

# THE BOILER HOUSE SOLUTION EQUIPMENT

Fire-tube boilers

## BWR Series

12 to 30 t/h,  
8,1 to 18,5 MW



The BWR is a 3-pass boiler with tubular construction wet back, specially designed by BABCOCK WANSON, and offering the combined advantages of fire-tube and water-tube technologies. Its design provides a high maximum permissible pressure of the boiler shell.

### Sturdiness and long life

The water-tube gas transfer chamber enables the furnace tube to be centred. The longitudinal stresses on the tube plates are therefore symmetrical. The expansion of the tubes is evenly distributed over the whole diameter of the boiler. The active circulation in the water tubes ensures continuous cooling of the walls, regardless of the operating conditions and steaming rates.

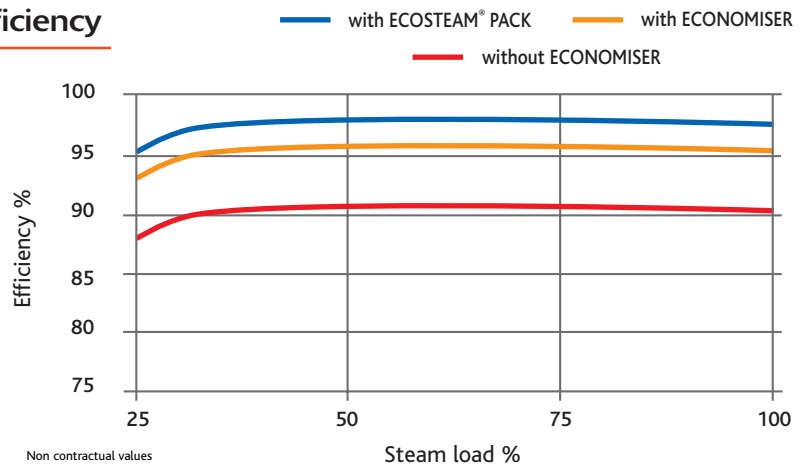
### Simplified and economical maintenance

The absence of refractory (apart from the burner throat and the rear inspection cover) is a significant advantage in terms of maintenance and down-time and helps provide very high on-line availability further reducing operating costs.

### High efficiency, more than 97%

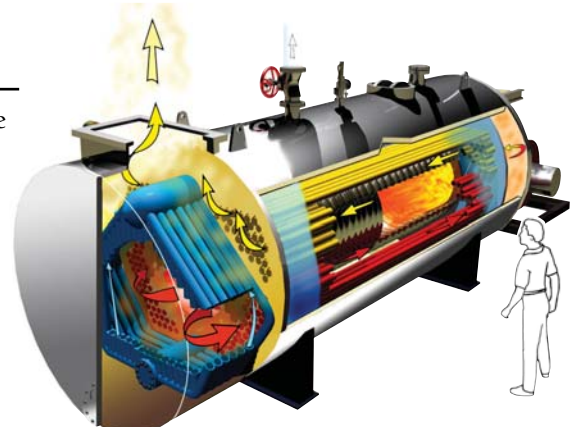
The BWR boilers are equipped with systems which optimise the efficiency up to 95% with economisers, capable of reaching 97 % with additional water-water and/or water-air exchangers. These results are obtained due to the optimised matching of the firing equipment and the boiler shell, designed and produced by BABCOCK WANSON. Efficiency is stable as a result of a well-controlled excess air curve, due to the geometry of the burner head and electronic cam modulation. BWR boilers benefits from the innovative Ecosteam® developments reaching more than 97% of efficiency and integrating the improvement of the thermal exchange in the boiler and the low level of exhaust gases (NO<sub>x</sub>, CO<sub>2</sub>...) as well as very low heat losses from the boiler skin.

### Efficiency



### Flexibility of use

The technology of the water-tube chamber provides quicker load recovery following heavy steam demand fluctuations and cold starts.



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## Super heated steam

The optimisation of the design allows the integration of a superheating module in the front box. The temperature is varying with the burner load and therefore the temperature of superheated steam is lower with a lower load.

## Steam quality

The steam separator located inside the boiler shell under the steam outlet and the rapid burner response time ensure that the level of dryness is high (99.5%).

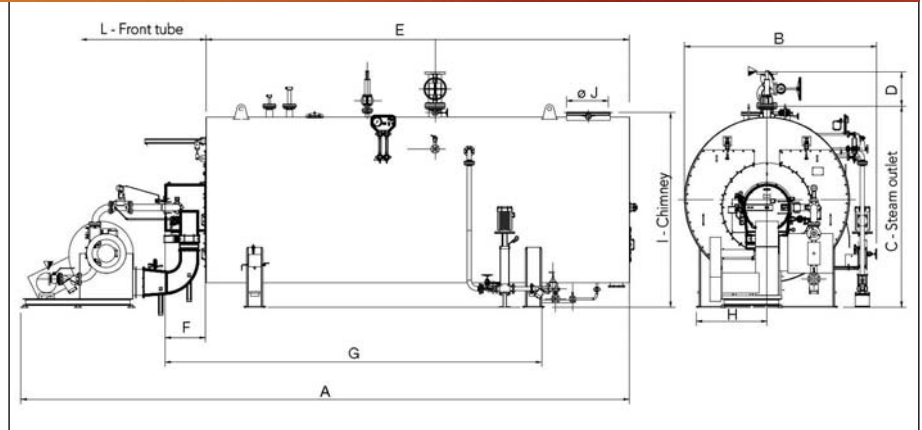
## Safety

This boiler design offers better safety with respect to low water level, and eliminates the risks of internal fouling (sludge accumulation in the bottom of the boiler).

## Quality of the equipment

BABCOCK WANSON is certified to ISO 9001; the boilers have been approved by many international organisations such as LLOYDS REGISTER, APAVE, BUREAU VERITAS, SGS, ASIT, BSI, GOST, ISPESL, ISQ, TUV, UDT...

The CE marking covers both the boiler and the burner, under the responsibility of one single manufacturer in accordance with CE 97/23-0038.



BWR boilers							
types		120	150	170	200	250	270
steam output in t/h		12,5	15,6	17,7	20,9	26,1	28,2
output in kW		8151	10190	11547	13585	16981	18340
dimensions in mm	A	11403	12044	13067	11481	12442	12960
	B	3083	3317	3436	3639	3873	4073
	C	3915	4175	4429	4629	4678	5030
	D	463	594	694	692	589	689
	E	7608	7588	7687	7755	8914	9176
	F	1536	1698	2404	2086	2087	2384
	G	7731	7684	8446	8172	9265	9559
	H	1200	1200	1276	1365	1450	1540
	I	3318	3443	3595	3795	3945	4195
	J	700	760 int	760 int	760 int	760 int	760 int
	L	5600	5500	5500	6450	6450	6450
total water volume in litres		18876	20205	23486	26774	34513	39152
weight full in kg		40500	50500	56000	60000	77600	84200

Note : vaporization given with feed water at 105°C  
 characteristics are given for 10 bar boilers  
 maximum admissible pressure: 10 • 12 • 15 • 18 • 20 • 22 • 25\* bar  
 \* may vary according to boiler type



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