Installation and operating instructions
Weishaupt gas burner
WG30.../1-C, version ZM-LN (LowNOₓ)
WG40.../1-A, version ZM-LN (LowNOₓ)
For gas types: Natural Gas E, LL and Liquid Petroleum Gas B/P
Contents

1 General information 3
2 Safety information 4
3 Technical description 6
  3.1 Permissible applications 6
  3.2 Function 6
  3.3 Operating Controls 7
4 Installation 8
  4.1 Safety notes on installation 8
  4.2 Delivery, transportation and storage 8
  4.3 Preparation for installation 8
  4.4 Installing the burner 9
  4.5 Installing the valve train 10
  4.6 Valve train soundness test 12
  4.7 Electrical connections 13
5 Commissioning and operation 14
  5.1 Safety notes on initial commissioning 14
  5.2 Preparations for initial commissioning 14
  5.3 Commissioning and setting 15
  5.4 Sequence of operation and wiring diagram 25
  5.5 Display and operating modes 27
  5.6 Shutdown periods 28
6 Fault conditions and procedures for rectification 29
7 Servicing 32
  7.1 Safety notes on servicing 32
  7.2 Servicing plan 32
  7.3 Mixing head - removing and refitting 33
  7.4 Mixing head - setting 33
  7.5 Ignition electrode - setting 34
  7.6 Fan housing cover servicing position 34
  7.7 Fan wheel and motor - removal and refitting 35
  7.8 Air damper stepping motor - removal and refitting 35
  7.9 Air damper angle-drive - removal and refitting 36
  7.10 Gas butterfly valve stepping motor - removal and refitting 36
  7.11 DMV solenoid - removal and refitting 37
  7.12 Gas governor spring - removal and refitting 37
  7.13 Gas filter insert - removal and refitting 38
  7.14 Combustion manager - removal and refitting 38
8 Technical Data 39
  8.1 Burner equipment 39
  8.2 Capacity graph 39
  8.3 Permissible fuels 39
  8.4 Electrical data 40
  8.5 Permissible ambient conditions 40
  8.6 Dimensions 40
  8.7 Weights 41

Appendices
Calculation of gas throughput 42
Combustion analysis 43

Note to title page:
The “filter/ball valve” group on the valve train is shown turned through 180°.
(For normal arrangement see section 4.5)
1 General information

These installation and operating instructions
• are an integral part of the equipment and must be kept permanently on site.
• are for the use by qualified personnel only.
• contain the relevant information for the safe assembly, commissioning and servicing of the equipment
• are for the attention of all personnel working with the equipment.

Explanation of notes and symbols

This symbol is used to mark instructions, which, if not followed, could result in death or serious injury.

This symbol is used to mark instructions, which, if not followed, could result in life threatening electric shock.

This symbol is used to mark instructions, which, if not followed, could result in damage to, or the destruction of the equipment and environmental damage.

This symbol is used to mark procedures, which you should follow.

1. Procedures with more than one step are numbered.
2.
3.

This symbol is used when you are required to carry out a test.

This symbol is used to list points.

Abbreviations
Tab. Table
Ch. Chapter

Hand-over and operating instructions
The contractor is responsible for passing the operating instructions to the plant operator prior to hand-over. He should also inform the plant operator that these instructions should be kept with the heating appliance. The address and telephone number of the nearest service centre should be entered on the reverse of the operating instructions.

The plant operator must note that the plant must be inspected at least once a year by an agent of the contractor or other suitably qualified person. To ensure regular inspections, -weishaupt- recommends a service contract.

The contractor should instruct the plant operator in the use of the equipment prior to hand-over and inform him as and when necessary of any further inspections that are required before the plant can be used.

Guarantee and liability
Weishaupt will not accept liability or meet any guarantee claims for personal injury or damage to property arising as a result of one or more of the causes below:

• Failure to use the equipment as intended
• Improper assembly, commissioning, operating or servicing of the equipment.
• Operating the appliance with defective safety equipment, or with non-recommended or non-functioning safety and protection devices
• Failure to follow the information in the Installation and Operating Instructions
• Alterations made to the construction of the equipment by the plant operator
• Alterations made to the equipment by the plant operator (e.g. motor ratio - rating and speed)
• Alterations made to the combustion chamber, which hinders constructive, predetermined flame formation
• Inadequate monitoring of parts liable to wear and tear
• Improperly executed repairs
• Acts of God
• Damage caused by continued use despite the occurrence of a fault
• Use of incorrect fuel
• Obstruction or damage of the supply lines
• Use of non-original -weishaupt- spare parts
3 Technical description

3.1 Permissible applications

The Weishaupt WG30 and WG40 gas burners are suitable for:

- mounting on heat exchangers according to EN303-3 or DIN4702-1
- on warm water plant with intermittent or continuous operation (combustion manager will switch off once during 24h).

Any other use is only permissible with the written agreement of Max Weishaupt GmbH.

The burner must only be operated with the type of gas given on the burner plate.

The burner must only be operated under the permissible ambient conditions (see Ch. 8.5)

The burner must not be used outside. It is only suited for operation inside.

The burner must not be used outside of its capacity range (see capacity graphs, Ch. 8.2).

The gas supply pressure must not exceed the gas pressure given on the burner plate.

The burner is not preset.

3.2 Function

Burner type

Forced draught burners with two stage or modulating operation. For modulating operation, a step controller is required (available as an accessory).

Combustion manager

Main points:
- Microprocessor control and monitoring of all burner functions
- LCD display
- Keypad operation
- Data bus connection (eBUS)
- Integrated valve proving of the solenoid valves

Sequence of operations

Demand for heat from the boiler controller:
- Test of the stepping motors
- Fan starts - pre-purge of the combustion chamber
- Ignition on
- Solenoid valves open in sequence - fuel release
- Flame formation
- Air damper and gas butterfly valve open in unison according to heat requirement
- After 24 hours continuous operation a time controlled compulsory controlled shutdown occurs.

Sufficient heat attained:
- Solenoid valves close in sequence
- Post-purge of the combustion chamber
- Soundness test of the solenoid valves
- Burner switches off - standby

Gas valve train schematic

1/2”-2”

DN65 and DN80

Stepping motors

Separate stepping motors control the gas butterfly valve and the air damper. This allows optimal gas/air compound regulation throughout the operating range of the burner.

Flame sensor

Monitors the flame during all phases of operation. If the flame signal does not correspond to the sequence of operations, a safety lockout will occur.

FRS gas governor

Equalises variations in pressure from the gas supply network, thus providing a constant gas pressure and a regular gas throughput. The control gas pressure is set with this device.

DMV double solenoid valve

Automatic release or shut off of the gas flow. The limiting of the valve stroke, and with it a change of the pressure drop, is possible via adjustment of the setting screw.

Gas pressure switch

With too low a gas pressure, the low gas program is started. The gas pressure switch also serves as part of the automatic valve proving.

Air pressure switch

If there is a drop in the air supply, the air pressure switch causes a safety lockout.
Burner start-up tests  
During every burner start the functioning of the stepping motors and the air pressure switch are tested. If a deviation from the program logic is detected, the start up program is interrupted and the burner is restarted. Up to 5 restarts are possible.

Low gas program  
The gas pressure switch monitors the minimum gas pressure between the two valves of the DMV. If the gas pressure switch has not been activated due to low gas pressure the burner start is interrupted. After a waiting time of two minutes a restart of the burner is attempted. If the gas pressure is still too low, a third attempt at restarting the burner will commence after a further waiting time of two minutes. After a third unsuccessful attempt to start the burner, the start can only be attempted after a waiting time of one hour.

3.3 Operating controls

Operating panel and LCD display

<table>
<thead>
<tr>
<th>Key</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Reset key, Info key" /></td>
<td>resets burner lockout, is used to obtain information in the info mode and service mode</td>
</tr>
<tr>
<td><img src="image" alt="Air damper" /></td>
<td>changes the air damper setting in the setting mode by pressing or</td>
</tr>
<tr>
<td><img src="image" alt="Gas butterfly valve" /></td>
<td>changes the gas butterfly valve setting by pressing or</td>
</tr>
<tr>
<td><img src="image" alt="Parameter changes" /></td>
<td>changes the air damper and gas butterfly valve, decrease or increase, changes individual set point</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Setting mode active</td>
</tr>
<tr>
<td>S</td>
<td>Burner starts</td>
</tr>
<tr>
<td>i</td>
<td>Information mode active</td>
</tr>
<tr>
<td></td>
<td>Service mode active</td>
</tr>
<tr>
<td></td>
<td>Stepping motor movement</td>
</tr>
<tr>
<td></td>
<td>Burner operation (flame signal present)</td>
</tr>
<tr>
<td></td>
<td>Lockout</td>
</tr>
</tbody>
</table>

Note: In the chapter “Installation and commissioning”, instructions for regulation and operation will be given in detail.

Valve proving  
After a controlled shut down, the burner carries out an automatic valve proving test. The combustion manager tests for erroneous pressure increases and pressure drops in the gas line. If no erroneous pressure increases and pressure drops are detected, the burner goes to “Standby” and the display shows OFF.

If the burner stops operating because of a lockout or a failure of the mains gas supply, the valve proving will be activated at the time of the next burner start:
• Burner switches off during the start-up phase
• Valve proving
• Automatic restart
4 Installation

4.1 Safety notes on installation

Electrically isolate the plant

Prior to installation switch off the mains switch and the safety switch. Failure to comply could cause death or serious injury by electric shock.

Valid for Switzerland only:

When installing and operating -weishaupt- gas burners in Switzerland, the regulations of the SVGW and the VKF, as well as local and cantonal regulation must be observed. Furthermore the EKAS guideline (liquid petroleum gas guideline, part 2) must be adhered to.

4.2 Delivery, transportation and storage

Check delivery

Check the delivery to see that it is complete and that there has been no damage in transit. If the delivery is incomplete or damaged, contact the deliverer.

Transport

For the transport weights of the burners and valve trains see Ch. 8.7.

Storage

Be aware of the permissible ambient conditions when storing (see Ch. 8.5).

4.3 Preparation for assembly

Check burner plate

The burner rating must be within the operating range of the heating appliance. The ratings given on the burner plate are the minimum and maximum possible firing rates of the burner. See capacity graphs Ch 8.2.

Space requirement

For burner and valve train dimensions see Ch. 8.6.
4.4 Burner installation

Prepare heating appliance
The diagram shows the refractory for a heating appliance without a cooled front. The refractory must not protrude beyond the front edge of the combustion head. The refractory can, however, take a conical shape (≥ 60°). Refractory may not be required on boilers with water cooled fronts, unless the manufacturer gives other instructions.

<table>
<thead>
<tr>
<th>Comb.</th>
<th>Dimensions in mm</th>
<th>d1</th>
<th>d2</th>
<th>d3</th>
<th>d4</th>
<th>d5</th>
<th>l1</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG30/1</td>
<td></td>
<td>127</td>
<td>M8</td>
<td>170</td>
<td>186</td>
<td>130</td>
<td>170</td>
</tr>
<tr>
<td>WG40/1</td>
<td></td>
<td>154</td>
<td>M10</td>
<td>186</td>
<td>200</td>
<td>160</td>
<td>170</td>
</tr>
</tbody>
</table>

* Depending on the type of heat exchanger
  Observe instructions given by the manufacturer!

Installing the burner
1. Remove mixing head ⃝ (see Ch. 7.3)
2. Loosen screws ➃
3. Remove burner flange ⃀ with flame tube from the housing.
4. Fix the burner flange to the heat exchanger with screws ③.
5. Push burner over the stay bolts ⃁.
6. Fit and tighten screws ④.
7. Check the ignition and ionisation electrodes are set correctly (see Ch. 7.5).
8. Fit mixing head (see Ch. 7.3). Ensure the gasket is correctly aligned

Installation of burner rotated through 180°
As above. There are, however, a few other procedures necessary:

- Fix burner flange ① rotated through 180°
- Place burner on the stay bolts rotated through 180°
- Remove the fixing angles ② from the burner housing
- Fix the operating panel ② with its base plate to the opposite side of the burner housing.
- Attach the fixing angles to the bottom of the burner housing.

Ensure the burner has been mounted correctly to avoid critically hot temperatures, which could lead to serious burns if skin comes into contact with the burner flange.

DANGER
4.5 Installing the valve train

**Risk of explosion!**

Gas leaks can lead to the build-up of explosive gas/air mixtures. With the presence of an ignition source, these then result in explosions.

To avoid accidents, please follow the following safety information on valve train installation.

- Before beginning work, close all the relevant shut off devices and ensure they cannot be accidentally reopened.
- Ensure the valve train components are correctly aligned and that all the joints are clean.
- Flange seals must be fitted correctly on the machined faces.
- Tighten screws evenly diagonally opposite.
- Valve trains must be mounted tension-free. Do not compensate for misalignment by over tightening.
- Do not tighten or seal pipe thread connections on the mounted burner.
- The valve trains must be fixed and supported securely. They must not be allowed to vibrate during operation. Supports suitable for the site should be fitted during installation.
- Only sealing agents tested and approved by the gas supplier must be used.

**Mounting the valve train from the right**

1. Remove the protective film from the gas connection flange.
2. Mount the components in the order shown in the diagram.

**Note**

- **DMV:** Can be mounted in the horizontal or vertical plane.
- **FRS:** Can be mounted with the spring in the horizontal or vertical plane.

*Installation example - Internal diameter 1/2" to 2" (included in delivery)*

![Diagram of valve train installation](image)

*Installation example - Special version*

![Diagram of special valve train installation](image)
Mounting the valve train from the left
With the burner rotated through 180°, the valve train as described above can be fitted from the left. However, the following additional steps are necessary:

1. Before mounting the DMV, remove the gas pressure switch
2. Remove the closing plug
3. Fix the gas pressure switch to the opposite side of the DMV. Be aware of the ‘O’-ring!
   DMV-D 507/11 to 520/11: test point 2
   DMV-D 5065/11 and 5080/11: test point 3
4. Fix the closing plug to the opposite side of the DMV.

Change position of the gas pressure switch for left handed valve trains

Change position of the gas pressure switch for left handed valve trains

If required, a flanged elbow can also be fitted (accessory part).
The valve train soundness test must be carried out with the main isolating cock and DMV valves closed.

Test pressure in valve train: _____________ min. 100 mbar
Waiting time for pressure equalisation: _______ 5 minutes
Test time:______________________________ 5 minutes
Max. permissible pressure drop: _______________ 1 mbar

1st test phase:
Ball cock up to 1st valve seat
1. Connect test assembly to the gas filter and DMV inlet.
2. Open test point between V1 and V2.

2nd test phase:
Between the valves and 2nd valve seat
1. Connect test assembly to test point between V1 and V2.
2. Open the test point after V2.

3rd test phase:
Valve train connection parts and gas butterfly valve
1. Insert blanking plate. (See also note in Ch. 7.3)
2. Connect the test assembly to the test point after V2 and the connection flange of the gas butterfly valve.
3. After the soundness test remove the blanking plate.
4. Tighten the Torx screws on the mixing head.

Note: To carry out a soundness test, brush connection points with foam forming agents or similar, non-corrosive material.

DMV test points
During the soundness test the closing plugs on the valve train should be replaced with test nipples.

After testing close all the test points!

Documentation
Results of the pressure test must be recorded on the service/commissioning report.
4.7 Electrical connection

1. Check polarity of the connection plugs ➊ and ➋. Wiring diagram see Ch. 5.4.
2. Plug the 4 pole plug ➊ for capacity control into the combustion manager.
3. Plug the 7 pole plug ➋ from the boiler controller.
4. Plug the cable plugs coming out of the burner housing (➌ and ➍) in to the gas pressure switch and the DMV solenoid valve (plugs are coded) and tighten the screws.

Connection to the mains supplied should be carried out to the wiring diagram relevant for the type of unit.

Notes for Austria
Electrical isolation having a minimum of 3 mm contact gap, acting on all poles, must be fitted adjacent to the burner.
Possibilities are:
• Switch (without micro-contacts) with required separation characteristics
• Circuit breaker
• Contactor
• Screw in type fuse with clearly recognisable designation

With burner WG40 observe the following:
The supply to the 7 pole connection plug must be fitted with a 10 A fuse. For boiler controls which can only be fitted with a 6.3 A fuse, the burner motor must be supplied via a separate voltage supply line (motor relay available as accessory).

Safety fusing of supply line: min. 10 A slow max. 16 A slow
5 Installation and commissioning

5.1 Safety notes on initial commissioning

The initial commissioning must only be carried out by the supplier, manufacturer or their appointed agent. At this time, all the control and safety equipment must be checked to ensure correct operation and, if they can be adjusted, it should be checked they have been set correctly.

Furthermore, the correct fusing of the circuits and the measures for contact protection of electrical equipment and of all wiring must be checked.

- The burner has not been preset!

5.2 Preparations for initial commissioning

Purging the gas supply line

The gas line may only be purged by the local gas authority. Lines have to be purged with gas until the remaining air or inert gas has been expelled from the line. The ball valve on the gas train must be kept closed during supply line pressure tests and purging.

**Note**

If work has been carried out on the gas line, i.e. exchanging of parts, valve trains or gas meters, re-commissioning may only be carried out after the relevant lines have been purged by the local gas authority. Electrical continuity must be ensured when changing items in the gas train.

Check gas supply pressure

**Risk of explosion!** If the supply pressure is too high it can destroy the valve train. The gas supply pressure must not exceed the maximum permissible valve train pressure given on the burner plate.

Check the supply pressure before purging the valve train:

1. Connect pressure gauge to the filter.
2. Slowly open the ball valve while watching the pressure gauge.
3. Close the ball valve immediately the supply pressure exceeds the maximum permissible valve train pressure. Do not start burner!

Inform the plant operator.

Purging the valve train

- The gas supply pressure must be correct.
1. Connect a hose, leading out to safe atmosphere, to the test point before V1 on the DMV.
2. Open the ball valve. The gas in the valve train is vented to the atmosphere via the hose.

Small amounts of gas can be burnt off at the end of the hose with a suitable test burner.
Checklist for initial commissioning
- The heating appliance must be assembled ready for operation.
- The operating instructions of the heat exchanger must be followed.
- The whole plant must be wired correctly.
- The heating appliance and the heating system must be sufficiently filled with heating medium.
- Flues must be free from obstructions.
- Explosion relief doors must be operable.
- The flue gas dampers must be open.
- The ventilators on air heaters must work correctly.
- Sufficient fresh air must be available.
- The required test points for combustion analysis must be available.

5.3 Commissioning and setting

Connect manometer
To measure gas pressure during setting.

Determine values for pre-setting
1. Select and note the full load gas setting pressure from the table “Setting and supply pressures”.
2. Select and note the required full load pre-setting for the air damper and the diffuser from the graph “Setting diagram air damper - diffuser”. Write the pre-set value of the air damper on the label provided.
3. Calculate the gas throughput for full and partial load (see appendix). Pay attention to the appliance manufacturer’s instructions.

Set the diffuser
- Turn the setting screw until the scale on the setting indicator shows the pre-set value.

Note
- At diffuser setting 0 the setting indicator is level with the mixing chamber housing (i.e. the scale is not visible).

Ensure that the heat exchanger and the flue gas section up to the test sampling point is sound, so that test results are not corrupted by extraneous air.
- Water level controls must be set correctly.
- Thermostat, pressure switch and other safety devices must be in operating position.
- There must be a demand for heat.
- Fuel lines must be purged of air.
- The soundness of the valve train must be tested and documented.
- The gas supply pressure must be correct.
- Fuel cut off devices must be closed.

Label for burner setting

Connection of manometer

Setting indicator for diffuser setting

Note
Dependent on site requirements, further checks may be necessary. Note the instructions for the individual items of plant equipment.
Example 1
Burner rating ______________________________ 300kW
Combustion chamber pressure _______________ 4.5 mbar
gives: Diffuser setting _______________________ 0 mm
Air damper opening angle ________________ 49°

Example 2
Burner rating ______________________________ 440kW
Combustion chamber pressure _______________ 3.5 mbar
gives: Diffuser setting ________________________ 7 mm
Air damper opening angle ________________ 80°
The setting diagram is split into two sections:
- Diffuser setting 0
- Air damper setting according to rating required
- Air damper opening angle 80°
- Diffuser setting according to rating required

The total ratings range is divided up into 10 operating points (P0 - P9). Each operating point is defined by a particular set point of the gas butterfly valve and air damper.

Partial load
Lowest possible combustion rating of the heating appliance, which must not be less than the minimum load of the burner. Check with the appliance instructions to determine bu.

Pre-setting the gas governor
1. Remove cap ➀.
2. Turn spring ➁ completely to the left.
   The spring is now at minimum setting.

To increase outlet pressure, turn screw clockwise.
To decrease outlet pressure, turn screw anticlockwise.
## Pre-setting on the combustion manager

1. Unplug bridging plug 7 on the combustion manager.  
   **Appliance’s response**: Combustion manager goes to “Stand by” position.  
   **Display**: OFFUPr

2. Connect voltage supply on the burner. Mains switch “ON”  
   **Appliance’s response**: Combustion manager changes to setting mode.  
   **Display**: E 6ARS J-r

3. Press \( G \) and \( A \) simultaneously.  

4. Press \( + \).  
   **Display**: 9 800000

5. Hold down \( G \) and by pressing \( - \) or \( + \) adjust the air damper setting (noted value from the diagram).  

6. Hold down \( G \) and by pressing \( - \) or \( + \) set the gas butterfly valve to the same value.  
   **Display**: 1 100 100

7. Press \( + \).  
   **Display**: 0 110 110

8. Press \( + \) to confirm pre-set value.  
   **Display**: 6ARS J-r

9. Press \( + \) to confirm pre-set value.  
   **Display**: Burner is now ready for operation.

### Function test with ball valve closed

- **Thermostat circuit T1/T2 must be closed**

1. Briefly open ball valve and then close it again.  
   **Burner starts in accordance with the sequence of operations.**  
   **The gas pressure switch establishes that there is insufficient gas.**  
   **The burner tries to restart.**  
   **After two or three attempted starts, the combustion manager causes the burner to lockout due to the lack of gas (low gas program).**

   **Attention!** Only proceed when the low gas program functions correctly.

2. Plug in bridging plug 7 on the combustion manager.  
   **Burner is now ready for operation.**

3. Remove and replace the 7-pole connection plug to interrupt the low gas program.  
   **Display**: OFFUPr

### Note

Should a controlled shutdown of the burner occur whilst setting the burner, continue as follows:  
1. Press \( - \) and \( + \) simultaneously.  
2. Go to the last load point set by pressing \( + \).  
   **Record the values given on the display for every set point and their relevant ratings (gas throughput). This will assist you when setting partial load.**

### Danger of explosion!

CO formation due to incorrect burner setting. Check CO content at each operating point. If CO is detected, adjust combustion values. CO content should not exceed 50 ppm at this time.
### Commissioning

1. Open the ball valve.

2. Press \( \text{down} \) and \( \text{up} \) simultaneously.
   
   Burner starts in accordance with the sequence of operations and runs to ignition load P0.

3. Set setting pressure on the governor (value from the table + combustion chamber resistance)

### Adjust full load

1. Press and hold \( \text{up} \) for 1 second.
   
   Burner runs to P1

2. By pressing \( \text{up} \), slowly drive the burner to full load point P9. Monitor the CO values of flue gas at all the intermediate load points.
   
   If necessary adjust combustion values by pressing \( \text{down} \) or \( \text{up} \).

3. Carry out gas throughput measurements at full load (see appendix).

4. Optimise the gas throughput by adjusting the gas pressure or gas butterfly valve.
   (Keep \( \text{down} \) pressed down and by pressing \( \text{down} \) or \( \text{up} \) adjust the gas butterfly valve setting)

5. Keep \( \text{down} \) pressed down and optimise combustion by pressing \( \text{down} \) or \( \text{up} \) (see appendix).
   If the required rating can not be reached, see notes below.

### Adjust intermediate load points

1. Press \( \text{down} \).
   
   Values for P9 are saved.

2. Keep \( \text{down} \) pressed down and optimise combustion values by pressing \( \text{down} \) or \( \text{up} \);

3. Press \( \text{down} \).
   
   Values for P8 are saved.

4. Set points P6 to P1 as for P8 above.

5. Once P1 has been set, press \( \text{up} \) to save all values.

### Problems when matching ratings?

The air damper and the gas butterfly valve can not be altered randomly in the individual operating points. If an exact rating can not be matched the diffuser setting will have to be corrected. If the rating is too high at diffuser setting 0, the pre-setting of P9 must be corrected:

1. Unplug bridging plug 7 on the combustion manager.
   Burner goes to the stand by position.

2. Continue as described in “Pre-setting on the combustion manager”. Re-set air damper setting P9.
### Adjust ignition load

1. Unplug bridging plug 7 from the combustion manager.
   - Burner switches off. Combustion manager runs to stand by position.

2. Press and simultaneously.
   - Combustion manager changes to setting mode.

3. Replace bridging plug 7.
   - Burner starts and remains in ignition position P0.

4. Keep pressed down and by pressing or set the gas butterfly valve so that flue gas has an O₂ value of 4 - 5%.
   - **Note** The gas governor setting pressure must not be changed!

5. Press and hold for 1 second to save values.
   - Burner runs to P1.

### Set partial load

1. By pressing , slowly drive the burner to P9.

2. Press and simultaneously.
   - Burner runs to partial load (bu).

3. Keep pressed down and by pressing or set the value for partial load.
   - **Note:** Pay attention to boiler manufacturers instructions.

4. Press and simultaneously.
   - Values for partial load are saved. Combustion manager changes from setting mode to operating mode. The burner is set.

### Test start

1. Interrupt the power supply to the burner (e.g. unplug the 7 pole connection plug, wait for 2 or 3 seconds and then reconnect it).
   - Burner
     - starts in operating mode
     - interrupts the start up
     - carries out a valve proving test
     - restarts
     - drives to partial or full load

2. Record all settings on the sticker included and affix it to the mixing chamber housing.
Setting the gas pressure switch
Factory pre-setting: 12 mbar.
The switching point must be checked/adjusted during commissioning
1. Connect a manometer to the test point between V1 and V2 on the DMV.
2. Operate burner (full load)
3. Gradually close the ball valve until the pressure decreases to half its value. Monitor the CO level and flame stability.
4. Slowly turn the setting cam of the gas pressure switch to the right until the combustion manager starts the low gas program. Minimum value: 12 mbar.
5. Open the ball valve.
6. Remove and replace the 7 pole connection plug. The burner must restart without the low gas program starting.

Setting the air pressure switch
Factory pre-setting: 6 mbar.
The switching point must be checked/adjusted during commissioning. For this a differential pressure measurement between points ➀ and ➁ must be carried out:
1. Connect a manometer as shown in the illustration.
2. Start burner.
3. Drive through the setting range of the burner whilst monitoring the pressure at the pressure test unit.
4. Determine the value of the lowest differential pressure.
5. Set the dial to 80% of the lowest differential pressure.

Example:
Lowest differential pressure: ______ 7.4 mbar
Air pressure switch switch point: ____ 7.4 x 0.8 = 6.0 mbar

Note
Individual site influences, such as flue gas recirculation, heat exchanger, installation or air supply, may necessitate adjustments being made to the settings.
Concluding work
1. Record test results of the flue gas test on the inspection card.
2. Note values on sticker.
3. Remove test unit and fit burner cover.
4. Advise operator on use of equipment.

Subsequent correction of the settings
1. Burner runs in operating mode.
   Unplug bridging plug 7 from the combustion manager. The burner is in stand by position.
2. Press \( \square \) and \( \# \) simultaneously.
   Combustion manager changes to the setting mode.
   Burner starts and remains at ignition point P0.
4. By pressing \( \square \) or \( \# \) drive to the individual operating points P1 - P9.
5. Record the new setting values on the sticker and stick it over the old one.

Test ionisation current
If a flame has formed, an ionisation current flows.

- Response sensitivity of the flame sensor: \( \_ \_ \_ \_ \_ \_ \_ \_ 1 \mu A \)
- Minimum recommended ionisation current: \( \_ \_ \_ \_ \_ \_ \_ \_ 5 \mu A \)

Test equipment:
Multiple test instrument or ammeter.

Connection:
A plug coupling fitted to the ionisation cable is used to connect the test equipment.

Note
If subsequent adjustment of the gas pressure setting or the diffuser setting is necessary, the whole burner commissioning (including pre-setting) must be repeated.

Subsequent correction of the settings
1. Burner runs in operating mode.
   Unplug bridging plug 7 from the combustion manager. The burner is in stand by position.
2. Press \( \square \) and \( \# \) simultaneously.
   Combustion manager changes to the setting mode.
   Burner starts and remains at ignition point P0.
4. By pressing \( \square \) or \( \# \) drive to the individual operating points P1 - P9.
5. Record the new setting values on the sticker and stick it over the old one.

Test ionisation current
If a flame has formed, an ionisation current flows.

- Response sensitivity of the flame sensor: \( \_ \_ \_ \_ \_ \_ \_ \_ 1 \mu A \)
- Minimum recommended ionisation current: \( \_ \_ \_ \_ \_ \_ \_ \_ 5 \mu A \)

Test equipment:
Multiple test instrument or ammeter.

Connection:
A plug coupling fitted to the ionisation cable is used to connect the test equipment.

Note
If subsequent adjustment of the gas pressure setting or the diffuser setting is necessary, the whole burner commissioning (including pre-setting) must be repeated.
5.4 Sequence of operation and diagram

### Sequence of operation

**Boiler controller on**
- Begin full load pre-purge
- Drive to partial load
- Boiler controller off

- Initialise air damper stepping motor
- Ignition setting, air damper and gas
- Partial load operation
- Burner motor off, valve proving

- Boiler controller, on
- Initialise air damper stepping motor
- Gas butterfly valve stepping motor
- Gas valve open
- Operation via ratings controller
- Ready for operation (Standby)

### Switch times

- **Start up waiting time (Test)**: 3 secs.
- **Pre-purge time**: 20 secs (adjustable by Weishaupt)
- **Safety time**: 3 secs.
- **Pre-ignition time**: 2 secs.
- **Stabilisation time**: 2 secs.
- **Post-purge time**: 2 secs.
- **Valve proving test time**: 16 secs. Phase 1
  - (1st valve)
  - 8 secs. Phase 2
  - (2nd valve)
- **Stepping motor run time during operation complete setting movement**: max. 40 secs.
- **Reduced setting movement**: min. 25 secs.
5.5 Display and operating modes

In addition to the setting mode, the combustion manager also has:

- Operating mode (see Ch. 5.4)
- Info mode
- Service mode
- Parameter mode
- Error messages

**Info mode**

The information mode can be selected at every stage of the burner sequence whilst it is in operating mode. Press \( \text{[ ]} \) for about 0.5 seconds. The display will show the relevant value next to an INFO No.

To call up the next information:

Press \( \text{[ ]} \) for about 0.2 seconds.

<table>
<thead>
<tr>
<th>No.</th>
<th>Display value</th>
<th>Example: Fuel consumption: 72 m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Fuel consumption</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Total number of hours run for the gas burner</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Oil burners only</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Number of burner settings carried out (burner starts)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Software No of combustion manager</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Date of software</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Unit No.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Test date of the unit</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Current eBus address</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Valve proving ON / OFF</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Current eBus address regulator</td>
<td></td>
</tr>
</tbody>
</table>

After Info No. 10 or after a 20 second timeout, the unit returns to the operating mode display.

**Service mode**

The service mode can be selected at every stage of the burner sequence whilst it is in operating mode. Press \( \text{[ ]} \) for about 2 seconds. At first, the display will show \( i \) for about 1.5 secs., shortly afterwards the symbol \( \rightarrow \) will appear.

To call up the next service information:

Press \( \text{[ ]} \) for about 0.2 seconds.

<table>
<thead>
<tr>
<th>No.</th>
<th>Display value</th>
<th>Example: Gas butterfly valve setting at operating point P0: 11.4°, air damper setting 12.1°</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Gas butterfly valve and air damper setting at P0</td>
<td>P0</td>
</tr>
<tr>
<td>1</td>
<td>P1</td>
<td>P1</td>
</tr>
<tr>
<td>2</td>
<td>P2</td>
<td>P2</td>
</tr>
<tr>
<td>3</td>
<td>P3</td>
<td>P3</td>
</tr>
<tr>
<td>4</td>
<td>P4</td>
<td>P4</td>
</tr>
<tr>
<td>5</td>
<td>P5</td>
<td>P5</td>
</tr>
<tr>
<td>6</td>
<td>P6</td>
<td>P6</td>
</tr>
<tr>
<td>7</td>
<td>P7</td>
<td>P7</td>
</tr>
<tr>
<td>8</td>
<td>P8</td>
<td>P8</td>
</tr>
<tr>
<td>9</td>
<td>P9</td>
<td>P9</td>
</tr>
<tr>
<td>10</td>
<td>last error (see also Ch. 6.5)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>second to last error</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>third to last error</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>fourth to last error</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>fifth to last error</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>sixth to last error</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Flame intensity: 00 no flame</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>01 flame signal weak</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>02 flame signal weak</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>03 flame signal optimum</td>
<td></td>
</tr>
</tbody>
</table>

After Service info No.16 or after a 20 second timeout, the unit returns to the operating mode display.
Parameter mode (For qualified personnel only)
This mode can be accessed only when the display shows OFF.
1. Remove the burner cover.
2. Remove bridging plug 7.
   Burner goes into standby, the display shows OFF
3. Press \( \text{ and } \) simultaneously for about 2 secs.
   the display shows \( P \text{n.r.4 28} \)

To change the values:
\( \text{Press } \text{ or } \text{.} \)

To go to the next parameter:
\( \text{Press } \).\

<table>
<thead>
<tr>
<th>No.</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>03H, 13H, 33H, 73H, F3H</td>
</tr>
<tr>
<td>2</td>
<td>0 to 25.5</td>
</tr>
<tr>
<td>3</td>
<td>0 or 1</td>
</tr>
<tr>
<td>4</td>
<td>0 to 240</td>
</tr>
<tr>
<td>5</td>
<td>0 or 1</td>
</tr>
<tr>
<td>6</td>
<td>1 to 255</td>
</tr>
<tr>
<td>7</td>
<td>80H, 17H, 30H, 70H, F0H, F7H</td>
</tr>
<tr>
<td>8</td>
<td>0 to 100</td>
</tr>
<tr>
<td>9</td>
<td>0 to 100</td>
</tr>
</tbody>
</table>

After parameter No.8 or after a 20 second timeout, the unit returns to the operating mode display.

5.6 Shutdown periods

For short breaks in operation (e.g. flue cleaning etc.):
\( \text{Isolate the burner from the power supply} \)

For longer breaks in operation:
1. Isolate the burner from the power supply
2. Close all fuel cut-off devices.
The burner is found out of operation, in lockout. The display flashes with an error code. If faults occur first check that the basic requirements for correct operation are met.

- Is there a supply of electricity?
- Is the correct gas pressure available from the supply network and is the ball valve open?
- Are all regulating controls for room and boiler, water level interlocks, limit switches etc. set correctly?

If it has been established that the lockout is not due to any of the above, all the burner functions must be checked.

### Reset:
Press \( \text{[remote reset button S2]} \)

To avoid damage to the plant, do not reset the burner more than two times in a row. If the burner locks out for a third time call for a service engineer.

Fault conditions should be rectified only by qualified and experienced personnel.

### Note
The following table provides only a summary of possible faults. For further error codes see Ch. 5.5.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank display</td>
<td>Burner not operating</td>
<td>No electric supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faulty fuse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Limitor from L1 on 7-pole plug has switched off</td>
</tr>
<tr>
<td>Voltage present at inlet L1 on 7 pole plug, but display blank</td>
<td>MP short circuited</td>
<td>Repair short circuit</td>
</tr>
<tr>
<td></td>
<td>7-pole plug connection to combustion manager plugged in incorrectly</td>
<td>Rectify fault</td>
</tr>
<tr>
<td></td>
<td>Combustion manager defective</td>
<td>Replace combustion manager</td>
</tr>
<tr>
<td>Burner is operating but display is blank</td>
<td>Faulty connection plug on combustion manager</td>
<td>Rectify fault</td>
</tr>
<tr>
<td></td>
<td>Faulty display</td>
<td>Replace operating panel</td>
</tr>
<tr>
<td>Display permanently shows OFF</td>
<td>Control circuit not closed</td>
<td>Check why the controller is open between T1/T2 on the 7-pole connection plug.</td>
</tr>
<tr>
<td></td>
<td>7-pole connection plug not fitted correctly</td>
<td>Check plug connection</td>
</tr>
<tr>
<td>* Display shows OFFUPr</td>
<td>Programming not complete</td>
<td>Stop programming</td>
</tr>
<tr>
<td>Burner motor</td>
<td>Burner motor no longer runs. Error message: F 21H</td>
<td>Capacitor defective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Burner motor defective</td>
</tr>
<tr>
<td></td>
<td>Burner motor will not start. Display shows 2 for 30 secs, then restarts. After 5 restarts display shows error message: F 20H</td>
<td>Air pressure switch remains closed</td>
</tr>
<tr>
<td></td>
<td>Burner motor runs continuously, Lockout Error message: F 20H</td>
<td>Motor relays defective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Combustion manager defective</td>
</tr>
</tbody>
</table>
7 Servicing

7.1 Safety notes on servicing

**DANGER**
Failure to carry out maintenance and service work properly can have severe consequences, including the loss of life. Pay close attention to the following safety notes.

**Qualified personnel**
Maintenance and servicing must be carried out only by qualified and experienced personnel.

**Before all maintenance and service work:**
1. Electrically isolate the equipment
2. Close the ball valve
3. Remove the 7-pole connection plug from the boiler controller

**After all maintenance and service work:**
1. Function test.
2. Check flue gas losses as well as CO₂, O₂ and CO values
3. Complete a test sheet.

**Endangering operational safety**
Maintenance work on the following parts may only be carried out by the manufacturer or their appointed agent on the individual components.
- Air damper stepping motor
- Gas butterfly valve stepping motor
- Flame sensor
- Combustion manager with operating panel /display unit
- Gas pressure switch
- Air pressure switch

**Risk of explosion due to a gas leak**
Take care when dismantling and assembling parts in the gas line to ensure they are correctly aligned, clean and in good condition, and that the fixing screws are correctly tightened.

**Danger of getting burnt!**
Some burner parts (e.g. flame tube, burner flange, electrodes, etc.) become hot during burner operation and should be allowed to cool prior to service work being carried out.

7.2 Servicing plan

**Service interval**
The operator should ensure that gas fired plant is serviced at least once a year by an agent of the supplier or other suitably qualified person.

**Test and clean**
- Fan wheel and air inlet (see Ch. 7.6)
- Ignition equipment (see Ch. 7.5)
- Combustion head and diffuser (see Ch. 7.4)
- Filter insert (see Ch. 7.13)
- Air damper (see Ch. 7.6)
- Stepping motor / connection (see Ch. 7.8 and Ch. 7.10)
- Flame sensor

**Function test**
- Operation of the burner with the sequence of operation (see Ch. 5.4)
- Ignition equipment
- Air pressure switch
- Gas pressure switch
- Flame monitoring
- Valve proving of the gas train (see Ch. 4.6)
- Purge valve train (when replacing, see Ch. 5.2)
7.3 Mixing head - removing and refitting

Removing
1. Remove the flame sensor or ionisation line ➀.  
2. Remove the ignition cable ➀ from the ignition transformer.  
3. Loosen screws ➂.  
4. With a slight twist, pull the mixing head ➁ out from the housing.

Refitting

Danger of explosion!
Misalignment of the seal ➂ can result in a gas leak during burner operation. When refitting the mixing head ensure the seal is clean and aligned correctly. Replace it if necessary. When commissioning the burner check the seal is sound with a leak detection spray.

To refit, reassemble in the reverse order.

7.4 Mixing head setting

The distance between the diffuser disc and the edge of the flame tube (dimension S1) cannot be measured whilst it is mounted. To check, remove the mixing head and measure dimension L.

1. Remove the mixing head (see Ch. 7.3.)  
2. Turn the setting screw ➁ until the setting indicator ➀ is level with the mixing chamber housing (scale setting “0” or dim. X = 0 mm).  
3. After setting dimension L, fix the collar ➂ with the lock nuts ➃.

Setting dimensions WG30:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>0 mm</td>
</tr>
<tr>
<td>L</td>
<td>400 mm</td>
</tr>
<tr>
<td>S1</td>
<td>20 mm</td>
</tr>
</tbody>
</table>

Setting dimensions WG40:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>0 mm</td>
</tr>
<tr>
<td>L</td>
<td>508 mm</td>
</tr>
<tr>
<td>S1</td>
<td>25 mm</td>
</tr>
</tbody>
</table>

Note After loosening the lock nuts the position of the electrodes and the gas drillings must be checked (control dimension K).

Control dimension K

<table>
<thead>
<tr>
<th>Size</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG30</td>
<td>63 mm</td>
</tr>
<tr>
<td>WG40</td>
<td>70 mm</td>
</tr>
</tbody>
</table>

Diagram:

Removing and refitting the mixing head

Setting the mixing head

Diagram:

Diagram:

Diagram:
7.5 Ignition electrode setting

- Remove the mixing head (see Ch. 7.3.)
- For setting dimensions see illustration.

<table>
<thead>
<tr>
<th>Ignition electrode setting dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Image of ignition electrode setting dimensions" /></td>
</tr>
</tbody>
</table>

7.6 Servicing position for fan housing cover

The servicing position of the fan housing cover permits:
- Cleaning of the air channel and fan wheel
- Access to the air damper
- The fitting and removal of the fan motor

**Note**
If the burner has been mounted rotated through 180° it is not possible to put the fan housing cover in the servicing position.

1. Remove the mixing head (see Ch. 7.3.)
2. Disconnect plug No. 4 (ignition transformer).
3. Remove the cover ① and disconnect all the plugs.
4. Remove the connecting hose ②.
5. Hold the fan housing cover in place and loosen the screws ③.
6. Hang the fan housing cover on the support ④.

Reassemble the fan housing cover in reverse order.

<table>
<thead>
<tr>
<th>Servicing position of the fan housing cover.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Image of servicing position of the fan housing cover" /></td>
</tr>
</tbody>
</table>

- ① Cover
- ② Combi-Torx screw
- ③ Connecting hoses
- ④ Support
7.7 Fan wheel and motor - removing and refitting

Removing
1. Put the fan housing in the servicing position (see Ch. 7.6.)
2. Loosen the threaded pin ➂.
3. Remove the fan wheel.
4. Remove plug No. 3.
5. Holding the motor in place, loosen the screws ➀.
6. Remove the motor from the housing.

Refitting
Reassemble in the reverse order.

ATTENTION
Pay attention to the adjusting key ➁.
Turn the fan wheel by hand to check freedom of movement.

7.8 Air damper stepping motor - removing and refitting

Removing
1. Remove the plug ➄ from the stepping motor
2. Loosen the screws ➀.
3. Remove the stepping motor with the fixing plate ➁ and the shaft ➂. The air damper will open due to the spring relaxing.

Refitting
Damage to the stepping motor!
Do not turn the hub of the stepping motor, either by hand or with a tool.

1. Removing bridging plug No. 7.
2. Connect plug ➄ to the combustion manager.
3. Switch the burner on.
   The combustion manager tests the stepping motor and drives to the reference point.
4. Switch the burner off and isolate.
5. Insert the shaft ➂ into the stepping motor.
6. Using a screwdriver in the groove on the indicator ➄, set the indicator on the angle drive to “0” and hold it in this position.
7. Insert the shaft into the star-shaped groove in the indicator.
8. Fix the stepping motor.
9. Replace bridging plug No. 7.
**7.9 Air damper angle drive - removing and refitting**

**Removing**
1. Remove the air damper stepping motor (see Ch. 7.8)
2. Loosen the screws ①.
3. Remove the angle drive ②.

**Refitting**
1. Turn the air damper shaft ① clockwise as far as it will go and hold in that position.
2. Attach the angle drive, inserting the shaft into the star-shaped groove.
3. Replace and tighten screws ①.

**7.10 Gas butterfly valve stepping motor - removing and refitting**

**Removing**
1. Remove the plug ① from the combustion manager
2. Loosen the screws ②.
3. Remove the stepping motor.

**Refitting**

**ATTENTION**
Damage to the stepping motor!
Do not turn the hub of the stepping motor, either by hand or with a tool.

1. Remove bridging plug No. 7.
2. Connect plug ① to the combustion manager.
3. Switch the burner on.
   - The combustion manager tests the stepping motor and drives to the reference point.
4. Switch the burner off and isolate.
5. Fit the stepping motor angled about 15° to the left, thus inserting the shaft ③ into the star-shaped groove.
6. Replace and tighten screws ②.
7. Replace bridging plug No. 7.
7.11 DMV solenoid - removing and refitting

Removing
1. Remove paint seal from the counter-sunk screw ➀ and loosen.
2. Loosen cheese head screw ➁.
3. Remove the cap ➂, metal plate ➃ and housing ➄.
4. Replace the solenoid ➅, checking new unit is the correct type/voltage.

Refitting
Reassemble in the reverse order, ensuring to:
- Carry out a soundness test at the test point between V1 and V2: \( p_{\text{min}} = 100 \text{ - } 150 \text{ mbar} \) (see Ch. 4.6)
- Carry out function test.

7.12 Gas pressure governor spring - removing and refitting

Removing
1. Remove protective cap ➀.
2. Relax the spring by turning the setting spindle ➁ anticlockwise.
   - Turn the spindle as far as it will go.
3. Unscrew the spring retainer ➂.
4. Remove the spring ➃.

Refitting
Reassemble in the reverse order.
- A range label for the new spring must be affixed.
### 7.13 Gas filter insert - removing and refitting

**Removing**

1. Loosen screws ➀.
2. Remove cover ➁.
3. Take out the filter insert ➂.
4. Check the O-Ring ➃ in the cover and replace if necessary.

**Note**

Cleaning of the filter insert is possible by washing with water (max. 40° C), blowing out, knocking out or vacuuming out.

**Fire Hazard!**

Do not clean out the filter housing with a vacuum cleaner. Any gas remaining in the valve train could be sucked out and ignited.

**Refitting**

1. Carefully place filter insert into the filter housing.
2. Replace O-Ring if necessary
3. Replace cover
4. Replace and tighten screws
5. Carry out a soundness test (see Ch. 4.6.)
6. Purge valve train (see Ch. 5.6.)

### 7.14 Combustion manager - removing and refitting

**Removing**

1. Disconnect all the plugs.
2. Loosen the screws ➀.
3. Slide the combustion manager upwards and remove it from the housing.

**Refitting**

Reassemble in the reverse order.

**Note**

If the combustion manager is changed, the burner has to be re-adjusted. When adjusting, take the figure for the full load air damper opening angle from the old label. In this way the set points of the intermediate load points will be the same as previously.

---

**Burner Setting**

<table>
<thead>
<tr>
<th>Point</th>
<th>G</th>
<th>L/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

On WG40 burners the exchange of combustion manager W-FM20 V.1.x by combustion manager WFM20 can only be done if flame monitoring is converted to ionisation electrode.
8 Technical data

8.1 Burner equipment

<table>
<thead>
<tr>
<th>Burner type</th>
<th>Combusion head</th>
<th>Motor</th>
<th>Stepping mot.</th>
<th>Ignition unit</th>
<th>Gas pressure switch</th>
<th>Air pressure switch</th>
<th>Display</th>
<th>Flame sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG30…/1-C</td>
<td>WG30/1-LN</td>
<td>ECK05/F-2 230V, 50Hz</td>
<td>STE 4.5</td>
<td>W-ZG 01 BO.36/6-01L</td>
<td>GW50 A5/1</td>
<td>LGW 10 A2</td>
<td>AM20.02</td>
<td>Ionisation</td>
</tr>
<tr>
<td>vers. ZM-LN</td>
<td></td>
<td>2880/min 0.42kW, 2.6A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cond. 12µF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WG40…/1-A</td>
<td>WG40/1-LN</td>
<td>ECK 06/F-2 230V, 50Hz</td>
<td>STE 4.5</td>
<td>W-ZG01 BO.36/6-01L</td>
<td>GW50 A5/1</td>
<td>LGW 10 A2</td>
<td>AM20.02</td>
<td>Ionisation</td>
</tr>
<tr>
<td>vers. ZM-LN</td>
<td></td>
<td>2900/min 0.62kW, 4.0A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cond. 16µF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Capacity graph

The capacity graph is in accordance with EN676. There is a rating reduction dependent on the altitude of the installation: approx. 1% per 100 m above sea level.

Mixing head “Open” — — —
Mixing head “Closed” — — —
8.3 Permissible fuels

Natural Gas E
Natural Gas LL
Liquid Petroleum Gas B/P

8.4 Electrical data

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension mm</th>
<th>Mains voltage</th>
<th>Mains frequency</th>
<th>Consumption start</th>
<th>Consumption operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG30</td>
<td></td>
<td>230 V</td>
<td>50/60 Hz</td>
<td>720 VA</td>
<td>550 VA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.3 A; max. 10 A slow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>166 480 62 197 420 226 196 460 112 226 342 127 M8 170 - 186 130 1 1/2&quot; 45°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WG40</td>
<td></td>
<td>230 V</td>
<td>50/60 Hz</td>
<td>1050 VA</td>
<td>950 VA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.2 A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>235 577 72 235 450 245 207 480 120 245 360 154 M10 186 - 200 160 1 1/2&quot; 45°</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.5 Permissible ambient conditions

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Humidity</th>
<th>Requirements re. EMC</th>
<th>Low voltage directive</th>
</tr>
</thead>
<tbody>
<tr>
<td>In operation:</td>
<td>Max. 80% relative humidity</td>
<td>Guideline 89/336/EEC</td>
<td>Guideline 73/23/EEC</td>
</tr>
<tr>
<td>-15°C…+40°C</td>
<td>no dew point</td>
<td>EN 50081-1</td>
<td>EN 60335</td>
</tr>
<tr>
<td>Transport/storage:</td>
<td>-20…+70°C</td>
<td>EN 50082-1</td>
<td></td>
</tr>
</tbody>
</table>

8.6 Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension mm</th>
<th>l1</th>
<th>l2</th>
<th>l3</th>
<th>l4</th>
<th>b1</th>
<th>b2</th>
<th>b3</th>
<th>h1</th>
<th>h2</th>
<th>h3</th>
<th>h4</th>
<th>d1</th>
<th>d2</th>
<th>d3</th>
<th>d4</th>
<th>Rp</th>
<th>α°</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG30</td>
<td></td>
<td>166</td>
<td>480</td>
<td>62</td>
<td>197</td>
<td>420</td>
<td>226</td>
<td>196</td>
<td>460</td>
<td>112</td>
<td>226</td>
<td>342</td>
<td>127</td>
<td>M8</td>
<td>170</td>
<td>186</td>
<td>130</td>
<td>1 1/2&quot; 45°</td>
</tr>
<tr>
<td>WG40</td>
<td></td>
<td>235</td>
<td>577</td>
<td>72</td>
<td>235</td>
<td>450</td>
<td>245</td>
<td>207</td>
<td>480</td>
<td>120</td>
<td>245</td>
<td>360</td>
<td>154</td>
<td>M10</td>
<td>186</td>
<td>200</td>
<td>160</td>
<td>1 1/2&quot; 45°</td>
</tr>
</tbody>
</table>
Valve trains

Valve train diameter 1/2" to 2"

Valve train (approx. dimension in mm)

<table>
<thead>
<tr>
<th>R</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>340</td>
<td>80</td>
<td>310</td>
<td>130</td>
<td>260</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>425</td>
<td>55</td>
<td>330</td>
<td>100</td>
<td>280</td>
</tr>
<tr>
<td>1&quot;</td>
<td>472</td>
<td>55</td>
<td>370</td>
<td>100</td>
<td>320</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>498</td>
<td>90</td>
<td>520</td>
<td>135</td>
<td>470</td>
</tr>
<tr>
<td>2&quot;</td>
<td>532</td>
<td>95</td>
<td>590</td>
<td>175</td>
<td>510</td>
</tr>
</tbody>
</table>

Note: For DN65 and DN80 valve trains the parts are delivered loose. For dimensions see the technical worksheets.

Valve trains (1/2") approx. 4.0 kg
Valve trains (3/4") approx. 5.5 kg
Valve trains (1") approx. 9.0 kg
Valve trains (1 1/2") approx. 13.5 kg
Valve trains (2") approx. 17.5 kg
DN65 and DN80 see technical work sheets.

8.7 Weights

Burner WG30 approx. 28 kg
Burner WG40 approx. 35 kg
Fan housing cover with motor (servicing position) approx. 13.6 kg
Valve trains (1/2") approx. 4.0 kg
Valve trains (3/4") approx. 5.5 kg
Valve trains (1") approx. 9.0 kg
Valve trains (1 1/2") approx. 13.5 kg
Valve trains (2") approx. 17.5 kg

WG30: DMV 512/11
WG40: DMV 520/11
Oil, gas and dual fuel burners types W and WG/WGL
up to 570 kW
They are used mainly in houses and small buildings.
Advantages: fully automatic, reliable operation, individual components easily accessible, easy to service, quiet operation.

Oil, gas and dual fuel burners types Monarch
R, G, GL, RGL – up to 10,900 kW
These are used on all types and sizes of central heating plant. The basic model which has proved successful over many years is the basis for a variety of versions. These burners have founded the outstanding reputation of Weishaupt products.

Oil, gas and dual fuel burners types WK –
up to 17,500 kW
WK types are decidedly industrial burners.
Advantages: Built to the modular system, load dependent variable combustion head, sliding two stage or modulating operation, easy to service.

Weishaupt control panels, the proven complement to Weishaupt burners
Weishaupt burners and Weishaupt control panels form the ideal unit, a combination which has already proved successful in hundreds of thousands of combustion installations. The advantages: Cost saving during planning, installation, servicing and guarantee work. The responsibility belongs to one manufacturer.

Weishaupt Thermo Unit / Weishaupt Thermo Gas.
These Units combine the technical innovations and operating efficiencies developed from over 1 million installations. Weishaupt Thermo Gas and Weishaupt Thermo Unit provide the ideals of complete heating centres for houses and appartments.

Product and service are the complete Weishaupt achievement
An extensive service organisation guarantees Weishaupt customers the greatest possible reliability. In addition our customers are looked after by heating firms who have been working with Weishaupt for many years.