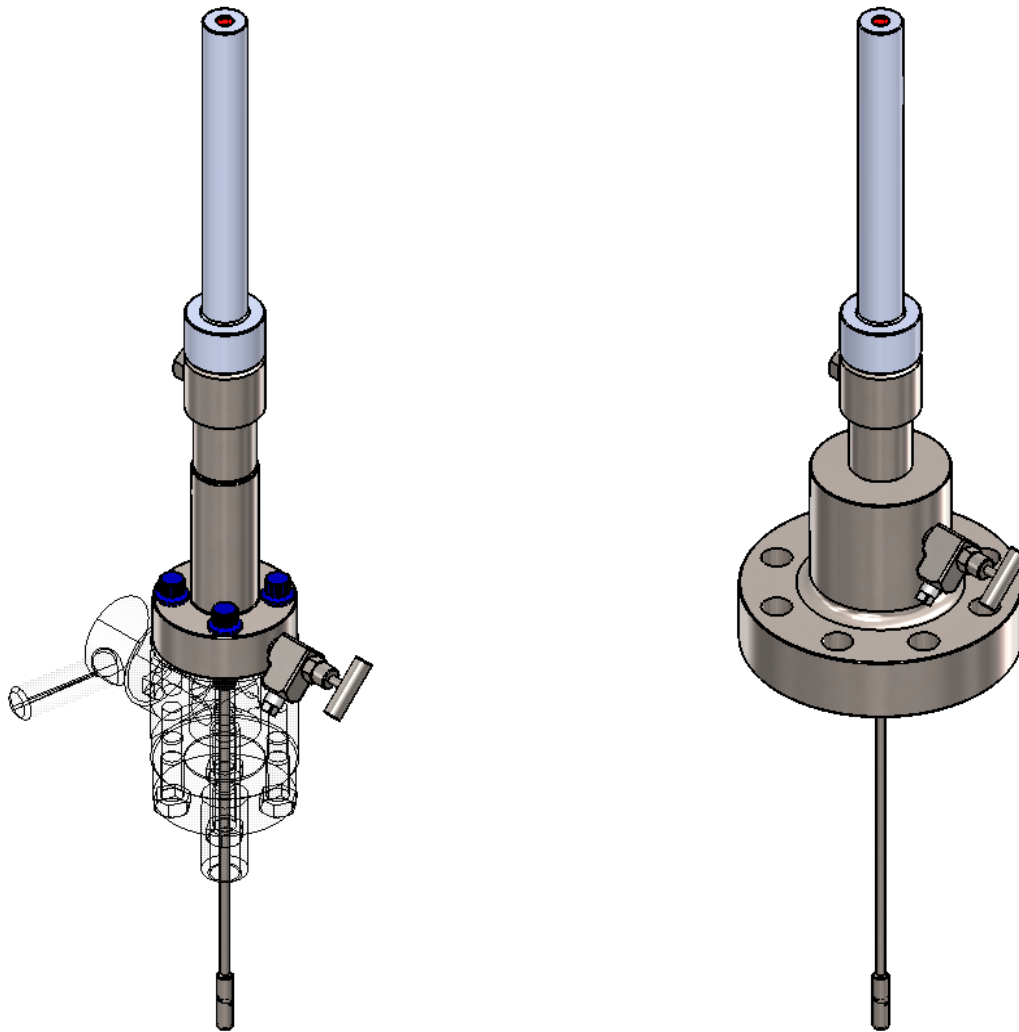


Installation, Operation & Maintenance Manual

Saf-T-Vise STV-XH1 Insertable Tool Holders

S-CM-IOM-00605-1 03-22





Do not install, maintain, or operate this equipment without reading, understanding, and following the appropriate Sentry Equipment Corp instructions. Otherwise, injury, damage, or both may result.

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Note

The information contained in this document is subject to change without notice.

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Safety Information

Please read the entire manual before attempting to unpack, set up, or operate this product. Pay careful attention to all Warnings, Cautions, and Notes. Failure to do so could result in serious personal injury and/or equipment damage.

Use of Hazard Information

If multiple hazards exist, the signal word corresponding to the greatest hazard shall be used.

Definitions

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

NOTE

Information that requires special emphasis.

TIP

Alternate techniques or clarifying information.

SHALL: This word is understood to be mandatory.

SHOULD: This word is understood to be advisory.

General Safety Precautions

Product Selection, Installation, and Use

WARNING

Improper selection, installation, or use can cause personal injury or property damage. It is solely the responsibility of users, through their own analysis and testing, to select products suitable for their specific application requirements, ensure they are properly maintained, and limit their use to their intended purpose.

Follow proper local, state, and federal regulations for proper installation and operational requirements.

Always use caution and common sense when working with any chemical. Read the product label and Material Safety Data Sheets (MSDS) carefully and follow the instructions exactly.

Potential Equipment Hazards

WARNING

Hot surfaces! This equipment may have very hot surfaces. If an operator contacts a hot surface, injury may occur. Use protective clothing to prevent injury. If other equipment comes in contact with a hot surface, damage to the equipment may occur. Ensure the area around this equipment is kept clear to prevent damage from occurring.

High pressures! This equipment may contain fluids at very high pressures. Prior to installing, removing or maintaining this equipment, ensure that the equipment is isolated from all connecting piping, the equipment is depressurized, the contents have been drained, and the equipment is cool.

General Description

The Sentry Saf-T-Vise STV-XH1 Series is an insertable tool holder designed to hold rod-style coupons at pressures up to 10,000 psig [689 barg]. The equipment has two process connection options: an API 2-1/16" 10000# flange or a Ø2.938 bolt circle designed to mate with an Aceco ball valve flange. The API version connects to an API flange of the same size and pressure class.

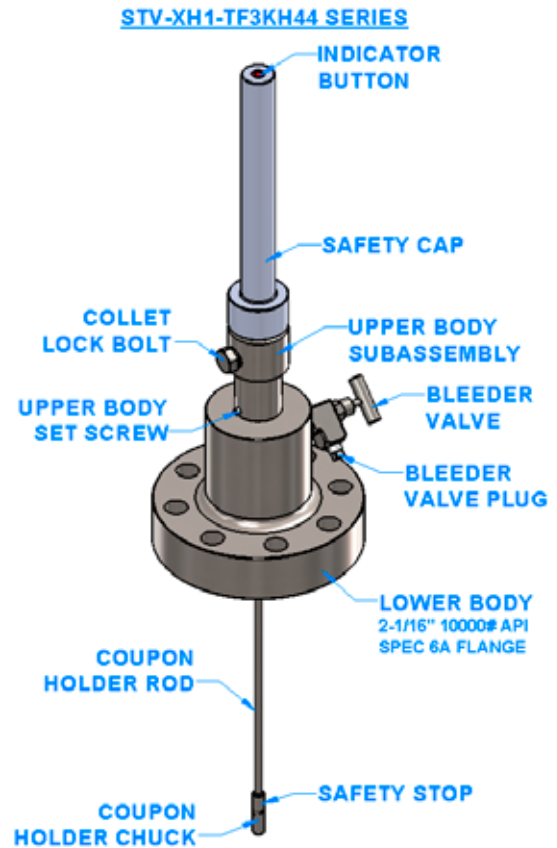
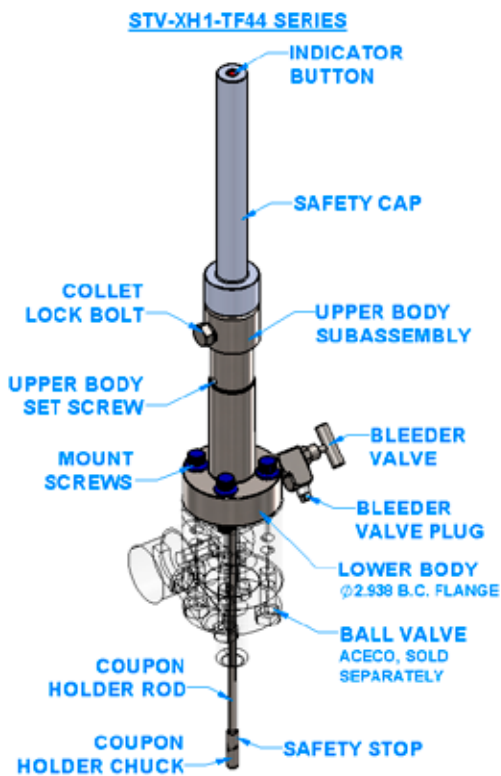
Both the lower body and upper body assembly are constructed from a solid piece of bar stock of 410 stainless steel as standard, with other materials available upon request. The graphite-filled PTFE seal provides excellent chemical inertness and low friction during insertion/retraction of the coupon holder rod.

The holder is designed with a patented locking collet, which secures the rod within the process stream until released by the operator. A process bleeder valve is standard on holders to allow depressurization of the holder after closure of the process isolation valve. The ability to fully retract the rod out of the pipeline while under pressure allows for pigging without bringing the line down.

The STV-XH1 series is designed to insert and retract coupon holders with the STV-T4-XH1 insertion/retractor tool (sold separately).

Specifications

Parameter	STV-XH1-TF44	STV-XH1-TF3KH44
Weight	15 lbs [6.8 kg]	46 lbs [20.6 kg]
Materials	<i>Lower Body and Upper Body Subassembly: 410 Stainless Steel Seals: Graphite-filled PTFE</i>	
Insertion Pressure (MOP)	10000 psi at 100°F (689 bar at 38°C)	
Pressure Rating (MAP)		
Temperature Rating	<i>Max: 450°F (232°C) Min: 0°F (-18°C)</i>	
Process Connection	Flanged with 2.938" B.C.	API 2-1/16" 10000 Class Flange
Insertion Depth	Up to 132"	
Rod OD	1/4" OD	
Holder Types	Coupon holder (Rod-style only)	



Installation

Prior to installing the STV-XH1, ensure that the sealing surfaces are cleaned and free of debris. Then, place the appropriate seal or ring joint on the mating flange.

With the coupon holder rod inserted through the body, place the STV-XH1 up against the mating flange. Install the flange bolts, tightening them down in a star pattern.

For the Aceco flange version (STV-XH1-TF44), it is recommended to use the indicated 12-Point flange head cap screws as these are the only standard screws with a head diameter small enough to not interfere with the lower body.

The API flange version (STV-XH1-TF3KH44) can accommodate hex bolts without interference issues. Insertion and retraction of the rod under pressure requires use of the retractor tool, the STV-T4-XH1. Information on initial setup can be found in the Saf-T-Vise STV-T Series Insertion Tools manual.

Operation

This tool is designed to work with the STV-T4-XH1 retractor tool. Details on the insertion and retraction operation of this product can be found in the IOM for the STV-T series.

Maintenance

NOTE

All maintenance procedures assume the Saf-T-Vise STV-XH1 insertable tool holder has been properly removed from the line. See the Saf-T-Vise STV-T Series Insertion Tools manual for instructions.

Inspecting the Safety Cap

- Remove safety cap from holder and ensure the red indicator is still in good condition.
- If the indicator is faded, brittle, or missing, return the cap to the factory for indicator repair

Prepping the Tool Holder for Reinstallation

The rod should be cleaned each time the tool holder is removed from the line. This helps prevent buildup on the rod and damage to the seal.

Tools needed

- Clean rag
- Cleaner/solvent
- 320 grit sandpaper or other finer grit paper
- Medium crescent wrench
- Molykote 55 lubricant or other fine viscosity lubricant

1. Remove the holder from the line.
2. Loosen the locking collet bolt and slide the rod to the fully inserted position (until the stop hits the top of the body). Leave the locking collet loose so the rod can be spun inside the body.
3. Clean the exposed rod with 320 grit or finer sandpaper using a rotational motion.
4. When the exposed rod is cleaned of external debris, wipe the rod with a clean rag and solvent to remove any leftover debris.
5. Slide the rod to the fully retracted position and repeat the steps to clean the remaining rod.
6. When the rod is thoroughly clean, wipe the rod with Molykote 55 lubricant or other fine viscosity lubricant.

Cleaning the Rod/Probe Shaft

Tools needed

- Medium crescent wrench
- Permanent marker
- Hex key set
- Small pick or screwdriver
- Clean rag
- New seal set for holder (P/N 6-05514G)
- Molykote 55 lubricant or other fine viscosity lubricant
- Anti-seize lubricant
- 320 grit or finer sandpaper
- Cleaner/solvent

1. Remove the rod/shaft.
 - a. With the holder removed from the line, loosen the locking collet and slide the rod to the fully inserted position, leaving 1" (2.5 cm) between the top of the holder and the adapter lock nut.
 - b. Tighten the locking collet bolt to 35 ft-lb (47.45 Nm).
 - c. Remove adapter.
 - If using a flat coupon, use a permanent marker to mark the rod to show where the orientation arrow points on the shaft (reference the arrow at the top of the shaft).
 - Use a medium crescent wrench to loosen the adapter lock nut.
 - Remove both the adapter and the lock nut.
 - d. Loosen the collet and slide the shaft out of the holder.
2. Separate the upper and lower body of the holder.
 - a. Use a hex key to loosen (but not completely remove) the small set screw on the upper body.

NOTICE

Make sure the set screw is loose. Failure to loosen the set screw can cause permanent damage to the holder.

- b. With the set screw loose, remove the upper body.

NOTE

If the upper body is difficult to remove, stop immediately and make sure that the set screw is loose.

3. Replace the seal.
 - a. With the upper body removed, use a pick or small screwdriver to gently pick out the old seal.
 - b. Clean the seal body of the holder with a clean rag.
 - c. Insert new seal:
 - Coat the outside edges of the PTFE seals with Molykote 55 or other fine viscosity lubricant by placing a dot of lubricant on your finger, then slowly rolling your finger around the outside lip of the seal, completely coating the outside edge.
 - Push the PTFE seal straight into the holder body. Make sure to push in straight to avoid side loading the seal.



4. Reassemble the holder.
 - a. Apply a small amount of anti-seize lubricant to the lower body threads where the upper body threads on.

NOTICE

Do not tighten the set screw until the upper and lower body of the holder are properly aligned. Tightening the set screw on the threads will permanently damage the tool.

- b. With the set screw loose, remove the upper body.
- c. Thread the upper body of the holder onto the lower body.
 - Tighten the upper body until it is snug against the lower body
 - Tighten the set screw

5. Install the rod.

- a. Clean the rod before installing.
 - If reinstalling a used rod, thoroughly clean the rod with 320 grit or finer sandpaper using a rotational motion, then wipe the rod with a clean rag and solvent to remove any leftover debris.
 - If installing a new rod, wipe the rod down with solvent and a clean rag to remove any debris.
- b. Add a small amount of Molykote 55 or other fine lubricant to the rod.
- c. Wrap the threaded end of the rod with two (2) complete wraps of Teflon tape to protect the seal during rod insertion.
- d. Place the rod into the holder carefully. If the rod cannot pass through the body, make sure the locking collet is loose and oriented in the correct direction (dot on top). It is sometimes easier to completely remove the locking collet from the body. Be careful not to lose the collet.

NOTE

Each insertion collet assembly is unique to each retrieval tool. Be sure to keep the removed assembly with the specific tool retractor.

- e. Once the rod is through the body of the holder, reinstall the locking collet (if removed) with the orientation dot facing the top of the tool, and tighten the collet.
 - f. Remove the protective Teflon tape from the rod.
- ## 6. Finish reassembly.
- a. Move rod through tool so that the last 1.5 inches are visible out the top of the holder.
 - b. Tighten the locking collet bolt to 35 ft-lbs (47.45 Nm).
 - c. Reinstall the adapter and lock nut securely on the rod.
 - d. The tool is now ready to go back into service.

Changing a Coupon

Tools needed

- Clean rag
- Cleaner/solvent
- 320 grit sandpaper or other fine grit paper
- Medium crescent wrench
- Molykote 55 lubricant or other fine viscosity lubricant
- Flat tip screwdriver

1. Remove tool holder from the process pipeline by following instructions for specific insertion tool.
2. Remove old coupon or inspect the rod as needed.
3. Clean the rod.
4. Attach new coupon.
5. Reinstall the tool holder into the pipeline by following instructions for the STV-T4-XH1.

Troubleshooting

Leaks

Multi-Port Valve Leaks

1. Isolate and bleed down the pressure, and attempt to tighten the leak point. If leak persists, continue with next step.
2. Re-tape the fittings on the multi-port valve.
 - a. Remove the entire holder from the process line.
 - b. Remove the multi-port valve from the holder.
 - c. Disassemble and remove all the old Teflon tape from the multi-port valve and then re-tape the fittings.
 - d. Reassemble the multi-port valve using a small amount of anti-seize lubricant on each fitting. Do not over-tighten the fittings as this can cause a leak point.
3. If the leak persists at a particular point, close the isolation valve, relieve pressure with bleeder valve, and contact your representative or factory customer service.

Seal Leaks

If the holder is leaking from the top of the holder body where the rod and body meet, the PTFE seal is damaged and requires replacement. See “Changing a Rod and Replacing the Seal Set” section.

Connection Leaks

1. If the holder leaks from any threaded portion, immediately isolate the holder from the line and remove process pressure.
2. Remove the holder from the isolation valve.
3. Remove the threaded component and use a small pick or screwdriver to remove Teflon tape from the threads.
4. After tape and debris are removed, wipe down the threads with a clean rag.
5. Reapply Teflon tape and anti-seize lubricant to the threads.

NOTE

This procedure can be used for all connection points on a holder, including the multi-port valve, probe shaft adapters, bleeder valves, and any other connections that may be on the holder.

Bleeder Valve Leaks

If the holder leaks from the bleeder valve outlet or bleeder valve stem, the bleeder valve is damaged and should be replaced. Contact the factory to order a replacement valve.

Locking Collet

Not locking shaft in place

If the locking collet fails to lock the rod/shaft in place with 35 ft-lb (47.45 Nm) of torque applied to the collet locking bolt, the locking collet is damaged and must be replaced. Please contact the factory to order a replacement.

NOTICE

Do not interchange collets between tool holders. Collets are specially machined for each tool holder individually and cannot be interchanged. Collet repair must be performed by the factory.

Rod/shaft marred by collet

- Check collet orientation. If the collet has an orientation indicator dot (see photo), the indicator dot must always face toward the top of the holder. Collets without the indicator dot are not dependent on orientation.
 - If the collet is upside down, remove the locking collet bolt from the holder and gently tap the holder on a hard surface to remove the collet.
 - Reinstall the collet with the orientation indicator dot facing toward the top of the holder, and then reinstall the locking collet bolt.
- Check the collet for wear.
 - A worn collet will not distribute pressure evenly on the rod/shaft and may cause damage.
 - If the collet is worn, the entire holder must be replaced immediately. Collets are matched to a body assembly during manufacturing and cannot be replaced separately.



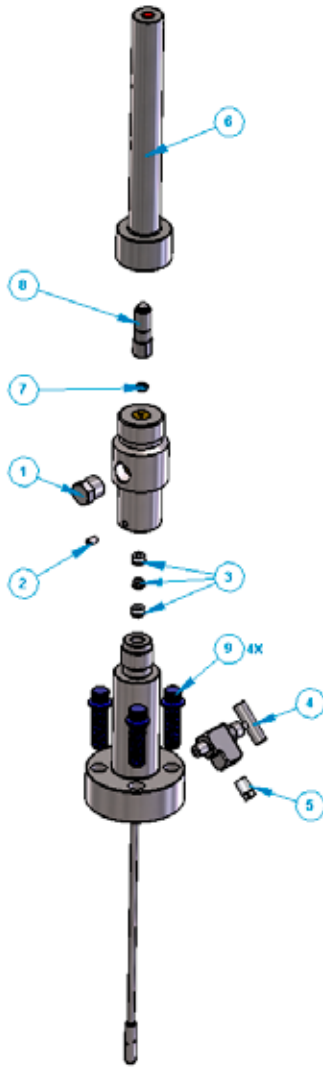
Service Parts List

STV-XH1-TF44 Series

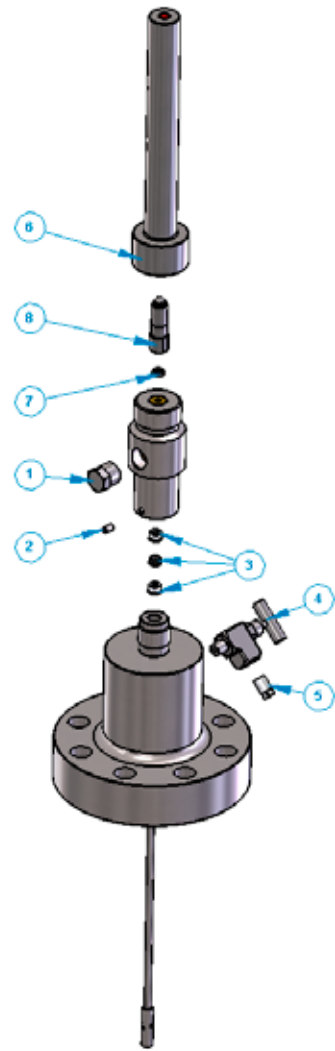
Item Number	Part Number	Description	Quantity
1	2-07786F	7/8" Lock Bolt (7/8"-18UNS)	1
2	4-01003G	Screw, Set, Hex, Cup, .250"-20 x .500", 18-8SS	1
3	6-05514G	Seal Retainer	1
4	4-06422A	Needle Valve, 1/4" MP x FP, 10000 PSI	1
5	4-00164CT	Plug, 1/4 NPT, Sq. T316 SS	1
6	SC100	Safety Cap Assembly, STV-XH1	1
7	4-00022J	Nut, .250-20 Hex-Jam 18-8 Stn	1
8	2-07783M	Rod Adapter, 1/4"-20	1
9	4-08026A	Screw, 12-Point, Flange Head, .625"-11 x 2.00"	4

STV-XH1-TF3KH44 Series

Item Number	Part Number	Description	Quantity
1	2-07786F	7/8" Lock Bolt (7/8"-18UNS)	1
2	4-01003G	Screw, Set, Hex, Cup, .250"-20 x .500", 18-8SS	1
3	6-05514G	Seal Retainer	1
4	4-06422A	Needle Valve, 1/4" MP x FP, 10000 PSI	1
5	4-00164CT	Plug, 1/4 NPT, Sq. T316 SS	1
6	SC100	Safety Cap Assembly, STV-XH1	1
7	4-00022J	Nut, .250-20 Hex-Jam 18-8 Stn	1
8	2-07783M	Rod Adapter, 1/4"-20	1



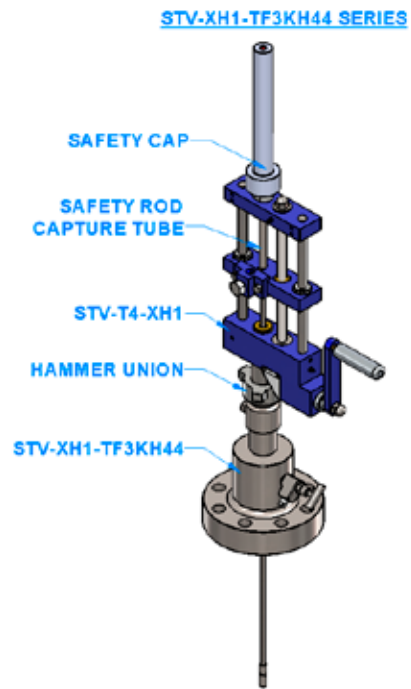
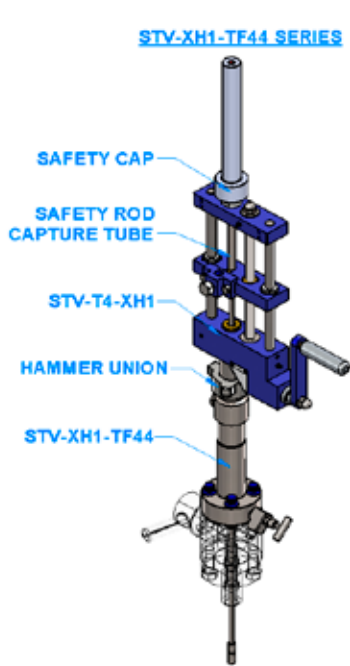
STV-XH1-TF44 Series



STV-XH1-TF3KH44 Series

STV-XH1 and STV-T4-XH1

The STV-T4-XH1 retractor tool is required to insert and retract the rods from the pipeline. Note that the safety rod capture tube is critical to safely operating this tool. It aims the rod through the top of the tool, preventing it from veering in another direction and potentially striking the operator in the event of a loose rod.



Standard Warranty

Sentry Equipment Corp (“Seller”) warrants products manufactured by it and supplied hereunder (“Products”) to be free from defects in workmanship and, to the extent materials are selected by Seller, to be free from defects in materials, in each case for a period as defined in the table below:

Product Line	Product Category	Warranty Period
Sentry®	1. Automatic Sampling 2. Corrosion Monitoring 3. Manual Sampling 4. Sample Conditioning 5. Sampling & Analysis Systems 6. Replacement Parts (without expiration dates)	Eighteen months from date of shipment or twelve months from startup, whichever occurs first
Waters Equipment	1. Sampling & Analysis Systems 2. Replacement Parts (without expiration dates)	Twelve months from date of shipment

To view the full warranty, go to www.sentry-equip.com/warranty.

Customer Support

With proven sampling expertise since 1924, Sentry products and services provide business operations the critical insights to optimize process control and product quality. We deliver true representative sampling and analysis techniques to customers around the globe, empowering them to accurately monitor and measure processes for improved production efficiency, output, and safety. Standing behind our commitments, we are determined to tackle any application, anywhere.

We know that running an efficient operation isn't easy. It requires thorough, careful analysis of controlled, real-time data achieved through reliable, accurate, and repeatable process monitoring, and measuring. By effectively conditioning, sampling, and measuring gas, liquid, slurry, powder, solids, steam, or water within their production environments, our customers obtain the critical insights they need to control and optimize their processes.

Yet, controlling your processes also means reliable customer support throughout the life cycle of your equipment.

- Customer Service—General information, warranty claims, order management.
- Installation Service—For systems that require specialized expertise upon installation.
- Technical Support—Troubleshooting, training, and technical manuals.
- Field Service & Retrofits—When a problem needs immediate attention.
- Replacements Parts & Consumables—Order your replacement parts and consumables.
- Sentry ProShield Services—Select from four ProShield Guardian service plans providing different levels of support to protect your large system investments with regularly scheduled maintenance.

To learn more, go to www.sentry-equip.com/support.

Serving customers
in more than 50 countries
across six continents worldwide.



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