

EMPATH Bearing Detection Case Study

EMPATH



MotorDoc LLC
Doing what everyone else just talks about



Bearing and winding failures due to harmonic and ground conditions in the motor and circuit.

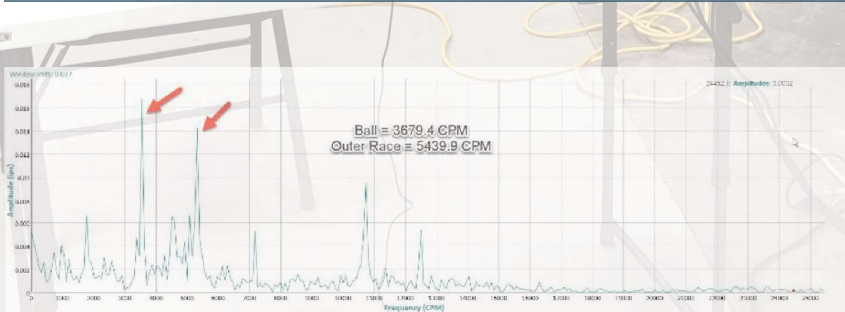
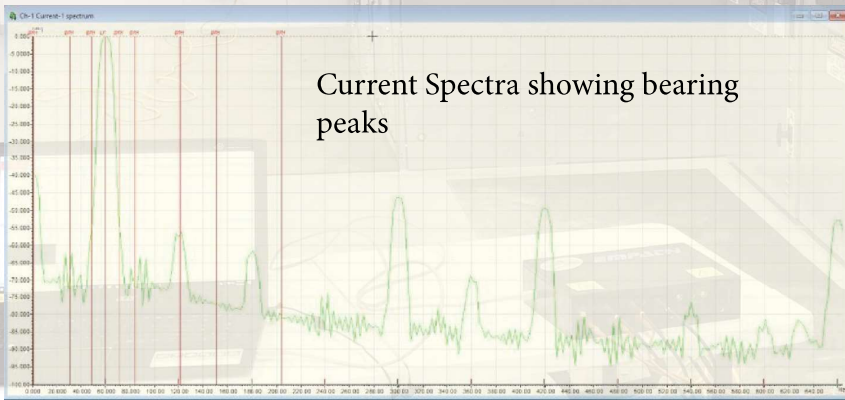
300 horsepower, 1765 RPM, 6318ZZ bearings
40 Rotor Bars, 48 Stator Slots

Bearing Multipliers:

IR - 4.91/hz; OR - 3.09/hz; Cage - 0.39/hz; Ball - 2.09/hz

Actual RPM of motor during test = 1760.5 RPM

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Induction Motor [LF: 60 Hz]

Results	Time	Freq.	Bearings	Phasors	Extras
Power factor			OK		
Current			OK		
Voltage			OK		
Load			Exceeds Nm Plt. [Ld 128.7%]		
Vlt-GND ref.NDT neutral			OK		
Connection			OK		
Rotor			OK (C:1)		
Stator (mechanical)			OK		
Air gap			OK		
Harmonic distortion			OK		
Misalignment/Unbalance			OK		
Bearing/Unidentified			Prot'd Brng.		
Bottom line			Abnormal indications		

EMPATH Auto-Fault Detection

*Note: Noise floor is -80 db

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Data collected from the MCC in a 48 second collection. As soon as the data was collected, the findings show in the EMPATH Auto-Fault Detection. Vibration was used to confirm the bearing conditions before removing the motor for repair. Stage 2 bearing fault detected

