



HEAT TECHNOLOGY MANUFACTURER



EN

ATTACK DPX COMBI PELET

Instructions for use

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1 INTRODUCTION

Dear customer,

thank you for your trust and purchase of our product – the ATTACK COMBI Pellet boiler. We wish it serves you reliably for a long time. The reliable and correct function of device is related to its operation and therefore it is necessary to read this user manual. The manual is written with respect to the correct function of the boiler.

The correct function of the boiler particularly depends on the following:

- *choice of the correct boiler output and type*
- *perfect commissioning*
- *reasonable operation*
- *regular professional maintenance*
- *reliable service*

1.1 GENERAL DESCRIPTION

Name:	Water heated boiler ATTACK DPX 25, 30, 35, 40, 45, 50 COMBI Pellet for wood and wood pellets
Type:	ATTACK DPX 25, 30, 35, 40, 45, 50 COMBI Pellet
Max. operating pressure:	250 kPa
El. power supply:	230 V/50 Hz/10 A
El. input:	38 – 78 W
Fuel:	Dry wood with heat value of 15 – 17 MJ/kg, moisture of 12 – 20 %, diameter of 80 – 150 mm
	Wood pellets Ø 6 mm, $l_{max} = 35$ mm
Nominal output:	25; 30; 35; 40; 45; 49,9 kW

Combi boiler ATTACK® DPX COMBI Pellet is intended for economical and ecological heating of family houses, cottages, small plants and similar objects.

1.2 IMPORTANT INFORMATION

- Installation, heat-up test and user training must be performed by the technician trained by producer. The technician must fill the protocol about the installation of the boiler.
- By gasification of wood it comes to creation of tar and condensates (acids) in the fuel tank. Due to this there must be a mixing device installed behind the boiler to keep the minimum temperature of return water at 65 °C. The temperature of water in the boiler during its operation must be within the range of 80 – 90 °C.
- The boiler must not be permanently operated within the output lower than 50 %.
- If the circuit pump is being used, its operation must be controlled by a separate thermostat to ensure the prescribed minimum temperature of the return water.
- Ecological boiler operation is related to its nominal output.
- It is recommended to install the boiler together with the accumulation tank and mixing device. This ensures the fuel saving of 20 – 30 % and longer lifetime of the boiler and chimney.
- If it is not possible to connect the boiler to the accumulation tank, it should be connected with at least one equalization tank with the volume of approximately 25 l / 1 kW of the boiler's output.
- By the operation with lower output (summer operation and D.H.W. preparation) it is necessary to heat the boiler up every day.
- Only the dry fuel of 12 – 20 % moisture can be used (by the higher moisture of fuel is the boiler output decreased and its consumption increased).
- Due to the economical operation and correct functionality it necessary to choose an appropriate boiler output. The nominal output of the boiler has to be adequate to the temperature loss of the heated object.



WARNING! When the boiler works in PELLET mode, the primary and secondary air flaps must be closed.



ATTENTION: The boiler must be used only for the purpose that it is intended for and only in the way given in this manual.

The warranty for the boiler is not valid:

- if it is not operated with the prescribed fuel.
- if no mixing device Regumat ATTACK-OVENTROP is installed in the system to ensure the return water temperature of at least 65 °C during the boiler operation.
- if no functional thermostatic valve is installed on the aftercooling circuit (WATTS STS20) of the boiler, connected to the cold water inlet.

This device is not supposed to be used by persons (including children) with physical, sensual or mental disability or insufficient experience due to which they are not able to use the device in a safe way without being supervised or instructed about the boiler operation by the person responsible for their safety. Do not to allow the children to play with the device.

If the power supply cable is damaged, it must be replaced with a special cable available by producer or by a service technician!

1.3 SAFETY

This manual uses the following warning signs to illustrate the severity of the impending danger and important safety information:



WARNING!: Imminent dangerous situation, if not taken the right steps, may occur in serious injury or property damage. Act under the above instructions!



CAUTION: There may be a dangerous situation and if not taken the right steps, can occur in serious injury or property damage. **Work with extreme caution!**



ATTENTION: There may be a dangerous situation and if not taken the right steps, can occur in serious injury or property damage.

1.4 BOILER OPERATION



ATTENTION: If entered the boiler room unauthorized persons, can occur in serious injury or property damage. The system operator must ensure the boiler room for access by unauthorized persons and especially children.

1.4.1 PROTECTIVE EQUIPMENT FOR BOILER OPERATION

By boiler operation, it is necessary to use protective equipment in accordance with established rules on safety at work. Extra care must be taken to protect the health by operation, cleaning and inspection of the boiler. It is necessary to wear gloves with increased heat resistance, suitable clothing and sturdy shoes.

1.5 FUEL

1.5.1 WOOD

The ATTACK DPX COMBI Pellet can be used soft and hard chopped firewood with a heat value 15 – 17 MJ/kg. Ideal are especially beech, oak, fir, spruce, pine, poplar, alder, willow, birch, ash, hornbeam, acacia, each with a moisture 12 – 20 %. A suitable diameter of the logs is 80 – 150 mm. The maximum length of the logs must not exceed 580 mm in order to prevent jamming of the logs in the loading chamber.

Heat value of different type of wood:

Wood	Units		
	Kcal/kg	MJ/kg	kWh/kg
Spruce	3 900	16,25	4,5
Pine	3 800	15,80	4,4
Birch	3 750	15,50	4,3
Oak	3 600	15,10	4,2
Beech	3 450	14,40	4,0



ATTENTION: Wrong moisture or size of wood can be reduced or increased output, low or high temperature of flue gas, excessive condensation, loss of flame by gasification or uncontrollable combustion.

Recommended storage and drying of wood:

Hard wood:	2 years stored in a dry place
Soft wood:	1 year stored in a dry place

Wood during storage (drying) must be protected against rain. Effective drying of wood can help, that the wood will be saved with the largest possible air gaps. Then air can flow between the pieces of wood. When drying there are places where wind operates for wood. It helps in faster drying of wood. If it is possible, before loading of wood into the boiler, keep it at least one day in a warm place such as a boiler room (this increases the combustion efficiency).

1.5.2 PELLETS

In the boiler can be used only pressed wood pellets without additional materials and the following parameters:

Specification of pellets:

Specific weight:	600 – 750 kg/m ³
Heat value:	4,7 – 5,0 kWh/kg
Size/diameter:	6 mm
Size/length:	Max. 35 mm!
Moisture max.:	12 %
Ash content:	0,5 – 1 %
Dust content:	max. 3 %
Ash fusion temperature:	min. 1 100 °C
Standards:	DIN 51 731 – HP 5, DIN Plus, or EN 14961–2 – A1

1.5.3 ALTERNATIVE FUELS

In the boiler can be also used wood briquettes with a hole, pressed from wood dust without additional connecting materials. Wood briquettes must always be mixed in a certain ratio together with the log (the ratio depends on the size and shape of the briquettes) to prevent stoppage of the nozzle for the gasification of wood.

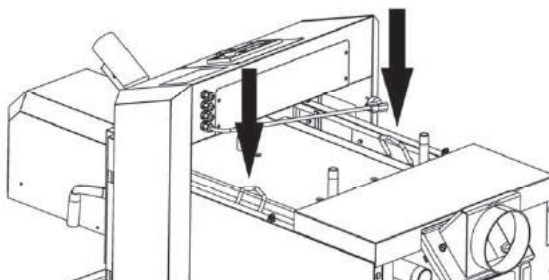


ATTENTION: Illegal type of fuel increase demand for cleaning and lead to the accumulation of aggressive sedimentation and condensation, which at the end can lead to reduced functionality, boiler damage and void warranty. The use of illegal fuel can cause wrong and uncontrolled combustion.

2 ASSEMBLY AND INSTALLATION OF THE BOILER

2.1 MANIPULATION WITH THE BOILER

The boiler is delivered on pallet. Manipulation with the boiler always perform on the pallet. Only if is boiler on installation place, remove the boiler from the pallet. This can be done with the help of a handling truck or a crane and hanging ears, which are welded to the heat exchanger of the boiler.



The way of boiler manipulation with welded ears

2.2 GENERAL CONDITIONS FOR INSTALLATION

Only a person with valid authorization for installation and assembly of the heat technology devices can install the boiler. The installation requires an appropriate project that is in line with the valid prescriptions and this instruction manual. Before installing the boiler must the technician check, if the data given on the production label are in conformity with the data in the project and the documentation attached to the boiler. The boiler must be connected in line with the valid prescriptions, regulations and this instruction manual.



ATTENTION: The producer takes no responsibility for damages caused by wrong connection or operation!

2.2.1 BINDING NORMS FOR PROJECTING AND INSTALLATION OF THE BOILERS

Boiler installation must meet the following norms:

STN EN 303–5:2012	Heating boilers for solid fuels
STN 73 42 10	Construction of the chimneys and flue connections
STN EN 60 335.1 +A11	Safety of the electrical appliances for household
STN EN 12828+A1	Heating systems in buildings. Design for water-based heating systems
STN 06 08 30	Safety devices for central heating and D.H.W. preparation
STN 07 74 01	Water and steam for thermal energetic devices with operation pressure of steam up to 8 MPa
STN 332000 4–46	Electrical installations of buildings – part 4: Ensuring safety
STN 33 2000–1:2009–04	Electrical installations of buildings – part 3: Definition of the basic characteristics
STN EN ISO 11202	Acoustics. Noise emitted by machinery and equipment. Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)
STN EN ISO 12100	Safety of machinery. General principles for design. Risk assessment and risk reduction (ISO 12100:2010)
STN EN ISO 14120:2016	Safety of machinery. Guards. General requirements for the design and construction of fixed and movable guards
STN ISO 27574–2	Acoustics. Statistical methods for definition and verification of the determined values. Noise emission of machines and devices. Part 2: Methods for particular of machines.
STN ISO 1819	Continuous mechanical handling equipment. Safety code. General rules.
STN EN ISO 15614–1	Requirements for quality of the fusion welding of metal materials
STN EN 287–1	Welding of reserved technical devices
STN 07 0240	Low pressure boilers, technical prescriptions
STN 07 0245	Warm water boiler with the output up to 50 kW. Technical requirements, testing

2.3 PLACING THE BOILER

The boiler is intended to be installed and operated in the premises with the basic environment (AA5/AB5) following the STN 33 2000–1:2009–04.

Boiler room must meet also the following conditions:

- The boiler room must not be potentially explosive environments, due to the fact that the boiler is not suitable for use in such environments.
- The temperature in the boiler room must not fall below freezing point.
- Boiler provides no lighting. The customer must ensure sufficient light source according to local standards and regulations.
- If the boiler will be installed at altitudes over 1 800 m, it is necessary to consult this installation with the producer.
- The boiler room must be secured with a hole for good air circulation and also required inlet for combustion air, but at least 200 cm². The hole should be designed so that external weather does not affect its function (rain, snow, wind).

By the boiler installation it is necessary to keep the safety distance of its surface from flammable materials according to their degree of flammability:

- | | |
|--|--------|
| • from materials of the flammability degree B, C1 and C2 | 200 mm |
| • from materials of the flammability degree C3 | 400 mm |
| • from materials of the flammability degree not approved | 400 mm |

Examples of classification of the building materials by their degree of flammability:

- degree of flammability A inflammable (bricks, blocks, ceramic tiles, mortar, parging)
- degree of flammability B partly flammable (heraklith, lignos, board from basalt felt, novodur)
- degree of flammability C1 difficult to ignite (hardwood (oak, beech), plywood, werzalit, hardened paper)
- degree of flammability C2 normal combustibility (softwood (pine, spruce), chipboard, solodur)
- degree of flammability C3 easily ignited (wood fibre boards, polyurethane, PVC, foam rubber, polystyrene)

The sealing board or protection covering (on the protected item) must exceed the boiler edge for at least 300 mm. Also other items from flammable materials must be protected in this way, if they are placed near the boiler and it is not possible to keep the safe distance.

If the boiler stands on a flammable surface, it must be protected by an inflammable, heat insulating mat, which exceeds the edge on the side of the feeding door and the ash tray door for at least 100 mm. All materials of the A flammability degree can be used as an inflammable, heat insulating mat.

The boiler must be placed in a such way ensuring sufficient space of at least 1 m from the front and 0,5 m from the left (right) and rear side. It is necessary to leave the space of at least 1 m above the boiler.

This space is necessary for basic operation, maintenance and eventual service of the boiler. It is not allowed to place the boiler in dwelling premises (including corridors). There must be an opening for the air inlet for burning of at least 200 cm² depending on the boiler output.



ATTENTION: The items from flammable materials must not be laid on the boiler and in the distance shorter than the permitted (safe) one.

The boiler must be turned off, if there is a danger of fire or explosion due to the work (e.g. work with painting materials, glues, etc.).

It is not allowed to place the boiler in residential premises (including corridors)!

2.4 BOILER CONNECTION TO THE HEATING SYSTEM

Boiler ATTACK DPX COMBI Pellet must be installed in system complying with the quality of heating water as follows:

Slovak Republic:	STN 07 7401:1991
Austria:	ONORM H5195-1
Germany:	VDI 2035
Switzerland:	SWKI 97-1
Italy:	D.P.R. no. 412

Before installing the boiler, it is necessary to flush (to clean) the whole heating system. The system can be filled only the water treated to the values under the STN 07 7401: 1992. The water has to be clear, colorless, free of suspended substances, oil and chemically aggressive impurities and must not be acidic (pH must be higher than 7,2).

Callosity of the water must not excess 1 mmol/l and concentration of the Ca^{2+} must be lower than 0,3 mmol/l.



ATTENTION: If these conditions are not kept, the warranty is not valid!

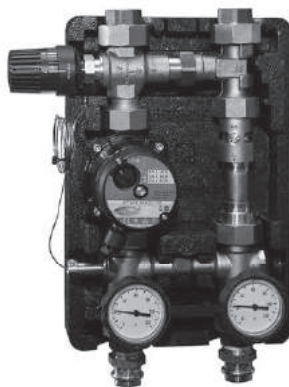
2.4.1 ANTIFREEZER USING

It is not recommended to use antifreezer because of their unsuitable properties for the boiler. In particular, the reduction in heat transfer, large volume expansion, aging, damage rubber components. In urgent cases, it is possible to use antifreezer Alycol Term (manufacturer Slovnaft Bratislava) – according to the experience of the manufacturer, it could not be a decrease in the safety of use and significant effects on the boiler. Unless the specific conditions this method of frost protection heating system feasible, non-performance functional parameters or any defects in the boiler due to the use of other antifreezer, can not be addressed under warranty.

2.4.2 BOILER PROTECTION AGAINST CORROSION

Use of the mixing device (Regumat ATTACK-OVENTROP) is a suitable solution of the problem with corrosion. It enables creation of the separate boiler and heating circuit. Thereby is the boiler protected against undercooling below 65 °C and the creation of water steams, acids and tars in the boiler's feeding chamber is eliminated.

The Regumat ATTACK-OVENTROP device keeps the constant temperature of the return heating water flowing into the boiler over 65 °C by setting the thermostatic head to the level 5 – 6. When the individual thermal regulation mixing valve is used, it is possible to control the temperature of the heating water independently on the temperature of water in the boiler by setting the flap. The temperature in the boiler has to be kept in the range of 80 – 90 °C.



ATTACK-OVENTROP



ATTENTION: If is not installed in the system equipment against condensation, or the equipment will not operate properly, can result in the formation of aggressive condensate. It lead to boiler damage. **Protection against condensation must be used during operation of the boiler, otherwise it will void warranty by the manufacturer!**

2.4.3 CHIMNEY

Connection of the appliance to the chimney hole must be always done with permission of the appropriate chimney sweep association. The chimney must generate sufficient draught and take the flue gas out into the atmosphere under the all operating conditions.

Correct dimensions of the chimney hole are important the correct boiler function, because the burning, output and boiler life-time are influenced by the draught. The chimney draught directly depends on its diameter, height and roughness of the internal wall. It is not allowed to connect any other appliance to the chimney, where the boiler is connected. Diameter of the chimney must not be smaller than the connection part on the boiler. The chimney draught must achieve the prescribed values, but it cannot be too high, not to decrease the boiler output and interrupt the burning (flame). If there is too strong draught, install the throttle flap into the chimney hole between the boiler and the chimney.

Prescribed dimensions of the chimney section:

20×20 cm	min. height 7 m
Ø 20 cm	min. height 8 m
15×15 cm	min. height 11 m
Ø 16 cm	min. height 12 m

The exact chimney dimension is defined by the STN 73 42 10. The prescribed chimney draught is given in the Technical parameters.

2.4.4 FLUE GAS CONNECTION

The flue connection must lead into the chimney hole. If it is not possible to connect the boiler to the chimney hole directly, then the appropriate extension should be as short as possible, of up to 1 m length, without any additional heating area and it should ascend in direction to the chimney. The flue connection must be mechanically tight (it should be mounted to the boiler and tightly fixed by screws) and tight against the flue leakage. The flue connections must lead through the foreign dwelling or commercial premises. The internal diameter of the flue connection must not taper in direction to the chimney. It is not suitable to use the elbow connectors. Flue must be connected to a chimney T-shaped to drop condensate from the chimney into an aimed container and not to the boiler.

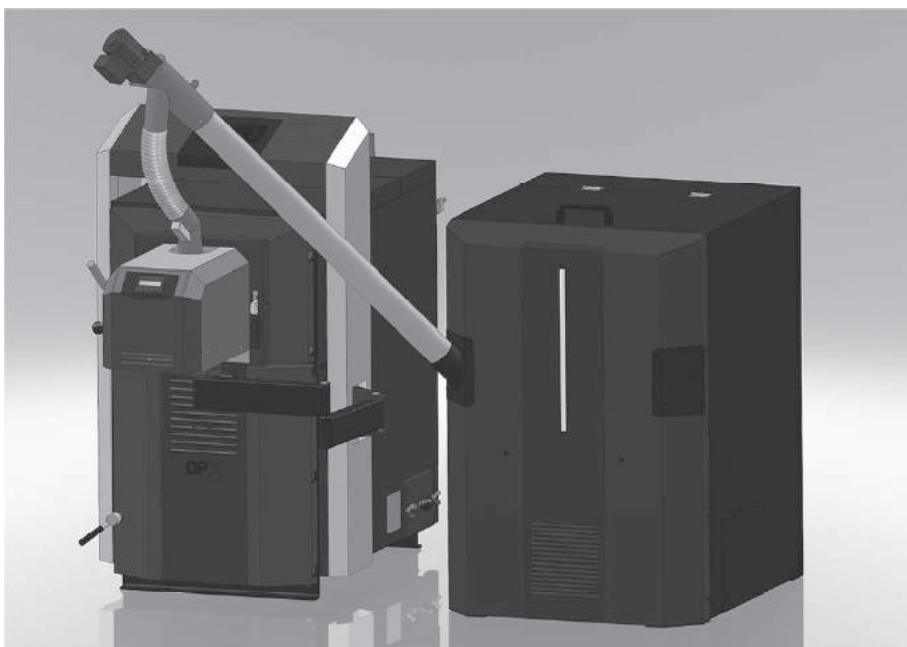
2.4.5 BOILER CONNECTION TO THE ELECTRICITY MAINS

The boiler is connected to the electricity mains of 230 V/50 Hz/16 A by an electrical cord with plug. In the case of need, the power supply cord of the M type must be replaced with an adequate one by the service organization. The appliance must be placed in the way enabling to reach the connection plug. The boiler must be connected to the 16 A socket circuit by a circuit breaker (following the STN EN 60 335-1 + A11:1997).

2.4.6 CONNECTION WITH EXTERNAL PELLET TANK AND PELLET FEEDER

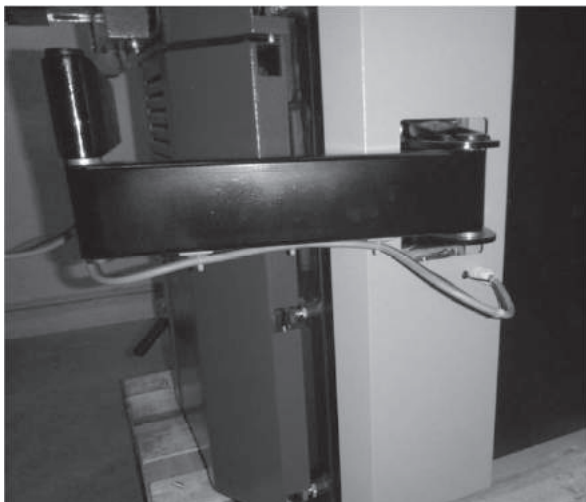
To the boiler ATTACK DPX COMBI Pellet is recommend to use ATTACK pellet tank in combination with screwed ATTACK pellet feeder, length about 2 m. **Pellet tank is possible to place on the right or the left side of the boiler, where necessary. For 30 kW burner there is recommended PED200 feeder. Feeder PED210 is recommended for 50 kW burner.** Between hole of feeder and delivery tube on the burner should be a height difference at least 300 mm. In the horizontal direction should be space between the hole of feeder and delivery tube at least 150 mm (i.e. not vertically aligned).

Before first starting up of the burner it is necessary to make setting of feeder (p. 58). For setting of the feeder it is necessary to load the pellet tank with sufficient amount of pellets and load the pellet feeder with connection to the mains until the pellets begin falling down of the top hole of the feeder. Connect the feeder to the burner outlet. After correct setting of the feeder, install the inlet hose between the outlet tube of feeder and the delivery tube of burner and adjust the length of the hose. The hose should not be straight and also not so bented to prevent the pellets inside of stacking and accumulating.



2.4.7 BURNER CONNECTION TO THE BOILER AND BOILER TEMPERATURE SENSOR

Burner is connected to the boiler by cable with 6-pin connector that comes from the feet of the boiler, at the point where pantograph arm is fixed. The cable is necessary after assembly to attach to the arm of the pantograph by supplied plastic tapes from the bottom of the pantograph arms in a correct distance so by manipulation of the burner to prevent stretching or strain of the cable. With the cable is also connected the boiler temperature sensor to the arm of the pantograph. The connector which is the sensor completed, it is necessary to connect in connector TS2 in control electronic of burner.



2.4.8 CHOICE AND CONNECTION OF THE CONTROL AND REGULATION COMPONENTS

The boiler is delivered with the basic regulation and control equipment. These should be supplemented by elements that are not part of the boiler delivery but must be installed in the heating circuit. They are mainly a safety valve (picture 4) against exceeding the allowable pressure in the heating system (priecribe 2.5 bar), the valve of aftercooling circuit of the boiler to abduce surplus heat from the boiler to the drain and vent valve for proper operation of the boiler. The expansion tank in the system must have sufficient volume to be fixed by designer of heating system under current regulations. Electric installation with the additional equipment of the boiler must be done by a specialist according to the current standards.



WARNING! The heating system must be equipped with a safety valve against overpressure (2,5 bar). This valve is recommended to place on riser in front of shut-off valve of the boiler (or before OVENTROP). **If the safety valve will not be working, excess pressure have nowhere to escape and the boiler may explode!**



Safety valve against overpressure

2.4.9 BOILER PROTECTION AGAINST OVERHEATING

Each gasification boiler must be equipped with functional cooling circuit. The right valve to provide the feature can be ordered as an accessory. The correct installation of the cooling circuit valve can be seen in pic. on the right.

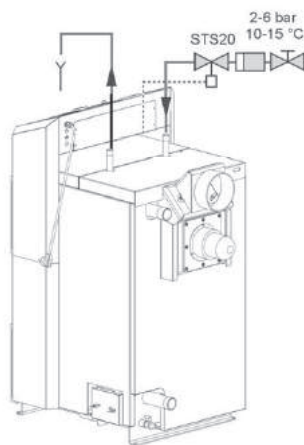


WARNING! Following the norm EN 303-5, the aftercooling circuit against the boiler overheating must not be used for other purposes than boiler protection against overheating.

The valve at the cold water inlet into the cooling loop must be permanently open and the cooling loop of the boiler must be connected to the functional cold water distribution (e.g. to the cold water supply into the water distribution network) with the temperature of 10 – 15 °C and the operating overpressure of 2 – 6 bar. This valve also ensure safe operation even in power cut.

The STS20 valve at outlet of the cooling loop with the sensor placed in the rear part of the boiler protects the boiler in the following way. When the temperature of water in the boiler exceeds 95 °C, then the water from the distribution network flows into the cooling loop to absorb the surplus heat. In the case of boiler overheating and opening the STS20 valve it is necessary to ensure the permanent outtake of the warmed water from the boiler aftercooling circuit into the drain.

Functionality of aftercooling circuit and thermostatic valve can be tested each time manually, with the manual button of the thermostatic valve.



WARNING! If the outtake of cooling water through the cooling loop is not ensured after opening the STS20 valve, there is a danger of boiler damage! In this case is the warranty for the boiler not valid!

2.4.10 CONNECTION TO THE ACCUMULATION TANKS

Connection system consists in heating of accumulation tanks heat. Accumulated heat of the accumulation tanks is gradually taken according to requirements into heated space. When is the boiler operating at full output, the storage tanks are heated to 80 – 90 °C. Heating with accumulation tanks in connection with the boiler ATTACK DPX COMBI Pellet brings several advantages. Highlights include the longer boiler life, cleaner operation and minimal creation of acid and condensate, less frequently of fuel loading, higher comfort, less possibility of overheating of the boiler and lower fuel consumption.

Recommended capacity of accumulation tank for boiler ATTACK DPX COMBI Pellet is 50 l per 1 kW boiler output, the minimum capacity is 25 l per 1 kW boiler output. When choosing a capacity of accumulation tank, it is necessary to have on mind that the size of the accumulation tank affects on operation of the boiler. That means, we load the boiler regarding to the size of accumulation tank to prevent overheating of the system.

Therefore is very important to have on mind that the boiler needs to be load always just with enough wood, to heat up the accumulation tank, but not overheat. There may be to remove the surplus heat to waste. This is uneconomical and requires activation of safety element – aftercooling circuit.

The bigger volume of the accumulation tank, the less risk of overheating. With the larger capacity of the accumulation tank is the loading time shorter.

Note:

It should be noted that the above is only relevant in the operation of boiler with **WOOD**. **In operation of PELLETS it loses meaning, the boiler need not be connected to the accumulation tank, but the boiler have to operate always only with PELLETS.**

The ATTACK accumulation tanks available*

AK	AS	HR	HRS	TUV	TUVS	S	SS
200	200	—	—	—	—	—	—
300	300	—	—	—	—	—	—
400	400	—	—	—	—	—	—
500	500	600	600	500	500	500	500
800	800	800	800	600	600	800	800
1000	1000	1000	1000	800	800	1000	1000
1500	1500	1250	1250	1000	1000	1250	1250
2000	2000	1500	1500	1250	1250	1500	1500
2500	2500	2000	2000	1500	1500	2000	2000
3000	3000	—	—	2000	2000	—	—
4000	4000	—	—	—	—	—	—
5000	5000	—	—	—	—	—	—

AK – standard accumulation tank designed for accumulation of heating water

AS – accumulation tank for accumulating of heating water, equipped with a heating coil for connection to solar panels

HR – combined accumulation for accumulation of the heating water as well as for preparation of the D.H.W. by an internal enameled exchanger

HRS – combined accumulation for accumulation of the heating water as well as for preparation of the D.H.W. by an internal enameled exchanger, equipped with a heating coil for connection to solar panels

TUV – accumulation tank for accumulation of the heating water as well as for the D.H.W. preparation in a water coil

TUVS – accumulation tank for accumulation of the heating water as well as for the D.H.W. preparation in a water coil, equipped with a heating coil for connection to solar panels

S – accumulation tank with internal disk and stratification pipe (based on the type AK) that allows layering of water as necessary (different water temperature on inputs as well on outputs)

SS – accumulation tank with internal disk and stratification pipe (based on the type AS and S), equipped with a heating coil for connection to solar panels

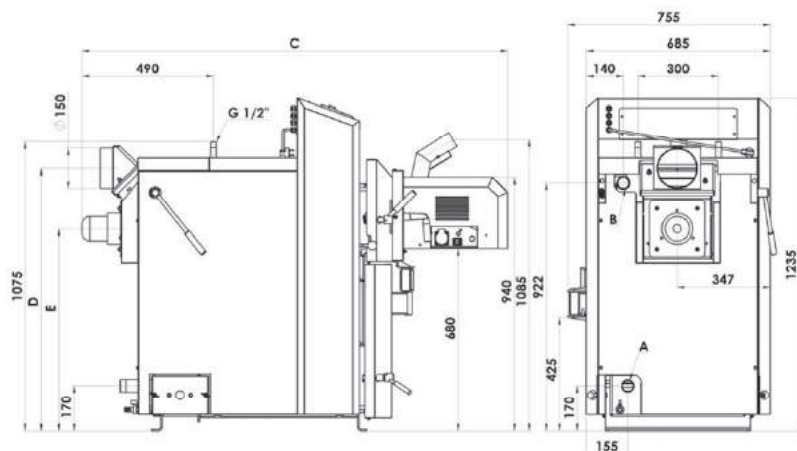
** It is possible to cover required volume for required accumulation of energy by one or several accumulation tanks. Accumulation tanks can be connected together to create required volume of accumulation water. Therefore, if you decided that your accumulation volume will be 2 000 l, you can buy a single accumulation tank of 2 000 l or two accumulation tanks with a capacity of 1 000 l and connect them together.*

3 TECHN. PARAMETERS FOR ATTACK DPX COMBI PELLET

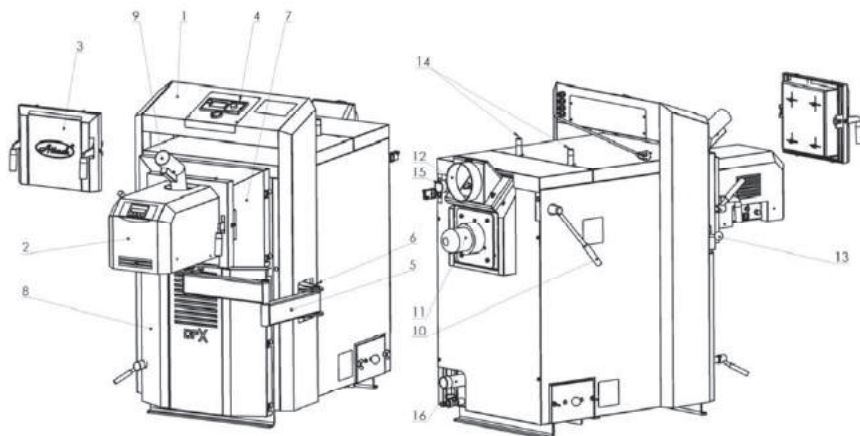
Parameter / Boiler type		Jedn.	DPX25CP	DPX30CP	DPX35CP	DPX40CP	DPX45CP	DPX50CP
Nominal output	WOOD	kW	25	30	35	40	45	45
	PELLETS		30	30	30	40	45	49,9
Outout range	WOOD	kW	12 – 25	15 – 30	17 – 35	20 – 40	22 – 45	22 – 45
	PELLETS		8 – 30	8 – 30	8 – 30	15 – 49,9	15 – 49,9	15 – 49,9
Area of exchanger		m ²	2,52	2,52	2,78	2,78	3,03	3,03
Volume of feeding chamber		l	125	125	158	158	190	190
Dimensions of the feeding opening		mm	235×445	235×445	235×445	235×445	235×445	235×445
Prescribed chimney draught		Pa	23	23	23	23	23	23
Max. operating overpressure of water		kPa	250	250	250	250	250	250
Pressure loss of water (ΔT 10 K)		kPa	2,3	2,3	4,4	4,4	6,6	6,6
Pressure loss of water (ΔT 20 K)		kPa	0,7	0,7	1	1	1,8	1,8
Boiler weight		kg	480	480	510	510	540	540
Diameter of flue connection		mm	150	150	150	150	150	150
Boiler height		mm	1 240	1 240	1 240	1 240	1 240	1 240
Boiler width		mm	760	760	760	760	760	760
Boiler depth – „C“ with burner		mm	1 510	1 510	1 610	1 610	1 765	1 765
Boiler depth with cover of upper door		mm	1 250	1 250	1 350	1 350	1 425	1 425
High of the outlet flue – "D"		mm	985	985	985	985	985	985
High of ventilator – "E"		mm	751	751	751	751	751	751
Depth of chamber		mm	590	590	690	690	790	790
Protection of el. parts		IP	21	21	21	21	21	21
Electrical input	WOOD	W	38	102	102	102	102	102
	PELLETS – on ignition		600					
	PELLETS		96	160	160	190	190	190
	Stand-by mode		<5					
Boiler efficiency	WOOD	%	90,4	90,1	90,1	90,2	90,2	90,2
	PELLETS		90,8	90,5	90,2	90,6	90,5	90,2
Boiler class	WOOD	–	5					
	PELLETS		5					
Flue gas temperature by nominal output – wood		°C	165	170	185	170	180	185
Flue gas temperature by nominal output – pellets		°C	145	152	168	148	155	164
Flue gas temperature by minimal output – pellets		°C	109	116	129	110	119	126
Flue gas flow by nominal output		kg/s	0,018	0,02	0,022	0,025	0,028	0,029
Flue gas flow by minimal output		kg/s	0,005	0,007	0,009	0,012	0,014	0,015
Maximum noise level		dB	65	65	65	65	65	65
Prescribed fuel	WOOD	–	Dry wood with the heat value of 15 – 17 MJ/kg, water content min. 12 % – max. 20 %, Ø 80 – 150 mm					
	PELLETS	–	Wood pellets, Ø 6 mm, l = 35 mm, humidity up to 12 %, according to standards: DIN 51 731 – HP 5, DIN Plus, or EN 14961–2 – A1					
Fuel consumption	WOOD	Kg/h	6,5	7,8	9,1	10,4	11,75	11,75
	PELLETS		2,4 – 6,9	2,4 – 6,9	2,4 – 6,9	3,4 – 12,5	3,4 – 12,5	3,4 – 12,5
Consumption of wood per season			1 kW = 1 m ³					
Maximum length of wood logs		mm	550	650	650	750	750	750
Burning time by nominal output		hod	4	4	4	4	4	4
Volume of water in the boiler		l	100	110	110	128	128	128
Minimum volume of accumulation tank		l	625	750	900	1 000	1 200	1 200
Connection voltage		V/Hz	230/50					
Min. temperature of return water		°C	65					
Range of setting the temp. of heating water		°C	65 – 90					
Capacity of contacts of the boiler regulator		V/A	230/2					
Connection to the heating system		"	G6/4"			G2"		

Producer, the ATTACK, s.r.o., reserves right to make technical changes of products without the previous announcement!

4 DIMENSIONS OF BOILER ATTACK DPX COMBI PELLET



	DPX 25CP	DPX 30CP	DPX 35CP	DPX 40CP	DPX 45CP	DPX 50CP
Flow connection „B“	G 6/4"	G 6/4"	G 6/4"	G 2"	G 2"	G 2"
Return connection „A“	G 6/4"	G 6/4"	G 6/4"	G 2"	G 2"	G 2"



KEY DPX COMBI Pellet:

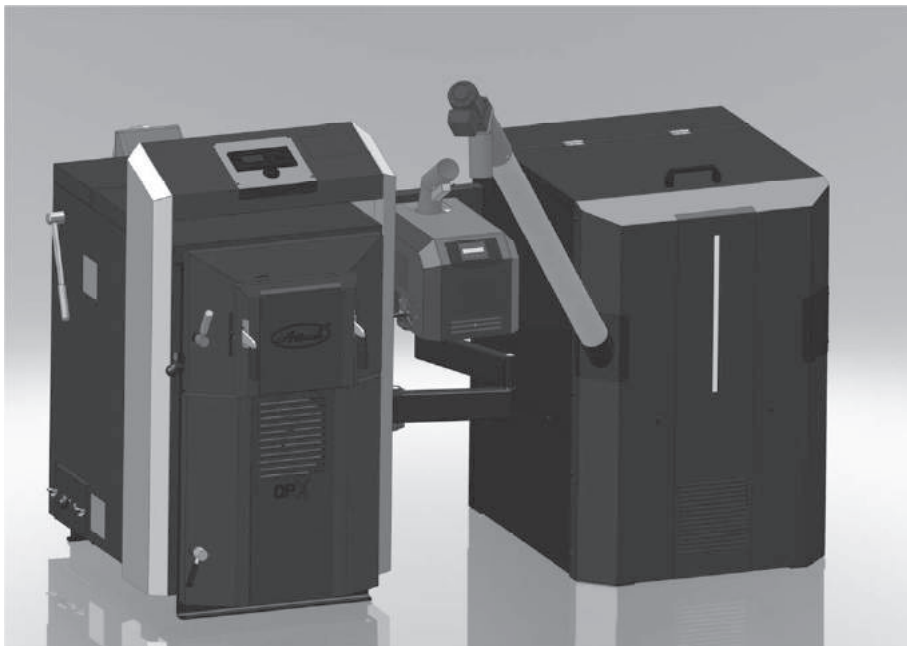
- | | | | |
|-------------------------|-----------------------|----------------------------------|----------------------------------|
| 1. Boiler body | 5. Pantograph | 9. Inlet tube for pellets | 13. Pull rod of the chimney flap |
| 2. Pellet burner | 6. Console | 10. Lever for exchanger cleaning | 14. Aftercooling circuit |
| 3. Cover of boiler door | 7. Upper boiler door | 11. Suction fan | 15. Flow connection |
| 4. Boiler controller | 8. Bottom boiler door | 12. Flue gas opening | 16. Return connection |

Pull rod of the chimney flap – serves to close and to open the heat up flap (always by opening the feeding door)

Lever for exchanger cleaning – serves to clean the holes of the exchanger

5 PURPOSE OF USE

The ecological warm water boiler ATTACK DPX is intended for heating the family houses and other similar objects. The boiler is designed only for the use of wood logs. Any type of dry wood can be used, especially the wood logs. It is also possible to use the blocks of wood with larger diameter – then is the boiler output lower, but the time of burning is longer. The boiler is not suitable to burn the saw dust and small wooden waste. Only small amount (approximately 10 %) of such a material can be used together with the wood logs. Thanks to the voluminous feeding chamber it is not necessary to do the most demanding work with wood – chopping into smaller pieces.



WARNING! It is not allowed to operate with the boiler on both fuels at the same time. It is never allowed to heat with wood until the burner is in upper loading door of boiler and also is not allowed to heat with pellets if the wood is in loading chamber of boiler! It is also not allowed to use the pellet burner to ignite the wood. During the boiler operation with wood, it is always necessary to use the upper door cover!

6 TECHNICAL DESCRIPTION

The boiler is designed to burn wood on principle of the wood gasification by using the exhaust fan that sucks the flue gas from the boiler. In automatic pellet mode when is inserted the pellet burner in the upper door, the boiler heat on wood pellets, which burn in the combustion chamber of the burner. Transport of pellets ensure the external pellet feeder from the external tank. It is not allowed to operate with the boiler on both fuels at the same time.

The boiler body is welded from the steel plates of 3 – 6 mm thickness. In the feeding chamber there is a fireproof nozzle with longitudinal opening for the flue gas and gas passage. In the burning chamber there is a fireproof ashtray.

In the rear part of the boiler body is the tubular exchanger with the flue gas collector and the heat up flap in the upper part.

In the front parts there is a feeding door and at the bottom there is the ashtray door.

Between the doors there are the primary and secondary air inlets placed under the boiler covering. In the left covering at the same level as the middle of the feeding door there is a pull rod of the heat up flap that is controlled by the feeding door and there is also the lever for exchanger cleaning.

The boiler body is insulated by a mineral wool, inserted under the external covering. The control panel for electromechanical regulation is placed in the upper part of the boiler (operation with wood).

On the right side to the heat exchanger is mounted the holder of console for pantograph system for holding the burner. On the console are pins which attached two arms of the pantograph, with burner door and the burner. ATTACK PELLET BURNER Automatic 8 – 30 kW or 15 – 50 kW works on basis of the fuel feeding by the principle of falling, when the pellets fall by from the pellet feeder through the inlet hose and the inlet tube on the grate, where they are burned. The burner has an electrical ignition that automatically lights the pellets fallen on the grate. It is equipped with a self-cleaning mechanism of the grate.

ATTACK PELLET BURNER Automatic 8 – 30 kW consists of combustion chamber from 3 mm heat-resistant stainless steel, air chamber with fan and units for self cleaning mechanism of the grate.

Base of ATTACK PELLET BURNER Automatic 15 – 50 kW combustion chamber consists of combustion chamber from 4 mm heat-resistant stainless steel, air chamber, grate for pellet burning, control units and self cleaning of the grate.

6.1 TECHNICAL DESCRIPTION OF ATTACK DPX COMBI PELLET

6.1.1 OPERATING PRESCRIPTIONS

Boiler preparation for operation

Before starting the boiler, it is necessary to check that the system is filled with water, deaerated and the pressure of heating water does not decrease. Make sure that the sensors of the boiler, safety thermostat and manometer are placed in casings on the upper rear side of the boiler. Check the tightness and construction of the flue connection. The boiler has to be operated in line with the instructions given in this manual to achieve its good service. By boiler installation you can underlay it for 10 mm to enable better flush by water and deaeration. Only an adult trained person with completed elementary education can operate the boiler.

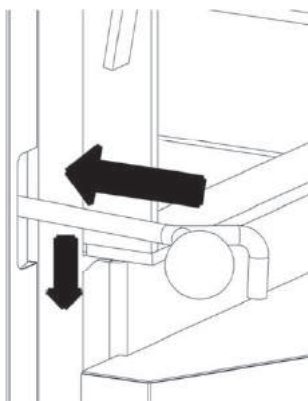


ATTENTION: By the first heat up it may come to condensation and leakage of the condensate – it is not a fault. There will be no more condensate after heating for a longer time. In the case that the smaller wooden waste is being burned, it is necessary to check the flue gas temperature which should not exceed 320 °C. Otherwise it could damage the fan. By the gasification of wood it is normal that tar and condensates are created.

If the boiler has been out of order for a longer period, it is necessary to be more careful by starting it again. It could come to the pump blockage, leakage of water from the system or to the boiler freezing in the winter.

6.1.2 HEATING UP AND OPERATION

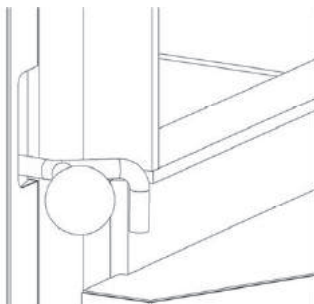
Before igniting the fuel, open the feeding door and push the pull rod of the heat up flap back to the basic position until is the latch fixed (like when the door is closed, see the picture).



Position after the feeding door is open

Press backwards and downwards

Position after pressing backwards and downwards





ATTENTION: The pull rod of the heat up flap has to be pushed backwards to close the heat up flap. Otherwise the fan could get damaged!

For wood gasification in the boiler it is necessary to keep the reduction layer during the operation (the layer of wood coal on the nozzle in the feeding chamber). Therefore it is necessary to burn dry wood of a suitable size. When the wet wood is burned, the boiler does not work as a wood gasifying boiler, the wood consumption rises, the output is not sufficient and service life of the boiler and of the chimney is shortened.

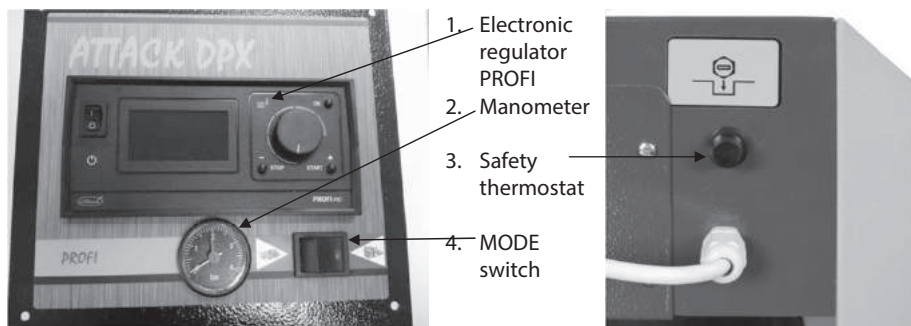
When there is a prescribed chimney draught, the boiler works up to 70 % of its output even without the fan.

Refilling the fuel

When refilling the fuel, open the feeding door. The heat up flap is opened at the same time. Do not stop the fan. Always keep the feeding chamber full when heating up. Not to let the smoke flow into the boiler room, refill the fuel after it is burned to approximately 1/3 of the feeding chamber. Cover the glowing coal with a wide wood log and refill the fuel normally. Do not press the fuel on the nozzle, otherwise it could get clogged and the parameters of burning would be worse.

7 OPERATION OF BOILER ATTACK DPX COMBI PELLET

The PROFI PID electronics is located on the front side of the control panel, where the main boiler switch is located. In the pictures below you can see the basic and safety features of the control panel.



The safety thermostat is placed on the rear side of the control board.

Under the PROFI PID electronics there is a WOOD / PELLET mode switch.

Operation in mode WOOD:



The switch will switch to WOOD and the display will show the current boiler temperature, the controller will be in standby mode.



WARNING: In case the fan is switched on by the START button on the PROFI electronics and the burner is connected in the boiler, there will be displayed failure of fan turns on burner.



Operation in mode PELLETS:

The switch switches to the PELLET position and **P** (see chapter 7.5 Operating modes) is displayed behind the current boiler temperature value on the PROFI electronics display. In this mode, the PROFI electronics will not allow you to switch on the exhaust fan by pressing the START button. The operation of the boiler exhaust fan will be controlled by the burner electronics, depending on the burner fan operation.

7.1 OPERATION OF BOILER ATTACK DPX COMBI PELLET – WOOD MODE

Boiler regulation – wood mode provides high comfort, the possibility of output modulation and connection to control and regulation units.

The boiler temperature is at the level set by the enduser, to control the flue gas fan rotations. ATTACK boiler regulator measures the temperature of the water in the boiler all the time and the value shows on the display with improved controller for flue gas temperature by PID. Based on this value, the controller controls the fan rotations and pump of central heating.

Technical description of ATTACK PROFI boiler:

Connection

Before turning-on the boiler with the main switcher, connect the controller, fan, circulation pump and power cords into the appropriate sockets at the rear part of boiler. Boiler temperature sensor must be placed in the boiler basin. Set the switch to position WOOD.



WARNING! Before connecting the controller to the mains, check that it is properly grounded and the terminal screws are tightened properly.



ATTENTION: Maximum total output of units connected to the controller can not exceed 700 W.



ATTENTION: For extended function of controller can be connected the module UM-1, which allows to control start-up of another automatic boiler.

7.2 ADVANTAGES OF THE REGULATOR

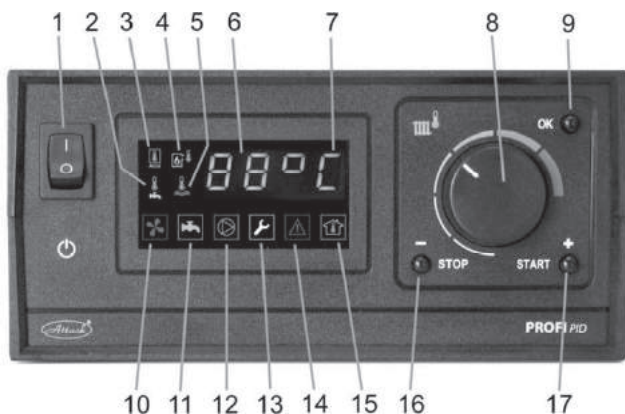
The regulator can control:

1. Rotations of flue gas fan
2. Circuit pump of heating circuits
3. Pump for warming the D.H.W. or pump for warming the accumulation tank (always just one)
4. Starting another, automatic boiler, if the fuel in the boiler burned out

The regulator measures the following:

1. Boiler temperature
2. Flue gas temperature
3. Temperature in the D.H.W. tank or in the accumulation tank (always just one)
4. Room thermostat and thereby it controls the circuit pump

7.3 BASIC DESCRIPTION OF THE REGULATOR



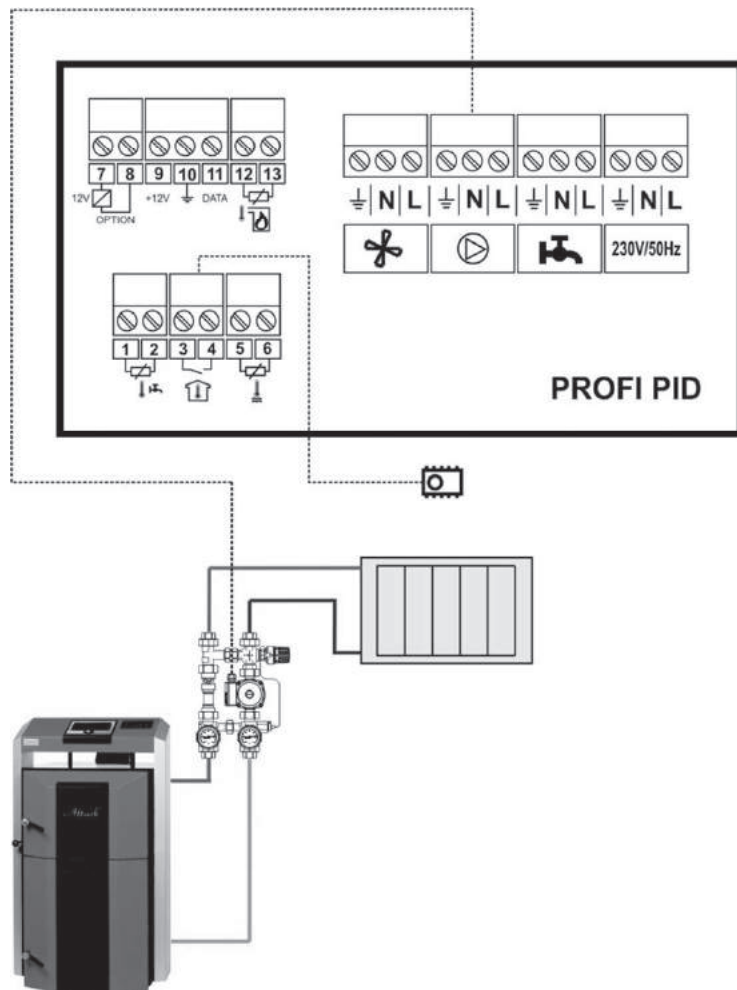
1. main switch
2. icon for D.H.W. temperature
3. icon for temperature of accumulation tank
4. icon for flue gas temperature indication
5. icon for current boiler temperature
6. current boiler temperature (or temperature of D.H.W., flue gas, etc.)
7. sign for boiler operating mode
8. setting the boiler temperature
9. button to enter into the information menu, service menu and confirmation of parameters
10. icon for fan operation
11. operation of the pump for D.H.W. or for accumulation tank warming
12. icon for circuit pump operation
13. icon for enter into the service menu
14. icon indicating overheating or damaged sensors
15. icon indicated that the room thermostat is started
16. button to stop the boiler or to move backwards in menu
17. button to start the boiler or to move forwards in menu

7.4 CONNECTION OF THE REGULATOR BY HYDRAULIC SCHEMES

The regulator can control several types of hydraulic schemes. Parameters in the service menu must be correctly set adequately to the type of the hydraulic scheme.

* Schemes shows the connection to the pumps and sensors. On the schemes is not showing the connection to the fan and mains.

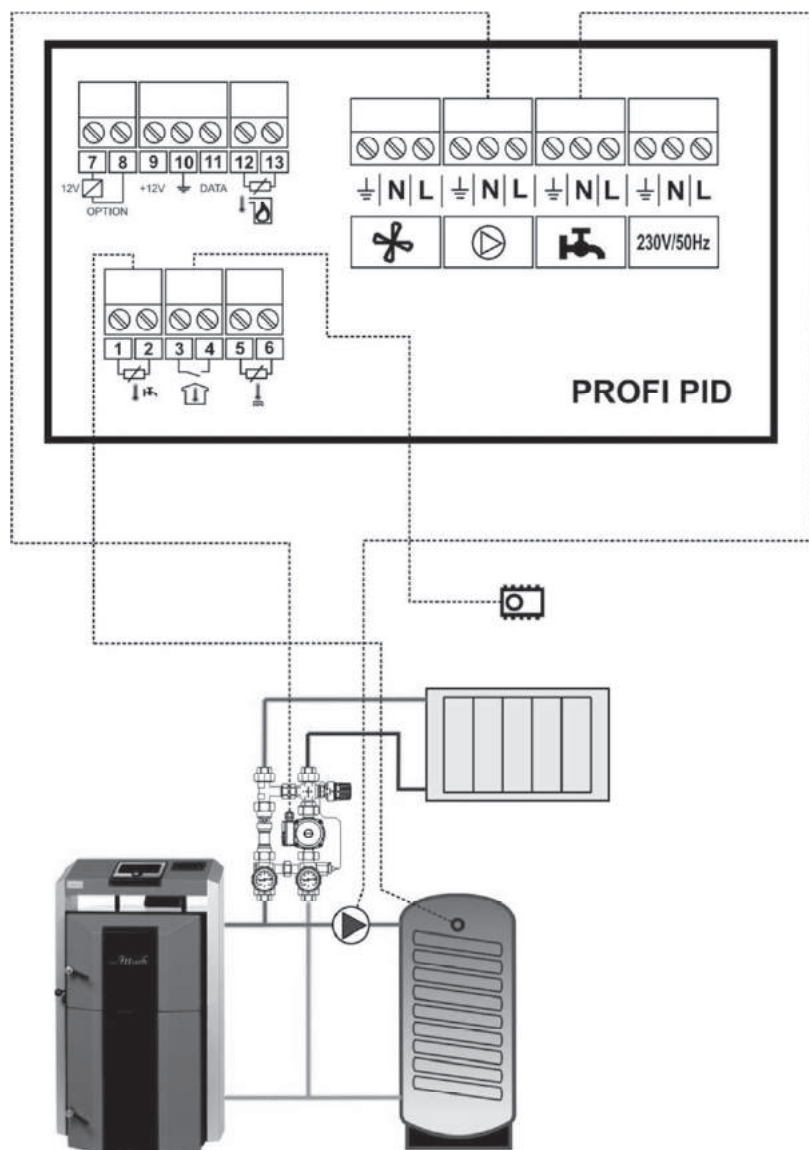
Scheme A: Wood gasifying boiler + heating circuit



Parameter setting for the hydraulic scheme A:

ur = ur0

Scheme B: Wood gasifying boiler + heating circuit + warming of D.H.W.

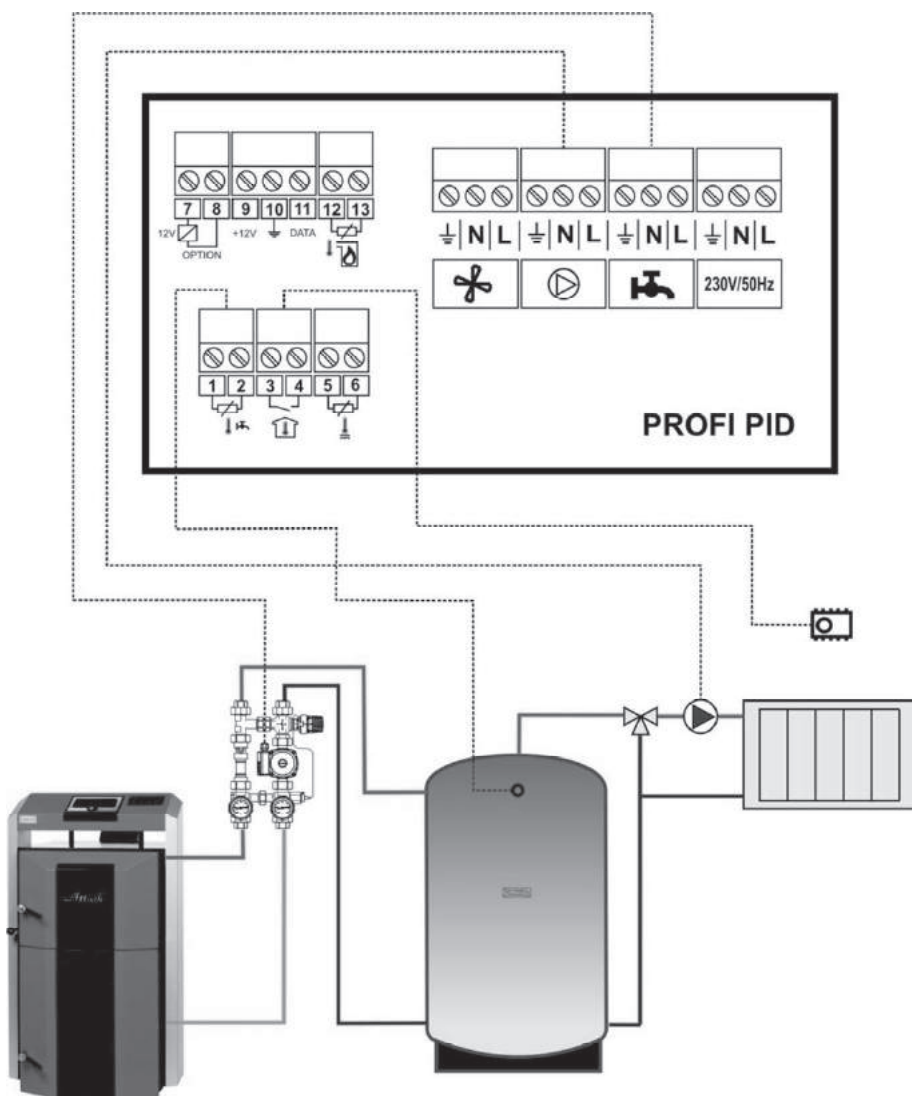


Parameter setting for the hydraulic scheme B:

ur = ur1 – for priority charging of the D.H.W. tank

ur = ur2 – for parallel charging the D.H.W. tank

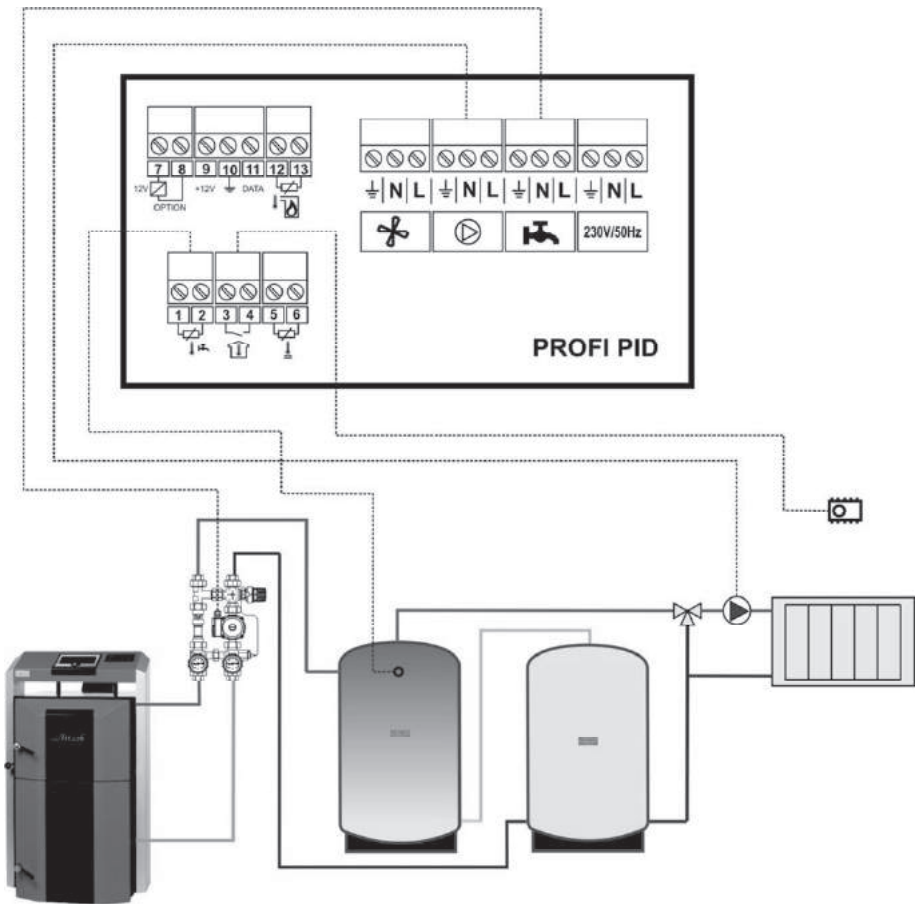
Scheme C: Wood gasifying boiler + heating circuit + warming of accumulation tank



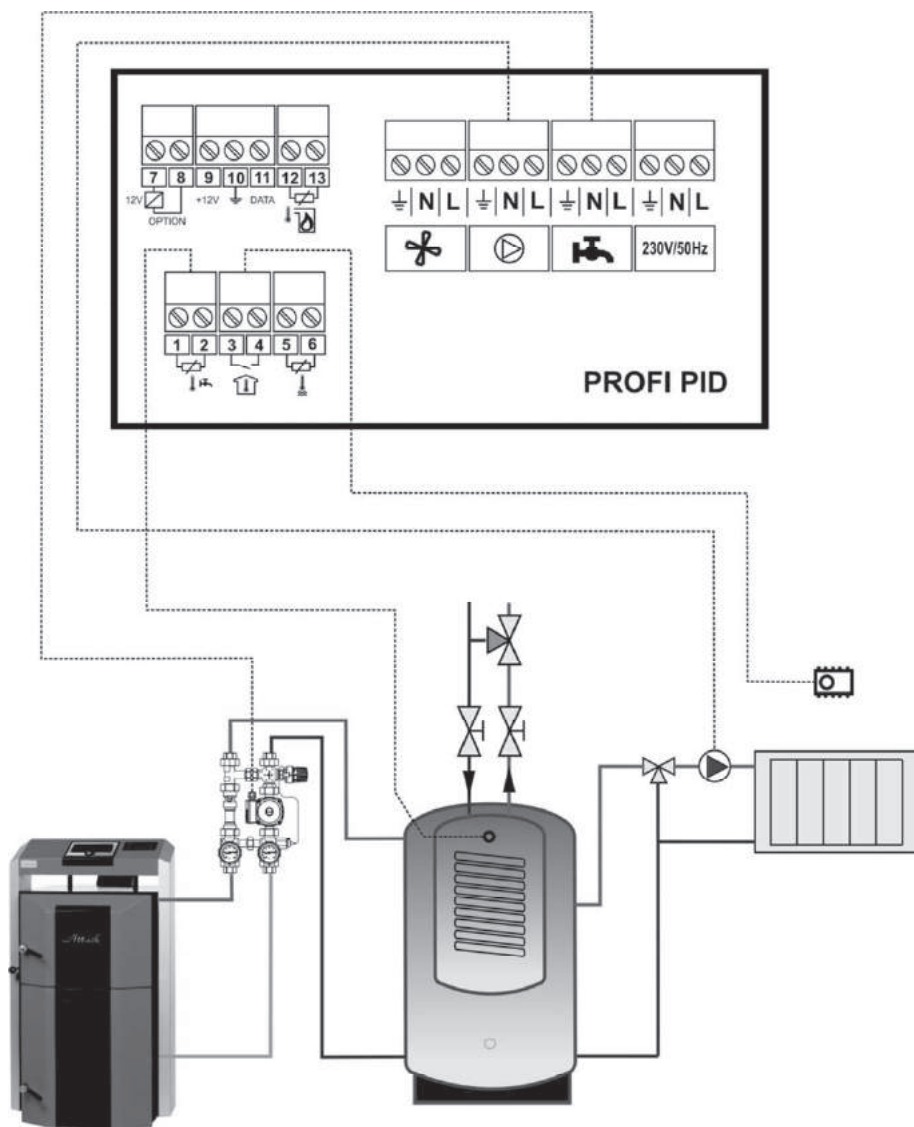
Parameter setting for the hydraulic scheme C:

ur = ur4

Parameter setting for the hydraulic scheme D:
ur = ur4



Scheme E: Wood gasifying boiler + heating circuit + warming of combined accumulation tank



Parameter setting for the hydraulic scheme E:

ur = ur4

7.5 REGULATOR CONTROL AND OPERATING MODES

Turning on the controller is signalized by a brief switching on all the light indicators on display to enable to check their status. If the regulator gets suddenly disconnected from electricity mains (e.g. by power failure), it is switched to the last mode used, when the failure occurred. All the settings made are saved even after the power failure.

The basic setting of the controller is the adjustment of the boiler temperature by the knob. Other functions are controlled adequately to the service parameters set in the service menu.

The boiler is turned on by pressing the START (17) button that starts the fan. The STOP (16) button switches the boiler off by turning the fan off.

The sign displayed behind the numeric temperature indication (7) is related to the current mode of the PID PROFI regulator:

[50°-] indicates the stand-by mode

[50 °C] indicates the winter operating mode

[50 °C] indicates the winter operating mode when the boiler temperature is achieved

[50°U] indicates summer operating mode intended only for D.H.W. preparation

[50°u] indicates summer operating mode when the boiler temperature is achieved

[70°d] indicates mode of elimination the legionella bacteria, when the temperature of D.H.W. is increased to 75 °C

[50°P] indicates that regulator is blocked by pellet burner of the COMBI Pellet boiler

The PROFI PID regulator has an advantage of regulating the flue gas temperature to the required value. The controller struggles to achieve the adjusted flue gas temperature and after it is achieved, the required boiler temperature is to be reached. Thereby is the fuel used in the best way and the high efficiency is achieved.

7.6 SETTING THE USER PARAMETERS

The menu for displaying and setting the user parameters is accessible after short pressing of the OK button. The „+“ and „-“ buttons are used to browse in settings and parameters. The appropriate parameter selected becomes adjustable by the „OK“ button and starts to flicker. Then it can be changed by the „+“ and „-“ button and confirmed by „OK“. Some of the parameters are only informative and they cannot be changed. To exit the menu, confirm the [End] by „OK“ button. After remaining more than 1 minute without the user's intervention, the controller switches the display to the basic mode.

Table 2. User parameters:

Indication	Parameter	Min	Max	Step	Prod. setting
C 45	Adjusted boiler temperature	L65	H90	1 °C	–
co C	Operating mode of the circuit pump ('C' – WINTER, '–' – SUMMER)	C	–		C
cu u	Operation of the D.H.W. pump ('u' – casual mode, 'd' – elimination of legionella bacteria)	u	d		u
u50°	Current temperature measured in the accumulation tank or D.H.W. tank				
150°	Current flue gas temperature				
End	Exit from user parameters				

[C 45] – Adjusted boiler temperature – this is the value of boiler water temperature the regulator is going to reach while in the WORK mode. It is set by turning the thermostat knob manually (8) and shown briefly on the display (6).

[co C] – WINTER/SUMMER mode – the winter mode is indicated by the 'C' letter. Then is the circuit pump controlled by the room thermostat and distributes the heat into the heating system. The summer mode is indicated by the „–“ sign. Then is the circuit pump out of order and the heat generated by boiler is only used to heat the D.H.W. tank. If there is not D.H.W. tank in the system (additional sensor is not connected), it is not possible to select the SUMMER / WINTER mode.

[cu u] – Mode of D.H.W. tank warming – the regulator enables the casual D.H.W. tank warming „u“ or the mode to eliminate the legionella bacteria „d“. After the „d“ mode is selected, the temperature of 75 °C is achieved in the D.H.W. tank. When this temperature is achieved, the controller switches into the mode of the casual D.H.W. tank warming „u“. The option of elimination the legionella bacteria is not available, if the additional outlet and sensor are not set for the D.H.W. warming.

ATTENTION! Not to get hurt by the hot water, it is recommended to set this mode, when the D.H.W. is not being used (e.g. during the night).

[u50°] Temperature of additional sensor – this is the value of current temperature of the D.H.W. tank or of the accumulation tank of the heating system. This temperature is not displayed in the user menu, if the additional output is not used.

[150°] Flue gas temperature – this value represents the current temperature of flue gas, if the parameter for flue gas temperature is set in the service parameters.

7.7 SETTING THE SERVICE PARAMETERS

By holding the OK button you get into the service menu to the parameter settings (the icon (13)). The buttons „+“ and „-“ are used to browse in particular parameters. After selecting the appropriate parameter, it is confirmed by „OK“ button and starts to flicker. To exit the menu, confirm the [End] by „OK“ button. After remaining for more than 1 minute without the user's intervention, the controller switches the display to the basic mode.

Table 3. Service parameters:

SERVICE MENU (available by holding the OK button)					
Display	Parameter	Min	Max	Step	Prod. set.
П100	Maximum fan output	1	100	1%	100
n 40	Minimum fan output	1	100	1%	40
Пh 5	Ratio of changing the fan rotations	2	20	1	5
Пr 0	Automatic regulation of changing the fan rotations	-, 0	10	1	0
Пt 1	Delay of changing the fan rotations	0	99	1	1
Пn 5	Frequency of exhaust fan blow-through	--, 5	60	1 s	5
Пу 6	Duration of exhaust fan blow-through	1	99	1 min	6
Пd3	Duration of manual fan operation for 100%	--, 1	99	1 min	3
r100	Fan output by ignition	1	100	1 %	100
rh 5	Hysteresis of boiler stop by ignition	1	45	1 °C	5
P 30	Temperature to start the circuit pump	--, 20	70	1 °C	30
Ph 2	Hysteresis of circuit pump	1	40	1 °C	2
Pc --	Interval of unlock function of circuit pump	--, 1	99	1 min	2
Ur 0	Operation of additional output	0	4	1	0
u30	Operating temperature of D.H.W. tank or accumulation tank	30	60	1 °C	30
uh 5	Hysteresis of D.H.W. tank of accumulation tank	1	30	1 °C	5
uP 5	Boiler temperature increase by D.H.W. warming	1	20	1 °C	5
L65	Minimum boiler temperature	30	65	1 °C	65
H 85	Maximum boiler temperature	80	95	1 °C	85
h 2	Boiler temperature hysteresis	1	10	1 °C	2
A 99	Temperature of boiler overheating	90	99	1 °C	99
Fd60	Duration of boiler stop by ignition and fuel shortage	--, 1	99-4h	1 min	60
Fb30	Duration of boiler stop by flue shortage and burn-down	--, 1	99-4h	1 min	30
Ar 0	Control of multifunctional additional output	0	1	1	0
c 240	Adjusted flue gas temperature	-0,5	250	1 °C	240
c h5	Flue gas temperature hysteresis	1	99	1 °C	5
c t 5	Time constant of stabilization the flue gas temperature	1	99	1 min	5
c F10	Blower speed jump while stabilizing flue gas temperature	1	20	1 °C	10
c 90	Flue gas temperature by fuel shortage	30	150	1 °C	90
c 300	Maximum flue gas temperature	250	400	1 °C	300
Prod	Reset of production settings				
outП	Test of fan relay	outП	out1		
outP	Test of circuit pump relay	outP	out2		
outu	Test of relay of optional pump	outu	out3		
outr	Test of additional output	outr	out4		
End	Exit to main menu				

7.8 DESCRIPTION OF PARAMETERS

[Π100] Maximum fan output – the highest fan output possible

[n 40] Minimum fan output – the lowest fan output possible

[Πh 5] Ratio of changing the fan rotations – this parameter influences the fan rotations, if the adjusted boiler temperature is going to be achieved in a short time. For example, if the value 4 is set, the fan will work at full output [Π100] (if the function of flue gas temperature control is not active), up to 4 degrees before achieving the required boiler temperature. Then, by every increase of the boiler temperature for 1 °C, the fan rotations are gradually decreased until the minimum fan output is reached [n 40].

[Πr 0] Automatic regulation of changing the fan rotations – the fan rotations are increased / decreased by setting this parameter within the range of 0 – 10 to ensure the required boiler temperature. If this parameter is set to „–“, the rotations are not controlled and the fan works at full output according to the parameter [Π100]. Setting the parameter within the range of 0 – 10 relates to the time period (in minutes), during which are the fan rotations gradually increased from the parameter of the minimum fan rotations [n 40] up to the parameter [r 100]. This ensures the fluent heat-up of boiler.

[Πn 5] Frequency of exhaust fan blow-through – this frequency defines, how often the fan is started to the full output [Π100] to take the flue gas out from the boiler, if the fan was stopped due to the boiler temperature achieved.

[Πu 6] Duration of exhaust fan blow-through – during this period must the fan exhaust the flue gas following the parameter [Πn 5].

[r 100] Fan output by ignition – this parameter defines the fan output by boiler heat-up. If the parameter "Πr" is set to [Πr 0], then this parameter is not available.

[rh 5] Hysteresis of boiler stop by ignition – defines, how many degrees before reaching the required boiler temperature will be the heat-up phase finished or (if the flue gas temperature sensor is connected), how many degrees before reaching the required flue gas temperature are relevant to stop the heat-up phase. After deactivation of the heat-up phase there is a casual operating mode.

[P 30] Temperature to start the circuit pump – if there is not D.H.W. tank in the system [ur 0] or it is in the mode [ur 2], then the parameter defines the boiler temperature for starting the circuit pump of the heating system. If the parameter is set to „–“, then too low temperature does not influence the operation of the circuit pump. Anyway, the pump is always started, when the boiler temperature exceeds the parameter [H 85] of the maximum boiler temperature.

If there is accumulation tank in the system (parameter [ur 4]), then this parameter defines the temperature measured in the accumulation tank by which is the circuit pump of the heating system started.

[Πh 2] Hysteresis of circuit pump – defines the temperature difference under which must the boiler temperature or temperature in the accumulation tank decrease in comparison with the temperature defined by the parameter [P 30] to stop the circuit pump.

[Pc --] Interval of unlock function of circuit pump –when controller is in the stand-by mode or the room thermostat is disconnected, the circuit pump is started for 30 seconds after each [Pc --] minutes to prevent the pump blockage caused by its inactivity. The unlock pump function is not active, when the Pc is set to „–“.

[ur 0] Operation of the additional output – this parameter defines the operating mode of the additional output (pump for D.H.W. tank or accumulation tank warming).

[ur 0] Additional output without function – defines that the additional output and pump are not connected and the additional output is not used in this case.

[ur 1] Priority D.H.W. tank warming – by this setting is the pump for D.H.W. tank warming connected to the additional output and the sensor of D.H.W. is connected to the additional inlet. Then, if the temperature in the D.H.W. tank decreases under the value of hysteresis

[uh 5] from the temperature adjusted [u 60], the pump of D.H.W. tank warming is started. After the temperature in the D.H.W. tank reaches the set value [u 60], the pump is stopped. The pump is also stopped, when the temperature in boiler is lower than the temperature in D.H.W. tank. The [ur 1] mode means that the D.H.W. warming has priority, i.e. the pump of the heating circuit is started after the D.H.W. is prepared.

[ur 2] Parallel charging the D.H.W. tank – similar principle as by the [ur 1], just the D.H.W. is prepared by the parallel operation of the circuit pump of the heating circuit.

[ur 3] Unused

[ur 4] Charging the accumulation tank – due to this setting is the additional output used as a pump to heat the accumulation tank and the additional sensor measures its temperature. When the temperature in the boiler exceeds the hysteresis [uh 5] over the current temperature of accumulation tank, the pump for charging is started. The pump is stopped, when the temperature in the boiler is same or lower than the temperature in the accumulation tank, or when the temperature in boiler decreases under the minimum boiler temperature defined by the parameter [L 65].

[u 30] Operating temperature of the D.H.W. tank or accumulation tank – temperature to control the additional output [ur].

[uh 5] Hysteresis of the D.H.W. tank or accumulation – this parameter defines hysteresis of the additional output [ur].

[uP 5] Boiler temperature increase by D.H.W. preparation – this parameter is relevant, when the additional output works under the mode of D.H.W. tank charging. It defines, for how many degrees will the adjusted boiler temperature be higher than parameter [u 50] during the D.H.W. tank warming.

[L 65] Minimum boiler temperature – defines the minimum boiler temperature that can be set by a knob.

[H 85] Maximum boiler temperature – defines the maximum boiler temperature that can be set by a knob.

[h 2] Hysteresis of boiler temperature – defines the difference between the adjusted and the current boiler temperature for which must the boiler temperature decrease to start the controller again after the adjusted boiler temperature is achieved.

[A 99] Temperature of boiler overheating – defines the value of boiler temperature to activate the alarm of the boiler overheating.

[Fd60] Duration of boiler stop by ignition and fuel shortage – this parameter defines the maximum time between starting the controller by the START button and achieving the control-

ler's operating mode (reaching the flue gas temperature of [° 90]). If the temperature of [° 90] is not reached during the heating up, the fan is stopped and the alarm FUEL (fuel shortage) is displayed.

[Fb30] Duration of boiler stop by flue shortage and burn-down – the fuel amount test is activated in the operating mode, when the flue gas temperature decreases under the parameter [° 90] or (if the flue gas sensor is not connected) when the boiler temperature decreases under the adjusted parameter [L 45]. If the temperature does not exceed the necessary limit during this period, the controller displays FUEL alarm.

[Ar 0] Operation of multifunction additional output – the controller is equipped with an additional multifunctional outputs compatible with the options listed below (to control these options is necessary to use an additional module UM – 1):

- **[Ar 0] parameter** – indicates start of the automatic boiler (e.g. gas or pellet boiler). When the controller is started and the boiler generates heat, the automatic boiler is stopped. Operation of the automatic boiler is blocked by the controller in the operating mode. The automatic boiler is started by controller, when the fuel is burned down in the boiler and the FUEL alarm is displayed.
- **[Ar 1] parameter** – indicates that the additional multifunctional output will be used for error messages like boiler sensor failure, overheating or fuel shortage.

[° 240] Adjusted flue gas temperature – the controller will struggle to reach and to keep this value. The flue gas temperature sensor is turned off, if this parameter is set to „–“.

[° h5] Hysteresis of flue gas temperature – defines the difference for which must the flue gas temperature decrease to increase the fan rotations.

[° t 5] Time constant of stabilization the flue gas temperature – defines the period of adjusting the fan rotations during stabilization of the flue gas temperature. If the flue gas temperature exceeds the value given by the parameter [° 240], the controller starts to decrease the fan rotations gradually, until the flue gas temperature decreases to the adjusted value. If the flue gas temperature decreases to the value of flue gas temperature hysteresis, the controller starts to increase the fan rotations gradually.

[° F10] Blower speed jump while stabilizing exhaust gas temperature – defines the change of rotations to achieve the adjusted flue gas temperature.

[° 90] Flue gas temperature by fuel shortage – the message „FUEL“ for fuel shortage is displayed after the flue gas temperature decreases under this value.

Testing the regulator outputs:

It is possible to make a check to test the correct functionality of the regulator and devices connected. The correct function of fan is tested by selecting the **[outΠ]** on display and holding the „OK“ button. Test of the circuit pump is done by selecting the **[outP]**. Select the **[outu]** to start the additional output and **[outr]** for multifunctional additional output.

Reset of the regulator's production settings:

There is a possibility to reset the production settings of the regulator by selecting the **[Prod]** in the service menu and confirming by „OK“ button. Then is the regulator set to the values given in Table 3.

Exit from service menu:

Select the **[End]** on display and press the „OK“ button to exit from service menu.

7.9 ERROR MESSAGES

The connection of all sensors of the regulator is permanently monitored. If the regulator detects that some of the sensors is not connected, the error messages are displayed. Messages about the boiler overheating or fuel shortage are also displayed.

7.9.1 ERROR MESSAGES DISPLAYED

[FUEL] – is displayed, when there is not enough fuel in the boiler. The sufficient amount of fuel is defined by the parameter $^{\circ}90$, where the figure 90 is related to the adjusted value 90 °C. Then, if the flue gas temperature decreases under this adjusted value within the time Fb30 (time of boiler stop by fuel shortage), the regulator displays the [FUEL] message. To start the boiler again, it is necessary to remove the message by the STOP button and then to press the START.

[HOT] – is displayed, when the flue gas temperature exceeds the maximum permitted value set by the parameter c300 (means 300 °C). The ventilator is stopped in this case. After the temperature decreases under the adjusted flue gas temperature, the ventilator is started again.

[E 1] – is displayed, when the boiler temperature sensor fails or when it is not connected. In such case is the regulator taking actions to ensure the safety of the boiler – the fan is stopped (if it is currently in operation) and the circuit pump is started for eventual safe boiler cooling. After the cause of error is removed, the error message can be erased by the STOP button.

[E 2] – is displayed, when the boiler temperature exceeds the boiler overheating temperature A99. The regulator stops the flue gas fan and starts the circuit pump. The error message can be removed by the STOP button after the boiler temperature decreases to the safe value.

[E 8] – is displayed, when the additional sensor fails (in the D.H.W. tank or accumulation tank). If this sensor works for the D.H.W. tank, the warming is blocked. If the sensor works for the accumulation tank, the pump will be permanently working. This error message cannot be removed by the STOP button. It is automatically erased after the sensor failure is repaired.

[E128] – is displayed, when the flue gas temperature sensor fails. In this case is the boiler control switched to regulate according to the boiler temperature. The error message is erased automatically after the fault of the flue gas temperature sensor is solved.

[E 3] If several failures occur in one moment, their total is displayed. In such case it is necessary to check the functionality of all sensors.

7.10 DISASSEMBLY OF THE REGULATOR

If it is necessary to disassemble the regulator, do the following:

- turn the main switch off
- disconnect the boiler from electricity mains
- demount the regulator
- demount the connectors from the regulator

7.11 TECHNICAL SPECIFICATION OF THE REGULATOR

Power supply	230 V $\pm 10\%$, 50 Hz
Input (not including the ventilator and pumps)	< 4 VA
Range of measuring the boiler temperature	-9 – 109 °C ± 1 °C
Range of measuring the flue gas temperature	-30 – 500 °C ± 1 °C
Max. input of devices connected to the regulator	2 A/230 V

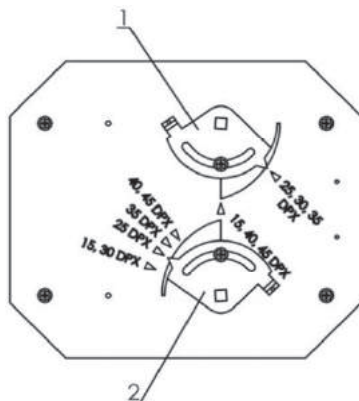
7.12 OUTPUT CONTROL OF ATTACK DPX COMBI PELLET

Adjustment of burning in the boiler

The burning is adjusted by the primary and secondary regulation flap. Producer sets the boilers to the optimum conditions of burning with reference to the emissions and flue gas temperature. Only the service staff trained by producer can make the adjustment.

Optimum setting of the regulation flaps – wood mode (Primary/Secondary):

DPX25CP	– 50/40
DPX30CP	– 50/25
DPX35CP	– 50/50
DPX40CP	– 100/60
DPX45CP	– 100/60



7.13 OPERATION WITH PERMANENT BURNING

It is possible to keep the permanent burning, i.e. the fire in the boiler for the whole night without need to heat up during the day, but only in the winter period. This method of operation reduces the life of the boiler.

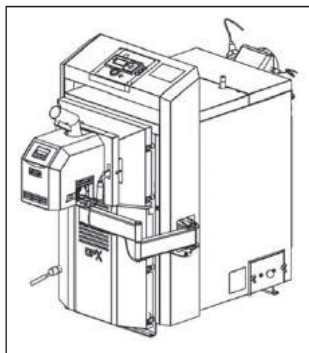
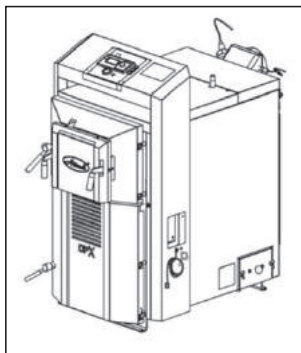
For the operation with permanent burning it is necessary to prepare the boiler in the following way:

- Lay some bigger wood logs (4 – 6 pcs.) on a glowing layer of fuel
- Close the mixing valve partly – temperature of water in the boiler achieves 80 – 90 °C
- The regulation flap controlled by thermal regulator is automatically closed and the fan is stopped.

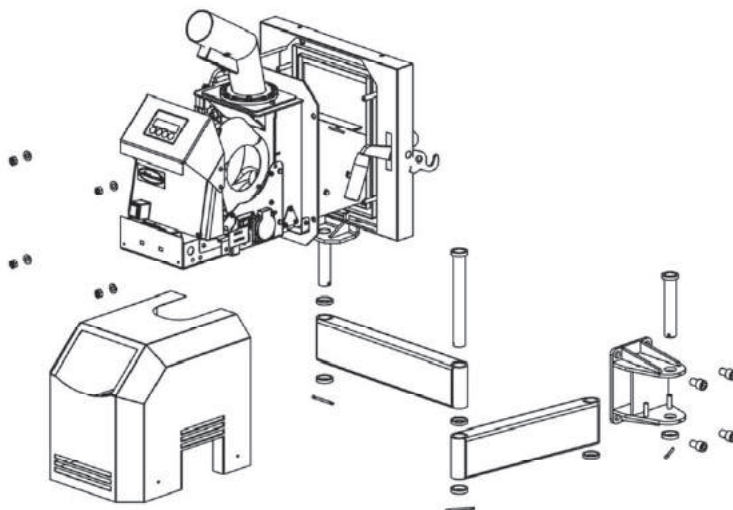
After the boiler is prepared in this way, the burning is kept for more than 12 hours. When the boiler is in the operation of permanent burning, the water temperature must be 80 – 90 °C.

8 BURNER ASSEMBLY TO THE BOILER

The boiler DPX COMBI Pellet – mode wood has mounted on the upper loading door cover – cover of the upper loading door. If you want to go for automatic pellet combustion, you have to remove this plug by simply movement up and down with the two handles and put it away from the boiler. After that it is necessary to mounted the pantograph, burner door and burner on the boiler.



Steps of burner assembly to the boiler:



1. For simple manipulation and operation during operation of the burner, the burner together with the burner door will be placed on the movable arms of pantograph. For their installation is necessary to mount the pantograph console in the hole in the right leg of boiler. Console will be fixed with four screws M12 × 20 with cylindric head and internal hexagonal screwdriver.
2. Then it is easy to put together arms of pantograph by pins, cotter and mats. By mounting the short arm of the pantograph is required to put bronze mat between the bottom of arm and

console, as well the mat on the bottom part of console. Pin is necessary to secure with the cotter.

3. The same process is applied by installation of the long arm of the pantograph, where we put the bronze mat between short and long arm of pantograph, mat on the bottom part of short arm and pin is secured by cotter.
4. Burner door are supplied with console and pin, in one piece, for simple installation to the arm of the pantograph. Between the console door with pin and long pantograph arm put again bronze mat, other mat under the bottom part of the long arm and pin is secured by cotter.
5. Secure the burner door on movable arm to upper door of the boiler by simple movement of two handles. It is the same how it was by demounting of the plug.
6. Burner with flange pushed onto the welded screws on the burner door and secure with flat mat 8,4 and nuts M8.
7. Hanging cable for burner connection to the boiler to attach as well as the boiler temperature sensor to the arm of the pantograph by supplied plastic tapes from the bottom of the pantograph arms. Then put the cover on the burner.

9 OPERATION OF BOILER ATTACK DPX COMBI PELLET – PELLETS MODE

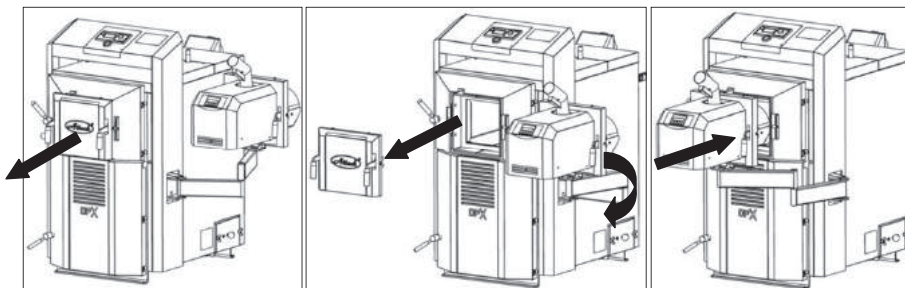
Pellet burners ATTACK PELLET BURNER Automatic 8 – 30 kW and 15 – 50 kW built into the boiler, model ATTACK DPX COMBI Pellet 25, 30, 35, 40, 45, 50 are modern burners which are saving environment with combustion technology, offer to end users the advantage of low operating costs and offer also comfort comparable with the gas boilers when is boiler operating with pellets, automatic combustion.

For the boiler operation with pellets is necessary to remove the plug of upper loading door. Block off two handles and put the plug away from the boiler. With the pantograph simply bring burner to the upper door of the boiler, insert it through the door into the boiler and block the burner with two handles. By blocking the burner to the door of the boiler, needs to make pressure in a straight line. The burner door needs to seal with the boiler door.

Inserting and securing the burner in the boiler door, burner is ready for operation. On the control panel you must switch the mode switch to PELLETS position.

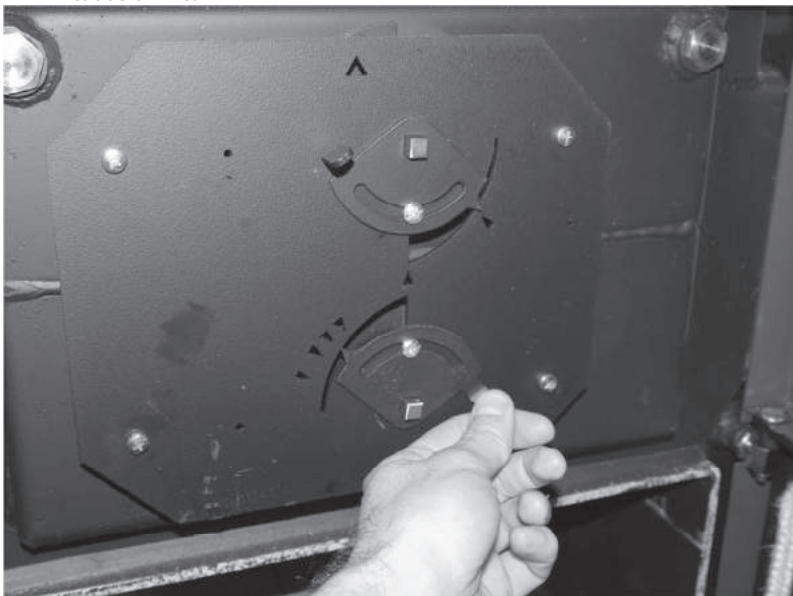


At the time when the burner is out of the boiler door it is not possible to operate or change the settings in the menu.





WARNING! After inserting the burner into the boiler DPX it is always necessary to close the flaps of primary and secondary air. Otherwise the flue gas produce by the burner can exit through openings of primary and secondary air. This can be the cause of fire!



Setting of DPX boiler for **wood** combustion (primary and secondary flap open).



Setting of DPX boiler for **pellets** combustion (primary and secondary flap closed).

The burners **ATTACK PELLET BURNER Automatic** works on basis of the fuel feeding by the principle of falling, when the pellets fall by from the pellet feeder through the inlet hose and the inlet tube on the grate, where they are burned.

The burners have an electrical ignition that automatically lights the pellets fallen on the grate. Starting the burner is controlled by adjusting the burner and boiler temperature or room thermostat, if it is connected. Start and stop temperature can be set in menu with buttons on the controll panel of the burner. Information about actual operation data is given on display.

The burners have an own self-cleaning mechanism of the grate. When the thermostat reaches the adjusted off-temperature, the burn-out cycle begins and afterwards, the grate moves out to be cleaned by scraping. This enables longer time of use, without need to remove the burner from the boiler. Convectional parts of the boiler have to be cleaned in regular intervals to keep the high efficiency of heating.

The boiler can be used only moulded wood pellets without additional materials and with following parameters:

Approved fuel specification:

Measured weight:	600 – 750 kg/m ³
Heat value:	4,7 – 5,0 kWh/kg
Size/diameter:	6 mm
Size/length:	Attention! Max. 35 mm
Moisture max.:	12 %
Ash content:	0,5 – 1 %
Dust content:	max. 3 %
Ash smoulder temperature:	min. 1 100 °C
Standards :	DIN 51 731 – HP 5, DIN Plus, or EN 14961–2 – A1

Regulation of the pellet dosing

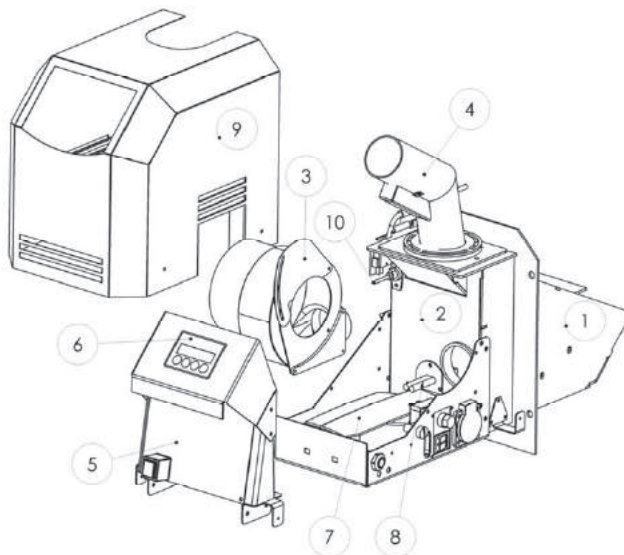
Before starting-up the burner, it is necessary to set the pellet supply through the parameter of the „Stoker Adj.“ in the Advanced menu. Thermostat cannot start the heating while the settings are being made. Firstly, set the parameter of the „heat value“ to the value given by your pellet supplier. If the supplier gives 4,8 kWh/kg, set the parameter to 48, etc.

Now, put the plastic bag around the opening of the pellet feeder. Then, confirm by the „S“ button and keep the instructions. Weigh the pellets fallen into the plastic bag, put their weight in grams via the „+/-“ buttons and press the „S“ to save the values. This setting has to be done within 15 minutes, otherwise the burner switches to the stand-by mode. Weigh the pellets very exactly!

After setting of the above mentioned parameters, the control system automatically sets all the parameters relative to the pellet feeding.

9.1 ATTACK PELLET BURNER AUTOMATIC 8–30 KW

The burner is set in production to the output range of 14 – 30 kW and three degrees of output: 1 (14 kW), 2 (22 kW) and 3 (30 kW). The selected output degree is displayed during the operation. It is possible to set the output via the menu buttons of the burner and the information on display. The range of output can be changed in two levels – from 8 to 12 kW and from 14 to 30 kW – according to this there are three degrees of output from 8 to 12 kW or from 14 to 30 kW in the advanced menu.



Basic description of the burner:

- 1 – combustion chamber
- 2 – air chamber
- 3 – ventilator
- 4 – tube of fuel inlet
- 5 – main electronics
- 6 – display with control panel
- 7 – gear of grate cleaning
- 8 – electrical heating coil
- 9 – cover
- 10 – photocell

The burner is formed by pellets combustion chamber, air chamber with ventilator and control units with the gear of grate cleaning. The burner is designed for end user with the most comfort, cleaning aspect and total spent time with the boiler. The base of the burner is combustion chamber, which is made from welded high quality stainless steel with a thickness of 3 mm, which guarantees long lifetime.

The cover of the burner presented burner design. Surface conditioning of cover is realized with dust technology.

The burner is delivered in a paper box filled with polystyrene to improve stability. If the box is damaged, check the burner for possible damage by transport. Claim of the damage by transport has to be registered by a spediteur.

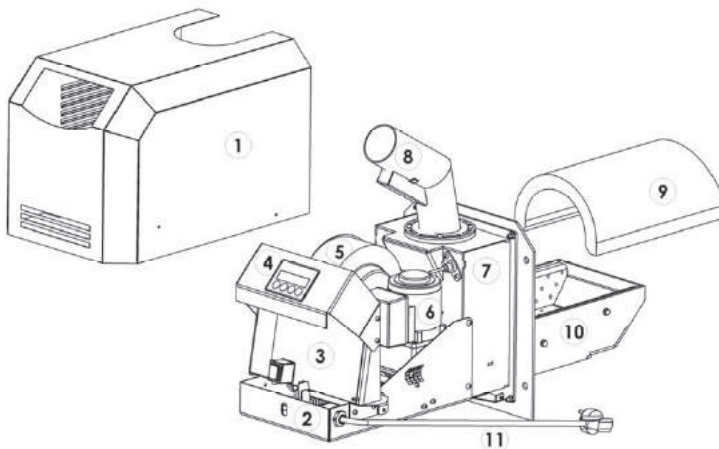
The paper box ought contain the following items:

- 1 pc. ATTACK PELLET BURNER Automatic 8–30 kW
- 1 pc. plug of upper loading chamber
- 1 pc. inlet tube with emergency thermostat of back-burning
- 1 pc. pantograph
- 1 pc. burner door

Note: Boiler temperature sensor for burner has been by factory installed in the boiler. This sensor needs to be connected to the connector of burner electronics, signed TS2, after burner installation.

9.2 ATTACK PELLET BURNER AUTOMATIC 15–50 KW

The burner is set in production to the output range of three degrees of output: 1 (15 kW), 2 (32 kW) and 3 (50 kW). These is possible to set between 15 – 50 kW in burner menu. The selected power level is shown on the display during the operation.



Basic description of the burner

- 1 – cover
- 2 – burner basket
- 3 – main electronics
- 4 – display with control panel
- 5 – ventilator
- 6 – gear of grate cleaning
- 7 – air chamber
- 8 – tube of fuel inlete with emergency thermostat of back-burning
- 9 – fireproof concrete roof
- 10 – combustion chamber
- 11 – line cord

The burner is formed by pellets combustion chamber with fireproof concrete roof, air chamber with ventilator and control units with the gear of grate cleaning. The burner is designed for end user with the most comfort, cleaning aspect and total spent time with the boiler. The base of the burner is combustion chamber, which is made from welded high quality stainless steel with a thickness of 4 mm, which guarantees long lifetime.

The cover of the burner presented burner design. Surface conditioning of cover is realized with dust technology.

The burner is delivered in a paper box filled with polysthyrene to improve stability. If the box is damaged, check the burner for possible damage by transport. Claim of the damage by transport has to be registered by a spediteur.

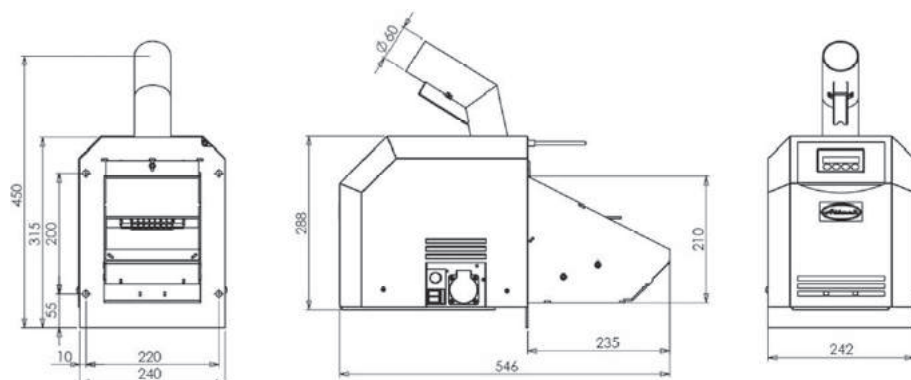
The paper box ought contain the following items:

- 1 pc. ATTACK PELLET BURNER Automatic 15 – 50 kW
- 1 pc. plug of upper loading chamber
- 1 pc. inlet tube with emergency thermostat of back-burning
- 1 pc. fireproof concrete roof
- 1 pc. pantograph
- 1 pc. burner door

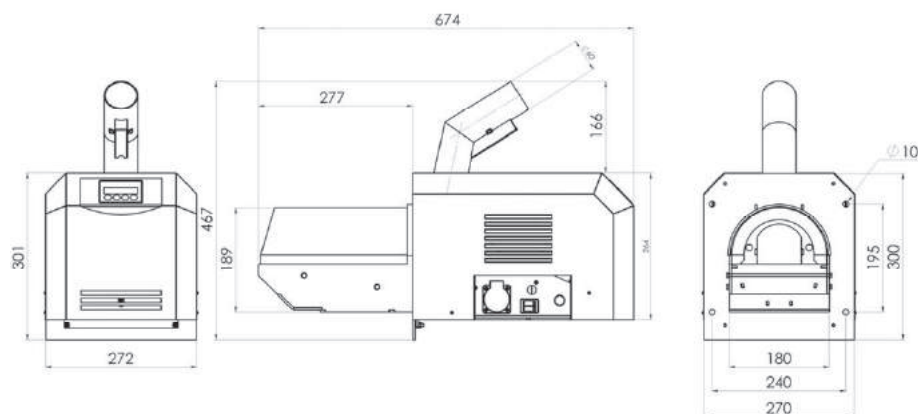
Note: Boiler temperature sensor for burner has been by factory installed in the boiler. This sensor needs to be connected to the connector of burner electronics, signed TS2, after burner installation.

9.3 BURNERS DIMENSIONS

ATTACK PELLET BURNER Automatic 8 – 30 kW



ATTACK PELLET BURNER Automatic 15 – 50 kW



9.4 DESCRIPTION OF FUNCTION



ATTENTION: The burner is controlled on the basis of the boiler temperature sensor (in the burner menu must be set in the advanced settings THERMOSTAT to the "Combination") or room thermostat, if is connected to the terminals TP under the electrical scheme. It is possible to choose boiler temperature and hysteresis in burner menu. The burner will try to achieve the set temperature and according to hysteresis the burner will be turned on.

9.4.1 NORMAL START-UP IN STAND-BY MODE OF BURNER

When the thermostat gives instruction to the burner, the ventilator starts and the photocell controls the fire. If there is no fire, then comes the instruction to blow the burner through. Afterwards, pellets start to fall into the burner within the period stated by the control system and the ignition is activated. After the phase of fuel feeding for ignition is finished, the control system waits for signalization of fire from the photocell. When the photocell recognizes the fire, small amounts of pellets fall within *the transition period*. Duration of this depends on the output level set on the burner. Pellet supply is gradually increased, until the necessary fuel amount for the required output is achieved. This amount is further delivered into the burner, until the operation thermostat gives instruction to stop.

This signal stops the pellet inlet, while ventilator continues to supply the air into the burner.

When the photocell recognizes burn-out of pellets, the blow-through of the burner begins.

According to the adjusted delay, the burner is cleaned after the fuel burns out – the grate moves out towards the scraper and the ash with the unburned elements falls through the front wall of the burner's bottom into the ashpan. After the grate slides back, the burner waits for the new signal from thermostat.



CAUTION: The unit for the grate moving is very strong and it might cause a threat. Never put any body parts or foreign articles into the burner, while it is working.

9.4.2 BURNER START-UP, WHEN THERE IS STILL FIRE IN THE BURNER

If the photocell recognizes the fire during the beginning phase (e.g. after the short time current shortage), the control system directly begins the transition-phase and the pellet burner continues to operate as by normal start. (see above)

9.4.3 BURNER START-UP, WHEN THE CONTROL SYSTEM DOES NOT RECOGNIZE THE FIRE

The normal start-up process follows, also when the control system does not receive the fire signal. The system starts shortly after repeated ignition process, which increases the ignition amount in the combustion chamber and heating of spiral continues until the photocell does not detect the presence of flame. These parameters are adjustable only by the trained person in service menu. If the second trial fails, all functions are turned off and the alarm is activated. This alarm is indicated on display.

9.5 MENU AND FUNCTIONS

Functions of the burner are set via the menu buttons under the display. (see also options of settings under the **Production settings**, below).

How to change settings of the pellet burner:

„S“ – **Menu/Enter**: For activation of further records and ENTER/SAVE of the changes.

„-“: For comeback in menu and reduction of the adjustable values.

„+“: For advance in menu and increasing of adjustable values.

„ESC“ – **Exit/Escape**: For exit from menu without saving the new values.



Values that can be set by the user are given in the following schedule:

MENU	Explanation
EFFECT ADJ.	Required output degree (1, 2 or 3)
PELLET-TRIM	Setting of the pellet ration supplied
LOG	Record of faults for control purposes
FINAL COMBUST.	Instruction to burner for burn-out
MENU/ ADVANCED	Access into service menu via code

9.5.1 INDICATIONS ON DISPLAY

Standby mode

PAUS.
OFF FC: 0 %

Nothing in the burner is started, burner waits for the signal from thermostat to start.

Temperature sensor or thermostat starts.

Step 1: Test blow-through

TEST BLOWING
ON FC: ? %

The fan starts to operate and when the photocell recognizes the value (%), the program continues.

Step 2: Fuel ration for heating up

IGNITION 1
ON FC: ? %

The *fuel ration for heating up* is supplied into the burner and program waits for the „fire“ signal from photocell.

Step 3: Transition phase

TRANS. PHASE	??kW
ON	FC: ? %

The transition phase begins, when the photocell and the control system recognize the fire. Small, gradually increased amounts of pellets are feeded into the burner, until the required pellet ration is achieved.

Step 4: Combustion

COMBUST.	??KW
ON	FC: ? %

The combustion phase runs, until it is interrupted by the thermostat.

Step 5: Burn-out

FINAL-COMBUST.	
OFF	FC: ? %

The thermostat interrupted the combustion phase and the burner begins the phase of burning-out.

Step 6: Cleaning

SCRAPING	
OFF	FC: 0 %

The grate moves out and when it is out completely, the fan runs at full rotations, until the grate moves back.

Step 7 Ash removing

STOKERTIME	
OFF	FC: 0 %

Gear of ash removing is started after determined period (e.g. 6 hours) and it works within the stated time (e.g. within 3 min).

Step 8: Return into standby mode.

PAUSE	
OFF	FC: 0 %

9.5.2 MENU INDICATIONS

PAUS.	
OFF	FC: 0 %

The burner is in the standby mode.

Press the "S" button.

EFFECT LEVEL	
ENTER	EXIT

Here you can change the burner output. Level 1 = 15 kW, 2 = 32 kW, 3 = 50 kW.

The range and the levels of output are adjustable in the advanced menu.

Press the "+" button.

PELLET-TRIM	
ENTER	EXIT

Here you can set the pellet amount to be supplied. It is not necessary, if the correct pellet weight was set in the Pellet dosing in the service menu.

Press the "+" button.

FINAL-COMBUST	
ENTER	EXIT

If you wish to clean the burner or to interrupt the operation from other reasons, press the "S" button, and the burn-down mode begins. To restart the burner after ash removing, press the "S" button.

Press the "+" button.

LOG	
ENTER	EXIT

This internal setting can be helpful by troubleshooting, if the burner stops and the alarm is activated. The last 10 different error codes are recorded. For more information about the error codes, see the "Troubleshooting".

Press the "+" button.

MENU/ADVANCED

ENTER

EXIT

To enter into the advanced menu you need password (code) and it is necessary to know the program functions of the burner.

9.6 PRODUCTION SETTINGS

9.6.1 ATTACK PELLET BURNER AUTOMATIC 8–30 KW

Basic menu:

Menu	Production settings	Range	Adjustable
Effect level	2 = 22 kW	1, 2, 3	8 – 30 kW
Pellet-trim	95 %	50 – 200 %	50 – 200 %
Final combustion	Yes	Yes/No	10 – 600 sec.
Log	View faults	N/Y	N/Y
Advanced menu	View random number	Entry code + 5	N/Y

Advanced menu:

MENU	Parameter	Range	Adjustable
Effect adj.	Output 1 [kW]	8 – 12	14
	Output 2 [kW]	14 – 22	22
	Output 3 [kW]	22 – 30	30
Ignition	Delay	0 – 3	1
	Feeding time 1	30 – 300 %	95%
	Ignition time 1	10 – 600 s	480 s
	Feeding time 2	10 – 300 %	45%
	Ignition time 2	10 – 600 s	240 s
	Fan speed	800 – 2 800	1 500
Test – blow time	Delay	10 – 100 s	15 s
Transition phase	Transition phase time 0 – 14	20 – 460 s	240 s
	Transition phase time 0 – 30	260 – 500 s	480 s
Transition pellet–trim	Transition phase trim	10 – 100 %	15 %
Clean–blow time	Clean–blow time	10 – 900 s	200
Ash auger	Ash auger time	0 – 10 min	3 min
	Run interval	1 – 200 h	6 h
Max. comb. time	Max. comb. time	30 – 1 080 min	60 min
Anti–cycling	Anti–cycling	0 – 60 min	10 min
Modulation	Power modulation	0 – 100 %	70 %
	Temperature modulation range	1 – 100 deg	10 deg
Photocell	Photocell	25 – 80 %	35 %
Thermostat	Thermostat	EXT; SENS; COMBI	COMBI
	Temperature of turn–off	15 – 99	80°C
	Hysteresis	1 – 75	10°C
Cleaning	Activate?	Yes/No	Yes
	Grate cleaning?	Before ig., Before ig./after burn–out	Before ig./after burn–out
	Delay?	0 – 60 min	1 min
	Number of cleaning	1 – 5	1
Pump control	Pump active?	Inactive/Automatic	
	Delay	0 – 60	10 min
Pump safety temperature	Pump safety temperature	70 – 90	90°C
Language	Language	EN, SK, CZ, HU, ES, ...	SK
Effect span	0 = 8 – 12, 1 = 14 – 30	0, 1	1
Stoker adj.	Heat amount	45 – 60 kWh/kg	50 kWh/kg
Fan factor	Fan	10 – 500	96
	Fan 1 gain	1 – 100	10
	Fan 1 interval	1 – 50	1
Stokertime			hour
Menu/Test		Auto/Manual	
Menu/Setting		See Advanced	
Menu / Log	Save the error codes	See Advanced	

9.6.2 ATTACK PELLET BURNER AUTOMATIC 15–50 KW

Basic menu:

Menu	Settings	Range	Adjustable
Effect level	3 = 50 kW	1, 2, 3	15 – 50 kW
Pellet-trim	95 %	50 – 200 %	50 – 200 %
Final combustion	Yes	Yes/No	10 – 600 s
Log	View faults	N/Y	N/Y
Advanced menu	View random number	Entry code + 5	N/Y

Advanced menu

MENU	Parameter	Range	Adjustable
Effect adj.	Output 1 [kW]	15 – 50	15
	Output 2 [kW]	15 – 50	32
	Output 3 [kW]	15 – 50	50
Ignition	Delay	0 – 3	1
	Feeding time 1	30 – 500 %	200 %
	Ignition time 1	10 – 600 s	500 s
	Feeding time 2	10 – 300 %	100 %
	Ignition time 2	10 – 600 s	240 s
	Fan speed	800 – 2 800	800
	Delay	10 – 100 s	15
Transition phase	Transition phase time 0 – 14	20 – 460 s	240
	Transition phase time 0 – 30	260 – 800 s	480
Transition pellet-trim	Transition phase trim	10 – 100 %	15 %
Clean-blow time	Clean-blow time	10 – 900 s	200
Max. comb. time	Max. comb. time	30 – 1 080 min	60 min
Anti-cycling	Anti-cycling	0 – 60 min	10
Modulation	Power modulation	0 – 100 %	70
	Temperature modulation range	1 – 100 deg	10
Photocell	Photocell	25 – 80 %	30
Thermostat	Thermostat	EXT; SENS; COMBI	COMBI
	Temperature of switch-off	15 – 99	80°C
	Hysteresis	1 – 75	10°C
Cleaning	Activate?	Yes/No	Yes
	Grate cleaning?	Before ig., Before ig./after burn-out	Before ig./after burn-out
	Delay?	0 – 60 min	1
	Number of cleaning	1 – 5	1
Pump control	Pump active?	Inactiv/Automatic	Automatic
	Delay	0 – 60	10
Language	Language	EN, SK, CZ, HU, ES, ...	EN
Socket adj.	Heat amount	45 – 60 kWh/kg	50
Fan factor	Fan	10 – 500	100
	Fan 1 Gain	0 – 100	10
	Fan 1 Interval	0 – 50	1

*) Languages: Slovak, Czech, English, German, Greek, Hungarian, Italian, Polish, French, Spanish

9.6.3 HOW TO CHANGE PRODUCTION SETTINGS

To change the settings, select the required menu/parameters. By pressing the „+“ button, change the actual values. O: ...shows the actual temperature, N: ...can be changed to the new value.

It is possible to increase the values by „+“ and to decrease them by „-“. By the „S“ button is the change confirmed and saved. If you do not wish to save the values, press the „ESC“ button (Exit/Escape).

Please, do not make any changes, until you have not read this manual.

Example:

EFFECT ADJ.	
O: 1	N: 2

Return to the production settings

To reset the production settings, select the advanced menu and enter the password (code number after „O“+5). Then, select the Menu/Setup and press the „S“ button. This starts the reset of the production settings.

Here you can also save your own settings, in the following way: by pressing the „+“ button go to „Save settings?“ and save your settings by the „S“ button. Exit menu by the „ESC“ button.

9.7 ADVANCED MENU



The following data/parameters are adjustable by a qualified person only.

All the points of the advanced menu are available by pressing „S“. The actual setting is permanently displayed in the left bottom corner under „O:“ (time/value), whereas the new value is displayed in the right bottom corner under „N“: (time/value).

To increase and decrease time or values, press the buttons „+“ and „-“. To confirm and save the new values, press „S“. To exit without saving, press „ESC“.

By enter into the advanced menu, add 5 to the displayed random number. Example: it can be „18“ on both for „O:“ and „N:“. Now press „+“, until „N:18“ is changed to „N:23“, then press „S“. This enables access into the advanced menu.

For example:

MENU/ ADVANCED	
O: 18	N: 23
Old	New

Output setting:

EFFECT ADJ.		
ENTER	>	EXIT

Here you can select from three outputs used like the „ACTUATOR OUTPUTS“ as ACTUATOR OUTPUTS in the generally accessible menu.

After pressing the „S“ by displayed „EFFECT ADJ.“ is in the left upper corner displayed „OUTPUT 1 (kW)“. In the left bottom corner will be „O:16“ (i.e. the actual value of the actuator output in kW).

To change the actuator output, press the „+“ button, until the required value is displayed in the right bottom corner, i.g. „N:18“. If you press „S“ now, this new value (18 kW) will be saved for the output level 1. After this, the output level 2 is displayed („OUTPUT 2“) and it can be set to the required value. If it will not be changed, press „S“ to save the value indicated on display, i.g. „N:22“, i.e. the output level 2 (OUTPUT 2) will be 22 kW.

If you wish to let the display without saving the changes, press „ESC“.

Setting of ignition:

IGNITION SETTING
ENTER < > EXIT

Here you can adjust the ration of fuel for ignition in %; this value was automatically calculated adequately to the weight given in the Feeder setting – amount.

By pressing the „S“ button, the „Ignition amount 1“ is displayed in the left upper corner. Changes are made in %, the starting amount was pre-set to 170 g. If you increase this amount to 110%, the starting amount will be changed to 187 g.

If the first trial of the burner ignition fails, the Ignition amount 2 is activated, which is pre-set from production to 45 % from 170 g, i.e. 76,5 g.

Setting of time of the test blow-through

TEST BLOWING
ENTER < > EXIT

Time of the test blow-through defines the time, within which will be the boiler and the chimney ventilated before beginning the combustion (10 – 100 seconds).

For boilers, at which there is tough to achieve their draught, it is recommended to increase the time of test blow-through. From production it is set to 15 sec.

Setting of the transition period:

TRANS. PHASE
ENTER < > EXIT

Here you can select the duration since the first recognizing of the fire up to the feeding of full amounts of pellets, adjusted by the actuator output.

There are two parameters of the transition phase: the first is 14 kW and the second is 30 kW. The time set by the first parameter determines, how long it will take to achieve 14 kW, time of the second parameter determines time to achieve 30 kW since the fire is recognized. The lower the required output is, the shorter is the period necessary to achieve it.

Setting of the fuel supply during the transition phase:

TRANS. FEED.
ENTER < > EXIT

Here you can set the fuel amounts that are feeded during the transition phase, since the fire is recognized until the burner achieves the output of 14 kW.

Set the required amount to be feeded into the burner after the fire recognition. The supplied amount will be gradually increased with every ration during the stated period. From production it is set to 15% from the full ration for 14 kW.

Time setting of the cleaning by blow-through:

CLEANBLOW TIME
ENTER < > EXIT

The cleaning by blow-through is activated, when the thermostat switches off and the value recorded by the photocell decreases under 12 %.

Setting of the maximum burning time:

COMBUST. TIME
ENTER < > EXIT

By this parameter it is possible to set the maximum time of the continuous burner operation.

Setting of the minimum duration of the break between the burn-down and the ignition:

MIN. PAUSE TIME
ENTER < > EXIT

This parameter ensures, that it comes to the next burner ignition only after the stated time, not immediately after the burn-down.

Setting of the time of the blow-through clening:

MODULATION.
ENTER < > EXIT

By the stated value of ΔT , before achieving the required boiler temperature, the boiler output decreases automatically to the pre-set level.

Setting of the photocell sensibility:

PHOTOSENSOR
ENTER < > EXIT

Here you can set the photocell sensibility, i.e. the value of light in (%), to which should the system react as to the fire. It should not be necessary to set the light sensibility, if the correct photocell is installed. The setting from production is: 50%.

Selection of the thermostat:

THERMOSTAT
ENTER < > EXIT

Here you select the required thermostat: the external boiler thermostat or the burner thermal probe, or combination with the room thermostat.

If you use the burner thermal probe, it is possible to set 2 parameters. Firstly, select the *starting temperature*, save the value by pressing the „S“ button, then you can change the *stop temperature*. By repeated pressing of „S“ you save this value as well. The burner will now work in the range of the actually set temperature values. There should be difference between the starting and the stop temperature of at least 5 °C.

Grate cleaning:

SCRAPER
ENTER < > EXIT

By this parameter you can set, if the grate cleaning will be activated and when it has to be turned on – before the ignition or after the burn-down.

Pump control:

Pump Control
ENTER < > EXIT

By this parameter you can set if the pump will be controlled and if yes, then how long the delay will be.

Pump safety tem-perature:

Pump safety temperature
ENTER < > EXIT

By overloading this temperature there will be turned on pump.

Language selection:

LANGUAGE		
ENTER	< >	EXIT

There is an option to select the following languages: Slovak, English, German, Italian, French, Czech.

Setting of the output range:

EFFECT SPAN		
ENTER	< >	EXIT

The burner can operate in the output range of 8 – 12 kW, or 14 – 30 kW, according to the range selected by this parameter.

Adjustment of the pellet dosing:

FEEDER ADJUST.		
ENTER	< >	EXIT

The most important parameter of the control system! Here you can set the pellet ration supplied by the feeder at the full operation. To set the pellet ration, you need a plastic sack and a very exact weighing machine. After entering into the parameter, you have to set the Heat value (kWh/kg) as the first. Then, the text „Put on the sack“ is displayed (pellet feeder should be filled with pellets up to the bore). Put the sack on the feeder and press the „S“ button.

Check countdown on display now, while the feeder works for 6 minutes. Then, enter the weight of the pellets fallen by pressing „+“ and „-“ buttons and confirm/save by „S“ button.

Ventilator setting:

VENTILATOR.		
ENTER	< >	EXIT

By this parameter it is possible to adjust the flue gas adequately to the flue gas analyzer for the content of CO and O₂ in flue gas.

Operation time of the feeder:

OPERATION TIME OF FEEDER.		
ENTER	< >	EXIT

Here you can see, how long did the pellet feeder work. You can use it to calculate the energy consumption, etc.

Test:

MENU/TEST		
ENTER	< >	EXIT

To be used by troubleshooting. Here you can manually or automatically control the components.

This function is very helpful by troubleshooting with particular components. In the manual mode you can test every component individually, by pressing „S“ for start and „ESC“ for stop. For step forwards to the required part, press „+/-“. They are displayed in the following order:

Ventilator (during the test of ventilator, the displayed rotations per minute should stabilize at 2 000);

Pellet feeder (start/stop by the buttons „S“/„ESC“);

Ignition coil (activated by „S“ and stopped by „ESC“);

Grate (moves out by „S“ and moves back by „ESC“. Here you can see, how many mA are consumed by unit during the shift, which should not exceed 1 800 mA – limit to start the error “Grate blockage”).

Other displayed options: Current temperature, if the thermal probe is connected; current photo-cell value; shows light (On/Off); closing of this application.

Settings:

MENU/SETUP		
ENTER	< >	EXIT

The settings made during the installation are stored here, or it is possible to reload the production or the installation settings.

Three main options are accessible:

„Loading of settings“ – means, that you can reset the original settings

„Saving of settings“ – stands for the final input of the burner settings, made by the installer. This eases browsing of settings, if it would come to too many parameter changes.

„Production settings“ – are the original settings, that can be reloaded again.

Log:

LOG		
ENTER	>	EXIT

All the errors are saved and displayed here, together with the frequency of their incidence. Also the final number of the ignition trials is here to be read.

There are four options: number of errors:

„Number of errors“ – displays every error code individually, e.g. E-CODE 10(X).

See the page for codes and explanation.

„Number of the first ignitions“ – displays, how many times did the ignition run.

„Number of the second ignitions“ – displays, how many second ignition trials were made by burner (i.e. how many times did first trial fail).

„Last errors“ – displays the codes of errors in the order according to their incidence. It eases the troubleshooting.

10 MAINTENANCE OF THE BOILER

During the boiler life is necessary to make maintenance to work properly. The maintenance frequency depends on boiler frequency and utilization when is boiler in operation process.

Maintenance of the heating system with the boiler

It is necessary to check, eventually to refill the water in the heating system at least 1× in 14 days. If the boiler is out of order during the winter period and danger the water could freeze in the heating system, then the water should be replaced with an antifreeze mixture approved by the producer or it should be discharged out of the system. Normally should be the water discharged only in urgent cases and for as short time as possible. At the end of the heating season it is necessary to clean the boiler properly and to replace the damaged parts. Twice a year it is necessary to dismantle the fan, to clean the radial impeller and to clean the fan air chamber.

Adjusting the hinges and exchange of the sealing cord of the door

After a particular period is the sealing cord in the door pressed. To ensure its tightness is necessary to change the position of the door by screwing the door hinges. When the cord completely loses its elasticity, or the hinges can no longer be moved into the direction to the boiler, it must be replaced. Undo the worn sealing cord by the screw driver and clean the groove, where it was laid. Take the new sealing cord and put its ends into the horizontal parts of the groove. Use your hand, eventually a hammer to press the cord into the groove around the door. Loosen hinges and find the correct position of door hinges to the door.

Replacement of the nozzle

The nozzle is laid in the boiler body on the holder. In the bottom part is the nozzle sealed by a boiler sealant and in the upper part there is a sealing cord around. When replacing the nozzle, remove the sealing cord from the groove by a screw driver. Take the nozzle out and clean the holder properly from tar and old sealant. Then treat the bottom part of the nozzle with the fire-proof sealant and put the nozzle on the clean holder with the arrow towards the rear boiler part. There should be the same space on the both sides of the nozzle. Take the new set of the sealing cords for the nozzle and press it lightly into the gap just around the nozzle.

10.1 BOILER CLEANING

The boiler must be cleaned regularly to operate correctly and reach the required comfort and durability.



ATTENTION: The boiler has to be cleaned regularly and properly, otherwise there is a risk of its wrong functionality, shortened service life or damage! The warranty is not valid if the boiler is not regularly and sufficiently cleaned!

Cleaning the boiler should be carried out regularly and properly every 3 – 5 days because sedimentation in the loading and combustion chamber with condensation and tar significantly reduce the life, power and efficiency of the boiler. If is bigger amount of ash than is not enough space for burning out of fuel and this can damage the holder of ceramic jet as well as the whole boiler. By boiler cleaning at first turn on the fan, open the feeding door and wipe the ash through a slot into bottom space. Long pieces of unburned fuel leave in the hopper. Move sometimes with the exchanger cleaning lever on the left side of the boiler. Ash and smoke put out after opening the bottom cleaning hole. After opening the bottom door, clean the bottom space. Interval of cleaning depends on the quality of wood (moisture), heating intensity, chimney draft and other factors. We recommend to clean the boiler 1 time per week. Fireproof clay do not take out by cleaning. Check the cleaning channel of primary and secondary air or cleaned by scraping holes and blowing. It influences the output and quality of burning.



ATTENTION: Regular and proper cleaning is important to ensure the permanent output and service life of the boiler. The warranty is not valid if the boiler is not sufficiently cleaned and damaged.

The frequency of cleaning the particular boiler parts is given in the table below:

Cleaning*	Daily	Weekly	Annually
Ash removing	1×		
Space around the ash tray		1×	
Space under the exchanger		1×	
Lever of turbulators	5 – 6×		
Flap		1×	
Space of the fan			1×
Radial impeller of the fan			1×

* The minimum recommended intervals of cleaning. They can be shorter, according to the intensity of operation.

Maintenance once a year or in a case of need (by a qualified person)

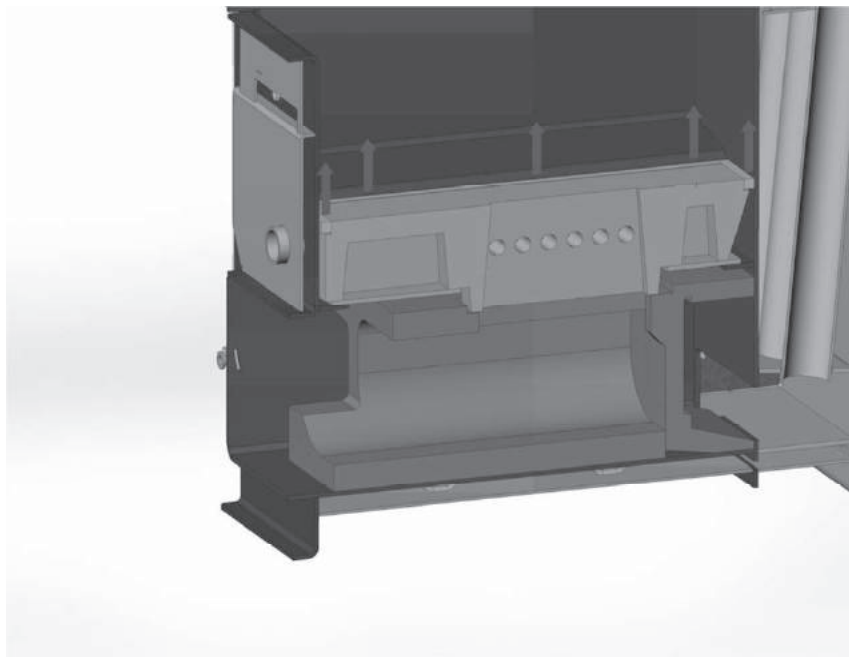
Start the *burn-down* by the menu buttons and wait, until the fuel in the burner burns-out. Turn the burner off by the burner switch and by the main switch, plug out the mains cord of the boiler from the mains socket. Open the door with burner to cca 90°.

1. Put down the burner cover and wipe the photocell by a rag and a soft abrasive agent (tooth paste). Be careful by the flat cable of display and buttons!
2. Clean the air wings of the fan. The most suitable way is to blow them with compressed air.
3. Screw out the scrape and ignition board.
4. Clean the space behind the ignition board.
5. Scrape ignition board and scraper.
6. Brush the grate utterly and clean the holes in the grate.
7. Mount all the parts back.
8. Clean the container and the pellet feeder from dust and small dirt.
9. Check state of the inlet hose for pellets.
10. Put the pellet feeder into operation by plugging of the feeder's mains cord into the mains socket (230 V~) to fill it with pellets.
11. Set the amount of pellets to be supplied.

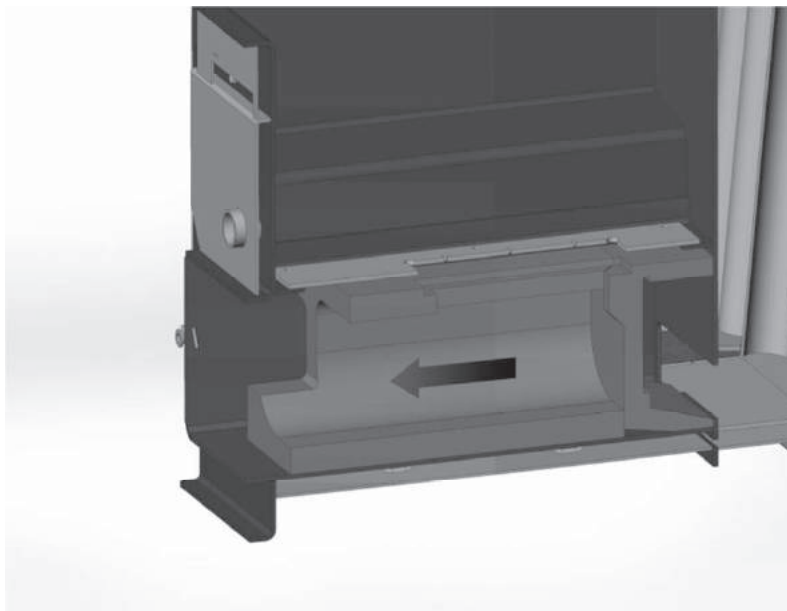
10.2 INSTALLATION AND REPLACEMENT OF THE FIREPROOF PARTS

If you want to make exchange or control of fireproof parts, follow these steps:

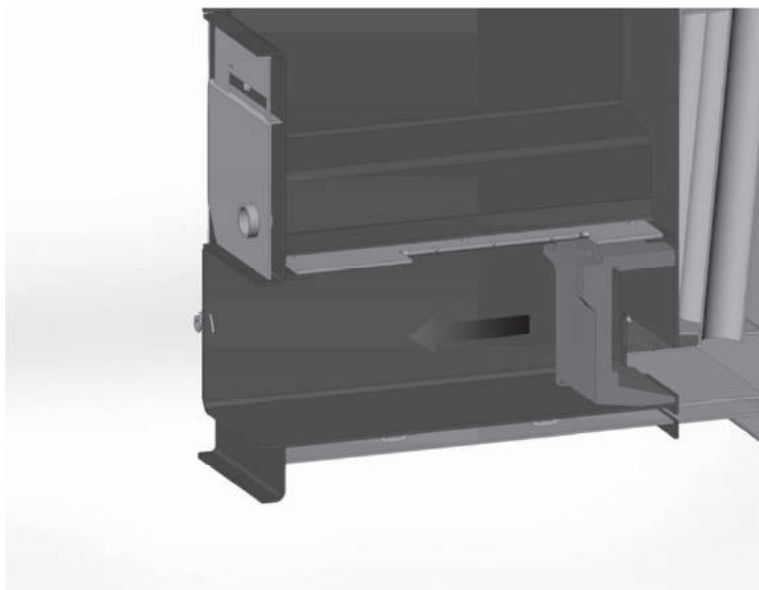
1. Start-up the fan
2. Clean the boiler from combustion residues, ash, dust and tars
3. Remove glass sealing cords as shown at the picture



4. Take out the jet
5. After removing the jet it is possible to take out the ashtray (see picture)



6. Remove the rear ceramic part (see picture)



Installation of fireproof parts make opposite way as described above.

11 TRANSPORT, HANDLING AND STORING

In production is the boiler laid on a pallet and fixed by technological screws. It is packed in a paper box, tied up by a tape and wrapped in stretch foil.

Transport, handling and storing of the packed product is allowed only on this pallet.

There are the hanging eyes placed under the upper cover to enable handling with a crane.

Only an approved person can ensure handling with this product.

11.1 INSTRUCTIONS FOR PRODUCT DISPOSAL AFTER TERMINATION OF ITS SERVICE LIFE

Ensure the disposal of the appliance (boiler) by the waste disposal service, eventually use the regulated waste dump, controlled by the municipal authority.

11.2 DISPOSAL OF THE PACKAGING

Dispose the packaging by the waste disposal service, eventually use the regulated waste dump.

11.3 ACCESSORIES

The ATTACK DPX boiler is delivered functionally tested, packed and laid on a wood pallet. It is delivered with the instruction manual.

The following accessories are included in the delivery:

- Instruction manual
- Warranty certificate
- List of contractual service organizations

12 POSSIBLE ERRORS AND SOLUTIONS

Error	Cause	Solution
<i>The indicator light „mains“ does not shine</i>	No voltage in the mains	Check
	Plug is not properly connected to the socket	Check
	Faulty mains switch	Replace
	Damaged current inlet conductor	Replace
<i>The boiler does not achieve the required parameters</i>	Lack of water in the system	Refill
	Too high pump output	Set the flow and switching
	Boiler output is not adequate to the heating system	Matter of the project
	Fuel of low quality	Burn dry and chopped wood
	Heat up flap is not tight	Fix
	Low chimney draught	New chimney, suitable connection
	High chimney draught	Install the restriction flap into the flue connection
	Long heating up or operation with the heat up flap open	Close the heat up flap
	Deformation of the fan blades	Replace
	Insufficiently cleaned boiler	Clean
<i>Door are not tight</i>	Clogged air inlet into the combustion chamber	Clean
	Damaged glass fibre cord	Replace, adjust the door hinges
	Nozzle is being clogged	Do not burn small wood pieces and rind
<i>Fan does not rotate or it is noisy</i>	Low chimney draught	Wrong chimney
	If the non–returnable thermostat is used, it is disconnected by overheating	Press the button of the thermostat
	Clogged radial impeller	Clean the fan
	Faulty capacitor	Replace
	Faulty motor	Replace
	Faulty contact in the socket of the current inlet conductor from the motor	Check

Burner turned off.

Check, which alarm is displayed.

If the display is black and without text, check the thermal fuse of the boiler. If there is no error, probably is just the burner's thermal fuse turned off. To start again, turn the power supply into the burner off, remove the cover and press the small button between the connections of the fuse of overheating. The thermal fuse is placed directly in the fuel-inlet tube. After restart, mount the cover back and turn on the energy supply. Thermal fuse of the burner is switched off at the temperature of 93 °C.

Signal text on display	Explanation	Error code at recording
ERROR: IGNITION FAILED		10
ERROR: FIRE LOST DURING COMBUSTION	Extinction by heating, restart failed	11
ERROR: FIRE SENSOR	Faulty photocell, abnormal light	12
ERROR: CIRCUIT BOARD OVERHEATED	Temperature under the cover is too high	13
ERROR: TEMPERATURE SENSOR „TOO LOW“	Faulty thermal sensor of the built-in operation thermostat	14
ERROR: TEMPERATURE SENSOR „TOO HIGH“	Faulty thermal sensor of the built-in operation thermostat	15
ERROR: OPTO-SWITCH	Faulty circuit board	16
ERROR: FAN ALWAYS ON	Ventilator rotates, when it is not supposed to	18
ERROR: FAN STOP	Ventilator is stopped, when it is not supposed to be	19
ERROR: FAN SLOW	Ventilator rotates too slowly	20
ERROR: IGNITION 1	First ignition trial failed	21
ERROR: STOCKER	Pellet feeder is not connected to the burner	22
ERROR: BURN-DOWN FAILED	Photocell recognizes signal also 15 minutes after setting „Burn-down“	23
ERROR: LIGHT LOST DURING BURNING	Photocell does not recognize fire, restart failed	24
ERROR: SCRAPER NOT OPERATING	Fault in circuit board of scraper or in grate gear	25
ERROR: SCRAPER JAMMED	Grate moves too slowly	26

Possible causes of burner faults

Error code	Possible cause	Actions to correction
10	Feeder does not supply enough of pellets. Empty pellet container. Faulty ignition fuse. Faulty ignition spiral. Photocell needs to be cleaned.	Set the pellet ration. Fill the container. Replace the fuse. (6.3 A). Replace the spiral. (48 Ω $\pm$ 5 %). Clean the photocell.
11	Feeder does not supply enough of pellets. Empty pellet container. Faulty ignition fuse. Faulty ignition spiral. Photocell needs to be cleaned.	Set the pelleting. Fill the container. Replace the fuse. (6.3 A). Replace the spiral. (48 Ω $\pm$ 5 %). Clean the photocell.
12	Short circuit or other fault of the photocell.	Replace the photocell.
13	Too high temperature in the boiler room.	Prevent from the heat leakage.
14	Faulty sensor of thermostat	Replace the sensor.
15	Faulty sensor of thermostat	Replace the sensor.
16	Faulty circuit board	Replace the circuit board.
18	Ventilator runs, while the burner is in pause mode.	Replace the circuit board.
19	Ventilator does not run, when it should.	Change the ventilator fuse (800 mA); check the connections; replace the ventilator
20	Ventilator runs too slowly	Clean the ventilator; replace the ventilator
21	First ignition trial failed	Set the pellet ration.
22	Pellet feeder missing	Connect the pellet feeder
23	Incorrect pellet supply	Set pellet ration.
24	Incorrect amount of pellets supplied. Faulty photocell	Set the pellet ration. Replace the photocell.
25	Cleaning does not work	Check the connection between the circuit board of scraper and the main circuit board.
26	Cleaning is slow	Clean the grate

12.1 CHARAKTERISTICS OF TEMPERATURE SENSORS

Characteristics under different temperature sensors are provided below:

1. The boiler temperature sensor readout by PROFI PID controller
2. The flue gas temperature sensor readout by PROFI PID controller
3. The boiler temperature sensor readout by Automatic 8 – 30 or 15 – 50 kW burner

According to the resistance of the sensor and temperature can be easily measured by the electrometer if the sensor is defective and has the right characteristics. Unless sensor indicates values significantly different from the above-mentioned characteristics, or if does not show anything at all, is probably damaged. In this case, the sensor needs to be replaced.

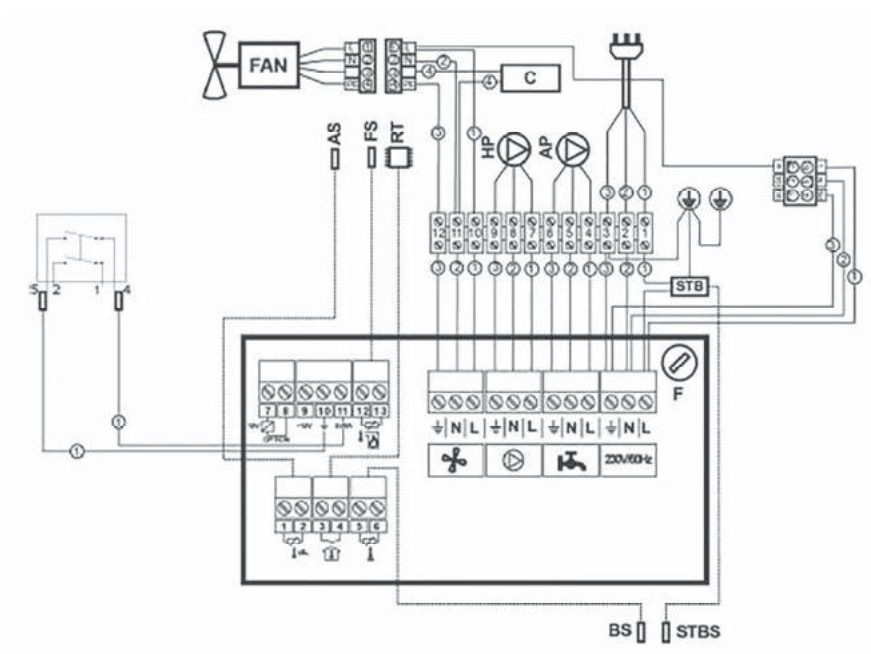


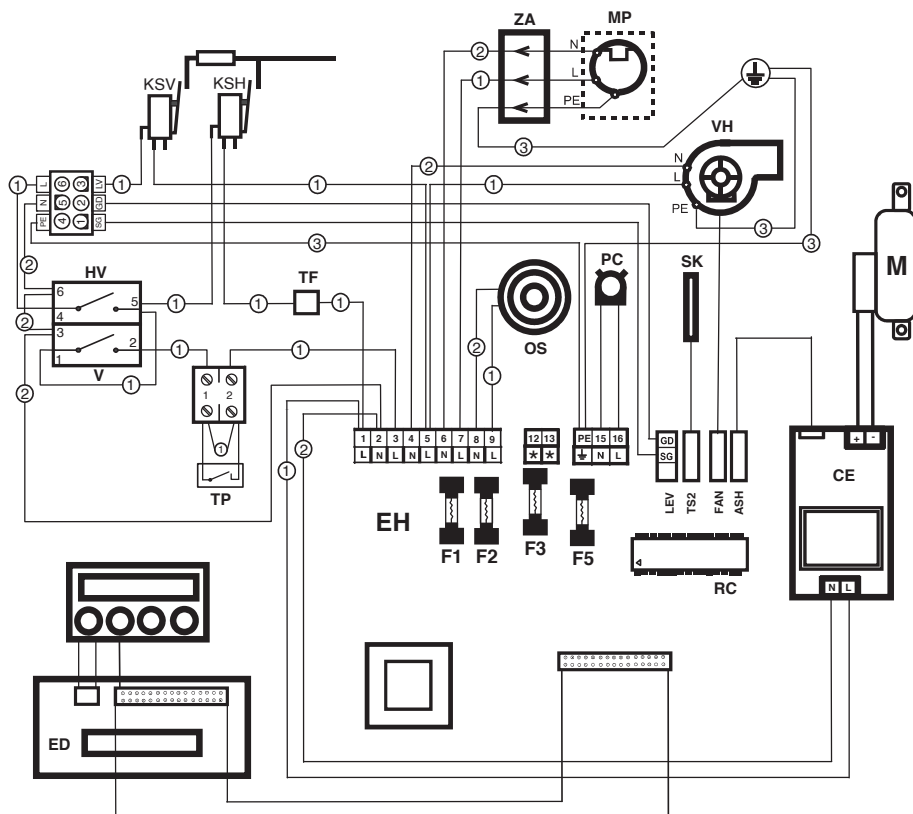
ATTENTION: Temperature and flue gas sensors have the same characteristics, but different temperature resistance. **Therefore, the boiler sensor and flue gas temperature sensor never mix with each other!**

Temperature [°C]	Resistance to [Ω]		
	1	2	3
	KTY81–210	Pt 1000	Burner
–20	1 367	921	98 089
–10	1 495	960	55 733
0	1 630	1 000	32 813
10	1 772	1 039	19 956
20	1 922	1 077	12 503
30	2 080	1 116	8 050
40	2 245	1 155	5 315
50	2 417	1 193	3 591
60	2 597	1 232	2 478
70	2 785	1 270	1 744
80	2 980	1 308	1 250
90	3 182	1 347	911
100	3 392	1 385	675
110	3 607	1 422	507
120	3 817	1 460	386
130	4 008	1 498	298
140	4 166	1 535	233
150	4 280	1 573	184
160		1 610	
170		1 647	
180		1 684	
190		1 721	
200		1 758	
210		1 795	
220		1 831	
230		1 868	
240		1 904	
250		1 940	

13 ELECTRICAL SCHEMES

13.1 ATTACK DPX 25, 30, 35 COMBI PELLET



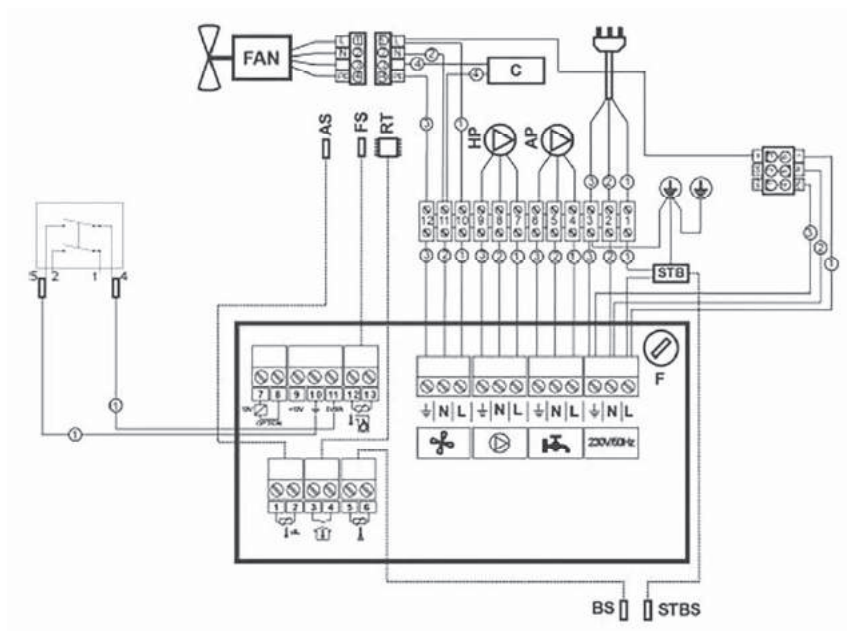


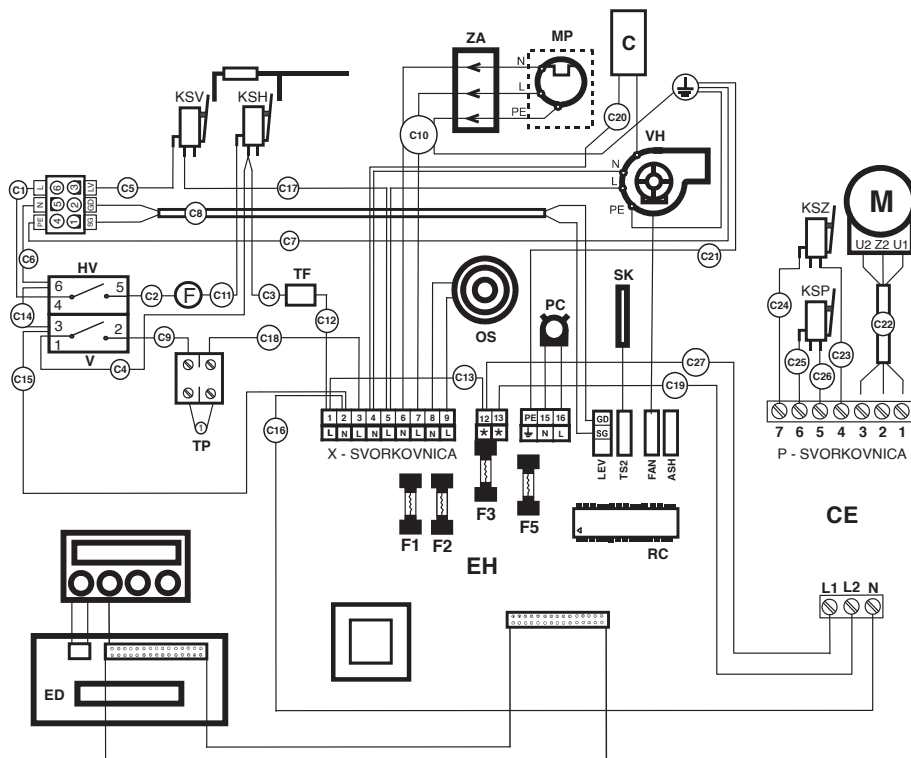
L – phase conductor
N – neutral wire
PE – earthing conductor
LV – fan's phase conductor
1 – black conductor
2 – blue conductor
3 – green-yellow conductor
4 – red conductor

KSV – end fan switch
KSH – main end switch
TF – thermal fuse
F – fuse
TP – the place for connecting of room thermostat
HV – main switch
V – switch of burner's operation
EH – electronics of burner
RC – control chip
PC – photocell
SK – sensor of boiler's temperature
OS – heating spiral
VH – fan of burner

C – capacitor
MP – engine of feeder
ZA – plug
ED – electronics of display
KSZ – back end switch (farther of combustion chamber)
KSP – front end switch (closer to combustion chamber)
M – engine of cleaning of burner's grate
LEV – connector for the communication PROFI PID
TS2 – the place for connecting of sensor of boiler's temperature
FAN – the place for connection of sensing of fan's turns
ASH – connection of cleaning electronics for 30kW burner
HP – heating circuit pump
AP – additional pump
AS – additional sensor
FS – flue gas temperature sensor
RT – room thermostat for PROFI PID
STB – emergency thermostat
BS – boiler's temperature sensor PROFI PID
STBs – capillary emergency thermostat
C1, C2 ... C27 – labelling of cables
VEN – exhaust fan
CE – cleaning electronics

13.2 ATTACK DPX 40, 45, 50 COMBI PELLET





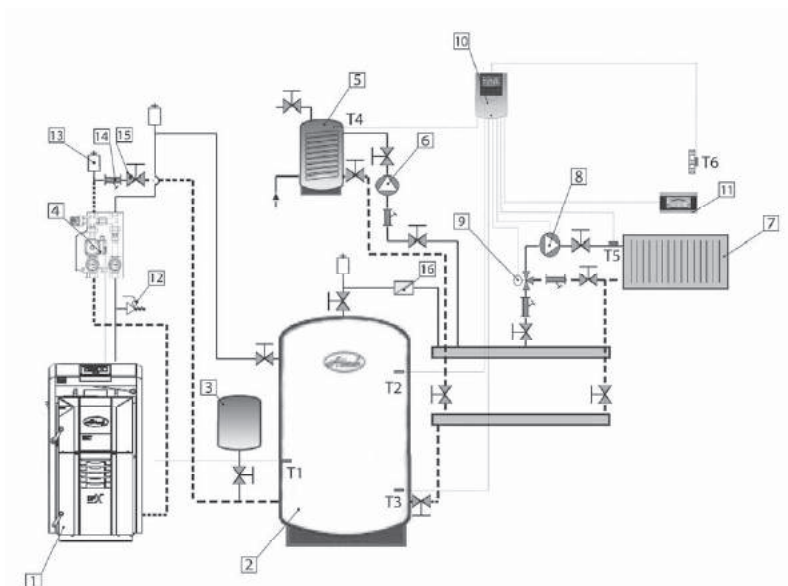
L – phase conductor
N – neutral wire
PE – earthing conductor
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KSV – end fan switch
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TF – thermal fuse
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V – switch of burner's operation
EH – electronics of burner
RC – control chip
PC – photocell
SK – sensor of boiler's temperature
OS – heating spiral
VH – fan of burner

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KSZ – back end switch (farther of combustion chamber)
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STB – emergency thermostat
BS – boiler's temperature sensor PROFI PID
STBs – capillary emergency thermostat
C1, C2 ... C27 – labelling of cables
VEN – exhaust fan
CE – cleaning electronics

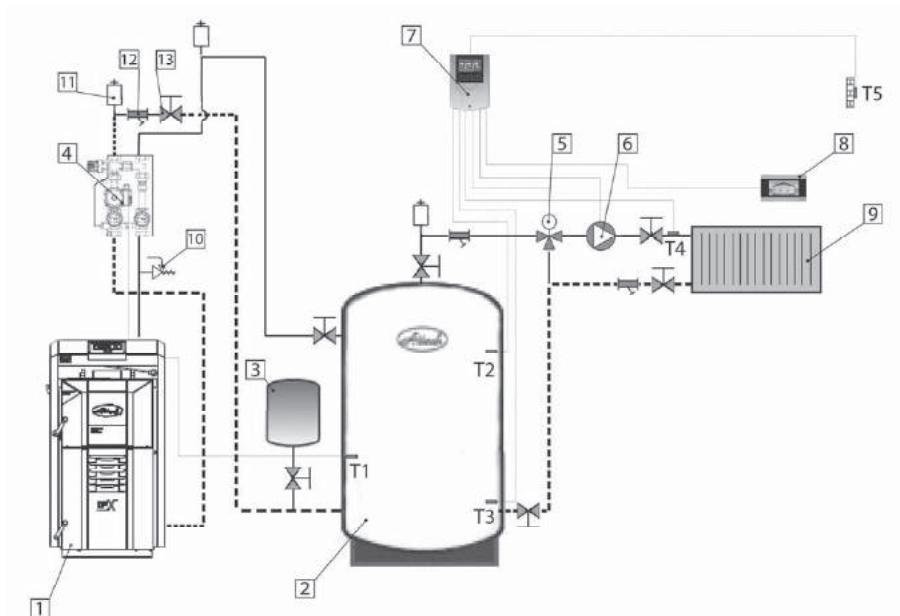
14 RECOMMENDED SCHEMES OF CONNECTION

14.1 CONNECTION OF THE BOILER WITH 1 HEATING CIRCUIT WITH DHW



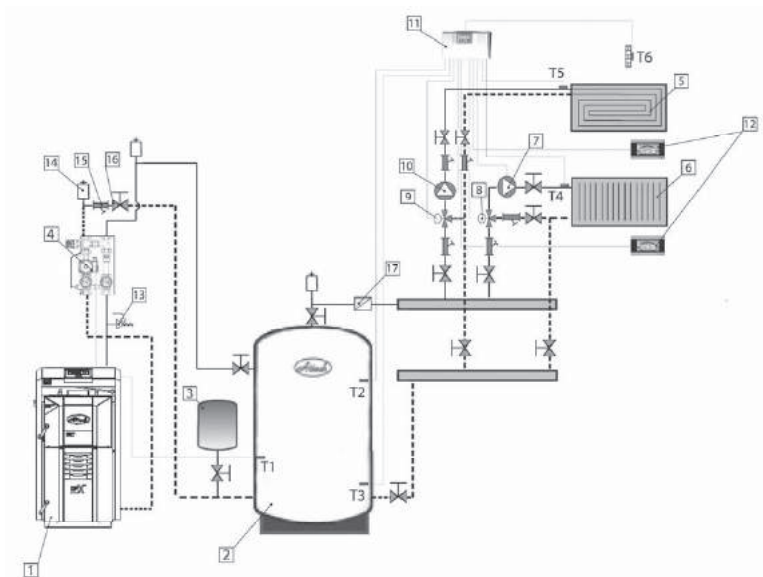
- 1 Wood gasifying boiler ATTACK DPX COMBI PELLET with regulation PROFI PID
- 2 Accumulation tank ATTACK
- 3 Expanse vessel
- 4 Mixing device ATTACK OVENTROP with pump class A
- 5 Tank for DHW
- 6 Pump of tank for DHW (WILO YONOS PARA RS25/6 130 mm, WILO YONOS PARA RS 25/6 RKC 180mm)
- 7 Set of radiators ATTACK K, VK
- 8 Pump of heating circuit of radiators (WILO YONOS PARA RS25/6 130 mm; WILO YONOS PARA RS25/6 RKC 180 mm)
- 9 Three-way mixing valve of radiators (DN20, KVS 2,5; DN20, KVS 4,0; DN20, KVS 6,3; DN20, KVS 10; DN32, KVS 16; DN40, KVS 25; DN50, KVS 40)
- 10 Regulator 1 mixing circuit TECH CS-431N
- 11 Room regulator (TECH CS-292 V3, CS-296 with RS communication, CS-282 with RS communication)
- 12 Safety valve
- 13 Deaeration valve
- 14 Filter
- 15 Ball tap
- 16 Return(backflow) valve
- T1 Boiler temperature sensor in accumulation tank
- T2,3 Additional temperature sensor in accumulation tank
- T4 Additional temperature sensor in DHW tank
- T5 Additional temperature sensor in radiators
- T6 Additional sensor of external temperature

14.2 CONNECTION OF THE BOILER WITH 1 HEATING CIRCUIT WITHOUT DHW



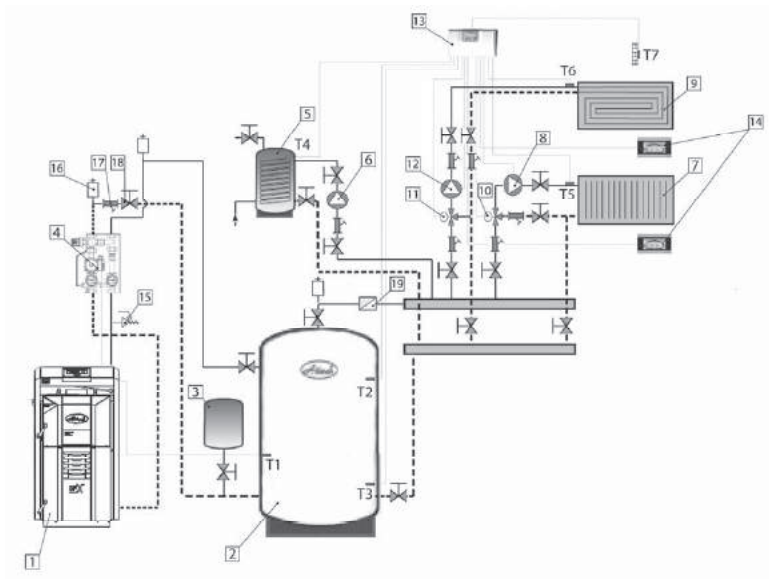
- 1 Wood gasifying boiler ATTACK DPX COMBI PELLET with regulation PROFI PID
- 2 Accumulation tank ATTACK
- 3 Expanse vessel
- 4 Mixing device ATTACK OVENTROP with pump class A
- 5 Three-way mixing valve of radiators (DN20, KVS 2,5; DN20, KVS 4,0; DN20, KVS 6,3; DN20, KVS 10; DN32, KVS 16; DN40, KVS 25; DN50, KVS 40)
- 6 Pump of heating circuit of radiators (WILO YONOS PARA RS25/6 130 mm; WILO YONOS PARA RS25/6 RKC 180 mm)
- 7 Regulator 1 mixing circuit TECH CS-431N
- 8 Room regulator (TECH CS-292 V3, CS-296 with RS communication, CS-282 with RS communication)
- 9 Set of radiators ATTACK K, VK
- 10 Safety valve
- 11 Deaeration valve
- 12 Filter
- 13 Ball tap
- T1 Boiler temperature sensor in accumulation tank
- T2,3 Additional temperature sensor in accumulation tank
- T4 Additional temperature sensor in radiators
- T5 Additional sensor of external temperature

14.3 CONNECTION OF THE BOILER WITH 2 HEATING CIRCUITS WITHOUT DHW



- 1 Wood gasifying boiler ATTACK DPX COMBI PELLET with regulation PROFI PID
- 2 Accumulation tank ATTACK
- 3 Expanse vessel
- 4 Mixing device ATTACK OVENTROP with pump class A
- 5 Floor heating system
- 6 Set of radiators ATTACK K, VK
- 7 Pump of heating circuit of radiators (WILO YONOS PARA RS25/6 130 mm; WILO YONOS PARA RS25/6 RKC 180 mm)
- 8 Three-way mixing valve of radiators (DN20, KVS 2,5; DN20, KVS 4,0; DN20, KVS 6,3; DN20, KVS 10; DN32, KVS 16; DN40, KVS 25; DN50, KVS 40)
- 9 Three-way mixing valve of the floor heating (DN20, KVS 2,5; DN20, KVS 4,0; DN20, KVS 6,8; DN25, KVS 10; DN32, KVS 16; DN40, KVS 25; DN50, KVS 40)
- 10 Pump of floor heating circuit (WILO YONOS PARA RS25/6 RKC 130 mm, WILO YONOS PARA RS25/6 RKC 180 mm)
- 11 Regulator of 2 heating circuits TECH CS-408N
- 12 Room regulator with RS communication TECH CS-282, CS-292 V3, CS-296 (always only 1 with RS communication)
- 13 Safety valve
- 14 Deaeration valve
- 15 Filter
- 16 Ball tap
- 17 Return(backflow) valve
- T1 Boiler temperature sensor in accumulation tank
- T2,3 Additional temperature sensor in accumulation tank
- T4 Additional temperature sensor in radiators
- T5 Additional temperature sensor in floor
- T6 Additional sensor of external temperature

14.4 CONNECTION OF THE BOILER WITH 2 HEATING CIRCUITS WITH DHW



- 1 Wood gasifying boiler ATTACK DPX COMBI PELLET with regulation PROFI PID
- 2 Accumulation tank ATTACK
- 3 Expanse vessel
- 4 Mixing device ATTACK OVENTROP with pump class A
- 5 Tank for DHW
- 6 Pump of tank for DHW (WILO YONOS PARA RS25/6 130 mm, WILO YONOS PARA RS 25/6 RKC 180mm)
- 7 Set of radiators ATTACK K, VK
- 8 Pump of heating circuit of radiators (WILO YONOS PARA RS25/6 130 mm; WILO YONOS PARA RS25/6 RKC 180 mm)
- 9 Floor heating system
- 10 Three-way mixing valve of radiators (DN20, KVS 2,5; DN20, KVS 4,0; DN20, KVS 6,3; DN20, KVS 10; DN32, KVS 16; DN40, KVS 25; DN50, KVS 40)
- 11 Mixing valve of floor
- 12 Pump of floor heating circuit (WILO YONOS PARA RS25/6 RKC 130 mm, WILO YONOS PARA RS25/6 RKC 180 mm)
- 13 Regulator of 2 heating circuits TECH CS-408N
- 14 Room regulator with RS communication TECH CS-282, CS-292 V3, CS-296 (always only 1 with RS communication)
- 15 Safety valve
- 16 Deaeration valve
- 17 Filter
- 18 Ball tap
- 19 Return(backflow) valve
- T1 Boiler temperature sensor in accumulation tank
- T2,3 Additional temperature sensor in accumulation tank
- T4 Additional temperature sensor in DHW tank
- T5 Additional temperature sensor in radiators
- T6 Additional temperature sensor in floor
- T7 Additional sensor of external temperature

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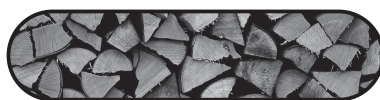
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3. DEVICES FOR CHIMNEY DRAUGHT MEASURING	6
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WOOD GASIFYING BOILER
ATTACK® SLX, DPX



USER MANUAL
for correct installation,
operation and cleaning



WWW.ATTACK.SK

Important! Read this manual properly before the boiler start-up!

1. INSTALLATION AND CHIMNEY PARAMETERS

By installation of chimney connection to boiler it is necessary to care about correct outlet of flue gas and eventual condensate, not to let it fall back into the boiler. For this purpose you can use the T-piece, see picture below. Exhaust connection comes into the chimney vent. If it is not possible to connect boiler to chimney vent directly, then the adequate extension of exhaust connection has to be as short as possible, and no longer than 1 m, without additional heating surface and it has to go up in direction to the chimney. Exhaust connections must not go through foreign dwelling or utility units. Internal cross-section of the exhaust connection must not taper in direction to the chimney. Try to minimize usage of elbows by installation. Chimney has to be constructed in conformity with the norms **STN 73 4201** and **STN 73 4210**.



Prescribed values of the correct height and cross-section chimney dimensions:

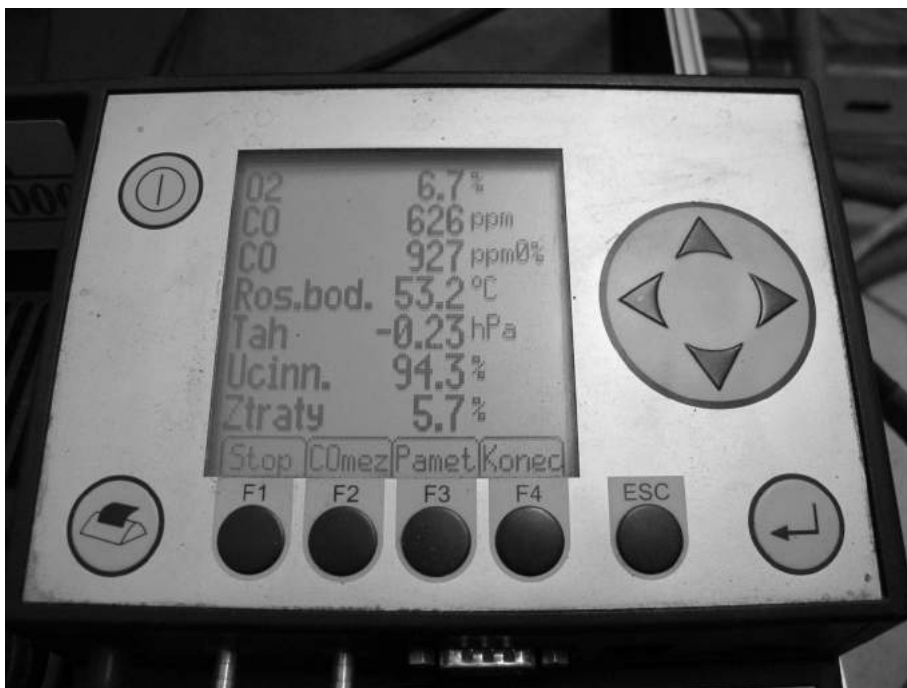
<i>DPX15, DPX25, DPX35, DPX45</i>	
<i>20×20 cm</i>	<i>min height 7 m</i>
<i>Ø 20 cm</i>	<i>min. height 8 m</i>
<i>15×15 cm</i>	<i>min height 11 m</i>
<i>Ø 16 cm</i>	<i>min height 12 m</i>

2. VERIFICATION OF THE CORRECT CHIMNEY PARAMETERS

Correct boiler function significantly depends on quality chimney with correct parameters. Minimum chimney diameter is 150 mm, however, 200 mm is recommended. Chimney has to be designed or regulated to achieve prescribed draught of 23–30 Pa at nominal boiler flue gas temperature value.



ATTENTION! Chimney which does not fulfil required parameters may cause limited boiler function (Low flue gas temperature, low output, excessive condensation of tubular exchanger, shorter life-time, even total boiler disfunction)! Guarantee does not relate to the boiler installed with the chimney of incorrect parameters.



3. DEVICES FOR CHIMNEY DRAUGHT MEASURING

It is possible to check correct chimney draught by some types of analysers or by exact differential pressure-gauge. On the picture there is draught reducer too, also useful for correct draught setting.



4. OPERATION PRESSURE IN HYDRAULIC CIRCUIT



Operation pressure must not exceed limit of 2,5 bar.

ATTENTION! Expanse vessel and safety valve must be installed in the system.



5. BOILER PROTECTION AGAINST EXCESSIVE CONDENSATION – ATTACK-OVENTROP

For correct boiler function and its long life-time it is necessary to keep return water temperature always higher than 65 °C. Set boiler thermostat to 80-85 °C, which is ideal boiler operation temperature. Boiler guarantee is valid only in case that the ATTACK-OVENTROP device was installed into the hydraulic system.



ATTENTION! If the ATTACK OVENTROP device is not installed, it may cause shorter boiler life-time.



6. CORRECT ASHTRAYS POSITION

Ashtray position is important for correct boiler operation. It is not necessary to take out the ashtray while cleaning, but it is important to check its correct position sometimes. Ashtray has to be completely shifted rearwards.



7. FUEL

Use suitable fuel for wood gasifying boiler operation – soft or hard wood logs. Wood moisture has to be in range of 12–20 % (related to time of min. 15 month of free storing at the fresh air). Alternatively it is possible to use wood briquets of cylindrical shape with opening in the middle.



ATTENTION! Wood with moisture exceeding 20 % shortens boiler life-time, causes lower output, excessive condensation in tubular boiler exchanger, which may require additional out-of-warranty service!

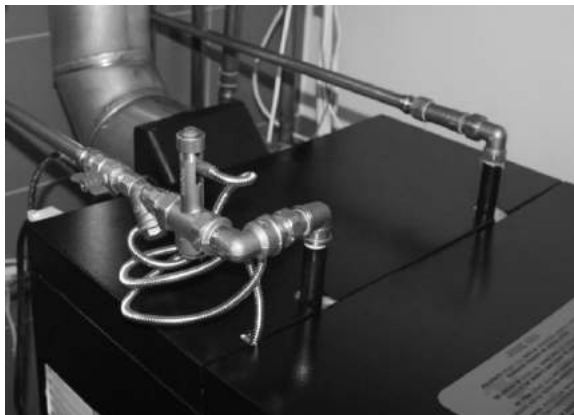


8. AFTERCOOLING CIRCUIT INSTALLATION

Boiler warranty is valid only in case, that functional thermostatic valve, connected to the cold water source, is installed in the boiler aftercooling circuit. If the cold water source depends on electricity (home water plant), whole device can be out of order in case of power failure. In this cases, use water tanks placed higher than boiler, connected to thermostatic valve. Tank volume has to be appropriate to the boiler output.

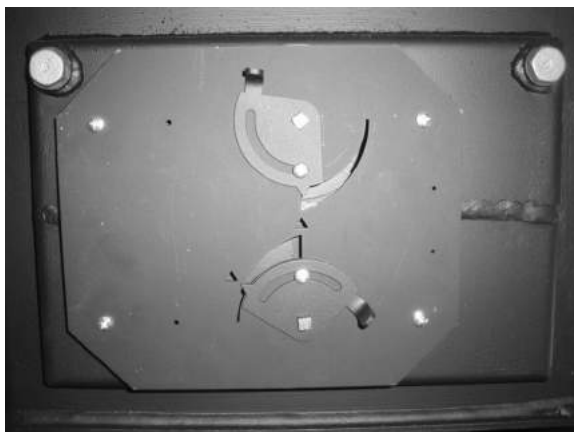


ATTENTION! If there is no aftercooling circuit on the boiler and it comes to boiler overheating, serious and non-recurring damage or even fire may occur.



9. CORRECT ADJUSTMENT OF AIR INLETS

Correct adjustment of primary and secondary air by STANDARD and PROFI boilers is marked on tin-plate and it is not necessary to manipulate with that. Correct setting of primary air (upper butterfly) is 100 %, secondary air (bottom butterfly) is set to 35 %. This relates to all outputs of DPX boilers (15, 25, 35, 45).



10. ASHTRAY CLEANING

Internal space of ashtray has to be cleaned from accumulated ash at least 1× a day. Cleaning with scoop is very effective and easy. Cleaning can be done very easily and fast also by full boiler operation.



ATTENTION! Hot ash from ashtray can still smoulder, therefore it is not supposed to be put into trash bin, however into appropriate tin-plate bin, not to cause the fire.





11. HOW TO CLEAN SPACE AROUND THE ASHTRAY

Space around the ashtray has to be cleaned regularly, at least 1× a week. Use suitable tool, fire hook delivered with boiler is ideal for this purpose. It is not necessary to take out the refractory pieces from the boiler's ashtray.



ATTENTION! Unsufficiently cleaned space around ashtray may cause limited boiler function.

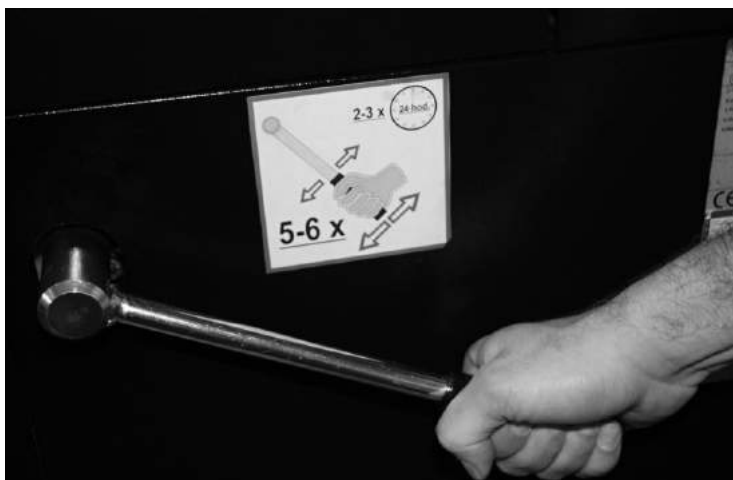


12. EXCHANGER PIPES CLEANING BY LEVER OF TURBULATORS

It is necessary to move lever of turbulators cleaning regularly, preferably by every boiler loading, at least 3 times a day. It is necessary to move it by full lever uplift, 5-6 times upwards and downwards.



ATTENTION! If it is not moved with the lever regularly, exchanger pipes may clog and therefore cause turbulators blockage, lower efficiency, decreased output and incorrect boiler function. In this case is boiler warranty not valid. If you cannot move the lever of turbulators, stop the boiler and call specialized service.

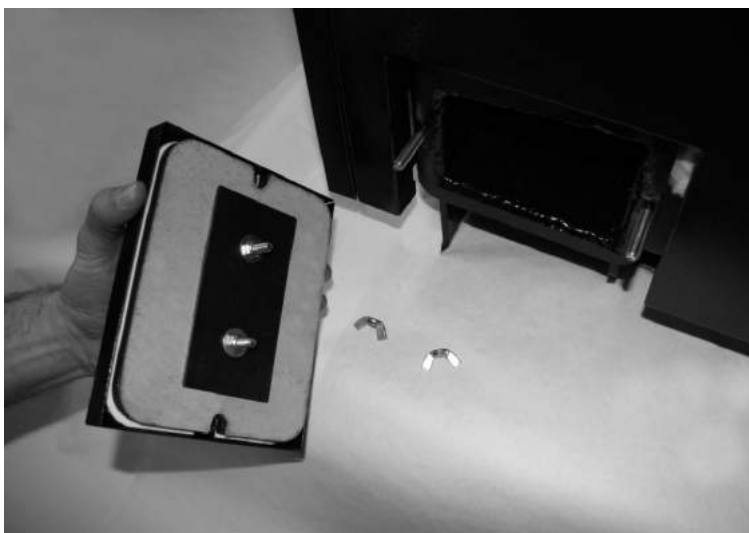


13. HOW TO CLEAN SPACE UNDER EXCHANGER

It is necessary to clean space under exchanger pipes in regular intervals. This interval depends on boiler operation time, but it has to be done at least 1× a week. Remove cover of the opening for cleaning carefully, not to damage the sealing. After cleaning of space under exchanger, install the cover – it has to be sufficiently screwed and air-proof.

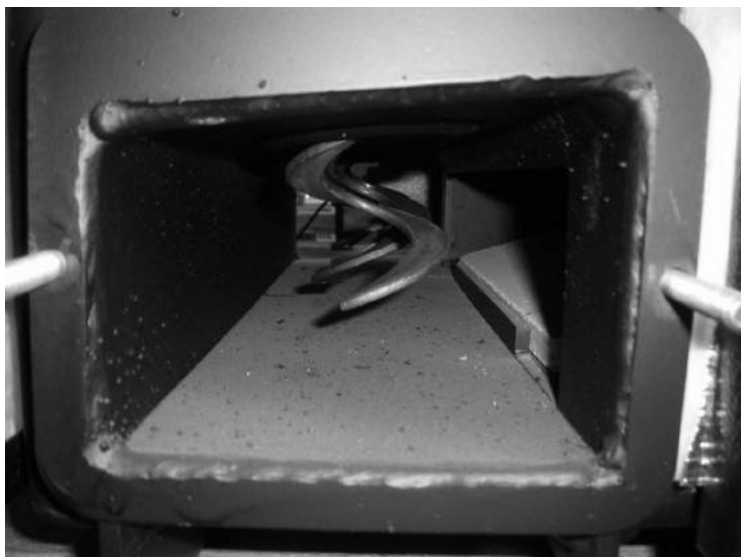


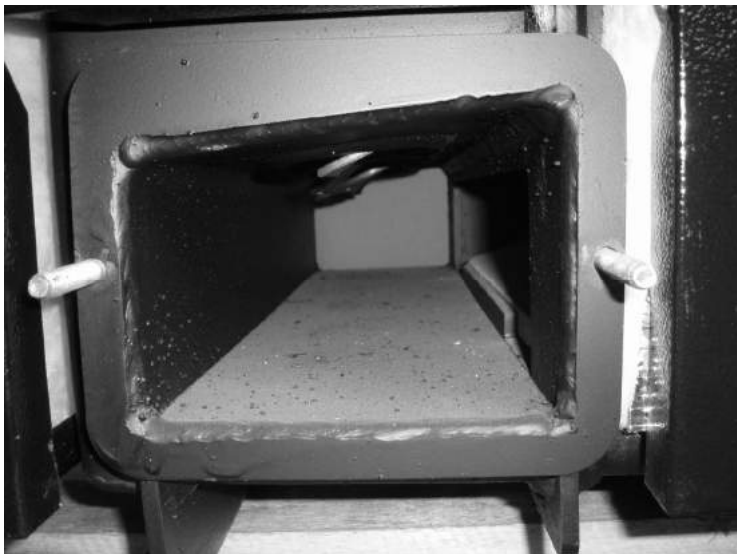
ATTENTION! Otherwise there may come to insufficient air circulation in the boiler and thereby to incorrect boiler function (ineffective combustion, decreased output, low flue gas temperature, etc.).



14. POSITION OF LEVER OF TURBULATORS BY CLEANING

To clean space under exchanger of the DPX 15, 25, 35 boilers, it is necessary to lift lever of turbulators fully up, turbulators go into the pipes and thereby there is free space for cleaning. By the DPX 45 boiler it is ideal to lift the lever into middle position.





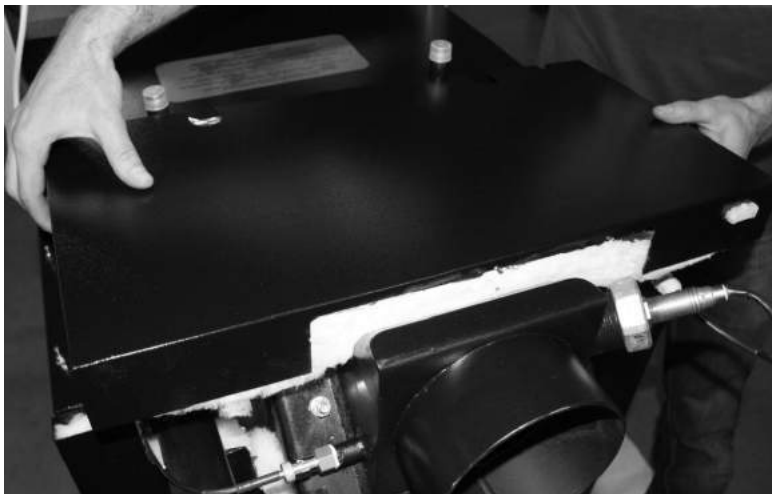
15. TOOLS FOR CLEANING OF SPACE UNDER EXCHANGER

To clean space under exchanger it is possible to use fire hook delivered with the boiler.



16. CONTROL OF TUBULAR EXCHANGER'S FUNCTIONALITY

Check regularly correct functionality of tubular exchanger – at least 1× a month. Firstly, remove rear upper cover.



17. ACCESS TO TUBULAR EXCHANGER

Release wing matrices.



18. EXCHANGER'S COVER REMOVAL

Check correct functionality fo turbulators, while the boiler is out of order. Remove the cover to get to the tubular exchanger.



ATTENTION! Cover must be sufficiently tighten and air-proof. Otherwise it may cause incorrect boiler function



19. CONTROL OF CORRECT FUNCTION OF THE HEAT-UP FLAP

For correct function of the heat-up flap it is necessary to check and clean bearing surfaces regularly.



20. TURBULATOR THREADS CLEANING



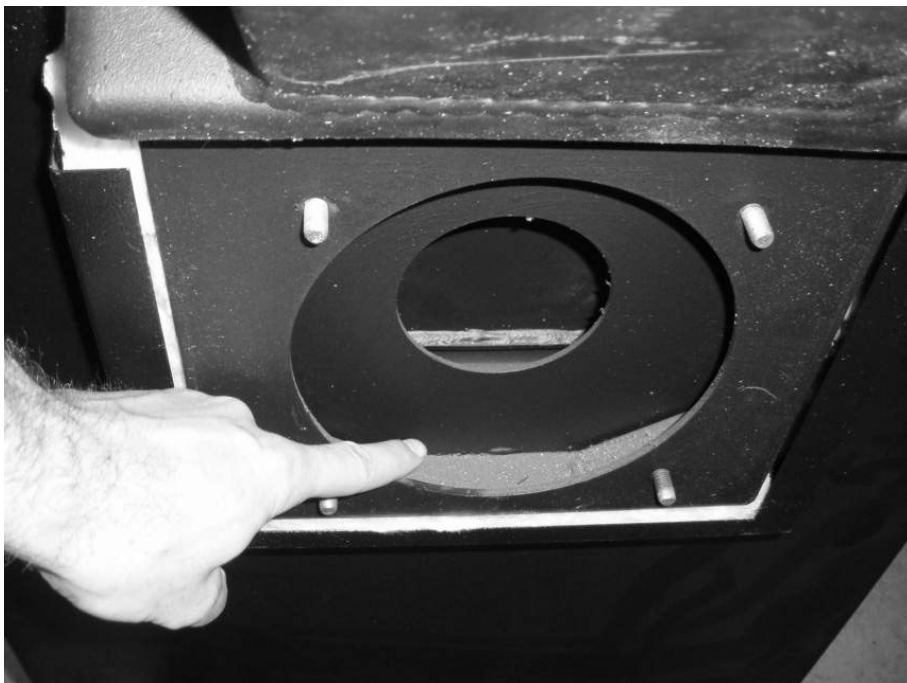
If the boiler was from any reason operated in incorrect way, it is possible, that the turbulators were clogged and thereby the flue gas transition was decreased. In this case it is necessary to demount turbulators and to clean the space between particular threads, for example by wire brush. Put the turbulators back into the pipes, not to decrease efficiency of the boiler. (This is not related to the 15 DPX model).

21. CLEANING OF THE VENTILATOR'S OPERATION AREA

Operation space of the ventilator's radial impeller has to be cleaned at least 1× a year. To do so, release matrices of the ventilator's flange and demount ventilator. Clean the operation area from soot and mud. By demounting, take care to tighten matrices of the ventilator's flange sufficiently.



ATTENTION! Demount ventilator, while boiler is out of order. Insufficiently cleaned ventilator's operation area may cause its limited function.

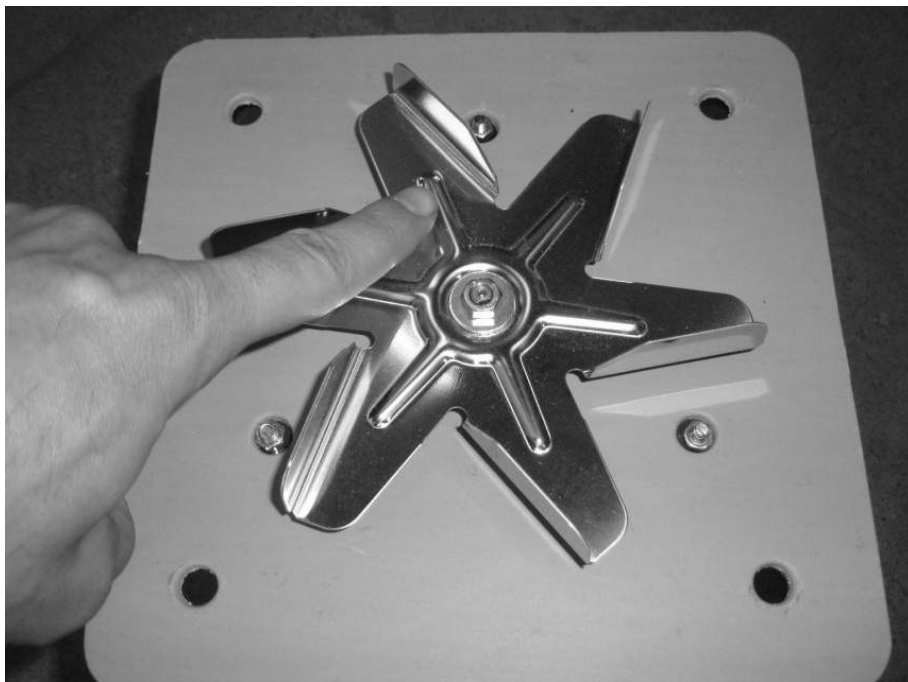


22. CLEANING OF RADIAL IMPELLER'S VANES

Vanes of ventilator have to be cleaned from dirt at least 1× a year by suitable tool (wire brush).



ATTENTION! Too dirty vanes of ventilator decrease its efficiency and thereby cause limited boiler function.



23 SUMMARY OVERVIEW OF REGULAR CLEANING OF PARTICULAR BOILER PARTS

Cleaning*	Point	Daily	Weekly	Annually
Ash removing	10	1×		
Space around ash tray	11		1×	
Space under exchanger	15		1×	
Lever of turbulators	12	5–6×		
Flap	19		1×	
Space of ventilator	21			1×
Radial impeller of ventilator	22			1×

* Minimal recommended cleaning intervals. According to intensity of heating they can be also shorter.

Information about processing of personal data

Dear Customer,

You provide us your personal information by completing and sending the Boiler start-up record and our company becomes your personal data manager in relation to you.

We hereby would like to inform you why and how we process your personal information, how we collect your personal information, for what purpose we handle it and the legal basis of such processing, how we handle personal data and what your rights are in relation to processing your personal data.

Please read the following information carefully before providing us your personal details.

In case of any questions related to the processing of your personal data, please do not hesitate to contact us at tel. no. +421 43 400 3103 or gdpr@attack.sk.

Privacy Manager:

ATTACK, s. r. o., with its registered office at Dielenská Kružná 5020, 038 61 Vrútky,

Slovak Republic

Tel.: +421 43 4003 103

E-mail: exporten@attack.sk

Web: <https://www.attack.sk>

Processing of personal data

We will only process the personal information you provide to us in the Boiler start-up record, i.e.:

- Name
- Surname
- Address
- Phone
- Type and serial number of the product

Purpose and legal basis for the processing of your personal data

We will process your personal data for the following purposes and on the basis of the following legal bases.

- 1) For the purposes of direct marketing, which is a legitimate interest of our company. The legal basis here is Art. Article 6 1. Letter. (f) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

The processing based on our legitimate interest, i.e. direct marketing, is following:

Your personal data will be stored in our electronic database which is managed directly and only by us. This electronic database is stored and secured on the property of our company. Your personal data will be used by our legitimate interest only in order to be able to send you an offer of our new products, especially in the event of the end of the expected life of product which you enter your personal data in the Boiler start-up record in if our company develops a newer and more technologically superior and better product that could replace the product in which you enter your personal data into the in the Boiler start-up record.

Direct marketing is our legitimate interest and the one of two purposes of processing of

- your personal data, i. e. direct offer of our products sent to you.
- 2) The legal basis for fulfilling the extended warranty agreement on the product in which you enter the Boiler Startup Record where your personal data is Art. Article 6 1. Letter. (f) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

This processing that is required to meet the extended warranty agreement for a product you are one of the parties will be following:

Our company provides you with an extended contractual warranty (beyond the statutory warranty) in such situation that you comply with the warranty conditions (see the warranty conditions in the Instruction for use, in which there is the Boiler start-up record with your personal data). In order to provide you with this extended contractual warranty we need to know who is the other party and whether you are performing your obligations under this agreement especially the mandatory annual service inspections. Therefore we need you to send us a record of this inspection after each annual inspection (max. 5 inspections) and we will declare in our database that you fulfill the terms of the contractual guarantee.

Since each contract has at least two contracting parties we need your personal data to identify you as a party and identify a specific product for the purposes of fulfilling the extended warranty agreement. We would not be able to fulfill our obligations under the extended warranty agreement properly without these data.

Our legitimate interest and one of the two purposes of processing your personal data is therefore the fulfillment of the contract, that is, the fulfillment of the contract for extension of the contractual guarantee.

Processing of personal data for both purposes is done manually and also in electronic information systems. However these systems are subject to rigorous and constant physical and technical control. All persons who, on the basis of our instructions and our credentials, come in contact with personal data in the framework of their work or contractual obligations are bound by confidentiality.

Category of recipients of personal data

We process your personal data primarily by ourselves. However it may happen that we will have to use the services of another entity to process personal data for any of the above mentioned purposes. In this case the relationship between us and the third party will be the relationship between the administrator and the processor and we will make an agreement with this processor about the processing of the personal data in order to guarantee the security and legality of processing your personal data.

Your personal data may therefore be sold to the recipient of the following categories:

- a) A company that distributes our products in the territory of a member state of the European Union in which you have purchased a product which you enter your personal data in the Boiler start-up record in or in which such a product is put into service on your request
- b) A company providing bulk mailing services

The length of time the personal data will be stored

We will process your personal data for at least the duration of the contractual warranty (i.e. for 5 years) for the purposes of fulfilling the warranty agreement and at most for the time of assumed lifetime of the products for which the Boiler start-up record for the purposes of direct marketing.

Raising objections to processing of personal data

Whenever you have the right to object to our processing of your data for direct marketing purposes (see Purpose and legal basis for processing your personal data, item 1) above). If you have an objection to our processing of your direct marketing data, by the date of your objection will cease our processing your personal data for direct marketing purposes.

The objection to the processing of your personal data for direct marketing purposes can be sent to us by post to:

ATTACK, s. r. o., Dielenská Kružná 5020, 038 61 Vrútky, Slovak Republic. In the objection, it is sufficient to provide the name, address and the text "I hereby raise an objection to the processing of my personal data for the purposes of direct marketing" and your signature. We always inform you about the accepting your request without delay.

Please note that the right to object can not be invoked against our processing of your personal data necessary for the purpose of fulfilling the extended warranty agreement.

Your other rights related to the processing of personal data

Please note that you also have the following rights in relation to our processing of your personal information:

- to ask for information about what personal data is processed by us,
- to request access to these data and let them update or fix,
- to require the deletion of these personal data, or the limitation of their processing,
- to raise objection to the processing of your personal data,
- the right to the portability of your personal data,
- in case of doubt regarding compliance with the obligations related to the processing of your personal data, contact the Administrator or the Office for Personal Data Protection.

You may enforce these rights to our company by the same procedure as the right to raise objections to the processing of personal data.



HEAT TECHNOLOGY MANUFACTURER

ATTACK, s.r.o. • Dielenská Kružná 5020, 038 61 Vrútky • Slovakia

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