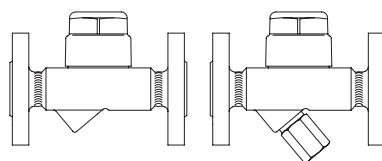


Thermostatic steam trap

Thermostatic steam trap

ANSI150 / 300

- with flanges (Fig. 610/612....1)
- with screwed sockets (Fig. 610/612....2)
- with socket weld ends (Fig. 610/612....3)
- with butt weld ends (Fig. 610/612....4)



Forged steel
Stainless steel

Fig. 610/612 (Y)

Page 2

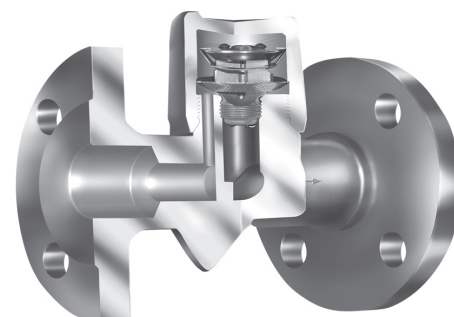


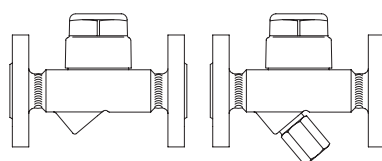
Fig. 610....1

Thermostatic steam trap

With seat for higher flow capacity than Fig. 610/612

ANSI150 / 300

- with flanges (Fig. 611/613....1)
- with screwed sockets (Fig. 611/613....2)
- with socket weld ends (Fig. 611/613....3)
- with butt weld ends (Fig. 611/613....4)



Forged steel
Stainless steel

Fig. 611/613 (Y)

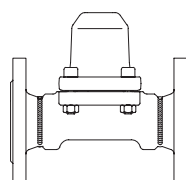
Page 4

Thermostatic steam trap

pilot operated / with multi capsule for very high flow capacity

ANSI150 / 300

- with flanges (Fig. 616....1)
- with screwed sockets (Fig. 616....2)
- with socket weld ends (Fig. 616....3)
- with butt weld ends (Fig. 616....4)



Forged steel

Fig. 616

Page 6

Features:

- For discharging of slight to highly sub-cooled condensate
- Automatic air-venting during start up and operation of the plant
- High sensitivity
- Exact control characteristic
- Robust and resistant to water-hammer
- Integrated non return protection (Fig. 610/612; 611/613 (not at controller R5))
- Constructions:
 - With inside strainer
 - with outside strainer - Fig. 612 / 613 (Y)
- Optimized design for quick installation (except Fig. 616)
- Gasket-free sealing of the screwed cap (NPS 1/2 -1)
- Installation in any position (except cover/screwed cap downwards)
- Available types of capsule (sub-cooling from 9°F / 5K to 72°F / 40K))
- Pressure test acc. to API 598
- CRN approved

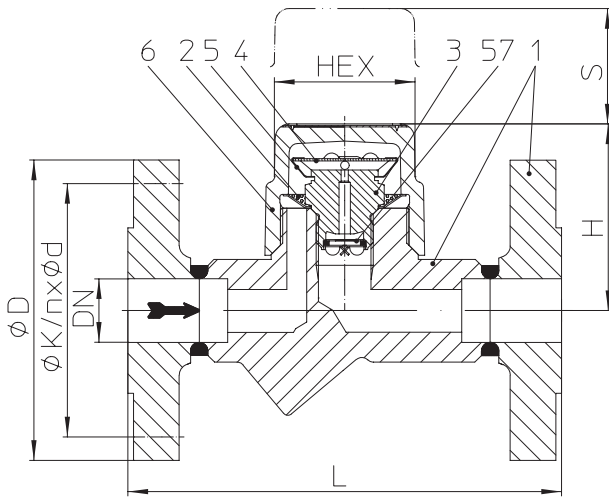
Thermostatic steam trap (Forged steel, Stainless steel)


Fig. 610....1 with flanges

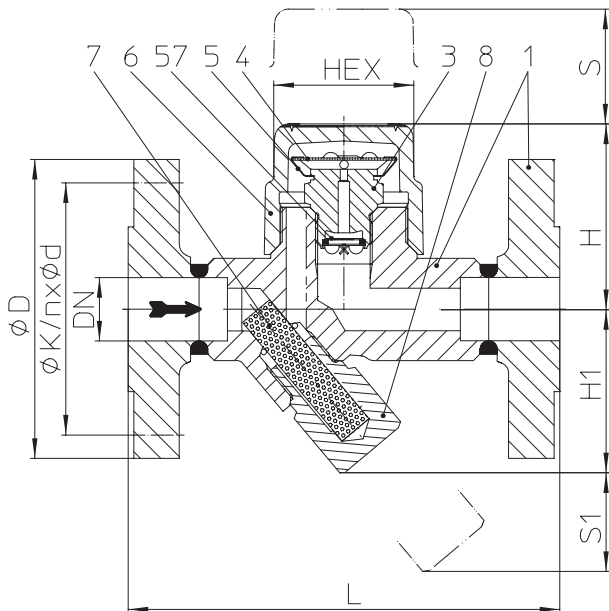


Fig. 612....1 with flanges

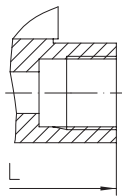


Fig. 610/612....2
with screwed sockets

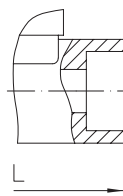


Fig. 610/612....3
with socket weld ends

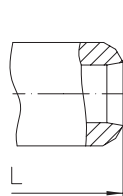


Fig. 610/612....4
with butt weld ends

- Thermostatic steam trap with noncorrosive and robust water hammer proofed capsule
- Non return protection (not at controller R5)
- With inside strainer - Fig. 610
with outside strainer - Fig. 612 (Y)
- Installation in any position, optimal filter effect at horizontal installation
- Optimized design for quick installation
- Maintenance simplified due to screwed cap without sealing
- Available capsules:
 - Capsule No. 1 - for condensate discharge at boiling temperature - only to 72,5 psi / 5 bar Inlet pressure einsetzbar
 - Capsule No. 2 - for condensate sub-cooling about approx. 18°F / 10K (Standard)
 - Capsule No. 3 - for condensate sub-cooling about approx. 54 °F / 30K
 - Capsule No. 4 - for condensate sub-cooling about approx. 72 °F / 40K - applicable up to 232 psi / 16 bar inlet pressure, especially suitable for tracing systems with low and medium pressure steam

- Options:
- Outside strainer with blow down valve (Pos. 46)
 - Ball valve for blow down (pos. 56) with internal strainer (Observe operating and installation instructions!)

Operating limits

Fig. 42.610 / 42.612	ANSI150 - SA105	
Operating pressure PS (psig)	189	80
Operating temperature TS (°F)	437	800
Operating pressure PS (barg)	13	5,5
Operating temperature TS (°C)	225	427
Fig. 45.610 / 45.612	ANSI300 - SA105	
Operating pressure PS (psig)	319	
Operating temperature TS (°F)	800	
Operating pressure PS (barg)	22	
Operating temperature TS (°C)	427	
allow. diff. pressure ΔPMX (psi):	319	73
allow. diff. pressure ΔPMX (bar):	22	5
for controller:	R22	R5

Fig. 52.610 / 52.612	ANSI150 - SA182 F321		
Operating pressure PS (psig)	189	73	35
Operating temperature TS (°F)	437	825	950
Operating pressure PS (barg)	13	5	2,4
Operating temperature TS (°C)	225	441	510
Fig. 55.610 / 55.612	ANSI300 - SA182 F321		
Operating pressure PS (psig)	319		
Operating temperature TS (°F)	950		
Operating pressure PS (barg)	22		
Operating temperature TS (°C)	510		
allow. diff. pressure ΔPMX (psi):	319	73	
allow. diff. pressure ΔPMX (bar):	22	5	
for controller:	R22	R5	

Types of connection

Flanges1	ANSI150 / 300 acc. to ASME B16.5
Screwed sockets2	Rp- and NPT-thread acc. to ASME B1.20.1
Socket weld ends3	acc. to ASME B16.11
Butt weld ends4	acc. to ASME B16.25

Other types of connection on request.

Dimensions and weights		Types of connection									
		Flanges		Screwed sockets Socket weld ends			Butt weld ends				
NPS	(inch)	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1	1
L*	(inch)	5.91	5.91	6.30	3.74	3.74	3.74	9.84	9.84	9.84	
H	(inch)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	
H1	(inch)	2.44	2.44	2.44	2.44	2.44	2.17	2.44	2.44	2.44	
S	(inch)	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	
S1	(inch)	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	
HEX	(inch)	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	
Weight approx.	(lb)	6	7.3	8.2	3.1	2.9	4	4	4.2	4.4	

Standard-flange dimensions refer to page 17.

* Face-to-face acc. to data sheet resp. customer request

Dimensions and weights		Types of connection									
		Flanges		Screwed sockets Socket weld ends			Butt weld ends				
DN	(mm)	15	20	25	15	20	25	15	20	25	25
L*	(mm)	150	150	160	95	95	95	250	250	250	
H	(mm)	65	65	65	65	65	74	65	65	65	
H1	(mm)	62	62	62	62	62	55	62	62	62	
S	(mm)	40	40	40	40	40	40	40	40	40	
S1	(mm)	24	24	24	24	24	24	24	24	24	
HEX	(mm)	50	50	50	50	50	50	50	50	50	
Weight approx.	(kg)	2,7	3,3	3,7	1,4	1,3	1,8	1,8	1,9	2	

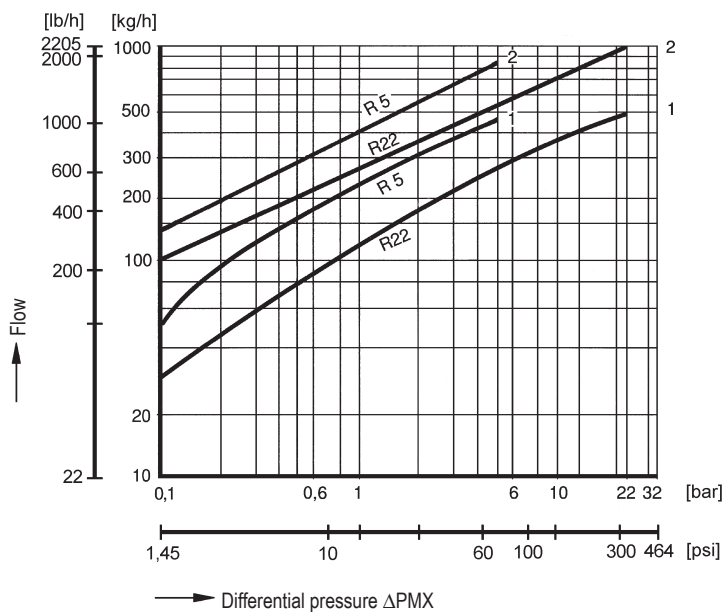
Parts

Pos.	Description	Fig. 42.610/612; 45.610/45.612	Fig. 52.610/612; 55.610/612
1	Body	SA105	SA182F321
2	Strainer *	SA240Gr.304	
3	Seat *	AISI303	
4	Capsule (Diaphragm / Capsule) *	Hastelloy / SA240Gr.304	
5	Spring actuated clip *	AISI301	
6	Cap	SA105	SA182F321
7	Strainer screen *	SA240Gr.304	
8	Strainer plug *	SA182F321	
46	Blow down valve, cpl. *	SA182F321	
56	Ball valve for blow down (G 3/8") *	SA351CF8M	
57	Non return protection	SA240Gr.304	

* Spare part

Information / restriction of technical rules need to be observed!

Operating instructions can be ordered by phone +49 (0)5207 / 994-0 or fax +49 (0)5207 / 994-158 or -159.

Capacity chart


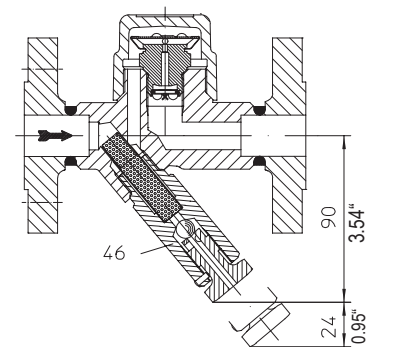
The capacity chart shows the maximum flow rates.

Curve 1

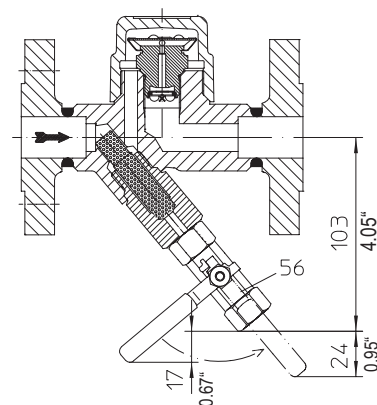
Maximum flow of hot condensate for capsule No. 1, 2, 3 and 4.

Curve 2

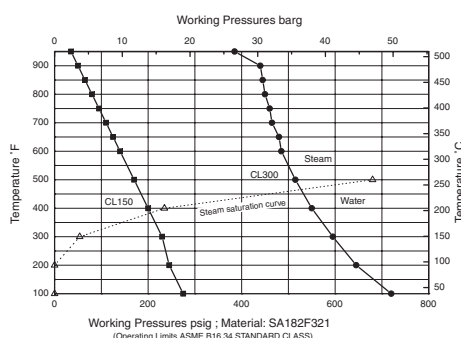
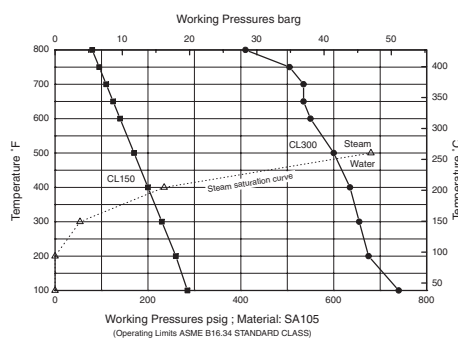
Maximum flow at cold condensate at about 68°F / 20°C.

Options


Outside strainer with blow down valve



Ball valve with adapter for blow down with internal strainer (restricted to 232psi, 410°F / 16 bar, 210°C)



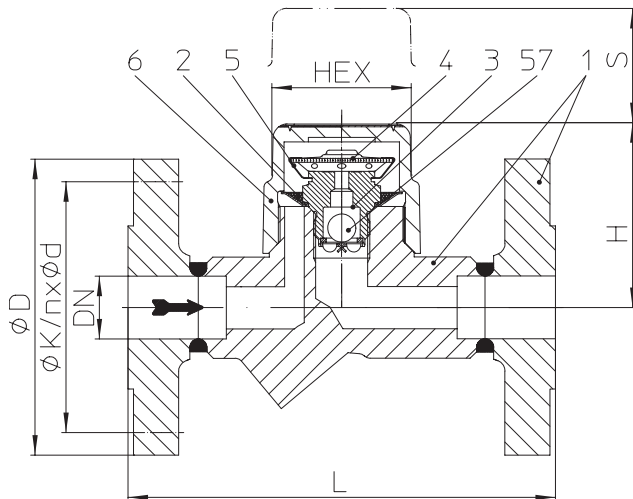
Thermostatic steam trap for higher flow capacity (Forged steel, High temperature steel, Stainless steel)


Fig. 611....1 with flanges

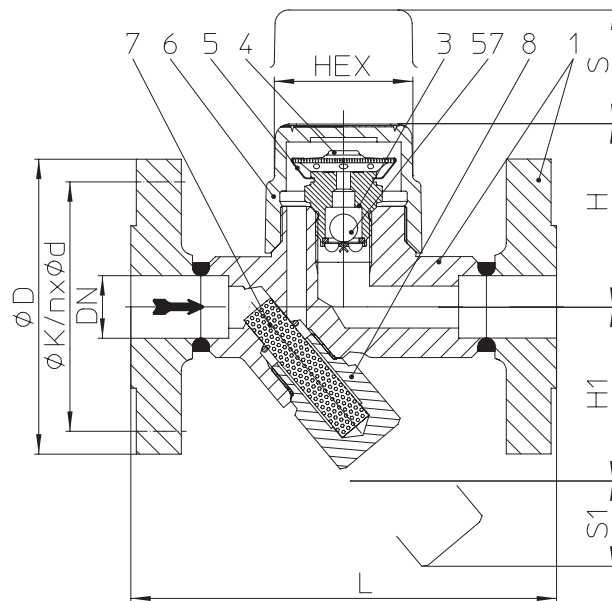
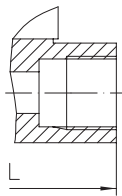
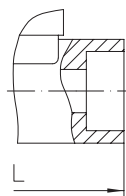
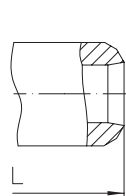


Fig. 613....1 with flanges


 Fig. 610/612....2
with screwed sockets

 Fig. 610/612....3
with socket weld ends

 Fig. 610/612....4
with butt weld ends

- Thermostatic steam trap with noncorrosive and robust water hammer proofed capsule
- **With seat for higher flow capacity than Fig. 610/612**
- Non return protection
- With inside strainer - Fig. 611
with outside strainer - Fig. 613 (Y)
- Installation in any position, optimal filter effect at horizontal installation
- Optimized design for quick installation
- Maintenance simplified due to screwed cap without sealing
- Available capsules:
 - Capsule No. 1 - for condensate discharge at boiling temperature
 - Capsule No. 2 - for condensate sub-cooling about approx. 18°F / 10K (Standard)
 - Capsule No. 3 - for condensate sub-cooling about approx. 54 °F / 30K
- Options:
 - Outside strainer with blow down valve (Pos. 46)
 - Ball valve for blow down (pos. 56) with internal strainer
(Observe operating and installation instructions!)

Operating limits

Fig. 42.611 / 42.613	ANSI150 - SA105	
Operating pressure PS (psig)	189	80
Operating temperature TS (°F)	437	800
Operating pressure PS (barg)	13	5,5
Operating temperature TS (°C)	225	427
Fig. 45.611 / 45.613	ANSI300 - SA105	
Operating pressure PS (psig)	464	410
Operating temperature TS (°F)	771	800
Operating pressure PS (barg)	32	28
Operating temperature TS (°C)	411	427
allow. diff. pressure ΔPMX (psi):	464	
allow. diff. pressure ΔPMX (bar):	32	
for controller:	R32	

Fig. 52.611 / 52.613	ANSI150 - SA182 F321	
Operating pressure PS (psig)	189	35
Operating temperature TS (°F)	437	950
Operating pressure PS (barg)	13	2,4
Operating temperature TS (°C)	225	510
Fig. 55.611 / 55.613	ANSI300 - SA182 F321	
Operating pressure PS (psig)	464	385
Operating temperature TS (°F)	710	950
Operating pressure PS (barg)	32	27
Operating temperature TS (°C)	377	510
allow. diff. pressure ΔPMX (psi):	464	
allow. diff. pressure ΔPMX (bar):	32	
for controller:	R32	

Types of connection

Flanges1	ANSI150 / 300 acc. to ASME B16.5
Screwed sockets2	Rp- and NPT-thread acc. to ASME B1.20.1
Socket weld ends3	acc. to ASME B16.11
Butt weld ends4	acc. to ASME B16.25

Other types of connection on request.

Dimensions and weights		Types of connection									Dimensions and weights		Types of connection								
		Flanges			Screwed sockets Socket weld ends			Butt weld ends					Flanges			Screwed sockets Socket weld ends			Butt weld ends		
NPS	(inch)	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1	DN	(mm)	15	20	25	15	20	25	15	20	25
L*	(inch)	5.91	5.91	6.30	3.74	3.74	3.74	9.84	9.84	9.84	L*	(mm)	150	150	160	95	95	95	250	250	250
H	(inch)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	H	(mm)	65	65	65	65	65	74	65	65	65
H1	(inch)	2.44	2.44	2.44	2.44	2.44	2.17	2.44	2.44	2.44	H1	(mm)	62	62	62	62	62	55	62	62	62
S	(inch)	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	S	(mm)	40	40	40	40	40	40	40	40	40
S1	(inch)	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	S1	(mm)	24	24	24	24	24	24	24	24	24
HEX	(inch)	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	HEX	(mm)	50	50	50	50	50	50	50	50	50
Weight approx.	(lb)	6	7.3	8.2	3.1	2.9	4	4	4.2	4.4	Weight approx.	(kg)	2,7	3,3	3,7	1,4	1,3	1,8	1,8	1,9	2
Standard-flange dimensions refer to page 17.																					

Standard-flange dimensions refer to page 17.

* Face-to-face acc. to data sheet resp. customer request

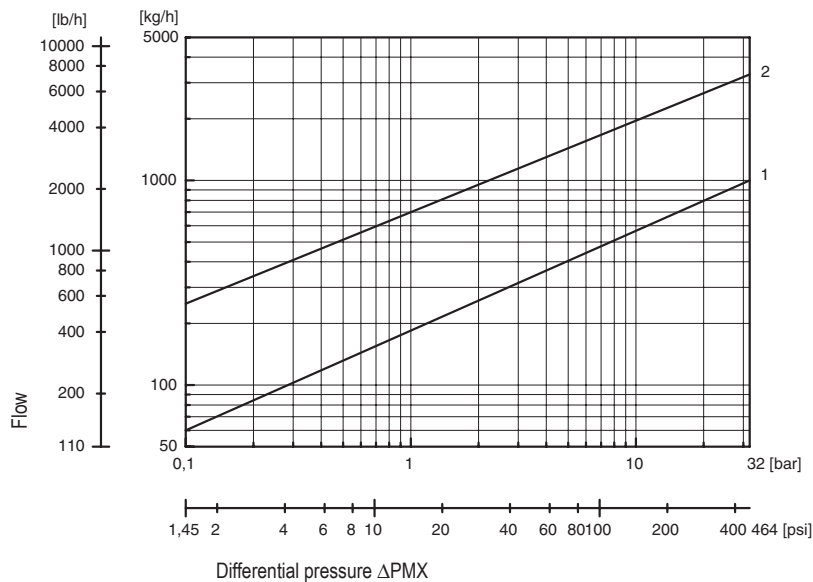
Parts

Pos.	Description	Fig. 42.611/613; 45.611/45.613	Fig. 52.611/613; 55.611/613
1	Body	SA105	SA182F321
2	Strainer *	SA240Gr.304	
3	Seat *	AISI303	
4	Capsule B (Diaphragm / Capsule) *	Hastelloy / SA240Gr.304	
5	Spring actuated clip *	AISI301	
6	Cap	SA105	SA182F321
7	Strainer screen *	SA240Gr.304	
8	Strainer plug *	SA182F321	
46	Blow down valve, cpl. *	SA182F321	
56	Ball valve for blow down (G 3/8") *	SA351CF8M	
57	Non return protection	SA240Gr.304	

* Spare part

Information / restriction of technical rules need to be observed!

Operating instructions can be ordered by phone +49 (0)5207 / 994-0 or fax +49 (0)5207 / 994-158 or -159.

Capacity chart


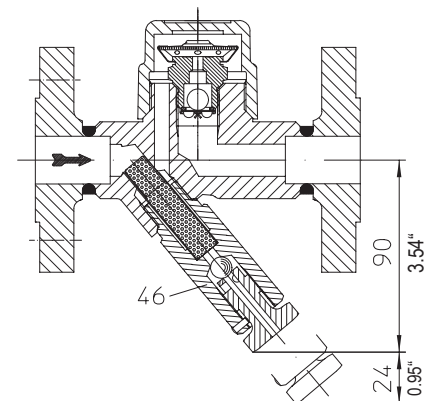
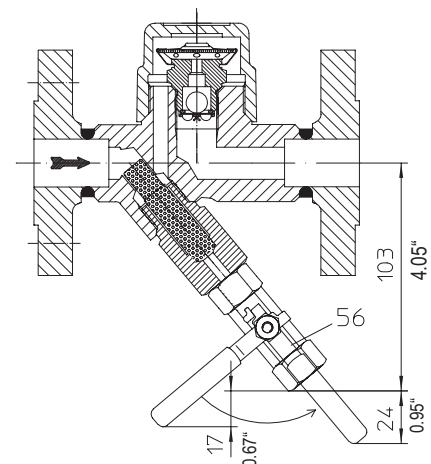
The capacity chart shows the maximum flow rates.

Curve 1

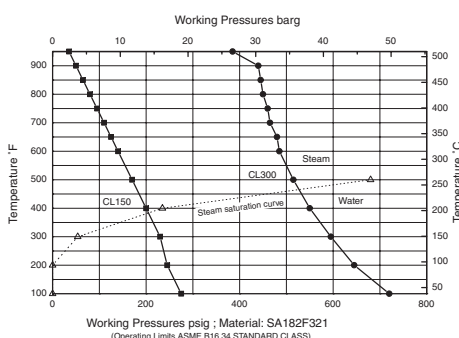
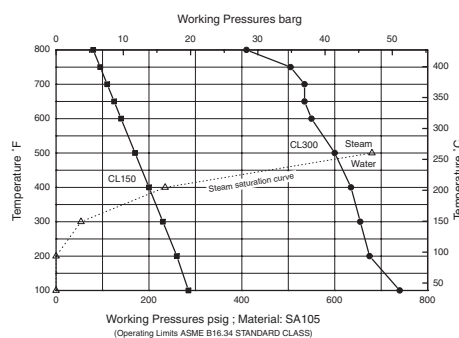
The capacity chart shows the maximum flow of hot condensate for capsule No. 1, 2 and 3.

Curve 2

Maximum flow at cold condensate at about 68°F / 20°C.

Options

Outside strainer with blow down valve


Ball valve with adapter for blow down with internal strainer (restricted to 232psi, 410°F / 16 bar, 210°C)



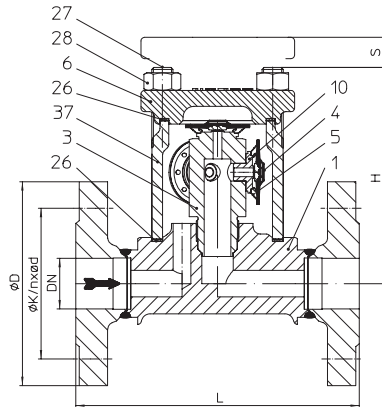
Thermostatic steam trap with multi capsule for very high flow capacity (Forged steel)


Fig. 616....1....4K2 (1" / DN25)
with 4 capsules, with flanges

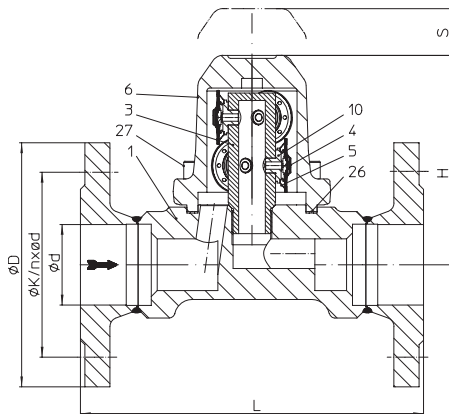


Fig. 616....1....6K2 (1 1/2" - 2" / DN40-50)
with 6 capsules, with flanges

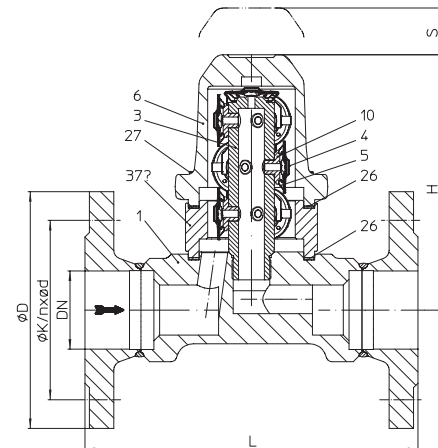


Fig. 616....1....10K2 (1 1/2" - 2" / DN40-50)
with 10 capsules, with flanges

- Thermostatic steam trap with noncorrosive and robust water hammer proofed capsule
- **with multi capsule for discharge of very high flow capacity**
- Installation in any position, except cover downwards
- Capsule:
Capsule No. 2 - for condensate sub-cooling about approx. 18°F / 10K (Standard)

Operating limits

Fig. 42./45.616....4K2	SA105 - with 4 capsules			
	ANSI150		ANSI300	
Operating pressure PS (psig)	189	80	464	410
Operating temperature TS (°F)	437	800	771	800
Operating pressure PS (barg)	13	5,5	32	28
Operating temperature TS (°C)	225	427	411	427

Fig. 42./45.616....6K2	SA105 - with 6 capsules			
	ANSI150		ANSI300	
Operating pressure PS (psig)	189	80	464	410
Operating temperature TS (°F)	437	800	771	800
Operating pressure PS (barg)	13	5,5	32	28
Operating temperature TS (°C)	225	427	411	427

Fig. 42./45.616....10K2	SA105 - with 10 capsules			
	ANSI150		ANSI300	
Operating pressure PS (psig)	189	80	464	410
Operating temperature TS (°F)	437	800	771	800
Operating pressure PS (barg)	13	5,5	32	28
Operating temperature TS (°C)	225	427	411	427

allow. diff. pressure ΔPMX (psi):	464
allow. diff. pressure ΔPMX (bar):	32
for controller:	R32

SA182F321 on request

We recommend a ARI Strainer Fig. 050 in front of the steam trap.

Types of connection

Flanges1	ANSI150 / 300 acc. to ASME B16.5
Screwed sockets2	Rp- and NPT-thread acc. to ASME B1.20.1
Socket weld ends3	acc. to ASME B16.11
Butt weld ends4	acc. to ASME B16.25

Other types of connection on request.

Dimensions and weights		Types of connection										Types of connection								
		Flanges			Screwed sockets Socket weld ends			Butt weld ends				Flanges			Screwed sockets Socket weld ends			Butt weld ends		
Nominal diameter	(mm) (inch)	25 1	40 1 1/2	50 2	25 1	40 1 1/2	50 2	25 1	40 1 1/2	50 2	(mm) (inch)	25 1	40 1 1/2	50 2	25 1	40 1 1/2	50 2	25 1	40 1 1/2	50 2
L*	(inch)	6.3	9.06	9.06	on request			on request			(mm)	160	230	230	on request			on request		
H	(inch)	4.92	5.67 ¹⁾ / 7.28 ²⁾	5.67 ¹⁾ / 7.28 ²⁾							(mm)	125	144 ¹⁾ / 185 ²⁾	144 ¹⁾ / 185 ²⁾						
S	(inch)	2.56	3.54	3.54							(mm)	65	90	90						
Weight appr.	(lbs)	14.3	24.9	26.7							(kg)	6,5	11,3	12,1						

Standard-flange dimensions refer to page 17.

¹⁾ with 6 capsules ²⁾ with 10 capsules

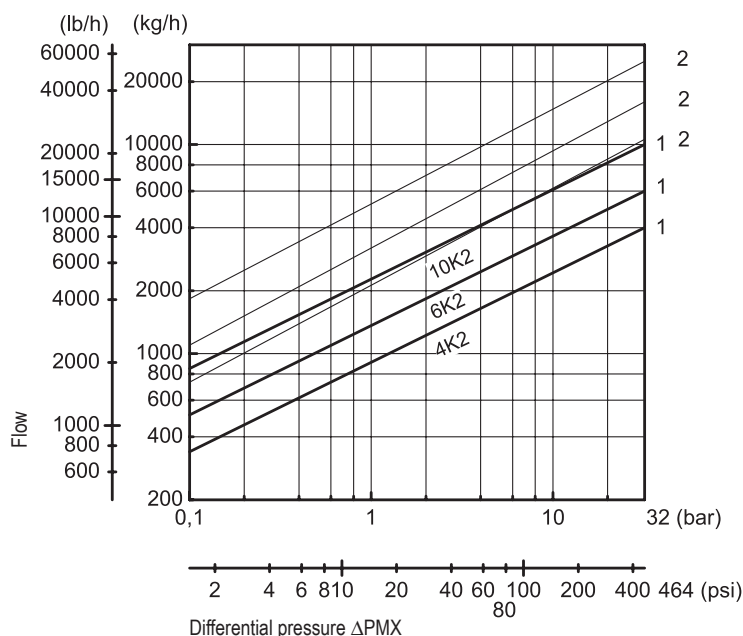
* Face-to-face acc. to data sheet resp. customer request

Parts

Pos.	Description	Fig. 42./45.616....4K2, with 4 capsules	Fig. 42./45.616....6K2 with 6 capsules	Fig. 42./45.616....10K2 with 10 capsules
1	Body	SA105		
3	Seat *	AISI303		
4	Capsule (Diaphragm / Capsule) *	SA240Gr.304		
5	Spring actuated clip *	AISI301		
6	Cover	SA105		
26	Sealing ring *	Graphite (CrNi laminated with graphite)		
27	Cheese head screw	--	SA193Gr.B16	
27	Stud	SA193Gr.B16	--	
28	Hexagonal nut	SA194Gr.4	--	
37	Intermediate flange	--		SA105
* Spare part				

Information / restriction of technical rules need to be observed!

Operating instructions can be ordered by phone +49 (0)5207 / 994-0 or fax +49 (0)5207 / 994-158 or -159.

Capacity chart


The capacity chart shows the maximum flow rates for controller.

Curve 1:
Maximum flow of hot condensate.

Curve 2:
Maximum flow at cold condensate at about 20°C / 68°F.

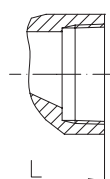
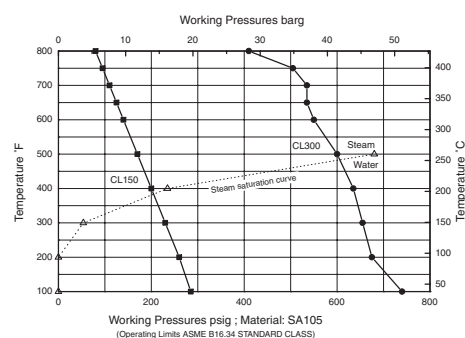


Fig. 616....2
with screwed sockets

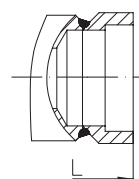


Fig. 616....3
with socket weld ends

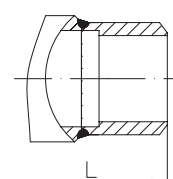


Fig. 616....4
with butt weld ends

Informations about pipe welding

Welding groove acc. to ASME B16.25

The material used for ARI valves with butt weld ends are:

SA105

SA182F321

Based on our experience we recommend electric welding process for connecting valves or strainers with tubes or with each other

Because of the different material compositions and wall thickness of the steam traps and the pipe gas welding shall not be applied. Quenching cracks and coarse grain structure may develop.

On bimetallic steam traps face-to-face of 3.7 inch / 95 mm or less, the bimetallic controller has to be disassembled prior to welding. After the traps have cooled down to the ambient temperature the bimetallic controller shall be fitted again into the body.

Steam traps with socket-weld ends shall only be welded by arc welding (welding process 111 acc. to DIN EN 24063).

If during the time of warranty others than the manufacturer or by the manufacturer authorized persons are interfering in the product and/or the setting, the right of claim for warranty will lapse!

Selection criteria:

- | | |
|-------------------------------|--|
| - Steam pressure | - Type of connection |
| - Back pressure | - Controller |
| - Quantity of condensate | - Material |
| - Nominal diameter / pressure | - Place of service or kind of steam consumer |

Example for order data:

=> Thermostatic steam trap CONA® M,
 Fig. 610, ANSI300, NPS 1/2", SA105, Capsule-No. 2, with flanges, Face-to-face dimension 5.91 inch

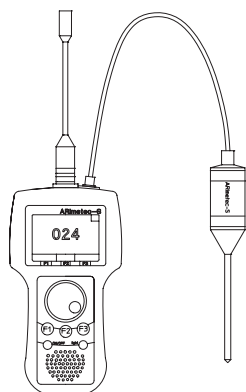
Dimensions in inch
 Weights in lb
 1 bar $\triangleq$ 10⁵ Pa $\triangleq$ 0,1 MPa
 1 bar $\triangleq$ 14,5 psi
 1 inch $\triangleq$ 25,4 mm

Standard-flange dimensions

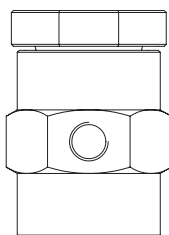
Flanges acc. to ASME B16.5

NPS		(inch)	1/2	3/4	1	1 1/4	1 1/2	2
ANSI150	ØD	(inch)	3.50	3.90	4.25	4.62	5.00	6.00
ANSI150	ØK	(inch)	2.36	2.70	3.10	3.50	3.85	4.76
ANSI150	n x Ød	(inch)	4 x 0.62	4 x 0.62	4 x 0.62	4 x 0.62	4 x 0.62	4 x 0.75
ANSI300	ØD	(inch)	3.75	4.62	4.88	5.25	6.12	6.50
ANSI300	ØK	(inch)	2.62	3.25	3.50	3.88	4.50	5.00
ANSI300	n x Ød	(inch)	4 x 0.62	4 x 0.75	4 x 0.75	4 x 0.75	4 x 0.88	8 x 0.75

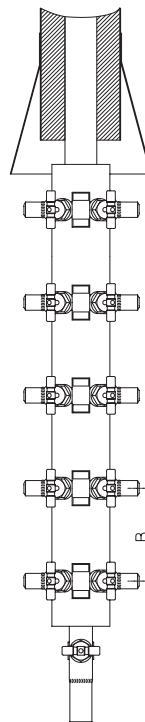
DN		(mm)	15	20	25	32	40	50
ANSI150	ØD	(mm)	89	99	108	117	127	153
ANSI150	ØK	(mm)	60	70	79	78	98	121
ANSI150	n x Ød	(mm)	4 x 16	4 x 16	4 x 16	4 x 16	4 x 16	4 x 19
ANSI300	ØD	(mm)	95	117	124	133	155	165
ANSI300	ØK	(mm)	66,5	82,5	89	99	114	127
ANSI300	n x Ød	(mm)	4 x 16	1 4 x 9	4 x 19	4 x 19	4 x 22	8 x 19



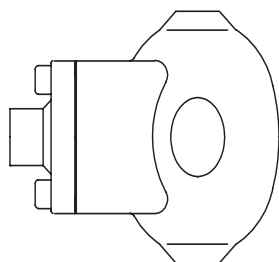
Multifunction tester **ARImetec®-S**



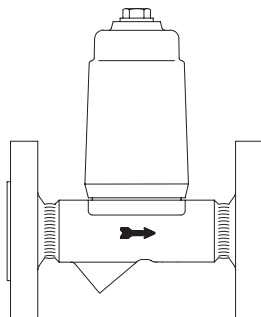
Vacuum breaker Fig. 655



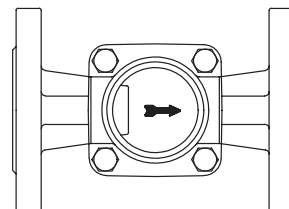
CODI®S with gland packing Fig. 671/672;
CODI®B with bellows seal, maintenance-free Fig. 675/676



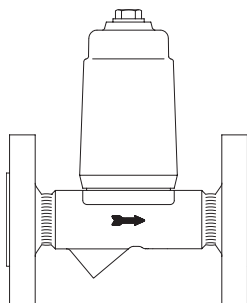
Automatic air vent for liquid systems
Fig. 656



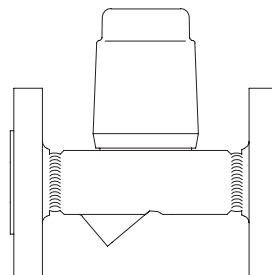
Condensate discharge temperature limiter
Fig. 645/647



Flow indicator
Fig. 660/661



Return temperature limiter Fig. 650



Liquid drainer Fig. 665

(Further informations about the accessories can be found in the appropriate data sheets.)