



Installation, Use and Maintenance Manual for model

R1K 25

Premix condensing system boiler
only heating

CE 0476

R1K 25 - RAD - ING - Manuale - 1510.1_ErP



2.2.8. TECHNICAL DATA

Model	R1K 25	
CE certification	no.	0476CQ0134
Gas category		II2H3B/P
Discharge type	type	B23p-B33-C13-C33-C43-C53-C63-C83-C93
Energy efficiency 92/42 CEE	no. stars	4
Energy efficiency EN13203-1	no. stars	-
Maximum nominal heat capacity in heating circuit	kW	25
Minimum nominal heat capacity in heating circuit	kW	3.7
Useful thermal power - 60/80°C	kW	24.63
Minimum useful thermal power - 60/80°C	kW	3.50
Useful thermal power - 30/50°C	kW	26.45
Performance at 100% Pn - 60/80°C	%	98.51
Performance at 30% Pn - return 47°C	%	99.1
Performance at 30% Pn - return 30°C	%	107.8
Performance at 100% Pn - 30/50°C	%	105.8
Maximum combustion Performance	%	97.7
Fumes temperature at nominal heat capacity	°C	70.3
CO2 at nominal heat capacity	%	9.32
CO2 at minimum heat capacity	%	9.06
CO2 at nominal heat capacity - G30	%	11.09
CO2 at minimum heat capacity - G30	%	
CO2 at nominal heat capacity - G31	%	10.12
CO2 at minimum heat capacity - G31	%	9.75
CO at nominal heat capacity	ppm	60
Fumes mass at nominal heat capacity	g/s	11.02
Fumes mass at minimum heat capacity	g/s	1.78
NOx class	class	5
Heating circuit		
Adjustable heating temperature	°C	30-80 / 25-40
Maximum operating temperature for heating circuit	°C	95
Maximum operating pressure for heating circuit	bar	3
Minimum operating pressure for heating circuit	bar	0.3
Capacity of the system expansion vessel	litres	8
Dimensional characteristics		
Width	mm	410
Depth	mm	307
Height	mm	642
Gross weight	Kg	37
Water connections		
Flow	∅	3/4"
Cold water	∅	1/2"
Gas	∅	3/4"



2. MAINTENANCE

Return \emptyset 3/4"

Fume exhaust fittings

Maximum electric fan pressure available Pa 122

Max discharge length \emptyset 60/100 - Hor Co-ax m 6

Max discharge length \emptyset 80/80 - Hor Split m 40

Max discharge length \emptyset 60/100 - Vert Co-ax m 6

Electrical specifications

Voltage-frequency V/Hz 230/50

Max Absorbed Power W 130

Insulation rate IP X5D

Gas supply

Nominal supply pressure - G20 mbar 20

Heating Max. fan speed - G20 Hz 168

Heating Min. fan speed - G20 Hz 45

Fuel consumption - G20 m³/h 2.64

Nominal Supply pressure - G30 mbar 30

Heating Max. fan speed - G30 Hz 162

Heating Min. fan speed - G30 Hz 45

Fuel consumption - G30 kg/h 1.97

Nominal Supply pressure - G31 mbar 37

Heating Max. fan speed - G31 Hz 168

Heating Min. fan speed - G31 Hz 45

Fuel consumption - G31 kg/h 1.94



Technical parameters for boiler space heaters, boiler combination heaters and cogeneration space heaters

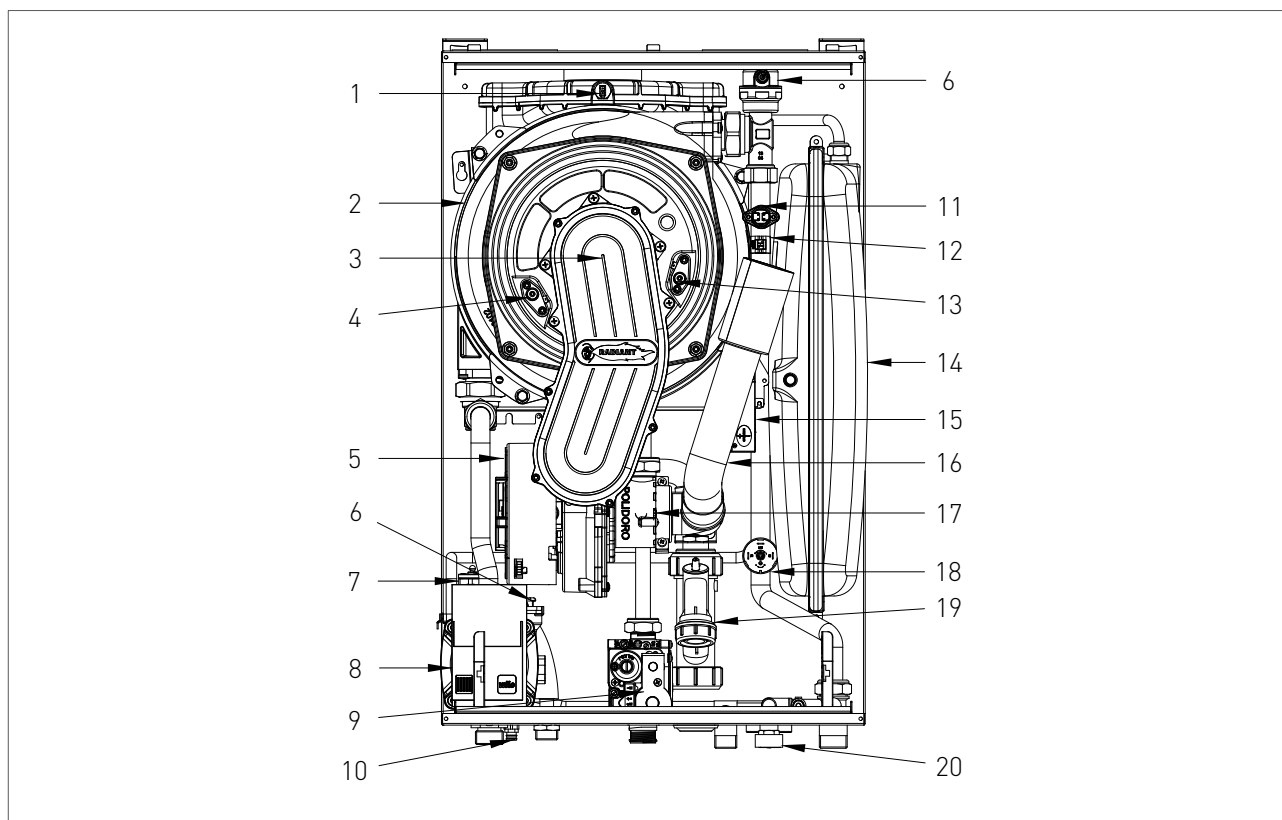
Model		R1K 25
Condensing boiler	[yes/no]	yes
Low-temperature (**) boiler:	[yes/no]	yes
B11 boiler	[yes/no]	no
Cogeneration space heater	[yes/no]	no
If yes, equipped with a supplementary heater	[yes/no]	no
Combination heater	[yes/no]	no
Rated heat output Prated	kW	24.63
For boiler space heaters and boiler combination heaters: Useful heat output		
At rated heat output and high-temperature regime (*) P_4	kW	24.63
At 30 % of rated heat output and low-temperature regime (**) P_1	kW	7.389
For cogeneration space heaters: Useful heat output		
At rated heat output of cogeneration space heater with supplementary heater disabled $P_{\text{CHP100+Sup0}}$	kW	-
At rated heat output of cogeneration space heater with supplementary heater enabled $P_{\text{CHP100+Sup100}}$	kW	-
For cogeneration space heaters: Electrical efficiency		
At rated heat output of cogeneration space heater with supplementary heater disabled $\eta_{\text{el,CHP100+Sup0}}$	%	-
At rated heat output of cogeneration space heater with supplementary heater enabled $\eta_{\text{el,CHP100+Sup100}}$	%	-
Auxiliary electricity consumption		
At full load e_{max}	kW	0.0380
At part load e_{min}	kW	0.0160
In standby mode PSB	kW	0.00400
Seasonal space heating energy efficiency η_s	%	91.83
Seasonal space heating energy efficiency class		A
For boiler space heaters and boiler combination heaters:		
Useful efficiency		
At rated heat output and high-temperature regime (*) η_4	%	87.39
At 30 % of rated heat output and low-temperature regime (**) η_1	%	97.02
For cogeneration space heaters: Useful efficiency		
At rated heat output of cogeneration space heater with supplementary heater disabled $\eta_{\text{CHP100+Sup0}}$	%	-
At rated heat output of cogeneration space heater with supplementary heater enabled $\eta_{\text{CHP100+Sup100}}$	%	-
Supplementary heater		
Rated heat output P_{sup}	kW	-
Type of energy input		-
Other items		
Standby heat loss P_{stby}	kW	0.059
Ignition burner power consumption P_{ign}	kW	0



2. MAINTENANCE

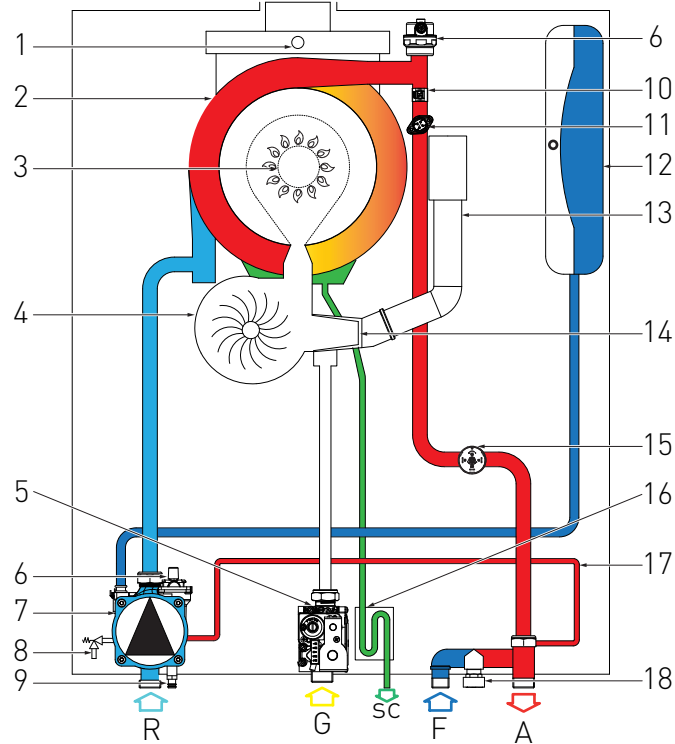
Annual energy consumption Q_{HE}	kWh / GJ	21666 / 78
Sound power level, indoors L_{WA}	dB	78
For combination heaters:		
D.H.W. energy efficiency class		-
Declared load profile		
Daily electricity consumption Q_{elec}	kWh	52.40
Annual electricity consumption AEC	kWh	-
Water heating energy efficiency η_{wh}	%	-
Daily fuel consumption Q_{fuel}	kWh	-
Annual fuel consumption AFC	GJ	-
Contact details	Tel. +39 0721 9079.1 - fax. +39 0721 9079299 - e-mail: info@radiant.it - http://www.radiant.it	
Name and address of the supplier	RADIANT BRUCIATORI S.p.A. Via Pantanelli, 164/166 - 61025 - Montelabbate (PU)	
(*) High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.		
(**) Low temperature means for condensing boilers 30 °C, for low-temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).		

2.2.9. TECHNICAL ASSEMBLY

**KEY**

1. FUMES SAFETY THERMOFUSE
2. INTEGRATED HEAT EXCHANGER
3. BURNER UNIT
4. DETECTION ELECTRODE
5. ELECTRIC FAN
6. AIR RELIEF VALVE
7. SAFETY VALVE 3 bar
8. MODULATING PUMP
9. GAS VALVE
10. SYSTEM DRAINING TAP
11. SAFETY THERMOSTAT
12. HEATING PROBE
13. LIGHT UP ELECTRODE
14. EXPANSION TANK
15. START-UP TRANSFORMER
16. AIR SUCTION TUBE
17. PROPORTIONAL VENTURI
18. WATER PRESSURE SWITCH
19. CONDENSATE COLLECTION SIPHON
20. SYSTEM FILLING TAP

2.2.10. HYDRAULIC BOARD



KEY

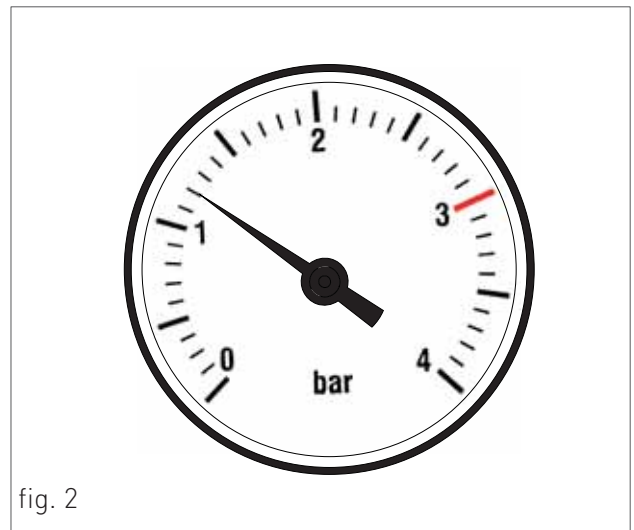
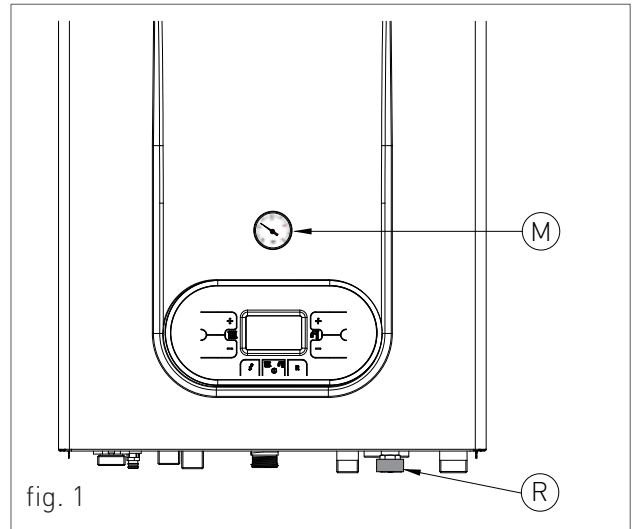
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|----------------------------------|------------------------|
| R. HEATING RETURN | 17. BY-PASS |
| G. GAS INLET | 18. SYSTEM FILLING TAP |
| SC. CONDENSATE DRAIN | |
| F. COLD WATER INLET | |
| A. HEATING FORWARD | |
| 1. FUMES SAFETY THERMOFUSE | |
| 2. INTEGRATED HEAT EXCHANGER | |
| 3. BURNER UNIT | |
| 4. ELECTRIC FAN | |
| 5. GAS VALVE | |
| 6. AIR RELIEF VALVE | |
| 7. CIRCULATOR | |
| 8. SAFETY VALVE 3 bar | |
| 9. SYSTEM DRAINING TAP | |
| 10. HEATING PROBE | |
| 11. SAFETY THERMOSTAT | |
| 12. EXPANSION TANK | |
| 13. AIR SUCTION TUBE | |
| 14. PROPORTIONAL VENTURI | |
| 15. WATER PRESSURE SWITCH | |
| 16. CONDENSATE COLLECTION SIPHON | |

3.1.8. SYSTEM FILLING

To restore the water pressure inside the system open the loading tap "R" (fig. 1) and make sure using pressure gauge "M" (fig. 1), that the system pressure reaches 1.2 bar (see fig. 2).

After performing this operation, make sure that the loading tap "R" (fig. 1) is properly closed.




After the water pressure reset the boiler will automatically perform a 2 minutes system relief cycle. Throughout this function the display will show the code "F33". The boiler can work normally only after completing the operation.






3.1.9. FAULT SIGNALLING CODES

The boiler might signal some faults by displaying a code. Below you have a list of the codes and of the operations to be performed in order to unlock the boiler.

CODE	ICON	FAULT	INTERVENTION
E01	RESET	FLAME BLOCK	<p>MAKE SURE THAT THE BOILER AND CONTACTOR GAS VALVES ARE OPEN.</p> <hr/> <p>PRESS THE RESET  BUTTON ON THE CONTROL PANEL TO RESET THE FAULT, AS SOON AS THE ERROR CODE DISAPPEARS FROM THE DISPLAY, THE BOILER WILL START AUTOMATICALLY.</p> <hr/> <p>IF THE BLOCK PERSISTS CONTACT THE TECHNICAL SUPPORT CENTRE.</p>
E02	RESET	SAFETY THERMOSTAT (95 °C)	<p>PRESS THE RESET  BUTTON ON THE CONTROL PANEL TO RESET THE FAULT, AS SOON AS THE ERROR CODE DISAPPEARS FROM THE DISPLAY, THE BOILER WILL START AUTOMATICALLY.</p> <hr/> <p>IF THE BLOCK PERSISTS CONTACT THE TECHNICAL SUPPORT CENTRE.</p>
E03	RESET	FUMES SAFETY THERMOFUSE (102 °C)	CONTACT THE TECHNICAL SUPPORT CENTRE.
E04		WATER MISSING IN THE SYSTEM	<p>IF THE SYSTEM PRESSURE IS BELOW 1.2 BAR, FILL THE SYSTEM AS DESCRIBED IN CHAPTER "SYSTEM FILLING".</p> <hr/> <p>IF THE BLOCK PERSISTS CONTACT THE TECHNICAL SUPPORT CENTRE.</p>
E05	SERVICE	HEATING PROBE	CONTACT THE TECHNICAL SUPPORT CENTRE.
E15	SERVICE	RETURN PROBE	CONTACT THE TECHNICAL SUPPORT CENTRE.
E16	SERVICE	ELECTRIC FAN	CONTACT THE TECHNICAL SUPPORT CENTRE.
E18	SERVICE	INSUFFICIENT CIRCULATION	CONTACT THE TECHNICAL SUPPORT CENTRE.
E21	SERVICE	GENERAL INTERNAL BOARD ERROR	<p>CUT OFF THE POWER SUPPLY FROM THE MAIN SWITCH AND THEN RESTORE IT, AS SOON AS THE ERROR CODE DISAPPEARS, THE BOILER WILL RESTART AUTOMATICALLY.</p> <hr/> <p>IF THE BLOCK PERSISTS CONTACT THE TECHNICAL SUPPORT CENTRE.</p>



3. USE

CODE	ICON	FAULT	INTERVENTION
E22	SERVICE	<i>PARAMETERS REQUEST</i>	<i>PROGRAMMING</i> CUT OFF THE POWER SUPPLY FROM THE MAIN SWITCH AND THEN RESTORE IT, AS SOON AS THE ERROR CODE DISAPPEARS, THE BOILER WILL RESTART AUTOMATICALLY. IF THE BLOCK PERSISTS CONTACT THE TECHNICAL SUPPORT CENTRE.
E35	RESET	<i>RESIDUAL FLAME</i>	PRESS THE RESET  BUTTON ON THE CONTROL PANEL TO RESET THE FAULT, AS SOON AS THE ERROR CODE DISAPPEARS FROM THE DISPLAY, THE BOILER WILL START AUTOMATICALLY.
E40	SERVICE	<i>SUPPLY VOLTAGE</i>	CONTACT THE TECHNICAL SUPPORT CENTRE.



3.1.10. ACTIVE FUNCTIONS SIGNALLING CODES

CODE	FUNCTION	INTERVENTION
F08	H E A T I N G A N T I - F R E E Z E F U N C T I O N A C T I V E	WAIT UNTIL THE OPERATION IS COMPLETED
F33	S Y S T E M A I R R E L E A S E C Y C L E I N P R O G R E S S	WAIT UNTIL THE OPERATION IS COMPLETED