Design and Construction of a Vibrating Sample magnetometer for B-H Curve Measurement

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Abstract
This work is confined to the design and construction of a vibrating sample magnetometer (VSM) for B-H curve measurements. Such device is known to be suitable for acquiring the magnetic properties of steel laminations to which special interest is directed in power engineering applications. The principle of operation of a VSM requires oscillating the tested sample while being exposed to a fixed or varying magnetic field. A sense coil positioned in proximity to this sample picks up sample magnetization. The presented work covers a review of the published literature related to the device under consideration. It also includes a detailed proposal for VSM design approach that includes, mechanical construction, field and pick-up coils configuration as well as electronic drive and amplification circuitry. Testing of the device is, finally, reported.

Keywords
VSM, Magnetization, Magnetic field, 