Retrofitting

Solutions for HPA circuit breaker and VRC contactor in Safesix and UniSafe enclosures

Circuit breaker retrofit is a cost-effective alternative to complete switchgear replacement. The foremost advantage of retrofitting a circuit breaker in switchgear is that the required specifications are met with the latest technology at only a partial cost of replacing the equipment. Retrofitting helps in saving up to 60% of the cost of new equipment.

Benefits

Reliability
- Significant life-time extension
- Less maintenance
- Long-term availability of spare parts

Safety
- Considerable reduction in the risk of faults

Technology
- Latest generation apparatus
- Retrofit solution designed according to IEC 62271-100 standard
- Type Tested and certified replacement product

Project
- Rapidly executed replacements
- Minimum switchgear downtime
- Simple plant activities

Investment
- Limited capital investment
- Minimization of further maintenance costs
- Retrofit package covered by warranty

Retrofit stands for the replacement of phased-out devices by current production circuit breakers, which are mechanically and electrically adapted for the existing engineering. It enables for life extension, reduced maintenance and improved functionality. This includes upgrades and modernization of basic equipment and accessories. The modified switchgear offers far greater system reliability and performance, enhanced safety and long term availability of spares with minimal investment and downtime.

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.
Facts
HPA is the family name of a wide range of SF6 gas circuit breaker manufactured by ABB. They were not only manufactured for fitting their own panel type and cassette but also delivered to panel builders in both fixed and withdrawable versions and are widely present in the network. 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 replacement 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 on the complete network, equipment conditions and the specific feeder operational characteristics. The following basic details are necessary for providing standard replacement solutions:
- Rating plate data and serial number
- Original apparatus 4 side photos
- Switchgear compartment inner photos
- Existing panel schematic diagram

<table>
<thead>
<tr>
<th>Type in Safesix enclosure</th>
<th>Rated and insulation voltage [kV]</th>
<th>Rated normal current (40 °C) [A]</th>
<th>Rated short-circuit current [kA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD4-HPA</td>
<td>12</td>
<td>1250...3150</td>
<td>Up to 40</td>
</tr>
<tr>
<td>HD4-HPA</td>
<td>24</td>
<td>1250...2500</td>
<td>Up to 31.5</td>
</tr>
<tr>
<td>HD4-HPA Synchro</td>
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<td>1250...2000</td>
<td>Up to 31.5</td>
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<tr>
<td>HD4-HPA Synchro</td>
<td>24</td>
<td>1250...2000</td>
<td>Up to 25</td>
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<tr>
<td>VD4-HPA</td>
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<td>1250...3150</td>
<td>Up to 40</td>
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<tr>
<td>VSC-HPA</td>
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<table>
<thead>
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<th>Type in UniSafe enclosure</th>
<th>Rated and insulation voltage [kV]</th>
<th>Rated normal current (40 °C) [A]</th>
<th>Rated short-circuit current [kA]</th>
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<tbody>
<tr>
<td>HD4-HPA/CW</td>
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<td>1250</td>
<td>Up to 25</td>
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<tr>
<td>HD4-HPA/CW</td>
<td>36</td>
<td>1250</td>
<td>Up to 25</td>
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<tr>
<td>HD4-HPA gas retrofit of conventional HPA</td>
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<tr>
<td>HD4-HPA Synchro gas retrofit of HPA SafeSynch</td>
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<tr>
<td>VD4-HPA vacuum retrofit of conventional HPA</td>
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<tr>
<td>VSC-HPA vacuum contactor retrofit of conventional VRC</td>
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Options
- **MySiteCare** monitoring and diagnostic
- **MyRemoteCare** cloud based services
- **Power Care** customer support agreement

For more information please contact ABB at:

More product information:  
abb.com/mediumvoltage  
Your contact center:  
abb.com/contactcenters  
More service information:  
abb.com/service