



Liquid Hearing Burner

Osaka gas
development product

Submerged combustion burner

SM-150K,240K,350K,800K

Liquid heating burner which directly burns in liquid to obtain high thermal efficiency.

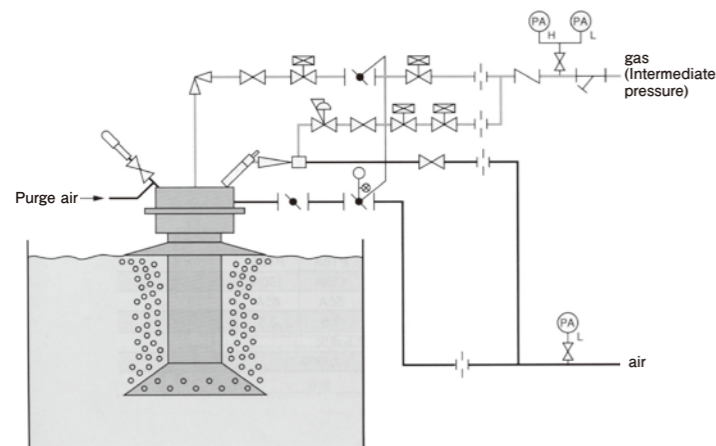
Feature

- 1 High thermal efficiency can be obtained by gas-liquid direct heat exchange.
- 2 Having a stirring effect of the liquid by the jet of the combustion exhaust gas.
- 3 By adopting the baffle plate, it prevents dirt on the liquid surface, improves efficiency, and allows quiet combustion.

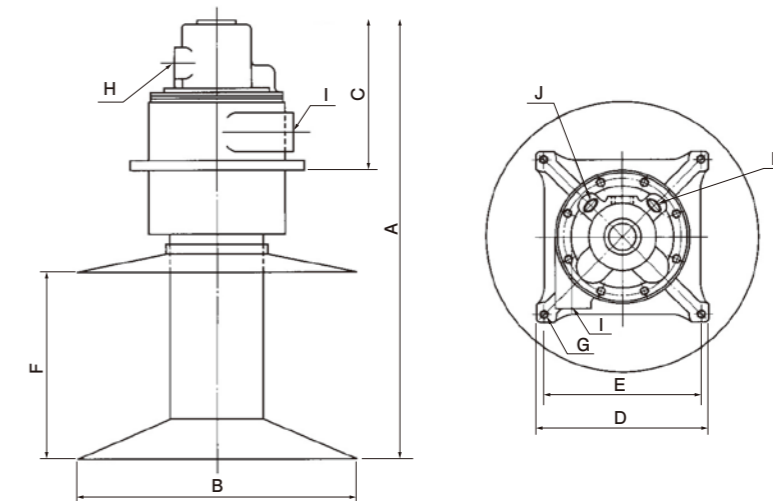
Main Usage

- Liquid tank heating
- Concentrate chemicals, waste liquid
- Bath, heated pool

Flow sheet (Submerged combustion device)



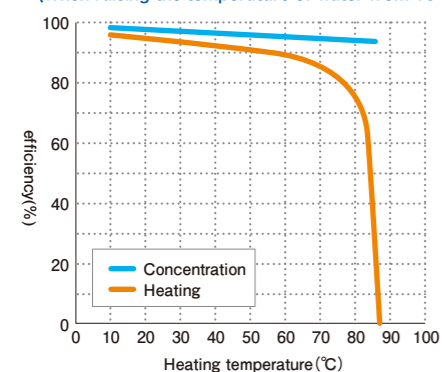
Specification・Overall size



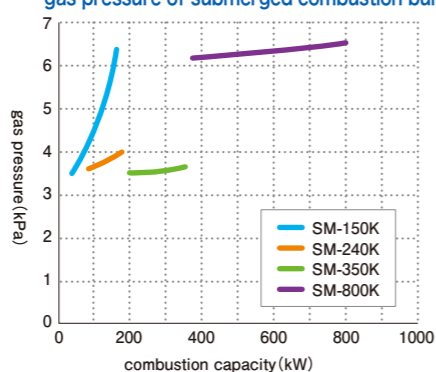
Model	SM-150K	SM-240K	SM-350K	SM-800K	Remarks	
Gas type	13A					
Rated burning capacity (kW)	150	180	350	800	Low calorific value	
Standard gas quantity (m ³ /h)	13	16	30	69		
Standard gas head pressure (kPa)	6.4	4.0	3.6	6.6		
Standard air quantity (m ³ /h)	200	250	940	1350		
Standard air head pressure (kPa)	6.8	6.0	8.0	8.6		
Overall size (mm)	A	846	916	1010	1400	
	B	450	600	690	1040	
	C	307	316	390	470	
	D	□340	□375	□425	φ600	SM-800K is round type
	E	290	335	385	φ550	
	F	400	420	410	670	
Mounting size	G(Mounting bolt hole)	4-φ20	4-φ19	8-φ23		
Connecting size	H(gas)	Rc 1	Rc 1 1/4	Rc 2	Flange JIS 10K 3	
	I (air)	Rc 1 1/2	Rc 2	Flange JIS 5K 3	Flange JIS 5K 4	
Connecting size (Rc)	J (pilot)	3/4	3/4	3/4	1	
	K (Flame monitoring)	3/4	1	1	1	
Weight (kg)	70	95	125	200		
Turndown	3:1		2:1		Using standard immersion tube	
Ignition method	interrupted pilot burner					
Detecting method	ultraviolet phototube					

Data

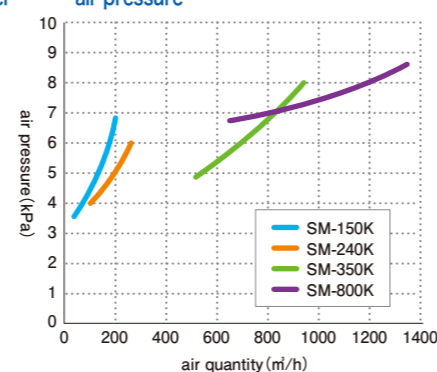
Efficiency of submerged combustion system
(When raising the temperature of water from 10°C)



Relationship between combustion capacity and
gas pressure of submerged combustion burner



Relation between air quantity and
air pressure



Handling Precautions

- Be sure to place the check valve in the gas pipe.
- It is best that the static water level is 40 to 50 mm lower than the baffle plate.
- Adjust the air ratio to stable combustion area and operate.
- The standard material of the burner combustion tube is SUS 304.
- The 13A gas line should have differential pressure by gas needle valve. (Vibration prevention)
- Use a pilot burner with a loading tube.
- The pilot burner be extinguished after the main gas ignition.
- Install a ball valve in front of the ultraviolet photoelectric tube to prevent dew condensation when the burner is stopped.