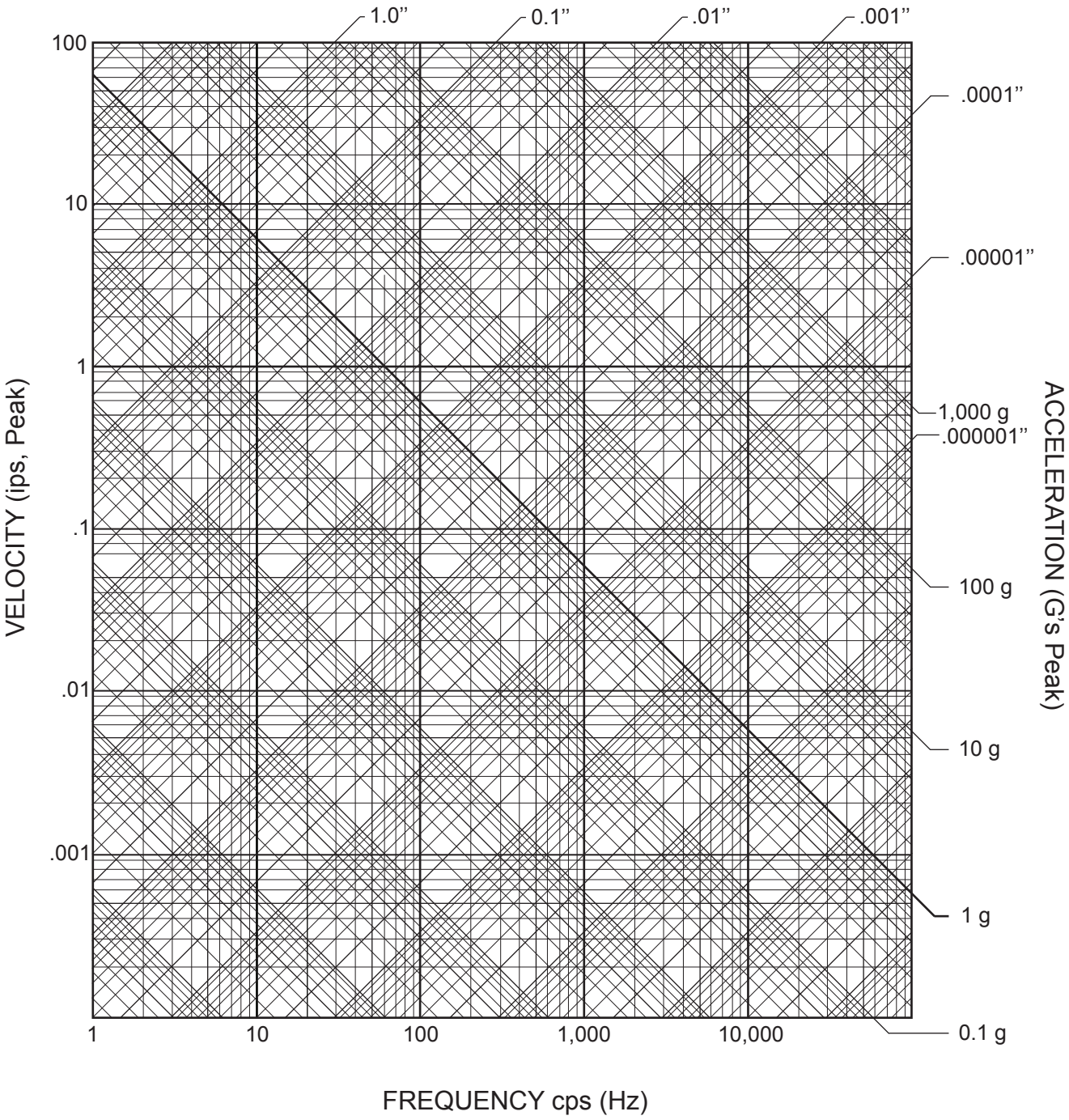
Vibration Nomograph



Technical Information

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USING THE VIBRATION NOMOGRAPH

The Nomograph

Four logarithmic scales compose the nomograph:

1. Frequency cps (Hz): Horizontal Scale
2. Velocity (ips, Peak): Vertical Scale
3. Acceleration (g's, Peak): Diagonal downward left to right
4. Displacement (inches, Peak-to-Peak): Diagonal upward left to right

A vibration of simple harmonic motion (a pure sinusoidal wave shape) exhibits these four values. With any two of these values being known, the remaining unknown values may be determined from the nomograph.

For example:

GIVEN:	1 g acceleration, 0.001" Peak-to-Peak displacement
TO FIND:	Frequency and velocity
ON NOMOGRAPH:	Find point of intersection of peak acceleration 1 g line (diagonal downward left to right) with Peak-to-Peak displacement 0.001" line (diagonal downward left to right). Read frequency 150 cps (vertical scale) and peak velocity 0.45 ips (horizontal scale).

Conversion Factors

Values on the nomograph are Peak to Peak values for displacement and Peak values for acceleration and velocity. Whenever Average, RMS, or Peak values are required, the following conversion factors must be applied.

		Multiply Numerical Value of:			
		Multiply By			
		Average	RMS	Peak	Peak-to-Peak
To Obtain	Average	1.000	0.900	0.636	0.318
	RMS	1.111	1.000	0.707	0.354
	Peak	1.571	1.414	1.000	0.500
	Peak-to-Peak	3.142	2.828	2.000	1.000

RPM vs Hz

To convert RPM to Hz, divide RPM value by 60.
Example: 3600 RPM / 60 = 60 Hz

To convert Hz to RPM, multiply Hz by 60
Example: 60 Hz x 60 = 3600 RPM