

# Mineral-insulated RTDs

## Overview

Mineral-insulated RTDs provide excellent performance, even when exposed to high levels of shock and vibration in tough industrial environments. Typical applications include process control and steam turbine efficiency measurement.

Probes can be bent around a mandrel diameter at least 3 times the probe diameter without kinking.

Custom designed RTDs and thermocouples are available.

- Mineral MgO packing protects element from shock and contamination
- Field bendable
- Inconel or stainless steel sheath
- High precision RTD elements for stable, repeatable measurements
- Dual sensing element model S953 is excellent for redundancy and failure protection

## Specifications

**Element:** Platinum, 100  $\Omega$  at 0°C, TCR=0.00385  $\Omega/\Omega/^\circ\text{C}$ .

**Temperature range:** Reduced to 260°C (500°F) for leadwires and potting boot.

S932, S933: -200 to 650°C (-328 to 1202°F).

S942, S943, S944: -200 to 550°C (-328 to 1022°F).

S953: -200 to 260°C (-328 to 500°F).

**Tolerance:** EN60751 Class B ( $\pm 0.12 \Omega = \pm 0.3^\circ\text{C}$ ) or Class A ( $\pm 0.06 \Omega = \pm 0.15^\circ\text{C}$ )

**Repeatability:** Meets EN60751 requirements. Typical shift less than 0.05°C (0.1°F) when cycled over temperature range.

**Stability:** Meets EN60751 specifications after 250 hours exposure to extremes of temperature range. Typical drift of less than 0.05°C (0.1°F) at 0°C.

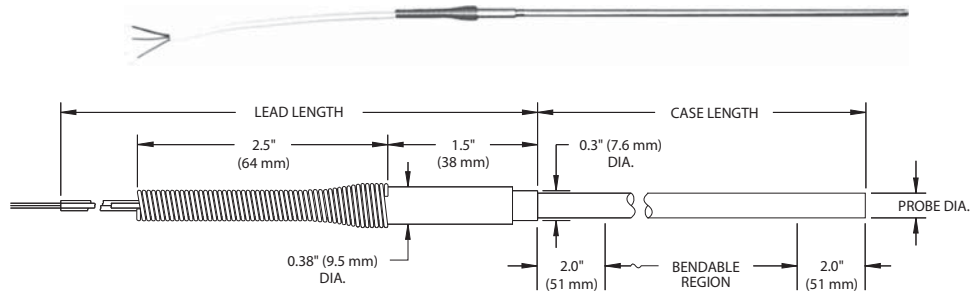
**Vibration:** Withstands 10 to 5000 Hz at 2 G's per EN60751. Also withstands 50 to 250 Hz at 50 G's at 500°C.

**Shock:** Withstands a 1 meter drop onto an 8 mm steel plate (1 meter is 4 times the EN60751 height requirement of 250 mm).

**Time constant:** 10 seconds typical in moving water.

**Pressure rating:** 69 bar (1000 psi) at 25°C.

**Insulation resistance:** 10 megohms minimum at 100 VDC.



## Single element models

Probe diameter	Max. temp.	Case material	Model
0.236" (6.0 mm)	550°C (1022°F)	316 stainless steel	▼S942
0.236" (6.0 mm)	650°C (1202°F)	Inconel 600	▼S932
0.250" (6.4 mm)	550°C (1022°F)	316 stainless steel	▼S943
0.250" (6.4 mm)	650°C (1202°F)	Inconel 600	▼S933
0.188" (4.8 mm)	550°C (1022°F)	316 stainless steel	▼S944

## Dual element model

Probe diameter	Max. temp.	Case material	Model
0.250" (6.4 mm)	550°C (1022°F)	316 stainless steel	S953

## Specification and order options

S933	Model number from table
PD	100 $\Omega$ platinum, 0.00385 TCR
06	Tolerance at 0°C: ▼06 = $\pm 0.06\%$ , EN60751 Class A (NA for dual element S953) 12 = $\pm 0.12\%$ , EN60751 Class B
T	Leadwire insulation: ▼T = PTFE leadwires C = PTFE cable (4 lead only, NA for dual element S953)
30	Case length: Specify in 0.1" increments (Ex: 30 = 3.0 inches) ▼: 30, 40, 120, 180
Z	Number of leadwires: Y = 2 leads per element ▼Z = 3 leads per element X = 4 leads per element
120	Lead length in inches ▼: 120
BS	Lead exit configuration: (B or BS option recommended for best lead exit strength) ▼BS = Potting boot and strain relief spring B = Potting boot ▼N = No potting boot or spring
S933PD06T30Z120BS = Sample part number	

▼ = STANDARD OPTIONS

Specifications subject to change

