

# Typical Mounting Methods

This catalog presents the most commonly used methods to mount sensor probes. Conax Buffalo manufactures a broad range of pressure/vacuum sealing devices for specific uses. For a complete selection of mounting methods and sealing glands, request Conax Pressure and Vacuum Sealing Assemblies catalog or visit [www.conaxbuffalo.com/products/pres\\_vac.html](http://www.conaxbuffalo.com/products/pres_vac.html).

## Packing Gland – Catalog Types MIC, MPG & PG

This stainless steel, single bore compression sealing gland seals sheathed thermocouples, RTDs or other probes against gases or liquids. Conax "soft sealant" technology uses a compressible material, allowing the gland to be untorqued to adjust the probe immersion, then retorqued to re-establish the seal.

- Pressure: Vacuum to 10,000 psi (690 bar)
- Temperature Range: -400° F to +1600° F (-240° C to +870° C)
- Simple assembly, field adjustable
- Replaceable sealant permits repeated use of fitting
- Minimizes tube stress concentration

Conax Buffalo Pressure/Vacuum Sealing Gland Assemblies conform to the Standard Engineering Practice (SEP) requirements of the European Pressure Equipment Directive (PED) 97/23/EC. Contact Conax Buffalo for further information.



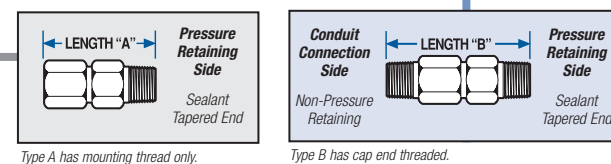
### PRESSURE RATING GUIDE @ 68° F

Catalog Number	Pressure Rating by Sealant Type (PSI)**				
	Neoprene	Viton	Teflon	Lava	Grafoil
MIC-040	—	—	3,200	8,000	—
MIC-062	—	—	3,200	8,000	10,000
MPG-040	2,400	3,200	4,000	5,600	—
MPG-062	2,400	3,200	4,000	4,000	5,000
MPG-125	2,400	2,400	2,400	4,000	5,000
MPG-187	1,200	1,500	1,500	4,000	4,000
PG2-125	5,000	10,000	3,200	10,000	10,000
PG2-187	3,200	4,500	2,400	10,000	5,000
PG2-250	2,400	3,000	1,200	10,000	4,000
PG4-250	1,500	1,500	2,400	10,000	5,000
PG4-375	1,200	500	1,400	10,000	3,200

## SPECIFICATIONS

Catalog Number	Tube or Probe Diameter***	Thread NPT	Length		Hex Size	TORQUE** (Ft-Lbs except as noted)			
			A	B		Neoprene/Viton	Teflon	Lava	Grafoil
MIC-040*	.040	1/16"	15/16"	N.A.	3/8"	—	7-9 in-lbs	45-50 in-lbs	—
MIC-062*	.062	1/16"	15/16"	N.A.	3/8"	—	7-9 in-lbs	45-50 in-lbs	45-50 in-lbs
MPG-040*	.040	1/8"	1-3/16"	1-9/16"	1/2"	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	—
MPG-062*	.062	1/8"	1-3/16"	1-9/16"	1/2"	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	55-60 in-lbs
MPG-125*	.125	1/8"	1-3/16"	1-9/16"	1/2"	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	55-60 in-lbs
MPG-187*	.187	1/8"	1-3/16"	1-9/16"	1/2"	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	55-60 in-lbs
PG2-125*	.125	1/4"	2"	2-5/8"	3/4"	30-35	15-20	40-45	35-40
PG2-187*	.187	1/4"	2"	2-5/8"	3/4"	30-35	15-20	40-45	35-40
PG2-250*	.250	1/4"	2"	2-5/8"	3/4"	30-35	15-20	40-45	35-40
PG4-250*	.250	1/2"	2-1/2"	3-1/4"	1"	55-60	55-60	125-140	90-100
PG4-375*	.375	1/2"	2-1/2"	3-1/4"	1"	55-60	55-60	125-140	90-100

\* Cap Style A or B  
 \*\* All pressure and torque ratings determined at 68° F with solid stainless steel rod used as the element.  
 \*\*\* Tolerance of tube or probe diameter, ±0.005. Deviation from the nominal may affect pressure ratings.



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## Midlock Gland – Catalog Type MK

This all stainless steel assembly for sealing gases and liquids is easy to use. Simply open the gland and slide the assembled fitting over the tube or probe. Tighten at the desired location. The ferrule is deformed against the probe and makes a seal without cutting the sheath surface.



- Pressure: Vacuum to 10,000 psi (690 bar)
- Temperature Range: Cryogenic to +1600° F (+870° C)
- Metal-to-metal seal
- Single ferrule is self-aligning (no lost pieces)
- Suitable for high vibration applications

### PRESSURE RATING GUIDE @ 68° F

Catalog Number	Probe or Tube Diameter***	Thread NPT	Length	Hex Size	TORQUE** (Ft-Lbs)	Pressure Rating (PSI)**
MK-062-A	.062	1/8"	1-3/16"	1/2"	10	10,000
MK-125-A	.125	1/8"	1-3/16"	1/2"	12	10,000
MK-187-A	.187	1/8"	1-3/16"	1/2"	18	10,000
MK-250-A	.250	1/4"	1-5/8"	5/8"	30	10,000
MK-375-A	.375	1/2"	2"	1"	50	10,000

Available with Type A mounting only.  
 \*\* All pressure and torque ratings determined at 68° F with solid stainless steel rod used as the element.  
 \*\*\* Tolerance of tube or probe diameter, ±0.005. Deviation from the nominal may affect pressure ratings.

## Sealant Selection Guide

Sealant Material	Temperature Range	Type of Material	Feature
Neoprene	-40° F to +200° F (-40° C to +93° C)	Synthetic Rubber (nonflammable)	Has the resilience of natural rubber with better resistance to oil, gasoline, ozone, weather and heat. Excellent memory for temperature cycling applications - good electrical resistivity - reusable in most cases.
Viton®	-10° F to +450° F (-20° C to +232° C)	Fluoroelastomer	Retains mechanical properties at high temperature. Resistant to oils, solvents, fuels, corrosive industrial chemicals. Good electrical properties - reusable in most cases.
Teflon®	-300° F to +450° F (-185° C to +232° C)	Tetrafluoroethylene Plastic (Thermoplastic Resin) (nonflammable)	Least permeable to gases. Has natural lubricity - resists adhesion of foreign matter - reusable in most cases.
Lava	-300° F to +1600° F (-185° C to +870° C)	Natural Magnesium Silicate	Low thermal coefficient. Crushes to powdered mass under compression - slightly porous to light gases and steam. NOT RECOMMENDED FOR HIGH VACUUM. Not reusable.
Grafoil®	-400° F to +925° F (-240° C to +495° C) +3000° F (+1650° C) in reducing atmosphere	Graphite in foil layers (conductive)	Low vapor pressure, low gas permeability - excellent for vacuum applications. Good for thermal cycling applications. Natural lubricity, electrically conductive. Superior sealing capabilities at +925° F (+496° C). Not reusable in most cases.



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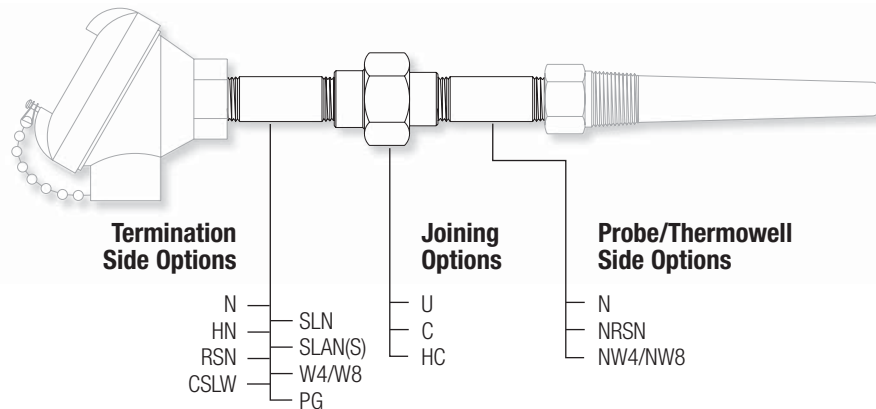
# Additional Mounting Methods

Conax Buffalo offers numerous combinations of pipe nipples, hex nipples, unions and couplings to be used to mount your assembly to a vessel. These may also be used in combination with spring-loaded mounting devices. All pipe nipples and unions are 1/2 NPT stainless steel unless otherwise specified. Carbon steel is also available. Conax Buffalo does not recommend the use of nipple combinations (N, NU, NUN or HN) without additional probe support.

## Standard Lengths

Catalog Designation	Length (inches)*
U	2.00
C	2.00
HC	1.56
N	4.00
HN	2.00
RSN, NRSN	4.00
W4, W8, NW4, NW8	2.00
SLN	4.00
SLAN(S)	2.00
CSLW	2.00
CSLP	1.00

\* Reference dimension

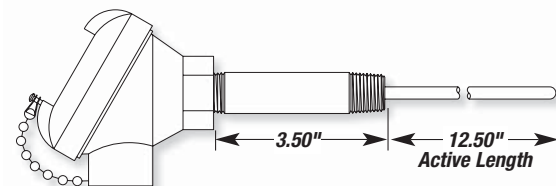


## Calculating the Length of Nipple Combinations

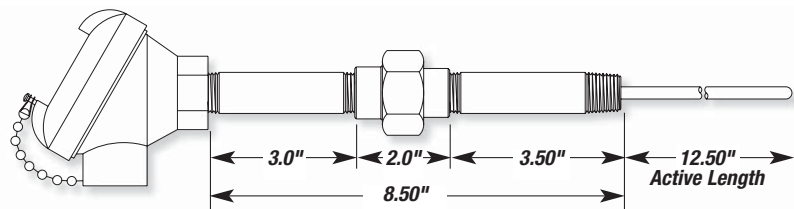
For assemblies using pipe nipples, the active length is the distance from the sensor end of the probe to the end of the pipe nipple.

The length of the pipe nipple must also be specified in an order, keeping in mind that when engaging 1/2 NPT threads, approximately 1/2" is lost per connection.

If a spring-loaded pipe nipple (SLN) is ordered, the active length is measured with the spring uncompressed. Conax Buffalo recommends 1/4" of spring compression when the probe is installed.



Example 1: RTD43W3-SS25-T5AL(RSN3.50)-12.50"



Example 2: RTD43W3-SS25-T5AL(SLNUN8.50)-12.50"

**Note:** Stainless steel is the standard material. For items where a carbon steel option is available, this is designated by adding "CS" after the mounting component length.

**Stainless Steel Example:**  
RTD43W3-SS25-T5AL(RSN3.50)-12.50"

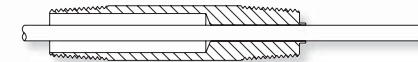
**Carbon Steel Example:**  
RTD43W3-SS25-T5AL(RSN3.50CS)-12.50"

## Catalog Designations



### N – Pipe Nipple

Conax pipe nipples consist of Schedule 40 pipe with male threads on each end, 4 inch long stainless steel standard. Carbon steel (CS) and longer lengths are available options. Pipe nipples feature a 1/2 NPT and nominal bore ID of 0.62". Pipe nipples are used to provide temperature standoff between the pipe/vessel and terminal head. They are also often used as a spacer between insulated vessels/pipes and terminal heads.

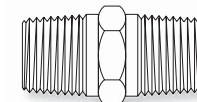


### RSN – Rigidly Sealed Nipple

The Conax rigidly sealed nipple is similar in usage to a pipe nipple, but is weld sealed on the process end to provide pressure/vacuum sealing against liquid or gases reaching the terminal head. The RSN is sized to fit the requested sensor diameter. Available in stainless steel only, 1/2 NPT, 4" long standard. Other lengths are available.

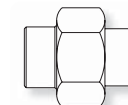
### NRSN

This version of the RSN is not weld sealed on the process end. It provides a pilot for the probe without the seal.



### HN – Hex Nipple

The hex nipple provides a shorter temperature standoff than the pipe nipple and includes wrench flats. The HN features a 2" long fixed overall length and is available in stainless steel only.



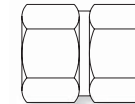
### U – Union

This Class 150 lb., 1/2 NPT standard union allows disassembly, removal and positioning of the sensor assembly. Stainless steel is standard. Carbon steel (CS) is also available.



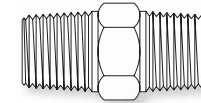
### C – Coupling

A Class 150 lb. standard coupling may be used to join pipe nipple sections. Stainless steel is standard. Carbon steel (CS) is also available.



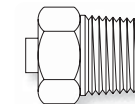
### HC – Hex Coupling

The hex coupling offers wrench flats. Available in stainless steel only.



### W Mounting

The Conax W fitting is a stainless steel fitting with male threads on both ends. The bore is sized to pass standard probe diameters of 0.125", 0.187" or 0.250". NW4 and NW8 fittings are not welded and can be used to pilot the probe for insertion into tubewells or thermowells. W4 and W8 fittings are welded sealed to form a rugged leak-tight mounting. Order W8 for a 1/2 NPT, W4 for a 1/4 NPT.

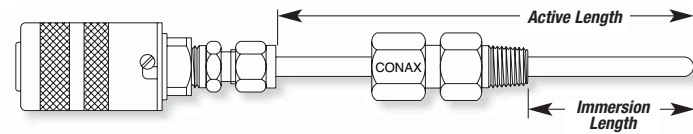


### W7

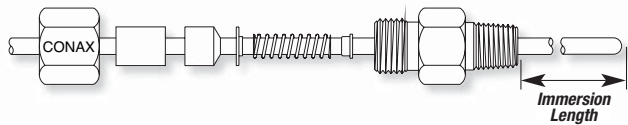
The Conax W7 fitting is a stainless steel fitting with male threads on one end only. The hex end is welded to the sheath to form a fixed mounting and liquid/gas seal. The bore is sized to pass standard probe diameters of 0.125", 0.187" or 0.250". When included in an assembly, both the active and immersion lengths must be specified.

# Spring Loaded Assemblies

Conax Buffalo provides several types of spring-loaded assemblies to meet your application needs. All are designed to provide positive contact of the sensor tip with the surface to be measured.



When ordering spring loads, the immersion length should be measured with the spring uncompressed. We recommend 1/4" of spring compression when the probe is installed.



## Spring Load Assembly (SL)

The SL assembly features rugged stainless steel construction with a Teflon sealant.

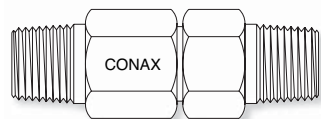
- Temperature Range: -190° F to +450° F (-123° C to +232° C)
- Spring Pressure: approximately 2 to 8 pounds
- Spring Travel: 1/4" to 3/8"
- Available with Type B cap for direct mount

A typical catalog number for a spring load assembly is:

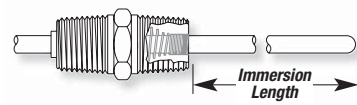
**J-SS12-U-B2-SL-12.50", A=3.50"**

## Spring Loaded Assembly Specifications

Catalog Type	Probe Diameter (inches)	Mounting Thread NPT	Nominal Mounting Thread Engagement (inches)	Length with A Cap (inches)
SL6	0.062	1/8	1/4	1-3/16
SL12	0.125	1/8	1/4	1-3/16
SL18	0.187	1/4	3/8	2
SL25	0.250	1/2	1/2	2-1/2

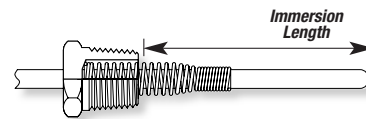


SL assembly shown with B cap.



## Crimp Spring Load (CSLW)

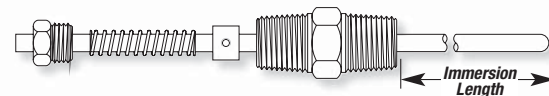
This assembly provides a spring load with male 1/2 NPT threads at both ends. Wrench flats permit easy tightening, removal and reuse. Constructed of sturdy stainless steel with an overall length of 2". Bores are sized to fit the diameter of the probe.



## Crimp Spring Plug (CSLP)

This assembly includes threads on the mounting end only. It is designed for use with T3/T4, Plug & Jack and B-head assemblies to provide positive contact with a pipewell bottom or other vessel surfaces.

**Example: J-SS12-U-B2-CSLP-12.50", A=3.50"**



## Spring Load Adjustable Nipple (SLAN and SLANS)

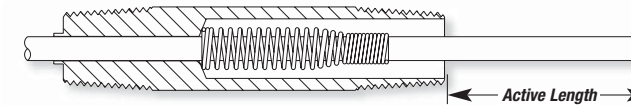
The SLAN is an adjustable spring-loaded sensor fitting. The set-screw collar allows the fitting to be fully adjustable and "forgiving" to accommodate errors in thermowell and sensor lengths.

- 1/2 NPT on both ends
- Available for 0.125", 0.187" and 0.250" diameters
- Stainless steel construction
- 2-1/4" overall length

The SLANS assembly includes a Viton O-ring.

- 50 psi maximum
- 1/2 NPT on both ends
- Available for 0.250" diameter only
- Stainless steel construction
- 2-1/4" overall length

# Spring Loaded Assemblies



## Spring Load Nipple Assembly (SLN)

The SLN assembly provides a spring load inside a pipe nipple. It is available for 0.125", 0.187" and 0.250" diameter probes. A union and additional nipple may also be added to form SLNU and SLNUN configurations.

- 4" overall length; other lengths available
- 1/2 NPT on both ends
- Stainless steel construction. Carbon steel optional

## T11SL

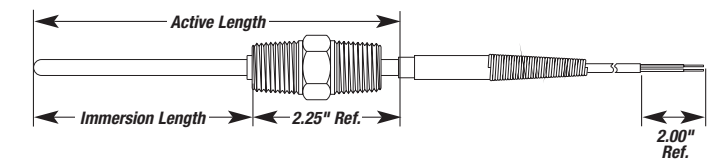
- Includes spring loaded assembly built into the head
- Allows complete disassembly and removal of the sensor probe without dismantling the terminal head from the conduit or vessel
- Weathertight
- Lightweight cast aluminum construction
- Silver-painted finish designed to resist weak acids, organic solvents, alkalis, sunlight & dust
- Screw cover with chain leash and O-ring seal
- 6 terminal posts
- Service temperature upper limit: 275° F (135° C)
- Use of NW8 or N fitting recommended for mounting to probe
- Size (reference): 3.25" OD x 3.7" L, 0.7 lb.
- Conduit port 1/2 NPT



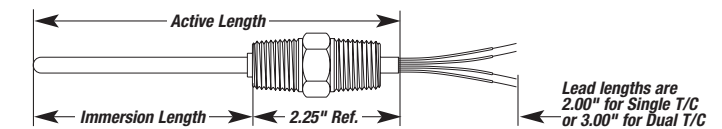
# Replacement Probes

## Replacement Probe with Type W8 or W4 Fitting Assemblies

Replacement Probe Fitting Assemblies are available for those who wish to replace the probe without replacing the terminal head. Order W8 for a 1/2 NPT, W4 for a 1/4 NPT. To order, both the immersion length and the active length must be specified, as demonstrated in the following examples:



**J-SS25-U-T3-W8-7.75", A=5.50"**

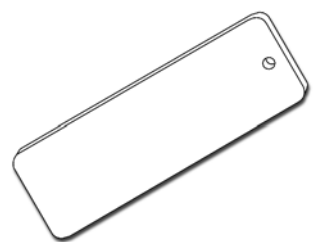
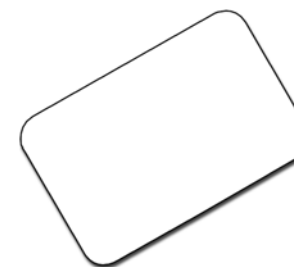


**J-SS25-U-T1(2")-W8-7.75", A=5.50"**

# Identification Methods

**Aluminum Foil Tag** – All Conax sensor assemblies include an aluminum foil tag that identifies the catalog description for that assembly.

**Stainless Steel Tag** – Optional electro-etched stainless steel identification tags can be supplied. Consult factory for details.



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