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## WE HOPE THAT YOU ARE SATISFIED WITH OUR PRODUCT AND WE KINDLY RECOMMEND YOU TO FOLLOW THESE MAIN RULES IMPORTANT FOR A LONG SERVICE LIFE AND THE CORRECT FUNCTIONALITY OF THE BOILER

1. Installation, ignition test and operator's training **will be carried out by an installation company trained by the manufacturer**. This company also completes a boiler installation report (p.35).
2. When burning Extremely light fuel oil (ELFO) or gas **only use good quality fuel**.
3. During the **gasification process, wood tar and condensates (acids)** form in the fuel storage tank. Therefore, there must be a Laddomat 21 or a thermoregulatory valve installed behind the boiler in order to keep the **minimum temperature of water returning to the boiler at 65°C**.  
**Operating temperature** of water in the boiler must be in the **80-90°C** range.
4. When the boiler operates in the wood-burning mode, **it must not be permanently** operated in an output **lower than 50%**.
5. Every circulating pump in the system must be regulated by an individual thermostat in order to keep the **specified minimum temperature of water returning to the boiler**.
6. The boiler operates environmentally-friendly if burning wood at the nominal output level.
7. We therefore recommend to install the boiler with **accumulation tanks and Laddomat 21, which provides 20 - 30% fuel-wood consumption decrease in wood-burning mode, a longer service life of both – the boiler and the chimney, and user-friendlier operation**.
8. If you cannot install the boiler into an accumulation system, then we recommend installing it at least with **one equalising tank**; the volume of which should be 500 – 1000 l. This increases the pellet burner's service life.
9. When operating the boiler in a **lower output mode** (summer operation or heating up hot potable water) and burning pieces of wood, it is **necessary to fire-up daily**.
10. Use only dry **firewood with 12 - 20% moisture content – higher moisture content decreases the boiler's performance and increases consumption**.



**CAUTION – if the boiler is installed with a Laddomat 21 or with a TV 60°C thermoregulatory valve and with the accumulation 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. In non-compliance with these instructions, the drum's and the heatproof shaped pieces' service life may dramatically decrease. The boiler drum may corrode in as little time as 2 years.**

## 1. Intended use

Environmentally friendly hot-water boilers ATMOS DC 15EPL, DC18SPL, DC25SPL, DC32SPL are designed for heating in residential houses and other buildings with extra light fuel oil (further referred to as “ELFO”) or natural gas in combination with wood. Boilers are suitable for buildings with heat loss ranging between 5 - 35 kW. Good quality dry firewood of 330-530 mm length (depending on the boiler type) may be used for heating. The boiler is not intended for burning saw dust or small-particle wood waste. These can be burnt in small quantities only, together with log-firewood. MAX.10%. Due to their huge feeding hoppers, the boilers save the user a lot of laborious wood treating and splitting operations. They save both - the physical effort and also the time dedicated to these operations

## 2. Technical description

The boilers are designed for burning ELFO or natural gas in a pressurised burner in combination with wood burning, based on the generator gasification principle utilising an extraction ventilator which extracts the waste gas from the boiler (except the DC 15EPL type).

The boiler drum is manufactured as a welded structure of 3-6 mm thick steel sheets. The boiler's upper section which comprises of two chambers one on top of the other and which is intended for wood burning, consists of a fuel feeding hopper which is in the lower section equipped with a heatproof shaped piece with a longitudinal opening allowing combustion products and gases to penetrate into the lower burn-off chamber. The burn-off chamber is equipped with ceramic shaped pieces allowing ideal burn off of all combustible materials. Below the burn-off chamber, there is a separate combustion chamber lined with ceramics into which an ELFO or natural gas burner has been slid from the front.

There is a vertical waste gas duct at the rear of the boiler body which is in its upper section equipped with a ignition valve and gas outlet pipe for connecting to chimney. Waste gas exhausts from the centre (wood) and lower (pellets) combustion chambers lead into the vertical waste gas duct. An aperture for setting the quality of the burner's combustion utilising a waste gas analyser is fitted in the lower part of the waste gas duct.

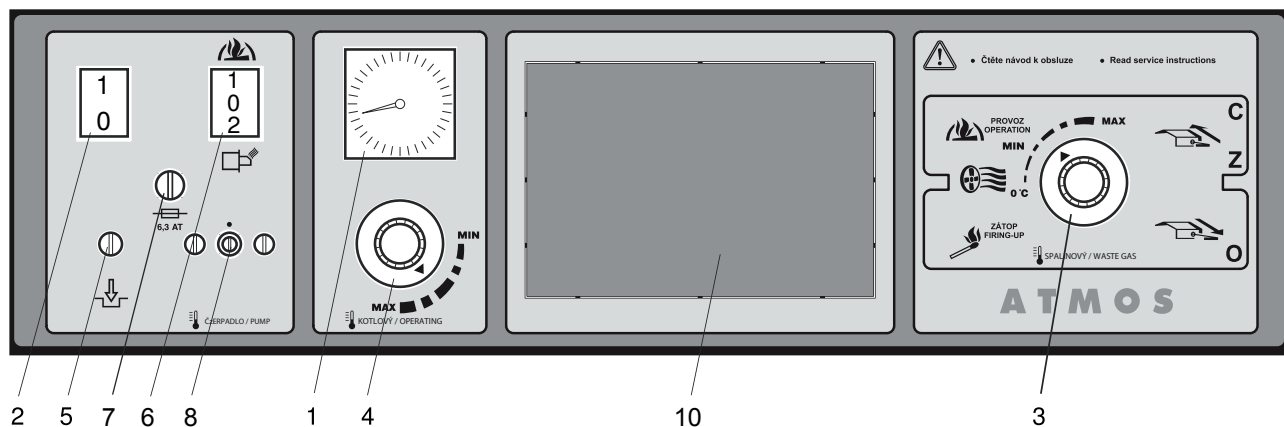
The front boiler wall is fitted with three stoking doors. The upper door of the wood stoking chamber is equipped with a limit switch which renders the lower chamber burner out of operation when the door is opened. This safety feature prevents using both systems simultaneously. In case you want to re-ignite the burner, you must push the limit switch button situated on the left or right near the upper door. In the front section of the upper hood there is a ignition valve pull rod. The boilers' drum is externally heat insulated by mineral wool placed beneath the sheet metal covers of the boilers' external housing. The upper section of boilers (DC15EPL, DC18SPL, and DC25SPL) houses a control panel for electromechanical regulation. In the rear section of the boilers, there is a primary and secondary air feeding duct fitted with a control valve.

The control valve is designed for output regulation when burning wood. If burning ELFO or natural gas, the valve must be closed so that no “false” air can enter through; which would decrease the boiler's effectiveness.

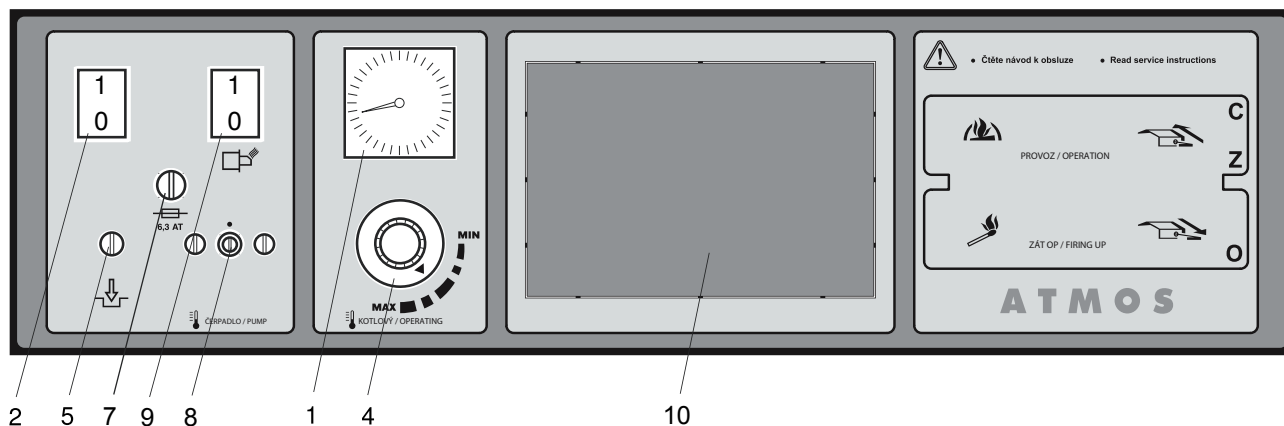
## Control panel appearance

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### For types DC18SPL, DC25SPL, DC32SPL



### For type DC15EPL



- |                                   |  |
|-----------------------------------|--|
| 1. Thermometer                    | 6. Selector switch (Wood/Pellets)                                    |
| 2. Main switch                    | 7. Fuse (6.3 A)  |
| 3. Waste gas thermostat           | 8. Pump thermostat   |
| 4. Control thermostat             | 9. Burner switch   |
| 5. Safety irreversible thermostat | 10. Area for electronic regulation of the heating system (92x138 mm) |

Description:

1. **Thermometer** – monitors the temperature of water exiting the boiler
2. **Main switch** – allows for completely shutting down boiler if necessary.
3. **Waste gas thermostat** – is used to switch off the ventilator when the fuel has burnt out



**CAUTION** – when firing up (igniting), set the waste gas thermostat to („0°C“ - firing-up). After flaring up, set the waste gas thermostat to „operation“. Should the waste gas temperature fall below the preset value, the thermostat switches the extraction ventilator off. If you want the ventilator to start operating, set a lower temperature on the waste gas thermostat (set to „0°C“ - firing-up). It is necessary to detect the optimal operating position.

4. **Control thermostat** – controls the boiler operation depending on the temperature of water exiting the boiler.
5. **Safety irreversible thermostat** – serves as boiler protection against overheating in case of control thermostat failure or as an indication of exceeding the emergency temperature. If such exceeding occurs, it is then necessary to depress the thermostat.
6. **Selector switch** – is used to set the boiler operation mode. In position I, the boiler is set for heating the building with firewood utilising an extraction ventilator which is controlled by the waste gas and control thermostats. In position II, the boiler is set for operation with the pellets burner, controlled solely by the control thermostat; depending on the temperature of water exiting the boiler. In this case the waste gas thermostat and the extraction ventilator are put out of operation. The safety thermostat and fuse protect the boiler in both cases.
7. **Fuse (6.3 A)** – burner electronics protection
8. **Pump thermostat** – is used for switching the boiler circulation pump on and off
9. **Burner switch** – is used to switch the burner on and off (only with DC 15EPL)
10. **Area for electronic regulation** of the heating system can be used to house any type of regulation that fits into an aperture of 92x138 mm. The electric harness is prefabricated and ready to be used for the regulation's power supply.

### 3. Technical data

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ATMOS boiler type		DC15EPL	DC18SPL	DC25SPL	DC32SPL
Boiler output - ELFO, natural gas - wood	kW	20,5 14,9	20,5 20	30,5 25	30,5 35
Heating surface	Sq.m	2,5	2,5	3,3	3,8
Fuel shaft volume	dm <sup>3</sup>	66	66	100	140
Feeding hole dimensions	mm	450x260	450x260	450x260	450x260
Specified chimney draught	Pa	18	20	23	24
Max. operating water pressure	kPa	250	250	250	250
Boiler weight	kg	424	429	506	571
Gas-outlet pipe diameter	mm	152	152	152	152
Boiler height	mm	1635	1635	1635	1712
Boiler width	mm	643	643	643	678
Boiler depth	mm	694	757	957	957
Electric parts ingress protection	IP	20			
Electric input - at start-up - in operation	W	1120 120			
Boiler effectiveness - ELFO, natural gas - wood	%	89-92% 81-87%			
Boiler class		3			
Waste gas temperature at nominal output - ELFO, natural gas - wood	°C	161 230	161 208	157 225	157 230
Waste gas combustion products flow weight at nominal output - ELFO, natural gas - wood	kg/s	0,008 0,008	0,008 0,010	0,010 0,015	0,010 0,018
Specified fuel		ELFO of 42 MJ.kg-1 caloric power natural gas of 33.7 MJ.kg-1 caloric power, dry wood of 15 - 17 MJ.kg-1 caloric power, 12 - 20 % moisture content and 80 - 150 mm diameter			
Average fuel consumption – wood type	kg.h <sup>-1</sup>	3,5	3,8	6	7,2
Per heating season		1 kW = 1 stacked cubic meter			
Maximum wood length	mm	330	330	530	530
Burning time at nominal output – wood type	hour	3	2	3	3
Boiler water volume	l	78	78	109	160
Hydraulic pressure drop	mbar	0,22	0,22	0,23	0,23
Equalising tank minimum volume	l	500	500	500	500
Connecting voltage	V/Hz	230/50			
<b>Specified min. temperature of water returning to boiler is 65°C when in operation.</b>					
<b>Specified boiler operating temperature is 80-90°C.</b>					

## Boiler drawings key

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Boiler drum</li> <li>2. Loading door</li> <li>3. Ash-pan door</li> <li>4. Gas extraction ventilator (except for DC15EPL)</li> <li>5. Heatproof shaped piece - nozzle</li> <li>6. Control panel</li> <li>7. Safety thermostat<br/><b>Caution</b> – in overheat condition must be depressed)</li> <li>8. Control valve</li> <li>9. Heatproof shaped piece – extension of the spherical space (Kombi)</li> <li>10. Heatproof shaped piece – spherical space (Kombi)</li> <li>11. Sealing – nozzle - 12x12</li> <li>12. Door for the pellet burner</li> <li>13. Ignition valve</li> <li>14. Heatproof shaped piece – rear face of the spherical space (Kombi)</li> <li>15. Cleaning lid</li> <li>16. Screen</li> <li>17. Ignition valve pulling rod</li> <li>18. Thermometer</li> <li>19. Combustion area screen</li> <li>20. Switch with an indicator light</li> <li>22. Output regulator - Honeywell FR 124</li> <li>23. Cooling loop protecting against overheating</li> </ol> | <ol style="list-style-type: none"> <li>24. Control thermostat</li> <li>25. Door filling - Sibrál</li> <li>26. Door sealing – cord 18 x 18</li> <li>27. Ceramics - roof</li> <li>28. ELFO or natural gas burner</li> <li>29. Heatproof shaped piece – spherical space (DC15EPL)</li> <li>30. Heatproof shaped piece – spherical space internal lining (DC15EPL)</li> <li>31. Heatproof shaped piece – spherical space - wood</li> <li>32. Heatproof shaped piece – rear face of the spherical space - wood</li> <li>33. Pump thermostat</li> <li>34. Fuse (3.6A)</li> <li>35. Waste gas thermostat (except for DC15EPL)</li> <li>36. Selector Switch</li> <li>37. Limit switch with a push-button</li> <li>39.</li> <li>40. Measurement point for the waste gas analyzer</li> </ol> <p>K – gas outlet pipe<br/>L – the boiler water outlet<br/>M – the boiler water inlet<br/>N – filling valve pipe sleeve<br/>P – pipe sleeve for valve sensor controlling the cooling loop (TS 130, STS 20)</p> |
|---|---|

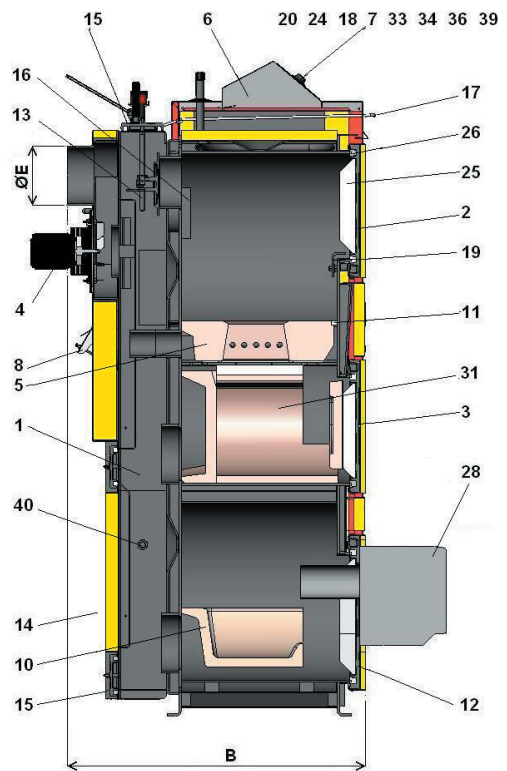
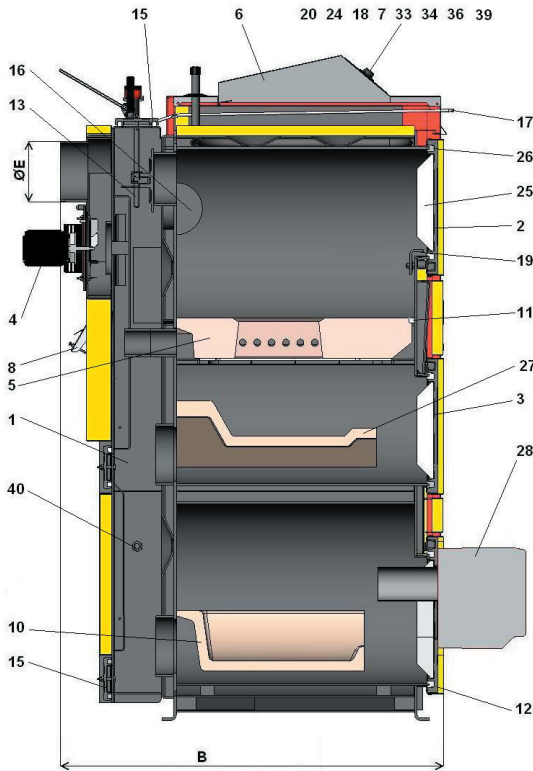
## Technical data

Dimensions	DC15EPL	DC18SPL	DC25SPL	DC32SPL
<b>A</b>	1695	1695	1695	1772
<b>B</b>	694	757	957	957
<b>C</b>	643	643	643	678
<b>D</b>	1375	1375	1375	1448
<b>E</b>	152	152	152	152
<b>F</b>	65	65	65	70
<b>G</b>	207	207	207	183
<b>H</b>	1436	1436	1436	1505
<b>CH</b>	212	212	212	256
<b>I</b>	212	212	212	240
<b>J</b>	6/4"	6/4"	6/4"	6/4"

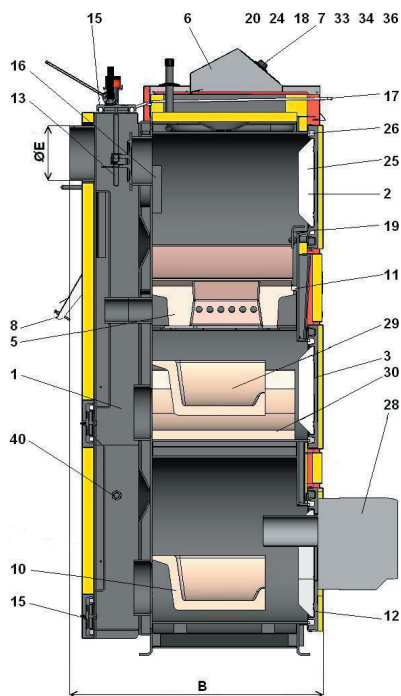


# Drawings of boilers

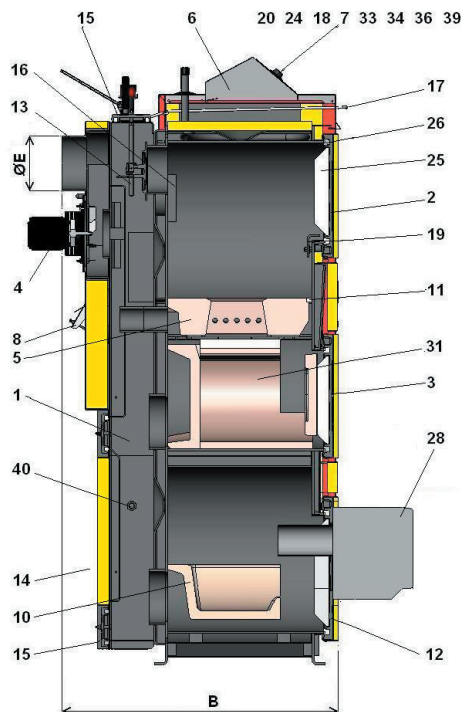
## Cut away view – types DC25SPL, DC32SPL



## Cut away view - DC15EPL



## DC18SPL



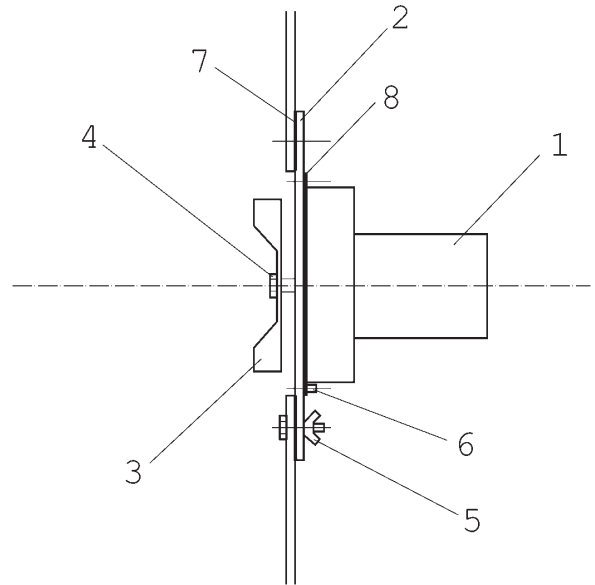


## Extraction ventilator schematics



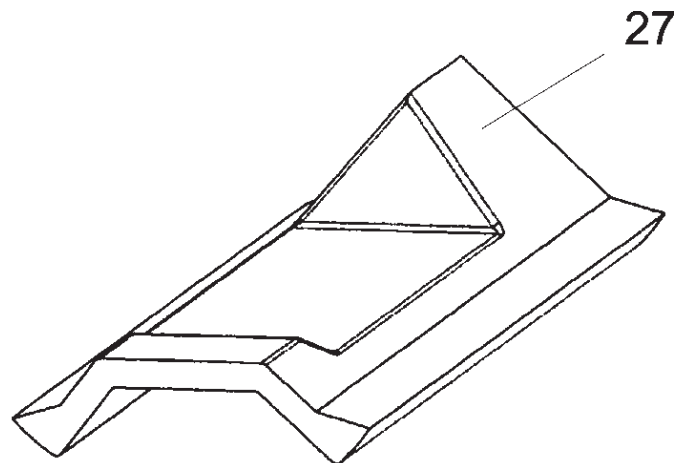
**CAUTION** – The extraction ventilator (S) is provided disassembled. Place it over the rear flue-gas duct, tighten everything well, connect into a socket and test for its smooth operation.

- 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. Type and seating of shaped pieces into combustion area

### 1. c) The middle wood combustion chamber for types DC25SPL and DC32SPL



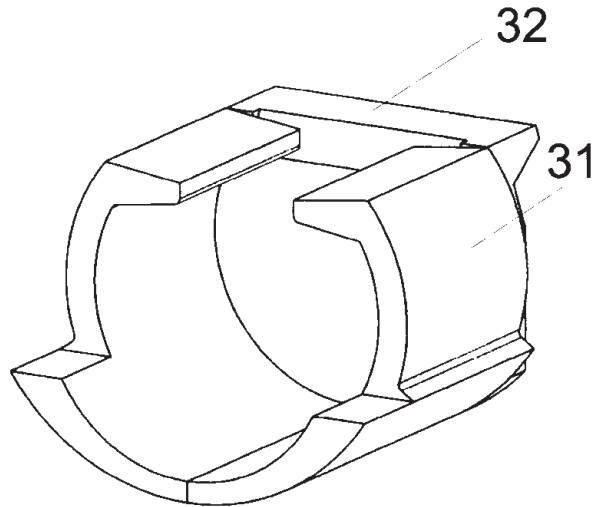
**Roof** of the lower combustion area must always be fully pressed against the boiler rear wall.

**b) The middle wood combustion chamber for type DC18SPL**

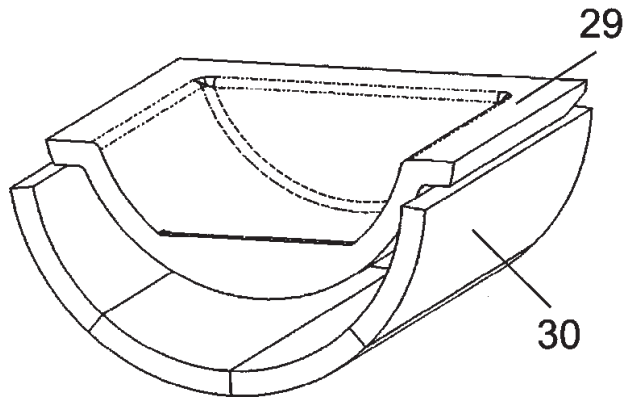
31. The shaped piece (spherical space L+P) must be assembled in a way that ensures that the front section of the piece /31/ is 3 cm away from the front edge of the boiler frame. 32. Ceramics – rear face with a rearward recess



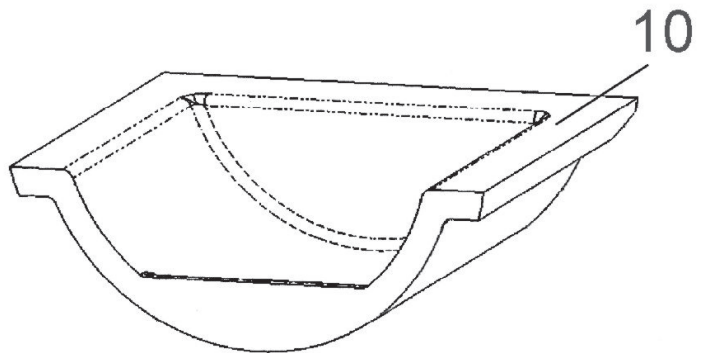
**CAUTION** – when handling do not turn the rear face



**c) The middle wood combustion chamber for type DC15EP**



**d) The lower ELFO or natural gas combustion chamber for types DC15EPL, DC18SPL, DC25SPL and DC32SPL**



## 5. Boiler accessories

Steel brush with accessories	1 pc
Poker	1 pc
Filling-in valve	1 pc
Operating and maintenance instructions manual	1 pc
Draught regulator - Honeywell FR 124	1 pc
Ash-pan	1 pc

## 6. Fuel

The specified fuel are good quality 6 – 8 cm diameter pellets with a caloric power of 16-19 MJ.kg<sup>-1</sup> or 80 – 150 mm diameter dry split log firewood of minimum age of 2 years and moisture content between 12 – 20%. The split log length is 330 mm for the DC15EPL and DC18SPL type and 530 mm for the DC25SPL and DC32SPL types with a caloric power of 15 -17 MJ.kg<sup>-1</sup>. It is also possible to burn large pieces of wood waste with crude logs. Good quality pellets are such that do not disintegrate into sawdust and are made from soft barkless wood.

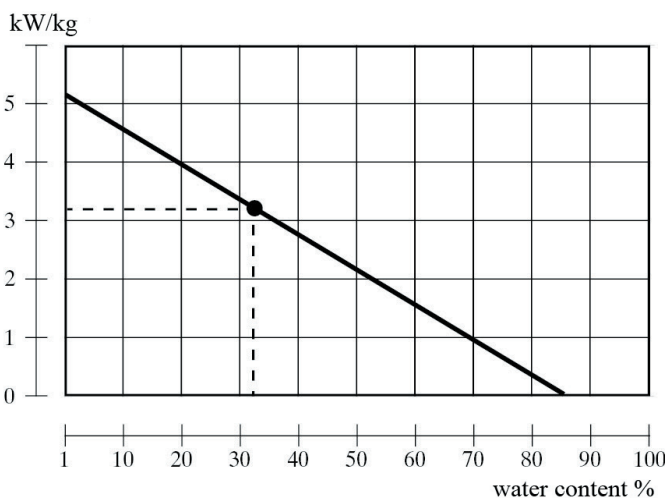
### Basic wood burning data

You can ensure maximum output and a long service life if you burn wood which has been left for at least 2 years to dry. The following graph illustrates the relationship of moisture content to heating capacity of the fuel. The energy content declines dramatically with increased water contents.

Example:

Wood with 20% moisture contents has thermal power of 4 kWh /1 kg of wood      Wood with 60% moisture contents has thermal power of 1.5 kWh /1 kg of wood

● **Example – spruce wood which has been stored for 1 year under shelter – see graph**



**The boilers maximum output with wet fuel illustrated in the graph**

		kW
DC 15EPL	-	10
DC 18SPL	-	13
DC 25SPL	-	19
DC 32SPL	-	25

The information is relevant to other gasification boiler types.



**Boilers are not suitable for burning wood with moisture content lower than 12%.**

### Fuel heating capacity

Wood - type	Heating capacity per 1 kg		
	kcal	kJoule	kWh
spruce	3900	16250	4,5
pine	3800	15800	4,4
birch	3750	15500	4,3
oak	3600	15100	4,2
beech	3450	14400	4,0

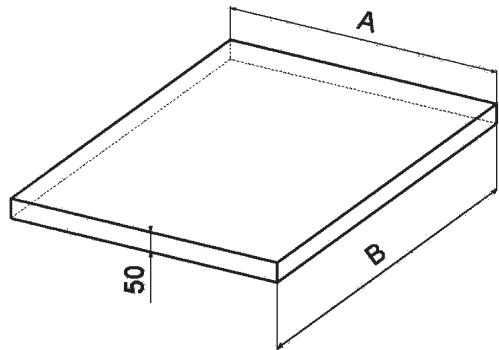


Raw wood does not burn easily, produces a lot of smoke and substantially decreases the service life of your boiler and chimney. Boiler output drops as low as 50% and fuel consumption doubles.

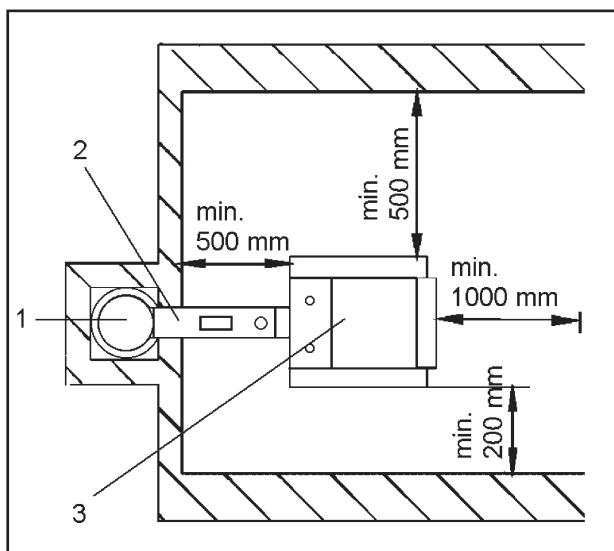
## 7. Boiler bases

We recommend providing a concrete (metal) base under the boiler.

Boiler type (mm)	A	B
DC15EPL, DC18SPL	600	600
DC25SPL	600	800
DC32SPL	700	800



## 8. Environment type and boiler placement in a boiler room



Boilers may be used in a “basic environment” - AA5/ AB5 as specified in Czech standard ČSN3320001/ 1995. Boilers must be placed in a boiler room with sufficient air access necessary for combustion. Placing boilers in living areas (including halls) is not permitted. The combustion air inlet aperture in the boiler room must be of minimum 200 cm<sup>2</sup> for boilers of 15 - 35 kW outputs.

- 1 - Chimney
- 2 - Flue duct
- 3 - Boiler

## 9. Chimney

**Connecting the appliance to the chimney vent stack must always be carried out with the permission of the appropriate chimney authority.** The vent stack must always be capable of providing sufficient draught and it must discharge the waste gas into the open atmosphere in a reliable manner for all possible operating conditions. The dimensions of the individual vent stack must be correct to ensure good functionality of the boiler; **because the draught influences combustion, performance and the service life of the boiler.** The chimney draught is directly dependent on its cross section, height and the inner wall ruggedness. It is not permitted to connect another appliance into a chimney into which a boiler is connected. **The chimney diameter must not be smaller than the boiler outlet (min. 150 mm).** The chimney draught must comply with the specified values (see technical data, page 6). The chimney must not be excessively high, otherwise the boiler effectiveness is decreased and the combustion is affected (the flame “breaks”). In case of excessive draught, install a throttle valve in the flue gas duct between the boiler and the chimney.

Indicative values of the chimney cross section dimensions:

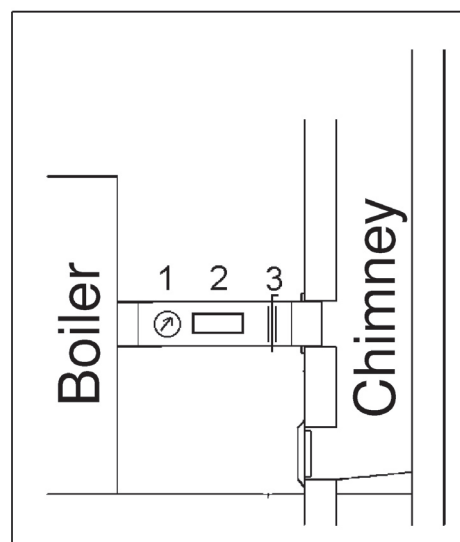
20 x 20 cm	height 7 m
Ø 20 cm	height 8 m
15 x 15 cm	height 11 m
Ø 16 cm	height 12 m

Exact chimney dimensions are stipulated in Czech standard ČSN 73 4201:2002.

Specified chimney draught is stated in section 3 „Technical Data“.

## 10. Flue-gas duct

The flue-gas duct must be connected into the chimney vent stack. If the boiler cannot be connected to the chimney directly, the appropriate flue-gas duct extension must be as short as possible in the given circumstances, but not longer than 1m, it must be without additional heating surface and must incline upwards in the direction towards the chimney. Flue-gas ducts must be mechanically durable and sealed against combustion products and gas penetration, and it must be possible to clean them inside. The flue-gas ducts must not be lead through another person’s apartment or property. The internal diameter of the flue-gas duct must not be larger than the internal diameter of the chimney intake and it must not decrease in width in the direction towards the chimney. Use of elbow-pipes is not suitable. Methods for providing flue-gas duct entries through flammable material structures are stipulated in appendices 2 and 3 of the Czech standard ČSN 061008/97. These are appropriate for mobile installations, wooden cottages etc.



- 1 Waste gas thermometer
- 2 Cleaning aperture
- 3 Throttle valve (draught limiter)



In case of excessive chimney draught, install a throttle valve (3) or draught limiter.

## 11. Fire prevention during installation and use of heating appliances

Selected from ČSN 061008/97 – Fire safety of local appliances and heat sources.

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### Safe distances

When installing the appliance, keep a minimum safe distance of 200 mm from building materials. This distance is valid for boilers and flue-gas ducts positioned near flammable materials of the B, C1 and C2 flammability class materials (the flammability classes are listed in chart 1). It is necessary to double the 200 mm safe distance if the boilers and flue-gas ducts are placed near flammable materials of C3 class (see chart 1). It is also necessary to double the safe distance if the flammability class of the material in question cannot be determined. The safe distance can be decreased to one half (to 100 mm) if a heat insulating, non-combustible screen (asbestos board) of a 5 mm minimum thickness, is placed 25 mm from the protected combustible material (so called flammable insulation). The screening board or protection screen (on the protected object) must exceed the boiler outline including its flue-gas duct on each side by at least 150 mm and by at least 300 mm above its upper surface. The screening board or protection screen must be also used for all fixtures and fittings from combustible materials in cases where the safe distance cannot be maintained (such as in mobile structures or wooden cottages etc. - for more details see ČSN 061008 standard). The safe distance must be maintained even when placing fixtures and fittings near the boilers.

If boilers are placed on floors from combustible materials, the floor must be fitted with a non-combustible, heat insulating pad exceeding the boiler's ground-outline on the side where the stoking and ash-pan apertures are, by at least 300 mm (in front of the aperture) and on all the other sides by at least 100 mm. The non-combustible, heat insulating pad can be made from any material of A flammability class.

Chart 1

Flammability classes of building materials and products	Building materials and products categorised by their flammability class (selected from Czech standard ČSN 730823)
A – non-combustible	granite, sandstone, concrete, bricks, ceramic tiles, mortars, fireproofing plasters etc.)
B – non-easily flammable	Akumin, Izomin, Heraklit, Lignos, basalt felt boards, fibreglass boards, Novodur
C1 – low degree of flammability	deciduous tree wood (oak, beech), Hobrex boards, plywood, Sirkolit, Werzalit, hardened paper (Formica),
C2 – medium degree of flammability	coniferous tree wood (pine tree, larch, spruce), chipboards and cork boards, rubber flooring (Industrial, Super)
C3 – high degree of flammability	fibreboards (Hobra, Sololak, Sololit), cellulose materials, polyurethane, polystyrene, polyethylene, foamed PVC



**NOTE** - In circumstances when there is a risk of temporary access of flammable gases or fumes, or during works when a temporary fire or explosion risk may possibly occur (such as gluing linoleum, PVC etc.) the boilers must be put out of operation long enough before the risk occurrence. No items from flammable materials may be placed on the boilers or near them for a distance lower than the specified safe distance.

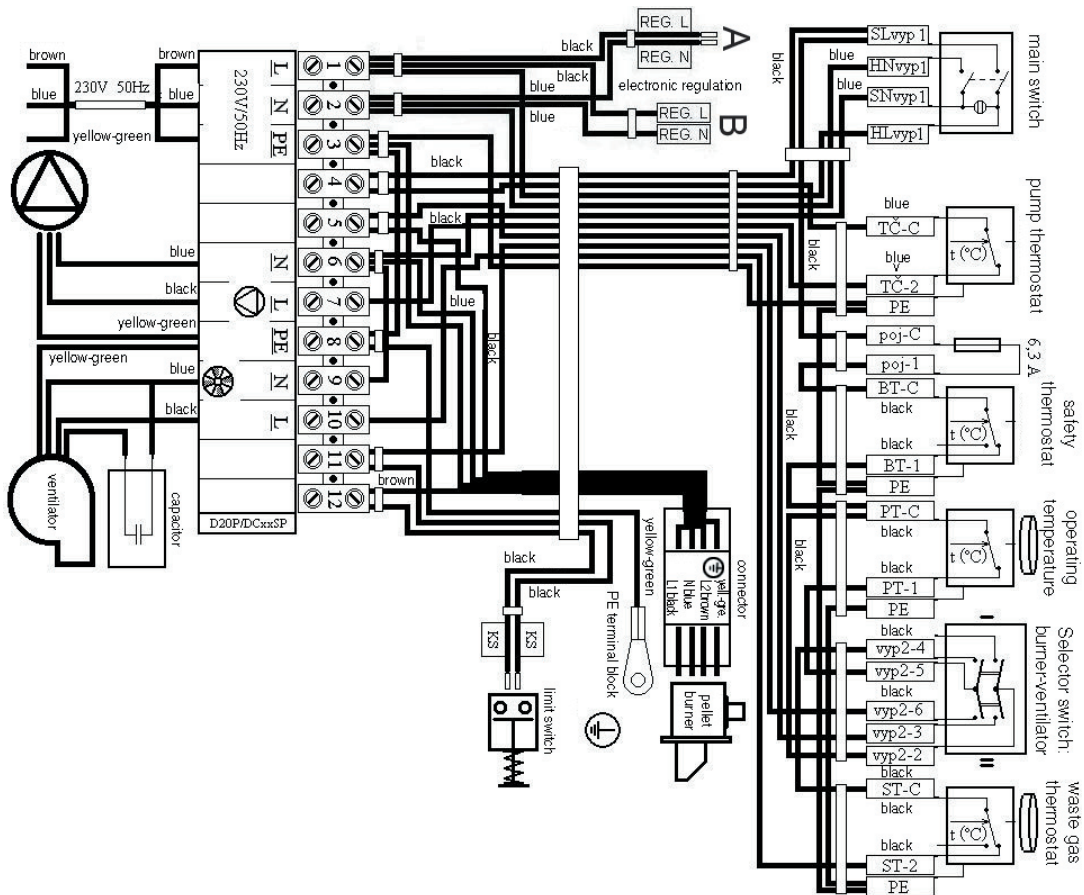
## 12. Connecting boilers to the electric network

Boilers are to be connected to a 230 V, 50 Hz electric network with electric cord without plug. The network connection is of the M type and when replacement is needed the service company must use the same type connection to replace it. Connection may only be carried out by a person qualified in compliance with all valid regulations of the particular country.



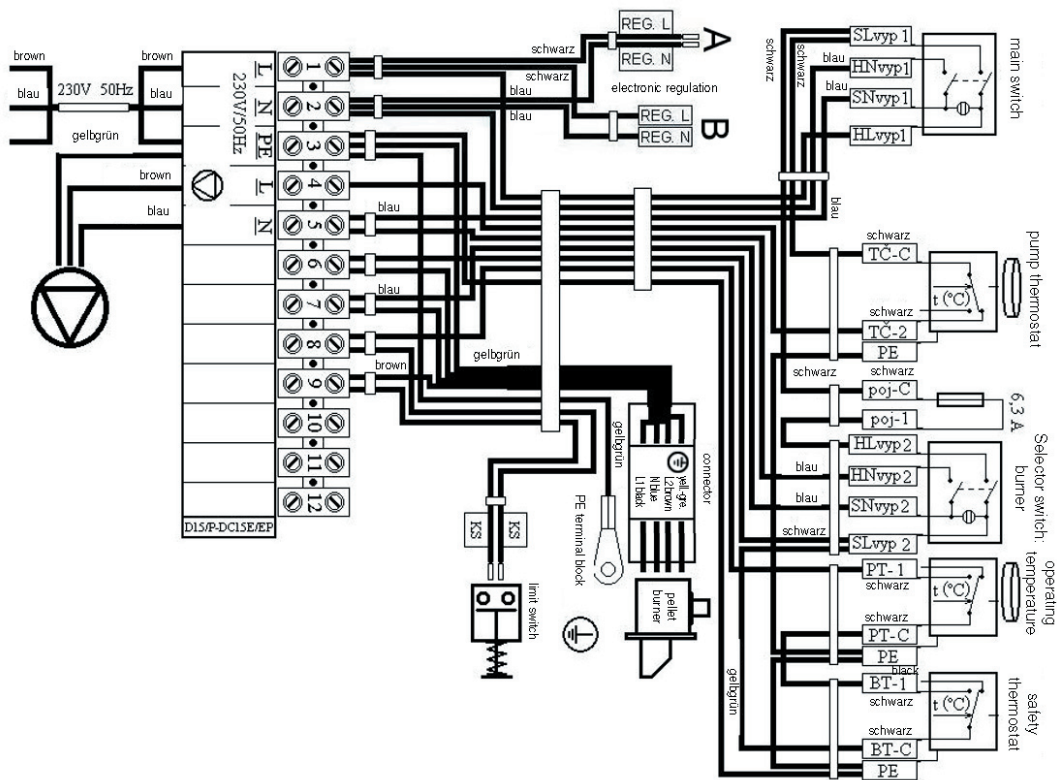
**CAUTION** – the electric cord must not be fitted with a termination (male plug for a socket). A permanent connection into a distribution box must be made.

## 13. Wiring diagram of electromechanical regulation with an UCJ 4C52 type extraction ventilator (boilers DC18SPL, DC25SPL and DC32SPL)





## 14. Wiring diagram of electromechanical regulation of the DC15EPL type boiler



----- Possibility to connect the outlet to a pump with a 95°C safety thermostat

## 15. Obligatory ČSN EN standards dealing with boiler designing and installation

- |                   |  |
|-------------------|--|
| ČSN EN 303-5      | - Solid fuel boilers for central heating                           |
| ČSN 06 0310/98    | - Central heating, designing and assembly                          |
| ČSN 06 0830/96    | - Safety devices for central heating and hot potable water heating |
| ČSN EN 73 4201/02 | - Designing chimneys and flue-gas ducting                          |
| ČSN EN 1443/03    | - Chimney structures – general requirements                        |
| ČSN 06 1008/97    | - Fire safety of local appliances and heat sources                 |
| ČSN 73 0823/84    | - Construction materials flammability class                        |
| ČSN EN 1264-1     | - Floor heating – Systems and components – Definitions and symbols |
| ČSN EN 1264-2     | - Floor heating – Systems and components – Heat output calculation |
| ČSN EN 1264-3     | - Floor heating – Systems and components – Designing               |
| ČSN EN 442-2      | - Heaters – Testing and test analysis                              |



**CAUTION** – the boiler must be installed in compliance with a design prepared in advance. Installation may only be carried out by persons trained by the manufacturer.

## 16. Choice and connection method of control and heating elements

Boilers are provided to the user with the basic boiler performance control elements compliant with requirements for convenient heating and its safety. The regulation ensures that the required temperature of the water exiting the boiler (80 - 90°C) is adhered to. Boilers are fitted with an integral thermostat for switching the pump on and off, in the boiler circuit. Connection of these elements is illustrated in the wiring diagram. Each pump in the system must always be controlled by an individual thermostat to avoid a temperature drop of water returning to the boiler under 65°C. When connecting the boiler without an accumulation tank or equalizing tank, the pump placed in the heated building circuit must be switched on and off by an individual thermostat or electronic regulation so that it only operates when the pump in boiler circuit operates. If two thermostats are used – each for switching one pump – set the thermostat that switches the heated building circuit pump, to 80°C, and the thermostat that switches the boiler circuit pump, to 75°C. Both pumps may only be switched by one thermostat. If there is an adequately functioning gravity water circulation between the boiler and the system, which prolongs the required temperature build-up, the value of the thermostat designated for switching the boiler circuit pump can be reduced. Setting the required water temperature for the building is always achieved by means of a three-way mixing valve. The mixing valve can be regulated manually or by electronic regulation, which contributes to a more convenient and economical operation of the heating system. The connection of all the elements is designed to suit specific conditions of the heating system. Electric installations related to the additional equipping the boilers with the above mentioned elements must be carried out by an expert in compliance with valid ČSN EN standards.



**When installing the boiler, we recommend using a closed expansion tank. However, an open tank may also be used if permitted in the standards of the specific country. The boiler must always be installed in a way which prevents overheating (and subsequent damage) even during a power cut. It is because the boiler has certain momentum.**



**There are several ways of protecting the boiler from overheating. Connecting an over-heat prevention cooling loop with a TS 130 3/4 A (95°C) or WATTS STS 20 (97°C) valve to the public water system. In cases of personal wells, the boiler can be additionally protected by using a back-up power supply (battery with an exchanger) for operation back up of at least one pump. Another option is connecting the boiler to an after-cooling tank and reversal zone valve.**



**When installing the boiler, position the rear section 10 mm higher in order to facilitate circulating and air-bleeding.**

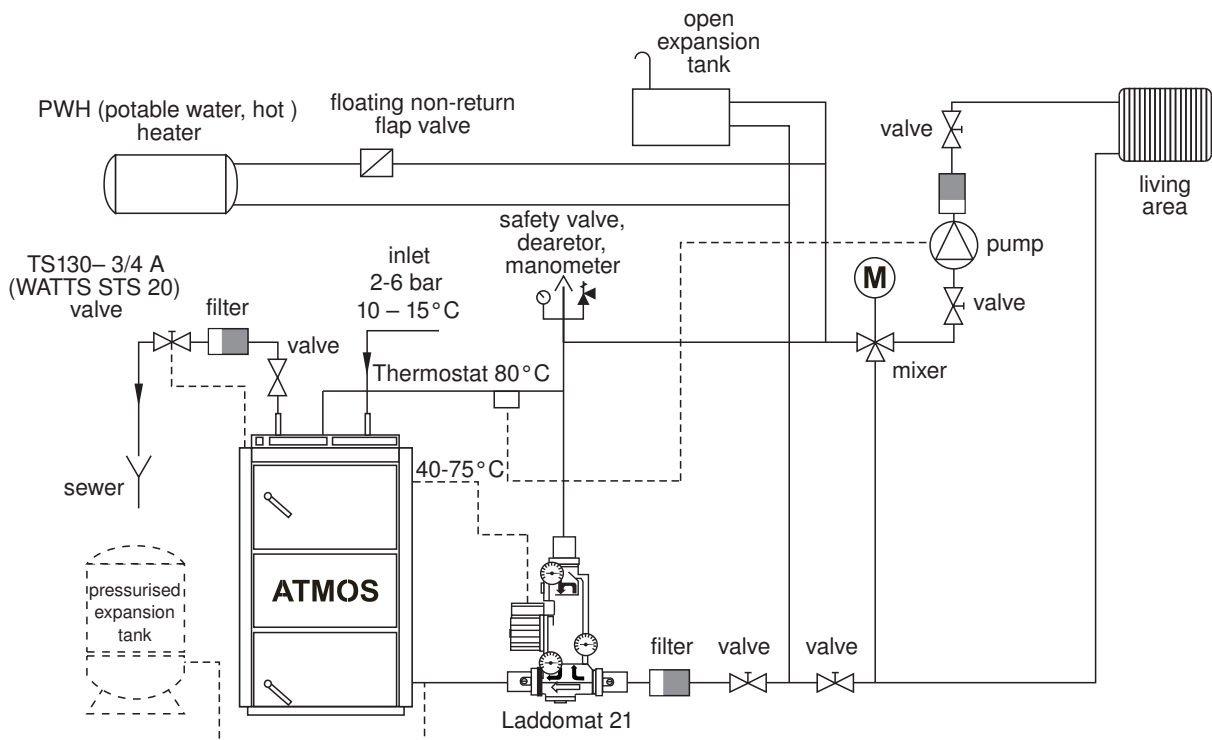
**For the heating system regulation we recommend regulation elements provided by the following companies:**

- |                       |                        |
|-----------------------|------------------------|
| a) KOMEX THERM, Praha | tel.: +420 235 313 284 |
| b) KTR, Uherský Brod  | tel.: +420 572 633 985 |
| c) Landis & Staefa    | tel.: +420 261 342 382 |

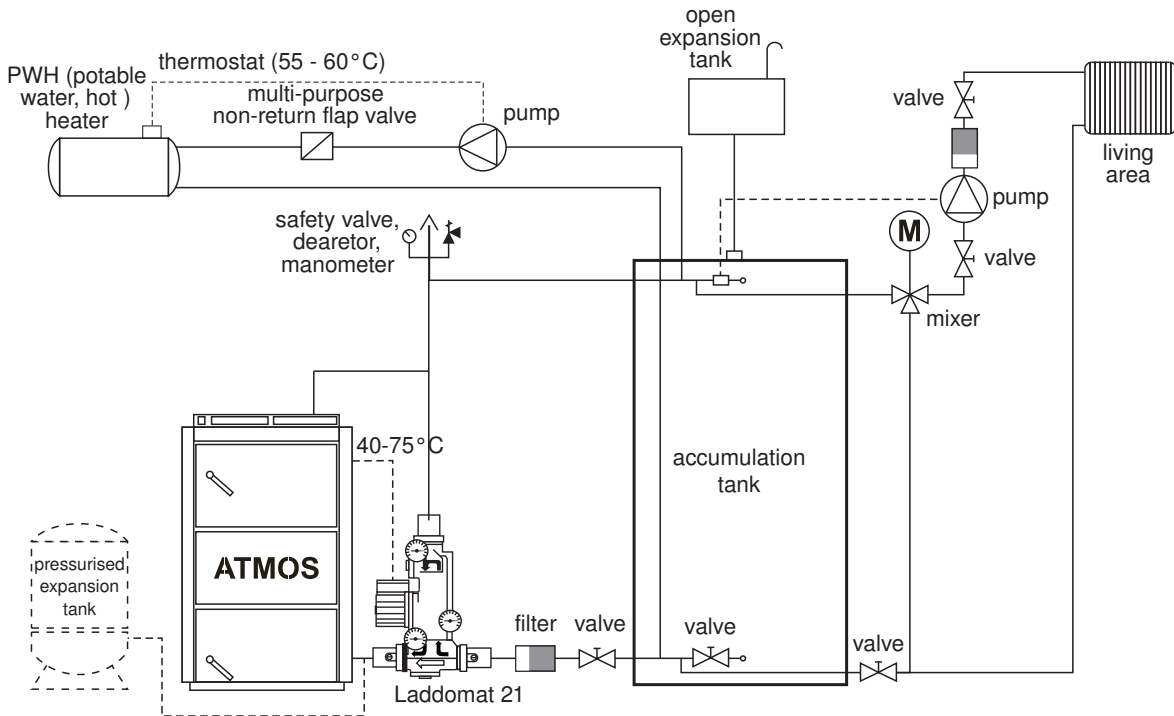
## 17. Boiler corrosion protection

The specified solution is connecting the boiler with **Laddomat 21** or with a thermoregulatory valve, which can separate the boiler circuit from the heating circuit (primary and secondary circuits), and provide **minimum of 65°C for water returning to boiler**. The higher the temperature of water returning to the boiler, the fewer tars and acids condensing; which damage the boiler. **Temperature of the outgoing water must permanently range between 80 - 90°C**. The combustion products (waste gas) temperature must not drop **below 110°C** during normal operation. Low waste gas temperature causes condensation of tars and acids even when the specified outgoing water temperature of (80 - 90°C) and returning water temperature of (65°C) are adhered to. These conditions may occur when using the boiler to heat hot potable water (HPW) in summer, or when heating only a section of the building. In this case we recommend connecting the boiler with accumulation tanks, or daily firing-up. For outputs of 15—100 kW it is also possible to keep the minimum temperature of the returning water (65-75°C) by utilising a three-way mixing valve with an electric actuator and electronic regulation.

## 18. Specified boiler connection with Laddomat 21

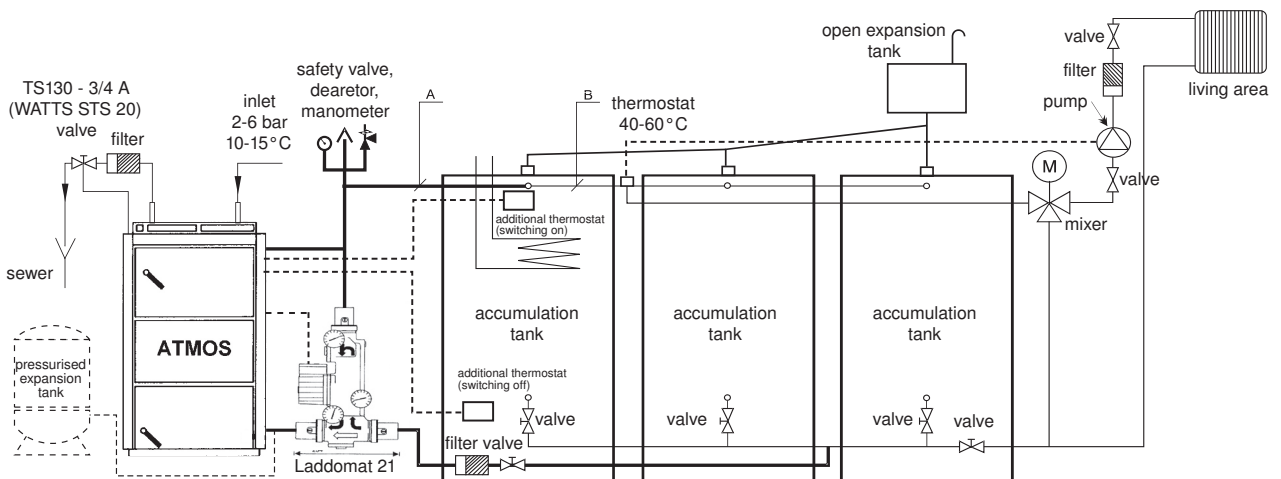


## 19. Specified boiler connection with an equalizing tank



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## 20. Recommended wiring diagram with Laddomat 21 and accumulators

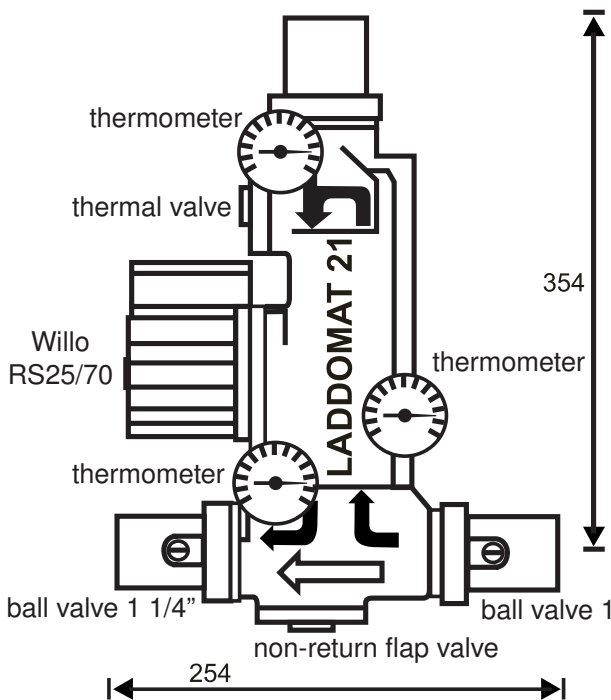


### Pipeline diameters if connected with accumulation tanks

Boiler type and output	section A		section B	
	in copper	in steel	in copper	in steel
DC15EPL, DC18SPL	28x1	25 (1")	28x1	25 (1")
DC25SPL	28x1	25 (1")	28x1	25 (1")
DC32SPL	35x1,5	32 (5/4")	28x1	25 (1")

## 21. Laddomat 21

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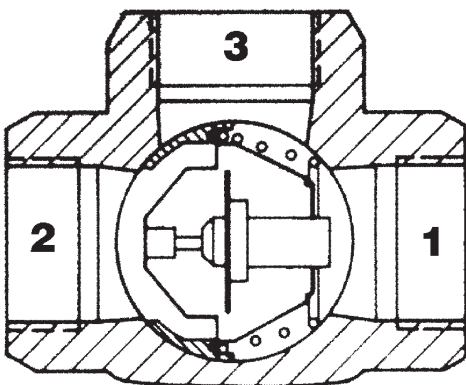
With its construction, Laddomat 21 replaces the traditional connection composed of individual parts. It is composed of a cast-iron body, thermoregulatory valve, pump, non-return flap valve, ball valves and thermometers. When the water temperature reaches 78 °C, the thermoregulatory valve opens the water supply from the storage tank. The connection with Laddomat 21 is considerably easier and therefore, we recommend it. A spare thermo-cartridge 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 pressure	0,33 MPa
Max. operating temperature	100°C



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

## 22. Thermoregulatory valve ESBE



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: DC15EPL, DC18SPL, DC25SPL ..... DN 25  
 DC32SPL ..... DN 32

## 23. Operating a system with accumulation tanks

Ignite the boiler and allow the accumulation tanks to “charge” to the required water temperature of 90-100°C by the boiler’s maximum output operation (2 to 4 loads). Then leave the boiler to stop burning. Then keep withdrawing heat from the storage utilising three-way valve for a period of time corresponding to the size of accumulation tanks and the external temperature. In the heating season (and if adhering to specified min. accumulation tanks volumes – see chart) this could take 1 – 3 days. If the accumulation method cannot be used, then we recommend using at least one tank of 500 - 1000 l volume for equalising the boiler start-ups and run-outs.

RECOMMENDED MINIMUM ACCUMULATION TANK VOLUMES			
Type	DC15EPL DC18SPL	DC25SPL	DC32SPL
Output	18	25	32
Volume	1000-1500	1500-2000	2000-2500

### The standard ATMOS accumulation tanks provided

TANK TYPE	VOLUME (l)	DIAMETER (mm)	HEIGHT (mm)
AN 500	500	600	1901
AN 750	750	750	1925
AN 1000	1000	850	2011

### Tank insulation

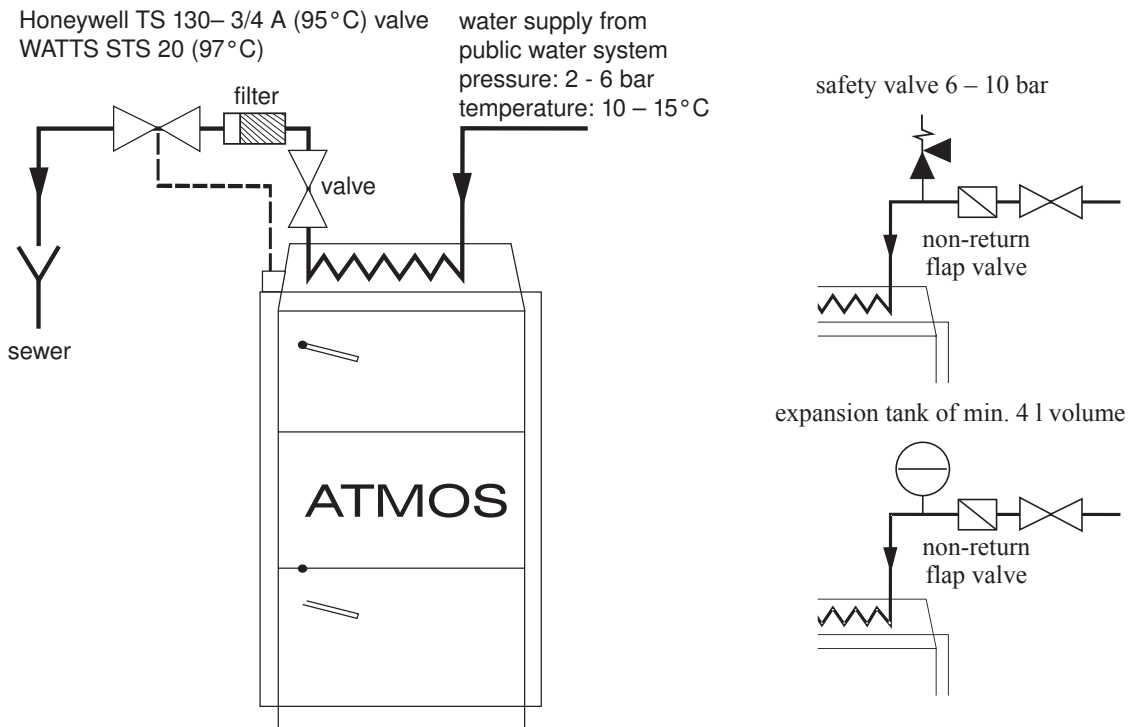
A suitable solution is joint mineral wool insulation of the particular number of tanks (of required volume) placed together into a plasterboard structure, or additional filling with granular insulation. When using the mineral wool, the specified minimum insulation thickness is 120 mm. Another option is purchasing tanks in a leather-cloth housing insulated by mineral wool (see the price list).

### Advantages

When burning fire wood, the installation with accumulation tanks provides several advantages:

- lower fuel consumption (by 20 – 30%), the boiler operates in full output and at an optimal effectiveness of 81 - 89 % until the complete combustion of the fuel
- prolonged boiler and chimney service life – minimum formation of wood-tars and acids
- possibility to combine it with other heating methods – accumulated electric power, solar collectors
- combination of wall radiators and floor heating
- convenient heating and ideal fuel combustion
- environmentally friendlier heating

## 24. Connection of overheat protecting cooling loop with a safety valve Honeywell TS 130 - 3/4 A or WATTS STS20 (valve opening temperature 95 - 97°C)



**CAUTION** – in compliance with the EN ČSN 303-5, the cooling loop must not be used for any other purpose than overheat protection (never for heating hot potable water)

The TS 130 - 3/4 A or WATTS STS 20 valves, the sensor of which is placed in the rear of the boiler, prevent overheating in the following way: if the boiler water temperature rises above 95 °C, the valve opens and allows water from public water supply system to enter the cooling loop. This water then absorbs the excessive energy and exits to the sewer. In case that a non-return flap valve has been installed to the cooling loop water inlet for the purpose of preventing reversed water flow (which might be caused by pressure drop in the public water supply system), the cooling loop must be fitted with a 6 – 10 bar safety valve or with an expansion vessel of minimum 4 l volume.

## 25. Operating instructions

### Boiler inspection and operation preparation

Before putting boilers into operation, it is necessary to ensure that the system has been filled with water and air-bled. ELFO or natural gas and wood boilers must be operated in compliance with the instructions stipulated in this manual so that satisfactory and safe functioning is achieved. They can only be operated by adults.





**NOTE** – when burning wood for the first time, condensation may occur and condensed fluid may leak out – this is not a defect. Later on the condensation disappears. When burning wood, it is necessary to monitor the waste gas temperature which must not exceed 320°C. Otherwise, the ventilator (S) will sustain damage. Wood-tar and condensate formation in the hopper is a side effect from wood gasification.

Commissioning of the ELFO or natural gas burner must be completed by an expert company. With boiler types DC 18 SPL - DC 32SPL put the selector switch /6/ in position II. Set the required temperature (80 - 90°C) on the control thermostat. With type DC 15EPL, switch the burner on with the switch /9/ (this boiler does not have a selector switch). When changing to different fuel type, it is always necessary to readjust the boiler, see following sections.

### **Boiler adjustments before burning ELFO or natural gas:**

Before you put the ELFO or natural gas burner into operation, it is necessary to perform several operations: Before switching the main switch on, close (lower) the control (flap) valve which is operated by the FR 124 draught regulator. The valve must be completely closed so that no „false“ air can enter. Ensure that all three doors are fully closed. Secure the lower door with an M12 screw to prevent accidental opening. Check that the burner is well drawn towards the door through its gasket. Close the ignition valve which is used when loading firewood in wood-burning mode. In cases where the boiler upper door has been opened previously, depress the limit switch button situated to the left or right near the upper door. This button springs up and switches the ELFO or natural gas burner in cases where the upper door has been opened before or during the burner's operation. This is a necessary safety feature stipulated by valid standards.

### **Boiler adjustments before burning wood:**

When switching from ELFO or natural gas burning to firewood burning mode, carry out the following adjustments: Set required temperature of water exiting the boiler (80-90 °C) on the FR 124 draught regulator so that it effectively regulates the control valve which was closed in the ELFO or natural gas burning mode. Switch the main switch on, put the selector switch into position I. and ignite.

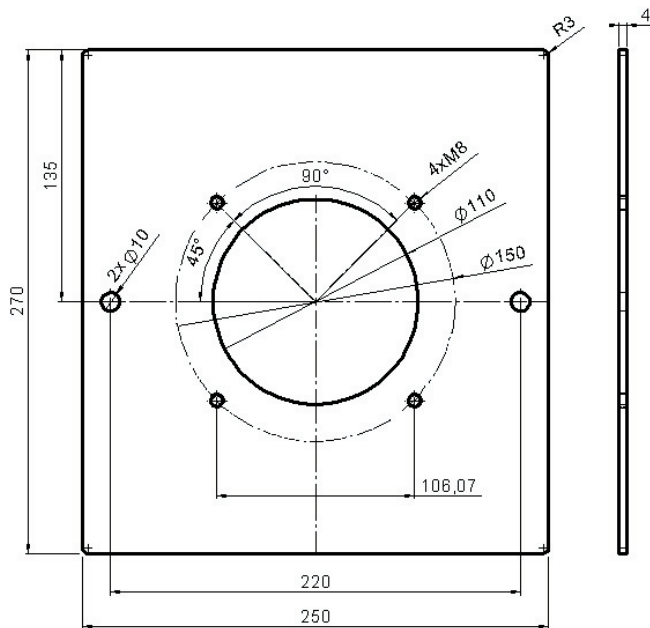


**CAUTION** – if the boiler is in ELFO or natural gas burning mode and the operator does not close the control valve for air intake which is controlled by the FR 124 draught regulator, suction of “false” air into the combustion process will occur which will result in the boiler's effectiveness reducing (2-5%). The boiler will however function. This type of operation is discouraged.



**CAUTION** – when switching the boiler operating mode from wood burning to ELFO or natural gas, clean thoroughly all boiler from ash, pay particular attention to the rear flue-gas duct (remove ash from the lower lid), so that blockage of waste gas may not occur.

## Burner connection rim



## Boiler with ELFO or natural gas burner

### Recommended boilers

#### For extra-light fuel oil:

Riello, type 40 G3RK, 15 - 35 kW

Weishaupt, type WL5/1-A, version H2-LN 16 - 40 kW  
CE-0036 0280/99

Riello, type 404 T, 16.5 – 25.8 kW CE-0036 0261/99

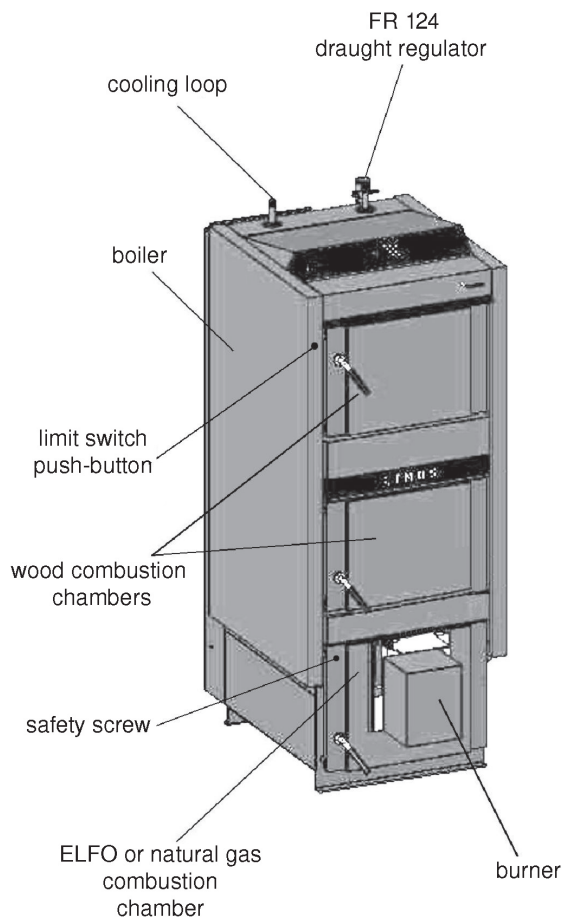
Riello, type 405 T, 23.7 – 34.4 kW CE-0036 0262/99

#### For natural gas:

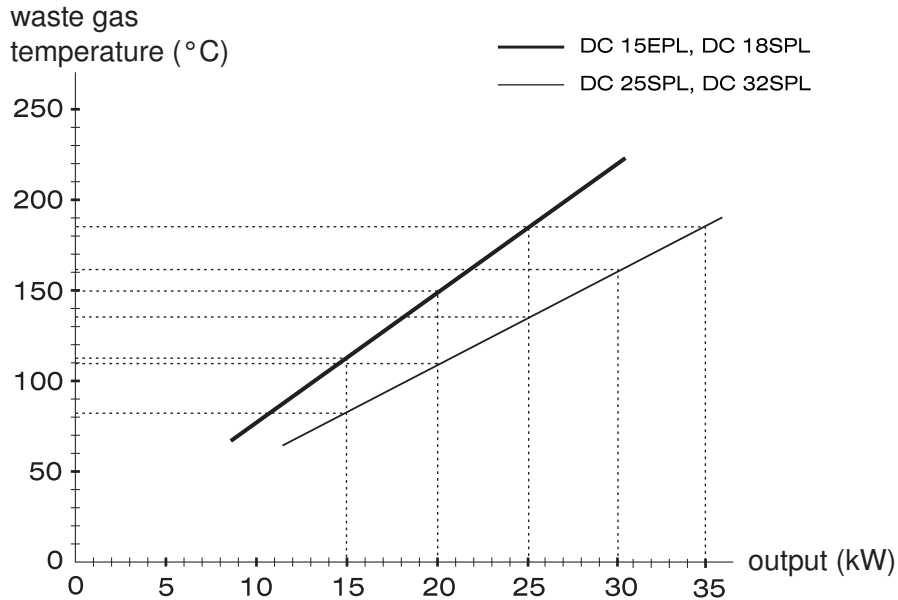
Riello 40GS + MDB 055, 11 - 35 kW

Weishaupt, type WG5/1-A, 12.5 - 50 kW CE-0085AU0064

When burning ELFO or natural gas, you can also use other manufacturers' burners equipped with an air flap valve operated electrically or hydraulically (e.g. by an electric actuator) which is closed when the electric burner is off. (The reason is that "false air" must not be drawn into the combustion process during wood burning operation). These burners must be approved for operation in the particular country and must comply with all safety and combustion quality requirements effective in the particular country.



## Relation of waste gas temperature to boiler (burner) output when burning ELFO or natural gas



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



**CAUTION** – adjustments to burner combustion settings carry out utilising waste-gas analyser applied to the measuring point in the flue-gas duct (position 40, page 8). The waste gas temperature is higher at this point than it is behind the boiler. That is why the waste gas temperature is measured 0.5 m away from the boiler.



**CAUTION** – during the burner operation no adjustments to settings of the electronic panel may be carried out – high voltage

## Ignition and operation in wood-burning mode

Put the selector switch into position 1 (or, in case of the DC15EPL type, switch the burner off by its switch). Before fuel ignition, open the ignition valve /13/ by pulling the ignition valve pulling rod /17/ and reduce the waste gas thermostat for the ignition (to minimum - 0°C). Through the top door /2/ insert dry wood kindling on the heatproof shaped piece /5/. Place the kindling perpendicularly to the channel recess in the shaped piece so that a 2 – 4 cm gap between the recess and fuel is created; which allows the waste gas passage. Place paper or wood wool on top of the kindling, then another layer of kindling and larger amount of dry wood. After ignition close the top door and open the lower door. For faster flaring up the extraction fan may be switched on. When the fuel has caught sufficient fire, close the lower door, fill the storage tank completely with fuel and close the ignition valve with its pulling rod /17/. Set the waste gas thermostat into the operating position which it is necessary to determine for ideal operation. On the FR 124 draught (output) regulator /22/ set the required outgoing water temperature 80-90°C. If the boiler should work as a gasification appliance, then a layer of glowing charcoal must be kept (known as reduction zone) above the gasifying nozzle. This can be achieved

by burning dry firewood of suitable size. When burning moist wood, the burner does not operate as a gasification appliance, the fuel consumption increases dramatically, the boiler does not reach the required output and the service life of both - the boiler and the chimney - decreases. **If the specified chimney draught is adhered to, the boiler operates up to 70% output without the ventilator.**



**NOTE** – when burning wood for the first time, condensation occurs and condensed fluid leakage occurs – this is not a defect. Condensation will disappear later. When burning small wood waste particles, it is necessary to monitor the waste gas temperature which must not exceed 320°C. Otherwise, the ventilator (S) may sustain damage. Wood-tar and condensate formation in the hopper is a side effect of wood gasification.

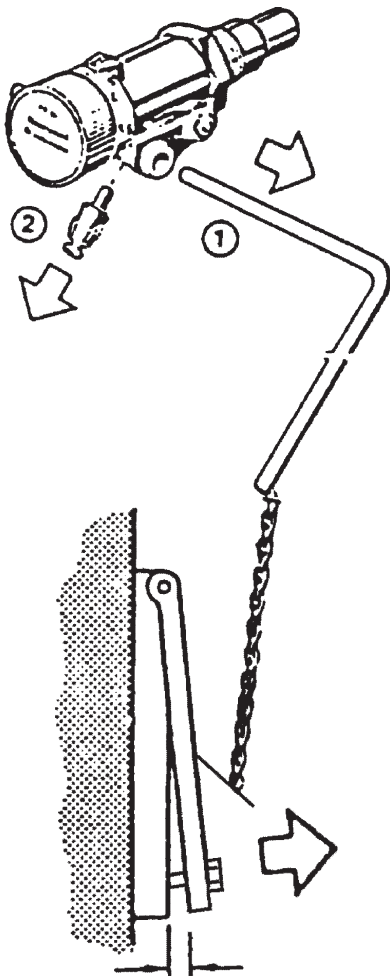


**CAUTION** – when operating the boiler, all doors must be fully closed and the ignition valve pulling rod must be pushed in - otherwise the ventilator (S) may sustain damage – except for DC15EPL.

## Output regulation in wood burning mode - electromechanical

Output regulation is achieved by means of a control flap valve /8/ operated by the FR 124 draught regulator /22/ which automatically opens up or shuts down the valve /8/; depending on the pre-set outgoing water temperature (80-90°C). The output (draught) regulator adjustment should be done carefully because it not only regulates the output; but also protects the boiler against overheating. The setting should be in compliance with the enclosed ‚Assembly and Setting Instructions‘ for the HONEYWELL Braukmann FR 124 type regulator. The overheat protection function can be monitored by checking the regulator’s functionality at temperature of 90°C. At this temperature, the control valve /8/ must be almost closed. It is necessary to seek and discover the best setting. You can visually inspect the control valve’s /8/ position by looking from the rear side of the ventilator. The ventilator is controlled by a control thermostat situated on the boiler’s panel. The regulation is based on the pre-set outgoing temperature value. The temperature set on the thermostat should be 5°C lower than the temperature set on the FR 124 draught regulator. (Indicated by dots on the thermostat scale). The control panel also comprises of a waste gas thermostat which is used to switch the ventilator off when the fuel has been combusted (except for the DC15EPL type). When igniting, position to the “firing-up” position (minimum value). When the fuel has sufficiently flared up, set it to the operating position in which the ventilator runs until the fuel has completely burnt out. It is necessary to seek and discover an optimal position of the thermostat; which depends on type of fuel, chimney draught and other conditions. The outgoing water temperature should be monitored on the thermometer /18/ situated on the control panel. There is also an irreversible safety thermostat on the panel.

## Draught regulator - HONEYWELL Braukmann FR 124 – Assembly instructions



cca. 3 - 50 mm

Disassemble the lever /1/ and coupler /2/ and screw the regulator into the boiler.

### Setting

Heat the boiler to approx. 80°C. Set the setting handle to the temperature read on the boiler thermometer. Tension the air flap valve chain in a way that provides the required boiler output; the gap at the air (control) flap valve may range between 3 – 50 mm. The valve minimum gap is set by a setscrew to 3 – 8 mm; boiler service-life prolonging feature. - Do not decrease. Otherwise, the boiler and ventilator may get covered in tar and their service life would be reduced. In cases where there are insufficient general draught conditions, slightly increase the permissible minimum gap.

### Draught regulator functional check

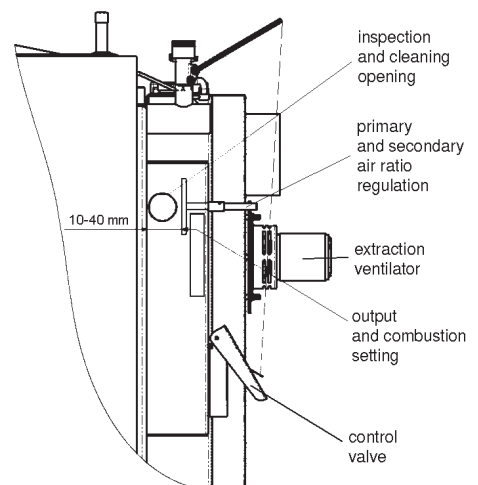
Set the setting handle to the required temperature of water exiting the boiler (80 - 90 °C). When the water temperature reaches its maximum of 95°C, the control flap valve must be fully closed (only providing the setscrew gap). It is always necessary to fine-tune the specified operating temperature (80-90°C) utilising the mixing valves behind the boiler either manually or by electronic regulation with electric actuator.

## 26. Setting the boiler output and combustion when burning wood

### Basic setting of primary-secondary air ratio (DC15EPL, DC18SPL, DC25SPL, DC32SPL)

**Optimum setting:**  
fully closed (5 mm) + 5÷10 mm

**Maximum setting:**  
fully closed (5 mm) + 10÷20 mm





Adjustments to settings should be done on the basis of the waste gas analyzer and maximum temperature; which must not exceed 320°C at the outlet to chimney, at stabilised nominal output /with closed ignition valve/. The boiler is set to optimal operating parameters by the manufacturer. Therefore, make adjustments to settings only in cases where the operation conditions are non-standard (for example - if insufficient chimney draught, pull the regulator pulling rod to its maximum).

## 27. Fuel refill

Before fuelling, open the ignition valve /13/ with the pulling rod /17/. Do not switch the extraction ventilator off. Wait for approximately 10 seconds and slowly open the loading door /2/ so that any accumulated gases are first vented off into the flue-gas duct. For the duration of heating, always top the hopper up completely. In order to prevent excessive smoke formation, load new batch of fuel only after the previous fuel has combusted to at least one third of the loading volume. Then cover the glowing charcoals with a broad log and add the rest of the firewood. Do not pack the fuel down tightly on the nozzle. Otherwise, you may put the flame out.



**CAUTION** – during operation, the ignition flap pulling rod must be retracted, otherwise damage to the ventilator (S) will occur.

## 28. Slow-burning operation when burning wood

It is possible to use boilers for slow-burning operation, i.e. keeping the fire up overnight without the necessity to heat-up during the day. This is only permitted during wintertime. This operating method however decreases the boiler service life. Prepare the boiler for slow-burning operation in the following way:

- place several (4 – 6) larger logs on a glowing layer of partially combusted fuel
- turn the mixing valve down

After the valve has been turned down, the boiler water temperature increases to 80 - 90°C.

- the control flap valve /8/ operated by the FR 124 Honeywell draught regulator automatically shuts down and the ventilator switches off – the boiler operates in minimum output mode

In boilers prepared as previous, the wood burns for 8 – 12 hours. The actual slow-burn combustion time depends on the amount of fuel placed in the boiler and on the actual quantity of consumed heat. Even if the boiler operates in the slow-burn mode, it has to keep the output water temperature ranging between 80 - 90°C and returning water minimum temperature 65°C.

## 29. Boiler cleaning

It is necessary to clean the boilers regularly and thoroughly every 3 to 7 days because the flue cinder accumulated in the fuel storage tank together with tars and acids dramatically decreases the boiler's service life and output and insulates the heat transfer surface. If excessive amount of cinder is left to form, then the burn-off area is insufficient and damage to the ceramic nozzle handle or the boiler may occur. Carry out the cleaning procedure by first switching the extraction ventilator on (only with DC 15EPL). Then open the upper loading door /2/ and sweep the cinder down through the slot into the



lower chamber. The selector switch is in position I. (except for the DC 15EPL where you switch off the switch /9/). Leave long pieces of wood which has not fully combusted (charcoals) in the hopper for the next time the boiler is used. Open the cleaning lid /15/ and clean the duct with a brush. Remove all the soot and cinder after opening the lower lid. Open the middle and lower door /3/ and clean the lower chamber from cinder and soot. The cleaning interval depends on the fuel quality (wood moisture content), heating intensity, chimney draught and other factors. We recommend cleaning the boilers once a week. Do not pull out the fireclay shaped piece /10/ when cleaning. At least once a year clean the extraction ventilator rotating wheel and via the cleaning hole, inspect the state of the primary to secondary air ratio regulation. If it is necessary, clean it using a screwdriver. It influences the combustion quality (p.27). As the last step, always clean the rear flue-gas duct and remove cinder from the lower lid. The actual interval at which your boiler needs cleaning depends on the fuel quality, chimney draught and consumption. It is necessary to discover it oneself. It can, of course, be longer than the recommended one.

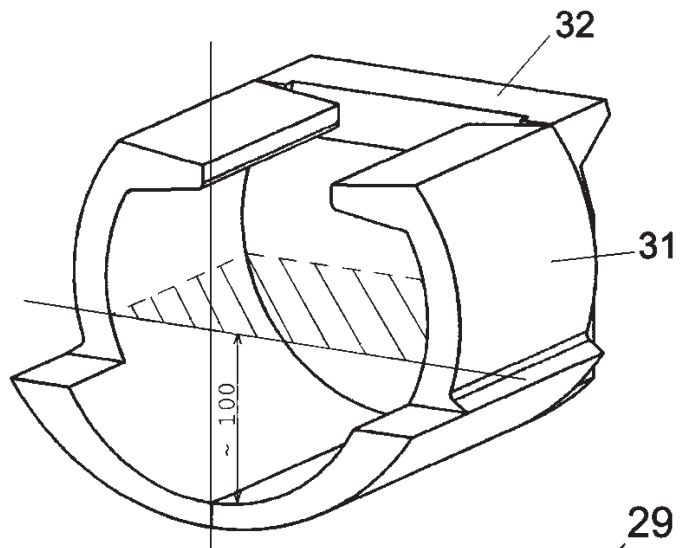


**NOTE** –regular and thorough cleaning is important for permanent stabilised output and a long service life of your boiler. If not cleaned properly, damage to the boiler may occur –the manufacturer’s guarantee is rendered invalid

### Maximum ash quantity – in the middle combustion chamber

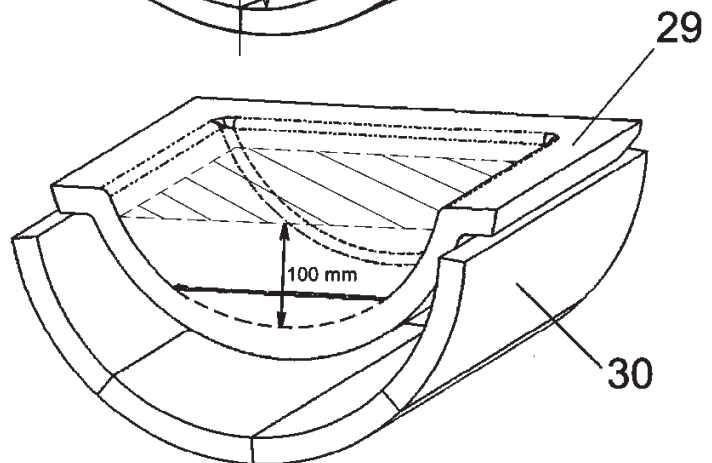
#### For DC 18SPL type

- middle combustion chamber
- for wood



#### For DC 15EPL type

- middle combustion chamber
- for wood

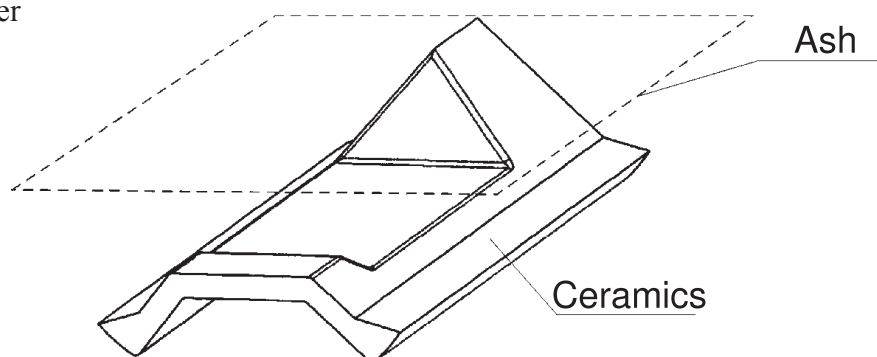


**Maximum ash quantity – up to half of the spherical space!**



**For types DC 25SPL and DC 32 SPL**

- middle combustion chamber
- for wood



**Maximum ash quantity – only up to the upper roof's edge level!**

## 30. Heating system maintenance - including boilers

Inspect at least once every 2 weeks. If necessary, refill the system with water. If the boilers are out of operation during wintertime, a risk of water freezing in the system arises. Therefore, we recommend letting all the water out from the system or fill it with an anti-freeze. In other situations, only let water out if necessary and keep without water for as little time as possible. After the heating season is over, clean the boiler thoroughly and replace damaged parts. **Do not leave parts replacement for the last moment; prepare your boiler for the heating season as early as Spring.**

## 31. Use and inspections

The operator must always act in compliance with the usage and maintenance instruction manual. Any adjustments to the boilers which may lead to operator's or other persons' health risk are prohibited. The boiler may be operated by a person older than 18 years who is familiar with the instruction manual and with the appliance operation, and who is in compliance with the Section 14 of the 24/1984 Coll. government decree. It is prohibited to leave unattended children in the vicinity of operating boilers. When operating solid-fuel boilers it is prohibited to use flammable liquids for ignition. It is also prohibited to increase the boiler nominal output during operation by any means (known as overheating). It is prohibited to place any flammable items on the boilers or within the vicinity of their loading and ash-pan apertures. Removed ash must be placed into vessels from non-combustible materials fitted with a lid. Operating boilers must be occasionally inspected by the operator. The user may only carry out repairs consisting of replacement of delivered spare part (such as fireclay shaped piece or sealing cord etc.). When in operation, always check that the boiler doors and cleaning apertures are well sealed. The user must not tamper with the boiler construction or its electrical installation. The boiler must be well cleaned and in time ensuring that all ducts are always obstacle-free. Loading door and ash-pan door must always be well closed.

## 32. Possible failures and troubleshooting

Failure	Reason	Solution
<b>The “mains” indicator not lit up</b>	<ul style="list-style-type: none"> <li>- no voltage in network</li> <li>- plug incorrectly inserted to el. socket</li> <li>- defective power supply switch</li> <li>- defective electric cord</li> </ul>	<ul style="list-style-type: none"> <li>- check</li> <li>- check</li> <li>- replace</li> <li>- replace</li> </ul>
<b>Boilers do not reach their required outputs and the pre-set water temperatures</b>	<ul style="list-style-type: none"> <li>- not enough water in the system</li> <li>- excessive pump output</li> <li>- the boiler output is not sufficiently rated for the particular heating system</li> <li>- low quality fuel (high moisture content, over sized logs)-</li> <li>ignition valve leaking</li> <li>- insufficient chimney draught</li> <li>- excessive chimney draught</li> <li>- extraction ventilator blades are bent - ignition too long or boiler operated with the ignition flap open</li> <li>- <b>insufficiently cleaned boiler</b></li> <li>- combustion-air inlet to loading chamber is clogged</li> </ul>	<ul style="list-style-type: none"> <li>- refill</li> <li>- adjust the pump’s switching and flow rate</li> <li>- design issue</li> <li>- use dry firewood and split logs into halves</li> <li>- repair</li> <li>- new chimney; unsuitable connection</li> <li>- pull the draught regulator pulling rod out</li> <li>- place a throttle valve (draught limiter) in the flue-gas duct</li> <li>- straighten blades (to a 90° angle)</li> <li>- replace</li> <li>- <b>clean</b></li> <li>- clean</li> </ul>
<b>Doors leaking</b>	<ul style="list-style-type: none"> <li>- defective fibreglass cord</li> <li>- the nozzle becomes clogged</li> <li>- insufficient chimney draught</li> </ul>	<ul style="list-style-type: none"> <li>- replace</li> <li>- adjust the door hinges</li> <li>- do not burn small-particle wood, sawdust, bark</li> <li>- chimney defect</li> </ul>
<b>Ventilator does not turn</b>	<ul style="list-style-type: none"> <li>- boiler overheated – safety thermostat fuse out</li> <li>- rotating wheel clogged</li> <li>- defective capacitor</li> <li>- defective capacitor</li> <li>- defective motor</li> <li>- bad contact in plug of motor cable lead</li> </ul>	<ul style="list-style-type: none"> <li>- press the thermostat push-button (using a pencil)</li> <li>- clean the ventilator including the ducting from tar and sediments</li> <li>- replace</li> <li>- replace</li> <li>- replace</li> <li>- check - measure</li> </ul>
<b>Defects and failures of the burner and conveyor</b>	<ul style="list-style-type: none"> <li>- fuel has run out</li> <li>- burner defect</li> </ul>	<ul style="list-style-type: none"> <li>- refill</li> <li>- call the service company</li> </ul>

## 33. Spares parts

Heatproof shaped piece - nozzle	/5/
Heatproof shaped piece	/9/, /10/, /14/, /27/, /29/, /30/, /31/, /32
Ventilator	/4/
Switch with an indicator light	/20/
Selector switch	/36/
Thermometer	/18/
Control thermostat	/24/
Safety thermostat	/7/
Waste gas thermostat	/35/
Door sealing cord 18 x 18	/26/
Limit switch with a push-button	/37/
Pump thermostat	/33/

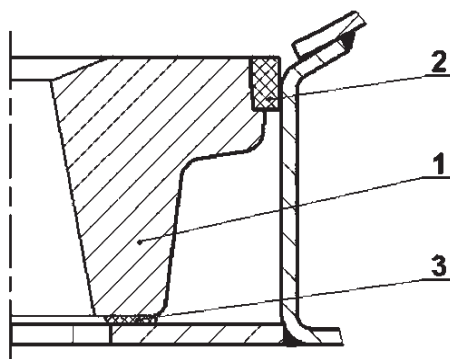


**CAUTION** – type UCJ4C52 extraction ventilator of the with 150 mm diameter rotating wheel is used for boilers DC18SPL and DC25SPL. Extraction ventilator for type UCJ4C52 with a 175 mm diameter open rotating wheel is used for boiler DC32SPL.

### Heatproof shaped piece (nozzle) replacement

- Material list
1. heatproof shaped piece
  2. sealing cord (3 pcs)
  3. boiler sealant (white)

Procedure: Remove or break up the old heatproof nozzle (further referred to as „nozzle“). Thoroughly clean the nozzle holder, which the nozzle was seated on, from tar and old sealant. Roll slim strands of boiler sealant. Place these continuously round the nozzle holder aperture in such a way which would prevent any penetration of secondary air underneath the nozzle later on. Take the new nozzle in your hand, stand in front of the boiler and position the nozzle in such a way that its recess (cut-out) is positioned in a direction away from you and downwards (the recess is positioned inside the boiler; a mark on the nozzle - if present – is positioned backwards). The secondary air is brought to the nozzle from the rear section of the boiler. Place the nozzle on its holder and fully push towards the rear of boiler. Position it in such a way that free play between nozzle and holder is the same on both - the left and right side. Shape the sealing cords with a hammer so that their cross-section changes from square to trapezoid shape. Then spread them along the sides and front of the nozzle and by gently tapping walk them evenly round its circumference so that they are level with the nozzle. Cover the sealing cord connections with a small amount of the boiler sealant.



### Door sealing cord replacement

Procedure: Use a screwdriver to remove the old sealing cord and to clean the groove in which it was seated. Lightly shape the cord from a square into a trapeze cross-section using a hammer. Press the

sealing cord along the door circumference (place the narrower base into the groove first) in such a way to ensure that the cord sticks well in the groove (if necessary use a hammer). Position the lock's handle upwards, and with several gentle, careful taps of the door against the boiler, press the cord into the groove until the door can be closed smoothly. Fine-tune the position of the wheel that engages the lock's cam. This is the only procedure that can ensure good door seal!

## Adjusting the door hinges and locks

The loading door and ash-pan door are firmly connected to the boiler drum by two sets of hinges. Each hinge consists of a nut, which is welded to the boiler drum, and a screw to which the door is connected by means of a pin. If you want to adjust the hinge settings, first take off the upper hood (control panel) and remove both pins. Then remove the door and slightly turn the screw with a right-hand thread, as necessary. By following these steps in reverse order, you can replace the door.

The door lock consists of a lever with a handle and a cam which engages a wheel that is screwed into the boiler and secured by a nut preventing its turning. After a certain time, the sealing cord gets pushed out from the door and therefore it becomes necessary to screw the wheel further into the boiler. First, loosen the wheel's nut and screw the wheel into the boiler in such a way that after firmly closing the door, the lock's handle is in the 20 minutes past the hour position. Then tighten the nut.

## 34. Environmental protection

The ATMOS gasifying boilers comply with the most demanding environmental requirements and were awarded the "Environmentally friendly product" mark, in compliance with directive No. 13/2002 of the Ministry of Environment of the Czech Republic.

The boilers are certified in compliance with the European standard EN 303-5 and they fall within class 3.

### Disposal of the boiler after expiration of its service life

It is necessary to provide an ENVIRONMENTALLY FRIENDLY DISPOSAL of the boiler's individual parts.

Before disposal, clean all the flue cinder and place it in a refuse bin.

Take the boiler drum and hood to a scrap-metal collection site. Take all the ceramic (fireclay) parts to an approved refuse site



**NOTE** – In order to comply with the environmentally friendly operation requirements, it is prohibited to burn any other substances than specified for the boiler. Plastic bags, various plastic materials, paints, textiles, laminate are substances which should be particularly avoided but also avoid burning sawdust, sediment and coal dust.

## 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:**

- **company representing ATMOS in the particular country for the particular region**
- **installation company that carried out the installation**

**Jaroslav Cankař a syn ATMOS,**

**Velenského 487, 294 21 Bělá pod Bezdězem, Czech Republic, Tel. +420 326 701 404**

# BOILER INSTALLATION REPORT

## Installation carried out by:

Company: .....

Street: ..... Town: .....

Telephone: ..... Country: .....

## Ascertained data:

### Chimney:

### Flue-gas duct:

Dimensions: ..... Diameter: .....

Height: ..... Length: .....

Chimney draught: .....\* Number of elbow pieces: .....

Date of last inspection: ..... Waste gas temperature: .....\*

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

.....  
 .....  
 .....  
 .....

### Fuel:

### Measured data:

Type: ..... Waste gas temperature: ..... °C

Size: ..... Emissions in stabilised state : CO .....

Moisture content: .....\* CO<sub>2</sub> .....

O<sub>2</sub> .....

Person responsible for the inspection: ..... Dne: .....

Stamp : ..... Customer's signature: .....

*(Responsible person's signature)*

\* measured values

## ANNUAL INSPECTIONS RECORDS

GB

Date          stamp and signature	Date          stamp and signature	Date          stamp and signature	Date          stamp and signature
Date          stamp and signature	Date          stamp and signature	Date          stamp and signature	Date          stamp and signature
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# RECORDS OF GUARANTEE PERIOD AND POST-GUARANTEE PERIOD REPAIRS

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