

BASIC ELECTRICAL ENGINEERING

Course Code: EE100



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Module 3: BH curve



BH Curve OR Hysteresis Loop

Definition: Hysteresis refers to the lagging of the magnetization of a ferromagnetic material like iron. In other words when a ferromagnetic material is magnetized in one direction, it will not relax back to zero magnetization even when the imposed magnetizing field is removed hence it has to be driven back to zero, a field in the opposite direction needs to be applied.

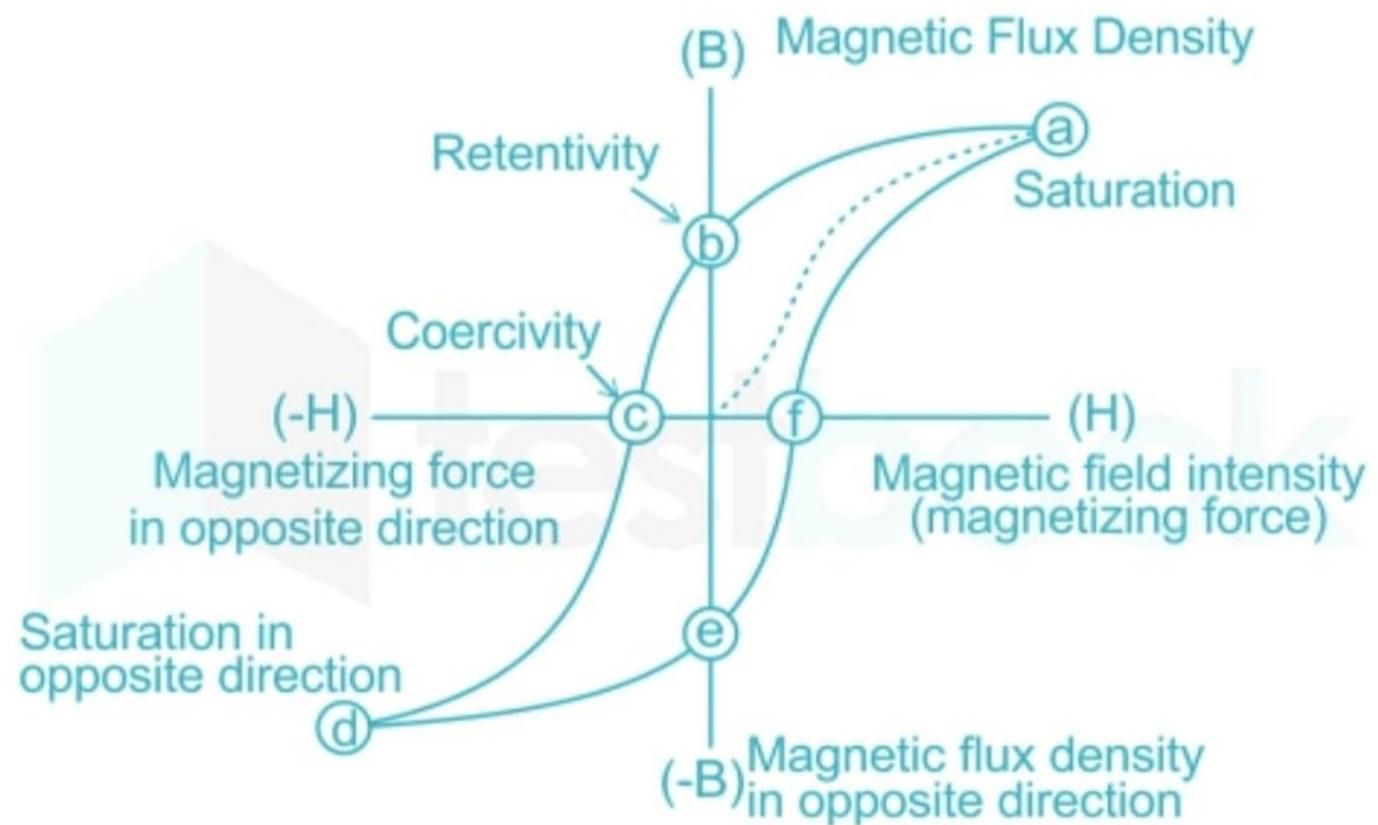
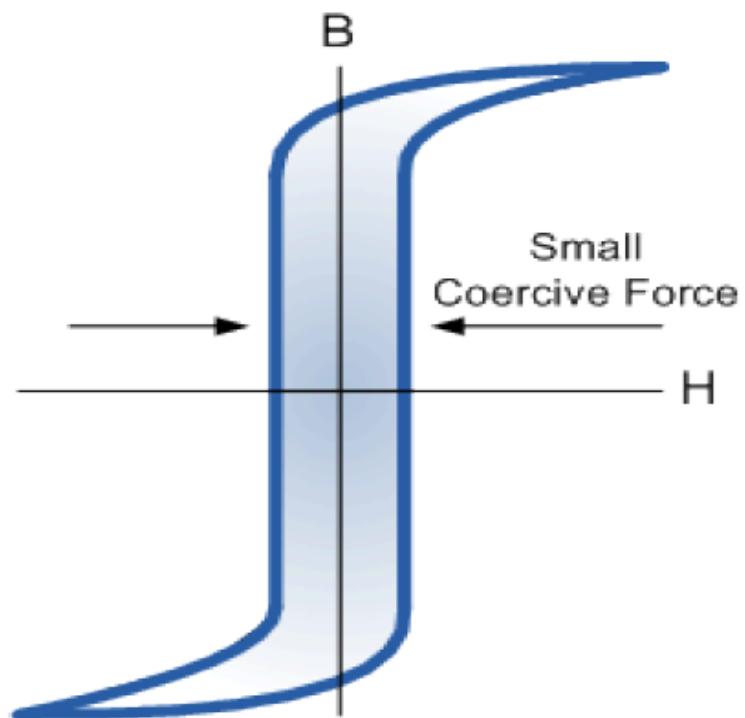
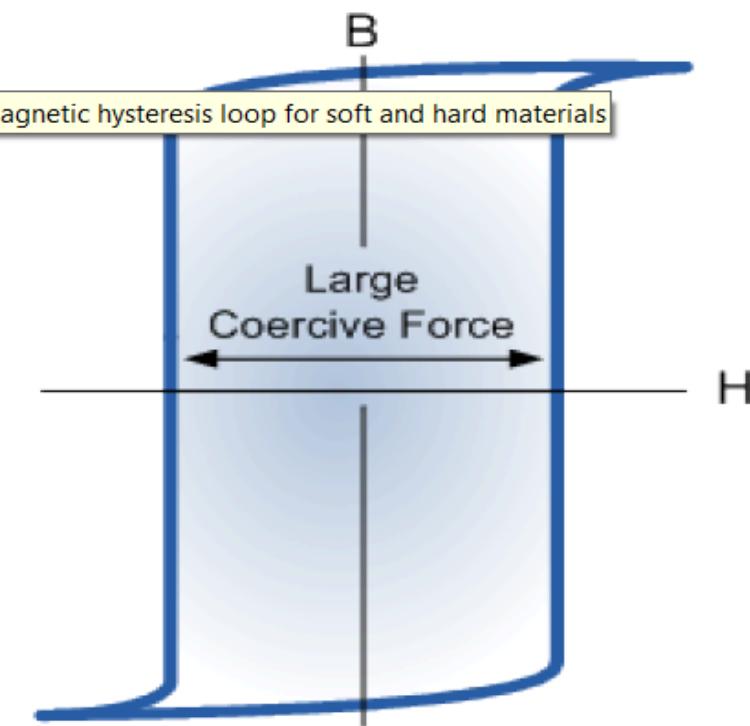


Fig- BH Curve or Hysteresis Loop

BH Curve OR Hysteresis Loop



SOFT : these ferromagnetic materials have small area as energy loss over B-H Curve is small



HARD: these ferromagnetic materials have slarge area as energy loss over B-H Curve is large. These form good magnets.

The amount of work needed to be done in order to align the dipoles of the material parallel to the applied magnetic field is lost in form of heat

If an alternating magnetic field is applied to the material, its magnetization will trace out a loop called a hysteresis loop or B-H Curve. The study is well supported by the "WEISS DOMAIN" theory.

2. Due to alignment of all Domains along H

3. When applied field is zero. The ferromagnetic material retains magnetization(residual Flux). As many domains retain alignment in direction of H

4. H in reverse direction reqd. to reduce the to make flux density to zero

1. Non linear curve when magnetized from Zero

