

3 WARNING SIGNS TO LOOK FOR IN VIBRATION DATA FROM PUMPS

1 Signal corruption from low frequency noise

When the vibration measurement is near the electronic noise floor of the sensor, signal distortion occurs. This often appears as ski slope data and obscures the low frequency readings, potentially hiding destructive surge pulsations or problems with the reduction gears or rotors. A specialty low-frequency accelerometer or velocity sensor should be used instead.

2 Sensor overload from high frequency noise

Very high frequencies (commonly from cavitation, high pressure leaks, or bearing impact noise) are outside the measurement range of general purpose accelerometers and can cause sensor overload, resulting in erroneous ski slope data. Use a lower sensitivity sensor to capture high frequency measurements.

3 Increasing vibration levels in the mid- to high-frequency range

Most pump vibrations are between 450 and 300,000 CPM, including the harmonics of the drive motor, roller bearing faults, vane pass, gear mesh, and reciprocation impact frequencies. Misalignment and improper mounting also produce vibration levels in this range. 4-20 mA sensors and standard accelerometers provide continuous trend data with a low signal-to-noise ratio, making it easy to see rising vibration levels and identify common problems early. Long-term trends also give a more complete picture of machine condition.

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