Steam Traps

WD600

WD600S

WD700S

WD900S

WD3600

THERMODYNAMIC 6-15

Model	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
WD600	Stainless Steel	**600**	3/8" – 1"	NPT	**6-7**
WD600S	Stainless Steel	**600**	1/2", 3/4", 1"	NPT	**8-9**
WD700S	Alloy Steel	**600**	1/2", 3/4", 1"	NPT, SW, FLG	**10-11**
WD900S	Alloy Steel	**900**	1/2", 3/4", 1"	NPT, SW, FLG	**12-13**
WD3600	Alloy Steel	**3600**	1/2", 3/4", 1"	BW, SW, FLG	**14-15**

WT1000

WT2500

WT2000C

WT3000

WT4000

WT5000

TT25B/TT125

THERMOSTATIC 16-27

Model	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
WT1000	Stainless Steel	**300**	1/2", 3/4"	NPT	**16**
WT2500	Cast Iron	**250**	1/2", 3/4"	NPT	**17**
WT2000C	Stainless	**650**	1/2", 3/4"	NPT	**18-19**
WT3000	Stainless Steel	**650**	1/2", 3/4"	NPT, SW, FLG	**20-21**
WT4000	Stainless Steel	**300**	3/4", 1"	NPT, SW, FLG	**22-23**
WT5000	Stainless Steel	**650**	3/8" – 1"	NPT, SW	**24-25**
TT25B/TT125	Brass	**25/125**	1/2", 3/4"	NPT	**26-27**

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Steam Traps

FT

FT600 & FT601

FTE & FTES

FTT

WFT

FLOAT & THERMOSTATIC					28-40
Model	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
FT	Cast Iron	**75**	3/4" – 2"	NPT	**28-29**
FT600/FT601	Carbon Steel/Stainless Steel	**450**	3/4" – 4"	NPT, SW, FLG	**30-33**
FTE/FTES	Ductile Iron/Cast Steel	**200/300**	1 1/2", 2", 2 1/2"	NPT, SW, FLG	**34-35**
FTT	Ductile Iron	**300**	1/2" – 2"	NPT	**36-37**
WFT	Cast Iron	**250**	3/4" – 2"	NPT	**38-40**

WSIB/WSIBH

1031

1032

1034

1041

1042

1044

INVERTED BUCKET					41-45
Model	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
WSIB/WSIBH	Stainless Steel	**450**	1/2", 3/4"	NPT, SW	**41**
IB Series 103X/104X	Cast Iron	**250**	1/2" – 1 1/2"	NPT	**42-45**

PMO = Maximum Operating Pressure

Steam Traps


WU450


WU450S


WU450SB


WU450S-LR


WU450SB-LR


WU450S-RL


WU450SB-RL

WU450 Series UNIVERSAL CONNECTORS 46-51

Model	Type	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
WU450 Series	**Universal Connectors**	Stainless Steel	Trap Module Dependent	1/2", 3/4", 1"	NPT, SW, FLG	**46-51**


WSIB450/WSIB450H


WFT450


WD450


WD450SM


WT450


WB450

450 Series UNIVERSAL STEAM TRAP MODULES 52-57

Model	Type	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
WSIB450/ WSIB450H	**Inverted Bucket**	Stainless Steel	**450**	Use WU450SM connector	Universal Conn.	**52**
WFT450	**Float & Thermostatic**	Stainless Steel	**225**	Use WU450 & WU450SM connectors	Universal Conn.	**53**
WD450/WD450SM	**Thermodynamic**	Stainless Steel	**450**	Use WU450 connector	Universal Conn.	**54**
WD600LSM-HP	**High Pressure Thermodynamic**	Stainless Steel	**600**	Use WU450SM connector	Universal Conn.	**55**
WT450	**Thermostatic**	Stainless Steel	**450**	Use WU450 connector	Universal Conn.	**56**
WB450	**Bi-Metallic**	Stainless Steel	**450**	Use WU450 connector	Universal Conn.	**57**

450 Series UNIVERSAL STYLE STEAM TRAPS (Trap Module with Connectors) 58-61

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Steam Traps

FDA400

FDA500

FDA600

FDA800

CLEAN STEAM 62-65

Model	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
FDA400	Stainless Steel	**90**	1/2", 3/4"	Tri-Clamp	**62**
FDA500	Stainless Steel	**90**	1/2", 3/4", 1"	Tri-Clamp, NPT, TW	**63**
FDA600	Stainless Steel	**110**	1/2", 3/4", 1"	Tri-Clamp, NPT, TW	**64**
FDA800	Stainless Steel	**150**	1/2"	Tri-Clamp, NPT, TW	**65**

WPN

BI-METALLIC 66-69

Model	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
WPN	Alloy Steel or Carbon Steel Variation	**470-2700**	1/2" – 2"	NPT, FLG, SW, BW	**66-69**

FM

FSM

MANIFOLDS 70-72

Model	Body Material	PMO (PSIG)	Sizes	Connections	Page No.
FM/FSM	Carbon Steel/Forged Steel	**720/600**	1/2", 3/4"	NPT, SW	**70-72**

PMO = Maximum Operating Pressure

STEAM TRAPS

WD600

Thermodynamic Steam Trap

Model	**WD600, WD600L**
Sizes	**3/8", 1/2", 3/4", 1"**
Connections	**NPT**
Body Material	**Stainless Steel 420F**
Options	**Insulation Cap**
PMO Max. Operating Pressure	**600 PSIG**
TMO Max. Operating Temperature	**800ºF**
PMA Max. Allowable Pressure	**600 PSIG up to 800ºF**
TMA Max. Allowable Temperature	**800ºF @ 600 PSIG**

TYPICAL APPLICATIONS

DRIP, TRACER: The **WD600** thermodynamic steam trap is commonly used as a drip trap on steam mains and steam supply lines. These traps can be used on tracing applications; however, thermostatic traps are normally recommended for this service. Ideal for outdoor applications that are subject to freezing and for superheated steam conditions.

HOW IT WORKS

The thermodynamic trap has cyclic on-off operation with a disc that is pushed open by incoming condensate and closes tightly when steam tries to escape.

FEATURES

- **High pressure applications up to 600 PSIG**
- **Hardened stainless steel seat and disc for extended service life even at high pressure**
- **Single trap will operate over the entire pressure range of 3.5-600 PSIG (Not recommended for use below 10 PSI)**
- **Suitable for superheated steam**
- **Freezeproof when trap is piped in a vertical orientation for complete drainage of condensate**
- **Three-hole balanced discharge extends life of the seat area**
- **Trap will function in any orientation (horizontal preferred)**

SAMPLE SPECIFICATION

The steam trap shall be a thermodynamic disc type with all stainless steel construction. Integral seat design and disc to be hardened for long service life. Unit shall be capable of installation in any orientation and self-draining when mounted vertically.

INSTALLATION

Trap can be installed in any position; however, horizontal is preferred. Installation should include isolation valves and a 20 mesh strainer. Do not weld as damage can occur to the seat area.

MAINTENANCE

Dirt is the most common cause of premature failure. For full maintenance details, see Installation and Maintenance Manual.

OPTIONS

An insulation cap is available to reduce cycle rates and steam loss in rain, snow, or cold environments.

WD600L

WD600L is a low capacity version of the standard WD600 model.

1/2" WD600L has the same capacity as the **3/8" WD600**.

3/4" WD600L has the same capacity as the **1/2" WD600.**

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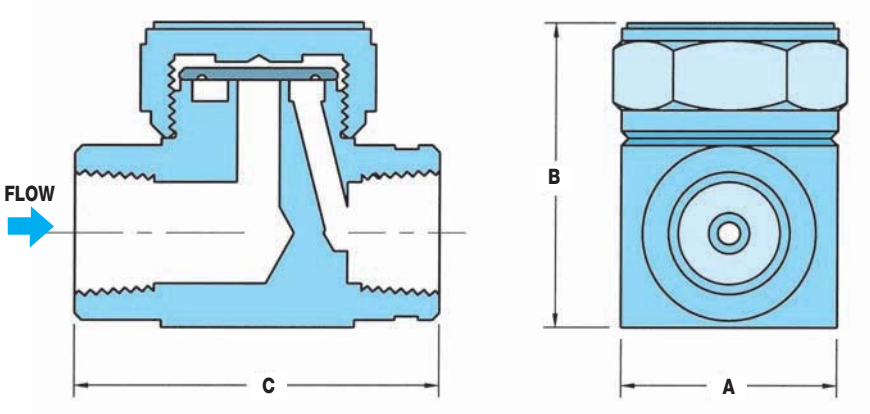
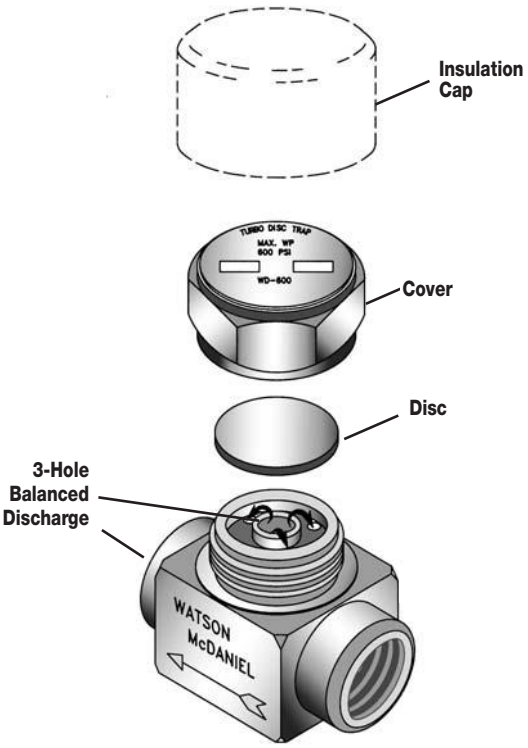
STEAM TRAPS
WD600
Thermodynamic Steam Trap





DIMENSIONS & WEIGHTS – *inches/pounds*

Size/Model	Connection	A	B	C	Weight (lbs)
3/8" WD600	NPT	1.375	1.6875	2	0.75
1/2" WD600	NPT	1.5	2	2.6875	1.25
3/4" WD600	NPT	1.75	2.375	2.8125	2.0
1" WD600	NPT	2.125	2.8125	3.8175	3.0
1/2" WD600L	NPT	1.5	1.8125	2.718	1.0
3/4" WD600L	NPT	1.5	2.25	2.75	1.75

HOW TO SIZE/ORDER

Select working pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 650 lbs/hr at 30 PSIG working inlet pressure
Size/Model: 3/4" **WD600**

MATERIALS

Body	Stainless Steel, AISI 420F
Disc	Stainless Steel, AISI 420
Cover	Stainless Steel, AISI 416
Insulation Cap	Stainless Steel, AISI 304

CAPACITIES – *Condensate (lbs/hr)*

Size/Model	Steam Inlet Pressure (PSIG)																				
	3.5	5	10	15	20	25	30	40	50	75	100	150	200	250	300	350	400	450	500	550	600
3/8" WD600 1/2" WD600L	180	185	190	195	200	215	220	230	250	310	375	500	620	710	800	825	900	1070	1120	1185	1290
1/2" WD600 3/4" WD600L	300	315	350	380	415	440	470	515	580	710	825	1020	1165	1300	1440	1565	1670	1775	1880	1960	2060
3/4" WD600	415	430	475	520	565	610	650	720	825	1020	1185	1480	1710	1950	2110	2265	2490	2625	2780	2985	3140
1" WD600	650	680	740	815	885	940	1000	1080	1225	1500	1800	2215	2625	2935	3300	3600	3875	4120	4350	4560	4840

Notes: *1) Maximum back pressure not to exceed 80% of inlet pressure (measured in absolute pressure) or trap may not close.*
2) For optimum performance, recommended for operating pressure above 10 PSIG.

STEAM TRAPS

WD600S

Thermodynamic Steam Trap

Model	**WD600S, WD600LS**
Sizes	**1/2", 3/4", 1"**
Connections	**NPT**
Body Material	**Stainless Steel 420F**
Options	**Blowdown Valve, Insulation Cap**
PMO Max. Operating Pressure	**600 PSIG**
TMO Max. Operating Temperature	**750°F**
PMA Max. Allowable Pressure	**915 PSIG up to 250°F**
TMA Max. Allowable Temperature	**610°F @ 750 PSIG**

WD600S
Strainer

WD600SB
Strainer & Blowdown Valve

TYPICAL APPLICATIONS

DRIP, TRACER: The **WD600S** thermodynamic steam trap is commonly used as a drip trap on steam mains and steam supply lines. Supplied with integral strainer and optional blowdown valve to protect the trap from contamination. These traps can be used on tracing applications; however, thermostatic traps are normally recommended for this service. Ideal for outdoor applications that are subject to freezing and for superheated steam conditions.

HOW IT WORKS

The thermodynamic trap has cyclic on-off operation with a disc that is pushed open by incoming condensate and closes tightly when steam tries to escape.

FEATURES

- **Integral strainer with optional blowdown valve to protect trap from contamination**
- **High pressure applications up to 600 PSIG**
- **Hardened stainless steel seat and disc for extended service life even at high pressure**
- **Single trap will operate over the entire pressure range of 3.5-600 PSIG (Not recommended for use below 10 PSI)**
- **Suitable for superheated steam**
- **Freezeproof when trap is piped in a vertical orientation for complete drainage of condensate**
- **Three-hole balanced discharge extends life of the seat area**
- **Trap will function in any orientation (horizontal preferred)**

SAMPLE SPECIFICATION

The steam trap shall be all stainless steel thermodynamic type with hardened integral seat and disc with integral strainer and blowdown valve.

INSTALLATION

Trap can be installed in any position; however, horizontal is preferred. Installation should include isolation valves. Do not weld or damage can occur to the seat area.

MAINTENANCE

If trap fails, close isolation valves and remove cap. Clean disc and seating surfaces and replace cap and disc with groove side toward seat. NOTE: Do not over tighten cap. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

An insulation cap is available to reduce cycle rates and steam loss in rain, snow, or cold environments. Blowdown valve, used for flushing dirt and scale from strainer.

SB = Strainer and Blowdown Valve

L = Low Capacity

WD600LS

WD600LS is a low capacity version of the standard **WD600S** model. **3/4" WD600LS** has the same capacity as the **1/2" WD600S.**

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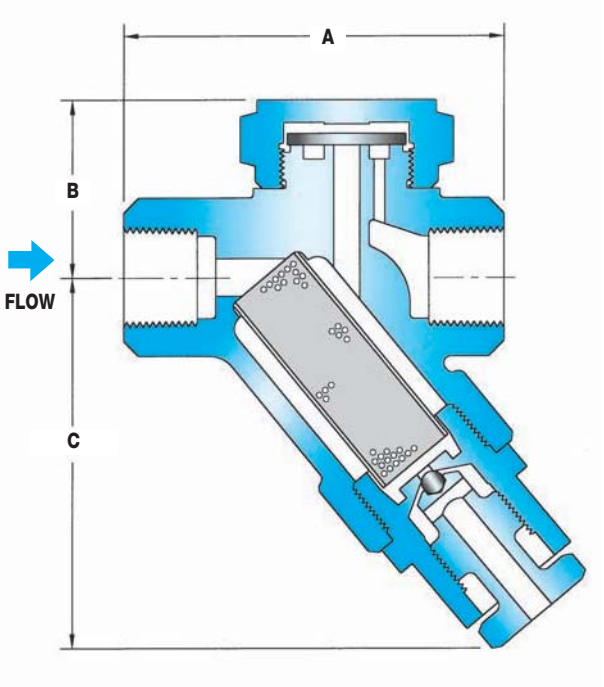
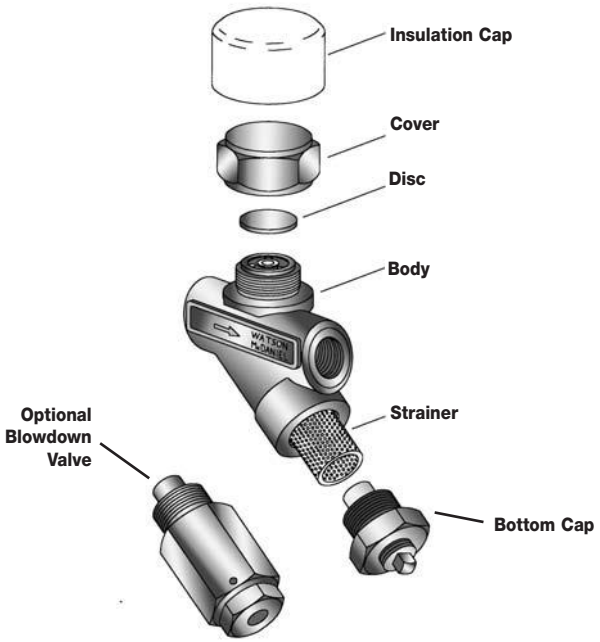
STEAM TRAPS
WD600S
Thermodynamic Steam Trap





DIMENSIONS & WEIGHTS – *inches/pounds*

Size/Model	Connection	A	B	C	Weight (lbs)
Series WD600S (Strainer)					
1/2" WD600S	NPT	3.156	1.5	2.531	2
1/2" WD600LS	NPT	3.156	1.4375	2.531	1.5
3/4" WD600S	NPT	3.5625	1.625	2.531	2.5
3/4" WD600LS	NPT	3.5625	1.5625	2.531	2.4
1" WD600LS	NPT	3.75	1.4375	2.531	2.5
Series WD600SB (Strainer & Blowdown Valve)					
1/2" WD600SB	NPT	3.156	1.5	3.5	2.3
1/2" WD600LSB	NPT	3.156	1.4375	3.5	2.0
3/4" WD600SB	NPT	3.5625	1.625	3.5	2.8
3/4" WD600LSB	NPT	3.5625	1.5625	3.5	2.7
1" WD600LSB	NPT	3.725	1.4375	3.5	2.7

MATERIALS

Body	Stainless Steel, AISI 420F
Disc	Stainless Steel, AISI 420
Cover	Stainless Steel, AISI 416
Insulation Cap	Stainless Steel, AISI 304
Strainer Screen	Stainless Steel, AISI 304
Blowdown Valve	Stainless Steel, AISI 303

HOW TO SIZE/ORDER

Select working pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 650 lbs/hr at 30 PSIG working inlet pressure
Size/Model: 3/4" **WD600S**

CAPACITIES – *Condensate (lbs/hr)*

Size/ Model	Steam Inlet Pressure (PSIG)																					
	3.5	5	10	15	20	25	30	40	50	75	100	150	200	250	300	350	400	450	500	550	600
1/2" WD600LS	180	185	190	195	200	215	220	230	250	310	375	500	620	710	800	825	900	1070	1120	1185	1290
1" WD600LS	180	185	190	195	200	215	220	230	250	310	375	500	620	710	800	825	900	1070	1120	1185	1290
1/2" WD600S 3/4" WD600LS	300	315	350	380	415	440	470	515	580	710	825	1020	1165	1300	1440	1565	1670	1775	1880	1960	2060
3/4" WD600S	415	430	475	520	565	610	650	720	825	1020	1185	1480	1710	1950	2110	2265	2490	2625	2780	2985	3140

Note: *Maximum back pressure not to exceed 80% of inlet pressure (measured in absolute pressure) or trap may not close.*
Note: *For optimum performance, recommended for operating pressure above10 PSIG.*

STEAM TRAPS

WD700S

Thermodynamic Steam Trap (Repairable)

Model	**WD700S, WD700HS**
Sizes	**1/2", 3/4", 1"**
Connections	**NPT, SW, FLG**
Body Material	**Chrome-Moly Alloy Steel**
Options	**Blowdown Valve, Insulation Cap**
PMO Max. Operating Pressure	**600 PSIG**
TMO Max. Operating Temperature	**800°F**
PMA Max. Allowable Pressure	**600 PSIG up to 800°F**
TMA Max. Allowable Temperature	**800°F @ 600 PSIG**

WD700S is a Direct Replacement for Yarway Model 721

WD700S Strainer

WD700SB Strainer & Blowdown Valve

TYPICAL APPLICATIONS

DRIP, TRACER: The **WD700S** thermodynamic steam trap is commonly used as a drip trap on steam mains and steam supply lines. These traps are used on tracing applications; however, thermostatic traps are normally recommended for this service. Supplied with an integral strainer and optional blowdown valve to protect the trap from contamination. The internal working mechanism of the WD700S can be completely replaced while the trap body remains in line. Ideal for outdoor applications that are subject to freezing and for superheated steam conditions.

HOW IT WORKS

The thermodynamic trap has cyclic on-off operation with a disc that is pushed open by incoming condensate and closes tightly when steam tries to escape.

FEATURES

- **"Quick Change" capsule design for easy in-line repair**
- **Integral strainer with optional blowdown valve to protect trap from contamination**
- **High pressure applications up to 600 PSIG**
- **Hardened stainless steel seat and disc for extended service life even at high pressure**
- **Single trap will operate over the entire pressure range 4-600 PSIG (Not recommended for use below 10 PSI)**
- **Suitable for superheated steam**
- **Freezeproof when trap is piped in a vertical orientation for complete drainage of condensate**
- **Weldable body in chrome-moly alloy steel**
- **Trap will function in any orientation (horizontal preferred)**

SAMPLE SPECIFICATION

The steam trap shall be a thermodynamic style in a chrome-moly alloy steel body with an integral strainer and optional blowdown valve. Unit shall have an all stainless steel in-line removable seat and disc capsule assembly. Trap shall be capable of installation in any orientation and self-draining when mounted vertically.

INSTALLATION

Trap can be installed in any position; however, horizontal is preferred. Installation should include isolation valves.

MAINTENANCE

Complete replacement of capsule assembly can be performed while the steam trap remains in line. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Blowdown valve, used for flushing dirt and scale from strainer.

Customized Flanged Connections:
Specify size, face to face dimensions and metallurgy required for application.

WD700HS

The **WD700HS** is the high pressure version of the WD700S.

The standard model **WD700S** will operate over the entire pressure range, however, the **WD700HS** will operate more efficiently and have a longer service life for pressures over 300 PSIG.

WD700S	Standard pressure capsule	4-300 PSIG
WD700HS	High pressure capsule	150-600 PSIG

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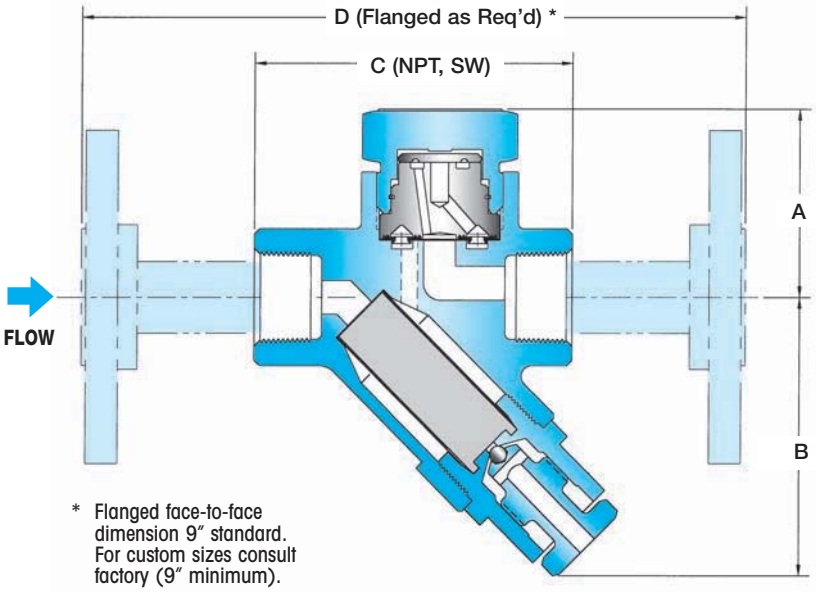
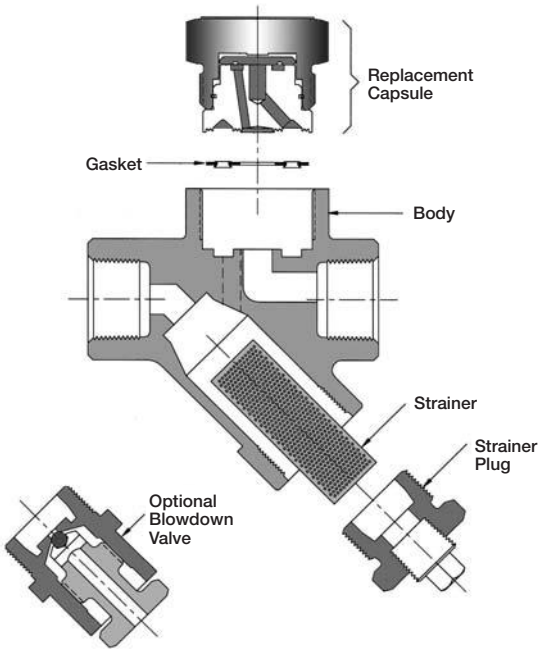
STEAM TRAPS

WD700S

Thermodynamic Steam Trap





DIMENSIONS & WEIGHTS – *inches/pounds*

Size/Model	Connection	A	B	C	Weight (lbs)
Series WD700S & WD700HS (Strainer)					
1/2"	NPT, SW	2.04	2.50	3.16	2
3/4"	NPT, SW	2.04	2.50	3.55	2
1″	NPT, SW	2.04	2.50	6.31	2
Series WD700SB & WD700HSB (Strainer & Blowdown Valve)					
1/2"	NPT, SW	2.04	3.06	3.16	2.25
3/4"	NPT, SW	2.04	3.06	3.55	2.25
1″	NPT, SW	2.04	3.06	6.31	2.25

HOW TO SIZE/ORDER

Select working pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 275 lbs/hr at 100 PSIG working inlet pressure

Size/Model: **WD700S**, specify pipe size and connections (NPT, SW, FLG)

MATERIALS

Body	Chrome Moly ASTM A-217, GR WC9
Seat	Stainless Steel, 420F
Seat Gasket	Annealed
Cover	Stainless Steel, 416
Disc	Stainless Steel, 420
Retaining Ring	Stainless Steel Spring Wire
Screen	Stainless Steel, 304
Strainer Plug, Pipe Plug	Stainless Steel, 303
Blowdown Valve	Stainless Steel
Flanges	Carbon Steel

CAPACITIES – *Condensate (lbs/hr)*

Model	Steam Inlet Pressure (PSIG)																						
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	80	100	150	200	300	400	500	600
WD700S (Cold)	65	90	110	130	140	160	175	180	190	200	280	350	400	440	500	575	650	800	925	1200	1450	1600	1750
WD700S (Hot)				95	105	115	120	125	130	140	180	220	250	265	280	320	350	405	460	550	600	650	700
WD700HS (Cold)																		350	400	495	500	620	690
WD700HS (Hot)																		250	280	330	380	410	450

Notes: *1) Maximum back pressure not to exceed 80% of inlet pressure (measured in absolute pressure) or trap may not close.*
2) For optimum performance, recommended for operating pressure above 10 PSIG.

STEAM TRAPS

WD900S

Thermodynamic Steam Trap

Model	**WD900S/WD900LS**
Sizes	**1/2", 3/4", 1"**
Connections	**NPT, SW, 600# FLG**
Body Material	**Low Carbon Chrome-Moly**
Options	**Insulation Cap**
PMO Max. Operating Pressure	**900 PSIG**
TMO Max. Operating Temperature	**842ºF**
PMA Max. Allowable Pressure	**1500 PSIG @ 100ºF**
TMA Max. Allowable Temperature	**842ºF @ 981 PSIG**

TYPICAL APPLICATIONS

DRIP: The **WD900S/WD900LS** thermodynamic steam trap is primarily used as a drip trap on high pressure steam mains and steam supply lines. Ideal for outdoor applications that are subject to freezing and for superheated steam conditions.

HOW IT WORKS

The thermodynamic trap has cyclic on-off operation with a disc that is pushed open by incoming condensate and closes tightly when steam tries to escape.

FEATURES

- **"Quick-Change" seat and disc for easy in-line repair**
- **High pressure applications up to 900 PSIG**
- **Integral strainer to protect trap from contamination**
- **Hardened stainless steel seat and disc for extended service life even at extremely high pressures**
- **Single trap model will operate over the entire pressure range (20-900 PSIG)**
- **Suitable for superheated steam**
- **Freezeproof when trap is piped in a vertical orientation for complete drainage of condensate**
- **Trap will function in any orientation (horizontal preferred)**

SAMPLE SPECIFICATION

The steam trap shall be a thermodynamic style with body material in chrome-moly alloy steel. Available in size 1/2" and 3/4" Class 600 socket weld ends or flanges. Also available in ANSI 300 FNPT. 1" Unit shall have hardened stainless steel seat and disc with a removable stainless steel strainer.

INSTALLATION

Trap can be installed in any position; however, horizontal is preferred. Installation should include isolation valves.

MAINTENANCE

The complete replacement of seat and disc can be performed while the steam trap remains in line. The strainer should be periodically cleaned to eliminate dirt, which is the most common cause of premature failure. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Customized Flanged Connections:
Specify size, face-to-face dimensions and metallurgy required for application.

WD900LS

The **WD900LS** is a low capacity version of the standard **WD900S** and recommended for working pressures of 120 PSIG and above.

HOW TO SIZE/ORDER

Select working pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 220 lbs/hr at 650 PSIG working inlet pressure
Size/Model: **WD900LS**, specify pipe size and connections

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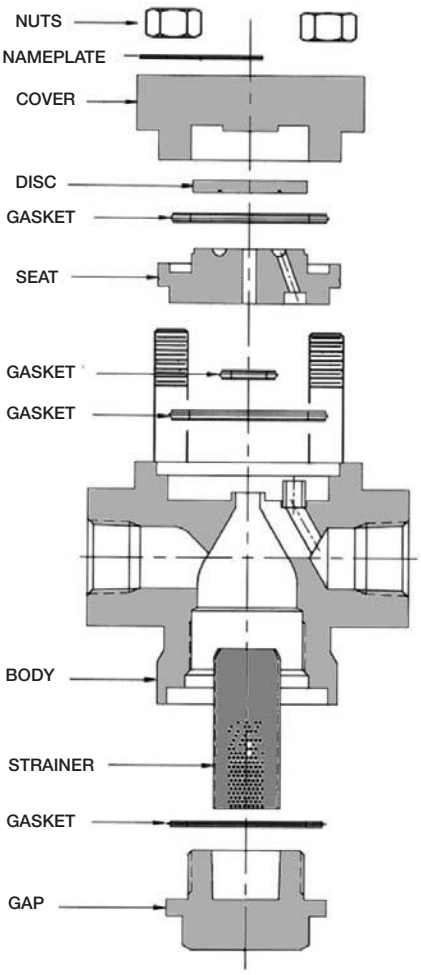
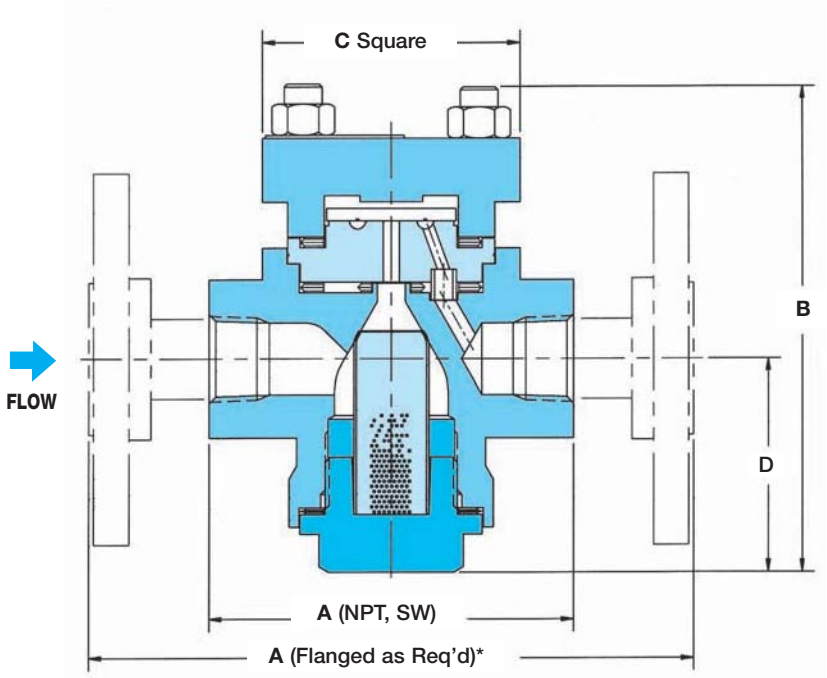
STEAM TRAPS
WD900S
Thermodynamic Steam Trap





* Flanged face-to-face dimension 9″ standard.
For custom sizes consult factory (9″ minimum).

DIMENSIONS & WEIGHTS – *inches/pounds*

Size/Model	Connection	A	B	C	D	Weight (lbs)
1/2" WD900S/WD900LS	NPT, SW	3.6	4.8	2.6	2.1	4.5
1/2" WD900S/WD900LS	*600# FLG	9.0	4.8	2.6	2.1	9.0
3/4" WD900S/WD900LS	NPT, SW	3.6	4.8	2.6	2.1	4.5
3/4" WD900S/WD900LS	*600# FLG	9.0	4.8	2.6	2.1	11.0
1" WD900S/WD900LS	NPT, SW	6.5	4.8	2.6	2.1	4.5
1" WD900S/WD900LS	*600# FLG	9.0	4.8	2.6	2.1	11.0

MATERIALS

Body	Alloy Steel, GR WC9
Seat	Stainless Steel, AISI 420
Cover	Alloy Steel, GR WC9
Strainer Cap	Alloy Steel, GR WC9
Strainer	Stainless Steel, AISI 300
Disc	Stainless Steel, AISI 420
Gasket	Stainless Steel, AISI 304
Studs	SA-193, GR B7
Nuts	SA-194, GR 2H

CAPACITIES – *Condensate (lbs/hr)*

	Steam Inlet Pressure (PSIG)											
Model	20	50	100	150	200	300	400	500	600	700	800	900
WD900S	243	411	555	641	700	781	835	874	905	930	951	968
WD900LS				181	210	253	290	325	360	381	405	429

Notes: WD900S: *1) Mnimum recommended working pressure: 20 PSIG.*
2) Maximum back pressure not to exceed 80% of inlet pressure (measured in absolute pressure) or trap may not close.
WD900LS: *1) Minimum recommended working pressure: 120 PSIG.*
2) Maximum back pressure not to exceed 50% of inlet pressure (measured in absolute pressure) or trap may not close.

STEAM TRAPS

WD3600

High-Pressure Thermodynamic Steam Trap

Model	**WD3600**
Sizes	**1/2", 3/4", 1"**
Connections	**BW, SW, 600# FLG, 1500# FLG**
Body Material	**Forged Alloy Steel**
PMO Max. Operating Pressure	**3600 PSIG**
TMO Max. Operating Temperature	**975 °F @ 3600 psi** **1025 °F @ 2220 psi**
PMA Max. Allowable Pressure	**2220 PSIG @ 1025 °F** **3600 PSIG @ 975 °F**
TMA Max. Allowable Temperature	**1025 °F @ 2220 PSIG**

Note: Connections may limit Pressure & Temperature ratings.

TYPICAL APPLICATIONS

DRIP, TRACER: The **WD3600** thermodynamic steam trap is commmonly used as a drip trap on high-pressure steam mains and steam supply lines. Supplied with an integral strainer to protect the trap from contamination. The internal working mechanism of the WD3600 can be completely replaced while the trap body remains in line. Ideal for outdoor applications that are subject to freezing and for superheated steam conditions.

HOW IT WORKS

The thermodynamic trap has cyclic on-off operation with a disc that is pushed open by incoming condensate and closes tightly when steam tries to escape.

FEATURES

- **"Quick-Change" seat and disc for easy in-line repair**
- **High pressure applications up to 3600 PSIG**
- **Integral strainer to protect trap from contamination**
- **Hardened stainless steel seat and disc for extended service life even at extremely high pressures**
- **Steam trap model will operate over the entire pressure range (100-3600 PSIG)**
- **Suitable for superheated steam**
- **Freezeproof when trap is piped in a vertical orientation for complete drainage of condensate**
- **Trap will function in any orientation (horizontal preferred)**

SAMPLE SPECIFICATION

The steam trap shall be a thermodynamic style with body material in forged alloy steel. Available in size 1/2", 3/4" and 1" Socket Weld, Butt Weld ends or ANSI 600# &1500# RF flanged connections. Unit shall have hardened repairable stainless steel seat and disc with a removable stainless steel sintered strainer.

INSTALLATION

Trap can be installed in any position; however, horizontal is preferred. Installation should include isolation valves.

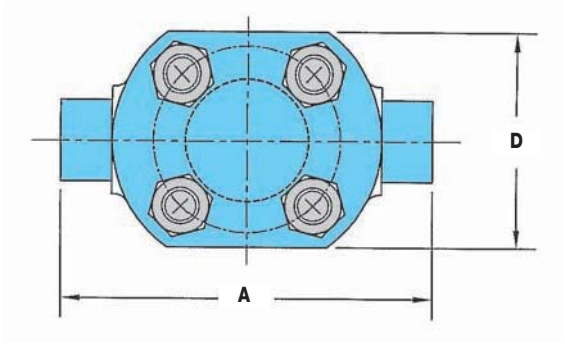
MAINTENANCE

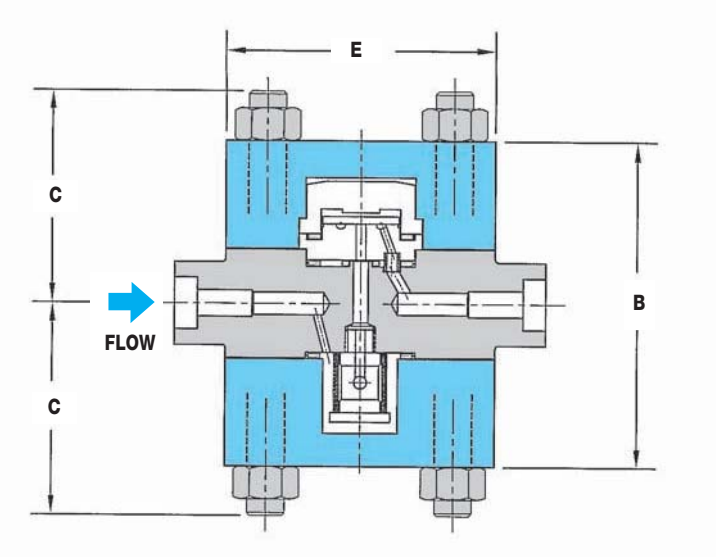
Complete replacement of seat and disc can be performed while the steam trap remains in line. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Customized Flanged Connections:
Specify size, face to face dimensions and metallurgy required for application. Trap includes strainer. Blowdown option is NOT available.

STEAM TRAPS
WD3600
High-Pressure Thermodynamic Steam Trap





DIMENSIONS & WEIGHTS – *inches/pounds*

Size/Model	A	B	C	D	E	Weight (lbs)
1/2", 3/4", 1" WD3600	6.3	5.4	3.5	3.6	4.5	25

MATERIALS

Body	Forged Alloy Steel, ASTM 182 F22
Seat	Stainless Steel, AISI 420
Cover, top & bottom	Forged Alloy Steel, ASTM 182 F22
Strainer	Sintered Stainless Steel, AISI 300
Disc	Stainless Steel, AISI 420
Gasket	Stainless Steel, AISI 304
Studs	SA-193, GR B16
Nuts	SA-194, GR 4

HOW TO SIZE/ORDER

Select working pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 380 lbs/hr at 1000 PSIG working inlet pressure

Size/Model: **WD3600**, Specify pipe size and connections (BW, SW, 600# FLG, 1500# FLG)

CAPACITIES – *Condensate (lbs/hr)*

Model	Steam Inlet Pressure (PSIG)													
	100	500	1000	1250	1750	2000	2250	2500	2750	3000	3250	3500	3600	3600
WD3600	165	290	380	400	435	470	500	525	550	575	595	610	620	625

Note: *Maximum back pressure not to exceed 50% of inlet pressure (measured in absolute pressure) or trap may not close.*

STEAM TRAPS

WT1000

Thermostatic Steam Trap

Model	**WT1000**
Sizes	**1/2", 3/4"**
Connections	**NPT**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**300 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**1032 PSIG @ 100°F**
TMA Max. Allowable Temperature	**750°F @ 800 PSIG**

TYPICAL APPLICATIONS

DRIP, TRACER: The **WT1000** thermostatic steam trap was specifically designed for drip and tracing applications as well as an air vent for heat exchangers. Like all thermostatic traps, the WT1000 is small, light, and has excellent air handling capabilities. The discharging of air on start-up allows steam to enter the system more quickly.

HOW IT WORKS

The thermostatic trap contains a welded stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present the trap is in the open discharge position. When steam reaches the trap the element expands and closes off tightly.

FEATURES

- **Excellent air handling capability which allows steam to enter and the system to warm up faster; extremely important during start up**
- **Welded stainless steel thermal element which resists shock from water hammer**
- **Freezeproof when trap is installed in a vertical orientation allowing for complete condensate drainage**
- **Body is produced from solid stainless steel barstock**

SAMPLE SPECIFICATION

The steam trap shall be of thermostatic type with stainless steel body and stainless steel thermal element.

INSTALLATION & MAINTENANCE

Trap can be installed in any position. Steam trap is non-repairable. If new trap is needed, remove from line and replace.

OPTIONS

Special bellows available upon request.

MATERIALS

Trap Housing	Stainless Steel, AISI 304L
Thermal Element	Stainless Steel, 300 Series
Valve	Stainless Steel, AISI 440C

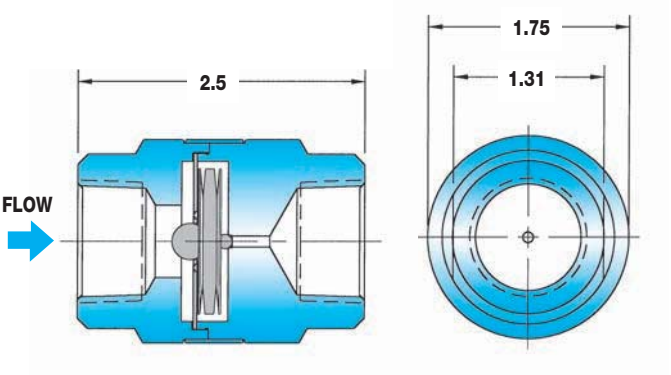
HOW TO SIZE/ORDER

Select working pressure, follow column down to correct capacity (lbs/hr) block. Example:

Application: 435 lbs/hr at 100 PSIG working inlet pressure

Size/Model: **WT1000**, Specify pipe size and connections (1/2", 3/4")

DIMENSIONS – *inches*



CAPACITIES – *Condensate (lbs/hr)*

	Steam Inlet Pressure (PSIG)									
MODEL	5	10	20	50	100	125	150	200	250	300
WT1000	95	140	195	305	435	485	530	610	685	750

Back Pressure as Percentage of Inlet Pressure	10	20	25	30	40	50	60	70	80	90
Percentage of Decrease in Trap Capacity	0	0	0	2	5	12	20	30	40	55

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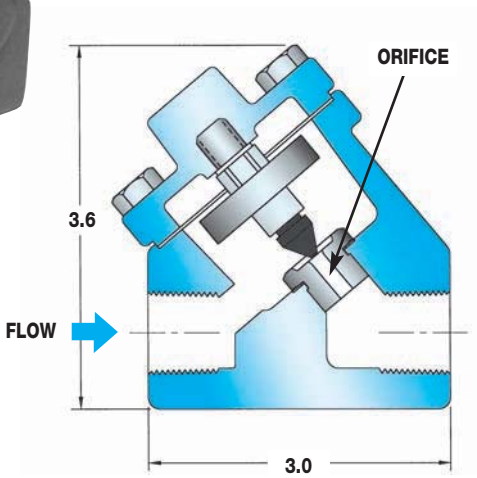
STEAM TRAPS
WT2500
Thermostatic Steam Trap

Model	**WT2500**
Sizes	**1/2", 3/4"**
Connections	**NPT**
Body Material	**Cast Iron**
PMO Max. Operating Pressure	**250 PSIG**
TMO Max. Operating Temperature	**406°F**
PMA Max. Allowable Pressure	**250 PSIG up to 450°F**
TMA Max. Allowable Temperature	**450°F @ 250 PSIG**

Units: Inches



TYPICAL APPLICATIONS

DRIP, TRACER, PROCESS: The **WT2500** thermostatic steam trap is used for drip, tracing and process applications. Their compact size, excellent air handling capability and wide operating pressure range make them a great choice for most applications. Thermostatic traps are far superior to bucket traps and thermodynamic disc traps in their ability to remove air from the system.

HOW IT WORKS

The thermostatic trap contains a welded stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present, the trap is in the open discharge position. When steam reaches the trap, the element expands and closes off tightly.

FEATURES

- **The thermal element and seat can be easily removed and replaced in minutes with the trap body still in-line**
- **Operates at steam pressures up to 250 PSIG**
- **Thermostatic traps have excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start up**
- **Welded stainless steel thermal element that resists shock from water hammer**
- **Freezeproof when trap is installed in a vertical orientation allowing for complete condensate drainage**
- **Hardened stainless steel seat for extended service life**

MATERIALS

Cover & Body	Cast Iron ASTM A-126 Class B
Thermal Element	Stainless Steel, AISI 302
Valve & Seat	Stainless Steel, AISI 416
Cover Gasket	Garlock

SAMPLE SPECIFICATION

The steam trap shall be of a thermostatic type with cast iron body and stainless steel thermal element. Trap must be in-line repairable with a bolt-on type cover that is sealed with a spiral wound Stainless Steel AISI 316 gasket. Valve and seat to be hardened stainless steel.

MAINTENANCE & INSTALLATION

Trap can be installed in any position. If replacement is required, remove the cover and replace the internal working components. Repair kit includes thermal element, seat and gasket. For full maintenance details see Installation and Maintenance Manual.

OPTION

Fail-closed bellows available upon request.

SLR = Steam lock release

HOW TO SIZE/ORDER

Select working pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 1827 lbs/hr at 100 PSIG working inlet pressure

Size/Model: **WT2501**, 3/16" orifice, Specify pipe size (1/2", 3/4")

CAPACITIES – *condensate (lbs/hr)*

Model	Orifice Size	Steam Inlet Pressure (PSIG) 5	10	20	50	100	125	150	200	250
WT2501	**3/16"**	441	625	882	1391	1827	1969	2095	2305	2483
WT2503	**5/16"**	903	1271	1811	2861	3754	4043	4300	4730	5093

Notes: 1) 5/16" orifice size is standard and is normally used on process equipment.
2) 3/16" orifice size is offered for reduced capacity and normally used for tracing applications.

STEAM TRAPS

WT2000C

Thermostatic Steam Trap

Model	**WT2000C**
Sizes	**1/2", 3/4"**
Connections	**NPT**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**650 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temp.**
PMA Max. Allowable Pressure	**1032 PSIG @ 100°F**
TMA Max. Allowable Temperature	**750°F @ 800 PSIG**

TYPICAL APPLICATIONS

DRIP, TRACER, PROCESS: The **WT2000C** thermostatic steam trap is used for drip, tracing, and process applications. Their compact size, all stainless steel construction, excellent air handling capabilities, and the ability to operate over a wide pressure range make them a good choice for most applications. They can also be used as an air vent on heat exchangers. Thermostatic traps are far superior to bucket traps and thermodynamic traps in their ability to remove air from the system. The discharging of air on start up allows steam to enter the system more quickly.

HOW IT WORKS

The thermostatic trap contains a welded stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present the trap is in the open discharge position. When steam reaches the trap the element expands and closes off tightly.

FEATURES

- **Thermostatic traps have excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start up**
- **Integral strainer to protect trap from contamination**
- **Welded stainless steel thermal element which resists shock from water hammer**
- **Freezeproof when trap is installed in a vertical orientation allowing for complete condensate drainage**
- **Body is produced from stainless steel investment casting**
- **Hardened stainless steel seat for extended service life**
- **Will operate at steam pressures up to 650 PSIG**

SAMPLE SPECIFICATION

Steam trap shall be of thermostatic type with stainless steel body, thermal element, internal screen, and hardened valve and seat.

INSTALLATION

Isolation valves should be installed with trap. Trap can be installed in any position.

MAINTENANCE

Steam trap is non-repairable. If failure or malfunction occurs, remove and replace.

OPTIONS

Fail-closed bellows avaiable upon request.

SLR = Steam lock release

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STEAM TRAPS
WT2000C
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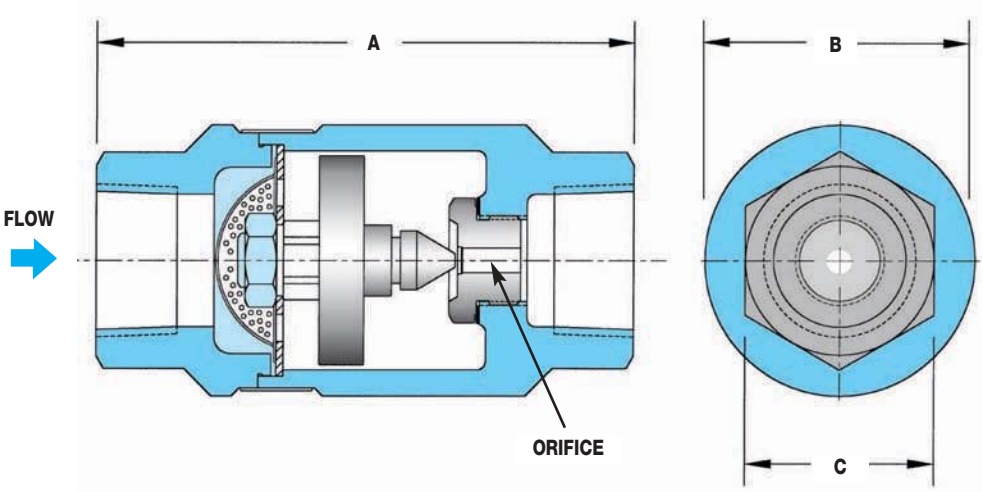

DIMENSIONS & WEIGHTS – *inches/pounds*

Size	A	B	C	Weight (lbs)
1/2", 3/4"	3.75	1.88	1.31	1.5

MATERIALS

Trap Housing	Stainless Steel, ASTM A351-CF3
Thermal Element	Stainless Steel
Valve & Seat	Stainless Steel, AISI 416
Strainer Screen	Stainless Steel

HOW TO SIZE/ORDER

Select working pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 1827 lbs/hr at 100 PSIG working inlet pressure

Size/Model: **WT2001C**, 3/16" orifice, Specify connection size

CAPACITIES – *Condensate (lbs/hr)*

Model	Orifice Size	Steam Inlet Pressure (PSIG) 5	10	20	50	100	125	150	200	250	300	350	400	450	500	600	650
WT2001C	3/16"	441	625	882	1391	1827	1969	2095	2305	2483	2636	2777	2903	3019	3129	3323	3413
WT2003C	5/16"	903	1271	1811	2861	3754	4043	4300	4730	5093	5413	5702	5959	6195	6421	6820	7004

Notes: 1) 5/16" orifice size is standard and is normally used on process equipment.
2) 3/16" orifice size is offered for reduced capacity and normally used for tracing applications.

Back Pressure as Percentage of Inlet Pressure	10	20	25	30	40	50	60	70	80	90
Percentage Decrease in Trap Capacity	0	0	0	2	5	12	20	30	40	55

STEAM TRAPS

WT3000

Thermostatic Steam Trap (Repairable)

Model	**WT3000**
Sizes	**1/2", 3/4"**
Connections	**NPT, SW, FLG**
Body Material	**Stainless Steel**
Options	**Strainer, Blowdown Valve**
PMO Max. Operating Pressure	**650 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temp.**
PMA Max. Allowable Pressure	**906 PSIG @ 100°F**
TMA Max. Allowable Temperature	**750°F @ 725 PSIG**

TYPICAL APPLICATIONS

PROCESS: The **WT3000** thermostatic steam trap is used for industrial process applications. Their compact size, all stainless steel construction, excellent air handling capability and wide operating pressure range make them a great choice for most process applications. Thermostatic traps are far superior to bucket traps and thermodynamic disc traps in their ability to remove air from the system.

HOW IT WORKS

The thermostatic trap contains a welded stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present, the trap is in the open discharge position. When steam reaches the trap, the element expands and closes off tightly.

FEATURES

- **The thermal element and seat can be easily removed and replaced in minutes with the trap body still in-line**
- **Operates at steam pressures up to 650 PSIG**
- **Thermostatic traps have excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start up**
- **Welded stainless steel thermal element that resists shock from water hammer**
- **Freezeproof when trap is installed in a vertical orientation allowing for complete condensate drainage**
- **Body is produced from stainless steel investment casting**
- **Hardened stainless steel seat for extended service life**
- **Available with integral strainer and blowdown valve**

SAMPLE SPECIFICATION

The steam trap shall be of a thermostatic type with stainless steel body, thermal element and internal strainer. Trap must be in-line repairable with a bolt-on type cover that is sealed with a spiral wound Stainless Steel AISI 316 gasket. Seat and valve to be hardened stainless steel.

INSTALLATION

Isolation valves should be installed with trap. Trap can be installed in any position.

MAINTENANCE

If the trap fails, remove the cover and replace the internal working components. Repair kit includes thermal element, seat and gasket. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Strainer, blowdown valve, and steam lock release.

S = Strainer (**WT3001S**)

SB = Strainer and blowdown valve (**WT3001SB**)

SLR = Steam lock release

Fail-closed Bellows

Special Bellows For additional sub-cooling of condensate (down to 43°F below saturated steam temperature)

Note: Standard bellows are designed for approximately 5°F sub-cool temperature

HOW TO SIZE/ORDER

Refer to the Capacity Chart to determine which model is required to satisfy the condensate load. (Select steam inlet pressure, follow column down to correct capacity (lbs/hr) block)
Example:

Application: 3754 lbs/hr at 100 PSIG steam inlet pressure
Size/Model: **WT3003S**, 5/16" orifice with strainer,
Specify size & connections (NPT, SW, FLG)

Add **S** to end of the model code if a Strainer is required

Add **SB** to end of the model code if a Strainer & Blowdown Valve is required

Examples:

3/4" WT3003S 3/4" connections with strainer, 5/16" orifice

1/2" WT3001SB 1/2" connections with strainer and blowdown valve, 3/16" orifice

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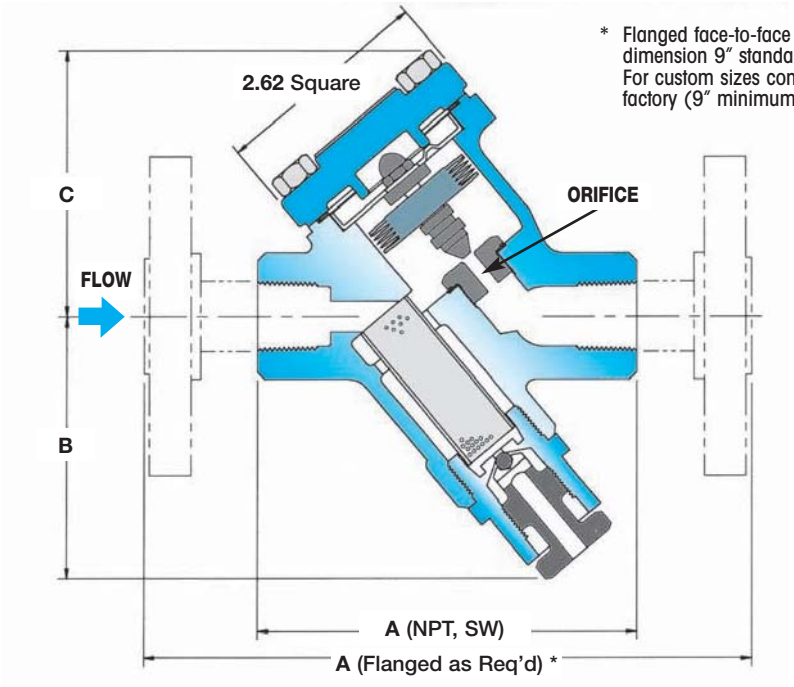
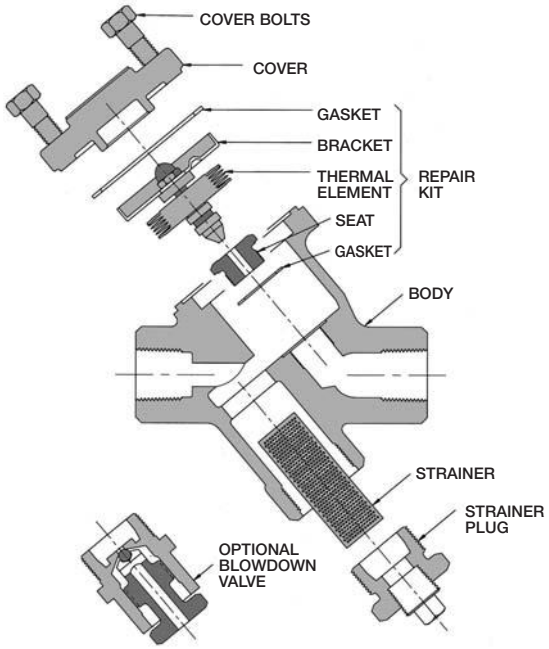
STEAM TRAPS
WT3000
Thermostatic Steam Trap





DIMENSIONS & WEIGHTS – *inches/pounds*

Size	Connection	A	B	C	Weight (lbs)
Series WT3000, WT3000S (Strainer)					
1/2"	NPT, SW	4.5	2.57	3.13	4.5
3/4"	NPT, SW	4.5	2.57	3.13	4.5
Series WT3000SB (Strainer & Blowdown Valve)					
1/2"	NPT, SW	4.5	3.2	3.13	4.5
3/4"	NPT, SW	4.5	3.2	3.13	4.5

***S** = Strainer only* ***SB** = Strainer and Blowdown*

MATERIALS

Cover & Body	Stainless Steel, AISI 316L
Thermal Element	Stainless Steel, AISI 300
Valve & Seat	Stainless Steel, AISI 416
Cover Gasket	Stainless Steel, AISI 316
Seat Gasket	Stainless Steel, AISI 316
Cover Bolts	Steel, ASTM A193 GR B7 Nickel Plated
Screen*	0.046 Perforated Stainless Steel AISI 304
Blowdown Valve*	Stainless Steel AISI 303

** Screen and blowdown valve are optional*

CAPACITIES – *Condensate (lbs/hr)*

Model	Pipe Size	Orifice Size	Steam Inlet Pressure (PSIG) 5	10	20	50	100	125	150	200	250	300	350	400	450	500	600	650
WT3001	1/2", 3/4"	3/16"	441	625	882	1391	1827	1969	2095	2305	2483	2636	2777	2903	3019	3129	3323	3413
WT3003		5/16"	903	1271	1811	2861	3754	4043	4300	4730	5093	5413	5702	5959	6195	6421	6820	7004

Notes:
1) 5/16″ orifice size is standard and is normally used on process equipment.
2) 3/16″ orifice size is offered for reduced capacity.
3) 5/64″ low capacity orifice is available upon request.

Back Pressure as Percentage of Inlet Pressure	10	20	25	30	40	50	60	70	80	90
Percentage Decrease in Trap Capacity	0	0	0	2	5	12	20	30	40	55

STEAM TRAPS

WT4000

Thermostatic Steam Trap (Repairable)

Model	**WT4000**
Sizes	**3/4", 1"**
Connections	**NPT, SW, FLG**
Body Material	**Stainless Steel**
Options	**Strainer, Blowdown Valve**
PMO Max. Operating Pressure	**300 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**906 PSIG @ 100°F**
TMA Max. Allowable Temperature	**750°F @ 725 PSIG**

TYPICAL APPLICATIONS

PROCESS: The **WT4000** thermostatic steam trap is used for industrial process applications. Their compact size, all stainless steel construction, excellent air handling capability and wide operating pressure range make them a great choice for most process applications. Thermostatic traps are far superior to bucket traps and thermodynamic disc traps in their ability to remove air from the system.

HOW IT WORKS

The thermostatic trap contains a welded stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present, the trap is in the open discharge position. When steam reaches the trap, the element expands and closes off tightly.

FEATURES

- **The thermal element and seat can be easily removed and replaced in minutes with the trap body still in-line**
- **Operates at steam pressures up to 300 PSIG**
- **Thermostatic traps have excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start up**
- **Welded stainless steel thermal element that resists shock from water hammer**
- **Freezeproof when the trap is installed in a vertical orientation allowing for complete condensate drainage**
- **Body is produced from stainless steel investment casting**
- **Hardened stainless steel seat for extended service life**
- **Available with integral strainer and blowdown valve**

SAMPLE SPECIFICATION

The steam trap shall be of thermostatic type with stainless steel body, thermal element, and internal strainer. Trap must be in-line repairable with a bolt-on type cover that is sealed with a spiral wound Stainless Steel AISI 316 gasket. Seat and valve to be hardened stainless steel.

INSTALLATION

Isolation valves should be installed with trap. Trap can be installed in any position.

MAINTENANCE

If trap fails, remove cover and replace the internal working components. Repair kit includes thermal element, seat and gasket. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Strainer, blowdown valve, and steam lock release.

S = Strainer (**WT4001S**)

SB = Strainer and blowdown valve (**WT4001SB**)

SLR = Steam lock release

Customized flanged connections: Specify size, face-to-face dimensions and metallurgy required for application.

HOW TO SIZE/ORDER

Refer to the Capacity Chart to determine which model is required to satisfy the condensate load. (Select steam inlet pressure; follow column down to correct capacity (lbs/hr) block) Example:

Application: 5610 lbs/hr at 100 PSIG steam inlet pressure

Size/Model: **WT4001S**, 5/16" orifice with strainer, Specify size & connections (NPT, SW, FLG)

Add **S** to end of model code if a Strainer is required

Add **SB** to end of model code if a Strainer & Blowdown Valve is required

Examples:

3/4" WT4001S	3/4" connections with strainer, 5/16" orifice
1" WT4003SB	1" connections with strainer and blowdown valve, 7/16" orifice

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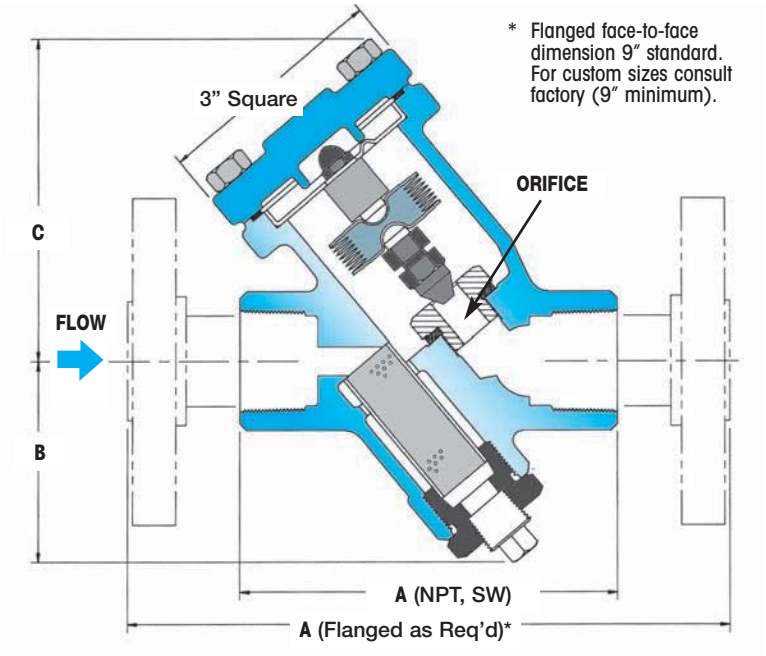
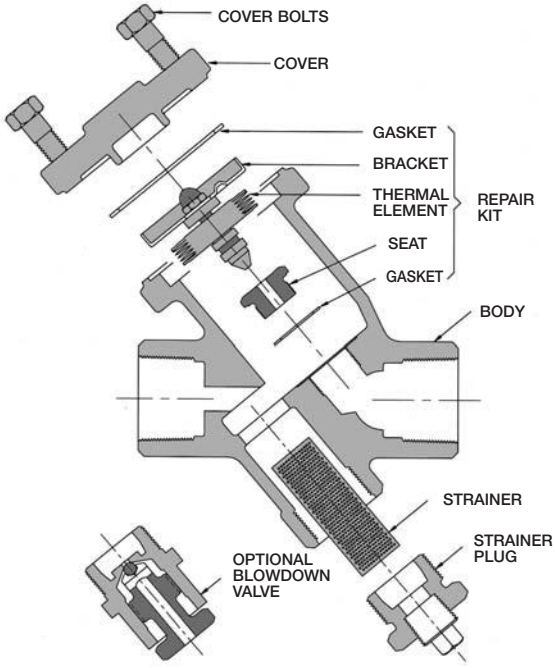
STEAM TRAPS
WT4000
Thermostatic Steam Trap





DIMENSIONS & WEIGHTS – *inches/pounds*

Size	Connection	A	B	C	Weight (lbs)
Series WT4000, WT4000S (Strainer)					
3/4"	NPT, SW	4.81	2.57	4.12	4.5
1"	NPT, SW	4.81	2.57	4.12	4.5
Series WT4000SB (Strainer & Blowdown Valve)					
3/4"	NPT, SW	4.81	3.12	4.12	4.5
1"	NPT, SW	4.81	3.12	4.12	4.5

***S** = Strainer only* ***SB** = Strainer and Blowdown*

MATERIALS

Body	Stainless Steel, AISI 316L
Cover	Stainless Steel, AISI 316L
Cover Gasket	Spiral Wound Stainless Steel, AISI 316
Cover Bolts	Steel, ASTM A193 GR B7 Nickel Plated
Thermal Element	Stainless Steel, AISI 302
Valve & Seat	Hardened Stainless Steel, AISI 416
Seat Gasket	Stainless Steel, AISI 316
Screen*	0.046 Perforated Stainless Steel AISI 304
Blowdown Valve*	Stainless Steel AISI 300

** Screen and blowdown valve are optional*

CAPACITIES – *Condensate (lbs/hr)*

Model	Pipe Size	Orifice Size	Steam Inlet Pressure (PSIG) 1	2	5	10	20	50	100	125	150	200	250	300
WT4001	**3/4", 1"**	**5/16"**	605	855	1350	1910	2705	4275	5610	6045	6425	7070	7615	8095
WT4003		**7/16"**	940	1325	2095	2960	4190	6620	8695	9365	9950	10955	11800	12540

Notes: *1) 7/16" orifice size is standard and is normally used on process equipment.*
2) 5/16" orifice size is offered for reduced capacity.

Back Pressure as Percentage of Inlet Pressure	10	20	25	30	40	50	60	70	80	90
Percentage Decrease in Trap Capacity	0	0	0	2	5	12	20	30	40	55

STEAM TRAPS
WT5000
Adjustable Discharge Temperature Steam Trap

Model	**WT5000**
Sizes	**3/8", 1/2", 3/4, 1"**
Connections	**NPT, SW**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**650 PSIG**
TMO Max. Operating Temperature	**662°F**
PMA Max. Allowable Pressure	**900 PSIG**
TMA Max. Allowable Temperature	**800°F**

TYPICAL APPLICATIONS

TRACER: The **WT5000** Series Bimetal Steam Trap is used in steam tracing applications (process lines, instrumentation and winterization, general steam jacketing) and small process applications where accurate control of condensate discharge temperature is required to utilize the sensible heat of the condensate.

HOW IT WORKS

Bimetallic plates of dissimilar metals respond to steam temperature variations, whereby the metals are relaxed at relatively cool conditions (such as start-up) and the trap is open for the discharge of condensate. As temperature nears the preset subcool temperature below saturation, the metals react and expand, closing the trap and preventing the loss of live steam. External field adjustability of the bimetal element allows precise control of the condensate discharge temperature.

The condenstate temperature can be field adjusted as follows:

To **INCREASE** the temperature, turn the adjuster screw:
COUNTERCLOCKWISE

To **DECREASE** the temperature, turn the adjuster screw:
CLOCKWISE

Note: The lower the set temperature, the more condensate will back-up in front of the trap inlet connection. Therefore, consideration should be given to providing adequate piping to accomodate any such back-up.

FEATURES

- **Excellent for various steam tracing and small process applications using the sensible heat of condendate**
- **Field adjustable bimetal element allows precise control of condensate discharge temperature**
- **Internal screen and seat/plug design help prevent pipe scale and debris from accumulating on seating surfaces to provide trouble-free operation**
- **In-line repairable**

SAMPLE SPECIFICATION

The steam trap shall be of thermostatic type with stainless steel body, seat, valve plug and bimetallic element. Bimetal element shall be externally adjustable for control of condensate discharge temperature. Trap must be in-line repairable with a replaceable bimetal element, valve plug and seat.

INSTALLATION

Isolation valves should be installed with trap. Trap can be installed in any position.

MAINTENANCE

If trap fails, remove cover and replace the internal working components. Repair kit includes bimetallic element (including valve stem and plug), seat and gasket. For full maintenance details see Installation and Maintenance Manual.

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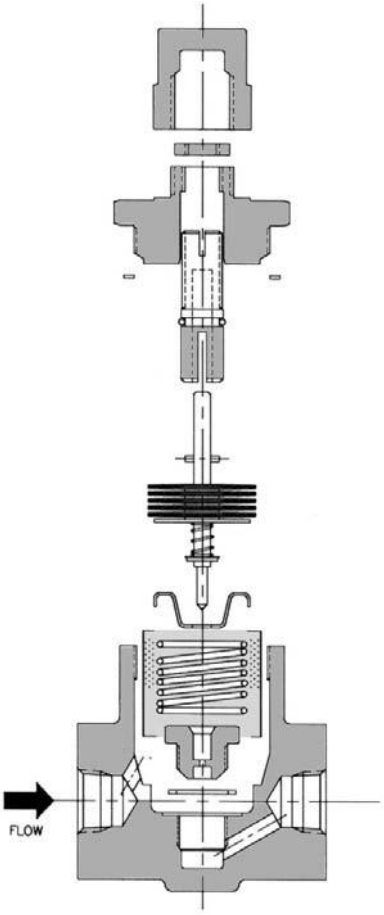
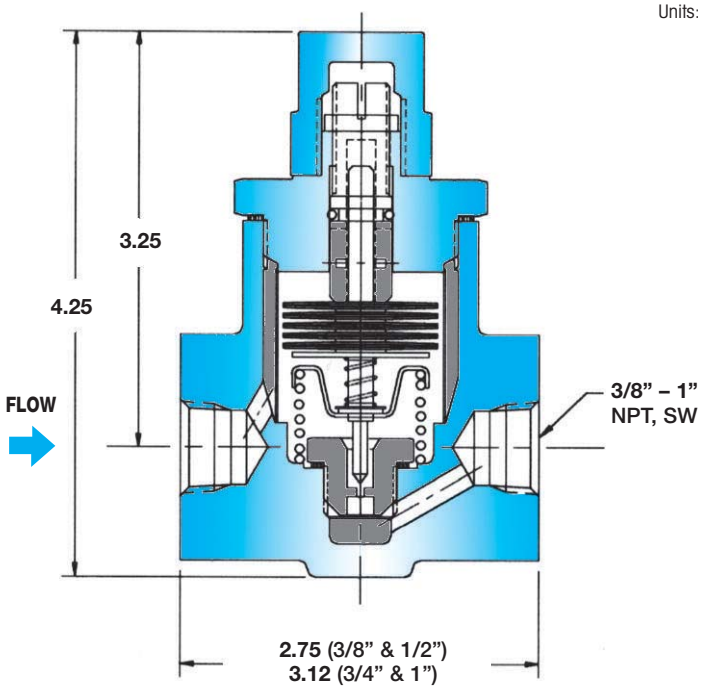
STEAM TRAPS
WT5000
Adjustable Discharge Temperature Steam Trap



Units: inches



MATERIALS

Body and Cover	304 Stainless Steel
Bimetal Element	GB14
Valve Seat	420 Stainless Steel
Gaskets	A240 S31600
Valve Stem	420 Stainless Steel

HOW TO SIZE/ORDER

From the chart below, confirm that application capacity requirements are satisfied at the working Inlet Pressure and desired Set and Discharge Temperatures. Example:

Application: Discharge of 300 lbs/hr at a working inlet pressure of 125 PSIG and 240˚F set temperature

Size/Model: **WT5000**, Specify pipe size (3/8", 1/2," 3/4", 1") and connections (NPT, SW)

Note: WT5000 trap can pass up to 336 lbs/hr of condensate at a working inlet pressure of 125 PSIG and condensate set temperature of 240˚F (see Capacity Chart).

Maximum Trap Capacities at Various Inlet Pressures and Set Temperatures – *Condensate (lbs/hr)*

Set Temperature	Steam Inlet Pressure (PSIG) 15	30	50	100	125	150	200	250	300	350	400	450	500	600	650
220˚F	56	70	102	144	161	177	204	228	250	270	289	306	323	354	368
240˚F	116	164	212	300	336	368	425	475	520	562	600	637	671	735	756
260˚F	134	190	245	346	387	424	490	548	600	648	693	735	775	849	883
280˚F	143	202	261	370	413	453	523	584	640	691	739	784	826	905	942

Notes: *1) Capacities in chart are based on discharging condensate to atmosphere with a condensate temperature of 200˚F.*

2) Maximum discharge capacity up to 970 lbs/hr, depending on operating condition requirements.

3) Contact factory for additional information including other condensate set and discharge temperatures.

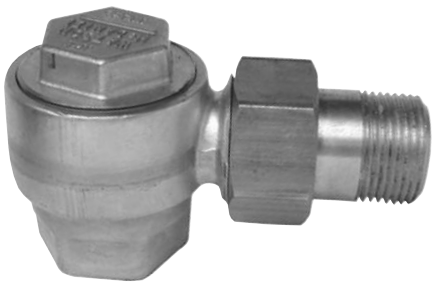
4) To ensure proper operation and eliminate possible steam loss, the Set Temperature should be lower than 27˚F subcool (degrees below inlet steam saturation temperature).

STEAM TRAPS

TT25B/TT125

Thermostatic Steam Trap (Repairable)

Model	**TT25B, TT125**
Sizes	**1/2", 3/4"**
Connections	**NPT**
Body Material	**Brass**
PMO Max. Operating Pressure	**TT25B 25 PSIG** **TT125 125 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**125 PSIG up to 450°F**
TMA Max. Allowable Temperature	**450°F @125 PSIG**



TYPICAL APPLICATIONS

TT25B/TT125 thermostatic steam traps are predominantly used in the HVAC industry. They are referred to as radiator traps because the quick-disconnect right angle connection is found on most radiator installations. Their excellent air handling capabilities, compact size, and economical cost make them a great choice for air vents on heat exchangers or for steam trap applications on OEM equipment.

HOW IT WORKS

The thermostatic trap contains a welded stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present the trap is in the open discharge position. When steam reaches the trap the element expands and closes off tightly.

FEATURES

- **Excellent air handling capability**
- **In-line repairable**
- **Welded stainless steel thermal element**
- **Stainless seat on TT125**
- **High thermal efficiency**

SAMPLE SPECIFICATION

The steam trap shall be of thermostatic type with brass or bronze body and stainless steel thermal element. Trap must be in-line repairable.

INSTALLATION

Isolation valves should be installed with trap. Trap can be installed in any position.

MAINTENANCE

If the trap fails, remove the cover and replace the internal working components. Repair kit includes thermal element, seat and gasket. For full maintenance details see Installation and Maintenance Manual.

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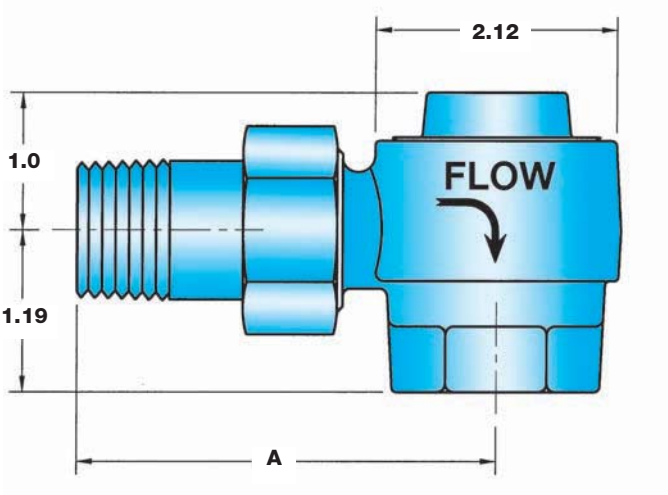
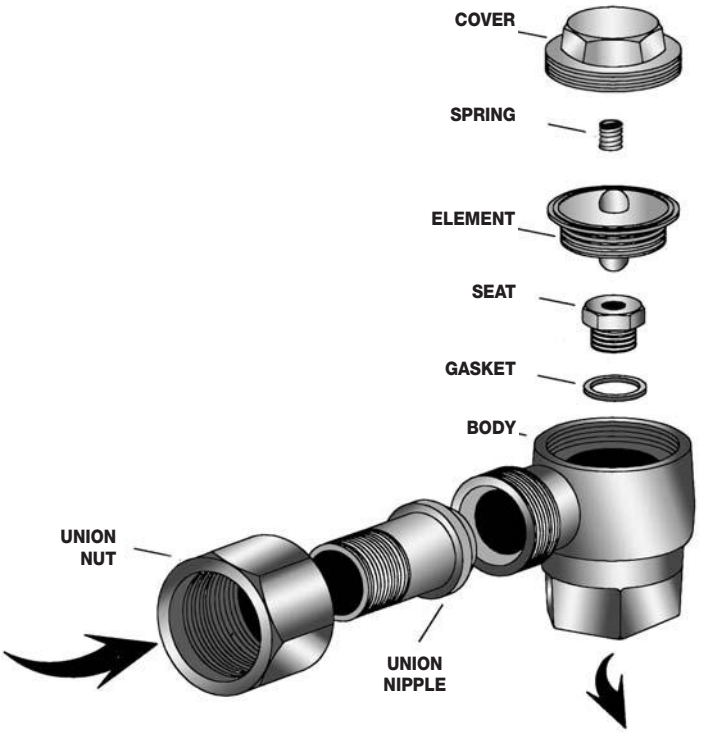
STEAM TRAPS
TT25B/TT125
Thermostatic Steam Trap





DIMENSIONS & WEIGHTS – *inches/pounds*

Model	Pipe Size	A	Weight (lbs)
TT25B, TT125	1/2″	2.1875	1.5
TT25B, TT125	3/4″	3.062	1.5

Note: *Other Union Connections and Lengths are available; consult factory.*

HOW TO SIZE/ORDER

Select differential pressure; follow column down to correct capacity (lbs/hr) block. Example:

Application: 2100 lbs/hr at 40 PSI differential pressure

Size/Model: 3/4″ **TT125**

CAPACITIES – *Condensate (lbs/hr)*

	Differential Pressure (PSI)				
Pipe Size	15	25	40	65	125
1/2″	825	1070	1323	1610	1950
3/4″	1290	1700	2100	2575	3300

MATERIALS

Body	Forged Brass, CA 377
Element	Welded Stainless Steel, AISI 302
Cover	Forged Brass, CA 377
Spring	Stainless Steel, AISI 304
Seat	TT25B: Brass ASTM B-21 TT125: Stainless Steel, AISI 303
Gasket	Brass, ASTM B-21
Union Nipple	Brass, ASTM B-16
Union Nut	Brass, ASTM B-16

STEAM TRAPS

FT Series

Float & Thermostatic Steam Trap

Model	**FT**
Sizes	**3/4", 1", 1 1/4", 1 1/2", 2"**
Connections	**NPT**
Body Material	**Cast Iron**
PMO Max. Operating Pressure	**75 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**75 PSIG up to 450°F**
TMA Max. Allowable Temperature	**450°F @ 75 PSIG**

TYPICAL APPLICATIONS

DRIP, PROCESS: The **FT Series** float and thermostatic steam traps are used for HVAC and light industrial process applications, and can be applied to unit heaters, water heaters, pressing machines, heat exchangers, and coils. These traps have excellent air removal capability making them an excellent choice for HVAC and process applications requiring quick start-up.

HOW IT WORKS

Float and thermostatic steam traps have a float and thermostatic element that work together to remove both condensate and air from the steam system. The float, which is attached to a valve, rises and opens the valve when condensate enters the trap. Air is discharged through the thermostatic air vent to the outlet side of the trap. The thermostatic air vent closes when steam enters the trap.

FEATURES

- **H-pattern design allows piping from either side of the steam trap (there are two inlet ports at top and two outlet ports at bottom)**
- **Float & Thermostatic traps have excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start up**
- **Welded stainless steel thermostatic air vent resists shock from water hammer**
- **In-line repairable (all internals are attached to cover)**

SAMPLE SPECIFICATION

The trap shall be of float and thermostatic design with cast iron body. Thermostatic element to be welded stainless steel. Float and seating material to be stainless steel. Trap must be in-line repairable.

INSTALLATION

Isolation valves should be installed with trap. The trap must be level and upright for the float mechanism to operate.

MAINTENANCE

All internal components can be replaced with the trap body in-line. Repair kit includes thermostatic element, valve seat and disc, float and sealing gasket. For full maintenance details see Installation and Maintenance Manual.

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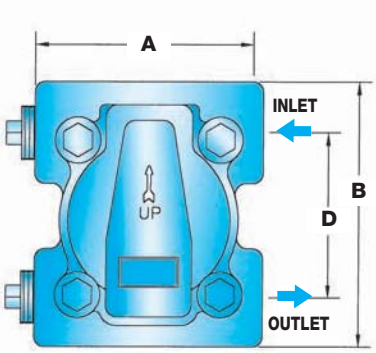
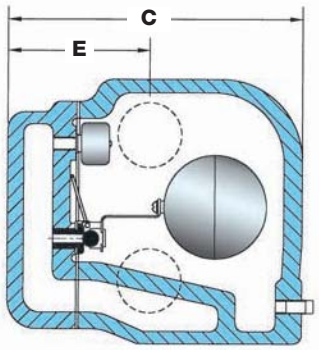
STEAM TRAPS
FT Series
Float & Thermostatic Steam Trap

DIMENSIONS & WEIGHTS – *inches/pounds*

Model	A	B	C	D	E	Weight (lbs)
FT-3, FT-4, FT-33 FT-34, FT-73, FT-74	4.125	5.00	5.125	3.125	2.75	7.50
FT-6, FT-35, FT-36 FT-75, FT-76	5.00	6.81	6.47	4.125	3.43	13.0
FT-7, FT-37L, FT-77L	6.375	7.68	8.218	5.25	4.41	21.0
FT-8, FT-38, FT-78 FT-S8-15, FT-S8-75	6.50	11.0	8.968	7.468	4.531	40.0





HOW TO SIZE/ORDER

From the capacity chart, select the model that can handle the working pressure of the system (PMO). Select the trap that will meet the capacity requirements at the differential pressure. Example:

Application: 1700 lbs/hr at 30 PSIG working pressure and 5 PSI differential pressure

Size/Model: 1″ **FT-35** or 1 1/4″ **FT-36**

MATERIALS

Body & Cover	Cast Iron, ASTM A-126 Class B
Nuts & Bolts	High-Tensile Steel
Gasket	Grafoil
Float	Stainless Steel
Valve & Seat	Stainless Steel
Thermostatic Assembly	Stainless Steel Bellows & Valve

CAPACITIES – *Condensate (lbs/hr)*

Model	PMO (PSIG)	Pipe Size	Orifice Size	Differential Pressure (PSI) 1/4	1/2	1	2	3	5	10	15	20	25	30	40	50	60	75	90	100	125
FT-3	15	3/4″	9/32″	340	440	600	830	990	1280	1790	2150										
FT-4	15	1″	9/32″	340	440	600	830	990	1280	1790	2150										
FT-6	15	1 1/4″	9/32″	850	1100	1460	2000	2350	2950	4000	4800										
FT-7	15	1 1/2″	1/2″	1300	1700	2050	2550	2900	3500	4400	5300										
FT-8	15	2″	21/32″	2500	3150	4000	5700	6100	6800	8300	9800										
FT-S8-15	15	2″	15/16″	4400	5850	7400	9200	10300	12600	15300	18100										
FT-33	30	3/4″	11/64″	220	300	405	530	650	890	1210	1485	1705	1865	2010							
FT-34	30	1″	11/64″	220	300	405	530	650	890	1210	1485	1705	1865	2010							
FT-35	30	1″	1/4″	450	600	880	1205	1420	1845	2560	3230	3715	4100	4405							
FT-36	30	1 1/4″	1/4″	450	600	880	1205	1420	1845	2560	3230	3715	4100	4405							
FT-37L	30	1 1/2″	7/16″	600	800	1200	1680	2210	2600	3500	4500	5200	5700	6100							
FT-38	30	2″	13/32″	1550	2045	2625	3560	4260	5660	7890	9440	10500	11360	12095							
FT-73	75	3/4″	9/64″	140	195	265	360	430	580	770	990	1110	1210	1290	1430	1560	1680	1830			
FT-74	75	1″	9/64″	140	195	265	360	430	580	710	990	1110	1210	1290	1430	1560	1680	1830			
FT-75	75	1″	#16	270	360	485	660	780	1020	1430	1740	1980	2200	2420	2670	2910	3135	3370			
FT-76	75	1 1/4″	#16	270	360	485	660	780	1020	1430	1740	1980	2200	2420	2670	2910	3135	3370			
FT-77L	75	1 1/2″	5/16″	340	460	690	900	1200	1400	1900	2350	2700	3000	3250	3750	4150	4500	4700			
FT-78	75	2″	5/16″	800	1075	1300	1700	2000	2600	3750	4350	4700	5050	5400	5960	6500	6950	7550			
FT-S8-75	75	2″	13/32″	1360	1800	2100	2800	3300	4300	6300	7300	8000	8500	9000	10000	11000	11600	12500			

STEAM TRAPS

FT600 & FT601 Series

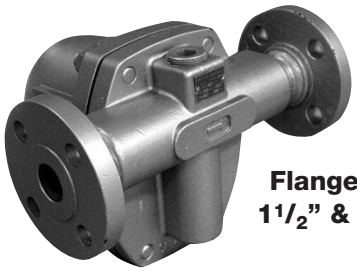
Float & Thermostatic Steam Trap

Model	**FT600 & FT601***
Sizes	**3/4", 1", 1 1/2", 2", 3", 4"**
Connections	**NPT, SW, FLG**
Body Material	**Carbon Steel or 316SS**
Options	**Live Orifice Air Vent**
PMO Max. Operating Pressure	**450 PSIG**
TMO Max. Operating Temperature	**750ºF**
PMA Max. Allowable Pressure	**990 PSIG @ 100ºF**
TMA Max. Allowable Temperature	**750ºF @ 670 PSIG**

**** FT601 Body Material is 316 SS***
FT600 Body Material is Carbon Steel

1 1/2" & 2"

3/4" & 1"



Flanged
1 1/2" & 2"

TYPICAL APPLICATIONS

PROCESS The **FT600 & FT601 Series** high-pressure float and thermostatic steam traps are primarily used on industrial process applications. The excellent air handling capabilities of float and thermostatic traps make them a better choice than bucket traps for applications requiring quick system start-up. These traps have in-line pipe connections. Used in chemical plants and petrochemical refineries on reboilers, heat exchangers, and other critical process applications. Model FT601 is identical to FT600 except body material is 316 SS.

HOW IT WORKS

Float and thermostatic steam traps have a float and thermostatic element that work together to remove both condensate and air from the steam system. The float, which is attached to a valve, rises and opens the valve when condensate enters the trap. Air is discharged through the thermostatic air vent to the outlet side of the trap. The thermostatic air vent closes when steam enters the trap.

FEATURES

- **Investment cast steel body and cover with class 400 shell rating (670 PSIG @ 750˚F)**
- **Hardened stainless steel seat and disc for extended service life even at extreme temperatures and pressures**
- **In-line repairability is simplified by having all internals attached to the cover. Studded cover allows for easier removal of body.**
- **Welded stainless steel air vent resists shock from water hammer. Live orifice air vent is available for superheated applications**
- **F & T traps discharge condensate immediately as it is formed (No condensate will back up into the system)**

SAMPLE SPECIFICATION

The steam trap shall be of the mechanical float type having cast steel bodies, horizontal in-line connections in NPT, SW, or flanged, and all stainless steel internals. Incorporated into the trap body shall be an all stainless steel welded thermal element air vent which is water hammer resistant. The air vent is to be located at the high point of trap body to assure proper venting of non-condensables. The trap body will be in-line renewable. All bodies and covers shall be class 400 shell design, suitable for 670 PSIG @ 750ºF.

INSTALLATION

Installation should include a strainer and isolation valves for maintenance purposes.

MAINTENANCE

Trap is in-line repairable. Studs are permanently installed into the cover simplifying the replacement of internal components.

OPTIONS

Live orifice air vent for superheated applications.

MATERIALS

FT 600: Body & Cover	Cast Steel, ASTM A-216
FT 601: Body & Cover	316 SS
Cover Studs	Steel, AS 193, GR B7
Cover Nuts	Steel, SA 194, GR 2H
Cover Gasket	Stainless Steel Reinforced Grafoil
Valve Assembly	Stainless Steel, AISI 431
Gasket, Valve Assembly	Stainless Steel Reinforced Grafoil
Pivot Assembly	Stainless Steel, 17-4 PH
Mounting Screws	Stainless Steel Hex Head, 18-8
Float	Stainless Steel, ASTM -240, 304
Air Vent Assembly	Thermostatic element 304 SS Optional: Live orifice

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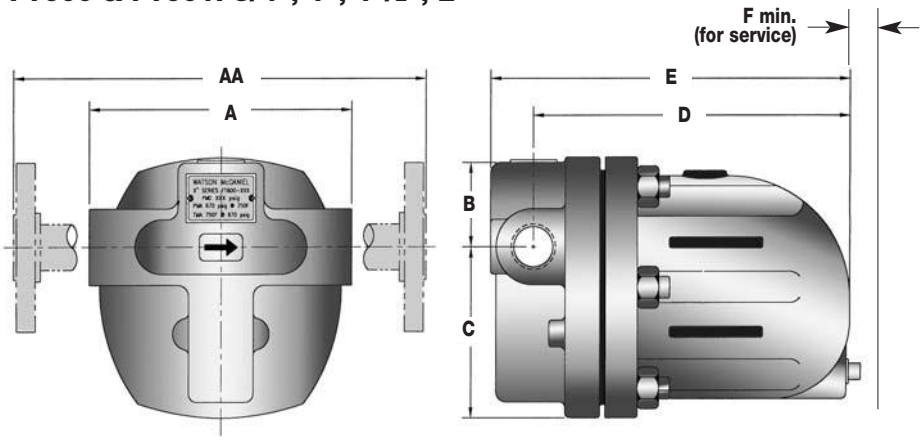
STEAM TRAPS

FT600 & FT601 Series

Float & Thermostatic Steam Trap

FT600 & FT601: 3/4", 1", 1 1/2", 2"



DIMENSIONS & WEIGHTS – *inches/pounds*

Model*	Size	A	AA	B	C	D	E	F	Weight (lbs) NPT/SW	Weight (lbs) FLG
FT600	3/4"	6.10	10.10	2.07	3.93	7.38	8.41	5.75	25	31
FT600	1"	6.50	10.40	2.50	5.50	8.44	9.50	6.25	31	36
FT600	1 1/2"	9.80	14.00	3.26	6.85	10.40	11.94	7.75	82	91
FT600	2"	11.80	16.00	3.60	7.40	11.59	13.27	8.00	93	107

*** Chart is applicable for both Models FT600 & FT601**

HOW TO SIZE/ORDER

From the capacity chart, select the model that can handle the working pressure of the system (PMO). Select the trap that will meet the capacity requirements at the differential pressure. Example:

Application: 1690 lbs/hr at 30 PSIG working pressure and 5 PSI differential pressure

Size/Model: 1" **FT600-65-14** (65 PSIG max), Specify connections (NPT, SW, FLG)

CAPACITIES – *Condensate (lbs/hr)*

PMO Model*/ (PSIG)	Sizes	Differential Pressure (PSI) 1	2	3	4	5	6	8	10	20	30	40	50	65	80	100	145	200	300	400	450
FT600-65-13	3/4"	225	300	363	413	463	500	575	635	960	1060	1180	1320	1460							
FT600-65-14	1"	775	1094	1340	1520	1690	1865	2125	2370	3260	3990	4500	5000	5500							
FT600-65-16	1 1/2"	2500	3450	4130	4750	5300	5875	6750	7500	10625	13125	15000	16800	18850							
FT600-65-17	2"	8500	11950	14670	16800	18700	20100	23650	25250	35900	43000	49600	55500	61250							
FT600-145-13	3/4"	137	180	218	250	275	297	340	380	520	625	725	863	895	995	1120	1315				
FT600-145-14	1"	400	555	660	755	850	925	1060	1237	1593	1925	2240	2490	2750	3000	3430	3935				
FT600-145-16	1 1/2"	1275	1750	2125	2430	2740	2930	3370	3750	5100	6250	7200	7995	8875	9900	11250	13300				
FT600-145-17	2"	3125	4400	5375	6250	6900	7100	8700	9250	14625	16875	19375	21875	25000	27500	31000	37000				
FT600-200-13	3/4"	93	137	160	187	205	227	260	287	400	487	560	610	710	775	875	1060	1250			
FT600-200-14	1"	300	410	487	560	610	660	750	925	1140	1375	1520	1687	1875	2060	2312	2750	3100			
FT600-300-13	3/4"	50	68	83	95	106	118	137	155	197	240	275	300	340	375	413	490	570	710		
FT600-300-14	1"	225	300	363	413	463	500	575	635	960	1060	1180	1320	1468	1640	1815	2130	2550	3000		
FT600-450-13	3/4"	32	42	49	56	62	67	76	84	119	145	163	175	192	210	186	275	312	375	425	450
FT600-450-14	1"	137	180	218	250	275	297	340	380	520	625	725	863	895	995	1120	1315	1500	1870	2125	2250
FT600-450-16	1 1/2"	825	1130	1400	1570	1760	1937	2190	2500	3375	4125	4740	5250	6000	6600	7300	8650	10200	12600	14375	15200
FT600-450-17	2"	1560	2187	2800	3100	3490	3750	4300	4800	6750	8250	9500	10625	12400	13700	15000	18120	21200	26250	28700	31250

Note: *For 450 Model, the Thermostatic Air Vent is replaced with a live Orifice.*

*** Chart is applicable for both Models FT600 & FT601**

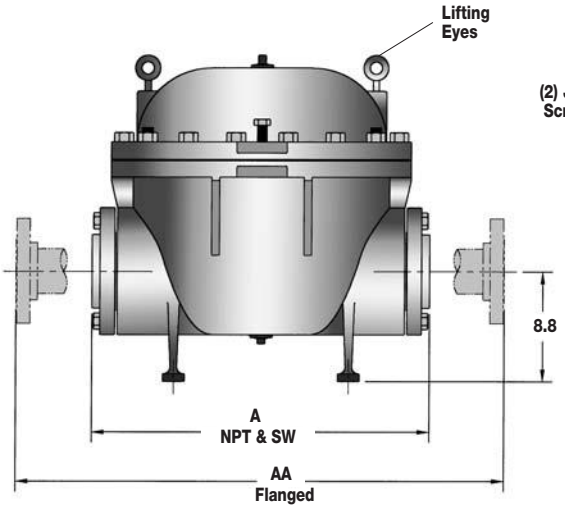
STEAM TRAPS

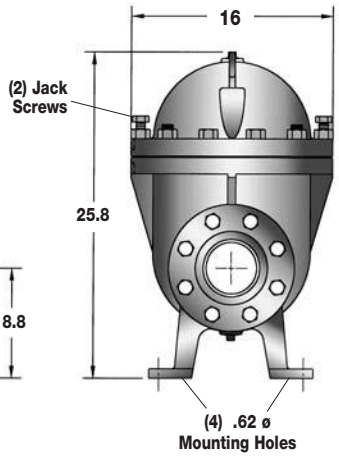
FT600 & FT601 Series

Float & Thermostatic Steam Trap

FT600 & FT601: 3" & 4"

FT600 & FT601
3" & 4"





DIMENSIONS & WEIGHTS – *inches/pounds*

Model*	Size	A	AA	Weight (lbs) NPT/SW	Weight (lbs) FLG
FT600	3"	27	39	587	626
FT600	4"	N/A	39	N/A	654

*** Chart is applicable for both Models FT600 & FT601**

CAPACITIES – *Condensate (**1000 lbs/hr**)*

Temp	Differential Pressure (PSI) 1/2	1	2	5	10	15	20	30	40	50	75	100	125	150	175	200	250	300	350	400	450
COLD*	44	59	81	122	170	205	230	280	317	350	425	480	540	580	625	670	740	800	860	910	960
HOT	44	53	64	83	100	112	121	138	149	159	177	190	201	212	222	230	247	260	270	280	290

** Cold Water capacities are to be used when the trap is used as a liquid drain trap.*
Note: For liquid drain trap applications, please specify "liquid drain trap" when ordering.

CAPACITY CORRECTION FACTORS

To obtain capacity with a liquid other than water, multiply water capacity by correction factor.

Spec. Gravity	1	.98	.96	.94	.92	.90	.88	.86	.84	.82	.80	.75	.70	.65	.60	.55	.50
Corr. Factor	1	.990	.980	.970	.959	.949	.938	.927	.917	.906	.894	.866	.837	.806	.775	.742	707

PRESSURE-TEMPERATURE RATING - 3" & 4" Models

PMA 650 PSIG up to 450˚F
TMA 750˚F @ 375 PSIG

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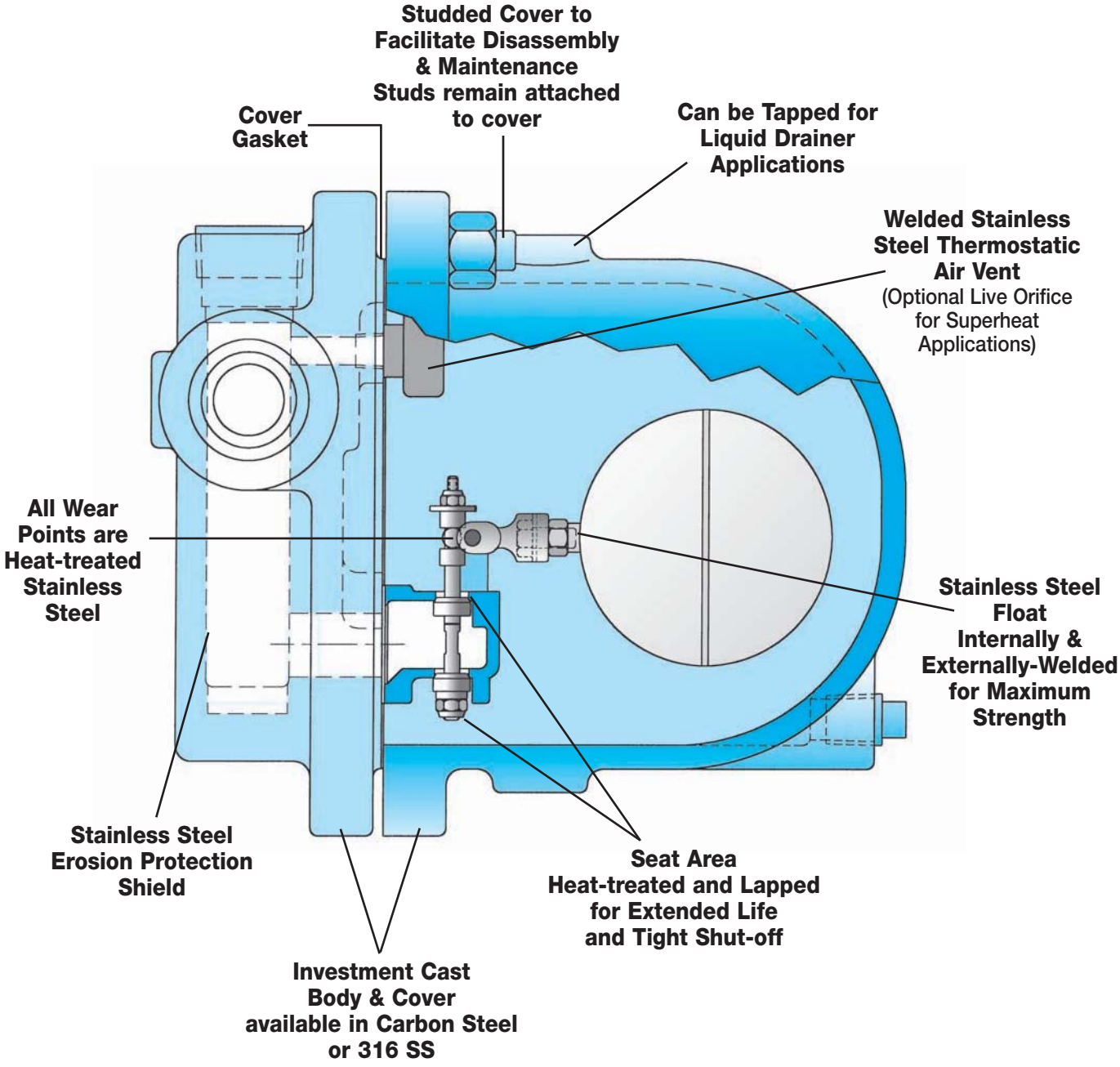
STEAM TRAPS
FT600 & FT601 Series
Float & Thermostatic Steam Trap



STEAM TRAPS

FTE & FTES Series

Float & Thermostatic Steam Trap

Model	FTE	FTES
Sizes	1 1/2", 2", 2 1/2"	2 1/2"
Connections	NPT	NPT, SW, FLG
Body Material	Ductile Iron	Cast Steel
PMO Max. Operating Pressure	200 PSIG	300 PSIG
TMO Max. Operating Temperature	450°F	450°F
PMA Max. Allowable Pressure	300 PSIG up to 450°F	300 PSIG up to 750°F
TMA Max. Allowable Temperature	450°F @ 300 PSIG	750°F @ 300 PSIG

TYPICAL APPLICATIONS

PROCESS: The **FTE & FTES Series** float and thermostatic steam traps are used in HVAC and on industrial process equipment with very high load requirements. These high capacity steam traps are typically used on reboilers, absorption chillers, large air handling coils, large heat exchangers, and other large process equipment.

HOW IT WORKS

Float and thermostatic steam traps have a float and thermostatic element that work together to remove both condensate and air from the steam system. The float, which is attached to a valve, rises and opens the valve when condensate enters the trap. Air is discharged through the thermostatic air vent to the outlet side of the trap. The thermostatic air vent closes when steam enters the trap.

FEATURES

- **Ductile Iron has a higher pressure and temperature rating and is more resistant to shock loads than Cast Iron.**
- **Cast Steel Body will allow operating pressures and temperatures up to 300 PSIG and 450˚F.**
- **High Capacity steam trap for draining large process equipment (over 100,000 lbs/hr)**
- **All stainless steel internals with hardened seat and wear parts**
- **In-line repairable is simplified by having all internals attached to the cover**
- **Welded stainless steel thermostatic air vent resists shock from water hammer. Live orifice air vent is available for superheated applications**
- **Excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start up**
- **F & T traps discharge condensate immediately as it is formed (No condensate will back up into the system)**

SAMPLE SPECIFICATION

The trap shall be of float and thermostatic design with ductile iron or cast steel body. The trap must incorporate all stainless steel internals with hardened seat and welded stainless steel thermostatic air vent. Trap must be in-line repairable.

INSTALLATION

Isolation valves should be installed with trap to facilitate maintenance. The trap must be level and upright for the float mechanism to operate. Larger traps should not be supported by the piping system alone. Trap must be sized and located properly in the steam system.

MAINTENANCE

All working components can be replaced with the trap body remaining in-line. Repair kits include thermostatic air vent, float, valve seat and disc, and gaskets. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Live orifice air vent for superheated steam applications.

Parallel-pipe inlet/outlet connections are standard as shown. An optional In-line inlet/outlet connection is available;

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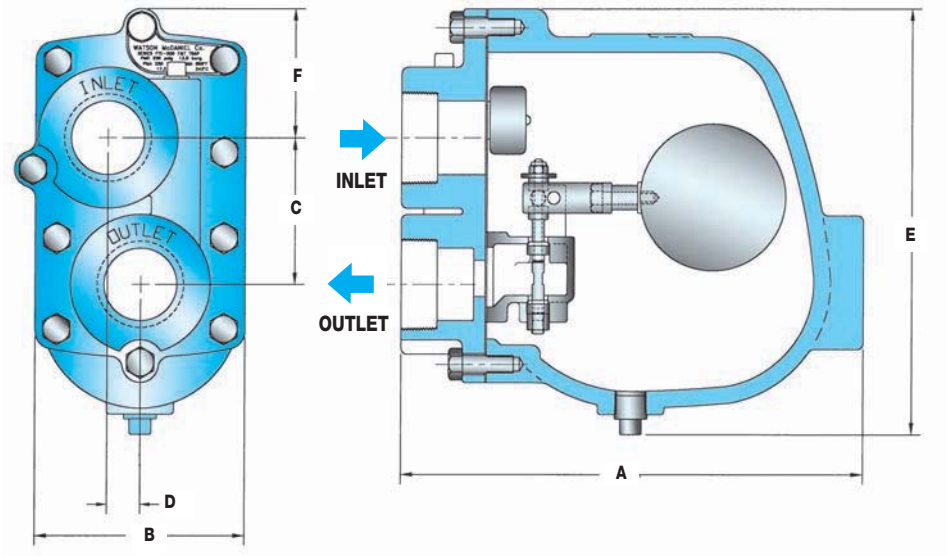
STEAM TRAPS

FTE & FTES Series

Float & Thermostatic Steam Trap



DIMENSIONS & WEIGHTS – *inches/pounds*

Size/Model	A	B	C	D	E	F	Weight
2" FTE-20	12.6	5.7	4.5	0.5	11.1	3.9	54
2" FTE-50	16.0	8.4	7.3	1.4	15.6	3.6	146
2 1/2" FTE-50	15.5	8.4	7.3	1.4	15.6	3.6	140
2 1/2" FTE-125	15.5	8.4	7.3	1.4	15.6	3.6	146
1 1/2" FTE-200	9.6	4.3	3.0	0.7	8.8	2.6	35
2" FTE-200	12.6	5.7	4.5	0.5	11.1	3.9	65
2 1/2" FTE-200	15.5	8.4	7.3	1.4	15.6	3.6	146
2 1/2" FTES-300	15.5	8.4	7.3	1.4	15.6	3.6	146

Note: 2 1/2" **FTES-50**, **125** & **200** have same dimensions and capacities as FTE-50, 125 & 200.

MATERIALS

Body & Cover (FTE)	Ductile Iron
Body & Cover (FTES)	Cast Steel, ASTM A-216
Cover Screw	Grade 5 Carbon Steel
Cover Gasket	Grafoil
Valve Discs	Stainless Steel, AISI 17-4PH
Main Valve Assembly Housing	Stainless Steel, AISI 17-4PH
Valve Assembly Gasket	Garlock
Ball Float	Stainless Steel, AISI 304
Thermostatic Vent	Stainless Steel, AISI 300 Optional: Live orifice air vent

HOW TO SIZE/ORDER

From the capacity chart, select the model that can handle the working pressure of the system (PMO). Select the trap that will meet the capacity requirements at the differential pressure. Example:

Application: 2,700 lbs/hr at 150 PSIG working pressure and 1/4 PSI differential pressure
Size/Model: 2" **FTE-200**, NPT connections

CAPACITIES – *Condensate (lbs/hr)*

Model	PMO (PSIG)	Pipe Size	Orifice Size	Differential Pressure (PSI) 1/4	1/2	1	2	5	10	15	20	30	40	50	75	100	125	200	250	300
FTE-20*	20	2"	.937"	6100	7800	9300	11800	15900	19500	22500	26000									
FTE-50	50	2"	2.125"	12800	16900	20100	25300	33000	40200	43500	46000	47800	50500	52500						
FTE-50	50	2 1/2"	2.125"	20400	25700	31000	37000	46300	55100	60300	65100	72000	77300	82100						
FTE-125	125	2 1/2"	2.125"	20400	25700	31000	37000	46300	55100	60300	65100	72000	77300	82100	90400	97700	105000			
FTE-200	200	1 1/2"	.375"	950	1350	1900	2200	2700	3300	3900	4400	5300	5800	6400	7600	8500	9400	11900		
FTE-200	200	2"	.75"	2700	4100	5700	7400	9900	11800	13400	14400	16400	18000	19000	21500	23000	24500	29200		
FTE-200	200	2 1/2"	1.5"	7200	12300	17400	21500	27600	32600	36000	39300	43100	46600	49200	54700	58800	61900	74000		
FTES-300	300	2 1/2"	1.5"	7200	12300	17400	21500	27600	32600	36000	39300	43100	46600	49200	54700	58800	61900	74000	86000	100550

** Single seat orifice. All others are double seated.*

STEAM TRAPS

FTT Series

Float & Thermostatic Steam Trap

Model	**FTT**
Sizes	**1/2", 3/4", 1", 1 1/2", 2"**
Connections	**NPT**
Body Material	**Ductile Iron**
PMO Max. Operating Pressure	**300 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**300 PSIG up to 450°F**
TMA Max. Allowable Temperature	**450°F @ 300 PSIG**

TYPICAL APPLICATIONS

DRIP, PROCESS: The **FTT Series** float and thermostatic steam traps are used in drip and process applications, industrial and HVAC process equipment. The excellent air handling capabilities of float and thermostatic traps make them a better choice than bucket traps for applications requiring quick system start-up. These traps have in-line pipe connections. Used on unit heaters, textile machines, heat exchangers, and other medium sized process equipment.

HOW IT WORKS

Float and thermostatic steam traps have a float and thermostatic element that work together to remove both condensate and air from the steam system. The float, which is attached to a valve, rises and opens the valve when condensate enters the trap. Air is discharged through the thermostatic air vent to the outlet side of the trap. The thermostatic air vent closes when steam enters the trap.

SAMPLE SPECIFICATION

The trap shall be of float and thermostatic design with ductile iron body and in-line piping configuration. Thermostatic air vent to be welded stainless steel. All internals must be stainless steel with hardened seat area. Trap must be in-line repairable.

INSTALLATION

The trap must be level and upright for the float mechanism to operate. Trap must be sized and located properly in the steam system.

MAINTENANCE

All internal components can be replaced with the trap body remaining in-line. Repair kits include thermostatic air vent, float, valve seat and disc, and gaskets. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Live orifice air vent for superheated steam applications.

FEATURES

- **Ductile Iron has a higher pressure and temperature rating and is more resistant to shock loads than cast Iron**
- **All stainless steel internals with hardened seat and wear parts**
- **In-line repairability is simplified by having all internals attached to the cover**
- **Welded stainless steel thermostatic air vent resists shock from water hammer. Live orifice air vent is available for superheated applications**
- **Excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start-up.**
- **F & T traps discharge condensate immediately as it is formed (No condensate will back-up into the system)**

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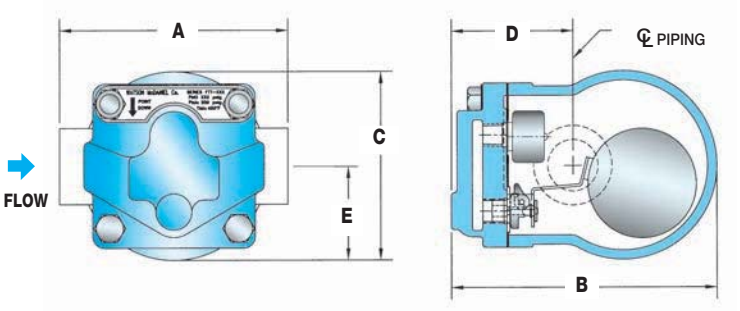
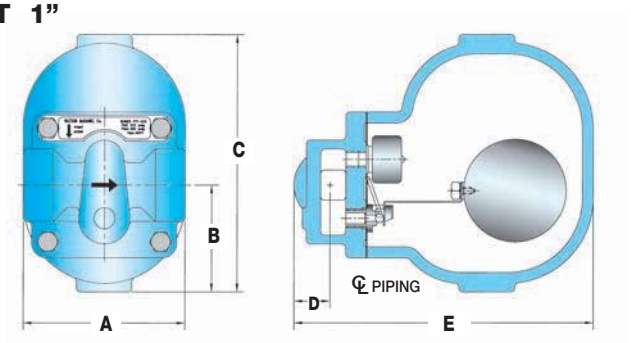
STEAM TRAPS
FTT Series
Float & Thermostatic Steam Trap

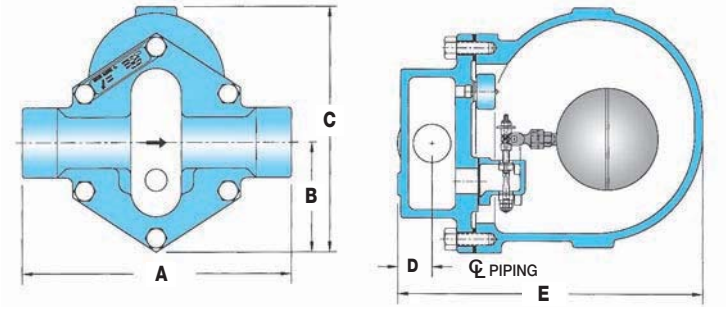
FTT 1/2" & 3/4"



FTT 1"



FTT 1 1/2" & 2"



DIMENSIONS & WEIGHTS – *inches/pounds*

Size	A	B	C	D	E	Weight
1/2", 3/4"	4.8	1.9	3.9	2.5	5.5	6
1"	4.8	3.1	7.5	1.1	8.8	16
1 1/2"	10.6	4.3	9.6	1.4	12.0	40
2"	11.9	4.3	9.6	1.4	12.0	40

HOW TO SIZE/ORDER

From the capacity chart, select the model that can handle the working pressure of the system (PMO). Select the trap that will meet the capacity requirements at the differential pressure. Example:

Application: 2740 lbs/hr at 100 PSIG working pressure and 5 PSI differential pressure

Size/Model: 1 1/2" **FTT-145** (145 PSIG max), NPT connections

MATERIALS

Body & Cover	Ductile Iron
Gasket	Grafoil
Cover Screws	Steel, GR5
Float	Stainless Steel, AISI 304
Internals	Stainless Steel
Thermostat	Stainless Steel
Valve Seat	Stainless Steel, 17-4 PH
Valve Disc	Stainless Steel, AISI 420F

CAPACITIES – *Condensate (lbs/hr)*

Model	PMO (PSIG)	Pipe Size	Differential Pressure (PSI) 1/4	1/2	1	2	5	10	15	20	30	40	50	65	75	100	125	145	200	225	250	300
FTT-65	65	1/2", 3/4"	115	155	205	270	390	520	610	685	810	910	995	1110								
FTT-65	65	1"	340	500	775	1100	1700	2400	2800	3250	3925	4200	5000	5825								
FTT-65	65	1 1/2"	1150	1650	2500	3450	5300	7500	8180	10600	13100	15000	16800	18900								
FTT-65	65	2"	3470	4820	8500	11950	18700	25200	26900	36000	43000	49600	55500	61300								
FTT-145	145	1/2", 3/4"	55	75	100	135	200	270	320	365	435	490	540	600	640	725	795	850				
FTT-145	145	1"	190	275	405	550	840	1200	1380	1600	1850	2200	2450	2750	2920	3400	3700	3900				
FTT-145	145	1 1/2"	685	970	1275	1750	2740	3750	4490	5100	6250	7200	8000	8900	9600	11250	12000	13300				
FTT-145	145	2"	1860	2680	3125	4400	6900	9250	13790	14600	16900	19400	21900	25000	26800	31000	34000	37000				
FTT-225	225	1/2", 3/4"	40	50	70	95	135	185	220	245	290	330	360	405	430	485	530	565	645	680		
FTT-225	225	1"	150	200	300	405	600	820	975	1130	1375	1510	1620	1875	2000	2350	2600	2750	3100	3250		
FTT-250	250	1 1/2"	530	710	825	1130	1760	2500	2950	3375	4125	4740	5250	6000	6400	7300	8000	8650	10200	10800	11300	
FTT-250	250	2"	695	985	1560	2185	3490	4800	5800	6750	8250	9500	10650	12400	13300	15000	16600	18120	21200	22300	23200	
FTT-300	300	1"	100	155	220	300	460	630	750	860	1060	1240	1360	1450	1600	1820	2000	2130	2500	2650	2800	3000

STEAM TRAPS

WFT Series

Float & Thermostatic Steam Trap

Model	**WFT**
Sizes	**3/4", 1", 1 1/4", 1 1/2", 2"**
Connections	**NPT**
Body Material	**Cast Iron**
PMO Max. Operating Pressure	**250 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**250 PSIG up to 450°F**
TMA Max. Allowable Temperature	**450°F @ 250 PSIG**

WFT 3/4" & 1"

WFT 2"

WFT 1 1/4" & 1 1/2"

TYPICAL APPLICATIONS

PROCESS: The **WFT Series** float and thermostatic steam traps are used for HVAC and industrial process applications. The excellent air handling capabilities of these traps make them a better choice than bucket traps for applications requiring quick start-up. Used on unit heaters, textile machines, heat exchangers, and other process equipment.

HOW IT WORKS

Float and thermostatic steam traps have a float and thermostatic element that work together to remove both condensate and air from the steam system. The valve, which is attached to a float, rises and opens the valve when condensate enters the trap. Air is discharged through the thermostatic air vent to the outlet side of the trap. The thermostatic air vent closes when steam enters the trap.

FEATURES

- **All stainless steel internals with hardened seat and wear parts**
- **In-line repairability is simplified by having all internals attached to the cover**
- **Welded stainless steel thermostatic air vent resists shock from water hammer. Live orifice air vent is available for superheated applications**
- **Excellent air handling capability allowing air to be discharged rapidly and steam to enter the system quickly during start-up**
- **F & T traps discharge condensate immediately as it is formed (no condensate will back-up into the system)**

SAMPLE SPECIFICATION

The trap shall be of float and thermostatic design with cast iron body and in-line piping configuration. Thermostatic air vent to be welded stainless steel. All internals must be stainless steel with hardened seat area. Trap must be in-line repairable.

INSTALLATION

Isolation valves should be installed with trap to facilitate maintenance. The trap must be level and upright for the float mechanism to operate. Trap must be sized and located properly in the steam system.

MAINTENANCE

Close isolation valves prior to performing any maintenance. All internal components can be replaced with the trap body remaining in-line. Repair kits include thermostatic air vent, float, valve seat and disc, and gaskets. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Live orifice air vent for superheated steam applications.

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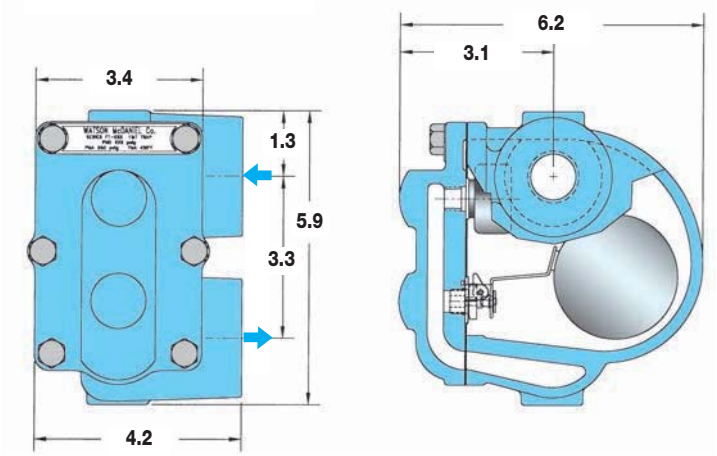
STEAM TRAPS
WFT Series
Float & Thermostatic Steam Trap

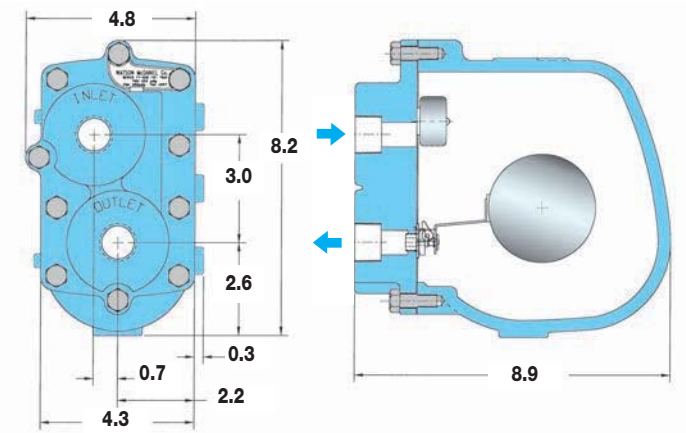
Dimensions: inches



SPECIFICATIONS

Model	Sizes	Connection	PMO (PSIG)	PMA (PSIG)	Weight (lbs)
WFT-15	3/4", 1", 1 1/4"	NPT	15	125	9
WFT-30	3/4", 1", 1 1/4"	NPT	30	125	9
WFT-75	3/4", 1"	NPT	75	125	9
WFT-125	3/4", 1"	NPT	125	125	9

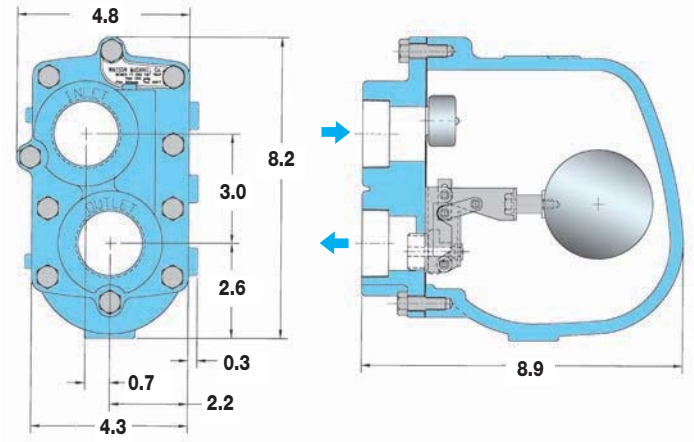
Dimensions: inches



SPECIFICATIONS

Model	Sizes	Connection	PMO (PSIG)	PMA (PSIG)	Weight (lbs)
WFT-175	3/4", 1", 1 1/4"	NPT	175	250	20
WFT-250	3/4", 1", 1 1/4"	NPT	250	250	20

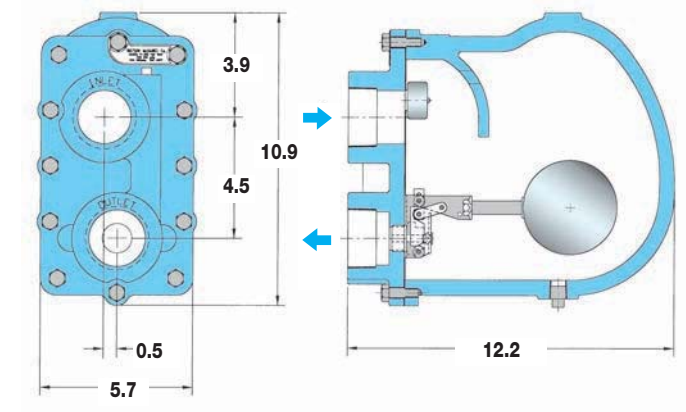
Dimensions: inches



SPECIFICATIONS

Model	Sizes	Connection	PMO (PSIG)	PMA (PSIG)	Weight (lbs)
WFT-15	1 1/2"	NPT	15	250	21
WFT-30	1 1/2"	NPT	30	250	21
WFT-75	1 1/4", 1 1/2"	NPT	75	250	21
WFT-125	1 1/4", 1 1/2"	NPT	125	250	21
WFT-175	1 1/4", 1 1/2"	NPT	175	250	21
WFT-250	1 1/4", 1 1/2"	NPT	250	250	21

Dimensions: inches



SPECIFICATIONS

Model	Sizes	Connection	PMO (PSIG)	PMA (PSIG)	Weight (lbs)
WFT-15	2"	NPT	15	250	53
WFT-30	2"	NPT	30	250	53
WFT-75	2"	NPT	75	250	53
WFT-125	2"	NPT	125	250	53
WFT-175	2"	NPT	175	250	53
WFT-250	2"	NPT	250	250	53

STEAM TRAPS

WFT Series

Float & Thermostatic Steam Trap

MATERIALS

Body & Cover	Cast Iron
Gasket	Grafoil
Cover Screws	Steel, GR5
Float	Stainless Steel, AISI 304
Internals	Stainless Steel, 300 Series
Thermostat	Stainless Steel
Valve Seat	Stainless Steel, 17-4 PH
Valve Disc	Stainless Steel, AISI 420F

HOW TO SIZE/ORDER

From the capacity chart, select the model that can handle the working pressure of the system (PMO). Select the trap that will meet the capacity requirements at the differential pressure. Example:

Application: 1,910 lbs/hr at 30 PSIG working pressure and 1/2 PSI differential pressure

Size/Model: 2″ **WFT-030-17**, 0.500″ Orifice, NPT connections

CAPACITIES – *Condensate (lbs/hr)*

Model	PMO (PSIG)	Pipe Size	Orifice Size	Differential Pressure (PSI) 1/4	1/2	1	2	5	10	15	20	30	40	50	75	100	125	150	175	200	225	250
WFT-015-13	15	3/4″	0.250	390	490	620	780	1050	1320	1500												
WFT-015-14	15	1″	0.250	390	490	620	780	1050	1320	1500												
WFT-015-15	15	1 1/4″	0.312	610	770	960	1210	1630	2040	2330												
WFT-015-16	15	1 1/2″	0.500	1420	1910	2570	3460	5120	6890	8190												
WFT-015-17	15	2″	0.625	2260	2950	3860	5040	7170	9360	10930												
WFT-030-13	30	3/4″	0.228	330	420	530	670	930	1180	1350	1500	1720										
WFT-030-14	30	1″	0.228	330	420	530	670	930	1180	1350	1500	1720										
WFT-030-15	30	1 1/4″	0.228	330	420	530	670	930	1180	1350	1500	1720										
WFT-030-16	30	1 1/2″	0.390	930	1240	1650	2190	3210	4280	5060	5700	6750										
WFT-030-17	30	2″	0.500	1420	1910	2570	3460	5120	6890	8190	9260	11020										
WFT-075-13	75	3/4″	0.166	175	225	295	385	545	705	825	920	1075	1200	1305	1525							
WFT-075-14	75	1″	0.166	175	225	295	385	545	705	825	920	1075	1200	1305	1525							
WFT-075-15	75	1 1/4″	0.312	640	850	1130	1500	2180	2900	3420	3850	4540	5110	5600	6610							
WFT-075-16	75	1 1/2″	0.312	640	850	1130	1500	2180	2900	3420	3850	4540	5110	5600	6610							
WFT-075-17	75	2″	0.422	1020	1340	1760	2310	3330	4380	5140	5760	6770	7590	8290	9730							
WFT-125-13	125	3/4″	0.128	105	135	180	235	340	445	525	585	690	770	845	990	1110	1210					
WFT-125-14	125	1″	0.128	105	135	180	235	340	445	525	585	690	770	845	990	1110	1210					
WFT-125-15	125	1 1/4″	0.250	410	540	710	930	1340	1770	2070	2320	2730	3050	3340	3920	4390	4790					
WFT-125-16	125	1 1/2″	0.250	410	540	710	930	1340	1770	2070	2320	2730	3050	3340	3920	4390	4790					
WFT-125-17	125	2″	0.332	720	960	1270	1690	2460	3270	3860	4340	5130	5770	6320	7460	8390	9190					
WFT-175-13	175	3/4″	0.166	190	250	320	420	590	770	900	1010	1180	1310	1430	1670	1870	2030	2180	2310			
WFT-175-14	175	1″	0.166	190	250	320	420	590	770	900	1010	1180	1310	1430	1670	1870	2030	2180	2310			
WFT-175-15	175	1 1/4″	0.250	410	540	710	930	1340	1770	2070	2320	2730	3050	3340	3920	4390	4790	5150	5470			
WFT-175-16	175	1 1/2″	0.250	410	540	710	930	1340	1770	2070	2320	2730	3050	3340	3920	4390	4790	5150	5470			
WFT-175-17	175	2″	0.281	520	680	900	1180	1700	2230	2620	2930	3440	3860	4210	4950	5540	6050	6510	6920			
WFT-250-13	250	3/4″	0.128	115	145	190	245	345	450	520	580	675	755	820	955	1060	1155	1235	1310	1375	1440	1495
WFT-250-14	250	1″	0.128	115	145	190	245	345	450	520	580	675	755	820	955	1060	1155	1235	1310	1375	1440	1495
WFT-250-15	250	1 1/4″	0.203	270	350	450	590	820	1070	1240	1380	1600	1780	1940	2250	2500	2720	2910	3080	3240	3380	3520
WFT-250-16	250	1 1/2″	0.203	270	350	450	590	820	1070	1240	1380	1600	1780	1940	2250	2500	2720	2910	3080	3240	3380	3520
WFT-250-17	250	2″	0.250	410	540	710	930	1340	1760	2060	2310	2710	3040	3320	3890	4360	4760	5110	5430	5730	6000	6250

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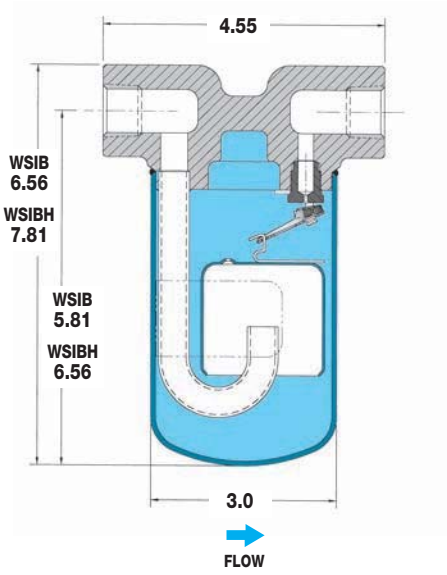
STEAM TRAPS
WSIB/WSIBH
Inverted Bucket Steam Trap

Model	**WSIB, WSIBH**
Size	**1/2", 3/4"**
Connections	**NPT, SW**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**450 PSIG***
TMO Max. Operating Temperature	**750°F**
PMA Max. Allowable Pressure	**720 PSIG @ 100°F**
TMA Max. Allowable Temperature	**750°F @ 400 PSIG**

**750°F @ operating pressures below 400 PSIG. See installation note regarding using trap in superheated applications.*

WSIB Inverted Bucket Steam Trap

Units: inches



TYPICAL APPLICATIONS

DRIP, TRACER: The **WSIB** inverted bucket trap is primarily used in drip and tracer applications. Inverted bucket traps can handle superheated steam when a check valve is used. These traps are also used on unit heaters, laundry equipment, and other small process equipment where slow start-up due to poor air handling capability can be tolerated.

HOW IT WORKS

When there is condensate in the system, the inverted bucket inside the steam trap sits on the bottom of the trap due to its inherent weight. This allows condensate to enter the trap and to be discharged through the seat orifice located at the top. When steam enters the trap, the bucket floats to the surface and closes off the discharge valve containing the steam in the system. Eventually steam is bled off through a small hole in the top of the bucket causing the bucket to sink which repeats the cycle.

FEATURES

- **All stainless steel body**
- **Acceptable for superheated steam (with check valve installed at inlet)**
- **Water hammer resistant**
- **Valve & seat are at the top of the trap making it less sensitive to dirt**
- **All stainless steel internals with hardened valve & seat**

SAMPLE SPECIFICATION

Steam trap shall be an all stainless steel module design inverted bucket type with a frictionless valve lever assembly.

INSTALLATION & MAINTENANCE

Trap must be installed in upright position to function properly. Steam trap is non-repairable. If a new trap is required, remove and replace. With superheated steam, a check valve must be installed at inlet of trap. For full maintenance details, see Installation and Maintenance Manual.

MATERIALS

Body	Stainless Steel GR CF3
Cover	304L Stainless Steel
Internals	300 Series Stainless Steel
Valve Plug & Seat	420F Stainless Steel

CAPACITIES – *Condensate (lbs/hr)*

Model	Orifice Size	PMO (PSIG)	Differential Pressure (PSI) 5	10	15	20	25	30	40	50	60	70	80	100	125	150	180	200	250	350	450
WSIB-20	3/16"	20	450	560	640	690															
WSIB-80	1/8"	80	300	350	400	440	460	500	550	580	635	660	690								
WSIB-150	#38	150	210	250	280	300	320	350	380	400	420	450	470	500	550	570					
WSIB-450	.057	450	31	50	70	84	95	105	120	133	145	152	160	174	187	198	208	215	228	248	263
WSIBH-15	1/4"	15	830	950	1060																
WSIBH-30	3/16"	30	530	700	820	880	950	1000													
WSIBH-70	5/32"	70	380	500	560	620	680	710	770	840	90	950									
WSIBH-125	1/8"	125	285	375	440	485	530	560	620	670	720	780	800	860	950						
WSIBH-200	7/64"	200	205	265	315	350	385	410	465	500	580	590	620	650	700	810	840	860			
WSIBH-250	#38	250	155	205	240	270	295	320	360	400	500	530	550	580	630	660	690	710	760		
WSIBH-450	.057	450	31	50	70	84	95	105	120	133	145	152	160	174	187	198	208	215	228	248	263

STEAM TRAPS

IB Series

Inverted Bucket Steam Traps

Model	**1031, 1032, 1033, 1034, 1031S, 1041, 1042, 1044, 1038S**
Sizes	**1/2", 3/4", 1", 1 1/4", 1 1/2"**
Connections	**NPT**
Body Material	**Cast Iron**
Options	**Internal check valve, air vent**
PMO Max. Operating Pressure	**250 PSIG**
TMO Max. Operating Temperature	**450°F**
PMA Max. Allowable Pressure	**250 PSIG up to 450°F**
TMA Max. Allowable Temperature	**450°F @ 250 PSIG**

1031/1032/1033/1034
(No Strainer)

1031S
(with Strainer)

1041/1042/1044/1038S
(with Strainer)

TYPICAL APPLICATIONS

DRIP, TRACER, PROCESS: The **IB Series** inverted bucket traps are available in several sizes and capacity ranges. Inverted bucket traps can handle superheated steam when a check valve is used. The smaller traps are primarily used in drip and tracer applications. These traps are also used on unit heaters, laundry equipment, and other process equipment where slow start-up due to poor air handling capability can be tolerated. Larger sizes are used on process equipment; however, since bucket traps have limited air handling capability, F&T traps are the preferred choice.

HOW IT WORKS

When there is condensate in the system, the inverted bucket inside the steam trap sits on the bottom of the trap due to its inherent weight. This allows condensate to enter the trap and to be discharged through the seat orifice located at the top. When steam enters the trap, the bucket floats to the surface and closes off the discharge valve containing the steam in the system. Eventually steam is bled off through a small hole in the top of the bucket causing the bucket to sink which repeats the cycle.

FEATURES

- **Water hammer resistant**
- **Suitable for superheated steam (use internal check valve option to eliminate loss of prime)**
- **In-line repairability is simplified by having all internals attached to the cover**
- **Valve & seat are at the top of the trap making it less sensitive to dirt**
- **All stainless steel internals with hardened valve & seat**

SAMPLE SPECIFICATION

The steam trap shall be of an inverted bucket trap design. Trap body and cover shall be of cast iron construction with all stainless steel internals and hardened seat and disc.

MAINTENANCE

All working components can be replaced with the trap body remaining in-line. The repair kit for the traps contain a lever and seat assembly with gasket. With superheated steam, a check valve must be installed at inlet of trap. For full maintenance details see Installation and Maintenance Manual.

DIRECT REPLACEMENT FOR THE FOLLOWING ARMSTRONG MODELS

Watson Model	Armstrong Model
(Without Integral Strainer)	
1031	800
1032	811
1033	812
1034	813
(Includes Integral Strainer)	
1031S/1038S	N/A
1041	880
1042	881
1044	883

OPTIONS

Blowdown valve connection available on 1041, 1042, 1044 & 1038S. Thermic vent to improve air handling capability. Internal check valve for superheated or condensate backflow applications.

HOW TO SIZE/ORDER

From the capacity chart, select the model that can handle the working pressure of the system (PMO). Select the appropriate trap that will meet the capacity requirements at the differential pressure. Example:

Application: 1000 lbs/hr at 75 PSIG working pressure and 2 PSI differential pressure

Note: Specify Model, PMO and Connection Size

Size/Model: **IB-1034, 80 PSIG**, Specify pipe size (3/4", 1"), or **IB-1044, 80 PSIG**, Specify pipe size (3/4", 1")

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STEAM TRAPS

IB Series

Inverted Bucket Steam Traps

CAPACITIES – *Condensate (lbs/hr)*

Model	Pipe Size	Orifice Size	PMO (PSIG)	Differential Pressure (PSI) 1/4	1/2	1	2	5	10	15	20	30	50	60	70	80	100	125	150	180	200	250
1031 1041 1031S *	1/2", 3/4"	3/16"	20	139	200	270	340	450	560	640	690											
	1/2", 3/4"	1/8"	80	75	115	150	190	300	350	400	440	500	580	635	660	690						
	1/2", 3/4"	7/64"	125	50	80	100	145	240	280	320	350	410	490	520	560	580	640	680				
	1/2", 3/4"	#38	150	35	50	75	105	150	250	280	300	350	400	420	450	470	500	550	570			
1032	1/2", 3/4",1"	1/4"	15	191	300	450	590	830	950	1060												
	1/2", 3/4",1"	3/16"	30	150	235	325	410	530	700	820	880	1000										
	1/2", 3/4",1"	5/32"	70	85	145	220	275	380	500	560	620	710	840	900	950							
	1/2", 3/4",1"	1/8"	125	70	110	160	210	285	375	440	485	560	670	720	780	800	860	950				
	1/2", 3/4",1"	7/64"	200	45	75	110	145	205	265	315	350	410	500	550	580	620	650	700	810	840	860	
	1/2", 3/4",1"	#38	250	15	40	80	105	155	205	240	270	320	400	500	530	550	580	630	660	690	710	760
1042	1/2", 3/4"	1/4"	15	191	300	450	590	830	950	1060												
	1/2", 3/4"	3/16"	30	150	235	325	410	530	700	820	880	1000										
	1/2", 3/4"	5/32"	70	85	145	220	275	380	500	560	620	710	840	900	950							
	1/2", 3/4"	1/8"	125	70	110	160	210	285	375	440	485	560	670	720	780	800	860	950				
	1/2", 3/4"	7/64"	200	45	75	110	145	205	265	315	350	410	500	550	580	620	650	700	810	840	860	
	1/2", 3/4"	#38	250	15	40	80	105	155	205	240	270	320	400	500	530	550	580	630	660	690	710	760
1033	1/2", 3/4"	5/16"	15	350	570	850	1140	1600	1900	2100												
	1/2", 3/4"	1/4"	30	270	400	640	810	1000	1300	1600	1800	2050										
	1/2", 3/4"	3/16"	70	195	300	480	610	750	950	1200	1375	1600	1900	2000	2200							
	1/2", 3/4"	5/32"	125	130	205	320	415	595	775	910	900	1100	1380	1480	1600	1650	1800	2000				
	1/2", 3/4"	1/8"	200	75	120	200	255	365	490	585	630	700	900	980	1080	1120	1220	1400	1500	1560	1600	
	1/2", 3/4"	7/64"	250	30	80	130	170	250	335	400	470	525	665	600	700	800	900	1000	1100	1180	1220	1300
1034 1044	3/4", 1"	1/2"	15	950	1410	1880	2300	2900	3500	3900												
	3/4", 1"	3/8"	30	600	960	1300	1640	2200	2800	3300	3500	4000										
	3/4", 1"	5/16"	60	490	800	1090	1400	1750	2200	2600	2900	3500	4100	4400								
	3/4", 1"	9/32"	80	330	580	720	1070	1450	1800	2100	2400	2800	3300	3600	3800	4000						
	3/4", 1"	1/4"	125	260	430	620	810	1150	1650	1800	1900	2200	2600	2800	3000	3200	3600	3900				
	3/4", 1"	7/32"	180	200	310	470	610	880	1170	1380	1510	1800	2100	2300	2500	2700	2900	3200	3500	3700		
	3/4", 1"	3/16"	250	170	250	380	490	700	940	1100	1250	1450	1700	1800	2000	2100	2300	2700	2800	3100	3200	3500
1038S	1 1/4", 1 1/2"	1/2"	15	1188	1763	2350	2875	3625	4375	4875												
	1 1/4", 1 1/2"	3/8"	30	760	1190	1625	2050	2750	3500	4125	4375	5125										
	1 1/4", 1 1/2"	5/16"	60	615	1000	1375	1750	2188	2750	3250	3625	4375	5125	5500								
	1 1/4", 1 1/2"	9/32"	80	420	720	900	1340	1810	2250	2625	3000	3500	4125	4500	4750	5000						
	1 1/4", 1 1/2"	1/4"	125	330	540	775	1010	1440	2063	2250	2375	2750	3250	3500	3750	4000	4500	4875				
	1 1/4", 1 1/2"	7/32"	180	250	390	590	760	1100	1470	1725	1890	2063	2375	2875	3125	3375	3625	4000	4375	4625		
	1 1/4", 1 1/2"	3/16"	250	210	320	470	610	875	1170	1380	1560	1800	2125	2250	2500	2625	2875	3375	3500	3875	4000	4375

** 1031S only available @ PMO = 125 PSIG.*

STEAM TRAPS

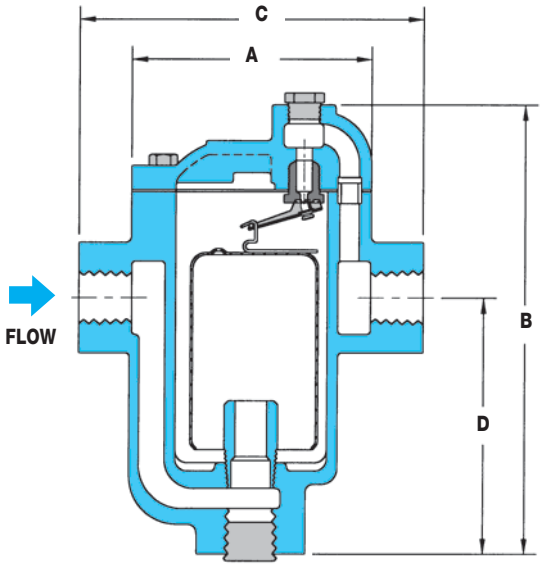
IB Series

Inverted Bucket Steam Traps

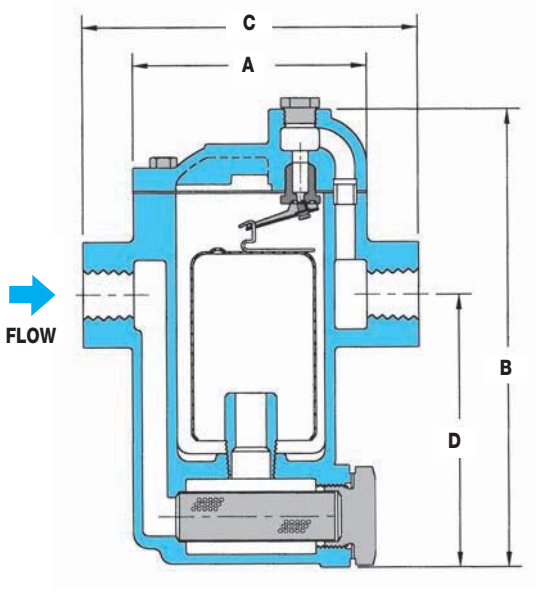
MATERIALS

Body & Cover	Cast Iron, ASTM A-278 Class 30
Nuts & Bolts	High-Tensile Steel
Gasket	Non-Asbestos Fiber
Bucket	Stainless Steel
Lever & Seat Assembly	Stainless Steel
Valve & Seat	Hardened Stainless Steel
Integral Strainer*	Stainless Steel

** 1031S, 1038S, 1041, 1042, 1044 models only.*



1031/1031S/1032/1033/1034
without Strainer (except 1031S)



1041/1042/1044/1038S
with Strainer

DIMENSIONS & WEIGHTS – *inches/pounds*

Model	A	B	C	D	Weight (lbs)
1031	3.75	5.875	5.00	2.75	5
1031S*	3.75	5.875	5.00	2.75	5
1032	3.75	6.875	5.00	4.25	6
1033	5.625	9.06	6.50	5.375	15
1034	7.00	11.75	7.75	7.03	27
1041*	3.75	6.06	5.00	3.43	5
1042*	3.75	7.06	5.00	4.43	6
1044*	7.00	12.375	7.125	7.375	30
1038S*	7.00	12.375	7.125	7.375	30

**** With Integral Strainer***

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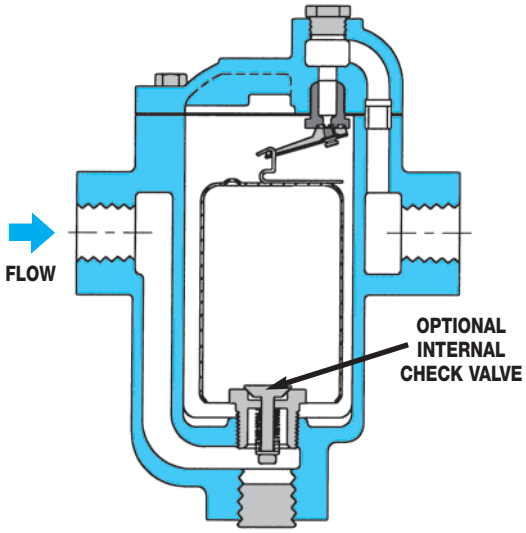
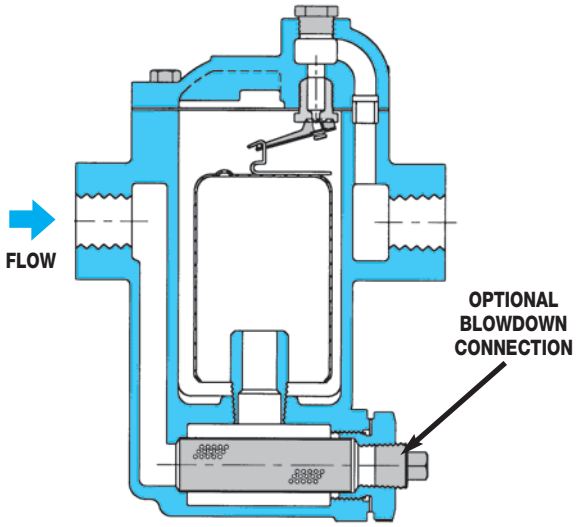
STEAM TRAPS
IB Series
Inverted Bucket Steam Traps



CHECK VALVE OPTION

The optional internal check valve allows the bucket trap to retain its prime even when exposed to superheated steam. Under vacuum conditions it will also stop condensate from back-flowing from the condensate return line into the steam system.



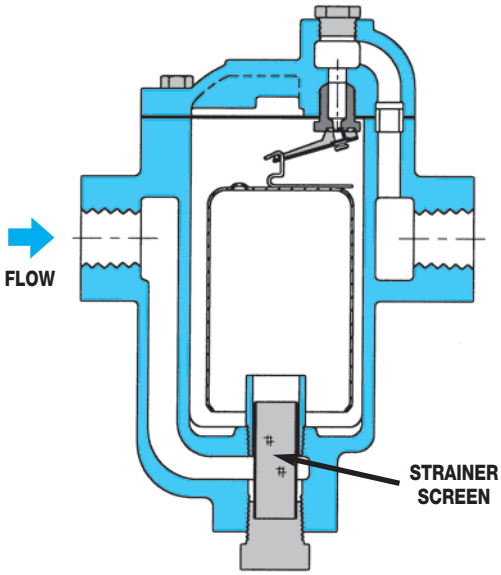
BLOWDOWN CONNECTION OPTION

A blowdown valve connection is available as an option on the **1041**, **1042**, **1044**, and **1038S** models. This simplifies maintenance by allowing the strainer to be cleaned without removal. User to supply blowdown valve.

REPLACEMENT KITS

A replacement kit containing the lever and seat assembly is a more economical option than replacing the entire steam trap. Also available are replacement screens, gaskets and buckets.

When ordering replacement lever and seat assemblies specify model and operating pressure. Reference price sheet for exact cross-reference to Armstrong PCA (Pressure Change Assembly) Kits.



1031S

The **1031S** is equipped with a small protection screen to guard against dirt in the steam system. It is a more economical alternative than the 1041 which has a full-port strainer. Specifically designed for use in laundries. Available in 125 PSIG rating only.

QUICK-CHANGE TRAPS

Universal Style Steam Traps

(Universal Style Connectors and Universal Trap Modules)

Universal Style Steam Traps feature a permanent installation of the Universal Connector with a 2-bolt mounting arrangement for the Universal Steam Trap Module, allowing the Steam Trap to be removed and replaced in minutes

- without having to unthread piping
- by removing only 2-bolts with a socket or open-end wrench

7 different connectors • 6 different trap modules

Thermodynamic • Thermostatic • Inverted Bucket • Bi-Metallic • Float & Thermostatic

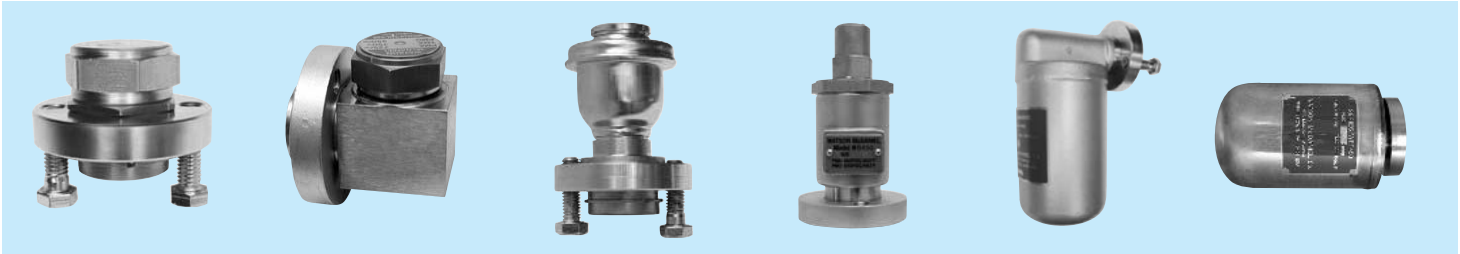
Any Universal Connector will work with any Universal Steam Trap Module

Model	WU450
Sizes	1/2", 3/4", 1"
Connections	NPT, SW, FLG
Body Material	Stainless Steel
PMO Max. Operating Pressure	(trap module dependent)
TMO Max. Operating Temperature	(trap module dependent)
PMA Max. Allowable Pressure	750 PSIG @ 100ºF
TMA Max. Allowable Temperature	800ºF @ 400 PSIG

see following page for connector variations.

Universal Style Steam Traps are recommended in any application, – particularly those which require simple and frequent replacement of steam traps

Select a **Trap Module** for your application



WD450
WD450L
Thermodynamic
"Top Mount"

WD450SM
WD600LSM
WD600LSM-HP
Thermodynamic
"Side Mount"

WT450
Thermostatic

WB450
Bi-Metallic

WSIB450
WSIB450H
Inverted Bucket

WFT450
Float & Thermostatic

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QUICK-CHANGE TRAPS

Universal Style Steam Traps

(Universal Style Connectors and Universal Trap Modules)

It all adds up.... a Universal Style Connector + a Universal Trap Module = the most convenient, time-efficient & cost effective solution to maintaining your steam traps.

STEP 1: Select an appropriate Universal **STEAM TRAP MODULE** (shown below) for your application. Consult following pages for Steam Trap details.

STEP 2: Select appropriate Universal **CONNECTOR**. Any connector shown below will work with any Universal Steam Trap Module (including those of other manufacturers).

STEP 3: Order configured Universal Style Steam Traps.

UNIVERSAL TRAP MODULES

WD450
WD450L
Thermodynamic
"Top Mount"
Only recommended for Horizontal Piping Installations

WD450SM
WD450LSM
WD600LSM-HP
Thermodynamic
"Side Mount"

WT450
Thermostatic

WB450
Bi-Metallic

WSIB450
WSIB450H
Inverted Bucket

WFT450
Float &
Thermostatic

UNIVERSAL CONNECTORS

WU450
No Strainer

WU450S
Strainer

WU450SB
Strainer &
Blowdown

WU450S-LR
Strainer

WU450SB-LR
Strainer &
Blowdown

WU450S-RL
Strainer

WU450SB-RL
Strainer &
Blowdown

FEATURES

- 2-bolt mounting allows Trap Module to be removed and replaced without having to unthread piping
- Trap module can swivel 360° on the universal connector allowing proper orientation
- Compatible with other manufacturers trap modules
- All stainless steel construction
- Flange connections available for connector

Models WU450-LR (left to right flow as viewed) are Standard.

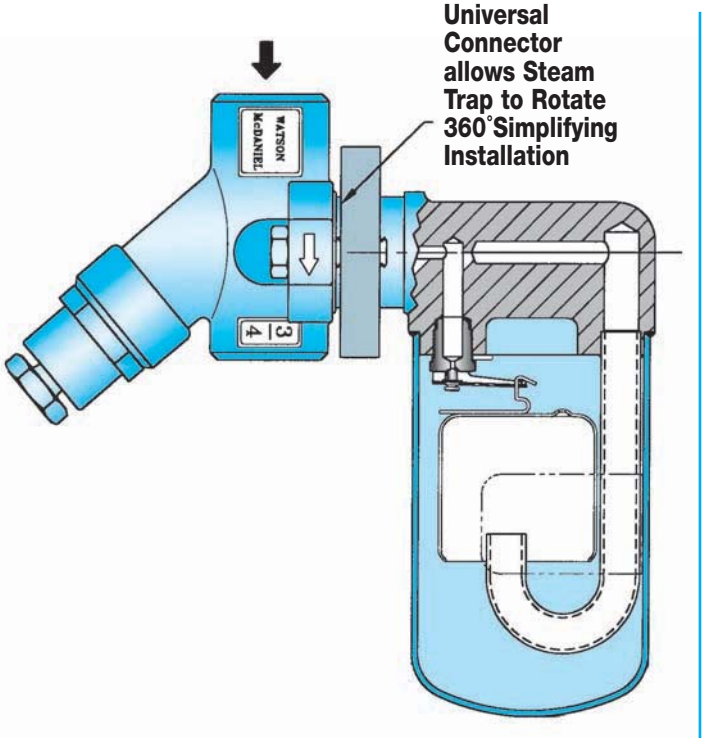
Models WU450-RL (right to left flow as viewed) Connectors were made available for situations where problems occur due to obstructions or trap mounting orientation.

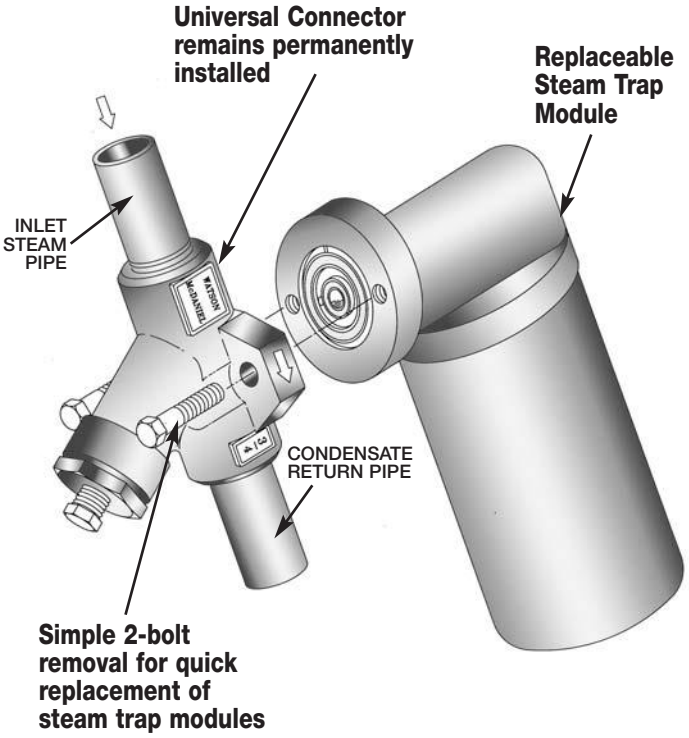
UNIVERSAL STYLE STEAM TRAPS

Universal Style Steam Traps

(Universal Style Connectors and Universal Trap Modules)

Universal Connectors are used in steam systems to simplify the replacement and maintenance of Steam Traps.





Universal Connectors allow Steam Traps to be removed and replaced in minutes without having to unthread piping.

Two bolts connect the steam trap module to the permanently-installed universal connector, allowing the trap module to be quickly and easily removed and replaced using an open-end or socket wrench. **Universal Style Steam Traps** are commonly used in chemical plants, petrochemical refineries, paper mills and most other industrial facilities. Watson McDaniel's WU450 connectors conform to industrial standards, making them compatible with other manufacturers' universal steam trap modules.

Watson McDaniel recommends using the Universal Style Steam Traps in any application, in particular those which require frequent maintenance or replacement of steam traps.

- **Universal style steam traps with 2-bolt mounting allows for fast, easy replacement of trap module, making it more cost-effective than replacing conventional type steam traps**
- **All stainless steel construction**
- **Trap module can swivel 360° on the universal connector allowing any orientation during installation**
- **These universal connectors are compatible with most other manufacturer's trap modules**
- **Universal connectors are available with integral strainer and blowdown valve**

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UNIVERSAL STYLE STEAM TRAPS

WU450 Series

Universal Connectors for Universal Steam Trap Modules

Model	**WU450, WU450S, WU450SB** **WU450S-LR, WU450SB-LR, WU450S-RL, WU450SB-RL**
Sizes	**1/2", 3/4", 1"**
Connections	**NPT, SW, FLG**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**(trap module dependent)**
TMO Max. Operating Temperature	**(trap module dependent)**
PMA Max. Allowable Pressure	**750 PSIG @ 100°F**
TMA Max. Allowable Temperature	**800°F @ 400 PSIG**

Steam Trap Modules that mount to Universal Connectors are shown on the following pages. Trap modules available in: Inverted Bucket, Float & Thermostatic, Thermodynamic, Thermostatic and Bi-metallic type.

WU450
no strainer

WU450S
with strainer

WU450SB
with strainer & blowdown valve

WU450S-LR
with strainer
(Flow direction Left to Right)

WU450S-RL
with strainer
(Flow direction Right to Left)

WU450SB-LR
with strainer & blowdown valve
(Flow direction Left to Right)

WU450SB-RL
with strainer & blowdown valve
(Flow direction Right to Left)

Note: Optional Flanged units available.

TYPICAL APPLICATIONS

DRIP, TRACER: The **WU450 Series** Universal Connectors are used in steam systems where a simplified and economical maintenance program of steam traps is desired. These universal connectors can be used for drip service on steam mains and steam supply lines, tracing, or small process equipment. Industrial standard 2-bolt universal connectors are commonly used in chemical plants, petrochemical refineries, paper mills and other industrial facilities. The WU450 connectors conform to industrial standards, making them compatible with other manufacturers' universal steam trap modules.

Used with the following Watson McDaniel Steam Trap Modules:

WSIB450	**- Inverted Bucket**
WD450	**- Thermodynamic**
WD450SM	**- Thermodynamic**
WD600LSM	**- Thermodynamic**
WT450	**- Thermostatic**
WFT450	**- Float & Thermostatic**
WB450	**- Bi-Metallic**

HOW IT WORKS

WU450 universal connectors remain permanently installed in the piping system. The convenient 2-bolt mounting system allows the trap module to be replaced quickly and easily using a socket or open-end wrench.

FEATURES

- **Universal connector with 2-bolt mounting allows for fast, easy replacement of trap module making it more cost-effective than replacing conventional type steam traps**
- **All stainless steel construction**
- **Trap module can rotate 360° on the universal connector allowing any orientation during installation**
- **Compatible with most other manufacturers' trap modules**
- **Available with integral strainer and blowdown valve**

SAMPLE SPECIFICATION

The Universal Connector shall be all stainless steel construction with a two-bolt 360 degree swivel mount flange design and available with integral strainer and blowdown valve.

INSTALLATION

The universal connector can be installed in any position. Installation should include isolation valves.

MAINTENANCE

The strainer should be periodically cleaned by removal or use of the optional blowdown valve. For full maintenance details see Installation and Maintenance Manual.

MATERIALS

Body	Stainless Steel, AISI 316
Strainer	40 Mesh Stainless Steel, AISI 304
Blowdown Valve	Stainless Steel, AISI 303

HOW TO SIZE/ORDER

Specify universal connector. See following pages for Steam Trap Modules.

UNIVERSAL STYLE STEAM TRAPS

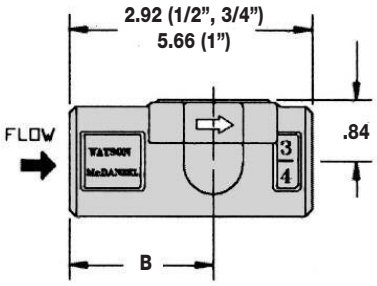
WU450 Series

Universal Connectors - Dimensions

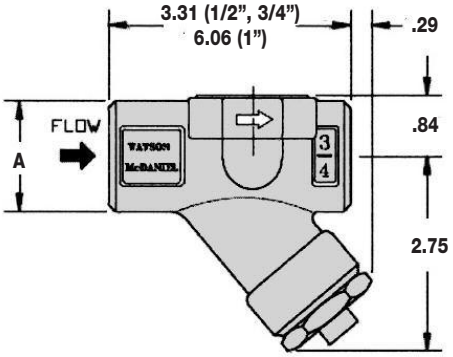
WU450, WU450S, WU450SB, Universal Connectors

Connectors available in 1/2", 3/4" and 1" sizes in NPT or Socket-Weld Connections

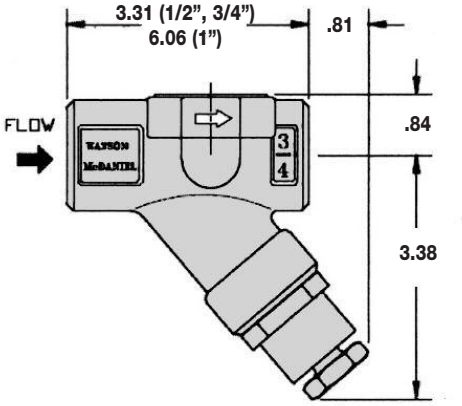
Note: Optional Flange units available.



WU450
(No Strainer)



WU450S
(Strainer)



WU450SB
(Strainer & Blowdown)

DIMENSIONS – *inches*

Size	A	B
1/2"	1.50	1.97
3/4"	1.50	1.97
1"	1.75	3.35

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UNIVERSAL STYLE STEAM TRAPS

WU450 Series

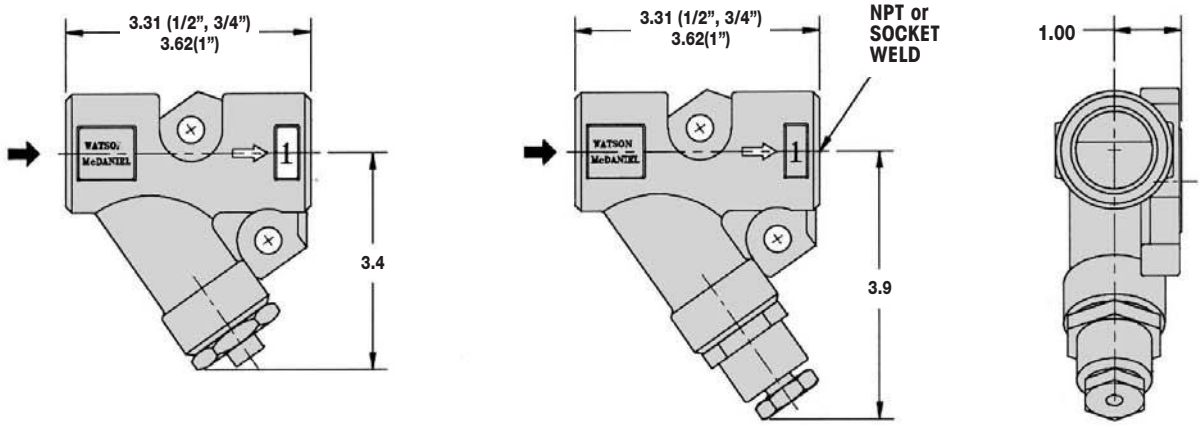
Universal Connectors - Dimensions

WU450S-LR & WU450SB-LR Universal Connectors

Connectors available in 1/2", 3/4" and 1" sizes in NPT or Socket-Weld Connections

Note: Optional Flange units available.

Flow Direction - LEFT TO RIGHT



WU450S-LR
(Strainer)

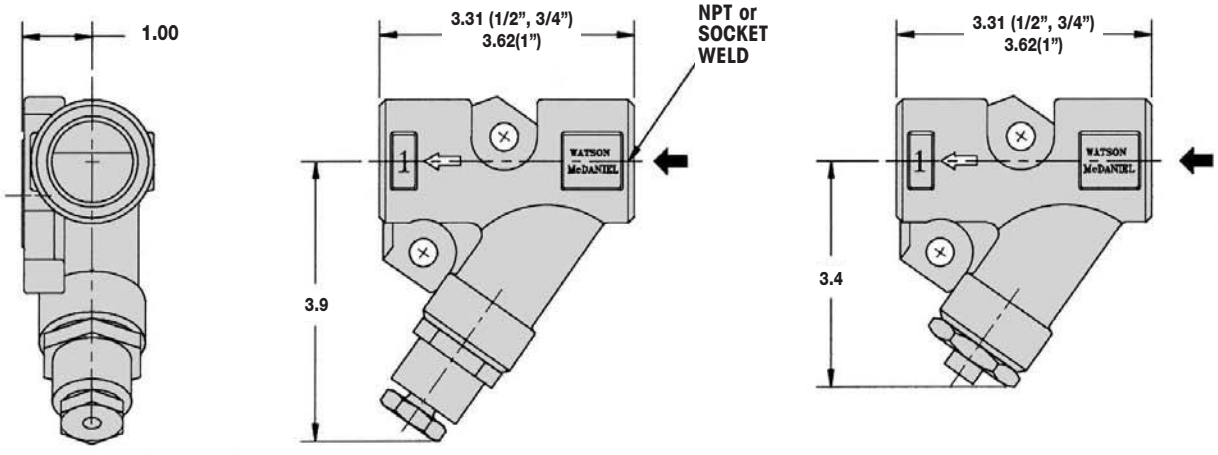
WU450SB-LR
(Strainer & Blowdown)

WU450S-RL & WU450SB-RL Universal Connectors

Connectors available in 1/2", 3/4" and 1" sizes in NPT or Socket-Weld Connections

Note: Optional Flange units available.

Flow Direction - RIGHT TO LEFT



WU450SB-RL
(Strainer & Blowdown)

WU450S-RL
(Strainer)

UNIVERSAL STYLE STEAM TRAPS

WSIB450

Inverted Bucket **Steam Trap Module** (mounts to Universal Connectors)

Model	**WSIB450, WSIB450H**
Connections	**Fits WU450 Series universal connectors**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**450 PSIG***
TMO Max. Operating Temperature	**800ºF**
PMA Max. Allowable Pressure	**720 PSIG @ 100ºF**
TMA Max. Allowable Temperature	**800ºF @ 400 PSIG**

**750ºF @ operating pressures below 400 PSIG. See installation note regarding using trap in superheated applications.*

Steam trap modules can be used with other manufacturers' Universal Connectors.

WSIB450 Inverted Bucket Steam Trap Module

TYPICAL APPLICATIONS

DRIP, TRACER: The **WSIB450** inverted bucket steam trap module, mounted to a universal connector, is typically used for drip and tracing applications. Also used on process equipment with light loads and where air removal is not critical. The WSIB450 trap module mounts to any universal connector.

HOW IT WORKS

The universal connector is permanently installed into the pipeline where the steam trap would normally be placed. The trap module is bolted to the universal connector with two bolts and sealed with a gasket. When a new trap module is needed, it can be easily removed and replaced with a standard open-end or socket wrench without disturbing the existing piping.

SAMPLE SPECIFICATION

The steam trap shall be an all stainless steel modular design, inverted bucket type with a frictionless valve lever assembly. The trap shall have a 360 degree swivel mount on a stainless steel Universal Connector that is available with integral strainer and blowdown valve options.

INSTALLATION & MAINTENANCE

Trap module must be installed in orientation shown. Installation should include isolation valves. With superheated steam, a check valve must be installed at inlet of trap. For full maintenance details, see Installation and Maintenance Manual.

OPTIONS

Universal Connectors are available with an integral strainer and blowdown valve. Connector is purchased separately. See the WU450 Universal Connectors section for more information.

FEATURES

- **Trap module can be easily removed and replaced in minutes without having to disconnect any piping**
- **Hardened stainless steel valves and seat**
- **Freeze resistant**
- **Connectors available with integral strainers and blowdown valves**
- **360º swivel design for convenient installation**

MATERIALS

Body	Stainless Steel GR CF3
Cover	304L Stainless Steel
Internals	300 Series Stainless Steel
Valve Plug & Seat	420F Stainless Steel
Bolts	ASTM A193 GR B7
Gasket	Spiral-Wound 304 Stainless Steel with Grafoil Filler
Swivel Flange	303 Stainless Steel

CAPACITIES – *Condensate (lbs/hr)*

Model	Orifice Size	PMO (PSIG)	Differential Pressure (PSI) 5	10	15	20	25	30	40	50	60	70	80	100	125	150	180	200	250	350	450
WSIB450-20	3/16"	**20**	450	560	640	690															
WSIB450-80	1/8"	**80**	300	350	400	440	460	500	550	580	635	660	690								
WSIB450-150	#38	**150**	210	250	280	300	320	350	380	400	420	450	470	500	550	570					
WSIB450-450	.057	**450**	31	50	70	84	95	105	120	133	145	152	160	174	187	198	208	215	228	248	263
WSIB450H-15	1/4"	**15**	830	950	1060																
WSIB450H-30	3/16"	**30**	530	700	820	880	950	1000													
WSIB450H-70	5/32"	**70**	380	500	560	620	680	710	770	840	900	950									
WSIB450H-125	1/8"	**125**	285	375	440	485	530	560	620	670	720	780	800	860	950						
WSIB450H-200	7/64"	**200**	205	265	315	350	385	410	465	500	580	590	620	650	700	810	840	860			
WSIB450H-250	#38	**250**	155	205	240	270	295	320	360	400	500	530	550	580	630	660	690	710	760		
WSIB450H-450	.057	**450**	31	50	70	84	95	105	120	133	145	152	160	174	187	198	208	215	228	248	263

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UNIVERSAL STYLE STEAM TRAPS

WFT450

Float & Thermostatic **Steam Trap Module** (mounts to Universal Connectors)

Model	**WFT450**
Connections	**Fits WU450 Series universal connectors**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**225 PSIG**
TMO Max. Operating Temperature	**397°F**
PMA Max. Allowable Pressure	**720 PSIG @ 100°F**
TMA Max. Allowable Temperature	**800°F @ 400 PSIG**

Steam trap modules can be used with other manufacturers' Universal Connectors.

WFT450
Float & Thermostatic
Steam Trap Module

TYPICAL APPLICATIONS

PROCESS, DRIP: The **WFT450** Float & Thermostatic trap module mounted to a universal connector, is typically used on process equipment that generate light condensate loads and require excellent air handling capabilities. These low capacity float & thermostatic trap modules can also be used in drip service on steam mains, tracer systems and steam supply lines. The WFT450 trap module mounts to any universal connector.

HOW IT WORKS

The universal connector is permanently installed into the pipeline where the steam trap would normally be placed. The trap module is bolted to the universal connector with two bolts and sealed with a gasket. When a new trap module is needed, it can be easily removed and replaced with a standard open-end or socket wrench without disturbing the existing piping.

SAMPLE SPECIFICATION

The steam trap shall be an all stainless steel modular design, float & thermostatic unit. The thermostatic air vent to be pressure balanced welded bellows. The trap shall have a 360 degree swivel mount on a stainless steel Universal Connector that is available with integral strainer and blowdown valve options.

INSTALLATION & MAINTENANCE

Trap module must be installed in orientation shown. Installation should include isolation valves. For full maintenance details, see Installation and Maintenance Manual.

OPTIONS

Universal Connectors are available with an integral strainer and blowdown valve. Connector is purchased separately. See the Universal Connectors section for more information.

FEATURES

- **Trap module can be easily removed and replaced in minutes without having to disconnect any piping**
- **Hardened stainless steel valves and seat**
- **Freeze resistant**
- **Connectors available with integral strainers and blowdown valves**
- **360° swivel design for convenient installation**

MATERIALS

Body	Stainless Steel GR CF3
Cover	304L Stainless Steel
Internals	300 Series Stainless Steel
Valve Disc	420F Stainless Steel
Valve Seat	17-4 PH Stainless Steel
Bolts	ASTM A193 GR B7
Gasket	Spiral-Wound 304 Stainless Steel with Grafoil Filler
Swivel Flange	303 Stainless Steel

CAPACITIES – *Condensate (lbs/hr)*

Model	PMO (PSIG)	Differential Pressure (PSI) 1/4	1/2	1	2	5	10	15	20	30	40	50	65	75	100	125	145	200	225
WFT450-15	**15**	390	490	620	780	1050	1320	1500											
WFT450-65	**65**	115	155	205	270	390	520	610	685	810	910	995	1110						
WFT450-145	**145**	55	75	100	135	200	270	320	365	435	490	540	600	640	725	795	850		
WFT450-225	**225**	40	50	70	95	135	185	220	245	290	330	360	405	430	485	530	565	645	680

UNIVERSAL STYLE STEAM TRAPS

WD450 & WD450SM

Thermodynamic **Steam Trap Module** (mounts to Universal Connectors)

Model	**WD450SM, WD450LSM** *(Side Mount Style)* **WD450, WD450L** *(Top Mount Style)*
Connections	**Fits WU450 Series Universal Connectors**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**450 PSIG**
TMO Max. Operating Temperature	**750ºF**
PMA Max. Allowable Pressure	**720 PSIG @ 100ºF**
TMA Max. Allowable Temperature	**800ºF @ 400 PSIG**

Steam trap modules can be used with other manufacturers' Universal Connectors.

WD450SM
Thermodynamic Steam Trap Module
(Side Mount Style)
For vertical or horizontal piping installations.

WD450
Thermodynamic Steam Trap Module
(Top Mount Style)
Recommended for horizontal piping installations only so that cap can be oriented upwards as shown.

TYPICAL APPLICATIONS

DRIP, TRACER: The **WD450SM & WD450** steam trap modules mounted to a universal connector can be used anywhere conventional thermodynamic steam traps are used. Used on drip, tracing and light process applications where removal of air is not critical. The WD450 & WD450SM trap modules mount to any Universal Connector. The WD450 is recommended for horizontal piping only so that cap can be oriented upwards, as shown.

HOW IT WORKS

The universal connector is permanently installed into the pipeline where the steam trap would normally be placed. The trap module is bolted to the universal connector with two bolts and sealed with two gaskets. When a new trap module is needed, it can be easily removed and replaced with a standard open-end or socket wrench without disturbing the existing piping.

FEATURES

- **Trap module can be easily removed and replaced in minutes without having to disconnect any piping**
- **Trap modules can be used with most manufacturers' 2-bolt universal connector**
- **All stainless steel construction with hardened seat**

SAMPLE SPECIFICATION

The steam trap module shall be designed to attach to the industry standard two-bolt universal connector. Trap module shall be of a thermodynamic design. Universal connector shall conform to the two bolt industry standard with integral strainer and blowdown options.

INSTALLATION

Trap module must be installed in orientation shown. Isolation valves should be installed before and after the universal connector to facilitate maintenance. Trap module is attached to the connector using two bolts and two sealing gaskets.

MAINTENANCE

If the trap fails for any reason, replace only the trap module. If universal connector is equipped with an integral strainer it should be cleaned periodically. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Universal Connectors are available with an integral strainer and blowdown valve. Connector is purchased separately. See the Universal Connectors section for more information.

MATERIALS

Body	Stainless Steel, AISI 420
Disc	Stainless Steel, AISI 420
Cap	Stainless Steel, AISI 416
Insulation Cover	Stainless Steel, AISI 304
Bolts	Steel, ASTM A193 GR B7
Gaskets (2)	Spiral Wound 304 Stainless Steel with Grafoil Filler

CAPACITIES – *Condensate (lbs/hr)*

Model	Differential Pressure (PSI)																
	4	10	15	20	25	30	40	50	75	100	150	200	250	300	350	400	450
WD450L WD450LSM	140	215	242	270	295	320	355	390	455	510	600	670	730	790	840	880	925
WD450 WD450SM	247	370	420	475	520	560	625	685	800	900	1060	1185	1300	1400	1485	1560	1630

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UNIVERSAL STYLE STEAM TRAPS

WD600LSM-HP

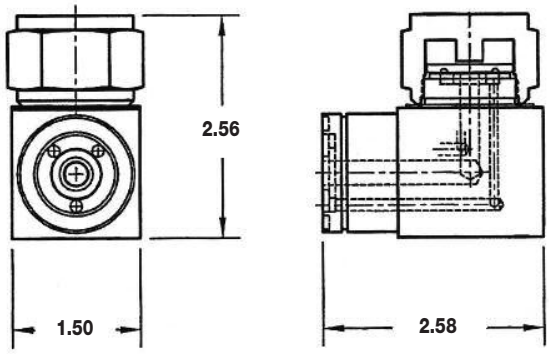
High-Pressure Thermodynamic **Steam Trap Module** (mounts to Universal Connectors)

Model	**WD600LSM-HP** *(Side Mount Style)*
Connections	**Fits WU450 Series Universal Connectors**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**600 PSIG**
TMO Max. Operating Temperature	**750ºF**
PMA Max. Allowable Pressure	**720 PSIG @ 100ºF**
TMA Max. Allowable Temperature	**800ºF @ 600 PSIG**

Steam trap modules can be used with other manufacturers' Universal Connectors.

WD600LSM-HP
HIGH PRESSURE Thermodynamic Steam Trap Module
(Side Mount Style)

Units: Inches



WD600LSM-HP Thermodynamic Steam Trap Module

TYPICAL APPLICATIONS

DRIP, TRACER: The **WD600LSM-HP** steam trap module mounted to a universal connector can be used anywhere conventional thermodynamic steam traps are used. Used on drip, tracing and light process applications where removal of air is not critical. The WD600LSM-HP trap module mounts to any Universal Connector.

HOW IT WORKS

The universal connector is permanently installed into the pipeline where the steam trap would normally be placed. The trap module is bolted to the universal connector with two bolts and sealed with two gaskets. When a new trap module is needed, it can be easily removed and replaced with a standard open-end or socket wrench without disturbing the existing piping.

FEATURES

- **Trap module can be easily removed and replaced in minutes without having to disconnect any piping**
- **Trap modules can be used with most manufacturers' 2-bolt universal connector**
- **All stainless steel construction with hardened seat**

SAMPLE SPECIFICATION

The steam trap module shall be designed to attach to the industry standard two-bolt universal connector. Trap module shall be of a thermodynamic design. Universal connector shall conform to the two bolt industry standard with integral strainer and blowdown options.

CAPACITIES – *Condensate (lbs/hr)*

Model	Differential Pressure (PSI) 150	200	250	300	450	600
WD600LSM-HP	465	500	550	600	675	730

INSTALLATION

Isolation valves should be installed before and after the universal connector to facilitate maintenance. Trap module is attached to the connector using two bolts and two sealing gaskets.

MAINTENANCE

If the trap fails for any reason, replace only the trap module. If universal connector is equipped with an integral strainer it should be cleaned periodically. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Universal Connectors are available with an integral strainer and blowdown valve. Connector is purchased separately. See the Universal Connectors section for more information.

MATERIALS

Body	Stainless Steel, AISI 420
Disc	Stainless Steel, AISI 420
Cap	Stainless Steel, AISI 416
Insulation Cover	Stainless Steel, AISI 304
Bolts	Steel, ASTM A193 GR B7
Gaskets (2)	Spiral Wound 304 Stainless Steel with Grafoil Filler

UNIVERSAL STYLE STEAM TRAPS

WT450

Thermostatic **Steam Trap Module** (mounts to Universal Connectors)

Model	**WT450**
Connections	**Fits WU450 Series Universal Connectors**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**450 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temp.**
PMA Max. Allowable Pressure	**720 PSIG @ 100°F**
TMA Max. Allowable Temperature	**800°F @ 400 PSIG**

Steam trap modules can be used with other manufacturers' Universal Connectors.

WT450 Thermostatic Steam Trap Module

TYPICAL APPLICATIONS

DRIP, TRACER, PROCESS: The **WT450** steam trap module mounted on a universal connector can be used anywhere conventional thermostatic steam traps are used. Used on drip, tracing and light process applications. The WT450 trap module mounts to any universal connector.

HOW IT WORKS

The universal connector is permanently installed into the pipeline where the steam trap would normally be placed. The trap module is bolted to the universal connector with two bolts and sealed with two gaskets. When a new trap module is needed, it can be easily removed and replaced with a standard open-end or socket wrench without disturbing the existing piping.

FEATURES

- **Trap module can be easily removed and replaced in minutes without having to disconnect any piping**
- **Trap modules can be used with most manufacturers' 2-bolt universal connector**
- **All stainless steel construction with hardened seat**

SAMPLE SPECIFICATION

The steam trap module shall be designed to attach to the industry standard two-bolt universal connector. Trap module shall be of a thermostatic design. The universal connector shall conform to the two-bolt industry standard with integral strainer and blowdown options.

INSTALLATION

Isolation valves should be installed before and after the universal connector to facilitate maintenance. Trap module is attached to the connector using two bolts and two sealing gaskets.

MAINTENANCE

When a new trap module is needed, it can be easily removed and replaced with a standard open-end wrench without disturbing the existing piping. If the universal connector is equipped with an integral strainer it should be cleaned periodically. For full maintenance details see Installation and Maintenance Manual.

OPTIONS

Universal Connectors are available with an integral strainer and blowdown valve. Connector is purchased separately. See the Universal Connectors section for more information.

MATERIALS

Body	Stainless Steel, AISI 420
Thermal Element	Stainless Steel, AISI 302
Disc & Seat	Stainless Steel, AISI 420
Insulation Cover	Stainless Steel, AISI 304
Bolts	Steel, ASTM A193 GR B7
Gaskets (2)	Spiral Wound 304 Stainless Steel with Grafoil Filler

CAPACITIES – *Condensate (lbs/hr)*

Model	Orifice Size	Steam Inlet Pressure (PSIG) 5	10	20	50	100	125	150	200	250	300	350	400	450
WT450	3/16"	441	625	882	1391	1827	1969	2095	2305	2483	2636	2777	2903	3019

Note: *5/64" low capacity orifice is available upon request.*

Back Pressure as Percentage of Inlet Pressure	10	20	25	30	40	50	60	70	80	90
Percent Decrease in Trap Capacity	0	0	0	2	5	12	20	30	40	55

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UNIVERSAL STYLE STEAM TRAPS

WB450

Bi-Metallic **Steam Trap Module** (mounts to Universal Connectors)

Model	**WB450**
Connections	**Fits WU450 Series Universal Connectors**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**450 PSIG**
TMO Max. Operating Temperature	**662˚F**
PMA Max. Allowable Pressure	**720 PSIG @ 100˚F**
TMA Max. Allowable Temperature	**800ºF @ 400 PSIG**

Steam trap modules can be used with other manufacturers' Universal Connectors.

WB450 Bi-Metallic Steam Trap Module

TYPICAL APPLICATIONS

The **WB450** Series Bi-Metallic Module is used in steam tracing applications (process lines, instrumentation and winterization, general steam jacketing) and small process applications where accurate control of condensate discharge temperature is required to provide maximum usage of energy.

HOW IT WORKS

Bi-Metallic plates of dissimilar metals respond to steam temperature variations, whereby the metals are relaxed at relatively cool conditions, such as start-up, and the trap is open for the discharge of condensate. As temperature nears the preset subcool temperature below saturation, the metals react and expand, closing the trap and preventing the loss of live steam. Field adjustability of the bimetal element allows precise control of the condensate discharge temperature.

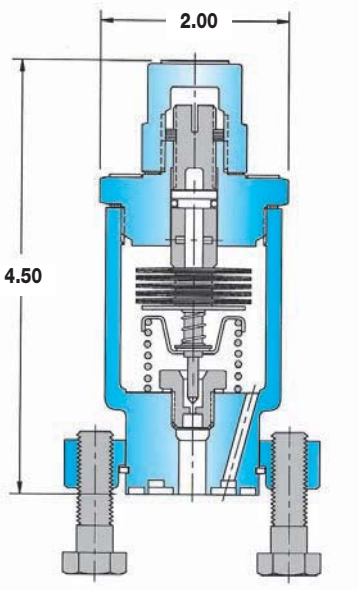
FEATURES

- **Excellent for various steam tracing and small process applications where maximum energy usage is desired**
- **Field-adjustable bimetal element allows precise control of condensate discharge temperature, providing maximum use of additional energy in the condensate**
- **Internal screen and seat/plug design help prevent pipe scale and debris from accumulating on seating surfaces to provide trouble-free operation**

MATERIALS

Body and Cover	Stainless Steel, A-351, Gr. CF8
Bimetal Element	GB14
Valve Seat	420 Stainless Steel
Gaskets (2)	Spiral Wound 304 Stainless Steel with Grafoil Filler
Valve Stem	Stainless Steel with Grafoil Filler

Units: Inches



Maximum Trap Capacities at Various Inlet Pressures and Set Temperatures – *Condensate (lbs/hr)*

Set Temperature	Steam Inlet Pressure (PSIG) 15	30	50	100	125	150	200	250	300	350	400	450
220˚F	56	70	102	144	161	177	204	228	250	270	289	306
240˚F	116	164	212	300	336	368	425	475	520	562	600	637
260˚F	134	190	245	346	387	424	490	548	600	648	693	735
280˚F	143	202	261	370	413	453	523	584	640	691	739	784

Notes: *1) Capacities in chart are based on discharging condensate to atmosphere with a condensate temperature of 200˚ F.*
2) Maximum discharge capacity up to 970 lbs/hr, depending on operating condition requirements.
3) Contact factory for additional information including other condensate set and discharge temperatures.
4) To ensure proper operation and eliminate possible steam loss, the Set Temperature should be lower than 27 ˚F subcool (degrees below inlet steam saturation temperature).

UNIVERSAL STYLE STEAM TRAPS

450 Series

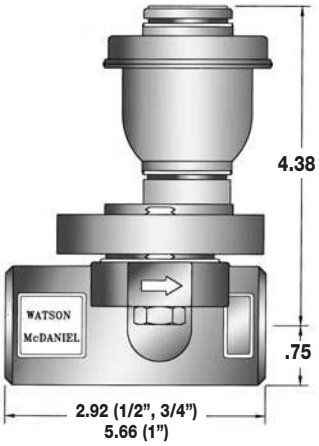
WT450 & WD450 Steam Traps with Universal Connectors - Dimensions

WT450 Trap Module with Universal Connectors

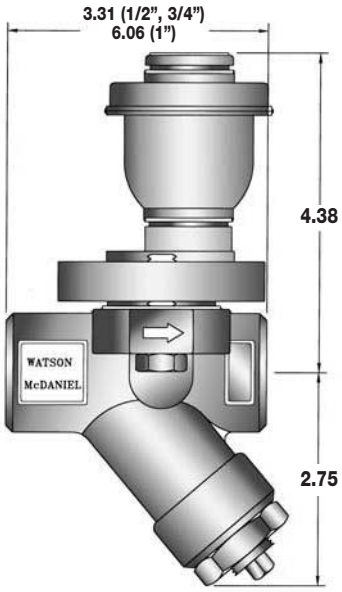
Connectors available in 1/2", 3/4" and 1" sizes in NPT and Socket-Weld Connections

Note: Optional Flange units available.

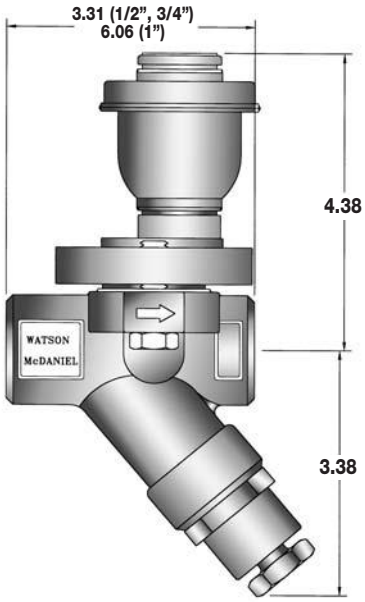
Units: inches



WT450 Trap Module with WU450 Connector



WT450 Trap Module with WU450S Connector (Strainer)



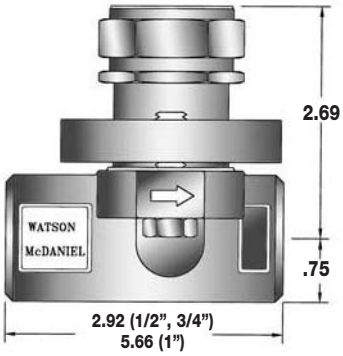
WT450 Trap Module with WU450SB Connector (Strainer & Blowdown)

WD450 Trap Module with Universal Connectors

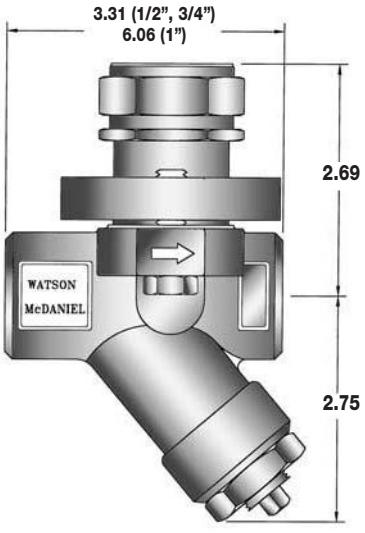
Connectors available in 1/2", 3/4" and 1" sizes in NPT and Socket-Weld Connections

Note: Optional Flange units available.

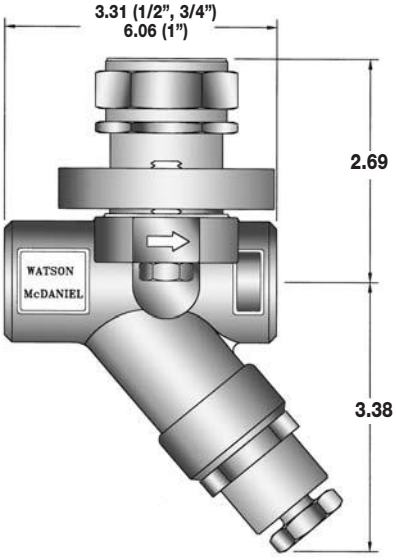
Units: inches



WD450 Trap Module with WU450 Connector



WD450 Trap Module with WU450S Connector (Strainer)



WD450 Trap Module with WU450SB Connector (Strainer & Blowdown)

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UNIVERSAL STYLE STEAM TRAPS

450 Series

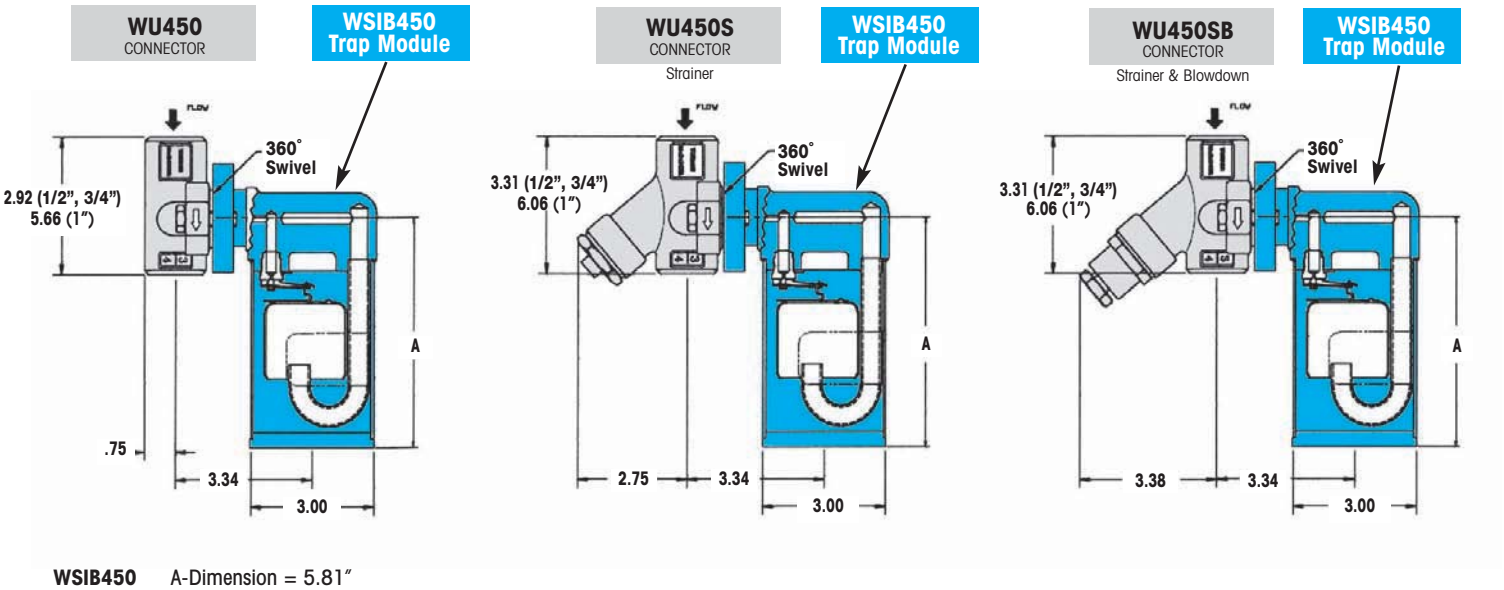
WSIB450 Steam Traps with Universal Connectors - Dimensions

WSIB450 Trap Module with Universal Connectors

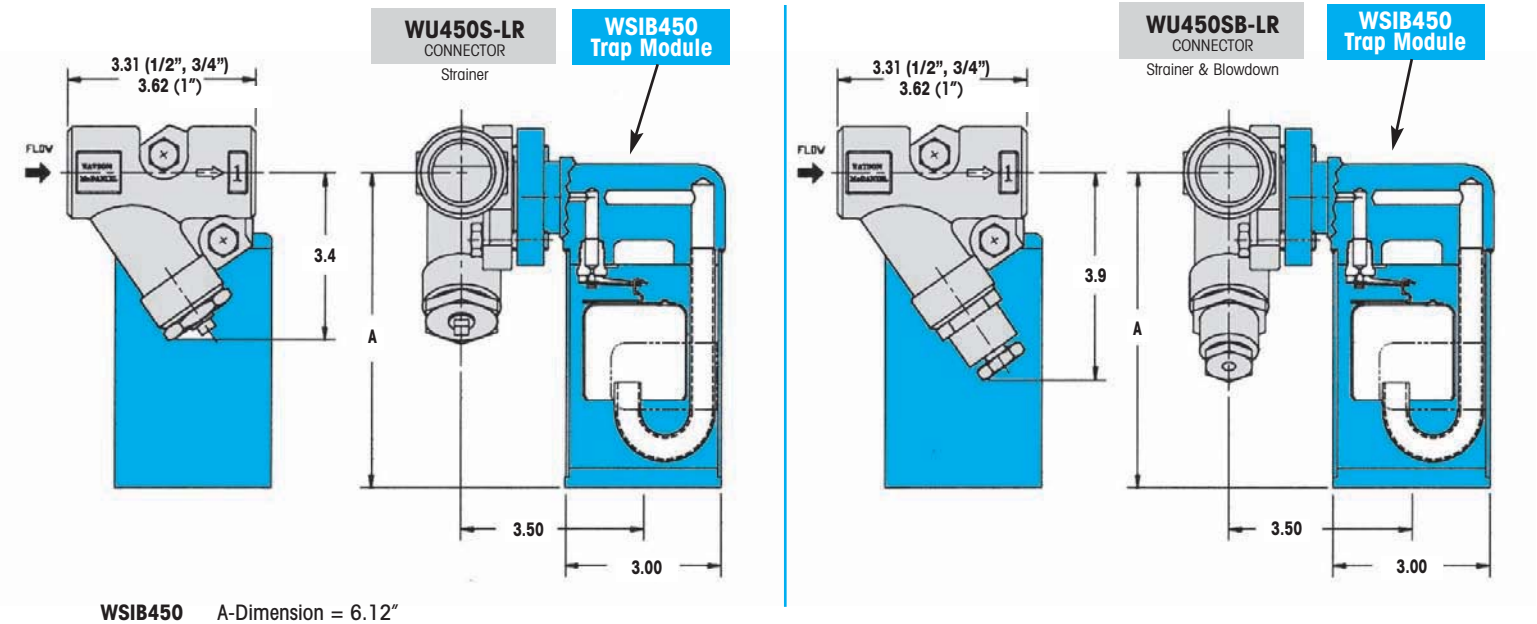
Connectors available in 1/2", 3/4" and 1" sizes in NPT or Socket-Weld Connections

Note: Optional Flange units available.

Units: inches



WSIB450 A-Dimension = 5.81"
WSIB450H A-Dimension = 6.81"



WSIB450 A-Dimension = 6.12"
WSIB450H A-Dimension = 7.12"

UNIVERSAL STYLE STEAM TRAPS

450 Series

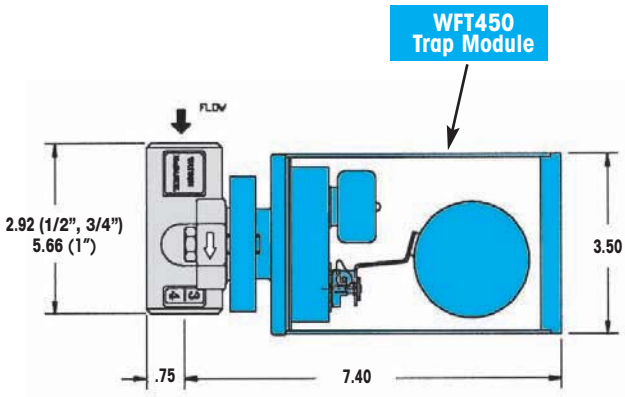
WFT450 Steam Trap Modules with Universal Connectors - Dimensions

WFT450 Trap Module with Universal Connectors

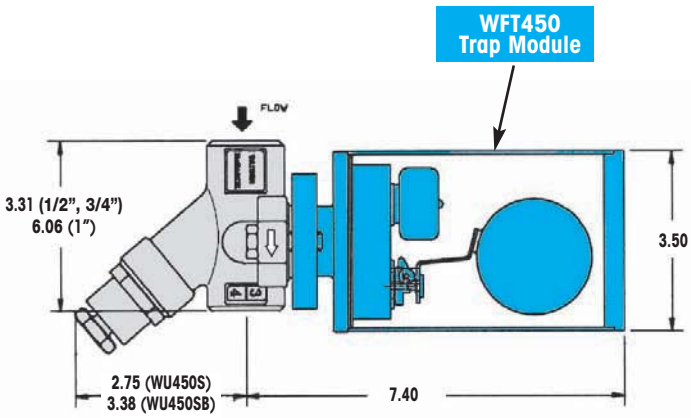
Connectors available in 1/2", 3/4" and 1" sizes in NPT or Socket-Weld Connections

Note: Optional Flange units available.

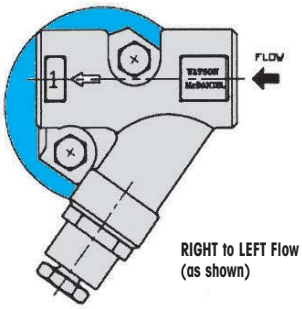
Units: inches



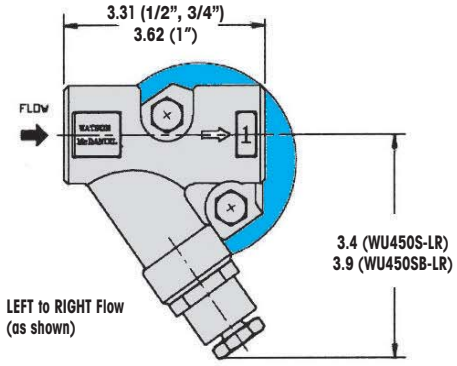
WU450
CONNECTOR



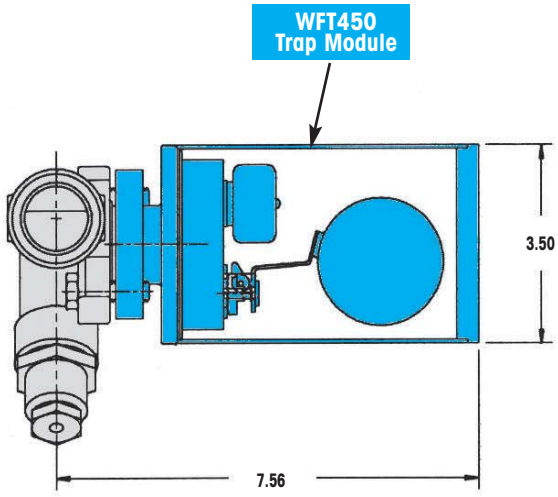
WU450SB
CONNECTOR
Strainer & Blowdown



WU450SB-RL
CONNECTOR
Strainer & Blowdown



WU450SB-LR
CONNECTOR
Strainer & Blowdown



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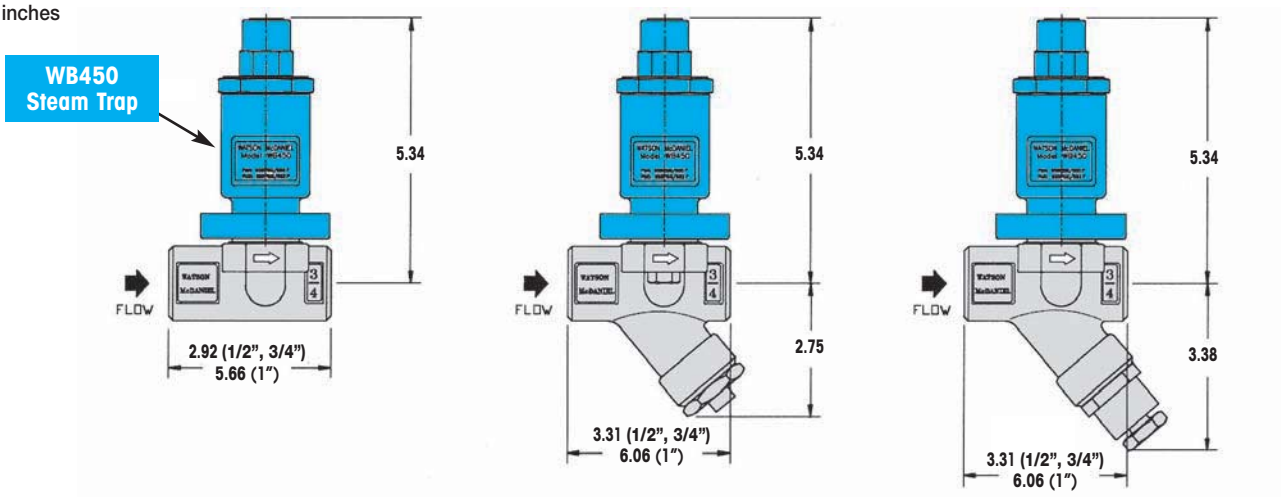
UNIVERSAL STYLE STEAM TRAPS
450 Series

WD450SM/ WB450 & WD600LSM-HP Steam Trap Modules with Universal Connectors - Dimensions

WB450 Trap Module with Universal Connectors
Connectors available in 1/2", 3/4" and 1" sizes in NPT and Socket-Weld Connections

Note: Optional Flange units available.

Units: inches



WU450
CONNECTOR

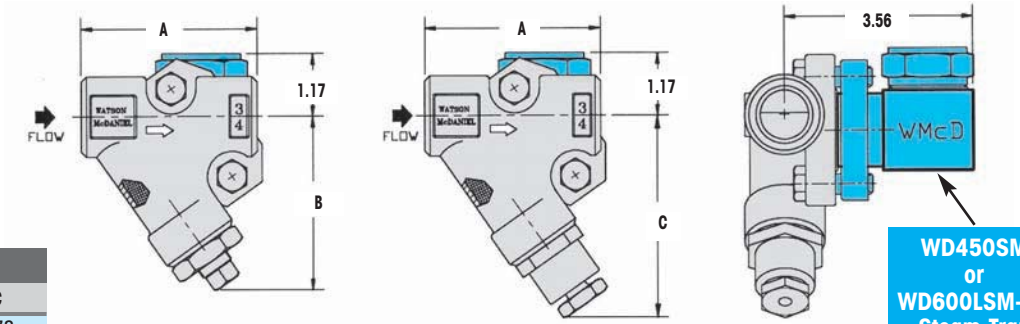
WU450S
CONNECTOR
Strainer

WU450SB
CONNECTOR
Strainer & Blowdown

WD450SM & WD600LSM-HP Trap Module with Universal Connectors
Connectors available in 1/2", 3/4" and 1" sizes in NPT and Socket-Weld Connections

Note: Optional Flange units available.

Units: inches

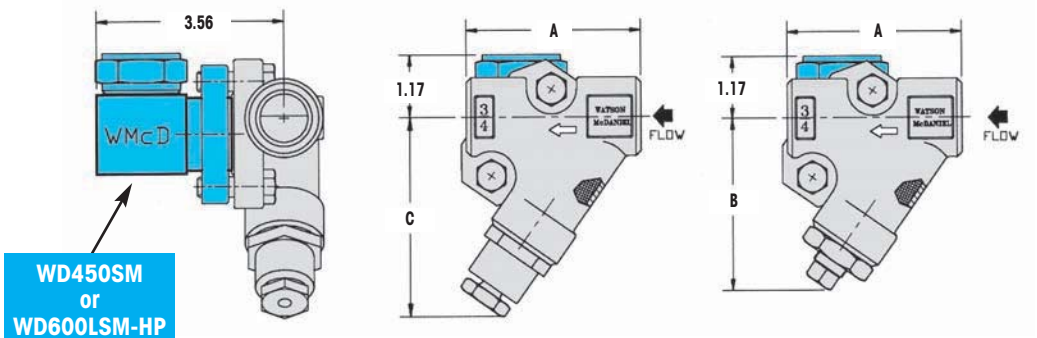


WU450S-LR
CONNECTOR
Strainer

WU450SB-LR
CONNECTOR
Strainer & Blowdown

DIMENSIONS – *inches*

Size	A	B	C
1/2"	3.31	3.25	3.78
3/4"	3.31	3.25	3.78
1"	3.62	3.44	3.95



WU450SB-RL
CONNECTOR
Strainer & Blowdown

WU450S-RL
CONNECTOR
Strainer

STEAM TRAPS

FDA400 Series

Thermostatic Clean Steam Trap (Repairable)

Model	**FDA401, FDA402, FDA403**
Sizes	**1/2", 3/4"**
Connections	**Tri-clamp**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**90 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**145 PSIG up to 338ºF**
TMA Max. Allowable Temperature	**350ºF @ 132 PSIG**

FDA402
shown

Sanitary Clamp for Trap Body

TYPICAL APPLICATIONS

DRIP, PROCESS: The **FDA400 Series** thermostatic steam traps are used on clean steam applications as drip traps on piping runs as well as drainage for CIP/SIP systems and various process vessels. The FDA400 Series allows for a 90˚ connection on either the inlet or outlet capable of 360˚ orientation.

HOW IT WORKS

The thermostatic trap contains a welded 316L stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present the trap is in the open discharge position. When steam reaches the trap the element expands closing the trap tightly.

FEATURES

- **Universal horizontal connection swivels to any angle**
- **All wetted parts are 316L stainless steel**
- **Electro-polish finish of 20-25 microinches RA on internal body**
- **Electro-polish finish of 25-32 microinches RA on external body**
- **Operates close to saturation curve to minimize condensate back-up**
- **Completely self-draining in the vertical downward flow orientation**

MATERIALS

Body	Stainless Steel, AISI 316L
Gasket	Teflon Coated Elastomer
Element Plate	Stainless Steel, AISI 316L
Thermal Element	Stainless Steel, AISI 316L
Clamp	Stainless Steel, AISI 304

CAPACITIES – *Condensate (lbs/hr)*

Orifice Size (inches)	Differential Pressure (PSI) 5	10	20	50	75	90
9/64	140	240	400	690	850	950
5/16	850	1200	1695	2690	3165	3400

Note: Capacities at 10˚F below saturation.

SAMPLE SPECIFICATION

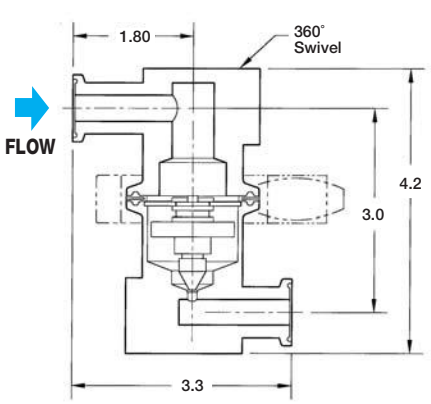
The Steam Trap shall be all 316L stainless steel thermostatic type with a balanced pressure bellows that operates close to saturated steam temperatures. Inlet, outlet or both connections must contain a 90˚ swivel arrangement capable of 360˚ orientation. Internal body parts shall have an electro-polish finish of 20-25 microinches RA internally and a 25-32 finish externally. The unit shall have a split-body sanitary clamp design for easy maintenance. Trap shall be completely self-draining when mounted vertically.

INSTALLATION & MAINTENANCE

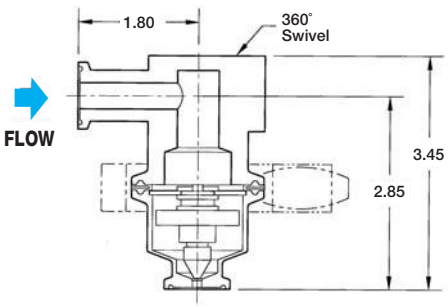
Trap is designed for installation in a vertical, downward flow orientation to ensure that the self-draining clean steam requirement is satisfied. For full maintenance details see Installation and Maintenance Manual.

FDA400 Series **Connections: 1/2" & 3/4"**

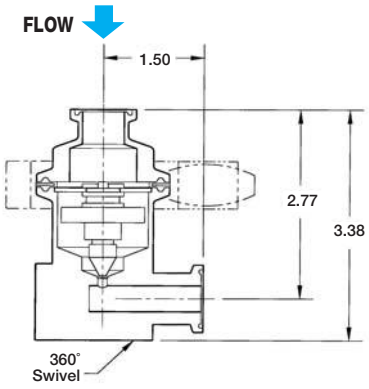
Units: inches



FDA401 Inlet: 90˚ Angle
Outlet: 90˚ Angle



FDA402 Inlet: 90˚ Angle
Outlet: Straight



FDA403 Inlet: Straight
Outlet: 90˚ Angle

STEAM TRAPS

FDA500

Thermostatic Clean Steam Trap (Repairable)

Model	**FDA500, FDA510**
Sizes	**1/2", 3/4", 1"**
Connections	**Tri-clamp, NPT, Tube Weld**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**90 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**145 PSIG up to 338°F**
TMA Max. Allowable Temperature	**350°F @ 132 PSIG**

Sanitary Clamp for Trap Body

TYPICAL APPLICATIONS

DRIP, PROCESS: The **FDA500 Series** thermostatic steam traps are used on clean steam applications as drip traps on piping runs as well as drainage for CIP/SIP systems and various process vessels.

HOW IT WORKS

The thermostatic trap contains a welded 316L stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present the trap is in the open discharge position. When steam reaches the trap the element expands closing the trap tightly.

FEATURES

- **All wetted parts are 316L stainless steel**
- **Electro-polish finish of 20-25 microinches RA on internal body**
- **Electro-polish finish of 25-32 microinches RA on external body**
- **Operates close to saturation curve to minimize condensate back-up**
- **Completely self-draining in the vertical downward flow orientation**

SAMPLE SPECIFICATION

The steam Trap shall be all 316L stainless steel thermostatic type with a balanced pressure bellows that operates close to saturated steam temperatures. Internal body parts shall have an electro-polish finish of 20-25 microinches RA internally and a 25-32 finish externally. The unit shall have a split-body sanitary clamp design for easy maintenance. Trap shall be completely self-draining when mounted vertically.

INSTALLATION

Trap is designed for installation in a vertical, downward flow orientation to ensure that the self-draining clean steam requirement is satisfied. Isolation valves should be installed for maintenance purposes. For welded installations, removal of the body gasket and thermal element is necessary.

MAINTENANCE

Dirt is the most common cause of premature failure. Therefore, the upstream strainer should be periodically inspected and cleaned. For full maintenance details see Installation and Maintenance Manual.

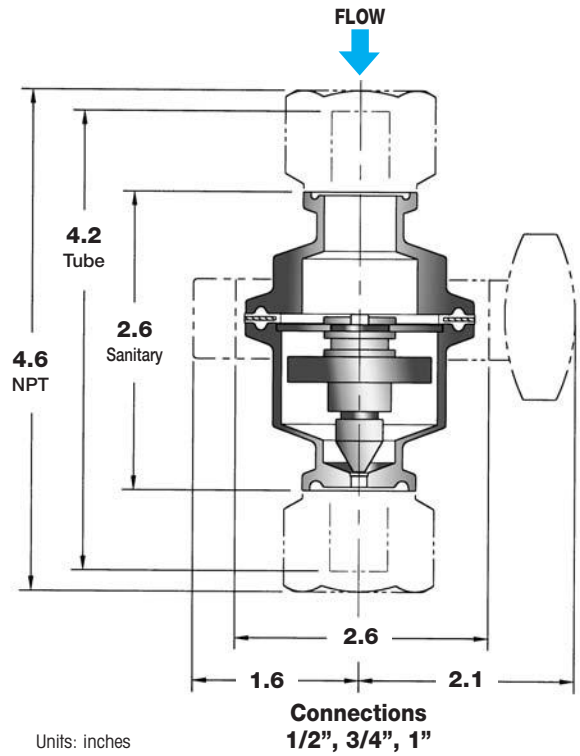
MATERIALS

Body	Stainless Steel, AISI 316L
Gasket	Teflon/Encapsulated Viton
Element Plate	Stainless Steel, AISI 316L
Thermal Element	Stainless Steel, AISI 316L
Clamp	Stainless Steel, AISI 304

CAPACITIES – *Condensate (lbs/hr)*

Model	Orifice (inches)	Differential Pressure (PSI) 5	10	20	50	75	90
FDA500	9/64	140	240	400	690	850	950
FDA510	5/16	850	1200	1695	2690	3165	3400

Note: Capacities at 10°F below saturation.



STEAM TRAPS

FDA600

Thermostatic Clean Steam Trap

Model	**FDA600**
Sizes	**1/2", 3/4", 1"**
Connections	**Tri-clamp, NPT, Tube Weld**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**110 PSIG**
TMO Max. Operating Temperature	**Saturated Steam Temperature**
PMA Max. Allowable Pressure	**145 PSIG up to 338°F**
TMA Max. Allowable Temperature	**350°F @ 132 PSIG**

TYPICAL APPLICATIONS

DRIP, PROCESS: The **FDA600** Steam Traps are used on clean steam applications as drip traps on piping runs as well as drainage for CIP/SIP systems and various process vessels.

HOW IT WORKS

The thermostatic trap contains a welded 316L stainless steel thermal element that expands when heated and contracts when cooled. When air and condensate are present the trap is in the open discharge position. When steam reaches the trap the element expands closing the trap tightly.

FEATURES

- **All wetted parts are 316L stainless steel**
- **Operates close to saturation curve to minimize condensate back-up**
- **Completely self-draining in the vertical downward flow orientation**

SAMPLE SPECIFICATION

The Steam Trap shall be all 316L stainless steel thermostatic type with a balanced pressure bellows that operates close to saturated steam temperatures. The unit shall have a split-body design for easy maintenance. Trap shall be completely self-draining when mounted vertically.

INSTALLATION

The trap is designed for installation in a vertical, downward flow orientation to ensure that the self-draining clean steam requirement is satisfied. Isolation valves should be installed for maintenance purposes. For welded installations, removal of the body gasket and thermal element is necessary.

MAINTENANCE

Dirt is the most common cause of premature failure. Therefore, the upstream strainer should be periodically cleaned. For full maintenance details see Installation and Maintenance Manual.

MATERIALS

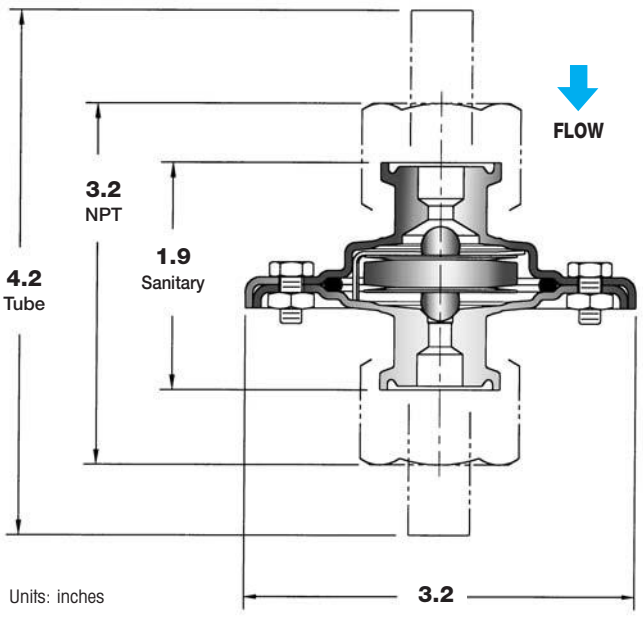
Body	Stainless Steel, AISI 316L
Thermal Element	Stainless Steel, AISI 316L
O-Ring, FDA Grade	Teflon Coated Silicone/FEP
Nuts & Bolts	Stainless Steel, AISI 316L

HOW TO SIZE/ORDER

Size/Model: **FDA600**, Specify pipe size and connections.

CAPACITIES – *Condensate (lbs/hr)*

Condensate Temp Below Saturation	Differential Pressure (PSI) 1	5	10	20	50	75	110
10 °F	32	105	175	290	615	805	1160
20 °F	42	115	225	440	1060	1500	1850
Cold Water	735	1070	1375	1900	3100	3500	4600



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STEAM TRAPS

FDA800

Thermodynamic Clean Steam Trap

Model	**FDA800**
Sizes	**1/2"**
Connections	**Tri-Clamp, NPT, Tube Weld**
Body Material	**Stainless Steel**
PMO Max. Operating Pressure	**150 PSIG**
TMO Max. Operating Temperature	**500°F**
PMA Max. Allowable Pressure	**230 PSIG @ 850°F**
TMA Max. Allowable Temperature	**850°F @ 230 PSIG**

NPT

Tri-Clamp

TYPICAL APPLICATIONS

DRIP, PROCESS: The **FDA800 Series** Thermodynamic Clean Steam Traps are used in sanitary systems as drip traps on steam mains as well as for drainage on various process vessels such as separators and filters.

HOW IT WORKS

The thermodynamic trap has a cyclic on/off operation with a disc that is pushed open when condensate is present and pulled closed when steam tries to escape.

FEATURES

- **Small and compact**
- **All 316L stainless steel components**
- **Works in any position (horizontal preferred)**

SAMPLE SPECIFICATION

The steam trap shall be a thermodynamic disc type with an all 316L stainless steel construction and integral seat design. Unit shall be capable of installation in any orientation and self-draining when mounted vertically.

INSTALLATION

The trap can be installed in any position; however, horizontal is preferred. For self-draining or freezeproof requirements, the trap may be installed vertically. Installation should include a strainer and isolation valves for maintenance purposes.

MAINTENANCE

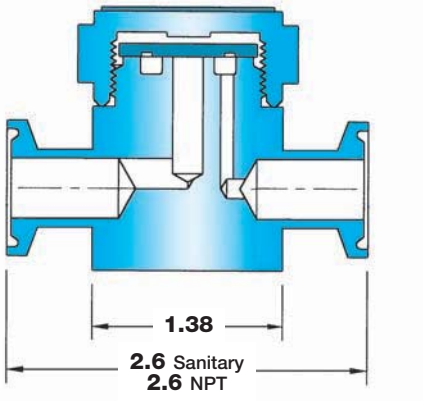
Dirt is the most common cause of premature failure. Therefore, the upstream strainer should be periodically cleaned. For full maintenance details see Installation and Maintenance Manual.

MATERIALS

Body	Stainless Steel, AISI 316L
Disc	Stainless Steel, AISI 316L
Cap	Stainless Steel, AISI 316L

HOW TO SIZE/ORDER

Size/Model: 1/2" **FDA800**, Specify connections.



Units: Inches

CAPACITIES – *Condensate (lbs/hr)*

Size	Differential Pressure (PSI)											
	3.5	5	10	15	20	25	30	40	50	75	100	150
1/2"	180	185	190	195	200	215	220	230	250	310	375	500

Note: *Maximum back pressure not to exceed 80% of inlet pressure.*

STEAM TRAPS

WPN Series

Bi-Metallic Steam Traps

Model	WPN-40						WPN-63						
Sizes	1/2", 3/4", 1", 1 1/2", 2"						1/2", 3/4", 1"				1 1/2", 2"		
Connections	NPT, FLG, SW, Butt-weld						FLG, SW, Butt-weld				FLG, SW, Butt-weld		
Body & Cover Material	C22.8			SA105			SA182 F12				SA182 F12		
PMO Max Operating Pressure (PSIG)	470	325	220	520	470	420	825	690	660	590	825	735	660
TMO Max Operating Temperature (°F)	482	725	842	572	635	842	572	662	842	932	572	662	842
Max Press. Drop for Press. Controller (PSI)	470	325	190	470	325	190	680				825	470	470
Pressure Controller	R32	R22	R13	R32	R22	R13	R46				R56	R32	R32

Model	WPN-100			WPN-160				WPN-250			
Sizes	1/2", 3/4", 1"			1/2", 3/4", 1"				1/2", 3/4", 1"			
Connections	FLG, SW, Butt-weld			FLG, SW, Butt-weld				FLG, SW, Butt-weld			
Body & Cover Material	SA182 F12			SA182 F22				SA182 F22			
PMO Max. Operating Pressure (PSIG)	1325	825	400	2250	1470	910	515	2700	2260	1580	1190
TMO Max. Operating Temperature (°F)	842	923	986	932	950	986	1022	932	950	986	1022
Max Press. Drop for Press. Controller (PSI)	1325	1325/880	880	1620				2260			
Pressure Controller	R90	R90/R60	R60	R130				R154			

TYPICAL APPLICATIONS

DRIP, TRACER, PROCESS: The **WPN Series** of Bi-Metallic Steam Traps are use in steam tracing, steam main drips and non-critical process equipment. They can be used in outdoor applications that are subject to freezing. Bi-Metallic traps will back up some condensate into the system and should only be used when this condition is permissible.

HOW IT WORKS

When the system is cold the trap is wide open discharging air and cold condensate. When the bimetallic plates inside the trap heat up, they pull the seat closed and the flow becomes restricted. When steam temperature is reached the trap shuts off tightly.

FEATURES

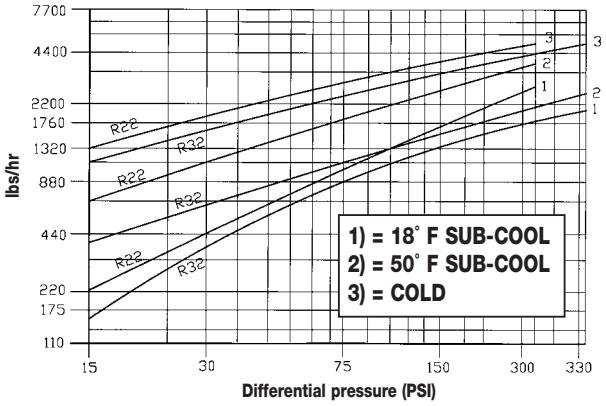
- **Excellent for high pressure and superheated steam applications**
- **Freezeproof and resistant to water hammer**
- **Suitable for superheated steam with check valve installed at inlet**
- **In-line repairable**
- **Trap can be welded into line**

SAMPLE SPECIFICATION

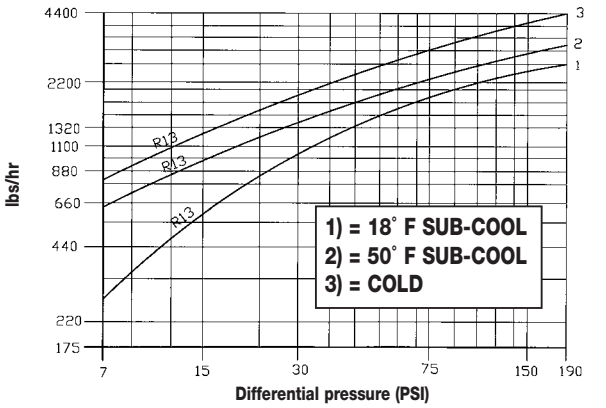
Steam trap shall be Watson McDaniel WPN Series Bi-Metallic Steam Trap. Trap must be capable of being completely serviced while still in line.

INSTALLATION

The trap can be installed in a vertical or horizontal plane. See Installation and Maintenance Manual.



WPN-40 1/2", 3/4", 1" – R22 & R32 Controller



WPN-40 1/2", 3/4", 1" – R13 Controller

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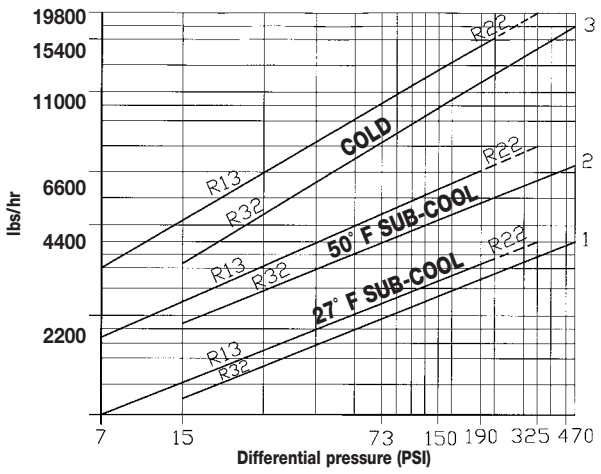
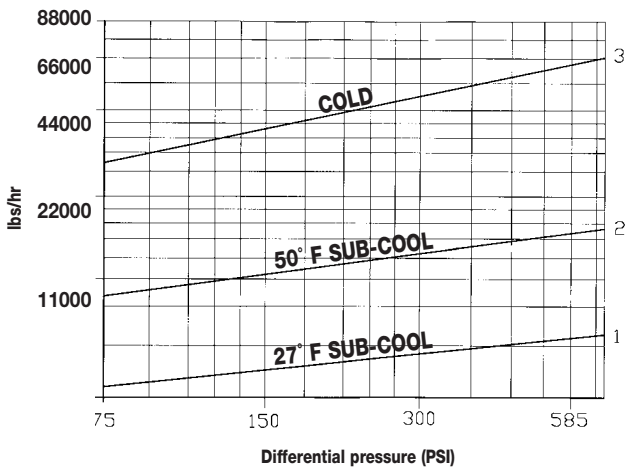
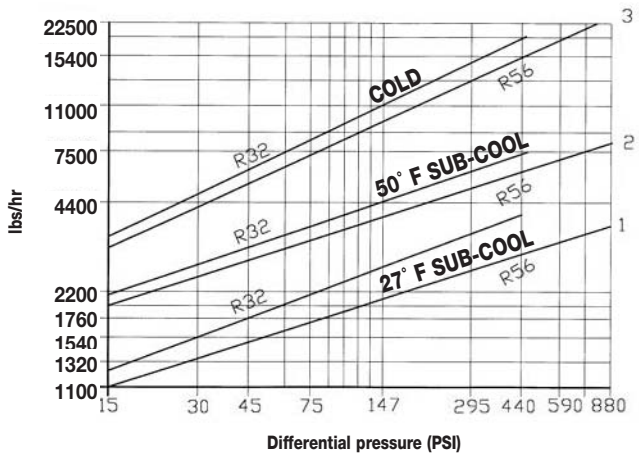
STEAM TRAPS
WPN Series
Bi-Metallic Steam Traps



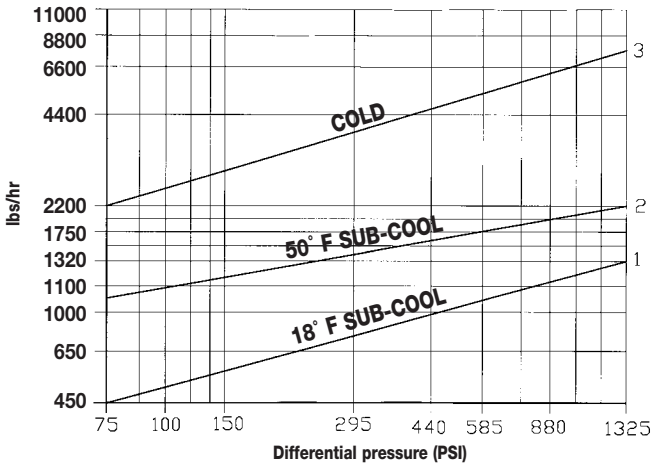
WPN-40 1 1/2", 2" R13, R22 & R32 Controller



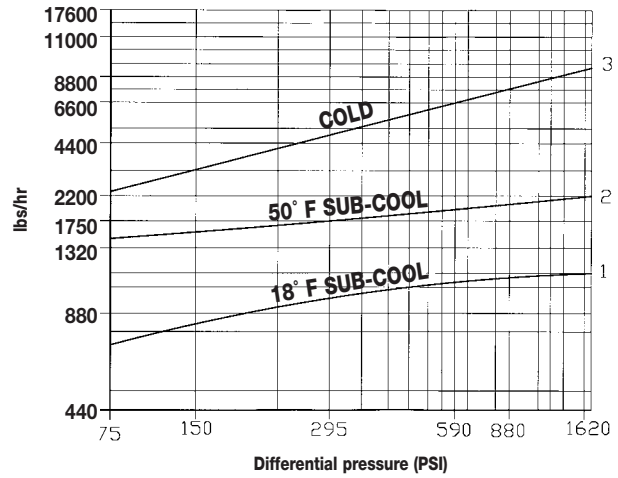
WPN-63 1/2", 3/4", 1"



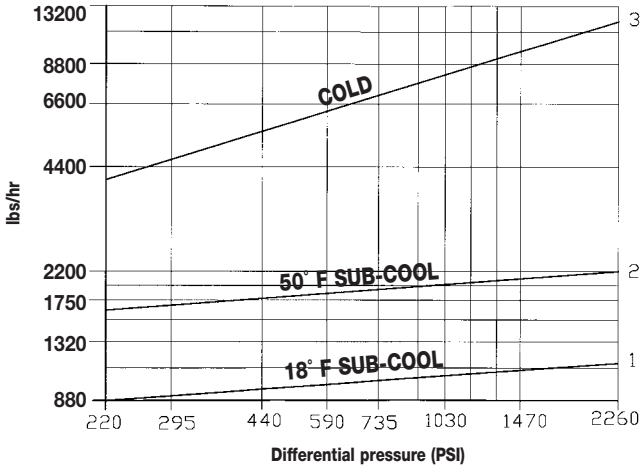
WPN-63 – 1 1/2", 2"



WPN-100 – 1/2", 3/4", 1"



WPN-160 1/2", 3/4", 1"

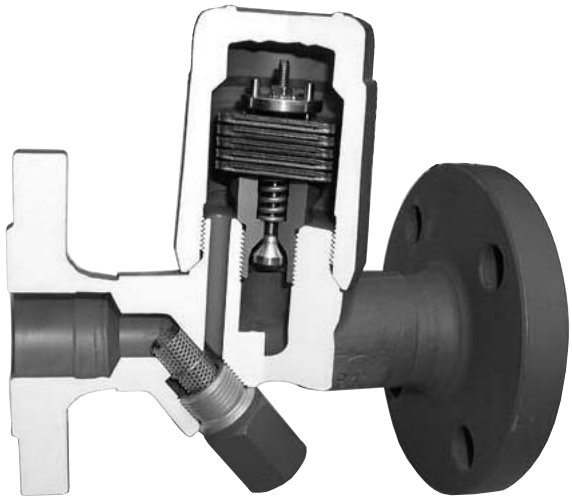


WPN-250 – 1/2", 3/4", 1"

STEAM TRAPS

WPN Series

Bi-Metallic Steam Traps



DIMENSIONS & WEIGHTS – *inches/pounds*

Model	Size	Connection	L	H	H1	H2	H3	Weight (lbs)
WPN-40	1/2", 3/4"	FLG #150/300	6.0	3.92	2.48	.96	2.8	7.7
	1"	FLG #150/300	8.4	3.92	2.48	.96	2.8	9.2
	1 1/2", 2"	FLG #150/300	9.2	5.76	-	-	3.6	25.0
	1/2", 3/4"	NPT, SW	3.92	3.92	2.48	.96	2.8	3.7
	1"	NPT, SW	4.12	4.12	2.20	.52	2.8	4.6
	1 1/2"	NPT, SW	5.2	5.76	-	-	3.6	17.6
	2"	NPT, SW	8.4	5.76	-	-	3.6	17.6
	1/2", 3/4", 1"	Butt-weld	10.0	3.92	2.48	.96	2.8	5.0
	1 1/2", 2"	Butt-weld	10.0	5.76	-	-	3.6	21.0
WPN-63	1/2", 3/4", 1"	FLG #600	8.4	4.16	1.68	-	2.8	17.6
	1 1/2"	FLG #600	10.4	5.76	-	-	3.6	29
	2"	FLG #600	12.0	5.76	-	-	3.6	30.8
	1/2", 3/4", 1"	SW	6.4	4.16	1.68	-	2.8	10.0
	1 1/2"	SW	5.2	5.76	-	-	3.6	17.6
	2"	SW	8.4	5.76	-	-	3.6	17.6
	1/2", 3/4", 1"	Butt-weld	6.4	4.16	1.68	-	2.8	10.0
	1 1/2", 2"	Butt-weld	10.0	5.76	-	-	3.6	21
WPN-100	1/2", 3/4"	FLG #600	8.4	4.16	1.68	-	2.8	14.0
	1"	FLG #600	9.2	4.16	1.68	-	2.8	20.5
	1/2", 3/4", 1"	SW	6.4	4.16	1.68	-	2.8	10.0
	1/2", 3/4", 1"	Butt-weld	6.4	4.16	1.68	-	2.8	10.0
WPN-160 * WPN-250 *	1/2", 3/4"	FLG #900/1500	8.4	4.16	1.68	-	2.8	14.0
	1"	FLG #900/1500	9.2	4.16	1.68	-	2.8	21.0
	1/2", 3/4", 1"	SW	6.4	4.16	1.68	-	2.8	10.3
	1/2", 3/4", 1"	Butt-weld	6.4	4.16	1.68	-	2.8	10.3

* WPN-160 FLG is 900#; WPN-250 FLG is 1500#.

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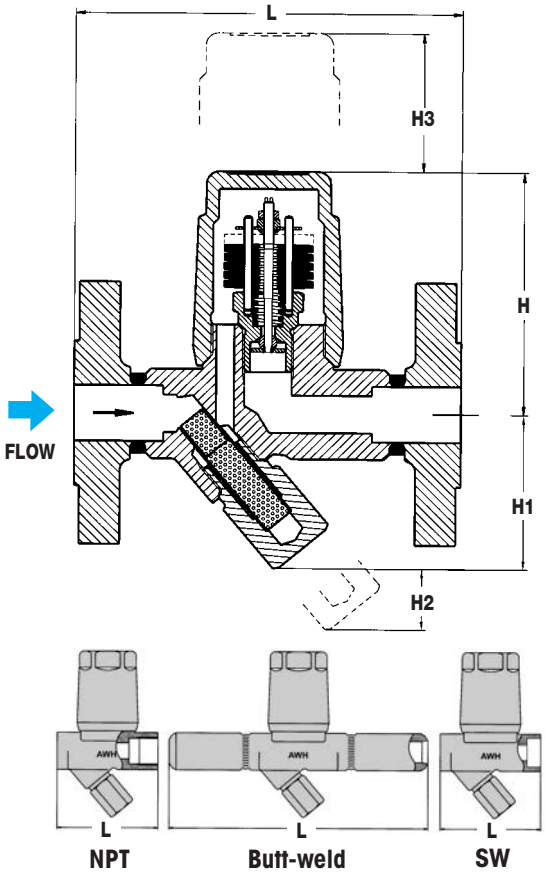
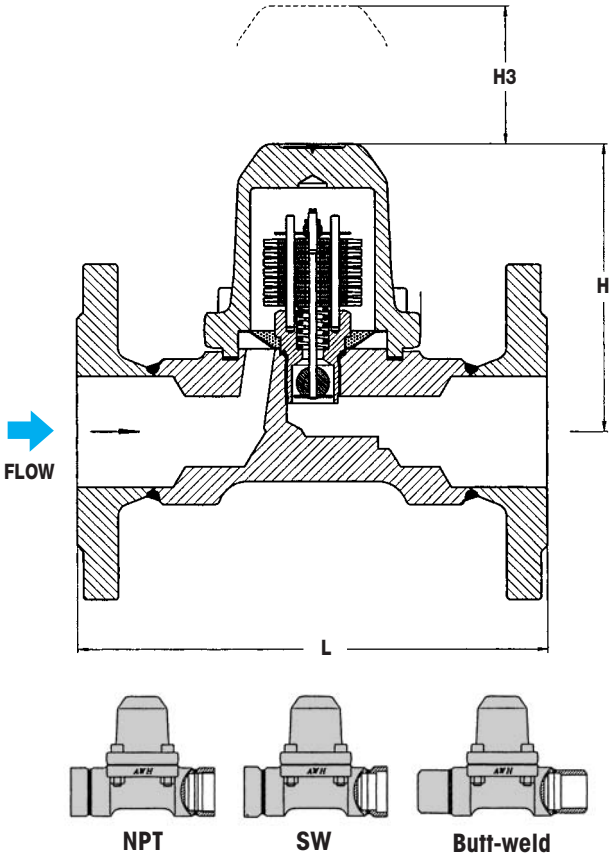
STEAM TRAPS
WPN Series
Bi-Metallic Steam Traps

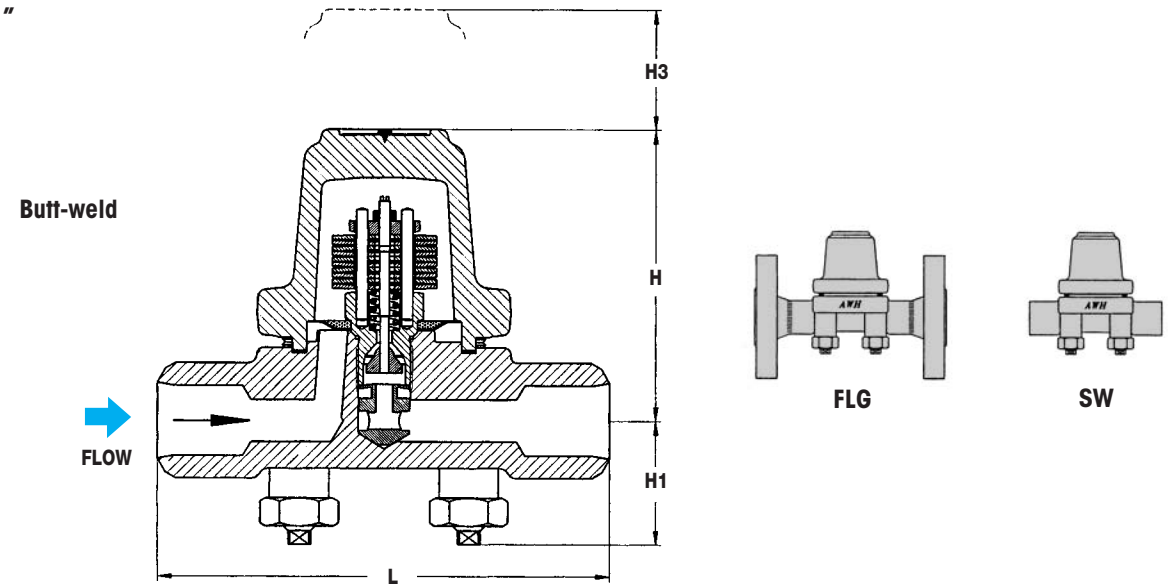
WPN-40
1/2", 3/4", 1"



WPN-40/63
1 1/2", 2"



WPN-63/100/160/250
1/2", 3/4", 1"



STEAM TRAPS

FM/FSM Series

Manifolds

Model	FM	FSM
Sizes	1/2", 3/4"	1/2", 3/4"
Connections	NPT, SW	NPT, SW
Body Material	Fabricated Carbon Steel	Forged Steel
PMO Max. Operating Pressure	720 PSIG	600 PSIG
Pressure/Temperature Rating	720 PSIG @ 508°F	600 PSIG @ 500°F

FM Manifold (Carbon Steel)

FSM Manifold (Forged Steel)

TYPICAL APPLICATION

The **FM / FSM Manifolds** are used for steam distribution to the tracing system and for condensate collection. Typically used in chemical plants, petrochemical plants, textile industries, rubber plants and general industry. Manifolding your distribution and condensate collection system not only cuts down on installation and maintenance time, but also provides freeze protection.

DESCRIPTION FM

The **FM Manifold** is equipped with threaded or socket welded mount holes for ease of installation. Condensate collection manifolds are provided with a built-in siphon tube to minimize bi-phase flow, which reduces water hammer, and allows flash steam space to prevent isolation station freeze damage.

DESCRIPTION FSM

The **FSM Manifold** has a sealing system that utilizes an austenitic stainless steel piston that slides into two rings, one upper made of reinforced graphite, and one lower made of graphite interposed with thin stainless steel plates. The sealing surface is the surface of the piston. By tightening the bonnet nuts that are on the spring washers, a constant load on the upper ring is obtained, securing a tight seal to atmosphere. The same load, through the upper ring and the lantern, is applied to the lower ring that by expanding toward the body wall and toward the surface of the piston when the valve is in the closed position, ensures a perfect seal of the valve against the flow of the fluid.

FEATURES

- **Compact design saves valuable plant space**
- **Available in 4, 6, 8 & 12 branch designs**
- **Available with preassembled steam trap stations**
- **Standard designs or custom built manifolds available**
- **Provides freeze protection**
- **Reduces installation and maintenance time**
- **On FSM Model valve bonnets are long neck type to allow for installation of insulation, keeping surface temperatures low for protection of personnel**

MATERIALS – FM

Body	Carbon Steel

MATERIALS – FSM

Body	Forged Steel, A105
Hand Wheel	Sheet Metal
Bonnet	Forged Steel, A105
Valve ring above	Graphite
Valve ring below	Graphite/Stainless Steel
Piston	Stainless Steel, A304

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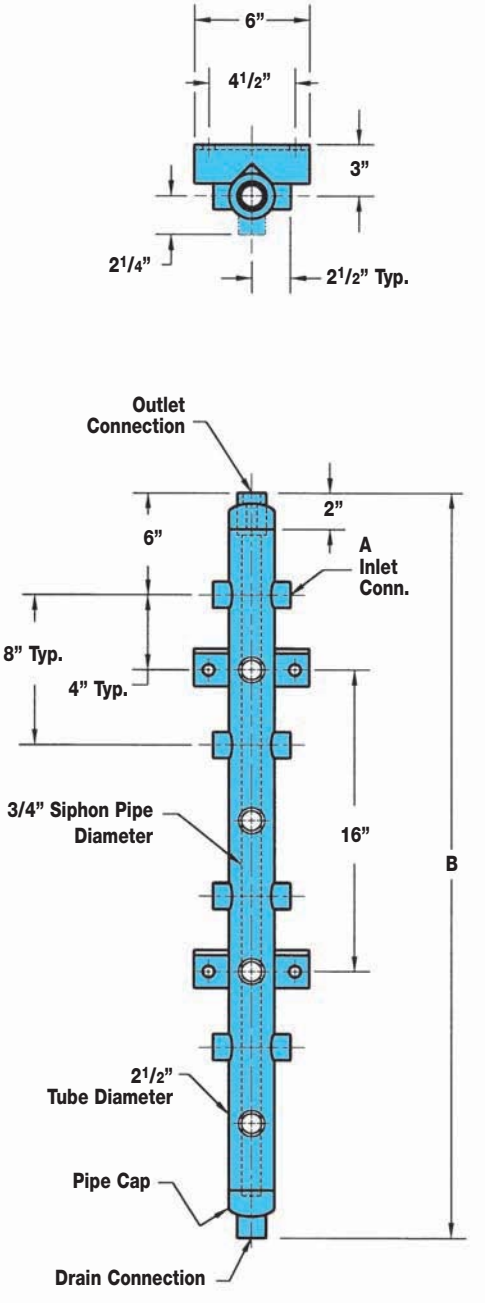
FM Series

Carbon Steel Manifolds

DIMENSIONS & WEIGHTS – *inches / pounds*

FM Series Description	Condensate Inlet Connection Cl. 3000 Per ANSI B16.11					B Length	Weight (lbs)
	A		# Conn. on Side	# Conn. on Front	Conn. Total		
	Size	Type					
Vertical Coll. Manifold w/ 4 Side Conn. 1/2" NPT Carbon Steel	1/2"	NPT	4	0	4	24	25
Vertical Coll. Manifold w/ 4 Side Conn. 1/2" SW Carbon Steel	1/2"	SW	4	0	4	24	25
Vertical Coll. Manifold w/ 4 Side Conn. 3/4" NPT Carbon Steel	3/4"	NPT	4	0	4	24	27
Vertical Coll. Manifold w/ 4 Side Conn. 3/4" SW Carbon Steel	3/4"	SW	4	0	4	24	27
Vertical Coll. Manifold w/ 4 Side & 2 Front Conn. 1/2" NPT Carbon Steel	1/2"	NPT	4	2	6	24	27
Vertical Coll. Manifold w/ 4 Side & 2 Front Conn. 1/2" SW Carbon Steel	1/2"	SW	4	2	6	24	27
Vertical Coll. Manifold w/ 4 Side & 2 Front Conn. 3/4" NPT Carbon Steel	3/4"	NPT	4	2	6	24	29
Vertical Coll. Manifold w/ 4 Side & 2 Front Conn. 3/4" SW Carbon Steel	3/4"	SW	4	2	6	24	29
Vertical Coll. Manifold w/ 8 Side Conn. 1/2" NPT Carbon Steel	1/2"	NPT	8	0	8	40	40
Vertical Coll. Manifold w/ 8 Side Conn. 1/2" SW Carbon Steel	1/2"	SW	8	0	8	40	40
Vertical Coll. Manifold w/ 8 Side Conn. 3/4" NPT Carbon Steel	3/4"	NPT	8	0	8	40	42
Vertical Coll. Manifold w/ 8 Side Conn. 3/4" SW Carbon Steel	3/4"	SW	8	0	8	40	42
Vertical Coll. Manifold w/ 8 Side & 4 Front Conn. 1/2" NPT Carbon Steel	1/2"	NPT	8	4	12	40	46
Vertical Coll. Manifold w/ 8 Side & 4 Front Conn. 1/2" SW Carbon Steel	1/2"	SW	8	4	12	40	46
Vertical Coll. Manifold w/ 8 Side & 4 Front Conn. 3/4" NPT Carbon Steel	3/4"	NPT	8	4	12	40	48
Vertical Coll. Manifold w/ 8 Side & 4 Front Conn. 3/4" SW Carbon Steel	3/4"	SW	8	4	12	40	48
Vertical Coll. Manifold w/ 12 Side Conn. 1/2" NPT Carbon Steel	1/2"	NPT	12	0	12	56	56
Vertical Coll. Manifold w/ 12 Side Conn. 1/2" SW Carbon Steel	1/2"	SW	12	0	12	56	56
Vertical Coll. Manifold w/ 12 Side Conn. 3/4" NPT Carbon Steel	3/4"	NPT	12	0	12	56	58
Vertical Coll. Manifold w/ 12 Side Conn. 3/4" SW Carbon Steel	3/4"	SW	12	0	12	56	58



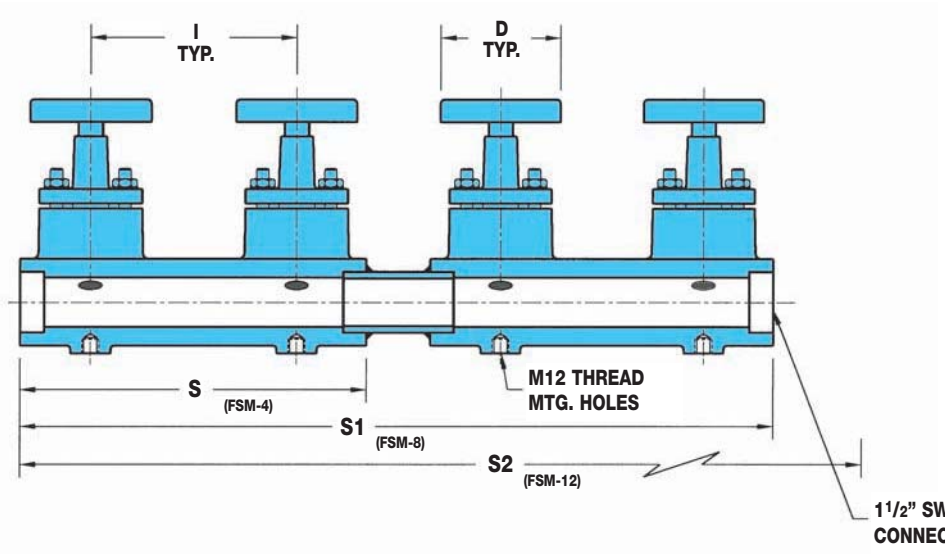
STEAM TRAPS

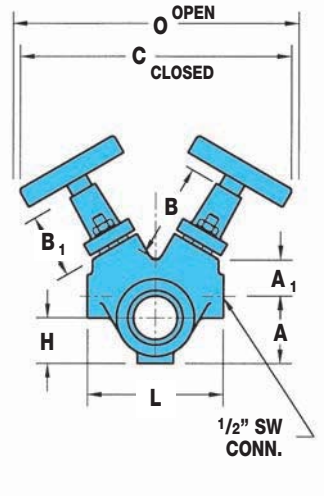
FSM Series

Forged Steel Manifolds

DIMENSIONS & WEIGHTS – *inches/pounds*

Model	L	H	D	C	O	I	S	S1	S2	A	A1	B	B1	No. of Valves	No. of Holes	Weight (lbs)
FSM-4	4.33"	1.61"	3.94"	8.97"	10.63"	6.30"	13.03"	-	-	2.79"	1.22"	3.23"	2.79"	4	2 (M12)	23
FSM-8	4.33"	1.61"	3.94"	8.97"	10.63"	6.30"	-	28.1"	-	2.79"	1.22"	3.23"	2.79"	8	4 (M12)	49
FSM-12	4.33"	1.61"	3.94"	8.97"	10.63"	6.30"	-	-	36.22"	2.79"	1.22"	3.23"	2.79"	12	6 (M12)	72





CAPACITIES

Pressure (PSIG)	Condensate (lbs/hr) [1]	Steam (lbs/hr) [2]
25	1850	160
50	1000	310
75	840	460
100	610	730
125	660	760
150	620	900
200	570	1200
250	535	1500
300	510	1800
400	470	2350
500	460	3000
600	440	3550

[1] *Saturated condensate discharging into 20 PSI back pressure*

[2] *Saturated Steam flow @ 5000 ft/min velocity*

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