क्यों पोल कोर स्टांपिंग डीसी जनरेटर में पटलित करते हैं?

- ○ घर्षण हानि को कम करें
- ○ विंडेज लॉस को कम करें
- ○ हिस्टैरिसीस हानि को कम करें
- ○ भंवर धारा हानि को कम करें (eddy current)

Why stamping are laminated DC Generator

Eddy Currents (भवर धारा)

Faraday's law Induction

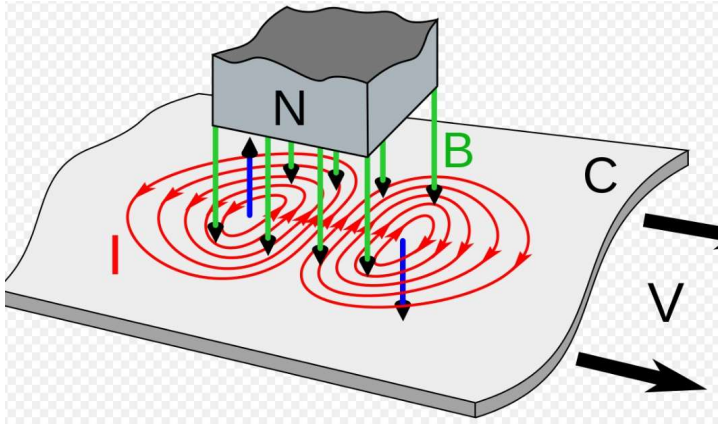
$E = -N d\phi/dt$

Coil ← Varying Magnetic field

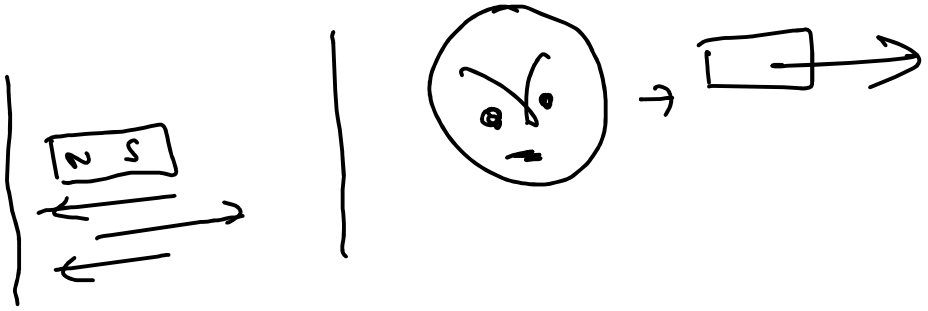
कुंडली ← Induced current

प्रेरण धारा

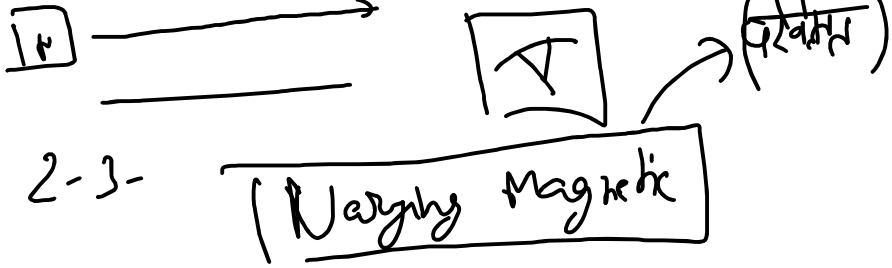
Varying → बदलते



(बजली खेलाने) Magnet → Coil



- दिशा → (X)



2-3- Varying Magnetic

→ Induced current

↳ loop current

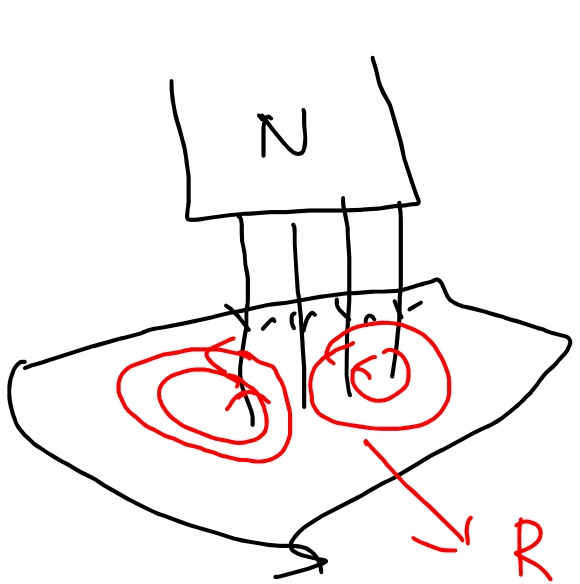
↓

(eddy current)

↙ ↘

Disadvantage

Advantage



Copper → I^2R

⇒ heat loss

⇒ core → Iron → energy loss

$W = \eta_e B^2 t^2 f^2$ → frequency

→ मोटाई (thickness)

→ Magnetic field

→ Coefficient

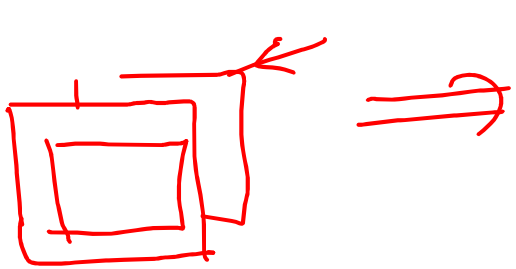
उपयोगी loss (हानि)

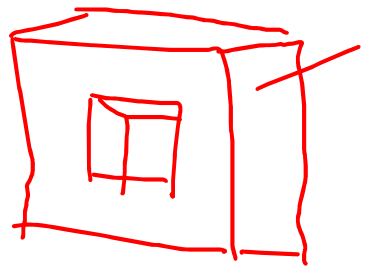
frequency ↑ → we ↑, t^2 → we ↑, B → we ↑

(वर्ग के समानुपाती) → Square proportion

Stamping + laminated

lamination → पत्रक

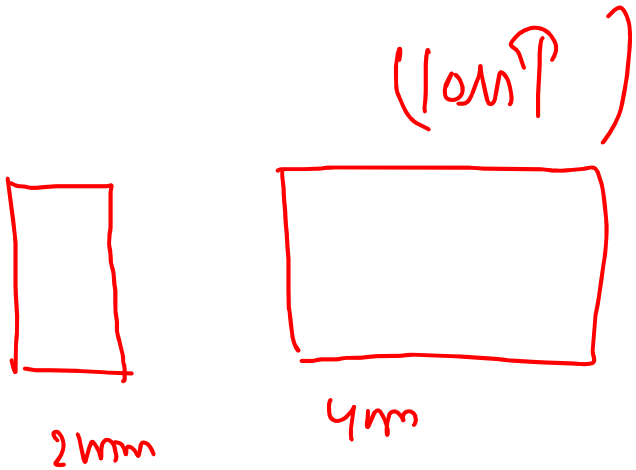




Solid

$We \propto t^2$ (मोटाई)

$We \propto 2^2$



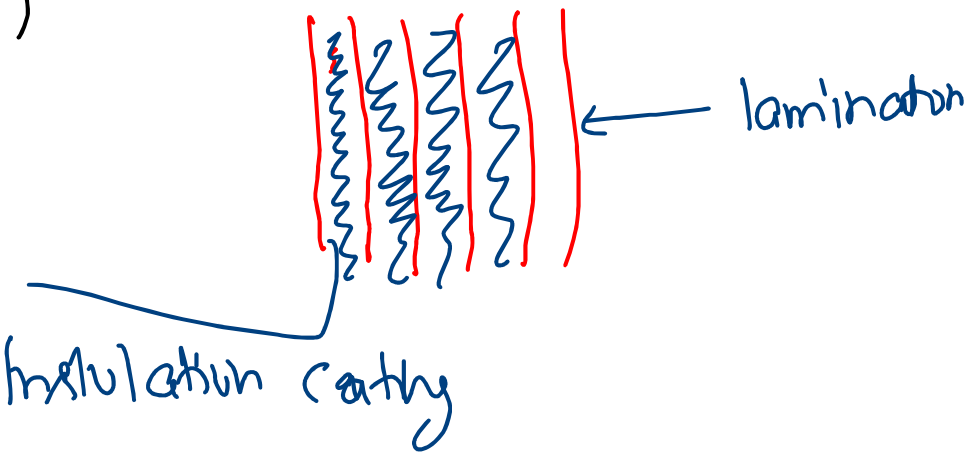
Dc Motor → 0.1mm → 0.5mm

(lamination पतला)

$We \propto 4^2$

↑ (मोटाई) — कम

↓ We → कम ↓

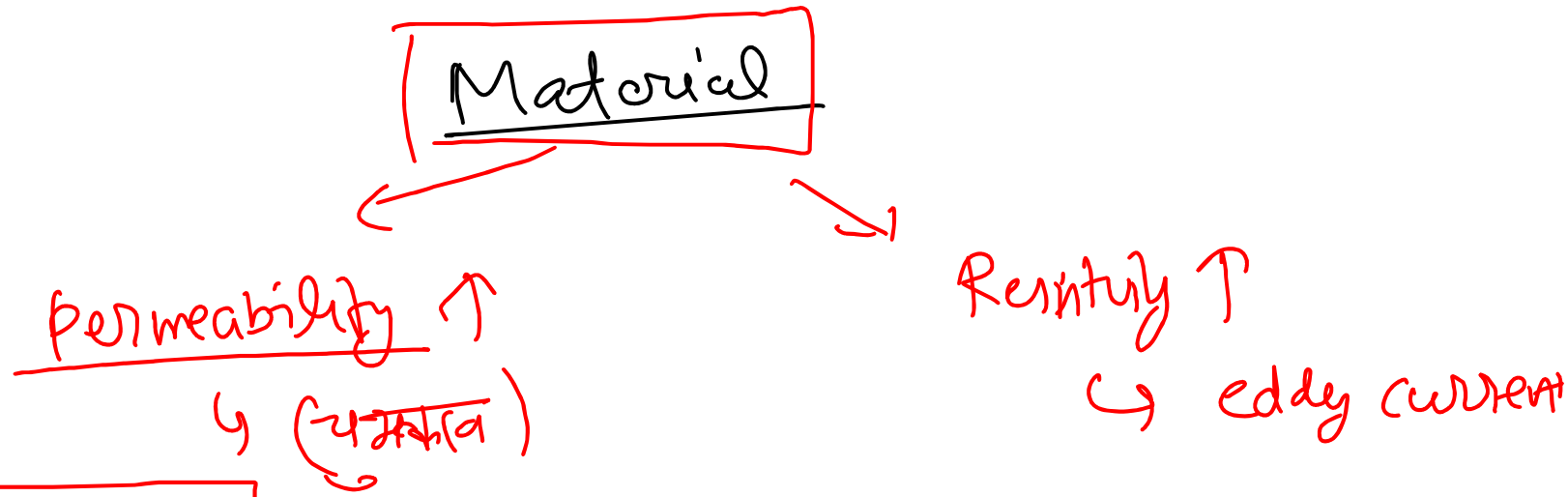


~~मटेरियल~~ (Material) → resistivity ↑

$V = IR \Rightarrow I = V/R \uparrow \Rightarrow I \downarrow$

loop current ↓ → IOM

(Special Material)



Permalloy -alloy of iron and nickel -magnetized by a very weak magnetic field and is useful for telephones.

N - Cu — Cr - Fe

Mumetal - alloy of nickel, copper, chromium and iro- instrument transformers and for screening magnetic fields.

Advantage

(eddy current)

Heating

↓

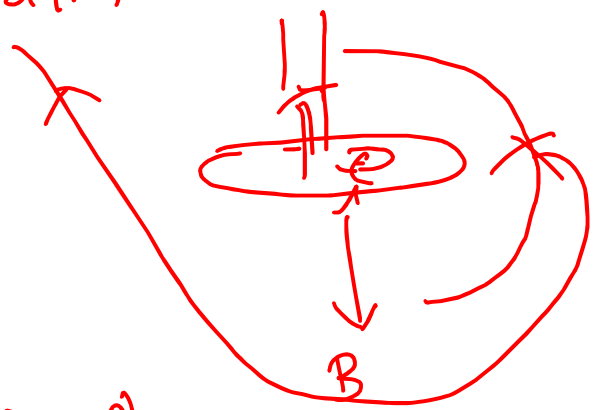
Induction current

heating

Induction heating

(eddy current)

→ Forces ($\vec{F}_m$)



eddy current

Braking

↳ eddy current damping

↳ energymeters Al ← eddy current