

# Tungsten-Rhenium Fine Diameter Thermocouple Wire High-Temperature Applications

**High Accuracy!**

**Matched Pairs!**



- ✓ **Calibrated Accuracy Guaranteed**
- ✓ **Melting Point in Excess of 2315°C (4200°F)**

Tungsten-rhenium thermocouple alloy combinations were developed to meet the need for measuring ultra-high temperatures in the 2315°C (4200°F) range.

OMEGA sells 3 widely used tungsten-rhenium thermocouple alloy combinations:

**Type G:** Tungsten (+) vs. Tungsten 26% rhenium (-)

**Type C:** Tungsten 5% rhenium (+) vs. Tungsten 26% rhenium (-)

**Type D:** Tungsten 3% rhenium (+) vs. Tungsten 25% rhenium (-)

To guarantee the limits of error, OMEGA® sells tungsten-rhenium thermocouple wire only in matched pairs by the double foot. Because of the inherent brittleness of unalloyed tungsten, rhenium has been added to the positive leg of types C and D to improve handling characteristics. The average emf of types C and D is slightly less than that of the unalloyed type G.

All 3 thermocouple combinations can be used to 4200°F (2315°C) in hydrogen or inert-gas atmospheres and in a vacuum. They deteriorate rapidly under oxidizing conditions and should not be used in air or atmospheres containing oxygen.

For other wire sizes and large quantities, consult the Special Quotations department.

## Uninsulated Refractory Metal Thermocouple Wire

| To Order  |                                    |                     |                  |
|-----------|------------------------------------|---------------------|------------------|
| Symbol    | Material                           | Wire Dia. mm (inch) | Model Number     |
| <b>G*</b> | Tungsten vs. Tungsten 26% Re       | 0.08 (0.003)        | <b>WW26-003</b>  |
|           |                                    | 0.13 (0.005)        | <b>WW26-005</b>  |
|           |                                    | 0.25 (0.010)        | <b>WW26-010</b>  |
|           |                                    | 0.38 (0.015)        | <b>WW26-015</b>  |
|           |                                    | 0.51 (0.020)        | <b>WW26-020</b>  |
| <b>C*</b> | Tungsten 5% Re vs. Tungsten 26% Re | 0.08 (0.003)        | <b>W5W26-003</b> |
|           |                                    | 0.13 (0.005)        | <b>W5W26-005</b> |
|           |                                    | 0.25 (0.010)        | <b>W5W26-010</b> |
|           |                                    | 0.38 (0.015)        | <b>W5W26-015</b> |
|           |                                    | 0.51 (0.020)        | <b>W5W26-020</b> |
| <b>D*</b> | Tungsten 3% Re vs. Tungsten 25% Re | 0.13 (0.005)        | <b>W3W25-005</b> |
|           |                                    | 0.25 (0.010)        | <b>W3W25-010</b> |
|           |                                    | 0.38 (0.015)        | <b>W3W25-015</b> |
|           |                                    | 0.51 (0.020)        | <b>W3W25-020</b> |

\* Not an ANSI symbol.

\*\* Sold only as matched pairs. A double foot is 1' of positive and 1' of matched negative wire.

**Note:** Metric dimensions are approximate.

**Ordering Example:** W5W26-010, 10' of 0.25 mm (0.010") Dia., uninsulated refractory metal tungsten-rhenium thermocouple wire.

## Extension-Grade Wire

### Uninsulated Lead Wire for Tungsten-Rhenium Thermocouples

| Symbol     | Thermocouple Used With | Model Number    | Temperature Range °C (°F) | Wire Dia. |
|------------|------------------------|-----------------|---------------------------|-----------|
| <b>CX*</b> | W5%Re vs W26%Re        | <b>EX-C-010</b> | 204 to 426 (400 to 800)   | 10 mil    |
|            |                        | <b>EX-C-020</b> | 204 to 426 (400 to 800)   | 20 mil    |

Insulated extension-grade wire also available.

\* Not an ANSI symbol.

# Extreme (High) Temperature Sensors and Accessories

Platinum Thermocouples Type R, S, and B,  
Tungsten-Rhenium Type C and D



High Temperature Ceramic Accessories ORX Series.



Extreme (High) Temperature Metal Sheathed Probes (2315°C [4200°F]) XMO Series.

Ceramic Connectors NOX Series.



Ceramic Protection Tubes—PTRA Series.



All models shown smaller than actual size.

Insulated Duplex Extension Wire

| To Order    |                        |              |                     |     |           |
|-------------|------------------------|--------------|---------------------|-----|-----------|
| Material    | Thermocouple Used With | Model Number | Maximum Temperature |     | Wire Dia. |
|             |                        |              | °C                  | °F  | AWG mm    |
| Cu-Alloy 11 | R and S                | EXTT-RS-24   | 200                 | 392 | 24 0.51   |
|             |                        | EXGG-RS-24   | 200                 | 392 | 24 0.51   |
|             |                        | EXTT-RS-20   | 200                 | 392 | 20 0.81   |
| Cu-Cu       | B                      | EXTT-B-26S   | 100                 | 212 | 26 0.40   |
|             |                        | EXTT-B-24S   | 100                 | 212 | 24 0.51   |
|             |                        | EXTT-B-20    | 100                 | 212 | 20 0.81   |
| Ni/Al-Ni/Cu | C                      | EXGG-C-24    | 427                 | 800 | 24 0.81   |
|             |                        | EXTT-C-24    | 260                 | 500 | 24 0.81   |

