

Models FF-4700 and FF-4900 Steam Traps Installation and Operation Manual



**Please read
and save these
instructions.**

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Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit armstronginternational.com for up-to-date information.

General Safety Information

This bulletin should be used by experienced personnel as a guide to the installation of the Armstrong Models FF-4700 and FF-4900 steam traps. Selection or installation of 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

With the FF-4700/FF-4900 models and the 360° connector block Model “IS-4”, you can install the freely floating ball trap in a vertical position to fit any piping configuration. You get the reliability of the freely floating ball and thermostatic design plus all the benefits of all stainless steel construction.

- A sealed, tamperproof package
- A compact, lightweight trap
- Exceptional corrosion resistance
- A one-year guarantee against defective materials and workmanship

The FF-4700/FF-4900 steam traps combine savings in three important areas: energy, installation and replacement. Mounting the FF-4700/FF-4900 on the IS-4 connector provides quick and easy in-line replacement.

Maximum Allowable Conditions:

Maximum allowable pressure (vessel design):

Model FF-4700 1245 psig @ 900°F (85.8 barg @ 482°C)

Model FF-4900 1245 psig @ 900°F (85.8 barg @ 482°C)

Maximum Operating Pressure:

Model FF-4700 900 psig (62.0 barg)

Model FF-4900 1245 psig (85.8 barg)

Materials:

Body: ASTM A351 Gr. CF8M

Ball seat: Stainless Steel

Float: Stainless Steel

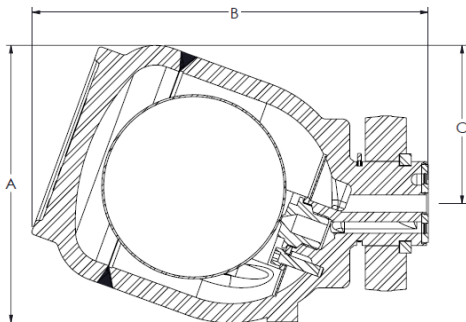
Air Vent: Bimetal



FF-4700 with IS-4 4-Bolt Connector

360° Universal Connector Styles:

- IS-4 connector with optional blowdown valve. Connectors available in 3/4” (20 mm) or 1” (25mm). In SW, NPT or Flange



FF-4700 and FF-4900 - High Pressure		
Model No.	FF-4700 and FF-4900	
Pipe Connection	3/4, 1	20, 25
	in	mm
“A” Height	4-1/2	115
“B” Length	6-1/2	165
“C” Flange to Top	2-9/16	65
Trap Only weight, lb (kg)	7.6 (3.5)	

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Product Installation

Before installation, verify that the maximum allowable pressure/temperature and maximum operating pressure of the trap are sufficient to handle the system design pressure and temperature. This information can be found on the label located on the trap. Steam trap installation is critical from both a performance and maintenance aspect. Installation of the trap is simplified if you follow these guidelines.

1. Before installing the trap, ensure the line is clean. Blow down the strainers ahead of the trap.
2. Once pressure is no longer in the line, install the trap so that it is accessible for inspection and repair, below the drip point and close to the vertical drip leg.
3. The trap must be installed on a 4 bolt connector block (IS-4) See section below “Installing connector block and steam Trap on Connector block” for more details. Armstrong recommends the trap to be installed in a horizontal line.
4. Proper piping and drip legs of adequate size and diameter are essential for the successful operation of the Armstrong traps, see Chart 4-1 and Figure 4-1.
5. Isolation valves are needed before and after traps. When starting a new trap, be sure to open the valve slowly.



CAUTION! Due to the high temperatures of steam, trap surface will be hot. For personnel safety, ensure proper precaution is taken while working near the steam trap.

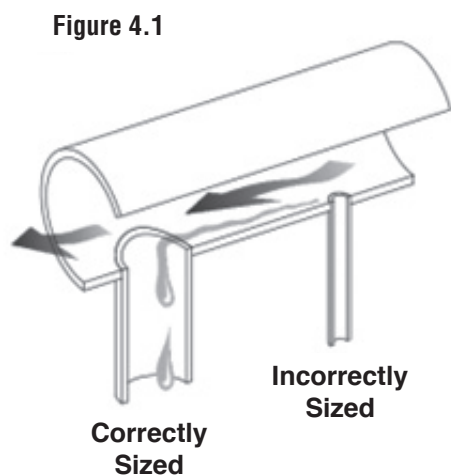


Chart 4.1							
M		D		H Drip Leg Length Minimum			
Steam Main Size		Drip Leg Diameter		Supervised Warm-Up		Automatic Warm-Up	
in	mm	in	in	in	mm	in	mm
1/2	12.7	1/2	12.7	10	254	28	711.2
3/4	19.05	3/4	19.05	10	254	28	711.2
1	25.4	1	25.4	10	254	28	711.2
2	50.8	2	50.8	10	254	28	711.2
3	76.2	3	76.2	10	254	28	711.2
4	101.6	4	101.6	10	254	28	711.2
6	152.4	4	101.6	10	254	28	711.2
8	203.2	4	101.6	12	304.8	28	711.2
10	254	6	152.4	15	381	28	711.2
12	304.8	6	152.4	18	457.2	28	711.2
14	355.6	8	203.2	21	533.4	28	711.2
16	406.4	8	203.2	24	609.6	28	711.2
18	457.2	10	254	27	685.8	28	711.2
20	508	10	254	30	762	30	762
24	609.6	12	304.8	36	914.4	36	914.4

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Installing Connector Blocks

IS-4

The IS-4 connector block should be installed in piping with the flow direction stamp pointing in the correct direction as indicated on the connector block.

Note: Armstrong strongly recommends isolation valves upstream and downstream of the trap. Refer to figures 5.3 and 5.4.

Figure 5.1

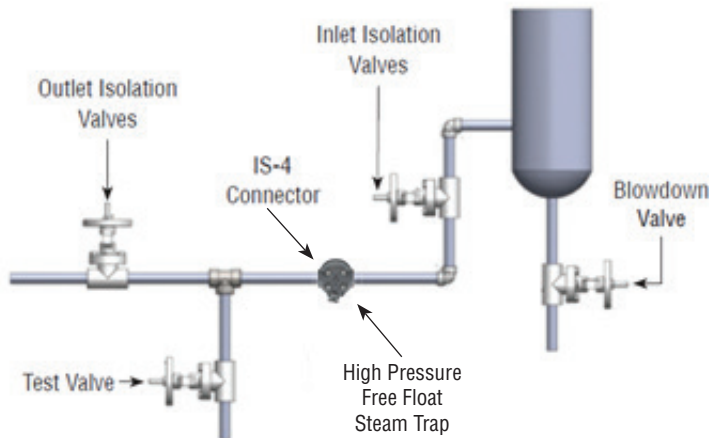
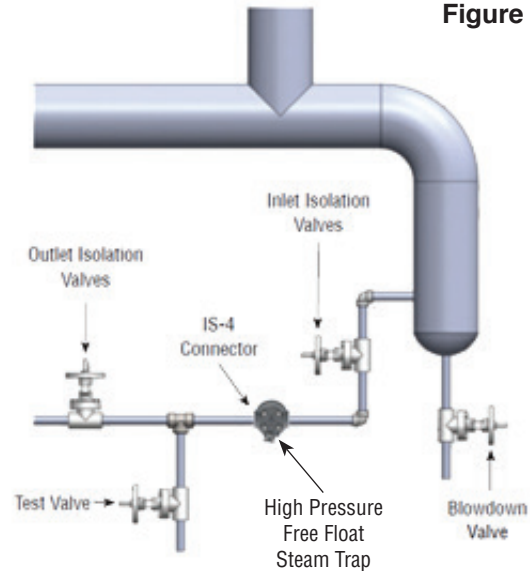


Figure 5.2



Installing the Steam Trap on Connector

Important: Even though the connector block can be installed in any direction, the free float steam trap needs to be installed in a vertical position (up right) as shown on Figure 5.3 below. The flange of the free float steam trap rotates 360 degrees to allow the trap to be installed this way regardless of the installation of the connector block.

- The trap will need to be bolted to the connector block after the connector block has been installed.
- When installing the trap to the connector block, apply 35-50 ft-lbs of torque to the bolts using a 3/8" wrench. Allow 2.5" clearance for bolt installation and removal.
- When starting up a system, be sure to open the valve slowly.

Figure 5.3



FF-4700 with IS-4 4-Bolt Connector



Install Steam Trap in a vertical position

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Maintenance Requirements

High pressure traps should be tested at least three times per year.

Check Trap

When the steam trap is suspected of malfunctioning, it can be checked by observing the discharge of the trap.

Normal trap operation would be indicated by:

- Trap discharging condensate continuously
- Trap discharge in cycles (on-off)

All discharges are accompanied by large amounts of flash steam. Do not confuse the discharge of flash steam with live steam loss. If the trap blows live steam, isolate the trap and replace.

Check Application

If it cannot be made to operate normally, verify that the trap is correct for the application (capacity, differential pressure, etc.).

If correct, install a new steam trap of the same series and of equal capacity in its place.

Troubleshooting

Whenever a steam trap fails to operate and the reason is not readily apparent, the discharge from the trap should be observed. If the trap is installed with a test outlet or discharges to atmosphere, this will be a simple matter - otherwise, it will be necessary to break the discharge connection and isolate the return line.

- Cold Trap - No Discharge

No condensate or steam coming to trap.

- Stopped or plugged strainer ahead of trap.
- Broken valve in line to trap.
- Pipe line or elbows plugged.
- Pressure reducing valve out of order.
- Isolation valves are off/closed

- Steam Loss: If the trap leaks or blows live steam, trouble may be due to any of the following causes:

- Ball float may fail to seat
- Piece of scale lodged in orifice
- Worn seating surface
- Damaged float

Imaginary Troubles: If it appears that steam escapes every time trap discharges, remember: Hot condensate forms flash steam when released to lower pressure, but usually condenses quickly in the return line.

If the trap is found defective:

- Isolate the trap
- Blow down/bleed off the internal pressure
- With the connector block in line, remove the two bolts that hold the trap to the connector block using a 3/8" wrench.
- Remove the trap from the connector block
- Replace the failed trap with a working trap (refer to the installation section for details on how to install)

Repair Parts

FF-4700/FF-4900: does not have repair parts. If the trap fails, a new one will need to be installed.

LIMITED WARRANTY AND REMEDY

Armstrong International, Inc. or the Armstrong division that sold the product (“Armstrong”) warrants to the original user of those products supplied by it and used in the service and in the manner for which they are intended, that such products shall be free from defects in material and workmanship for a period of one (1) year from the date of installation, but not longer than 15 months from the date of shipment from the factory, [unless a Special Warranty Period applies, as listed below]. This warranty does not extend to any product that has been subject to misuse, neglect or alteration after shipment from the Armstrong factory. Except as may be expressly provided in a written agreement between Armstrong and the user, which is signed by both parties, Armstrong **DOES NOT MAKE ANY OTHER REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

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