

October 16, 2025

Meidensha Corporation

SF₆-free 123kV Ecotank Type Vacuum Circuit Breaker developed and launched

Product achieves strong price competitiveness by adopting a single-break disconnecter design

Meidensha Corporation has developed the 123kV Ecotank Type Vacuum Circuit Breaker. Sales began in October in the North American market through Meiden America Switchgear, Inc., an overseas subsidiary of the Meiden Group.

■ Background

Regulations in the North American market—particularly in California—have been tightened for sulfur hexafluoride (SF₆), a greenhouse gas with a global warming potential 23,500 times that of carbon dioxide (CO₂). The stricter rules require phasing out SF₆ circuit breakers when new substation equipment is installed or old equipment is replaced. In 2007, Meidensha introduced the SF₆-free 72 kV Ecotank Type Vacuum Circuit Breaker to the North American market. In 2020 the company established Meiden America Switchgear and began selling the 145 kV Ecotank Type Vacuum Circuit Breaker. By the end of fiscal 2024, Meiden America Switchgear had delivered approximately 1,300 vacuum circuit breakers.

With demand for vacuum circuit breakers projected to grow, Meidensha has developed the 123 kV Ecotank Type Vacuum Circuit Breaker using a single-break disconnecter design to further strengthen product competitiveness.



123kV Ecotank Type Vacuum Circuit Breaker

■ Features

Vacuum circuit breakers are generally harder to adapt to high voltages than gas circuit breakers. Meidensha overcame this challenge by adopting a single-break disconnecter design. By contrast, the 145 kV Ecotank Type Vacuum Circuit Breaker uses a double-break disconnecter design, with two vacuum interrupters (the breaker's core component) arranged in series per phase. The single-break design is mechanically simpler than the double-break arrangement and enhances product competitiveness by reducing manufacturing costs.

(Other features)

- Uses no SF₆ gas, so no gas recovery is required at disposal — contributes to lower lifecycle costs.
- Uses dry air as the insulation medium, which does not liquefy even at -50°C, so no heater is required in cold regions.
- Electrical longevity: rated for 10,000 load-current switching operations; no interior inspection required, significantly reducing maintenance costs.
- Exterior covering made of aluminum, resulting in minimal current loss and eliminating the need for repainting during maintenance.

■ Future prospects

Demand for new and upgraded substations is expected to rise not only in North America but also in many other countries as power grids expand. Building on the success of its 123 kV high-voltage product, Meidensha is committed to developing 245 kV models using a double-break disconnecter design to meet demand for higher-voltage vacuum circuit breakers.

■ About Meiden America Switchgear, Inc.

Establishment: 2020

Location: Greenville suburb, South Carolina

Business operations: Design, manufacture, test, and sell high-voltage vacuum circuit breakers; sale of vacuum interrupters.

■ Press releases for reference

Dated January 17, 2022

Meiden America Switchgear, Inc. delivers world's first ecofriendly 145kV dead tank vacuum circuit breaker, free of harmful SF₆ gas

https://www.meidensha.com/news/news_03/news_03_01/1245198_10981.html

Dated April 6, 2020

Meiden establishes U.S. switchgear production base

https://www.meidensha.com/news/news_03/news_03_01/1245134_10981.html