Instructions: Temperature Sensor in Journal Bearing Using the Babbitt Method for Case Style A

EI 164 Revision F
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1. Suggested Installation Procedure

Install a case style A temperature sensor in a journal bearing following the steps below.

1. Drill a 7/32" (5,55mm) diameter radial hole through the babbitt layer and bearing shell in the desired location.
2. Counterbore a hole in which to seat the sensor:

Hole identification	Hole diameter	Hole depth (from bearing surface)
Pilot hole	7/32" (5,55 mm)	Through
Counterbore hole	9/32" (7,15 mm)	5/16" (7,95 mm)

3. Mill a groove in the back of the bearing shell in which to channel the leads/cable. The groove should start at the 7/32" (5,55mm) diameter drilled hole, and continue to where the leads/cable exit the bearing. Choose an appropriate groove width and depth to accommodate the leads/cable of the sensor(s) being installed.
4. Break or chamfer corners to remove sharp edges.
5. Thoroughly clean the machined surfaces and the sensor case so they are free of oil, shavings, etc.
6. Insert the leads/cable.
   DO NOT pull the leads/cable to seat the sensor case in the hole.

   A. Insert the leads/cable of the sensor in the 9/32" (7,15 mm) diameter counterbored hole.
   B. Extend the leads/cable through the 7/32" (5,55mm) diameter dilled hole in the bearing shell. Carefully draw the leads/cable through the hole; making sure they are not kinked or damaged.
   C. Gently guide the case into the hole and push it into place. The end of the case should be about 1/16" (1,60 mm) below the bearing surface when the sensor is properly seated.
      DO NOT pull the leadwires to seat the sensor case in the hole.

7. Fill the hole above the sensor with shavings or small pieces of babbitt. Use enough babbitt to cover the end of the sensor case and extend slightly above the bearing surface after melting.

8. Use a small gas flame to heat and melt the edge of the babbitt layer surrounding the sensor tip. If needed, add babbitt to fill the hole flush or slightly above the bearing surface.
   DO NOT allow the flame to contact the sensor case.
   DO NOT concentrate the flame in one place for any length of time.
   KEEP THE FLAME MOVING.
   NOTE: The babbitt must be melted to fusion-bond to the sensor case, but must not be heated to a temperature that will damage the sensor. The sensor may be exposed to temperatures as high as 572°F (300°C for short periods of time.
9. Scrape off excess babbitt and dross to create a smooth, unbroken surface.
10. Lay the leads/cable flat in the bottom of the milled groove in the bearing shell.
11. Pot the leads/cable in the groove using epoxy or other suitable potting compound compatible with the bearing shell material, temperature, and service conditions.

2. Drawing

Although the illustration below depicts a temperature sensor in a journal bearing, this installation procedure can be used with other types of bearings, and with equipment other than bearings.