

Weishaupt Monarch oil burners Sizes 5 to 11

1/2002 CA

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Description, Types of regulation, Model overview

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Weishaupt Monarch oil burners are of the fully automatic pressure atomizing type. Their design has been carefully considered down to the smallest detail and has been proven to be successful over and over again. They meet all the demands for safety, reliability and low cost operation.

The burners are distinguished by a variety of excellent features:

- Larger range of application 4 - 127 GPH (600 - 18,500 MBH)
- Automatic sequence of operations
- Stable fan characteristics - good combustion results
- Air damper closed on burner shutdown
- Quiet operation
- Complete pre-wired integral switchgear/ ISG version (except for RL, RMS and L10T three stage burners)
- Hinged burner casing
- Combustion head can be pulled out when the burner is hinged open (sizes 9 to 11)
- The design of the burner makes installation, adjustment and servicing easy

Construction

All the components are assembled in one unit. The motor drives the fan and the fuel pump. All the equipment used for the regulation of fuel and air is clearly arranged and easily accessible. The burners can be hinged open to the left or right, which simplifies service work on the combustion head, diffuser, nozzles and ignition electrodes.

Application

The burners can be used on hot water boilers, steam boilers, air heaters and for various heating processes. RL and RMS burners are preferably used where there is a continually changing heat demand.

Fuels

Light oil #2 to Heavy oil #6 fuel.

Viscosity:

Types Monarch L and RL -

up to 6 cSt (6 mm²/s) at 68F (20°C)

Type Monarch M -

up to 75 cSt (75 mm²/s) at 122F (50°C)

Types Monarch MS and RMS -

up to 50 cSt (50 mm²/s) at 212F (100°C)

Regulation

On L, M and MS type burners, the regulation of oil and air takes place as follows:

- two stage, nozzle head with two nozzles and a motor controlled, quickly opening air damper.
- three stage, with three nozzles and a motor controlled, slowly opening air damper.

For RL and RMS burners, fuel and air are controlled in compound. The burner can, depending on the controller and servomotor, be either:

- sliding two stage (servomotor with 20 s running time)
- modulating (servomotor with 42 s running time)

With sliding two stage regulation, the low and high fire positions are fixed within the burner operating range. The burner slides to one position or the other, depending on the appliance demand, and there are no rapid changes of fuel throughput.

By utilizing a suitable controller, the burner can be operated in modulating mode. Modulating burners operate at any point within the capacity range, depending on the heat demand.

On sliding two stage burners and modulating burners, the slow capacity alteration ensures a particularly good matching to the demand of the heating appliance.

Flame safeguard

The burner flame safeguard automatically sequences the operations and monitors the flame optically via the flame sensor. For burners without inbuilt switchgear the flame safeguard is supplied loose for mounting in the control panel.

No interference with radio and television reception

Radio interference created during ignition is below the permitted limits specified by the relevant EMC standards and regulations.

Nozzle recirculation system on residual oil burners

During prepurge on residual oil burners, heated oil flows through the nozzle head and oil line system. This ensures that evenly heated oil is available for flame establishment.

Air/gas separator Oil circulation tank

Patented air/gas separators or oil circulation tanks are always required and should always be quoted with the burner.

When using an air/gas separator or oil circulation tank, the preheated oil supplied through the return line is mixed into the flow to the burner. This results in an energy saving as only partial heating of the fuel oil is required.

Operation of a two pipe system is possible when using heavy oil and a single burner, providing the suction vacuum does not exceed 55 PSI (4.0 bar). If several burners are supplied by a ring main via an air/gas separator or oil circulation tank, it is necessary to have manual ball valves which equipped with limit switch immediately downstream the air/gas separator or oil circulation tank. Air/gas separators and oil circulation tanks should be selected to suit the pump capacity of the ring main and the burner size. When selecting the ring main pump stations, please ensure that the rating is one and a half times to twice that of the nozzle rating.

Air/gas separators and oil circulation tanks must be located close to the burner.

Quiet operation

Weishaupt burners operate quietly. All air handling burner parts have been aerodynamically designed, the fuel / air mixing noise is reduced to a minimum and rotors and fan wheels are dynamically balanced. For installations where special emphasis is placed on burners with low noise levels, sound absorbers which considerably reduce burner noise are available (see brochure "Sound absorbing shrouds for Weishaupt burners", print No. 13).

Combustion of heavy oil

The oil throughput of type MS and RMS heavy oil burners, referenced to the nominal capacity, must not be less than 27.5 GPH (100 kg/h). Furthermore the use of RMS type burners is recommended when combusting this fuel.

Permissible ambient conditions

In standard version (materials, construction, protection), the burners are suitable for use indoors only and as such should not be installed outside. Permissible ambient temperatures are between 14°F and 104°F. Burner installed in unheated areas is subject to particular measures in certain circumstances (please enquire).

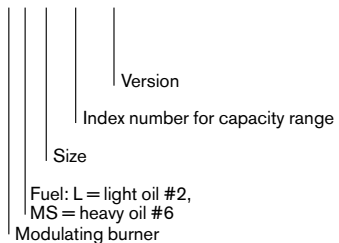
Special versions

Numerous special variants, for example burners in marine version or for use on process plant are available on request.

Nomenclature of burner type

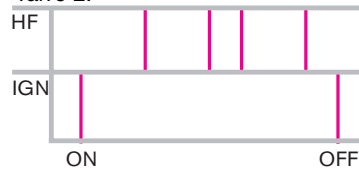
Sliding two stage or modulating regulation

RL 8/2 - ZM D



Two stage regulation (Z)

- Oil is released at start when solenoid valve 1 and the safety solenoid valve open.
- High fire is reached when solenoid valve 2 opens.
- The capacity is regulated by the opening and closing of solenoid valve 2.



Three stage regulation (T)

#2 light oil burners only

- Oil is released at start when solenoid valve 1 and the safety solenoid valve open.
- High fire is reached when solenoid valve 3 opens.
- The capacity is regulated by the opening and closing of solenoid valves 2 and 3.



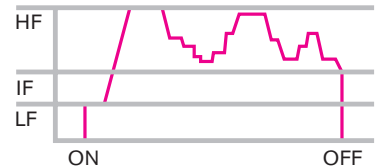
HF = high fire, LF = low fire, IGN = ignition, IF = intermediate load

Sliding two stage and modulating regulation (ZM)

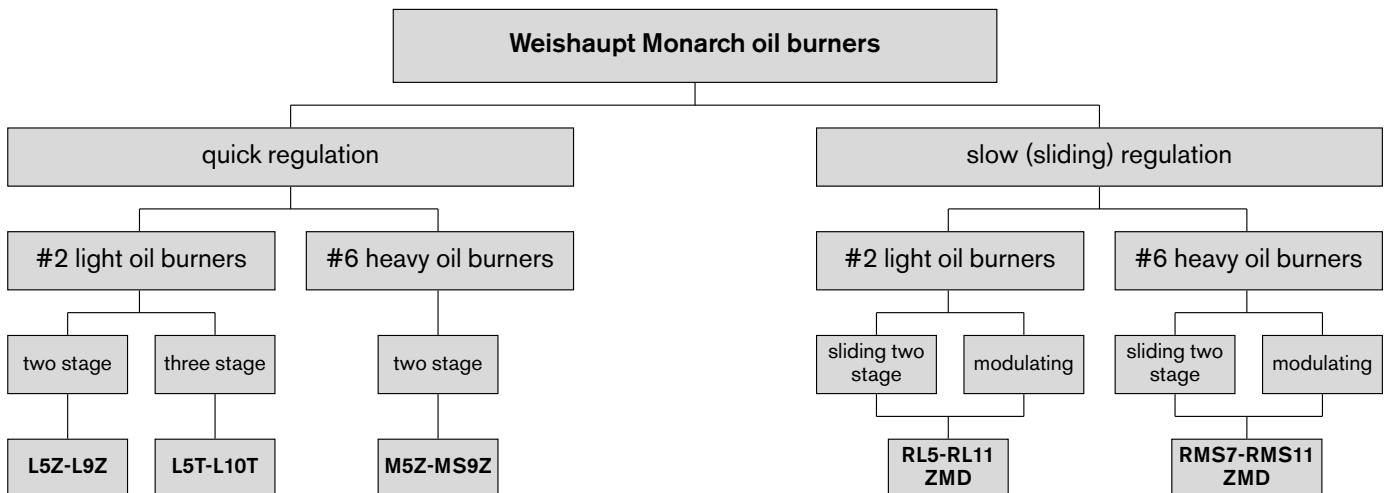
- When the nozzle needle and safety solenoid valve open, the right quantity of oil for ignition is released (except RL5).
- A slow running servomotor adjusts the oil regulator up to high fire.
- The burner capacity is regulated between low and high fire by opening and closing the oil regulator.
- Sliding two stage burner servomotors have a running time of 20 s and modulating burner servomotors have a running time of 42 s. For modulating operation an appropriate modulating controller is required, which is to be installed in the control panel.



Sliding two stage



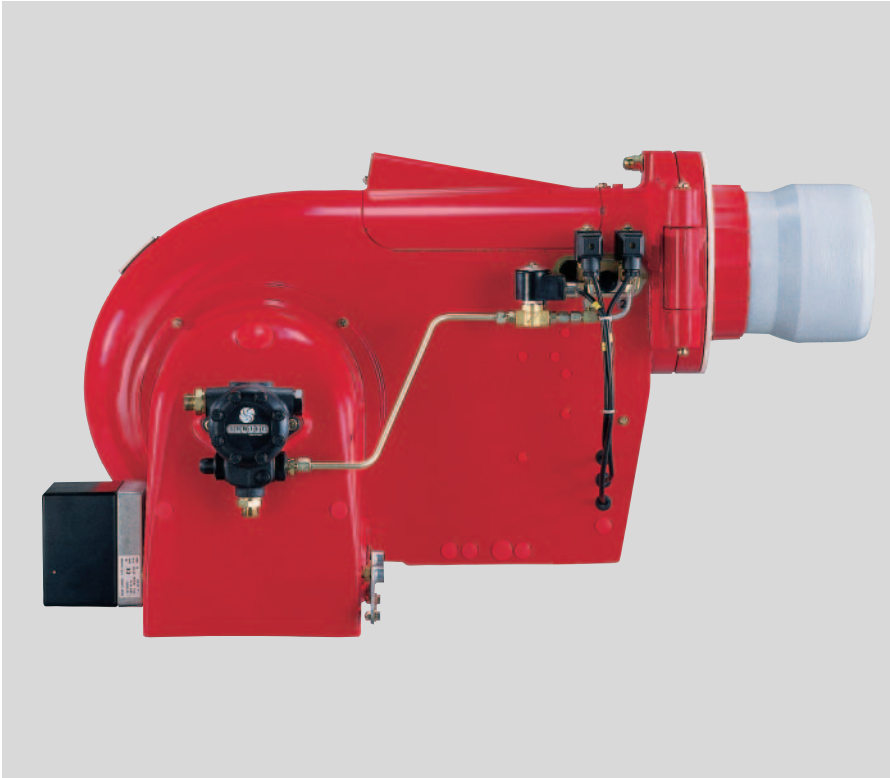
Modulating



Scope of delivery

No.2 light oil and No.6 heavy oil burners

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Monarch L light oil burner

Monarch L #2 light oil burner

Two stage burner

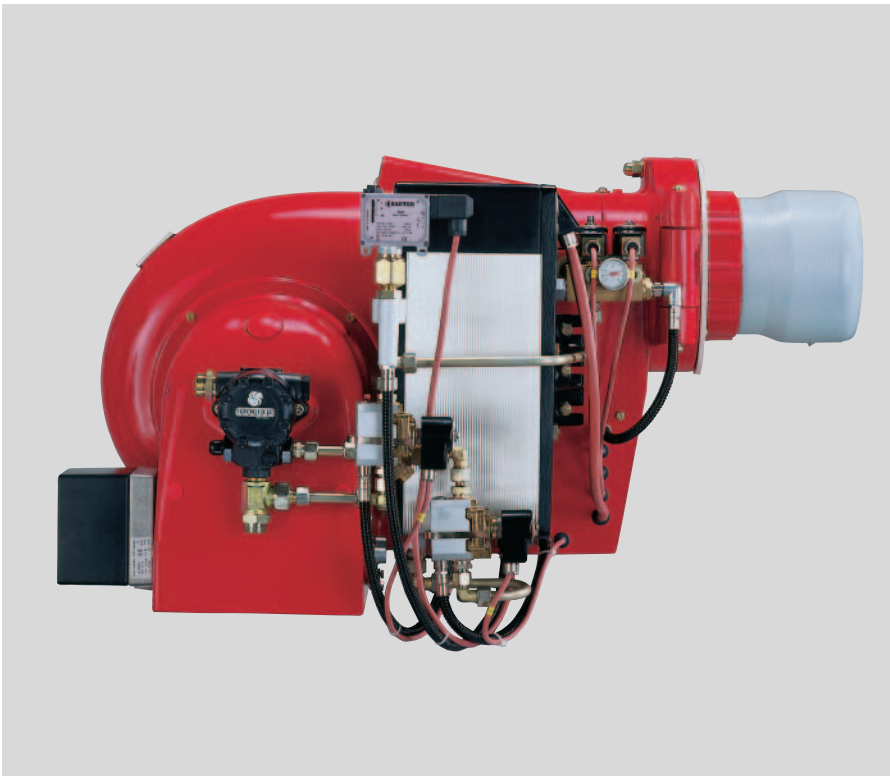
- Burner housing
- Hinged flange with limit switch
- Flange gasket
- Sight glass
- Burner motor
- Fan wheel
- Pump
- Two solenoid valves and one safety valve
- Oil hoses
- Nozzle assembly with two nozzles
- Combustion housing
- Air regulation housing with air damper and servomotor
- Ignition unit
- Ignition cable
- Ignition electrodes
- Burner flame safeguard with flame sensor
With or without inbuilt switchgear/ ISG
(see page 6 for ISG version)

Three stage burner

The specification varies from that of the two stage burner as follows:

- Three solenoid valves and one safety valve
- Slow running servomotor
- Nozzle assembly with three nozzles

A separate control panel is required for size 10 burners.



Monarch M/MS heavy oil burner

Monarch M/MS #6 heavy oil burner

Heavy oil burners also include:

- Oil preheater
- Recirculation nozzle assembly
- Thermometer
- Heating cartridges (in the nozzle assembly, distributor piece, pressure switch and solenoid valves)
- ROB regulator
- Pressure switch
- Filter
- Stainless steel oil hoses

A separate control panel is required for size MS9 Z burners.

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Monarch RL #2 light oil burner

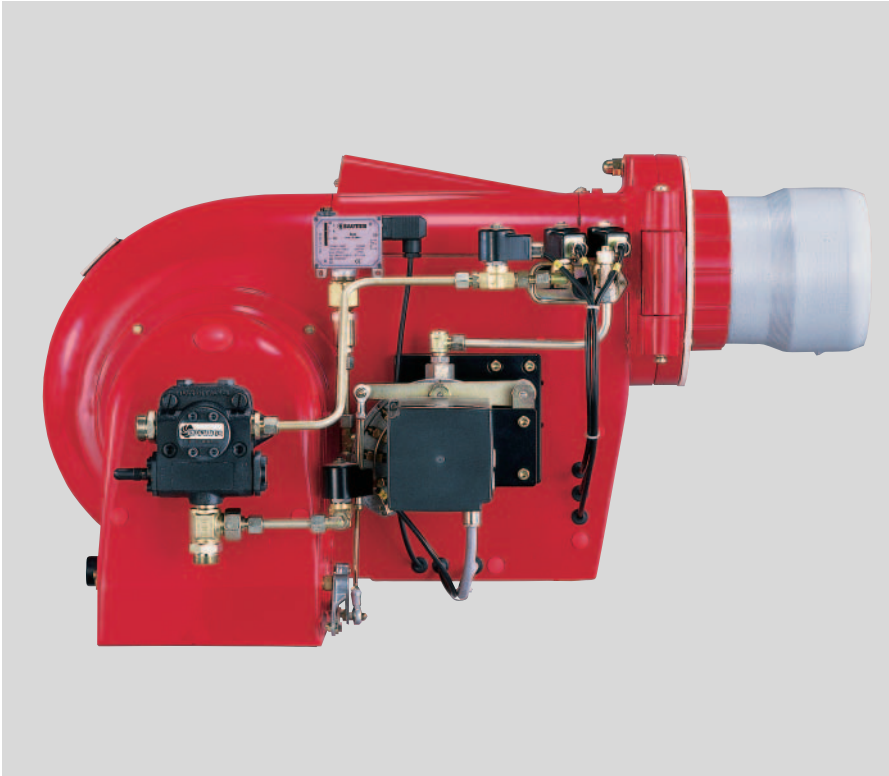
Regulating, sliding two stage and modulating burners

The specification varies from that of the two stage burner in the following points:

- Servomotor for oil / air regulation with regulating cam
- Oil regulator
- Nozzle assembly with spill back nozzle
- Two control solenoid valves
- Pressure switch
- Panel mounted burner flame safeguard. Inbuilt switchgear not available.

Modulating burners also require an optional panel mounted modulating controller.

A separate control panel is required for burner sizes RL5 to RL11.



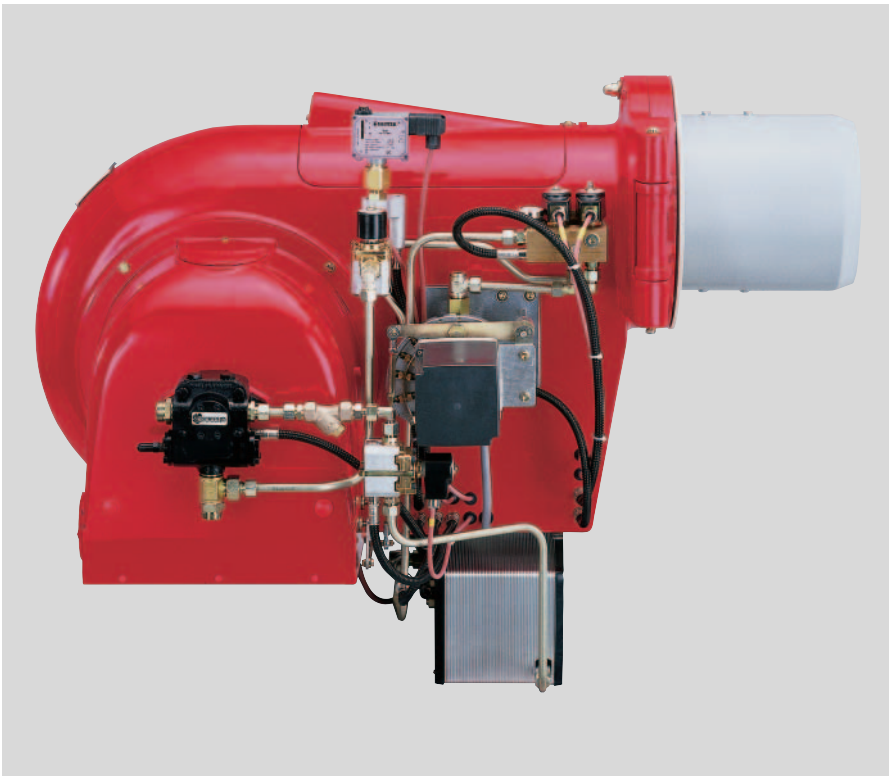
Monarch RL light oil burner

Monarch RMS #6 heavy oil burner

Heavy oil burners also include:

- Oil preheater
- Recirculation nozzle assembly
- Thermometer
- Heating cartridges (in the nozzle assembly, distributor piece, pressure switch and solenoid valves)
- ROB regulator
- Filter
- Stainless steel oil hoses

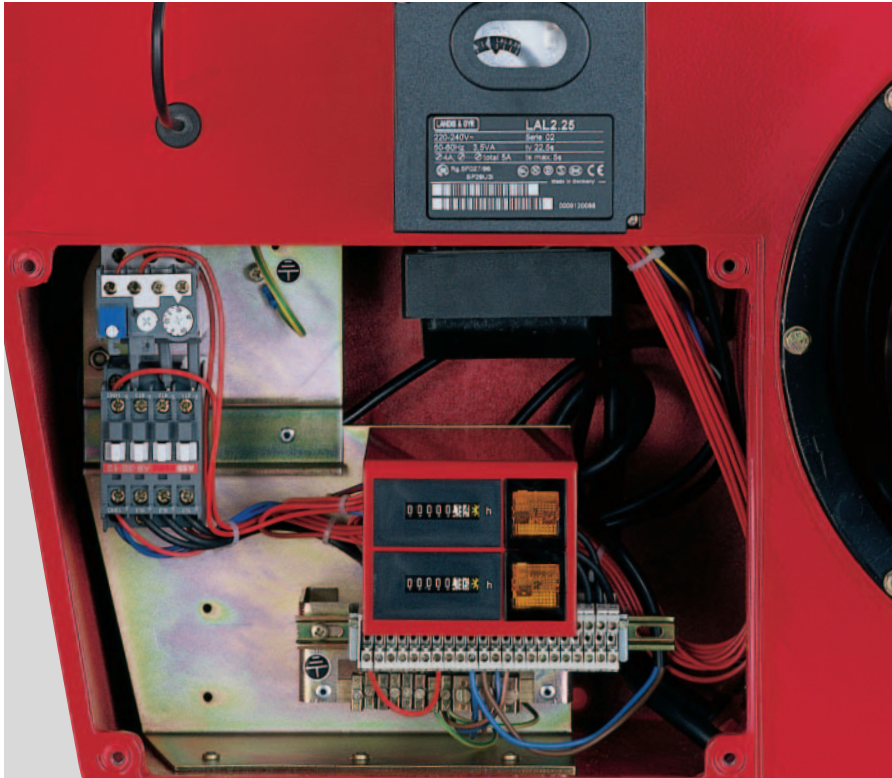
A separate control panel is required for burner sizes RMS7 to RMS11.



Monarch RMS heavy oil burner

Components

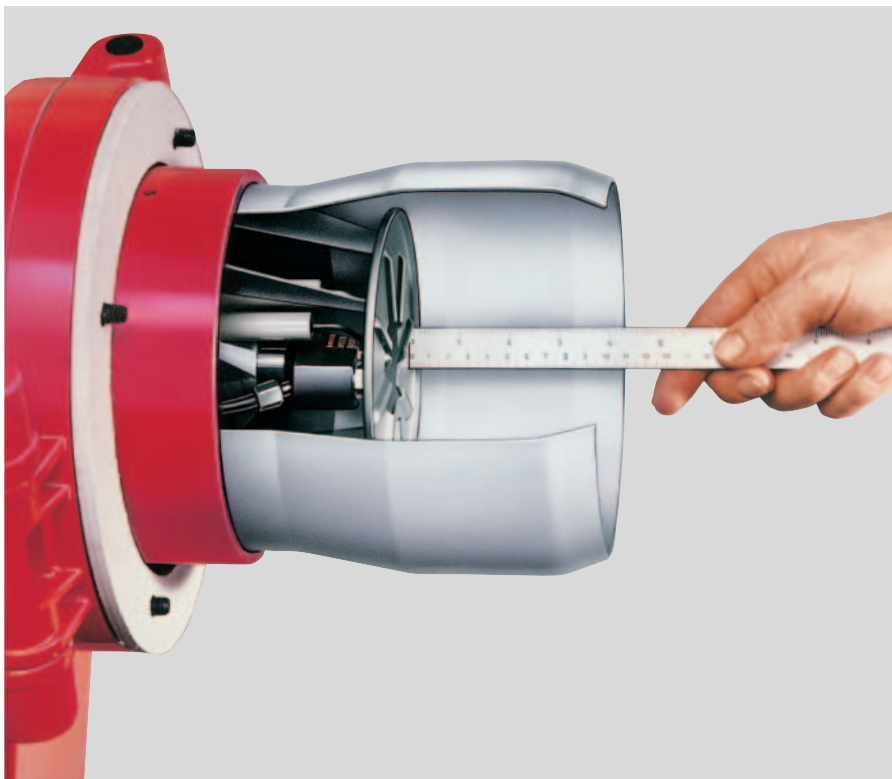
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Complete integral switchgear (ISG) on two and three stage Monarch L type burners

Burners with inbuilt switchgear have all the necessary components for burner operation:

- 1 Stage 1 control switch with lamp
- 1 Stage 2 control switch with lamp
- 1 Contactor
- 1 Overload relay



Adjustable and removable combustion heads

No one boiler is the same as another and yet one burner should perform economically on all boilers. The position of the combustion head and diffuser relative to each other can be adjusted. The burners are this way suited to the combustion chamber conditions.

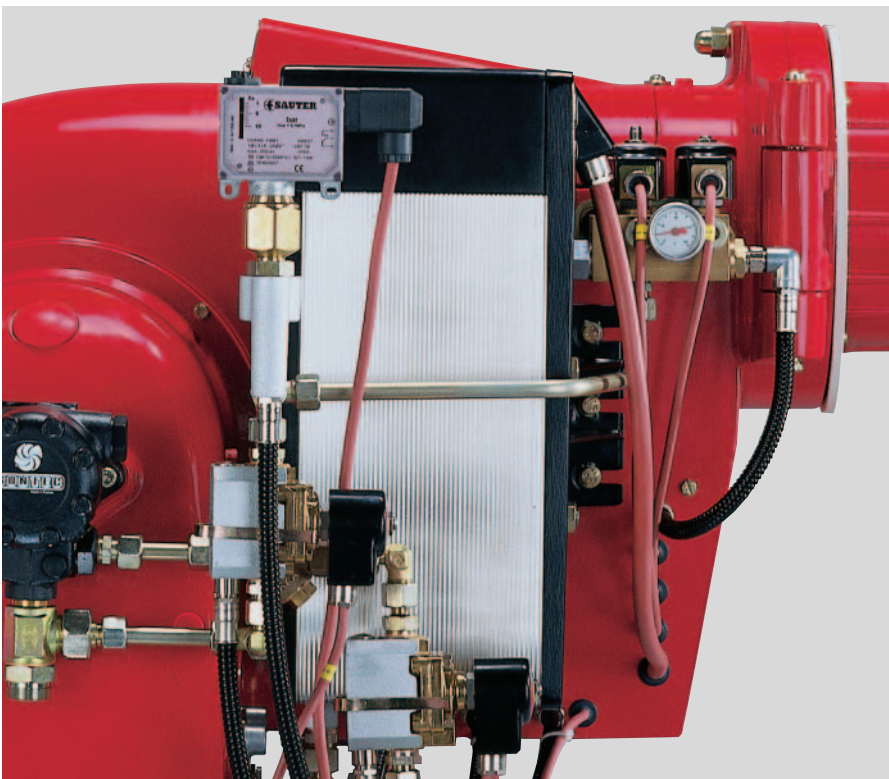
There is a further advantage for burner sizes 9 to 11. With the burner hinged open, the combustion head and combustion head support can be removed through the hinged flange.

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Hinged burner casing

The hinged flange offers many advantages. Combustion head, nozzles and ignition electrodes are easily accessible, which simplifies installation and servicing. The burner can be hinged open once the central screw on the burner flange is removed. The design of the heating appliance may require a combustion head extension (e.g. reverse flame boilers). In this case the burner can be hinged open only after disconnecting the ignition and oil lines.



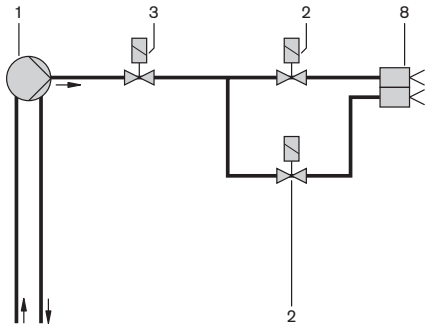
Oil temperature regulation

Heavy oil burners are equipped with an oil preheater (electric or media preheater). The oil is quickly heated to the required atomizing temperature, due to the large heat exchanger's surface combined with a relatively small oil volume. The rapid heat distribution prevents local overheating and carbonization of the oil. Weishaupt manufactures electric and media preheaters as well as combined electric/media preheater assemblies (further information on page 28).

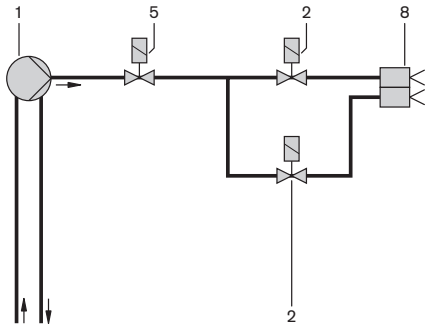
Burner fuel systems

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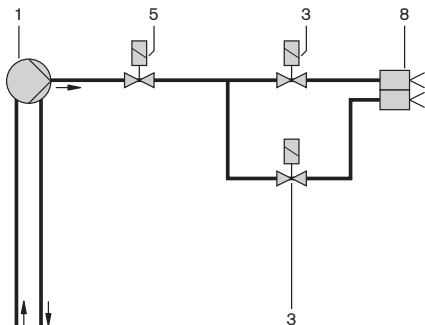
L5Z / L7Z



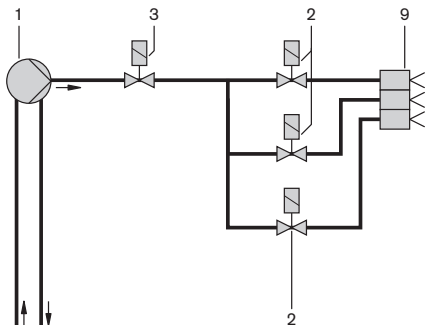
L8Z / L8Z/2



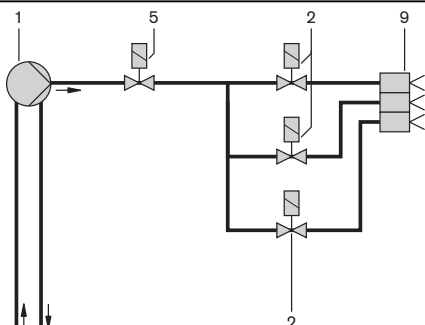
L9Z



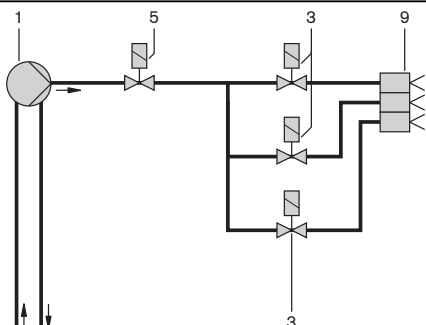
L5T / L7T



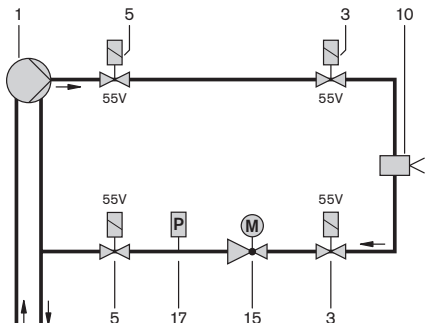
L8T / L8T/2



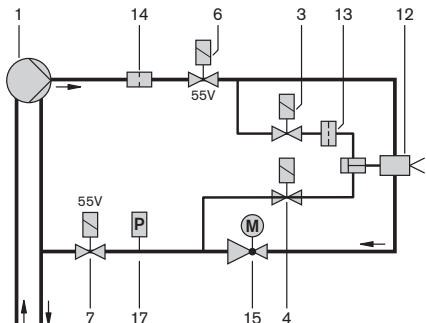
L9T / L10T



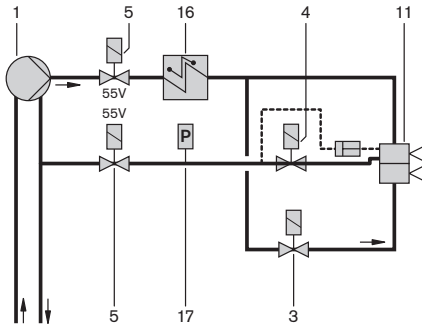
RL5 to RL7



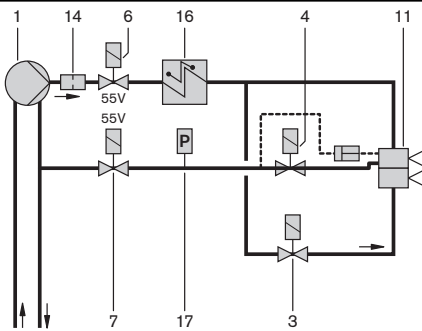
RL8 to RL11



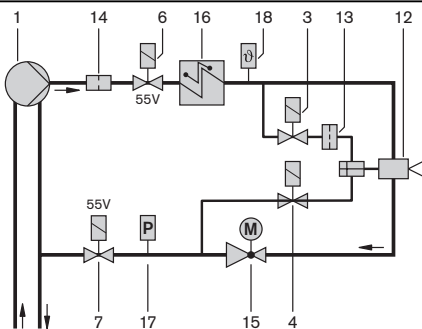
M5Z



MS7Z to MS9Z



RMS7 to RMS11



■ Burner models RL5 - RL7

Both the solenoid valves marked (3) are electrically connected in series, as are both solenoid valves marked (5). Solenoid valves (3) and (5) in the return line are installed against the direction of oil flow.

■ Burner models RL8 - RL11

Solenoid valve (6) in the flow and (7) in the return are electrically connected in series. Solenoid valve (7) in the return is installed against the direction of flow.

■ Burner models M5Z, MS7Z - MS9Z, RMS7 - RMS11

Solenoid valve (5) / (6) in the flow and (5) / (7) in the return are electrically connected in series. Solenoid valve (5) / (7) in the return is installed against the direction of flow.

Index

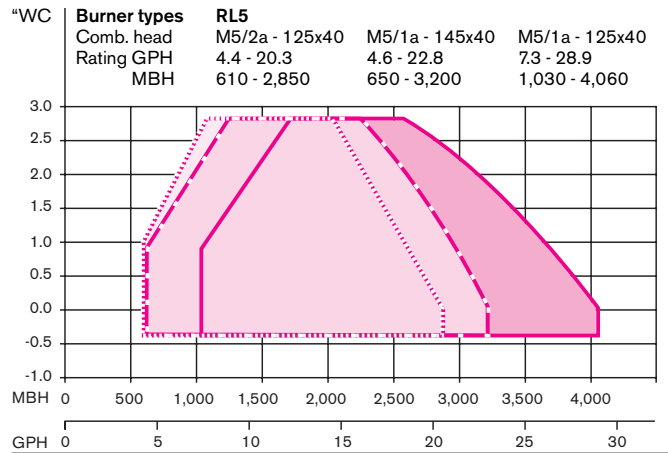
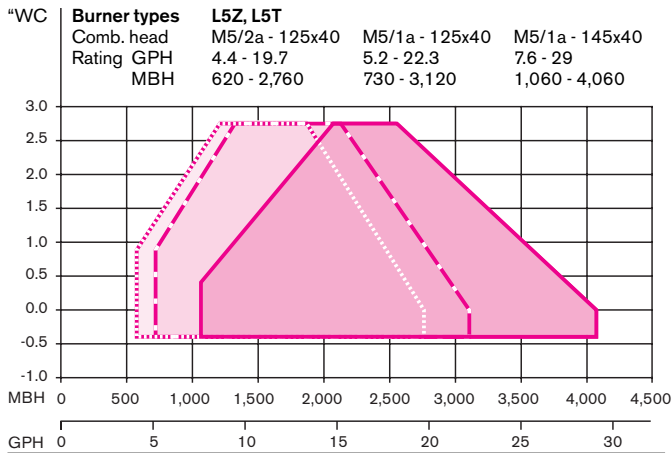
- | | | |
|----|--|-----------|
| 1 | Pump | |
| 2 | Solenoid valve
type 7121ZBG1KRTO
(normally closed) G 1/8 | Coil 9 W |
| 3 | Solenoid valve type 121K2423
(normally closed) G 1/8 | Coil 19 W |
| 4 | Solenoid valve type 122K9321
(normally open) G 1/8 | Coil 19 W |
| 5 | Solenoid valve type 121K6220
(normally closed) G 1/4 | Coil 20 W |
| 6 | Solenoid valve type 321H2322
(normally closed) G 3/8 | Coil 20 W |
| 7 | Solenoid valve type 121G2320
(normally closed) G 3/8 | Coil 20 W |
| 8 | Two stage oil nozzle assembly (without integral shut off device) | |
| 9 | Three stage oil nozzle assembly (without integral shut off device) | |
| 10 | R nozzle assembly (without integral shut off device) | |
| 11 | Two stage M nozzle assembly (with integral shut off device) | |
| 12 | R nozzle assembly (with integral shut off device in flow and return) | |
| 13 | Restricting orifice | |
| 14 | Filter | |
| 15 | Oil regulator | |
| 16 | Oil preheater | |
| 17 | 0 - 10 bar (0 - 145PSI) pressure switch in return (set to 5 bar (72.5PSI) for #2 oil, 7 bar (101.5PSI) for #6 oil) | |
| 18 | Temperature sensor | |

Burner selection - rating / combustion chamber pressure

Monarch types L and RL

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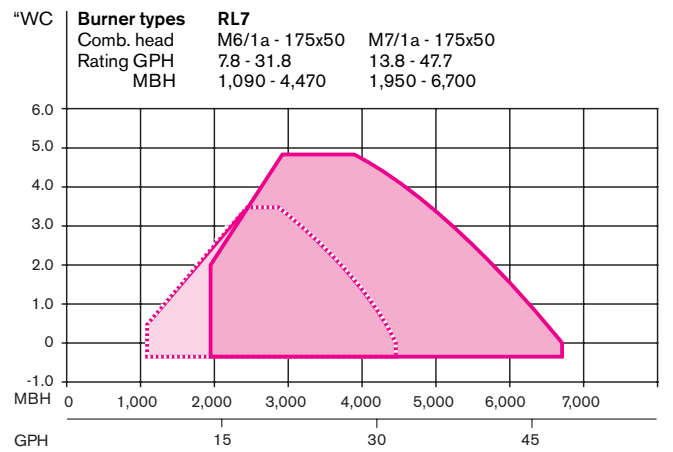
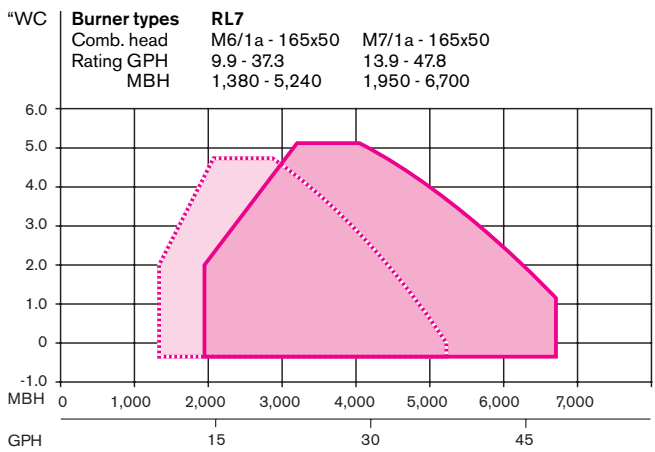
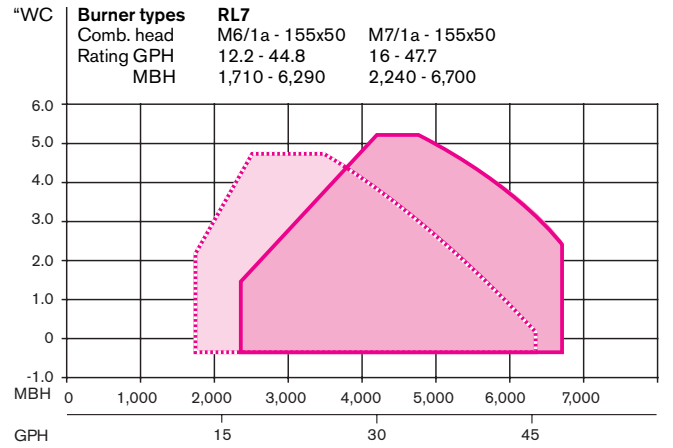
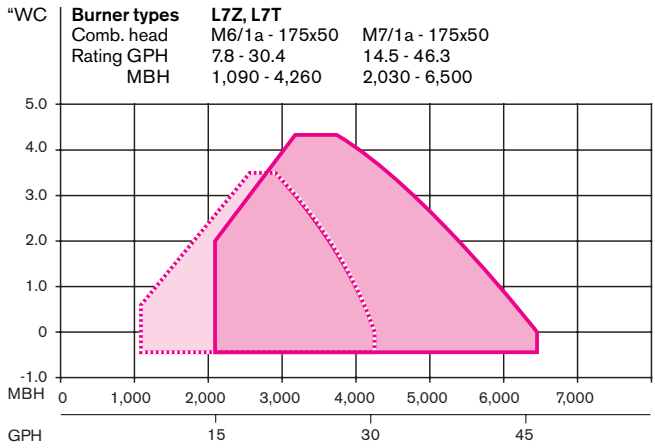
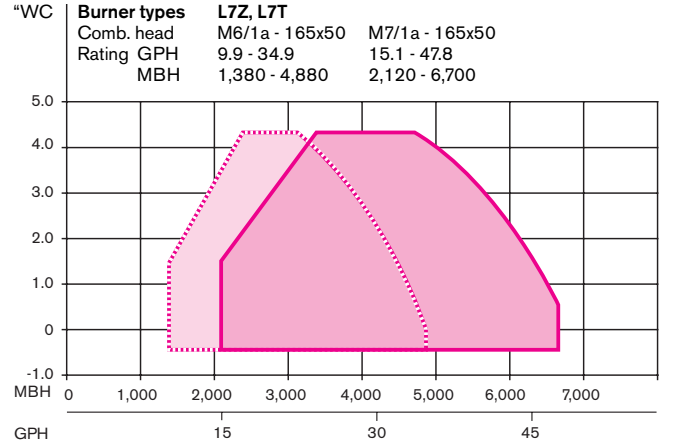
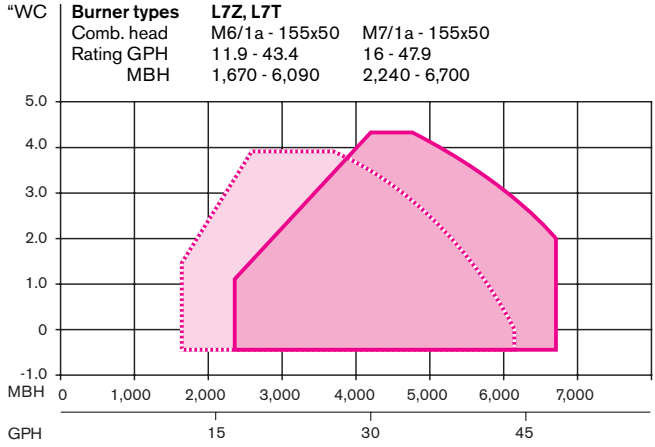
Size 5



The capacities in relation to combustion chamber resistances are maximum values, which were measured on test flame tubes.

All ratings data given relate to an air temperature of 68°F (20°C) and an installation height above sea level of 1,640 ft (500 m).

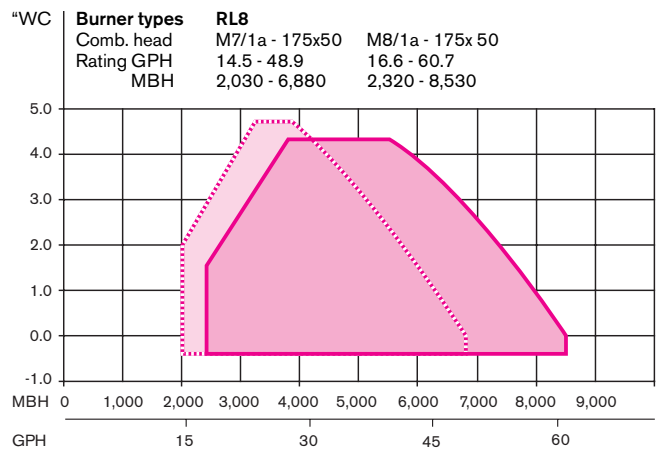
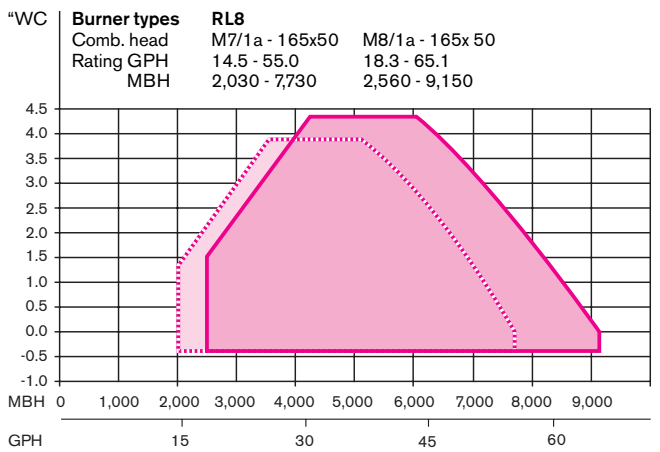
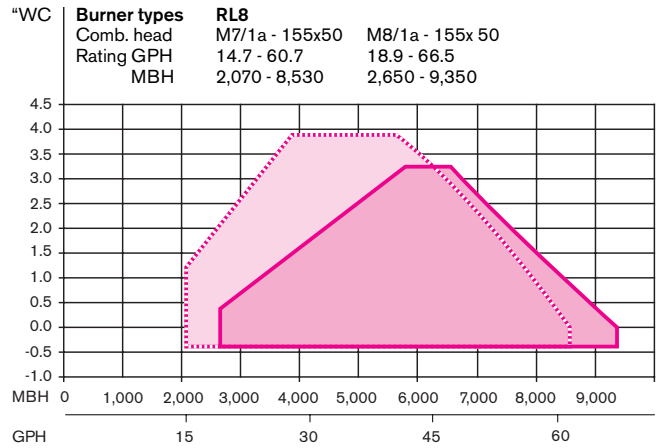
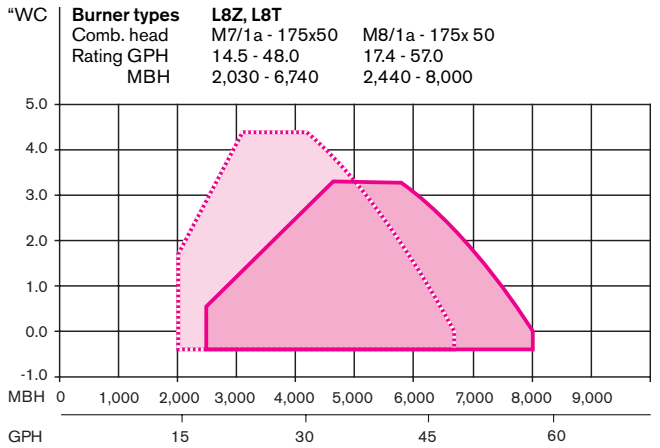
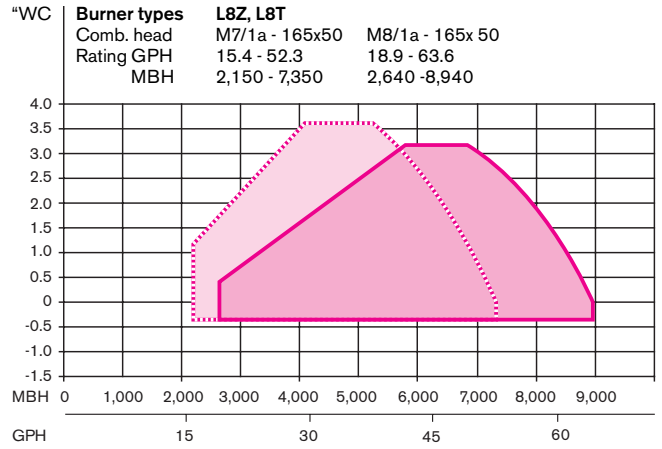
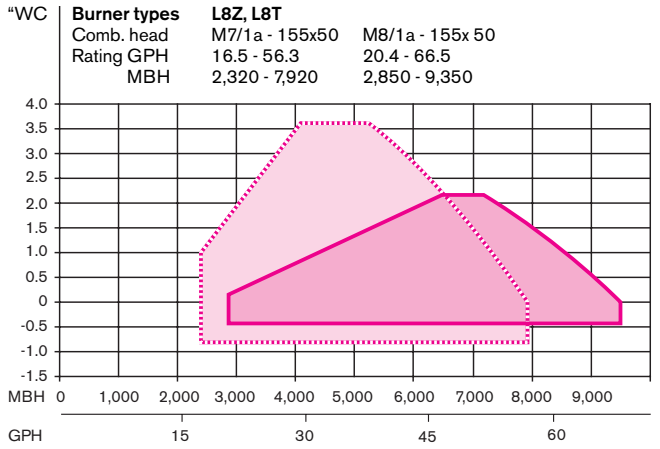
Size 7



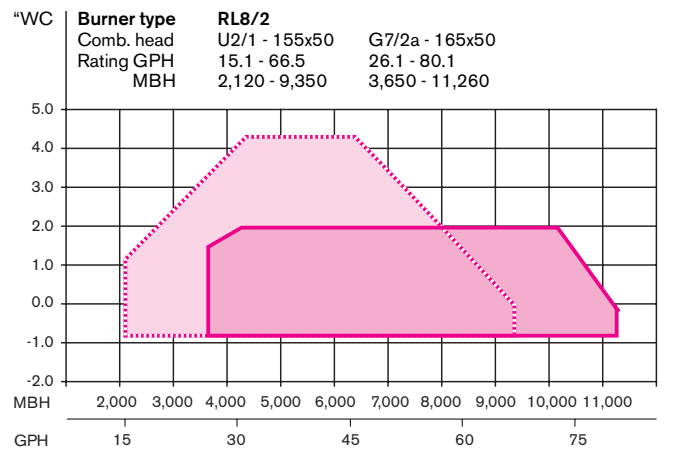
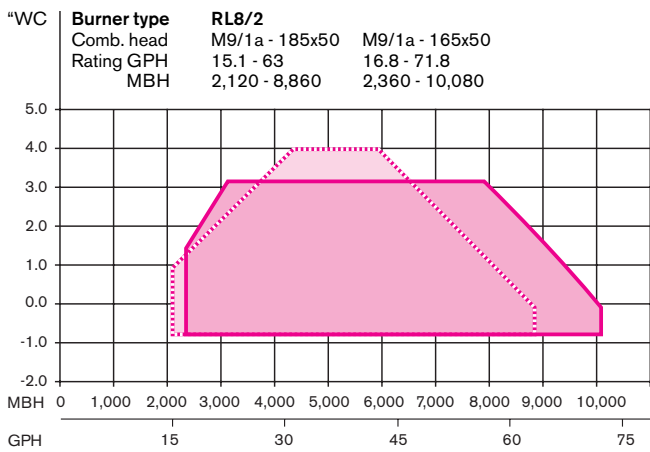
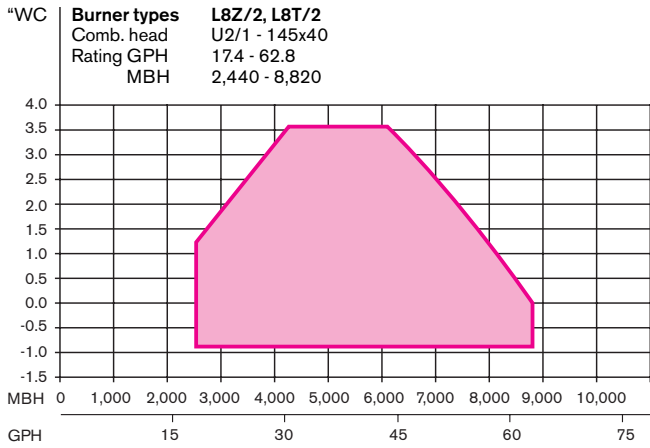
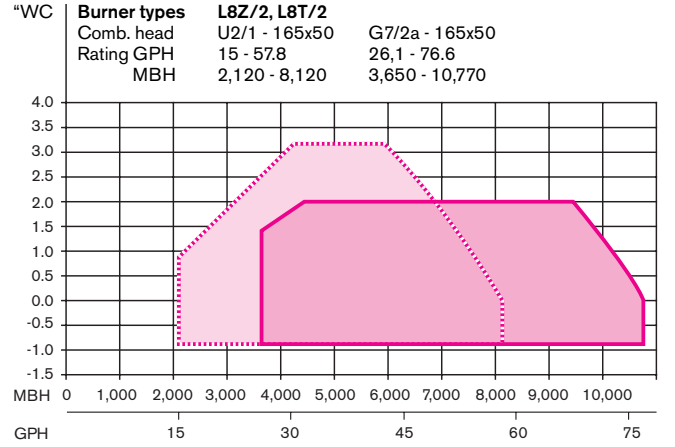
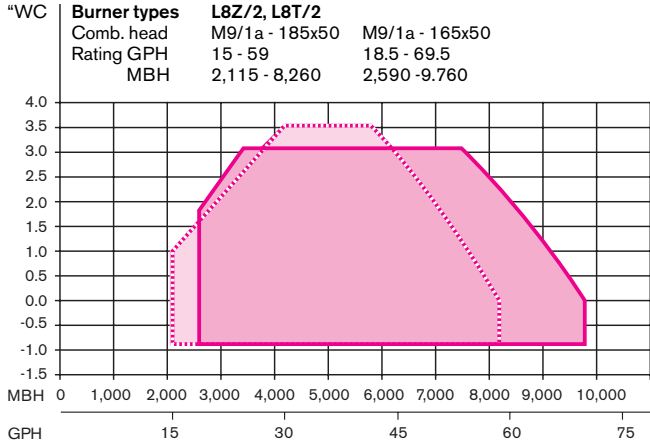
Burner selection - rating / combustion chamber pressure Monarch models L and RL

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Size 8



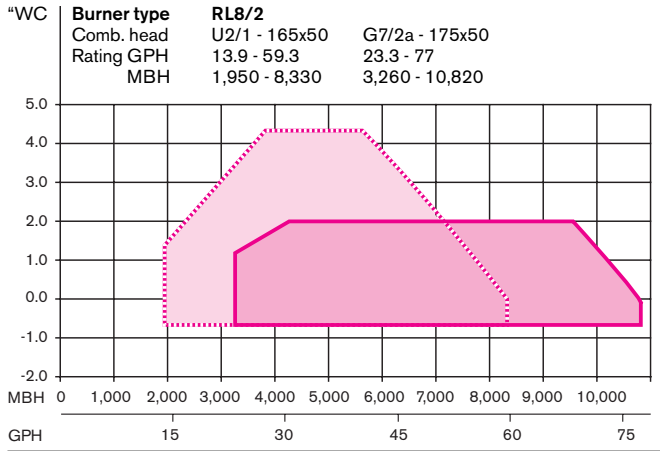
Size 8/2



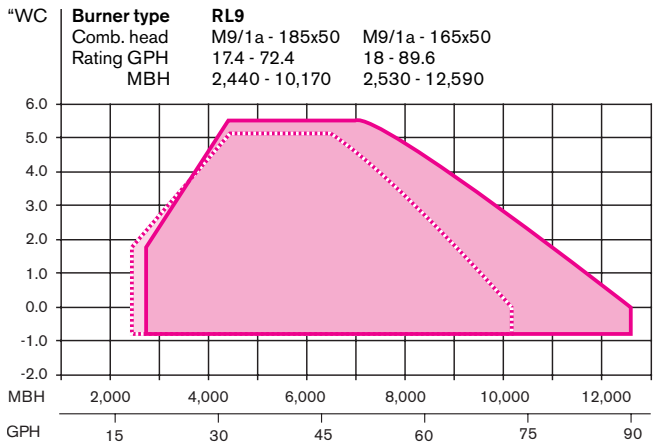
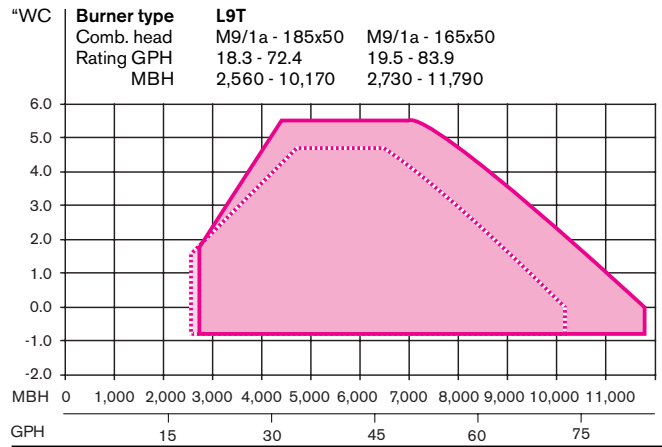
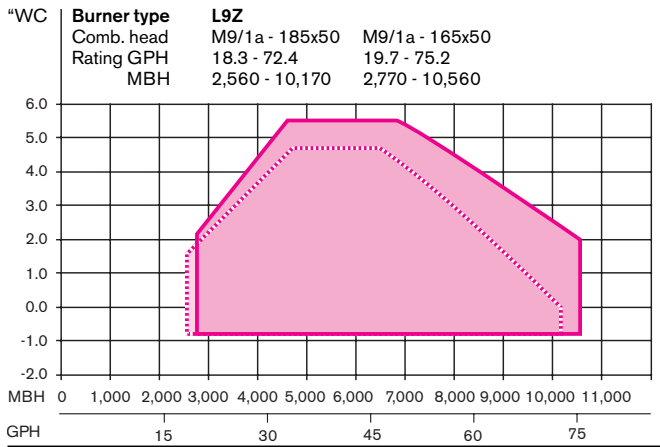
Burner selection - rating / combustion chamber pressure Monarch models L and RL

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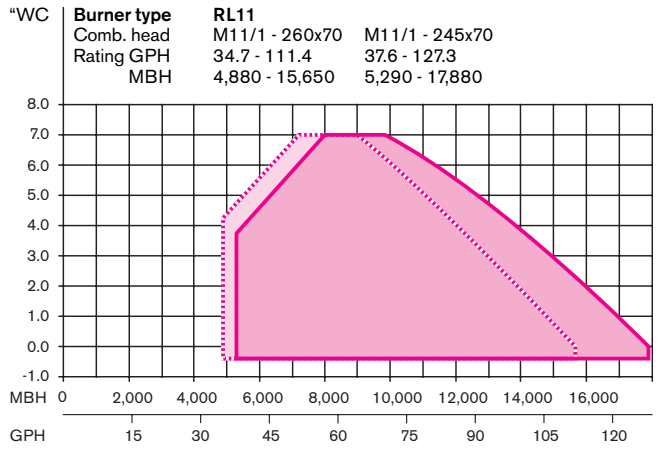
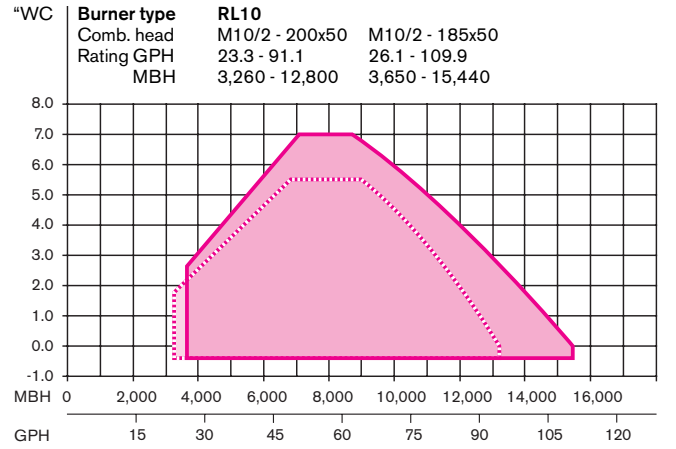
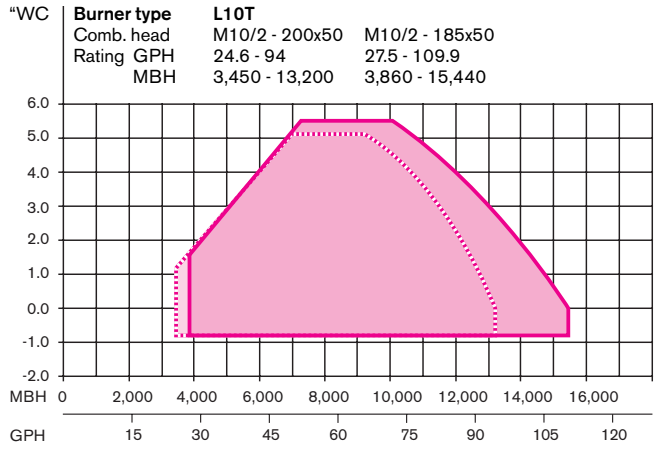
Size 8/2



Size 9



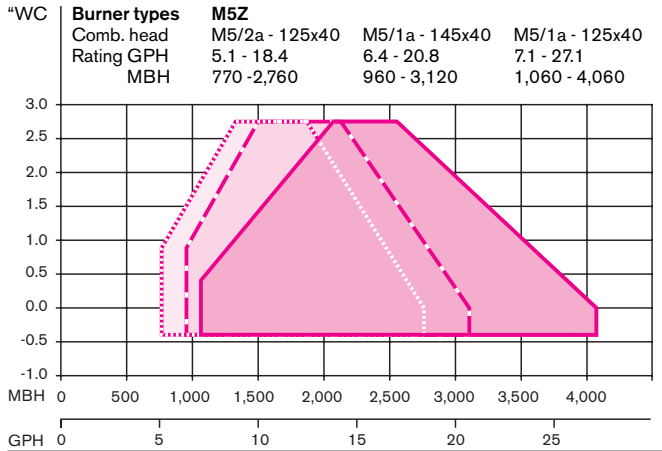
Sizes 10 and 11



Burner selection - rating / combustion chamber pressure Monarch models M/MS and RMS

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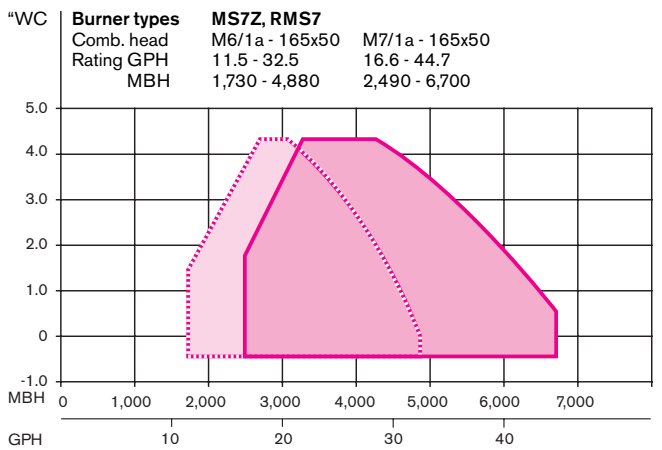
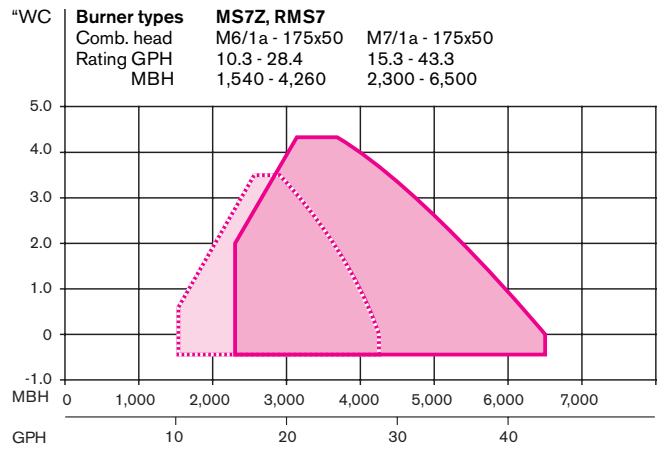
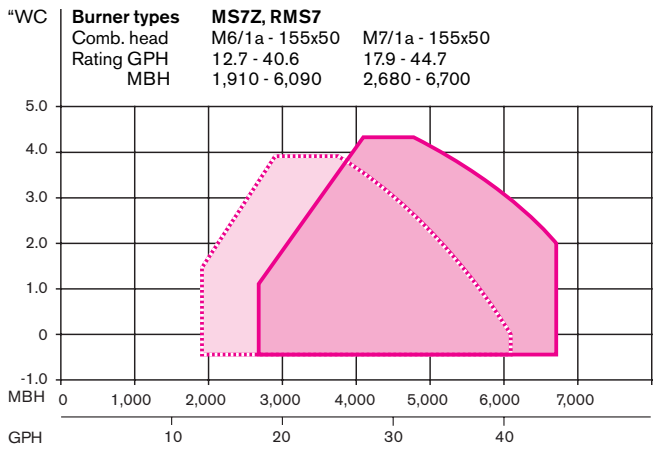
Size 5



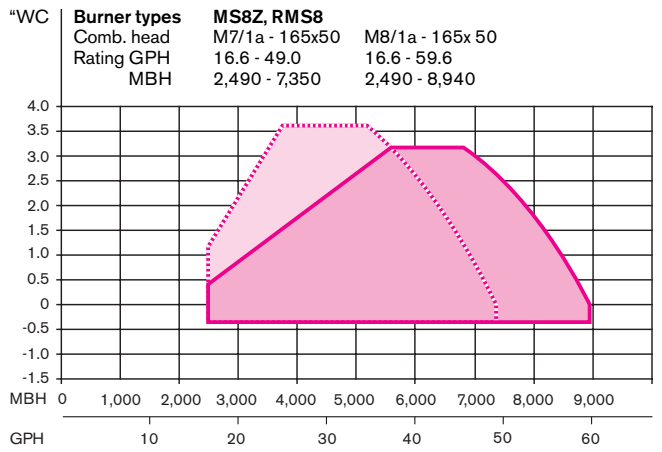
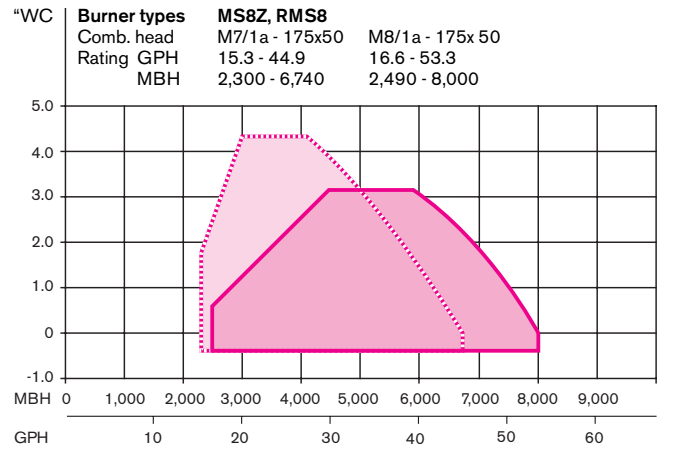
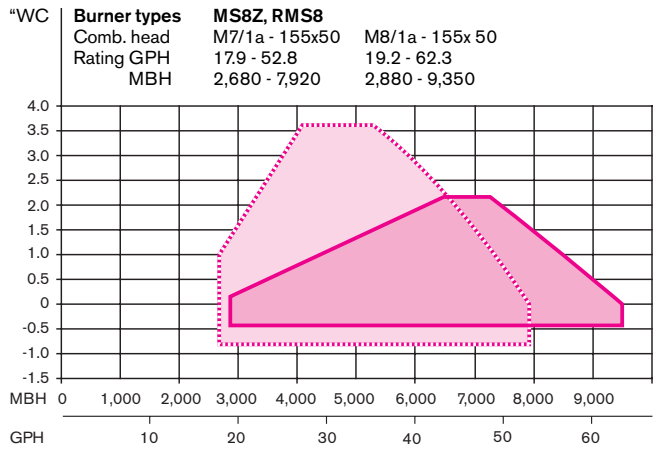
Combustion of heavy oil

For MS and RMS heavy oil burners the oil throughput in relation to nominal rating must not be less than 27.5 GPH. It is also recommended that sliding two stage RMS type burners are used when burning this fuel.

Size 7



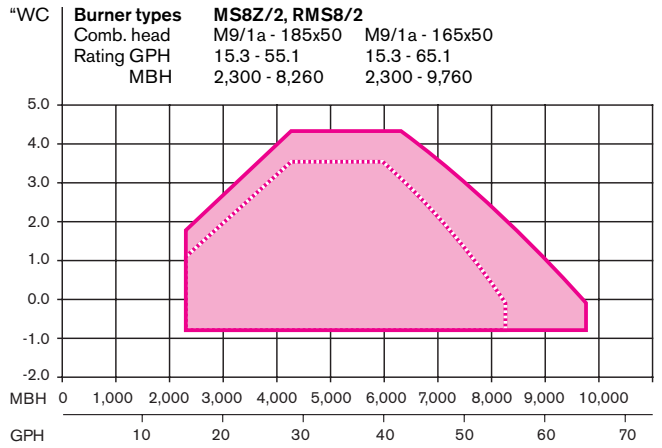
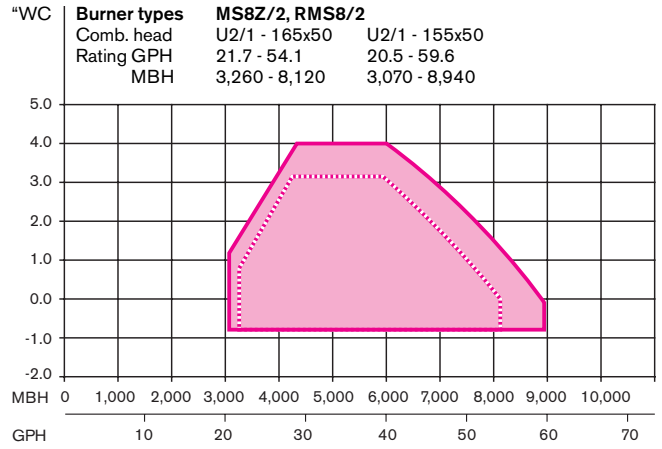
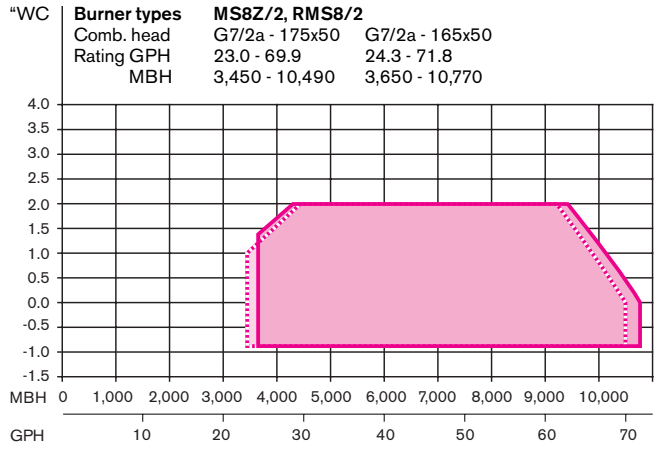
Size 8



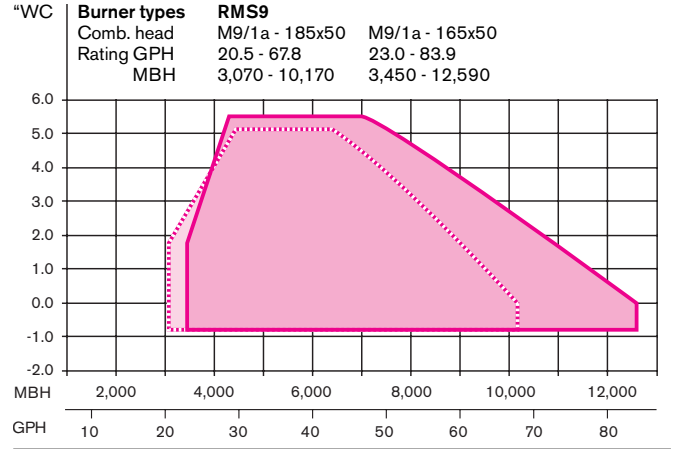
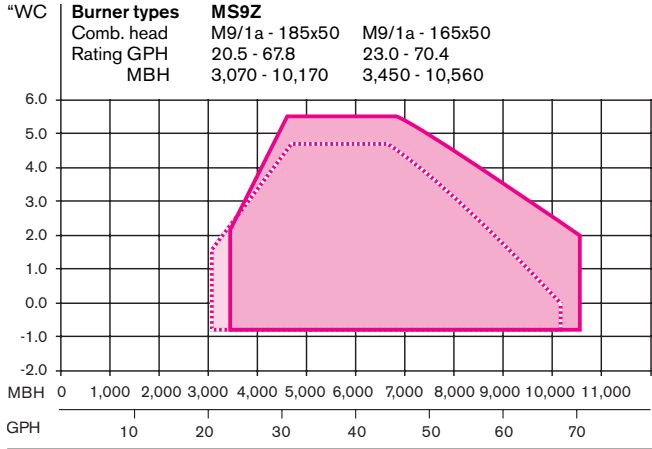
Burner selection - rating / combustion chamber pressure Monarch models M/MS and RMS

–weishaupt–

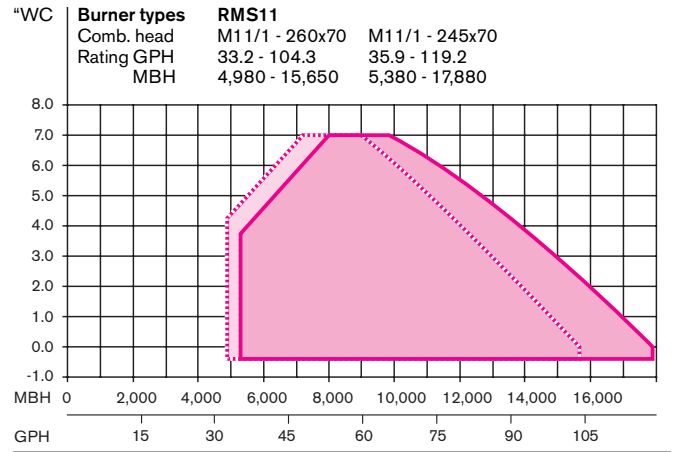
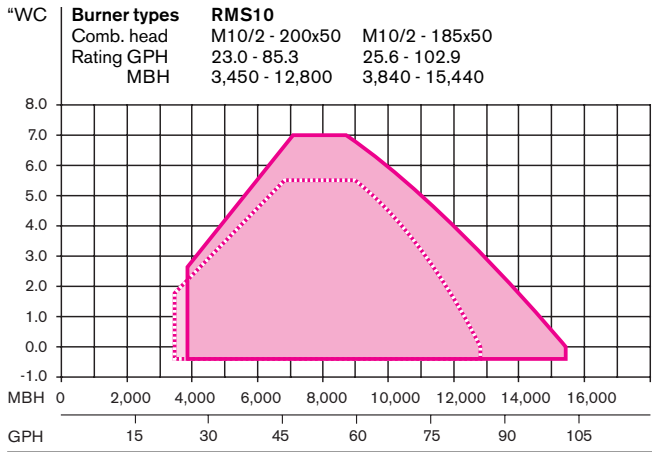
Size 8/2



Size 9



Sizes 10 and 11



Technical data

Monarch models L and RL

–weishaupt–

Burner model	Version	ISG version Order No.	Standard version Order No.	Burner flame safeguard	Pump	Fan wheel	Servomotor
L5Z	D	611 564 01	611 564 02	LAL2...	J6	Ø 248x100	-w- 1055/23
L7Z	D	611 764 01	611 764 02	LAL 2...	J6	Ø 268x100	-w- 1055/23
L8Z	D	611 864 01	611 864 02	LAL 2...	J6/J7 ^①	Ø 268x100	-w- 1055/23
L8Z/2	D	611 866 01	611 866 02	LAL 2...	J6/J7/TA2 ^{①②}	Ø 268x100	-w- 1055/23
L9Z	D	611 964 01	611 964 02	LAL 2...	J6/J7/TA2 ^{①②}	Ø 330x100	-w- 1055/23
L5T	D	611 594 01	611 594 02	LAL 2...	J6	Ø 248x100	-w- 1055/80
L7T	D	611 794 01	611 794 02	LAL 2...	J6	Ø 268x100	-w- 1055/80
L8T	D	611 894 01	611 894 02	LAL 2...	J6/J7 ^①	Ø 268x100	-w- 1055/80
L8T/2	D	611 896 01	611 896 02	LAL 2...	J6/J7/TA2 ^{①②}	Ø 268x100	-w- 1055/80
L9T	D	611 994 01	611 994 02	LAL 2...	J6/J7/TA2 ^{①②}	Ø 330x100	-w- 1055/80
L10T	D	–	681 094 02	LAL 2...	J7/TA2 ^②	Ø 345x100	-w- 1055/80
RL5	ZMD	–	611 574 03	LAL 2...	J6	Ø 248x100	SQM [®]
RL7	ZMD	–	611 774 03	LAL 2...	TA2	Ø 268x100	SQM [®]
RL8	ZMD	–	611 874 02	LAL 2...	TA3	Ø 268x100	SQM [®]
RL8/2	ZMD	–	611 876 02	LAL 2...	TA3	Ø 268x100	SQM [®]
RL9	ZMD	–	611 974 02	LAL 2...	TA3	Ø 330x100	SQM [®]
RL10	ZMD	–	681 074 02	LAL 2...	TA3	Ø 345x100	SQM [®]
RL11	ZMD	–	681 174 02	LAL 2...	TA4	Ø 345x100	SQM [®]

Voltages and frequencies

As standard the burners are suitable for three phase AC available with various voltages from 208 - 600V, 60 Hz. Other voltages and frequencies available on request.

Burner motor standard version

Insulation class F, IP54 protection.

Modulating burners

The modulating burners are based on the sliding two stage burners. The modulating feature is possible by utilizing a suitable modulating controller which is to be installed in the remote control panel (also see page 3).

Standard burners without integral switchgear (ISG)

On burners without integral switchgear, the burner flame safeguard is supplied loose. Optionally, it can also be mounted on the burner. A terminal strip is provided in both cases.

Burner motor 60 Hz, 3500 rpm	Motor fuse/ Overload	Oil hoses DN Length inch (mm)	Hose side /Installation side connection	Hose side /Installation side connection	Approx. weight lbs (kg)
D90/90-2; 3~460 V; 2.1 HP; 3.4 A	6A / 1.5-6.3A ^④ 2.8-4.0A ^⑤	13 39" (1000)	G1/2"	G1/2"	117 (53)
D112/110 - 2/1 3~460 V; 4.9 HP; 6.3 A	15A / 5-18.9A ^④ 6.0-8.5A ^⑤	13 39" (1000)	G1/2"	G1/2"	161 (73)
D112/140 - 2/1 3~460 V; 7.3 HP; 9.5 A	20A / 5-18.9A ^④ 4.5-6.5A ^⑤	13 39" (1000)	G1/2"	G1/2"	172 (78)
D112/140 - 2/1 3~460 V; 7.3 HP; 9.5 A	20A / 5-18.9A ^④ 4.5-6.5A ^⑤	13 39" (1000)	G1/2"	G1/2"	179 (81)
D132/120-2a; 3~460 V; 10 HP; 13 A	30A / 5.0-18.9A ^④ 7.5-11.0A ^⑤	13 39" (1000)	G1/2"	G1/2"	276 (125)
D90/90-2; 3~460 V; 2.1 HP; 3.4 A	6A / 1.5-6.3A ^④ 2.5-4.0A ^⑤	13 39" (1000)	G1/2"	G1/2"	117 (53)
D112/110 - 2/1 3~460 V; 4.9 HP; 6.3 A	15A / 5-18.9A ^④ 6.0-8.5A ^⑤	13 39" (1000)	G1/2"	G1/2"	161 (73)
D112/140 - 2/1 3~460 V; 7.3 HP; 9.5 A	20A / 5-18.9A ^④ 4.5-6.5A ^⑤	13 39" (1000)	G1/2"	G1/2"	172 (78)
D112/140 - 2/1 3~460 V; 7.3 HP; 9.5 A	20A / 5-18.9A ^④ 4.5-6.5A ^⑤	13 39" (1000)	G1/2"	G1/2"	179 (81)
D132/120-2a; 3~460 V; 10 HP; 13 A	30A / 5.0-18.9A ^④ 7.5-11.0A ^⑤	13 39" (1000)	G1/2"	G1/2"	276 (125)
D132/120-2; 3~460 V; 12.7 HP; 17 A	35A / 7.5-11.0A ^⑤	13/20 39" (1000)	G1/2"/M30 x 1.5	G1/2"/G1"	302 (137)
D90/90-2; 3~460 V; 2.1 HP; 3.4 A	2.5-4.0A ^⑤	13 39" (1000)	G1/2"	G1"	132 (60)
D112/110-2/1; 3~460 V; 4.9 HP; 6.3 A	6.0-8.5A ^⑤	20 39" (1000)	M 30 x 1.5	G1"	177 (80)
D112/140-2/1; 3~460 V; 7.3 HP; 9.5 A	4.5-6.5A ^⑤	20 39" (1000)	M 30 x 1.5	G1"	188 (85)
D112/140-2/1; 3~460 V; 7.3 HP; 9.5 A	4.5-6.5A ^⑤	20 39" (1000)	M 30 x 1.5	G1"	196 (89)
D132/120-2a; 3~460 V; 10 HP; 13 A	7.5-11.0A ^⑤	20 39" (1000)	M 30 x 1.5	G1"	292 (132)
D132/120-2; 3~ 460V; 12.7 HP; 17 A	7.5-11.0A ^⑤	20 39" (1000)	M 30 x 1.5	G1"	302 (137)
D132/150-2; 3~ 460V; 17.3 HP; 25 A	13.0-19.0A ^⑤	25 39" (1300)	M 38 x 1.5	G1"	430 (195)

① For burners over 40 GPH (140 kg/h) oil:
Pump J7 in lieu of J6 (see page 24)

② For burners over 63 GPH (220 kg/h) oil:
Pump TA2 in lieu of J7 (see page 24)

③ For sliding two stage (ZM) burners:
SQM 10.15561 servomotor (20 sec)
For modulating (M) burners:
SQM 10.16561 servomotor (42 sec)

④ With integral switchgear
Prefusing/overload relay
D.O.L. start

⑤ Without integral switchgear
Motor protection switch
D.O.L or ∇ start

Note: If the supply pressure is > 29 PSI (2 bar), pump E6 instead of J6,
or E7 instead of J7 should be used.

Technical data

Monarch models M/MS and RMS

–weishaupt–

Burner type	Version	ISG version Order No.	Standard version Order No.	Burner flame safeguard	Pump	Fan wheel	Oil preheater	Servomotor
MSZ	D	612 564 03	612 564 04	LAL2...	E4	Ø 248x100	EV2B/4.5kW	-w- 1055/23
MS7Z	D	612 764 03	612 764 04	LAL 2...	E6	Ø 268x100	EV2D/13.2kW [®]	-w- 1055/23
MS8Z	D	612 864 03	612 864 04	LAL 2...	E7	Ø 268x100	EV2D/13.2kW	-w- 1055/23
MS8Z/2	D	612 866 03	612 866 04	LAL 2...	E7/ TA2 [®]	Ø 268x100	EV2D/13.2kW [®]	-w- 1055/23
MS9Z	D	–	612 964 04	LAL 2...	E7/ TA2 [®]	Ø 330x100	EV2D/13.2kW [®]	-w- 1055/23
RMS7	ZMD	–	612 774 03	LAL 2...	TA2	Ø 268x100	EV2D/13.2kW [®]	SQM [®]
RMS8	ZMD	–	612 874 04	LAL 2...	TA3	Ø 268x100	EV2D/13.2kW	SQM [®]
RMS8/2	ZMD	–	612 876 04	LAL 2...	TA3	Ø 268x100	EV2D/13.2kW [®]	SQM [®]
RMS9	ZMD	–	612 974 04	LAL 2...	TA3	Ø 330x100	EV2D/13.2kW ^{®④}	SQM [®]
RMS10	ZMD	–	682 074 04	LAL 2...	TA3	Ø 345x100	EV2D/13.2kW ^{®④}	SQM [®]
RMS11	ZMD	–	682 174 03	LAL 2...	TA4	Ø 345x100	WEV3/22.4kW	SQM [®]

Voltages and frequencies

As standard the burners are suitable for three phase AC available with various voltage from 208 - 600V, 60 Hz. Other voltages and frequencies available on request.

Burner motor standard version

Insulation class F, IP54 protection.

Combustion of heavy oil

The oil throughput of **type MS and RMS** heavy oil burners, referenced to the nominal capacity, must be no less than 27.5 GPH (100 kg/h). Furthermore the use of RMS type burners is recommended when combusting this fuel.

RMS type burners

For the combustion of residual oil with a viscosity in excess of 50 cSt (50 mm²/s) at 212F (100°C) please enquire.

Modulating burners

The modulating burners are based on the sliding two stage burners. The modulating feature is possible by utilizing a suitable modulating controller which is to be installed in the remote control panel (also see page 3).

Burner motor 60 Hz, 3500 rpm	Motor fuse/ Overload	Oil hoses DN Length inch (mm) Flow / Return	Hose side / connection	Installation side connection	Approx. weight lbs (kg)
D90/90-2; 3~460 V; 2.1 HP; 3.4 A	6A / 1.5-6.3A ^⑥ 2.8-4.0A ^⑦	12 39/ 27" (1000 / 700)	G1/2"	G1/2"	150 (68)
D112/110 - 2/1 3~460V; 4.9 HP; 6.3 A	15A / 5-18.9A ^⑥ 6.0-8.5A ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	208 (94)
D112/140 - 2/1 3~460V; 7.3 HP; 9.5 A	20A / 5-18.9A ^⑥ 4.5-6.5A ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	247 (112)
D112/140 - 2/1 3~460V; 7.3 HP; 9.5 A	20A / 5-18.9A ^⑥ 4.5-6.5A ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	254 (115)
D132/120-2a; 3~460V; 10 HP; 13 A	30A/7.5-11.0A ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	318 (144)
D112/110 - 2/1; 3~460V; 4.9 HP; 6.3 A	6.0-8.5A ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	245 (111)
D112/140 - 2/1; 3~460V; 7.3 HP; 9.5 A	4.5-6.5 ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	265 (120)
D112/140 - 2/1; 3~460V; 7.3 HP; 9.5 A	4.5-6.5 ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	274 (124)
D132/120-2a; 3~460V; 10 HP; 13 A	7.5-11.0A ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	386 (175)
D132/120-2; 3~460V; 12.7 HP; 17 A	7.5-11.0A ^⑦	20 51/ 39" (1300 / 1000)	M 30 x 1.5	G1"	398 (180)
D132/150-2; 3~460V; 17.3 HP; 25 A	13.0-19.0A ^⑦	25 59/ 45" (1500 / 1150)	M 38 x 1.5	G1"	540 (245)

① For capacity over 72 GPH (250 kg/h) oil : Pump TA2 in lieu of J7

② For viscosity ≤ 152 cSt (152mm²/s) at 122F (50°C): Oil preheater EV2C

③ For burners over 75 GPH (270 kg/h) oil: Oil preheater WEV2.2 in lieu of EVD2D - see special equipment.

④ For burners over 82 GPH (300 kg/h) oil: Oil preheater WEV3 in lieu of WEV2.2 - see special equipment.

⑤ For sliding two stage (ZM) burners: SQM 10.15561 servomotor (20 sec)
For modulating (M) burners: SQM 10.16561 servomotor (42 sec)

⑥ With integral switchgear Prefusing/overload relay D.O.L. start

⑦ Without integral switchgear Motor protection switch D.O.L and YΔ start

Special equipment

Monarch L, M and MS, two and three stage

–weishaupt–

No.	Description		5 Order No.	7 Order No.
1	Hours counter [®] in integral switchgear	1 x L...Z 2 x L...Z 1 x L...T	110 011 75 110 001 07 110 014 40	110 011 76 110 001 08 110 013 43
2	Pump	L...Z+T	J7 in lieu of J6 TA2 in lieu of J6	– –
		L...T	TA2 in lieu of J7	–
		L...Z+T	E6 in lieu of J6 for ring main pressure > 29 PSI	110 017 22
		L...Z+T	E7 in lieu of J7 for ring main pressure > 29 PSI	–
3	Heating	for pump E	110 004 74	110 004 74
4	Pressure gauge with isolating valve	L...Z+T	J-pump TA-pump E-pump	110 000 79 – 110 008 82
		M/MS...Z	– – –	110 000 79 – 110 008 82
5	Vacuum gauge with isolating valve	L...Z+T	J-pump TA-pump E-pump	110 005 69 – 110 005 70
		M/MS...Z	– – –	110 005 69 – 110 005 70
6	Magnetic clutch for post purge	L...Z+T	J-pump TA-pump E-pump	110 003 36 – 110 003 32
		M/MS...Z	– – –	110 003 37 – 110 009 77
7	Magnetic clutch for post purge to relieve pressure	for L burners for M/MS burners	110 003 97 110 007 28	110 003 48 110 005 64
8	Combustion head extensions	L...Z	4" (100 mm) 6" (150 mm) 8" (200 mm) 10" (250 mm)	– 110 000 34 110 000 37 110 000 42
		L...T	4" (100 mm) 6" (150 mm) 8" (200 mm) 10" (250 mm)	110 013 86 – 110 014 18 – 110 005 94
		M/MS...Z	4" (100 mm) 6" (150 mm) 8" (200 mm) 10" (250 mm)	– 110 016 73 110 016 74 – 110 010 84
9	Oil meter fitted	for L...Z burners for L...T burners	110 013 46 110 014 60	110 013 47 110 013 48
10	Oil preheater MV9C for MS burners in addition to standard electric oil preheater, inc. oil connection parts and thermometer		–	110 008 26
11	Oil preheater MV9C in lieu EV2D inc. oil connection parts with temp. cont. for oil release		–	110 001 18
12	Vertically firing burner with media preheaters only (MV rotated through 90 because of condensate)		–	110 000 52
13	Fittings media preheater with electric preheater			
	– screwed for warm water	up to 230F (110°C)	110 001 25	110 001 25
	– flanged for hot water	230 - 350F (110°C - 180°C)	110 001 28	110 001 28
	– screwed for low pressure steam	up to 7.25PSI (0.5 bar)	110 001 29	110 001 29
	– screwed for high pressure steam	up to 21.75PSI (1.5 bar)	110 001 29	110 001 29
	– screwed for high pressure steam	21.75 - 217.5PSI (1.5 - 15 bar)	110 001 31	110 001 31
	– flanged for high pressure steam	87 - 290PSI (6 - 20 bar)	110 001 32	110 001 32
	– flanged for high pressure steam	290 - 362.5PSI (20 - 25 bar)	110 001 24	110 001 24
	– flanged for thermal fluid	up to 480F (250°C)	110 001 33	110 001 33
	– flanged for thermal fluid	up to 570F (300°C)	110 001 34	110 001 34
14	Fittings media preheater without electric preheater with thermostat valve			
	– flanged for hot water	230 - 350F (110°C - 180°C)	110 001 61	110 001 61
	– screwed for high pressure steam	109 - 188PSI (7.5 - 13 bar)	110 001 62	110 001 62
	– screwed for high pressure steam	188 - 290PSI (13 - 20 bar)	110 001 63	110 001 63
	– flanged for high pressure steam	290 - 362.5PSI (20 - 25 bar)	110 001 66	110 001 66
	– flanged for thermal fluid	up to 480F (250°C)	110 001 64	110 001 64
	– flanged for thermal fluid	up to 570F (300°C)	110 001 65	110 001 65
15	Oil hoses 51" (1300) in lieu of 39" (1000 mm) long heated (stainless steel)	for L burners for M/MS burners	110 000 72 110 010 17	110 000 72 110 010 18
16	Burner flame safeguard	W-FM100 linkageless system	contact Weishaupt Corporation	
Price reductions				
17	Oil preheater	EV2C in lieu of EV2D EV2C in lieu of EV2D	MS7Z with ISG MS7Z without ISG	– – 110 004 70 110 009 79

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No.	8 Order No.	8/2 Order No.	9 Order No.	10 Order No.	11 Order No.
1	110 011 76	110 011 76	-	-	-
	110 001 08	110 001 08	110 013 22	-	-
	110 013 43	110 013 43	110 015 49	-	-
2	110 015 43	110 015 43	110 015 43	-	-
	-	110 004 46	110 006 45	-	-
	-	-	-	110 015 46	-
	110 017 22	110 017 22	110 017 22	-	-
	110 015 44	110 015 44	110 015 44	110 015 44	-
3	110 004 74	110 004 74	110 004 74	-	-
4	110 000 79	110 000 79	110 000 79	-	-
	-	110 002 82	110 002 82	110 002 82	-
	110 008 82	110 008 82	110 008 82	-	-
5	110 005 69	110 005 69	110 005 69	-	-
	-	110 017 00	110 017 00	110 017 00	-
	110 005 70	110 005 70	110 005 70	-	-
6	110 003 37	110 003 37	110 003 38	-	-
	-	110 004 03	110 004 03	180 001 02	-
	110 009 77	110 009 77	-	-	-
7	110 015 86	110 015 86	-	110 009 92	-
	110 015 97	110 015 97	110 005 65	-	-
8	-	-	-	-	-
	110 000 34	110 000 46	110 006 75	-	-
	110 000 42	110 000 43	110 006 98	-	-
	110 005 93	110 005 95	110 005 97	180 000 44	-
	110 005 94	110 005 96	110 005 98	180 000 45	-
	110 010 83	110 010 85	110 010 87	-	-
	110 010 84	110 010 86	110 010 88	-	-
9	110 013 55	110 013 55	110 013 57	-	-
	110 013 56	110 013 56	110 013 58	180 001 22	-
10	110 008 26	110 008 25	110 008 24	-	-
11	110 001 18	-	110 010 62	-	-
12	110 000 52	110 000 52	110 000 52	-	-
13	110 001 25	110 001 25	110 001 25	-	-
	110 001 28	110 001 28	110 001 28	-	-
	110 001 29	110 001 29	110 001 29	-	-
	110 001 29	110 001 29	110 001 29	-	-
	110 001 31	110 001 31	110 001 31	-	-
	110 001 32	110 001 32	110 001 32	-	-
	110 001 24	110 001 24	110 001 24	-	-
	110 001 33	110 001 33	110 001 33	-	-
	110 001 34	110 001 34	110 001 34	-	-
14	110 001 61	110 001 61	110 001 61	-	-
	110 001 62	110 001 62	110 001 62	-	-
	110 001 63	110 001 63	110 001 63	-	-
	110 001 66	110 001 66	110 001 66	-	-
	110 001 64	110 001 64	110 001 64	-	-
	110 001 65	110 001 65	110 001 65	-	-
15	110 000 72	110 000 72	110 000 72	110 001 59	-
	110 010 18	110 010 18	110 010 18	-	-
16	contact Weishaupt Corporation				
17	-	-	-	-	-

① Not possible with YΔ start.

Special equipment

Monarch RL and RMS, sliding two stage

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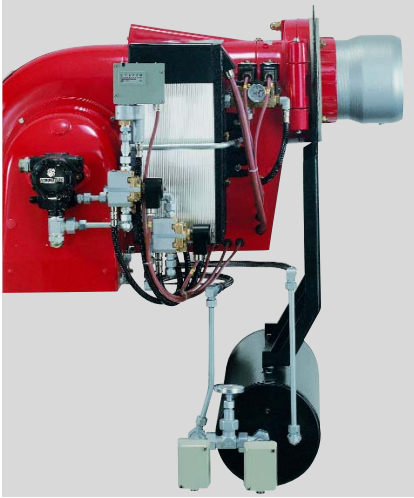
1	Pressure gauge with isolating valve	for RL burners for RMS burners	110 008 82 –	110 002 82 110 008 83
2	Pump	RL	E6 in lieu of J6 for ring main pressure > 29PSI	110 017 22 –
3	Vacuum gauge with isolating valve	for RL burners for RMS burners	110 005 69 –	110 017 00 110 017 00
4	Magnetic clutch for continuous run	for RL burners for RMS burners	110 003 46 –	110 003 45 110 009 72
5	Magnetic clutch for continuous run to relieve pressure	for RL burners for RMS burners	110 007 27 –	110 010 66 110 011 82
6	Potentiometer built onto servomotor		220 Ω 1000 Ω	110 002 86 110 003 03
			220/ 220 Ω 220/1000 Ω 1000/1000 Ω	110 011 12 110 011 13 110 011 14
7	Oil hoses 51" (1300) in lieu of 39" (1000 mm) long heated (stainless steel)	for RL burners for RMS burners	110 000 72 –	110 001 59 110 010 18
8	Combustion head extensions	RL	4" (100 mm) 6" (150 mm) 8" (200 mm) 10" (250 mm) 12" (300 mm)	110 009 81 – 110 009 83 – –
		RMS	4" (100 mm) 6" (150 mm) 8" (200 mm) 10" (250 mm) 12" (300 mm)	– – – – –
9	Oil preheater MV9C (media) in addition to standard electric oil preheater Media connection fittings: see page 24, item 14		–	110 004 01
10	Oil preheater	WEV2.2 in lieu of EV2D WEV3. in lieu of EV2D	– –	110 011 33 –
		MV9C in lieu of EV2D MV9C in lieu of WEV3	– –	– –
11	Vertically firing burner with media preheaters only (MV 90h rotated because of condensate) Connection fittings: see M/MS burners		–	110 000 52
12	Burner flame safeguard	W-FM100 linkageless system	contact Weishaupt Corporation	
13	Price reductions Oil preheater EV2C in lieu of EV2D for RMS7		–	110 007 21

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No.	8 Order No.	8/2 Order No.	9 Order No.	10 Order No.	11 Order No.
1	110 002 82 110 008 83	110 002 82 110 008 83	110 002 82 110 008 83	110 002 82 110 008 83	110 002 82 110 008 83
	-	-	-	-	-
3	110 017 00 110 017 00	110 017 00 110 017 00	110 017 00 110 017 00	110 017 00 110 017 00	110 017 00 110 017 00
4	110 009 71 110 009 72	110 009 71 110 009 72	110 009 74 110 009 75	110 009 74 110 009 75	110 009 74 110 009 75
5	110 003 95 110 015 99	110 003 95 110 015 99	110 007 39 110 005 66	110 007 39 110 005 66	110 007 39 110 005 67
6	110 002 86 110 003 03	110 002 86 110 003 03	110 002 86 110 003 03	110 002 86 110 003 03	110 002 86 110 003 03
	110 011 12 110 011 13 110 011 14	110 011 12 110 011 13 110 011 14	110 011 12 110 011 13 110 011 14	110 011 12 110 011 13 110 011 14	110 011 12 110 011 13 110 011 14
7	110 001 59 110 010 18	110 001 59 110 010 18	110 001 59 110 010 18	110 001 59 110 010 18	- 180 000 63
8	- 110 002 42 - 110 002 44 - - 110 010 90 - 110 010 91 - -	- 110 002 46 - 110 007 24 - - 110 010 92 - 110 010 93 - -	- 110 006 76 - 110 002 87 - - 110 010 94 - 110 010 95 - -	- 180 000 46 - 180 000 47 - - 180 000 84 - 180 000 85 - -	- 180 000 24 - 180 000 01 - - 180 000 86 - 180 000 87 - -
9	110 004 01	110 011 37	110 011 24	110 011 24	180 000 08
10	110 011 33 - - -	110 011 33 - - 110 011 38	110 011 34 - - 110 011 22	110 011 34 110 014 75 - 110 011 22	- - - 180 000 09
11	110 000 52	110 000 52	110 000 52	110 000 52	110 000 52
12	contact Weishaupt Corporation				
13	-	-	-	-	-

Weishaupt MV media preheaters

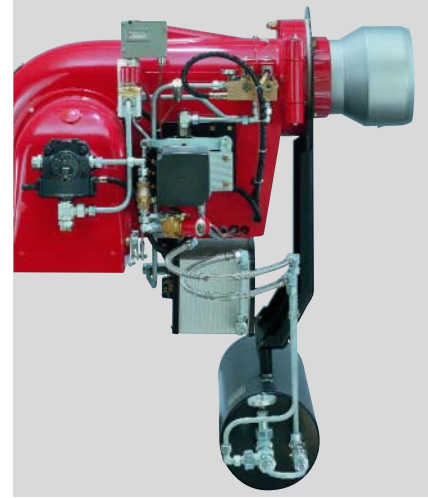
–weishaupt–



Type MS7Z with EV2D and MV9C



Type MS7Z with MV9C



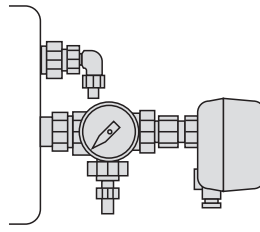
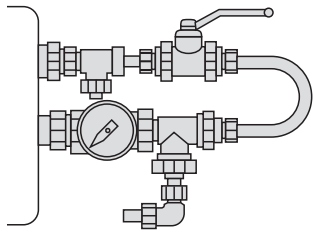
Type RMS8 with EV2D and MV9C

Oil connection parts for media preheaters with electric preheater

- 2 20" (520 mm) long hoses
- 1 ball valve
- 1 precision thermometer
- 1 thermometer holder, unions and pipe connections

Oil connection parts for media preheaters without electric preheater

- 2 20" (520 mm) long hoses
- 1 temperature regulator with switch-over contact to release burner
- 1 temperature regulator and thermometer holder, unions and pipe connections



The units are high capacity forced circulation heat exchangers. Hot water, steam or thermal fluid can be used as a heating medium.

Media preheaters are used alone or in conjunction with an electric preheater.

If a medium of sufficient temperature is available, or if #2 oil is used, an electric preheater is not required. If the temperature of the medium is insufficient for preheating the fuel oil to atomizing temperature, the remainder of the heating process is carried out by an electric preheater.

Weishaupt media preheater is available with numerous fittings for different heating mediums.

Detailed information on the extent of delivery and arrangements is contained in a separate Weishaupt oil preheater brochure.

Weishaupt control panels and burner control system

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Weishaupt control panels for

- two stage burners
- three stage burners
- sliding two stage burners and modulating burners

The basic control panels contain all burner controls, necessary for the operation of a burner.

Description

Weishaupt control panels conform to applicable national/international standards.

Switching includes

- Power supply
- Burner control
- Fan control
- Start-up/regulation
- Door mounted switches
- Door mounted indicating lamps

Individual customer requirements can be met at any time.



Weishaupt control technology for

- Boiler installations
- Thermal process equipment
- Ship/ Marine version
- Building management systems

Together with its core business of burners and heating systems, Weishaupt are able to offer complex control technology up to BMS level with PLC and DDC systems.

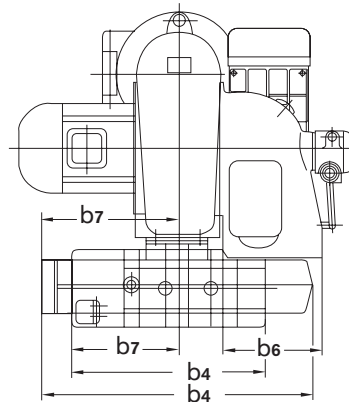
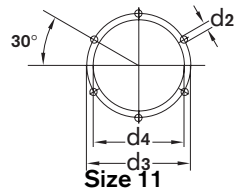
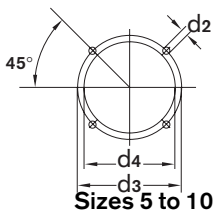
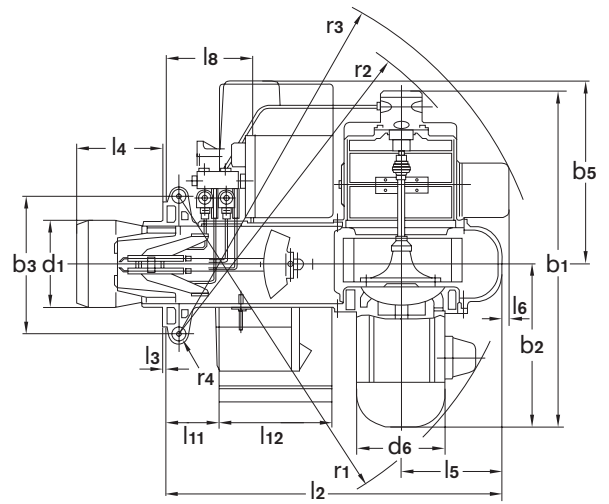
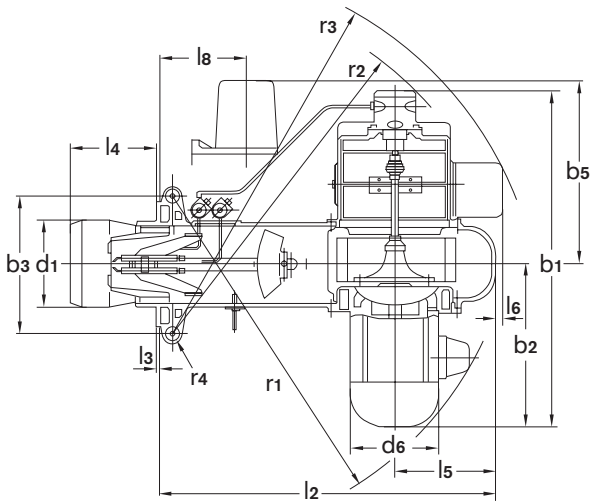
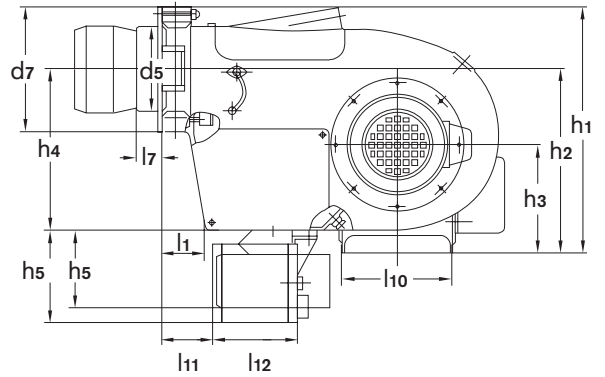
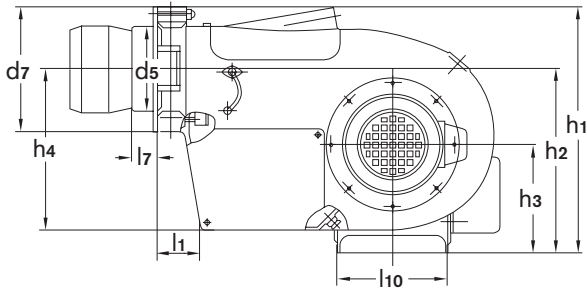
From planning to handover, tailor made solutions are available from one supplier.

Dimensions

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Monarch L and RL burners

Monarch M / MS and RMS burners



Burner size	5	7	8	8/2	9	10	11
l₁	3.9" (100)	3.9" (100)	3.9" (100)	4" (102)	4.4" (112)	4.4" (112)	4.6" (117)
l₂	27" (686)	30.2" (766)	30.2" (766)	30.2" (767)	37.2" (945)	37.2" (945)	37.4" (950)
l₃	0.3" (8)	0.3" (8)	0.3" (8)	0.3" (8)	0.3" (8)	0.3" (8)	0.3" (8)
l₄	M5/2a: 5.1" (130) M5/1a: 5.7" (145)	M6/1a: 8.4" (214) M7/1a: 8.8" (224)	M7/1a: 8.8" (224) M8/1a: 9.2" (234)	M9/1a: 9.1" (232) U2/1: 8.9" (227) G7/2a: 10.1" (256)	M9/1a: 8.8" (223)	M10/2: 10.7" (273)	M11/1: 14.6" (371)
l₅	7.9" (200)	8.8" (224)	8.8" (224)	8.8" (224)	11.8" (300)	11.8" (300)	11.8" (300)
l₆	1.9" (47)	1.1" (28)	1.1" (28)	1.1" (28)	0.6" (15)	0.6" (15)	-
l₇	1.3" (34)	2.2" (57)	2.2" (57)	3.1" (80)	3.6" (92)	2.7" (68)	7.7" (195)
l₈	9.4" (239)	11.2" (285)	11.2" (285)	11.3" (287)	12.2" (310)	12.2" (310)	12.4" (315)
l₁₀	9.4" (239)	10" (255)	10" (255)	10" (255)	15.4" (390)	15.4" (390)	15.4" (390)
b₁	25.4" (644)	30" (763)	30.9" (784)	30.9" (784)	34.8" (884)	34.8" (884)	35.9" (911)
b₂	11.7" (297)	14.5" (369)	15.3" (388)	15.3" (388)	17.3" (439)	17.3" (439)	18.2" (462)
b₃	10.6" (270)	12.2" (310)	12.2" (310)	12.2" (310)	17.3" (440)	17.3" (440)	17.3" (440)
b₅	15.5" (394)	16.3" (414)	16.3" (414)	16.3" (414)	17.2" (436)	17.2" (436)	17.2" (436)
b₆	7.9" (200)	9.1" (231)	9.1" (231)	9.1" (231)	9.1" (230)	9.1" (230)	9.1" (230)
h₁	19.4" (494)	21.9" (556)	21.9" (556)	23.2" (590)	26.5" (672)	26.5" (672)	27.8" (707)
h₂	14.7" (373)	16.3" (415)	16.3" (415)	16.3" (415)	19" (482)	19" (482)	19" (482)
h₃	8.7" (220)	9.6" (245)	9.6" (245)	9.6" (245)	10.2" (260)	10.2" (260)	10.2" (260)
h₄	14.3" (363)	14.4" (366)	14.4" (366)	14.4" (366)	19" (482)	19" (482)	19" (482)
d₁	M5/2a: 6.3" (160) M5/1a: 7.1" (180)	M6/1a: 7.9" (200) M7/1a: 8.7" (220)	M7/1a: 8.7" (220) M8/1a: 9.4" (240)	M9/1a: 9.4" (240) U2/1: 8.7" (220) G7/2a: 10.4" (265)	M9/1a: 9.4" (240)	M10/2: 10.4" (265)	M11/1: 12.8" (325)
d₂	M10	M10	M10	M12	M12	M12	M10
d₃	8.3" (210)	9.3" (235)	9.3" (235)	11.7" (298)	13" (330)	13" (330)	15.7" (400)
d₄	7.3" (185)	8.3" (210)	8.3" (210)	10.8" (275)	11" (280)	11" (280)	13.4" (340)
d₅	6.1" (154)	7.7" (196)	7.7" (196)	9.5" (241)	9.4" (240)	10.4" (265)	12.8" (324)
d₆	6.9" (176)	8.6" (218)	8.6" (218)	8.6" (218)	10.2" (258)	10.2" (258)	10.2" (258)
d₇	9.5" (242)	11.1" (281)	11.1" (281)	13.8" (350)	15" (380)	15" (380)	17.7" (450)
r₁	26.8" (680)	30.3" (770)	31.5" (800)	31.5" (800)	37.8" (960)	37.8" (960)	38.6" (980)
r₂	27.8" (705)	31.1" (790)	31.1" (790)	31.1" (790)	38.4" (975)	38.4" (975)	38.4" (975)
r₃	31.1" (790)	34.1" (865)	34.1" (865)	34.1" (865)	42.9" (1090)	42.9" (1090)	-
r₄	0.8" (21)	0.9" (23)	0.9" (23)	0.9" (23)	1" (25)	1" (25)	1" (25)
Additional dimensions for M / MS burners							
l₁₁	-	EV2C: 7.3" (186) EV2D: 4.5" (114)	EV2D: 4.5" (114)	EV2D: 4.6" (116) WEV2.2: 4.2" (106)	EV2D: 6" (153) WEV2.2: 5.9" (149) WEV3: 4.7" (119)	EV2D: 6" (153) WEV2.2: 5.9" (149) WEV3: 4.7" (119)	WEV3: 4.9" (124)
l₁₂	-	EV2C: 5" (126) EV2D: 7.8" (198)	EV2D: 7.8" (198)	EV2D: 7.8" (198) WEV2.2: 10" (254)	EV2D: 7.8" (198) WEV2.2: 10" (254) WEV3: 12.4" (314)	EV2D: 7.8" (198) WEV2.2: 10" (254) WEV3: 12.4" (314)	WEV3: 12.4" (314)
b₄	-	EV2C: 16.9" (430) EV2D: 16.9" (430)	EV2D: 16.9" (430)	EV2D: 16.9" (430) WEV2.2: 24.8" (630)	EV2D: 16.9" (430) WEV2.2: 24.8" (630) WEV3: 29.3" (744)	EV2D: 16.9" (430) WEV2.2: 24.8" (630) WEV3: 29.3" (744)	WEV3: 29.3" (744)
b₇	-	EV2C: 9.3" (235) EV2D: 9.3" (235)	EV2D: 9.3" (235)	EV2D: 9.3" (235) WEV2.2: 12.9" (327)	EV2D: 9.3" (235) WEV2.2: 12.9" (327) WEV3: 15.1" (384)	EV2D: 9.3" (235) WEV2.2: 12.9" (327) WEV3: 15.1" (384)	WEV3: 15.1" (384)
h₅	-	EV2C: 8.4" (214) EV2D: 8.4" (214)	EV2D: 8.4" (214)	EV2D: 8.4" (214) WEV2.2: 7.5" (191)	EV2D: 8.4" (214) WEV 2.2: 7.5" (191) WEV3: 8.1" (205)	EV2D: 8.4" (214) WEV 2.2: 7.5" (191) WEV3: 8.1" (205)	WEV3: 8.1" (205)

Product and customer service - the complete Weishaupt range

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Regular maintenance reduces heating costs and environmental pollution. Only a properly adjusted burner can save energy and be environmentally friendly. Behind each Weishaupt burner stands the whole Weishaupt customer service organisation. The outstanding efforts made in maintenance and service justify the enormous trust placed in Weishaupt's burners, for at Weishaupt product and customer service belong together.

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