

## 8.6 Vibration Nomographs

### Vibration Nomograph equations

**For British** [V in inches/sec], [d in inches]

$$V = 386g / 2\pi f$$

$$d = 386g / (2\pi f)^2$$

where 386 = earth's gravitational pull [in/sec<sup>2</sup>]

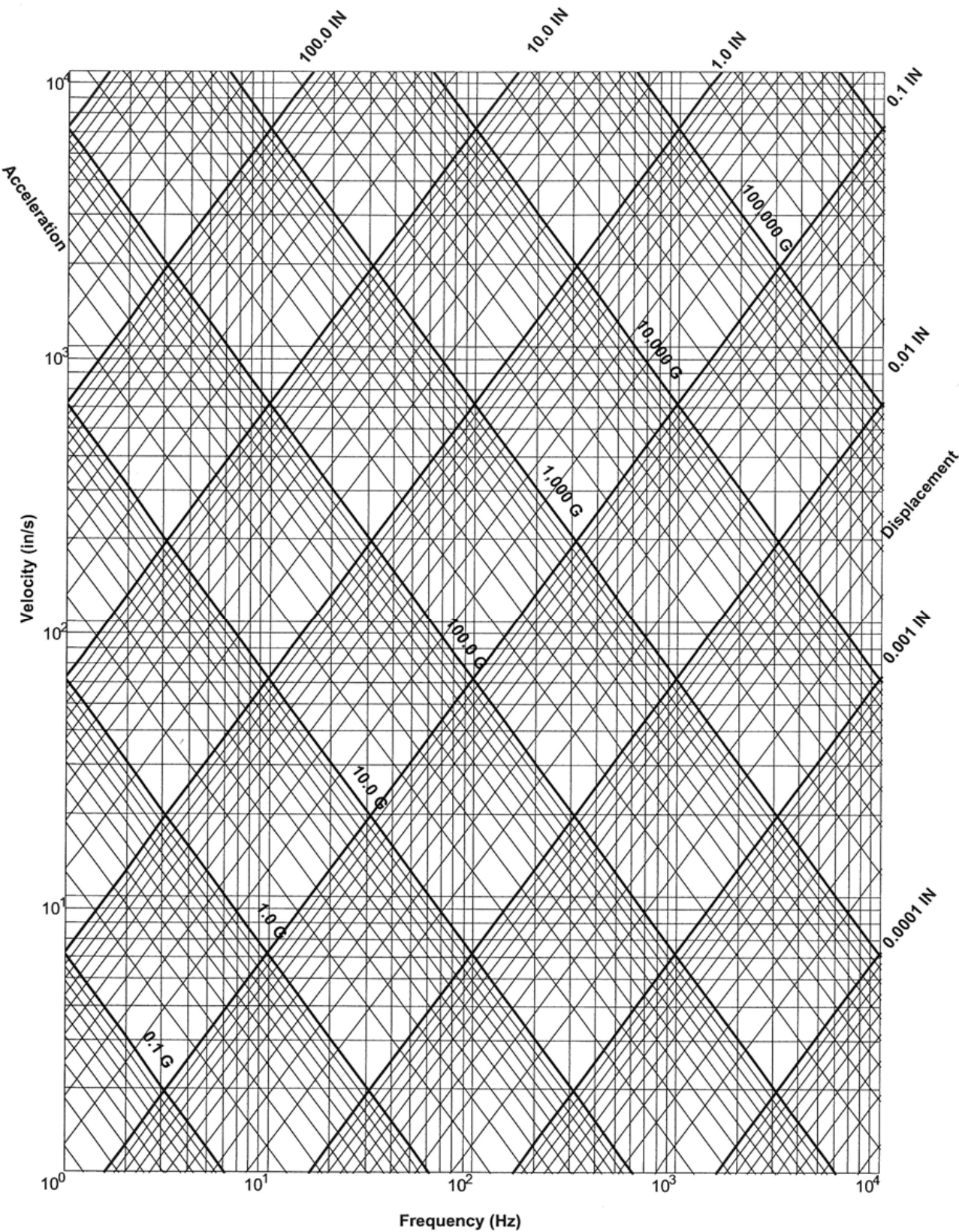
**For metric** [V in mm/sec] , [d in mm]

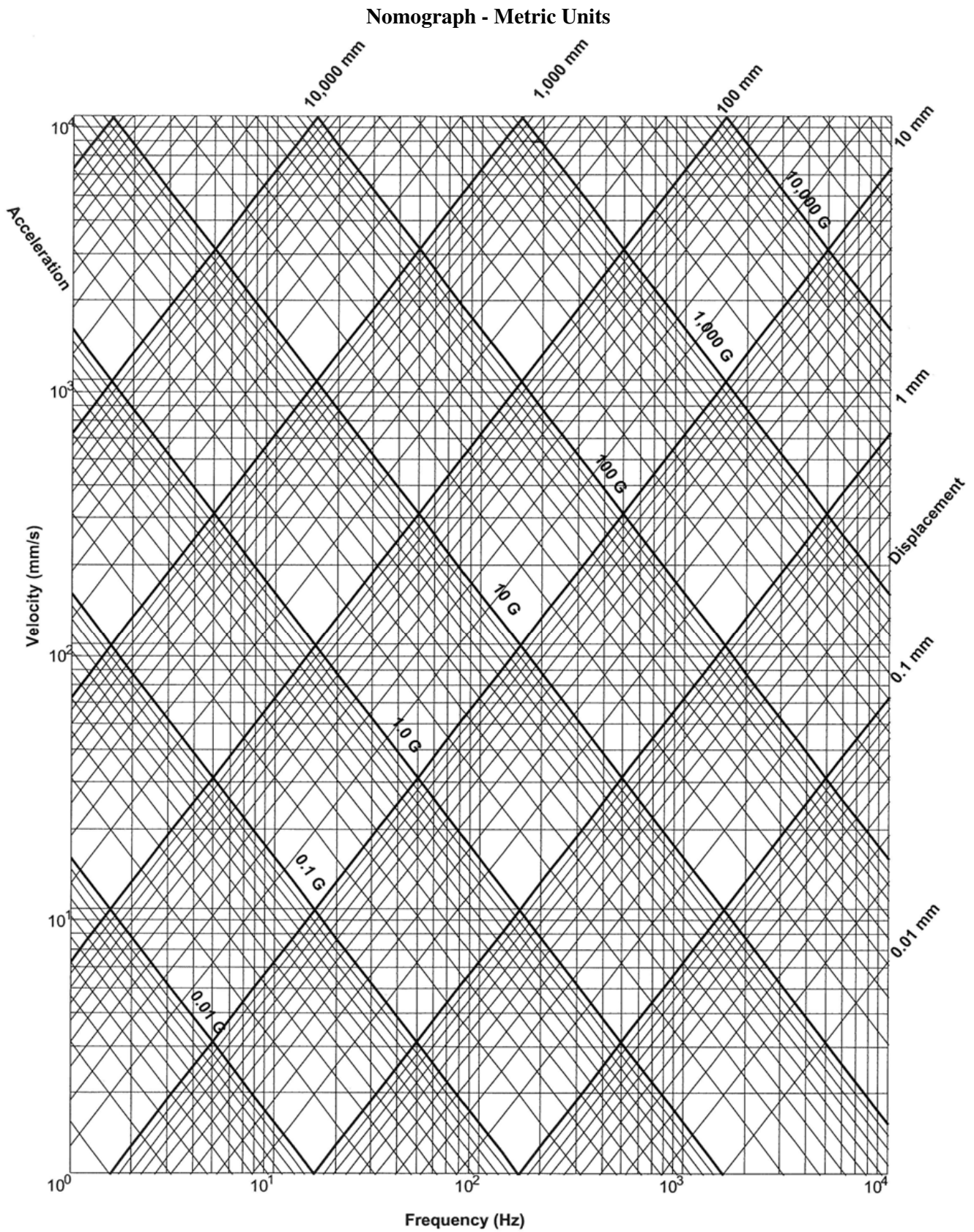
$$V = 9800g / 2\pi f$$

$$d = 9800g / (2\pi f)^2$$

where 9800 = earth's gravitational pull [mm/sec<sup>2</sup>]

Nomograph - British Units





## 8.7 References

- 8.7.1 Lawless, Alan R., *Math and Physics for Flight Testers*, “Chapter 9, Motion Analysis,” National Test Pilot School, Mojave CA, 1999.
- 8.7.2 Ward, Don, *Introduction to Flight Testing*, Texas A&M, Elsevier, 1993.
- 8.7.3 Lang, George F., *Understanding Vibration Measurements*, Application Note 9, Rockland Scientific Corporation, Rockleigh, New Jersey, December 1978.
- 8.7.4 *The Fundamentals of Modal Testing*, Application Note 243-3, Hewlett-Packard Company,

## Additional Reading

Hartog, J.P. Den, *Mechanical Vibrations*, Dover Publications, New York, New York, 1984.

Jacobsen, Ludik S. and Ayre, Robert S., *Engineering Vibrations*, McGraw-Hill Book Company, New York, New York, 1958.

Meirovitch, Leonard, *Elements of Vibration Analysis*, McGraw-Hill Book Company, New York, New York, 1986.

Meirovitch, Leonard, *Analytical Methods in Vibrations*, Macmillan Publishing Company, New York, New York, 1967.

Myklestad, N.O., *Vibration Analysis*, McGraw-Hill Book Company, New York, New York, 1944.