

List of repairs under the warranty

Repair notification date	Date of repair	Details of repair	Signature and stamp of service man

Notes:

.....

.....

.....

Client's data:

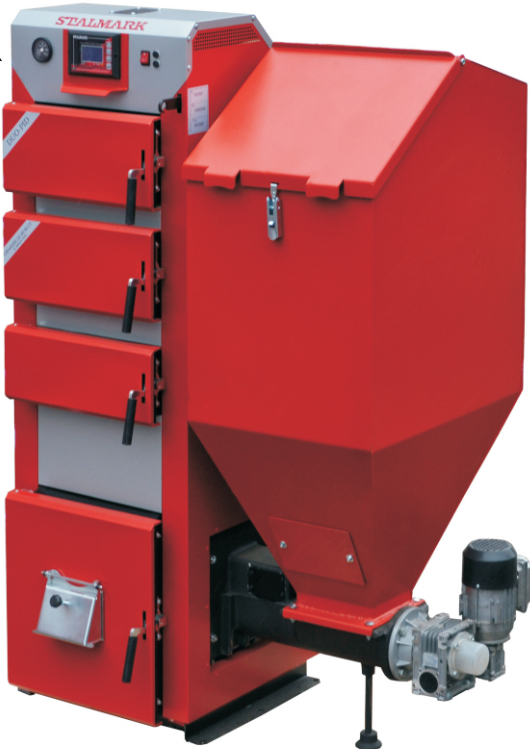
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OPERATION AND MAINTENANCE
DOCUMENTATION

with a warranty card

FOR BOILER
TYPE
„DUO-PID”

P.P.H.U. STALMARK
OŚWIĘCIM
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TECHNICAL DOCUMENTATION OF THE BOILER OF "DUO PID" TYPE

Operation of Duo-Pid boiler with mechanical fuel feeding - output 16-36 kW

DECLARATION OF CONFORMITY No. 2/2011

I, the undersigned, representing the manufacturer:

**PPHU Stalmark
ul.Chemików 1, 32-600 Oświęcim**

declare with full liability that our

**"DUO-PID" SOLID FUEL FIRED BOILERS,
parameters: 230V, 50Hz, class I, 16kW-36kW**

are manufactured in conformity with the provisions of the following regulations

-Directive 2006/42/EC (Journal of Laws, No. 199/2008, item 1228) MAD Machinery Directive
-Directive 2006/95/EC (Journal of Laws No. 155/2007, item 1089) LVD Low Voltage Directive
-Directive 97/23/EC (Journal of Laws, No. 263/2005, item 2200) PED Pressure Equipment Directive
-Directive 2004/108/EC (Journal of Laws, No. 82/2007, item 556) EMC Electromagnetic compatibility
-Directive 89/106/EC (Journal of Laws, No. 92/2004, item 881) CPD Construction Products Directive

STANDARDS:
PN-EN 60204-1:2001
PN-EN 303-5:2002
PN-EN 12809:2002+A1:2006
PN-EN 60335-2-102:2006

It is confirmed by the C€ mark placed on the equipment

Owner: Marek Kuźma

Last two digits of the year when the CE marking
was placed: 05

place and date of issue: Oświęcim, 1 February 2011

Warranty Card

- 1.Manufacturer grants the warranty for the heating boiler type Duo-Pid from the date of sale for the period of:
 - 48 months for water tightness of the exchanger, however no longer than 54 months from the production date
 - 24 months for electric and mechanical devices i.e. feeder, gear motor, controller, motor, chute, however no longer than 30 months from the production date
 - 12 months for flue gas temperature sensor and the furnace door protection
- 2.Manufacturer provides the repair free of charge within 14 days from the date to notify the defect due to defective parts or workmanship and is not responsible for the break in heating and losses suffered due to the boiler breakdown.
- 3.Repairs by unauthorized persons will cause loss of warranty.
- 4.Any damages or breakdowns due to:
 - improper storage, installation in a humid boiler room, lack of ventilation and preservation with anticorrosion agents
 - failure to clean the boiler acc. to manual
 - exceeding the maximum temperature 95 and the boiler operation below the minimum temperature 55
 - improper transportation, mechanical damage
 - lightning and lack of earthing in the electric system
 - other reasons not caused by the manufacturer's fault may be repaired at user's cost
5. The warranty does not cover:
 - Varnish coated surfaces, hinges, sealing rope, ash pan box.
- 6.The warranty card without date of sale, a stamp, seller's signature is invalid.
- 7.In case a complaint is found to be unjustified, the cost of repair and arrival of personnel is covered by the claimant.
- 8.The warranty covers the boilers sold and installed on the area of Poland.
- 9.Service will be provided only against a copy of the card and purchase proof sent earlier.

boiler output.....year of productions.....factory no.....

.....
signature and stamp of manufacturer

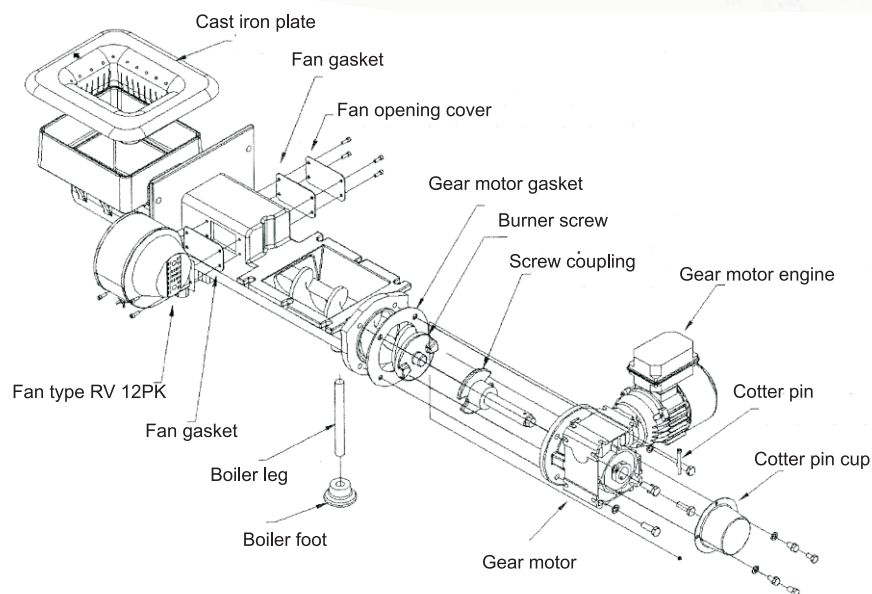
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signature and stamp of QC inspector

.....
signature and stamp of seller

.....
date of sale

21. PHOTOS

Cast-iron feeder



Additional furnace



Dear Purchaser of DUO-PID heating boiler, we congratulate you on your purchase! It is a perfect choice!

DUO-PID boiler has the ability to adapt to your variable needs. It gives possibility to use two furnaces: the latest generation cast-iron retort burner or a traditional furnace with the fixed water grate. This device has been equipped with innovative design solution and technologies, which reduce fuel consumption, thus reducing emission of harmful substances. The standard accessories of the boiler include PID algorithm and the flue gas temperature sensor, which provide comfort and savings up to 25%. It controls the feeder, air supply and 4 pumps. In addition, the device may cooperate with one valve.

NOTE!

Before installation and operation of the boiler, the user should:

- check if the boiler has not been damaged during transport
- read this operation and maintenance documentation
- check of the boiler instrumentation supplied is complete
- check the correctness of boiler connection to the central heating system and the chimney

Delivery

The boiler is supplied as assembled. To facilitate moving the boiler to the place of destination, you can dismount the fuel bin and the screw feeder. During re-installation they shall be sealed again with the silicone resistant to high temperature (min. 300°C) and screwed. Incorrect sealing may cause disturbances in the boiler operation. The manufacturer is not responsible for any disturbances caused by incorrect assembly of the boiler parts. Such defects will be repaired for a fee.

Transportation

The boiler can be transported only in a vertical position. It is not allowed to attach ropes, chains, etc. to the boiler elements. The boiler shall be fastened with tension straps at the upper frame of the door and at the top of the fuel bin. The stove is attached to the transport pallet. Prior to the boiler alignment and connection to the central heating system and the chimney flue, it shall be checked if all sub-assemblies are operational and the boiler has full equipment for operation and cleaning.

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20. Troubleshooting

Failures and problems	Reason	Repair
Alarm: Temperature too high	-too short interval of the feeder (when PID function is off) -air in the heating system -too frequent support -too low boiler load -ash pan overfilled	-increase feeder interval -check water fill in the system and remove air -increase the support time -increase heat collection -empty ash pan
Alarm: Temperature does not rise	-no fuel in the bin -wet fuel -too long interval in feeding (when PID function is off) -flue gas ducts dirty -no supply of fresh air to boiler room	-make up fuel in the bin -use dry fuel -shorten the break in feeding -clean flue gas ducts -install supply of fresh air
Alarm: Clean the feeder	-gear motor protection broken -motor capacitor damaged -gear motor damaged	-replace the bolt in shaft (M5x50, class 8.8) -replace capacitor -contact the service
No water in the boiler and system	-system leakage	-remove glow from the boiler and switch the stove off
Soot in chimney started burning	-no maintenance and inspection by chimney sweep company	-call fire brigade
Unburned fuel in ash pan	-too short interval of feeder (without PID function) -wet fuel -poor quality of fuel	-increase feeder interval -use dry fuel -take the rotary out and clean -use other fuel -increase the fan rate -increase the feeder rate
Controller does not display anything	-no power supply -controller protection failure	-replace a fuse (6.3 A), and if the failure repeats inform the service
Smoke from door	-boiler is dirty or chimney draft is too small -sealing rope is burned out	-clean the boiler and chimney flues -replace the rope (not covered under the warranty) -check pressure regulation
Fans operation too loud	-driving rotor is dirty -fan bearing failure or wear	-dismount the fan and clean the rotor -notify the service
No fuel transport	-damaged motor or motor capacitor -no fuel in the bin -wet fuel -gear motor protection broken -damaged gear	-notify the service -make up the fuel -use dry fuel -replace the bolt in shaft (M5x5, class 8.8) -notify the service

In case of all breakdowns, where there are difficulties with their repair, notify the manufacturer or the fitter who installed the boiler.

NOTE!

As the ash pan box is located inside the boiler, it may be hot - there is a risk of burning. Proceed with due care. Ash pan can be touched and taken out only with heat resistant gloves on.

Boiler cleaning may be carried out after the glow burns out and the controller is disconnected from the power supply. Further, proper air flow shall be provided in the boiler room. Flue gas ducts cleaning shall be carried out regularly, depending on their fouling condition (ca. every 3 days).

Chimney cleaning shall be carried out at least once per 3 months, by an authorized person. In case the chimney flue is blocked, please contact chimney sweeping service provider.

16. Longer outages of boiler

Before a longer outage of the boiler (longer than one week, e.g. in summer season), residues of fuel and ash shall be removed and the boiler carefully cleaned with a scraper (including residues in the furnace and flue gas ducts). Also good air supply shall be assured (to vent the boiler) and protect it against moisture deposition - leave the door to the ash pan open. Taking the boiler out of operation for a longer period is made by disconnecting the controller from the mains. Before the boiler is out of use for a longer period, e.g. for a week, the feeding bin shall be emptied. Next clean the furnace from glow. Glow should be raked manually with a hoe to the ash pan. The bin shall not be emptied through the feeder, as during the long operation the feeder motor may burn. Manufacturer shall not be liable for this type of breakdowns.

17. Maintenance

Maintenance of the boiler shall be carried out at outages longer than 1 week.

1. Empty the feeding bin and feeder of fuel.
2. Clean carefully the exchanger and the furnace by means of the scraper.
3. Start the feeder once a week for min. 5 minutes.

18. Procedure in case of soot fire in the flue duct

In case the soot in flue duct catches fire immediately notify the fire brigade. Persons staying in heated rooms of the building shall be warned and prepare for immediate evacuation. All air supply to the stove shall be plugged. While waiting for the fire brigade, please observe (if possible) if the fire did not spread to flammable objects from glow, sparks or overheated chimney pipe.

19. Breakdowns in boiler operation

In case of failure (breakdown) the Alarm signal will be displayed with a message of the reason of the breakdown. The alarm shall be read out and then switch the boiler controller off (EXCEPTION - TEMPERATURE TOO HIGH). All doors shall remain closed. All types of alarms and their troubleshooting are described in the manual. In case of problems with the boiler or the controller not included in the manual, please contact the service.

A) General information, assembly/installation, first start-up

1. Introduction

This operating manual includes information essential for a professional and user on the assembly/installation, operation and maintenance of solid fuel fired boiler type "Duo-Pid". It is the modern heating boiler with the retort furnace with the screw feeder and the additional water grate, used to heat the rooms and utility water.

2. Safety principles during operation of the central heating boiler

All works related to the use of the boiler during its operation (it also includes cleaning and maintenance) shall be carried out in a suitable protection clothing and gloves. These activities may be carried out only by authorized and adult persons, who are familiar with the boiler operating instructions. Basic principles during operation of the boiler shall be observed:

- do not open stove doors during operation
- avoid complete emptying of the fuel bin and always close its cover tightly.

3. Fuels

Duo-Pid is designed to fire hard coal. At the retort grate we can fire the following type of fuel: pea coal (particle size 10-35 mm, moisture below 9%, ash content max. 10%, volatiles content 28-40%). Particle undersize may be 5%. On the traditional grate we can fire hard coal of cube type, and wood (seasoned for min. 2 years), as well as wooden materials. It is forbidden to incinerate waste, rubbish, plastic materials, etc. in Duo-Pid boiler.

NOTE!

Duo-Pid boiler is not designed to incinerate waste or rubbish. The boiler cannot incinerate fuels which are not allowed.

NOTE!

Fuel poured into the feeder should be dry

NOTE!

A safe distance of the boiler from flammable material shall be kept. In the room where the boiler is installed it is forbidden to store flammable materials

4. Boiler design

The boiler was designed based on state-of-the-art technical achievements. Coal combustion takes place on the retort grate or the fixed water grate.

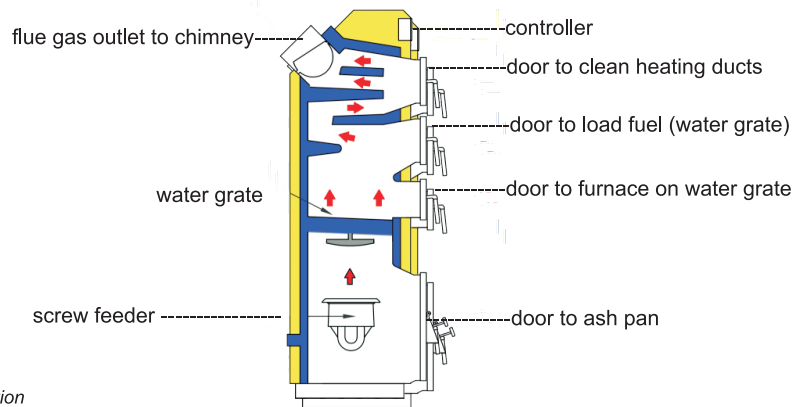


Fig. 1 Boiler cross-section

5. Boiler parts

Body

Duo-Pid as the bent and welded structure has the water body made of certified boiler sheet 6 mm thick. The structure is designed in a manner, to eliminate a number of welded joints by bending the sheet. Between the boiler casing and the exchanger there is insulation material - mineral wool.

Furnace:

Combustion proceeds through automatic movement of fuel on the screw feeder to the cast-iron retort burner. Combustion is supported with the forced air draught. The boiler has a cast-iron deflector located just above the burner. Its surface allows for burnout of combustible gases and evenly distributes flue gas to the heat exchanger. Produced ash is moved to the burner edges and then it falls into the ash pan. Fuel is taken automatically thanks to the controller installed at the boiler.

NOTE! The furnace chamber shall be always closed except for periods of firing up and filling and removal of furnace waste.

Flue and damper

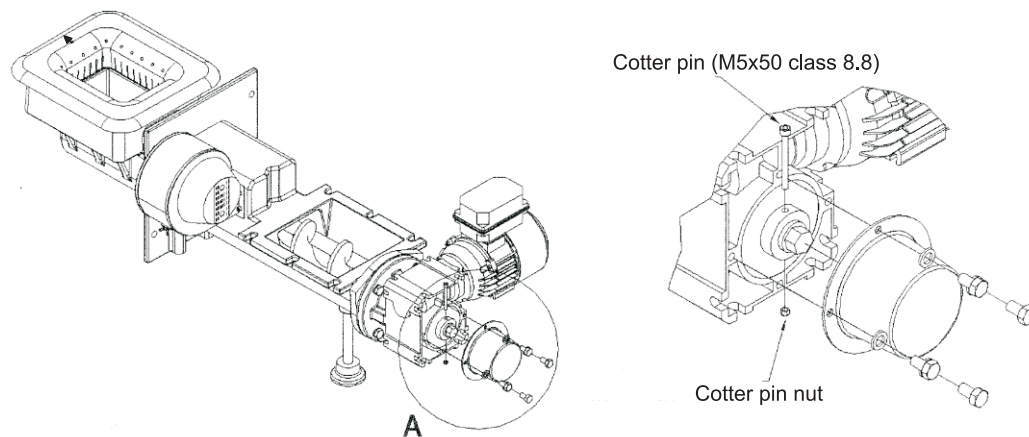
The flue is placed at an angle of 45 degrees - it allows for easy removal of flue gas, and the damper controls its flow, in case of too large chimney draught. During normal operation in the automatic mode, the damper should be open. **In case of combustion on the manual grate, a screw securing the flap shall be unscrewed. When the manual combustion is finished, the flap shall be raised and the screw shall be screwed in again. The red screw is located on the air supply fan casing.**

14. Protections

14.1 Alarms

Electronic controller controls the operation. In the following cases it cuts off the supply and displays the following messages on the screen:

- temperature does not rise. In case of "temperature does not rise" alarm, it is also necessary to monitor the screw protection. In case the protection is broken it shall be replaced.



14.2 Limiter of temperature fuse

When the temperature exceeds 85°C, the temperature limiter stops the feeder and air supply, and starts central heating and hot water pumps. The controller display shows the alarm "temperature too high" and activates sound signal. At that time the power supply of the controller shall not be off, because pumps will stop running and the temperature will start to rise again. When the temperature drops to ca. 40°C, the controller is started again.

NOTE! Before the stove is started again, the problem has to be found and repaired. In case this situation repeats, it is necessary to contact the service.

15. Fuel make-up - cleaning

The feeding bin shall be filled every 1-3 days, depending on fuel consumption. Fuel level in the bin shall be checked at least every 12 hrs. Minimum level of fuel in the feeder is ca. 30% of the feeding bin volume. Please always remember to close the bin tightly after its filling. Before opening of the damper to fill the bin, please check if the fan and the feeder are stopped. Then after re-fill close the damper tightly. When the ash pan is full it shall be taken out and emptied.

10. Firing up for the furnace with automatic feeder

NOTE! All works at the boiler shall be performed in heat/flame resistant gloves. Proceed with due care.

1. Fill the bin with fuel
2. Open ash pan door
3. Activate controller
4. Start the feeder in manual operation, as long as the fuel fills the retort up to the top
5. Put paper, wood on the retort and light up
6. Start air supply in manual
7. When pieces of wood are burning, add a small amount of basic fuel and close the door
8. After firing up of the basic fuel, switch into automatic mode

11. Firing-up for the furnace on the water grate

NOTE!

Unscrew a bolt on the fan so that the damper may close:

1. Go to Fitter's menu on the controller, turn off the feeder in automatic mode so that the fuel cannot be added
 2. Fire up in the furnace with wood
 3. Put a small amount of basic fuel
 4. Turn the controller and air supply on
 5. Add desired amount of fuel to the furnace
 6. During start-up, it is recommended to fire at preset temperature of 60°C
- After the completion of firing on water grate, lift the fan damper and secure it with a bolt.

12. Boiler operation in special conditions

At adverse conditions for the chimney draft or unfavourable weather conditions it shall be checked whether the chimney is not blocked. If any other equipment is not connected to it. If the chimney cross-section and height are correct. Proper ventilation conditions in the boiler room shall be assured. In case a longer outage of the stove is planned in the winter season, when temperature drops below 0°C, all water present in the central heating system and the stove shall be drained. Otherwise water in the system will freeze and this may cause leakage or burst of pipes, stove, radiators, for which manufacturer does not take any responsibility.

13. Support

When the boiler reaches a preset temperature, the fan stops. "Support" function in the controller causes that after a longer break of fan and feeder operation, embers do not die out. After a preset "support interval" the fan is automatically started and operates according to setting, even if the preset temperature is reached. (Too frequent setting of this function may cause excessive temperature rise).

Fuel bin

The fuel bin contains fuel necessary for automatic operation of the boiler. The filling state shall be controlled every 24 hours. Avoid complete emptying of the bin, as it may cause flame going back to the bin and damage of the feeding screw. Minimum level of fuel in the feeder is ca. 30% of the feeding bin volume.

Screw feeder

The cast-iron feeder takes the fuel through the opening in the bottom part of the bin and transports the fuel to the furnace where combustion takes place on a cast-iron retort.

Water grate

The water grate allows combustion of various types of fuels in pieces larger than 4 cm. The water grate allows for the boiler operation in case of the power supply loss, provided that the central heating system is made correctly.

Ash pan It is located in the boiler lower part. Collected ash is taken out through the ash pan door (see Fig. 1).

NOTE!

During manual firing the bin must be empty!

NOTE!

The ash pan door shall be always closed. It may be open for removal of waste after combustion process.

6. Controller

Temperature controller/regulator is designed for central heating boilers. It is a device which allows for the control of the feeder operation, air supply, as well as central heating pump, hot water pump, floor pump and circulation pump. The controller automatically takes the amount of fuel and air based on the temperature of the boiler and flue gas. Each controller shall be set individually to user's own needs, depending on the type of fuel used, and the output of the boiler (controller operating manual and O&M manual of the boiler). STALMARK company shall not be liable or bear any costs for improper setting of the controller by the client. In case of problems please contact a service person of the company or a fitter.

7. Technical Data

Technical data of boilers type DUO-PID

Boiler type	J.m.	DUO-PID 11 MINI	DUO-PID 16	DUO-PID 21	DUO-PID 26	DUO-PID 31
Rated output	kW	11	16	21	26	31
Output (power) range	kW	4-11	5-16	7-21	9-26	10-31
Heating surface	m ²	1,3	1,9	2,4	2,9	3,4
Heated room surface	m ²	do 130	do 170	do 210	do 250	do 300
Max. work pressure allowed	MPa	0,15				
Required flue gas draft (pass)	Pa	22	25	25	29	29
Furnace dimensions* W x D x H*	mm	350/340/235	350/340/270	400/340/270	400/390/270	450/440/270
Dimensions of loading opening (WxH)*	mm	350 x 168	350 x 168	400 x 168	400 x 168	400 x 168
Single fuel load	l	160	250	250	270	270
Furnace capacity	l	27	30	36	42	52
Water temp. on supply [min/max.]	°C	55/90				
Boiler weight	kg	360	420	450	473	500
Boiler water capacity	l	35	65	72	80	88
Min. chimney height	m	6	6	6	7	7
Boiler efficiency	%	do 90,3				
Flue dimensions	ø/mm	ø180	ø180	ø180	ø180	ø180
Supply and return diameter	in	6/4"				
Electric power supply	V/Hz	230/50				
Power consumption by controller	W	11				
Power consumption by fan	W	80				
Motor power consumption	W	90				

Table 1 Technical specification of Duo-Boss boilers

Parameters specified above are approximate values and may be slightly changed due to technological modifications.

8. Heating system - boiler installation

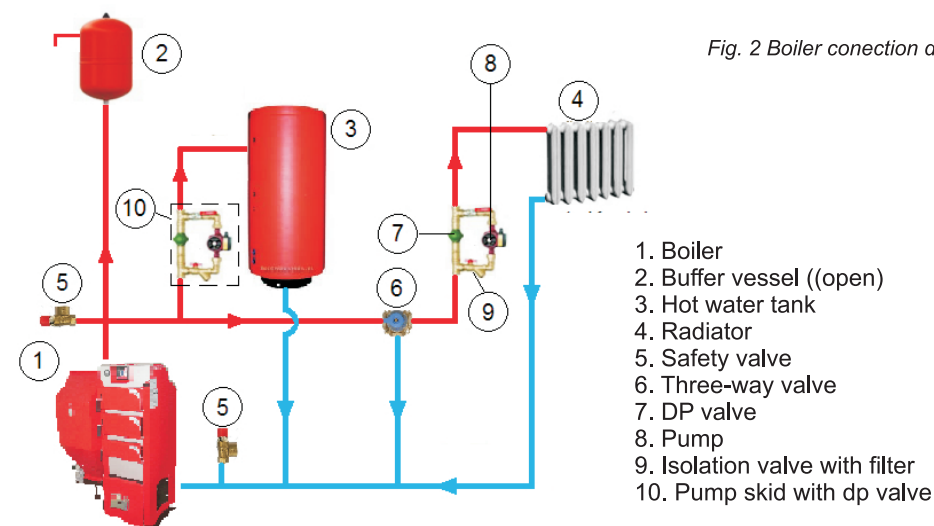
The boiler may be installed by persons with suitable qualifications, who became familiar with the boiler O&M manual. User's obligation is to assure that the boiler installation is performed in compliance with applicable regulations. A company which installs the boiler should issue a guarantee for executed works. The client shall have a declaration of the chimney sweeper on the passage and draft of the chimney flue to which the boiler will be connected. Duo-Pid stove can be mounted in the open system (Fig. 2), i.e. with the buffer vessel, or in a closed system providing that a device to remove excess heat is installed. Manufacturer recommends installation of the following in the system:

- three-way valve
- thermostat valves at radiator

Installation of these valves is necessary, as the min. temperature at the controller is 45°C and it could be too hot in the building. These valves allow for the reduction of the temperature in the rooms.

Manufacturer requires installation of a safety valve at supply and return (of max. work pressure 1.5 bar) upstream of any other valves.

The maintenance space around the boiler should be min. 40 cm, and from the feeder side min. 1 meter. The stove should be levelled and aligned, and placed in a manner so that connection between the flue gas flange and the chimney flue is as short as possible, safe and convenient during boiler operation and maintenance. Flue gas discharge pipe should be led out to a chimney connection with a steel pipe (min. 2 mm thick) of suitable diameter and min. 5% rise upwards. It is not allowed to weld the flue duct to the boiler flue gas flange and reduce the flue diameter. Manufacturer does not grant warranty for chimney flues. The boiler accessories include complete cabling, required for its connection to the electrical power supply system.



9. Check before start-up

NOTE!

The first start-up may be carried out only by authorized persons, who became familiar with the boiler O&M manual. Before each start-up of the boiler the following shall be checked:

- water level in the boiler and heating system
- conditions of connections and electric protections
- cleanliness of the ash pan, furnace, flue gas ducts, chimney
- passage of the safety valve

NOTE!

Filling with fuel, boiler cleaning, emptying and inserting the ash pan may only be performed with air supply off.