

–weishaupt–

# product

Information on oil and dual-fuel burners



WM burners with oil preheating

**WM-GS20–30 and WM-S10–30 monarch<sup>®</sup> burners (100–5600 kW)**

## A burning passion for quality



*Test-firing chambers for medium and large-sized burners at the Weishaupt Research & Development Centre*

For more than six decades Weishaupt's monarch® series burners have been used on a wide variety of heat exchangers and industrial plant, and their success has helped underpin Weishaupt's outstanding reputation.

WM-GS and WM-S burners are designed to fire liquid fuels which cannot be atomised without preheating because of their viscosity. That includes fossil fuels like MFO and HFO, and – subject to prior works approval – biogenic fuels.

All monarch® burners are renowned for their quality and their state-of-the-art technology. Choosing a Weishaupt burner is always a future-proof investment.



*WM-GS20 for ratings up to 2200 kW*

# Fossil and biogenic fuels

**Higher-viscosity liquid fuels have many different origins. Fossil fuels include residual oils, such as MFO and HFO. Liquid biogenic fuels are predominantly oils produced from rapeseed, soya beans, sunflowers, and oil palms.**

## **Petroleum**

The composition of the oils supplied by oilfields around the world vary greatly. They vary in viscosity, sulphur content, water content, and the mix of other constituents. However, they are all hydrocarbon compounds.

## **Heavy fuel oil**

Heavy fuel oil, also referred to as HFO, is a high-viscosity residual fuel oil. HFO is the product remaining after the more valuable cuts of crude oil have been distilled. It is a particularly viscous, almost black oil.







### Examples of biogenic fuels

#### Rapeseed oil

Cold-pressed rapeseed oil is extracted from various cultivars of rapeseed. Rapeseed oil is used as a raw material in the production of rapeseed methyl ester (RME) and is one of a group of oils known as fatty acid methyl esters (FAME).

Rapeseed oil has a viscosity of around  $38 \text{ mm}^2/\text{s}$  at  $40 \text{ }^\circ\text{C}$ . However, the range of tolerance is quite large and so a fuel specification is always required.

#### Soya oil

Cold-pressed soya oil is extracted from soya beans, which are a type of legume (pulse). The main value of soya beans lies in their high protein and oil content (about 39 and 17 % respectively), the latter of which is unusually high for beans.

#### Generally

Higher viscosity oils, for example crude oils, reprocessed waste oils, or vegetable oils such as rapeseed or soya bean oil, need to be analysed in advance. Due to the different qualities of the fuels, the burner execution has to be matched to the fuel.

# WM-S10 with staged load control

**Weishaupt's high-quality production is not limited to a small number of models. It offers a complete range, including some niche products.**

The monarch<sup>®</sup> WM-S burners, designed for the combustion of special fuels, are the modern successors to Weishaupt's legendary medium and heavy-oil burners.

WM-S burners share the many positive features of the WM-L burners on which they are based, including:

- A compact, aerodynamic design.
- Low operational noise levels.
- Digital combustion management with precise dosing of fuel and air.

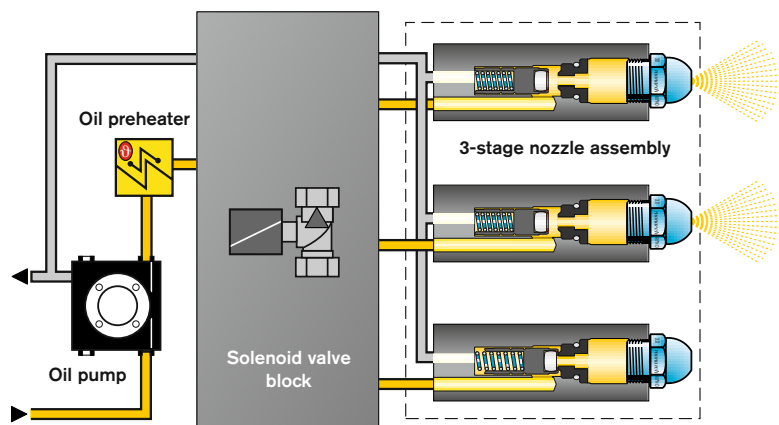
In addition, they have many other key features, most notably:

- A choice between underslung or side-mounted oil preheater.
- A compact valve block, reducing oil lines to just a supply and return.
- Insulated oil lines.
- A specially designed recirculating nozzle assembly with two or three nozzles.
- A mixing assembly optimised for the fuel to ensure the best combustion results.

WM-S10 burners, which have staged load control, are suitable for oil viscosities up to 75 mm<sup>2</sup>/s at 50 °C.



*WM-S 10 monarch<sup>®</sup> burner with underslung (above) or side-mounted oil preheater (below)*



*The oil-side components of a three-stage WM-S10 burner*



*Compact solenoid valve block*

### **Solenoid valve block**

A new, compact solenoid valve block was developed for the hydraulic control of the nozzle assembly, bringing all of the solenoid valves together within a single unit. A new direction was taken in the type of solenoid valves chosen: They are all two-way valves.

# WM-(G)S20 and WM-(G)S30 with modulating load control

## Control

The following methods of regulation are available for Weishaupt WM-S 20–30 burners:

Oil: Sliding-two-stage or modulating (R), depending on the method of load control employed.

The following methods of regulation are available for Weishaupt WM-GS 20–30 burners:

Gas: Sliding-two-stage or modulating (ZM), depending on the method of load control employed.

Oil: Sliding-two-stage or modulating (R), depending on the method of load control employed.

The output of a modulating burner is matched – within its operating range – to current heat demand.

These multiple control options make the burner suitable for a wide range of applications and ensure a gentle and problem-free start up, along with a high degree of operational reliability.

## Preheating

The burner's electric preheater is able to heat high-viscosity oil very rapidly to precisely the required atomisation temperature. This is due to its large heat-exchanging surface in comparison to the relatively small volume of oil. This rapid distribution of heat prevents any localised overheating that would lead to the 'cracking' of the oil.

Other components, such as the solenoid valve block and the nozzle assembly, are compactly constructed and kept at standby temperature by a low-power heating cartridge.

The oil lines are thermally insulated to keep heat losses between the preheater and the nozzles to a minimum. If the setting point of the oil is close to or below the ambient temperature then the oil lines will need to be traced.

## Recirculation

The recirculation of heated oil all the way up to the nozzle ensures that oil at the ideal atomisation temperature is available immediately at the time of fuel release/ignition.

## Electrical connection

Local regulations and fusing requirements must be observed when connecting gas, oil, and dual-fuel burners to the electrical power supply.

Some of a WM-(G)S burner's electrical components are not mounted on the burner itself. Consequently, these and any other project-related components have to be accommodated by others.

Weishaupt can offer wall-mounted or free-standing control panels for all electrical components. Alternatively, pre-assembled and tested switchgear can be supplied for integration with existing control panels.

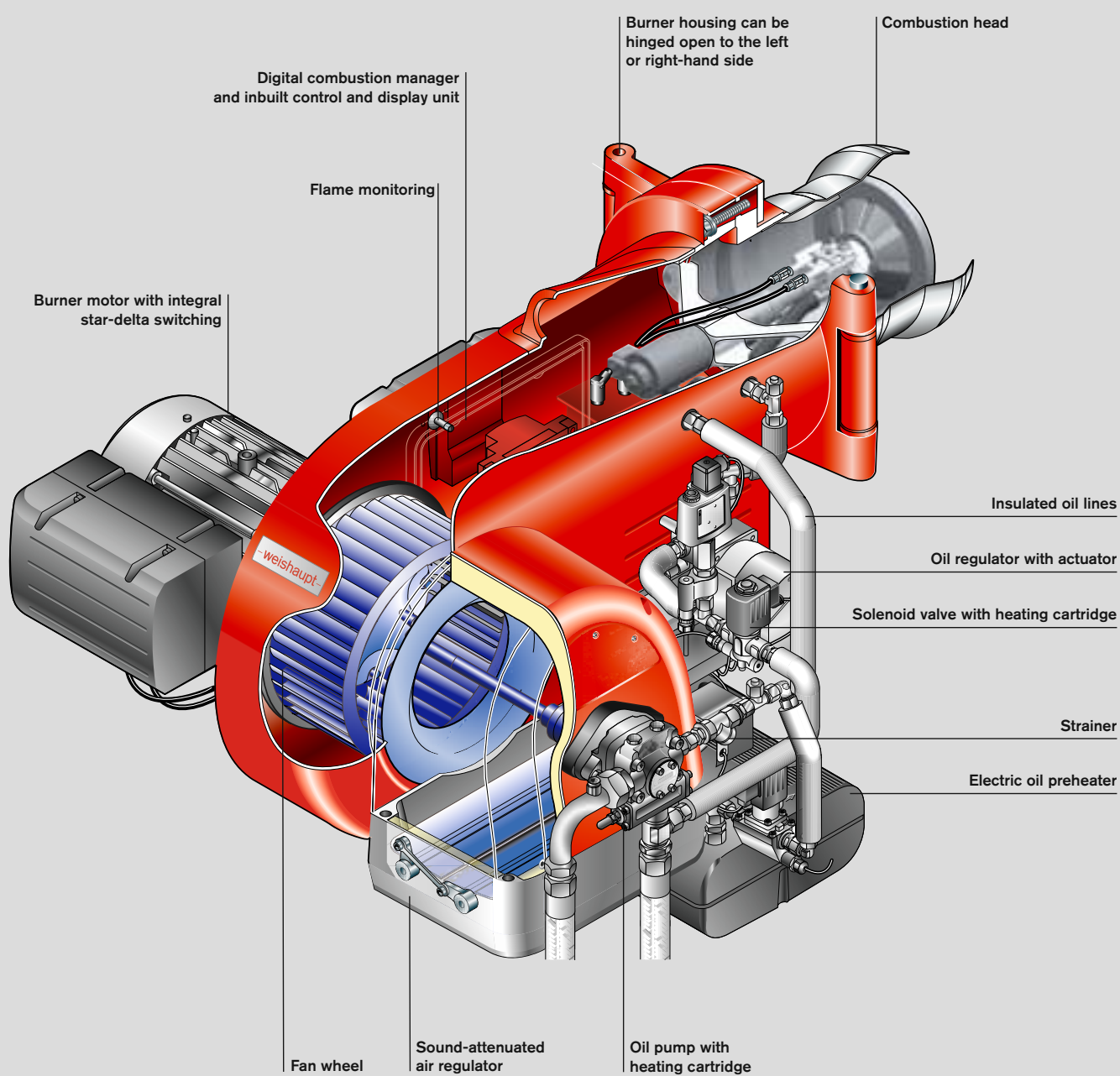
## The most important advantages:

- Burner-mounted oil preheater
- Insulated oil lines
- Recirculating nozzle assembly
- Easy changeover between gas and oil on dual-fuel burners
- Digital combustion management with electronic compound regulation at all ratings
- Compact design
- Sound-attenuated air inlet as standard for quieter operation
- Powerful fan with specially developed fan geometry and air damper control
- Electromagnetic clutch included as standard (WM-GS)
- Easy access to all components, such as the mixing assembly, air damper and combustion manager
- Reliable operation with sliding-two-stage or modulating operation, depending on the burner version and method of load control
- Computer-controlled function test of each individual burner at the factory
- Burners can be supplied with pre-wired plug connections
- Excellent price / capacity relationship
- Well-established, global service network

## Trademark protection

Weishaupt WM-series burners are registered as a Community Trade Mark throughout Europe.



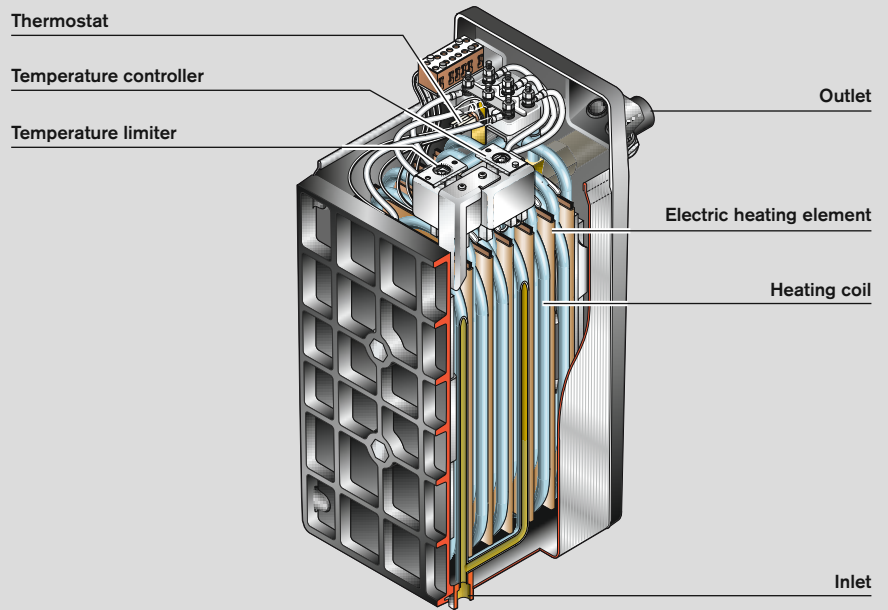


# Oil preheater

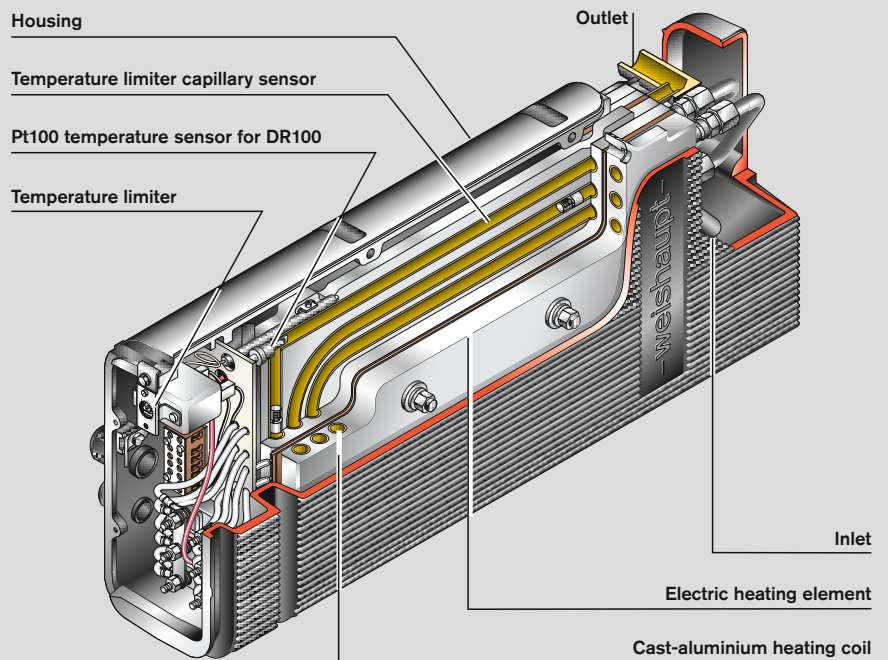
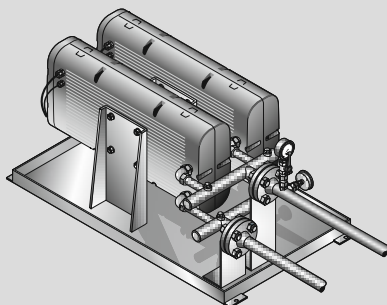
## Viscosity is one of the key criteria for the combustion of liquid fuels.

A viscosity of no more than 10 mm<sup>2</sup>/s is appropriate for optimal atomisation. Low-viscosity fuels generally fulfil this criterion at a temperature of 20 °C. Medium and high-viscosity fuels, however, do not. Some thermal input is needed to ensure the optimal combustion of these fuels.

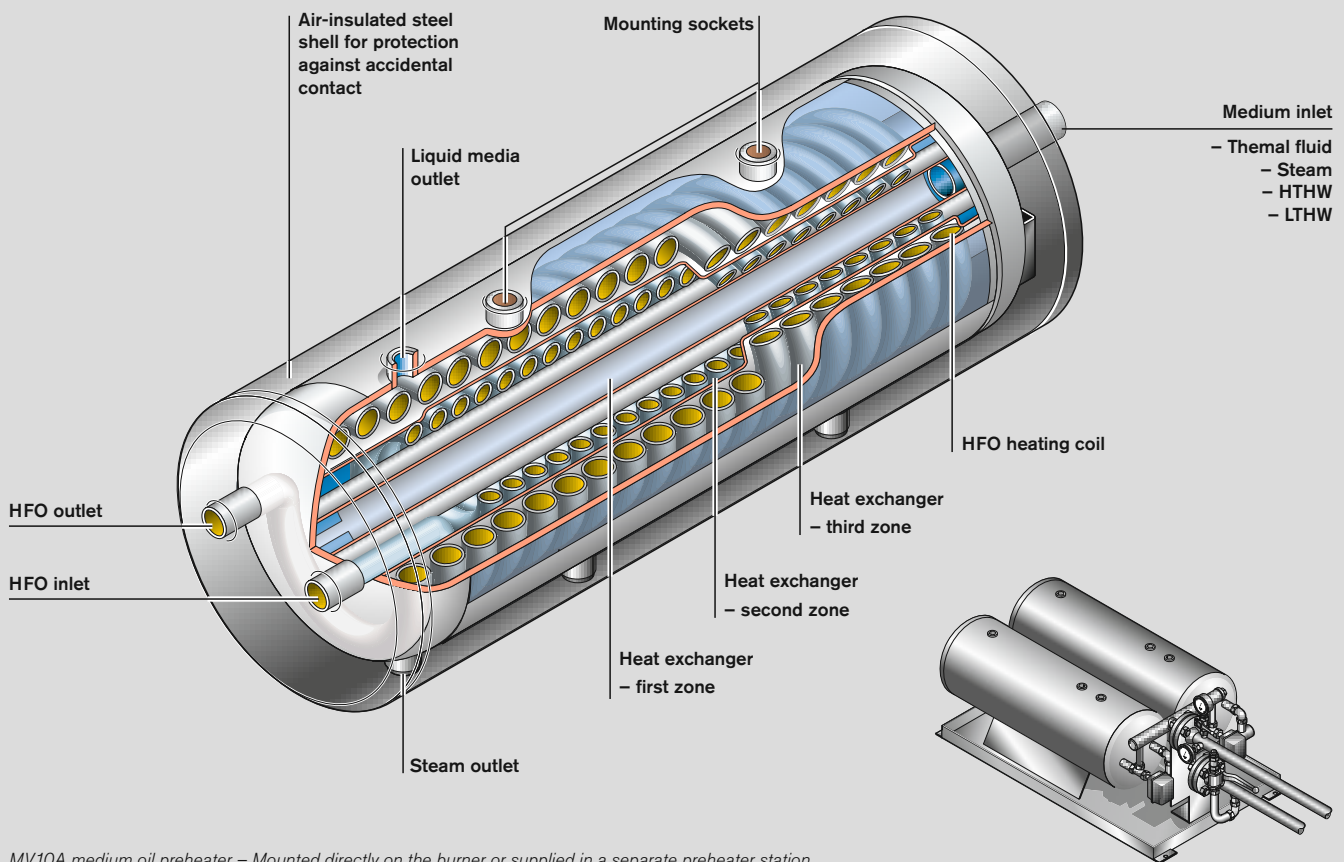
Weishaupt's electric preheaters are one way of bringing the oil up to a higher temperature, thereby bringing its viscosity to a suitable point. Weishaupt's electric oil preheaters offer the benefits of even heat transfer, ideal temperature sensor positioning, low pressure losses, and a compact design.



EV2D electric oil preheater



WEV2 electric oil preheater



MV10A medium oil preheater – Mounted directly on the burner or supplied in a separate preheater station

Medium preheaters are another way of bringing medium and high-viscosity fuels up to atomisation temperature. They can operate alone to preheat the oil or provide support to an electric preheater. The combined variant has the advantage that the system can be cold-started even with a single-fuel burner. If a medium preheater were to be used on its own, then an additional fuel (e.g. gas) would be needed to bring the system up to operating temperature.

Weishaupt's MV-type medium preheaters are suitable for various media, namely LTHW, HTHW, thermal fluid, and steam.

They operate on a three-pass basis, transferring heat to a double heat exchanger coil. Medium-specific and / or thermostatic controllers are used to maintain temperature by determining the flow rate of the medium.

The medium preheater is a complete assembly, with the safety and control thermostats needed for control of the burner integrated into its connection unit.

# Preheating temperatures above 100 °C

**Temperatures in excess of 100 °C are always needed when preheating HFO in order to reach the viscosity recommended for the oil nozzles.**

That places many more demands on the oil supply system than a low-viscosity oil would, especially in regard to transfer.

HFO is permitted to contain a very small amount of water. Unpressurised, this water vaporises at temperatures above 100 °C. This causes pressure fluctuations which can have a detrimental effect on the operational reliability of the burner.

Weishaupt's wide range of accessories includes oil supply components that meet these temperature and pressure demands, in extreme cases even for preheating temperatures of 160 °C with a ring main pressure of at least 5 bar.

Given the above, maximum operational reliability and safety for the burner can only be achieved if the correct oil-side components are also supplied. Weishaupt, who offer a one-stop solution with competent advice and all the necessary equipment, are best-placed to meet this goal.



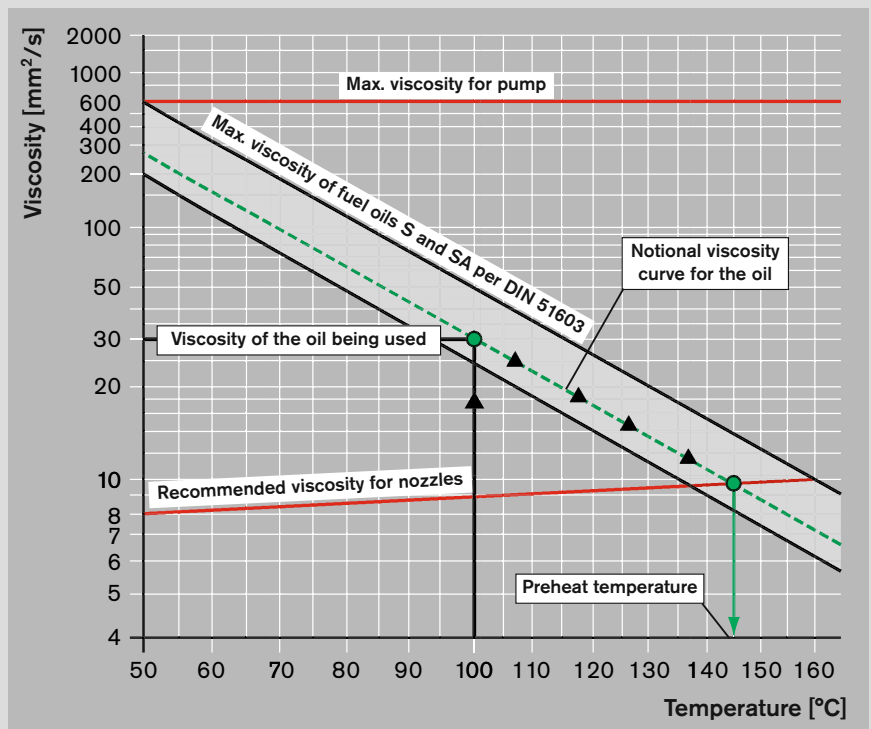
Twin-pump assembly



Oil circulation unit with oil meter



Air / gas separator



Viscosity / temperature chart

### Fuels

Natural gas  
LPG  
MFO/HFO (max. 50 mm<sup>2</sup>/s at 100 °C)

The suitability of fuels of differing quality must be confirmed in advance with Weishaupt.

### Applications

Weishaupt WM-(G)S burners are suitable for intermittent firing and continuous firing on:

- EN 303-compliant heat generators
- LTHW boilers
- HTHW boilers
- Steam boilers
- Air heaters
- Certain process applications

### Permissible ambient conditions

- Ambient temperature
  - 15 to + 40 °C for gas firing
  - 10 to + 40 °C for oil firing
- Maximum 80 % relative humidity, no condensation
- The combustion air must be free of aggressive substances (halogens, chlorides, fluorides etc.) and impurities (dust, debris, vapours, etc.)
- Adequate ventilation is required for operation in enclosed spaces
- For plant in unheated areas, certain further measures may be required

Use of the burner for other applications or in ambient conditions not detailed above is not permitted without the prior written agreement of Max Weishaupt GmbH. Service intervals will be reduced in accordance with the more extreme operational conditions.

### Installation and use

Local regulations and all applicable standards must be observed when installing and using the equipment.

#### Max. viscosity – WM-S10

WM-S10 burners with staged load control are suitable for oil viscosities up to 75 mm<sup>2</sup>/s at 50 °C.

#### Max. viscosity – WM-(G)S20 / 30

WM-(G)S20–30 burners with modulating load control are suitable for oil viscosities up to 50 mm<sup>2</sup>/s at 100 °C.

The combustion of HFO with a viscosity in excess of 50 mm<sup>2</sup>/s at 100 °C must be confirmed in advance with Weishaupt.

In order to maintain the highest degree of operational reliability, WM-(G)S20–30 burners should not be equipped with nozzles smaller than W100kg S7 50° or W100kg S4 50°.

### Standards compliance

The burners are tested by an independent body and fulfil the applicable requirements of the following European Union directives and applied standards:

- EMC** EMC Directive 2014/30/EU  
Applied standards:
- EN 61000-6-1 : 2007
  - EN 61000-6-2 : 2005
  - EN 61000-6-4 : 2007
- LVD** Low Voltage Directive 2014/35/EU  
Applied standards:
- EN 60335-1 : 2010
  - EN 60335-2-102 : 2010
- MD** Machinery Directive 2006/42/EC  
Applied standards:
- EN 267 Annex J,
  - EN 676 Annex J,
- GAD** Gas Appliance Directive 2009/142/EC  
Applied standards:
- EN 676 : 2008
- PED<sup>1)</sup>** Pressure Equipment Directive 2014/68/EU  
Applied standards:
- EN 267 Annex K,
  - EN 676 Annex K,
  - Conformity assessment procedure: Module B

The burners are labelled with

- CE Mark
- CE-PIN per 2009/142/EC
- DIN-CERTCO
- Identification No. of the notified body

<sup>1)</sup> With the appropriate choice of equipment.



# Digital combustion management: Precise, simple, and reliable

## Digital combustion management means optimal combustion figures, continuously reproducible setpoints, and ease of use.

Weishaupt WM-(G)S burners are equipped as standard with electronic compound regulation and digital combustion management. The latest combustion technologies demand a precise and continually reproducible dosing of fuel and combustion air. This optimises combustion efficiency and saves fuel.

## Simple operation

Setting and control of the burner is achieved using a control and display unit. This is linked to the combustion manager via a bus system, enabling the user-friendly setting of the burner. The control and display unit has, depending on the

type of combustion manager employed, either a language-neutral display or a clear text display with a choice of languages. An English / Chinese dual-screen version is available as an option with the latter should a Chinese-character display be desired.

## Measures for saving energy and increasing safety and reliability

**Variable speed drive** reduces electrical consumption and facilitates a soft start of the combustion air fan. The use of VSD also reduces noise emissions by a considerable amount.

**O<sub>2</sub> trim** saves fuel through a continual and extremely efficient optimisation of the combustion air. Control is effected by a

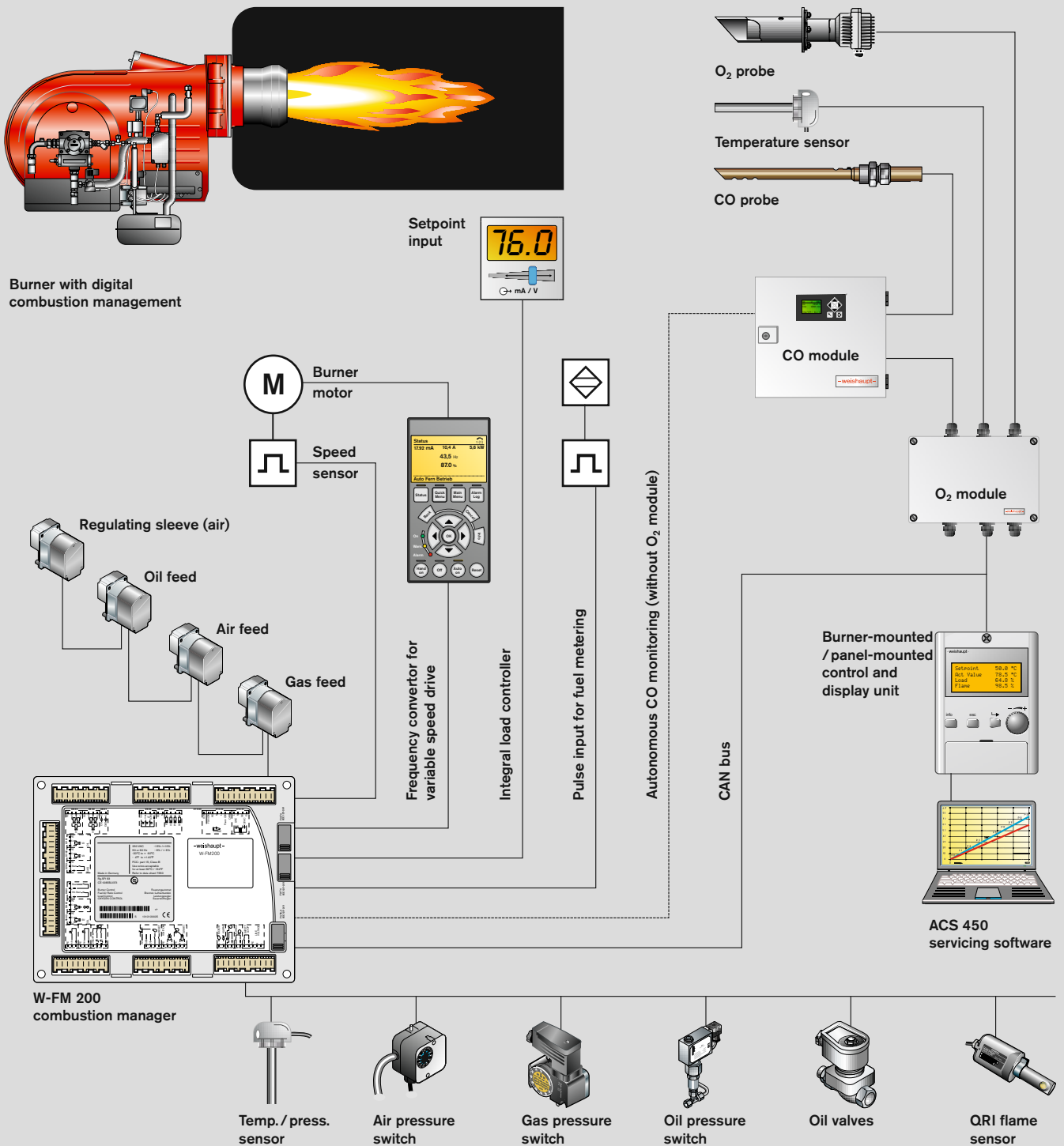
system with a Lambda probe, which continually measures the oxygen content of the flue gas.

**CO monitoring** executes a safety shutdown of the burner if a predefined CO limit is exceeded, thereby ensuring the very highest degree of safety.

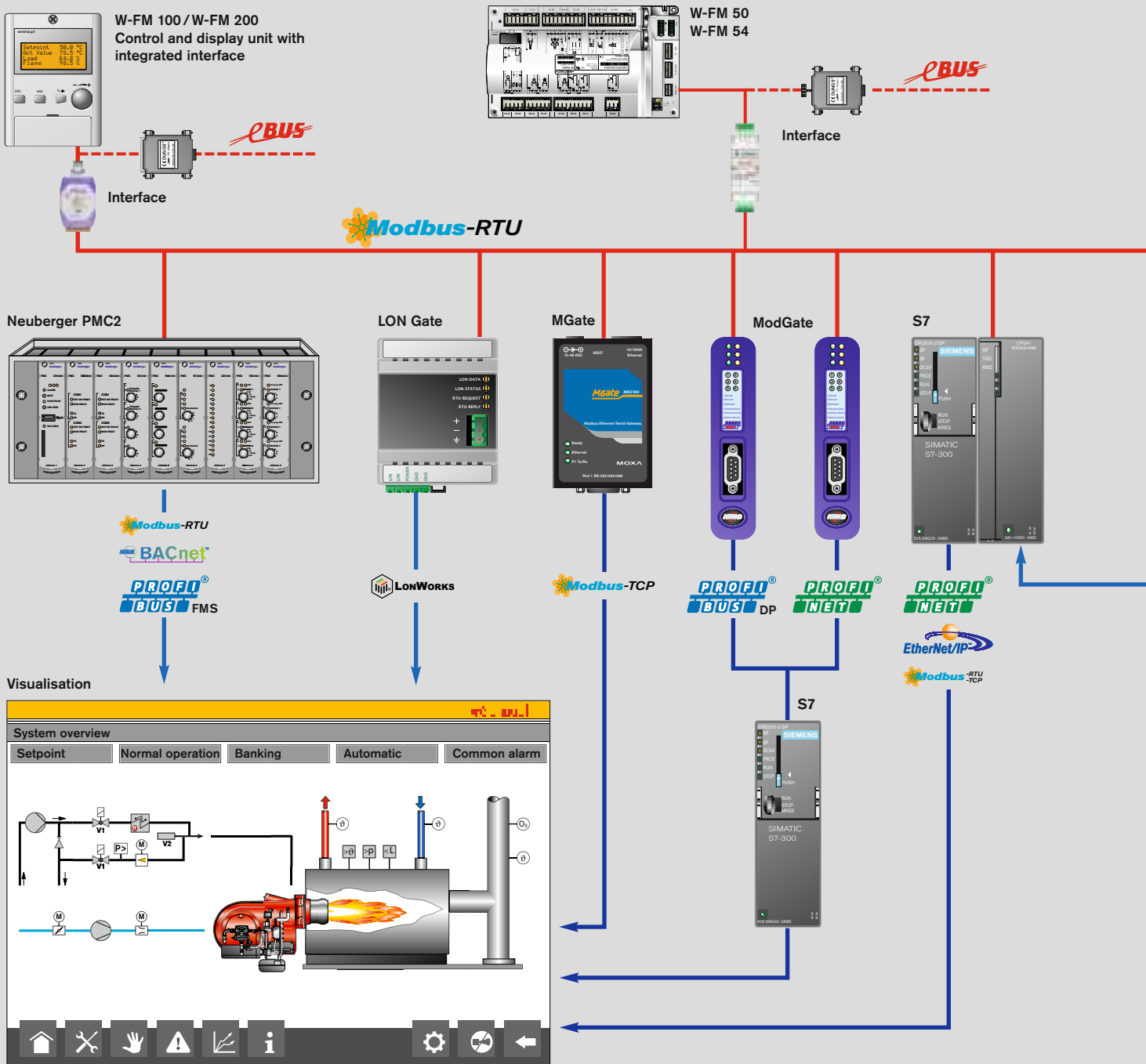
**Combined CO/O<sub>2</sub> control** ensures an ultimate degree of safety. CO emissions are continually monitored and, if the defined limit is exceeded, the burner is operated with an increased amount of excess air for a short period of time before the O<sub>2</sub> trim returns the burner to its preset O<sub>2</sub> setpoint. Should external influences prevent a non-critical condition from being reached, then the burner will undergo a controlled shutdown.

Features – digital combustion management	W-FM50	W-FM100	W-FM200
Single-fuel operation	●	●	●
Dual-fuel operation	–	●	●
Intermittent firing	●	●	●
Continuous firing >24 h	● <sup>1)</sup>	●	●
Variable speed drive available	●	–	●
O <sub>2</sub> trim available	–	–	●
CO monitoring	–	–	○
Combined O <sub>2</sub> /CO control	–	–	○
Flame sensor for intermittent firing	ORA2/ORB	ORB	ORB
Flame sensor for continuous firing	ION <sup>1)</sup>	ION/ORI/QRA 73	ION/ORI/QRA 73
Maximum number of actuators	2	4	6
Gas valve proving	●	●	●
Integrated PID controller with automatic adaption. Pt / Ni temperature sensor, 0/2–10 V, and 0/4–20 mA inputs for temperature / pressure	–	○	●
Setpoint input (temperature / pressure)	–	○	●
Analogue signal input (0/2–10 V and 0/4–20 mA)	– / ●	○	●
Configurable 0/4–20 mA analogue output	–	○	●
Language-neutral ABE control unit	●	–	–
ABE control unit with 20 available languages (any one ABE limited to 6)	–	●	●
Dual-language / script ABE control unit (Chinese / English)	–	○	○
Removable ABE control unit (max. length of connecting line)	20 m	100 m	100 m
Fuel consumption meter (switchable)	● <sup>2)</sup>	–	●
Combustion efficiency display in conjunction with O <sub>2</sub> trim	–	–	●
eBUS / Modbus RTU interface	●	●	●
PC-supported commissioning	●	●	●

● Standard ○ Optional <sup>1)</sup> Gas burner with ionisation probes only <sup>2)</sup> Not in conjunction with VSD



# Flexible communications: Compatible with building management systems



BMS connection options



Remote monitoring made easy via tablet or laptop

**The digital combustion manager is the basis of communications with other superordinate systems. This is generally achieved using the eBus or Modbus protocols.**

All the usual burner and boiler functions can be monitored and controlled through a direct connection with a building management system.

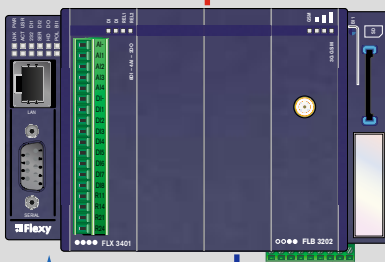
A graphical HMI is available as an option to provide a user-friendly overview of the boiler. The touchscreen display allows numerous functions to be adjusted and monitored, such as system parameters and setpoints of individual and multi-boiler plant and ancillary equipment.

The controls specialists, Neuberger, who are a part of the Weishaupt Group, are able to design and implement complex control solutions.

Further optional components enable connections to be made to systems using commonplace industrial standards, such as Profibus-DP, LON-Bus, and Modbus RTU, and network protocols such as Profinet I/O, Modbus TCP, BacNet, etc.

A recent addition to Weishaupt's portfolio is the W-FM COM communications module. It transmits data securely over the internet so that it can be called up and displayed in a browser window on a computer, tablet, or smartphone, facilitating accurate service planning for example. Even away from the internet you can be kept up to date with the operation of the burner: In the event of a safety shutdown or other predefined trigger, an SMS text message is sent automatically.

W-FM COM



Communication via the internet



# Overview of burner control

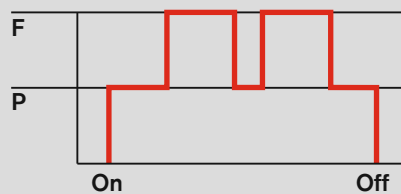
## Model designation

### Gas and oil-fired operation

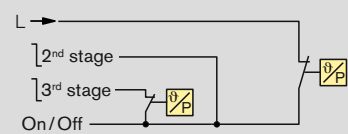
#### Two-stage control (Z)

- Two-term switching (e.g. temperature or pressure stat) causes actuators to drive the burner to partial load or full load in response to heat demand. Single-stage control with low-impact start can also be effected.

#### Two-stage



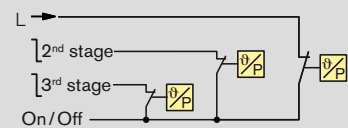
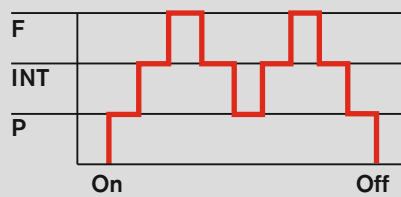
#### Control <sup>1)</sup>



#### Three-stage control(T)

- Two-term switching (e.g. temperature or pressure stat) for each load point causes actuators to drive the burner to partial load, intermediate load, or full load in response to heat demand. Two-stage control with low-impact start or changeover can also be effected.

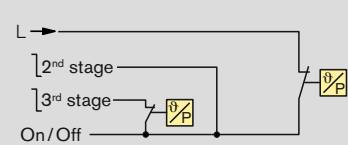
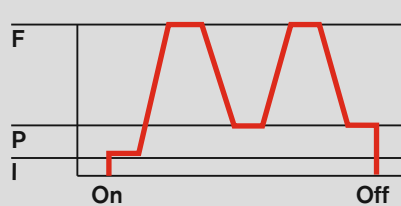
#### Three-stage



#### Sliding-two-stage control (ZM, R)

- Two-term switching (e.g. temperature or pressure stat) causes actuators to drive the burner to partial load or full load in response to heat demand. There is a gradual change between both load points. There are no sudden, large changes in fuel throughput.

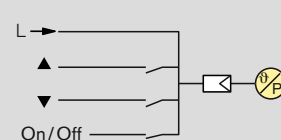
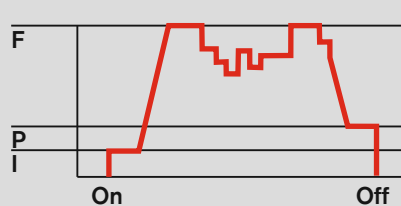
#### Sliding-two-stage



#### Modulating control (ZM, R)

- An electronic load controller causes actuators to make infinitely variable load adjustments in response to heat demand.
- Available modulation control options:
  - W-FM 100 with load controller
  - W-FM 200
- Alternatively, a PID controller can be fitted into the switching

#### Modulating



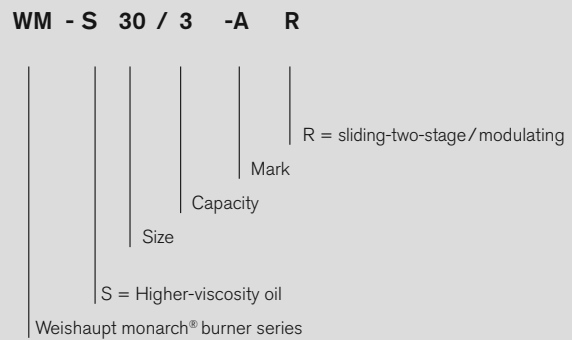
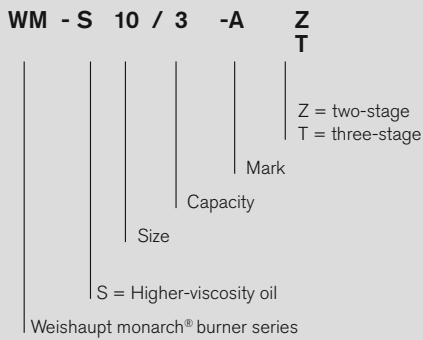
F = Full load (nominal load)  
 INT = Intermediate load  
 P = Partial load (minimum load)  
 I = Ignition load

<sup>1)</sup> Alternatively, staged control can also be effected by an electronic PID controller. In which case appropriate temperature sensors or pressure transducers will be required.

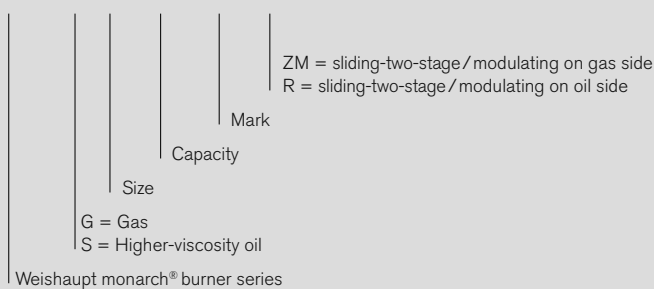


Burner version	Oil			Gas sliding-two-stage / modulating
	two-stage	three-stage	sliding-two-stage / modulating	
Z	●			
T		●		
R			●	
ZM-R			●	●

**Model designation**



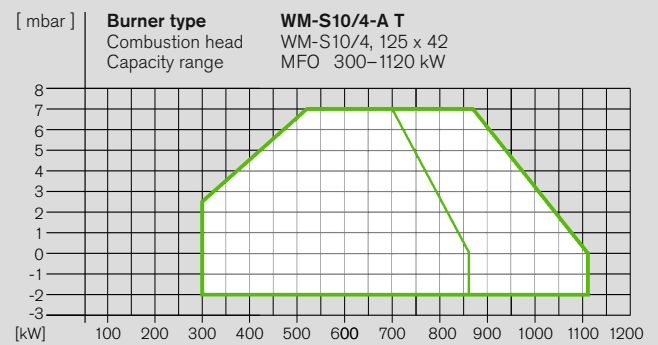
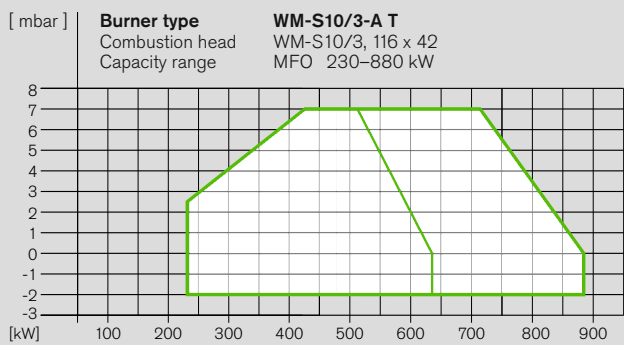
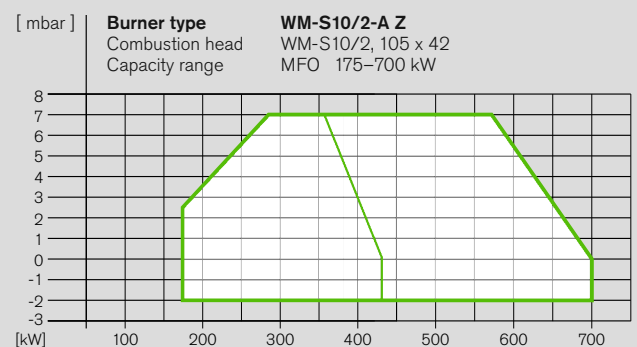
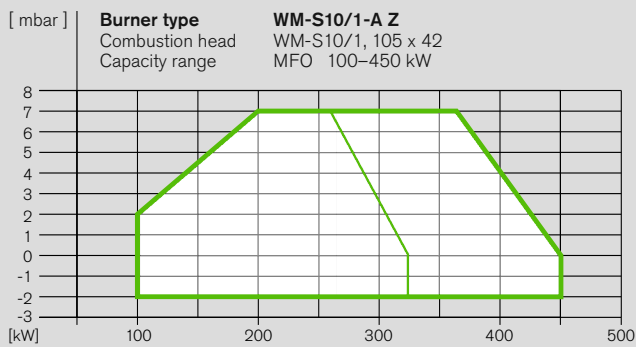
**WM - GS 20 / 3 -A / ZM-R**





# Burner selection

## WM-S10, versions Z and T



**MFO: Capacity with combustion head**

Closed   
 Open

**Turndown:**

MFO max. 3:1

**Capacity graphs for oil burners certified in accordance with EN 267.**

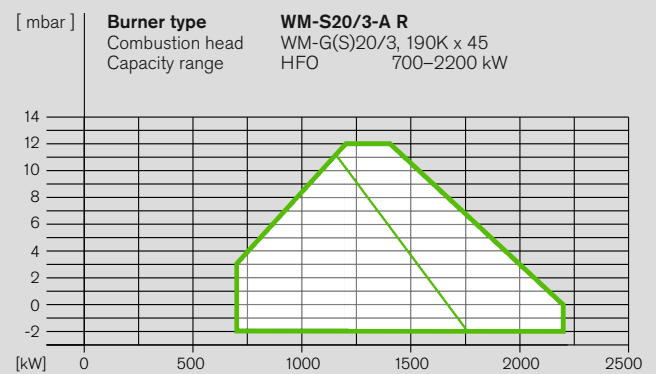
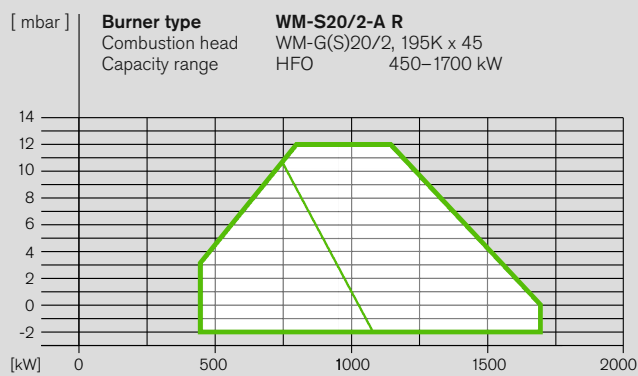
Stated ratings are based on an air temperature of 20 °C and an installation altitude of 500 m above sea level. For installations at higher altitudes, a reduction in capacity of 1 % per 100 m above sea level should be taken into account.

**DIN CERTCO certification:**

The burners have been type-tested by an independent body (TÜV-Süd) and certified by DIN CERTCO.



# Burner selection

## WM-S20, version R



The execution of the WM-S20 burner parallels that of the WM-GS20, save that an electromagnetic clutch, air pressure switch, double gas valve assembly, gas butterfly valve, and gas butterfly valve actuator are not included. The gas mixing chamber is closed off with a blanking flange.

### HFO: Capacity with combustion head

Closed   
 Open 

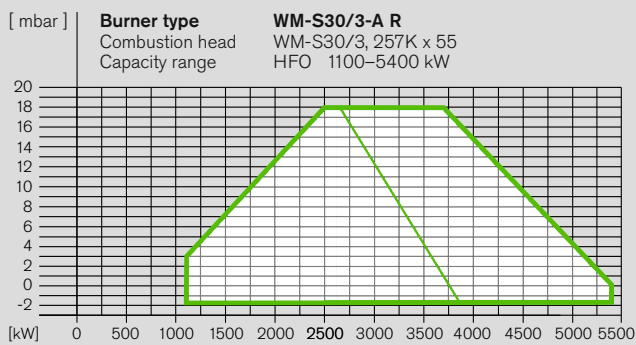
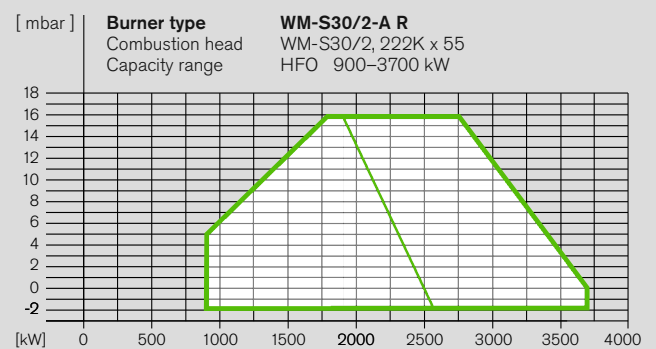
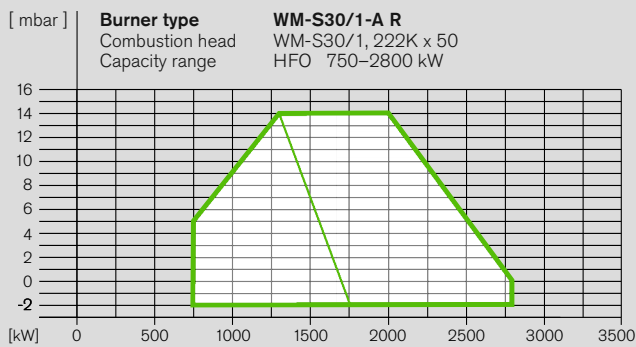
### Turndown:

HFO max. 3:1

### Capacity graphs for oil burners certified in accordance with EN 267.

Stated ratings are based on an air temperature of 20 °C and an installation altitude of 500 m above sea level. For installations at higher altitudes, a reduction in capacity of 1 % per 100 m above sea level should be taken into account.

# Burner selection WM-S30, version R



**HFO: Capacity with combustion head**

Closed   
 Open

**Turndown:**

HFO max. 3:1

Capacity graphs for oil burners certified in accordance with EN 267.

Stated ratings are based on an air temperature of 20 °C and an installation altitude of 500 m above sea level. For installations at higher altitudes, a reduction in capacity of 1 % per 100 m above sea level should be taken into account.

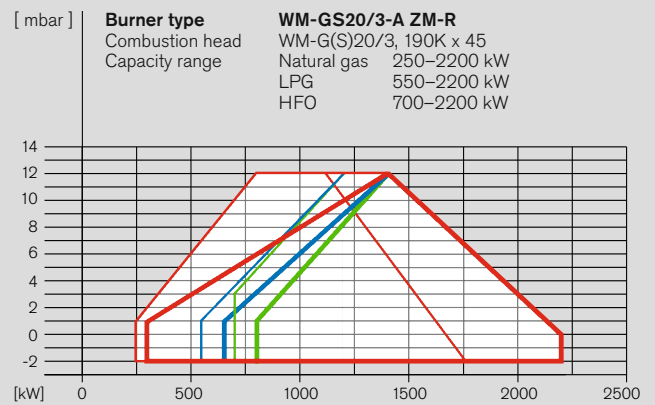
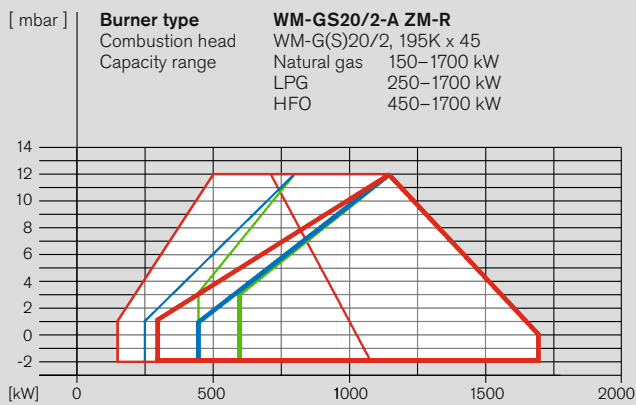
**DIN CERTCO certification:**

The burners have been type-tested by an independent body (TÜV-Süd) and certified by DIN CERTCO.



# Burner selection

## WM-GS20, version ZM-R



**Nat. gas: Capacity with comb. head**

Closed   
 Open

**LPG: Capacity with comb. head**

Closed   
 Open

**HFO: Capacity with comb. head**

Closed   
 Open

**Turndown:**

Gas max. 7:1  
 HFO max. 3:1

Capacity graphs for gas and dual-fuel burners certified in accordance with EN 676 and EN 267.

Stated ratings are based on an air temperature of 20 °C and an installation at sea level. For installations at higher altitudes, a reduction in capacity of 1 % per 100 m above sea level should be taken into account.

# Gas valve train sizing WM-GS20, version ZM-R

## WM-GS20/2-A, version ZM-R

Burner rating kW	Low-pressure supply (FRS regulator)	High-pressure supply (HP regulator)
	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 65 65 65 65 65 65 65	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 65 65 65 65 65 65 65

Natural gas E LHV = 10.35 kWh/m³; d = 0.606														
820	89	28	11	-	-	-	-	18	12	8	-	-	-	-
900	90	28	18	12	10	9	9	28	20	9	8	8	8	8
1100	188	22	28	18	18	12	11	89	29	18	10	9	8	8
1800	188	89	29	19	18	18	12	88	88	18	12	10	9	9
1800	280	89	88	22	18	18	18	88	88	19	18	11	10	10
1800	-	111	88	28	18	18	18	88	80	22	18	12	11	10

Natural gas LL LHV = 8.83 kWh/m³; d = 0.641														
820	88	88	18	10	-	-	-	28	18	8	8	-	-	-
900	129	89	21	18	12	10	10	88	28	12	9	8	8	8
1100	190	82	80	19	18	18	12	88	89	18	12	11	10	9
1800	282	98	88	28	18	18	18	88	88	21	18	12	11	11
1800	-	128	88	28	21	18	18	98	88	28	18	18	12	12
1800	-	189	89	88	28	18	18	121	88	80	19	18	18	18

LPG* LHV = 25.89 kWh/m³; d = 1.555														
820	28	12	-	-	-	-	-	8	8	-	-	-	-	-
900	81	18	10	8	-	-	-	18	10	8	8	-	-	-
1100	89	28	18	11	10	9	9	19	18	9	8	8	8	8
1800	80	88	18	12	11	10	10	28	19	10	8	8	8	8
1800	108	81	19	18	11	10	10	81	28	11	9	8	8	8
1800	180	80	22	18	12	11	10	88	28	12	9	8	8	8

The LHV is referenced to 0 °C and 1018 mbar.  
All pressures in mbar.

\* The LPG charts are based on propane, but may also be used for butane.

Screwed	Flanged
R 1 W-MF512	DN 65 DMV5065/12
R 1½ W-MF512	DN 80 DMV5080/12
R 2 DMV525/12	DN100 DMV5100/12
	DN 125 VGD 40.125

**Stated flow pressures are based on a combustion chamber resistance of 0 mbar. The combustion chamber pressure of the heat generator must be added to the figure determined from the above chart when sizing the gas valve train. Minimum flow pressure 15 mbar.**

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used.

For high-pressure supplies, an EN 334-compliant high-pressure regulator should be selected from the following technical booklets:

- Regulators up to 4 bar, Print No. 83001202
- Regulators with safety devices, Print No. 83197902

Refer to the burner's rating plate for the maximum connection pressure.

## WM-GS20/3-A, version ZM-R

Burner rating kW	Low-pressure supply (FRS regulator)	High-pressure supply (HP regulator)
	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 65 65 65 65 65 65 65	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 65 65 65 65 65 65 65

Natural gas E LHV = 10.35 kWh/m³; d = 0.606														
1128	188	80	20	18	10	-	-	88	28	10	8	8	-	-
1800	180	88	28	18	12	10	9	80	88	18	9	8	8	8
1800	289	88	88	20	18	12	11	88	88	18	12	10	9	8
1800	-	111	82	28	18	18	18	88	89	22	18	12	11	10
1900	-	188	81	29	21	18	18	108	88	28	18	18	12	11
2200	-	181	88	88	28	19	18	188	98	88	20	18	18	18

Natural gas LL LHV = 8.83 kWh/m³; d = 0.641														
1128	198	81	28	18	12	10	9	88	88	18	9	8	8	8
1800	280	98	88	21	18	12	11	81	80	18	12	10	8	8
1800	-	128	88	28	19	18	18	98	88	28	18	18	11	10
1800	-	189	88	88	28	18	18	121	88	80	19	18	18	18
1900	-	198	81	89	28	20	18	-	108	88	22	18	18	18
2200	-	289	91	89	82	28	21	-	188	88	28	21	18	18

LPG* LHV = 25.89 kWh/m³; d = 1.555														
1128	89	28	11	-	-	-	-	18	12	8	-	-	-	-
1800	88	81	18	10	8	-	-	22	18	8	8	8	-	-
1800	102	80	18	12	10	9	9	80	22	10	8	8	8	8
1800	180	80	22	18	12	11	10	88	28	12	9	8	8	8
1900	181	81	28	18	18	12	11	88	88	18	10	9	8	8
2200	212	89	82	20	18	18	12	80	88	18	12	10	9	9

### Maximum Operating Pressure (MOP)

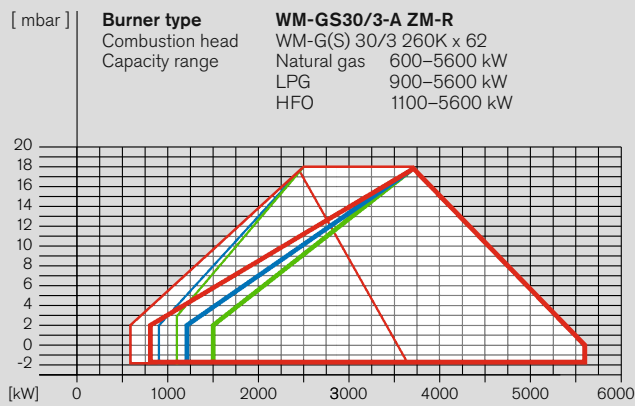
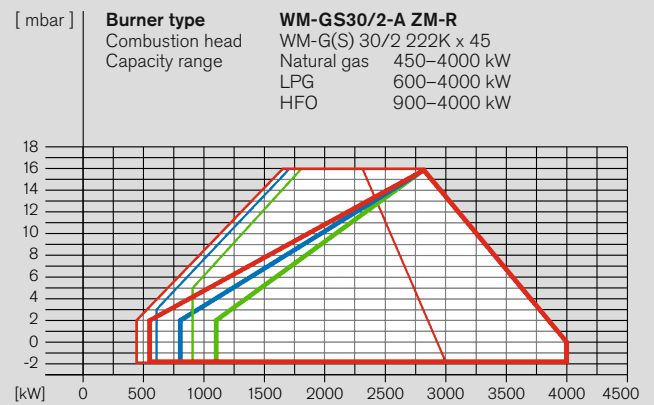
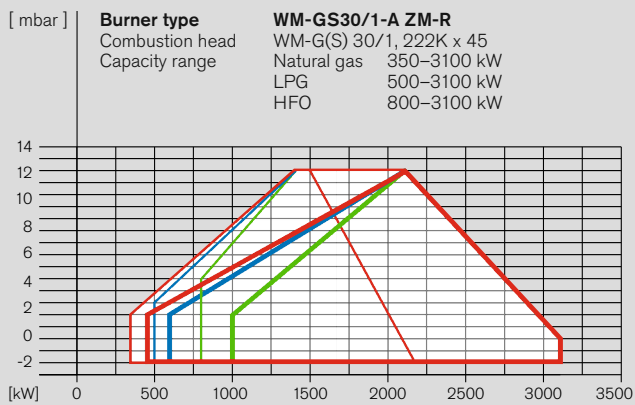
The gas supplier must safeguard the gas supply such that the flow pressure will not exceed the MOP of the gas valve train components.

### Valve train design

- Low pressure:  
Normally, low-pressure valve trains are used for gas flow pressures up to a maximum of 300 mbar and an MOP of 500 mbar. This allows for pressure losses between the transfer station and the valve train. Furthermore, it is assumed that the transfer station utilises components (SSV, SRV, regulator) that are not of the highest class of accuracy. In individual cases, following consideration and approval by Weishaupt's headquarters, a gas flow pressure of up to 360 mbar can be approved if the appropriate conditions exist.
- High pressure:  
Normally, high-pressure valve trains are used for gas flow pressures above 300 mbar.

# Burner selection

## WM-GS30, version ZM-R



**Nat. gas: Capacity with comb. head**

Closed —  
Open —

**LPG: Capacity with comb. head**

Closed —  
Open —

**HFO: Capacity with comb. head**

Closed —  
Open —

**Turndown:**

Gas max. 7:1  
HFO max. 3:1

Capacity graphs for gas and dual-fuel burners certified in accordance with EN 676 and EN 267.

Stated ratings are based on an air temperature of 20 °C and an installation at sea level. For installations at higher altitudes, a reduction in capacity of 1 % per 100 m above sea level should be taken into account.

# Gas valve train sizing WM-GS30, version ZM-R

## WM-GS30/1-A, version ZM-R

Burner rating kW	Low-pressure supply (FRS regulator)	High-pressure supply (HP regulator)
	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 80 80 80 80 80 80	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 80 80 80 80 80 80

**Natural gas E** LHV = 10.35 kWh/m³; d = 0.606

1800	209	100	11	19	18	12	11	99	92	11	10	10	10	
1800	202	100	99	20	18	10	18	100	100	21	18	12	11	10
1800	-	120	100	20	21	18	18	90	100	20	18	18	18	12
2000	-	100	100	20	19	18	18	110	102	21	20	18	18	18
2200	-	191	80	20	22	19	19	-	102	100	20	19	18	18
2200	-	200	100	20	22	22	22	-	120	100	22	18	18	18
2200	-	290	100	20	22	22	22	-	-	82	81	22	21	20
2200	-	-	120	100	21	22	22	-	-	82	100	22	22	22

**Natural gas LL** LHV = 8.83 kWh/m³; d = 0.641

1800	-	109	81	20	18	18	18	100	100	21	18	11	10	9
1800	-	101	100	20	21	18	18	100	100	20	18	18	12	12
1800	-	100	100	20	20	18	18	100	90	100	21	18	18	18
2000	-	210	89	20	20	20	20	-	110	81	20	20	18	18
2200	-	-	90	20	20	20	20	-	-	89	80	20	20	19
2200	-	-	110	22	21	29	29	-	-	89	100	22	22	21
2200	-	-	100	100	20	29	29	-	-	81	81	22	22	22
2200	-	-	100	89	20	29	29	-	-	100	100	29	29	22

**LPG\*** LHV = 25.89 kWh/m³; d = 1.555

1800	90	100	12	10	9	9	9	20	20	9	10	10	10	9
1800	110	100	21	18	12	11	10	100	100	12	9	10	10	9
1800	100	100	20	18	12	12	12	100	102	11	11	10	9	9
2000	189	89	20	20	18	18	18	100	100	18	18	12	11	10
2200	220	100	20	18	18	18	18	100	100	21	18	18	12	12
2200	200	100	22	21	18	18	18	89	100	20	18	18	18	18
2200	-	120	80	21	19	18	18	90	80	20	18	18	18	18
2200	-	100	89	20	21	20	20	110	100	22	19	18	18	18

The LHV is referenced to 0 °C and 1010 mbar.  
All pressures in mbar.  
\* The LPG charts are based on propane, but may also be used for butane.

Screwed	Flanged
R 1 W-MF512	DN 65 DMV5065/12
R 1½ W-MF512	DN 80 DMV5080/12
R 2 DMV525/12	DN100 DMV5100/12
	DN 125 VGD 40.125

**Stated flow pressures are based on a combustion chamber resistance of 0 mbar. The combustion chamber pressure of the heat generator must be added to the figure determined from the above chart when sizing the gas valve train. Minimum flow pressure 15 mbar.**

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used.

For high-pressure supplies, an EN 334-compliant high-pressure regulator should be selected from the following technical booklets:

- Regulators up to 4 bar, Print No. 83001202
- Regulators with safety devices, Print No. 83197902

Refer to the burner's rating plate for the maximum connection pressure.

## WM-GS30/2-A, version ZM-R

Burner rating kW	Low-pressure supply (FRS regulator)	High-pressure supply (HP regulator)
	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 80 80 80 80 80 80	Flow pressure into shutoff valve <b>Nominal valve train diameter</b> 1" 1½" 2" 65 80 100 125 Nominal gas butterfly diameter 80 80 80 80 80 80

**Natural gas E** LHV = 10.35 kWh/m³; d = 0.606

2100	-	100	11	19	18	12	11	120	100	21	20	18	18	18
2200	-	190	100	20	21	19	19	-	100	100	20	19	18	18
2200	-	200	100	20	21	21	21	-	120	100	20	21	18	18
2200	-	-	100	20	22	22	22	-	-	100	22	21	20	20
2200	-	-	120	100	22	22	22	-	-	100	100	22	22	22
2200	-	-	100	100	22	22	22	-	-	100	100	22	22	22
2200	-	-	100	100	22	22	22	-	-	100	100	22	22	22
2200	-	-	100	100	22	22	22	-	-	100	100	22	22	22
2200	-	-	100	100	22	22	22	-	-	100	100	22	22	22

**Natural gas LL** LHV = 8.83 kWh/m³; d = 0.641

2100	-	200	100	21	20	20	20	-	120	100	20	21	18	18
2200	-	-	101	100	20	20	20	-	-	81	80	20	20	19
2200	-	-	110	100	21	29	29	-	-	89	100	22	22	21
2200	-	-	100	100	20	20	20	-	-	82	82	20	20	20
2200	-	-	100	90	20	20	20	-	-	89	89	20	20	20
2200	-	-	200	100	20	20	20	-	-	101	100	20	20	20
2200	-	-	200	122	20	20	20	-	-	110	100	20	20	20
2200	-	-	200	180	20	20	20	-	-	100	100	21	21	21

**LPG\*** LHV = 25.89 kWh/m³; d = 1.555

2100	190	100	12	10	18	18	12	100	100	18	12	11	10	9
2200	200	100	20	18	18	18	18	100	100	20	18	12	11	11
2200	200	102	21	20	20	18	18	100	100	20	18	18	12	12
2200	-	120	80	20	19	18	18	90	89	20	19	18	18	18
2200	-	100	89	20	21	20	20	110	100	22	19	18	18	18
2200	-	100	89	21	20	22	22	100	99	20	21	19	18	18
2200	-	210	80	20	20	20	20	-	110	100	20	20	20	20
2200	-	200	92	22	22	22	22	-	100	89	21	22	22	21

**Maximum Operating Pressure (MOP)**  
The gas supplier must safeguard the gas supply such that the flow pressure will not exceed the MOP of the gas valve train components.

**Valve train design**

a) Low pressure:  
Normally, low-pressure valve trains are used for gas flow pressures up to a maximum of 300 mbar and an MOP of 500 mbar. This allows for pressure losses between the transfer station and the valve train. Furthermore, it is assumed that the transfer station utilises components (SSV, SRV, regulator) that are not of the highest class of accuracy. In individual cases, following consideration and approval by Weishaupt's headquarters, a gas flow pressure of up to 360 mbar can be approved if the appropriate conditions exist.

b) High pressure:  
Normally, high-pressure valve trains are used for gas flow pressures above 300 mbar.

# Gas valve train sizing WM-GS30, version ZM-R

WM-GS30/3-A, version ZM-R													
Burner rating kW	Low-pressure supply (FRS regulator)						High-pressure supply (HP regulator)						
	Flow pressure into shutoff valve						Flow pressure into shutoff valve						
	<b>Nominal valve train diameter</b>						<b>Nominal valve train diameter</b>						
	1½" 2" 65 80 100 125 150						1½" 2" 65 80 100 125 150						
Nominal gas butterfly diameter						Nominal gas butterfly diameter							
80 80 80 80 80 80						80 80 80 80 80 80							
<b>Natural gas E</b> LHV = 10.35 kWh/m <sup>3</sup> ; d = 0.606													
2900	220	100	80	20	10	10	110	100	20	10	12	11	11
2900	-	100	80	20	19	10	100	90	20	20	10	10	10
2900	-	100	80	11	20	20	21	-	100	20	19	10	10
2900	-	100	80	20	20	20	21	-	100	20	21	21	21
2900	-	200	90	80	10	10	20	-	90	80	20	20	20
2900	-	200	110	80	10	10	20	-	110	80	29	20	20
2900	-	290	100	80	10	10	20	-	100	80	29	20	20
2900	-	-	100	90	10	10	20	-	100	80	10	10	10
<b>Natural gas LL</b> LHV = 8.83 kWh/m <sup>3</sup> ; d = 0.641													
2900	-	109	100	22	10	10	100	101	20	19	10	10	10
2900	-	100	80	20	20	21	21	-	100	20	19	10	10
2900	-	100	92	10	20	20	21	-	100	20	22	21	21
2900	-	200	110	10	20	20	21	-	109	80	29	20	20
2900	-	200	100	80	10	10	20	-	101	80	29	20	20
2900	-	-	101	92	10	10	20	-	100	80	10	10	10
2900	-	-	190	109	10	10	20	-	100	92	10	10	10
2900	-	-	209	102	10	10	20	-	-	111	10	10	10
<b>LPG*</b> LHV = 25.89 kWh/m <sup>3</sup> ; d = 1.555													
2900	90	100	20	10	11	10	9	101	10	11	9	10	10
2900	129	100	20	10	10	12	12	100	20	10	11	9	9
2900	100	100	20	10	10	10	10	100	100	10	10	12	11
2900	200	100	20	20	10	10	10	109	100	22	10	10	10
2900	200	80	10	20	20	19	19	100	100	20	10	10	10
2900	-	100	100	20	21	20	20	109	101	29	20	10	10
2900	-	120	100	10	20	20	22	190	101	100	20	10	10
2900	-	100	100	10	20	20	20	-	100	100	22	21	20

The LHV is referenced to 0 °C and 1010 mbar.  
All pressures in mbar.

\* The LPG charts are based on propane, but may also be used for butane.

## Screwed

R 1	W-MF512
R 1½	W-MF512
R2	DMV525/12

## Flanged

DN 65	DMV5065/12
DN 80	DMV5080/12
DN100	DMV5100/12
DN 125	VDG 40.125
DN150	VDG40.150

**Stated flow pressures are based on a combustion chamber resistance of 0 mbar. The combustion chamber pressure of the heat generator must be added to the figure determined from the above chart when sizing the gas valve train. Minimum flow pressure 15 mbar.**

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used.

For high-pressure supplies, an EN 334-compliant high-pressure regulator should be selected from the following technical booklets:

- Regulators up to 4 bar, Print No. 83001202
- Regulators with safety devices, Print No. 83197902

Refer to the burner's rating plate for the maximum connection pressure.

## Maximum Operating Pressure (MOP)

The gas supplier must safeguard the gas supply such that the flow pressure will not exceed the MOP of the gas valve train components.

## Valve train design

### a) Low pressure:

Normally, low-pressure valve trains are used for gas flow pressures up to a maximum of 300 mbar and an MOP of 500 mbar. This allows for pressure losses between the transfer station and the valve train. Furthermore, it is assumed that the transfer station utilises components (SSV, SRV, regulator) that are not of the highest class of accuracy. In individual cases, following consideration and approval by Weishaupt's headquarters, a gas flow pressure of up to 360 mbar can be approved if the appropriate conditions exist.

### b) High pressure:

Normally, high-pressure valve trains are used for gas flow pressures above 300 mbar.





# Scope of delivery and order numbers

Description	WM-S10	WM-S20	WM-S30	WM-GS20	WM-GS30
Burner housing, hinged flange, housing cover, Weishaupt burner motor, air inlet housing, fan wheel, combustion head, ignition unit, ignition cable, ignition electrodes, combustion manager with control unit, flame sensor, actuators, flange gasket, limit switch on hinged flange, fixing screw	●	●	●	●	●
Digital combustion manager					
W-FM 50	●	-	●	-	-
W-FM 100	○	●	○	●	●
W-FM 200	○	○	○	○	○
Valve proving via the combustion manager	-	-	-	●	●
Class-A double gas valve assembly	-	-	-	●	●
Gas butterfly valve	-	-	-	●	●
Air pressure switch	○	○	○	●	●
Low gas pressure switch	-	-	-	●	●
Preset, capacity-based mixing assembly	●	●	●	●	●
Actuators for compound regulation of fuel and air via W-FM:					
Air damper actuator	●	●	●	●	●
Gas butterfly valve actuator	-	-	-	●	●
Oil regulator actuator	-	●	●	●	●
Oil pressure switch in return	-	●	●	●	●
Oil pump fitted to burner	●	●	●	●	●
Electromagnetic clutch	○	○	○	●	●
Oil hoses	●	●	●	●	●
Compact solenoid valve block with multi-stage oil-circulating nozzle assembly with preinstalled oil nozzles	●	-	-	-	-
2 oil solenoid valves, oil regulator, nozzle head with solenoid valve, preinstalled regulating nozzle and safety shutoff device	-	●	●	●	●
Oil preheater					
type EV...	●	●	-	●	-
type WEV...	-	-	●	-	●
Insulated oil lines on burner	●	●	●	●	●
Star-delta combination, fitted to motor	-	-	●	-	●
DOL motor contactor fitted to motor	●	●	-	●	-

**EN 676 stipulates that ball valves, gas filters, and gas pressure regulators form part of the burner supply (see Weishaupt accessories list).**

**Please enquire or see the special equipment section of this brochure for further burner executions.**

- Standard
- Optional

The execution of the WM-S20 burner parallels that of the WM-GS20, save that an electromagnetic clutch, air pressure switch, double gas valve assembly, gas butterfly valve, and gas butterfly valve actuator are not included. The gas mixing chamber is closed off with a blanking flange.

### Oil burners, version Z

Burner type	Order No.
WM-S <del>10</del> / <del>10</del> -A Z	212 110 10
WM-S <del>10</del> / <del>10</del> -A Z	212 110 20

DIN CERTCO: 5G1053

### Oil burners, version T

Burner type	Order No.
WM-S <del>10</del> / <del>10</del> -A T	212 110 00
WM-S <del>10</del> / <del>10</del> -A T	212 110 00

DIN CERTCO: 5G1053

### Oil burners, version R

Burner type	Order No.
WM-S <del>10</del> / <del>10</del> -A R	Please enquire
WM-S <del>10</del> / <del>10</del> -A R	Please enquire

DIN CERTCO: -

WM-S <del>10</del> / <del>10</del> -A R	212 020 10
WM-S <del>10</del> / <del>10</del> -A R	212 020 20
WM-S <del>10</del> / <del>10</del> -A R	212 020 00

DIN CERTCO: 5G1046

### Dual-fuel burners, version ZM-R

Burner type	Valve train size	Order No.
WM-GS20/2-A ZM-R	R 1	210 202 11
	R 1½	210 202 12
	R 2	210 202 10
	DN 00	210 202 10
	DN 00	210 202 10
	DN 100	210 202 10
WM-GS20/3-A ZM-R	R 1	210 200 11
	R 1½	210 200 12
	R 2	210 200 10
	DN 00	210 200 10
	DN 00	210 200 10
	DN 100	210 200 10

DIN CERTCO: 5G1032M  
CE-PIN: CE-0085 BT 0133

WM-GS <del>10</del> / <del>10</del> -A ZM-R	R 1	210 001 11
	R 1½	210 001 12
	R 2	210 001 10
	DN 00	210 001 10
	DN 00	210 001 10
	DN 100	210 001 10

WM-GS <del>10</del> / <del>10</del> -A ZM-R	R 1	210 002 11
	R 1½	210 002 12
	R 2	210 002 10
	DN 00	210 002 10
	DN 00	210 002 10
	DN 100	210 002 10

WM-GS <del>10</del> / <del>10</del> -A ZM-R	R 1	210 000 11
	R 1½	210 000 12
	R 2	210 000 10
	DN 00	210 000 10
	DN 00	210 000 10
	DN 100	210 000 10

DIN CERTCO: 5G1044M  
CE-PIN: CE-0085 BU 0360

# Special equipment

## WM-S10, versions Z and T

Versions Z (two-stage) and T (three-stage)	WM-S10/1-A Z	WM-S10/2-A Z	WM-S10/3-A T	WM-S10/4-A T
Combustion head extension by 100 mm	210 030 90	210 030 91	210 030 92	210 030 93
Side-mounted oil preheater	210 031 34	210 031 35	210 031 35	210 031 35
W-FM 100 (suitable for continuous firing) in lieu of W-FM 50 <sup>1)</sup>	burner-mounted	210 031 50	210 031 50	210 031 50
	supplied loose	210 032 64	210 032 64	210 032 64
Integral load controller and analogue signal convertor for W-FM 100	110 017 18	110 017 18	110 017 18	110 017 18
W-FM 200 in lieu of W-FM 50, with integral load controller, analogue signal convertor, and VSD module, with optional fuel metering	burner-mounted	210 031 51	210 031 51	210 031 51
	supplied loose	210 032 62	210 032 62	210 032 62
LGW 50 air pressure switch <sup>1)</sup>	210 030 08	210 030 08	210 030 08	210 030 08
DSB158 minimum pressure switch in supply <sup>1)</sup>	Please enquire	Please enquire	Please enquire	Please enquire
QRI flame sensor in lieu of QRB <sup>1)</sup>	210 030 24	210 030 24	210 031 24	210 031 24
Pressure gauge with ball valve	110 008 82	110 008 82	110 008 82	110 008 82
Vacuum gauge with ball valve	110 005 70	110 005 70	110 005 70	110 005 70
PON oil pump (hardened execution)	210 008 01	210 008 01	210 008 01	210 008 01
PON oil pump heating	210 032 37	210 032 37	210 032 37	210 032 37
Oil hoses, 1300 mm in lieu of 1000 mm	210 031 62	210 031 62	210 031 62	210 031 62
Heated, stainless-steel oil hoses, DN13 x 1300 mm	210 032 38	210 032 38	210 032 38	210 032 38

### Country-specific executions and special voltages on application

<sup>1)</sup> Required for PED (2014/68/EU) compliance.

## Special equipment WM-S20, version R

Version R (sliding-two-stage or modulating)		WM-S20/2-A	WM-S20/3-A
Combustion head extension	by 100 mm	Please enquire	Please enquire
	by 200 mm	Please enquire	Please enquire
	by 300 mm	Please enquire	Please enquire
W-FM 100 supplied loose in lieu of fitted		210 002 09	210 002 09
Integral load controller and analogue signal convertor for W-FM 100		110 010 10	110 010 10
W-FM 200 in lieu of W-FM 100 with integral load controller, analogue signal convertor, and VSD module with optional fuel metering	burner-mounted	210 002 00	210 002 00
	supplied loose	210 002 01	210 002 01
VSD with integral frequency convertor (W-FM 200 required) <sup>2)</sup>		210 000 00	210 000 00
VSD with separate frequency convertor (W-FM 200 required) (See accessories list for frequency convertor) <sup>2)</sup>		210 000 01	210 000 01
ABE with Chinese-character display, supplied loose		110 010 00	110 010 00
SQM00 / 00 Nm oil regulator actuator		210 002 00	210 002 00
DSB100 pressure switch in supply <sup>1)</sup>		210 002 02	210 002 02
Solenoid valve for air pressure switch test with continuous-run fan or post-purge		200 000 21	200 000 21
Air inlet with flange for ducted-air connection and LGW air pressure switch		210 000 00	210 000 00
Inverted air inlet, with flange for ducted-air connection and LGW air pressure switch		Please enquire	Please enquire
Pressure gauge with ball valve on pump		110 002 02	110 002 02
Pressure gauge with ball valve in return		110 011 00	110 011 00
Vacuum gauge with ball valve		110 010 00	110 010 00
UHE oil pump (hardened execution)		Please enquire	Please enquire
Heated oil lines between pump and solenoid valve		210 002 01	210 002 01
Oil hoses, 1000 mm in lieu of 1000 mm		Please enquire	Please enquire
Motor with star-delta combination and overload protection <sup>3)</sup>		200 000 00	200 000 00

The execution of the WM-S20 burner parallels that of the WM-GS20, save that an electromagnetic clutch, air pressure switch, double gas valve assembly, gas butterfly valve, and gas butterfly valve actuator are not included. The gas mixing chamber is closed off with a blanking flange.

### Country-specific executions and special voltages on application

<sup>1)</sup> Required for PED (2014/68/EU) compliance.

<sup>2)</sup> VSD with R version burners: General conditions for modulating load control when firing on oil:  
– Frequency: min. 35 Hz  
– Turndown: max. 3:1

<sup>3)</sup> The necessary motor protection can be provided either by a motor protection switch (supplied and fitted into a panel by others), or with integral motor overload protection (see special equipment).

# Special equipment WM-S30, version R

Version R (sliding-two-stage or modulating)		WM-S30/1-A	WM-S30/2-A	WM-S30/3-A
Combustion head extension	by 150 mm	Please enquire	Please enquire	Please enquire
	by 300 mm	Please enquire	Please enquire	Please enquire
Burner-mounted KS20 controller (W-FM 50)		250 033 15	250 033 15	250 033 15
W-FM 100 (suitable for continuous firing) in lieu of W-FM 50 <sup>1)</sup>	burner-mounted	210 031 50	210 031 50	210 031 50
	supplied loose	210 032 64	210 032 64	210 032 64
Integral load controller and analogue signal convertor for W-FM 100		110 017 18	110 017 18	110 017 18
W-FM 200 in lieu of W-FM 50, with integral load controller, analogue signal convertor, and VSD module, with optional fuel metering	burner-mounted	210 031 51	210 031 51	210 031 51
	supplied loose	210 032 62	210 032 62	210 032 62
VSD with integral frequency convertor (W-FM 50 / 200 required) <sup>2)</sup>		210 030 97	210 031 48	210 031 49
VSD with separate frequency convertor (W-FM 200 required) (See accessories list for frequency convertor) <sup>2)</sup>		210 030 98	210 030 98	210 031 00
ABE with Chinese-character display, supplied loose (W-FM 100 / 200)		110 018 53	110 018 53	110 018 53
SQM48 / 35 Nm oil regulator actuator (W-FM100 / 200)		210 032 50	210 032 50	210 032 50
DSB158 minimum pressure switch in supply <sup>1)</sup>		210 032 52	210 032 52	210 032 52
QRI flame sensor in lieu of QRB <sup>1)</sup>		210 030 24	210 030 24	210 030 24
LGW 50 air pressure switch <sup>1)</sup>		210 031 39	210 031 39	210 031 39
Inverted air inlet, with flange for ducted-air connection and LGW air pressure switch (LGW 50 also required)		210 031 18	210 031 18	210 031 18
WEV 3.1/01 oil preheater in lieu of WEV 2.2/01		210 032 53	210 032 53	–
WEV 3/01 oil preheater in lieu of WEV 2.2/01		–	210 032 54	–
Pressure gauge with ball valve on pump		110 002 82	110 002 82	110 002 82
Pressure gauge with ball valve in return		110 011 50	110 011 50	110 011 50
Vacuum meter with ball valve		110 017 00	110 017 00	110 017 00
UHE oil pump (hardened execution)		Please enquire	Please enquire	Please enquire
Heated oil lines between pump and solenoid valve		210 032 51	210 032 51	210 032 51
Heated oil hoses, 1300 mm in lieu of 1000 mm		210 032 48	–	–
Heated oil hoses, 1500 mm in lieu of 1300 mm		–	210 032 49	210 032 49

## Country-specific executions and special voltages on application

<sup>1)</sup> Required for PED (2014/68/EU) compliance.

<sup>2)</sup> VSD with ZM-R version burners: General conditions for modulating load control when firing on oil

- Frequency: min. 35 Hz
- Turndown: max. 3:1

# Special equipment

## WM-GS20, version ZM-R

Version ZM-R		WM-GS20/2-A	WM-GS20/3-A
Combustion head extension	by 100 mm	Please enquire	Please enquire
	by 200 mm	Please enquire	Please enquire
	by 300 mm	Please enquire	Please enquire
W-FM 100 supplied loose in lieu of fitted		210 032 59	210 032 59
Integral load controller and analogue signal convertor for W-FM 100		110 017 18	110 017 18
W-FM 200 in lieu of W-FM 100 with integral load controller, analogue signal convertor, and VSD module with optional fuel metering	supplied loose	210 032 60	210 032 60
	supplied loose	210 032 61	210 032 61
VSD with integral frequency convertor (W-FM 200 required) <sup>2)</sup>		210 030 40	210 030 40
VSD with separate frequency convertor (W-FM 200 required) (See accessories list for frequency convertor) <sup>2)</sup>		210 030 41	210 030 41
ABE with Chinese-character display, supplied loose		110 018 53	110 018 53
SQM48 / 35 Nm oil regulator actuator		210 032 50	210 032 50
High gas pressure switch <sup>1)</sup> (Screwed W-MF / DMV for low-pressure supplies)	GW 50 A6/1	250 033 30	250 033 30
	GW 150 A6/1	250 033 31	250 033 31
	GW 500 A6/1	250 033 32	250 033 32
High gas pressure switch <sup>1)</sup> (Flanged DMV / VGD for low-pressure supplies)	GW 50 A6/1	150 017 49	150 017 49
	GW 150 A6/1	150 017 50	150 017 50
	GW 500 A6/1	150 017 51	150 017 51
High gas pressure switch <sup>1)</sup> (Fitted to high-pressure regulator)	GW 50 A6/1	250 033 33	250 033 33
	GW 150 A6/1	250 033 34	250 033 34
	GW 500 A6/1	250 033 35	250 033 35
DSB158 pressure switch in supply <sup>1)</sup>		210 032 52	210 032 52
Solenoid valve for air pressure switch test with continuous-run fan or post-purge		250 030 21	250 030 21
Air inlet flange for ducted-air connection, with LGW air pressure switch		210 030 47	210 030 47
Inverted air inlet, with flange for ducted-air connection and LGW air pressure switch		Please enquire	Please enquire
Pressure gauge with ball valve on pump		110 002 82	110 002 82
Pressure gauge with ball valve in return		110 011 50	110 011 50
Vacuum meter with ball valve		110 017 00	110 017 00
UHE oil pump (hardened execution)		Please enquire	Please enquire
Heated oil lines between pump and solenoid valve		210 032 51	210 032 51
Oil hoses, 1300 mm in lieu of 1000 mm		Please enquire	Please enquire
Motor with 230 V contactor and overload protection <sup>3)</sup>		250 030 95	250 030 95

### Country-specific executions and special voltages on application

<sup>1)</sup> Required for PED (2014/68/EU) compliance.

<sup>2)</sup> VSD with ZM-R version burners: General conditions for modulating load control when firing on oil:  
 – Frequency: min. 35 Hz  
 – Turndown: max. 3:1

<sup>3)</sup> The necessary motor protection can be provided either by a motor protection switch (supplied and fitted into a panel by others), or with integral motor overload protection (see special equipment).



# Special equipment

## WM-GS30, version ZM-R

Version ZM-R		WM-GS30/1-A	WM-GS30/2-A	WM-GS30/3-A
Combustion head extension	by 150 mm	Please enquire	Please enquire	Please enquire
	by 300 mm	Please enquire	Please enquire	Please enquire
W-FM 100 supplied loose in lieu of fitted		210 032 59	210 032 59	210 032 59
Integral load controller and analogue signal convertor for W-FM 100		110 017 18	110 017 18	110 017 18
W-FM 200 in lieu of W-FM 100 with integral load controller, analogue signal convertor, and VSD module with optional fuel metering	burner-mounted	210 032 60	210 032 60	210 032 60
	supplied loose	210 032 61	210 032 61	210 032 61
VSD with integral frequency convertor (W-FM 200 required) <sup>2)</sup>		210 030 97	210 031 48	210 031 49
VSD with separate frequency convertor (W-FM 200 required) (See accessories list for frequency convertor) <sup>2)</sup>		210 030 98	210 030 98	210 031 00
ABE with Chinese-character display, supplied loose		110 018 53	110 018 53	110 018 53
SQM48 / 35 Nm oil regulator actuator		210 032 50	210 032 50	210 032 50
High gas pressure switch <sup>1)</sup> (Screwed W-MF / DMV for low-pressure supplies)	GW 50 A6/1	250 033 30	250 033 30	250 033 30
	GW 150 A6/1	250 033 31	250 033 31	250 033 31
	GW 500 A6/1	250 033 32	250 033 32	250 033 32
High gas pressure switch <sup>1)</sup> (Flanged DMV / VGD for low-pressure supplies)	GW 50 A6/1	150 017 49	150 017 49	150 017 49
	GW 150 A6/1	150 017 50	150 017 50	150 017 50
	GW 500 A6/1	150 017 51	150 017 51	150 017 51
High gas pressure switch <sup>1)</sup> (Fitted to high-pressure regulator)	GW 50 A6/1	250 033 33	250 033 33	250 033 33
	GW 150 A6/1	250 033 34	250 033 34	250 033 34
	GW 500 A6/1	250 033 35	250 033 35	250 033 35
DSB158 pressure switch in supply <sup>1)</sup>		210 032 52	210 032 52	210 032 52
Solenoid valve for air pressure switch test with continuous-run fan or post-purge		250 030 21	250 030 21	250 030 21
Inverted air inlet, with flange for ducted-air connection and LGW air pressure switch		210 031 18	210 031 18	210 031 18
Pressure gauge with ball valve on pump		110 002 82	110 002 82	110 002 82
Pressure gauge with ball valve in return		110 011 50	110 011 50	110 011 50
Vacuum meter with ball valve		110 017 00	110 017 00	110 017 00
UHE oil pump (hardened execution)		Please enquire	Please enquire	Please enquire
Heated oil lines between pump and solenoid valve		210 032 51	210 032 51	210 032 51
WEV 3.1/01 oil preheater in lieu of WEV 2.2/01		210 032 53	210 032 53	–
WEV 3/01 oil preheater in lieu of WEV 2.2/01		–	210 032 54	–
Oil hoses, 1300 mm in lieu of 1000 mm		Please enquire	–	–
Motor with star-delta combination and overload protection <sup>3)</sup>		250 032 61	250 032 61	250 033 29

### Country-specific executions and special voltages on application

<sup>1)</sup> Required for PED (2014/68/EU) compliance.

<sup>2)</sup> VSD with ZM-R version burners: General conditions for modulating load control when firing on oil:  
– Frequency: min. 35 Hz  
– Turndown: max. 3:1

<sup>3)</sup> The necessary motor protection can be provided either by a motor protection switch (supplied and fitted into a panel by others), or with integral motor overload protection (see special equipment).

# Technical data

## Oil burners

Oil burners		WM-S10/1-A Z	WM-S10/2-A Z	WM-S10/3-A T	WM-S10/4-A T
Burner motor	Weishaupt type	WM-D 90/90-2/1K0	WM-D 90/90-2/1K0	WM-D 90/110-2/1K5	WM-D 90/110-2/1K5
Motor power output	kW	0.9	0.9	1.5	1.5
Nominal current	A	2.2	2.2	3.2	3.2
Motor protection switch <sup>1)</sup> or motor prefusing <sup>1)</sup>	type (e.g.) A minimum	PKE12/XTU-4 10 gG / T (by others)	PKE12/XTU-4 10 gG / T (by others)	PKE12/XTU-4 16 gG / T (by others)	PKE12/XTU-4 16 gG / T (by others)
Speed (50 Hz)	rpm	2900	2900	2900	2900
Combustion manager	type	W-FM 50	W-FM 50	W-FM 50	W-FM 50
Flame monitoring	type	QRB	QRB	QRB	QRB
Air damper actuator	type	STE 50	STE 50	STE 50	STE 50
Integral pump max. flow rate	type l/h	E4 200	E4 200	E4 200	E4 200
Oil preheater Electrical rating	type kW	EV2A 2.2	EV2B 4.5	EV2B 4.5	EV2B 4.5
Oil hoses	DN / length	13 / 1000	13 / 1000	13 / 1000	13 / 1000
Mass	kg	approx. 70	approx. 77	approx. 77	approx. 77

Oil burners		WM-S20/2-A R	WM-S20/3-A R
Burner motor	Weishaupt type	WM-D 112/140-2/3K5	WM-D 112/170-2/4K5
Motor power output	kW	3.5	4.5
Nominal current	A	7.2	9.2
Motor protection switch <sup>1)</sup> or motor prefusing <sup>1)</sup>	type (e.g.) A minimum	PKE12/XTU-12 25 A gG / T (by others)	PKE12/XTU-12 35 A gG / T (by others)
Speed (50 Hz)	rpm	2940	2930
Combustion manager	type	W-FM 100	W-FM 100
Flame monitoring	type	QRI	QRI
Air damper / oil actuator	type	SQM 45	SQM 45
Integral pump max. flow rate	type l/h	TA2 525	TA3 785
Oil preheater Electrical rating	type kW	EV2C 6.6	EV2D 13.2
Oil hoses	DN / length	20 / 1000	20 / 1000
Mass	kg	approx. 140	approx. 155

<sup>1)</sup> The necessary motor protection can be provided either by a motor protection switch (supplied and fitted into a panel by others), or with integral motor overload protection (see special equipment).

The execution of the WM-S20 burner parallels that of the WM-GS20, save that an electromagnetic clutch, air pressure switch, double gas valve assembly, gas butterfly valve, and gas butterfly valve actuator are not included. The gas mixing chamber is closed off with a blanking flange.

#### Voltages and frequencies:

The burners are equipped as standard for three-phase alternating current, 400 V, 3 ~, 50 Hz. Other voltages and frequencies are available on application.

#### Standard burner motor:

Insulation Class F, IP 55 protection.  
IE3 Premium Efficiency.

# Technical data

## Oil burners

Oil burners		WM-S30/1-A R	WM-S30/2-A R	WM-S30/3-A R
Burner motor	Weishaupt type	WM-D 132/170-2/7K5	WM-D 132/210-2/10K0	WM-D 132/210-2/14K0
Motor power output	kW	7.5	10.0	14.0
Nominal current	A	15.0	22.0	28.0
Motor protection switch <sup>1)</sup> or motor prefusing <sup>1)</sup>	type (e.g.) A minimum	PKE32/XTU-32 25 A gG/T (by others)	PKE32/XTU-32 35 A gG/T (by others)	PKE32/XTU-32 50 A gG/T (by others)
Speed (50 Hz)	rpm	2940	2940	2920
Combustion manager	type	W-FM 50	W-FM 50	W-FM 50
Flame monitoring	type	QRB	QRB	QRB
Air damper / oil actuator	type	STE50	STE50	STE50
Integral pump max. flow rate	type l/h	TA3 785	TA4 1050	TA5 1410
Oil preheater Electrical rating	type kW	WEV 2.2/01 13.8	WEV 2.2/01 13.8	WEV 3/01 22.4
Oil hoses	DN / length	20 / 1000	25 / 1300	25 / 1300
Mass	kg	approx. 187	approx. 207	approx. 217

<sup>1)</sup> The necessary motor protection can be provided either by a motor protection switch (supplied and fitted into a panel by others), or with integral motor overload protection (see special equipment).

### Voltages and frequencies:

The burners are equipped as standard for three-phase alternating current, 400 V, 3 ~, 50 Hz. Other voltages and frequencies are available on application.

### Standard burner motor:

Insulation Class F, IP 55 protection.  
IE3 Premium Efficiency.

# Technical data

## Dual-fuel burners

Dual-fuel burners		WM-GS20/2-A ZM-R	WM-GS20/3-A ZM-R
Burner motor	Weishaupt type	WM-D 112/140-2/3K5	WM-D 112/170-2/4K5
Motor power output	kW	3.5	4.5
Nominal current	A	7.2	9.2
Motor protection switch <sup>1)</sup> or motor prefusing <sup>1)</sup>	type (e.g.) A minimum	PKE12/XTU-12 25 A gG/T (by others)	PKE12/XTU-12 35 A gG/T (by others)
Speed (50 Hz)	rpm	2940	2930
Combustion manager	type	W-FM 100	W-FM 100
Flame monitoring	type	QRI	QRI
Air damper / gas / oil actuator	type	SQM 45	SQM 45
Integral pump max. flow rate	type l/h	TA2 525	TA3 785
Oil preheater Electrical rating	type kW	EV2C 6.6	EV2D 13.2
Oil hoses	DN / length	20 / 1000	20 / 1000
Mass (excluding double gas valve assembly and fittings)	kg	approx. 140	approx. 155

Dual-fuel burners		WM-GS30/1-A ZM-R	WM-GS30/2-A ZM-R	WM-GS30/3-A ZM-R
Burner motor	Weishaupt type	WM-D 132/170-2/7K5	WM-D 132/210-2/10K0	WM-D 132/210-2/14K0
Motor power output	kW	7.5	10.0	14.0
Nominal current	A	15.0	22.0	28.0
Motor protection switch <sup>1)</sup> or motor prefusing <sup>1)</sup>	type (e.g.) A minimum	PKE32/XTU-32 25 A gG/T (by others)	PKE32/XTU-32 35 A gG/T (by others)	PKE32/XTU-32 50 A gG/T (by others)
Speed (50 Hz)	rpm	2940	2940	2920
Combustion manager	type	W-FM 100	W-FM 100	W-FM 100
Flame monitoring	type	QRI	QRI	QRI
Air damper / gas / oil actuator	type	SQM45	SQM45	SQM45
Integral pump max. flow rate	type l/h	TA3 785	TA4 1050	TA5 1410
Oil preheater Electrical rating	type kW	WEV 2.2/01 13.8	WEV 2.2/01 13.8	WEV 3/01 22.4
Oil hoses	DN / length	20 / 1000	25 / 1300	25 / 1300
Mass (excluding double gas valve assembly and fittings)	kg	approx. 214	approx. 234	approx. 244

<sup>1)</sup> The necessary motor protection can be provided either by a motor protection switch (supplied and fitted into a panel by others), or with integral motor overload protection (see special equipment).

#### Voltagages and frequencies:

The burners are equipped as standard for three-phase alternating current, 400 V, 3 ~, 50 Hz. Other voltages and frequencies are available on application.

#### Standard burner motor:

Insulation Class F, IP 55 protection.  
IE3 Premium Efficiency.

# Fuel systems

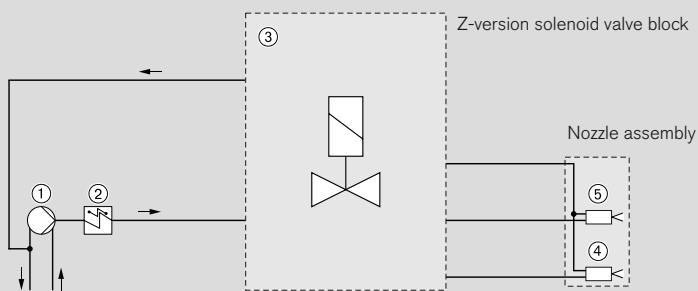
## WM-S10

### Operating sequence

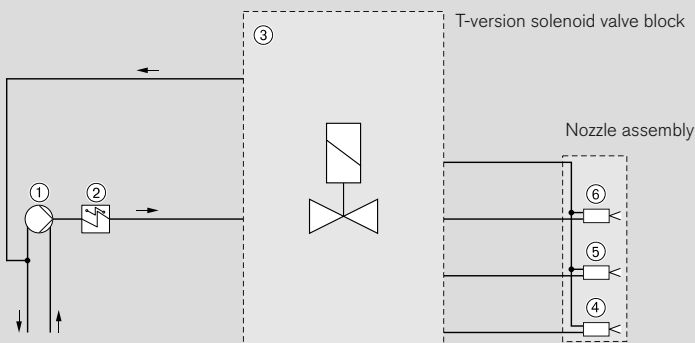
Oil at pump pressure is present at the solenoid valves during pre-purge. When the pre-ignition sequence is started the oil begins to circulate. At the end of the circulation time (pre-ignition time), the solenoid valves are activated to ignite the burner.

The combustion manager switches the second-stage solenoid valve (or second and third-stage solenoid valves on three-stage burners) in response to heat demand.

### Two-stage fuel system



### Three-stage fuel system

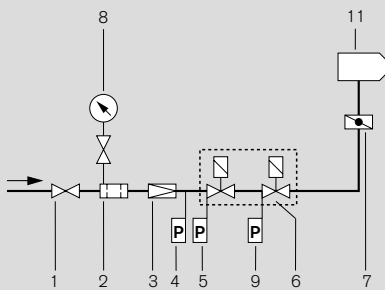


- ① Burner-mounted oil pump
- ② Oil preheater
- ③ Solenoid valve block
- ④ Stage 1 oil nozzle
- ⑤ Stage 2 oil nozzle
- ⑥ Stage 3 oil nozzle

# Fuel systems

## WM-(G)S20 and WM-(G)S30

### Gas-side fuel system W-FM 100 / 200



- 1 Ball valve \*
- 2 Gas filter \*
- 3 Pressure regulator, (LP) or (HP) \*
- 4 High gas pressure switch \*
- 5 Low gas pressure switch
- 6 Double gas valve assembly
- 7 Gas butterfly valve
- 8 Pressure gauge with push-button valve \*
- 9 Valve-proving pressure switch
- 10 Low gas / valve-proving pressure switch
- 11 Burner

\* Not included in burner price

Mounting position of the high gas pressure switch:

- On the regulator outlet of HP trains
- After the regulator of screwed LP trains
- On the valve assembly inlet of flanged LP trains

Cable length approx. 2.5 m.

#### Layout of the valve train

On boilers with hinged doors, the valve train must be mounted on the opposite side to the boiler-door hinges.

#### Compensator

To enable a tension free mounting of the valve train, the fitting of a compensator is strongly recommended.

#### Break points in the valve train

Break points in the valve train should be provided to enable the door of the heat generator to be swung open. The main gas line is best separated at the compensator.

#### Support of the valve train

The valve train should be properly supported in accordance with the site conditions. See the Weishaupt accessories list for various valve train support components.

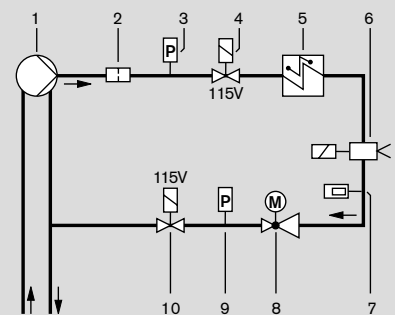
#### Gas meter

A gas meter must be installed to measure gas consumption during commissioning and servicing.

#### Optional thermal shutoff (when required by local regulations)

Integrated into the ball valve of screwed valve trains. A separate component with HTB seals fitted before the ball valve on flanged valve trains.

### Oil-side fuel system Version (ZM)-R



- 1 Oil pump
- 2 Strainer
- 3 Min. oil pressure switch (optional)
- 4 Supply solenoid valve (115 V with 230 V power supply, fitted in direction of flow)
- 5 Oil preheater
- 6 Nozzle head with regulating nozzle
- 7 Return temperature sensor
- 8 Oil regulator
- 9 Max. oil pressure switch
- 10 Return solenoid valve (115 V with 230 V power supply, fitted against direction of flow)

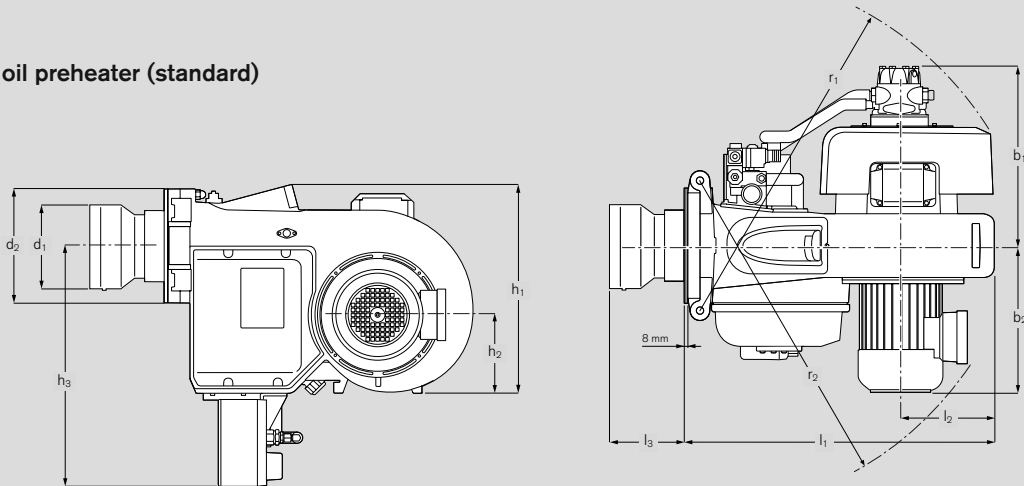
#### Oil circulation unit

An optional oil meter, to measure oil throughput and thus determine the burner's firing rate, is recommended for commissioning.

The oil circulation unit developed by Weishaupt only needs one oil meter, due to the separation of the burner supply loop from the oil ring main.

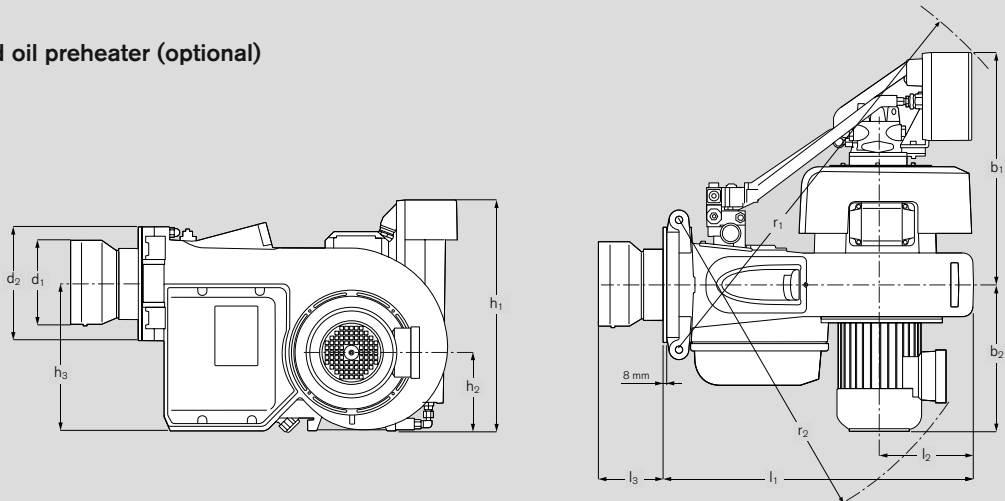
# Dimensions

## Underslung oil preheater (standard)



Burner type	Dimensions in mm															
	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	b <sub>1</sub>	b <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	r <sub>1</sub>	r <sub>2</sub>
WM-S100/1-A Z	109	20	110-120	101	100	100	100	112	101	202	M10	100	100	100	100	102
WM-S150/1-A Z	109	20	110-100	101	100	100	100	112	100	202	M10	100	100	100	100	102
WM-S100/1-A T	109	20	100-100	101	100	100	100	112	100	202	M10	100	210	200	100	100
WM-S150/1-A T	109	20	100-100	101	100	100	100	112	100	202	M10	100	210	220	100	100

## Side-mounted oil preheater (optional)



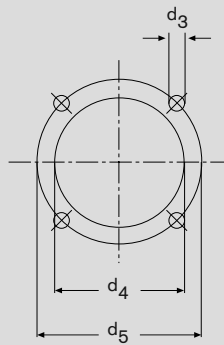
Burner type	Dimensions in mm															
	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	b <sub>1</sub>	b <sub>2</sub>	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	r <sub>1</sub>	r <sub>2</sub>
WM-S100/1-A Z	109	20	110-120	100	100	109	100	110	101	202	M10	100	100	100	101	102
WM-S150/1-A Z	109	20	110-100	100	100	109	100	110	100	202	M10	100	100	100	100	102
WM-S100/1-A T	109	20	100-100	100	100	109	100	110	100	202	M10	100	210	200	100	100
WM-S150/1-A T	109	20	100-100	100	100	109	100	110	100	202	M10	100	210	220	100	100

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

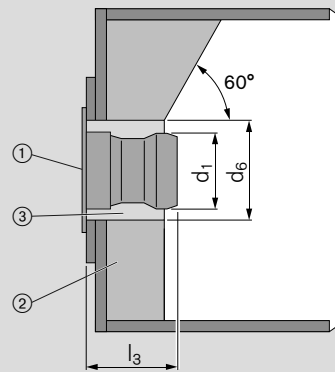


## Burner mounting

### Mounting-plate drilling dimensions



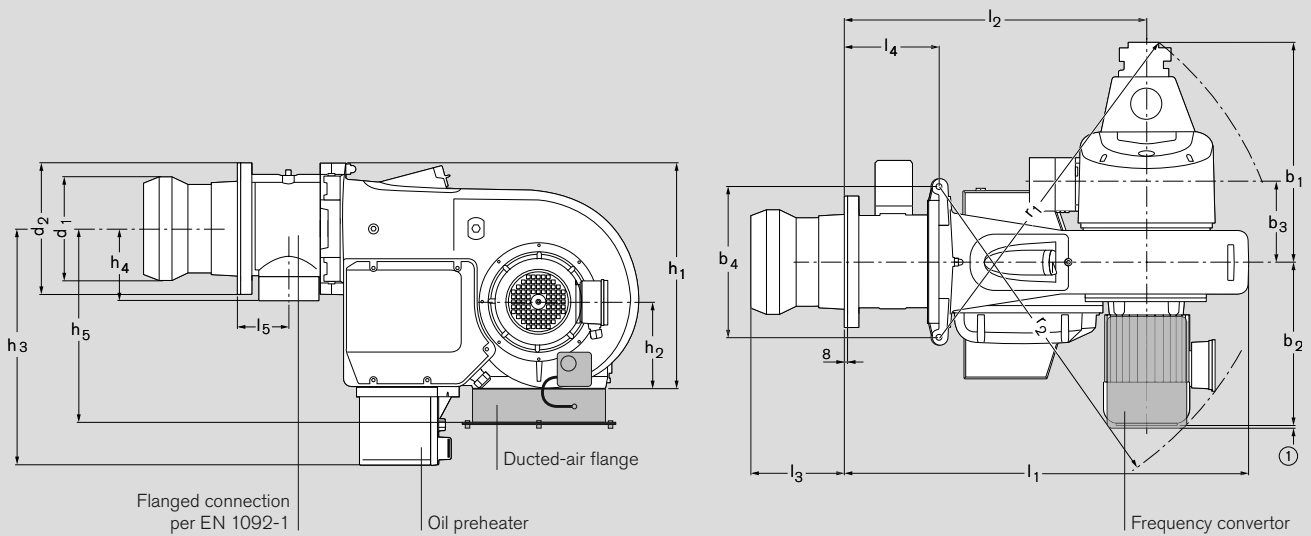
### Heat generator preparation



- ① Flange gasket
- ② Refractory
- ③ Aperture

The refractory ② must not protrude beyond the front edge of the combustion head. It may however be tapered (min.  $60^\circ$ ).

# Dimensions



Optional

Burner type	Dimensions in mm													
	$l_1$	$l_2$	$l_3$	$l_4$	$l_5$	$b_1$	$b_2$	$b_3$	$b_4$	$h_1$	$h_2$	$h_3$	$h_4$	$h_5$
WM-S20/2-A R	1010	200	201-200	200	120	20	22	209	200	200	22	200	182	200
WM-S20/2-A R	1010	200	201-200	200	120	20	20	209	200	200	22	200	182	200
WM-GS20/2-A ZM-R	1010	200	201-200	200	120	20	22	209	200	200	22	200	182	200
WM-GS20/2-A ZM-R	1010	200	201-200	200	120	20	20	209	200	200	22	200	182	200

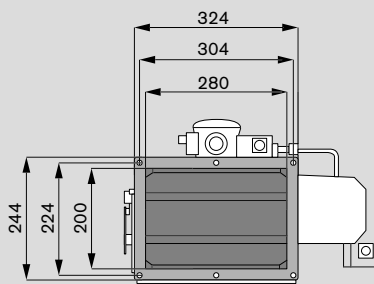
① Additional projection with frequency convertor approx. 20 mm

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

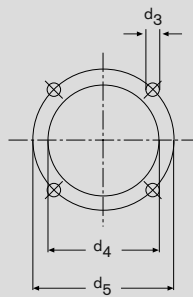
Note:  
The execution of the WM-S20 burner parallels that of the WM-GS20, save that an electromagnetic clutch, air pressure switch, double gas valve assembly, gas butterfly valve, and gas butterfly valve actuator are not included. The gas mixing chamber is closed off with a blanking flange.

### Burner mounting

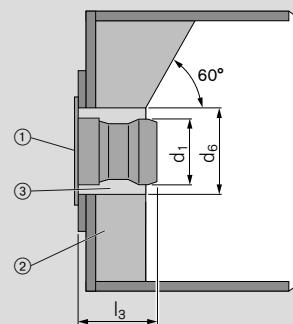
#### Underside of ducted-air flange



#### Mounting-plate drilling dimensions



#### Heat generator preparation



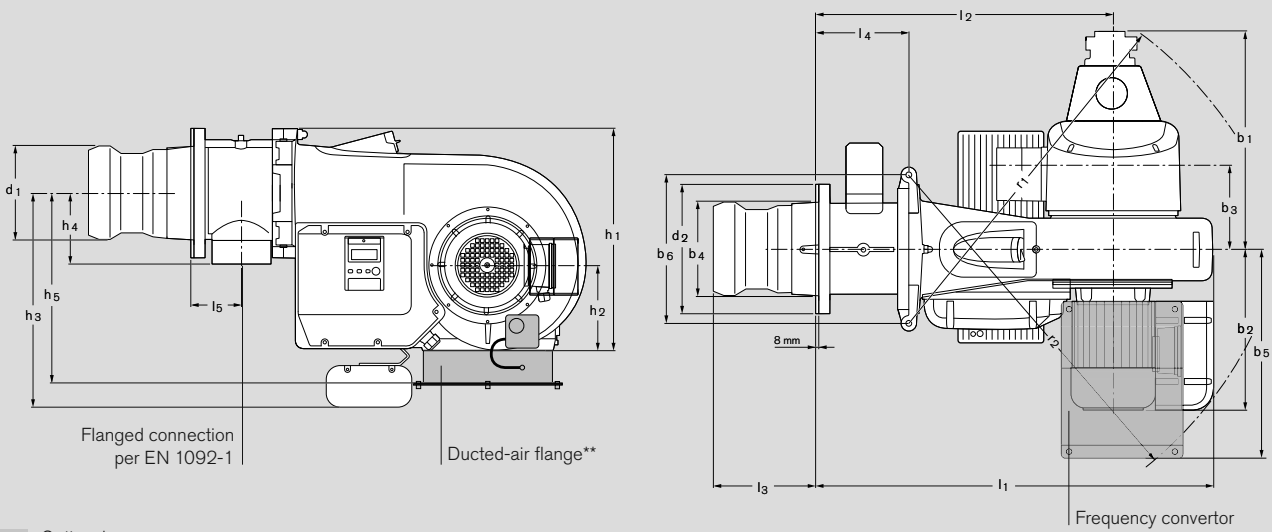
- ① Flange gasket
- ② Refractory
- ③ Aperture

The refractory ② must not protrude beyond the front edge of the combustion head. It may however be tapered (min. 60°).

Burner type	Dimensions in mm								Nominal diameter of the gas butterfly
	r <sub>1</sub>	r <sub>2</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	
WM-S <del>XX</del> /A R	92 <del>X</del>	<del>XX</del> 9	2 <del>XX</del> 0	<del>XX</del> 0	M12	2 <del>XX</del> 0	29 <del>XX</del>	290	Blanked flange
WM-S <del>XX</del> /A R	92 <del>X</del>	<del>XX</del> <del>XX</del>	2 <del>XX</del> 0	<del>XX</del> 0	M12	2 <del>XX</del> 0	29 <del>XX</del>	290	Blanked flange
WM-GS <del>XX</del> /A ZM-R	92 <del>X</del>	<del>XX</del> 9	2 <del>XX</del> 0	<del>XX</del> 0	M12	2 <del>XX</del> 0	29 <del>XX</del>	290	DN <del>XX</del>
WM-GS <del>XX</del> /A ZM-R	92 <del>X</del>	<del>XX</del> <del>XX</del>	2 <del>XX</del> 0	<del>XX</del> 0	M12	2 <del>XX</del> 0	29 <del>XX</del>	290	DN <del>XX</del>

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

# Dimensions



Burner type	Dimensions in mm													
	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	l <sub>5</sub>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	b <sub>5</sub>	b <sub>6</sub>	r <sub>1</sub>	r <sub>2</sub> *	
WM-S <del>10</del> /A R	9 <del>1</del>	22	101-22	11	-	110	100	21	101	110	110	992	1111	
WM-S <del>10</del> /A R	9 <del>1</del>	22	101-22	11	-	110	110	21	101	110	110	992	1111	
WM-S <del>10</del> /A R	9 <del>1</del>	11	210-22	11	-	110	110	21	101	110	110	992	1111	
WM-GS <del>10</del> /A ZM-R	11 <del>1</del>	22	109-11	21	12	110	100	21	101	110	110	1012	1111	
WM-GS <del>10</del> /A ZM-R	11 <del>1</del>	22	109-11	21	12	119	110	21	101	110	110	1011	1111	
WM-GS <del>10</del> /A ZM-R	11 <del>1</del>	11	109-11	21	11	120	110	21	110	110	110	1011	1111	

\* Excluding frequency converter.

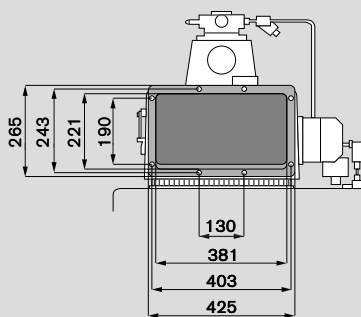
\*\* Ducted-air flange only with inverted air inlet or free-standing oil preheater station.

All dimensions are approximate.

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

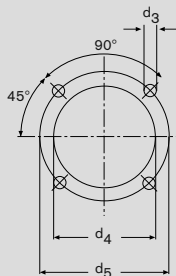
### Burner mounting

#### Underside of ducted-air flange

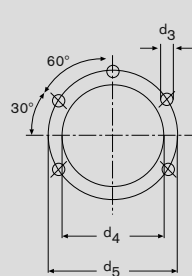


#### Mounting-plate drilling dimensions

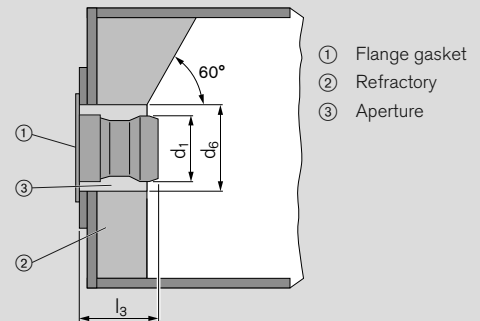
##### WM 30/1 and WM 30/2



##### WM 30/3



#### Heat generator preparation

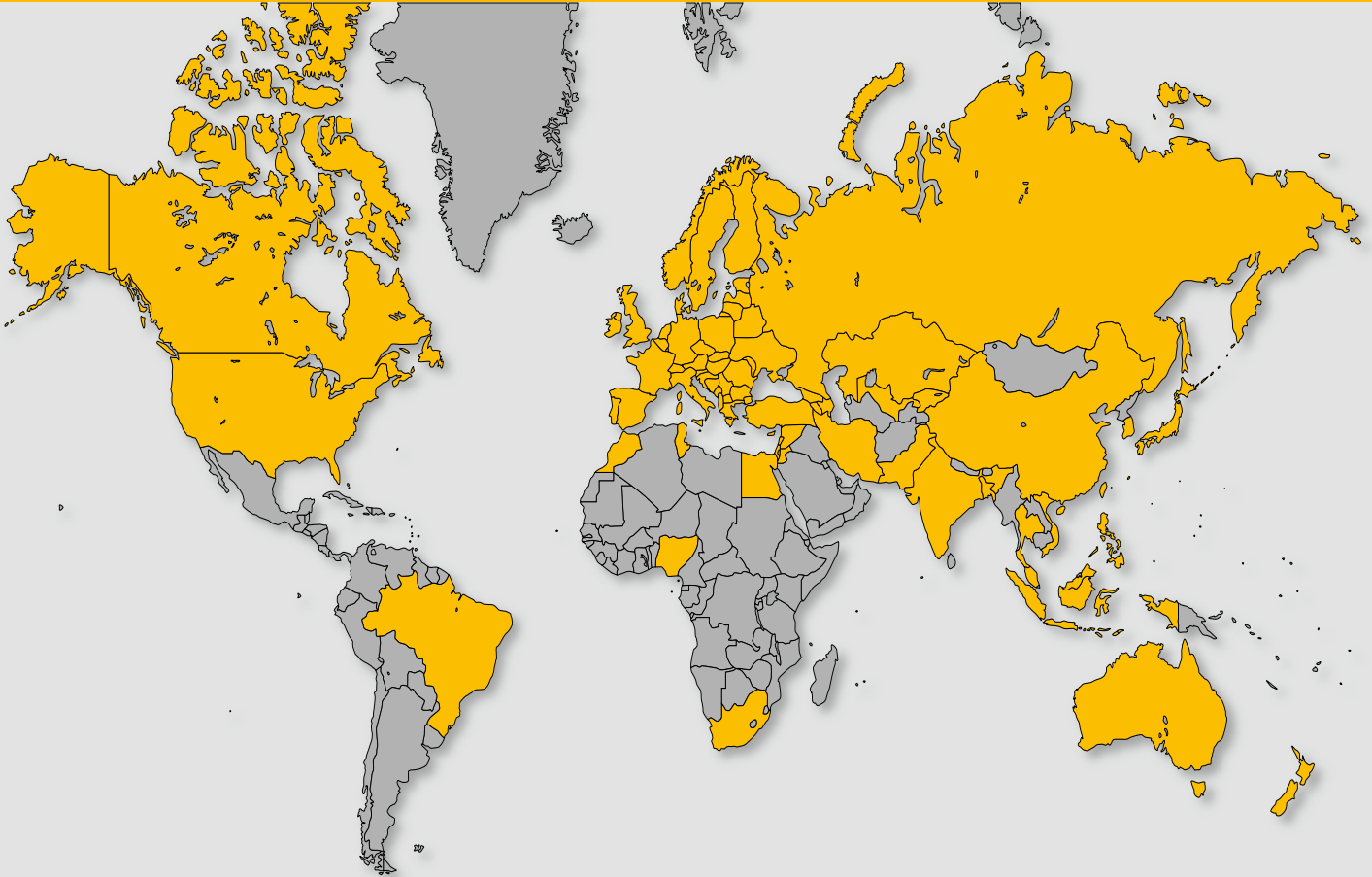


The refractory ② must not protrude beyond the front edge of the combustion head. It may however be tapered (min. 60°).

Burner type	Dimensions in mm											Nominal diameter of the gas butterfly
	$h_1$	$h_2$	$h_3$	$h_4$	$h_5$	$d_1$	$d_2$	$d_3$	$d_4$	$d_5$	$d_6$	
WM-S <del>10</del> /A R	99	200	100	–	21	290	100	M12	100	100	100	–
WM-S <del>15</del> /A R	99	200	100	–	21	300	100	M12	100	100	100	–
WM-S <del>20</del> /A R	100	200	100	–	21	300	100	M12	100	100	120	–
WM-GS <del>10</del> /A ZM-R	99	200	100	212	21	290	100	M12	100	100	100	DN 100
WM-GS <del>15</del> /A ZM-R	99	200	100	212	21	300	100	M12	100	100	100	DN 100
WM-GS <del>20</del> /A ZM-R	100	200	100	212	21	300	100	M12	100	100	120	DN 100

\* Ducted-air flange only with inverted air inlet or free-standing oil preheater station.

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



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