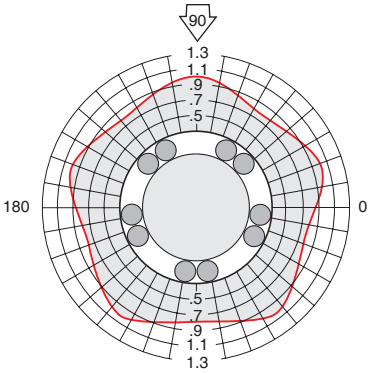
Load direction factor - F_L

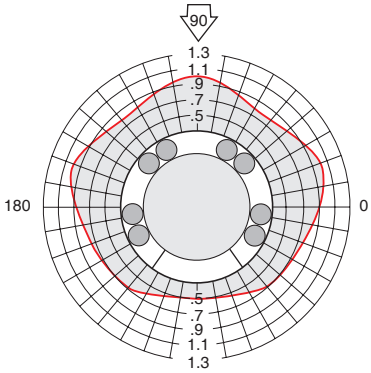
The maximum travel life of a linear bearing, pillow block or carriage assembly may need to be de-rated depending upon the direction the load is applied to the bearing. The Polar charts shown below for each bearing type indicate the de-rating factor (or multiplier) based upon the direction the load is applied to the bearing. In most applications not all the bearings will see the same applied load, so you can use the adjacent equation to determine the estimated life based upon the heaviest loaded bearing or the bearing which requires the greatest de-rating factor. This will yield a system life value showing the bearing which has the lowest overall travel life. To use the below graphs, simply find the intersecting point based upon the direction of the load (that the bearing sees) and then use the de-rating factor (i.e. 0.9, etc.), if any.

$$L = \left[F_H \times F_T \times F_L \times \frac{R}{F \times S} \right]^3 \times B$$

- **L** = normal travel life millions of inches (or Km)
- **R** = rated dynamic load capacity of linear bearing, or carriage at 2 million inches of travel (or 50 Km)
- **F** = user applied load
- **B** = either 2 millions of inches (or 50 Km)
- F_H = shaft hardness factor
- F_T = environment temperature factor
- F_L = load direction factor
- **S** = dynamic safety factor



LBCH-12, SLBCH-12, DLBCH-12
LBCH-16, SLBCH-16, DLBCH-16
LBCH-20, SLBCH-20, DLBCH-20
LBCH-24, SLBCH-24, DLBCH-24



LBOH-12, SLBOH-12, DLBOH-12
LBOH-16, SLBOH-16, DLBOH-16
LBOH-20, SLBOH-20, DLBOH-20
LBOH-24, SLBOH-24, DLBOH-24