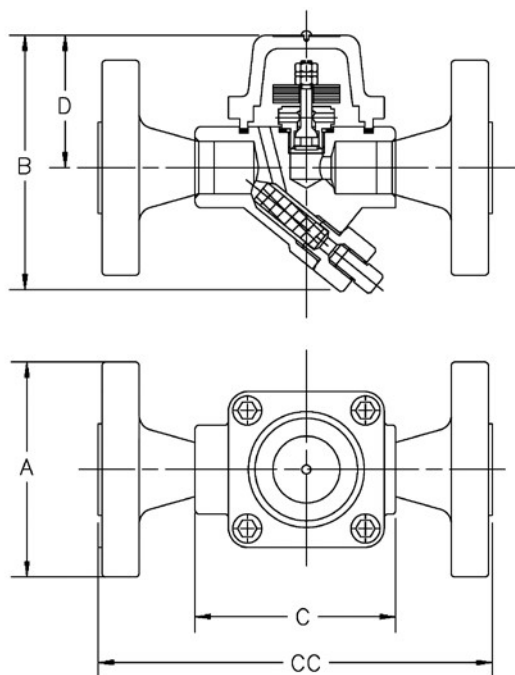


SH-300 Bimetallic Steam Trap

Carbon Steel

For Pressures to 22 bar...Capacities to 1 800 kg/h



Connections

Screwed BSPT and NPT
Socketweld
Flanged PN40 1092-1 or ANSI (welded)

Materials

Body and cap: ASTM A105
ASTM A350-LF2
Valve: Chrome Steel - 440C
Seat: Stainless steel
Bimetallic elements: Nickel plated

Specification

Bimetallic steam trap, type SH-300 in carbon steel. Maximum allowable back pressure 99% of inlet pressure.

How to Order

Specify:

- Model number
- Size and type of pipe connection.

Description

The SH-300 steam trap operates on the temperature principle using two layers of bimetallic elements that have different expansion coefficients. The stem connected to these elements moves a valve into either an open or closed position.

During start-up, the trap is cold so the elements are flat and the valve is wide open. This results in air and condensate being easily removed from the system.

In standard operation, the position of the valve depends on two parameters: first, the pressure, which will cause the valve to open; and second, the temperature, which will cause the elements to convex and the valve to close.

When no condensate is present and set temperature is reached, the force of the elements is then high enough to completely close the valve.

The SH-300 steam trap can adjust itself to changing conditions, because if the pressure rises, the higher pressure works on the valve. At the same time, the higher temperature will work on the elements.

Maximum Operating Conditions

Maximum allowable pressure
(vessel design)†: 40 bar @ 350°C
Maximum operating pressure: 22 bar
Maximum back pressure: 99% of inlet pressure

Table 172-1. Model SH-300 Trap (dimensions in mm)

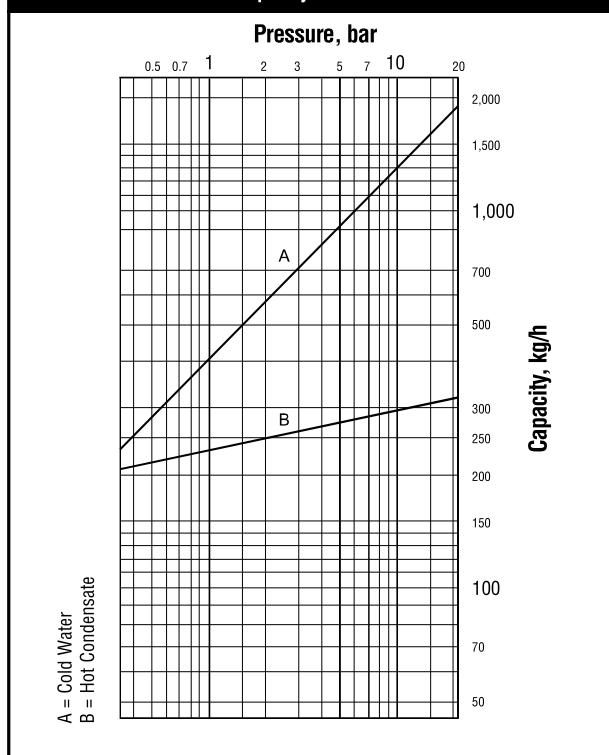
Model No.	SH-300
Pipe Connections	15 – 20 – 25
«B» Height (screwed & SW)	115
«A» Height (flanged PN40*)	115
«C» Face-to-Face (screwed & SW)	90 – 90 – N/A
«CC» Face-to-Face (flanged PN40*)	150 – 150 – 160
«D» \varnothing to Top	60
Weight in kg (screwed & SW)	1,9
Weight in kg (flanged PN40*)	4,3 – 4,5 – 4,7

* Other flange sizes, ratings and face-to-face dimensions are available on request.
All sizes comply with the article 3.3 of the PED (97/23/EC).

† May be derated depending on flange rating and type.

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.

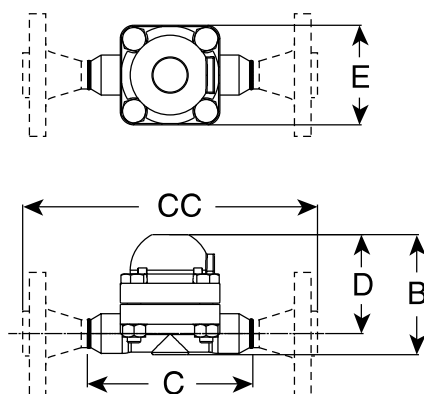
Table ST-172-2. SH-300 Capacity



SH-900 Bimetallic Superheat Steam Trap

Stainless Steel

For Pressures to 62 bar...Capacities to 4 990 kg/h



Model SH-900

Description

SH Series superheat steam traps operate by the effect that rising temperature has on the thermostatic bimetallic elements.

At start-up the valve is wide open, which allows a large volume of non-condensables and cold condensate to be removed from the system. When the system reaches steam temperature, the elements become sufficiently hot to pull on the trap's valve stem, closing the valve.

The valve remains closed until the bimetallic elements cool, thus allowing the valve to crack open, vent the condensate and non-condensables, and then close again when steam temperature is reached.

The SH Series superheat steam traps adjust automatically to changing conditions. Hot elements in the valve generate forces to offset rises in pressure.

Specification

Bimetallic style steam traps type SH-900 in stainless steel with integral stainless steel strainer, inline repairable. The mechanism shall consist of a stacked nickel-chrome bimetal operator with titanium valve and seat. The steam trap shall be capable of operation on low-load applications throughout its pressure/temperature range. Maximum allowable back pressure 99% of inlet pressure.

How to Order

Specify:

- **SH-900 is available in two versions: low pressure from 14 - 44 barg (SH-900L) and high pressure from 41 - 62 barg (SH-900H)**
- Size and type of pipe connection
- Maximum working pressure that will be encountered
- Maximum condensate load

Table ST-173-3. SH Series

Model	SH-900*
Pipe Connections	mm 15 – 20 – 25
"B" Height	115
"C" Face-to-Face (screwed & SW)	158
"CC" Face-to-Face (flanged PN64*)	233 – 240 – 278
"D" \varnothing to Top	95
"E" Width	95
Weight kg (screwed & SW)	4,4

* Standard flanges are in carbon steel, stainless steel flanges are optional. Other flange sizes, ratings and face-to-face dimensions are available on request. All sizes comply with the article 3.3 of the PED (97/23/EC).

† May be derated depending on flange rating and type.

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.



Steam Trapping and
Steam Tracing Equipment

Table ST-173-1. Model SH-900 Cold Water Capacity

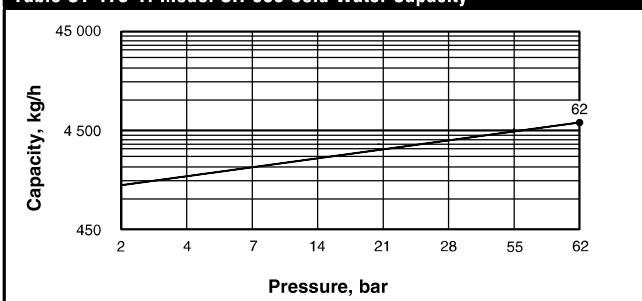
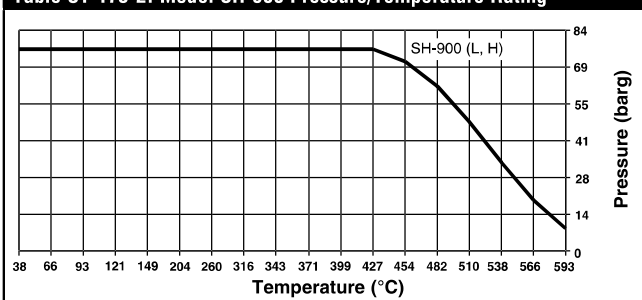


Table ST-173-2. Model SH-900 Pressure/Temperature Rating



Maximum operating conditions

Maximum allowable pressure

(vessel design)†:

62 bar @ 482°C

Maximum operating pressure:

62 bar

Maximum back pressure:

99% of inlet pressure

Suggested minimum operating pressure

14 bar

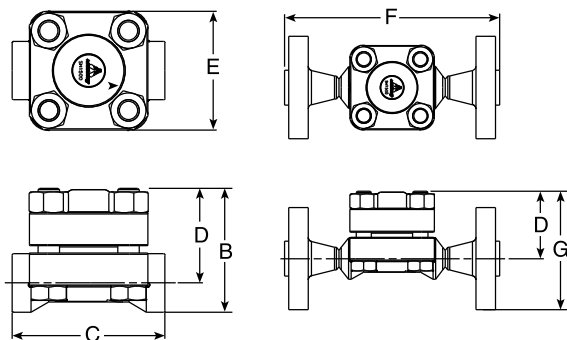
Table ST-173-4. Model SH-900

Connections	15 – 20: Screwed NPT, BSPT, socketweld, flanged, buttweld	25: Flanged, buttweld
Material		
Body and Cap	ASTM A351 Gr. CF8M	
Valve	Titanium	
Seat		
Bimetallic Elements	Nickel-chrome and stainless steel	
Strainer	Stain Steel Screen	

SH-1500 Bimetallic Superheat Steam Trap

Forged Chromemoly Steel

For Pressures to 124 bar...Capacities to 3 180 kg/h



Model SH-1500

Description

SH Series superheat steam traps operate by the effect that rising temperature has on the thermostatic bimetallic elements.

At start-up the valve is wide open, which allows a large volume of non-condensables and cold condensate to be removed from the system. When the system reaches steam temperature, the elements become sufficiently hot to pull on the trap's valve stem, closing the valve.

The valve remains closed until the bimetallic elements cool, thus allowing the valve to crack open, vent the condensate and non-condensables, and then close again when steam temperature is reached.

The SH Series superheat steam traps adjust automatically to changing conditions. Hot elements in the valve generate forces to offset rises in pressure. The SH 1500 series utilizes titanium valves and seats to ensure extremely long service life in the harsh environment of superheated steam systems.

Specification

Bimetallic style steam traps type SH-1500 in investment cast chromemoly steel with integral stainless steel strainer, inline repairable. The mechanism shall consist of a stacked nickel-chrome bimetal operator with titanium valve and seat. The steam trap shall be capable of operation on low-load applications throughout its pressure/temperature range. Maximum allowable back pressure 99% of inlet pressure.

How to Order

Specify:

- Size and type of pipe connection
- Maximum working pressure that will be encountered
- Maximum condensate load

Table ST-174-3. SH Series

Model	SH-1500*	
	mm	
Pipe Connections	20	25
"B" (Height BW) in mm	129	129
"C" (Face-to-face BW - with extended nipples) in mm	157	157
"D" (Centerline to Top) in mm	98	98
"E" (Width) in mm	123	123
"F" (Face-to-face Flanged ANSI 1500#) in mm	305	311
"G" (Height Flanged ANSI 1500lbs) in mm	163	173
Weight in kg (BW)	10,4 kg	10,4 kg
Weight in kg (Flanged ANSI 1500#)	17,2 kg	18,1 kg

* Standard flanges are in carbon steel, stainless steel flanges are optional. Other flange sizes, ratings and face-to-face dimensions are available on request.
All sizes comply with the article 3.3 of the PED (97/23/EC).

† May be derated depending on flange rating and type.



Maximum operating conditions

Table ST-174-1. Model SH-1500 Cold Water Capacity

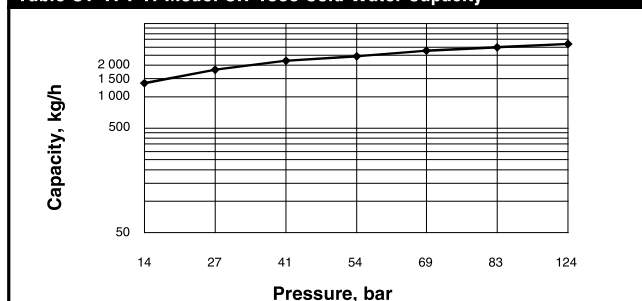
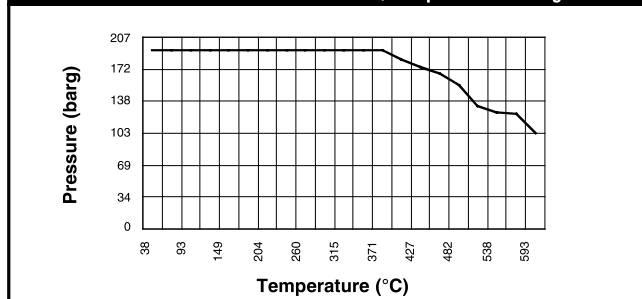


Table ST-174-2. Model SH-1500 Pressure/Temperature Rating



Maximum allowable pressure

(vessel design)†: 124 bar @ 565°C

Maximum operating pressure: 124 bar

Maximum back pressure: 99% of inlet pressure

Suggested minimum operating pressure: 41 bar

Table ST-174-4. Model SH-1500

Connections	20 – 25: Buttweld, Flanged
Material	
Body and Cap	ASTM 217 Gr. C12A
Valve	Titanium
Seat	
Bimetallic Elements	Nickel-chrome and stainless steel
Strainer	Stain Steel Screen

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.

SH-2000 Bimetallic Steam Traps

All Stainless Steel

For pressures to 28 bar...Cold Water Capacities to 2175 kg/hr



Description

SH Series Superheat Steam Traps operate by the effect that rising temperature has on the thermostatic bimetallic elements.

The effect of rising temperature on bimetallic elements operates the Armstrong SH-2000 bimetallic steam trap. It adjusts to changing conditions because the curving of the bimetallic elements, caused by increasing temperature, compensates for increasing pressure.

At start-up, the valve is wide open, which allows a large volume of non-condensables and cold condensate to be removed from the system. When the system reaches steam temperature, the elements become sufficiently hot to pull on the trap's valve stem, closing the valve.

The valve remains closed until the bimetallic elements cool, thus allowing the valve to crack open, venting the condensate and non-condensables, and then close again when steam temperature is reached.

The Armstrong SH-2000 has a sealed, stainless steel body that is lightweight, compact and highly resistant to corrosion. It is adaptable to an Armstrong 360° Universal Connector or a Trap Valve Station (TVS). This makes it easy to install and replace, as the trap can be removed while the connector remains in-line. That means savings in labor cost and ultimate flexibility—because inverted bucket, thermostatic, thermostatic wafer, disc, and float and thermostatic steam traps can all be installed on the same connector.

Maximum Operating Conditions

Maximum allowable pressure (vessel design):

28 bar @ 427°C

Maximum operating pressure: 400 psi (28 bar)

Materials

Body:	Stainless Steel
Valve & Seat Elements:	Titanium, Ni-Cr and Stainless Steel
Ring:	Stainless Steel
Cap Assembly:	Stainless Steel
Flange:	ASTM A105 Zinc plated
Retainer Ring:	Carbon Steel
Spiral Wound Gasket:	Stainless Steel
Label:	Aluminum

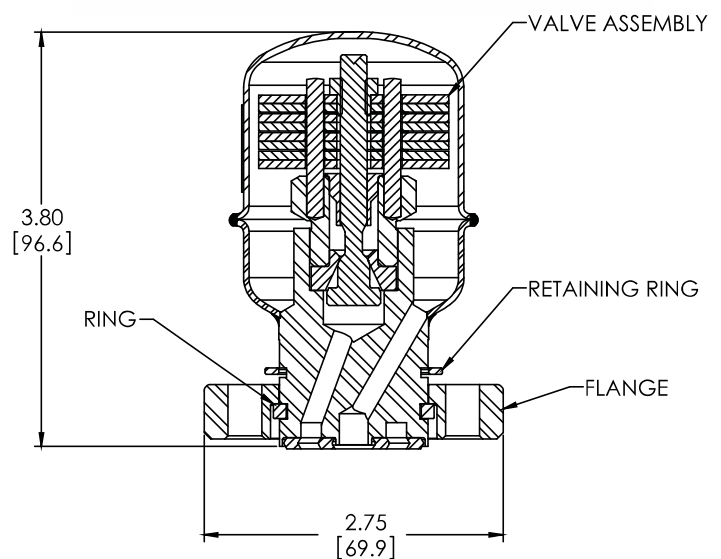
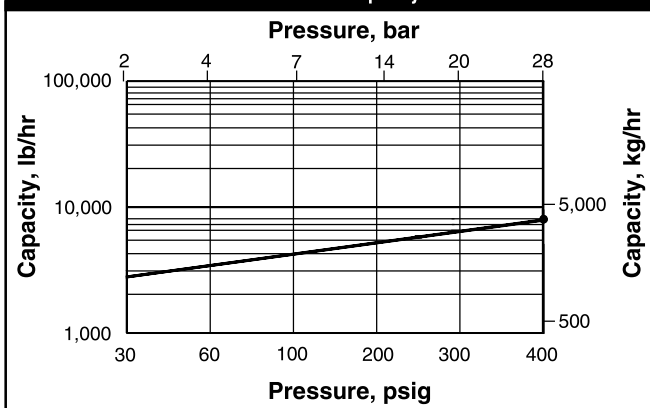


Table ST-175-1. SH-2000 Cold Water Capacity





SH-2500 Bimetallic Steam Trap

All Stainless Steel

For Pressures to 650 psig (45 bar)...Capacities to 6,000 lb/hr (2,722 kg/hr)

Description

Armstrong's SH-2500 Bimetallic Steam Trap is the ideal design for applications involving superheated steam.

During start-up, the bimetallic mechanism is fully open and allows large volumes of non-condensable gases and condensate to be removed from the system. As the system reaches saturated steam conditions, the mechanism begins to close preventing any live steam loss. The superheat during normal operating steam conditions keep the valve closed to ensure long service life.

In the event that operating conditions change and condensate forms at the steam trap inlet, the cooling effect allows the bimetallic mechanism to open and discharge any accumulation. The valve quickly closes once normal operating conditions return.

The SH-2500 consists of an investment cast, stainless steel body that is compact and highly resistant to harsh, corrosive environments. The integral mounting flange is compatible with the Armstrong IS-2, TVS-4000, std connector making for labor savings and easy steam trap replacement.



Maximum Operating Conditions

Maximum allowable pressure (vessel design):

45 bar @ 315°C

Maximum operating pressure:

45 bar @ 315°C

Materials and Weight

Body: ASTM A351 Gr. CF8M

Valve & Seat Elements: Titanium

Ni-Cr

Stainless Steel

Spiral Wound Gasket: Stainless Steel

Bolts: ASTM A193 B7

Weight: 2.8 lbs (1.3 kg)

Specification

Steam traps shall be a bimetallic style designed for superheated steam applications. The steam trap body shall be tamperproof, investment cast stainless steel A351 Gr. CF8M. The mechanism shall consist of a stacked nickel-chrome bimetal operator with titanium valve and seat. The gaskets shall be captured stainless steel spiral wound. The steam trap shall be compatible with the 2-bolt universal connector technology.

How to Order

Specify model number

Maximum working pressure and temperature

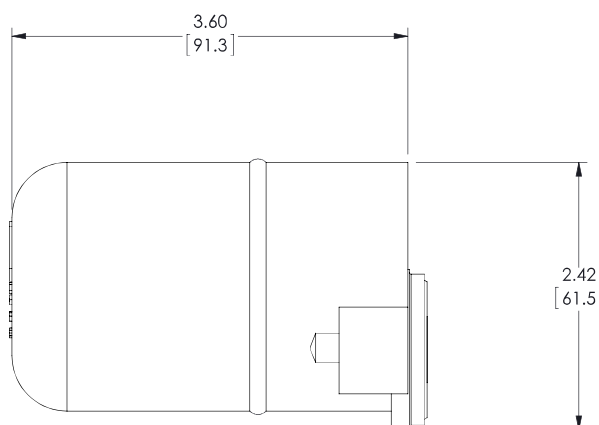
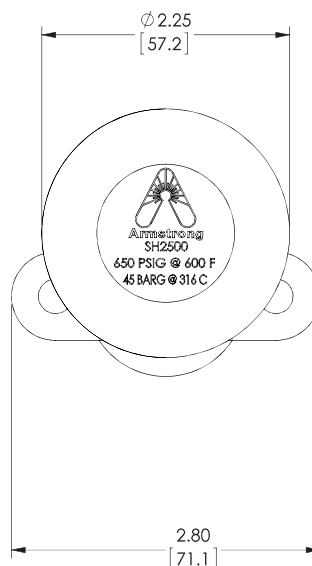
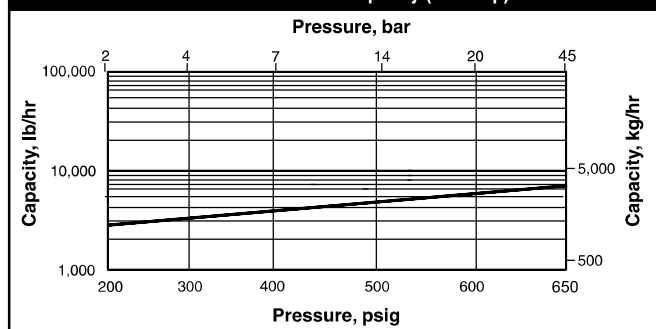


Table ST-176-1. SH-2500 Cold Water Capacity (Start Up)



Note: Cold water capacity for start-up loads only. When superheat present, there will be minimal condensate.

SH-4000 Series Bimetallic Steam Traps

All Stainless Steel

For Pressures to 86 bar ... Cold Water Start-up Capacities to 2 722 Kg/h



Armstrong's SH-4000 Bimetallic Steam Trap is the ideal design for applications involving superheated steam.

During start-up, the bimetallic mechanism is fully open and allows large volumes of non-condensable gases and condensate to be removed from the system. As the system reaches saturated steam conditions, the mechanism begins to close preventing any live steam loss. The superheat during normal operating steam conditions keep the valve closed to ensure long service life.

In the event that operating conditions change and condensate forms at the steam trap inlet, the cooling effect allows the bimetallic mechanism to open and discharge any accumulation. The valve quickly closes once normal operating conditions return.

The SH-4000 consists of an investment cast, stainless steel body that is compact and highly resistant to harsh, corrosive environments. The integral mounting flange is compatible with the Armstrong IS-4, 4-bolt, Class 900, connector making for labor savings and easy steam trap replacement.

Maximum Operating Conditions

Maximum allowable pressure (vessel design):
86 bar @ 482°C (1245 psig @ 900°F)

Maximum operating pressure:

SH-4009L	45 bar @ 482°C (650 psig @ 900°F)
SH-4009H	62 bar @ 482°C (900 psig @ 900°F)
SH-4015	86 bar @ 482°C (1245 psig @ 900°F)

Materials and Weight

Body:	ASTM A351 Gr. CF8M
Valve & Seat Elements:	Titanium
	Ni-Cr
	Stainless Steel
Spiral Wound Gasket:	Stainless Steel
Bolts:	ASTM A193 B7
Weight:	1,7 kg (3,75 lbs)

Specification

Steam traps shall be a bimetallic style designed for superheated steam applications. The steam trap body shall be tamperproof, investment cast stainless steel A351 Gr. CF8M. The mechanism shall consist of a stacked nickel-chrome bimetal operator with titanium valve and seat. The gaskets shall be captured stainless steel spiral wound. The steam trap shall be compatible with the 4-bolt universal connector technology.

How to Order

Specify model number
Maximum working pressure and temperature

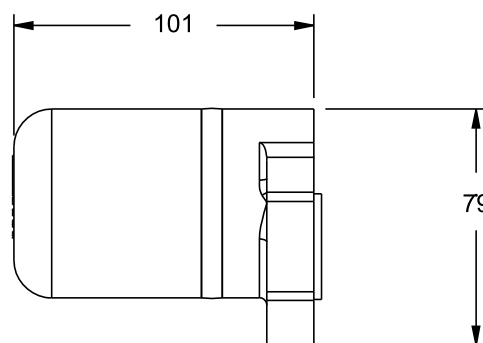
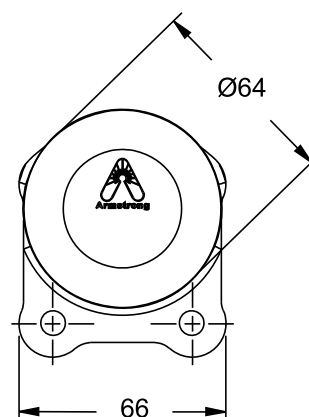
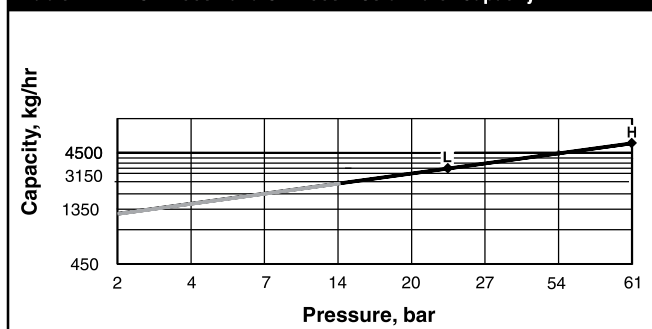
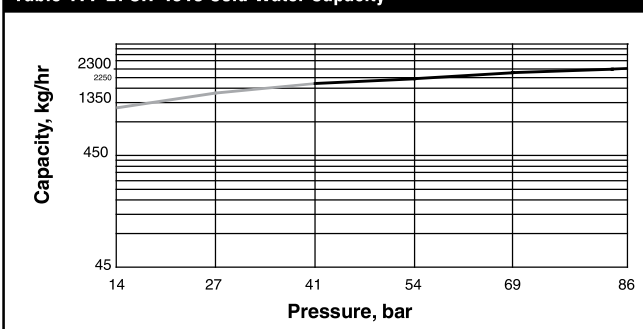


Table 177-1. SH-4009L and SH-4009H Cold Water Capacity



Note: Cold water capacity for start-up loads only. When superheat present, there will be minimal condensate. Grey curve indicates that trap can not be used in this area.

Table 177-2. SH-4015 Cold Water Capacity



All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.