

Energy Efficient Because It's So Reliable

The inverted bucket is the most reliable steam trap operating principle known. The heart of its simple design is a unique leverage system that multiplies the force provided by the bucket to open the valve against pressure. Since the bucket is open at the bottom, it resists damage from water hammer, and wear points are heavily reinforced for long life.

The inverted bucket has only two moving parts—the valve lever assembly and the bucket. That means no fixed points, no complicated linkages. Nothing to stick, bind or clog.

Wear and corrosion resistance

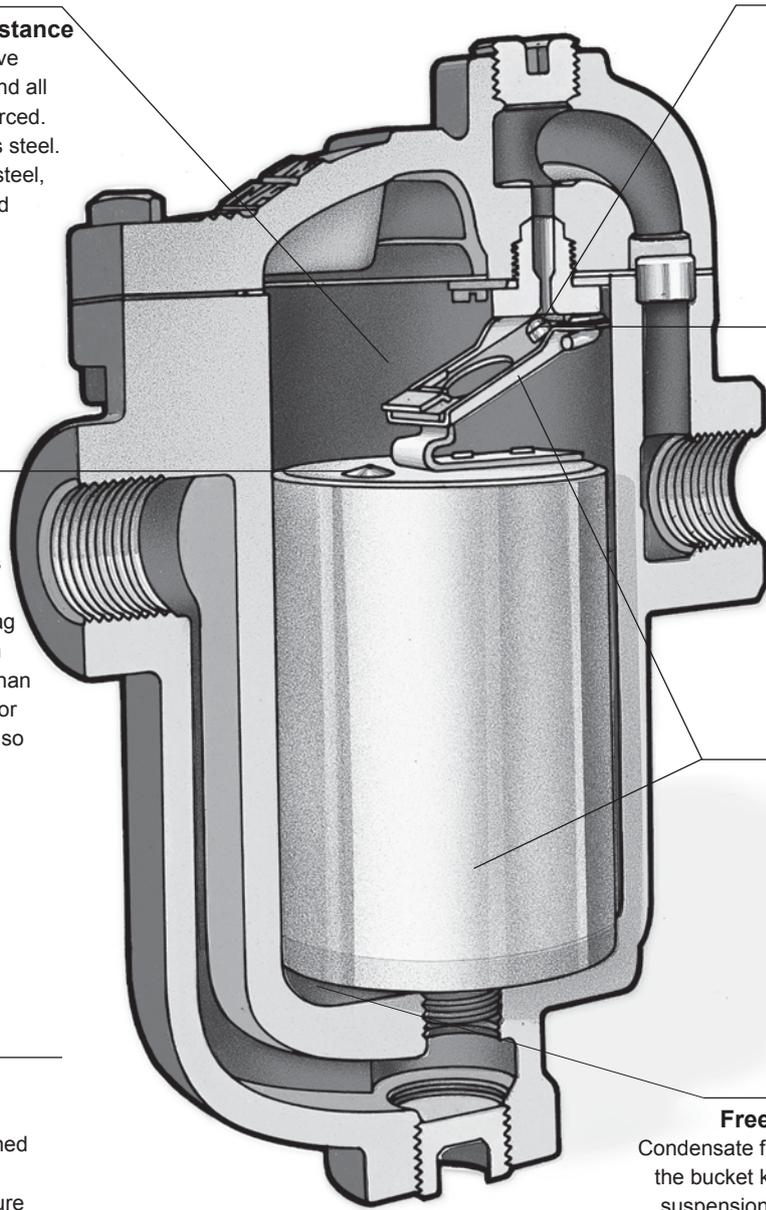
Free-floating guided lever valve mechanism is "frictionless," and all wear points are heavily reinforced. All working parts are stainless steel. Valve and seat are stainless steel, individually ground and lapped together in matched sets.

Continuous air and CO₂ venting

Vent in top of bucket provides continuous automatic air and CO₂ venting with no cooling lag or threat of air binding. Steam passing through vent is less than that required to compensate for radiation losses from the trap so it's not wasted.

Excellent operation against back pressure

Since trap operation is governed by the difference in density of steam and water, back pressure in the return line has no effect on the ability of the trap to open for condensate and close against steam.



Virtually no steam loss

Steam does not reach the watersealed discharge valve.

Purging action

Snap opening of the valve creates a momentary pressure drop and turbulence in the unit drained. This breaks up films of condensate and air and speeds their flow to the trap.

Dependable operation

Simple, direct operation with nothing to stick, bind or clog. Only two moving parts—the valve lever and the bucket.

Freedom from dirt problems

Condensate flow under the bottom edge of the bucket keeps sediment and sludge in suspension until it is discharged with the condensate. Valve orifice opens wide and closes tightly. No buildup of dirt or close clearances to be affected by scale.

Resistance to damage from water hammer

Open bucket or float will not collapse as a result of water hammer

*last updated 11/15



Inverted Bucket Steam Trap

Conserves Energy Even in the Presence of Wear

Armstrong inverted bucket steam traps open and close based on the difference in density between condensate and steam—the inverted bucket principle. They open and close gently, minimizing wear. This simple fact means that inverted buckets are subject to less wear than some other types of traps.

In fact, as an Armstrong inverted bucket trap wears, its tight seal actually improves. The ball valve and seat of the Armstrong trap provide essentially line contact—resulting in a tight seal because the entire closing force is concentrated on one narrow seating ring.

An Armstrong inverted bucket trap continues to operate efficiently with use. Gradual wear slightly increases the diameter of the seat and alters the shape and diameter of the ball valve. But, as this occurs, a tight seal is still preserved—the ball merely seats itself deeper.

Corrosion-Resistant Parts

The stainless steel valve and seat of the Armstrong inverted bucket steam trap are individually ground and lapped together in matched sets. All other working parts are wear- and corrosion-resistant stainless steel.

Venting of Air and CO₂

The Armstrong inverted bucket provides continuous automatic air and CO₂ venting with no cooling lag or threat of air binding.

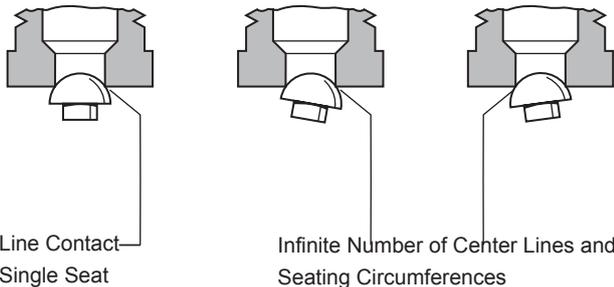
Operation Against Back Pressure

The Armstrong inverted bucket has excellent performance against back pressure. It has no adverse effect on inverted bucket operation other than to reduce its capacity by the low differential. The bucket simply requires less force to pull the valve open and cycle the trap.

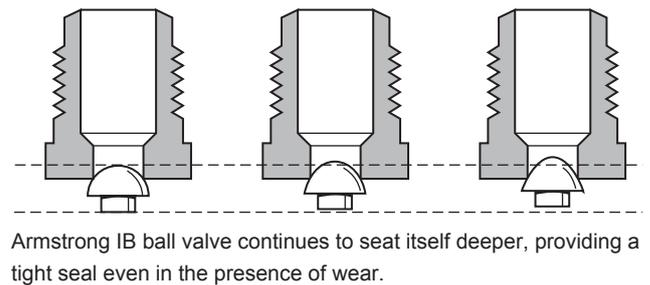
Freedom From Dirt Problems

Armstrong designed its inverted bucket to be virtually free of dirt problems. The valve and seat are at the top of the trap, far away from the larger particles of dirt, which fall to the bottom. Here the up-and-down action of the bucket pulverizes them. Since the valve of an inverted bucket is either fully closed or open, dirt particles pass freely. And the swift flow of condensate from under the bucket's edge creates a unique self-scrubbing action that sweeps dirt out of the trap.

Armstrong IB Valve Seating/Ball Valve



IB Valve Wear Characteristics



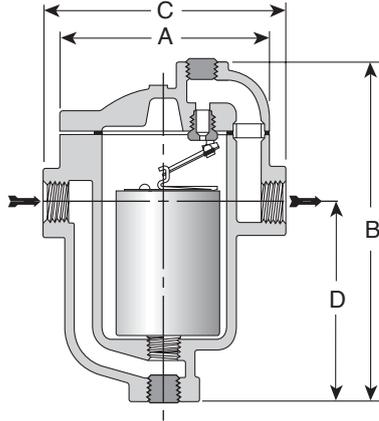
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800-813 Series Inverted Bucket Steam Trap Cast Iron for Horizontal Installation

For Pressures to 250 psig (17 bar)...Capacities to 4,400 lb/hr (2,000 kg/hr)



Description

The most reliable steam trap known—the inverted bucket—provides efficient condensate drainage of virtually all types of steam-using equipment. Put the inverted bucket to work in a tough cast iron package, and you have the best of both worlds. Because they operate efficiently for longer periods of time, Armstrong cast iron inverted buckets add solid energy savings to lower replacement/labor costs. All Armstrong cast iron inverted bucket steam traps are repairable for even bigger maintenance savings.

A unique leverage system multiplies the force provided by the bucket to open the valve against system pressure. The mechanism is free-floating, and has no fixed pivots to create wear or friction.

Because the mechanism is located at the top of the trap, no dirt can collect on the orifice. Small particles of dirt are held in suspension until discharged by the full differential purging action when the bucket sinks, pulling the valve off the seat.

The discharge orifice is surrounded by a water seal, preventing live steam loss. Automatic air venting is provided by a small vent hole in the bucket, which provides continuous automatic air and CO₂ venting at steam temperature.

Inverted bucket traps drain continuously, although discharging intermittently, allowing no condensate backup. They are also resistant to water hammer.

Maximum Operating Conditions

Maximum allowable pressure (vessel design): 250 psig @ 450°F (17 bar @ 232°C)
Maximum operating pressure: Model 800: 150 psig (10 bar)
Model 811-813: 250 psig (17 bar)

Connections

Screwed NPT and BSPT

Materials

Body: ASTM A48 Class 30
Internals: All stainless steel—304
Valve and seat: Hardened chrome steel—17-4PH
Test plug: Carbon steel

Options

- Stainless steel internal check valve
- Thermic vent bucket
- Stainless steel pop drain
- Probe connection
- Thermo drain
- Scrub wire

Specification

Inverted bucket steam trap, type ... in cast iron, with continuous air venting at steam temperature, free-floating stainless steel mechanism, and discharge orifice at the top of the trap.

How to Order

- Specify:
- Model number
 - Size and type of pipe connection
 - Maximum working pressure that will be encountered or orifice size
 - Any options required

For a fully detailed certified drawing, refer to CD #1000.

800-813 Series Side Inlet, Side Outlet Traps. Add suffix "CV" to model number for internal check valve, "T" for thermic vent bucket.								
Model No.	800*		811		812		813	
	in	mm	in	mm	in	mm	in	mm
Pipe Connections	1/2,3/4	15,20	1/2,3/4,1	15,20,25	1/2,3/4	15,20	3/4,1	20,25
Test Plug	1/4	6	1/4	6	1/2	15	3/4	20
"A" (Flange Diameter)	3-3/4	95.2	3-3/4	95.2	5-5/8	143	7	178
"B" (Height)	5-7/16	138	6-7/8	175	9-1/16	230	11-3/4	298
"C" (Face-to-Face)	5	127	5	127	6-1/2	165	7-3/4	197
"D" (Bottom to C Inlet)	2-3/4	70	4-1/4	108	5-3/8	137	7-1/32	179
Number of Bolts	6							
Weight lb (kg)	5(2.3)		6(2.7)		15(6.8)		27-1/2(12.5)	

*Cannot be furnished with both thermic vent bucket and check valve.

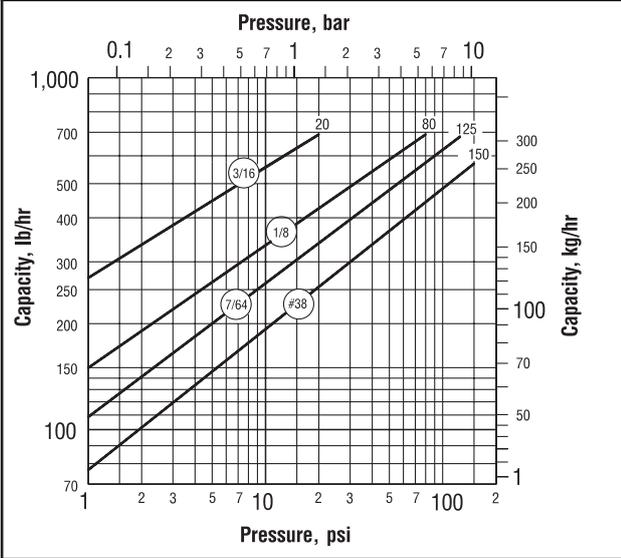
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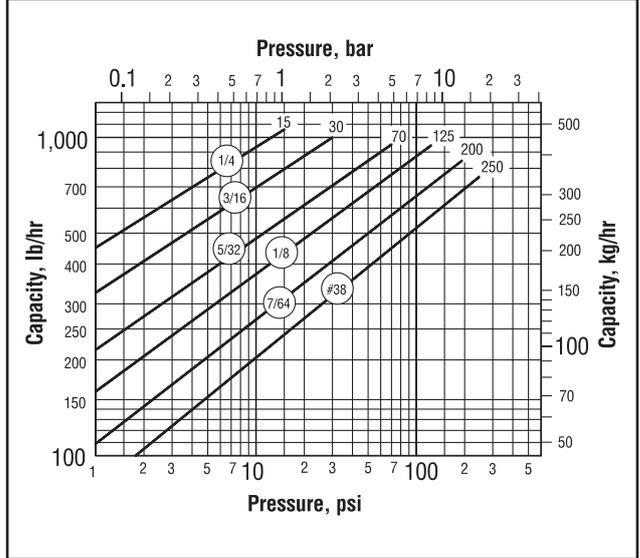
800-813 Series Inverted Bucket Steam Trap Cast Iron for Horizontal Installation

For Pressures to 250 psig (17 bar)...Capacities to 4,400 lb/hr (2,000 kg/hr)

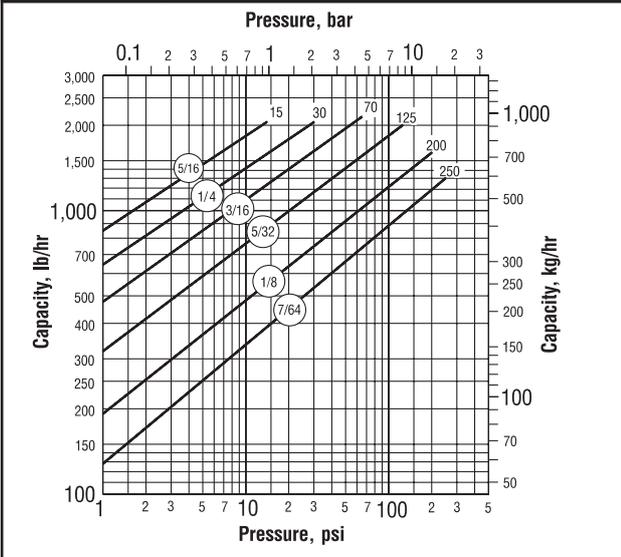
Model 800 Capacity



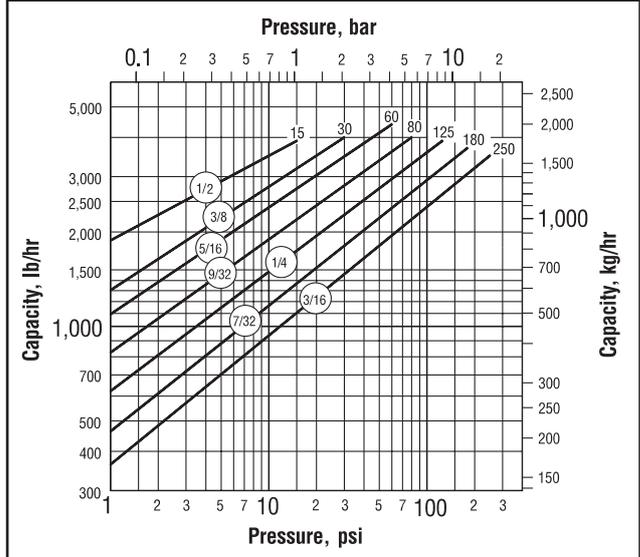
Model 811 Capacity



Model 812 Capacity



Model 813 Capacity

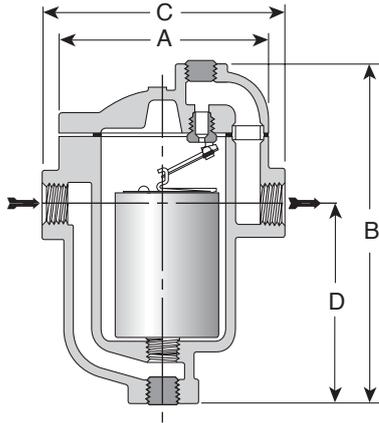


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814-816 Series Inverted Bucket Steam Trap Cast Iron for Horizontal Installation

For Pressures to 250 psig (17 bar)...Capacities to 20,000 lb/hr (9,072 kg/hr)



Description

The most reliable steam trap known—the inverted bucket—provides efficient condensate drainage of virtually all types of steam-using equipment. Put the inverted bucket to work in a tough cast iron package, and you have the best of both worlds. Because they operate efficiently for longer periods of time, Armstrong cast iron inverted buckets add solid energy savings to lower replacement/labor costs. All Armstrong cast iron inverted bucket steam traps are repairable for even bigger maintenance savings.

A unique leverage system multiplies the force provided by the bucket to open the valve against system pressure. The mechanism is free-floating, and has no fixed pivots to create wear or friction.

Because the mechanism is located at the top of the trap, no dirt can collect on the orifice. Small particles of dirt are held in suspension until discharged by the full differential purging action when the bucket sinks, pulling the valve off the seat.

The discharge orifice is surrounded by a water seal, preventing live steam loss. Automatic air venting is provided by a small vent hole in the bucket, which provides continuous automatic air and CO₂ venting at steam temperature.

Inverted bucket traps drain continuously, although discharging intermittently, allowing no condensate backup. They are also resistant to water hammer.

Maximum Operating Conditions

Maximum allowable pressure (vessel design): 250 psig @ 450°F (17 bar @ 232°C)
Maximum operating pressure: Model 814-816: 250 psig (17 bar)

Connections

Screwed NPT and BSPT

Materials

Body: ASTM A48 Class 30
Internals: All stainless steel—304
Valve and seat: Hardened chrome steel—17-4PH
Test plug: Carbon steel

Options

- Stainless steel internal check valve
- Thermic vent bucket
- Stainless steel pop drain
- Probe connection
- Thermo drain
- Scrub wire

Specification

Inverted bucket steam trap, type ... in cast iron, with continuous air venting at steam temperature, free-floating stainless steel mechanism, and discharge orifice at the top of the trap.

How to Order

- Specify:
- Model number
 - Size and type of pipe connection
 - Maximum working pressure that will be encountered or orifice size
 - Any options required

For a fully detailed certified drawing, refer to CD #1000.

814-816 Series Side Inlet, Side Outlet Traps. Add suffix "CV" to model number for internal check valve, "T" for thermic vent bucket.

Model No.	814		815		816	
	in	mm	in	mm	in	mm
Pipe Connections	1, 1-1/4	25,32	1, 1-1/4, 1-1/2, 2	25,32,40,50	2, 2-1/2	50,65
Test Plug	1	25	1-1/2	40	2	50
"A" (Flange Diameter)	8	203	9	229	11-1/2	292
"B" (Height)	13-5/8	346	16-1/4	413	21-5/16	541
"C" (Face-to-Face)	9	229	10-1/4	260	13	330
"D" (Bottom to \varnothing Inlet)	7-13/16	198	8-1/16	205	11	279
Number of Bolts	8					
Weight lb (kg)	44 (20.0)		77 (32.2)		131(59.4)	

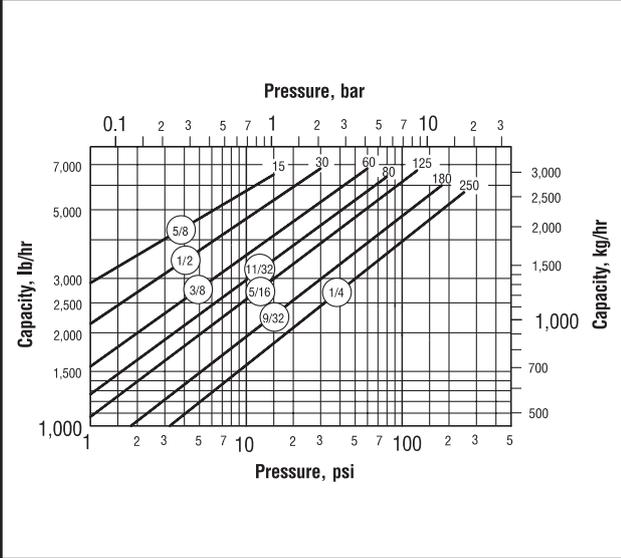
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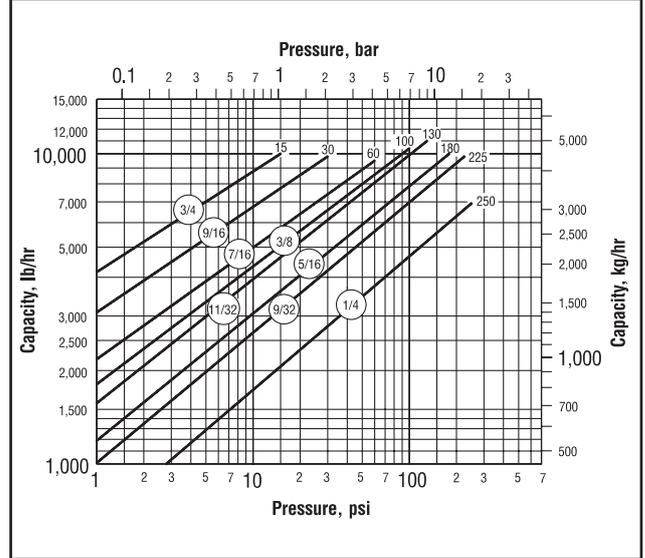
814-816 Series Inverted Bucket Steam Trap Cast Iron for Horizontal Installation

For Pressures to 250 psig (17 bar)...Capacities to 20,000 lb/hr (9,072 kg/hr)

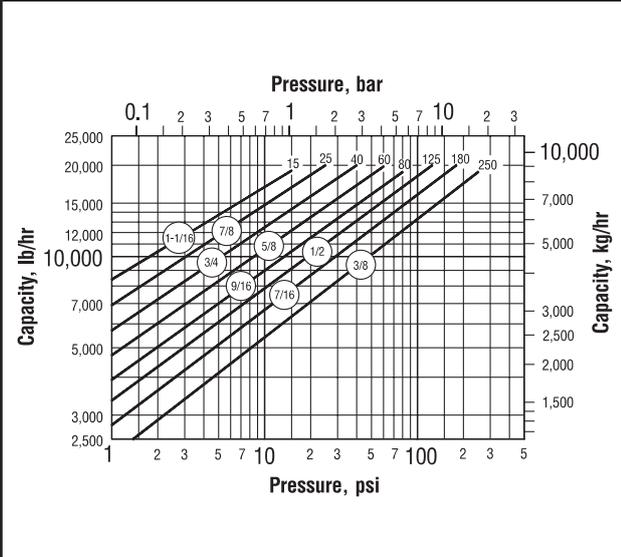
Model 814 Capacity



Model 815 Capacity



Model 816 Capacity



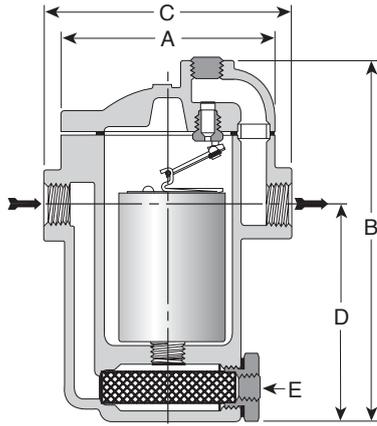
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880 Series Inverted Bucket Steam Traps

Cast Iron for Horizontal Installation With Integral Strainer

For Pressures to 250 psig (17 bar)...Capacities to 4,400 lb/hr (2,000 kg/hr)



Description

The most reliable steam trap known—the inverted bucket—provides efficient condensate drainage of virtually all types of steam-using equipment. Put the inverted bucket to work in a tough cast iron package with an integral strainer, and you have the best of both worlds. Because they operate efficiently for longer periods of time, Armstrong cast iron inverted buckets add solid energy savings to lower replacement/labor costs. All Armstrong cast iron inverted bucket steam traps are repairable for even bigger maintenance savings.

A unique leverage system multiplies the force provided by the bucket to open the valve against system pressure. The mechanism is free-floating, and has no fixed pivots to create wear or friction.

Because the mechanism is located at the top of the trap, no dirt can collect on the orifice. Small particles of dirt are held in suspension until discharged by the full differential purging action when the bucket sinks, pulling the valve off the seat.

The discharge orifice is surrounded by a water seal, preventing live steam loss. Automatic air venting is provided by a small vent hole in the bucket, which provides continuous automatic air and CO₂ venting at steam temperature.

Inverted bucket traps drain continuously, although discharging intermittently, allowing no condensate backup. They are also resistant to water hammer.

Maximum Operating Conditions

Maximum allowable pressure (vessel design): 250 psig @ 450°F (17 bar @ 232°C)
 Maximum operating pressure: Model 880: 150 psig (10 bar)
 Model 881-883: 250 psig (17 bar)

Connections

Screwed NPT and BSPT

Materials

Body: ASTM A48 Class 30
 Internals: All stainless steel—304
 Valve and seat: Hardened chrome steel—17-4PH
 Test plug: Carbon steel
 Strainer: Stainless steel—304

Options

- Stainless steel internal check valve
- Thermic vent bucket
- Scrub wire

Specification

Inverted bucket steam trap, type... in cast iron with integral strainer, with continuous air venting at steam temperature, with free-floating stainless steel mechanism, and discharge orifice at the top of the trap.

How to Order

- Specify:
- Model number
 - Size and type of pipe connection
 - Maximum working pressure that will be encountered or orifice size
 - Any options required

For a fully detailed certified drawing, refer to CD #1000.

880 Series Side Inlet, Side Outlet Traps With Integral Strainers. Add suffix "CV" to model number for internal check valve, "T" for thermic vent bucket.

Model No.	880*		881		882		883	
	in	mm	in	mm	in	mm	in	mm
Pipe Connections	1/2,3/4	15,20	1/2,3/4,1	15,20,25	1/2,3/4	15,20	3/4,1,1-1/4	20,25,23
Test Plug	1/4	6	1/4	6	1/2	15	3/4	20
"A" (Flange Diameter)	3-3/4	95.2	3-3/4	95.2	5-5/8	142.9	7	177.8
"B" (Height)	6-1/16	154	7-1/16	179	9-3/8	244	12-3/8	314
"C" (Face-to-Face)	5	127	5	127	6-1/2	165	7-7/8	200
"D" (Bottom to \varnothing Inlet)	3-7/16	87.3	4-7/16	113	5-3/4	146	7-3/8	187
"E" (Blowdown Connection)	3/8	9	3/8	9	3/8	9	1/2	15
Number of Bolts	6							
Weight lb (kg)	5-1/2(2.5)		6(2.7)		15-1/2(7.0)		31 (14.1)	

*Cannot be furnished with both thermic vent bucket and check valve.

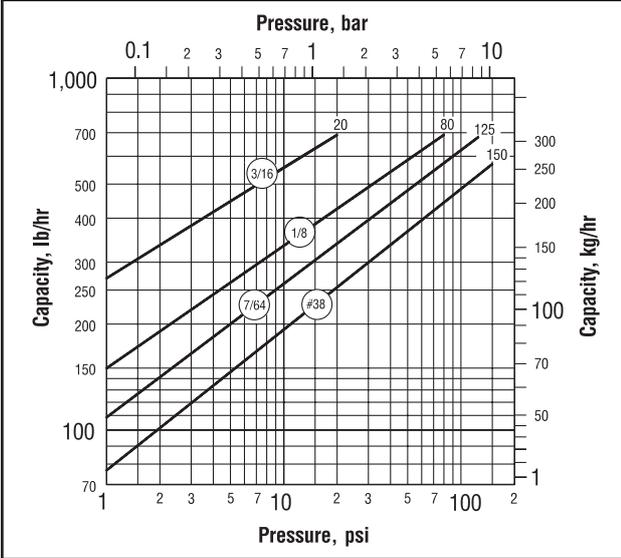
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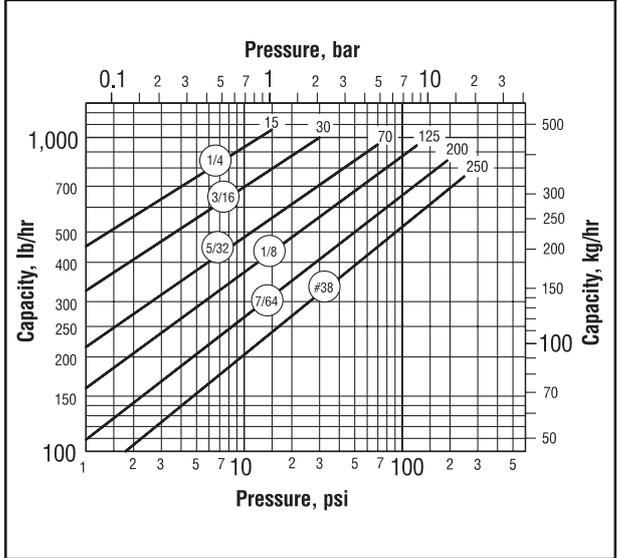
880 Series Inverted Bucket Steam Traps Cast Iron for Horizontal Installation With Integral Strainer

For Pressures to 250 psig (17 bar)...Capacities to 4,400 lb/hr (2,000 kg/hr)

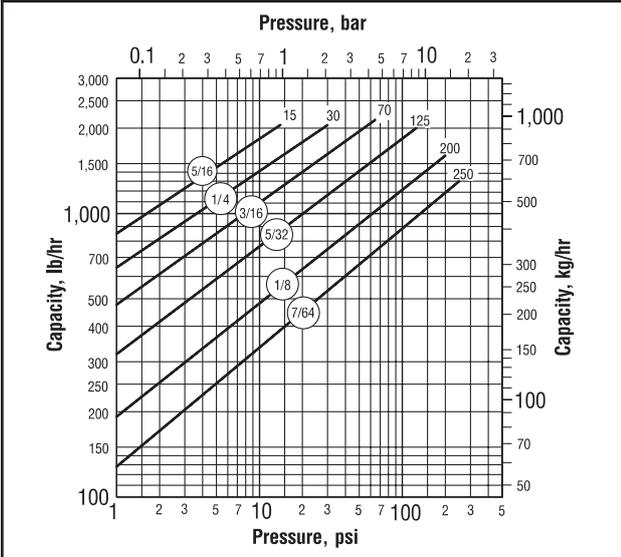
Model 880 Capacity



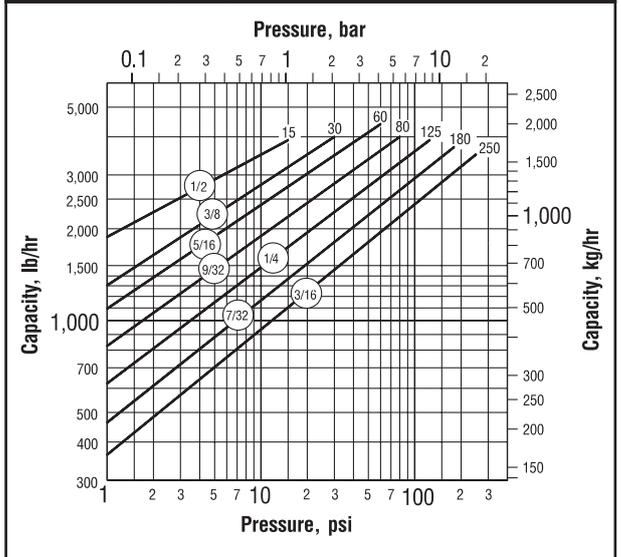
Model 881 Capacity



Model 882 Capacity



Model 883 Capacity

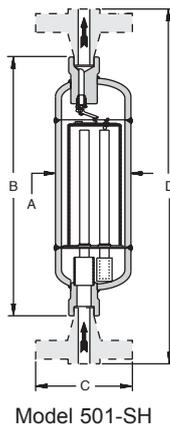
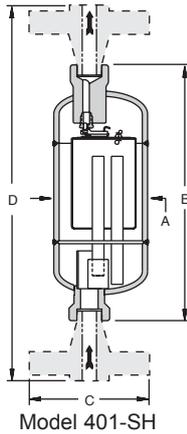


*last updated 11/15



401-SH/501-SH Series Inverted Bucket Superheat Steam Trap Carbon Steel or Stainless Steel for Vertical Installation

For Pressures to 1,540 psig (105 bar)...Capacities to 950 lb/hr (432 kg/hr)



Description

Armstrong's 401-SH/501-SH Series inverted bucket steam trap line is made for overcoming the difficult combination of superheat and high pressure/low load service.

To survive this most severe steam service, Armstrong created an inverted bucket trap with a unique accumulation chamber. The chamber collects sufficient condensate to ensure full discharge cycles. A cup in the chamber floats up and down on the steam inlet tube, sealing it off as the condensate level rises. At the same time as the chamber collects condensate, steam continues to flow under the bucket, making sure that the discharge valve closes tightly until the condensate rises into the trap body and the bucket falls down. The operation is on/off, no throttling or dribbling.

Furthermore, it combines all the advantages of an inverted bucket steam trap:

- High resistance to wear, corrosion and water hammer with no gaskets.
- A unique leverage system multiplies the force provided by the bucket, to open the valve against system pressure.
- The mechanism is located at the top. No dirt can collect on the orifice. Small particles of dirt will be held in suspension until discharged by the full differential purging action.
- The discharge orifice is surrounded by a water seal, preventing live steam loss. Automatic air venting is provided by a small hole in the bucket.
- Inverted bucket traps require no adjustment. They do not allow condensate backup and are resistant to water hammer.

Maximum Operating Conditions

Maximum allowable pressure (vessel design):

- Model 401-SH: 1,000 psig @ 800°F (69 bar @ 427°C)
- Model 501-SH: 1,540 psig @ 850°F (105 bar @ 454°C)

Maximum operating pressure:

- Model 401-SH: 1,000 psig
- Model 501-SH: 1,540 psig

Connections

- Screwed NPT and BSPT (401-SH only)
- Socketweld
- Flanged

Materials

Body:

- Model 401-SH Carbon steel ASTM A106 Gr. B Sch. 80 pipe
- Model 501-SH Stainless steel 316L ASTM A312 Sch. 80 pipe

Internals: Stainless steel—304

Valve and seat: Titanium

Connections:

- Model 401-SH Stainless steel—304
- Model 501-SH Stainless steel—316L

Specification

Inverted bucket steam trap, type ... in carbon steel (stainless steel), with accumulation chamber, continuous air venting at steam temperature, stainless steel leverage system, with the discharge orifice at the top of the trap.

How to Order

Specify:

- Model number
- Size and type of pipe connection. When flanges are required, specify type of flange in detail
- Maximum working pressure that will be encountered or orifice size

For a fully detailed certified drawing, refer to:

401-SH CD #1011

501-SH CD #1012

401-SH and 501-SH Series Steam Traps						
Model No.	401-SH		501-SH			
	in	mm	in	mm	in	mm
Pipe Connections	1/2,3/4	15,20	1/2	15	3/4	20
"A" Diameter (NPT, BSPT or SW)	4	100	4	100	4	100
"B" Height (NPT, BSPT or SW)	11	275	13-9/16	344	13-9/16	344
"C" Diameter (Flanged)*	4-5/8	117	4-3/4	121	5-1/8	130
"D" Height (Flanged)*	15-1/8	384	18-3/16	462	18-11/16	475
Weight NPT, BSPT or SW lb (kg)	12 (5.5)		15 (7)			
Weight Flanged lb (kg)	15 (6.7)		29 (13)			

*401-SH 600 lb RF shown. 501-SH 900/1500 lb RF shown.

*last updated 11/15

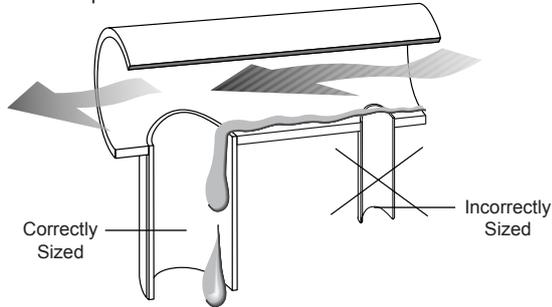


401-SH/501-SH Series Inverted Bucket Superheat Steam Trap Carbon Steel or Stainless Steel for Vertical Installation

For Pressures to 1,540 psig (105 bar)...Capacities to 950 lb/hr (432 kg/hr)

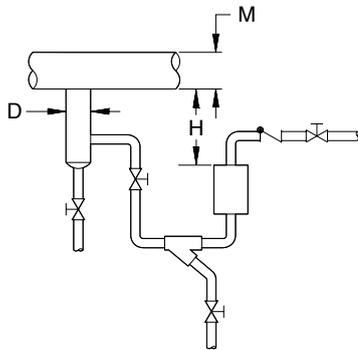
Installation Recommendations

What little condensate there is on superheat and high pressure/low load service usually forms in drip legs and in the traps themselves. Therefore proper piping and drip legs of adequate size and diameter are essential for the successful operation of the Armstrong superheat trap.



Drip Leg Sizing

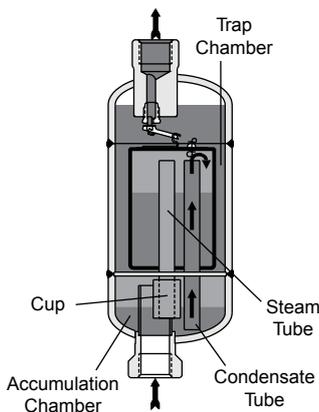
The properly sized drip leg will capture condensate. Too small a drip leg can actually cause a venturi "piccolo" effect where pressure drop pulls condensate out of the drip leg and trap.



Trap Draining Drip Leg on Steam Main

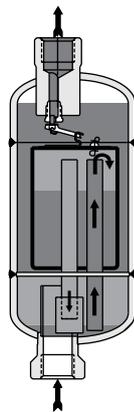
KEY

□ Air □ Steam □ Condensate



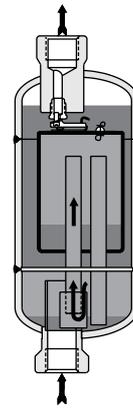
Cycling—Discharge Valve Wide Open

With the steam feed tube to the trap chamber sealed, condensate flows through the condensate feed tube (from accumulation chamber) into the trap chamber. This sinks the inverted bucket, which opens the discharge valve, cycling the trap.



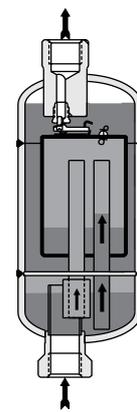
Cycle Ending

As the level of condensate in the accumulation chamber falls, the cup sealing the steam feed tube moves downward, opening a passage for steam to flow into trap chamber.



Trap Closed

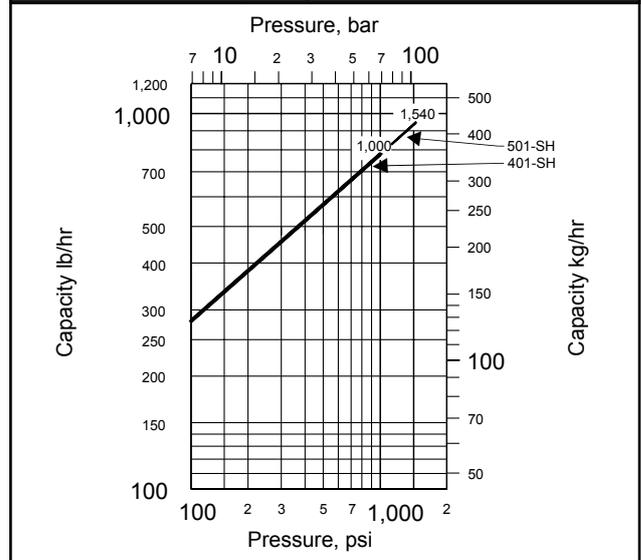
As steam begins to flow through the accumulation chamber and up the steam feed tube under the inverted bucket in the trap chamber, the discharge valve closes tightly.



Cycle About to Repeat

As the level of condensate rises in the accumulation chamber, the cup floats up until it again seals the steam feed tube, and the cycle repeats.

Model 401/501 Capacity



Recommended Steam Main and Branch Line Drip Leg Tracing

M		D		H Drip Leg 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	28	710
20	500	10	250	30	760	30	760
24	600	12	300	36	910	36	910

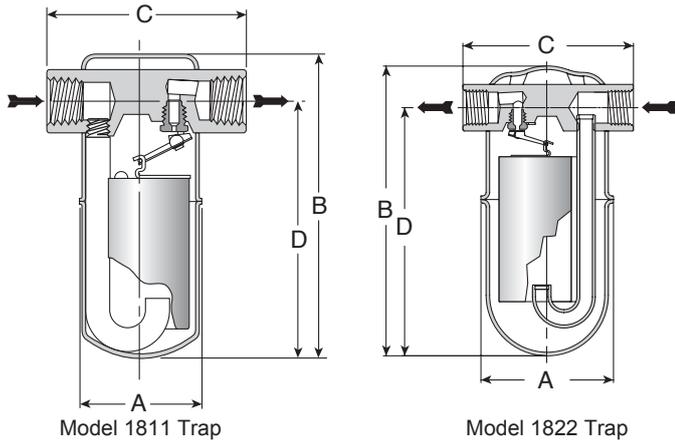
*last updated 11/15



1800 Series Inverted Bucket Steam Trap

All Stainless Steel for Horizontal Installation

For Pressures to 650 psig (45 bar)...Capacities to 1,802 lb/hr (817 kg/hr)



Description

A quick and easy "in-line" replacement for other types of side inlet/side outlet traps, the Armstrong 1800 Series brings together all the benefits of energyefficient inverted bucket operation. Side inlet/outlet all-welded construction means an inverted bucket trap that will operate efficiently on applications such as tracer lines, drips, heating, processing and similar applications.

With the 1800 Series you get freeze-resistant, all-stainless steel construction, with a three-year guarantee, plus all the benefits of inverted bucket operation:

- Long, trouble-free service life
- Excellent purging action
- Continuous air venting
- Ease and flexibility of in-line installation

Maximum Operating Conditions

Maximum allowable pressure (vessel design):

Model 1810, 1811:	400 psig @ 800°F (28 bar @ 427°C)
Model 1822:	650 psig @ 600°F (45 bar @ 315°C)
	627 psig @ 700°F (43 bar @ 371°C)
	604 psig @ 800°F (41.6 bar @ 427°C)

Maximum operating pressure:

Model 1810:	200 psig (14 bar)
Model 1811:	400 psig (28 bar)
Model 1822:	650 psig (45 bar)

Connections

- Screwed NPT and BSPT
- Socketweld
- Flanged (consult factory)

Materials

Body:	ASTM A240 Grade 304L
Internals:	All stainless steel—304
Valve and seat:	Hardened chrome steel—17-4PH or Titanium

Options

- Insu-Pak™ insulation for Models 1810/1811
- Stainless steel pop drain for Models 1811/1822
- Probe connection for Models 1811/1822
- Restricted orifice
- Wiggle wire

Specification

Inverted bucket steam trap, type ... in all stainless steel, freeze resistant, without gaskets, with continuous air venting at steam temperature, freefloating stainless steel mechanism, and orifice at the top of the trap.

How to Order

- Specify:
- Model number
 - Size and type of pipe connection
 - Maximum working pressure that will be encountered or orifice size
 - Any options required

For a fully detailed certified drawing, refer to CD #1005.

1800 Series Traps										
Model No.	1810		1811				1822			
	in	mm	in	mm	in	mm	in	mm	in	mm
Pipe Connections	3/8, 1/2	10, 15	1/2	15	3/4	20	1/2, 3/4	15, 20	1	25
"A" (Diameter)	2-11/16	68	2-11/16	68	2-11/16	68	3-7/8	99	3-7/8	99
"B" (Height)	5-5/16	135	6-5/16	160	6-9/16	167	8-1/2	218	8-1/2	218
"C" (Face to Face)	4-5/16	110	4-5/16	110	4-5/16	110	5	127	5	127
"D" (Bottom to Q Inlet)	4-7/16	113	5-7/16	138	5-9/16	141	7-3/8	187	7-1/8	181
Weight lb (kg)	1-3/4(0.8)		2(0.9)		2-3/8(1.1)		7(3)			

*last updated 11/15

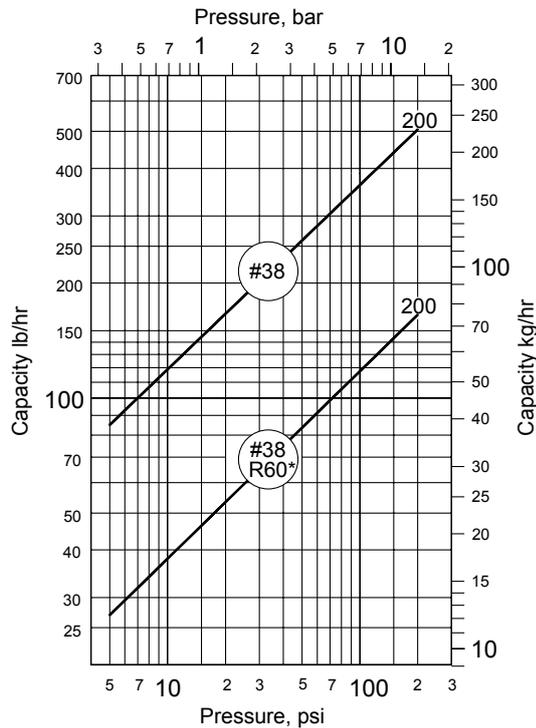


1800 Series Inverted Bucket Steam Trap

All Stainless Steel for Horizontal Installation

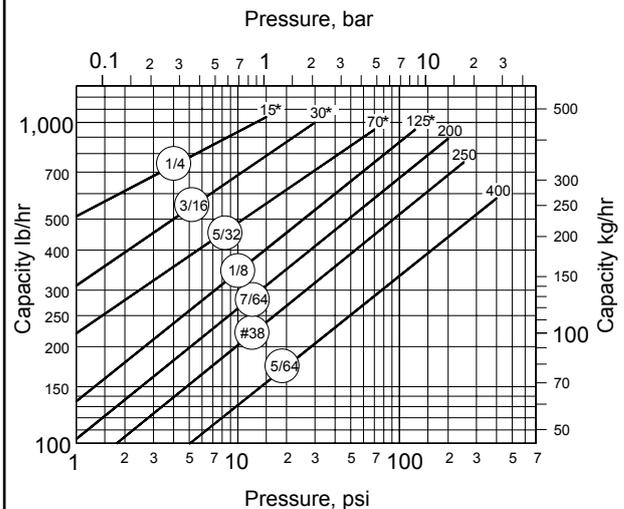
For Pressures to 650 psig (45 bar)...Capacities to 1,802 lb/hr (817 kg/hr)

Model 1810 Capacity



*NOTE: Because the orifice is located at the top, inverted bucket steam traps handle dirt and scale better than other types of traps. However, in applications where extremely dirty conditions exist, care should be exercised in the use of all types of restricted-orifice, reduced-capacity traps.

Model 1811 Capacity

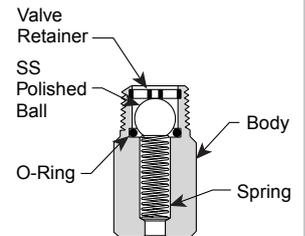


*Orifices available only with 3/4" connections.

Options

Pop Drain for Freeze Protection

In general, a properly selected and installed Armstrong trap will not freeze as long as steam is coming to the trap. If the steam supply is shut off, a pop drain should be used to automatically drain the trap. Stainless steel pop drain available for Models 1811 and 1822.



Maximum Operating Conditions

Pressure: 600 psig (41 bar)
Temperature: 350°F (177°C)

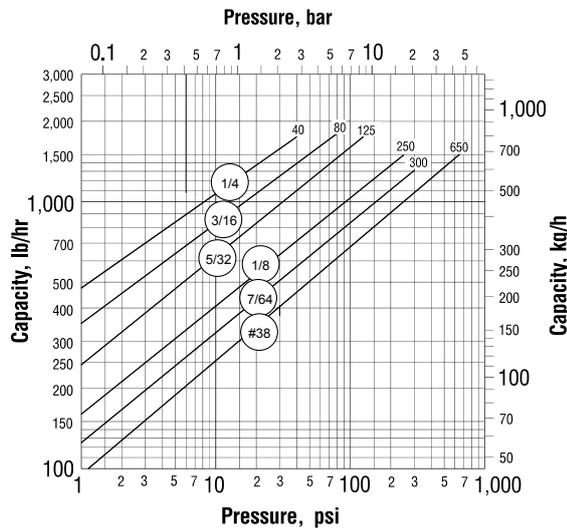
Insu-Pak™

Now you can insulate the in-line traps in your plant without complicating regular trap maintenance. Insu-Pak, a simple reusable insulation package, cuts the time and cost of in-field installation because it goes on in a snap. And it comes off just as easily. Insu-Pak can prevent trap freezeup when used with a properly designed condensate manifold. Designed for use with Model 1810 and Model 1811 traps.



Probe connections are available for trap monitoring on Models 1811 and 1822.

Model 1822 Capacity



*last updated 11/15



2000 Series Stainless Steel Traps

The Armstrong stainless steel traps—Series 1000, Series U-1000, Series 1800 and Series 2000—have high resistance to damage from freeze-ups. They also offer high resistance to wear and corrosion for longer service reliability, and they provide continuous air venting.

Armstrong stainless steel traps provide maximum ease and economy of installation, inspection or replacement. What's more, an Armstrong stainless steel trap is the ideal solution for trapping applications such as tracer lines, steam mains, and heating and processing applications.

Wear and corrosion resistance

Free-floating guided lever valve mechanism is "frictionless," and all wear points are heavily reinforced. All working parts are stainless steel. Valve and seat are stainless steel, individually ground and lapped together in matched sets.

360° universal 304 stainless steel connector

Provides quick, easy in-line renewability along with all the proven advantages of an inverted bucket operation. Also available with optional IS-2 integral strainer connector with 20 x 20 mesh stainless steel strainer.

Virtually no steam loss

Steam does not reach the water-sealed discharge valve.

Purging action

Snap opening of the valve creates a momentary pressure drop and turbulence in the unit drained. This breaks up films of condensate and air and speeds their flow to the trap.

Sealed, tamperproof 304-L stainless steel package

Able to withstand freeze-ups without damage.

Excellent operation against back pressure

Since trap operation is governed by the difference in density of steam and water, back pressure in the return line has no effect on the ability of the trap to open for condensate and close against steam.

Resistance to damage from water hammer

Open bucket or float will not collapse as a result of water hammer.

Continuous air and CO₂ venting

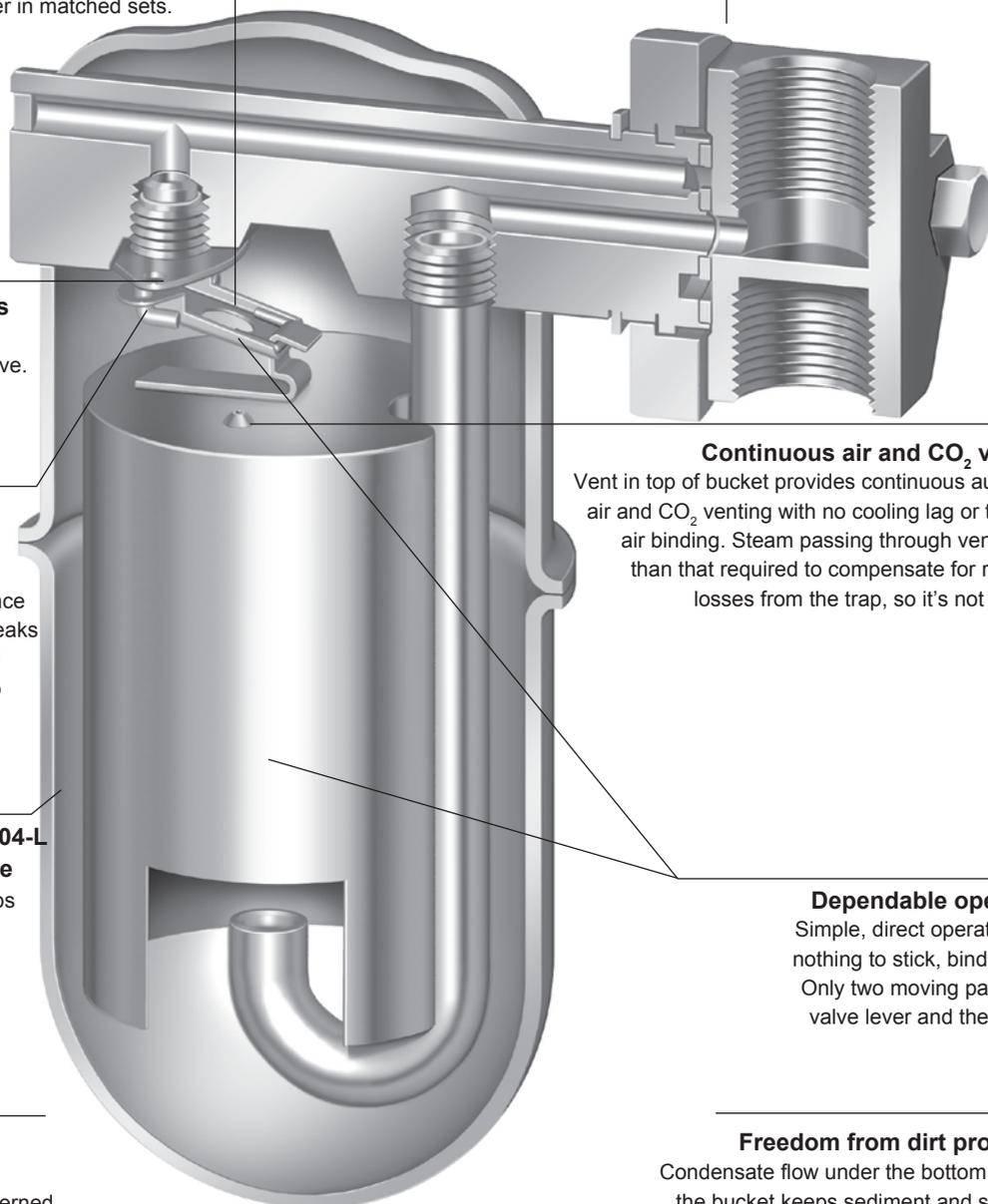
Vent in top of bucket provides continuous automatic air and CO₂ venting with no cooling lag or threat of air binding. Steam passing through vent is less than that required to compensate for radiation losses from the trap, so it's not wasted.

Dependable operation

Simple, direct operation with nothing to stick, bind or clog. Only two moving parts—the valve lever and the bucket.

Freedom from dirt problems

Condensate flow under the bottom edge of the bucket keeps sediment and sludge in suspension until it is discharged with the condensate. Valve orifice opens wide and closes tightly. No buildup of dirt or close clearances to be affected by scale.



*last updated 11/15

For Pressures to 650 (45 bar) psig... Capacities to 1,300 lbs/hr (590 kg/hr)

With the Series 2000 360° universal connector, you can install inverted bucket efficiency and long service life in any piping configuration with little or no repiping. You get the reliability of the inverted bucket operating principle, plus all the benefits of all-stainless steel construction:

- A sealed, tamperproof package
- A compact, lightweight trap
- The ability to withstand freeze-ups without damage
- Exceptional corrosion resistance
- A three-year guarantee against defective materials or workmanship

Series 2000 steam traps combine savings in three important areas: energy, installation and replacement. The 360° universal connector provides quick, easy in-line renewability along with all the proven advantages of an inverted bucket operation. Choice of NPT or BSPT screwed connections, or socketweld connections.

Also available with IS-2 integral strainer connector.



Available with
Standard Connector
Material: 304 stainless
steel



Available with
IS-2 Integral Strainer Connector
(shown with optional blowdown valve)
Material: 304 stainless steel



Available with
IS-4 Connector
Material: ASTM A351 Gr. CF8M



2000 Series Inverted Bucket Steam Trap

All Stainless Steel With 360° Connector/IS-2/TVS-4000

For Pressures to 650 psig (45 bar)...Capacities to 1,300 lb/hr (590 kg/hr)

Description

With the 2000 Series' 360° universal connector, you can install inverted bucket efficiency and long service life in any piping configuration with little or no repiping. You get the reliability of the inverted bucket operating principle, plus all the benefits of all-stainless steel construction:

- A sealed, tamperproof package
- A compact, lightweight trap
- The ability to withstand freeze-ups without damage
- Exceptional corrosion resistance
- A three-year guarantee against defective materials, defective workmanship.

2000 Series steam traps combine savings in three important areas: energy, installation and replacement. The 360° universal connector provides quick, easy in-line replacement along with all the proven advantages of inverted bucket operation.

Also available with optional IS-2 integral strainer connector.

Maximum Operating Conditions

Maximum allowable pressure (vessel design):
 Model 2010, 2011: 400 psig @ 800°F (28 bar @ 427°C)
 Model 2022: 650 psig @ 600°F (45 bar @ 315°C)
 627 psig @ 700°F (43 bar @ 371°C)
 600 psig @ 800°F (41 bar @ 427°C)

Maximum operating pressure:
 Model 2010: 200 psig (14 bar)
 Model 2011: 400 psig (28 bar)
 Model 2022: 650 psig (45 bar)

Connections

Screwed NPT and BSPT
 Socketweld
 Flanged (consult factory)

Materials

Body: ASTM-A 240 Grade 304L
 Internals: All stainless steel—304
 Valve and seat: Hardened chrome steel—17-4PH or Titanium
 Connector body (std & IS-2): Stainless steel—304
 Flange: ASTM A105 Zinc plated

Options

- Insu-Pak™ insulation for Models 2010/2011
- Stainless steel pop drain for Models 2011/2022
- Probe connection for Models 2011/2022
- Strainer blowdown valve for IS-2 connector
- Wiggle wire

360° Connector Styles

- Standard connector
- IS-2 connector with integral strainer
- IS-2 connector with integral strainer with blowdown valve

Specification

Inverted bucket steam trap, type ... in all stainless steel, freeze resistant, with 360° universal connector, having continuous air venting at steam temperature, free-floating stainless steel mechanism, and orifice at the top of the trap.

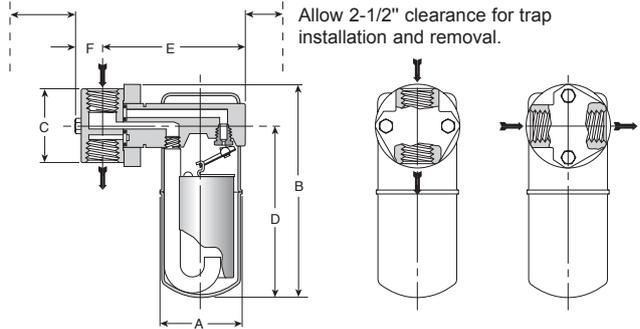
How to Order

Specify:

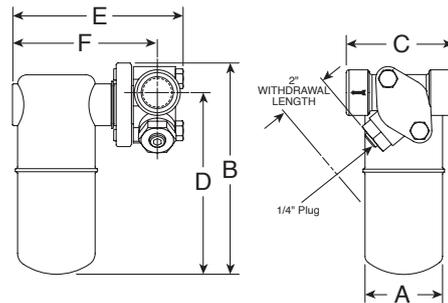
- Model number
- Size and type of pipe connection
- Type of 360° connector (with or without strainer)
- Maximum working pressure that will be encountered or orifice size
- Any options required

For a fully detailed certified drawing, refer to:
2000 Series with Standard Connector CD #1003
2000 Series with IS-2 Connector CD #1113

Allow 2-1/2" clearance for bolt installation and removal.



Model 2011 Trap With Standard Connector



Series 2010-2022 With IS-2 Connector

2000 Series Traps With Standard Connector						
Model No.	2010		2011		2022	
	in	mm	in	mm	in	mm
Pipe Connections	1/2, 3/4	15, 20	1/2, 3/4	15, 20	1/2, 3/4	15, 20
"A" (Diameter)	2-11/16	68	2-11/16	68	3-7/8	98
"B" (Height)	6	152	6-15/16	176	8-11/16	221
"C" (Face to Face)	2-3/8	60	2-3/8	60	2-3/8	60
"D" (Bottom to \varnothing)	4-19/32	117	5-9/16	141	7-3/8	187
"E" (\varnothing to Outside)	4-9/16	115	4-9/16	115	5-3/4	146
"F" (\varnothing to Bolt)	1	25	1	25	1	25
Weight lb (kg)	4-1/4 (1.9)		4-1/2 (2.0)		7 (3)	

2000 Series Traps With IS-2 Integral Strainer Connector

Model No.	2010				2011				2022			
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Pipe Connections	1/2, 3/4	15, 20	1	25	1/2, 3/4	15, 20	1	25	1/2, 3/4	15, 20	1	25
"A" (Diameter)	2-11/16	68	2-11/16	68	2-11/16	68	2-11/16	68	3-7/8	98	3-7/8	98
"B" (Height)*	6	152	6	152	6-15/16	176	6-15/16	176	8-11/16	221	8-11/16	221
"C" (Face to Face)	3-1/2	89	4	102	3-1/2	89	4	102	3-1/2	89	4	102
"D" (Bottom to \varnothing)*	5	127	5	127	6	152	6	152	7-3/4	197	7-3/4	197
"E" (Outside to Bolt)	5-1/2	140	5-11/16	144	5-1/2	140	5-11/16	144	6-11/16	170	6-7/8	175
"F" (\varnothing to Outside)	4-5/8	117	4-13/16	122	4-5/8	117	4-13/16	122	5-13/16	148	6	152
Weight lb (kg)	4-3/4 (2.2)		5-1/4 (2.4)		5 (2.3)		5-1/2 (2.5)		7 (3)			

*Add 1/2" (15 mm) to "B" and "D" dimensions when optional probe connection is required

*last updated 11/15

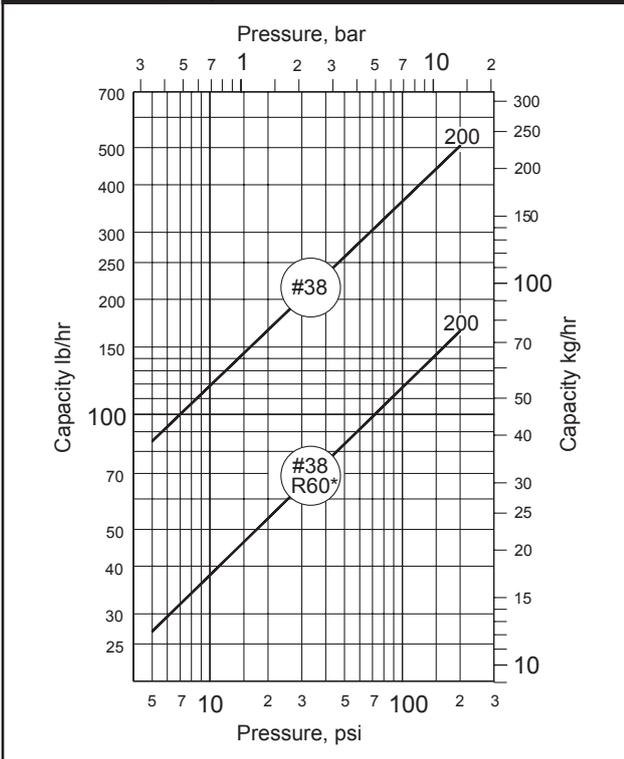


2000 Series Inverted Bucket Steam Trap

All Stainless Steel With 360° Connector/IS-2/TVS-4000

For Pressures to 650 psig (45 bar)...Capacities to 1,300 lb/hr (590 kg/hr)

Model 2010 Capacity



*NOTE: Because the orifice is located at the top, inverted bucket steam traps handle dirt and scale better than other types of traps. However, in applications where extremely dirty conditions exist, care should be exercised in the use of all types of restricted-orifice, reduced-capacity traps.

Connectors

Besides the inverted bucket traps, the standard connector, IS-2 connector, and TVS-4000 connector with integral strainer can also be used on thermostatic, thermostatic wafer and disc traps.

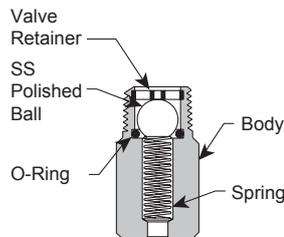


CD-3300 Disc Trap With IS-2 Integral Strainer Connector

Options

Pop Drain for Freeze Protection

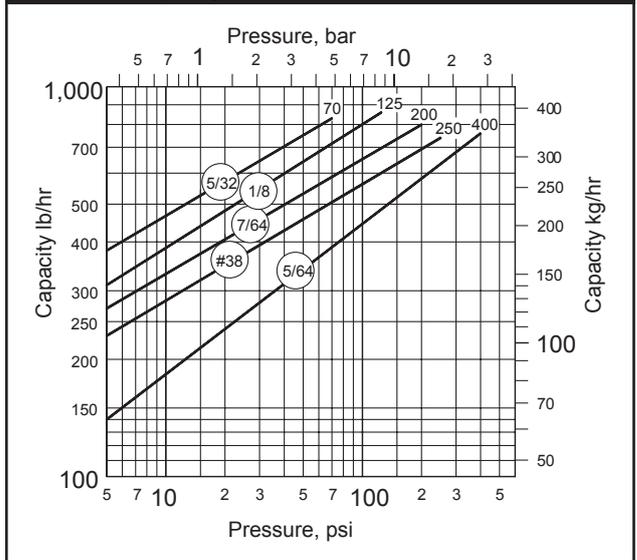
In general, a properly selected and installed Armstrong trap will not freeze as long as steam is coming to the trap. If the steam supply is shut off, a pop drain should be used to automatically drain the trap. Stainless steel pop drain available for Models 2011 and 2022.



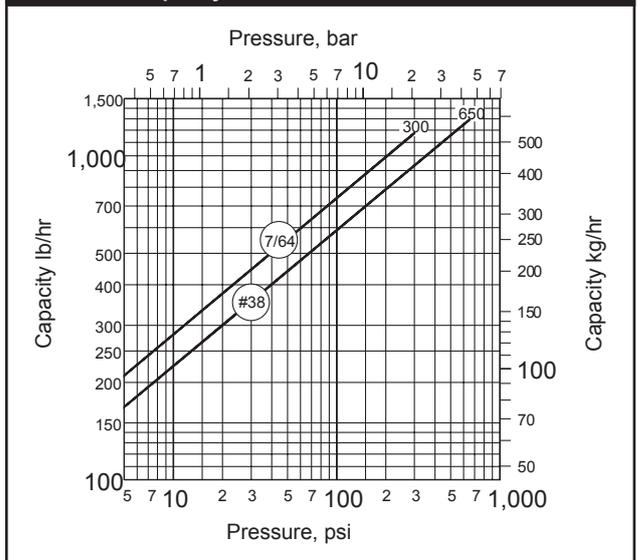
Maximum Operating Conditions

Pressure: 600 psig (41 bar)
Temperature: 350°F (177°C)

Model 2011 Capacity



Model 2022 Capacity



Insu-Pak

Now you can insulate the in-line traps in your plant without complicating regular trap maintenance. Insu-Pak, a simple reusable insulation package, cuts the time and cost of in-field installation because it goes on in a snap. And it comes off just as easily. The Insu-Pak can prevent trap freeze-up when used with a properly designed condensate manifold. Designed for use with Model 2010 and Model 2011 traps.



Probe connections are available for trap monitoring for Models 2011 and 2022.

*last updated 11/15