

# BEARING FAULT DIAGNOSIS GUIDE

# OUTER RACE FAULT

**Characteristic Frequency:  $0.4 \times \text{RPM}$**

## ***Symptoms:***

- Vibration increases with load
- Noise audible during operation
- Temperature rise

## ***Probable Causes:***

- Contamination
- Misalignment
- Overloading
- Inadequate lubrication

## ***Corrective Actions:***

- Replace bearing
- Check alignment
- Verify load calculations
- Improve sealing

# INNER RACE FAULT

**Characteristic Frequency:  $0.6 \times \text{RPM}$**

***Symptoms:***

- High frequency vibration
- Metallic noise
- Shaft temperature increase

***Probable Causes:***

- Shaft deflection
- Improper mounting
- Corrosion
- Fatigue

***Corrective Actions:***

- Check shaft condition
- Verify mounting tolerances
- Replace bearing
- Improve lubrication

# BALL FAULT

**Characteristic Frequency:  $2-5 \times \text{RPM}$  (variable)**

***Symptoms:***

- Irregular vibration pattern
- Clicking sounds
- Erratic operation

***Probable Causes:***

- Material defects
- Contamination
- Overheating
- Impact damage

***Corrective Actions:***

- Immediate replacement
- Investigate contamination source
- Check operating temperatures