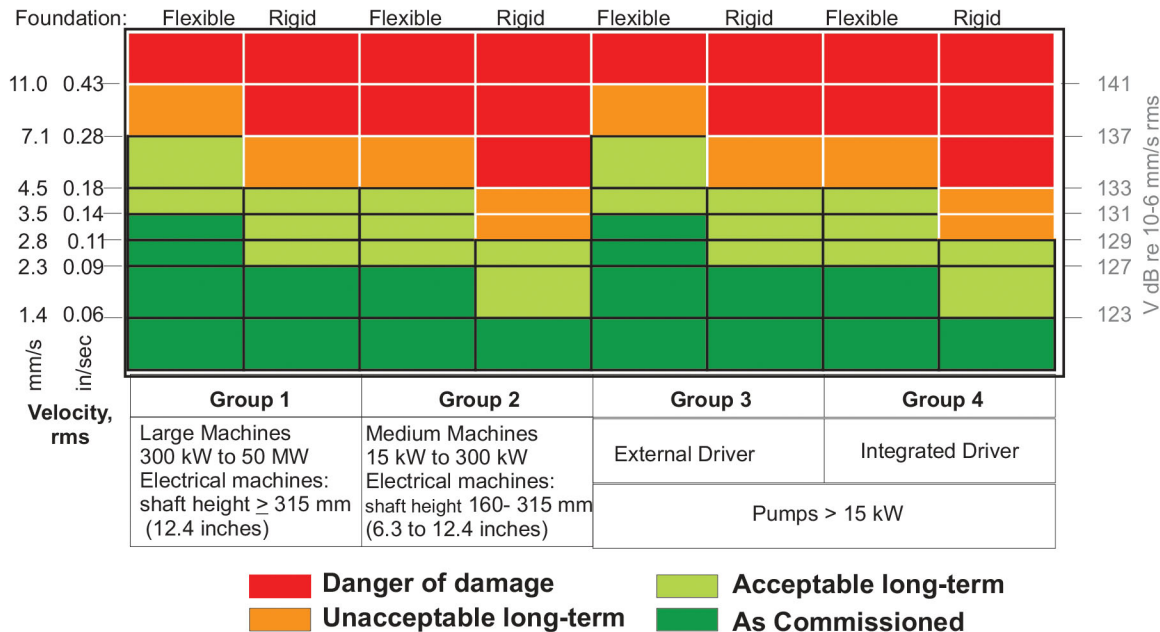


Guidelines for Evaluating Vibration

Based on ISO 10816-3:1998(E). Study the standard in order to correctly interpret the chart.
The vibration levels refer to radial vibration on all bearings and axial vibration on thrust bearings.
Black and dark grey require repair. White and light grey do not require repair.



Guidelines must be interpreted and used with care. They are a starting point. In general, it is better to rely on good history, when that is available.

Note that for slow machines, e.g. below 1800 RPM, particularly where the dominant component of vibration is at rotation speed frequency, vibration limits based on seismic displacement are likely to be more applicable.

Notes - Tony Taylor

1. This chart applies to the overall rms vibration velocity level with specific limitations:

For machines running at speeds above 600 RPM a low frequency cut-off = 10 Hz applies and a maximum frequency $F_{max} = 1000$ Hz applies.

For machines running at speeds between 120 RPM and 600 RPM the low frequency cut-off is 2 Hz and the $F_{max} = 1000$ Hz.

This means in practical terms that a parameter needs to be set up in the PDM software parameter set to sample and trend a digital overall RMS velocity with these high and low frequency limits. This is because a typical "overall" reading will not have these frequency limits and could therefore give erroneous interpretations.

2. This chart cannot be applied to true peak readings. Attempts to convert these limits to peak using a factor of 1.414 will, in most instances result in excessively conservative results. In addition it is probable that the true peak readings would also not have the correct frequency cut-off limits. The ratio of peak to rms (Crest Factor) is generally in excess of 1.414. The presence of sharp spikes in a waveform due to such things as bearing faults, will make the Crest Factor increase significantly but may have significantly less effect on the filtered rms velocity to which this Chart applies.

3. Some PDM software give a "peak" reading that is in fact a pseudo-peak i.e. the true rms level multiplied by 1.414. If this pseudo-peak is filtered with the above frequency limits, then this Chart could be used by dividing the measured pseudo-peak value by 1.414. However, the procedure in Note 1 is to be preferred.

4. For slow machines, e.g. below 1800 RPM, particularly where the dominant component of vibration is at rotation speed frequency, vibration limits based on seismic displacement are likely to be more applicable.