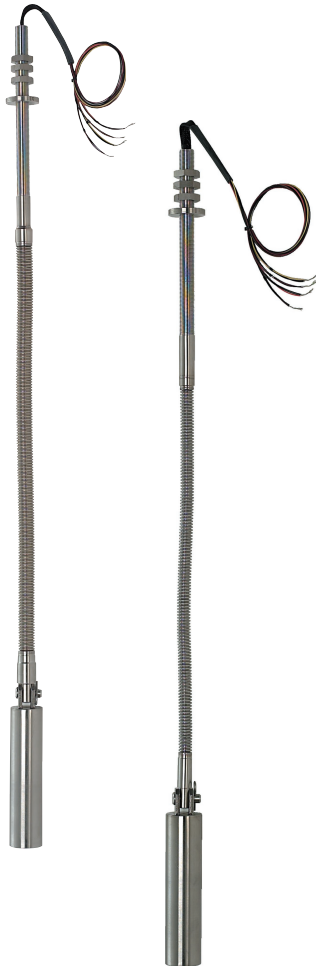


Multiple Spot Thermometers

Product temperature is one of the prime parameters for custody transfer and accurate inventory measurement in liquid bulk storage tanks.

Saab Tank Control offers the Multiple Spot Thermometer (MST) for accurate and reliable measuring of temperature.



The Multiple Spot Thermometer (MST) is designed to measure the temperature of bulk stored liquids to provide a tank temperature profile and an average temperature.

The MST contains a number of spot elements positioned at different heights in the tank. Only those spots which are fully immersed are used to determine the product temperature.

Rugged construction

The Multiple Spot Thermometer consists of a number of ceramic-platinum elements Pt100, each contained in an insulation covering, bundled together and housed in a flexible, gas-tight protection tube made of convoluted stainless steel. The protection tubes have rigid stainless steel fittings at the top and bottom.

The top fitting comprises a 305 mm (12 inch) long stainless steel pipe with 250 mm (10 inch) length 1/2-inch BSP thread for fine adjustment of mounting flange position. The top fitting is also filled with epoxy and serves as a gas-tight entry for the color coded electrical connections.

Accuracy

The Multiple Spot Thermometer uses 1/6 DIN-elements (1/10 as option). This ensures accurate measurement

even under extreme conditions. The number of spots can vary to suit the particular application. The spots are equidistantly positioned to guarantee a precise measurement of the average tank temperature. A common distance between the spots is 3 m (10 ft). According to API chapter 7.

Features

- Rugged design for harsh environments
- Accurate
- Easy to install & replace
- Anchor weights, flanges & junction boxes available as accessories
- Version with integrated water bottom sensor is available (see separate product sheet)

Applications

- Refined products
- Crude oil
- Bitumen / asphalt
- Chemicals
- LPG/LNG (thermowell version)

Specifications

Accuracy

1/6 DIN (std):	±0.25° C (0.45° F) -40° C to +40° C (-40° F to +104° F)
1/10 DIN (option):	±0.17° C (0.31° F) -40° C to +40° C (-40° F to +104° F)

Outer material:	Stainless steel AISI 316
Overall length:	0.95-70 m (3.1-230 ft)
Sheath diameter:	3/4 in. (std), 1 inch (option)
Connection:	1/2-in. BSP thread, length 250 mm (9.8 in.)
No of wires:	3 independent wires per element or 1 wire per element plus 1 common return
Sensing element:	Pt-100
Number of spots:	max 14
Temp range std:	-50° C to +120° C (-58° F to +248° F)
Temp range optional:	-50° C to +250° C (-58° F to +482° F)
Cable leads out:	3 m (10 ft), other lengths on request

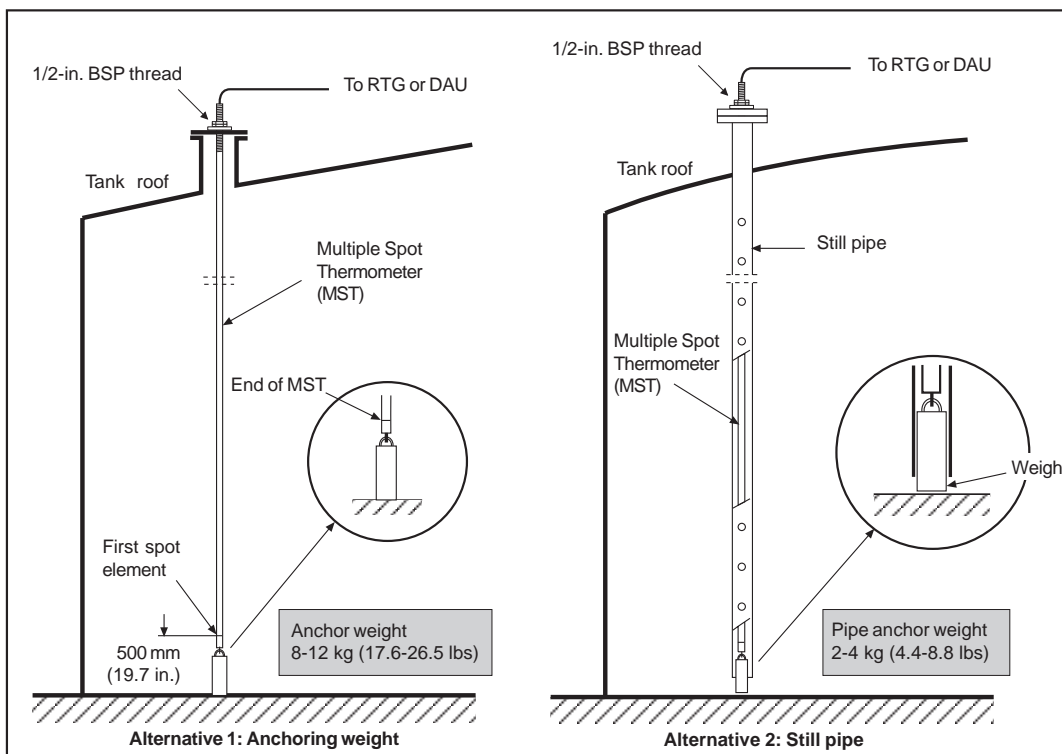
Easy installation

The Multiple Spot Thermometer is easy to install, even while tanks are in service. Generally a 2 inch entry is sufficient. Its sealed construction makes it possible to expose the MST to the tank contents without fear of damage by aggressive substances. The MST, installed in a closed thermowell, is recommended for use in pressurized tanks since it allows installation and inspection without taking the tank out of service.

A number of installation alternatives are possible. Two of them are shown below. In alternative 1, the MST is positioned by means of an anchor weight standing on the tank bottom. Alternative 2 shows the MST inside a stilling well with a small weight to stretch it, 2-4 kg (4.4-8.8 lbs).

Safe

The Multiple Spot Thermometer is a passive component, i.e. classified as a "simple apparatus", and requires no special electrical safety precautions.



Quality and environmental system certified by DNV - ISO 9001 - ISO 14001

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