YSS-511S/F Type Air Separator

This is used in cooling and heating systems to continuously remove air contained in fluid. All air generated by systems can be automatically removed, thanks to its superb air discharge capability. Air can be discharged even at the micro-bubble level.

Features

- Used in cooling & heating systems to continuously remove air contained in fluid.
- All air generated by systems can be automatically removed & discharged even at Microbubble level.
- Air-free water enables optimal operation & prevents noise, corrosion, partial overheating, and mechanical damage.
- Complete thermal insulation effects are achieved in cold and hot water systems with lagging material.

YSS-511S Type

Specitications

Type		YSS-511S	YSS-511F
Size		20~25A	50~150A
Applicable pressure		1.0MPa	
Applicable fluid		Cold/hot water	
Fluid temperature		120℃ below	
End connection		KS PT SCREW	KS 10K RF Flange or welding type
Materials	Body	CAC303	Epoxy-coated steel
	Internal parts	STS	STS
	Seal	EPDM	
Waterway		-	PT 1"

YSS-511F Type

Dimensions

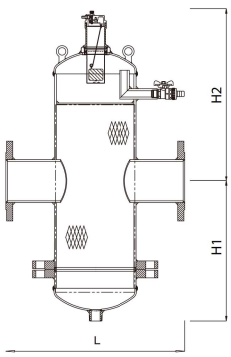
(mm)

Category	Size	L	H1	H2
YSS-511S	20(¾")	75	20	139
	25(1")	80	25	134

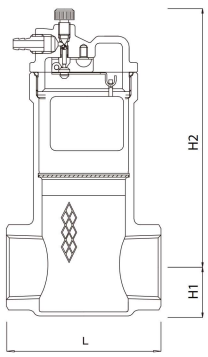
Category	Size	L	H1	H2
YSS-511F	50(2")	350	415	388
	65(2½")	350	415	388
	80(3")	466	472	447
	100(4")	470	472	447
	125(5")	635	578	553
	150(6")	635	578	553

▶ Dimensions are subject to change without prior notice for product quality improvements (performance improvements).
▶ Made-to-orders are available for 200A or larger.

Dimensions drawing



YSS-511F Type

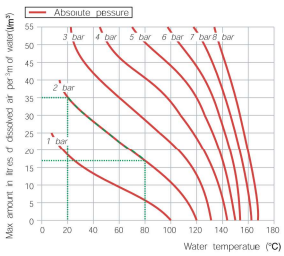


YSS-511S Type

YSS–511 Type Air Separator

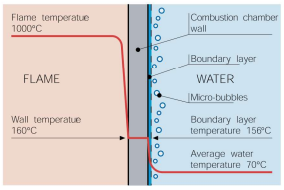
Air formation process

The amount of air included in water depends on the temperature and pressure. This is because of the Henry's law and physical phenomena related to the amount of air discharged from solution, as seen in the graph below. For example, the amount of air that is discharged when water is heated from 20°C to 80°C at the absolute pressure of 2 bar is the same as 18 l/m3 of water. The amount of air that needs to be discharged increases in tandem with a rise in temperature and a reduction in pressure. Air is generated in micro–bubble form. With cavitations in cooling and heating systems, the points at which micro bubbles are created in boilers and other instruments are set.



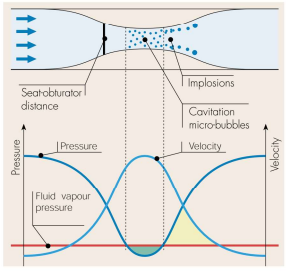
Boiler's micro bubble

Micro bubbles are continuously formed according to the temperature of fluid on the surface that is separated from the combustion chamber. Air is transported by water and is condensed at the dew point in a circuit. Air is partially reabsorbed by the cold surfacc.



Cavitation and micro bubble

Micro bubbles are formed where there is high flow velocity (usually at a pump impeller and a control valve seat) and when the pressure level drops. Such air and vapor micro bubbles lead to cavitation if not moved.

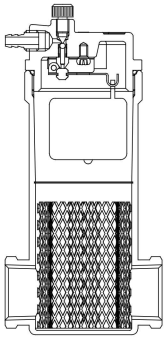


How it works

An air separator is based on a combination of various physical principles. The moving parts are composed by concentrating metal mesh nets. They allow for rotating movements, which are required to discharge micro bubbles and attach them to the surface. Bubbles have a structure that makes them combine to increase their size until they gain enough momentum to overcome adhesive force. Bubbles move toward the upper part to be discharged by automatic air vent float operation.

Composition

The air separator is designed so that maintenance for the valve can take place without having to remove the valve from the pipeline. The valve has a connector in the bottom for drain valve connection, and all parts can be disassembled. The automatic air vent on the upper part has a long chamber for float operation, and is designed in a way that ensures that water does not reach the sealing seat. In case of the screwed type, internal parts can be taken out for complete disassembly and assembly. The flanged type and welded type include a drain cock to drain excessive water of a certain water level.



Pressure loss curve