

AT-6, 6F Type Steam Trap

for **Pipeline**, **Header** etc.

Thermal static

AT-6 series of thermostatic type that can rapidly discharge air and drain during initial aeration. Allow effective utilization of steam and save energy instead of Disc trap.

FEATURES

- Stainless steel thermal element, highly corrosion resistant and durable.
- Free installation, vertically, horizontally, or laterally.
- Operate at a temperature 10°C lower than the temperature of saturated steam. No discharge of raw steam or idle running of valve disc. Energy saving.

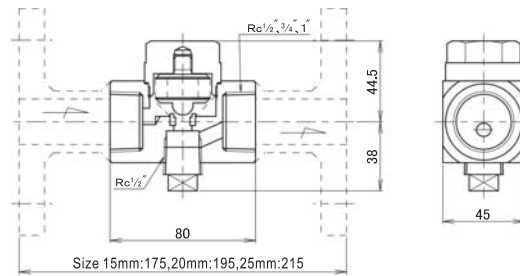
SPECIFICATIONS

Model name		AT-6		AT-6F	
Code name		AT6-N	AT6-D	AT6F-N	AT6F-D
End connection		Screwed JIS Rc		Flanged JIS 10KFF*1.	
Type		Thermostatic			
Size		15 20 25(½" ¾" 1")			
Applicable pressure		Max. 1.0MPa			
Applicable fluid		Saturated steam*2			
Fluid temperature		Max. 184°C			
Materials	Body	Mild steel	Stainless steel	Mild steel	Stainless steel
	Trim	Disc & Seat(Stainless steel), Thermo element(Stainless steel)			
Allowed back pressure		Within 50% of pressure on inlet side(Minimum pressure difference:0.03MPa)			
Pressure tightness		Steam:1.5MPa, Water:0.5MPa			

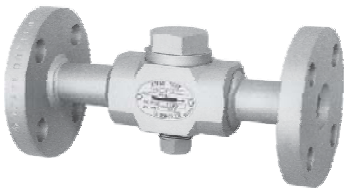
*1. Stainless steel body with Flanged JIS 10KRF is available.
*2. The valve can not be used for super heated steam line.

CONSTRUCTION

Unit: (mm)



AT-6 Type



AT-6F Type

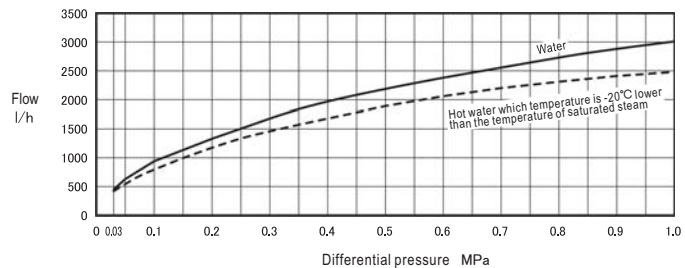
TABLE FOR CAPACITY (Max. continual discharge amount)

(l/h)

Differential pressure (MPa)		0.03	0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Discharge amount	Water	450	630	940	1330	1680	1960	2200	2380	2590	2730	2900	3010
	Hot water of saturated steam temperature-20°C	420	560	800	1190	1470	1680	1890	2060	2200	2310	2410	2480

* At the sizing, take into consideration of safety factor to select the size to have 3 times as much or more capacity of required capacity, discharging from the steam trap at a hot water temperature of saturated steam temperature -20°C.

FLOW CHART(Size 15-25mm)



POINTS FOR INSTALLATION

1. The arrow mark on the name plate must match with the direction of drain flow.
2. Do not apply any thermal insulation on steam trap.
3. Do not install steam trap on inlet side of any machine that is equipped with solenoid valve allowing fast opening/closing.
4. To discharge drain generated during operation test or after the machine is stopped, install test valve at Rc½" plug, which is at the lower part of steam trap.
5. In cold area with risk of freezing, install proper piping to prevent drain from accumulating.
6. Close valve if thermal element of steam trap is damaged.

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

MASS

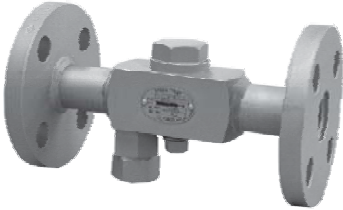
(kg)

Model name	Size		
	15(½")	20(¾")	25(1")
AT-6	1.4	1.3	1.2
AT-6F	2.7	3	3.9

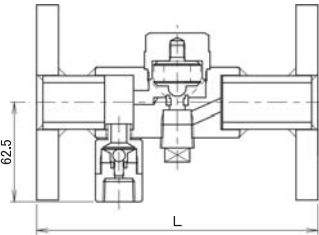
AT-6FB Type Steam Trap for non-freeze

for **Pipeline**, **Header** etc.

AT-6F Type steam trap with non-freezing valve embedded at inlet side. Suitable for applications in cold area.



CONSTRUCTION



DIMENSIONS (mm)

Size	L
15(1/2")	175
20(3/4")	195
25(1")	215

Refer to page 144 for Table of capacity and Installation sample of AT-6,6F Type.

FEATURES

- Large initial aeration, rapidly discharge drain and air.
- Mild steel or Stainless steel bodies available.
- Pressure type, non-freezing valve embedded at inlet side.

SPECIFICATIONS

Model name		AT-6FB	
Code name		AT6FB-N	AT6FB-D
Type		Thermostatic	
Size		15 20 25(1/2" 3/4" 1")	
Applicable pressure		0.07~1.0MPa	
Applicable fluid		Saturated steam*1.	
Fluid temperature		Max. 184°C	
Allowed back pressure		Within 50% of pressure on inlet side(Minimum pressure difference:0.03MPa)	
Materials	Body	Mild steel	Stainless steel
	Trim	Disc & Seat(Stainless steel), Thermo element(Stainless steel)	
End connection		Flanged JIS 10KFF*2,*3 (Non-freeze valve at outlet side:Screwed JIS Rc 1/2")	
Non-freeze valve opening pressure		0.04MPa	
Non-freeze valve close pressure		0.05MPa	

* 1. The valve can not be used for super heated steam line.
 * 2. Stainless steel body with Flanged JIS 10KRF is available upon your request.
 * 3. AT-6B Type of screwed type is available upon your request.

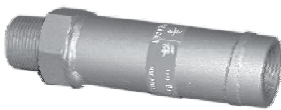
POINTS FOR INSTALLATION

1. The arrow mark on the name plate must match with the direction of drain flow.
2. Do not apply any thermal insulation on steam trap.
3. Do not install steam trap on inlet side of any machine that is equipped with solenoid valve allowing fast opening/closing.
4. To discharge drain generated during operation test or after the machine is stopped, install test valve at Rc 1/2" plug, which is at the lower part of steam trap.
5. Close valve if thermal element of steam trap is damaged.

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

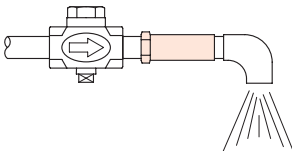
BH-1H Type Steam Trap Silencers

BH-1 Type steam trap silencers can reduce noise that occurs when drain is discharged.

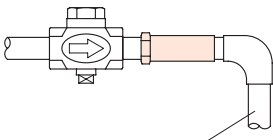


PIPING EXAMPLE

- Direct discharge



- Indirect discharge



The pipe should lead to a safe place.
 (Note: Do not allow back pressure on pipe)

FEATURES

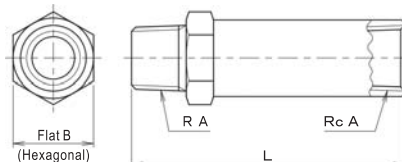
- Can be connected to the outlet side of steam trap and discharge drain to safe place.
- Exclusive acoustic material developed by VENN, less pressure on steam trap and outstanding silencing effect.

SPECIFICATIONS

Model name		BH-1	
Code name		BH1-N	BH1-D
Type		Outlet side of steam Trap	
Applicable fluid		Drain(Water again)	
Size		15 20 25(1/2" 3/4" 1")*	
Applicable pressure		Max. 1.6MPa	
Materials	Body	Mild steel	Stainless steel
	Silencing effect	Stainless steel	
End connection		Screwed JIS R or Screwed JIS Rc	

*The other sizes are available upon your request.

DIMENSIONS



Without limitation of the direction of flow

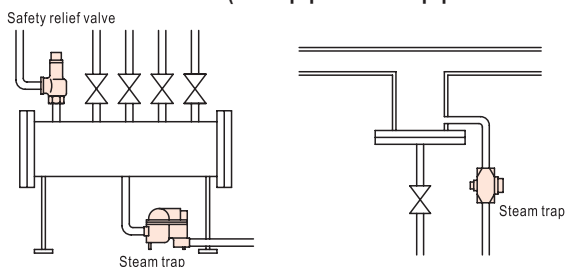
DIMENSIONS (mm)

Size	15(1/2")	20(3/4")	25(1")
L	133	133	133
d	1/2"	3/4"	1"
B	35	35	41
Mass(kg)	0.42	0.42	0.6

DATA/Steam Trap

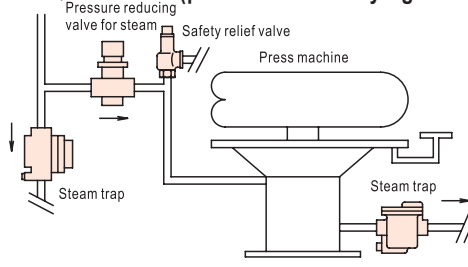
EXAMPLE: APPLICATION OF STEAM TRAP

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



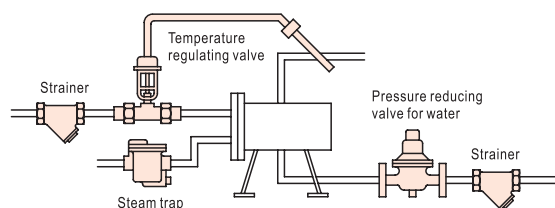
- **Points for selection:**
There is a large difference between the amount of drain generated at normal operation state and that generated at start up. Large amount of air and drain generated at start up may obstruct the supply of steam.
- **Applicable model:**
ATB-5, 5F/AT-6, 6F (thermal element type)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

CLEANING EQUIPMENTS (press machine · drying machine etc.)



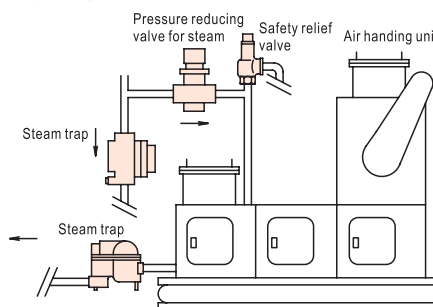
- **Points for selection:**
Pay attention to selection of the size of steam trap, because the load changes drastically.
- **Applicable model:**
AD-17, 17F (disc type)
AK series (bucket type)
AF series (float type)

AIR CONDITIONING · MANUFACTURING EQUIPMENTS (heat exchanger etc.)



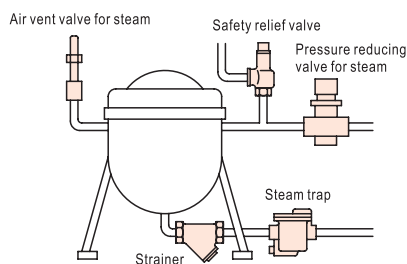
- **Points for selection:**
Large amount of drain is generated for maximal utilization of the heat of steam. There is a large difference between the amount of drain generated at normal operation state and that generated at start up.
- **Applicable model:**
AF series (float type)
AK series (bucket type)

(Air handling unit)



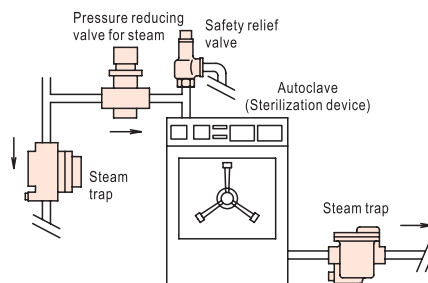
- **Points for selection:**
Large amount of drain is generated for maximal utilization of the heat of steam. In addition, the amount and temperature of air feed also affect the amount of drain generated.
- **Applicable model:**
AF series (float type)
AK series (bucket type)

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)

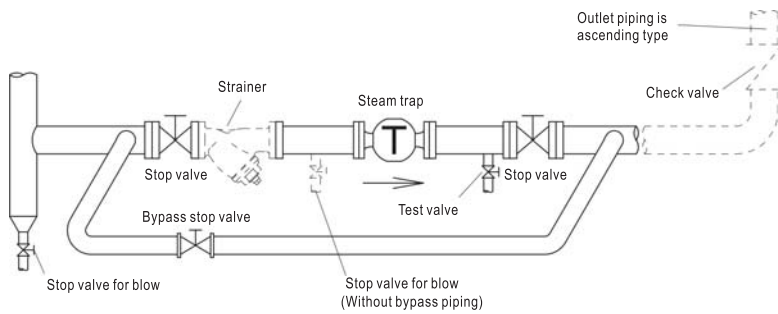
MEDICAL · PHARMACEUTICAL · FOOD PROCESSING EQUIPMENTS (autoclave · sterilizer etc.)



- **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

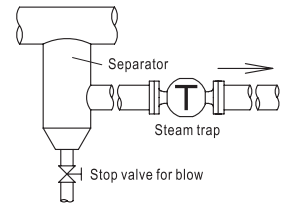


Fig.3 Pipe end installation

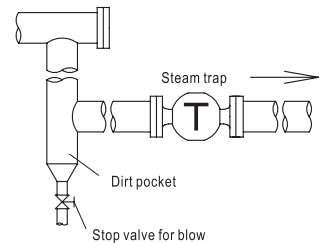


Fig.4 Drain tank piping

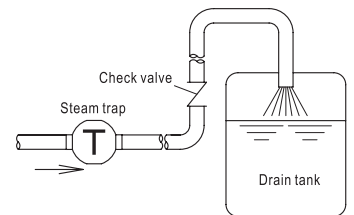


Fig.5 Waterspout Piping Example

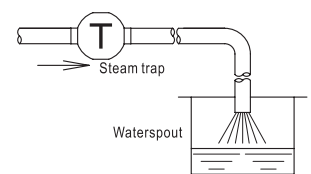


Fig.6 Discharge to atmosphere

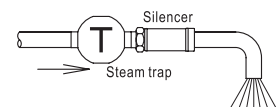


Fig.7 Installation on machine

