DISTRIBUTION BOARD

Distribution boards are used for the supply and control of electric installations.

More analytically they are used for:

- In order to separate the installation in various circuits in proportion of the install load.
- For better protection of circuits
- For maintenance purpose, so the rest of the circuits are not influenced .
- Each circuit can be individually isolated if a fault arises.

- The supply from the distribution network of Electricity Authority is terminated in the meter cabinet.
- The following components are found in the cabinet:

  Meter Kwh

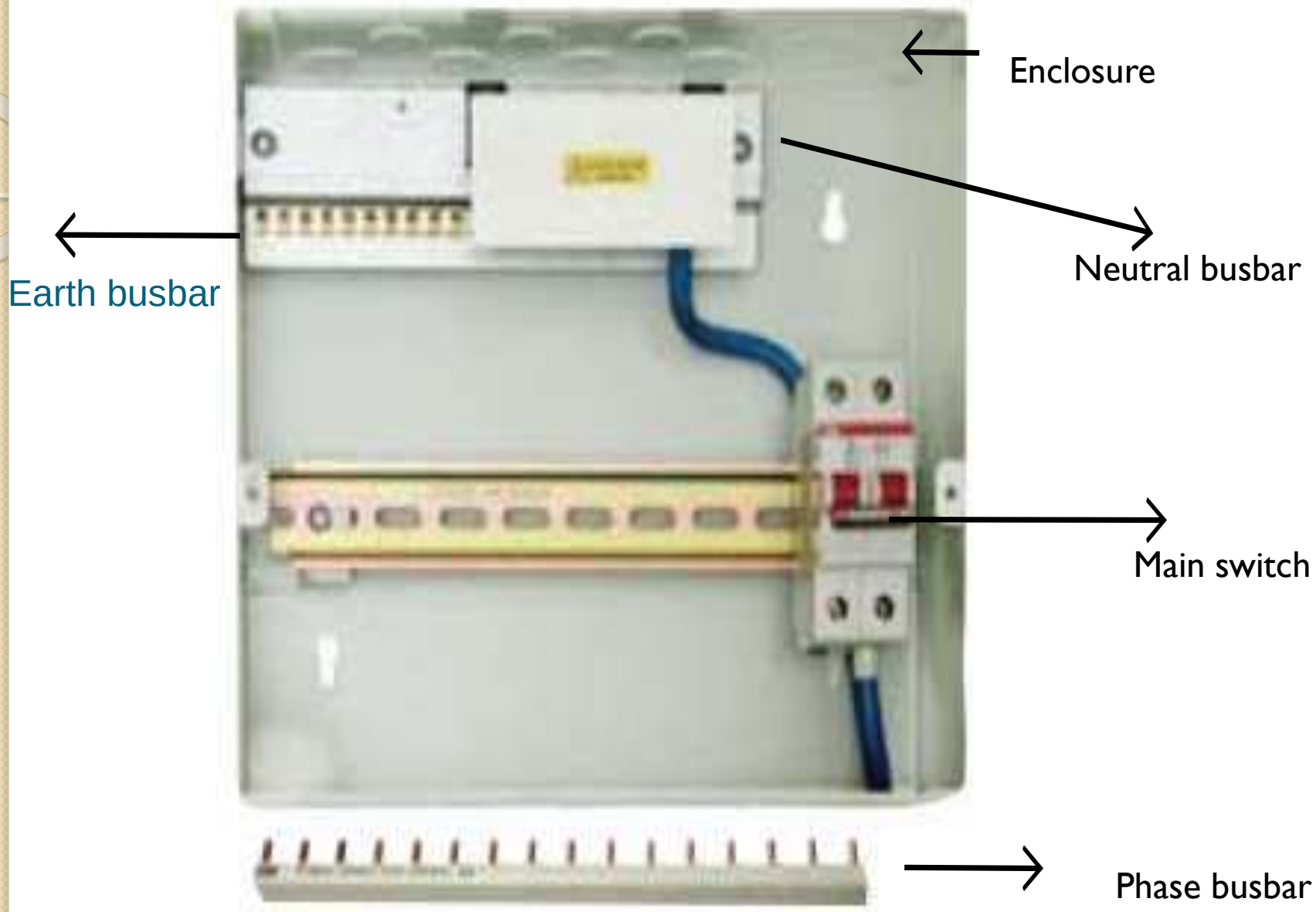
  Miniature circuit breaker + Residual current device (MCB/RCD)
- The supply of the distribution board is done directly from the MCB/RCD configuration in the meter cabinet

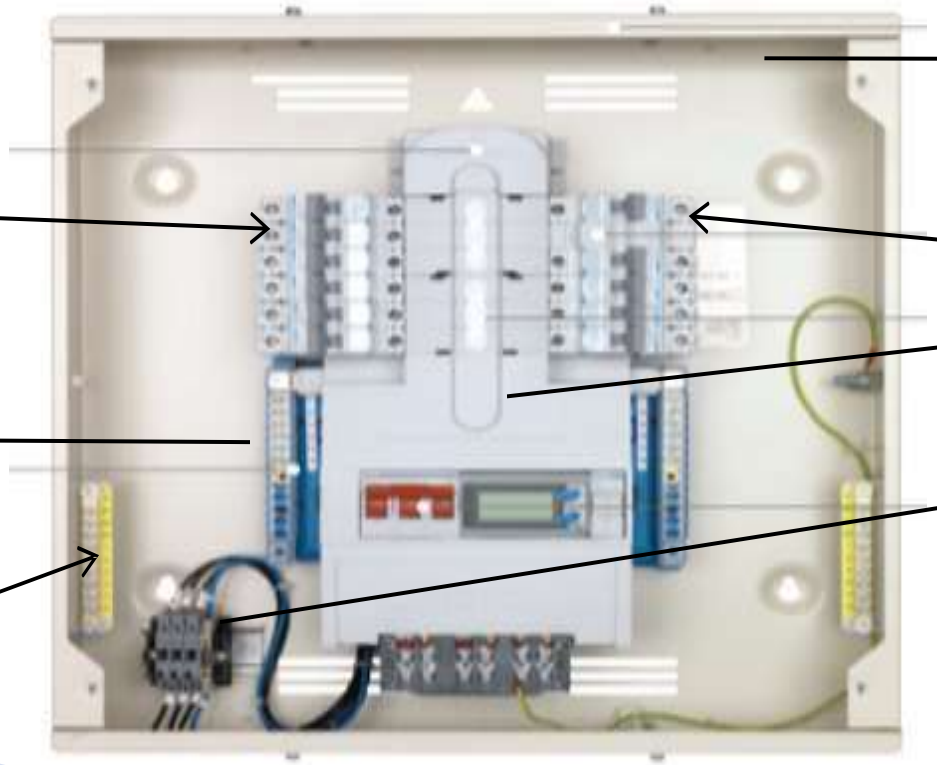
DISTRIBUTION BOARDS CATEGORIES

- Material of manufacture
  - Plastic
  - Metal
- From the number of phases
  - one phase
  - three phases
- From installation way
  - Surface mounded (for surface installations)
  - Wall mounted

DISTRIBUTION BOARDS INCLUDE

- Enclosure (Box)
- Main switch
- Miniature circuit breakers(MCB`s) or Fuses
- Residual current devises(RCD), according to the regulations
- ELCB
- isolater
- Neutral bus bar
- Earth bus bar
- Phase bus bar


Enclosure
Earth busbar
Neutral busbar
Main switch
Phase busbar


Covering box
MCB
RCD
Phase busbar
Neutral busbar
Main switch
Earth busbar

USE OF EACH COMPONENT OR PART OF DISTRIBUTION BOARD

- **Main switch**
  - Double pole for one phase installations
  - Three or four pole for three phase installations
- Is placed at the beginning of the installation and is activated only manually, is used for isolating the installation from the supply. Its switching off simultaneously phase and neutral.

Circuit breaker

Miniature Circuit breakers (MCB)

- They are placed at the start of each circuit and its sole purpose is the protection of the circuit from potential short-circuit or overloading. It is automatically activated.
- The rating of MCB is chosen according to the installed load
  - Nominal rating
  - Type (B,C,D,)
  - Short circuit current
- (e.g. 6kA)

Type B Curve

- Type B devices are generally suitable for **domestic applications**. They may also be used in light commercial applications where switching surges are low or non-existent.
- They are designed to trip at fault currents of 3-5 times rated current. For example, a 10A device will trip at 30-50A.

Type C Curve

- Type C devices are the normal choice for **commercial and industrial applications** where fluorescent lighting, motors etc. are in use.
- These devices are designed to trip at 5-10 times rated current (50-100A for a 10A device).

Type D Curve

- The Type D devices have more limited applications, normally in **industrial use where high inrush currents** may be expected.
- Examples include large battery charging systems, winding motors, transformers, X-ray machines and some types of discharge lighting.
- Type D devices are designed to trip at 10-20 times (100-200A for a 10A device).

MCCB-Molded Case Circuit Breaker

- This circuit Breaker is an electromechanical device which guards a circuit from short circuit and over current.
- They offer short circuit and over current protection for circuits ranges from 63 Amps-3000 Amps.
- The primary functions of MCCB is to give a means to manually open a circuit, automatically open a circuit under short circuit or overload conditions. In an electrical circuit, the over current may result faulty design

- The characteristics of an MCCB mainly include the following
- The range of rated current us up to 1000 amperes
- Trip current may be adjusted
- Thermal/thermal magnetic operation

Residual current devices (RCD)

- A residual-current device (RCD), or residual-current circuit breaker (RCCB), is a device that quickly breaks an electrical circuit to prevent serious harm from an ongoing electric shock.Injury may still occur in some cases, for example if a human falls after receiving a shock, or if the person touches both conductors at the same time

Automatic leakage and overload breaker (RCBO)

- This is a protective device which combines two functions. It acts as a **residual current device** and **a circuit breaker**.
- A circuit breaker breaks the circuit if the current demand gets too high.
- The residual current device functions in the same way as described above.
  Residual current devices protect people.
- So residual circuit breakers with overcurrent **protection protect people, equipment and building.**

(Earth Leakage Circuit Breaker (ELCB)

- An**Earth Leakage** Circuit Breaker (ELCB) is a device used to directly detect currents leaking to earth from an installation and cut the power and mainly used in TT earthing systems

INSTALLATION ORDER

- Main switch
- MCB's that supply other distribution boards (Floor distribution board, boiler room ect).
- First are placed the higher rating MCB's ending with the lower rating MCB's

DISTRIBUTION BOARD POSITION

Central location of the installation

Accessible and distinct place.

Away from humid places

Wall suitability

Height over 150 cm from floor

Synchronizing Panel

- Synchronizing Panel works between two or more different power sources like DG sets to manage power supply.
- Synchronization helps in making different DG sets behave as a virtual single unit and eliminates subdivision of total load.
- It helps in transferring load from one unit to another as during service period, so that the unit requiring service can be easily shut off.
- In this way the critical load need not be interrupted and there is no production loss.
- During low load we can run any single unit, and synchronize more units as the load increases.
- This can be manual or automatic.

PANELS (LT)

- LT Panel is an electrical distribution board that receives power from generator or transformer and distributes the same to various electronic devices and distribution boards.
- Such panels are used in industries both for internal and external use and, therefore, they are quite rugged to withstand different climatic conditions

APPLICATION

- Medium to High capacity Manufacturing Industry
- Hospitals
- Educational Institutions
- Commercial Complexes
- Hotels

HT PANELS

- HT panels are compact outdoor type systems, which are broadly used in substations.
- Our product range is prepared from Circuit Breakers or switch fuse on HT side, which protects the equipment from sudden voltage fluctuations
- HT Panel is like LT Panel except that it is used for high tension cables.

APFC (Automatic Power Factor Control Panels)

- These panels are used in commercial buildings and industries where there is fluctuation in voltage and power supply.
- The electrical load required by a unit depends upon the type of machineries, cooling plants and other devices installed.
- There is always a possibility of damage of these equipments if power fluctuates.
- In case of fixed loads they can be safeguarded using capacitors, but in case of varied loads, a mechanism to switch in and switch out the capacitors is required which is basically handled using APFC panels.
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PCC (Power Control Center) Panels:

- Its basic function is to control power supply to various units and equipments as per their load requirement so that they can work in harmony.

MCC (Motor Control Centre) Panel

- These are effectively used with motors or submersible pumps to provide sufficient protection from overloads and short circuits.
- These are high on performance, require low maintenance and can withstand extreme temperature variations

Lighting Control Panels

- We can design and supply Distribution & Lighting Control Panels, which find application in plants for distributing power in the lighting system, keeping in mind the specific requirements of the clients.

VFD Control Panels

- These are designed to control the speed of electric motor and feed pump.
- They are widely used in drilling, pumping and other large machine applications.
- The VFD panels are widely used in tube mills, paper mills, extruder plants, rolling Mills, cable industry and CTL Lines.
- They are even installed in hospitals, business houses and other public places.
- VFD control panel are designed to match variable speed requirements of a process unit and so are vigorously tested on various speed parameters.

Feeder Pillar Panels

- The feeder pillar panels are used to terminate and distribute the control circuits. These are used in almost all the industries, townships and housing societies to put all the cut-outs together.