TYPES OF CIRCUIT BREAKERS

Introduction

Circuit breakers have been classified into a number of types, based on different categories they have been subdivided into.

It should be noted here that there is no specific criteria of classifying the circuit breakers, but instead there are a number of ways in which we can categorize them for our easier understanding and knowledge of the operating conditions of the device.

These different categorizes can be according to the medium in which the **circuit breaker** operates, the actuating signal on which its works, the different types of constructing and working principles etc.

Firstly I am going to give you a brief overview of all the different types, mentioning their names and how they have been classified into that category. Further ahead, we will be discussing some of the widely used types now-a-days.

Typology of circuit breakers

Firstly we classify the circuit breakers according to the voltage levels they can operate on. So there are three most used types of circuit breakers in this category. These are:

1. Low **Voltage Circuit** Breakers
2. Medium Voltage Circuit Breakers
3. High Voltage Circuit Breakers

There is another category which is based on the mechanism used to actuate the circuit breaker, which specifies the mechanism of operation of the breaker, there are three further types:

1. Hydraulic Circuit Breakers
2. Pneumatic Circuit Breakers

3. Spring actuated Circuit Breakers

Another very important category is where to use the circuit breaker. This may seem a bit weird at first, but when installing a breaker, you must have to take care if it will be used inside your home or any other building or it has to be installed somewhere outdoors. This is because the outer mechanical body of the breaker has to be designed accordingly for it to be tough and protective to prevent the internal circuitry from damaging. So two more types can be:

1. Outdoor Circuit Breakers
2. Indoor Circuit Breakers

Now considering the medium in which a circuit breaker can operate. Most of us would have the concept that circuit breakers can only be installed in the circuits present in our homes so that the medium surrounding them is air. But now here is something for you to ponder over. Not Only air, but circuit breakers can also be installed in water or other mediums. Here are the basic types according to the medium of installation:

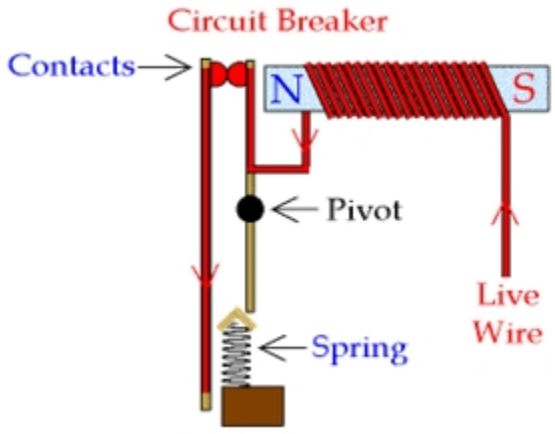
1. Vacuum Circuit Breakers
2. SF6 Circuit Breakers
3. Oil Circuit Breakers
4. Air Circuit Breakers

Top 3 of the most used circuit breakers

Now we come to the three most common types of circuit breakers used:

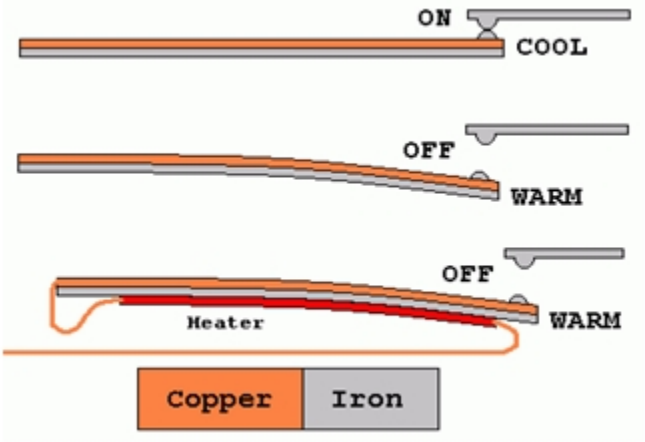
1. Magnetic Type Circuit Breakers:

   These circuit breakers use the principle of electromagnetism to break the circuit. So when the current passing through the circuit increases, the electromagnetic force increases and the contact is pulled away.

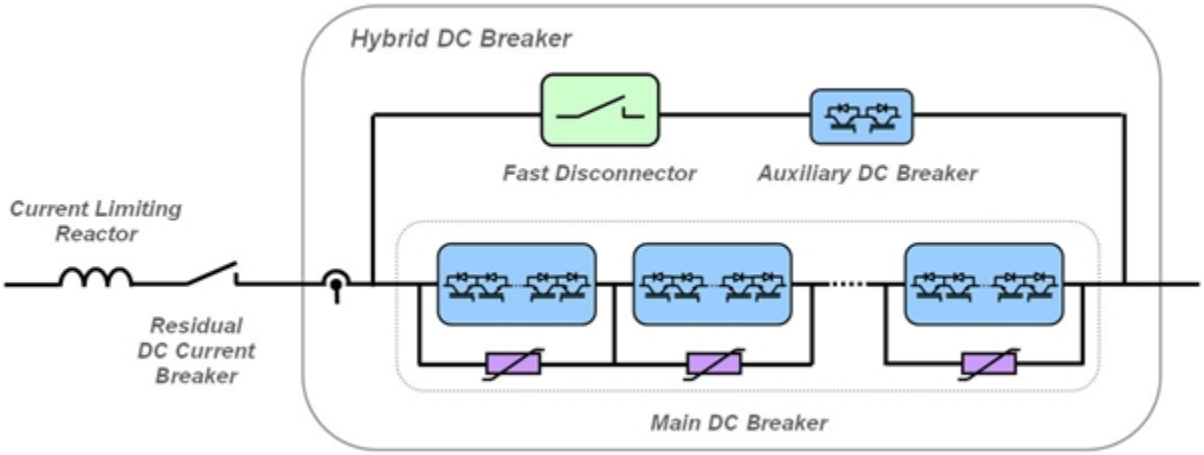


2. Thermal Type Circuit Breakers:

As evident from the name, the circuit is interrupted by the heat produced from the excessively large current passing through the circuit.



3. Hybrid Type Circuit Breakers:
   Clearly visible from the name, they are a combination of the above two. They use heat as well as magnetism to break the circuit. One of these types is shown in the figure below:



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