–weishaupt–

product

Information on oil, gas and dual-fuel burners

WM 50 for oil, gas and dual-fuel

WM 50 monarch® burners (800–11 000 kW) • powerful and versatile

Progress and tradition: The latest monarch® burner

The monarch® trademark has stood for power and quality for more than 50 years

For more than five 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.

The latest monarch® series is writing the next chapter in this success story. Its combination of ultra-modern technology and compact construction helps to make this burner universally employable.

Digital.

Digital combustion management for economical and reliable burner operation. The controls are easy to use.

Compact.

The aerodynamic housing and special air feed enable a higher capacity within smaller dimensions.

Powerful.

The latest monarch® burners' compact momobloc housing provides a lot of power, thanks to the specially developed fan unit.

Digital

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

Weishaupt WM 50-series oil, gas, and dual-fuel burners are equipped as standard with electronic compound regulation and digital combustion management. Modern combustion technologies demand a precise and continually reproducible dosing of fuel and combustion air. This is the only way optimal combustion figures can be ensured over extended periods.

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.

Flexible communication options
The integrated interface enables all necessary data and functions to be relayed to a master control system. If required, a modem can be installed to allow for remote operation, monitoring, and diagnosis.

Bus communication with external controls and building managment
Several bus systems are available if data from the burner are to be exchanged with a PLC unit, or if control of the burner is to be integrated into a building management system.

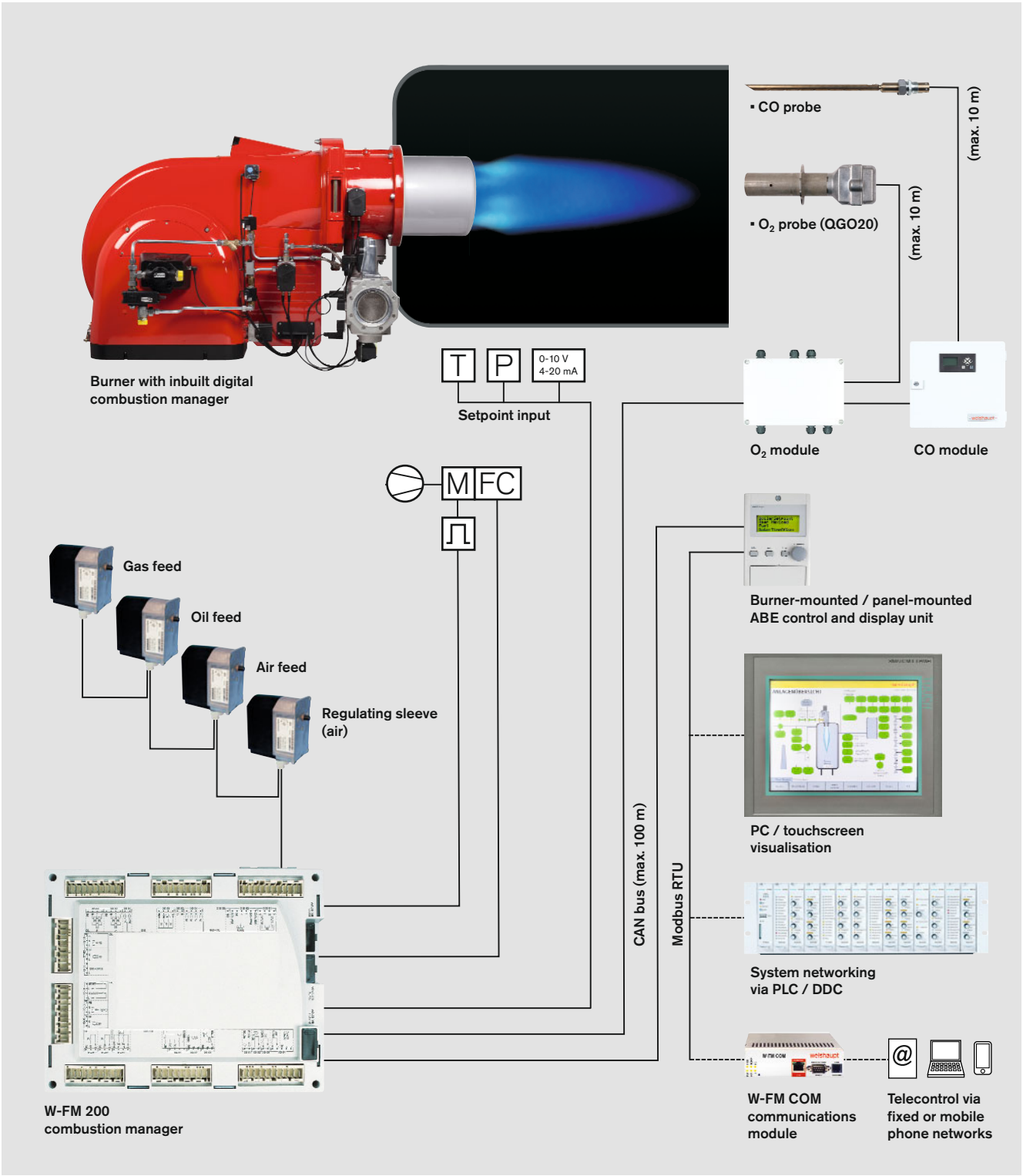
For the control and management levels Weishaupt offers ProGraf NT, a real-time software product that meets any and all requirements.

Technological edge
Digital combustion management makes burner operation simple and reliable. The most important advantages:
- No additional burner controls are necessary as control is effected by the combustion manager. The only additional requirements are external control and motor fuses.
- Reduced installation expense. Each burner is tested and supplied as a complete unit.
- Commissioning and servicing takes less time. The burner's basic parameters are set at the factory. The combustion manager's menu-driven commissioning program is used to run through the final site-specific adjustments and the combustion emission checks.

Digital combustion management General system overview	**W-FM 100**	**W-FM 200**
Single-fuel operation	●	●
Dual-fuel operation	●	●
Controller for continuous operation	●	●
Variable speed drive available	–	●
O_2 trim available	–	●
Controller for combined O_2 trim and CO monitoring	–	O
Flame sensor for intermittent operation	ION/QRI/QRB/QRA	ION/QRI/QRB/QRA
Flame sensor for continuous operation	ION/QRI/QRA 73	ION/QRI/QRA 73
Actuators in electronic compound (max.)	x 4	x 6
Gas valve proving	●	●
Integrated, self-checking PID controller for temperature or pressure, 0/2–10 V and 0/4–20 mA inputs included	Optional	●
Removable operating unit (max. distance)	100 m	100 m
Fuel consumption meter (switchable)	–	●
Combustion efficiency display in conjunction with O_2 trim	–	●
eBUS / Modbus interface	●	●
PC-supported commissioning	●	●

● Standard
O Optional

Please enquire regarding connections available for additional functions, e.g. flue gas dampers, oil shut-off assemblies etc.



Schematic representation with W-FM 200

Compact and quiet

The latest Weishaupt WM-series monarch® burners are compact, powerful, and quiet. They are writing the the next chapter in the 50-year-long success story of the legendary monarch® series.

Futuristic fan technology
From the very earliest stages of development, particular emphasis was placed on a compact, aerodynamic construction and low operational noise levels.

To realise this goal a completely new air inlet and air-damper control were developed. This special housing design with its self-opening air inlet and the new air-damper technology result in increased fan pressure and thus in greater capacity despite the burner's more compact form.

Air damper control provides a high degree of linearity even at the lower end of the burner's operating range and, combined with the sound-attenuated air inlet which is included as standard, ensures quieter operation.

Fast commissioning, simple servicing
All WM 50 burners are delivered with a modulating mixing assembly. A final adjustment is made using the combustion manager's menu-controlled commissioning program.

All of the burner's components, such as the mixing assembly, air damper, and combustion manager, are readily accessible despite its compact form. This enables maintenance and servicing work to be carried out quickly and easily, aided by the standard hinged flange which provides a perfect servicing position.

Adjustment to suit different combustion chamber conditions can easily be made with the burner in its installed position. The integral sightglass enable ignition and the flame to be observed.

Regulation
Weishaupt WM 50 burners are suitable for sliding-two-stage or modulating operation, depending on the type of capacity regulation. Within its operating range, the burner's output is matched to the current heat demand.

These multiple control options make the WM 50 universally employable and ensure a gentle, problem-free start up and high degree of operational reliability.

NR version
Gas and dual-fuel burners with an advanced-design mixing assembly for installations with Class 2 (oil-side) and Class 3 (gas-side) NO_x emission requirements.

Fuels
Natural gas
LPG
Light oil (<6 mm^2/s at 20 °C) in accordance with DIN 51 603, part 1

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

Applications
EN 267 and EN 676-approved Weishaupt WM 50 burners are suitable for:
- Installation on EN 303-compliant heat exchangers
- Hot-water plant
- Steam boilers and high-pressure hot-water plant
- Intermittent and continuous operation
- Installation on air heaters

The combustion air must be free of aggressive substances (halogens, chlorides, fluorides etc.) and impurities (dust, debris, vapours etc.). For many applications, the use of an extraneous air supply is recommended (additional cost).

Permissible ambient conditions
- Ambient temperature during operation -10 to +40 °C (oil/dual-fuel burners) -15 to +40 °C (gas burners)
- Humidity: max. 80 % relative humidty, no condensation
- Suitable for operation indoors only
- For plant in unheated areas, certain further measures may be required (please enquire).

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.

Certification
The burners are tested by an independent body and conform to the following standards and EU directives:

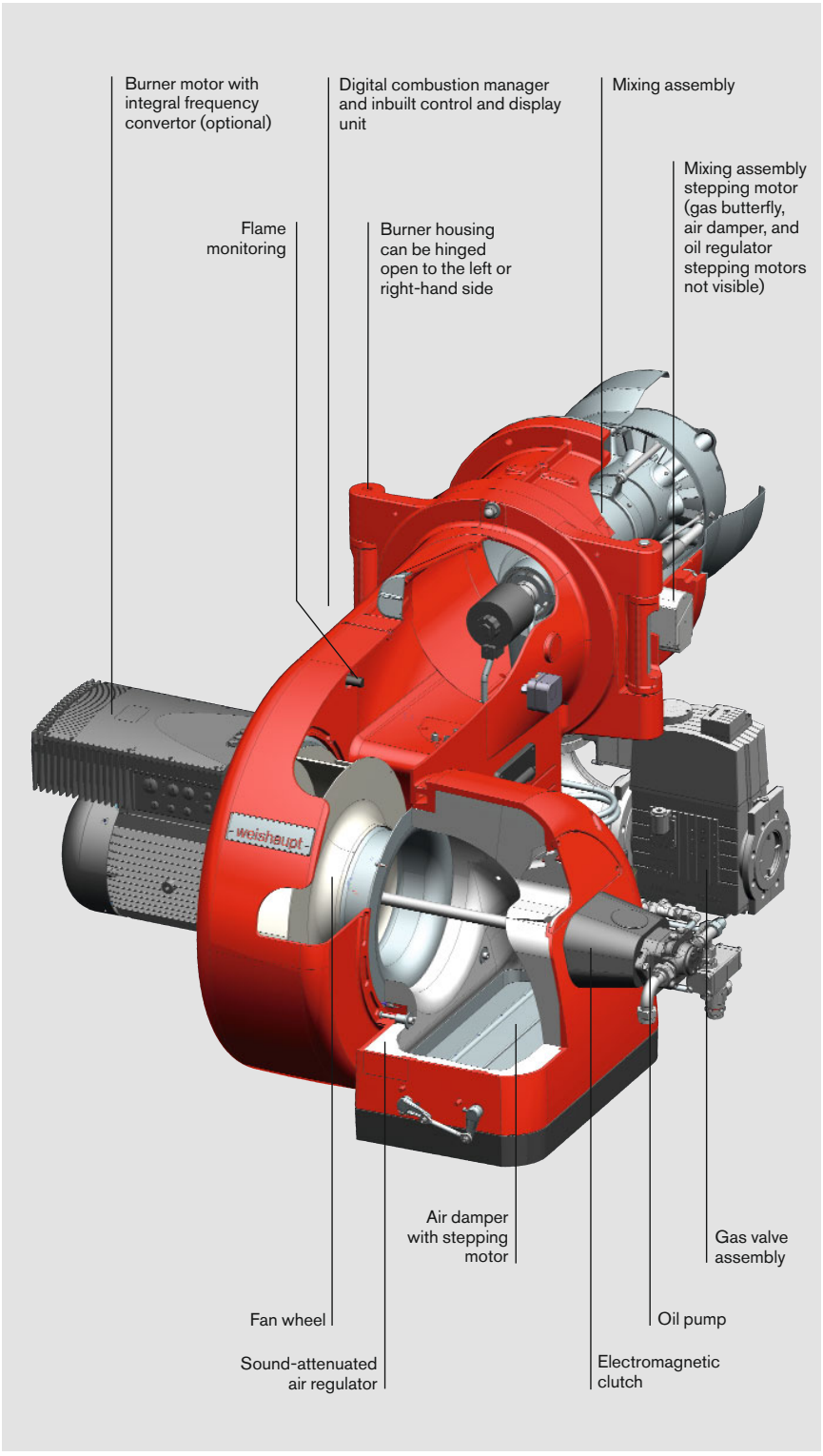
- EN 267 and EN 676
- Machinery Directive, 2006/42/EC
- Electromagnetic Compatibility Directive, 2004/108/EC
- Low Voltage Directive, 2006/95/EC
- Pressure Equipment Directive, 97/23/EC
- The burners carry CE and CE-PIN marks

The most important advantages:

- Easy fuel changeover between gas and oil on dual-fuel burners
- Digital combustion management with electronic compound regulation at all ratings
- Compact construction
- Sound-attenuated air inlet as standard for quieter operation
- Powerful fan with specially developed fan geometry and air-damper control
- All WM 50 burners are equipped with modulating mixing assemblies
- IP 54 protection as standard
- Electromagnetic clutch included as standard (WM-GL50)
- Easy access to all components, such as the mixing head, air damper and combustion manager
- Reliable operation with sliding-two-stage or modulating operation, depending on version and method of capacity regulation
- Computer-controlled function test of each individual burner at the factory
- Burners can be supplied with pre-wired plug connections
- Excellent price / capacity ratio
- Well-established, global service network

Trademark

Weishaupt WM 50 monarch® burners are registered as a trademark throughout Europe.



WM-GL30, version ZM-R-NR

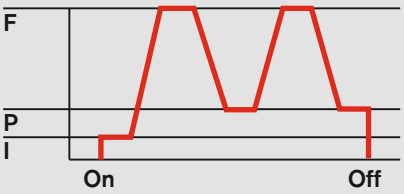
Overview of burner regulation
Model designation

Oil-fired operation

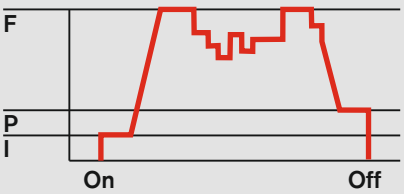
Sliding-two-stage or modulating operation (R)

- On opening the solenoid valves the correct rate of oil for start up is released
- A digital stepping motor sets the oil regulator to full load
- Capacity regulation between partial and full load through the opening and closing of the oil regulator
- Modulating operation:
  - W-FM 100 with integral capacity controller
  - W-FM 200
- Alternatively, a regulator can be fitted into a control panel.

Sliding-two-stage



Modulating



F = Full load (nominal load)
P = Partial load (min. load)
I = Ignition load

Gas-fired operation

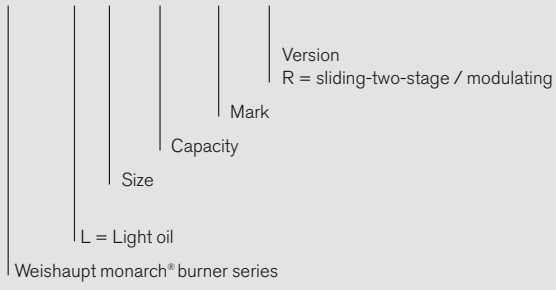
Sliding-two-stage or modulating operation (ZM)

- Stepping motors adjust the capacity between partial load and full load depending on the heat demand
- There is a gradual change between both load points. There are no sudden, large changes in fuel throughput.
- Modulating operation:
  - W-FM 100 with integral capacity controller
  - W-FM 200
- Alternatively, a regulator can be fitted into a control panel.

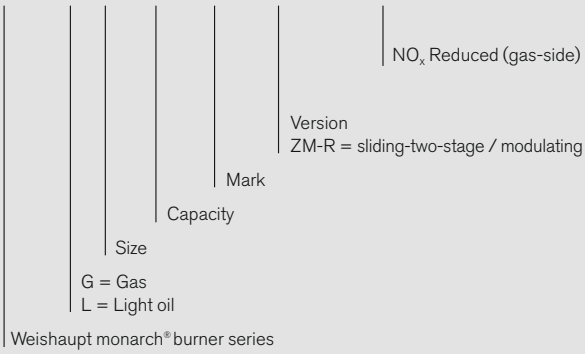
Fuel Version	Oil		Gas	
	sliding-two-stage	modulating	sliding-two-stage	modulating
ZM-NR			●	●
ZM-R-NR	●	●	●	●

Model designation

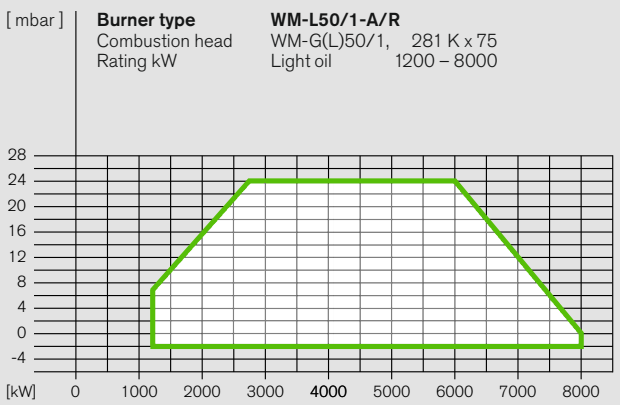
WM – L 50 / 2 –A / R

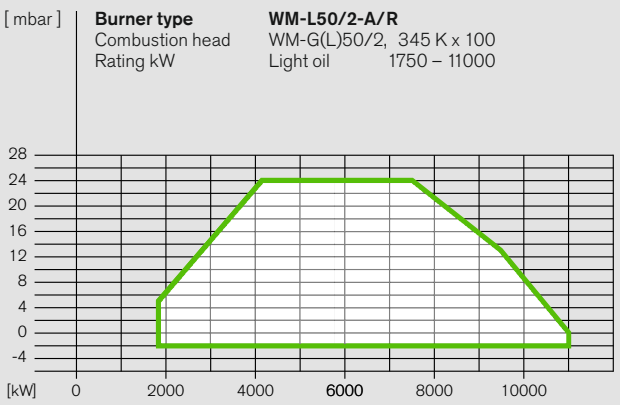


WM – GL50 / 2 –A / ZM – R – NR



Burner selection
WM-L50, version R





Available from early 2015

Turndown: **max. 5:1**

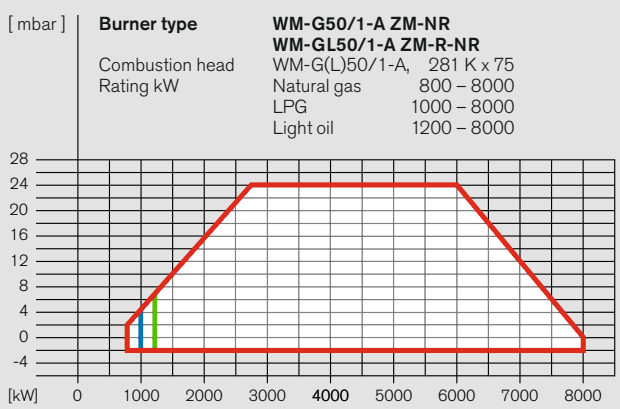
Capacity graphs certified in accordance with EN 267.

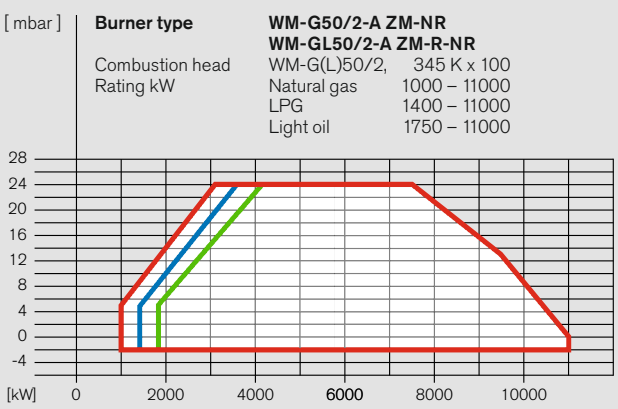
Stated ratings are based on an air temperature of 20 °C and an installation altitude of 500 m above sea level.

Stated oil throughputs are based on a calorific value of 11.91 kWh/kg for light oil.

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

Burner selection
WM-G(L)50, versions ZM-NR and ZM-R-NR





Natural gas
LPG
Light oil

Turndown, gas **max. 10:1**
oil **max. 5:1**

Capacity graphs certified in accordance with EN 267 and EN 676.

Stated ratings are based on 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-G(L)50, versions ZM-NR and ZM-R-NR

WM-G(L)50/1-A, versions ZM-NR and ZM-R-NR

Burner rating kW	Low-pressure supply (with FRS) (flow pressure in mbar into shut-off valve, p_e max = 300 mbar) **Nominal valve train diameter** **2" 65 80 100 125 150** Nominal diameter of gas butterfly 100 100 100 100 100 100						High-pressure supply (with HP regulator) (flow pressure in mbar into gas valve assembly) **Nominal valve train diameter** **2" 65 80 100 125 150** Nominal diameter of gas butterfly 100 100 100 100 100 100					
Natural gas E LHV = 10.35 kWh/Nm³; d = 0.606												
4000	200	104	66	46	39	36	99	57	44	35	33	32
4500	245	122	75	49	41	37	118	64	48	36	33	32
5000	295	144	85	53	43	38	139	72	52	38	34	33
5500	–	168	97	59	46	41	162	82	57	41	36	35
6000	–	199	114	68	54	47	192	97	68	48	42	40
6500	–	232	133	79	62	54	–	113	78	55	49	46
7000	–	268	153	91	71	62	–	130	90	63	56	53
7500	–	–	174	103	80	70	–	148	103	72	63	60
8000	–	–	197	116	90	78	–	168	116	81	71	68
Natural gas LL LHV = 8.83 kWh/Nm³; d = 0.641												
4000	276	136	81	52	42	38	131	69	50	37	34	33
4500	–	163	94	57	45	40	158	79	56	39	35	33
5000	–	195	110	64	49	43	189	93	63	43	38	36
5500	–	235	132	76	59	50	–	111	76	51	45	42
6000	–	279	156	90	69	59	–	132	89	60	53	50
6500	–	–	182	104	80	68	–	154	104	70	61	58
7000	–	–	211	120	92	78	–	178	121	81	71	67
7500	–	–	241	137	105	89	–	–	138	93	81	77
8000	–	–	274	156	119	101	–	–	157	106	92	87
LPG* LHV = 25.89 kWh/Nm³; d = 1.555												
4000	101	62	46	38	35	34	58	41	36	32	31	31
4500	120	69	50	39	36	34	66	44	37	33	31	31
5000	140	78	54	41	37	35	74	47	39	33	32	31
5500	163	88	59	43	38	35	84	51	41	34	32	31
6000	189	100	65	46	40	37	96	56	44	36	34	33
6500	217	112	72	50	43	40	108	62	48	38	36	35
7000	248	126	79	54	46	42	122	68	52	41	38	37
7500	281	141	87	58	48	44	136	75	56	43	40	39
8000	–	157	95	62	51	46	152	82	61	46	42	41

WM-G(L)50/2-A, versions ZM-NR and ZM-R-NR

Burner rating kW	Low-pressure supply (with FRS) (flow pressure in mbar into shut-off valve, p_e max = 300 mbar) **Nominal valve train diameter** **65 80 100 125 150** Nominal diameter of gas butterfly 100 100 100 100 100					High-pressure supply (with HP regulator) (flow pressure in mbar into gas valve assembly) **Nominal valve train diameter** **65 80 100 125 150** Nominal diameter of gas butterfly 100 100 100 100 100				
Natural gas E LHV = 10.35 kWh/Nm³; d = 0.606										
5300	157	91	56	45	39	77	55	39	35	33
6000	192	108	62	48	41	91	61	41	36	34
6500	220	121	68	51	43	101	67	44	37	35
7000	254	140	77	58	48	117	77	50	43	40
7500	291	159	88	65	55	133	88	57	48	45
8000	–	180	99	73	61	151	99	64	54	51
9000	–	226	123	91	76	190	124	80	68	63
10000	–	278	151	111	92	–	153	97	82	77
11000	–	–	181	132	110	–	184	117	99	92
Natural gas LL LHV = 8.83 kWh/Nm³; d = 0.641										
5300	214	118	66	50	42	99	66	43	37	35
6000	267	144	78	57	47	120	78	49	41	38
6500	–	169	91	66	54	141	91	57	48	44
7000	–	195	104	76	62	163	105	66	55	51
7500	–	223	119	86	71	186	120	75	62	58
8000	–	252	134	97	79	–	136	84	70	66
9000	–	–	168	121	98	–	170	105	88	81
10000	–	–	205	147	119	–	–	128	107	99
11000	–	–	246	175	142	–	–	153	127	118
LPG* LHV = 25.89 kWh/Nm³; d = 1.555										
5300	84	57	42	37	35	49	40	34	32	31
6000	98	63	45	39	36	55	43	35	32	32
6500	109	69	47	40	37	59	45	36	33	32
7000	122	75	50	42	38	64	48	37	34	33
7500	137	83	54	44	40	71	52	39	36	35
8000	152	91	58	47	42	77	56	42	38	36
9000	186	108	66	53	47	92	65	47	42	40
10000	224	128	76	59	51	108	75	52	46	44
11000	265	149	86	66	56	125	85	58	50	48

Screwed		**Flanged**	
R 2	DMV 525/12	DN 65	DMV 5065/12
		DN 80	DMV 5080/12
		DN 100	DMV 5100/12
		DN 125	VGD 40.125
		DN 150	VGD 40.150

The combustion chamber pressure in mbar must be added to the minimum gas pressure determined from the above chart. Minimum gas pressure should not be less than 15 mbar.

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

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low-pressure installations is 300 mbar.

For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.

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

Scope of delivery

Description	WM-L50 R	WM-G50 ZM-NR	WM-GL50 ZM-R-NR
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 screws	●	●	●
Digital combustion manager W-FM 100 W-FM 200	● ○	● ○	● ○
Valve proving via W-FM and pressure switch with electronic compound	–	●	●
Class A double gas valve assembly	–	●	●
Gas butterfly valve	–	●	●
Air pressure switch	○	●	●
Low gas pressure switch	–	●	●
Modulating mixing assembly	●	●	●
Actuators for compound regulation of fuel and air via W-FM: Air damper stepping motor Gas butterfly valve stepping motor Oil regulator stepping motor Mixing assembly stepping motor	 ● – ● ●	 ● ● – ●	 ● ● ● ●
Oil pressure switch in return	●	–	●
Oil pump fitted to burner	●	–	●
Oil hoses	●	–	●
2 oil solenoid valves, oil regulator, nozzle head with solenoid valve, premounted regulating nozzle and safety shut-off device	●	–	●
Electromagnetic clutch	○	–	●
Star-delta combination, fitted to motor	●	●	●
IP 54 protection	●	●	●

EN 676 stipulates that 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

Order numbers

Oil burners, version R

Burner type	Version	Order No.
WM-L50/1-A	R	215 520 10
WM-L50/2-A	R	215 520 20

DIN CERTCO: 5G1054

Gas burners, version ZM-NR

Burner type	Version	Valve train size	Order No.
WM-G50/1-A	ZM-NR	R 2	217 520 13
		DN 65	217 520 14
		DN 80	217 520 15
		DN 100	217 520 16
		DN 125	217 520 17
		DN 150	217 520 18
WM-G50/2-A	ZM-NR	DN 65	217 522 14
		DN 80	217 522 15
		DN 100	217 522 16
		DN 125	217 522 17
		DN 150	217 522 18

CE-PIN: CE-0085 CP 0102

Dual-fuel burners, version ZM-R-NR

Burner type	Version	Valve train size	Order No.
WM-GL50/1-A	ZM-R-NR	R 2	218 520 13
		DN 65	218 520 14
		DN 80	218 520 15
		DN 100	218 520 16
		DN 125	218 520 17
		DN 150	218 520 18
WM-GL50/2-A	ZM-R-NR	DN 65	218 522 14
		DN 80	218 522 15
		DN 100	218 522 16
		DN 125	218 522 17
		DN 150	218 522 18

DIN CERTCO: 5G1055M
CE-PIN: CE-0085 CP 0102

Special equipment
WM-L50, version R

Version R		WM-L50/1-A	WM-L50/2-A
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		on application	on application
Combustion head extension	by 150 mm	on application	on application
	by 300 mm	on application	on application
Air inlet flange for duct connection, with LGW air pressure switch		on application	on application
LGW 50 air pressure switch [1]		on application	on application
Integral capacity controller and analogue signal convertor for W-FM 100		110 017 18	110 017 18
W-FM 100 supplied loose		210 032 08	210 032 08
W-FM 200 in lieu of W-FM 100 with integral capacity controller, analogue signal convertor, and VSD module with optional fuel metering	fitted	210 032 09	210 032 09
	loose	210 032 10	210 032 10
DSA58 minimum pressure switch in supply [1]		210 031 09	210 031 09
QRI flame sensor in lieu of QRB [1]		210 030 24	210 030 24
VSD with integral frequency convertor (W-FM 200 required)		on application	on application
VSD with separate frequency convertor (W-FM 200 required) (See accessories list for frequency convertor)		on application	on application
ABE with Chinese-character display, supplied loose		110 018 53	110 018 53
Special voltage (on application only)		on application	on application
110 V control voltage		250 031 72	250 031 72

Country-specific executions and special voltages on application

[1] Required for PED (97/23/EC) compliance

Special equipment
WM-G50, version ZM-NR

Version ZM-NR		WM-G50/1-A	WM-G50/2-A
Combustion head extension	by 150 mm	on application	on application
	by 300 mm	on application	on application
Solenoid valve for air pressure switch test for continuous-run fan or post-purge		250 030 21	250 030 21
High gas pressure switch [1)] (Screwed R 2 for low-pressure supplies)	GW 50 A6/1 GW 150 A6/1 GW 500 A6/1	250 033 30 250 033 31 250 033 32	250 033 30 250 033 31 250 033 32
High gas pressure switch [1)] (Flanged DMV/VGD for low-pressure supplies)	GW 50 A6/1 GW 150 A6/1 GW 500 A6/1	150 017 49 150 017 50 150 017 51	150 017 49 150 017 50 150 017 51
High gas pressure switch [1)] (Fitted to high-pressure regulator)	GW 50 A6/1 GW 150 A6/1 GW 500 A6/1	250 033 33 250 033 34 250 033 35	250 033 33 250 033 34 250 033 35
Air inlet flange for duct connection, with LGW air pressure switch		on application	on application
W-FM 100 supplied loose		210 032 08	210 032 08
Integral capacity controller & analogue signal convertor for W-FM 100		110 017 18	110 017 18
W-FM 200 in lieu of W-FM 100 with integral capacity controller, analogue signal convertor, and VSD module with optional fuel metering	fitted	210 032 09	210 032 09
	loose	210 032 10	210 032 10
VSD with integral frequency convertor (W-FM 200 required)		on application	on application
VSD with separate frequency convertor (W-FM 200 required) (See accessories list for frequency convertor)		on application	on application
Offset gas butterfly valve and DMV for vertical firing		on application	on application
ABE with Chinese-character display, supplied loose		110 018 53	110 018 53
110 V control voltage		250 031 72	250 031 72

Country-specific executions and special voltages on application

[1)] Required for PED (97/23/EC) compliance

Special equipment
WM-GL50, version ZM-R-NR

Version ZM-R-NR		WM-GL50/1-A	WM-GL50/2-A
Combustion head extension	by 150 mm	on application	on application
	by 300 mm	on application	on application
Solenoid valve for air pressure switch test for continuous-run fan or post-purge		250 030 21	250 030 21
High gas pressure switch [1] (Screwed R 2 for low-pressure supplies)	GW 50 A6/1 GW 150 A6/1 GW 500 A6/1	250 033 30 250 033 31 250 033 32	250 033 30 250 033 31 250 033 32
High gas pressure switch [1] (Flanged DMV/VGD for low-pressure supplies)	GW 50 A6/1 GW 150 A6/1 GW 500 A6/1	150 017 49 150 017 50 150 017 51	150 017 49 150 017 50 150 017 51
High gas pressure switch [1] (Fitted to high-pressure regulator)	GW 50 A6/1 GW 150 A6/1 GW 500 A6/1	250 033 33 250 033 34 250 033 35	250 033 33 250 033 34 250 033 35
Air inlet flange for duct connection, with LGW air pressure switch		on application	on application
Integral capacity controller and analogue signal convertor for W-FM 100		110 017 18	110 017 18
DSA58 minimum pressure switch in supply [1]		210 031 09	210 031 09
W-FM 100 supplied loose		210 032 08	210 032 08
W-FM 200 in lieu of W-FM 100 with integral capacity controller, analogue signal convertor, and VSD module with optional fuel metering	fitted	210 032 09	210 032 09
	loose	210 032 10	210 032 10
VSD with integral frequency convertor (W-FM 200 required) [2]		on application	on application
VSD with separate frequency convertor (W-FM 200 required) [2] (See accessories list for frequency convertor)		on application	on application
Offset gas butterfly valve and DMV for vertical firing		on application	on application
ABE with Chinese-character display, supplied loose		110 018 53	110 018 53
110 V control voltage		250 031 72	250 031 72

Country-specific executions and special voltages on application

[1] Required for PED (97/23/EC) compliance

[2] VSD with ZM-R-NR version burners: General conditions for modulating capacity regulation when firing on oil
– Frequency: min. 35 Hz
– Turndown: max. 5:1

Technical data
Oil burners

Oil burners		WM-L50/1-A	WM-L50/2-A
Burner motor [1]	Weishaupt type	WM-D160/240-2/16K5	WM-D160/240-2/21K0
Nominal rating	kW	16.5	21
Nominal current	A	34	41
Motor protection switch [2] or motor prefusing [2]	Type (e.g.) A minimum	PKE65/XTU-65 50A gG/T (external)	PKE65/XTU-65 63A gG/T (external)
Speed (50 Hz)	rpm	2940	2960
Combustion manager	Type	W-FM 100	W-FM 100
Flame monitoring	Type	QRB	QRB
Oil actuator	Type	SQM45	SQM45
Air/mixing assembly actuator	Type	SQM48	SQM48
NO_x Class per EN 267		2	2
Weight	kg	455	470
Integral pump Max. flow rate	Type l/h	T3 2060	T3 2060
Oil hoses	DN / Length	25 / 1300	25 / 1300

[1] The electrical motors are premium-efficiency IE3 motors in accordance with Commission Regulation (EC) No. 640/2009

[2] 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.

Technical data
Gas and dual-fuel burners

Gas burners		**WM-G50/1-A**	**WM-G50/2-A**
Burner motor [1) 2)]	Weishaupt type	WM-D 160/240-2/14K5	WM-D 160/240-2/19K0
Nominal rating	kW	14.5	19
Nominal current	A	29	37
Motor protection switch [2)] or motor prefusing [2)]	Type (e.g.) A minimum	PKE 65/XTU-65 50A gG/T (external)	PKE 65/XTU-65 50A gG/T (external)
Speed (50 Hz)	rpm	2940	2960
Combustion manager	Type	W-FM 100	W-FM 100
Flame monitoring	Type	ION	ION
Gas actuator	Type	SQM45	SQM45
Air/mixing assembly actuator	Type	SQM48	SQM48
NO_x Class per EN 676	ZM-NR	3	3
Weight (excl. gas valve assembly and fittings)	kg	415	430

Dual-fuel burners		**WM-GL50/1-A**	**WM-GL50/2-A**
Burner motor [1) 2)]	Weishaupt type	WM-D 160/240-2/16K5	WM-D 160/240-2/21K0
Nominal rating	kW	16.5	21
Nominal current	A	34	41
Motor protection switch [2)] or motor prefusing [2)]	Type (e.g.) A minimum	PKE 65/XTU-65 50A gG/T (external)	PKE 65/XTU-65 63A gG/T (external)
Speed (50 Hz)	rpm	2940	2960
Combustion manager	Type	W-FM 100	W-FM 100
Flame monitoring	Type	QRI	QRI
Gas/oil actuator	Type	SQM45	SQM45
Air/mixing assembly actuator	Type	SQM48	SQM48
NO_x Class per EN 267 / EN 676		2 / 3	2 / 3
Weight (excl. gas valve assembly and fittings)	kg	460	475
Integral pump Max. flow rate	Type l/h	T3 2060	T3 2060
Oil hoses	DN / Length	25 / 1300	25 / 1300

[1)] The electrical motors are premium-efficiency IE3 motors in accordance with Commission Regulation (EC) No. 640/2009

[2)] 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).

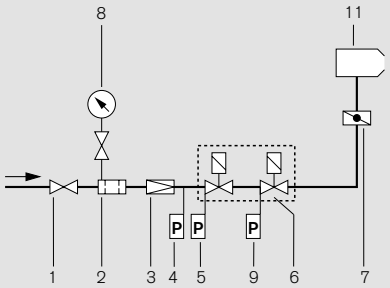
Voltages and frequencies:
The burners are equipped as standard for three-phase alternating current, 400 V, 3 ~, 50 Hz. Other voltages and frequencies are available on application.

Standard burner motor:
Insulation Class F, IP 55 protection.

Fuel systems

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 Valve-proving/low gas pressure switch
11 Burner

* Not included in burner price

Mounting position for high gas pressure switch:
Directly on the regulator of high-pressure trains
After the regulator of screwed low-pressure trains
On the inlet to the gas valve assembly of flanged low-pressure 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 recommended.

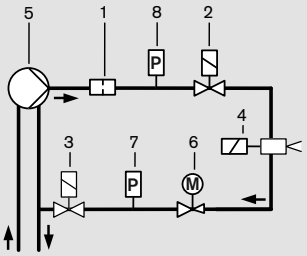
Break points in the valve train
Break points in the valve train should be provided to enable the door of the heat exchanger to be swung open. The main gas line is best separated at the compensator.

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.

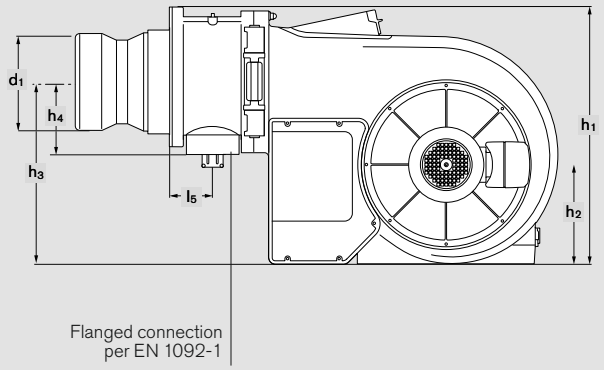
Oil-side fuel system

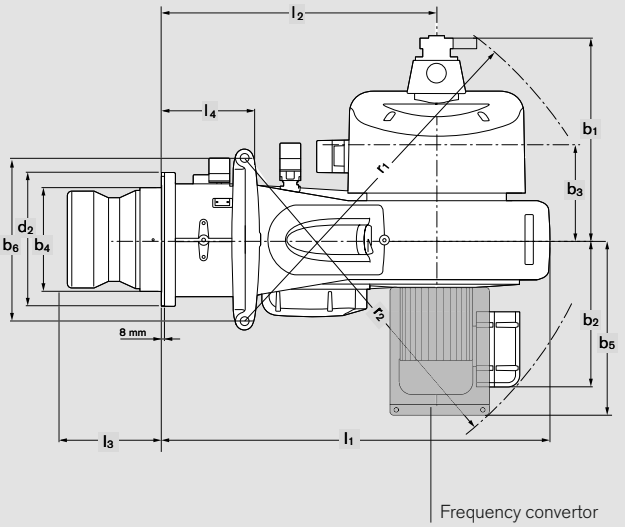
Version (ZM-)R



1 Strainer
2 Normally closed solenoid valve in supply
3 Normally closed solenoid valve in return
4 Nozzle head with regulating nozzle
5 Burner-mounted oil pump
6 Oil regulator
7 Pressure switch in return
8 Pressure switch in supply (optional)

Dimensions





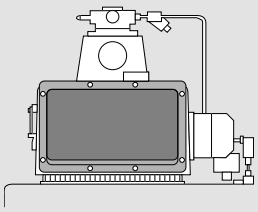
Optional

Burner type	Dimensions in mm l_1	l_2	l_3	l_4	l_5	b_1	b_2	b_3	b_4	b_5	b_6	r_1	r_2*
WM-L50/1-A R	1616	1146	442	348	–	731	654	403	430	704	680	1467	1450
WM-L50/2-A R	1636	1166	457	368	–	731	654	403	510	704	680	1467	1450
WM-G50/1-A ZM-NR	1616	1146	442	348	178	629	654	403	430	704	680	1467	1450
WM-G50/2-A ZM-NR	1616	1166	457	368	186	629	654	403	510	704	680	1467	1450
WM-GL50/1-A ZM-R-NR	1616	1146	442	348	178	856	654	403	430	704	680	1533	1450
WM-GL50/2-A ZM-R-NR	1636	1166	457	368	186	856	654	403	510	704	680	1533	1450

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

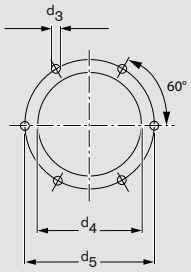
* Without frequency convertor

Underside of ducted-air flange

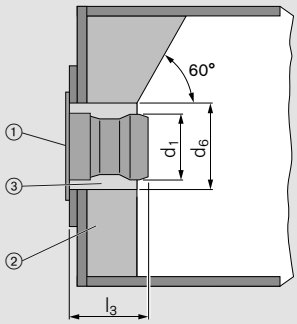


Mounting-plate drilling dimensions

WM 50/1 and WM 50/2



Heat exchanger 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 h_1	h_2	h_3	h_4	d_1	d_2	d_3	d_4	d_5	d_6	Nominal diameter of gas butterfly
WM-L50/1-A R	1058	414	758	–	403	520	M16	435	470	440	–
WM-L50/2-A R	1071	414	758	–	485	630	M16	530	580	530	–
WM-G50/1-A ZM-NR	1058	414	758	302	403	520	M16	435	470	440	DN100
WM-G50/2-A ZM-NR	1071	414	758	352	485	630	M16	530	580	530	DN100
WM-GL50/1-A ZM-R-NR	1058	414	758	302	403	520	M16	435	470	440	DN100
WM-GL50/2-A ZM-R-NR	1071	414	758	352	485	630	M16	530	580	530	DN100

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

That's reliability

Boiler production in Sennwald

Neuberger Building Automation in Rothenburg o.d.T.

Borehole drilling by BauGrund Süd

The Weishaupt Group has over 3000 employees and is a market leader for burners, condensing boilers, heat pumps, solar energy, and building automation.

Since 2009 the business, which was founded in 1932, has been structured as a holding for three companies operating in the fields of energy technology, energy recovery and energy management.

The core division is Max Weishaupt GmbH, which is located in the south-west German town of Schwendi, and which is where all burners are manufactured. It is also the group's administrative headquarters, and home to the group's own Research and Development Institute.

Heating systems are manufactured by Weishaupt's sister company, Pyropac, which is located in the Swiss town of Sennwald.

Neuberger building automation, sited in Rothenburg ob der Tauber in Germany, has been a group subsidiary since 1995.

Germany's Bad Wurzach is home to the geothermal engineering company, BauGrund Süd, which has been part of the Weishaupt Group since 2009.

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