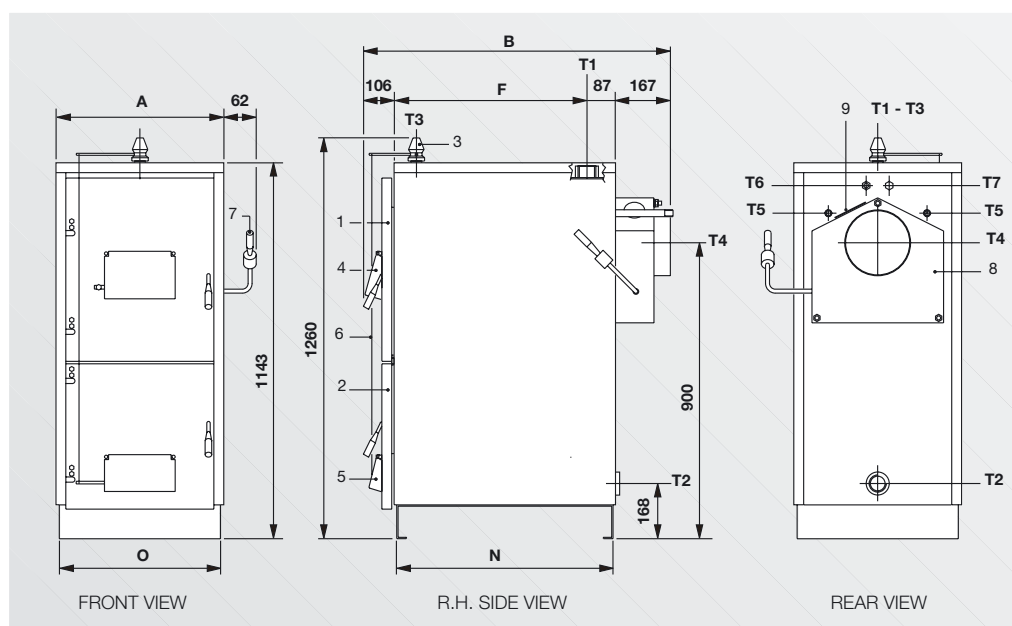
*Hot water thermometer*



*Detailed view of by-pass*



# Dimensions and technical data



Legend:

- 1 - Upper loading door
- 2 - Lower cleaning door
- 3 - Thermostatic air inlet regulator
- 4 - Secondary air inlet aperture
- 5 - Primary air inlet aperture
- 6 - Air inlet regulator chain
- 7 - By-pass opening handle with counterweight
- 8 - Rear flue chamber
- 9 - Flue chamber inspection door
- T1 - CH flow
- T2 - CH return
- T3 - Thermostatic air inlet regulator connection
- T4 - Chimney connection
- T5 - Safety heat exchanger connections
- T6 - Bulb holder for thermometer
- T7 - Bulb holder for thermal safety drain valve sensor

MODEL		FKL 20	FKL 30	FKL 40
<b>Technical features</b>				
HEAT OUTPUT*	kW	20	30	40
PRESSURE LOSSES WATER SIDE**	m w.c.	0,3	0,3	0,4
CHIMNEY DRAUGHT REQUIRED	mm w.c.	1,5	1,5	1,5
BOILER WATER CAPACITY	l	35	53	67
MAX OPERATING PRESSURE	bar	3	3	3
WOOD STORAGE CAPACITY	kg	60	70	90
LENGTH WOOD LOGS	cm	33	50	70
<b>Dimensions</b>				
A	mm	510	590	590
B	mm	776	946	1146
F	mm	416	586	786
N	mm	488	658	658
O	mm	490	570	570
T1 - T2	UNI ISO 7/1	Rp 2	Rp 2	Rp 2
T3	UNI ISO 7/1	Rp 3/4	Rp 3/4	Rp 3/4
T4	Øe mm	200	200	200
T5	UNI ISO 7/1	R 1/2	R 1/2	R 1/2
T6 - T7	UNI ISO 7/1	Rp 1/2	Rp 1/2	Rp 1/2
<b>Weight</b>				
WEIGHT	kg	275	335	365

\* Output obtained with good quality wood with a maximum of 15% moisture content.

\*\* Pressure losses with a water flow rate corresponding to a  $\Delta t$  of 15K.

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