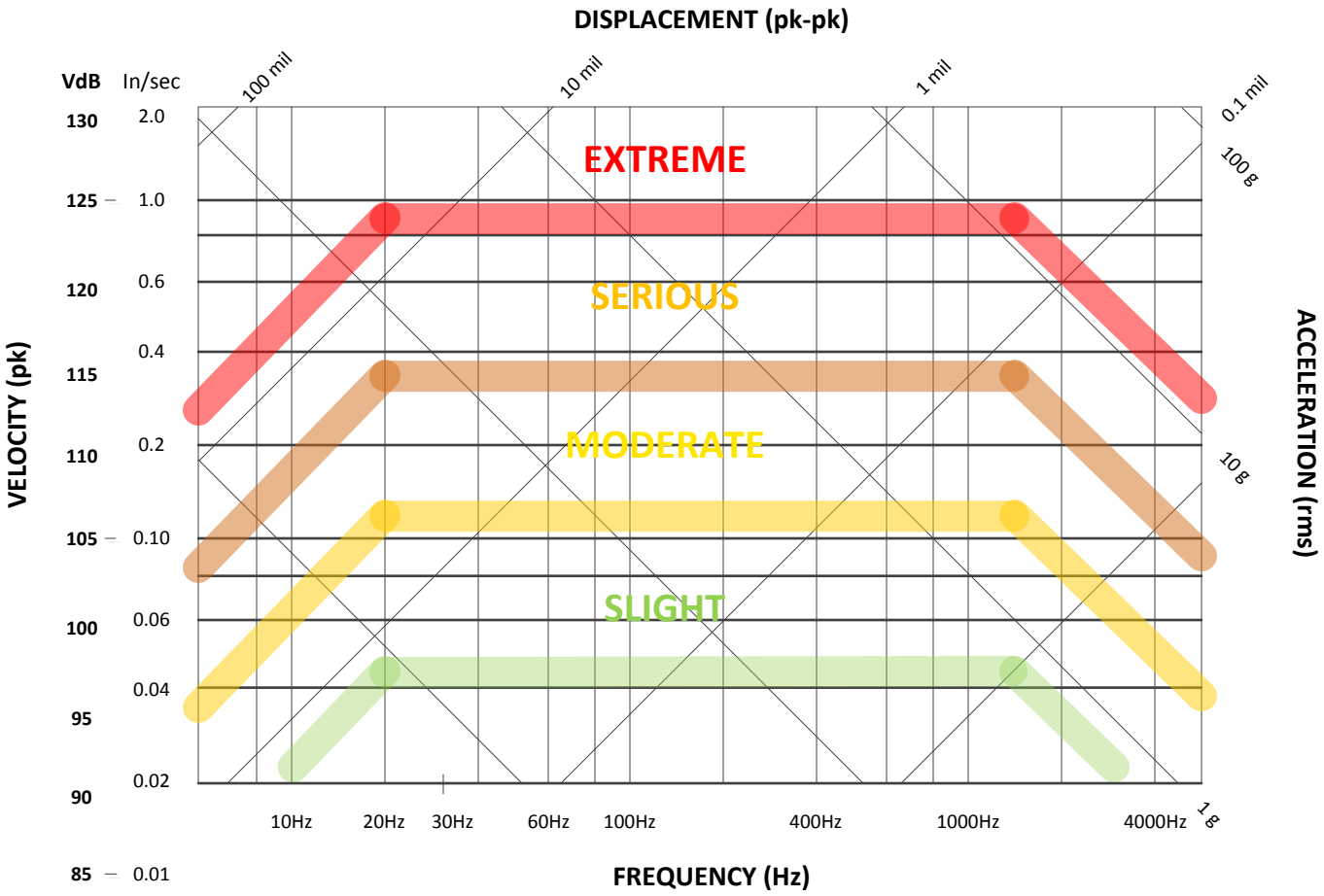
MACHINERY VIBRATION SEVERITY GUIDE

For rotational rate and harmonics or broadband vibration measurements



Amplitude Adjustments: Reciprocating machinery, increase limits by 8 dB
Bearing tones, reduce limits by 12 dB

STANDARD ENGLISH UNITS

D	Displacement	mils (pk-pk) (0.001in)
V	Velocity	in/sec (pk)
A	Acceleration	g (rms) (386in/sec^2)
f	Frequency	Hz (cycles /sec)

Velocity Decibels

Ref: 0 VdB = 10^{-8} m/s (rms)

Ref: 0 VdB = 5.568 x 10^{-7} in/sec (pk)

Acceleration Decibels

Ref: 0 AdB = 10^{-5} m/sec^2 (rms)

RELATIONSHIPS & CONVERSIONS

D (pk-pk)	= $10^{(VdB\ -75)\ /\ 20}$ / f
VdB	= 20 $\log_{10}$ (V x 10^7 / 5.568)
V (pk)	= $10^{(VdB\ -\ 125)\ /\ 20}$
AdB	= 20 log (A x 10^4 / 3.861)
A (rms)	= $10^{(AdB\ -\ 68)\ /\ 20}$

D	= 318 (V / f)	= 27600 (A / f^2)
V	= 86.9 (A / f)	= f D / 318
A	= f^2 D / 27600	= f V / 86.9

dB RATIO

dB	RATIO
1	1.12
2	1.26
3	1.41
4	1.58
5	1.78
6	1.99
8	2.50
10	3.16
15	5.63
20	10.00
40	100.00

ADD dB differences, MULTIPLY Ratios

HEADQUARTERS
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