

UNIT-6

UTILIZATION OF ELECTRICAL ENERGY

Chapter 10 , 11,

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What is meant by Electrical Drives?

- Systems employed for motion control are called as Drives.
- It may employ any of the prime movers (Diesel engines, steam turbines and electric motors) for supplying mechanical energy for motion control.
- Drives employing electric motors are called as Electrical Drives.

In other words,

A Drive is a combination of various systems combined together for the purpose of motion control.

FACTORS TO BE CONSIDERED WHILE SELECTING A MOTOR FOR A DRIVE

- **ELECTRICAL ASPECTS :-**

1. *Starting Characteristics*
2. *Nature Of Supply*
3. *Running Char*
4. *Electric Breaking*
5. *Power Factor*
6. *Efficiency*

- **MECHANICAL ASPECTS**

1. *Type Of Enclosure*
2. *Type Of Bearing*
3. *Noise Level*
4. *Type Of Coupling Used*

- **ECONOMICAL ASPECTS**

1. *Capital Cost*
2. *Running Charges*
3. *Maintenance Charges*

CLASSIFICATION OF ELECTRICAL DRIVES:

[1] Group drive :-

One motor is used to drive many machines.

[2] Individual Drive :-

each machine has its individual driving motor

[3] Multi motor drive :-

separate motor used for different parts of driving mechanism

ENCLOSURES

Drip Proof



Allows air to circulate through the windings for cooling, but prevent drops of liquid from falling into motor .Typically used for *indoor applications in relatively clean, dry locations*.

Totally Enclosed



- This type of enclosure does not allow any foreign particles to enter into the motor and block the passage of ventilation.
- used in dusty atmosphere such as coal handling plants, stone crushing sites etc.
- for internal circulation of air, fan is generally built in.

Flame proof enclosure



The explosion proof motor is a *totally enclosed machine* and is designed *to withstand an explosion of specified gas or vapor inside the motor casing* and prevent the ignition outside the motor by sparks, flashing or explosion.