

Overall Vibration Default Alert Limits

Overall Vibration provides an indication of the total low-frequency energy in the waveform.

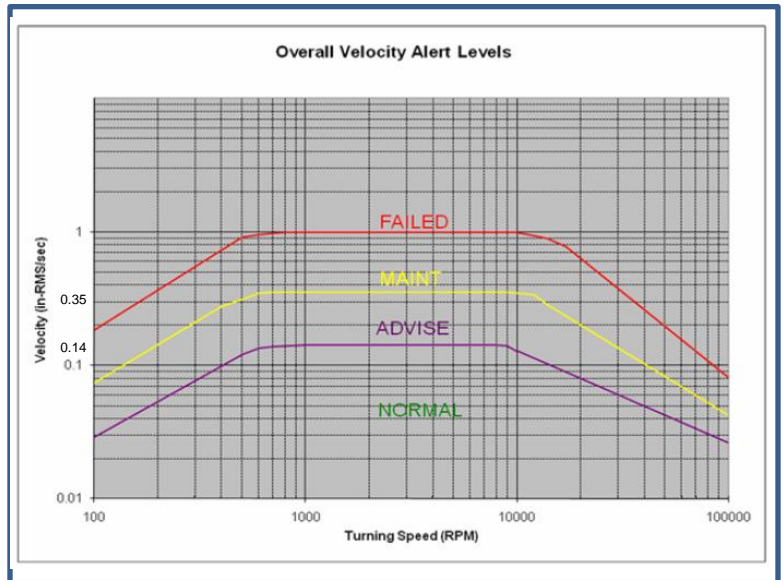
Virtually all vibration analysts are very familiar with the Overall Velocity measurement and use it as part of their existing vibration programs.

The CSI Transmitters use ISO 10816 for reporting Overall Vibration, which defines a measurement bandwidth of 2 Hz to 1 kHz.

The ISO 10816 general fault levels at various turning speeds are depicted graphically in the figure.

The default alert levels in the CSI Transmitter are:

ADVISE 0.14 in/sec RMS
MAINT..... 0.35 in/sec RMS
FAILED 1.0 in/sec RMS



ISO 10816 General Fault Levels at various turning speeds

Overview

Overall Velocity has been utilized by Vibration Analysts for many years. It is an effective screening tool for providing a preemptive warning of impending failures that will identify many developing fault conditions prior to a catastrophic breakdown.

The Overall Velocity measurement provides a summation of the low-frequency vibration energy, which is indicative of fault conditions such as imbalance, misalignment, looseness, and late-stage bearing problems.

The CSI Transmitter uses (low-frequency) Overall Velocity in conjunction with (high-frequency) PeakVue™ to provide a holistic solution across frequency while optimizing the usage of the limited power and bandwidth available in a wireless device.

The majority of developing fault conditions will be manifested with a monotonic increase in one or both of these key parameters.

Suggested Plant Software:
 AMS Suite: Intelligent Device Manager Ver. 10 or DeltaV Ver. 10

For more information contact your Novaspect Account Manager.

Service Factors based on Machinery Type

Machinery Type	Service Factor
Single-stage Centrifugal Pump, Electric Motors, Fans	1.0
Non-critical Chemical Processing Equipment	1.0
Turbine, Turbine Generator, Centrifugal Compressor	1.6
Miscellaneous Equipment	2.0

Depending on the type of machine being monitored, the values shown in this graph should be multiplied by the service factors given in the above table.

It is important to note that the Overall Velocity thresholds in the graph are for root-mean-square (RMS) velocity in units of inches per second. Particularly in digital acquisition systems, it is customary to make the measurement and do the calculation with RMS quantities. While it is accepted practice in the industry to convert between RMS and peak values using the well-known 1.4142 conversion factor, it is not technically correct to do so except for a pure sinusoidal waveform. For this reason the CSI Transmitters measure, calculate, and report Overall Velocity in RMS, and it is necessary to multiply by 1.4142 to get the corresponding peak levels if this is the preferred format.

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