

## Installation & Maintenance Manual

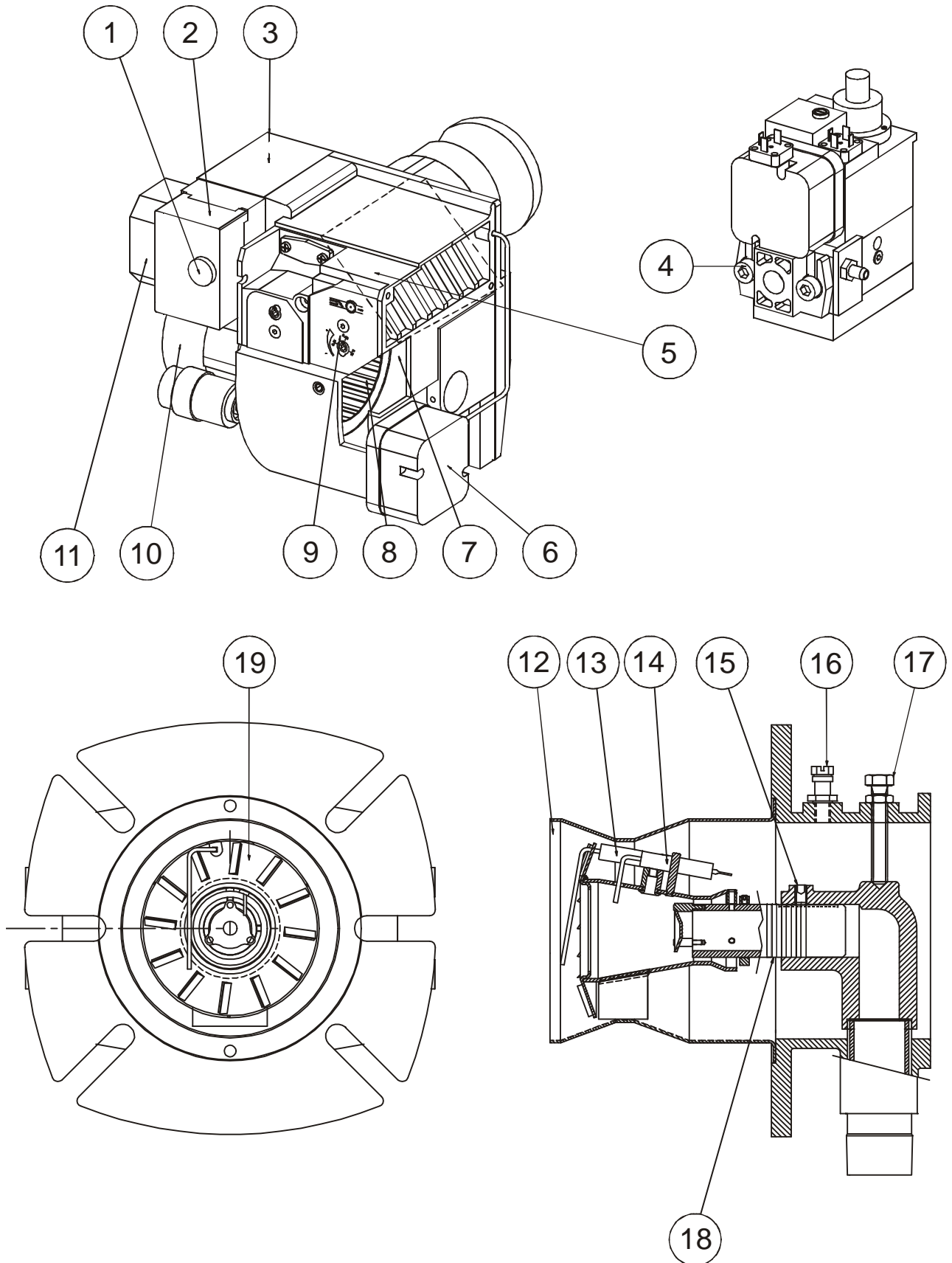
### **Series SG fully automatic gas burners Selectos SG100 & SG170**

Gas Burner

## **IMPORTANT - SAFETY**

**It is essential that the following instructions and adjustments are carried out by qualified engineers that are experienced in forced draught gas burner commissioning. In the UK it is a legal requirement that anyone working on gas installation, as defined in the “Gas Safety (Installation & Use) Regulations 1998”, is CORGI registered. The manufacturer cannot be held responsible for any consequential damage, loss or personal injury as a result of failure to follow these instructions, or as a result of misuse.**

# COMPONENT IDENTIFICATION



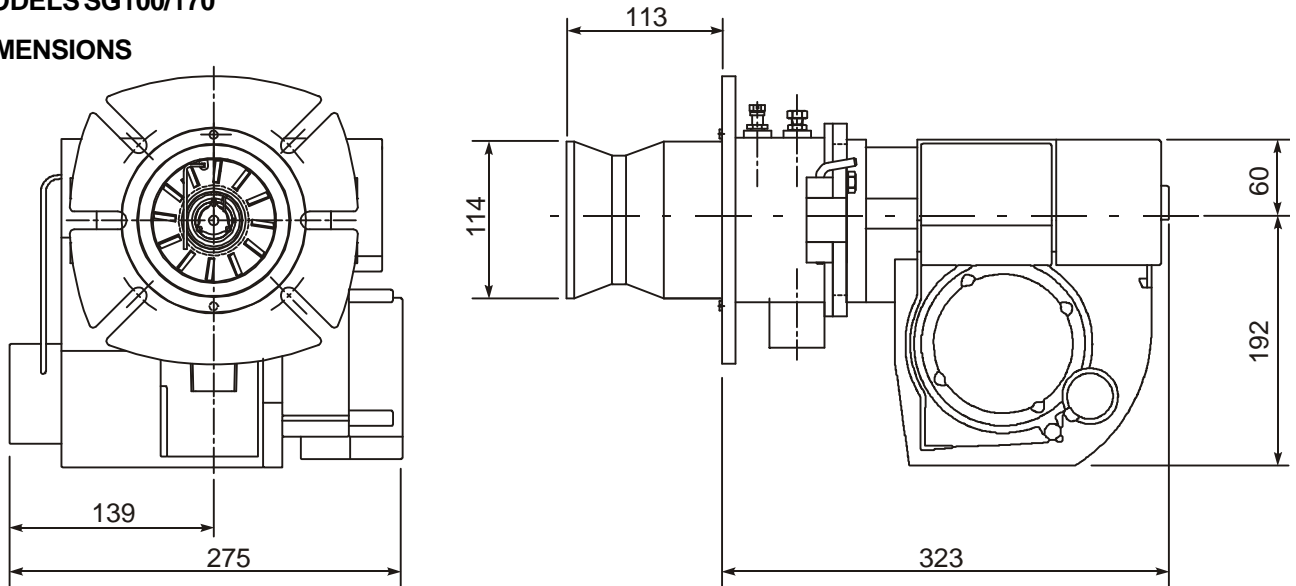
## COMPONENTS

- |                        |                           |                         |
|------------------------|---------------------------|-------------------------|
| 1. Reset Button        | 9. Air Adjustment         | 17. Head Clamping Bolt  |
| 2. Control Box         | 10. Fan Motor             | 18. Adjustment Markings |
| 3. Transformer         | 11. Electrical Connection | 19. Diffuser            |
| 4. MultiBlock          | 12. Flame Tube            |                         |
| 5. Air Damper          | 13. Flame Probe           |                         |
| 6. Air Pressure Switch | 14. Ignition Electrode    |                         |
| 7. Fan Shield          | 15. Head Adjustment Screw |                         |
| 8. Fan Wheel           | 16. Pressure Test Point   |                         |

# TECHNICAL DATA

MODELS SG100/170

## DIMENSIONS



Type	SG100	SG170
Gas Connection **	1/2" BSP	3/4" BSP

The above dimensions are maximum measurements. Depending on the components used these may vary.

## OUTPUT RANGE

Type	Gross Input (kW) *	Volume (m <sup>3</sup> ) Min		Volume (m <sup>3</sup> ) Max		Supply Pressure (mbar)	
		NG	LPG	NG	LPG	NG	LPG
SG100	60-110	5.6	2.3	10.3	4.2	20	37
SG170	110-160	10.3	4.2	15.0	6.2	20	37

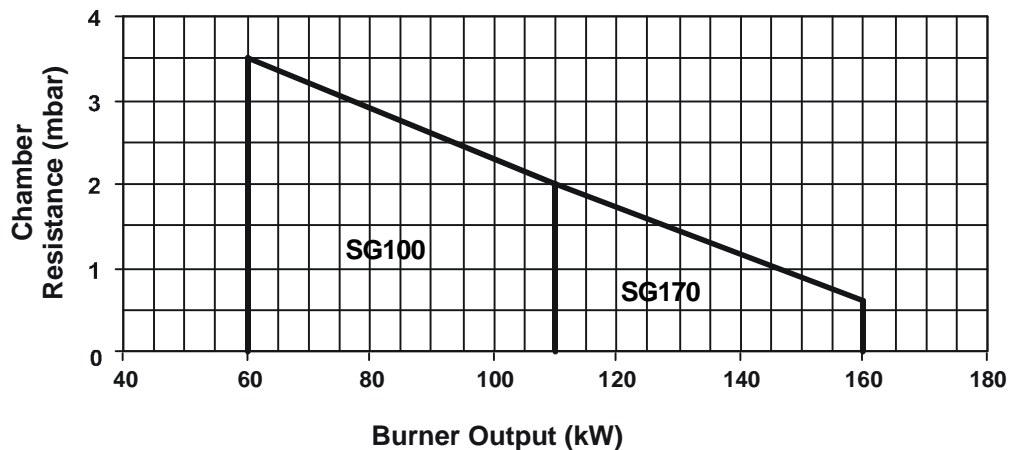
## ELECTRICAL DATA

Type	Motor	Ignition Transformer
SG100	125W, 2800rpm, 230v, 50Hz, 0.65A	Electronic 230/11000V
SG170	125W, 2800rpm, 230v, 50Hz, 0.65A	Electronic 230/11000V

\* Calorific value:  
Natural gas 10.7kW/m<sup>3</sup>  
LPG 26kW/m<sup>3</sup>

\*\* Depending on gas type and available pressure

## PERFORMANCE ENVELOPE



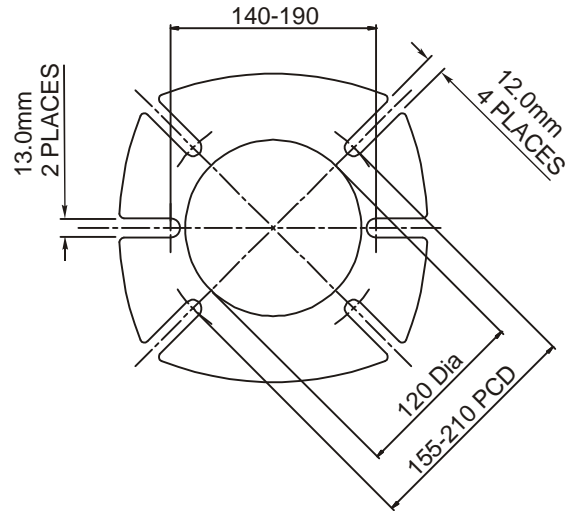
# MOUNTING THE BURNER

If the hinged extension/flame tube assembly is not fitted to the fan case assembly, it should be fitted before mounting to the application using the pins provided. Ensure that the gas inlet connection is at the bottom.

Once the burner is mounted open the hinged extension, connect the flame probe and ignition cables. The terminal ends are dissimilar and cannot be wrongly connected.

The gas train can now be fitted to the hinged extension.

- Ensure that the gaskets are seated correctly when tightening the assembly.
- If the burner is to be fitted to a new packaged unit, refer to the manufacturers recommendations.
- If the burner is to be used with an existing appliance prepare the mounting flange.
- Ensure the joint between appliance and burner is effectively sealed with the gasket provided.



**MOUNTING FLANGE DETAIL**

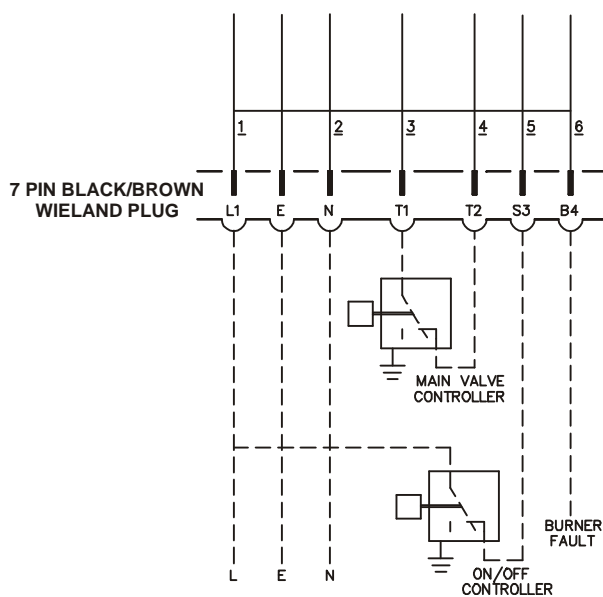
# ELECTRICAL

## ELECTRICAL POWER SUPPLY

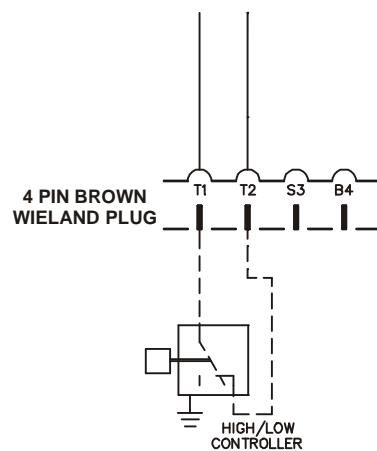
Connect a single phase 50Hz electrical supply to the burner observing all applicable IEE Regulations. Refer to the connection diagram below or the wiring diagram contained in the instruction pack supplied with the burner.

## ELECTRICAL CONNECTIONS

### ON/OFF VALVES



### ADDITIONAL CONNECTIONS FOR HIGH/LOW VALVES



----- EXTERNAL WIRING

# GENERAL INSTRUCTIONS

The SG100 & 170 burners are supplied for On/Off or High/Low operation and for use with single phase electrical supply. Where an instruction or information is applicable to only one of the burner types, single or two stage, then this is indicated in the text.

This manual is structured to enable the user to proceed from the delivery of the burner to its commissioning and use.

The conditions to be fulfilled and the controls and adjustments to be used are dealt with in the sequence that should be followed for the correct assembly installation and use. Commissioning procedures are described and the location of necessary controls and adjustments to undertake these runs are illustrated and supported by appropriate tabular matter and graphs.

Routine Maintenance and Fault Finding complete the manual; literature on proprietary components is available on request.

## SETTING COMBUSTION HEAD

The venturi flame ring assembly is adjustable longitudinally so that the restriction between the air diffuser and the throat of the flame tube effectively meters the combustion air and therefore the assembly should be set to approximately the position corresponding to the required gas rate.

## Method of Adjustment

Undo the two safety bolts of the hinged extension.

Remove one hinge pin on the opposite side to that which it is required to swing the burner.

Unplug any electrical connections that are restricting movement.

Swing the burner body away slowly, at the same time unclipping the ignition and flame detector leads.

Undo the lock nut clamping bolt.

Lift out the venturi flame ring assembly.

Undo the socket set screw.

Adjust the position of the assembly in the socket of the supporting elbow aligning the required scribed ring against the end of the socket.

The position is relative to the firing rate of the burner, the graph below shows the relation between the head setting and burner output.

Secure the assembly and replace in reverse order taking care that the assembly sits squarely on the gas inlet spigot and is squarely locked in position by its clamping bolt, and that the burner is swung back into position the ignition and flame detector leads are carefully clipped back on their respective electrodes (the terminal ends are dissimilar so that they cannot be wrongly connected).

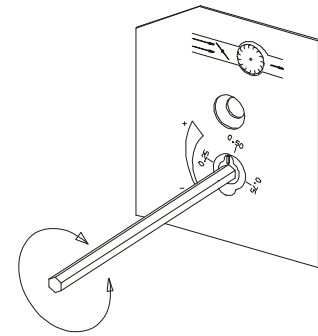
## BURNER AIR CONTROLS

The air for combustion is controlled by an adjustable air flap located inside the air inlet on the right hand side of the burner viewed from the rear.

Its purpose is to regulate and control the volume of combustion air flowing through the burner.

On all burners the air adjustment can be made with or without the cover fitted with the use of an Allen key. There is a visible scale to assist in the setting of combustion air, it is numbered between 1 and 22.

Final fine adjustment must be made with the cover on.

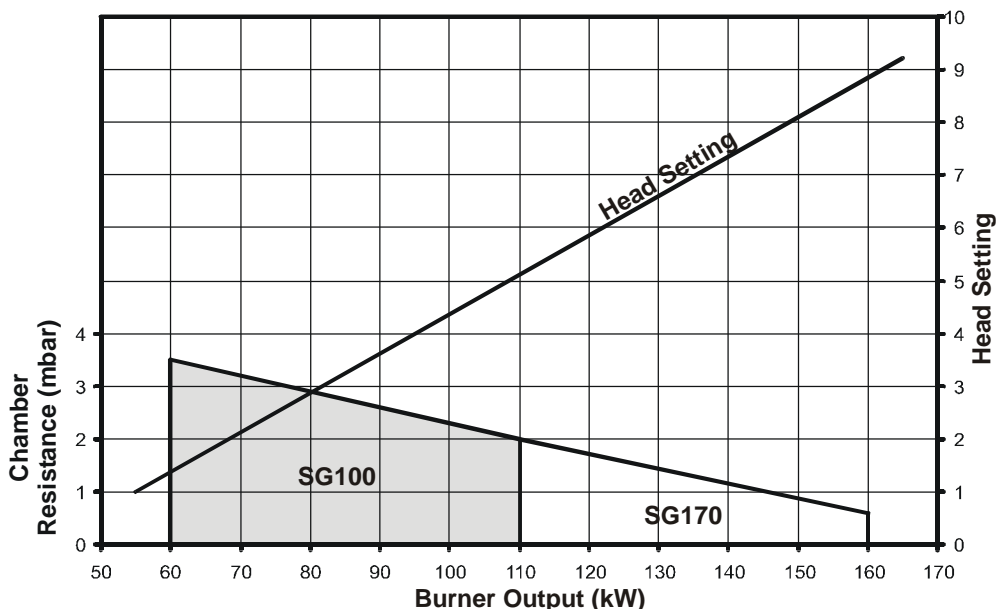


## Air Diffuser

The air diffuser is fitted to the front end of the inner assembly and located within the flame tube.

It controls the volume of combustion air and creates a pressure drop over the burner head to ensure good fuel/air mixing and flame stability.

## VENTURI HEADSETTING



# GENERAL INSTRUCTIONS continued.....

## BURNER GAS CONTROLS

### Low Gas Pressure Switch

The low gas pressure switch is located on the inlet side of the gas valve. It is required to monitor inlet gas pressure during burner operation. The low gas pressure switch is wired in series with the appliance controlling instruments and in the event of gas pressure failure will cause the burner to effect a safety shut down.

Isolate the burner and remove the gas pressure switch cover. Switch on the electrical supply and allow the burner to establish main flame. Slowly turn the adjustment dial on the gas pressure switch clockwise until the flame is extinguished and the burner shuts down. Turn the dial slowly anticlockwise one division at a time until the burner restarts and establishes main flame. Recheck the performance and then turn the dial a further two divisions anticlockwise. Switch off the burner and replace the gas pressure switch cover.

### Gas Valve Multibloc - Single Stage (On/Off)

The gas valve is of the multibloc type incorporating start rate, safety and main valves and pressure governor. Valve adjustments are detailed in the Gas Controls and Adjustments section.

### Two Stage (High/Low)

The gas valve is of the multibloc type incorporating start rate, safety and two stage valve and pressure governor. Valve adjustments are detailed in the Gas Controls and Adjustment section.

## FLAME MONITOR

### Probe

The flame probe (flame rectification probe) is located on the burner head and is required to supervise the safe operation of the burner under all working conditions.

### UV

As an option burners can be fitted with an ultraviolet cell (UV) cell to detect the presence of the flame.

## BURNER OPERATING SEQUENCE

### Single Stage (On/Off) Burners

The operating sequence begins with a pre-purge on full air, then start rate gas flame which when proved allows the burner to operate on main flame, then to the "OFF" position after the heat input is satisfied. The operation is determined by demand of the appliance control instruments.

### Two Stage (High/Low) Burners

The sequence begins with an air pre-purge on full air, followed by start rate gas flame which when proved allows the burner to operate on High/Low/Off. The operation is determined by the demand of the appliance control instruments.

## FLUE AND CHIMNEY REQUIREMENTS

The top of the Chimney/Flue should be above all roofs within a radius of 10 metres.

Check that it is suitable for use with gas fired appliances. Reference should be made to Local Authority and other regulations governing such installations.

Ensure that the flue pipe from the appliance does not protrude into the chimney beyond the wall thickness and is sealed throughout its run.

If more than one appliance is connected to a common flue/chimney, ensure that the cross section of the flue/chimney is adequate for the total volume of flue gases from all the appliances.

## PLANT ROOM VENTILATION

An adequate supply of dust free, fresh air is required for the burner at both high and low level in accordance with the appropriate standards.

## GAS SUPPLY

The gas supply to the burner must be constructed and installed to comply with local conditions and appropriate Codes and Standards. It should be of sufficient size to satisfy the pressure/volume requirements of the burner to ensure its operation.

It is essential that a 90° manual shut-off is fitted upstream of the burner gas train for the isolation of the burner during servicing and maintenance.

The valve size must not be less than the burner valve train or create restriction to gas flow.

# BURNER GAS CONTROLS & ADJUSTMENTS

## SINGLE STAGE (ON/OFF) USING PILOT GAS - MULTIBLOC MB-DLE 405-412 B07

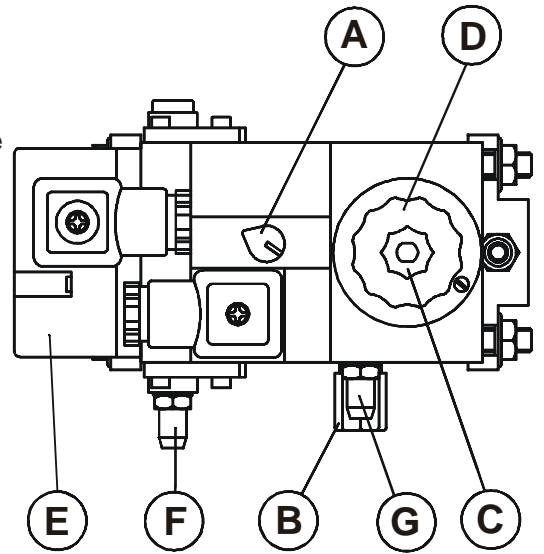
Includes gas pressure governor, safety, main and start gas valves.

## SINGLE STAGE (ON/OFF) MAIN GAS IGNITION - MULTIBLOC MB-DLE 405-412 B01

Contains gas pressure governor, safety, and main gas valves.

### ADJUSTMENTS

- A Governor adjustment (main and pilot). Turn clockwise to increase pressure. Range 4-20 mbar.
- B Start gas rate (B07 valve only). Turn anticlockwise to increase and clockwise to decrease rate.
- C Main valve. Fast initial lift adjuster.
- D Main gas adjustment. Slacken cheesehead screw, and turn the fluted knob anticlockwise to open, clockwise to close.
- E Low gas pressure switch (Optional).
- F Upstream testpoint.
- G Downstream testpoint.



## TWO STAGE (HIGH/LOW) USING PILOT GAS - MULTIBLOC MB-ZRDLE 405-412 B07

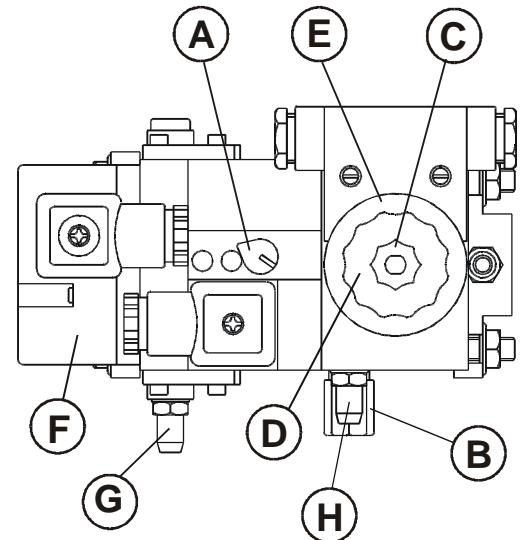
Includes gas pressure governor, safety, two position main and pilot valves.

## TWO STAGE (ON/OFF) USING MAIN GAS IGNITION - MULTIBLOC MB-ZRDLE 405-412 B01

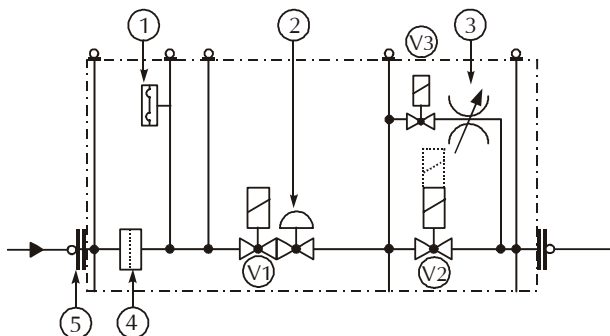
Includes gas pressure governor, safety, two main and start gas valves.

### ADJUSTMENTS

- A Governor adjustment for main flame. Turn clockwise to increase pressure. Range 3 - 20 mbar.
- B Start gas rate (B07 valve only). Turn anticlockwise to increase and clockwise to decrease rate.
- C Main valve - first and second stage - fast initial lift adjuster.
- D High flame throughput adjustment. Slacken off locking screw, turn anticlockwise to increase and clockwise to decrease rate.
- E Low flame throughput adjustment, as in D.
- F Low pressure gas switch (Optional).
- G Upstream testpoint.
- H Downstream testpoint.



### GAS MULTIBLOCK SCHEMATIC



- V1 - Valve 1
- V2 - Valve 2 - Single Stage (MB-D) or Two Stage (MB-Z)
- V3 - Pilot Valve (B07 Only)
- 1 - Pressure Switch (Optional)
- 2 - Regulator
- 3 - Restrictor
- 4 - Filter
- 5 - Inlet connection



# CONTROL BOX

## DMG970

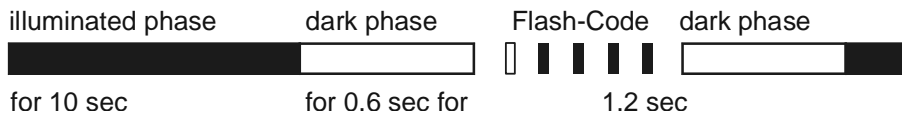
### INTRODUCTION

The burner control box DMG 970 controls and supervises forced draught burners for gas and dual fuel. The microprocessor programming sequence ensures extremely stable timings independent of voltage variations, ambient temperature and/or switch-on cycles. The built-in information system not only provides a continuous monitoring of the actual state of the box (including monitoring of the start-up phase) but also informs about the possible cause of a lockout. The lockout cause is stored in such a way that it can be retrieved even after a power failure.

The control box is designed for maximum safety in case of fluctuations in the voltage supply. If the mains voltage drops below the permitted level, operation is interrupted and the control box automatically prevents the start sequence from being repeated. In this way, the safety of the system is not put at risk by a drop in the mains voltage. This low-voltage protection works not only during start-up but also permanently during operation.

### LOCK-OUT IDENTIFICATION

In the case of a failure the LED is permanently illuminated. Every 10 seconds the illumination is interrupted by a flash code which indicates the cause of the error. The following sequence is performed and is then repeated as long as the unit is not reset.

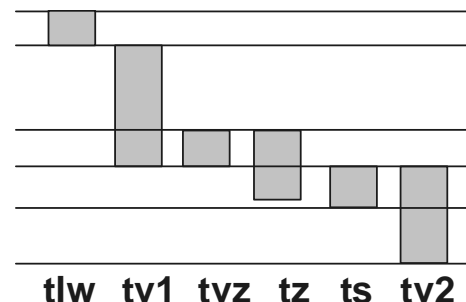


### FLASHCODES

ERROR MESSAGE	FLASH CODE	POSSIBLE FAULT
lock out safety time	□ ■ ■ ■ ■	within lock out safety time no flame establishment
stray light	□ □ ■ ■ ■	stray light during startup detector may be faulty
air pressure switch closed	■ ■ □ □ □	air pressure switch contact welded
air pressure switch timeout	□ □ ■ ■ ■	air pressure switch does not close within specified time
air pressure switch opened	□ □ □ □ ■	air pressure switch opened during operation
loss of flame	■ ■ ■ ■ □	loss of flame during operation

### SEQUENCE TIMINGS

SEGMENT	OPERATION	DURATION (S)
tlw	Max. reaction time for air proving switch	60
tv1	Supervised pre-purge time	40
tvz	Pre-ignition time	3
tz	Ignition time total	5.5
ts	Safety time	3
tv2	Delay 2nd-stage	12.5



## PRE-COMMISSIONING CHECKS

The capacity of Selectos SG burners using natural gas has been determined at a minimum supply pressure of 17.8mbar (max 40mbar). For LPG the supply pressure should be between 25mbar and 40mbar.

These burners will operate satisfactorily on gas supply pressures lower than those quoted above, but burner capacity will be reduced accordingly.

Any LPG high pressure regulator fitted must be equipped with over pressure shut off protection.

Turn off the gas supply at the manual shut off valve upstream of the gas valve inlet.

Fit an approved pressure measuring instrument at the pressure test point on the inlet of the gas MultiBloc. Turn on the gas supply. Check gas pressure, this will record static pressure which will be higher than running pressure, which should not be less than 17.8mbar when running on main flame.

### INNER ASSEMBLY

Ensure that the ignition electrode and ionisation probe are correctly adjusted. Correct positioning is shown on the Component Identification page.

Ensure that the head has been positioned according to the gas rate.

### GAS TYPE

Ensure that the burner head is correct for the type of gas to be used. Check the burner data plate.

### PURGING

The gas line is purged by loosening the screw on the inlet pressure test nipple. Connect a plastic hose and conduct the gas into atmosphere. After purging the gas line re-tighten the screw.

### LEAKAGE TESTING

When making a leak test of the gas supply system the gas valve should be closed. Connect a pressure gauge to the test nipple on the gas valve. The test pressure in the system should be 1.5 x maximum inlet

pressure or minimum 150 mbar. If there is any leakage, locate the source by means of soapy water or a leak detection spray. After tightening repeat the test

### DRY RUN

Turn off the electricity supply to the burner. Close the manual gas shut-off valve.

To prevent the gas pressure (if fitted) switch from locking out, remove the cover and fit a temporary link.

Adjust the thermostats to call for heat and switch on the electrical supply to the burner, the pre-purging period will begin (24-40 seconds). At the end of this period the pre-ignition period starts (3 seconds).

The gas valve is energized and opens and the flame would be established.

At the end of the safety time (3 to 5 seconds) the control box will go to lockout. The gas valve will be de-energised and the motor will stop running. The dry run is complete.

Ensure to remove the link from the gas pressure switch after the test is finished.

## IMPORTANT

After each adjustment, the gas flow rate and flue gas analysis should be checked.

## ALWAYS

Use approved test equipment (Continually monitoring electronic equipment is recommended).

## NEVER

Rely on a visual inspection of the flame as a guide to combustion quality.

# COMMISSIONING

Reference should be made to the Burner Gas Controls and Adjustment section of this manual for identification and location of the following adjustments.

None of these adjustments should be made in isolation. One adjustment will have an effect on another. It is therefore essential that the combustion quality and gas throughput are monitored during the commissioning procedure

## PILOT BYPASS ADJUSTMENT (B07 VALVE ONLY)

The bypass valve opens at the same time as the first valve. Ignition gas flow is set by using bypass restrictor. Turn anticlockwise to increase and clockwise to decrease rate. If the governor pressure is set too low there will be insufficient pressure for the pilot bypass to operate.

## MAIN GAS GOVERNOR

With a screwdriver turn the adjusting screw to its minimum position then turn back four complete revolutions. This will give a reduced gas flow rate to enable further adjustments to commence.

Note: Should the burner lockout when establishing start and main flames then the probable cause is air or inert gas in the gas line. This can be removed by purging the line through the pressure test points located on the gas MultiBloc. Alternatively, there may be insufficient pressure on the gas governor.

## SETTING MAIN FLAME GAS RATE

Switch the burner on and allow it to establish main flame.

Check the gas throughput with a gas meter or with other approved measuring instrument.

With a screwdriver slowly adjust the gas governor to increase the gas volume through the burner to the rate required for the appliance.

Ensure that other appliances served by the same meter are isolated when gas throughputs are being adjusted.

With the gas flow rate for main flame set and the burner running with stable flame, the flue gases can now be checked for CO<sub>2</sub> and O<sub>2</sub> with suitable combustion testing instruments.

Figures of 9-10% CO<sub>2</sub> and 3-5% O<sub>2</sub> are acceptable. For reasons of safety the CO (carbon monoxide) should be checked and should not exceed 100 ppm.

To achieve good combustion efficiency or if the CO content is exceeded, adjustments to the air and gas settings can now be made while the burner is running on main flame.

## ADJUSTING THE MAIN VALVE FAST INITIAL LIFT.

**B01 VALVE** - The adjuster acts as a damper to the main valve, controlling the rate of opening after initial lift. This adjustment is used to reduce the volume of gas that the valve passes during the ignition safety phase. Switch off and restart the burner. Note the quality of the light up during the ignition stage. If the light up is weak, then increase the amount of fast initial lift by turning the adjuster anticlockwise. Turn the adjuster clockwise if a heavy light up is encountered. Repeat until a satisfactory setting is achieved.

**B07 VALVE** - The adjuster acts to control the rate of change between high and low position. Turn the valve clockwise to slow down the rate and anticlockwise to increase the rate of change.

## SETTING LOW FLAME RATE HIGH/LOW BURNER (MB-ZRDLE VALVES ONLY)

Low flame gas rate is achieved by adjusting the low gas setting of the two position solenoid valve on the gas MultiBloc.

Turn the low gas rate adjusting ring on the gas MultiBloc to achieve low flame throughput (refer to Gas Controls and Adjustments). Care must be taken so as not to exceed the turndown ratio for the burner model being commissioned.

## AIR PRESSURE SWITCH

Located on the right side of the burner casing viewed from the rear, it is required to prove adequate air flow throughout the burner operating cycle. Flow failure at any stage following the first few seconds of pre-purge will lockout the burner

To set the Air Pressure Switch :-

Switch off the electrical supply to the burner.

Remove the air pressure switch cover. Fit a manometer to the pressure switch to check the actual air pressure against the pressure switch dial setting.

Switch on the electrical supply and allow two stage burners to establish low flame and single stage burners to establish main flame.

Slowly turn the adjusting dial clockwise until the flame is extinguished. The burner will go to lockout.

Turn the dial one division anticlockwise and reset burner lockout. The burner will then continue through its cycle until either the start rate flame is established or the burner goes to its lockout position.

If the burner goes to lockout repeat the procedure once per burner cycle until the start rate flame is established.

Allow the burner to cycle to low flame (two stage) and main flame (single stage) and then turn the adjusting dial a further two divisions anticlockwise.

Switch off the electrical supply to the burner, replace the air pressure switch cover and remove the manometer.

## CHECK FLAME SIGNAL

With the burner isolated, connect in series with the ionisation probe and the gas burner control a DC Ammeter. Switch on the burner.

Once the flame is established, the microammeter will record the signal strength. (Check high and low flame if applicable). A minimum reading of 1.5µA will give reliable operating conditions.

Readings below this figure may arise from poor burner adjustment. Check and reset if found to be necessary or refer to the section in *Fault Finding*.

Switch off the power to the burner, remove the microammeter, and reconnect the ionisation probe.

Check that all covers to components and locking devices are properly secured.

Check that the appliance control instruments are set to safe limits.

Commissioning is now complete.

## ROUTINE SAFETY CHECKS

### TO BE CARRIED OUT ONLY BY QUALIFIED AND EXPERIENCED PERSONNEL.

Check that the plant room is ventilated at all times.

Frequently inspect the air inlet of the burner and ensure that there are no obstructions to air flow.

### FLAME DETECTION SYSTEM

#### Flame Probe (Flame Rectification Rod)

Switch off the electrical supply to the burner. Break the flame signal circuit by removing any connection to the ionisation probe.

Switch on the electrical supply. Check that the burner locks out at the end of the ignition cycle.

Switch off the electrical supply. Complete flame signal check circuit.

Switch on the electrical supply. Reset lockout.

#### UV (Ultra-Violet) Cell

Switch off the power supply to the burner. Remove the UV cell from the burner casing and cover the quartz glass envelope to exclude any light. Do not touch the quartz glass with fingers.

Switch off the power supply to the burner. Remove the UV cell from the burner casing. Switch on the power supply and during the pre-purge period show the UV cell to an external light source. The burner should go immediately to lockout. Reset lockout

Switch on the power supply. Check that the burner locks out at the end of the ignition cycle. Switch off the power supply. Replace UV cell switch on the power supply. Reset lockout.

## ROUTINE MAINTENANCE

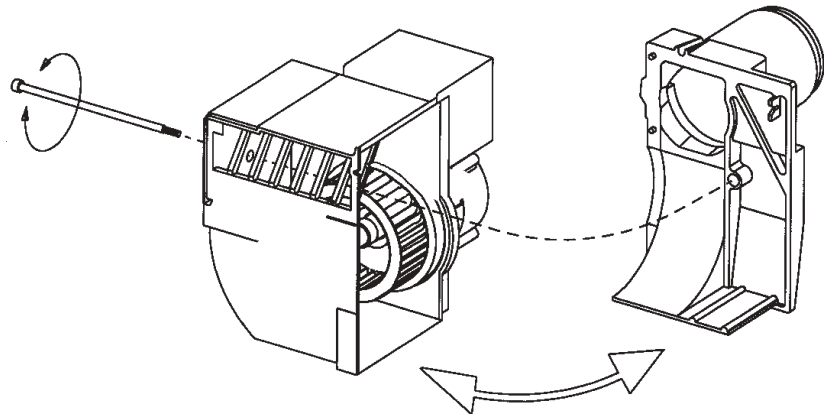
Switch off electrical supply and gas supply to the burner.

### Combustion Air Fan

Access can be gained to the combustion air fan by opening the fan case as shown in the diagram.

Clean the blades regularly with a stiff brush. Care should be taken to avoid damaging the fan blades. Check that the air inlet into the fan is clean.

When re-assembling the fan casing ensure that the gasket is correctly located.



### Inner Assembly

Open the hinged extension as follows:-

Remove the MultiBloc plug from its socket on the control package.

Remove the safety bolts from the hinged extension. Remove the pin appropriate to the direction in which the head is to be opened.

Open the hinged extension, disconnect the ignition electrode H.T. lead and if fitted the flame probe lead.

Remove the locking screw securing the inner assembly gas pipe to its manifold. Carefully withdraw the inner assembly from the hinged extension.

### Air Diffuser And Gas Nozzle

Clean using a stiff brush.

### Ignition Electrode

Clean and check the electrode is not cracked or worn. Renew if necessary.

Check the settings of the ignition electrode and flame rectification probe, and reset if necessary. Replace all components and covers, and secure all fittings. The burner is now ready for operation. Switch on the electricity supply and gas supply to the burner.

# GAS COMMISSIONING SHEET

The details below are to be completed by the Commissioning Engineer

Installer's Name : \_\_\_\_\_

Address : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Site Address : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Appliance :    Type : \_\_\_\_\_    Size : \_\_\_\_\_    Serial No. : \_\_\_\_\_

Burner :        Type : \_\_\_\_\_    Size : \_\_\_\_\_    Serial No. : \_\_\_\_\_

Commissioning date : \_\_\_\_\_

Guarantee Expiry date : \_\_\_\_\_

Gas type : \_\_\_\_\_

Gas Pressure upstream of main gas governor :

a) Standing : \_\_\_\_\_ mbar      b) Running : \_\_\_\_\_ mbar

Gas pressure at burner head    \_\_\_\_\_ mbar    \_\_\_\_\_ in.w.g.

Gas rate (High)                    \_\_\_\_\_ m<sup>3</sup>                    \_\_\_\_\_ ft<sup>3</sup>/hr

Gas rate (Low)                     \_\_\_\_\_ m<sup>3</sup>                     \_\_\_\_\_ ft<sup>3</sup>/hr

Heat input                            \_\_\_\_\_ MJ/hr                    \_\_\_\_\_ Btu/h

CO                                        \_\_\_\_\_ %                        \_\_\_\_\_ %

CO<sub>2</sub>                                        \_\_\_\_\_ %                        \_\_\_\_\_ %

Gross flue gas temperature    \_\_\_\_\_ °C                        \_\_\_\_\_ °F

Ambient temperature            \_\_\_\_\_ °C                        \_\_\_\_\_ °F

Nett flue gas temperature      \_\_\_\_\_ °C                        \_\_\_\_\_ °F

Efficiency                              \_\_\_\_\_ %                        \_\_\_\_\_ %

# BURNER SERVICE RECORD

The details below are to be completed by the Servicing Engineer  
This sheet to be completed and signed following each service / adjustment

DATE	DETAILS OF SERVICE	SIGNATURE

# BURNER SERVICE RECORD

The details below are to be completed by the Servicing Engineer  
This sheet to be completed and signed following each service / adjustment

DATE	DETAILS OF SERVICE	SIGNATURE

## FAULT FINDING

Any modifications to the installation or component settings resulting from actions suggested below may require the re-establishment of the various settings as indicated earlier in this manual.

### **Burner Motor Fails To Start**

Check:

- that the electrical supply is sufficient and the burner is correctly wired.
- all fuses for continuity and size.
- all control instruments are "calling for heat".
- the gas train is electrically connected.
- the control box is not locked out (e.g. signal lamp faulty). (If the control box is locked out, press the reset button).
- there is sufficient gas pressure.
- the burner probe is not earthed.
- the air pressure switch is in the "start" position, as follows: -

Switch off the electrical supply. Remove the plug-in assembly from the control box base. Check for an open circuit between the air pressure switch terminals.

If there is continuity between terminals, turn the dial on the air pressure switch fully anticlockwise to the minimum setting. If there is now an open circuit, the air pressure switch is in order, otherwise the air pressure switch is faulty and must be renewed.

If the air pressure switch isn't in its made position the motor will start for approximately 2 to 3 seconds, it then will lockout for 10 seconds before attempting a further start. If it is still in the made position a lockout will occur.

### **Start Failure Without Ignition**

Check:

- The air pressure switch is set correctly.
- The electrode is correctly set and the porcelain is not cracked.
- The ignition transformer is not faulty.
- The control box is not faulty.

### **Start Failure Without Flame**

If the start flame is not properly established, the safety circuit of the sequence controller will cause lockout in one second.

The cause may be insufficient signal to the flame detection device. Alternatively the flame signal circuit may be incomplete, or there is insufficient gas to allow the flame monitoring device to take over and signal the sequence controller to continue its cycle. This may be remedied by adjusting the fast initial lift of the downstream safety valve.

Check:

- The probe is correctly positioned.
- For bad earth continuity/faulty wiring.
- The ignition transformer for crossed polarity.
- The flame signal circuit is incomplete.



## **FAULT FINDING Continued.....**

### **Burner Fails To Establish Main Flame.**

Check:

- The gas valves are operating correctly.
- The combustion air is set correctly.
- There is sufficient gas.
- The control box is not faulty.

### **Incorrect Rotation Of Burner Motor**

Motor rotates clockwise viewed from the shaft end. If the burner motor rotation is incorrect, the single phase motor should be renewed. On three phase motors, interchange any two phases. In normal circumstances, this will correct the rotation.

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