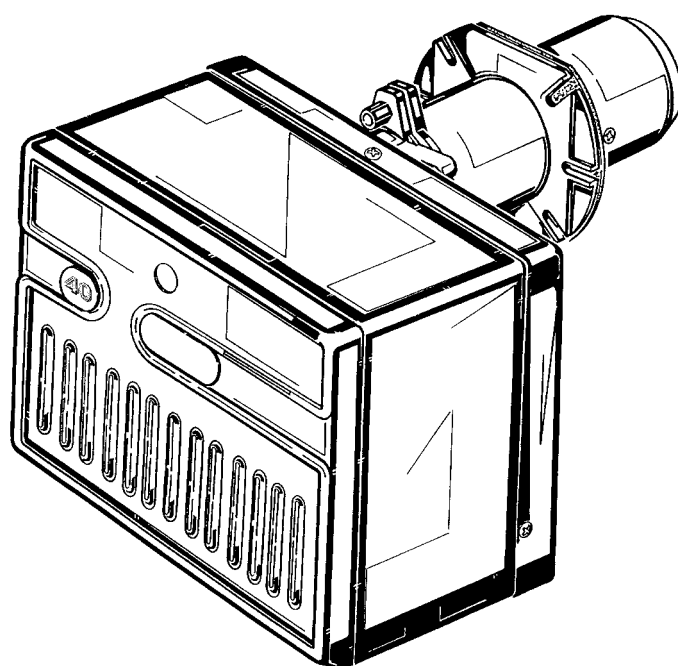


GB **Forced draught gas burner**

CN **强制通风燃气燃烧器**

One stage operation
一段火运行



RIELLO 40

CODE - 编码	MODEL - 型号	TYPE - 类型
20013631	GS5	552T1

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;
-

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.....
- 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.

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 Technical Assistance Centre (技术支持中心) 索取说明书的副本 **RIELLO**;
 - 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;
-

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.....
- 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。

TECHNICAL DATA

TYPE		552T1
Thermal power		18 – 58 kW – 15,500 ÷ 50,000 kcal/h
Natural gas (Family 2)	Pci	8 – 12 kWh/Nm ³ – 7.000 ÷ 10.340 kcal/Nm ³
	Pressure	min. 10 mbar – max. 40 mbar
Electrical supply		Single phase, 230 V ± 10% ~ 50Hz/60Hz
Motor		0.75 A run current - 2800 rpm. - 294 rad/s
Capacitor		2 µF
Ignition transformer		primary 230 V / 0.2 A – secondary 8 kV
Absorbed electrical power		0.15 kW

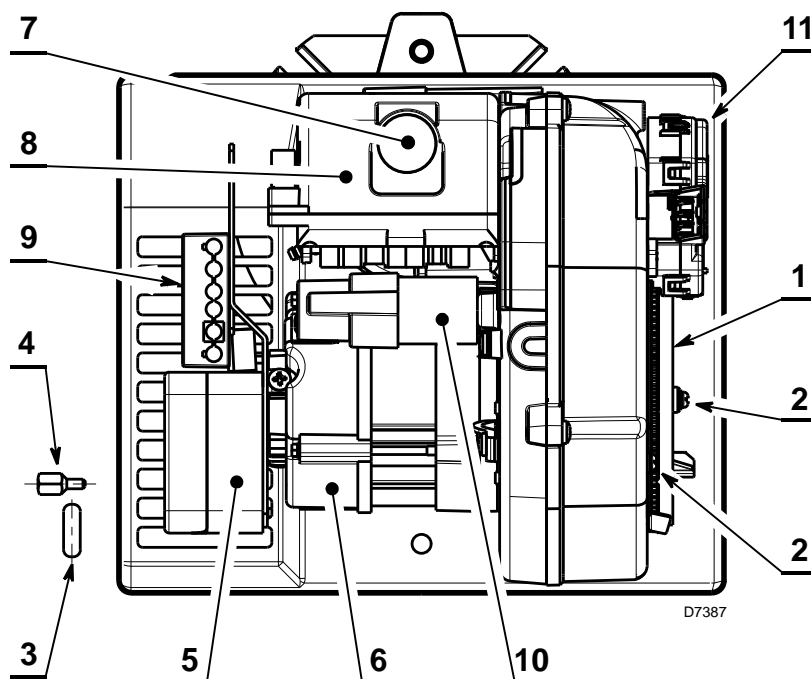
For gas family 3 (LPG) ask for separate kit.

COUNTRY	DE	DK - AT - GR - SE	GB - IE	LU	NL
GAS CATEGORY	I12ELL3B/P	I12H3B/P	I12H3P	I12E3B/P	I12L3B/P

- The burner meets protection level of IP X0D (IP 40) as EN 60529.
- The burner is approved for intermittent operation as per Directive EN 676.
- Burner with CE marking in conformity with EEC Directives: EMC 89/336/EEC - 2004/108/EC, Low Voltage 73/23/EEC - 2006/95/EC, Machines 98/37/EEC and Efficiency 92/42/EEC.
- Gas train according to EN 676.

Fig. 1

- 1 – Air dampers
- 2 – Damper fixing screws
- 3 – Grommet
- 4 – Hood fixing screw
- 5 – Air pressure switch
- 6 – Motor
- 7 – Lockout light with reset button
- 8 – Control box
- 9 – 6 pole socket for gas train
- 10 – Capacitor
- 11 – Air damper opening motor



NOTE

The grommet (3) and the hood fixing screw (4), supplied as accessories, should be assembled on the same side as the gas train.

BURNER EQUIPMENT

Quantity	Description
4	Screws with nuts
1	Insulating gasket
3	Screws for fixing the fairing
1	Grommet
1	Hinge
1	7 pin plug

ACCESSORIES

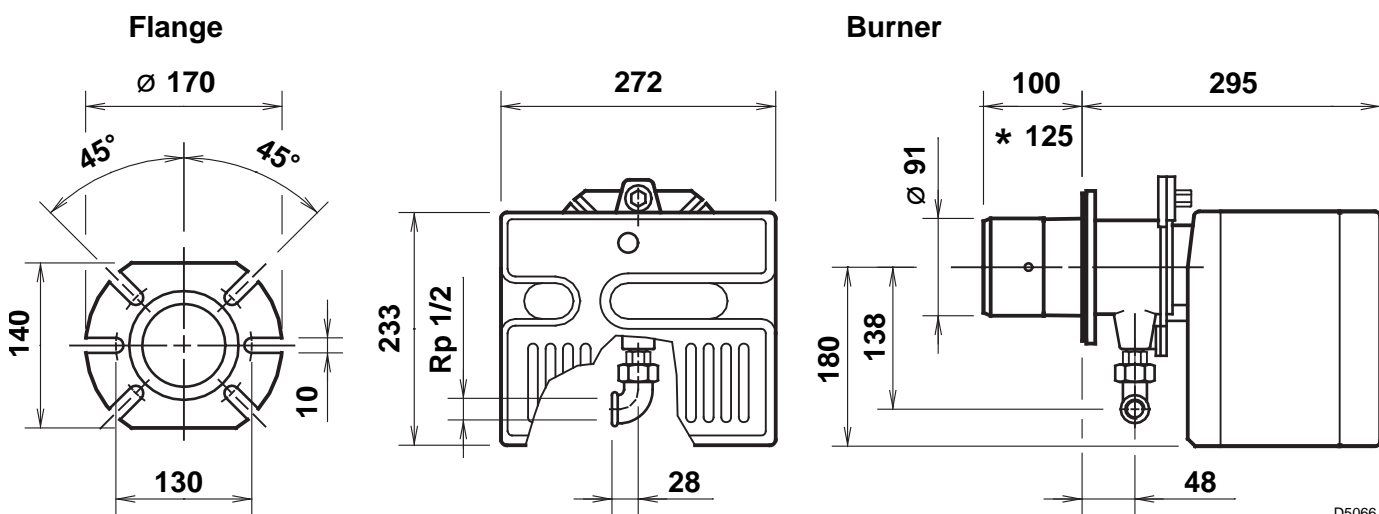
SOFTWARE DIAGNOSTIC KIT

A special kit is available that, by an optical link to a PC, shows the burner life together with operating hours, type and number of lockout, serial number, etc...

Do the following to display the diagnostic:

- Connect the kit supplied separately to the appropriate socket on the control box.
The information is read after the software program in the kit is booted.

DIMENSIONS



* Long combustion head upon request

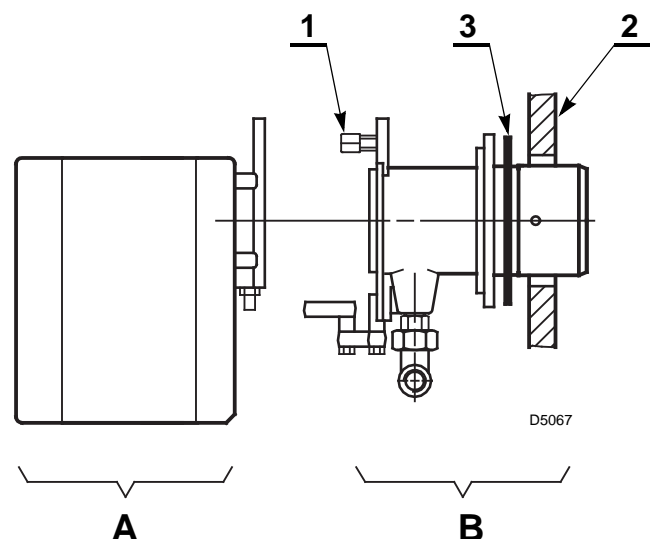
RESET KIT

The use of a connection available as an accessory is provided for remote resetting of the control box.

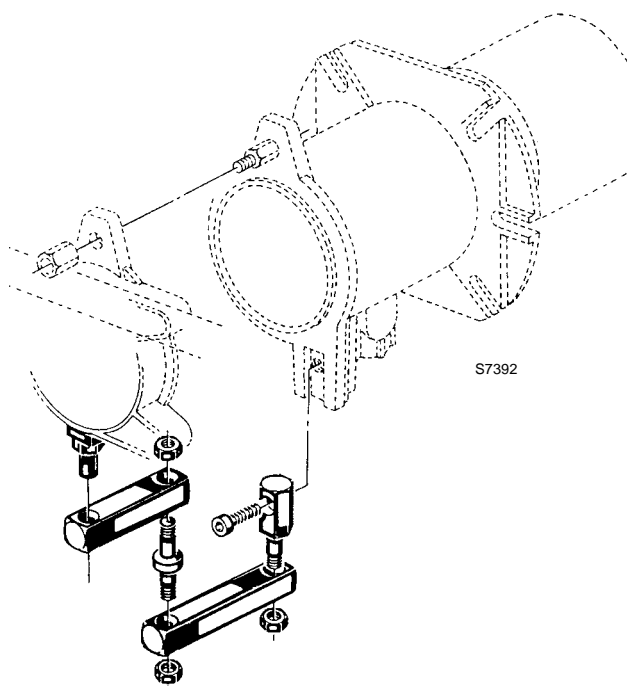
BOILER FIXING

Separate the combustion head from the burner body by removing the nut (1) and pulling back the group **(A)**.

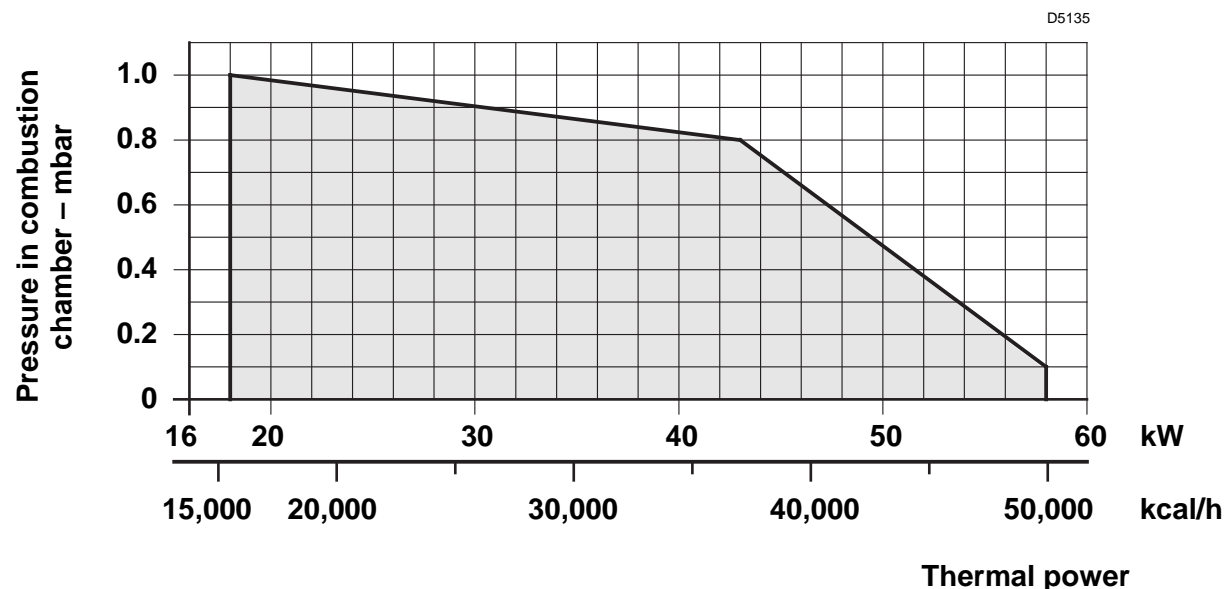
Fix the group **(B)** to the boiler plate (2), inserting the supplied insulating gasket (3).



HINGE ASSEMBLY



FIRING RATE



TEST BOILER

The firing rate has been defined according to EN 676 standard.

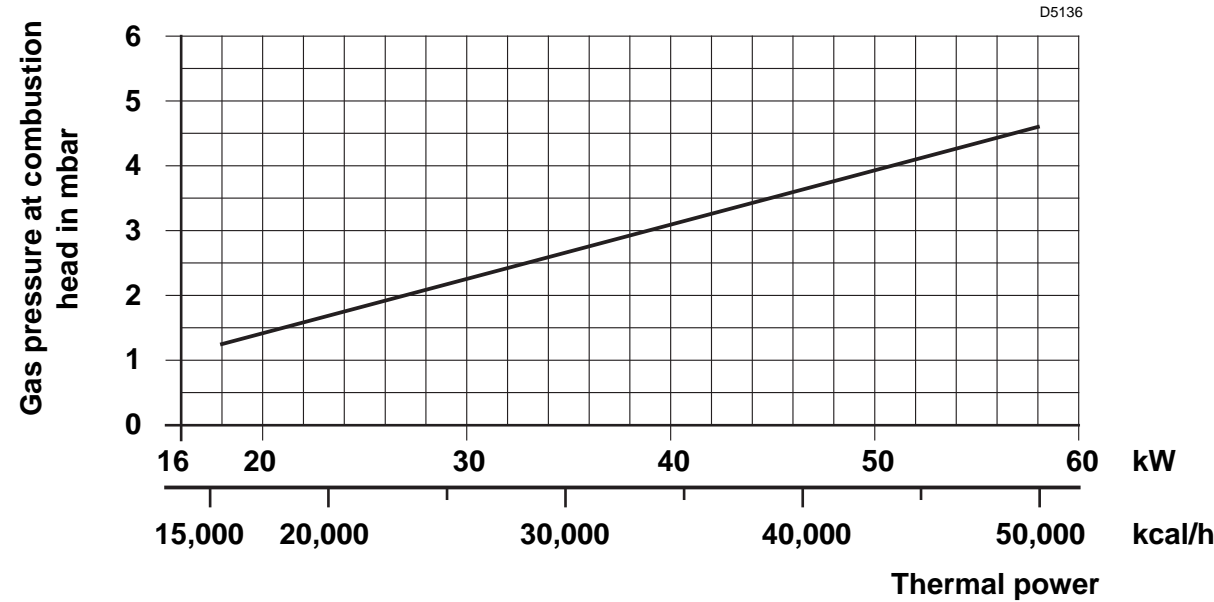
COMMERCIAL BOILERS

The burner-boiler matching is assured if the boiler conforms to EN 303 and the combustion chamber dimensions are similar to those shown in the diagram EN 676.

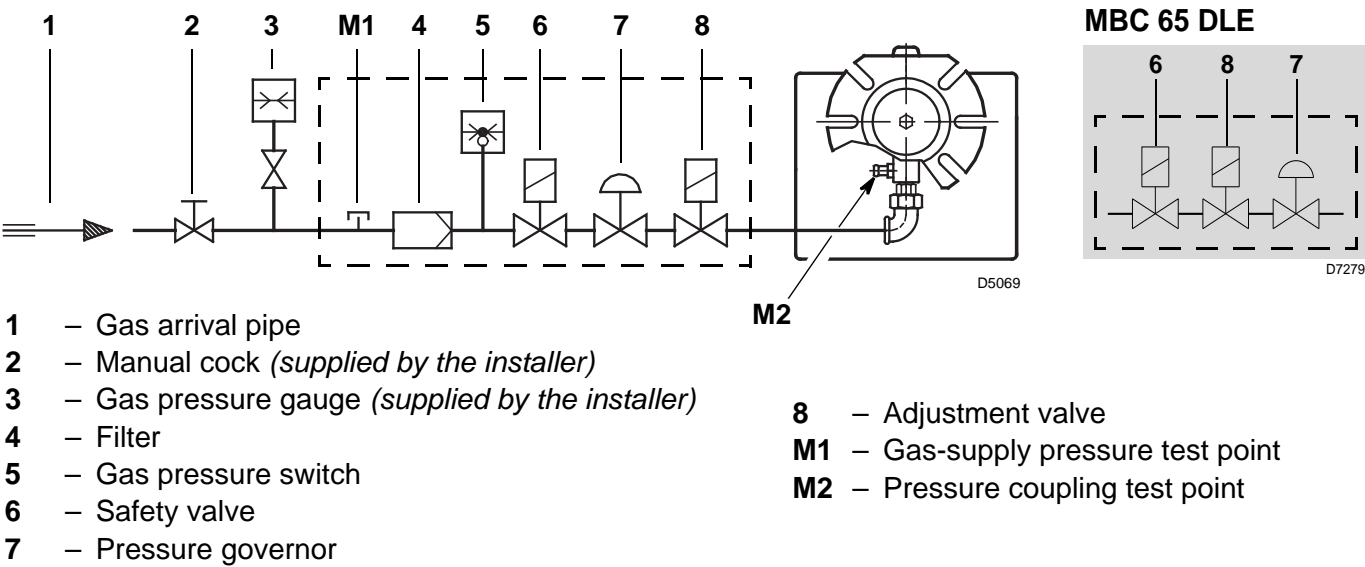
For applications where the boiler does not conform to EN 303, or where the combustion chamber is much smaller than the dimensions given in EN 676, please consult the manufacturers.

CORRELATION BETWEEN GAS PRESSURE AND BURNER OUTPUT

To obtain the maximum output, it is necessary to have 4.6 mbar measured on the pipe coupling, with the combustion chamber at 0 mbar and gas G20 - Pci = 10 kWh/Nm³ (8,570 kcal/Nm³).



GAS FEEDING LINE



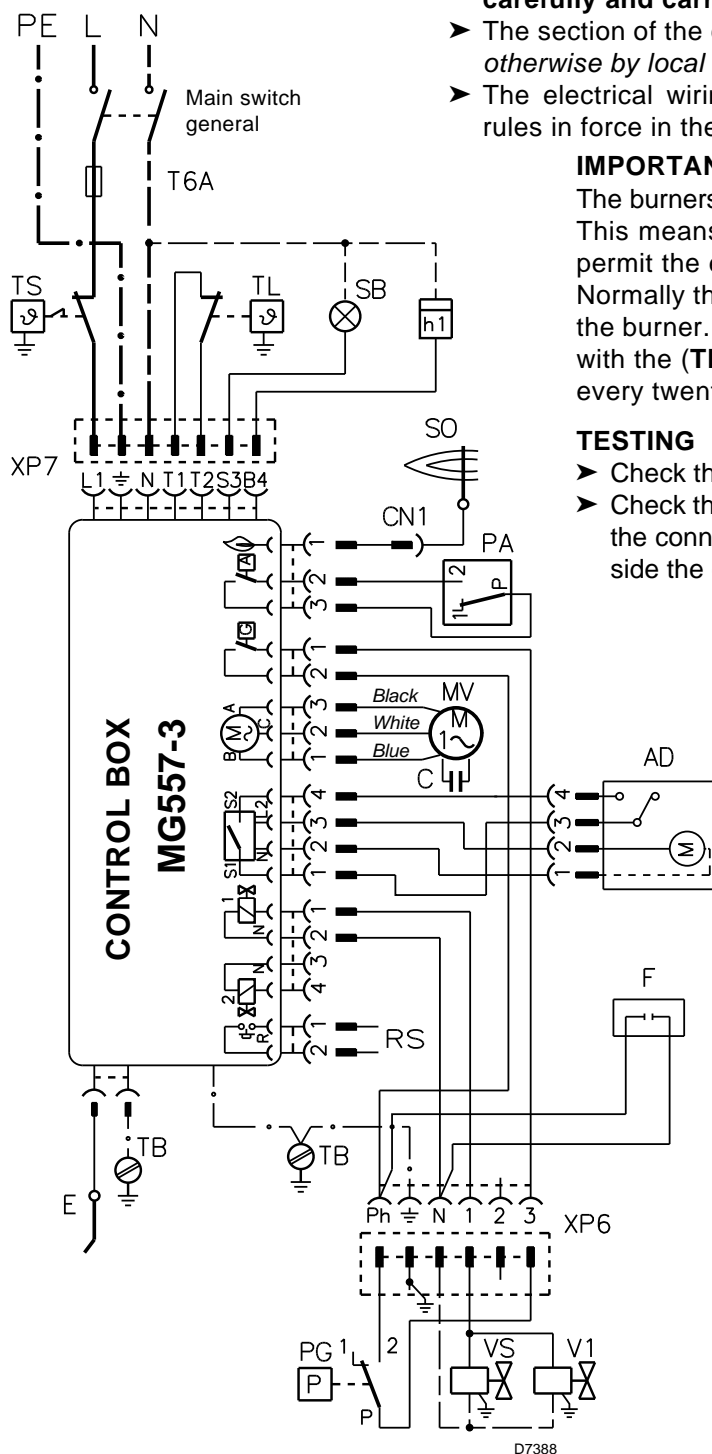
GAS TRAIN ACCORDING TO EN 676

MULTIBLOC	CODICE	CONNECTIONS		USE
		TRAIN	BURNER	
MBC 65 DLE	3970569	Rp 1/2	Rp 1/2	Natural gas and LPG
MBDLE 405 B01	3970530	Rp 1/2	Rp 1/2	Natural gas and LPG

The gas train is supplied separately, for its adjustment see the enclosed instructions.

ELECTRICAL WIRING

~ 50Hz 230V



WARNING:

- Do not swap neutral and phase over, follow the diagram shown carefully and carry out a good earth connection.
- The section of the conductors must be at least 1 mm². (Unless requested otherwise by local standards and legislation).
- The electrical wiring carried out by the installer must comply with the rules in force in the country.

IMPORTANT

The burners have been approved for intermittent operation. This means that they must stop once every twenty four hours to permit the electrical control box to check its efficiency at start up. Normally the boiler's limit thermostat (TL) ensures the stopping of the burner. If this is not the case, it is necessary to apply in series with the (TL) a timer switch that turns off the burner at least once every twenty-four hours.

TESTING

- Check the burner has stopped by opening the hermostats.
- Check that the burner has locked out during operation by opening the connector (CN1) inserted in the probe's red wire, located outside the control box.

CONTROL BOX, (see fig. 2)

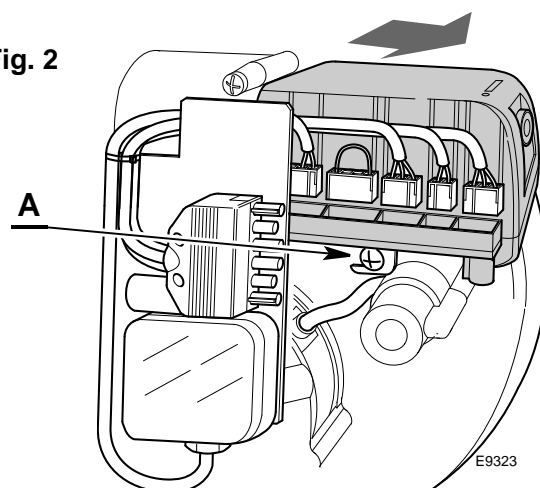
To extract the control box from the burner it is necessary:

- to disconnect all the connectors connected to it, the 7 pin plug, and the earth wire (TB);
- undo the screw (A) and pull out the control box in the direction of the arrow.

For the installation of the control box it is necessary:

- to tighten up the screw (A) with a tightening torque of 1 – 1.2 Nm;
- connect all the connectors that were previously connected.

Fig. 2



KEY TO LAYOUT

AD – Air damper opening motor
C – Motor capacitor
CN1 – Ionising probe connector
E – Ignition electrode
h1 – Hour counter (230V - 0.1A max.)
MV – Fan motor

PA – Air pressure switch
PG – Minimum gas pressure switch
RS – Remote reset conn.
SB – Lockout light (230V - 0.5A max.)
SM – Single stage gate conn.
SO – Probe ionisation
TB – Burner earth

TL – Limit thermostat
TS – Safety thermostat
T6A – Fuse
V1 – Adjustment valve
VS – Safety valve
XP6 – 6 pin plug/socket
XP7 – 7 pin plug socket
F – Filter

COMBUSTION HEAD ADJUSTMENT

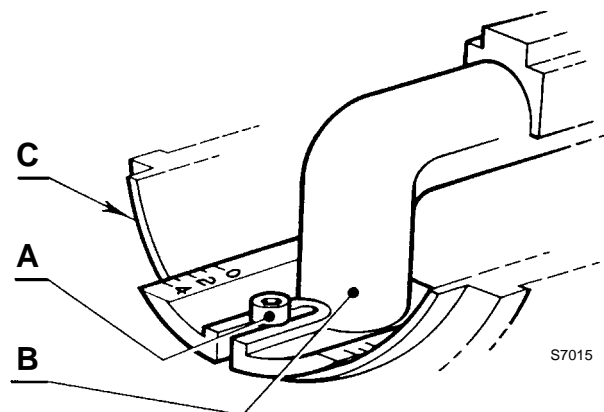
Loosen the screw (A), move the elbow (B) so that the rear plate of the coupling (C) coincides with the set point.

Tighten the screw (A).

Example:

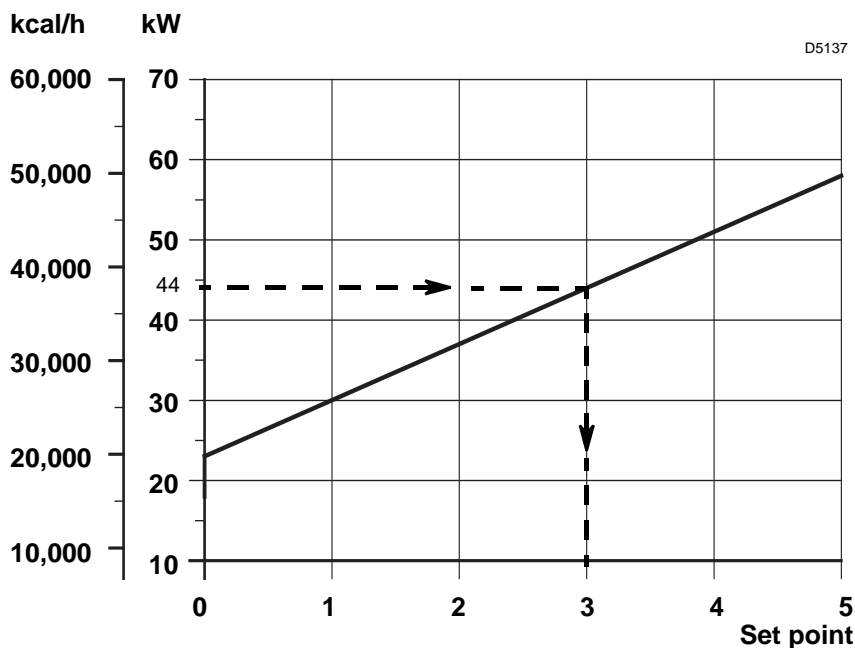
The burner is installed in a 40 kW boiler.

Considering efficiency of 90% the burner must supply around 44 kW.



The diagram shows that for this output the adjustment must be made on notch 3.

The diagram is to be used only for initial settings, to improve air pressure switch operation or improve combustion, it may be necessary to reduce this setting (set point toward position 0).



AIR DAMPER ADJUSTMENT

The air damper opening motor (1) controls the damper (6); the burner does not start until the damper (6) is completely open.

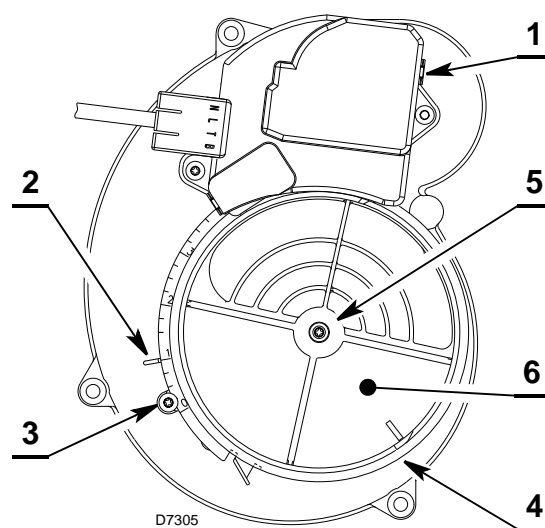
To adjust the fixed damper (4) it is necessary to:

- loosen the screws (3 and 5) and rotate the damper as far as the required point (2).
- Once optimum adjustment has been reached, fix the screws (3 and 5).

The adjustment of the damper varies in each single application, so it is necessary to use a calibration tool to obtain an efficient combustion result.

Important:

It is advisable to carry out an analysis of the combustion values with the hood assembled.



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 by observing the instruction manual of the boiler, including verification of the CO and CO₂ concentration in the flue gases, their temperatures and the average temperature of the water in the boiler. It is advisable to set the burner according to the type of gas used and following the indications of the table:

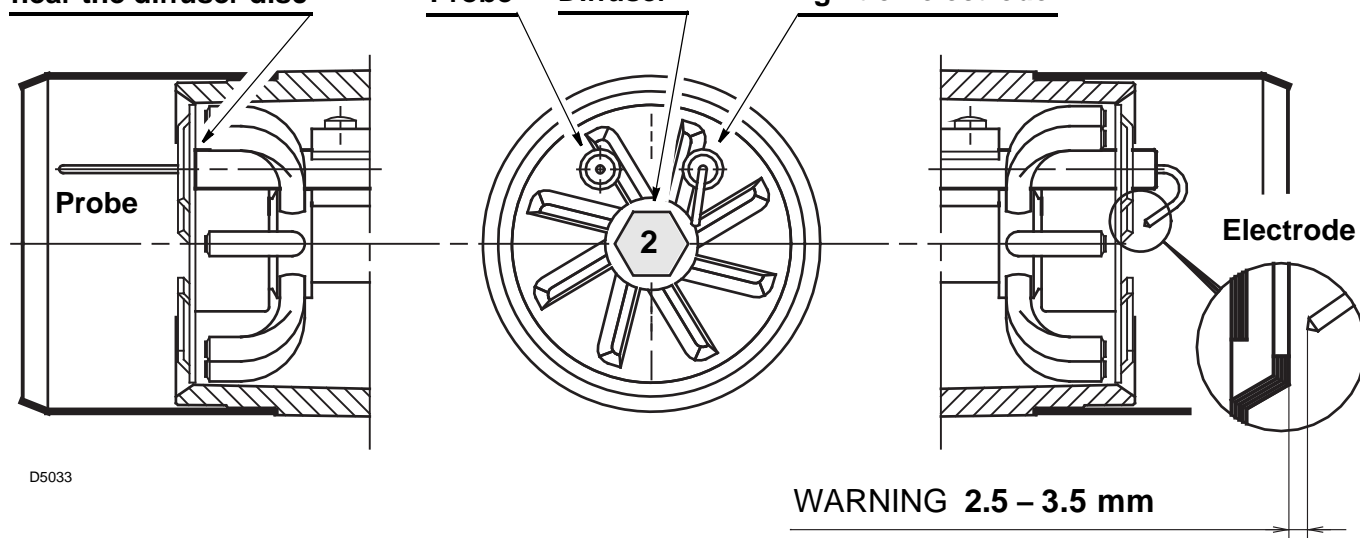
EN 676		AIR EXCESS: max. output $\lambda \leq 1.2$ – min. output $\lambda \leq 1.3$			
GAS	Theoretical max. CO ₂ 0 % O ₂	Setting CO ₂ %		CO mg/kWh	NO _x mg/kWh
		$\lambda = 1.2$	$\lambda = 1.3$		
G 20	11.7	9.7	9.0	≤ 100	≤ 170
G 25	11.5	9.5	8.8	≤ 100	≤ 170
G 30	14.0	11.6	10.7	≤ 100	≤ 230
G 31	13.7	11.4	10.5	≤ 100	≤ 230

PROBE - ELECTRODE POSITIONING

IMPORTANT

Do not turn the starting electrode but leave it as shown in the drawing; if the starting electrode is put near the ionization probe, the amplifier of the control box might be damaged.

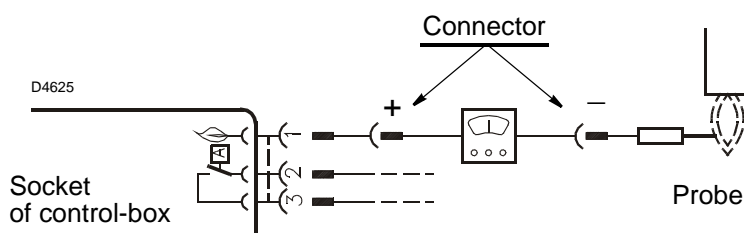
Put the ceramic
near the diffuser disc



IONISATION CURRENT

The minimum current necessary for the control box operation is 5 μ A.

The burner normally supplies a higher current value, so that no check is needed. Should you want to measure the ionisation current anyway, you must open the connector (CN1) (see wiring diagram page 5) inserted in the red wire and insert a microammeter.



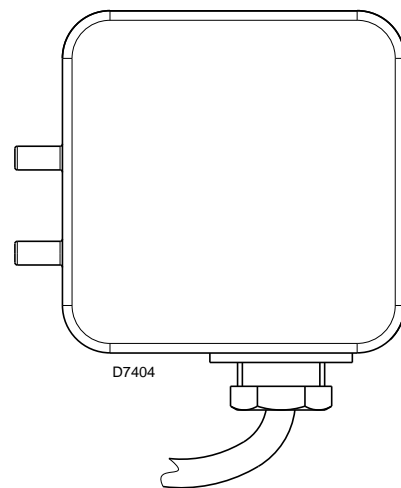
AIR PRESSURE SWITCH

The air pressure switch is set after all other adjustments have been made. Begin with the switch at the lowest setting. With the burner function at the required power, turn the knob slowly in a clockwise direction until burner lockout.

Then turn the knob anticlockwise to an extent that is around 20% of the adjusted value and then check that the burner starts up properly. If the burner locks out again turn the knob slightly in an anticlockwise direction.

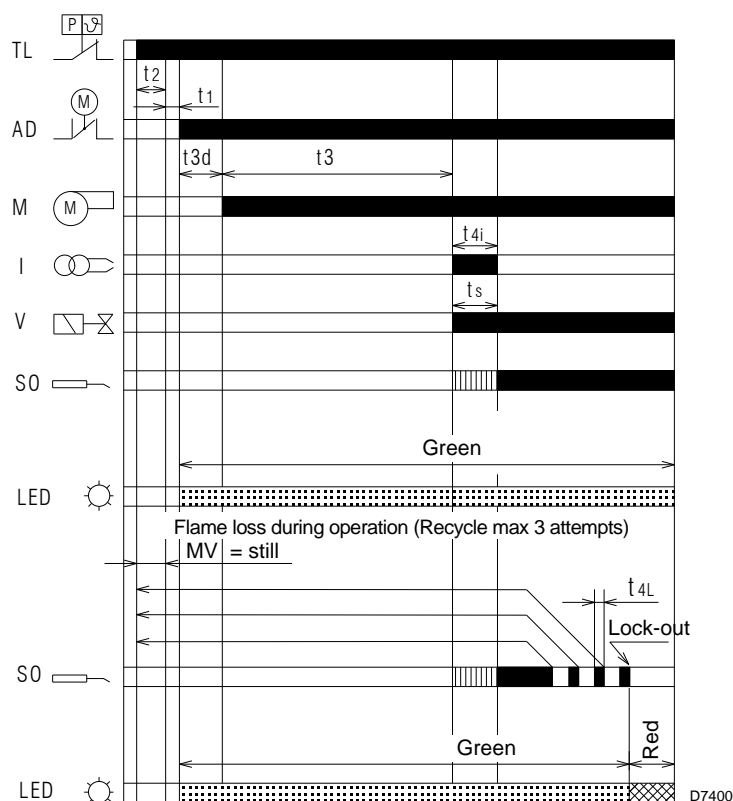
Attention:

In conformity with the standard, the air pressure switch must prevent the air pressure falling below 80% of the adjusted value and the CO in the flue gases exceeding 1% (10,000 ppm). To check this, insert a combustion analyser in the flue, slowly reduce the burner air setting (for example with a piece of cardboard) and verify that the burner locks out before the CO value in the flue gases exceeds 1%.



OPERATING PROGRAMME

NORMAL OPERATION



KEY TO LAY-OUT

- I** – Ignition transformer
- LED** – Reset button LED indicating operating status
- M** – Fan motor
- SO** – Ionisation probe
- TL** – Limit thermostat
- V** – Gas valve
- AD** – Air damper opening motor

- Red (LED lights)
- Green (LED lights)
- No signal needs to be received

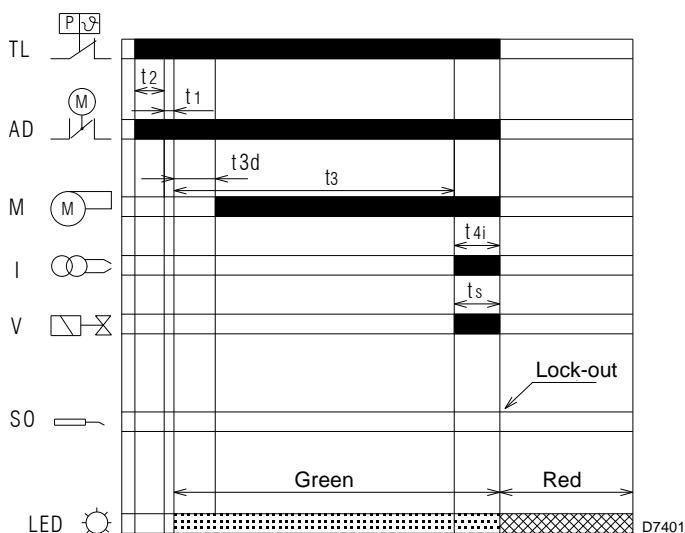
OPERATING TIMES (in seconds)

t1, t3l, t4l, t4a	t2l	t2, t4i	t2a	t3	t3a	t3d	t3r	ts	t6
max	max	-	-	-	max	-	max	-	max
1	30	3	120	40	15	4	70	3	360

t1	Standby time pending an input signal to control box: reaction time, the control box stands still for the time t1 .
t1l	Flame or flame simulation detected before demand for heat: the appliance stands still.
t2	Wait time after a request for heat: the control box stays still for the t2 time.
t2a	Check whether the air pressure switch has already been moved to the work position before the required heat: the control box remains in standby status, a lockout follows if the air pressure switch remains switched for the T2a time.
t2l	Flame or flame simulation detected before during standby time: lockout occurs if flame or flame simulation persists for time t2l .
t3	Pre-purging time: start of the fan motor.
t3a	Time for checking the switching of the air pressure switch in the operating position during the pre-purging time: if the pressure switch does not switch within t3a a lockout follows.
t3d	Opening time of air damper opening motor: time to reach the opening position of the electrical damper.

t3l	Flame or flame simulation detected during pre-purging: immediate lockout.
t3r	A recycle attempt is made in the event of a pressure drop during pre-ventilation: in the case of a second air pressure drop between the 16th and 29th second another lockout follows; if there is a pressure drop between the 30th second and 40th second, the appliance immediately goes into lockout.
ts	Safety time: if at the end of the ts time there is no flame, a lockout follows.
t4a	Air pressure drop checking time during the ts time and the normal operation: the control box locks out immediately.
t4i	Transformer turn on time: total ignition time.
t4l	Flame loss in operation: valve drop maximum reaction time, lockout occurs after 3 recycle attempts.
t6	Post-purging time: additional purging time on the opening of the heat limit thermostat (TL)

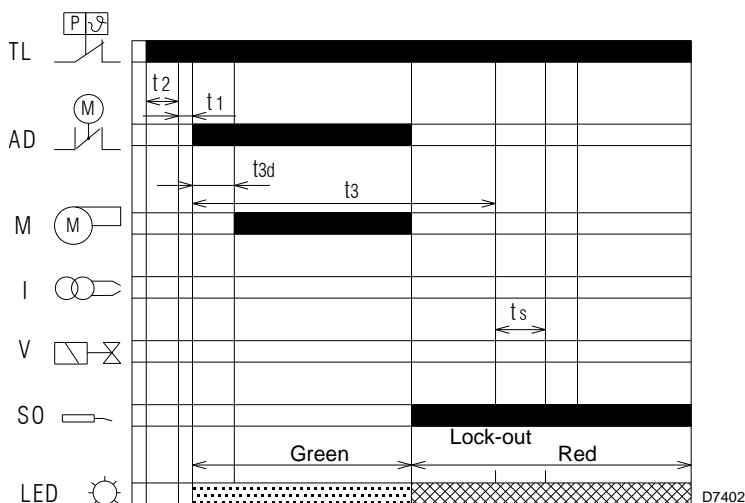
LOCKOUT DUE TO FIRING FAILURE



Red (LED lights)

Green (LED lights)

LOCKOUT DUE TO A FLAME OR FLAME SIMULATION DETECTED DURING PRE-PURGING:



KEY TO LAY-OUT

- I – Ignition transformer
- LED – Reset button LED indicating operating status
- M – Fan motor
- SO – Ionisation probe
- TL – Limit thermostat
- V – Gas valve
- AD – Air damper opening motor

Red (LED lights)

Green (LED lights)

OPERATING TIMES (in seconds)

t1, t3l, t4l, t4a	t2l	t2, t4i	t2a	t3	t3a	t3d	t3r	ts	t6
max	max	-	-	-	max	-	max	-	max
1	30	3	120	40	15	4	70	3	360

LOCKOUT TYPES AND TRIGGERING TIMES IN CASE OF BURNER MALFUNCTION

DESCRIPTION OF THE FAULT TYPES	LOCKOUT
Presence of flame during the waiting time "t2"	After max. 30 seconds (after TL)
Presence of flame in pre-purging or loss of air pressure on functioning	Within 1 second
Air pressure loss during pre-ventilation;	After a maximum of 1 repetition within one second
No ignition at the end of the safety time "ts"	Within three seconds
Flame goes out during operation	After a maximum of 3 repetitions within one second
Air pressure switch broken before or after the burner starts up	Within 120 seconds, within 15 seconds

COLOUR CODE OF THE CONTROL BOX RESET BUTTON LED

Operating status	LED colour codes	
Wait	○	Led unlit
Pre-purging	●	Green
Transformer turn on	●	Green
Regular flame	●	Green
Post-purging	●	Green
Recycle	●	Green
Continuous purging(*)	●	Green
Flame present during start up	○	Led unlit
Lock-out	●	Red
Lockout with continuous purging (*)	● ●	Red + Green

(*) only for applications provided for.

RESET CONTROL BOX (FROM BUILT-IN BUTTON)

To reset the appliance proceed as follows:

- Press the reset button for 1-2 seconds. If the burner fails to restart check that the limit thermostat (TL) is closed.
- **Should the reset button of the appliance continue to flash showing the cause of failure (RED LED), push the button for not more than 2 seconds.**

Warning:

If the reset button is pressed for more than 2 seconds the appliance goes into the visual diagnostics phase and the LED indicator begins to flash (see VISUAL DIAGNOSTICS CONTROL BOX).

RESET CONTROL BOX (FROM REMOTE CONNECTION)

The use of a connection available as an accessory is provided for the remote resetting of the control box.

RECYCLE FUNCTION (in case of disappearance of the flame during operation)

The control box permits a recycle, in other words the complete repetition of the start-up programme, up to a maximum of 3 attempts in the case in which the flame goes out during operation.

If the flame goes out yet again (4th time) the burner goes into lockout. If there is a new heat request during recycle, the 3 attempts are reset when the limit thermostat (TL) is switched.

LOGGING OF BURNER OPERATING PARAMETERS

With this control box, data - i.e. the number of lockout that have occurred, the type of lockout that has occurred (just the last one) and the oil valve opening operating time - can be logged even when there is no power supply. That way, you can determine how much fuel has been consumed during operation.

For the display of these parameters it is necessary to connect the diagnostic software kit as described on page 2.

ADDITIONAL, PROGRAMMABLE CONTROL BOX FUNCTIONS

POST-PURGING FUNCTION (t6)

Post-purging is a function that keeps air purging on even after the burner switches off. The burner switches off when the limit thermostat (TL) opens, consequently cutting off the fuel supply to the valves. To use this function the reset button must be pressed when the limit thermostat is not switched (burner switched off).

Post-purging time can be set to a maximum of **6 minutes**, proceeding as follows:

- Press and hold the reset button for at least 5 seconds till the LED indicator changes to red.
- Set the desired time by pressing the button the appropriate times: **once = post-purging for 1 minute.**
- After 5 seconds the control box automatically shows the minutes set by the red LED blinking: **1 led pulse = post-purging for 1 minute.**

To reset this function, press and hold the button for at least 5 seconds at least, till the LED indicator changes to red then release it without carrying out any operation, then wait for 20 seconds for the burner to start again.

If during post-purging there is a new request for heat, post-purging time is halted and a new burner operating cycle starts when the limit thermostat (TL) switches.

The control box's factory settings are as follows: **0 minutes = no post-purging.**

CONTINUOUS PURGING FUNCTION, (only for applications in which this is provided for)

Continuous purging is an operation that maintains the air purging regardless of whether there is a request for the burner to turn on or not. From the moment it is set, the motor keeps running whether the limit thermostat (TL) has not been switched (burner off), or when the burner is blocked.

When the limit thermostat (TL) is switched, the motor stops for a standby time of 4 seconds (standby position = t2 + t1), the air pressure switch is subsequently checked and a new burner operation cycle starts.

The function can be set from the reset button when the limit thermostat (TL) is not switched (burner off), by following the procedure in the post-purging function paragraph pressing the button **7 times = continuous purging**.

To reset this function, press and hold the button for at least 5 seconds at least, till the LED indicator changes to red then release it without carrying out any operation, then wait for 20 seconds for the burner to start again.

The control box's factory settings are as follows: **0 minutes = no continuous post-purging**.

FUNCTION SETTING PROCEDURE USING RESET BUTTON

Control box function	Action with the reset button	Possible Reset button use status
Reset	1 - 2 seconds	After control box lockout
Visual diagnostic of the causes of the lockout	3 seconds	After control box lockout
Post-purging	5 seconds then press once = 1 minute	With limit thermostat (TL) not switched (burner off)
Continuous purging (only for applications provided for).	5 seconds then press 7 times = continuous purging	With limit thermostat (TL) not switched (burner off)
Resetting set functions	5 seconds	With limit thermostat (TL) not switched (burner off)
Resetting operating parameters	5 seconds	With limit thermostat (TL) switched during pre-purging

MAINTENANCE

Before cleaning or performing checks, switch off the burner's power supply with the system's master switch and close the gas shutoff valve.

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.

THE BASIC OPERATIONS ARE: :

- Checking that there are no obstructions or kinks in the supply or return oil pipes, in the air intake regions and the combustion product discharge tubes.
- Checking that the burner and gas train electrical connections are correct.
- Checking that the gas train is suitable for the burner's power, the type of gas used and the mains gas pressure.
- Checking the proper positioning of the combustion head and its fixing to the boiler.
- Checking the proper positioning of the air damper.
- Checking the proper positioning of the ionisation probe and electrode.
- Checking the adjustment of the air pressure switch and the gas pressure switch.

Let the burner work at full speed for approximately ten minutes, correctly adjusting all the elements indicated in this manual. Then carry out the analysis of the scale combustion by checking:

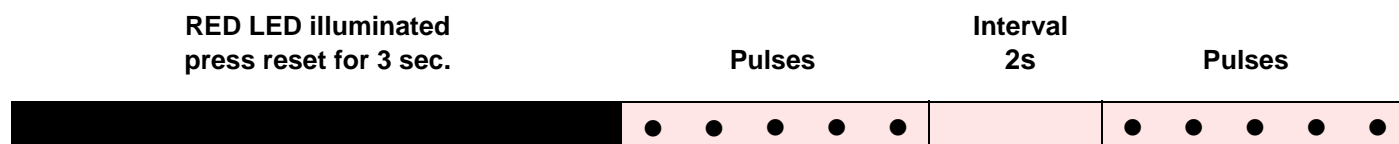
- Percentage of CO₂ (%);
- CO Content (ppm);
- NOx content (ppm);
- Ionisation current (μA);
- Flue gases temperature at the flue;

VISUAL DIAGNOSTICS CONTROL BOX

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

To use this function, you must press and hold the reset button for at least 3 seconds once it has entered the safety condition (**lockout**).

The control box generates a sequence of led pulses, which is repeated at constant 2-second intervals.



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

SIGNAL	PROBABLE CAUSE
2 pulses ● ●	The flame does not stabilise at the end of the safety time: <ul style="list-style-type: none"> – faulty ionisation probe; – faulty gas valve; – neutral/phase inverted; – faulty ignition transformer; – poor burner adjustment (insufficient gas).
3 pulses ● ● ●	Min. air pressure switch does not close or is already closed before the limit thermostat closing: <ul style="list-style-type: none"> – air pressure switch faulty; – air pressure switch incorrectly regulated.
4 pulses ● ● ● ●	Flame presence: <ul style="list-style-type: none"> – after closing the limit thermostat; – during pre-ventilation.
6 pulses ● ● ● ● ● ●	Air pressure drop: <ul style="list-style-type: none"> – during pre-purging; – during safety or operating time.
7 pulses ● ● ● ● ● ● ●	Disappearance of the flame 4 times during operation: <ul style="list-style-type: none"> – poor burner adjustment (insufficient gas); – faulty ionisation probe; – faulty gas valve; – short circuit between ionisation probe and earth.

ATTENTION To reset the control box after the diagnostics display, press the lockout-reset button.

FAULTS / SOLUTIONS

Here below you can find some causes and the possible solutions for a series of problems that could cause a failure to start or the poor operation of the burner. A fault in the operation usually switches on the lockout lamp, situated inside the reset button of the control box (7, fig. 1, page 1). When lock-out lamp lights the burner will attempt to light only after pushing the reset button. After this if the burner functions correctly, the lock-out can be attributed to a temporary fault. However, if lockout continues, you must determine the cause of the problem and take the action illustrated in the tables below .

START-UP PROBLEMS

FAULTS	POSSIBLE CAUSES	SOLUTION
The burner does not start when the limit thermostat closes.	Lack of electrical supply.	Check for voltage at L1-N terminals in 7-pin plug.
		Check the conditions of the fuses.
		Check that safety thermostat is not lock out.
	Gas is not supplied.	Check gate opening.
		Make sure that valves have changed over to open position and that there are no short circuits.
	The gas pressure switch does not close the contact.	Adjust it.
	The connections in the control box are wrongly inserted.	Check and connect completely all the plugs.
	The air pressure switch has changed over to the operational position.	Replace the pressure switch.
Burner runs normally in the prepurge and ignition cycle and locks out after 5 seconds ca.	The air damper opening motor is faulty.	Check the connection or replace the motor.
	The phase-neutral connection is inverted	Swap them over.
	The wiring to the earth is lacking or ineffective.	Make earth connection efficient.
	Ionisation probe has a ground fault or is not in contact with flame, or there is a break in its wiring to control box, or there is a ground fault due to its insulation being defective.	Check right position and, if necessary, adjust as indicated herein.
		Restore electrical connection.
Burner starts with an ignition delay.	Replace faulty lead.	
	Ignition electrode is wrongly positioned.	Adjust properly as indicated herein.
	Air output is too high.	Set the air output according to the instructions of this manual.
The burner locks out, after the pre-purge period, because the flame does not ignite.	Valve brake not open enough with insufficient gas allowed through.	Set correctly.
	The solenoid valves let too little gas through.	Check mains pressure and/or adjust the solenoid valve as indicated in this manual.
	The valves are faulty.	Replace them.
	The electric ignition arc is irregular or not present;	Make sure connectors are inserted properly.
		Make sure electrode is in the right position as indicated herein.
	Air in the piping.	Completely bleed the gas feed line.

FAULTS	POSSIBLE CAUSES	SOLUTION
The burner does not pass through the pre-purge and locks out.	The air pressure switch does not switch	The pressure switch is defective; Replace it.
		The air pressure is too low (combustion head incorrectly set).
	Flame is detected.	Defective valves: replace them.
The burner continues to repeat the starting cycle without locking out.	The gas pressure in the mains is very near the value the gas pressure switch is adjusted to. Consequently, the sudden falling off in pressure at the opening of the valve causes the pressure switch to open meaning the valves immediately close and the motor stops. The pressure then increases, the pressure switch closes and the starting cycle is started again, and so on.	Reduce the pressure switch pressure setting.

TROUBLE DURING OPERATION

FAULTS	POSSIBLE CAUSES	SOLUTION
Burner locks out during operation.	Probe has ground fault.	Check right position and, if necessary, adjust as indicated herein.
		Clean or replace ionisation probe.
	Flame disappears four times.	Check gas mains pressure and/or adjust the solenoid valve, as indicated in this manual.
	Opening of the air pressure switch	The air pressure is too low (combustion head incorrectly set).
		The pressure switch is defective: replace.
The burner stops.	Opening of the gas pressure switch	Check mains pressure and/or adjust the solenoid valve as indicated in this manual.

WARNINGS AND SAFETY

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 March 5, 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 purposes it has specifically been designed for.

All contractual and other liability on the part of the manufacturer is excluded for injury caused to people, animals or damage caused to property due to faulty installation, adjustment, maintenance or improper use.

BURNER IDENTIFICATION

The Identification Plate on the product gives the serial number, model and main technical and performance data. Tampering with, removal or absence of the Identification Plate will mean it is not possible to identify the product with certainty and therefore make any installation or maintenance difficult and/or dangerous.

BASIC SAFETY MEASURES

- The control box may not be used by children or inexperienced people.
- Under no circumstances may intake grilles or heat dissipation grilles or the ventilation openings in rooms where the control box is installed be plugged with rags, paper or anything else.
- No attempt must be made to repair the control box by non-authorised personnel.
- It is dangerous to twist or pull the electrical cables.
- Under no circumstances must any attempt be made to carry out any cleaning operations before unplugging the control box from the electrical supply.
- Do not clean the control box or any of its parts with substances that can easily catch fire (e.g. petrol, alcohol, etc.). The cover must be cleaned with soapy water.
- Do not rest anything on the burner.
- Do not plug or reduce the size of the ventilation openings in the room where the generator is installed.
- Do not leave containers and inflammable substances in the room where the control box is installed.

WARNINGS TO AVOID BURNOUT OR BAD COMBUSTION OF THE BURNER

- 1 – When the burner is stopped, the flue must stay open and effect a natural draught in the combustion chamber. If the smoke pipe is closed, the burner must be drawn back till the extraction of blast pipe from the furnace. Before operating in this way take the voltage off.
- 2 – The premises the burner operates in must have same openings to allow the air necessary for combustion to pass through. To be sure about this, you have to control CO₂ and CO in the exhaust gases with all the windows and doors closed.
- 3 – If there are air intakes in the premises the burner works in make sure there are intakes big enough to ensure the change required; In any case, check that when the burner stops the extractors do not draw hot fumes from pipes through the burner.

技术数据

类型		552T1
热功率		18 – 58 kW – 15,500 ÷ 50,000 kcal/h
天然气 (2 类)		8 – 12 kWh/Nm ³ – 7.000 ÷ 10.340 kcal/Nm ³
	压力	最小 10 mbar – 最大 40 mbar
电源		单相, 230V ± 10% ~ 50Hz/60Hz
电动机		0.75 A 运行电流 - 2800 rpm. - 294 rad/s
电容器		2 µF
点火变压器		初级 230V / 0.2A – 次级 8 kV
电功消耗		0.15 kW

对于 3 类燃气 (LPG) 适用的组件

国家	DE	DK - AT - GR - SE	GB - IE	LU	NL
气体类别	I12ELL3B/P	I12H3B/P	I12H3P	I12E3B/P	I12L3B/P

燃烧器符合 EN60529 的 IPX0D(IP40) 防护等级。

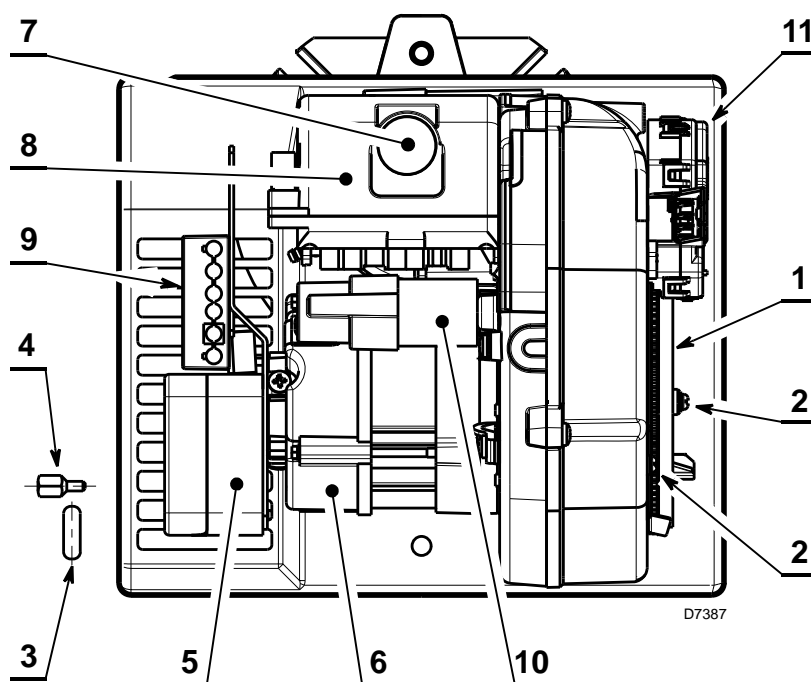
根据 EN676 指令，燃烧器允许间隙运行。

带有 CE 标记的燃烧器符合 EEC 下列指令：EMC89/336/EEC - 2004/108/EC. 低电压 73/23/EEC2006/95/EC. 机器 98/37/EEC 和效率为 92/42/EEC。

燃气阀组符合 EN676 标准。

图 1

- 1 - 风门挡板
- 2 - 风门挡板固定螺钉
- 3 - 电缆护套
- 4 - 固定螺钉
- 5 - 风压开关
- 6 - 电机
- 7 - 带有复位按钮的锁定指示灯
- 8 - 控制盒
- 9 - 燃气阀组的 6 孔插座
- 10 - 电容器
- 11 - 风门挡板的控制电机



注意：

提供的附件电缆护套（3）和固定螺钉（4），应该安装在燃气阀组的同侧。

燃烧器附件

数量	描述
4	带有螺帽的螺钉
1	隔热垫
3	固定螺钉
1	护套
1	铰链
1	7 针插头

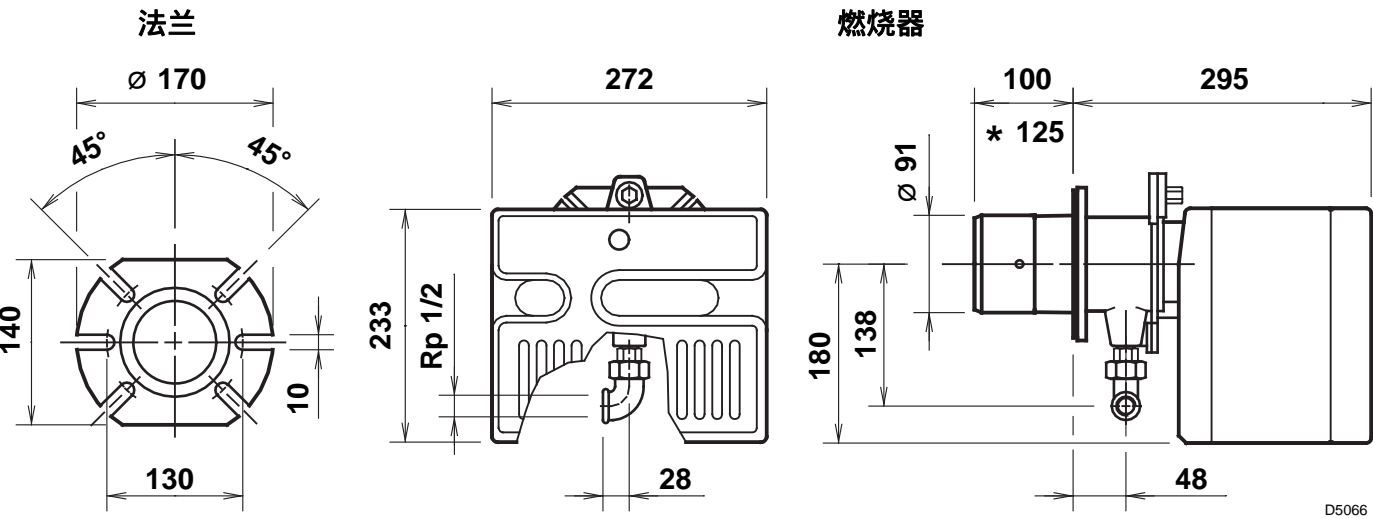
配件

软件诊断组件

通过红外线将组件连接到电脑上，能够显示燃烧器使用寿命，运转时间，锁定的类型和编号和序号等。

执行如下操作，以显示诊断结果：
分别将提供的设备连接到控制盒上的插口处。
在软件程序启动之后阅读相关信息。

外观尺寸



* 单独提供的加长燃烧头

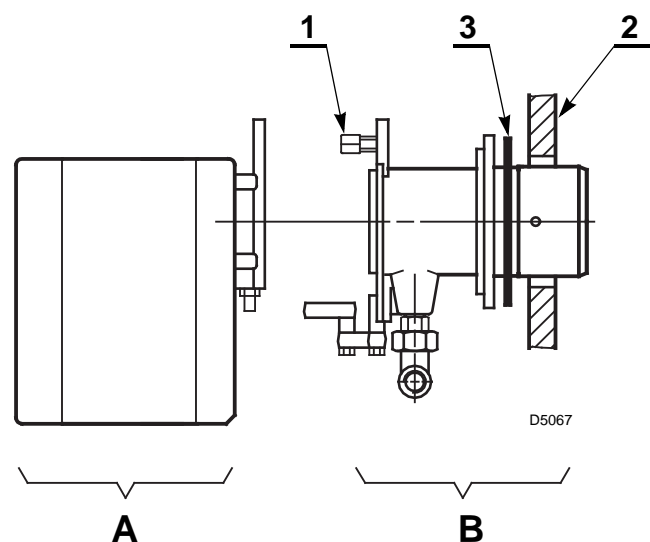
复位组件

用于对控制盒的远程复位，作为配件提供。

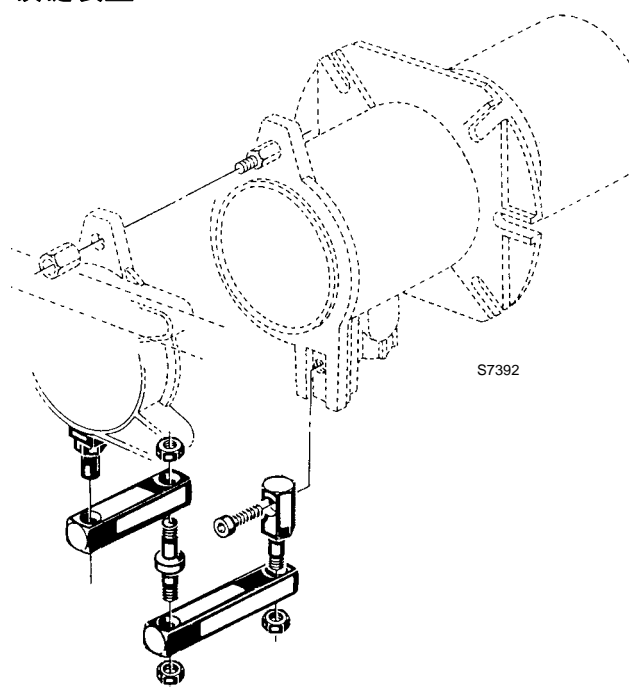
燃烧器安装

拆下螺母（1）和（A）组，将燃烧头组件从燃烧器本体上分离。

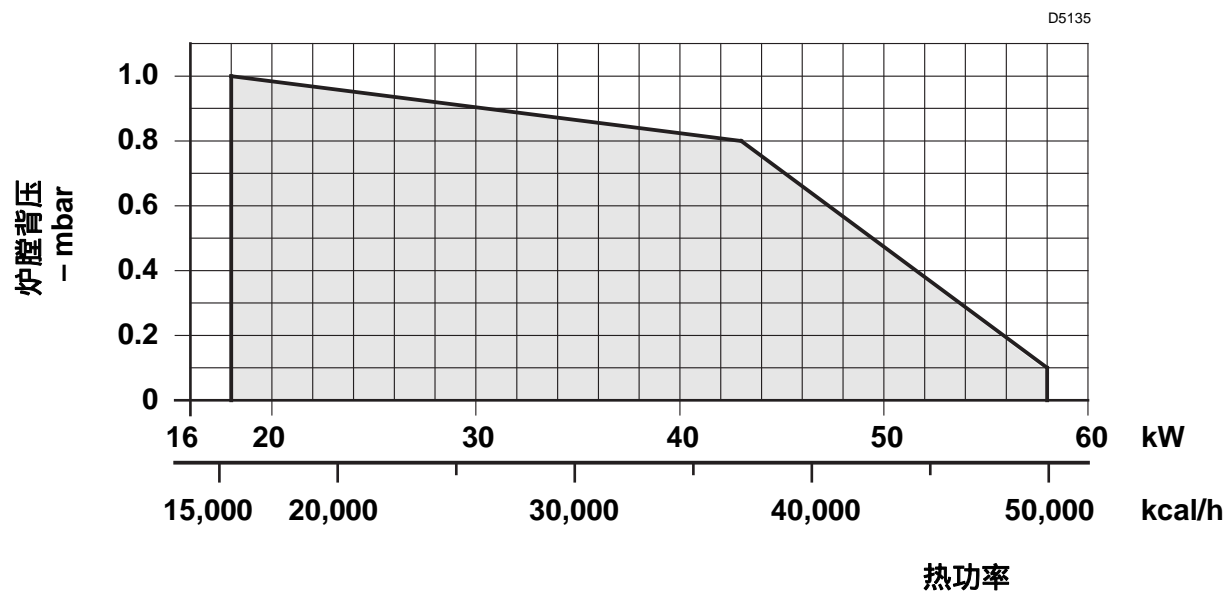
固定燃烧头组件（B）到锅炉（2）上，插入随机提供的隔热垫（3）。



铰链装置



负荷图



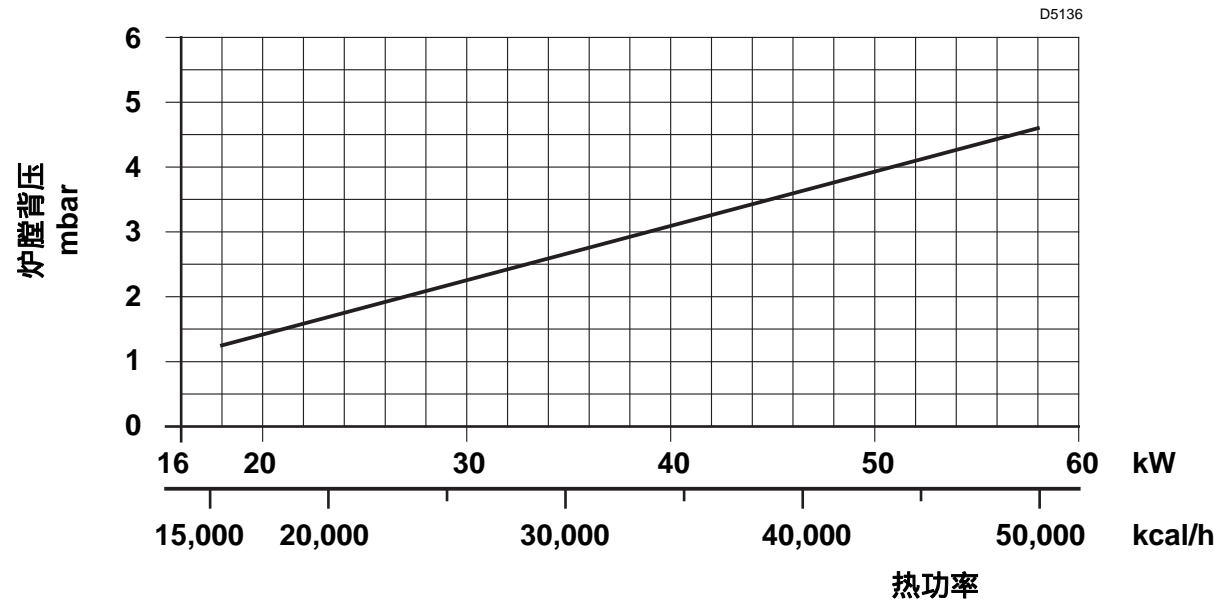
测试锅炉

负荷图依据 EN676 标准测试得到。

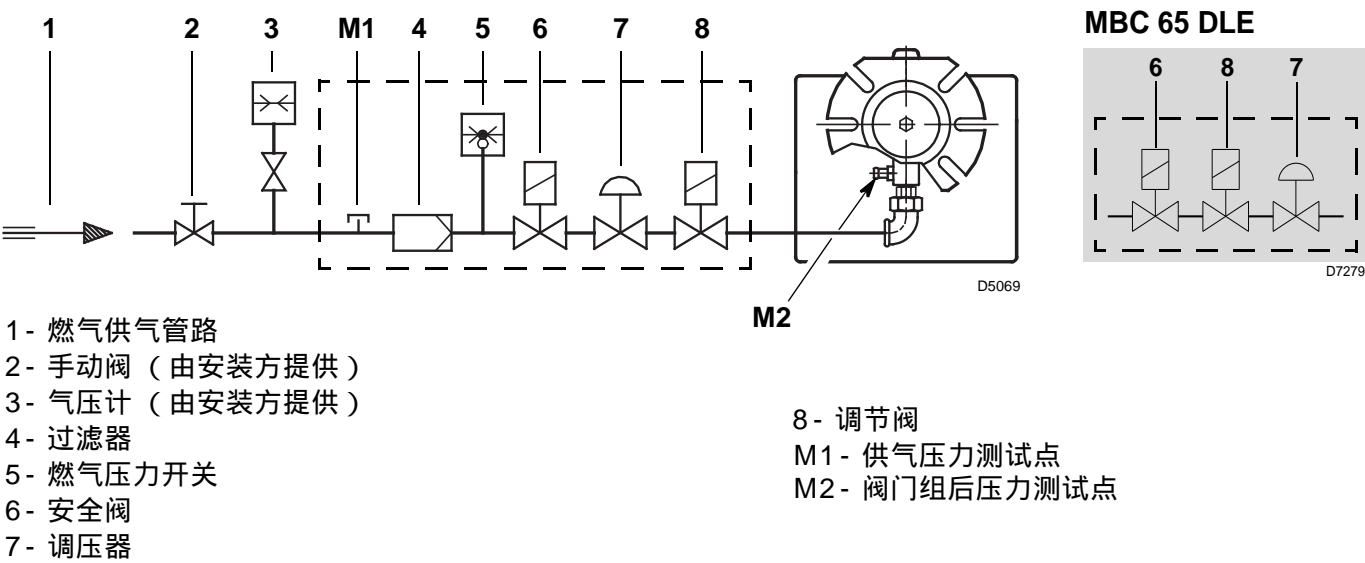
商用锅炉

如果锅炉的设计和制造符合 EN303 标准，并且炉膛尺寸与 EN676 标准中的图表尺寸接近，那么燃烧器 - 锅炉匹配没问题。如果锅炉的设计和制造不符合 EN303 标准或者炉膛尺寸大大小于 EN676 标准中的图表尺寸，请咨询生产商。

燃气压力与燃烧器出力的关系
用净热值为 10KWh/m³ (8.570kcal/m³) 的 G20 燃气进行测试，在锅炉背压为 0mbar 且燃烧器出力最大时，燃烧头处测量压力为 4.6mbar。



燃气供气管路



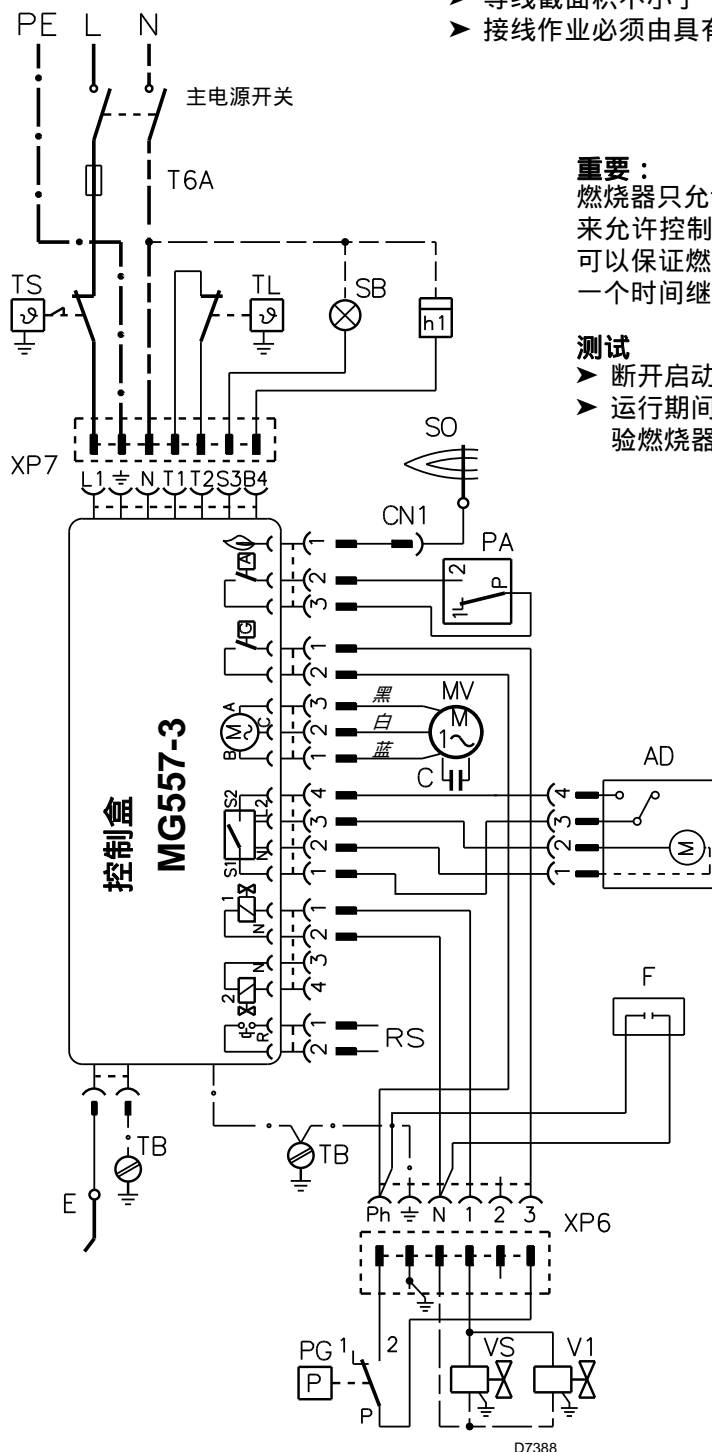
符合 EN 676 标准的燃气阀组

燃气阀组	代码	接口		应用
		入口	出口	
MBC 65 DLE	3970569	Rp 1/2	Rp 1/2	Natural gas and LPG
MBDLE 405 B01	3970530	Rp 1/2	Rp 1/2	Natural gas and LPG

燃气阀组是单独提供的，其调整见随机说明。

电气接线图

~ 50Hz 230V



警告：

- 零线和相线不要互换，按图仔细执行接线操作并保证良好的接地。
- 导线截面积不小于 1 mm^2 (除非当地标准或法规另有要求)。
- 接线作业必须由具有本国国家强制认证要求的人员操作。

重要：

燃烧器只允许间歇运行。这就意味着燃烧器必须每 24 小时停机一次来允许控制盒检验启动过程的有效性。通常锅炉的启动温控器 (TL) 可以保证燃烧器的停机。如果不能停机，需要在 (TL) 的电路中串接一个时间继电器保证燃烧器每 24 小时停机一次。

测试

- 断开启动温控器检验燃烧器是否停机。
- 运行期间断开控制盒外面的插接探针的红色电缆的接头 (CN1) 检验燃烧器是否锁定。

控制盒，(见图 . 2)

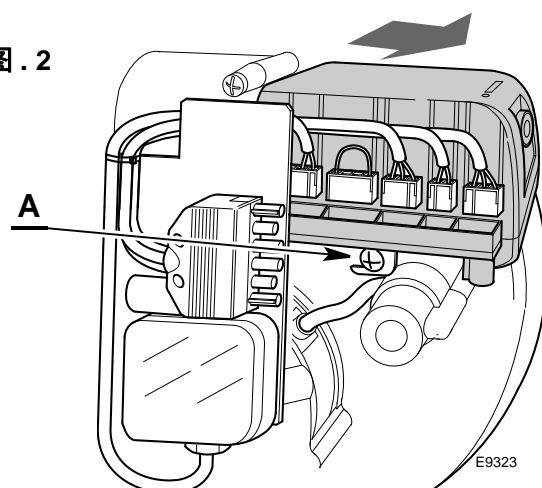
要从燃烧器上拔出控制盒，按如下方法操作：

- 断开所有连接的插头，7 针插头和接地线 (TB)；
- 松开螺栓 (A) 按箭头方向拉出控制盒。

安装控制盒，按如下方法操作：

- 拧紧螺栓 (A)，预紧力矩 $1 - 1.2 \text{ Nm}$ ；
- 连接之前断开的的所有插头。

图 . 2



图例说明

AD - 风门挡板控制电机
C - 电机电容
CN1 - 离子探针接头
E - 点火电极
h1 - 计时器
(230V - 最大 0.1A)
MV - 风机电机

PA - 风压开关
PG - 最低燃气压力开关
RS - 远程复位
SB - 锁定指示灯
(230V - 最大 0.5A)
SM - 单段电路接头
SO - 离子探针
TB - 燃烧器接地

TL - 启动温控器
TS - 安全温控器
T6A - 保险丝
V1 - 调节阀
VS - 安全阀
XP6 - 6 针插头 / 插座
XP7 - 7 针插头 / 插座
F - 过滤器

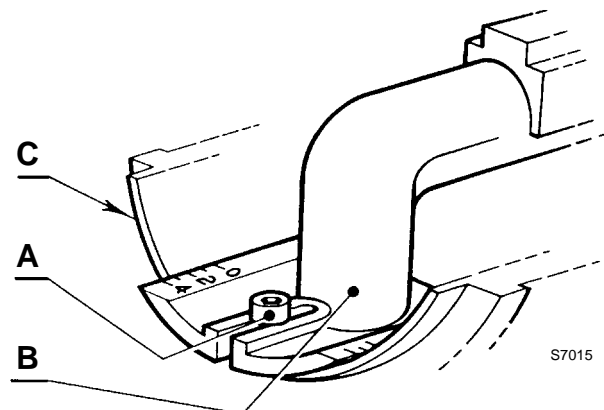
电气接线

燃烧头调整

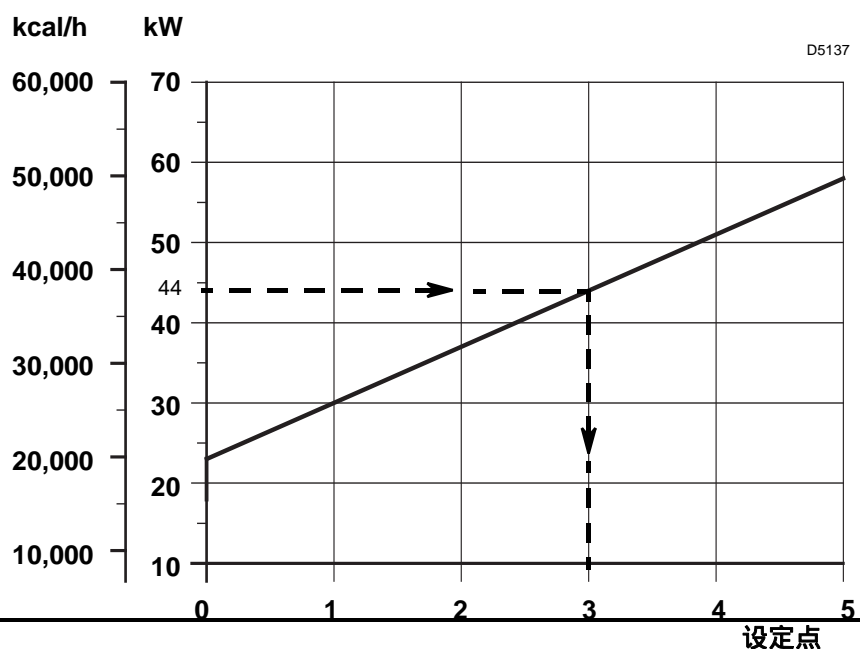
将螺栓 (A) 旋至松动，移动肘型弯 (B) 使之与联轴器 (C) 的断面对齐在相应的刻度位置。
拧紧螺栓 (A)。

示例：

燃烧器安装在出力为 40kW，效率为 90% 的锅炉上，燃烧器输入功率为 44 kW，按照图表所示，燃烧头设定为 3。



此图表一般在初期设定时参照设定，为了适当提高风压或改善燃烧时可以降低本设定值（将设定点调向 0 位置）。



风门挡板调整

伺服马达 (1) 控制风门挡板 (6); 风门挡板 (6) 完全开启后燃烧器开始运行。

按如下方法调整固定风门部分 (4):

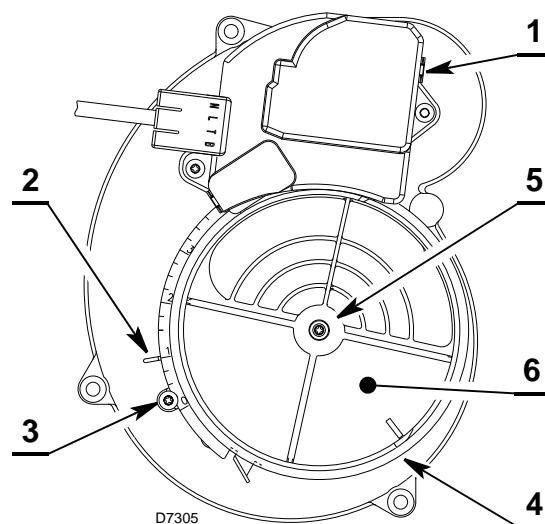
将螺栓 (3 和 5) 拧至松动，然后旋转风门挡板 至所需位置 (2)。

当调整至最佳位置后，拧紧螺栓 (3 和 5)。

风门挡板的调整根据应用的不同而不同，因此需要使用专业的校准工具以确保较高燃烧效率。

重要：

建议使用烟气分析仪对燃烧进行分析调整。



燃烧调整

根据效率指令 92/42/EEC，燃烧器应用在锅炉上时，调整和测试必须按照锅炉说明书进行操作，包括确认烟气中的 CO 以及 CO₂ 的浓度，温度以及锅炉中水的平均温度。建议根据使用燃气的类型并按照下表参数来设定燃烧器：

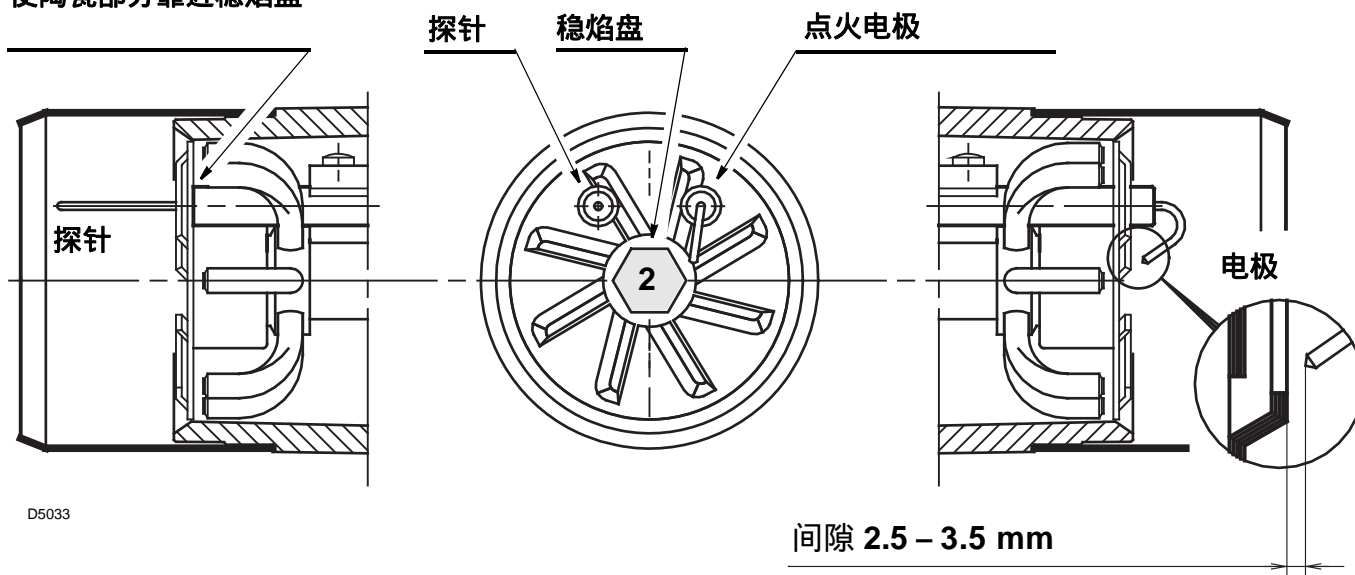
EN 676		过量空气系数：最大出力 $\lambda \leq 1.2$ – 最小出力 $\lambda \leq 1.3$			
燃气	理论最大值 CO ₂ 0 % O ₂	设定 CO ₂ %		CO mg/kWh	NO _x mg/kWh
		$\lambda = 1.2$	$\lambda = 1.3$		
G 20	11.7	9.7	9.0	≤ 100	≤ 170
G 25	11.5	9.5	8.8	≤ 100	≤ 170
G 30	14.0	11.6	10.7	≤ 100	≤ 230
G 31	13.7	11.4	10.5	≤ 100	≤ 230

探针 - 点火电极定位

重要

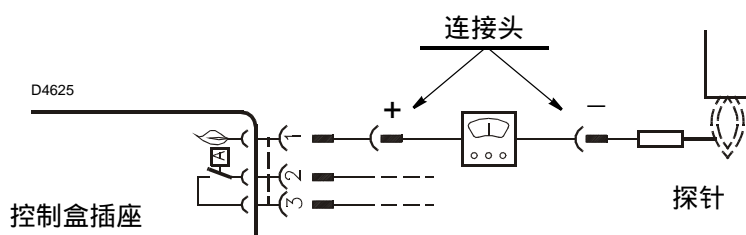
如下图所示状态，不要旋转点火电极；如果点火电极与电离探针的距离过近，点火变压器有可能被损坏。

使陶瓷部分靠近稳焰盘



离子探针电流

控制盒正常运行所需的最小电流为 5 μ A。燃烧器通常能提供较高的电流值，因此不需要进行检查。如果需要检测离子探针电流，则必须断开插入到红色电缆的连接头 (CN1) (详见第五页的布线图)，接入微安电流表。

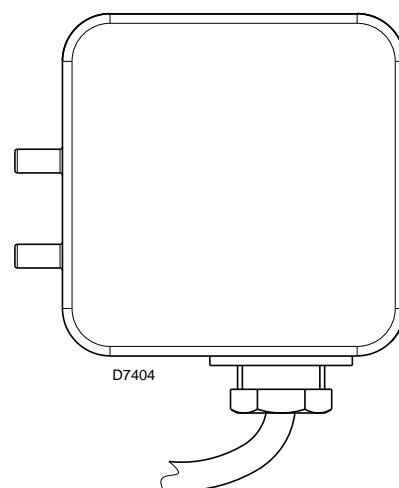


风压开关

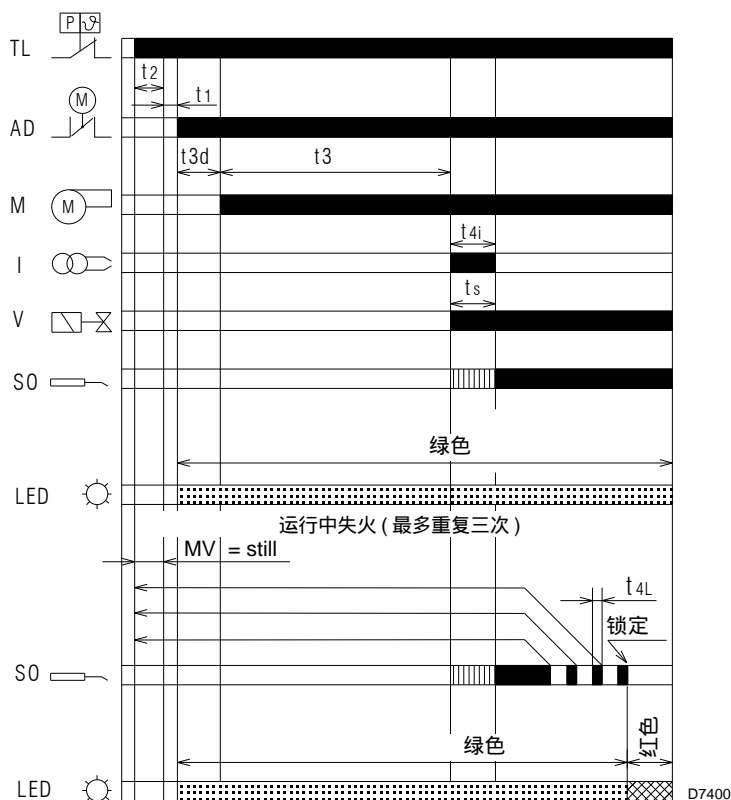
风压开关的设置是在所有调整完成后进行，从风压开关设置在最低设置值处开始。使燃烧器处于最小出力的工作状态，顺时针旋转转盘，增加设置值直到燃烧器锁定。然后逆时针转动转盘将设置值减小 1 个刻度值。检查并确保燃烧器可靠运行，如燃烧器再次锁定，将设置值再减少半个刻度值。

注意：

根据 EN676 标准，当 CO 超过 1 % (10,000 ppm) 时，风压开关必须动作。在烟道中插入烟气分析仪，慢慢减少进风量，检查并确认在 CO 超过 1 % 之前，风压开关是否动作并锁定燃烧器。



正常运行



图例说明：

- I - 点火变压器
 LED - 复位按钮 LED 显示运行状态
 M - 风机电机
 SO - 电离探针
 TL - 启动温控器
 V - 燃气阀组
 AD - 伺服电机

- 红色 (LED 灯)
 绿色 (LED 灯)
 不需要接收信号

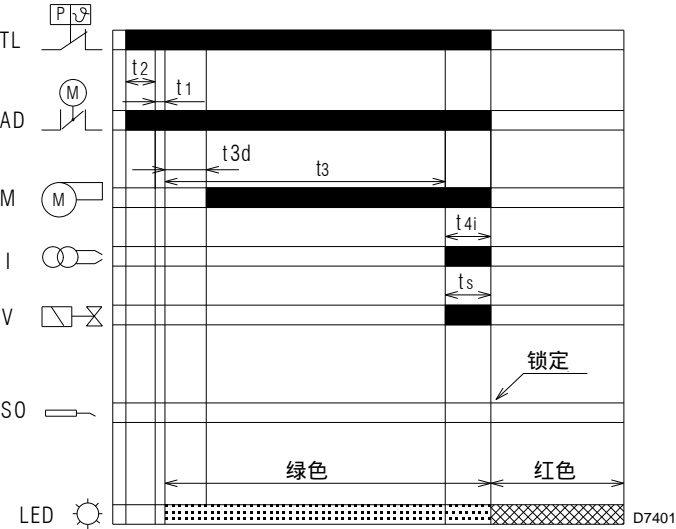
运行时间 (单位：秒)

t1, t3l, t4l, t4a	t2l	t2, t4i	t2a	t3	t3a	t3d	t3r	ts	t6
最大	最大	-	-	-	最大	-	最大	-	最大
1	30	3	120	40	15	4	70	3	360

t1	备用时间取决于控制盒的输入信号：响应时间，控制盒在 t1 时间内保持不动。
t1l	在需要加热前测试火焰或模拟火焰，控制盒保持不动。
t2	得到加热指令后的等待时间：控制盒在 t2 时间内不动作。
t2a	在要求加热前，检查风压开关是否已经转到工作位置：控制盒保持在备用状态，若风压开关在 t2a 时间内保持在工作位置，则控制盒锁定。
t2l	备用时间内，检测火焰或火焰模拟：若火焰或火焰模拟持续时间达到 t2l，则出现锁定。
t3	预吹扫时间：风机电机启动。
t3a	预吹扫期间检查风压开关是否转到工作位置：若风压开关在 t3a 时间内不断开，则出现锁定。
t3d	风门挡板控制电机的完全开启的时间：风门挡板全开所需的时间。

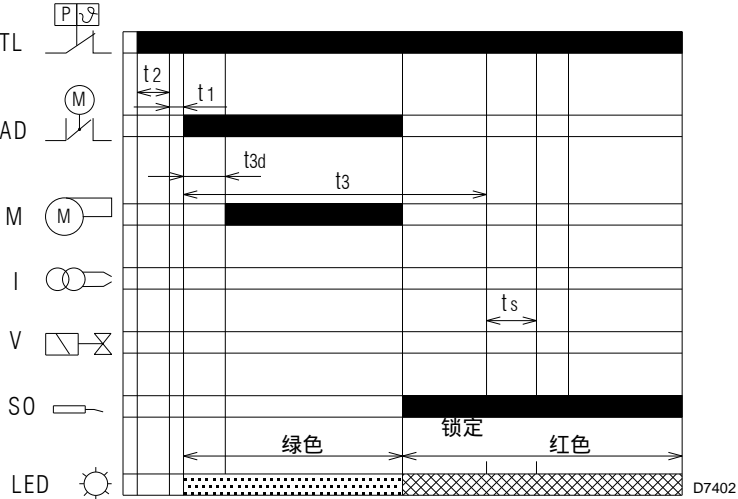
t3l	预吹扫期间检测到火焰或火焰模拟：立即停机。
t3r	若风压在预吹扫期间降低，进行再次尝试：若在第 16 和 29 秒之间发生第二次压力下降，则再次锁定；若在第 30 秒和 40 秒之间压力下降，控制盒马上锁定。
ts	安全时间：若 ts 时间内没有火焰，立即锁定。
t4a	ts 安全时间和正常运行期间的风压检查时间：风压降低控制盒将立即锁定。
t4i	变压器运行时间：总的点火时间。
t4l	运行中火焰熄火：阀门关闭的最长反应时间，重复 3 次后锁定。
t6	后吹扫时间：启动温控器 (TL) 断开后的额外吹扫时间。

点火失败引起的锁定



- 红色 (LED 灯)
- 绿色 (LED 灯)

预吹扫期间检测到火焰或模拟火焰引起的锁定



- 图例说明：
- I - 点火变压器
 - LED - 复位按钮 LED 指示灯显示运行状态
 - M - 风机电机
 - SO - 电离探针
 - TL - 启动温控器
 - V - 燃气阀组
 - AD - 伺服电机

- 红色 (LED 灯)
- 绿色 (LED 灯)

运行时间（单位：秒）

t1, t3l, t4l, t4a	t2l	t2, t4i	t2a	t3	t3a	t3d	t3r	ts	t6
最大	最大	-	-	-	最大	-	最大	-	最大
1	30	3	120	40	15	4	70	3	360

燃烧器故障时锁定类型和触发时间

故障类型描述	锁定
在等待期间 "t2" 时间段内出现火焰	最多 30 秒后 (TL 闭合之后)
在预吹扫阶段或运行期间风压丧失时出现火焰	1 秒内
预吹扫阶段的风压丧失	1 秒钟最多重复一次
在安全期 "ts" 后没有火焰出现	3 秒内
运行中火焰消失	1 秒钟内最多重复一次
燃烧器启动之前或之后风压开关出现故障	120 秒内 , 15 秒内

控制盒复位按钮 LED 灯的颜色编码

运行状态	LED 颜色编码	
等待	○	Led 不亮
预吹扫	●	绿色
变压器运行	●	绿色
正常火焰	●	绿色
后吹扫	●	绿色
重复	●	绿色
持续吹扫 (*)	●	绿色
启动中出现的火焰	○	Led 不亮
锁定	●	红色
持续吹扫时锁定 (*)	● ●	红色 + 绿色

(*) 仅用于特定的应用。

复位控制盒（通过内置按钮）

按如下操作复位控制盒：

按下按钮 1-2 秒。若燃烧器未能重启，检查温控器（TL）是否已经闭合。

► 若复位按钮下的指示灯继续闪烁显示故障原因（红色 LED 灯），按住复位按钮不超过 2 秒复位。

警告：

若按下复位按钮超过 2 秒，控制盒进入可视诊断状态，LED 指示灯开始闪烁（见控制盒的可视诊断）。

复位控制盒（通过远程连接）

可作为配件提供一个接头来远程复位控制盒。

循环功能（运行中失火）

若运行中火焰消失，控制盒允许重复启动，启动程序完全重复，最多重复尝试 3 次。

若火焰仍然熄灭（第 4 次），燃烧器停机。若重新启动时有新的加热要求，启动温控器（TL）闭合时 3 次尝试被重置。

燃烧器运行参数的记录

控制盒可以记录相关参数，例如已经发生锁定的次数和类型（最后一次），阀门开启的运行时间，即使在没有电源供应的情况下也可记录。由此，你能确定运行中消耗了多少燃料。

要显示这些参数，需要连接第 2 页中描述的软件诊断组件。

附加的、可编程控制盒功能

后吹扫功能（t6）

后吹扫是燃烧器停机后仍可保持通风的功能。启动温控器（TL）断开后，燃烧器停机，从而关闭燃料供应阀。使用该功能，启动温控器未闭合时（燃烧器停机）必须按一下复位按钮。

后期吹扫时间最大能设置到 6 分钟，按如下方法进行操作：

按下复位按钮并保持至少 5 秒钟，直到 LED 指示灯变成红色。

通过按复位按钮的次数从而设定目标时间：一次 = 后吹扫 1 分钟。

5 秒钟后，控制盒红色 LED 指示灯自动闪光，闪烁次数指示后吹扫分钟数：闪烁 1 次 = 后吹扫 1 分钟。

重置该功能，按下按钮并保持至少 5 秒钟，直到 LED 指示灯变成红色，然后松开按钮，不进行任何操作，再等待 20 秒钟，燃烧器重新启动。

若后吹扫期间有新的加热要求，后吹扫时间暂停，启动温控器（TL）闭合，燃烧器重新启动运行。

控制盒的出厂设置如下：0 分钟 = 不进行后吹扫。

连续吹扫功能，(只适用于其提供的应用中)

连续吹扫是无论燃烧器是开机还是停机都保持连续通风的功能。从此功能设置开始，电机保持运行，无论启动温控器（TL）断开（燃烧器停机）还是燃烧器运行。

启动温控器（TL）闭合时，电机停止约 4 秒时间（备用时间点 =t2+t1），随后风压开关开始检测然后燃烧器重新启动运行。

启动温控器（TL）断开时（燃烧器停机），通过复位按钮可以设置该功能，按照后吹扫功能设置的步骤，按下按钮 7 次 = 连续吹扫。

为重新设置该功能，按住按钮并至少保持 5 秒钟，直到 LED 指示灯变为红色，然后放开按钮而不进行任何操作，等待 20 秒后燃烧器再次启动。

控制盒的工厂设置如下：0 分钟 = 不进行连续吹扫。

用复位按钮设置功能的程序

控制盒功能	按复位按钮的动作	可能的复位按钮使用状态
复位	1 - 2 秒	控制盒锁定后
锁定原因的可视诊断	3 秒	控制盒锁定后
后吹扫	5 秒 然后按 一次 = 1 分钟	启动温控器（TL）断开（燃烧器停机）
连续吹扫（只用于提供的应用）	5 秒 然后按 7 次 = 连续吹扫	启动温控器（TL）断开（燃烧器停机）
重置已经设定的功能	5 秒	启动温控器（TL）断开（燃烧器停机）
重置运行参数	5 秒	预吹扫期间启动温控器（TL）闭合

维护

在清洁或性能检测前，切断燃烧器的电源并关闭燃气截止阀。

要求合格的授权技术人员按照法规和本地标准定期对燃烧器进行维护。
维护可以保证燃烧器的可靠运行，避免燃料浪费和排放污染物增加。

基本操作如下：

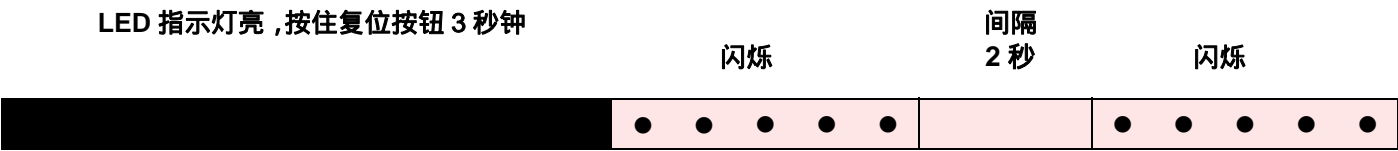
- 检查燃烧器和燃气阀组电气接线是否正确。
- 检查燃气阀组是否适应燃烧器的出力大小，所使用的燃气种类和供气压力。
- 检查燃烧筒是否位置正确，是否与锅炉的相匹配。
- 检查风门挡板位置是否正确。
- 检查电离探针和电极是否位置正确。
- 检查风压开关和燃气压力开关的调节是否正确。

锅炉连续工作 10 分钟后，检查所有说明书中提到的部件设置。然后进行燃烧检测：

- CO₂ 含量 (%) ；
 - 电离电流 (μA) ；
- CO 含量 (ppm) ；
 - 烟囱中烟气温度 ；
- NOx 含量 (ppm) ；

控制盒的可视诊断

通过控制盒提供的诊断特点可以确定故障的原因 (指示灯：红色 LED 指示灯)。
使用该功能时，进入锁定状态后，按住复位按钮并至少保持 3 秒。
控制盒 LED 指示灯产生一连串的闪烁，闪烁以固定的 2 秒间隔重复。



控制盒发出一连串闪烁表明故障的可能类型，列在下表中。

信号	可能原因
闪烁 2 次 ● ●	安全时间过后火焰不稳定： – 电离离子探针故障； – 燃气阀组故障或脏； – 火线与零线接反； – 点火变压器故障； – 燃烧器调整较差（燃气量不足）。
闪烁 3 次 ● ● ●	最低风压开关没有闭合： – 确认是否 VPS 已经锁定； – 风压开关故障； – 风压开关调整不当；
闪烁 4 次 ● ● ● ●	出现火焰 – 启动温控器闭合后 – 预吹扫期间。
闪烁 6 次 ● ● ● ● ● ●	气压下降： – 预吹扫期间： – 安全或运行时间期间。
闪烁 7 次 ● ● ● ● ● ● ●	运行过程中火焰熄灭： – 燃烧器调整不当（燃气量不足）； – 燃气阀组故障或脏； – 电离离子探针对地短路。

注意

显示诊断信息后按复位按钮对控制盒复位。

故障 / 解决方法

从下表可以找到导致燃烧器不能启动或不正常工作的一些问题的原因和相应的解决方案。发生故障后，位于控制盒的复位按钮内的锁定指示灯通常亮起红色灯（第 1 页图 1 部件 7）。

当锁定指示灯亮时，仅在按下复位按钮后，燃烧器才会重新启动。如果燃烧器正常运行，锁定可归因于暂时故障。

如果继续锁定，必须分析原因并找到解决方法。

燃烧器启动故障

故障	可能的原因	解决方法
启动温控器闭合后，燃烧器不能启动。	没有电源	检查 7 针插头内 L1 - N 端子的电压
		检查保险丝状况
		检查安全温控器没有断开
	没有燃气	检查阀门是否打开
		确保阀门转到开启位置并且没有短路情况。
	燃气压力开关不能闭合	调整燃气压力开关。
	控制盒内的接线错误	检查并完全正确连接所有接线
在预吹扫和点火阶段燃烧器运行正常，大约 5 秒后锁定。	风压开关切换到运行位置	更换风压开关。
	风门挡板控制电机故障	检查接线或更换电机。
	中线、相线接反	对调。
	接地线缺少或无效。	使接地连接有效。
	电离探针接地故障或没与火焰接触，或到控制盒的接线中断，或由于绝缘存在缺陷而造成接地故障。	检查电离探针位置是否正确，如有必要调整到正确位置。 修复电气连接。 更换缺陷导线。
燃烧器点火延迟	点火电极位置错误。	按照说明书正确调整。
	风量过大。	按照本手册的说明设置正确风量。
	阀开度不足，通过的燃气量不足。	正确设置。
由于火焰没有出现，预吹扫阶段后，燃烧器锁定。	电磁阀过气量不足。	检查供气压力和/或按说明书正确调整电磁阀。
	阀门有缺陷。	更换阀门。
	点火电弧不规则或没有出现。	确保连接头正确插入。 确保点火电极位置正确。
	管内有空气。	排尽管线中的空气。
燃烧器预吹扫阶段锁定。	风压开关没有转换。	风压开关有缺陷；更换风压开关。 气压过低（燃烧头没有正确设置）。
	探测到火焰。	缺陷阀门：更换。
燃烧器不断重复启动，而不锁定。	燃气供气气压非常接近最低燃气压力开关的设定值，阀门打开之后压力的突然下降造成压力开关临时断开，阀门会立即关闭且燃烧器停机。压力增加，最低燃气压力开关会重新闭合而重复点火过程等等。	降低最小燃气压力开关设定值。更换滤芯。

运行中的故障

故障	可能的故障原因	解决方法
运行期间燃烧器锁定	探针接地故障	检查探针位置是否正确，如有必要，按说明书调整。
		清洁或更换离子探针。
	失火达到 4 次。	检查供气压力和/或按本手册调整电磁阀。
	风压开关断开。	风压太低（燃烧头设置不正确）。
		风压开关故障：更换。
燃烧器停机	燃气压力开关断开。	检查供气压力和/或按本手册调整电磁阀。

警告和安全

为了保证燃烧污染物排放最低，锅炉炉膛尺寸必须满足特定尺寸。

建议在选择匹配特定锅炉的燃烧器时，和我们的技术支持沟通协商。

有资质人员是指取得 1990 年 3 月 5 日的 46 号法规规定的技术要求认证的专业人员。这个商业机构有着广泛的代理机构和代表处。

这款燃烧器只能用于设计使用的应用。

如果由于错误安装或错误调试，或不正确、不合理使用，或没有遵照使用说明书来使用，或由没有资质人员使用等因素造成的任何人、畜、财产损失，制造商概不负责。

燃烧器标识

产品铭牌标识了产品序列号，型号，主要技术参数和性能数据。如果铭牌被篡改、移动或丢失，那么产品不容易辨认出具体型号和参数，这会给安装、维护带来困难和危险。

基本安全规则

- 严禁未成年人和无资质人员操作使用。
- 在安装燃烧器房间的通风孔，进气格栅，排气格栅上不允许覆盖衣物、纸张或其他任何东西。
- 非认证人员不允许对燃烧器维护维修。
- 拉出或缠绕电源插头危险。
- 清洁燃烧器前要断开主电源。
- 不要使用易燃物清洁擦拭燃烧器（如酒精、汽油等）。
盖子可以用肥皂水擦拭。
- 不要在燃烧器上放置任何东西。
- 不要在安装燃烧器的房间放置易燃物。

避免燃烧器损坏或燃烧效果变差的警告

- 1 – 燃烧器停机后，保持烟道通畅并让燃烧室形成自然通风，如果关闭烟道，应该拉出燃烧器，直到从炉膛取出送风管为止。操作前，关掉电源。
- 2 – 燃烧器工作场所必须保证良好的空气流通，检验时，关闭所有门窗后检测烟气中的 CO₂ 以及 CO 含量确保含量不超标准。
- 3 – 如果燃烧器工作场所有排风设备，检查场所的通风口尺寸是否满足排风设备的需要。不管怎么样，燃烧器停机时，排风设备不应该通过燃烧器从烟道抽走热烟气。



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