product
Information on oil, gas and dual fuel burners

WM 20 oil, gas and dual fuel version

Weishaupt monarch® WM20 burners • compact and powerful
For over five decades, Weishaupt monarch® series burners have been used at various heating and industrial process applications. Over this period of time, they have built an excellent reputation for Weishaupt.

With the new monarch® WM burner this success story is now continued. Ultra modern technology in conjunction with a compact design allows this high performance burner to be universally utilized in various applications.

Digital combustion management system ensures economical and safe burner operation. The operation is simple.

The streamlined shape of the burner casing and the specially designed air ducting make it possible to achieve high capacity with compact size.

Thanks to the newly designed blower unit, the new Monarch burners operate with lower sound levels.
Digital combustion management means optimum combustion results, always repeatable operating points and easy handling.

Weishaupt WM 20 oil, gas and dual fuel burners are equipped with electronic fuel air ratio controller and digital combustion manager as standard. Modern heating applications require precise and always repeatable correct mixture of fuel and air. Only this way, optimum combustion values can be guaranteed over extended periods of time.

Simple operation
The programming of burner function is performed via the Display and Control unit. The unit is connected to the combustion manager via a BUS system. This way, adjustment of the burner is user friendly.

Flexible communication possibilities
The integrated interface makes it possible to receive and send all required information and control commands from and to the BMS system. If required, a modem can be installed so that remote monitoring and remote diagnostic function can be activated.

Communication with remote control system or with BMS system
The system supports several communication protocols for connecting to BMS system if data has to be exchanged between burners and other heating systems with PLC devices.

Advantages of new technology
Digital combustion management makes burner operation user friendly and safe. The most important benefits are:

- No additional burner controls are required since this function is already taken care by the combustion manager. Fuses and eventually mains disconnect switch are the only additional items required.
- Less installation work means less errors: the burners are tested as a complete unit at the factory.
- Commissioning and service work take less time. The initial presetting of the burner is carried out at the factory. On site, only the site specific operating points have to be adjusted.

### System overview

<table>
<thead>
<tr>
<th>Digital Combustion Management</th>
<th>W-FM50</th>
<th>W-FM54</th>
<th>W-FM 100</th>
<th>W-FM 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion manager for intermittent operation</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Combustion manager for continuous operation</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Flame sensor for intermittent operation</td>
<td>ION/QRA2/QRB</td>
<td>QRA2</td>
<td>ION/QRI/QRB</td>
<td>ION/QRI/QRB</td>
</tr>
<tr>
<td>Flame sensor for continuous operation</td>
<td>ION</td>
<td>ION/QRI/QRA73</td>
<td>ION/QRI/QRA73</td>
<td>ION/QRI/QRA73</td>
</tr>
<tr>
<td>Number of actuator (max.)</td>
<td>2 pcs</td>
<td>3 pcs</td>
<td>4 pcs</td>
<td>6 pcs</td>
</tr>
<tr>
<td>Actuator with stepping motor</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Compatible with Variable Speed Drive operation</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>O2-Trim (optional)</td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Single fuel operation</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Dual fuel operation</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Valve proving system for gas valves</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Integrated self tuning PID-Modulating controller for Temperature or Pressure</td>
<td></td>
<td>Optional</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Removable ABE control unit (max. distance)</td>
<td>65 ft (20 m)</td>
<td>65 ft (20 m)</td>
<td>325 ft (100 m)</td>
<td>325 ft (100 m)</td>
</tr>
<tr>
<td>Fuel meter interface</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Combustion efficiency display (w/ optional sensor)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>eBUS / MOD BUS interface</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>PC interface</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

1) Not in conjunction with VFD operation
2) Only in conjunction with ionization electrode (flame rod)
Connection schematic with W-FM 54

**Version ZM-R**
- Stepping motor for air
- Stepping motor for oil
- Stepping motor for gas
- Control and display unit
- Combustion manager W-FM 54

**Version ZM-T**
- Stepping motor for air
- Stepping motor for gas
- Control and display unit
- Combustion manager W-FM 54
- OCI 412

**System networking**
- PLC / DDC
- Visualization via PC / Touch Panel
- W-FM COM Communication module
- Wireless connection via fixed or mobile phone network
Compact and Quiet

The newly developed Weishaupt monarch® burner is compact, efficient and quiet. It is the continuation of the 50 years success history of the legendary monarch® series.

Advanced blower fan technology
Right from early development phase of this new burner generation, future oriented blower fan technology has been utilized to achieve a compact, streamlined design and low operating noise.

Innovative air damper control
The newly developed air damper control provides a high degree of linearity over the entire operating range.

Reduced noise level
Right from the earliest developmental stage of this new burner generation, particular emphasis was placed on low operational noise level.

Quick commissioning, easy maintenance
All WM 20 burners are shipped out with an adjustable mixing head. Final adjustment is to be performed via commissioning program in the combustion manager.

Despite its compact design all components such as oil nozzles, mixing head, air damper and combustion manager are easily accessible. Therefore maintenance and service work can be performed easily and quickly. The standard hinged flange allows ideal service position for the burner.

Matching to various combustion chamber geometries can be performed directly on the burner. The flame and the ignition process can be observed via the integrated viewing port.

Flexible control capability
WM 20 burners are available with the following control options:

- **Oil:** 3-stage (T) modulating (R)
- **Gas:** Sliding two stage or modulating (ZM)

This allows flexible control possibilities, which make the burner universally adaptable to various applications. Both versions result in a smooth, trouble free start and reliable operation.

Various versions are available to meet different emission and operation requirements:

- **ZM version**
  Standard version for gas and dual fuel burners.

- **LN (LowNOx) version**
  Low NOx version of WM gas burners. The low NOx emission is achieved by increased recirculation of combustion gases.

- **3LN multiflam® version**
  Low NOx - Oil/ Gas/ Dual fuel burner equipped with multiflam mixing head for the most stringent emission requirements. The low NOx emission is achieved by fuel distribution principle.

Compliance to certain emission requirement is also dependant on combustion chamber geometry, volume loading and design of the combustion system.

Suitable fuels
Natural gas
Propane
Light Oil #2 according to ASTM D396

Different type of fuel requires written confirmation from Weishaupt.

Applications
Weishaupt WM 20 oil, gas and dual fuel burners are suitable to be used for the following:

- Installation on heat exchanger
- Hot water boiler
- Steam boiler and high pressure hot water boiler
- Intermittent and continuous operation
- Hot air generator

The combustion air must be free from any aggressive substances (Halogen, Chloride, Fluoride etc) and contamination (dust, building materials, vapours etc). For many cases an external air ducting to the burner is recommended as an option.

Permissible ambient conditions:

- Ambient temperature: -10 to +40°C (-14 to 104°F)
- -15 to +40°C (5 to 104°F)
- Air humidity: max. 80% relative humidity, no condensation
- Suitable only for indoor operation
- For installation in unheated rooms under some circumstances special solutions are required (contact Weishaupt)

Any discrepancy from the above described applications requires written confirmation from Weishaupt Corporation. The maintenance interval could be shortened according to conditions where the burners are installed.

Approvals
The burner is in compliance with most European and North American applicable standards.
The most important advantages at a glance:

- Digital combustion management with electronic fuel air ratio controller
- Quiet operation due to air inlet equipped with sound absorbing material as standard
- High performance blower due to specially designed blower geometry and air damper control system
- All WM-20 burners are equipped with adjustable flame tube to match required firing rate
- Protection class IP 54 as standard
- Easy access to all components, such as: mixing head, air damper and combustion manager
- Safe operation with sliding two stage/modulating operation as standard depending on type of modulating controller
- Computer aided function test of each individual burner in factory
- Excellent price to performance ratio
- Worldwide service network
Operating modes
Order numbers

Operating modes with oil

3 stage (T) operation
- Oil release during start by opening the solenoid valve 1 and safety solenoid valve
- Highfire is achieved by opening solenoid valves 2 and 3
- Firing rate is controlled by opening and closing solenoid valves 2 and 3

Modulating (R) operation
- By opening the solenoid valve, oil amount required for ignition is released
- A digital stepping motor regulates the oil regulator up to full capacity
- Burner firing rate between low and highfire is controlled by opening and closing oil regulator
- Integrated or external modulating controller can be used as firing rate controller.

Operating modes with gas

Sliding-stage or modulating (ZM) operation
- Burner capacity between low and highfire depending on heat requirement is controlled by stepping motor
- Anywhere between both operating points the burner can be operated. There are no sudden changes of fuel flow
- Option for combustion manager:
  - W-FM 50 (single fuel application) with additional modulating controller
  - W-FM 54 (dual fuel application) with additional modulating controller
  - W-FM 100 (single/ dual fuel) with integrated modulating controller
  - W-FM 200 (single/ dual fuel) Alternatively an external modulating controller can also be used for that purpose.

<table>
<thead>
<tr>
<th>Fuel Version</th>
<th>3-stage</th>
<th>Oil modulating</th>
<th>Gas sliding-stage</th>
<th>Gas modulating</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZM-T</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>ZM-R</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

Nomenclature

WM – GL 20 / 3 – A / ZM – T

Version
T = 3-stage
R = sliding stage or modulating

G = Gas
L = #2 Oil

Weishaupt monarch® burner series
Burner selection WM-L 20
Oil burners version T and R

The firing rates are based on an installation altitude of 1,640 ft (500 m).
The capacity graphs are based on a fuel calorific value of 140,000 BTU/USG.

Voltages and frequencies:
The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

Standard burner motor:
Insulation class F, protection IP 54.

Burner order numbers

<table>
<thead>
<tr>
<th>Burner model</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM-L20/1-A/ T</td>
<td>211 210 10</td>
</tr>
<tr>
<td>WM-L20/1-A/ R</td>
<td>215 210 10</td>
</tr>
<tr>
<td>WM-L20/2-A/ T</td>
<td>211 210 20</td>
</tr>
<tr>
<td>WM-L20/2-A/ R</td>
<td>215 210 20</td>
</tr>
<tr>
<td>WM-L20/3-A/ T</td>
<td>211 210 30</td>
</tr>
<tr>
<td>WM-L20/3-A/ R</td>
<td>215 210 30</td>
</tr>
</tbody>
</table>

The capacity graphs are based on a fuel calorific value of 140,000 BTU/USG.
Burner selection WM-G 20
Gas burners version ZM and ZM-LN

The firing rates are based on an installation altitude of 0 ft (0 m). A reduction of burner capacity of 1% for every 325 ft (100 m) should be taken into consideration in case of installation altitude above 0 ft.

Voltages and frequencies:
The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

Standard burner motor:
Insulation class F, protection IP 54.
Burner selection WM-GL 20
Dual fuel burners version ZM-T and ZM-R

<table>
<thead>
<tr>
<th>Burner model</th>
<th>WM-GL20/2-A ZM-T and ZM-R</th>
<th>WM-GL20/3-A ZM-T and ZM-R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion head</td>
<td>WM-G(L)20/2, 190K x 45</td>
<td>WM-G(L)20/3, 190K x 45</td>
</tr>
<tr>
<td>Capacity MBTU/h</td>
<td>Natural gas 510 – 6,825</td>
<td>Natural gas 850 – 8,360</td>
</tr>
<tr>
<td></td>
<td>Propane 850 – 6,825</td>
<td>#2 Oil 1,870 – 8,360</td>
</tr>
<tr>
<td></td>
<td>#2 Oil 1,365 – 6,825</td>
<td>#2 Oil 2,050 – 8,360</td>
</tr>
</tbody>
</table>

The firing rates are based on an installation altitude of 0 ft (0 m). A reduction of burner capacity of 1% for every 325 ft (100 m) should be taken into consideration in case of installation altitude above 0 ft.

Voltages and frequencies:
The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

Standard burner motor:
Insulation class F, protection IP 54.
Standard scope of supply

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner housing, hinge flange, housing cover, Weishaupt burner motor, air intake housing, fan wheel, combustion head, ignition unit, ignition cable, ignition electrodes, combustion manager with operating unit, flame sensor, stepping motors, flange gasket, limit switch on hinge flange, fixing screws</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Digital combustion manager W-FM 50</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>W-FM 54</td>
<td>o</td>
<td>o</td>
<td>o [● ZM]</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Two gas safety shut off valves</td>
<td>–</td>
<td>–</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Gas butterfly valve</td>
<td>–</td>
<td>–</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Air pressure switch</td>
<td>o</td>
<td>o</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Adjustable flame tube</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Stepping motor for electronic fuel-air ratio controller</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Stepping motor for air damper</td>
<td>–</td>
<td>–</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Stepping motor for gas butterfly valve</td>
<td>–</td>
<td>–</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Stepping motor for oil regulator</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Oil pressure switch in return line</td>
<td>–</td>
<td>–</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Burner mounted oil pump</td>
<td>●</td>
<td>●</td>
<td>–</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Oil hoses</td>
<td>●</td>
<td>●</td>
<td>–</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>4 oil solenoid valves, oil regulator, nozzle head with premounted spill type nozzle</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>●</td>
</tr>
<tr>
<td>3 oil solenoid valves, 1 safety valve, three stage nozzle head with premounted oil nozzle</td>
<td>●</td>
<td>–</td>
<td>–</td>
<td>●</td>
<td>–</td>
</tr>
<tr>
<td>Magnetic clutch</td>
<td>o</td>
<td>o</td>
<td>–</td>
<td>o</td>
<td>●</td>
</tr>
<tr>
<td>IP 54 protection</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
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</tbody>
</table>

● Standard  
O Optional
### Accessories

**Oil burners WM-L 20 vers. T and R**

<table>
<thead>
<tr>
<th>Version T (3 stage)</th>
<th>WM-L20/1-A / T</th>
<th>WM-L20/2-A / T</th>
<th>WM-L20/3-A / T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion head extension</td>
<td>210 030 49</td>
<td>210 030 52</td>
<td>210 030 55</td>
</tr>
<tr>
<td>by 4&quot; (100 mm)</td>
<td>210 030 50</td>
<td>210 030 53</td>
<td>210 030 56</td>
</tr>
<tr>
<td>by 8&quot; (200 mm)</td>
<td>210 030 51</td>
<td>210 030 54</td>
<td>210 030 57</td>
</tr>
<tr>
<td>by 12&quot; (300 mm)</td>
<td>210 030 50</td>
<td>210 030 53</td>
<td>210 030 56</td>
</tr>
<tr>
<td>Oil hoses 50&quot; (1300 mm) in lieu of 39&quot; (1000 mm)</td>
<td>110 000 72</td>
<td>110 000 72</td>
<td>110 000 72</td>
</tr>
<tr>
<td>Ducted air intake incl. pressure switch for air duct. (requires burner air pressure switch)</td>
<td>210 030 47</td>
<td>210 030 47</td>
<td>210 030 47</td>
</tr>
<tr>
<td>Buner air pressure switch</td>
<td>210 030 08</td>
<td>210 030 08</td>
<td>210 030 08</td>
</tr>
<tr>
<td>KS-20 modulating controller mounted on burner (W-FM50)</td>
<td>250 033 15</td>
<td>250 033 15</td>
<td>250 033 15</td>
</tr>
<tr>
<td>W-FM 100 (suitable for continuous operation) in lieu of W-FM 50</td>
<td>210 030 32</td>
<td>210 030 32</td>
<td>210 030 32</td>
</tr>
<tr>
<td>fitted</td>
<td>210 030 88</td>
<td>210 030 88</td>
<td>210 030 88</td>
</tr>
<tr>
<td>loose</td>
<td>210 030 10</td>
<td>210 030 10</td>
<td>210 030 10</td>
</tr>
<tr>
<td>W-FM 200 in lieu of W-FM 50 with built-in modulating controller, speed control module with optional fuel metering</td>
<td>210 030 24</td>
<td>210 030 24</td>
<td>210 030 24</td>
</tr>
<tr>
<td>fitted</td>
<td>210 030 24</td>
<td>210 030 24</td>
<td>210 030 24</td>
</tr>
<tr>
<td>loose</td>
<td>210 030 24</td>
<td>210 030 24</td>
<td>210 030 24</td>
</tr>
<tr>
<td>Speed control with burner motor mounted VFD (W-FM 50/200 required)</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>Speed control with separate VFD (W-FM 200 required)</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>Special voltage (on request only)</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Version R (sliding multi-stage or modulating)</th>
<th>WM-L20/1-A / R</th>
<th>WM-L20/2-A / R</th>
<th>WM-L20/3-A / R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion head extension</td>
<td>210 030 58</td>
<td>210 030 61</td>
<td>210 030 64</td>
</tr>
<tr>
<td>by 4&quot; (100 mm)</td>
<td>210 030 59</td>
<td>210 030 62</td>
<td>210 030 65</td>
</tr>
<tr>
<td>by 8&quot; (200 mm)</td>
<td>210 030 60</td>
<td>210 030 63</td>
<td>210 030 66</td>
</tr>
<tr>
<td>by 12&quot; (300 mm)</td>
<td>210 030 60</td>
<td>210 030 63</td>
<td>210 030 66</td>
</tr>
<tr>
<td>Oil hoses 50&quot; (1300 mm) in lieu of 39&quot; (1000 mm)</td>
<td>110 001 59</td>
<td>110 001 59</td>
<td>110 001 59</td>
</tr>
<tr>
<td>Ducted air intake incl. pressure switch for air duct. (requires burner air pressure switch)</td>
<td>210 030 47</td>
<td>210 030 47</td>
<td>210 030 47</td>
</tr>
<tr>
<td>Buner air pressure switch</td>
<td>210 030 08</td>
<td>210 030 08</td>
<td>210 030 08</td>
</tr>
<tr>
<td>KS-20 modulating controller mounted on burner (W-FM50)</td>
<td>250 033 15</td>
<td>250 033 15</td>
<td>250 033 15</td>
</tr>
<tr>
<td>W-FM 100 (suitable for continuous operation) in lieu of W-FM 50</td>
<td>210 030 38</td>
<td>210 030 38</td>
<td>210 030 38</td>
</tr>
<tr>
<td>fitted</td>
<td>210 030 87</td>
<td>210 030 87</td>
<td>210 030 87</td>
</tr>
<tr>
<td>loose</td>
<td>210 030 38</td>
<td>210 030 38</td>
<td>210 030 38</td>
</tr>
<tr>
<td>W-FM 200 in lieu of W-FM 50 with built-in modulating controller, speed control module with optional fuel metering</td>
<td>210 030 39</td>
<td>210 030 39</td>
<td>210 030 39</td>
</tr>
<tr>
<td>fitted</td>
<td>210 030 39</td>
<td>210 030 39</td>
<td>210 030 39</td>
</tr>
<tr>
<td>loose</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>Speed control with burner motor mounted VFD (W-FM 50/200 required)</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>Speed control with separate VFD (W-FM 200 required)</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>Special voltage (on request only)</td>
<td>on request</td>
<td>on request</td>
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</tr>
</tbody>
</table>
## Accessories

### Gas burner WM-G 20 vers. ZM and ZM-LN

<table>
<thead>
<tr>
<th>Accessories</th>
<th>WM-G20/2-A ZM</th>
<th>WM-G20/2-A ZM-LN</th>
<th>WM-G20/3-A ZM</th>
<th>WM-G20/3-A ZM-LN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comb. head extension by 4&quot; (100 mm)</td>
<td>230 030 79</td>
<td>230 030 87</td>
<td>230 030 79</td>
<td>230 030 87</td>
</tr>
<tr>
<td>by 8&quot; (200 mm)</td>
<td>230 030 60</td>
<td>230 030 88</td>
<td>230 030 60</td>
<td>230 030 88</td>
</tr>
<tr>
<td>by 12&quot; (300 mm)</td>
<td>230 030 81</td>
<td>230 030 89</td>
<td>230 030 81</td>
<td>230 030 89</td>
</tr>
<tr>
<td>Solenoid valve for air pressure switch test - continuous fan or post purge</td>
<td>250 030 21</td>
<td>250 030 21</td>
<td>250 030 21</td>
<td>250 030 21</td>
</tr>
<tr>
<td>Ducted air intake incl. pressure switch for air duct (requires burner air pressure switch)</td>
<td>210 030 47</td>
<td>210 030 47</td>
<td>210 030 47</td>
<td>210 030 47</td>
</tr>
<tr>
<td>KS-20 modulating controller mounted on burner (W-FM50)</td>
<td>250 033 15</td>
<td>250 033 15</td>
<td>250 033 15</td>
<td>250 033 15</td>
</tr>
<tr>
<td>W-FM 100 (suitable for cont. operation) instead of W-FM 50</td>
<td>fitted 250 030 74</td>
<td>250 030 74</td>
<td>250 030 74</td>
<td>250 030 74</td>
</tr>
<tr>
<td>loose</td>
<td>250 031 43</td>
<td>250 031 43</td>
<td>250 031 43</td>
<td>250 031 43</td>
</tr>
<tr>
<td>W-FM 200 instead of W-FM 50 with built in modulating controller and VFD control optional fuel metering</td>
<td>fitted 250 030 75</td>
<td>250 030 75</td>
<td>250 030 75</td>
<td>250 030 75</td>
</tr>
<tr>
<td>loose</td>
<td>250 030 48</td>
<td>250 030 48</td>
<td>250 030 48</td>
<td>250 030 48</td>
</tr>
<tr>
<td>Speed control with burner motor mounted VFD (W-FM 50/200 required)</td>
<td>210 030 40</td>
<td>210 030 40</td>
<td>210 030 40</td>
<td>210 030 40</td>
</tr>
<tr>
<td>Speed control with separate VFD (W-FM 200 required)</td>
<td>210 030 41</td>
<td>210 030 41</td>
<td>210 030 41</td>
<td>210 030 41</td>
</tr>
<tr>
<td>Special voltages</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
<td>on request</td>
</tr>
</tbody>
</table>

*Note: All prices are in Euros.*
## Accessories

### Dual fuel burner WM-GL 20 vers. ZM-T and ZM-R

<table>
<thead>
<tr>
<th>Accessories, version ZM-T</th>
<th>WM-GL 20/2-A</th>
<th>WM-GL 20/3-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion head extension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>by 4&quot; (100 mm)</td>
<td>250 031 17</td>
<td>250 031 20</td>
</tr>
<tr>
<td>by 8&quot; (200 mm)</td>
<td>250 031 18</td>
<td>250 031 21</td>
</tr>
<tr>
<td>by 12&quot; (300 mm)</td>
<td>250 031 19</td>
<td>250 031 22</td>
</tr>
<tr>
<td>Solenoid valve for air pressure switch - continuous fan or post purge</td>
<td>250 030 21</td>
<td>250 030 21</td>
</tr>
<tr>
<td>Electromagnetic clutch</td>
<td>250 031 16</td>
<td>250 031 16</td>
</tr>
<tr>
<td>Ducted air intake incl. pressure switch for air duct</td>
<td>210 030 47</td>
<td>210 030 47</td>
</tr>
<tr>
<td>Oil hoses 50&quot; (1300 mm)</td>
<td>110 000 72</td>
<td>110 000 72</td>
</tr>
<tr>
<td>by 40&quot; (1000 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W-FM 100 (suitable for cont. operation) instead of W-FM 54 with built in modulating controller</td>
<td>250 031 78</td>
<td>250 031 78</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W-FM 200 instead of W-FM 54 with built in modulating controller and VFD control with optional fuel metering</td>
<td>250 031 77</td>
<td>250 031 77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed control with burner motor mounted VFD (W-FM 54/200 required)</td>
<td>210 030 40</td>
<td>210 030 40</td>
</tr>
<tr>
<td>Speed control with separate VFD (W-FM 200 required)</td>
<td>on request</td>
<td>on request</td>
</tr>
<tr>
<td>Special voltages</td>
<td>on request</td>
<td>on request</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessories, version ZM-R</th>
<th>WM-GL 20/2-A</th>
<th>WM-GL 20/3-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combustion head extension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>by 4&quot; (100 mm)</td>
<td>250 031 23</td>
<td>250 031 26</td>
</tr>
<tr>
<td>by 8&quot; (200 mm)</td>
<td>250 031 24</td>
<td>250 031 27</td>
</tr>
<tr>
<td>by 12&quot; (300 mm)</td>
<td>250 031 25</td>
<td>250 031 28</td>
</tr>
<tr>
<td>Solenoid valve for air pressure switch - continuous fan or post purge</td>
<td>250 030 21</td>
<td>250 030 21</td>
</tr>
<tr>
<td>Electromagnetic clutch</td>
<td>250 031 29</td>
<td>250 031 29</td>
</tr>
<tr>
<td>Ducted air intake incl. pressure switch for air duct</td>
<td>210 030 47</td>
<td>210 030 47</td>
</tr>
<tr>
<td>Oil hoses 50&quot; (1300 mm)</td>
<td>110 000 72</td>
<td>110 000 72</td>
</tr>
<tr>
<td>by 40&quot; (1000 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W-FM 100 (suitable for cont. operation) instead of W-FM 54 with built in modulating controller</td>
<td>250 031 76</td>
<td>250 031 76</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W-FM 200 instead of W-FM 54 with built in modulating controller and VFD control with optional fuel metering</td>
<td>250 031 77</td>
<td>250 031 77</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed control with burner motor mounted VFD (W-FM 54/200 required)</td>
<td>210 030 40</td>
<td>210 030 40</td>
</tr>
<tr>
<td>Speed control with separate VFD (W-FM 200 required)</td>
<td>210 030 41</td>
<td>210 030 41</td>
</tr>
<tr>
<td>Special voltages</td>
<td>on request</td>
<td>on request</td>
</tr>
</tbody>
</table>
## Technical data

### Oil burners

<table>
<thead>
<tr>
<th>Oil burners</th>
<th>WM-L20/1-A / T</th>
<th>WM-L20/2-A / T</th>
<th>WM-L20/3-A / T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner motor</td>
<td>Weishaupt model WM-D 112/140-2/3K0</td>
<td>WM-D 112/140-2/3K5</td>
<td>WM-D 112/170-2/4K5</td>
</tr>
<tr>
<td>Rated power</td>
<td>HP (kW)</td>
<td>4.2 (3.2)</td>
<td>5.6 (4.2)</td>
</tr>
<tr>
<td>Full load amps (FLA)</td>
<td>A</td>
<td>6.2 (@ 460V)</td>
<td>7.6 (@ 460V)</td>
</tr>
<tr>
<td>Motor fusing</td>
<td>A</td>
<td>20 AT (external)</td>
<td>20 AT (external)</td>
</tr>
<tr>
<td>Speed (60 Hz)</td>
<td>rpm</td>
<td>3,540</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager</td>
<td>Model</td>
<td>W-FM 50</td>
<td>W-FM 50</td>
</tr>
<tr>
<td>Flame monitoring</td>
<td>Model</td>
<td>ORB</td>
<td>ORB</td>
</tr>
<tr>
<td>Stepping motor Air / Oil</td>
<td>Model</td>
<td>SQM 33</td>
<td>SQM 33</td>
</tr>
<tr>
<td>Pump fitted max. flow rate</td>
<td>Model</td>
<td>J6</td>
<td>J6</td>
</tr>
<tr>
<td>Oil hoses</td>
<td>DN / Length</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
</tr>
<tr>
<td>Weight</td>
<td>lbs (kg)</td>
<td>approx. 196 (88)</td>
<td>approx. 196 (88)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oil burners</th>
<th>WM-L20/1-A / R</th>
<th>WM-L20/2-A / R</th>
<th>WM-L20/3-A / R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner motor</td>
<td>Weishaupt model WM-D 112/140-2/3K0</td>
<td>WM-D 112/140-2/3K5</td>
<td>WM-D 112/170-2/4K5</td>
</tr>
<tr>
<td>Rated power</td>
<td>HP (kW)</td>
<td>4.2 (3.2)</td>
<td>5.6 (4.2)</td>
</tr>
<tr>
<td>Full load amps (FLA)</td>
<td>A</td>
<td>6.2 (@ 460V)</td>
<td>7.6 (@ 460V)</td>
</tr>
<tr>
<td>Motor fusing</td>
<td>A</td>
<td>20 AT (external)</td>
<td>20 AT (external)</td>
</tr>
<tr>
<td>Speed (60 Hz)</td>
<td>rpm</td>
<td>3,540</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager</td>
<td>Model</td>
<td>W-FM 50</td>
<td>W-FM 50</td>
</tr>
<tr>
<td>Flame monitoring</td>
<td>Model</td>
<td>ORB</td>
<td>ORB</td>
</tr>
<tr>
<td>Stepping motor Air / Oil</td>
<td>Model</td>
<td>SQM 33</td>
<td>SQM 33</td>
</tr>
<tr>
<td>Pump fitted max. flow rate</td>
<td>Type</td>
<td>TA2</td>
<td>TA2</td>
</tr>
<tr>
<td>Oil hoses</td>
<td>DN / Length</td>
<td>3/4&quot; / 40&quot; (20 / 1000)</td>
<td>3/4&quot; / 40&quot; (20 / 1000)</td>
</tr>
<tr>
<td>Weight</td>
<td>lbs (kg)</td>
<td>approx. 214 (96)</td>
<td>approx. 214 (96)</td>
</tr>
</tbody>
</table>

**Voltages and frequencies:**

The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

**Standard burner motor:**

Insulation class F, protection IP 54.
## Technical data

### Gas and dual fuel burners

<table>
<thead>
<tr>
<th>Gas burner version ZM and ZM-LN</th>
<th>WM-G20/2-A ZM</th>
<th>WM-G20/3-A ZM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner motor Model</td>
<td>WM-D112/140-2/3K5</td>
<td>WM-D112/140-2/3K5</td>
</tr>
<tr>
<td>Rated power HP (kW)</td>
<td>4.2 (3.2)</td>
<td>5.6 (4.2)</td>
</tr>
<tr>
<td>Full load amps (FLA) A</td>
<td>6.2 (@ 460V)</td>
<td>7.8 (@ 460V)</td>
</tr>
<tr>
<td>Motor external fuse (YΔ start) A</td>
<td>20 A slow (external)</td>
<td>20 A slow (external)</td>
</tr>
<tr>
<td>Speed (60 Hz) rpm</td>
<td>3,540</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager Model</td>
<td>W-FM 50</td>
<td>W-FM 50</td>
</tr>
<tr>
<td>Air/Gas stepping motor Model</td>
<td>SQM 33</td>
<td>SQM 33</td>
</tr>
<tr>
<td>Flame monitoring Type</td>
<td>Ionization rod</td>
<td>Ionization rod</td>
</tr>
<tr>
<td>Weight approx. lbs (kg)</td>
<td>216 (97)</td>
<td>216 (97)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dual fuel burner version ZM-T</th>
<th>WM-GL 20/2-A</th>
<th>WM-GL 20/3-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner motor Model</td>
<td>WM-D112/140-2/3K5</td>
<td>WM-D112/170-2/4K5</td>
</tr>
<tr>
<td>Rated power HP (kW)</td>
<td>5.6 (4.2)</td>
<td>6.6 (5.0)</td>
</tr>
<tr>
<td>Full load amps (FLA) A</td>
<td>7.6 (@ 460V)</td>
<td>8.7 (@ 460V)</td>
</tr>
<tr>
<td>Motor fuse (YΔ start) A</td>
<td>20 A slow (external)</td>
<td>20 A slow (external)</td>
</tr>
<tr>
<td>Speed (60 Hz) rpm</td>
<td>3,530</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager Model</td>
<td>W-FM 54</td>
<td>W-FM 54</td>
</tr>
<tr>
<td>Air/Gas stepping motor Model</td>
<td>SQM 33</td>
<td>SQM 33</td>
</tr>
<tr>
<td>Pump fitted max. flow rate</td>
<td>J6 90 (350)</td>
<td>J7 123 (474)</td>
</tr>
<tr>
<td>Oil hoses DN / Length</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
</tr>
<tr>
<td>Weight approx. lbs (kg)</td>
<td>238 (107)</td>
<td>245 (110)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dual fuel burner version ZM-R</th>
<th>WM-GL 20/2-A</th>
<th>WM-GL 20/3-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner motor Model</td>
<td>WM-D112/140-2/3K5</td>
<td>WM-D112/170-2/4K5</td>
</tr>
<tr>
<td>Rated power HP (kW)</td>
<td>5.6 (4.2)</td>
<td>6.6 (5.0)</td>
</tr>
<tr>
<td>Full load amps (FLA) A</td>
<td>7.6 (@ 460V)</td>
<td>8.7 (@ 460V)</td>
</tr>
<tr>
<td>Motor fuse (YΔ start) A</td>
<td>20 A slow (external)</td>
<td>20 A slow (external)</td>
</tr>
<tr>
<td>Speed (60 Hz) rpm</td>
<td>3,530</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager Model</td>
<td>W-FM 54</td>
<td>W-FM 54</td>
</tr>
<tr>
<td>Air/Gas stepping motor Model</td>
<td>SQM 33</td>
<td>SQM 33</td>
</tr>
<tr>
<td>Pump fitted max. flow rate</td>
<td>TA2 165 (636)</td>
<td>TA3 244 (942)</td>
</tr>
<tr>
<td>Oil hoses DN / Length</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
</tr>
<tr>
<td>Weight approx. lbs (kg)</td>
<td>267 (120)</td>
<td>285 (128)</td>
</tr>
</tbody>
</table>

### Voltages and frequencies:

The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

### Standard burner motor:

Insulation class F, protection IP 54.
Fuel systems

Gas train schematic*

For boiler with hinged door the gas train must be installed on the opposite side of the boiler door hinge.

Gas train arrangement
For boiler with hinged door the gas train must be installed on the opposite side of the boiler door hinge.

Gas train installation
Gas train must be mounted tension free. Do not compensate misalignment by over tightening. Distance between burner and gas valves should be as small as possible. Pay attention to the correct gas flow direction.

Gas train support
The gas train must be fixed and supported securely. They must not be allowed to vibrate during operation. Support suitable for the site should be fitted during installation.

Gas meter
For commissioning a gas meter is required to verify exact gas consumption.

*The above schematic shows typical gas train configuration only. The actual gas train configuration shipped with burner might differ depending on applicable codes/ regulation and application.
<table>
<thead>
<tr>
<th>Burner model</th>
<th>Dimensions in inches and (mm)</th>
<th>l₁</th>
<th>l₂</th>
<th>l₃</th>
<th>l₄</th>
<th>l₅</th>
<th>b₁</th>
<th>b₂</th>
<th>b₃</th>
<th>b₄</th>
<th>h₁</th>
<th>h₂</th>
<th>h₃</th>
<th>h₄</th>
<th>h₅</th>
<th>h₆</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM-L20/1 / T</td>
<td>31.9 / (810)</td>
<td>21.9 / (557)</td>
<td>8.5 - 9.1 / (217 - 232)</td>
<td>1.5 / (38)</td>
<td>–</td>
<td>16.2 / (411)</td>
<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
<td>16.1 / (408)</td>
<td>–</td>
<td>18.5 / (470)</td>
<td>22.3 / (667)</td>
<td></td>
</tr>
<tr>
<td>WM-L20/2 / T</td>
<td>31.9 / (810)</td>
<td>21.9 / (557)</td>
<td>8.9 - 9.7 / (227 - 247)</td>
<td>1.5 / (38)</td>
<td>–</td>
<td>16.2 / (411)</td>
<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
<td>16.1 / (408)</td>
<td>–</td>
<td>18.5 / (470)</td>
<td>22.3 / (667)</td>
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</tr>
<tr>
<td>WM-L20/3 / T</td>
<td>31.9 / (810)</td>
<td>21.9 / (557)</td>
<td>9.3 - 10.1 / (237 - 257)</td>
<td>1.5 / (38)</td>
<td>–</td>
<td>16.2 / (411)</td>
<td>17.6 / (447)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
<td>16.1 / (408)</td>
<td>–</td>
<td>18.5 / (470)</td>
<td>22.6 / (674)</td>
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</tr>
<tr>
<td>WM-L20/1 / R</td>
<td>31.9 / (810)</td>
<td>21.9 / (557)</td>
<td>8.5 - 9.1 / (217 - 232)</td>
<td>1.5 / (38)</td>
<td>–</td>
<td>16.1 / (409)</td>
<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
<td>16.1 / (408)</td>
<td>–</td>
<td>18.5 / (470)</td>
<td>22.6 / (674)</td>
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</tr>
<tr>
<td>WM-L20/2 / R</td>
<td>31.9 / (810)</td>
<td>21.9 / (557)</td>
<td>8.9 - 9.7 / (227 - 247)</td>
<td>1.5 / (38)</td>
<td>–</td>
<td>16.1 / (409)</td>
<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
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<td>WM-L20/3 / R</td>
<td>31.9 / (810)</td>
<td>21.9 / (557)</td>
<td>9.3 - 10.1 / (237 - 257)</td>
<td>1.5 / (38)</td>
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<td>16.3 / (414)</td>
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<td>8.9 / (225)</td>
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<td>18.5 / (470)</td>
<td>23.8 / (604)</td>
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<tr>
<td>WM-G20/2 ZM</td>
<td>39.8 / (1010)</td>
<td>29.8 / (757)</td>
<td>9.1 - 10.5 / (231 - 266)</td>
<td>9.4 / (238)</td>
<td>5.0 / (128)</td>
<td>12.8 / (326)</td>
<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
<td>16.1 / (408)</td>
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<td>5.0 / (128)</td>
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<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
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<td>WM-G20/2 ZM-LN</td>
<td>39.8 / (1010)</td>
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<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
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<td>29.8 / (757)</td>
<td>9.7 - 10.1 / (247 - 256)</td>
<td>9.4 / (238)</td>
<td>5.0 / (128)</td>
<td>12.8 / (326)</td>
<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
<td>22.6 / (573)</td>
<td>8.9 / (225)</td>
<td>16.1 / (408)</td>
<td>7.2 / (182)</td>
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<td>5.0 / (128)</td>
<td>16.2 / (411)</td>
<td>16.7 / (424)</td>
<td>8.2 / (209)</td>
<td>15.0 / (380)</td>
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<td>8.9 / (225)</td>
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<td>5.0 / (128)</td>
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<td>5.0 / (128)</td>
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<td>5.0 / (128)</td>
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<td>22.6 / (573)</td>
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<td>16.1 / (408)</td>
<td>7.2 / (182)</td>
<td>18.5 / (470)</td>
<td>23.8 / (604)</td>
<td></td>
</tr>
</tbody>
</table>

1 without electromagnetic clutch (pump with electromagnetic clutch add 5.1” / 130 mm for version T and R)
2 including Magnetic clutch
3 motor mounted VFD protrudes by approx 0.8” / 20 mm from burner motor
### Dimensions

#### Burner Dimensions in inches and (mm)

<table>
<thead>
<tr>
<th>Burner model</th>
<th>Dimensions in inches and (mm)</th>
<th>Gas butterfly size</th>
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</thead>
<tbody>
<tr>
<td>WM-L20/1 / T</td>
<td>r₁ 33.1 840</td>
<td>(840) 9.4 (240) 11.7 (298) 9.4 (240) –</td>
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<tr>
<td>WM-L20/2 / T</td>
<td>r₂ 34.2 869</td>
<td>(869) 10.2 (250) 11.7 (298) 10.2 (250) –</td>
</tr>
<tr>
<td>WM-L20/3 / T</td>
<td>d₁ 7.9 (200)</td>
<td>(200) M12 (240) (298) (240) –</td>
</tr>
<tr>
<td>WM-L20/1 / R</td>
<td>d₂ 33.1 840</td>
<td>(840) 9.4 (240) 11.7 (298) 9.4 (240) –</td>
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<tr>
<td>WM-L20/2 / R</td>
<td>d₃ 34.2 869</td>
<td>(869) 10.2 (250) 11.7 (298) 10.2 (250) –</td>
</tr>
<tr>
<td>WM-L20/3 / R</td>
<td>d₄ 8.7 (200)</td>
<td>(200) M12 (240) (298) (240) –</td>
</tr>
<tr>
<td>WM-G20/2 ZM</td>
<td>d₅ 34.8 883</td>
<td>(883) 10.6 (260) 11.7 (298) 11.0 (280) –</td>
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<tr>
<td>WM-G20/3 ZM</td>
<td>d₆ 34.8 883</td>
<td>(883) 10.6 (260) 11.7 (298) 11.0 (280) –</td>
</tr>
<tr>
<td>WM-G20/2 ZM-LN</td>
<td>d₇ 34.8 883</td>
<td>(883) 10.6 (260) 11.7 (298) 11.4 (290) DN65</td>
</tr>
<tr>
<td>WM-G20/3 ZM-LN</td>
<td>d₈ 34.8 883</td>
<td>(883) 10.6 (260) 11.7 (298) 11.4 (290) DN65</td>
</tr>
<tr>
<td>WM-GL20/2 ZM-T</td>
<td>d₉ 36.4 925</td>
<td>(925) 10.6 (260) 11.7 (298) 11.4 (290) DN65</td>
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<tr>
<td>WM-GL20/3 ZM-T</td>
<td>d₁₀ 36.4 925</td>
<td>(925) 10.6 (260) 11.7 (298) 11.4 (290) DN65</td>
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<tr>
<td>WM-GL20/2 ZM-R</td>
<td>d₁₁ 36.4 925</td>
<td>(925) 10.6 (260) 11.7 (298) 11.4 (290) DN65</td>
</tr>
<tr>
<td>WM-GL20/3 ZM-R</td>
<td>d₁₂ 36.4 925</td>
<td>(925) 10.6 (260) 11.7 (298) 11.4 (290) DN65</td>
</tr>
</tbody>
</table>

All dimensions are approximate.

Weishaupt reserves the right to make changes in light of future developments.

---

#### Preparing the Heat Exchanger

- **1. Flange Gasket**
- **2. Refractory**
- **3. Gap**

The refractory 2 must not protrude beyond the front edge of the combustion head; it can however, take a conical shape (min. 60°).
Fuel savings, emissions reductions: Patented multiflam® technology

Weishaupt’s patented multiflam® technology allows compliance with very stringent emission limits without the need for expensive additional equipment. The emissions reduction is accomplished by using innovative mixing assembly and applying fuel distribution principles.

Weishaupt multiflam® burners have been proven in the field for more than 10 years. They are especially suited for applications with stringent emission limits.

The latest monarch® burners have adopted this technology and brought a combination of flexibility and low emissions into medium capacity range.

**Exemplary emission values**

multiflam® 3LN version burners further reduce NOx emissions below the level which can be achieved by standard mixing head. These additional reductions are accomplished by using special mixing assembly applying fuel distribution principles.

Combustion values also depend on combustion chamber geometry, volumetric loading and boiler design. Certain conditions such combustion chamber dimensions, measurement tolerances, temperature, humidity, etc. must be verified in order to guarantee emission levels.
Burner selection Oil burners
WM20 multiflam® burners vers. 3LN

The firing rates are based on an installation altitude of 1,640 ft (500 m).
The capacity graphs are based on a fuel calorific value of 140,000 BTU/USG.

Voltages and frequencies:
The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

Standard burner motor:
Insulation class F; protection IP 54.
Burner selection Gas and Dual fuel burners
WM20 multiflam® burners vers. 3LN

- **WM20 multiflam® burners vers. 3LN**
  - **Burner model**: WM-G20/2-A/ZM-3LN
  - **Combustion head**: WM20/2-3LN, Ø 160 / Ø 22
  - **Capacity MBTU/h**: Natural gas 685 – 4,945
  - **Natural Gas with combustion head**: Closed
  - **Propane with combustion head**: Open
  - **#2 Oil with combustion head**: Open
  - **Burner part numbers**: Burner  model Version Part number
    - WM-G 20/2-A ZM-3LN 217 215 11
    - WM-G 20/3-A ZM-3LN 217 216 11
    - WM-GL 20/2-A ZM-T-3LN 218 214 11
    - WM-GL 20/3-A ZM-T-3LN 218 217 11

- **Burner model**: WM-G20/3-A/ZM-3LN
  - **Combustion head**: WM20/3-3LN, Ø 160 / Ø 22
  - **Capacity MBTU/h**: Natural gas 1,195 – 6,825
  - **Propane with combustion head**: Closed
  - **#2 Oil with combustion head**: Open
  - **Burner part numbers**: Burner  model Version Part number
    - WM-G20/3-A ZM-3LN 217 215 1 1
    - WM-GL20/3-A/ZM-T-3LN 218 217 1 1

*The firing rates are based on an installation altitude of 0 ft (0 m). A reduction of burner capacity of 1% for every 325 ft (100 m) should be taken into consideration in case of installation altitude above 0 ft.*

**Voltages and frequencies:**
The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

**Standard burner motor:**
Insulation class F, protection IP 54.
## Standard scope of supply

<table>
<thead>
<tr>
<th>Description</th>
<th>WM-L20 T-3LN</th>
<th>WM-G20 ZM-3LN</th>
<th>WM-GL20 ZM-T-3LN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner housing, hinge flange, housing cover, Weishaupt burner motor, air intake housing, fan wheel, combustion head, ignition unit, ignition cable, ignition electrodes, combustion manager with operating unit, flame sensor, stepping motors, flange gasket, limit switch on hinge flange, fixing screws</td>
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<td>●</td>
<td>●</td>
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<tr>
<td>Digital combustion manager W-FM 50</td>
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<td>●</td>
<td>–</td>
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<td>W-FM 54</td>
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<td>–</td>
<td>●</td>
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<tr>
<td>W-FM 100/200</td>
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<td>○</td>
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<tr>
<td>Two gas safety shut off valves</td>
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<td>Gas butterfly valve</td>
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<td>Air pressure switch</td>
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<td>Adjustable flame tube</td>
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<td>Stepping motor for electronic fuel-air ratio controller</td>
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<td>Stepping motor for gas butterfly valve</td>
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<tr>
<td>Stepping motor for oil regulator</td>
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<td>Burner mounted oil pump</td>
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<td>Oil hoses</td>
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<td>–</td>
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<td>3 oil solenoid valves, 1 safety valve, three stage nozzle head with premounted oil nozzle</td>
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● Standard  
○ Optional
## Accessories

### WM 20 multiflam® burners vers. 3LN

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<thead>
<tr>
<th>Accessory Description</th>
<th>WM-L20/2-A / T</th>
<th>WM-L20/3-A / T</th>
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<tbody>
<tr>
<td><strong>Oil burner WM-L20/…-A T-3LN</strong></td>
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<tr>
<td>Combustion head extension</td>
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<tr>
<td>by 4” (100 mm)</td>
<td>210 031 36</td>
<td>210 031 36</td>
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<tr>
<td>by 8” (200 mm)</td>
<td>210 031 37</td>
<td>210 031 37</td>
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<tr>
<td>by 12” (300 mm)</td>
<td>210 031 38</td>
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<tr>
<td>Oil hoses 50” (1300 mm) in lieu of 39” (1000 mm)</td>
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<td>110 000 72</td>
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<tr>
<td>Ducted air intake incl. pressure switch for air duct. (requires burner air pressure switch)</td>
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<tr>
<td>W-FM 100 (suitable for continuous operation) in lieu of W-FM 50</td>
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<tr>
<td>fitted</td>
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<tr>
<td>loose</td>
<td>210 030 88</td>
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<tr>
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<td>fitted</td>
<td>210 030 10</td>
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<td>QRA73 flame sensor (W-FM100/200)</td>
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<tr>
<td>fitted</td>
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<tr>
<td>Combustion head extension</td>
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<td>by 4” (100 mm)</td>
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<td>250 032 77</td>
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<td>by 8” (200 mm)</td>
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<td>250 032 81</td>
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<td>by 12” (300 mm)</td>
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<td>250 032 82</td>
<td>250 032 82</td>
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<tr>
<td>Oil hoses 50” (1300 mm) in lieu of 39” (1000 mm)</td>
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<td>–</td>
<td>110 000 72</td>
<td>110 000 72</td>
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<td>Ducted air intake incl. pressure switch for air duct. (requires burner air pressure switch)</td>
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<tr>
<td>W-FM 100 (suitable for continuous operation) in lieu of W-FM 50</td>
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<tr>
<td>fitted</td>
<td>210 030 47</td>
<td>210 030 47</td>
<td>210 030 47</td>
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<td>loose</td>
<td>250 031 43</td>
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<tr>
<td>W-FM 200 in lieu of W-FM 50 with built-in modulating controller, speed control module with optional fuel metering</td>
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<tr>
<td>fitted</td>
<td>250 030 75</td>
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<tr>
<td>loose</td>
<td>250 030 48</td>
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<td>Speed control with burner motor mounted VFD (W-FM 50/200 required)</td>
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<td>Speed control with separate VFD (W-FM 200 required)</td>
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<td>250 031 16</td>
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<td>210 031 63</td>
<td>210 031 63</td>
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<td>on request</td>
<td>on request</td>
<td>on request</td>
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</table>
## Technical data

**WM 20 multiflam® burners vers. 3LN**

<table>
<thead>
<tr>
<th>Oil burners</th>
<th>WM-L20/2-A T-3LN</th>
<th>WM-L20/3-A T-3LN</th>
</tr>
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<tbody>
<tr>
<td>Burner motor</td>
<td>Model WM-D112/140-2/3K0</td>
<td>Model WM-D112/170-2/4K5</td>
</tr>
<tr>
<td>Rated power</td>
<td>HP (kW) 4.3 (3.2)</td>
<td>6.6 (5.0)</td>
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<tr>
<td>Full load amps (FLA)</td>
<td>A 6.2 (@ 460V)</td>
<td>8.7 (@ 460V)</td>
</tr>
<tr>
<td>Motor external fuse (YΔ start)</td>
<td>20 A (external) 20 A (external)</td>
<td></td>
</tr>
<tr>
<td>Speed (60 Hz)</td>
<td>rpm 3,540</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager</td>
<td>Model W-FM 50</td>
<td>W-FM 50</td>
</tr>
<tr>
<td>Flame monitoring</td>
<td>Type QRA2</td>
<td>QRA2</td>
</tr>
<tr>
<td>Air/Gas stepping motor</td>
<td>Model SOM 33</td>
<td>SOM 33</td>
</tr>
<tr>
<td>Pump fitted</td>
<td>max. flow rate Model J6 90 (350)</td>
<td>J7 123 (474)</td>
</tr>
<tr>
<td>Oil hoses</td>
<td>DN / Length 1/2&quot; / 40&quot; (13 / 1000)</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. lbs (kg) 235 (107)</td>
<td>253 (115)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas burners</th>
<th>WM-G20/2-A ZM-3LN</th>
<th>WM-G20/3-A ZM-3LN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner motor</td>
<td>Model WM-D112/140-2/3K0</td>
<td>Model WM-D112/170-2/4K5</td>
</tr>
<tr>
<td>Rated power</td>
<td>HP (kW) 4.3 (3.2)</td>
<td>6.6 (5.0)</td>
</tr>
<tr>
<td>Full load amps (FLA)</td>
<td>A 6.2 (@ 460V)</td>
<td>8.7 (@ 460V)</td>
</tr>
<tr>
<td>Motor fuse (YΔ start)</td>
<td>20 A (external) 20 A (external)</td>
<td></td>
</tr>
<tr>
<td>Speed (60 Hz)</td>
<td>rpm 3,540</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager</td>
<td>Model W-FM 50</td>
<td>W-FM 50</td>
</tr>
<tr>
<td>Flame monitoring</td>
<td>Type QRA2</td>
<td>QRA2</td>
</tr>
<tr>
<td>Air/Gas stepping motor</td>
<td>Model SOM 33</td>
<td>SOM 33</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. lbs (kg) 225 (102)</td>
<td>243 (110)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dual fuel burners</th>
<th>WM-GL 20/2-A</th>
<th>WM-GL 20/3-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burner motor</td>
<td>Model WM-D112/140-2/3K5</td>
<td>WM-D112/170-2/4K5</td>
</tr>
<tr>
<td>Rated power</td>
<td>HP (kW) 5.6 (4.2)</td>
<td>6.6 (5.0)</td>
</tr>
<tr>
<td>Full load amps (FLA)</td>
<td>A 7.6 (@ 460V)</td>
<td>8.7 (@ 460V)</td>
</tr>
<tr>
<td>Motor fuse (YΔ start)</td>
<td>20 A (external) 20 A (external)</td>
<td></td>
</tr>
<tr>
<td>Speed (60 Hz)</td>
<td>rpm 3,530</td>
<td>3,530</td>
</tr>
<tr>
<td>Combustion manager</td>
<td>Model W-FM 54</td>
<td>W-FM 54</td>
</tr>
<tr>
<td>Air/Gas stepping motor</td>
<td>Model SOM 33</td>
<td>SOM 33</td>
</tr>
<tr>
<td>Pump fitted</td>
<td>max. flow rate Model TA2 165 (636)</td>
<td>TA3 244 (942)</td>
</tr>
<tr>
<td>Oil hoses</td>
<td>DN / Length 1/2&quot; / 40&quot; (13 / 1000)</td>
<td>1/2&quot; / 40&quot; (13 / 1000)</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. lbs (kg) 247 (112)</td>
<td>264 (120)</td>
</tr>
</tbody>
</table>

**Voltages and frequencies:**
The burners are equipped with three phase motor in 208 - 600 V, 60 Hz as standard. Different voltage and frequency are available upon request.

**Standard burner motor:**
Insulation class F, protection IP 54.
Dimensions

multiflam® oil burner version 3LN

<table>
<thead>
<tr>
<th>Burner model</th>
<th>Dimensions in inches and (mm)</th>
<th>l1</th>
<th>l2</th>
<th>l3</th>
<th>b1</th>
<th>b2</th>
<th>h1</th>
<th>h2</th>
<th>h3</th>
<th>h4</th>
<th>r1</th>
<th>r2</th>
<th>d1</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM-L20/2-A T-3LN</td>
<td>39.8 (1010)</td>
<td>10.0 (254)</td>
<td>11.6 – 12.2 (295 – 310)</td>
<td>16.2 (411)</td>
<td>16.7 (424)</td>
<td>22.6 (573)</td>
<td>8.9 (225)</td>
<td>16.1 (408)</td>
<td>22.3 (567)</td>
<td>33.1 (840)</td>
<td>34.2 (869)</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>WM-L20/3-A T-3LN</td>
<td>39.8 (1010)</td>
<td>10.0 (254)</td>
<td>11.6 – 12.2 (295 – 320)</td>
<td>16.2 (411)</td>
<td>17.6 (447)</td>
<td>22.6 (573)</td>
<td>8.9 (225)</td>
<td>16.1 (408)</td>
<td>22.6 (574)</td>
<td>33.1 (840)</td>
<td>34.8 (883)</td>
<td>9.5</td>
<td></td>
</tr>
</tbody>
</table>

1 without electro magnetic clutch (Oil pump with magnetic clutch add. 5.1”/130 mm)
2 motor mounted VFD protruding section approx. 0.8”/20 mm

multiflam® gas burner version 3LN

<table>
<thead>
<tr>
<th>Burner model</th>
<th>Dimensions in inches and (mm)</th>
<th>l1</th>
<th>l2</th>
<th>l3</th>
<th>l4</th>
<th>b1</th>
<th>b2</th>
<th>h1</th>
<th>h2</th>
<th>h3</th>
<th>h4</th>
<th>r1</th>
<th>r2</th>
<th>d1</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM-G20/2-A ZM-3LN</td>
<td>39.8 (1010)</td>
<td>10 (254)</td>
<td>11.6 – 12.6 (295 – 310)</td>
<td>5.0 (128)</td>
<td>12.9 (336)</td>
<td>16.7 (424)</td>
<td>22.6 (573)</td>
<td>8.9 (225)</td>
<td>16.1 (408)</td>
<td>7.9 (122)</td>
<td>33.1 (840)</td>
<td>34.2 (869)</td>
<td>9.5 (242)</td>
<td>DN65</td>
</tr>
<tr>
<td>WM-G20/3-A ZM-3LN</td>
<td>39.8 (1010)</td>
<td>10 (254)</td>
<td>11.6 – 12.6 (295 – 320)</td>
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<td>12.9 (336)</td>
<td>17.6 (447)</td>
<td>22.6 (573)</td>
<td>8.9 (225)</td>
<td>16.1 (408)</td>
<td>7.2 (182)</td>
<td>33.1 (840)</td>
<td>34.8 (883)</td>
<td>9.5 (242)</td>
<td>DN65</td>
</tr>
</tbody>
</table>

All dimensions are approximate. Weishaupt reserves the right to make changes in light of future developments.
### Burner Dimensions

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<tr>
<th>Burner model</th>
<th>Dimensions in inches and (mm)</th>
<th>l1</th>
<th>l2</th>
<th>l3</th>
<th>l4</th>
<th>b1</th>
<th>b2</th>
<th>h1</th>
<th>h2</th>
<th>h3</th>
<th>h4</th>
<th>h6</th>
<th>r1</th>
<th>r2</th>
<th>d1</th>
<th>d6</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM-GL20/2-A ZM-T-3LN</td>
<td>39.8 (1010) 10.0 (254) 11.6 – 12.2 (295 – 310) 6.0 (128) 16.2 (411) 16.7 (424) 22.6 (573) 8.9 (225) 16.1 (408) 7.2 (182) 22.3 (567) 33.1 (840) 34.2 (869) 9.5 (242) DN65</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>WM-GL20/3-A ZM-T-3LN</td>
<td>39.8 (1010) 10.0 (254) 11.6 – 12.8 (295 – 325) 6.0 (128) 16.2 (411) 17.6 (447) 22.6 (573) 8.9 (225) 16.1 (408) 7.2 (182) 22.6 (574) 33.1 (840) 34.8 (883) 9.5 (242) DN65</td>
<td></td>
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</tbody>
</table>

① without electro magnetic clutch (Oil pump with magnetic clutch add. 5.1"/130 mm)
② motor mounted VFD protruding section approx. 0.8"/20 mm

All dimensions are approximate. Weishaupt reserves the right to make changes in light of future developments.

### Burner plate drilling dimensions

- \( d_3 = M12 \)
- \( d_4 = 10.6" (270 \text{ mm}) \)
- \( d_5 = 11.7" (298 \text{ mm}) \)

### Preparing the heat exchanger

- Flange gasket
- Refractory
- Gap

Burner head has to protrude by approx. 2" (50mm) from refractory, refractory may however, take a conical shape (min. 60°).
That is not a Facade. Weishaupt has been one of the leading company in heating and combustion industry since years with headquarter in Schwendi and branches all over the world. That is Reliability.

Weishaupt is Reliability.
The family business in Schwendi was established by Max Weishaupt in 1932. Represented in 55 countries by branch offices and subsidiaries Weishaupt is international leader in the areas of combustion technology and heating applications.

Trustworthy, quality, good customer service, innovation and experience are values on which the Pioneer Max Weishaupt established his company. All this combined in a word is reliability.

Therefore stands Weishaupt today.
That is not an Imagination. Continuous research and development at Weishaupt guarantee clean and efficient burners. That is Reliability.
Developing improvement. Weishaupt recognizes the signs of time and researches perpetually to get more efficient and environmental friendly burner systems.

This way not only Weishaupt prevents largely unnecessary energy cost but also actively contributes in conserving the environment.
Regular maintenance reduces heating costs and environmental pollution. Only a properly adjusted burner can save energy and be environmentally friendly. Behind each Weishaupt burner stands the whole Weishaupt customer service organization. The outstanding efforts made in maintenance and service justify the enormous trust placed in Weishaupt’s burners, for at Weishaupt, product and customer service belong together. Weishaupt customer service is there for you all year round. Whenever you need help, be it the supply of spare parts, technical advice or a site visit. We are there when you need us.