**MCB – Miniature Circuit Breaker**

A miniature [circuit breaker](https://www.elprocus.com/what-is-an-oil-circuit-breaker-working-its-types/) is shortly named MCB which is the electromagnetic instrument that represents the entire compound in a molded insulating type of material. The crucial **function of MCB** is circuit switching which means that to make a circuit in an open condition.

This clearly means than when a circuit is connected to an MCB and when there happens the condition of excess current flow through MCB rather than the specified value, then it opens the connected circuit. Even this might be manually made to ON and OFF the switch if required just like a general switch.

[MCB Circuit Diagram](https://www.electronicshub.org/)

It is also defined as the electromechanical device that guards an [electrical circuit](https://www.elprocus.com/basic-electrical-circuits-and-their-working-for-electrical-engineers/) against an overcurrent, that may affect by a short circuit, overload, or imperfect design. This is a better option to a Fuse since it doesn’t require alternate once an overload is identified. An MCB can be simply rearranged and thus gives better operational protection and greater handiness without incurring huge operating costs. The operating principle of MCB is simple.

MCB is substituting the rewirable switch-fuse units for low power domestic and industrial applications in a very quick manner. In the wiring system, the MCB is a blend of all three functions such as protection of [short circuit](https://www.elprocus.com/voltage-electrical-short-circuit-prevention/), overload, and switching. Protection of overload by using a bimetallic strip & short circuit protection by a used solenoid.

These are obtainable in different pole versions like single, double, triple pole & four poles with neutral poles if necessary. The normal current rating ranges from 0.5-63 A with an asymmetrical short circuit breaking capacity of 3-10 KA, at a voltage level of 230 or 440V.

**MCB Rating**

The ampere rating states that the maximum value of current where the MCB  withstands without moving to trip condition. In the general MCB circuits, the current rating ranges from 2 Amp to 125 Amp. Whereas in the commercial applications, single-pole type of breaker circuits safeguard 20V branched circuits and double pole breaker circuits safeguard up to 240V branched circuits. Whereas the voltage rating in this miniature breaking circuit might be more than that of the circuit voltage but it will not be less than the circuit voltage.

**Characteristics of MCB**

The characteristics of an MCB mainly include the following

* Rated current is not more than 100 amperes
* Normally, trip characteristics are not adjustable
* Thermal/thermal-magnetic operation

**MCCB – Molded Case Circuit Breaker**

The MCCB is used to control [electric energy](https://www.elprocus.com/electrical-energy-saving-tips/) in distribution n/k and is having short circuit and overload protection. 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 function 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 overcurrent may result in a faulty design

**The thermal safety of the molded case circuit breaker will usually have a time delay period where this permits a minimal period of overcurrent that is generally observed in few device functionalities, like that of inrush currents which can be observed in the initiation of motors. This time delay permits the circuit to remain to function in these conditions without tripping the device.**

**Characteristics of MCCB**

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