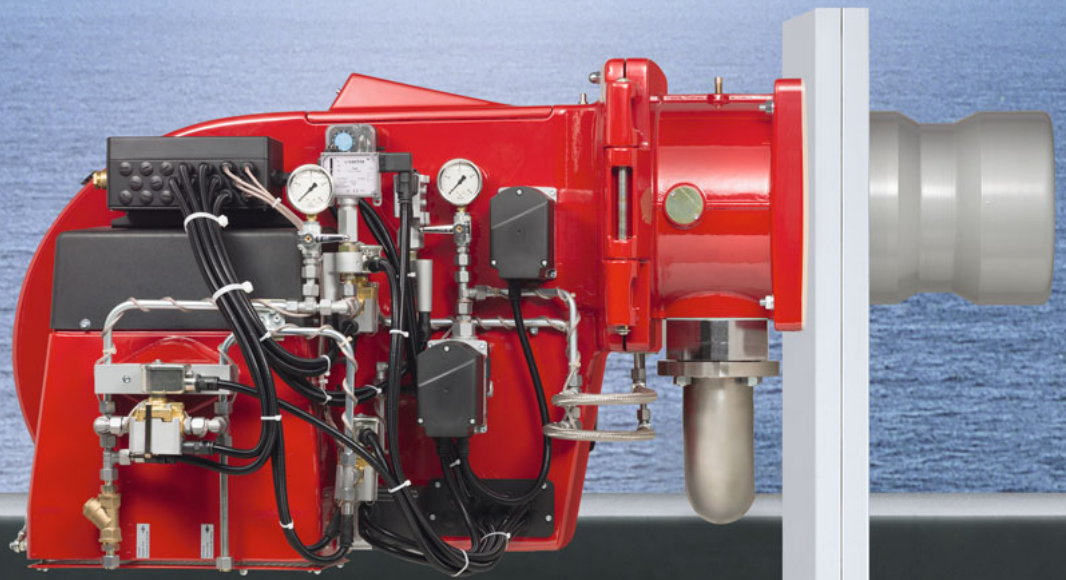


– weishaupt –

info

Information on LNG, MGO, and RFO burners



Marine burners

For shipping and offshore installations with capacities up to 32 MW

Progress and tradition: Weishaupt marine burners



Weishaupt products can be found anywhere that reliability is essential

For more than 40 years, Weishaupt has designed and produced marine burners for a wide range of applications, such as auxiliary and hot-water boilers for ships or offshore installations. Weishaupt's in-house Research and Development Centre is constantly working on innovative new developments.

The burners are notable for their robust and compact design, and for being easy to install and service. Particular care was taken during development to ensure a maintenance-friendly design.

The commitment to quality goes beyond the burner and its servicing. Weishaupt offers individual solutions for fuel trains and for the control of burners, boilers, and their services. Weishaupt is your one-stop shop for expertise.

Modular.

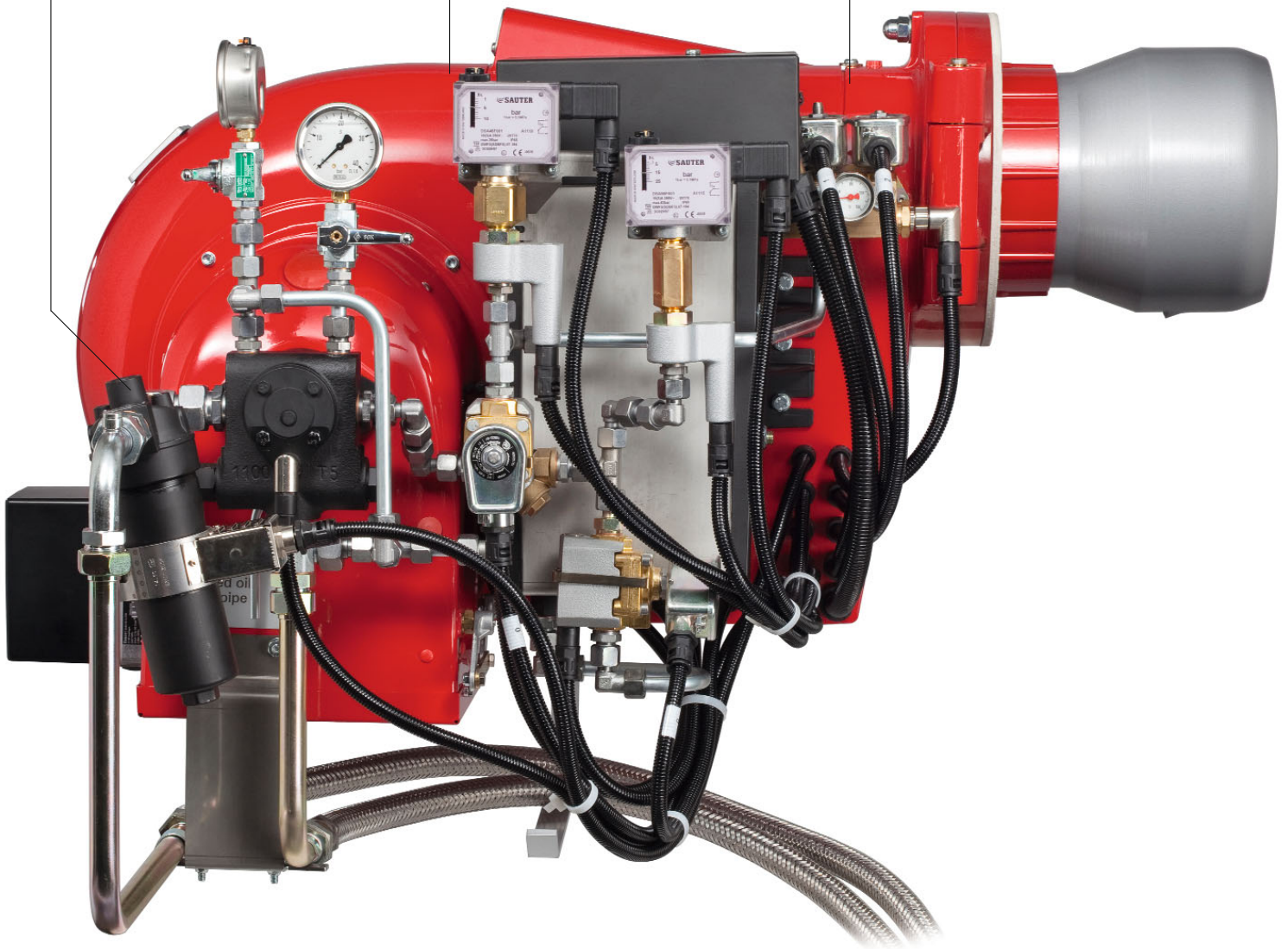
Thanks to their modular design, Weishaupt burners can meet the demands of almost any marine or offshore operation.

Robust.

For many decades, the compact construction of Weishaupt's marine burners has proven itself under the harshest of conditions.

Reliable.

The utmost quality is our goal. Each burner is therefore extensively tested and individually inspected by a Classification Society.



Triple-fuel marine burners for maximum operational readiness

Weishaupt triple-fuel marine burners can fire LNG, marine gas oil (DM.), and residual fuel oil (RM.) in the 450–32000 kW capacity range.

Greater flexibility, in terms of which fuels are used, is needed to comply with strict environmental regulations for shipping. LNG is one such option for meeting the requirements. It is, however, still early days for LNG equipment.

Flexibility in the choice of fuel

Weishaupt triple-fuel burners ensure operation can continue regardless of the availability of one particular fuel, thereby ensuring maximum flexibility.

Digital combustion management

The precise dosing of fuel and air ensures that combustion is always highly efficient.

The specially developed gas valve unit (GVU) has many safety features:

- Nitrogen purge in emergencies as well as during maintenance
- Quantity and time-monitored purging and venting processes
- Pneumatic valve control
- Flexible, twin-walled gas supply to the burner with methane-monitored air purging in the outer shell as an additional safety feature in the event of a leakage
- Reliable ignition via pilot flame

One-stop shop

The burner, gas train, and controls are supplied as a complete, connection-ready unit that has been certified according to your specifications and fully tested.

Legend:

1.0 Burner

- 1.1 Triple-fuel burner (LNG, MDO, HFO)
- 1.2 Oil shutoff device with safety valve
- 1.3 Three-way MDO/HFO changeover valves

2.0 System controls

- 2.1 Central control and monitoring station

3.0 Gas valve unit (GVU)

The GVU controls and monitors LNG, nitrogen, compressed air, and purge air.

The unit consists of:

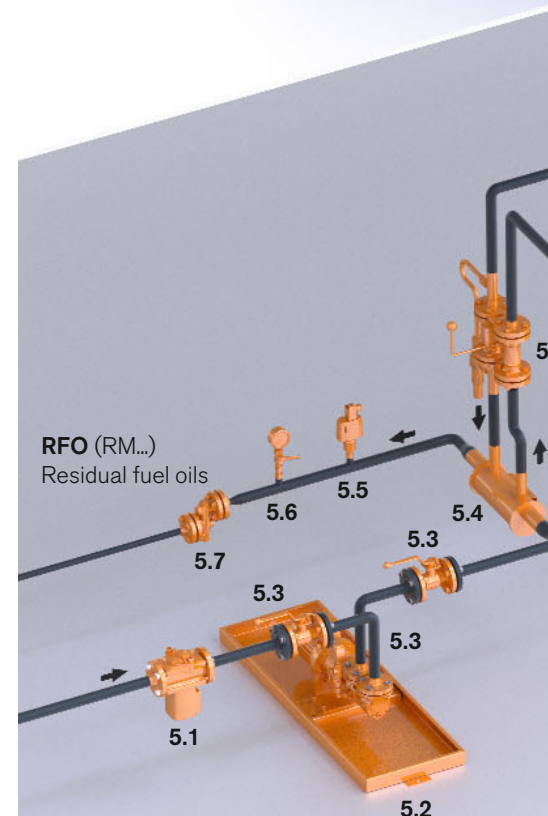
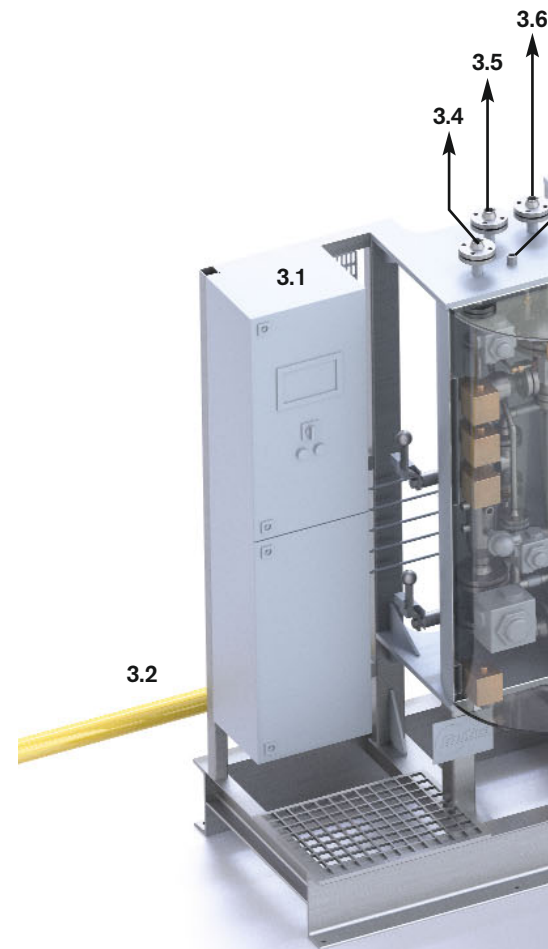
- 3.1 GVU controls
- 3.2 High-pressure LNG supply with externally accessible ball valve, gas meter, and gas pressure regulator
- 3.3 Nitrogen supply with externally accessible ball valve
- 3.4 Venting / N₂ purging
- 3.5 Gas venting
- 3.6 Purge air outlet / suction fan connection
- 3.7 Breather line
- 3.8 Main gas line to burner (twin-walled gas hose)
- 3.9 Ignition gas line to burner (twin-walled gas hose)

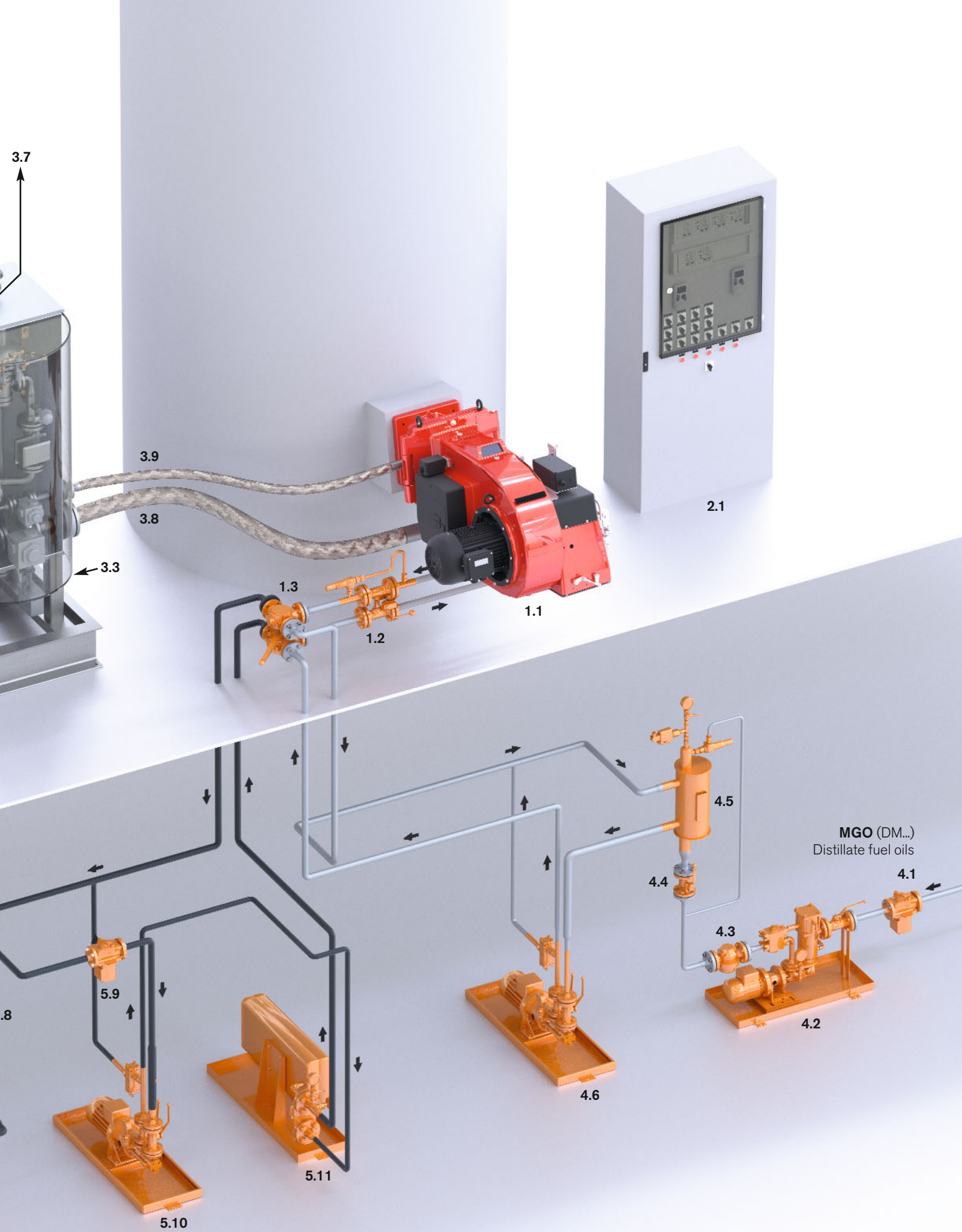
4.0 MGO (DM... fuels)

- 4.1 Filter
- 4.2 Single-pipe feeder pump
- 4.3 Oil meter
- 4.4 Shutoff device
- 4.5 Air / gas separator with safety valve, pressure monitoring, and pressure display
- 4.6 High-pressure supply pump station

5.0 RFO (RM... fuels)

- 5.1 Filter
- 5.2 Ring main pump station
- 5.3 Shutoff device
- 5.4 Air / gas separator
- 5.5 Ring main low pressure switch
- 5.6 Ring main pressure display
- 5.7 Ring main pressure regulating valve
- 5.8 Shutoff combination with safety valve
- 5.9 Filter
- 5.10 High-pressure supply pump station
- 5.11 Oil preheater station





Equipped for all ports in the world: A Weishaupt burner for almost any fuel

There are various qualities of marine fuel oil. MARPOL 73/78 Annex I to VI regulates the use and the emission of sulphurous combustion products in certain sea areas. This has resulted in the production of non-standard, sulphur-reduced oils.

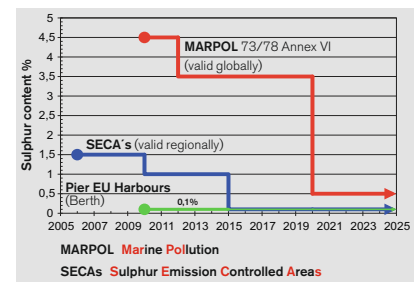
The ISO 8217 standard for marine fuels differentiates between distillate fuel oils (MGO) and residual fuel oils (RFO).

The most important specifications limit the density, viscosity, water content, and flash point of the oil.

MARPOL regulations stipulate that a sample of each fuel delivered must be available on board. The fuel may only be used once the fuel specification (Bunker Delivery Note) has been approved by the test laboratory.

Weishaupt burners in marine execution are suitable for use with marine fuel oils that comply with ISO 8217 2010-06-15 and ISO 8217 2011-09. Please enquire regarding the suitability of other fuels.

For safety reasons, due to its low flash point of 45 °C, DMX quality oil is not approved for combustion on board ships.



Limit values for sulphur content in the fuel

Source: ISO 8217 : 2011-09			Marine fuel oils																
* Commercial designations			Distillate oils (MGO)				Residual oils (RFO) e.g. Bunker Fuel* / BFO* / MFO*												
Characteristics	Unit	Limit	DMX ¹⁾	DMA	DMZ	DMB	RMA 10	RMB 30	RMD 80	RME (IFO) 180	RMG (IFO)				RMK				
											180	380	500	700	380	500	700		
Viscosity at 40 °C / 50 °C	mm ² /s	min.	1.4	2.0	3.0	2.0													
		max.	5.5	6.0	6.0	11.0	10.0	30	80	180	180	380	500	700	380	500	700		
Density at 15 °C	kg/m ³	max.	–	890	890	900	920	960	975	991	991				1010				
Sulphur	mass %	max.	1.0	1.5	1.5	2.0	Statutory requirements												
Flash point	°C	min.	43	60	60	60	60	60	60	60	60				60				
Hydrogen sulphide	mg/kg	max.	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				2.0				
Carbon residue	% (m/m)	max.	–	–	–	0.3	2.5	10	14	15	18				20				
Pour point	winter °C	max.	–	-6	-6	0	0	0	30	30	30				30				
	summer °C	max.	–	0	0	6	6	6	30	30	30				30				
Water	% (V/V)	max.	–	–	–	0.3	0.3	0.5	0.5	0.5	0.5				0.5				
Ash	mass %	max.	0.01	0.01	0.01	0.01	0.04	0.07	0.07	0.07	0.10				0.15				
Weishaupt guide values for the atomising temperature °C			20–40	20–40	20–50	60	90	115	135	135	150	155	160	150	155	160			
Weishaupt burners	—		L/RL ²⁾ burners				MS ³⁾ burners (two-stage)										MS ³⁾		
			MS ³⁾ burners (two-stage) w. fuel changeover operation																
			RMS ³⁾ burners (sliding-two-stage / modulating)																
			RMS ³⁾ burners (sliding-two-stage / modulating) with fuel changeover operation																

¹⁾ DMX not approved for marine burner operation ²⁾ L/RL burners: multi-stage / modulating light-oil burners ³⁾ MS/RMS burners: multi-stage / modulating heavy-oil burners

Classification approved: Weishaupt burners fulfill society specifications

Classification Societies create the technical regulations by which ships and offshore installations must abide, and monitor and document compliance with them.

The Plimsoll line, as it is known, shows by which society the ship has been classified. On merchant ships the mark is found halfway along both sides of the hull.



The Plimsoll line identifies the Classification Society

The burner can be matched to the ship via the registration code.



Registration code on the burner's flange

Shipowners are not legally obliged to classify their ships. However, very few states permit the operation of unclassified vessels within their territorial waters, so classification is virtually unavoidable if a ship is to be given as wide an operating range as possible.

Ships without classification are not permitted in European waters or ports.

Type Approval controls which burners and components may be used on board ships or in offshore installations.

This approval is the basis for the Final Approval at the test facility or on site.

Internationally recognised classification societies

IACS International Association of Classification Societies				
1.	ABS		American Bureau of Shipping	
2.	BV		Bureau Veritas	
3.	CCS		China Classification Society	
4.	DNV•GL		Det Norske Veritas • Germanischer Lloyd	
5.	KR		Korean Register of Shipping	
6.	LR		Lloyd's Register	
7.	NKK		Nippon Kaiji Kyokai	
8.	RINA		Registro Italiano Navale	
9.	RS		Russian Maritime Register	

Type Approval

Classification	Country	Approval Code No.	Burner type
ABS	USA	07-HG211243/2-PDA	L / RL / M / MS / RMS / WKL / WKMS 1-11 & 30-80
			BV
			SMS.W.II/761/C.O
CCS	China	HB05A00054	L1 / L3
		HB94A960	L / RL / M / MS / RMS 5-11
		HBA03190125	L / RL / MS / RMS 30-70
DNV•GL	Norway	Drawing approval	L / RL / M / MS / RMS / 1-11 & 30-70
KR	Korea	HMB04961-BR001	L / RL / MS / RMS / 5-11
LR	UK	Service agreement	
NKK	Japan	Approval by GL	
RINA	Italy	Not required	
RS	Russia	09.04031.250	L / M 1-3
		09.04030.250	L / RL / M / MS / RMS / 5-11
		09.04029.250	L / RL / M / MS / RMS / 30-70
		10.05019.250	

Other classifications can be met on request

You have a demanding requirement: Weishaupt has a suitable burner

Step by step to your tailor-made burner

We need the following information from you to select your burner:

1. Marine fuel

Gas		Oil								
LNG	LPG	DMA	DMZ	DMB	RMA	RMB	RMD	RME	RMG	RMK

2. Boiler type and construction (combustion chamber geometry)

Heating and hot water (LTHW / MTHW / HTHW / steam)	Auxiliary boiler (steam / thermal fluid)	Process plant (e.g. waste incineration / oil refining processes)
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3. Installed position of the burner

Horizontal	Inclined (10–30°)	Vertical
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4. Required burner firing rate and combustion chamber dimensions

Monobloc burners		Duobloc burners
Monarch 1–11 (0.2–5.2 MW)	Industrial burners (up to 10.9 MW)	WK burners (1.2–32.0 MW)

5. Type of regulation required

Multi-stage	Modulating
<ul style="list-style-type: none"> (viscosity up to 570 mm²/s at 50 °C) (viscosity up to 380 mm²/s at 50 °C when alternating with MGO) 	<ul style="list-style-type: none"> (viscosity up to 700 mm²/s at 50 °C)

6. Classification required

ABS	BV	CCS	DNV	GL	KR	LR	NKK	RINA	RS
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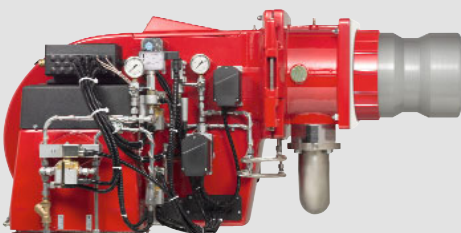
Our modular burner program offers optimum flexibility and maximum individuality

Model designation: regulation / fuel

L / M / MS	Oil burner	two-stage
RL / RMS / WKMS	Oil burner	sliding-two-stage or modulating
G / RGL / RGMS / WKG / WKGL / WKGMS	Gas / dual-fuel burner	sliding-two-stage or modulating

Gas, dual-fuel, and triple-fuel burners

for LNG, MGO, and RFO



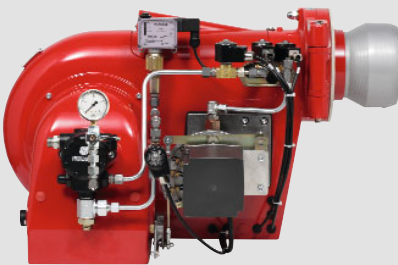
Type	Capacity range* (Partial load ■) Full load ■
G40	(450) 1200–3450 kW
RGMS40 ¹⁾	(450) 1400–3450 kW
G / RGMS50 ¹⁾	(550) 1900–5400 kW
G / RGMS60 ¹⁾	(800) 3400–6100 kW
G / RGMS70 ¹⁾	(800) 3900–10 700 kW
WKG / WKGMS70 ¹⁾	(1100) 6000–12 000 kW
WKGMS80 ¹⁾	(2200) 12 000–22 000 kW
WKG80	(2200) 12 000–32 000 kW

¹⁾ External high pressure oil supply required for each fuel

* The burner must be correctly sized for the combustion chamber resistance and geometry. Refer to the capacity chart in the burner sales brochure / manual.

Oil burners

MGO (DM...)

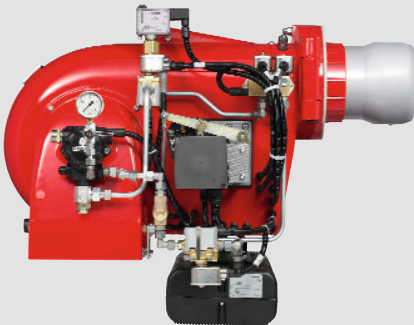


Type

Capacity range* (Partial load Full load

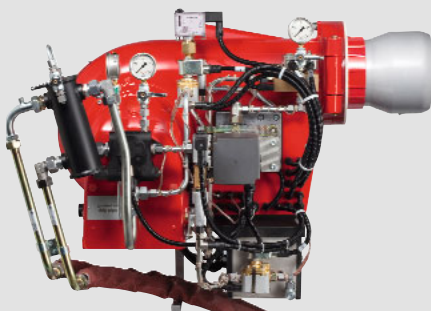
L1	(70) 180–415 kW
L / RL3	(120) 300–775 kW
L / RL5	(180) 380–1190 kW
L / RL7	(320) 750–1965 kW
L / RL8	(595) 1300–2740 kW
L / RL8/2	(620) 1600–3155 kW
RL9	(715) 1750–3690 kW
RL10	(955) 2050–4525 kW
RL11	(1430) 2500–5240 kW
RL50	(715) 2100–6170 kW
RL60	(1310) 3800–7265 kW
RL70	(1905) 4700–10 900 kW
WKL70 ¹⁾	(1200) 6000–12 000 kW
WKL80 ¹⁾	(3200) 12 000–22 000 kW

RFO (RM...)



M1	(90) 180–415 kW
M3	(120) 300–775 kW
M5	(225) 500–1190 kW
MS / RMS7	(450) 750 MS / 800 RMS – 1965 kW
MS / RMS8	(675) 1300–2740 kW
MS / RMS8/2	(675) 1600–3155 kW
RMS9	(900) 1750–3690 kW
RMS10	(1010) 2050–4525 kW
RMS11	(1460) 2500–5240 kW
RMS50	(1125) 2300–6170 kW
RMS60 ¹⁾	(1800) 3800–7265 kW
RMS70 ¹⁾	(2025) 4700–10 900 kW
WKMS70 ¹⁾	(1200) 6000–12 000 kW
WKMS80 ¹⁾	(3200) 12 000–22 000 kW

MGO (DM...) and RFO (RM...) in alternation —
oil-side adjustment is not required



MS / RMS7	(450) 750 MS / 800 RMS – 1965 kW
MS / RMS8	(675) 1300–2740 kW
RMS9	(900) 1750–3690 kW
RMS10	(1010) 2050–4525 kW
RMS11	(1460) 2500–5240 kW
RMS50 ¹⁾	(1125) 2300–6170 kW
RMS60 ¹⁾	(1800) 3800–7265 kW
RMS70 ¹⁾	(2025) 4700–10 900 kW
WKMS70 ¹⁾	(1800) 6000–22 000 kW
WKMS80 ¹⁾	(3200) 12 000–22 000 kW

¹⁾ External high pressure oil supply required for each fuel

* The burner must be correctly sized for the combustion chamber resistance and geometry. Refer to the capacity chart in the burner sales brochure / manual.

In detail: The many benefits of Weishaupt burners

Weishaupt burners are made to order. Consequently, you receive a product tailor-made to your requirements.

Reliable, convenient fuel changeover

A wide variety of fuel combinations are possible with a Weishaupt dual-fuel or triple-fuel burner. Changing over from gas (LNG or LPG) to oil is just as straightforward as changing over from a higher to a lower-viscosity oil. Regardless of the fuel changeover required, we have the right solution.

Tried-and-tested components with innovative details serve to improve burner performance, operation, and safety. One particular key benefit of Weishaupt equipment is the use of the UHE-WH multi-fuel pump. It eliminates the need to make adjustments to atomisation pressure when operation is alternating between different oils.

In particular, the oil supply needs to maintain thermal balance when changing over from a high-viscosity residual oil to a low-viscosity distillate oil. If the difference in viscosity is great, however, then this is not possible. It therefore becomes necessary to use an auxiliary fuel during the changeover process to help stabilise viscosity.

Pressure monitoring of the oil supply, which is included as standard, allows the oil flow to be monitored, yet another way in which Weishaupt increases safety.

Weishaupt's goal is and always has been the development of burners and fuel supply systems that go above and beyond normal standards.



A guided oil drip pipe ensures maximum safety (standard for burners with alternating-oil executions)

Guided oil drip pipe ensures maximum safety

Alternating between different marine oils exposes the pump shaft seal to a lot of mechanical stress. Despite good filtering, residual oils contain particulates which corrode the surface of the seal. Very low oil viscosities are briefly present when changing over to distillate oil. Under these conditions, the shaft seal can no longer seal completely and, as a consequence, there is a minimal amount of oil leakage.

The UHE-WH multi-fuel pump offered by Weishaupt is an innovative solution to the problem. High-quality materials and a guided oil drip pipe stop oil from getting into the burner's air inlet area. Another win for safety and operational readiness.

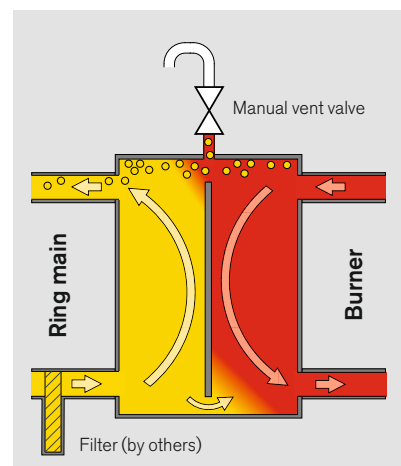
Air / gas separator improves burner performance and saves energy

Spill-back-type oil nozzles unavoidably introduce air into the oil supply system. If this air makes its way back to the pump then pressure fluctuations and flame instability will result. The air / gas separator is an effective component that prevents this happening. A further



Integral air / gas separator for greater operational reliability and convenience (standard for RMS burners with alternating-oil executions)

advantage of the air / gas separator is that it acts as a low-loss header. It separates the transfer circuit from the burner circuit and provides for different temperature zones. This reduces the load on the oil preheater and allows it to be optimally sized, thereby saving energy and reducing operational costs.



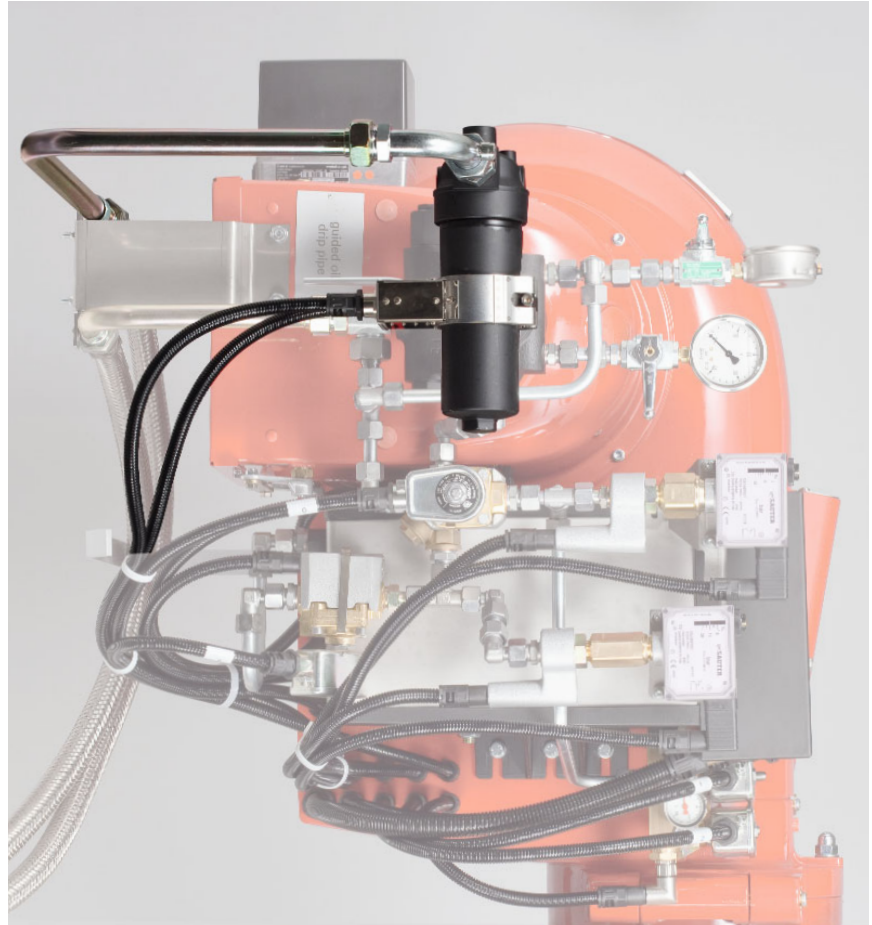
Separation into different temperature zones saves energy and reduces costs



The integral oil filter is readily accessible (standard for MS burners with alternating-oil executions)

Oil filter fitted as standard

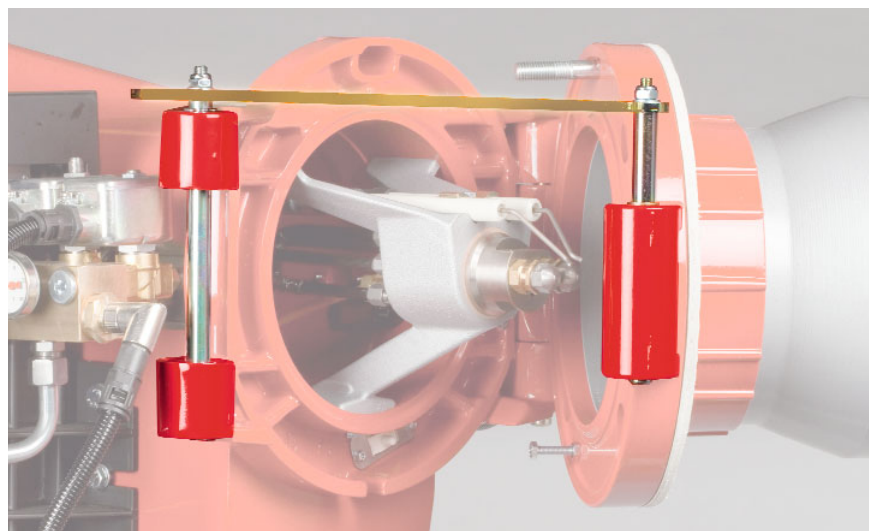
The heated, integral oil filter is readily accessible and easy to service. The filter's flexible design enables the burner to be positioned as required.



The flexible design of the heated oil filter enables the burner to be installed in any desired position, from horizontal to vertical

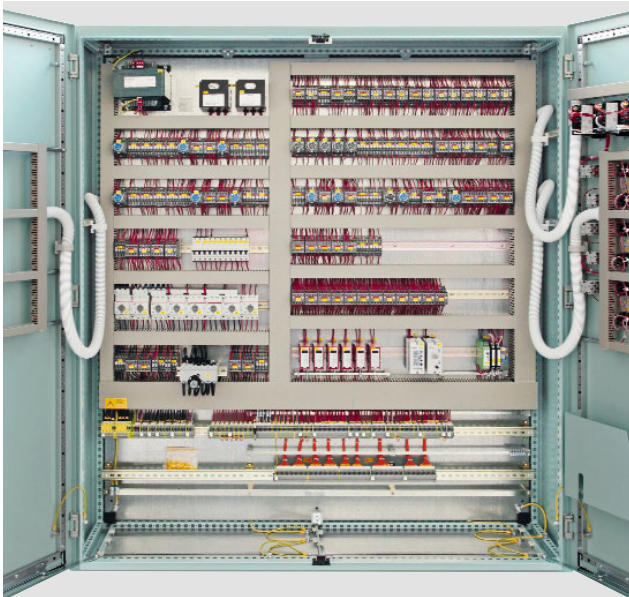
Increased safety during servicing

The burner hinge stay, which is supplied as standard, ensures that the burner can not swing close during servicing.



The hinge stay, which is included as standard, provides additional safety during burner servicing work

The controls you need: Analogue or digital



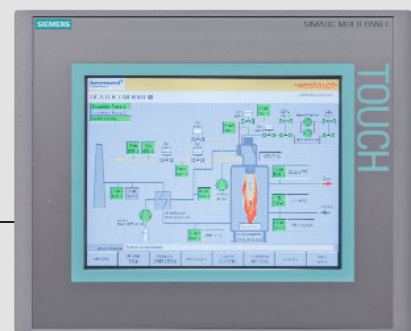
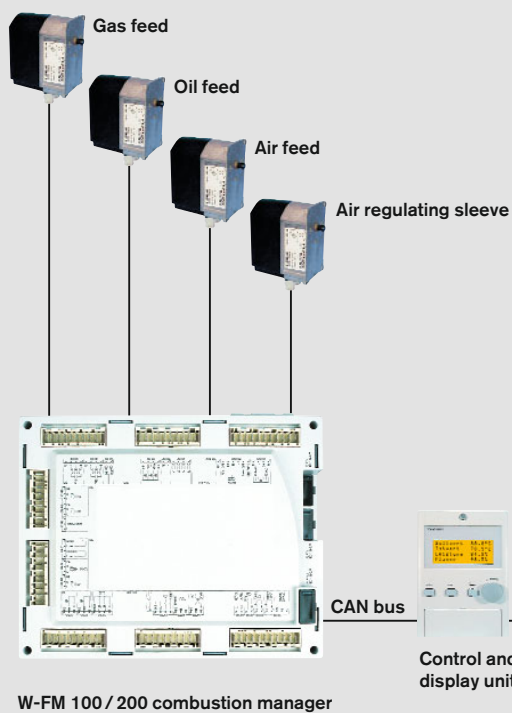
Weishaupt offers bespoke control systems that meet all of your Classification Society's requirements and come in any of the usual voltages and frequencies



Fully redundant controls for maximum safety

Digital combustion management offers:

- Digital precision
- Reproducible setpoints
- Ease of use
- Flexible communication
- Data backup / fault analysis
- Menu-driven, clear-text display



PC / touchscreen visualisation



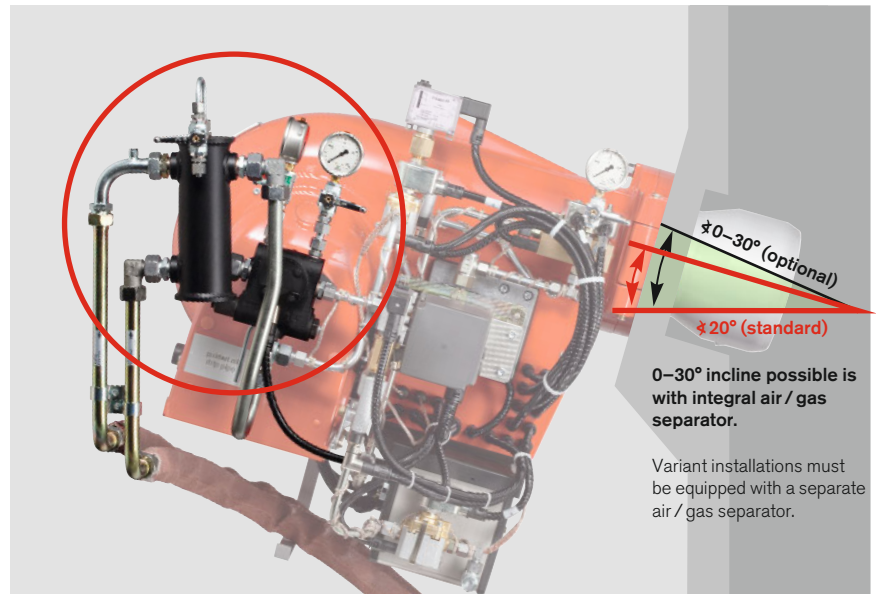
System networking via PLC / DDC

Digital combustion management makes burner operation simple and reliable (for applications to LR and DNV-GL classifications)

Ready-to-install conversion kits for simple and time-saving conversions

Ready-to-install conversion kits

The introduction of stricter emission limits has made it necessary to convert burners that previously fired only residual oil so that they can now also fire distillate oil when required. Weishaupt offers ready-to-install conversion kits, which provide a simple and time-saving means of adapting the burner to the different requirements.



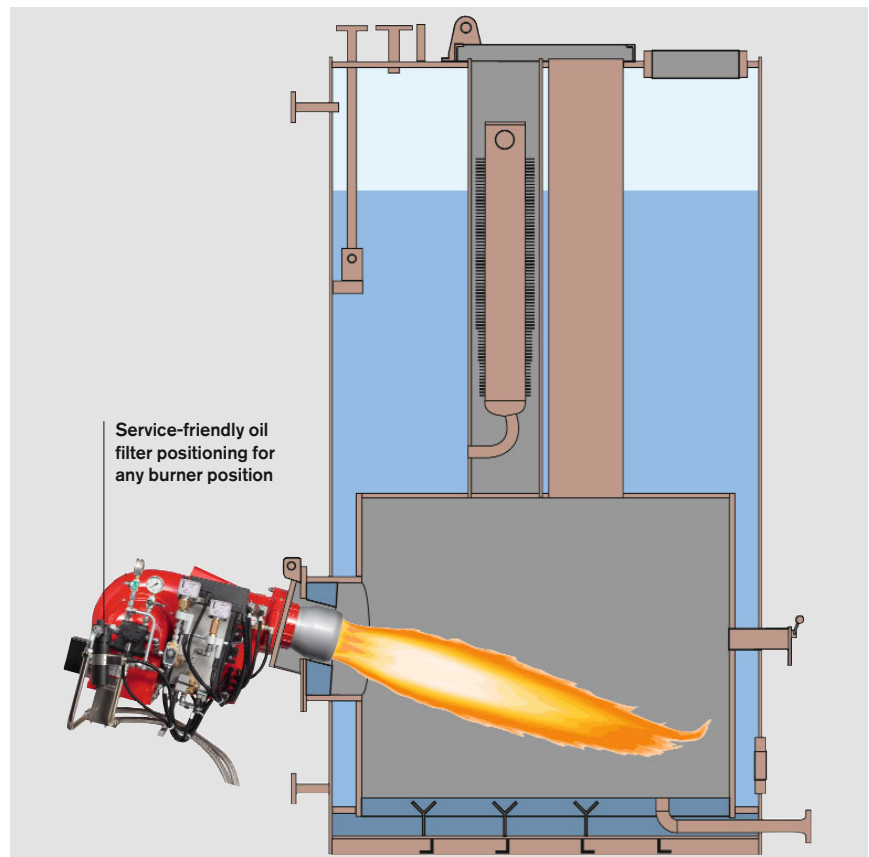
Ready-to-install conversion kits simplify the conversion of an existing burner and are easy to install (example: RMS7 / RMS8)



Conversion kit for RMS7 / RMS8



Conversion kit for MS7 Z / MS8 Z



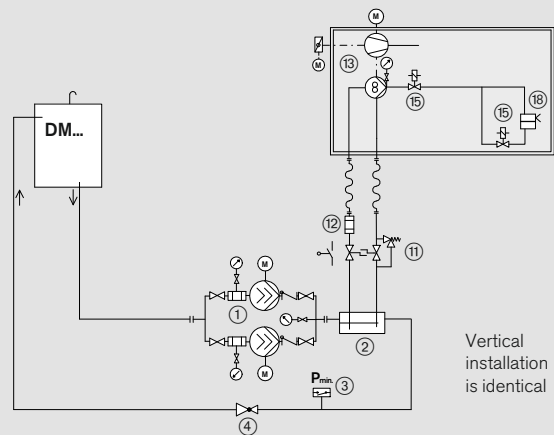
The MS conversion kit allows burner installation in any position from horizontal to vertical (example: MS7 / MS8)

Equipment detail: Fuel supply and changeover

MGO (DM...)

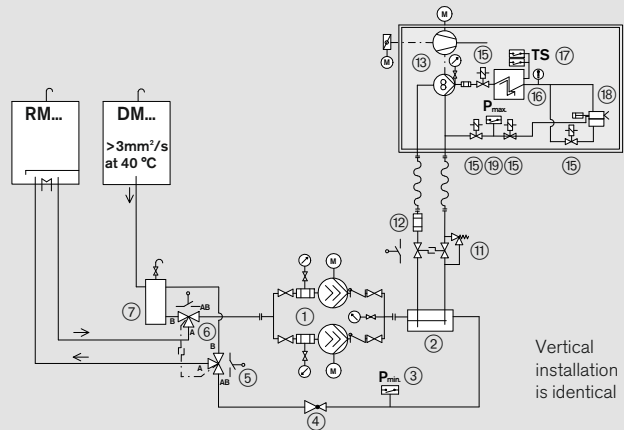
L burners

- | | |
|---|---------------------------------|
| ① Transfer pump (redundant) | ⑩ Temperature switch (40–60 °C) |
| ② Air / gas separator | ⑪ Linked ball valves |
| ③ Low oil pressure switch | ⑫ Oil filter |
| ④ Pressure regulating valve | ⑬ Burner pump |
| ⑤ Three-way ball valve (return) | ⑭ Strainer |
| ⑥ Three-way ball valve (supply) | ⑮ Solenoid valve |
| ⑦ Venting vessel | ⑯ Oil preheater |
| ⑦ a Cooler (20–40 °C) for operation with viscosities < 3mm ² /s at 40 °C | ⑰ Temperature monitor / switch |
| ⑧ Three-way ball valve (DM.../DM...) | ⑱ Two-stage nozzle assembly |
| ⑨ Heating (60–90 °C) | ⑲ High oil pressure switch |



RFO (RM...) ¹⁾

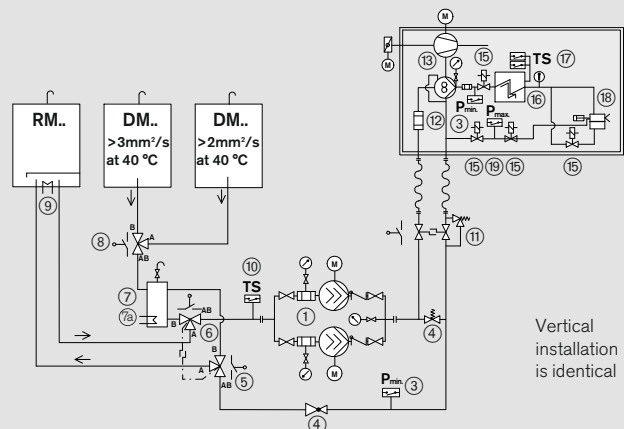
MS burners



MGO (DM...) and RFO (RM...) in alternation

MS7–MS8 burners ²⁾

(oil-side adjustment is not required)

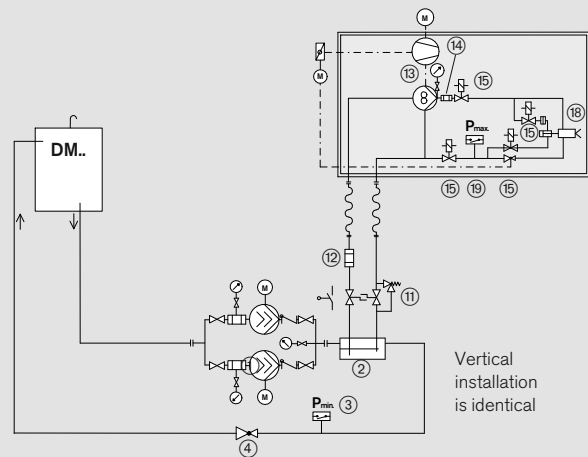


¹⁾ MDO as an auxiliary fuel only, for boiler startup / shutdown and burner purging ²⁾ Burner size 8/2 excluded

MGO (DM...)

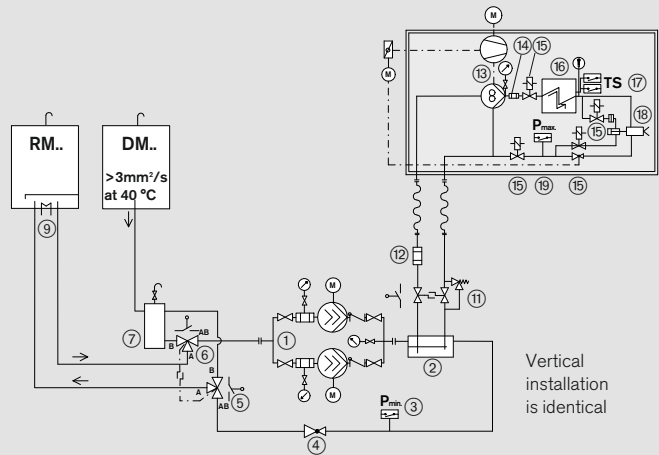
RL3–RL11 burners

- | | |
|---|---------------------------------|
| ① Transfer pump (redundant) | ⑩ Temperature switch (40–60 °C) |
| ② Air / gas separator | ⑪ Linked ball valves |
| ③ Low oil pressure switch | ⑫ Oil filter |
| ④ Pressure regulating valve | ⑬ Burner pump |
| ⑤ Three-way ball valve (return) | ⑭ Strainer |
| ⑥ Three-way ball valve (supply) | ⑮ Solenoid valve |
| ⑦ Venting vessel | ⑯ Oil preheater |
| ⑦ a Cooler (20–40 °C) for operation with viscosities < 3mm ² /s at 40 °C | ⑰ Temperature monitor / switch |
| ⑧ Three-way ball valve (DM.../DM...) | ⑱ Two-stage nozzle assembly |
| ⑨ Heating (60–90 °C) | ⑲ High oil pressure switch |



RFO (RM...) ¹⁾

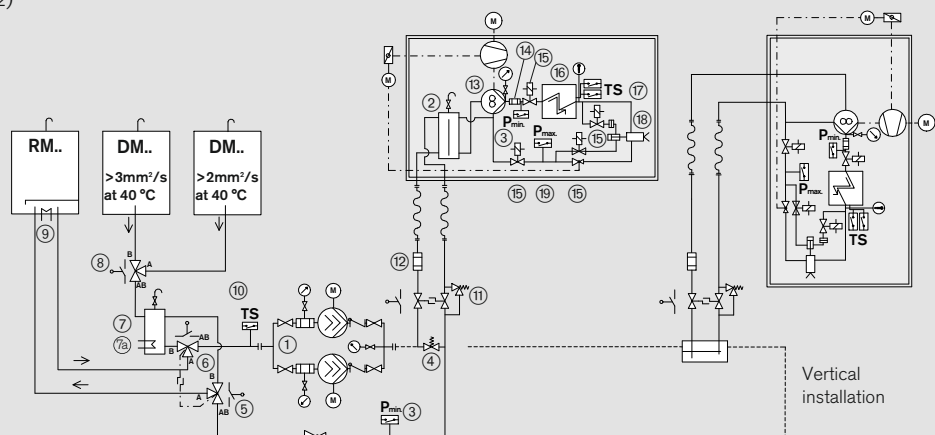
RMS7–RMS11 burners



MGO (DM...) and RFO (RM...) in alternation

RMS7–RMS11 Burners ²⁾

(oil-side adjustment is not required)

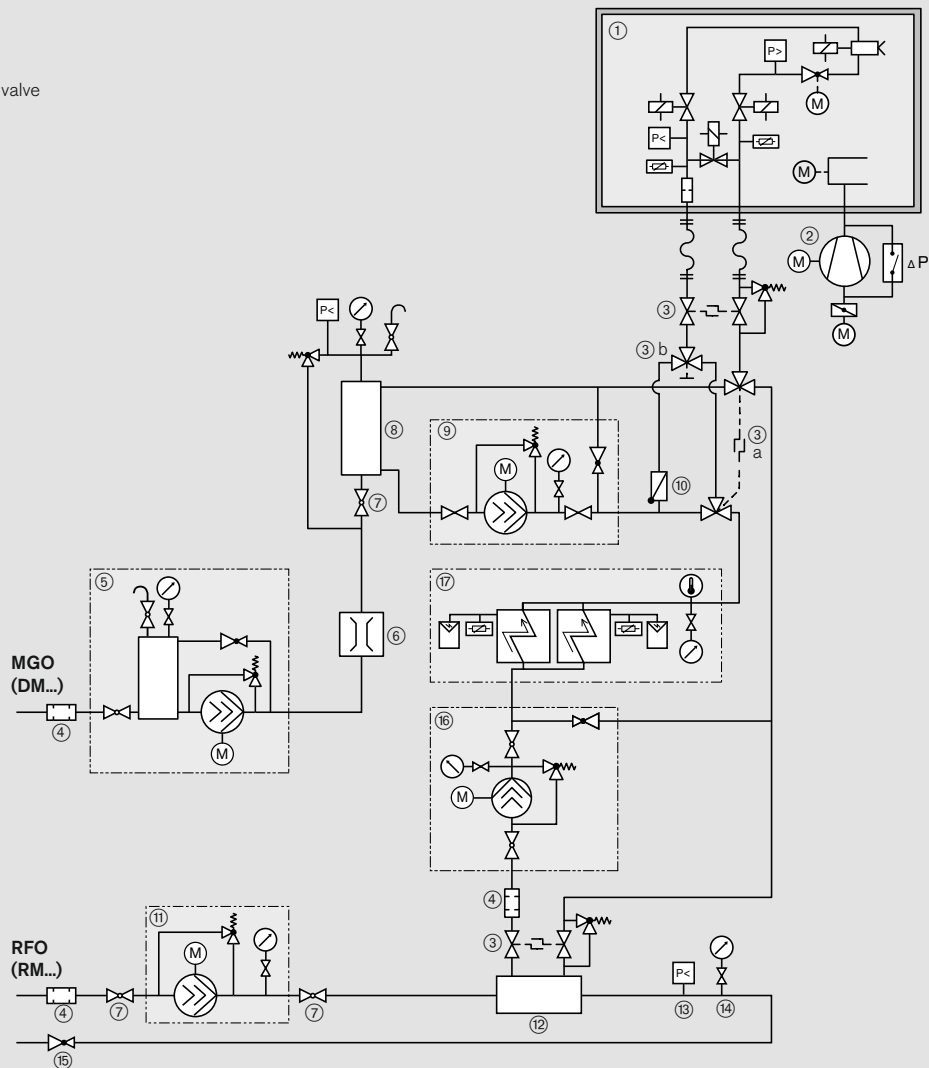


¹⁾ MDO as an auxiliary fuel only, for boiler startup / shutdown and burner purging ²⁾ Burner size 8/2 excluded

Equipment detail: Fuel supply and changeover

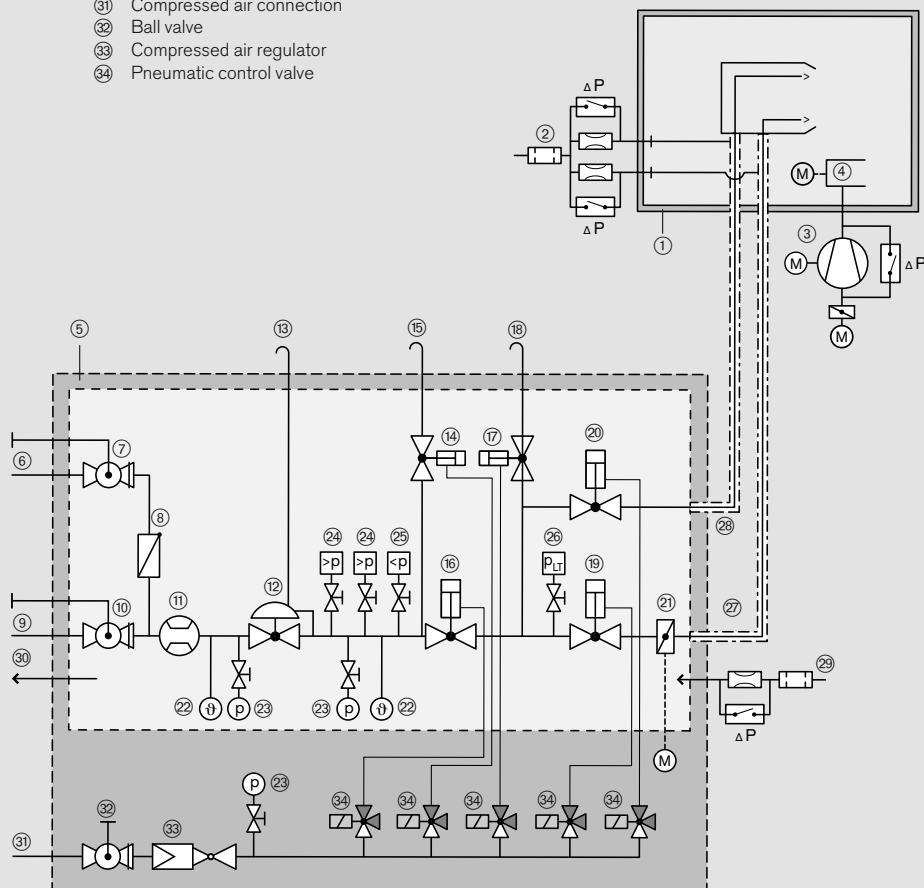
MGO and RFO changeover with separate oil supplies

- ① Burner for MGO / RFO in alternation
- ② Combustion air fan with damper and actuator
- ③ Linked ball valves with safety valve
- ③a Three-way changeover valve (MGO / RFO)
- ③b Three-way changeover valve for RFO purging
- ④ Filter
- ⑤ Single-pipe feeder pump
- ⑥ Oil meter
- ⑦ Shutoff valve
- ⑧ Air / gas separator with vent valve
- ⑨ High-pressure supply pump
- ⑩ Non-return valve
- ⑪ Ringmain feeder pump
- ⑫ Air / gas separator
- ⑬ Low oil pressure switch.
- ⑭ Ringmain pressure gauge
- ⑮ Ringmain pressure regulating valve
- ⑯ High-pressure supply pump
- ⑰ Oil preheater

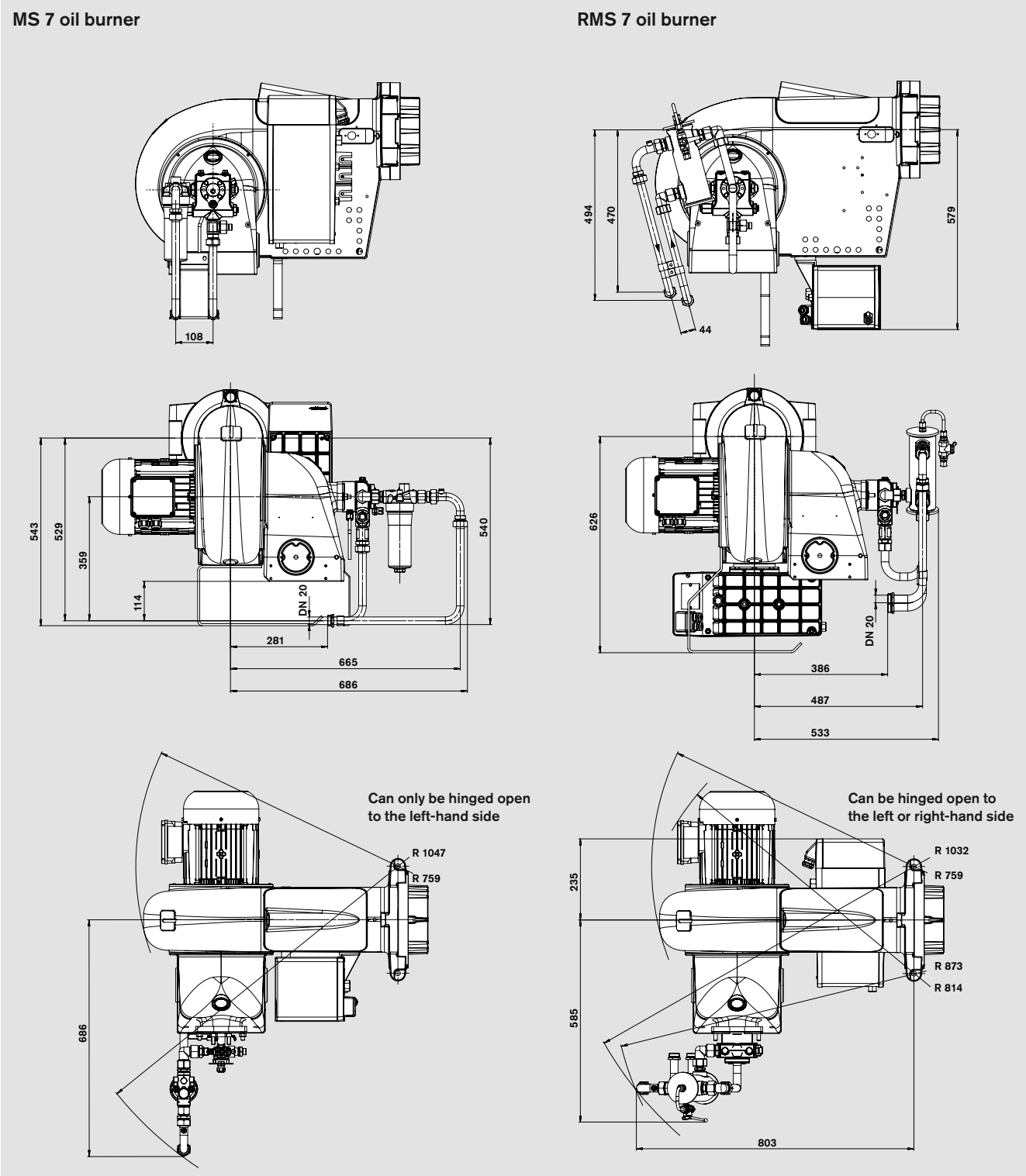


LNG including nitrogen / compressed air / purge air

- | | |
|---|---|
| ① LNG burner | ⑩ Externally accessible LNG ball valve |
| ② Purge air connection with filter, butterfly valve and pressure switch | ⑪ Gas meter |
| ③ Combustion air fan with air damper and pressure switch | ⑫ Gas pressure regulator |
| ④ Regulating sleeve with actuator | ⑬ Breather line |
| ⑤ Gas valve unit | ⑭ Purge valve |
| ⑥ Nitrogen inlet | ⑮ Purge line |
| ⑦ Externally accessible ball valve with limit switch | ⑯ Main gas shutoff valve 1 |
| ⑧ Non-return valve | ⑰ Vent valve |
| ⑨ LNG inlet | ⑱ Vent line |
| ⑪ Gas meter | ⑲ Main gas shutoff valve 2 |
| ⑫ Gas pressure regulator | ⑳ Ignition gas shutoff valve |
| ⑬ Breather line | ㉑ Gas butterfly valve with actuator outside the EX zone |
| ⑭ Purge valve | ㉒ Temperature sensor |
| ⑮ Purge line | ㉓ Pressure sensor |
| ⑯ Main gas shutoff valve 1 | ㉔ High gas pressure switch |
| ⑰ Vent valve | ㉕ Low gas pressure switch |
| ⑱ Vent line | ㉖ Valve proving pressure switch |
| ⑲ Main gas shutoff valve 2 | ㉗ Twin-walled gas hose, main gas |
| ⑳ Ignition gas shutoff valve | ㉘ Twin-walled gas hose, ignition gas |
| ㉑ Gas butterfly valve with actuator outside the EX zone | ㉙ Purge air inlet / suction fan connection |
| ㉒ Temperature sensor | ㉚ Purge air outlet / suction fan connection |
| ㉓ Pressure sensor | ㉛ Compressed air connection |
| ㉔ High gas pressure switch | ㉜ Ball valve |
| ㉕ Low gas pressure switch | ㉝ Compressed air regulator |
| ㉖ Valve proving pressure switch | ㉞ Pneumatic control valve |
| ㉗ Twin-walled gas hose, main gas | |
| ㉘ Twin-walled gas hose, ignition gas | |
| ㉙ Purge air inlet / suction fan connection | |
| ㉚ Purge air outlet / suction fan connection | |
| ㉛ Compressed air connection | |
| ㉜ Ball valve | |
| ㉝ Compressed air regulator | |
| ㉞ Pneumatic control valve | |



Dimensions and swing ranges for sizes 7 and 8, MGO-MDO-RFO version



Further dimensions can be found in the product documentation

Our suggestion: Weishaupt-recommended equipment

Classification Society			ABS	BV	CCS	DNV•GL	KR	LR	NKK	PRS	RINA	RS
Burners	General marine specification	<ul style="list-style-type: none"> All burner castings painted internally Motor terminal box sealed with captive screws Cables protected by flame-retardant hose Marine cable glands in accordance with DIN 89280 Fully wired to terminal strip Type-tested, stainless-steel oil hoses¹⁾ Hinge stay for servicing works IP54 burner motor, class F, IE2 	●	●	●	●	●	●	●	●	●	●
	Optional	<ul style="list-style-type: none"> Spheroidal cast iron or cast steel oil filter¹⁾ 	●	●	●	●	●	●	●	●	●	●
Oil preheating / oil preheater												
Control	Controller / combustion manager	2x LAL2.25 panel-mounted controllers (selectable)	●	●			●	●	●	●	●	●
		1x LOK16.250 panel-mounted controller			●	●						
		1x W-FM100 burner-mounted combustion manager				●	●					
Flame sensor	Flame sensor	1x RAR9			●							
		2x RAR9 (selectable)	●	●		●	●	●	●	●	●	●
		1x QRI2 (in conjunction with W-FM100)				●	●					
Monitoring	Integral oil pump	LGW air pressure switch		●	●							●
		<ul style="list-style-type: none"> Low oil pressure switch (MGO-MDO-RFO version) High oil pressure switch (MS/RL/RMS burners) Oil pressure gauge with ball valve 	●	●	●	●	●	●	●	●	●	●
	External oil pump	<ul style="list-style-type: none"> Air pressure switch Low oil pressure switch in oil supply Oil pressure gauge with ball valve in supply 	●	●	●	●	●	●	●	●	●	●
Component heating	RFO version	<ul style="list-style-type: none"> Oil solenoid valves / oil pressure switch, 22 W Nozzle assembly, 110 W Oil regulator, 22W (on RMS burners) Burner-mounted filter, 2x 66 W²⁾ 	●	●	●	●	●	●	●	●	●	●
	Oil pump	E4-7 80 W, T/TA/UHE-WH... 110 W	●	●	●	●	●	●	●	●	●	●
	500–700 mm ² /s at 50 °C	<ul style="list-style-type: none"> Heated oil line and oil distributor, 22W Heated oil hoses, 62W 	●	●	●	●	●	●	●	●	●	●
Gas, dual-fuel, and triple-fuel burners												
<ul style="list-style-type: none"> Details on request 												

¹⁾ Included on MGO-MDO-RFO version MS7 and MS8 burners

Weishaupt burners are in operation wherever quality is essential



Photo: M. Trapp Source: Alfred-Wegener-Institute

An RGL5 burner supplies the research vessel Polarstern with heat



Waste incinerator with two L1 burners onboard the luxury liner MS Empress



TA thermal fluid heater is fired by a Weishaupt MS8 heavy-oil burner



Photo: Frans Sandense

Numerous container ships are equipped with Weishaupt burners, such as the MS or RMS 7 and 8

At home on the seven seas

The demands on marine applications are high. The highest degree of reliability and operational safety are therefore imperative.

Our decades of experience, coupled with the highest quality of product and service, makes us one of the leading companies in the industry.

Weishaupt marine burners are used around the world under the harshest of conditions, for example on:

- Cruise ships
- Ferries
- Tankers
- Container ships
- Bulk carriers
- Floating platforms
- Drilling rigs

Applications:

- Auxiliary and hot-water boilers
- Process plant, such as
 - Waste incineration
 - Oil refining processes



Crude oil from the drilling rigs in the South China Sea is stored temporarily on central ship depots

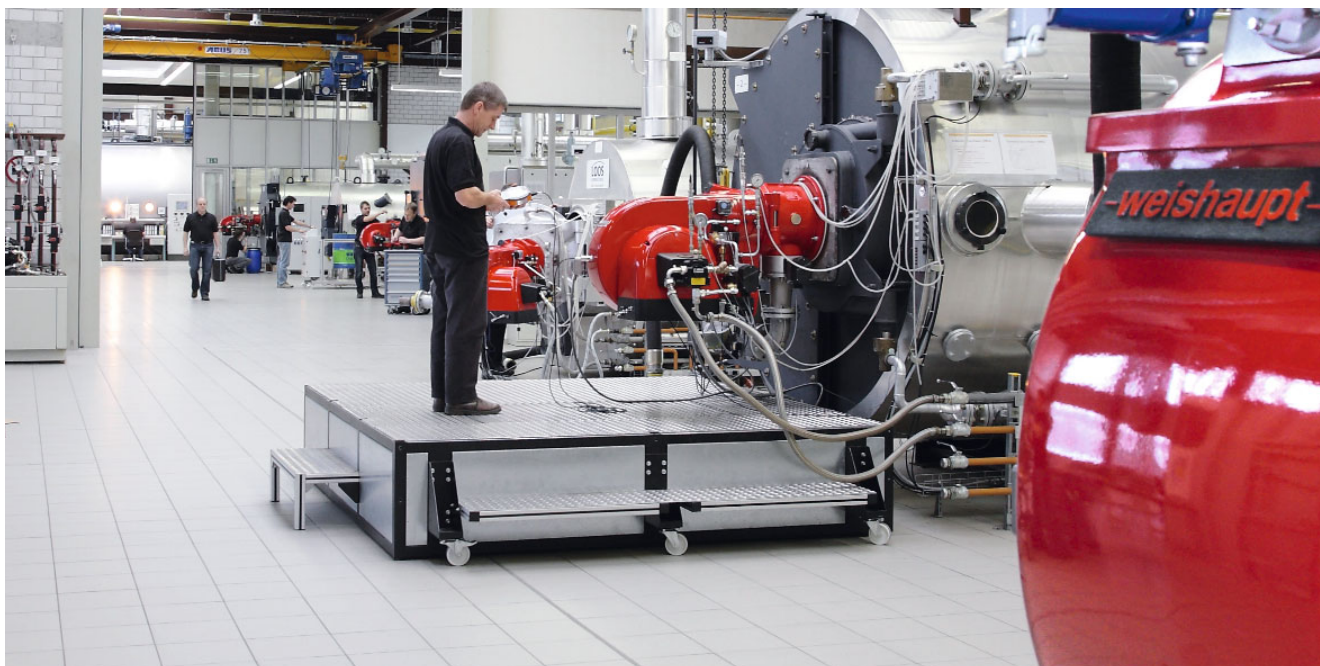


Four RGL70 burners on thermal fluid heaters ensure that the crude oil can be pumped



Two RGMS70/2 burners with digital combustion management provide the necessary process heat on the oil production platform CNOOC LUDA 27-2

Our recipe for success: Innovation and the latest production methods



The burner technology of tomorrow is tested in the Research and Development Centre

Innovation comes from the in-house Research and Development Centre, whose new product developments have been setting benchmarks for decades. Burners and heating systems become ever cleaner, more economical, and easier to use.

At present, around 100 specialists in Schwendi are committed to fulfilling this task. They are a team which combines special training, years of experience, craftsmanship, and creativity, and that is unrivalled in the industry.

Skill and knowledge for Weishaupt's future-generating workshops also comes from reference sites in the field and ongoing customer interfacing. The work is carried out using modern test equipment and design offices.

The latest production methods combine optimum working conditions and maximum conservation of resources. Automated manufacturing centres, bright manufacturing facilities and efficient work processes are all essential ingredients. Utmost reliability for our products is the goal.

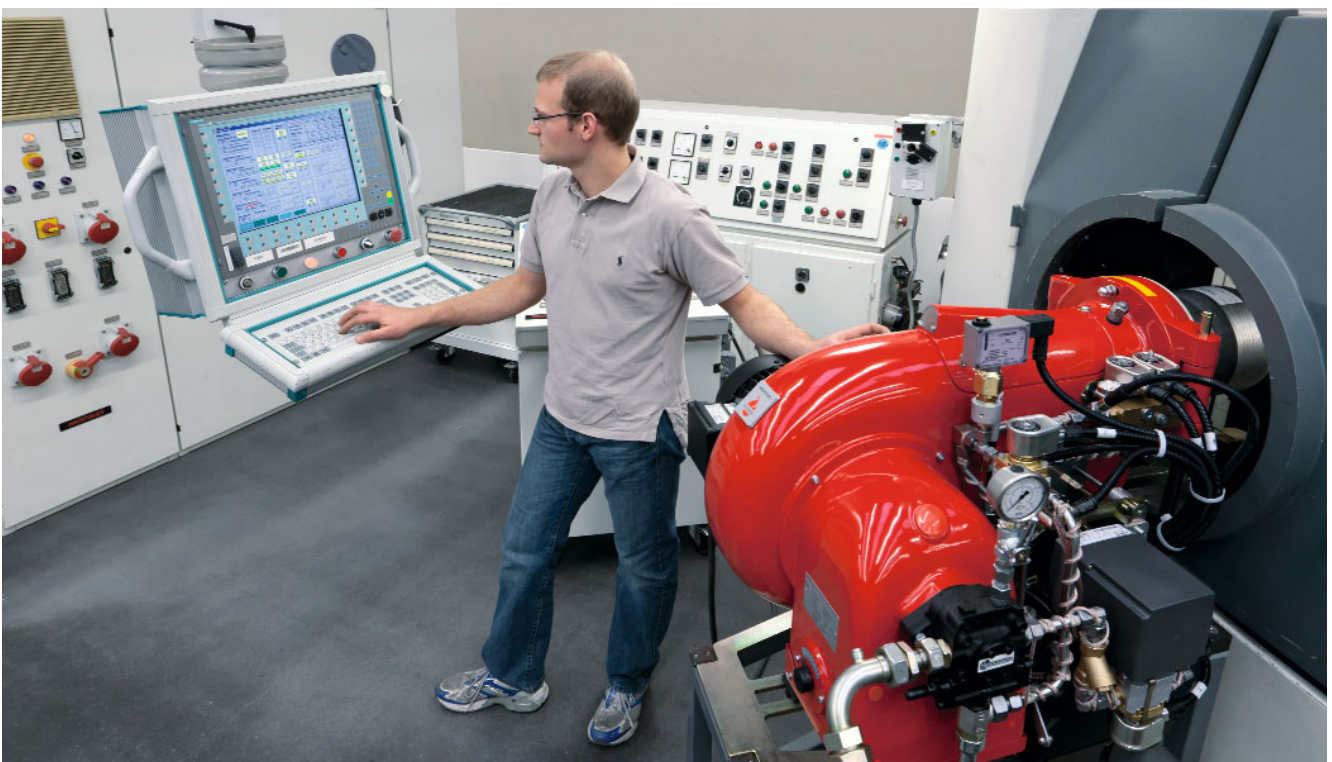
A willingness to invest ensures a modern manufacturing facility and thus quality and efficiency. Burners for worldwide use are manufactured at the main works in Schwendi.

Care, diligence and discipline shape our business. Every action and the smallest of parts is important, if the high level of customer care is to be built into the burners and heating systems.

It's about the effectiveness of the test and control systems, the use of the latest technology, and the quality of materials, as well as logistics and organisation. And it is decided by the human factor: "We deliver precision work," is the motto of every Weishaupt employee.



Burners for worldwide use are manufactured in a modern production hall



All marine burners are fully tested on special test beds prior to delivery

