

ES Series – Cast Iron Boiler Equipped with Atmospheric Burner

Installation, Operation and Maintenance Manual



ES Series Cast Iron Sectional Atmospheric Burner Boilers for Central Heating

ES-03 - ES-07 (19,8 kW – 58,1 kW)



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- ***First of all we would like to thank you for having chosen the ONMETAL-RIMA Brand.***
- These technical instructions contain information for the operation and maintenance of the RIMA ES liquefied petroleum gas fired sectional, atmospheric burner boilers designed for central heating application.
- Read these instructions carefully in order to provide a long-term, safe and ergonomically putting into operation of the boiler with high thermal efficiency. The manual also contain major technical information on boiler operation and boiler room.
- You can obtain detailed information from the RIMA brochures.
- If you have any questions, or if you need more information, do not hesitate to contact our authorized sellers and service centres of RIMA.
- Keep that manual in order to contact us further.
- Authorised sellers and service centres will give you instructions concerning boiler operation and inspection after its start up.
- Our experts would be glad to assist you.
- You can call our line (0090)2124854874 or send an e- mail to info@rima.com.tr when you have questions about problems.

Warranty Terms

ONMETAL-RIMA provides 5 years warranty against defects in the cast iron parts and one year against further malfunctions. Repair works shall be carried free of charge provided conditions have been met as follows:

- The equipment has been used in accordance with operation and examination instructions.
- Maintenance service has been called in case of a failure.
- This guarantee does not apply for breakdowns and questions caused by the following reasons:
 - Deficiency of the warranty talon
 - Maintenance and repair performed by non-service centres
 - An incorrect choice of the type, a wrong lay out and installation, misuse and operation for purposes rather than the intended ones.
 - Transportation, storage and atmospheric conditions
 - Breakages and damage, caused by physical and chemical impact
 - Breakage caused by use of unconformable fuel.
 - Incorrect connection of the equipment to the water and fuel supply network.
 - Insufficient capacity of the chimney flue system.
 - Breakdowns caused by opening of the control and safety systems.

- Transfer of cold water to the hot boiler
- Boiler operation without water or at an insufficient quantity of water.

General Characteristics of ES Series Boilers

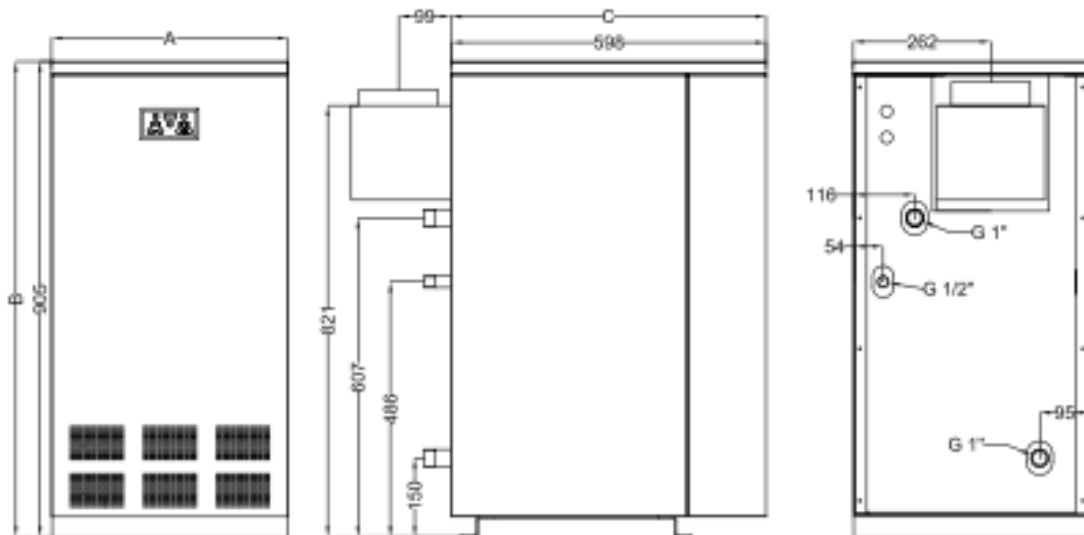
- The ES sectional cast iron boilers with atmospheric burner are available in 5 different types. Sections quantity ranges from 3 to 7, output range from 19.8 to 58.1 kW. The ES boilers may be natural gas or LPG fired.
- The ES boilers operation pressure is 3 bars. They have been designed for heating and production of hot water in 3 floor cottages, 2 floor larger apartments, shops, stores of medium large scale offices and offices.
- The ES boilers' sections are made of special plastic gray iron GG20 that is resistant to thermal stress and can convey thermal energy to the water. The flowing water passes through the ways inside the sections. Gas flow, which is revealed during burning, is being traversed through smoke channels that are made of special sections. The last are situated outside the sections. Afterwards, the gas flow comes upon the flap and is traversed to the flue. The valves on the casing enhance the free circulation of the smoke and convey of thermal energy to the water.
- The ES boilers are of high coefficient of efficiency (93% at a low calorific coefficient of the fuel). The high efficiency and isolation provide the reveal of more energy at low fuel consumption.
- The atmospheric burner of the ES boilers is made of stainless steel and is of long-term. The supply of the air is adjusted. It is completely mixed beforehand and is self-rectified during burning. The burning process is noiseless. The boiler is natural gas and LPG fired. Re-equipment should be made by the service centers of ONMETAL. Incorrect re-equipment is dangerous for life.
- The design of the smoke conduit and the chimney flap of the ES boilers provide a good extract, lower the dampness in the chimney and enhance resistance to chemical actions.
- The burning process is controlled by ionization electrodes. When the main burner goes out, the gas supply ends and the boiler traverses to a safe condition.

General Warnings

- The RIMA ES boilers have been designed for hot water heating and installations on hot water. The boilers have been made of appropriate material via use of relative technologies. They cannot be used for purposes rather than the intended ones.
- The ES boilers are produced of factory assembly cast sections. Sections and parts should be saved from harm during transportation.
- Boilers should be placed on an even foundation in the boiler room and the concrete basement should be calculated on the boiler weight.
- Enough room should be envisaged for inspection and service maintenance purposes during placing the boilers in the boiler room.
- Putting into operation and adjustment should be made by service centers of ONMETAL.
- Do not add water into the hot boiler and the system. Please, wait for the decrease of the water temperature below 40⁰C. Otherwise, cracks in the sections may occur.
- If the boiler will not be used long time, the control panel should be disconnected from the main knife-switch. Besides, the electricity also should be disconnected from the main knife-switch during inspection and cleaning.
- When the boiler shall not be put into operation in summer, you should switch on the circulation pump once or twice in a month for 5 minutes in order to prevent it from nipping (limy water may cause boiler breakdown if not used long time).
- Boiler should undergo duly periodical examinations. Otherwise, coefficient of efficiency may decrease and fuel consumption may increase.
- The choice of boiler capacity should be made according to the installation project that is prepared in conformity with standards and properly calculated. Otherwise, this can reveal in decrease of expected efficiency.
- The ES boilers have been designed for heating systems purposes only. A separate heater or heat exchanger is necessary for heating of used water. Boiler and heater capacity should match each other in order to reach the necessary temperature of the heating water.
- The ES boilers may be natural gas or liquefied petroleum gas fired. The boiler should be reequipped and adjusted according to the used type of gas. Any incorrect re-equipment is dangerous for human life.
- If the boiler switches off due to higher temperature, do not add cold water in order to restart it. Try to start the boiler when cooled. If it does not work, notify the service maintenance of «ONMETAL».
- During operation the front door should be completely closed.
- If the atmospheric burner goes out during operation, and the boiler ceases to work, do not use open fire to check the burner or the combustion chamber. The control should be made via means of an electrical light.

- Only original spare parts that are supplied by ONMETAL should be used for examination and repair.
- Periodical and annual examinations of the boiler and air burner should be made on a regular basis. Neither high pollution may occur when you use clear fuel as the natural gas is not, nor when you use natural gas and LPG related to advanced technologies. Besides, nonetheless, periodical inspection of the boiler and air burner should not be underestimated. Inspections are necessary in order to maintain high coefficient of efficiency of the boiler, prevent from any damages and prolong boilers use.
- Inspection and repairs of the ES boilers require professionalism. The manual contains necessary steps to be taken during operation and inspection. The user or the non-specialist must not refer to parts or regulators regarding putting into operation, inspection and etc.

Boiler Dimensions

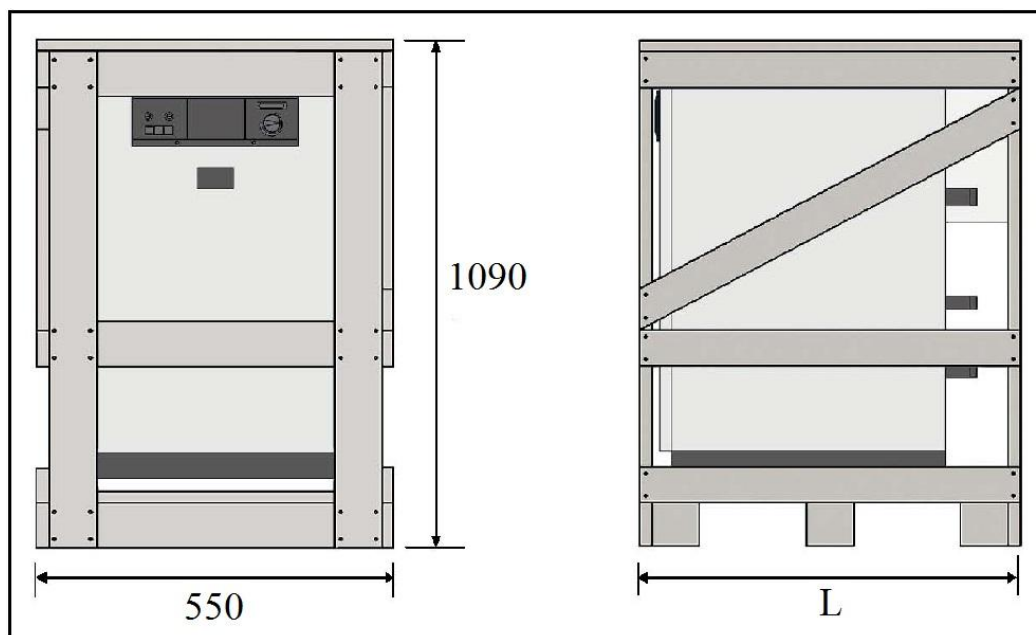


	A	B	C
ES 03	450	905	450
ES 04	450	905	525
ES 05	450	905	600
ES 06	450	905	675
ES 07	450	905	750

Technical Parameters

Type			ES-03	ES-04	ES-05	ES-06	ES-07
Number of Elements		Pcs.	3	4	5	6	7
Nominal Heat Output		kcal/h	17.000	26.000	34.000	42.000	50.000
		kW	19,8	30,2	39,5	48,8	58,1
Operating Temperature		°C	90				
Maximum Operating Pressure		bar	3				
Water Volume		liter	8	10,7	13,4	16,1	18,7
Chimney Dimensions		mm	130			150	
Gas Connection Dimensions		"	1/2"				
Water Inlet-Outlet Dimensions		"	1"				
Boiler Dimensions	H x W	mm	910 x 450				
	L	mm	400	475	550	625	700
Net Weight		kg	98	109	129	141	186

Boiler Packaging Dimensions




Boiler Type	ES-03	ES-04	ES-05	ES-06	ES-07
Length (mm)	650	720	790	860	930

Notice: Please obey to the meanings of the symbols on packaging for healthy care.



Information on the Data Label of Boiler



CAST IRON ATMOSPHERIC BOILER

Boiler Type : _____

Maximum Operating Pressure (bar) : 3

Maximum Operating Temperature (°C) : 90

Nominal Heat Output (kW) : _____

Nominal Heat Output (kCal/h) : _____


Fuel Type : N.Gas & LPG

Gas Supply Pressure (mbar) : 18 - 40

Production Year : _____

GOST No : 30735-2001

Serial Number : _____

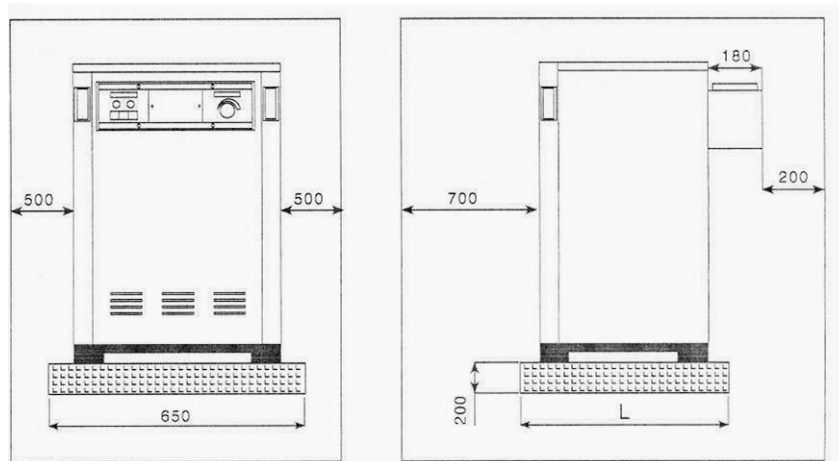


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➔ **ES-03, ES-04, ES-05, ES-06, ES-07**

Recommended Minimum Distance for Installation



Boiler Type	ES-03	ES-04	ES-05	ES-06	ES-07
Platform L (mm)	500	575	650	725	800

The dimensions between the boiler and boiler room walls aforementioned should be considered in order to maintain and inspect the chimney connections, water inlet-outlet, electric power and fuel supply.

The surface of the concrete platform should not be covered by a ceramic tile or any other covering.

Important Instructions about Boiler Room

- The boiler room should be well illuminated. Lighting control should be made from outside.
- No hydrophone, contactor switch, etc should be located in the boiler room.
- The gas signal system device should be settled at a height of 10 cm above the floor.
- The inlet and outlet from boiler room should be under control. The input should be inaccessible to non-authorized persons and children. In extreme situations a spare key is necessarily to be available.
- The boiler room or the installation location is necessarily to be not damp.
- The boiler layout location should be enough for maintenance and inspection.
- No combustible and explosive material should be kept near the boiler.
- It is necessary to warn against moisture transfer into the boiler room.
- Water supply of the boiler and the system is carried out by means of water supply pipe. The boiler should be connected to a drainage network in order to plum the water.
- All defective electrical accessories that may cause short circuit should be immediately replaced.
- Chimney flues and pipelines properties of the natural gas or LPG fired boilers should conform to relevant norms and requirements of the gas organizations during installation in premises. The manufacturer and the Supplier do not bear the responsibility for problems which may arise due to failure to respond to the specified requirements.

Plumbing Instructions

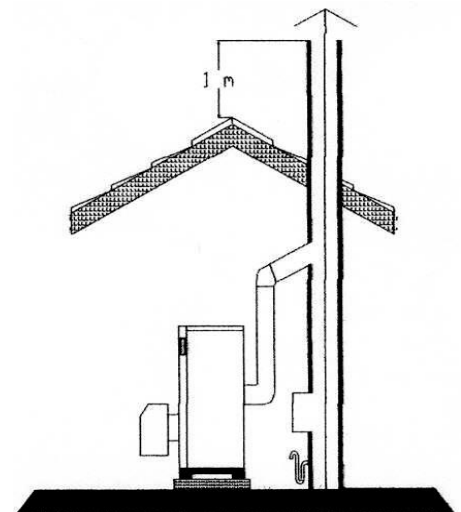
- The system should not be filled out with water very often. During each filling-up with water quick lime and sediments that are contained in the last shall form lime scale on the boiler inner surface and pile-lines. It is necessarily to monitor steam tightness of the system and use expansion tanks of closed type. In systems of expansion of closed type the water circulates in locked nets, is not in contact with the atmosphere and does not steam off. Therefore, there is no need to fill up water very often, thus preventing from forming of lime scale and sediments and prolonging the operating time of the system.
- The water, which is contained in the heating systems, is not healthy. It should be used neither for drinking and washing, nor for any other purposes. Otherwise, it should be filled up.
- The system should be filled up with soft water in order to prevent from forming of quick lime and sediments. The water supply quality shall be as follows: $Ph \geq 7.2$; hardness shall be: $Th \leq 25^{\circ}Fr$.
- If the water, which is supplied from the urban network, does not conform to those criteria, it is necessarily to define water quality from the wells and other sources and to take necessarily steps for its cleaning and softening.

- Dirt excluders should be installed in order to warn for transfer of any sediments and pollutants from the system to the boiler or any damages, caused by sediments to the tap valves and pumps.
- The circulating pump should be established on straight line and its capacity should conform to boiler's one. Otherwise, problems with circulation and water heating up may occur.
- The control of proportional water supply is carried out by three-way valve with an electrical drive, which is established between the pipes of flowing and return water in the heating system.
- Boiler and pipe-lines should be always filled up with water in order to prevent from corrosion of both. If the boiler is not operated in winter, it is necessarily to take steps against freezing and breakdown. It is also necessarily to fill in the system with antifreeze. If you have any questions about that matter, call the service centers of Onmetal. For safekeeping the boiler from freezing it is necessary to drain the boiler contents completely.
- For healthy working conditions of the boiler, temperature difference between water outlet and inlet must not be more than 20 °C. And boiler must not be started to work under water rates which is mentioned below table;

Boiler Type	Capacity		$\Delta T = 15^{\circ}\text{C}$	$\Delta T = 20^{\circ}\text{C}$
	kcal/h	kW	Water Rate	Water Rate
			m^3 / h	m^3 / h
ES-03	17000	19,8	1,15	0,85
ES-04	26000	30,2	1,75	1,35
ES-05	34000	39,5	2,3	1,75
ES-06	42000	48,8	2,8	2,1
ES-07	50000	58,1	3,35	2,55

Important Instructions about Chimney Installation

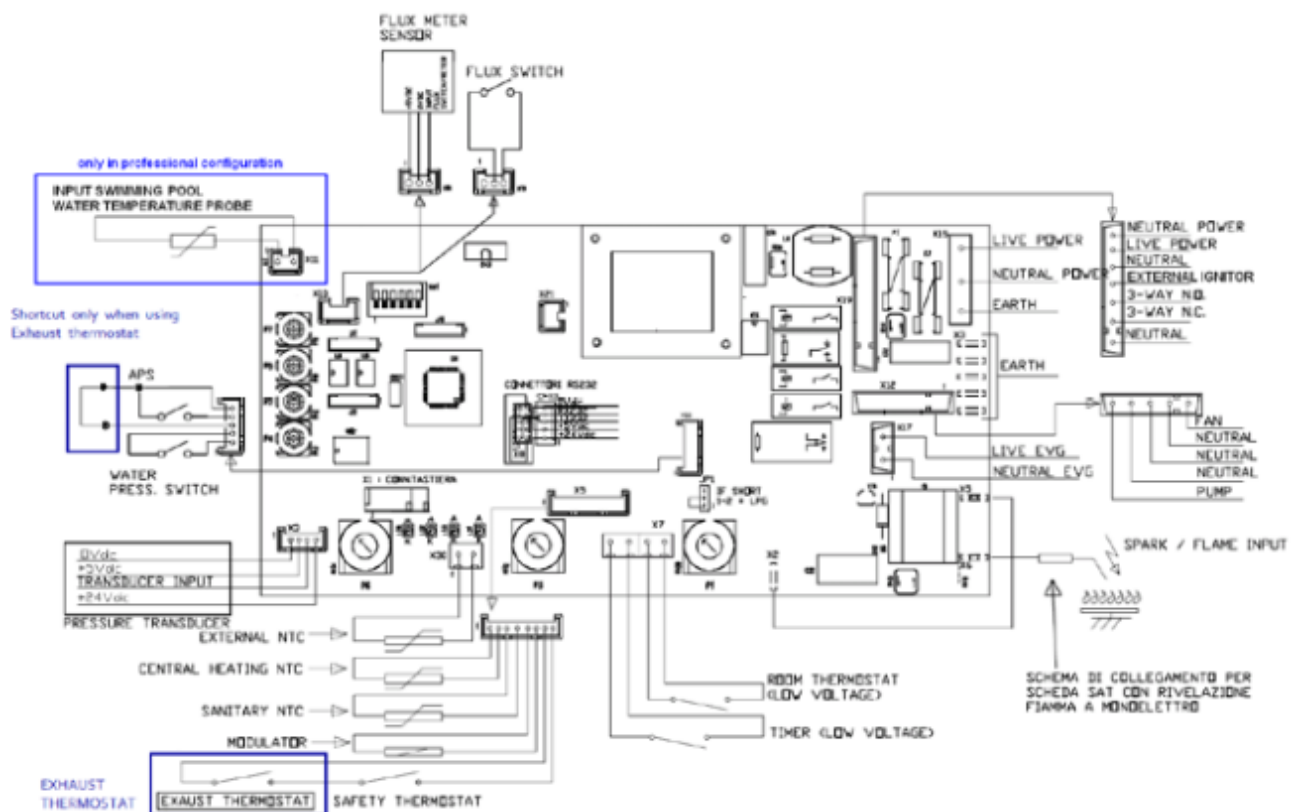
- The chimney should be separate. No more than one device can be connected on a floor.
- It is recommended to isolate the outer part of the chimney flue.
- The chimney flue should be 1 meter above the topmost part of the roof.
- Connection with the boiler is carried out by means of an external bent pipe.
- Bent pipes should not have sharp angles. Connection sites should be leak-proof.



Boiler Control Panel

- Temperature control of the water for central heating, for domestic use and for swimming pool, by means of digital PID control; some adjustable parameters are available (max central heating power, softstart power, anti-fast-cycling-period, KE for OTC control, ...).
- Automatic gas burner control system, digital based, with no-volatile lockout (certified accordingly with EN298:2003), independent on the line-neutral connection, suitable for phase-phase power supply.
- The system provides water circulator (with anti-jamming function), gas electric valve with modulator, 3-way electric valve (with anti-jamming function), flux-meter, air pressure switch, safety thermostat (on primary circuit of the boiler), water pressure switch (or water pressure transducer), selection of external or on board ignitor.
- 4 NTC temperature probes (central heating, domestic hot water, external, input swimming pool).
- Thermoregulation parameters can be set on board by means of 4 trimmers, jumpers and dipswitch.
- It is available a user interface panel connected by means of a flat; serial communication RS232.
- Central heating request by means of room thermostat. Timer input available.
- Domestic hot water request by means of flux-meter.
- Water swimming pool heating by means of room thermostat.
- "Extra low voltage" insulation.
- EMC certified.

Control Panel Electric Diagram

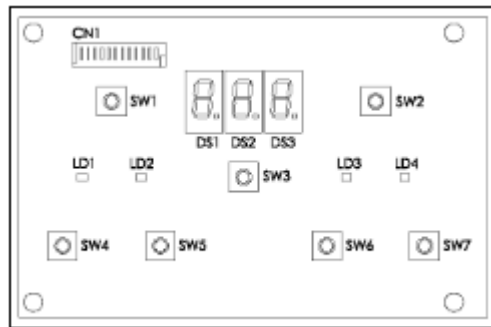


Thermoregulation Parameters

#	Description	Value	Unit
1.	Range Temperature setpoint for CH (wall) – (TF; mono-thermal)	40 ÷ 85	°C
2.	Range Temperature setpoint for CH (wall) – (TF; bi-thermal)	40 ÷ 80	°C
3.	Range Temperature setpoint for CH (floor) – (TF; mono-bi thermal)	30 ÷ 50	°C
4.	Range Temperature setpoint for CH (wall) – (TN, mono-thermal)	60 ÷ 85	°C
5.	Range Temperature setpoint for CH (wall) – (TN, bi-thermal)	60 ÷ 80	°C
6.	Range Temperature setpoint for CH (floor) – (TN, mono-bi thermal)	48 ÷ 60	°C
7.	Range Temperature setpoint for CH (external temperature, TF/TN)	10 ÷ 30	°C
8.	Minimum temperature for external probe (wall)	40	°C
9.	Minimum temperature for external probe (floor)	30	°C
10.	Primary OFF temperature	95	°C
11.	Primary ON temperature	90	°C
12.	CH temperature off (for wall)	Setpoint + 3	°C
13.	CH temperature on (for wall)	Setpoint - 3	°C
14.	CH temperature off (for floor)	Setpoint + 3	°C
15.	CH temperature on (for floor)	Setpoint - 2	°C
16.	CH initial ramp timing	50	s
17.	CH post-ventilation	45	s
18.	CH setpoint limit in bi-bi-thermal (anti leakage)	53	°C
19.	CH frequency limit in bi-bi-thermal	5	Hz
20.	Post-circulation if STB lockout (3-way in CH position)	10	m
21.	Post ventilation if STB lockout	10	m
22.	Setpoint in SWEEPER request	Maximum value depending to the configuration	
23.	CH post circulation	See info menu	
24.	Softstart Modulator current range	See info menu	
25.	CH max modulator current	See info menu	
26.	KE range	See info menu	
27.	Anti-fast-cycling period	See info menu	
28.	Range Temperature setpoint for DHW – mono-thermal	30 ÷ 60	°C
29.	Range Temperature setpoint for DHW – bi-thermal	30 ÷ 60	°C
30.	Range Temperature setpoint for DHW – storage tank	30 ÷ 60	°C
31.	Range Temperature setpoint for DHW – mono-thermal with DHW NTC probe damaged	45 ÷ 65	°C
32.	DHW fluxmeter frequency on	21	Hz
33.	DHW fluxmeter frequency off	17	Hz
34.	DHW post-ventilation	45	s
35.	DHW temperature off	63	°C
36.	DHW temperature on	Setpoint	°C
37.	DHW temperature OFF with storage tank	Setpoint	°C
38.	DHW temperature ON with storage tank	Setpoint - 7	°C
39.	DHW post-circulation (storage-tank)	15	s
40.	DHW post-circulation (mono-thermal)	15	s
41.	DHW post-circulation (bi-thermal)	0	s
42.	DHW primary temperature setpoint with storage tank	85	°C
43.	DHW primary OFF temperature for mono-thermal	90	°C
44.	DHW primary ON temperature for mono-thermal	80	°C
45.	DHW primary OFF temperature for bi-thermal	85	°C
46.	DHW primary ON temperature for bi-thermal	75	°C
47.	DHW primary OFF temperature with storage tank	90	°C
48.	DHW primary ON temperature with storage tank	75	°C
49.	DHW primary OFF temperature with DHW probe damaged	74	°C
50.	DHW primary ON temperature with DHW probe damaged	72	°C
51.	No-frost temperature (CH probe) ON	5	°C
52.	No-frost temperature (CH probe) OFF	15	°C

#	Description	Value	Unit
53.	No-frost temperature ICE	2	°C
54.	SWIMMING POOL post-ventilation	10	m
55.	SWIMMING POOL primary OFF temperature (standard config.)	60	°C
56.	SWIMMING POOL primary ON temperature (standard config.)	58	°C
57.	SWIMMING POOL primary OFF temperature (professional config.)	85	°C
58.	SWIMMING POOL primary ON temperature (professional config.)	80	°C
59.	SWIMMING POOL post circulation	See info menu	
60.	Setpoint in SWEEPER (SWIMMING POOL – standard config.)	42	°C
61.	Setpoint in SWEEPER (SWIMMING POOL – professional config.)	42	°C
62.	SWIMMING POOL input control OFF temperature (professional config.)	55	°C
63.	SWIMMING POOL input control ON temperature (professional config.)	50	°C
64.	SWIMMING POOL OFF temperature (professional config.)	Setpoint + 1	°C
65.	SWIMMING POOL ON temperature (professional config.)	Setpoint	°C
66.	SWIMMING POOL OFF temperature (standard config.)	Setpoint + 1	°C
67.	SWIMMING POOL ON temperature (standard config.)	Setpoint - 1	°C
68.	SWIMMING POOL setpoint for primary circuit	81	°C
69.	SWIMMING POOL setpoint for water temperature (input swimming pool)	50	°C
70.	SWIMMING POOL modulator minimum current (threshold ON) – (standard configuration)	55	°C
71.	SWIMMING POOL modulator minimum current (threshold OFF) – (standard configuration)	54	°C
72.	Range Temperature setpoint for SWIMMING POOL	25 ÷ 40	°C
73.	Fixed Setpoint for swimming pool input water control	50	°C
74.	Fixed Setpoint for primary control	81	°C
75.	Anti jamming (after 24h of 3-way inactivity)	10	s
76.	Pressure transducer min (*)	0,4	bar
77.	Pressure transducer max (*)	2,7	bar
78.	Modulator current range for natural gas	40 ÷ 125	mA
79.	Modulator current range for LPG	53 ÷ 165	mA
80.	Modulator current range for 3 rd type gas	40 ÷ 100	mA
81.	Modulator current range for 4 th type gas	53 ÷ 136	mA
82.	Modulator current in anomaly	10	mA
83.	CH temperature sensor	NTC 10KΩ ± 1% @ 25°C (β =3435) – contact type	
84.	DHW temperature sensor (mono-thermal and storage tank)	NTC 10KΩ ± 1% @ 25°C (β =3435) – immersion type	
85.	DHW temperature sensor (bi-thermal)	NTC 10KΩ ± 1% @ 25°C (β =3435) – contact type	
86.	Input swimming water temperature sensor	NTC 10KΩ ± 1% @ 25°C (β =3435)	
87.	External temperature sensor	NTC 10KΩ ± 1% @ 25°C (β =3435)	
(*) see corresponding model of pressure transducer			

“7 segment” User Interface Panel



#	Description	Setting
1.	JP1 (Jumper natural gas / LPG)	Pin 1 and 2 closed = LPG (modulator current range is set for LPG) Pin 1 and 2 open = natural gas (modulator current range is set for natural gas)
2.	SW1 (switch 1)	ON = storage tank (DHW option) OFF = instantaneous (DHW option)
3.	SW1 (switch 2)	ON = JP1 selects 3 rd type gas or 4 th type gas OFF = JP1 selects natural gas or LPG
4.	SW1 (switch 3)	ON = flux-meter (switch 3 = ON) OFF = flux-switch (switch 3 = OFF)
5.	SW1 (switch 4)	ON = anti-fast-cycling not active OFF = anti-fast-cycling active
6.	SW1 (switch 5)	ON = TF OFF = TN
7.	SW1 (switch 6)	ON = circulator test active OFF = circulator test not active

Checking and Starting the Boiler

Checking Before Started

- It is necessary to carry out control measurements specified below before boiler start-up. The boiler should not be operated until remarks have been cleared.
- Check water volume of the boiler and system and add water if necessary.
- Contact the service centers of ONMETAL, if any leakages in the boiler are detected. The boiler should not be operated until leakages have been cleared by qualified sanitary technicians.
- Check chimney flue connections. Clear any failures by your own or notify correspondent authorities, if any breakdowns are detected.
- Ensure ventilation of the premises.
- Check boiler cover panels, close them completely.
- If the boiler is natural gas fired, it is necessary to make sure whether the gas valves are open.
- If the boiler is LPG fired, it is necessary to check up whether there is enough fuel. Open the fuel supply valve.
- Make sure is there in-feeding to the control panel.
- Open all water and gas valves of the boiler.

- After completion of these operations the boiler is ready for start up.

Boiler Start Up

- If there is a desk in the boiler room, turn the knife switch in TURN ON position. The work indicator light will flame up.
- Press the TURN ON button on the control panel. The electronic ignition system will ignite the burner.
- When the burner starts to work, turn the temperature regulator on the control panel in desirable position between 30-90 °C.
- If at the first start-up the burner does not flame up or during work goes out and does not burn into flame again, then wait for 3 minutes and try to start it up once again. If after 3-4 times of completion of the given actions the burner does not light up and if the electricity is disconnected, then check up the interlock and the electrical conduit, gas supply when valve is open, availability of water in the boiler. If water is not enough, wait for boiler cooling and add water. Start the boiler once again. If the boiler does not work, call the service maintenance of "ONMETAL".

Boiler Shut-Down

- Press the SWITCH OFF button on the control panel. The main burner will stop. Close the fuel supply valves. If the boiler is equipped with a board, then turn knife-switch off.

Loading and Unloading the Boiler Water

Water discharge

Boiler and system discharge should be made only if necessary. Upon completion of all necessary steps, fill up the boiler and the system with water immediately.

- If it is needed to drain water from the boiler, then the inlet and outlet valves should be closed off thus disconnecting the very connection of the boiler with the system.
- The discharge is carried out by opening drain taps and plumbing of water from sections in any of the bent pipes (vents).
- If it is needed to drain water from the boiler and the whole system, then open the taps of the system and the radiators.
- If the boiler is laid down at the lowest level of the system, then the water can be discharged via drainage.
- If one part of the heating system is located below the boiler room level, then discharge can be carried out through an extreme bottom point.

- If hot water discharge pipelines are detected, it is necessary to notify representatives of the maintenance services.

Filling up the boiler with water

- It is forbidden to fill up the boiler with water when hot in order to prevent from forming cracks in the sections.
- Filling up of the boiler and system with water is carried out through system filling tap.
- During filling it is necessary to open all valves of the radiator taps system.
- In order to prevent air clearing plug, the filling should be made slowly at an open emission valve, which is located at the topmost of the system.
- The system shall be filled up at water occurrence, flowing from the emission valve.
- The air in the radiators and the system should be let out from the valve of each of the radiators.
- If rigidity of water is $> 25^{\circ}$ Fr, then water should be necessarily passed through water softening system.

Primary Defect Controls

If you have any questions relating to boiler and burner operation, make a primary defect inspection before calling an expert. No operations with the boiler and burner rather than the specified below are allowed. Call the service center of ONMETAL.

If the boiler shuts down during operation and does not start up again. Probably the emergency thermostat stops due to water overheating. In that case wait for boiler cooling and make the following inspections:

- Check gas inflow to the boiler. If there is no gas transfer, detect the reason and provide gas inflow.
- Check up boiler power connection. If not, provide electric supply.
- Check whether the pump works. Overheating of the boiler may cause failure of pump work. Call an expert.
- Check whether the inlet and outlet valves are open. If valves are closed, open them.
- After cooling of the boiler press the emergency thermostat button on the control panel.

If the boiler does not start or if upon its start up the emergency thermostat generates boiler shut-down, it is necessary to call the service center of ONMETAL.

Important Instructions about Boiler Maintenance

Boiler and burner examinations have to be performed in three separate programs: daily checks (during its operation), periodical checks and annual checks.

Daily examinations

Those checks include steps, which the user should implement every day before boiler start up. Fulfill the instructions laid down in part «Preliminary checks» in order to carry out the daily inspections.

Periodical examinations

It is necessary to fulfill periodical boiler inspections in order to provide an effective operation of the boiler, prevent from its breakdowns and increase its operating life. It is recommended to make periodical checks once in a three month time during boiler operation with the assistance of the service centers. The three month checks are carried out by representatives of the maintenance service of ONMETAL. They include the following actions:

- Visual control for detection of pollution in the main combustion chamber. Clean it if necessary.
- Check inlet and outlet water leakage, chimney flue and gas-pipe connections to the boiler.
- Check up opening and closing valves.
- Visual check up of burning process. Make either a visual adjustment of the burning or by means of an exhaust gas regulation device if necessary.
- Check up ignition of the main burner, condition and the disposition of the ionization electrodes. Adjust if necessary.
- Check the control panel, boiler start up and reliability.

Annual examinations

It is preferable to make an annual examination of the technical condition of the boiler with the assistance of representatives of the maintenance center of ONMETAL prior to the beginning of the heating season. The maintenance center of ONMETAL should carry out the following general inspections:

- Disassembly of the boiler casing covering. Check up of the sections steam tightness and state of isolation.
- Check up of operation pressure. Adjustment of burning by means of exhaust gas regulation device if necessary

Safety Instructions

Major measures for prevention from gas leakage flow as follows:

- Buildings on natural gas should be constructed in accordance with technical requirements, which the heating systems and boiler room conform to.
- Only workers trained in special education institutions are allowed to repair and maintain the central heating systems. Boiler operation without assistance by a maintenance and repair man is forbidden. Training of the population about steps to be taken during natural gas leakage flow should be carried out by Civil Defence organizations.
- Emergency reactions teams should be organized during natural gas leakage flow. They should undergo a special training as well.
- Fire-fighters should undergo training for fire-fighting operations against fires, arisen as a result of ignition or natural gas explosions.
- Plans for elimination of gas leakage flow, explosions and fires caused by natural gas should be worked out.

Actions, which should be taken has gas smell sensed of:

- Open the entrance doors and windows in order to air the premises.
- It is necessary to block the main gas control valve of the building.
- Do not light a match, a lighter, fire and do not smoke.
- Do not switch on electrical accessories and switch off the ones which are in operation.
- It is forbidden to use electric buttons and the doorbell.
- Do not use the elevator and other electrical accessories.
- Do not use any stationary and mobile phones in buildings where a gas leakage flow has occurred.
- Notify the gas supply organization.
- Notify the building management.

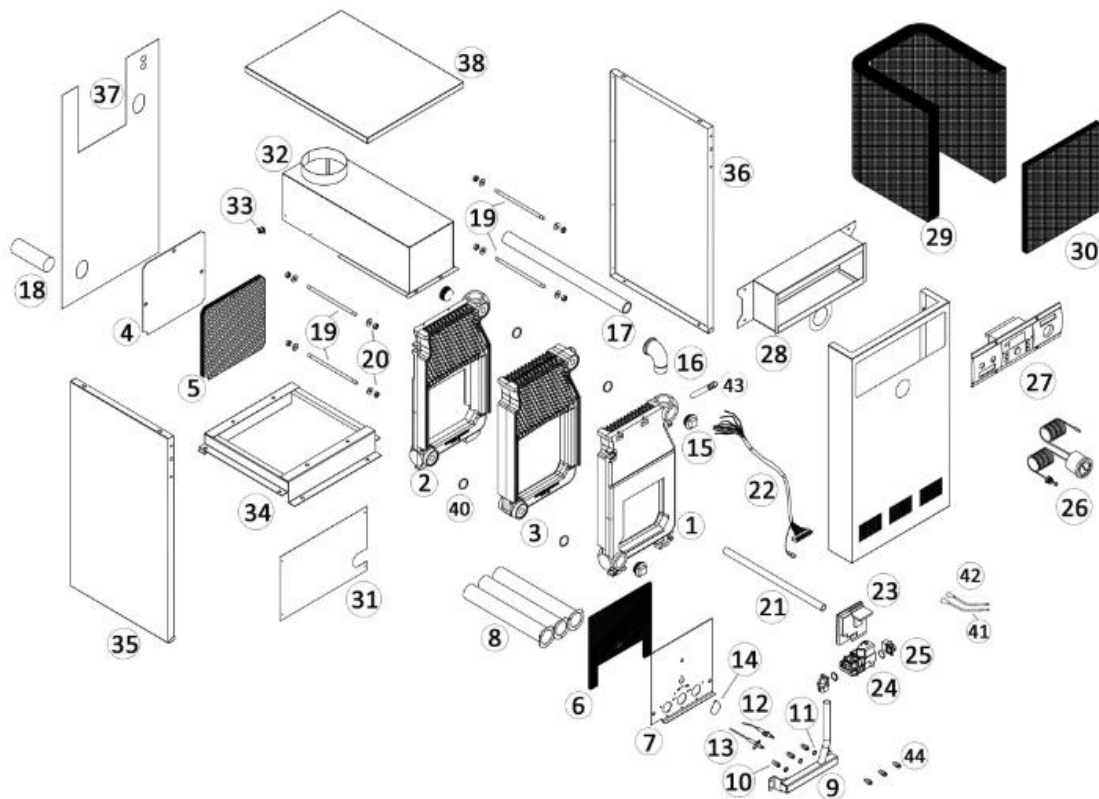


DANGER CAUTION!

Always observe safety instructions and regulations.

- If you smell gas, risk of poisoning and explosion due to a malfunction!
- Inflammable mixtures of gas and air may explode.
- Do not use or store explosive or easily flammable substances such as petrol or paint in the same room as the appliance.
- Risk of poisoning and explosion due to a malfunction.
- Never put the safety devices out of operation or tamper with them so as to impair their function.
- Inappropriate alterations can cause damage!
- Under no circumstances should you ever attempt to make alterations to the gas heating boiler or other parts of the system. Never try to carry out maintenance work or repairs on the appliance by yourself.
- Do not damage or remove seals on components. Only suitably qualified heating engineer or our customer service may removed sealed components.
- Do not touch hot water connections or the flue outlet when the boiler is operating.
- Do not use sprays, solvents, chlorinated cleaning agents, paint, adhesives or similar substances in the vicinity of appliance. These substances can cause corrosion, including in the flue system.

Boiler Spare Parts (Exploded View)



Boiler Spare Parts List

SPARE PARTS							
ITEM	DESCRIPTION	DRAWING NO	PART NUMBER				
			ES - 03	ES - 04	ES - 05	ES - 06	ES - 07
1	FRONT SECTION	ES 00111	ES-111	ES-111	ES-111	ES-111	ES-111
2	BACK SECTION	ES 00112	ES-112	ES-112	ES-112	ES-112	ES-112
3	MIDDLE SECTION	ES 00113	ES-113	ES-113	ES-113	ES-113	ES-113
4	BACK SECTION COVER PLATE	ES 00114	ES-114	ES-114	ES-114	ES-114	ES-114
5	BACK SECTION COVER PLATE INSULATION	ES 00115	ES-115	ES-115	ES-115	ES-115	ES-115
6	BURNER COVER INSULATION	ES 00116	ES-116	ES-116	ES-116	ES-116	ES-116
7	BURNER CONNECTION COVER	ES 00117	ES-117	ES-117	ES-117	ES-117	ES-117
8	ATMOSPHERIC BURNER	ES 00118	ES-118.001	ES-118.002	ES-118.003	ES-118.004	ES-118.005
9	GAS COLLECTOR SET	ES 00119	ES-119	ES-119	ES-119	ES-119	ES-119
10	NOZZLES FOR NATURAL GAS	ES 00120	ES-120.001	ES-120.002	ES-120.003	ES-120.004	ES-120.005
11	NOZZLE CONNECTION NUTS	ES 00121	ES-121	ES-121	ES-121	ES-121	ES-121
12	IGNITION ELECTRODE	ES 00122	ES-122	ES-122	ES-122	ES-122	ES-122
13	IONISATION ELECTRODE	ES 00123	ES-123	ES-123	ES-123	ES-123	ES-123
14	FLAME OBSERVATION WINDOW COVER	ES 00124	ES-124	ES-124	ES-124	ES-124	ES-124
15	STOPPERS	ES 00125	ES-125	ES-125	ES-125	ES-125	ES-125
16	ELBOW 1"	ES 00126	ES-126	ES-126	ES-126	ES-126	ES-126
17	WATER OUTLET PIPE	ES 00127	ES-127.001	ES-127.002	ES-127.003	ES-127.004	ES-127.005
18	WATER INLET PIPE	ES 00128	ES-128	ES-128	ES-128	ES-128	ES-128
19	CONNECTION RODS	ES 00129	ES-129.001	ES-129.002	ES-129.003	ES-129.004	ES-129.005
20	CONNECTION WASHER AND NUTS	ES 00130	ES-130	ES-130	ES-130	ES-130	ES-130
21	GAS PIPE	ES 00131	ES-131.001	ES-131.002	ES-131.003	ES-131.004	ES-131.005
22	WIRING FOR IGNITION CONTROL CARD	ES 00132	ES-132	ES-132	ES-132	ES-132	ES-132
23	IGNITION CONTROL CARD	ES 00133	ES-133	ES-133	ES-133	ES-133	ES-133
24	GAS VALVE	ES 00134	ES-134	ES-134	ES-134	ES-134	ES-134
25	GAS VALVE INLET-OUTLET FLANGES	ES 00135	ES-135	ES-135	ES-135	ES-135	ES-135
26	TERMOMANOMETER	ES 00136	ES-136	ES-136	ES-136	ES-136	ES-136
27	CONTROL PANEL PLASTIC PLATE	ES 00137	ES-137	ES-137	ES-137	ES-137	ES-137
28	CONTROL PANEL BOX	ES 00138	ES-138	ES-138	ES-138	ES-138	ES-138
29	BODY INSULATION - GLASS WOOL	ES 00139	ES-139.001	ES-139.002	ES-139.003	ES-139.004	ES-139.005
30	FRONT SIDE INSULATION - GLASS WOOL	ES 00140	ES-140	ES-140	ES-140	ES-140	ES-140
31	FRONT SIDE INSULATION PLATE	ES 00141	ES-141	ES-141	ES-141	ES-141	ES-141
32	FLUE GAS COLLECTOR	ES 00142	ES-142.001	ES-142.002	ES-142.003	ES-142.004	ES-142.005
33	FLUE GAS LIMIT THERMOSTAT	ES 00143	ES-143	ES-143	ES-143	ES-143	ES-143
34	CHASSIS	ES 00144	ES-144.001	ES-144.002	ES-144.003	ES-144.004	ES-144.005
35	LEFT COVER PANEL	ES 00145	ES-145.001	ES-145.002	ES-145.003	ES-145.004	ES-145.005
36	RIGHT COVER PANEL	ES 00146	ES-146.001	ES-146.002	ES-146.003	ES-146.004	ES-146.005
37	REAR COVER PANEL	ES 00147	ES-147	ES-147	ES-147	ES-147	ES-147
38	TOP COVER PANEL	ES 00148	ES-148.001	ES-148.002	ES-148.003	ES-148.004	ES-148.005
39	FRONT COVER PANEL	ES 00149	ES-149	ES-149	ES-149	ES-149	ES-149
40	O-RING	ES 00150	ES-150	ES-150	ES-150	ES-150	ES-150
41	SILICON CABLE FOR IONISATION ELECTRODE	ES 00151	ES-151	ES-151	ES-151	ES-151	ES-151
42	SILICON CABLE FOR IGNITION ELECTRODE	ES 00152	ES-152	ES-152	ES-152	ES-152	ES-152
43	THERMOSTAT BULB	ES 00153	ES-153	ES-153	ES-153	ES-153	ES-153
44	NOZZLES FOR LPG	ES 00154	ES-154	ES-154	ES-154	ES-154	ES-154



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