# SNS COLLEGE OF TECHNOLOGY

**(An Autonomous Institution)**

**COIMBATORE-35**

**Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade**

**Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai**

## 19EET101 / BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

## I YEAR / I SEMESTER

## UNIT-I: ELECTRICAL CIRCUITS AND MEASUREMENTS

# WATTMETER, ENERGYMETER

# TOPIC OUTLINE


- Electro dynamic Wattmeter
- Induction type Energy meter
- Evaluation

# ELECTRO-DYNAMIC WATTMETER

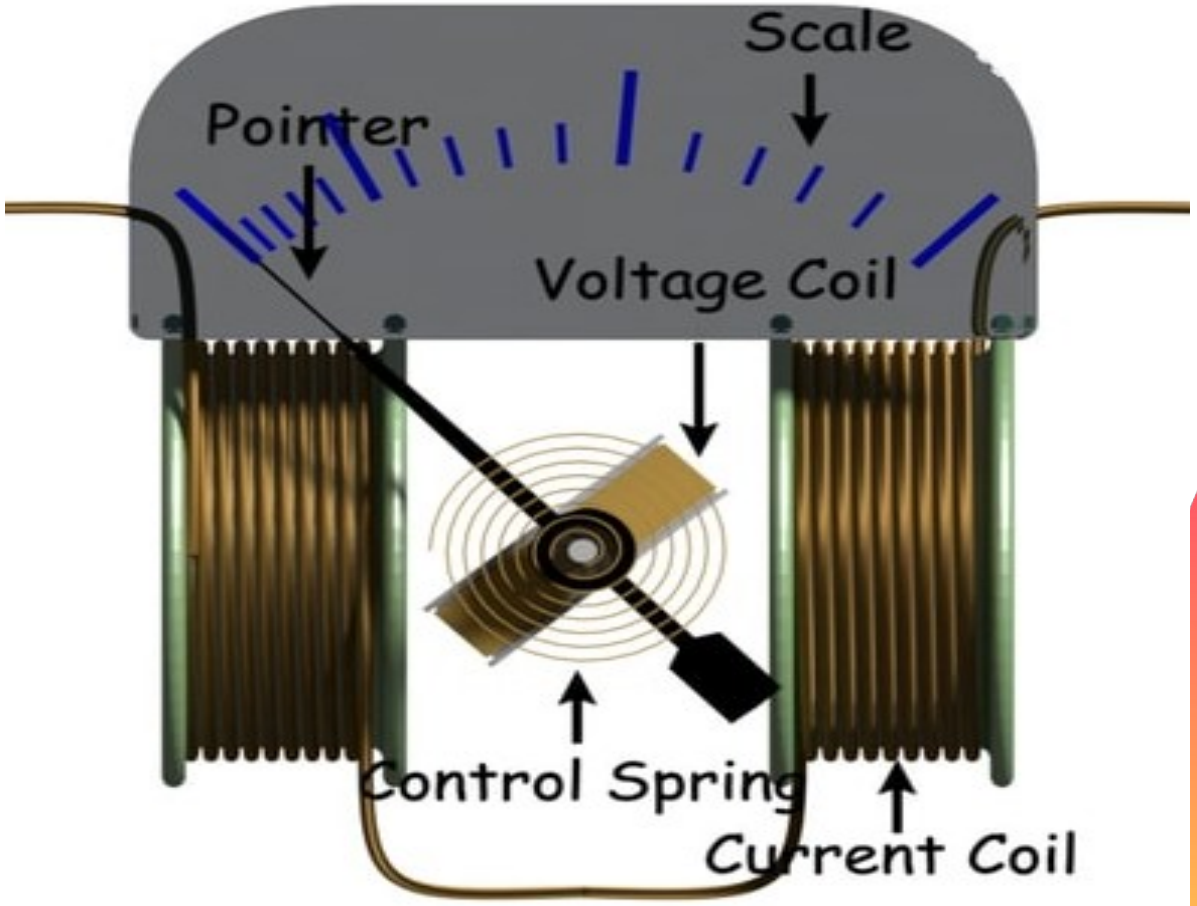
- **Principle** depends upon the electromagnetic force exerted between fixed and moving coils carrying current.
- Two coils - **fixed coil (PC)** and **moving coil (CC)** carried by spindle.
- Controlling torque is provided by two spiral springs mounted on the spindle

# ELECTRO-DYNAMIC WATTMETER

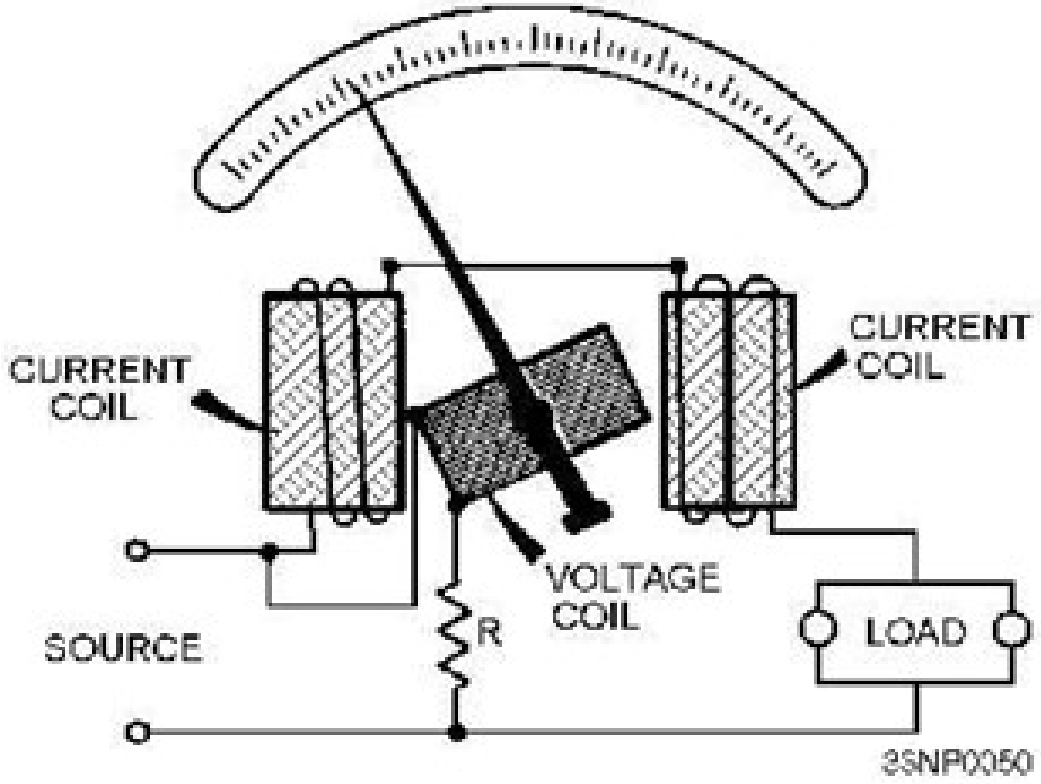
**Operation:**

- The deflecting torque is proportional to the product of the current in the current coil and voltage across pressure coil.
- Deflecting torque is proportional to power.
- The scale of this instrument is uniform.
- It is used for AC and DC power measurement

# ELECTRO-DYNAMIC WATTMETER



# ELECTRO-DYNAMIC WATTMETER

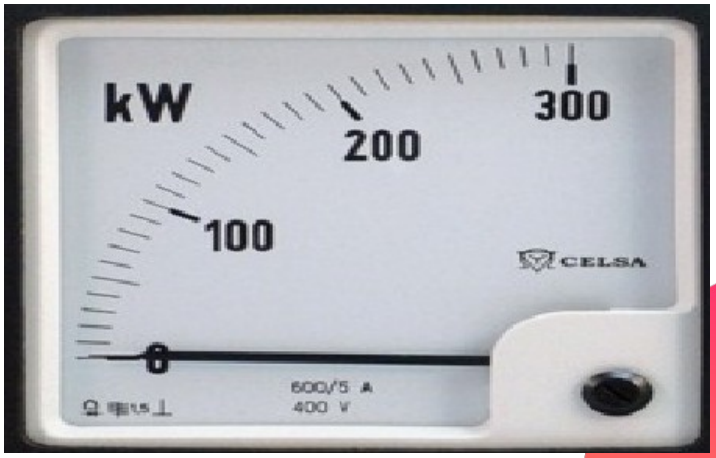



**ELECTRODYNAMIC WATTMETER**

# ELECTRO-DYNAMIC WATTMETER

**Advantages:**

- Used for AC and DC.
- Easy in construction.
- Uniform scale.
- Light weight.
- Consume less power.



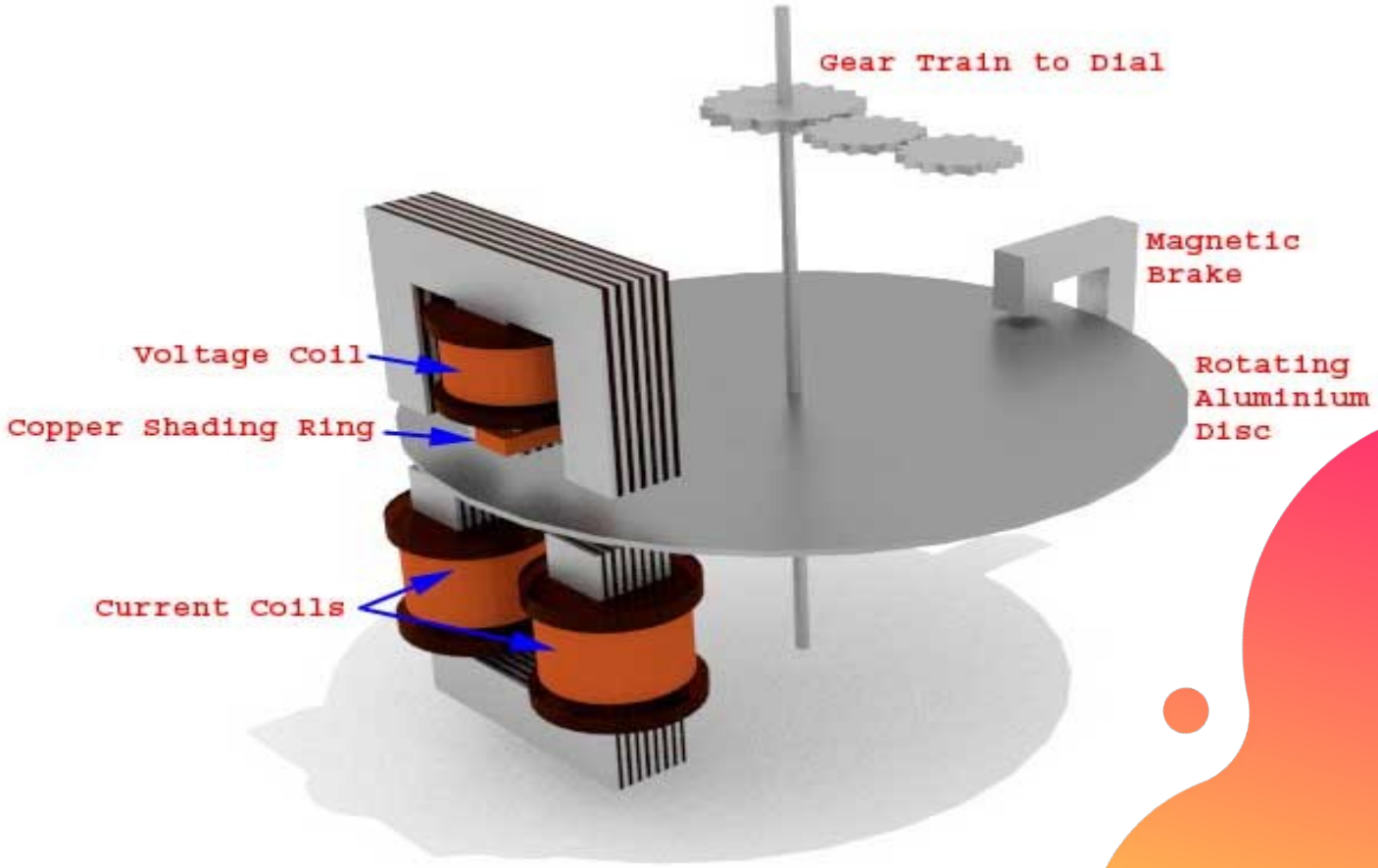

**Disadvantages:**

- High cost.
- Large errors occurs at low power factor.

# ENERGY METER

- **It is Recording Instrument**
- Used to measure the Electrical Energy consumed
- It is the first component fixed in the **ELECTRICITY CONSUMER POINT**
- Induction type energy meter is discussed here.
- Also called **KWH** meter


# ENERGY METER

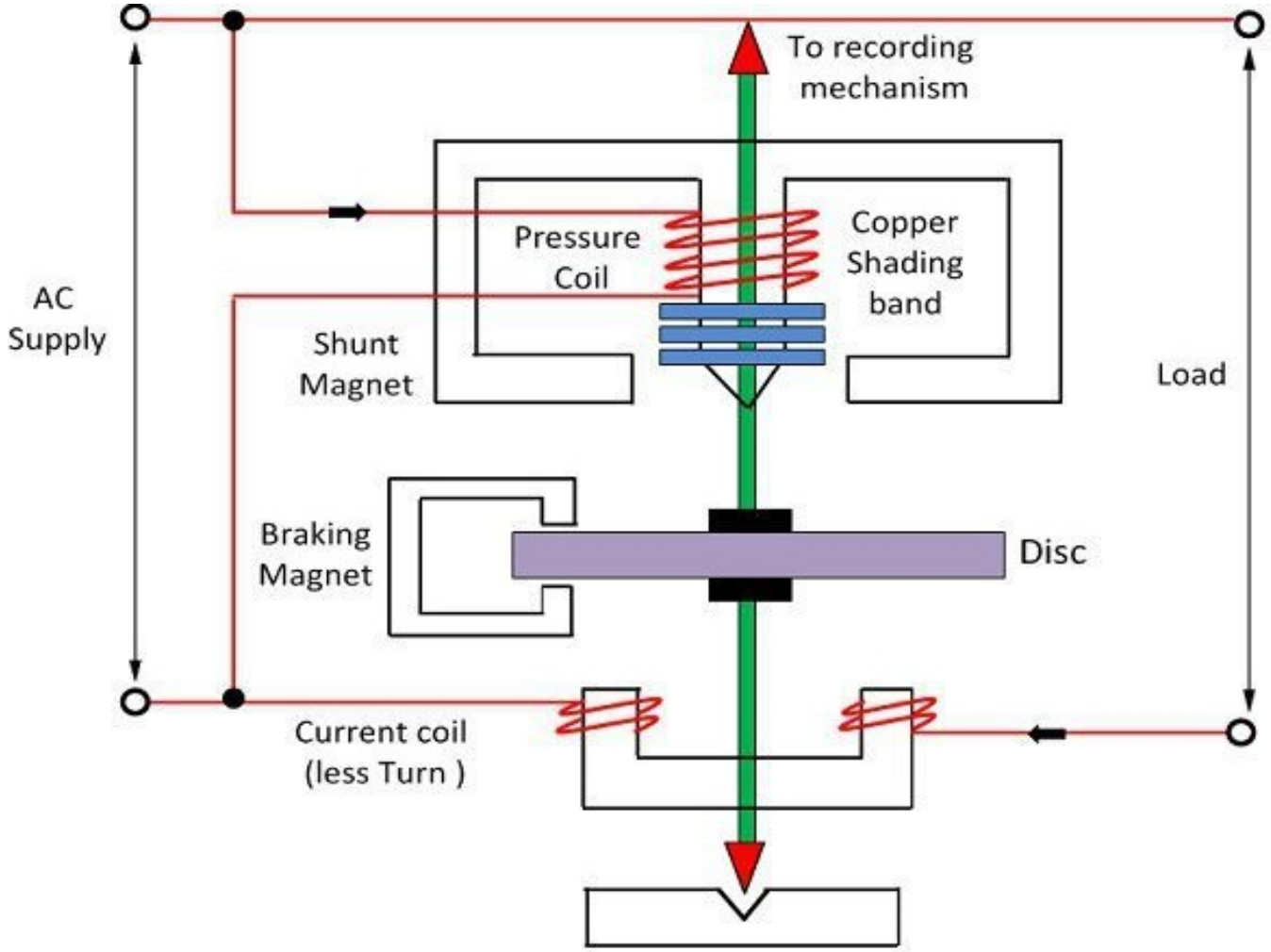


# ENERGY METER

**Construction:**

- The two coils - current coil (CC) and voltage or pressure coil (PC)
- Rotating disc acts as a time counting device.
- The disc is kept free to rotate continuously.
- Speed of the disc depends on the power supplied to the load.
- More the load, higher is the disc speed.
- A gear train is provided to count the revolution of the disc.
- Number of revolution of the disc are directly recorded in terms of the energy consumed. (Recording instrument)

# ENERGY METER



# RECAP….


# …THANK YOU