

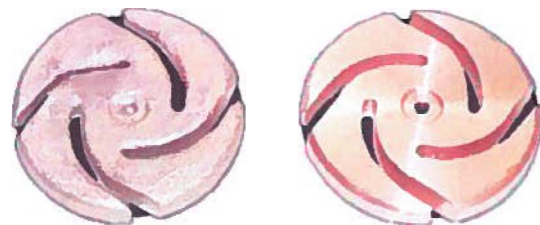
TECHNICAL NOTE

Statements regarding the measurement of contact wear

One of the major benefits of vacuum technology is the low arc energy and resulting comparably low contact wear of vacuum circuit breakers and the used vacuum interrupters. Due to this fact, the overall contact wear of a vacuum interrupter during lifetime (permissible number of operations at full short circuit current typically SO) will be less than 1 mm.

Furthermore, the decay of the total length does not proceed systematically but varies due to statistical deviations of the behavior of the arc. For example, the movement of the arc on the contact is influenced by the melting of the contact material which allows the arc to move on the surface. As the contact structure changes slightly during melting and recombination of the metal gas, these processes are not systematic.

After switching operations, the contact surface will build up small hills and valleys sometimes increasing the total length. Because of this, the measurement of contact wear, by measuring the length, may lead to wrong indications and is not a sufficient way to judge contact wear.



The most reliable way to monitor contact wear is measuring the time current integral of all switching operations during the breaker lifetime. This can be accomplished automatically when using an ABB relay that has circuit breaker condition monitoring.

For maintenance of the breaker, the end user should perform a contact resistance test and HV AC withstand test to ensure integrity of the vacuum interrupter.



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