

# Standards for Sanitary Installations

## INSTALLATION INSTRUCTIONS

Form #900328-1 ©Minco 12-2004

Sanitary sensors are used in process lines containing products for human consumption: food, dairy, beverage, pharmaceuticals, toiletries and cosmetics. Such process lines are designed to minimize the possibility of bacterial contamination. Sanitary installations require that product contact surfaces be constructed of stainless steel and have no sharp inside corners, cracks, or other surface irregularities. Non-contact areas - connection heads and fittings - are left to the discretion of the installer. In most cases, thermometers will be exposed to steam and caustic chemicals during routine washdowns. Minco thermometers are built to withstand such exposure.

Fittings between tube sections, or between tubes and thermometers, are designed for quick disassembly so lines may be easily and frequently cleaned and inspected. There are several types of fittings on the market. Minco offers two:

### Tri-Clamp

Tri-Clamp, manufactured by Tri-Clover, is the most popular fitting type. Here two identical tube faces are clamped together with a gasket between them. The clamp is hinged for quick removal.

### Beveled seats

Beveled seats use metal-to-metal seals instead of gaskets and union nuts in place of clamps. Minco normally supplies male fittings; nuts must be ordered separately as AC821.

### 3A Sanitary Standards

In the 1920s three associations - the Milk Industry Foundation; the Dairy and Food Industries Supply Association; and the International Association of Milk, Food, and Environmental Sanitarians - conferred to establish pipe fittings requirements for milk lines. The resulting standards were called 3A after the three associations. Standard 74- covers instrumentation fittings, including resistance thermometers. Although 3A remains strongly rooted in the dairy industry, it has been adopted by other food and beverage producers.

Some pharmaceutical plants also recognize 3A, but use it as a starting point for stricter requirements. For example, pharmaceutical engineers look for a much finer finish than the #4 finish mandated by 3A. Pharmaceutical companies are also more likely to install sensors in thermowells as they must calibrate sensors frequently but are extremely reluctant to break into sanitary lines.

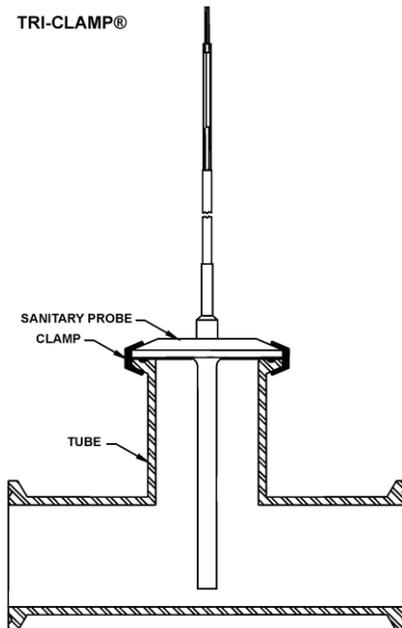


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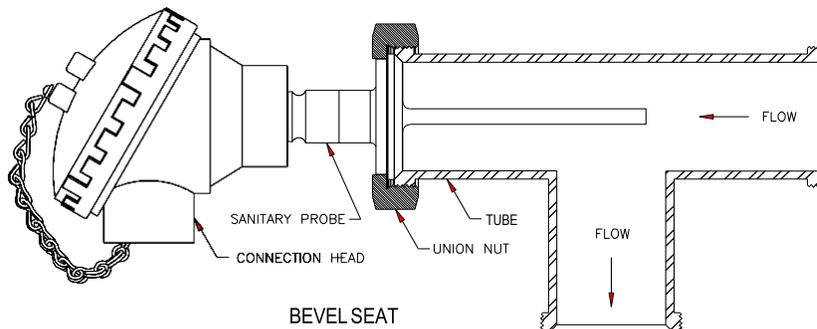
## Installation Instructions for Sanitary Assemblies and Probes

- Y Do not use without 3-A approved gasket material.
- Y Mount in a self-draining fashion.
- Y Mounting probes in 1/2" Tri-Clamp tubes is not recommended. Reduced flow around probe may cause inaccurate readings and be difficult to clean in place.

### 1.0 Probes

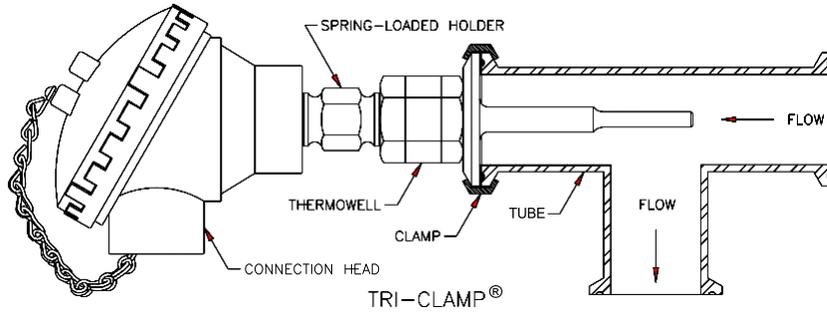


### 2.0 Probe Assemblies



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### 3.0 Thermowell Assemblies



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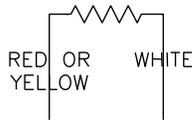
4.0 Electrical Connections

NOTE: If assembly contains a transmitter, skip this step and see special instructions (Form #880216).

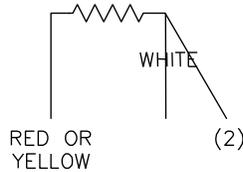
Make connection to external wiring using connectors provided (terminals or wire nuts). See the schematic diagrams below for probe leadwire color code. External wiring and conduit must be in accordance with all applicable electrical codes.

SINGLE ELEMENT RTD

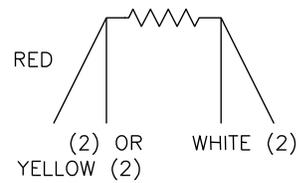
2-LEAD



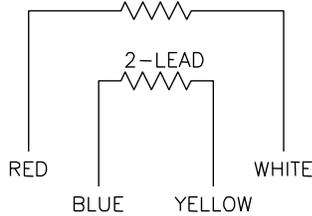
3-LEAD



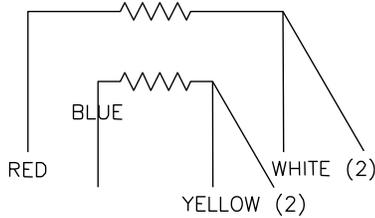
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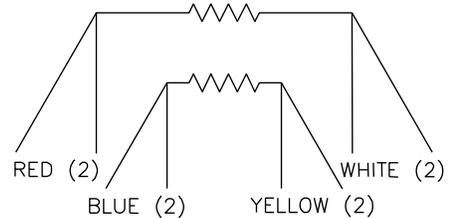
DUAL ELEMENT RTD



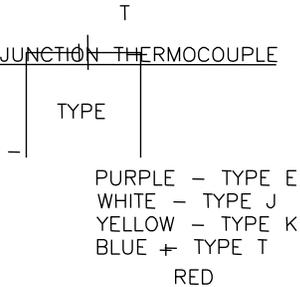
3-LEAD



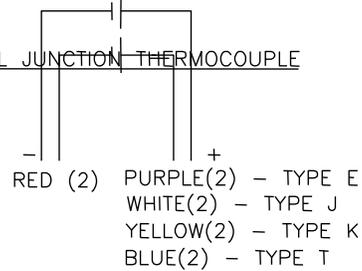
4-LEAD



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