

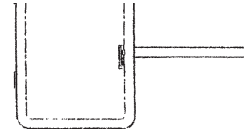


Liquid Division

Mounting Solutions

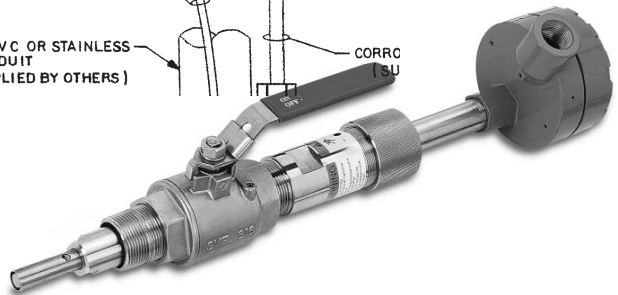
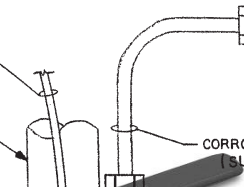


TIMER
(1054A pH, 1054B pH,
54pH/ORP, or
SUPPLIED BY OTHERS)



SENSOR CABLE

1" PVC OR STAINLESS
CONDUIT
(SUPPLIED BY OTHERS)



INTRODUCTION:

Rosemount Analytical, Inc, Liquid Division is pleased to offer a variety of sensor mounting options to fit many demanding process needs. Mounting tees, ball valve kits, advanced automated assemblies, and other configurations used for mounting conductivity, pH, and amperometric (dissolved oxygen, chlorine, and ozone) sensors are listed on the following pages. Please note that each mounting accessory is only valid for the stated sensors. Sensors must be purchased separately.

The mounting accessories found in this brochure can be used in a wide variety of applications commonly found in the following industries:



Pulp and Paper



Chemical



Metals and Mining



Food and Beverage



Hydrocarbon Processing



Water Treatment



Textile



Utilities













Pharmaceutical

The symbol for each industry is noted on each page if it is a mounting solution commonly used in the industry. Also, for some accessories, specific examples of the applications are noted.

The following mounting accessories are helpful for mounting sensors in ponds, pipes, and tanks and for tapping into lines. Some mounting assemblies are designed to be used with only conductivity, amperometric, or pH sensors.

MOUNTING SOLUTIONS INDEX

MOUNTING ACCESSORY	INDUSTRIES TYPICALLY FOUND IN	USED FOR:	PAGE
In-Line Tees		Direct in-line insertion of sensor	4
Low Flow Cell		1/4 inch connection to existing piping, or needing minimal flow for measurement	6
Quik-Loc Assembly		Quick access to sensor without cable twisting	8
Handrail Mounting Assembly		Insertion into ponds and tanks	10
Jet Spray Cleaner		Sensor cleaning in ponds and tanks	12
Mounting Adapters		Adapting sensors into existing pipelines	14
Ball Valve Kits		Processes that cannot be shut down for service or where long insertion length is needed for sensor to fit into large diameter pipes	16
Process Connectors		Adapting sensors into existing pipelines	20
Valve Insertion Assemblies		High pressure processes	26
Rotary Retraction Valve - PASVE		Processes that cannot be shut down for servicing sensor	28
Choosing the right mounting solution			36
Sensor to Mounting Accessory Capability Chart			38
Compatible Sensors			39

IN-LINE TEES

COMMON INDUSTRIES:



Metals & Mining Food & Beverage Hydrocarbon Processing Municipal Textile Utilities Pharmaceutical

- Used with conductivity, dissolved oxygen, chlorine, ozone, and pH sensors
- Installed directly into pipelines and slip streams in the process plant
- Compatible with various sizes of process lines.
- Adapters (offered on most tees) allow easy removal of sensors without twisting cables.
- Used in a wide variety of applications including (but not limited to):
 - * Wastewater and sour gas scrubbers lines in the Hydrocarbon Processing Industry
 - * Sanitation water lines containing ozone, chlorine, or bromine in the Pharmaceutical or Food & Beverage Industries
 - * Cooling water sample manifolds found in many industries

	IN-LINE TEE PART NUMBER				
	2002011	23567-00	915240-03	915240-04	915240-05
Tee Size	1.5 in.	1.5 in.	2.0 in.	2.0 in.	2.0 in.
Adapter Thread Size	—	1.0 in.	1.0 in.	1.0 in.	1.0 in.
Process Connection Ends	1.0 in. threads	1.5 in. socket	3/4 in. threads	1.0 in. threads	1.5 in. threads
Tee Material	CPVC, Schedule 80	CPVC, Schedule 80	PVC, Schedule 80	PVC, Schedule 80	PVC, Schedule 80
O-Ring/Gasket Material	—	Buna N	Buna N	Buna N	Buna N
Maximum Rating	150 psig (1136 kPa) @ 150°F (65°C)	65 psig (549 kPa) @ 122°F (50°C)	60 psig (514 kPa) @ 120°F (49°C)	60 psig (514 kPa) @ 120°F (49°C)	60 psig (514 kPa) @ 120°F (49°C)
Compatible pH Sensor Models	396*, 396P, 389, 399, 385+*	396*, 396P, 389, 399, 385+*	396P, 389, 399	396P, 389, 399	396P, 389, 399
Compatible Amperometric Sensor Models	499ADO, 499ACL 499AOZ	499ADO, 499ACL 499AOZ	499ADO, 499ACL 499AOZ	499ADO, 499ACL 499AOZ	499ADO, 499ACL 499AOZ
Compatible Conductivity	150 Sensor Models	—	—	—	—
See Figure	1	3	2	2	2

* Sensor must use a process connector; see page 20 for connector part numbers.

INSTALLATION NOTES:

1. Sensing tip of sensor should be wetted at all times with process liquid.
2. Allow at least 3.5 in. (90 mm) head room for sensor removal.
3. To ensure proper sensor performance, sensor must be mounted at least 10 degrees above the horizontal.

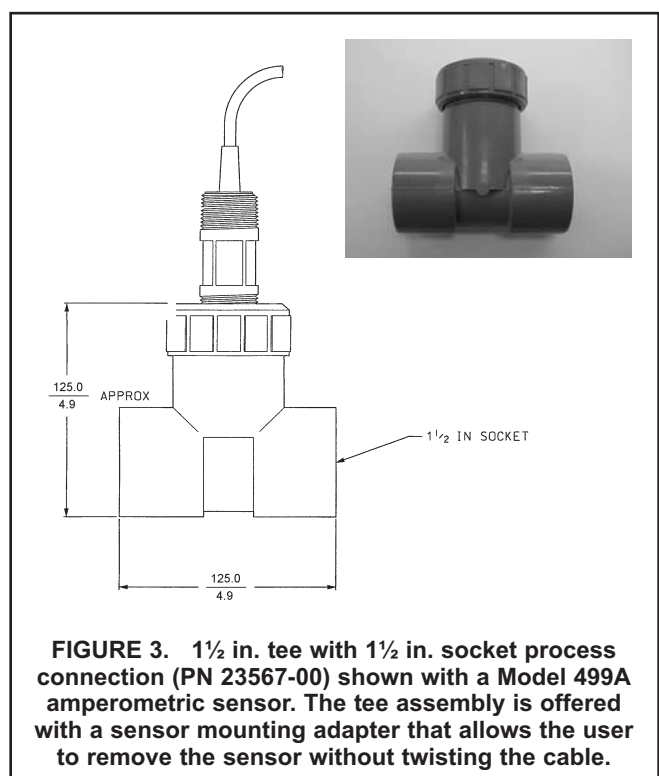
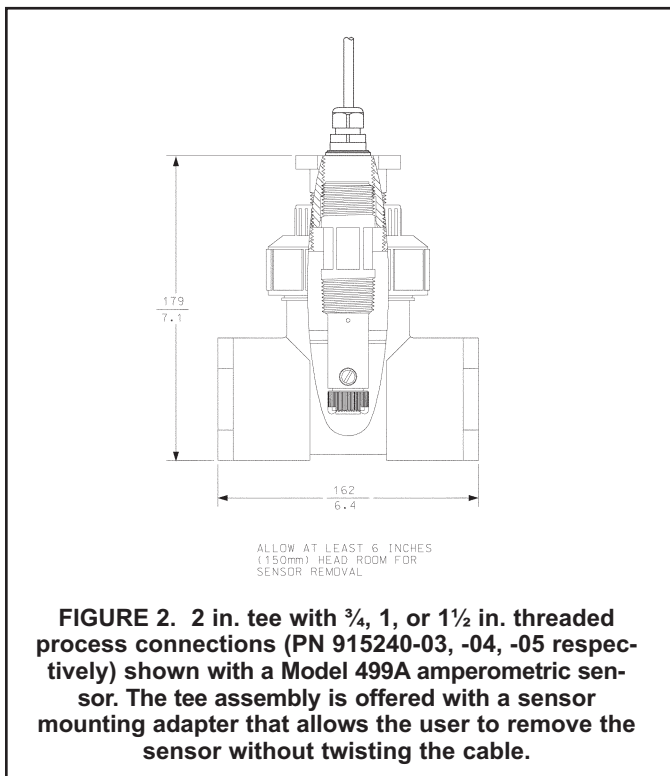
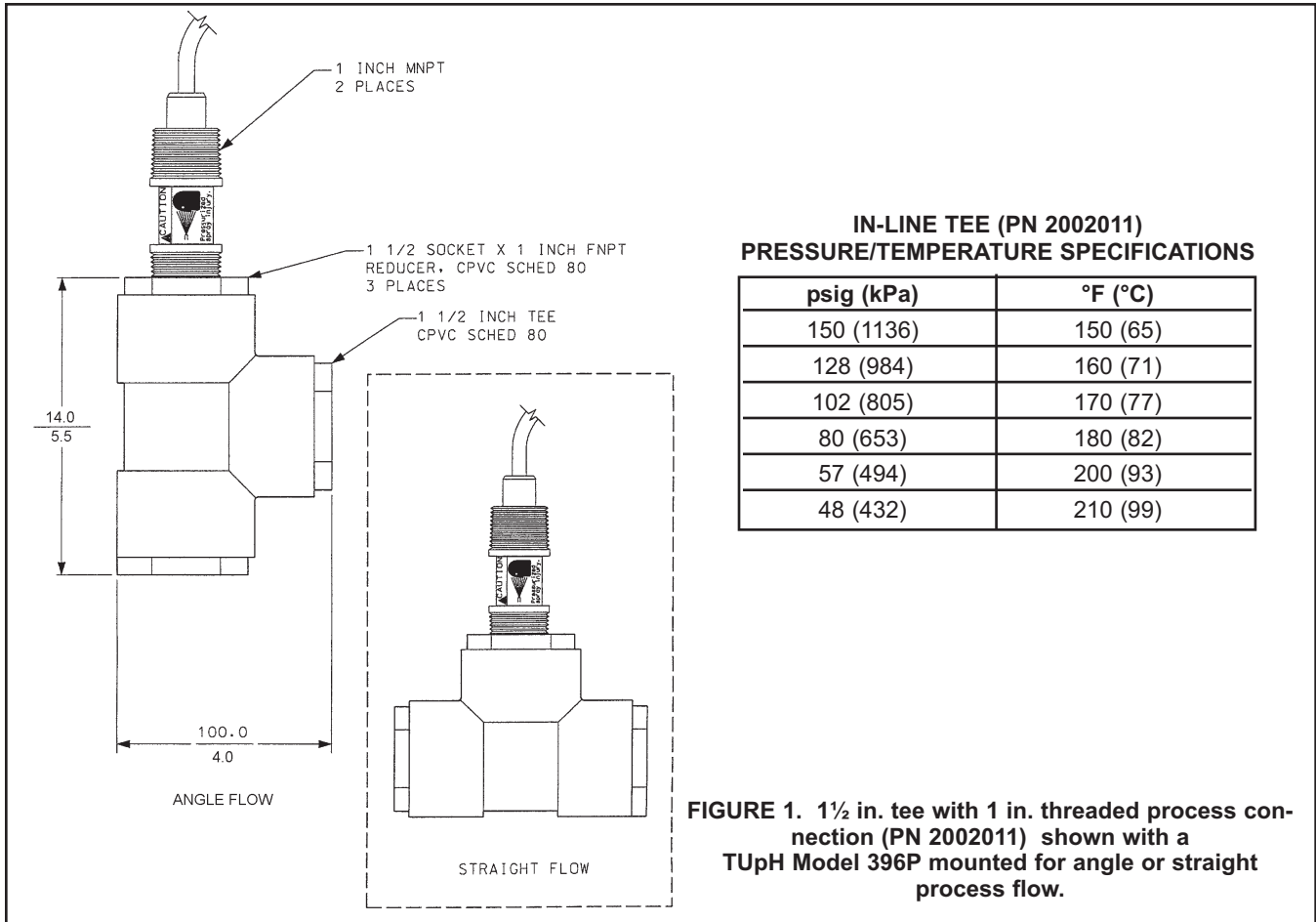


Side view of Tee PN 915240-03, -04, or -05 with Model 399 shown in middle of process flow. See Figure 2 for dimensional drawing.



Model 399 shown in Tee PN 915240-03, -04, or -05. Tee is available with 3/4 in., 1 in., or 1-1/2 in. NPT process connection threads. See Figure 2 for dimensional drawing.

IN-LINE TEES (continued)



LOW FLOW CELL:

COMMON INDUSTRIES:



Food and Beverage



Municipal



Utilities



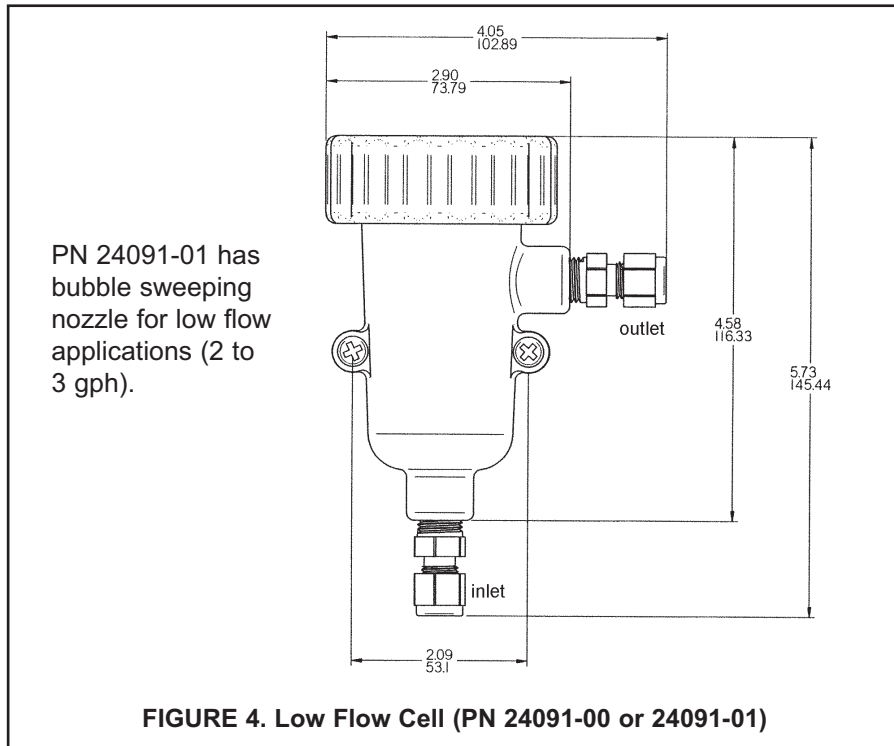
Pharmaceutical

- Used with dissolved oxygen, ozone, chlorine, and pH sensors
- Tap into existing piping and connect to 1/4" tubing
- Easy access to sensor without process shutdown
- Perfect for applications where large volumes of the process slip stream cannot be wasted to drain
- Clear, see-through plastic chamber allows visual inspection of the process stream
- Allows regulation of flow rate when used with a valved rotameter (sold separately)
- Ideal for applications such as
 - * Can and bottle sanitation using ozone, chlorine, or bromine in the Food and Beverage Industry
 - * Sanitation for Pharmaceutical applications
 - * Ultra Pure Water measurements in the Power and Semiconductor Industry
 - * Ozone contact tanks typically found in potable water plants

	Low Flow Cell Part Number 23728-00
Process Connection	1/4 inch 316 SST male tube connector
Wetted Materials	Body - Acrylic; Nut - CPVC; Fitting - 316 SST; Seals - Buna N
Maximum Temperature	122°F (50°C)
Maximum Pressure	65 psig (547 kPa)
Compatible pH Sensors	396*, 396P, 399, 389, 385+*
Compatible Amperometric Sensors	499A DO, 499A CL, 499A OZ

* Sensor must use a process connector; see page 20 for connector part numbers.

LOW FLOW CELL (continued)



Low Flow Cell

REQUIRED FLOW RATES

(Optional Rotameters sold separately):

Sensor Model	Flow Rate	Recommended Valved Rotameter
All pH sensor models	2 - 5 g/hr (7.6 - 19 L/hr)	PN 9390004 or PN 196-898754
499A CL	8 - 15 g/hr (30 - 57 L/hr)	PN196-898754
499A DO	2 - 5 g/hr (7.6 - 19 L/hr)	PN 9390004
499A OZ	2 - 5 g/hr (7.6 - 19 L/hr)	PN 9390004
Optional Overflow Sampler		
All sensors	3 g/hr	PN 24035-00

VALVED ROTAMETERS (Used with the Low Flow Cell):

	PN 9390004 (see Figure 4)	PN 196-898754 (see Figure 4)	PN 24035-00
Range of Flow Regulated	0.4 - 5.0 g/hr (1.5 - 19.0 L/hr)	2.0 - 20.0 g/hr (7.6 - 76.0 L/hr)	3 g/hr 11 L/hr
Wetted Parts	acrylic, 316 SST, Viton	polycarbonate, 316 SST, brass, Buna N	acrylic, polycarbonate, kynar, nylon, silicone
Process Connection	1/4 inch FNPT (316 SST)	1/8 inch FNPT (brass)	1/4 inch OD tubing compression fitting
Maximum Pressure	100 psig (790 kPa)	100 psig (790 kPa)	3 to 65 psig (122 to 549 kPa abs)
Maximum Temperature	150°F (65°C)	130°F (54°C)	0 to 50°C

THE QUIK-LOC ASSEMBLY:

COMMON INDUSTRIES:



Chemical



Metals & Mining



Hydrocarbon Processing



Textile



PEEK Adapter



**DIXON
316 SST Coupler**



**QUIK-LOC KIT WITH
TUph MODEL 397 pH SENSOR**

- Designed for use with TUph Model 397 pH Sensor
- Unique design eliminates cable twisting
- Quick and easy sensor access by simple release of the coupler arms
- Coupler arms lock in place when sensor is in use
- Used in applications needing a quick disconnect solution:
 - * Coagulation and flocculation, waste neutralization, and scrubbers found in the Chemical Industries
 - * Waste water lines and crude overhead towers found in the Hydrocarbon Processing Industries
 - * Batch tanks typically found in the Food and Beverage Industry

	PN 23757-00	PN 23757-01
Process Connection	1 inch MNPT	1 inch MNPT
Wetted Materials	Coupler - 316 SST Gasket - EP Adapter - PEEK	Coupler - 316 SST Gasket - EP Adapter - PEEK
Temperature Rating	32 - 176°F (0 - 80°C)	32 - 176°F (0 - 80°C)
Pressure Rating	0 - 100 psig (100 - 790 kPa)	0 - 100 psig (100 - 790 kPa)
Sensor Insertion Depth	1.4 in./35 mm	2.0 in./50 mm
Compatible pH Sensor	397	397

THE QUIK-LOC ASSEMBLY (continued):

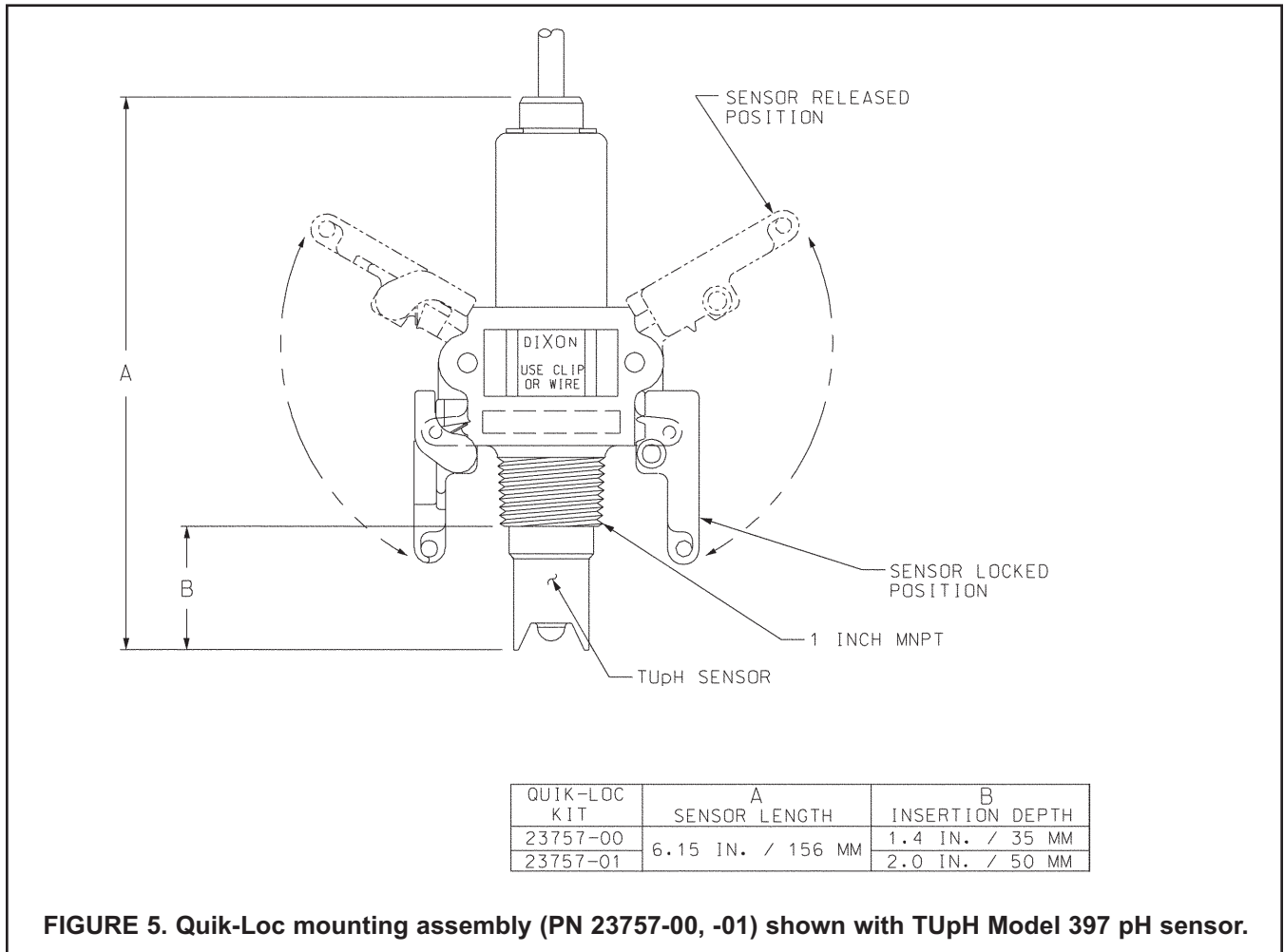


FIGURE 5. Quik-Loc mounting assembly (PN 23757-00, -01) shown with TUpH Model 397 pH sensor.

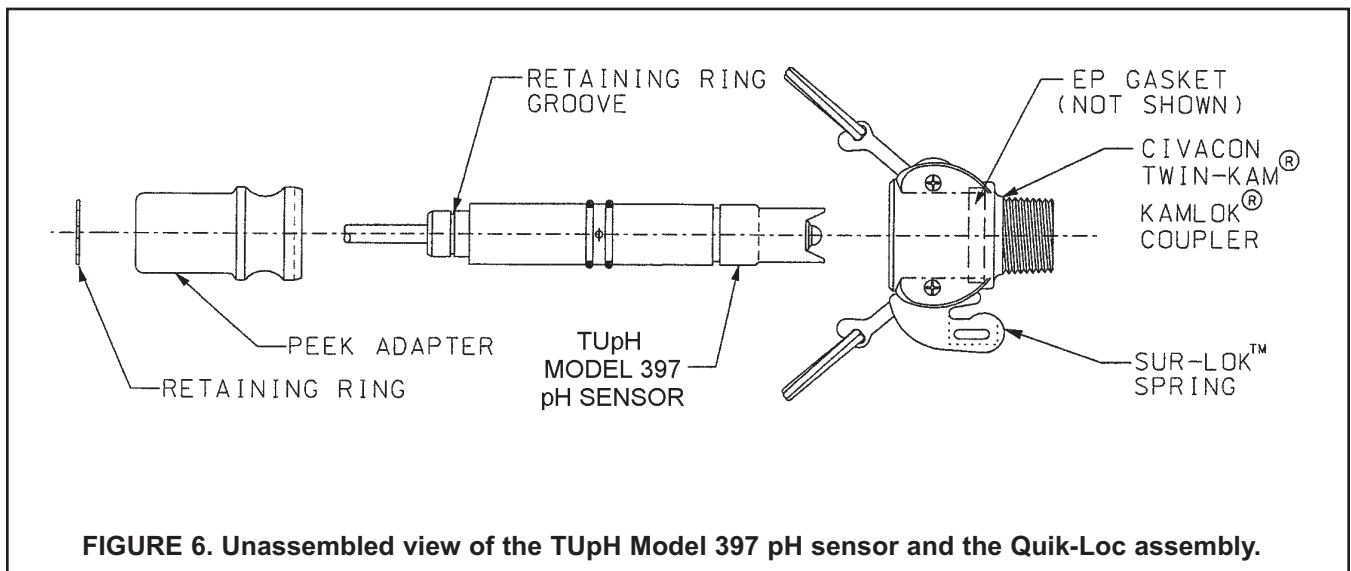


FIGURE 6. Unassembled view of the TUpH Model 397 pH sensor and the Quik-Loc assembly.

HANDRAIL MOUNTING ASSEMBLY:

COMMON INDUSTRIES:



Metals & Mining



Food & Beverage



Municipal



Textile



Utilities



Pharmaceutical

- Used with pH, dissolved oxygen, and chlorine sensors
- Excellent for use in tanks, aeration basins, or open channels where levels may vary
- Mounts easily onto handrail
- Sensor can be removed from tank or basin quickly and easily for servicing
- Assembly can be inserted to various depths
- Can be used with the Jet Spray Cleaner (see page 12) for dirty applications

	Part Number 11275-01
Process Connection	Mounting brackets for various sizes of handrails
Wetted Materials	PVC
Temperature Rating	140°F (60°C) max.
Compatible pH Sensors	396*, 396P, 399, 389, 385+*
Compatible Amperometric Sensors	499A DO**, 499A CL**, 499A OZ**
Optional Accessory	The Jet Spray Cleaner (see page 12)

* Sensor must use a process connector; see page 20 for connector part numbers.

** If used with the Handrail Mounting Assembly in a tank, remember that a correct measurement can only be made if there is a continuous flow pass the membrane of the sensor. These sensors will not operate properly in standing liquid.

HANDRAIL MOUNTING ASSEMBLY (continued):

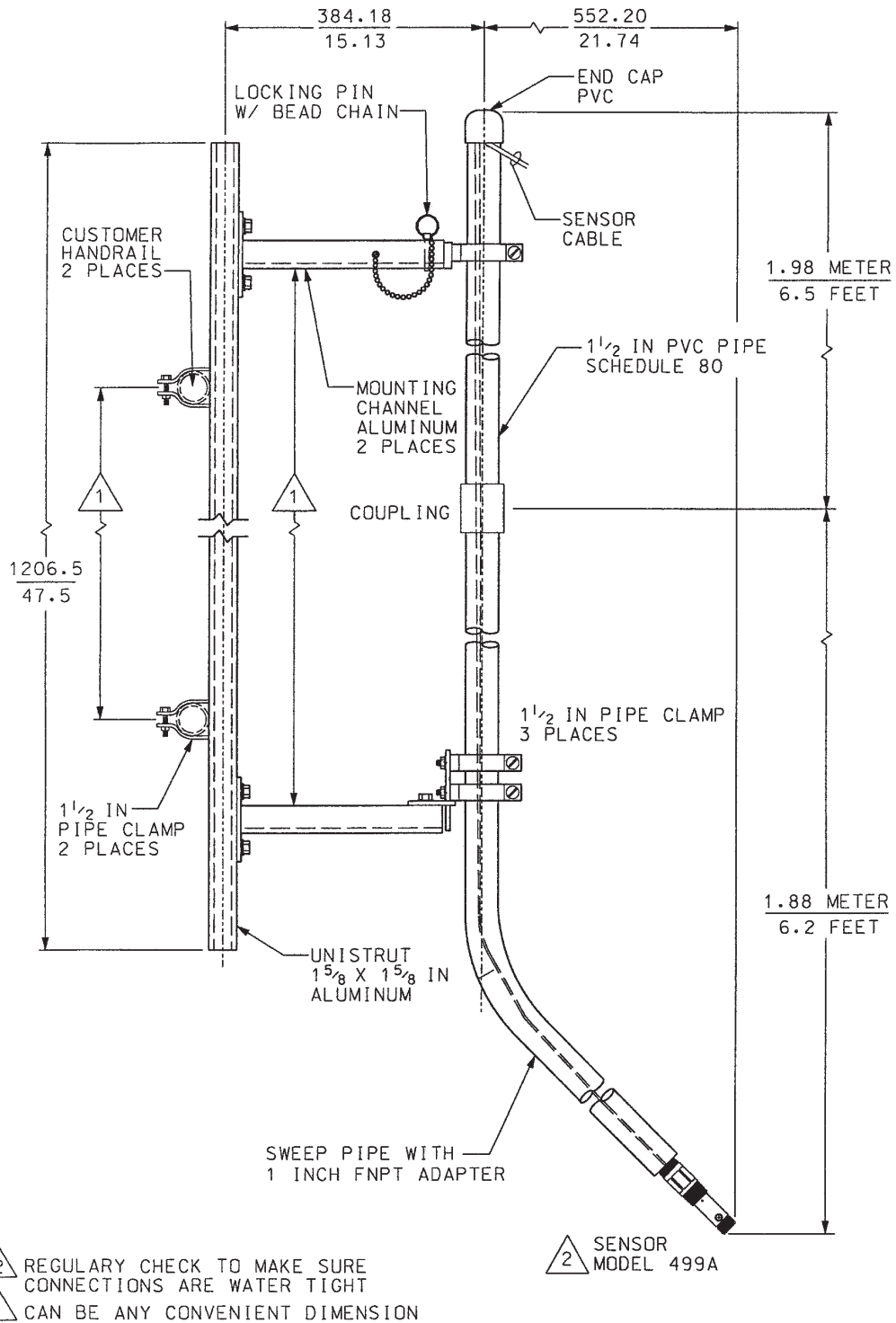


FIGURE 7. Handrail Mounting Assembly (PN 11275-01) shown with Model 499A Dissolved Oxygen Sensor.

FLOATING BALL SYSTEM

- COMPATIBLE WITH ROSEMOUNT Dissolved Oxygen Sensor Model 499ADO
- MAINTAINS CONSTANT SENSOR DEPTH regardless of changes in liquid or tank level
- EXTENDED BUOYANCY supports sensor weight with reserve capacity
- ACCEPTS ANY SENSOR WITH 1 INCH REAR FACING MNPT CONNECTION
- The Floating Ball System provides the flexibility to position the sensor almost anywhere in the basin

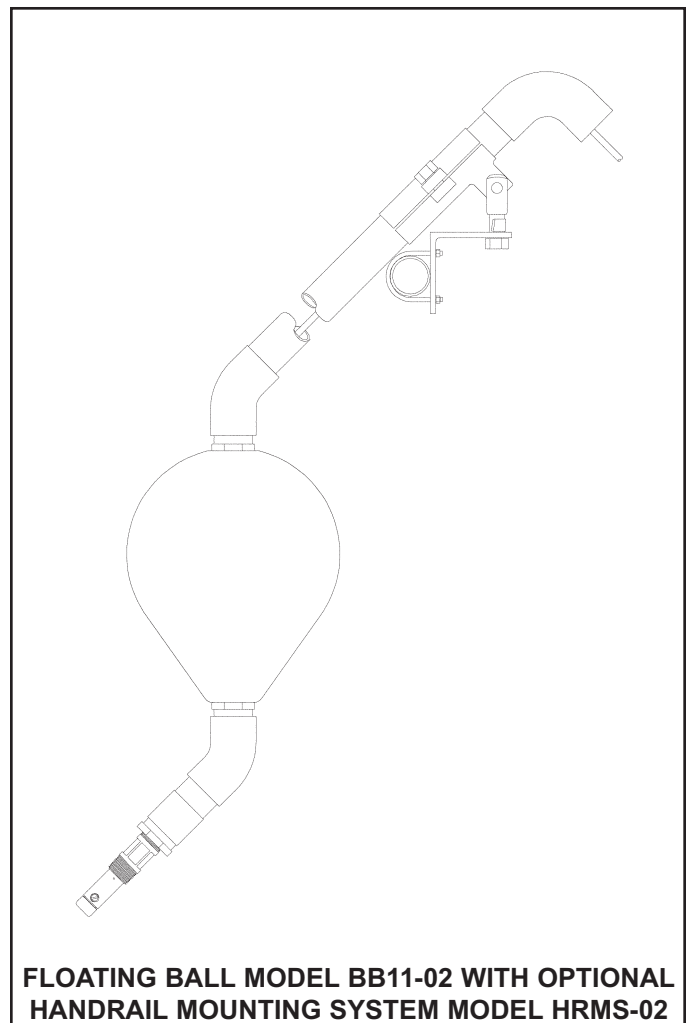
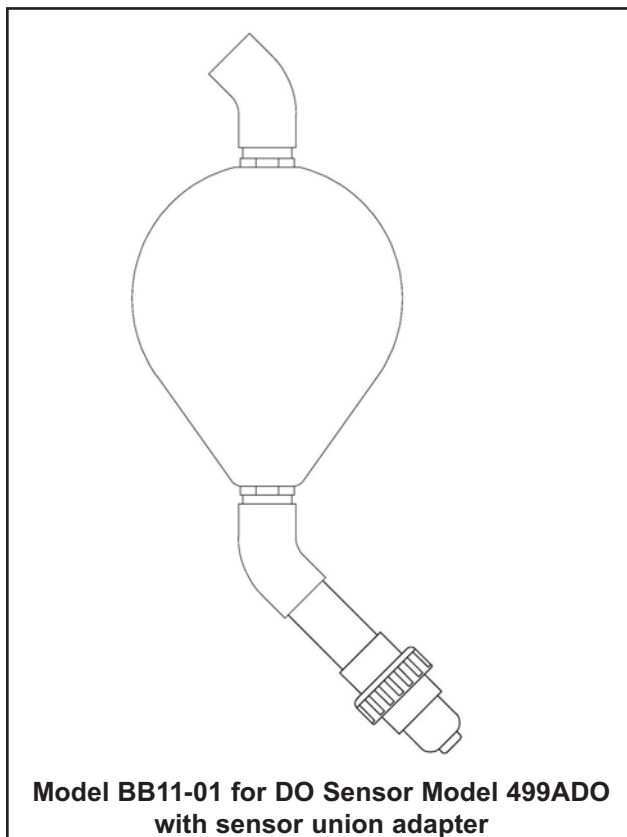
SYSTEM DESCRIPTION

The materials of construction of the floating ball is thick walled flexible PVC material, and includes PVC elbows and fittings to angle the sensor into the process and prevent air bubbles from becoming trapped and prevent erratic sensor readings.

The floating ball will accommodate a pipe boom using a 1-1/2 inch diameter Schedule 80 PVC pipe.

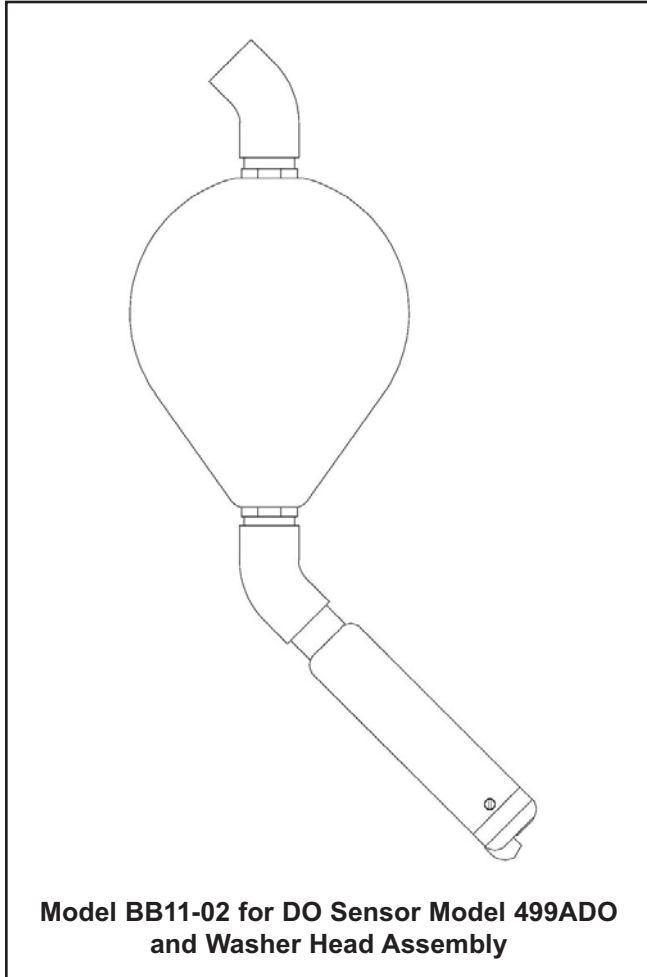
MODEL BB11

The Model BB11 is available in three model options. The model BB11-01 is designed for DO Sensor Model 499ADO and includes the sensor union adapter. The sensor can be removed without twisting the cable.



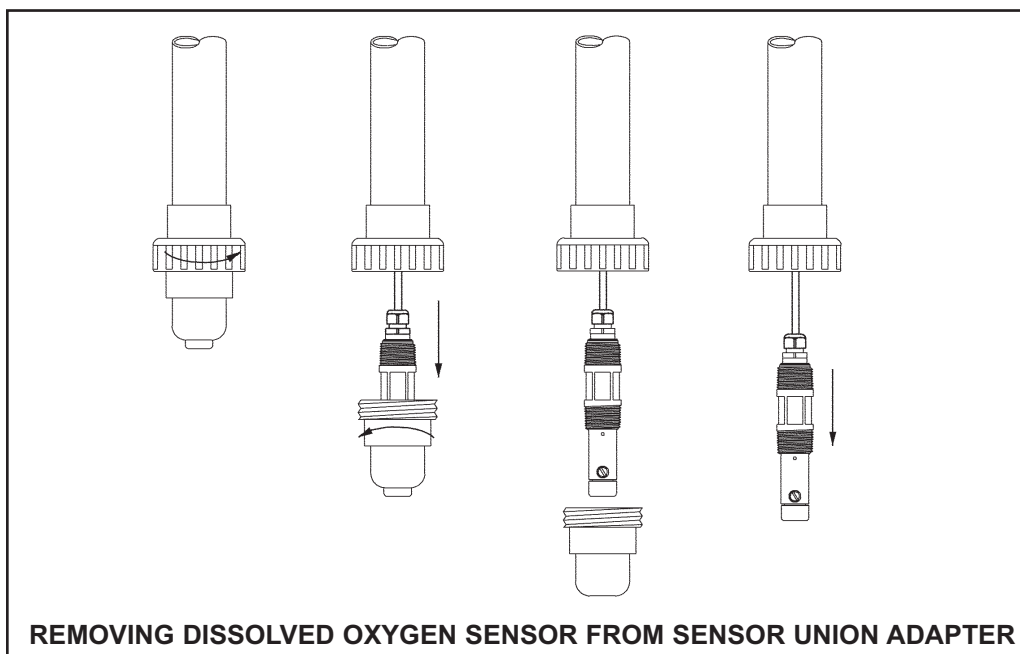
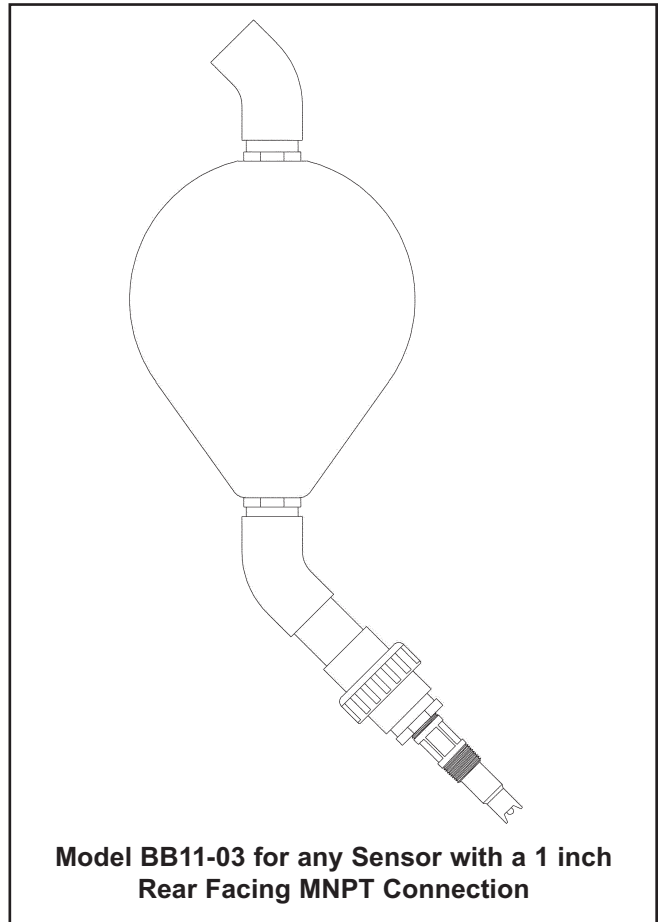
MODEL BB11-02

The model BB11-02 can be used with DO sensor with Washer Head Assembly.



MODEL BB11-03

The Model BB11-03 is designed for any sensor with a 1 inch rear facing MNPT connection and includes a PVC union for removing the sensor without twisting the sensor cable.



DISSOLVED OXYGEN MEASUREMENT SYSTEM WITH AIR BLAST CLEANER

- The Air Blast Sensor Cleaner, which includes the washer head and air compressor, keeps the sensor membrane clean
- At programmed intervals, the air blast cleaner blows a stream of air across the membrane to clear bio-film from on the membrane.

SPECIFICATIONS - COMPRESSOR FOR AIR BLAST CLEANER SYSTEM

Enclosure: Fiberglass reinforced polyester with polyester cover, NEMA 4x (IP65). 11.9 x 11.9 x 6.9 in (302 x 302 x 175 mm).

Compressor: Oil-less, non-lubricating piston and cylinder. 1/12 HP permanent split capacitor motor with thermal overload protection.

Maximum continuous pressure: 50 psig (446 kPa abs)

Operating pressure: 20 psig (239 kPa abs)

Air hose: 25 ft (7.6 m) included with ABSH

Ambient temperature: 5 to 122°F (-15 to 50°C) assuming intermittent operation

Power:

Code -03: 115 VAC, 60 Hz or 100 VAC, 50/60 Hz, single phase, 1.3 to 1.4 A, starting current 3.88 A, insulation class B; UL approved



Code -04: 220 VAC, 50 Hz, single phase, 0.6 A, starting current 1.5 A, insulation class A; CE approved



SPECIFICATIONS - HANDRAIL MOUNTING ASSEMBLY

Materials of Construction:

Weather cap: Schedule 40 PVC

Pipe clamp and bracket: Aluminum

Clevis: zinc-plated steel

U-bolts, nuts, and bolts: zinc-plated steel

Washers: stainless steel

PLANT AIR SYSTEM REQUIREMENTS

(for customers using plant air in place of air compressor)

Pressure: 20 psig (239 kPa abs)

Flow: 0.50 SCFM (14 L/min at STP)

Air hose: (customer supplied) compatible with ¼ inch barbed fitting for connection at washer head

SPECIFICATIONS - AIR BLAST CLEANER SYSTEM WASHER HEAD

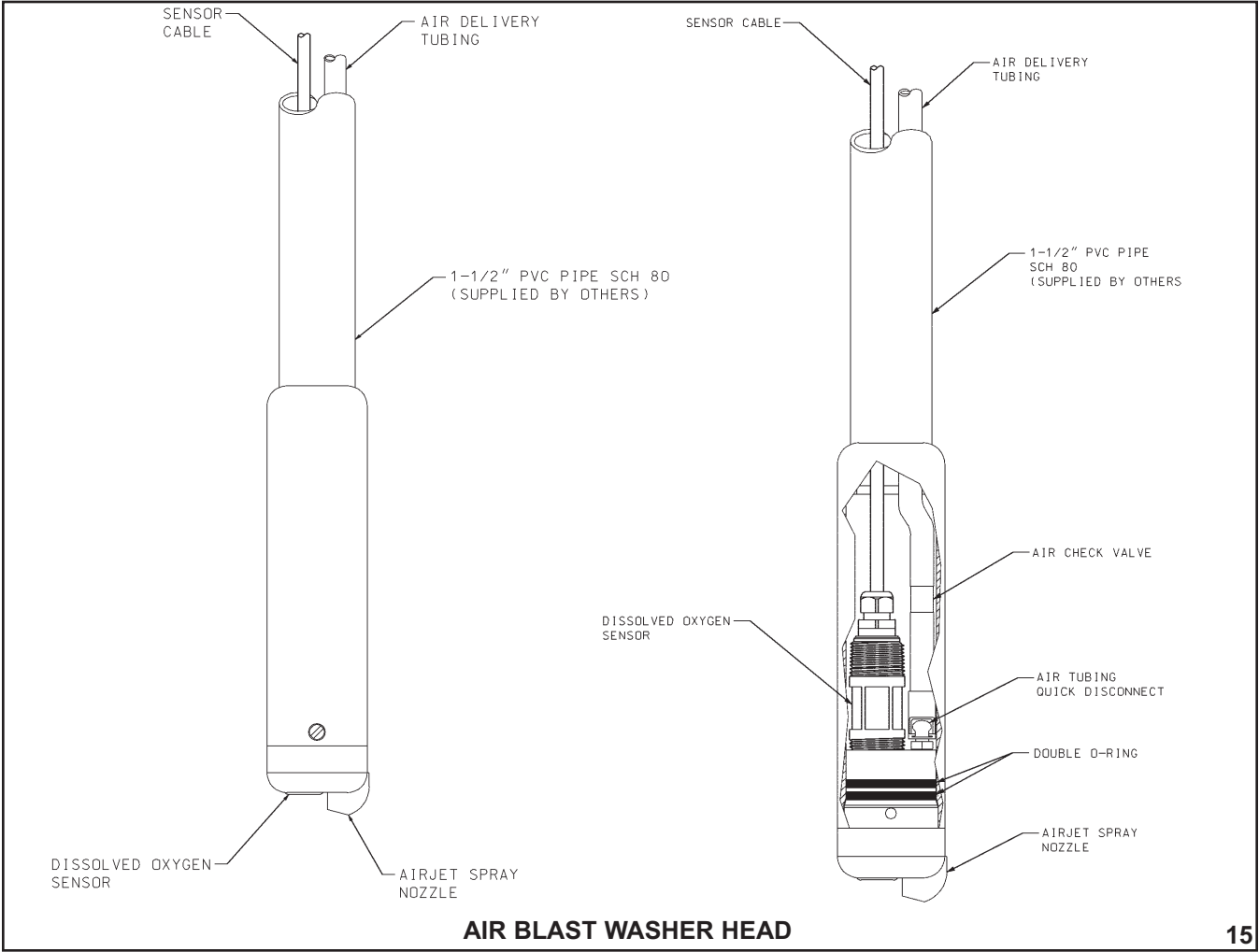
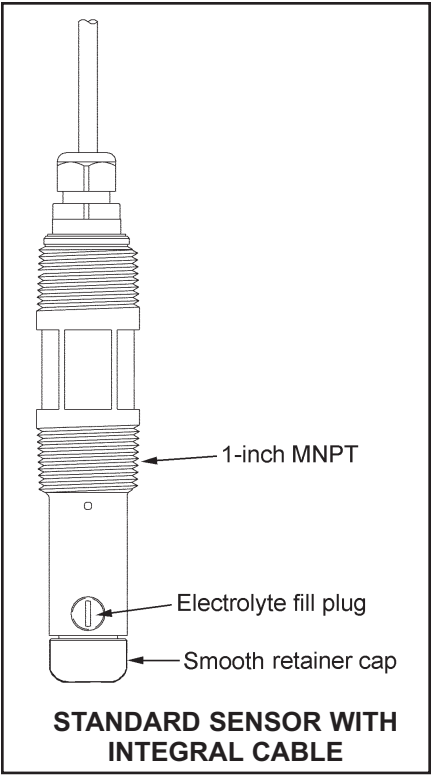
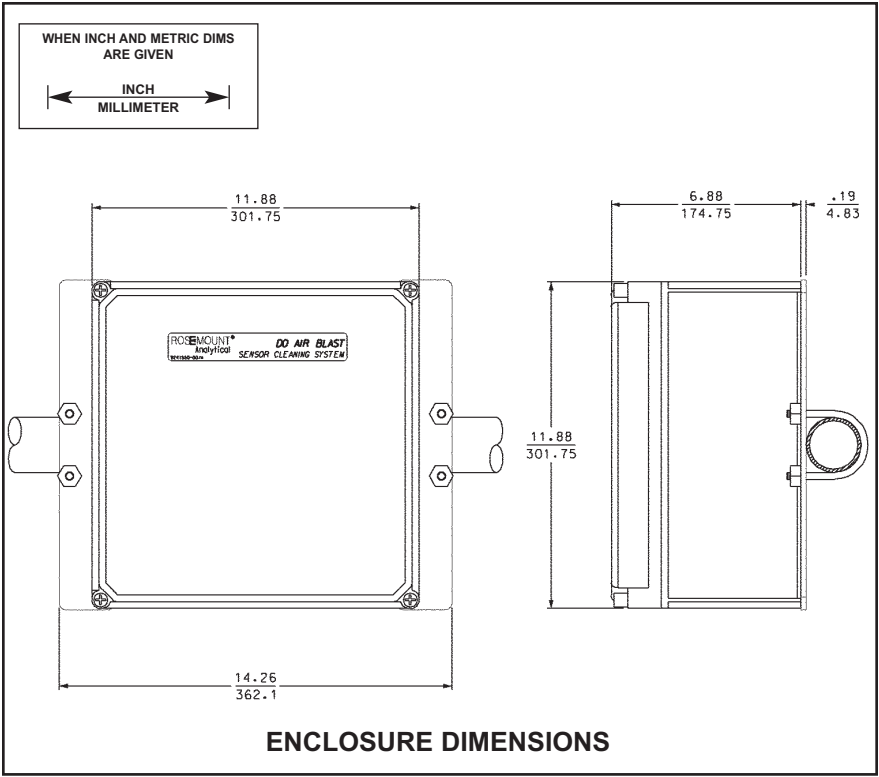
Process connection: 1-1/2 inch PVC pipe socket

Dimensions (diameter x length): 2-1/2 x 10-3/4 inches (64 x 273 mm)

Wetted materials: PVC, Noryl, Viton

Pipe boom: 1-1/2 inch schedule 80 PVC, maximum length 12 feet (3.6 m) past handrail mounting clamp. Pipe boom is supplied by customer.

Maximum distance between compressor and sensor: 25 ft (7.6 m). ABSH is supplied with 25 ft (7.6 m) of air hose.



JET SPRAY CLEANER:

COMMON INDUSTRIES:



Metals & Mining



Food & Beverage



Municipal



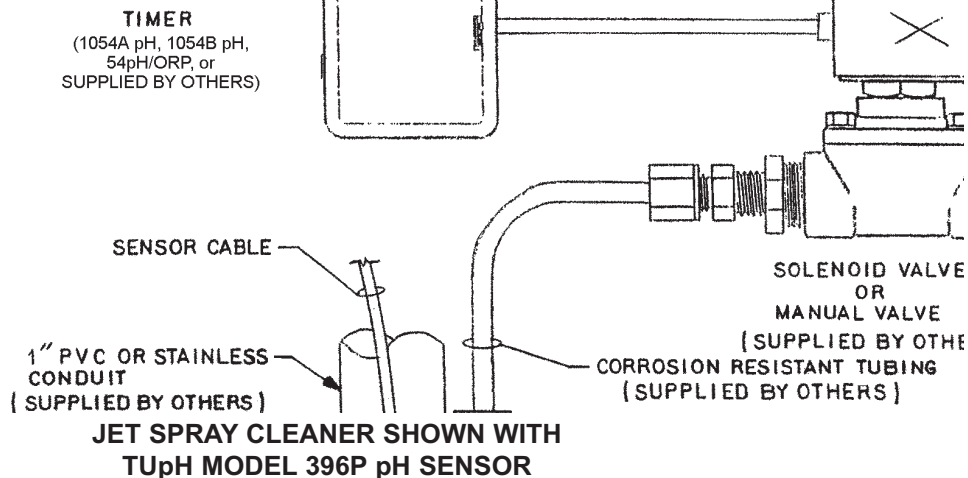
Textile



Utilities



Pharmaceutical



- Compatible with pH and amperometric sensors
- Can be used with the Handrail Mounting Assembly (see page 10)
- Cleans sensor tip using water, cleaning solutions, or compressed air
- Eliminates routine, manual maintenance
- For dirty or coating liquids typically found in waste water aeration basins or influent channels
- The cleaning spray can be controlled by a solenoid valve operated by the interval timer relay found in the Models 54, 1054A series, and 1054B series analyzers.

	Part Number 12707-00
Process Connection	2 in. NPT threads OR use sensor/conduit
Wetted Materials	316 SST, polypropylene, PVC
Compatible pH Sensors	396P, 389, 399
Compatible Amperometric Sensors	499A CL, 499A DO, 499A OZ

JET SPRAY CLEANER (continued):

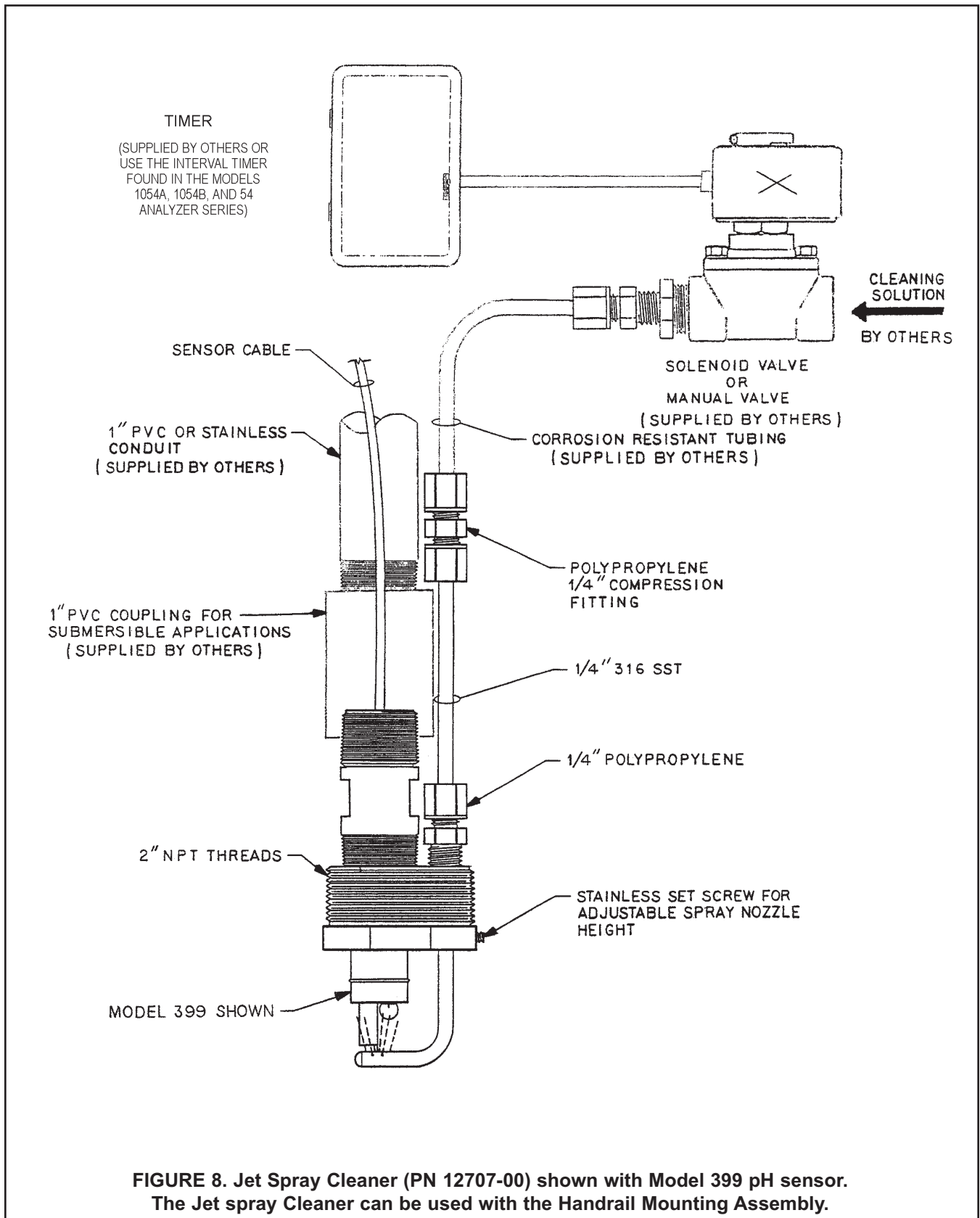


FIGURE 8. Jet Spray Cleaner (PN 12707-00) shown with Model 399 pH sensor. The Jet spray Cleaner can be used with the Handrail Mounting Assembly.

MOUNTING ADAPTERS:

COMMON INDUSTRIES:



Metals & Mining



Food & Beverage



Hydrocarbon Processing



Municipal



Textile

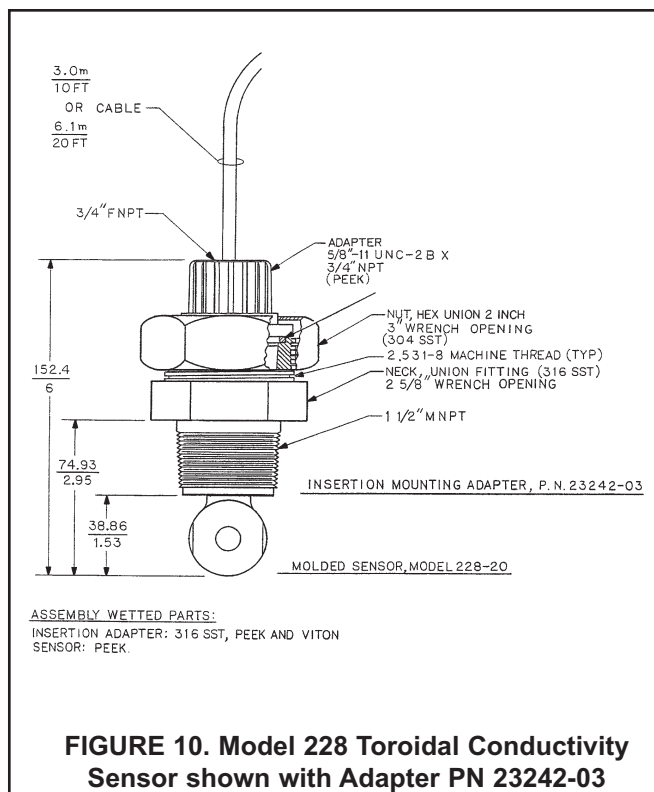
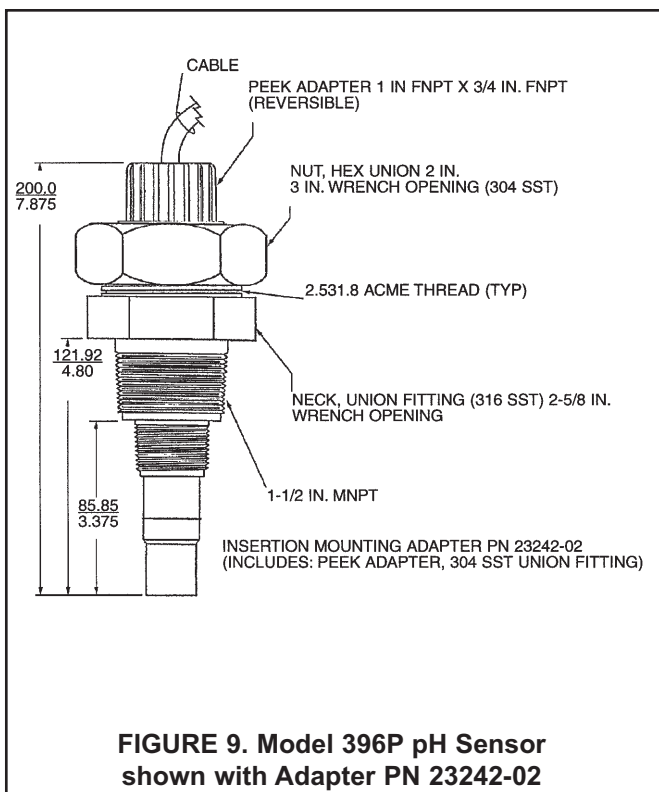


Utilities

- Used with conductivity, pH, dissolved oxygen, chlorine, and ozone sensors
- Perfect for any application with process connection thread sizes larger than sensor thread sizes; allows the sensor to mount in various process situations:
 - * Pipe Mounting Accessory mounts sensor on end of pipe for submersion into tanks and ponds
 - * Insertion Adapter is used for mounting sensor in pipe tees; sensor can be removed without cable twisting

ADAPTER	23242-02	23242-03	9330022
Materials of Construction	316 SST, PEEK, Viton	316 SST, PEEK, Viton	CPVC
Process Connection	1½ in. MNPT	1½ in. MNPT	1 in. FNPT
Sensor Adapter/Union Thread Size	1 in. x 3/4 in.	3/4 in. x 5/8-11 UNC	1 in. FNPT
Sensor Compatibility	228, 499A, 389, 396P, 399	228	396*, 396P, 389, 399, 385+*
Figure Number	9, 12	10, 12	11

* Sensor must use process connector. See page 20 for connector part numbers.



MOUNTING ADAPTERS (continued):



The Pipe Mounting Accessory (PN 9330022) is ideal for connecting a sensor to a pipe for insertion into a pond, tank, aeration basin, or open channel.

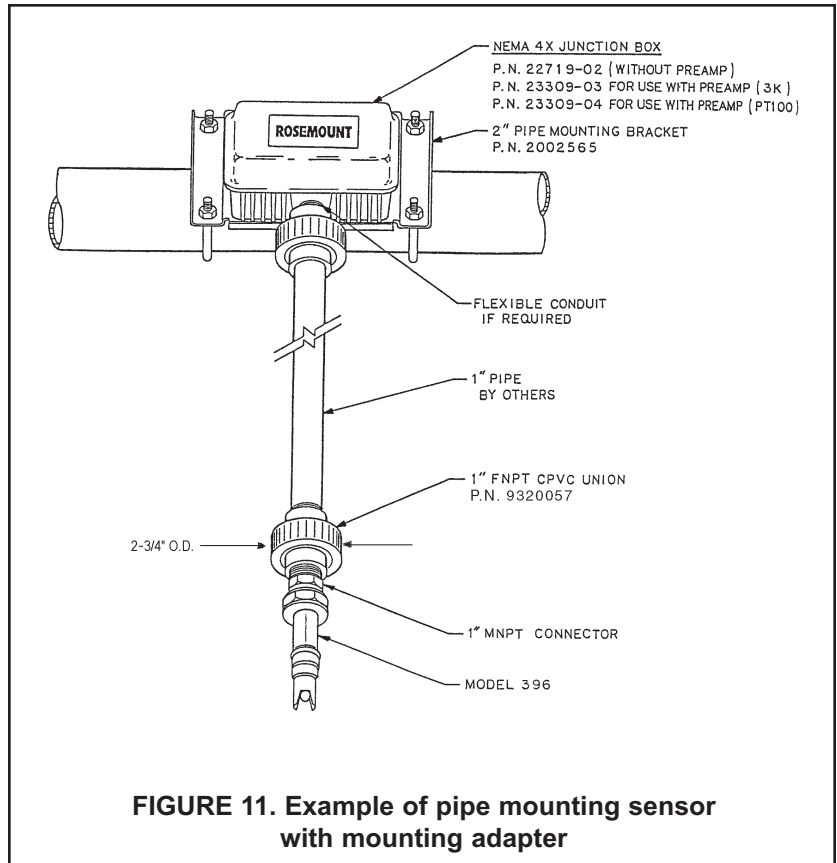


FIGURE 11. Example of pipe mounting sensor with mounting adapter

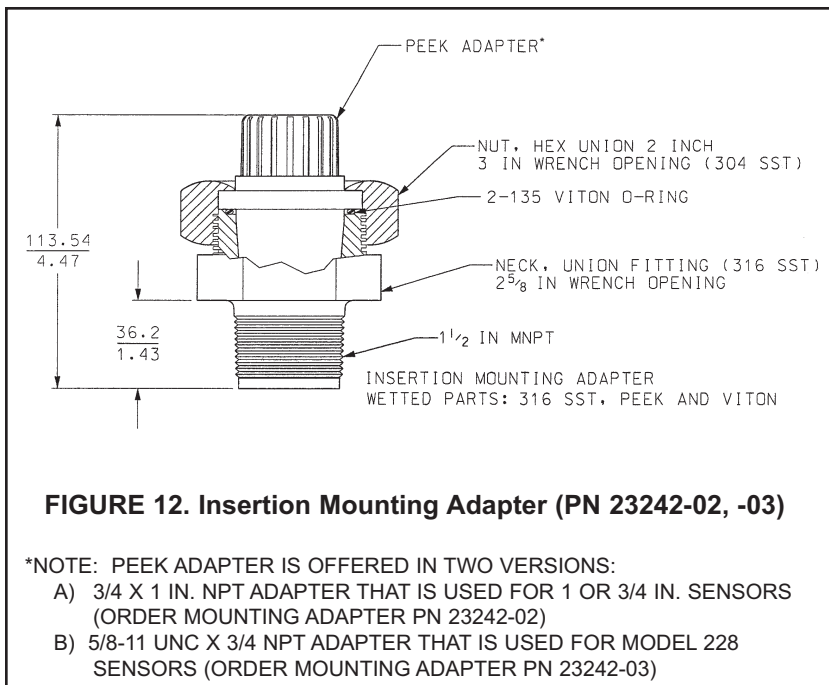


FIGURE 12. Insertion Mounting Adapter (PN 23242-02, -03)

*NOTE: PEEK ADAPTER IS OFFERED IN TWO VERSIONS:
 A) 3/4 X 1 IN. NPT ADAPTER THAT IS USED FOR 1 OR 3/4 IN. SENSORS (ORDER MOUNTING ADAPTER PN 23242-02)
 B) 5/8-11 UNC X 3/4 NPT ADAPTER THAT IS USED FOR MODEL 228 SENSORS (ORDER MOUNTING ADAPTER PN 23242-03)



The Insertion Adapter mounts sensors into a 1-1/2 inch NPT process pipe. Unscrewing the hex nut allows easy sensor removal without twisting the sensor cable.

BALL VALVE KITS:

COMMON INDUSTRIES:



Pharmaceutical



Pulp & Paper



Chemical



Metals & Mining



Hydrocarbon Processing



Textile



Utilities

- Used with retractable conductivity and pH sensors
- Can be installed in large pipes or tanks, with or without the use of weldalets
- Allows removal of the sensor from the process under operating conditions
- Perfect choice for process lines that cannot be shut down when sensor maintenance must be performed
- Proven in pulp and paper, chemical, and other severe process applications
- Conductivity measurements using Ball Valve Kits include:
 - * Demineralizer process water, reused evaporator condensate, and whitewater applications in the Pulp and Paper Industry
 - * Water/organic separators and demineralizer water applications typically found in the Hydrocarbon and Chemical Industries
 - * Bulk/raw ingredients in the Pharmaceutical Industry
- pH measurements using Ball Valve Kits include:
 - * Headbox, whitewater and stock prep applications in the Pulp and Paper Industry
 - * Waste neutralization, coagulation and flocculation, and scrubber applications in the Chemical Industries
 - * Hydrogenations, Hydroxylation, and bulk/raw ingredients in the Pharmaceutical Industry

	1½ in. Ball Valve Kit (PN 23240-00)	1¼ in. Ball Valve Kit (PN 23765-00 and 23765-01)
Process Connections	1½ in. FNPT	1¼ in. MNPT
Wetted Materials	316 SST	316 SST
Temperature Rating	32 - 212°F (0 - 100°C)	32 - 212°F (0 - 100°C)
Pressure Rating	100 psig (790 kPa)	200 psig (1481 kPa)
Maximum Retraction Pressure	For 21 inch pH sensors: 64 psig (542 kPa) For 36 inch pH sensors: 35 psig (343 kPa)	64 psig (542 kPa) for all Model 400 conductivity sensors
pH Sensors	396R, 398R, 385, 385+	—
Conductivity Sensors	—	402
Other necessary parts to install sensor	Process connector*	None
Figure Number	14	15

* When using a 396R or 398R, the customer must use Process Connector (ordered separately) PN 23166-00 or 233166-01 to connect sensor to ball valve kit. Process Connector is included with the 385 and 385+ retractable sensors.

INSTALLATION NOTES:

1. All pH sensors must be mounted at least 10° above the horizontal.
2. For the best performance, all conductivity sensors should be oriented with the open end of the sensor facing the process flow with the process flowing into the sensor tip.

BALL VALVE KITS (continued)

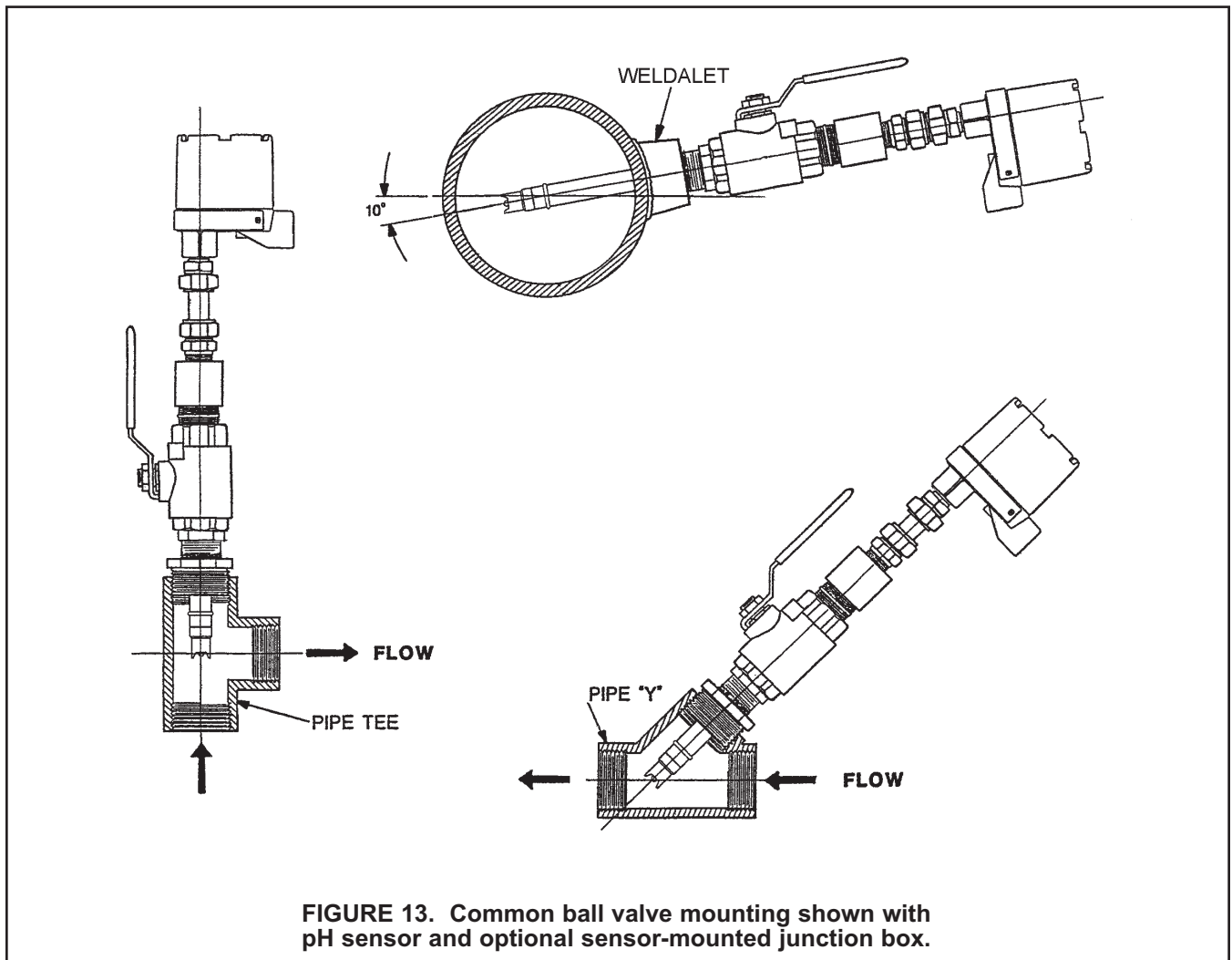


FIGURE 13. Common ball valve mounting shown with pH sensor and optional sensor-mounted junction box.

BALL VALVE KITS (continued)

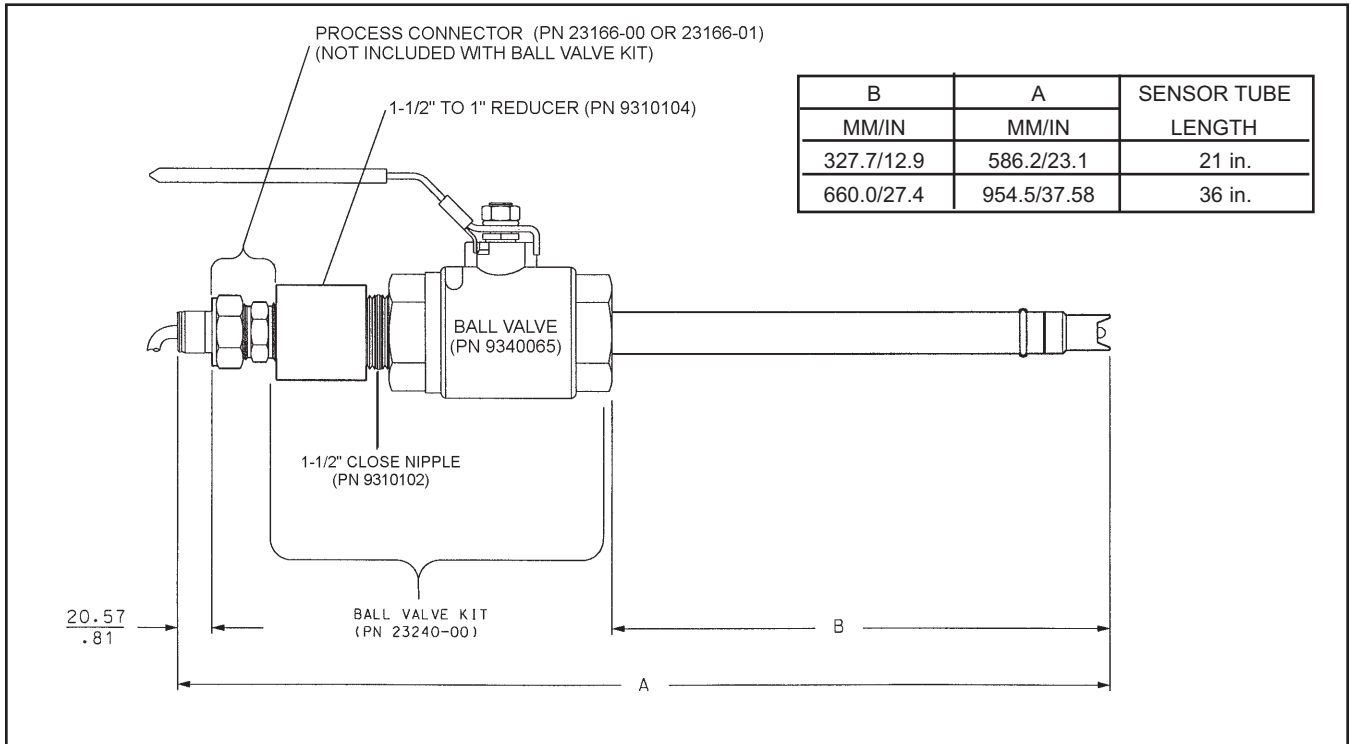


FIGURE 14. 1½ in. FNPT Ball Valve Kit (PN 23240-00) shown with process connector (sold separately) and TUPH Model 396R pH sensor.

Ball valve kit includes a 1½ in. full port ball valve, a 1½ in. to 1 in. reducer, and a 1½ in. close nipple. A process connector is required to connect sensor to the ball valve kit. See page 20 for process connector options.



Ball Valve Kit (PN 23240-00) used with Models 396R, 398R, 385, and 385+ pH retractable sensors

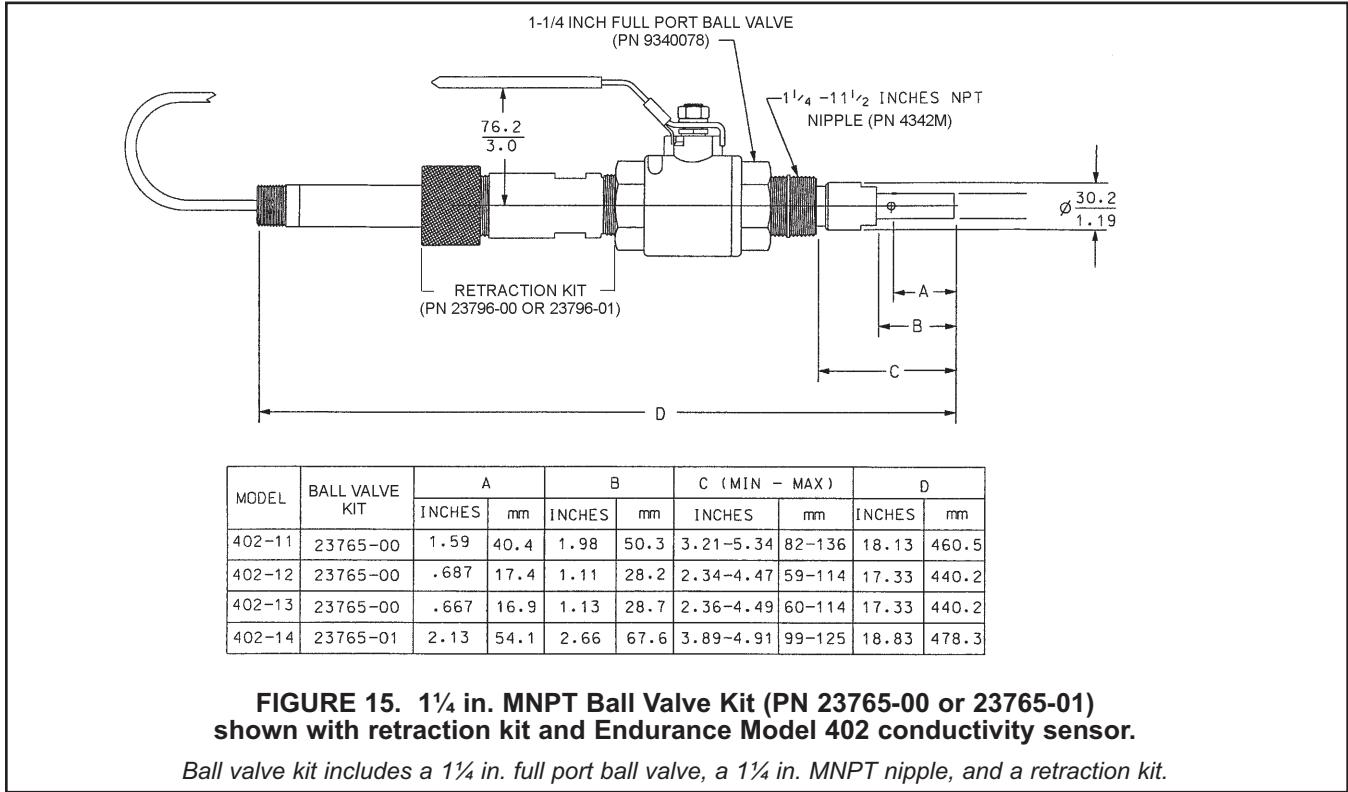


A process connector (PN 23166-00 or -01) must be used to connect the sensor to Ball Valve Kit 23240-00. Process connector can be purchased separately for use with Models 396R and 398R. The process connector is provided with Models 385 and 385+ retractable pH sensors.

BALL VALVE KITS (continued)



Ball Valve Kit PN 23765-00 (or 23765-01) used with Endurance™ Model 402 Conductivity Sensor



PROCESS CONNECTORS:

COMMON INDUSTRIES:



- Required for process connection of non-threaded pH sensors for direct pipe or ball valve mounting
- Compression fitting holds the sensor body in place
- Allows for variable sensor insertion depth
- Sensor cable twisting is avoided
- Necessary accessory for first time installation of retractable pH sensor to ball valve kit PN 23240-00 (included accessory with Models 385 and 385+ retractable sensors; must purchase separately with Models 385+ [non-retractable], 396R, and 398R).

	PN 23166-00	PN 23166-01	PN 9510066
Wetted Materials	316 Stainless Steel	Titanium	Nylon
Compatible Sensors	385+, 396, 398, 396R, 398R	385+, 396, 398, 396R, 398R	396, 398
O-ring Material	EPDM	EPDM	Polyethylene
Optional O-ring PN and Material	PN 9550099 Viton	PN 9550220 Kalrez	—
Process Connection Size	1 in. MNPT	1 in. MNPT	1 in. MNPT
Figure Number	17	17	16

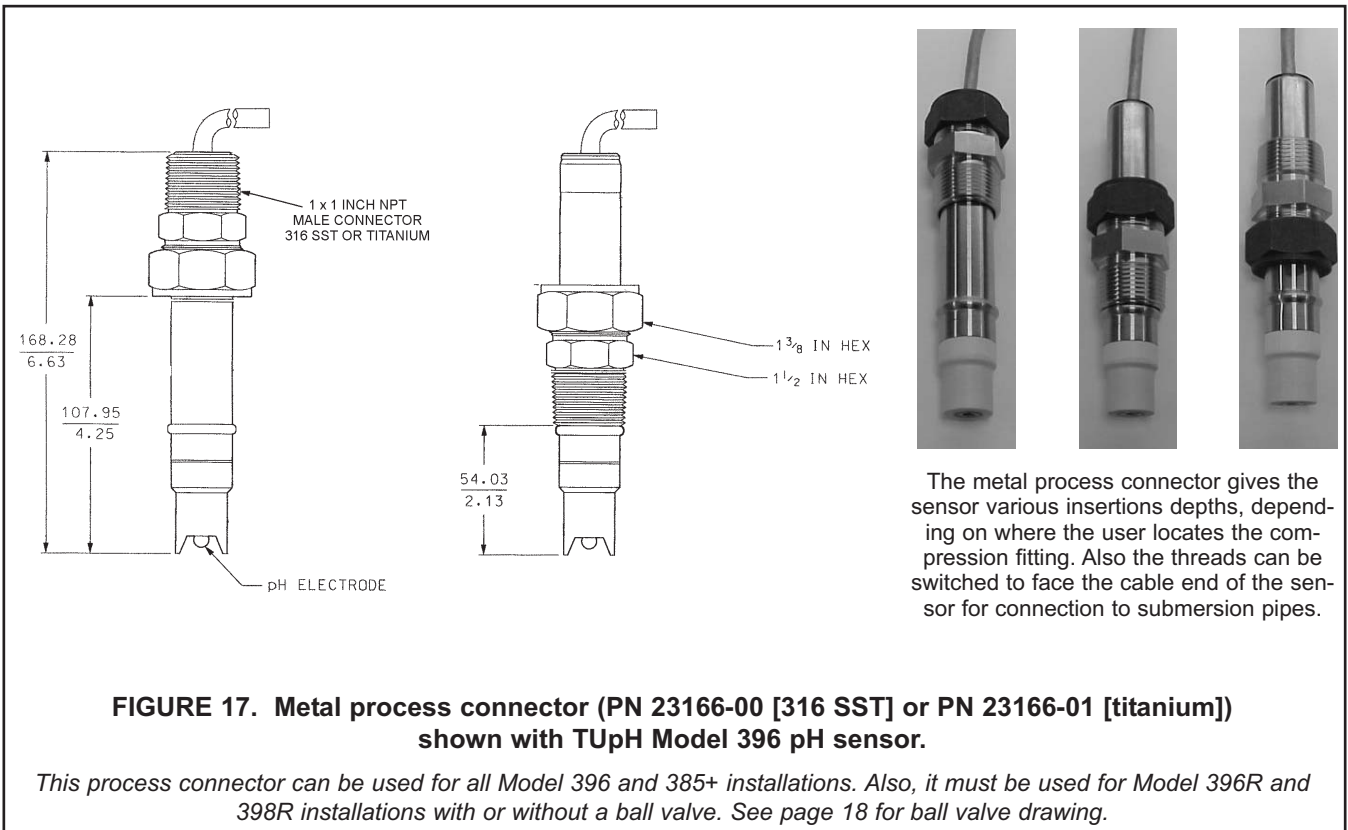
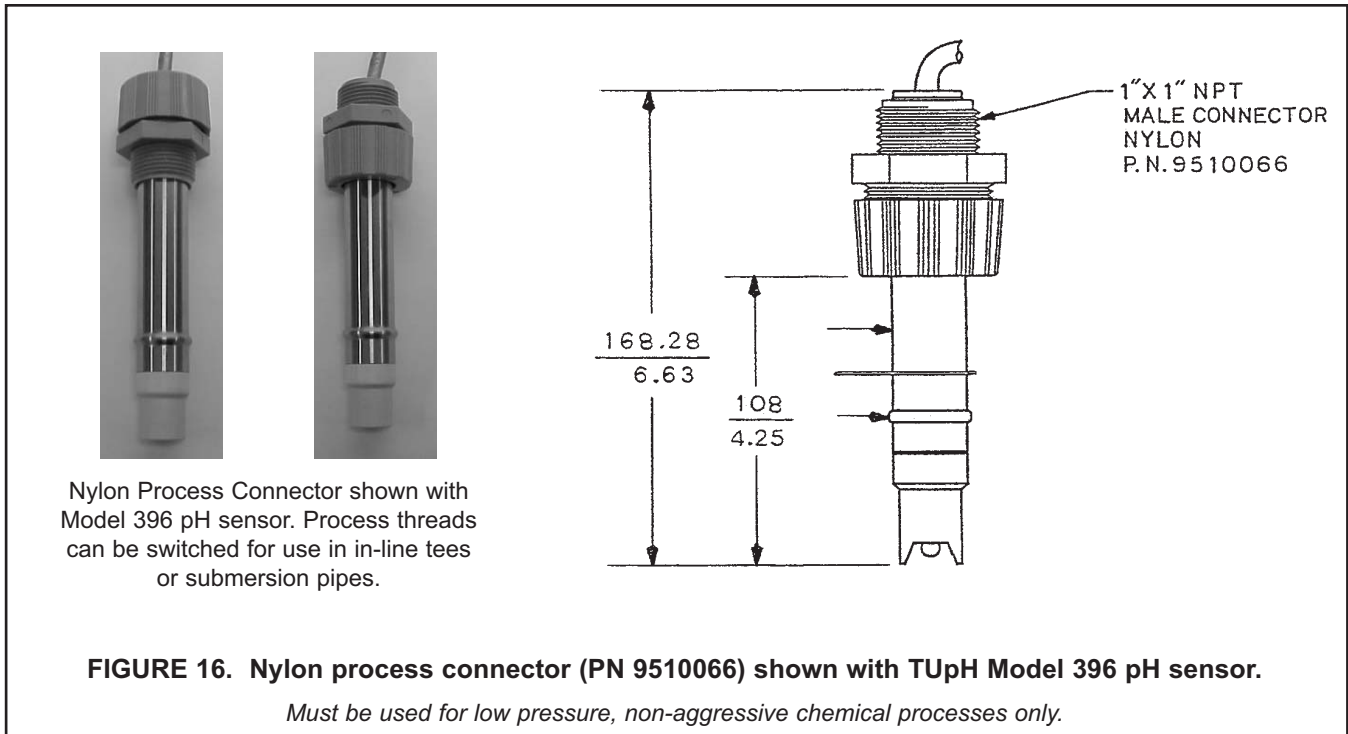


Nylon Process Connector PN 9510066
can be used for insertion or
submersion sensor connection



Metal Process Connector PN 23166-xx
(xx = 00 for 316 SST and xx = 01 for titanium)
can be used for insertion or
submersion sensor connection

PROCESS CONNECTORS:



VALVE INSERTION ASSEMBLIES:

COMMON INDUSTRIES:



Pulp & Paper



Chemical



Hydrocarbon Processing

- Used with Toroidal Conductivity Sensor Model 228
- Easy insertion/retraction of sensor in process conditions up to:
 - 295 psig (2036 kPa) and 392°F (200°C) with the mechanical assembly
 - 35 psig (241 kPa) and 266°F (130°C) with the manual assembly
- Convenient isolation of sensor from process for cleaning (using flush ports) or replacement
- Choice of mechanical or manual assembly
- Used with 1 1/2 " full port ball valve (purchased separately as PN 9340065)
- Recommended for Separators and Scrubbers typically found in the Chemical and Hydrocarbon Processing Industries
- Also used in CIP solutions and concentration control for the Chemical Industry
- Excellent for use in the white liquor alkali, brown stock washing, and green liquor alkali processes found within the Pulp and Paper Industry

	PART NUMBER 23311-00	PART NUMBER 23311-01
Process Connection	1-1/2 in. MNPT	1-1/2 in. MNPT
Wetted Materials	316 SST, Teflon, EP	316 SST, Teflon, EP
Maximum Operating Temperature	392°F (200°C)	392°F (200°C)
Maximum Operating Pressure	295 psig (2036 kPa)	295 psig (2036 kPa)
Max. Insertion/Retraction Conditions	392°F (200°C) 295 psig (2036 kPa)	266°F (130°C) 35 psig (241 kPa)
Maximum Insertion Travel	8.5 in. (21.6 cm)	12 in. (30 cm)
Maximum Insertion Travel using PN 9340065 Ball Valve	6.25 in. (15.9 cm)	7.0 in. (17.8 cm)
Compatible Conductivity Sensors	228	228
Figure Number	18	19

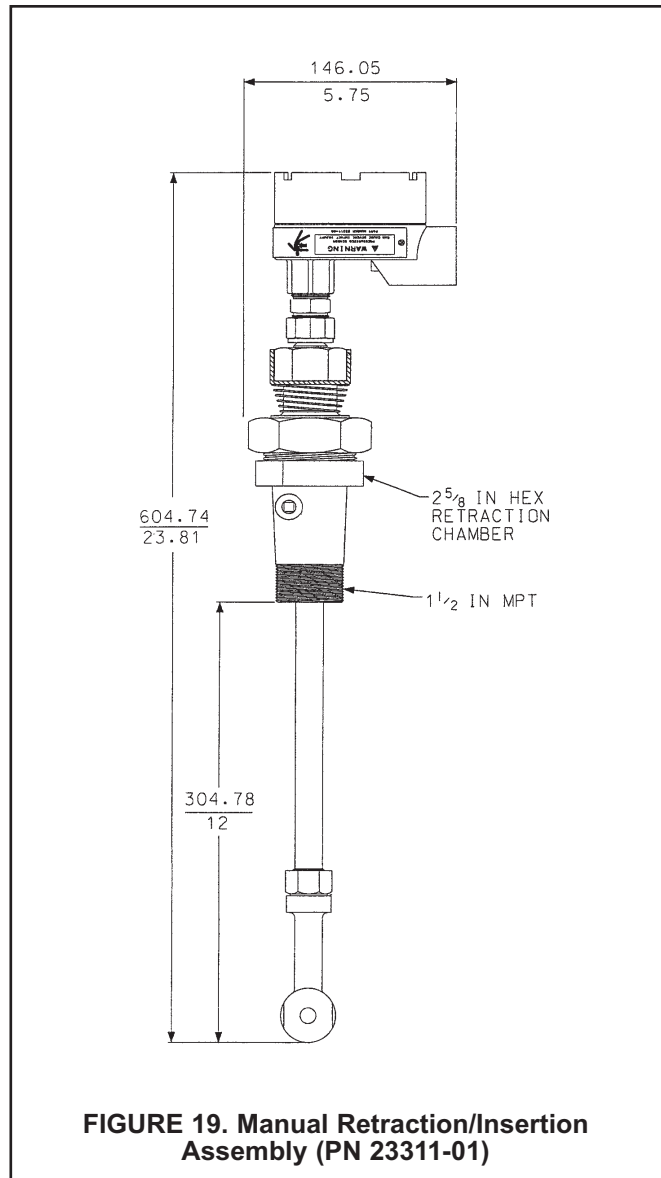
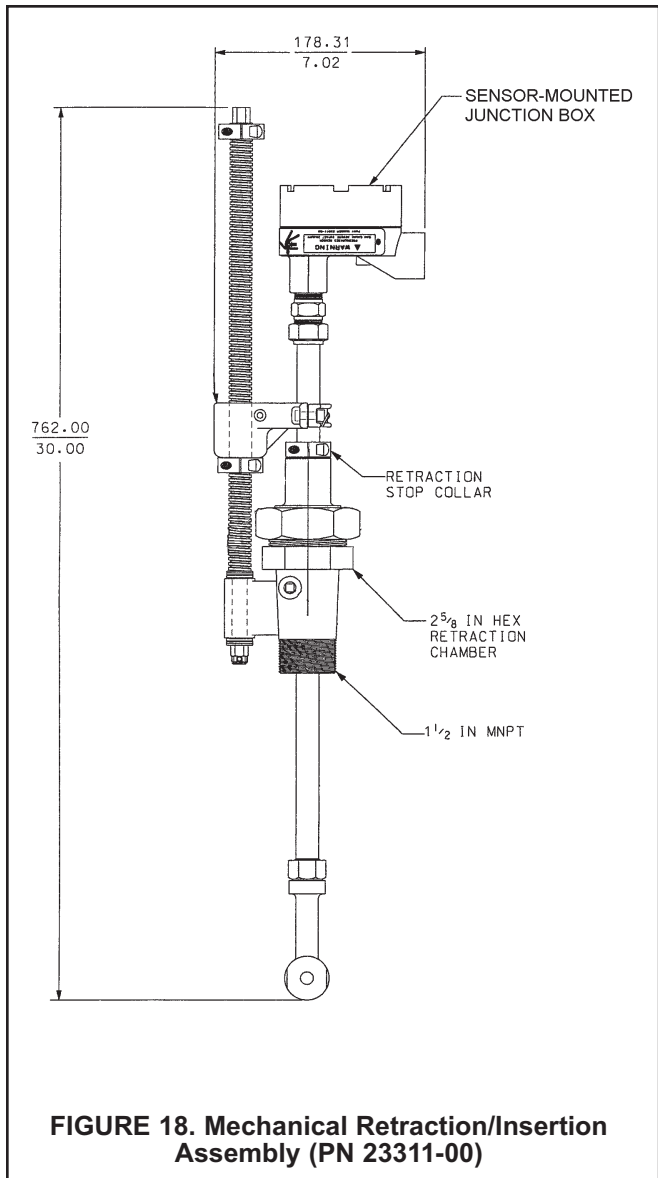
VALVE INSERTION ASSEMBLIES (continued)



MECHANICAL ASSEMBLY SHOWN WITH MODEL 228 TOROIDAL SENSOR



MANUAL ASSEMBLY SHOWN WITH MODEL 228 TOROIDAL SENSOR



PASVE ROTARY RETRACTION VALVE:

COMMON INDUSTRIES:



Pulp & Paper



Mining



Chemical



Pharm



Food & Beverage



Textile

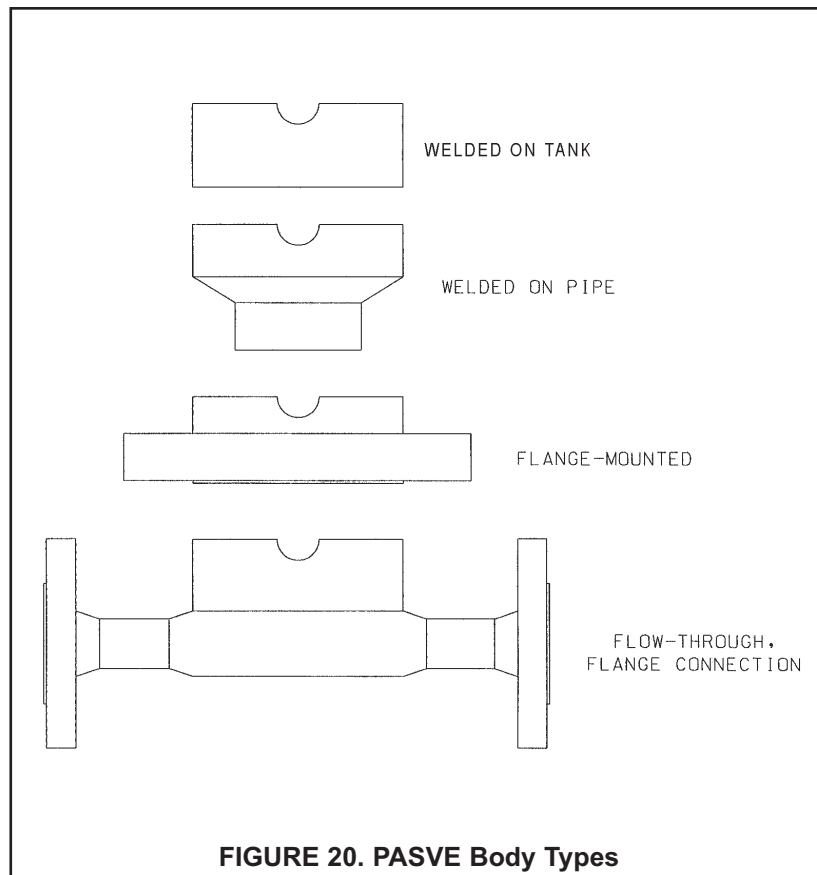
- Used with Rosemount Analytical's Models 389, 396, 396P, 398 pH sensors
- Can be mounted on pipe lines, tanks, or directly in-line
 - Ideal for mounting pH sensors in Headbox, whitewater, and stock preparation lines in the Pulp and Paper Industry
 - Also used in waste neutralization, coagulation and flocculation, and scrubbers typically found in the Chemical Industry
 - Ideal for COP (clean-out-of-place) and bulk ingredients in the Pharmaceutical and Food & Beverage Industries
- Suited for on-line mounting up to 150 psig
- Excellent for use in pulp stock lines
- Also great for dirty, coating, and/or abrasive applications typically found in the Pulp and Paper, Chemical, and Mining Industries
- Patented, Unique Rotary valve design provides cleaning and calibrating without sensor removal or process shutdown
- Manual or Automatic rotation available
- Extended sensor life: Sensor can rotate into process for critical measurement, then rotate out and flushed with water until next measurement time is needed. Especially good when used in harsh processes.

	Code C	Code P	Code F	Code D
Process Connection	Welded on Tank	Welded on Pipe	Flange	Flow-through with Flanged Connection
Figure Number	20, 24, 28	20, 24, 28	20, 24, 27, 28	20, 25, 26
Wetted Materials (Valve)	AISI 316LSST or Titanium			
Wetted Materials (Seals)	PTFE (Teflon) or PTFE (with carbon graphite filling)			
Maximum Operating Temperature	212°F (100°C)			
Maximum Operating Pressure	150 psig (1136 kPa)			
Cleaning Port Connections	1/4 inch			
Compatible pH Sensors	396, 396P, 389 398			
Wetted Materials (O-rings)	Viton or Kalrez			

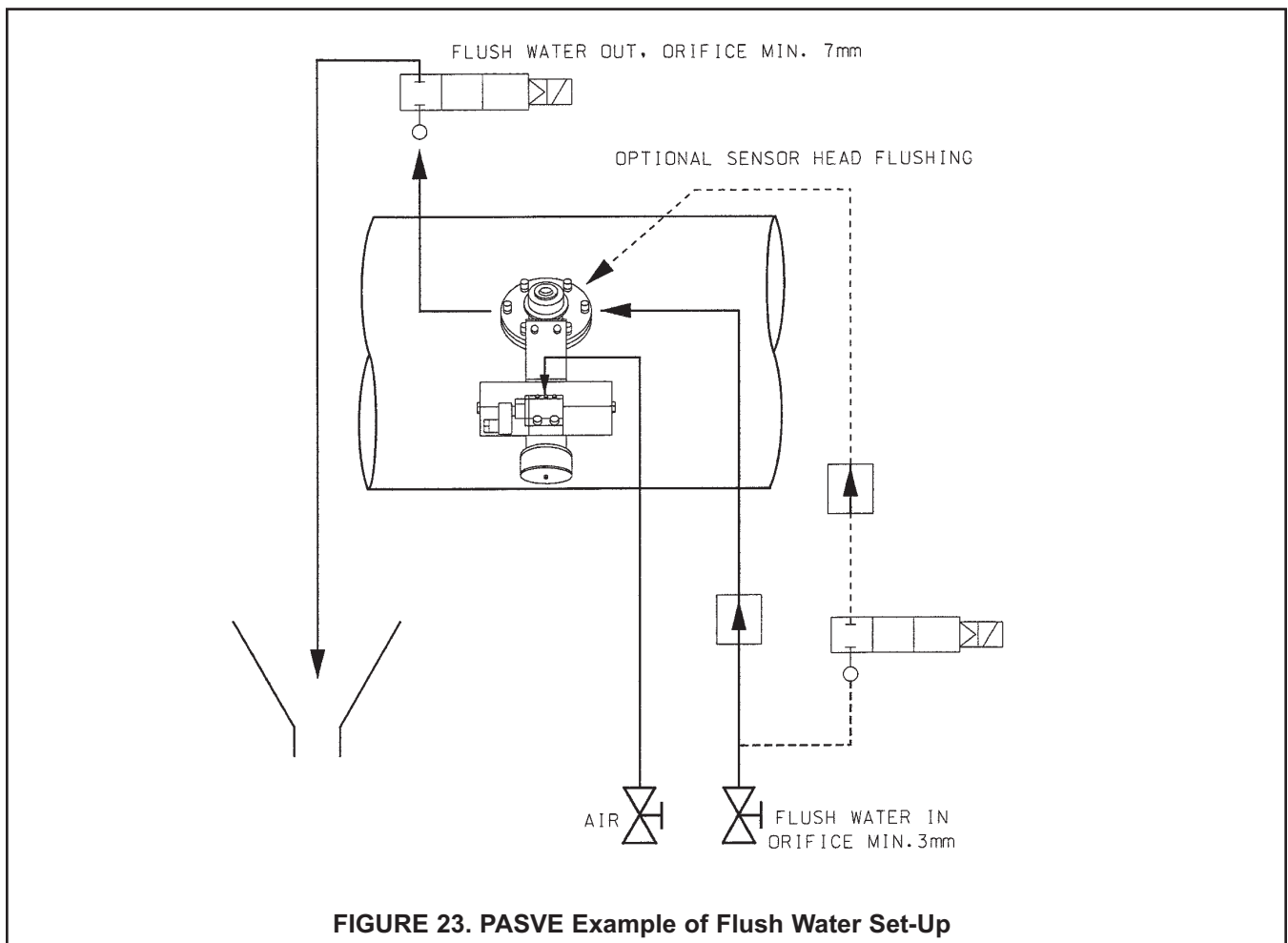
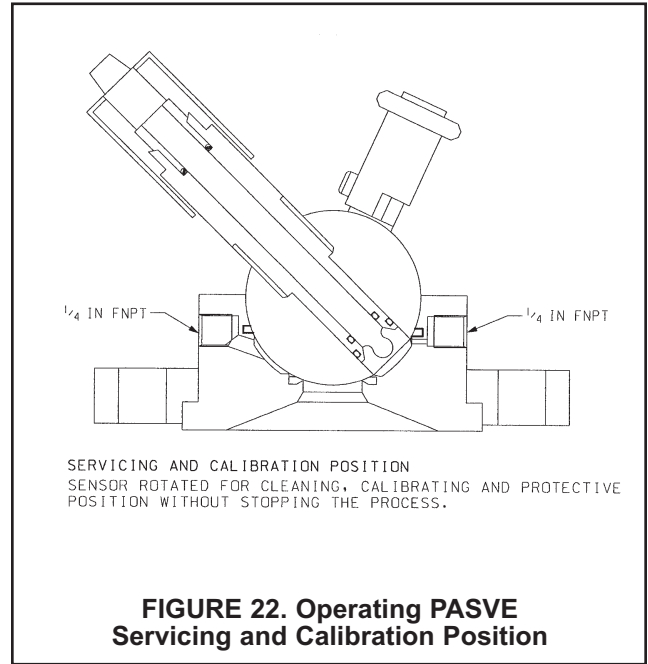
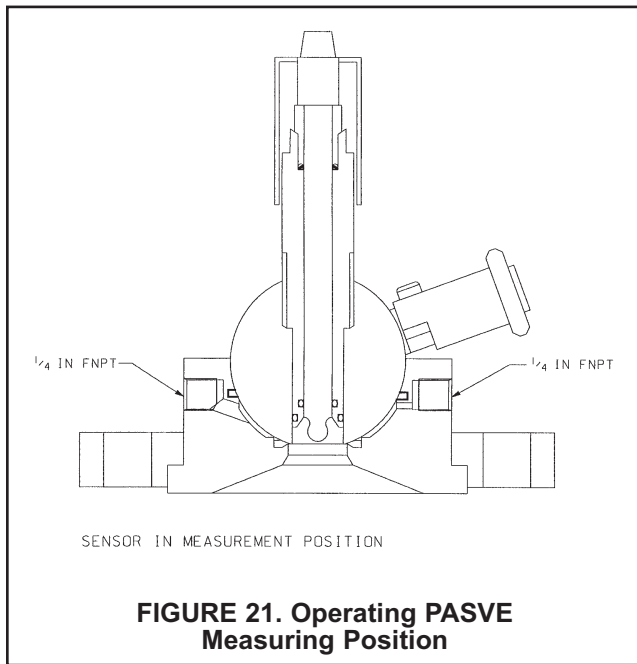
PASVE ROTARY RETRACTION VALVE (continued)



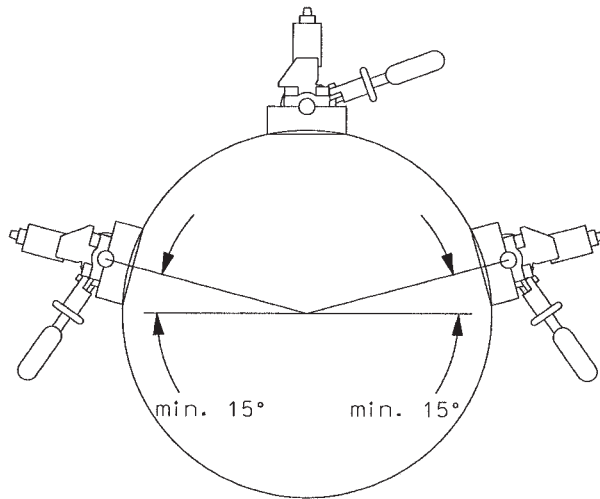
**PASVE Valve, shown in welded on tank,
manual operation configuration**



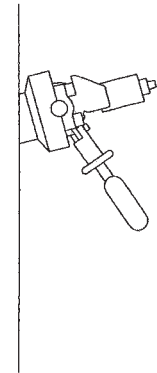
PASVE ROTARY RETRACTION VALVE (continued)



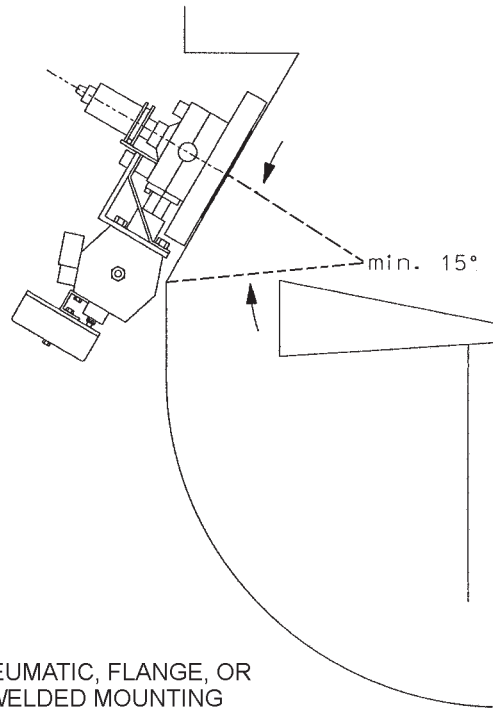
PASVE ROTARY RETRACTION VALVE (continued)



MANUALLY OPERATED, FLANGE,
OR WELDED ON TANK MOUNTING



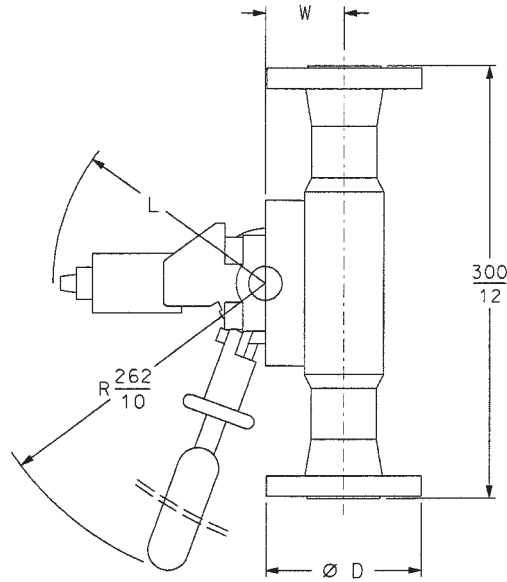
MANUALLY OPERATED,
WELDED ON PIPE MOUNTING



PNEUMATIC, FLANGE, OR
WELDED MOUNTING

FIGURE 24. PASVE pHc/P/F Recommended Flanged or Welded Mounting

PASVE ROTARY RETRACTION VALVE (continued)



L DIMENSION DEPENDS ON THE SENSOR TYPE.

PASVE pHD-(b)
(FLANGE CONNECTION TO THE FLOW)

b	FLANGE	W	D
G	DIN DN25 PN40	55mm/2.17inch	115mm/4.53inch
H	ANSI 1 inch 150 lbs	55mm/2.17inch	108mm/4.25inch
J	ANSI 1 inch 300 lbs	55mm/2.17inch	124mm/4.88inch
M	DIN DN40 PN40	63mm/2.48inch	150mm/5.91inch
N	ANSI 1 1/2 inch 150 lbs	63mm/2.48inch	127mm/5.00inch
P	ANSI 1 1/2 inch 300 lbs	63mm/2.48inch	156mm/6.14inch
T	DIN DN50 PN40	68mm/2.68inch	165mm/6.50inch
U	ANSI 2 inch 150 lbs	68mm/2.68inch	153mm/6.02inch
V	ANSI 2 inch 300 lbs	68mm/2.68inch	166mm/6.54inch

FIGURE 25. Threaded and Flanged Connection to Process Flow
PASVE pHT/D-(b) Manually Operated Dimensional Drawing.

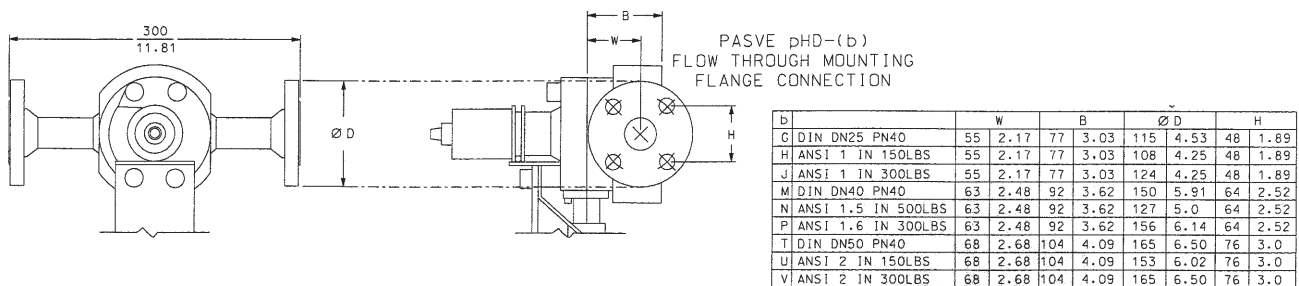


FIGURE 26. Threaded and Flanged Connection to Process Flow
PASVE pHT/D-(b) Pneumatic Operated Dimensional Drawing.

PASVE ROTARY RETRACTION VALVE (continued)

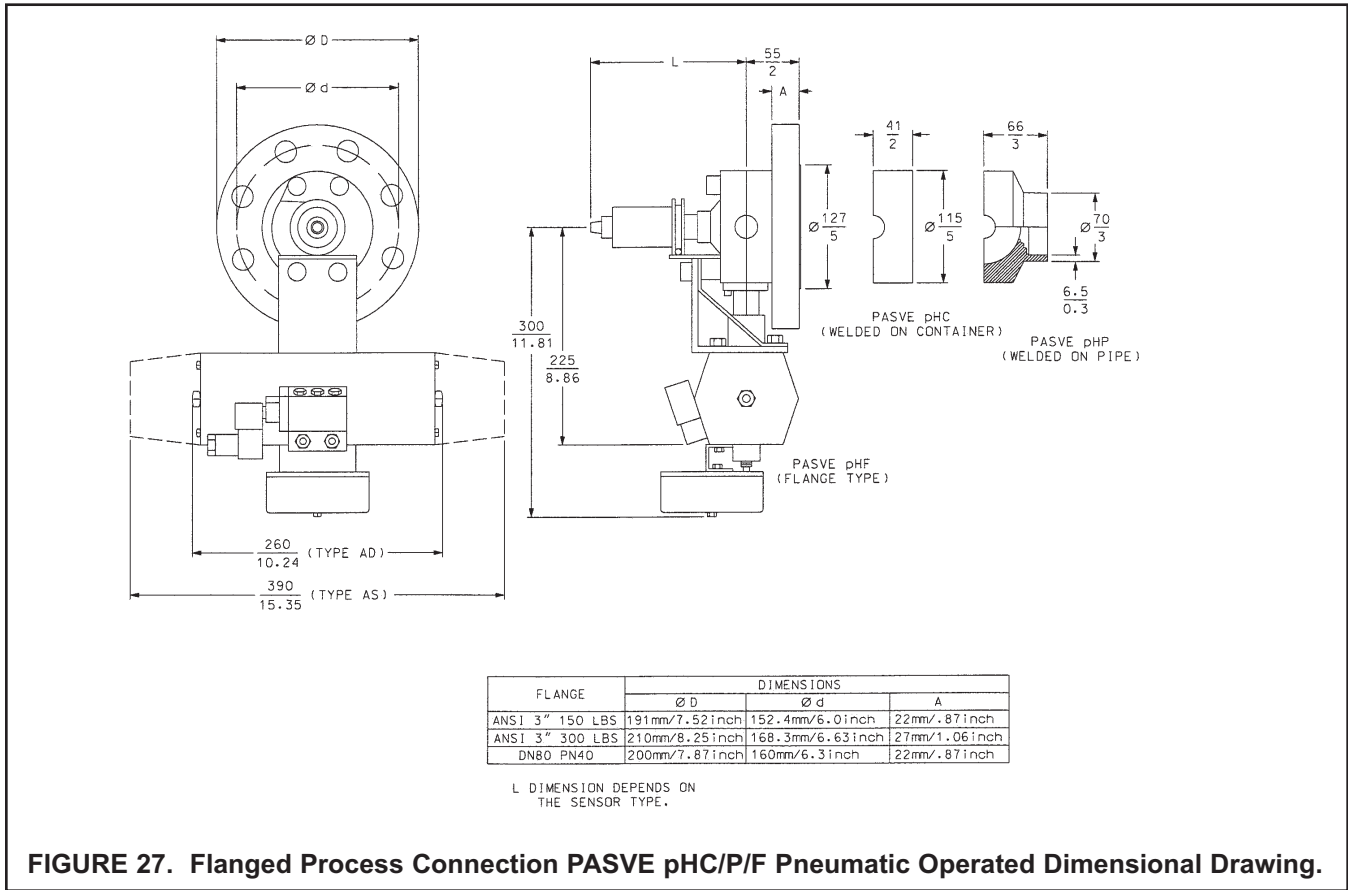


FIGURE 27. Flanged Process Connection PASVE pH/C/P/F Pneumatic Operated Dimensional Drawing.

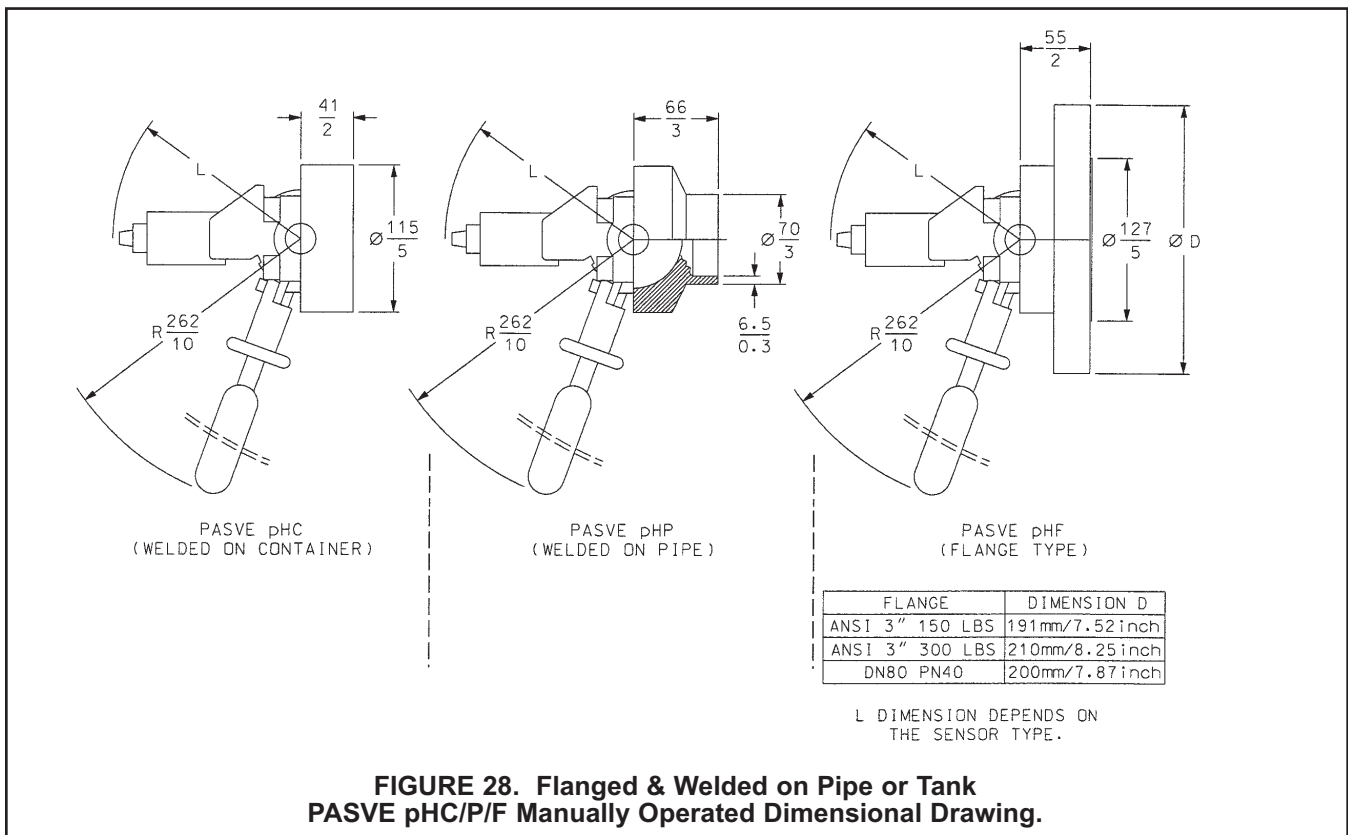


FIGURE 28. Flanged & Welded on Pipe or Tank PASVE pH/C/P/F Manually Operated Dimensional Drawing.

PASVE ROTARY RETRACTION VALVE (continued)

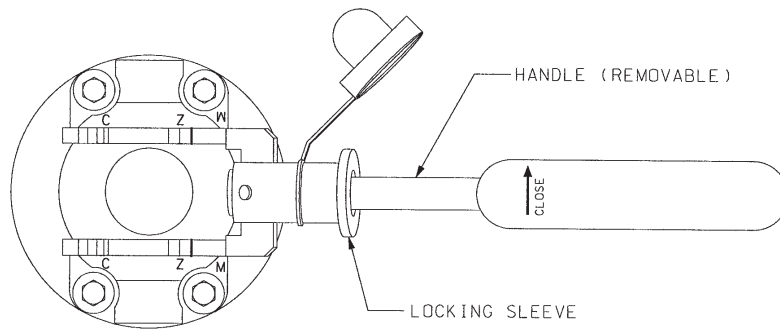
ORDERING INFORMATION

The PASVE pH Rotary Retraction Valve is designed for safe, continuous measurement and on-line maintenance in tanks and pipelines to prolong sensor life, increase accuracy, and reduce maintenance requirements in harsh, coating applications, typically found in the pulp and paper industry. The valve operates via rotary motion to remove the electrode from the process for cleaning or storage and then rotates back to the sensing position when cleaning is completed. The sensor can also be safely removed from the valve under pressure, without process disruption or leakage for calibration and other routine maintenance.

MODEL PASVE pH Rotary Retraction Valve	
CODE	MOUNTING METHODS
C	Welded on tank
B	Welded on tank with 15° angle
P	Welded on pipe
FA	Flange mounted 3" ANSI, 150#
FB	Flange mounted 3" ANSI, 300#
DH2	Flow through 1" ANSI 150# flanged connection
DU2	Flow through 2" ANSI 150# flanged connection
CODE	SEALS
0	PTFE (Teflon) with graphite and carbon
1	100% PTFE (Teflon)
CODE	ELECTRODE HOLDER TYPES
R10	Rosemount Analytical Model 389
R40	Rosemount Analytical Model 396
R60	Rosemount Analytical Model 396P
CODE	ACTUATOR
MD	No actuator, for manual use only
AD3	Double-action/solenoid 115 VAC 60 Hz
AE	Electric Actuator 115 VAC 60 Hz
AS3	Spring-return/solenoid 115 VAC 60 Hz
CODE	POSITION SWITCH
0IEO	None
XIEO	Standard

Notes: Consult factory for other materials of construction, such as titanium or Hastelloy C.

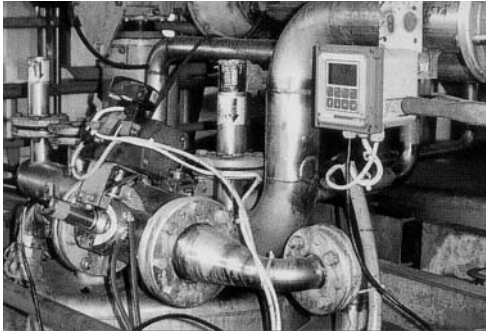
PASVE ROTARY RETRACTION VALVE (continued)



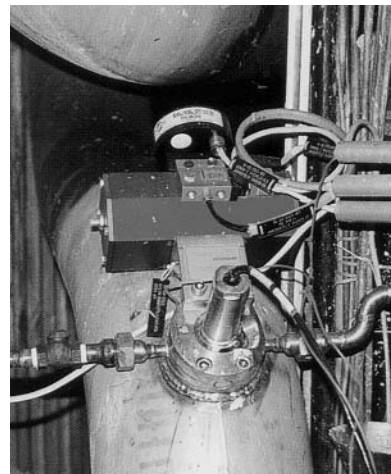
OPERATION

ROTATE THE HANDLE (RIGHT HAND-THREAD) TO RELEASE THE LOCKING.
LIFT THE LOCKING SLEEVE TO CHANGE THE OPERATING POSITION.

FIGURE 29. Operation of Manual Valve



PASVE and Model 54 in a pulp mill



Pneumatic PASVE mounted on a pipe

CHOOSING THE RIGHT MOUNTING SOLUTION FOR YOUR PROCESS NEEDS

The best way to choose the right mounting solution for your process is to do the following:

- 1) **Locate a place to mount the sensor.** Typical locations to mount a sensor are:
 - a) small pipelines which mount the sensor in-line using pipe tees, the Quik-Loc Assembly, process connectors, or mounting adapters
 - b) larger pipes where a ball valve kit or Pasve could be used for in-line mounting
 - c) tanks, ponds, aeration basins, and open channels which could use a handrail mounting assembly (with or without the Jet Spray Cleaner)
 - d) tanks using a ball valve kit or Quik-loc assembly
 - e) in a low flow cell by tapping into an existing process with a 1/4" connection
- 2) **Determine the process connection thread size that will mount the sensor.** Typical process connection sizes are 3/4", 1", 1-1/2", and 2".
- 3) **Determine the chemical compatibility of the sensor wetted materials to the process liquid components.** In more aggressive chemicals, the sensor and mounting accessory wetted materials must be chosen carefully. Check the Chemical Resistance Chart or consult Rosemount Analytical Customer Support Center or Industry Specialists if there is a question about chemical compatibility - (800) 854-8257.
- 4) **Choose the correct mounting accessory for your process.** The guide below should help in understanding Rosemount Analytical's offerings of various sensor threads:

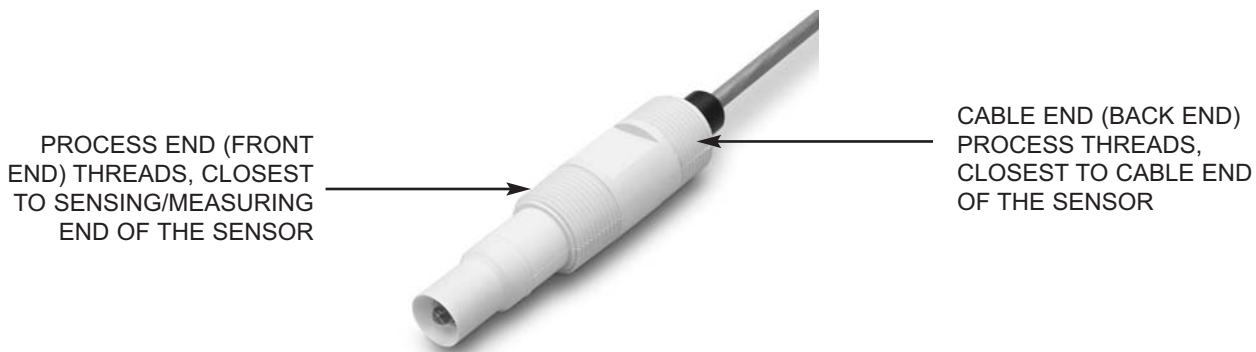


FIGURE 31. TUpH Model 396P pH sensor is offered with 1 inch threads in two locations: one on the process end and one on the cable end.

Understanding sensor process connections:

Rosemount Analytical sensors are offered with wide variety of threaded process connections.

The sensor shown above is TUpH Model 396P pH sensor. All sensors use similar terminology for process connection threads. Note that not all sensors are offered with front and back end threads for mounting the sen-



FIGURE 32. Model 228 Toroidal Conductivity Sensor (shown above) is offered with back end process threads only.



FIGURE 33. TUpH Model 396 pH sensor (shown above) is offered without process threads. A compression fit, process connector is used on the sensor body and gives the user flexibility for insertion depths because the process connector can be tightened in various locations on the sensor body. Retractable sensors (a longer version of what is shown above) are also offered without process threads. This is so the sensor can be mounted through a ball valve.

The sensors shown in Figures 32 and 33 are much different than the first sensor (396P) shown in Figure 31. Figure 32 is a Model 228 Toroidal sensor with 3/4" threads and is also offered with 5/8" UNC threads, both sizes an industry standard for conductivity sensor threads. Figure 33 is a Model 396 pH sensor and is not offered with any threads. The Model 396 is used with a process connector which allows variable insertion depths for the sensor and easy sensor removal without twisting the cable.

The following pages contain a list of the sensors that are compatible with the mounting solutions listed in this brochure. The process thread sizes are also listed in the Sensor Compatibility Chart to aid with your choosing the correct mounting solution.

Ordering Information:














All sensors used with the accessories mentioned in this catalog must be purchased separately. Also, please note that additional accessory items must be purchased along with the stated mounting accessories in order for the complete mounting to be accomplished. Please consult your local representative for more information about sensors or consult the factory at 1-800-854-8257 (in the U.S.) or 1-949-757-8500 (outside of the U.S.). You can also visit the Rosemount Analytical, Uniloc Division, web site at <http://www.RAuniloc.com> .

SENSOR TO MOUNTING ACCESSORY COMPATIBILITY CHART

Description	Part Number	Compatible pH Sensors	Compatible Conductivity Sensors	Compatible Dissolved Oxygen, Chlorine, & Ozone Sensors
In-line Tee	23567-00	396*, 396P, 389, 399, 385+*		499ADO, 499ACL 499AOZ
In-line Tee	2002011	396*, 396P, 389, 399, 385+*	150	499ADO, 499ACL 499AOZ
In-line Tee	915240-03	396P, 389, 399		499ADO, 499ACL 499AOZ
In-line Tee	915240-04	396P, 389, 399		499ADO, 499ACL 499AOZ
In-line Tee	915240-05	396P, 389, 399		499ADO, 499ACL 499AOZ
Low Flow Cell	23728-00	396*, 396P, 389, 399, 385+*		499ADO, 499ACL 499AOZ
Quik-Loc Assembly	23757-00	397		
Quik-Loc Assembly	23757-01	397		
Handrail Mounting	11275-01	396*, 396P, 389, 399, 385+*		499ADO, 499ACL 499AOZ
Jet Spray Cleaner	12707-00	396*, 396P, 389, 399, 385+*		499ADO, 499ACL 499AOZ
Mounting Adapter	23242-02 23242-03	396*, 396P, 389, 399, 385+*	228	
Mounting Adapter	9330022	396*, 396P, 389, 399, 385+*		
Ball Valve	23240-00	396R*, 398R*, 385, 385+		
Ball Valve	23765-00		402-11, 402-12, 402-13	
Ball Valve	23765-01		402-14	
Mechanical Valve Insertion Assembly	23311-00		228	
Mechanical Valve Insertion Assembly	23311-01		228	
Rotary Retraction Valve	See PASVE Ordering Matrix	396, 396P, 389		
Process Connectors	23166-00 23166-01	396, 385+		
Process Connectors	9510066	396, 385+		

* Sensor process connector for connection to process must be purchased separately for first time installations.

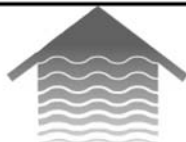
COMPATIBLE SENSORS

	Model Number	Threaded Process Connection Size		Model Number	Threaded Process Connection Size
	396	None -to connect to process, order process connector PN 23166-00 or -01		385	Standard 1 inch process connector always shipped with sensor
	396P	1 inch, front and back end threads		385+	None -to connect to process, order process connector PN 23166-00 or -01
	396R and 398R	None -mount sensor thru ball valve and use process connector PN 23166-00 or -01		397	None -must use Quik-Loc assembly (order separately)
	389	1 inch, front and back end threads		328A	None -for use with mounting assembly shown
	399	1 inch, front and back end threads		150	1 inch, front and back end threads
	499A CL 499A OZ 499A DO	1 inch, front and back end threads		402	None - mount sensor through ball valve
	228	3/4 inch NPT or 5/8 inch UNC, back end threads			



*The right people,
the right answers,
right now.*

**ROSEMOUNT ANALYTICAL
CUSTOMER SUPPORT CENTER
1-800-854-8257**



Emerson Process Management

Liquid Division

2400 Barranca Parkway
Irvine, CA 92606 USA
Tel: (949) 757-8500
Fax: (949) 474-7250

<http://www.raihome.com>

ON-LINE ORDERING NOW AVAILABLE ON OUR WEB SITE
<http://www.raihome.com>

Specifications subject to change without notice.



Credit Cards for U.S. Purchases Only.

