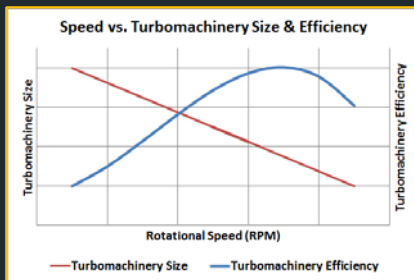


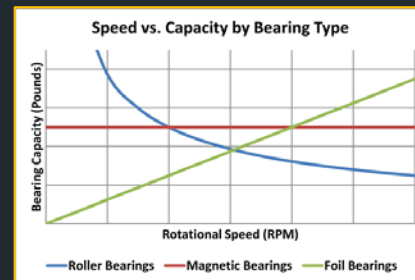
## Foil Bearing Benefits

Foil bearings are ideally suited for high-speed lubrication-free turbomachinery applications where size must be minimized and efficiency maximized. Foil bearing do not require control/lubrication systems, bearing life is unaffected by speed, & bearing capacity increases with speed.



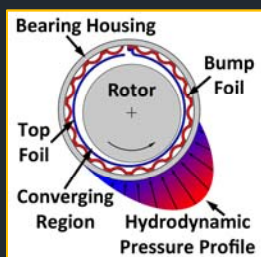
## Bearing Comparison

- Roller Bearings Loose Capacity & L10 Life as Speeds Increase
- Magnetic Bearings Require Auxiliary Control Systems & Can Be Expensive
- Oil Bearings Require Auxiliary Lubrication Systems & Can Contaminate the Process Fluid



## Foil Bearing Technology

At low speed during start-up and shut-down the rotor is supported by flexible foils. But as the machine accelerates to operating speed hydrodynamic pressure increases which compresses the bump foil allowing the rotor to ride on a friction free layer of process fluid.



## Areas of Applicability

A bearing system's Sommerfeld number is the quickest way to determine if foil bearings make sense; if it is greater than 6, foil bearings are a good candidate.

$$\text{Sommerfeld Number} = \left(\frac{r}{c}\right)^2 \frac{\mu N}{P}$$

r = Shaft Radius

c = Radial Clearance

$\mu$  = Absolute Viscosity of the Process Fluid

N = Shaft Speed in Rev/Sec

P = Load Per Unit of Projected Bearing Area

