

## Signet 3719 pH/ORP Wet-Tap



3-3719.090 Rev. 18 06/19

### Operating Instructions



#### Description

The Signet 3719 pH/ORP Wet-Tap allows installation and removal of pH or ORP electrodes without the need for process shutdown during routine electrode maintenance and calibration. Process isolation is achieved with a double O-ring seal on a unique and compact retraction assembly; no separate valve is required. A cam-activated automatic locking mechanism, SafeLoc™, and the short stroke design help to assure operator safety.



#### WARNING!

If used in conditions that exceed recommended pressure ratings, this product can pose a serious hazard.



We urge customers to read the specifications carefully before installing and operating this product. Improper use can cause components and process liquids to be expelled at high speeds and cause serious personal injury.

#### Table of Contents

Warranty Information .....	2
Product Registration .....	2
Safety Information .....	2
Dimensions .....	2
Specifications .....	3
System Overview .....	3
Installation .....	3-5
Location, Orientation and Required Clearance .....	3-4
For pipe sizes 2.5 to 12 in. ....	4
For pipe sizes less than 2.5 in. ....	4
Wet-Tap into Fitting .....	5
Electrode Installation .....	5
Electrode Removal .....	6
Electrode Maintenance .....	6
Troubleshooting .....	7
Replacing O-rings .....	8
Ordering Information .....	12



- [English](#)
- [Deutsch](#)
- [Français](#)
- [Español](#)



## Warranty Information

Refer to your local Georg Fischer Sales office for the most current warranty statement.

All warranty and non-warranty repairs being returned must include a fully completed Service Form and goods must be returned to your local GF Sales office or distributor. Product returned without a Service Form may not be warranty replaced or repaired.

Signet products with limited shelf-life (e.g. pH, ORP, chlorine electrodes, calibration solutions; e.g. pH buffers, turbidity standards or other solutions) are warranted out of box but not warranted against any damage, due to process or application failures (e.g. high temperature, chemical poisoning, dry-out) or mishandling (e.g. broken glass, damaged membrane, freezing and/or extreme temperatures).

## Product Registration





Thank you for purchasing the Signet line of Georg Fischer measurement products.

If you would like to register your product(s), you can now register online in one of the following ways:

- Visit our website [www.gfsignet.com](http://www.gfsignet.com). Under **Service and Support** click on **Product Registration Form**
- If this is a pdf manual (digital copy), [click here](#)

## Safety Information

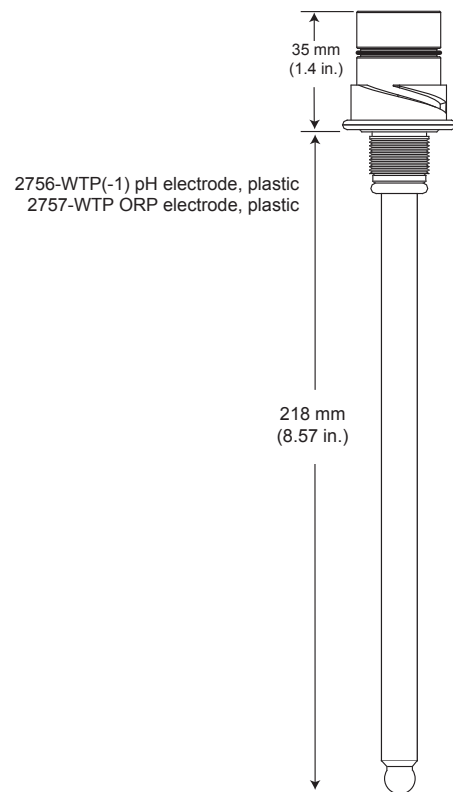
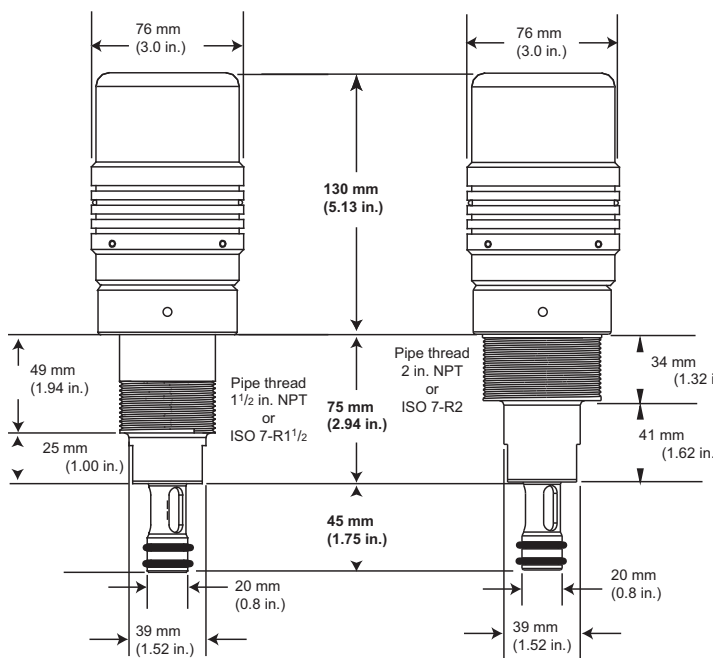
- Do not exceed maximum temperature/pressure specifications.
- Wear safety goggles or face shield during installation/service.
- Do not attempt to disassemble the retraction housing and the electrode piston.
- Do not alter product construction.
- Failure to follow safety instructions may result in severe personal injury.
- Retract electrode before any pipe cleaning operation.

	<b>Caution / Warning / Danger</b> Indicates a potential hazard. Failure to follow all warnings may lead to equipment damage, injury, or death
	<b>Personal Protective Equipment (PPE)</b> Always utilize the most appropriate PPE during installation and service of Signet products.
	<b>Pressurized System Warning</b> Sensor may be under pressure, take caution to vent system prior to installation or removal. Failure to do so may result in equipment damage and/or serious injury.
	<b>Note / Technical Notes</b> Highlights additional information or detailed procedure.

## Dimensions

**3719-1 Wet-Tap**  
1 1/2 in. outlet for 2 1/2 to 4 in. pipe

**3719-2 Wet-Tap**  
2 in. outlet for 6 to 12 in. pipe



### CAUTION!

When using clamp-on saddle fittings (customer-supplied), the system temperature and pressure is limited by the saddle specifications. The process temperature is limited to 40 °C (104 °F) maximum when using saddles.

## Specifications

### General

Compatible sensors (See 3-2764.090 for more information):

- 2756 -WTP DryLoc plastic pH electrode
- 2756-WTP-1 DryLoc plastic pH electrode
- 2757-WTP DryLoc plastic ORP electrode

### Shipping Weight

Wet-Tap assembly .....	1.2 kg (2.7 lbs.)
Electrode.....	0.13 kg (0.3 lb)
Process Connection .....	3-3719-11: 1½ in. NPT
	3-3719-21: 2 in. NPT
	3-3719-12: ISO 7/1-R1½
	3-3719-22: ISO 7/1-R2

### Wetted materials

Retraction Housing .....	CPVC
O-rings.....	FKM

### Other Materials

Locking Shroud.....	PVC
Hardware.....	316 stainless steel

### Storage Temperature

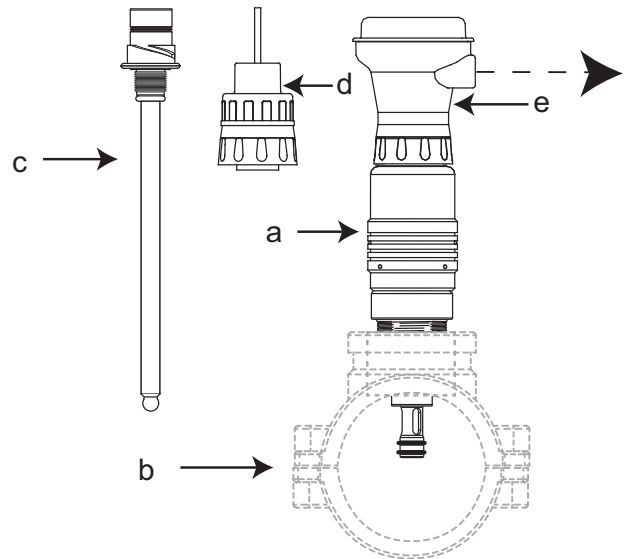
Wet-Tap assembly .....	-15 to 120 °C (5 to 248 °F)
------------------------	-----------------------------

### Standards and Approvals

Manufactured under ISO 9001 and 14001

 China RoHS (Go to [www.gfsignet.com](http://www.gfsignet.com) for details)

## System Overview



- a) 3719 pH/ORP Wet-Tap
- b) Customer-supplied Low-Profile Clamp-on Saddle Fitting (ASTM sizes 2½ to 12 in.)
- c) DryLoc® pH or ORP Electrode (6 versions available; see ordering information on page 8.) (DryLoc® refers to the electrode connector style)
- d) 3-2751-1 or 2760 DryLoc® pH/ORP Sensor Electronics/ Preamplifier
- e) 3-2751-2 electronics

NOTE: Output signal options (See specific manual for details):

- 2751:
  - Digital (S<sup>3</sup>L)
  - 4 to 20 mA
- 2760:
  - Analog mV Output- Digital (S<sup>3</sup>L)

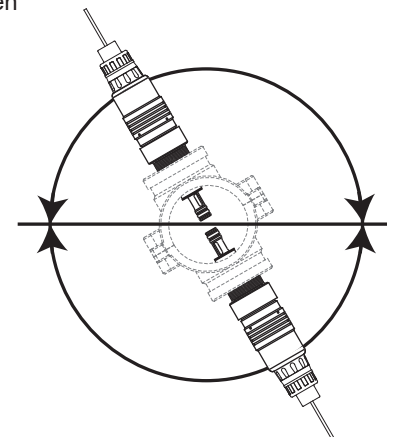
All components (items a–d) are sold separately.

## Installation

### Notes on Location, Orientation and Required Clearance

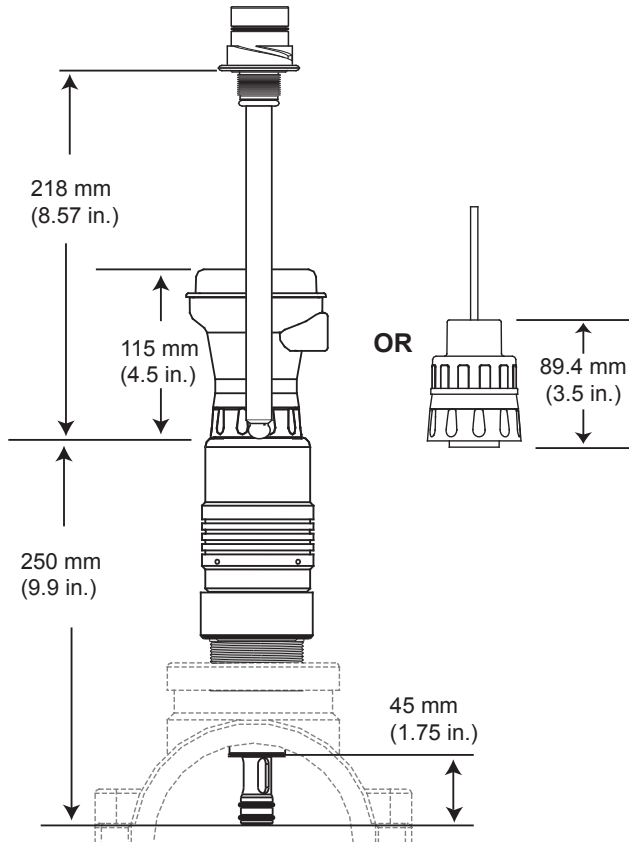
- The 3719-1X is designed for use in pipes up to 4 in.
- The 3719-2X is designed for use in pipes from 6 to 12 in.
- Select a location that will provide sufficient clearance to remove and insert the electrode.
- The 3719 can be mounted in any orientation, including horizontal and inverted. Avoid the 12 o'clock position. In the presence of sediment, avoid the 6 o'clock position. See next page for dimensional information.
- If inverted, use caution when removing the sensor. Residual fluid may be present in the retraction housing. Keep electrode connector clean and dry at all times.

Any angle OK



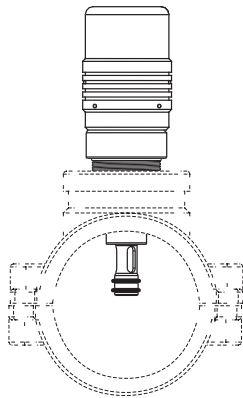
## Installation continued

- Provide 20 inches (minimum) clearance from the top of the pipe for electrode removal..



## Installation in Pipe Sizes 2.5 to 12 Inches

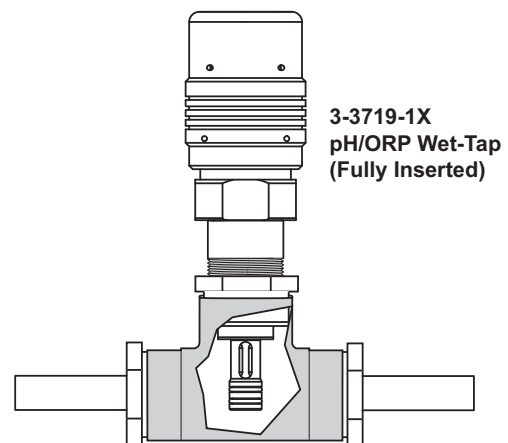
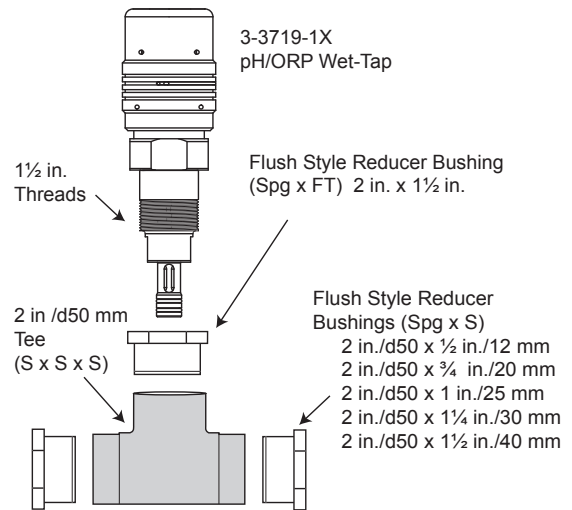
- For reliable in-line measurements of pH and ORP, it is imperative to position the electrode tip into the process stream.
- Because of its compact “short stroke” design, the 3719 requires low-profile fittings to ensure proper positioning in pipe sizes DN65 to DN300 (2.5 to 12 inches).
- **It is strongly recommended to use low-profile fittings (customer-supplied).**
- Choose the 3719 version (-1X or -2X) appropriate to the size of the branch connection of the required fitting:  
Use -1X for sizes DN65 to DN100 (2.5 to 4 in), and -2X for sizes DN150 to DN300 (6 to 12 in.)



## Installation continued

### Installation in Pipe Sizes less than 2.5 Inches

- It is possible to install the 3719 into pipe sizes below 2.5 inches by creating a “flow cell” with standard piping components.
- One simple solution, using a tee fitting and reducer bushings, is shown in the example below.
- Many similar configurations are conceivable in a wide variety of materials, but be very careful to verify dimensional compatibility.
- Select an appropriate installation orientation to avoid the entrapment of air inside the flow cell.
- Contact your local Georg Fischer Sales and Support office for assistance.



## Installation continued

### Installation (Wet-Tap Into Fitting)



The 3719 is packaged with no electrode installed, and with the electrode piston in the fully inserted position.

- Examine the female threads at the top of the electrode piston. Do not install electrode if threads are damaged.
- Examine the two O-rings at the lower end of the assembly. Do not install if O-rings are missing or there are any signs of damage.
- **The internal O-rings (4 each) have been lubricated during assembly with Synthetic grease (PTFE).**
- The pipe can be pressurized after completion of step 4.
- **DO NOT ATTEMPT TO REMOVE THE RETRACTION HOUSING FROM A PRESSURIZED PIPING SYSTEM!**

**1**

Grasp the retraction housing below the locking shroud; turn the locking shroud 1/4-turn clockwise.

Labels: Locking Shroud, Retraction Housing, Lubricated O-rings

**2**

Pull the locking shroud straight up until both O-rings are fully seated inside the retraction housing.

**3**

Turn the shroud 1/4-turn counterclockwise and lift it completely away from the electrode piston.

Label: Electrode Piston

**4**

- Thread the Wet-Tap into the pipe fitting.
- Smaller pipes may require bracing to support the Wet-Tap weight and the longitudinal forces required for operation.
- Use an appropriate thread sealant to prevent leaks.
- The piping system can now be safely pressurized.
- Inspect the installation for leaks.

The electrode piston is locked in position by SS locking pins.

**DO NOT tamper with the locking pins!**

If the piston is depressed with no electrode installed, the pipe contents are exposed.

### Electrode Installation

Before installation, lubricate O-rings with a non-petroleum based, viscous lubricant (grease) compatible with the system.

1. Remove the safety plug from top of electrode piston. Slide electrode straight down into electrode piston. Thread electrode into place until connector shoulder is flush with top of electrode piston. Hand tighten only.

**WARNING:**

Do not flex the electrode when inserting into the Wet-Tap assembly. The electrode can be permanently damaged if it is flexed during installation.

2. Place the Locking Shroud over electrode; turn 1/4-turn clockwise to unlock the piston, then press down firmly on the locking shroud to lower the electrode piston into the pipe.
3. Turn the shroud 1/4-turn counterclockwise to lock the piston.
4. Install the matching electronics assembly or preamplifier onto the electrode connector.

Lubricate O-Ring

**1**

**2**

**3**

**4**

**DO NOT ATTEMPT TO REMOVE THE RETRACTION HOUSING FROM A PRESSURIZED PIPING SYSTEM!**

Lubricate O-Ring

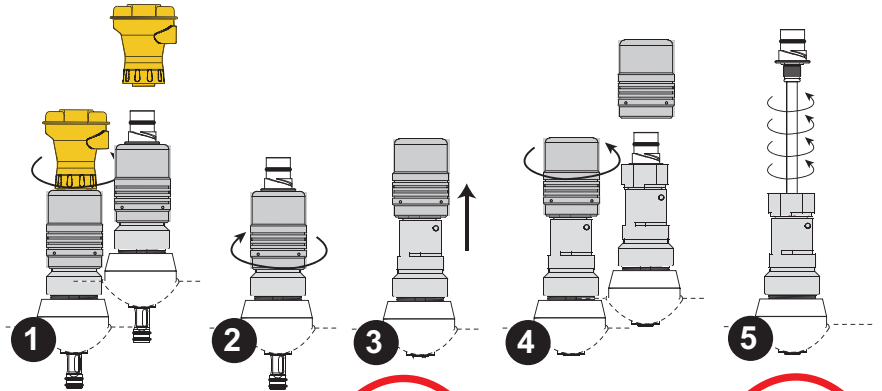
2751      2760 or 2751

OR

## Electrode Removal

The electrode in any pH or ORP system requires periodic service, calibration or replacement. When removing the electrode from the Wet-Tap assembly, it is very important to exercise caution and follow the instructions carefully.

1. Remove the preamplifier from the top of the Wet-Tap assembly.
2. Turn the locking shroud  $\frac{1}{4}$ -turn clockwise to unlock the piston.
3. Pull up on the locking shroud to retract the electrode piston into the pipe.



### DANGER!

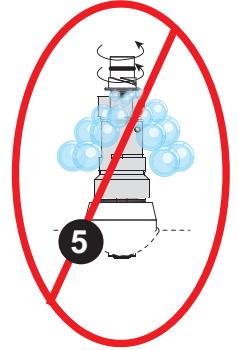
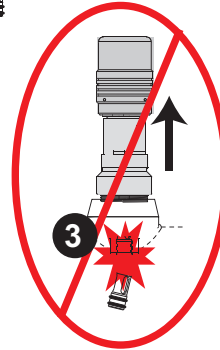
The piston should retract easily from a pressurized pipe. If the piston offers resistance, there is a danger that the piston is coated with deposits from the process.

### STOP! DO NOT FORCE THE PISTON UP!

It may damage the O-rings or break off the piston tip.

Return the locking shroud to the LOCKED position and follow the steps in the box below.

4. Turn the locking shroud  $\frac{1}{4}$ -turn counterclockwise and lift up to remove it from the Wet-Tap assembly.
5. Remove the electrode by turning it counterclockwise. For safety, keep your body clear of the top of the Wet-Tap assembly while removing the electrode.



### DANGER!

If any fluid is observed leaking from the electrode threads, STOP! DO NOT REMOVE THE ELECTRODE. There is a danger that the piston tip has been damaged.

**Tighten the electrode back down to reseal the assembly and follow the steps in the box below.**

**If the piston does not retract easily, or if any fluid is observed leaking from the electrode threads, the pipe must be drained before the 3719 can be safely removed.**

- Stop the flow and depressurize the pipe.
- Remove the entire 3719 assembly from the pipe.
- Remove the electrode from the assembly
- Clean any scaling and debris found on or in the piston tip and surrounding area.

## Replacing O-rings

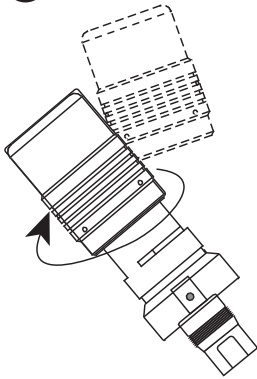
### Tools required:

- Table vise
- Side cutter to cut O-rings
- 1 3/8" wrench
- Small screwdriver
- 3/16 Allen wrench
- Scissors
- Replacement O-ring kit for 3719  
Wet-Tap (3-3719.392 code 159 310 304)

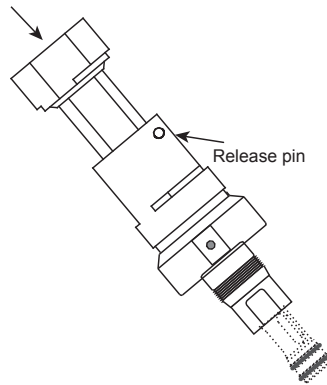
Lubricant



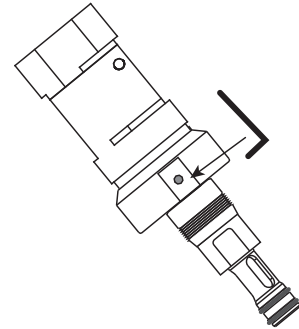
- 1** Remove shroud



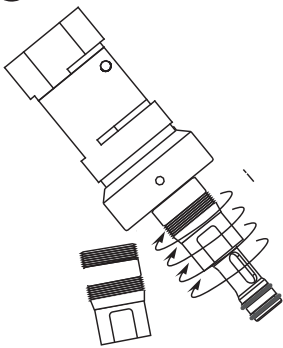
- 2** Press and hold release pin, push down to extend Wet-Tap piston



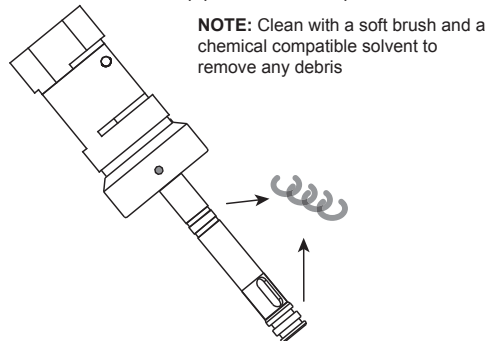
- 3** Carefully remove the Stainless Steel set screw



- 4** Remove nose piece

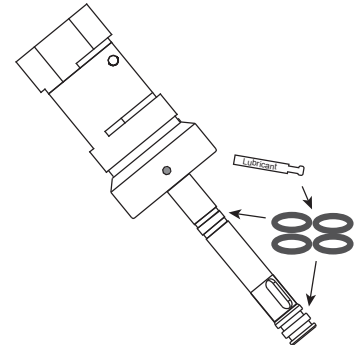


- 5** Remove old O-rings (use the screwdriver to carefully lift o-ring from groove and cut with scissors). Inspect O-ring grooves for any damage or nicks that may compromise the integrity of the liquid seal. Clean the Wet-Tap piston and nose piece.



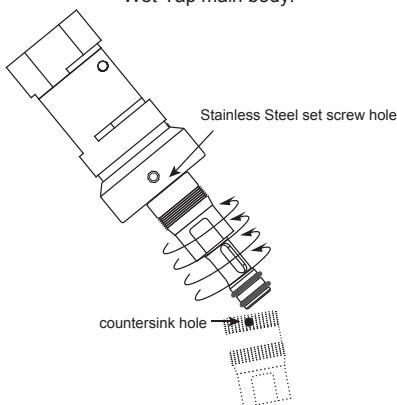
**NOTE:** Clean with a soft brush and a chemical compatible solvent to remove any debris

- 6** Open the lubrication pouch and lightly lubricate the new O-rings. Carefully roll O-rings over the tip of the piston and into each O-ring groove.

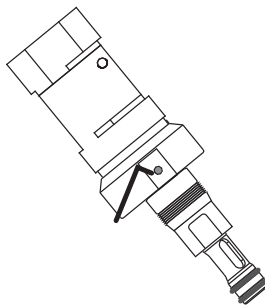


- 7** Locate the countersink hole on the nosepiece. Verify that it is clean and free of debris. Locate the threaded hole on the main body. Verify that threads are free of debris and are not damaged. If threads are damaged, the Wet-Tap should be replaced.

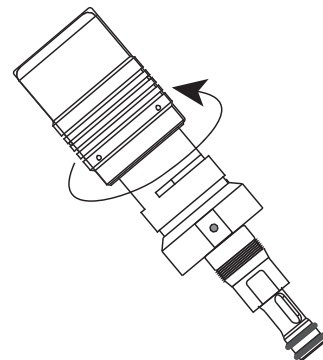
Assemble the nose piece back onto the Wet-Tap main body.



- 8** Replace the Stainless Steel set screw. Do not over tighten. When properly installed, the set screw should be flush with the Wet-Tap body.



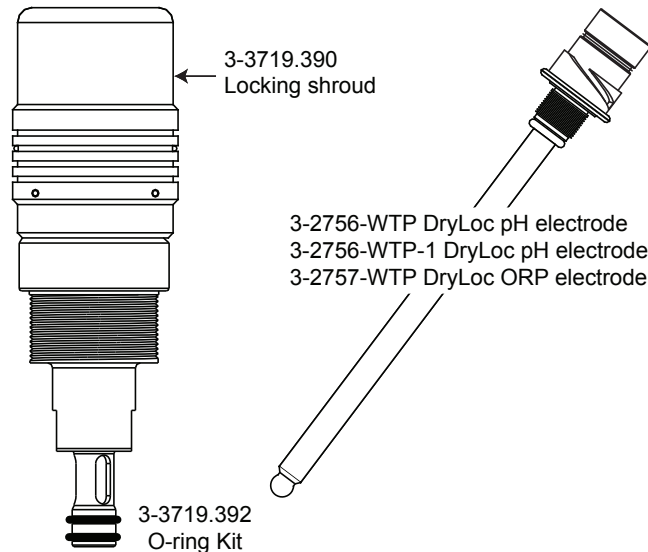
- 9** Replace the shroud. The Wet-Tap is ready for reinstallation.



watch a video of these instructions.  
[Click here](#)

## Ordering Information

Mfr. Part No.	Code	Description
3-3719-11	159 000 804	pH/ORP Wet-Tap, 1½ in. NPT
3-3719-21	159 000 805	pH/ORP Wet-Tap, 2 in. NPT
3-3719-12	159 000 806	pH/ORP Wet-Tap, ISO 7/1-R 1.5
3-3719-22	159 000 807	Wet-Tap Assembly, ISO 7/1-R 2
<b>Parts and Accessories</b>		
3-2756-WTP	159 001 390	Electrode, pH, DryLoc®, plastic bulb, Pt1000, Wet-Tap
3-2756-WTP-1	159 001 384	Electrode, pH, DryLoc®, plastic bulb, 3 KΩ, Wet-Tap
3-2757-WTP	159 001 391	Electrode, ORP, DryLoc®, plastic bulb, 10 KΩ ID, Wet-Tap
3-2751-1	159 001 804	DryLoc pH/ORP Sensor Electronics, In-line
3-2751-2	159 001 805	DryLoc pH/ORP Sensor Electronics, In-line with EasyCal
3-2760-11	159 001 367	In-line Preamplifier with ¾ in. NPT threads and 4.6 m (15 ft) cable
3-2760-21	159 001 368	In-line Preamplifier with ¾ in. ISO threads and 4.6 m (15 ft) cable
3-3719.390	159 000 855	3719 Locking Shroud
3-3719.392	159 310 304	O-ring kit
3-2700.398	159 001 886	O-ring lubricant kit (5 packs of Super Lube, 1cc each)



Georg Fischer Signet LLC, 3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057  
 For Worldwide Sales and Service, visit our website: [www.gfsignet.com](http://www.gfsignet.com) • Or call (in the U.S.): (800) 854-4090  
 For the most up-to-date information, please refer to our website at [www.gfsignet.com](http://www.gfsignet.com)