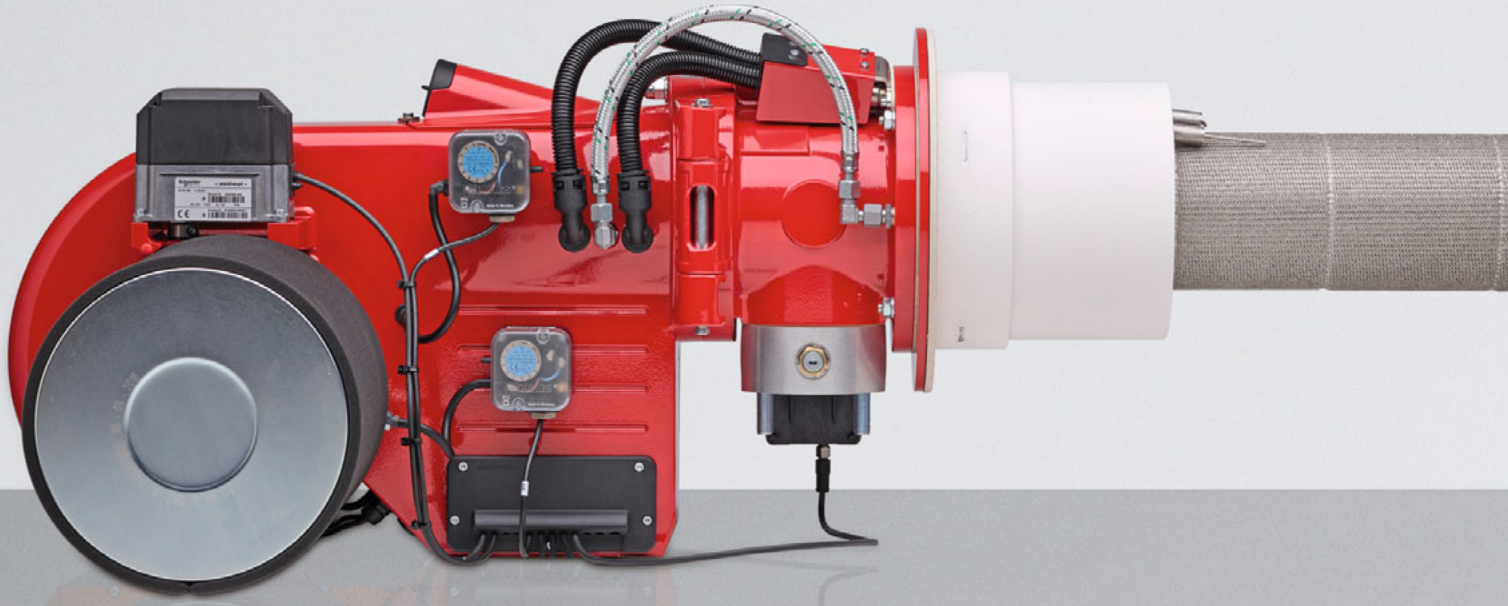
–weishaupt–

product

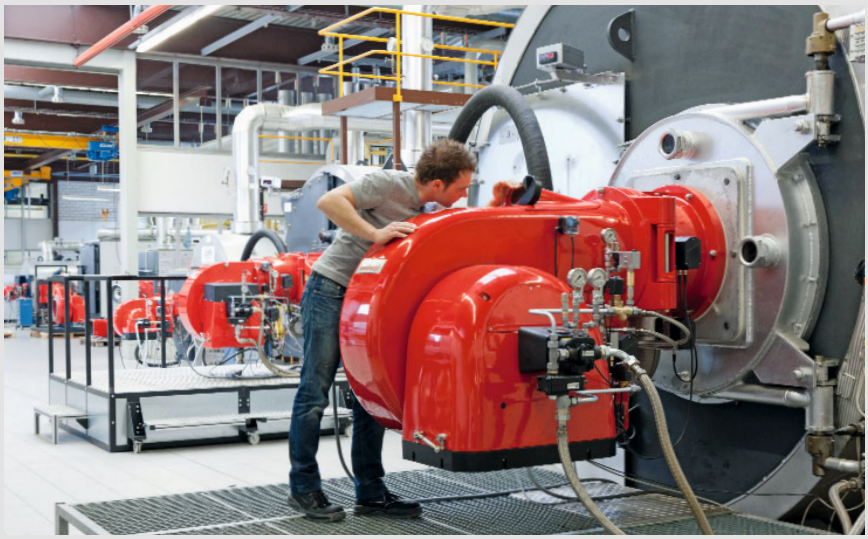
Information on Ultra Low NO_x gas burners



Ultra Low NO_x emissions

WM-G10 ZM-PLN and WM-G20 ZM-PLN monarch® burners (290 – 10,240 MBH)

A new class of emissions: Ultra-Low NO_x



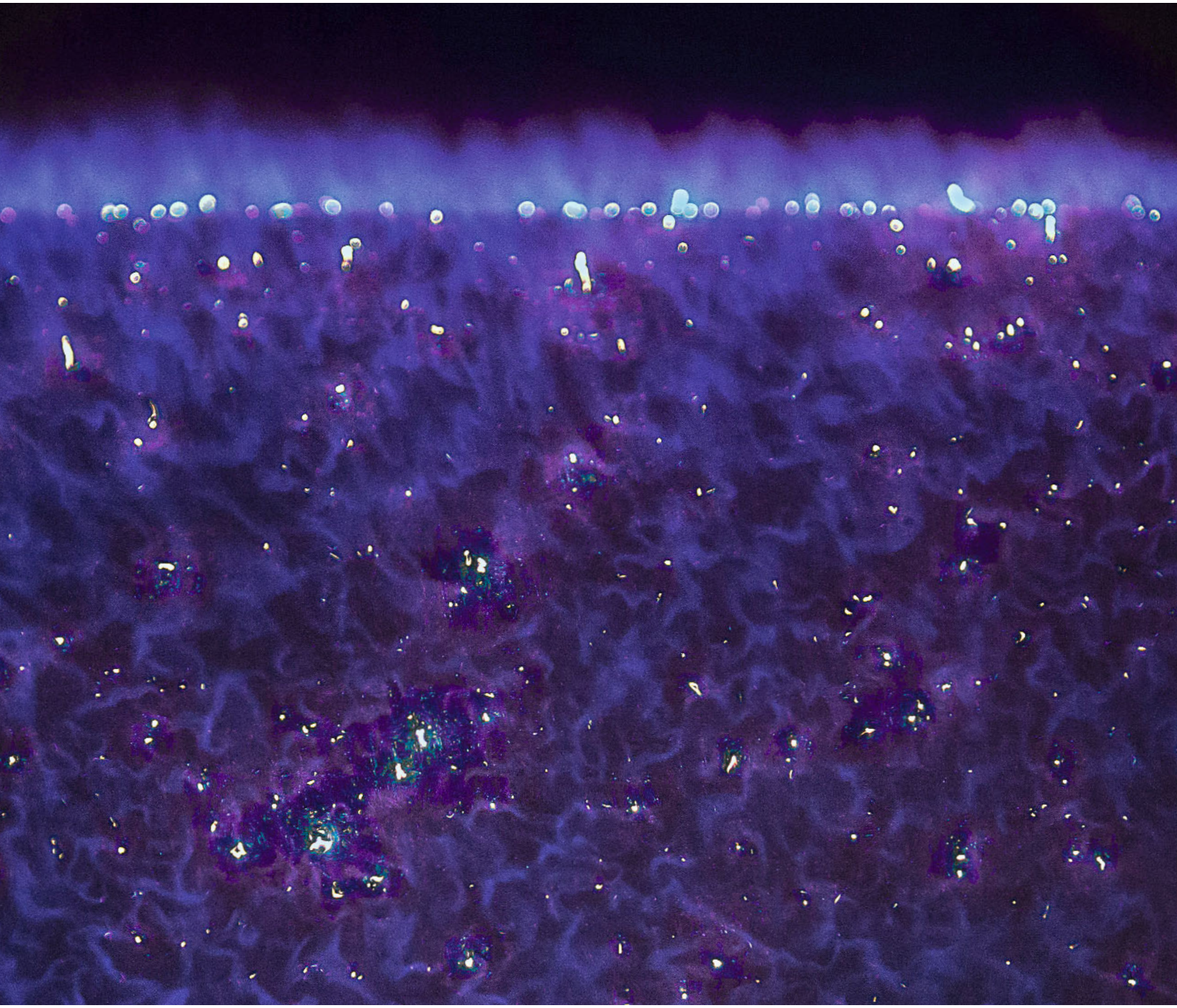
Test-firing chambers for medium and large-sized burners at the Weishaupt Research & Development Centre

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

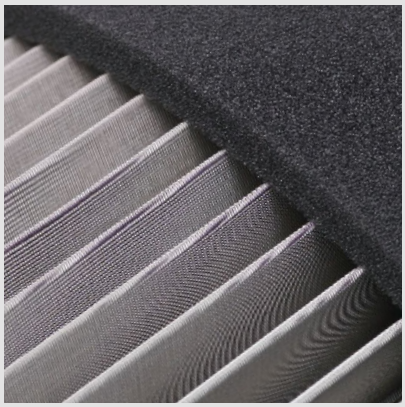
The PLN-version burners are ready for use in situations where the very lowest of emission levels are being demanded. PLN stands for Premix Low NO_x – a system that combines premixing with surface-stabilized combustion.

A further advantage of this type of combustion system is that it can be utilized on appliances with particularly small combustion chambers.

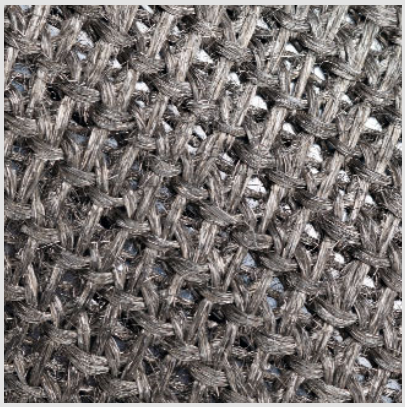
Homogeneous, surface-stabilized combustion



Weishaupt premix technology for extremely low NO_x emission



The metal gauze air filter is protected from dust by an additional foam pre-filter sleeve



A microweave mat made from a high-quality alloy permits the right amount of gas / air mix to pass

Weishaupt PLN-version burners can also be used in very small combustion chambers

Everywhere in the world, emission limits are becoming more and more stringent, with a focus on NO_x emissions in particular. Weishaupt has therefore developed a new generation of burners designed to fulfil these demands.

Weishaupt burners have always been particularly efficient and environmentally friendly. Premix burner technology is used to achieve NO_x emissions below 15 ppm and even lower.

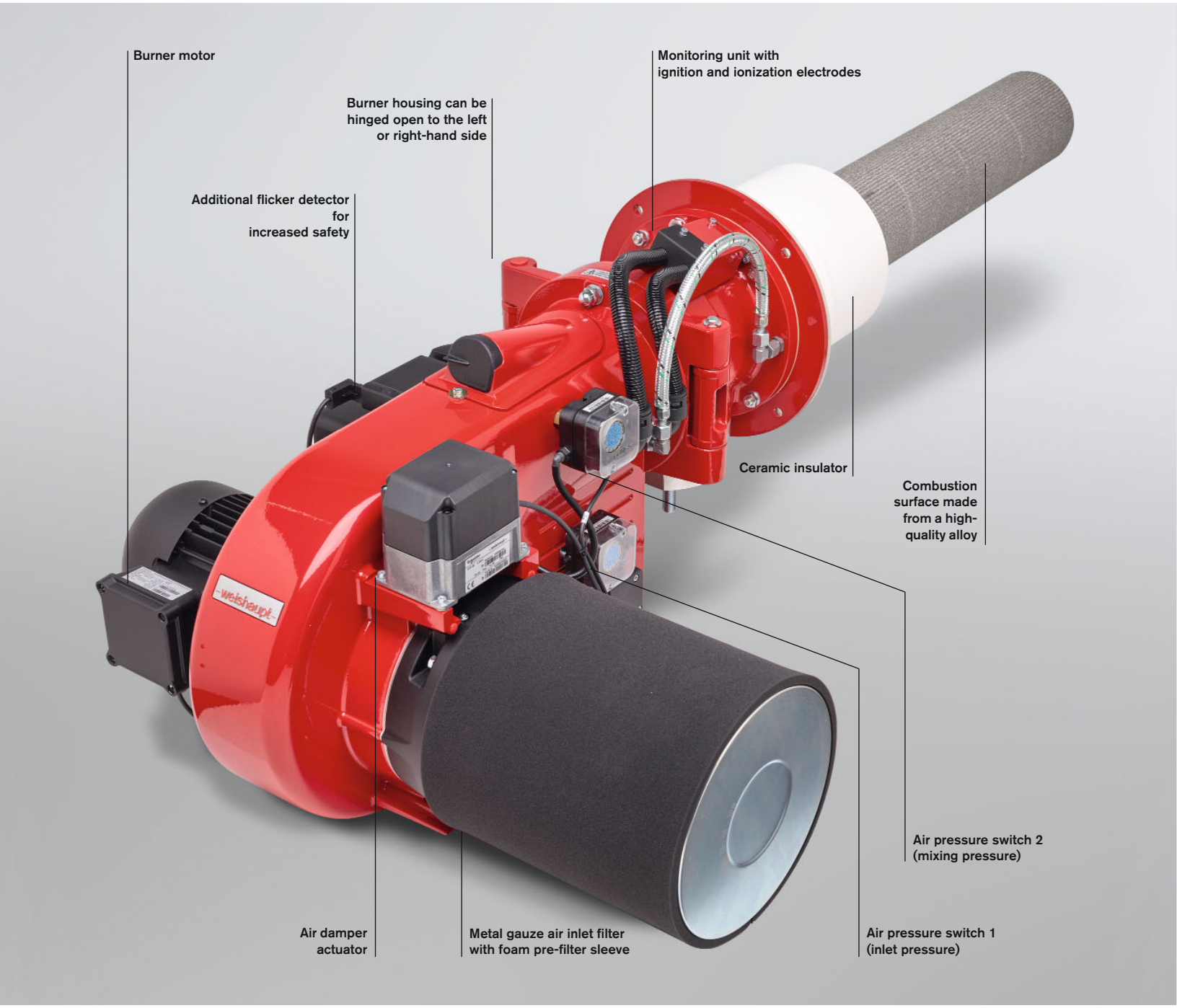
Premixing followed by surface-stabilized combustion has been state of the art for many years in small condensing boilers. It is environmentally friendly, reliable and efficient. Extending these benefits to typical heat generators with larger outputs was the developmental goal for the PLN-version burners.

Special gas / air mix
Stabilized surface combustion relies on an homogeneous gas / air mixture. For that reason, a completely new mixing assembly was developed for the PLN-version burners. A key feature is the separated feed of gas and air, the two media are not mixed together upstream the burner tube. A uniform mixture is created by the gas flow through the distributor and the combustion air that has been set in rotation by the swirl plate.

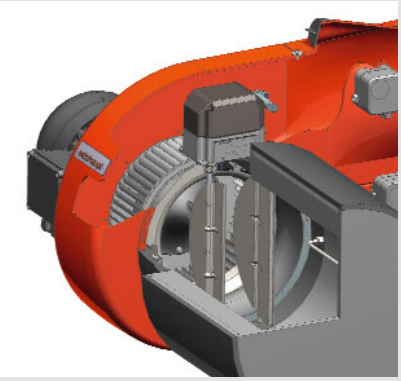
Stabilized surface combustion
The gas / air mix, which is under pressure, permeates the microweave alloy mat and combusts on its surface. The flame carpet thereby created has flame temperatures below 2,190 F (1,200 °C) and so the formation of thermal NO_x is inhibited. Single digit NO_x emission levels are now also a reality for medium-capacity burners.

One substantial benefit of this technology is to be found in the combustion chamber requirements. These can be considerably smaller than those found in typical boilers.

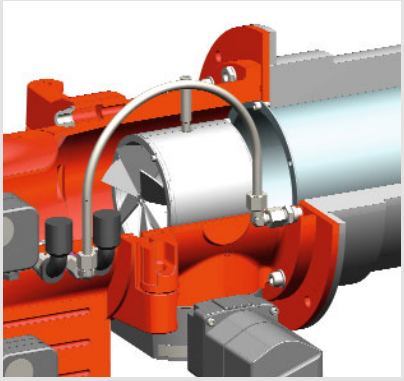
Weishaupt's PLN-version premix burners also have similar turndowns to their forced-draft siblings. The electronic compound regulation provided by the W-FM combustion manager can achieve turndown ratios of 7:1 with these burners.


Burner motor
Monitoring unit with ignition and ionization electrodes
Burner housing can be hinged open to the left or right-hand side
Additional flicker detector for increased safety
Ceramic insulator
Combustion surface made from a high-quality alloy
Air pressure switch 2 (mixing pressure)
Air damper actuator
Metal gauze air inlet filter with foam pre-filter sleeve
Air pressure switch 1 (inlet pressure)

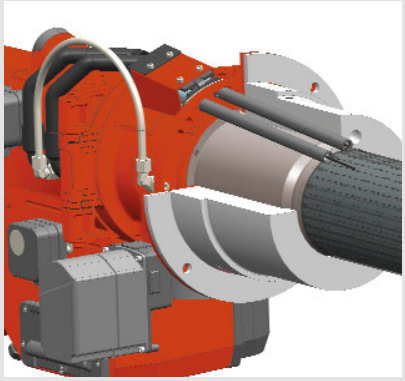
Simple and safe from installation to operation



Aerodynamically designed air damper assembly



The special mixing of gas and air ensures reliable ignition behaviour



A ceramic insulator provides optimal heat shielding to the mixing assembly and electrode unit

Ignition and monitoring
The ignition electrode and the ionization electrode (flamerod) are assembled together as a unit. The electrodes are fed through the ceramic insulator for protection against heat and they are also air cooled.

Optimal safety and reliability
The PLN-version burners are equipped with two monitoring systems. An ionization electrode monitors the flame on combustion surface, while a flame flicker detector secures the premix chamber and the burner tube.

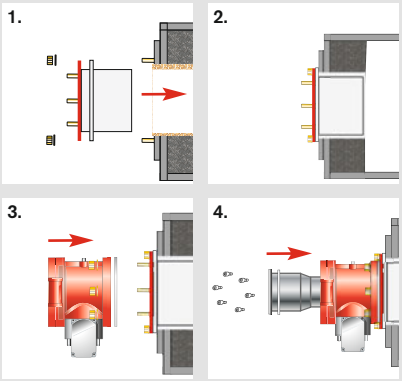
Continuous monitoring
The air volume and the condition of the air filter are continuously monitored during burner operation by an additional air pressure switch. The necessary air volume is thereby always guaranteed.

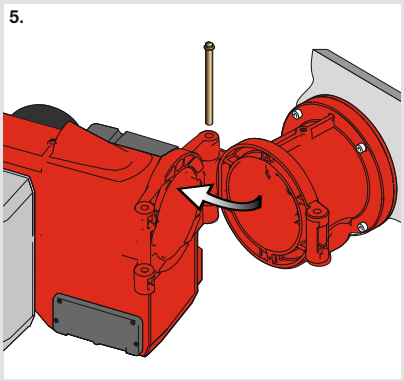
Clean combustion air
The combustion surface's alloy microweave mat can only distribute the gas /air mixture evenly if its pores are not blocked by particles. For this purpose Weishaupt therefore employs a special metal gauze air filter. An additional pre-filter sleeve is used to keep larger dust particles away from combustion surface . The foam pre-filter sleeve can be washed or replaced as required.

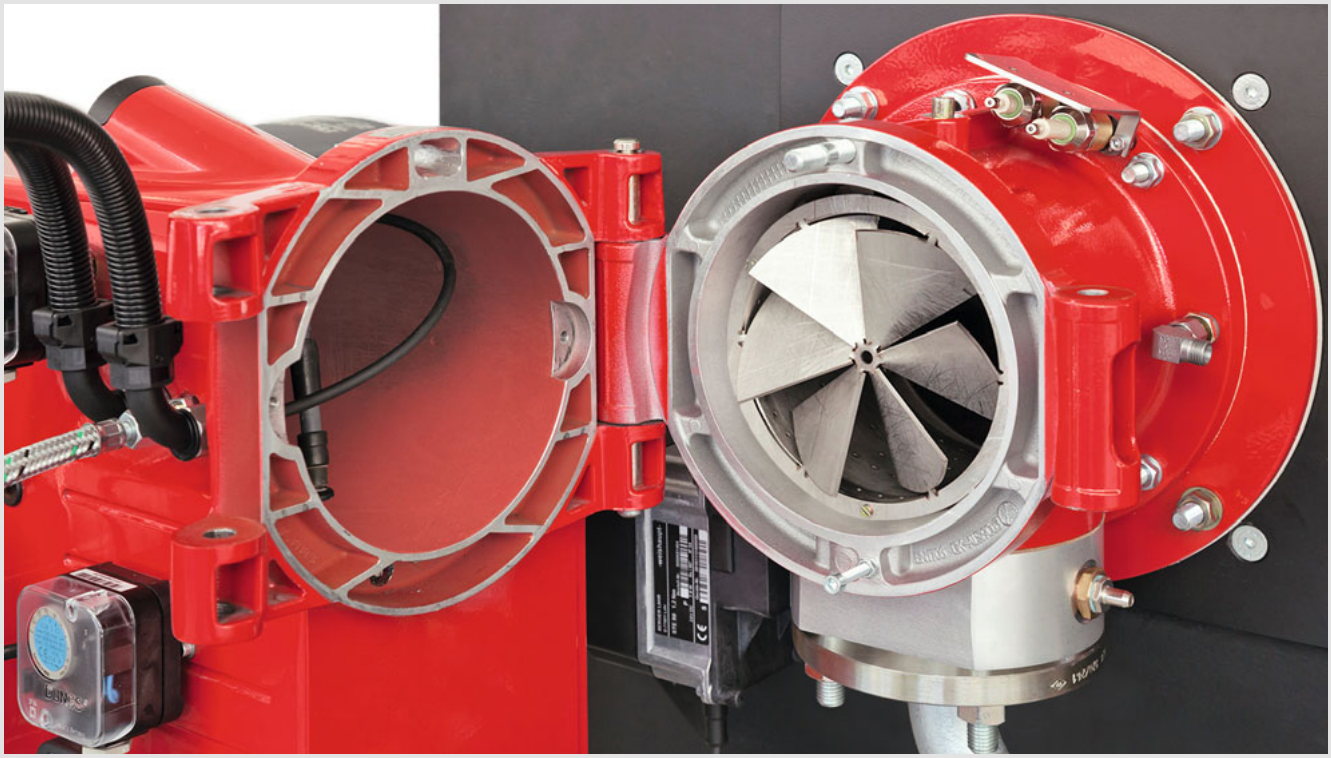
Simple installation / easy servicing
During installation, the burner flange should be mounted first to the heat exchanger, then combustion tube can be inserted afterwards. Burner combustion tube can be removed without completely dismounting the burner from the heat exchanger.

The burner is installed in five easy steps:

1. Installation of the ceramic insulator.
2. Check insertion depth and insulation between the burner and the refractory
3. Mount burner's hinged flange.
4. Insert the combustion surface. (optional installation tool is available)
5. Mount burner to the hinged flange.







The burner hinges a full 90°, enabling the combustion surface to be removed through the mounted burner flange

Digital

Digital combustion management means optimum combustion figures, excellent repeatability and easy of use.

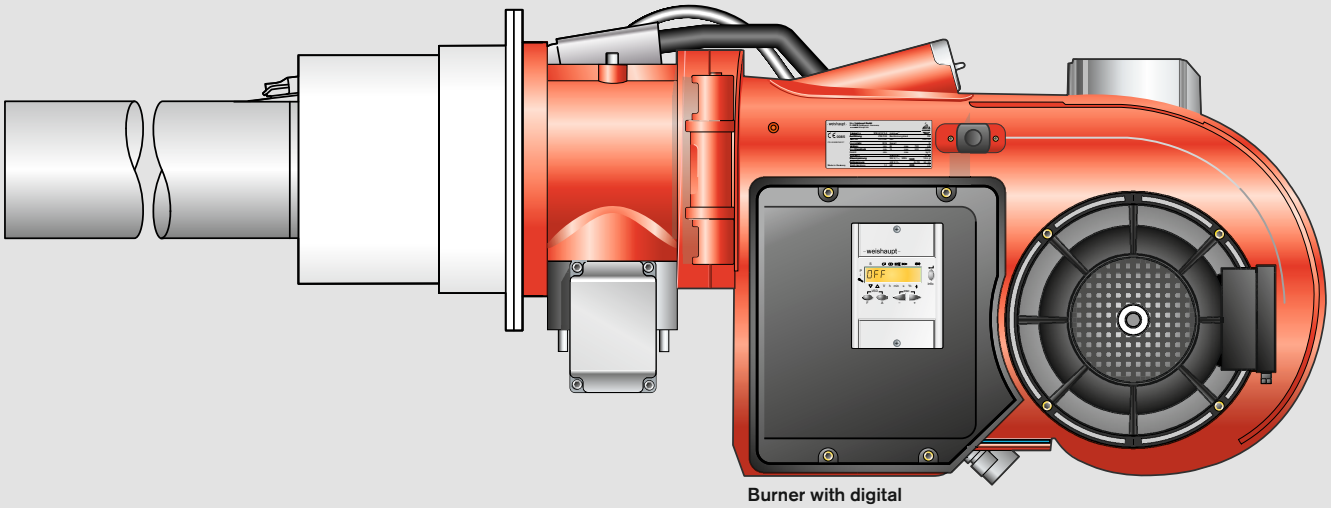
Weishaupt PLN-version gas burners are equipped as standard with electronic ratio controller and digital combustion management. Modern combustion technologies demand a precise and continually reproducible dosing of fuel and combustion air. This optimizes combustion efficiency and saves fuel.

Simple operation
Burner's setting and control are carried out via a control and display unit. The display and control unit is directly connected to the combustion manager allowing direct access to parameter settings.
The control and display unit depending on the combustion manager, employs either a language-neutral display or a clear text display with a choice of languages.

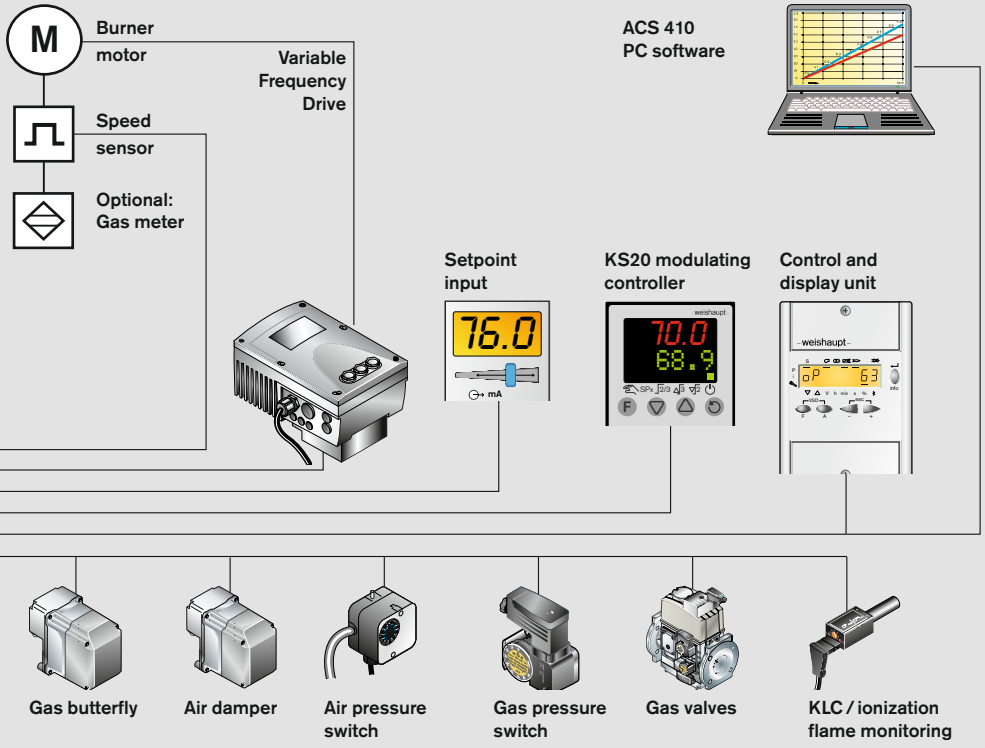
Variable speed drive reduces electrical consumption and facilitates a soft start of the combustion air fan. The use of VFD also reduces noise emissions by a considerable amount.

Features – digital combustion management	W-FM 50	W-FM 100	W-FM 200
Single-fuel operation	●	●	●
Intermittent firing	●	●	●
Continuous firing >24 h	●	●	●
Variable frequency drive	●	–	●
O_2 module	–	–	●
ION/KLC flame sensor for continuous firing	●	●	●
Maximum number of actuators	2	4	6
Integrated PID controller with automatic adaption. Pt / Ni temperature sensor, 0/2–10 V, and 0/4–20 mA inputs for temperature / pressure	–	○	●
0/2–10 V and 0/4–20 mA setpoint input for temperature / pressure	–	○	●
Configurable 0/4–20 mA analogue output	–	○	●
Language-neutral ABE control unit	●	–	–
ABE control unit with muliple languages support	–	●	●
Removable ABE control unit (max. length of connecting line)	65 ft /20 m	325 ft/ 100 m	325 ft/ 100 m
Fuel consumption meter (switchable)	● [1)]	–	●
Combustion efficiency display	–	–	●
Modbus RTU interface	●	●	●
PC-supported commissioning	●	●	●

● Standard ○ Optional [1)] Not in conjunction with VFD



Burner with digital combustion manager



Specifications, control and burner nomenclature

Suitable fuels
Natural gas
Propane

Different type of fuel requires written confirmation from Weishaupt Corporation.

Applications
Weishaupt PLN-version burners are suitable for intermittent and continuous firing on:
- Installation on heat exchanger
- Hot water boiler
- Steam boiler and high pressure hot water boiler
- Intermittent and continuous operation
- Hot air generator [1)]

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

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

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

Approvals
The PLN series burners are in compliance with most European and North American applicable standards.

Control
Weishaupt PLN-version burners are suitable for sliding-two-stage or modulating operation, depending on the type of modulating controller. Throughout its operating range burner's output is matched to the heat demand.

These multiple control options make the WM series burners universally adaptable to various applications. Thus results in a smooth, trouble free start and reliable operation.

Installation position
The burner is suitable for horizontal and vertical mounting on the heat generator. The manufacturer's instructions should be observed.

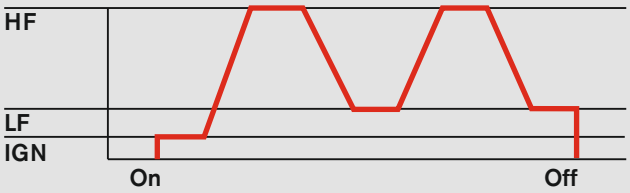
[1)] Please inquire

Operation with gas

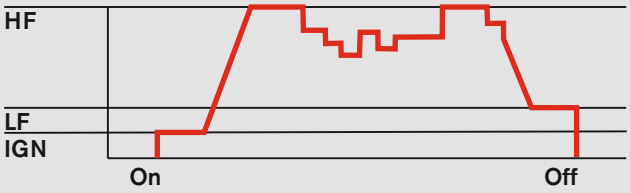
Sliding-two-stage or modulating operation (ZM)

- Stepping motors adjust the capacity between low and high fire depending on the heat demand
- There is a gradual change between both operating points. There are no sudden, large changes in fuel throughput.
- Controller options:
  - W-FM 50 in conjunction with modulating controller
  - W-FM 100 with integral load controller
  - W-FM 200

sliding two stage



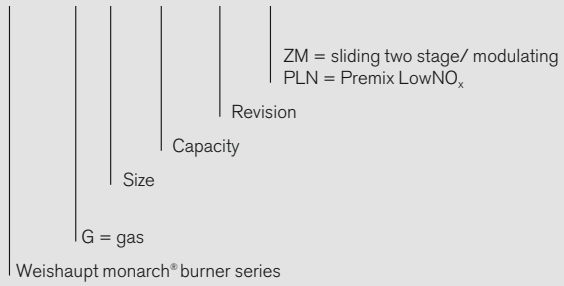
modulating



HF = Highfire
LF = Lowfire
IGN = Ignition

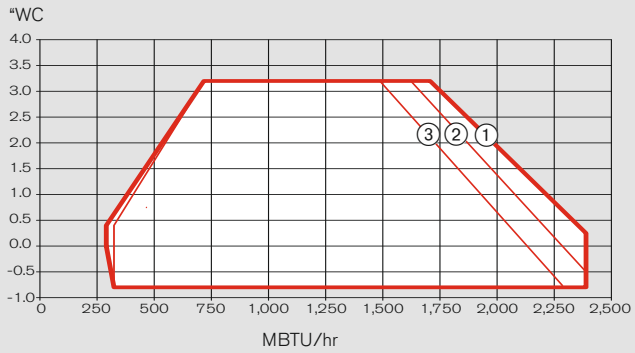
Nomenclatures

WM – G 10 / 3 –A ZM-PLN



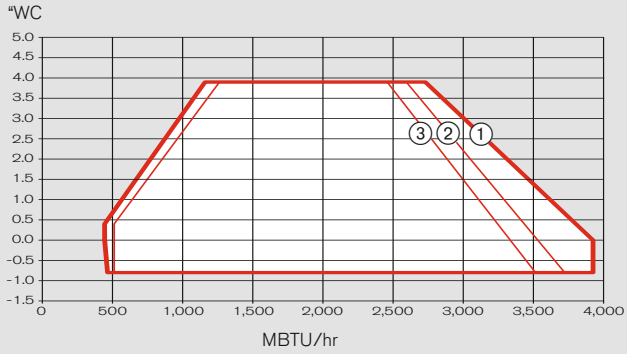
Burner selection
WM-G10, version ZM-PLN

Burner model	**WM-G10/2-A ZM-PLN**	
Combustion head	WM10/2-PLN	
Capacity MBTU/h	Natural gas	290 – 2,390
	Propane	325 – 2,390



Natural gas
Propane

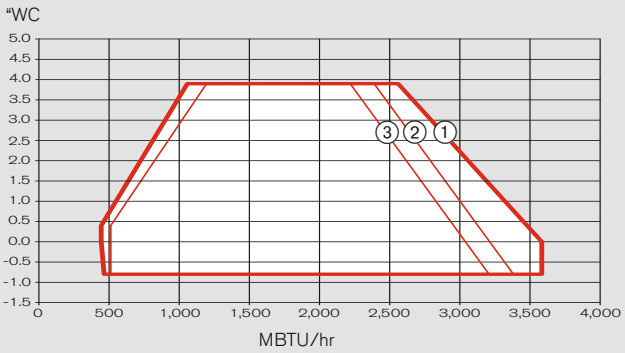
Burner model	**WM-G10/4-A ZM-PLN**	
Combustion head	WM10/3+4-PLN	
Capacity MBTU/h	Natural gas	445 – 3,925
	Propane	515 – 3,925



Burner order numbers

Burner model	Version	Order No.
WM-G10/2-A	ZM-PLN	217 124 10
WM-G10/3-A	ZM-PLN	217 125 10
WM-G10/4-A	ZM-PLN	217 126 11

Burner model	**WM-G10/3-A ZM-PLN**	
Combustion head	WM10/3+4-PLN	
Capacity MBTU/h	Natural gas	445 – 3,585
	Propane	515 – 3,585



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

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

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

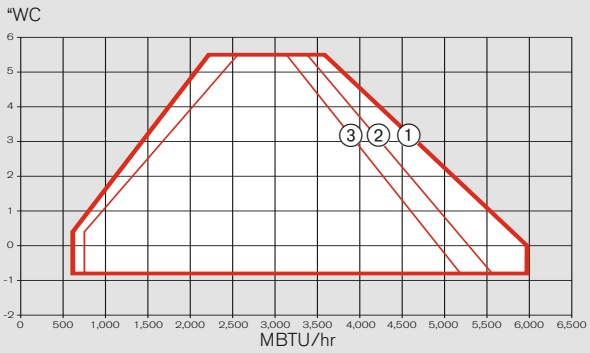
Determining load point dependent on excess air
(See example on page 19)

	NO_x [ppm] N. Gas	NO_x [ppm] P. Gas	Setting O_2 [2)]	Setting λ [2)]	P_F factor [1)]
①	30	75	5 %	1.28	1.24
②	15	30	7 %	1.46	1.61
③	9	–	8 %	1.56	1.84

[1)] The correction factor is based on the combustion chamber resistance (P_F) at 3 % O_2
[2)] Excess air and O_2 values are approximate only and may vary depending on site conditions.

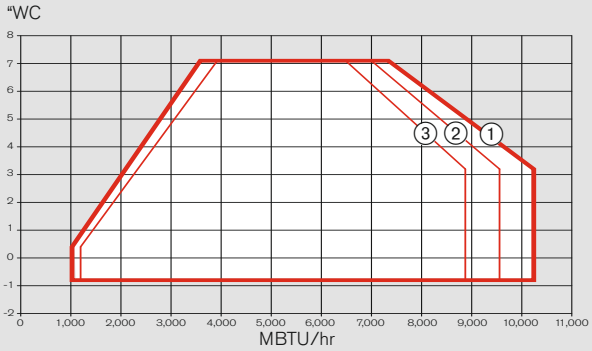
Burner selection
WM-G20, version ZM-PLN

Burner model **WM-G20/2-A ZM-PLN**
Combustion head WM-G20/2 PLN
Capacity MBTU/h Natural gas 615 – 5,970
Propane 750 – 5,970



Natural gas
Propane

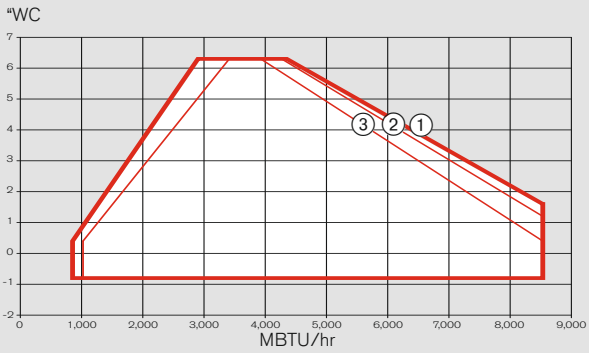
Burner model **WM-G20/4-A ZM-PLN**
Combustion head WM-G20/4 PLN
Capacity MBTU/h Natural gas 1,024 – 10,240
Propane 1,195 – 10,240



Burner order numbers

Burner model	Version	Order No.
WM-G20/2-A	ZM-PLN	217 221 11
WM-G20/3-A	ZM-PLN	217 222 11
WM-G20/4-A	ZM-PLN	217 223 11

Burner model **WM-G20/3-A ZM-PLN**
Combustion head WM-G20/3 PLN
Capacity MBTU/h Natural gas 853 – 8,530
Propane 1,025 – 8,530



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

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

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

Determining load point dependent on excess air
(See example on page 19)

	NO_x [ppm] N. Gas	NO_x [ppm] P. Gas	Setting O_2 [2)]	Setting λ [2)]	P_F factor [1)]
①	30	75	5 %	1.28	1.24
②	15	30	7 %	1.46	1.61
③	9	–	8 %	1.56	1.84

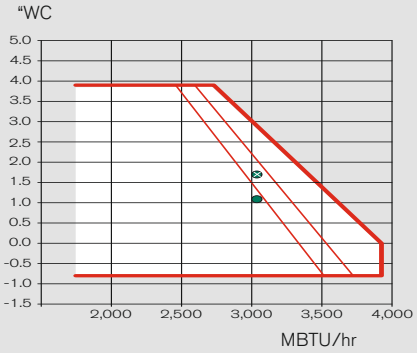
[1)] The correction factor is based on the combustion chamber resistance (P_F) at 3 % O_2.
[2)] Excess air and O_2 values are approximate only and may vary depending on site conditions.

Example of calculation
Standard scope of supply

Determining the load point with regard to the required level of NO_x emissions

Example:

Burner firing rate	3,000 MBH
Combustion chamber resistance:	
● Per appliance's manufacturer, with 3 % O_2	1.0"w.c.
⊗ For 15 ppm of NO_x, with 7 % O_2	1.6"w.c.
Installation altitude	sea level



Determining load point dependent on excess air

	NO_x [ppm] N. Gas	NO_x [ppm] P. Gas	Setting O_2 2)	Setting λ 2)	P_F factor 1)
①	30	75	5 %	1.28	1.24
②	15	30	7 %	1.46	1.61
③	9	–	8 %	1.56	1.84

1) The correction factor is based on the combustion chamber resistance (P_F) at 3 % O_2.
2) Excess air and O_2 values are approximate only and may vary depending on site conditions.

NO_x reference conditions:

Air temperature	t_a = 68F (20 °C)
Air humidity	x = 70 gr/lb (10 g/kg)
Natural gas	Cal = 1,000 BTU/cu-ft
Propane	Cal = 2,500 BTU/cu-ft

- Evaluation at each operating point
- No averaging
- No measurement uncertainty/ tolerance
- 3 pass heat exchanger

Description	WM-G10 ZM-PLN	WM-G20 ZM-PLN
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 display and operating unit, flame sensor, actuators, flange gasket, limit switch on hinged flange, mounting studs	●	●
Digital combustion manager W-FM 50 W-FM 100/ 200	● ○	● ○
Two main gas safety shut off valves	●	●
Gas butterfly valve	●	●
Air pressure switch	●	●
Low and high gas pressure switches	●	●
Actuators for electronic fuel air ratio controller W-FM: Air damper stepping motor Gas butterfly valve stepping motor	 ● ●	 ● ●
IP 54 protection	●	●

● Standard
○ Optional

Technical data

Gas burners		WM-G10/2-A ZM-PLN	WM-G10/3-A ZM-PLN	WM-G10/4-A ZM-PLN
Burner motor	Weishaupt model	WM-D 90/90-2/1K0	WM-D 90/110-2/1K5	WM-D 90/110-2/1K9
Rated power	HP (kW)	1.3 (1)	2.13 (1.6)	2.5 (1.9)
Full load amps (FLA)	A (@460 V)	2.0	3.1	3.2
Motor fuse (ϒΔ start)	A minimum	10A (external)	15A (external)	15A (externally)
Speed (60 Hz)	rpm	3,500	3,500	3,120 (55 Hz)
Combustion manager	model	W-FM50/ W-FM100	W-FM50/ W-FM100	W-FM50/ W-FM100
Flame monitoring	model	ION	ION	ION
Air/ gas actuator	model	SQM33/ SQM45	SQM33/ SQM45	SQM33/ SQM45
Weight (excl. gas train)	lbs (kg)	163 (74)	165 (75)	165 (75)

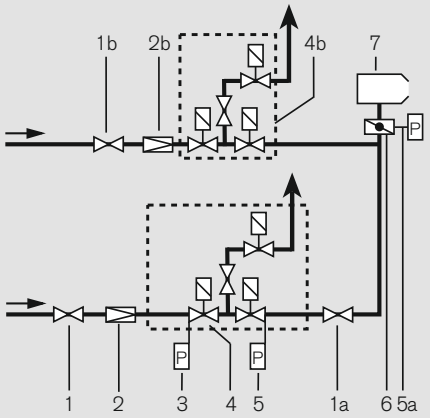
Gas burners		WM-G20/2-A ZM-PLN	WM-G20/3-A ZM-PLN	WM-G20/4-A ZM-PLN
Burner motor	Weishaupt model	WM-D 112/140-2/3K0	WM-D 112/170-2/4K5	WM-D 112/170-2/7K0
Rated power	HP (kW)	4.2 (3.2)	6.7 (5.0)	9.3 (7.0)
Full load amps (FLA)	A (@460 V)	6.2	8.7	15
Motor fuse (ϒΔ start)	A minimum	25A (external)	30A (external)	40A (external)
Speed (60 Hz)	rpm	3,540	3,530	3,520
Combustion manager	model	W-FM50/ W-FM100	W-FM50/ W-FM100	W-FM50/ W-FM100
Flame monitoring	model	ION	ION	ION
Air/ gas actuator	model	SQM33/ SQM45	SQM33/ SQM45	SQM33/ SQM45
Weight (excl. gas train)	lbs (kg)	209 (95)	220 (100)	242 (110)

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

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

Fuel systems

Gas train schematic*



1 Ball valve
1a Ball valve
1b Ball valve on pilot gas train
2 Gas pressure regulator
2b Pilot gas pressure regulator
3 Low gas pressure switch
4 2 main gas SSOVs and 1 N/O vent valve
4b 2 pilot gas SSOVs and 1 N/O vent valve
5 High gas pressure switch
5a High gas pressure switch
6 Gas butterfly valve
7 Burner

* The above schematic shows typical gas train configuration only. The actual gas train configuration shipped with burner might differ depending on applicable codes/ regulation and application.

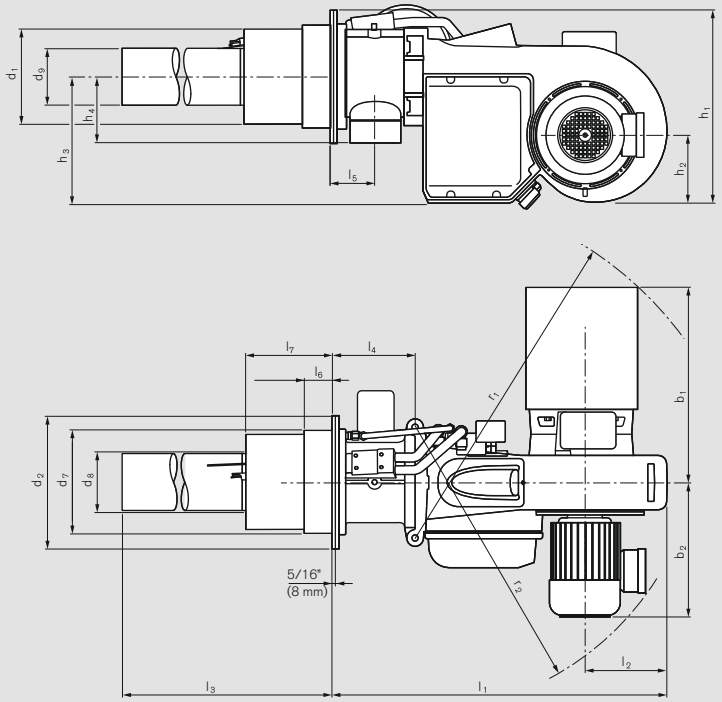
Gas train arrangement
For boiler with hinged door the gas train must be installed on the opposite side of the boiler door hinge.

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

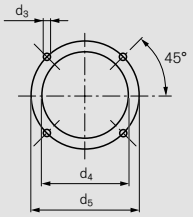
Gas train support
The gas train must be fixed and supported securely. They must not be allowed to vibrate during operation. Support suitable for the site should be fitted during installation.

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

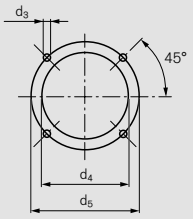
Dimensions



Mounting-plate drilling dimensions



WM-G10 ZM-PLN



WM-G20 ZM-PLN

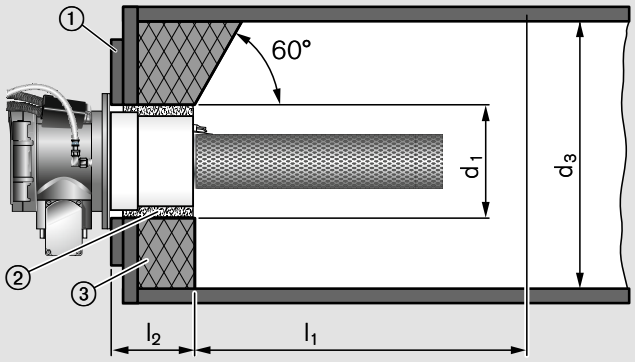
Burner model	Dimensions in inches (top) and mm (bottom)																							
	l_1	l_2	l_3	l_4	l_5	l_6	l_7	b_1	b_2	h_1	h_2	h_3	h_4	r_1	r_2	d_1	d_2	d_3	d_4	d_5	d_6	d_7	d_8	d_9
WM-G10/2-A ZM-PLN	32.8	8.1	32.8	8.2	4.3	2.7	8.4	18.9	12.1	18.8	6.6	12.3	6.4	32.5	26.9	9.2	13.0		10.2	11.7	10.0	10.0	5.8	5.7
	833	205	834	208	108	68	213	481	307	478	167	313	162	826	682	234	330	M12	260	298	255	253	147	145
WM-G10/3-A ZM-PLN	32.8	8.1	47.2	8.2	4.3	2.7	8.4	18.9	13.2	18.8	6.6	12.3	6.4	32.5	27.5	9.2	13.0		10.2	11.7	10.0	10.0	5.8	5.7
	833	205	1198	208	108	68	213	481	335	478	167	313	162	826	698	234	330	M12	260	298	255	253	147	145
WM-G10/4-A ZM-PLN	32.8	8.1	47.2	8.2	4.3	2.7	8.4	18.9	13.2	18.8	6.6	12.3	6.4	32.5	27.5	9.2	13.0		10.2	11.7	10.0	10.0	5.8	5.7
	833	205	1198	208	108	68	213	481	335	478	167	313	162	826	698	234	330	M12	260	298	255	253	147	145
WM-G20/2-A ZM-PLN	39.8	10.0	40.3	9.4	5.0	3.1	8.4	21.5	16.7	24.6	8.5	15.7	8.9	40.9	34.2	13.2	17.7		14.6	15.7	14.4	14.2	9.9	9.8
	1010	254	1023	238	128	78	213	545	424*	625	217	400	226	1040	869	335	450	M12	370	400	365	360	251	248
WM-G20/3-A ZM-PLN	39.8	10.0	56.0	9.4	5.0	3.1	8.4	21.5	17.6	24.6	8.5	15.7	8.9	40.9	34.8	13.2	17.7		14.6	15.7	14.4	14.2	9.9	9.8
	1010	254	1423	238	128	78	213	545	447*	625	217	400	226	1040	883	335	450	M12	370	400	365	360	251	248
WM-G20/4-A ZM-PLN	39.8	10.0	63.9	9.4	5.0	3.1	8.4	21.5	20.5	24.6	8.5	15.7	8.9	40.9	37.4	13.2	17.7		14.6	15.7	14.4	14.2	9.9	9.8
	1010	254	1623	238	128	78	213	545	521	625	217	400	226	1040	951	335	450	M12	370	400	365	360	251	248

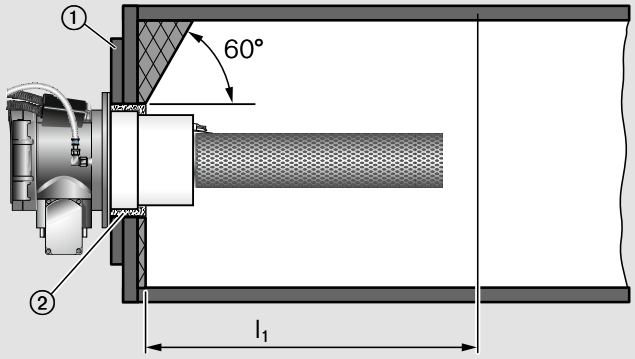
All dimensions are approximate only. Weishaupt reserves the right to make changes in light of future developments.

* With motor mounted variable frequency drive (VFD) extended by approx 3/4" (20 mm)

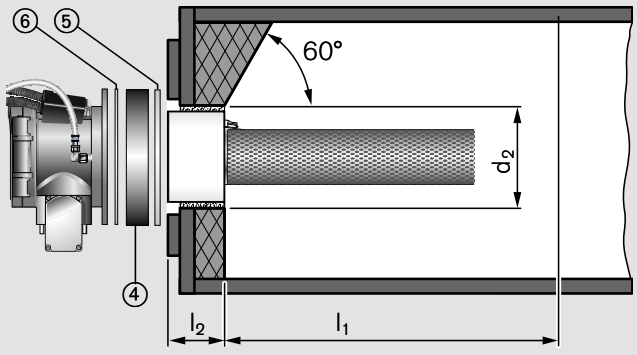
Dimensions

Appliance without spacer ring





Appliance with spacer ring



Minimum combustion chamber sizes

WM-G10 ZM-PLN

d_1 Minimum boiler opening without spacer ring . . . . . 10.2” (260 mm)
d_2 Minimum boiler opening with spacer ring . . . . . 9.6” (244 mm)
d_3 Minimum combustion chamber diameter . . . . . 13.8” (350 mm)
l_1 Minimum combustion chamber length
WM10/2 . . . . . 33.1” (840 mm)
WM10/3. . . . . 47.2” (1,200 mm)
WM10/4. . . . . 47.2” (1,200 mm)
l_2 Maximum boiler door depth, including refractory / insulation,
without spacer ring . . . . . 8.7” (220 mm)
with spacer ring and gasket . . . . . 5.7” (145 mm)

WM-G20 ZM-PLN

d_1 Minimum boiler opening without spacer ring . . . . . 14.6” (370 mm)
d_2 Minimum boiler opening with spacer ring . . . . . 13.6” (345 mm)
d_3 Minimum combustion chamber diameter . . . . . 17.7” (450 mm)
l_1 Minimum combustion chamber length
WM20/2. . . . . 48.4” (1,230 mm)
WM20/3. . . . . 64.2” (1,630 mm)
WM20/4 . . . . . 72” (1,830 mm)
l_2 Maximum boiler door depth, including refractory / insulation,
without spacer ring . . . . . 8.7” (220 mm)
with spacer ring and gasket . . . . . 5.7” (145 mm)

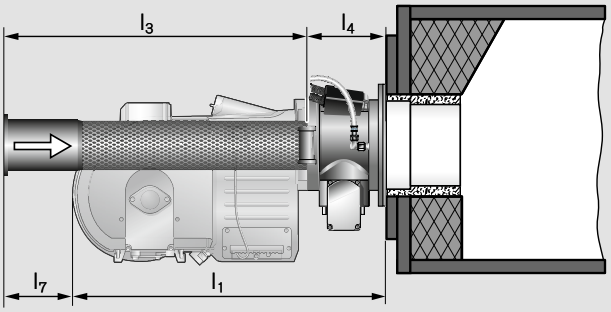
Legend

① Mounting plate
(WM-G20 ZM-PLN: Depth ≥ 5/16” (8 mm) for installations with spa cer ring)
② Gap
③ Refractory / insulation
④ Spacer ring, WM-G10 ZM-PLN: 2.9” (74 mm)
Spacer ring, WM-G20 ZM-PLN: 2.8” (72 mm)
(Optional for boilers with narrow burner opening)
⑤ Flange gasket: 5/16” (8 mm)
⑥ Gasket WM-G10 ZM-PLN: 1/16” (2 mm)
Gasket WM-G20 ZM-PLN: 5/16” (8 mm)

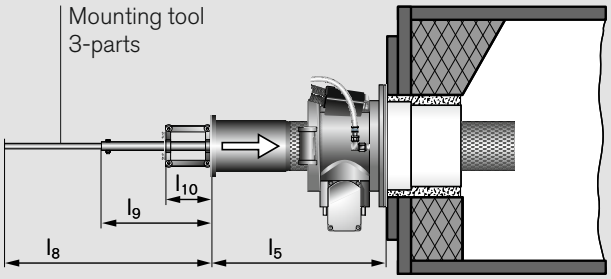
Note:
The boiler door refractory / insulation may be tapered (≥ 60°).

Installation and removal of burner's tubes
Dimensions for WM-G10 and WM-G20 ZM-PLN

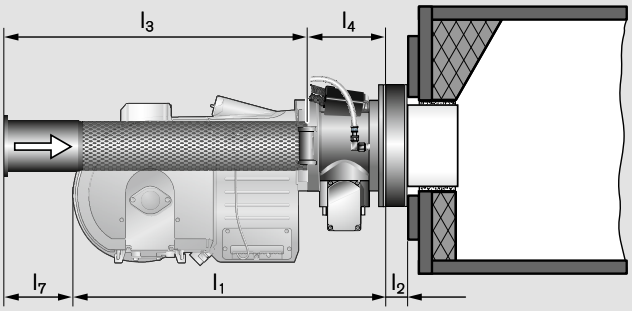
WM-G ZM-PLN without spacer ring



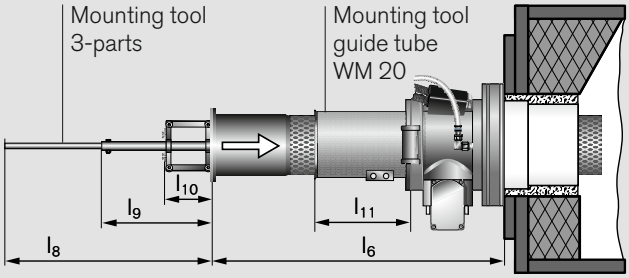
Mounting tool – minimum space requirement w/o spacer ring



WM-G ZM-PLN with spacer ring



Mounting tool – minimum space requirement with spacer ring



Burner model	Dimensions in inches (top) and mm (bottom) l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	l_9	l_{10}	l_{11}
WM-G10/2-A ZM-PLN	32.8 833	2.9 74	33.5 852	8.2 208	41.7 1060	44.6 1134	8.9 227	23.0 585	12.0 305	6.1 155	–
WM-G10/3-A ZM-PLN	32.8 833	2.9 74	47.9 1216	8.2 208	56.1 1424	59.0 1498	23.3 591	23.0 585	12.0 305	6.1 155	–
WM-G10/4-A ZM-PLN	32.8 833	2.9 74	47.9 1216	8.2 208	56.1 1424	59.0 1498	23.3 591	23.0 585	12.0 305	6.1 155	–
WM-G20/2-A ZM-PLN	39.8 1010	2.8 72	41.1 1044	9.4 238	62.7 1592	65.5 1664	22.9 582	23.0 585	12.0 305	6.1 155	12.2 310
WM-G20/3-A ZM-PLN	39.8 1010	2.8 72	56.9 1444	9.4 238	78.4 1992	81.3 2064	38.7 982	23.0 585	12.0 305	6.1 155	12.2 310
WM-G20/4-A ZM-PLN	39.8 1010	2.8 72	64.6 1640	9.4 238	86.1 2188	89.0 2260	46.4 1178	23.0 585	12.0 305	6.1 155	12.2 310

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Weishaupt customer service is there for you all year round. Whenever you need help, be it the supply of spare parts, technical advice or a site visit. We are there when you need us.