

The data was obtained from Case Western Reserve University Bearing Data Center Website. Experiments were conducted on the Reliance Electric motor, and acceleration data was measured at locations near to and remote from the motor bearings.

In motor fault diagnosis, particularly when analyzing vibration signals, frequency is a crucial parameter. Since most fault signatures in machinery, such as bearings or gears, manifest at specific rotational frequencies, converting RPM to Hz helps align these fault patterns with the vibration data. Frequency is measured in hz .

Bearing Specifications and Defect Frequencies

Property/Defect Frequency	Drive End Bearing (6205-2RS JEM SKF)	Fan End Bearing (6203-2RS JEM SKF)
Inside Diameter	0.9843 inches	0.6693 inches
Outside Diameter	2.0472 inches	1.5748 inches
Thickness	0.5906 inches	0.4724 inches
Ball Diameter	0.3126 inches	0.2656 inches
Pitch Diameter	1.537 inches	1.122 inches
Ball Pass Frequency - Outer Race (BPFO)	3.5848 X	3.0530 X
Ball Pass Frequency - Inner Race (BPFI)	5.4152 X	4.9469 X
Fundamental Train Frequency (FTF)	0.39828 X	0.3817 X
Ball Spin Frequency (BSF)	4.7135 X	3.9874 X

Motor Load , Approximate Speed and Baseline Data

Motor Load (HP)	Approx. Motor Speed (RPM)	Speed in Hz (RPM ÷ 60)	Normal Baseline Data
0 HP	1797 RPM	29.95 Hz	Normal_0
1 HP	1772 RPM	29.53 Hz	Normal_1
2 HP	1750 RPM	29.17 Hz	Normal_2
3 HP	1730 RPM	28.83 Hz	Normal_3