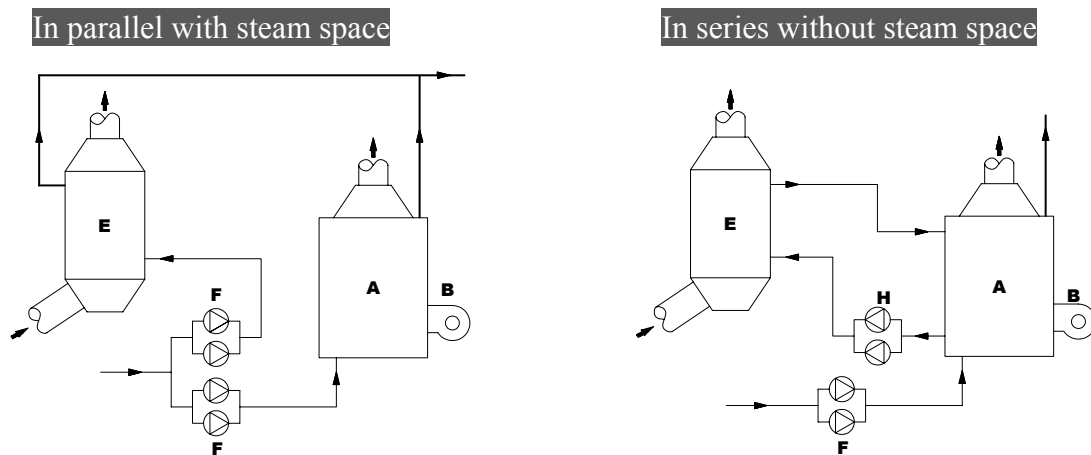


Vertical Smoke Tube Exhaust Gas Boiler Series

The vertical smoke tube exhaust gas boiler series generates saturated steam by means of waste heat recovery from main engine's flue gas for energy saving, applicable for shipboard heating of heavy fuel oil, jacket cooling water, oil tanks, domestic water, air-conditioning, etc.

The boilers feature automatic control and fail-safe design for unmanned operation of modern ships. Alternatively, the boilers can be operated manually in case of emergency.

Base on specific requirements, the customer can choose different systems as follows:

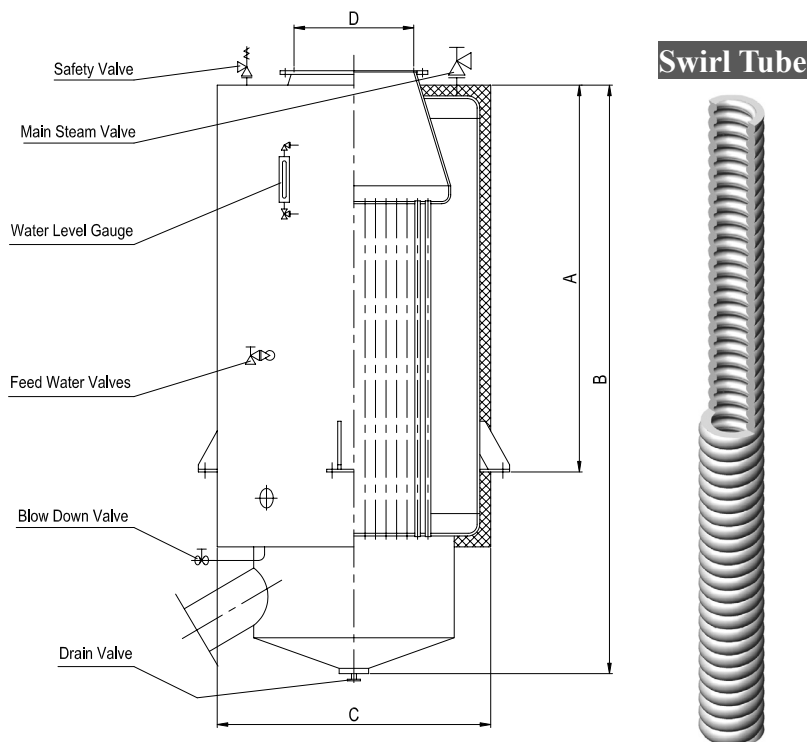


Boiler Construction

The boiler is assembled 100% by welding, the boiler shell and smoke tube cluster forms the water/steam chamber. Smoke tubes can either be plain tubes or swirl tube in respect to increase heat exchange surface area.

Swirl Tube

Swirl tube is formed by twisting of plain tube to give corrugated surface so as to generate turbulent flow for main engine flue gas passing through. It is an ideal solution to increase heat transfer efficiency while minimize soot deposit.



Boiler Type	Technical data & dimensions (mm)								Connection size (mm)				
	Heat exchange surface (m ²)	Working pressure (MPa)	Outside dimensions				Weight (kg)	Water volume (m ³)	Main steam valve	Safety valve	Feed water valve	Blow down/ scum valve	Drain valve
			A	B	C	D							
LFP1.3-2	1.3	0.2	666	1130	Ø472	DN185	190	0.05	DN20	DN25	DN20	DN20	DN32
LFP2.6-2	2.6	0.2	850	1350	Ø632	DN200	450	0.12	DN25	DN25	DN20	DN20	DN32
LFRQ4-0.1	4	0.1	970	1520	Ø592	DN230	500	0.22	DN32	DN20	DN20	DN20	DN20
LFP7-3	7	0.3	1155	1795	Ø846	DN300	790	0.29	DN32	DN25	DN20	DN20	DN32
LFRQ10-0.1	10	0.1	1930	2550	Ø842	DN300	850	0.37	DN32	DN20	DN20	DN20	DN32
LHF14-5	14	0.5	1895	2605	Ø1000	DN350	1700	0.54	DN40	DN40	DN20	DN25	DN32
LFRQ15-0.5	15	0.5	1130	2500	Ø912	DN300	905	0.58	DN40	DN32	DN25	DN25	-
LFP20-3	20	0.3	1830	2500	Ø1000	DN300	1400	0.55	DN40	DN50	DN20	DN32	DN32
LFDL20-3	20	0.3	2445	3170	Ø1016	DN400	1500	0.57	DN40	DN50	DN20	DN32	DN32
LFP20-0.5	20	0.5	1830	2500	Ø1000	DN300	1500	0.57	DN40	DN50	DN20	DN32	DN32
LFDL20-5	20	0.5	2445	3170	Ø1016	DN400	1500	0.57	DN40	DN50	DN20	DN32	DN32
LFRQ22-0.2	22	0.2	1910	3350	Ø960	DN300	1530	0.72	DN40	DN40	DN25	DN25	DN50
LFY30-0.5	30	0.5	1830	3005	Ø1320	DN500	2420	0.95	DN50	DN65	DN25	DN32	DN32
GFL35-0.7	35	0.7	2065	3665	Ø1320	DN400	3400	1.5	DN50	DN50	DN25	DN25	DN50
LFP36-5A	36	0.5	2275	2995	Ø1216	DN500	2100	0.95	DN50	DN50	DN25	DN32	DN32
LFDL36-5	36	0.5	2360	3535	Ø1216	DN500	2100	0.95	DN50	DN65	DN25	DN32	DN32
GFL60-7	60	0.7	2710	3672	Ø1960	DN500	5975	3.3	DN50	DN65	DN32	DN32	DN50
LFP67-5A	67	0.5	2330	3480	Ø1470	DN500	3460	1.3	DN65	DN65	DN25	DN32	DN32
LFP67-5	67	0.5	2330	3480	Ø1470	DN500	3500	1.3	DN65	DN65	DN25	DN32	DN32
LFDL67-5	67	0.5	1730	3480	Ø1470	DN500	3200	1.3	DN65	DN65	DN25	DN32	DN32
LFDL67-7	67	0.7	1730	3184	Ø1470	DN500	3200	1.3	DN65	DN65	DN25	DN32	DN32
GFL75-0.7	75	0.7	3300	5100	Ø1956	DN1000	5560	2.8	DN100	DN65	DN32	DN32	-
GFL80-0.7	80	0.7	3400	4372	Ø1912	DN500	6500	5.0	DN50	DN65	DN32	DN32	DN50
LFDL110-0.7	110	0.7	3268	5258	Ø1924	DN700	8600	5.1	DN100	DN90	DN32	DN32	DN32
GFL150-0.7	150	0.7	4215	5120	Ø2140	DN800	8900	5.3	DN65	DN90	DN32	DN32	DN50
GFL160-0.7	160	0.7	3875	4800	Ø2344	DN1000	10458	6.3	DN80	DN90	DN25	DN32	DN32
GFL180-0.7	180	0.7	3675	4800	Ø2344	DN1000	10880	5.3	DN80	DN90	DN25	DN32	DN50
GFL200-0.7	200	0.7	4745	5820	Ø2144	DN800	10770	7.7	DN80	DN90	DN25	DN32	DN50
GFL220-0.7	220	0.7	4205	5770	Ø2350	DN1010	13000	6.5	DN100	DN50x2	DN32	DN32	DN80

Note:

1. Boilers are delivered based on a technical specification agreed with the customer who specified technical requirements, scope of delivery and classification.
2. Basic design data should include boiler model, type, specifications, steam output, working pressure, feed water temperature, power supply, etc.; furthermore, main engine data, such as engine type, power, flue gas quantity/temperature, permissible pressure resistance, etc. should be provided.
3. Specific requirements beyond standard on request.