

This catalog presents the most commonly used methods to mount sensor probes. Conax manufactures a broad range of pressure/vacuum compression seals for specific uses. For a complete selection of mounting methods and compression seal fittings, request Conax Pressure and Vacuum Sealing Assemblies catalog #5001 or visit www.conaxtechnologies.com

Conax Compression Seal Fittings conform to the Standard Engineering Practice (SEP) requirements of the European Pressure Equipment Directive (PED) 97/23/EC. Contact Conax Technologies for further information.

Conax Compression Seal Fitting – Catalog Types MIC, MPG and PG

This stainless steel, single bore compression seal fitting seals sheathed thermocouples, RTDs or other probes against gases or liquids. Conax “soft sealant” technology uses a compressible material, allowing the seal 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



PRESSURE RATING GUIDE @ 68°F (20°C)

Catalog Number	Pressure Rating by Sealant Type (PSI)**									
	Neoprene		Viton		Teflon		Lava		Grafoil	
	PSIG	BAR	PSIG	BAR	PSIG	BAR	PSIG	BAR	PSIG	BAR
MIC-040	—	—	—	—	3,200	220	8,000	551	—	—
MIC-062	—	—	—	—	3,200	220	8,000	551	10,000	690
MPG-040	2,000	138	1,600	110	1,600	110	2,800	193	1,600	110
MPG-062	1,600	110	2,800	193	1,600	110	3,200	220	2,000	138
MPG-125	1,200	83	1,200	83	800	55	2,000	138	2,400	165
MPG-187	1,200	83	1,500	103	1,500	103	2,000	138	800	55
PG2-125	2,800	193	2,800	193	1,600	110	9,000	620	8,000	551
PG2-187	2,000	138	4,500	310	1,600	110	8,800	607	4,000	276
PG2-250	1,000	69	2,000	138	800	55	7,500	517	4,000	276
PG4-250	1,500	103	1,500	103	1,600	110	10,000	690	7,500	517
PG4-375	1,200	83	500	34	1,400	96	7,500	517	4,500	310

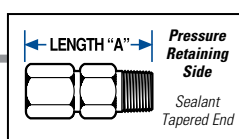
SPECIFICATIONS

Catalog Number	Tube or Probe Diameter***		Thread NPT IN	Length				Hex Size		TORQUE** (Ft-Lbs except as noted)			
	IN	MM		A IN	MM	B IN	MM	IN	MM	Neoprene/Viton	Teflon	Lava	Grafoil
MIC-040-*	.040	1.02	1/16	.94	23.8	N.A.	N.A.	.375	9.5	—	7-9 in-lbs	45-50 in-lbs	—
MIC-062-*	.062	1.57	1/16	.94	23.8	N.A.	N.A.	.375	9.5	—	7-9 in-lbs	45-50 in-lbs	45-50 in-lbs
MPG-040-*	.040	1.02	1/8	1.19	30.2	1.56	39.7	.50	12.7	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	55-60 in-lbs
MPG-062-*	.062	1.57	1/8	1.19	30.2	1.56	39.7	.50	12.7	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	55-60 in-lbs
MPG-125-*	.125	3.18	1/8	1.19	30.2	1.56	39.7	.50	12.7	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	55-60 in-lbs
MPG-187-*	.187	4.75	1/8	1.19	30.2	1.56	39.7	.50	12.7	55-60 in-lbs	55-60 in-lbs	75-80 in-lbs	55-60 in-lbs
PG2-125-*	.125	3.18	1/4	2.00	50.8	2.63	66.7	.75	19.1	30-35	15-20	40-45	35-40
PG2-187-*	.187	4.75	1/4	2.00	50.8	2.63	66.7	.75	19.1	30-35	15-20	40-45	35-40
PG2-250-*	.250	6.35	1/4	2.00	50.8	2.63	66.7	.75	19.1	30-35	15-20	40-45	35-40
PG4-250-*	.250	6.35	1/2	2.56	65.0	3.31	84.1	1.00	25.4	55-60	55-60	125-140	90-100
PG4-375-*	.375	9.53	1/2	2.56	65.0	3.31	84.1	1.00	25.4	55-60	55-60	125-140	90-100

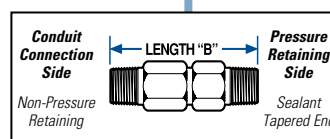
* Cap Style A or B

** 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.



Type A has mounting thread only.



Type B has cap end threaded.

Conax Metal Ferrule Compression Seal Fitting – Catalog Type MK

This all stainless steel assembly for sealing gases and liquids is easy to use. Simply open the compression seal fitting 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

Specifications - MK

Catalog Number	Tube/Probe Diameter		Thread NPT IN	Length 'A'		Hex Size				Pressure Rating		Torque	
	IN	MM		IN	MM	Body IN	Cap IN	Body MM	Cap MM	PSIG	BAR	Ft-lbs	Nm
MK-062-A	0.062	1.57	1/8	1.19	30.2	0.500	0.500	12.7	12.7	10,000	689	10	14
MK-125-A	0.125	3.18	1/8	1.19	30.2	0.500	0.500	12.7	12.7	10,000	689	12	16
MK-187-A	0.187	4.75	1/8	1.19	30.2	0.500	0.500	12.7	12.7	10,000	689	18	24
MK-250-A	0.250	6.35	1/4	1.63	41.3	0.625	0.625	15.9	15.9	10,000	689	30	41
MK-375-A	0.375	9.53	1/2	2.00	50.8	1.000	0.750	25.4	19.1	10,000	689	50	68

All pressure and torque ratings were determined at 68°F (20°C) using stainless steel rod as the element. Pressure ratings may degrade at higher temperatures. Pressure rating guide values are provided for glands with elements restrained by the compressed sealant. Higher pressure may be attained with additional element restraints. Tolerance of tube or probe diameters is $\pm 0.005"$. Deviation from the nominal may affect the pressure rating. For proper assembly of these sealing glands, see the Assembly Instructions provided on pages 106-119.

Sealant Selection Guide

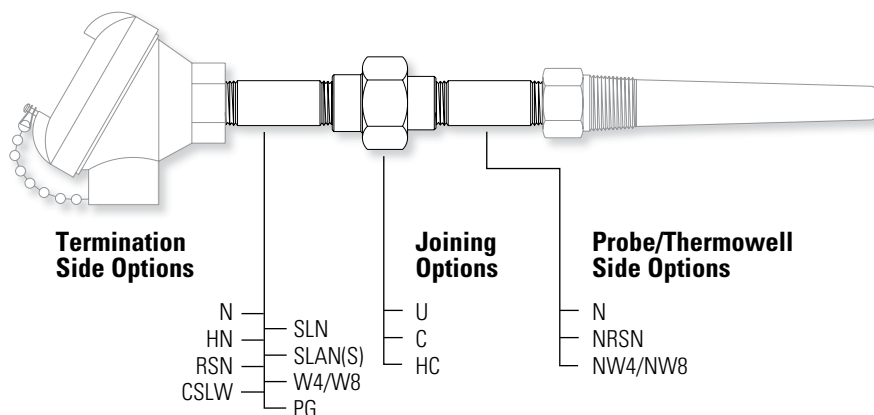
Sealant Material	Temperature Range	Type of Material	Feature
Neoprene	-40° F to +200° F (-40° C to +93° C)	Synthetic Rubber (nonflammable)	Has the resilience of natural rubber with better resistance to oil, gasoline, ozone, weather and heat. Excellent memory for temperature cycling applications - good 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.

Conax Technologies 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 does not recommend the use of nipple combinations (N, NU, NUN or HN) without additional probe support.

Standard Lengths

Catalog Designation	Length*	
	IN	MM
U	2.00	50.8
C	2.00	50.8
HC	1.56	39.6
N	4.00	101.6
HN	2.00	50.8
RSN, NRSN	4.00	101.6
W4, W8, NW4, NW8	2.00	50.8
SLN	4.00	101.6
SLAN(S)	2.00	50.8
CSLW	2.00	50.8
CSLP	1.00	25.4

* Reference dimension



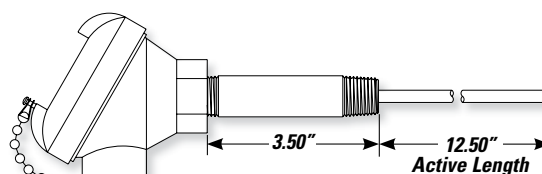
Calculating the Length of Nipple Combinations

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.

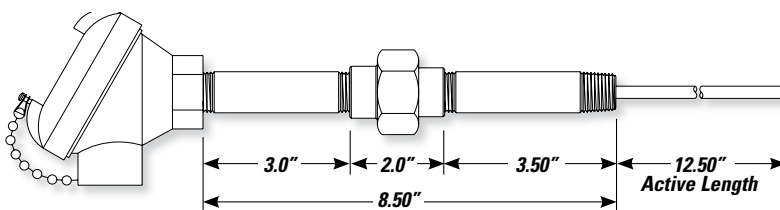
The length of the pipe nipple must also be specified in an order, keeping in mind that when engaging 1/2 NPT threads, approximately 1/2" is lost per connection.

If a spring-loaded pipe nipple (SLN) is ordered, the active length is measured with the spring uncompressed.

Conax 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"

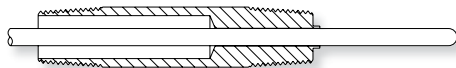
Carbon Steel Example:
RTD43W3-SS25-T5AL(RSN3.50CS)-12.50"

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.

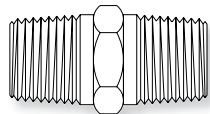


RSN – Rigidly Sealed Nipple

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.

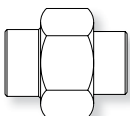
NRSN

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.



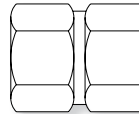
U – Union

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.



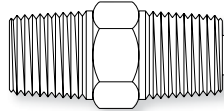
C – Coupling

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



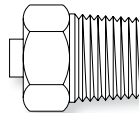
HC – Hex Coupling

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



W Mounting

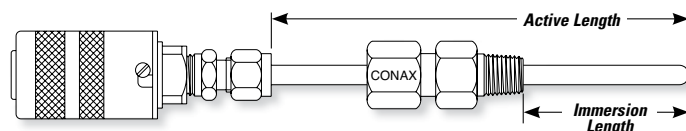
The Conax W fitting is a stainless steel fitting with male threads on both ends. The bore is sized to pass standard probe diameters of 0.125", 0.187" or 0.250". NW4 and NW8 fittings are not welded and can be used to pilot the probe for insertion into tubewells or thermowells. W4 and W8 fittings are weld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



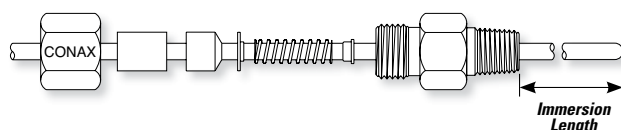
W7

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.

Conax 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.

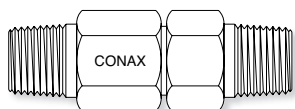
- Temperature Range: -190° F to +450° F (-123° C to +232° C)
- Spring Pressure: approximately 2 to 8 pounds
- Spring Travel: .250" to .375" (6.35-9.52mm)
- Available with Type B cap for direct mount

A typical catalog number for a spring load assembly is:

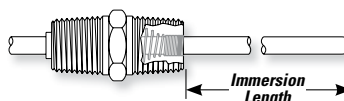
J-SS12-U-B2-SL-12.50", A=3.50"

Spring Loaded Assembly Specifications

Catalog Type	Probe Diameter		Mounting Thread NPT	Nominal Mounting Thread Engagement		Length with A Cap	
	IN	MM	IN	IN	MM	IN	MM
SL6	.062	1.57	1/8	1/4	6.35	1.18	30.0
SL12	.125	3.18	1/8	1/4	6.35	1.18	30.0
SL18	.187	4.75	1/4	3/8	9.52	2.00	50.8
SL25	.250	6.35	1/2	1/2	12.70	2.50	63.5

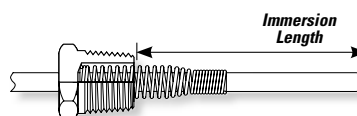


SL assembly shown with B cap.



Crimp Spring Load (CSLW)

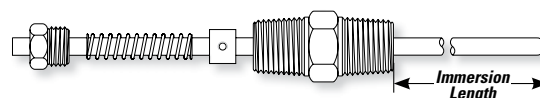
This assembly provides a spring load with male 1/2 NPT threads at both ends. Wrench flats permit easy tightening, removal and reuse. Constructed of sturdy stainless steel with an overall length of 2" (50.8mm). Bores are sized to fit the diameter of the probe.



Crimp Spring Plug (CSLP)

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

Example: J-SS12-U-T3-CSLP-12.50", A=3.50"



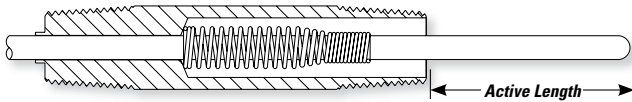
Spring Load Adjustable Nipple (SLAN and SLANS)

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" (3.18mm), 0.187" (4.75mm) and 0.250" (6.35mm) diameters
- Stainless steel construction
- 2.75" (57.15mm) overall length

The SLANS assembly includes a Viton O-ring.

- 50 psi maximum
- 1/2 NPT on both ends
- Available for 0.250" (6.35mm) diameter only
- Stainless steel construction
- 2-1/4" (57.15mm) overall length



Spring Load Nipple Assembly (SLN)

The SLN assembly provides a spring load inside a pipe nipple. It is available for 0.125" (3.18mm), 0.187" (4.75mm) and 0.250" (6.35mm) 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

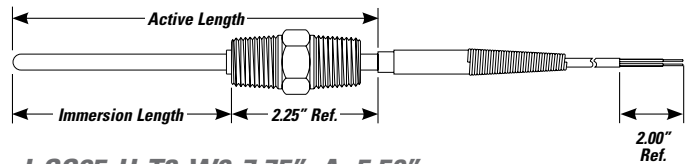
T11SL

- 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, alkalies, sunlight and 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

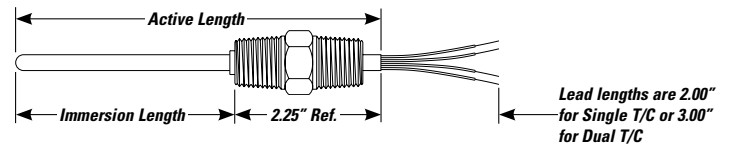


Replacement Probe with Type W8 or W4 Fitting Assemblies

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"

Product 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 – Laser-etched stainless steel identification tags can be supplied. Consult factory for details.

