

VIADRUS

VIADRUS G 90 MANUAL FOR BOILER OPERATION AND INSTALLATION



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Dear customer,

thank you for having purchased VIADRUS G 90, the gas boiler thus having shown your confidence in VIADRUS a.s.

In order to get used to the correct way of using your new product from the very beginning please read carefully this service instruction (first of all the chapter no. 8 – Boiler service by user and chapter no. 9 – Important warnings). Please observe the below stated information specially those regarding the prescribed annual inspections carried out by an authorized professional firm providing the guarantee for a long-term failure-free boiler operation both to your and our satisfaction.

1. Purchase order and accessories

1.1 Purchase order

Order specification code (type designation)

G 90 X X X X X

Number of sections: 8: 8 sections 10: 10 sections 12: 12 sections 15: 15 sections	Fuel: Z: natural gas	Gas valve: H: HONEYWELL D: DUNGS	Way of delivery: S: composed state R: decomposed state
Regulation: 0 – Standard delivery: electric panel equipped with only a network module, thermomanometer and blind flanges 6 – Regulation A1: 1 pc regulator RVA 43.222 set of connectors SVA 43.222, terminal board WAGO 63 with a conductor bundle 43, submersible sensor B2 (type QAZ 21). 7 - Regulation A2: 1 pc regulator RVA 43.222, 1 pc regulator RVA 46.531, set of connectors SVA 43.222 a SVA 46.531, terminal board WAGO 46 with a conductor bundle 46, submersible sensor B2 (type QAZ 21). 8 - Regulation A3: 1 pc regulator RVA 63.280, set of connectors SVA 63.280, terminal board WAGO 63 with a conductor bundle 63, submersible sensor B2 (type QAZ 21), outside sensor B9 (type QAC 31). 9 - Regulation A4: 1 pc regulator RVA 33.121, set of connectors SVA 33.121, terminal board WAGO 33 with a conductor bundle 33, submersible sensor B2 (type QAZ 21) Regulation is delivered in a separate package. The regulators must be connected to the electric panel in place of the boiler installation. At the regulation A2 in case of the only one pump circuit required there isn't necessary to order a mixing circuit RVA 46.531 incl. the accessories.			

In the purchase order it is necessary to specify:

- The boiler size and the required regulation (according to the order specification code)
*In the purchase order it is necessary to specify the data according to the order specification code.
In case of a delivery in the composed state it is necessary to specify the execution of the right (when looking at the electric panel the smoke flue is situated on the right) or left (when looking at the electric panel the smoke flue is situated on the left).*
- Number and types of sensors:
 - outside temperature sensor QAC 31
 - submersible temperature sensor QAZ 21 (can also be used for HWS heating)
 - surface temperature sensor QAD 21
- Space instrument type:
 - indoor sensor QAA 70
 - indoor sensor QAA 50

1.2 Delivery a accessories

Delivery

VIADRUS G 90 boiler is delivered on a pallet equipped with a cardboard package and as a standard in a composed state equipped only with a network module. At request a delivery in a decomposed state is possible.

The accessories delivered at request are not included in the boiler basic price:

- regulation A1 - A4 (according to the order specification code) including 1 pc submersible sensor QAZ 21
- electromagnetic gas valve (according to the order specification code)
- ordered number of necessary types of sensors (see chapter no. 1.1)
- ordered type of space instrument (see chapter no. 1.1)

2. Boiler usage and advantages

Cast-iron sectional gas boiler VIADRUS G 90 is equipped with low-emission atmospheric burner and is intended for burning of low-pressure natural gas. The boiler is made in B_{11BS} design it means it is equipped with combustion gases reflux fuse. It is suitable first of all for heating the middle-sized and bigger premises. The use of gas valves with an automatic control and watch of the gas cap tightness at the burner makes it possible to install the boilers in the boiler rooms of categories I and II. The boiler is only made as the hot-water boiler with a forced circulation and work overpressure up to 400 kPa (4 bar). Before the dispatch the boiler is tested for tightness by 800 kPa (8 bar) testing overpressure.

Boiler advantages:

1. High service life of the cast-iron boiler drum.
2. Simple operation and maintenance.
3. Reliable security and control elements
4. Gas combustion efficiency 92 %.
5. As a standard equipped with combustion gases reflux fuse.
6. Silent running and low electricity consumption.
7. Gas connected either from the left-hand side or from the right-hand side.
8. Connection of the output and return water either from the left-hand side or from the right-hand side (it doesn't apply to the 8-sectional version).
9. Possibility to connect the boiler in a cascade.
10. Possibility to equip with an equitherm regulation.
11. Two-stage burner (nominal/ reduced output).
12. Possible delivery in a decomposed state.

The content of harmful substances in the combustion gases is significantly lower than the values prescribed by the guideline MŽP 05 – 98 „Environmentally friendly product “ and meets the requirements of the most strict European standards.

3. Boiler technical data

Tab. no. 1 Dimensions, service temperatures and electric parameters of the boiler

Number of sections	pc	8	10	12	15
Appliance category		I _{2H}			
Weight	kg	242	339	399	489
Water space volume	l	27,7	34,3	40,9	50,8
Diameter of smoke socket	mm	200	200	225	250
Boiler overall dimensions - depth	mm	995	1155	1315	1555
- width x height	mm	878,5 x 1160	941x1160		
Max. water operating overpressure	kPa (bar)	400 (4)			
Min. water operating overpressure	kPa (bar)	30 (0,3)			
Testing water overpressure	kPa (bar)	800 (8)			
Max. heating water operating temperature	°C	85			
Min. return water temperature	°C	50			
Input gas overpressure	mbar	18			
Noise level	dB	Does not exceed the 55 dB (A) level			
Chimney draught	mbar	Minimum 0,025			
Boiler connections - heating water	Js	6/4"			
- return water	Js	6/4"			
- gas	Js	1/2"	1"		
Connecting voltage		1/N/PE 230 V AC 50 Hz TN-S			
Electric input	W	50			
Electric protection		IP 40			

Tab. no. 2 Thermal parameters of boiler

(heating value 33,99 MJ. m⁻³, gas temperature 15°C and bar. air pressure 1013,25 mbar)

Number of sections	pcs	8	10	12	15
Rated thermal output max.	kW	64	80	96	120
Rated thermal output min.	kW	49	56	67	84
Rated thermal output max	kW	71	87	105	127
Rated thermal output min	kW	55	61	73	94
Volume gas flow at the maximum thermal output	m ³ .h ⁻¹	7,16	9,25	11,32	13,61
Volume gas flow at the minimum thermal output	m ³ .h ⁻¹	5,56	6,5	7,85	10,05
Efficiency at the maximum thermal output	%	91	92		
Efficiency at the minimum thermal output	%	89	92		
Temperature of the combustion gases after the draught diverter at the maximum thermal output	°C	122	129	114	118
Temperature of the combustion gases after the draught diverter at the minimum thermal output	°C	98	95	95	88
Volume of dry combustion gases actual at the maximum thermal output	m ³ .m ⁻³	20,18	15,8	21,6	18,13
Volume of dry combustion gases actual at the minimum thermal output	m ³ .m ⁻³	23,63	20,1	24,8	23,6
Emission values - CO	mg.m ⁻³	5	6	8	7
- NO _x	mg./kWh	33	33	27	23
Grade of NO _x		grade V			
Nozzle diameter	mm	2,42			
Honeywell VR 4601 and VR 4605 valves					
Informative gas pressure at the nozzle for the nominative output at the maximum thermal output	mbar	15	14,8	14,5	14
Informative gas pressure at the nozzle for the nominative output at the minimum thermal output	mbar	9	7,6	7,5	7,5
Dungs MB – ZRDLE 412 valve					
Informative gas pressure at the nozzle for the nominative output at the maximum thermal output	mbar	-	13,8		
Informative gas pressure at the nozzle for the nominative output at the minimum thermal output	mbar	-	7		

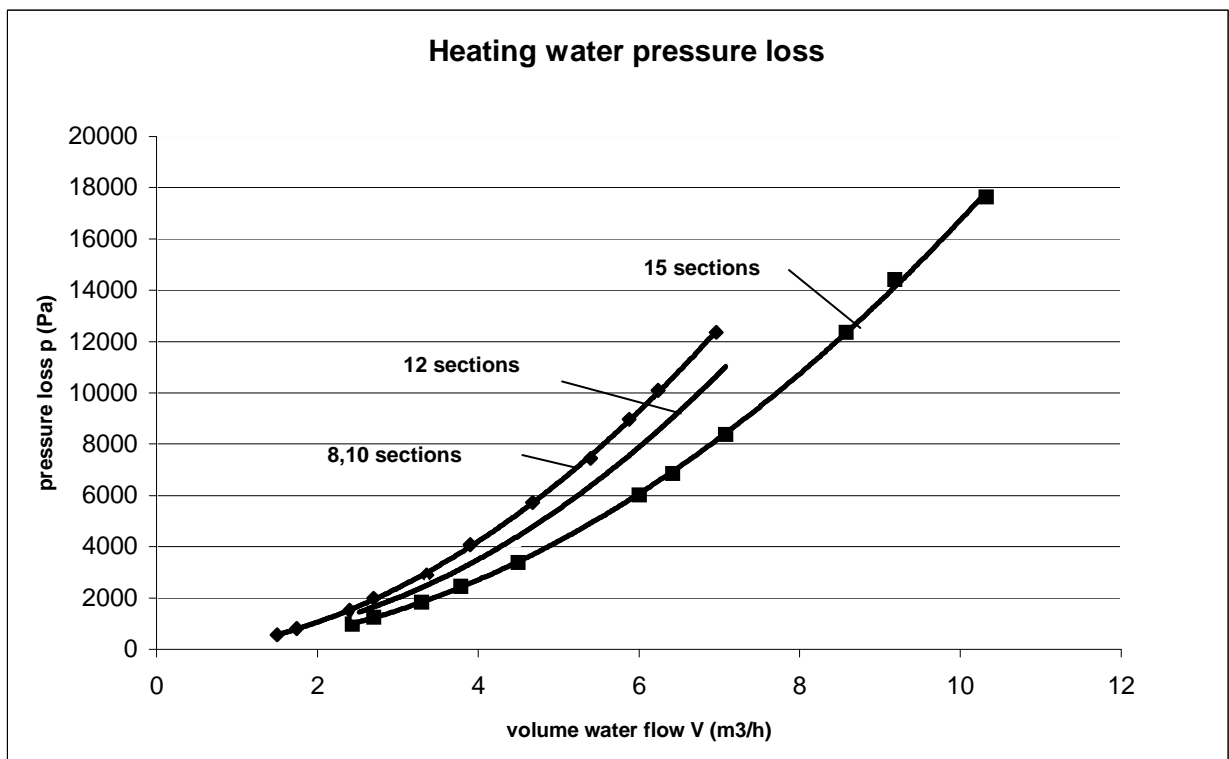


Fig. no. 1 Diagram showing the dependency between the boiler exchanger pressure loss and the water volume flow $p = f(V)$

4. Description

4.1 Boiler construction

The main boiler segment is the iron-cast sectional boiler drum made of grey cast-iron in compliance with:
EN 1561 cast-iron 200

The pressure segments of the boiler conform to the strength requirements in compliance with:
EN 656 Gas – fired central heating boilers – Type B boilers of nominal heat input exceeding 70 kW
but not exceeding 300 kW

The main boiler segment is the iron-cast sectional boiler drum. The individual sections are connected by means of forced-on insertions and tightened by means of the anchor bolts, thus creating a combustion space with convection surface for combustion gases heat transfer into the heating water. In the upper part of outer sections on the side where the electric panel is positioned there is screwed a basin for thermometer, the capillary thermostats sensors and the clack valve for thermomanometer. The connecting points (heating water input and output, gas) are situated in the rear end of the boiler. The whole boiler drum is insulated with a harmless mineral insulation which reduces the losses caused by heat transmittance into the surroundings.

To the upper part of the boiler drum there is mounted by means of the screws a built-in draught diverter with a mouthpiece for setting-on a stove-pipe to lead away the combustion gases into the chimney. The draught diverter is made of the stain steel and equipped with a dismountable cleaning cover.

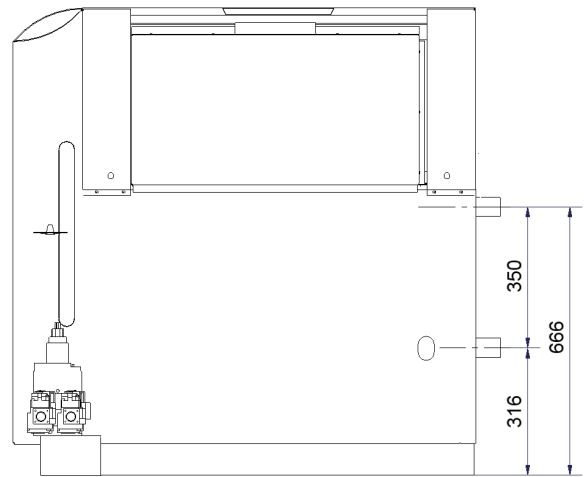
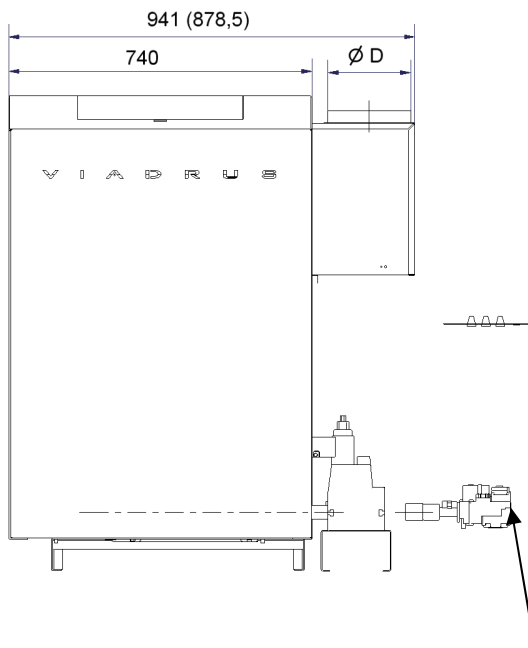
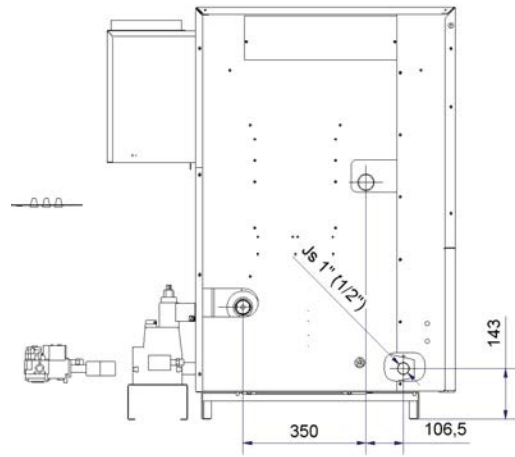
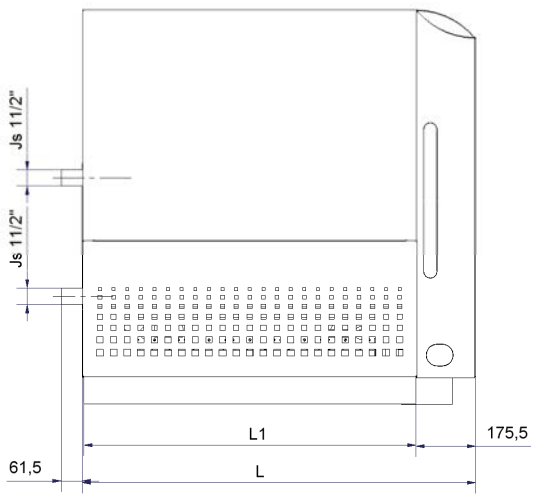
The whole boiler drum is seated on a steel basement a part of which is the protective plate made of the stain steel. The atmospheric burner composed of oval low-emission burner tubes is made of the stain steel. Individual tubes are mounted on the burner plate by means of four screws screwed in the plate. A progressive burner construction enables to close fully the boiler combustion space. All air needed for combustion is brought into the burner tubes through the diffusers. To the burner plate there is welded a gas distributor with nozzles and there is mounted a pilot burner and a watching electrode.

The boiler control is situated on the control panel in the upper front end of the boiler. The steel surface of the boiler shell is in colour treated by applying a good quality comaxite coat.

4.2 The boiler assembly

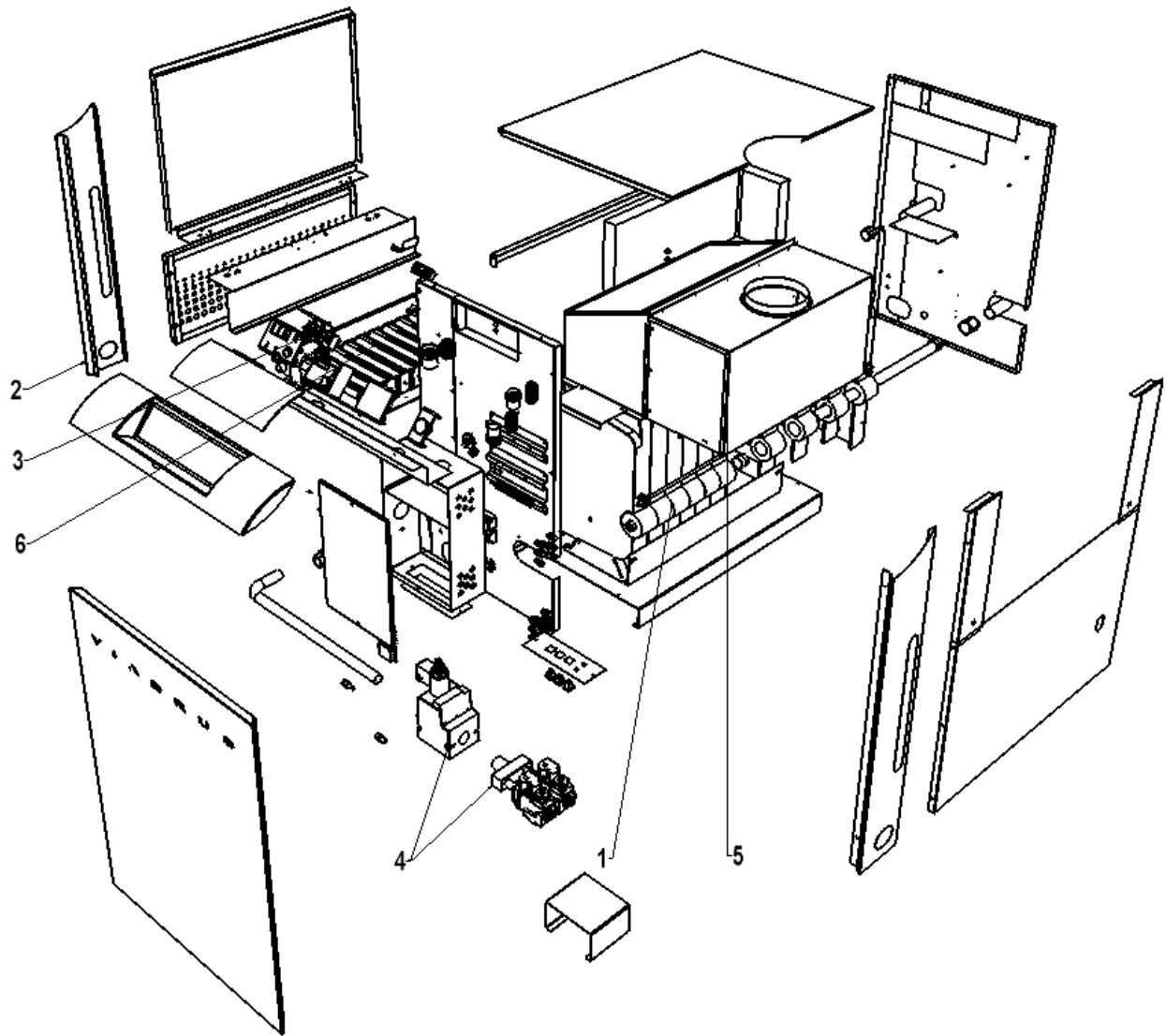
The boiler assembly is described in the „Assembly manual“.

- 1. The boiler assembly is to be done in place where the boiler will be installed.** (it is necessary to respect all boiler positioning requirements defined in chapter no. 6) according to the **project documentation**. The boiler must stand fast and well –balanced on a fireproof pad in vertical position.
- 2. The connection to the heating system is to be done according to the elaborated project.**
- 3. The combustion gases reflux fuse must not be put out of operation. It is forbidden to interfere in any way with the combustion gases reflux fuse. For the assembly of the combustion gases reflux fuse and the exchange of its faulty parts only the original parts delivered by the manufacturer are allowed to be used.**
- 4. The connection to the chimney can only be done with the agreement of a competent chimney sweepers´ firm. The boiler connection to gas and heating system.**



Number of sections	8	10	12	15
L [mm]	995	1155	1315	1555
L1 [mm]	815	975	1135	1375
A [mm]	878,5	941	941	941
D [mm]	200	200	225	250

Fig. no. 2 The main dimensions of the boiler



- 1 – boiler drum
- 2 – boiler shell
- 3 – regulation and safety elements
- 4 – gas fitting
- 5 – horizontal draught diverter
- 6 – atmospheric burner

Fig. no. 3 Boiler assembly

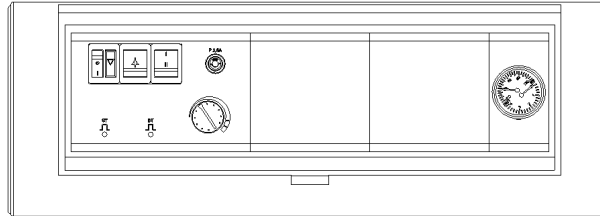
5. Regulation

5.1 Control, security and regulating elements.

As a standard the boiler is delivered without the supreme regulation and is equipped with a control panel incl. a network module.

The manufacturer doesn't recommend to operate the boilers without the supreme regulation. The standard version (without the regulation) is designed for the customers who have their own boiler control system.

Besides the network module in the control panel there is mounted an instrument cluster - thermomanometer



The network module is equipped with the elements as follows:

- The main switch with signalling
- Temperature excess signalling (safety thermostat and combustion gases reflux fuse)
- Automatics unblocking incl. the fault signalling
- safety thermostat unblocking (at the open systems keep the setting from the manufacture it means 97 °C, at the closed systems with a pressure expansion reservoir can be set up to 105°C)
- the combustion gases reflux fuse unblocking (set to 75 °C)
- the boiler thermostat (as a standard it is delivered in the range between 0 and 85°C)
- the sensor of combustion gases reflux fuse is positioned in the horizontal draught diverter and in case that there is an insufficient flue gas installation the sensor switches off the boiler. The sensors of both the boiler and safety thermostats of the thermometer and manometer clack valve are installed in the basin (in the upper part of the left outer section).

At request there is delivered to the boiler one of four kinds of regulation or their combinations according to the ordering key stated in chapter no. 1.1. The regulators are delivered in a separate package and in place of boiler installation they are mounted into the control panel as directed. The vacancies in the panel are in a standard delivery equipped with blind flanges.

The most important characteristics of Landis&Staeefa regulators:

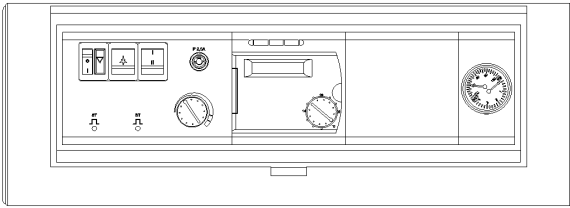
- an equitherm regulation
- a quick attenuation and a quick change in heating medium temperature (a quick attenuation and a quick firing)
- The summer/ winter operation is switched-over automatically
- The boiler is unloaded when being started
- The boiler is protected against overheating (the pump after-running)
- The boiler heating water minimum and maximum values (heating water temperatures at the boiler output) are set
- An antifreeze protection is guaranteed for plant and equipment
- The pumps protection by their regular starting.
- The heating time schedule programme (can be programmed separately every day during the week)
- The possibility of mutual co-operation among up to 16 regulators of RVA series
- In case that the ether QAA50 or QAA70 indoor gadget is connected there is the possibility of boiler remote control and there is guaranteed the adaptation of heating curves depending on the building structure and the heat demand

On the top of it the RVA 33.121, RVA 43.222 and RVA 63.280 regulators have:

- The function of a "chimney sweeper" – the boiler is automatically put into operation for required measurement of combustion gases – the boiler is operated in full swing regardless the set automatic regime.
- Registration of running hours and number of burner starts.

A1 – RVA 43. 222 EQUITHERM REGULATOR

is a boiler and heating circuit regulator for a double stage burner incl. the possibility to prepare HWS (hot supply water), with a pump heating circuit (without the mixing valve).

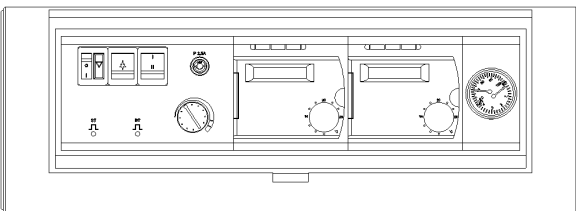


Other regulator characteristics are as follows:

- the regulation of heating circuit with a circulating pump (without the mixing valve)
- or:**
- connection in a cascade (up to 4 boilers)*

A2 - RVA 46. 531 + RVA 43.222 EQUITHERM REGULATOR

is a set of boiler and heating circuit regulators for a double stage burner incl. the possibility to prepare HWS (hot supply water), with a mixing valve in the heating circuit.

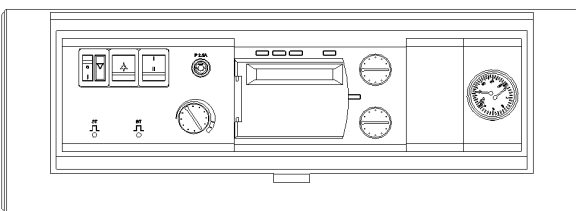


Other regulator characteristics are as follows:

- Suitable first of all for connection in a cascade (up to 4 boilers) *

A3 - RVA 63.280 EQUITHERM REGULATOR

is a boiler and heating circuit regulator for a double stage burner incl. the possibility to prepare HWS (hot supply water), with two sensors and two mixing valves.

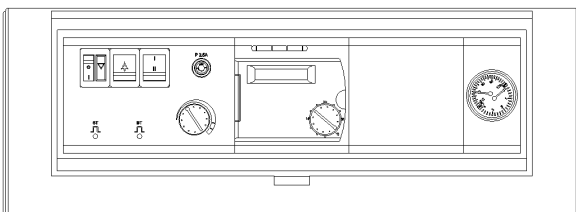


Other regulator characteristics are as follows:

- the heating circuits can be set as independent (two separate heating circuits) or as dependent (floor heating in combination with radiators)
- a separate time schedule programmed for HWS (hot supply water) preparation

A4 - RVA 33. 121 EQUITHERM REGULATOR

is a boiler and heating circuit regulator for a single stage burner incl. the possibility to prepare HWS (hot supply water), with a pump heating circuit (without the mixing valve).



Other regulator characteristics are as follows:

- a separate time schedule programmed for HWS (hot supply water) preparation
- **no other RVA regulators can be connected**

*** Note:**

When connecting in a cascade each of the boilers must be equipped with RVA 43.222 regulator and at least one of the boilers also with RVA 46.531 regulator (the number of RVA 46.531 regulators must conform to the number of controlled heating circuits).

The regulator is enclosed according to the purchase incl. a separate operation manual. As a standard the regulators are delivered together with QAZ 21, a submersible sensor for heating water temperature.

The boiler by customer's request can be equipped with the security gas fitting:

1. VALVES FOR BOILER with 8-sections

- HONEYWELL VR 4601 QB 2001 WITH HIGH – LOW REEL (COIL) and a smooth start with an output at the pilot burner

2. IN PARALLEL CONNECTED ELECTROMAGNETIC GAS VALVES FOR BOILER WITH 10, 12 and 15 SECTIONS

- HONEYWELL VR 4601 QB 2001 WITH HIGH – LOW REEL (COIL) and a smooth start with an output at the pilot burner
- HONEYWELL VR 4605 QB 2002 B WITH HIGH – LOW REEL (COIL) and a smooth start
- The boiler can be operated with heat output stated in tab. no. 2 (setting to the given nominal heat output is done by the manufacturer)
- It works in the regime of a nominal/reduced heat output

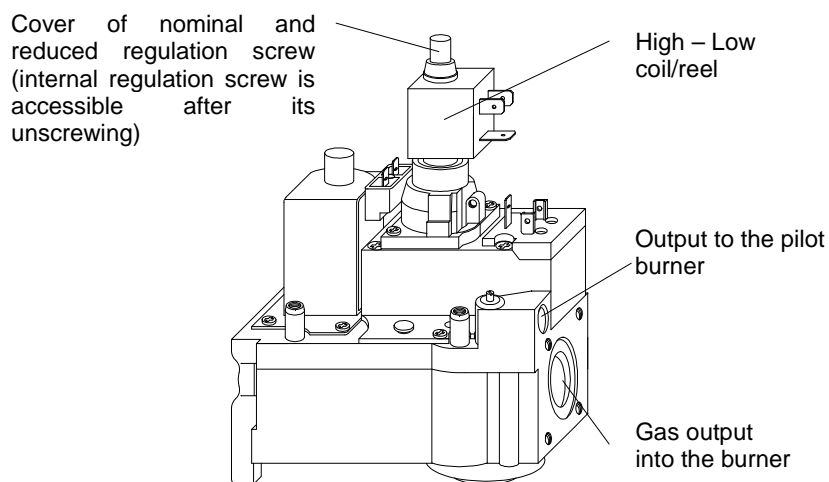


Fig. no. 4 VR 4601 QB 2001 with High – Low coil/reel and the output to the pilot burner

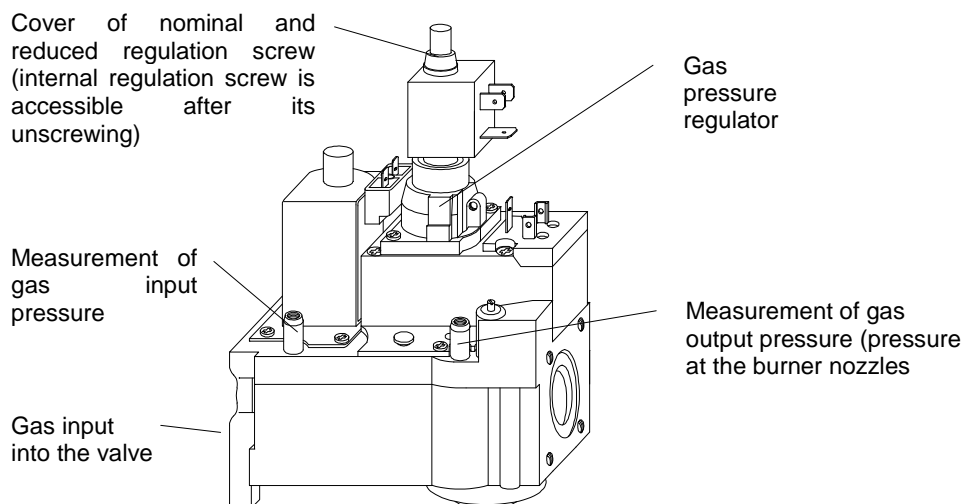


Fig. no. 5 VR 4605 QB 2002 with High – Low coil/reel without the output to the pilot burner

3. DUNGS MB-ZRDLE 412, A TWO-STAGE ELECTROMAGNETIC VALVE FOR BOILER WITH 10,12 and 15 SECTIONS

The main security is Dungs MB-ZRDLE 412, a two-stage electromagnetic valve which works in the regime of a nominal/ reduced heat output and enables to mount a watcher of gas fitting tightness that watches the tightness of gas valve seats. The watcher of gas fitting tightness can be screwed to the gas multi-block either from the left-hand or the right-hand side depending on the gas connection design. In the fig. no. 6 there is displayed a valve with gas connection attached from the left-hand side. In case of a connection attached from the right-hand side the valve for pilot burner and the tightness watcher must be turned in a specular symmetry.

Openings for the connection with the multi-block
(at the gas fitting tightness watcher and multi-block the packing must be removed)

Gas fitting tightness watcher

4 pcs openings for the fastening screws

Packing

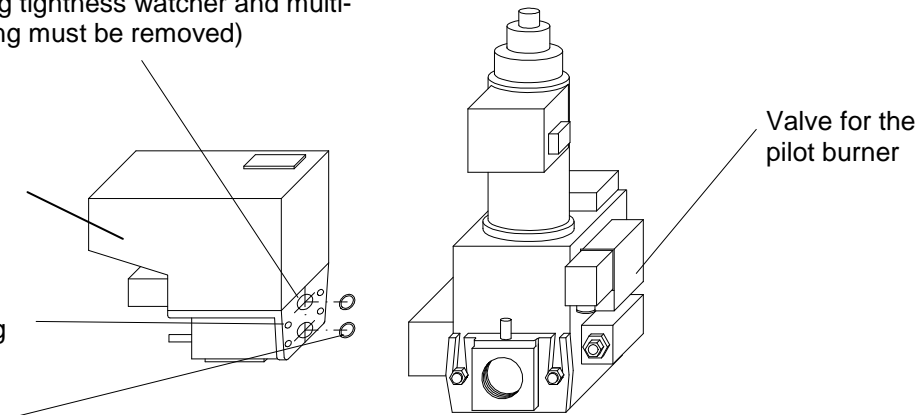


Fig. no. 6 DUNGS MB-ZRDLE 412, a two-stage electromagnetic valve with gas fitting tightness watcher

A low-emission pilot burner of Polidoro type provides **the burner ignition and watches its operation**. In case that there is required the main burner ignition the pilot burner will catch fire automatically after the waiting time $T_w = 10$ sec has passed. A spark will ignite the pilot burner and its flame is sensed by a ionisation electrode. After the pilot burner flame stabilization and closing the ionisation circuit there will open the main valve for gas inlet into the main burner. In case that the pilot burner hasn't ignited within the safety time of $T_s = 50$ sec, the automatics will close the gas inlet into the main burner and the pilot burner. In case that during the normal boiler operation the flame has disappeared, the ignition automatics will repeat the ignition cycle at the pilot burner. If there persists a permanent ionisation loss the boiler will get into a breakdown condition (the pushbutton called „automatics with breakdown signalling unblocking“ on the control panel is alight). After the waiting time (approx. 10 sec) has passed the breakdown condition can be annulled manually by using the pushbutton called „automatics with breakdown signalling unblocking“. The pilot burner is in operation together with the main burner.

In case that there is an electricity outage the gas inlet at the burner will close automatically. After the electricity supply has been restored the boiler will start up automatically.

	Ø nozzle (in mm)
nozzle ZP	0,45

The gas inlet into the pilot burner at the dimension of 8 sections has $\varnothing 4$ mm, at the dimensions of 10, 12 and 15 sections it has $\varnothing 6$ mm.

5.2 Electrical diagrams

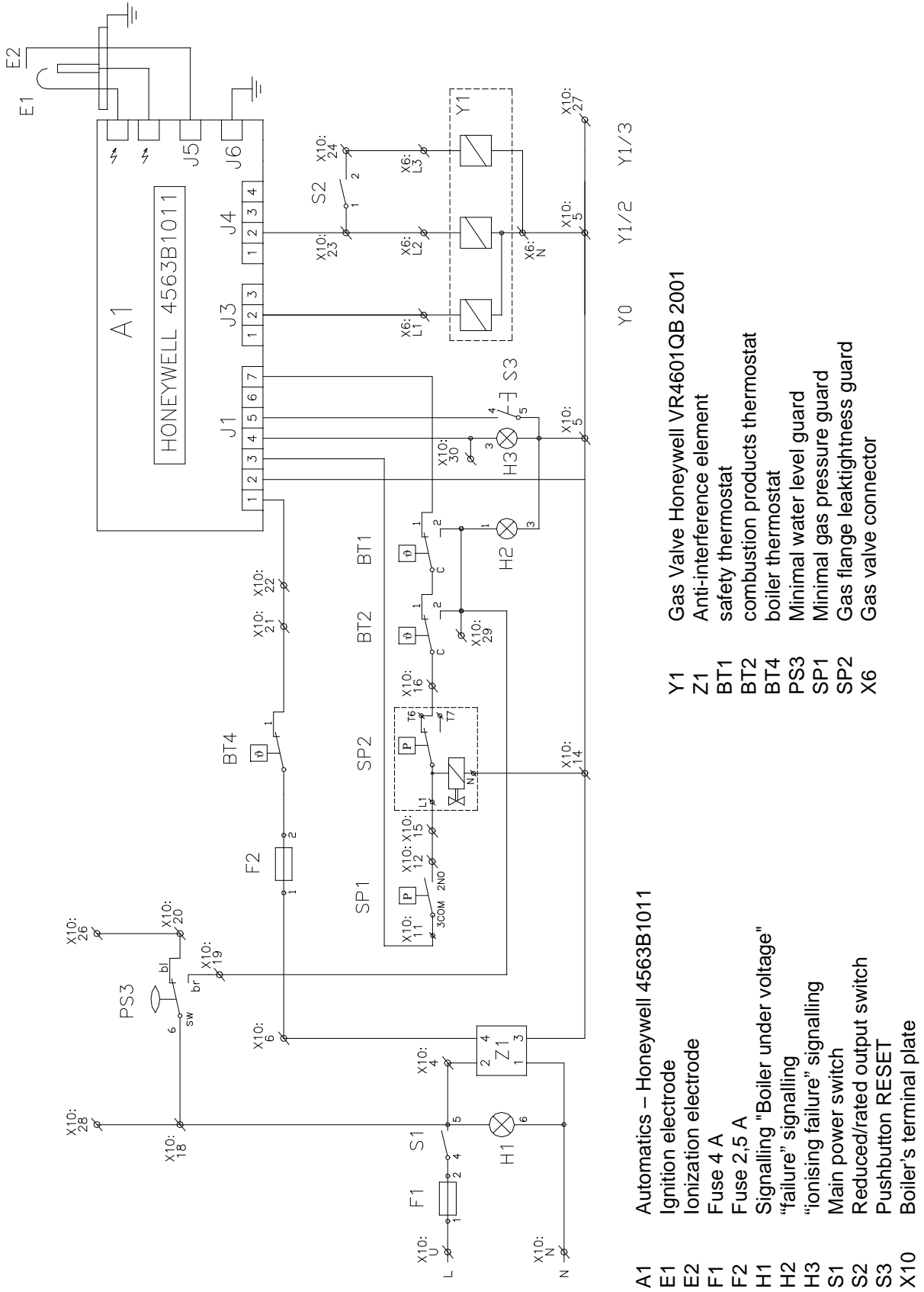
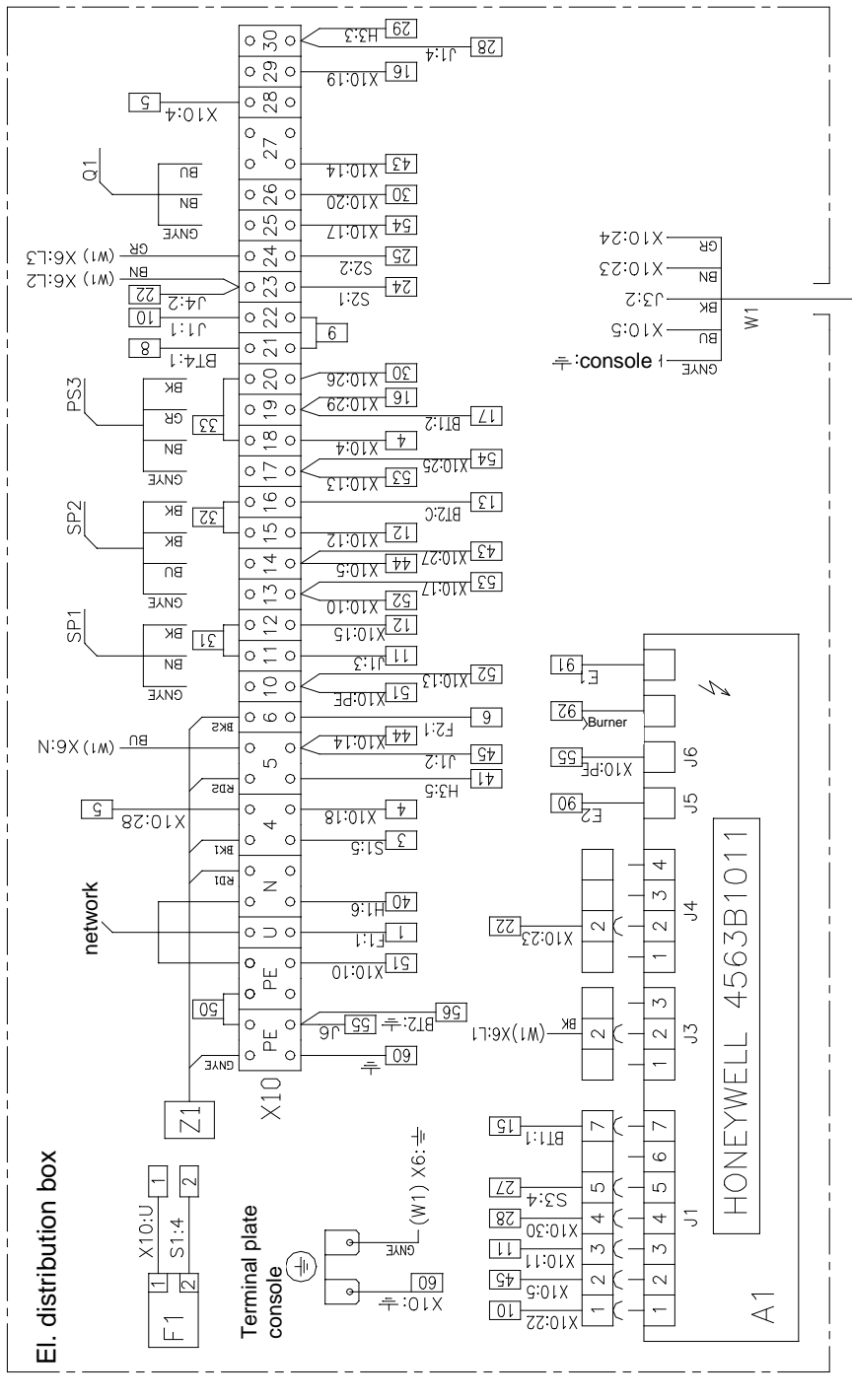
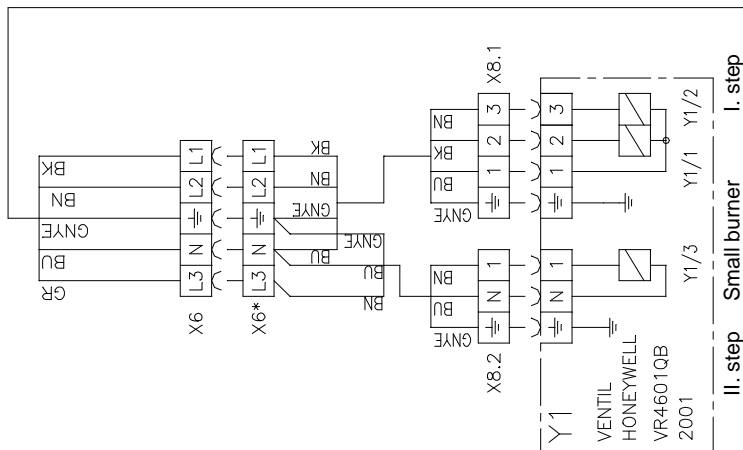


Fig. no. 7 Elementary wiring diagram of VIADRUS G 90 – 8 sectional boiler for Honeywell version

At VIADRUS G 90 version – 8 sections there isn't used the tightness watching system at SP2 gas fitting



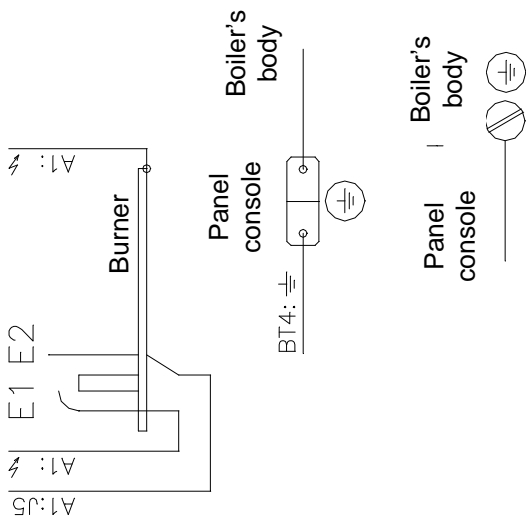
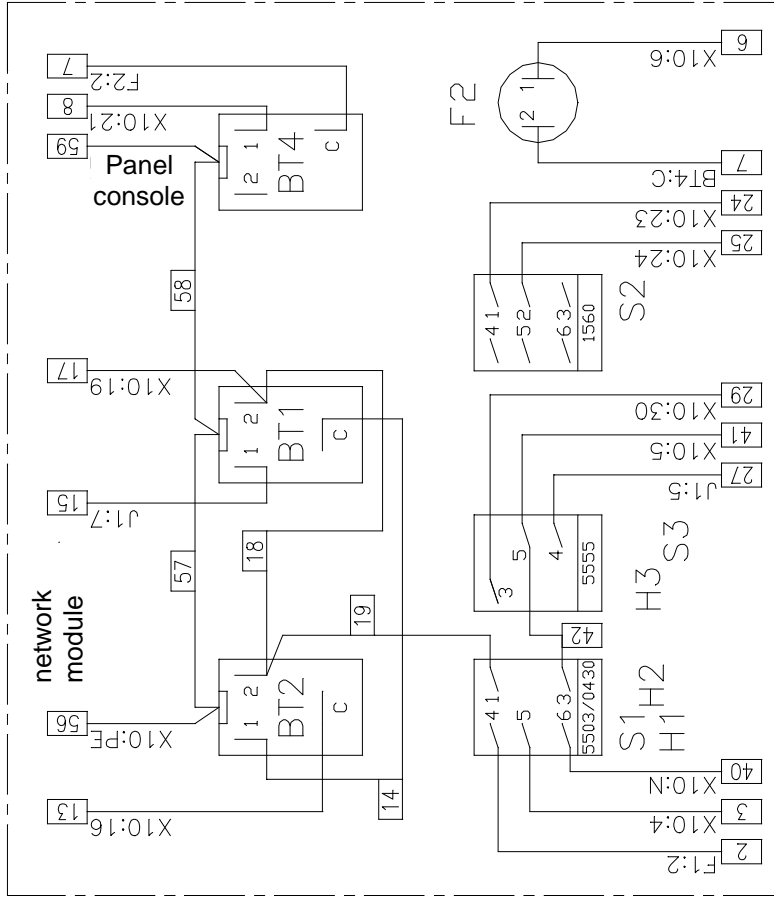
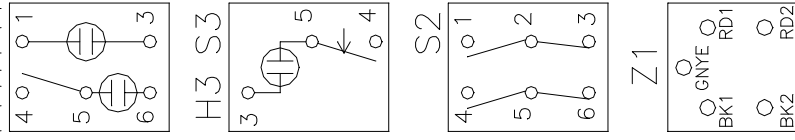
Color marking:
 GNYE Green-yellow
 BK Black
 BN Brown
 BU Blue
 RD Red
 GR Grey



- A1 Automatics – Honeywell 4563B1011
- F1 Fuse 4 A
- X10 Boiler's terminal plate
- Y1 Gas Valve Honeywell VR4601QB 2001
- Z1 Anti-interference element
- PS3 Minimal water level guard
- SP1 Minimal gas pressure guard
- SP2 Gas flange leaktightness guard
- X6 Gas valve connectors
- Q1 Circulating pump

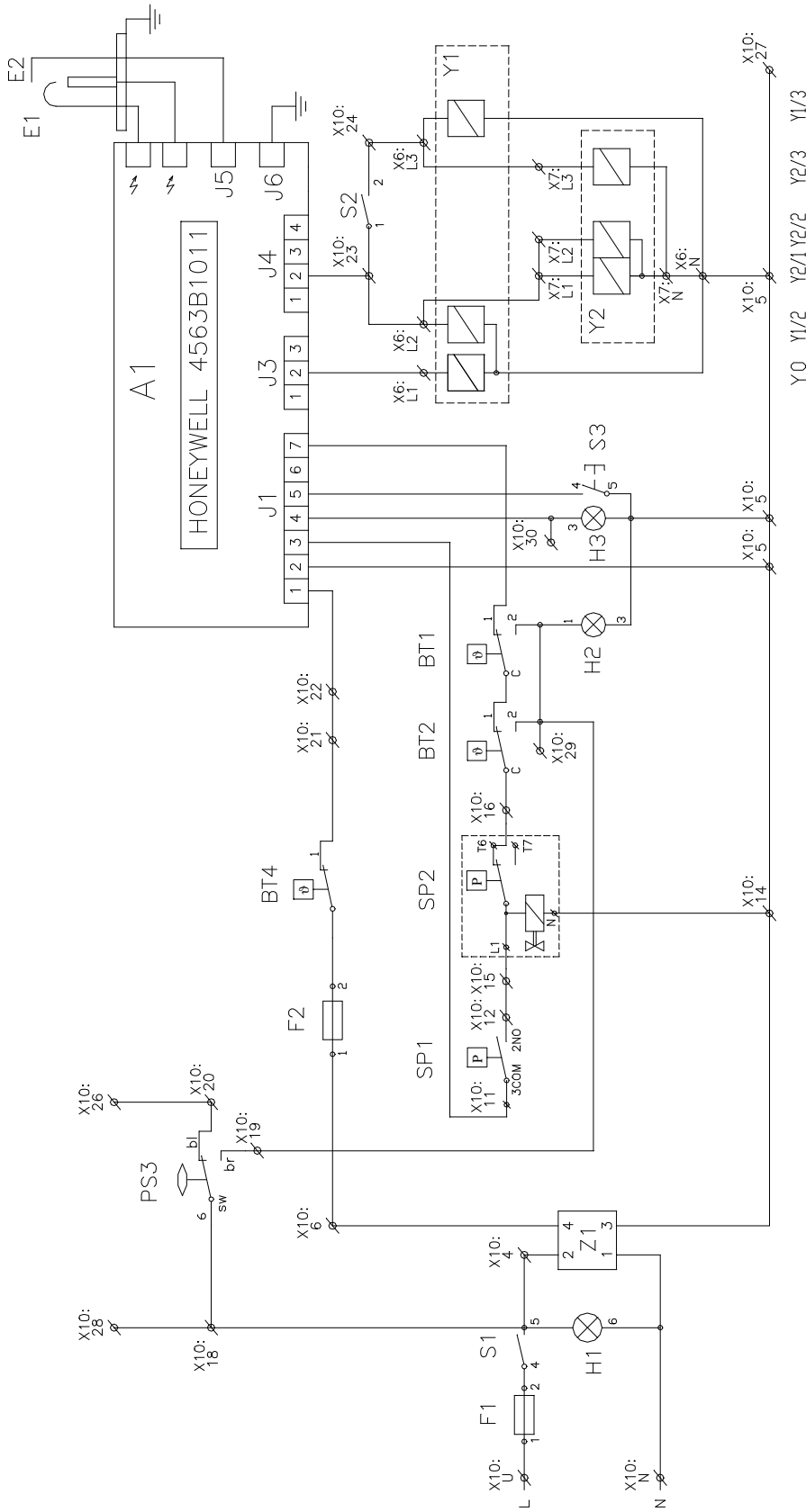
Fig. no. 8a) Wiring diagram of 8 sectional VIADRUS G 90 boiler for Honeywell version

S1+H1+H2



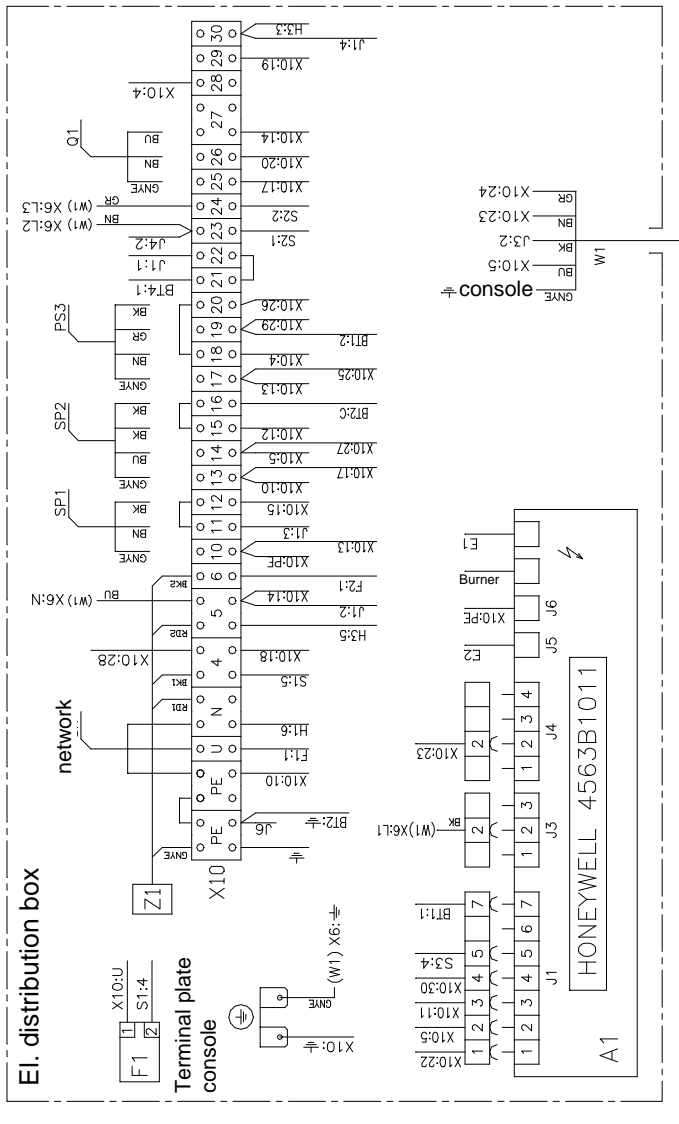
- E1 Ignition electrode
- E2 Small burner ionization electrode
- E3 Burner ionization electrode
- F2 Fuse 2,5 A
- H1 Signalling "Boiler under voltage"
- H2 "failure" signalling
- H3 "ionising failure" signalling
- S1 Main power switch
- S2 Reduced/rated output switch
- S3 Pushbutton RESET
- BT1 safety thermostat
- BT2 combustion products thermostat
- BT4 boiler thermostat

Fig. no. 8b) Wiring diagram of 8 sectional VIADRUS G 90 boiler for Honeywell version

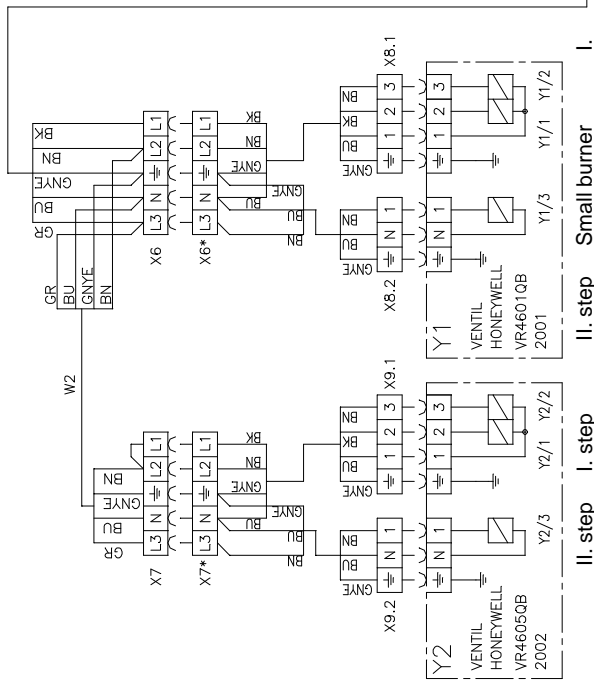


- | | |
|--------|-----------------------------------|
| A1 | Automatics – Honeywell 4563B1011 |
| E1 | Ignition electrode |
| E2 | Ionization electrode |
| F1 | Fuse 4 A |
| F2 | Fuse 2,5 A |
| H1 | Signalling "Boiler under voltage" |
| H2 | "failure" signalling |
| H3 | "ionising failure" signalling |
| S1 | Main power switch |
| S2 | Reduced/rated output switch |
| S3 | Pushbutton RESET |
| X10 | Boiler's terminal plate |
| Y1 | Gas Valve Honeywell VR4601QB 2001 |
| Y2 | Gas Valve Honeywell VR4605QB 2002 |
| Z1 | Anti-interference element |
| BT1 | safety thermostat |
| BT2 | combustion products thermostat |
| BT4 | boiler thermostat |
| PS3 | Minimal water level guard |
| SP1 | Minimal gas pressure guard |
| SP2 | Gas flange leaktightness guard |
| X6, X7 | Gas valve connectors |

Fig. no. 9 Elementary wiring diagram of VIADRUS G 90 – 10, 12, 15 sectional boiler for Honeywell version



Color marking:
 GNYE Green-yellow
 BK Black
 BN Brown
 BU Blue
 RD Red
 GR Grey



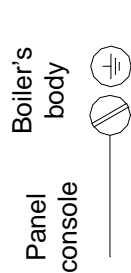
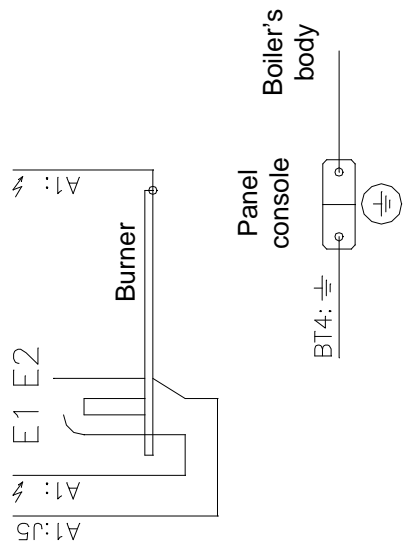
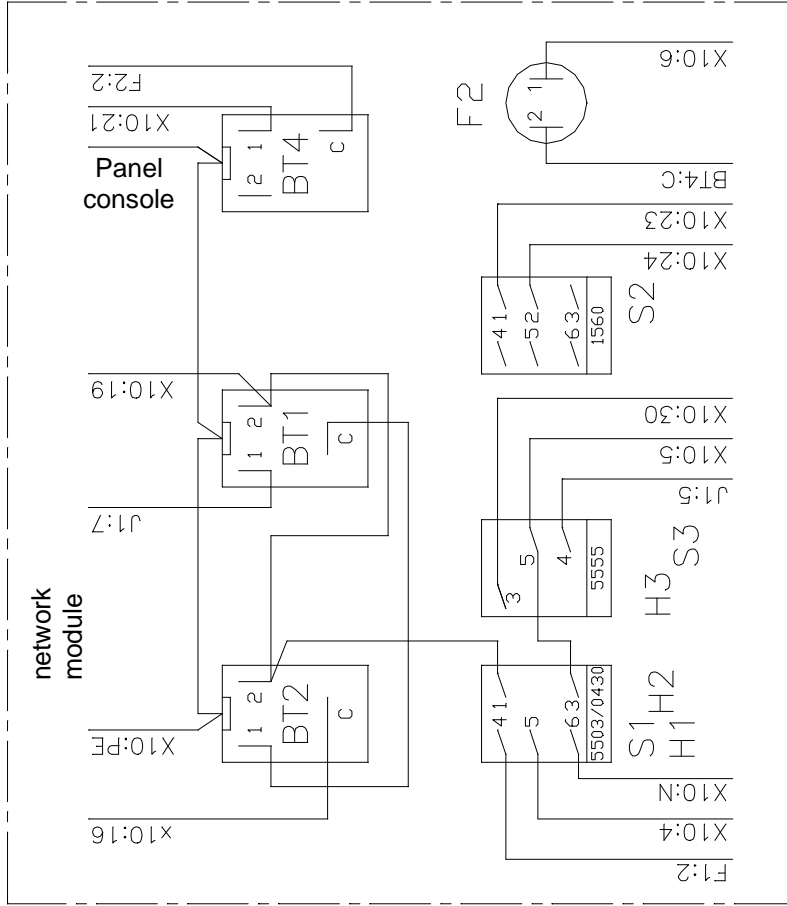
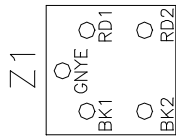
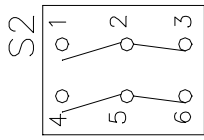
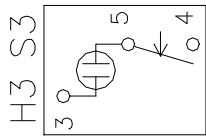
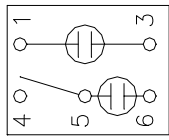
I. step I. step I. step
 II. step II. step II. step
 Small burner

Automatics – Honeywell 4563B1011
 Fuse 4 A
 Boiler's terminal plate
 Gas Valve Honeywell VR4601QB 2001
 Gas Valve Honeywell VR4605QB 2002
 Anti-interference element
 Minimal water level guard
 Minimal gas pressure guard
 Gas flange leaktightness guard
 Gas valve connectors
 Circulating pump

A1
 F1
 X10
 Y1
 Y2
 Z1
 PS3
 SP1
 SP2
 X6, X7
 Q1

Fig. no. 10a) Wiring diagram of 10, 12, 15 sectional VIADRUS G 90 boiler for Honeywell version

S1+H1+H2



- E1 Ignition electrode
- E2 Small burner ionization electrode
- E3 Burner ionization electrode
- F2 Fuse 2.5 A
- H1 Signalling "Boiler under voltage"
- H2 "failure" signalling
- H3 "ionising failure" signalling
- S1 Main power switch
- S2 Reduced/rated output switch
- S3 Pushbutton RESET
- BT1 safety thermostat
- BT2 combustion products thermostat
- BT4 boiler thermostat

Fig. no. 10b) Wiring diagram of 10, 12, 15 sectional VIADRUS G 90 boiler for Honeywell version

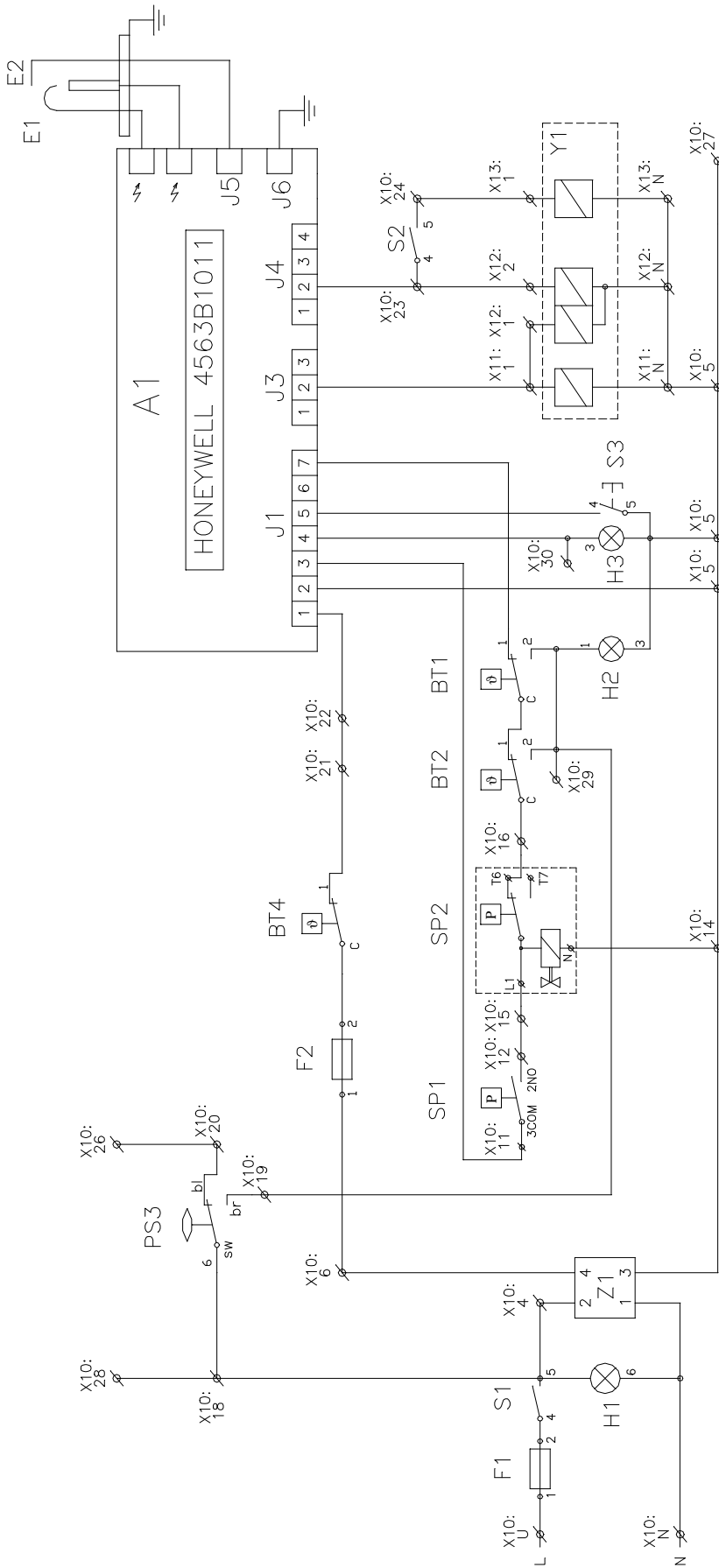


Fig. no. 11 Elementary wiring diagram of VIADRUS G 90 – 10, 12, 15 sectional boiler for DUNGS version

- A1 Automatics – Honeywell 4563B1011
- E1 Ignition electrode
- E2 Ionization electrode
- F1 Fuse 4 A
- F2 Fuse 2,5 A
- H1 Signalling "Boiler under voltage"
- H2 "failure" signalling
- H3 "ionising failure" signalling
- S1 Main power switch
- S2 Reduced/rated output switch
- S3 Pushbutton RESET
- X10 Boiler's terminal plate

- Y1 Gas Valve Dungs MB-ZRDLE 412B01S22
- Z1 Anti-interference element
- BT1 safety thermostat
- BT2 combustion products thermostat
- BT4 boiler thermostat
- PS3 Minimal water level guard
- SP1 Minimal gas pressure guard
- SP2 Gas flange leaktightness guard
- X11, X12, X13 Gas valve connectors

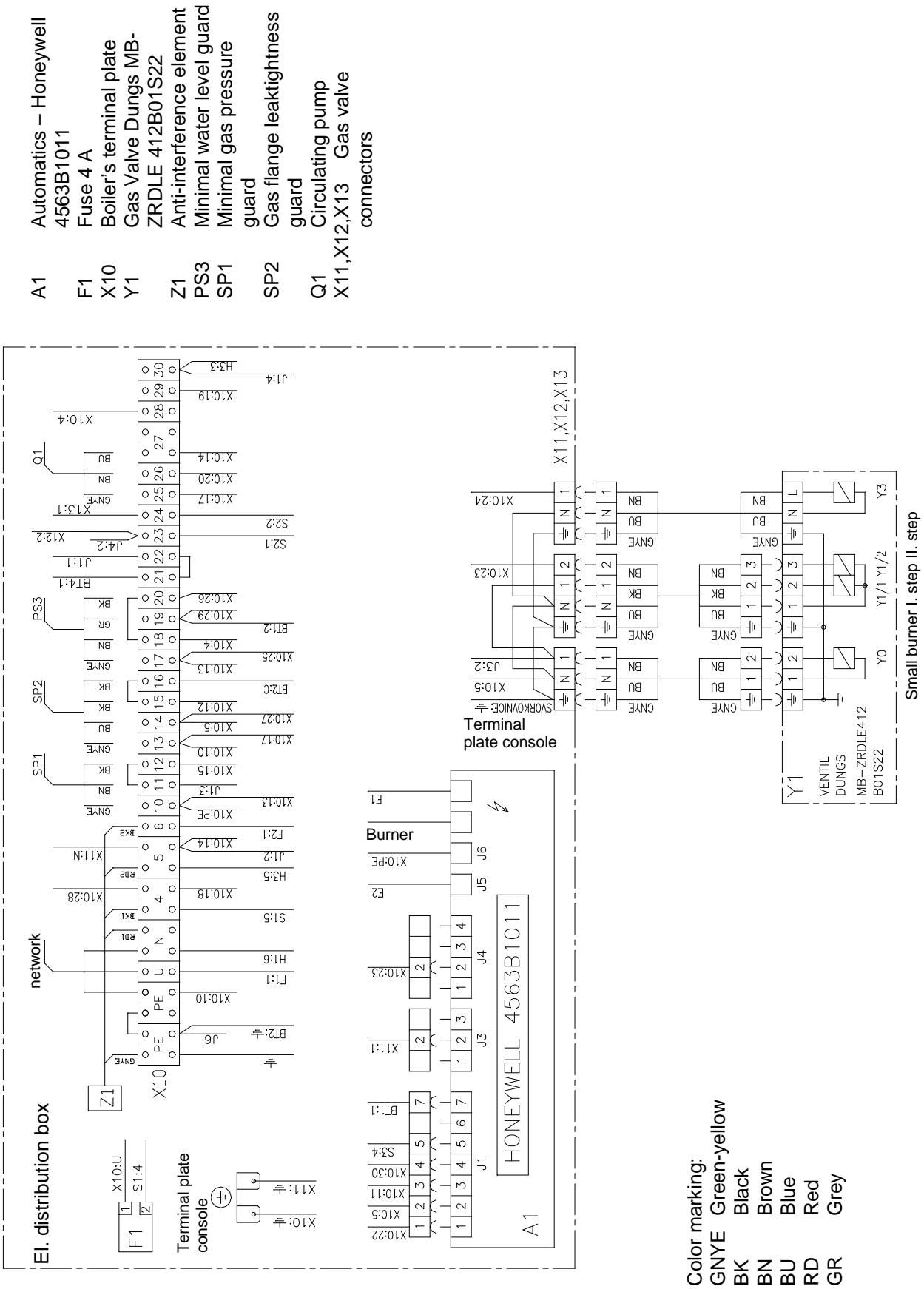


Fig. no. 12a) Wiring diagram of 10, 12, 15 sectional VIADRUS G 90 boiler for DUNGS version

S1+H1+H2

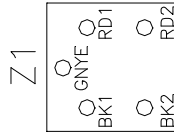
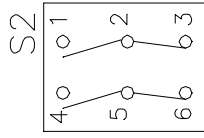
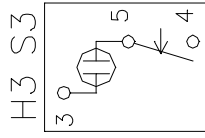
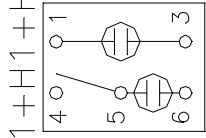
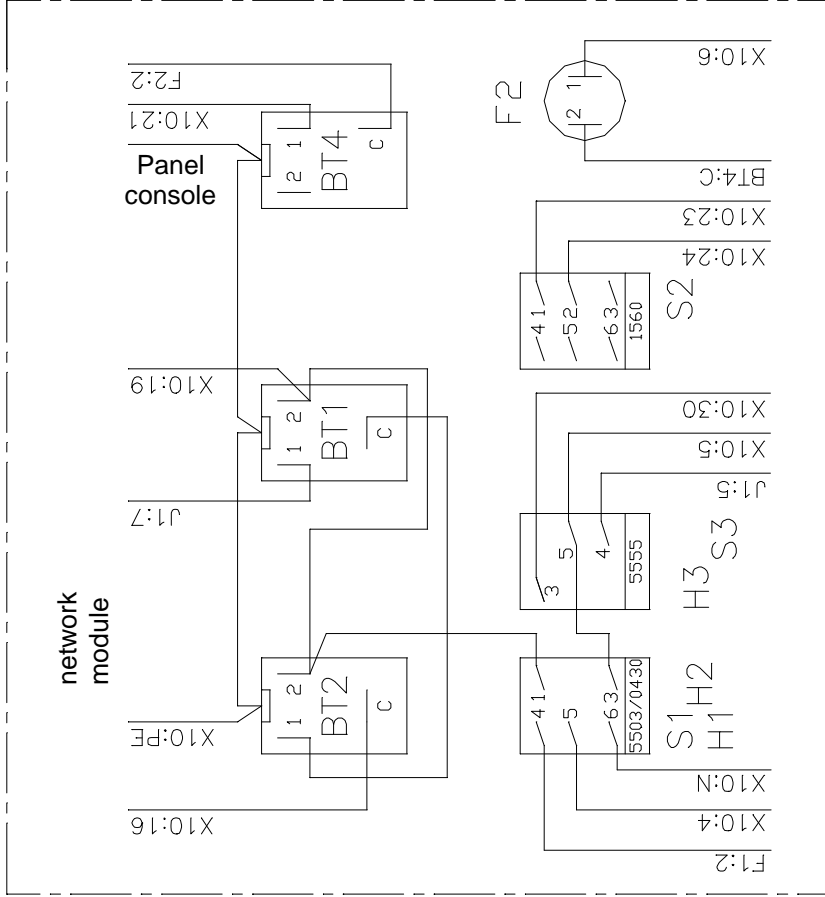
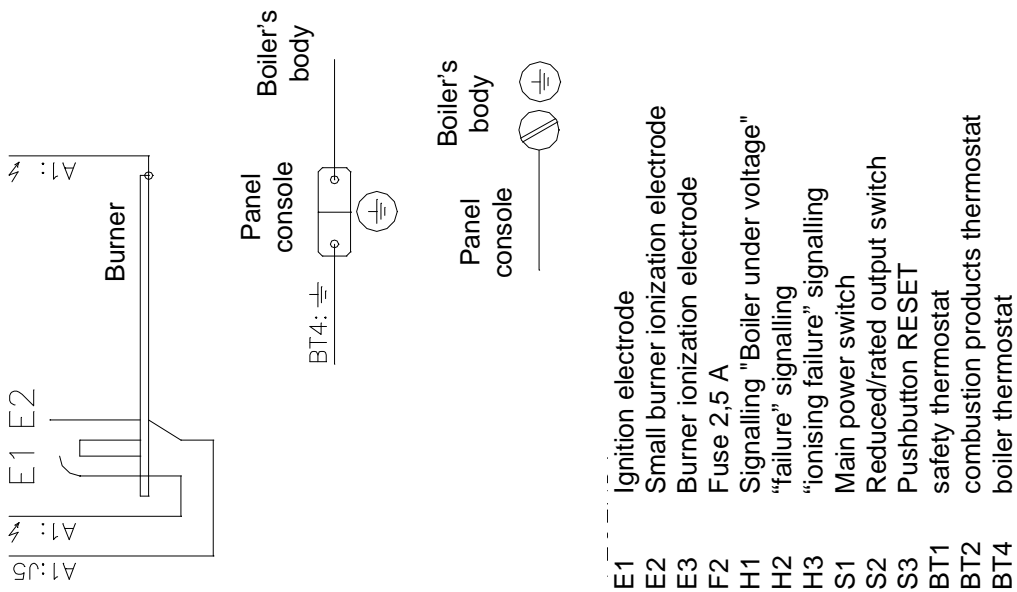


Fig. no. 12b) Wiring diagram of 10, 12, 15 sectional VIADRUS G 90 boiler for DUNGS version

6. Positioning and installation

6.1 Regulations and guidelines

The boiler can only be installed by a firm holding the valid licence that applies to the installation and a maintenance of gas appliances. A project according to the valid regulations must be elaborated for the installation.

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

Recommended values		
Hardness	mmol/l	1
Ca ²⁺	mmol/l	0,3
Concentration of total Fe + Mn	mg/l	(0,3)*

*) recommended value

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 297	Gas – fired central heating boilers – Type B ₁₁ and B _{11BS} fitted with atmospheric burners of nominal heat input not exceeding 70 kW.
EN 656	Gas – fired central heating boilers – Type B boilers of nominal heat input exceeding 70 kW but not exceeding 300 kW

b) to the gas distribution

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
ČSN 07 0703	Boiler room with gas fuel –operated equipments
ČSN 38 6405	Gas equipments. Operating principles
ČSN 38 6420	Industrial gas pipelines
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 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 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 – machina interface, marking and identification – Identification of equipment terminals and conductor terminations
- EN 60446 Basic and safety principles for man – machina interface, marking and identification – Identification of conductors by colours or numerals

d) to the chimney

- ČSN 73 4201 Chimneys and flue gas ducting– designing, implementation and connection of fuel consumers.

e) regarding the fire regulations

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

f) 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

6.2 Positioning possibilities

VIADRUS G 90 boiler can be installed in basic environment AA5/AB5 according to ČSN 33 2000-3. It conforms to the use in the rooms detached from the housing rooms themselves.

The boiler is equipped with a movable mains supply and a plug. The boiler must be according to EN 60 335 – 1 ed. 2 Art. 7.12.4 positioned in a way making sure that the plug is accessible.

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

When positioning the boiler it is necessary to keep „VIADRUS G 90 boiler installation manual (delivered in a decomposed state)

Boiler positioning with regard to the fire regulations:

1. Installation on the floor made of a flammable material
 - Put the boiler on a fireproof pad or a bedding approx. 50 mm high, while both the pad and the bedding exceed the boiler ground plan on all sides by 15 mm.
2. A safe distance from the flammable 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.

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,...

Boiler position with regard to the necessary handling space:

- in front of the boiler there must be left a handling space minimum 1000 mm
- minimum distances between the rear part of boiler (the place of all connections) and the wall 600 mm
- on the side of atmospheric burner there must be left a free space min. 800 mm

Warning:

The boiler room, in which the boiler VIADRUS G 90 is installed, must be equipped with the safety elements in compliance with ČSN 07 0703 – Boiler room with gas fuel –operated equipments.

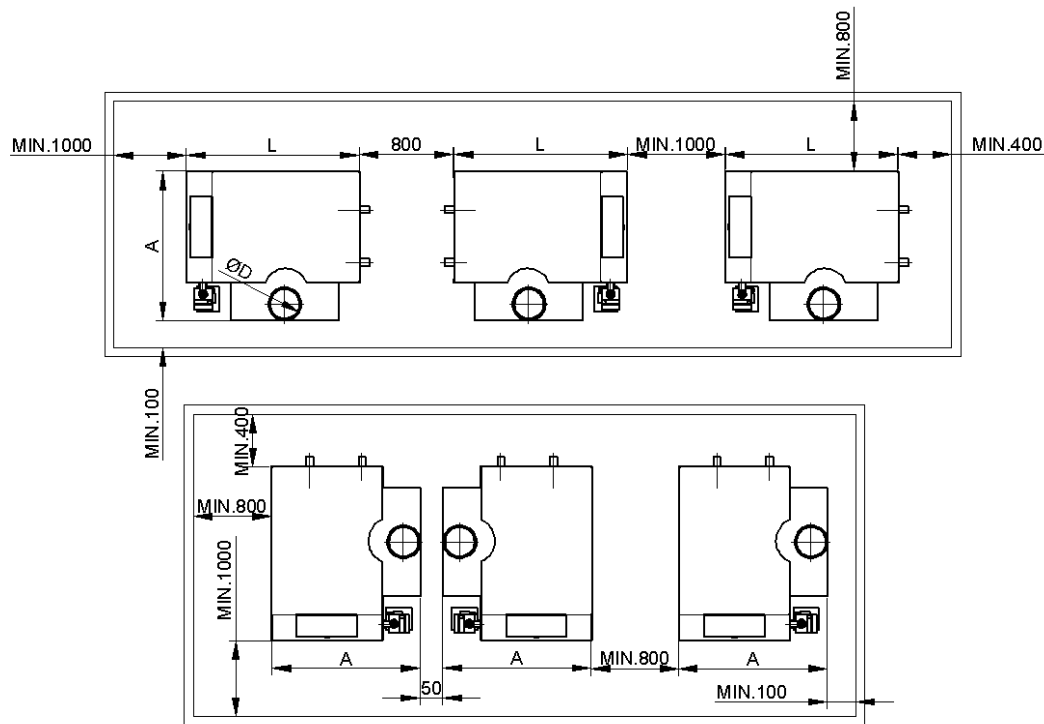


Fig. no. 13 Position in a boiler room.

6.3 Connection to the hydraulic system

We recommend to design the boilers together with expansion tanks incl. a membrane and the heating system must be equipped with safety valves. The expansion tank volume calculation based on the water volume in the system and the conditions for their use are stated in ČSN 06 0830.

Filling the heating system with water

Water for filling the boiler and the heating system must be clear and colourless, with no suspended substances, oils and chemically aggressive substances. Its hardness must correspond to ČSN 07 7401 and in case the water hardness is unsuitable the water must be treated. Even if the water with a higher hardness is heated several times the salts segregation on the boiler drum walls cannot be prevented. The precipitation of 1 mm calcite reduces the heat transfer from the metal into the water at the given point by 10 % and on the top of that it might cause the exchanger disruption – the guarantee becomes invalid.

The heating systems with an open expansion tank make possible a direct contact between the heating water and the atmosphere. At the period of the heating season the water expanding in the tank absorbs the oxygen that increases the corrosive effects and at the same time a large volume of water gets evaporated. Only the water treated to the values shown in the table can be used for refilling.

Recommended water treatment for water boilers and connected closed systems operation		
Hardness	mmol/l	1
Ca ²⁺	mmol/l	0,3
Total Fe + Mn concentration	mg/l	(0,3)*

*) recommended value

After the boiler and heating system have been refilled it is necessary to bleed properly the boiler and the whole heating system.

At the period of the heating season it is necessary to keep a constant water volume in the system and make sure that the heating system is vented. The water from the boiler and the heating system must never be discharged or taken for the use except the emergency cases like repairs etc. The water discharge and refill increases the corrosion and furring risk. If it is necessary to **refill the water in heating system we only refill a cold boiler in order to prevent the sections rupture.**

7. Commissioning – instructions for a contracting service organization

The boiler commissioning, setting the heat output, any interference with the boiler electric part or connection of further control elements can only be done by a contracting service organization authorized to do this activity.

7.1 Checking activity before commissioning

Before the boiler commissioning there must first of all be checked:

- a) heating system replenishment with water (pressure gauge check)
- b) thermostats setting:

safety thermostat	105 °C
boiler thermostat	(0 – 85 °C)
combustion gases reflux fuse	70 °C
- c) gas inlet pressure before the boiler (pressure gauge before the main pressure valve/ gas cap 1,8 MPa) and gas connection breathing
- d) connection to the fixed 230 V/50 Hz el. network distributor with adequate protection, switching of control (boiler, safety) thermostats and combustion gases reflux fuse according to e ČSN 33 2180 Art. 6.2.2.
- e) connection to the chimney

7.2 Commissioning

1. Open the gas cap and water „seals“ in heating system.
Set the boiler thermostat to the max. temperature.
2. Switch the main switch on the boiler electric panel. The boiler connection to the electric network is signalled by a green light.
3. If there is everything in a good order the pilot burner will catch fire. As a rule the ignition electrode on the burner sparkles for 50 sec. A reduced output will be started up by the pilot burner. In case that the ignition cycle has passed but the burner didn't catch fire there will light up the breakdown signalling on the network module. (see. Fig. no. 18). If the ignition fails repeatedly it is necessary to switch off the main switch, find out the fault and eliminate it (see chapter no. 12) and then to repeat the whole process.
4. Set and regulate the boiler heat output according to the next chapter no. 7.3.

7.3 Setting and regulation of the boiler heat output

7.3.1 Setting and regulation of the boiler heat output for 8 sectional boiler size

Setting and regulation of a reduced output:

1. Put the boiler into operation.
2. Measure the gas inlet pressure.
3. Before the setting procedure itself let for a while stabilize the operation pressure conditions at the burner.
4. For orientation measure the gas pressure on the gas distributor by using the digital manometer or the U-tube.
5. Remove the plastic cover from High-Low coil.
6. Connect the manometer (U-tube) to the measuring point of the output gas overpressure on VR 4601 QB 2001 valve.
7. By using a 3.5 mm screwdriver regulate through the internal screw on both regulators the pressure value of a reduced output according to table no. 2. By turning clockwise the gas overpressure starts increasing and other way round decreasing.
8. Measure the gas flow on the gas meter; if it doesn't correspond to the nominal output (see tab. no. 2) – set the gas pressure at the nozzle in a way making sure that the required gas flow will be achieved.
9. Check the combustion purity by using the combustion gases analyser (NO_x, CO).

Setting the nominal output:

1. Put the boiler into operation.
2. For orientation measure the gas pressure on the gas distributor by using the digital manometer or the U-tube.
3. Before the setting procedure itself let for a while stabilize the operation pressure conditions at the burner.
4. Connect the manometer (U-tube) to the measuring point of the output gas pressure
5. Connect the coil terminal connector of the High-Low valve.
6. By using the nut wrench no. 8 turn the valve external adjusting screw for setting the nominal output. When turning clockwise the gas overpressure keeps increasing and other way round it keeps decreasing.
7. After the adjustment completion check the correctness of set values after having switched on and switched off the terminal connector repeatedly several times.
8. Measure the gas flow on the gas meter; if it doesn't correspond to the nominal output (see tab. no. 2) – set the gas pressure at the nozzle in a way making sure that the required gas flow will be achieved.
9. Put on the plastic protective cover on the High-Low coil.
10. Check the combustion purity by using the combustion gases analyser (NO_x, CO).

7.3.2 Heat output setting and adjusting at the boiler equipped with Honeywell electromagnetic gas valves for the sizes with 10, 12 and 15 sections

Reduced output setting and adjusting:

1. Put the boiler into operation
2. Measure the gas inlet pressure which must be between 15 and 23 mbar.
3. Before the setting procedure itself let for a while stabilize the operation pressure conditions at the burner.
4. For orientation measure the gas pressure on the gas distributor by using the digital manometer or the U-tube.
5. Remove the plastic cover from High-Low coils.

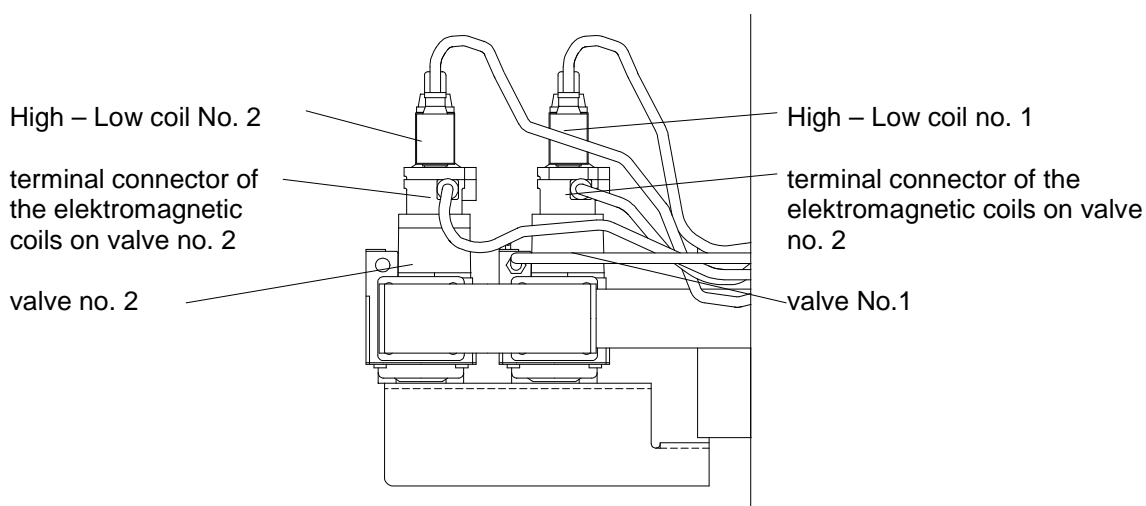


Fig. no. 14 Honeywell gas valves connection

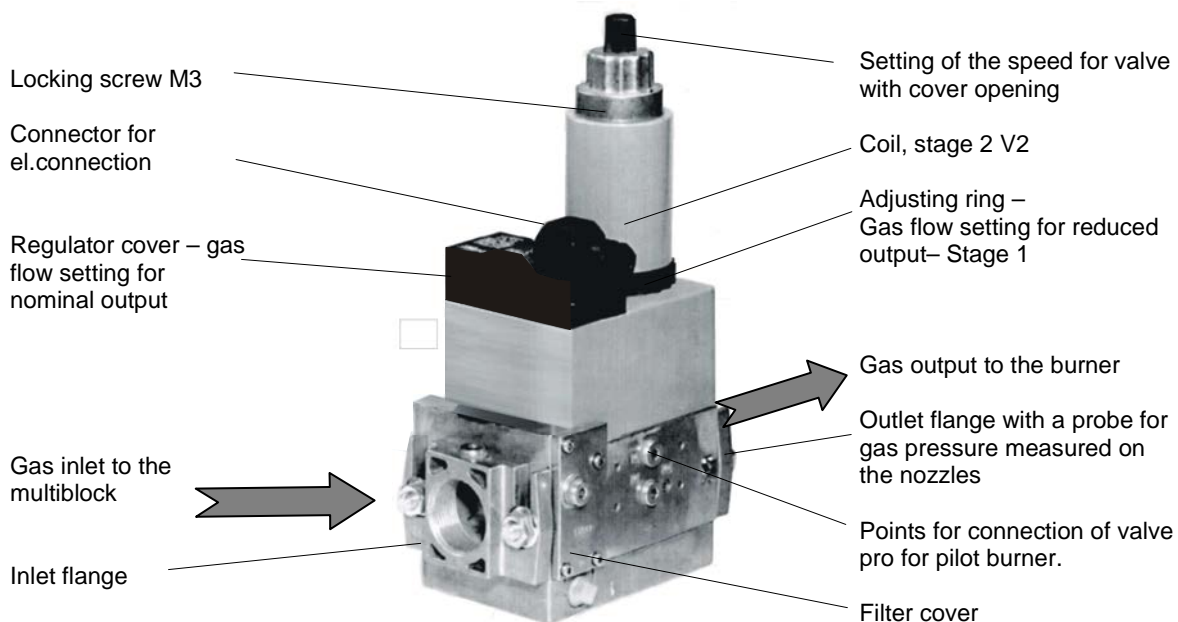
6. Disconnect the coil terminal connector of the High-Low valve no.1 and 2.
7. Connect the manometer (U-tube) to the measuring point of the output gas pressure on the valve VR 4601 QB 2001.
8. By using a 3.5 mm screwdriver regulate through the internal screw on both regulators the pressure value of a reduced output according to table no. 2. By turning clockwise the gas overpressure keeps increasing and other way round decreasing.
9. Measure the gas flow on the gas meter; if it doesn't correspond to the nominal output (see tab. no. 2) – set the gas pressure at the nozzle in a way making sure that the required gas flow will be achieved.
10. Check the combustion purity by using the combustion gases analyser (NO_x, CO).

Nominal output setting:

1. Put the boiler into operation
2. For orientation measure the gas pressure on the gas distributor by using the digital manometer or the U-tube.
3. Before the setting procedure itself let for a while stabilize the operation pressure conditions at the burner.
4. Connect the manometer (U-tube) to the measuring point of the output gas pressure on the valve No.1 (see fig. no. 14)
5. Connect the coil terminal connector of the High-Low valve no.1 and 2.
6. By using the nut wrench no. 8 turn the valve no.1 and no.2 external adjusting screws for setting the nominal output. When turning clockwise the gas overpressure keeps increasing and other way round it keeps decreasing.
7. After the adjustment completion check the correctness of set values after having switched on and switched off the terminal connector repeatedly several times.
8. Measure the gas flow on the gas meter; if it doesn't correspond to the nominal output (see tab. no. 2) – set the gas pressure at the nozzle in a way making sure that the required gas flow will be achieved.
9. Put on the plastic protective cover on the High-Low coil.
10. Check the combustion purity by using the combustion gases analyser (NO_x, CO)

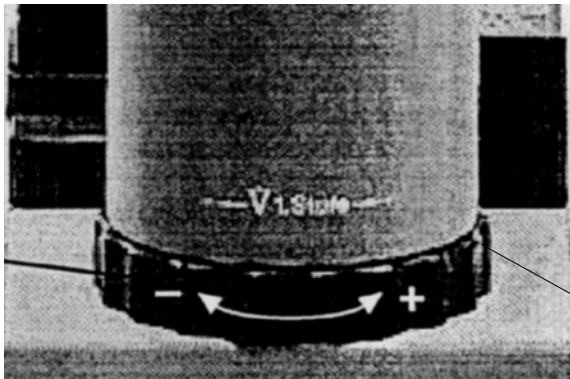
7.3.3 Heat output setting and adjusting at the boiler equipped with Honeywell electromagnetic gas valves for the sizes with 10, 12 and 15 sections

1. Put the boiler into operation
2. Measure the gas inlet pressure.
3. Before the setting procedure itself let for a while stabilize the operation pressure conditions at the burner.
4. Connect the pressure gauges (U-tubes) to the measuring points of gas output pressure on the multiblock.
5. 5.1. without the supreme regulation
5.2. with the supreme regulation
Switch on the boiler to the nominal output through the supreme regulation.
6. Set the nominal output by using the regulator screw (fig. no. 15).



**Fig. no. 15 Gas multiblock DUNGS MB – ZRDLE 412 B01 S22
(without mounted gas fitting tightness watcher and the valve for pilot burner)**

7. 7.1. without the supreme regulation
Switch off the boiler, disconnect the connector 2° on the diaphragm. Switch on again.
- 7.2. with the supreme regulation
Switch over the boiler to the reduced output through the supreme regulation.
8. Release the locking screw.
9. Set the reduced output by using the nut for setting the gas flow at a reduced output (fig. no. 16).
10. Tighten the locking screw.
11. Measure the gas flow on the gas meter ; if it doesn't correspond to the nominal output (see tab. no.2) – set the gas pressure at the nozzle in a way making sure that the required gas flow will be achieved
12. The gas flow at the reduced output can be adjusted by the regulation nut. (fig. no. 16).
13. Check the combustion purity by using the combustion gases analyser (NOx, CO)

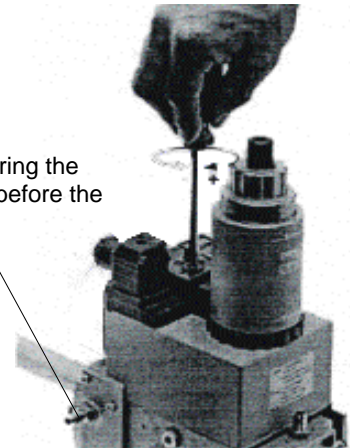


Setting ring

1. Release the screw M3 with cylindrical head on the setting disc (see fig. no 15).
2. Keep turning the setting ring.
Turning to the right: Flow increase.
Turning to the left: Flow decrease.
3. Tighten again the screw M3 with cylindrical head.

Fig. no. 16 Setting the gas flow for reduced output

Probe for measuring the output pressure before the gas multi-block



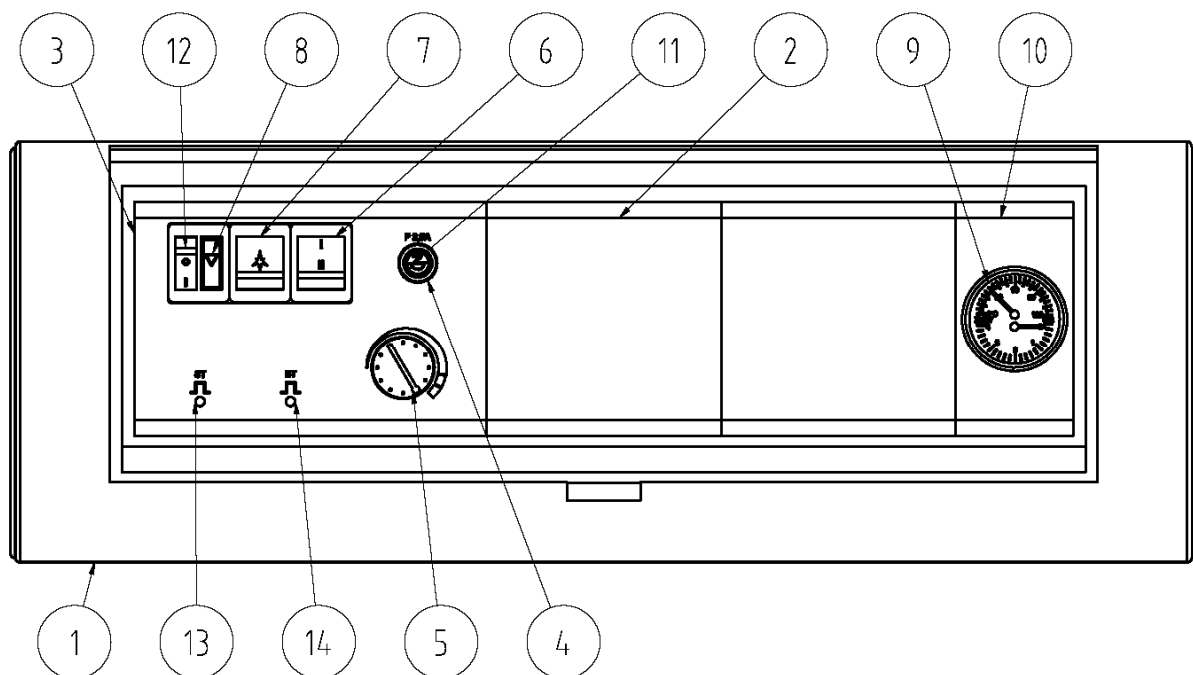
1. Open the safety valve
2. By turning the screwdriver set the required output pressure.

Fig. no. 17 Setting the gas flow for nominal output

8. Boiler service by user

The boiler operates automatically according to the regulation elements setting and the user only does the following service operations that he must be acquainted with by the worker who puts the boiler into operation:

1. **Boiler switching-off or switching-on** by means of the network switch on the boiler control panel.
2. **Boiler operation by means of the selected regulator**
3. **Setting the required temperature of the heating water** between 0 and AUTO (0 – 85 °C) on the boiler thermostat.
4. **Heating water temperature checking.**
5. **Switching over between manual II** (boiler controlled only by boiler thermostat) and **automatic I** (boiler controlled by selected regulator) **operation.**
6. **If there occurs a state of failure at the boiler**, there will light up the fault signalling in the network module. In case of electricity network outage the burner is put out of operation and after the voltage recovery in the electricity network the burner will start up automatically. The failure is unblocked manually by means of "unblocking" pushbutton in the network module.
7. **Safety thermostat unblocking.** In case that the boiler has been switched off by the safety thermostat, the signal light called "temperature excess" is alight on the boiler control panel Thermostat unblocking can only be done by the user in the network module (BT).
8. **Combustion gases reflux fuse unblocking.** In case that the boiler has been switched off by the combustion gases reflux fuse, the signal light called "temperature excess" is alight in the network module. The fuse unblocking can only be done by the user in the network module (ST).



- | | |
|---------------------------------------|---|
| 1. electric panel | 8. temperature excess signalling |
| 2. blind flange big | 9. thermomanometer |
| 3. front panel | 10. blind flange with thermomanometer |
| 4. fuse case | 11. fuse 2,5 A |
| 5. boiler thermostat | 12. main switch |
| 6. switch nominal/reduced output I/II | 13. combustion gases reflux fuse unblocking |
| 7. reset pushbutton | 14. safety thermostat unblocking |

Fig. no. 18 Standard control panel of VIADRUS G 90 BOILER

9. IMPORTANT WARNINGS

1. The boiler only can be used for the purpose that it is destined for.
2. The boiler environment: there must be ensured a constant air supply and ventilation in terms of ČSN 07 0703.
3. In order to prevent the boiler from sweating followed by low-temperature corrosion at the places where there is expected a more permanent operation at lower temperatures (transition periods, at the heating system with a large volume of heating water, low-temperature regime etc.) it is necessary to guarantee that the return water temperature doesn't drop below 50 °C. The best way is creation of boiler's own circuit.
4. Only the adult persons can operate the boiler.
5. 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.
6. Children should be supervised in order to ensure that they do not play with the appliance.
7. The boiler connection follows ČSN 33 2000-4-41 (including the protective equipotential bonding)
8. The boiler is connected to a fixed distribution electricity network 230 V/50 Hz with corresponding protection and a preliminary switch disconnecting all network poles.
9. In case of a long-term boiler shutdown it must be disconnected from the electricity network
10. In case of a long-term boiler shutdown and a danger that the heating system gets frozen through it is necessary to empty the whole heating system in order to prevent it from damaging its individual parts.
11. In case of a long breakdown in flue gas installation from the horizontal (countermove, blocked chimney) the combustion gases reflux fuse will close the fuel supply to the boiler. The fuse unblocking can be done by user by means of unblocking pushbutton TS. A repeated boiler start can only be done after cooling down the combustion gases reflux fuse sensor it means after 10minutes.
12. The boiler room must be kept clean and free of dust. From the boiler room there must be excluded all sources of pollution and during the works (insulating works, boiler room cleaning) that cause dustiness the boiler must be put out of operation. Even a partial dirt deposits on the burner result in burning process deterioration, endanger an economic and reliable boiler operation.. We don't recommend to keep any domestic animals (dogs, cats etc.) in the boiler room.
13. In case of a danger that the combustible vapours or gases will develop or enter the boiler room or during the works that are connected with temporarily developed fire or explosion risk (like gluing the flooring materials, painting with combustible paints), the boiler must be put out of operation in a good time before the works initialisation.
14. On the boiler and within a distance lower than the safe distance from it there must not be put any articles made of combustible materials.
15. The user is obliged to charge with assembly, commissioning, regular maintenance and the faults elimination only a professional contracting service that is accredited by VIADRUS a.s., the boiler manufacturer, otherwise the guarantee for a proper boiler function becomes void. „The certificate of VIADRUS G 90 boiler quality and completeness“ serves as the “Certificate of warranty“ after having been filed in by the contracting service organization.
16. It necessary to keep maintaining the boiler regularly once a year according to the chapter as follows.
17. 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.

10. Maintenance

Any interventions are only allowed to be done by contracting service organization that was trained by the manufacturer.

1. Disconnect the boiler from the electricity network.
2. Close the gas inlet to the boiler.
3. Disconnect the burner from the gas inlet (disconnect the flange from Honeywell electromagnetic valves or the gas Dungs multiblock and disconnect the screwing on the valve for gas inlet to the pilot burner).
4. Disconnect the conductors to the electromagnetic valves and pilot burner electrodes.
5. Dismount the burner plate from the boiler drum.
6. Push the burner out of the combustion space.
7. Remove the upper part of the shell and the thermal insulation.
8. Unscrew the draught diverter cover.
9. Once a year clean mechanically the boiler convection surfaces - by using a cleaning brush. After the cleaning by using the cleaning brush the effect can be reinforced by using a chemical agent like METANO THERM
 - spray the convection surfaces by using the agent applied from the upper part of boiler drum.
 - mount the cover, draught diverters and the upper cover of the boiler shell.
 - put the boiler into operation

During the boiler operation the agent reacts with the deposits and in form of combustion gases it taken away through the chimney.
10. In case that the regular maintenance wasn't done and the convection surfaces are strongly clogged with dirt they might be cleaned in following way:
 - the convection surface vents are cleaned mechanically by using the cleaning brush
 - pour a diluted detergent into all vents from above
 - let react for about 10 minutes
 - spray the convection surfaces by using a lower pressure
 - then again apply a higher pressure to the convection surfaces
 - remove perfectly the dirt from the burner space
 - mount the burner, connect the gas connection, attach the connectors to the valves
 - mount the draught diverter cover
 - put on the upper boiler shell
 - during the operation check the gas inlet tightness
11. Check the burner tubes clogging. In case that they are dirty:
 - by means of a brush and at the same time with vacuum cleaner running remove the dirt deposited in tubes perforation
 - **it is forbidden to use a steel brush for burner tubes cleaning**, because the tubes surface is treated by a reflective protective paint.

11. Defects and their elimination

The defects elimination is only allowed to be done by a trained contracting service organization which also is obliged to make an entry in the enclosure to the certificate of warranty.

Defects elimination marked with symbol “*“, is allowed to be done by the user.

If there occurs repeatedly the blockage of the safety thermostat or the combustion gases reflux fuse it is also necessary to call a contracting service worker.

The operation faults related to RVA regulator are described in basic technical documentation to the regulator.

	DEFECT	CAUSE	ELIMINATION
1.	After the boiler has been switched on the control light on the main switch isn't alight	No el. voltage at the boiler input	Check the voltage in the socket
		Faulty control light	Exchange the switch
2.	Boiler cannot be started - the ignition electrode isn't sparking	Faulty automatics	automatics replacement
		Interrupted inlet to the ignition electrode	Check of a perfect connection between the electrode and HV output on the automatics
		faulty electrode	electrode replacement
3.	Boiler cannot be started - sparking occurs in the automatics spark gap (sparkling in automatics audible sound)	Wrong connection between the conductors and or a faulty electrode	Check the electrodes condition and the connection between ignition conductor and the earth-wire
4.	Boiler doesn't light up the ignition electrode is sparking (the fault signalling lights up on the control panel)	The gas inlet to the boiler is interrupted	Gas pressure check in the gas connection *
		Gas pipe air lock	Check whether the gas cap at the appliance is open
		The gas valve doesn't open	Do the air exhaustion (bleeding)
			Valve replacement
5.	Boiler light up but immediately goes out; the fault signalling lights up on the control panel.	Wrong connection between the zero and phase conductors	Check and change the connection terminal U - phase conductor terminal N - zero conductor
		Impassable dirtiness filter at the gas valve inlet	Clean the gas valve filter
		Boiler thermostat fault	* Unblock the TB network module
6.	Boiler cannot be lit – the safety thermostat is switched off (“overheated “ signalling is alight on the control panel)	Water shortage in the system	* Check the water pressure in the system and eventually refill the water
		Insufficient water circulation in the system	Check the pressure in expansion tank (if the closed heating system is used)
			Check the pumps operation
	Clogged chimney	Clean the chimney	
7.	Combustion gases reflux fuse is blocked	A strong wind is causing the countermove	* Unblock the fuse by using the pushbutton called "UNBLOCKING" in the network module

12. 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 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.

13. Guarantee and responsibility for the faults

The responsibility for defaults demand is ruled by the Commercial Code.

VIADRUS a.s., provides:

- 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 validity of his guarantee the manufacturer requires:

- by course of law **No.222/94 Coll. „Of the business conditions and of public service performance in certified branches and of the State energetic inspection“ and ČSN 38 6405, ČSN 07 0703 and reg. 91/93 Coll.** the gas boiler to be checked regularly once a year. The checks can only be done by an authorized organization (contracting service), accredited by the manufacturer it means VIADRUS a.s.
- all records of carried out guarantee and after-guarantee repairs and the boiler regular yearly checks to be documented in the supplement to the certificate of VIADRUS G 90 boiler quality and completeness.

The guarantee does not apply to:

- **Faults caused by improper assembly and improper attendance of the product and faults caused by improper maintenance see chap. 10**
- **Faults and damage caused by failure to observe water quality in heating system see chap. no. 6.1 and 6.3 or by using the anti-freeze mixture**
- **Faults caused by failure to observe instructions stated in this manual**
- **product damage arisen during the transport or other mechanical damage**
- **the faults caused by unsuitable storage**

Every notice of faults must be done immediately after having discovered them by telephone and also in a written form.

In case of infringement of above instructions the guarantees provided by the manufacturer will not be recognized.

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

Information for customer

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

Identification od principál 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 term sof 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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