

Installation, Operation & Maintenance Manual

Sentry TSV Thermal Shutoff Valve Thermal Protection Valve

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sentry-equip.com

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 COMPANY WITH
 QUALITY SYSTEM
 CERTIFIED BY DNV GL
 = ISO 9001 =


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:

Brand	Product Line	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.



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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Limit of Liability

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Note

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

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

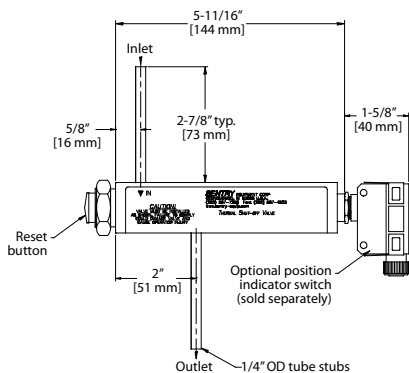
⚠ WARNING

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 this 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® TSV is a fully mechanical valve designed to protect instrumentation and personnel from the damaging effects of excessive sample temperatures. These temperature excursions could be the result of excessive sample flow rates, high cooling water temperatures or momentary loss of cooling water. The TSV is a spring loaded, latching design with all wetted metals of 316SS construction. An optional position indicating switch assembly is available to provide remote indication capabilities.



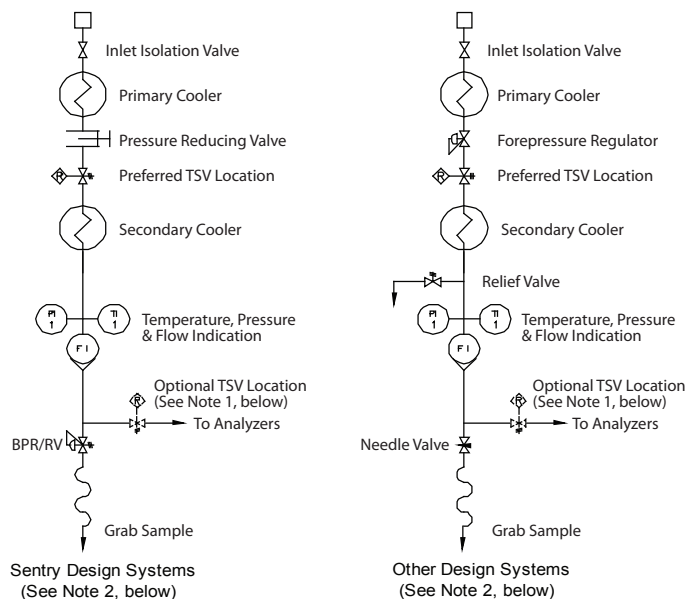
Installation

For the proper location of the TSV, reference the diagram below that best represents your application. It is imperative that the TSV be located downstream of the pressure reducing valve (i.e. forepressure regulator, needle valve or VREL) and that no isolation valves be downstream of it. Note that when the TSV closes, all components upstream of the TSV will be subjected to full system pressure.

It is recommended that the TSV be located such that the reset button is readily visible and accessible. Approximately 40 lbs of force may be required to reset the TSV. Consideration should be given when locating the TSV so adequate force can be applied by operating personnel. The mounting should be rigid enough such that the TSV will remain stationary while resetting.

If the TSV is to be mounted vertically, it is recommended that the orientation be with the reset button up. If the TSV is to be mounted horizontally, it is recommended that it be positioned with the inlet at the top.

A 1" dia. mounting hole is required in panels or brackets up to 5/32" thick. The 1/4" dia. tube stubs may be bent as required to facilitate plumbing of the valve.



Installation Notes

- TSVs mounted in this location will protect all analyzers; however, pressure, temperature, and flow indicators as well as BPR/RVs and personnel, could all be exposed to dangerous high temperature sample.
- Limit maximum downstream-regulated pressure to 250 psig (17 barg).

Operation

The TSV is equipped with an indicating reset button. When the valve is in the tripped mode (closed) the red indicating band on the reset button is visible. If the valve is received in the tripped position it must be reset to allow sample flow.

Resetting the TSV is accomplished by pushing in the reset button until it latches. In conditions where ambient temperatures are above the valve trip point, it will be necessary to hold the reset button in until cooled sample allows the valve to latch.

If the TSV trips during sampling operations, isolate the analyzers on the line or lines affected. Correct the problem causing the excessive sample temperature and reset the TSV. It may be necessary to hold the reset button in momentarily until the TSV will reset. After the TSV is reset, reinitialize sample flow to the analyzers.

Maintenance

Do not disassemble this valve! There are no customer serviceable components in this valve. Occasional exercising of the valve may be performed by raising the sample temperature by either increasing sample flow rate or decreasing cooling water flow rate. This may be necessary if sample water is exceptionally dirty. Verify that all analyzers are isolated before performing this operation. If a replacement valve is needed, contact Sentry Equipment Corp.

Technical Data

- Inlet Pressure Rating 4400 psi (303 bar)
- Outlet Pressure Rating 250 psi (17 bar)
- Trip Point (Standard) 120°F (49°C) (P/N 7-01137E)
- Max Temperature Rating 250°F (121°C)
- Optional Trip Points
 - 95°F (35°C) (P/N 7-01137T)
 - 104°F (40°C) (P/N 7-01137F)
 - 109°F (43°C) (P/N 7-01137J)
 - 131°F (55°C) (P/N 7-01137S)
 - 140°F (60°C) (P/N 7-01137H)
 - 153°F (67°C) (P/N 7-01137M)
 - 160°F (71°C) (P/N 7-01137G)
 - 194°F (90°C) (P/N 7-01137L)
 - 203°F (95°C) (P/N 7-01137P)
- Optional Trip Points
 - 120°F (49°C) (P/N 7-01137Q)
 - 140°F (60°C) (P/N 7-01137R)
 - 153°F (67°C) (P/N 7-01137V)
 - 203°F (95°C) (P/N 7-01137W)
- CV 0.21
- Wetted Materials 316 Stainless Steel
Viton®, PEEK
- Optional Position Indicating Switch P/N 4-05144A
- Configuration SPDT (form C) (NOHC as used)
- Enclosure NEMA 3, 4, 13 & IEC IP-67
- Terminations Screw Type
- Estimated Life 500K operations
- Contact Rating
 - 5A-125AC, 250VAC
 - 5A-30VDC resistive
 - 4A-30VDC inductive
 - 0.5A-125VDC resistive
 - 0.4A-125VDC inductive

WARNING

Failure or improper selection or improper use of this product can cause property damage, personal injury, and death.

Due to the pressure limitations, it is imperative that no isolation valves be installed downstream of the TSV.

Due to the variety of operating conditions and applications for this product, the user, through its own analysis and testing, is solely responsible for making the final selection and assuring that all performance, safety and warning requirements of the application are met.

All Sentry TSVs pass a functional and leakage test before leaving the factory. This valve is not user serviceable. If these instructions are not fully complied with, the product may fail and cause damage to property or injury to persons. Sentry Equipment Corp cannot assume responsibility for the performance of a customer serviced TSV.

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.