

# Embedment Thermocouples

Leadwire	Case style A		Case style B		Case style C		Case style D	
	Single	Dual	Single	Dual	Single	Dual	Single	Dual
AWG 20 stranded	TC311	TC312	TC333					
AWG 24 stranded	TC2162	TC2303	TC2084	TC2096	TC344	TC2623		
AWG 24 stranded with single SS braid over both wire pairs		TC2698		TC2520		TC2837		
AWG 30 solid							TC2741	

## Overview

These thermocouples are mechanically interchangeable with the RTDs on pages 7-2 and 7-3.

## Specifications

**Temperature range:** -184 to 260°C (-300 to 500°F).

Copper-Constantan (Type T):

AWG 24: 200°C (392°F) maximum,

AWG 30: 150°C (302°F) maximum.

**Time constant:** Typical value in moving water:

Grounded junction: 0.3 seconds.

Ungrounded junction: 6 seconds (case style A) to 1 second (case style C).

**Insulation resistance:** 10 megohms min. at 100 VDC, leads to case, ungrounded junctions only.

**Case:** Tin plated copper alloy.

**Babbitt tip:** Factory applied babbitt tip, available on case styles A and B, reduces the danger of overheating the sensor when installed in babbitt layer.

**Leads:** See table for sizes and options. Dual element models with AWG 24 stranded leadwires are available with a single stainless steel braid over all four wires. This option is recommended for use with integral feedthroughs. See below for more information.

## Specification and order options

TC311	Model number from table
E	<b>Junction type:</b> E = Chromel-Constantan    K = Chromel-Alumel J = Iron-Constantan        T = Copper-Constantan
U	<b>Junction grounding:</b> G = Grounded                U = Ungrounded
36	Lead length in inches
S	<b>Covering over leadwires:</b> T = PTFE insulated leads only S = Stainless steel overbraid with PTFE insulated leads F = FEP over PTFE insulated leads R = FEP over stainless steel braid and PTFE insulated leads E = FEP over stainless steel braid, with elastomer fill and PTFE insulated leads (max fill length 240")
(Stop here for case style C or D; no installation variable)	
B0	<b>Optional Installation/Accessory option:</b> B0 = No babbitt metal or accessories B1 = Babbitt metal applied AC1 = Supplied with AC171 spring and AC172 series ring (case style B only) AC2 = Supplied with AC171 spring and AC1038 ring (case style B only) AC3 = Supplied with AC171 spring and AC915-1 ring (case style B only)
TC311EU36SB0 = Sample part number	

## STOP OIL SEEPAGE!

**Feedthroughs** provide an oil tight seal where a cable exits a machine housing. The stainless steel tube is epoxy filled and each wire is sealed to the individual conductor. This prevents wicking of oil inside the wires as well as leakage around the wire insulation. Pressure rating to 25 psi (1.7 bar.) See page 4-11 for details.

**Leadwire and cable seal** models FG1015, FG3015 and FG4015 seal RTD or thermocouple leadwires where they exit oil-filled bearing housings of rotating equipment. Both versions include a grommet that provides the seal and allows adjustment of the wire or cable position. See page 4-12 for details.

**Elastomer rubber-filled cable** has elastomer fill between the wires, stainless steel braid, and outer jacket. This fill can extend along the entire length of the cable, or a specified portion. The outside of the cable can be sealed with an FG1015, FG3015 and FG4015 fitting. See Leadwire Covering Options on Miniature Sensors on pages 7-2 to 7-10.

For more information on the problems of oil seepage and various solutions, visit [www.minco.com](http://www.minco.com)



Specifications subject to change