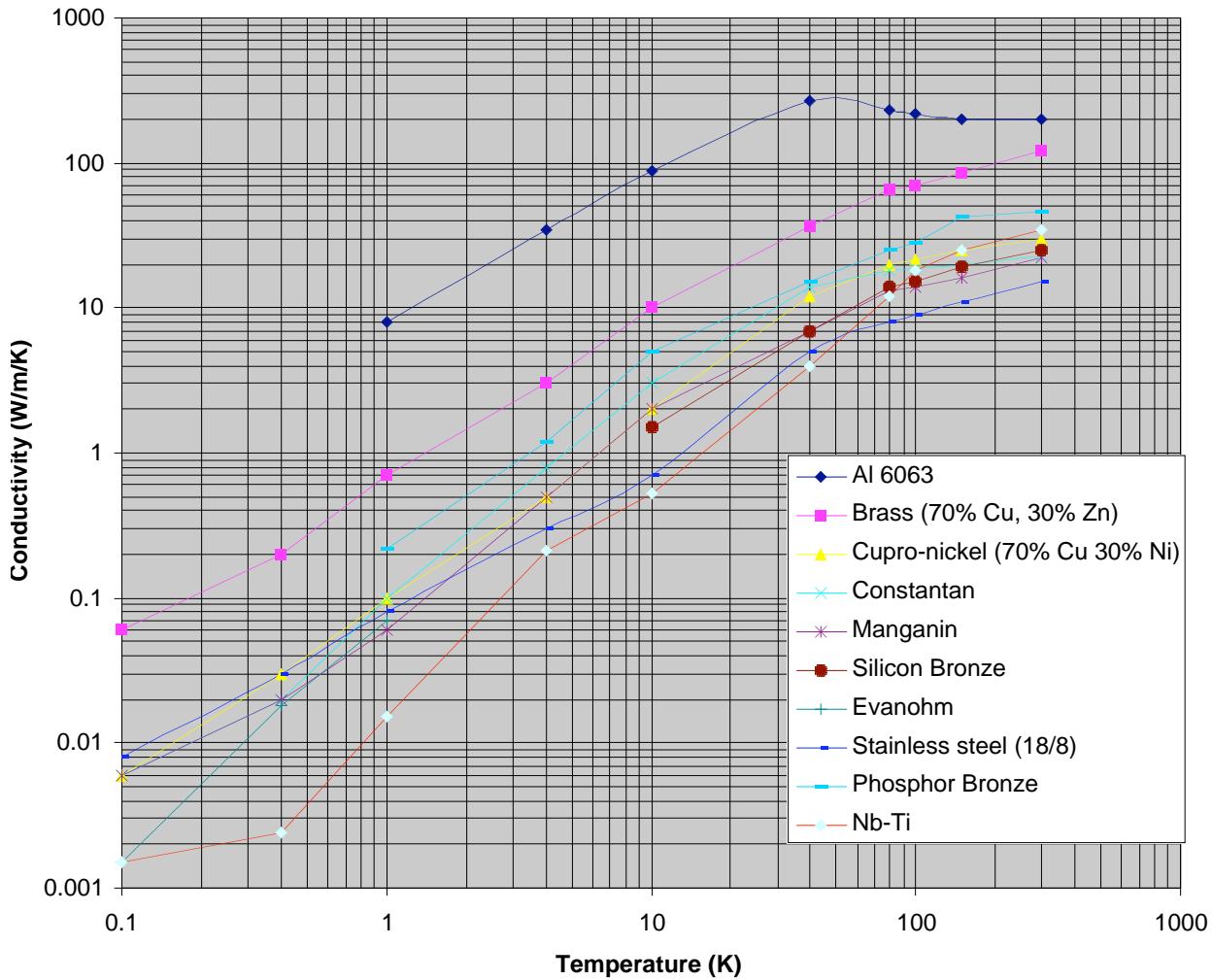


Thermal Conductivity



Integrating the thermal conductivity from 0K allows heat leaks to be calculated as follows

$$Q = \int_0^L \frac{dT}{dx} dx = \int_0^L \frac{dQ}{dx} dx$$

(See R. L. Garwin Rev. Sci. Instrument. 27 (1956) 826) where the geometric factor is the integral of in the inverse of the cross-sectional area as a function of the distance from one end of the wire to the other.

$$G = \int_0^L \frac{dx}{A(x)}$$

$$Q = \int_0^L \frac{dT}{dx} dx = \int_0^L \frac{dQ}{dx} dx$$

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For a constant cross-section wire we simply have $G = \frac{L}{A}$. The thermal potential ΔT is given by:

$$Q = \int_0^L \frac{dT}{dx} dx = \int_0^L \frac{dQ}{dx} dx$$