

Retrofitting Solutions for ABB SF₆ gas HPA circuit breaker

Circuit breaker retrofit is a cost-effective alternative to the complete switchgear replacement. ABB Service experts conduct site audits on existing installations to assess the condition of the equipment, recommend the proper solution and support the right investment decision.

Retrofit stands for the replacement of phased-out devices by current production circuit breakers which are mechanically and electrically adapted for the existing engineering. The result is a deep improvement on reliability, safety, maintenance and performances.

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.

Benefits

Reliability

- Significant life time extension
- Lower maintenance requirements
- Long time availability of spare parts.

Safety

- Strong fault risk reduction
- Additional embedded safety features
- Improved operator protection.

Technology

- Latest generation apparatus
- Designed according to IEC 62271-100 Standard
- Tested and certified products.

Project

- Short implementation time for replacement
- Minimum shutdown of the switchboard
- Smooth site activity.

Investment

- Limited capital investment
- Minimization of further maintenance costs
- Warranty on the conversion work.

Facts

HPA is the family name of a wide range of SF₆ gas circuit breakers manufactured by ABB and currently phased-out. They were either manufactured for fitting their own panel and cassette but also delivered to panel builders in both fixed and withdrawable version.



Additional variants have been produced during their life cycle due to the technological development, such as HPA SafeSynch, a very specific apparatus performing synchronized and smooth breaking operations of ungrounded capacitor banks.

The original design was based on SF₆ puffer technology. Specific handling procedures shall be applied during maintenance and performed by certified operators according to EC Regulation 305/2008 and SF₆ gas has to be treated as per EC Regulation 842/2008 in those countries complying with.



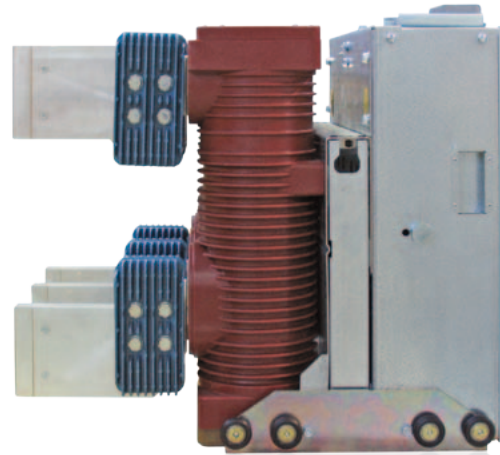
Technical Data

A full range of retrofit solutions have been developed based on ABB gas and vacuum circuit breakers. Fused vacuum contactor is also available for replacing motor starter units. HD4 Synchro is an existing option to its predecessor HPA SafeSynch too.

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 for providing 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.



HD4-HPA 3150A

Ratings

| Type | HD4-HPA | HD4-HPA | HD4-HPA Synchro | HD4-HPA Synchro | VD4-HPA |
|----------------------------------|-------------|-------------|-----------------|-----------------|-------------|
| Rated voltage [kV] | 12 | 24 | 12 | 24 | 12 |
| Rated current [A] | 1250...3150 | 1250...2500 | 1250 and 2000 | 1250 and 2000 | 1250...2000 |
| Rated short-circuit current [kA] | up to 40 | up to 31.5 | up to 31.5 | up to 25 | up to 40 |

HD4-HPA gas retrofit of conventional HPA
HD4-HPA Synchro gas retrofit of HPA SafeSynch
VD4-HPA vacuum retrofit of conventional HPA

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