ATMOS

ECO DESIGN

5th class

ATMOS

PELLET BOILER

SPECIAL PELLET BOILERS WITH NEW CONSTRUCTION

ADVANTAGES:

- compact boiler for small boiler rooms
- all in one – boiler with pellet silo, burner and conveyor
- connects to pneumatic pellet conveying system
- easily cleaned from the front of the boiler
- large ceramic burning chamber
- high efficiency
- Ecodesign compliant

D 10 PX ■ D 15 PX ■ D 20 PX ■ D 25 PX

USAGE

ATMOS D 10 PX, D 15 PX, D 20 PX and D 25 PX hot water boilers are designed to conveniently heat family homes, holiday homes and other buildings with pellets. Their compact size allows them to be installed in small boiler rooms.

The boilers can be fueled with high quality wood pellets 6 to 8 mm in diameter. **The boiler is not intended for burning wood, sawdust or small wood waste**.

HOT WATER BOILERS ■ PX

D 10 PX, **D 15 PX**, **D 20 PX** and **D 25 PX** boilers come as a complete set with a builtin conveyor, pellet reservoir with a volume of 65, 175 or 215 l and an ATMOS A25 pellet burner. They are designed to allow the electronically controlled burning of pellets with automatic fuel ignition. The pellet burner is incorporated into the front part of the boiler in the door of the lower combustion chamber. This chamber is also a receptacle for the ash.

The boiler body is made of a weldment of 3 – 5 mm thick steel sheets. It consists of the combustion chamber with shaped ceramic bricks to ensure the most efficient operation.

In the back part of the boiler there is a tube exchanger with segmental decelerators, which allow basic cleaning without disassembly. The boiler body is insulated from the outside with mineral felt located under the sheet metal covers of the outer boiler jacket.

The pellets are transported from the fuel reservoir located on the top to the burner by a screw conveyor. The Fuel supply is fully automatic.

On the front part of the boiler there is a panel with the main switch, the switch for the pellet burner (L2), an operation (control) thermostat, a safety thermostat, a thermometer and a 6.3 A fuse.

The boiler is not equipped with a cooling loop as thanks to the small quantity of fuel in the burner there is no risk of the boiler overheating in case of a power supply failure. DxxPX boilers are equipped with an exhaust fan.

For heating you can use high quality wood pellets, 6 to 8 mm in diameter and 5 – 25 mm in length. **The ideal pellets are those made from soft wood without bark. These are called white pellets.**

D10PX

Automatic pellet boiler
(complete device with burner, built-in hopper and pellet conveyor)

Rated power 10 kW

Boiler efficiency 91,6 %

Emission class nr. 5 (Eco-design)

D15PX

Automatic pellet boiler
(complete device with burner, built-in hopper and pellet conveyor)

Rated power 15 kW

Boiler efficiency 92,7 %

Emission class nr. 5 (Eco-design)

D20PX

Automatic pellet boiler
(complete device with burner, built-in hopper and pellet conveyor)

Rated power 20 kW

Boiler efficiency 91,5 %

Emission class nr. 5 (Eco-design)

D25PX

Automatic pellet boiler
(complete device with burner, built-in hopper and pellet conveyor)

Rated power 24 kW

Boiler efficiency 91,8 %

Emission class nr. 5 (Eco-design)

Pellet heating

Most of us already have some experience in using with wood or wood briquettes, either in boilers or fireplaces. These fuels are available in most places at more or less decent prices. A novelty, that not everyone knows, are the so-called pellets, which are produced in a similar way as wood briquettes, by pressing from waste wood (dry sawdust and shavings) without any binder under high pressure. We consider quality pellets to be pellets made only of soft wood without bark, so-called white pellets, which will guarantee us trouble-free and reliable boiler operation. Today, however, there are manufacturers who add biological binders to pellets for greater strength, especially for pneumatic transport. These pellets can be burned, but it is necessary to take into account the greater ash content and non-burning.

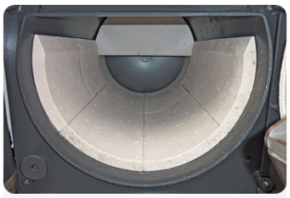
Pellets can be produced by the same way from hard wood or wood with bark so called dark pellets but these can cake in the burning chamber and can cause troubles. It is possible to burn these pellets in our burners, but it is necessary to clean the combustion chamber of the burner once a day. When burning quality pellets without binders and bark, we clean the combustion chamber of the burner once every 7 and 30 days. Similar or even greater problems occur when burning straw pellets and various biological wastes, such as poppy seeds, sugar beet pulp, grain waste, etc. These pellets contain high amounts of chlorine and nitrogen, thus sharply shortening the life of the boiler body, ceramics and chimney. Therefore, we cannot recommend burning them. The most common size of quality wood pellets today is a diameter of 6 and 8 mm and a length of 10 to 25 mm. The calorific value of pellets is approximately from 16 to 19 MJ / kg depending on the type of fuel. Today, the price of quality pellets ranges from producers, of which there are already many in the Czech Republic from 5,000 to 7,000 CZK per tonne.

So far, pellets in the Czech Republic are most often delivered in plastic bags of 15 kg each, or in bales of 1000 kg. Abroad, but now also in the Czech Republic, the pellets are transported by means of tanks from which you can refuel in any tank, just like with LTO. However, it is necessary to follow several principles that prevent their crushing during pneumatic transport. Above all, it is necessary to prevent them from falling directly on the hard wall of the container, but on the curtain, which is suspended in the middle of the container from the ceiling. This will ensure even filling of the hopper and prevent them from being crushed into small pellets and dust. However, it is important that the pellets are stored in a dry place so that they do not disintegrate.

Control panel and connecting hose from the conveyor


Open pellet hopper with a volume of 65 l / 175 l / 215 l


Open combustion chamber with burner


Combustion chamber with ceramic fittings


Exhaust fan (except D10PX) and flue

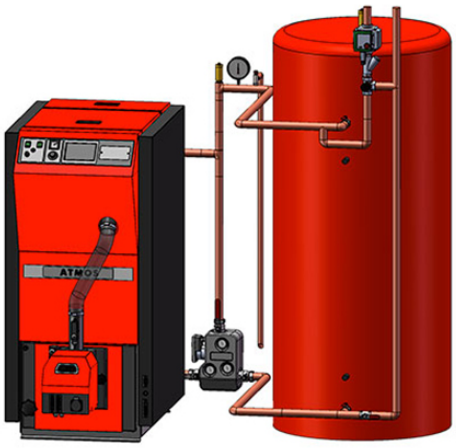
Instalation

The prescribed solution consists in the installation of the boiler with **Laddomat 22**, or a thermoregulation valve, which allows you to create a separated boiler and heating (primary and secondary) circuit to ensure **the minimum temperature of return water to the boiler of 65 °C**. The higher the return water temperature is, the lower you will keep condensation of tar and acids that are harmful for the boiler body.

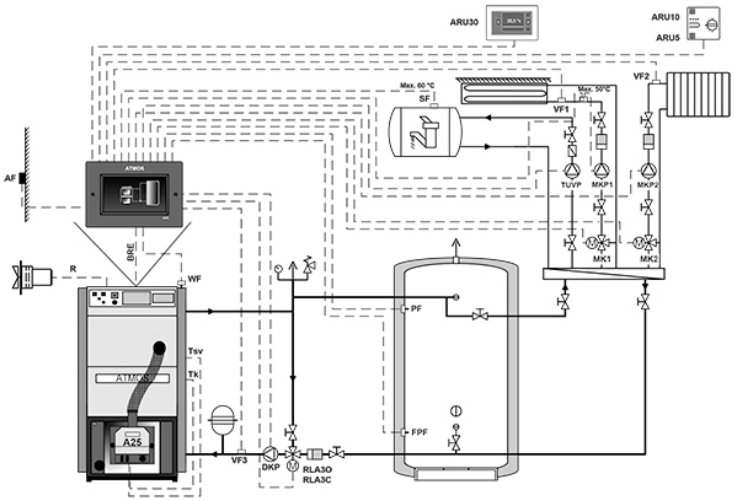
We keep the outlet temperature of the boiler in the range of 80 – 90 °C and set the temperature of the water to the radiators or floor heating on the mixing three-way valve as needed (e.g. 30 – 80 °C).
Another variant is connection of the boiler with a three-way mixing valve with an actuator controlled from the electronic controler (e.g. **ACD 03, ACD 04)** to keep minimum temperature of the water returning to the boiler (65 – 75 °C).

We recommend you to always connect the **D10PX, D15PX, D20PX and D25PX** boilers with **an buffer tank** with the volume of 500 to 1000 l. When connecting the boiler with **the buffer (accumulation) tank,** the boiler is controlled best according **two TS and TV sensors** located on the tank. To control the burner according two temperatures on the buffer (accumulation) tank it is necesary to place two KTF 20 sensors (TV and TS sensors) on this tank.

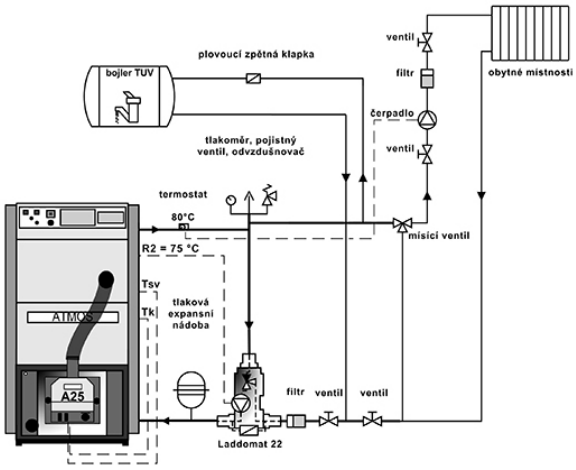
Laddamot 22



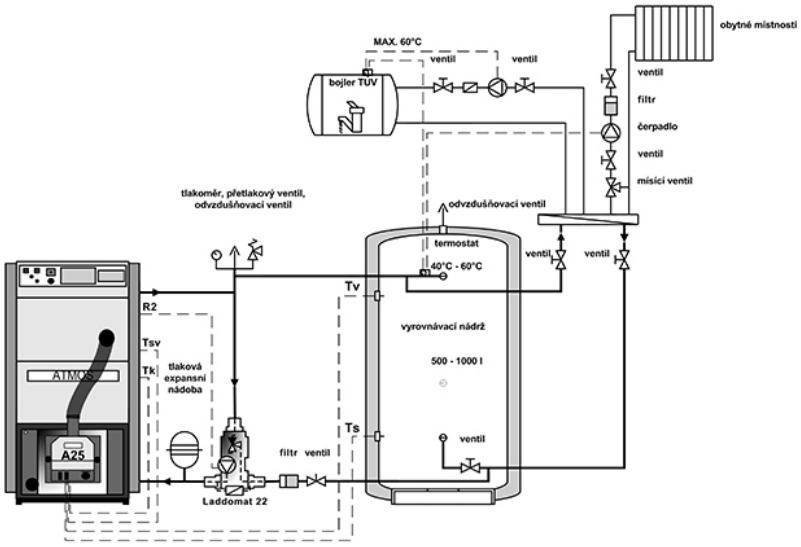
Connection of DxxPX boiler with buffer tank



Connection of DxxPX boiler with buffer tank and ACD03 control



Possible connection of DxxPX boiler without buffer tank and control of the boiler pump according to the boiler temperature (TK sensor) from the A25 burner



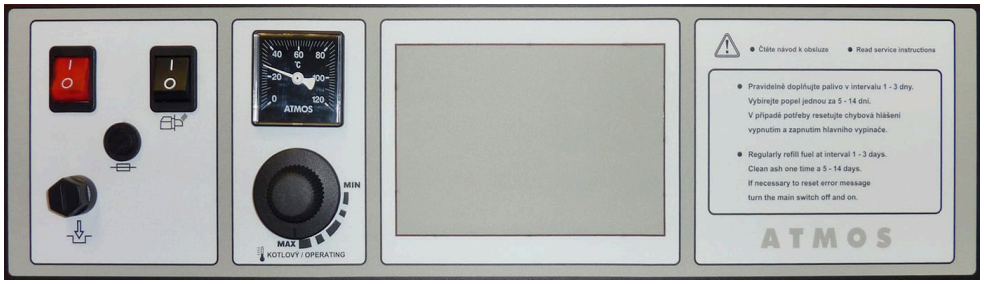
Connection of DxxPX boiler with expansion tank for burner regulation according to TS and TV sensor and boiler pump control according to boiler temperature (TK sensor) from burner A25

Boilers regulation

The boilers are supplied to consumers with the basic control output of the boiler, which meets the requirements for heating comfort and safety. The regulation ensures the required initial temperature of the boiler water (80 – 90 °C). The boilers are insulated with a connector for connecting pumps in the boiler circuit and functions for its control directly from the ATMOS A25 burner control.

DxxPX boilers are factory-fitted with **TK boiler temperature and TSV flue gas temperature sensors**. TK sensor inserted in the boiler sump, TSV flue gas sensor built into the boiler flue, all together connected directly to the burner connector. The ATMOS A25 pellet burner directly controls the boiler exhaust fan (reserve R) and the pump in the boiler circuit (reserve R2). Output R2 is factory-fitted with a thermostat for the pump in the TC70 °C boiler circuit.

With the recommended connection of the boiler with a buffer tank, the boiler is best controlled according to two **TS and TV sensors** located on the tank. Switching of pumps in the system circuit in this case is not dependent on the boiler temperature, therefore it is solved according to the potential needs of the system.



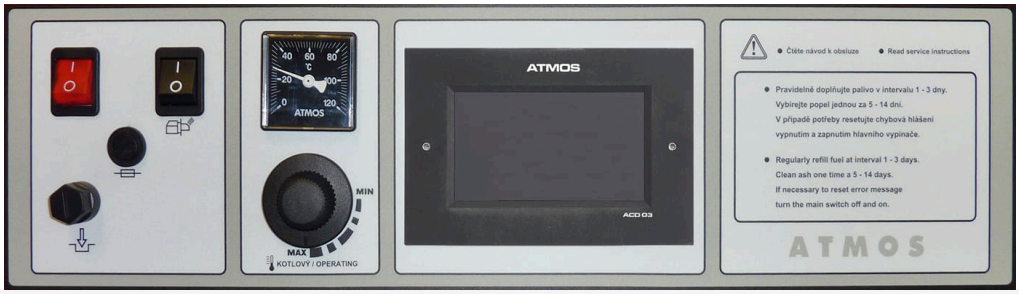
Boiler control panel with standard regulation

Panel composition:
Main switch, safety thermostat, thermometer, control thermostat and flue gas thermostat

Electromechanical control is the optimal solution for controlling the operation of the boiler (fan) in a simple way. The design of the panel with standard regulation is the basic design for all manufactured boilers.

Equithermal regulation ACD 03

Each boiler can be equipped with a modern touch electronic control **ATMOS ACD 03** for controlling the entire heating system depending on the outdoor temperature, room temperature and time. This regulation can control the boiler itself with a fan with many other functions.



Boiler control panel with equithermal regulation ATMOS ACD03

Refuelling

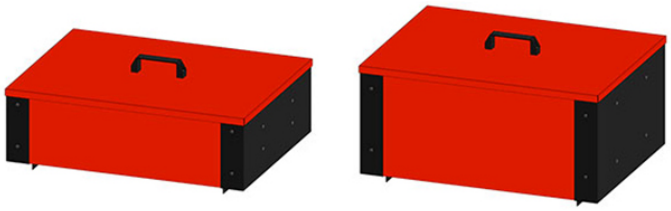
The boiler is equipped with an integrated fuel reservior that must be refilled in the interval from 1 to 3 days.

If the alarm message ALARM PELLETS – REFILL PELLETS appears on the burner display, pellets must be added to the fuel tank. Open the tank cover in the top part of the boiler and add pellets. When the pellets are added, it is not necessary to pump the pellets to the conveyor! The boiler is equipped with a special function against its full emptying.

In the case that the refueling interval is too short for your needs, there is an option to extend **the pellet resevoir**. Extensions can be folded together. It is, however, necessary to buy additional compact stepstool for convenient refueling according to all valid safety regulations.
However, additional buying of the pneumatic pellet feeder **ATMOS APS 150 SPX** (D10PX) / **ATMOS APS 250 SPX** (D15PX and D20PX) / **ATMOS APS 250 SPX**2 (D25PX) for convenient automatic refueling from any silo, eg, for the whole season (textile silo, separate room), is the ideal solution.

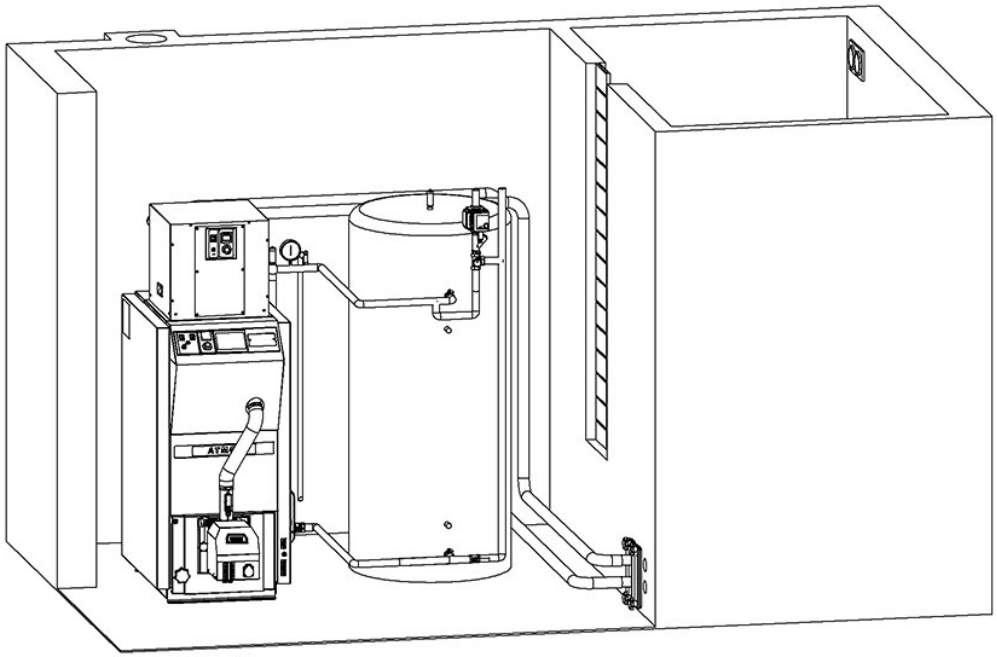
Example of standard refilling of pellets from 15 kg bags

Boiler with pneumatic transport of pellets ATMOS APS 250 SPX (2)



Reservoir extensions for DxxPX boilers

DxxPX boiler with 300 mm reservoir extension



Boiler room with DxxPX boiler and storage tank with multipoint suction of pellets by pneumatic conveying ATMOS APS 250 SPX (2)

Boiler cleaning

The burner and the boiler must be cleaned regularly and thoroughly once every 5 to 14 days depending on the quality of pellets and the output setting.

The boilers are able to burn only good quality white pellets from soft wood without bark ø 6 – 8 mm, lenght 10 – 25 mm with heating power 16 – 19 MJ.kg-1. Boilers are not able to burn pellets with high sintering in the burning chamber of the burner. In such case it is needed to clean the burning chamber once a day. The pellet burner ATMOS A25 can be equipped with **pneumatic cleaning** of the combustion chamber. It will be appreciated especially by those using lower quality pellets.

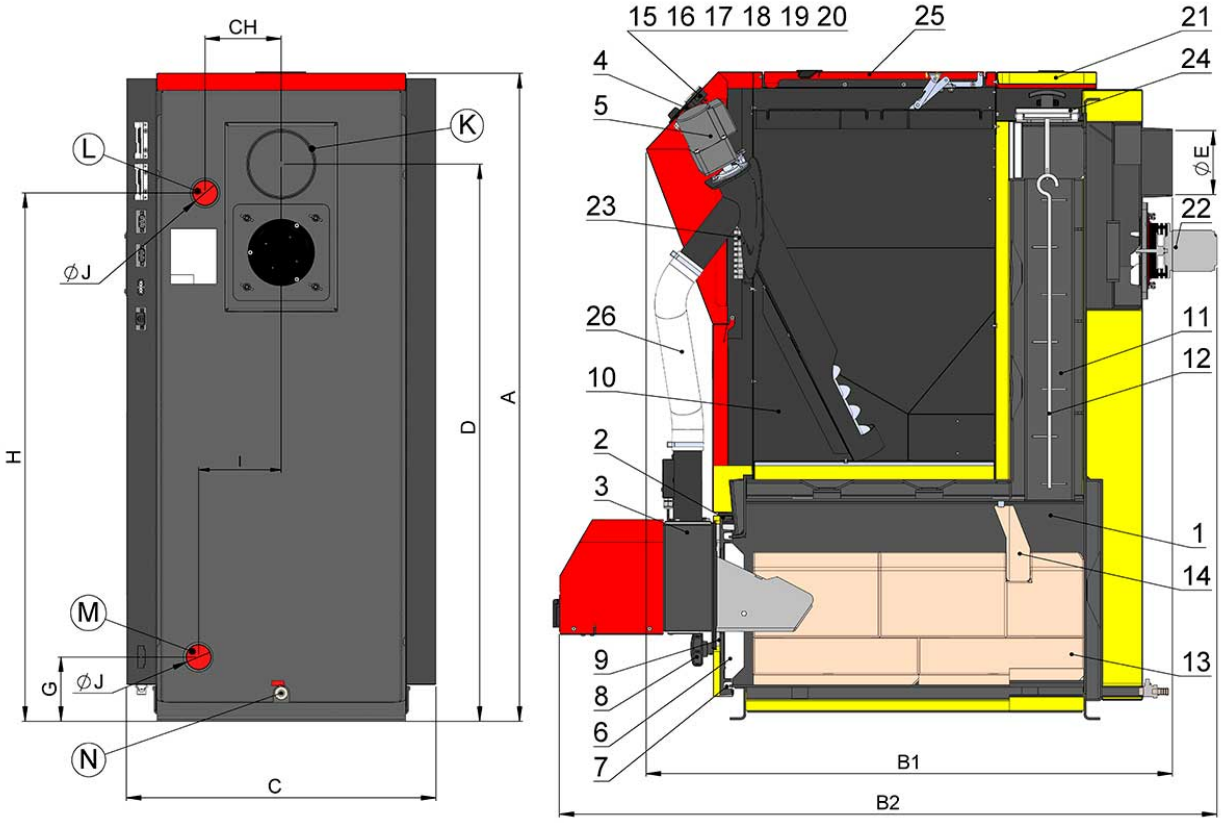
Comfortable ash removing – easy cleaning only from the front. Remove the ash from the whole cleaning chamber with the half-round ash pan (accessory of the boiler). Insert the ash pan into the boiler to the end, push the ash into the ashtray by thrusting it into the rear wall and remove the ashtray. Never leave the ash pan in the boiler!

DxxPX boilers are **equpied with function of operation cleaning of the tube exchanger**. Use the handle on the cleaning lid in the rear part of the boiler hidden under the cover for operation cleaning of the tube exchanger and decelerators. By repeated pulling out and releasing of the handle the ash is knocked out from the decelerators and the tube plate walls are scraped off.

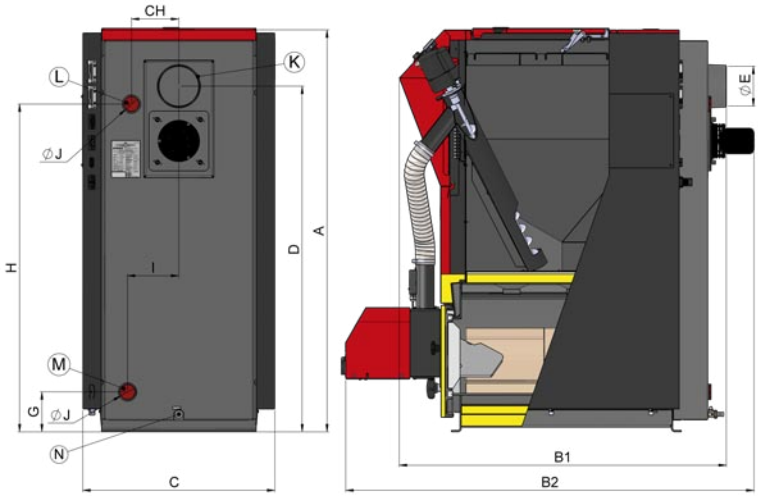
Example of ash collection using an ashtray

Demonstration of operational cleaning of a tube heat exchanger

Technical details



Description of the boiler drawing			
1.	Boiler body	**16.**	Main switch (red)
2.	Cleaning door	**17.**	Control (boiler) thermostat
3.	Pellet burner ATMOS A25	**18.**	Burner switch (black)
4.	Control panel	**19.**	Safety thermostat
5.	Conveyor	**20.**	Fuse T6,3A/1500 -H type
6.	Door filling – Sibral – large with the hole for burner	**21.**	Cleaning lid cover
7.	Door seal – cord 18 x 18 mm	**22.**	Exhaust fan (except D10PX)
8.	Closure	**23.**	Condenser for exhaust fan – 1μF
9.	Insulation under the burner	**24.**	Cleaning lid of the rear drain
10.	Fuel reservior 65 l (D10PX) / 175 l (D15PX, D20PX) / 215 l (D25PX)	**25.**	Reservoir cover
11.	Tube heat exchanger	**26.**	Burner connecting hose – Ø 65 mm – length 550 m (D15PX, D20PX, D25PX) – length 480 m (D10PX)
12.	The decelerator with a cleaning pull rod and handle	**K**	– flue gas neck
13.	Heat-resistant fitting – bottom of the combustion chamber + rear part for D10PX	**L**	– water outlet from the boiler
14.	Heat-resistant fitting – shield	**M**	– water inlet to the boiler
15.	Thermometer	**N**	– socket for the filling tap



DIMENS.	D 10 PX	D 15 PX	D 20 PX	D 25 PX
A	1221	1411	1411	1411
B1	995	1147	1147	1345
B2	1150	1447	1447	1647
C	594	674	674	674
D	1012	1213	1213	1213
E	128 (130)	150 (152)	150 (152)	150 (152)
G	140	140	140	140
H	950	1150	1150	1150
CH	166	166	166	166
I	180	180	180	180
J	6/4"	6/4"	6/4"	6/4"

TYPE ATMOS PX		D 10 PX	D 15 PX	D 20 PX	D 25 PX
POWER OUTPUT	kW	3 – 10	4,5 – 15	4,5 – 20	4,5 – 24
BOILER WEIGHT	kg	287	345	345	418
SPECIFIED FUEL		**HIGH QUALITY WOOD PELLETS** OF 6 – 8 mm DIAMETER, LENGTH 10 – 25 mm, CALORIC POWER 15 – 18 MJ/kg			
VOLUME OF INNER PELLET HOPPER	l	65	175	175	215
ELECTRIC CONNECTION	V/Hz	230/50	230/50	230/50	230/50
EFFICIENCY	%	91,6	92,7	91,5	91,8
CLASS OF BOILER UNDER EN 303-5		5	5	5	5
ECODESIGN EU 2015/1189 COMPLIANT		●	●	●	●
ENERGY EFFICIENCY CLASS		A+	A+	A+	A+

Boiler D10PX is not equipped with exhaust ventilator