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STANDARD RTD ELEMENT SPECIFICATIONS

<table>
<thead>
<tr>
<th>ELEMENT MATERIAL</th>
<th>RESISTANCE @ 0°C</th>
<th>TEMPERATURE COEFFICIENT</th>
<th>OPERATING RANGE</th>
<th>AVAILABLE ACCURACIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Platinum</em></td>
<td>100 Ohm</td>
<td>.00385</td>
<td>-200 to 850°C</td>
<td>± .5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>± .1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>± .06%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>± .01%</td>
</tr>
<tr>
<td><em>Platinum</em></td>
<td>100 Ohm</td>
<td>.00391</td>
<td>-200 to 600°C</td>
<td>± .1%</td>
</tr>
<tr>
<td><em>Copper</em></td>
<td>10 Ohm</td>
<td>.00427</td>
<td>-200 to 204°C</td>
<td>± .2%</td>
</tr>
<tr>
<td><em>Nickel</em></td>
<td>120 Ohm</td>
<td>.00672</td>
<td>-200 to 204°C</td>
<td>± .5%</td>
</tr>
</tbody>
</table>

* Sensing elements of other materials and temperature coefficients are available upon request.
† Stated operating ranges are typical values and are dependant upon the sensing element and the construction style of the sensor assembly. Assemblies to exceed the stated limits may be available upon request.

RTD Elements

Aircom can supply elements of several different materials, base resistances, temperature coefficients, accuracies and configurations for installation into RTD assemblies that meet customer supplied requirements. The most common element we use is Platinum with a base resistance of 100 ohms @ 0°C, accuracy of ± 0.5% and temperature coefficient of 0.00385 ohms/ohm/°C. The second most common element is a 392 curve (0.00392 ohms/ohm/°C) element found in most Japanese and a few American made assemblies. Our most common construction of these elements is a Platinum wound element enclosed in a ceramic housing. Process conditions may dictate use of other types of element construction such as Thin-Film, Glass Bulb, or Kapton insulated. The following standards dictate the specifications to which our elements are manufactured to:

For 0.00385 ohms/ohm/°C elements
- British Standards Institution BS 1904, 1984
- Deutsches Institut fur Normung (Germany) DIN 43760, 1987

For 0.00392 ohms/ohm/°C elements
- Scientific Apparatus Manufacturers Association SAMA RC21-4-196
- Japanese Standards Association JIS C 1604-1989
RTD SPECIFICATIONS

**RTD INTERCHANGEABILITY**

<table>
<thead>
<tr>
<th>Temperature °C</th>
<th>Platinum RTD</th>
<th>Copper RTD</th>
<th>Nickel RTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>-200</td>
<td>±0.55°C</td>
<td>±1.3°C</td>
<td>±2.1°C</td>
</tr>
<tr>
<td>-100</td>
<td>±0.35°C</td>
<td>±0.8°C</td>
<td>±1.7°C</td>
</tr>
<tr>
<td>0</td>
<td>±0.15°C</td>
<td>±0.3°C</td>
<td>±1.3°C</td>
</tr>
<tr>
<td>20</td>
<td>±0.19°C</td>
<td>±0.4°C</td>
<td>±1.6°C</td>
</tr>
<tr>
<td>100</td>
<td>±0.35°C</td>
<td>±0.8°C</td>
<td>±2.9°C</td>
</tr>
<tr>
<td>200</td>
<td>±0.55°C</td>
<td>±1.3°C</td>
<td>±4.4°C</td>
</tr>
<tr>
<td>260</td>
<td>±0.67°C</td>
<td>±1.6°C</td>
<td>±5.5°C</td>
</tr>
<tr>
<td>300</td>
<td>±0.75°C</td>
<td>±1.8°C</td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>±0.95°C</td>
<td>±2.3°C</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>±1.15°C</td>
<td>±2.8°C</td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>±1.35°C</td>
<td>±3.3°C</td>
<td></td>
</tr>
<tr>
<td>700</td>
<td></td>
<td>±3.8°C</td>
<td></td>
</tr>
<tr>
<td>800</td>
<td></td>
<td>±4.3°C</td>
<td></td>
</tr>
<tr>
<td>850</td>
<td></td>
<td>±4.6°C</td>
<td></td>
</tr>
</tbody>
</table>

**WIRING CONFIGURATIONS:**

- 2 Wire
- 3 Wire
- 4 Wire
  - Compensated Loop

**ELEMENT DIMENSIONS:**

<table>
<thead>
<tr>
<th>Dimensions in inches</th>
<th>R (0°C)</th>
<th>Temperature Range</th>
<th>Leads</th>
<th>63% response time Sec. in water, 0.4 m/s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>550°C wire-wound elements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.060</td>
<td>100 Ω</td>
<td>-100 to 550°C</td>
<td>0.010&quot; (0.25 mm) Platinum alloy</td>
<td>0.14</td>
</tr>
<tr>
<td>0.080</td>
<td>100 Ω</td>
<td>-100 to 550°C</td>
<td>0.010&quot; (0.25 mm) Platinum alloy</td>
<td>0.18</td>
</tr>
<tr>
<td>0.100</td>
<td>100 Ω</td>
<td>-100 to 550°C</td>
<td>0.014&quot; (0.35 mm) Platinum alloy</td>
<td>0.22</td>
</tr>
<tr>
<td><strong>400°C and 600°C thin-film elements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.055 THICK</td>
<td>100 Ω</td>
<td>-70 to 400°C</td>
<td>0.010&quot; Ag 0.004 Ω/mm/lead</td>
<td>0.2</td>
</tr>
<tr>
<td>0.055</td>
<td>100 Ω</td>
<td>-70 to 600°C</td>
<td>0.008&quot; (0.20 mm) Pd 0.036 Ω/mm/lead</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Phone: (780) 434-6916  
Fax: (780) 434-6911
CUSTOM SHEATHED RTD’S

Bayonet Probe with Teflon Leads

Bayonet Probe with Armoured Leads

Spring Loaded or Fixed Bushing

Spring Loaded Oil Seal

Adjustable Spring

Teflon Jacketed Leads

Tip Sensitive

Flex Armoured Leads

Electrically Isolated

General Purpose

Teflon Leads with Standard Connector

Miniature Connection Head

Phone: (780) 434-6916

Fax: (780) 434-6911
**STANDARD ADAPTER**

TC5SA - A - X

- 18 1/8" NPT
- 38 3/8" NF

**OIL SEAL ADAPTER**

TC5OS - X

(2 1/2" Minimum)

**PIPE CLAMP ADAPTER**

TC5PC - X - X

(L) Pipe Diameter

(A) Inches

**RT4**


(L) Inches

(A) Inches

**Code** | **Probe Diameter**
---|---
18 | 1/8" O.D.
14 | 1/4" O.D.
21 | 0.215" O.D.
36 | 3/16" O.D.

**Code** | **Process Fitting**
---|---
CF() | Compression Fitting (Specify Process NPT)
SG | Adjustable Spring
FS() | Fixed Hex Bushing (Specify Process NPT)
TX() | Spring Loaded Transmitter Bushing (Specify Process NPT)
OX() | Oil Seal Hex Bushing (Specify Process NPT)
X | Not Required

**Code** | **Element**
---|---
A | 1000 Platinum 385 ± 0.1%
B | 1000 Platinum 385 ± 0.01%
C | 1000 Platinum 392 ± 0.1%
D | 1202 Nickel 627 0.806 °C/°C
E | 102 Copper 427 0.039 °C/°C
() | Other Specify

**Code** | **Probe Style**
---|---
GP | General Purpose
EI | Electrically Isolated
TS | Tip Sensitive
BP | Bayonet Style
TE | Tip Sensitive/Electrically Isolated
BT | Bayonet/Tip Sensitive

**Code** | **Lead Options**
---|---
T | Teflon Leadwire
F | Fiberglass Leadwire
AT | Armoured Teflon
AF | Armoured Fiberglass
ST | Standard 6" TFE Leads

**Code** | **Temp. Rating**
---|---
LT | Low Temp. (204°C Max.)
HT | High Temp. (482°C Max.)
VT | High Temp. High Vibration (850°C)

*Available in most probe styles. Minimum lengths apply. Consult factory.

**NOTE:** 316SS Sheath supplied as standard. If other required, specify at time of order.
RTD ASSEMBLIES

GENERAL PURPOSE WITH THREADED THERMOWELL

EXPLOSION PROOF WITH THREADED THERMOWELL

GENERAL PURPOSE WITH FLANGED THERMOWELL

EXPLOSION PROOF WITH FLANGED THERMOWELL

Phone: (780) 434-6916 Fax: (780) 434-6911
RTD ASSEMBLIES

CONNECTION HEAD

GENERAL PURPOSE: For non-hazardous locations.
Material: Cast Aluminum supplied as standard, optional cast iron available.
Conduit Connection: 3/4" NPT standard, optional 1/2" NPT available.
Process Connection: 1/2" NPT.
Termination: Ceramic composition with solid brass screw blocks. For single or dual element.
Extension: 1/2" NPT galvanized carbon steel nipples and union.

EXPLOSION PROOF: Class 1, Groups B, C & D. Class II, Groups E, F & G.
Choose from: Aluminum, Cast Iron, Stainless Steel, or Epoxy Coated Aluminum.
Conduit Connection: 3/4" NPT standard, optional 1/2" NPT available.
Process Connection: 1/2" NPT.
Termination: Bakelite terminal block is standard or ceramic for high temperature applications.
Extension: 1/2" NPT galvanized carbon steel nipples with plated steel explosion proof union.

ELEMENT

- 100Ω Platinum 385 0.1% @ 0°C standard (other tolerances and accuracies on request) with
  spring loaded 1/4" O.D. 316 SS sheath and single or dual element.
- Replacement Element Length: U + T + A with 6" leads (see page RT-4 to order).

THERMOWELL

Threaded: 3/4" NPT or 1" NPT, hex bar stock drilled 0.260" bore tapered to 3/4" diameter.
Material: 304/L or 316/L SS supplied as standard, other grades available on request.
Flanged: 1 1/8" round bar stock, standard, optional 1 1/4" or 1 3/8", drilled 0.260" bore and tapered to 3/4" diameter.
Material: 304/L or 316/L SS supplied as standard, other grades available on request.

---

Phone: (780) 434-6916  Fax: (780) 434-6911
# Replacement Assemblies

## Spring Loaded, Sheathed RTD with Nipple

![Spring Loaded, Sheathed RTD with Nipple Diagram](image)

### Code Elements
- **A**: 100Ω Platinum 385 ± 0.1%
- **B**: 100Ω Platinum 385 ± 0.01%
- **C**: 100Ω Platinum 392 ± 0.1%
- **D**: 120Ω Nickel 627 0.806 Ω/°C
- **E**: 10Ω Copper 427 0.039 Ω/°C

Other Specify: ()

## Sheathed RTD with Flex Armoured Leads

![Sheathed RTD with Flex Armoured Leads Diagram](image)

### Code Elements
- **A**: 100Ω Platinum 385 ± 0.1%
- **B**: 100Ω Platinum 385 ± 0.01%
- **C**: 100Ω Platinum 392 ± 0.1%
- **D**: 120Ω Nickel 627 0.806 Ω/°C
- **E**: 10Ω Copper 427 0.039 Ω/°C

Other Specify: ()

## Fixed Hex, Spring Loaded Oil Seal, or Transmitter Bushing Sheathed RTD

![Fixed Hex, Spring Loaded Oil Seal, or Transmitter Bushing Sheathed RTD Diagram](image)

### Code Elements
- **A**: 100Ω Platinum 385 ± 0.1%
- **B**: 100Ω Platinum 385 ± 0.01%
- **C**: 100Ω Platinum 392 ± 0.1%
- **D**: 120Ω Nickel 627 0.806 Ω/°C
- **E**: 10Ω Copper 427 0.039 Ω/°C

Other Specify: ()

## Spring Loaded, Sheathed RTD with Nipple/Union/Nipple

![Spring Loaded, Sheathed RTD with Nipple/Union/Nipple Diagram](image)

### Code Elements
- **A**: 100Ω Platinum 385 ± 0.1%
- **B**: 100Ω Platinum 385 ± 0.01%
- **C**: 100Ω Platinum 392 ± 0.1%
- **D**: 120Ω Nickel 627 0.806 Ω/°C
- **E**: 10Ω Copper 427 0.039 Ω/°C

Other Specify: ()

### Code Process Fitting
- **N**: Nipple
- **NU**: Nipple/Union/Nipple
- **FX**: Fixed (1/2” NPT Process)
- **OS**: Oil Seal (1/2” NPT Process)
- **TX**: Transmitter (1/2” NPT Process)
- **FA**: Flex Armour

### Code Temperature Rating
- **LT**: Low Temp. (204°C Max.)
- **HT**: High Temp. (482°C Max.)
- **VT**: High Temp. (850°C Max.)

### Code # of Leadwires
- **2**: 2 Wire
- **3**: 3 Wire
- **4**: 4 Wire
- **4C**: 4 Wire Compensated Loop

### Code Probe Diameter
- **18**: 1/8”
- **36**: 3/16”
- **21**: .215”
- **14**: 1/4”

### Code Single Element
- **S**: Single Element

### Code Dual Element
- **D**: Dual Element

**NOTE:** 316SS Sheath supplied as standard. If other required, specify at time of order.

---

**Phone:** (780) 434-6916  **Fax:** (780) 434-6911
## CONNECTION HEADS

### EXPLOSION PROOF

Class I, Div. I, Gr. B, C, D  
Class II, Div. I, Gr. E, F, G  
Class III

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2AL</td>
<td>Cast Aluminum</td>
</tr>
<tr>
<td>2SS</td>
<td>316 Stainless Steel</td>
</tr>
<tr>
<td>2ALT</td>
<td>Cast Aluminum Teflon Coated</td>
</tr>
</tbody>
</table>

### EXPLOSION PROOF

Class I, Div. I, Gr. A, B, C, D  
Class II, Div. I, Gr. E, F, G  
Class III

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1AL</td>
<td>Cast Aluminum</td>
</tr>
<tr>
<td>1CI</td>
<td>Cast Iron</td>
</tr>
<tr>
<td>1ALT</td>
<td>Cast Aluminum Teflon Coated</td>
</tr>
<tr>
<td>1CIT</td>
<td>Cast Iron Teflon Coated</td>
</tr>
</tbody>
</table>

### GENERAL PURPOSE

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>3AL</td>
<td>Cast Aluminum</td>
</tr>
<tr>
<td>3CI</td>
<td>Cast Iron</td>
</tr>
<tr>
<td>3ALE</td>
<td>Cast Aluminum Epoxy Coated</td>
</tr>
<tr>
<td>3CIE</td>
<td>Cast Iron Epoxy Coated</td>
</tr>
</tbody>
</table>

### NON HAZARDOUS

**INDOOR/OUTDOOR/SANITARY**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4P</td>
<td>White Polypropylene (92°C Max.)</td>
</tr>
<tr>
<td>4D</td>
<td>Grey Delrin (135°C Max.)</td>
</tr>
</tbody>
</table>

Phone: (780) 434-6916  
Fax: (780) 434-6911
BREAK - TO - LENGTH
RTD

Reduce inventory levels and costs by consolidating sensor requirements.

TO ORDER:

NOTE: ALSO AVAILABLE IN THERMOCOUPLE
SEE PAGE TC-15

STANDARD FEATURES:
- 100Ohm Platinum Element, +/- 0.1% @ 0°C, 0.00385 Ohm/°C
- 316/L Stainless Steel Sheath
- Four Conductor, Teflon or Fibreglass Insulated and Jacketed Leads

The Break - To - Length sensor is designed as a quick replacement element for existing thermowell assemblies. Pre-scored at 1" increments, the sensor can be “broken” to fit most applications. A pair of pliers and a screw driver are the only tools required for the job. This unique design has no burrs or sharp edges. For added protection the sensors come with a grommet that slips over the leads and fits into the tubing.

Shown here are our most common sensors available from stock. Please contact us to discuss options required to suit your specific needs.