

VIADRUS

VIADRUS G 350 MANUAL FOR BOILER OPERATION AND INSTALLATION



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Dear customer,

we thank you that you decided to purchase VIADRUS G 350 boiler thus showing your confidence in company of VIADRUS a.s.

For you to get used to operating your new product correctly from the start please read carefully this manual instructing you how to use the product (first of all chapter No.7 – Boiler operation by user and chapter No. 8 – IMPORTANT WARNINGS). Please follow the information stated in further text and also the Regulation No.91/93 Coll. issued by Czech Labour Safety Office for ensuring the labour safety in low-pressure boiler rooms; this will guarantee a long-time and failure-free boiler operation to both your and our satisfaction.

Order:

Order specification code (type designation)

G 350 X X X

Number of sections:

4: 4 sections
5: 5 sections
6: 6 sections
7: 7 sections
8: 8 sections
9: 9 sections
10: 10 sections
11: 11 sections

The way of delivery:

S: compound/ assembled state
R: decomposed/disassembled state

Type of burner:

0: no burner
1: with burner

In the order it is necessary to specify the data according to the order specification code

1. Boiler use and advantages

Cast-iron sectional warm-water boiler VIADRUS G 350 is designed for heating the heat carrying substance (water) by the thermal energy which it gets from gas or liquid fuels burning process while using the appropriate pressure burners. These burners must correspond to:

ČSN 07 5800 Burners for gas and liquid fuels

ČSN 07 5806 Burners for gas fuels

ČSN 07 5853 Burners for liquid fuels.

The boiler is made **exclusively for low-pressure warm-water systems** of central heating with maximum working temperature of the heat-carrying substance (water) up to 85 °C, at the maximum working overpressure of 400 kPa (4 bar) and for burning the fuels as follows:

- gas fuels - natural gas
- liquid fuels - furnace oil extra light (TOEL)

The boiler body is tested by applying the test overpressure of 800 kPa (8 bar).

The boiler advantages are as follows:

1. Long service life of the cast-iron boiler body
2. A highly economical operation. The efficiency of combustion higher than 90,5 % for all kinds of fuels and in the whole performance range.
3. At request delivery including the burner.
4. A modern design.
5. A fully automated two-stage operation at the recommended types of burners.
6. Operation signalling, possibly the signals used for transfer into a superior control system and the boiler failures.
7. Possibility to operate the boiler through a superior automatics or space temperature sensor.
8. Possibility of boilers concatenation.
9. Delivery in either an assembled or disassembled condition at customer 's request
10. Depending on boiler room layout there can be designed opening of sealing and burner plate either to the left or right hand side.
11. Easily accessible sight glass and the probe for overpressure measuring in the combustion chamber.
12. In combination with recommended burners (see chapter no. 2) spares of environment because the combustion results meet in the whole performance line the rigid environmental standards and regulations.

2. Boiler technical data

Tab. No. 1 Boiler thermo-technical parameters

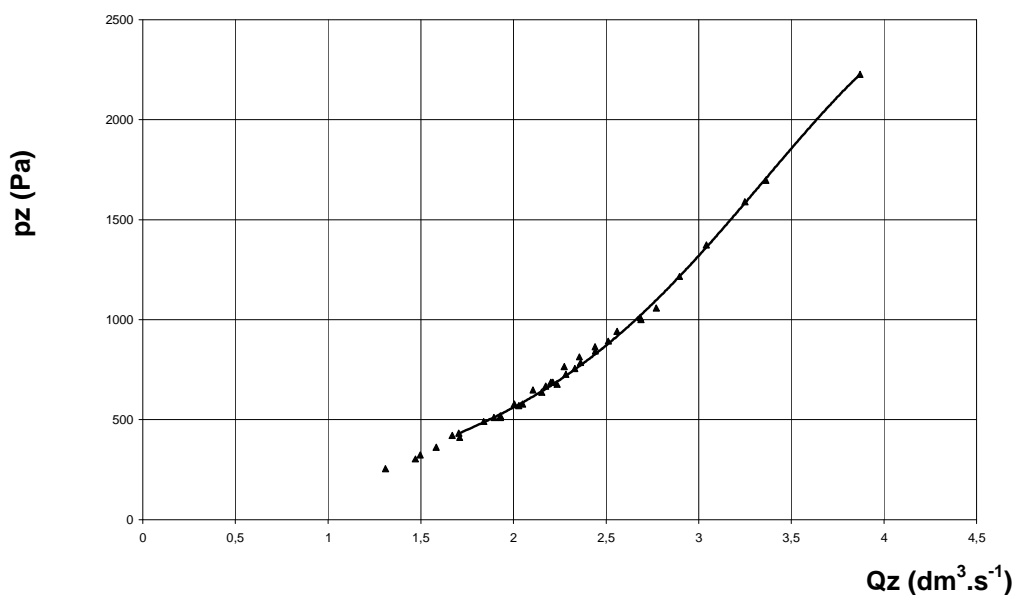
fuel efficiency: natural gas 33,99 MJ/kg

furnace oil extra light (TOEL) 42,65 MJ/kg

Boiler size (number of sections)	pc	4	5	6	7	8	9	10	11
Nominal Heating Power	kW	92,5	125	157,5	190	222,5	255	287,5	320
Nominal Thermal Power	kW	100	134	169	202	237	271	306	340
Efficiency	%	89 – 93							
Fuel Consumption									
Natural gas	m ³ /h	10,6	14,2	17,9	21,4	25,1	28,7	32,4	36
Extra light Heating Oil (TOEL)	kg/h	As per data from burner manufacturer							
Volume of boiler water space	l	56,61	75,85	95,08	114,31	133,54	152,78	172	191,23
Maximum water process overpressure	kPa (bar)	400 (4)							
Maximum operating temperature of heating water	°C	85							
Minimum temperature of return water	°C	50							
Combustion products technical data									
Required pressure	Pa (mbar)	5 (0,05)							
Maximum overpressure in the burning chamber	kPa (mbar)	0,2 (2)							
Combustion products temperature	°C	185							
Combustion products mass									
- gaseous fuel	kg/h	171,5	231,8	292,1	352,3	412,6	472,9	533	593,4
Dimensions:									
Depth of combustion chamber	mm	485	635	785	935	1085	1235	1385	1635
Minimum length of burner nozzle	mm	125							
Maximum length of burner protrusion into chamber	mm	50							
φ Opening for burner *)	mm	150							
Boiler width	mm	800							
Boiler height	mm	1296							
Boiler depth	mm	985,5	1135,5	1285,5	1435,5	1585,5	1735,5	1885,5	2035,5
Diameter of smoke socket	mm	210							
φ Connector heat carrying media	mm	89							
Boiler Mass	kg	402,1	499,6	597,2	694,7	792,3	889,8	987,3	1084,8

*) requirement for other orificeφ – please state in order (at request)

Dependence of pressure loss in the boiler P_z on flow of boiler Q_z



Tab. No. 2 Recommended types of burners

for gaseous fuel combustion	Boiler size (number of sections)							
	4	5	6	7	8	9	10	11
	Nominal Heating Power (kW)							
	92,5	125	157,5	190	222,5	255	287,5	320
	BENTONE							
	STG 146	STG 146	BG 300	BG 300	BG 300	BG 400	BG 400	BG 400
	BG 300	BG 300	BG 300-2	BG 300-2	BG 300-2	BG 400-2	BG 400-2	BG 400-2
	BG 300-2	BG 300-2	BG 300 M	BG 300 M	BG 300 M	BG 400 M	BG 400 M	BG 400 M
	BG 300 M	BG 300 M						
	ELCO							
	VG 02.120	VG 02.160	VG 02.210	VG 3.290	VG 3.290	VG 3.360	VG 3.360	VG 04.440
	INTERCAL							
		SGN 44/2	SGN 44/2	SGN 55/2	SGN 55/2	SGN 55/2	SGN 66/2	SGN 66/2
	WEISHAUP							
	WG 20N/1-C	WG 20N/1-C	WG 20N/1-C	WG 20N/1-C	WG 20N/1-C	WG 30N/1-C	WG 30N/1-C	WG 30N/1-C
	GIER SCH							
GG20/1-LN	GG20/1-LN	GG20/2-LN	GG20/2-LN	MG10/1-LN	MG10/1-LN	MG10/1-LN	MG10/1-LN	
RG20-Z-L	-	RG30-Z-L	RG30-Z-L	-	-	-	-	

for liquid fuel combustion	Boiler size (number of sections)							
	4	5	6	7	8	9	10	11
	Nominal Heating Power (kW)							
	92,5	125	157,5	190	222,5	255	287,5	320
	BENTONE							
	B2 KS	B2 KS	B 30	B 30	B 30	B 40	B 40	B 40
	ST 146	ST 146	B 20-2	B 30-2H	B 40-2H	B 40-2H	B 40-2H	B 40-2H
	B 20	B 20						
	B 20-2	B 20-2						
	ELCO							
	VL 02.120	VL 02.160	VL 02.210	VL 3.290	VL 3.290	VL 3.360	VL 3.290	VL 04.430
	INTERCAL							
	SL 44/2	SL 44/2	SL 44/2	SL 44/2	SL 55/2	SL 55/2	SL 66/2	SL 66/2
	WEISHAUPT							
	WL 20/2-C	WL 20/2-C	WL 20/2-C	WL 20/2-C	WL 20/2-C	WL 30Z-C	WL 30Z-C	WL 30Z-C
	GIERSCH							
	GL20/1-LN	GL20/2-LN	GL20/2-LN	GL20/2-LN	M10-Z-L	M10-Z-L	M10-Z-L	M10-Z-L
R20-ZS-L	R20-ZS-L	R30-ZS-L	R30-ZS-L	-	-	-	-	

Unless the above recommended burners are used, the manufacturer does not guarantee achieving performance at specified parameters.

3. Description

3.1 Boiler construction

The boiler body consists of sections assembled by means of forced-on insertions and is secured by anchor bolts. Boiler has a three-draught construction and the sections create the combustion space and the convection part, inside then the boiler water space. The tightness of boiler gas combustion space is guaranteed by boiler cement applied to sections seating faces and to circumference of individual section joints.

On the front section there are fixed sealing and burner plates that either can be opened to right or left hand side according to boiler room layout. This must correspond with screw suspensions positioning (lugs).

The openings G 2" in the front section are closed with plugs G 2". The upper plug has a boring G 1/2" for the basin of regulation and safety thermostat. In the left upper riser of the section there are two openings G 1/2" for thermometer and pressure gauge sensors.

The input and output of a heat carrying substance is situated at the rear part of boiler and it is carried out with flanges and a mouthpiece DN 80. At the lower flange with a mouthpiece there is positioned the filling & discharging cock. In the opening for inlet of heat transfer fluid (under the flange) there is installed the distribution pipe, which directs the flow of water in the boiler.

The combustion gases from the boiler are led/ taken away through a flue orifice with an explosion shutter which at the same time serves as a small cleaning cover. At the flue orifice there are measuring points for temperature and combustion gases analysis.

The boiler body is fully insulated by plates made of mineral insulation. The steel shell of boiler is surface treated by comaxite paint. In the upper front part of boiler there is positioned the electro-panel with regulation, safety and control elements.

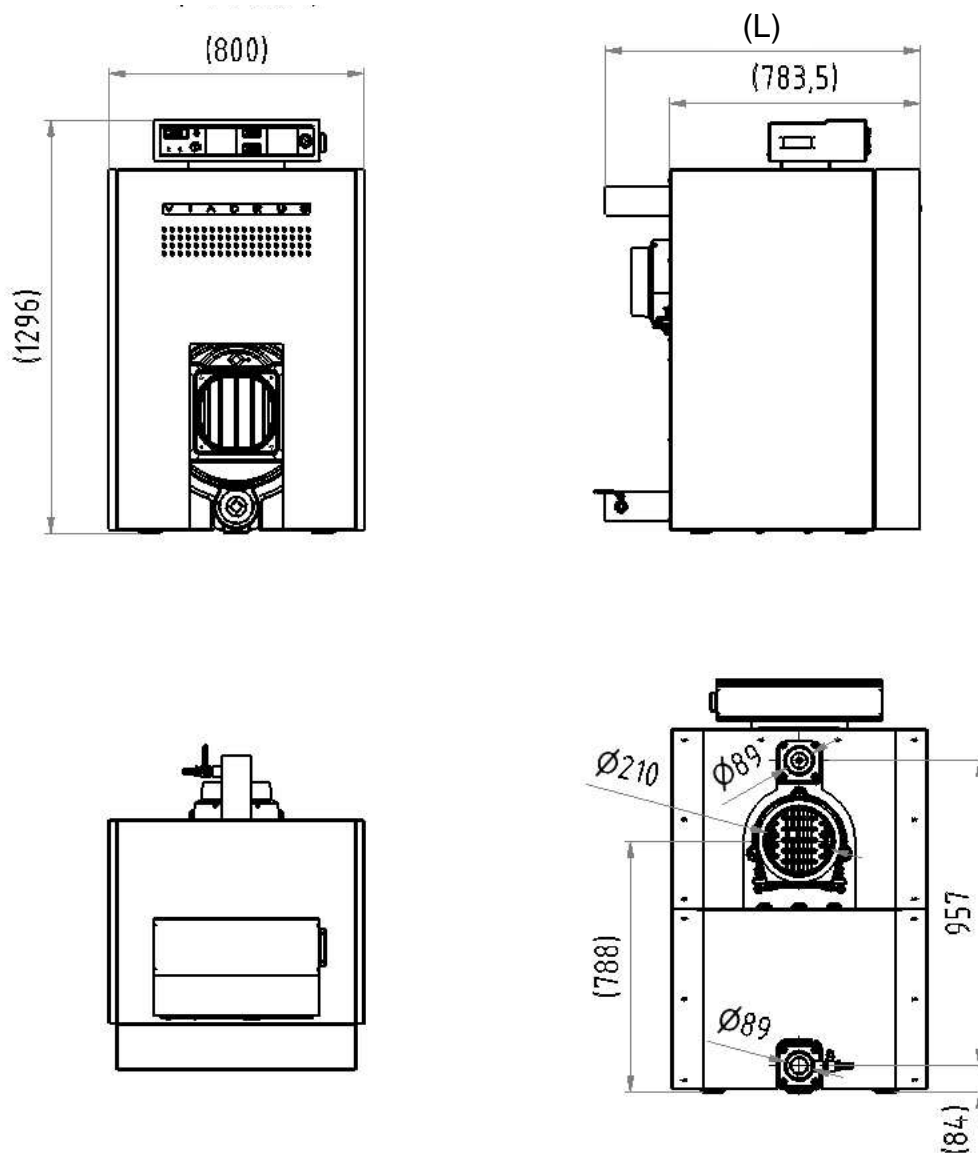


Fig. no. 1 Main dimensions of boiler

3.2 Electric wiring diagram

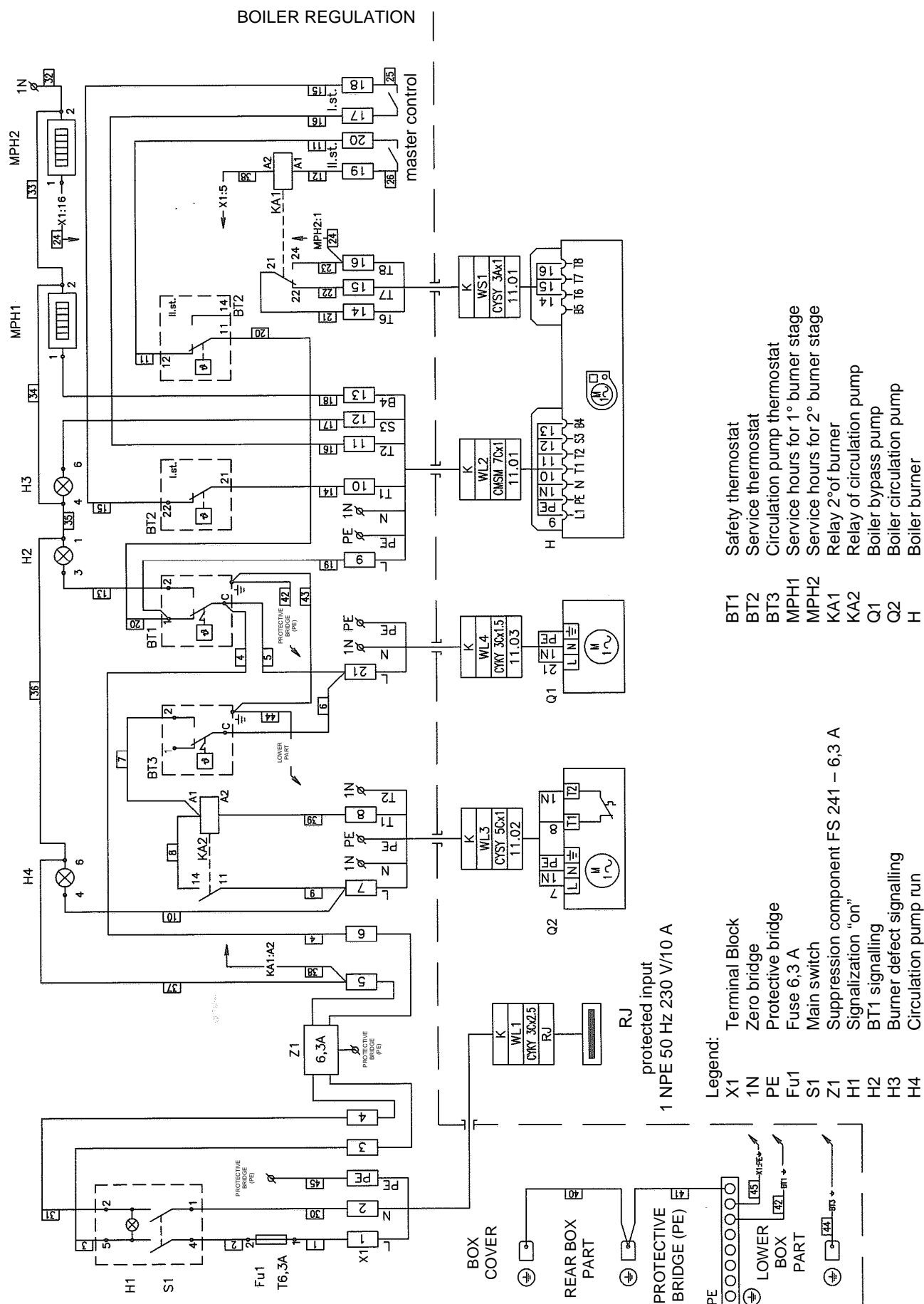


Fig. no. 2 Electric wiring diagram for VIADRUS G 350

4. Positioning and installation

4.1 Boiler standing in boiler room

The installation of the boiler must comply with all requirements of ČSN 06 1008

The boiler is designed for positioning in closed areas with aggressiveness degree between a little up to moderately aggressive and in terms of electrotechnic regulations in a common environment (ČSN 33 2000–7–701). It agrees with the use in rooms separated from housing room itself (Declaration 91/93 Coll., ČSN 07 0703 - Boiler room with gas fuel –operated equipments).

Boiler noise level does not exceed the maximum level of $L_A = 75 \text{ dB(A)}$ - (the real value depends on the type of used burner: for recommended types it ranges between 60 – 70 dB).

The boiler must be positioned on a fireproof pad or a sustaining wall approx. 50 mm high. In front of boiler there must be left a free handling area minimum for the boiler depth + 500 mm, from one side 600 mm (access to the back).

When positioning the boiler there must be respected the layout requirements of selected type of burner (gas inlet and others.)

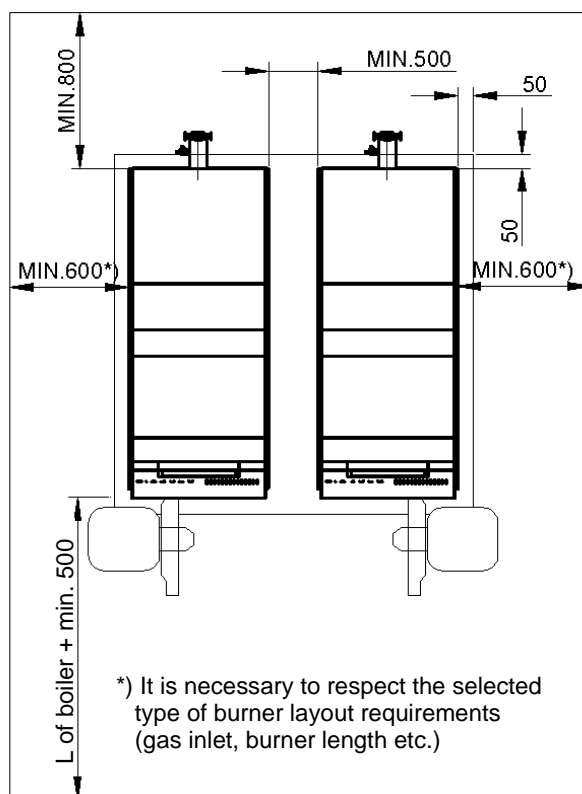


Fig. No. 3 Boilers positioning in boiler room

A safe distance from the combustible materials:

- when installing and operating the boiler it is necessary to keep a safety distance of 200 mm from the materials of combustibility grade A1, A2, B and C (D);
- for easily combustible materials of combustibility grade E (F), which quickly burn and burn themselves even after removal of ignition source (such as paper, cardboard, asphalt and tar paper, wood and wood-fiber boards, plastics, floor coverings) the safe distance has to be doubled, i.e. to 400 mm;
- safe distance should be doubled as bulb where the grade of reaction to fire has not been proved.

A safe distance must be doubled also in case that the building material flammability degree hasn't been proved. In case that there is a danger of a temporary intrusion of combustible vapours or gases into the boiler room or at the works at which there temporarily occurs the fire & explosion danger (gluing the flooring, coats with combustible paints) the boiler must be put out of operation in time and before the works commencement.

Tab. No. 3 Grade of reaction to fire

Grade of reaction to fire	Examples of building materials and products included in the reaction to fire (Extract from EN 13 501-1 + A1)
A1 – incombustible	Granite, sandstone, concrete, bricks, ceramic tiles, mortars, fireproof plasters, ...
A2 – combustible with difficulty	acumin, izumin, heraklit, lignos, boards and basalt felt, fibreglass boards,...
B – hardly combustible	Beech and oak wood, hobrex boards, plywood, werzalit, umakart, sirkolit,...
C (D) – medium combustible	Pinewood, larch, whitewood, chipboard and cork boards, rubber flooring,...
E (F) – easily combustible	Asphaltboard, fibreboards, cellulose materials, polyurethane, polystyrene, polyethylene, PVC,...

Warning: No subjects made of flammable substances (see Fig. No. 3) are allowed to be put on the boiler and within a distance smaller than the safety distance.

Filling the heating system with water. The heating system must be thoroughly flushed out so that all impurities that could be deposited in distribution system and radiators are washed out because otherwise they could damage the pump. Water for filling the boiler and heating system must be clear and colourless, with no suspended substances, oil or chemically aggressive substances. The circulation and filling water parameters must correspond to:

Tab. No. 4 The highest permissible values of heating water according to ČSN 07 7401

Recommended value		
hardness	mmol/l	1
Ca ²⁺	mmol/l	0,3
Total Fe + Mn concentration	mg/l	(0,3)*

*recommended value

In case that the water hardness is unsuitable it must be adjusted. Not even heating the water with higher hardness several times will prevent the soils precipitation on the boiler body walls. Precipitation of 1 mm calcite at a given point will reduce the passage of heat from metal to water by 10 %.

During the heating season it is necessary to keep a constant heating water volume in the heating system and be particular about venting the heating system. Water from boiler and heating system must never be discharged or taken for use except for inevitable cases like repairs etc. By discharging the heating water and filling the system with new water the danger of corrosion and scaling is increased. In case that it is necessary to **replenish water in heating system, we only refill it in a cold boiler**, otherwise the sections could crack.

4.2 Directives and regulations

The boiler is allowed to be installed by a company with a valid authorization to do installations and maintenance at the gas appliances. A project must be elaborated for the installation according to valid regulations.

The heating system must be filled with water, that meets the ČSN 07 7401 requirements, especially its harness must not exceed the required parameters.

WARNING!!! The use of anti-freeze mixture is not recommended by the manufacturer.

a) to the heating system

ČSN 06 0310	Heating systems in buildings – Designing and installation
ČSN 06 0830	Heating systems in buildings – protecting device
ČSN 07 7401	Water and steam for thermal energy equipments with working pressure up to 8 MPa
EN 267	Forced draught oil burners – Definitions, requirements, testing, marking
EN 303-1	Heating boilers – Part 1: Heating boilers with forced draught burners – Terminology, general requirements, testing and marking
EN 303-2	Heating boilers – Part 2: Heating boilers with forced draught burners – Special requirements for boilers with atomizing oil burners
EN 676	Automatic forced draught burners for gaseous fuels

b) to the gas distribution

ČSN 07 0703	Boiler room with gas fuel –operated equipments
ČSN 38 6405	Gas equipments. Operating principles
ČSN 38 6420	Industrial gas pipelines
EN 1775	Gas supply - Gas pipework for buildings - Maximum operating pressure less than or equal to 5 bar - Functional recommendations.
EN 12007-1	Gas supply systems – Pipelines for maximum operating pressure up to and including 16 bar – Part 1: General functional recommendations

EN 12007-2	Gas supply systems – Pipelines for maximum operating pressure up to and including 16 bar – Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar)
EN 12007-3	Gas supply systems – Pipelines for maximum operating pressure up to and including 16 bar – Part 3: Specific functional recommendations for steel
EN 12007-4	Gas supply systems – Pipelines for maximum operating pressure up to and including 16 bar – Part 4: Specific functional recommendations for renovation
Act no. 222/94 Coll.	on the conditions of enterprise and public service performance in power industry sector and on the state energy inspection
Promulgation 91/93 Coll.	of Czech work safety office regarding the work safety assurance in low-pressure buildings

c) to liquid fuel distribution

ČSN 65 0201 Combustible liquids. Premises for production, storage and handling
Prom. MV ČR č. 35/77 on fire safety at storing and using the heating oil
PO 1410/65 of 01. 03. 1966 temporary regulations for heating with heating oil and fuel oil

d) to the electrical network

ČSN 33 0165	Electrical regulations. Marking the conductors with colours or digits. Implementing regulations.
ČSN 33 1500	Electrical regulations. Electrical equipments revision
ČSN 33 2000-3	Electrical regulations. Electrical equipments Part 3: Setting the basic characteristics.
ČSN 33 2000-4-41	Electric equipments: part 4: Safety chap. 41: Protection against electrical accident.
ČSN 33 2000-5-51 ed. 2	Electrical regulations. Electrical equipments construction.
ČSN 33 2130	Electrical regulations. Internal wiring.
ČSN 33 2180	Electrical regulations. Connection of electrical devices and appliances.
ČSN 34 0350	Electrical regulations. Regulations for mobile connections and cord extension sets.
EN 60079-10	Electrical apparatus for explosive gas atmospheres – Part 10: Classification of hazardous areas.
EN 60079-14 ed.2	Electrical apparatus for explosive gas atmospheres – Part 14: Electrical installations in hazardous areas (other than mines)
EN 60 335-1 ed.2	Household and similar electrical appliances – Safety – Part 1: General requirements.
EN 60 335-2-102	Household and similar electrical appliances – Safety – Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections.
EN 60445 ed. 3	Basic and safety principles for man – machine interface, marking and identification – Identification of equipment terminals and conductor terminations
EN 60446	Basic and safety principles for man – machine interface, marking and identification – Identification of conductors by colours or numerals

e) to the chimney

ČSN 73 4201 Chimneys and flue gas ducting– designing, implementation and connection of fuel consumers.
The connection must be carried out only if approved by a chimney organization and must meet all provisions of these standards. The chimney must be resistant to combustion gases condensate, otherwise it might be seriously damaged.

f) regarding the fire regulations

ČSN 06 1008	Fire safety of heat installations.
EN 13501-1 + A1	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests.

g) to the system of HWS heating

ČSN 06 0320	Heating systems in buildings – Hot water preparation – Designing and planning
ČSN 06 0830	Heating systems in buildings – Safety devices.
ČSN 73 6660	House water plumbing

5. Order, delivery and assembly

5.1 Order

In an order it is necessary to specify following items:

1. Boiler size
2. Demands on elements delivered at request.

5.2 Delivery and accessories

Standard:

- In decomposed condition (individual sections on the pallet, the boiler fitting and accessories in a transport package)
- Casing/ jacket including insulation in a cardboard cover
- Blank flange for burner (necessary openings for used type of burner are only made during the assembly)
- Electric panel in the basic design.
- Business technical documentation

At request:

- in assembled condition - the boiler body with mounted fitting on the pallet, protected by a foil, accessories stored in boiler. Jacket, including insulation in a cardboard cover.
- delivery with a recommended burner (see tab. No.2)
- flange for burner ϕ 150 mm (ϕ 140 mm, ϕ 165 mm) with connection openings according to the ordered burner

5.3 Assembly process

5.3.1 Installation of the boiler body

- Boiler is positioned on the completely horizontal supporting brickwork.
- The rear section is positioned on the supporting brickwork and supported with a strut.
- After drilling the insert holes in the rear section must be thoroughly removed the residues of conservation agent and impurities.
- The outer edges of insert holes must be removed by means of a cabinet file and the insert opening is painted with oil or boiled –oil paint.
- Put the inserts painted with oil or boiled –oil paint into insert openings and tap by means of a wooden mallet. The insert must be properly and evenly inserted.
- Apply a sufficient layer of cement boiler on contact ground surfaces of ribs.
- Put the section on the protruding part of inserts so that the inserts can be easily inserted into inserting holes of the section and tap it by means of a wooden mallet and tighten by means of tightening tool.

NOTE: The gap between the sections be the same around the whole circumference during the tightening operation.

- Similarly tighten all remaining sections.

WARNING: It is forbidden to tighten more than one boiler section at once.

- Secure the boiler body with anchor bolts.

WARNING: Tighten the nuts of anchor bolts only slightly in order to dilate the boiler after heating.

- Fill the circumferential groove (dovetail) resulting from tightening always two sections completely with boiler cement around the whole circumference

In Figure 4 is shown mounting the 4th section of boiler and other sizes vary in the length of anchor bolts, the number of inserts and medium sections

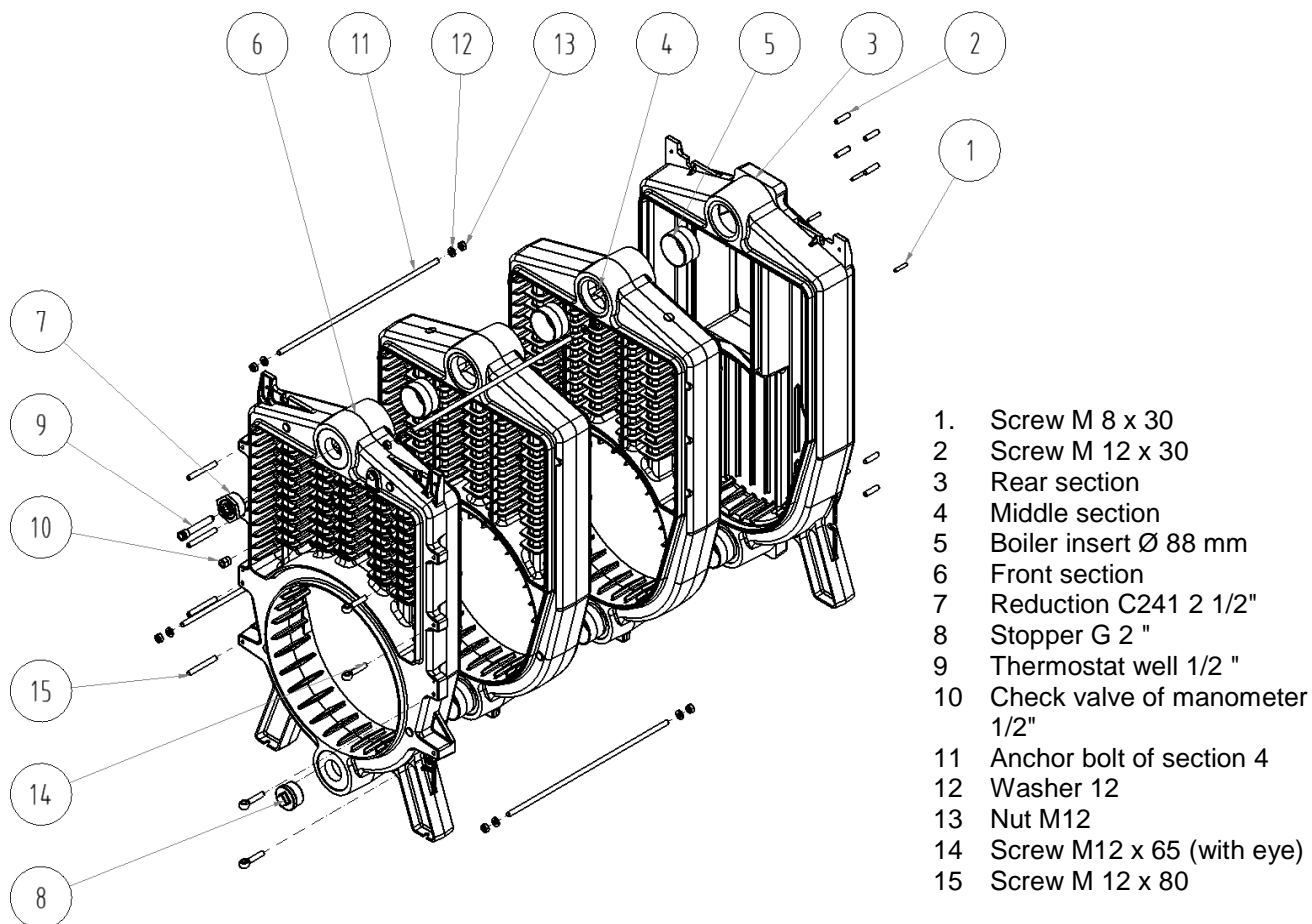


Fig. no. 4 Installation of the boiler body of 4 sections size

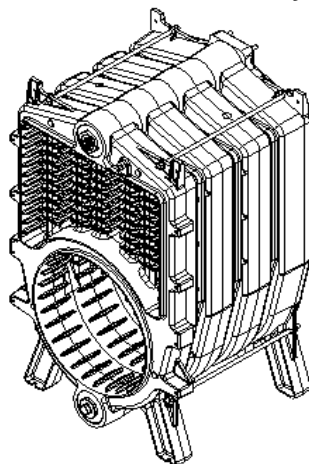


Fig. no. 5 Boiler body after installation

5.3.2 Pressuring the boiler body

- Seal the bottom hole of the front section with stopper G 2.
- Seal the upper hole of the front section with stopper G 2" with bore 1/2".
- Seal all threaded joints with hemp.
- Connect the flange with a mouthpiece to the bottom hole of rear section with the possibility to connect the water under pressure.
- Close the upper hole of rear section (the output of heating water) with a flange with sealing and bleeder valve.
- Open the bleeder valve and fill the boiler body with cold water, close the valve.
- Do pressuring by applying the test overpressure of 800 kPa (8 bar) for 15 minutes. During the pressure test no leaks are allowed to appear.
- Perform the visual inspection.

5.3.3 Installation of the burner plate

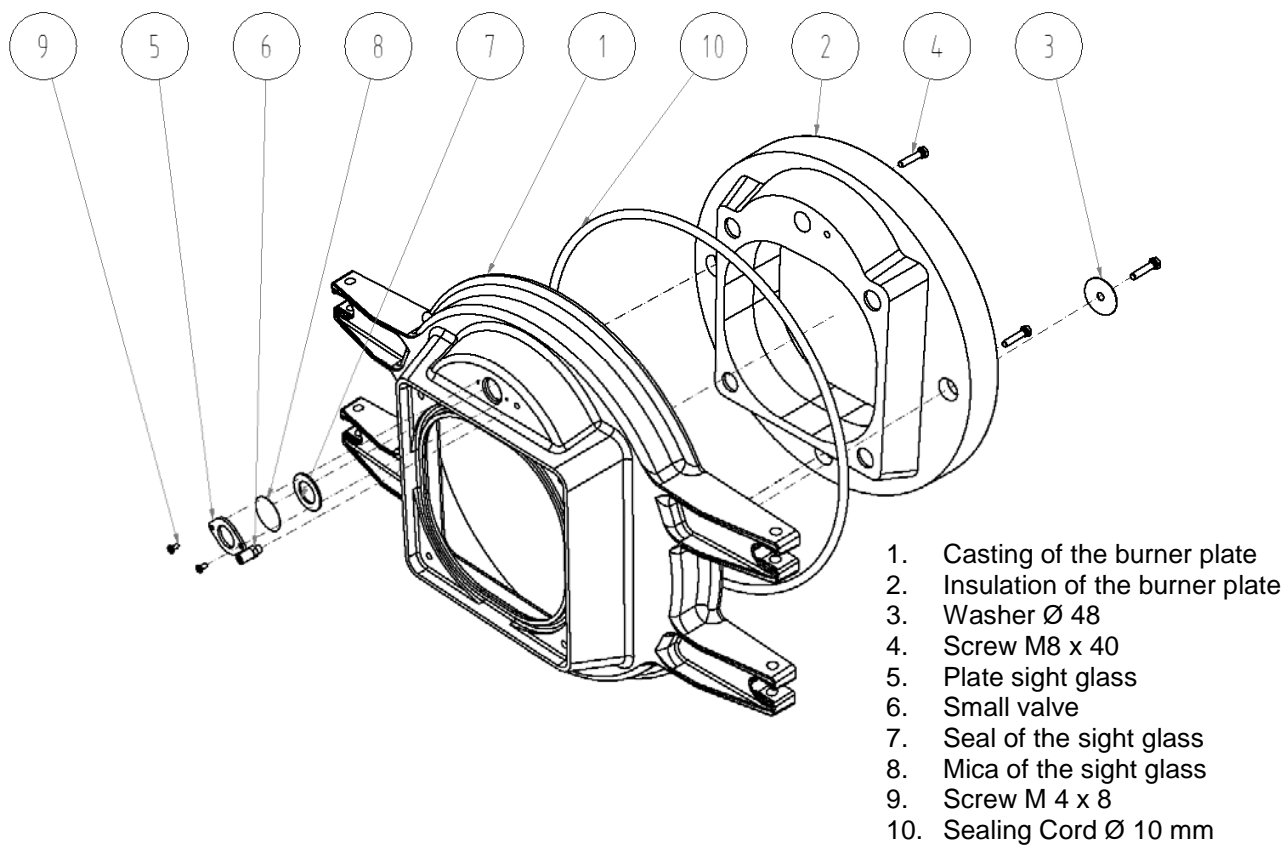


Fig. no. 6 Installation of the burner plate

5.3.4 Mounting of closing plate

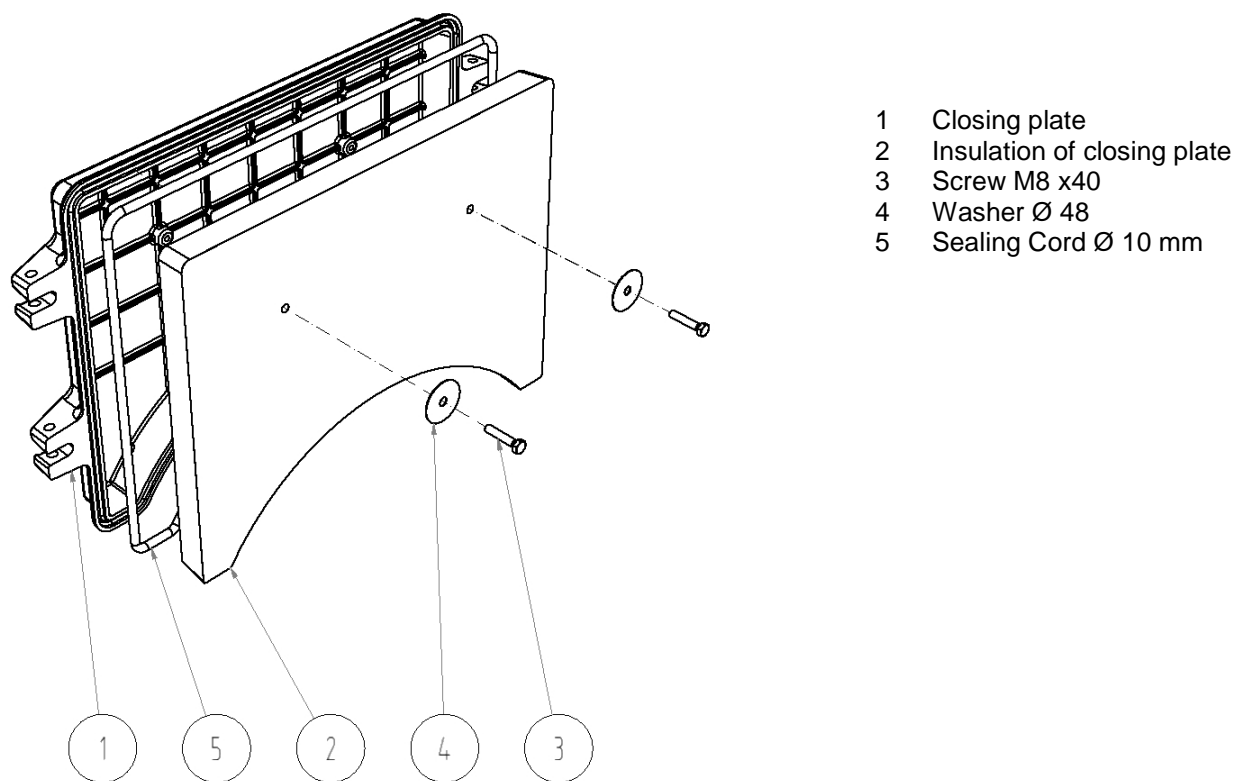


Fig. no. 7 Mounting of closing plate

5.3.5 Installation of flue throat

- 1 Flue throat
- 2 Spring
- 3 Screw of explosive flap
- 4 Explosive flap
- 5 Insulation of explosive flap
- 6 Washer 8.4
- 7 Flexible pin Ø 3 x 20
- 8 Washer 8.4
- 9 Nut M 8
- 10 Stopper G 1/4"
(For measurement
of flue gas)

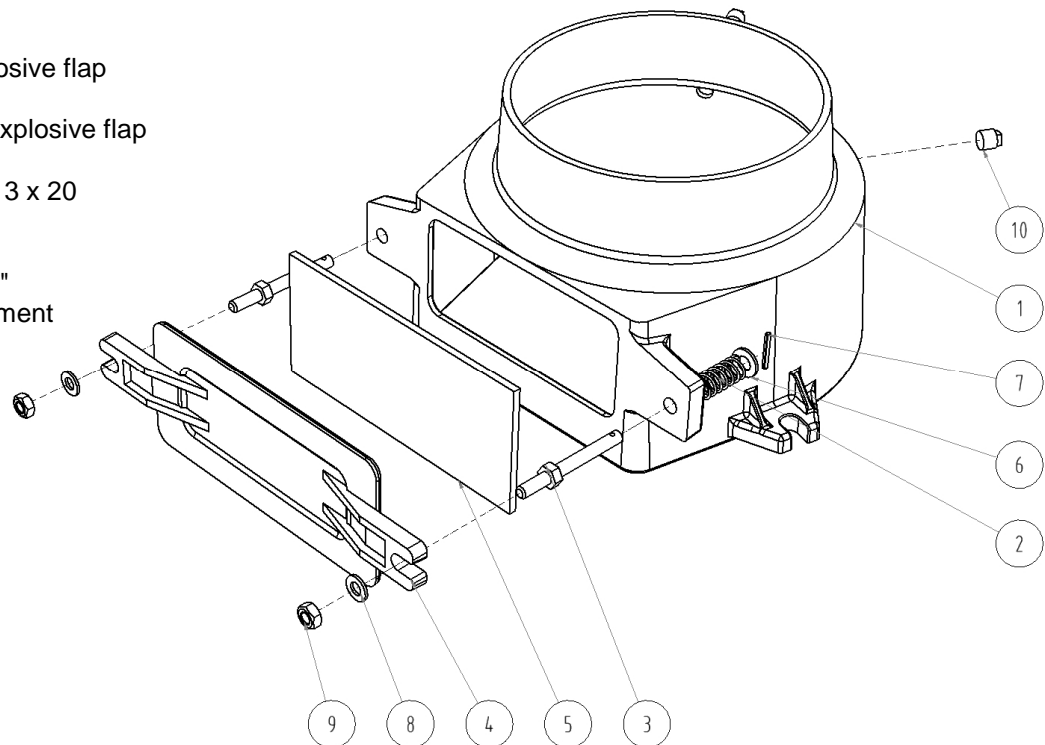


Fig. no. 8 Installation of flue throat

5.3.6 Installation of valves

- 1 Boiler body
- 2 Sealing cord Ø10 mm
- 3 Flue throat
- 4 Washer 8.4
- 5 Nut M8
- 6 Burner plate
- 7 Closing plate
- 8 Pin 12 x 65
- 9 Washer 9 13
- 10 Nut M12
- 11 Distribution pipe

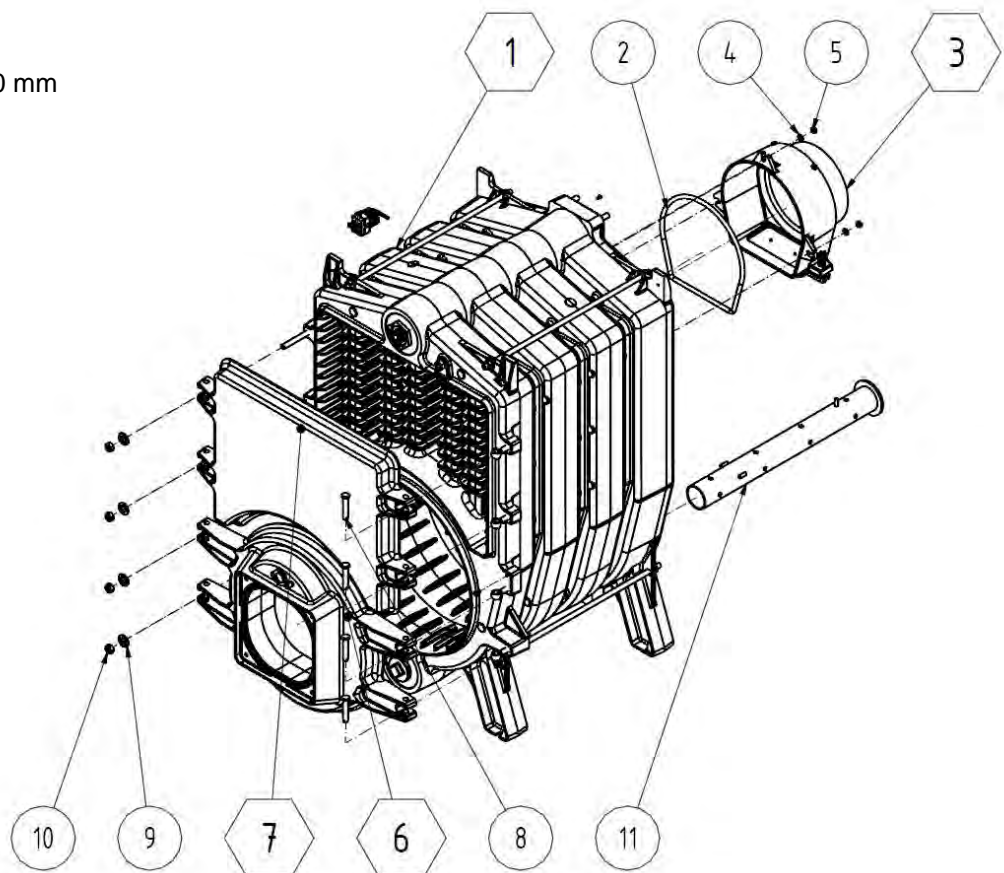


Fig. no. 9 Installation of valves

5.3.7 Installation of shell

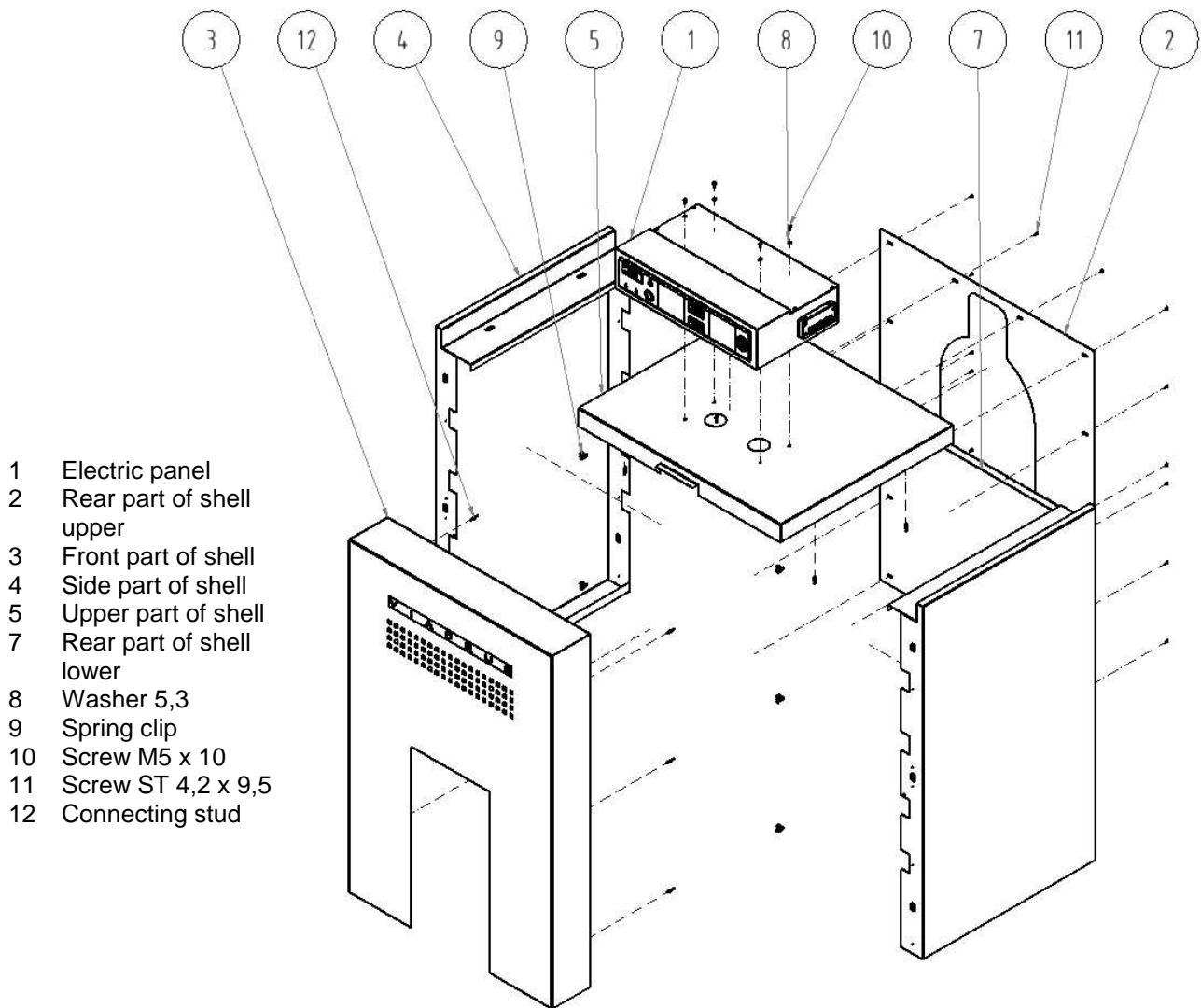


Fig. no. 10 Installation of shell

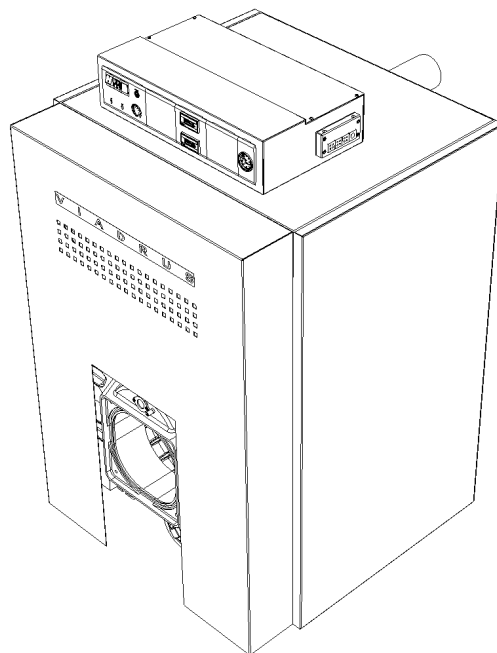


Fig. no. 11 4 sect. boiler after installation of valves and shell

6. Commissioning

Putting the boiler into operation, setting the heat output and any intervention into the electrical part of boiler or connection of further control elements can only be done by service organization authorized to do the service works and an authorized firm for servicing the burner being operated.

1. Burner installation and assembly, its adjustment and putting the boiler with a burner into operation must be confided to the care of a burner supplier 's service firm. The service firm will give the user a training in operation and provide him with burner use manual and guarantee plus after-guarantee repairs.
2. Before putting the boiler into operation a record must be made in Inspection book.

6.1 Checking activities before initiation

Before putting the boiler into operation it is necessary to check:

- a) filling the heating system with water (thermo-manometer check) and tightness of the system
- b) setting the boiler thermostat stage II. (rated power/ nominal output) to 60 - 85 °C.
- b) opening all slide-valves and valves between the boiler and heating system
- c) opening the fuel inlet
- d) inlet pressure of fuel before entering the boiler according to the burner documentation
- e) connection to the electricity network 230 V/380 V 50 Hz/TN-S
- f) connection to the chimney (the necessary chimney draught is 5 Pa).
- g) max. overpressure in combustion chamber is 0,2 kPa (2 mbar). The probe positioned on burner plate serves for overpressure measuring in combustion chamber.

Setting the regulation elements:

- regulation thermostat stage I. (reduced output) – permanently set by manufacturer to 85 °C.
- safety thermostat - permanently set by manufacturer to 100 °C.

6.2 Boiler conversion from „liquid fuels“ to „ gas fuels“ and back

The boiler conversion from „liquid fuels“ to „gas fuels“ and back doesn't require any adaptations apart from the burner and adequate flange exchange for a burner. Before the conversion we recommend to check the body, the combustion gases routes and their thorough cleaning.

This conversion (burner exchange) will only be required by a customer at a contractual service firm – organization entitled to be engaged in this activity.

7. Boiler operation by user

The boiler works automatically according to the regulation elements setting and users only do the following operating activities that they are obliged to familiarize with before putting the boiler into operation as follows:

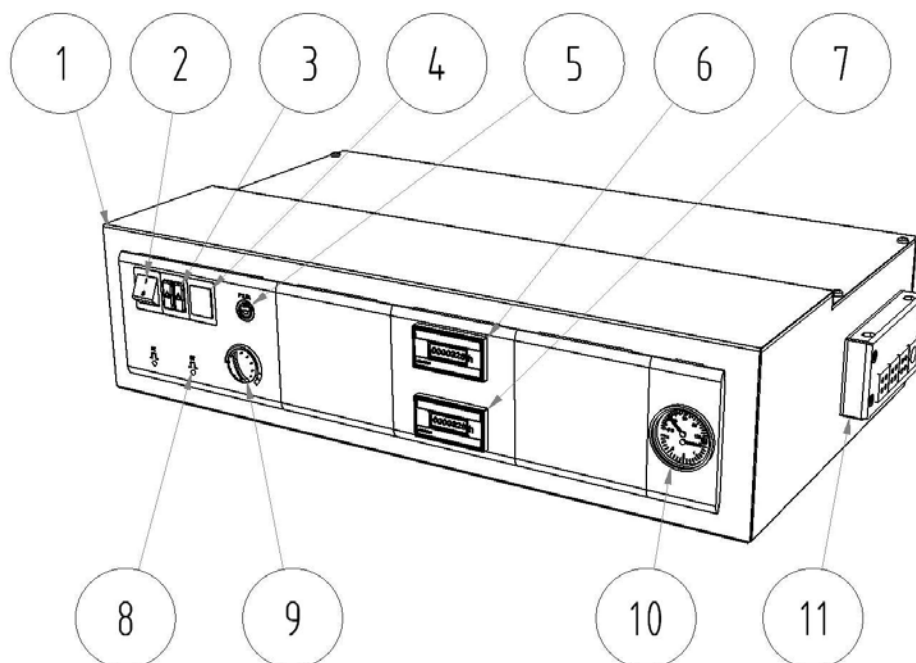
1. **Switching on and switching off the boiler** by means of network switch on the boiler electro-panel.
2. **Setting and checking** the required **heating water temperature** within 60 – 85 °C limits.
3. **Unblocking the safety thermostat.** In case that the boiler is switched off by a safety thermostat, the signal lamp on electro-panel is alight thus signalling that the temperature has been exceeded. The user can unblock the thermostat by means of the pushbutton "unblocking" at the safety thermostat positioned at the rear panel of control box.
4. **Pressure check in heating system**

7.1 Electric panel – basic design

Electro-panel consists of basic parts as follows:

- | | |
|--|---|
| - electro-panel itself with network module | - safety thermostat |
| - capillary pressure gauge | - running hours counters grade I and II |
| - capillary thermometer | - LED of burner grade I and II operation |
| - service thermostat grade I | - LED of "failure" – switching of safety thermostat |
| - service thermostat grade II | - connecting terminal block |

If the equithermal regulation is required then the Operation and installation manual is a part of delivery.



- | | |
|--|--|
| 1. Electric panel with power module | 6. Running hours counter grade I |
| 2. Main switch | 7. Running hours counter grade II |
| 3. Signalling safety thermostat and burner failure | 8. Unlocking of the safety thermostat |
| 4. Blind flange | 9. Service thermostat |
| 5. Fuse 6,3 A | 10. Capillary pressure gauge and thermometer |
| | 11. Cable gland |

Fig. no. 12 Configuration of electric panel

8. IMPORTANT WARNINGS

1. The boiler only can be used for the purpose that it is destined for.
2. The boiler after initiation works automatically. It only can be operated by adult persons familiar with this manual and the burner operation manual.
3. The boiler is not destined for the use by persons (incl. children) whose physical, sensual or mental disability or lack of experience and knowledge prevent them from a safe use of the appliance unless they are supervised or if they were not instructed on the use of appliance by a person responsible for their safety.
4. Children should be supervised in order to ensure that they do not play with the appliance.
5. The boiler must be operated according to the manual and related standards.
6. The air of combustion must not contain a high moisture and dustiness. If their occurrence cannot be excluded in the environment related to the boiler location there must be brought the air of combustion into the boiler room directly from outdoor environment.
7. The boiler room must be kept in a clean and dust-free condition. From the boiler room area there must be excluded all sources of pollution and during the works (insulation works, boiler room cleaning) that cause the dustiness the boiler must be put out of operation. Even a partial burner clogging with dirt devalues the combustion process and endangers an economical and reliable boiler operation.
8. To prevent the boiler from retting followed by low-temperature corrosion at the places where a more permanent run at lower temperatures can be expected (transition periods, at the heating system with a large heating water volume, low-temperature regime etc.) it is necessary to ensure that the return water temperature does not drop below 50 °C. The best way is the creation of boiler own circuit.
9. Adjustment of burner stage I. (reduced output) must be done with regard to the combustion gases temperature in a way making sure that it doesn't drop below 130 °C.
10. Water from boiler and heating system should never be taken for use neither discharged apart from the indispensable cases like system repairs. The water discharge increases the corrosion and scale formation danger. If it is necessary to refill water always chemically treated in heating system then we only refill the cold boiler in order to avoid the boiler sections breaking.
11. If there occurs the boiler failure condition, the lamp signalling the burner failure lights up at the boiler electro-panel. In case of electricity outage the burner is switched off and after voltage recovery in el. network there will automatically run a new burner start.
12. The burner operation failures are in detail described in burners operation manual, including the ways of their elimination and they must be followed.
13. In case of a long-term shut-down of a boiler this boiler must be disconnected from el. network.
14. In case that there occurs the danger of flammable vapours or gases development and their intrusion into the boiler room, or at the works where there temporarily occurs the fire or explosion danger (gluing the flooring, painting with flammable paints), the boiler in time and before works initiation must be put out of operation.
15. No objects made of combustibles are allowed to be put on boiler and within a distance lower than a safety distance from the boiler.
16. During assembly, installation and operation of the appliance it is necessary to comply with standards that apply in the relevant country of destination.
17. The user is obliged to confide the commissioning, regular maintenance and failures elimination only to the care of a professional contractual service accredited by VIADRUS a.s., the boilers manufacturer, VIADRUS division, otherwise the boiler proper function guarantee doesn't apply. "VIADRUS G 350 boiler quality and completeness certificate "after having been filled in by contractual service organization serves as the "Guarantee certificate".
18. On the boiler there must be carried out once a year a regular maintenance according to the next chapter.
19. During assembly, installation and operation of the appliance it is necessary to comply with standards that apply in the relevant country of destination.

If you fail to meet these conditions you cannot requisite the guarantee repairs.

9. Maintenance

All interventions are only allowed to be done by contractual service organization trained by the manufacturer.

1. Disconnect the boiler from the el. network.
2. Close the fuel inlet to the burner.
3. Open the burner plate with a burner and the sealing plate.
4. Check sooting of the convection surfaces and perform chemical cleaning (e.g. Metano Therm for ZP, EC-MIX for TOEL – according to the manufacturer's instructions). Remove the residues after cleaning with a brush attached to the boiler both from the combustion chamber and the flue throat after removing the cleaning cover – the explosive valve. **With the explosive valve and springs must not be manipulated.**
5. Check the burner orifice clogging. If the burner orifice is dirty it must be cleaned according to the burner manufacturer 's instructions.
6. A careful closing of the burner plate with the burner, the sealing plate and **all small covers – check their tightness.**
7. Mount the holder with explosion shutter.
8. Open the fuel supply; connection to el.network and boiler start-up.
9. Check the tightness of fuel supply to the burner.
10. Setting and adjusting of boiler heat output.

10. Instructions for product disposal after its service life

VIADRUS a.s., is contractual partner of firm EKO-KOM a.s. with client number F00120649.

The packages comply with EN 13427.

With regard to the fact that the product is constructed of common metal materials the individual parts are recommended to be disposed of as follows:

- exchanger (grey cast-iron), through a firm dealing with waste salvage and disposal
- piping, jacketing, through a firm dealing with waste salvage and disposal
- other metal parts, through a firm dealing with waste salvage and disposal
- insulation material ROTAFLEX into the common waste

We recommend to dispose the packages in the following way:

- plastic foil, cardboard cover, use a salvage point
- metal strapping tape, use a salvage point
- wooden base, is designated for a single usage and no longer can be used as a product. Its disposal is subject to Act. 477/2001 Sb. a 185/2001 Coll. as amended.

In case that the product has lost its manufacture qualities there can be taken advantage of a repeated product take-off (if it is introduced) in case of originator 's statement saying that this is the waste and it will be handled according to the legislation valid in the particular country.

11. Failures and their elimination

- the failures elimination can only be done by a trained contractual service organization and this organization will make an entry in the guarantee certificate supplement
- **in case that there is repeatedly blocked the safety thermostat it is also necessary to call a contractual service worker**
- **the burners operation failures are in detail described in Burners operation manual, including the ways of failures elimination and they must be followed.**

12. Guarantee and liability for defects

VIADRUS a.s. gives a guarantee:

- For boilers 24 months after the boiler putting into operation, but maximum 30 months after the date it was dispatched from the manufacturing factory.
- For boiler drum 5 years after the date its dispatch from the manufacturing factory.

For the guarantee validity the manufacturer requires:

- in terms of Act No.222/94 Coll. „ On entrepreneurship and state administration execution conditions in certified branches and on State energy inspection” Regulation No.91/93 Coll. issued by „Czech Labour Safety Office for ensuring the labour safety in law-pressure boiler rooms “ and ČSN 38 6405, EN 1775 to inspect regularly the boiler. The inspections can only be done by an authorized organization (contractual service), **accredited by VIADRUS a.s.** and the manufacturer of the burner being operated.
- To document all records of carried out guarantee and after-guarantee repairs and regular annual boiler inspections in the guarantee certificate supplement which belongs to the boiler revision book.

The guarantee doesn't apply to:

- **Faults caused by improper assembly and improper attendance of the product and faults caused by improper maintenance see chap. 9**
- **Faults and damage caused by failure to observe water quality in heating system see chap. no. 4.1 and 4.2 or by using the anti-freeze mixture**
- **product damage caused by transport or other mechanical damage**
- **failures caused by improper storage**
- **Faults caused by failure to observe instructions stated in this manual**

Every failures notification must be done immediately after having found the failures and always in writing.

When the above instructions aren't followed the guarantees provided by manufacturer will not be recognized.

The manufacturer reserves the right to changes made within the product innovation that needn't be included in this manual.

Information for customer

Packaging identification	Assessment reference
PE Plastic sacks, folie, corrugated board, iron and plastic fix line	

Identification of principal materials used. Paper, Polyethylene, iron, wood

Part 1: Summary of assessment

Standard/Report	Assessment requirement	Claim	Note
1.1 Prevention by source reduction		YES	
1.2 Heavy metals and	ensure below maximum permitted levels for components (CR 13695-1:2000)	YES	
1.3 Other noxious/hazardous substances	ensure in compliance with (CR 13695-2:2002, EN 13428:2000)	YES	
2 Reuse	ensure reusability in all terms of the standard for the functional packaging unit (EN 13429:2000)	NO	
3.1 Recovery by material recycling	ensure recyclability in all terms of the standard for the functional packaging unit (EN 13430:2000)	YES	
3.2 Recovery in the form of energy	ensure that calorific gain is achievable for the functional packaging unit (EN 13431:2000)	YES	Iron - NO
3.3 Recovery by composting	ensure compost ability in all terms of the standard for the functional packaging unit (EN 13432:2000)	NO	

NOTE Conformity with EN 13427 requires affirmative responses to sections 1.1; 1.2; 1.3 and to at least one of 3.1; 3.2; 3.3. In addition, where a claim of reuse is made section 2 should also record affirmative responses.
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Part 2: Statement of conformity

In the light of the assessment results recorded in part I above, this packaging is claimed to comply with the requirements of EN 13427:2000.
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