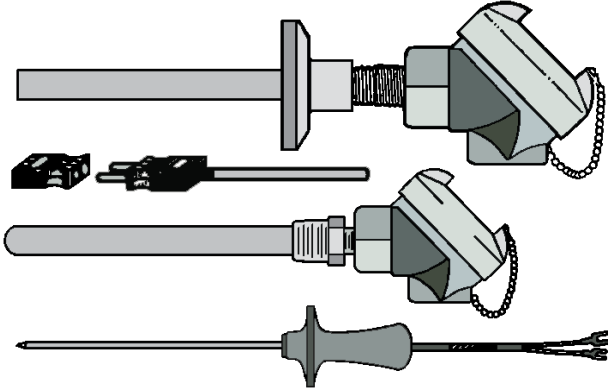


# Custom Thermocouples

If you can **DESIGN** it,  
**DESCRIBE** it, or **DRAW** it,  
we can probably **SUPPLY** it!!!



### To place an order or receive a price quote for your temperature assembly:

- 1. Make a copy of these pages.** To ensure a prompt response, be sure to complete the information below.
- 2. Check one box in each table section.**
- 3. When you have completed your selections,** send the appropriate pages to Lesman Inside Sales for your quotation.
- 4. Please allow 3-4 weeks for delivery.** Express delivery (72 hour shipment) is available for an additional \$25 for up to three pieces of the same configuration, and \$5 for each piece after that. 24-hour service is available for an additional \$50 charge. Express delivery may not be available on some assemblies. Call Lesman for details.

#### Custom Assemblies

If you can design, describe, or draw the temperature assembly you need, we can probably supply it! Just mail, fax, or call us with your drawing or description, and we'll gladly quote your requirements.

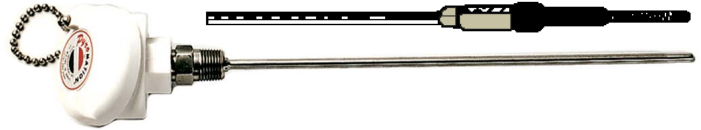
**REQUEST Express**

*And have your custom thermocouples shipped in 5 working days or less!*

Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Street: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 E-mail Address: \_\_\_\_\_  
 Phone: (\_\_\_\_) \_\_\_\_\_ Fax: (\_\_\_\_) \_\_\_\_\_  
 This is a:  Request for Quote  Order: PO# \_\_\_\_\_  
 Quantity Needed: \_\_\_\_\_ Date Required: \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Shipping Method: \_\_\_\_\_ Partial Accepted:  Yes  No

**Custom Thermocouples Available in just 72 HOURS! Request Express Delivery**

## MgO Insulated Thermocouple Assemblies

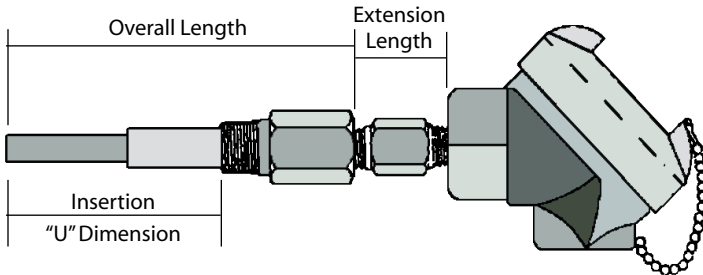


<b>Sensor Type</b> <input type="checkbox"/> E (Chromel-Constantan) <input type="checkbox"/> R (Plat-Plat 13% Rhod.) <input type="checkbox"/> J (Iron-Constantan) <input type="checkbox"/> S (Plat-Plat 10% Rhod.) <input type="checkbox"/> K (Chromel-Alumel) <input type="checkbox"/> T (Copper-Constantan) <input type="checkbox"/> Single Element <input type="checkbox"/> Dual Element (2 thermocouples in the same sheath)	
<b>Sheath Material</b> <input type="checkbox"/> 304 SS <input type="checkbox"/> 446 SS <input type="checkbox"/> 316 SS <input type="checkbox"/> Inconel 600	
<b>Sheath O.D.</b> <input type="checkbox"/> 1/16" <input type="checkbox"/> 1/4" <input type="checkbox"/> 1/8" <input type="checkbox"/> 3/8" <input type="checkbox"/> 3/16"	
<b>Sheath Length (in inches)</b> _____	
<b>Hot Junction</b> <input type="checkbox"/> Grounded <input type="checkbox"/> Exposed <input type="checkbox"/> Ungrounded	
<b>Sheath Coating</b> None _____ Teflon _____	
<b>Element Fitting</b> <input type="checkbox"/> None <input type="checkbox"/> Stainless Steel Compression Fitting 1/8" NPT for 1/16", 1/8" or 3/16" O.D. Sheath 1/4" NPT for 1/4" or 3/8" O.D. Sheath	
<b>Sheath Termination</b> <i>(If you want the lead wires to come directly out of the thermocouple, skip this table and move on to the next table.)</i> <input type="checkbox"/> Thermocouple plug with mating jack (1/16" to 1/4" O.D. sheaths only). <input type="checkbox"/> Miniature plastic termination head with cap; 1/4" NPT process connection, 3/8" NPT conduit opening. <input type="checkbox"/> Explosion-proof screw head and cover; 1/2" NPT stainless steel mating fitting, 3/4" NPT conduit connection. <input type="checkbox"/> Cast aluminum screw head and cover; 1/2" NPT stainless steel hex mating fitting, 3/4" NPT conduit conn. <input type="checkbox"/> Cast iron screw head and cover; 1/2" NPT stainless steel hex mating fitting, 3/4" NPT conduit conn.	
<b>Sheath Transition</b> <input type="checkbox"/> 1" Stripped leads coming directly out of the thermocouple sheath. <input type="checkbox"/> Extension leadwire transition fitting and relief spring (select extension wire below) <input type="checkbox"/> Extension leadwire transition fitting with heat shrink tubing (select extension wire below)	
<b>Extension Wire Specify Length (in inches)</b> _____ <input type="checkbox"/> Standard fiberglass <input type="checkbox"/> Fiberglass with flexible armor	
<b>Extension Wire Terminations</b> <input type="checkbox"/> Leads not stripped <input type="checkbox"/> Leads stripped 2" <input type="checkbox"/> Leads stripped 2" with spade lugs	

# REQUEST Express

And have your custom thermocouples shipped  
 in 5 working days or less!

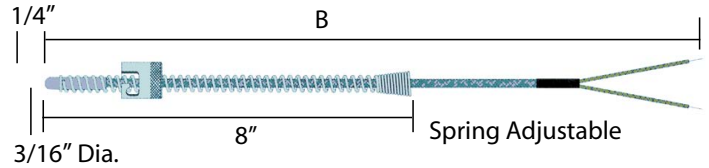
## Thermocouple and Well Assemblies



<b>Sensor Type</b> <input type="checkbox"/> J (Iron-Constantan) <input type="checkbox"/> E (Chromel-Constantan) <input type="checkbox"/> K (Chromel-Alumel) <input type="checkbox"/> T (Copper-Constantan) <input type="checkbox"/> Single Element <input type="checkbox"/> Dual Element																																												
<b>Hot Junction</b> <input type="checkbox"/> Grounded <input type="checkbox"/> Exposed <input type="checkbox"/> Ungrounded																																												
<b>External Well Thread</b> <input type="checkbox"/> 1/2" NPT <input type="checkbox"/> 3/4" NPT <input type="checkbox"/> 1" NPT																																												
<b>Well Length</b> <table border="1"> <thead> <tr> <th>Overall Length</th> <th>Insertion ("U" Dimension)</th> <th>Lagging Dimension</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> 4"</td><td>2-1/2"</td><td>0"</td></tr> <tr><td><input type="checkbox"/> 6"</td><td>4-1/2"</td><td>0"</td></tr> <tr><td><input type="checkbox"/> 6"</td><td>2-1/2"</td><td>2"</td></tr> <tr><td><input type="checkbox"/> 9"</td><td>7-1/2"</td><td>0"</td></tr> <tr><td><input type="checkbox"/> 9"</td><td>4-1/2"</td><td>3"</td></tr> <tr><td><input type="checkbox"/> 12"</td><td>10-1/2"</td><td>0"</td></tr> <tr><td><input type="checkbox"/> 12"</td><td>7-1/2"</td><td>3"</td></tr> <tr><td><input type="checkbox"/> 15"</td><td>13-1/2"</td><td>0"</td></tr> <tr><td><input type="checkbox"/> 15"</td><td>10-1/2"</td><td>3"</td></tr> <tr><td><input type="checkbox"/> 18"</td><td>16-1/2"</td><td>0"</td></tr> <tr><td><input type="checkbox"/> 18"</td><td>13-1/2"</td><td>3"</td></tr> <tr><td><input type="checkbox"/> 24"</td><td>22-1/2"</td><td>0"</td></tr> <tr><td><input type="checkbox"/> 24"</td><td>19-1/2"</td><td>3"</td></tr> </tbody> </table>			Overall Length	Insertion ("U" Dimension)	Lagging Dimension	<input type="checkbox"/> 4"	2-1/2"	0"	<input type="checkbox"/> 6"	4-1/2"	0"	<input type="checkbox"/> 6"	2-1/2"	2"	<input type="checkbox"/> 9"	7-1/2"	0"	<input type="checkbox"/> 9"	4-1/2"	3"	<input type="checkbox"/> 12"	10-1/2"	0"	<input type="checkbox"/> 12"	7-1/2"	3"	<input type="checkbox"/> 15"	13-1/2"	0"	<input type="checkbox"/> 15"	10-1/2"	3"	<input type="checkbox"/> 18"	16-1/2"	0"	<input type="checkbox"/> 18"	13-1/2"	3"	<input type="checkbox"/> 24"	22-1/2"	0"	<input type="checkbox"/> 24"	19-1/2"	3"
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<input type="checkbox"/> 24"	19-1/2"	3"																																										
<b>Well Material</b> <input type="checkbox"/> Brass (ASTM B-16) <input type="checkbox"/> Carbon Steel (C-1018) <input type="checkbox"/> 304 Stainless Steel <input type="checkbox"/> 316 Stainless Steel <input type="checkbox"/> 446 Stainless Steel <input type="checkbox"/> Inconel 600 <input type="checkbox"/> Monel <input type="checkbox"/> Titanium																																												
<b>Extension Length</b> <input type="checkbox"/> 1" Hex Nipple (Standard) <input type="checkbox"/> 6" Nipple <input type="checkbox"/> 4" Nipple <input type="checkbox"/> 10" Nipple <input type="checkbox"/> 8" Nipple																																												
<b>Head Termination</b> <input type="checkbox"/> Explosion-proof Screw Head and Cover; 3/4" NPT Conduit <input type="checkbox"/> Cast Aluminum Screw Head and Cover; 3/4" NPT Conduit <input type="checkbox"/> Cast Iron Screw Head and Cover; 3/4" NPT Conduit																																												

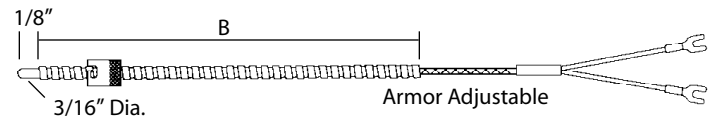
## Plastic Industry Thermocouples

JBA Series with a bayonet cap on an 8" spring allowing for 7" adjustable immersion length.



<b>Sensor Type</b> <input type="checkbox"/> J (Iron-Constantan) <input type="checkbox"/> E (Chromel-Constantan) <input type="checkbox"/> K (Chromel-Alumel) <input type="checkbox"/> T (Copper-Constantan) <input type="checkbox"/> Single Element <input type="checkbox"/> Dual Element	
<b>Stranded Leadwire "B" Length</b> In Inches    _    _    _	
<b>Extension Wire Terminations</b> <input type="checkbox"/> Wire Stripped 2" <input type="checkbox"/> Wire Stripped 2" with Spade Lugs <input type="checkbox"/> 1/2" BX Connector [Choose only with above.] <input type="checkbox"/> Standard Plug <input type="checkbox"/> Standard Plug/Mating Jack <input type="checkbox"/> Standard Jack <input type="checkbox"/> Miniature Jack <input type="checkbox"/> Cable Clamps to secure Plug or Jack to leads [Choose only with plugs and jacks above.]	
<b>Options</b> <input type="checkbox"/> Special Limits of Error Wire <input type="checkbox"/> Ungrounded Junction <input type="checkbox"/> 12" Long Adjusting Spring	

JAA with bayonet cap on flexible armor allowing for full "B" length adjustable immersion.

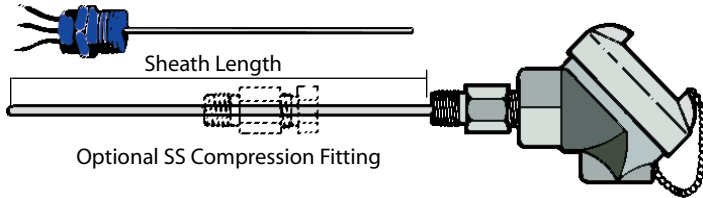


<b>Sensor Type</b> <input type="checkbox"/> J (Iron-Constantan) <input type="checkbox"/> E (Chromel-Constantan) <input type="checkbox"/> K (Chromel-Alumel) <input type="checkbox"/> T (Copper-Constantan) <input type="checkbox"/> Single Element <input type="checkbox"/> Dual Element	
<b>Solid Leadwire "B" Length</b> In Inches    _    _    _	
<b>Extension Wire Terminations</b> <input type="checkbox"/> Wire Stripped 2" <input type="checkbox"/> Wire Stripped 2" with Spade Lugs <input type="checkbox"/> 1/2" BX Connector [Choose only with above.] <input type="checkbox"/> Standard Plug <input type="checkbox"/> Standard Plug/Mating Jack <input type="checkbox"/> Standard Jack <input type="checkbox"/> Miniature Jack <input type="checkbox"/> Cable Clamps to secure Plug or Jack to leads [Choose only with plugs and jacks above.]	
<b>Options</b> <input type="checkbox"/> Special Limits of Error Wire <input type="checkbox"/> Ungrounded Junction <input type="checkbox"/> Positive Bottom Indicating <input type="checkbox"/> 0.210" O.D. Flexible Armor- Bayonet Cap <input type="checkbox"/> 1/8" O.D. Tip	

# RTDs (Resistance Temperature Detectors)

**REQUEST Express**

## RTD Assemblies



### Sensor Type — Platinum

- |  |   |
|--|---|
| Temperature Coefficient<br>.00385 (DIN)        | Temperature Coefficient<br>.00391             |
| <input type="checkbox"/> 100Ω ± .1% Accuracy   | <input type="checkbox"/> 100Ω ± .1% Accuracy  |
| <input type="checkbox"/> 100Ω ± .01% Accuracy  | <input type="checkbox"/> 100Ω ± .01% Accuracy |
| <input type="checkbox"/> 200Ω ± .1% Accuracy   | <input type="checkbox"/> 200Ω ± .1% Accuracy  |
| <input type="checkbox"/> 200Ω ± .01% Accuracy  | <input type="checkbox"/> 200Ω ± .03% Accuracy |
| <input type="checkbox"/> 500Ω ± .12% Accuracy  | <input type="checkbox"/> Dual Sensor          |
| <input type="checkbox"/> 1000Ω ± .12% Accuracy |   |

### Sheath O.D. and Material

- |  |   |
|--|---|
| <input type="checkbox"/> 1/8" O.D. 316 SS  | <input type="checkbox"/> 1/4" O.D. 316 SS |
| <input type="checkbox"/> 3/16" O.D. 316 SS | <input type="checkbox"/> 3/8" O.D. 316 SS |

### Sheath Length (in inches) \_\_\_\_\_

### Number of Wires

- Two wire per element       Three wires per element

### Sheath Options

- None       Teflon Coating  
 Reduced Tip (Specify tip length and O.D.) \_\_\_\_\_

### Element Fitting

- None  
 SS compression fitting  
 1/8" NPT for 1/8" or 3/16" O.D. sheath  
 1/4" NPT for 1/4" or 3/8" O.D. sheath

### Sheath Termination

*(If you want the lead wires to come directly out of the RTD, skip this table and move on to the next table.)*

- Standard size plug/mating jack (1/8" to 1/4" O.D. sheaths only)
- Miniature plastic termination head with cap; 1/4" NPT process conn.; 3/8" NPT conduit opening.
- Explosion-Proof screw head and cover; 1/2" NPT SS mating fitting; 3/4" NPT conduit conn.
- Cast aluminum screw head and cover; 1/2" SS hex mating fitting; 3/4" NPT conduit with conduit conn.
- Cast iron screw head and cover; 1/2" NPT SS hex mating fitting; 3/4" NPT conduit conn.

### Sheath Transitions

*(Select extension wire and leads below)*

- 1/2" NPT SS hex fitting with extension wire leads selected below
- Extension leadwire transition fitting and relief spring
- Extension leadwire transition fitting with heat shrink tubing

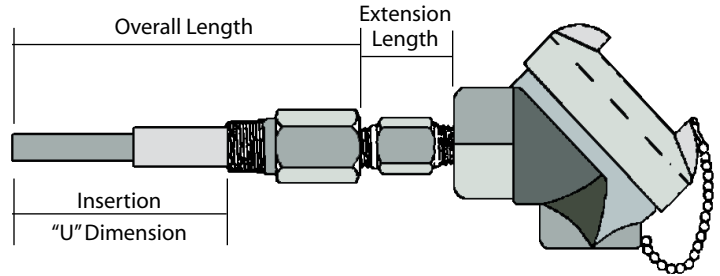
### Extension Wire Specify Length (in inches) \_\_\_\_\_

- Teflon insulated leadwire       Fiberglass insulated leadwire
- Teflon insulated leadwire with 303 SS armor
- Fiberglass insulated leadwire with 303 SS flexible armor

### Extension Wire Terminations

- Leads not stripped       Leads stripped 2 inches
- Leads stripped 2 inches with spade lugs

## RTD and Thermowell Assemblies



### Sensor Type — Platinum

- |  |  |
|--|--|
| Temperature Coefficient<br>0.00385 (DIN) Standard for<br>all Honeywell Instrumentation | Temperature Coefficient<br>0.00391                                 |
| <input type="checkbox"/> 100Ω ±0.1% Accuracy<br>-150°F to +400°F                       | <input type="checkbox"/> 100Ω ±0.1% Accuracy<br>-150°F to +400°F   |
| <input type="checkbox"/> 100Ω ±0.01% Accuracy<br>-150°F to +400°F                      | <input type="checkbox"/> 100Ω ±0.01% Accuracy<br>-150°F to +400°F  |
| <input type="checkbox"/> 100Ω ±0.1% Accuracy<br>-150°F to +1400°F                      | <input type="checkbox"/> 100Ω ±0.1% Accuracy<br>-150°F to +1400°F  |
| <input type="checkbox"/> 100Ω ±0.01% Accuracy<br>-150°F to +1400°F                     | <input type="checkbox"/> 100Ω ±0.01% Accuracy<br>-150°F to +1400°F |
| <input type="checkbox"/> Single Element  | <input type="checkbox"/> Dual Element                              |

### External Well Thread

- 1/2" NPT       3/4" NPT       1" NPT

### Well Length

Overall Length	Insertion ("U" Dimension)	Lagging Dimension
<input type="checkbox"/> 4"	2-1/2"	0"
<input type="checkbox"/> 6"	4-1/2"	0"
<input type="checkbox"/> 6"	2-1/2"	2"
<input type="checkbox"/> 9"	7-1/2"	0"
<input type="checkbox"/> 9"	4-1/2"	3"
<input type="checkbox"/> 12"	10-1/2"	0"
<input type="checkbox"/> 12"	7-1/2"	3"
<input type="checkbox"/> 15"	13-1/2"	0"
<input type="checkbox"/> 15"	10-1/2"	3"
<input type="checkbox"/> 18"	16-1/2"	0"
<input type="checkbox"/> 18"	13-1/2"	3"
<input type="checkbox"/> 24"	22-1/2"	0"
<input type="checkbox"/> 24"	19-1/2"	3"

### Well Material

- |  |  |
|--|--|
| <input type="checkbox"/> Brass (ASTM B-16)     | <input type="checkbox"/> 446 Stainless Steel |
| <input type="checkbox"/> Carbon Steel (C-1018) | <input type="checkbox"/> Inconel 600         |
| <input type="checkbox"/> 304 Stainless Steel   | <input type="checkbox"/> Monel               |
| <input type="checkbox"/> 316 Stainless Steel   | <input type="checkbox"/> Titanium            |

### Extension Length and Material

- |  |                                     |                                       |
|--|-------------------------------------|---------------------------------------|
| <input type="checkbox"/> 1" Hex Nipple | <input type="checkbox"/> 8" Nipple  | <input type="checkbox"/> Carbon Steel |
| <input type="checkbox"/> 4" Nipple     | <input type="checkbox"/> 10" Nipple | <input type="checkbox"/> 304 SS       |
| <input type="checkbox"/> 6" Nipple     |                                     | <input type="checkbox"/> 316 SS       |

### Head Termination

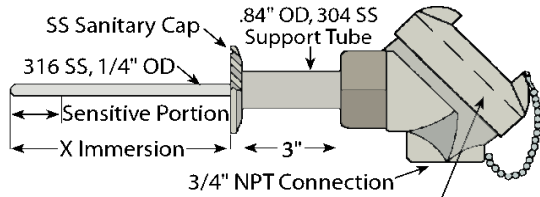
- Explosion-proof Screw Head Cover; 3/4" NPT Conduit Opening
- Cast Aluminum Screw Head Cover; 3/4" NPT Conduit Opening
- Cast Iron Screw Head Cover; 3/4" NPT Conduit Opening
- Delrin Food Industry Screw Head Cover; 3/4" NPT Conduit Opening

**Need a head-mount transmitter? Call for options.**



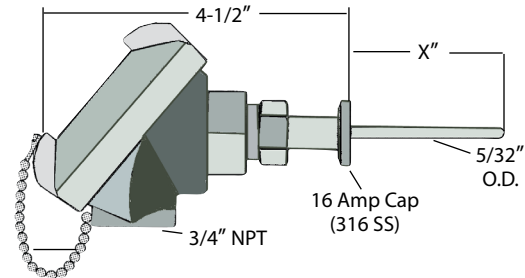
## Food and Pharmaceutical Industry RTDs

### Sanitary Clean-In-Place



FDA-Compliant, White Polypropylene Screw Cover Head (Std)

### Miniature Sanitary Clean-In-Place

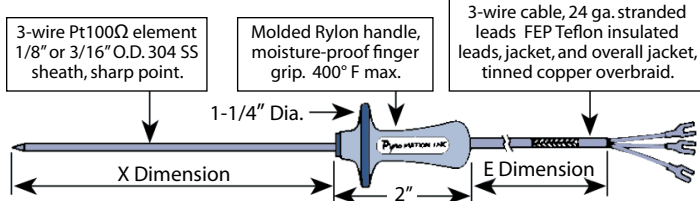


Sensor Type — Platinum	
Temperature Coefficient <input type="checkbox"/> 0.00385 (DIN) Standard for all Honeywell Instrumentation <input type="checkbox"/> 100Ω ±0.01% Accuracy <input type="checkbox"/> Single Element	Temperature Coefficient <input type="checkbox"/> 0.00391 <input type="checkbox"/> 100Ω ±0.03% Accuracy <input type="checkbox"/> Dual Element
Immersion Length ("x")	
<input type="checkbox"/> 4" <input type="checkbox"/> 5" <input type="checkbox"/> 5-1/2" <input type="checkbox"/> 6"	
Sanitary Cap Size Tube (O.D.)	
<input type="checkbox"/> 1-1/2" <input type="checkbox"/> 2" <input type="checkbox"/> 2-1/2" <input type="checkbox"/> 3"	
Sanitary Cap Style	
<input type="checkbox"/> 16A Cherry Burrell threaded; Ladish Tri-Clover bevel seat; and Alloy Products bevel seat fittings <input type="checkbox"/> 16AMP Cherry Burrell "S" clamp; Ladish Tri-Clover Tri-clamp; Alloy Products clamp fittings. (Above, most commonly used configuration) <input type="checkbox"/> 16A with No. 13H Nut; Same as 16A, with attachment nut <input type="checkbox"/> 16APV Alloy Products; PV gasket-type cap <input type="checkbox"/> 16APV with 13H Nut; Same as 16APV, with attachment nut <input type="checkbox"/> 3A4 Partlow 3A4 Adaptor <input type="checkbox"/> 16A1-141 Cherry Burrell "I" clamp fitting	
Termination Head	
<input type="checkbox"/> Delrin food industry screw head cover; 3/4" NPT conduit opening <input type="checkbox"/> Polypropylene screw head cover; 3/4" NPT conduit opening	

Sensor Type — Platinum	
Temperature Coefficient 0.00385 (DIN) Standard for all Honeywell Instrumentation <input type="checkbox"/> 100Ω ±0.01% Accuracy <input type="checkbox"/> Single Element	Temperature Coefficient 0.00391 <input type="checkbox"/> 100Ω ±0.03% Accuracy <input type="checkbox"/> Dual Element
Immersion Length ("x")	
<input type="checkbox"/> 1-1/4" <input type="checkbox"/> 2-3/4"	
Sanitary Cap Size Tube (O.D.)	
16AMP Cherry Burrell "S" clamp; Ladish Tri-Clover Tri-clamp; Alloy Products clamp fittings. (Above, most commonly used configuration) <input type="checkbox"/> 1/2" <input type="checkbox"/> 3/4"	
Termination Head	
<input type="checkbox"/> Delrin food industry screw head cover; 3/4" NPT conduit opening <input type="checkbox"/> White thermoplastic head <input type="checkbox"/> White thermoplastic head with transmitter; non-programmable, linearized, non-isolated; 0.25% accuracy. Call for temperature ranges.	

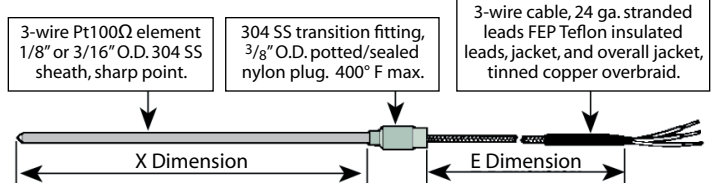
## Special RTDs for Food and Meat Processing

### Molded Handle



Sensor Type - Platinum 100Ω ±0.1% Accuracy	
Temperature Coefficient <input type="checkbox"/> 0.00385 (DIN) Standard for all Honeywell Instrumentation	Temperature Coefficient <input type="checkbox"/> 0.00391
Sheath Diameter	
<input type="checkbox"/> 1/8" O.D. <input type="checkbox"/> 3/16" O.D.	
Sheath Length	Length of Leads
___ specify in inches	___ specify in inches
Lead Terminations	
<input type="checkbox"/> Leads stripped 2" <input type="checkbox"/> Waterproof male plug, Amphenol #165-33 <input type="checkbox"/> Waterproof male plug, Amphenol #165-33; mating female panel mount jack #165-36	

### Insertion RTD



Sensor Type - Platinum 100Ω ±0.1% Accuracy	
Temperature Coefficient <input type="checkbox"/> 0.00385 (DIN) Standard for all Honeywell Instrumentation	Temperature Coefficient <input type="checkbox"/> 0.00391
Sheath Diameter	
<input type="checkbox"/> 1/8" O.D. <input type="checkbox"/> 3/16" O.D.	
Sheath Length	Length of Leads
___ specify in inches	___ specify in inches
Lead Terminations	
<input type="checkbox"/> Leads stripped 2" <input type="checkbox"/> Waterproof male plug, Amphenol #165-33 <input type="checkbox"/> Waterproof male plug, Amphenol #165-33; mating female panel mount jack #165-36	