

**GB** **Light oil burner**

**CN** **轻油燃烧器**

One stage operation  
一段火运行



**RIELLO 40**

CODE - 编码	MODEL - 型号	TYPE - 类型
20033115	G3X	436T95

## 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 **RIELLO** 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.

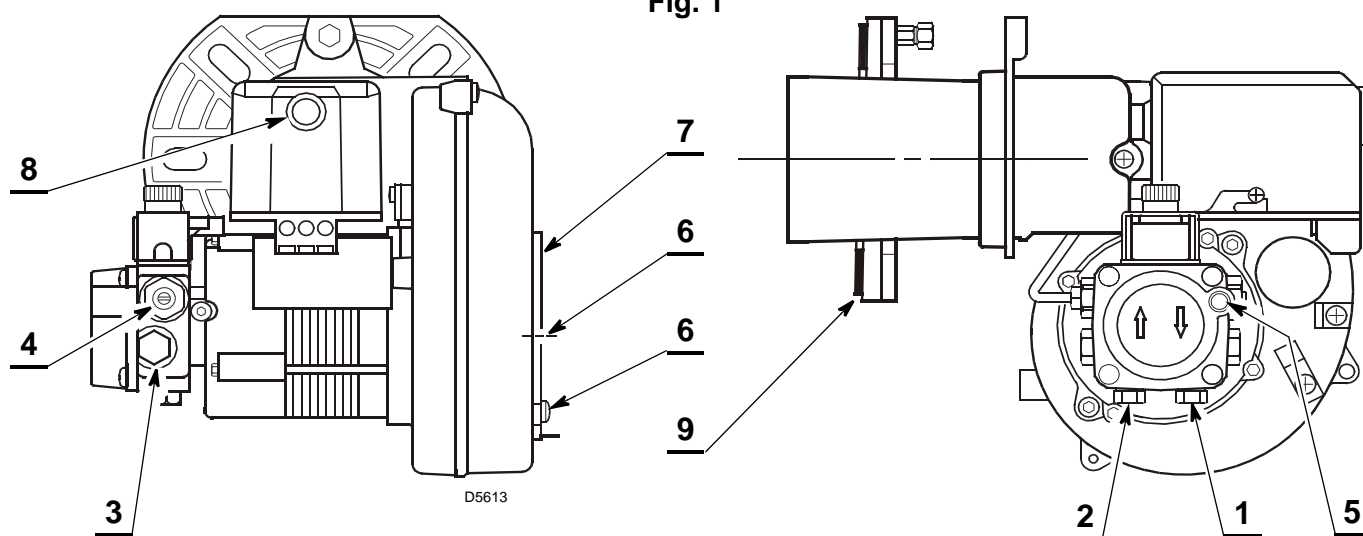
To ensure a periodic check, **RIELLO** recommends the drawing up of a Maintenance Contract.

## TECHNICAL DATA

Thermal power – output	19 – 35 kW – 1.6 – 3 kg/h
Fuel	Gas oil, max. viscosity at 20 °C: 6 mm <sup>2</sup> /s (1.5 °E)
Electrical supply	Single phase, 230 V ± 10% ~ 50Hz
Motor	Run current 0.70 A – 2850 rpm – 298 rad/s
Capacitor	4 µF
Ignition transformer	Secondary 8 kV – 16 mA
Pump	Pressure 7 – 15 bar
Absorbed electrical power	0.115 kW

- Burner with CE marking in conformity with EEC directives: EMC89/336/EEC - 2004/108/EC.
- The burner is tested to comply with the Standards EN 60335 / EN 50165.  
To fulfil the above mentioned requirements, is necessary to fix a cover on the device or to mounted the burner under an cover of the heating boiler. The cover should be removable, only by using a tool.

**Fig. 1**



- 1 – Return line
- 2 – Suction line
- 3 – Gauge connection
- 4 – Pump pressure regulator
- 5 – Vacuum gauge connection
- 6 – Screws fixing air-damper
- 7 – Air-damper
- 8 – Lock-out lamp and reset button
- 9 – Flange with insulating gasket

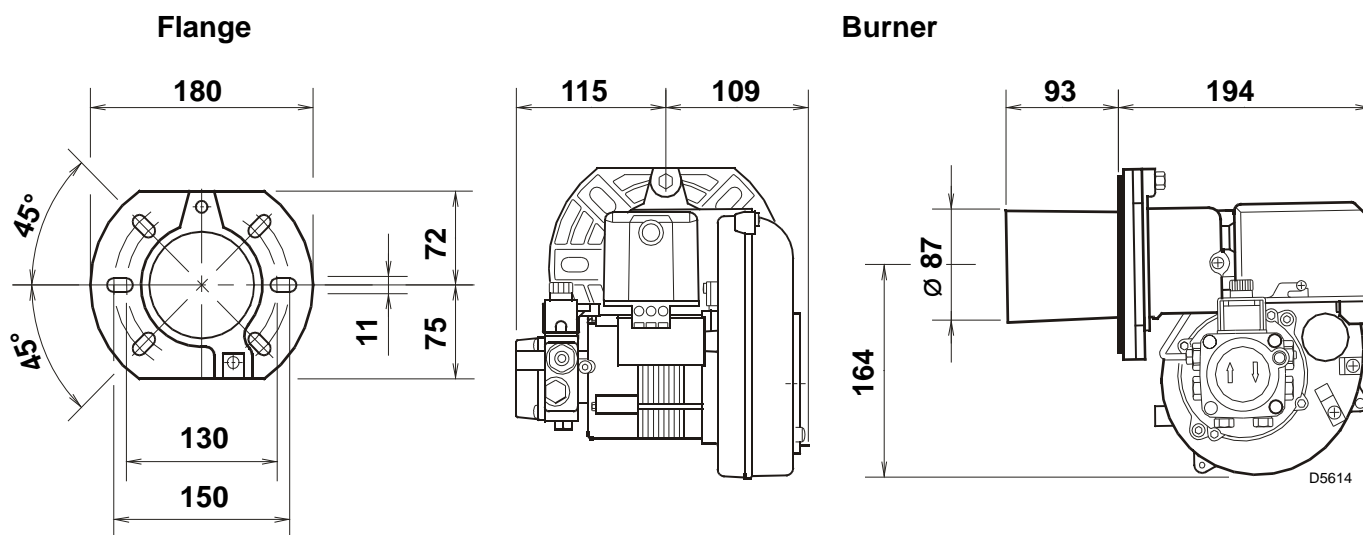
## BURNER EQUIPMENT

Quantity	Description
2	Flexible pipes with connectors
1	Flange with insulating gasket
2	Screws and nuts for flange
1	Cable gland
1	Screw with two nuts for flange

## FIRING RATE



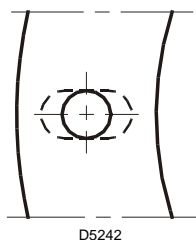
## OVERALL DIMENSIONS



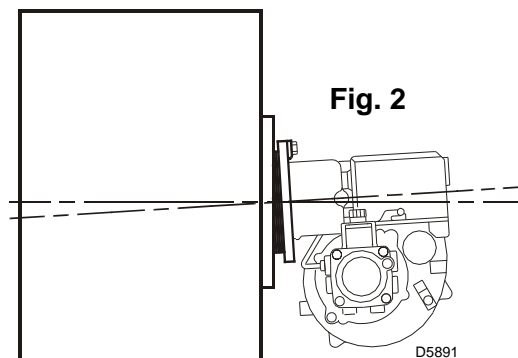
## MOUNTING THE BURNER

It is necessary that the insulating gasket (9, fig. 1) is placed between the boiler door and the burner flange.

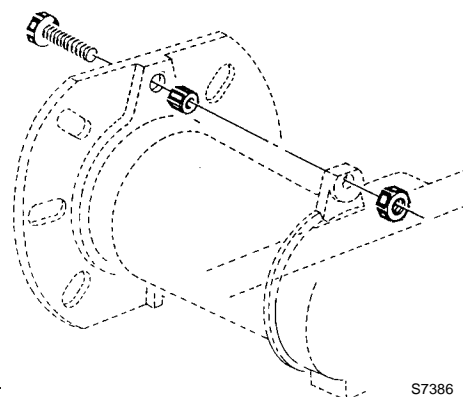
This insulating gasket has **six holes**, which, if necessary, can be modified as shown on the drawing on the right.



Verify that the installed burner is lightly leaned towards the button.  
(See figure 2).



## BURNER FIXING



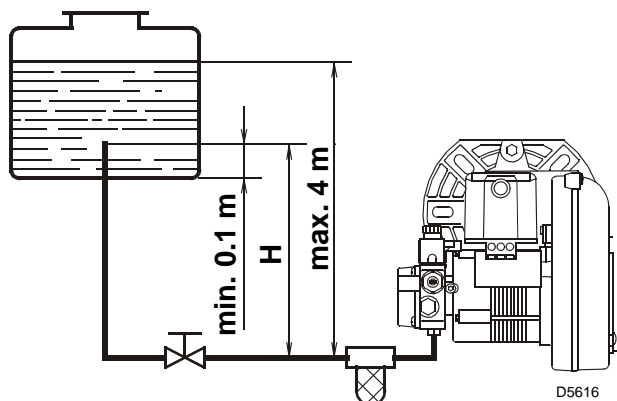
## HYDRAULIC SYSTEMS

**Warning:** before starting the burner make sure that the return pipe-line is not clogged: any obstruction would cause the pump seals to break.

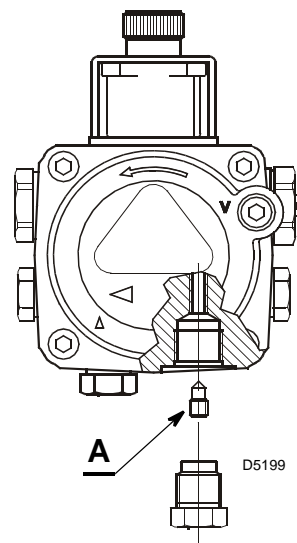
### WARNING

The pump is supplied for use with a two pipe system.

For use on a one pipe system, it is necessary to **remove the by-pass screw (A)**, (see figure).



H meters	L meters	
	I. D. 8 mm	I.D. 10 mm
0.5	10	20
1	20	40
1.5	40	80
2	60	100



### PRIMING THE PUMP

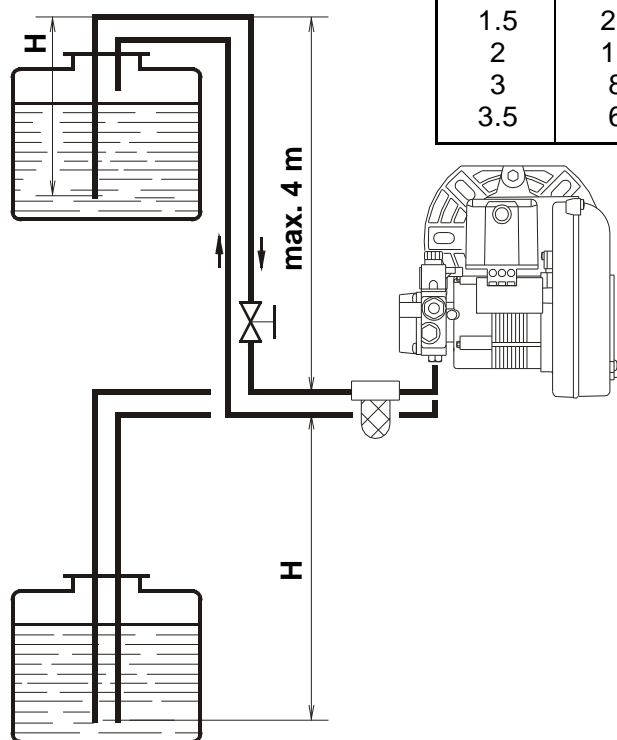
Loosen the plug of the vacuum gauge (5, fig. 1, page 1) and wait until the fuel flows out.

**H** = Difference of level.

**L** = Max. length of the suction line.

**I.D.** = Internal diameter of the oil pipes.

H meters	L meters	
	I. D. 8 mm	I.D. 10 mm
0	35	100
0.5	30	100
1	25	100
1.5	20	90
2	15	70
3	8	30
3.5	6	20



The pump vacuum should not exceed a maximum of 0.4 bar (30 cm Hg). Beyond this limit gas is released from the oil.

**Oil lines must be completely air-tight.**

**The return line should terminate in the oil tank at the same level as the suction line;** in this case a non-return valve is not required.

When the return line arrives over the fuel level, a non-return valve must be used.

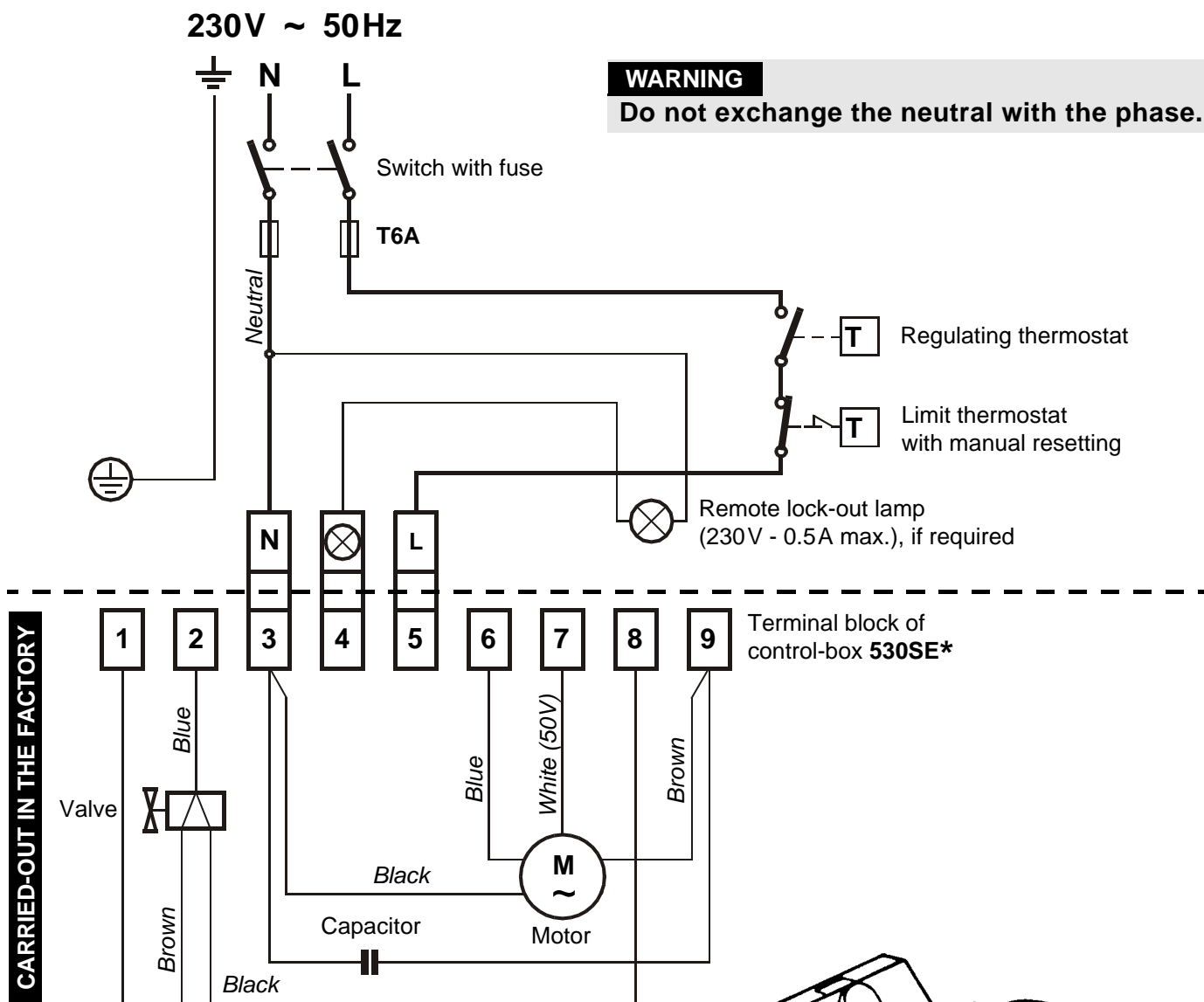
This solution however is less safe than previous one, due to the possibility of leakage of the valve.

### PRIMING THE PUMP

Start the burner and wait for the priming. Should lock-out occur prior to the arrival of the fuel, await at least 20 seconds before repeating the operation.

**A filter must be installed on the suction fuel line.**

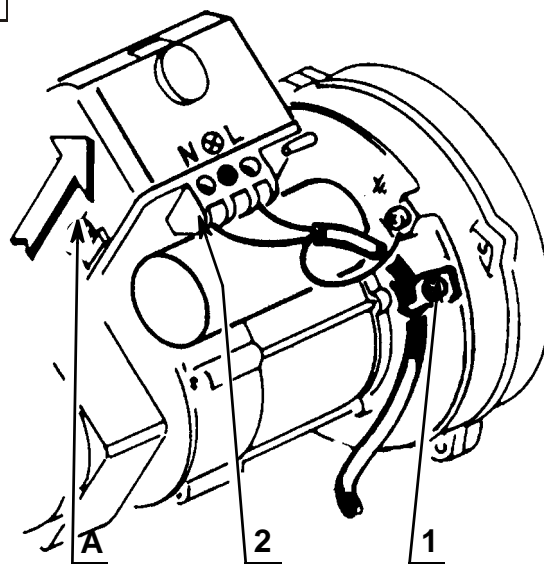
## ELECTRICAL WIRING



D5228

### NOTES

- Wires of 1 mm<sup>2</sup> section.
- The electrical wiring carried out by the installer must be in compliance with the rules in force in the Country.
- **To remove the control-box from the burner, loosen screw (A) (see figure) and pull towards the arrow.**
- The photoresistance is fitted directly into the control-box (underneath the ignition-transformer) on a plug-in support.



### TESTING

Check the shut-down of the burner by opening the thermostats.

### RUN OF THE ELECTRICAL CABLE

- |                    |                  |
|--------------------|------------------|
| 1 - Cable clamp    | N - Neutral      |
| 2 - Terminal block | L - Phase        |
|                    | ⏏ - Burner-earth |

## COMBUSTION ADJUSTMENT

In conformity with Efficiency Directive 92/42/EEC the application of the burner on the boiler, adjustment and testing must be carried out observing the instruction manual of the boiler, including verification of the CO and CO<sub>2</sub> concentration in the flue gases, their temperatures and the average temperature of the water in the boiler.

To suit the required appliance output, fit the nozzle then adjust the pump pressure and the air damper opening in accordance with the following schedule.

Nozzle <b>1</b>		Pump pressure <b>2</b>	Burner output	Air damper adjustment <b>3</b>
GPH	Angle	bar	kg/h $\pm$ 4%	Set-point
0.40	60°	12	1.6	1.95
0.50	60°	12	2.0	2.2
0.60	60°	12	2.4	2.8
0.65	60°	12	2.6	3.2
0.65	60°	12	3.0	4.5

**1 NOZZLES RECOMMENDED**

Monarch	type R - NS
Delavan	type W - E
Steinen	type Q - H
Danfoss	type H - S

**2 PUMP PRESSURE**

**12 bar:** the pump leaves the factory set at this value.

**14 bar:** improves flame retention; it is therefore suitable for ignitions at low temperatures.

### 3 AIR DAMPER ADJUSTMENT

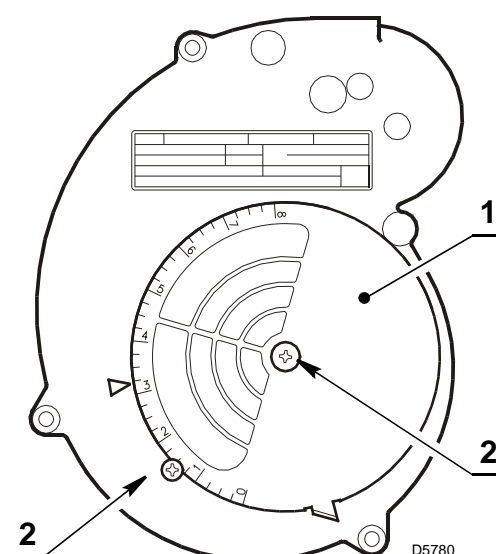
The regulation of the air-rate is made by adjusting the air damper **(1)**, after loosening the screws **(2)**.

When the optimal regulation is reached, **screw tight the screws (2)**.

The settings indicated in the schedule are purely indicative.

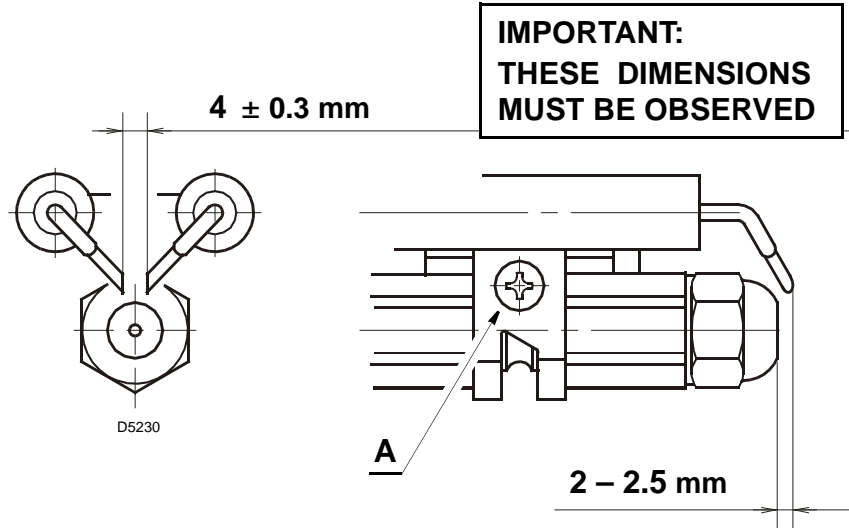
Each installation however, has its own unpredictable working conditions: actual nozzle output; positive or negative pressure in the combustion-chamber, the need of excess air, etc.

All these conditions may require a different air-damper setting.



ELECTRODE SETTING

**Attention:**  
Before removing or assembling the nozzle, loosen the screw **(A)** and move the electrodes ahead.



START-UP CYCLE





说明书的相关信息

引言

- 说明书随燃烧器一起提供：
- 它是产品不可或缺的组成部分，不得将其与产品分离；因此必须小心保存以便查阅，如果将燃烧器转给另一个用户或转移至另一个系统，则说明书必须跟随燃烧器一起转移。如果说明书损坏或丢失，则必须从您就近的 **RIELLO** Technical Assistance Centre（技术支持中心）索取说明书的复印件；
  - 说明书只能由有资格的人员使用；
  - 说明书提供了有关燃烧器安装、启动、使用和维护的重要指示和安全警告。

系统和说明书的交付

- 一旦交付系统：
- 系统制造商也必须将说明书交付给用户，并建议其将说明书保存在热发生器的安装区域附近。
  - 说明书上显示：
    - 燃烧器的序列号：

.....
    - 最近 Assistance Centre（支持中心）的地址和电话号码：

.....

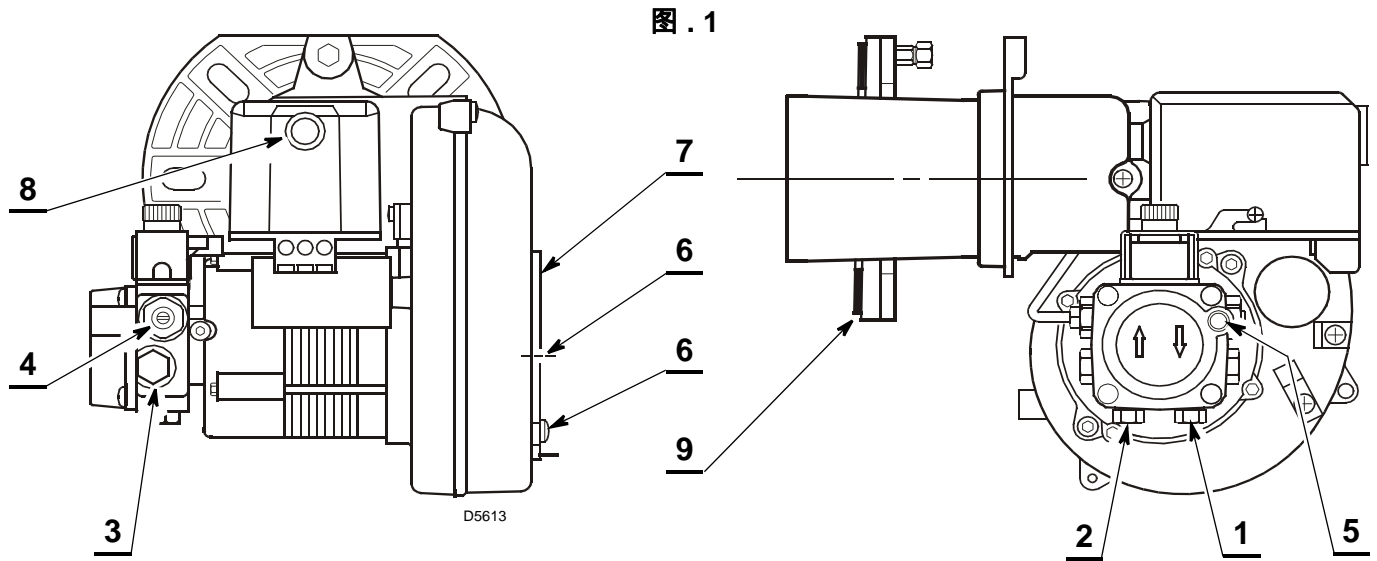
.....

.....
  - 系统制造商必须告知用户有关以下内容的准确信息：
    - 系统的使用；
    - 启动系统前需要进行的测试；
  - 必需的维护和检查（每年必须由制造商代表或别的专业技术人员至少检查系统一次）。
- 要保证定期检查，**RIELLO** 建议遵照 Maintenance Contract（维护合同）的规定。

技术数据

出力 – 热功率	19 – 35 kW – 1.6 – 3 kg/h
燃料	轻油，20 °C 时的最大粘度：6 mm <sup>2</sup> /s (1.5 °E)
电源	单相，230V ± 10% ~ 50Hz
电机	运行电流 0.70 A – 2850 rpm – 298 rad/s
电容	4 μF
点火变压器	次级 8 kV – 16 mA
油泵	压力 7 – 15 bar
消耗电功率	0.115 kW

- ▶ 燃烧器带 CE 标志，符合 EEC 指令：EMC89/336/EEC 以及效率指令 92/42/EEC。
- ▶ 燃烧器经测试，符合 EN 60335 / EN 50165 标准。  
为了满足上述要求，需要在设备外安装一个保护罩或将燃烧器安装在锅炉保护罩下。保护罩使用工具即可拆下。



- 1 – 回油管路
- 2 – 进油管路
- 3 – 压力表表座
- 4 – 油泵压力调节器
- 5 – 真空计表座
- 6 – 安装风门挡板用螺丝
- 7 – 风门挡板
- 8 – 锁定指示灯及复位按钮
- 9 – 法兰与隔热垫

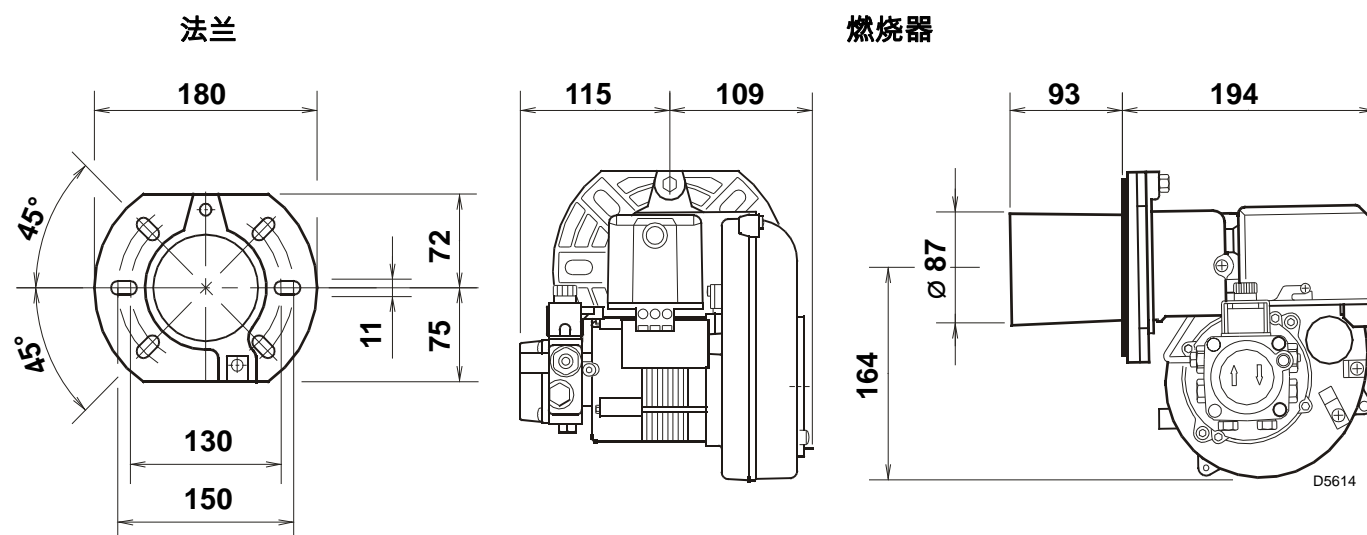
燃烧器配置

数量	描述
2	带接口的软管
1	法兰与隔热垫
2	法兰用螺丝和螺母
1	电缆接头
1	法兰用的螺丝，配 2 个螺母

## 出力范围



## 外观尺寸

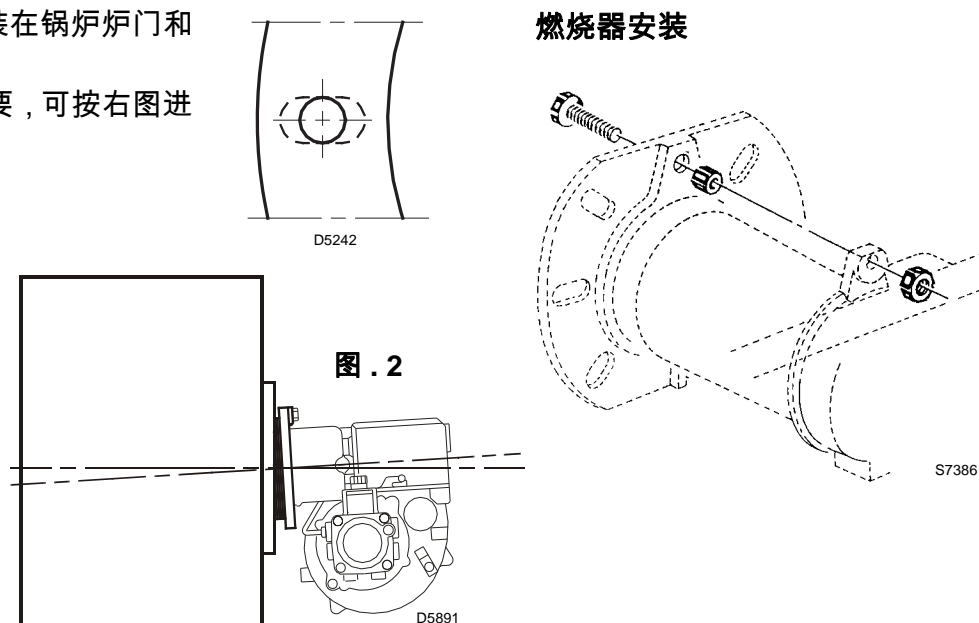


## 安装燃烧器

必须将隔热垫 (9, 图 . 1) 安装在锅炉炉门和燃烧器法兰之间。

此隔热垫上有六个孔, 如需要, 可按右图进行更改。

检查确认已安装好的燃烧器稍稍向按钮倾斜。  
(见 图 . 2)。



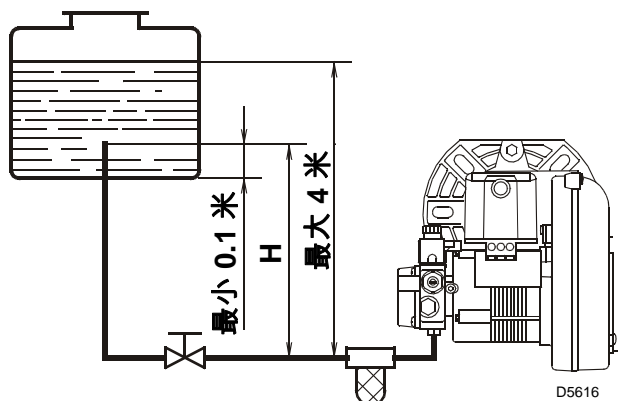
## 油管路系统

**警告：** 启动燃烧器前，必须确认回油管路没有堵塞：任何堵塞都有可能破坏油泵的密封性。

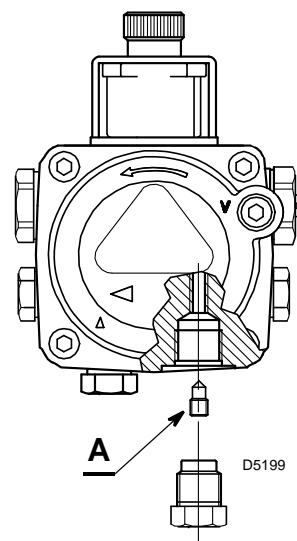
### 警告

油泵使用双管路系统。

如果使用单管路系统时，必须**移除旁路螺丝 (A)**, ( 见图 )。



H 米	L 米	
	I. D. 8 毫米	I. D. 10 毫米
0.5	10	20
1	20	40
1.5	40	80
2	60	100



### 启动油泵

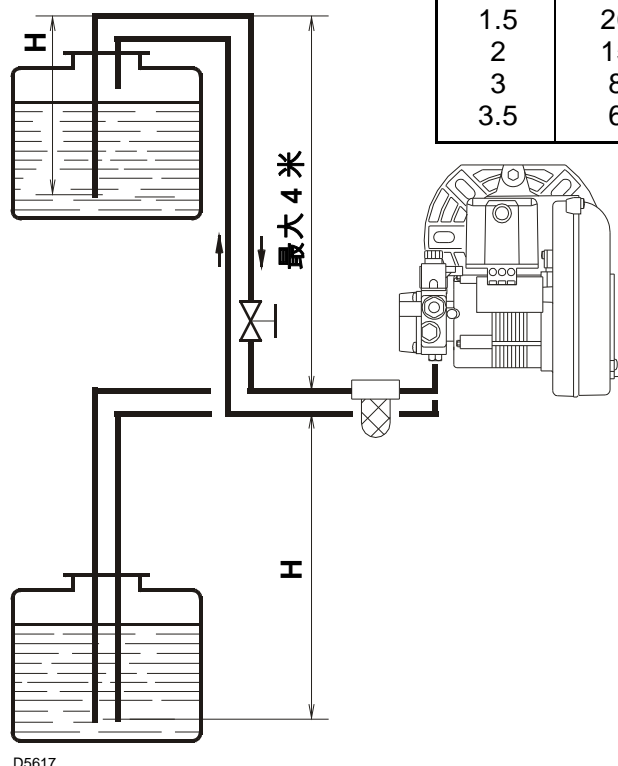
拔下真空计表座堵头 (5, 图 . 1, 页 1) , 等待直至燃油流出。

H = 高度差

L = 进油管最大长度

I.D.= 管路内径

H 米	L 米	
	I. D. 8 毫米	I. D. 10 毫米
0	35	100
0.5	30	100
1	25	100
1.5	20	90
2	15	70
3	8	30
3.5	6	20



油泵真空度最大不得超过 0.4 bar (30 cm Hg)。

真空度过高会发生燃油汽化，油泵启动噪音大，且会降低油泵寿命。

**油管必须完全密封，达到气密水平。**

**回油管末端高度应与进油管高度相同；**这样就不需使用止回阀。

如果回油管末端高度超过进油管高度，则必须使用止回阀。

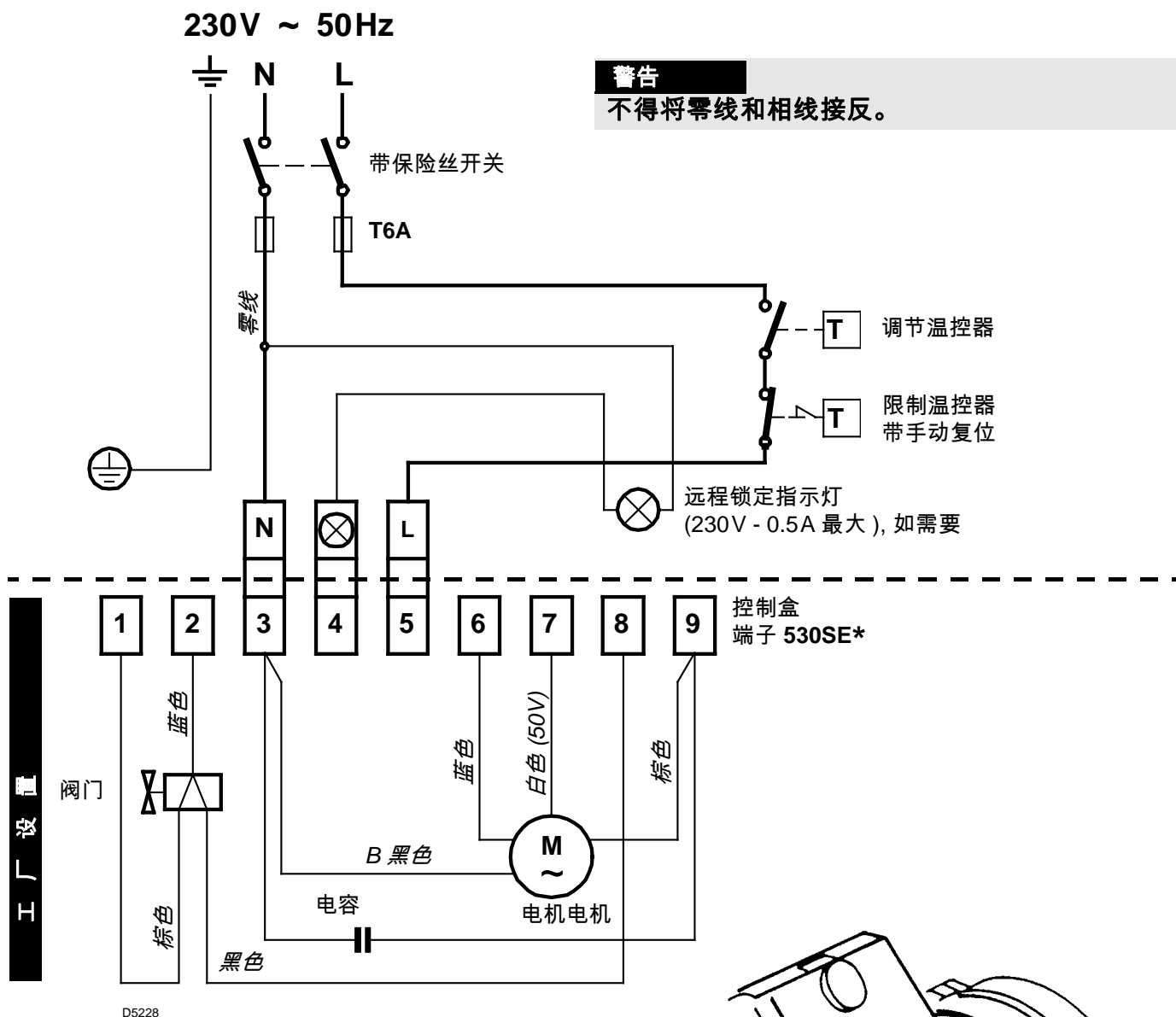
相比较而言，后一种方法安全性差，因为阀门有可能泄漏。

### 启动油泵

启动燃烧器，等待油泵启动。如果在燃油进入油泵前燃烧器锁定，请等待至少 20 秒后，再重新操作。

进油管路上必须安装一个过滤器。

## 电气连接

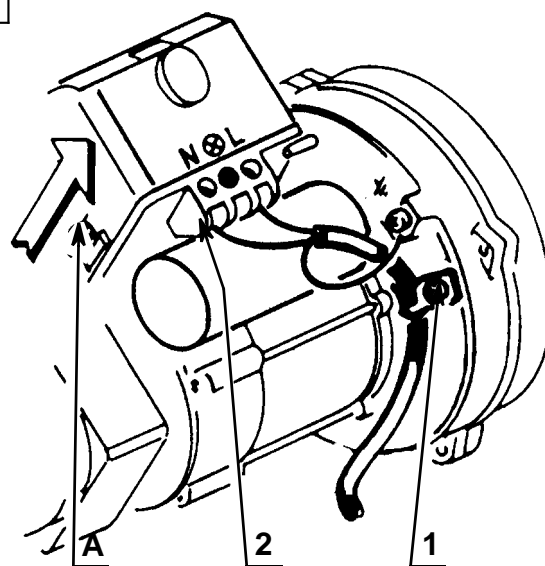


### 注意

- 截面积为 1 mm<sup>2</sup> 的导线。
- 安装人员进行电气连接必须符合安装地的强制标准。
- 要从燃烧器上拆下控制盒，首先拧松螺丝 (A) (见图)，然后按照箭头所指方向拉出控制盒。
- 光敏电阻直接安装在控制盒内的一个插件支架上 (位于点火变压器下面)。

### 测试

断开温控器检查燃烧器是否停机。



### 电缆

- 1 - 电缆夹
- 2 - 接线端子

- N - 零线
- L - 相线
- ⏏ - 燃烧器接地

## 燃烧调整

安装在锅炉上的燃烧器必须符合效率指令 92/42/EEC，且必须按照锅炉手册进行调整和测试，包括检验烟气中的 CO 和 CO<sub>2</sub> 浓度、温度以及锅炉内的平均水温。

为了满足所需出力，需要根据下表选择适合的喷嘴、调整油泵压力以及风门挡板开度。

喷嘴 1		油泵压力 2	燃烧器出力	风门挡板调节
GPH	角度	bar	kg/h $\pm$ 4%	设定点
0.40	60°	12	1.6	1.95
0.50	60°	12	2.0	2.2
0.60	60°	12	2.4	2.8
0.65	60°	12	2.6	3.2
0.65	60°	12	3.0	4.5

### 1 推荐喷嘴

Monarch 型号 R - NS  
Delavan 型号 W - E  
Steinen 型号 Q - H  
Danfoss 型号 H - S

### 2 油泵压力

**12 bar:** 油泵出厂时所设定的压力值。

**14 bar:** 需要在低温时点火，为了加强火焰的稳定性。

### 3 风门挡板调节

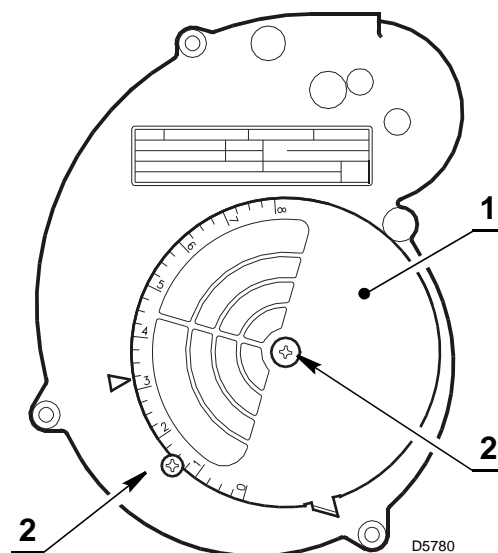
拧松螺丝 (2) 后，通过风门挡板 (1)，对风量进行调节。

当达到最优调节时，拧紧螺丝 (2)。

表中所给设定值仅供参考。

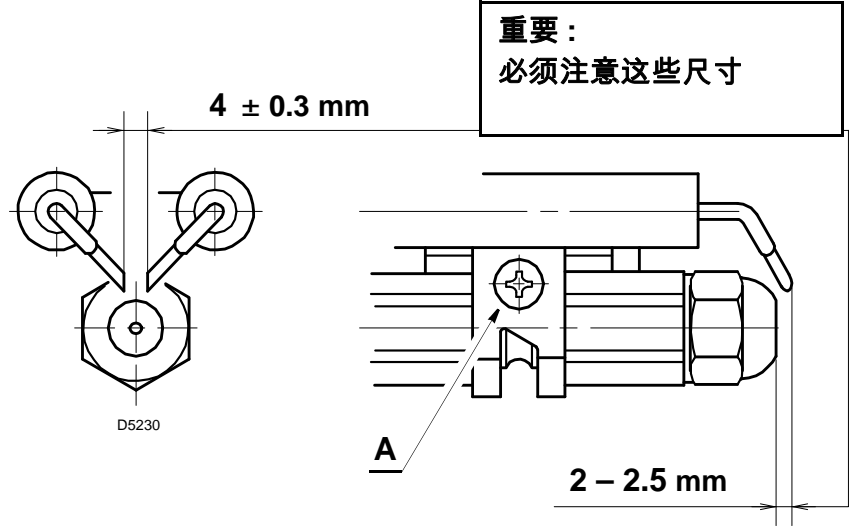
因为任何安装都有其具体的工作条件：如实际的喷嘴出力；炉膛内的正压和负压；需要过量空气，等等。

以上所有条件都有可能需要对风门挡板进行不同的设定。

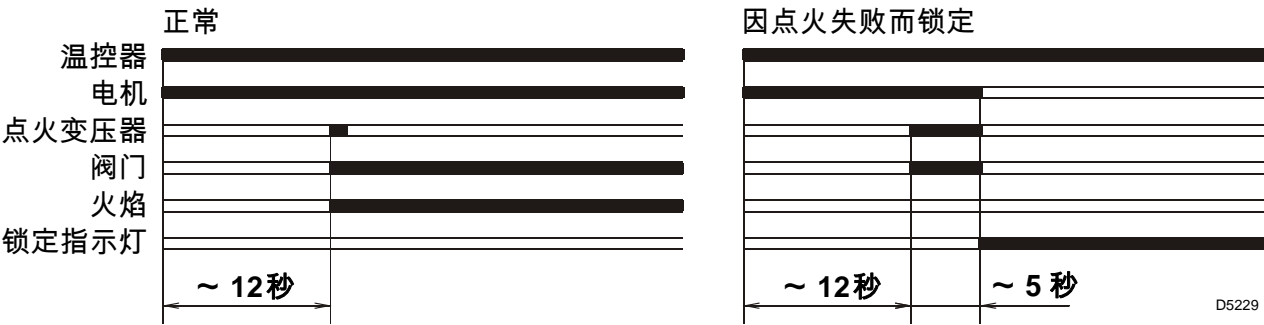


电极设置

注意：  
拧松螺丝 (A) 且移动电极后方可拆卸  
或安装喷嘴。



启动周期





Registered Office - 公司注册所在地：  
RIELLO S.p.A.  
I-37045 Legnago (VR)  
Tel.: +39.0442.630111  
[http:// www.riello.it](http://www.riello.it)  
[http:// www.rielloburners.com](http://www.rielloburners.com)

Manufacturing site:  
Riello Heating Equipment (Shanghai) CO., LTD  
No. 388, Jinbai Road - Jinshan Industrial Zone  
201506 - Shanghai  
CHINA

生产场所：  
Riello Heating Equipment (Shanghai) CO., LTD  
利雅路热能设备（上海）有限公司  
上海市金山工业区金百路 388 号