

AK-1H Type Steam Trap

Bucket type

General purpose trap that can be used as drain discharge trap for pipeline, header etc. All functions set in the top cover, so that allow easy maintenance.

FEATURES

- Simple internal structure makes maintenance works easier.
- With strainer embedded.

SPECIFICATIONS

Model name	AK-1H	
Type	0.7MPa	1.0MPa
Code name	AK1H-GL	AK1H-GH
Applicable pressure	0.035~0.7MPa	0.035~1.0MPa
Fluid temperature	Max. 184°C	
End connection	Screwed JIS Rc	
Materials	Body(Cast iron), Disc & Seat(Stainless steel), Bucket(Brass)	
Valve body pressure test	Hydraulic 1.5MPa	

* In case of pressure being less than 0.035MPa or less than 0.1MPa with very small capacity, select the other type (AT-1, AT-4 or AF-12 Type).

DIMENSIONS

(mm)

Size	d	L ₁	L ₂	G	H	Mass(kg)
15(1/2")	1/2"	130	76	72.5	68.5	2.7
20(3/4")	3/4"	148	87	88	74	4.4
25(1")	1"	184	94	98	81	5.8

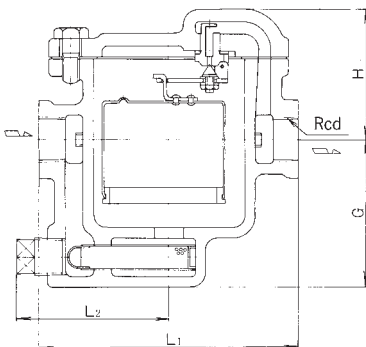
TABLE FOR CAPACITY (Max. continual discharge amount)

(l/h)

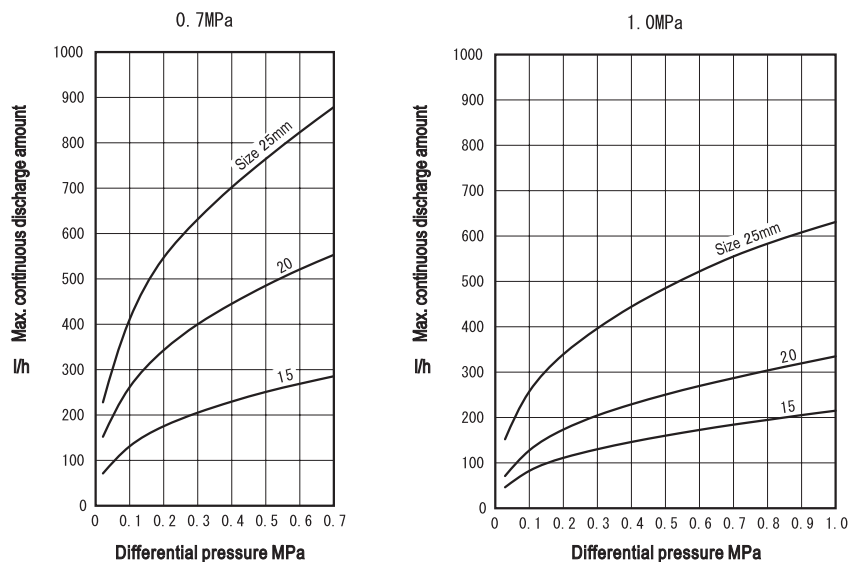
Type	Size	Differential pressure MPa										
		0.035	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
0.7MPa	15(1/2")	80	130	175	205	230	252	270	287	—	—	—
	20(3/4")	175	260	340	398	444	485	522	555	—	—	—
	25(1")	255	412	548	634	703	767	825	880	—	—	—
1.0MPa	15(1/2")	50	84	110	130	146	160	173	180	195	205	214
	20(3/4")	80	130	175	205	230	252	270	287	305	320	335
	25(1")	175	260	340	398	444	485	522	555	582	608	630



CONSTRUCTION



FLOW CHART



POINTS FOR SIZE SELECTION

Select a proper size that can meet the requirement on safety factor and allow at least 3 times of planned discharge volume.

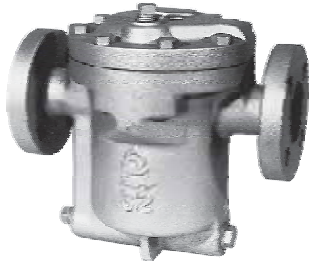
In the case there is back pressure at the outlet side of trap, use the differential pressure between inlet and outlet sides to select the size of valve.

Note: Read Points for Installation of Steam Trap carefully (see page 157).

AK-2H Type Steam Trap

 Bucket type
With SSR device

General purpose trap that can be used as drain discharge trap for pipeline, header etc. All functions set in the top cover, so that allow easy maintenance.

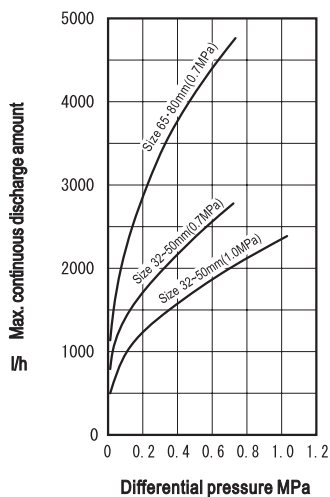


Size 32~50mm



Size 65~80mm

FLOW CHART



POINTS FOR SIZE SELECTION

Select a proper size that can meet the requirement on safety factor and allow at least 3 times of planned discharge volume.

In the case there is back pressure at the outlet side of trap, use the differential pressure between inlet and outlet sides to select the size of valve.

FEATURES (Size 32~50mm)

- The SSR (Shockless Self Return) device eliminates impact that may occur when valve is closed. The valve disc can close by itself, but not influenced by the buoyancy of the bucket, so that can be used from low pressure.
- With strainer embedded, for size 32~50mm.

SPECIFICATIONS

Model name	AK-2H			
Type	0.7MPa		1.0MPa	
Code name	AK2H-GL		AK2H-GH	
Size	32 40 50(1¼" 1½" · 2")	65 80(2½" 3")	32 40 50(1¼" 1½" · 2")	
Applicable pressure	0.02~0.7MPa		0.02~1.0MPa	
Fluid temperature	Max. 184°C*			
End connection	Flanged JIS 10KFF			
Materials	Body(Cast iron) Disc & seat(Stainless steel) Bucket(Stainless steel)	Body(Cast iron) Disc & seat(Stainless steel) Bucket(Brass)	Body(Cast iron) Disc & seat(Stainless steel) Bucket(Stainless steel)	
Valve body pressure test	Hydraulic 1.5MPa			

* The valve for fluid temperature Max. 220°C is available upon your request.

DIMENSIONS

(mm)

Size	L	G	H	Mass(kg)
32(1¼")	280	161	88	21
40(1½")	290	161	88	22
50(2")	290	161	88	23
65(2½")	480	340	160	87
80(3")	480	340	160	90

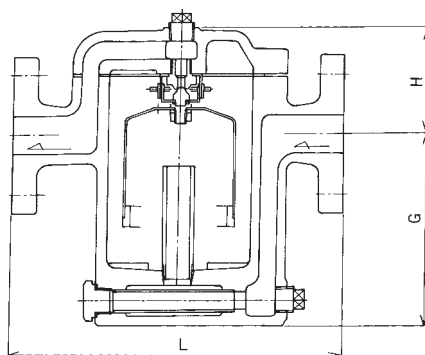
TABLE FOR CAPACITY (Max. continual discharge amount)

(l/h)

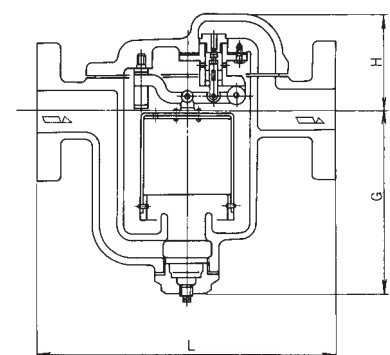
Type	Size	Differential pressure MPa											
		0.02	0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
0.7MPa	32 40 50(1¼" 1½" · 2")	800	1100	1370	1700	1940	2170	2380	2570	2750	—	—	—
	65 80(2½" 3")	1120	1600	2150	3850	3400	3800	4130	4430	4700	—	—	—
1.0MPa	32 40 50(1¼" 1½" · 2")	500	750	950	1200	1400	1570	1740	1870	2000	2120	2240	2350

CONSTRUCTION

Size 32~50mm



Size 65~80mm



POINTS FOR INSTALLATION

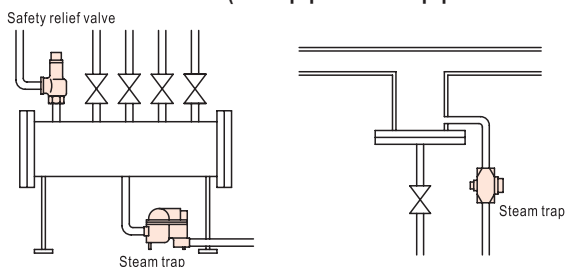
- In the event the trap is to be left unused for a long period or there is risk of freezing in winter, operate the plug at the lower part of the main body and discharge drain.
- If the piping at the outlet side is an ascending type (which means there is back pressure), install check valve at the discharge side of steam trap.
- Leave sufficient space for maintenance purpose.

Note: Read Points for Installation of Steam Trap carefully (see page 157).

DATA/Steam Trap

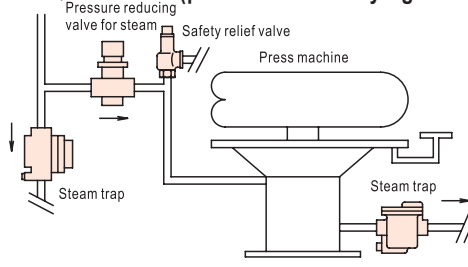
EXAMPLE: APPLICATION OF STEAM TRAP

STEAM SUPPLY PIPELINE (main pipe · branch pipe · header etc.)



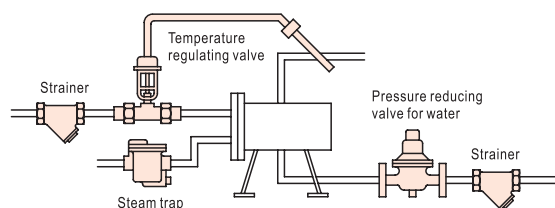
- **Points for selection:**
There is a large difference between the amount of drain generated at normal operation state and that generated at start up. Large amount of air and drain generated at start up may obstruct the supply of steam.
- **Applicable model:**
ATB-5, 5F/AT-6, 6F (thermal element type)
AD-17, 17F (disc type)
AK series (bucket type), AF series (float type)

CLEANING EQUIPMENTS (press machine · drying machine etc.)



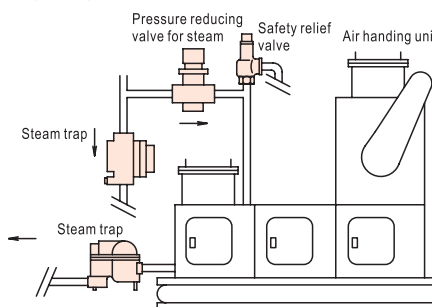
- **Points for selection:**
Pay attention to selection of the size of steam trap, because the load changes drastically.
- **Applicable model:**
AD-17, 17F (disc type)
AK series (bucket type)
AF series (float type)

AIR CONDITIONING · MANUFACTURING EQUIPMENTS (heat exchanger etc.)



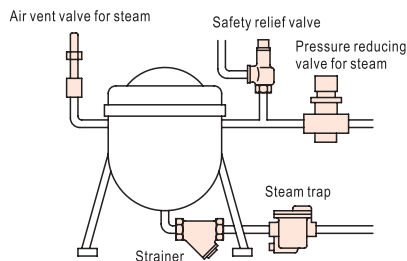
- **Points for selection:**
Large amount of drain is generated for maximal utilization of the heat of steam. There is a large difference between the amount of drain generated at normal operation state and that generated at start up.
- **Applicable model:**
AF series (float type)
AK series (bucket type)

(Air handling unit)



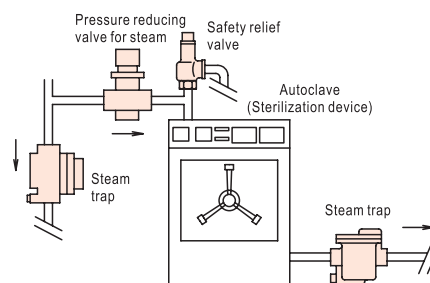
- **Points for selection:**
Large amount of drain is generated for maximal utilization of the heat of steam. In addition, the amount and temperature of air feed also affect the amount of drain generated.
- **Applicable model:**
AF series (float type)
AK series (bucket type)

FOOD PROCESSING EQUIPMENTS · KITCHEN UTENSILS (stew pot · heating pot etc.)



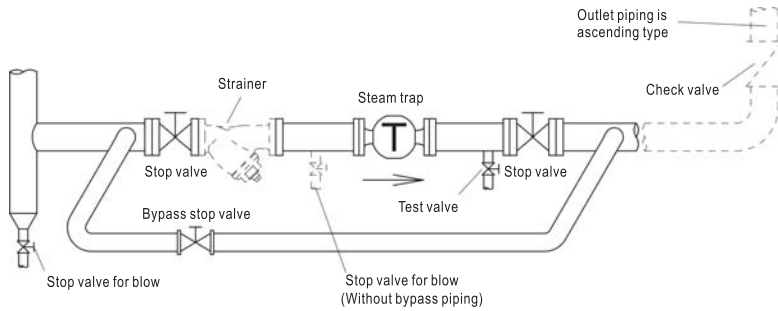
- **Points for selection:**
Large amount of drain is generated for maximal utilization of the heat of steam. With the passing by of heating time, the amount of drain reduces.
- **Applicable model:**
AF series (float type)
AK series (bucket type)

MEDICAL · PHARMACEUTICAL · FOOD PROCESSING EQUIPMENTS (autoclave · sterilizer etc.)



- **Points for selection:**
To rapidly increase the internal temperature, large amount of drain is generated during initial operation period. The amount of drain decreases after temperature becomes stable.
- **Applicable model:**
ATB-5, 5F/AT-6, 6F (thermal element type)
AD-17, 17F (disc type)
AK series (bucket type)

PIPING EXAMPLE
Fig. 1 Piping example



POINTS FOR SIZE SELECTION AND INSTALLATION

(Steam trap is hereinafter referred to as “trap”.)

1. Select a proper size that can meet the requirement on safety factor and allow at least 3 times of planned discharge volume.
2. AT and ATB Type can detect drain temperature and open/close valve based on the temperature detected. When selecting size, pay attention to following issues:
 - ※1. Before the temperature of saturated steam drops to the temperature for valve opening, drain accumulates at the primary side of trap. Do not install trap on machines or equipments which functions may be affected by accumulation of drain.
 - ※2. Avoid installing trap on machines or equipments using solenoid valve control for frequent feeding or stop feeding of steam. Such action may cause pressure changes drastically and reduce the durability of bellows and thermal element. (Applicable model: AT-6, 6F, 6FB, ATB-5, 5F)
 - ※3. The pipe at the inlet side of trap should be naked pipe that is more than 1m in length. Do not apply thermal insulation on trap. (Applicable model: AT-6, 6F, 6FB, ATB-5, 5F)
3. Install strainer at the primary side of trap.
 - ※ It may not be necessary to install strainer in the case of steam trap with strainer embedded. However, for ensuring stable operation, it is recommended installing strainer.
4. For devices which operation cannot be stopped, install a bypass pipe (with stop valve) between the primary and secondary sides of steam trap (see Fig.1). If you choose not to install bypass pipe, install stop valve for blowing, which is branched from the main pipe, right before the stop valve at the primary side of steam trap, to make flushing possible.
5. The position of steam trap should be as low as possible to allow drain flow by its weight.
6. In the event trap is installed at the midway of main pipe, install a separator with the same diameter as of the main pipe (see Fig.2).
7. To install trap at pipe end, install a dirt pocket (which diameter is the same as that of main pipe) at pipe end, and install trap at the pipe where is branched from dirt pocket(see Fig.3).
8. When the discharge side of trap is piped to drain tank or waterspout, make sure such pipe does not submerge into water. In addition, install check valve to prevent back flow (see Fig. 4, 5).
9. When the discharge side of trap is piped to drain collecting pipe or other system, make sure the discharge pipe enters into such drain collecting pipe or system from the upper side, and install check valve if there is back pressure (see Fig.4).
10. In the event the discharge side of trap opens to atmosphere, make sure such outlet piping does not cause any danger. In addition, install BH-1 silencer to reduce noise that occurs when drain is discharged (see Fig.6).
11. In general, one trap is necessary for one unit of machine (see Fig.7).
12. The arrow mark on steam trap should match with the direction of the flow of fluid. Except for some models, steam trap should be installed vertical to horizontal pipe.
13. Leave some space for disassembling and maintenance.
14. Fix or support steam trap properly to avoid damage of steam trap due to the weight of pipe, stress, bending force, or vibration.
15. Discharge drain if there is risk of freezing.
16. The secondary piping of AD-17B, 17FB (for cold area) should not be ascending type.

Fig.2 Installation at midway of pipe

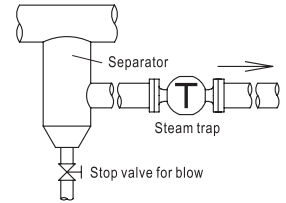


Fig.3 Pipe end installation

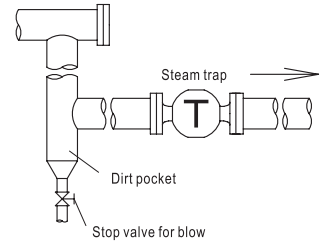


Fig.4 Drain tank piping

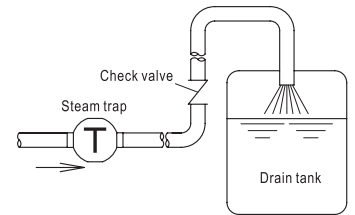


Fig.5 Waterspout Piping Example

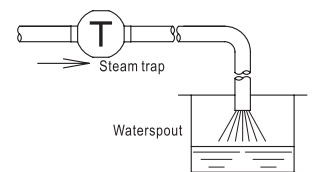


Fig.6 Discharge to atmosphere

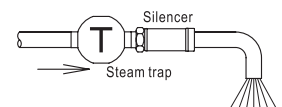


Fig.7 Installation on machine

