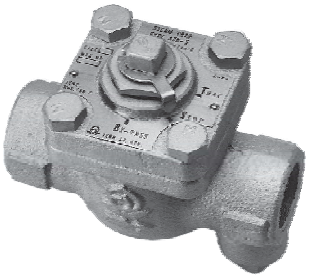
ATB-5, 5F Type Steam Trap

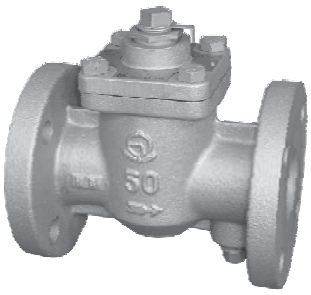
for (Pipeline), (Header) etc.

Thermal static

Thermstatic trap ATB-5 is compact structure with triple functions, including trap, bypass, and stop valve functions, for effective utilization of space and cost reduction.



ATB-5 Type



ATB-5F Type

FEATURES

- Large discharge amount, suitable for pipe end or large equipment.
- Free installation in vertical, horizontal, or lateral style [1].
- Operate at 10℃[2] below the temperature of saturated steam, prevent discharge of steam and idle operation of valve, and contribute to energy saving.
- Size 32~50mm valves have removable disc and are highly air tight and durable.
- Test valve can be installed on trap directly.

Note:
1) Size 32~50mm valves must be installed vertical to horizontal pipe.
2) Size 32~50mm valves start to operate at 15℃ below temperature of saturated steam.

SPECIFICATIONS

Model name	ATB-5	ATB-5F
Code name	**ATB5-G**	**ATB5F-G**
Type	Thermostatic	
Size	15 20 25(½″ ¾″ 1″)	15~50(½″~2″)
Applicable pressure	Max. 1.0MPa	
Applicable fluid	Saturated steam*	
Fluid temperature	Max. 184℃	
End connection	Screwed JIS Rc	Flanged JIS 10KFF
Materials	Body(Cast iron), Disc & Seat(Stainless steel), Cock(Cast bronze), 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	

* The valve can not be used for super heated steam line.

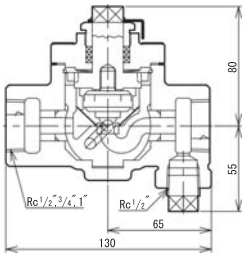
TABLE FOR CAPACITY (Max. continual discharge amount)

(l/h)

Size	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
15~25 (½″~1″)	Water	650	900	1350	1900	2400	2800	3150	3400	3700	3900	4150	4300
	Hot water of saturated steam temperature−20℃	600	800	1150	1700	2100	2400	2700	2950	3150	3300	3450	3550
32~50 (1¼″~2″)	Water	1450	1870	2650	3750	4600	5310	5940	6510	7030	7510	7970	8400
	Hot water of saturated steam temperature−25℃	1340	1650	2250	3150	3830	4360	4800	5160	5470	5750	6000	6250

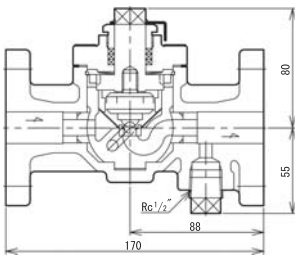
CONSTRUCTION

ATB-5 Type

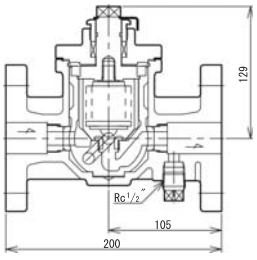


Weight:3.1kg

ATB-5F Type (Size 15~25mm)



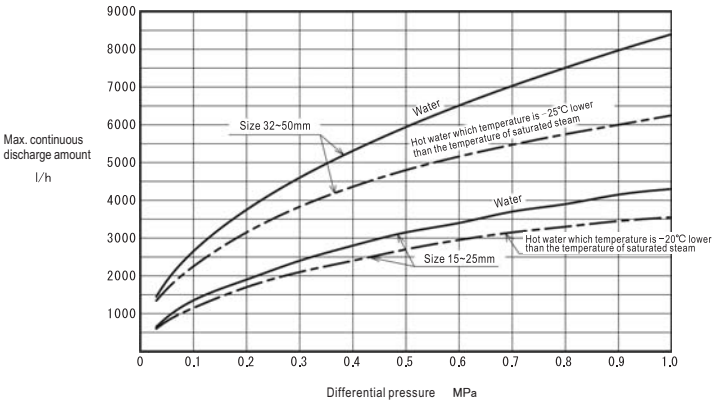
ATB-5F Type(Size 32~50mm)



MASS (ATB-5F Type)

Size	Mass(kg)
15(½″)	4.2
20(¾″)	4.5
25(1″)	5.8
32(1¼″)	10
40(1½″)	11
50(2″)	12

FLOW CHART



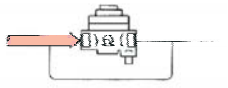
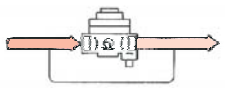
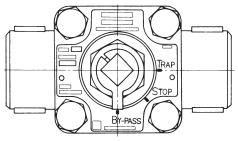
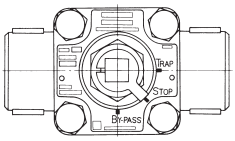
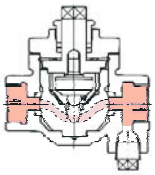
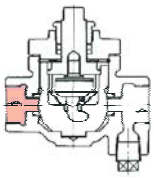
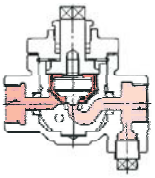
POINTS FOR SELECTION

1. Generally, hot water which temperature is 20℃ lower than the temperature of saturated steam (for size 15~25mm valves) and hot water which temperature is 25℃ lower than the temperature of saturated steam (for size 32~50mm valves) are used to decide the discharge amount of steam trap.
2. Select a proper size that can meet the requirement on safety factor and allow at least 3 times of planned discharge amount.
3. 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. The allowed back pressure is up to 50% of the pressure of inlet side.
4. If the discharge amount of one valve is not enough, use multiple valves or select other type of valve.

DATA/ATB-5, 5F Type Steam Trap

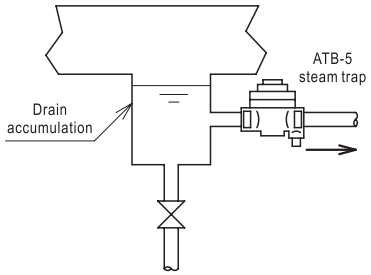
■ STEAM TRAP

⊕ Stop valve
⊕ Bypass
Triple functions

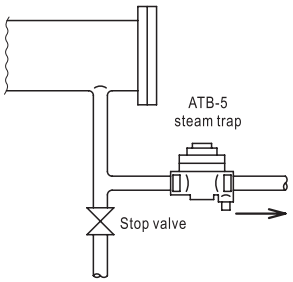
	BY-PASS	STOP	TRAP
Function			
Handle position (Top view)			
Passage within trap (Front view)			

■ PIPING EXAMPLE

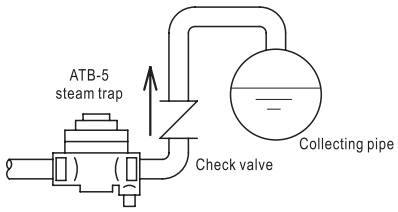
〈 Installation on main pipe 〉



〈 Installation at pipe end 〉



〈 Ascending piping 〉



■ POINTS FOR INSTALLATION

① The arrow mark must match with the direction of drain flow. The position of the trap should be as low as possible to allow drain flow into the trap. Make sure the handle is at the STOP position.

② The inlet pipe should be naked pipe that is at least 1m in length. The trap should not be wrapped with any insulation material.

③ When installing trap on the main steam pipe, install a separator (for drain accumulation) with the same diameter as of the main pipe on main pipe.

④ In the event the outlet piping is ascending type, install check valve at the outlet side, and make sure discharge the drain into pipe or device from top.

⑤ When making the initial aeration, switch the handle to BY-PASS position and blow off dirt or scale in the pipe. Then switch the handle to TRAP (steam trap) position and start normal operation.

⑥ If test valve is necessary for conforming operation or freezing prevention, install the test valve at the plug (Rc½″screw). In the event there is risk of freezing or the valve has not been used for a long time, discharge drain after test is completed.

⑦ Leave sufficient space for maintenance or disassembly. When disassemble switch the handle to STOP position. Make sure there is not steam pressure and the surface temperature is below 80℃ before disassemble. Do not turn the handle (cock) when disassemble.

⑧ When installing multiple steam traps at the same position, the height of the inlet side of each trap should be the same.

⑨ Steam trap should not be installed at a place where temperature is higher than the temperature of drain discharged.

⑩ There must be strainer at the inlet side of steam trap.

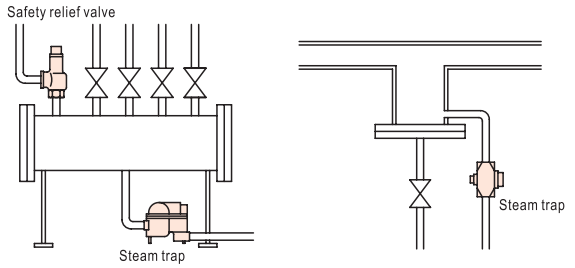
⑪ Close the valve if the thermal element of steam trap is damaged.

⑫ If the discharge side of steam trap faces open air, cares should be taken to avoid any danger that may occur in such case. In addition, install BH-1 silencer to reduce noise.

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

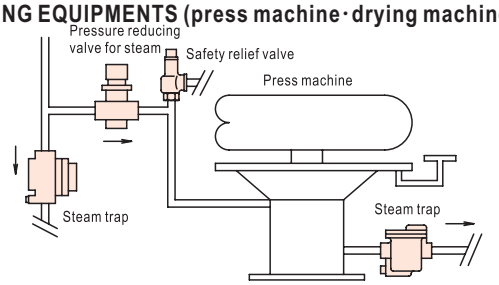
EXAMPLE: APPLICATION OF STEAM TRAP

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



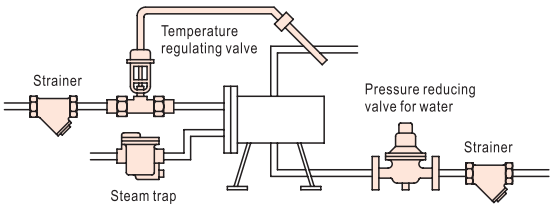
- Points for selection:
  There is a large difference between the amount of drain generated at normal operation state and that generated at start up. Large amount of air and drain generated at start up may obstruct the supply of steam.
- Applicable model:
  ATB-5, 5F/AT-6, 6F (thermal element type)
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

CLEANING EQUIPMENTS (press machine·drying machine etc.)



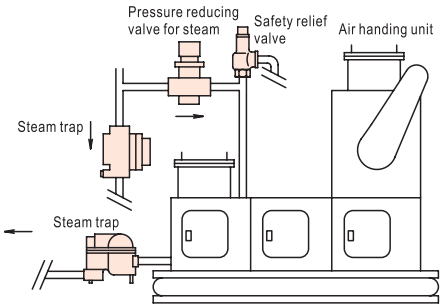
- Points for selection:
  Pay attention to selection of the size of steam trap, because the load changes drastically.
- Applicable model:
  AD-17, 17F (disc type)
  AK series (bucket type)
  AF series (float type)

AIR CONDITIONING·MANUFACTURING EQUIPMENTS (heat exchanger etc.)



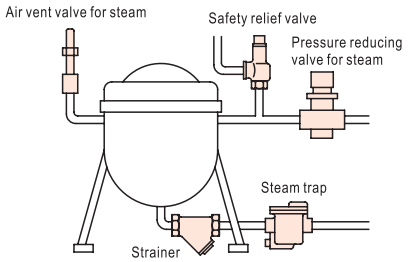
- Points for selection:
  Large amount of drain is generated for maximal utilization of the heat of steam. There is a large difference between the amount of drain generated at normal operation state and that generated at start up.
- Applicable model:
  AF series (float type)
  AK series (bucket type)

(Air handling unit)



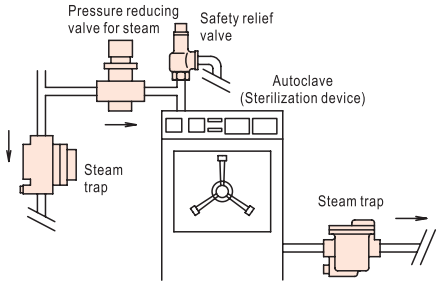
- Points for selection:
  Large amount of drain is generated for maximal utilization of the heat of steam. In addition, the amount and temperature of air feed also affect the amount of drain generated.
- Applicable model:
  AF series (float type)
  AK series (bucket type)

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)

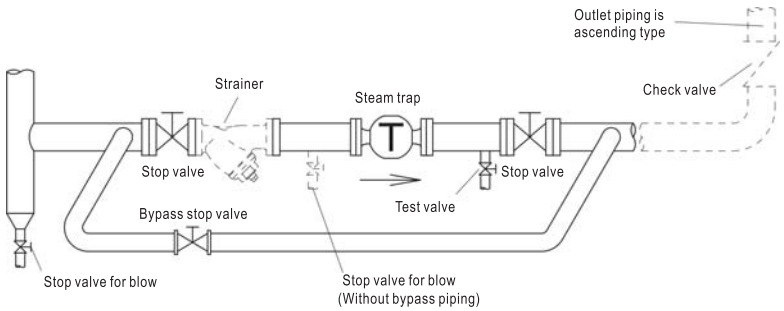
MEDICAL·PHARMACEUTICAL·FOOD PROCESSING EQUIPMENTS (autoclave·sterilizer etc.)



- 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 diassembling 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

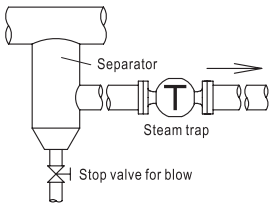


Fig.3 Pipe end installation

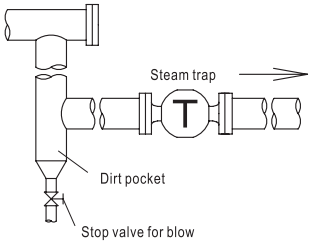


Fig.4 Drain tank piping

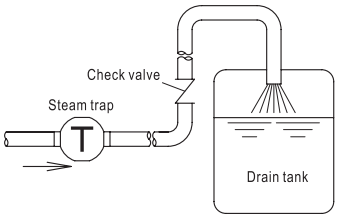


Fig.5 Waterspout Piping Example

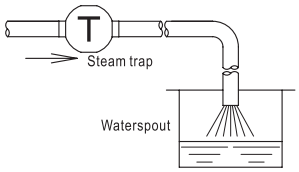


Fig.6 Discharge to atmosphere

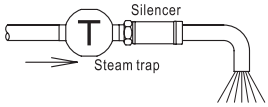


Fig. 7 Installation on machine