

- GB** **Forced draught gas burners**
- E** **Quemadores de gas de aire soplado**
- P** **Queimadores a gás com ar insuflado**

One stage operation  
Funcionamiento a 1 llama  
Funcionamento a 1 chama



CODE - CÓDIGO	MODEL - MODELO	TYPE - TIPO
3788500 - 3788510	RS 34/1 MZ	886 T
3788501 - 3788511	RS 34/1 MZ	886 T
3788600 - 3788610	RS 44/1 MZ	873 T
3788601 - 3788611	RS 44/1 MZ	873 T



- ▶ The burner **has EC marking** and conforms to the basic requisites of the following Directives:
  - EC Reg. N.: **0085BR0380** in accordance with 90/396/EEC;
  - Electromagnetic Compatibility Directive 2004/108/EC;
  - Low Voltage Directive 2006/95/EC;
  - Machine Directive 2006/42/EC;
- ▶ The burner meets protection level of IP 40 as EN 60529.

## IDENTIFICATION

The Identification Plate on the product gives the serial number, model and main technical and performance data. If the Identification Plate is tampered with, removed or missing, the product cannot be clearly identified, thus making any installation or maintenance work potentially dangerous.

## GENERAL WARNINGS

The dimension of the boiler's combustion chamber must respond to specific values, in order to guarantee a combustion with the lowest polluting emissions rate.

You are therefore advised to consult the Technical Assistance Department before choosing this type of burner for the combination with a boiler.

Qualified personnel are those with the professional and technical requirements indicated by Law no. 46 dated 5 March 1990. The commercial organisation has a widespread network of agencies and technical offices whose personnel participates periodically in instructional and refresher courses at the company training centre.

This burner must only be used for the application it was designed for.

The manufacturer cannot accept responsibility for any damage to persons, animals or property due to errors in installation or in the burner adjustment, or due to improper or unreasonable use or non-observance of the technical instructions enclosed with the burner, or due to the intervention of unqualified personnel.

## USER INFORMATION


If faults arise in firing or operation, the burner performs a "safety stop", which is signalled by the red burner lockout LED. To rearm start-up conditions, press the reset button. When the burner starts up again, the red LED goes out.

This operation can be repeated for a maximum of 3 times. If the "safety stop" recurs, then the Technical Assistance Centre must be contacted.

## BASIC SAFETY MEASURES

- ▶ Children or inexpert persons must not use the appliance.
- ▶ Under no circumstances must the intake grids, dissipation grids and ventilation vents in the installation room be covered up with cloths, paper or any other material.
- ▶ Unauthorised persons must not attempt to repair the appliance
- ▶ It is dangerous to pull or twist the electric leads.
- ▶ Cleaning operations must not be performed if the appliance is not disconnected from the main power supply.
- ▶ Do not clean the burner or its parts with inflammable substances (e.g. petrol, alcohol, etc.).  
The cover must be cleaned with soapy water.
- ▶ Do not place anything on the burner.
- ▶ Do not leave containers and inflammable products in the installation room.

The following symbols are used in this manual:

 **ATTENTION** = for actions requiring special care and adequate preparation.

 **FORBIDDEN** = for actions **THAT MUST NOT** be performed.

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**N.B.**  
Figures mentioned in the text are identified as follows:  
1)(A) =Part. 1 of figure A, same page as text;  
1)(A)p.3 =Part .1 of figure A, page number 3.

## INFORMATION ABOUT THE INSTRUCTION MANUAL

### INTRODUCTION

The instruction manual supplied with the burner:

- is an integral and essential part of the product and must not be separated from it; it must therefore be kept carefully for any necessary consultation and must accompany the burner even if it is transferred to another owner or user, or to another system. If the manual is lost or damaged, another copy must be requested from the Technical Assistance Service of the area;
- is designed for use by qualified personnel;
- offers important indications and instructions relating to the installation safety, start-up, use and maintenance of the burner.

### DELIVERY OF THE SYSTEM AND THE INSTRUCTION MANUAL

When the system is delivered, it is important that:

- The instruction manual is supplied to the user by the system manufacturer, with the recommendation to keep it in the room where the heat generator is to be installed.
- The instruction manual shows:
  - the serial number of the burner;

.....

- the address and telephone number of the nearest Assistance Centre;

.....  
.....  
.....

- The system supplier carefully informs the user about:
  - the use of the system,
  - any further tests that may be necessary before the system is started up,
  - maintenance and the need to have the system checked at least once a year by the manufacturer or another specialised technician.

To ensure a periodic check, recommends the drawing up of a Maintenance Contract.

## TECHNICAL DATA

MODEL		RS 34/1 MZ		RS 44/1 MZ	
TYPE		886 T		873 T	
OUTPUT <sup>(1)</sup>		70 - 390 60 - 336		100 - 550 86 - 473	
FUEL		NATURAL GAS: G20 - G21 - G22 - G23 - G25			
		G20	G25	G20	G25
- net calorific value	kWh/Sm <sup>3</sup>	9.45	8.13	9.45	8.13
	Mcal/Sm <sup>3</sup>	8.2	7.0	8.2	7.0
- absolute density	kg/Sm <sup>3</sup>	0.71	0.78	0.71	0.78
- max. delivery	Sm <sup>3</sup> /h	35	40	49	57
- pressure at maximum delivery <sup>(2)</sup>	mbar	13,1	18,4	16,7	23,2
OPERATION		<ul style="list-style-type: none"> <li>• On-Off (1 stop min each 24 hours).</li> <li>• One stage (all - nothing)</li> </ul>			
STANDARD APPLICATIONS		Boilers: water, steam, diathermic oil			
AMBIENT TEMPERATURE		°C 0 - 40			
COMBUSTION AIR TEMPERATURE		°C max 60			
ELECTRICAL SUPPLY		V 230 ~ +/-10%			
		Hz 50/60 - single-phase			
ELECTRIC MOTOR	rpm	2800/3400		2820/3400	
	W	300		420	
	V	220 - 240		220 - 240	
	A	2.4		3	
ACCELERATION CURRENT	A	15		17	
WORKING CURRENT	A	3.2		3.5	
MOTOR CAPACITOR	µF/V	12.5/400		12.5/450	
IGNITION TRANSFORMER	V1 - V2	230 V - 1 x 15kV			
	I1 - I2	1 A - 25mA			
ELECTRICAL OUTPUT CONSUMPTION	W max	600		700	
PROTECTION LEVEL		IP 40			
NOISE <sup>(3)</sup>	SOUND PRESSURE	dBA 68		70	
	SOUND POWER	79		81	
APPROVAL		CE 0085BR0380		0085BR0380	

(1) Reference conditions: Ambient temperature 20°C - Gas temperature 15°C - Barometric pressure 1013 mbar - Altitude 0 m a.s.l.

(2) Pressure at the socket 8)(A)p.4 with zero pressure in the combustion chamber, at the maximum output of the burner.

(3) Noise emission tests carried out as specified in EN 15036-1 with measurement accuracy  $\sigma = \pm 1.5$  dB, in the manufacturer's combustion chamber with burner operating on test boiler at maximum output.

### STRUCTURAL VERSIONS

Model	Blast tube length mm
RS 34/1 MZ	216
	351
RS 44/1 MZ	216
	351

### GAS CATEGORIES

COUNTRY	CATEGORY
IT - AT - GR - DK - FI - SE	II <sub>2</sub> H3B/P
ES - GB - IE - PT	II <sub>2</sub> H3P
NL	II <sub>2</sub> L3B/P
FR	II <sub>2</sub> Er3P
DE	II <sub>2</sub> ELL3B/P
BE	I <sub>2</sub> E(R)B, I <sub>3</sub> P
LU	II <sub>2</sub> E 3B/P

## ACCESSORIES (optional):

### • RADIO DISTURBANCE PROTECTION KIT

If the burner is installed in places particularly subject to radio disturbance (emission of signals exceeding 10 V/m) owing to the presence of an INVERTER, or in applications where the length of the thermostat connections exceeds 20 metres, a protection kit is available as an interface between the control box and the burner.

BURNER	RS 34/1 MZ - RS 44/1 MZ
Code	3010386

### • KIT LONG HEAD

BURNER	RS 34/1 MZ	RS 44/1 MZ
Code	3010428	3010429

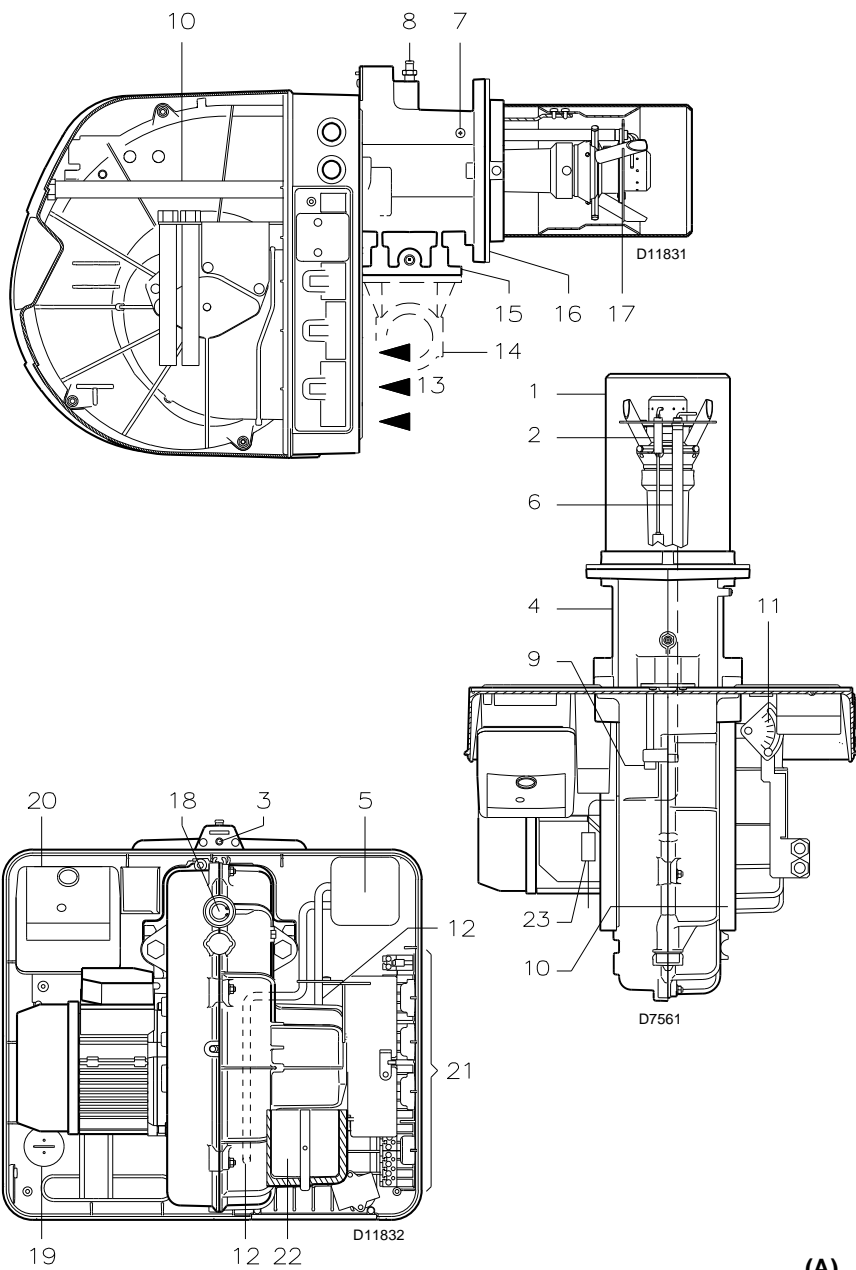
• **KIT FOR LPG OPERATION:** the kit allows the RS 34-44/1 MZ burners to burn LPG.

BURNER	RS 34/1 MZ	RS 44/1 MZ
Output kW	80 - 390 kW	120 - 530 kW
Blast tube length mm	216 - 351	216 - 351
Code	3010423	3010424

• <b>KIT MAXIMUM GAS PRESSURE SWITCH</b>	Cod. 3010418
• <b>KIT CLEAN CONTACTS</b>	Cod. 3010419
• <b>KIT POST-PURGING</b>	Cod. 3010452
• <b>KIT GROUND FAULT INTERRUPTER</b>	Cod. 3010448
• <b>KIT CONTINUOUS PURGING</b>	Cod. 3010449
• <b>KIT HOURCOUNTER</b>	Cod. 3010450
• <b>KIT INTERFACE ADAPTER RMG TO PC</b>	Cod. 3002719

• **GAS TRAIN ACCORDING TO EN 676 (with valves, pressure governor and filter):** see page 10.

**NOTE:** The installer is responsible for the addition of any safety device not foreseen in this manual.



### BURNER DESCRIPTION (A)

- 1 Combustion head
- 2 Ignition electrode
- 3 Screw for combustion head adjustment
- 4 Sleeve
- 5 Minimum air pressure switch (differential operating type)
- 6 Flame sensor probe
- 7 Air pressure test point
- 8 Gas pressure test point and head fixing screw
- 9 Screw securing fan to pipe coupling
- 10 Slide bars for opening the burner and inspecting the combustion head
- 11 Indexed selector.  
Opens the fan gate to the value needed by the burner delivery.
- 12 Pressure test point of
- 13 Air inlet to fan
- 14 Gas input pipework
- 15 Gas train connection flange
- 16 Boiler fixing flange
- 17 Flame stability disc
- 18 Flame inspection window
- 19 Motor capacitor (RS 34/1 MZ)
- 20 Control box with lockout pilot light and lock-out reset button
- 21 Plugs for electrical wiring
- 22 Air damper
- 23 Plug-socket on ionisation probe cable

### Note

If the control box 20(A) pushbutton (**red led**) lights up, it indicates that the burner is in lock-out.

To reset, hold the pushbutton down for between 1 and 3 seconds.

### PACKAGING - WEIGHT (B) - approximate measurements

- The burner are shipped in cardboard boxes with the maximum dimensions shown in Table (B).
- The weight of the burner complete with packaging is indicated in Table (B).

### MAX. DIMENSIONS (C) - approximate measurements

The maximum dimensions of the burner are given in fig. (C).

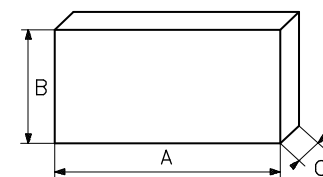
Note that if you need to examine the combustion head, the burner must be pulled backward on the slide bars.

The maximum dimension of the burner, without the cover, when open is given by measurement H.

### BURNER EQUIPMENT

- 1 - Gas train flange
- 1 - Flange gasket
- 4 - Flange fixing screws M 8 x 25
- 4 - Screws to secure the burner flange to the boiler: M 8 x 25
- 1 - Thermal insulation screen
- 3 - Plugs for electrical connection
- 1 - Instruction
- 1 - Spare parts list

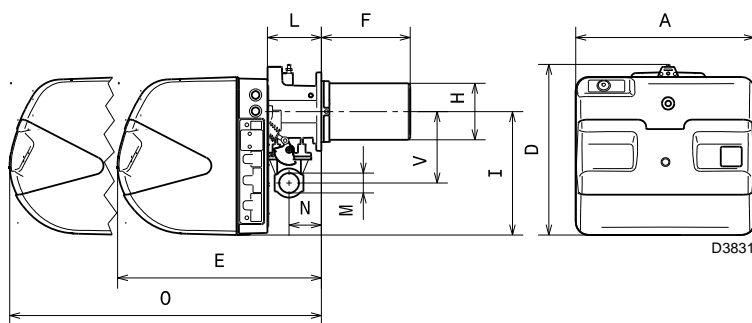
mm	A	B	C	kg
RS 34/1 MZ	1000	500	485	-
RS 44/1 MZ	1000	500	485	-



D88

(A)

(B)

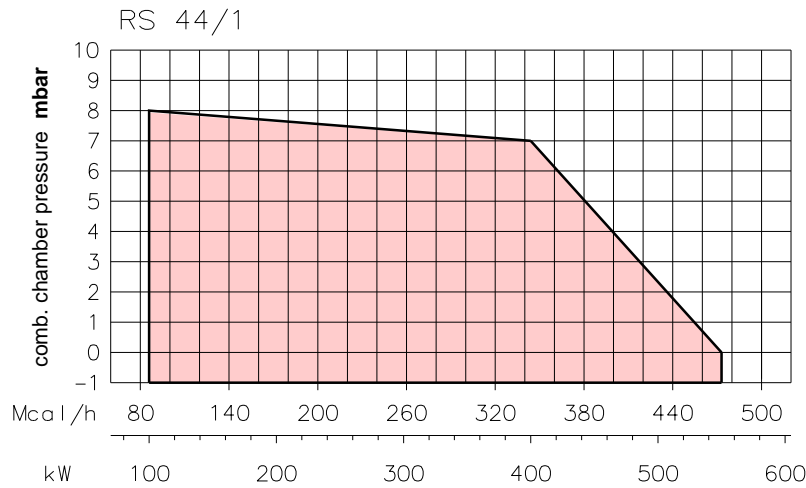
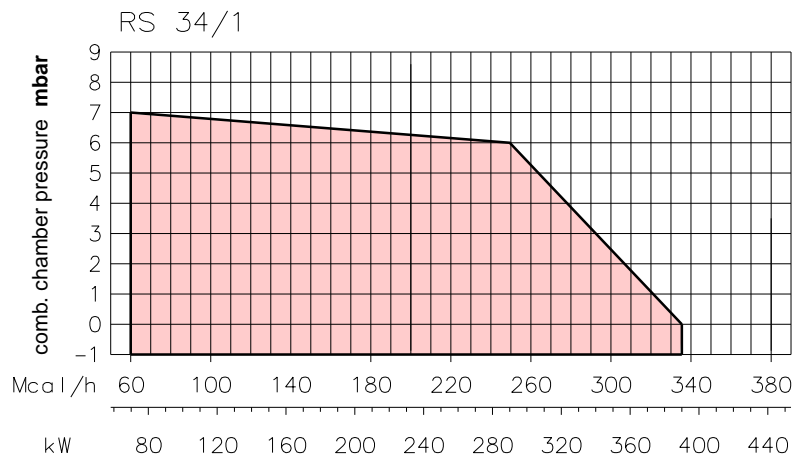


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(C)

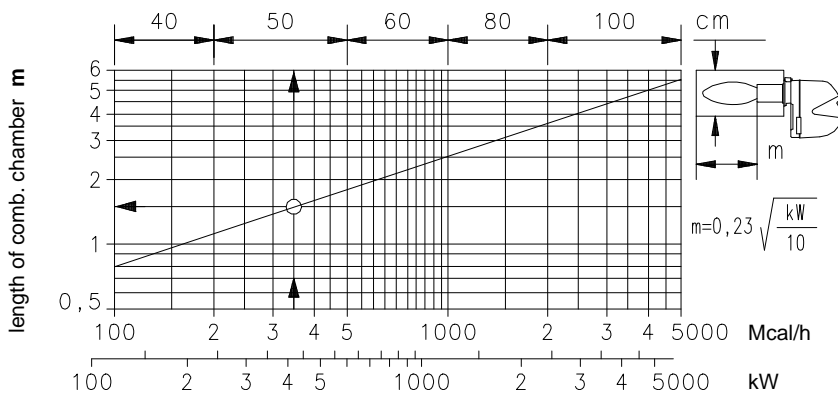
mm	A	D	E	F (1)	H	I	L	O	N	V	M
RS 34/1 MZ	442	422	508	216-351	140	305	138	780	84	177	1"1/2
RS 44/1 MZ	442	422	508	216-351	152	305	138	780	84	177	1"1/2

(1) Blast tube: short-long



(A)

D8589



(B)

D497

### FIRING RATES (A)

The burner output must be selected within the area of the adjacent diagrams.

#### Attention

the FIRING RATE value range has been obtained considering an ambient temperature of 20 °C, and an atmospheric pressure of 1013 mbar (approx. 0 m a.s.l.) and with the combustion head adjusted as shown on page 9.

### TEST BOILER (B)

The firing rates were set in relation to special test boilers, according to EN 676 regulations.

Figure (B) indicates the diameter and length of the test combustion chamber.

**Example:** Output 350 Mcal/h:  
diameter = 50 cm - length 1.5 m.

### COMMERCIAL BOILERS

The burner/boiler combination does not pose any problems if the boiler is CE approved and its combustion chamber dimensions are similar to those indicated in diagram (B).

If the burner must be combined with a commercial boiler that has not been CE type-approved and/or its combustion chamber dimensions are clearly smaller than those indicated in diagram (B), consult the manufacturer.



**RS 34/1 MZ One-stage gas train  $\Delta p$  (mbar)**

kW	1	2					
		MBC-DLE-120 (Rp 3/4")	MB 407 S2 (Rp 3/4")	MB 410 S2 (Rp 1.1/4")	MB 412 S2 (Rp 1.1/4")	MB 415 S2 (Rp 1.1/2")	MB 420 S2 (Rp 2")
70	0,6	5,2	3,0	--	--	--	--
75	0,6	5,6	3,4	2,1	--	--	--
100	1,0	8,2	5,6	2,9	--	--	--
125	1,4	11,1	8,0	4,2	2,1	--	--
150	2,4	15,7	11,0	5,6	2,8	--	--
175	3,5	21,1	14,4	7,2	3,6	--	--
200	4,6	27,2	18,1	9,0	4,5	--	--
225	5,8	33,9	22,1	11,0	5,5	3,2	--
250	6,9	41,3	26,4	13,2	6,5	3,3	--
275	8,0	49,4	31,3	15,5	7,6	3,8	--
300	9,1	58,0	36,6	18,0	8,7	4,3	--
325	10,2	67,2	42,2	20,5	9,9	4,8	3,2
350	11,3	76,7	47,8	22,9	11,2	5,4	3,4
375	12,4	86,7	53,7	25,4	12,7	5,9	3,8
390	13,1		57,4	27,0	13,5	6,3	4,0

**RS 44/1 MZ One-stage gas train  $\Delta p$  (mbar)**

kW	1	2				
		MB 407 S5 (Rp 3/4")	MB 410 S5 (Rp 1.1/4")	MB 412 S2 (Rp 1.1/4")	MB 415 S2 (Rp 1.1/2")	MB 420 S2 (Rp 2")
100	0,2	5,6	2,9	2,1	3,2	3,2
150	1,6	11,0	5,6	2,8	3,2	3,2
200	3,0	18,1	9,0	4,5	3,2	3,2
250	4,9	26,4	13,2	6,5	3,3	3,2
300	6,9	36,6	18,0	8,7	4,3	3,2
350	8,9	47,8	22,9	11,2	5,4	3,4
400	10,8	59,9	28,1	14,0	6,5	4,1
450	12,8	73,2	33,6	16,8	7,7	4,9
500	14,7	87,6	39,5	19,8	9,0	5,7
550	16,7	103,0	45,8	23,1	10,2	6,6

**RS 34/1 MZ Two-stage gas train  $\Delta p$  (mbar)**

kW	1	2				
		MB-ZR 407 S2 (Rp 3/4")	MB-ZR 410 S2 (Rp 1")	MB-ZR 412 S2 (Rp 1.1/4")	MB-ZR 415 S2 (Rp 1.1/2")	MB-ZR 420 S2 (Rp 2")
70	0,6	3,0	2,1	2,1	--	--
75	0,6	3,4	2,1	2,1	--	--
100	1,0	5,6	2,9	2,1	--	--
125	1,4	8,0	4,2	2,1	--	--
150	2,4	11,0	5,6	2,8	--	--
175	3,5	14,4	7,2	3,6	--	--
200	4,6	18,1	9,0	4,5	--	--
225	5,8	22,1	11,0	5,5	3,2	--
250	6,9	26,4	13,2	6,5	3,3	--
275	8,0	31,3	15,5	7,6	3,8	--
300	9,1	36,6	18,0	8,7	4,3	--
325	10,2	42,2	20,5	9,9	4,8	3,2
350	11,3	47,8	22,9	11,2	5,4	3,4
375	12,4	53,7	25,4	12,7	5,9	3,8
390	13,1	57,4	27,0	13,5	6,3	4,0

**GAS PRESSURE**

The adjacent tables show minimum pressure losses along the gas supply line depending on the burner output.

Column 1

Pressure loss at combustion head.

Pressure of the gas at the socket 1)(B)p.7, with combustion chamber at 0 mbar.

Column 2

Pressure loss of gas train 2)(B)p.7 includes: one stage or two stage adjustment valve VR, safety valve VS (both fully open), pressure governor R, filter F.

The values shown in the various tables refer to:

natural gas G 20 PCI 9.45 kWh/Sm<sup>3</sup>  
(8.2 Mcal/Sm<sup>3</sup>)

With:

natural gas G 25 PCI 8.13 kWh/Sm<sup>3</sup>  
(7.0 Mcal/Sm<sup>3</sup>)

multiply the values of the table:

- column 1: by 1.5;
- column 2: by 1.35.

Calculate the approximate maximum output of the burner in this way:

- subtract the combustion chamber pressure from the gas pressure measured at test point 1)(B)p.7.
- Find, in the table relating to the burner concerned, the pressure value closest to the result of the subtraction.
- Read the corresponding output on the left.

**Example - RS 34/1/M Z:**

- Maximum output operation
  - Natural gas G 20 PCI 9.45 kWh/Sm<sup>3</sup>
  - Gas pressure at test point 1)(B)p.7 = 8.9 mbar
  - Pressure in combustion chamber = 2 mbar
- 8.9 - 2 = 6.9 mbar

An output of 250 kW shown in table RS 34/1 corresponds to 6.9 mbar pressure, column 1.

This value serves as a rough guide; the effective delivery must be measured at the gas meter.

To calculate the required gas pressure at test point 1)(B)p.7, set the output required from the burner:

- Find the nearest output value in the table for the burner in question.
- Read, on the right (column 1) the socket pressure 1)(B)p.7.
- Add this value to the estimated pressure in the combustion chamber.

**Example - RS 34/1 MZ:**

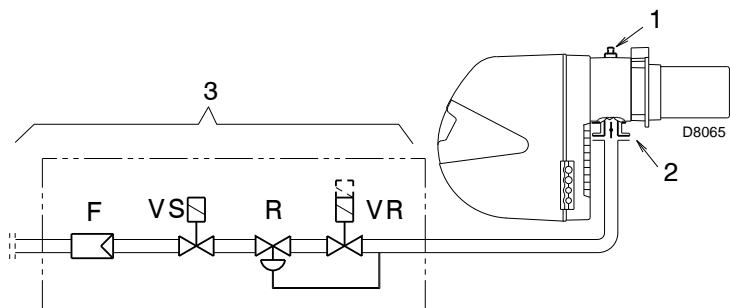
- Required burner output: 250 kW
  - Natural gas G 20 PCI 9.45 kWh/Sm<sup>3</sup>
  - Pressure of the gas at an output of 250 kW, from the table RS 34/1 MZ, column 1 = 6.9 mbar
  - Pressure in combustion chamber = 2 mbar
- 6.9 + 2 = 8.9 mbar
- pressure required at test point 1)(B)p.7.

**(A)**

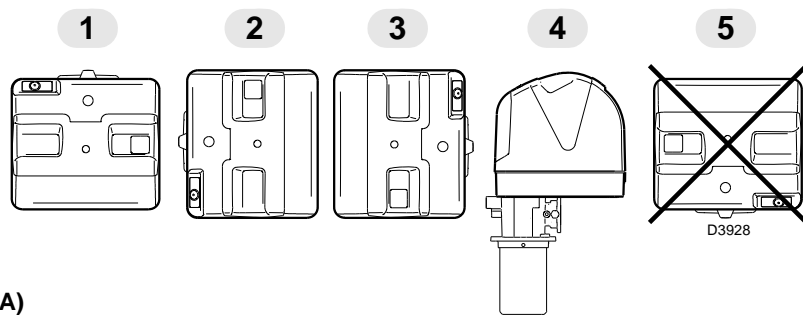
**RS 44/1 MZ Two-stage gas train  $\Delta p$  (mbar)**

kW	1	2			
		MB-ZR 410 S2 (Rp 1")	MB-ZR 412 S2 (Rp 1.1/4")	MB-ZR 415 S2 (Rp 1.1/2")	MB-ZR 420 S2 (Rp 2")
100	0,2	2,9	2,1	--	--
150	1,6	5,6	2,8	--	--
200	3,0	9,0	4,5	3,2	--
250	4,9	13,2	6,5	3,3	--
300	6,9	18,0	8,7	4,3	3,2
350	8,9	22,9	11,2	5,4	3,4
400	10,8	28,1	14,0	6,5	4,1
450	12,8	33,6	16,8	7,7	4,9
500	14,7	39,5	19,8	9,0	5,7
550	16,7	45,8	23,1	10,2	6,6

**(A)**



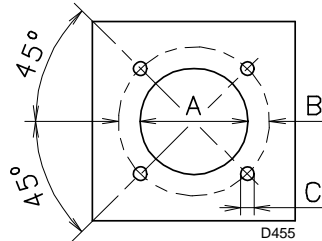
**(B)**



(A)

mm	A	B	C
RS 34/1 MZ	160	224	M8
RS 44/1 MZ	160	224	M8

(B)



## INSTALLATION

**⚠ THE BURNER MUST BE INSTALLED IN CONFORMITY WITH LEGISLATION AND LOCAL STANDARDS.**

### WORKING POSITION (A)

**⚠** The burner is designed to work only in the positions **1, 2, 3 and 4**.

Installation **1** is preferable, as it is the only one that allows the maintenance operations as described in this manual. Installations **2, 3 and 4** allow the working, but make the operations of maintenance and checking of the combustion head more difficult page 15.

**⊘** Any other position could compromise the correct working of the appliance.

Installation **5** is forbidden, for safety reasons.

### BOILER PLATE (B)

Pierce the closing plate of the combustion chamber, as in (B). The position of the threaded holes can be marked using the thermal screen supplied with the burner.

### BLAST TUBE LENGTH (C)

The length of the blast tube must be selected according to the indications provided by the manufacturer of the boiler, and in any case it must be greater than the thickness of the boiler door complete with its fettling.

The range of lengths available, L (mm), is as follows:

Blast tube 9)	RS 34/1 MZ	RS 44/1 MZ
• short	216	216
• long	351	351

For boilers with front flue passes 6) or flame inversion chambers, protective fettling in refractory material 8), must be inserted between the boiler fettling 7) and the blast tube 9).

This protective fettling must not compromise the extraction of the blast tube.

For boilers with a water-cooled frontpiece, a heat-resistant cover is not necessary 7)-8)(C), unless expressly requested from the boiler manufacturer.

### FIXING THE BURNER TO THE BOILER (C)

Before fixing the burner to the boiler, check (from the opening of the blast tube) that the probe and the electrode are correctly positioned, as in (D).

Separate the combustion head from the rest of the burner, fig. (C):

- remove the screws 2) from the two slide bars 3);
- remove screw 1) and pull the burner back on slide bars 3) by about 100 mm;
- disconnect the probe and electrode leads, then unthread the burner completely from the guides.

Fix the unit 4)(C) to the boiler plate, inserting the supplied insulating gasket 5)(C).

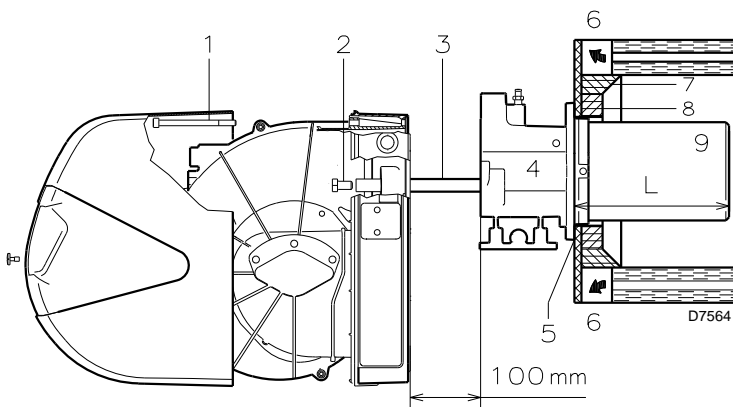
Use the 4 screws, also supplied with the unit, after first protecting the thread with an anti-locking product. The seal between burner and boiler must be airtight.

If, in the previous check, the position of the probe or electrode was not correct, remove the screw 1)(E), extract the inner part 2)(E) of the head, and adjust them.

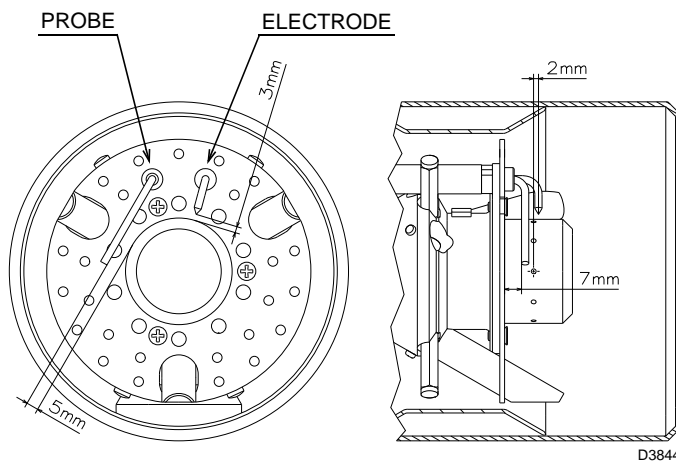
Do not rotate the probe: leave it as in (D).

If it is located too close to the ignition electrode, the control box amplifier may be damaged.

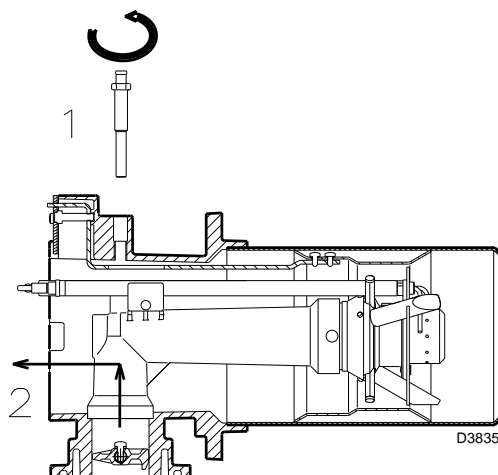
**⚠ ATTENTION**  
Proceed with the assembly of the inner part 2)(E) of the combustion head, tightening the screw 1)(E) with a tightening torque of **4 ÷ 6 Nm**.



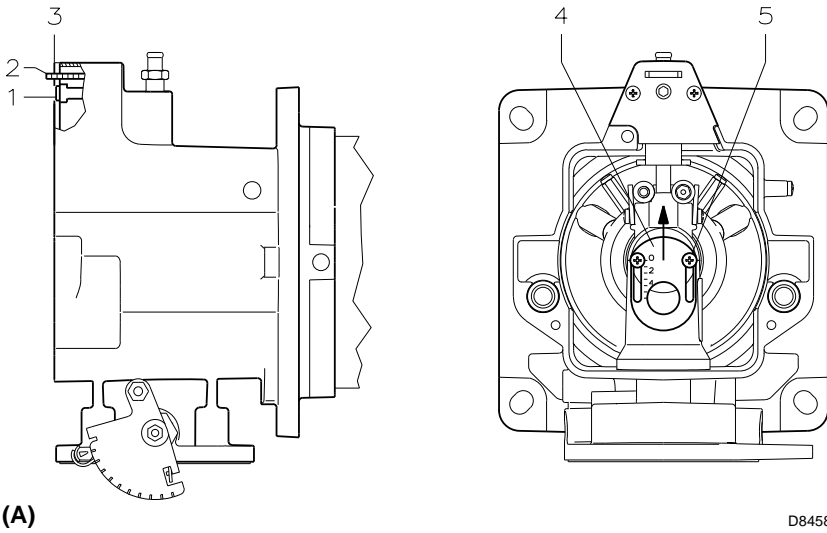
(C)



(D)



(E)



(A) D8458

**COMBUSTION HEAD SETTING**

Installation operations are now at the stage where the blast tube and sleeve are secured to the boiler as shown in fig. (A). It is therefore particularly easy to adjust the combustion head.

**Air adjustment (A - B)**

Rotate the screw 1)(A) until the notch on the lamina 2)(A) corresponds with the surface of the plate 3)(A).

**Example:**

RS 44/1 MZ burner, output = 300kW.  
From diagram (B) you can see that, for the MAX output of 300 kW, the air should be adjusted at notch 4, subtracted from the value of the pressure in the chamber. In this case, the loss of pressure in the combustion head is shown in column 1 on page 6 - 7.

**Note**

If the pressure in the chamber is equal to 0 mbar, the air is adjusted with reference to the broken line of the diagram (B).

**Central air adjustment (A - C)**

In case the application needs a particular setup, it is possible to modify the central air delivery using the ring nut 4)(A) up to the notch indicated in diagram (C).

In order to carry out this operation, unscrew the screws 5)(A) and lift up the ring nut 4)(A). At the end, tighten the screws 5)(A) again.

Once you have finished adjusting the head, reassemble the burner 4)(D) on the guides 3)(D) at about 100mm from the pipe coupling 5)(D) - burner in the position shown in fig. (C)p.8 - insert the cable of the probe and the cable of the electrode, then slide the burner as far as the pipe coupling, burner in the position shown in fig. (D).

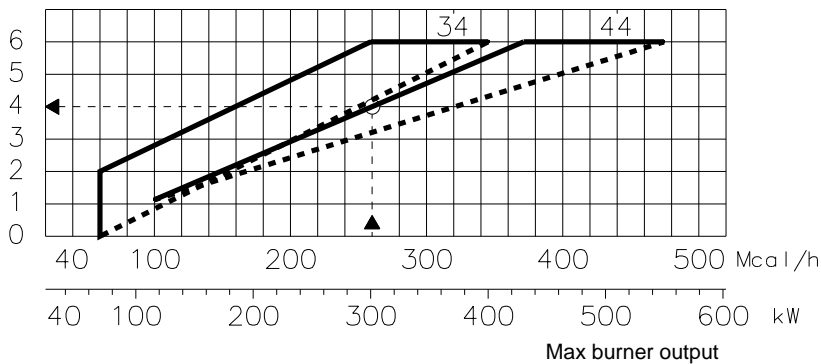
Refit the screws 2) on the guides 3).

Fix the burner to the pipe coupling with the screw 1).

**Attention**

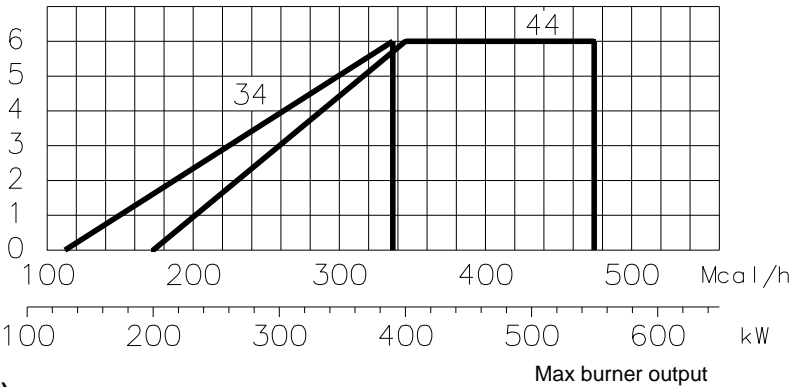
When fitting the burner on the two slide bars, it is advisable to gently draw out the high tension cable and flame detection probe cable until they are slightly stretched.

↓ N° Notches (air = gas)

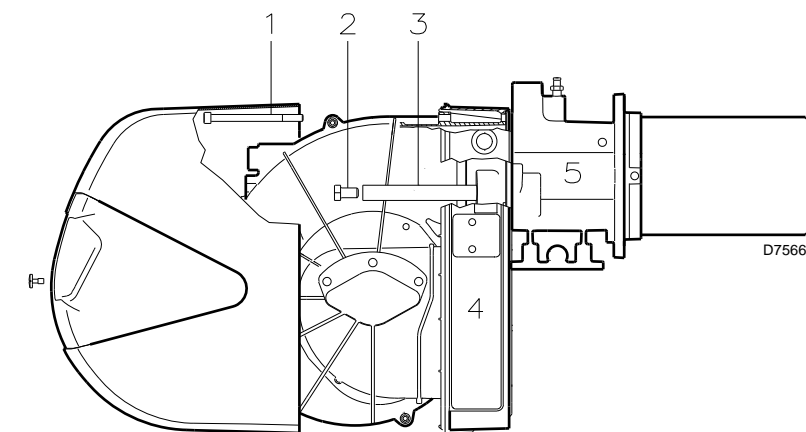


(B) D7565

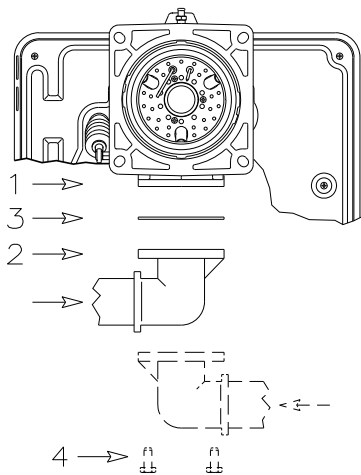
↓ N° Notches (air = gas)



(C) D8577



(D)



(A)

D3839

### GAS FEEDING LINE

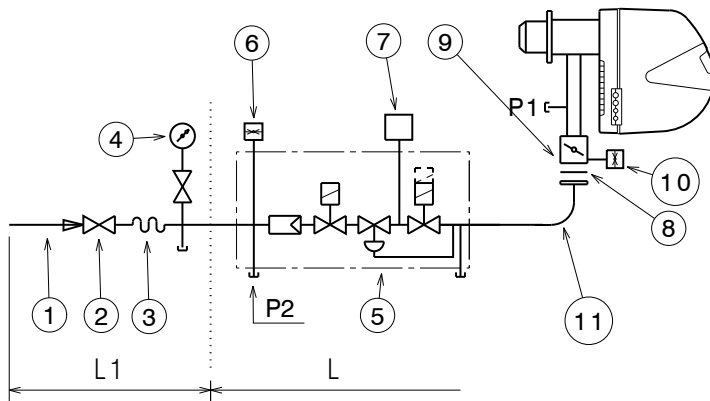
- The gas train must be connected to the gas attachment 1)(A), using the flange 2), gasket 3) and screws 4) supplied with the burner.
- The gas train can enter the burner from the right or left side, depending on which is the most convenient, see fig. (A).
- The gas solenoids must be as close as possible to the burner, to ensure that the gas reaches the combustion head within the safety time of 3s.

### GAS TRAIN (B)

Approved, together with the burner, according to the regulation EN 676, and supplied separately from the burner, with the code indicated in the tables (C). It is possible to use the one-stage gas train of table (C) up to a power of 550 kW, limiting the ignition output according to the standard, with the aid of only the brake, as specified on page 12.

### KEY TO LAY-OUT (B)

- 1 - Gas input pipe
  - 2 - Manual valve
  - 3 - Vibration damping joint
  - 4 - Pressure gauge with pushbutton cock
  - 5 - Multibloc, including:
    - filter (replaceable)
    - one-stage or two-stage working valve
    - pressure adjuster
  - 6 - Minimum gas pressure switch
  - 7 - Valve seal checking device.
    - In accordance with the standard EN 676, gas valve leak detection control devices are compulsory for burners with maximum outputs of more than 1200 kW.
  - 8 - Gasket
  - 9 - Gas train/burner adaptor
- P1 - Pressure at combustion head  
 P2 - Up-line pressure of valves/adjuster



(B)

D8066

### BURNERS AND RELATIVE GAS TRAINS APPROVED ACCORDING TO EN 676

GAS TRAINS L (One-stage)				BURNER		7	9
Code	Model	Ø	C.T.	RS 34/1	RS 44/1	Code	Code
3970602	MBC 120	3/4"	♣	•	-	-	3000824
3970553 3970229*	MB-DLE 407 S20	3/4"	-	•	-	3010123	3000824
3970599	MB-DLE 407 S52	3/4"	-	-	•	3010123	3000824
3970554 3970230*	MB-DLE 410 S20	1"	-	•	•	3010123	3000824
3970258	MB-DLE 410 S52	1"1/4"	-	-	•	3010123	3000824
3970144 3970231*	MB-DLE 412 S20	1"1/4"	-	•	•	3010123	-
3970180 3970232*	MB-DLE 415 S20	1"1/2"	-	•	•	3010123	-
3970181 3970233* 3970182 3970234*	MB-DLE 420 S20	2"	- - ♦ ♦	•	•	3010123 3010123 - -	3000822

GAS TRAINS L (Two-stage)				BURNER		7	9
Code	Model	Ø	C.T.	RS 34/1	RS 44/1	Code	Code
3970046	MB-ZRDLE 407 S20	3/4"	-	•	-	3010123	3000824
3970079	MB-ZRDLE 410 S20	1"	-	•	•	3010123	3000824
3970152	MB-ZRDLE 412 S20	1"1/4"	-	•	•	3010123	-
3970183	MB-ZRDLE 415 S20	1"1/2"	-	•	•	3010123	-
3970184 3970185	MB-ZRDLE 420 S20	2"	- ♦	• •	• •	3010123 -	- 3000822

\* Trains complete with 6-pin plug for connection to burner.

### KEY TO LAY-OUT FOR TABLES (C)

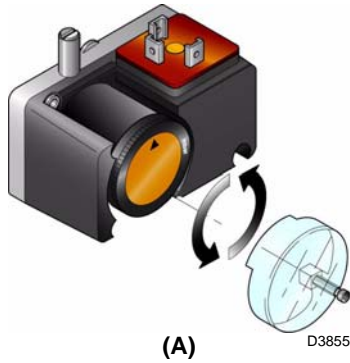
- C.T.= Checking device for gas valves seal:
- = Gas train without gas valve leak detection control device; device that can be ordered separately and assembled subsequently (see Column 7).
  - ♦ = Train with seal checking device already assembled.
  - ♣ = With this train the integrated leak detection cannot be activated.
- 7 = VPS valve leak detection control device. Supplied separately from gas train on request.
- 9 = Gas train/burner adaptor. Supplied separately from gas train on request.

### Note

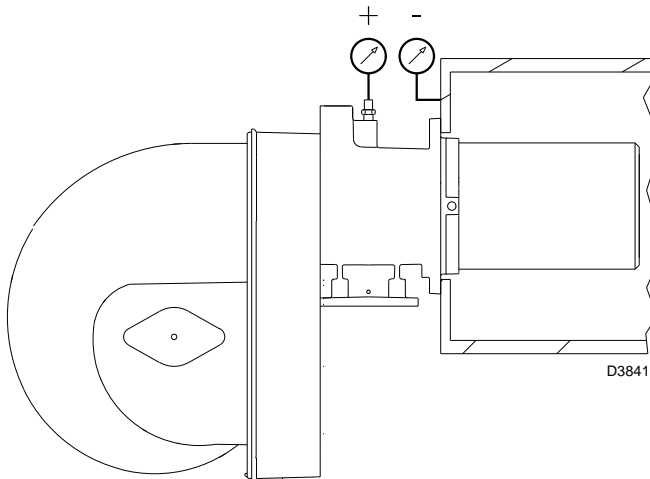
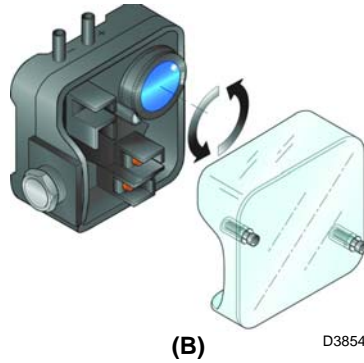
See the accompanying instructions for the adjustment of the gas train.

(C)

### MIN GAS PRESSURE SWITCH



### AIR PRESSURE SWITCH



## ADJUSTMENTS BEFORE FIRST FIRING

### ⚠ ATTENTION

**THE FIRST FIRING MUST BE CARRIED OUT BY QUALIFIED PERSONNEL WITH THE RIGHT INSTRUMENTS.**

Adjustment of the combustion head, and air and gas deliveries has been illustrated on page 9. In addition, the following adjustments must also be made:

- open manual valves up-line from the gas train.
- Adjust the minimum gas pressure switch to the start of the scale (A).
- Adjust the air pressure switch to the start of the scale (B).
- Purge the air from the gas line.
- Continue to purge the air (we recommend using a plastic tube routed outside the building) until gas is smelt.
- Assemble a pressure gauge (C) on the gas pressure socket of the pipe coupling. The manometer readings are used to calculate burner power using the tables on page 6 and 7.
- Connect two lamps or testers to the two gas line solenoid valves VR and VS, to check the exact moment at which voltage is supplied. This operation is unnecessary if each of the two solenoid valves is equipped with a pilot light that signals voltage passing through.
- Fan air damper: leave at the factory setting.

Before starting up the burner, it is good practice to adjust the gas train so that firing takes place in conditions of maximum safety, i.e. with gas delivery at the minimum.

### BURNER START-UP

Close the control devices.

As soon as the burner starts check the direction of rotation of the fan blade, looking through the flame inspection window 18)(A)p.4.

Make sure that the lamps or testers connected to the solenoids, or pilot lights on the solenoids themselves, indicate that no voltage is present. If voltage is present, then **immediately** stop the burner and check electrical connections.

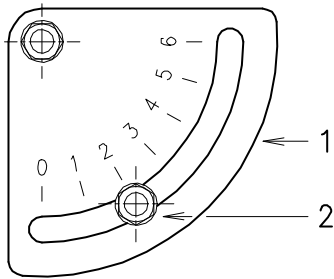
### BURNER FIRING

Having completed the checks indicated in the previous heading, ignition of the burner should be achieved. If the motor starts but the flame does not appear and the control box goes into lockout, reset and wait for a new firing attempt.

If firing is still not achieved, it may be that gas is not reaching the combustion head within the safety time period of 3 seconds. In this case increase gas firing delivery.

The arrival of gas to the pipe coupling is shown by the pressure gauge (C).

Once firing has taken place, proceed with global burner calibration operation.



(A)

D593

## BURNER CALIBRATION

The optimum calibration of the burner requires an analysis of the exhaust gases at the boiler outlet.

Adjust successively:

- 1 - Maximum output;
- 2 - Air pressure switch;
- 3 - Minimum gas pressure switch.

## DETERMINATION OF OUTPUT UPON FIRING (MINIMUM)

According to the regulation EN 676.

### Burners with MAX output up to 120 kW

Firing can be performed at the maximum operation output level. Example:

- max. operation output : 120 kW
- max. firing output : 120 kW

### Burners with MAX output above 120 kW

Firing must be performed at a lower output than the max. operation output.

If firing output does not exceed 120 kW, no calculations are required. If firing output exceeds 120 kW, the regulations prescribe that the value be defined according to the control box "ts" safety time:

for "ts" = 3s, firing output must be equal to, or lower than, 1/3 of max. operation output.

### **Example**

MAX operation output of 450 kW.

The firing output must be equal to, or less than, 150 kW with ts = 3s

In order to measure the firing output:

- disconnect the plug-socket 23)(A)p.4 on the ionisation probe cable (the burner will fire and then go into lockout after the safety time has elapsed).
- Perform 10 firings with consecutive lockouts.
- Read, on the meter, the quantity of gas burned.

This quantity must be equal to, or lower than, the quantity given by the formula, for ts = 3s:

$$Vg = \frac{Qa \text{ (max. burner output) } \times n \times ts}{3600}$$

**Vg:** volume supplied upon firings carried out (Sm<sup>3</sup>)

**Qa:** firing output (Sm<sup>3</sup>/h)

**n:** number of firings (10)

**ts:** safety time (sec)

**Example** for gas G 20 (9.45 kWh/Sm<sup>3</sup>):  
firing output 150 kW

corresponding to 15.87 Sm<sup>3</sup>/h.

After 10 firings with lockout, the output indicated on the meter must be equal to, or less than:

$$Vg = \frac{15,87 \times 10 \times 3}{3600} = 0,132 \text{ Sm}^3$$

## 1 - MAXIMUM OUTPUT

The maximum output of the burner must be set within the firing rate range shown on page 5.

### Adjusting gas delivery

Measure the delivery of gas from the gas meter. A guideline indication can be calculated from the tables on page 6, simply read off the gas pressure on the manometer, see fig.(C) on page 11, and follow the instructions on pages 6 - 7.

- If delivery needs to be reduced, diminish outlet gas pressure and, if it is already very low, slightly close adjustment valve VR2.
- If delivery needs to be increased, increase outlet gas pressure.

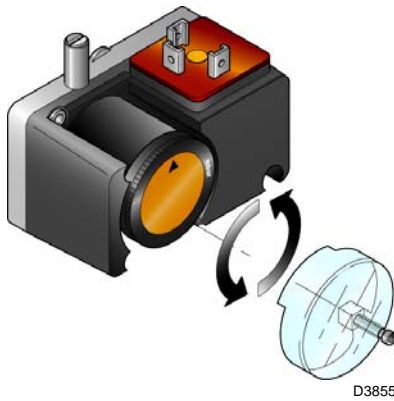
### Adjusting air delivery

Adjust the fan air damper by using the indexed selector 1)(A) after having loosened the screw 2)(A).

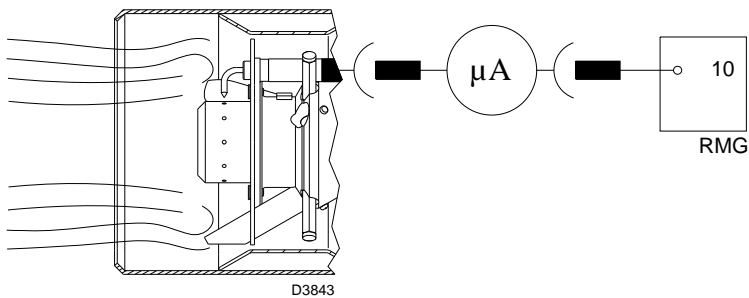


(A)

MINIMUM GAS PRESSURE SWITCH



(B)



(C)

**Note**

Once you have finished adjusting maximum output, check firing once again: noise emission at this stage must be identical to the following stage of operation. If you notice any sign of pulsations, reduce the firing stage delivery.

**2 - AIR PRESSURE SWITCH (A)**

Adjust the air pressure switch after having performed all other burner adjustments with the air pressure switch set to the start of the scale (A).

With the burner working insert a combustion analyser in the stack, slowly close the suction inlet of the fan (for example, with cardboard) until the CO value does not exceed 100 ppm.

Then slowly turn the appropriate knob clockwise until the burner reaches the lockout position.

Check the indication of the arrow pointing upwards on the graduated scale (A). Turn the knob clockwise again, until the value shown on the graduated scale corresponds with the arrow pointing downwards (A), and so recovering the hysteresis of the pressure switch (shown by the white mark on a blue background, between the two arrows).

Now check the correct start-up of the burner.

If the burner locks out again, turn the knob anti-clockwise a little bit more.

**3 - MINIMUM GAS PRESSURE SWITCH (B)**

With the burner operating, increase adjustment pressure by slowly turning the relative knob clockwise until the burner locks out.

Then turn the knob anti-clockwise by 5mbar and repeat burner starting to ensure it is uniform.

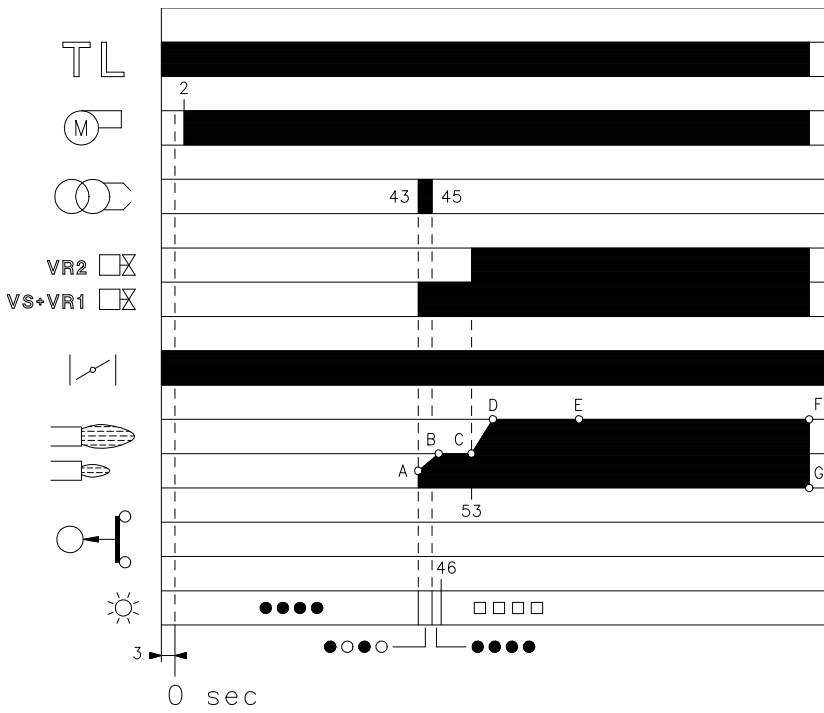
If the burner locks out again, turn the knob anti-clockwise again by 1mbar.

**FLAME PRESENCE CHECK (C)**

The burner is fitted with an ionisation system which ensures that a flame is present. The minimum current necessary for the control box operation is 5  $\mu$ A. The burner supplies a significantly higher current value, so that no check is usually needed. However, if it is necessary to measure the ionisation current, disconnect the plug-socket 23)(A)p.4 on the ionisation probe cable and insert a direct current microammeter with a base scale of 100  $\mu$ A. Carefully check polarities.



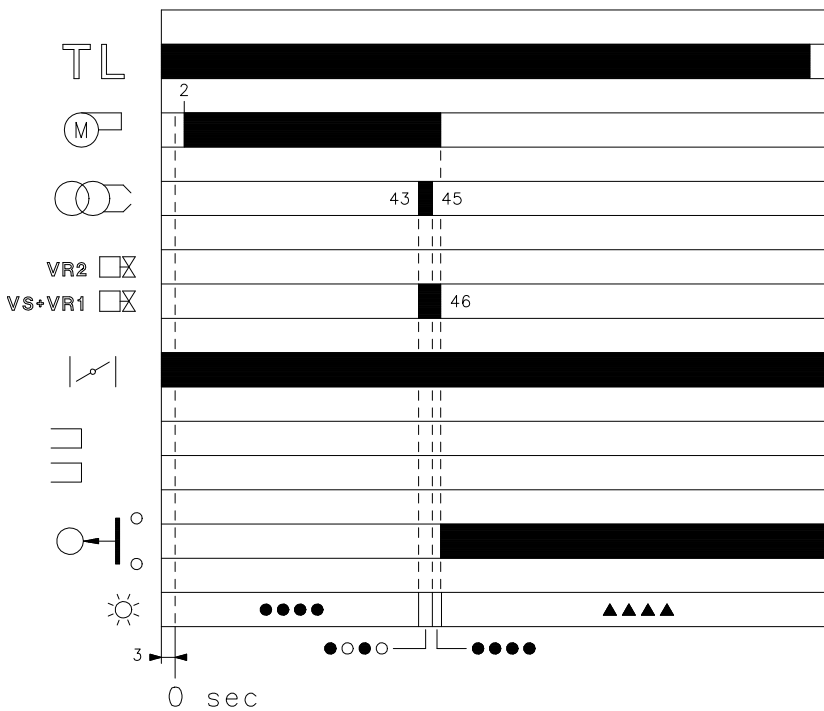
**STANDARD FIRING**  
(n° = seconds from the moment 0)



\* ○ Off   ● Yellow   □ Green   ▲ Red  
For further details see page 16.

**(A)** D3024

**NO FIRING**



\* ○ Off   ● Yellow   ▲ Red  
For further details see page 16.

**(B)** D3025

**BURNER OPERATION**

**BURNER START-UP (A)**

- Control device TL closes.  
After about 3s:
- 0 s : The control box starting cycle begins.
- 2 s : Fan motor starts.  
The air gate valve is set on maximum adjustment output.  
The pre-purge stage follows.
- 43 s : Ignition electrode strikes a spark.
- Safety valve VS and the 1<sup>st</sup> stage VR1 of the adjustment valve VR open. The shutter of valve VR1 has a first rapid run that determines a low output firing, point A, which is followed by a slow run. The output increases progressively up to a 1<sup>st</sup> stage value, section A-B.
- 45 s : The spark goes out.
- 53 s : The 2<sup>nd</sup> stage VR2 of valve VR opens and the output passes slowly from the 1<sup>st</sup> stage to the maximum adjustment valve, section C-D.
- The control value box starting cycle ends.

**STEADY STATE OPERATION (A)**

At the end of the starting cycle, the control box continues to check that the flame is present and that the air pressure switch is in the correct position.

The burner continues to operate at constant output.

If the temperature or pressure in the boiler continues to rise, and opens load control TL, the burner will stop, section F-G.

**FIRING FAILURE (B)**

If the burner does not fire, it goes into lockout within 3 s of the opening of the gas solenoid valve and 49 s after the closing of control device TL.  
The red led of the control box comes on.

**UNDESIRED SHUTDOWN DURING OPERATION**

If the flame should accidentally go out during operation, the burner will lock out within 1s.


#### **FINAL CHECKS** (with the burner working):


- disconnect a wire of the minimum gas pressure switch;
- switch on the thermostat/pressure switch TL;
- switch on the thermostat/pressure switch TS; the burner must stop.
- Disconnect the air adduction tube of the pressure switch;
- disconnect the wire of the ionisation probe; the burner must stop in lockout.


Make sure that the mechanical locking systems on the various adjustment devices are fully tightened.

---

#### **MAINTENANCE**

 The burner requires periodic maintenance carried out by a qualified and authorised technician **in conformity with legislation and local standards.**

 Periodic maintenance is essential for the reliability of the burner, avoiding the excessive consumption of fuel and consequent pollution.

 Before carrying out any cleaning or control, always switch off the electrical supply to the burner, using the main switch of the system.

#### **Combustion**

The optimum calibration of the burner requires an analysis of the exhaust gases. Significant differences with respect to the previous measurements indicate the points where more care should be exercised during maintenance.

#### **Gas leaks**

Make sure there are no gas leaks on the pipe-work between the gas meter and the burner.

#### **Gas filter**

Substitute the gas filter when dirty (see train instructions).

#### **Combustion head**

Open the burner and make sure that all components of the combustion head are in good condition, not deformed by the high temperatures, free of impurities from the surroundings and correctly positioned. If in doubt, disassemble the elbow.

#### **Burner**

Check for excess wear or loose screws in the mechanisms that control the air damper and the gas butterfly valve. In addition, the screws that fix the cables in the terminal board must be blocked, along with the burner sockets. Clean the outside of the burner.

#### **Combustion**

Adjust the burner if the combustion values found at the beginning of the operation do not comply with the regulations in force, or at any rate, do not correspond to good combustion.

Use the appropriate card to record the new combustion values; they will be useful for subsequent controls.

**BURNER START-UP PROGRAMME DIAGNOSTICS**

During start-up, the indications are explained in the following table:

COLOUR CODE TABLE	
Sequences	Colour code
Pre-purging	●●●●●●●●●●
Firing phase	●○●○●○●○●○
Operation, flame OK	□□□□□□□□□□
Operation with weak flame signal	□○□○□○□○□○□○
Electrical supply lower than ~ 170V	●▲●▲●▲●▲●▲●▲
Lockout	▲▲▲▲▲▲▲▲▲▲
Extraneous light	▲□▲□▲□▲□▲□▲□
<b>Key to layout:</b> ○ Off      ● Yellow      □ Green      ▲ Red	

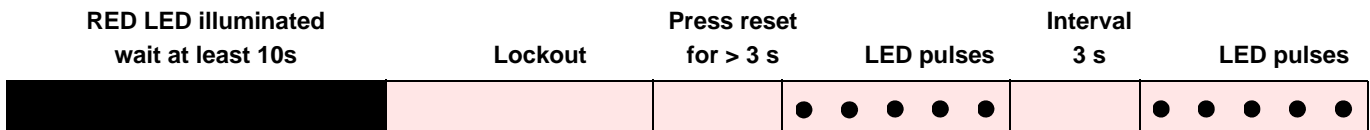
**RESET OF CONTROL BOX AND DIAGNOSTICS USE**

The control box supplied features a diagnostics function, through which any causes of malfunctioning can be easily identified (indicator: **RED LED** signal).

To use this function, wait at least 10 seconds from when the safety condition has been set (**lockout**), then press the reset button.

The control box generates a sequence of led pulses (1 second apart) that is repeated at constant intervals of 3 seconds.

Once the number of LED pulses has been visualised, and the possible cause identified, it is necessary to reset the system, keeping the button pressed for 1-3 seconds.



Below, a list of the possible methodologies for carrying out the resetting of the control box and for using the diagnostics.

**CONTROL BOX RESET**

To reset the control box, proceed as follows:

- Press and hold the button for 1-3 seconds.  
The burner starts up again, 2 seconds after the button is released.
- If the burner does not restart, make sure the limit thermostat is closed.

**VISUAL DIAGNOSTICS**

Indicate the type of burner fault that leads to the lockout.

To display the diagnostic, proceed as follows:

- Keep the button pressed for more than 3 seconds from when the red led (burner lockout) switches on.  
The end of the operation will be shown by a yellow led pulse.  
Release the button when you see the flashing. The number of times it pulses tells you the cause of the malfunction, according to the coding system indicated in the table on page 17.

**SOFTWARE DIAGNOSTICS**

Gives an analysis of the life of the burner, through optical connections with a PC showing the working hours, number and types of lockout, control box serial number etc.

To display the diagnostic, proceed as follows:

- Keep the button pressed for more than 3 seconds from when the red led (burner lockout) switches on.  
The end of the operation will be shown by a yellow LED pulse.  
Release the button for 1 second, then press it again for more than 3 seconds, until you see another yellow flash.  
When you release the button, the red led will flash intermittently with high frequency: only then is it possible to insert the optical connection.

When the operation is completed, it is necessary to reset the start-up condition of the control box, using the reset procedure described above.

PRESSURE ON THE BUTTON	STATE OF CONTROL BOX
From 1 to 3 seconds	Reset of the control box without visualisation of the visual diagnostics.
More than 3 seconds	Visual diagnostics of the lockout condition: (led flashes at 1 second intervals).
More than 3 seconds, starting from the condition of visual diagnostics	Software diagnostics, with the help of optical interface and PC (possibility to visualise the working hours, irregularities, etc.)

The sequence of pulses issued by the control box identifies the possible types of malfunction, which are listed in the table on page 17.

Signal	Problem	Possible cause	Recommended remedy
2 blinks ● ●	Once the pre-purging phase and safety time have passed, the burner goes into lockout without the appearance of the flame	1 - The operation solenoid lets little gas through . . . . . 2 - One of the two solenoid valves does not open. . . . . 3 - Gas pressure too low . . . . . 4 - Ignition electrode incorrectly adjusted . . . . . 5 - Electrode grounded due to broken insulation . . . . . 6 - High voltage cable defective . . . . . 7 - High voltage cable deformed by high temperature . . . . . 8 - Ignition transformer defective. . . . . 9 - Incorrect valve or transformer electrical wiring . . . . . 10 - Defective control box . . . . . 11 - A closed valve upline the gas train . . . . . 12 - Air in pipework . . . . . 13 - Gas valves unconnected or with interrupted coil . . . . .	Increase Replace Increase pressure at governor Adjust, see fig. (D) page 8 Replace Replace Replace and protect Replace Check Replace Open Bleed air Check connections or replace coil
3 blinks ● ● ●	The burner does not switch on, and the lockout appears	14 - Air pressure switch in operating position . . . . .	Adjust or replace
	The burner switches on, but then stops in lockout	- Air pressure switch inoperative due to insufficient air pressure: 15 - Air pressure switch incorrectly adjusted. . . . . 16 - Pressure switch pressure test point pipe blocked . . . . . 17 - Poorly adjusted head . . . . . 18 - High pressure in the furnace . . . . .	Adjust or replace Clean Adjust Connect air pressure switch to fan suction line
	Lockout during pre-purging phase	19 - Defective motor control contactor . . . . . (only three-phase version) 20 - Defective electrical motor. . . . . 21 - Motor lockout (defective electrical motor) . . . . .	Replace Replace Replace
4 pulses ● ● ● ●	The burner switches on, but then stops in lockout	22 - Flame simulation . . . . .	Replace the control box
	Lockout when burner stops	23 - Permanent flame in the combustion head or flame simulation	Eliminate persistence of flame or replace control box
7 blinks ● ● ● ● ● ● ●	The burner goes into lockout immediately following the appearance of the flame	24 - The operation solenoid lets little gas through . . . . . 25 - Ionisation probe incorrectly adjusted . . . . . 26 - Insufficient ionisation (less than 5 A) . . . . . 27 - Earth probe . . . . . 28 - Burner poorly grounded. . . . . 29 - Phase and neutral connections inverted . . . . . 30 - Defective flame detection circuit . . . . .	Increase Adjust, see fig. (D) page 8 Check probe position Withdraw or replace cable Check grounding Invert them Replace the control box
	Burner goes into lockout during operation	31 - Probe or ionisation cable grounded. . . . .	Replace worn parts
10 blinks ● ● ● ● ● ● ● ● ● ●	The burner does not switch on, and the lockout appears	32 - Incorrect electrical wiring . . . . .	Check
	The burner goes into lockout	33 - Defective control box . . . . .	Replace
		34 - Presence of electromagnetic disturbances in the thermostat lines . . . . .	Filter or eliminate
35 - Presence of electromagnetic disturbance . . . . .		Use the radio disturbance protection kit	
No blink	The burner does not start	36 - No electrical power supply . . . . .	Close all switches - Check connections
		37 - A limiter or safety control device is open . . . . .	Adjust or replace
		38 - Line fuse blocked. . . . .	Replace
		39 - Defective control box . . . . .	Replace
		40 - No gas supply . . . . .	Open the manual valves between contactor and train
		41 - Mains gas pressure insufficient . . . . .	Contact your GAS COMPANY
	42 - Minimum gas pressure switch fails to close. . . . .	Adjust or replace	
The burner continues to repeat the start-up cycle, without lockout	43 - The gas pressure in the gas mains lies very close to the value to which the minimum gas pressure switch has been set. The sudden drop in pressure after valve opening causes temporary opening of the pressure switch itself, the valve immediately closes and the burner comes to a halt. Pressure increases again, the pressure switch closes again and the ignition cycle is repeated. And so on	Reduce the minimum gas pressure switch intervention pressure. Replace the gas filter cartridge.	
Ignition with pulsations	44 - Poorly adjusted head . . . . .	Adjust. See page 9	
	45 - Ignition electrode incorrectly adjusted . . . . .	Adjust, see fig. (D) page 8	
	46 - Incorrectly adjusted fan air damper: too much air . . . . .	Adjust	
	47 - Output during ignition phase is too high. . . . .	Reduce	

**NORMAL OPERATION / FLAME DETECTION TIME**

The control box has a further function to guarantee the correct burner operation (signal: **GREEN LED** permanently on). To use this function, wait at least ten seconds from the burner ignition and then press the control box button for a minimum of 3 seconds. After releasing the button, the GREEN LED starts flashing as shown in the figure below.



The pulses of the LED constitute a signal spaced by approximately 3 seconds. The number of pulses will measure the probe DETECTION TIME since the opening of gas valves, according to the following table:

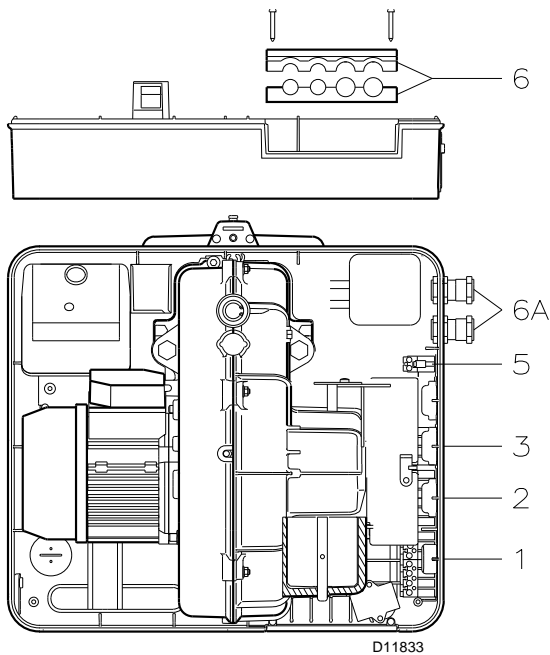
SIGNAL	FLAME DETECTION TIME
1 blink ●	0.4s
2 blinks ● ●	0.8s
6 blinks ● ● ● ● ● ●	2.8s

This is updated in every burner start-up. Once read, the burner repeats the start-up cycle by briefly pressing the control box button.  
**WARNING**  
 If the result is > 2s, ignition will be retarded. Check the adjustment of the hydraulic brake of the gas valve, the air damper and the combustion head adjustment.

**KIT INTERFACE ADAPTER RMG TO PC Code 3002719**

## APPENDIX

### Electrical connections



#### NOTES

The electrical wirings must be carried out in conformity with the regulations in force in the countries of destination, and by qualified personnel.

Riello S.p.A. cannot accept any responsibility for modifications or connections other than those shown in these diagrams.

Use flexible cables, in accordance with the regulation EN 60 335-1.

All the cables to be connected to the burner must pass through cable grommets.

The use of cable grommets can take various forms; the following way is just one possible solution:

#### RS 34-44/1 MZ

- 1- 7-pole socket for single-phase power supply, thermostat/pressure switch TL
- 2- 6-pole socket for gas valves, gas pressure switch or device for checking the valve seal
- 3- 4-pole socket for thermostat/pressure switch TR
- 5- 2-pole socket for accessories
- 6 - 6A Fittings for pipe unions  
(Pierce, if it is necessary to use the pipe unions 6A)

#### NOTE

The RS 34-44/1 MZ -burners have been type-approved for intermittent operation. This means they should be "Compulsorily" stopped at least once every 24 hours to enable the control box to perform a check of its own efficiency at start-up. Normally, the stopping of the burner is guaranteed by the boiler's thermostat/pressure switch. If this is not the case, a time switch should be fitted in series to IN to provide for burner shut-down at least once every 24 hours.



#### ATTENTION:

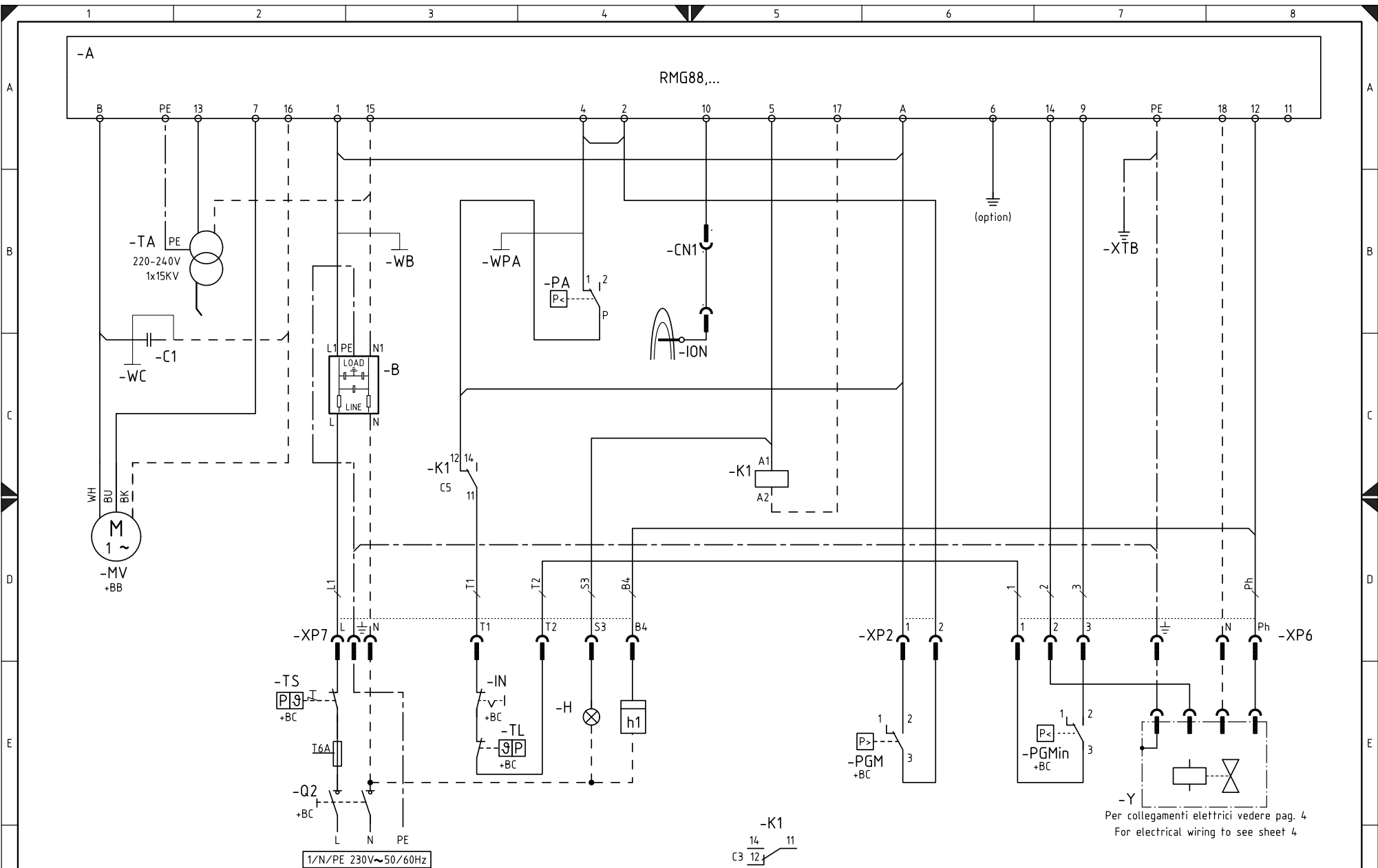
- Do not invert the neutral with the phase in the electrical supply line. An inversion would lead to lockout due to firing failure.
- Replace the components only with original spare parts.

**Electrical panel layout - Esquema cuadro eléctrico**  
**Esquema quadro eléctrico**

<b>1</b>		<b>INDEX - ÍNDICE - ÍNDICE</b>
<b>2</b>		Indication of references - Indicación referencias Indicação das referências
<b>3</b>	RS 34/1 MZ RS 44/1 MZ	Functional layout - Esquema funcional Esquema funcional
<b>4</b>	RS 34/1 MZ RS 44/1 MZ	Electrical wiring is the responsibility of the installation engineer - Conexiones eléctricas a cargo del instalador - Ligações eléctricas pelo instalador

**2** Indication of references - Indicación referencias - Indicação das referências

Sheet no. - N. Folio - N. Folha **/1.A1**  
Co-ordinates - Coordenadas - Coordenadas

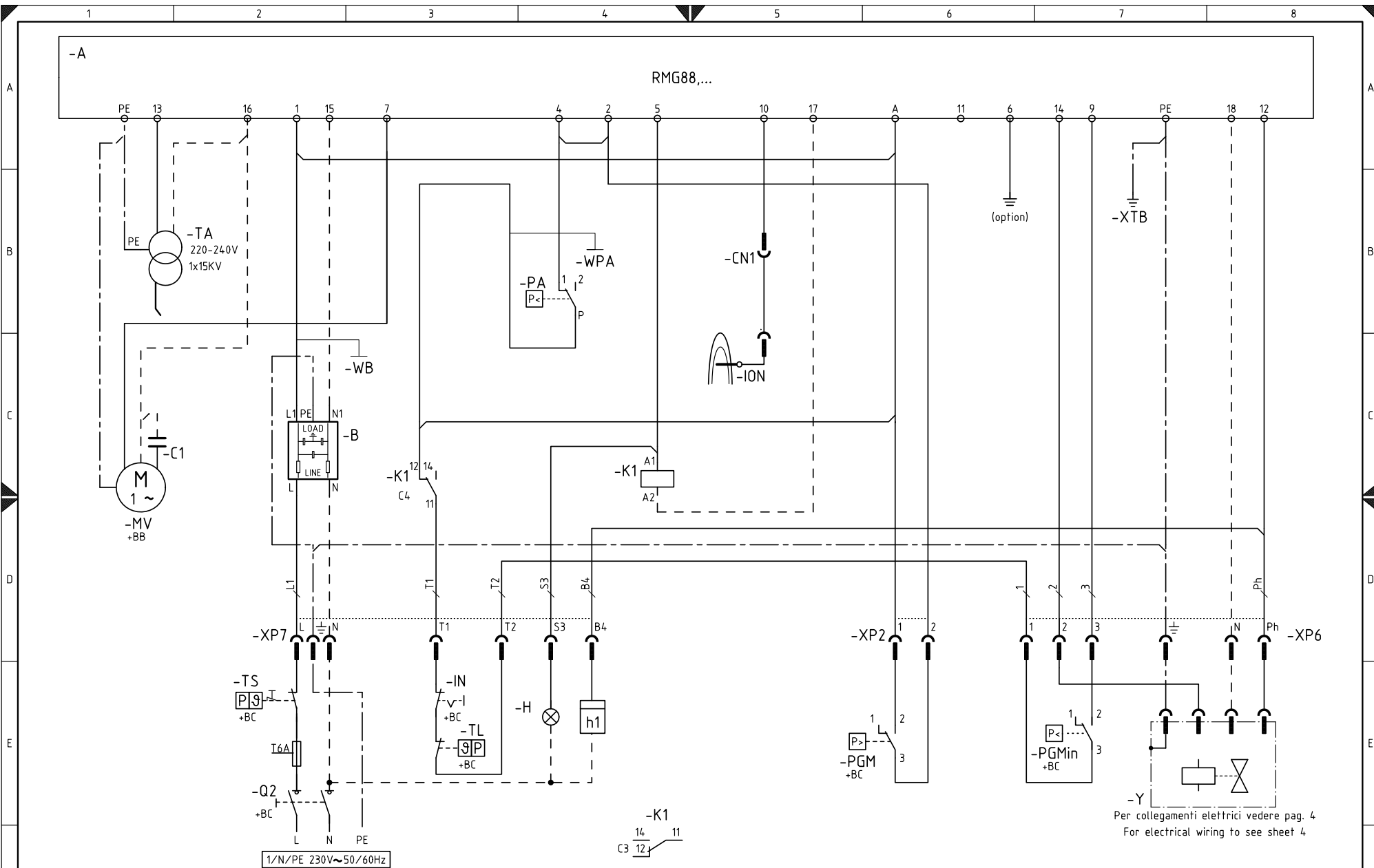


Per collegamenti elettrici vedere pag. 4  
For electrical wiring to see sheet 4

**RS 34/1 MZ**

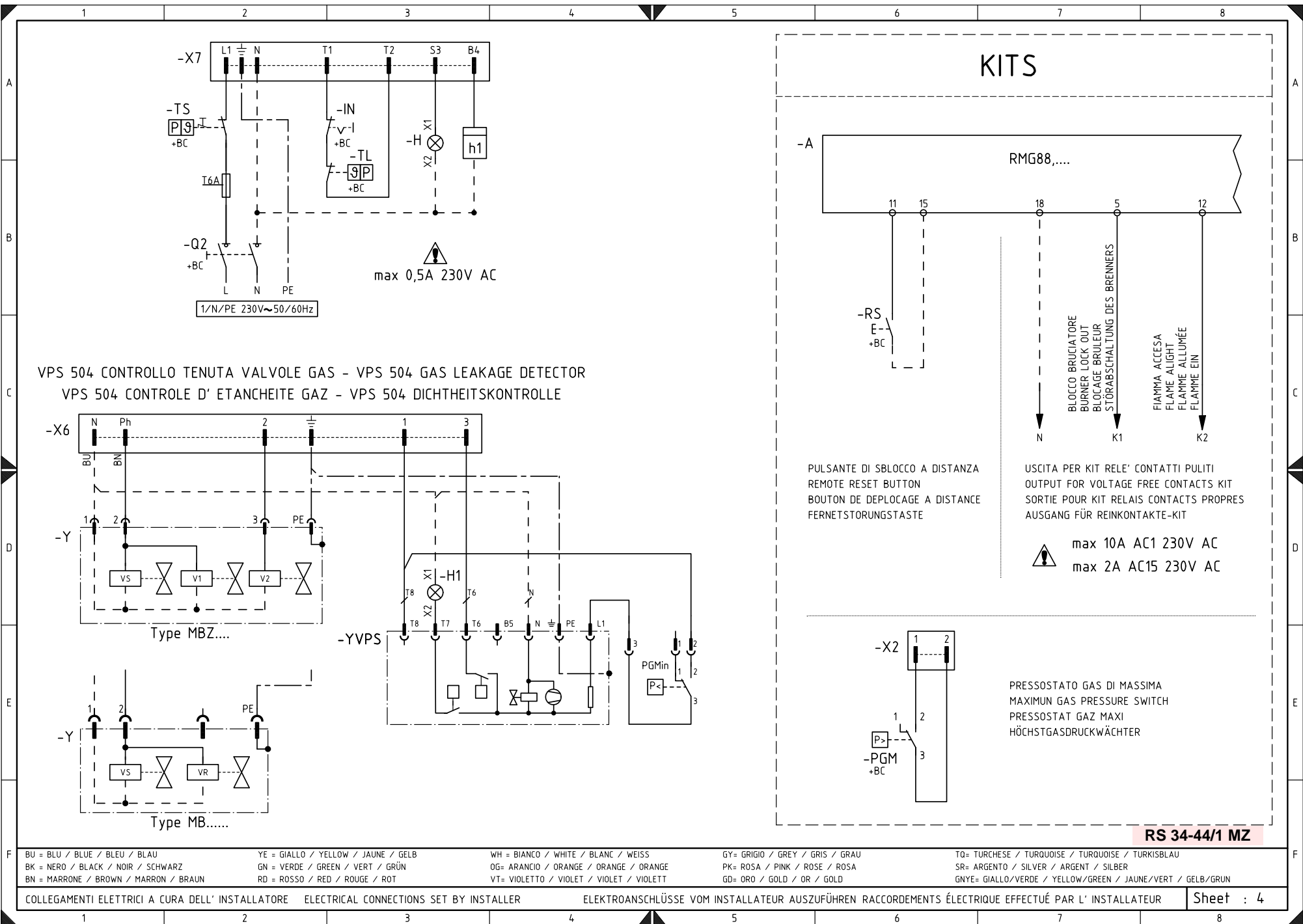
BU = BLU / BLUE / BLEU / BLAU	YE = GIALLO / YELLOW / JAUNE / GELB	WH = BIANCO / WHITE / BLANC / WEISS	GY= GRIGIO / GREY / GRIS / GRAU	TQ= TURCHESE / TURQUOISE / TURQUOISE / TURKISBLAU
BK = NERO / BLACK / NOIR / SCHWARZ	GN = VERDE / GREEN / VERT / GRÜN	OG= ARANCIO / ORANGE / ORANGE / ORANGE	PK= ROSA / PINK / ROSE / ROSA	SR= ARGENTO / SILVER / ARGENT / SILBER
BN = MARRONE / BROWN / MARRON / BRAUN	RD = ROSSO / RED / ROUGE / ROT	VT= VIOLETTO / VIOLET / VIOLET / VIOLETT	GD= ORO / GOLD / OR / GOLD	GNYE= GIALLO/VERDE / YELLOW/GREEN / JAUNE/VERT / GELB/GRÜN



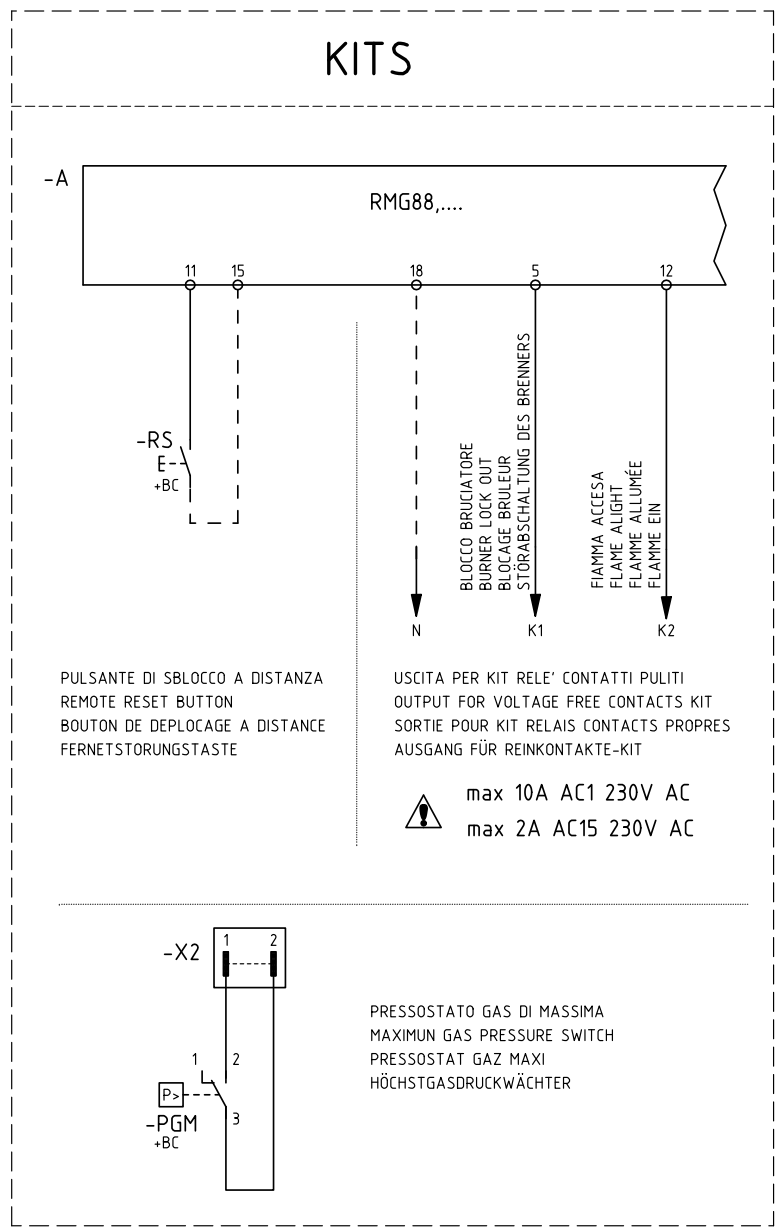
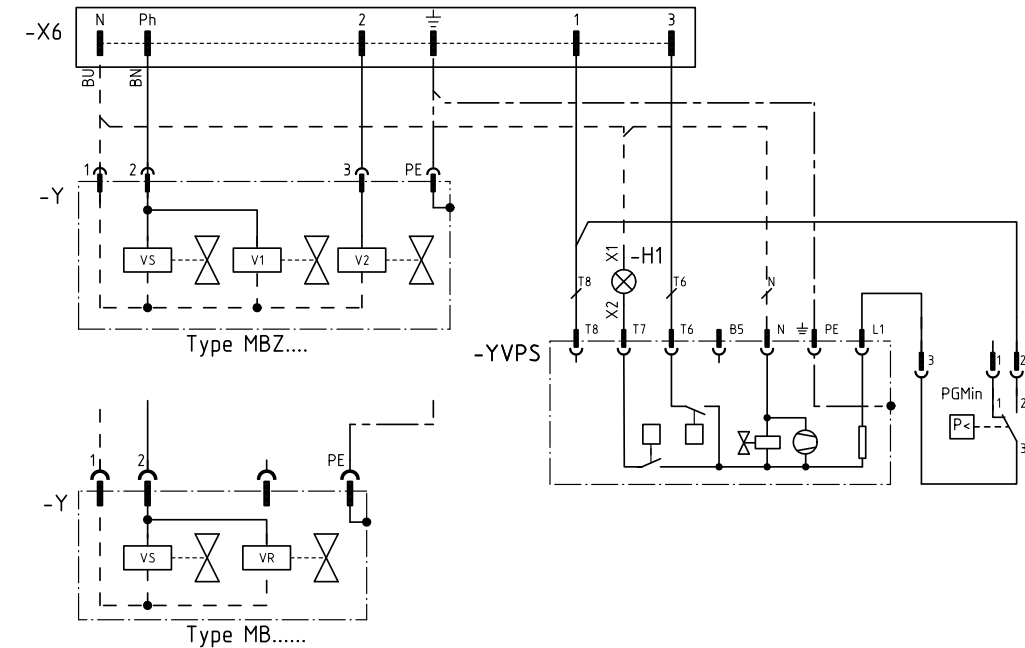


**RS 44/1 MZ**

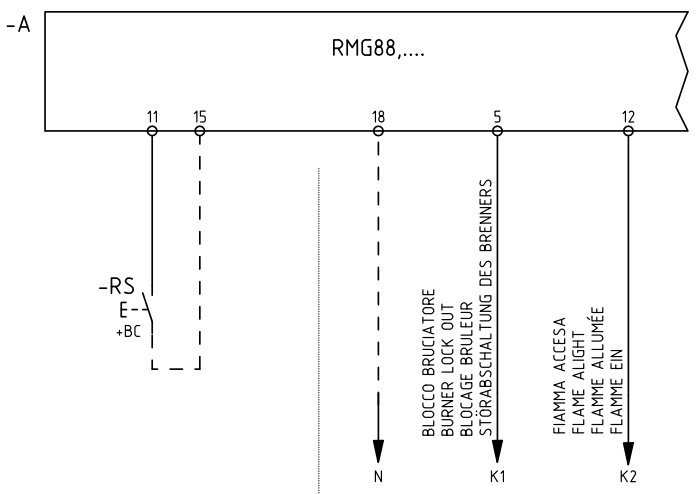
BU = BLU / BLUE / BLEU / BLAU	YE = GIALLO / YELLOW / JAUNE / GELB	WH = BIANCO / WHITE / BLANC / WEISS	GY = GRIGIO / GREY / GRIS / GRAU	TD = TURCHESE / TURQUOISE / TURKOISE / TURKISBLAU
BK = NERO / BLACK / NOIR / SCHWARZ	GN = VERDE / GREEN / VERT / GRÜN	OG = ARANCIO / ORANGE / ORANGE / ORANGE	PK = ROSA / PINK / ROSE / ROSA	SR = ARGENTO / SILVER / ARGENT / SILBER
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VPS 504 CONTROLLO TENUTA VALVOLE GAS - VPS 504 GAS LEAKAGE DETECTOR  
 VPS 504 CONTROLE D' ETANCHEITE GAZ - VPS 504 DICHTHEITSKONTROLLE



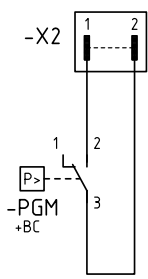
KITS



PULSANTE DI SBLOCCO A DISTANZA  
 REMOTE RESET BUTTON  
 BOUTON DE DEPLOCEAGE A DISTANCE  
 FERNSTORUNGSTASTE

USCITA PER KIT RELE' CONTATTI PULITI  
 OUTPUT FOR VOLTAGE FREE CONTACTS KIT  
 SORTIE POUR KIT RELAIS CONTACTS PROPRES  
 AUSGANG FÜR REINKONTAKTE-KIT

max 10A AC1 230V AC  
 max 2A AC15 230V AC



PRESSOSTATO GAS DI MASSIMA  
 MAXIMUM GAS PRESSURE SWITCH  
 PRESSOSTAT GAZ MAXI  
 HÖCHSTGASDRUCKWÄCHTER

RS 34-44/1 MZ

BU = BLU / BLUE / BLEU / BLAU	YE = GIALLO / YELLOW / JAUNE / GELB	WH = BIANCO / WHITE / BLANC / WEISS	GY= GRIGIO / GREY / GRIS / GRAU	TO= TURCHESE / TURQUOISE / TURKUISE / TURKISBLAU
BK = NERO / BLACK / NOIR / SCHWARZ	GN = VERDE / GREEN / VERT / GRÜN	OG= ARANCIO / ORANGE / ORANGE / ORANGE	PK= ROSA / PINK / ROSE / ROSA	SR= ARGENTO / SILVER / ARGENT / SILBER
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## KEY TO ELECTRICAL LAYOUT

<b>A</b>	- Electrical control box
<b>B</b>	- Radio noise filter
<b>+BB</b>	- Components on burners
<b>+BC</b>	- Components on boiler
<b>C1</b>	- Capacitor
<b>CN1</b>	- Ionisation probe connector
<b>H</b>	- Remote lockout signalling
<b>H1</b>	- Lockout YVPS
<b>IN</b>	- Manual burner stop switch
<b>ION</b>	- Ionisation probe
<b>h1</b>	- Hour counter
<b>K1</b>	- Relay
<b>MV</b>	- Fan motor
<b>PA</b>	- Air pressure switch
<b>PGM</b>	- Maximum gas pressure switch
<b>PGMin</b>	- Low gas pressure switch
<b>Q2</b>	- Single-phase knife switch
<b>RS</b>	- Remote reset button
<b>TA</b>	- Ignition transformer
<b>TL</b>	- Limit thermostat/pressure switch
<b>TS</b>	- Safety thermostat/pressure switch
<b>Y</b>	- Gas regulation valve + gas safety valve
<b>YVPS</b>	- Gas valve leak detection control device
<b>XP2</b>	- Maximum gas pressure switch connector
<b>XP6</b>	- 6-pole socket
<b>XP7</b>	- 7-pole socket
<b>XTB</b>	- Shelf earth
<b>X2</b>	- 2-pin plug
<b>X6</b>	- 6-pin plug
<b>X7</b>	- 7-pin plug

## LEYENDA ESQUEMAS ELÉCTRICOS

<b>A</b>	- Caja de control eléctrica
<b>B</b>	- Filtro antiinterferencias radio
<b>+BB</b>	- Componentes a bordo de los quemadores
<b>+BC</b>	- Componentes a bordo de la caldera
<b>C1</b>	- Condensador
<b>CN1</b>	- Conector para sonda de ionización
<b>H</b>	- Señalización de bloqueo a distancia
<b>H1</b>	- Bloqueo YVPS
<b>IN</b>	- Interruptor parada manual del quemador
<b>ION</b>	- Sonda de ionización
<b>h1</b>	- Cuentahoras
<b>K1</b>	- Relé
<b>KM</b>	- Contador motor
<b>MV</b>	- Motor ventilador
<b>PA</b>	- Presostato aire
<b>PGM</b>	- Presostato gas de máxima
<b>PGMin</b>	- Presostato gas de mínima
<b>Q2</b>	- Interruptor seccionador monofásico
<b>RS</b>	- Botón de desbloqueo quemador a distancia
<b>TA</b>	- Transformador de encendido
<b>TL</b>	- Termostato/presostato de límite
<b>TS</b>	- Termostato/presostato de seguridad
<b>Y</b>	- Válvula de regulación gas + válvula de seguridad gas
<b>YVPS</b>	- Dispositivo de control de estanqueidad válvula gas
<b>XP2</b>	- Conector presostato gas de máxima
<b>XP6</b>	- Conector hembra de 6 contactos
<b>XP7</b>	- Conector hembra de 7 contactos
<b>XTB</b>	- Tierra ménsula
<b>X2</b>	- Conector macho de 2 contactos
<b>X6</b>	- Conector macho de 6 contactos
<b>X7</b>	- Conector macho de 7 contactos

## LEGENDA ESQUEMAS ELÉCTRICOS

<b>A</b>	- Caixa de controlo eléctrica
<b>B</b>	- Filtro contra radio-interferências
<b>+BB</b>	- Componentes bordo queimadores
<b>+BC</b>	- Componentes bordo caldeira
<b>C1</b>	- Condensador
<b>CN1</b>	- Conector sonda de ionização
<b>H</b>	- Sinalização de bloqueio remoto
<b>H1</b>	- Bloqueio YVPS
<b>IN</b>	- Interruptor paragem manual queimador
<b>ION</b>	- Sonda de ionização
<b>h1</b>	- Conta-horas
<b>K1</b>	- Relé
<b>MV</b>	- Motor ventilador
<b>PA</b>	- Pressostato de ar
<b>PGM</b>	- Pressostato gás de máxima
<b>PGMin</b>	- Pressostato de gás de mínima
<b>Q2</b>	- Interruptor seccionador monofásico
<b>RS</b>	- Botão de desbloqueio queimador a distância
<b>TA</b>	- Transformador de acendimento
<b>TL</b>	- Termóstato/presostato de limite
<b>TS</b>	- Termóstato/presostato de segurança
<b>Y</b>	- Válvula de regulação gás + válvula de segurança gás
<b>YVPS</b>	- Dispositivo de controlo da estanquidade das válvulas gás
<b>XP2</b>	- Conector pressostato gás de máxima
<b>XP6</b>	- Tomada de 6 pólos
<b>XP7</b>	- Tomada de 7 pólos
<b>XTB</b>	- Terra consola
<b>X2</b>	- Ficha de 2 pólos
<b>X6</b>	- Ficha de 6 pólos
<b>X7</b>	- Ficha de 7 pólos







