

## RS Series Cast Iron Boiler

### Installation, Operation & Maintenance Manual



RS Series Range Of Floor Standing Oil / Gas Fired Boiler  
Cast Iron Sections  
Triple Pass Design  
76 kW - 145 kW



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## Description :

- In this manual you will find the instructions for Rima three pass cast iron boilers suitable for both gas and liquid fuel. RS series hot water boilers and related information for installation, operation and maintenance of the boiler. For high efficiency and proper working conditions please read this manual carefully. For more information please check the product brochure or get in touch with Rima technical services.
- Please do not touch or remove any parts of the boiler for starting, adjusting or repairing the boiler except the processes written in this manual.
- Please call Rima services and technical officials for installing the boiler.
- Our licensed franchisers and services will give you instructions about working principals, conditions and care instructions after installing and starting the boiler.
- Our professionals will be glad to answer all your questions at any time.

## Certifications :

RS series boilers are in compliance with ;

### EC Directives :

**(90/396/EEC)** Gas Appliances Directive

**(92/42/EEC)** Efficiency Directive

**(89/336/EEC)** Electromagnetic Compatibility Directive

**EN 303/1:** Heating boilers with forced draught burners - Terminology, general requirements, testing and marking

**EN 303/2:** Heating boilers - Part 2: Heating boilers with forced draught burners - Special requirements for boilers atomizing oil burners

**EN 303/3:** Heating boilers-Part 3: Gas fired heating boilers-Assembly comprising a boiler body and a forced draught burner

RS SERIES CE approved, No: **CE-1015BR0260**

**Please , consider on the standards in installation.**

## Symbols :



**Caution , Danger**



**Important**



**Info**

## General Warnings :

- RS series cast iron boilers are designed for working with hot water heating and/or hot water plumbing and produced with the proper technology and materials suitable for this design. This design is restricted to use out of its aim of use.
- RS series boilers are delivered as sections and services assemble the boilers in the operation area. The assembling of the boiler must be made by Rima technical services. Removing or re-assembling of the boiler should also be made by licensed Rima services, if not the risk of damage is high.
- In the assembling of the boiler; there must be a proper and safe concrete platform for to put the boiler on.
- In the assembling of the boiler, an empty space must be left from sides for safety requirements and for future repairing operations.
- Starting and first operation of the boiler must be made by authorized Rima technicians.
- Do not add or pump water to the boiler or plumbing system as it is working and hot. For adding water to the boiler or to the system please wait for water temperature to reach 40°C. Circulation pump must surely be started while adding water to the system. If not, the sections may crack.
- If the boiler will be kept off for a long time the electric system must be shut down from the main fuse. The electric must be cut off from the main shelter/fuse as the boiler is in repair, service or cleaning.
- In summer months, when the boiler is off for a long term, for preventing probable problems with circulation pumps, must be started 1 -2 times per month for 5 minutes. (The water with chalk can cause problems, if the pump is not used for long time period.)
- The periodical controls of the boiler and the burner must be done. If not, the boiler may lose efficiency and the fuel amount used may increase.
- The capacity choice of the boiler must be made according to the projects that prepared properly in the terms of related standards. If not, the boiler efficiency will be low.
- RS series boilers are produced for heating only. For heating the sanitary water another equipment such as water heater or heat exchanger is needed. For proper efficiency in this operation, correct water heater or heat exchanger must be selected.
- RS series boilers are delivered without burners. For suitable burner selection please get in touch with Rima technicians. Suitable burners must be selected for taking high efficiency.
- If the boiler is stopped automatically because of overheating do not add cold water to the boiler for re-starting. In this case wait for the boiler to cool down and re-try starting. If it does not start, please get in contact with technical services.
- In cleaning, repair and other care operations the original spare parts which approved and manufactured by Rima, must be used.
- The periodical and yearly controls of the boiler must be done properly and on time. Natural gas is a clean fuel and doesn't make a lot of dirt in the boiler. But the boilers that liquid fuels are used as fuels are much more easily get dirt. Controls and care operations of the boiler is needed for keeping high efficiency and long life of the boiler.
- Repairing and periodical controls of RS series boilers requires profession. In this manual the responsibilities and required information for users of the boiler is declared. Besides these declared operations, boiler must not be started by a person rather than the user or one of our technicians. Please do not try to make adjustment or do not touch any parts of the boilers.
- The electricity of the burner and boiler is supplied by city electric network. In this case the electric and lighting systems of the boiler room, burner and boiler electrical connections, grounding line of control panel and boiler must be made by professionals under the required and related standards.
- In this manual you will find informations only for the boilers. Please do not forget to get the instruction manual of the burner that you purchase from the manufacturer of it. Burner is not delivered with the boiler. In this case we do not give any guarantee for the burner that you purchase. Please get the guarantee certificate for the burner from your supplier.
- Please be sure that the front door (burner door) for the boiler is strictly closed and burner connections are properly made as the boiler is working.

## **Safety Instructions :**

Always observe the following safety instructions and regulations.

Always perform the following steps prior to inspection work.

- Close the gas shut-off valve.
- Close the heating feed and return.

### **Danger!**

- If you smell gas, risk of poisoning and explosion due to a malfunction!

### **If you smell gas :**

- Do not switch lights on or off.
- Do not use any other electrical switches.
- Do not use a telephone in the area of the hazard.
- Do not use naked flames (such as matches or cigarette lighters).
- Do not smoke.
- Close the gas stop cock.
- Open the windows and doors.
- Warn other residents.
- Get out of the house.
- Notify your gas supplier or a suitably qualified heating engineer.

### **Danger!**

- 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.

### **Safety Caution!**

- 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 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.



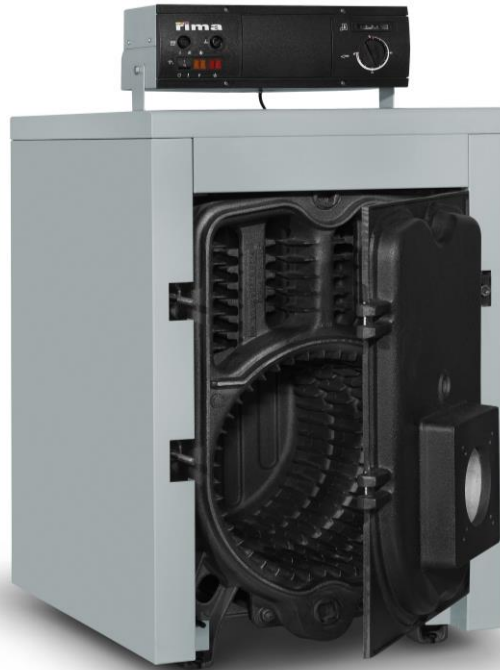
### **Caution!**

#### **Risk of damage!**

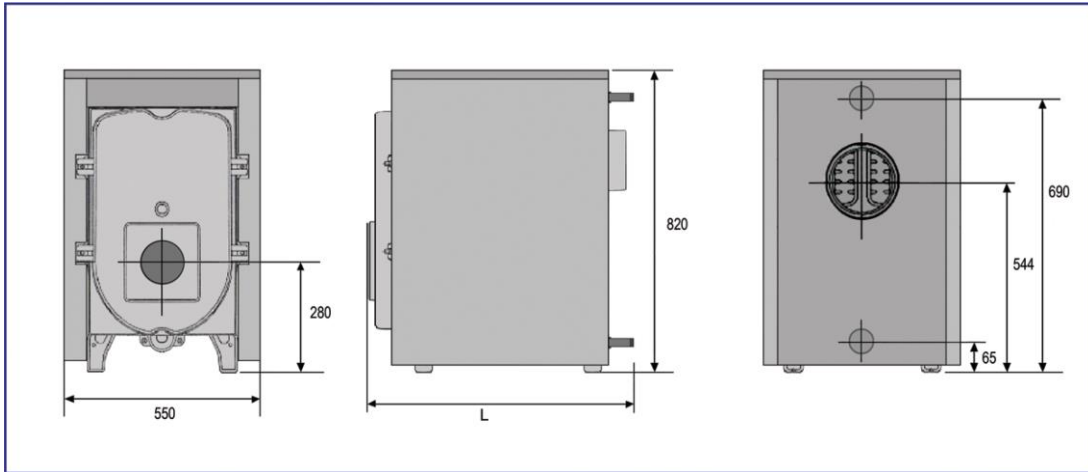
- Do not use sprays, solvents, chlorinated cleaning agents, paint, adhesives or similar substances in the vicinity of the appliance. These substances can cause corrosion, including in the flue system.

### General Characteristics of RS series Boilers :

- RS series boilers are, blowing burner, cast iron sectioned, between the capacities 76 – 145 kW with proper burner connection, works with gas or liquid fuel in 5 different ( 5 – 9 sections) type.
- RS series boilers operating pressure is 6 bar maximum, and working temperature is 90 °C maximum.
- In RS series boilers,heat transfer surface areas are increased by the special wings in the burning room and chimney ways.This increases the heat transfer ability of cast iron boiler to the maximum level.
- RS series boilers are cast iron sectioned boilers.This brings easy assembling and easy capacity increasing by adding sections to the boiler. The transportation and installation of the boiler is easy because of the boiler is assembled in boiler rooms. It is easily to carry or shift position without breaking walls etc.
- RS series boilers are produced from special cast iron alloy EN GJL 200 , which gives high resistance against corrosion and thermal expansions. They are long life boilers according to this special cast iron alloy.
- With the help of horizontal and three pass specially designed sections burning gases pass three times in the boiler and transmits burning energy to the water inside the sections at high level.
- RS series boilers are high efficiency boilers. ( According to the fuel max. heating value % 91 – 93 ). With this high efficiency and perfect isolation more energy is gained with less fuel. Heat loses are minimized on RS series boilers.
- By appropriate burning room, heat transfer surface, turbulator, collector and isolation high heat transfer and optimum flue gas emission results are provided.



**Boiler Dimensions :**



Boiler Type	RS - 05	RS - 06	RS - 07	RS - 08	RS - 09
Boiler Length L (mm)	800	922	1044	1166	1288

**Delivery Conditions :**

- Boiler sections are delivered as not - assembled according to the boiler room specifications and dimensions. In not assembled deliveries, sections and assembling aparats are delivered on a pallet, cabins, isolation and other elements are delivered in a box. Rima technicians make the assembling of the boiler.



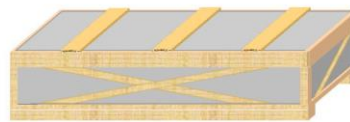
Burner Box(pallet and Cardboardbox)



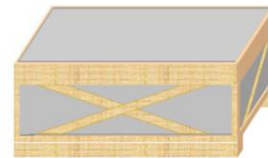
Mounting Parts box  
(Cardboard Box)



Control Panel box  
(Cardboard Box)



Boiler Cabin Sheet Parts and  
insulating jacket  
(wooden box)





Cast Iron Boilers Elements  
(80x120 Pallet)

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



**Information on the Boiler Plate :**

The identification plate is mounted on the back side of the boiler cabin.

	
CAST IRON BOILERS	
Boiler Type :	_____
Max. Operating Pressure (bar) :	_____
Max. Operating Temperature ( C ) :	_____
Heat Output (kW) :	_____
Production Year :	_____
Serial Number :	_____
	
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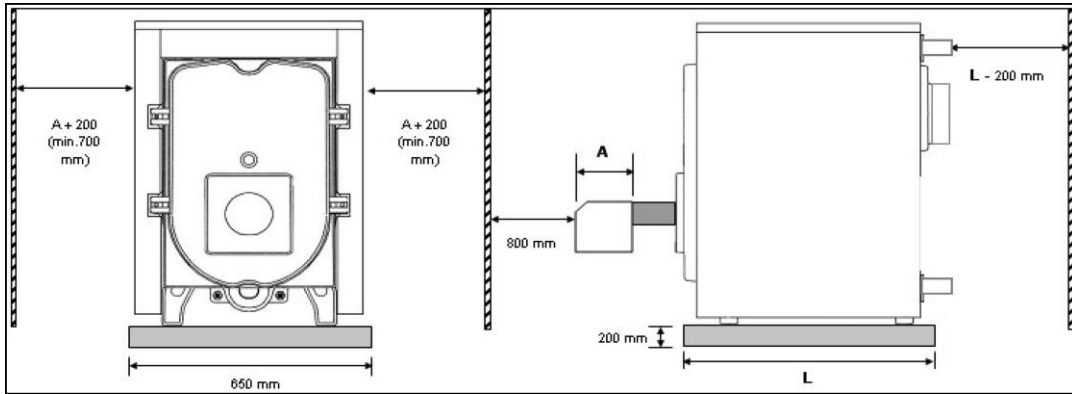
→ RS -05 , RS-06 , RS - 07 ...




## Technical Parameters :

Series Name		RS - 05	RS - 06	RS - 07	RS - 08	RS - 09
Number Of Elements	Pcs.	5	6	7	8	9
Nominal Heat Output	kW	76	93	110	128	145
	kCal/h	65.000	80.000	95.000	110.000	125.000
Nominal Heat Input	kW	82	101	120	138	157
Maximum Operating Temperature	°C	90				
Range Of Temperature Control	°C	30-90				
Gas Side Resistance	mbar	1,40 - 1,65	1,57 - 1,82	1,75 - 2,05	2,00 - 2,30	2,25 - 2,55
Maximum Operating Pressure	bar	6				
Boiler Water Content	L	55	65	75	85	95
	m <sup>3</sup>	0,055	0,065	0,075	0,085	0,095
Exit Flue Connection Diameter	mm	150		180		
Combustion Chamber Dimensions [ Φ ] [ L ]	mm	336				
	mm	550	670	790	910	1030
Water Inlet- Outlet Connection	(")	G 2				
Gas Volume of the Boiler	L	64,1	78,36	92,62	106,88	121,14
	m <sup>3</sup>	0,064	0,078	0,093	0,107	0,121
Gas Volume of the Combustion Chamber	L	45,94	56,16	66,38	76,6	86,82
	m <sup>3</sup>	0,046	0,056	0,066	0,077	0,087
Safety Temperature Limit	°C	100				
Fuel Type	N.Gas	L <sub>2</sub> H				
	Liquid F.	Extra Light Heat Oil				
Country of Destination		AT, CZ, DK, EE, ES, FI, GB, GR, IE, IT, LT, LV, PT, SE, SI, SK, TR				
Flue Gas Temperature [ Full Load ] [ Partial Load ]	°C	184 - 187	179 - 185	175 - 182	170 - 177	169 - 174
	°C	165 - 172	164 - 170	162 - 168	160 - 165	155 - 160
Flue Gas Mass Flow [ Full Load ] [ Partial Load ]	kg/h	127	156	185	214	243
	kg/h	76	93	111	129	146
Boiler Dimensions [ Width x Height ] [ Length ]	mm	550 x 820				
	mm	800	922	1044	1166	1288
Standby Loss	%	0,32	0,29	0,27	0,23	0,21
	kCal/h	2.246	2.506	2.770	2.732	2.835
Burner Hole Diameter	mm	110				
Burner Type		Short Barrel				
Chimney Effect	Pa	5				
Boiler Net Weight	kg	285	330	377	425	470

**Recommended Minimum Distance for Installation:**



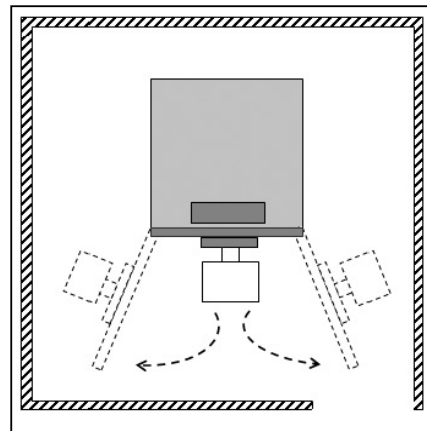
Boiler Type	RS - 05	RS - 06	RS - 07	RS - 08	RS - 09
Platform Length L (mm)	880	915	1125	1245	1370

 Do not put flammable materials on top of the boiler or near the boiler than specified safety distance.

The measurements of the boiler room and the empty spaces must be arranged properly for future assembling repairing, re-assembling, burner connecting issues.

- \* The concrete platform must be in the mentioned dimensions.
- \* Concrete platform must not be coated with slipper materials such as ceramics etc.
- \* If sound isolaton will be made , first do the sound isolation than make the concrete for platform.
- \* Platforms must be made of BS 25 concrete and scales.

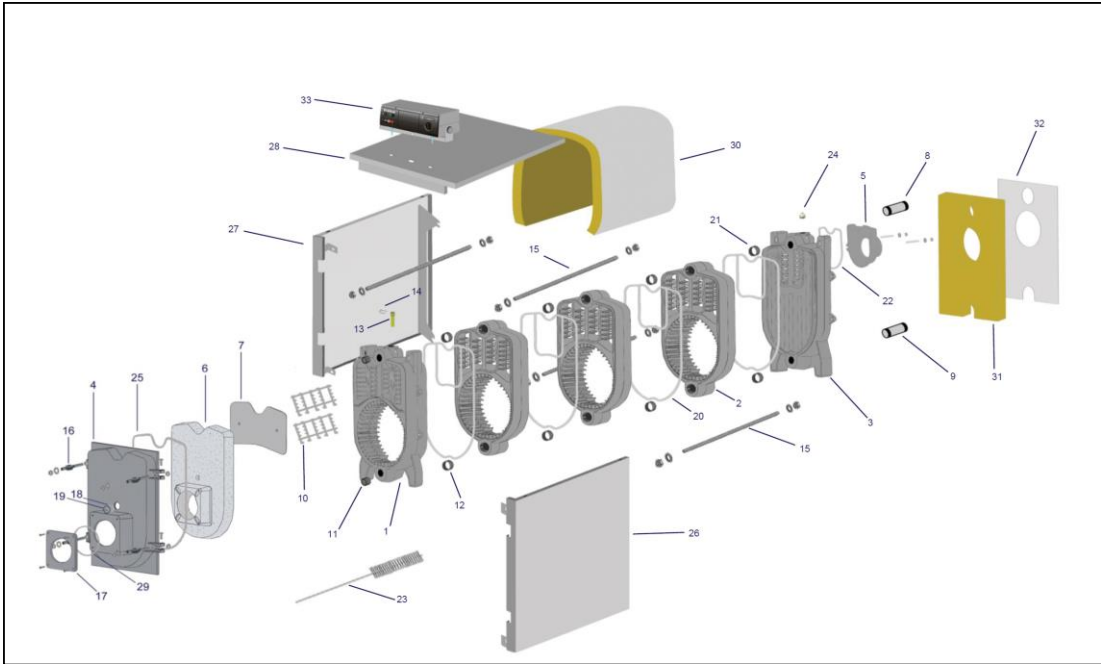
- In RS series boilers burner doors can be opened to both sides. According to this the required empty spaces for the both sides are given equal (min. 700 mm). This will gives advantages for operations. If the boiler room area is not enough for this you can choose one side and leave the big empty space there. Half of this empty space will be enough for the other side in these conditions.
- There must be space for the tools that will be used in boiler room.



### Important Instructions About Boiler Room:

- There must not be any other equipments such as aspirator, air condition central etc. in the boiler rooms. These kind of equipments can make vacuum effect and defect boilers pull force. This can cause burner failures.
- The ceiling of the boiler room can be isolated for sound and heat isolation. The position and place of the boiler is important for sound isolation of the boiler.
- Boiler room must have a good lighting and control switches of lighting must be outside of the boiler room.
- There must not be equipments like water pump, contactor etc.. in the boiler room.
- Gas alarm equipments must be placed to the proper highth as mentioned on standards.
- No one except the responsible person should get in to the boiler room.
- Children must not enter to the boiler room. A second key must be kept in safe place for urgent matters.
- Fuel tanks must be put in another place which is rounded by walls. Natural air conditioning is needed for this place.
- Boiler room must be air conditioned by natural or other ways.
- Humidity must be prevented in boiler room.
- Boiler room must have the requested dimensions .
- There must not be any kind of explosive , burning and flammable materials in the boiler room.
- There must not be any kind of explosive , burning and flammable gases in the boiler room atmosphere.
- For the efficiency of the burner and the boiler, boiler room must be kept clean and dry.
- For feeding water to the boiler, water line must be arranged near the boiler. And for filling out the water of the boiler in necessary conditions, there must be a connection to drainage in the system.
- If there are any electric keys, cables etc. Which can cause short circuits must be fixed, renewed as soon as possible.
- In Natural Gas or LPG use ; boiler room, flue, system and plumbing issues must be under parameters of EN standarts and gas offices orders. Rima is not responsible for any failure or problems that will be occurred because of inadequate or not sufficiently qualified conditions of boiler room, plumbing and other systems.
- The instructions of local gas delivery must be applied.
- Before painting , keep flammable materials out.
- Before any welding operation in boiler room, boiler must be stopped and the gas flow must be stopped by turning of the gas valve.
- Do not touch the boiler when it is hot.
- Boiler must not be installed on carpet.
- Switch off the boiler immediately if there is danger of burning or explosion ( electricity problem, gas leakage, liquid gas , etc.).

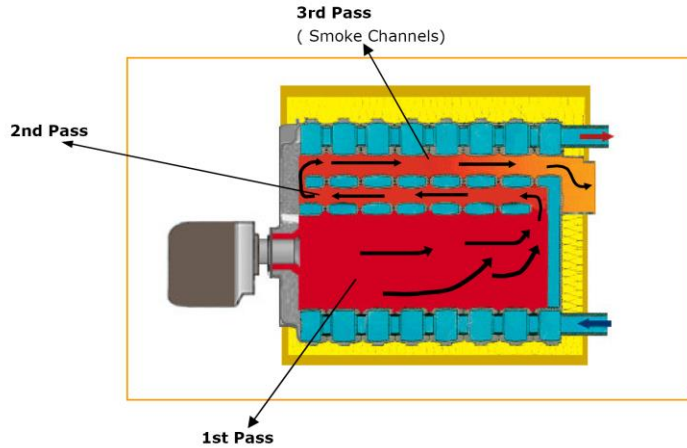
**RS Series Cast Iron Boiler Parts :**



**RS Series Cast Iron Boiler Spare Parts List :**

SPARE PARTS		DRAWING NO	PART LIST				
ITEM	DESCRIPTION		RS - 05	RS - 06	RS - 07	RS - 08	RS - 09
01	FRONT SECTION	RS 00201	RS - 060	RS - 060	RS - 060	RS - 060	RS - 060
02	MIDDLE SECTION	RS 00202	RS - 050	RS - 050	RS - 050	RS - 050	RS - 050
03	BACK SECTION	RS 00203	RS - 070	RS - 070	RS - 070	RS - 070	RS - 070
04	BURNER DOOR	RS 00204	RS - 080	RS - 080	RS - 080	RS - 080	RS - 080
05	CHIMNEY	RS 00205	RS - 090	RS - 090	RS - 095	RS - 095	RS - 095
06	BURNER DOOR ISOLATION	RS 00206	RS - 085	RS - 085	RS - 085	RS - 085	RS - 085
07	BURNER DOOR ISOLATION COVER	RS 00207	RS - 088	RS - 088	RS - 088	RS - 088	RS - 088
08	WATER OUTLET PIPE	RS 00208	RS - 072	RS - 072	RS - 072	RS - 072	RS - 072
09	WATER INLET PIPE	RS 00209	RS - 073	RS - 073	RS - 073	RS - 073	RS - 073
10	TURBULATOR	RS 00210	RS - 074	RS - 074	RS - 074	RS - 074	RS - 074
11	STOPPER 1 1/4"	RS 00211	RS - 075	RS - 075	RS - 075	RS - 075	RS - 075
12	NIPPLE	RS 00212	RS - 020	RS - 020	RS - 020	RS - 020	RS - 020
13	THERMOSTAT BULB	RS 00213	RS - 021	RS - 021	RS - 021	RS - 021	RS - 021
14	THERMOSTAT BULB SEGMENT	RS 00214	RS - 022	RS - 022	RS - 022	RS - 022	RS - 022
15	CASTING BLOCK CONNECTION ROD	RS 00215	RS - 185	RS - 186	RS - 187	RS - 188	RS - 189
16	BURNER DOOR LOCK HINGE	RS 00216	RS - 081	RS - 081	RS - 081	RS - 081	RS - 081
17	BURNER ASSEMBLING FLANGE	RS 00217	RS - 082	RS - 082	RS - 082	RS - 082	RS - 082
18	FLAME OBSERVATION GLASS	RS 00218	RS - 087	RS - 087	RS - 087	RS - 087	RS - 087
19	GLASS SEGMENT	RS 00219	RS - 105	RS - 105	RS - 105	RS - 105	RS - 105
20	MIDDLE SECTION ISOLATION ROPE	RS 00220	RS - 040	RS - 040	RS - 040	RS - 040	RS - 040
21	BACK SECTION ISOLATION ROPE	RS 00221	RS - 041	RS - 041	RS - 041	RS - 041	RS - 041
22	CHIMNEY ISOLATION ROPE	RS 00222	RS - 015	RS - 015	RS - 015	RS - 015	RS - 015
23	CLEANING BRUSH	RS 00223	RS - 025	RS - 025	RS - 025	RS - 025	RS - 025
24	AIR VENT	RS 00224	RS - 083	RS - 083	RS - 083	RS - 083	RS - 083
25	BURNER DOOR ISOLATION ROPE	RS 00225	RS - 052	RS - 052	RS - 052	RS - 052	RS - 052
26	RIGHT SIDE COVER PANEL	RS 00226	RS - 165	RS - 166	RS - 167	RS - 168	RS - 169
27	LEFT SIDE COVER PANEL	RS 00227	RS - 175	RS - 176	RS - 177	RS - 178	RS - 179
28	TOP COVER PANEL	RS 00228	RS - 285	RS - 286	RS - 287	RS - 288	RS - 289
29	BURNER ASSEMBLING FLANGE ISOLATION ROPE	RS 00229	RS - 035	RS - 035	RS - 035	RS - 035	RS - 035
30	CASTING BODY INSULATION	RS 00230	RS - 045	RS - 046	RS - 047	RS - 048	RS - 049
31	REAR COVER PANEL ISOLATION	RS 00231	RS - 255	RS - 255	RS - 255	RS - 255	RS - 255
32	REAR COVER PANEL	RS 00232	RS - 265	RS - 265	RS - 265	RS - 265	RS - 265
33	CONTROL PANEL	RS 00233	RS - 305	RS - 305	RS - 305	RS - 305	RS - 305

**Cast Iron Sections with High Efficiency Design :**



- 3 draught design forces the flue gas to circulate inside the body of the boiler three times before the chimney exit, transferring all usefull energy to the water inside the sections. The optimized combustion chamber combined with perfect heat insulation provides maximum fuel efficiency.
- The combustion room of the boiler is positive pressure. Boiler is working under horizontal 3 pass principal.

**Boiler Room Ventilation :**

There are three reasons for fresh air in boiler rooms.

- 1.The air needed for the burning in the boiler.
- 2.The air needed for prevention of dirt and dust,for releasing the gases and fuel to put out.
- 3.The air needed for overheating in the boiler room.

Ventilation for first two reasons are continously needed.The third one is needed especially for the boilers which are working on summer time.

Maximum temperature for the boiler room must be 32 °C and boiler room must be protected against freezing.

Boiler Type	RS 05	RS 06	RS 07	RS 08	RS 09
Boiler Chimney Dimension(mm)	150	150	180	180	180
Chimney Height	13,53	20,49	13,94	18,69	24,13
( Natural Gas ) (m)	19,48	29,41	20,07	26,91	34,75

- If the fuel is natural gas

Boiler Type	*Net Cross Section of Open for Natural Airing ( cm <sup>2</sup> )		**Volume of Air Needed for Force Airing ( m <sup>3</sup> /h )	
	Bottom	Up	Bottom	Up
RS 05	610	163	245	163
RS 06	689	344	301	201
RS 07	767	384	358	239
RS 08	846	423	414	276
RS 09	924	462	471	314

\* If natural ventilation system is used.

\*\* Ventilated airing system is used.

\*\*\* Bottom value shows the clean air input up shows the air output.

## Plumbing Instructions :

- Fresh water must be added periodically to the plumbing. The chalk and other chemicals will connect with the system and become solid . For avoiding this , closed expansion tank must be used in the system.In the systems that closed expansion tanks are used, water will flow in closed system so it will not evaporate and lost.So in this kind of systems the water level will stay same and fresh water addition will not be necessary. This will prevent chalk and dust and the life of the sytem will be long.
- The water in the radiator or heating system is not healthy.Do not use this water as drinking or cleaning water.Do not take water from the system.If the water level is low , water addition is needed.
- For avoiding chalk and other chemical dust problems soft water must be used in the system.Plumbing system water quality :  
 $Ph \geq 7,2$   $Th \leq 25$  °Fr
- If the city sanitary water is not in requested quality water addition from wells or other sources must be made after testing it.For reaching the requested quality additional processes must be applied to the water if needed.
- For avoiding the chalk and other dust to get in to the boiler, or from boiler to plumbing system dust holders must be placed in and out line of the system.
- Circulation pump must be connected to the water output of the boiler and the capacity of the pump must be suitable to the boiler capacity. If not,problems may occur in flowing of the water and heating efficiency of the boiler.
- For working the system properly 4 way mixture valve or thermostat control by pass pump must be used for increasing return water temperature.
- By connecting a three way motor valve between the forward and return line of heating system,the water that flows to the system can be controlled in ratios.
- There must be water inside of the boiler every time. If not , corrosion can occur in the boiler and the plumbing system. If the boiler will not be used in winter season, for avoid freezing , anti-freeze solution must be used.

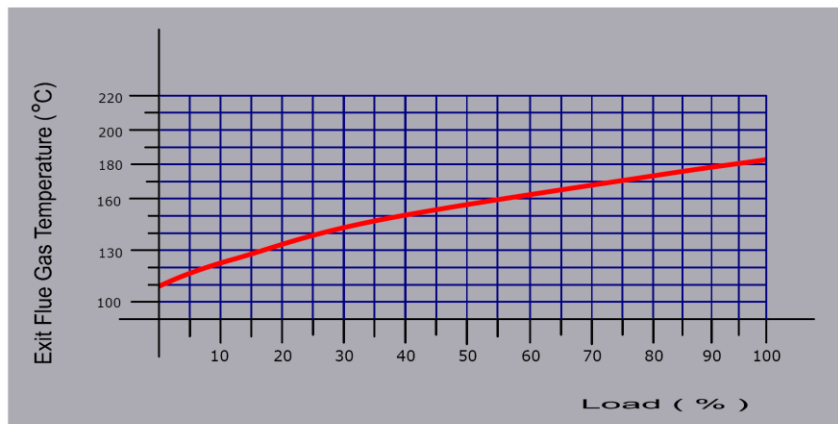
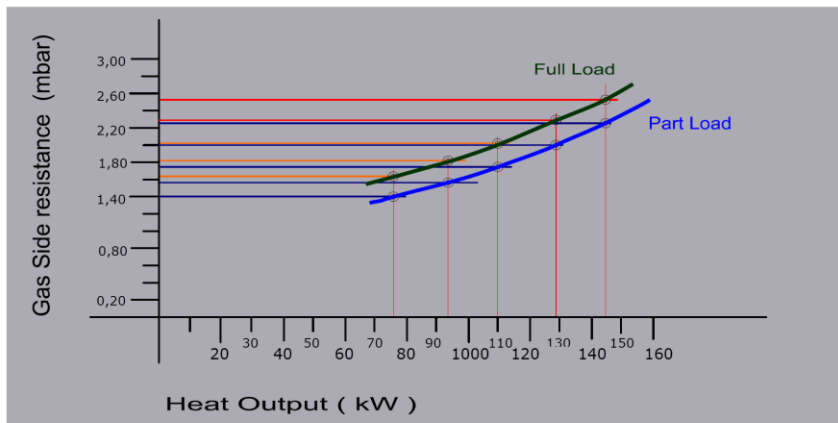
- For healthy working conditions of the boiler, temperature difference between water forward and water return must not be more than 20 °C. And boiler must not be started or work under the water volumes which is mentioned in the below table.

Boiler Type	Capacity		$\Delta t = 15 K$		$\Delta t = 20 K$	
	kCal/h	kW	Water Volume	Water Part Resistance	Water Volume	Water Part resistance
			m <sup>3</sup> /h	mbar	m <sup>3</sup> /h	mbar
RS 05	65.000	75,6	4,333	17,2	3,250	7,6
RS 06	80.000	93,0	5,333	18,0	4,000	10,0
RS 07	95.000	110,5	6,333	23,5	4,750	15,6
RS 08	110.000	127,9	7,333	29,0	5,500	19,0
RS 09	125.000	145,3	8,333	34,0	6,250	22,3

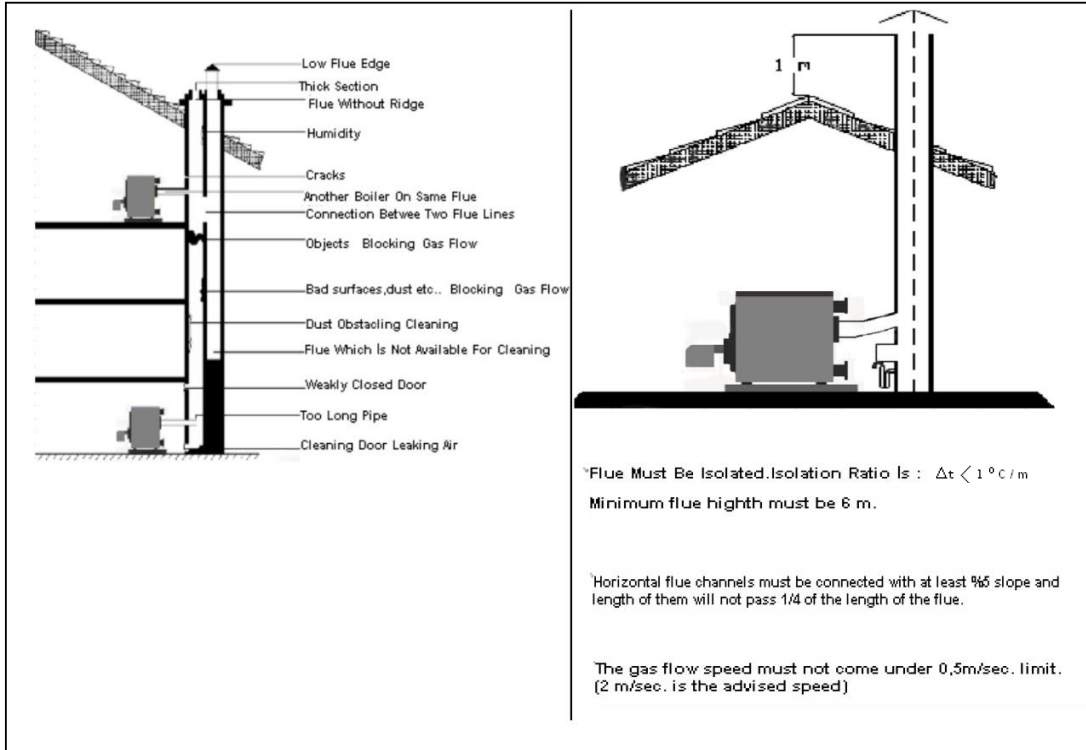
\*  $\Delta t$  = temperature difference

\*\*\* RS series boiler is designed, forced circulation hot water heating systems only.

#### Gas Side Resistance and Exit Flue Gas Temperature :

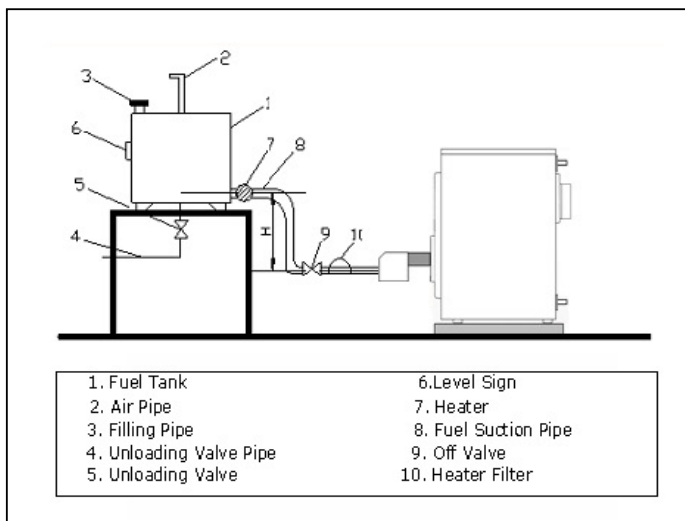


### Important Instructions About Flue :



### Important Instructions About Connecting the Fuel Tank :

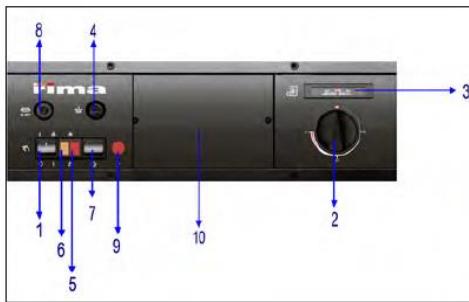
- The platform of the fuel tank must be strong to carry the tank. If the fuel tank is outside tank , connection pipes must be isolated. Fuel tank must be placed in higher level than the burner. The height difference between the burner and fuel tank ( H ) must be more than 4 m. In the seasons that the boiler is not used, fuel tank must be empty for avoiding corrosion.





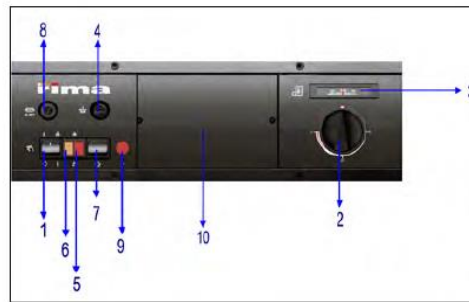
## Boiler Control Panels :

### Standart Control Panel (Single Stage):



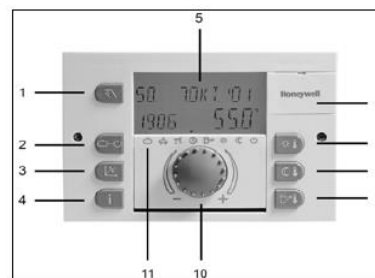
- 1- Main ON/OFF Switch
- 2- Boiler Thermostat
- 3- Boiler Thermometer
- 4- Safety Thermostat with manual reset (set to 100 °C)
- 5- Defect Indicator
- 6- Working Indicator
- 7- Reset Button
- 8- Fuse
- 9- Water pressure defect indicator
- 10- Ecopanel mounting place

### (Dual Stage) :



- 1- Main ON/OFF Switch
- 2- Boiler (TRZ)Thermostat
- 3- Boiler Thermometer
- 4- Safety Thermostat with manual reset (set to 100 °C).
- 5- Defect Indicator
- 6- Working Indicator
- 7- Reset Button
- 8- Fuse
- 9- Water pressure defect indicator
- 10- Ecopanel mounting place

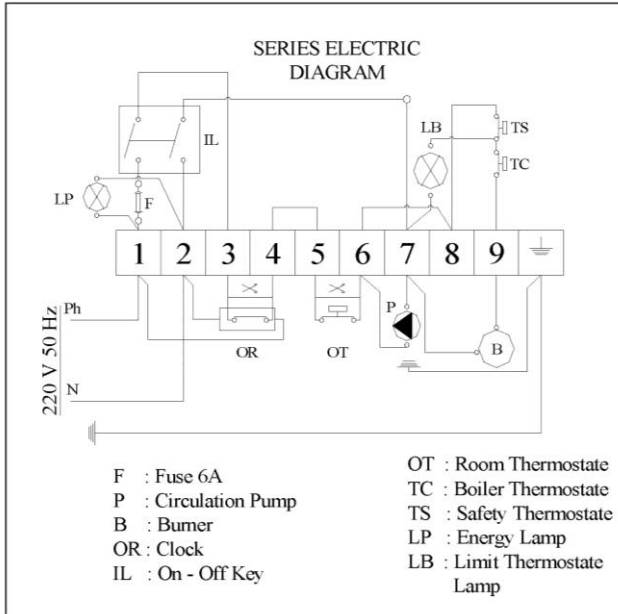
### Eco Control Panel :



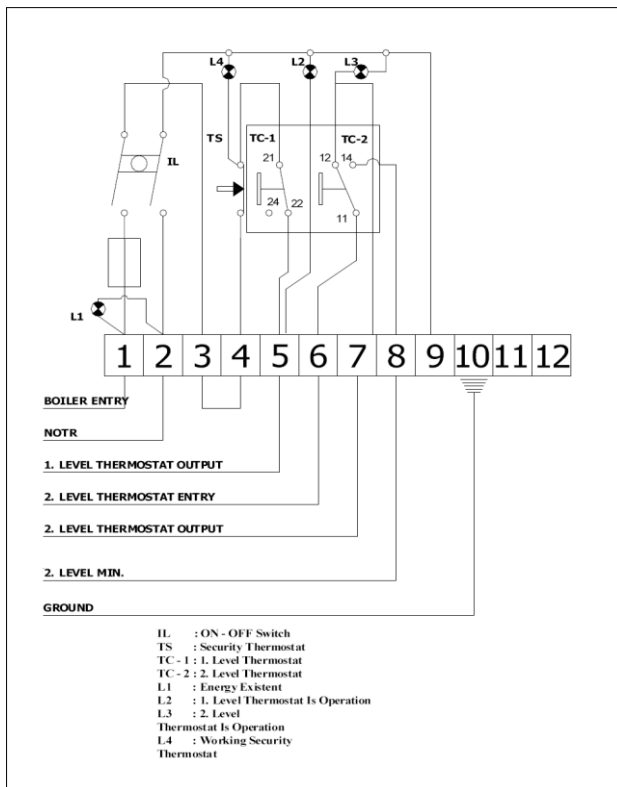
- 1- Manual mode key / Emission Measurement key (not applicable for district heating controllers)
- 2- Operating mode key for permanent and temporary operating modes (Basic display)
- 3- Heating characteristics key
- 4- Information key for the display of temperatures and operating status
- 5- Multi-functional Display
- 6- Cover clip for the service jack
- 7- Daytime room temperature setpoint key
- 8- Night-time room temperature setpoint key
- 9- DHW daytime temperature setpoint key
- 10- Rotary pushbutton (push and turn)
- 11- Operating modes symbols

**Standard Control Panel Electric Diagram :**

**Single Stage :**



**Dual Stage :**



## **Operating Instructions :**

### **Heating System :**

- In the system , the difference between direct flow temperature and the return temperature of the water must not be over 20 °C. The return water temperature must be over 50-55 °C. Boiler protection pump must be used for increasing the return water temperature. The water level of the system must be measured every day (if it is open system by hydrometer,if it is closed system by manometer) and water must be added if the level is measured low. But this water addition must not be made while the system is hot. If there are problems that cause water leakages they must be fixed as soon as possible. Plumbing system must be made by certificated professionals, under the terms of EN standards. EN approved materials must be used in the system.

### **Fuel and Electrical Connections :**

- These connections must be made by certified professionals under the terms of EN standards. EN approved materials must be used in the system. Burner, control panel, ecopanel etc. Manufacturer or distributor warnings, instruction manuals must be read . Burner must not be started before boiler circulation starts. If circulation or protection pump has a failure burner must be switched off. This system must work coordinate. Turning the pumps on when the water heat reaches over 40 °C is completely wrong. Circulation pump and burner must work simultaneously.
- Protection pump must be chosen properly according to the capacity of the boiler. The connection of the pump to the collectors must be done correctly with valve and thermostat connection. This way, system may stop in adjusted temperature. In any failure situation (contactor, thermic failure, electricity cut ,other failures..) when the pumps are not working ( heating and protection pumps etc..) burner must not start. System must do this automatically. Electrical system must be made according to all above information.

## **Loading and Unloading the Boiler Water :**

### **Unloading Water of the boiler :**

- Plumbing and all radiator valves must be opened if the boiler's water will be unloaded. All the system's water can be unloaded by boiler's drainage as if the boiler is in the bottom of the system. If some part of heating system is under the boiler room, unloading the water process can be made at a point at the bottom of the system.

### **Loading Water of the boiler :**

- Water must be loaded from the tap over the plumbing system to the boiler. During the loading process all valves of the plumbing system and the radiators must be opened. For preventing air fill to the system this operation must be made slowly and the stopper in the top must be opened. When water comes from this stopper it means that the process is finished. Air must be taken from every radiator.  
Water must be in quality which mentioned on "plumbing instructions".  
Boiler must not be filled up with water when it is hot. This can cause cracks in sections.

## Checking and Starting the Boiler :

### Checking Before Started :

- Following controls must be done before starting the boiler. If there are any problems or failure, boiler must not be started.
  - Water level of the boiler must be controlled. Water must be added to the boiler if the water level is low.
  - Please call Rima technicians if there is a water leakage. Leakage must be prevented before starting the boiler. If there is a leakage in the plumbing system, boiler must be started after repair.
  - Flue connections must be controlled. Boiler must not be started before repairing the connection if there is a problem.
  - Area must be properly air conditioned.
  - Gas valves must be checked as if they are on if gas fuel is used in the boiler.
  - Liquid fuel level of the tank must be controlled and fuel valve must be opened if liquid fuel is used in the boiler. Fuel - burner connection must be controlled. If there are any problems, filters must be cleaned.
  - Working and the directions of the pumps must be controlled.
  - Electric system of the control panel must be controlled.
  - All water and gas valves of the boiler must be opened.
- \*\*\* All other connections must be checked according to the system options.

### Getting Started :

- Turn the main electric switch of the boiler room on. Working lamp will be on.
- Start the circulation pump.
- Turn the "on / off" switch of the burner to the mode "on" (Check the burner instruction manual.) The indicator light will be on.
- Adjust the boiler temperature from the thermostat. If the burner is dual level, adjust the boiler temperature same the single stage. Dual stage (TRZ) thermostat adjust the temperature changes own by own ( + 8 °C ).
- If the burner does not start, follow the instructions written on the manual of the burner. If the burner does not start after applying the written operations in the manual, call the technical service of the burner.

### Stopping the Boiler :

- Turn the "on / off" switch of the burner to the " off " position
- Turn the "on / off" switch of the control panel to the " off " position.
- Turn of the circulation pump.
- Turn of the fuel valves.
- Turn off the main fuse switch of the boiler room.

### Failure First Controls :

When a problem or failure occurs in the boiler or the burner, please make the following first controls before calling technical services. Don't do anything rather than mentioned controls. After these controls call Rima technical services.

If boiler stops working and doesn't start again ; Safety thermostate may have stopped the boiler because of overheating at boiler water. In this case wait for the boiler to cool down and please make the following controls.

- Check if fuel is coming to the burner or not. If not, make fuel to come to the burner.
- Check if pump is working or not. If not, this could be the reason of overheating. Please get in touch with pump manufacturer or distributor.
- Check if the valves are on or off. Open the valves if they are closed.
- Please push the safety thermostate switch after the boiler is cold enough.
- Burner must start.
- If the boiler doesn't start or if the safety thermostate stop the boiler again please call Rima technical services.
- If the burner safety light is on ; Please check the burner instruction manual or get in contact with the burner manufacturer or distributor services.

## Care Instructions :

Boiler and burner controls are made in three programs.Daily (in everyday use ),periodic and yearly.

### Daily Controls :

These are the processes that the user must apply every day in season of everyday use. Please read and apply the instructions and controls mentioned in "Pre Control" section of the manual for daily controls.

### Periodic Controls :

For efficient use, preventing the possible failures and optimum life of the boiler periodic controls are important.It is recommended that periodical controls for the boiler must be made by once in every three months.These periodical controls are made by Rima technicians by applying following processes.

- Boilers burning room and smoke channels check and cleaning if needed.
- Leakage controls of water input - water output of the boiler and flue connections.
- Valves check
- Pumps check
- Fuel filter control and cleaning if needed
- Burning control (with eye).Burning and flame adjustments if needed.
- Control of the liquid fuel sensor.Cleaning if needed.
- Working and safety controls of burner and the boiler.

### Yearly Controls :

Yearly controls of the boiler must be made by Rima technicians before the season starts. Flue and flue lines must be cleaned before calling technicians for yearly controls. In yearly controls rima technicians apply the following processes.

- Situation and the leakproof of the sections and rope isolations controls.
- Working pressure test for burning adjustment with the flue gas measurement system if needed.
- Sensors and connection of the sensors test.
- Boiler burning room and possible soot layers on smoke channels are checks and cleanings.
- Connection and the leakproof of the boilers door test.
- Leakproof of the connections of the boiler test.
- Valves test for proper opening and closing.
- Fuel filter test. Cleaning if needed.
- Sensor of the burner liquids tests.Cleaning or renewing if needed .
- Working and safety controls of burner and the boiler.

### Cleaning the Boiler :

Before applying mentioned services to the boiler;electric must be cut off from the main switch,fuel valves must be closed, control panel and the burner must be protected for avoiding any possible damage.

### Smoke Channels Cleaning :

Because of the soot layer on heating surfaces, 100 °C increase on flue temperature brings out a % 5 decrease on efficiency.By pulling out the M16 screws and stamps on the 4 hinges which connects door to the front section,open the burner door. Clean the burning room, take turbulators out and clean horizontal smoke channels (2nd and 3rd pass). Then clean the turbulator and put them in to the channels. Close the burner door strictly.In this cleaning operation soot layer may occur in flue area.This soot particules can be cleaned by seperating horizontal smoke channels from boiler flue. After this operation these two screws must be connected again and must be tested for leakage.

The time period for cleaning service is variable according to the fuel type of the boiler and period of use.In boiler cleaning operation ceramic ropes that isolate front door with front section and flue with back section must be controlled and must be renewed if needed.

### Burner Door and Burner Connection :

In burner connection process there must not be any empty space left between the front door and the burner barrel. All connection points must be covered with isolation material for avoiding any air leakage possibility.

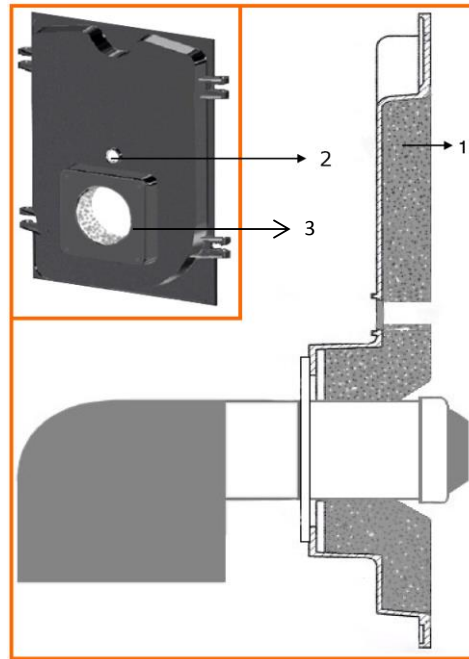
A metal flange is used for easier assembling of the burner to the door. This metal flange is made of 10 mm thickness and in the dimensions of 198x198 mm, and burner hole dimension 110 mm (3).

The isolation of the burner door is made of a special thermal ceramic which is durable up to 1250°C and has no deflections on human health (1). Please be sure that this isolation plate is carried carefully and intensively during transportation.

There is a ceramic rope fit in to the channels of isolation door. This prevents leakages between isolation door and front section of the boiler. After repairing or cleaning service the doors connection with the front section must be done properly, strictly.

RS series boilers doors are available for opening to both sides. This brings advantages of assembling, repairing and other operations.

A tempered ceramic glass is placed on to the burner door for watching flame inside (2).



### Instructions For Product Disposal

Cast iron heating boilers are used for long years according to the specifications of its materials and they are long term equipments.

Life time period for these equipments which is declared in the legal documents is 15 years .

According to this situation renewing of these items are generally done because of technological reasons.

Cast iron boilers, which are produced with human-kind materials can be disposed of as follows .

Cast Iron Body (Gray Cast Iron )	Through iron scrap dealers and cast iron melting companies
Pipes and Cabin Steels	Through iron scrap dealers
Other Metal Parts	Through iron scrap dealers
Thermal Ceramic and other Isolation Materials	Through common waste system

\*\*\*For more information please get in contact with **Rima** licensed services.

### Positioning the Boiler

Rima boilers must be positioned and placed in the terms of fire protection laws with caution.

When installing and operating the boilers it is necessary to keep a safe 200 mm distance from combustible materials with combustibility degrees B,C1,C2

For easily flammable materials with combustibility degree C3 ,which burn quickly and by themselves also after the ignition source removal the safe distance is doubled it means 400 mm.

The safe distance is to be doubled also in case that the combustibility degree of building material wasn't proved.

Combustibility degrees of building materials and products	Building materials and products ranked in combustibility degrees
A- incombustible	Granite,sandstone,bricks,ceramic tiles,mortars,fireproof plasters,...
B- hardly combustible	acumin,izumin,heraklit,lignos,boards and basalt felt, fiberglass boards,.....
C1-combustible with difficulties	Beech and oak wood, hobrex board, plywood,werzalit,.....
C2-medium combustible	Pine wood,larch,white wood, chipboard and cork boards, rubber flooring,.....
C3-easily combustible	Asphalt board,fireboards,polyurethane,polystyrene,polyethylene , PVC , .....

\*\*\*For more information please get in contact with **Rima** licensed services.

**Önmetal** 

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