ATMOS

BOILERS FOR PELLETS AND WOOD

MEET LIMITS OF ECODESIGN

5th class
TRADITION AND EXPERIENCE

Gasification unit DOKOGEN 1938

Production and sale of gasification units DOKOGEN

Production of compressors 1950

Air compressors ATMOS 1945
Family company ATMOS was established in Bohemia in 1935 by Jaroslav Cankař senior.

In the beginning, the production was focused on gasification units for cars and ships with a trademark of DOKOGEN. They used the same principle as that used for modern ATMOS boilers run on wood.

In 1942, the company started development and production of compressors Atmos that were exported to the entire world until nationalisation. Even after nationalisation, the production of wood-fuel boilers, gasification sets and compressors was still running.

In 1980, the company presented at Pragoterm exhibition its first gasification boilers burning log wood and wood waste.

In 1985 the development was focused on gas generators for cars or ships engines and also development of wood gasification boilers.

Company ATMOS was re-established in 1991 by Jaroslav Cankař junior who started with his father the production of boilers. It was enabled by changes in the political system in the Czech Republic. By intensive development of new products, production expansion, buying and implementing of modern technologies company ATMOS has become one of the biggest manufactures of gasification boilers in Europe. To this day, the company has developed over 140 types of hot-water boilers with 15 pending patents. One of the first boilers was EKONOMIK developed in 1962.

Actually, three generations of the Cankař family are working on supplying the European market with quality boilers that are environment friendly and energy saving.

The boilers are exported into 49 countries. The annual production capacity is 60,000 pieces of boilers.
WE MANUFACTURE HIGH QUALITY

ACTUAL PRODUCTION PROGRAM

- wood gasification boilers in range
  15 kW – 100 kW
- coal gasification boilers
  15 kW – 50 kW
- coal briquettes gasification boilers
  18 – 45 kW
- pellet boilers
  5 kW – 80 kW
- combination boilers
  15 kW – 35 kW
  wood – pellets
  wood – LFO’s
  coal - pellets
- pellet burners A 25, A 45, A 85
  from 5 to 80 kW

Training centre – ATMOS 2
AND RELIABLE PRODUCTS
PELLET BOILERS –

SPECIAL PELLET BOILERS WITH NEW CONSTRUCTION

ADVANTAGES:

- compact boiler for small boiler rooms
- all in one - boiler with pellet silo, burner and conveyor
- allows connection of pellet pneumatic conveying system
- easy cleaning all made from front of the boiler
- large ceramic burning chamber
- high efficiency of the boiler
- meet limits for Ecodesign
MODELS 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 for convenient heating of family houses, holiday homes and other buildings with pellets. Their compact solution enables installation in small boiler rooms.

For the heating you can use high-quality wooden pellets with the diameter of 6 to 8 mm. The boiler is not intended for burning of wood, sawdust and minor wood waste.
Hot Water Boilers PX

Boilers D 10 PX, D 15 PX, D 20 PX and D 25 PX are supplied as a complete plant with a built-in conveyor, pellet reservoir with the volume of 65, 175 and 215 l and ATMOS A25 pellet burner. They are designed for electronically controlled burning of pellets with automatic ignition of fuel. The pellet burner is incorporated into the front part of the boiler in the door of the lower combustion chamber. This chamber is also used as an area for ash.

The boiler body is made as a weldment of steel sheets with the thickness of 3 – 5 mm. It consists of the combustion chamber with ceramic shaped bricks for ideal flame burn out with high efficiency.

A tube exchanger with a segmental decelerators with function of rough (operation) cleaning without necessity of taking them out is placed in the back part of the boiler. The boiler body is insulated from the outside with mineral felt located under the sheet-metal covers of the outer boiler jacket.
A fuel reservoir from which the pellets are transported to the burner by a screw conveyor is located in the top part. Fuel supply is controlled fully automatically.

In the front part of the boiler there is a panel with the main switch, the switch of 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 against overheating as thanks to the small quantity of fuel in the burner there is no risk of boiler overheating in case of a power supply failure. Boilers DxxPX is equipped with exhaust fan.

For the heating you can use high-quality wooden pellets with the diameter of 6 to 8 mm and length 5 – 25 mm. Quality pellets are those made from soft wood without bark. The are usually called white pellets.

<table>
<thead>
<tr>
<th>TYPE ATMOS</th>
<th>PX</th>
<th>D 10 PX</th>
<th>D 15 PX</th>
<th>D 20 PX</th>
<th>D 25 PX</th>
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<tr>
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<td>4,5 – 15</td>
<td>4,5 – 20</td>
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Boiler D10PX is not equipped with exhaust ventilator.
ADVANTAGES OF ATMOS BOILER

Special boiler of new construction combines many advantages:

- big burning chamber
- tube heat exchanger
- big ash-bin
- allows automatic ash cleaning
- allows air pressure ash cleaning of burner
- easy and fast cleaning
- small dimensions and low weight
- simple installation
- high efficiency over 90 %
- ecological parameters
- allows installation of burner from both sides
- easy cleaning
- boilers D 31 P have exhaust ventilator
The boiler is fitted with a new pellet burner
- ATMOS A 25
- ATMOS A 45

The boiler achieves excellent parameters in all its power range.

The boilers are designed as welded body with big burning chamber. The burner is fit to the left or right side with pellet conveyor. There is a large ash pan in the bottom part of the boiler. The inner top parts of burning chamber is made of tube heat exchangers with turbulators. The rear part of boiler contains flue way channel with connection to chimney. Boilers D31P contain exhaust ventilator. The top panel contains all controll elements and allows installation of electronic regulation.

Heating with pellets with the use of the ATOMS A25 pellet burner has a lot in common with natural gas or oil heating. However, there is a difference that burning of pellets produces a certain quantity of ashes that must be removed from the burner and boiler in an interval to avoid impairment of efficiency or affecting the functionality of the burner.
The ATMOS A25 and A45 pellet burners are supplied with automatic fuel ignition as standard. The assembly of the burner, external conveyor and fuel bin work completely automatically during operation and is controlled by an electronic control unit with the use of a flame sensor (photocell). In the burner body the fuel and combustion air are supplied in such a way to ensure maximum efficiency and environment-friendliness of fuel burning.

Only high-quality pellets with the diameter of 6 to 8 mm and length of 5 to 25 mm should be fed into the burner. Pellets made of soft wood without bark, called white pellets, are considered as high quality pellets.

Ashes are normally removed from the burner through the open door once every 7 to 30 days as necessary. It is recommended to thoroughly clean the inner parts of the burner once a year; for this operation the burner should be removed from the boiler. For ideal cleaning of the combustion chamber (pot) of the burner you can use a special vacuum cleaner or a poker.
<table>
<thead>
<tr>
<th>TYPE</th>
<th>ATMOS DP</th>
<th>POWER OUTPUT FOR PELLETS kW</th>
<th>WEIGHT OF BOILER kg</th>
<th>SPECIFIED DRAFT OF CHIMNEY Pa</th>
<th>SPECIFIED (PREFERRED) FUEL</th>
<th>VOLUME OF WATER l</th>
<th>TYPE OF PELLET BURNER</th>
<th>SIZE OF EXTERNAL PELLET SILO l</th>
<th>VOLUME OF ASH-BIN IN BOILER l</th>
<th>CONTENT OF EXTERNAL ASH-BIN FOR AUTOMATIC ASH CLEANING l</th>
<th>ELECTRIC CONNECTION V/Hz</th>
<th>ELECTRIC INPUT BY START W</th>
<th>ELECTRIC INPUT BY OPERATION W</th>
<th>EFFICIENCY %</th>
<th>CLASS OF BOILER UNDER EN 303-5</th>
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<th>ENERGY EFFICIENCY CLASS</th>
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<td>SIZE OF EXTERNAL PELLET SILO l</td>
<td>240, 250, 300, 500, 1000 litres</td>
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As an accessory for every boiler pellet boiler you can buy automatic ash cleaner/remover from boiler to added external ash pan. The automatic ash cleaner/remover does not need any special attendance and increases comfortable use of boiler.

The boiler is cleaned automatically by the auger conveyor with gearbox. It cleans the ash space in the boiler in regular intervals. Carefully choose the capacity of the ash pan based on ash content and the used fuel.

All three volumes of ash bin 28, 68 and 135 litres is able to use in any boiler.
The hot water boilers ATMOS D 20 P, D 30 P, D 40 P, D 50 P and D 80 P are designed for convenient heating with pellets in residential houses.

A pellet burner with a conveyor is fitted to the left or right side of the boiler. The boiler drum is manufactured as a welded structure of 3 – 6 mm thick steel sheets. The burning chamber is in its lower part equipped with cast iron grill for easy and ash cleaning with ash bin under. Above the boiler door of D 20 P, D 30 P, D 40 P, D 50 P and D 80 P boilers there is tube heat exchanger fitted with brush air turbulators and in the rear part of boiler you can find suction ventilator. These all serves for clear and perfect cleaning from ash.
The burning chamber is fitted with a heat-proof shaped piece for ideal burning with high efficiency and for easy cleaning.

At the top of boiler you can find a control panel with regulating things for control of the boiler and heating system.

Boilers have a cooling loop in standard delivery. Boiler D 80 P is only for pellet burning.

Boilers D 20 P, D 30 P, D 40 P, D 50 P with suction fan, output 6.5 – 45 kW
Pellet boiler D 80 P
<table>
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<tr>
<th>TYPE ATMOS DP</th>
<th>D 20 P</th>
<th>D 30 P</th>
<th>D 40 P</th>
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<td>SPECIFIC (PREFERRED) FUEL</td>
<td>HIGH QUALITY WOODEN PELLETS OF 6 – 8 mm DIAMETER, LENGTH 10 – 25 mm, CALORIC POWER 15 – 18 MJ/kg</td>
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<td>ATMOS A 85</td>
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COMBINED BOILERS
ADVANTAGES OF ATMOS BOILERS

- allows combination of various fuels – changing from wood to pellets or wood to oil or coal to pellets or coal to oil
- high efficiency for each fuel – comparable with special boilers for oil or pellets (up to 92.3%)
- cheaper solution – if you calculate costs for installation of two boilers, connection to chimney you can find out that even more expensive one boiler is more economic
- function of automatic start of pellets after wood burns down

uses low place in the boiler room comparing to installing two boilers
- only one chimney
- ecology burning of all specific fuel

CONSTRUCTION OF THE BOILER

The boiler drum is manufactured as a welded structure of three chambers. The boiler’s upper section which comprises of two chambers for burning wood or coal as known from standard gasification boilers delivered on market. The third separate bottom combustion chamber lined with ceramics on sides for optimal burning and fit with burner A 25. Both systems are

DC 18 SP, DC 25 SP, DC 30 SPX, DC 32 SP
WOOD + PELLETS
separate from each other by water jacket and they do not influence each other. There is a vertical combustion gas duct in the back of the boiler body and the gas outlet pipe for connecting to chimney. The boiler requires connection to one chimney.

FUNCTION
The line of KOMBI boilers allows burning wood on a principle of gasification principle in combination with pellet burner or Extra Light Fuel Oil burner. The boiler allows switching between both fuels.

If needed the boiler can be bought first without burner which can be later added or used from previous boiler.

REGULATION OF BOILER
- Draft regulator HONEYWELL
- Operating thermostat
- Waste gas thermostat
- Pump thermostat
- Fuel change switch
- Allows automatic change of burned fuel
- Boiler can be controlled completely from equithermal controll unit ACD 01.
ATMOS KOMBI – C SP / COAL – PELLETS

USAGE
The environmentally friendly boilers ATMOS C 18 SP and C 25 SP are designed for domestic heating using pellets and coal. Boilers are suitable for buildings with heat loss ranging between 5 – 25 kW. Good quality pellets of 6 – 8 mm diameter and coal (size 1) may be used for heating. As a spare fuel (for firing up) can be used split logwood of 330 mm length.

FUNCTION
The new line of KOMBI CxxSP boilers allows controlled burning of pellets in a pellet burner and gasification of coal based on the generator gasification principle. The boiler allows switching between both fuels. If needed the boiler can be bought first without burner which can be later added or used from previous boiler.
DCxxSP and CxxSP boilers and burners in version Model 2018 are equipped with the function of automatic closing or opening of the air supply to the boiler/burner (using the actuator) when heating with wood or pellets.

The boilers are equipped with an AGF2 (TSV) flue gas sensor and a KTF20 (TK) boiler water temperature sensor for function of automatic burner start after the wood burns out. Else the boilers are equipped with two KTF20 sensors (TV and TS) KTF20 for controlling the burner with two temperatures on the accumulation tank. The whole set is sold in the maximum range, for fully automatic mode and simple plug and play installation.

<table>
<thead>
<tr>
<th>TYPE ATMOS</th>
<th>C 18 SP</th>
<th>C 25 SP</th>
<th>DC 18 SP (L)</th>
<th>DC 25 SP (L)</th>
<th>DC 30 SPX</th>
<th>DC 32 SP (L)</th>
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<td>65</td>
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</table>

Combined boiler for wood and oil (ELTO – Extra Light Oil) have marking L at the end (e.g. DC 18 SPL).
The pneumatic pellet feeding APS 250, APS 500, APS 250 S are designed as a compact device used for comfortable supply of pellets to the boiler from a large tank placed outside the boiler room. Such tank is located within empty storage areas inside or outside the building heated. Tanks frequently have the form of textile silos that are easy and fast to install.

The compact pneumatic feeding of pellets ATMOS APS 250, 500 with the buffer tank is designed for boilers with output range from 5 to 80 kW.

- Maximum transport height 5 m
- Maximum transport distance 16 m
PELLET BURNERS
ATMOS A25/A45/A85

SPECIFIC FUEL
Quality wood pellets (white) with diameter 6–8 mm and length 5–25 mm with nominal heat energy 16–19 MJ/kg.

BURNER DISPLAY
Shows actual status of burner and for setting of burner parameters.

CONTROLL OF THE BURNER
The burner is controlled by AC07X (AC07) unit which controls external pellet conveyor, two heating electric spirals and fan based on requirement of the boiler and heating system. The function is controlled by boiler operating thermostat, safety thermostat, speed fan sensor of the burner, photocell which controls the flame. The function of the burner is displayed on the display of the electronic regulation.

FIRE UP OF FUEL
it is all automatic using two electric heating spirals

BASIC FUNCTION OF THE BURNERS
- control of burner based on two temperatures on buffer tank
- control of boiler exhaust ventilator through reserve output of burner
- control of pump in boiler circuit from burner
- control of pump of solar heating system
- automatic start of pellet burner after wood burns down for DCxxSP boilers
- control of pellet air pressure pneumatic cleaning
**BASIC FUNCTION OF THE BURNER**

It allows extra function of 2 outputs for controlling other applications.

The burner allows connection of extra 4 thermal sensors TS, TV, TK and TSV.

- **TS** – bottom sensor of accumulation tank
- **TV** – bottom sensor of accumulation tank
- **TK** – boiler temp. sensor
- **TSV** – waste gas temp. sensor

**FUEL SUPPLY**

The fuel is supplied by a screw conveyor and controlled from the electronic unit of the burner.

- For **burner A25** you can use shaftless conveyor DA 1500 with length 1.5 m, DA 2000 with length 2 m, DC 2500 with length 2.5 m, DA 3000 with length 3 m and DA 4000 with length 4 m. Their diameter is 75 mm.
- For **burners A45 and A85** you can use conveyors with a middle shaft DRA 50 with lengths 1.7 m, 2.5 m, 4 m, and 5 m. Their diameter is 80 mm.
SILO FOR PELLETS

AZPD/AZPU 240 – a set of 240 l silo with conveyor DRA25 – 1,3/1,7 m which is suitable for small boiler rooms. It allows placing beside the boiler to cover small place. The 240 litre silo contains 156 kg of pellets which provides energy of about 700 kWh (10 bags).

AZPD 300 – a set of 300l silo with conveyor DRA25 – 1,3 m which is suitable for small boiler rooms. It allows placing beside the boiler to cover small place. The 300 litre silo contains 195 kg of pellets which provides energy of about 880 kWh (13 bags).

AZPD/AZPU 400 – a set of 400l silo with conveyor DRA25 – 1,3 m which is suitable for small boiler rooms. It allows placing beside the boiler to cover small place. The 400 litre silo contains 260 kg of pellets which provides energy of about 1170 kWh (17 bags).

The smallest size silo suitable for all boilers designed for smaller boiler-rooms where we can not use bigger silo type. It contains 163 kg of pellets which means approximately 730 kWh (10 bags).

The middle size silo suitable for all boilers designed for smaller boiler-rooms where we can not use bigger silo type. It contains 325 kg of pellets which means approximately 1463 kWh (21 bags).

The biggest size silo. It contains 650 kg of pellets which means approximately 2925 kWh (43 bags).

All pellet silos allow installing pneumatic pellet conveying system on.
TEXTILE PELLET SILOS

<table>
<thead>
<tr>
<th>Model</th>
<th>Volume (m³)</th>
<th>Content (t)</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATZ 5</td>
<td>4.4 - 5.5</td>
<td>2.9 - 3.6</td>
<td>1960 x 1960 x 2320</td>
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<tr>
<td>ATZ 6</td>
<td>5.3 - 6.5</td>
<td>3.5 - 4.2</td>
<td>1960 x 2360 x 2320</td>
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<td>ATZ 7</td>
<td>6.3 - 7.9</td>
<td>4.1 - 5.1</td>
<td>2360 x 2360 x 2320</td>
</tr>
</tbody>
</table>

The silos are manufactured in three basic sizes for maximum usable volume of 4.5, 5.5 and 6.7 m³. The silo type or frequency of refilling in the heating season is easy to be set according to the basic rule: 1 kW of the needed output of the heat source = 0.5 m³ (325 kg) of pellets/year.
The best choice for pellets and wood...

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Technical changes Boiler dimensions and design during the year are possible.