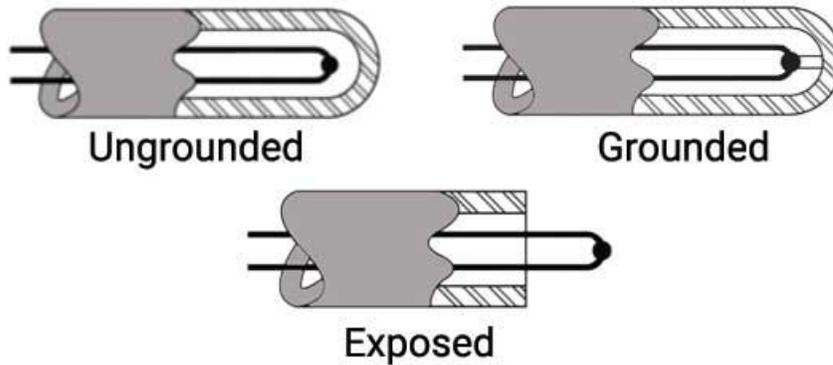


The difference between grounded thermocouple and non-grounded thermocouple? As we all know, there are insulated, [grounded thermocouple](#) and exposed-end thermocouples in the form of hot ends. Please check the grounded thermocouples, and the difference between grounded thermocouples and non-grounded thermocouples.

grounded thermocouple and non-grounded thermocouple hot end structure



Thermocouple Junctions

The grounding type is the shell type, the working end is welded to the top of the protection tube, so it is connected to the shell, and it is also connected to the equipment shell, so it is called the grounding type. The grounding type thermal lag time constant is small, and the response speed is fast. The insulated working end does not touch the protection tube and has certain insulation requirements. The time constant during measurement should be greater than that of the grounded type, and the response sensitivity is lower than that of the grounded type. There is no strict difference between the usage and requirements of the secondary instrument. If you consider the impact of equipment leakage on the meter, the meter needs to be grounded strictly. From a safety point of view, try to use insulated sensors. Unless the measurement sensitivity is very high, especially the fast response temperature is required, use the grounding type.

Comparison of grounded and non-grounded thermocouples:

1. Non-grounded internal structure: insulation between protective sleeve and thermocouple. Benefits: The temperature measuring contact and the protection tube are completely insulated; the response is worse than the grounding type, but it is not susceptible to interference; this type is usually used.
2. Grounding internal structure: conduction between the protective sleeve and the thermocouple. Benefits: The grounded thermocouple is connected to the front end of the protection tube of the temperature measurement contact; it responds quickly, but is easily affected by interference; it has high output and low cost.