

Special Application Conditions

Heat

Heated locations like dryers, ovens and fryers are very common in many industries as food is cooked, bulk chemicals dried, fiber glass baked, and heat-treated metal parts quenched, etc. In high temperature applications, the expansion of different materials relative to each other causes design difficulties and must be addressed in the bearings that allow these heated devices to move.

Materials expand with increasing levels of temperature and things that are fixed at both ends of an expanding material will break. It is for this reason that expansion bearings came about. EDT's plane bearings work very well in high temperature conditions with a fixed bearing on the drive side of a device and an expanding bearing on the opposite side (see Fig 21-1).

The **fixed bearing** should be an EDT Poly-Round® out of a high temperature material in a metal housing with a locking sleeve flange on one side of the bearing and a split set collar on the opposite side of the same bearing. This allows control of the lateral movement of the shaft to be contained by just the one bearing. The opposite **expansion bearing** should be a Poly-Round® insert with an extended length body locking sleeve. The locking sleeve fixed to the shaft now has a longer journal to accommodate the expansion of the shaft as temperature increases. The flange of the locking sleeve of the floating end bearing must be on the outboard side of the oven (see Fig 19-1). (Call EDT if space limitations require inside mount.)

Fryer bearings associated with food processing must, in most cases, be approved as a "food ingredient." EDT's FA bearing material makes the grade for temperature (operates to 500°F), for USDA/FDA criteria and for ease-of-maintenance. As with all other high-temperature applications, this must be in a Poly-Round® style.

High temperature locations with high speed or tension (flat belt take-ups, pumps, fans operating above 300°F ambient temperature) will be well served with high temperature, solid lubricated ball bearings. Operating temperature must be specified and stainless, standard or "special material" bearings are all available options.

Since continuous expansion and contraction of metals will cause threaded products to vibrate loose, it is necessary to use an appropriate threadlocker on all setscrews. With few exceptions, lubricants of all kinds should never be applied in hot applications.

