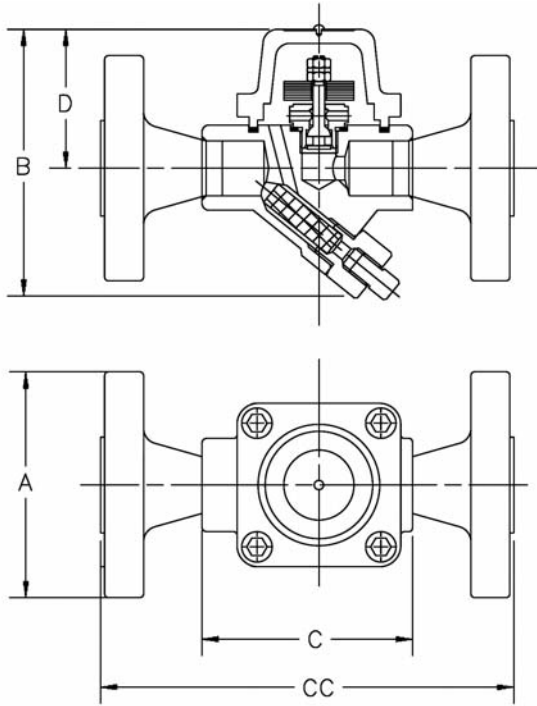


SH-300 Bimetallic Steam Trap

Carbon Steel
For Pressures to 22 bar...Capacities to 2 100 kg/h



Connections

Screwed BSPT and NPT
Socketweld
Flanged DIN or ANSI (welded)

Materials

Body and cap: ASTM A105
Valve: Chrome Steel - 440C
Seat: Stainless steel - 303, Boronized
Bimetallic elements: Nickel plated

Valve Boronized

The problem of wiredrawing of valve and seat materials is well known to users of steam traps and other types of valves. Wiredrawing is a particular problem to valves and seats of bimetallic traps, which rely on bimetallic elements to operate.

To solve the problem of wiredrawing, a new thermochemical surface treatment has been developed. The basic valve material is machinable hardened chrome steel. Atoms of highly resistant material are thermochemically diffused into the valve, giving a layer of protection and a hardness of 1700 HV to the basic material. Because of this new thermochemical treatment, the surface of the valve is highly resistant to the erosive action of flashing condensate. The failure rate of Armstrong bimetallic traps due to wearing out of valve and seat material is greatly reduced.

Specification

Bimetallic steam trap with valve boronized, 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)†: 32 bar @ 350°C
Maximum operating pressure: 22 bar
Maximum back pressure: 99% of inlet pressure

Table ST-154-1. Model SH-300 Trap (dimensions in mm)

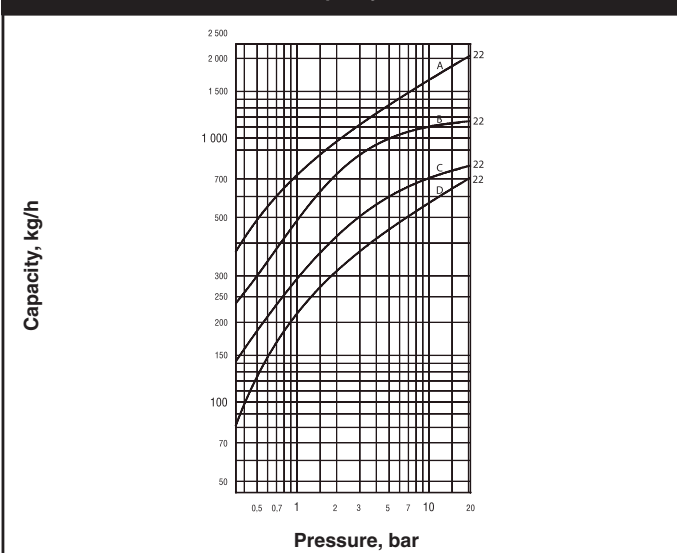
Model No.	SH-300
Pipe Connections	15 – 20 – 25
"B" Height (screwed & SW)	115
"A" Height (flanged PN40*)	115
"C" Face-to-Face (screwed & SW)	90 – 90 – N/A
"CC" Face-to-Face (flanged PN40*)	150 – 150 – 160
"D" \varnothing to Top	60
Weight in kg (screwed & SW)	1,9
Weight in kg (flanged PN40*)	4,3 – 4,5 – 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-154-2. Model SH-300 Capacity

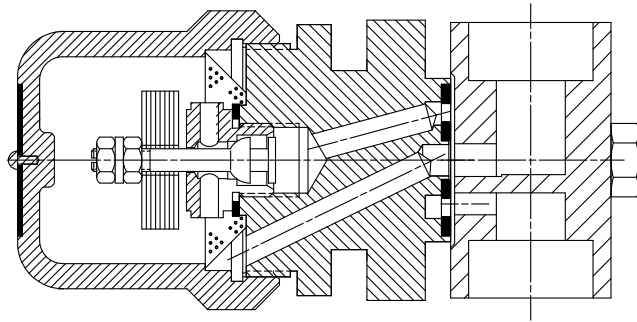


A = Cold Water
B = 40°C Below Saturation
C = 20°C Below Saturation
D = 10°C Below Saturation

AB-3000 Bimetallic Steam Trap

Stainless Steel

For Pressures to 22 bar...Capacities to 2 100 kg/h



Steam Traps

Description

Armstrong's AB-3000 Bimetallic Steam Trap operates by the effect that rising temperature has on bimetallic elements. It adjusts itself to changing conditions, as the increasing pressure on the valve is compensated by the curving of the bimetallic elements caused by the increasing temperature. The valve of the AB-3000 is specially treated (boronization) in order to be more resistant to wiredrawing due to erosive condensate flashing.

Armstrong's AB-3000 has a sealed, stainless steel body that is lightweight, compact and highly resistant to corrosion. The AB-3000 is repairable (body and cap can be unscrewed). It is piped through the Armstrong 360° Universal Connector or Trap Valve Station (TVS). This makes it easy to install and replace, as the trap can be removed while the connector remains in-line. The result is savings in labor cost and increasing in flexibility, as other trap types (Inverted Bucket, Thermostatic and Thermodynamic) can be installed on the same connector.

Valve Boronized

The problem of wiredrawing of valve and seat materials is well known to users of steam traps and other types of valves. Wiredrawing is a particular problem to valves and seats of bimetallic traps, which rely on bimetallic elements to operate.

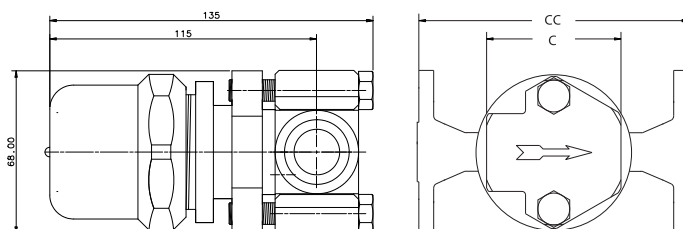
To solve the problem of wiredrawing, a new thermochemical surface treatment has been developed. The basic valve material is machinable hardened chrome steel. Atoms of highly resistant material are thermochemically diffused into the valve, giving a layer of protection and a hardness of 1700 HV to the basic material. Because of this new thermochemical treatment, the surface of the valve is highly resistant to the erosive action of flashing condensate. The failure rate of Armstrong bimetallic traps due to wearing out of valve and seat material is greatly reduced.

Table ST-155-1. Model AB-3000 Trap (dimensions in mm)

Pipe Connections	15 – 20 – 25
"C" Face-to-Face (screwed & SW)	60 – 60 – N/A
"CC" Face-to-Face (flanged PN40*)	150 – 150 – 160
Weight in kg (screwed & SW)	1,9
Weight in kg (flanged PN40*)	4,3 – 4,5 – 4,7

* 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

Maximum allowable pressure (vessel design)†:	28 bar @ 343°C
Maximum operating pressure:	22 bar
Maximum back pressure:	99% of inlet pressure

Connections

Screwed BSPT and NPT
Socketweld
Flanged DIN or ANSI (welded)

Materials

Body:	ASTM - A240 304L
Standard connector:	Stainless steel – 304
Valve:	Chrome steel – 440F, Boronized
Seat:	303 Stainless steel
Elements:	Nickel plated
Strainer:	304 Stainless steel

Specification

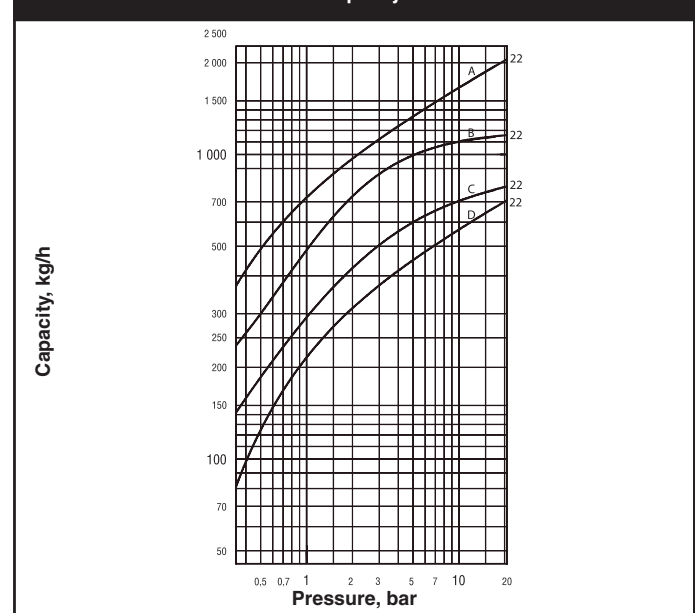
Bimetallic repairable steam trap with valve boronized, type AB-3000 in stainless steel, with integral strainer. Piped through 360° Universal Connector or Trap Valve Station (TVS). Maximum allowable back pressure 99% of inlet pressure.

How to order

Specify:

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

Table ST-155-2. Model AB-3000 Capacity



A = Cold Water
B = 40°C Below Saturation
C = 20°C Below Saturation
D = 10°C Below Saturation

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



AB-600 Bimetallic Steam Trap

Carbon Steel

For Pressures to 41 bar...Capacities to 4 000 kg/h

Description

Armstrong's AB-600 Bimetallic Steam Trap operates by the effect that rising temperature has on bimetallic elements. It adjusts itself to changing conditions, as the increasing pressure on the valve is compensated by the curving of the bimetallic elements caused by the increasing temperature.

Armstrong's AB-600 Bimetallic Steam Trap is the ideal solution for applications where other trap styles are not resisting to tough operating conditions. It also has the ability to handle the large start up loads associated with superheat applications. The unique bimetallic element allows for tight shut off before superheat reaches the trap thus preventing steam loss. The AB-600 utilizes a titanium valve and seat to ensure extremely long service life in the harsh environment of superheated steam systems.

Maximum operating conditions

Maximum allowable pressure (vessel design)†: 41 bar @ 400°C
 Maximum operating pressure: 41 bar
 Maximum back pressure: 99% of inlet pressure

Connections

Screwed BSPT and NPT
 Socketweld
 Flanged DIN or ANSI (welded)

Materials

Body: Carbon steel C22.8
 (corrosion resistant stainless steel body is optional)
 Cap: Carbon steel ASTM A105
 Valve: Titanium
 Seat: Titanium
 Elements: Ni-Cr and Stainless steel
 Strainer: 304 Stainless steel

Specification

Bimetallic steam trap with valve boronized, type AB-600 in carbon steel, with integral strainer. Suitable also for superheated steam applications. 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-156-2. Model AB-600 Trap (dimensions in mm)

Pipe Connections	15 – 20	25
"C" Face-to-Face (screwed & SW)	98	—
"CC" Face-to-Face (flanged PN40*)	150	160
Weight in kg (screwed & SW)	2,8	—
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).

Table ST-156-1. Model AB-600

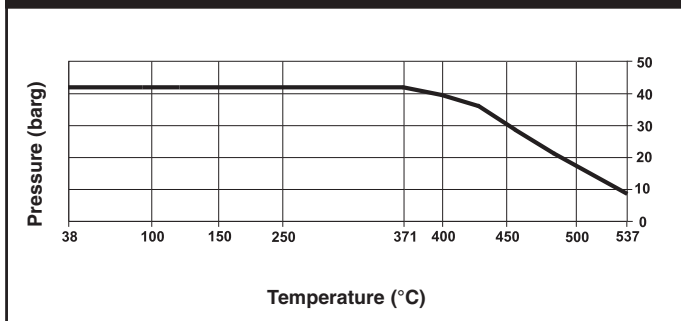
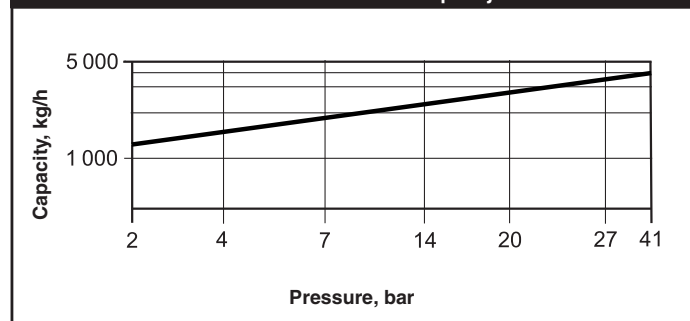


Table ST-156-3. Model AB-600 Cold Water Capacity



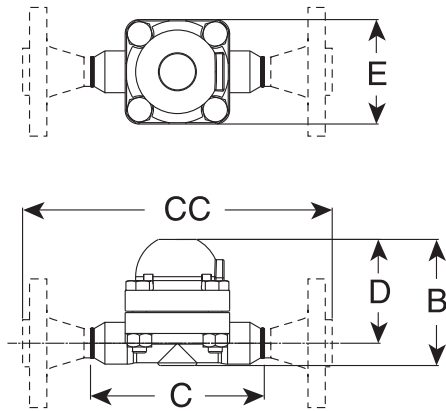
† May be derated depending on flange rating and type.

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

SH-900 Bimetallic Superheat Steam Trap

Stainless Steel

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



Model SH-900



Steam Traps

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 17 - 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-157-1. Model SH-900 Cold Water Capacity

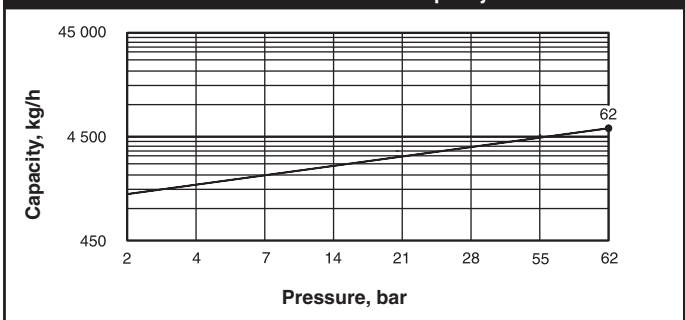
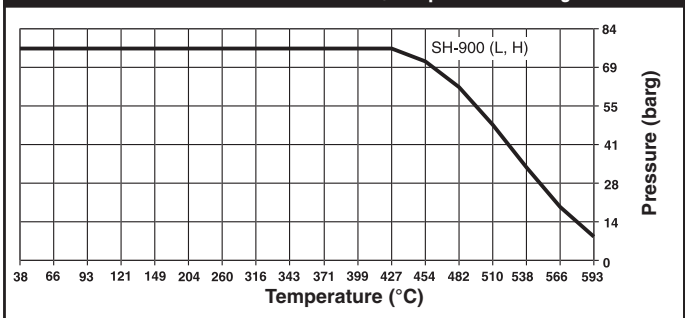


Table ST-157-2. Model SH-900 Pressure/Temperature Rating



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-157-3. 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.

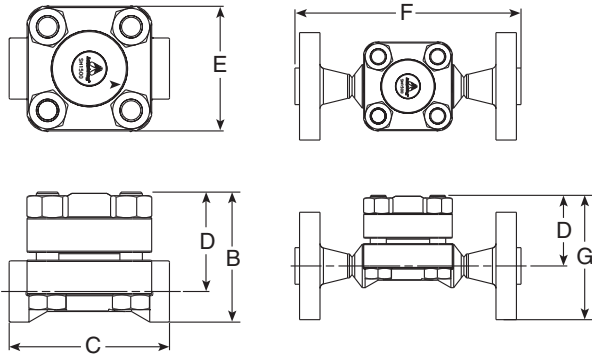
Table ST-157-4. Model SH-900

Connections	15 - 20: Screwed NPT, BSPT, socketweld, flanged, buttweld	25: Flanged, buttweld
Material		
Body and Cap	ASTM A351 Gr. CF8M	
Valve	Titanium	
Seat	Titanium	
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-1500 Bimetallic Superheat Steam Trap

Stainless 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-158-3. 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.

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

Table ST-158-1. Model SH-1500 Cold Water Capacity

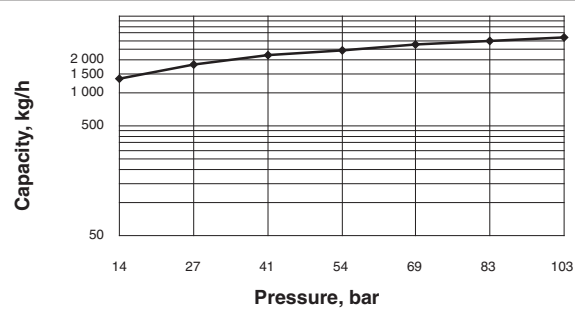
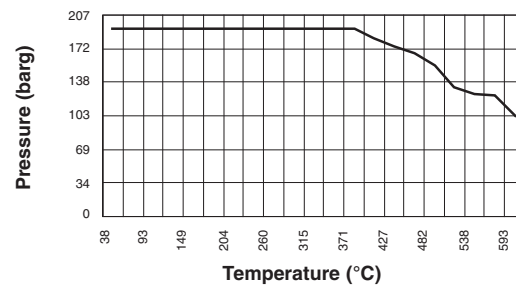


Table ST-158-2. Model SH-1500 Pressure/Temperature Rating



Maximum operating conditions

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-158-4. Model SH-1500

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

Notes



A large area of horizontal dotted lines for taking notes.

Steam Traps