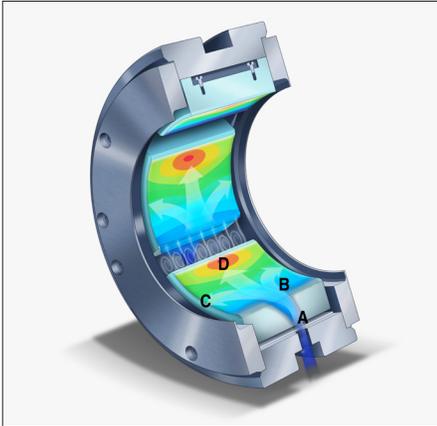


Oil Path And Lubrication Activity



PJ Flooded Tilting Pad Journal Bearings

A. Oil Inlet

- Pressurized oil is delivered to the open area in between tilting pads
- Oil begins to fill the area in between tilting pads
- Churning of oil occurs in this area and oil temperature begins to rise before it enters the oil wedge

B. Beginning of Oil Film (Oil Wedge)

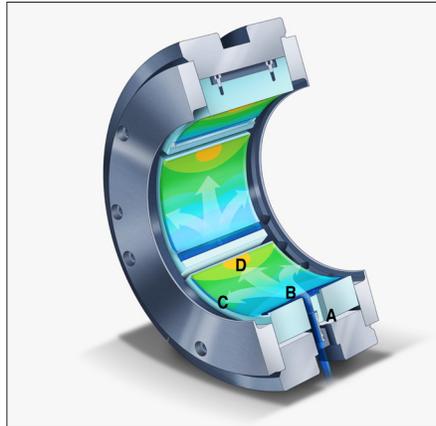
- Oil is pulled into the gap between the tilting pad and the shaft (oil wedge) due to the adhesion of oil to the rotating shaft
- Oil temperature is higher than the temperature when delivered to the area marked "A" due to the mixing that occurs in this region

C. Side Discharge

- Some discharge oil begins to exit the tilting pad in the axial direction, toward the oil seal of the journal bearing

D. Trailing Edge

- Oil film temperatures higher, as compared to BPG® and LEG®
- Hot discharge oil exits the trailing edge of pad and mixes with fresh oil supplied to area "A" of the next pad in the direction of rotation



LEG® Tilting Pad Directed Lube Journal Bearings

A. Oil Inlet

- Pressurized oil is delivered to oil feed tubes which provide a direct path to the leading edge of the tilting pad
- Fresh oil supply is transferred directly to the leading-edge groove through the oil feed tube

B. Beginning of Oil Film (Oil Wedge)

- Cool oil fills the groove area on the leading edge of tilting pad
- Oil is pulled into the gap between the tilting pad and the shaft (oil wedge) due to the adhesion of oil to the rotating shaft
- Oil has the lowest temperature (almost equal to the oil supply temperature) compared to other lubrication types

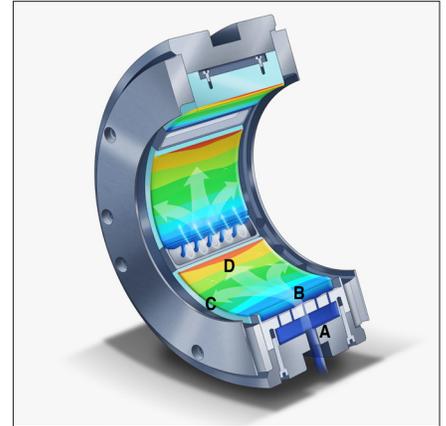
C. Side Discharge

- Some discharge oil begins to exit the tilting pad in the axial direction
- LEG® design can operate without oil seals on either end of the bearing, resulting in lower power loss and evacuation of hot discharge oil

D. Trailing Edge

- Oil film temperature is lower than Flooded and BPG® bearings
- Discharge oil at the trailing edge of pad partially escapes between pads and the residual oil adhering to the shaft mixes with the fresh cool oil delivered to area "B" of the next pad in the direction of rotation

LEG®, with its oil feed groove embedded in the pad, offers the potential for the lowest possible oil flow consumption.



BPG® Tilting Pad Directed Lube Journal Bearings

A. Oil Inlet

- Pressurized oil is delivered to the oil feed bar located in between each tilting pad
- Oil flow rate can be controlled by hole sizes internal to the oil feed bar chamber
- The groove area of the oil feed bar fills with cool oil

B. Beginning of Oil Film (Oil Wedge)

- Oil is pulled into the gap between the tilting pad and the shaft (oil wedge) due to the adhesion of oil to the rotating shaft
- Oil temperature is higher than with LEG® and is much lower as compared to Flooded lubrication

C. Side Discharge

- Some discharge oil begins to exit the tilting pad in the axial direction
- BPG® design can operate without oil seals on either end of the bearing, resulting in lower power loss and evacuation of hot discharge oil

D. Trailing Edge

- Oil film temperature is lower, as compared to Flooded bearings
- Discharge oil exits the trailing edge of pad and mixes with the fresh cool oil delivered to area "B" of the next pad in the direction of rotation

BPG® design, with its axially sealed oil feed bar positioned closer to the pads, offers significantly less oil consumption and lower temperatures compared to the spray nozzle type.