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Мурманск (8152)59-64-93
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Казахстан +7(7172)727-132

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
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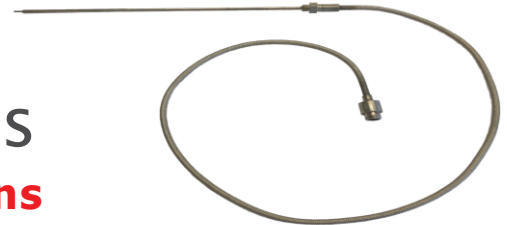
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Ярославль (4852)69-52-93

akm@nt-rt.ru || <https://ametek.nt-rt.ru/>

TEMPERATURE PRODUCTS

HYBRID Series Exhaust Gas Thermocouples For Frame 7 & 9 Gas Turbine Applications



The **Hybrid** Series of Exhaust Gas Thermocouples for Frame 7 and 9 applications have been designed, fully tested and qualified to meet OEM specifications. We worked closely with the OEM turbine manufacturer to qualify and engine test our thermocouple as a direct upgrade for Exhaust Gas Thermocouples (EGT). This design takes the guesswork out of the installation by ensuring that it is seated properly for the correct insertion every time. This will not only increase the thermocouple life, but provide you with temperature reading consistency that will improve your combustion temperature information.

The Hybrid Exhaust Gas Thermocouples replace EGTs that have caused many owners and operators premature failures from excessive vibration, heat or tip fretting.

Excessive Vibration

Gas turbines are being run in operational modes that were not part of the original test configurations, this includes running them at very low loading levels. This can cause excessive vibration that shortens the life of a thermocouple. Excessive vibration can cause the original thermocouple to break at the compression fitting where it is mounted into the radiation shield. The Hybrid Thermocouple extends the connection head away from the radiation shield. This reduces the mass and energy level generated by the additional vibration being experienced with these low loading conditions and increases the yield strength and life of this probe.

areas focusing this hot air on the thermocouple and cable. This heat causes the insulation in the connectors to break down prematurely in both the cable and thermocouple ends. Initially this may show as intermittent connections prior to full failure. Our Hybrid Thermocouple extends the connectors away from the cutout to allow the connectors to be placed in a lower temperature zone on top of the blanket. This allows you to experience the advantages of the connectors, including being able to reuse existing connection cables.

Tip Fretting

Many operators have seen situations where the metal sheath on the tip of their EGT has worn through, causing the thermocouple to fail. This is often caused from the seat in the radiation shield being worn. The wear on the thermocouple prevents it from seating completely and it vibrates excessively in the air stream. Our Hybrid Thermocouple does not rely on a seat within the radiation shield to ensure the proper insertion length into the airstream. With a fixed insertion length and heavy oversheath, they are easy to install and are no longer susceptible to fretting.

The Hybrid Exhaust Gas Thermocouple is a field proven design that reduces the EGT failure, related turbine trips and maintenance costs.

AMETEK[®]
POWER INSTRUMENTS

SPECIFICATIONS

TIME RESPONSE

- Less than 2.5 sec.

ACCURACY

- Special Limits: $\pm 0.4\%$

MATERIAL

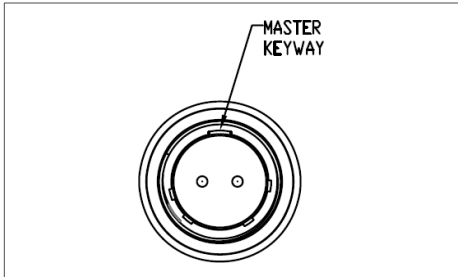
- Type "K" thermocouple

HERMETIC SEAL

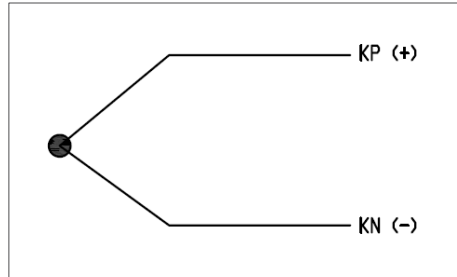
- 1×10^{-6} cc/sec

ENVIRONMENT

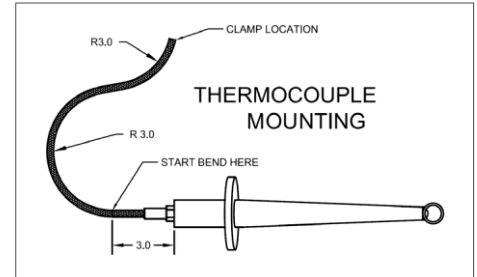
- 100% humidity for entire thermocouple



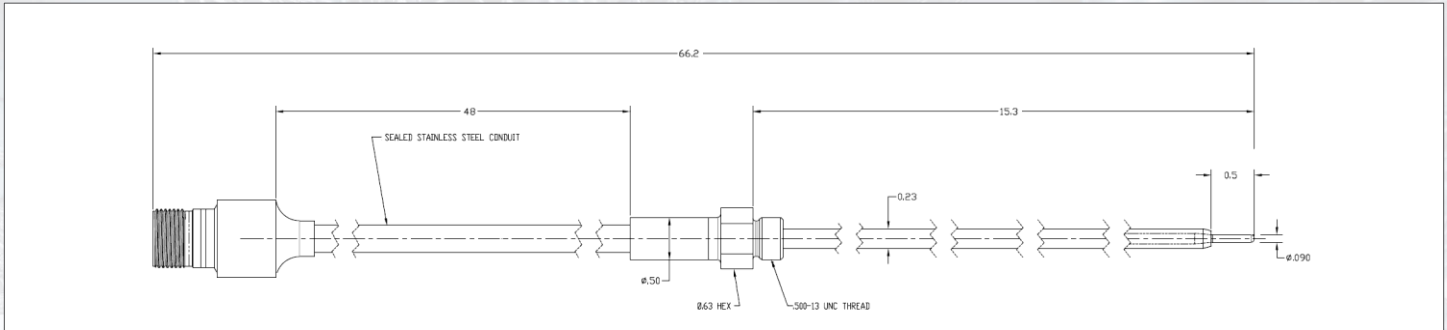
Keyway



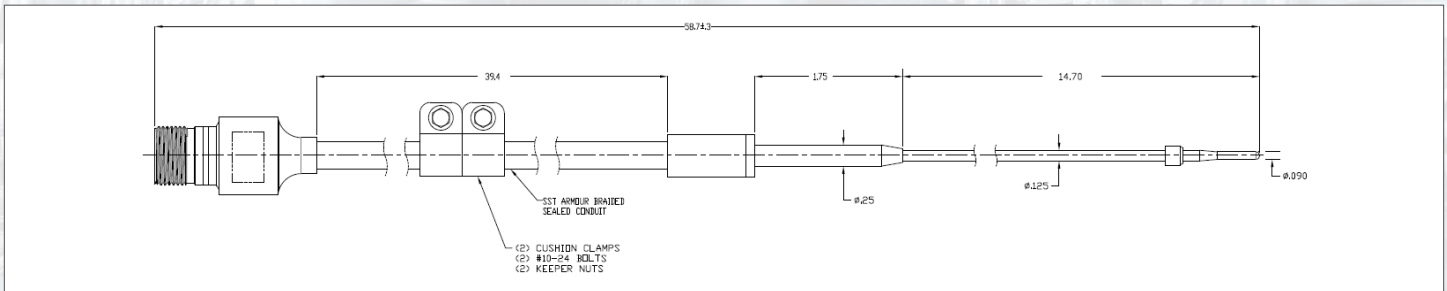
Wiring Diagram



8TR4 Install



8TR4FAM1



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