

ARCA
caldaie

TECNOLOGIE PER L'AMBIENTE

granola automatica

Patented

self-cleaning

efficiency
exceeding 90%

low electric
consumption



Certified in accordance with
EN 303.5
Performance class 5

NATURAL WOOD PELLET BOILER
AUTOMATIC SUPPLY
AUTOMATIC IGNITION
POWER FROM 14 TO 250 KW

This is a steel boiler that works with natural wood pellets, with digital electronic management and control of the automatic ignition, supply and adjustment functions of the system.







One can use granular fuels, such as olive stones, walnut shells or other material subject to a check by our pre-sales service.

PROFESSIONAL COMPONENTS FOR GRANOLA MODELS

Professional components are used for the Arca Granola boiler.

The comparison with components at competitive prices or components used in the hobby industry deriving from stoves, used today on the market for low-power pellet boilers is clearly shown in the figures here below.

Here are the features of some important components:

Granola boiler	Stoves or pellet boilers deriving from stoves
	
Burner	
	
184 W	28 W
Gear motor	
	
120 W	32 W
Smoke extractor	

Therefore we recommend choosing a **boiler** for continuous use, if you have a utility room, if the room you need to warm up is more than 70 sq m and heating is required for several hours a day.

A hydro pellet **stove** or a pellet boiler with stove components is recommended for occasional use, if the room you need to warm up is very small or if you do not have a utility room where you can put the boiler, considering that the boiler's pellet tank ensures an operating time 6 times longer compared to a stove.

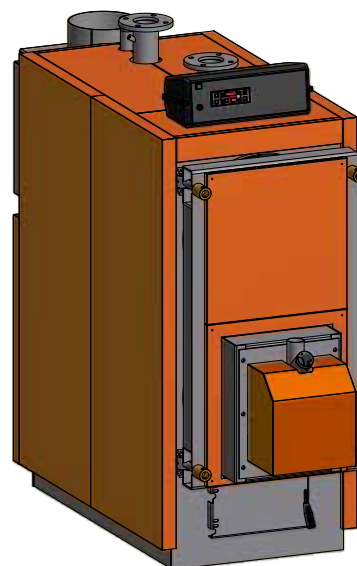
THE TECHNICAL ORIGIN OF THE SOLUTIONS ADOPTED

The competences acquired by Arca in the various segments it operates in – gas, gas oil and wood log-fired boilers – have allowed us to provide a solution to a number of technological obstacles we tackled.

The delicate issues relating to thermal inertia, combustion control, flame modulation, the calorific value discrepancy between the various kinds of fuel, etc. have called for the application of important design solutions aiming at high efficiency levels (EN 303.5 class 5) and very low emissions, along with extremely easy access for periodical maintenance.

GRANOLA 250

The 250 Kw model has a triple smoke route, anti-condensation pipes with dual layer and extractor fan with horizontal axis. It has a power value ranging from 60 to 250 Kw, therefore the size of the inertial storage tank can be measured based on the minimum power value, with considerable smaller overall dimensions and heat loss as a result.



Granola Model 250 kW

MULTIFUNCTION DIGITAL ELECTRONICS

Along with the numerous controls for the safety and management of all boiler functions, the electronic system can manage all the equipment, including an inertial storage tank (puffer tank), a boiler for domestic use and another renewable energy sources such as a solar panel. This all comes with the simple adjustment of some parameters.



CONTROLLED SUCTION COMBUSTION.

What makes the automatic Granola different from traditional pellet boilers is the suction technology used. The firebox, supply duct and the whole smoke route indeed have a negative pressure value, as the fan located at the outlet is an extractor fan.

Of course safe operation is guaranteed, as in the event of a failure affecting the seals or gaskets, the air in the room will be drawn in and there will never be a flame coming out.



Granola 14-20-30-40-50

PRODUCT SET-UP

Granola 14, 20, 30, 40, 50 RO is made with the pellet container on top of the boiler and painted light red, like the boiler's casing.

Granola 80, 115, 150, 250 RO models are made with the pellet container placed next to them.

THE EUROPEAN PATENT

Specifically designed for an automatic use of all boiler functions, the technological solutions used for the ignition and operation of combustion are fully illustrated in the European patent (MN2002A000037) submitted on 23.12.2002.

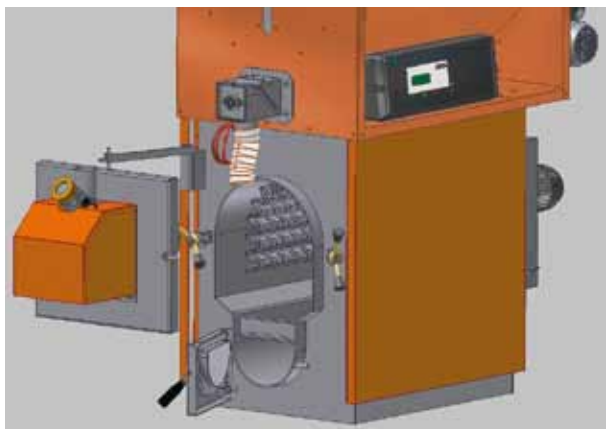
GRANOLA + AUTOCARGO

The automatic pellet loader that works in suction mode. It is used on the top of the pellet storage area in models Gra 14 - 20 - 30 - 40 - 50. Instead for models 80 - 115 - 150 - 250, it must be placed vertically on the pellet container next to the boiler. It has a capacity of about 200 kg of pellets / hour. It has an electronic control. The ignition can be programmed on a weekly basis.

DRY ANTI-CONDENSATION FIREBOX.

By combining more than 15 years of experience gained in the field of boiler combustion with wood logs, also Granola's combustion area employs an extensively tested and functional dry exchange system. With the solution adopted, solid residues on surfaces are reduced to a minimum and the equipment is easier to clean.

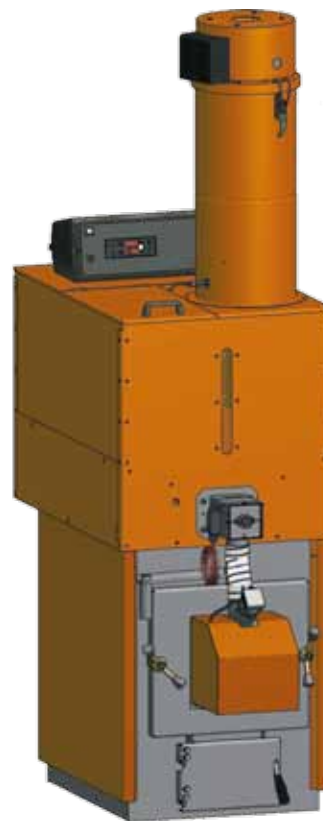
The anti-condensation function is ensured by the fact that the flame is contained in a dry area, preventing it from touching wet surfaces directly. This prevents tar from forming both during operation and transitory steps (such as ignition and shut-down, during which temperature values are limited), typical of boilers with smoke pipes and a wet firebox.



COMPLIANCE WITH EN 303.5-2012 CLASS 5 - EFFICIENCY > 90%

The automatic Granola complies with EN 303.5-2012 with protection class 5.

Efficiency and product emission certifications are related to EN 303.5-2004 class 3, though with the new regulation introduced in 2012, they meet the requirements of efficiency class 5. The 14/20/30/40/50 models are certified for efficiency levels that exceed 90% (with the old 2004 standard). The 80/115/150/250 models comply with EN 303.5-2012, but are not certified due to the fact that labs cannot test power values greater than 50 kW.



LOW ABSORPTION IGNITION LOW CONSUMPTION OPERATION

Ignition is automatic, with an air flow at a temperature exceeding 650 °C. The igniter, made with a special alloy of steel resistant to high temperatures, can absorb an electrical power value limited to approximately 300W for a few minutes. Once it has been turned on, the boiler's electrical consumption is limited to a few tenths of Watts, thanks to the horizontal auger.

AUTOMATIC SUPPLY MODULATION HOLDING FUNCTION

The electronic management and control system allows you to modulate fuel dosage to the actual needs of the rooms you need to warm up. Supply and stand-by time are among the many parameters that can be adjusted on the control panel depending on the kind of fuel used. The holding function minimises the ignition and shut-down cycle time.

SAFETY

A steel exchanger immersed in the water of the boiler cools down the generator in the event of excessively high temperatures by using cold water from the water system. The heat relief valve is supplied upon request and is recommended for closed-cup systems.

MAINTENANCE SELF-CLEANING SYSTEM

Routine maintenance only involves emptying the ash tray. As natural wood pellets are used, the grid of the burner nozzle is cleaned automatically, which means manual maintenance is only required monthly.

INSULATION

Insulation consists of an 80mm thick rock wool layer between the body of the boiler and the steel casing.

INERTIAL STORAGE TANK

The automatic Granola can work with different kinds of systems.

We recommend using the inertial storage tank (puffer tank or Combi puffer tank) especially for systems with low water content. The volume of the puffer tank can be calculated based on the minimum modulation power and not based on the nominal power, as this is a modulating boiler (5 to 1). This way, the accumulated volume and relative thermal loss are reduced by 80%.

COMPLEX SYSTEMS COMBINATIONS

If, along with the wood or pellet boiler on the same system, a wall-mounted gas or a steel boiler, a solar panel or an underfloor system is installed, interaction and compatibility between individual components is guaranteed by using products from Arca's catalogue.

Arca's ATS (authorised technical support service) can ensure scheduled maintenance on the whole system and relative components in one go with greater efficiency and considerable savings for end users during the whole life cycle of the products installed.

To view all the products in Arca's catalogue visit www.arcacaldaie.com

FLUE

We strongly recommend using a flue that complies with current regulations – especially EN 1806 – which require resistance up to 1000°C. The user is responsible for damage caused by the use of non-compliant flues.

When establishing the size of the flue, consider a 3mm depression at the base to ensure the generator works properly.

WARRANTY - FIRST IGNITION - FINE-TUNING

The product comes with a 3-year warranty for the boiler body, 2 years for electrical parts, 1 year on refractory and consumables. The warranty is subject to the correct execution of the first ignition by ARCA's authorised technical support service. You will also need to submit the warranty card. The first ignition is free of charge, subject to the general warranty conditions. Any subsequent setting of the parameters must be performed by users.

The warranty does not cover any kind of corrosion, including galvanic currents.

The warranty is subject to the presence of the recirculation pump.

SMOKE TEMPERATURE CONTROL

A probe placed on the smoke outlet lets you monitor the smoke temperature at the outlet.

With this information you can optimise the operating temperature of the suction motor and flue, whilst maintaining high cyclical efficiency levels.

TECHNICAL CONSULTANCY SERVICE

The Technical staff of the "Systems & Services Unit" is at the service of heating and cooling system designers and installers for any information and free quotes for complex systems that, along with the solid fuel boiler, are combined with

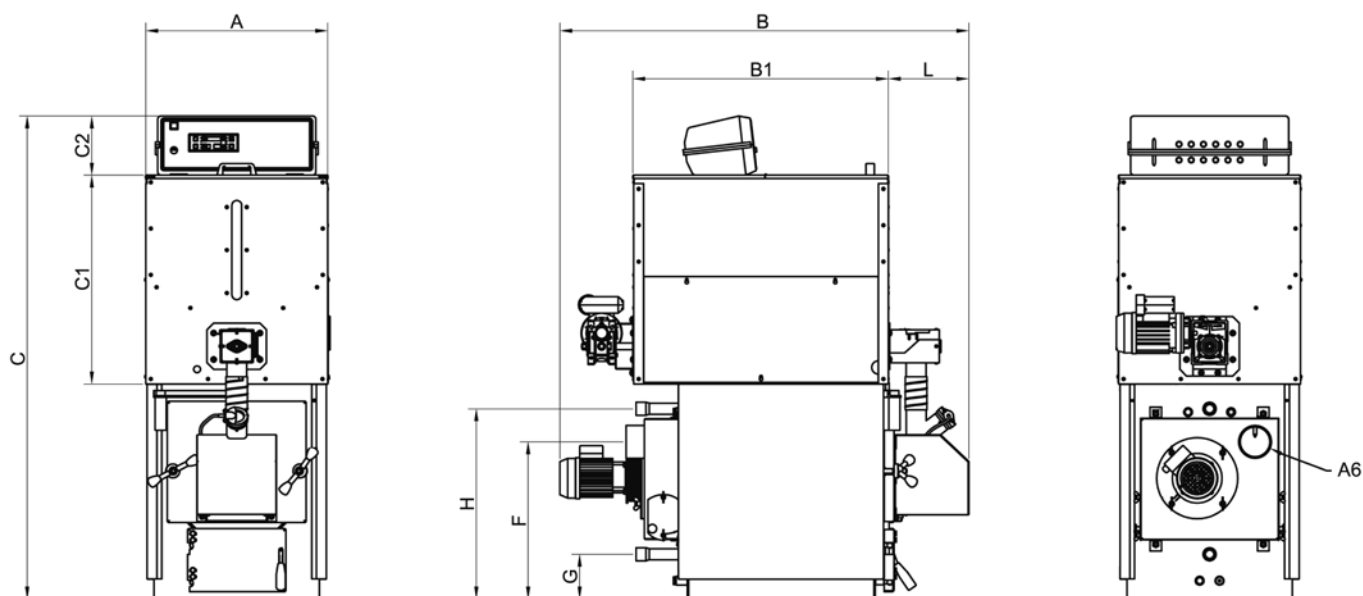
solar panels, underfloor systems, mixing units, steel radiators and gas boilers.

The advantage of a one-stop service for the consultancy and supply of material ensures the user correct operation of the heating system created.

Moreover, a single local reference for after-sales technical support guarantees the overall activation of all the system elements and support during and after the warranty period. Basically, periodical maintenance on the whole system is carried out in one go.

GRA 14/20/30/40/50

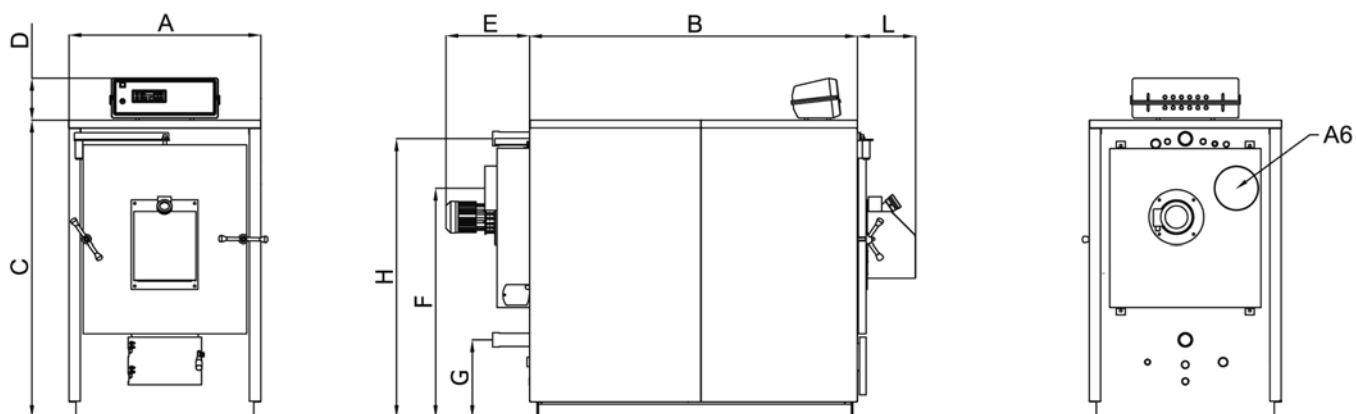
A6 - Chimney connection



GRA 80/115/150

CONTAINER TO PLACE NEXT TO THE EQUIPMENT

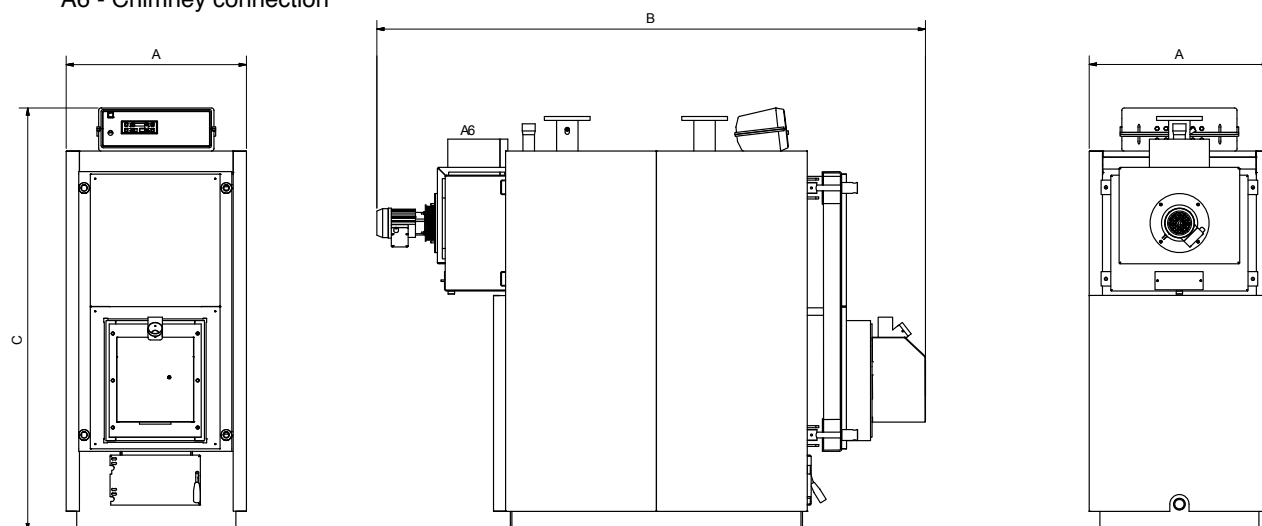
A6 - Chimney connection



GRA 250

CONTAINER TO PLACE NEXT TO THE EQUIPMENT

A6 - Chimney connection



Type	SIZE				TANK SIZE					POWER		
	A	B	C	A6	A	B1	C1	Capacity	Code	Minimum Available Power	Maximum Available Power	Recommended Available Power
	mm	mm	mm	Ø	mm	mm	mm	Lt		kW	kW	kW
GRA14RO	550	1.237	1.460	99	550	770	632	186	**	6	14	12
GRA20RO	550	1.237	1.460	99	550	770	632	186	**	6	20	20
GRA30RO	620	1.310	1.600	138	620	900	830	267	**	8	30	25
GRA40RO	690	1.510	1.780	150	690	1.100	830	379	**	13	40	33
GRA50RO	690	1.510	1.780	150	690	1.100	830	379	**	13	50	43
GRA80RO	768	1.756	1.319	178	700	700	1.500	400	CON0600*	20	80	65
GRA115RO	862	1.766	1.542	200	700	700	1.500	400	CON0600*	26	110	90
GRA150RO	862	2.116	1.542	200	700	700	1.500	400	CON0600*	34	150	120
GRA250RO	750	2.285	1.575	250	700	700	1.500	400	CON0600*	70	260	240

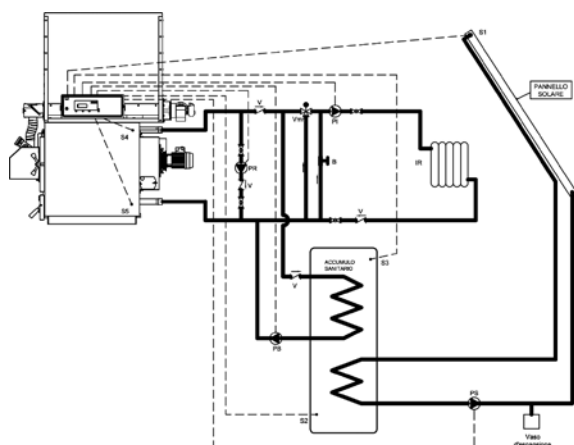
*Container included as standard in the price of the boiler, please see the price list for other optional sizes

** Pellet container is placed on top of boiler

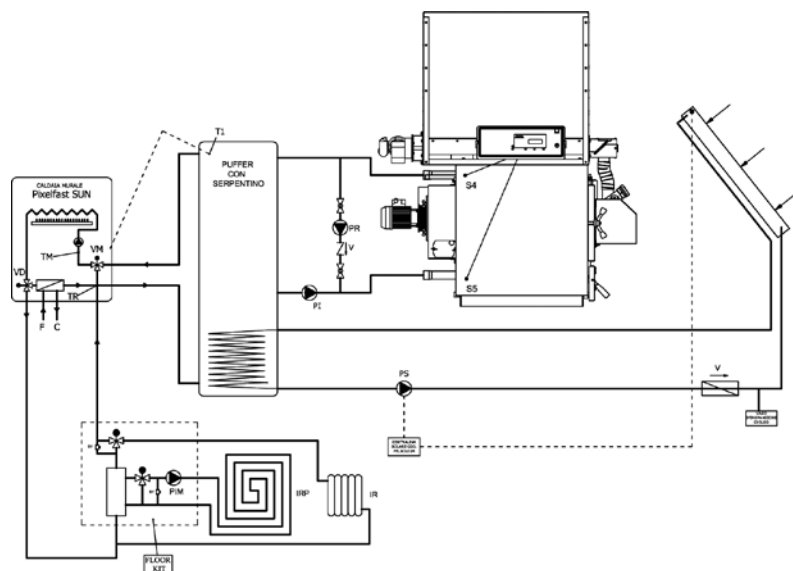
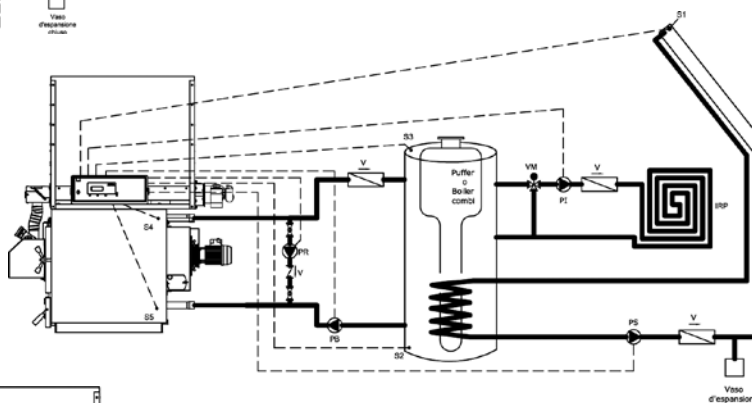
EXAMPLES OF SYSTEM DIAGRAMS

RECOMMENDED SYSTEM DIAGRAMS

With solar energy for domestic use only with double coil boiler.



With solar energy for heating integration (only recommended if there is an underfloor system) with Combi puffer tank.

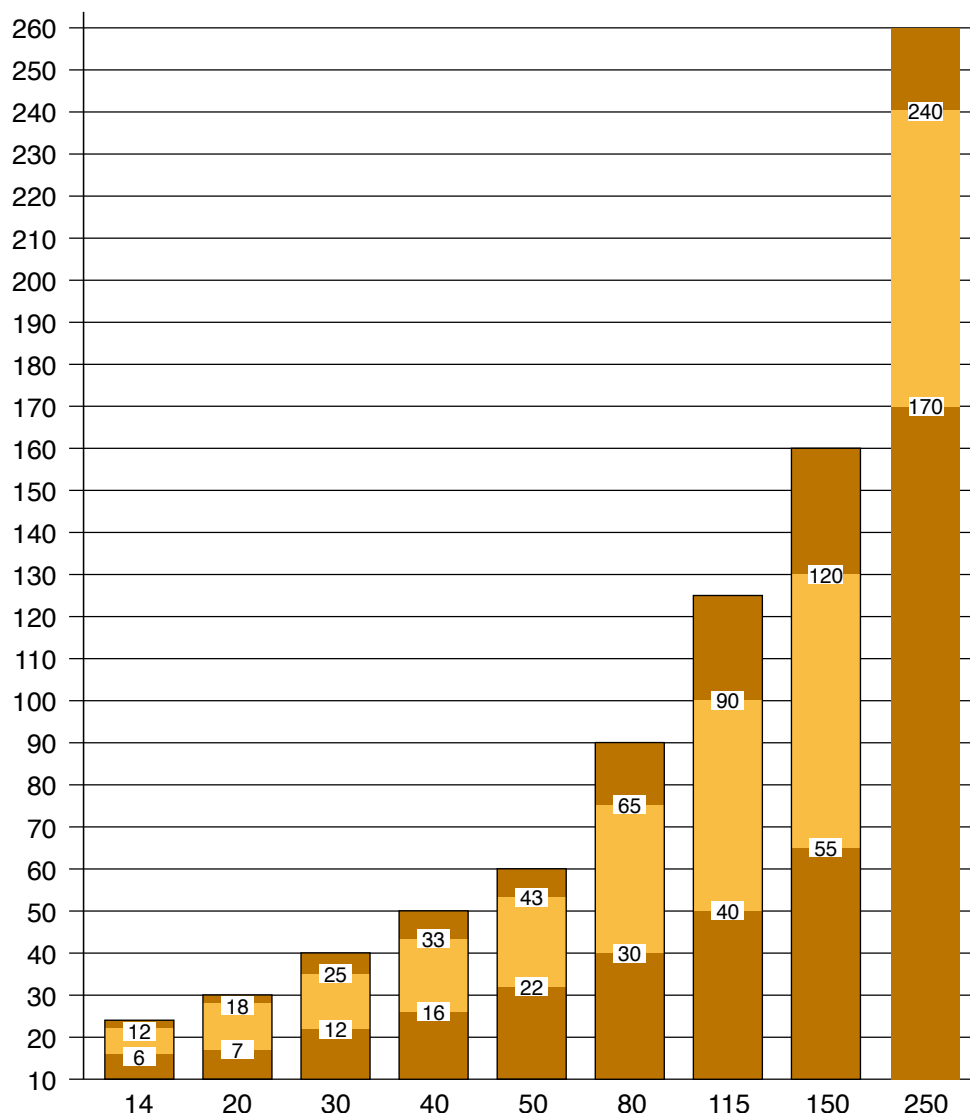


Hydraulic diagrams for complex systems. If there is a wall-mounted boiler and solar energy or biomass source, Arca has an innovative patented high efficiency system: the SUN system. For further details on the SUN diagram, please visit www.arcacaldaie.com

DIAGRAM OF POWER VALUES BY MODEL

POWER
Kw

Recommended available power



CHOOSING THE MODEL

There are 9 models for the automatic Granola with power values ranging from 6 to 250 kW. For every model, there is a minimum power, an available power corresponding to natural wood pellets with a 6mm diameter, a calorific power of 4.8 kwh/kg, an 8% moisture content and a maximum power to determine the size of safety components: valves, diameter of the pipes, etc.

The choice must be approved by the design engineer by considering the characteristics of the fuel used.

Caution: as this is a boiler operated with solid granular fuel, we recommend using an auxiliary gas or gas oil generator that can generate domestic water in summer. Also provide for a rescuing device in the event of blockages caused by the lack of fuel, supply and use of fuel with very different characteristics, the need for minor maintenance, the need to clean the smoke route due to the use of unsuitable fuel, minor inconveniences or failures of the feed system often caused by foreign bodies, etc.

THE MIXER VALVE

Despite the solutions and technical and design features of the generator, one must still consider that granular fuel usually has a high moisture content compared to other fuels. To limit condensation as much as possible, we recommend keeping the boiler operating temperature high.

This is why the range of the operating thermostat supplied is limited between approximately 65 and 90°C.

Therefore, it is advisable to use a mixer valve to adjust the delivery temperature.

ARCA declines any responsibility for any inaccuracies that may be contained herein, if due to transcription or printing errors. It also reserves the right to perform modifications on its products as deemed necessary or useful, without affecting their basic features.

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TECNOLOGIE PER L'AMBIENTE

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