

# SPA/RSA Process Analyzer Sample Probe Assembly (SPA) with a Conax Packing (PG) Compression Seal Fitting

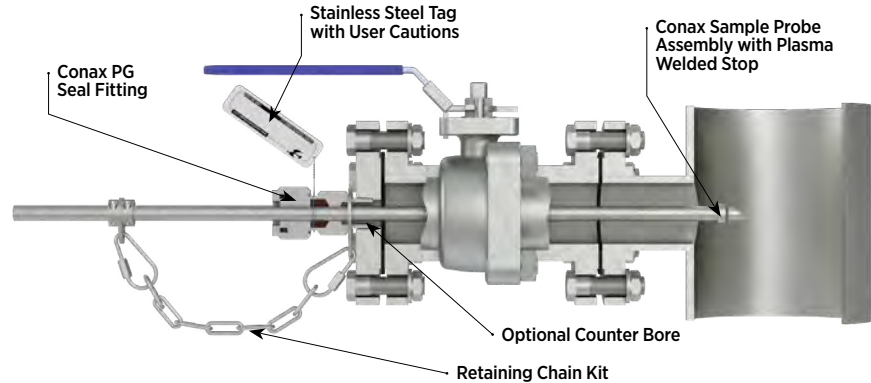
## Features & Options

- Plasma welded stop collar
- Retaining Chain Kit, required as a safety measure
- Wake frequency calculations
- Various probe ends and valve types available

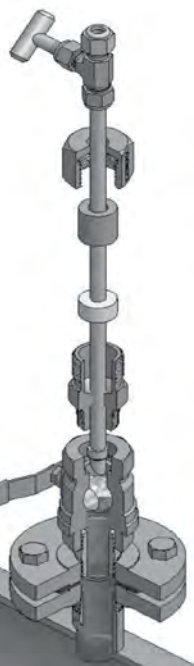
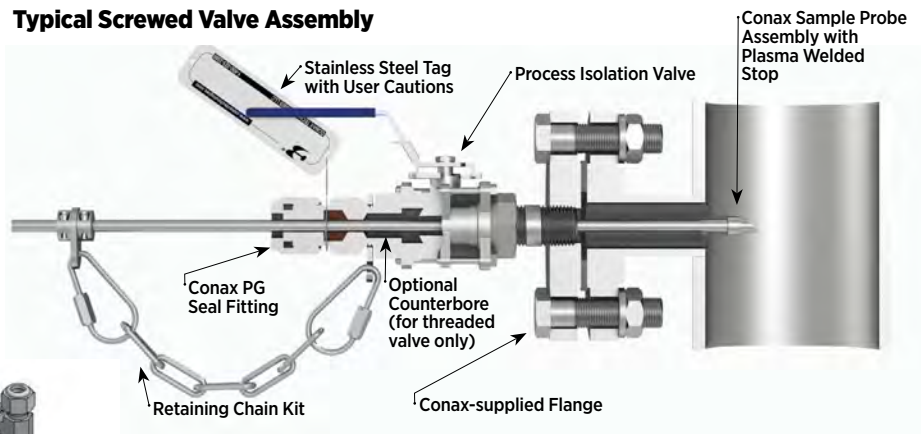
## For Unique Applications

- Process analyzing
- Flare stack emissions
- Chemical injection quills
- Waste water analysis
- Potable water quality sampling
- Hot tapping liquid or gas streams

### Typical Flanged Valve Assembly



### Typical Screwed Valve Assembly



## Sample Probe Assembly

The Conax Technologies' Sample Probe Assembly (SPA) is used to hot-tap a probe into a process through a process isolation valve.

## Temperature and Pressure Ratings

Refer to the appropriate sections of this catalog for temperature and pressure ratings for static conditions. Pressure ratings are reduced when the seal fitting cap is loosened to allow for the insertion or extraction of the sample probe.

## Material Options

- Optional materials for the Sample Probe Assembly and the Conax Technologies' PG Fitting body (wetted components) are available. Available options include 316L SST, 316 NACE SST, 316L CRN, MONEL™ 405, HASTELLOY™ C276 and INCONEL™ 600.
- Sample Probe Assemblies and/or PG Fitting bodies can be supplied with a Silcolloy™ 1000 (Silcosteel™-CR) or SilcoNert™ 2000 (Siltek™/Sulfinert™) coating.
- Standard Sealants are Teflon™, PEEK™, and GraFoil™. Other sealants are available for special applications.

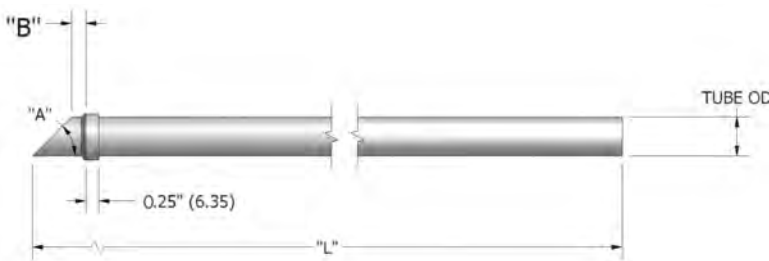
### How to Configure the Model Number of an SPA Assembly

Standard Conax Packing (PG) Compression Seal Fitting model numbers and configurations apply. Compression seal fittings are supplied loose unless otherwise indicated.

Example model number: SPA/PG5-500-A-T/500X120W(S304)-45-1-36

Sample Probe Configurator							
Product Name	Compression Seal Fitting Used if none indicate "X"	Tube OD	Tube Wall	Tube Material (S304 or S316, M405, HC276, I600)	A Tube End Angle (90°, 60°, 45°, 30°)	B Dimension (1/4" increments 1 = 1/4")	L Overall Tube Length (inches)
SPA	PG5-500-A-T	500	120W	S304	45	1	36

Standard diameter for the welded stop collar is 0.125" larger than the sample probe. Special sizes available upon request.



### Standard Tube Sizes\* (Please refer to bulletin 6066DS.)

Standard Tube Sizes					
OD (mm)	Wall (in)	Wall (mm)	ID (in)	ID (mm)	Material
0.250" (6.35)	0.025"	0.64	0.200"	5.08	S304
	0.035"	0.89	0.180"	4.57	S304
	0.025"	0.64	0.200"	5.08	S316
	0.035"	0.89	0.180"	4.57	S316
	0.035"	0.89	0.180"	4.57	MONEL™ 400
	0.035"	0.89	0.180"	4.57	Hast C276
	0.375" (9.53)	0.040"	1.02	0.295"	7.49
0.065"		1.65	0.245"	6.22	S304
0.040"		1.02	0.295"	7.49	S316
0.058"		1.47	0.259"	6.58	S316
0.065"		1.65	0.245"	6.22	MONEL™ 400
0.035"		0.89	0.305"	7.75	Hast C276
0.065"		1.65	0.245"	6.22	Hast C276

Standard Tube Sizes					
OD (mm)	Wall (in)	Wall (mm)	ID (in)	ID (mm)	Material
0.500" (12.70)	0.035"	0.89	0.430"	10.92	S304
	0.049"	1.25	0.402"	10.21	S304
	0.065"	1.65	0.375"	9.53	S304
	0.120"	3.05	0.260"	6.60	S304
	0.049"	1.25	0.402"	10.21	S316
	0.065"	1.65	0.370"	9.40	MONEL™ 400
	0.049"	1.25	0.402"	10.21	Hast C276
0.625" (15.88)	0.065"	1.65	0.495"	12.53	S304
0.750" (19.05)	0.095"	2.41	0.560"	14.22	S316
	0.065"	1.65	0.620"	15.75	MONEL™ 400
1.000" (25.40)	0.120"	3.05	0.760"	19.30	S316

\*Tubing is seamless or welded and annealed.

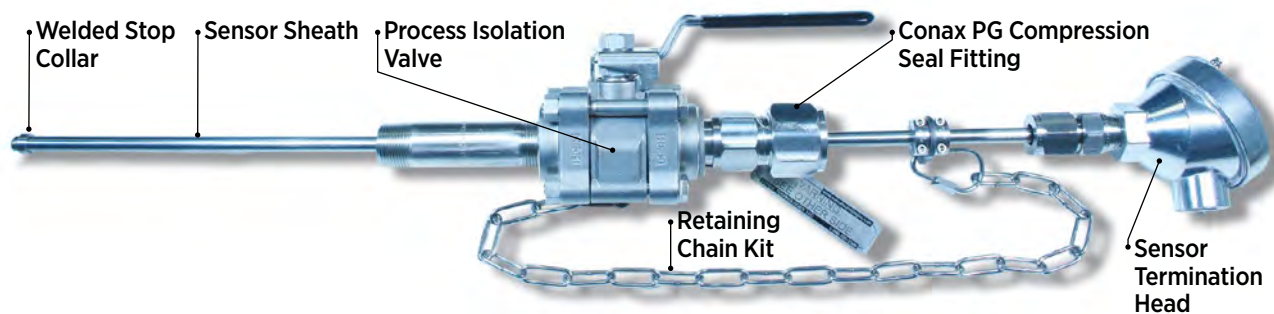
### Conax PG Compression Seal Fittings

Model	NPT Size (in)	Sample Probe Tubing Diameter in inches (mm)						Sample Probe Pipe Diameter in inches (mm)							
		0.250 (6.35)	0.375 (9.53)	0.500 (12.70)	0.625 (15.88)	0.750 (19.05)	1.000 (25.40)	1/8" (10.29) OD	1/4" (13.72) OD	3/8" (17.15) OD	1/2" (21.34) OD	3/4" (26.67) OD	1" (33.40) OD	1.25" (42.16) OD	1.50" (48.25) OD
		PG2	1/4"	X											
PG4	1/2"	X	X				X								
PG5 (PTM4)	1/2"	X	X	X			X	X							
PG5	3/4"	X	X	X	X	X	X	X	X						
PG5 (PTM6)	1"	X	X	X	X	X	X	X	X						
PG6	1"					X	X				X				
PG7	1-1/4"										X	X	X		
PG8	1-1/2"												X		
PG9	2"													X	X

Other sizes and materials available upon request. All Conax PG Fittings are available with an optional welded or threaded ASME/ANSI Raised-face Flange mount.

SPA/RSA SERIES

## Retractable Sensor Assembly (RSA) with Conax PG Compression Seal Fitting



### Features and Benefits

- Complete factory engineered and assembled designs
- RTD and Thermocouple designs
- Plasma welded stop collar
- Retaining Chain Kit, required as a safety measure
- Wake Frequency Calculations available on request
- Available in Direct Immersion (see photo) or Retractable Thermowell Designs
- Various materials are available for the sensor sheath, thermowell and the Conax PG Compression Seal Fitting body

### Improved Design—Superior Performance

Conax Technologies has designed an innovative and unique approach to inserting and extracting a temperature sensor into a pressurized process through a process isolation valve in conjunction with a Conax Compression Seal Fitting.

The Conax Retractable Sensor Assembly (RSA) is specifically designed for applications requiring the insertion and extraction of a temperature sensor in process pipelines, flare stack emissions and storage tanks.

### Temperature and Pressure Ratings

Please refer to the appropriate sections of Conax Catalog 5001 for temperature and pressure ratings for static conditions. Pressure ratings are reduced when the seal fitting cap is loosened to allow for the insertion or extraction of the RSA.

### Retaining Chain Kit

The Conax retaining chain kit is constructed from stainless steel and is specifically designed to function with the Conax RSA Compression Seal Fitting. This kit is required as a safety measure.

### Technical Sales Support

Conax Technologies' Technical Team can help you solve your problems. Call our inside sales team and you'll get the support you need to make the right choices.

### Ensure your SPA meets ASME and IEC standards with our online calculator

To help ensure you're choosing the proper Sample Probe Assembly (SPA) for a specific application, we created the Conax Technologies Wake Frequency Solution Builder™—our user-friendly online calculator.

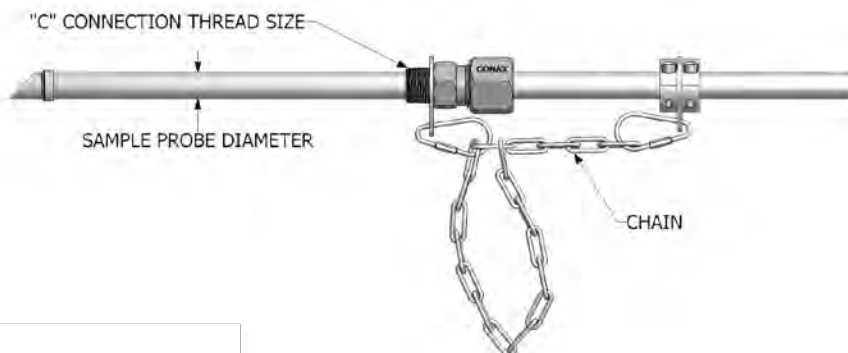
This tool enables you to enter data for the specific SPA you need and receive immediate calculation results, based on ASME PTC 19.3 TW-2010 and/or IEC/TR 61831 standards. If there are problems with the configuration of your SPA, you'll see exactly what needs to be adjusted. If the design is approved, you'll see confirmation that each element tested has passed, and you can contact Conax to purchase the SPA.

The Wake Frequency Solution Builder™ provides you with an instant pass or fail rating online. And you'll receive comprehensive Sample Probe Design Calculation Datasheets based on ASME PTC 19.3 TW-2010 and/or IEC/TR 61831 calculations with your SPA order at no additional charge. We understand there may be times when you'll need a higher level of help, so we've included a button on the calculator page that enables you to request help.



# Retaining Chain Kit

The Conax Retaining Chain Kit is constructed from 300 series SST and is specifically designed to function with the Conax Process Analyzer Sample Probe Assembly (SPA) or with Conax's Retractable Sensor Assembly (RSA) utilizing a Conax PG Compression Seal Fitting.



## Catalog Numbering System

18

Drawing Prefix

0005

N

"C" Connection Thread Size  
(2 decimal places NPT)Sample Probe  
DiameterChain Length  
in Whole Inches

- 025N = 1/4" NPT
- 038N = 3/8" NPT
- 050N = 1/2" NPT
- 075N = 3/4" NPT
- 100N = 1" NPT

- 25 = 0.25" (6.35 mm)
- 38 = 0.38" (9.53 mm)
- 50 = 0.50" (12.70 mm)
- 63 = 0.625" (15.88 mm)
- 75 = 0.75" (19.05 mm)
- 100 = 1.00" (25.40 mm)

Drawing Prefix  
"C" Connection Thread Size  
Sample Probe Diameter  
Chain Length

## Conax Part Number series:

**18-0005-XXXX-XX-XX:** Base design Retaining Chain Kit Assembly.

**18-0037-XXXX-XX-XX:** Retaining Chain Kit Assembly for high vibration applications with a Retaining Washer plasma welded to the Sample Probe Collar.

Examples: **18-0005-025N-25-12**  
**18-0037-025N-25-12**

## Installation Instructions for the Conax Retaining Chain Kit

### To Install Shaft Collars:

- Loosen collar screws
- Place collar or welded collar/washer (Item 2) and shaft collar (Item 3) over probe as shown.
- Position collar (Item 3), tight against (Item 2) washer such that there are no visible gaps.
- Tighten collar screws.

For 0.250" probe, tighten to 8 in-lbs

For 0.375" probe, tighten to 15 in-lbs

For 0.500" probe, tighten to 28 in-lbs

For 0.625" probe, tighten to 45 in-lbs

For 0.750" & 1.000" probes, tighten to 110 in-lbs

Please consult factory for other sizes.

### To Adjust Safety Chain:

- Unscrew threaded connector (Item 5) link at process side of probe.
- Take up all extra chain links and loop over the threaded connector.
- Screw threaded connector back together and wrench tighten (5 in-lbs recommended).

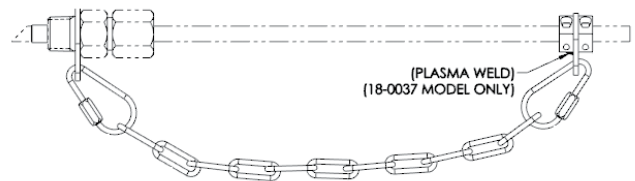
**User Cautions**

**Sample Probe Assembly**

- The end user must take the necessary safety precautions when loosening the cap of the Conax PG Fitting when inserting or extracting the Sample Probe into pressurized environments.
- The end user is responsible to control any leakage of process that may occur during insertion or extraction of the Sample Probe.
- The end user is responsible for determining the appropriate Sample Probe material, diameter and wall thickness for the process environment and flow rates.
- Conax Technologies is not responsible for the operation of the Conax PG Fitting assembly once the cap is loosened to allow for the insertion or extraction of the Sample Probe.
- Typically, when properly installed, the angled Sample Probe tip should have the long side upstream. This reduces the particulates entering the Sample Probe and into the process analyzer filter.
- The Sample Probe immersion length should be designed to obtain a process sample close to the center third of the pipe.
- It is suggested that the end user mark the Sample Probe end with an indelible ink marker relative to the angled end for proper orientation into the process.



*Retaining Washer plasma welded to the Sample Probe Collar.*



**Retaining Chain Kit**

- Retaining chain assembly is not intended to assist or control the insertion/extraction of the sample probe. The operator is responsible for restraint of the sample probe at all times.
- Chain must be kept as short as possible to function properly. Some minor slack in the chain will be present when sample probe is inserted. The retaining chain kit is not intended for impact loads. If it is subject to an impact load, all parts must be inspected/replaced as required.
- Periodically inspect restraint system. Re-torque probe collar and threaded connector. Replace parts as necessary.
- Maximum design pressure for the retaining chain kit is 500 PSIG. ( $\leq .500''$  (12.70 mm) Sample Probe diameter).
- Prior to installing the PG Fitting into the process valve port, install the front retaining washer (Item 1) over the PG Fitting pipe thread.

*Note: After the Sample Probe is properly inserted and the Conax PG Fitting is properly assembled and tightened to the recommended factory torque requirement, ensure the chain length is as short as possible using the Threaded Connectors. This requires the qualified user to adjust the chain prior to loosening the PG Fitting cap to allow retraction of the Sample Probe.*

*Refer to Conax PG Compression Seal Fitting Assembly Instructions Bulletin 6026 Rev D as supplied with shipment or available at <http://www.conaxtechnologies.com/product/assembly-instructions-fittings-feedthroughs>.*