ABB retrofit solution for medium voltage circuit breakers
Competence and technology at the highest level

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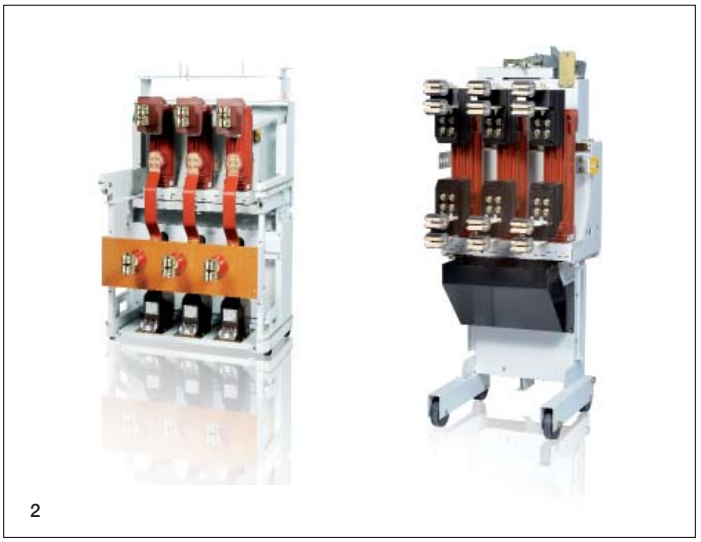

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1 ABB min. oil circuit breaker and appropriate retrofit solution 1 | 2 Further retrofit Solutions: ABB high duty breaker - ASEA HKK

You want to increase the availability of your switchgear? The ABB Medium Voltage Service as an authorized service partner offers tailor made retrofit solutions specifically designed to match the existing circuit breaker. ABB's circuit breaker retrofit is a cost-effective alternative to the complete replacement of switchgear. Service experts conduct site audits on existing installations to assess the condition of the equipment and recommend the ideal solution to ensure the optimum return on investment.

Retrofit stands for the replacement of phased-out circuit breakers by using latest vacuum or SF6 gas interruption technology and adapting them both mechanically and electrically to suit the existing engineering. The result is a major improvement in reliability, safety, maintenance needs and performance of your circuit breaker.

ABB Service is a full system provider for retrofit solutions, from the proposal and design, through the manufacturing and testing, up to the installation and commissioning of the project.

Our retrofit Solutions for circuit breakers

Based on the long time ABB experience and possible through the existing manufacturer know-how ABB developed retrofit solutions especially tailored to minimum oil and first generation of vacuum circuit breakers of the ABB family*. As a result, ABB can offer the opportunity of eliminating oil insulation through the use of vacuum or gas interrupting technology.

All of the ABB retrofit solutions to exchange installed circuit breakers are customized. That way we can guarantee that the bushings and the truck of the retrofit solution match the existing panel on customer site and only a short downtime for the exchange will be required.

Requirements

ABB proposal provides the best fit for purpose apparatus for each switchgear unit, depending of the complete network equipment conditions and the specific feeder operational characteristics.

The following basic details are necessary to provide standard retrofit solutions:

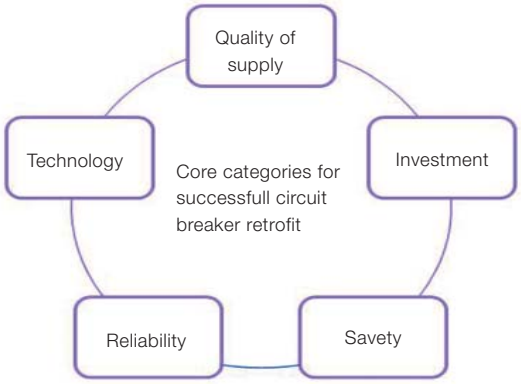
- Data label technical information and serial number
- Four sides pictures
- Compartment inner pictures
- Existing panel schematic diagram
- Generator data for the relevant feeders

Test certification

Type test availability:

- Dielectric test
- Mechanical interlocks operations test
- Mechanical operations test
- Short time withstand current test

*ABB family meaning: ABB, ASEA, BBC, Calor Emag, SACE, Strömberg, Gardy, EJF, ITE,



Circuit breaker retrofit offers highest possible benefits in each of the core categories for circuit breaker operation.
Retrofit apparatus certification is covered by the type tests of the basic circuit breaker and is based on specific tests performed by the retrofit device inside the original panel.

Some non destructive type tests can also be performed on customer request inside its own panel if available.

Quality of supply
- Through advanced switching features
- Additional embedded safety features
- Large communication option to downstream and Short implementation time for replacement
- Minimum shutdown of the switchboard
- Smooth site activity

Investment
- Where limited funds are available of capital investment
- Improved planning of customer maintenance
- Reduction of insurance costs
- Relay on operation performance and lose of production/time
- Long term availability of spare parts

Safety
- Elimination of oil and air blast insulation dramatically reduce fire risk
- Increased making current capacity protects operating personnel and equipment
- Safety standards in modern breaker increase installation safety (i.e. internal/external interlocks)
- Strong fault risk reduction
- Additional embedded safety features
- Improved operator protection

Reliability
- Lower maintenance requirements
- Spare parts availability and delivery time for obsolete products can result in unexpected down time
- Highly increased number of operations
- Modern breaker mechanism are lighter and have longer mechanical life
- Significant life time extension
- Long term availability of spare parts

Technology
- Latest generation apparatus
- Magnetic actuator that increases mechanical life time
- Bus communication between breaker and control panel
- Individual pole release for a predictive switching
- Motorized rack-in rack-out operations
- Tested and certified products

DEABB 1704 11 en printed in Germany (07.11)

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