Thermostatic Wafer Steam Traps Models WT-1, WMT-1, WT-2000, & WT-3 Installation and Maintenance

Armstrong®

Overview

Warning: This bulletin should be used by experienced personnel as a guide to the installation of the Models WT-1, WMT-1, WT-2000, and WT-3 Steam Traps. Selection or installation of equipment should always be accompanied by competent technical assistance. We encourage you to contact Armstrong or your local representative if further information is required.

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

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Application Notes

The WMT-1 is designed for instrument tracing applications.
The WT-1 and WT-2000 are meant to be used for low capacity tracing.
The WT-3 trap is designed as a drip trap for super-heated steam lines.

Note: Since the normal operation of ***ALL*** suppressed temperature-discharge (subcooling) steam traps is to back up condensate, they should not be used on drip legs for saturated steam service, or for draining heating or process equipment.

Installation

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, clean out the line by blowing down at full steam pressure. Blowdown any strainers ahead of the trap.
2. Install the trap so that it is **ACCESSIBLE** for inspection and repair, **BELOW** the drip point, and **CLOSE** to the vertical drip leg.
3. For proper operation, the trap body must be installed with respect to the flow direction designations on the trap body. Wafer traps may be installed on either vertical or horizontal piping.
4. **On tracer applications**, be sure to use only one trap for each tracer line,and be sure that the tracer pitches down to the trap.
5. Use pipe dope sparingly on male threads only. Leave the end thread exposed to avoid introducing the sealant into the system.
6. Install strainers ahead of traps if specified or when dirt conditions warrant their use. The WT-1 and WT-3 traps have internal strainers.
7. Shut-off valves ahead of traps are needed when traps drain steam mains or where the system cannot be shut down for trap maintenance. When valving a new trap into a hot system, be sure to open the valve slowly.
8. Servicing is simplified by keeping lengths of inlet and outlet nipples identical for traps of a given size and type. A spare trap with identical fittings and half unions can be kept in storeroom. In the event a trap needs repair, it is a simple matter to break the two unions, remove the trap, put in the spare and tighten the unions. If you do use unions, the best practice is to install at least one of them at right angles to the trap. If you only use one union, connect it to the discharge side of the trap.
9. In **tracing applications**, it is best to insulate the trap as well as the product and tracer line.
10. In **superheat drip applications (Model WT-3 Only)**, what little condensate there is usually forms in drip legs to the traps and in the traps themselves, rather than in the main or branch piping. Therefore, providing drip legs of adequate length and diameter is essential to the successful operation of the Armstrong wafer trap. See Chart 1 and Figures 1, 2 and 3.

Installation Recommendation

Figure 1. Drip Leg Sizing

The properly sized drip leg will capture condensate. Too small a drip leg can actually cause a venturi *piccolo* effect where pressure drop pulls condensate out of the drip leg and trap.

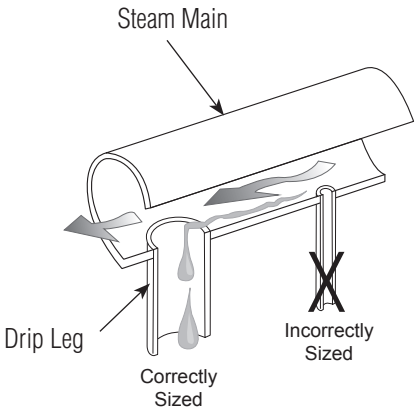
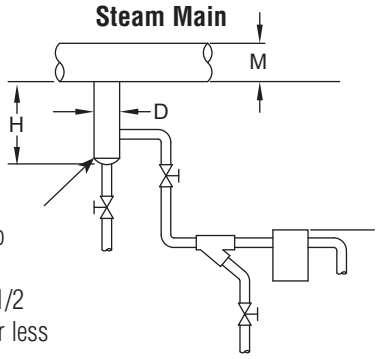


Chart 1 - Recommended Steam Main and Branch Line Leg Sizing

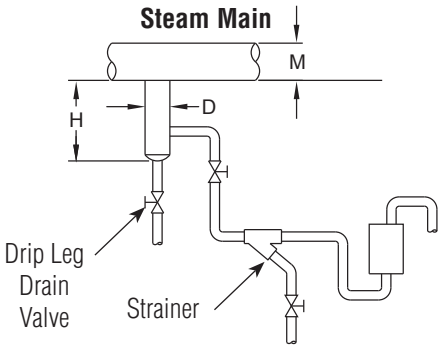
M		D		H Drip Length Minimum			
Steam Main Size		Drip Leg Diameter		Supervised Warm-Up		Automatic Warm-Up	
in	mm	in	mm	in	mm	in	mm
1/2	15	1/2	15	10	250	28	710
3/4	20	3/4	20	10	250	28	710
1	25	1	25	10	250	28	710
2	50	2	50	10	250	28	710
3	75	3	75	10	250	28	710
4	100	4	100	10	250	28	710
6	150	4	100	10	250	28	710
8	200	4	100	12	300	28	710
10	250	6	150	15	380	28	710
12	300	6	150	18	450	28	710
14	350	8	200	21	530	28	710
16	400	8	200	24	600	28	710
18	450	10	250	27	685	29	710
20	500	10	250	30	760	30	760
24	600	12	300	36	910	36	910

Figure 2. Trap Draining Drip Leg on Steam Main



Drip leg same as the header diameter up to 4"(100 mm).
Above 4"(100 mm), 1/2 header size, but never less than 4" (100 mm).

Figure 3. Trap Draining Drip Leg at Riser



Maintenance

NOTE: Exercise care in the maintenance of any thermostatic wafer trap because the small discharge area is susceptible to clogging.

Maintenance Schedule

High pressure drip traps should be tested at least three times per year. Tracer traps should be tested yearly on applications up to 100 psi (6,8 bar), twice yearly for pressures from 101-450 psi (6,9 - 31 bar), and three times per year for pressures above 450 psi (31 bar).

Check Trap

When the steam trap is suspected of malfunctioning, it can be checked by observing the discharge of the trap. The discharge of a wafer trap is either intermittent or modulating, depending on the load.

If the trap is blowing live steam, remove the trap from the line, back flush it with compressed air or water, re-install it and check it again for normal operation.

Check Application

If the trap 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.

NOTE: When performing maintenance on any steam trap, the common practice is to remove the trap in question and immediately install a good trap in its place. Maintenance can be performed with minimum equipment downtime.

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