

UNIVERSAL STEAM TRAPS

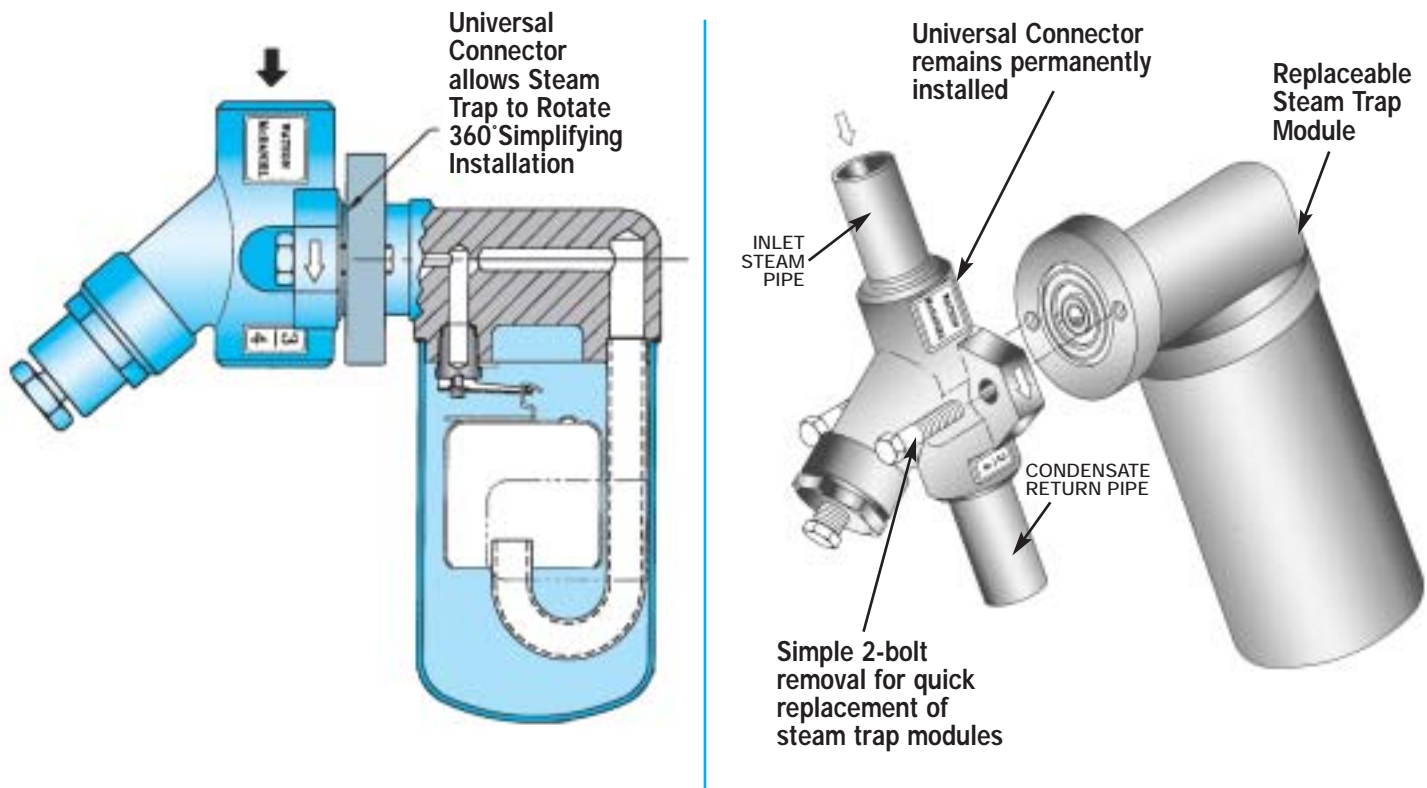
Universal Connectors

for Steam Trap Modules

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Revised 9/2004

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 disconnect any 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. The **Universal Connector System** is 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 Connector System in any application*, but especially those which require frequent maintenance or replacement of steam traps.

**within the capacity and pressure/temperature range of the universal connector system.*

- 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 swivel 360° on the universal connector allowing any orientation during installation
- Compatible with most other manufacturer's trap modules
- Available with integral strainer and blowdown valve

UNIVERSAL STEAM TRAPS

WU450 Series

Universal Connectors for Steam Trap Modules

Revised 9/2004

Model	WU450, WU450S, WU450SB
Sizes	1/2", 3/4", 1"
Connections	NPT, SW
Body Material	Stainless Steel
PMO Max. Operating Pressure	(trap module dependent)
TMO Max. Operating Temperature	(trap module dependent)
PMA Max. Allowable Pressure	720 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 and Thermostatic.

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
- WT450 - Thermostatic
- WFT450 - Float & Thermostatic

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

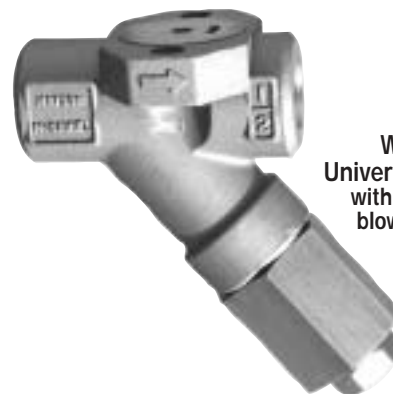
The Universal Connector shall be all stainless steel construction with a two-bolt 360 degree swivel mount flange design and available with integral strainer and blowdown valve.



WU450
Universal Connector



WU450S
Universal Connector
with strainer



WU450SB
Universal Connector
with 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

* Strainer available on WU450S and WU450SB models only.

**Blowdown Valve available on WU450SB model only.

HOW TO ORDER

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

UNIVERSAL STEAM TRAPS

WFT450

Float & Thermostatic Module
(mounts to WU450 Universal Connector)

Revised 9/2004

Model	WFT450
Connections	Fits WU450 universal connector
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



WFT450
Float & Thermostatic
Steam Trap Module

Steam trap modules **must be used** with the WU450 Universal Connectors which are shown on previous pages.

TYPICAL APPLICATIONS

PROCESS, DRIP: The WFT450 Float & Thermostatic trap module mounted on 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 module mounts to the WU450 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 module 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

Universal connectors can be installed in any position. Installation should include isolation valves. For full maintenance details, see Installation and Maintenance Manual.

OPTIONS

Universal Connector are available with an integral strainer and blowdown valve. Connector is purchased separately. See the WU450 Universal Connector 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)		Differential Pressure (PSI)																		
Model	PMO PSIG	1/4	1/2	1	2	5	10	15	20	30	40	50	65	75	100	125	145	200	225	
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 STEAM TRAPS

WD450

Thermodynamic Module (mounts to WU450 Universal Connector)

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Model	WD450
Connections	Fits WU450 universal connector
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	800°F @ 400 PSIG

Steam trap modules **must be used** with the WU450 Universal Connectors which are shown on previous pages.

TYPICAL APPLICATIONS

DRIP, TRACER: The WD450 steam trap module mounted on 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 module mounts to the WU450 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.

FEATURES

- Trap module can be easily removed and replaced in minutes without having to disconnect any piping
- Trap modules can be used with most manufacturer's 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.



**WD450
Thermodynamic
Steam Trap
Module**

INSTALLATION

Isolation valves should be installed before and after the universal connector to facilitate maintenance. The universal connector can be installed in any orientation. Trap module is attached to the connector using two bolts and a sealing gasket.

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 Connector are available with an integral strainer and blowdown valve. Connector is purchased separately. See the WU450 Universal Connector 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	140	215	242	270	295	320	355	390	455	510	600	670	730	790	840	880	925
WD450	247	370	420	475	520	560	625	685	800	900	1060	1185	1300	1400	1485	1560	1630

UNIVERSAL STEAM TRAPS

WT450

Thermostatic Module (mounts to WU450 Universal Connector)

Revised 9/2004

Model	WT450
Connections	Fits WU450 universal connector
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 must be used with the WU450 Universal Connectors which are shown on previous pages.

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 module mounts to the WU450 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.

FEATURES

- Trap module can be easily removed and replaced in minutes without having to disconnect any piping
- Trap modules can be used with most manufacturer's 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.



WT450
Thermostatic
Steam Trap
Module

INSTALLATION

Isolation valves should be installed before and after the universal connector to facilitate maintenance. The universal connector can be installed in any orientation. Trap module is attached to the connector using two bolts and a sealing gasket.

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 Connector are available with an integral strainer and blowdown valve. Connector is purchased separately. See the WU450 Universal Connector 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

UNIVERSAL STEAM TRAPS

450 Series

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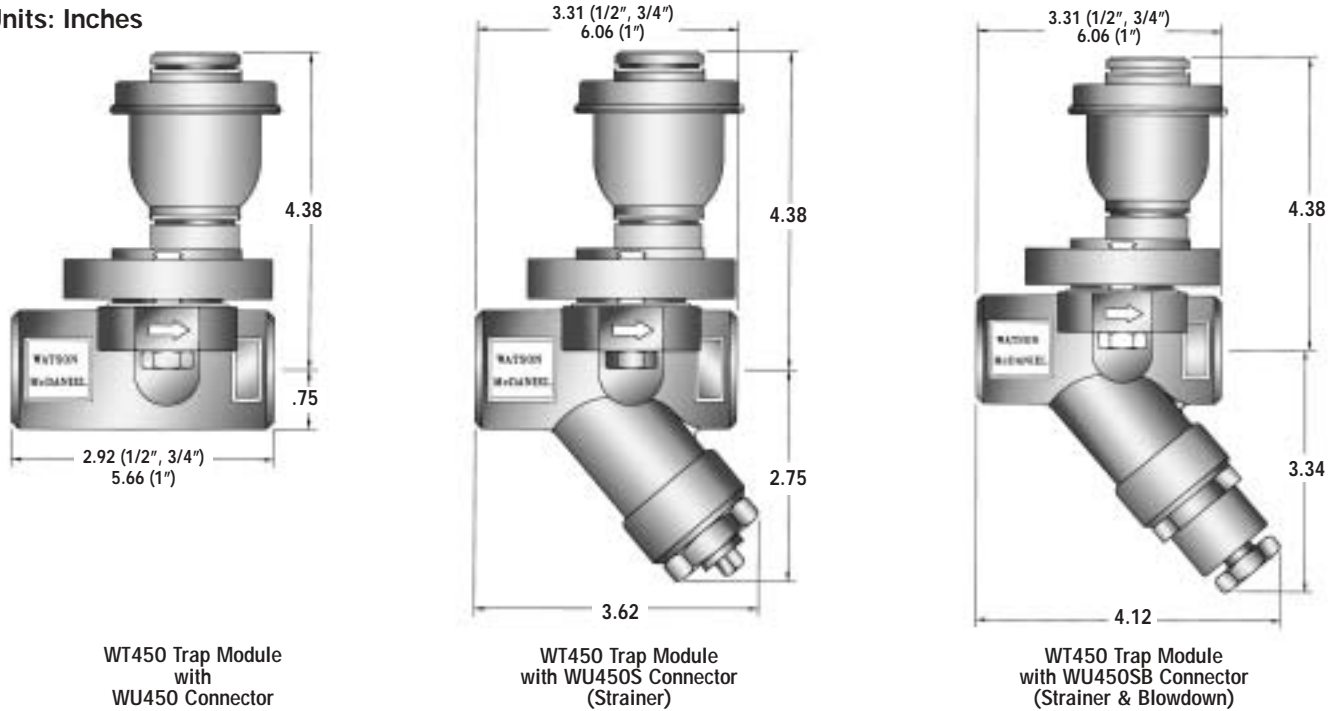
Dimensions - WD450 & WT450 with Universal Connectors

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WT450 Trap Module with Universal Connectors

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

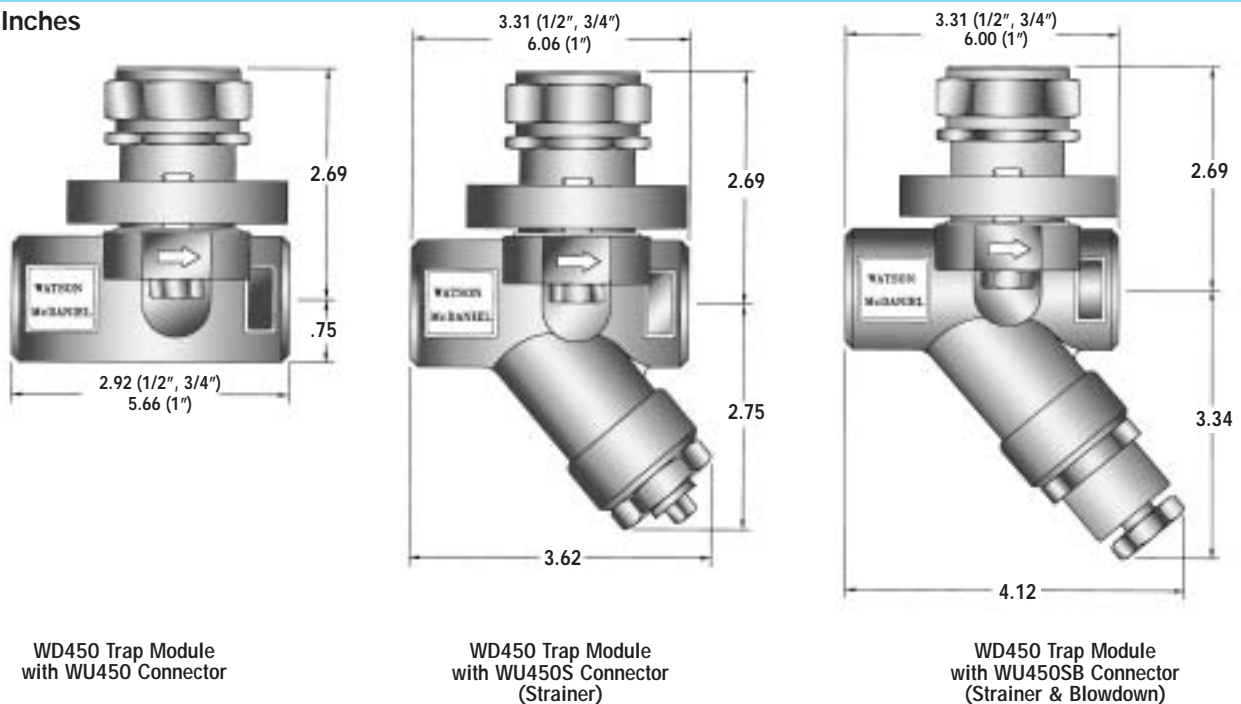
Units: Inches



WD450 Trap Module with Universal Connectors

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

Units: Inches



450 Series

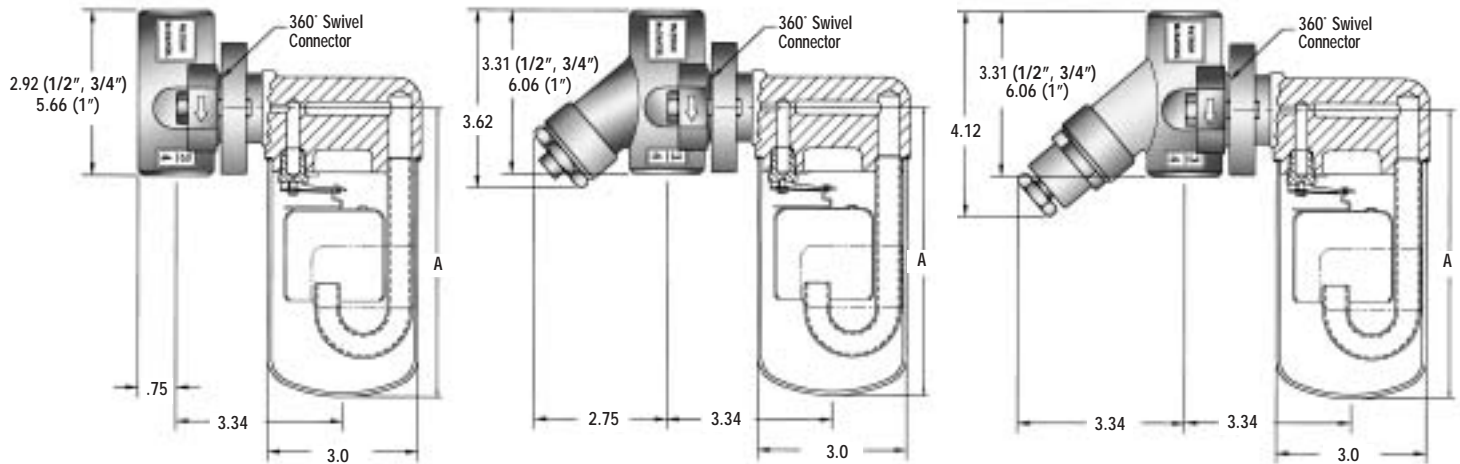
Dimensions - WSIB450 & WFT450 with Universal Connectors

Revised 9/2004

WSIB450 Trap Module with Universal Connectors

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

Unit: Inches



WSIB450 A-Dimension 5-7/8"
WSIB450H A-Dimension 6-9/16"

WSIB450 Trap Module
with
WU450 Connector

WSIB450 A-Dimension 5-7/8"
WSIB450H A-Dimension 6-9/16"

WSIB450 Trap Module
with
WU450S Connector (Strainer)

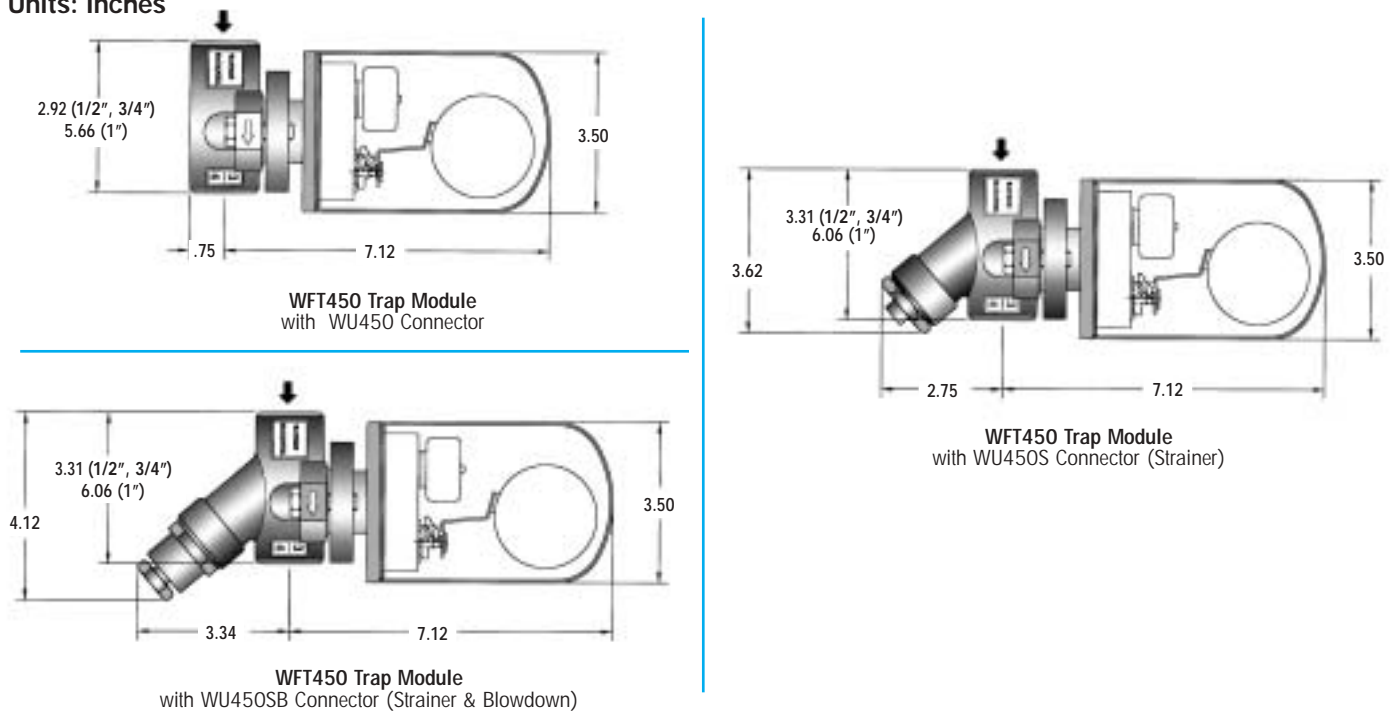
WSIB450 A-Dimension 5-7/8"
WSIB450H A-Dimension 6-9/16"

WSIB450 Trap Module
with
WU450SB Connector (Strainer & Blowdown)

WFT450 Trap Module with Universal Connectors

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

Units: Inches



WFT450 Trap Module
with WU450 Connector

WFT450 Trap Module
with WU450S Connector (Strainer)

WFT450 Trap Module
with WU450SB Connector (Strainer & Blowdown)