

Unical

KALDUS 2S

DESIGN AND COMFORT



So old fashioned...

An intelligent choice

When on a cold winter's night the warm glowing flames of the KALDUS boiler are there to welcome you back home, you will be pleased that you decided to install such an old fashioned and, at the same time, such a modern heating source.

Modern, because it enables up to 37 hours of autonomous operation thanks to the capacious pellet storage container and to the electronic heating controller who, by modulating the flame according to the required room temperature, is able to economize on pellet consumption.

Nice, complete and functional

KALDUS 2S of UNICAL is the new range of wood pellet fired, hydronic, space heating appliances designed to be installed in whichever room of your house, thanks to the completely room sealed combustion chamber. Nice because designed with an always modern style and well-finished. The flame sight, through the wide glazed door, heats and brightens the environment in which it is installed, giving a touch of pleasant well being. It has been conceived to be connected to your home's heating system. It is

called HYDROUNIT because it is a hot water boiler which incorporates all the components normally present in a boiler room, such as C.H. circulating pump, control devices, control panel, expansion vessel (only for KALDUS 27 2S). Boiler operation is completely automatic, which means that the consumer only needs to set the desired room temperature and feed the boiler. KALDUS 2S will heat directly, by radiation, the room where it is installed and, through the hydronic heating system, the rest of the house.

Total safety

KALDUS 15 & 27 2S are equipped with the following devices in order to guarantee the maximum safety:

- *High temperature resistant safety ceramic glass.*
- *Pressure switch controlling the chimney draught:* it prevents the operation in case of anomalies to the smoke circuit or of faulty fan.
- *Sensor for smoke temperature detection:* it controls the maximum boiler efficiency through the continuous detection of the smoke temperature.
- *Sensor for boiler water temperature detection:* it prevents the boiler overcome the maximum temperature (85°C).

MODEL	nominal output min/max kW	global output min/max kW	nominal input min/max kW
KALDUS 15 2S	3,1÷10,3	4÷11,3	4,7÷14,5
KALDUS 27 2S	5,2÷20	6,8÷22	8÷27

- *Limit temperature thermostat for pellet reservoir:* it stops the operation of the boiler in case of overheating.
- *Safety valve:* it protects the boiler and the hydraulic heating circuit in case of pressure higher than 2.5 bar (only for the model KALDUS 27 2S).
- *Water pressure transducer:* it protects the boiler in case of lack of water in the heating system (only for the model KALDUS 27 2S).
- *Prearrangement for the connection* to a wall room thermostat in order to improve the control of the temperature and therefore of the total comfort.

WOOD PELLETT HYDROUNIT	K15 2S	K27 2S
INFRARED CONTROL	🔥	NO
BIDIRECTIONAL RADIO CONTROL	NO	🔥
BUILT-IN WEEKLY PROGRAMMER	🔥	🔥
PRESSURE SWITCH FOR CHIMNEY DRAUGHT CONTROL	🔥	🔥
POWER ADJUSTMENT ON 5 LEVELS	🔥	🔥
WATER TEMPERATURE MONITORING ON DISPLAY	🔥	🔥
FORCED DRAUGHT SYSTEM WITH SMOKE TEMPERATURE RECOVERY	🔥	🔥
C.H. CIRCULATING PUMP	🔥	🔥
D.H.W. PRODUCTION KIT	NO	🔥
CLOSED EXPANSION VESSEL	NO	🔥

🔥 Standard supplied 🌿 Optional NO Not scheduled



KALDUS 15 2S

...so modern.

Facile da pulire

To always assure the maximum possible efficiency, KALDUS 2S develop an automatic cleaning of the crucible. After every turning off the fan works for 10 minutes or up to when the smoke temperature doesn't reach the 50°C. Besides, the self cleaning happens also in operation: for the model K15 every 45 min for a duration of 45 sec, while for the model K27 every 30 min for a duration of 60 sec.

KALDUS 2S, intentionally, doesn't have complex removable parts: the inspection and the controls are simplified at the most.

KALDUS 27 2S is provided, besides, of practical inspection and ash collecting drawers, as well as of an ingenious system of cleaning of the smoke pipes. The collected ash and soot then will simply removed with a normal vacuum cleaner.



KALDUS 27 2S

Pellet

It is a natural fuel which offers important advantages:

- *About 30% more economical, if compared with the fossil originated fuels*
- **Easy to use**
(available in practical 15 kg sacks)
- **High calorific value**
(4,756 - 5,800kW/kg)
- **Altamente ecologico** (*recupera i cascami della lavorazione del legno, opportunamente ripuliti e asciugati, compattati ad altissima pressione per formare cilindretti lunghi 1÷3 cm e con diametro 6÷8 mm*)

Autonomous operation and money saving

KALDUS is fed by a hopper with about a 30 kg storage capacity for the 15 kW model and a 60 kg storage capacity for the 27 kW model.

Inside the hopper the new feeding screw, with more powerful and cooled down motor, feeds the flame, dosing the right quantity of pellets depending on the desired room temperature and other parameters which, via the electronic control system, increases fuel saving with high seasonal efficiencies.

In fact KALDUS, thanks to the possibility of flame modulation, can be said to have an "economical" impact on the cold seasons.

To every pellet its "recipe"

An exclusiveness of the KALDUS 2S range of boilers is the possibility, for the user, to program the boiler operation according to the wood pellet that he intends to use. There are, in the market, different varieties of pellet. Particularly, the pellet of lighter colour has a lower ignition point, it burns quickly and, in general it leaves thin ashes that could absorb humidity from the air

and could compact, causing, if not removed, problems to the subsequent lighting.

On the contrary, the pellet of darker colour burns with greater difficulty and requires, therefore, a stronger ventilation.

To offer the possibility to adapt KALDUS 2S for the different qualities of pellet and the different installations, four recipes, numbered in increasing order from 1 to 4, can be selected in the "programming technical menu". When the recipe identification code increases, the system ventilation increases too.

For instance, the recipe n°1 is suitable for a light colour pellet with an ideal chimney draught, while the recipe n°4 is exactly the opposite: dark pellet and necessity of elevated ventilation of the chimney.

It exists also the possibility to vary the pre-adjusted recipes, optimizing the operation of the boiler and, so, adapting with precision the consumptions according to the heat request and the wood pellet quality.



KALDUS 15 2S



small and powerful

The KALDUS 15 2S: a boiler built in 5 mm thick carbon steel plates, with a vertical water pipe heat exchanger, equipped with a modulating forced ventilation in the combustion circuit.

The burner is composed of a spheroidal cast iron crucible, with an AISI 310 stainless steel grate.

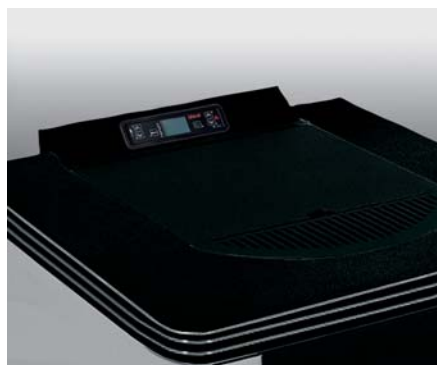
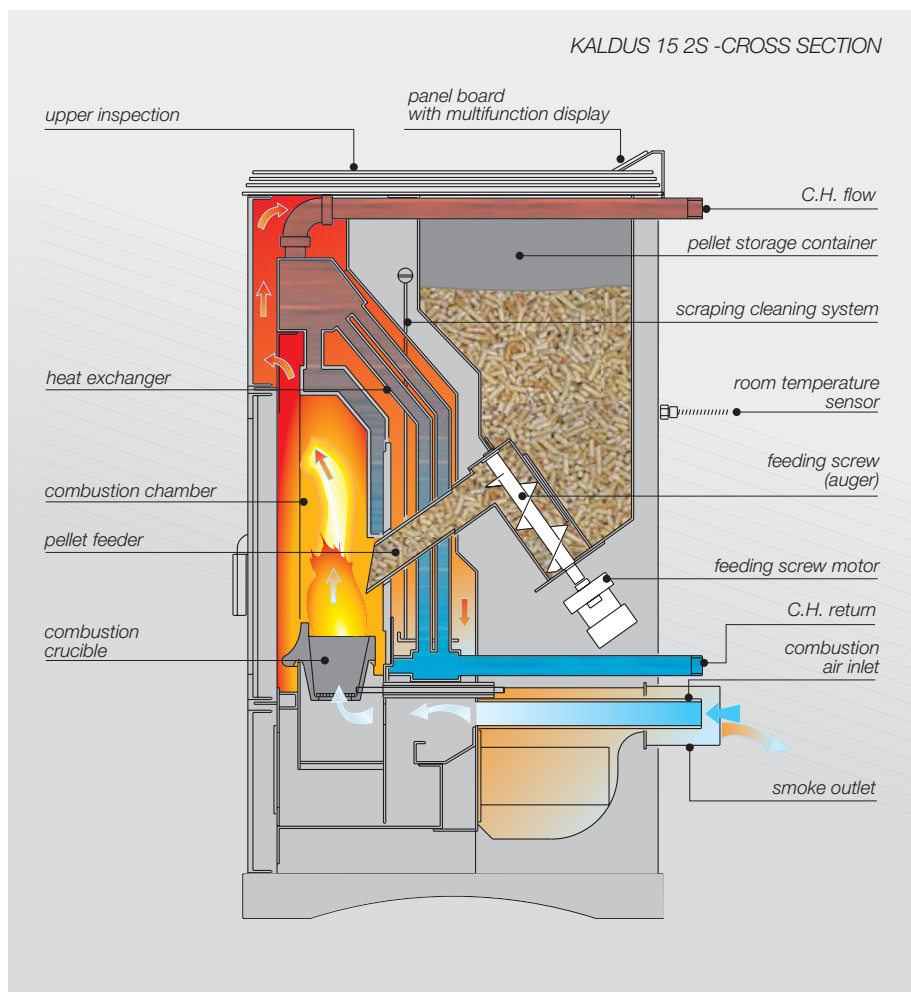
The flame develops in the steel combustion chamber and the developed heat licks, in the front part, the heat exchanger and then, descending, crosses the special "pockets" obtained on the back, completing the circuit (*room sealed, forced draught with smoke temperature recovery*). Subsequently, the fan sucks the combustion gases collecting them to the outlet.

The new and powerful ignition system, through an incandescence igniter, makes the ignition totally automatic, also with not good quality pellet.

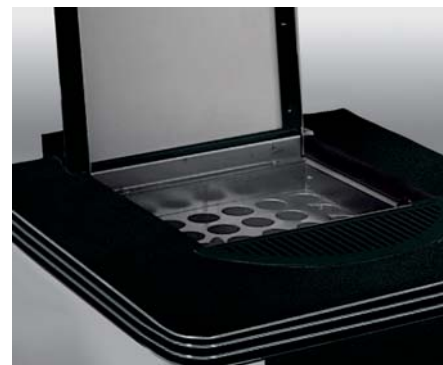
The operation is completely controlled by a microprocessor electronic card, that, according to the set temperature in boiler and to the one requested in the room, automatically doses the quantity of pellet through the motorized feeding screw (*auger*).

The electronic modulation system adjust the speed of the combustion air fan, favouring the obtainment of the high efficiency and the reduction of the pellet consumption.

The simple infrared control allows the increase or the diminution of the water temperature and the ignition/extinction of KALDUS 15 2S.



Upper part with display



Top cover open for pellet loading

KALDUS 27 2S



generous heat

KALDUS 27 2S assures first-rate performances and is different from the model 15 in the following:

- *the adoption of a new burner in special refractory steel*
- *more improved electronics*
- *double controlled combustion that assures a high efficiency thanks to the primary and secondary air injection in the crucible.*

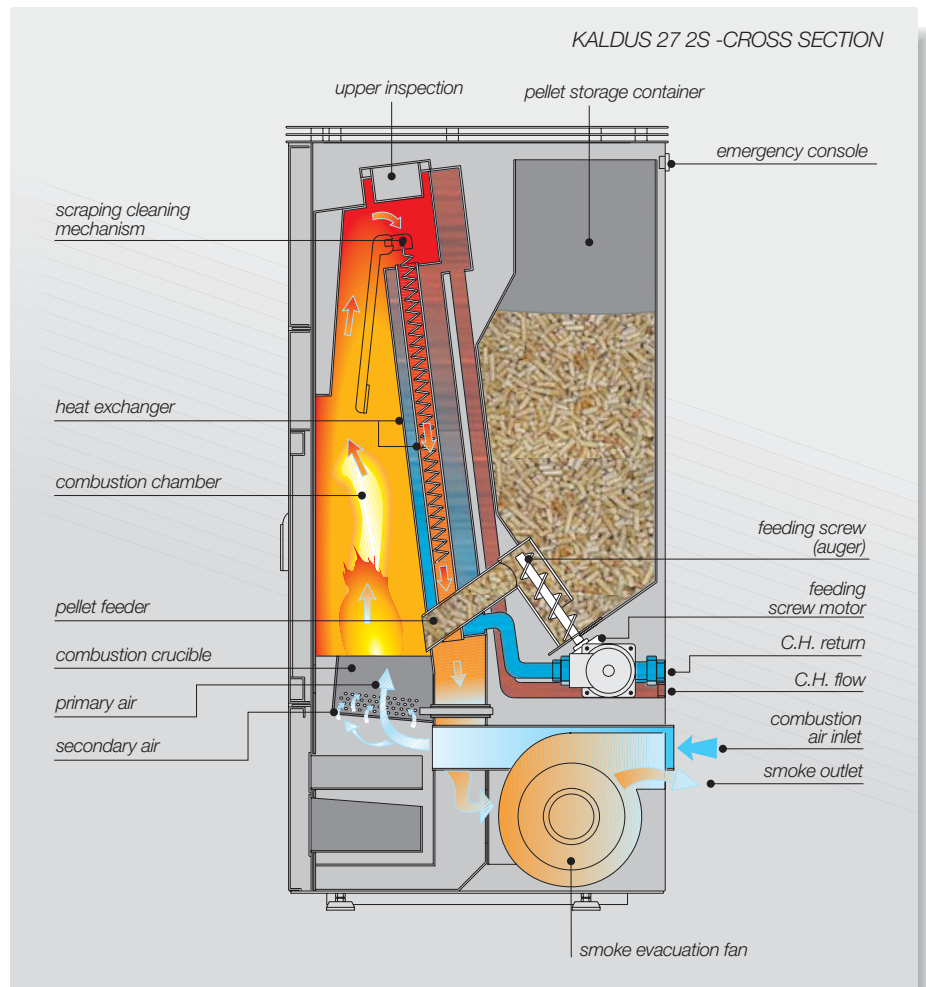
The high power of KALDUS 27 2S derive from the technology of the double thermal exchange. To facilitate the combustion and the reduction of the pressure losses in the hydraulic circuit a smoke pipe structure, instead of water pipe, has been adopted. Therefore, the warm gases produced in the combustion chamber, with a reversed "U" run, lick up first frontally the heat exchanger and, subsequently, crossing the smoke pipes, its rear part, guaranteeing a very high efficiency.

The smoke pipes are endowed with springs that have the double function of turbulators (and scrapers when the boiler is off, through a practical mechanism of shaking).

The downstream fan develops the double function of air intake and smoke evacuation.

Also in KALDUS 27 2S the electronic modulation system manages, in a completely automatic way, the boiler through the pre-set parameters. The practical *two-way radio control*, endowed with display, controls all the functions of the boiler. The *emergency console*, placed on the back, allows the ignition/extinction, the output change and the signalling of alarm.

Note: the small cup, placed in the upper part, allows to humidify and to perfume the room where KALDUS 27 2S is installed.



Boiler upper part



Top cover open for pellet loading

Simple programming

The new KALDUS 2S range of boilers adopts a simplified electronic panel board. All the messages are in Italian (possibility, however, of choice among 4 languages) and they allow to adjust and to vary:

- clock
- Weekend, daily or weekly time programming (4 different weeks)
- Room and boiler water temperature setting
- 5 output levels.

The managing software, once the ignition button has been depressed and according to the preset times, will automatically program the

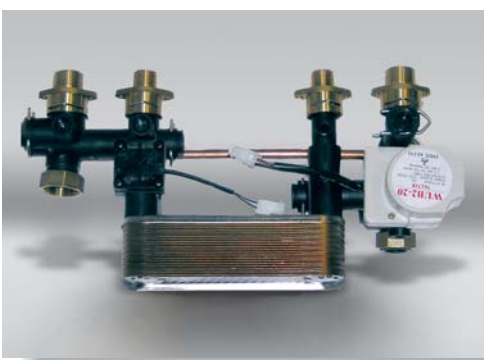
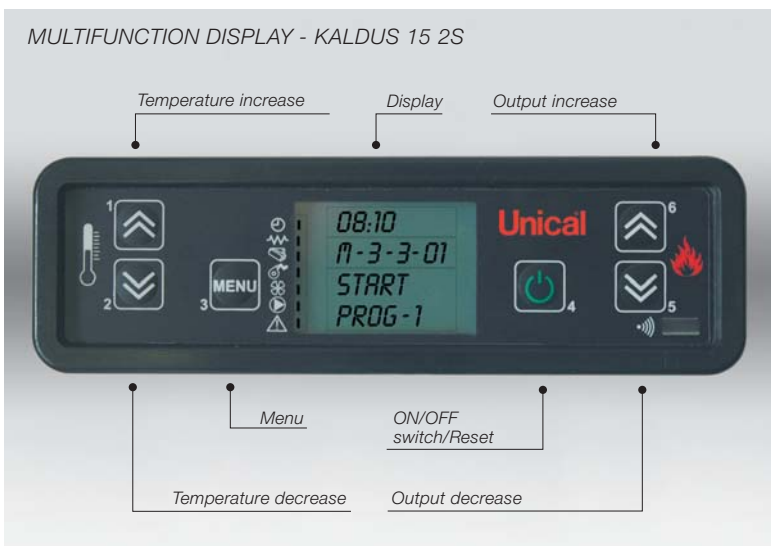
ignition/extinction of the boiler. After the starting phase KALDUS 2S will bring the water to the preset temperature and, above the 50°C, the circulation pump will heat hydraulic circuit.

Modulation and money saving

As the set temperatures are approached, the speed of the fan (therefore the boiler output) is automatically reduced to the next lower level to assure the best combustion (5 available levels) and the maximum possible saving.

■ The model KALDUS 15 2S is equipped, on the upper part, of a **panel board with multifunction display**, for the programming of the hydro-unit, while the remote control allows, with the simple pressure of the push buttons, the increase or the diminution of the water temperature and the output, the ignition and the extinction of the boiler.

■ The model KALDUS 27 2S is standard supplied with a **bidirectional radio control** that programs and manages its operation.



Optional accessories

A special kit for the automatic production of D.H.W. is available for the model KALDUS 27 2S.

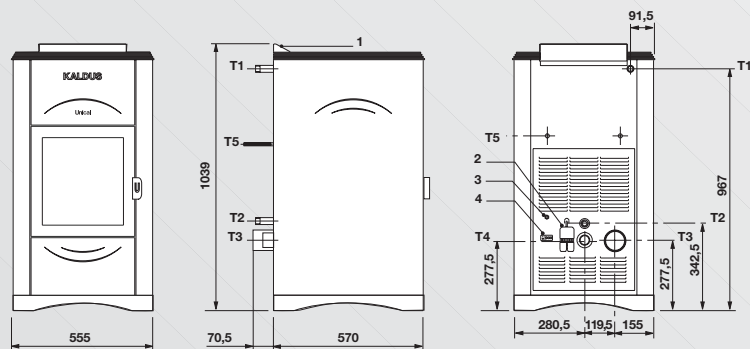
It is constituted by a high efficiency stainless steel plate heat exchanger, and a priority flow switch connected via a connection group of fittings and can be installed later on.

During the water drawing a special electronic device predisposes the boiler to the maximum power. High D.H.W. production: 13 l/min with DeltaT 25 K (provided the boiler water temperature is at least 40°C).

KIT FOR PRODUCTION OF D.H.W. (for KALDUS 27 2S)

Technical data and dimensions

KALDUS 15 2S



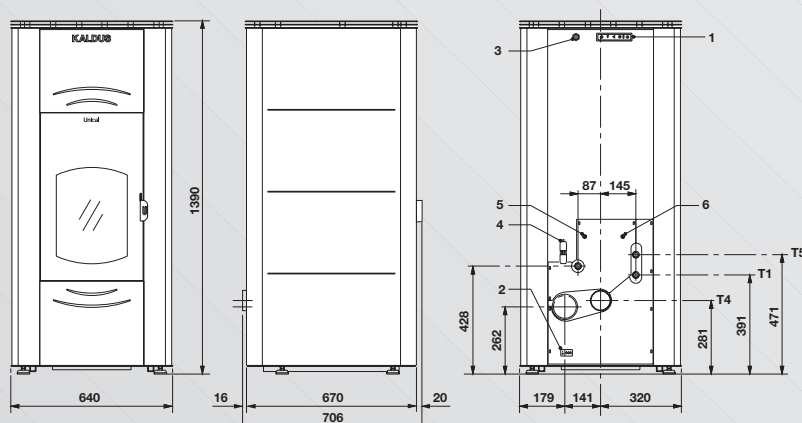
KALDUS 15 2S

Key

- T1 C.H. flow (R ↓)
- T2 C.H. Return (R ↓)
- T3 Smoke outlet Ø 80 mm
- T4 Air intake Ø 45 mm
- T5 Room temperature sensor connection

1. Panel board
2. C.H. pump & room thermostat connection
3. Manual reset safety thermostat
4. Main switch with connection plug

KALDUS 27 2S



KALDUS 27 2S

Key

- T1 C.H. flow (R ↓)
- T2 C.H. Return (R ↓)
- T3 Smoke outlet Ø 100 mm
- T4 Air intake Ø 80 mm
- T5 Safety valve discharge connection

1. Emergency console
2. Main switch with connection plug
3. Antenna for radio control
4. Room thermostat electrical connection
5. Manual reset boiler water safety thermostat
6. Manual reset safety thermostat for pellet feeder

		KALDUS 15 2S	KALDUS 27 2S
Powers			
INPUT	kW	4.7 ÷ 14.5	8 ÷ 27
GLOBAL OUTPUT radiation included	kW	4 ÷ 11.3	6.8 ÷ 22
OUTPUT TO THE WATER min./max.	kW	3,1 ÷ 10.3	5,2 ÷ 20
GLOBAL EFFICIENCY	%	90	90
Electrical supply			
ABSORBED OUTPUT at starting/stade state	W	537 / 187	527 / 247
Combustion			
SMOKE TEMPERATURE max.	°C	180	180
SMOKE MASS FLOW RATE	g/s	10.2	10.2
MINIMUM REQUESTED DRAUGHT	Pa	10	10
CO	%	<0.04	<0.04
Heating			
MAX: POSSIBLE VOLUME TO HEAT *	m ³	320	573
WOOD PELLET CONSUMPTION min./max.	kg/h	1 / 3.1	1.65 / 5.62
AUTONOMY at nominal/minimum output	h	9 / 28	10.7 / 36.4
BOILER WATER CONTENT	l	10	35
Dimensions - Weight - Technical features			
HIGHT	mm	1039	1390
WIDTH	mm	550	640
DEPTH	mm	640,5	706
WEIGHT	kg	230	300
MAXIMUM WORKING PRESSURE	bar	1.5	2.5

*Values calculated for living houses needing 35 W/m³

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