Butt-Welded Unsheathed Fine Diameter Tungsten-Rhenium Thermocouples

Tungsten-Rhenium thermocouples were developed to meet the requirements for measuring ultra-high temperatures in the 2760°C (5000°F) range.

OMEGA makes available two widely used Tungsten-Rhenium thermocouple calibrations. Tungsten-5% Rhenium versus Tungsten-26% Rhenium and Tungsten-3% Rhenium versus Tungsten-25% Rhenium.

OMEGA® Tungsten-Rhenium Thermocouples conform to the limits of error listed in the Table: “Limits of Error for Tungsten-Rhenium Thermocouple Wire combinations.”

The average EMF of the W-3% Re/W-25% Re is slightly more than that of W-5% Re/W-26% Re. The ductility of W-3% Re is about equal to that of W-5% Re, but superior to that of unalloyed Tungsten.

Both thermocouple calibrations can be used to 2760°C (5000°F) in hydrogen or inert gas atmospheres and in a vacuum. They undergo rapid deterioration under oxidising conditions and should not be used in air or atmospheres containing oxygen.

OMEGA® Tungsten-Rhenium thermocouples are supplied in 300 mm (12”) lengths which corresponds to each for a 600 mm (24”) total length. Longer lead lengths are available, Consult Sales.

** Tungsten-Rhenium alloy thermocouples are supplied in standard 300 mm (12”) lengths, which corresponds to each leg for a 600 mm (24”) total length. Change suffix “-12” in model number to indicate additional length required in inches. Consult Sales for other sizes.

Note: Butt-Welded Tungsten-Rhenium thermocouples cannot be bent in the butt-welded area. All warranties are voided if the customer chooses to bend the thermocouple.

Ordering Example: T5R-010-12-BW is a butt-welded Type C thermocouple, 300 mm (12”) long with a 0.25 mm (0.010”) diameter, £46.90.

Limits of Error for Tungsten-Rhenium Thermocouple Wire Combinations

<table>
<thead>
<tr>
<th>Wire Diameter mm (inches)</th>
<th>Temperature Range (°)</th>
<th>Maximum Error or Departure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25 to 0.50 (0.010 to 0.020)</td>
<td>0 to 425°C (32 to 800°F) 425 to 2300°C (800 to 4200°F)</td>
<td>±4.5°C (±8°F) ±1%</td>
</tr>
</tbody>
</table>

† Up to 2760°C (5000°F) for short-term exposure.

MONOGRAM® Series Embedded Ethernet
Connectable Series will measure and control temperatures measured with type C thermocouple inputs (please see Sections M and P).

ALL MODELS AVAILABLE FOR FAST DELIVERY!

To Order (Specify Model Number)

<table>
<thead>
<tr>
<th>Materials</th>
<th>Wire Dia. mm (inches)</th>
<th>Model No.**</th>
<th>Price (per Thermocouple)</th>
<th>Price per Add’l Double Inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.25 (0.010)</td>
<td>T5R-010-12-BW</td>
<td>£46.90</td>
<td>£2.68</td>
</tr>
<tr>
<td>Tungsten 5% Re-</td>
<td>0.38 (0.015)</td>
<td>T5R-015-12-BW</td>
<td>63.65</td>
<td>4.02</td>
</tr>
<tr>
<td>Tungsten 26% Re</td>
<td>0.50 (0.020)</td>
<td>T5R-020-12-BW</td>
<td>83.75</td>
<td>5.36</td>
</tr>
<tr>
<td>D</td>
<td>0.25 (0.010)</td>
<td>T3R-010-12-BW</td>
<td>46.90</td>
<td>2.68</td>
</tr>
<tr>
<td>Tungsten 3% Re-</td>
<td>0.38 (0.015)</td>
<td>T3R-015-12-BW</td>
<td>63.65</td>
<td>4.02</td>
</tr>
<tr>
<td>Tungsten 25% Re</td>
<td>0.50 (0.020)</td>
<td>T3R-020-12-BW</td>
<td>83.75</td>
<td>5.36</td>
</tr>
</tbody>
</table>

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