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HOPING YOU WILL BE SATISFIED WITH OUR PRODUCT WE RECOMMEND YOU TO OBSERVE THESE MAIN PRINCIPLES, IMPORTANT FOR THE SERVICE LIFE AND PROPER FUNCTIONING OF THE BOILER

EN

1. The installation, lighting of the test fire and training of the operators shall be **performed by an installation company trained by the manufacturer**, which shall also fill in the boiler installation record (page 36).
2. When using pellets for heating only **use high-quality fuel with the diameter of 6 - 8 mm**, made of soft wood without bark and contaminants (white pellets).
3. During **fuel combustion** substances are produced that may damage the boiler body. Therefore, the boiler must be equipped with Laddomat 22 or a thermo-regulation valve to maintain **the minimum temperature of return water to the boiler of 65 °C**.
The operation temperature of the water in the boiler must be in the range of **80 - 90 °C**.
4. Each circulation pump in the system must be controlled by a thermostat so that **the minimum temperature of return water can be guaranteed**.
5. We recommend you to use the boiler in a system with **one equalizing tank** the volume of which should be 500 - 100 l to achieve a higher service life of the pellet burner and lower fuel consumption.



CAUTION - If the boiler is equipped with Laddomat 22 or a hot-water thermo-regulation valve TV 60 °C (65/70/72/77 °C) and an equalizing tank (see the attached diagrams), the boiler body is subject to an extended guarantee of 36 months instead of 24 months. The guarantee period of the other parts remains unchanged. If these principles are not observed, the service life of the boiler body may be considerably reduced due to low-temperature corrosion.



CAUTION - INSTALLER SHOULD ALWAYS COMPLY WITH LOCAL PLANNING AND BUILDING REQUIREMENTS.

1. Application

ATMOS D15PX and D20PX 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.**

2. Technical description

Boilers D15PX and D20PX are supplied as a complete plant with a built-in conveyor, pellet reservoir with the volume of 175 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 - 6 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 with a screw conveyor is located in the top part. Fuel metering is controlled fully automatically.

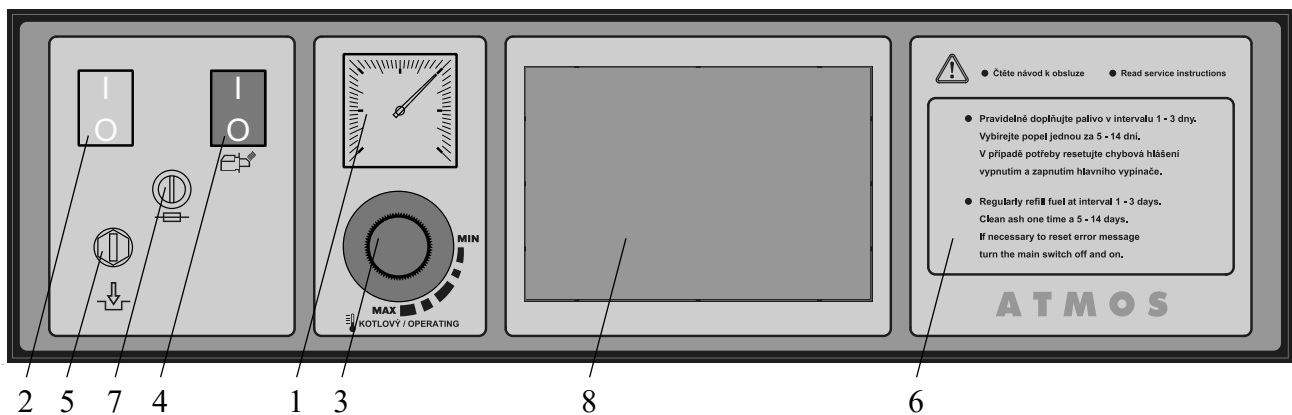
In the front part of the boiler there is a panel with the main switch, the switch of the pellet burner (L2), an operation (control) thermostat, a safety thermostat, a thermometer and a 6.3 A fuse.

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.



The DxxPX boiler with the ATMOS A25 burner, conveyor and fuel reservoir 175 l.

Layout of the instrument panel



- | | |
|---------------------------------------|---|
| 1. Thermometer | 5. Safety thermostat |
| 2. Main switch | 6. Main operating instructions |
| 3. Control thermostat (of the boiler) | 7. 6.3A fuse - T6, 3A/1500 - type H |
| 4. Burner switch (L2) | 8. Place for an electronic control unit (92x138 mm) |

Description:

- Thermometer** - monitors the output temperature of the boiler water
- Main switch** - allows you to switch off the whole boiler if necessary (restart the pellet burner)
- Control thermostat** - control the operation of the pellet burner by the output temperature of the boiler water
- Burner switch** - it is used to start the burner and to stop it (initiate the burn-down process) before cleaning of the boiler.
- Main operating instructions**
- Irreversible safety thermostat** - it serves as protection of the boiler from overheating in case of a failure of the control thermostat or as an indicator of exceeding of the emergency temperature - after exceeding of the emergency temperature it must be reset
- Fuse (6.3 A)** - protection of the electronic unit of the pellet burner
- The **place for an electronic control unit** of the heating system can be fitted with any control unit that matches the opening (92 x 138 cm), e.g. ACD01, ACD03. The electric harness is already prepared for its power supply.

3. Technical specifications

ATMOS boiler type		D15PX	D20PX
Boiler output	kW	4 - 15	6 - 20
Heat-delivery area	m ²	1,9	1,9
Fuel shaft volume (pellet tank)	dm ³	175	175
Filling opening dimensions	mm	542x480	542x480
Prescribed chimney draught	Pa	15	16
Max. working overpressure of water	kPa	250	250
Boiler weight	kg	345	345
Exhaust pipe diameter	mm	150/152	150/152
Boiler height	mm	1411	1411
Boiler width	mm	674	674
Boiler depth	mm	1447	1447
Ingress protection of the electric part	IP	20	
El. power input - on startup - in operation	W	572/1092 92	572/1092 92
Boiler efficiency	%	92,7	91,5
Boiler class		5	5
Energy efficiency class		A+	A+
Flue gas temperature at the nominal output (pellets)	°C	118	142
Weight flow of flue gas at the nominal output (pellets)	kg/s	0,011	0,015
Prescribed fuel (preferred)		high-quality pellets with the diameter of 6 - 8 mm and the calorific value of 16 - 19 MJ/kg ⁻¹	
Average consumption of fuel - pellets - at the nominal output	kg.h ⁻¹	3,6	4,5
Water volume in the boiler	l	76	76
Hydraulic loss of the boiler	mbar	0,20	0,20
Minimum volume of the equalizing tank	l	500	500
Mains voltage	V/Hz	230/50	
The prescribed minimum temperature of return water in operation is 65 °C. The prescribed operation temperature of the boiler is 80 - 90 °C.			

Captions for the diagrams of the boilers

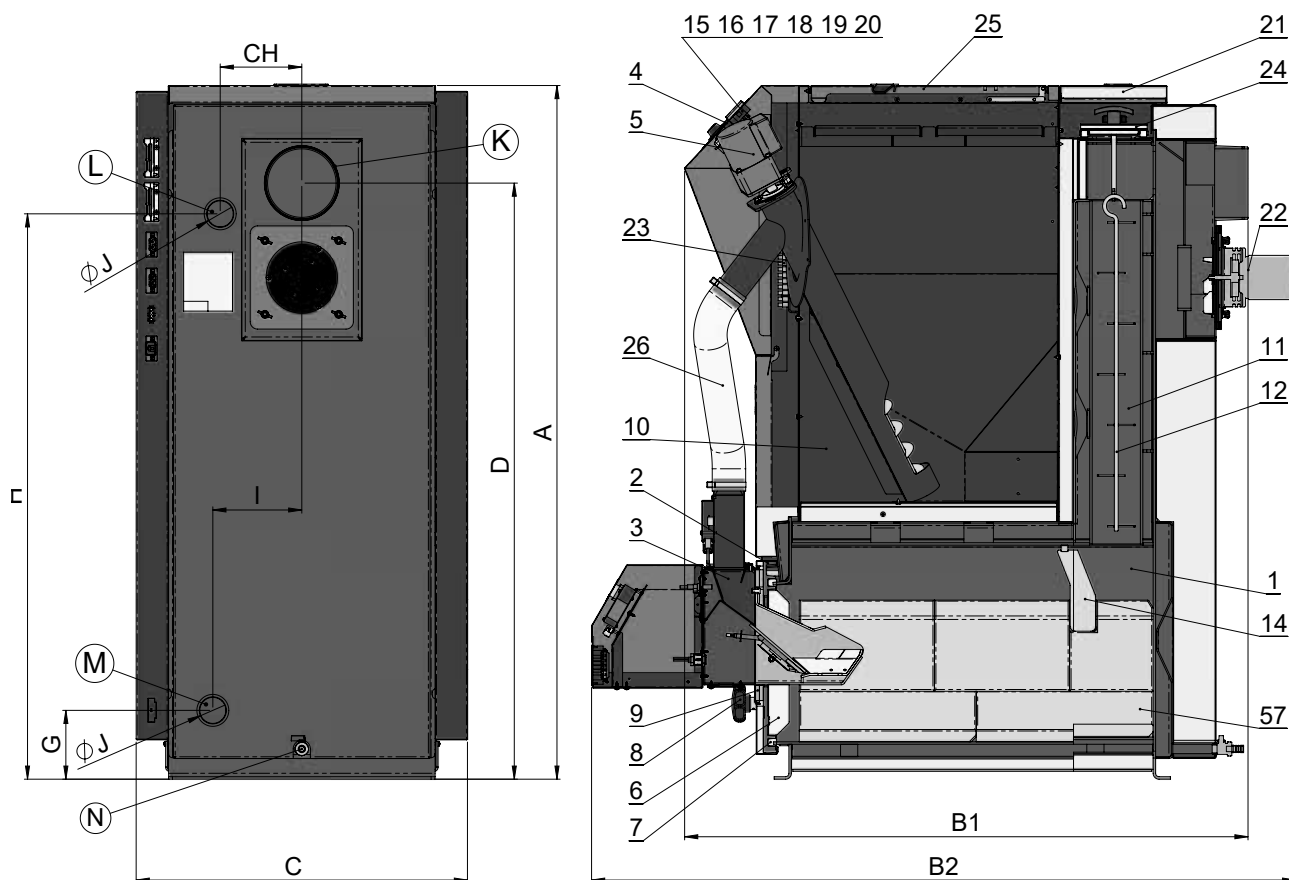
- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Boiler body 2. Cleaning door (code: S0459) 3. Pellet Burner ATMOS A25 - (code: H0044) 4. Control panel 5. Conveyor 6. Door filling - Sibrál - large with hole for the burner (code: S0266) 7. Door gasket, 18 x 18 mm (code: S0240) 8. Closure (code: S1047) 9. Insulation under the burner (code: S0164) 10. Fuel tank 175 l 11. Tube heat exchanger 12. The decelerator with a cleaning pull rod and handle 13. Heat-resistant fire brick – bottom of the combustion chamber 14. Heat-resistant fire brick – screen 15. Thermometer (code: S0041) 16. Main switch (red) (code: S0092) 17. Control (boiler) thermostat (code: S0021) | <ol style="list-style-type: none"> 18. Burner switch (black) (code: S0102) 19. Safety thermostat (code: S0068) 20. Fuse T6,3A/1500 - typ H 21. Cleaning lid cover 22. Exhaust fan 23. Condenser for exhaust fan - 1µF 24. Cleaning lid of the rear drain 25. Reservoir cover 26. Burner connecting hose – length 550 mm, Ø 60 mm |
|--|---|
-
- | |
|--|
| <p>K - flue gas orifice</p> <p>L - water outlet from the boiler</p> <p>M - water inlet to the boiler</p> <p>N - socket for the filling tap</p> |
|--|

Technical specifications

Dimensions	D15PX	D20PX
A	1411	1411
B1	1145	1145
B2	1447	1447
C	674	674
D	1213	1213
E	150/152	150/152
G	140	140
H	1150	1150
CH	166	166
I	166	166
J	6/4"	6/4"

Diagrams of the boilers

Sections of the D15PX and D20PX boilers

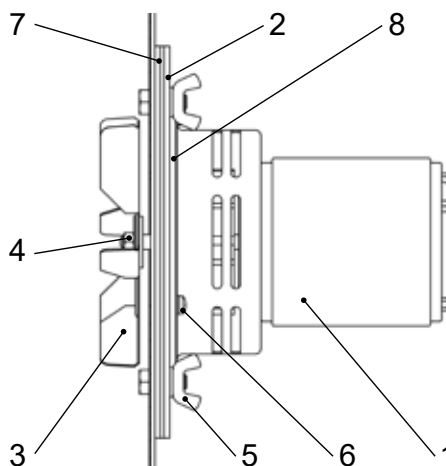


Exhaust fan schematics



CAUTION – The extraction ventilator is supplied disassembled. Place it over the rear flue-gas duct, tighten everything well, connect into a socket and test for its smooth operation.

- 1 - Motor
- 2 - Plate
- 3 - Rotating wheel (stainless steel)
- 4 - **Nut with left-handed thread** and washer
- 5 - Wing nut
- 6 - Bolt
- 7 - Large gasket (2 pcs)
- 8 - Small gasket



4. Fuel

The prescribed fuel are high-quality pellets of \varnothing 6 - 8 mm and the length of 10 - 25 mm and the calorific value of 16 - 19 MJ/kg¹. Such pellets are considered as high-quality pellets that do not disintegrate into sawdust and are made of soft wood without bark and other pollutants (white pellets). We also recommend you to burn pellets without biological additives that reduce burning-down of the fuel and increase ash production.



High-quality wooden pellets - white without black dots (bark)



Poor-quality wooden pellets - dark with bark (with black dots)

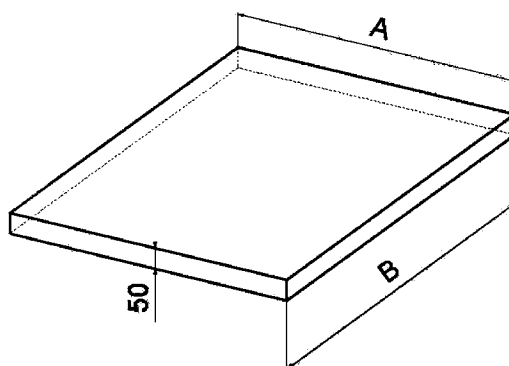
5. Accessories delivered with the boiler

Steel brushes with accessories	1 piece
Poker for cleaning of the boiler body	1 piece
Poker for easy cleaning of the combustion chamber of the pellet burner	1 piece
Filling tap	1 piece
Operation and maintenance manual	1 piece
Connecting burner pipe \varnothing 65 mm - length 550 mm	1 piece

6. Boiler foundations

Boiler type (mm)	A	B
D15PX, D20PX	700	1000

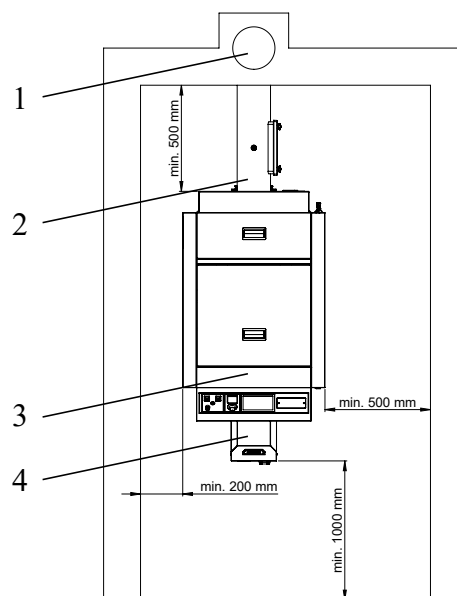
We recommend you to make concrete (metallic) foundations for the boiler.



7. Type of environment and location of the boiler with the burner in the boiler room

Boilers with a pellet burner may be used in the AA5/AB5 basic environment in accordance with the ČSN3320001 standard. Boilers must be installed in a boiler room with guaranteed sufficient supply of combustion air. It is unacceptable to locate boilers on residential premises (incl. corridors). The cross-section of the opening for supply of combustion air to the boiler room must be at least 350 cm² for boilers with an output of 15 - 45 kW.

1. Chimney
2. Flue gas duct
3. Boiler
4. A25 burner



8. Chimney

A boiler with a burner must always be connected to the chimney vent with consent of the responsible chimney maintenance company. The chimney vent must always produce sufficient draught and exhaust flue gas to the free atmosphere in virtually all operation conditions. For proper function of boiler the separate chimney vent must be properly dimensioned **as the combustion, output and service life of the boiler depends on its draught.** The draught of a boiler directly depends on its cross-section, height and roughness of the inner wall. No other device may be connected to the chimney to which a boiler is connected. **The diameter of the chimney must not be smaller than the outlet on the boiler (min. 150 mm).** The chimney draught must achieve prescribed values (see the technical specifications in the boiler manual). However, the boiler must not be excessively high so as not to reduce the efficiency of the boiler and not to disturb its combustion (tear the flame). In case of too strong draught install a throttling flap or draught reducer in the flue gas duct between the boiler and the chimney.

Guideline values of dimensions of the chimney cross-section:

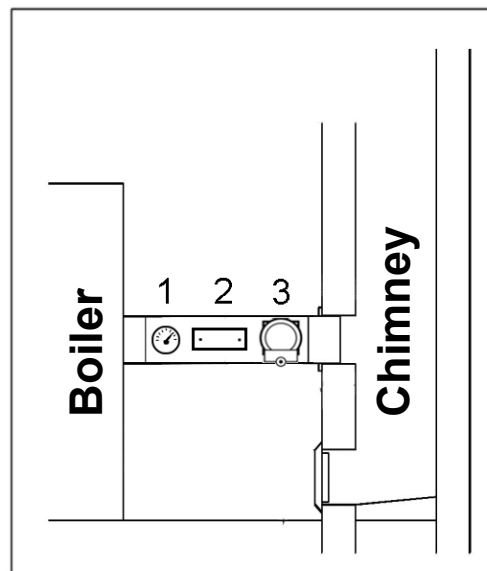
20 x 20 cm	height 7 m
Ø 20 cm	height 8 m
15x15cm	height 11 m
Ø 16 cm	height 12 m

The exact determination of chimney dimensions is defined by the ČSN 73 4201 standard.

The prescribed chimney draught is specified in the "Technical data" chapter of the manual of the particular boiler.

9. Flue gas duct of the boiler

The flue gas duct from the boiler must lead to the chimney vent. If the boiler cannot be connected directly to the chimney vent, the corresponding flue gas duct adapter must be as short as possible with regard to the particular conditions, but not longer than 1 m, without additional heating surface and it must rise towards the chimney. Flue gas ducts must be mechanically strong and leak-proof for flue gas and cleanable inside. Flue gas ducts must not lead through other owners' residential or commercial units. The inner cross-section of the flue gas duct must not be larger than the inner cross-section of the smoke uptake and must not get narrower towards the chimney. The use of smoke elbows is not suitable. Designs of passages of flue gas ducts through structures of flammable materials are defined in Annexes 2 and 3 of ČSN 061008 and are mainly suitable for mobile units, wooden huts, etc.



- 1 - Flue gas thermometer
- 2 - Cleaning opening
- 3 - Throttling flap (draught reducer)



INFO - In case of too strong draught of the chimney install a throttling flap or a draught reducer /3/ in the flue gas duct, see the ATMOS price list.

10. Fire protection within the installation and use of heat appliances

Extract from ČSN 061008 - Fire safety of local appliances and sources of heat

Safe distances

On installation of an appliance the safe distance from building materials must be maintained, at least 200 mm. This distance is valid for boilers and flue gas ducts located near flammable materials of the B, C1 and C2 flammability class (the flammability class is specified in tab. no. 1). The safety distance (200 mm) must be doubled if boilers and flue gas ducts are located near flammable materials of the C3 class (see tab. no.1). The safety distance must be doubled if the flammability class of flammable material is not evidenced. The safety distance may be reduced to a half (100 mm) if you use a non-flammable heat insulating panel (asbestos panel) with the thickness of at least 5 mm, located 25 mm from the protected flammable material (flammable insulation). A shielding panel or protective screen (on the protected object) must exceed the outline of the boilers (incl. flue gas ducts) at each side by at least 150 mm and the top surface of the boiler by at least 300 mm. A shielding panel or protective screen must also be used to protect fixtures of flammable materials if the safe distance cannot be maintained (e.g. in mobile units, huts, etc. - more details in ČSN 061008). The safety distance must also be maintained in case of installation of fixtures near boilers.

If boilers are located on a floor of flammable materials, they must be installed on a non-flammable, heat-insulating pad, exceeding the ground plan at the side of the feeding and ashpan opening by at least 300 mm before the opening - at the other sides by at least 100 mm. As non-flammable, heat insulation pads you can use all materials of the A flammability class.

Tab. 1

Flammability classes of building materials and products	
A - no flammability	granite, sandstone, concrete, brick, ceramic tiles, mortar, fire-resistant plastering, etc.
B - difficult flammability	Akumin, Izomin, cemented fibreboard, Lignos, panels of basalt felt, fibreglass panels, Novodur
C1- poor flammability	hardwood (oak, beech), hardboard panels, plywood, Sirkolit, Werzalit, hardened paper (Formica, Ecrona)
C2- medium flammability	softwood (pine, larch, spruce), chipboard and cork panels, rubber flooring (Industrial, Super)
C3- high flammability	Fibreboard panels (Hobra, Sololak, Sololit), cellulose materials, polyurethane, polystyrene, polyethylene, lightened PVC



WARNING - In circumstances leading to the danger of transient ingress of flammable gases or vapours and during work that might result in a temporary risk of a fire or explosion (e.g. gluing of linoleum, PVC, etc.) the boilers must be put out of operation in time before the occurrence of the danger. **No objects of flammable substances may be put on the burner and boiler in a smaller distance than the safe distance from them (more - see ČSN EN 13501-1).**

11. Connection of boilers to the electric mains

The boilers are connected to 230 V, 50 Hz mains with a mains cable without a plug. The mains supply cable in case of repair it must be replaced with the same type by the servicing organization. Connection, maintenance and reparation can be made only by a qualified person in accordance with valid regulations of the particular country.



CAUTION - The mains cable must not be equipped with a plug (designed to be connected to a socket). It must be connected in a fixed way to a switchboard or junction box to avoid confusion of the conductors.

Mains cable must be regularly checked and maintained in the prescribed condition. It is forbidden to interfere in to the safety circuits and elements for safe and reliable operation of the boiler. If any damage of electrical equipment must be the boiler out of operation, disconnect from the mains and ensure a qualified repair according to applicable standards and regulations.

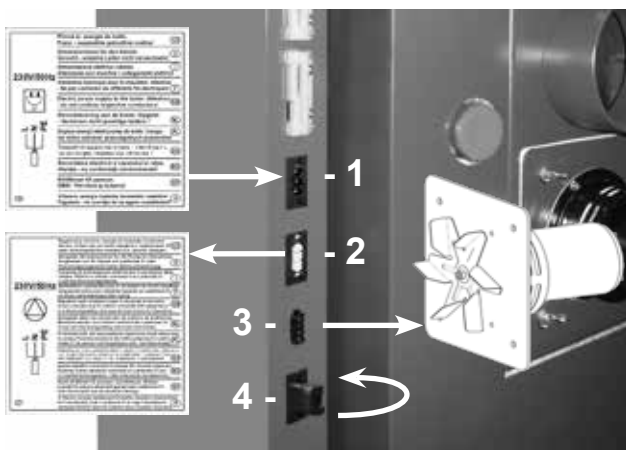


Electrical installation of the boiler under the front bonnet

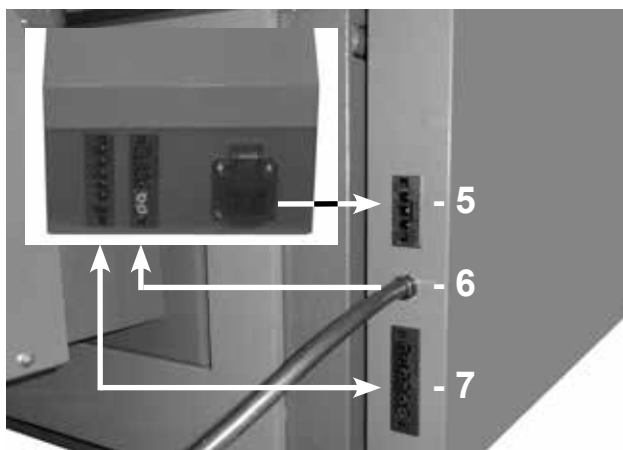


Location of the starting capacitor (1µF) for an exhaust fan

Connectors in the right side hood:



Connectors in the back part of right side hood



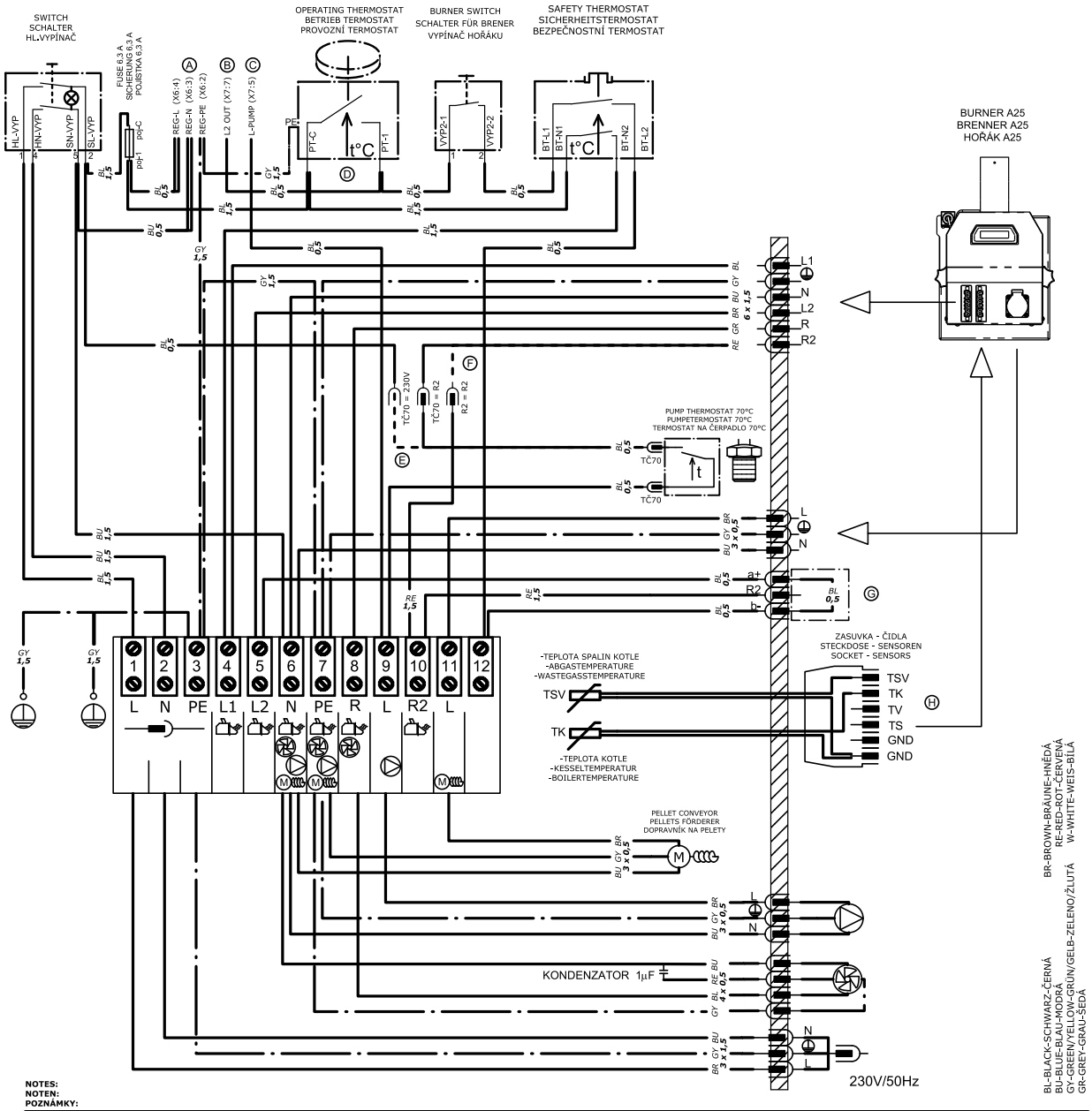
Connectors in the front part of right side hood

- 1 - connector for power cord - black (L - brown, N - blue, PE - green/yellow)
- 2 - connector for pump in boiler circuit - white (L - brown, N - blue, PE - green/yellow)
- 3 - connector for exhaust fan
- 4 - connector for external regulator of the boiler (with jumper) - do not disconnect the connector
- 5 - connector for control of the boiler conveyor from the ATMOS A25 burner
- 6 - temperature sensor outlet – TSV sensor of flue-gas temperature in the exchanger and the TK boiler temperature sensor
- 7 - connector for burner ATMOS connection model AC07X - (L1, L2, R, R2,N, PE)

Example of mounting of the TV and TS sensors leading from the burner to the equalizing tank for control of the boiler operation by two temperatures. An example of fixing the connection during installation of pneumatic cleaning of the pellet burner (connection of the burner and compressor).



12. Electric wiring diagram for the D15PX and D20PX boiler with an extraction fan - model AC07X with a 6-pin connector



- NOTES:**
NOTEN:
POZNÁMKY:
- A** VARIANTS OF RESERVOIR POINTS "REG L,N,PE" (FERRULE/FASTON 6,3) FOR ELECTRONIC REGULATION
SPEISEKLEMMEN-VARIANTEN "REG L,N,PE" (ADRENDHÜLSE/FASTON 6,3) FÜR ELEKTRONISCHE REGELUNG
VARIANTY NÁPĚJECÍCH SVOREK "REG L,N,PE" (DUTINKA/FASTON 6,3) PRO ELEKTRONICKOU REGULACI
 - B** RESERVOIR POINT "L2 OUT" OF BURNER AND FAN TO THE ELECTRONIC REGULATION (ACD01)
SPEISEKLEMME "L2 OUT" DER BRENNER UND VENTILATOR FÜR DIE ELEKTRONISCHE REGELUNG (ACD01)
PŘÍPOJOVACÍ SVORKA "L2 OUT" HOŘÁKU A VENTILÁTORU DO ELEKTRONICKÉ REGULACE (ACD01)
 - C** RESERVOIR POINT "L PUMP" OF BOILER PUMP TO THE ELECTRONIC REGULATION (ACD01)
SPEISEKLEMME "L PUMP" DER KESSELPUMPE FÜR DIE ELEKTRONISCHE REGELUNG (ACD01)
PŘÍPOJOVACÍ SVORKA "L PUMP" KOTLOVÉHO ČERPADLA DO ELEKTRONICKÉ REGULACE (ACD01)
 - D** WHEN ELECTRONIC REGULATION CONTROL BURNER - CONNECTORS "PT-C" AND "PT-F" MUST BE UNCONNECT
DEN KONNEKTOREN "PT-C" UND "PT-F" ABKLEMMEN BEI DER BRENNERBEDIENUNG DER ELEKTRONISCHE REGELUNG
KONEKTORY "PT-C" A "PT-F" ODPJOJIT PŘI OVLÁDÁNÍ HOŘÁKU ELEKTRONICKOU REGULACÍ
 - E** CONTROL OF BOILER PUMP FROM BURNER A25: TC70=R2 / CONTROL OF BOILER PUMP ONLY FROM PUMP THERMOSTAT TC70: TC70=230V / CONTROL OF BOILER PUMP FROM ELECTRONIC REGULATOR: UNCONNECT CONNECTOR TC70
KESSELPUMPE BEDIENUNG BEI DER BRENNER A25 REGELUNG: TC70=R2 / KESSELPUMPE BEDIENUNG NUR BEI DER PUMPE THERMOSTAT TC70: TC70=230V / KESSELPUMPE BEDIENUNG BEI DER ELEKTRON. REGELUNG: DEN KONNEKTOREN TC70 ABKLEMMEN
OVLÁDÁNÍ ČERPADLA KOTLE Z HOŘÁKU A25: TC70=R2 / OVLÁDÁNÍ ČERPADLA KOTLE POUZE TERMOSTATEM TC70: TC70=230V / OVLÁDÁNÍ ČERPADLA KOTLE Z ELEKTRONICKÉ REGULACE: ODPJOJIT KONEKTOR TC70
 - F** OUTPUT R2 OF THE BURNER A25 CONTROL OF BOILER PUMP: R2=TC70 / OUTPUT R2 OF THE BURNER A25 IS USED FOR OTHER CONTROL: R2=R2
AUSGANG R2 VON BRENNER A25 STEUERT DIE KESSELPUMPE: R2=TC70 / AUSGANG R2 VON BRENNER A25 IST FÜR DIE ANDERE STEUERUNG VERWENDET: R2=R2
VÝSTUP R2 Z HOŘÁKU A25 OVLÁDÁ ČERPADLO KOTLE: R2=TC70 / VÝSTUP R2 Z HOŘÁKU A25 JE POUŽITA NA JINÉ OVLÁDÁNÍ: R2=R2
 - G** 3P CONNECTOR WITH PLUG
3P KONNEKTOR MIT KLEME
3P KONEKTOR S KLEMOU
 - H** SENSOR "TK" AND SENSOR "TSV" FOR BURNER A25
KESSEL WASSER FÜHLER "TK" UND KESSEL ABGAS FÜHLER "TSV" FÜR BRENNER A25
ČIDLO "TK" A ČIDLO "TSV" PRO HOŘÁK A25

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INFO - In case that you want to control the pump in the boiler circuit according only to the temperature set in the ATMOS A25 pellet burner, disconnect the thermostat of the pump 70 °C – item E.

15. Obligatory ČSN EN standards for the design and installation of boilers

- ČSN EN 303-5 - Central heating boilers using solid fuel
- ČSN 06 0310 - Central heating, design and installation
- ČSN 06 0830 - Safety devices for central heating and hot water preparation
- ČSN EN 73 4201 - Designing of chimneys and flues
- ČSN EN 1443 - Chimney structures - General requirements
- ČSN 06 1008 - Fire safety of local appliances and sources of heat
- ČSN EN 13501-1 - Fire classification of construction products and building structures - part 1
- ČSN EN 1264-1 - Floor heating - Systems and components - Definitions and marking
- ČSN EN 1264-2 - Floor heating - Systems and components - Heat output calculation
- ČSN EN 1264-3 - Floor heating - Systems and components - Design
- ČSN EN 442-2 - Heating elements - Tests and their evaluation

Standards for evaluation of conformity and other technical standards:

ČSN EN ISO 12100:2012, ČSN EN 953+A1:2009, ČSN EN ISO 11202:2011, ČSN EN ISO 3746:2011, ČSN ISO 1819:1993, ČSN EN 60335-1ed.2:2003



CAUTION - The installation of the boiler must always be carried out in accordance with a prepared design. The boiler may only be installed by persons trained by the manufacturer.

16. Selection and method of connection of control and heating-system elements

The boilers are delivered to the user with the basic control of the boiler output, which complies with the requirements for the heating comfort and safety. **The control ensures the required output temperature of the boiler water (80 - 90 °C).** Boilers are equipped with connector for connection of the pump in the boiler circuit and functions for its control directly from the regulation of the ATMOS A25 burner or together through the thermostat of the pump TP 70 °C (connected in series - from serial production). The connection of these elements is indicated in the electric wiring diagram.

Each pump in the system must be controlled with a separate thermostat **to avoid cooling of the boiler at the return line** below 65 °C.

If the boiler is installed without a storage or equalizing tank, the pump in the circuit of the heated building must be controlled by a separate thermostat or electronic control unit to only run when the pump in the boiler circuit is running. Therefore switch the pump in the circuit of the heated building if the boiler temperature is higher than 80 °C.

If there is very good spontaneous (gravity) circulation of water between the boiler and the system, which increase the time necessary for the boiler to reach the required temperature, we can disconnect TČ70 °C pump thermostat and decrease switching temperature for the pump in boiler circuit to a lower temperature (Parameter S37).

The required water temperature for the building is always set with the use of a three-way mixing valve. The mixing valve may be controlled manually or with an electronic control unit, which will contribute to more comfortable and more economical operation of the heating system. **The way of connection of all the elements is always determined by the designer in accordance with the specific**

conditions of the heating system. The electric installation related to the sufficient equipment of the boilers with the above mentioned elements must be implemented by a qualified person in accordance with valid ČSN EN standard. If you install the ACD01, ACD03/04 electronic control unit, follow the instructions in the operation manual of this unit. Connect this control unit in the boiler in accordance with the electric wiring diagram in this manual. **Never switch off the ACD01, ACD03/04 electronic control unit outside the heating season (with the main switch on the boiler)!**

When connecting the boiler with the equalizing (accumulation) reservoir, the boiler is controlled best according two TS and TV sensors located on the tank. Switching of pumps in the system circuit in this case does not depend on the boiler temperature and therefore it is solved according to potential requirements of the system.



For the installation of the boiler can be use an open expansion vessel; however, it may also be closed if permitted by the legislation of the particular country. You must install the boiler in such a way to avoid its overheating and consequent damage even in case of a power supply failure.



During the installation support the back part of the boiler to raise it by 10 mm to facilitate its rinsing and bleeding.

For the control of the heating system we recommend the following controllers:

- a) ATMOS ACD 03 / 04 - Eqvithermal controller for solid fuel boilers
- b) ATMOS ACD 01 - Eqvithermal controller set for solid fuel boilers
- c) KOMEX THERM, Praha tel.: +420 235 313 284
- d) KTR, Uherský Brod tel.: +420 572 633 985

17. Protection of the boiler from corrosion

The prescribed solution consists in the installation of the boiler with **Laddomat 22**, or a thermo-regulation 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. **The output water temperature of the boiler must be permanently in the range of 80 - 90 °C**. Another variant is connection of the boiler with a three-way mixing valve with an actuator controlled from the electronic controller (e.g., ATMOS ACD01, ACD03, ACD04) to keep minimum temperature of the water returning to the boiler (65 - 75 °C).

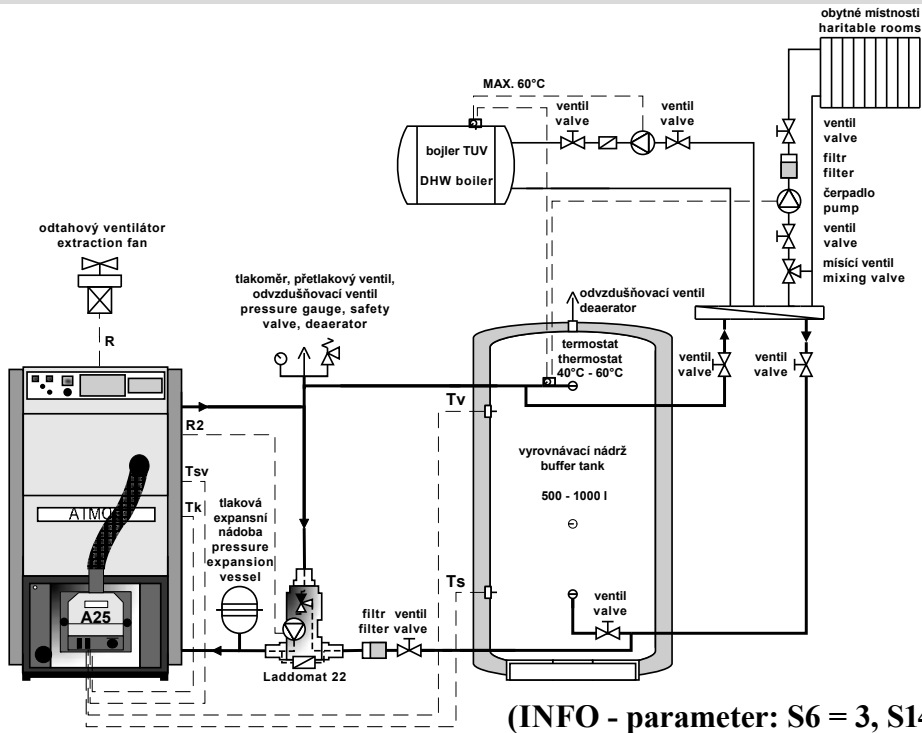
The flue gas temperature must not drop **below 110 °C** during normal operation. A low flue gas temperature causes condensation of tar and acids even though the output water temperature (80 - 90 °C) and the return water temperature (65 °C) is maintained. These situations may occur e.g. in case of a wrong setting of the pellet burner (low output - ALARM SETTINGS).

The D15PX and D20PX boilers are equipped with a function **for the control of flue-gas temperature**. In case of bad adjustment of the output (too low), the boiler is shutdown and alarm is activated – ALARM SETTINGS.

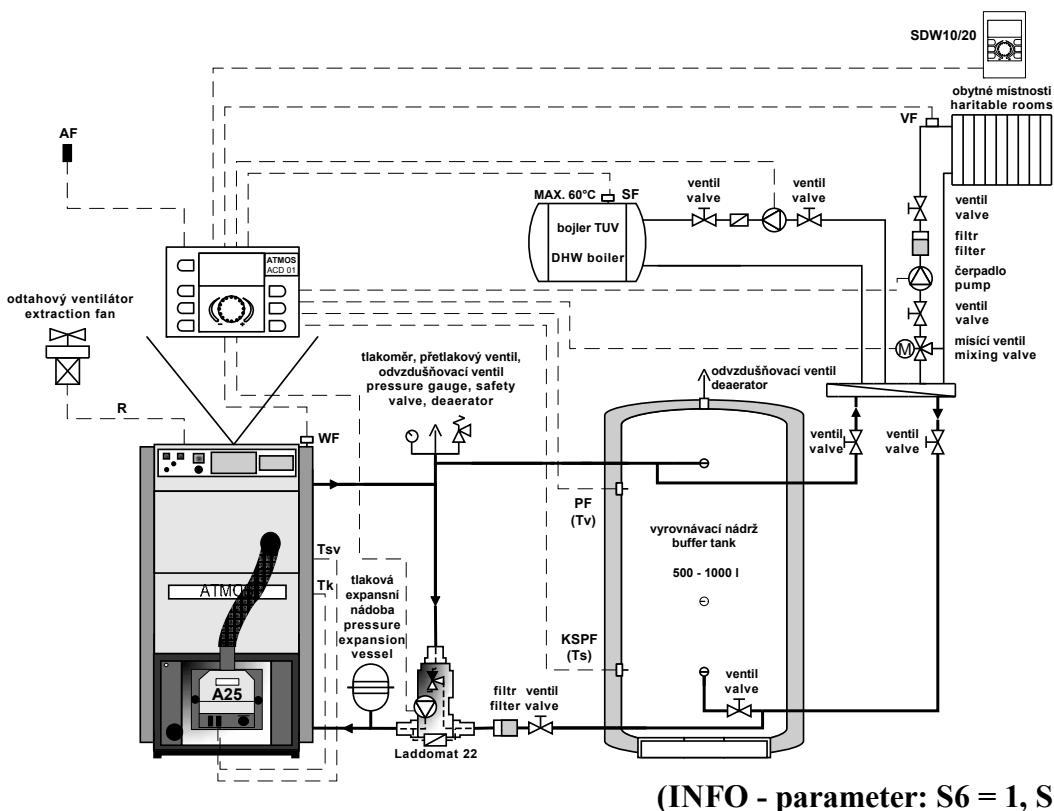


CAUTION - We recommend you to always use the D15PX, D20PX boilers in combination with an equalizing tank with the volume of 500 to 1000 l.

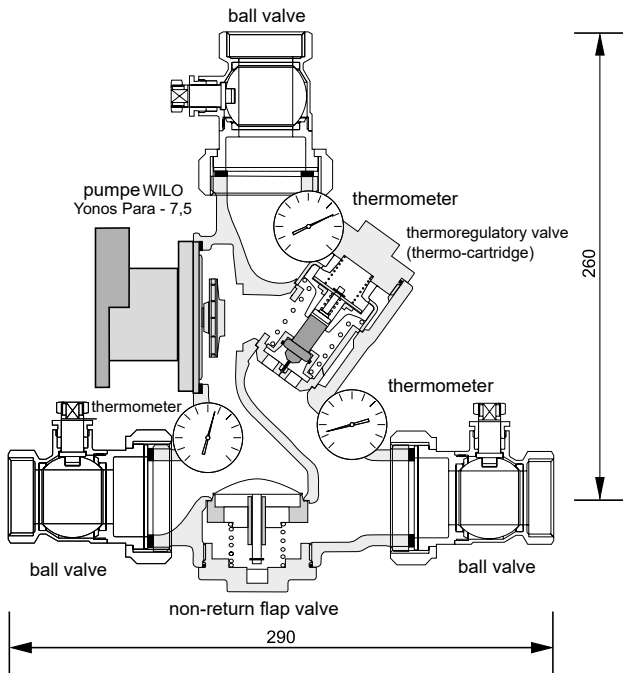
18. D15PX, D20PX boiler connection with buffer tank to control the burner by TV and TS sensors and boiler pump control from the burner by boiler temperature (sensor TK)



19. D15PX, D20PX boiler connection with buffer tank and regulation ACD01



20. Laddomat 22



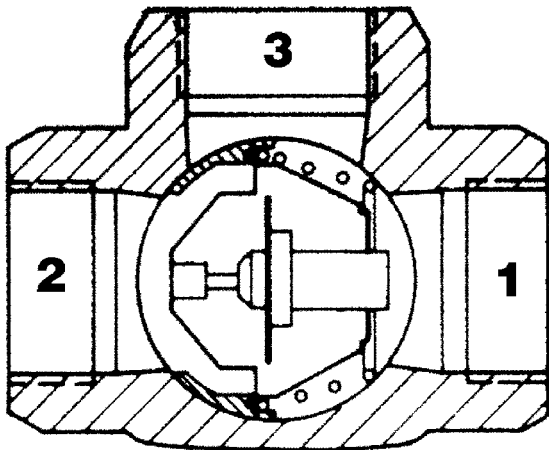
With its construction, Laddomat 22 replaces the traditional connection composed of individual parts. It is composed of a cast-iron body, thermoregulatory valve, pump, non-return flap valve, ball valves and thermometers. When the water temperature reaches 78 °C, the thermoregulatory valve opens the water supply from the storage tank. The connection with Laddomat 22 is considerably easier and therefore, we recommend it. A spare thermo-cartridge of 72 °C is supplied with the Laddomat 22 device. It is used for boilers over 32 kW.

OPERATION DATA	
Max. operating pressure	0,25 MPa
Design pressure	0,25 MPa
Test over pressure	0,33 MPa
Highest operating temperature	100 °C



INFO - For boilers with an **output from 15 up to 100 kW** we recommend using **Laddomat 22**, which is factory fitted with thermo-cartridge of 78 °C.

21. Thermoregulatory valve



Thermoregulatory valve type, TV 60 °C (65/70/72/77 °C) is used with solid fuel boilers. When the boiler water temperature reaches + 60 °C (65 °C), the thermoregulatory valve opens and fluid from the building heating circuit (2) enters the boiler circuit (3 →1).

Inlets 1 and 3 always remain open. This ensures that the minimum temperature of the water returning to the boiler is maintained. If need be, a thermoregulatory valve set to a higher temperature (E.g. 70/72/77 °C) may be used.

Recommended sizes of the thermoregulatory valve TV 60 °C (65/70/72/77 °C)

For boilers: D15PX, D20PX DN25, DN32

22. Operation instructions

Preparation of boilers for the operation

Before putting the boiler in operation you must make sure that the system is filled with water and bled. You must always operate the boiler in accordance with the instructions contained in this manual to achieve high quality and safety of the functionality of the boiler. **The boiler may only be operated by adult persons.** The commissioning of the boiler must be done in accordance with this manual and the operation manuals attached to the pellets burner by a qualified person.

Before igniting pellets perform several operations. Check all the lids and doors for proper closing. Check whether the burner is properly tightened to the boiler over the gasket and that the end switch stop is in its place. Also, check the hose between the burner and the conveyor for proper tensioning and such inclination that allows free falling of pellets to the burner (pipe length - 550 mm). They must not accumulate in the hose!

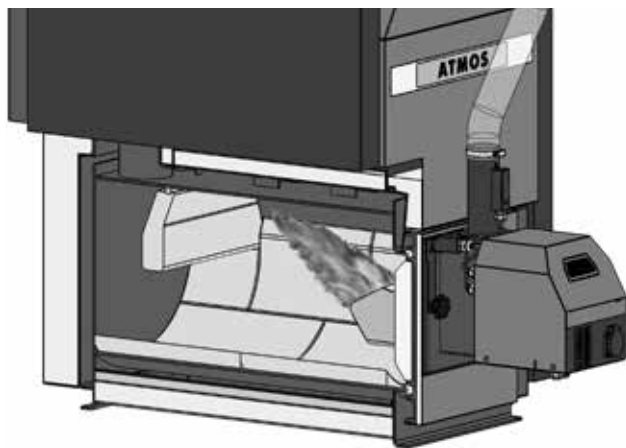
Pellets can be pumped to the conveyor by inserting the supply cable of the conveyor into a normal socket 230V/50Hz. When the pellets begin to fall out of the conveyor, insert the cable back into the socket on the burner and proceed to the control itself. This pumping is performed with a new boiler only. During normal operation, after a situation when there are no pellets in the reservoir, only switch off and on the main switch on the boiler board.

If everything is OK, switch on the main switch (red) and the pellet burner switch (black) and this way the boiler is put into operation. After automatic ignition of the burner, flaring up and achieving the required output (about 30 - 40 min), perform adjustment of the boiler.

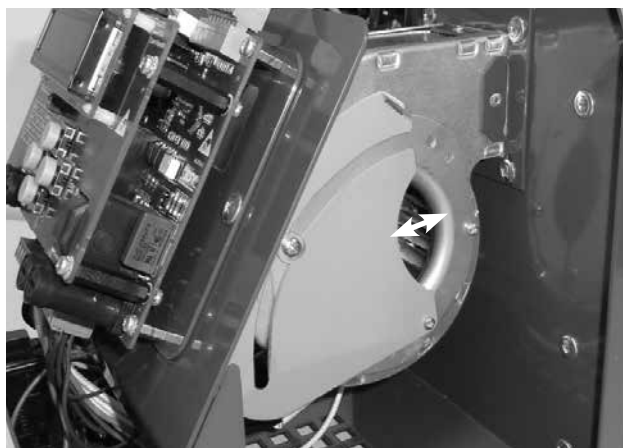
Adjust combustion of the burner (boiler) with the use of a flue gas analyzer in the measurement place (opening) in the flue between the boiler and the chimney. Always adjust the burner in a stabilized condition, approx. 20 - 30 minutes after fuel ignition. If there is no flue gas analyzer available for the boiler adjustment at the moment, you can adjust the pellet burner „roughly by guesswork“. Set the quantity of fuel and combustion air in such a way to stop the flame 10 cm before the opposite ceramic screen (the flame should not touch the wall). However, the flames must not turn at the opposite wall. In such a way add combustion air (open the fan flap) or reduce the fuel supply (burner parameters T4 and T6).



CAUTION - This adjustment does not replace adjustment made with the use of a flue gas analyzer by a qualified person. Changes of settings of the boiler and burner may only be performed by a person that is qualified in accordance with all the valid regulations, ČSN and EN standards.

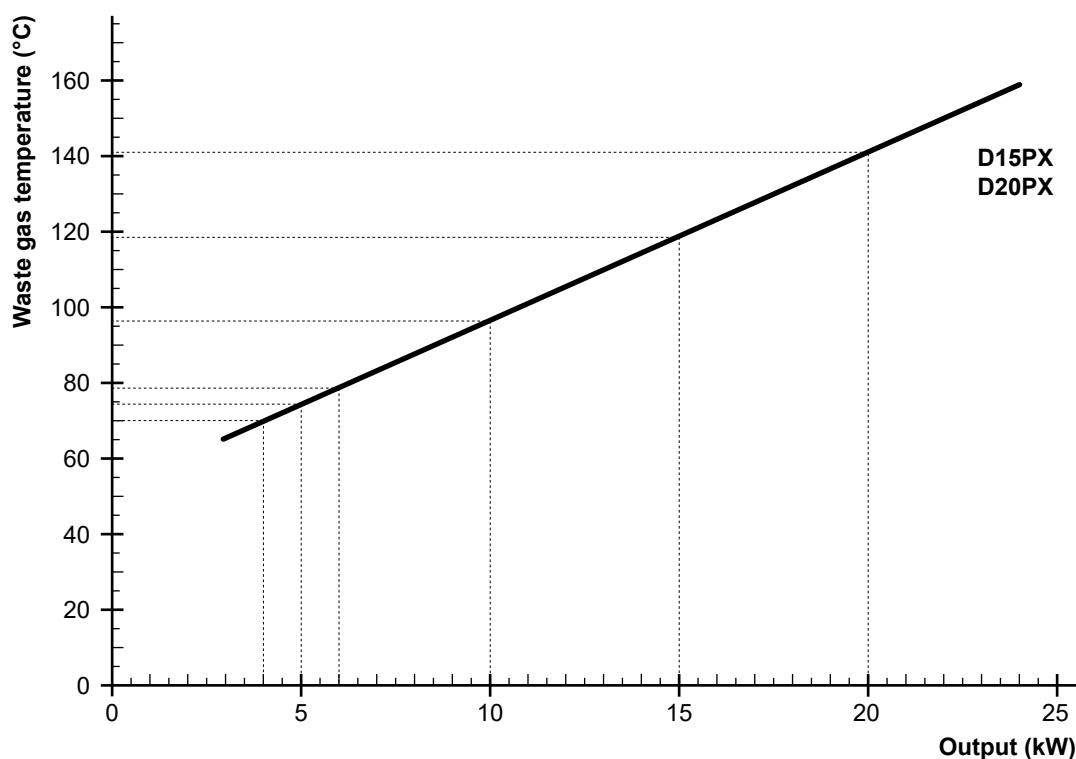


Burner flame ending 10 cm before the opposite wall.



Fan of the burner with an air flap. By opening the air flap you will reduce the length of the flame.

Relation of waste gas temperature to boiler (burner) output when burning pellets



It is a linear dependence at stabilised state and with a clean boiler.



INFO - According to the relation of waste gas temperature to output we can easily estimate the actual output of the burner. The displayed curves correspond to a stabil state after 2 hours from pellet burner start in the cleaned boiler.

23. Procedure for optimal adjustment of the boiler for wood pellets

In order to maximise the results of measurements of emissions and energy efficiency of ATMOS boilers, the following main conditions must be met:

Fuel:

Type of pellets: wood pellets, Ø 6 - 8 mm, length 5 - 25 mm

Quality of pellets: white pellets with minimum ash content, low content of dust, non-agglomerating, without crust

The chimney draught: must be in agreement with the instructions for use.

D15PX 15 Pa (0,15 mbar)

D20PX 16 Pa (0,16 mbar)

There must not be great changes in the chimney draught during operation and measurement of the boiler. (e.g., due to wind) **Maximum ± 2 Pa (0.02 mbar)**

Boiler firing up:

Prior to commissioning of the boiler (making fire) check whether the burner, boiler, flue-gas ducting and chimney are properly clean. Check all lids, doors, hose between the conveyor and burner and the burner itself that it is properly fixed and tightened to the boiler.

Any hole or leakage would distort the measured energy efficiency of the boiler and quality of combustion.

Perform commissioning of the boiler.

Measurement of emissions: with flue-gas analyser

Measurement point: 300 to 500 mm behind the boiler output

Time of measurement: perform measurement and combustion adjustment in the steady state about 30 to 40 minutes from ignition of fuel.



ATTENTION – the measurement should be performed at least 10 minutes after the time defined by the parameter T10 – gradual start of the burner to the normal output (set by manufacturer to T10 = 10 to 20 minutes after ignition).

The burner output is defined by T4 and T6 parameters

Parametr T4 – time of operation of the screw conveyor after standstill period

Parametr T6 – standstill time of the screw conveyor after operation period

The recommended default setting is available in the instructions for use of the burner for a specific output.

The recommended approximate adjustment of the burner for DxxPX boilers individual outputs and pellets with the diameter of 6 mm:

Boiler output	Parameter T1	Parameter T4	Parameter T6	Parameter S3	Opening of the air flap on the burner fan of a boiler with an exhaust fan
20 – 22 kW	70 s	5 s	13 s	90 %	1/2 (27 mm)
15 – 16 kW	70 s	3,5 s	14 s	70 %	1/4 (12 mm)

In DxxPX and PXxx boilers, do not set the burner output below 15 kW because of too low flue-gas temperature and possible condensation in the chimney. The boiler is equipped with a function of protection against too low flue-gas temperature – ALARM SETTINGS

The general rule, however, is that in practice the burner output is set by 30% lower than heat losses of the object. In fact, the pellet burner is a hard source of energy. The exception are only systems with a high volume of water or old stone objects where we set the burner output equal to heat losses of the object.

Combustion quality and adjustment:

The quality of combustion is set by opening the flap on the burner fan or by changing revolutions of the burner fan defined by **S3 parameter**.

S3 parameter – fan revolutions under normal **OPERATION**

The fuel amount and the amount of combustion air must be adjusted so that the flame ends (10 cm) before the rear ceramic screen of the boiler – (the flame must not lick the wall). Under no circumstances should the flames turn over on the opposite wall. If it happens, it is necessary to add combustion air by opening the flap on the burner fan or to decrease fuel dosage – see the instructions for use of the ATMOS burner.

If the flame is, however, too short, the flap on the burner fan must be partly closed or revolutions of the burner fan must be decreased (S3 parameter). But do not lower the S3 parameter below 60 %.

Recommended values of O₂ in combustion products according to the boiler type:

The excess of oxygen (O₂) in combustion products is adjusted so that it is in the range from (7) 8 to 9 (10)% at average CO < 250 mg/m³ at O₂ ref = 10 (13) %. This adjustment is optimal for common practice when the customer combusts various types of pellets with a certain tolerance of caloric value.

During an authorized measurement of combustion quality performed by chimney sweeper it is recommended to set the excess of oxygen in combustion products to the minimum value. This is a general principle that the lower the excess of oxygen in combustion products the better are the resulting recalculated values of the measurement.

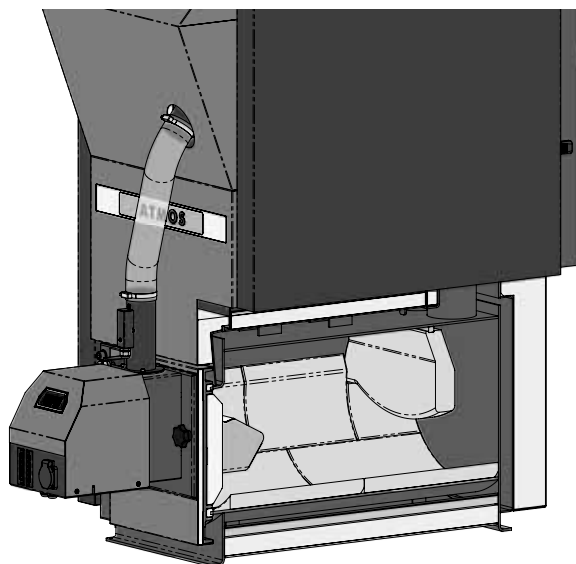
As for the dust measurement in combustion products (dust), the principles are the same as for CO measurement. However, it is necessary to know that precise measurement of the dust is based on regular cleaning of the measuring instrument immediately after measurement and preferably also before the following measurement. **Unsufficient cleaning is a frequent problem of these instruments!**



ATTENTION – never open the filling or cleaning openings of the boiler during measurement.

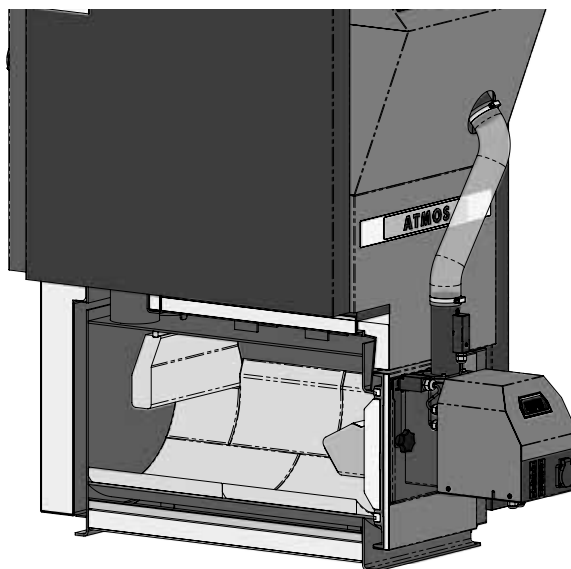
24. Placing the shaped pieces into the combustion chamber

Boiler D15PX



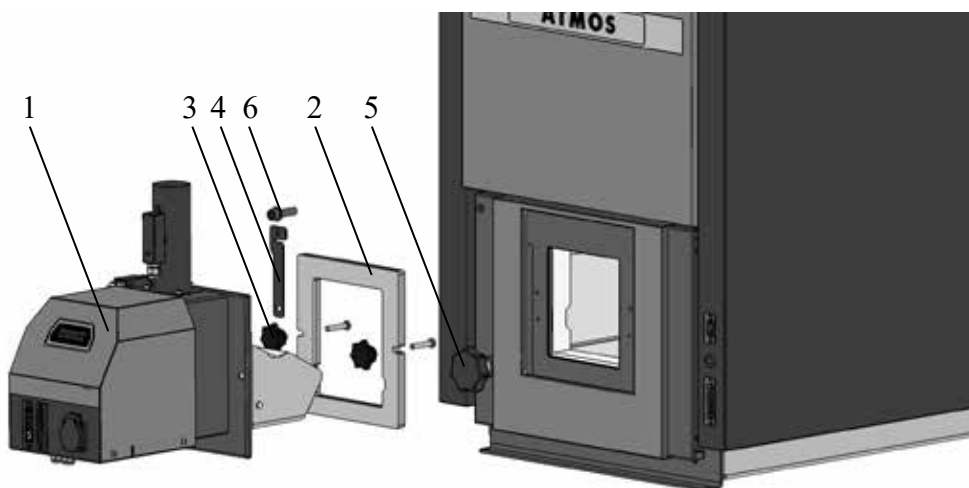
Rear screen of the combustion chamber with the nose and sealing cord

Boiler D20PX



Rear screen of the combustion chamber with a straight lower edge and sealing cord

25. A25 burner connection for the D15PX and D20PX boilers



- 1 - ATMOS A25 pellet burner (code: H0044)
- 2 - Sibal sealing - small (code: S0164)
- 3 - Two M8 decorative nuts (code: S0411)

- 4 - end switch stop (code: H0237)
- 5 - door closure (code: S1047)
- 6 - safety bolt (code: S0765)

26. D15PX and D20PX boilers in space of boiler room



- 1 - ATMOS D15PX, D20PX boiler
- 2 - ATMOS A25 pellet burner
- 3 - pellet tank 175 l
- 4 - boiler circuit

- 5 - Laddomat 22 with pump
- 6 - buffer tank 500 - 1000 l
- 7 - sensor TV
- 8 - sensor TS



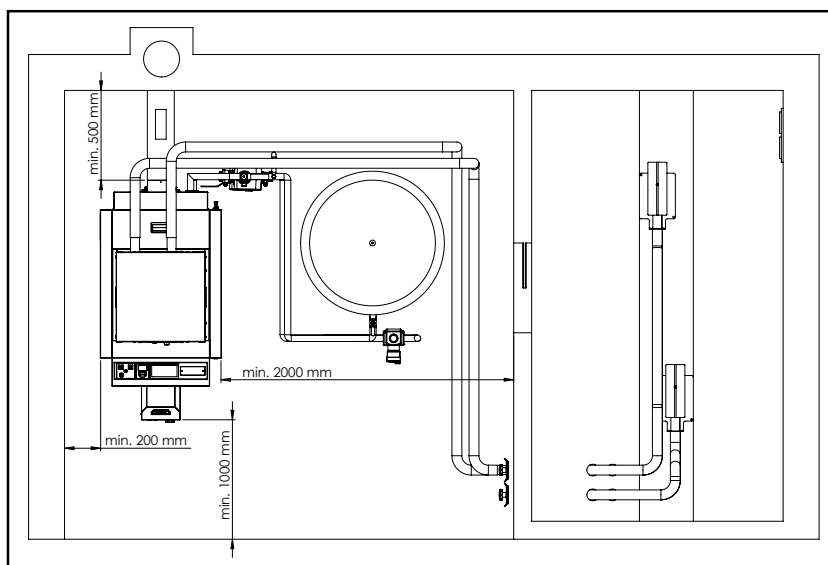
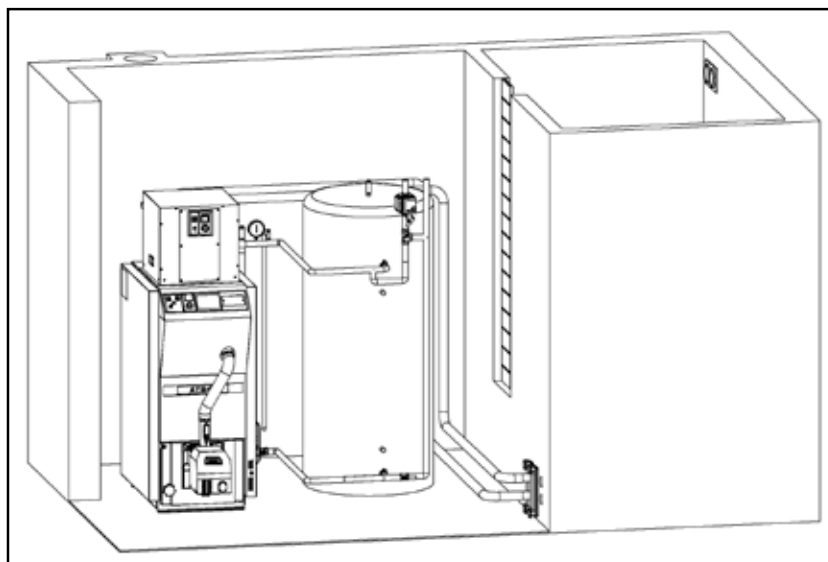
INFO - Boilers D15PX and D20PX are supplied as a compact device with the ATMOS A25 burner, integrated pellet reservoir with the volume of 175 l and conveyor. The recommended installation is with the buffer tank and control of operation with TV and TS sensors.

27. Boiler room with the DxxPX boiler and a large built-in pellet storage with multipoint sucking of pellets with pneumatic feeder ATMOS APS 250 SPX

The boiler room with the D15PX or D20PX boiler with the pneumatic pellet feeder ATMOS APS 250 SPX (connected directly to the boiler) in combination with multipoint sucking of pellets from a big pellet reservoir (silo). Two circuit changer enable to swap (change) between two pneumatic probes placed in the big pellet silo. The pneumatic feeder serves for automatic feeding of boiler tank from the big external pellet silo which is placed inside or outside the building.

This system uses pellets diameter 5 - 10 mm from outside silo. Can be in max. distance of 15 m (pipe length 2x 15 m) with the elevation max. 6 m.

Designed for boilers with output range from 5 to 80 kW. Power consumption of the pneumatic feeder is 1590 W. The device is not running continuously but only when the pellet reservoir in the boiler is empty.



CAUTION - If pellets are drawn to the storage in the boiler plant directly from the cistern, several principles must be observed that prevent their crushing during pneumatic transport. First of all you must make sure that they do not hit the hard wall of the storage, but a screen that is suspended in the centre of the storage from the ceiling. This way you will ensure even filling of the storage and prevent crushing into small pellets and dust. Ask the pellet suppliers about further possibilities and conditions of pellet drawing.

28. Refuelling

The boiler is equipped with an integrated fuel tank 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. Switch off and on the main switch (red) on the boiler board to remove alarm and restart the boiler. 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 refuelling interval is too short for your needs, an attachment with the height of 200 mm (65 l) or 300 mm (95 l) can be added (to buy) to the tank of the boiler. It is, however, necessary to buy additional step ladder for convenient refuelling according to all valid safety regulations. However, additional buying of the pneumatic pellet feeder **ATMOS APS 250 SPX** for convenient automatic refuelling from any silo, e.g., for the whole season (textile silo, separate room), is the ideal solution.

The D15PX and D20PX boilers are equipped with a function for the control of flue-gas temperature. In case of bad adjustment of the output (too low), the boiler is shutdown and alarm is activated – **ALARM SETTINGS**.



Example of standard refuelling with pellets from 15 kg bags. Protection grill never take out of the boiler.



Example of the boiler with the pneumatic pellet feeder **ATMOS APS 250 SPX**

29. Cleaning of the boilers and ash removal

The burner and the boiler must be cleaned regularly and thoroughly once every 1 to 14 days depending on the quality of pellets and the output setting. Fly-ash and dirt accumulated in the combustion chamber of the burner and boiler considerably reduce the service life and output. Do the regular cleaning of the boiler in such a way that you first let the burner burn out (turn off the

burner switch (black) /18/). Open the cleaning door and clean the combustion chamber of the burner including the air openings in the chamber with the provided poker. If the combustion chamber of the burner is heavily soiled, remove it for cleaning and knock it out.

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!

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.

To thoroughly clean the tube exchanger, firstly remove the decelerators from the tube plate together with the lid and clean it with the provided brush. Also, do not forget to clean the back smoke channel and scrape the walls of the combustion chamber of the boiler with the provided poker or brush. Put everything in the original condition after the cleaning. The ash removal from the lower chamber is always performed after operation cleaning of the tube exchanger since the dust falls to the lower chamber when cleaning the tube plate so there are no other cleaning opening necessary in the boiler!

The interval of the cleaning and ash removal depends on the fuel quality, heating intensity, chimney draught and other circumstances, and it must be observed therefore.

At least once a year clean (sweep) the rotating wheel of the draught fan and remove the pellet burner and clean it completely – see the instructions for use of the burner.



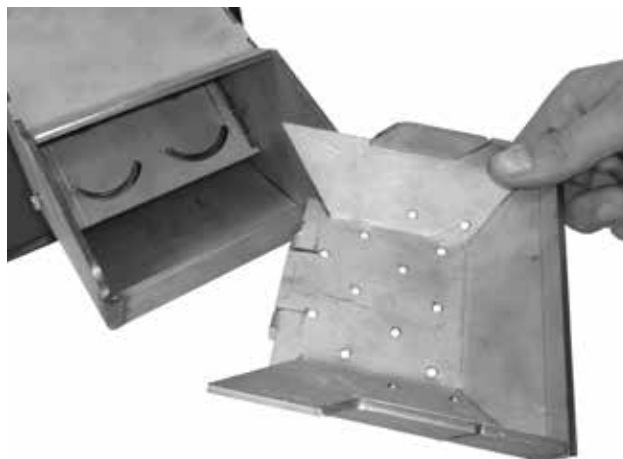
NOTE – Regular and thorough cleaning is important to ensure continuous output and service life of the boiler. If insufficiently cleaned, the boiler and the burner can be damaged – and the guarantee will expire.



INFO – 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 forming certain agglomerates. See accessories for ATMOS boilers.



Open combustion chamber of the boiler during cleaning of the combustion chamber of the burner ATMOS A25



Removable combustion chamber of the burner with air supply openings - must be cleaned regularly



Combustion area of the boiler with an example of ash removal with the ash pan



Example of operation cleaning of the tube heat exchanger and decelerators with short movements up and down



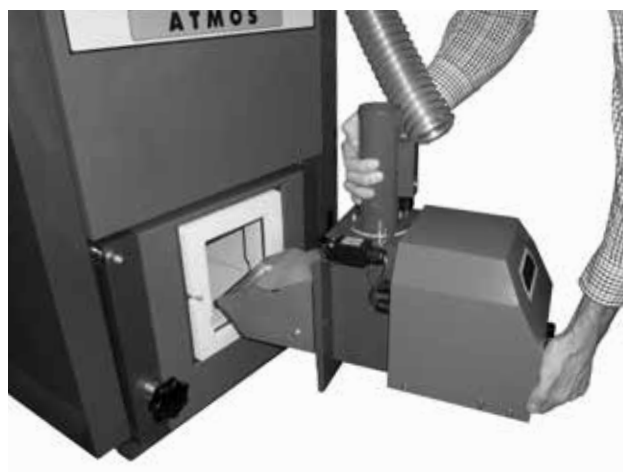
Example of removal of decelerators from the tube exchanger (tube plate) before thorough cleaning



Thorough cleaning of the tube exchanger (tube plates) with the brush



Sample of impeller cleaning and checking of vane on extract ventilator



Burner removing for year servicing and cleaning

30. Maintenance of the heating system, including boilers

At least once every 2 weeks check or replenish water in the heating system. If the boilers are out of operation in winter, there is a danger of water freezing in the system and therefore you had better drain water from the system or fill it with an antifreeze mixture. Otherwise, only drain water in inevitable cases and for the shortest possible time. After the end of the heating season thoroughly clean the boiler and replace the damaged parts. **Do not wait with the replacement of parts until the last moment; prepare the boiler for the heating system in spring already.**

31. Operation and supervision

Boiler operators must always follow the operation and maintenance instructions. Interventions into boilers that could endanger the health of the operators or other persons in the vicinity are prohibited. Boilers may only be operated by a person that is more than 18 years old, that has been acquainted with the instructions and operation of the equipment and that complies with the requirements of § 14 of the Directive no. 24/1984 Coll. The boiler operation needed increased attention to safety in terms of potential burns from hot boiler parts and systems. You must never leave unattended children near boiler that is in operation. During the operation of solid fuel boilers it is prohibited to use any flammable liquids for lighting the fire and it is also prohibited to increase the nominal output of the boiler during operation (overheating). **You must not put flammable objects on the boiler and near the fuel feeding and ash pan openings and ash must be stored in non-flammable containers with a lid.** When handling fuel and ash, wear protective equipment (gloves, dust mask). Boilers in operation must be under occasional supervision of the operator. The user may only carry out repair consisting in simple replacement of a spare part (e.g. a sealing cord, etc.). During the operation check the doors and cleaning openings for tightness and always tighten them properly. The user must not alter the structure and electric installation of boilers. The boiler must always be cleaned properly and in time so that free passage of all the ways can be guaranteed. Cleaning doors must always be properly closed.



CAUTION - Follow valid fire regulations and have in reach portable fire extinguisher. If any non-standard behavior of the boiler shut down the boiler from operation and call the service.

32. Possible failuress and troubleshooting

Problem	Cause	Remedy
The “mains” indicator does not light up (main switch (red))	<ul style="list-style-type: none"> - no mains voltage - incorrectly inserted plug in the mains socket - faulty main switch - defective cord 	<ul style="list-style-type: none"> - check - check - replace - replace
The boiler does not achieve the set output and the set water temperature	<ul style="list-style-type: none"> - little water in the heating system - high output of the pump - the output of the boiler is not sufficiently sized for the particular hot-water system - poor-quality fuel - low chimney draught - high chimney draught - insufficiently cleaned boiler 	<ul style="list-style-type: none"> - replenish - adjust the flow and pump control - design issue - burn high-quality pellets - new chimney, unsuitable connection - install a throttling flap in the flue or a pressure reducer - clean
Leaky doors	<ul style="list-style-type: none"> - faulty glass cord - low chimney draught 	<ul style="list-style-type: none"> - replace - adjust the door hinges - faulty in the chimney
Defects and shortcomings of the burner, conveyor and the deashing system	<ul style="list-style-type: none"> - no more fuel - the fuel is cindered and blocks the chamber on the burner - the hose between the conveyor and the burner gets clogged - the burner does not provide the required output - the worm conveyor does not run (stops) - other defects of the burner 	<ul style="list-style-type: none"> - refill pellets - clean the combustion chamber and hose replace pellets or clean the combustion chamber of the burner once a day until you burn all the poor-quality pellets, equip the burner with pneumatic cleaning of the combustion chamber - low calorific value of the pellets, change the setting - replace the gearbox of the conveyor - defect - check the quality of pellets, high resistance (diameter, length) - follow the operation instructions of the burner

ALARM SETTINGS - DOPLNIT PELETY	poorly adjusted output of the burner which has the effect of low temperature of combustion products lack of pellets in the fuel reservoir (limit state)	Increase the burner output by changing the T4 and T6 parameters, add pellets Add pellets Switch off and on the main switch (red) to remove alarm
ALARM PELLETS - DOPLNIT PELETY	lack of pellets in the fuel reservoir	Add pellets Switch off and on the main switch (red) to remove alarm

33. Spare parts

Thermometer /15/ (code: S0041)	1
Main switch (red) /16/ (code: S0092)	1
Burner switch (black) /16/ (code: S0102)	1
Control (regulating) thermostat /17/ (code: S0021)	1
Safety thermostat /19/ (code: S0068)	1
Fuse T6,3A/1500-typ H /20/ (code: S0200)	1
Door sealing cord, 18 x 18 /7/ (code: S0240)	1
Sibral gasket under the pellet burner (with an opening) /9/ (code: S0164)	1
Flue brake for the tube heat exchanger (code: P0482)	3
Exhaust fan /22/ (code: S0131)	1
Capacitor for the exhaust fan - 1 μ F (code: S0171)	1
Impeller of exhasut fan Ø 150 mm (code: S0141)	1

Replacing the door sealing cord

Procedure: Use a screwdriver to remove the old cord and clean the groove where it was seated. Use a hammer to slightly shape the cord from the square cross-section to the trapezoidal cross-section. Grip the cord and impress it along the perimeter of the door (with the narrower base to the groove) to make it sit in the groove (you can use a small hammer as an auxiliary tool). Grip the door decorative nut in the open position and then repeatedly slowly slam the door until the cord is pressed in the groove and the door can be closed. Finally, adjust the position of the wheel where the cam of the closure gets engaged. Only using this procedure you can guarantee tightness of the door!

Adjusting the door hinges and closures

Cleaning doors are firmly connected to the boiler body with a set of two hinges. A hinge consists of a nut that is welded to the boiler body and an adjustment crew to which the door is fixed with a pin. If you want to change the setting of the hinges, first release and lift the top hood (control panel), knock both the pins out, remove the door and turn the adjusting screw (hinge) with the right thread as necessary. Put everything in the original condition in the reverse order.

The door closure consists of a lever with a decorative nut and a cam that engages to a wheel that is screwed to the boiler and secured with a nut preventing its turning. After a certain time the sealing cord in the door gets compressed and therefore the wheel should be screwed deeper into the boiler. So release the nut on the wheel and screw it into the boiler in such a way that the handle can indicate 20 minutes on an imaginary clock dial after firm closing of the door. Finally, tighten the nut.

34. Environment protection

ATMOS gasification boilers comply with the most stringent environmental requirements. The boilers are certified in accordance with the EN 303-5 European Standard and belong to class 5.

Disposal of the boiler after the end of its service life

You must ensure ENVIRONMENT-FRIENDLY disposal of individual parts of the boiler.

Properly remove fly-ash from the boiler before its disposal and put it in a dustbin.

Scrap the boiler body and the hoods.

Ceramic parts and insulation - discard to a legal dumping site.



NOTE - To ensure environment-friendly heating you must not burn any other fuel or substances in the boiler than specified. This is mainly the case of plastic bags, various types of plastic materials, paint, textiles, glass fibre as well as sawdust, sludge, vegetable (biological) pellets, dust coal.

GUARANTEE CONDITIONS

Hot-water boiler

1. If adhered to the product's use, operation and maintenance as described in the instruction manual, we guarantee that the product will maintain the characteristics as stipulated by the corresponding technical standards and terms for the duration of a guarantee period – of 24 months after the product's acquisition by the user, a maximum of 32 months after the manufacturer sells it to the sales representative. If the boiler is installed with Laddomat 22 or with a TV 60 °C (65/70/72/77 °C) thermoregulatory valve in combination with the accumulation storage tanks (see attached schematics), the guarantee period for the boiler drum is extended from 24 to 36 months. The guarantee period for other parts remains unaffected.
2. If a defect not caused by the user, appears on the product during the guarantee period, the defect will be repaired free of charge.
3. The guarantee period is extended by the period of time for which has the product been under repair.
4. A claim to provide a guarantee period repair shall be made by the customer at the service company.
5. The guarantee claim is justified only in cases where the boiler installation was carried out by a person trained by the manufacturer and in compliance with valid standards and the instruction manual. A necessary condition for justifying a guarantee claim is possession of a legible and complete record identifying the company who installed the boiler. If the installation was not carried out in a professional manner, the subsequent costs are borne by the company that carried out the installation.
6. The purchaser was familiarised with the use and operation of the product – in a provable way.
7. A claim to provide an after-guarantee period repair shall be made by the customer at the service company, too. In this case, the customer bears the repair costs.
8. The user is obliged to adhere to instructions from the operation and maintenance manual. If the operation and maintenance manual is not adhered to, in cases of negligent or unprofessional handling, or burning prohibited substances, the guarantee expires and the repair costs are borne by the customer.
9. Boiler installation and operation must be in compliance with the instruction manual where the outgoing water temperature is in the 80 - 90 °C range and the temperature of water returning to boiler at least 65 °C in all its operation modes.
10. There is an obligation to have the boiler inspection carried out including its controls settings, structural elements and extraction system by an expert company at least once a year – confirmed in a warranty card

For boilers designated for the Czech Republic, Poland, Russia, Romania, Lithuania, Latvia and Hungary no guarantee conditions or insurance policies from outside these countries apply.

Guarantee and post-guarantee period repairs are carried out by:

- installation company that carried out the installation

**- Jaroslav Cankář a syn ATMOS, Velenského 487, 294 21 Bělá pod Bezdězem,
Czech Republic, Telephone. +420 326 701 404**

RECORD OF INSTALLATION OF THE BOILER AND BURNER

The installation was performed by:

Company:

Street: Town:

Telephone: Country:

Ascertained data:

Chimney:

Dimensions:

Height:

Chimney draught:*

Date of last inspection:

Flue-gas duct:

Diameter:

Length:

Number of elbow pieces:

Waste gas temperature:*

Boiler connected with mixing valves and fittings (brief description of connection):

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Fuel:

Type:

Size:

Moisture content:*

Measured data:

Waste gas temperature: °C

Emissions in stabilised state : CO

CO₂

O₂

Person responsible for the inspection: Date:

Stamp :

(Responsible person's signature)

Customer's signature:

* measured values

ANNUAL INSPECTIONS RECORDS

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Date	Date	Date	Date
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RECORDS OF GUARANTEE PERIOD AND POST-GUARANTEE PERIOD REPAIRS

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