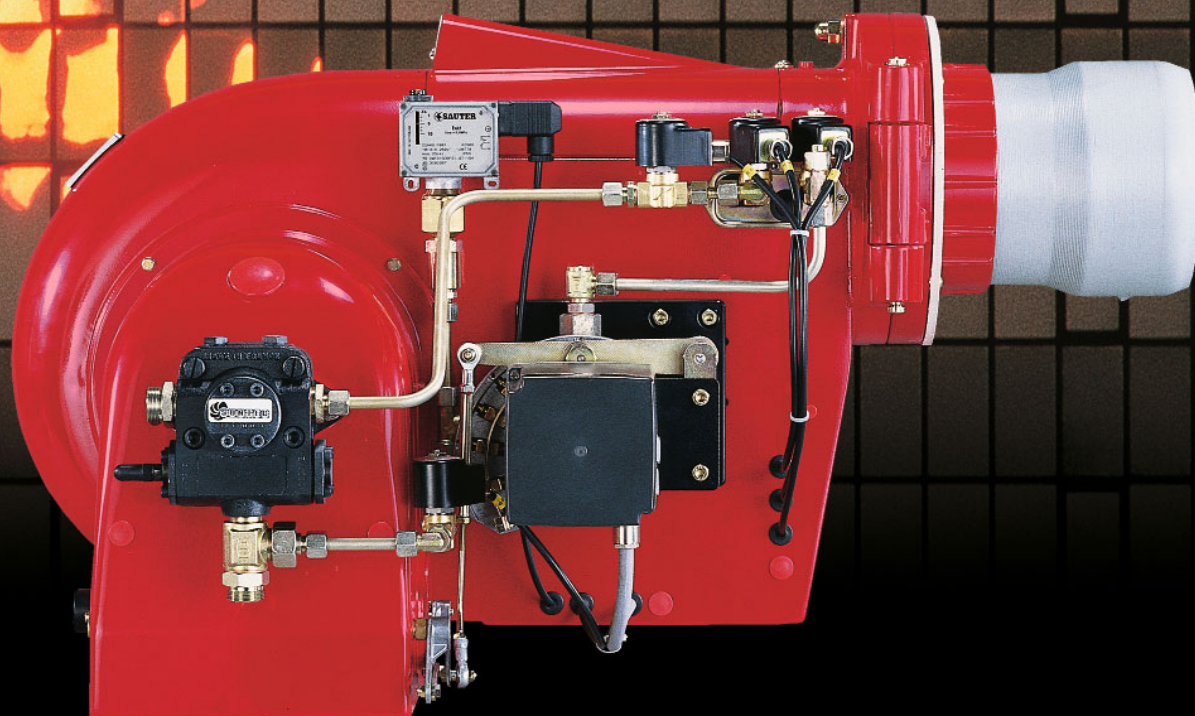


– weishaupt –

product

Information on oil burners



Oil burners, 1-11

monarch® burners, sizes 1-11 (70-5240 kW) • simply reliable

Description

Weishaupt Monarch burners are of the fully automatic, pressure atomising type. Their design has been carefully considered down to the smallest detail and proven itself successful over and over again. Weishaupt oil burners are type tested (residual-oil burners excepted) and meet all the demands for safety, reliability, and low-cost servicing.

The burners are distinguished by a variety of interesting features:

- Large capacity range of 6-440 kg/h (70-5240 kW)
- Automatic sequence of operations
- Reliable operation with good combustion results
- Air damper closed on burner shut-down
- Quiet operation
- Completely prewired integral switch-gear (except for RL and RMS burners, L10T three-stage burner, and burners to TRD)
- Hinged burner housing
- Combustion head can be withdrawn when the burner is hinged open (sizes 9 to 11)
- Simple installation, adjustment and maintenance thanks to service-friendly design

Construction

All components are assembled as a single unit. The motor drives both the fan and the fuel pump. All of 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-hand side (unless equipped with a head extension), which simplifies work on the combustion head, diffuser, nozzles and ignition electrodes.

Applications

The burners can be used on hot-water boilers, steam boilers, air heaters, and for certain process applications.

RL and RMS burners are particularly suited to applications with a continually variable heat demand, such as dryers and large baking ovens, etc.

Fuels

Light, medium, and heavy fuel oils in accordance with DIN 51 603 can be fired (for other fuels please enquire).

Regulation

The regulation of oil and air on L, M, and MS burners is as follows:

- Two-stage – with two nozzles and a servomotor-controlled, fast-opening air damper.
- Three-stage – with three nozzles and a servomotor-controlled, slow-opening air damper.

Fuel and air on RL and RMS burners are regulated in compound. Depending on the controller and servomotor, burner operation is either:

- Sliding-two-stage (servomotor with 20 s running time)
- Modulating (servomotor with 42 s running time)

With sliding-two-stage regulation, partial and full-load positions are set within the burner's operating range. The burner slides to one position or the other, depending on the heat demand. There are no rapid changes in oil throughput.

Modulating operation can be achieved through the inclusion of a suitable controller in the burner's control panel. Modulating burners operate at any point within their capacity range in accordance with the heat demand.

Flame monitoring

The burner controller automatically controls the burner's sequence of operations and monitors the flame optically by means of a flame sensor. For oil burners without integral switchgear, the burner controller can be fitted in a control panel (at extra cost) or supplied loose for mounting in a control panel by others.

No interference with radio or television reception

Interference created during ignition is below the limits specified by the relevant EMC standards and regulations.

Nozzle recirculation system on residual-oil burners

Heated oil flows through the nozzle assembly and oil lines of MFO and HFO burners during prepurge, thus ensuring that evenly heated oil is available for flame establishment.

Air/gas separator, oil circulation tank

Our patented air/gas separators or oil circulation tanks are essential for oil ring main systems and should always be offered.

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

A two-pipe system can be employed for a single LFO burner, providing the suction vacuum does not exceed 0.4 bar. If several burners are supplied from a ring main via an air/gas separator or oil circulation tank, it is necessary to fit manually operated linked ball valves with a limit switch immediately after the air/gas separator or oil circulation tank. Air/gas separators and oil circulation tanks should be selected to suit the pump rating of the ring main and the burner size. When selecting ring-main pump stations, the pump rating must be 1.5 to 2 times that of the nozzle rating.

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

Quiet operation

Weishaupt burners operate quietly. All air-handling burner parts have been aerodynamically designed, 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 "Sound absorbing shrouds for Weishaupt burners" brochure, print No. 13).

Use of HFO burners

MS-type HFO burners are suitable for oil viscosities up to 45 mm²/s at 100 °C, RMS-type up to 50 mm²/s at 100 °C. In order to ensure the greatest degree of operational reliability, the nozzle size on MS-type burners should be no less than 3.0 USgph, or S4-100 kg on RMS-type burners.

The use of RMS-type burners is generally recommended for the combustion of fuel oils with a viscosity in excess of 35 mm²/s at 100 °C.

Note for MS and RMS burners

The use of residual-oil burners is not permitted within the Federal Republic of Germany. The data given in the capacity graphs are maximal values. The figures that can actually be achieved depend on the combustion chamber and should be determined from measurements on the heating appliance concerned.

Permissible ambient conditions

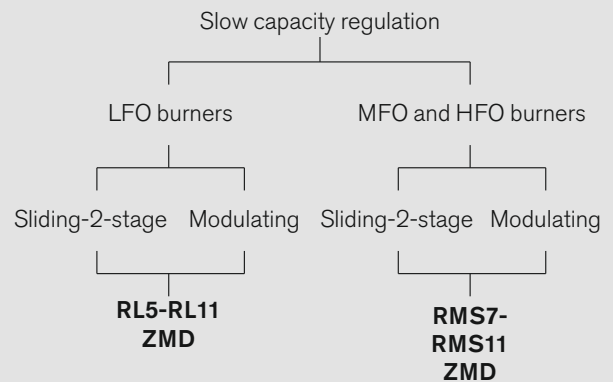
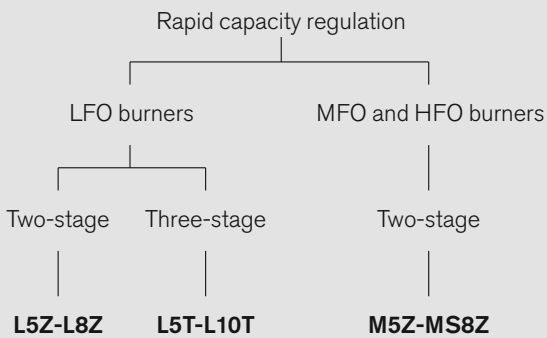
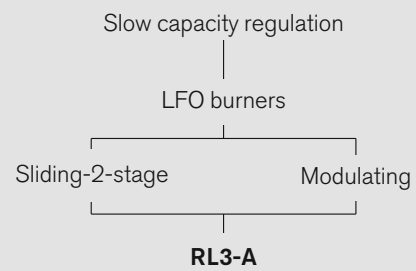
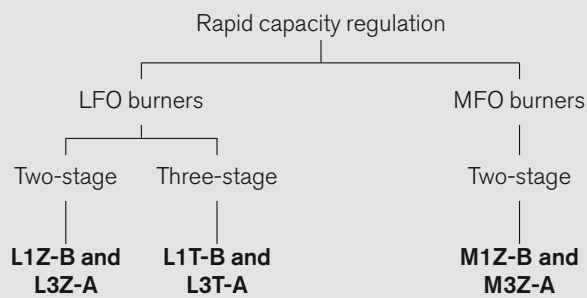
In standard execution (materials, construction, protection), the burners are suitable for use indoors and as such should not be installed outside. Permissible ambient temperatures are between -10 °C and +40 °C. Special measures may be required for equipment installed in unheated areas (please enquire).

Special executions

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

Model overview

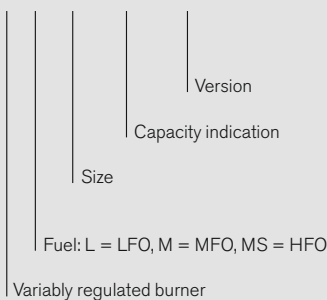
Weishaupt oil burners



Model designation

Sliding-two-stage or modulating regulation

R L 8 / 2 - ZMD



Burner regulation

Two-stage regulation (Z)

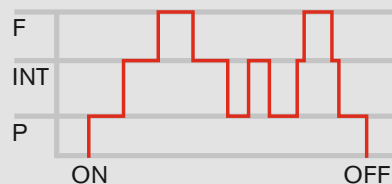
- Oil is released at start when solenoid valve 1 and the safety solenoid valve open.
- Full load is achieved by opening solenoid valve 2.
- The capacity is regulated through the opening and closing of solenoid valve 2.



Three-stage regulation (T)

LFO burners only

- Oil is released at start when solenoid valve 1 and the safety solenoid valve open.
- Full load is achieved by opening solenoid valve 2.
- The capacity is regulated through the opening and closing of solenoid valves 2 and 3.

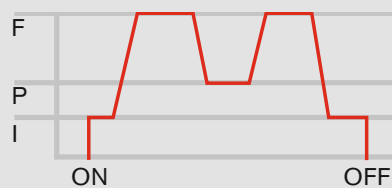


F = full load P = partial load I = ignition load
INT = intermediate load

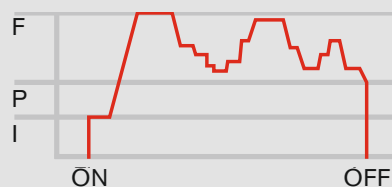
Sliding-two-stage and modulating regulation (ZM)

- Sufficient oil for ignition load is released when the nozzle needle and the safety solenoid valve open (except RL5 & RL7).
- A slow-running servomotor drives the oil regulator up to full load.
- The capacity is regulated through the opening and closing of 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. Modulating operation requires a PID controller to be fitted in the control panel.

Sliding-two-stage

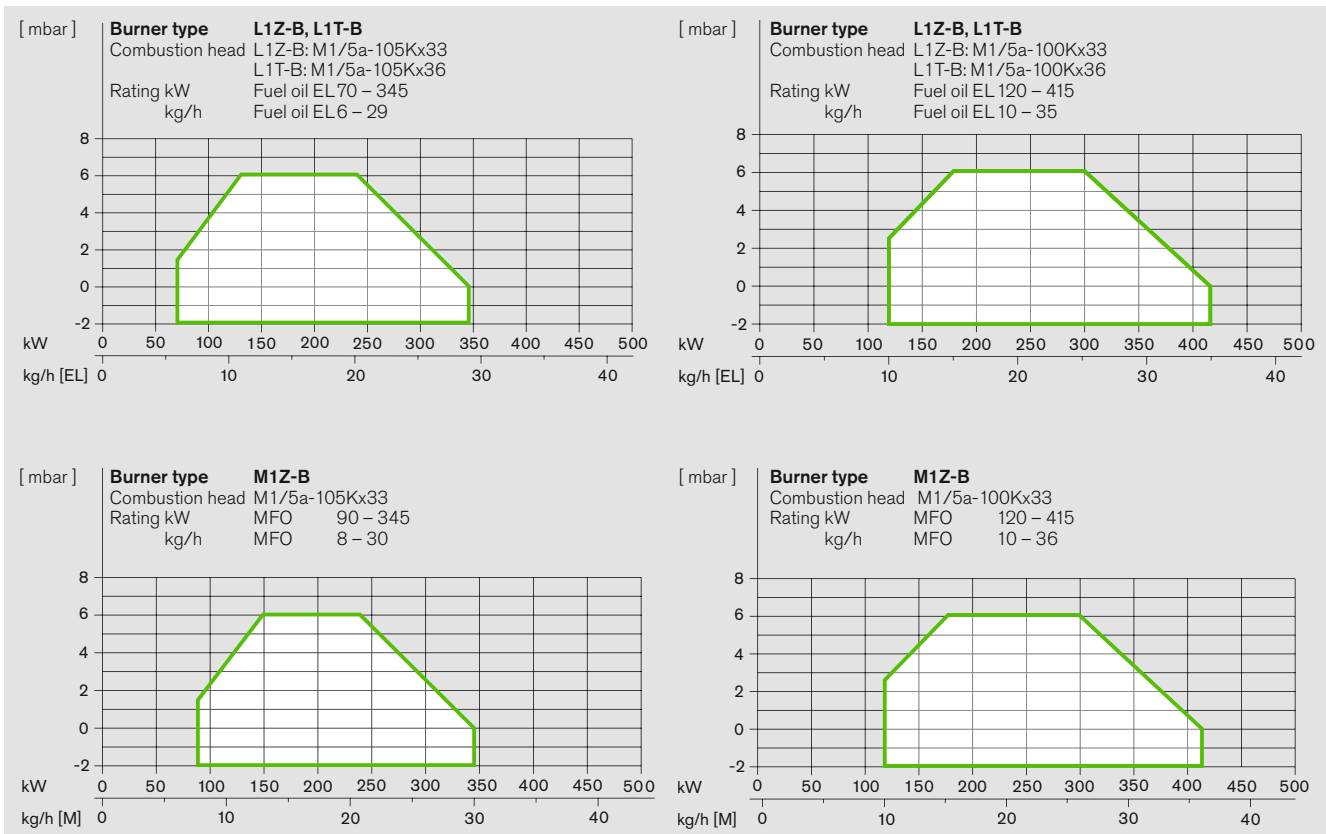


Modulating



Burner selection

Size 1, types L and M



Plotted operational ranges represent maximal values measured on idealised flame tubes 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.

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 (no additional cost).

Standard burner motor

Insulation Class F, IP54 protection.

Modulating burners

RL burners with modulating capacity control are based on the sliding-two-stage burner. Modulation is effected through the use of a particular controller, which is mounted in the control panel.

Stated oil throughputs are based on a calorific value of
11.91 kWh/kg for fuel oil EL
11.62 kWh/kg for MFO
11.24 kWh/kg for HFO

Shut-off devices

All light-oil burners are equipped as standard with a second solenoid valve (safety solenoid valve).

Note for MS and RMS burners

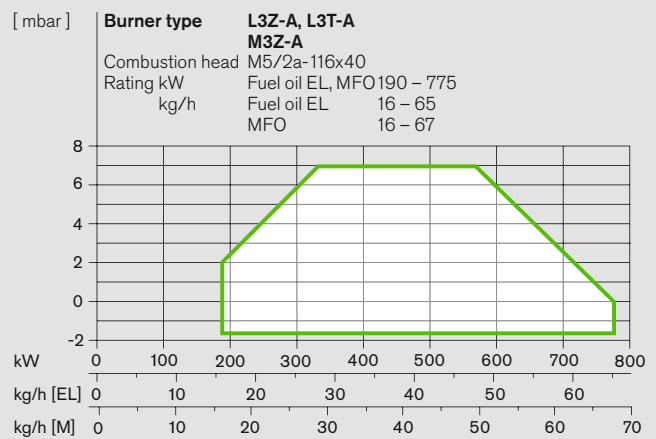
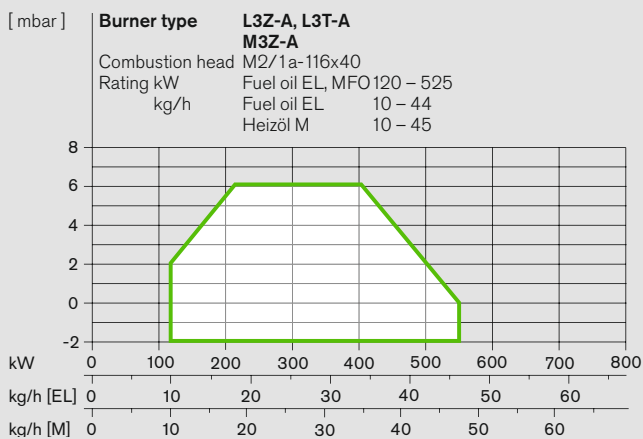
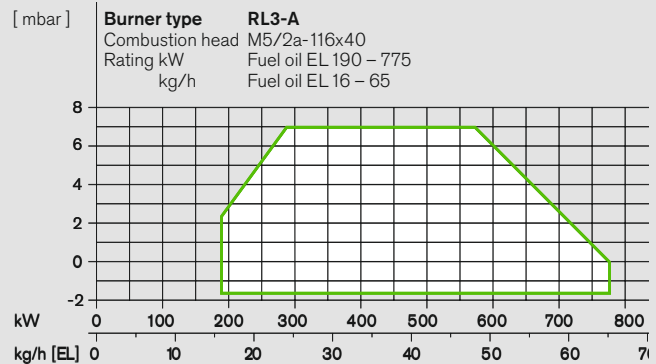
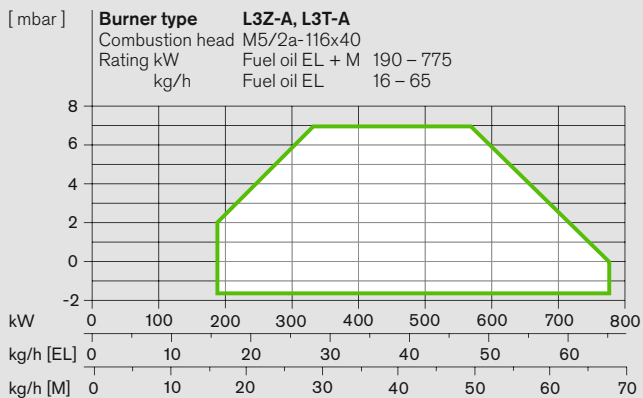
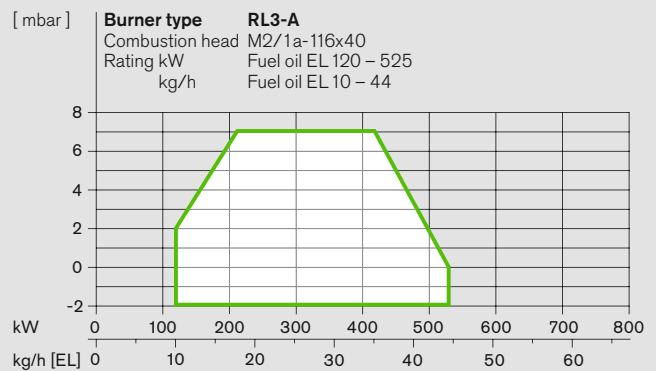
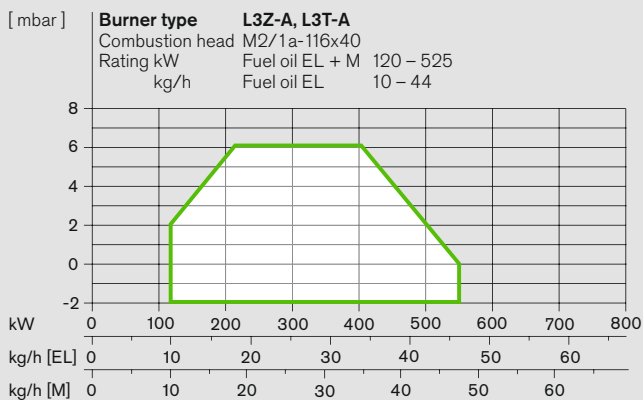
The use of HFO burners is not permitted within the Federal Republic of Germany. Plotted operational ranges represent maximal values. Actual values will depend on the combustion chamber and can be determined through measurements taken on the heat generator concerned. The burners are not type tested.

Combustion of heavy fuel oil

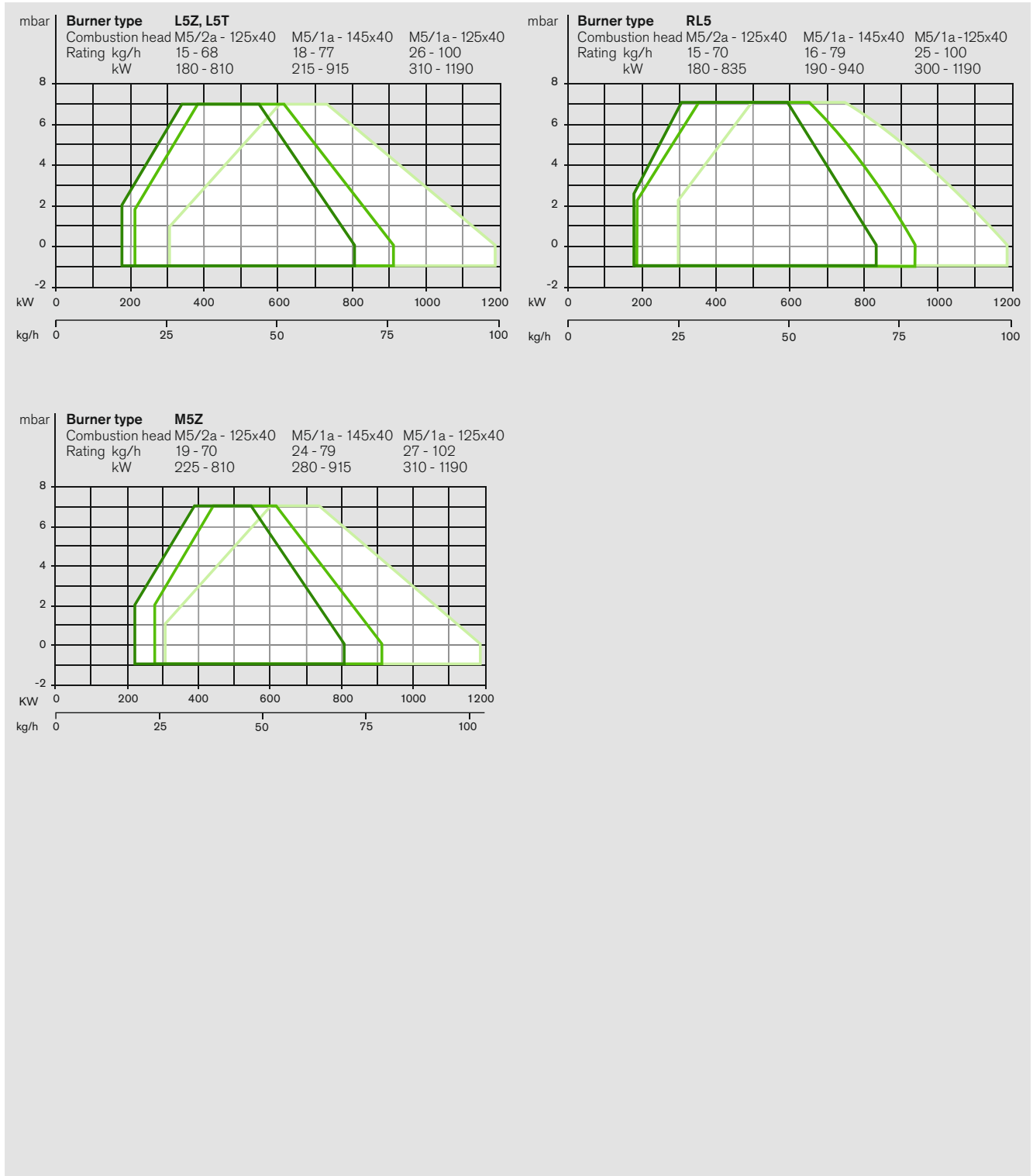
Minimum nozzle size is 3.0 USgph for MS-type burners and "S4 -100kg" for RMS-type burners.

RMS-type burners are generally recommended for the combustion of oils with viscosities > 35 mm²/s at 100 °C.

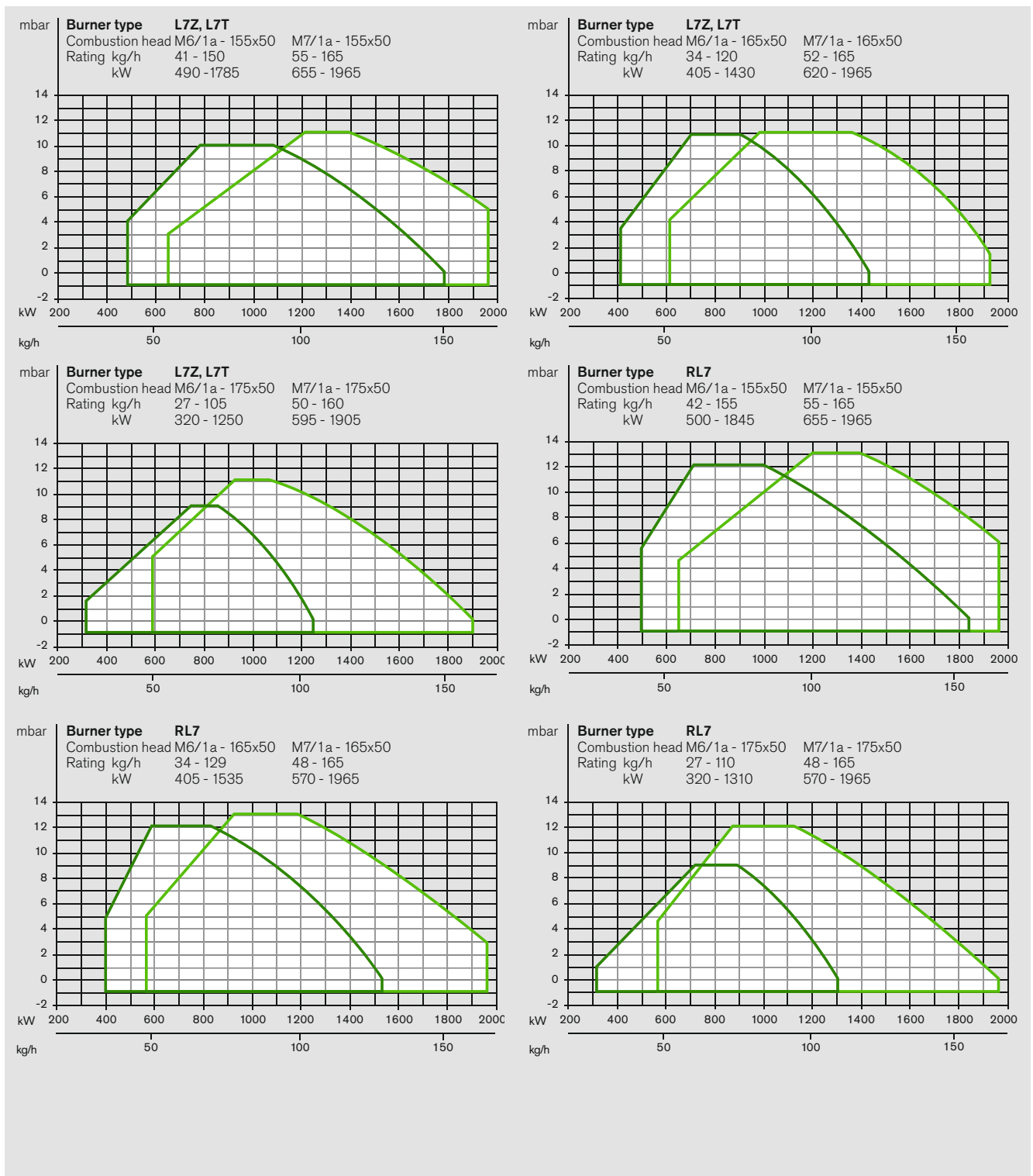
Size 3, types L, RL and M



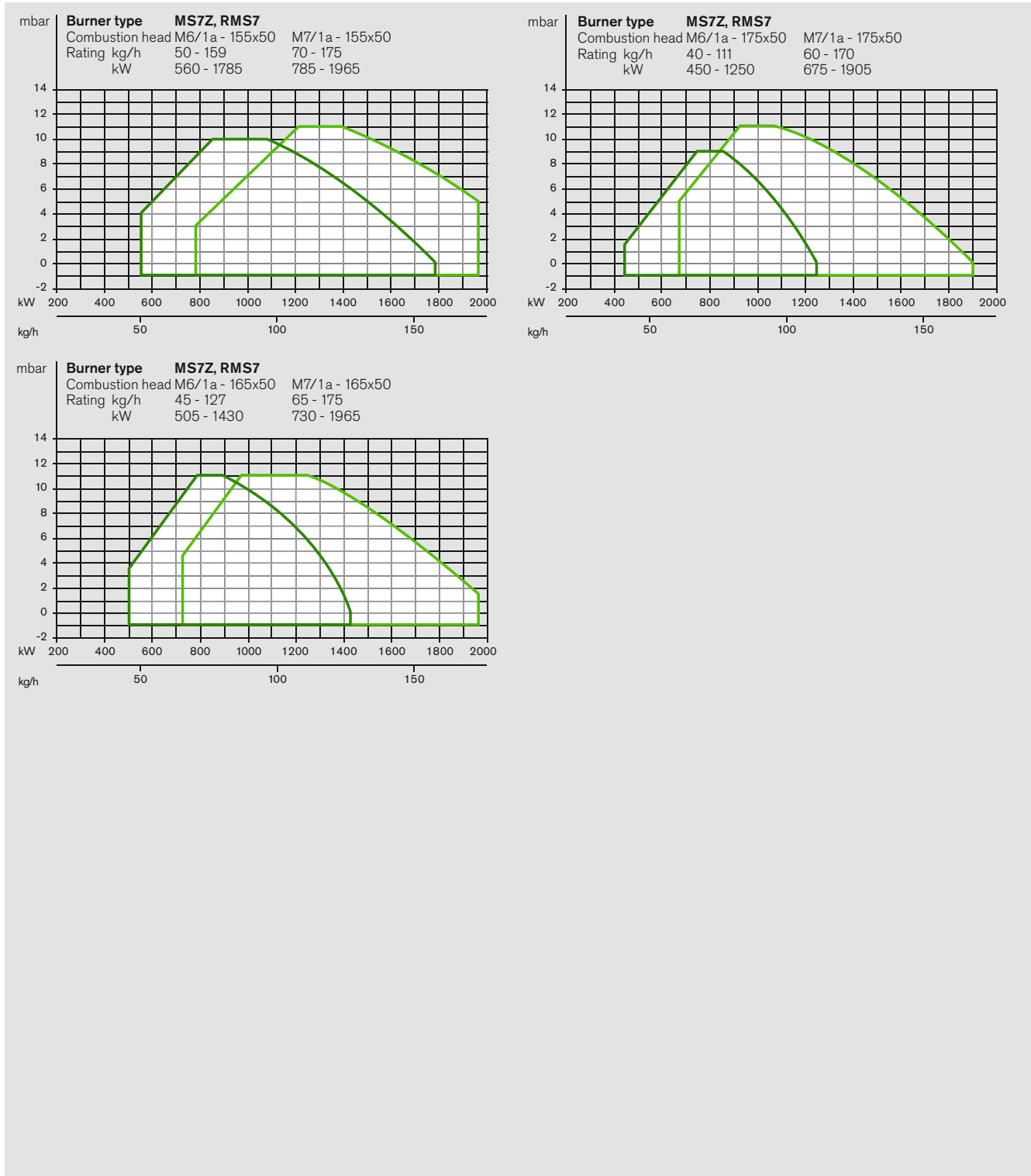
Size 5, types L, RL and M



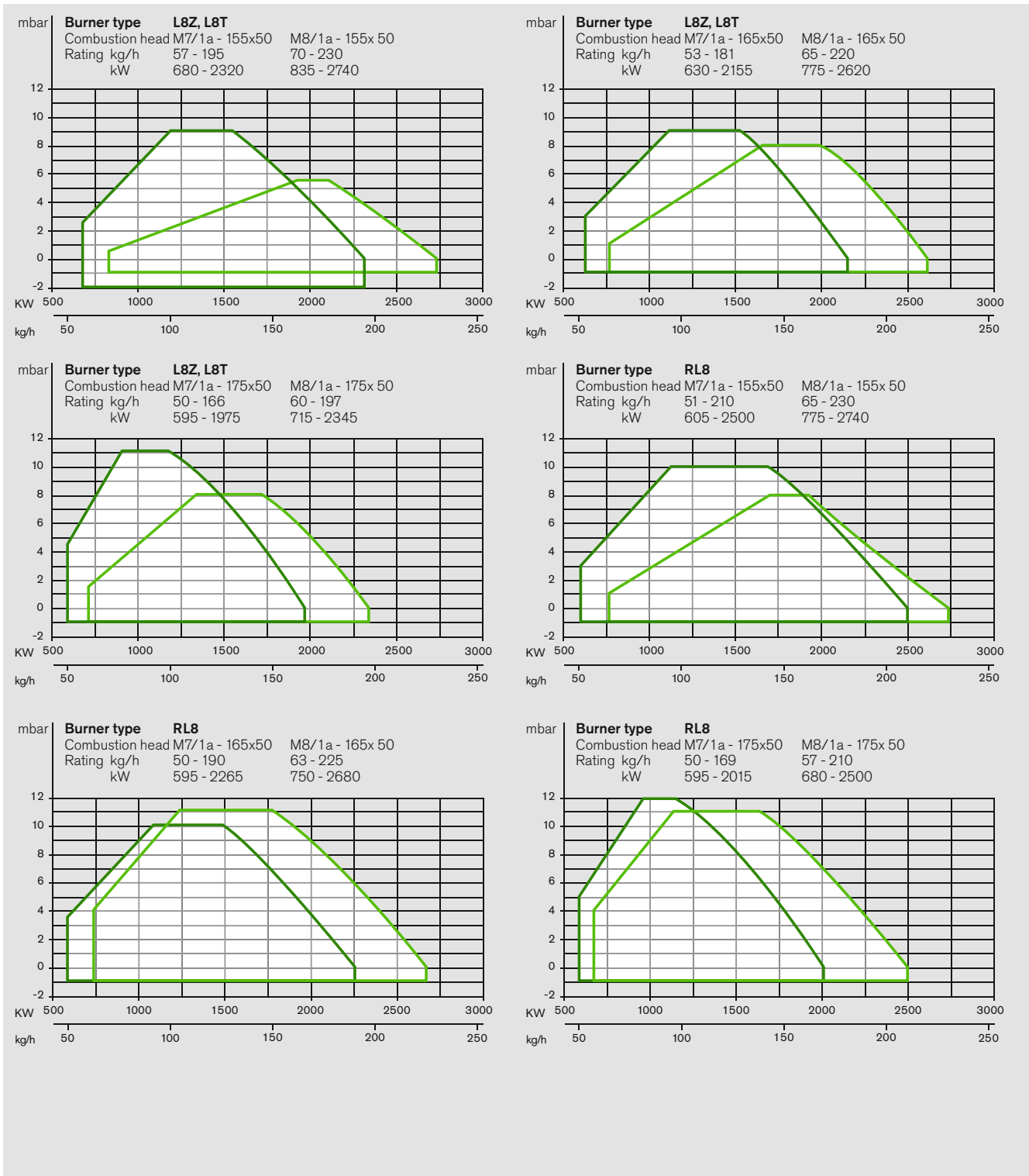
Size 7, types L and RL



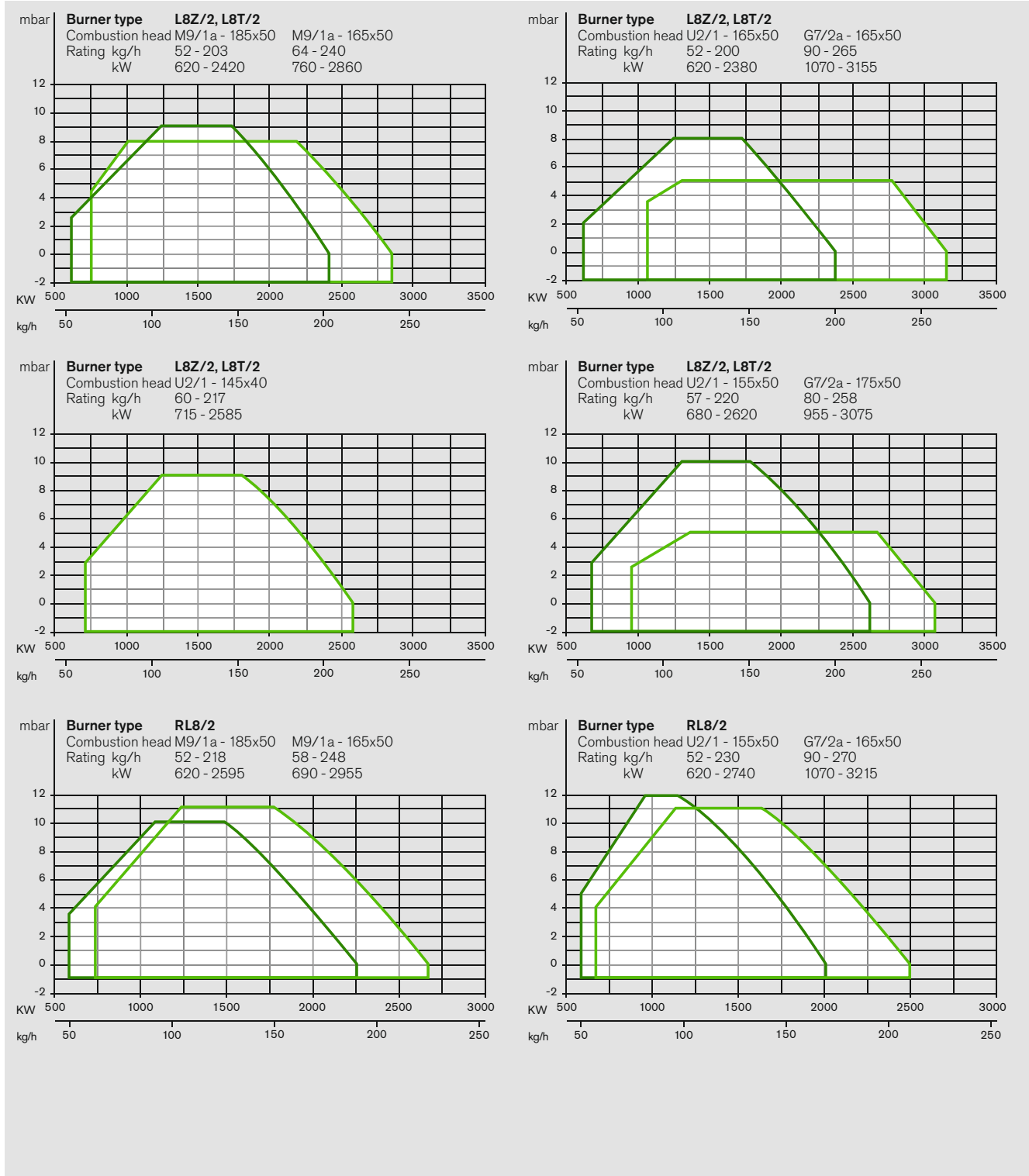
Size 7, types MS and RMS



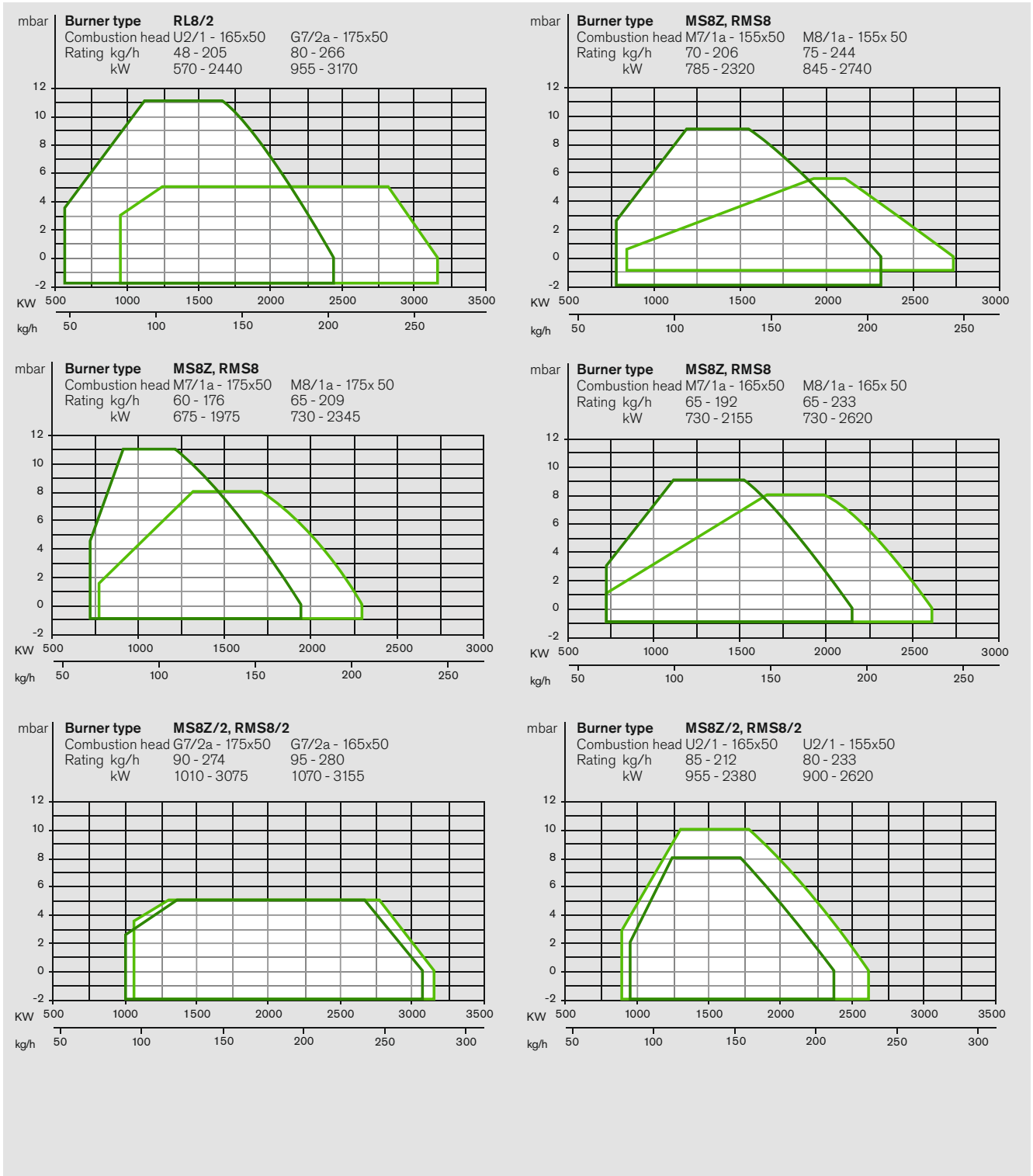
Size 8, types L and RL



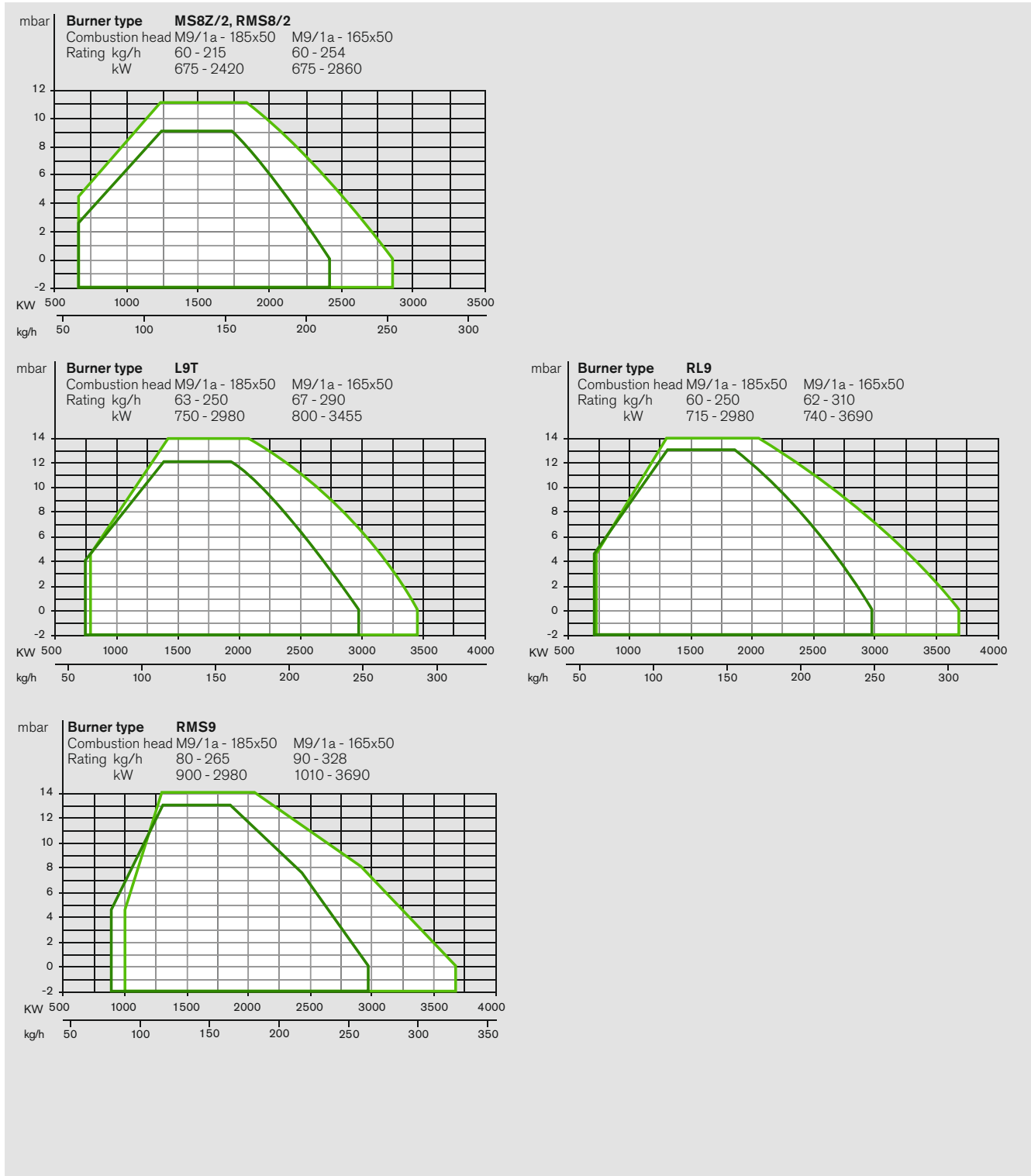
Size 8/2, types L and RL



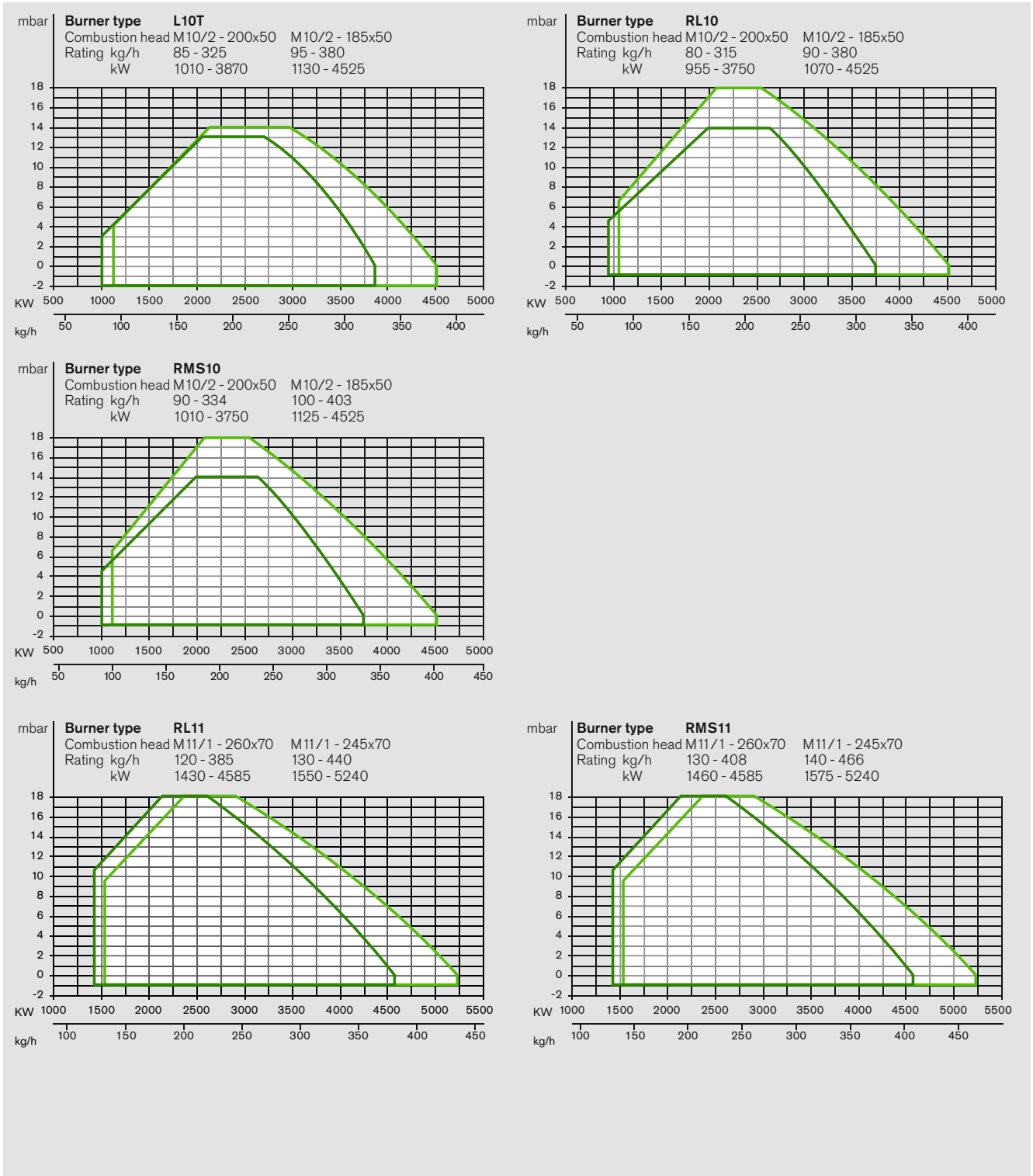
Size 8/2, types RL, MS and RMS



Sizes 8/2 and 9, types L, RL, MS and RMS



Sizes 10 and 11, types L, RL and RMS



Order numbers

Technical data

Order numbers		L1Z-B	L1T-B	L3Z-A	L3Z-A
Version		D ³⁾	D	D ⁵⁾	D-C
Version D or DC, with integral switchgear ¹⁾		211 164 03	211 194 03	211 364 01	711 366 01
Version D or DC, without integral switchgear ²⁾		211 164 04	211 194 04	211 364 02	711 366 02
Version ZMD, without integral switchgear ²⁾		-	-	-	-

Technical data					
Burner motor, 3 ~ 230/400 V, 50 Hz	Type	W-D90/90-2/0K5	W-D90/90-2/0K5	W-D90/90-2/1K0	W-D90/90-2/1K0
Nominal rating	kW	0,5	0,5	0,9	0,9
Current draw at 230/400V	A	2,6/1,5	2,6/1,5	3,8/2,2	3,8/2,2
Motor prefusing	A	6	6	6	6
Speed	rpm	2900	2900	2900	2900
Type-test number		5G547/05	5G547/05	5G549/05	5G549/05
Burner controller	Type	LOA 24.171	LAL	LOA 24.171	LAL
Servomotor	Type	-w- 1055/23	-w- 1055/80	-w- 1055/23	-w- 1055/23
Pump	Type	AE67	AE67	AE97	AE97
Fan wheel		ø 190 x 60	ø 190 x 60	ø 218 x 90	ø 218 x 90
Ignition unit	Type	W-ZG 02/V	W-ZG 02/V	W-ZG 02/V	W-ZG 02/V
Oil hoses	DN	8	8	8	8
	Length, mm	1000	1000	1000	1000
	Connection	3/8"	3/8"	3/8"	3/8"
Oil preheater	Type	-	-	-	-
	Heating capacity, kW	-	-	-	-
Weight	kg (approx.)	29	29	40	40

Order numbers Version	L3T-A D and D-C	RL3-A ZMD	M1Z-B D	M3Z-A D ⁵⁾	M3Z-A D-C
Version D or DC, with integral switchgear ¹⁾	711 396 01	–	212 164 03	712 364 03	712 366 03
Version D or DC, without integral switchgear ²⁾	711 396 02	–	212 164 04	712 364 04	712 366 04
Version ZMD, without integral switchgear ²⁾	–	711 374 02	–	–	–

Technical data						
Burner motor, 3 ~ 230/400 V, 50 Hz	Type	W-D90/90-2/1K0	W-D90/90-2/1K0	W-D90/90-2/1K0	W-D90/90-2/1K0	W-D90/90-2/1K0
Nominal rating	kW	0,9	0,9	0,9	0,9	0,9
Current draw at 230/400V	A	3,8/2,2	3,8/2,2	3,8/2,2	3,8/2,2	3,8/2,2
Motor prefusing	A	6	6	6	6	6
Speed	rpm	2900	2900	2900	2900	2900
Type-test number		5G549/05	5G552/05	–	–	–
Burner controller	Type	LAL	LAL	LMO 24.011	LOA 24.171	LAL
Servomotor	Type	-w- 1055/80	SQM 10...	-w- 1055/23	-w- 1055/23	-w- 1055/23
Pump	Type	AE 97	AJ4	E4	E4	E4
Fan wheel		ø 218 x 90	ø 218 x 90	ø 190 x 60	ø 218 x 90	ø 218 x 90
Ignition unit	Type	W-ZG 02/V	W-ZG 02/V	W-ZG 02/V	W-ZG 02/V	W-ZG 02/V
Oil hoses	DN	8	8	12	12	12
	Length, mm	1000	1000	500 u. 800	700 u. 1000	700 u. 1000
	Connection	3/8"	3/8"	1/2"	1/2"	1/2"
Oil preheater	Type	–	–	EV2A	EV2B	EV2B
	Heating capacity, kW	–	–	2,2	4,5	4,5
Weight	kg (approx.)	40	47	36	55	55

¹⁾ A separate control panel is required with burners for plant to TRD604, 72 h (unmanned boiler rooms). The integral switchgear is thereby omitted.

²⁾ The control box for burners without integral switchgear is supplied loose, or mounted in a control panel (extra cost). In both cases the burner is supplied with a terminal strip.

³⁾ Thus equipped, the L 1Z-B D burner is suitable for ratings up to 30 kg/h. For ratings above 30 kg/h, the additional price for "LAL 2.25 burner controller in lieu of LOA 24.171" must be added.

⁴⁾ Flame monitoring via QRB flame sensor

⁵⁾ Thus equipped, the L3Z-A D and M3Z-A D burners are suitable for ratings up to 30 kg/h. For ratings above 30 kg/h, burner types L3Z-A D-C and M3Z-A D-C must be used. These burners are equipped as standard with an LAL 2.25 burner controller.

Order numbers

Technical data

Order numbers		L5Z	L7Z	L8Z	L8Z		
Version		D	D	D	D		
With integral switchgear ¹⁾		611 564 01	611 764 01	611 864 01	611 866 01		
Without integral switchgear		611 564 02	611 764 02	611 864 02	611 866 02		
Technical data							
Burner motor, 50 Hz	Type	W-D90/90-2/1K5	W-D112/110-2/3K0	W-D112/140-2/5K0	W-D112/140-2/5K0		
	V	3~230/400	3~230/400	3~400	3~400		
Nominal rating	kW	1.5	3.0	4.8	4.8		
Current draw at 230/400 V	A	5.5/3.2	10.4/6.0	9.1	9.1		
Motor prefusing at 400 V	A	10 / 2.0-6.3 ²⁾	16 / 4.5-6.5 ²⁾	25 / 7.5-11.0 ²⁾	25 / 7.5-11.0 ²⁾		
		2.5-4.0 ⁴⁾	4.0-6.3 ⁴⁾	6.3-10 ⁴⁾	6.3-10 ⁴⁾		
Speed	rpm	2820	2900	2900	2900		
Type-test number		5G553/05	5G581/05	5G595/2006	5G595/2006		
Burner controller	Type	LAL	LAL	LAL	LAL		
Servomotor	Type	-w- 1055/23	-w- 1055/23	-w- 1055/23	-w- 1055/23		
Pump	Type	J6	J6	J6/J7 ⁵⁾	J6/J7/TA2 ^{5) 6)}		
Fan wheel		Ø 248x100	Ø 268x100	Ø 268x100	Ø 268x100		
Oil hoses	DN	13	13	13	13		
	Length mm	1000	1000	1000	1000		
	Hose-side connection	½"	½"	½"	½"		
	Installation-side connection	½"	½"	½"	½"		
Weight	kg (approx.)	53	73	78	81		
Order numbers							
Version		L5T	L7T	L8T	L8T/2	L9T	L10T
		D	D	D	D	D	D
With integral switchgear ¹⁾		611 594 01	611 794 01	611 894 01	611 896 01	611 994 01	–
Without integral switchgear		611 594 02	611 794 02	611 894 02	611 896 02	611 994 02	681 094 02
Technical data							
Burner motor, 50 Hz	Type	W-D90/90-2/1K5	W-D112/110-2/3K0	W-D112/140-2/5K0	W-D112/140-2/5K0	W-D132/120-2/6K5	W-D132/170-2/10K0
	V	3~230/400	3~230/400	3~400	3~400	3~400	3~400
Nominal rating	kW	1.5	3.0	4.8	4.8	6.5	10
Current draw at 230/400 V	A	5.5/3.2	10.4/6.0	9.1	9.1	14	20
Motor prefusing at 400 V	A	10 / 2.0-6.3 ²⁾	16 / 4.5-6.5 ²⁾	25 / 7.5-11.0 ²⁾	25 / 7.5-11.0 ²⁾	35 / 13.0-19.0 ²⁾	20-25 ⁴⁾
		2.5-4.0 ⁴⁾	4.0-6.3 ⁴⁾	6.3-10 ⁴⁾	6.3-10 ⁴⁾	25 / 7.5-11 ³⁾	
						10-16 ⁴⁾	
Speed	rpm	2820	2900	2900	2900	2920	2900
Type-test number		5G553/05	5G581/05	5G595/2006	5G595/2006	5G601/2006	5G604/2006
Burner controller	Type	LAL	LAL	LAL	LAL	LAL	LAL
Servomotor	Type	-w- 1055/80	-w- 1055/80	-w- 1055/80	-w- 1055/80	-w- 1055/80	-w- 1055/80
Pump	Type	J6	J6	J6/J7 ⁵⁾	J6/J7/TA2 ^{5) 6)}	J6/J7/TA2 ^{5) 6)}	J7/TA2 ⁶⁾
Fan wheel		Ø 248x100	Ø 268x100	Ø 268x100	Ø 268x100	Ø 330x100	Ø 345x100
Oil hoses	DN	13	13	13	13	13	13/20
	Length mm	1000	1000	1000	1000	1000	1000
	Hose-side connection	½"	½"	½"	½"	½"	½"/M30 x 1.5
	Installation-side connection	½"	½"	½"	½"	½"	½"/1"
Weight	kg (approx.)	53	73	78	81	125	137

Order numbers		RL5	RL7	RL8	RL8/2	RL9	RL10	RL11
Version		ZMD	ZMD	ZMD	ZMD	ZMD	ZMD	ZMD
Without integral switchgear		611 574 03	611 774 03	611 874 02	611 876 02	611 974 02	681 074 02	681 174 02
Technical data								
Burner motor, 50 Hz	Type	W-D90/90-2/1K5	W-D112/110-2/3K0	W-D112/140-2/5K0	W-D112/140-2/5K0	W-D132/120-2/6K5	W-D132/170-2/10K0	W-D132/210-2/12K0
	V	3~ 230/400	3~ 230/400	3~ 400	3~ 400	3~ 400	3~ 400	3~ 400
Nominal rating	kW	1.5	3.0	4.8	4.8	6.5	10	12
Current draw at 230/400 V	A	5.5/3.2	10.4/6.0	9.1	9.1	14	20	25
Motor prefusing at 400 V	A	10/2.0-6.3 ²⁾ 2.5-4.0 ⁴⁾	16/4.5-6.5 ²⁾ 4.0-6.3 ⁴⁾	25/7.5-11.0 ²⁾ 6.3-10 ⁴⁾	25/7.5-11.0 ²⁾ 6.3-10 ⁴⁾	35/13.0-19.0 ²⁾ 25/7.5-11 ³⁾ 10-16 ⁴⁾	20-25 ⁴⁾	20-25 ⁴⁾
Speed	rpm	2820	2900	2900	2900	2920	2900	2900
Type-test number		5G579/05	5G583/05	5G597/2006	5G597/2006	5G603/2006	5G605/2006	5G606/2006
Burner controller	Type	LAL	LAL	LAL	LAL	LAL	LAL	LAL
Servomotor	Type	SQM ⁷⁾	SQM ⁷⁾	SQM ⁷⁾	SQM ⁷⁾	SQM ⁷⁾	SQM ⁷⁾	SQM ⁷⁾
Pump	Type	J6	TA2	TA3	TA3	TA3	TA3	TA4
Fan wheel		Ø 248x100	Ø 268x100	Ø 268x100	Ø 268x100	Ø 330x100	Ø 345x100	Ø 345x100
Oil hoses	DN	13	20	20	20	20	20	25
	Length mm	1000	1000	1000	1000	1000	1000	1300
	Hose-side connection	½"	M 30 x 1.5	M 30 x 1.5	M 30 x 1.5	M 30 x 1.5	M 30 x 1.5	M 38 x 1.5
	Installation-side connection	½"	1"	1"	1"	1"	1"	1"
Weight	kg (approx.)	60	80	85	89	132	137	195

Burners without integral switchgear:

The control box for burners without integral switchgear is supplied loose, or mounted in a control panel (extra cost). In both cases the burner is supplied with a terminal strip.

¹⁾ A separate control panel is required with burners for plant to TRD604, 72 h (unmanned boiler rooms). The integral switchgear is thereby omitted.

²⁾ With integral switchgear
Prefusing/overload relay
D.O.L. start

³⁾ With integral switchgear
Prefusing/overload relay
YΔ start

⁴⁾ Without integral switchgear
Motor protection switch
D.O.L. and YΔ start

⁵⁾ Additional cost item for burners > 200 kg/h oil:
Pump J7 in lieu of J6 (see page 26)

⁶⁾ Additional cost item for burners > 250 kg/h oil:
Pump TA2 in lieu of J7 (see page 26)

⁷⁾ For sliding-two-stage burners:
SQM 10. 15562 servomotor (20 s)
For modulating burners:
SQM 10. 16562 servomotor (42 s)

Note: If the supply pressure is in excess of 2 bar, pumps E6 and E7 must be used in lieu of pumps J6 and J7.

Order numbers

Technical data

Order numbers		M5Z	MS7Z	MS8Z	MS8Z/2
Version		D	D	D	D
With integral switchgear ¹⁾		612 564 03	612 764 03	612 864 03	612 866 03
Without integral switchgear		612 564 04	612 764 04	612 864 04	612 866 04
Technical data					
Burner motor, 50 Hz	Type	W-D90/90-2/1K5	W-D112/110-2/3K0	W-D112/140-2/5K0	W-D112/140-2/5K0
	V	3~230/400	3~230/400	3~400	3~400
Nominal rating	kW	1,5	3,0	4,8	4,8
Current draw at 230/400V	A	5,5/3,2	10,4/6,0	9,1	9,1
Motor prefusing at 400V	A	10 / 2,0-6,3 ²⁾	16 / 4,5-6,5 ²⁾	25 / 7,5-11,0 ²⁾	25 / 7,5-11,0 ²⁾
		2,5-4,0 ⁴⁾	4,0-6,3 ⁴⁾	6,3-10 ⁴⁾	6,3-10 ⁴⁾
Speed	rpm	2820	2900	2900	2900
Type-test number		5G553/05	5G581/05	5G595/2006	5G595/2006
Burner controller	Type	LAL	LAL	LAL	LAL
Servomotor	Type	-w- 1055/23	-w- 1055/23	-w- 1055/23	-w- 1055/23
Pump	Type	J6	E6	E7	E7
Fan wheel		Ø 248x100	Ø 268x100	Ø 268x100	Ø 268x100
Oil hoses	DN	12	20	20	20
	Length, mm, supply/return	1000/700	1300/1000	1300/1000	1300/1000
	Hose-side connection	½"	M 30 x 1,5	M 30 x 1,5	M 30 x 1,5
	Installation-side connection	½"	1"	1"	1"
Oil preheater	Type	EV2B	EV2D	EV2D	EV2D
	Heating capacity, kW	4,5	13,2 ²⁾	13,2	13,2 ⁴⁾
Weight	kg (approx)	68	94	112	115

RMS burners

Please submit an enquiry to our works if the combustion of heavy fuel oil with a viscosity in excess of 50 mm²/s at 100 °C is being considered.

Order numbers		RMS7	RMS8	RMS8/2	RMS9	RMS10	RMS11
Version		ZMD	ZMD	ZMD	ZMD	ZMD	ZMD
Without integral switchgear		612 774 03	612 874 04	612 876 04	612 974 04	682 074 04	682 174 03
Technical data							
Burner motor, 50 Hz	Type	W-D112/110-2/3K0	W-D112/140-2/5K0	W-D112/140-2/5K0	W-D132/120-2/6K5	W-D132/170-2/10K0	W-D132/210-2/12K0
	V	3~230/400	3~400	3~400	3~400	3~400	3~400
Nominal rating	kW	3.0	4.8	4.8	6.5	10	12
Current draw at 230/400V	A	10.4/6.0	9.1	9.1	14	20	25
Motor prefusing at 400V	A	16/4.5-6.5 ²⁾ 4.0-6.3 ⁴⁾	25/7.5-11.0 ²⁾ 6.3-10 ⁴⁾	25/7.5-11.0 ²⁾ 6.3-10 ⁴⁾	35/13.0-19.0 ²⁾ 25/7.5-11 ³⁾ 10-16 ⁴⁾	20-25 ⁴⁾	20-25 ⁴⁾
Speed	rpm	2900	2900	2900	2920	2900	2900
Type-test number		5G553/05	5G581/05	5G595/2006	5G595/2006	5G601/2006	5G604/2006
Burner controller	Type	LAL	LAL	LAL	LAL	LAL	LAL
Servomotor	Type	SQM ⁶⁾	SQM ⁶⁾	SQM ⁶⁾	SQM ⁶⁾	SQM ⁶⁾	SQM ⁶⁾
Pump	Type	TA2	TA3	TA3	TA3	TA3	TA4
Fan wheel		Ø 268x100	Ø 268x100	Ø 268x100	Ø 330x100	Ø 345x100	Ø 345x100
Oil hoses	DN	20	20	20	20	20	25
	Length, mm, supply/return	1300/1000	1300/1000	1300/1000	1300/1000	1300/1000	1500/1150
	Hose-side connection	M30 x 1.5	M30 x 1.5	M30 x 1.5	M30 x 1.5	M30 x 1.5	M38 x 1.5
	Installation-side connection	1"	1"	1"	1"	1"	1"
Oil preheater	Type	EV2D	EV2D	EV2D	EV2D	EV2D	WEV3
	Heating capacity, kW	13.2 ³⁾	13.2	13.2 ⁴⁾	13.2 ⁴⁾⁵⁾	13.2 ⁴⁾⁵⁾	22.4
Weight	kg (approx.)	111	120	124	175	180	245

¹⁾ With integral switchgear
Prefusing/overload protection
D.O.L. start

²⁾ Without integral switchgear
Motor protection switch
D.O.L. + $\Upsilon\Delta$ start

³⁾ Price reduction for viscosities $\leq 152 \text{ mm}^2/\text{s}$ at
50 °C: EV2C oil preheater.

⁴⁾ Burners with oil throughputs > 270 kg/h:
WEV2.2 oil preheater in lieu of EVD2D.
See special equipment for additional price

⁵⁾ Burners with oil throughputs > 300 kg/h:
WEV3 oil preheater in lieu of WEV2.2.
See special equipment for additional price

⁶⁾ For sliding-two-stage burners:
SQM 10. 15562 servomotor (20 s)
For modulating burners:
SQM 10. 16562 servomotor (42 s)

Special equipment

Types L and M

Size			1	3
Integral hours counter		1x L...Z	210 000 69	210 000 69
		2x L...Z	210 000 70	210 000 70
		2x M...Z	210 000 70	210 000 70
Heating for pump type E		M...Z	110 004 74	110 004 74
Pressure gauge with ball valve		L...Z+T	110 006 63	110 006 63
		RL	-	210 000 92
		M...Z	110 008 82	110 008 82
Vacuum gauge with ball valve		L...Z+T	110 006 64	110 006 64
		RL	-	110 006 64
		M...Z	110 005 70	110 005 70
Potentiometer fitted to servomotor	220 Ω	RL	-	110 002 86
	1000 Ω	RL	-	110 003 03
Solenoid valve for pressure relief of the pump for continuously running fan or post-purge	without integral switchgear	L...Z	210 005 99	210 005 92
		L...T	210 006 20	210 007 07
	with integral switchgear	L...Z	210 007 15	210 005 92
		L...T	-	210 007 07
		RL	-	210 000 52
		M...Z	210 000 88	210 000 54
Electromagnetic clutch for pressure relief of the pump for continuously running fan or post-purge	without integral switchgear	L...Z	210 003 25	210 001 75
		L...T	210 004 92	210 005 19
		RL	-	210 001 44
	with integral switchgear	M...Z	210 003 26	210 003 01
		L...Z	210 003 90	210 001 75
		L...T	-	210 005 19
Combustion head extension	by 100 mm	M...Z	210 003 91	-
		L...Z	210 003 22	210 000 19
		L...T	210 004 76	210 004 79
	by 200 mm	RL...	-	210 000 23
		M...Z	210 003 30	210 002 29
		L...Z	210 003 23	210 000 21
Integral oil meter		L...T	210 004 77	210 004 80
		RL...	-	210 000 25
		M...Z	210 003 31	210 002 30
Oil hoses	1300 mm long in lieu of 1000 mm	L...Z	210 005 30	210 004 30
		M...Z	210 004 86	210 005 27
		M...Z	210 003 00	210 003 00
	1000 mm, rubber, heated	M...Z	210 002 02	210 002 04
	1300 mm, rubber, heated	M...Z	210 002 03	210 002 05

Burners to TRD 604, 24 h / 72 h:
Please refer to Print No. 863

Size			1	3
Burner controller (incorporated in integral switchgear)	LAL 2.25 in lieu of LOA 24.171	L...Z D	210 002 62	–
		M...Z D	210 006 05	–
	LOA 44.252 in lieu of LOA24.171	L...Z D	210 002 52	210 002 52
		M...Z D	–	210 002 52
	LOK 16... in lieu of LOA... / LAL...	M...Z D	210 003 98	210 003 99
Burner controller (loose, for fitting into a control panel)	LAL 2.25 in lieu of LOA 24.171	L...Z D	210 002 54	210 002 54
		LOA 44.252 in lieu of LOA24.171	L...Z D	210 002 52
		M...Z D	–	210 002 52
	LOK 16... in lieu of LOA... / LAL...	L...Z D	210 004 03	210 003 87
		L...Z D-C	–	210 003 88
		RL...	–	210 003 88
Integral switchgear		RL... ZMD	–	210 003 35
Air inlet flange for ducted air supply		L...Z/T	210 000 67	210 000 67
		RL...	–	210 000 67
		M...Z	210 000 67	210 000 67
Industrial version, IP54 version		L...Z	210 003 19	210 002 47
		L...T	210 006 02	210 006 03
		RL...	–	210 004 17
		M...Z	210 006 04	210 003 77
Price reductions				
Oil preheater	EV2A in lieu of EV2B	M...Z D w/o int. switch.	–	210 000 85
		M...Z D with int. switch.	–	210 004 68
		M...Z D-C with int. switch.	–	210 004 69

Special equipment

Types L, M and MS

Size			5	7
Integral hours counter (2 units only with two-stage burners)			110 001 07	110 001 08
Pump ¹⁾	L burners	J7 in lieu of J6 TA2 in lieu of J6	– –	– –
Heating (M, MS)		for pump type E	110 004 74	110 004 74
Pressure gauge with ball valve		for L burners für M/MS burners	110 000 79 110 008 82	110 000 79 110 008 82
Vacuum gauge with ball valve		for L burners for M/MS burners	110 005 69 110 005 70	110 005 69 110 005 70
Solenoid valve for pressure relief of the pump for continuously running fan or post-purge		for L burners für M/MS burners	110 003 36 110 003 32	110 003 37 110 009 77
Electromagnetic clutch for pressure relief of the pump for continuously running fan or post-purge		for L burners for M/MS burners	110 003 97 110 007 28	110 003 48 110 005 64
Combustion head extension	L burners, by	100 mm 100 mm (three-stage) 150 mm 150 mm (three-stage)	110 000 29 110 013 86 – –	– – 110 000 34 110 005 93
		200 mm 200 mm (three-stage) 250 mm 250 mm (three-stage)	110 000 37 110 014 18 – –	– – 110 000 42 110 005 94
	M/MS burners, by	100 mm 150 mm 200 mm 250 mm	110 016 73 – 110 016 74 –	– 110 010 83 – 110 010 84
Integral oil meter		for L..Z burners for L..T burners	110 013 46 110 014 60	110 013 47 110 013 48
MV9C oil preheater for MS burners in addition to the standard electric oil preheater, incl. oil connection parts and thermometer			–	110 008 26
MV9C oil preheater in lieu of EV2D, incl. oil connection parts and thermostat for oil release			–	110 001 18
EV2 oil preheater in lieu of EV2D			–	–
Vertically firing burners only with medium preheaters (MV rotated through 90° due to condensate outlet)			110 000 52	110 000 52
Integral switchgear	RL burners		110 012 63	110 012 30
Fittings for medium preheater in conjunction with electric preheater				
– Screwed for LTHW		up to 110 °C	110 001 25	110 001 25
– Flanged for HTHW		from 110 °C to 180 °C	110 001 28	110 001 28
– Screwed for low-pressure steam		up to 0.5 bar	110 001 29	110 001 29
– Screwed for high-pressure steam		up to 1.5 bar	110 001 29	110 001 29
– Screwed for high-pressure steam		from 1.5 bar to 15 bar	110 001 31	110 001 31
– Flanged for high-pressure steam		from 6 bar to 20 bar	110 001 32	110 001 32
– Flanged for high-pressure steam		from 20 bar to 25 bar	110 001 24	110 001 24
– Flanged for thermal fluid		up to 250 °C	110 001 33	110 001 33
– Flanged for thermal fluid		up to 300 °C	110 001 34	110 001 34
Fittings for medium preheater without electric preheater with thermostat valve				
– Flanged for HTHW		from 110 °C to 180 °C	110 001 61	110 001 61
– Flanged for high-pressure steam		from 7.5 bar to 13 bar	110 001 62	110 001 62
– Flanged for high-pressure steam		from 13 bar to 20 bar	110 001 63	110 001 63
– Flanged for high-pressure steam		from 20 bar to 25 bar	110 001 66	110 001 66
– Flanged for thermal fluid		up to 250 °C	110 001 64	110 001 64
– Flanged for thermal fluid		up to 300 °C	110 001 65	110 001 65
1300 mm long oil hoses in lieu of 1000 mm Heated (stainless steel)		for L burners for M/MS burners	110 000 72 110 010 17	110 000 72 110 010 18
Burner controller	LOK 16.250 in lieu of LAL 2.25 LAL 3.25 in lieu of LAL 2.25		110 013 06 110 006 48	110 013 06 110 006 48
Price reductions				
Oil preheater	EV2C in lieu of EV2D EV2C in lieu of EV2D	MS7Z with integral switchgear MS7Z without integral switchgear	– –	110 004 70 110 009 79

¹⁾ J7 pump for capacities up to 250 kg/h. Pump TA2 for capacities above 250 kg/h (additional cost item)

Burners to TRD 411 and TRD 604

See special information (available on request).

Marine execution

See separate price list

8	8/2	9	10	11
110 001 08	110 001 08	110 013 22	–	–
–	–	110 015 43 5		
–	–	110 006 45 3 (J6)	110 015 46 4 (J7)	–
110 004 74	110 004 74	110 004 74	–	–
110 000 79	110 000 79	110 000 79	110 002 82	–
110 008 82	110 008 82	110 008 82	–	–
110 005 69	110 005 69	110 005 69	110 005 69	–
110 005 70	110 005 70	110 005 70	–	–
110 003 37	110 003 37	110 003 38	180 001 02	–
110 009 77	110 009 77	–	–	–
110 003 48	110 003 48	–	110 009 92	–
110 005 64	110 005 64	110 005 65	–	–
–	–	–	–	–
–	–	–	–	–
110 000 34	110 000 46	110 006 75	–	–
110 005 93	110 005 95	110 005 97	180 000 44	–
–	–	–	–	–
–	–	–	–	–
110 000 42	110 000 43	110 006 98	–	–
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	–	–
110 013 55	110 013 55	110 013 57	–	–
110 013 56	110 013 56	110 013 58	180 001 22	–
110 008 26	110 008 25	110 008 24	–	–
110 001 18	–	110 010 62	–	–
–	–	110 015 91	–	–
110 000 52	110 000 52	110 000 52	–	–
–	–	–	–	–
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	–	–
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	–	–
110 000 72	110 000 72	110 000 72	110 001 59	–
110 010 18	110 010 18	110 010 18	–	–
110 013 06	110 013 06	110 013 06	110 013 06	–
110 006 48	110 006 48	110 006 48	110 006 48	–
–	–	–	–	–
–	–	–	–	–

Special equipment

Types RL and RMS

Size		5	7
Pressure gauge with ball valve	for RL burners for RMS burners	110 008 82 –	110 002 82 110 008 83*
Pressure gauge with ball valve (return)	for RL burners	–	–
Vacuum gauge with ball valve	for RL burners for RMS burners	110 005 69 –	110 005 69 110 005 70*
Solenoid valve for pressure relief of the pump for continuously running fan or post-purge	for RL burners for RMS burners	110 003 46 –	110 003 45 110 009 72*
Electromagnetic clutch for pressure relief of the pump for continuously running fan or post-purge	for RL burners for RMS burners	110 007 27 –	110 010 66 110 005 18*
Integral switchgear	for RL burners	110 012 63	110 012 30*
Potentiometer fitted to servomotor	220 Ω 1000 Ω	110 002 86 110 003 03	110 002 68* 110 003 03*
	220/220 Ω 220/1000 Ω 1000/1000 Ω	110 011 12 110 011 13 110 011 14	110 011 12* 110 011 13* 110 011 14*
Oil hoses	1300 mm in lieu of 1000 mm heated (stainless steel)	for RL burners for RMS burners	110 000 72 –
Combustion head extension	RL burners, by	100 mm 120 mm 150 mm	110 009 81 – –
		200 mm 250 mm 300 mm	– 110 009 83 110 009 84
	RMS burners, by	150 mm 250 mm 300 mm	– – –
			110 010 90* 110 010 91* –
MV9C oil preheater for MS burners in addition to the standard electric oil preheater, incl. oil connection parts and thermometer		–	110 004 01*
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	– –	– –
Fittings for medium preheater in conjunction with electric preheater			
– Screwed for LTHW	up to 110 °C	–	110 001 25
– Flanged for HTHW	from 110 °C to 180 °C	–	110 001 28
– Screwed for low-pressure steam	up to 0.5 bar	–	110 001 29
– Screwed for high-pressure steam	up to 1.5 bar	–	110 001 29
– Screwed for high-pressure steam	from 1.5 bar to 15 bar	–	110 001 31
– Flanged for high-pressure steam	from 6 bar to 20 bar	–	110 001 32
– Flanged for high-pressure steam	from 20 bar to 25 bar	–	110 001 24
– Flanged for thermal fluid	up to 250 °C	–	110 001 33
– Flanged for thermal fluid	up to 300 °C	–	110 001 34
Fittings for medium preheater without electric preheater with thermostat valve			
– Flanged for HTHW	from 110 °C to 180 °C	–	110 001 61
– Screwed for high-pressure steam	from 7.5 bar to 13 bar	–	110 001 62
– Screwed for high-pressure steam	from 13 bar to 20 bar	–	110 001 63
– Flanged for high-pressure steam	from 20 bar to 25 bar	–	110 001 66
– Flanged for thermal fluid	up to 250 °C	–	110 001 64
– Flanged for thermal fluid	up to 300 °C	–	110 001 65
Vertically firing burners only with medium preheaters (MV rotated through 90° due to condensate outlet) see M/MS burners for connection fittings		–	110 000 52
Burner controller	LOK 16.250 in lieu of LAL 2.25 LAL 3.25 in lieu of LAL 2.25	110 013 06 110 006 48	110 013 06 110 006 48
Price reductions EV2C oil preheater in lieu of EV2D	for RMS7	–	110 007 21

Burners to TRD 411 and TRD 604

See special information (available on request).

8	8/2	9	10	11
110 002 82	110 002 82	110 002 82	110 002 82	110 002 82
110 008 83	110 008 83	110 008 83	110 008 83	110 008 83
110 010 78	110 010 78	110 010 78	110 010 78	110 010 78
110 005 69	110 005 69	110 005 69	110 005 69	110 005 69
110 005 70	110 005 70	110 005 70	110 005 70	110 005 70
110 009 71	110 009 71	110 009 74	110 009 74	110 009 74
110 009 72	110 009 72	110 009 75	110 009 75	110 009 75
110 003 95	110 003 95	110 007 39	110 007 39	110 007 39
110 005 18	110 005 18	110 005 66	110 005 66	110 005 67
110 014 92	110 016 79	–	–	–
110 002 86	110 002 86	110 002 86	110 002 86	110 002 86
110 003 03	110 003 03	110 003 03	110 003 03	110 003 03
110 011 12	110 011 12	110 011 12	110 011 12	110 011 12
110 011 13	110 011 13	110 011 13	110 011 13	110 011 13
110 011 14	110 011 14	110 011 14	110 011 14	110 011 14
110 001 59	110 001 59	110 001 59	110 001 59	–
110 010 18	110 010 18	110 010 18	110 010 18	180 000 63
–	–	–	–	–
110 002 42	110 002 46	110 006 76	180 000 46	180 000 24
–	–	–	–	–
110 002 44	110 007 24	110 002 87	180 000 47	–
–	–	–	–	180 000 01
110 010 90	110 010 92	110 010 94	180 000 84	180 000 86
110 010 91	110 010 93	110 010 95	180 000 85	–
–	–	–	–	180 000 87
110 004 01	110 011 37	110 011 24	110 011 24	180 000 08
110 011 33	110 011 33	110 011 34	110 011 34	–
–	–	–	110 014 75	–
–	110 011 38	110 011 22	110 011 22	–
–	–	–	–	180 000 09
110 001 25	110 001 25	110 001 25	110 001 25	110 001 25
110 001 28	110 001 28	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 29	110 001 29	110 001 29	110 001 29
110 001 31	110 001 31	110 001 31	110 001 31	110 001 31
110 001 32	110 001 32	110 001 32	110 001 32	110 001 32
110 001 24	110 001 24	110 001 24	110 001 24	110 001 24
110 001 33	110 001 33	110 001 33	110 001 33	110 001 33
110 001 34	110 001 34	110 001 34	110 001 34	110 001 34
110 001 61	110 001 61	110 001 61	110 001 61	110 001 61
110 001 62	110 001 62	110 001 62	110 001 62	110 001 62
110 001 63	110 001 63	110 001 63	110 001 63	110 001 63
110 001 66	110 001 66	110 001 66	110 001 66	110 001 66
110 001 64	110 001 64	110 001 64	110 001 64	110 001 64
110 001 65	110 001 65	110 001 65	110 001 65	110 001 65
110 000 52	110 000 52	110 000 52	110 000 52	110 000 52
110 013 06	110 013 06	110 013 06	110 013 06	110 013 06
110 006 48	110 006 48	110 006 48	110 006 48	110 006 48
–	–	–	–	–

Scope of delivery



Monarch light-oil burner, type L

Monarch light-oil burners, type L

Two-stage burners

- 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 head
- Air-regulation housing with air damper and servomotor
- Ignition unit
- Ignition cable
- Ignition electrodes
- Burner controller with flame sensor, burner with or without integral switchgear (for integral switchgear see page 30).

Three-stage burners

The scope of delivery varies from 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 L10 burners.



Monarch light-oil burner, type RL

Monarch light-oil burners, type RL

Sliding-two-stage and modulating burners

The scope of delivery varies from the two-stage burner as follows:

- Servomotor for oil/air regulation via regulating cam
- Oil regulator
- Nozzle assembly with spill-back nozzle
- Two control solenoid valves
- Pressure switch
- Burner controller for panel mounting. Integral switchgear not available

Modulating burners also require a panel-mounted modulation controller (additional cost item).

A separate control panel is required for RL5 to RL11 burners.

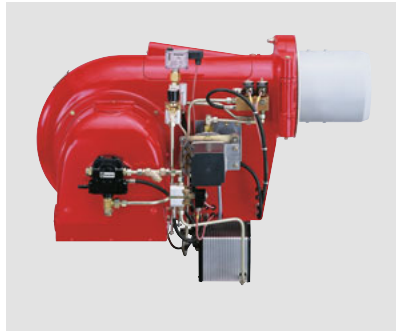


Monarch medium/heavy-oil burner, type M/MS

Monarch medium and heavy-oil burners, types M and MS

The scope of delivery varies from the L-type burner as follows:

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



Monarch medium/heavy-oil burner, type RMS

Monarch medium and heavy-oil burners, type RMS

The scope of delivery varies from the RL-type burner as follows:

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

A separate control panel is required for RMS7 to RMS11 burners.

Scope of delivery



Hinged burner casing

The hinged flange offers many advantages. Combustion head, nozzles, and ignition electrodes are easily accessed, which simplifies installation and servicing. The burner can be hinged open once the central screw on the burner flange has been released (except on burners with combustion-head extensions).

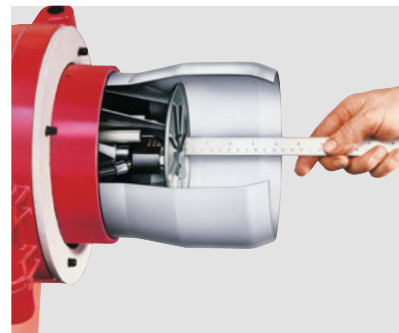


Fully integral switchgear on two and three-stage L-type Monarch burners

The integral switchgear includes all of the elements necessary for burner operation:

- 1 Stage-1 switch and lamp
- 1 Stage-2 switch and lamp
- 1 Contactor
- 1 Motor overload protection

Hours-run meters can be fitted on request.



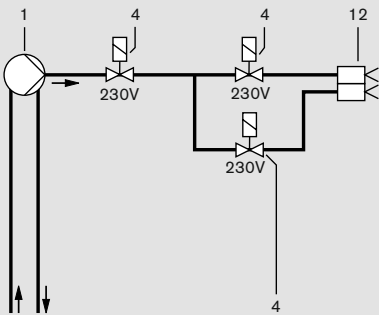
Adjustable and removable combustion heads

No one boiler is the same as another, and yet one burner has to be capable of extremely economical performance on all boilers. To achieve this, the position of the combustion head and the diffuser relative to one another can be altered. In this way the burners can be adjusted to suit combustion chamber conditions.

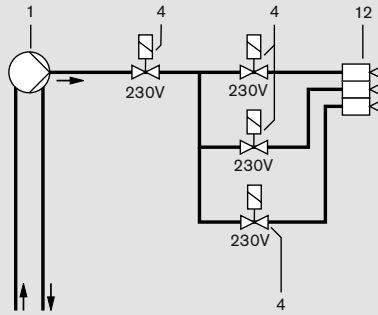
There is a further benefit with burner sizes 9 to 11: with the burner hinged open, the combustion head and combustion head support can be removed through the hinged flange.

Fuel systems

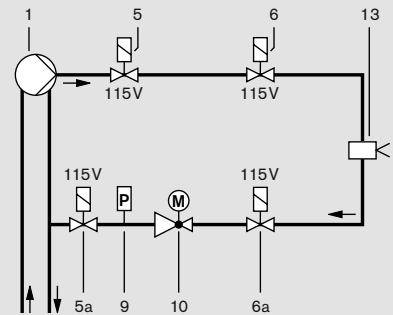
L1Z-B and L3Z-A



L1T-B and L3T-A

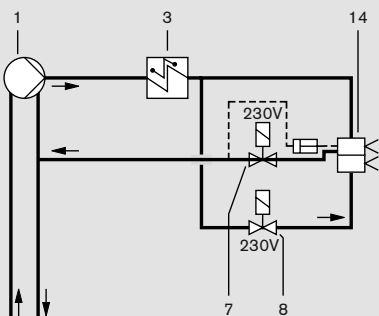


RL3-A

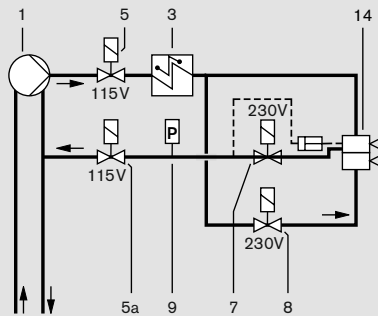


Sliding-two-stage and modulating operation without shut-off

M1Z-B and M3Z-A < 30 kg/h



M3Z-A > 30 kg/h

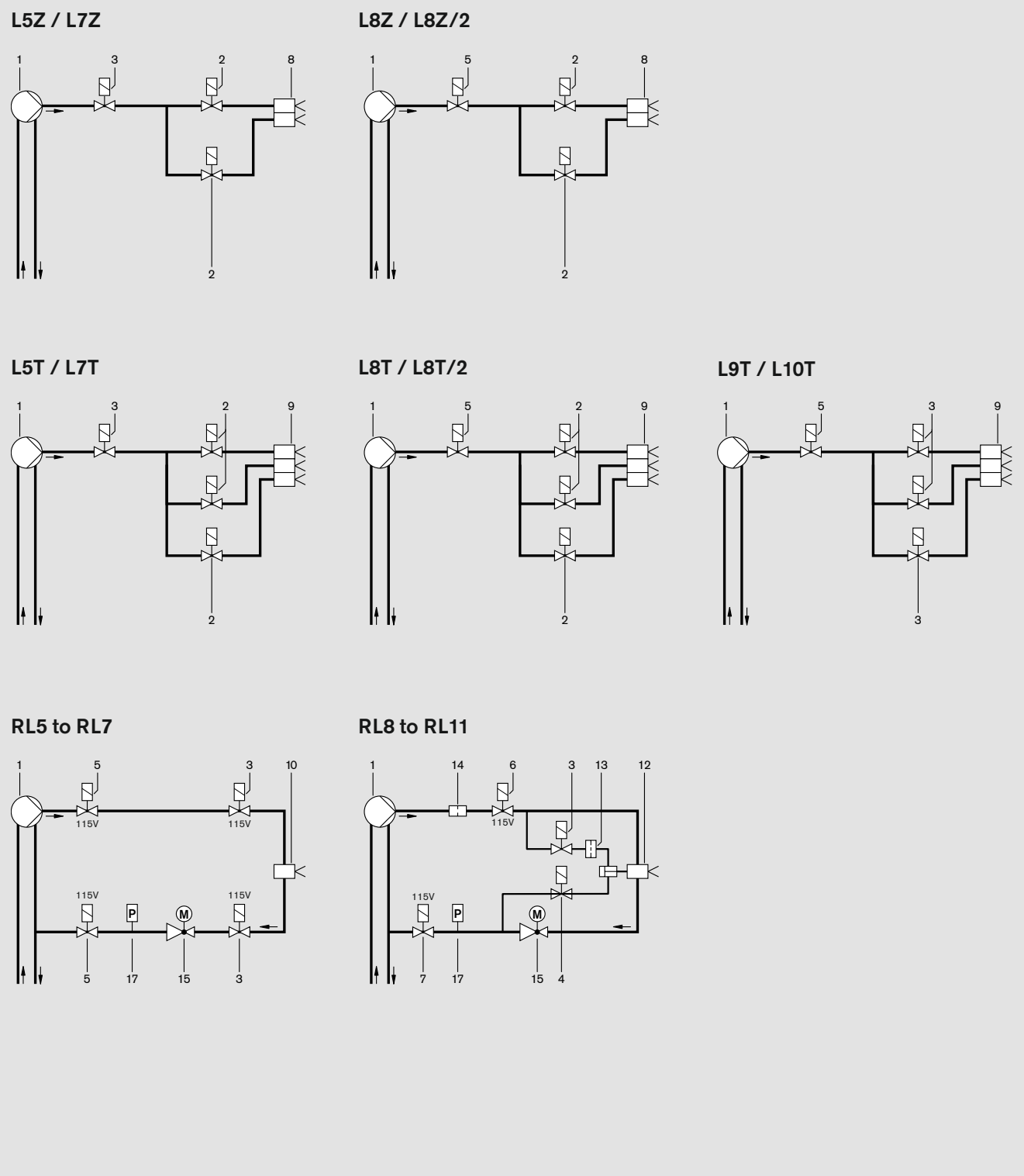


- 1 Pump without integral solenoid valve
- 3 Oil preheater
- 4 Normally closed solenoid valve
- 5 Normally closed solenoid valve (1st shut-off in supply, 115 V, electrically connected in series)
- 5a Normally closed solenoid valve (1st shut-off in return, 115 V, electrically connected in series, fitted against the direction of flow)

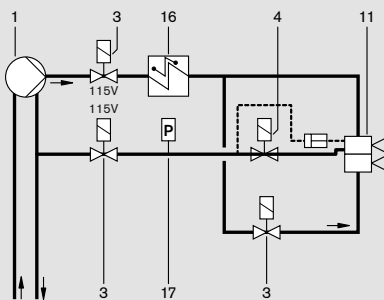
- 6 Normally closed solenoid valve (2nd shut-off in supply, 115 V, electrically connected in series)
- 6a Normally closed solenoid valve (2nd shut-off in return, 115 V, electrically connected in series, fitted against the direction of flow)
- 7 Normally open solenoid valve (stage 1)
- 8 Normally closed solenoid valve (stage 2)
- 9 Pressure switch in return

- 10 Oil regulator
- 12 Nozzle head with two/three nozzles, without shut-off
- 13 Nozzle head R, without integral shut-off
- 14 Nozzle head M, with integral shut-off

Fuel systems



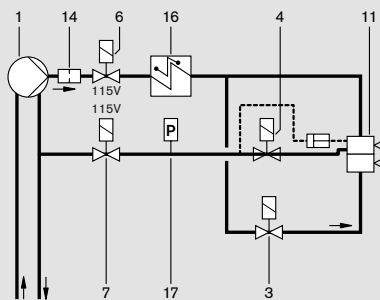
M5Z



- **Burner types 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 are fitted against the direction of flow.

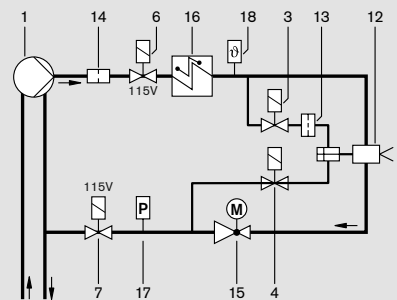
MS7Z and MS8Z



- **Burner types RL8 – RL11**

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

RMS7 to RMS11



- **Burner types M5Z, MS7Z – MS8Z, RMS7 – RMS11**

Solenoid valves (3)/(6) in the supply and solenoid valves (3)/(7) in the return are electrically connected in series. Solenoid valve (3)/(7) in the return is fitted against the direction of flow.

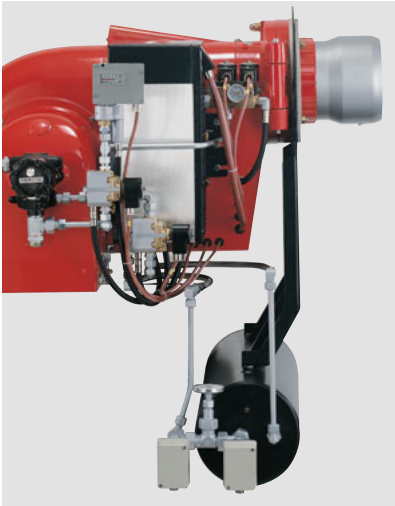
Key

1	Pump		
2	Solenoid valve, type 121Z232 (normally closed) G $\frac{3}{8}$	9 W coil	
3	Solenoid valve, type 121K2423 (normally closed) G $\frac{3}{8}$	19 W coil	
4	Solenoid valve, type 122K9321 (normally open) G $\frac{3}{8}$	19 W coil	
5	Solenoid valve, type 121K6220 (normally closed) G $\frac{1}{4}$	20 W coil	
6	Solenoid valve, type 321H2322 (normally closed) G $\frac{3}{8}$	20 W coil	
7	Solenoid valve, type 121G2320 (normally closed) G $\frac{3}{8}$	20 W coil	
8	Two-stage, light-oil nozzle assembly (without integral shut-off)		
9	Three-stage, light-oil nozzle assembly (without integral shut-off)		
10	Nozzle assembly R (without integral shut-off)		
11	Two-stage nozzle assembly M (with integral shut-off)		
12	Nozzle assembly R (with integral shut-off in the supply and return)		

13	Restricting orifice
14	Strainer
15	Oil regulator
16	Oil preheater
17	0-10 bar pressure switch, return (set to 5 bar for light oil and 7 bar for MFO/HFO)
18	Thermostat

The stated voltages are with 230 V control voltage. 115 V and 55 V units are used with 115 V control voltage.

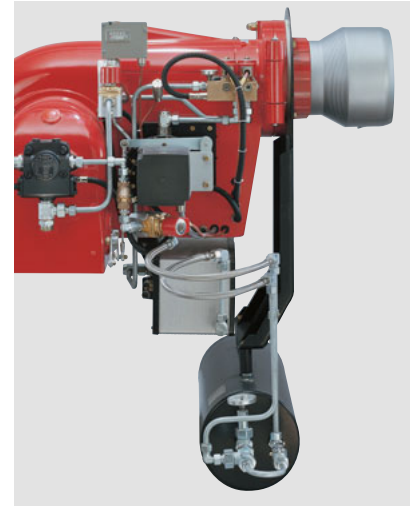
Weishaupt MV medium preheater



MS7Z with EV2D and MV9C



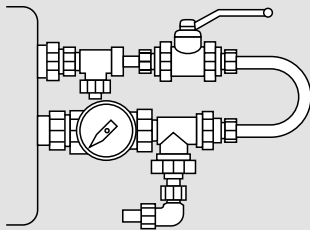
MS7Z with MV9C



RMS8 with EV2D and MV9C

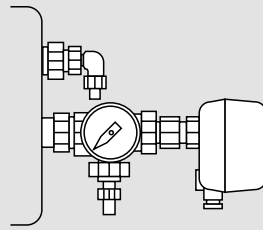
Oil connection parts for medium oil preheaters with electric preheater

- 2 Hoses, 520 mm long
- 1 Ball valve
- 1 Precision thermometer
- 1 Thermometer holder, unions, and pipe connections



Oil connection parts for medium oil preheaters without electric preheater

- 2 Hoses, 520 mm long
- 1 Thermostat with switch-over contact to release the burner
- 1 Thermostat 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.

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

If a medium of sufficient temperature is available, or if light oil is being used to start the burner, an electric preheater is not required. If the temperature of the medium is insufficient for preheating the fuel oil to atomising temperature, the balance of the heating process is carried out by an electric preheater.

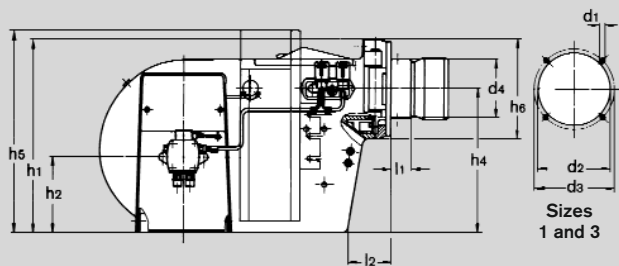
The preheaters are supplied with all the necessary fittings for the medium in question.

Weishaupt medium oil preheaters are available with numerous fittings for different heating media.

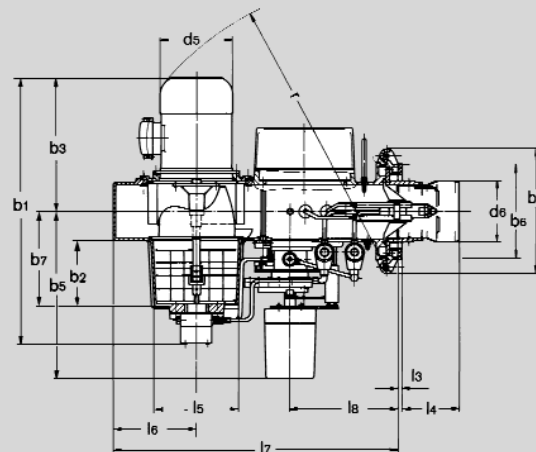
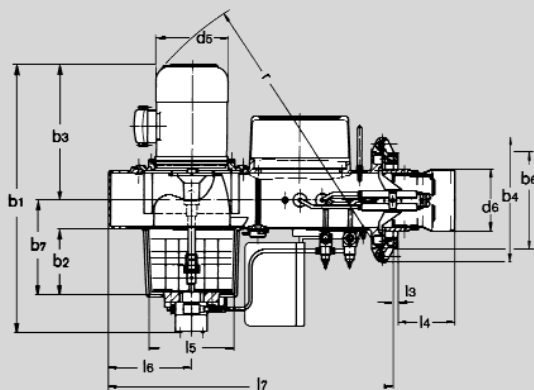
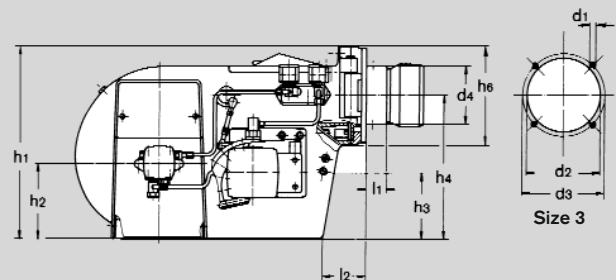
Detailed information on the scope of delivery and method of connection are contained in a separate brochure on Weishaupt oil preheaters.

Dimensions

Monarch L and M



Monarch RL



Monarch L and M, sizes 1 and 3

Size	Dimensions in mm														
	h1	h2	h4	h5	h6	d1	d2	d3	d4	d5	d6 ²⁾	b1	b2	b3 ¹⁾	
1	388	150	290	420	195	M8	135	160-170	120	161/175 ¹⁾	128	526/507 ¹⁾	153	257/239 ¹⁾	
3	435	170	325	460	220	M10	165	186	130/150 ¹⁾	161/175 ¹⁾	140/160 ²⁾	592/533 ¹⁾	153	312/253 ¹⁾	
	b4	b6	b7	l1	l2	l3	l4 ²⁾	l5	l6	l7	r1	r2			
1	248	195	210	32	80	8	122	195	168	538	555 ¹⁾	600			
3	280	220	218	47	100	8	124/134 ²⁾	198	188	645	665/650 ¹⁾	675			

Monarch RL, size 3

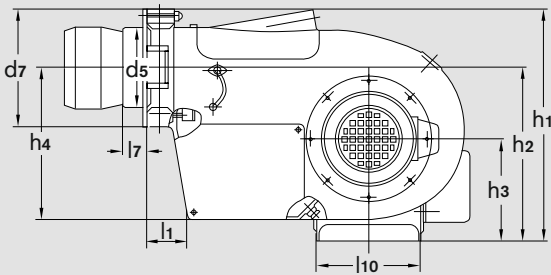
Size	Dimensions in mm														
	h1	h2	h3	h4	h6	d1	d2	d3	d4	d5	d6	b1	b2	b3 ¹⁾	
3	435	170	150	325	220	M10	165	186	130/150 ²⁾	161/175 ¹⁾	140/160 ²⁾	612/553 ¹⁾	153	312/253 ¹⁾	
	b4	b5	b6	b7	l1	l2	l3	l4	l5	l6	l7	l8	r1	r2	
3	280	385	220	218	47	100	8	124/134 ²⁾	198	188	645	220	665/650 ²⁾	650	

¹⁾ With version E/version D

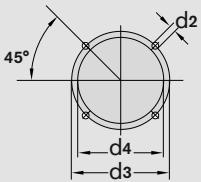
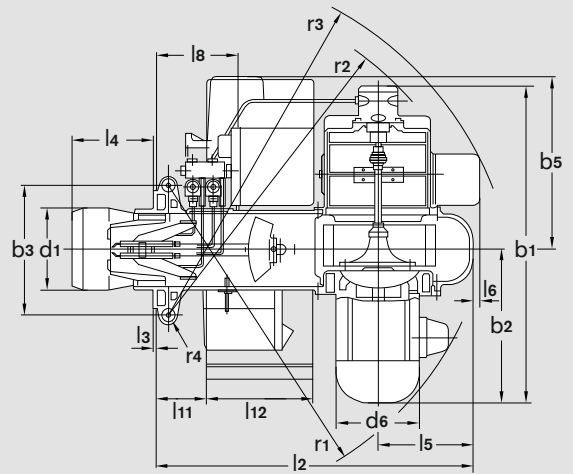
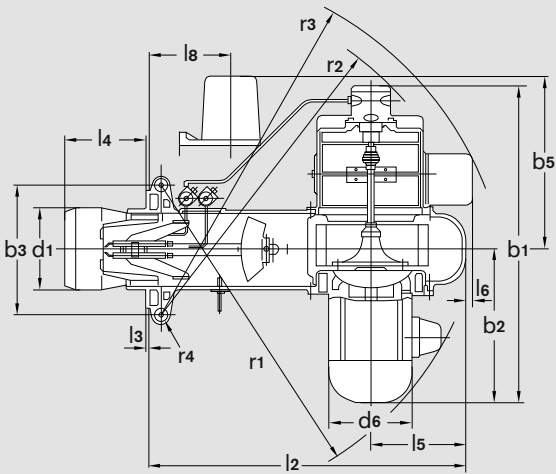
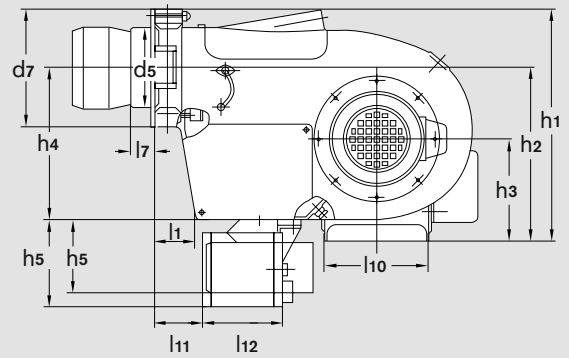
²⁾ With combustion head M2/1a, M5/2a

Dimensions

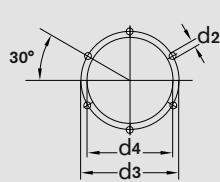
Monarch L and RL



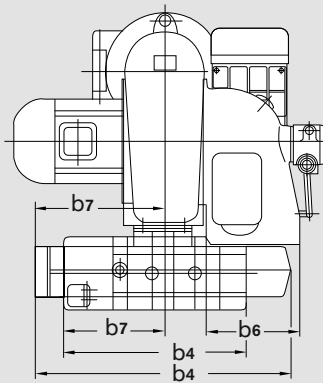
Monarch M/MS and RMS



Sizes 5 to 10



Size 11



Size	5	7	8	8/2	9	10	11
l1	100	100	100	102	112	112	117
l2	686	766	766	767	945	945	950
l3	8	8	8	8	8	8	8
l4	M5/2a: 130 M5/1a: 145 –	M6/1a: 214 M7/1a: 224 –	M7/1a: 224 M8/1a: 234 –	M9/1a: 232 U2/1: 227 G7/2a: 256	M9/1a: 223 – –	M10/2: 273 – –	M11/1: 371 – –
l5	200	224	224	224	300	300	300
l6	47	28	28	28	15	15	–
l7	34	57	57	80	92	68	195
l8	239	285	285	287	310	310	315
l10	239	255	255	255	390	390	390
b1	644	763	784	784	884	922	941
b2	297	369	388	388	439	477	492
b3	270	310	310	310	440	440	440
b5	394	414	414	414	436	436	436
b6	200	231	231	231	230	230	230
h1	494	556	556	590	672	672	707
h2	373	415	415	415	482	482	482
h3	220	245	245	245	260	260	260
h4	363	366	366	366	482	482	482
d1	M5/2a: 160 M5/1a: 180 –	M6/1a: 200 M7/1a: 220 –	M7/1a: 220 M8/1a: 240 –	M9/1a: 240 U2/1: 220 G7/2a: 265	M9/1a: 240 – –	M10/2: 265 – –	M11/1: 325 – –
d2	M10	M10	M10	M12	M12	M12	M10
d3	210	235	235	298	330	330	400
d4	185	210	210	275	280	280	340
d5	154	196	196	241	240	265	324
d6	176	218	218	218	258	258	258
d7	242	281	281	350	380	380	450
r1	680	770	800	800	960	960	980
r2	705	790	790	790	975	975	975
r3	790	865	865	865	1090	1090	–
r4	21	23	23	23	25	25	25
Additional dimensions for M/MS and RMS burners							
l11	– – –	EV2C: 186 EV2D: 114 –	EV2D: 114 – –	EV2D: 116 WEV2.2: 106 –	EV2D: 153 WEV2.2: 149 WEV3: 119	EV2D: 153 WEV2.2: 149 WEV3: 119	WEV3: 124 – –
l12	– – –	EV2C: 126 EV2D: 198 –	EV2D: 198 – –	EV2D: 198 WEV2.2: 254 –	EV2D: 198 WEV2.2: 254 WEV3: 314	EV2D: 198 WEV2.2: 254 WEV3: 314	WEV3: 314 – –
b4	– – –	EV2C: 430 EV2D: 430 –	EV2D: 430 – –	EV2D: 430 WEV2.2: 630 –	EV2D: 430 WEV2.2: 630 WEV3: 744	EV2D: 430 WEV2.2: 630 WEV3: 744	WEV3: 744 – –
b7	– – –	EV2C: 235 EV2D: 235 –	EV2D: 235 – –	EV2D: 235 WEV2.2: 327 –	EV2D: 235 WEV2.2: 327 WEV3: 384	EV2D: 235 WEV2.2: 327 WEV3: 384	WEV3: 384 – –
h5	– – –	EV2C: 214 EV2D: 214 –	EV2D: 214 – –	EV2D: 214 WEV2.2: 191 –	EV2D: 214 WEV 2.2: 191 WEV3: 205	EV2D: 214 WEV 2.2: 191 WEV3: 205	WEV3: 205 – –

That's no façade. That's reliability.

Weishaupt is reliability.

The family-owned business from Schwendi in southern Germany was founded by Max Weishaupt in 1932. It is a global player, with branch offices and subsidiaries in 60 countries across the world, and is a market leader for burners, heating and condensing boiler systems, solar technology, heat pumps, and building management systems.

The pioneering Max Weishaupt endowed his business with the core values of trust, quality, customer service, innovation, and experience. That, summed up in a single word, is reliability; something for which Weishaupt stands to this day.



The Weishaupt Forum in Schwendi



Architect Richard Meier, New York.

- weishaupt -

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Weishaupt equipment is available from good HVAC specialists, with whom Weishaupt works in close partnership. To support the specialists, Weishaupt maintains a large sales and service network, ensuring equipment, spares and service are always available.

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