



Solid-dielectric switchgear

Replacing aging vault equipment

 elastimold



- See how a Midwest municipal utility enhanced its vault equipment while increasing environmental sustainability and safety.

CASE STUDY FOR REPLACING SF₆ SWITCHGEAR

Elastimold™ modular and eco-friendly switchgear provides critical help to Midwest municipal utility

The utility company contacted ABB Installation Products with an urgent need to replace existing SF₆ vault switchgear.



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01 Before
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02 After

Customer requirements

Due to deterioration of the existing gear and a short timeframe for replacement, the utility wanted a replacement solution that was already designed and could be delivered quickly. Additional customer requirements included:

- No or low maintenance
- No oil or gas insulation system
- Highly reliable
- Minimal outage time
- No vault reconstruction
- Training for personnel on installation and operation
- Visible open indication



The customer's existing vault-installed SF₆ switchgear with fused cabinet was deteriorating.



01

ABB solution

Elastimold solid-dielectric switchgear met all these needs — with its solid-dielectric and stainless steel construction coupled with proven vacuum technology that supports reliability.

Additionally, the component-based, modular rack system allows for assembly in difficult areas. Each individual rack is 24 inches wide (with one switch or interrupter per rack) and is designed to fit through a manhole to be moved into a vault separately. Once inside, the various rack units connect together with a simple hardware system, and IEEE 386 deadbreak interfaces complete the bus.

All the Elastimold switchgear components are fully sealed and submersible, and the proprietary EPDM molded rubber construction is deadfront, virtually eliminating any exposed live components.

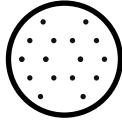
Switchgear details

The scope of the project involved vault switchgear with a total of four ways:

- Two ways — 600-amp load-break vacuum switches
- Two ways — 200-amp load-break vacuum interrupters



02



Each individual rack is **24 inches wide** (with one switch or interrupter per rack) and is **designed to fit through a manhole** to be moved into a vault separately.

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03 Elastimold solid-dielectric vault switchgear

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04 Elastimold Tru-Break three-phase switchgear module

Visible open

Due to the need for 600-amp deadbreak connections on the source switches, the Elastimold™ Tru-Break™ switchgear module was added to meet the requirement for visible open/disconnect. The Tru-Break switchgear module provides a clear visual verification of circuit isolation, enhancing crew safety. As with the component-based nature of Elastimold switchgear, the Tru-Break module uses 600-amp bolted connections so that it can ship installed on the switchgear from the factory — as it was for this customer — or easily be field-retrofitted for existing installations. The Tru-Break module passes a 60 kV AC test and provides a full 125 kV BIL impulse voltage withstand without the need for vacuum bottle series-connected support.

Overcurrent control

The overcurrent control selected was the Elastimold internal control. This self-powered control allows for the selection of existing or customizable time-current characteristics (TCCs) with the use of a PC.

Motor operator control

The utility customer and Elastimold engineers discussed the functionality of motor operators and included a motor control option with the switchgear. The customer ultimately chose a portable, battery-powered motor operator control, which allows for activation of trip, open and close commands without requiring personnel to enter the vault. Switchgear motor cables were routed and secured near the vault entrance with labels indicating the way positions. These can be connected to the portable motor control device and powered by 120 V AC from a line truck if needed.



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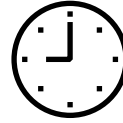
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Training

ABB conducted pre-installation training at the customer's site. The training covered both operation and installation. The line crew gave positive feedback, and when the two-day scheduled outage time for installation arrived, the basic switchgear assembly was completed ahead of schedule the first morning.

Conclusion

Elastimold™ solid-dielectric switchgear has met all this customer's expectations. As a result, the utility company is evaluating other areas of their distribution network for asset renewal using solid-dielectric switchgear.



The basic switchgear assembly was **completed ahead of schedule** the first morning.

Customer requirements

Short timeframe

No or low maintenance

No oil or gas insulation system

Highly reliable

Minimal outage time

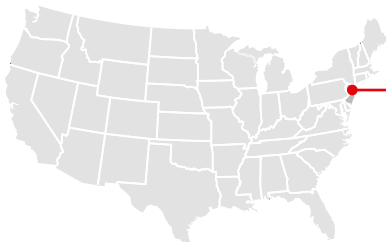
No vault reconstruction

Training for personnel on installation and operation

Visible open

Solution

Elastimold solid-dielectric switchgear



Elastimold™ switchgear is designed, assembled, tested and shipped from Hackettstown, New Jersey, USA.

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