

## 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.

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**SAMSOLUTION**

For a sustainable future of energy and food

**SAMSOLUTION BOILER SYSTEM**

SSB Series **OIL**

Made in **Japan**  
since 1945

**SSB** Super Scrum Boiler  
**Series**

SSB-2000AL · 2000APL · 2500APL





*From Evolution to Advance!*

# **SSB** *Super Scrum Boiler* **Series**

*To realize Low-carbon society,  
SAMSOLUTION never stop evolution!!  
We advance our technology for Energy Saving.*

Everyone try to save the energy from time to time.

But the most important thing for Energy-saving is continuation and advancement.

So, we eager much advanced performance on our Boilers.

SSB series are concentrated into Energy-Saving function.

New functions are added on current boiler functions and improved on  
Safety, Visibility and ENERGY-SAVING !



High  
efficiency

**97%·96%·90%**

High  
turn-down

**1:4**

Combustion and  
Feed water control

**High speed  
multi-position**

High  
dryness steam

**99.5%**

## High efficiency, Long-life boiler body

### Adopt new micro-furnace boiler body

Efficiency **96% → 97%** (TYPE:2000APL)

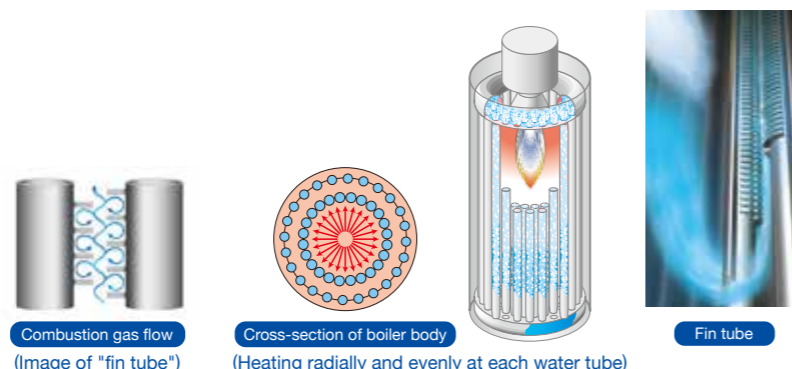
We improve heat transfer efficiency by following innovation.

- Our original new micro furnace boiler body

- Fin water tube which realize higher heat transfer and less pressure drop of Combustion gas flow

Boiler body has the furnace with round-positioned water tube.

Heat of combustion gas is transferred to each water tube equally. No particular water tube is overheated so that you can enjoy long-life of boiler.

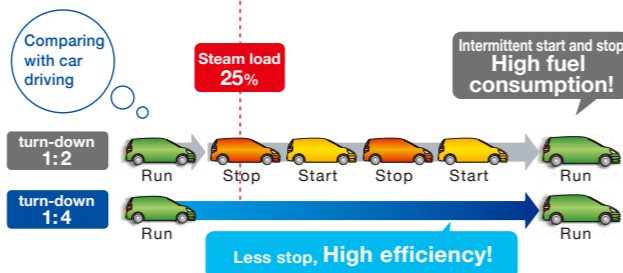
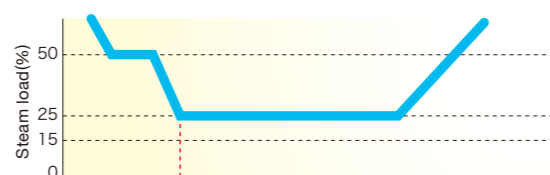


## High turn-down

### 1:4 wide combustion, saving energy operation with few stand-by

Burner with wide turn down (ratio of maximum combustion - minimum combustion) has wide combustion range, so that efficient operation can be achieved even though boiler load is low.

You can save energy because of less purge heat loss.



Advantage for environment and fuel consumption with high efficiency and high turn-down

Fuel reduction **4,000L/year**

CO<sub>2</sub> reduction **20 tons/year**

[Estimation condition] 1 unit of SSB-2000APL(300days/year, 12hr/day, 30% load operation)  
Comparison in boiler efficiency 97% VS 95%, turn-down ratio 1:4 VS 1:2

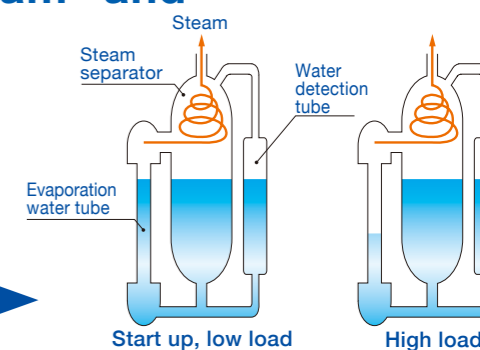
1L=JPY100

## High dryness

### Save energy with "High dryness steam" and "High condense operation"!

(measured value)  
Dryness of steam **More than 99.5%**

Water level changes referring boiler load and level of water condense to keep high steam dryness.



### High dryness steam ... Supply high dryness steam

Advanced water level control system helps to obtain stable supply of high dryness steam in low - high load.

#### What is the advantage of "High dryness steam"?

- ① Energy saving operation
  - High dryness steam has more latent heat than wet steam, so that total steam consumption can be reduced.
  - Amount of drain from steam trap can be reduced.
- ② Less harmful to user machine
  - Less steam hammer.
  - Low risk of alkali corrosion.

### High condense operation ... It is possible to run boiler with highly condensed water

In general, carry-over is likely to happen as condensation of boiler water becomes high and dryness of steam will be low. Thus, it is common to operate boiler with low condense water with high blow rate. SSB series has unique water level control and high performance steam separator to obtain high steam dryness even with high condense water.

#### What is the advantage of "High condense operation"?

It is possible to operate boiler with high electric conductivity water to lower blow rate. Saving energy with less waste water.

## Saving energy

### Inverter control as standard for fan motor and feed water pump

Cut electric consumption to 1/4 for fan motor. Less electric consumption and long-life feed water pump.

#### Fan motor inverter control

Saving energy by adjusting fan motor rotation speed for boiler combustion position.

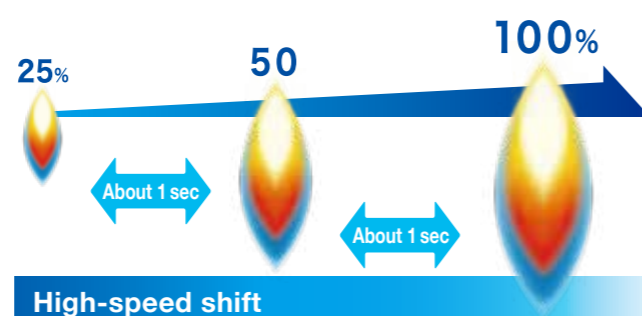
#### Feed water inverter control

If boiler operation pressure is low after overall blow or feed water timing, decreasing feed water pump rotation speed make less electric consumption, protect water flow meter and feed water pump, less cavitation.

## High-speed multi position combustion control

### Quick combustion shift makes no waste

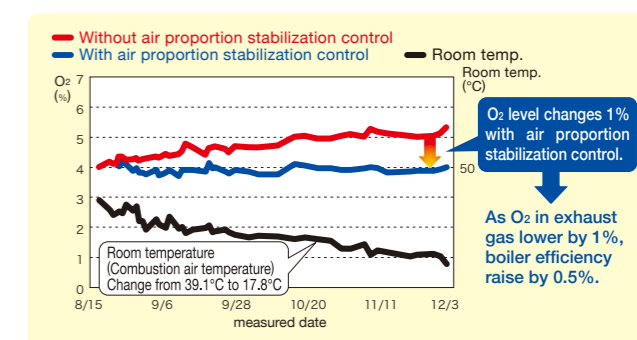
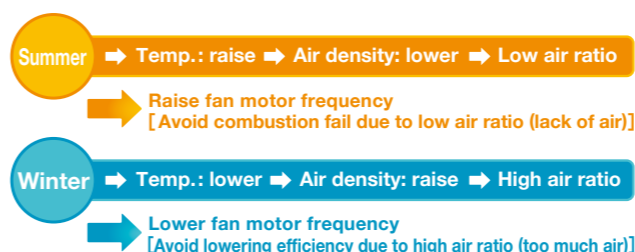
High-speed multi position combustion control includes 4 combustion position as standard, and can shift to each standard within less than 1 second.



## Air proportion stabilization control

### Automatic air ratio control in best value through all season

Offset wind amount correspondence to air temp. to stable combustion and saving energy.






# SAFETY & STATE EYE


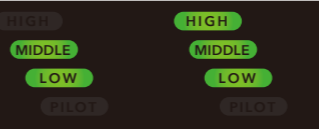
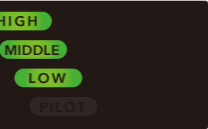
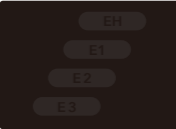
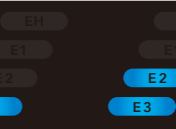

We are seeking for safety and security,  
and it is easy to check the boiler status and situation!



## SAFETY EYE Indicate boiler operating condition in real time

	<p><b>Light off</b> Stand-by</p> <p><b>Blink</b> Combustion starting</p> <p><b>Light on</b> Combustion operating (Flame detected)</p>		<p><b>Light off</b> Normal</p> <p><b>Blink</b> Error (Buzzer sound)</p> <p><b>Light on</b> Error (Buzzer stop)</p>		<p><b>Light off</b> Normal</p> <p><b>Blink</b> Inspection indicator operating</p> <p><b>Light on</b> Information indicator operating</p>
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## STATE EYE Indicate combustion process and water level condition in real time

Combustion process			Water level condition		
 <p>Low combustion</p>	 <p>Middle combustion</p>	 <p>High combustion</p>	 <p>Low water level</p>	 <p>Feed water control level</p>	 <p>High water level</p>

## Multiple safe design

### Fail safe... Fail safe design water level control and combustion control

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.

- Low water sensor × 2 units
- Steam pressure sensor
- Steam temperature sensor
- Boiler body thermo
- Boiler water temperature sensor
- Electric conductivity sensor
- Exhaust gas temperature sensor
- Steam temperature sensor etc.
- Wind pressure sensor

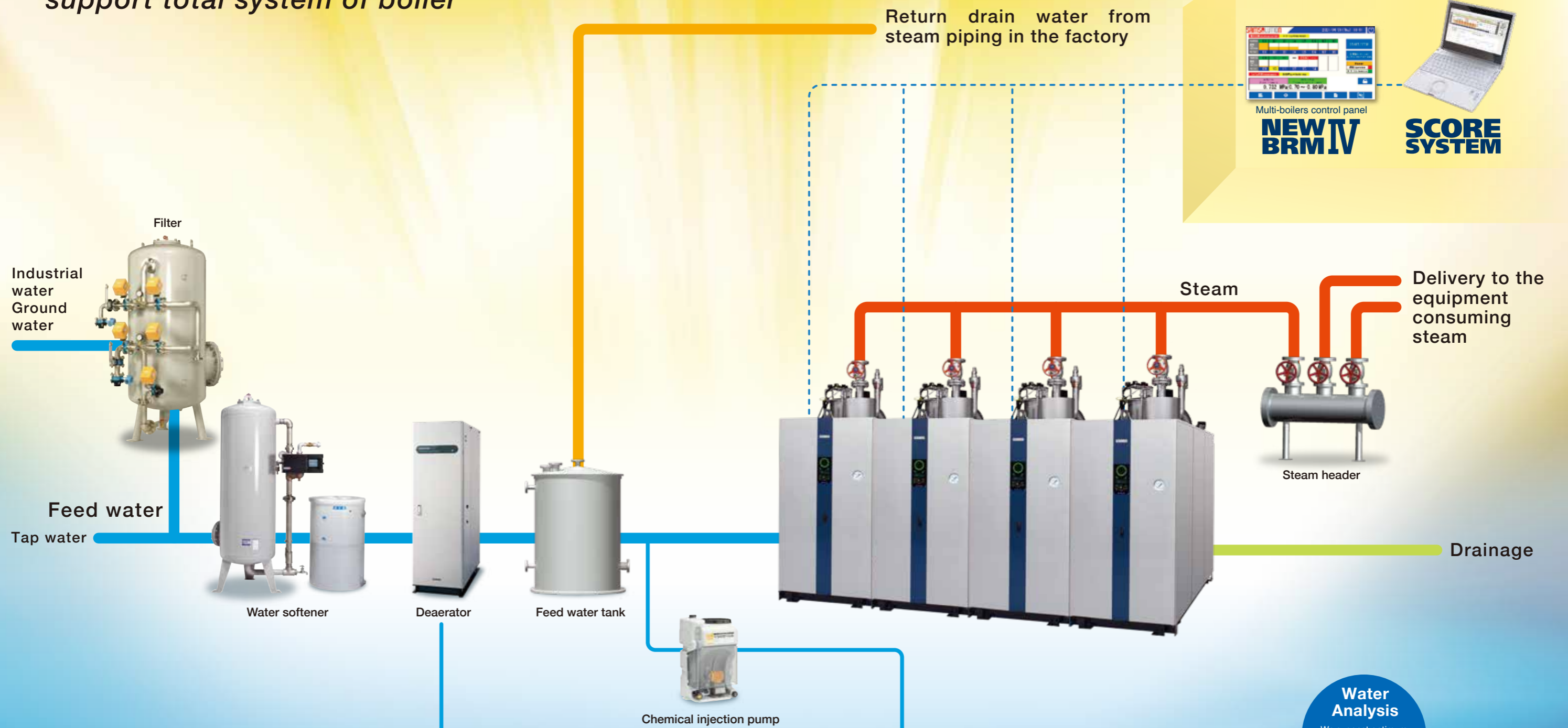
### Prevention method... Output check point before it breaks

Display check point before output errors.

- Exhaust gas temperature inspection
- Steam pressure sensor inspection
- Exhaust gas temperature sensor inspection
- Water tube temperature sensor inspection
- Combustion air temperature sensor inspection
- High water level inspection (Pure water specification)\*
- Overall blowdown inspection (Automatic overall blowdown control)\*
- Chemical injection inspection
- Water-level electrode rod inspection
- Electric conductivity sensor inspection
- Concentrated blowdown inspection etc.

\*Option

We, SAMUSOLUTION propose and support total system of boiler



## Deaerator

It remove dissolved oxygen in the feed water. And it prevent the boiler, steam piping and steam required equipment from corrosion. We can supply not only membrane but nitrogen substitution type and Heating deaerator system.

## Water treatment chemicals for boiler SAMCLEAN

Our multi-purpose boiler chemicals have a function to prevent scale sticking and corrosion, adjust pH, and disperse sludge. Please use Sam-clean series to keep the boiler good condition for long time.

\*We might be unable to export due to the regulation of your country. Please contact us for confirmation.

**Water Analysis**  
We suggest optimum water treatment equipment depending on water quality and boiler operating condition.



**SAMCLEAN S-125**  
Category Code : GB, G7  
NSF Registration No. 166985

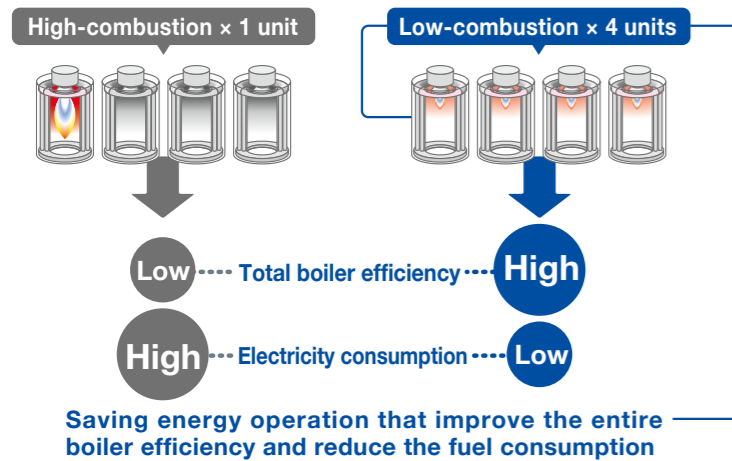
## In the boiler room

### NEW BRM IV Multi-boilers control panel

Selects the best operation pattern  
Minimize fuel & electricity consumption

In case steam load is small, operation of controlling multi-boilers under low combustion is more efficient than operation of controlling a boiler under high combustion. NEW-BRMIV can be improved the efficiency of the entire system and reduce the electricity consumption by selecting optimal operating pattern to check the operating condition and steam demand.

For example...in case steam load is 2,000kg/h(SSB-2000APL × 4 units)



#### Menu screen

Pictograms and Japanese-English language are easy to operate.

- Condition monitoring screen**  
 You can check boiler operating condition, combustion condition, error and inspection information.
- Individual data screen**  
 You can check each boiler operating condition by daily data and the day before data screen.
- Multi-boilers control setting screen**  
 You can set control pressure range, control quantity, control pattern and priority rank.

## In the monitoring room...

### SCORE SYSTEM To manage the total steam generating system not only boiler but including auxiliary equipment



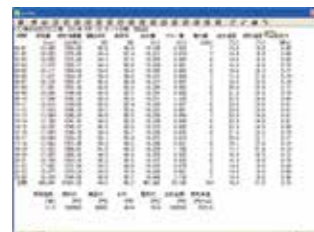
To indicate the machine condition of entire steam generating system.



To manage the entire system and individual boiler.



To indicate the guidance that explain the cause and ways to cope with it by using photo and drawing at occurring error and inspection.



To make a report for the entire system and individual boiler.

### SCORE SYSTEM HG

We can supply not only standard model 「Score VS」 but also customized model depending on the customer 「Score HG」

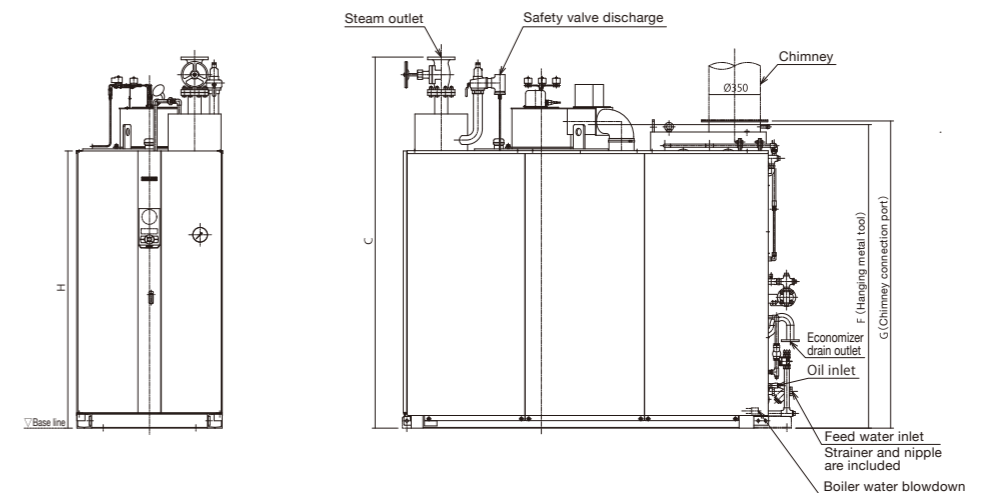
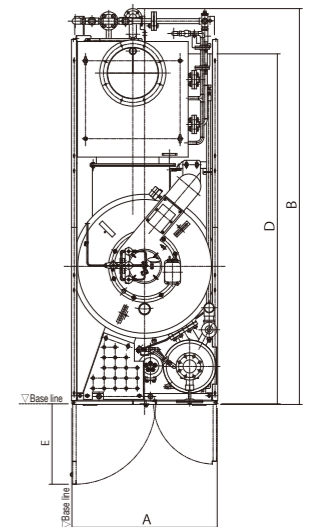
If you install monitoring camera(option), you can get information in real time by movie.

## Specifications

Item	Unit	SSB-2000AL	SSB-2000APL	SSB-2500APL			
Type of Boiler	—	Small Type Boiler					
Max. Pressure	MPa	0.98					
Working Pressure Range	MPa	0.49~0.88					
Equivalent Evaporation	kg/h	2,000		2,500			
Heat Output	kW	1,254		1,567			
Boiler Efficiency	%	90	97	96			
Heating Surface Area	m <sup>2</sup>	9.89		9.94			
Holding Water Volume	L	170					
Type of Burner	—	Forced draft / Pressure-spraying type					
Combustion Control	—	Inverter Control, Multi-Position Combustion Control					
Turn-down Ratio	—	1:4					
Feed water control	—	Inverter Control, Multi-Position Combustion Control					
Ignition	—	AC Spark Ignition					
Dry Weight	kg	1,740	2,220	2,540			
Weight in Operation	kg	1,900	2,420	2,760			
Fuel	—	Kerosene	Heavy oil A	Kerosene	Heavy oil A	Kerosene	Heavy oil A
Fuel Consumption	kW	1,393	1,293	1,633			
	L/h	144.1	136.7	133.7	126.8	168.9	160.2
Supply Power Available Electricity	—	AC200V 3φ (50/60Hz)					
Equipment Power	kW	10.2	9.3	10.2			
Total Electric Capacity	kVA	17.9	50Hz: 16.6	60Hz: 16.5	50Hz: 17.9	60Hz: 17.8	
Description	Fan Motor	kW	7.4	6.5	7.4		
	Feed Water Pump motor	kW	2.2				
	Oil Pump motor	kW	0.4				
	For Control	kW	0.2				
Main Wire Size	mm <sup>2</sup>	14					
Power Breaker Capacity	A	75					

	SSB-2000AL	SSB-2000APL	SSB-2500APL
A	990		
B	2,644	2,692	
C	2,443		2,523
D	2,380		
E	547		
F	2,009		2,064
G	1,591	1,828	2,089
H	1,885		
Feed water inlet	32A		
Oil inlet	20A		
Steam outlet	65A	80A	
Safety valve discharge	50A		
Boiler blowdown outlet	25A		
Chimney drain	32A	40A	
Chimney	φ350(plug-in)	φ300	φ350

## Outline dimensions



The shape of boiler is different depending on Model and Specification. This drawing is SSB-2000APL model.