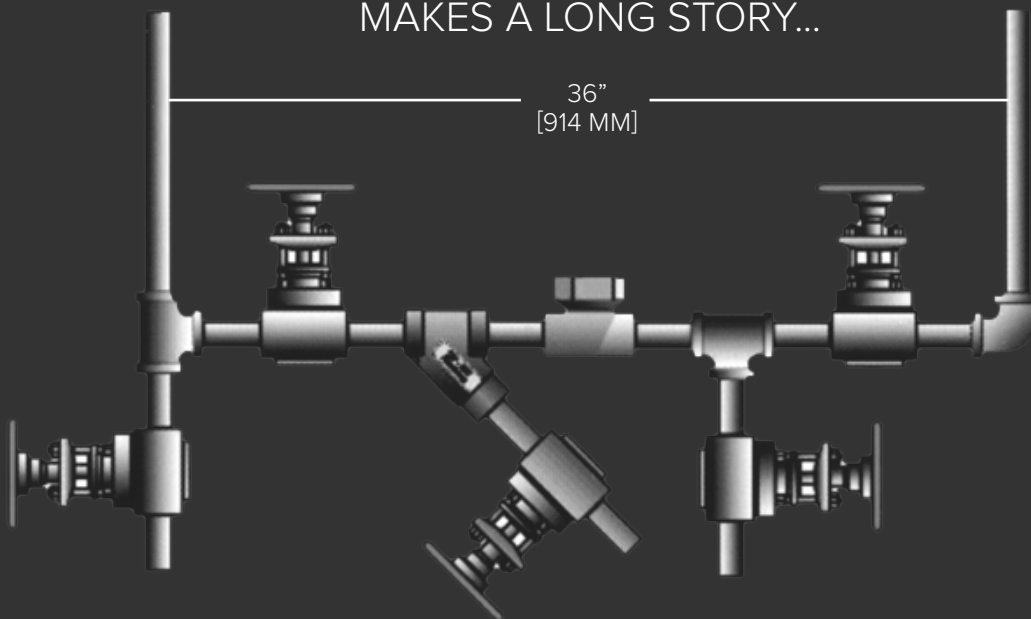




**Armstrong®**

## STAINLESS STEEL TRAP VALVE STATION

MAKES A LONG STORY...



...SHORT.



# THE INNOVATION IS INTEGRATION

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Armstrong stainless steel Trap Valve Station (TVS) reduces your costs for installation, maintenance and energy by integrating the steam trap and valves into a single, space-saving package. Our patented TVS transforms a long, complicated, installation process into a much simpler, more compact task—while eliminating numerous potential leak points in piping, and providing all the functions of multiple components in a smaller, smarter unit.

Armstrong TVS dramatically shortens installations for even simple piping arrangements, replacing lengthy procedures like valve-nipple-strainer-nipple-trap-nipple-valve with a far simpler, pipe-TVS-pipe.

## THE ADVANTAGES OF ARMSTRONG STAINLESS STEEL TVS INCLUDE:

- **Reduced costs**—Provides savings by eliminating potential leak points and reducing installation and maintenance time.
- **Simplicity**—Eliminates procurement and assembly of many individual components.
- **Multiple functions**—Includes test and strainer blowdown valves and accommodates Armstrong Intelligent Monitoring—AIM® remote steam trap monitoring and testing devices.
- **Reduced design time**—Permits combining products with exact face-to-face dimensions.
- **Quality assurance**—Our TVS is backed by a three-year “no leak” guarantee.
- **Easy, in-line repairability with maximum safety**—Allows isolation at point of service with upstream/downstream depressurization; removal of two bolts allows the steam trap to be serviced.
- **Installation versatility**—Adaptable to any manufacturer’s two-bolt steam trap and piping configuration; and fits all connection specifications for installations, including a flanged spool piece, npt, or sw.
- **Simplified trap testing**—Includes enhanced capability to check trap operation and a built-in method to block and bleed traps.

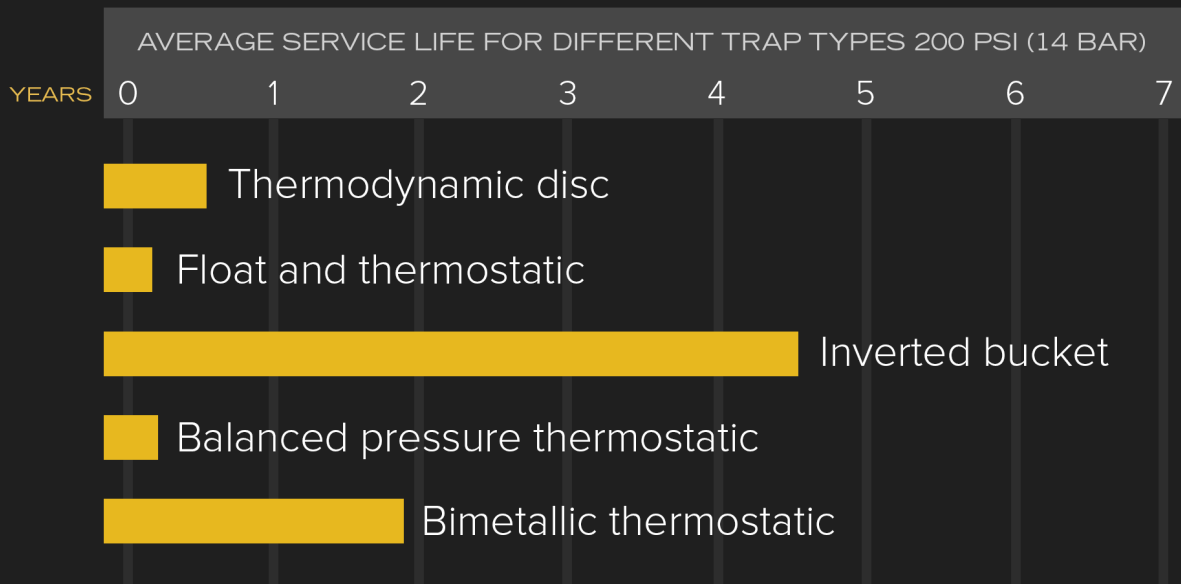
# ARMSTRONG INVERTED BUCKET STEAM TRAP

Invented by Armstrong in 1911, the Inverted Bucket (IB) Steam Trap has been proven to seal better, last years longer and outperform any other type of trap on the market today. Engineered for a longer, more efficient service life, Armstrong IB Steam Traps continue to conserve energy, even in the presence of wear. With fewer costs for replacement parts, installation and downtime, the long-term savings and value they provide can be dramatic. Lightweight and compact, Armstrong IB Steam Traps are tamperproof, corrosion-resistant and can withstand freeze-ups without damage. Armstrong is so sure of their performance that we guarantee them against leaks for three years.

**ARMSTRONG IB STEAM TRAPS ARE YOUR MOST EFFECTIVE CHOICE FOR BEST PRACTICE ENERGY MANAGEMENT.**

## **BENEFITS INCLUDE:**

- Longest service life of any type steam trap
- Proven energy conservation
- Dependable operation because there's nothing to stick, bind or clog
- Purging action due to snap opening of the valve
- Continuous automatic air and CO2 venting
- Excellent operation against back pressure
- Resistance to damage from water hammer
- Freedom from dirt problems



Above data from The ICI Engineer, May 1991, with permission from ICI Engineering.

# SAFETY, SAVINGS AND SIMPLIFICATION

## ARMSTRONG 360° CONNECTOR

Armstrong 360° Connector enables simple installation of the Armstrong IB Steam Trap into any piping configuration, with little or no repiping. Our universal connector brings together a stainless steel IB Steam Trap and piston valves in a variety of practical combinations. In fact, we can meet the specifications for any type of steam trap.

The standard version of the stainless steel TVS uses the connector block to merge a steam trap and two shutoff valves into one integrated unit. The connector block can also accommodate two additional valves. Options include: a bleed valve depressurizes the trap before it is removed from the connector block; a test valve is used to test and evaluate trap operation.

## TEST AND SAVE

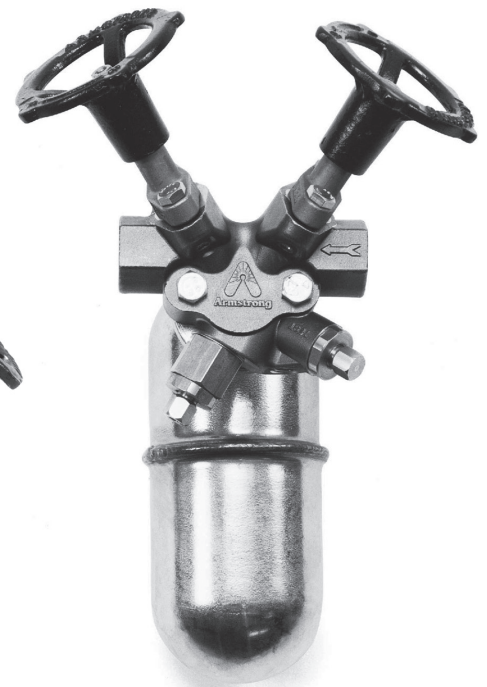
Steam trap testing is a well-accepted component of aggressive energy management, and it is essential to the efficiency of a well-designed and properly maintained steam system. Armstrong TVS allows you to test your steam traps with greater safety and accuracy, while providing substantial savings in time and labor cost.

To see how important reliable steam trap monitoring can be, consider the following example: A 3/16" (4.8 mm) orifice leaking 100 lb (45 kg) of steam per hour at 50 psi (3.4 bar) will squander \$4,380 worth of energy in one year, assuming a steam cost of \$10/1,000 lb (450 kg).

Most experts agree that testing steam traps with test valves is the most reliable method because it permits you to check trap

discharge visually. Test valves allow you to see evidence of trap failure that is difficult to detect with other test methods. The sooner you can see a problem, the sooner you can begin saving the precious energy that failed traps waste. Armstrong TVS enhances your ability to check trap operation and it provides a built-in way to block and bleed traps for maximum safety and ease of maintenance.

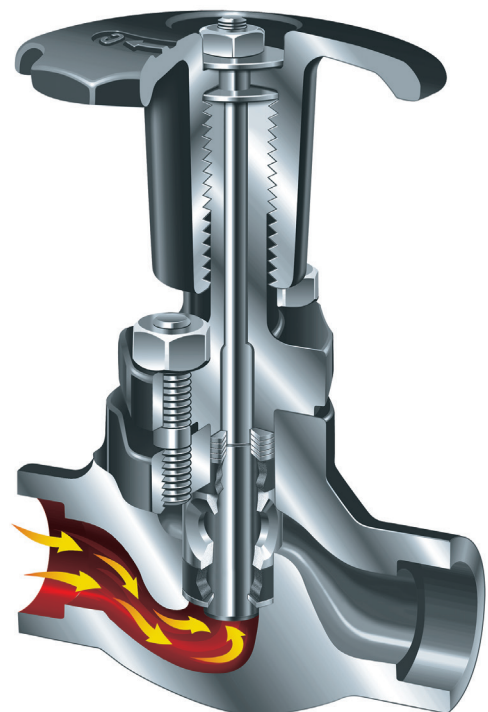
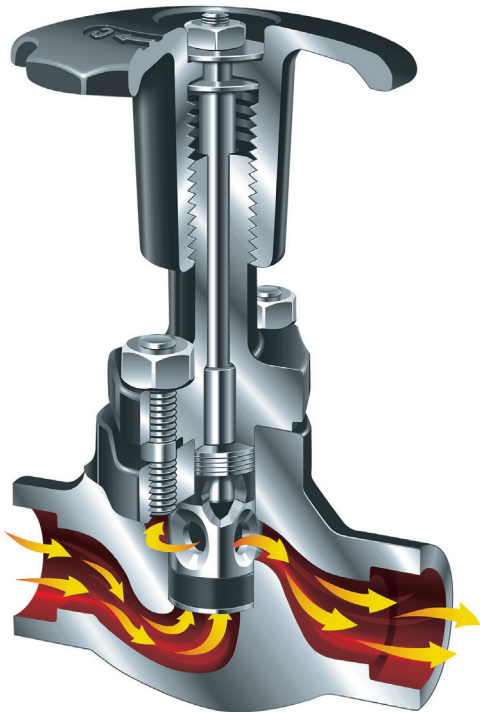
Safety, savings and simplification are the benefits of TVS when it comes to routine trap testing. Not only does our TVS simplify installation and maintenance, it also makes regular testing simpler, safer and quicker—saving you both time and money.



# THE PROOF IS IN THE PISTON VALVE

We chose a piston valve to integrate the IB Steam Trap with the TVS because it is the only type of valve capable of matching our IB Steam Trap in terms of reliability and energy efficiency. The piston valve features excellent sealing characteristics in steam service and has no gland packing, making it a frequent choice for steam systems. Even with no maintenance, leakage to atmosphere is extremely rare. The elastic contact between piston and valve sealing rings provides a perfect tightness, both in-line and to atmosphere. Benefits include dual sealing action, automatic retightening and in-line repairability.

Steam system valves, whatever their design, are used to isolate steam and condensate lines, or when a faulty steam trap needs to be removed from the line. This means that valves stay in the open position for long periods and are nearly always in contact with the atmosphere. So when the valves need to be closed, they can often prove difficult to operate. Our experience and the demands from end users for energy efficiency have led us to a sealing system designed especially for steam service.



## OPEN POSITION

- **Dual sealing action**—The piston valve is a seatless valve which includes two graphite and stainless steel valve sealing rings that seal the stem and function as a valve seat. This combination provides long-term protection against leaks to the atmosphere and downstream piping.
- **Self-cleaning action**—Stainless steel piston slides without rotating between the two valve sealing rings, preventing dirt from damaging the sealing surfaces

- **Sealing integrity**—Flexible disc springs automatically provide leak tightness by exerting pressure which keeps the upper and lower valve sealing rings compressed at all times. Sealing tightness is assured by the compression of the sealing rings against the piston and the valve body. This combination of disc springs and dual valve seal rings protects against expansion and contraction due to heating and cooling. This assures dependable operation, even after years of service.

## CLOSED POSITION

- **Protected valve stem**—The valve stem and sealing surfaces are completely protected from dirt and corrosion by the stem cap, whether in an open or closed position.
- **In-line repairability**—All valve components may be easily replaced in-line.
- **Long-term operation**—Piston valve design assures actuation even after many years without operation.



INTELLIGENT SOLUTIONS IN STEAM, AIR, AND HOT WATER

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