

# PelleTech® AERO HOT AIR GENERATORS

*Think  
Green*



150 kW  
200 kW  
350 kW  
500 kW



*Biomass hot air generators*  
[www.caminodesign.gr](http://www.caminodesign.gr)

# Welcome to our world

OUR LONG EXPERIENCE IN COMBINATION WITH OUR LOVE FOR FIRE AND BIOMASS HEATING HAVE LEAD US TO CREATE FLEXIBLE AND ENERGY EFFICIENT BOILERS WITH HIGH STANDARD OPERATING DEVICES, GREAT PERFORMANCE, SECURITY AND ALWAYS FRIENDLY FOR THE ENVIRONMENT.

## THE COMPANY

For more than 40 years, Camino Design Company, a family business has been committed to generating heat conveniently, economically, with environmental responsibility and in accordance with demand.

With a large variety of outstanding product developments and problem-solving solutions, Camino Design has created milestones which have frequently made them the trailblazer and trendsetter for their entire industry.

Camino Design's orientation is decidedly international as it exports in European countries.



# 40 YEARS OF EXPERIENCE

- ENVIRONMENTALLY FRIENDLY  
HEATING SYSTEMS

- MAXIMUM EASE TO USE

- MAXIMUM REDUCTION  
OF HEATING COSTS



## PAGE

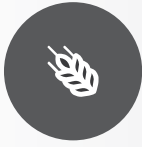
### *Introduction*

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### *Hot Air Generators*

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## What is **Biomass Pellets** and **Woodchips** ?



agricultural crops  
& residue



animal  
residues



municipal  
solid waste



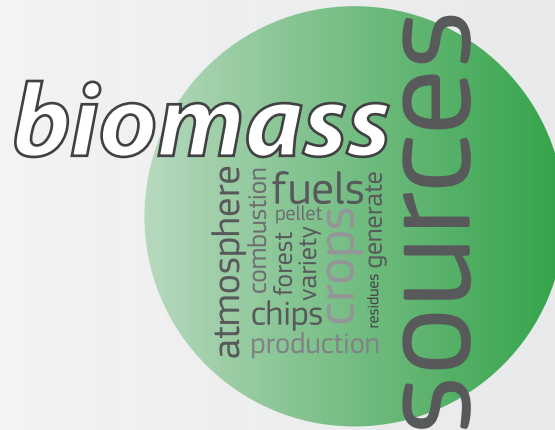
sewage



industrial  
residues



forestry crops  
& residue



**Biomass pellets and Wood chips are eco-friendly fuels that make economic sense to owners to the local economy and to the environment. The most important is the systems that burn the biomass fuels must be reliable and trouble-free.**

Camino Design policy is to study and manufacture its products through the state of the art techniques and always in accordance with the current European directives and laws.

- By keeping biomass systems running at top efficiency, our aim is to right size them, instead of over sizing.
- We are creating your energy demand-profile, so we provide you the right option for the right use.
- We calculate your system's efficiency based on real-world use, according to your needs
- We use the best and well known parts for manufacturing our products, and we warrantee the trouble free operation for long life time
- We ensure the maximum safety of our products, by applying the strictest testing standards always in accordance with the latest directives.

## INDUSTRIAL HEATING

The PelleTech Aero hot air generators are ideally designed for the demanding needs of the Industrial heating on a stable, efficient and cost effective basis.



## GREEN HOUSES

The need of cheap and environment friendly heating in the plantations has caused more and more commercial greenhouse growers to switch their oil and propane powered boilers to biomass systems. The factors that are leading to such changes are simple: in areas where natural gas is not accessible, the options of oil, propane or electricity to heat a commercial greenhouse are becoming far too expensive, in some cases there is a biomass supply close to the greenhouse location, and there has been growing government incentive toward sustainability.



## POULTRY INDUSTRIAL HEATING

By converting the classic oil fired heating systems to a biomass heating system can provide a cost effective, low carbon alternative to gas solution. Because biomass heating generates less moisture, the chicken litter is kept drier, reducing ammonia levels, boosting growth and improving bird welfare. With biomass fuel costing considerably less than fossil fuels, installing a PelleTech Aero biomass heating system can significantly reduce production costs.



## DRYING FACILITIES

The PelleTech Aero range of fuel efficient continuous flow driers can process any material drying. Many industries from the agricultural, drying, waste to energy and other sectors already successfully using the PelleTech products on a wide variety of drying crops and seeds. These include woodchip, grain and many others.



## HOTELS AND ACCOMMODATION HEATING

Through the rising of the oil and gas fuel prices for heating and increasing the environmental responsibilities, the ideal alternative solution is to change to a biomass system from the PelleTech Industrial products range. Our range of automatic industrial boilers can significantly reduce the fuel bills; whilst providing your guests with reliable heating and hot water on demand.





# PelleTech® AERO

## MODULAR BIOMASS HOT AIR GENERATORS



*Integrated hot air production systems*

- ✓ RAPID AIR WARMING
- ✓ AUTOMATIC IGNITION
- ✓ EASY MAINTENANCE
- ✓ HIGH EFFICIENCY

# PelleTech® AERO



110 KW

## CAMINO DESIGN INTRODUCES PELLETECH AERO MODULAR BIOMASS HOT AIR GENERATORS

THE 60 KW AND 110 KW BIOMASS HOT AIR GENERATOR SYSTEM IS THE NEW ADDITION TO CAMINO DESIGN'S EXTENSIVE BIOMASS HEATING PRODUCT RANGE AND IS SET TO REVOLUTIONIZE THE INDUSTRY. FROM LARGE TO SMALL FACILITIES, THE BIOMASS HOT AIR GENERATOR SYSTEM PROVIDES LARGE VOLUME SPACES OF HEATING AND AIR BLOWER COMBINATION. DESIGNED WITH EFFICIENCY IN MIND, THIS UNIQUE ENVIRONMENTALLY FRIENDLY HEATING SYSTEM IS EXTREMELY QUICK AND EASY TO INSTALL WITH MINIMAL DISRUPTION TO A BUSINESS PREMISES. RELIABLE, RENEWABLE AND COMPETITIVELY PRICED, THE BIOMASS HOT AIR GENERATOR SYSTEM COMES READY WITH A RELIABLE HEAT EXCHANGER. IT IS VERSATILE TOO, WHICH MEANS THAT YOU HAVE A CHOICE OF PLACES ON WHERE TO SITE IT WITHIN YOUR PREMISES. THE SYSTEM BENEFITS FROM LOW NOISE OUTPUT, LOW OPERATIONAL COSTS AND CAN ALSO BE PROGRAMMED FOR MANY DAYS, GIVING YOU PEACE OF MIND ON HOW IT'S WORKING WITHIN YOUR PREMISES WHEN YOU ARE NOT PRESENT.





60 kW

## Benefits at a glance:

1

The cost of the extracted heat from biomass pellets is significantly lower than that of the fossil fuels (Oil, LPG, Electricity, etc.)

2

Automatic ash cleaning system, which removes the ash residue of the burner's grate

3

Automatic operation of the generator - adjustment from room thermostat (also week programmable thermostat) which allows maximum thermal comfort and economic fuel consumption rate

4

Adjustment of the operating thermal capacity in wide range

5

Automatic fuel feeding system. Self developed patented useful model of the fuel dosing module which eliminates the "back fire" process and self-ignition of the fuel in the hopper

6

Microprocessor module, which controls the boiler and has interface display for easy adjustment by the end user

7

Option to charge the daily hopper with fuel, delivered by external transport auger

8

Electric motors with low power consumption and high torque manufactured by prestigious and certified European producers

9

Ecologic operation - the pollutant emissions are complying with the most strict European standards

10

Not pretentious to the quality of the utilized fuel

## THE PLUG & PLAY BIOMASS HOT AIR GENERATOR

WHY BURN MONEY ON AN INEFFICIENT HEATING SYSTEM WHEN YOU CAN IMPROVE YOUR BOTTOM LINE AND EARN REVENUE FROM A RELIABLE, RENEWABLE HEATING SOLUTION ?

### BENEFIT FROM MODULARITY

PelleTech 60/110 Aero Hot Air Generators modular design allows for rapid deployment, assembly, scalability, and efficiency to meet expanding energy needs. Modularity enables you to increase your energy output by adding more units. The unit's intelligent engineering, highly automated processes, and small footprint enable seamless integration into existing physical plant or single site operations.

### FUEL HANDLING MADE SIMPLE

The proprietary fuel feeding system is comprised of an integrated fuel silo for surge fuel feeding and an internal feeding device (complete with a reduction gear, variable speed motor and an automated supply system equipped with a safety device which maintains the continuous seal between the stocking device and the fuel line and prevents the back flow in the fuel line and the fuel tank (Back burn Protection Starvalves System, BPS) controlled by a central panel for complete fuel flow and combustion modulation control.

### HIGH EFFICIENCY, LOW MAINTENANCE

The PelleTech 60/110 Aero Series hot air generators feature an integrated indirect hot gas to the heated air heat exchanger which maintains maximum thermal efficiency. These features allow the generator to be operated for longer periods of time between cleaning, maximizing plant uptime and minimizing scheduled maintenance downtime.

They are ideally suited to reduce energy costs in industrial and domestic applications. Based on a technology developed over 40 years ago by Camino Design, an ISO 9001 company, the PelleTech Aero 60/110 Series are biomass generators which provide a steady flow of hot air for space heating. These compact units are ideal for recurring space heating situations as well as small drying requirements. Their high-performance operates on solid fuels, such as wood pellets, Pellets O-Norm M7135, Pellets EN 14961 A1, Pellets DIN plus, Pellets DIN 51731, artichoke pellets, Corn, Olive kernel or other biomass material with the appropriate bulk and humidity, while allowing continuous control of temperature and humidity, providing quick response time of the thermal delivery.

The low grate temperature of the combustion system was designed to minimize clinkering by ensuring that the fuel and ash remain below fusion temperatures. A large, cast iron lining of the combustion chamber allows for efficient transfer of heat to the air. Primary and secondary, air offers complete control of combustion modulation.

The PelleTech 60/110 Aero Hot Air Generators design is a feat of engineering that is over 40 years in the making. Many generations of product design and improvement have resulted in a highly automated, efficient, and user-friendly system that makes operating a biomass boiler nearly as simple as running a traditionally fueled system.

Smoke collectors with doors for cleaning and inspection allow easy access and maintenance of the unit, with quick reach of the thermal delivery system.

Quick access doors allow for easy inspection and maintenance of the heat exchanger, increasing uptime and reliability of the unit.

## PELLETECH AERO 60/110 kW

can burn Wood pellets and all Biomass products (such as kernels, Olive kernels, sunflower/artichoke pellets and types of agricultural residues, up to 30% humidity)

*biomass* products

Olive kernels



Pellets



*fuel*



### EASY2APP

Powerful webapp customizable, compatible with all smartphone platforms including iOS , Android , Windows . Through Easy2App you can control, remotely, with smartphone the basic functions of all the control board of the boiler's functions

### EASY2CLOUD

Management web , accessible from any browser or tablet. Allows you to control and monitor in real time across multiple plants . Along with other features such as, customer registration, calendar events , logger , integrated chat is an effective tool for remote assistance.



### GSM MODEM

The boiler can be also managed with the use of a mobile phone. The mode must be connected to the RS232 port, with the use of the appropriate wires and connections. The user has to insert a SIM card into the modem from any card phone company.



### EASY TOUCH

- ✓ EasyTouch Control Board
- ✓ Colour screen TFT
- ✓ Touch friendly user interface, simple and intuitive
- ✓ RS232 and RS485 interfaces for communication and update management
- ✓ SD card expansion memory support
- ✓ Ethernet peripheral device for LAN connection
- ✓ In-box and on-board installation

*optional  
equipment*

## AUTOMATION & CLOSED CONTROLS

PELLETECH 60/110 AERO SYSTEMS HAVE A DIGITAL CONTROLLER FOR SETTING TEMPERATURE, FEED CYCLE, AUTO IGNITION, FLAME RETENTION MODE ETC. THUS, THESE MACHINE SYSTEMS REQUIRE MINIMUM MANUAL INTERVENTION AND PROVIDE EASE OF OPERATION



### 1. SMOKE COLLECTORS

Smoke collectors with doors for cleaning and inspection allow easy access and maintenance of the unit, with quick reach of the thermal delivery system

### 2. ACCESS DOORS

Quick access doors allow for easy inspection of the combustion chamber, increasing the uptime and reliability of the unit. The combustion chamber as well as heat exchanger can be easily opened for routine inspection and maintenance by simply opening the doors

### AUTO IGNITION

Being solid fuel, PelleTech 60/110 Aero has developed an auto ignition system which doesn't require any manual support. The system has controls for initial fuel feed as well as ignition time setting and can provide continuous feedback to main controls on the status of flame for making the machine operational



### 3. BOILER WHEEL BEARING SYSTEM

The hot air generator provides full flexibility in movement as it can be installed at any place with the wheel bearing system

### 4. EXHAUST & EXHAUST TEMPERATURE

This design has an electronically controlled flue gas fan with speed sensor (hall sensor) for the correct adjustment of the intensity of combustion and exhaust through the chimney preventing the accumulation of smut and the unwanted blockage in the heat exchanger. It is installed at the exhaust to remove the fuel gases and also to prevent generation of undue pressure inside the machine

An exhaust temperature sensor connected to the main control ensures additional protection & safety



## 5. LONG LASTING AUTONOMY

The PelleTech 60/110 Hot air generators are equipped with two (2) integrated fuel storage hoppers, a fact which gives to the generators the benefit of the long lasting autonomy and the uninterrupted fuel supply. The Lower hopper has a capacity of 203 kg of pellets and with the assistance of a mechanical fuel transferring system (composed by a motor of low power consumption and an auger), feeds the upper hopper (capacity of 23 kg). The feeding mechanism is actuated when the upper fuel's chamber level reaches the 30% of its capacity

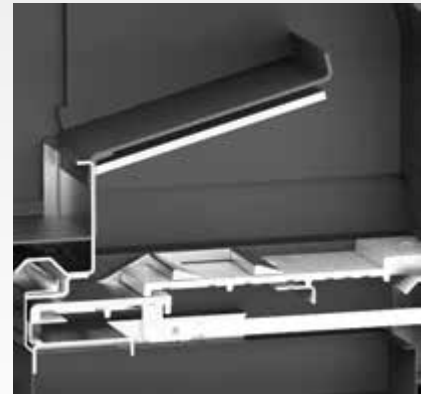
## 6. DESIGN

The horizontal transverse fire tube structure provides best thermal efficiency, fast heating and ease of maintenance as against the old traditional design having less efficiency, difficult maintenance and shorter product life



## 7. COMBUSTION SYSTEM

The low grate temperature of the combustion system was designed to minimize clinkering by ensuring that the fuel and ash remain below fusion temperatures



## FEATURES

### ADVANCED TECHNOLOGY AND HIGH EFFICIENCY OF ENERGY-SAVING

Thermal efficiency is more than 90%. The Hot Air Generator adopts the matured cold air pressure technology, with high-level thermo stability and acid-proof materials, which apply to various industries

### HEAT-RESISTING MATERIAL

The temperature inside of the combustion chamber is very high, which is requested to use the high temperature resistant materials. A high-temperature resistant lining of cast iron material is in the chamber

### FULLY AUTOMATIC SYSTEM

The biomass hot Air Generator is equipped with microcomputer control system, automatic ignition system, automatic feeding system and automatic temperature control. Professional worker is needn't. Just refuel 1-2 times a day

### ENVIRONMENTAL PROTECTION

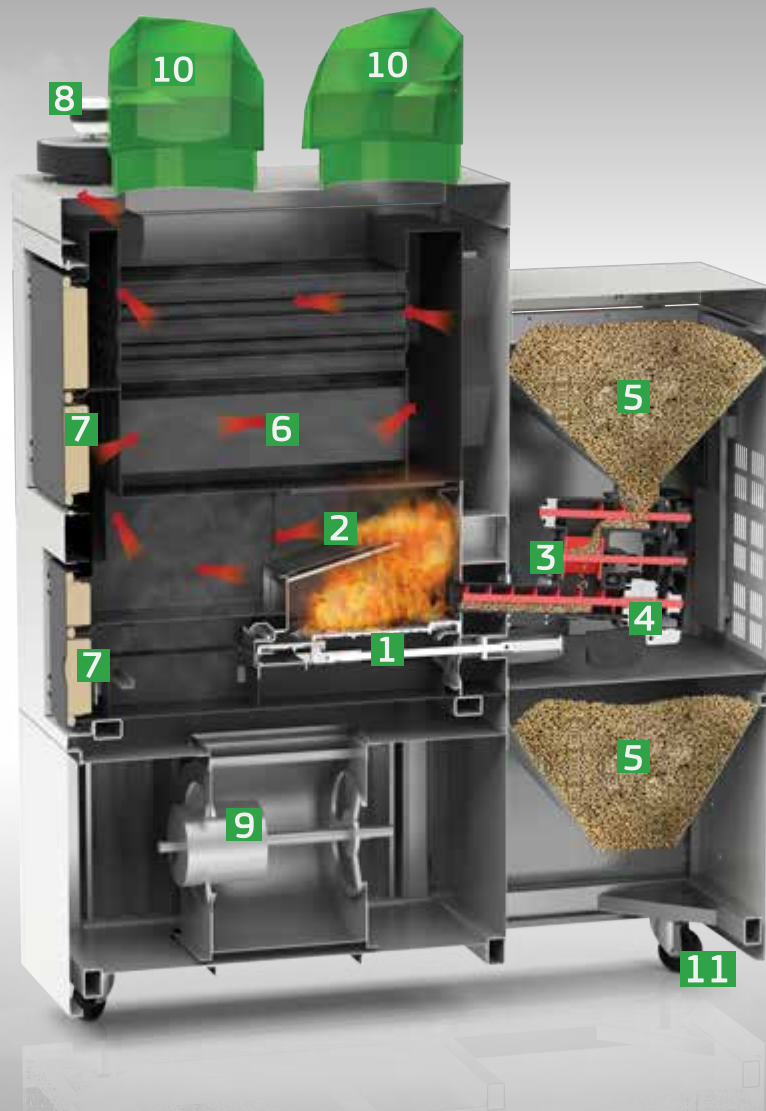
The PelleTech 60/110 Aero hot air generator main use all kinds of biomass fuels, which is environmental friendly. Biomass fuel is renewable energy and widespread

### IGNITION SYSTEM

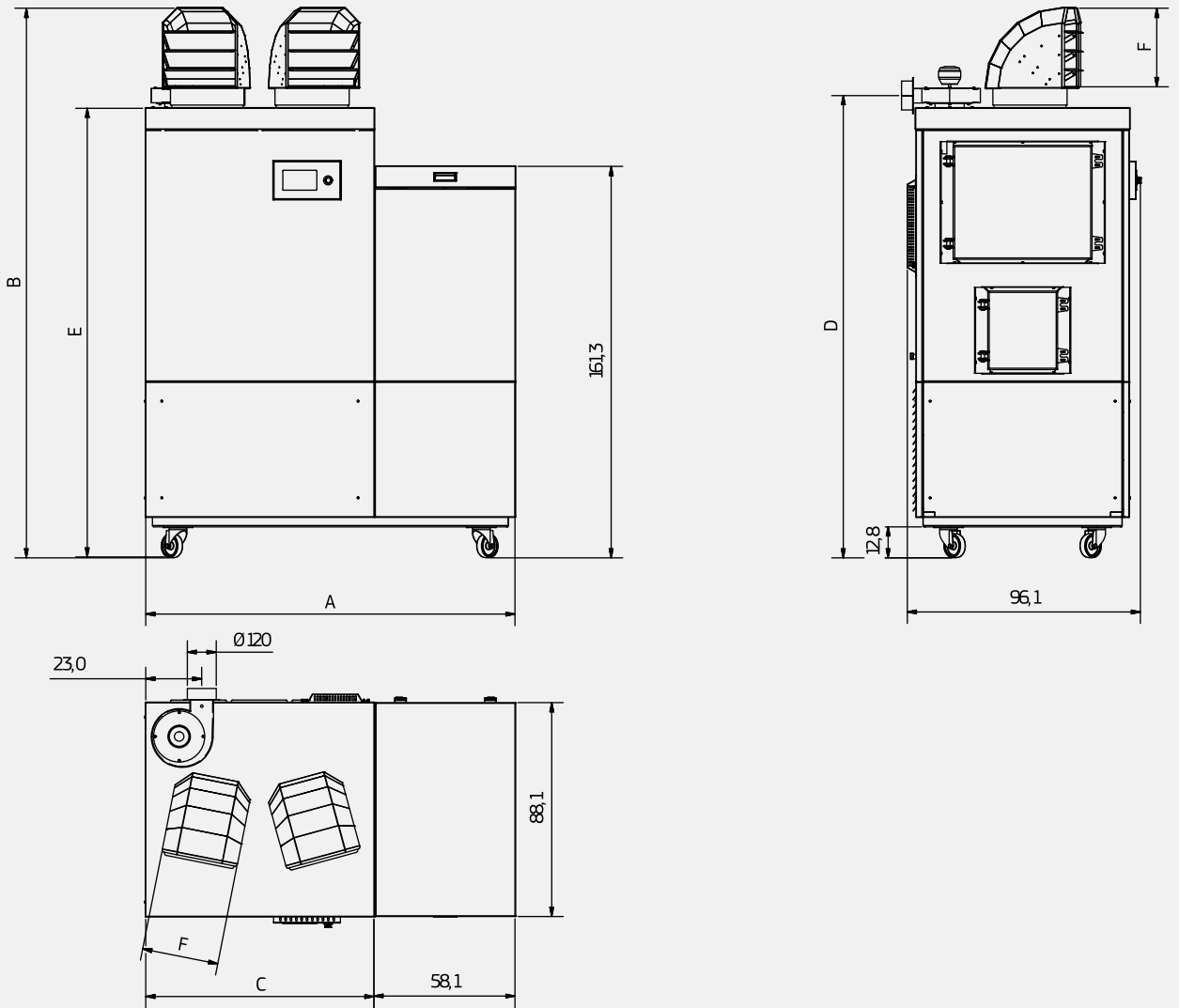
2 years of trouble-free system, protect your hot air generator in operation. The specially designed back burning fire protection system to ensure the generator not to be shut down under constant electric power

### ESPECIALLY APPLY TO GREENHOUSE

The released CO<sub>2</sub> gas when boiler combusting not only can get rid of excess moisture inside the green, but also help plants for photosynthesis.

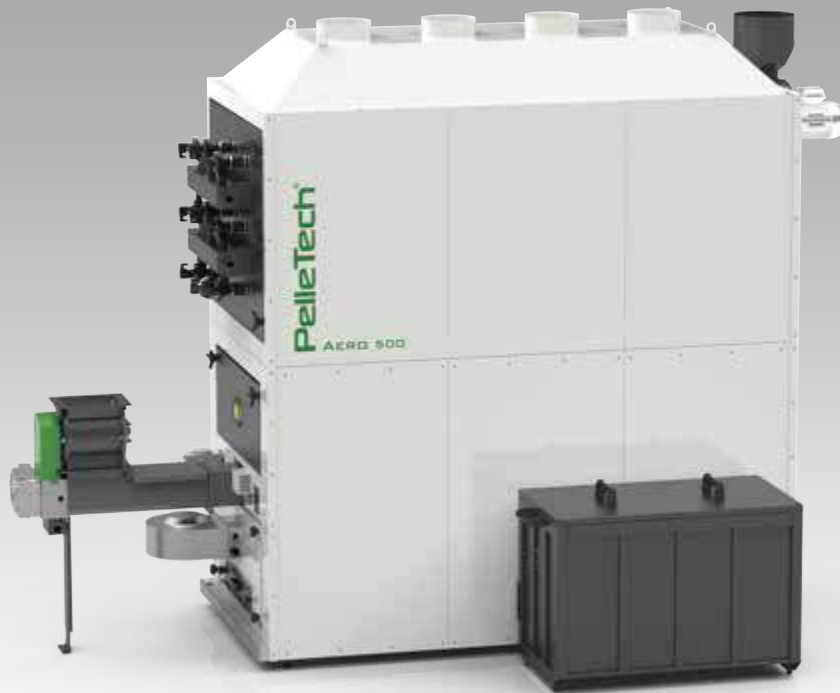


- 1** Patented combustion system of a moving grate made of high quality cast iron (GG-20) and scrapping/stirring mechanism for the complete incineration of the fuel and successfully ash residues removal
- 2** Bimetallic combustion chamber made of stainless steel AISI 304 coated with cast iron plates at the points of contact of the flame with the walls that ensures very high resistance to chemical processes and temperatures developed in the combustion chamber.
- 3** Automated supply system equipped with a safety device which maintains the continuous seal between the stocking device and the fuel line and prevents the back flow in the fuel line and the fuel tank (Back burn Protection Starvalves System, BPS).
- 4** New generation dual fuel feed engines, with high performance and very low power consumption which complying with all the European directives.
- 5** Large capacity fuel chambers of 27 kg (the primary on the upper part) and 203 kg (the secondary, on the lower part), which ensure huge fuel autonomy.
- 6** Hot air heat exchanger with steel tubes of dual route and dense braid for maximum heat absorption.
- 7** Quick access doors allow for easy inspection of the combustion chamber, increasing the uptime and reliability of the unit. The combustion chamber as well as heat exchanger can be easily opened for routine inspection and maintenance by simply opening the doors.
- 8** Electronically controlled flue gas fan with speed sensor (hall sensor) for the correct adjustment of the intensity of combustion and exhaust through the chimney preventing the accumulation of smut and the unwanted blockage in the heat exchanger.
- 9** Single centrifugal fan air supply of 5.500 m<sup>3</sup>/h
- 10** Hot air outlet adjustable grilles with the option of magnitude and direction of air flow
- 11** Boiler wheel bearing system which gives flexibility to the hot air generator to be installed at any point



| Rated Output Range        | Kw                | 60                | 110               |
|---------------------------|-------------------|-------------------|-------------------|
| <b>Dimensions</b>         |                   |                   |                   |
| Heat Output               | kcal/h-kW         | 52.000            | 95.000            |
| Nominal Electric Power    | kW                | 0,63              | 1,15              |
| Hot Air Supply            | m <sup>3</sup> /h | 5.000             | 8.000             |
| Flue Gas Exit             | mm                | 120               | 150               |
| Weight                    | Kg                | 388               | 528               |
| Motor Voltage             | V, Hz, Phase      | 230, 50-60 single | 230, 50-60 single |
| Dimensions A              |                   | 152,1             | 172,1             |
| B                         | cm                | 226,4             | 246,4             |
| C                         |                   | 94                | 104               |
| D                         |                   | 190,4             | 211,4             |
| E                         |                   | 184,9             | 204,9             |
| Hot Air Supply Dimensions | cm                | 31,5 X 32,3       | 33,6 X 35,2       |

# PelleTech® AERO



500 kW

## CAMINODESIGN INTRODUCES PELLETECH AERO HOT AIR GENERATORS WITH MOVING GRATE TECHNOLOGY

PELLETECH AERO HOT AIR GENERATOR HAS BEEN MANUFACTURED BY THE NEEDS OF OUR CUSTOMERS. THE COMBUSTION GRATE HAS BEEN SPECIALLY DEVELOPED FOR THE AUTOMATIC COMBUSTION OF DRY AND MOIST WOOD FUELS (WASTE WOOD, WOOD PELLETS OR WOODCHIPS FROM FOREST THINNING UP TO MAX. W30). IT COMBINES THE BENEFITS OF UNDERFEED COMBUSTION WITH THE ADVANTAGES OF GRATE COMBUSTION TO OPTIMUM EFFECT. PELLETECH AERO GRATE COMBUSTION IS PARTICULARLY IMPRESSIVE THANKS TO ITS MAXIMUM EFFICIENCY AND PERFECT COMBUSTION IN ALL LOAD STAGES. THE HORIZONTAL HEAT EXCHANGER WITH PNEUMATIC CLEANING (OPTIONAL) IS IDEAL FOR THE USE OF FUELS WITH A HIGH MOISTURE PERCENTAGE. THE ASH IS REMOVED AUTOMATICALLY FROM THE COMBUSTION BASE AND TRANSPORTED INTO A STANDARD CONTAINER. EFFICIENCY OF OVER 90 % ENABLES MAXIMUM SEASONAL EFFICIENCY IN MODULATING OPERATING MODE. THE USE OF A PELLETECH AERO 200 GRATE COMBUSTION AS A BASE LOAD BOILER IS PRACTICAL IN TERMS OF A BUILDING HEAT LOAD OF 200 KW. PELLETECH AERO GRATE COMBUSTION IS TESTED AND PERMISSIBLE TO EN 303-5. IT IS PRODUCED IN ACCORDANCE WITH THE MACHINERY DIRECTIVE AND HAS A CE DESIGNATION.

The PelleTech Aero Hot air generators series are complete automatic biomass boilers with a maximum water content of W50. The well engineered combustion chamber enables an optimized utilization of the flue gases (produced through the combustion process) with minimum particle and CO<sub>2</sub> gas emissions at all power levels. The boiler is intended for use as a basic load industrial boiler and it is characterized by a high control performance.

The boiler's efficiency of 90% and its excellent combustion values form the initial to the highest power level making the Aero series an incomparable Industrial boiler.





AVAILABLE VERSIONS: 150, 200, 350, 500 kW

### Benefits at a glance:

**1** Variable power depending on site conditions and the option of memorizing and selecting combustion parameters according to the type of fuel

**2** Innovative burner system with seven levels of moving grate, which allows the combustion, even of increased humidity, biomass up to 50%

**3** Large modulation range

**4** Automatic cleaning of the heating surfaces and the heat exchanger for long uninterrupted operation

**5** Well designed and engineered induced draught fan for quiet operation and long service life

**6** Optimized combustion due to well studied and manufactured combustion chamber which enables low emissions. The additional secondary air supply enables a complete combustion comparable to the oil-fired boilers

**7** Constant displacement, scraping, full oxygenation and excellent combustion of all biomass types

**8** Very high efficiency due to the fully controlled combustion conditions through the control and enchantment of the combustion by the lambda sensor

**9** Fully automatic operation with auto ignition, cleaning cycles and ash extraction, with notification of boiler condition

**10** Safe and in accordance with all the latest European standards

**11** Stable operation that ensures optimum heating conditions

**12** Separate dual air supply to main and the secondary combustion, for optimum combustion and proper exploitation of biofuel without any losses

**13** Easy to install and operate with minimum maintenance cost

**14** Combustion chamber made from heavy type cast steel coated with refractory concrete, with long service life time



PelleTech Aero pellet and wood chip hot air generators from Camino Design set new standards regarding convenience, efficiency and safety of heating with Biomass fuels. Plenty of experience and the know-how of one of the experienced manufacturers of heating technology in Greece have benefitted the Industrial and manufacture of the PelleTech Aero series.

## INNOVATION

With its many technical innovations, the PelleTech Aero series truly set new benchmarks: They are offering efficiencies of up to 90% across its entire modulation range and low flue gas temperatures of just about 150°C, making it one of the top products on the market.

Retention time is an extremely important factor of combustion that is often overlooked in a quality combustion system, and true complete combustion requires this to be considered. Our secondary chamber is

designed for each job in order to ensure ideal combustion.

The result is lower emissions, maximized energy transfer, and total utilization of the potential energy available in your fuel.



The PelleTech moving grate burner is the most effective design for complete combustion of waste materials with low heating value, high moisture content, and high ash content. Our design allows for finite combustion control, minimizing emissions and utilizing a large range of different waste fuels, with varying characteristics (i.e. chemical composition, fuel size, and moisture content).

### **BURNER FOR HIGH HUMIDITY CONTENT FUELS (40-50%)**

Used largely in the wood products industry, where higher moisture content fuels such as hogged bark and green wood chips are available. The reciprocating grate achieves gasification through the staged combustion of wet fuel. The moving grate is divided into multiple sections allowing varying speeds, and also controlled underfire air zones resulting in a more complete combustion of your fuel.

Depending on the moisture content of the fuel, the grate reacts to obtain the maxi-

mum energy amount from the fuel. This prevents the over burning of dry fuel and the under utilization of wetter fuels by altering the amount of time the fuel spends on the grate.

## LOW POWER - HIGH TORQUE ELECTRIC MOTORS

THE ELECTRIC MOTORS THAT THE MULTIAUTO SERIES USING, PROVIDING HIGH TORQUE EFFICIENCY WHILE IN THE SAME TIME CONSUMING THE LESS POSSIBLE ELECTRICAL POWER. THE MULTIAUTO SERIES WAS DESIGNED TO OPERATE WITH THE FEWEST POSSIBLE POWER CONSUMING COMPONENTS TO KEEP POWER CONSUMPTION AS LOW AS POSSIBLE. THE BOILERS PEAK POWER CONSUMPTION IS ONLY UP TO 0,38 KW.



### 1. PNEUMATIC CLEANING SYSTEM (OPTIONAL)

A clean heat exchanger is crucial to the life expectancy and efficiency of a boiler. With short blasts of compressed air, the pneumatic pipe cleaning system regularly removes ash from the heat exchanger, thereby considerably prolonging the maintenance free operation of the boiler.



### 2. MOVING GRATE BURNER

Moving grate (also known as step-grate or inclined grate) is the most versatile (in terms of flexibility of fuel tolerance). Fuel is delivered onto a series of inclined or flat panels which move in a sequence so that the fuel travels slowly (shuffles) down the grate towards the far end of the combustion chamber. The fuel dries and then combusts as it moves down the grate (primary air is supplied under the grate). Gases are emitted, and char burns out. This sequenced combustion is one of the great strengths of the design: by tuning the grate speed, fuel feed and air supply, it is possible to burn a wide range of fuels of varying moisture content. The addition of the cast iron lining over the grate reflects heat back, encouraging drying and subsequent ignition, and thus permits the combustion of wet fuels – tolerating up to 30-35% moisture content. Once the biomass fuel has combusted, the remaining ash falls off the lower end of the grate, and is removed mechanically into the ash pan or ash bin.

- ✓ Wide tolerance of fuel type, moisture content (up to 30-35%), and particle size
- ✓ As a result of wide fuel tolerance, cheaper fuel may be procured, helping to offset higher capital cost
- ✓ Positive movement of fuel down grate avoids clinking and blockages
- ✓ Well-regimented combustion leads





### 3. AUTOMATIC EXHAUST AND COMBUSTION MONITORING VIA LAMBDA PROBE CONTROL

Due to the installed lambda probe, which continuously monitors the exhaust values and reacts to different fuel qualities, it is possible to always obtain perfect combustion and the lowest emission values

- ✓ The lambda probe corrects the necessary fuel quantity and secondary air, thereby guaranteeing the cleanest combustion, for partial load operation
- ✓ The result is low fuel consumption and the lowest possible emission values even when fuel quality varies



### 5. AUTOMATIC CONTROL

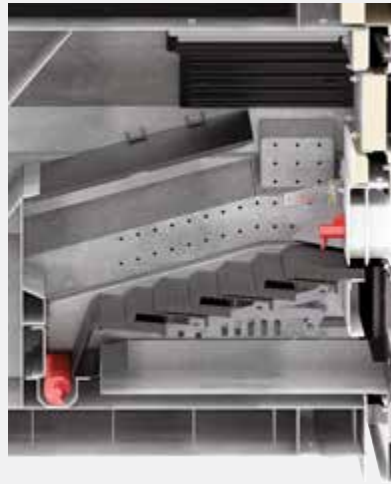
The control of the heating systems offers numerous advantages and facilitates the operation thanks to a simple screen design and a user-friendly menu

- ✓ The central control unit is fixed within the boiler frame reducing installation cost
- ✓ Furthermore, Control offers integrated hot air supply, as well as modular extension options in the form of insert cards for heating zones, buffer management, and solar circuit control

### ADDITIONAL SAFETY DEVICES

In addition to the listed safety devices, the PelleTech Aero hot air generators are also equipped with all safety devices as required by relevant safety standards.

- ✓ Back burning safety device
- ✓ Pressure and temperature sensor
- ✓ Limited safety temperature



### 4. COMBUSTION CHAMBER

Top quality construction for use under the toughest industrial conditions. The inside of the combustion chamber is fitted out with high quality cast iron for greater durability. All elements that are coming in contact with the flame inside the burner are made of high quality, thick walled iron and can withstand the highest temperatures.



### 6. HOT AIR IGNITER

For the successful ignition of all biomass products CaminoDesign recommends the use of the hot air ignition blower.

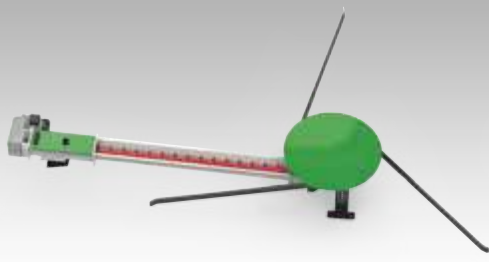
- ✓ Ignition energy saving
- ✓ Energy saving of over 88%
- ✓ Efficient Ignition Control
- ✓ Silent system
- ✓ Built in device for fast and safe ignition
- ✓ Operational safety thanks to electronic protection of the heating element
- ✓ Blower and heating element can be controlled separately
- ✓ According to European and Safety requirements

### 7. AUTOMATIC ASH REMOVAL (OPTIONAL)

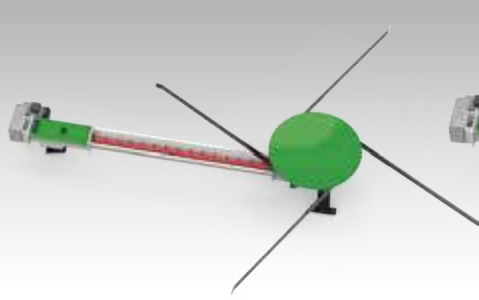
The clean combustion leaves only the minerals contained in the fuels behind as ash. A moving grate removes the ash from the combustion chamber and guides it into the ash container. As soon as they have cooled down, the ash removal conveyor moves the ash into a large external container.



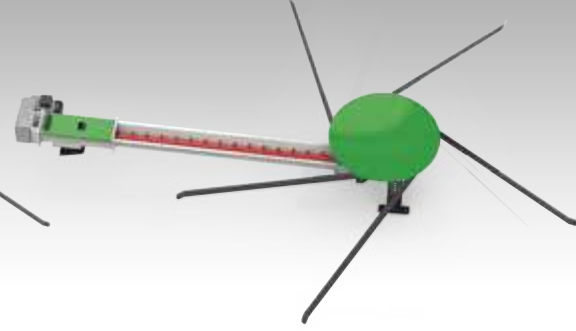
## 2. SPECIAL DISTRIBUTION OF THE SPRINGS - LEAF SPRING



3pcs for Ø3.0m Discharge circuit



4pcs for Ø4.0m Discharge circuit



5pcs for Ø5.0m Discharge circuit



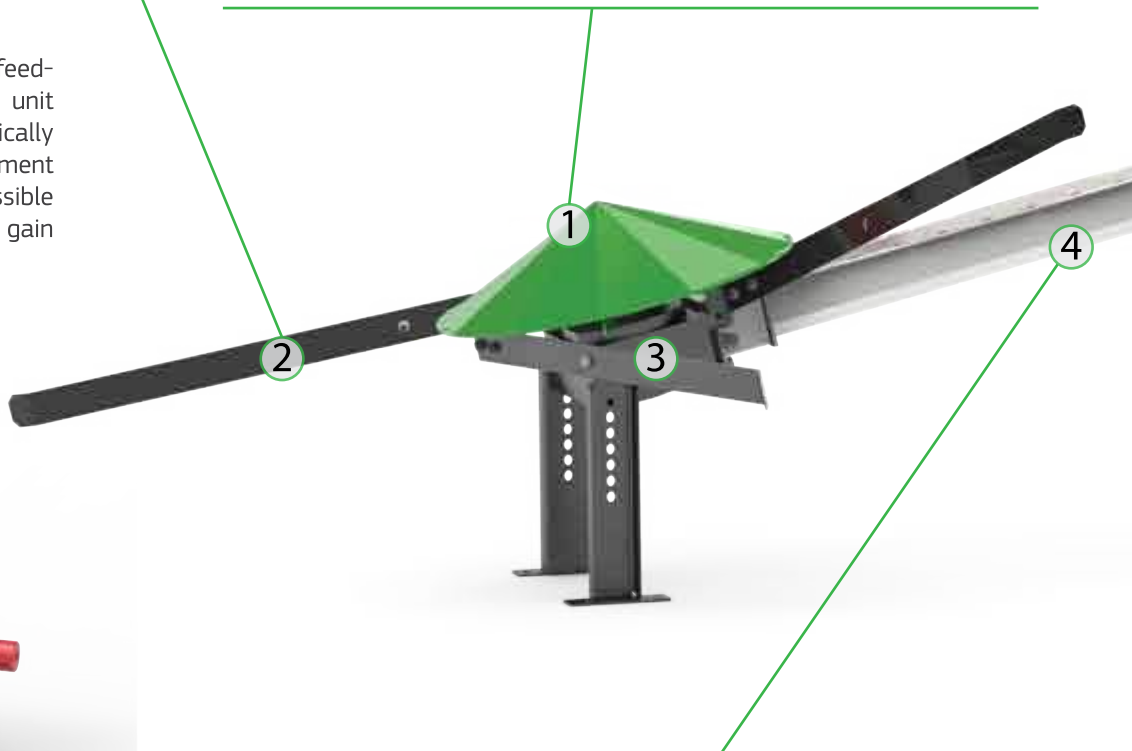
### LAMBDA SENSOR\*

The Lambda sensor provides feedback to the boilers control unit allowing the boiler to automatically alter the combustion environment to achieve the highest possible efficiency, and maximize the gain from the fuel.

*\* Optional equipment*

### 1. AGITATOR'S UPPER CONE

- ✓ the disk remains stationary until the springs are withdrawn
- ✓ decreasing the expenditure of forces due to the fuel's weight (woodchip)
- ✓ no training cavity - accumulation of fuel is prevented



### 6. SAFETY AGAINST BACK-BURNING

Automated supply system equipped with a safety device which maintains the continuous seal between the stocking device and the fuel line and prevents the back flow in the fuel line and the fuel tank (Back burn Protection Star valves System, BPS)



### 4. TROUGH SYSTEM

- ✓ special designed trough
- ✓ more material in the feeding auger
- ✓ no blocking malfunctions of the feeding system
- ✓ Extensions of the feeding trough from 400mm up to 4000mm





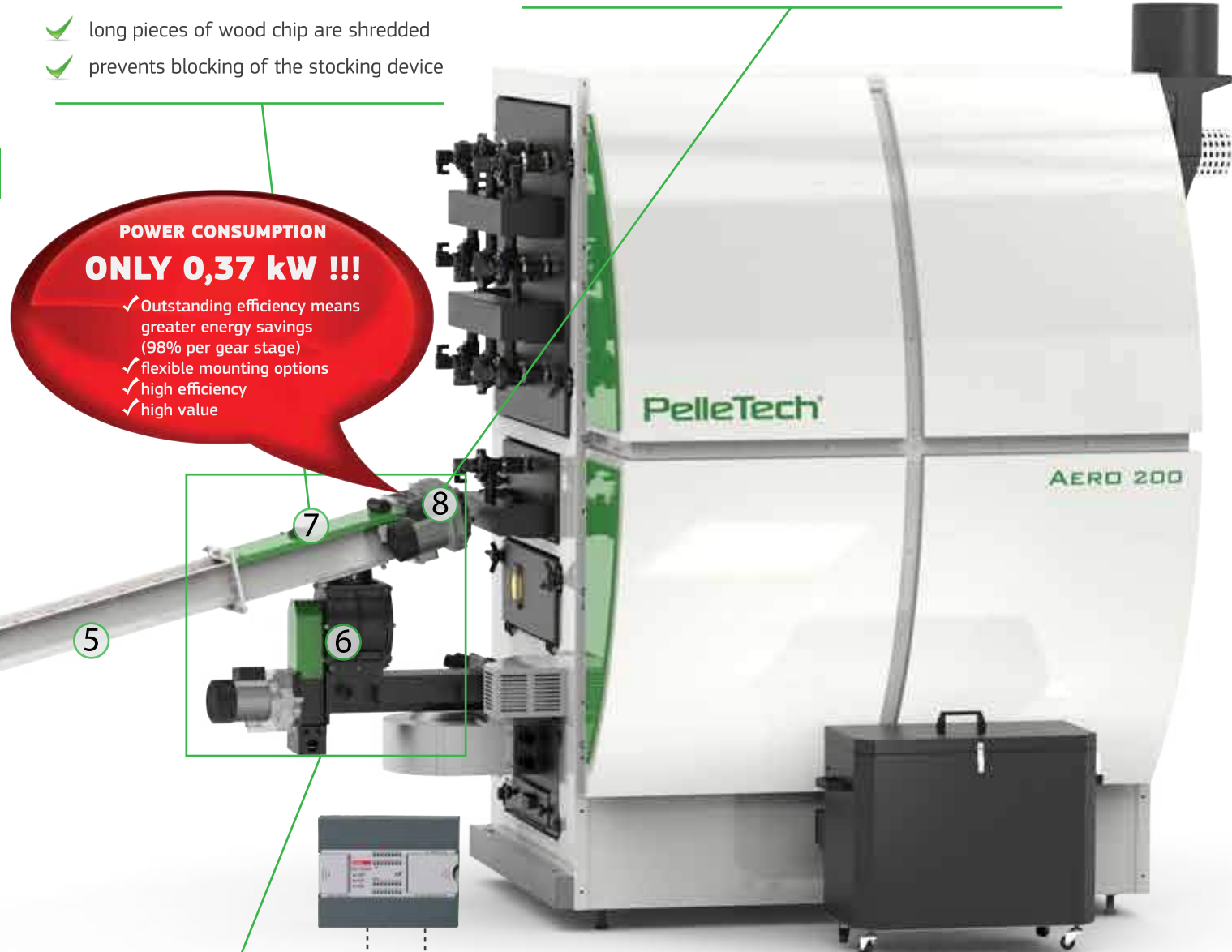
**7. CHOPPING BOX**

- ✓ long pieces of wood chip are shredded
- ✓ prevents blocking of the stocking device

**8. HIGH EFFICIENCY AND LOW POWER CONSUMPTION ELECTRIC MOTOR. THE PREMIUM HELICAL GEARING WITH GROUND GEAR TOOTH SIDE WALLS GUARANTIES MAXIMUM QUIETNESS AND PRECISE POWER TRANSMISSION**

**POWER CONSUMPTION ONLY 0,37 kW !!!**

- ✓ Outstanding efficiency means greater energy savings (98% per gear stage)
- ✓ flexible mounting options
- ✓ high efficiency
- ✓ high value



PelleTech

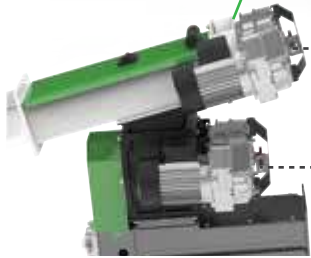
AERO 200

5

7

8

6



**High output torque of 2.000 Nm !!!**

**MOTION CONTROL SYSTEM**

Automation which monitors the feeding auger motion by preventing the feeding from inappropriate size of fuel

**5. FEEDING AUGER**

- ✓ no traffic jam of the material
- ✓ suitable for wood chips up to G50
- ✓ less expenditure of energy
- ✓ wear resistant



**3. AGITATOR GEARBOX**



- ✓ more than 10.000 hrs operation life
- ✓ massive construction system
- ✓ robust and long-live structure
- ✓ safe operation
- ✓ transmission ratio (i) – 15.6

# fuel handling systems

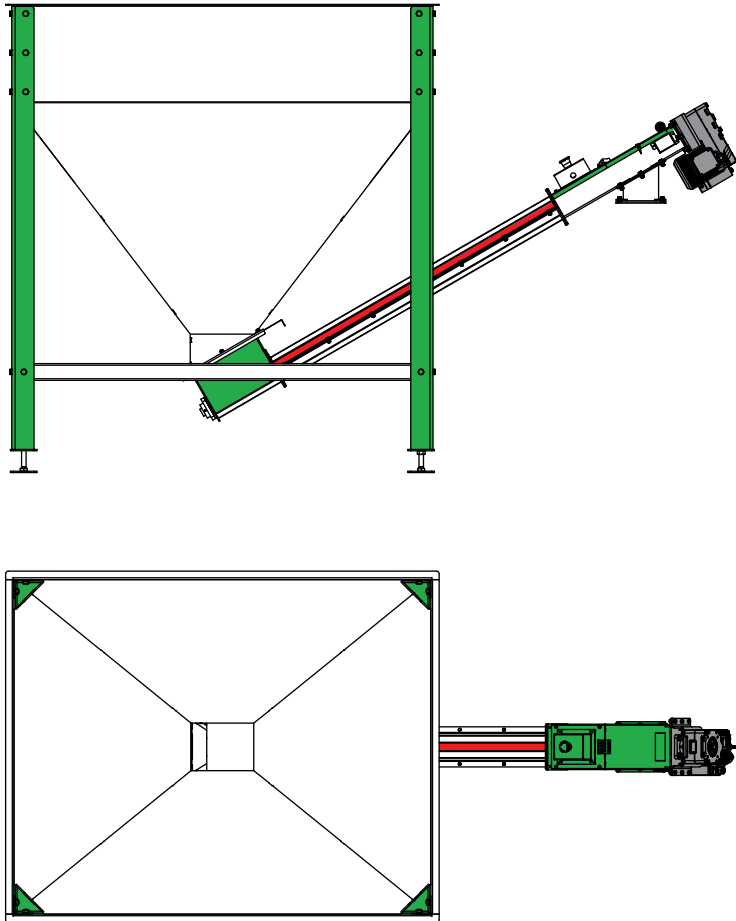
Based on the layout of the building, size of the fuel storage, boiler capacity and fuel type, we can provide custom tailored delivery systems, from spring steel blade (agitator) delivery to silo and moving floor delivery. Camino Design feeding systems are designed to be robust and solid. Moreover, they offer a hassle-free means of quietly and reliably supplying your system with fuel. Spring steel blade delivery systems, transport and meter fuel such as saw shavings, pellets and chips up to a size of G50 (medium coarseness from 30 to 50 mm).

A reliable fuel feed system is crucial to keep complete and thorough the combustion process. PelleTech Industrial boilers and hot air generators fuel feeding systems are flawless and steady, thus guarantee the best operation results.

Camino Design and its Industrial products, offers a complete fuel feed package to support your Boiler. Engineered to be as complete and turn-key as possible, the Silos, Agitators, Moving floors and customized feeding systems are designed to work specifically with the boilers or the Hot air generator to deliver exactly the amount of fuel required. This minimizes the waste of valuable fuel, along with ensuring that the energy needs of your plant are consistently met. In many plants, the fuel feed and combustion systems are engineered as separate packages, treating integration as an afterthought. This results in equipment wear and operation difficulties. PelleTech systems are unique and designed with the complete process in mind.

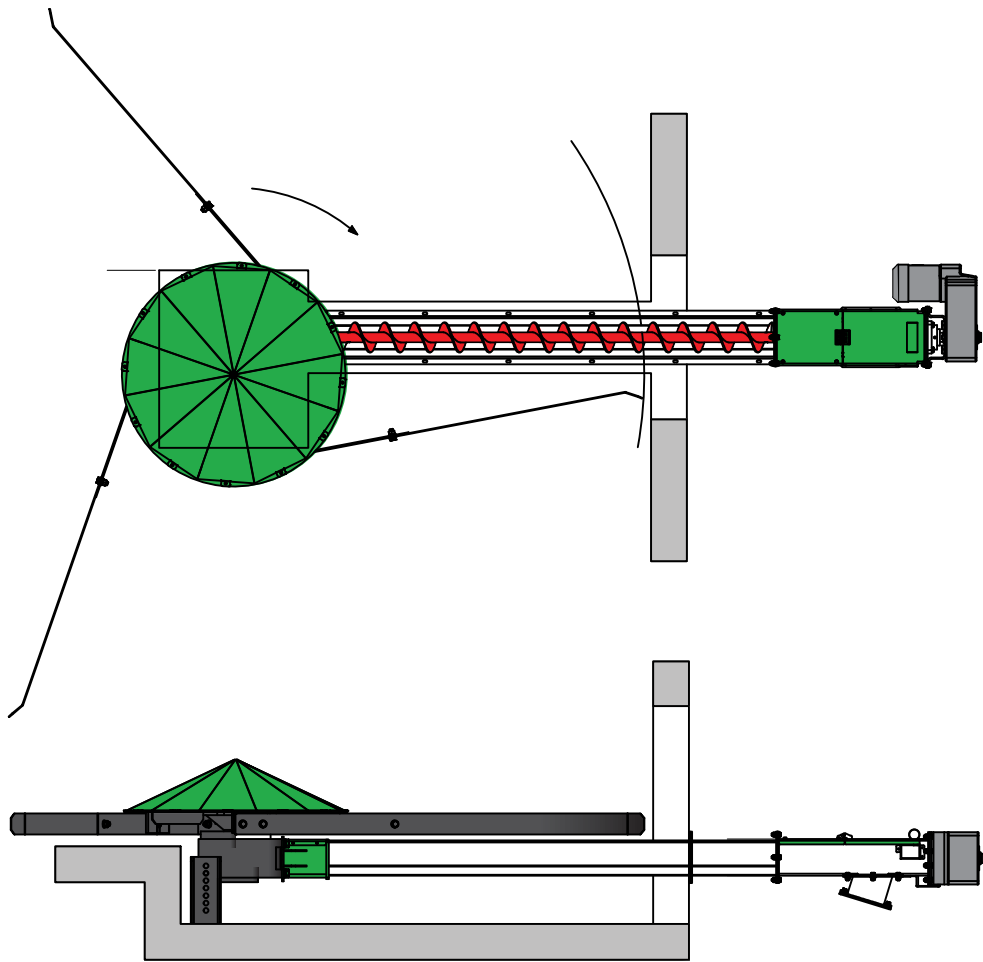






Pellet fuel is approximately three times the density of wood chips and is far easier to move from the fuel store to the boiler thanks to its flow characteristics. As such, incorporating a pellet store in to an existing or new building is relatively simple. In addition, a wide variety of existing outdoor and indoor agricultural silos and stores are suitable for use with wood pellets. At this point the similarity with the agricultural industry ends. Augers specifically designed to move wood pellets are carefully engineered to convey the fuel at a suitable speed (they are geared to match the boiler size they are serving). Many of the flexible auger products on the market are in fact agricultural products originally designed to transport other more free flowing substances such as grain at maximum speed. High rotational speed causes mechanical damage to pellets, which can result in excessive dust levels, and blocked augers. In general, flexible augers should only be specified for systems where the auger has a single gravity fed pick up point (eg. the outlet from a conical silo). For large boilers (>400kw), flexible augers are generally unsuitable due to the required torque. rigid augers such as those commonly used for transporting wood chips are a far more robust solution.



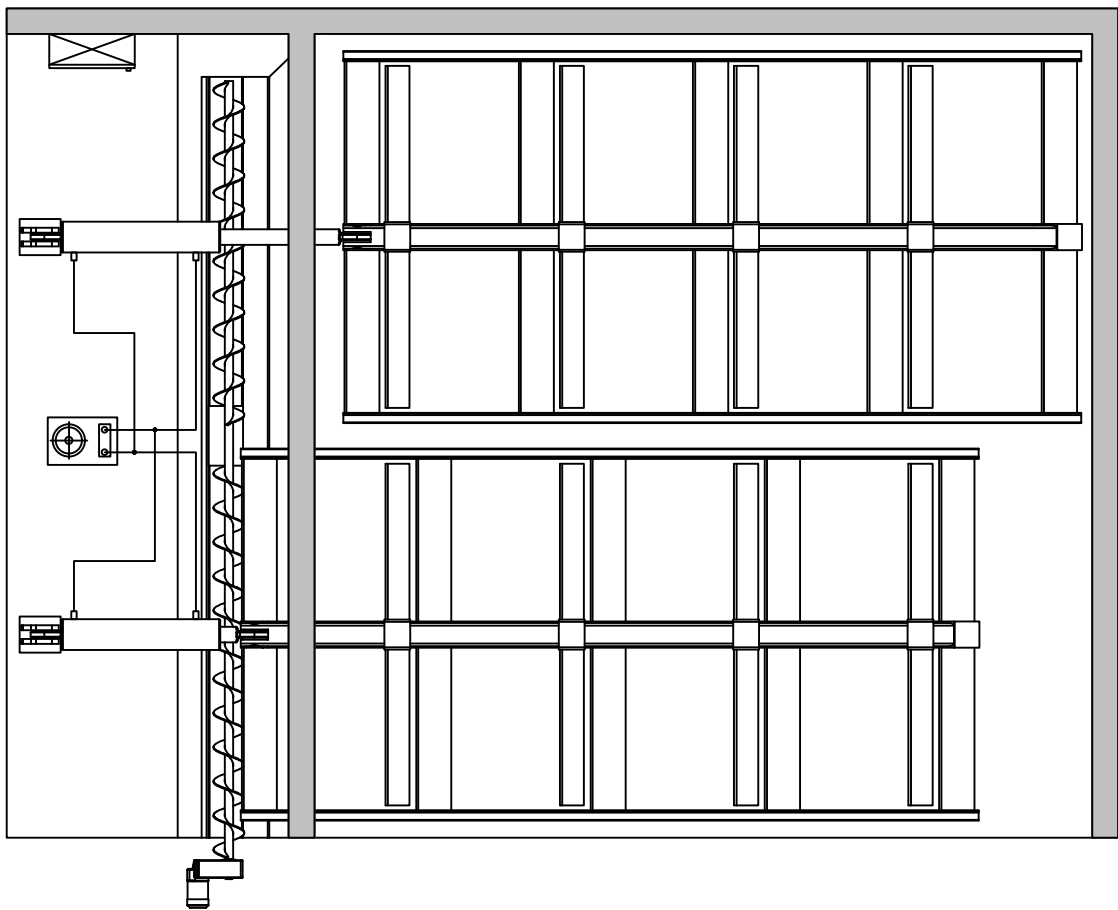
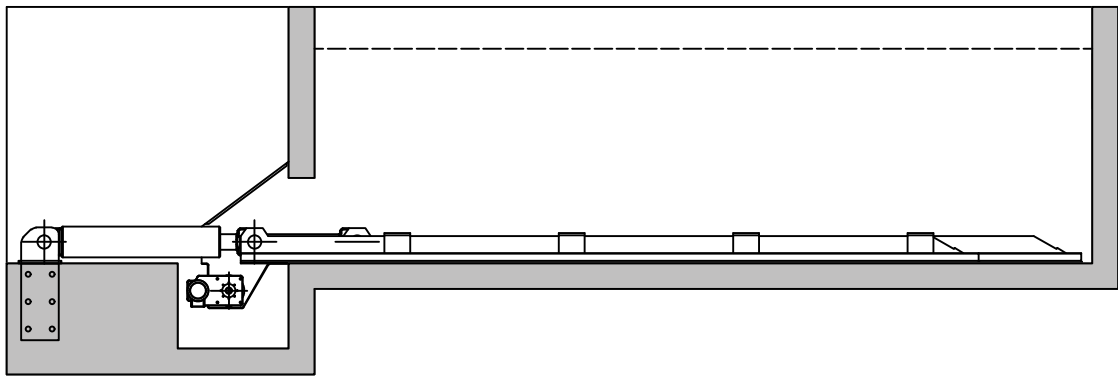


PelleTech agitator feeding system is designed to deliver biomass in the form of sawdust, wood chips, etc. from storage container to PelleTech Idro combustion systems without help of a transfer hopper.

Woodchips are very prone to 'bridging' augers, and they can form piles with vertical sides. Therefore, all wood chip feeding solutions require some form of mechanical agitation within the fuel store. If an auger is used without an agitating mechanism, the wood chips immediately around the auger will be successfully conveyed to the boiler, but new product will not fall into the auger. This process is known as 'bridging'. Propensity of a fuel towards bridging is a function of both moisture content and size specification of the fuel. For example, recycled fuels tend to be shredded rather than chipped - shredded fuels contain a high proportion of long splinter like pieces and therefore bridge far more than virgin round wood fuel produced with a chipper, which has on average a roughly square cross sectional area.

The simplest mechanical agitating mechanism is commonly known as a spring agitator, and consist of a pair of multi leafed sprung steel arms connected to a rotating disk with a 90 degree gearbox normally driven from the fuel extraction auger. As such, whenever the auger runs and starts to remove fuel, the sprung steel arms rotate over the auger and destroy the bridge. Various refinements exist, for example when using larger boilers (>400kw) it is normal for the spring agitator to have a separate drive shaft and motor to that of the feeding auger.

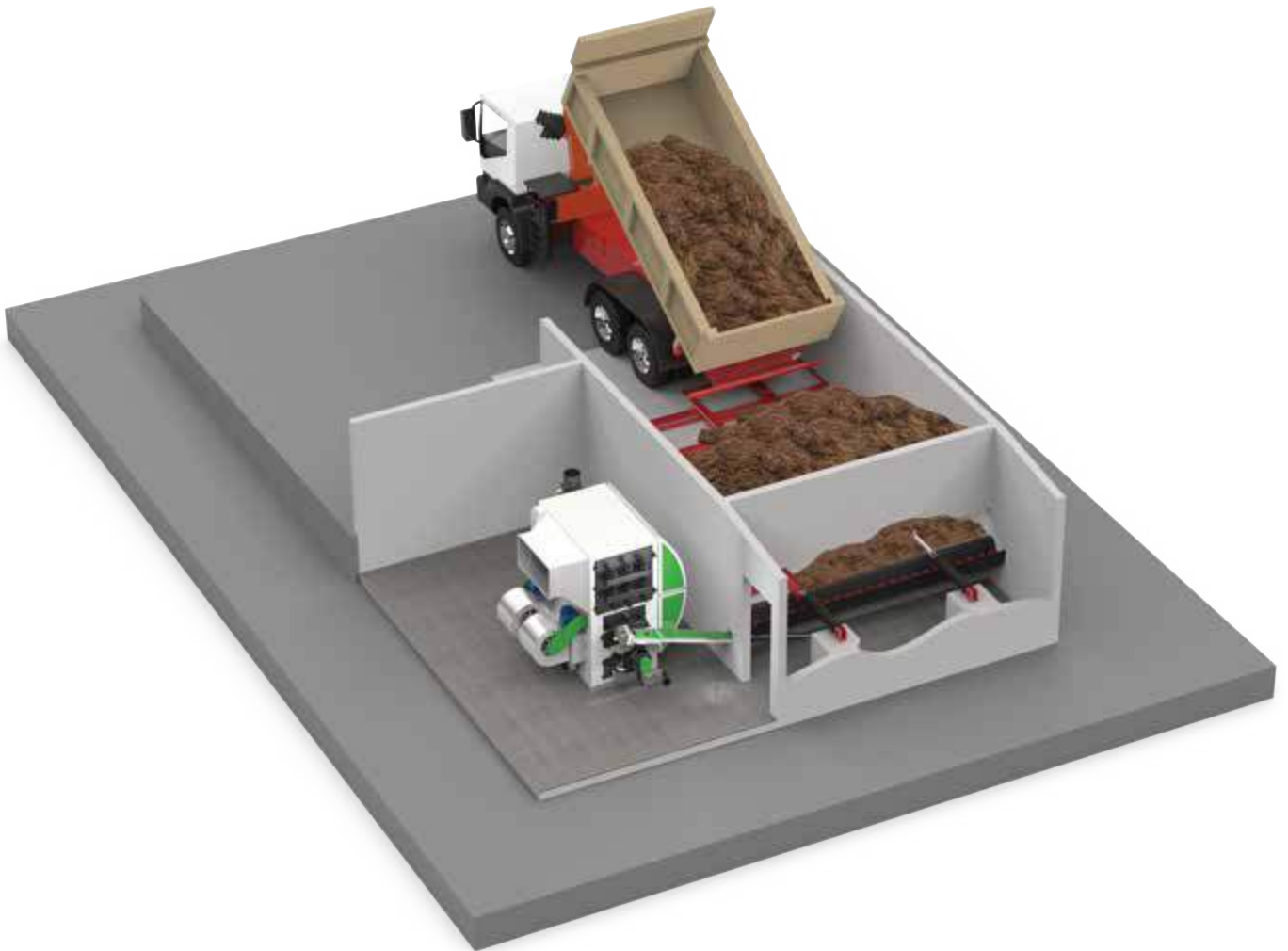




Sometimes referred to as moving floors, scraper floors are the most robust and flexible feeding system available. Fuel up to W60 and G100 can be fed without issue to a suitable extraction auger, chain conveyor, or hydraulic feeder. Typically, the scraper floor system consists of two or more rails approximately 1.5m in width and up to 10m in length.

Each rail has triangular sections fixed at intervals which allow the rail to slide underneath the fuel in one direction, and then convey the pile of fuel on mass with the return stroke. Fuel is pulled to one end of the moving floor and through a letter box type opening in the base of a dividing wall, where it drops into a trough incorporating light barrier or capacitive level sensing, which controls the movement of the scraper floor. Very large systems further increase reliability by using additional hydraulic ram feeders to carry out final delivery of the fuel to the boiler, ensuring the entire feeding system is capable of handling G100 and W60 fuel. Even large frozen lumps of wood chips can be conveyed by the scraper floor and are cut using choppers built into the final hydraulic feeder.

The use of long or steep 'rising' augers, such as those utilised to transport fuel from subterranean spring agitator equipped fuel stores, is not possible where G100 or fuel over W35 is specified. As scraper floor systems are typically reserved for 'moving floor' type boilers with the tolerance to burn these fuels, the fuel store is normally required to be at the same level or higher than the plant room floor level. Filling of a moving floor is typically via a front end loader such as a telehandler, as such it is not required to be able to tip from the delivery vehicle directly to a subterranean store.



# biomass products

## fuel

### TYPES OF FUELS THAT PELLETECH AERO IS USING

There is a wide range of original sources of biomass fuels which can be broadly defined in terms of 'wet' and 'dry' sources. Under these two broad headings, the sources of the fuels that PelleTech Aero hot air generators are using can be grouped into five categories:

#### 1. Pellet

includes Pellets O-Norm M7135, Pellets EN 14961 A1, Pellets DIN plus, Pellets DIN 51731, Cardoon pellets, Corn, Olive kernel.

#### 2. Virgin wood Dry

includes roundwood, harvesting residues (brush), bark, sawdust, crowns, and residues of tree surgery.

#### 3. Energy crops Dry

includes woody energy crops (short rotation forestry, willow, eucalyptus, poplar), grassy energy crops (miscanthus and hemp); sugar crops (sugar beet); starch crops (wheat, barley, maize/corn); oil crops (rape, linseed, sunflower); and even hydroponics (lake weed, kelp, algae).

#### 4. Agricultural residues Wet

includes pig and cattle slurry, sheep manure, grass silage.

**Dry** – includes poultry litter, wheat or barley straw, corn stover.

#### 5. Food residues Wet

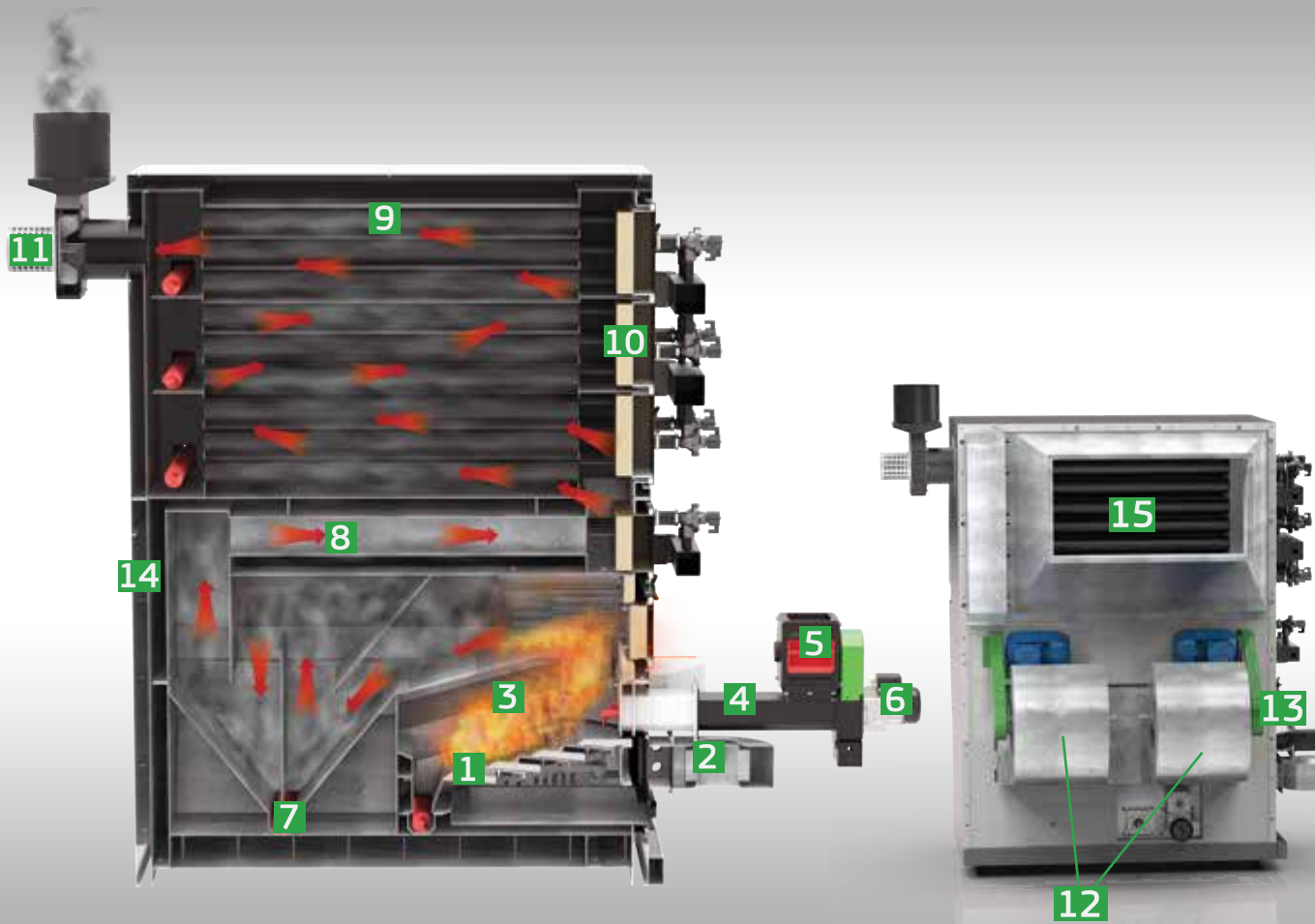
includes wastes from various processes in the distillery, dairy, meat, fish, oils, fruit and vegetables sectors.

#### 6. Industrial residues Wet

includes sewage sludge.

**Dry** – includes residues from sawmills, construction, furniture manufacturing, chip-board industries, pallets.





- 1 Cast iron burner system with seven levels of moving grate, which allows the combustion, even of increased humidity, biomass up to 60%
- 2 Dual fans for main and secondary combustion, with independent control during combustion from the controller, depending on the conditions and the type of fuel
- 3 Air inlets for secondary combustion air supply, that ensure even more controlled air flow in the exhaust fumes, enrichment and ignition for optimum combustion quality and great efficiency
- 4 Reinforced auger for large diameter fuel supply with the ability of transferring even Wood Chips of type G50
- 5 Automated supply system equipped with a safety device which maintains the continuous seal between the stocking device and the fuel line and prevents the back flow in the fuel line and the fuel tank (Back burn Protection Starvalves System, BPS)
- 6 New generation dual fuel feed engines, with high performance very low energy consumption which complying with all the European directives
- 7 Automatic system for ash cleaning with augers inside the combustion chamber and extraction to an ash container or in the central waste collection system
- 8 Bimetallic combustion chamber made of stainless steel AISI 304 coated with cast iron plates at the points of contact of the flame with the walls that ensures very high resistance to chemical processes and temperatures developed in the combustion chamber
- 9 Hot air heat exchanger with steel tubes of dual route and dense braid for maximum heat absorption
- 10 Heat exchanger's door for inspection and the ability of adding a pneumatic cleaning system (optional)
- 11 Electronically controlled engine for draught and flue gas to the chimney
- 12 Dual centrifugal fans air supply 20.000 m<sup>3</sup> / h with inverter
- 13 Hot air blower for rapid ignition of fuel 1600 W
- 14 Electronic controller with Greek menu, for user-friendly control and programming of air boiler with remote interface over internet
- 15 Hot air outlet orifices with the option of magnitude and direction of air flow



### LAMBDA SENSOR

The Lambda sensor provides feedback to the boiler's control unit allowing the boiler to automatically alter the combustion environment to achieve the highest possible efficiency, and maximize the gain from the fuel.



### GSM MODEM

The boiler can be also managed with the use of a mobile phone. The mode must be connected to the RS232 port, with the use of the appropriate wires and connections. The user has to insert a SIM card into the modem from any card phone company.



### HOT AIR IGNITER

For the successful ignition of all biomass products CaminoDesign recommends the use of the hot air ignition blower.

- ✓ Ignition energy saving
- ✓ Energy saving of over 88%
- ✓ Efficient Ignition Control
- ✓ Silent system
- ✓ Built in device for fast and safe ignition
- ✓ Operational safety thanks to electronic protection of the heating element
- ✓ Blower and heating element can be controlled separately
- ✓ According to European and Safety requirements

### EASY2CLOUD

Management web, accessible from any browser or tablet. Allows you to control and monitor in real time across multiple plants. Along with other features such as, customer registration, calendar events, logger, integrated chat is an effective tool for remote assistance.



### EASY2APP

Powerful webapp customizable, compatible with all smartphone platforms including iOS, Android, Windows. Through Easy2App you can control, remotely, with smartphone the basic functions of all the control board of the boiler's functions.



### EASY TOUCH

- ✓ EasyTouch Control Board
- ✓ Colour screen TFT
- ✓ Touch friendly user interface, simple and intuitive
- ✓ RS232 and RS485 interfaces for communication and update management
- ✓ SD card expansion memory support
- ✓ Ethernet peripheral device for LAN connection
- ✓ In-box and on-board installation

*optional  
equipment*

## GRATE COMBUSTION AT ITS BEST

The PelleTech Aero industrial hot air generators use a moving burning grate, thereby achieving the best possible combustion results. A charging auger guides the fuel into the combustion chamber, where it is pre-dried and degassed using an accurately controlled primary air supply (grate combustion). On grate, the fuel is completely degassed. Accurately controlled secondary air is blown in to ensure complete combustion of the fuel. In doing so, the heat is released into the boiler's 4 way pass heat exchanger.

## TOP QUALITY DESIGN AND CONSTRUCTION

The PelleTech Aero industrial hot air generators are a top quality construction for use under the toughest industrial conditions. The inside of the combustion chamber is fitted out with high quality cast iron for greater durability. All grate elements are made of high quality, thick walled iron and can withstand the highest temperatures.

## CLEAN AND EFFICIENT COMBUSTION

The advanced combustion technology in the The PelleTech Aero industrial hot air generators achieves similar emissions ratings as a modern gas combustion system and keeps the release of CO and NOx to levels that correspond to those of an advanced heating system for fossil fuels. Furthermore, unlike oil and gas, biomass is a CO2 neutral, renewable source of energy. When operated together with our digital, modulating output control, the PelleTech Idro industrial boilers achieves efficiency levels of up to 90%.

## MOVING GRATE BURNER FOR PELLETECH 150 AND 200 KW

To achieve the best emission levels, the combustion grate is the vital element. The PelleTech 150 and 200 kW Aero industrial hot air generators are the first manufacturer to successfully employ the already well proven feed grate technology used in commercial firing systems to small scale firing systems. The stepping grate design ensures absolute low-emission combustion with a high degree of efficiency – even with variable fuel characteristics.

The higher combustion technology in PelleTech Aero industrial heating systems, a moving and air-cooled moving grate is employed in the firing chamber for 150 kW and 200 kW heating power. Air for combustion (primary air) is supplied underneath the fuel grate. Routing air in this way effectively cools the grate elements and preheats combustion air at the same time, which has a great effect on combustion. Due to the continuous movement of the grate elements, the combustion remnants are systematically conveyed to the ash augers and thus cannot remain in the combustion chamber.

The geometric design of the hot combustion chamber facilitates an above average retention time and further turbulence of the combustion gases.

Great variety of fuels in the output range of 150 and 200 kW, moist and high-ash wood chips, shavings, pellets. The moving grate technology ensures that optimum performance is maintained even when the proportion of non-combustible or very moist material (up to 50% moisture content) is increased.

### EXPLANATION

The material moves through different temperature zones on the grate. The fuel is thereby dried, degassed and finally is being fully combusted. The continuous movement of the grate's elements removes the combustion remnants and residues from the combustion chamber.



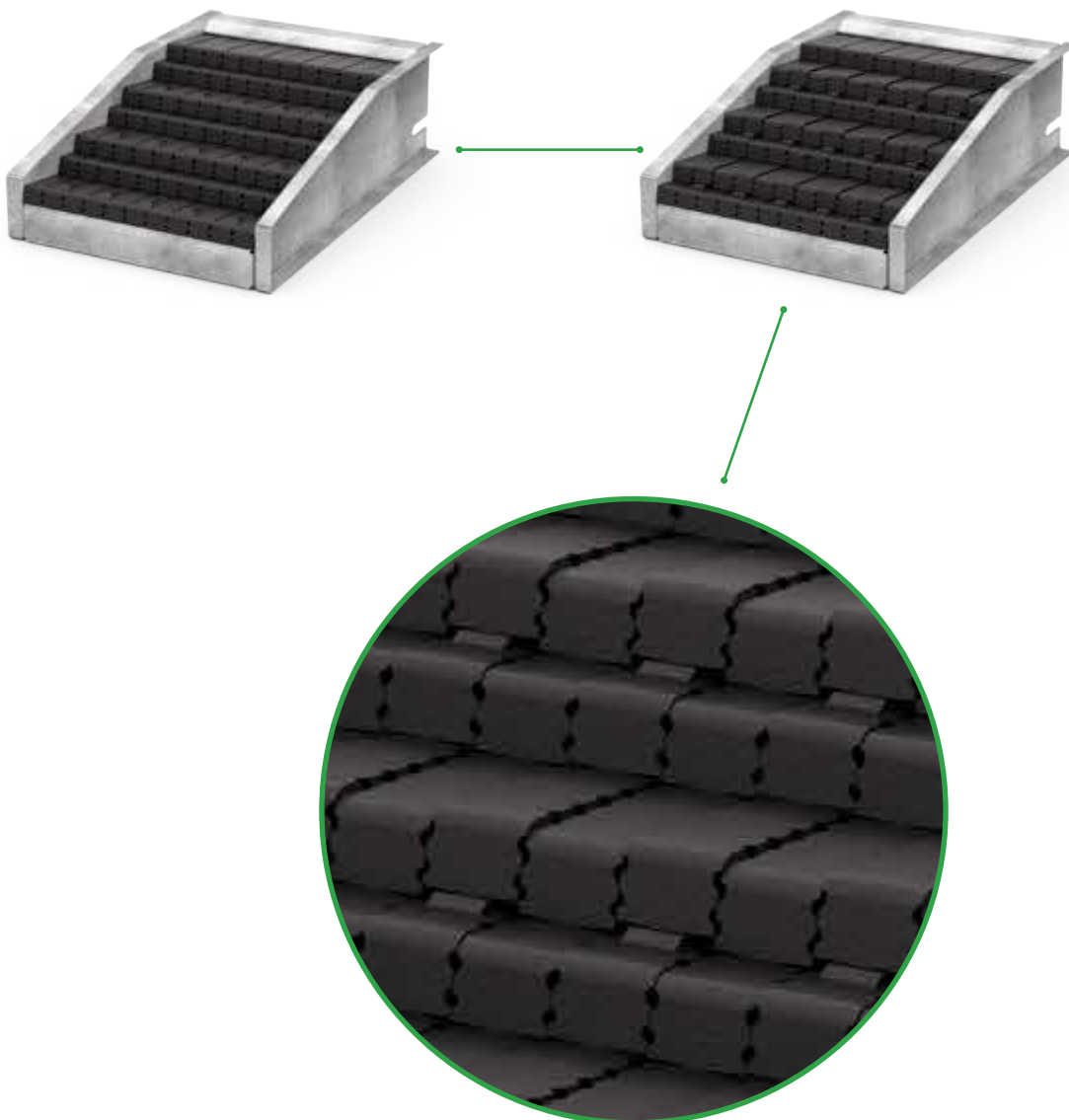


## MOVING GRATE BURNER FOR PELLETECH 300 AND 500 KW

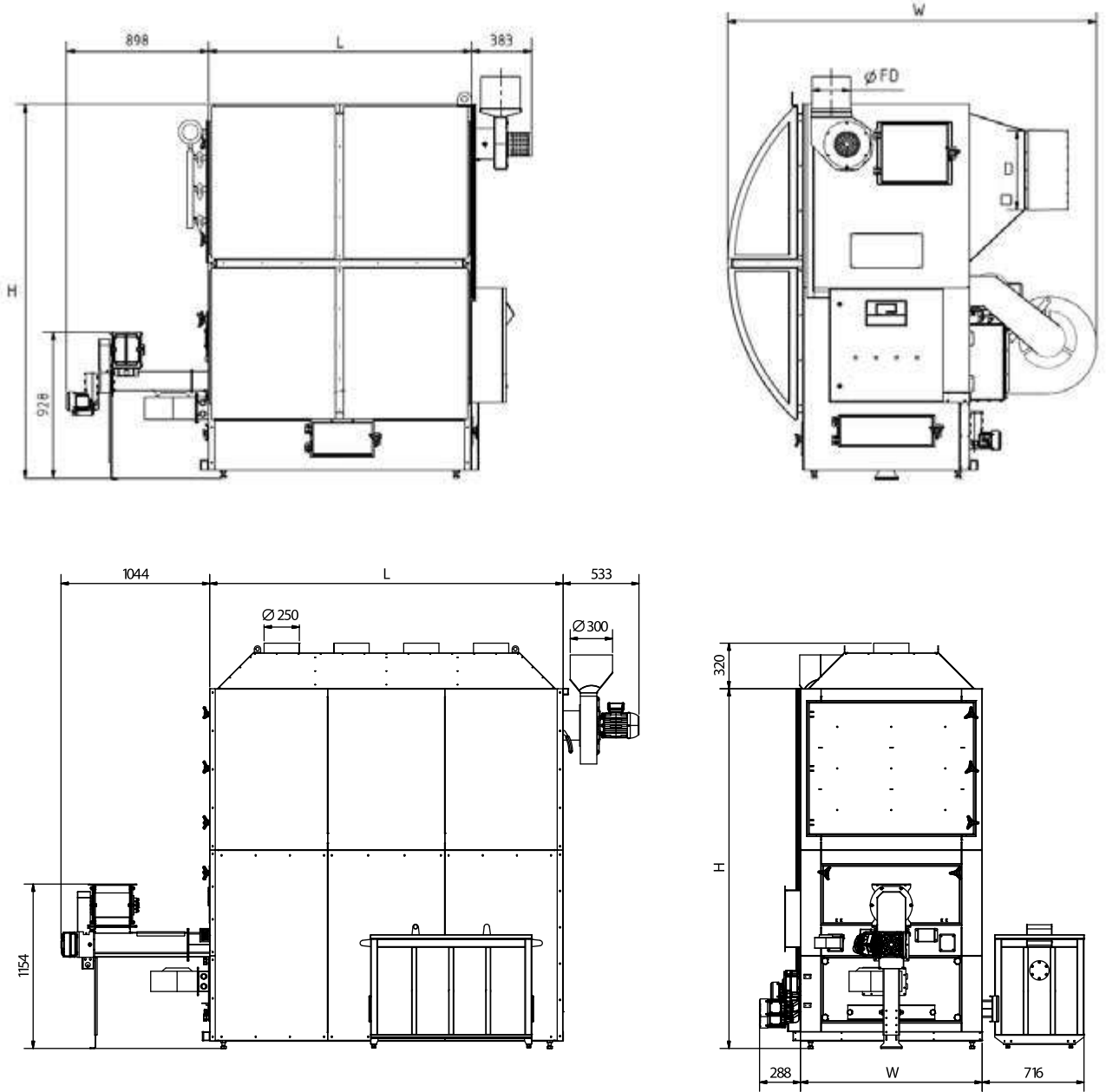
Moving grate (also known as step-grate or inclined grate) is the most versatile (in terms of flexibility of fuel tolerance). Fuel is delivered onto a series of inclined or flat panels which move in a sequence so that the fuel travels slowly (shuffles) down the grate towards the far end of the combustion chamber. The fuel dries and then combusts as it moves down the grate (primary air is supplied under the grate). Gases are emitted, and char burns out. The specially configured stationary burner plates are constructed so as to lift the moving parts of the burner (nails), resulting in breakage and avoid encrustation (clinker) in the surface of the grate and further enrichment of the fuel with air. This combustion sequence is one of the big advantages of the burner: adjusting the speed of the grate, the fuel supply and the air supply, it is possible to burn a wide range of fuels with different moisture contents. This sequenced combustion is one of the great strengths of the design: by tuning the grate speed, fuel feed and air supply, it is possible to burn a wide range of fuels of varying moisture content. The addition of the cast iron lining over the grate reflects heat back, encouraging drying and subsequent ignition, and thus permits the combustion of wet fuels - tolerating up to 30-35% moisture content. Once the biomass fuel has combusted, the remaining ash falls off the lower end of the grate, and is removed mechanically into the ash pan or ash bin.

### Advantages of moving grate burner

- Wide tolerance of fuel type, moisture content (up to 30-35%), and particle size.
- As a result of wide fuel tolerance, cheaper fuel may be procured, helping to offset higher capital cost.
- Positive movement of fuel down grate avoids clinkering and blockages.
- Well-regimented combustion leads



*technical specifications*



| PELLETECH AERO                |            |            |            |            |
|-------------------------------|------------|------------|------------|------------|
| NOMINAL POWER (kW)            | 150        | 200        | 350        | 500        |
| L                             | 1470       | 1670       | 2100       | 2483       |
| H                             | 2368       | 2368       | 2526       | 2526       |
| W                             | 2338       | 2338       | 1176       | 1276       |
| FD                            | 250        | 300        | 300        | 300        |
| D                             | 500 X 110  | 500 X 190  | 4 X Ø250   | 4 X Ø250   |
| TECHNICAL SPECIFICATIONS      |            |            |            |            |
| Output range (kW)             | 150        | 200        | 350        | 500        |
| Weight (Kg)                   | 1300       | 1500       | 2100       | 2500       |
| Electrical connection (V, Hz) | 400, 50-60 | 400, 50-60 | 400, 50-60 | 400, 50-60 |
| Current (A)                   | 25         | 25         | 25         | 27         |
| Flue Gas Temperature (°C)     | 150        | 150        | 160        | 160        |



*Agricultural biomass hot air generators*



COMPETITIVE PRICE

EFFICIENT MOTORS

HUGE SAVINGS

## PelleTech® AGRO



### CAMINODESIGN INTRODUCES PELLETECH AGRO AGRICULTURAL BIOMASS HOT AIR GENERATORS

PELLETECH AGRO IS A SAFE AIR GENERATOR BECAUSE IT IS FITTED WITH SAFETY LOCK SYSTEM. THE SYSTEM, CONNECTED DIRECTLY TO THE CIRCUIT BOARD, CLOSES THE PASSAGE BETWEEN THE COMBUSTION CHAMBER FLAME AND THE CONTAINMENT SILO. THE PELLETECH AGRO IS PARTICULARLY SUITABLE FOR WINTER HEATING OF WORK PLACES SUCH AS WORKSHOPS, WAREHOUSES, SHEDS, GREENHOUSES AND FARM BUILDINGS. THE AGRO AIR GENERATOR GUARANTEES QUALITY, EFFICIENCY AND SAFETY IN COMPLIANCE WITH STANDARDS. THE AIR GENERATOR USES SOLID BIOMASS FUELS SUCH AS: OLIVE POMACE, ALMOND, HAZELNUT SHELLS, SAWDUST PELLETS, ETC. THE TECHNOLOGY OF THE HOT AIR GENERATOR PELLETECH AGRO 200 PROVIDES THE HIGHEST QUALITY OF A HIGH EFFICIENCY HEAT EXCHANGER AND ALLOWING THE CUSTOMER TO DIRECT SAVINGS IN OPERATING COSTS.

THE COMBUSTION CHAMBER IS UNIQUE ON ITS KIND, IT IS DESIGNED AND MANUFACTURED FROM STAINLESS STEEL AND COATED CAST IRON FOR SUPERIOR PROTECTION FROM THE OXIDATIVE SUBSTANCES PRODUCED DURING THE COMBUSTION OF BIOMASS (PELLETS, HUSK ETC.) AND DOUBLE TUBE BUNDLE TO ACHIEVE MAXIMUM HEAT EXCHANGE BETWEEN THE INSIDE AND THE OUTSIDE AIR, WHILE ENSURING STRENGTH AND LONGEVITY.

THE DEVELOPMENT OF THE TUBE BUNDLE TWO ROUTES IN THE HORIZONTAL POSITION MAXIMIZES THE EXPLOITATION OF ALL THE GENERATED CALORIFIC POWER (PRODUCED BY FLAME AND THE FLUE GASES) PREVENTS THE DEPOSITION OF ASH, THUS REDUCING THE RISK OF OBSTRUCTION AND FREQUENCY OF CLEANING.



AVAILABLE EDITIONS: 200 KW, 350 KW

*Benefits at a glance:*

**1** Competitive price

**2** Fuel hopper

**3** Plane burning grate underfeed system

**4** Fuel conveying system: formed from two steel screw feeders

**5** Safety Lock System: flame arrestor system in hopper

**6** Electronic control unit

**7** Efficient motors

**8** Steel panels: epoxy powder painted paneling

## 1. BURNER

If the combustion chamber is the heart of the air furnaces PelleTech Aero Agro 200, the burner is its strength.

The burner is made of stainless steel type AISI 304 while the grate combustion of certified high quality cast iron (GG-20), making it as a burner that can handle difficult types of fuel.

The boiler combustion chamber is designed in the shape of disc for economic and productive fuel management and thanks to the digital control panel that provides ease of use and operation for users. Plane grate systems are suitable for fuel with moisture content below 35% MC (wet basis). This is because the fuel is fed directly into the combustion chamber by the fuel feed mechanism, rather than being dried first as in the case of the inclined grate plants. The Agro plane grate can tolerate up to 40% MC fuels. In the underfed type, fuel is fed by auger into the base of an inverted cone or trough, where it wells up into the combustion chamber, spreading out to the sides.

Primary air is supplied below the fuel, and secondary air above. Underfed stoker is supplied as part of a complete plant package; Ash is created on all sides of the combustion zone, and its removal from the combustion bed relies on simple displacement due to the emergence of new fuel in the centre of the combustor. The removal of ash from the bottom of the combustion chamber is by manual intervention, but it is an option to have the ash augured from the bottom of the combustion bed to an external ash bin.



## 2. PELLET SILO

Positioned on the side of the boiler, they have a truncated inverted pyramid shape. In the standard edition the Silo is offered with a capacity of 1 m<sup>3</sup>. The hopper is adapted depending on the generator power band. For those machines, which have the smallest size mounted, a larger hopper can be requested.



## 3. BACK BURN PREVENTION

Safety is not an optional for us. It is for this reason that we have fitted our boilers with an innovative system, connected directly to the circuit board. This closes the passage between the combustion chamber flame and the containment silo, ensuring perfect isolation of the material stored in the hopper. This type of system has the advantage of guaranteeing lower fuel consumption in the minimum phase due to closure of the air passage.



## CLEANING AND AUTO CLEANING SYSTEM

Periodic maintenance drastically reduces the probability of problems through time, thus increasing the reliability of the machinery. It is recommended to clean the generator with a handy brush in order to maintain the same level of efficiency. This allows cleaning the shell and tubes quickly. Another optional available is the automatic ash extraction device

### 4. AUTOMATIC MANAGEMENT

The new electronic heat regulator is enhanced with many functions. It has been integrated with a combustion phase dedicated exclusively to biomass. This has allowed us to implement a control system in the combustion phases on the circuit board, which allows the automatic passage from pellet to biomass fuel. The circuit board controls and manages all generator components. The board establishes the different operating phases by reading the probes, which are:

**ignition, maximum power, modulation and standby**



**POWER CONSUMPTION**  
**ONLY 0,25 kW !!!**

- ✓ Outstanding efficiency means greater energy savings (98% per gear stage)
- ✓ flexible mounting options
- ✓ high efficiency
- ✓ high value



Olive kernels



Pellets

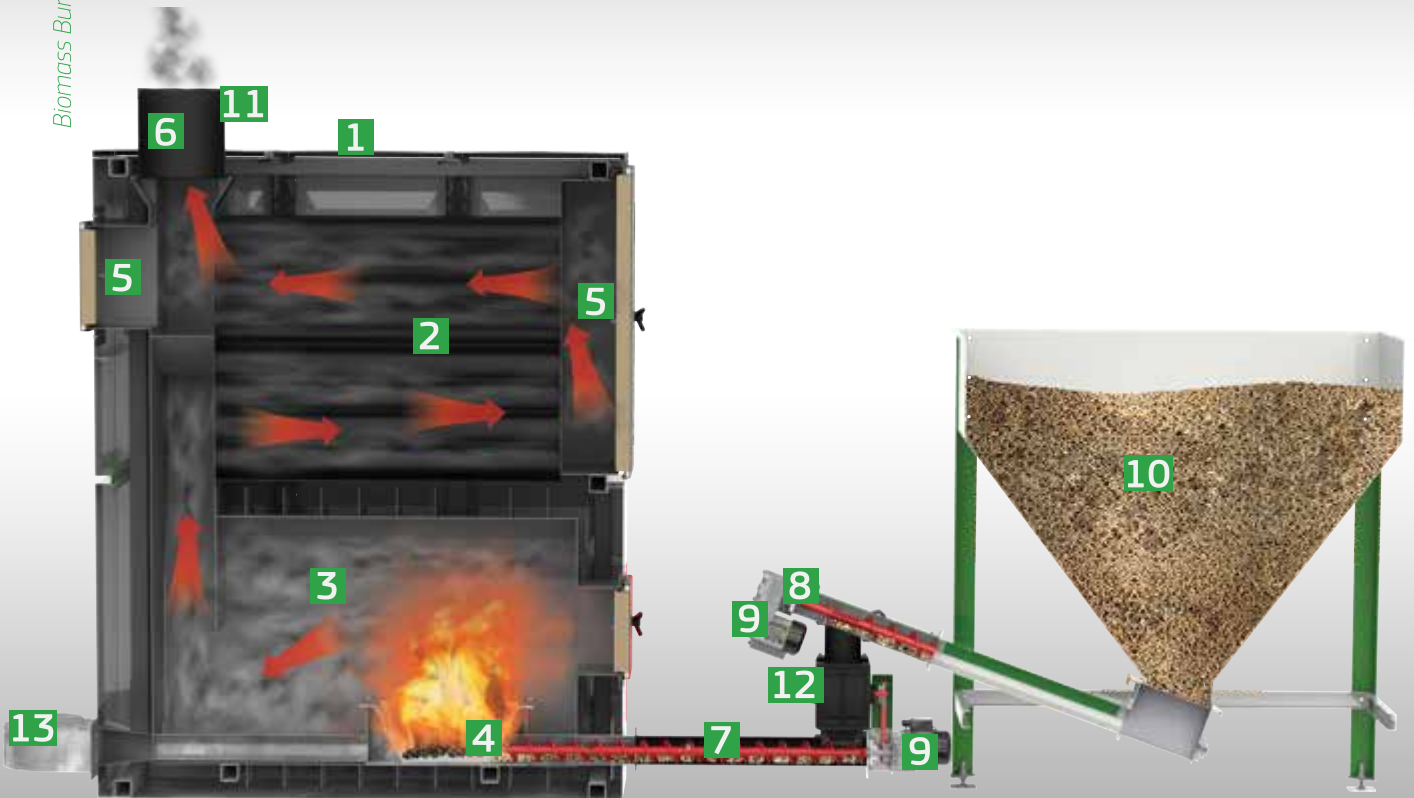
#### PELLETECH AGRO, WITH THE INTEGRATED PELLET SILO

can burn Wood pellets and all Biomass products (such as kernels, Olive kernels, sunflower/artichoke pellets and types of agricultural residues, up to 30% humidity)

#### ECONOMICAL SOLUTION

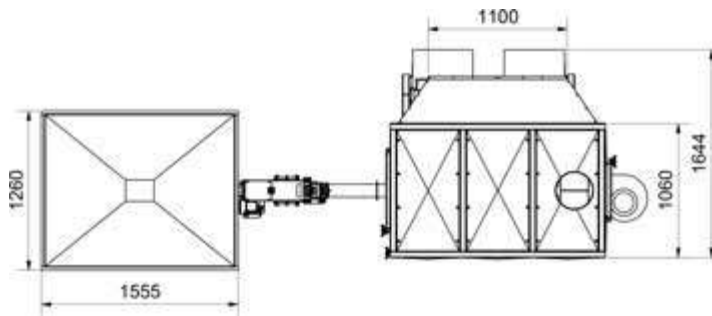
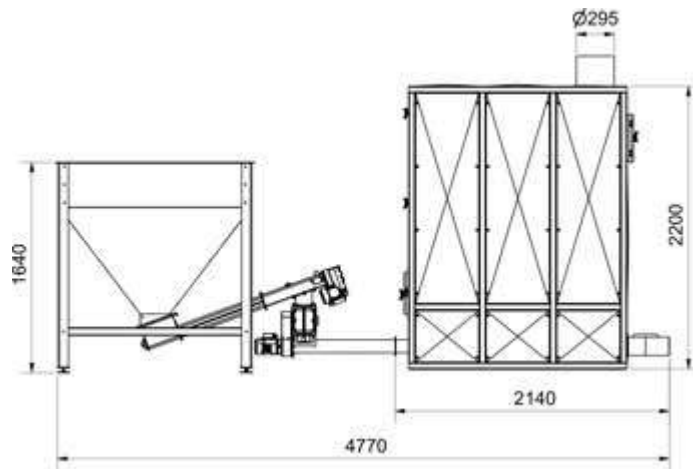
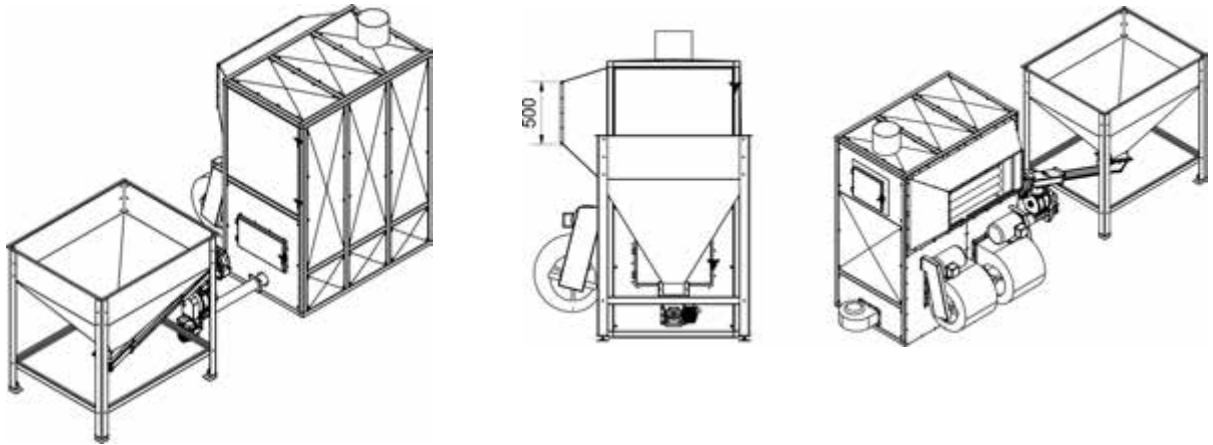


- ✓ highly competitive price in relation to competing companies products
- ✓ huge savings



- 1 Air grids: for introduction of hot air into the room
- 2 Shell and tube fumes-air heat exchanger: heat exchanger where the hot fumes are conveyed
- 3 Combustion chamber: Bimetallic stainless steel AISI 304 combustion chamber lined with cast iron plates to flame contact points with the walls that ensures very high resistance to chemical processes and temperatures developed in the combustion chamber.
- 4 Burner: The body is made of stainless steel and the grid consists of cast iron inserts
- 5 Ports for cleaning and inspection: heat exchanger cleaning doors that function as security doors and protection from overheating (lined with refractory material vermiculite)
- 6 Exhaust tube which leads the fumes to the chimney
- 7 Reinforced steel screw: lengthens the average life span of the fuel feeding system.
- 8 Motor reducer: driven by an electric motor, it allows the screw to transport the fuel
- 9 Dual feeding motors new generation: High performance with very low energy consumption, covering all the new European directives.
- 10 Pellet hopper: the capacity up to 1 m<sup>3</sup> allows prolonged operational autonomy
- 11 Exhaust gas temperature control system: Electronic exhaust temperature sensor that provides feedback to the boiler control system and result in adjustment to prevailing combustion conditions and flue gas exit at very low values of the order of 180 °C.
- 12 Automated supply system equipped with a safety device which maintains the continuous seal between the stocking device and the fuel line and prevents the back flow in the fuel line and the fuel tank (Back burn Protection Starvalves System, BPS).
- 13 Main Combustion air supply blower





*technical specifications*

| TECHNICAL SPECIFICATIONS       | kW                | 200             | 350             |
|--------------------------------|-------------------|-----------------|-----------------|
| <b>DIMENSIONS</b>              |                   |                 |                 |
| Nominal Power                  | Kcal/h            | 200.000         | 350.000         |
| Efficiency                     | %                 | 89,5            | 89,8            |
| Air supply                     | m <sup>3</sup> /h | 17.000          | 28.000          |
| Fuel                           |                   | Biomass/ Pellet | Biomass/ Pellet |
| Electrical Connection          | V                 | 400 (50-60 Hz)  | 400 (50-60 Hz)  |
| Exhaust outlet diameter        | mm                | Ø 250           | Ø 250           |
| Combustion air supply diameter | mm                | 1100 X 500      | 1100 X 500      |
| Weight                         | Kg                | 1130            | 1230            |

## AGRICULTURAL BIOMASS HOT AIR GENERATOR PELLETECH AGRO IS IDEAL FOR HEATING GREEN HOUSES AND POULTRY FARMS

### GREEN HOUSES

The temperature of the atmosphere is controlled through the electronic thermostat. When it reaches the temperature of the atmosphere, the boiler goes idle, which provides fuel savings for the user. When the boiler is in operation, it does not consume oxygen within the atmosphere of the greenhouse, but instead refreshes the indoor air by adding hot air coming from the external environment. Thanks to this fact all potential risks of disease to plants are eliminated. For each square meter of net hot air high the humidity is eliminated.

### POULTRY FARMS

When the boiler is in operation and produces heat, it consumes oxygen from the outer space that is established, thus reducing the risk of insufficient presence of oxygen and eliminate formation of condensation and moisture in the atmosphere (and the likelihood of disease in poultry unit), but contrary renews the indoor air by adding hot air coming from the external environment.



**GUARANTEE AND SERVICE**

*CAMINODESIGN pays attention to the optimal processing of each individual boiler. Nevertheless, if any difficulties arise our well trained staff is always available to support you.*

**SERVICE NUMBER:  
(+30) 24610 45446**



*Quality  
for life..*





***PREMICES - SHOWROOM***

7th km Kozani - Ptolemaida  
Tel. 0030 24610 45446  
Fax. 0030 24610 45360

***IOANNINA SHOWROOM***

7th km Ioannina - Athens  
Tel./ Fax. 0030 26510 91413

***TECHNICAL SUPPORT  
DEPARTMENT***

- [info@caminodesign.gr](mailto:info@caminodesign.gr)
- [support@caminodesign.gr](mailto:support@caminodesign.gr)

