



Marine Boilers

From a world class boiler manufacturer





Photo: Ulstein Group/Arild Solberg

Some like it hot. Some like it fast. We like it perfect.

PARAT Halvorsen has been family-run since day one, and acting like it ever since. To this day, we remain a tightly knitted company. Our employees are all hand picked for their individual expertise and personalities, and they're all fully dedicated to their job, their craft and customer needs.

We're proud to employ a highly qualified staff of engineers, service personnel, construction workers and managers who really love what they do. The mix of professional approach and personal dedication not only results in high quality deliveries, but also ensures that our clients and customers can rely on being handed the best product on the market.

A human touch makes all the difference in an otherwise fast-paced global market. We like to keep it personal.

Some say nothing beats experience. That's partly true. At PARAT Halvorsen we put our hearts in the mix, and nothing comes close.

Fuel-Fired Boilers

From ultra heavy fuel oils to natural gas, PARAT can supply boilers based on any kind of combustible fuel or even a combination of multiple fuels if required.

Fuel fired boilers are typically used as auxiliary or back up systems for fuel and cargo heating for all kinds of merchant vessels. Steam from fuel fired boilers are used in factory trawlers and other vessels with onboard food processing equipment that requires significant amounts of steam.

Since the first solid fuel fired steam boiler was delivered from our factory in 1920, PARAT has strived to stay in the forefront of development of state of the art boilers and boiler systems. The following pages show our extensive range of Marine fuel fired boilers based on a century of experience.





PARAT MPW

Pin-Tube Boiler

- Capacity up to 6.5t/h
- Vertical Pin-tube arrangement for optimal heat transferal
- Compact design – maximum furnace utilization
- Integrated control system
- Pre-assembled, turnkey solution
- Delivered with burner for oil, gas or combined oil/gas
- Available with certificates from all major classification societies, including ASME S-stamp

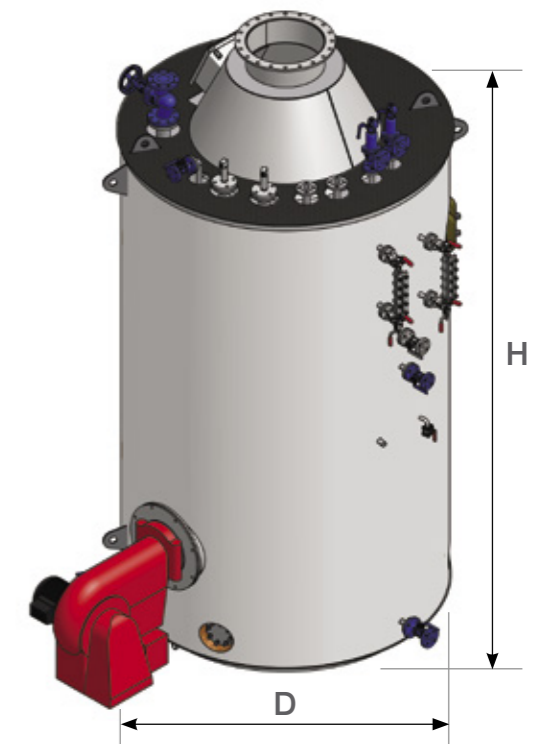
The Parat Vertical pin tube boiler is the ideal solution for vessels that require a lightweight steam boiler plant. The boiler is of vertical design with pin tube bundles fully immersed in the water and steam evaporation in the upper section. The burner is side mounted, thus ensuring optimal inspection and maintenance access. The combustion chamber is well dimensioned for burning MGO, MDO and HFO. The boiler is supplied as a complete unit, insulated and preassembled with all valves and instruments, oil burner and control panel.

Fittings and equipment are in accordance with class requirements. Our main equipment manufacturers supply high standard products. The burner can be supplied for oil, gas or dual fuel.

The control system is designed to enable an unmanned engine room. The system is fully automatic and operates with electronic and electric/pneumatic actuators. All operation from the boiler control panel is done from the local touch screen. Boiler PLC can be connected to the main control room with standard ethernet/profibus/modbus communication.

Capacity (t/h)	D (mm) Inclusive Insulation	H (mm) Inclusive Insulation	Weight Transport (tons)	Test Weight (tons)
1.0	1.600	3.350	3.5	7.0
1.5	1.700	3.450	4.0	7.7
2.0	1.900	3.450	4.5	9.0
2.5	2.000	3.550	5.0	9.5
3.0	2.100	3.650	6.0	12.0
4.0	2.300	3.850	7.0	14.5
5.0	2.500	3.950	10.0	19.0
6.5	2.700	4.050	11.0	21.0

Technical data at an operating pressure of 10 barg.
We reserve the right to make changes.





PARAT MVS

Smoke Tube Boiler

- Available with ASME S-stamp
- Vertical design
- Pre-assembled, delivered as turnkey solution
- Easy maintenance
- Capacity up to 6.5 t/h
- Approved: DNV, LRS, BV, ABS, RMRS etc.
- Available with oil, gas and dual fuel burner

The boiler is of vertical design with smoke tubes through the boiler and steam evaporation at the upper section. The boiler is constructed from drawings approved by all classification societies and delivered with equipment in accordance with class requirements.

The oil burner is mounted at the side, easy accessible for inspection and maintenance. The combustion chamber is well dimensioned for burning of MDO and HFO. The boiler is delivered as a complete unit, insulated and preassembled with all valves and instruments, oil burner and control panel.

The control system is designed to enable an unmanned engine room. The system is fully automatic and operates with electronic controllers and electric/pneumatic actuators. The panel is mounted on the side of the boiler. Operation of the boiler control panel is done from the local touch screen. The boiler PLC can be connected to the main control system by standard ethernet/profibus/modbus communication.

Output kg steam/h	1000	1500	2000	2500	3000	4000	5000	6500
D (mm)	1550	1700	1900	2000	2100	2300	2500	2700
H (mm)	4220	4420	4420	4520	4620	4920	4920	5170
Transport weight (kg)	4.500	5.500	6.500	7.500	8.500	10.000	11.000	13.000
Operation weight (kg)	8.600	10.700	13.000	15.000	16.500	21.000	24.000	30.000
Main steam valve DN	65	65	80	80	100	100	125	125
Safety valve DN	2x25	2x25	2x32	2x32	2x32	2x32	2x40	2x40
Feed Water valve	2x25	2x25	2x32	2x32	2x32	2x32	2x40	2x40
Blow Down valve	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25
Flue gas outlet DN	300	300	350	400	400	500	500	550

Technical data based on operating pressure 7 barg and feed water temp 80°C.
We reserve the right to make changes.



PARAT



PARAT MSH

Smoke Tube Boiler

- Horizontal design
- Stable pressure
- Pre-assembled, delivered as a compact unit
- Easy maintenance
- Capacity up to 20 t/h
- Approved: DNV, LRS, BV, ABS, RMRS etc.
- Available with ASME S-stamp
- Available with oil, gas or dual fuel burner

The boiler is of horizontal design with smoke tubes through the boiler and steam evaporation at the upper section. The boiler is constructed from drawings approved by all classification societies and delivered with equipment in accordance with class requirements.

The burner is easily accessible for inspection and maintenance. The combustion chamber is dimensioned for burning of MDO and HFO. The boiler is delivered as a complete unit, insulated and preassembled with all valves and instruments, burner and control panel.

The control system is designed to enable an unmanned engine room. The system is fully automatic and operates with electronic controllers and electric/pneumatic actuators. The panel is mounted on the side of the boiler, and all operation of the boiler control panel is done from the local touch screen. Boiler PLC can be connected to the main control system by standard ethernet/profibus/modbus communication.

kg steam/h	MW	L (mm)	D (mm)	H (mm)	Transp. weight (Tons)	Weight full (Tons)	Main steam valve DN	Safety valve DN	Feed water DN	Blow-down DN	Smoke exhaust DN
1.000	0.65	2.900	1.600	1.775	3.0	5.0	50	2x25	25	2x32	300
1.500	0.98	3.100	1.900	2.075	6.0	9.3	50	2x25	32	2x32	300
2.000	1.30	3.700	1.900	2.075	7.0	11.0	65	2x25	32	2x32	300
2.500	1.64	4.000	2.050	2.225	8.0	13.5	65	2x25	32	2x32	400
3.000	1.96	4.100	2.100	2.275	9.0	14.0	80	2x25	32	2x32	400
4.000	2.60	4.250	2.300	2.475	12.0	19.5	80	2x32	32	2x32	500
5.000	3.28	5.000	2.400	2.575	16.5	27.0	100	2x32	32	2x40	500
6.000	3.92	5.150	2.500	2.675	18.0	29.0	100	2x40	40	2x40	600
8.000	5.20	5.700	2.700	2.875	22.0	36.0	125	2x40	40	2x40	650
10.000	6.50	6.300	2.900	3.075	25.0	43.0	125	2x50	40	2x40	650
12.000	7.84	6.600	3.000	3.175	28.0	50.0	150	2x50	40	2x40	700
13.000	8.51	7.000	3.100	3.275	30.0	54.0	150	2x50	40	2x40	700
15.000	9.82	7.400	3.300	3.475	33.0	58.0	150	2x65	50	2x40	800
16.000	10.50	7.600	3.400	3.575	34.0	60.0	150	2x65	50	2x40	800
18.000	12.00	7.800	3.600	3.775	36.0	74.0	200	2x65	50	2x40	900

Technical data at an operating pressure of 7 barg and feed water temp 80°C.
We reserve the right to make changes.



PARAT MTW

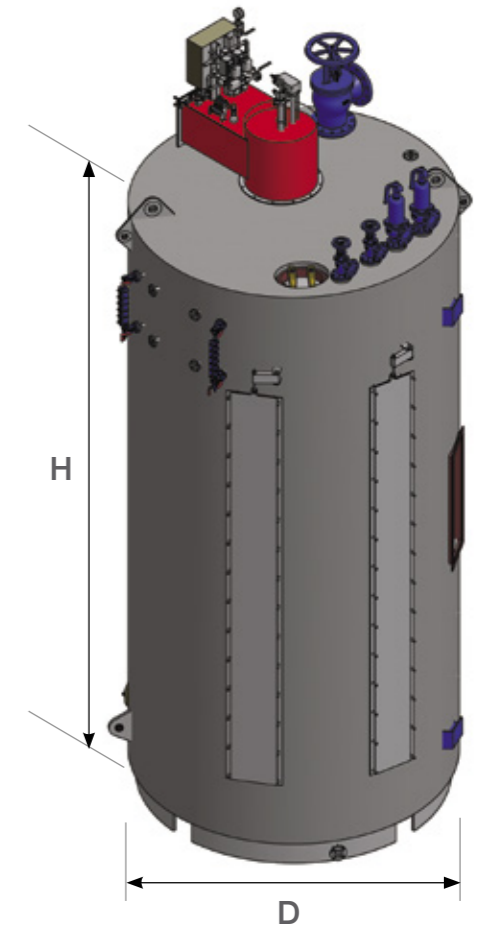
Water Tube Boiler

- The compact and efficient boiler for medium and larger vessels
- Capacities from 8 – 45 t/h
- Designed to meet the demand for low weight, limited space requirements and short warm-up time
- Improved operation and low maintenance with cross flow design
- Steam atomizing burner for oil, gas and dual fuel
- Pre-assembled, delivered as turnkey solution
- Available with certificates from all major class societies incl. ASME S-stamp

The PARAT top fired water tube boiler is a fully automatic steam boiler. A sufficiently dimensioned steam drum makes the boiler suitable for evaporating steam from additional external exhaust gas boilers. The design and performance is a result of solid experience and high technical standards. The boiler is supplied with a circular furnace, constructed from membrane walls and convection sections with a combination of bare tubes and pin tubes. The heat flows cross sectional with a high flue gas velocity. With this unique design, both improved performance and reduced maintenance is achieved. The boiler fulfills the most stringent equipment standards and is available with certificates from all major class societies.

Fittings and equipment are in accordance with class requirements. Our main equipment manufacturers supply high standard products. The steam atomizing burner can be supplied for oil, gas or dual fuel.

The control system is designed to enable an unmanned engine room. The system is fully automatic and operates with electronic and electric/pneumatic actuators. All operation from the boiler control panel is done from the local touch screen. Boiler PLC can be connected to the main control room with standard ethernet/profibus/modbus communication. Maintenance and inspections can be carried out through large inspection doors. An automatic steam cleaning system is installed between the tube sections. The boiler is preassembled and delivered as complete unit incl. insulation and fittings.



Capacity (t/h)	Design Pressure (barg)	D (mm) Excl. Insulation	H (mm) Incl. Insulation	Transport Weight (ton)	Operating Weight (ton)
8	10	2.200	5.000	13	20
12	10	2.500	5.900	18	25
15	10	2.800	6.150	24	33
20	18	3.050	6.700	30	42
25	18	3.250	7.300	35	48
30	18	3.500	7.850	40	55
40	18	3.800	8.500	48	68
45	18	4.100	9.000	55	80

We reserve the right to make changes.



PARAT MVW

Water Tube Boiler

- The compact and efficient boiler for medium size vessels.
- PARAT MVW makes the cost efficient boiler plant for chemical tankers, small to medium size crude oil tankers, FPSO's, and cruise liners.
- Designed to meet the demand for low weight, limited space requirements, and short warm-up time.
- Approved: DNV, LRS, BV, ABS, RMRS etc.
- Available with oil, gas and dual fuel burner
- Vertical design
- Pre-assembled, delivered as turnkey solution

The PARAT water tube boiler is a fully automatic steam boiler. A well dimensioned steam drum make the boiler suitable for evaporating steam from other exhaust gas boilers. The design and performance is a result of solid experience and high technical standards. The boiler is supplied with a circular furnace, has a convection section and is designed for forced draught. The boiler will work with natural circulation. The boiler meets high equipment standard and is in accordance with requirements from major classification societies like DNV, LRS, GL, etc.

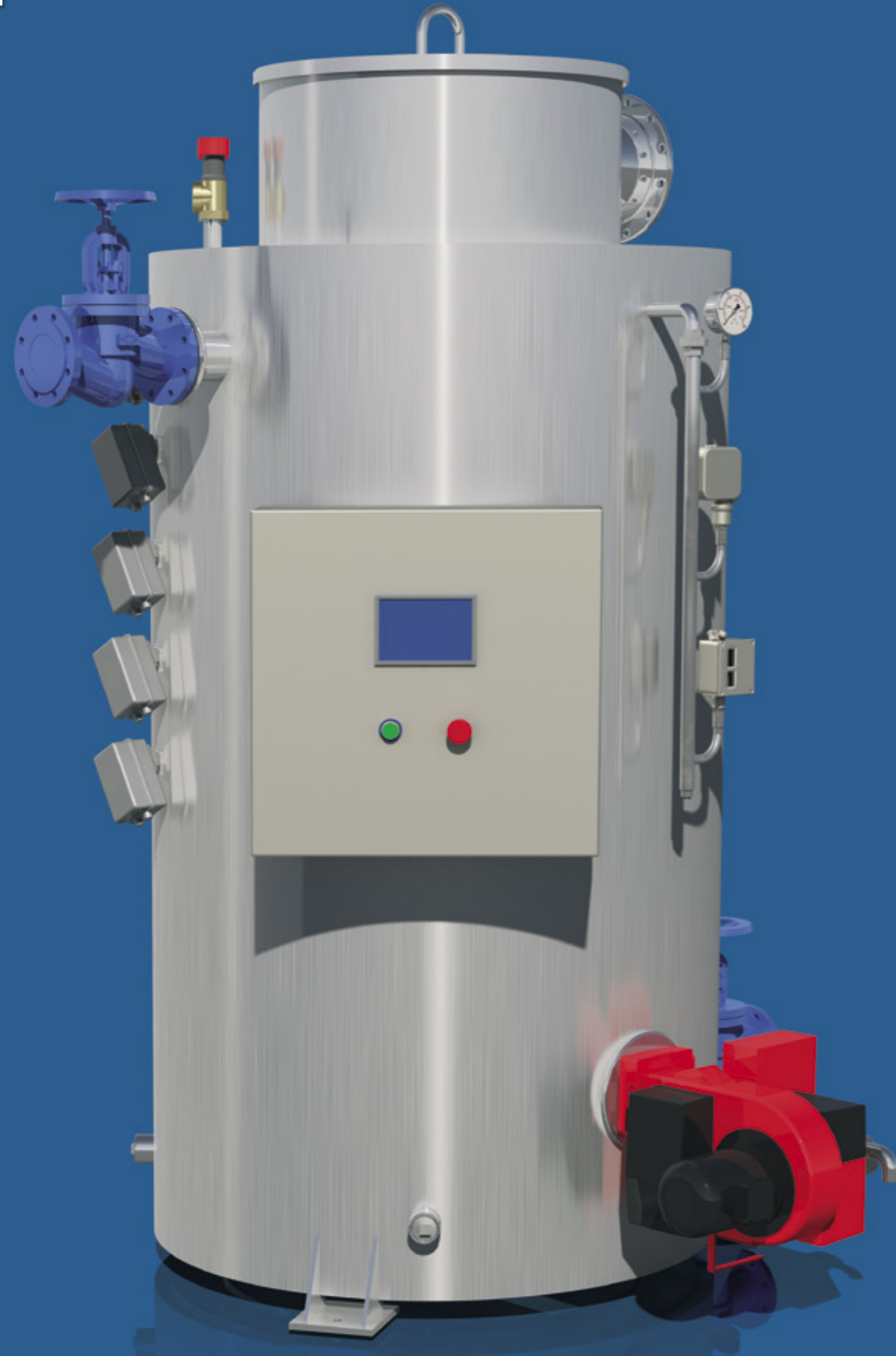
Fittings and equipment are in accordance with class requirements. Our main equipment manufactures supply high standard products. The burner can be supplied for light oil, heavy oil, gas or dual fuel.

The control system is designed to enable an unmanned engine room. The system is fully automatic and operates with electronic controllers and electric/pneumatic actuators. The panel is mounted on the side of the boiler, and all operation of the boiler control panel is done from the local touch screen. Boiler PLC can be connected to the main control system by standard ethernet/profibus/modbus communication.

Insulation material used is rock-wool, jacketed with galvanized plates. Maintenance and inspection can be carried out via suitable hatches mounted on the boiler. The boiler is pre-assembled and delivered as a complete unit.

Capacity kg steam/h	8.000	10.000	12.000	14.000	16.000	18.000	20.000	25.000	30.000
D (mm)	2.600	2.700	2.800	2.900	3.050	3.300	3.450	3.800	4.100
H1 (mm)	5.700	5.850	6.450	7.300	7.950	8.050	8.250	9.100	9.100
H2 (mm)	3.800	3.800	4.250	4.830	5.300	5.400	5.600	6.000	6.000
B1 (mm)	1.450	1.500	1.550	1.600	1.675	1.800	1.875	2.050	2.200
Weight oper. (Tons)	21.0	24.0	28.0	31.0	35.0	41.0	45.0	60.0	70.0
Weight lift (Tons)	15.0	17.0	19.5	21.5	25.0	28.0	34.0	45.0	55.0
Main (DN) Steam Valve	150	200	200	200	200	250	250	250	300
Safety (DN) Valve	2x50	2x50	2x65	2x65	2x65	2x65	2x65	2x80	2x100
Exhaust (DN) Outlet	650	650	700	700	700	800	800	850	950

Technical data based on operating pressure 7 barg and feed water temp 80°C.
We reserve the right to make changes.



PARAT MVH

Vertical Hot Water Boiler

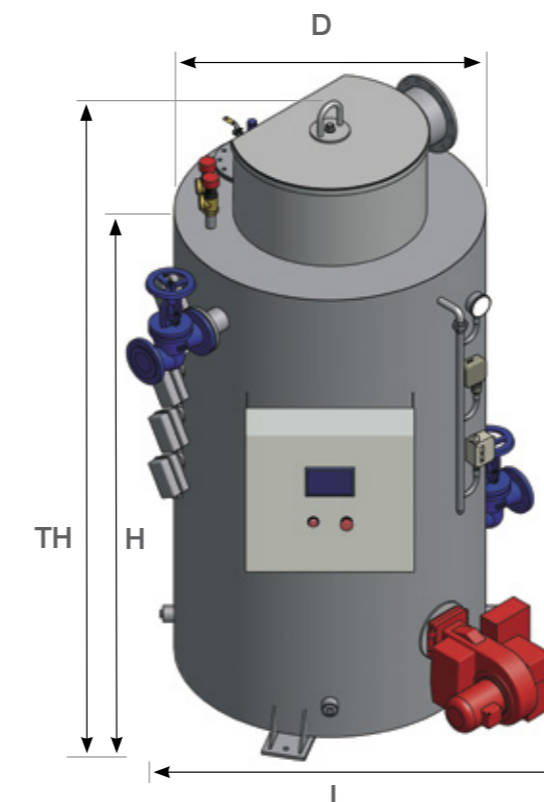
- Vertical design
- Oil fired capacity up to 800kW
- Electrical heaters up to 80 kW
- Robust construction

The PARAT MVH is a vertical smoke tube hot water boiler. Vertical design gives the smallest possible footprint and increases the flexibility when placing the boiler in a limited space area.

The oil burner is mounted at the side, easy accessible for inspection and maintenance. The combustion chamber is well dimensioned for burning of MDO and HFO. The boiler is delivered as a complete unit, insulated and preassembled with all valves and instruments, oil burner and control panel.

The Hot water boiler can be delivered with integrated electrical heating elements. The immersion heaters are installed along the side of the boiler shell for easy access and maintenance.

The control system is designed to achieve an unmanned engine room. The system is fully automatic and operates with electronic controllers and electric/pneumatic actuators. The panel is mounted on the boiler side. All control of the boiler panel is operated from the local touch screen. Boiler PLC can be connected to main control system by standard ethernet/profibus/modbus communication.



Capacity (kW)	D (mm)	H (mm)	TH (mm)	L (mm)
100	1.000	1.815	2.150	1.620
200	1.100	2.015	2.350	1.720
350	1.200	2.315	2.750	1.820
400	1.300	2.315	2.750	2.020
500	1.400	2.315	2.750	2.120
650	1.400	2.415	2.850	2.120
800	1.500	2.515	3.000	2.215

We reserve the right to make changes.



Exhaust Gas Boilers

Utilizing the waste heat from engines and generators is a good way to save fuel and space and at the same time reduce harmful emissions to the atmosphere.

PARAT specializes in custom designed boilers and economizers for any vessel and engine type with the focus on providing the user with the most compact and efficient solution available.

Since the worlds first composite boiler left our factory in 1972, we have continued innovating and are able to supply any standard or custom made heat recovery solution for all kinds of engines or generators. The following pages give a brief overview of our products under the category exhaust gas boilers.





PARAT MES

Exhaust Gas Smoke Tube Boiler

- Turnkey solution
- Smoke tube type
- Vertical or horizontal design
- Easy maintenance
- Available with built-in steam drum
- Approved: DNV, LRS, BV, ABS, RMRS etc.
- Available with ASME S-stamp

The smoke tubes pass through the boiler and the exhaust gas flows inside the tubes. This construction makes the boiler suitable for connection to more than one engine with separate exhaust gas sections in one boiler.

The boiler can either work with forced circulation with evaporation in a separate steam drum or as a natural circulating boiler with a built-in steam drum at the top.

The boiler can be controlled by a surplus valve and a condenser, or by a three-way exhaust gas damper. The boiler is pre-assembled and delivered as a complete unit.





PARAT MEW

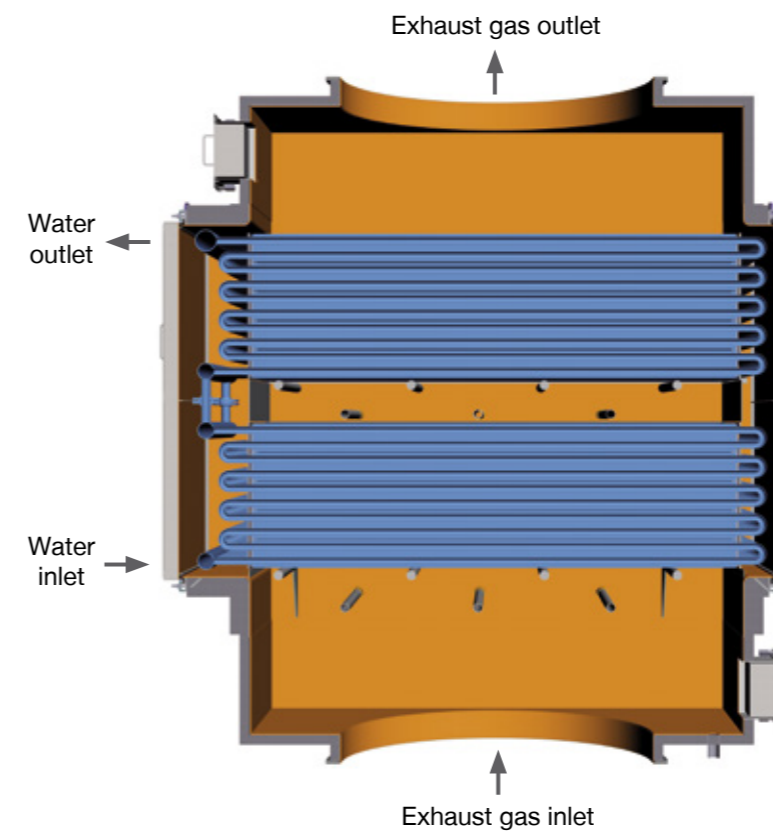
Exhaust Gas Water Tube Boiler

- Water tube type
- Compact
- High Performance
- Approved: DNV, LRS, BV, ABS, RMRS etc.

The water tube boiler consists of finned tube or bare tube bundles mounted together in sections.

The water circulates through the tubes and the extended heating surface on the exhaust gas side makes this boiler compact. The water flow is generated by circulation pumps and evaporation takes place in the boiler. The water/steam mixture is then separated in a steam drum or in an auxiliary boiler.

The boiler can be controlled by a surplus valve and a condenser, or by a three-way exhaust gas damper. The boilers are pre-assembled and delivered as a complete unit. Needs proper water treatment and cleaning.





NEW!
3-in-1 Boiler
Now with up to 600kW
Electrical Elements
for Steam production
from Shore Power

PARAT MCS Combined

Exhaust Gas / Fuel-Fired Electrical Boiler

- Compact, three-in-one solution
- Now with up to 600kW Electrical Elements
- Use Shore Power for Steam production
- Emission Reduction at harbour
- Electrical Backup during operation
- Vertical or horizontal design
- Easy maintenance
- Smoke tube type
- Approved: DNV, LRS, BV, ABS, RMRS etc.
- Capacity 3.5 t/h Exhaust Gas, 7.5 t/h Fuel-Fired, 0.9 t/h Electrical
- Capable of burning fish oil
- Available with oil, gas or dual fire burner and 400V / 440V / 690V connection

NEW! PARAT Halvorsen AS has now added up to 600kW Electrical Elements to our popular Combined Boiler. This will give the vessel the option to run the boiler for steam production from Shore Power, reducing emissions and shutting down fossil fuel burner while at harbour. Can also be used as a backup solution during operation, help keep the power generators at optimized load and reduce fuel consumption. The electrical connection can be delivered for 400V, 440V or 690V to suit the power distribution system in the Vessel.

The boiler is a vertical design with smoke tubes through the boiler and steam evaporation at the upper section. The combination of a fuel-fired section, electrical and exhaust gas section in the same boiler leads to a simpler and more economical steam system on board. A three-in-one system is less expensive to install than separate boilers and gives the steam production flexibility. A combined system is easy to service and maintain, thus providing cost savings during the lifetime of the ship. Capacity of the exhaust gas section will depend on the exhaust gas quantity and temperature.

The principle of the boiler is based on a common water and steam space and separate sections for fuel-firing, electrical and exhaust gas. If several engines are utilized, the boiler can be delivered with several separate exhaust gas sections. The boiler comprises smoke tubes both for the fuel-fired and the exhaust gas section. From the top of the boiler there is good access to the tubes which make service and maintenance easy.

A main feature of the boiler is its automatic mode. When this mode is activated, the exhaust gas section becomes the main heating source. If the capacity is too small and the steam pressure drops, the fuel burner automatically ensures correct pressure. There will also be a shore power mode when using electricity at harbour for steam production. The control system is designed to enable an unmanned engine room. The system is fully automatic and operates with electronic controllers and electric/pneumatic actuators. The panel is mounted on the boiler side. Operation of the boiler control panel is done from the local touch screen. Boiler PLC can be connected to the main control system by standard ethernet/profibus/modbus communication.

Electrical Boilers

With decades of experience with various electrical steam and hot water boilers for land based industry PARAT is in a unique position to provide boilers for vessels with modern and often ground breaking propulsion and power generation systems.

Zero emissions, small footprints and simple installation and operation make our electrical boilers the perfect solution for steam and heat generation aboard the futures most energy efficient vessels.

The following pages give a brief introduction to our electrical boiler range.





PARAT MEL

Electrical Steam Boiler



- Electrical element boiler with compact design
- Rugged design for Marine use
- Separate boiler and electrical cabinet. Fulfills NEK 400
- Approved by DNV, LRS, BV, GL, RMRS etc.
- Low turndown, 1:100
- Available in Direct Current version
- Available as Combined Steam and Hot water boiler

The PARAT Electrical element boiler can be delivered with capacity up to 5000 kW. With our 40 years of experience in marine boilers PARAT has landed on a rugged design that fulfills all class requirements.

The electrical element boiler is very compact, and one of the greatest advantages with this product is the possibility of low load regulation, down to 15 kW. No smoke stack is needed, thus saving space and costs.

The electrical cabinet is not directly connected to the boiler. This ensures a low temperature in the electrical components. The cabinet is standardized, and type approved according to NEK 400. Included in the cabinet is the main switch, fuses, contactors and a complete safety and control system. This system is based on a Siemens PLC SIMATIC S7 system with a touch panel for local operation. Communication with the main control system is possible, via analog and digital signals to bussystems as PROFIBUS and MODBUS. The safety system is independent from the PLC system.

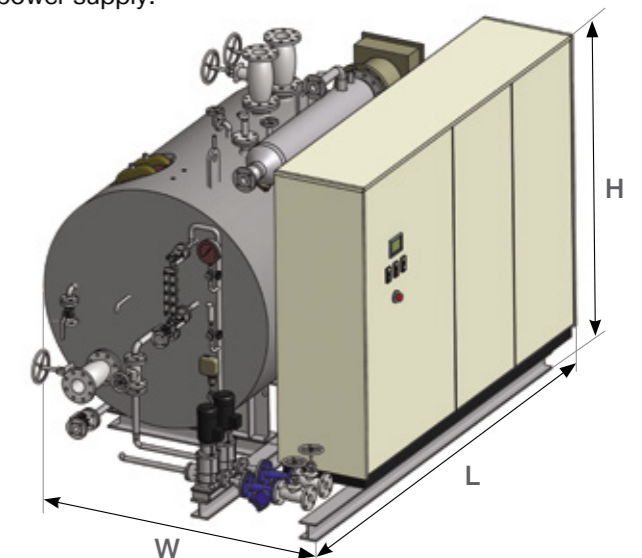
For vessels with ORO operation class, Parat has developed a successful package containing a heat exchanger for the hot water system and steam lances for heating of the ORO tanks.

The patented Parat **MEL-C** was developed to meet the demand for a compact and flexible system that allows the operator to use one boiler system for both steam and hot water production. In normal operation the boiler generates hot water at an operating temperature of 90°C. When there is a requirement for steam production the water level in the boiler is reduced to provide a sufficient steam separation area. Hot water production is maintained separately by an electric heater in a bypass circuit.

The **MEL-DC** was developed to enable connection to direct current power supply. It is based on our standard MEL low Voltage boiler but with specialized immersion heaters and control panel.

Capacity (kW)	600	1250	1600
L (mm)	2200	3500	3500
H (mm)	2300	2300	2300
W (mm)	2000	2360	2500

We reserve the right to make changes. Larger capacities on request.





PARAT ECS

Electrical Circulation Steam Boiler

- Optimized for retrofitting to existing steam boilers
- Use Shore Power for steam production
- Emission Reduction at harbour
- Electrical Backup during operation
- Modular design / Turnkey
- Optimize Generator Load
- Can be installed during transit
- Low turndown and stable operation

The PARAT Electrical Circulation Steam Boiler was designed to meet the request for a modular and easy to install alternative to MGO fuel for auxiliary boilers on existing vessels in operation. By integrating the ECS in your boiler you have the option to maintain your steam pressure from an electrical power source. The unit can be installed on any kind of existing steam boiler system and will give the vessel the option to run the boiler for steam production from Shore Power, reducing emissions and shutting down fossil fuel burner while at harbour. Can also be used as a backup solution during operation and help keep the power generators at optimized load. The electrical connection can be delivered for 400V, 440V or 690V to suit the power distribution system in the Vessel.

The electrical cabinet is not directly connected to the boiler unit. This ensures a low temperature in the electrical components. The cabinet is standardized, and type approved according to the NEK 400. Included are fuses, contactors and complete safety system. As an option the unit can be delivered with a main power switch. The boiler unit is designed for vertical or horizontal installation depending on the layout and space availability around the main auxiliary boiler. Inlet and outlet connections to main boiler will be done on site.

The ECS can be delivered as a standard modular unit in capacities up to 500kW, which is equivalent to 750kg steam per hour. Larger capacities can be provided upon request. We take care of the retrofit upgrade, installation and optimizing the boiler system.

NEW!

Excellent upgrade for existing Steam Boilers. Use Shore Power for Emission Reduction at harbour.



COMPLETE 3-IN-1 MARINE STEAM BOILER ALSO AVAILABLE

For newbuilds and retrofitting, we also offer our 3-in-1 compact and efficient **PARAT MCS Combined** Exhaust Gas / Fuel-Fired / Electrical Steam boiler. Can also burn fish-oil.



PARAT MEH

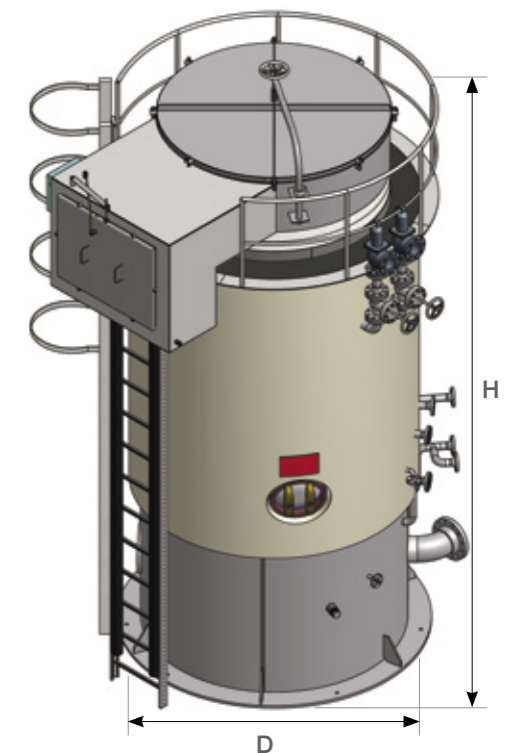
High Voltage Electrode Boiler

- Available with ASME U-stamp
- Compact and rugged design for Marine use
- Approved: DNV, LRS, BV, ABS, RMRS etc..
- Capacity up to 60 MW
- EX approved version for hazardous area installation is available

The PARAT High Voltage electrode boiler can be delivered with a capacity up to 60 MW. With 50 years of experience in marine boilers we have developed a rugged design that fulfills all class requirements. The new electrode system for marine use, is a result of many years of experience combined with an innovative design.

The high voltage electrode boiler is extremely compact. The cost savings on ships is significant, since no transformer or low voltage cables are needed, thus reducing both installation costs, space requirements and maintenance.

The electrical control panel includes a complete safety and control system. This system is based on a Siemens SIMATIC S7 system with a touch panel for local operation. Communication with the main control system is possible via analog and digital signals to bussystems as PROFIBUS and MODBUS. The safety system is independent from the PLC system.



Capacity (MW)	0-10	11-15	16-20	21-30	31-45
Capacity (T/h)	0-15	16-22,5	23-30	31-45	46-67
D (mm)	2100	2100	2550	3000	3400
H (mm)	5099	5099	5255	5635	6000
Transport weight (kg)	4500	5000	6500	7000	14000
Operating weight (kg)	7000	7500	10500	14000	23000
Test weight (kg)	12000	12500	19000	27000	44000

Boiler outer dimensions including insulation mantle. Design pressure 16 barg.
We reserve the right to make changes.

Service, Repairs and Spare Parts:

PARAT has an extensive and continuously expanding global service and repair network. Through strategic partnerships we are able to serve our clients at almost any port around the world on short notice. We can perform repairs, modifications and upgrades both at port and during transit.

All inquiries should be directed to our head office with 24 hour service. **E-mail: service@parat.no**

We are present with representatives or branch offices in the following countries:

- **USA**
- **Brazil**
- **United Kingdom**
- **Namibia**
- **Korea**
- **Portugal**
- **China**
- **Denmark**





PARAT Halvorsen AS head office, Flekkefjord, Norway

Photos: Harald M. Valdenhaug



PARAT

Product range

At PARAT Halvorsen, we've mastered the art of boiler engineering for more than a century. Our success has not only come from hard work and dedication, but also our ability to refocus and adjust our engineering expertise to every customer's need. Our products are well proven on both land and sea and cover most requirements for steam or heat applications in the small to medium/large range.

Fuel fired boilers



PARAT MTW
Top-Fired Water
Tube Boiler

Capacity (T/h):
7.0 - 45

Medium:
Steam



PARAT MPW
Vertical
Pin-Tube Boiler

Capacity (T/h):
0.4 - 6.5

Medium:
Steam



PARAT MSH
Horizontal Smoke
Tube Boiler

Capacity (T/h):
1.0 - 48

Capacity (MW):
0.8 - 32

Medium:
Steam/Hot water



PARAT MEH
High Voltage
Electrode Boiler

Capacity (MW):
3.0 - 60

Capacity (T/h):
4.5 - 90

Medium:
Steam/Hot water



PARAT MEL
Electric
Steam Boiler

Capacity (MW):
0.1 - 10

Capacity (T/h):
0.2 - 15

Medium:
Steam/Hot water



PARAT MVW
Water Tube
Boiler

Capacity (T/h):
8.0 - 30

Medium:
Steam



PARAT KVIKK
Compact Vertical
Smoke Tube Boiler

Capacity (Kg/h):
100 - 600

Medium:
Steam



PARAT MVH
Vertical
Hot Water Boiler

Capacity (kW):
Oilfired: 100-1000
Electrical: 10-100

Medium:
Hot Water



PARAT MEL-C
Electric Steam /
Hot Water Boiler

Capacity (MW):
0.1 - 10

Capacity (T/h):
0.2 - 15

Medium:
Steam/Hot water



PARAT MEL-DC
Electric Steam Boiler
Direct Current

Capacity (MW):
0.1 - 10

Capacity (T/h):
0.2 - 15

Medium:
Steam/Hot water

Electrical boilers

Heater

Exhaust gas boilers



PARAT ECS
Electrical Circulation
Steam Boiler

Capacity (kW):
50 - 500

Capacity (Kg/h):
75 - 750

Medium:
Steam



PARAT MCS
Exhaust / Fuel /
Electrical Boiler

Capacity (T/h):
Oilfired: 7.5
Exhaust: 3.5
Electrical: 0.9

Medium:
Steam/Hot water



PARAT MEW
Exhaust Gas
Water Tube Boiler

Capacity (MW):
0.1 - 12

Capacity (T/h):
0.2 - 18

Medium:
Steam/Hot water



PARAT MVS
Smoke Tube
Boiler

Capacity (MW):
0.1 - 4.3

Capacity (T/h):
0.2 - 6.5

Medium:
Steam/Hot water



PARAT MES
Exhaust Gas
Smoke Tube Boiler

Capacity (MW):
0.1 - 10

Capacity (T/h):
0.1 - 15

Medium:
Steam/Hot water

Nozzle

Auxiliary Equipment



PARAT ORO
Multi Nozzle
Lance

Capacity (Kg/h):
400



PARAT MFC
Feedwater Tank
w/ Control Tank

Volume (m³):
0.5 - 3.0



PARAT
Water Treatment

- Filters
- Softening Filters
- Chemical Dosing
- Chemicals
- Water analysis kit



PARAT
Pump Skids

- Feedwater
- Make up water
- Dosing
- Circulation



Other

- Burners
- Valves
- Heat Exchangers
- Spark arrestors
- Domestic Water Heaters
- Economizers
- Spare Parts

Head Office:



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