ZWH-, ZWN-, and ZWP-Series strain gages are designed for dynamic and limited static strain measurement at high-temperature. These strain gages are manufactured using a round wire for superior bonding ability and performance. A high-fatigue wire (Option Z) is also available on each of the gages. These gages are supplied with a fiberglass-reinforced tape carrier which holds the grid and leads in place during installation and are bonded using ceramic cements or Rokide® flame spray. The shelf-life of these gages is 9 months.

**ZWH SPECIFICATIONS AND FEATURES**
- Maximum operating temperature: 1500°F (816°C)
- Iron-Chrome-Aluminum alloy (Hoskins 875™)
- Resistance (nominal): 120 Ω
- Gage factor (nominal): 2.0
- Measurement type: Static (with compensating gage, half or full bridge)
- Standard leads: Hoskins 875™, 0.003-in diameter
- High resistivity and excellent oxidation resistance
- Recommended for high temperature static strain measurements where a compensating gage, half-bridge or full-bridge configuration is required

**ZWN SPECIFICATIONS AND FEATURES**
- Maximum operating temperature: 1600°F (871°C)
- Nichrome V alloy
- Resistance (nominal): 120 Ω
- Gage factor (nominal): 2.0
- Measurement type: Dynamic
- Standard leads: Chromel, 0.003-in diameter
- High fatigue strength and excellent oxidation resistance
- Recommended for dynamic strain measurements on turbine blades and engines, exhaust systems, and power plant applications

**ZWP SPECIFICATIONS AND FEATURES**
- Maximum operating temperature: 1900°F (1038°C)
- Platinum-Tungsten alloy
- Resistance (nominal): 120 Ω
- Gage factor (nominal): 4.0
- Measurement type: Dynamic
- Standard leads: Platinum/Nickel, 0.003-in diameter
- Excellent high-temperature oxidation resistance and low, stable temperature coefficients of resistance
- Widely used for test and failure analysis in aerospace and automotive applications

**APPLICATIONS**
- Gas turbines
- Steam generation and turbines
- Automotive exhaust systems
- Many others

**ACCESSORIES USED DURING INSTALLATION**
- CSM Degreaser
- SCP-2 Silicon Carbide Paper
- M-PREP Conditioner A
- M-PREP Neutralizer 5A
- CSP-1 Cotton Tip Applicators
- GSP-1 Gauze Sponges
- SSH-1 Surgical Shears
- STW-1 Tweezers
- Model 700 Welder
- Hand Welding Unit
- NCC-3 Ceramic Cement
- WC-16 Ceramic Cement
- HG-1 Ceramic Cement
- 1-KL-16-002 Nichrome Ribbon
- 326-GJF Fiberglass Insulated Cable
- GT-11 Camel's Hair Brush
- SPT-1 Spatula
## High-Temperature Wire Patterns

### Special Use Sensors—High-Temperature Strain Gages

<table>
<thead>
<tr>
<th>GAGE PATTERN</th>
<th>GAGE DESIGNATION</th>
<th>RESISTANCE IN OHMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIMENSIONS</td>
<td>inch millimeter</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GAGE LENGTH</th>
<th>GRID WIDTH</th>
<th>OVERALL WIDTH</th>
<th>LEAD LENGTH (To top of gage)</th>
<th>ZWH-NC-125-120</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.160</td>
<td>0.050</td>
<td>0.065</td>
<td>2.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>1.3</td>
<td>1.7</td>
<td>70.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| FATIGUE LIFE| 1 x 10⁶ cycles at ±750 με at room temperature |                   |}

<table>
<thead>
<tr>
<th>GAGE LENGTH</th>
<th>GRID WIDTH</th>
<th>OVERALL WIDTH</th>
<th>LEAD LENGTH (To top of gage)</th>
<th>ZWH-NC-250-120</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.250</td>
<td>0.060</td>
<td>0.075</td>
<td>2.75</td>
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<td></td>
</tr>
<tr>
<td>6.4</td>
<td>1.5</td>
<td>1.9</td>
<td>70.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| FATIGUE LIFE| 1 x 10⁶ cycles at ±750 με at room temperature |                   |}

<table>
<thead>
<tr>
<th>GAGE LENGTH</th>
<th>GRID WIDTH</th>
<th>OVERALL WIDTH</th>
<th>LEAD LENGTH (To top of gage)</th>
<th>ZWN-NC-063-120</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.063</td>
<td>0.080</td>
<td>0.095</td>
<td>2.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td>2.0</td>
<td>2.4</td>
<td>70.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FATIGUE LIFE</td>
<td>1 x 10⁶ cycles at ±750 με at room temperature</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
## High-Temperature Wire Patterns

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<th>RESISTANCE IN OHMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not actual size shown.</td>
<td>Linear pattern. Gages supplied on glass slides, 5 gages per package.</td>
<td></td>
</tr>
</tbody>
</table>

### ZWN-NC-125-120

<table>
<thead>
<tr>
<th>GAGE LENGTH</th>
<th>GRID WIDTH</th>
<th>OVERALL WIDTH</th>
<th>LEAD LENGTH (To top of gage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.130</td>
<td>0.055</td>
<td>0.070</td>
<td>2.75</td>
</tr>
<tr>
<td>3.3</td>
<td>1.4</td>
<td>1.8</td>
<td>70.0</td>
</tr>
</tbody>
</table>

FATIGUE LIFE: $1 \times 10^6$ cycles at $\pm 750 \mu\varepsilon$ at room temperature

### ZWP-NC-063-120

<table>
<thead>
<tr>
<th>GAGE LENGTH</th>
<th>GRID WIDTH</th>
<th>OVERALL WIDTH</th>
<th>LEAD LENGTH (To top of gage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.063</td>
<td>0.070</td>
<td>0.085</td>
<td>2.75</td>
</tr>
<tr>
<td>1.6</td>
<td>1.8</td>
<td>2.2</td>
<td>70.0</td>
</tr>
</tbody>
</table>

FATIGUE LIFE: $1 \times 10^6$ cycles at $\pm 750 \mu\varepsilon$ at room temperature
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