

AT-6, 6F Type Steam Trap

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

Thermostatic
Max. 1.0MPa

AT-6 Type series of thermostatic type that can rapidly discharge air and drain during beginning of steam supply, and allow effective utilization of steam and save energy instead of disc trap.



AT-6 Type



AT-6F Type

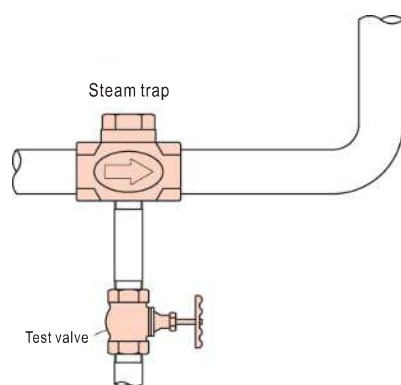
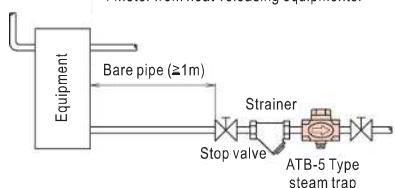
MASS

(kg)

Model name	Size	15(1/2")	20(3/4")	25(1")
AT-6		1.4	1.3	1.2
AT-6F		2.7	3	3.9

PIPING EXAMPLE

Note: Do not apply thermal insulation on steam trap. Make sure it is installed on a bare pipe at least 1 meter from heat-releasing equipments.



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
Type		Thermostatic			
Size		15 · 20 · 25(1/2" · 3/4" · 1")			
Applicable fluid		Saturated steam*1.			
Fluid temperature		Max. 184°C			
Applicable pressure		Max. 1.0MPa			
End connection		Screwed JIS Rc		Flanged JIS 10KFF*2	
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)			
Valve body pressure test		Steam:1.5MPa, Water:0.5MPa			

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

CONSTRUCTION (Unit:mm)

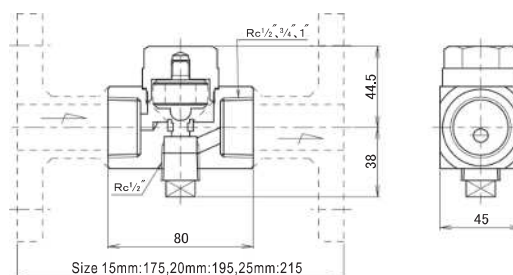


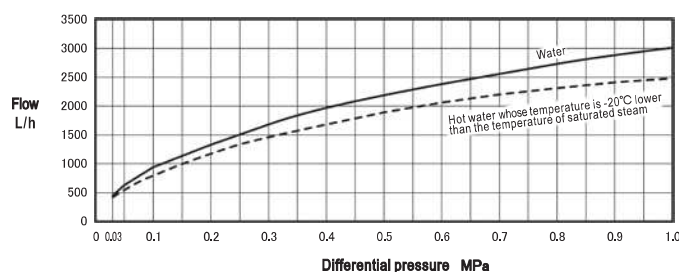
TABLE FOR CAPACITY (Max. continual discharge amount)

(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
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

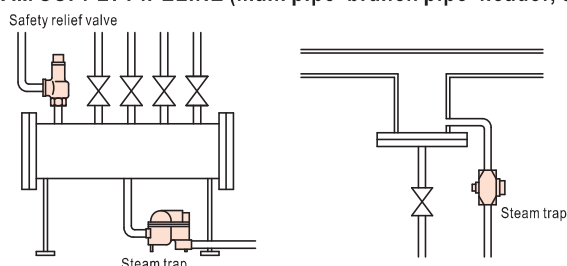
1. The arrow mark on the name plate must match with the direction of drain flow.
2. Make sure steam trap is installed on a bare pipe at least 1 meter from heat-releasing equipments.
3. Do not apply any thermal insulation on steam trap.
4. Do not install steam trap to any machine that is equipped with solenoid valve allowing fast opening/closing.
5. To discharge drain generated during operation test or after the machine is stopped, install test valve at Rc1/2" plug, which is at the lower part of steam trap.
6. In cold area with risk of freezing, install proper piping to prevent drain from accumulating.
7. Close valve if thermo element of steam trap is damaged.

Note: Read POINTS FOR SIZE SELECTION AND INSTALLATION carefully (see Page 165).

DATA/Steam Trap

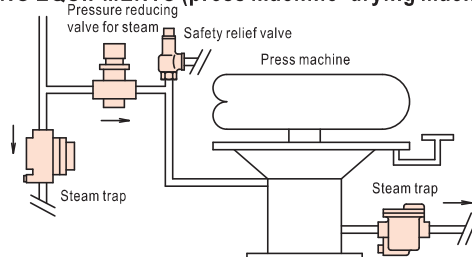
EXAMPLE: APPLICATION OF STEAM TRAP

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



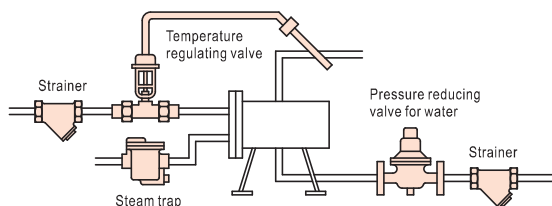
- **Points for selection:**
There is a large difference between the amount of drain generated at normal operation state and that generated at start up. Large amount of air and drain generated at start up may obstruct the supply of steam.
- **Applicable model:**
ATB-5, 5F/AT-6, 6F Type (thermo element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

CLEANING EQUIPMENTS (press machine · drying machine, etc.)



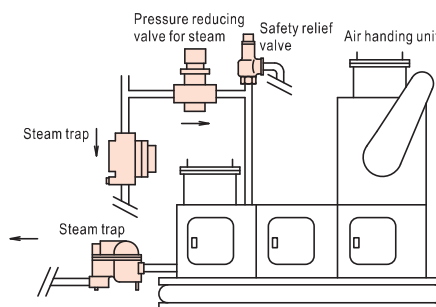
- **Points for selection:**
Pay attention to selection of the size of steam trap, because the load changes drastically.
- **Applicable model:**
AD Type series (disc type)
AK Type series (bucket type)
AF Type series (float type)

AIR CONDITIONING · MANUFACTURING EQUIPMENTS (heat exchanger, etc.)



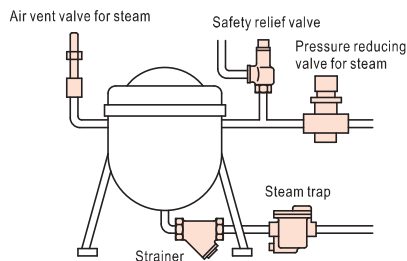
- **Points for selection:**
Large amount of drain is generated for maximal utilization of the heat of steam. There is a large difference between the amount of drain generated at normal operation state and that generated at start up.
- **Applicable model:**
AF Type series (float type)
AK Type series (bucket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

(Air handling unit)



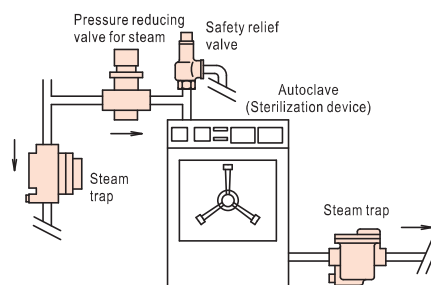
- **Points for selection:**
Large amount of drain is generated for maximal utilization of the heat of steam. In addition, the amount and temperature of air feed also affect the amount of drain generated.
- **Applicable model:**
AF Type series (float type)
AK Type series (bucket type)

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 Type series (float type)
AK Type series (bucket type)

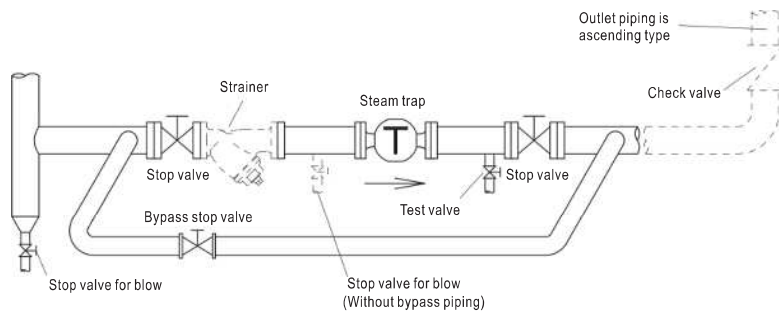
MEDICAL · PHARMACEUTICAL · FOOD PROCESSING EQUIPMENTS (autoclave · sterilizer, etc.)



- **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 Type (thermo element type)
AD Type series (disc type)
AK Type 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 whose 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 thermo element. (Applicable models: AT-1A, 1S, AT-6, 6F, 6FB, ATB-5, 5F Type)
 - ※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 models: AT-6, 6F, 6FB, ATB-5, 5F Type) (see Fig.2)
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 whose 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.3).
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 which is branched from dirt pocket (see Fig.4).
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. 5, 6).
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.5).
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 Type silencer to reduce noise that occurs when drain is discharged (see Fig.7).
11. In general, one trap is necessary for one unit of machine (see Fig.8).
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 vertically 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 Type (for cold area) should not be ascending type.

Fig.2 AT、ATB Type piping Example

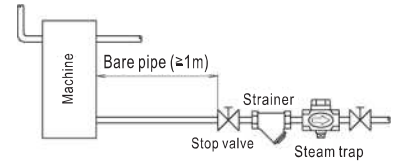


Fig.3 Installation at midway of pipe

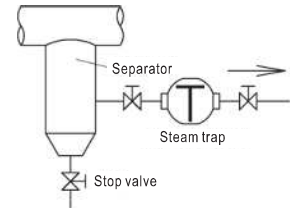


Fig.4 Pipe end installation

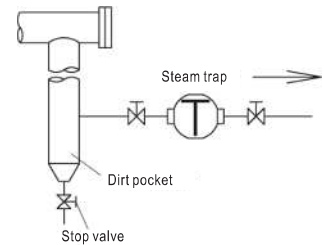


Fig.5 Drain tank piping

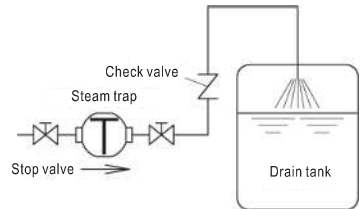


Fig.6 Waterspout Piping Example

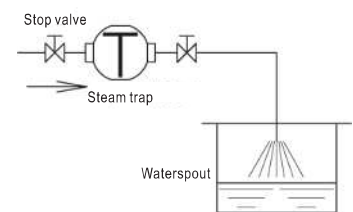


Fig.7 Discharge to atmosphere

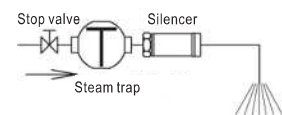


Fig. 8 Installation on machine

