

Industrial/Commercial Division
The Fulton Companies

Fulton RB Series Horizontal Fuel-Fired Steam & Hot-water Boiler

Capacity ranges from 60-300 BHP

Built/certified in
accordance to BS2790
or ASME Boiler and
Pressure Vessel Code



The above boiler built to ASME code



Registration No:FM28400



The Fulton Companies is an ISO9001 Certified Company



The philosophy of this RB boiler was to manufacture the "best" horizontal reverse flame, three pass, wet-back steam & hot water boiler in the boiler industry. The two designers with over seventy years of combined experience in designing and manufacturing set out to incorporate proven engineering principle with modern design and construction methods.

The RB bears comparison with all other similar boiler, wherever in the world they are made. There has been no compromise in the brief to make a highly efficient, safe, reliable, long lasting and easily maintainable boiler in the Fulton tradition.

Design Features

- Designed and constructed to BS 2790 or ASME code, with standard maximum operating pressure of 1.0 Mpa.
- Equipped with Nu-Way (Special for RB series with Fulton brand) oil, gas or dual fuel automatic high/low burner, modulating burner is optional according to customer requirement.
- Compact design, smaller than boiler of equal capacity
- 100%NDT (Non-Destructive Test) on all major pressure vessel welds
- Deviated front door, easy access and inspection of welds
- 3 year warranty on pressure vessel backed by Fulton worldwide service and spares system

Operating Principle and Structural Features

Fulton RB boiler is a wet-back horizontal boiler. Fuel is injected from the burner into the combustion chamber and is ignited and burned. Long and narrow flame transfers heat to combustion chamber walls by



Fully matched burner

radiation. The high temperature flue gas reverses back after reaching furnace end plate. Heat from the flue gas is passed to boiler water through convection and conduction. Then the flue gas flows into fire tubes through front chamber, transferring residual heat to boiler water. Finally the cooled low temperature flue gas vents into stack via rear chamber.

Large Furnace Volume, Large Furnace Surface Area, Better Combustion, Higher Efficiency

With large furnace volume and furnace heating surface, RB boiler has low heat flux. The large furnace and large furnace surface area reduce furnace exit temperature via enhanced radiation and convection.

Large Number of Fire Tubes and Large Tube Total Cross-Sectional Area

With large tube total cross-sectional area, the resistance to gas flow is reduced, so the burner can be equipped with smaller motor to reduce power consumption.



Panel box



RB-B hot water boilers

Large Water Content, Low Sensitivity to Load Change

Large water content and steam chamber ensures low sensitivity to load change, and stability of steam pressure & steam quality.

Low NOx Emission

Fulton RB boiler adopts large furnace volume and large furnace surface area that enhance heat transfer, reduce heat flux and limit NOx to a low level, which comply with the latest European and North American's environmental requirement.

Water Level Probe Integrated with Pressure Vessel

Water level probe directly immerses into pressure vessel, avoids false water level, increases operating security.

Application and System Design

The RB range is suitable to meet the process steam demands throughout industry.

The Fulton Technical Sales Support team can provide system and application advice for the RB

and the full range of Fulton boilers and ancillary equipment.

Ancillary equipment and optional features:

- Condensate Return Systems
- Blowdown Separators
- Flue systems
- Water treatment and Chemical feed system
- Specialized Controls
 - ✓ High integrity self monitoring water level limiters
 - ✓ Automatic TDS blowdown system
 - ✓ Automatic main blowdown valve
- PLC control system
- Ladder and platform to meet Health & Safety standards
- Spare parts kit for 2&5 years



Site and system requirements

The boiler must be positioned on a load bearing level floor in a well ventilated and dry location.

Access must be available around and above the boiler for service and maintenance purposes.



RB steam boilers

KEY FEATURES OF THE FULTON RB HORIZONTAL STEAM BOILER

FULLY OPENING DOOR WITH CERAMIC FIBRE INSULATION AND AIR GAP FOR LOW SURFACE TEMPERATURE
DOOR SAFETY MICRO SWITCH AND INSPECTION WINDOW

SELF-ADJUSTING HINGES

NO TUBES ABOVE FURNACE

GENEROUS TUBE SPACING LOW TUBE LIGAMENT TEMPERATURE (TYPICALLY <math>< 308^{\circ}\text{C}</math>)

FULLY AUTOMATIC BURNER HIGH/LOW OR MODULATING OPTION WITH QUICK RELEASE ELECTRICAL CONNECTION

WATER LEVEL CONTROLS

FULL SIZE MANHOLE FOR ACCESS AND INSPECTION

FLANGED FLUE OUTLET REAR OR TOP

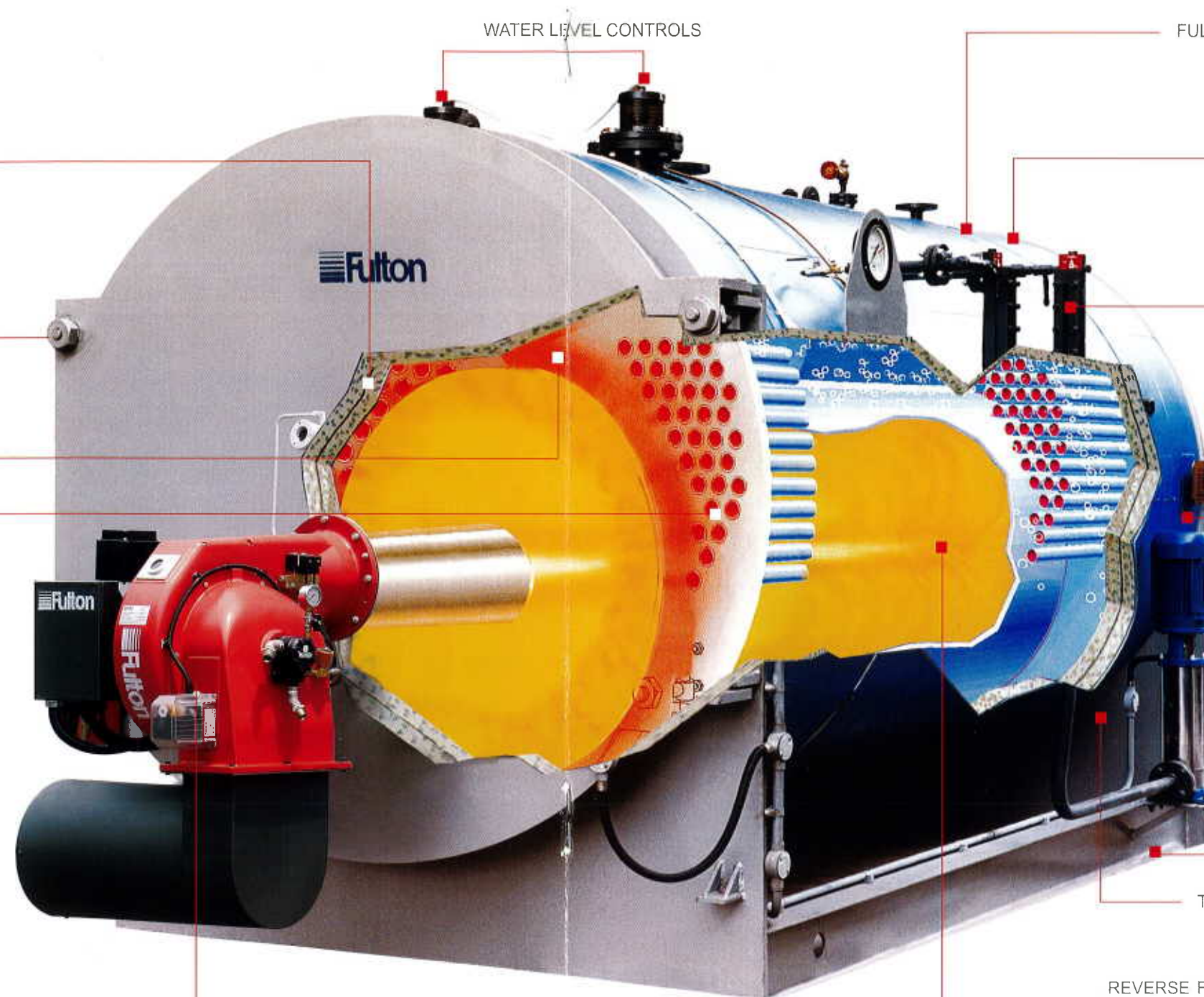
TWIN REFLEX GAUGES

SINGLE OR TWIN FEED WATER PUMP INTERCONNECTED TO BOILER

FULL LENGTH SUPPORTING BEAMS FORM SUBFRAME SKID. EVEN LOAD DISTRIBUTION

TWO INSPECTION BELLY HANDHOLES 178x127MM

REVERSE FLAME IN LARGE COMBUSTION CHAMBER. LOW HEAT FLUX IS ACHIEVED BY LARGE FURNACE VOLUME AND LARGE FURNACE SURFACE AREA



Dimension & Specification

Dimension

Model: RB RB-B			600	750	1000	1250	1500	1850	2100	2500	3000
Length											
A	Shell	mm	2445	2545	3045	3435	3435	3745	3745	3795	3895
B	Furnace	mm	2145	2005	2410	2940	2940	3200	3200	3200	3110
D	Tube withdrawal	mm	2200	2210	2610	2950	2950	3250	3250	3250	3350
E	Radius door opening	mm	1700	1750	1750	1750	1750	1900	1825	2250	2250
F	Front door depth	mm	240	240	240	240	240	240	240	240	240
GI	Oil burner	mm	686	686	686	686	737	737	737	910	910
GII	Gas burner	mm	1183	1183	1183	1183	1183	1115	1115	906	906
I	Safety valve to end shell	mm	400	405	525	645	645	695	695	845	895
J	Steam outlet to end shell	mm	1555	1655	2005	2095	2095	2095	2245	2295	2345
	Hot-water outlet to end shell		1250	1405	1415	1435	1535	1575	1575	1575	1575
Width											
K	Overall	mm	1960	1960	1960	2150	2150	2280	2280	2450	2450
L	Base frame	mm	1700	1700	1700	1870	1870	2020	2020	2248	2248
M	Shell diameter	mm	1500	1500	1500	1650	1650	1800	1800	2028	2000
Height											
O	Steam outlet to floor	mm	2100	2100	2100	2250	2250	2400	2245	2616	2616
	Hot-water outlet to floor	mm	2010	2100	2100	2100	2100	2245	2245	2395	2395
R	Flue outlet to floor	mm	1700	1700	1700	1850	1810	1975	1975	2150	2150
T	Flue diameter	mm	350	300	300	350	400	450	450	500	550
Weight											
	Water Content	m ³	1.55	1.55	1.84	2.61	2.61	4.1	4.1	4.8	4.8
	Dry Weight	t	4.63	4.63	5.8	7.5	7.5	8.5	9.0	10.4	11.5

Specification-steam boiler

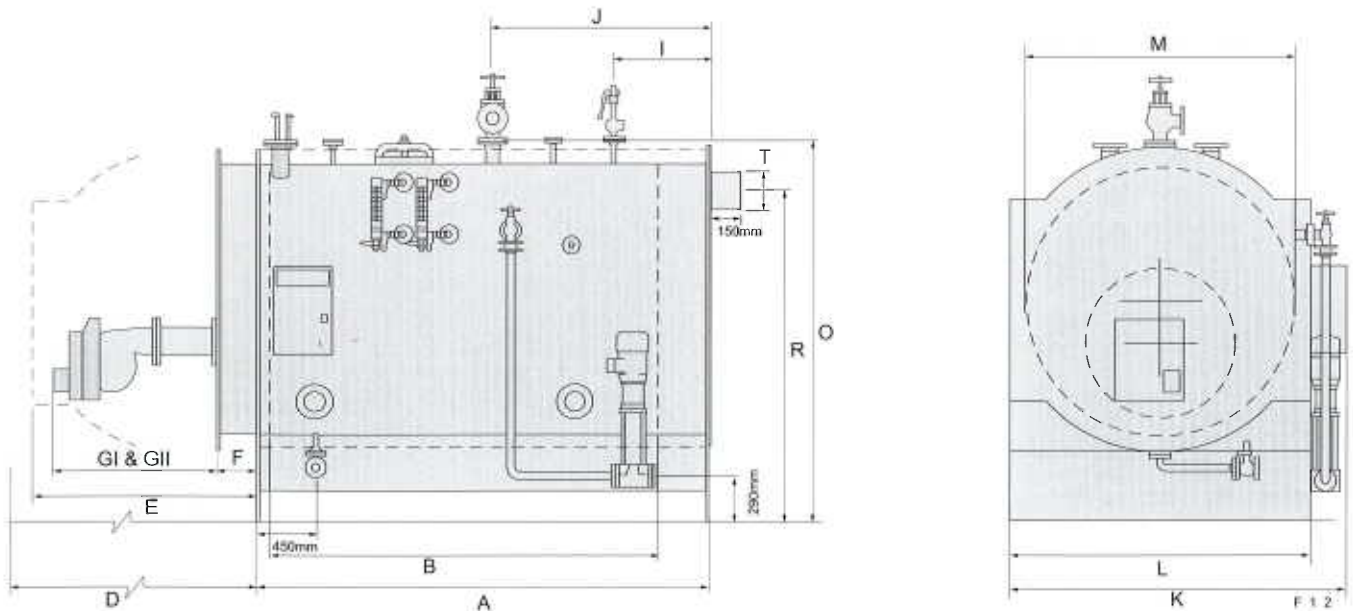
Model: RB		600	750	1000	1250	1500	1850	2100	2500	3000
Steam output	kg/hr	1000	1200	1500	2000	2500	3000	3500	4000	5000
Approximate fuel usage										
Light diesel oil	kg/hr	60.9	73.1	91.4	121.8	152.3	182.7	213.2	243.6	304.5
Heavy diesel oil	kg/hr	62.2	74.6	93.3	124.4	155.5	186.6	217.7	248.8	311
Natural gas	M ³ /hr	76.6	91.9	114.9	153.2	191.5	229.8	268.1	306.4	383
Town gas	M ³ /hr	189.4	227.3	284.1	378.8	473.5	568.2	662.9	757.6	947
Connection										
Steam outlet	mm	65	65	65	100	100	100	100	150	150
Safety valve outlet	mm	25	25	32	32	32	40	50	50	50
Drain outlet	mm	25	25	40	40	40	40	40	40	40
Gas inlet-natural gas	inch	1-1/2	1-1/2	2	2	2	DN65	DN65	DN65	DN65
Gas inlet-town gas	inch	2	2	DN65	DN65	DN65	DN80	DN80	DN80	DN80
Power										
Burner fan motor-Diesel oil fired	kw	2.2	2.2	3	4	5.5	5.5	7.5	11	11
Burner fan motor-gas fired	kw	1.1	2.2	2.2	3	4	5.5	7.5	11	11
Burner fan motor-combination	kw	2.2	2.2	3	4	5.5	5.5	7.5	11	11
Feed water pump	kw	1.5	1.5	1.5	2.2	2.2	3	3	3	3

Specification-hot water boiler

Model: RB-B		600	750	1000	1250	1500	1850	2100	2500	3000
Heat output	10 ³ xKcal/hr	600	750	900	1200	1500	1800	2100	2400	3000
Hot water output	t/hr	20	25	30	40	50	60	70	80	100
Approximate fuel usage										
Light diesel oil	kg/hr	58.9	74.2	89.7	119	150	179	209	238	298
Heavy diesel oil	kg/hr	60.1	75.4	90.8	121	151	183	213	244	305
Natural gas	M ³ /hr	74.2	93.1	112	150	188	224	262	300	375
Town gas	M ³ /hr	184	230	278	370	464	557	648	742	928
Connection										
Water inlet	mm	100	100	100	100	100	150	150	150	150
Hot water outlet	mm	100	100	100	100	100	150	150	150	150
Drain port	mm	40	40	40	40	40	40	40	40	40
Gas inlet-natural gas	inch	1-1/2	1-1/2	2	2	2	DN65	DN65	DN65	DN65
Power										
Burner fan motor-Diesel oil fired	kw	2.2	2.2	3	4	5.5	5.5	7.5	11	11
Burner fan motor-gas fired	kw	2.2	2.2	3	3	5.5	5.5	7.5	11	11
Burner fan motor-combination	kw	2.2	2.2	3	4	5.5	5.5	7.5	11	11

Note:

- All steam output(kg/hr)ratings from 0 Mpa at 100°C . consumption based on natural gas 8,900 kcal/m³, town gas 3,600 kcal/m³; light diesel oil 11,200 kcal/kg; heavy diesel oil 10,960 kcal/kg
- Specifications and Dimensions are approximate, The Fulton Companies reserve the right to change





RB boiler with optional ancillaries

Consider the following when analyzing why you should select the Fulton RB boiler:

- Efficiency & emissions on full and part load
- Combustion chamber/furnace volume length and diameter
- Combustion intensity and furnace wall loading
- Shell diameter and length
- Number, size and thickness of tubes
- Steam space volume and water surface area
- Steam release rate and dryness factor
- Tube ligament temperature and gas temperatures at tube entry and boiler flue exit
- Large water content-large thermal mass to meet peak loads



Sales Representative

 **Simplex**

SIMPLEX TECHNICAL SERVICE & SUPPLIES PTE LTD

Block 809 French Road

#05-172

Singapore, 200809

Phone: (+65) 6297 1913

Fax: (+65) 6296 5637

Whats App: (+65) 8214 7118

E-mail: sales@tsimplex.com.sg

www.simplex.com.sg

Fulton China LLC is part of the Fulton Companies
manufactures high grade industrial/commercial heat
transfer products