Concept
VD4-36kV cradle is one of the retrofit technical solutions used by ABB for retrofitting of SF6 gas circuit breaker HPA36. It is the latest ABB retrofit design concept in order to easily connect the new VD4 breaker to a wide range of existing VHA36 type of ABB panels.

Few modifications like removing and replacing the existing racking mechanism, CB compartment door and fixing new guide rails are done by ABB service experts on site while retrofitting the HPA36 SF6 gas circuit breakers with VD4 vacuum circuit breakers.

ABB Service is a complete system provider of retrofitting solutions, from proposal to design, manufacturing and testing, down to installation and commissioning.

Benefits:
Reliability, maintenance and repair aspects
- Significant life time extension
- The new apparatus mounts most of the standard spare parts with all the benefits in terms of delivery time and price
- Same operational interface and maintenance approach for the equipment installed in cradle and new ABB panels (UniGear ZS2)

Safety upgraded
- Strong fault risk reduction
- Additional embedded safety features
- Improved operator protection
- Option for remote racking of apparatus

Ease of use
- Modular operating mechanism
- Inbuilt spring charging handle

Technology
- Type tested and certified solution
- Latest generation apparatus
- Designed according to IEC 62271-100 standard

Project
- Short implementation time
- Minimum shutdown of the switchboard
- Smooth site activity

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

Circuit breaker retrofitting 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.

ABB Service experts conduct site audits on existing installations to assess the condition of the equipment, recommend the most suitable solution and technically support the most appropriate investment.
Facts:
HPA is the family name of a wide range of SF6 gas circuit breakers manufactured by ABB. HPA 36 is 36kV circuit breaker used in VHA36 panel of ABB and widely present in the network.

Technical data
A full range of cradle retrofit solutions have been developed based on ABB vacuum circuit breakers. The use of well proven VD4 vacuum circuit breaker enhances the reliability of the switchgear.

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.

What’s needed for a quote?
The following basic details are necessary for providing standard retrofit solutions offer:
• Pictures of switchgear and breaker labels
• Pictures of switchgear and breaker
• CB compartment inner pictures
• Existing panel schematic diagram
• Required quantities

Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Rated voltage [kV]</td>
<td>36</td>
</tr>
<tr>
<td>Rated power frequency withstand voltage</td>
<td>[kV 1 min]</td>
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<tr>
<td>Rated lightning impulse withstand voltage</td>
<td>[kVp]</td>
</tr>
<tr>
<td>Rated frequency [Hz]</td>
<td>50</td>
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<tr>
<td>Rated short time withstand current [kA 3 s]</td>
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<tr>
<td>Peak current [kAp]</td>
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<tr>
<td>Rated current (40˚C) [A]</td>
<td>1250, 2000</td>
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</tbody>
</table>

For more information please contact:
ABB India Limited
ELDS-Service
Plot No. 79, Street No.17, MIDC Estate
Satpur, Nashik - 422 007
Maharashtra, India
Tel: +91 253-2201200
Email: ppmvsupport@in.abb.com

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