ELECTRICAL PAATHSHALA

AIR - BLAST CIRCUIT BREAKER

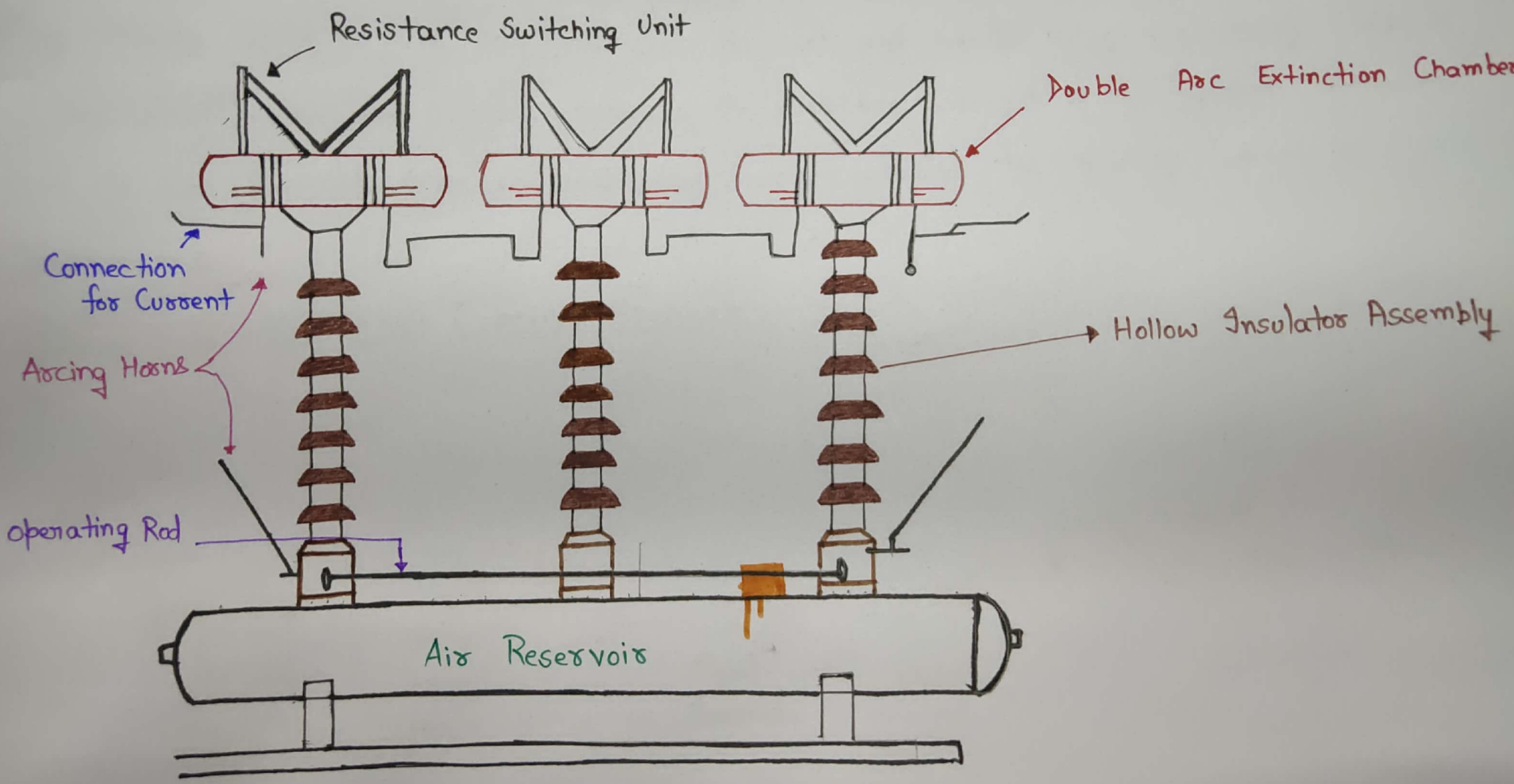
- These circuit breakers employ high poessure air blast as an arc quenching medium. The air blast cools the arc and sweeps away the arc products to atmosphere.
- As compressed air is used for arc extinction, hence these are also called Compressed air circuit Breakers
- Majority of Circuit Breakers for Voltages beyond 110 KV are of this type, hence these are most suitable for high Voltages.

* Construction and Working of ABCB

- At bottom there is a tank which is called air reservoir with the Valve. On this Reservoir there are three hollow insulator columns. On top of each Insulator column there is double arc extinguishing chamber. The Current Carrying parts are connected in Series. As there is large Voltage between the Conductors and air reservoir, the assembly of entire arc extinction chamber is mounted on Insulators.

ELECTRICAL PAATHSHALA (Please Like this Video)

* AIR BLAST CIRCUIT BREAKER



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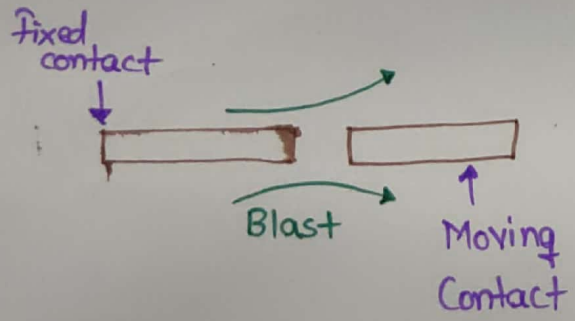
WORKING

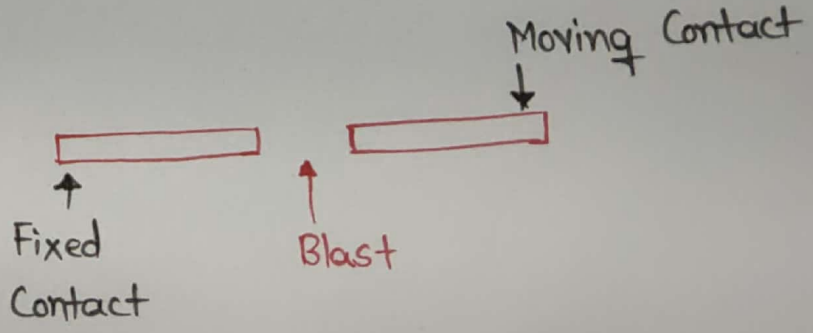
During the operation, the air is allowed to enter in the extinction chamber which pushes away moving contacts. The air blast cools the arc and sweeps away the arcing products to the atmosphere. This rapidly increases the dielectric strength of the medium between Contacts and prevents from re-establishing the arc. Finally, the flow of Current is Interrupted.

TYPES of AIR BLAST CIRCUIT BREAKER

→ Axial Blast Type :

→ Cross Blast Type :





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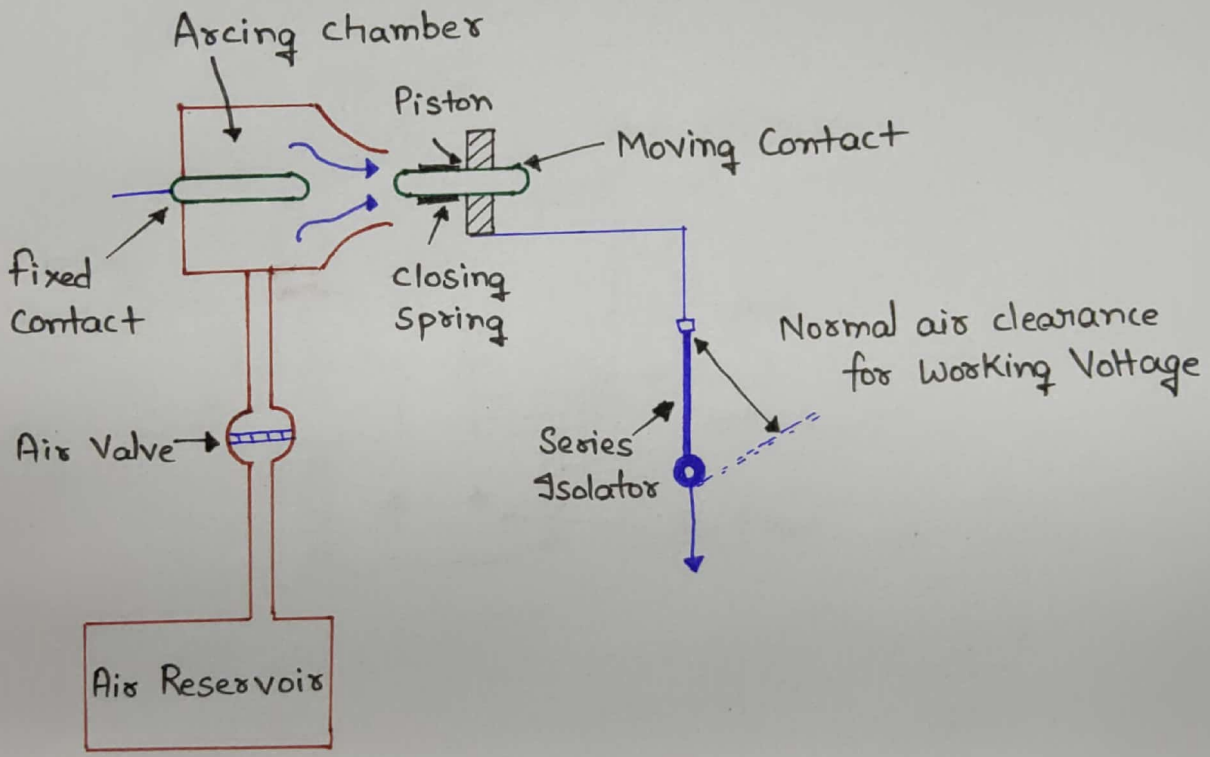
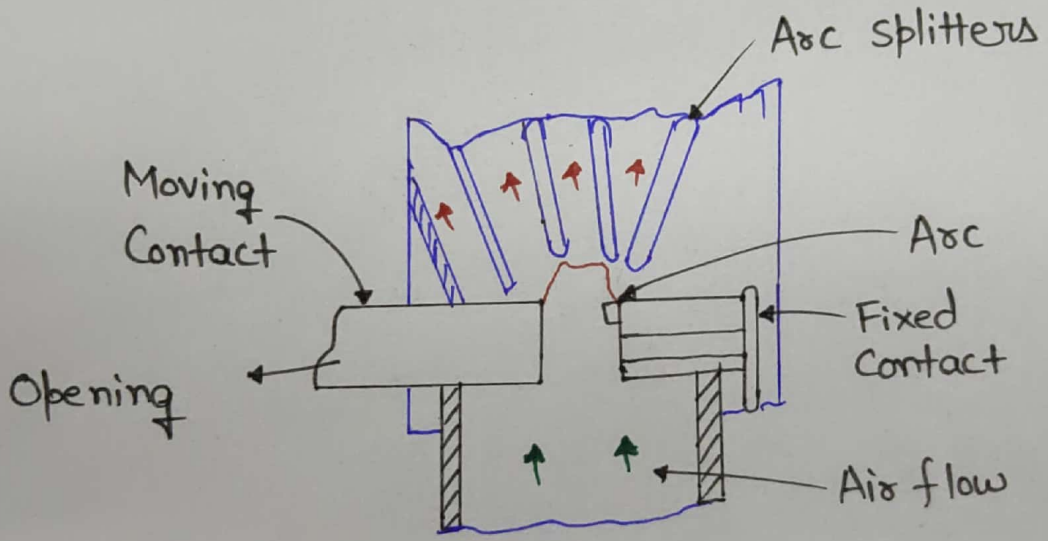
Axial-blast air Circuit Breaker



Cross-blast air circuit breaker



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* Advantages

- Risk of fire is eliminated.
- High Speed operation is acheived.
- The arcing products are Completely removed by the blast.
- The time for which arc persists is short due to Rapid build of dielectric strength between Contacts. So, less burning of Contacts.
- Due to lesser arc energy, these breakers are very suitable for Conditions where frequent operation is Required.

* Disadvantages

- Possibility of air leakage at the pipe fittings.
- Considerable maintainance is required for the compressor plant which supplies the air blast.
- These Breakers are very sensitive to the variations in the rate of rise of restriking voltage.
- Due to frequent operations, it is necessary to have a compressor with sufficient Capacity of high pressure air.