

Operation Manual

Contents

1. Application	5
2. Technical description	5
Layout of the instrument panel	6
3. Technical specifications	7
Captions for the diagrams of the boilers	8
Technical specifications	8
Diagrams of the boilers	9
Sections of the D14P, D21P and D25P boiler	9
4. Accessories delivered with the boiler	10
Automatic removal of ash from the boiler body	10
5. Fuel	11
6. Boiler foundations	11
7. Type of environment and location of the boiler with the burner in the boiler room	12
8. Chimney	12
9. Flue gas duct of the boiler	13
10. Fire protection within the installation and use of heat appliances	13
11. Connection of boilers to the electric mains	14
12. Electric wiring diagram of the electro-mechanical control for the D14P, D21P and D25P boilers without an exhaust valve with a 5-pin connector	15
13. Obligatory ČSN EN standards for the design and installation of boilers	16
14. Selection and method of connection of control and heating-system elements	16
15. Protection of the boiler from corrosion	17
16. Basic connection diagram of the boiler with an equalizing tank and burner control by the TS and TV sensor	17
17. Diagram of prescribed connection of the boiler with an equalizing tank and the ACD01 control unit	18
18. Connection diagram of the boiler with Laddomat 21	18
19. Laddomat 21	19
20. Thermoregulatory valve	19
21. Operation instructions	20
Preparation of boilers for the operation	20
22. Burner connection for the D14P, D21P and D25P boilers	21
23. Boiler system with an external storage container and conveyor	21
24. Boiler room with a large built-in pellet storage	22
25. Cleaning of the boilers and ash removal	23
26. Maintenance of the heating system, including boilers	24
27. Operation and supervision	24
28. Možné závady a způsob jejich odstranění	24
29. Spare parts	25
Replacing the door sealing cord	25
Adjusting the door hinges and closures	26
30. Environment protection	26
Disposal of the boiler after the end of its service life	26
GUARANTEE CONDITIONS	27
RECORD OF INSTALLATION OF THE BOILER AND BURNER	28
ANNUAL INSPECTIONS RECORDS	29
RECORDS OF GUARANTEE PERIOD AND POST-GUARANTEE PERIOD REPAIRS	30

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

GB

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 28).
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 21 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 separate 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.



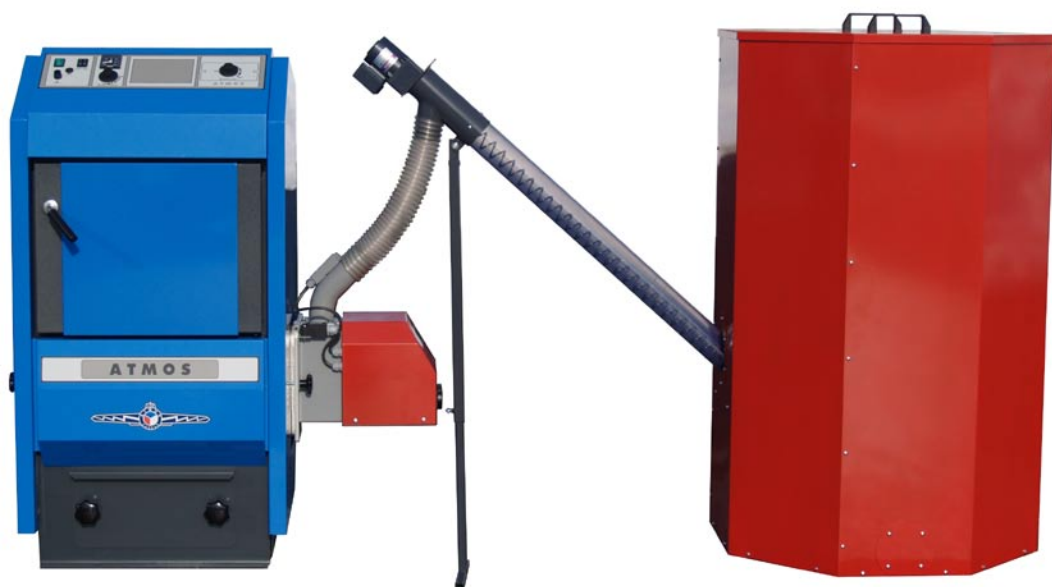
CAUTION - If the boiler is equipped with Laddomat 21 or a hot-water thermo-regulation valve - 60°C and an equalizing tank (see the attached diagrams), the boiler body is subject to an extended guarantee of 36 months instead of 24 months. The guarantee period of the other parts remains unchanged. If these principles are not observed, the service life of the boiler body may be considerably reduced due to low-temperature corrosion.

1. Application

ATMOS D14P, D21P and D25P hot-water boilers are designed for convenient heating of family houses, holiday homes and other buildings with pellets. 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.**

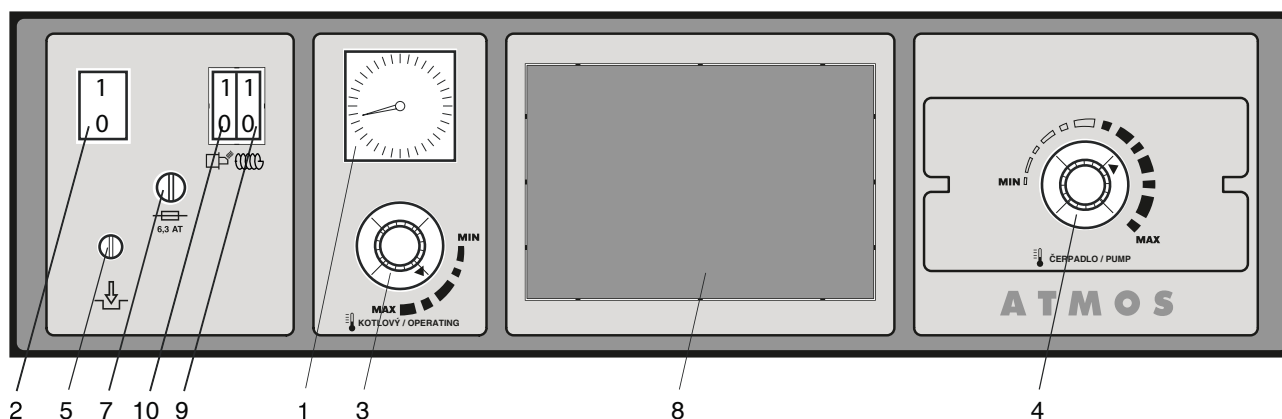
2. Technical description

The boilers are designed in such a way that in their left or right side an ATMOS A25 pellet burner with a conveyor is installed that is attached to a boiler frame with an 18 x 32 mm sealing cord with the use of screws. The boiler body is made as a weldment of steel sheets with the thickness of 3-6 mm. It consists of a combustion chamber that is equipped in its top part with a three-tube exchanger with inserted decelerators that increase efficiency. In the bottom part of the boiler there is a large ash pan. The front part of the boiler is equipped in its top part with a cleaning door behind which **a stainless-steel screen ensuring high quality of fuel combustion with high efficiency is inserted.** The boiler body is insulated from the outside with mineral felt located under the sheet-metal covers of the outer boiler jacket. In the top part of the boiler there is a panel with the main switch, the automatic deashing switch (if installed), the switch of the pellet burner, an operation (control) thermostat, a pump thermostat, a safety thermostat, a thermometer and a 6.3A fuse. In the bottom right part of the boiler there is a blind flange for additional installation of automatic ash discharge. 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.



Boiler with an ATMOS A25 burner, a 500 l fuel container and a 1.5 m conveyor.

Layout of the instrument panel



- | | |
|---------------------------------------|---|
| 1. Thermometer | |
| 2. Main switch | 7. 6.3A fuse - T6, 3A/1500 - type H |
| 3. Control thermostat (of the boiler) | 8. Place for an electronic control unit (92x138 mm) |
| 4. Pump thermostat | 9. Automatic deashing switch |
| 5. Safety thermostat | 10. Burner switch |

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
- Pump thermostat** - it is designed to switch the pump in the boiler circuit (set to a temperature of 70-80°C)
- 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 (92x138 cm), e.g. ACD01. The electric harness is already prepared for its power supply.
- Automatic deashing switch** - it is used to switch off deashing for the purpose of emptying of the auxiliary ash pan and restart of automatic deashing. By turning the switch off and on you will activate the deashing module in such a way that it will stop emitting the warning sound and start the automatic deashing operation.
- Burner switch** - it is used to start the burner and to stop it (initiate the burn-down process) before cleaning of the boiler.

3. Technical specifications

ATMOS boiler type		D14P	D21P	D25P
Boiler output	kW	4-14	4-19,5	7 -24
Heat-delivery area	m ²	1,7	1,7	2
Fuel shaft volume	dm ³	88	88	105
Filling opening dimensions	mm	270x450	270x450	270x450
Prescribed chimney draught	Pa	16	18	22
Max. working overpressure of water	kPa	250	250	250
Boiler weight	kg	231	231	254
Exhaust orifice diameter	mm	152	152	152
Boiler height	mm	1207	1207	1207
Boiler width	mm	620	620	620
Boiler depth	mm	768	768	868
Ingress protection of the electric part	IP	20		
El. power input - on startup - in operation	W	522 42	522 42	522 42
Boiler efficiency	%	90,3	90,2	90,2
Boiler class		3		
Flue gas temperature at the nominal output (pellets)	°C	127	147	151
Weight flow of flue gas at the nominal output (pellets)	kg/s	0,011	0,015	0,018
Prescribed fuel		high-quality pellets with the diameter of 6 - 8 mm and the calorific value of 15 - 18 MJ/kg		
Average consumption of fuel - pellets - at the nominal output	kg.h ⁻¹	3,5	4,5	5,4
Water volume in the boiler	l	56	56	62
Hydraulic loss of the boiler	mbar	0,18	0,18	0,19
Minimum volume of the equalizing tank	l	500	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

GB

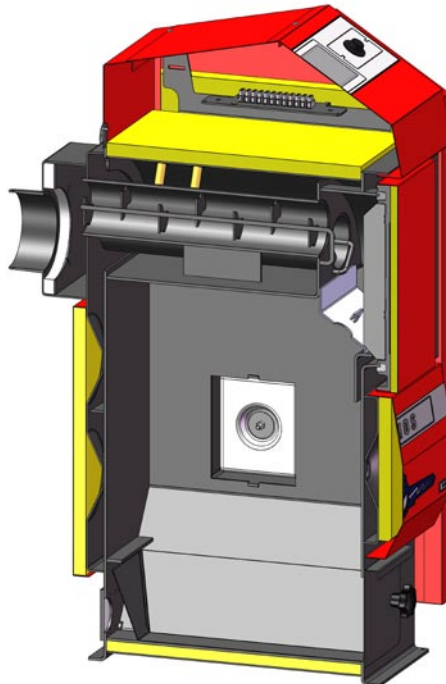
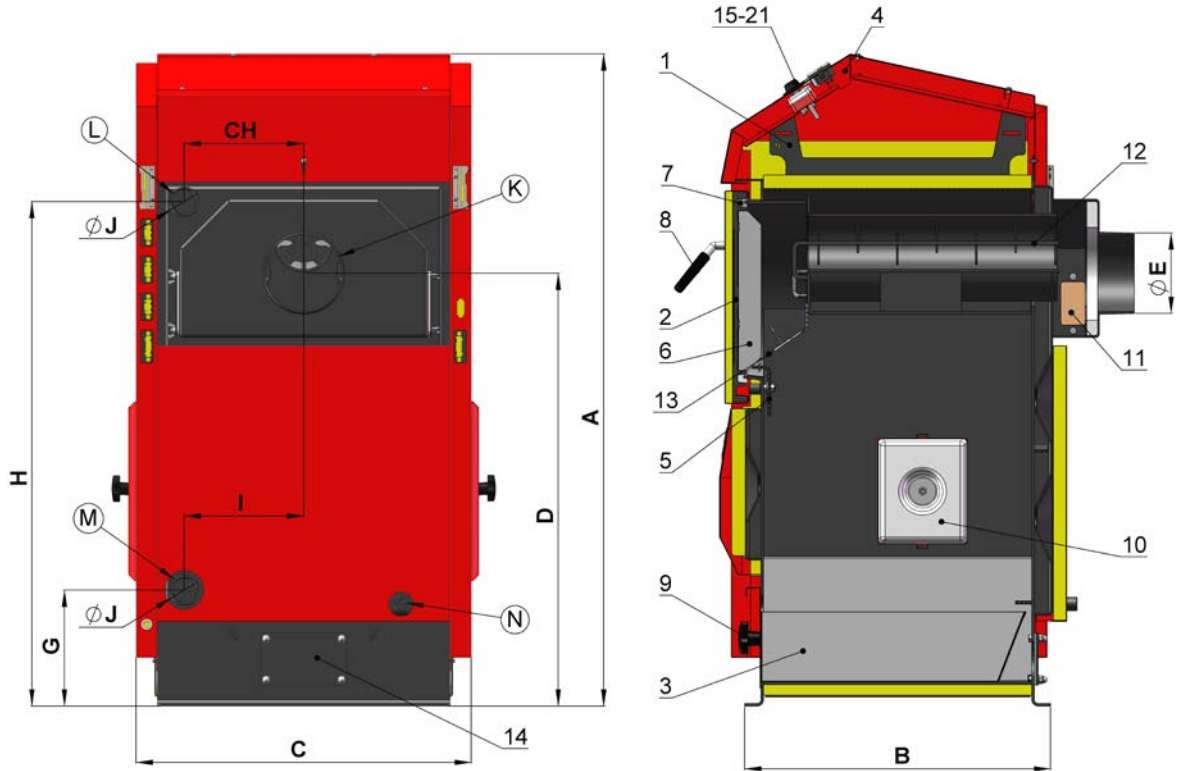
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Boiler body 2. Cleaning door 3. Ash pan
for D14P, D21P (code: P0097)
for D25P - (code: P0080) 4. Control panel 5. Frame screen 6. Door filling - Sibrál - large (code: S0263) 7. Door gasket, 18 x 18 mm (code: S0240) 8. Closure (code: S0212) 9. Decorative nut (code: S0413) 10. Lid of the burner opening - plate + insulation
(code: S0275) 11. Cleaning lid of the smoke channel 12. Tube plate decelerator 13. Stainless-steel screen of the combustion chamber
for D14P (P14) - (code: S0936)
for D21P, D25P (P21, P25) - (code: S0937) | <ol style="list-style-type: none"> 14. Blind flange for installation of automatic deashing 15. Thermometer (code: S0041) 16. Main switch (code: S0091) 17. Control (boiler) thermostat (code: S0021) 18. Pump thermostat (code: S0023) 19. Safety thermostat (code: S0068) 20. Fuse T6,3A/1500 - typ H 21. Double switch of automatic deashing and the pellet burner (code: S0098) |
|--|--|
-
- | |
|--|
| <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	D14P	D21P	D25P
A	1207	1207	1207
B	570	570	670
C	620	620	620
D	801	801	801
E	152	152	152
G	215	215	215
H	934	934	934
CH	221	221	221
I	221	221	221
J	6/4"	6/4"	6/4"

Diagrams of the boilers

Sections of the D14P, D21P and D25P boiler

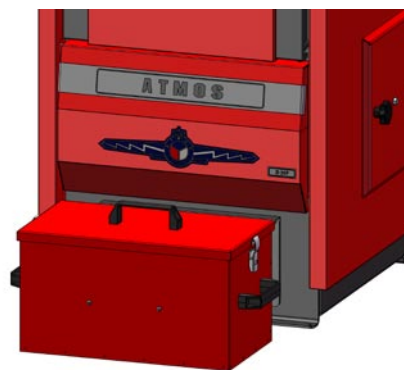


4. Accessories delivered with the boiler

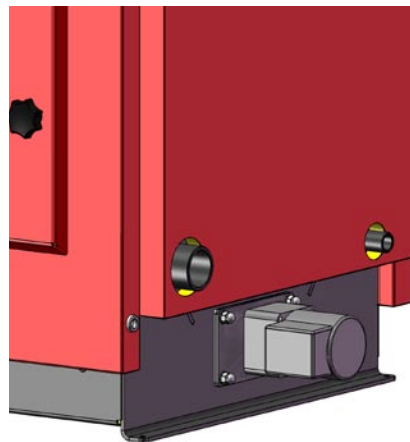
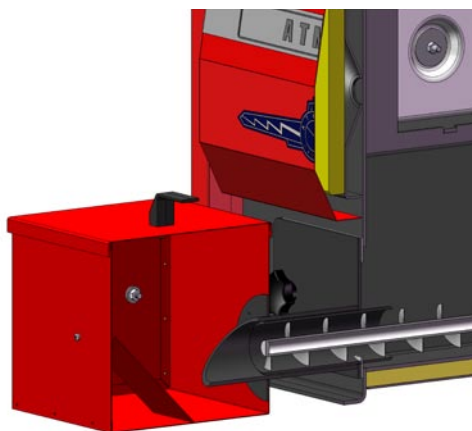
Steel brushes with accessories	1 piece
Poker for cleaning of the boiler body	1 piece
Poker for easy cleaning of the combustion chamber of the pellet burner	1 piece
Filling tap	1 piece
Operation and maintenance manual	1 piece

Automatic removal of ash from the boiler body

As an accessory for every pellet boiler produced after April 1, 2010 (from the serial no. 209500 on) you can equip the boiler with automatic ash removal from the boiler body to an additional ash pan that only needs emptying once every 3 to 45 days depending on the quality of pellets and heating intensity. This automatic device uses a worm conveyor with a gearbox to remove ash from the chamber under the burner in regular intervals two times a day for one minute or on the basis of another setting in the deashing module, which is installed under the boiler hood. You can repeat the cycle any time by turning off and on the switch /20(15)/ on the boiler. When the additional ash pan is completely full, the ash removal device (worm) will be automatically switched off and the deashing module will start to emit a sound signal. You can restart the device after cleaning (emptying) of the additional ash pan by merely turning off and on the switch /20(15)/ on the boiler for 5 seconds.



The automatic deashing system does not require any special operation; you only need to empty the additional ash pan in regular intervals that is attached with two securing clips with a safety pin to the boiler, which must be properly snapped during operation of the boiler to prevent the deashing system from releasing and the ash from getting to the boiler room. You must also properly tighten and snap the body of the automatic ash removal system and the lid of the entire additional ash pan top to prevent ash from being pushed to the boiler plant. When installing this system follow the installation instructions supplied with it.



CAUTION - The deashing system for the D14P, D21P and D25P boilers is not the same as for the D15P and D20P boilers and is sold separately under a different code. The recommended additional ash pans with the volume of 28 and 67 l are the same.

5. Fuel

The prescribed fuel are high-quality pellets of Ø 6 - 8 mm and the length of 10 - 25 mm and the calorific value of 16 - 19 MJ/kg⁻¹. 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.



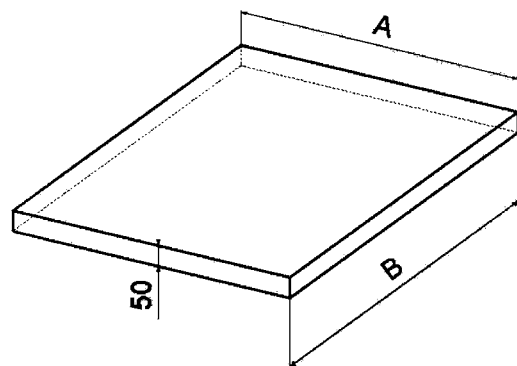
High-quality wooden pellets - white without black dots (bark)



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

6. Boiler foundations

Boiler type (mm)	A	B
D14P, D21P	700	700
D25P	700	800

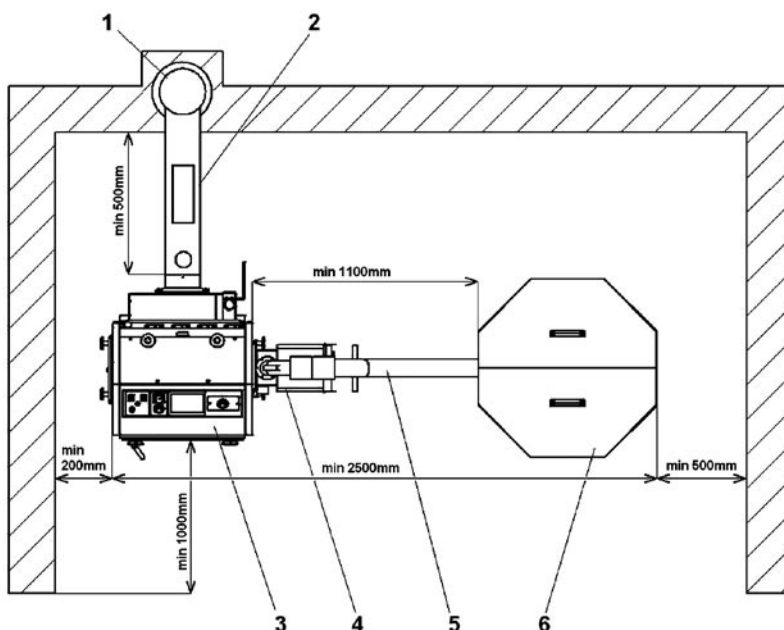


We recommend you to make concrete (metallic) foundations for the boiler.

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
5. External conveyor
6. Bin (500 l)



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

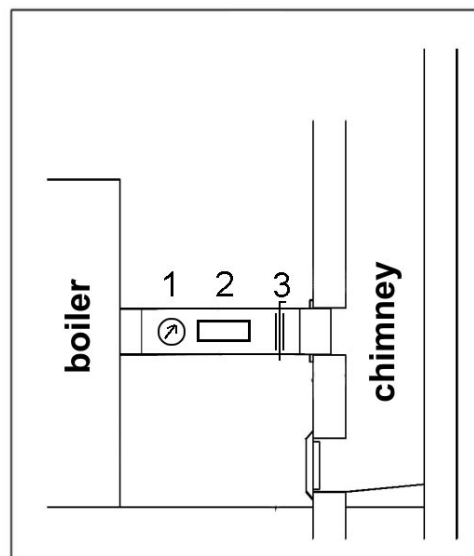
The exact determination of chimney dimensions is defined by the ČSN 73 4201 standard.

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 /3/ or a draught reducer 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).**

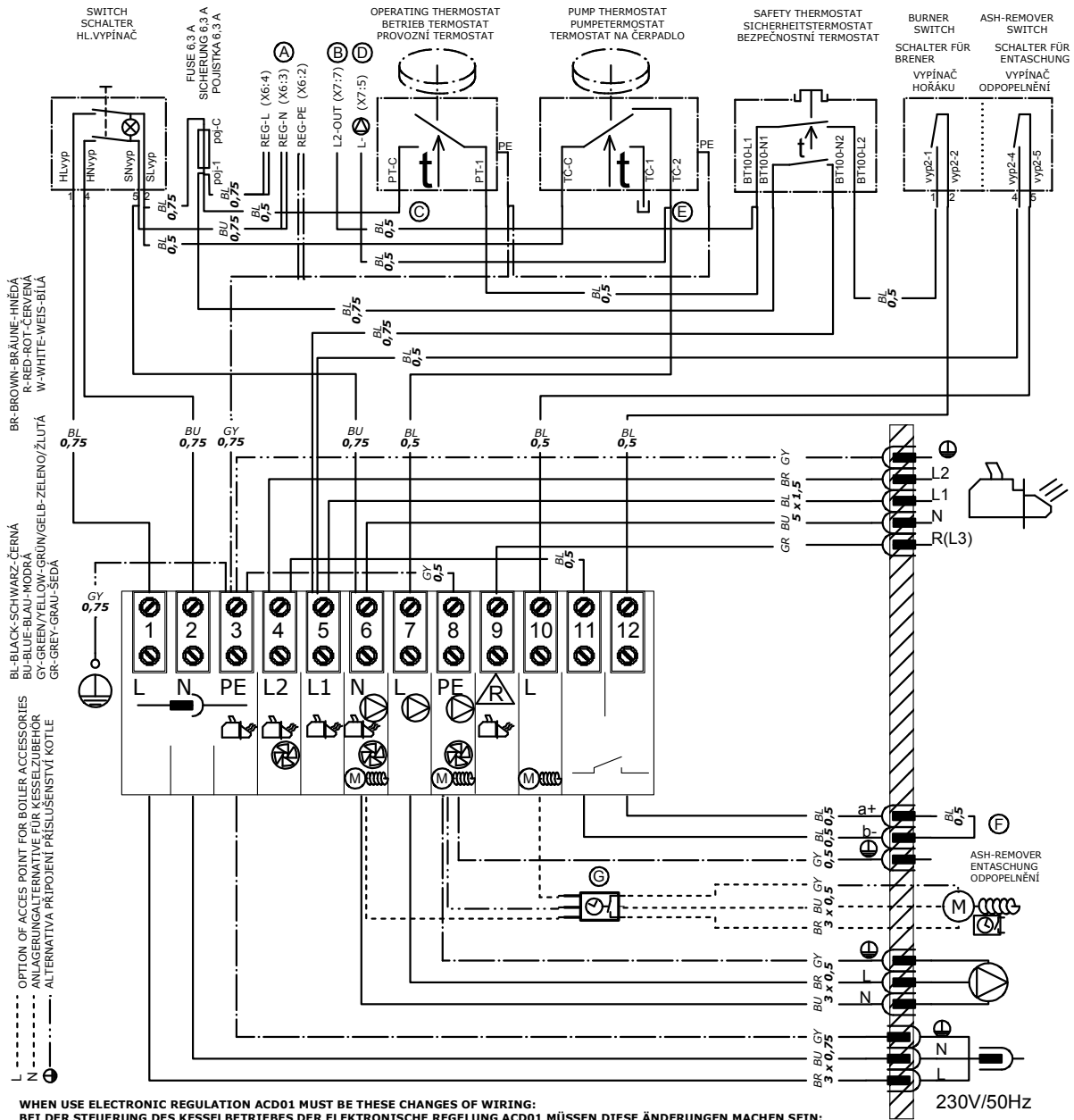
11. Connection of boilers to the electric mains

The boilers are connected to 230 V, 50 Hz mains with a mains cable without a plug. The mains supply cable is of the M type and in case of repair it must be replaced with the same type by the servicing organization. Boilers must be connected to the mains 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.

12. Electric wiring diagram of the electro-mechanical control for the D14P, D21P and D25P boilers without an exhaust valve with a 5-pin connector



**WHEN USE ELECTRONIC REGULATION ACD01 MUST BE THESE CHANGES OF WIRING:
BEI DER STEUERUNG DES KESSELBETRIEBES DER ELEKTRONISCHE REGELUNG ACD01 MÜSSEN DIESE ÄNDERUNGEN MACHEN SEIN:
PŘI ZAJOZENÍ ELEKTRONICKÉ REGULACE ACD01 PROVEDTE TYTO ZMĚNY:**

- (A)** VARIANTS OF RESERVOIR POINTS FOR ELECTRONIC REGULATION (ACD01)
SPEISEKLEMMEN-VARIANTEN FÜR ELEKTRONISCHE REGELUNG (ACD01)
VARIANTY NÁPAJECÍCH SVOREK PRO ELEKTRONICKOU REGULACI (ACD01)
- (B)** RESERVOIR POINT "L2" OF BURNER TO THE ELECTRONIC REGULATION (ACD01)
SPEISEKLEMME "L2" DER BRENNER FÜR DIE ELEKTRONISCHE REGELUNG (ACD01)
PŘIPOJOVACÍ SVORKA "L2" HOŘÁKU DO ELEKTRONICKÉ REGULACE (ACD01)
- (C)** WHEN ELECTRONIC REGULATION CONTROL BURNER - CONNECTOR "PT-C" MUST BE UNCONNECT
DEN KONNEKTOR "PT-C" ABKLEMMEN BEI DER BRENNERBEDIENUNG DER ELEKTRONISCHE REGELUNG
KONNEKTOR "PT-C" ODPOJIT PŘI OVLÁDÁNÍ HOŘÁKU ELEKTRONICKOU REGULACÍ
- (D)** RESERVOIR POINT "L" OF BOILER PUMP TO THE ELECTRONIC REGULATION (ACD01)
SPEISEKLEMME "L" DER KESSELPUMPE FÜR DIE ELEKTRONISCHE REGELUNG (ACD01)
PŘIPOJOVACÍ SVORKA "L" KOTLOVÉHO ČERPADLA DO ELEKTRONICKÉ REGULACE (ACD01)
- (E)** WHEN ELECTRONIC REGULATION CONTROL BOILER PUMP - CONNECTOR "TC-2" MUST BE UNCONNECT
DEN KONNEKTOR "TC-2" ABKLEMMEN BEI DER KESSELPUMPEBEDIENUNG DER ELEKTRONISCHE REGELUNG
KONNEKTOR "TC-2" ODPOJIT PŘI OVLÁDÁNÍ KOTLOVÉHO ČERPADLA ELEKTRONICKOU REGULACÍ
- (F)** ACCES POINT FOR EXTERNAL BOILERREGULATION
ANLAGERUNG FÜR EXTERN KESSELREGELUNG
PŘIPOJOVACÍ SVORKY PRO EXTERNÍ REGULACI KOTLE
- (G)** TIMEUNIT FOR ASH-REMOVED
ZEITBEDIENUNG FÜR DEN ENTASCHUNG
ČASOVÝ MODUL PRO ODPPELNĚNÍ

P21_5KON_v10-01-01

13. 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 12100-1:2004/A1:2009, ČSN EN ISO 12100-2:2004/A1:2009, ČSN EN 953+A1:2009, EN ISO 11202: 2009, EN ISO 3746:2009, ČSN ISO 1819:1993, ČSN EN 60335-1 ed.2:2003

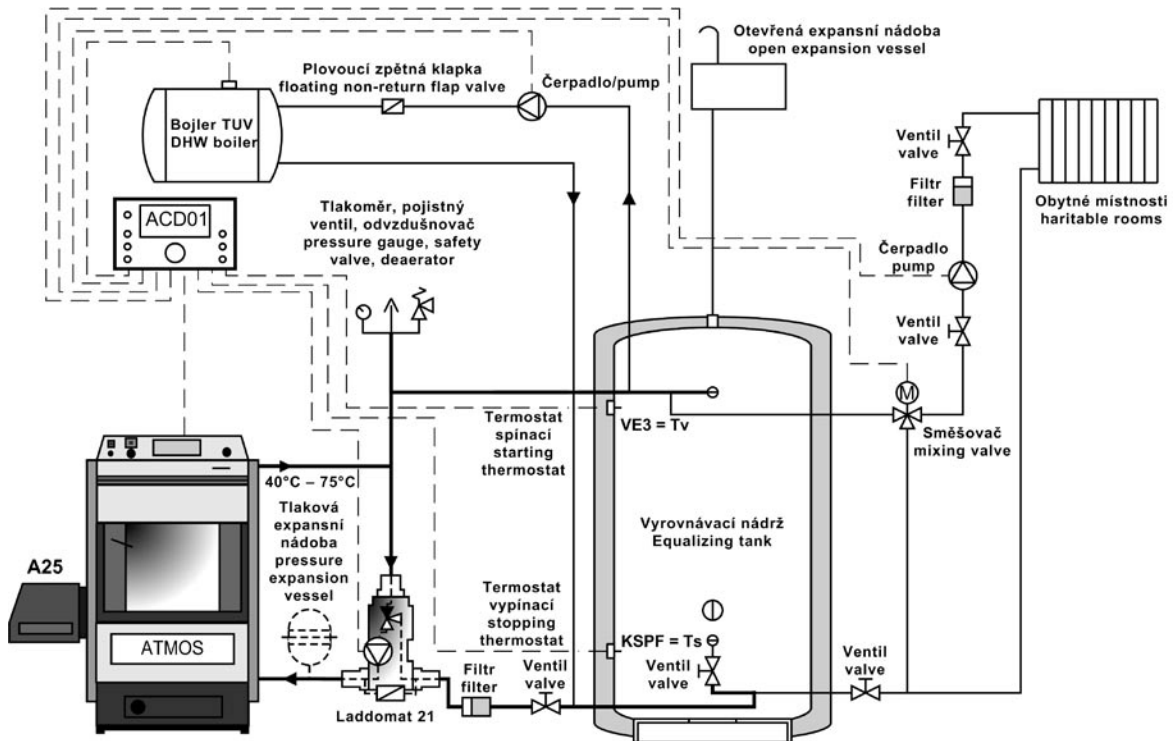


CAUTION - The installation of the boiler must always be carried out in accordance with a prepared design. The boiler may only be installed by persons trained by the manufacturer.

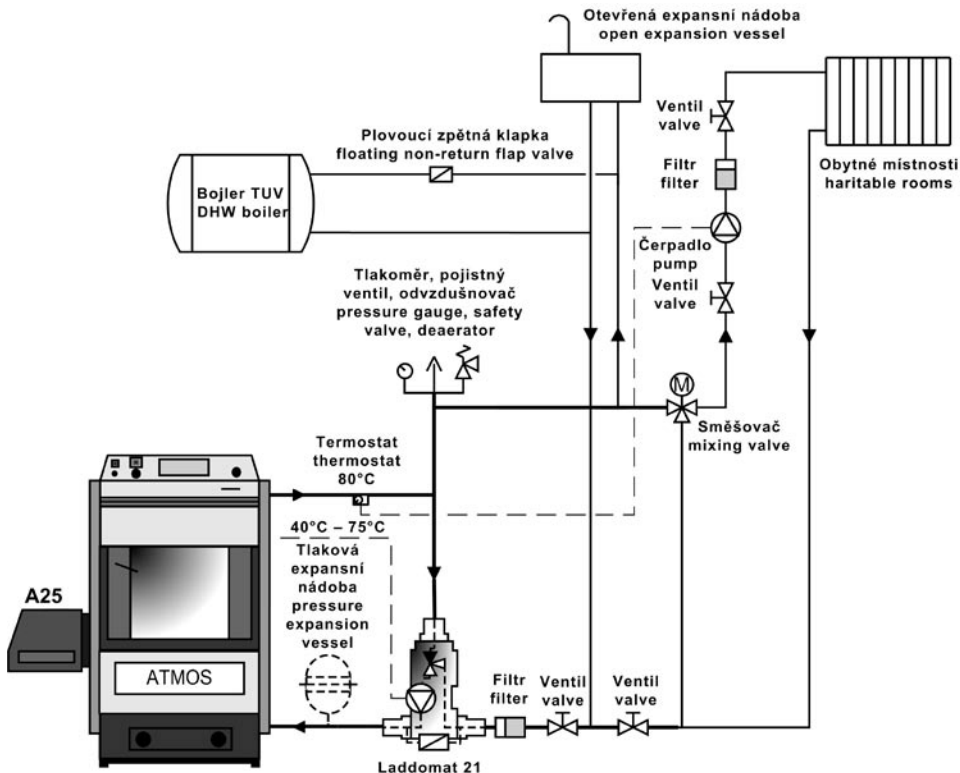
14. Selection and method of connection of control and heating-system elements

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).** The boilers are equipped with a built-in thermostat controlling the pump in the boiler circuit. 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. If you use two thermostats, either for the control of one pump, set the thermostat that controls the pump in the circuit of the heated building to the value of 80°C and the thermostat that controls the pump in the boiler circuit to the value of 75°C. You can also control both the pumps with one thermostat at the same time. If there is very good spontaneous (gravity) circulation of water between the boiler and the system, which extends the time necessary for the boiler to reach the required temperature, you can reduce the setting of the thermostat of the boiler circuit pump to a lower temperature. 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 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 electronic control unit outside the heating season (with the main switch on the boiler)!**

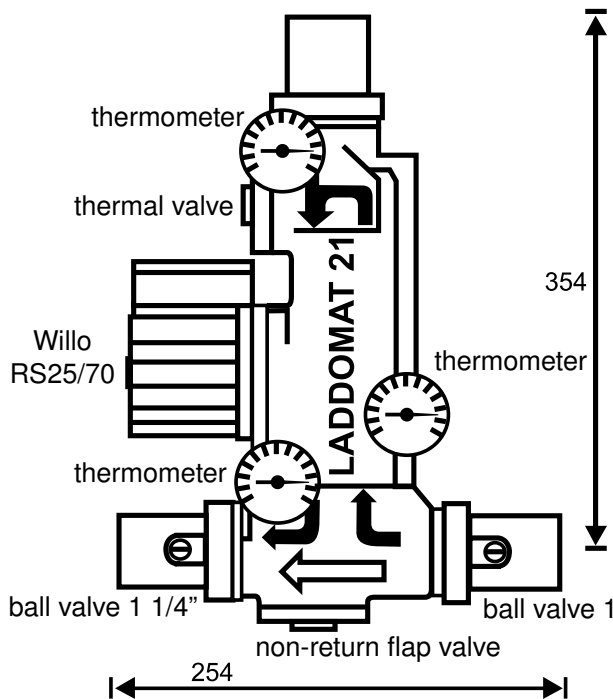
17. Diagram of prescribed connection of the boiler with an equalizing tank and the ACD01 control unit



18. Connection diagram of the boiler with Laddomat 21



19. Laddomat 21



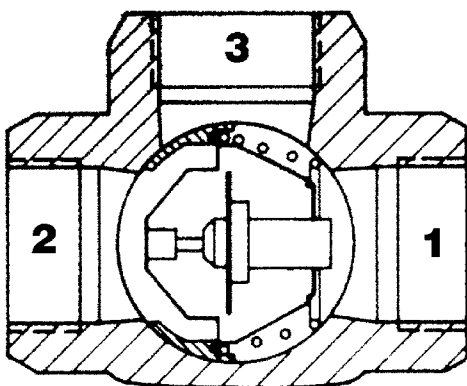
With its construction, Laddomat 21 replaces the traditional connection composed of individual parts. It is composed of a cast-iron body, thermoregulatory valve, pump, non-return flap valve, ball valves and thermometers. When the water temperature reaches 78 °C, the thermoregulatory valve opens the water supply from the storage tank. The connection with Laddomat 21 is considerably easier and therefore, we recommend it. A spare thermocartridge of 72 ° C is supplied with the Laddomat 21 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



WARNING - Laddomat 21 is designed only for boilers with output up to 75 kW (inclusive). We recommend using it only with boilers with output up to 50 kW (inclusive).

20. Thermoregulatory valve



Thermoregulatory valve type ESBE, TV 60 °C is used with solid fuel boilers. When the boiler water temperature reaches + 60 °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. 72°C) may be used.

Recommended sizes of the thermoregulatory valve TV 60°C.

For boilers: D14P, D21P, D25PDN25, DN32

21. 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.

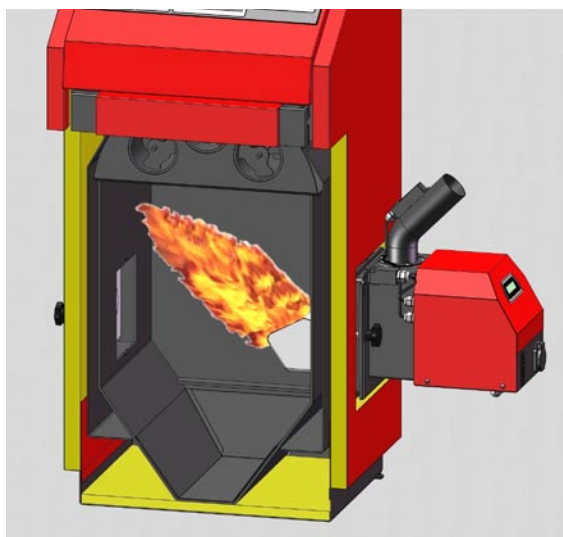
Before igniting pellets perform several operations. Check all the lids and doors for proper closing. Check whether the burner is properly tightened to the boiler over the gasket and that the end switch stop is in its place. Also, check the hose between the burner and the conveyor for proper tensioning and such inclination that allows free falling of pellets to the burner. They must not accumulate in the hose. The angle of the worm conveyor should be at least 45°; otherwise the boiler may not achieve the nominal output.

If everything is OK, draw pellets to the conveyor. In the case of the ATMOS A25 burner plug the power supply cord of the conveyor to a standard 230V/50Hz socket. When pellets start to fall out of the conveyor, plug the power supply cord of the conveyor back to the socket for normal operation. Turn on the main switch (green), the switch of the pellet burner and the switch of the automatic deashing system (if installed).

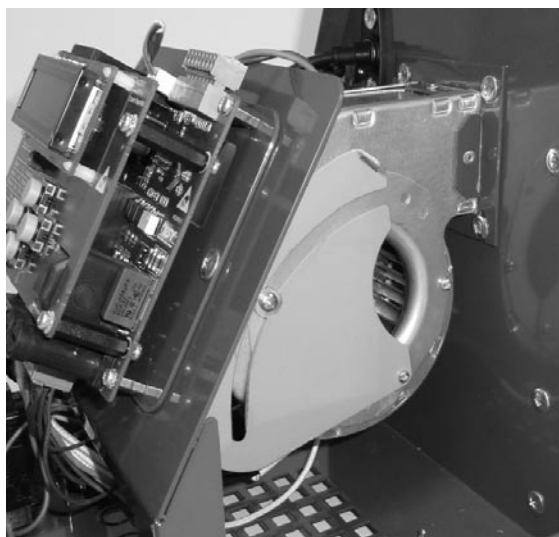
Adjust combustion of the burner with the use of a flue gas analyzer in the measurement place (opening) in the flue between the boiler and the chimney. Always adjust the burner in a stabilized condition, approx. 20 - 30 minutes after fuel ignition. If there is no flue gas analyzer available for the boiler 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 just before the opposite wall (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.



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 and ČSN EN standards.

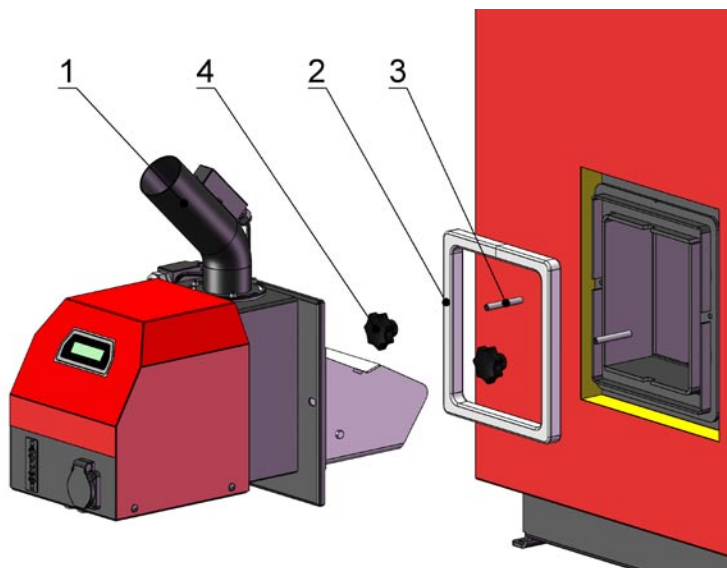


Burner flame ending 1 - 3 cm before the opposite wall.



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

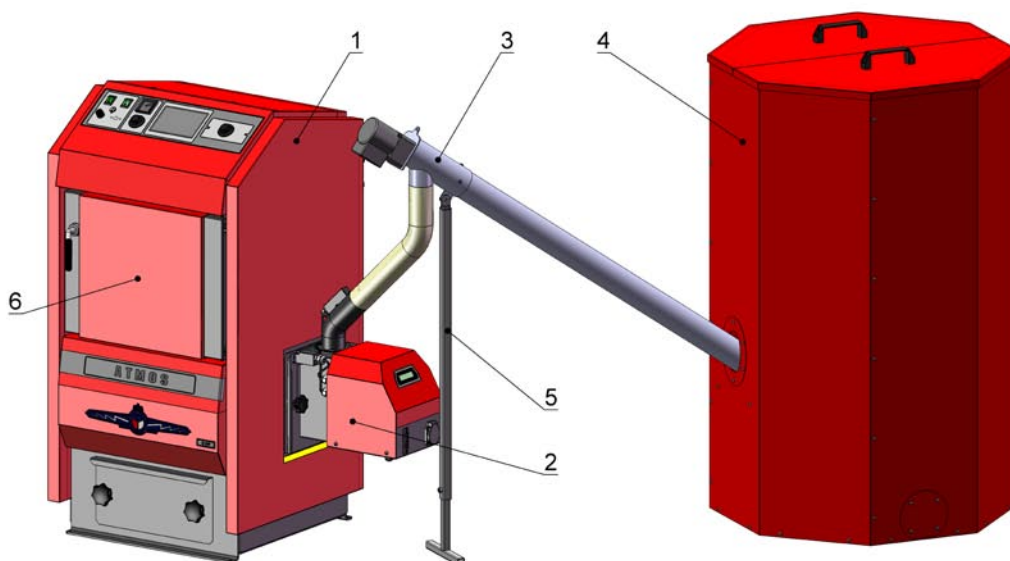
22. Burner connection for the D14P, D21P and D25P boilers



1. ATMOS 25 pellet burner
2. Sealing cord, 18 x 32 mm, small

3. 2 x M8 screw
4. 2x M8 decorative nut

23. Boiler system with an external storage container and conveyor



1. ATMOS D14P, D21P, D25P boiler
2. ATMOS 25 pellet burner
3. ATMOS DA1500 conveyor - 1.5 m

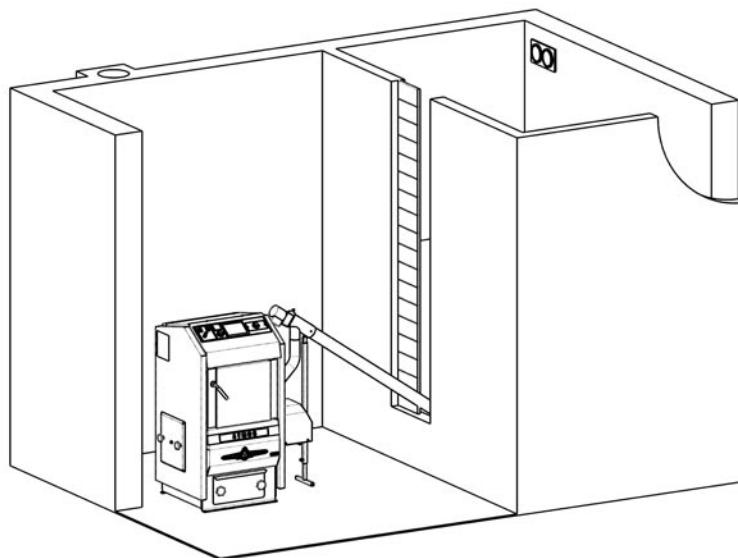
4. Pellet container (250, 500 and 1000 l)
5. Conveyor leg
6. Cleaning door



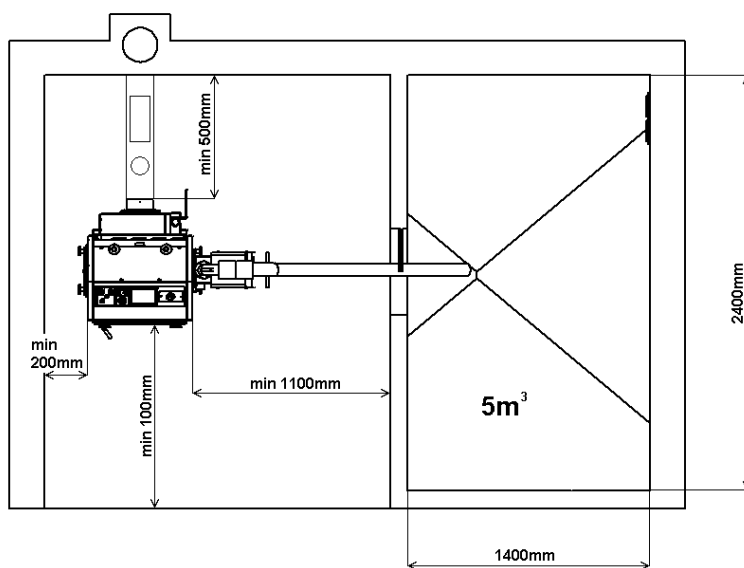
RECOMMENDATION - We recommend you to select the container size of 500 l to 1000 l, which will be sufficient for 3 to 14 days, depending on the consumed power. The larger the volume of the container, the better. The length of the conveyor may be 1.5 m, 2.5 m or 2.5 m. As the pellet storage you can also use a clearly delimited part of the room complying with fire regulations from which pellets may be drawn to an intermediate storage container at the boiler, or directly to the boiler.

24. Boiler room with a large built-in pellet storage

A boiler plant with a built-in pellet storage with the volume of e.g. 5 m³ in which you can store 3250 kg of pellets. For this purpose a 2 m (2.5 m) conveyor is used. For easy access to the storage a segmented opening is produced that can be adapted to the pellet level in the storage and enables cleaning of the storage from dust and dirt once a year. In the top part of the storage there are two openings for replenishment of pellets from a cistern that have different sizes with regard to pellet suppliers.



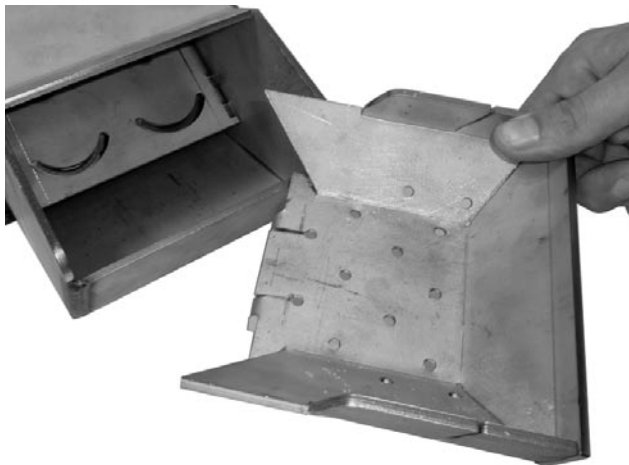
For optimum collapsing of the pellet heap the optimum angle of the inner walls in the storage must be at least 45°. All the walls are inclined to the lowest point of the storage from which the worm conveyor draws pellets.



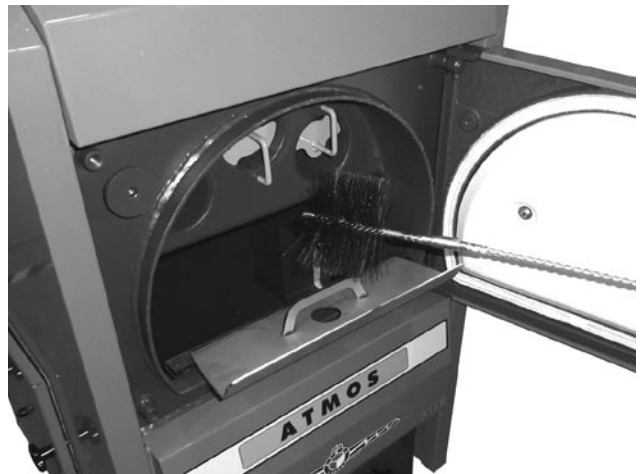
CAUTION - If pellets are drawn to the storage in the boiler plant directly from the cistern, several principles must be observed that prevent their crushing during pneumatic transport. First of all you must make sure that they do not hit the hard wall of the storage, but a screen that is suspended in 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.

25. Cleaning of the boilers and ash removal

The burner and the boiler must be cleaned regularly and thoroughly once every 1 to 30 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 /20/). Open the cleaning door, remove the front stainless-steel screen and clean the combustion chamber of the burner, incl. the air openings in the chamber with the provided poker. If the combustion chamber of the burner is heavily soiled, remove it for cleaning. Further, remove the decelerators from the tube plates located in the top part of the combustion chamber and clean them with the provided brush. During this cleaning return the front stainless-steel screen back to the boiler, but the other way round to make it prevent large quantities of dust from falling out of the boiler during the cleaning. 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. Finally, remove the ash pan and dispose of the ash while observing all the fire measures. The interval of the cleaning and ash removal depends on the fuel quality, heating intensity, chimney draught and other circumstances. Put everything in the original condition after the cleaning. At least once a year remove the burner and clean it completely. See the manual of the burner.



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



Sample cleaning of the tube plate with the front screen arranged the other way round



Sample cleaning of the smoke channel. It is performed after cleaning of the tube plate in the combustion chamber of the boiler



Large ash pan partly drawn out

26. 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.**

27. 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. You must never leave unattended children near boilers that are 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.** 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.

28. Možné závady a způsob jejich odstranění

Problem	Cause	Remedy
The "mains" indicator does not light up	<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 - the deashing system does not work after turning the switch off and on 	<ul style="list-style-type: none"> - replace and before the new star draw pellets to the conveyor - 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 - 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 - check - replace the module under the boiler hood or the defective gearbox

29. Spare parts

Thermometer /15/ (code: S0041)	1
Main switch /16/ (code: S0091)	1
Control thermostat /17/ (code: S0021)	1
Pump thermostat /18/ (code: S0023)	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
Ash pan /3/ D14P, D21P (code: P0097), D25P (code: P0080)	1
Sealing cord between the burner and boiler, 18 x 32 mm (code: S0165)	1
Double switch of the automatic deashing system and pellet burner /20/ (code: S0098)	1
Sibral gasket under the smoke channel lid (with an opening) (code: S0120)	1
Klingerite gasket under the smoke channel lid (without openings) (code: S0124)	1
Sibral insulation of the burner opening lid /10/ (code: S0275)	1
Tube plate decelerator /12/ D14P, D21P (code: P0098), D25P (code: P0210)	3

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). Hold the handle of the door closure pointing upwards and by means of slow knocks with the door press the cord into the groove until you can close the door. 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 handle 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.

30. 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 3.

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

GB

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 a TV 60°C thermoregulatory valve or with a Laddomat 21 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° 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 Cankař 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

GB

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):

..... □

..... □

..... □

..... □

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

GB

Date	Date	Date	Date
stamp and signature	stamp and signature	stamp and signature	stamp and signature
Date	Date	Date	Date
stamp and signature	stamp and signature	stamp and signature	stamp and signature
Date	Date	Date	Date
stamp and signature	stamp and signature	stamp and signature	stamp and signature
Date	Date	Date	Date
stamp and signature	stamp and signature	stamp and signature	stamp and signature
Date	Date	Date	Date
stamp and signature	stamp and signature	stamp and signature	stamp and signature

RECORDS OF GUARANTEE PERIOD AND POST-GUARANTEE PERIOD REPAIRS

GB

Repair:
Repair:
Repair:
Repair:
Repair:
Repair:
Repair:

repair carried out by, date

Repair:
Repair:
Repair:
Repair:
Repair:
Repair:
Repair:

repair carried out by, date

Repair:
Repair:
Repair:
Repair:
Repair:
Repair:
Repair:

repair carried out by, date

Repair:
Repair:
Repair:
Repair:
Repair:
Repair:
Repair:

repair carried out by, date

Repair:
Repair:
Repair:
Repair:
Repair:
Repair:
Repair:

repair carried out by, date