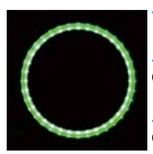
SAFETY & STATE EYE

Easy to recognize the boiler status and situation at first sight!

SAFETY EYE Real time indication of boiler operation condition

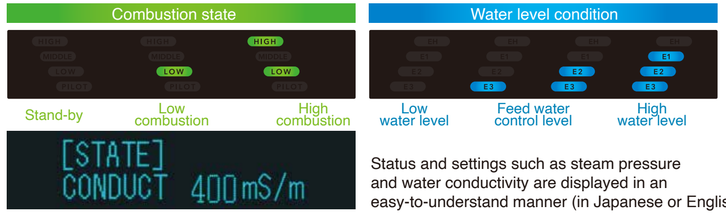


- Light off: Stand-by
- Blink: Combustion starting
- Light on: Combustion operating (Flame detected)

- Light off: Normal
- Blink: Error (Buzzer sound)
- Light on: Error (Buzzer stop)

- Light off: Normal
- Blink: Inspection indicator operating
- Light on: Information indicator operating

STATE EYE Real time indication of combustion state and water level condition



Status and settings such as steam pressure and water conductivity are displayed in an easy-to-understand manner (in Japanese or English).

Multiple safe design

Fail safe

Installed multiple safe device as low water cut off device, safety valve etc. More high level safeness with fail safe design feed water control and combustion control. High reliability with equipped sensors.

- Wind pressure sensor
- Steam pressure sensor
- Exhaust gas temperature sensor *
- Boiler body thermo
- Electric conductivity sensor
- Boiler water temperature sensor

etc ＊: Option

Prevention method

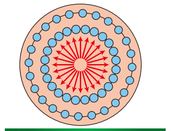
Check points would be informed on the monitor before the error ocuurs.

- Steam pressure sensor inspection
- Chemical injection pump inspection
- Exhaust gas temperature sensor inspection *
- Electric conductivity sensor inspection
- Water tube temperature sensor inspection
- Overall blowdown inspection (Automatic overall blowdown device) *
- Water-level electrode rod inspection
- Concentrated blowdown inspection
- High water level sensor inspection (Pure water specification) *

etc ＊: Option

Durable boiler body structure

Boiler body has the furnace with round-positioned water tube. Heat from combustion gas is transferred to each water tube equally. No particular water tube is overheated so that you can enjoy long-life of boiler.



Cross-section of boiler body

Multiple safe design

Boiler body thermo switch, steam temperature sensor, earthquake detector and etc. are installed as standard as enforced safety device.

Network

We, SAMSON Co., Ltd., have been engaged in the manufacture and sales of various Boilers and Food Processing Equipment since our foundation in 1945, and have been enjoying a good reputation from customers in various industrial fields of Japan.
In overseas markets, we have devoted ourselves to exporting our products into mainly Asian countries for a long period and have delivered them to many customers.
After delivery, our authorized distributors in the respective countries have taken care of maintenance services on our equipment through the cooperation from customers.
We are supporting our distributors for the improvement of maintenance technology and we hope our customer can operate our products safely without any trouble.

SAMSON CO.,LTD.

International Division (Osaka)

ADDRESS	PMO EX Shin-Osaka 5th floor, 4-2-10 Miyahara, Yodogawa-ku, Osaka, 532-0003 Japan
T E L	+81-6-6152-8135
F A X	+81-6-6152-8128
E-MAIL	overseas@samson.co.jp
WEB SITE	https://www.samson.co.jp/en/

SAMSOLUTION INTERNATIONAL CO., LTD.

ADDRESS	7F-8, NO.12, LN.609, SEC.5,CHONGXIN RD., SANCHONG DIST., NEW TAIPEI CITY 24159, TAIWAN(R.O.C.)
T E L	＋886-2-2278-3636
F A X	＋886-2-2278-3535
WEB SITE	https://www.samson.co.jp/tw/

SAMSOLUTION

SAMSOLUTION BOILER SYSTEM

For a sustainable future of energy and food

BB-AL,BB-APL series

Once Through Boiler・Small Type Boiler OIL

Made in Japan since 1945

BOOSTER BOILER

BB-500AL・500APL
-750AL・750APL
-1000AL・1000APL
-1500AL・1500APL

SAVING ENERGY & ENVIRONMENT-FRIENDLY

High efficiency

Improved boiler efficiency reduces fuel consumption and CO_2 emissions.

Boiler efficiency
90%

For models with economizer

Boiler efficiency
95%·96%

Economic efficiency

Inverter is installed as standard

Cut electric consumption to **20%** at low combustion

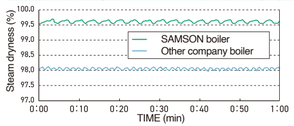
Saving energy by controlling the rotation speed of fan motor with an inverter and increasing or decreasing the air volume required for the combustion positon (Low-High combustion) of the boiler.

Saving energy with High dryness steam [measured value more than 99.5%]

- Advanced water level control system helps to obtain stable supply of high dryness steam.
- If steam with high heating value (High dryness steam) is used, steam consumption can be reduced. Consequently, fuel expenses can be reduced.

For example, if the steam dryness is 1.5% higher, steam heating value is increased in 1.5% which means you can save the energy consumption.

Steam dryness measurement (Example)

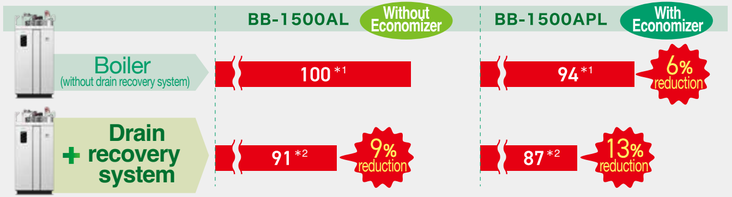


Steam heating value [When steam pressure at 0.78MPa]

Furthermore

Greater saving energy with ancillary equipment!

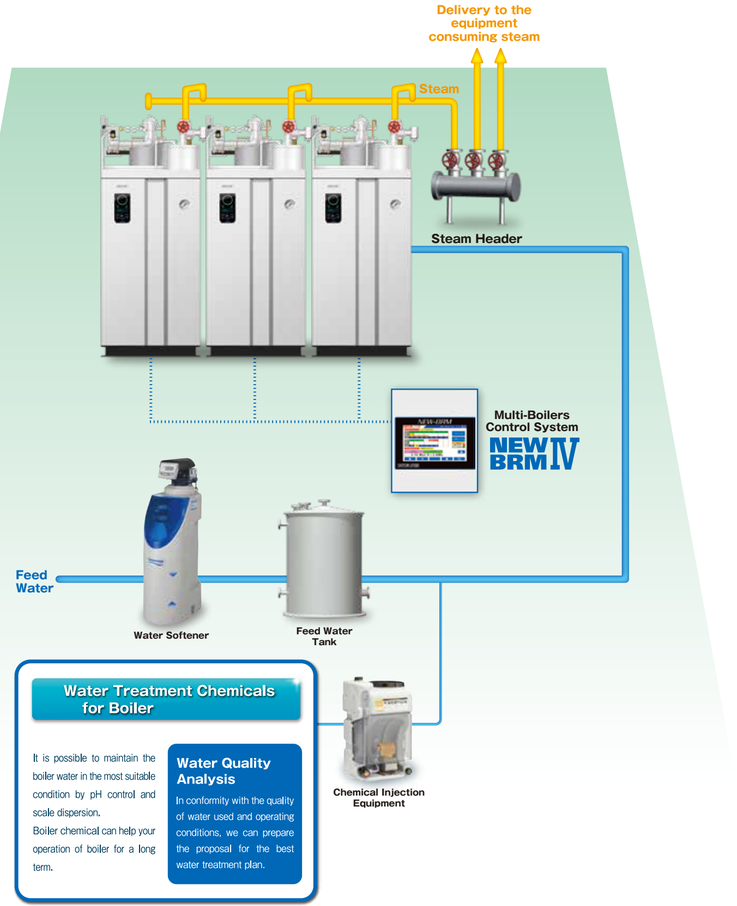
If the energy saving index of BB-1500AL (without economizer) is set to 100, the following graph shows the effect.



Caluculation conditions : *1 Steam pressure 0.49MPa Feed water temp. 15°C Blowdown rate 0% *2 Steam pressure 0.49MPa Feed water temp. 70°C Blowdown rate 0%

SYSTEM FLOW

We, SAMSON CO., LTD., propose and support total system of boiler and the related equipment for the benefit of our customers and the most suitable operation.



Water Treatment Chemicals for Boiler

It is possible to maintain the boiler water in the most suitable condition by pH control and scale dispersion.
Boiler chemical can help your operation of boiler for a long term.

Water Quality Analysis

In conformity with the quality of water used and operating conditions, we can prepare the proposal for the best water treatment plan.

Specifications

Item		Unit	BB-500AL	BB-500APL	BB-750AL	BB-750APL	BB-1000AL	BB-1000APL	BB-1500AL	BB-1500APL
Type of Boiler		—	Once-Through Boiler				Small Type Boiler			
Max. Pressure		MPa	0.98							
Working Pressure Range		MPa	0.49~0.88							
Hydraulic Testing Pressure		MPa	1.58							
Equivalent Evaporation		kg/h	500		750		1,000		1,500	
Heat Output		kW(kcal)	313 (270,000)		470 (404,000)		627 (539,000)		940 (809,000)	
Boiler Efficiency		%	90	95	90	95	90	95	90	96
Heating Surface Area		m²	4.98				8.96		9.75	
Holding Water Volume		L	96		90		150		155	
Type of Burner		—	Forced draft / Pressure-spraying type							
Combustion Control		—	3-Position control (Fan motor : Inverter control)							
Turn-down Ratio		—	1:2							
Feed Water Control		—	ON-OFF control							
Ignition		—	AC Spark Ignition							
Dry Weight		kg	910	1,110	940	1,170	1,300	1,630	1,390	1,810
Weight in Operation		kg	1,010	1,220	1,030	1,270	1,450	1,800	1,550	2,000
Fuel Consumption		kW	348	330	522	495	697	660	1,045	980
	Kerosene	L/h	36.0	34.1	54.0	51.2	72.1	68.3	108.1	101.3
	Heavy oil A	L/h	34.2	32.4	51.2	48.6	68.3	64.7	102.5	96.1
Supply Power Available Electricity		—	AC200V 3φ (50/60Hz)							
Equipment Power		kW	1.75		3.60		4.30		8.30	
Total Electric Capacity		kVA	4.6		8.5		9.4		15.3	
Description	Fan Motor	kW	0.4		1.5		2.2		5.5	
	Feed Water Pump Motor	kW	0.75		1.5				2.2	
	Oil Pump Motor	kW	0.4							
	For Control	kW	0.2							
Main Wire Size		mm²	2		5.5				14	
Power Breaker Capacity		A	20		40				75	

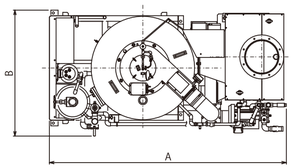
Remarks: 1. The performance display conforms to the "Boiler performance display reference value" of Small-Type Once Through Boiler Association of Japan. The calculation conditions are as described below.

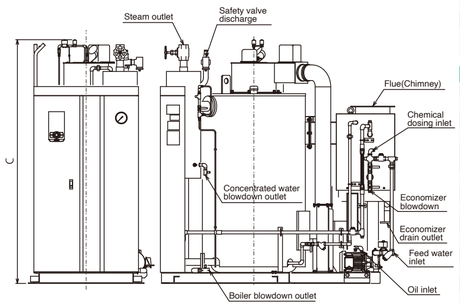
Calculation condition of boiler efficiency

Heating balancing : JIS B 8222
Steam pressure : 0.49MPa
Water supply temperature : 15℃
Charge air temperature : 35℃
Lower heating value = Kerosene : 34.8 MJ/L
= Heavy oil A : 36.7 MJ/L

2. The allowable values below shall be provided as an error.
·BB-500·750 error of boiler efficiency ±2%
·BB-1000·1500 error of boiler efficiency ±1%
·Error of combustion quantity (input) ±3.5%
3. A power supply of 100 V AC (1φ) is required when setting a water softener.
4. Please contact us if you would like to use the steam pressure more than 0.88MPa.

Outline Dimensions





The shape of boiler is different depending on Model and Specification.
This drawing is BB-1000APL.

Table of Dimensions

	BB-500AL	BB-500APL	BB-750AL	BB-750APL
A (Length)	1,771	1,958	1,783	1,958
B (Width)	945	1,025	980	1,060
C (Total height)	1,896		1,934	
Feed water inlet	20A(Rc3/4)		25A(Rc1)	
Oil inlet	15A(Rc1/2) (Boiler side) (Accessory flexible tube both ends R1/2)			
Steam outlet	32A(Rc1-1/4)			
Safety valve discharge	32A(Rc1-1/4)			
Boiler blowdown outlet	25A(Rc1)			
Concentrated water blowdown outlet	15A(Rc1/2)			
Chimney drain outlet	32A(Rp1-1/4)	—	32A(Rp1-1/4)	—
Economizer blowdown	—	20A(Rc-3/4)	—	20A(Rc-3/4)
Economizer drain outlet	—	40A JIS5K	—	40A JIS5K
Chemical dosing inlet	15A(Rc1/2)			
Flue(Chimney)	φ250	φ250 Flange connection or insert connection	φ250	φ250 Flange connection or insert connection

	BB-1000AL	BB-1000APL	BB-1500AL	BB-1500APL
A (Length)	2,099	2,117	2,019	2,463
B (Width)	1,132		1,178	1,144
C (Total height)	2,216		2,316	
Feed water inlet	25A(Rc1)		32A(Rc1-1/4)	
Oil inlet	15A(Rc1/2) (Boiler side) (Accessory flexible tube both ends R1/2)		20A(Rc3/4) (Accessory flexible tube both ends R3/4)	
Steam outlet	50A(Rc2)		50A(Rc2)	
Safety valve discharge	40A(Rc1-1/2)		50A(Rc2)	
Boiler blowdown outlet	25A(Rc1)			
Concentrated water blowdown outlet	15A(Rc1/2)			
Chimney drain outlet	32A(Rp1-1/4)	—	32A(Rp1-1/4)	—
Economizer blowdown	—	20A(Rc3/4)	—	20A(Rc3/4)
Economizer drain outlet	—	40A JIS5K	—	40A JIS5K
Chemical dosing inlet	15A(Rc1/2)			
Flue(Chimney)	φ300	φ300 Flange connection or insert connection	φ300	φ300 Flange connection or insert connection