

## Preface

The Resistive Temperature Detector (RTD), Thermocouple (TC) and their thermowells, joints and connection heads (also called terminal box compartment) are all made of stainless steel. Our designers emphasize the design, features, workmanship and appearance of our products making the quality, appearance and the technology top notch.

Our quality inspectors are very strict in every chain of manufacturing. Our products have been used widely in various industries. In the past many years, we researched the advantages and disadvantages of various products in the world. We received the advices from many of our users and continuously improved and innovated all of our products. See the following styles of our high quality products:

- Armored RTDs and TCs of various dimensions and specifications
- Integral temperature transmitters assembled with RTDs or TCs of various specifications
- Stainless steel connectors and connection head, stainless steel or special alloy sheath
- Various connecting forms and pressure ratings
- Thermowell from deep hole drilling method (Machined from Stainless steel or special alloy solid bar)
- Various water-proof and/or explosion-proof products
- Corrosion-proof thermowell of various specifications
- Wear-proof thermowell of various specifications

## Features of Construction and Applications

### Armored

Armored temperature sensors are constructed of thermocouple conductors or RTD elements, and protected with stainless steel (1Cr18Ni8Ti) or special alloy sheath, insulated with pure MgO. It has advantages of a small diameter ranging from 3mm to 8mm, flexible, hi-pressure rating, quick response to temperature variations (short time constant), strong and durable.

Under the condition of normal flow rate and little vibration, armored RTD or TC can be insert into pipes or equipment directly, which is being used more and more in industry applications. The different forms of mounting are screw with ferrule, flange with ferrule, fixed screw, fixed flange and unfixed flange.

Stainless steel thermowell will be supplied with armored sensor for continuous process to avoid the down time of production in order to replace the sensor, special alloy is available upon request. When dismounting and changing the temperature sensor, the thermowell stays in pipes or equipment. The outside diameters (OD) are typically 12mm and 16mm.

### Integral Temperature Transmitter for RTD and TC

When temperature transmitter is assembled directly with RTD or TC, it is called integral temperature transmitter for RTD or TC. Our integral products are assembled with high quality transmitters and RTD or TC. Because the wirings between RTD (or TC) and transmitter are inside the thermometer, there are only two 4-20 mA outgoing wires from the transmitter. The output of two wires, 4~20mA, increases the capability of anti-interference (EMC) for long distance signal transmission, and also save the cost for very expensive thermocouple compensation wires for cold junction compensation.

Different spans of temperature transmitter required by user will be calibrated in factory before they are shipped out.

### Stainless Steel Thermometer

Protecting thermowell, flange and compartment of thermometer or integral temperature transmitter are all stainless steel. The stainless steel gives the thermometer a high quality appearance

and also gives the ability of anti-corrosion for fluid and harsh environment conditions. 1Cr18Ni8Ti is generally used as the housing material for normal service. Special alloys are used for erosion and corrosion environment.

## Connecting Style & Pressure Rating

There are many forms for connecting to pipes and equipment for armored, stainless steel RTD or TC. The style of connection and the pressure rating in normal service are shown in Table 1 below. We will supply RTD or TC according to the pressure rating in Table 1 if the pressure rating is not identified by user. Users can request the custom connecting style and the different pressure rating.

**Table 1. Connecting Style and Pressure Rating**

Style of Connection	Commonly used Connectors	Pressure Rating
No Mounting Fittings	N/A	N/A
Fixed Ferrule within Screw	M12X1.5 (φ3, φ4) M16X15 (φ5, φ6, φ8)	2.5MPa
Fixed Ferrule within Flange	See Dimension Drawing of Ferrule within Flange In Diagrams of Model Selection	2.5MPa
Unfixed Ferrule within Flange	Dimensions Same as Fixed Ferrule with Flange	Atm. Pressure
Unfixed Ferrule within Screw	Dimensions Same as Fixed Ferrule with Flange	Atm. Pressure
Fixed Screw	M27X2	Determined by Specifications
Fixed Screw (For Straight Thermowell)	M27X2	10 MPa
Fixed Screw (For Tapered Thermowell)	M33X2	30 MPa
Unfixed Flange	See Dimension Drawing of Unfixed Flange in Diagrams of Model Selection	Atm. Pressure
Fixed Flange	Codes of Standards, DN and PN identified by User	Determined by Specification

## Other Style Flanges and Model Numbers and Specifications:

We can supply our products according to the following standards to satisfy the various requirements for fixed flanges in various applications. (Please note the code of standard, DN, PN and the material for the flange.)

**Table 2 Flange Standards**

American Standards	ASME/ANSI B16.5	DN: 1/2" ~ 4"	PN: 150 ~ 1500 lbs
German Standards	DIN	DN: 10 ~ 100	PN: 0.25 ~ 25.0 MPa
Japanese Standards	JIS10 ~ 16K	DN: 10 ~ 100	PN: 0.25 ~ 25.0 MPa
Chinese Standards	GB, HG, SH, JB	DN: 10 ~ 100	PN: 0.25 ~ 25.0 MPa