



QUALITY MANAGEMENT SYSTEM  
CERTIFIED BY DNV  
==== **ISO 9001:2008** ====

# Installation, Operation and Maintenance Manual

## TSV Temperature Shut-off Valve

SPD 13.1.2 Rev. 8 10/11

### **SENTRY EQUIPMENT CORP**

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**WARNING** notices as used in this manual apply to hazards or unsafe practices, which could result in personal injury or death.

**CAUTION** notices apply to hazards or unsafe practices which could result in minor personal injury or property damage.

**NOTES** highlight procedures and contain information which assists the operator in understanding the information contained in this manual.

**WARNING**

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

**NOTICE**

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

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## SAFETY PRECAUTIONS

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 or equipment damage.

### Use of Hazard Information

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

#### Definitions



Indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury.



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



Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury.



CAUTION used without the safety alert symbol indicates a potentially hazardous situation, which if not avoided, may result in property damage.

#### NOTE

*Information that requires special emphasis*

#### SHALL

*This word understood to be mandatory*

#### SHOULD

*This word understood to be advisory*

**⚠ WARNING**

It is solely the responsibility of the user, through its own analysis and testing, to select products suitable for their specific application requirements, ensure they are properly installed, ensure that they are safely applied, ensure they are properly maintained, and limit their use to their intended purpose.

Improper selection, installation, or use can cause personal injury or property damage.

Sentry does not warrant against erosion and corrosion. Sentry makes no claims regarding suitability for specific use, and provides no warranty regarding material compatibility of elastomers in specific services.

**⚠ WARNING**

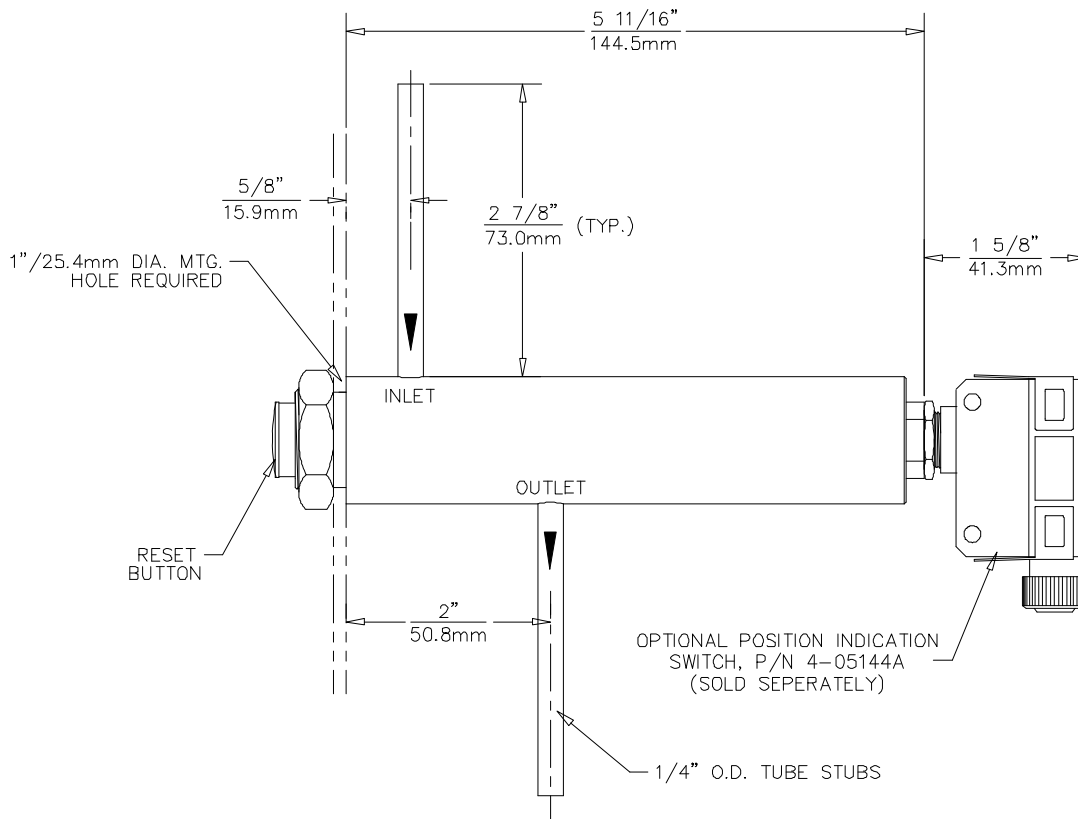
**Hot Surfaces!** This equipment may have very hot surfaces. If an operator contacts a hot surface, injury may occur. Use protective clothing to prevent injury. If other equipment comes in contact with a hot surface, damage to the equipment may occur. Ensure the area around this equipment is kept clear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

**⚠ WARNING**

**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 de-pressurized, the contents have been drained and the equipment is cool.

**1.0 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 dry contact assembly (Sentry part # 4-05144A) is available to provide remote indication capabilities. The position indicating dry contact assembly includes a switch (part # 4-03909D) and an extension rod (part # 2-04491R).



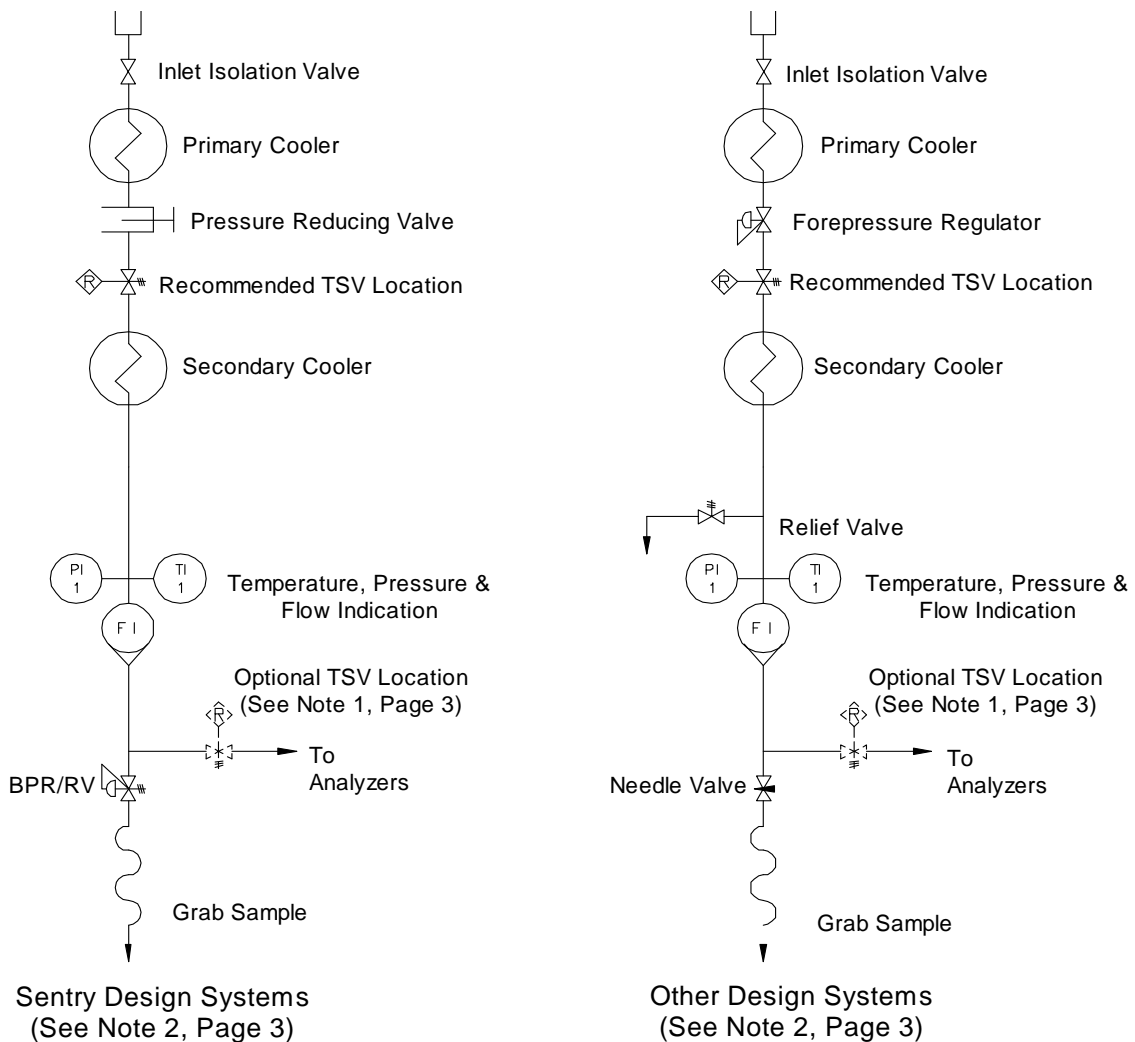
## 2.0 Installation

Reference the diagram below, which best represents your application, for the proper location of the TSV. 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 vertical, it is recommended that the orientation be with the reset button up. If the TSV is to be mounted horizontal, 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**

1. TSV's mounted in this location will protect all analyzers, however pressure, temperature and flow indicators as well as BPR/RV's and personnel, could all be exposed to dangerous high temperature sample.
2. Maximum downstream-regulated pressure should be limited to 250 psig (17 barg).

## **3.0 Operation**

The TSV is equipped with a 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.

## **4.0 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.

5.0 Technical Data

- Inlet Pressure Rating.....4400 psi (303 BAR)
- Outlet Pressure Rating .....250 psi (17 BAR)
- Trip Point (Standard).....120<sup>0</sup>F (49°C)
 

Optional Set Points	95°F (35°C)	153°F (67°C)
	104°F (40°C)	160°F (71°C)
	109°F (43°C)	194°F (90°C)
	131°F (55°C)	203°F (95°C)
	140°F (60°C)	210°F (99°C)
  
- Max. Temperature Rating.....250<sup>0</sup>F (121°C)
- C<sub>v</sub>..... 0.21
- Wetted Materials ..... 316 Stainless Steel  
Viton, Peek
  
- Optional Position Indicating Dry Contact... 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



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

Due to the variety of operating conditions and applications for this product, the user, through it's 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 TSV's pass a rigid operational 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.**

## 6.0 Standard Warranty

### Warranty

Seller warrants products manufactured by it and supplied hereunder to be free from defects in materials and workmanship for a period of eighteen months from date of shipment or twelve months from start up (whichever ever occurs first). If within such period any such products shall be proved to Seller's satisfaction to be defective, such products shall be repaired or replaced at Seller's option. Seller's obligation and Buyer's exclusive remedy hereunder shall be limited to such repair and replacement and shall be conditioned upon Seller's receiving written notice of any alleged defect within 10 days after its discovery and, at Seller's option, return of such product to Seller, ex-works Sentry's factory.

The foregoing warranties are exclusive and in lieu of all other express and implied warranties except in title, including but not limited to implied warranties of merchantability and fitness for purpose. Seller shall not be subject to any other obligations or liabilities whatsoever with respect to products manufactured or furnished by it, or any undertakings, acts or omissions relating thereto.

### Warranty Conditions & Limitations

This Warranty shall not apply to any Sentry product which, in the opinion of Sentry Equipment Corp, has been (a) altered or repaired in a manner affecting the efficiency of performance of the unit or (b) incorrectly installed or operated or (c) damaged in shipment or (d) damaged by flood or fire or (e) if the serial number is missing, altered or defaced.

Any materials proposed to be used by Sentry Equipment Corp. ("Seller") are based on published reference literature and/or customer recommendations, and customer assumes sole responsibility for the selection of such materials. Any references are based on third-party studies, and may not correlate directly with the end user's intended usage or process (i.e. chemical composition, concentrations, temperatures, etc.).

EXCEPT FOR THE LIMITED WARRANTIES SET FORTH HEREIN, SELLER HEREBY DISCLAIMS ANY AND ALL WARRANTIES AND REPRESENTATIONS (EXPRESS OR IMPLIED, ORAL OR WRITTEN), INCLUDING ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE WHETHER OR NOT SELLER KNOWS, OR HAS REASON TO KNOW, HAS BEEN ADVISED, OR IS OTHERWISE IN FACT AWARE OF ANY SUCH PURPOSE, WHETHER ALLEGED TO ARISE BY LAW, BY REASON OF CUSTOM OR USAGE IN THE TRADE, OR BY COURSE OF DEALING OR PERFORMANCE. Without limiting the generality of the foregoing, Seller makes no warranty regarding ability of products sold hereunder to withstand erosion or corrosion, or regarding material compatibility of elastomers in specific services, and no warranty made hereunder shall apply to products which have been subjected to adverse storage

The owner shall be responsible for maintenance of his equipment. Wear or damage caused by lack of normal maintenance or by misuse of the equipment shall not be considered as defective workmanship and material.

Sentry reserves the right to make product design changes or improvements without notice and without imposing any obligation upon itself to install these changes or improvements on its products previously manufactured.

This warranty is for the sole benefit of the original purchaser and is not transferable unless agreed to in writing by Sentry Equipment Corp.

**Receiving Shipments (including loss or damage by transportation)**

It is the customer's responsibility to check for missing cartons and sign of damage to cartons. If found, customer should note missing and/or damaged cartons on the delivery receipt and have delivery receipt signed by the representative of the transportation company. If unpacking discloses concealed damage from rough handling, the customer should request a concealed damage inspection from the transportation company.

The Sentry Customer Service Department will aid your organization in any claim proceeding for shortages or damages in shipment, but it is the receiver's responsibility to file claim with the carrier for damage or loss.

**Customer Actions For Claims on Products During the Warranty Period**

1. Contact the Customer Service Department, Sentry Equipment Corp., Oconomowoc, WI, Telephone: 262-567-7256, to obtain a Return Material Authorization (RMA) number.
2. You will be sent an "RMA" and a "Decontamination Statement" that is required to be filled out and **returned with the equipment**.
3. The following information must appear on the outside of the package:
  - a. RMA number marked on outside of box.
  - b. Decontamination Statement filled out and attached to outside of box.
4. Return defective equipment **FREIGHT PREPAID**. Collect shipments will be refused.
5. The factory will not process warranty claims until the customer has properly accomplished the above items.
6. The Sentry factory may accept the entire claim, a part of the claim or none of the claim if our inspection of returned parts proves the failure was for reasons other than defective material or factory workmanship.

**Important Notes:**

1. Sentry will not be responsible for damage incurred during the return shipment.
2. All returns subject to inspection and a minimum \$100.00 evaluation fee.
3. This RMA is not authorization for credit. Credits and/or replacements will be issued upon evaluation of returned goods.
4. RMA is valid for thirty (30) days from issue date.