AIC Series Float & Thermostatic Steam Trap Installation and Maintenance Instructions

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Armstrong®

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General Safety Information

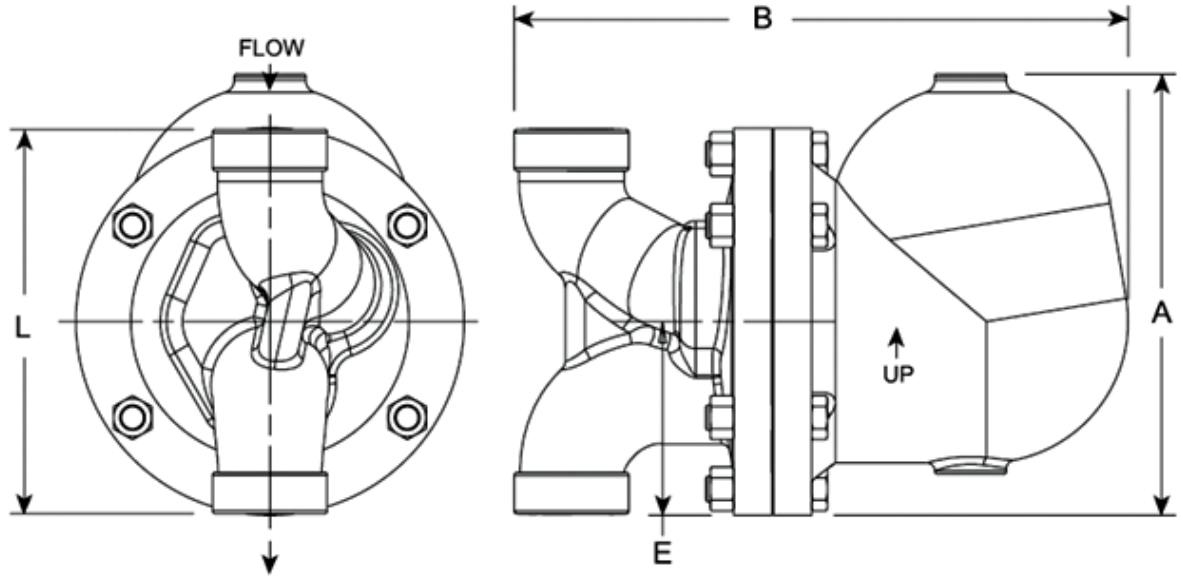
This manual should be used by experienced personnel as a guide to the installation of the Armstrong AIC Float and Thermostatic steam trap. Selection, installation or equipment should always be accompanied by competent technical assistance. You are encouraged to contact Armstrong International, Inc. or its local sales representative for additional information.

Product Information

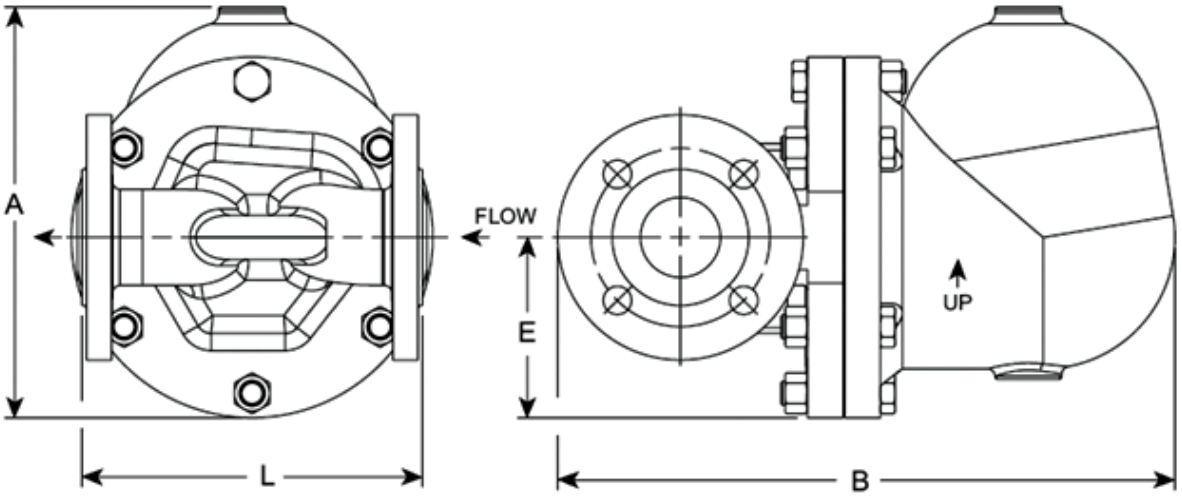
Armstrong AIC Series Float and Thermostatic traps are designed for operation against back pressure, continuous drainage, high-capacity venting of air and carbon dioxide, long life and dependable service, and convenience of in-line connections. Armstrong AIC Float and Thermostatic steam traps are available in 1-1/2" (DN40) and 2" (DN50) 150RF, 300RF, and screwed (NPT) connections with a maximum operating pressure to 465 psig (32 barg).

Available Connections and Face-To-Face Dimensions				
Pipe Connections	**1-1/2" DN40**		**2" DN50**	
	in	**mm**	**in**	**mm**
"A" Height	10-15/16	278	10-15/16	278
"B" (Lenght Screwed)	12-27/32	326	13-1/8	333
"B" (Lenght Flanged)	16-1/8	410	16-27/64	417
"L" (Face-to-face Screwed)	10-5/8	270	11-13/16	300
"L" (Face-to-face Flanged PN40 ANSI CL150)	9-1/16	230	9-1/16	230
"L" (Face-to-face Flanged ANSI CL300)	9-3/32	231	9-1/4	235
"E" (Bottom to ℄ of inlet)	4-13/16	122	4-13/16	122
Vacuum Breaker (optional)	1/2'	DN15	1/2	DN15
Weight screwed lb (kg)	70-1/2 LB (32 kg)		70-1/2 LB (32 kg)	
Weight flanged lb (kg)	75 LB (34 kg)		75 LB (34 kg)	

Table 1. AIC 1-1/2" AND 2" Series Dimensions



Model AICV



Model AICFH

Figure 1. AIC-F 1-1/2" AND 2" Series Dimensions with Screwed Connections

Connection Size	Orifice Size	PMO PSIG (BARG)
1-1/2" (DN40) 2" (DN50)	1-3/8"	100 (7.0)
	1"	200 (14.0)
	3/4"	465 (30.4)

Figure 2. AIC DN series PMOIC

Vacuum Breaker			
Size	in	mm	Maximum Allowed Pressure
	1/2 NPT	DN15	150 psig (10 barg)
"B" Pipe Connection	3/8 NPT	DN10	
"C" Height	1-1/4	32	
"D" Width	7/8	22	

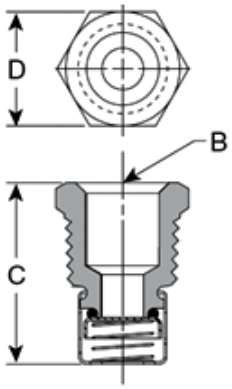


Table 2. Vacuum Breaker Parameters and Dimensions

CAUTION: Do not use a conventional vacuum breaker open to the atmosphere in any system that incorporates a mechanical return system that carries pressure less than atmospheric pressure. This includes all return systems designated as vacuum returns, variable vacuum returns or sub-atmospheric returns. If a vacuum breaker must be installed in such a system, it should be of the type that is loaded to open only when the vacuum reaches a calibrated level well in excess of the design characteristics of the system.

Product Installation

1. Install a strainer ahead of the inlet.
2. Connecting bolts should be threaded at trap side and be confined to a certain length to make the flanges compact.
3. Before installing the trap, blow down the piping that leads to the trap's inlet. Purpose of blowing down is to clean the line out of any debris that could plug the trap. Be sure that the maximum operating pressure (PMO) and maximum operating temperature (TMO) of the trap are adequate for the installation. (The PMO is stamped on the nameplate)
4. Install so the trap inlet is below the outlet of the equipment to be drained. **Use good piping practices. Make inlet piping as short as possible. Use a minimum number of elbows and other restrictions in inlet and outlet piping. Install a dirt pocket in the line ahead of the trap.**
5. To allow maintenance and provide maximum service, install a valve on each side of the trap and a downstream testing tee. All valves should be of the full ported type to avoid restricting flow. Provide a strainer ahead of the inlet.
6. Install a union upstream and downstream of the trap unless the discharge line is open and short.
7. Avoid elevating the condensate if the equipment is under modulated control. If the discharge piping is to be elevated, ensure that adequate differential pressure exists at all times to provide proper drainage. When elevating condensate, install a check valve in the discharge piping near the trap to prevent backflow when the system is not in operation.

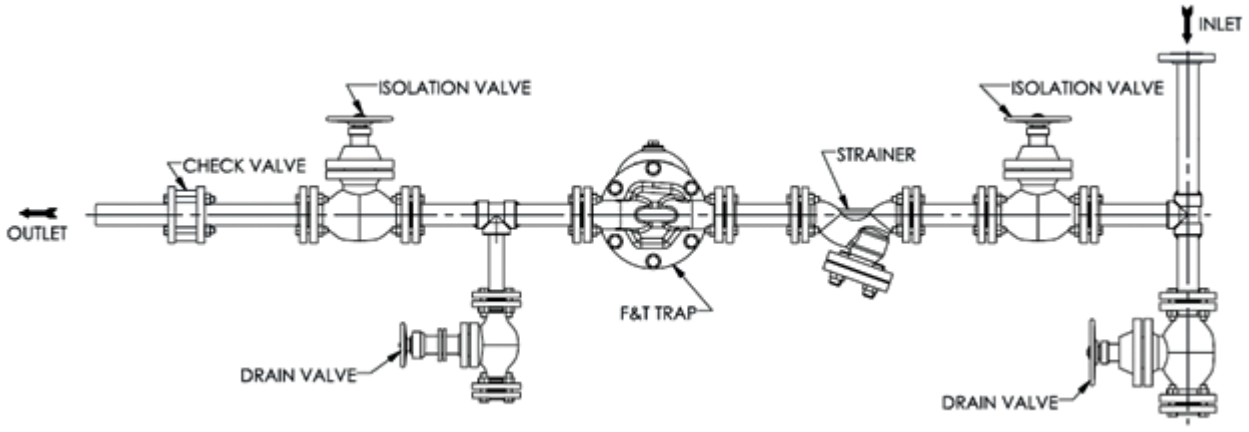


Figure 3. Float and Thermostatic Trap Installation

Maintenance Requirements

Repairing the Trap

1. Close the inlet and outlet valves. Make sure the trap is cold and then drain the body.
2. Unscrew the cap bolts and carefully remove the body.
3. Remove the mechanism.
4. Discard the old gasket and clean gasket surfaces.
5. Clean any dirt or sediment from the trap body, cap, and mechanism.
6. Check that the cap is free from erosion.
7. Inspect the mechanism for signs of wear or damage. (See "Inspection" below). Replace the worn or damaged parts (see "Replacing the Mechanism" below).
8. Install a new gasket in the body and secure the body to the cap using a cross-tightening pattern. See Table 4 and Figure 4.
9. Once all the bolts have been securely tightened and the drain plug re-installed, open the valves in the supply and discharge lines. Check the equipment for normal operation.

Inspection

1. Linkages should be free to move without excessive wear. Valve lever and clip pin holes should be round, not elongated.
2. A properly seating valve has a bright narrow ring all the way around its circumference.
3. A properly wearing seat has a uniform edge with no nicks or wire drawing.
4. Always replace valve and seats as a matched pair.
5. Thermostatic air vent should be replaced at the same time you replace the valve and seat assembly.
6. Floats should show no dents or creases. Shake the float; it should not contain any liquid. Look for pinhole leaks, especially along the seams. If you suspect a leak, immerse the float in hot water and look for bubbles rising to the surface of the water.

Installing New Mechanism Parts

1. Secure the valve lever clip by threading the valve seat through it into the cap.
2. Apply a drop of thread lock compound to the float screw and assemble the float to the lever assembly.
3. Attach the valve lever assembly by inserting the pivot pin and check it for proper alignment. With the valve firmly seated, slide the lever pin back and forth to ensure it moves freely. If it does not, bend the ears on the valve lever clip in or out as needed until it does.

Replacing the Mechanism - Sizes 1-1/2" and 2"

1. Clean and inspect the cap to body and cap extension gasket surfaces.
2. Check to see if the erosion shield fits tightly into the cap extension and is flush with the gasket surface.
3. Place the cap extension gasket over the erosion shield and place the cap extension with erosion shield into the cap. MAKE SURE THE EROSION SHIELD OUTLET IS POINTING TOWARDS THE OUTLET CONNECTION.
4. Screw one cap extension bolt (on the outlet side) into the cap and loosely tighten it.
5. Place the other cap extension bolt through the baffle, cap extension and loosely tighten it into the cap.
6. Place another cap extension bolt through the baffle, spacer and tighten it into the cap.
7. Tighten all three bolts, evenly, to 140-175-lbs [190-230 N/m]
8. Screw thermostatic air vent into the cap, using new gasket, to 20-30 ft-lbs [27-40 N/m]

Troubleshooting

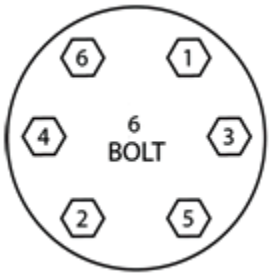
Problem	Causes	Solution
Steam loss excessive Dual orifice trap will not shut off completely	Thermostatic element damage	Replace it
	Thermostatic gasket damage	
	Worn valve parts	Replace it
No condensate discharge	Float waterlogged, cracked or deformed	Replace it
	Piece of scale lodged in orifice	Clean the orifice
If trap operates satisfactorily when discharging to atmosphere, but trouble is encountered when connected with return line	Back pressure reduces capacity of trap	Check whether, return line is too small
		Check whether, other traps are blowing steam
		Check if there is any obstruction in return line

Table 3. Troubleshooting Guide

Torque Values

Connection Size	Bolt Size	Torque Value
1-1/2" (DN40) 2" (DN50)	m16 x 2	140-175

Table 4. Torque Specifications



Cross-Tightening Patterns

Figure 4. Bolt Tightening Example

Repair Parts

Size	Orifice	Mechanism	Gasket	Mechanism Gasket	Float	Capsule	Capsule Gasket
1-1/2" (DN40) 2" (DN50)	1-3/8"	C6213	C6260	B7549	B6991	B2465-3	A6300C
	1"	C6209					
	3/4"	C6200					

Table 5. Repair Parts

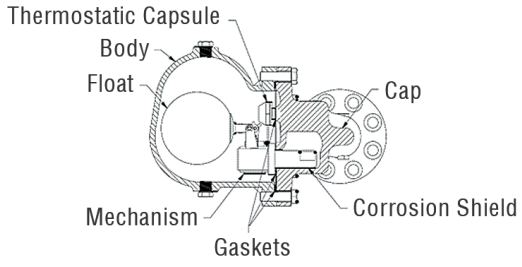


Figure 5. 1-1/2" and 2" Traps

Limited Warranty and Remedy

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138-EN
Printed in U.S.A. - 11/9/15