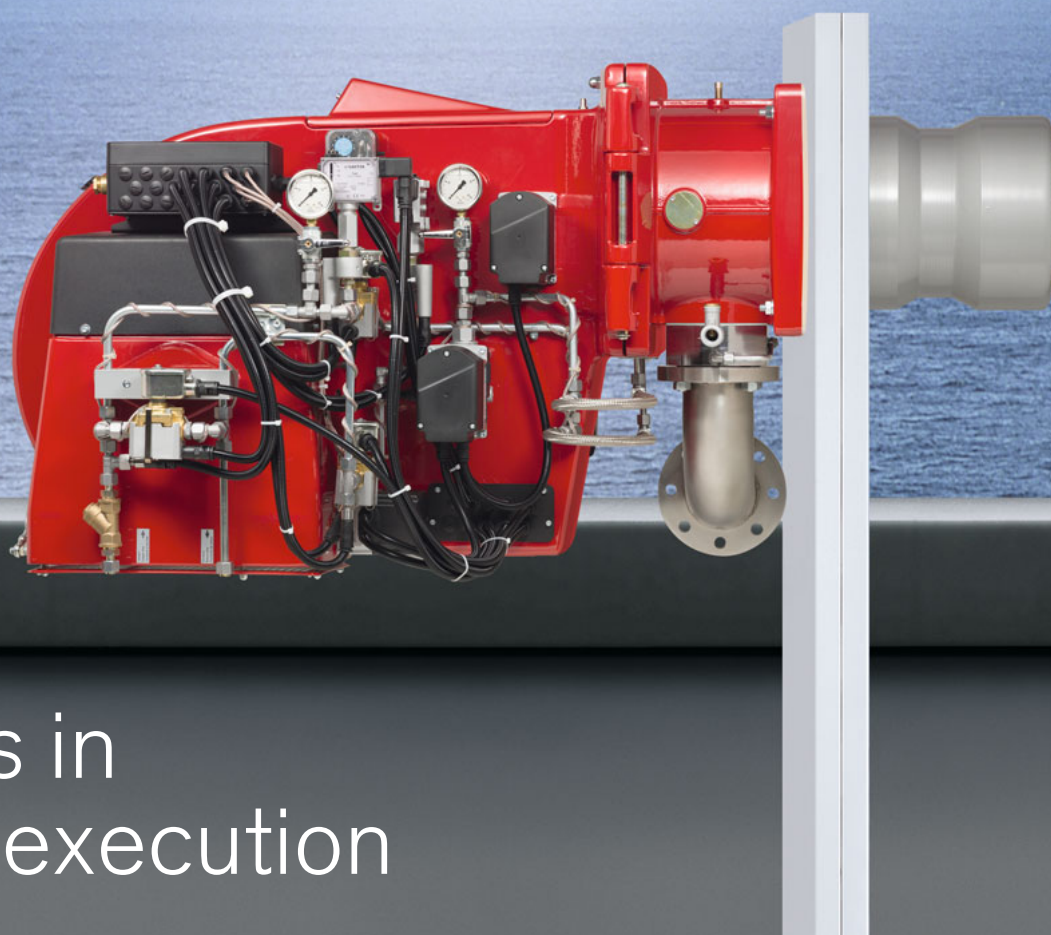


– weishaupt –

info

Burners for LNG, distillate and residual oil



Burners in marine execution

for Shipping and Offshore Installations with capacities up to 32 MW

Progress and Tradition: Burners in marine execution



Weishaupt products can be found everywhere where reliability is essential

For over 40 years Weishaupt has designed and produced burners in marine execution for various applications such as auxiliary and hot water boilers for shipping and offshore installations. The in-house Research and Development Centre is constantly working on innovative new developments.

The burners are distinguished by their robust and compact design. They are easy to install and maintain. Total care is taken in the development and production especially when it comes to making servicing easy.

Our commitment to quality goes beyond product and service. Weishaupt offers individual solutions for the control of burners, boilers and supply equipment. This provides you with expertise from a single source.

Modular.

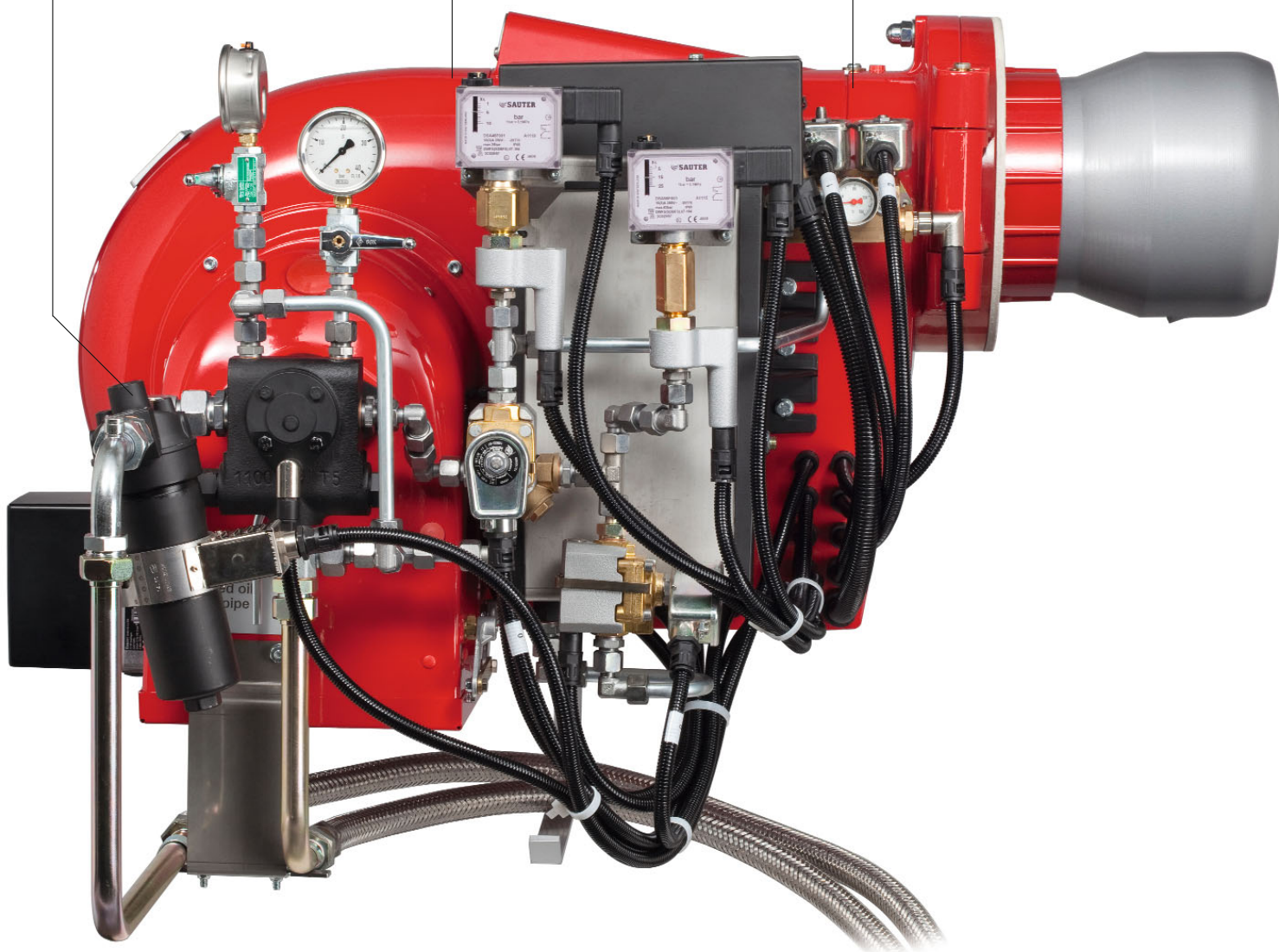
Thanks to their modular construction, Weishaupt burners can meet almost all requirements for shipping and offshore operations.

Robust.

For many decades, Weishaupt burners in marine execution with their compact construction have proven themselves under the harshest conditions.

Reliable.

Highest quality is our goal. Each burner is therefore fully tested and approved by Classification Societies.



Highest availability ensured using three fuel marine burners

Weishaupt three fuel burners for LNG, distillate (DM..) and residual oils (RM..) for capacity ranges from 450 to 32000 kW

Strict environmental regulations for shipping require more flexibility in terms of the fuel used.

LNG is one of several options to fulfil them. The infrastructure however is only in its development stage.

Flexibility in the choice of fuel

Weishaupt three fuel burners ensure continuous operation independent of fuel availability. This guarantees high flexibility.

The digital combustion management

provides highly efficient combustion by precise dosing of fuel and air.

The specially developed GUV (Gas Valve Unit) provides many safety benefits:

- Nitrogen purge in emergency as well as during maintenance
- Quantity as well as time supervised purging and venting processes
- Pneumatic valve control
- Flexible twin wall gas supply to the burner with CH₄ (methane) monitored air purging in the outer shell as additional safety feature in the event a leakage
- Reliable ignition of pilot flame

Everything from one source

A complete unit ready for connection consisting of burner, gas supply and controls is certified according to your specifications and supplied fully tested.

Legends:

1.0 Burner

- 1.1 Three fuel burner (LNG, MDF, RFO)
- 1.2 Oil shut off device with safety valve
- 1.3 Three-way change-over valves MDF/RFO

2.0 System controls

- 2.1 Central control and monitoring device
- 2.2 GUV (Gas Valve Unit) Control

3.0 GUV

The GUV controls, regulates and monitors LNG, Nitrogen, compressed air and purge air.

The unit consists of:

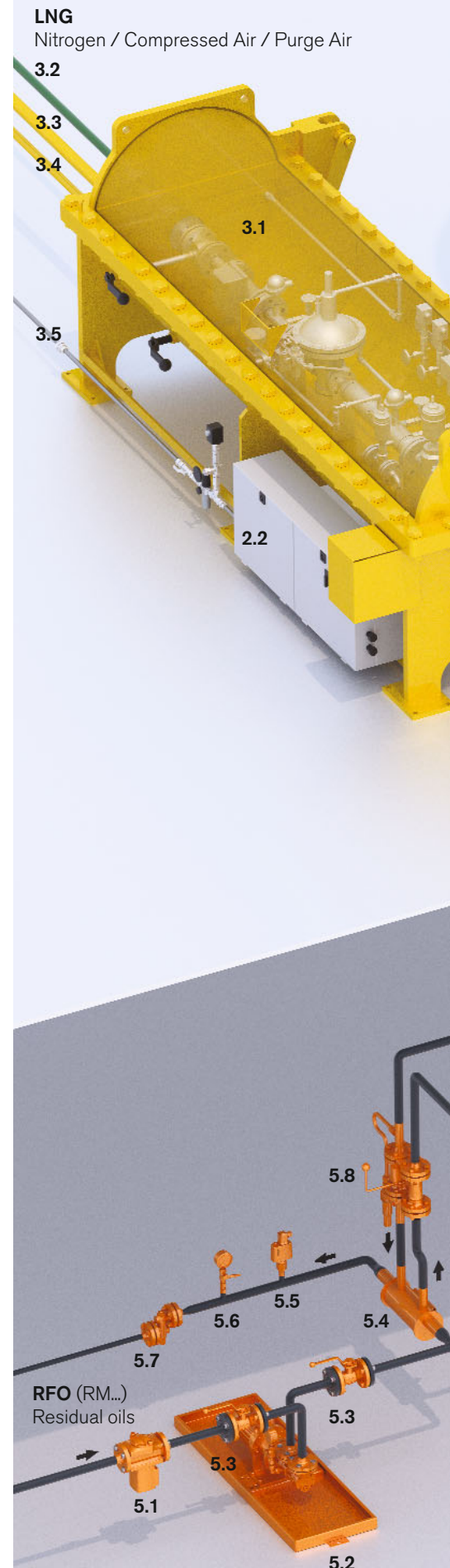
- 3.1 LNG high pressure supply with externally accessible ball valve, gas flow measurement, gas pressure control
- 3.2 Nitrogen inlet
- 3.3 Gas inlet main gas
- 3.4 Purge air inlet
- 3.5 Compressed air connection with pressure regulating station
- 3.6 Main gas burner (twin walled gas hose)
- 3.7 Ignition gas burner twin walled gas hose
- 3.8 Purge air outlet / connection for suction fan
- 3.9 Gas vent / discharge

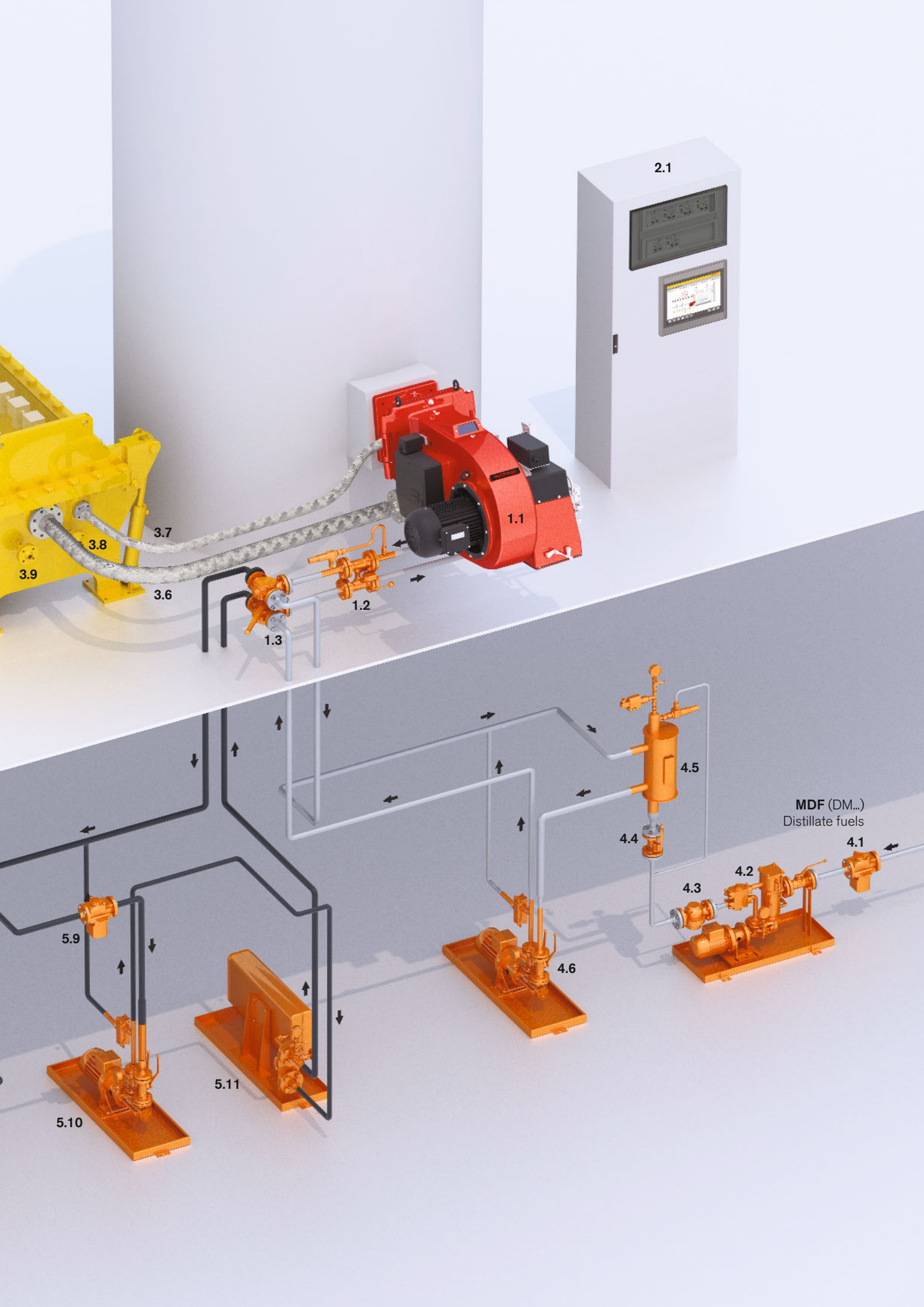
4.0 MDF (DM... fuels)

- 4.1 Filter
- 4.2 Single pipe feeder pump
- 4.3 Oil meter
- 4.4 Shut off 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 Shut off device
- 5.4 Air/gas separator
- 5.5 Ring main min. pressure switch
- 5.6 Ring main pressure display
- 5.7 Ring main pressure regulating valve
- 5.8 Shut off combination with safety valve
- 5.9 Filter
- 5.10 High pressure supply pump station
- 5.11 Oil preheater station





MDF (DM...)
Distillate fuels

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

Marine Fuel Oils are available in various qualities. MARPOL 73/78 Annex I to VI regulates the use, as well as the emissions of sulphurous combustion products in certain marine territories. This has resulted in oils with a lower sulphur content than required by the regulations being produced.

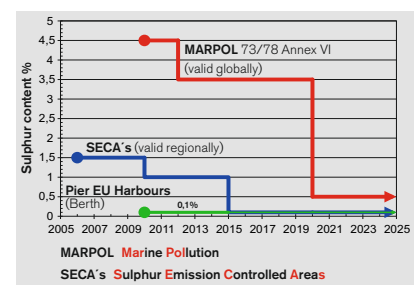
The standard ISO 8217 for marine fuels differentiates between Marine Distillate Fuel Oil and Marine Residual Fuel Oil, whereby Residual Fuels are commonly known as heavy oils (RFO).

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

In accordance with MARPOL regulations, a sample of each fuel delivered must be available on board. The fuel can only be used once the specification (Bunker Delivery Note) has been released by the test laboratory.

Weishaupt burners in marine execution are approved for Marine Fuel Oils to ISO 8217 2010-06-15 and DIN ISO 8217 2011-09.

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



Limit values for sulphur content in the fuel

Source: DIN ISO 8217 : 2011-09			Marine fuels (MFO)															
Commercial designations*			Distillate fuels (MDF) e.g. MGO* / MDO*				Residual oils (RFO) e.g. HFO* / Bunker oils*											
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	mm²/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/m³	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 sulfide	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 Burner			L / RL 2) Burners			MS 3) Burners (two stage)											MS 3)	
			MS 3) Burners (two stage) w. fuel change-over operation															
			RMS 3) Burners (sliding two stage/ modulating)															
			RMS 3) Burners (sliding two stage/ modulating) with fuel change-over 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

Class approved: Weishaupt burners meet all classifications

The Classification Society creates, monitors and documents the compliance of technical regulations on ships and offshore installations.

The so-called Plimsoll line shows by which Society the ship has been classified. On merchant ships this can be found at half ship's lengths on both sides of the hull.



Classification identification by Plimsoll line

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





















Registration code on the burner hinge flange

It is not a legal requirement for the owner of a ship to classify his ship. However, there are only a few states that permit the operation of unclassified ships in their territorial waters. To make the operational radius of a ship as flexible as possible, classification is inevitable.

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

Burners and components, which are approved for use in shipping and on offshore installations are controlled by the **Type Approval** (design approval). This approval is the basis for the final inspection (Final Approval) at the test facility or on site.

Internationally recognised Societies

IACS International Association of Classification Societies	1.	ABS		American Bureau of Shipping	
	2.	BV		Bureau Veritas	
	3.	CCS		China Classification Society	
	4.	DNV		Det Norske Veritas	
	5.	GL		Germanischer Lloyd	
	6.	KR		Korean Register of Shipping	
	7.	LR		Lloyd's Register	
	8.	NKK		Nippon Kaiji Kyokai	
	9.	RINA		Registro Italiano Navale	
	10.	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 u. 30 – 80
BV	France	02396/GO BV	L / RL / M / MS / RMS / WKL / WKMS / 1 – 11 u. 30 – 80
		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	Norway	submitted	
GL	Germany	Drawing approval	L / RL / M / MS / RMS / 1 – 11 u. 30 – 70
KR	Korea	HMB04961-BR001	L / RL / MS / RMS / 5 – 11
LR	England	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 require the following information from you to select your burner:

1. Fuel

Marine Gases		Marine Oils								
LNG	LPG	DMA	DMZ	DMB	RMA	RMB	RMD	RME	RMG	RMK

2. Boiler type and construction (combustion chamber geometry)

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

Horizontal	Horizontal deviation (10 to 30°)	Vertical
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4. Burner capacity required and combustion chamber dimensions

Monoblock burners		Duoblock burners
Monarch 1 – 11 (0,2 – 5,2 MW)	Industrial burners (up to 10.9 MW)	WK burners (1.2 to 32 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 in conjunction with MFO-Fuels alternating operation) 	<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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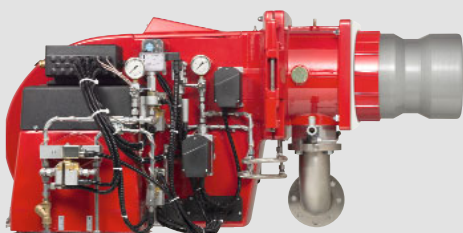
Our modular burner program offers optimum flexibility and maximum individuality

Index type of regulation / fuel

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

Gas, dual fue, and three fuel burners

for LNG, distillate and residual oils (RM..)



Type

Capacity range* (Partial load ■ Full load ■)

G40	(450) 1.200 – 3.450 kW
RGMS40 ¹⁾	(450) 1.400 – 3.450 kW
G/RGMS50 ¹⁾	(550) 1.900 – 5.400 kW
G/RGMS60 ¹⁾	(800) 3.400 – 6.100 kW
G/RGMS70 ¹⁾	(800) 3.900 – 10.700 kW
WKG/WKGMS70 ¹⁾	(1.100) 6.000 – 12.000 kW
WKGMS80 ¹⁾	(2.200) 12.000 – 22.000 kW
WKG80	(2.200) 12.000 – 32.000 kW



¹⁾ External high pressure oil supply required for each fuel

* A detailed capacity selection must be made taking into account the combustion chamber resistance and combustion chamber geometry using the respective capacity graph (product leaflet / manual)

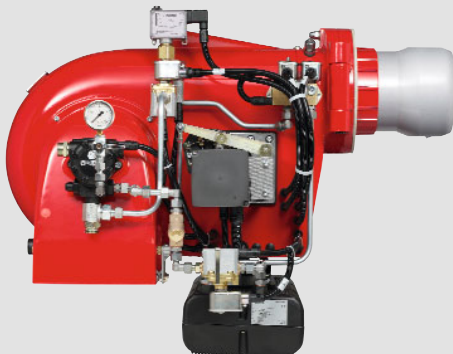
Oil burners

Version for distillate fuels



Type	Capacity range* (Partial load  Full load 
L1	(70) 180 – 415 kW
L/RL3	(120) 300 – 775 kW
L/RL5	(180) 380 – 1.190 kW
L/RL7	(320) 750 – 1.965 kW
L/RL8	(595) 1.300 – 2.740 kW
L/RL8/2	(620) 1.600 – 3.155 kW
RL9	(715) 1.750 – 3.690 kW
RL10	(955) 2.050 – 4.525 kW
RL11	(1.430) 2.500 – 5.240 kW
RL50	(715) 2.100 – 6.170 kW
RL60	(1.310) 3.800 – 7.265 kW
RL70	(1.905) 4.700 – 10.900 kW
WKL70 ¹⁾	(1.200) 6.000 – 12.000 kW
WKL80 ¹⁾	(3.200) 12.000 – 22.000 kW

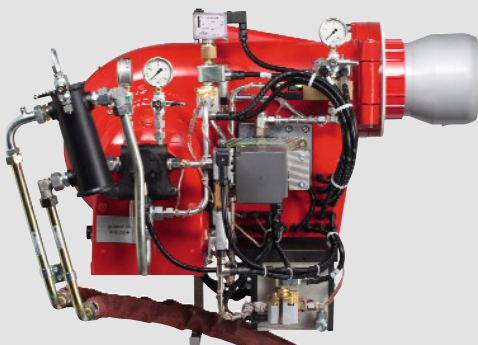
Version for residual oils (RM..) ¹⁾



M1	(90) 180 – 415 kW
M3	(120) 300 – 775 kW
M5	(225) 500 – 1.190 kW
MS/RMS7	(450) 750 / 800 RMS – 1.965 kW
MS/RMS8	(675) 1.300 – 2.740 kW
MS/RMS8/2	(675) 1.600 – 3.155 kW
RMS9	(900) 1.750 – 3.690 kW
RMS10	(1.010) 2.050 – 4.525 kW
RMS11	(1.460) 2.500 – 5.240 kW
RMS50	(1.125) 2.300 – 6.170 kW
RMS60 ¹⁾	(1.800) 3.800 – 7.265 kW
RMS70 ¹⁾	(2.025) 4.700 – 10.900 kW
WKMS70 ¹⁾	(1.200) 6.000 – 12.000 kW
WKMS80 ¹⁾	(3.200) 12.000 – 22.000 kW

¹⁾ External high pressure oil supply required for each fuel

Version for distillate fuels (DM..) and residual oils (RM..) for alternating fuel operation (an oil side adjustment is not required)



MS/RMS7	(450) 750 / 800 RMS – 1.965 kW
MS/RMS8	(675) 1.300 – 2.740 kW
RMS9	(900) 1.750 – 3.690 kW
RMS10	(1.010) 2.050 – 4.525 kW
RMS11	(1.460) 2.500 – 5.240 kW
RMS50 ¹⁾	(1.125) 2.300 – 6.170 kW
RMS60 ¹⁾	(1.800) 3.800 – 7.265 kW
RMS70 ¹⁾	(2.025) 4.700 – 10.900 kW
WKMS70 ¹⁾	(1.800) 6.000 – 22.000 kW
WKMS80 ¹⁾	(3.200) 12.000 – 22.000 kW

¹⁾ External high pressure oil supply required for each fuel

* A detailed capacity selection must be made taking into account the combustion chamber resistance and combustion chamber geometry using the respective capacity graph (product leaflet / manual)

In detail: Weishaupt burners offer many advantages

Weishaupt burners are manufactured to individual requirements. This means we deliver a product, which has been exactly matched to the customer's needs.

But Weishaupt burners also stand out through a multitude of innovative ideas:

Reliable and convenient fuel change-over

Whether switching from Gas (LNG) to MFO or from a high viscosity fuel to a low viscosity fuel, regardless of the type of fuel change-over required, we have the right solution.

The key advantage of the Weishaupt design is that no fuel-side adjustment is needed for fuel change-over.

Alternating operation with different MFO fuels:

A high degree of operational reliability is achieved by using standard pressure monitoring, even when switching between liquid fuels of different viscosity.

To ensure that our high standards for operational reliability are met when switching from a high viscosity fuel to a low viscosity fuel, the temperature of the oil supply system must be reduced to a temperature of 40 – 60 °C prior to switching to the low viscosity fuel. This is usually achieved with an auxiliary fuel.

No matter which port you are heading for, Weishaupt offers a convenient and practical solution with this reliable fuel change-over.



Precise leakage diversion ensures maximum safety (standard for version with different MFO fuels in alternating operation)

Maximum safety provided by precise leakage diversion

When using MFO fuel the shaft seal is placed under extreme mechanical strain. Weishaupt offers an optimum solution with an innovative design and the use of high quality materials.

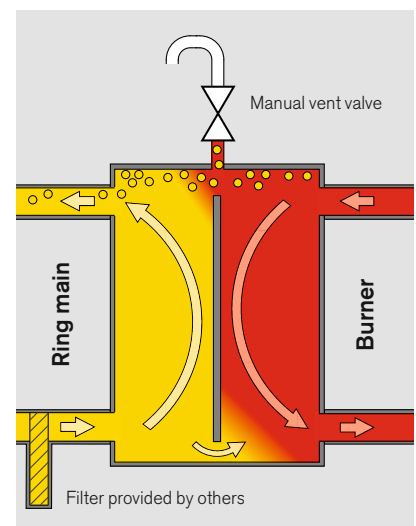
With the multi-fuel pumps UHE-WH, the oil is diverted into a separate reservoir by precise leakage diversion in the event that the shaft seal fails.



The integrated gas/air separator provides greater reliability and convenience (standard on RMS burners version with different MFO fuels in alternating operation)

Energy saving provided by gas/air separator

The separation into different temperature zones from ring main to burner supply ensures that the oil preheater is used in the most efficient way. This saves energy and operating costs. The straightforward connection to the oil supply also minimises installation costs.



The separation into different temperature zones saves energy and costs



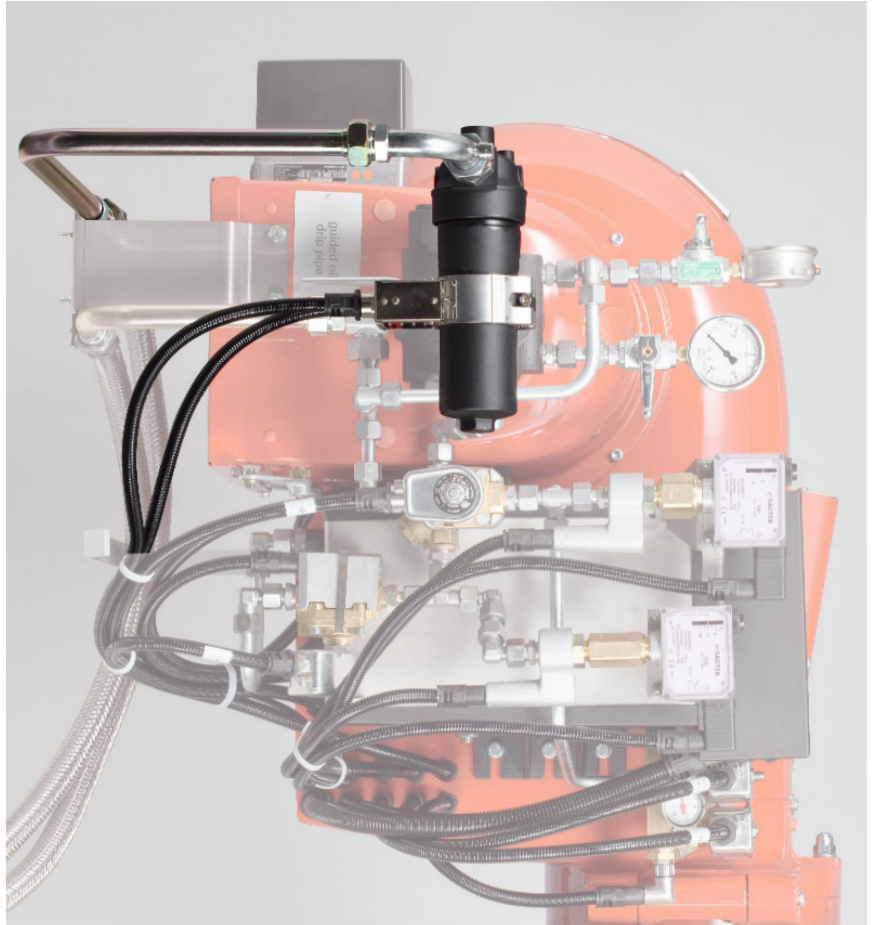
*The integrated oil filter is easily accessible
(standard on MS burners version with different MFO
fuels in alternating operation)*

Oil filter fitted as standard

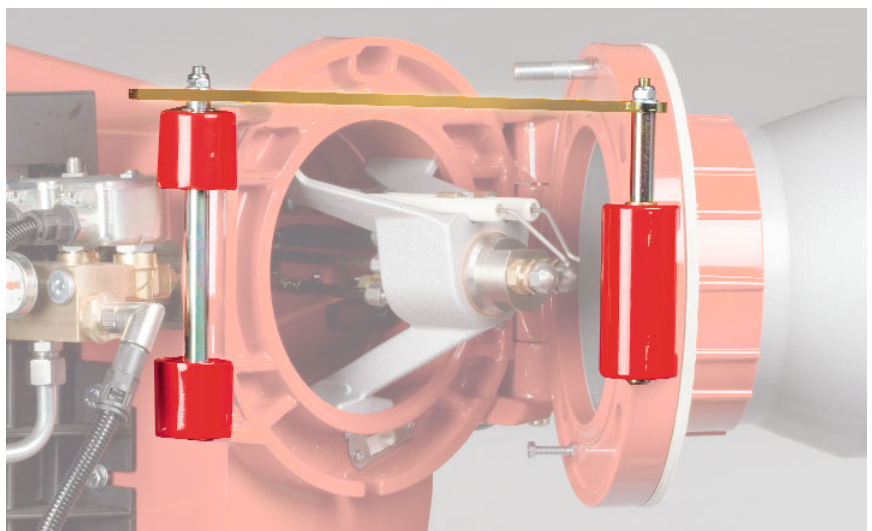
The heated, integral oil filter is easily accessible and easy to service. Due to the flexible construction of the oil filter the burner can be positioned as required.

Increased safety during servicing

The hinge securing mechanism supplied as standard ensures that the burner can not swing close during servicing.

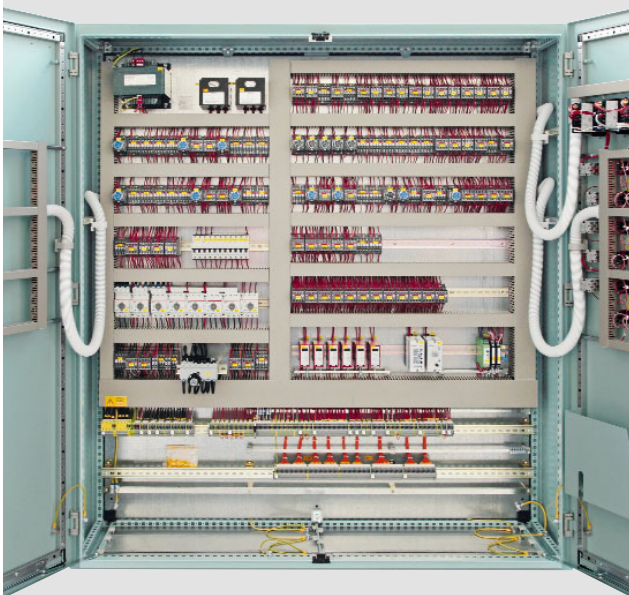


*Due to the flexible construction of the heated oil filter the burner can be installed in any position required
from horizontal to vertical*



Increased safety during servicing provided by the integrated hinge flange with securing mechanism

We control to your requirements: Analogue or digital



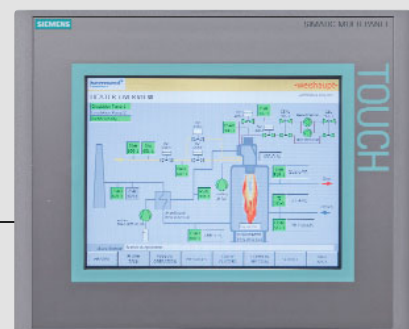
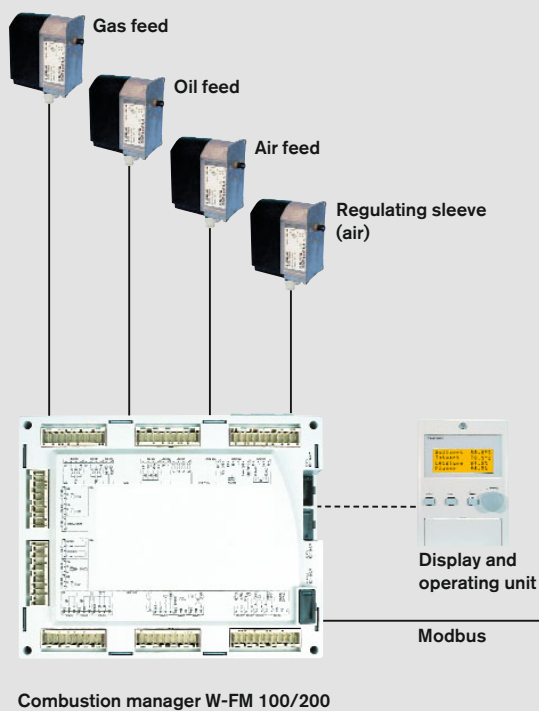
Weishaupt offers individual control systems to meet all requirements of the ship's classification with the usual voltages and frequencies



Highest safety provided by 100% redundancy of burner control systems

Digital combustion management offers:

- Precise setting accuracy
- Reproducible setting values
- Convenient handling
- Flexible communication
- Data backup / fault analysis
- Menu selection via clear text display



Visualisation via
PC / Touch Panel



System networking via SPS / DDC

In conjunction with classification society LR / GL / DNV: Digital combustion management makes burner operation convenient and reliable

Simple and time saving conversion with ready-to-install conversion kits

Ready-to-install conversion kits

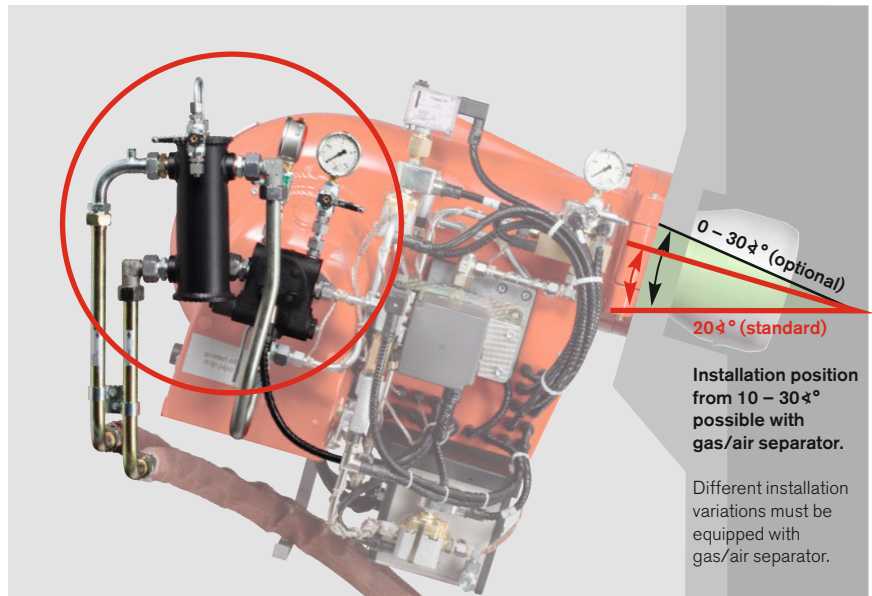
for example for conversion from residual oils to distillate/residual oils, offer a time saving and service friendly possibility to adapt burners already installed to meet changing requirements.



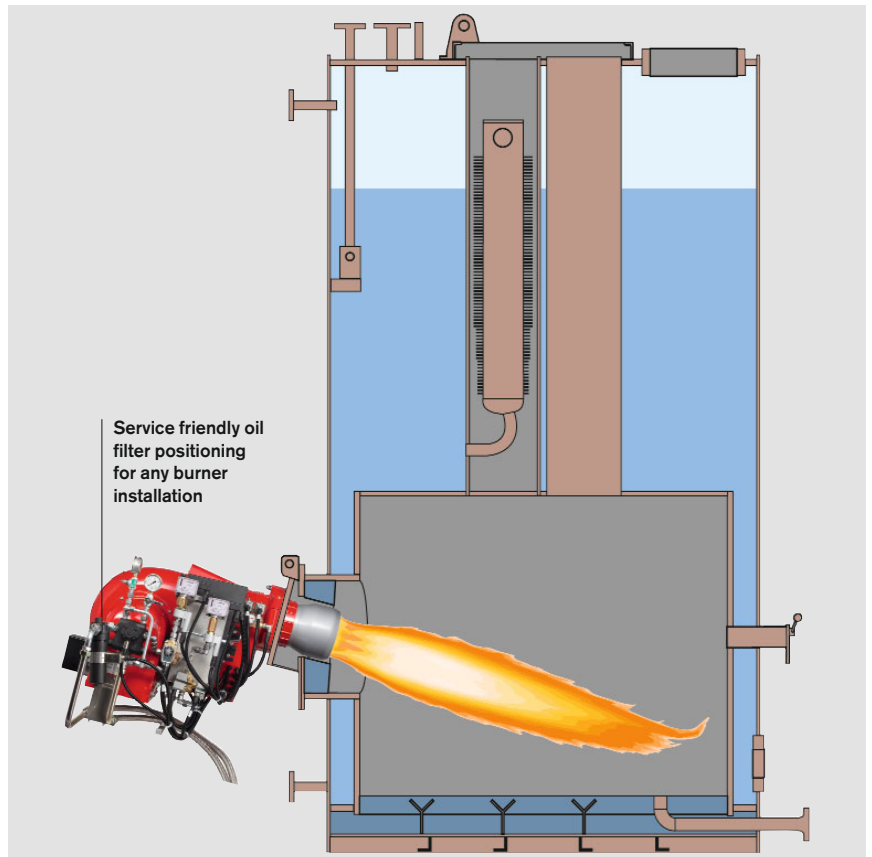
Conversion kit for RMS7 / RMS8



Conversion kit for MS7 Z / MS8 Z



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



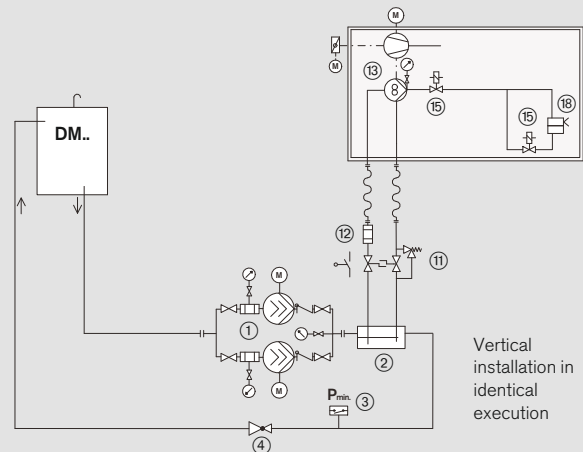
With the MS conversion kit (example MS7 / MS8) installation is possible from horizontal to vertical

Technology in detail: Fuel supply /fuel change-over

Version for distillate fuels (DM..)

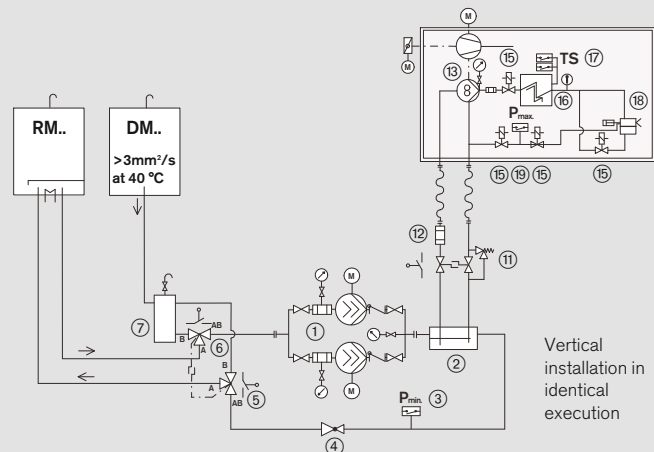
L burners

- | | |
|---|-----------------------------------|
| ① Suction pump assembly | ⑩ Temperature switch (40 – 60 °C) |
| ② Gas/air separator | ⑪ Shut off combination |
| ③ Min. pressure switch | ⑫ Oil filter |
| ④ Pressure regulating valve | ⑬ Burner pump |
| ⑤ 3 way ball valve (return) | ⑭ Strainer |
| ⑥ 3 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 3 way ball valve (DM../DM..) | ⑱ Two stage nozzle assembly |
| ⑨ Heating (60 – 90 °C) | ⑲ Max. pressure switch |



Version for residual oils (RM..) ¹⁾

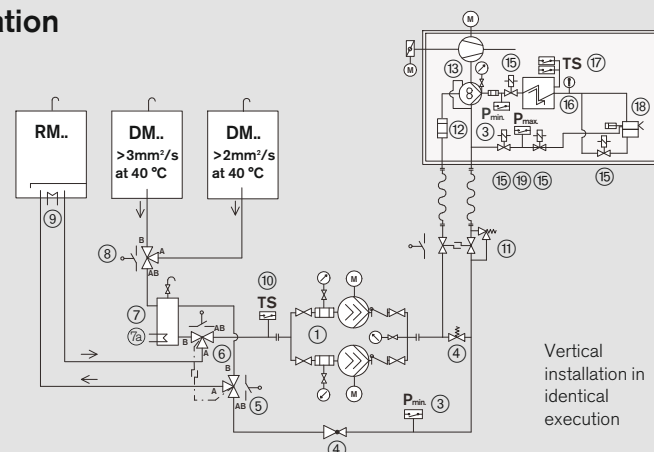
MS burners



Version for distillate fuels (DM..) and residual oils (RM..) in alternating operation

MS7 and MS8 burners ²⁾

(an oil side adjustment is not required)

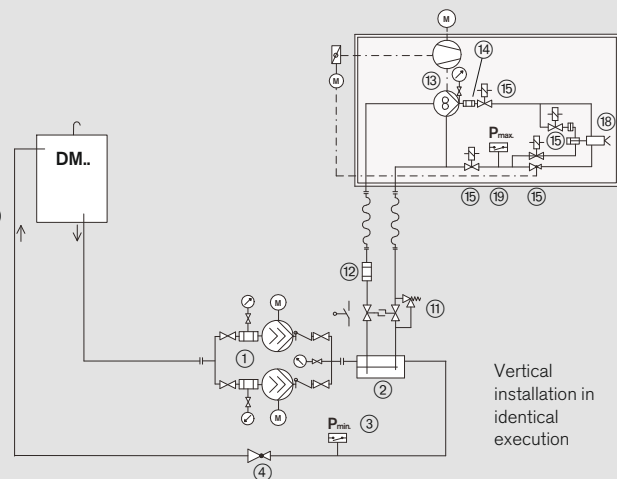


¹⁾ MDO only as an auxiliary fuel for startup and shutdown of the boiler and burner purging ²⁾ Except for type 8/2

Version for distillate fuels (DM..)

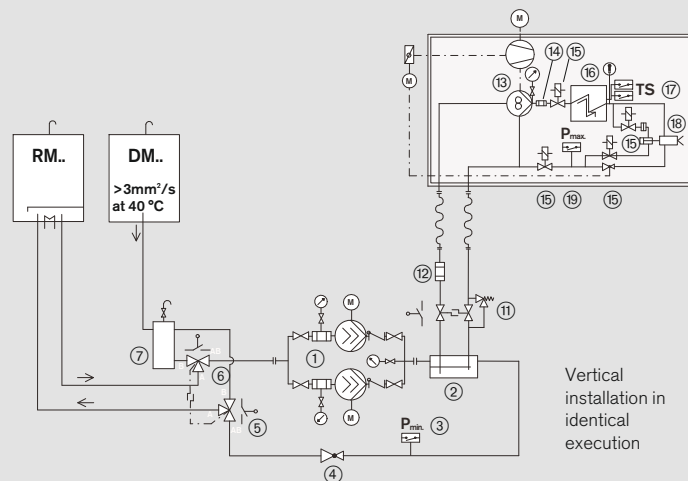
RL3 – RL11 burners

- | | |
|---|-----------------------------------|
| ① Suction pump assembly | ⑩ Temperature switch (40 – 60 °C) |
| ② Gas/air separator | ⑪ Shut off combination |
| ③ Min. pressure switch | ⑫ Oil filter |
| ④ Pressure regulating valve | ⑬ Burner pump |
| ⑤ 3 way ball valve (return) | ⑭ Strainer |
| ⑥ 3 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 3 way ball valve (DM../DM..) | ⑱ Two stage nozzle assembly |
| ⑨ Heating (60 – 90 °C) | ⑲ Max. pressure switch |



Version for residual oils (RM..) ¹⁾

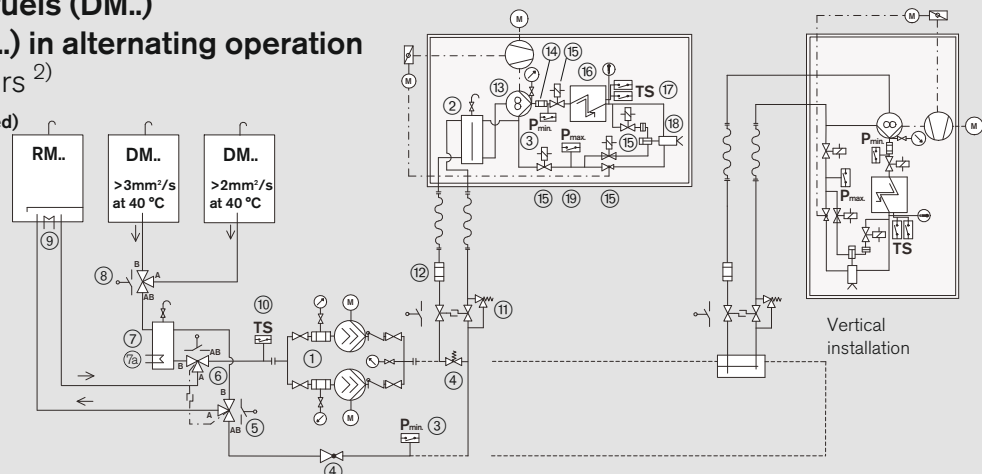
RMS7 – RMS11 burners



Version for distillate fuels (DM..) and residual oils (RM..) in alternating operation

RMS7 – RMS11 Burners ²⁾

(an oil side adjustment is not required)

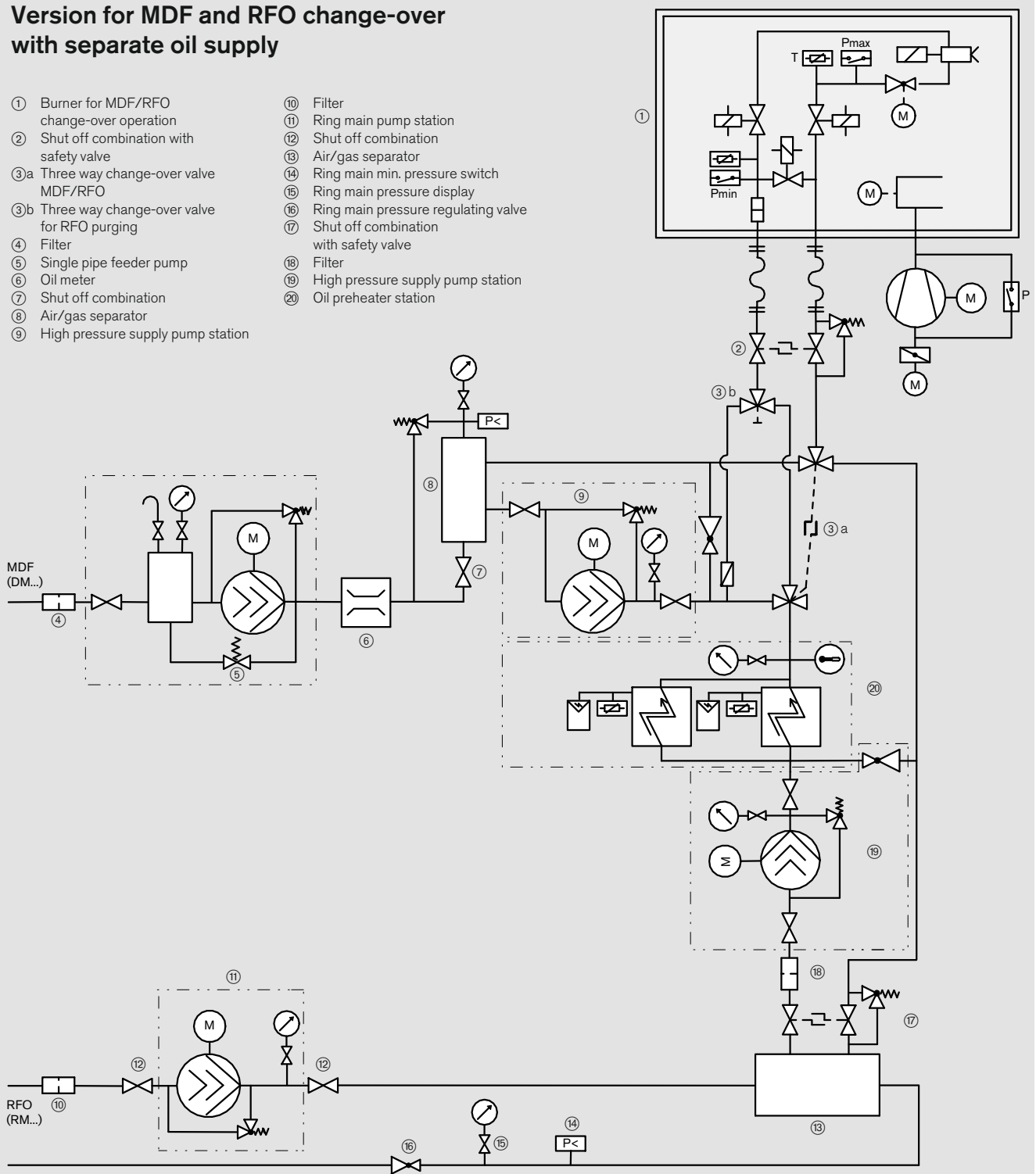


¹⁾ MDO only as an auxiliary fuel for startup and shutdown of the boiler and burner purging ²⁾ Except for type 8/2

Technology in detail: Fuel supply /fuel change-over

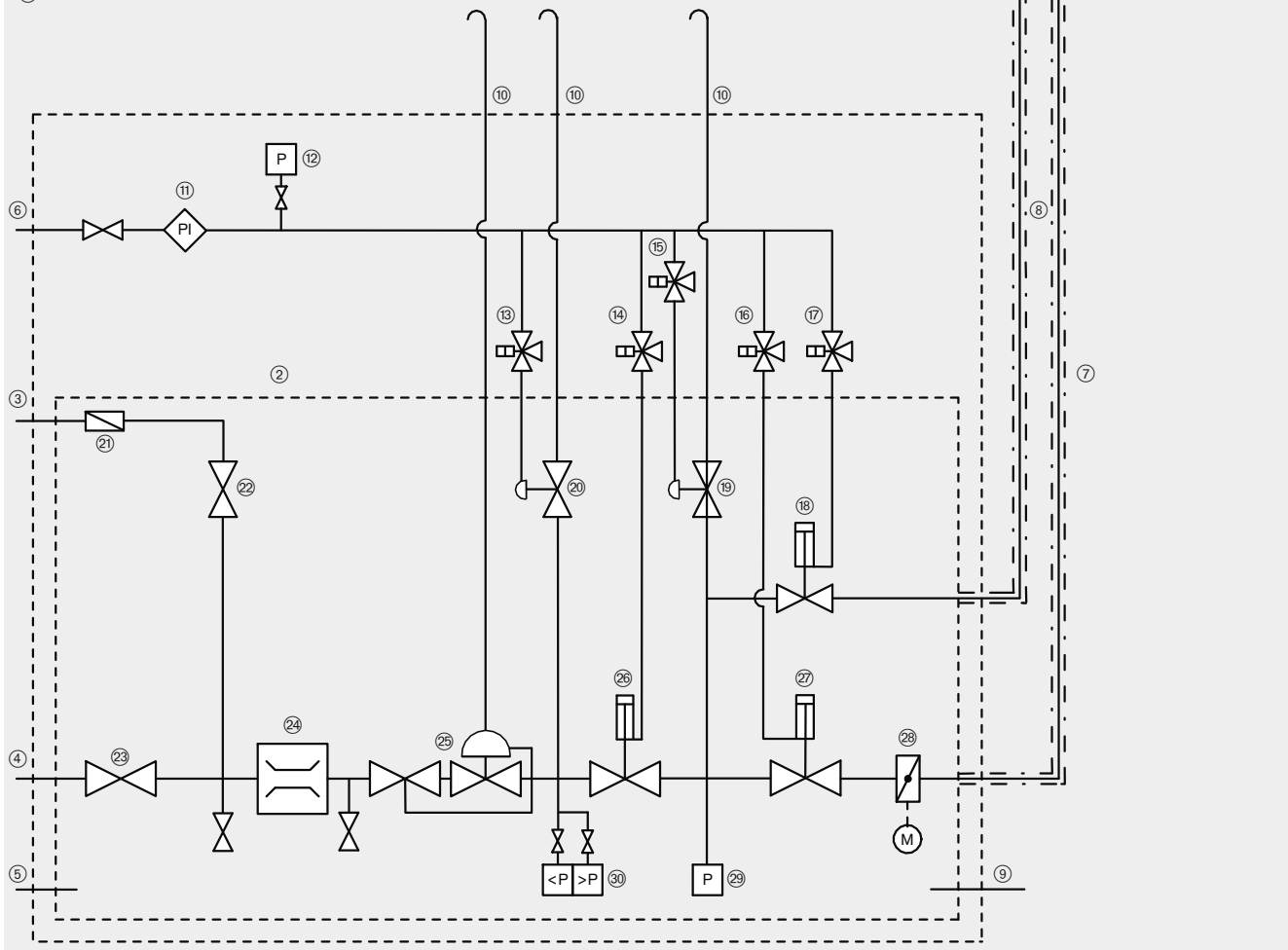
Version for MDF and RFO change-over with separate oil supply

- | | |
|--|--|
| ① Burner for MDF/RFO change-over operation | ⑩ Filter |
| ② Shut off combination with safety valve | ⑪ Ring main pump station |
| ③a Three way change-over valve MDF/RFO | ⑫ Shut off combination |
| ③b Three way change-over valve for RFO purging | ⑬ Air/gas separator |
| ④ Filter | ⑭ Ring main min. pressure switch |
| ⑤ Single pipe feeder pump | ⑮ Ring main pressure display |
| ⑥ Oil meter | ⑯ Ring main pressure regulating valve |
| ⑦ Shut off combination | ⑰ Shut off combination with safety valve |
| ⑧ Air/gas separator | ⑱ Filter |
| ⑨ High pressure supply pump station | ⑲ High pressure supply pump station |
| | ⑳ Oil preheater station |



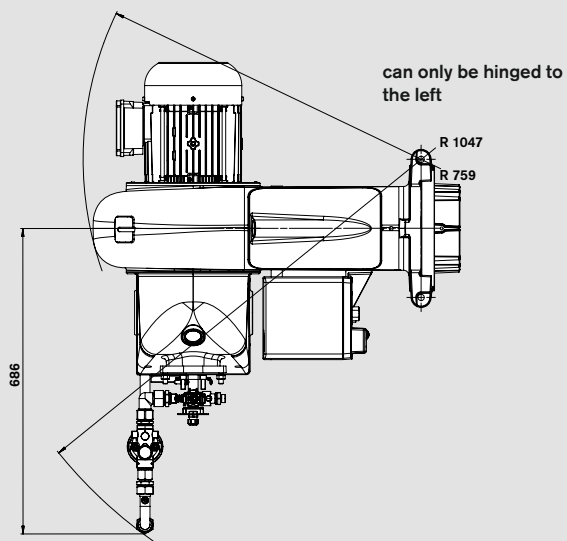
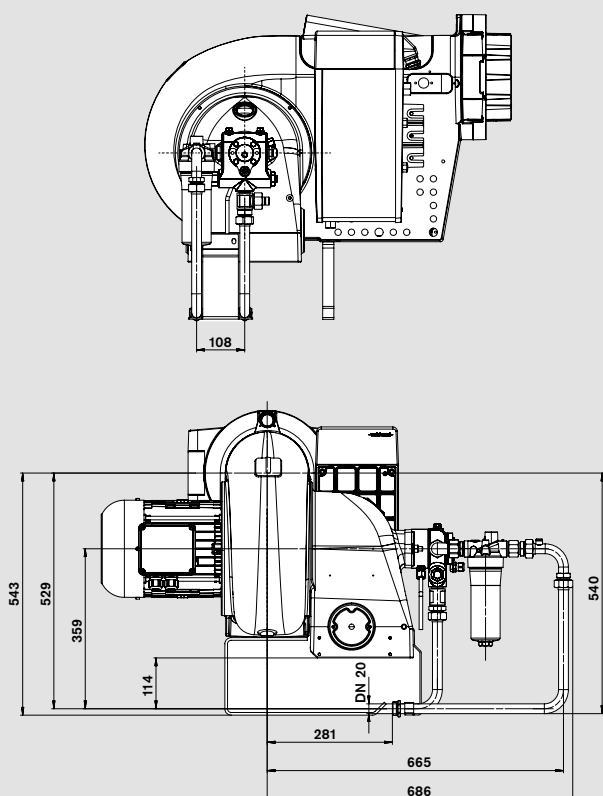
Version for LNG incl. Nitrogen / Compressed Air / Purge Air

- | | |
|--|---|
| ① LNG Bunner | ⑩ Pneumatic control valve |
| ② LNG high pressure supply with externally accessible ball valve, gas flow measurement, gas pressure control | ⑪ Pneumatic control valve |
| ③ Nitrogen supply | ⑫ Ignition gas shut off valve |
| ④ Main gas supply | ⑬ Vent valve |
| ⑤ Air inlet purge air | ⑭ Vent valve |
| ⑥ Compressed air connection | ⑮ Nitrogen non return valve |
| ⑦ Main gas burner twin walled gas hose | ⑯ Externally accessible Nitrogen isolating valve |
| ⑧ Ignition gas burner twin walled gas hose | ⑰ Externally accessible LNG isolating valve |
| ⑨ Purge air outlet / connection for suction fan | ⑱ Gas flow measurement |
| ⑩ Gas vent / discharge | ⑲ Gas pressure regulating station incl. SAV and SBV |
| ⑪ Compressed air control station | ⑳ Main gas shut off valve 1 |
| ⑫ Compressed air pressure display | ㉑ Main gas shut off valve 2 |
| ⑬ Pneumatic control valve | ㉒ Gas butterfly valve |
| ⑭ Pneumatic control valve | ㉓ Valve proving gas pressure switch |
| ⑮ Pneumatic control valve | ㉔ High/low gas pressure switches |

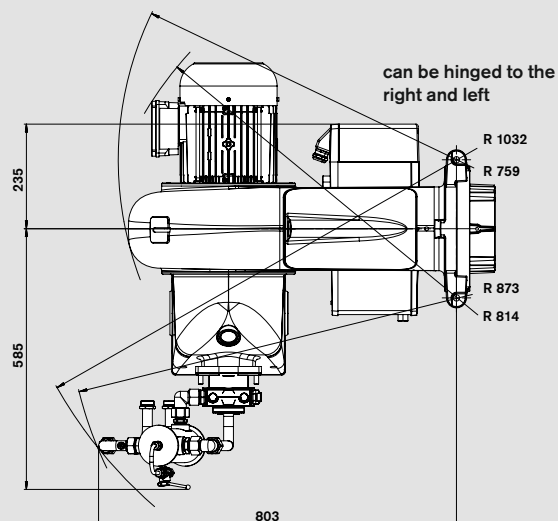
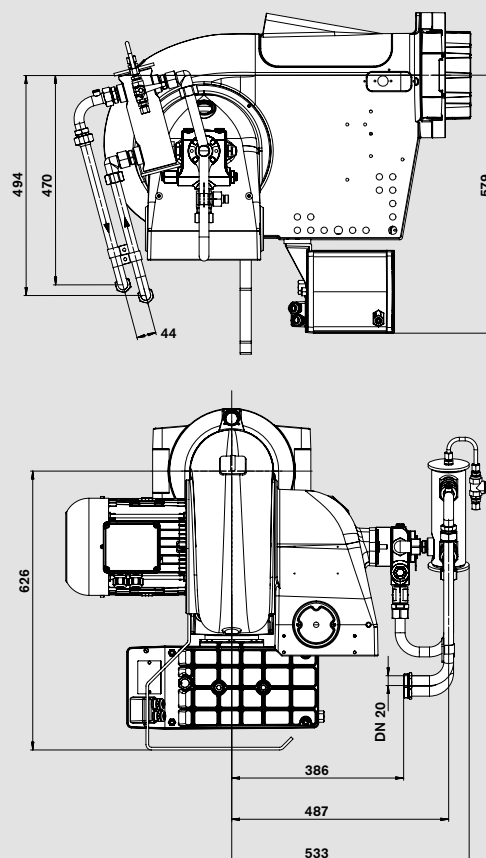


Dimensions and hinge ranges for series 7/8 version MGO-MDO-HFO

Oil burners MS 7



Oil burners RMS 7



Other dimensions can be found in the product documentation

Our suggestion: Weishaupt equipment versions

Classification Society			ABS	BV	CCS	DNV	GL	KR	LR	NKK	PRS	RINA	RS
Burners general	Marine execution	<ul style="list-style-type: none"> All burner castings painted inside Motor terminal box sealed with captivated screws Cable protection provided by flame retardant hose Marine cable entries to DIN 89280 Fully wired to terminal strip Type tested stainless steel oil hoses¹⁾ Hinge securing mechanism for servicing Burner motor in IP 54, F, IE2 	●	●	●	●	●	●	●	●	●	●	●
	optional	<ul style="list-style-type: none"> Oil filter in spheroidal cast iron or cast steel¹⁾ 	●	●	●	●	●	●	●	●	●	●	●
Oil preheating / oil preheater													
Control	Controller/ combustion manager	2x LAL2.25 (selectable) in control panel	●	●		●	● ²⁾	●	●	●	●	●	●
		1x LOK16.250 in control panel			●		●						
		1x W-FM100 on burner					●		●				
	Flame sensor	1x RAR9			●		●						
		2x RAR9 (selectable)	●	●		●		●	●	●	●	●	●
		1x QRI2 (in conjunction with W-FM100)					●		●				
Monitoring	Oil pump fitted	LGW air pressure switch		●	●								●
		Min. oil pressure switch (vers. HFO-MDO-MGO)	●	●	●	●	●	●	●	●	●	●	●
		Max. oil pressure switch (MS / RL / RMS burners)											
Component heating	Oil pump external	Oil pressure gauge with ball valve											
		Air pressure switch	●	●	●	●	●	●	●	●	●	●	●
		Min. oil pressure switch in oil supply											
		Oil pressure gauge with ball valve in supply											
	Version HFO	<ul style="list-style-type: none"> Oil solenoid valves /oil pressure switch (22W) Nozzle assembly 110W Oil quantity regulator 22W (on RMS burners) Filter fitted 2x 66W²⁾ 	●	●	●	●	●	●	●	●	●	●	●
	Oil pump	E4-7 80W, T/TA/UHE-WH.. 110W	●	●	●	●	●	●	●	●	●	●	●
Gas, duel fuel and three fuel burners	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 	●	●	●	●	●	●	●	●	●	●	●
	Versions on request												

¹⁾ Included on MS7 and MS8 burners in version HFO-MDO-MGO ²⁾ Except for ships under German flag

Weishaupt burners in operation: Everywhere where quality is essential



A Weishaupt RGL5 burner provides steam on the Research Ship Polarstern



Waste incinerator on the luxury liner
"MS Empress" with two L1 burners



Thermal fluid oil is heated by a heavy oil burner type MS8 from Weishaupt



Many of the tanker from the shipyard Odense are equipped with Weishaupt burners such as MS / RMS 7-8

At home on all oceans

The demands on marine applications are high. Highest reliability and operational safety are therefore imperative.

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

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

- Cruise Ships
- Ferries
- Tankers
- Container Ships
- Bulk Carriers
- Floating platforms
- Drilling rigs

Applications:

- Auxiliary and hot water boilers
- Process plant, e.g. for
 - waste incineration
 - oil refining processes



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

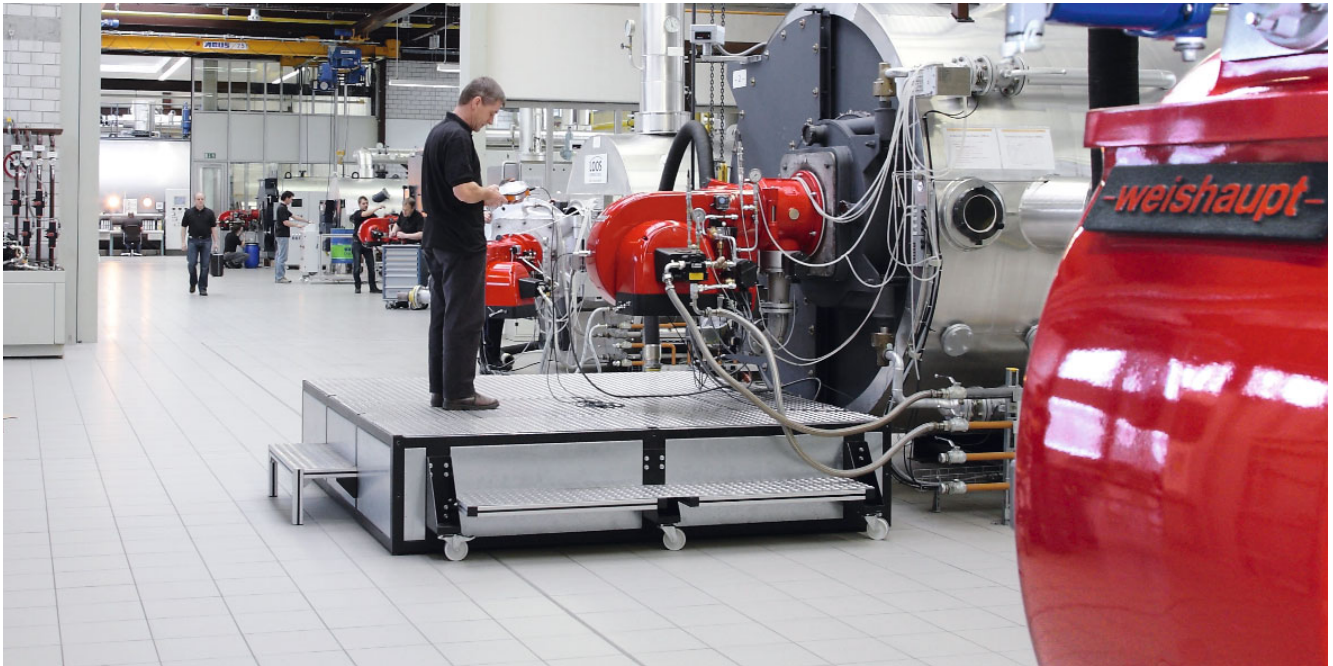


Four RGL70 burners on thermal fluid boilers ensure the crude oil can be pumped



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 modern production



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

Innovative strength is provided by the in-house Research and Development Centre, which for decades has been setting standards with new product developments. Cleaner, more economical and convenient are the demands placed on new burners and heating systems.

At present, around 100 specialists are committed to fulfilling this task in Schwendi. A team, which combines special training, experience, craftsmanship, skill and creativity and is second to none in the industry.

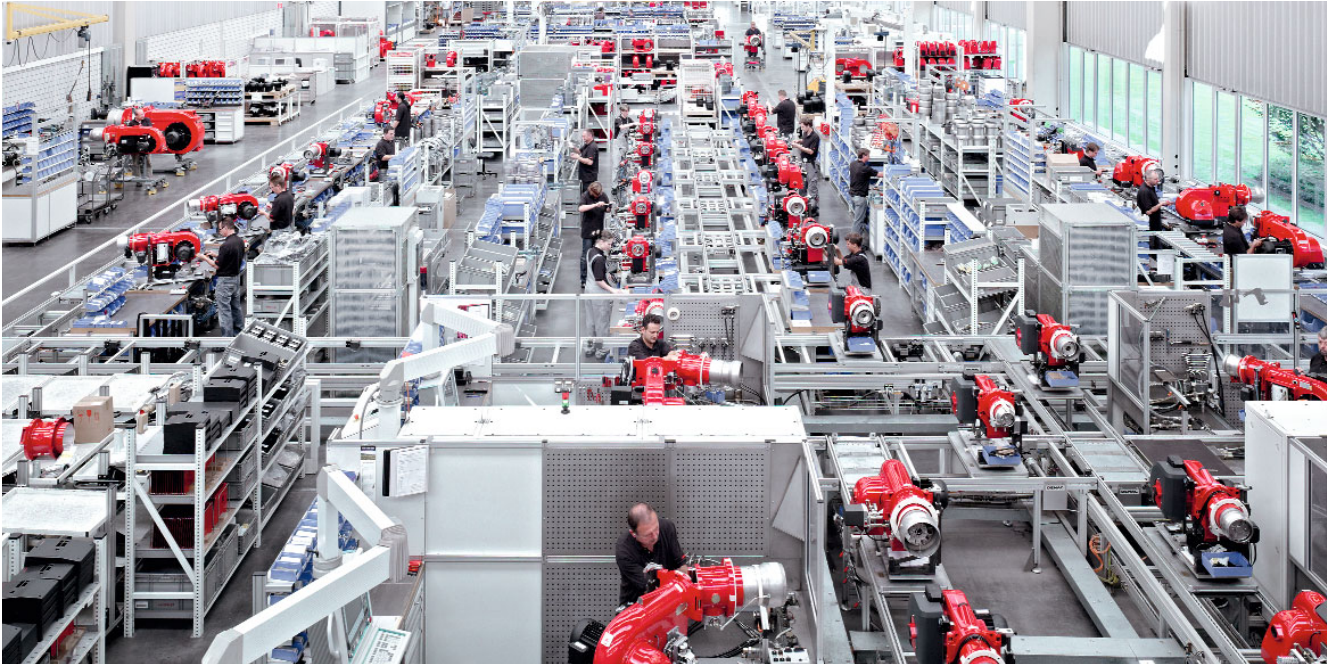
Skill and knowledge for Weishaupt's future-proof workshops is also provided by reference sites in the field and continued customer interface. The work is carried out using modern test equipment and design offices.

Modern production methods combine optimum working conditions and maximum conservation of resources. Automated manufacturing centres, bright manufacturing facilities and efficient work processes are essential ingredients. Highest reliability of 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 parent company in Schwendi.

Care, diligence and discipline shape our business. Every action and the smallest of items 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 modern technology and the quality of materials as well as logistics and organisation. And it is decided by the human factor: "We deliver precision work," the motto of every Weishaupt employee.



Burners for worldwide use are manufactured in a modern workshop



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

A world map illustrating the global distribution of the English language. The map uses three colors to categorize countries: yellow for countries where English is the primary language, light blue for countries where English is a secondary language, and light gray for all other countries. Yellow countries include the United States, Canada, the United Kingdom, Australia, and New Zealand. Light blue countries include India, South Africa, and several nations in Africa and Asia. Gray countries include Mexico, Brazil, Argentina, and most of Europe, Africa, and Asia.

- Philippines
- Portugal
- Russia
- Switzerland (West)
- Singapore
- Spain
- Syria
- Taiwan
- Thailand
- Tunisia
- Turkey
- Ukraine
- United Arab Emirates
- Vietnam