



Duro-Sense Corporation



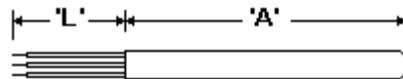
RESISTANCE TEMPERATURE DETECTORS (RTD)

RESISTANCE TEMPERATURE DETECTORS

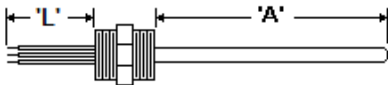
Resistance Temperature Detectors (RTD's) operate under the principle that the electrical resistance of certain metals increases or decreases in a repeatable and predictable manner with a temperature change. RTD's may have a lower temperature range than some thermocouples and a slower response time, however, they are more stable and repeatable over long periods of time. RTD's higher signal output makes them easier to interface with computers and data loggers and reduces the effects of radio frequency interference. RTD's are used in the plastic processing industry, environmental test chambers, motor windings, pumps and bearings, ovens, kilns, waste treatment and the pulp and paper industry, as well as many other applications.

Fundamental Interval $R_{100} / R_0 = 1.385$	IEC Specification 751 Temperature BS Specification 1904 Coefficient $.00385 // ^\circ\text{C}$ 99.99% Platinum	
$^\circ\text{C}$	$^\circ\text{F}$	Ohms
-100	-148	60.20
0	32	100.00
100	212	138.50
200	392	175.86
300	572	212.08
400	752	247.07
500	932	280.94

Fundamental Interval $R_{100} / R_0 = 1.3916$	SAMA Specification Temperature Coefficient $.003916 // ^\circ\text{C}$ 99.99% Platinum	
$^\circ\text{C}$	$^\circ\text{F}$	Ohms
-100	-148	59.79
0	32	100.00
100	212	139.16
200	392	177.14
300	572	213.95
400	752	249.59
500	932	284.04



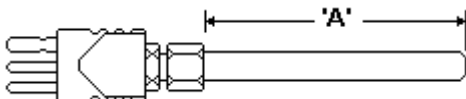
RA Design



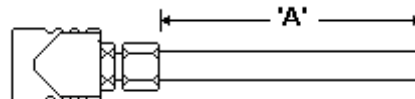
RHN Design



RPL Design



RQP Design



RQJ Design



RESISTANCE TEMPERATURE DETECTORS

RTD Ordering Information

"RA" DESIGN

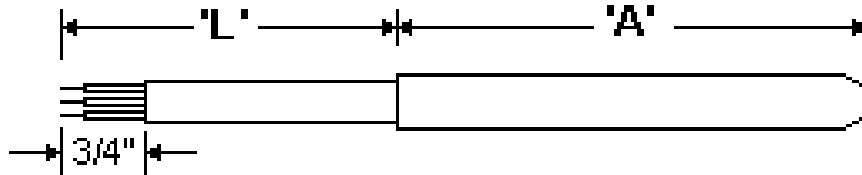


Table 1
Sheath Diameter

P/N	Description
125	.125 inches
188	.188 inches
250	.250 inches
313	.313 inches
375	.375 inches
500	.500 inches
XXX	Special

Table 2
Calibration

P/N	Description
PD	100Ω Platinum (.00385)
PS	100Ω Platinum (.00392)
PF	500Ω Platinum (.00385)
PT	1000Ω Platinum (.00385)
CU	10Ω Copper (.00427)
NI	120Ω Nickel (.00672)
XX	Special

Table 3
Sheath Material

P/N	Description
1	Alloy 600
2	304 S.S.
3	316 S.S.
4	310 S.S.
5	321 S.S.
6	446 S.S.
X	Special

Table 4
Temp. Range

P/N	Description
1	0°F-450°F
2	0°F-900°F
X	Special

Table 5
Wire Construction

P/N	Description
A	GB/GB
B	GB/GB-SS
C	TEX/TEX
D	TEX/TEX-SS
E	TEX/TW/ALM/TEX
F	TEX/GB/TEX
X	Special

Table 6
Cold End Termination

P/N	Description
A	Standard Plug
B	Hi-Temp Plug
C	Ceramic Plug
D	Miniature Plug
E	Miniature Hi-Temp Plug
F	Miniature Ceramic Plug
G	Standard Jack
H	Hi-Temp Jack
J	Ceramic Jack
K	Miniature Jack
L	Miniature Hi-Temp Jack
M	Miniature Ceramic Jack
N	Spade Lug
P	Ring Lug
R	Stripped Leads Only
X	Special

RA

Design Number Sheath Element Sheath Temp. "A" Number "L" Leadwire Cold End
 Of Diameter Calibration Material Range Dimension of Dimension Construction Termination
 Elements (Table 1) (Table 2) (Table 3) (Table 4) (In Inches) Conductors (In Inches) (Table 5) (Table 6)

NOTE: For any additional modifications to this assembly, add "-MOD" to the end of the part number and provide a physical description of the modification.

Example:

Single Element: RA-1-250-PD-2-2-12-3-48C-P

RA Design, single element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12" active length, 3 conductors, 48" long Teflon-insulated leads, Ring Lugs.

Dual Element: RA-2-250-PD-2-2-012-3-48C-P

RA Design, dual element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12" active length, 3 conductors, 48" long Teflon-insulated leads, Ring Lugs.



DURO-SENSE CORPORATION 869 Sandhill Ave., Carson, CA 90746

Phone: (310) 533-6877 -- Fax: (310) 533-0330 -- E-mail: sales@duro-sense.com -- Website: www.duro-sense.com

RESISTANCE TEMPERATURE DETECTORS

RTD Ordering Information

“RHN” DESIGN

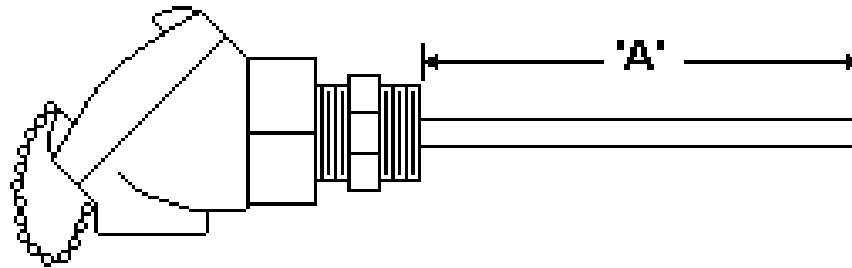


Table 1
Sheath Diameter

P/N	Description
125	.125 inches
188	.188 inches
250	.250 inches
313	.313 inches
375	.375 inches
500	.500 inches
XXX	Special

Table 2
Calibration

P/N	Description
PD	100Ω Platinum (.00385)
PS	100Ω Platinum (.00392)
PF	500Ω Platinum (.00385)
PT	1000Ω Platinum (.00385)
CU	10Ω Copper (.00427)
NI	120Ω Nickel (.00672)
XX	Special

Table 3
Sheath Material

P/N	Description
1	Alloy 600
2	304 S.S.
3	316 S.S.
4	310 S.S.
5	321 S.S.
6	446 S.S.
X	Special

Table 4
Temp. Range

P/N	Description
1	0°F-450°F
2	0°F-900°F
X	Special

Table 5
Process Fitting

P/N	Description
A	1/4" NPT
B	3/8" NPT
C	1/2" NPT
D	3/4" NPT
E	1" NPT
F	1 1/4" NPT
G	1 1/2" NPT
H	None
X	Special

Table 6
Cold End Termination

P/N	Description
A	Cast Aluminum Head
B	Miniature Aluminum Head
C	Cast Iron Head
D	Polypropylene Head
E	Miniature Plastic Head
F	Explosion Proof Head
G	Stainless Steel Head
H	Canister Style Head
J	Stripped Leads
K	Spade Lugs
L	Ring Lugs
X	Special

RHN

Design Number Sheath Element Sheath Temp. "A" Number "L" Process Cold End
Of Diameter Calibration Material Range Dimension of Dimension Fitting Termination
Elements (Table 1) (Table 2) (Table 3) (Table 4) (In Inches) Conductors (In Inches) (Table 5) (Table 6)

**** If cold end termination eliminates leads, omit this field.**

NOTE: For any additional modifications to this assembly, add “-MOD” to the end of the part number and provide a physical description of the modification.

Example:

Single Element: RHN-1-250-PD-2-2-12-3-C-A

RHN Design, single element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 250°F-500°F temperature range, 12" active length, 3 conductors, 1/2" NPT process threads, cast aluminum head.

Dual Element: RHN-2-250-PD-2-2-12-3-C-A

RHN Design, dual element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 250°F-500°F temperature range, 12" active length, 3 conductors, 1/2" NPT process threads, cast aluminum head.



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RESISTANCE TEMPERATURE DETECTORS

RTD Ordering Information

“RQP” DESIGN

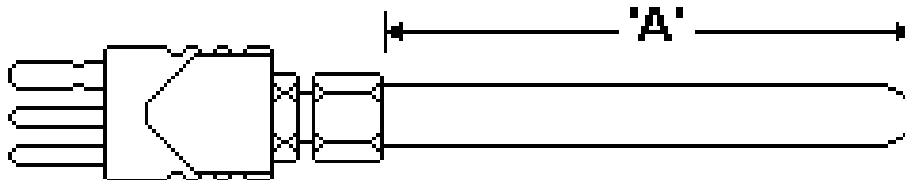


Table 1
Sheath Diameter

P/N	Description
125	.125 inches
188	.188 inches
250	.250 inches
313	.313 inches
375	.375 inches
500	.500 inches
XXX	Special

Table 2
Calibration

P/N	Description
PD	100Ω Platinum (.00385)
PS	100Ω Platinum (.00392)
PF	500Ω Platinum (.00385)
PT	1000Ω Platinum (.00385)
CU	10Ω Copper (.00427)
NI	120Ω Nickel (.00672)
XX	Special

Table 3
Sheath Material

P/N	Description
1	Alloy 600
2	304 S.S.
3	316 S.S.
4	310 S.S.
5	321 S.S.
6	446 S.S.
X	Special

Table 4
Temp. Range

P/N	Description
1	0°F-450°F
2	0°F-900°F
X	Special

Table 5
Cold End Termination

P/N	Description
A	Standard Plug
B	Hi-Temp Plug
C	Ceramic Plug
D	Miniature Plug
E	Miniature Hi-Temp Plug
F	Miniature Ceramic Plug
X	Special

RQP

Design

Design Number Sheath Element Sheath Temp. “A” Number Cold
Of Diameter Calibration Material Range Dimension of End
Elements (Table 1) (Table 2) (Table 3) (Table 4) (In Inches) Conductors Termination
(Table 5)

NOTE: For any additional modifications to this assembly, add “-MOD” to the end of the part number and provide a physical description of the modification.

Example:

Single Element: RQP-1-250-PD-2-2-12-3-A

RQP Design, single element, .250”φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12” active length, 3 conductors, standard plug.

Dual Element: RQP-2-250-PD-2-2-12-3-A

RQP Design, dual element, .250”φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12” active length, 3 conductors, standard plug.



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RESISTANCE TEMPERATURE DETECTORS

RTD Ordering Information

“RQJ” DESIGN

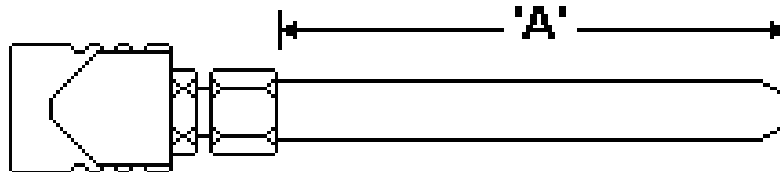


Table 1
Sheath Diameter

P/N	Description
125	.125 inches
188	.188 inches
250	.250 inches
313	.313 inches
375	.375 inches
500	.500 inches
XXX	Special

Table 2
Calibration

P/N	Description
PD	100Ω Platinum (.00385)
PS	100Ω Platinum (.00392)
PF	500Ω Platinum (.00385)
PT	1000Ω Platinum (.00385)
CU	10Ω Copper (.00427)
NI	120Ω Nickel (.00672)
XX	Special

Table 3
Sheath Material

P/N	Description
1	Alloy 600
2	304 S.S.
3	316 S.S.
4	310 S.S.
5	321 S.S.
6	446 S.S.
X	Special

Table 4
Temp. Range

P/N	Description
1	0°F-450°F
2	0°F-900°F
X	Special

Table 5
Cold End Termination

P/N	Description
A	Standard Jack
B	Hi-Temp Jack
C	Ceramic Jack
D	Miniature Jack
E	Miniature Hi-Temp Jack
F	Miniature Ceramic Jack
X	Special

RQJ

Design	Number Of Elements	Sheath Diameter (Table 1)	Element Calibration (Table 2)	Sheath Material (Table 3)	Temp. Range (Table 4)	“A” Dimension (In Inches)	Number of Conductors	Cold End Termination (Table 5)
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NOTE: For any additional modifications to this assembly, add “-MOD” to the end of the part number and provide a physical description of the modification.

Example:

Single Element: RQJ-1-250-PD-2-2-12-3-A

RQJ Design, single element, .250”φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12” active length, 3 conductors, standard jack.

Dual Element: RQJ-2-250-PD-2-2-12-3-A

RQJ Design, dual element, .250”φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12” active length, 3 conductors, standard jack.



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RESISTANCE TEMPERATURE DETECTORS

RTD Ordering Information

“RPF” DESIGN

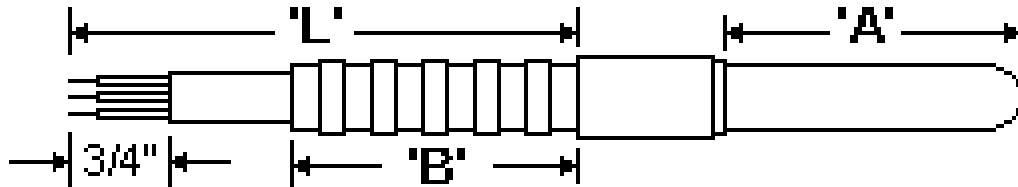


Table 1
Sheath Diameter

P/N	Description
125	.125 inches
4mm	.157 inches
188	.188 inches
6mm	.236 inches
250	.250 inches
313	.313 inches
375	.375 inches
500	.500 inches
XXX	Special

Table 2
Calibration

P/N	Description
PD	100Ω Platinum (.00385)
PS	100Ω Platinum (.00392)
PF	500Ω Platinum (.00385)
PT	1000Ω Platinum (.00385)
CU	10Ω Copper (.00427)
NI	120Ω Nickel (.00672)
XX	Special

Table 3
Sheath Material

P/N	Description
1	Alloy 600
2	304 S.S.
3	316 S.S.
4	310 S.S.
5	321 S.S.
6	446 S.S.
X	Special

Table 4
Temp. Range

P/N	Description
1	0°F-250°F
2	250°F-500°F
3	500°F-900°F
X	Special

Table 5
Wire Construction

P/N	Description
A	GB/GB
B	GB/GB-SS
C	TEX/TEX
D	TEX/TEX-SS
E	TEX/TW/ALM/TEX
F	TEX/GB/TEX
X	Special

Table 6
Cold End Termination

P/N	Description
A	Standard Plug
B	Hi-Temp Plug
C	Ceramic Plug
D	Miniature Plug
E	Miniature Hi-Temp Plug
F	Miniature Ceramic Plug
G	Standard Jack
H	Hi-Temp Jack
J	Ceramic Jack
K	Miniature Jack
L	Miniature Hi-Temp Jack
M	Miniature Ceramic Jack
N	Spade Lug
P	Ring Lug
R	Stripped Leads Only
X	Special

RPF----- □ ----- □ ----- □ ----- □ ----- □ ----- □ ----- □ ----- □ ----- □ ----- □ ----- □
 Design Number Sheath Element Sheath Temp. "A" Number "L" Wire Cold End
 Of Diameter Calibration Material Range Dimension of Dimension Construction Termination
 Elements (Table 1) (Table 2) (Table 3) (Table 4) (In Inches) Conductors (In Inches) (Table 5) (Table 6)

NOTE: For any additional modifications to this assembly, add "-MOD" to the end of the part number and provide a physical description of the modification.

Example:

Single Element: RPF-1-250-PD-2-2-012-3-A-R

RPF Design, single element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 250°F-500°F temperature range, 12" active length, 3 conductors, fiberglass insulated leads, stainless steel flex armor, stripped leads.

Dual Element: RPF-2-250-PD-2-2-012-3-A-R

RPF Design, dual element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 250°F-500°F temperature range, 12" active length, 3 conductors, fiberglass insulated leads, stainless steel flex armor, stripped leads.



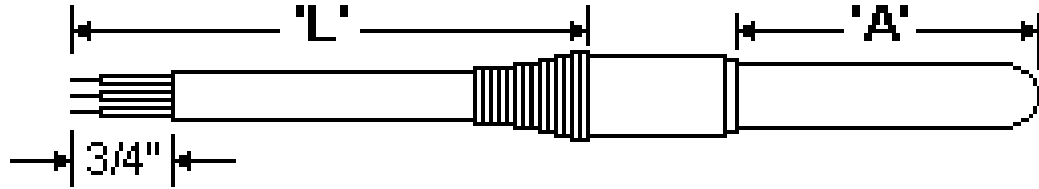
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RESISTANCE TEMPERATURE DETECTORS

RTD Ordering Information

“RPL” DESIGN



P/N	Description
125	.125 inches
188	.188 inches
250	.250 inches
313	.313 inches
375	.375 inches
500	.500 inches
XXX	Special

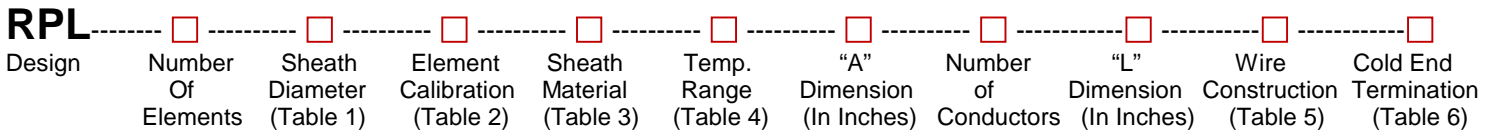
P/N	Description
PD	100Ω Platinum (.00385)
PS	100Ω Platinum (.00392)
PF	500Ω Platinum (.00385)
PT	1000Ω Platinum (.00385)
CU	10Ω Copper (.00427)
NI	120Ω Nickel (.00672)
XX	Special

P/N	Description
1	Alloy 600
2	304 S.S.
3	316 S.S.
4	310 S.S.
5	321 S.S.
6	446 S.S.
X	Special

P/N	Description
1	0°F-450°F
2	0°F-900°F
X	Special

P/N	Description
A	GB/GB
B	GB/GB-SS
C	TEX/TEX
D	TEX/TEX-SS
E	TEX/TW/ALM/TEX
F	TEX/GB/TEX
X	Special

P/N	Description
A	Standard Plug
B	Hi-Temp Plug
C	Ceramic Plug
D	Miniature Plug
E	Miniature Hi-Temp Plug
F	Miniature Ceramic Plug
G	Standard Jack
H	Hi-Temp Jack
J	Ceramic Jack
K	Miniature Jack
L	Miniature Hi-Temp Jack
M	Miniature Ceramic Jack
N	Spade Lug
P	Ring Lug
R	Stripped Leads Only
X	Special



NOTE: For any additional modifications to this assembly, add “-MOD” to the end of the part number and provide a physical description of the modification.

Example:

Single Element: RPL-1-250-PD-2-2-12-3-48A-P

RPL Design, single element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12" active length, 3 conductors, 48" long fiberglass-insulated leads, ring lugs.

Dual Element: RPL-2-250-PD-2-2-12-3-48A-P

RPL Design, dual element, .250"φ, 100Ω Platinum (.00385), 304 SS sheath, 0°F-500°F temperature range, 12" active length, 3 conductors, 48" long fiberglass-insulated leads, ring lugs.



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Duro-Sense Corporation

A pair of hands is holding a blue sign with white text. The sign is tilted and positioned in the center of the frame. The background is a light gray gradient with a large, abstract yellow and green geometric pattern on the right side. The bottom right corner of the image is a solid dark red triangle.

**TERMS
& CONDITIONS**

**TERMS &
CONDITIONS**

TERMS AND CONDITIONS

WARRANTY:

Duro-Sense Corporation products and related parts are sold under the foregoing warranties, which extend only to the first buyer of said products as new merchandise directly from Duro-Sense Corporation or from an authorized distributor, representative or reseller.

Duro-Sense Corporation products and related parts are warranted to be free from defects in workmanship and material at the time of manufacture, and will conform to specifications set forth in relevant Duro-Sense Corporation catalog pages for such products.

Duro-Sense Corporation's sole and exclusive obligation and the purchaser's sole and exclusive remedy under the above warranty is limited to repair or replacement, at Duro-Sense Corporation's option. All claims hereunder shall be deemed waived unless made in writing, within thirty days of delivery, to Duro-Sense Corporation's main office at 869 Sandhill Avenue, Carson, CA 90746, and which, if so advised by Duro-Sense Corporation, are returned to the designated facility during normal business hours, transportation prepaid, and which, upon examination by Duro-Sense Corporation, are found to be non-compliant with the above warranty.

Duro-Sense Corporation sells products only under the above terms and conditions, which are expressly in lieu of all other warranties whatsoever, expressed, implied or statutory, including without limitation the implied warranties of merchantability and fitness for a particular purpose. Duro-Sense Corporation will not be bound by terms and conditions stated by any purchaser in any offer, acceptance or other contractual document, nor shall purchaser be entitled to incidental, special or consequential costs, expenses or damages excepting only the repair or replacement described above.

PAYMENT TERMS:

Net 30 Days (Pending Credit Approval). Account balances that are past due will be charged a \$1.00 service charge or a 1.5% finance charge per month, of the outstanding balance, whichever is greater.

ORDER MINIMUM:

\$25.00 Net per order.

PRICING:

Prices are subject to change without notice. There is no published price list. Please contact the sales department or your local sales representative for current pricing.

TERMS AND CONDITIONS

- SHIPPING TERMS:** All orders are shipped F.O.B. Duro-Sense Corporation factory. All shipments are made prepaid and additional, unless otherwise negotiated in advance. Packing and handling charges are included in the shipping charges. Insurance charges are added only at the request of the purchaser.
- Drop shipments will be made at the purchaser's request, providing that the invoice is issued to the "purchaser" and not to the "receiver".
- Damage to shipments beyond the F.O.B. point is the responsibility of the carrier. Shipments should be opened promptly upon receipt and any claim for damage is to be initiated by the purchaser with the carrier. Replacement shipments will be made on a chargeable basis.
- Each shipment should be examined by the purchaser promptly upon receipt. Any claims for shipment shortages must be made to Duro-Sense Corporation within 72 hours of receipt of shipment.
- MATERIAL RETURNS:** Returns for credit, evaluation or repair will not be allowed without prior factory authorization. Purchaser must contact the factory for a "Return Merchandise Authorization" (RMA) number, and clearly describe the item, the reason for its return, the original purchase order number, order date, invoice number, and any other pertinent information germane to the item(s) in question.
- RESTOCKING CHARGES:** Products and related parts that are returned to Duro-Sense Corporation in unused and like-new condition, that are returned for credit, will be subject to a minimum 20% restocking charge. The actual charges will be determined, by Duro-Sense Corporation, based on the type of material, its resale value and inspection and evaluation of the material in question.
- CERTIFICATION:** N.I.S.T. traceable calibration and certification is available for thermocouples, RTD's and thermocouple wire. Certifications are limited to temperatures between -109°F and 2650°F (-78°C and 1454°C). Certifications are dependent upon calibration limitations of element materials and sheaths where applicable. The minimum sensor assembly length for certification is 18 inches of sheath length and the minimum length for certifying insulated thermocouple wire is 24 inches. Thermocouple wire is certified by making thermocouples from each end of the wire spool and evaluating them at specified temperatures. Lead-time for certification is dependent upon the quantity of items being certified as well as the capacity of the calibration laboratory at the time. Purchaser should contact Duro-Sense Corporation directly for current certification lead times.
- COMPLIANCE:** Duro-Sense Corporation is dedicated to maintaining the highest level of quality in both manufacturing and testing. Duro-Sense Corporation operates under its own quality standard, DSQ-2000, which is compliant with the following quality and testing standards:
- ISO-9001, AS-9100, MIL-I-45208, MIL-STD-45662A, ISO 10012-1:2003, ANSI/NCSL Z-540-3-2006, AMS2750E, ASTM E 220-7A, ASTM E 230-03, ASTM E 207-08, ANSI/ASQC Z1.4-1993.
- Copies of the Duro-Sense Corporation quality manual and any existing certifications are available upon request.



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