



**ENGINEERED CONDENSATE  
SOLUTIONS**





# Armstrong® The Mechanism of Choice

Do you experience maintenance problems with non-electric steam/air powered pumps?

Are you dumping valuable condensate because of frequent maintenance?

Do you experience spring failures?

Do you have to remove the complete cap assembly to view, clean or replace the motive or vent valve?

## Externally replaceable valve and seat assembly

Maintenance is a snap with stainless steel valves that can be cleaned or replaced without cap removal.

## Wear and corrosion resistance

Mechanism frame assembly is constructed of rugged investment-cast stainless steel components.

## Long life and dependable service

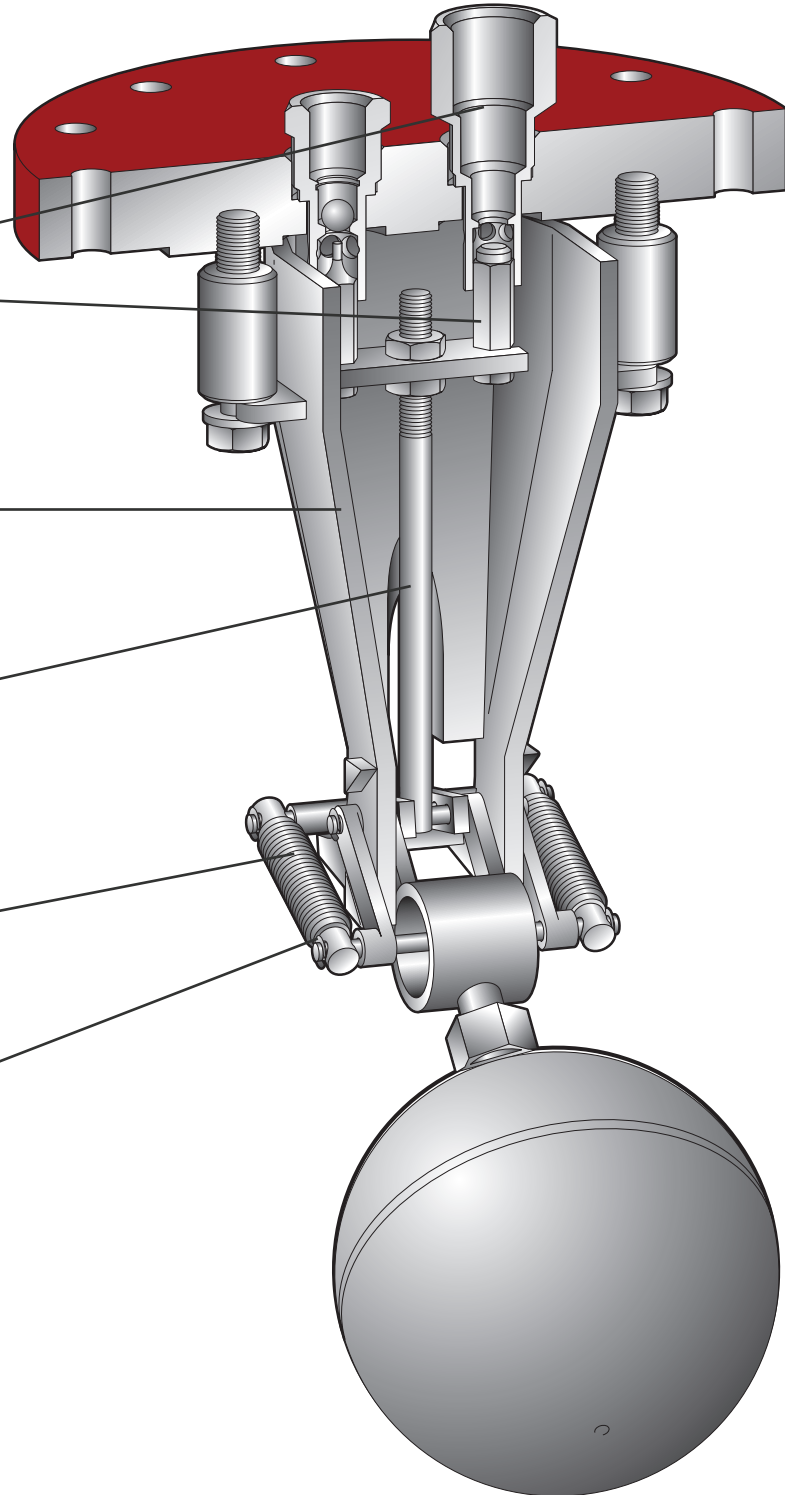
Simple float/spring operation and rugged all stainless steel construction allow for long, trouble-free service life.

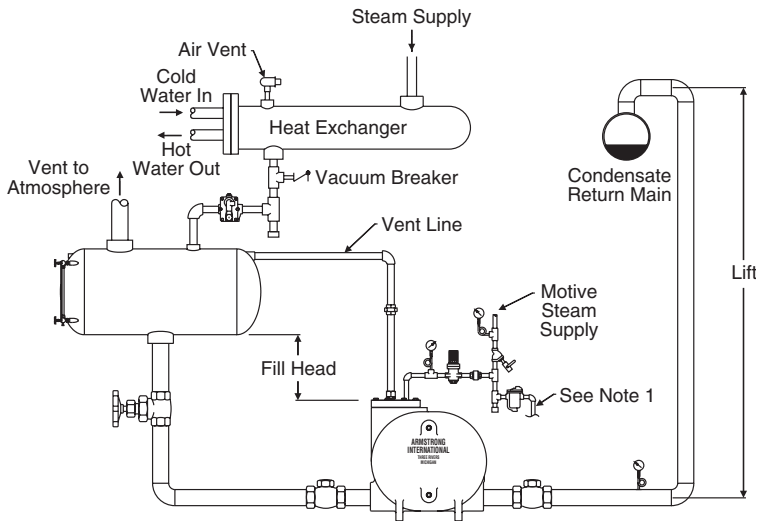
## Stress chloride corrosion resistance

Inconel X-750 springs have higher resistance to the stress that causes lower-grade stainless steel springs to fail.

## Wear reducing bushings

Significantly reduce wear on pivot points providing longer mechanism life.



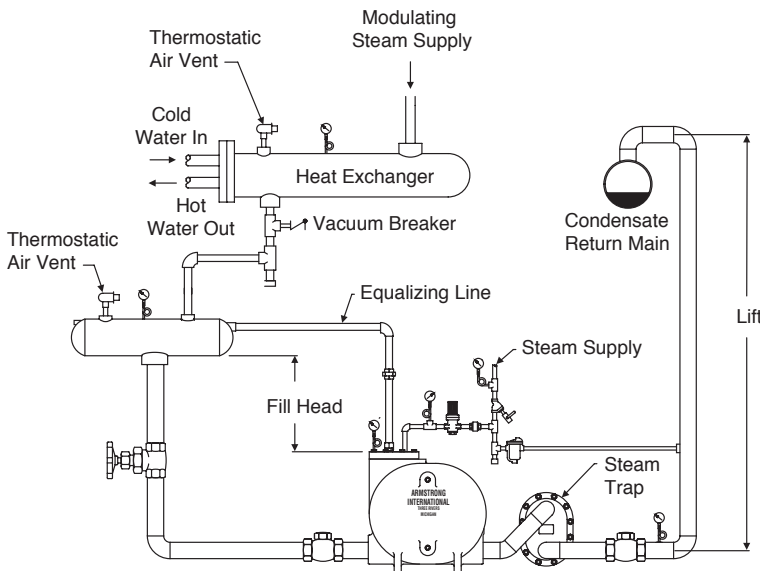


Multiple or single traps discharging to vented receiver.

## OPEN SYSTEMS

For the majority of applications, a steam trap is recommended on each piece of heat exchange equipment. The steam trap, or traps, discharge to a vented receiver where flash steam will be vented to the atmosphere. The pump trap is located downstream and below the vented receiver, allowing for proper fill head height. See tables on page CRE-16 and CRE-19 for vented receiver and vent sizing for an open system in catalog 326.

**Note 1:** Drip trap may be discharged into the receiver, the return line or to the drain.



Draining steam coil or heat exchanger when steam pressure may exceed the return line pressure, a steam trap is required on the discharge side of the pump trap. Request installation and operation manual IB-100.

## CLOSED SYSTEMS

Applications exist where it is desirable to tie the vent line back into the heat exchange space, equalizing the pressure in the heat exchanger, reservoir/piping and the pump trap. This allows water to flow by gravity down to the pump where it can be returned. Valuable Btu's remain within the system due to no flash steam loss to the atmosphere through the vent. Closed system applications can also be used to drain liquid from the equipment under a vacuum. See installation and operation manual IB-100. See tables on pages CRE-16 and CRE-19 for reservoir pipe sizing in catalog 326.

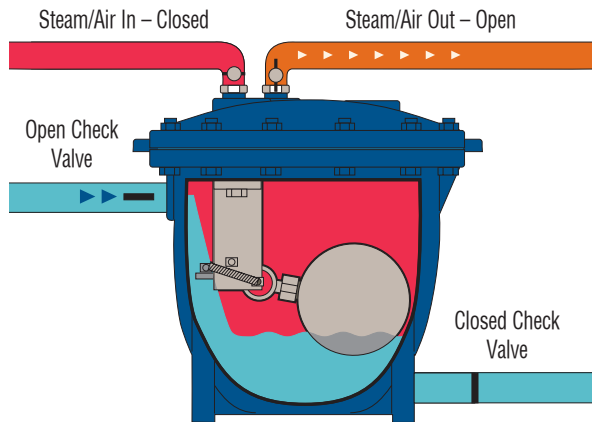
**Note 1:** If steam motive is used, the drip trap may be discharged into the return line or to the drain.

**Note 2:** Vent piping from the pump trap can be connected to the inlet side of the equipment being drained if the pressure drop across the equipment is less than .5 psi (0.03 bar) and there is a minimum of 24" (609 mm) of fill head present.

**Note 3:** A vacuum breaker must be installed if the vent piping from the pump trap is connected to the receiver. If the equipment modulated down to a sub-atmospheric condition, the vacuum breaker will open to equalize the system and provide adequate drainage.

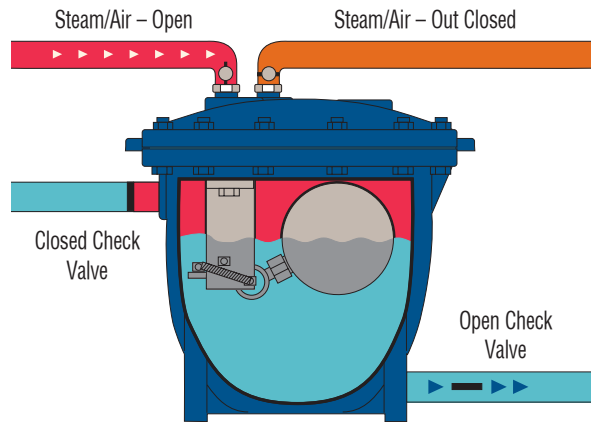


# Armstrong® Pumping Trap Operation



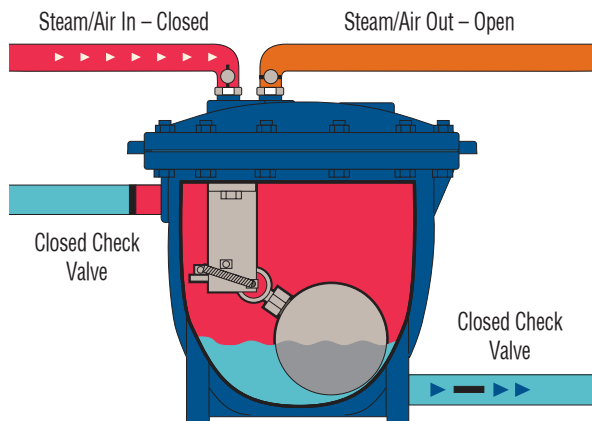
### Filling

1. During filling, the steam, air or inert gas inlet and check valve on pumping trap outlet are closed. The vent and check valve on the inlet are open.



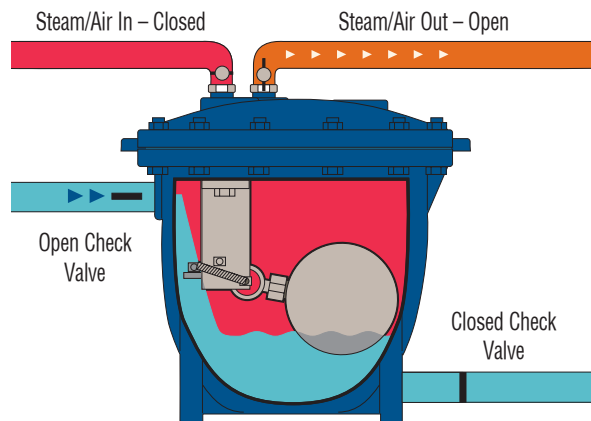
### Begin Pumping

2. Float rises with level of condensate until it passes trip point, and then snap action reverses the internal valve positions shown in step one.



### End Pumping

3. Float is lowered as level of condensate falls until snap action again reverses the internal valve positions.

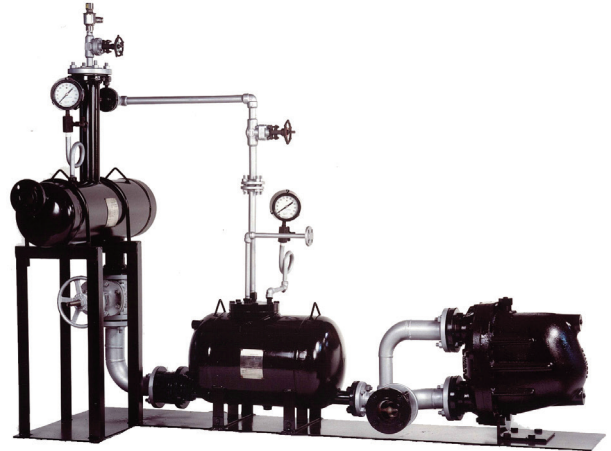
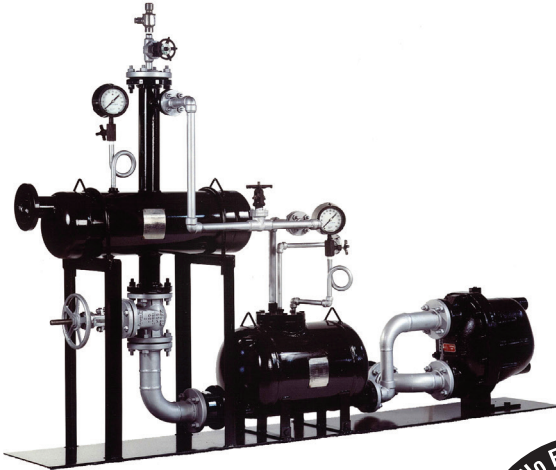


### Repeat Filling

4. Steam, air or inert gas inlet and trap outlet are again closed while vent and condensate inlet are open. Cycle begins anew.

## Custom Fabrications

Armstrong can design and fabricate custom packages to fit your application needs.



### Low Boy™ Receiver Packages

Armstrong's standard simplex, duplex, triplex or quadruplex Low Boy™ Receiver packages are unparalleled in quality and craftsmanship. Low Boy™ packages are also available in lower profile configurations for confined locations.

### ASME Packages

Armstrong can design and fabricate all ASME packages to meet or exceed your plant piping requirements.

Armstrong specializes in custom packaging. Whether you require an all welded ASME package or threaded, Armstrong can meet your needs. As standard, we provide threaded Commercial Packages (S/40 pipe, malleable iron fittings, bronze valves) or threaded Industrial Packages (S/80 pipe, forged steel fittings, carbon steel gate valves) as options. Consult your local Armstrong representative for various welded options including ASME.



# Armstrong® Electric Condensate and Boiler Feed Pumps



## Series 4100 Condensate and Boiler Feed

- Heavy gauge 3/16" steel receivers for long service life
- 3450 rpm motors for maximum efficiency with minimum horsepower
- Simplex/duplex
- Wide range of options available
- Standard Units: 3 gpm - 75 gpm
- Consult factory for additional sizes



## Series 4200 Condensate and Boiler Feed

- Heavy duty cast iron receivers for long service life
- 3450 rpm motors for maximum efficiency with minimum horsepower
- Simplex/duplex
- Wide range of options available
- Standard Units: 3 gpm - 75 gpm
- Consult factory for additional sizes



## Series 4300 Condensate and Boiler Feed

- Heavy gauge 3/16" stainless steel receivers for long service life
- 3450 rpm motors for maximum efficiency with minimum horsepower
- Simplex/duplex
- Wide range of options available
- Standard Units: 3 gpm - 75 gpm
- Consult factory for additional sizes

Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit [armstronginternational.com](http://armstronginternational.com) for up-to-date information.



## Series 5000 Boiler Feed

- Heavy gauge 3/16" carbon steel cylindrical receivers (stainless steel available)
- 3450 rpm motors for maximum efficiency with minimum horsepower
- Simplex/duplex (other)
- Wide range of options available
- Standard Units: 25 gpm - 100 gpm
- Consult factory for additional sizes



## Series 3500 Condensate and Boiler Feed

- Heavy gauge 3/16" carbon steel cylindrical receivers (stainless steel available)
- 3450 rpm motors for maximum efficiency with minimum horsepower
- Simplex/duplex
- Wide range of options available
- Standard Units: 3 gpm - 140 gpm
- Consult factory for additional sizes



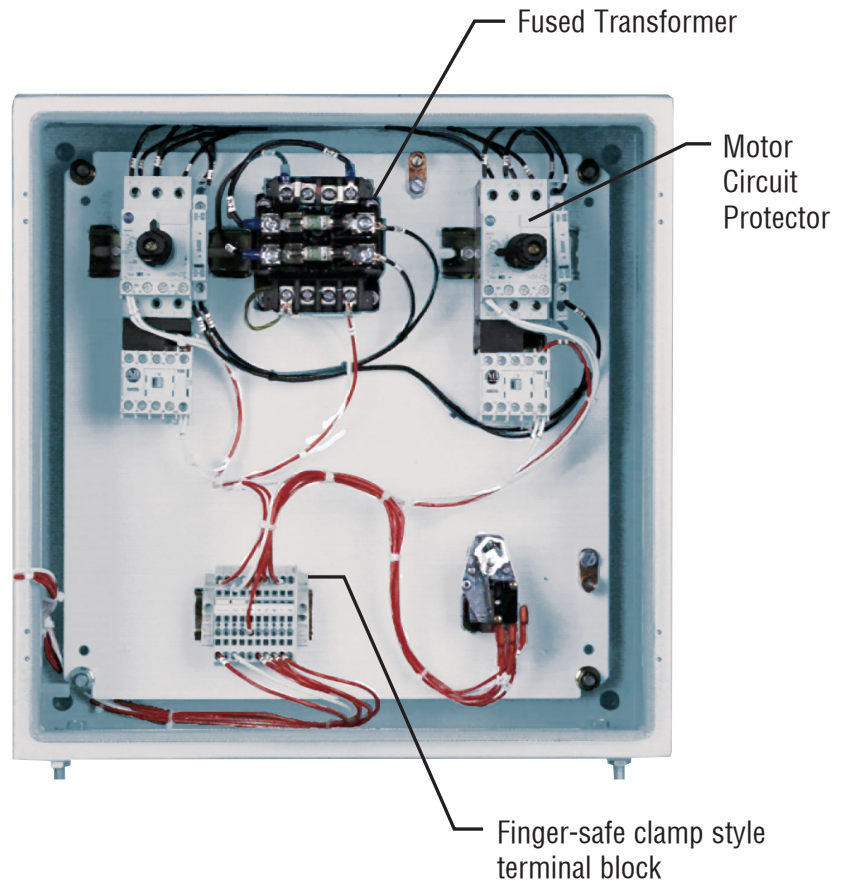
# Electric and Boiler Feed Control Panel & Accessories

## Features

- Motor Circuit Protector (MCP)
- HOA Selector Switch
- External Reset
- Control Circuit Transformer
- Pilot Light (Pump Running)
- Removable Mounting Plate and Thermal Strip in a Single NEMA 12 Enclosure
- Mounted and Wired with Single-Point Connection
- CE
- CSA
- UL Listed Component

## Options

- UL Certification and CUL
- Pilot Light
- Test Push Button
- Electric Alternator
- Low Water Cutoff
- Manual Transfer Switch (Boiler Feed Only)
- High-Level Alarm Horn and Light with Silencing Switch
- Low-Level Alarm Horn and Light with Silencing Switch
- Remote Mounting Deduction
- Simplex, Triplex, Quadruplex Pumps
- Explosion Proof
- NEMA 4, 4X



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# Electric and Boiler Feed Control Panel & Accessories

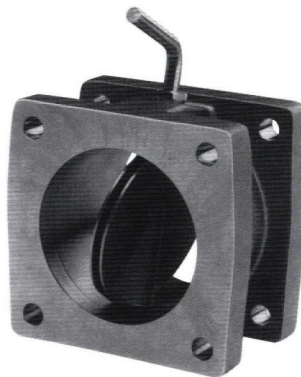


## Special Options

- Mechanical and Electrical Alternators
- Thermometer
- Isolation Valves
- Special Motor Construction
  - TEFC
  - Explosion Proof
- Washdown Duty
- 1750 RPM Motors
- Larger Pumping Capacities
- Higher Discharge Pressures capacities
- Higher Discharge Pressures



**Water Level Gauge**  
Optional on most models



**Isolation Valve**  
Optional on most models



# Armstrong® Armstrong Quality Products

## Mechanical Pumps

With single pump capacity ranges from 350 lb/hr to 73,000 lb/hr, Armstrong has the product range to meet your application requirements.



PT-104



PT-204/206



PT-308/312



PT-3508/3512



PT-404/406/408/412



PT-516

## Mechanical Pumps

With single pump capacity ranges from 350 lb/hr to 73,000 lb/hr, Armstrong has the product range to meet your application requirements.



### Vertical Flash Tank

ASME stamped vessels designed to provide low velocity flash steam with no water carry-over.



### Rescue Cap®

Competitor retrofit cap assembly. Armstrong technology . . . superior performance.



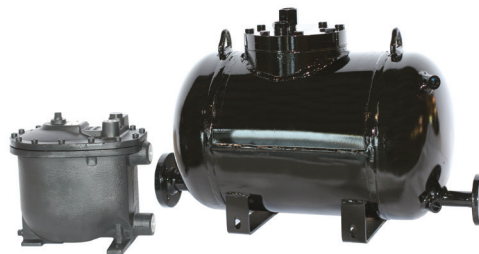
### Pre-Piped PRV Station

PRV/Drip trap stations, pre-piped to single pumps or packages.



### Horizontal ASME Reservoirs/ Horizontal Flash Tanks

ASME stamped vessels designed for condensate collection or use as horizontal flash tanks.



### DD-4/DD-6 Double Duty® Steam Trap/Pump

The Double Duty® Series steam trap/ pump combination offers a low profile closed loop solution to draining heat exchangers in various applications.



### Accessories

Insulation blankets, water level gauges, and digital cycle counters as shown on the above Low Boy package. Pressure gauges are not shown.



INTELLIGENT SOLUTIONS IN STEAM, AIR AND HOT WATER

**Armstrong International**

North America • Latin America • India • Europe / Middle East / Africa • China • Pacific Rim

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