

VACUUM INTERRUPTERS

MEIDEN
Quality connecting the next



VACUUM INTERRUPTERS

Development of high-performance vacuum technology has established Meidensha Corporation (MEIDEN) as the leading producer of high voltage vacuum interrupters. MEIDEN was the first in the world to develop a 72.5 kV and 145 kV vacuum interrupter and continues to lead innovation in the industry.

MEIDEN's unique manufacturing techniques have led to high-performing, long-lasting, and reliable vacuum interrupters.

Features

- 1. Simplified arc quenching method**
The spiral contact assures a high arc driving efficiency.
- 2. Simplified construction and high quality**
Complete degassing and hermetical sealing via our vacuum furnaces produces bottles with long-lasting vacuum degree.
- 3. No evacuation tube**
Since we manufacture our vacuum interrupters using ceramic envelopes in a vacuum furnace, an evacuation tube is not required.
- 4. Slim body**
New contact materials developed by MEIDEN lead to an overall decrease in the dimensions of our interrupters.

Major Applications

- Vacuum circuit-breakers
- Vacuum switches
- Vacuum contactors
- Transformer tap changers
- Rail line circuit-breakers
- Autoreclosers
- Special duties,
e.g. for multi-operation section switches

*Vacuum Interrupters for Medium Voltage Class

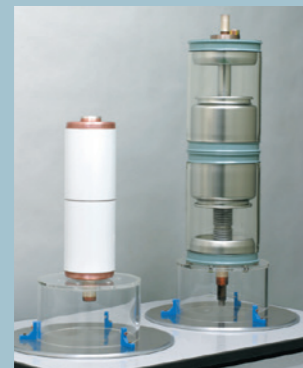
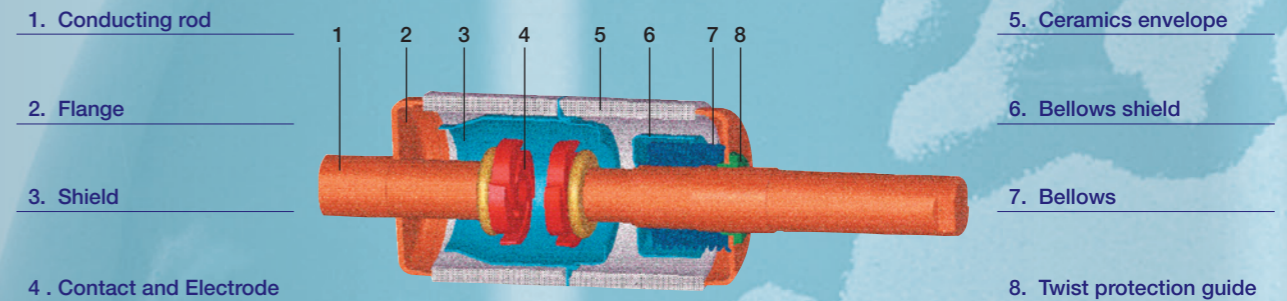
IEC & ANSI Standard



MEIDEN manufactures medium voltage class VIs which meet a variety of global specifications.

*Vacuum Interrupters-Structure, Feature & Performance

The flanges and rods of our VIs are made with copper, leading to excellent heat dissipation at both load current and short-circuit breaking current.



*Vacuum Interrupters for High Voltage Class

MEIDEN developed both 72.5 kV and 145 kV vacuum interrupters for the first time in the world, both of which are sold globally.

*Vacuum Interrupters for Customized Arrangement

MEIDEN is able to offer custom solutions based on customer requirements. Custom designs are tested in our testing facility in Japan.

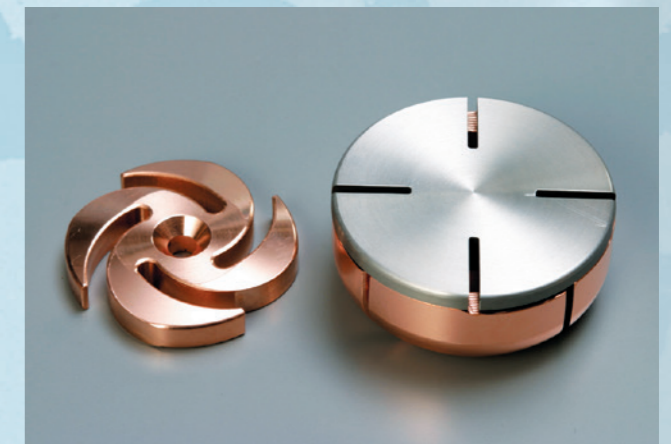
*Vacuum Interrupters- Manufacturing & Quality & Assurance

Our company employs a simplified manufacturing process to enhance consistency and eliminate error. Each part of each vacuum interrupter is chemically cleaned, washed, dried, and then brought to a clean room, where it then undergoes assembly. After the brazing process is complete, each interrupter is given a constant mechanical load and then its dimensions are inspected to ensure they fall within acceptable tolerances. All data is automatically recorded, and a pass-fail judgment is awarded. MEIDEN regularly performs inspections on the materials we use to create our interrupters to ensure quality performance and long unit life. We require each bottle to meet a vacuum degree of less than 5×10^{-4} [Pa].



Automatically forming equipment

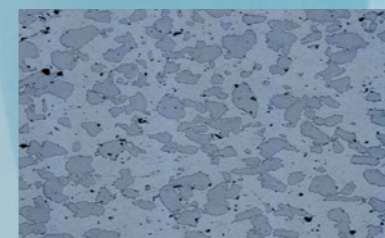
MEIDEN produces two styles of electrode: Spiral, and Axial Magnetic Field. These are produced in our factory out of our unique alloy formulas. Custom contacts are specially made for each application.



Spiral electrode (Soft material)

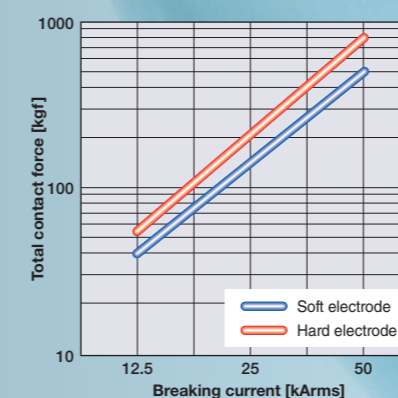
AMF electrode (Hard material)

Spiral electrodes are normally selected for lower economic cost and are most often used in MV class switchgear. An AMF electrode is often recommended for HV class switchgear and capacitor banks and is made of harder materials. These electrodes are currently used in switchgear rated up to 168 kV.



Uniform-dispersion Cr material within Cu

The uniform-dispersion of chromium material within copper leads to excellent performance in current-breaking. Due to this property, MEIDEN bottles are able to minimize the operating energy required for disruption, making smaller operating mechanisms possible and reducing total production costs for our customers.



Minimized contact pressure

Vacuum Interrupters for Circuit Breakers <50Hz to 60Hz>

Rated Voltage	Rated lightning impulse withstand voltage	Power frequency withstand Voltage	Rated Current	Short circuit breaking current with at least 30-40% DC component and Interrupter (Outdiameter-Style)							
				A	12.5kA	16kA	20kA	25kA	31.5kA	40kA	50kA
7.2	60	20	630	M20QC (φ52-A)							
				800/1250			M30RC (φ94-A)				
				1600/2000					M40SC (φ94-A)		
				2500/3150							M50TC (φ120-A)
12/15	75	28	630	M52QC (φ65-B)	M41QC* (φ69-B)	MA61RC** (φ94-B)					
				800/1250			M51RC (φ82-B)				
				1600/2000			M71SC (φ94-B)		M81SC (φ110-B)		
				2500/3150			M71TC (φ110-B)		M81TC (φ120-B)		M101TC (φ132-B)
17.5/24	95/125	38/50	630	M52QC* (φ65-B)		MA102RC** (φ110-B)					
				800/1250			M72RC* (φ75-B)	M102RC (φ94-B)			
				1600/2000			M102SC (φ94-B)				
				2500			M132TC (φ120-B)		M203TC (φ203-B)		
36/38	170	70	630	M93QC* (φ94-B)							
				800/1250			M123RC* (φ94-B)				
				1600/2000			M163SC* (φ120-B)				
				2500			M203TC* (φ120-B)		MA253TC* (φ132-B)		
52	250	95	1250/2000			MA285SC* (φ132-B)					
72.5	325	140	1250/2000			MA467SC* (φ150-B)		MA507SC* (φ150-B)			

* : Additional external insulation necessary
 **: Capacitor bank switching

Vacuum Interrupters for Load Break Switches

Rated Voltage	Rated lightning impulse withstand voltage	Power frequency withstand Voltage	Rated Current	Short circuit making current	VI Type (Dia.-Style)
kV	kV	kV	A	kApeak	
24/27	125	60	630	32	M02QC* (φ60-B)
36/38	170	70	630	32	M03QC* (φ65-B)

Vacuum Interrupters for Auto-Reclosers & Fault Interrupter Switches

Rated Voltage	Rated lightning impulse withstand voltage	Power frequency withstand Voltage	Rated Current	Short circuit breaking current	VI Type (Dia.-Style)
kV	kV	kV	A	kA	
15.5/27	110/125	50/60	630	12.5	M52QC* (φ65-B)
27/38	125/170	60/70	630	12.5	MA72QC* (φ75-B)
38	170	70	800	16	MA83QC* (φ82-B)
72.5	350	160	2000	31.5	MA467SC* (φ150-B)

Vacuum Interrupters for Contactor Switches

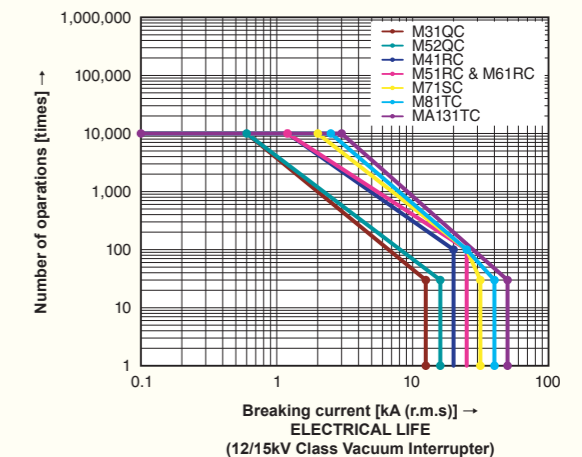
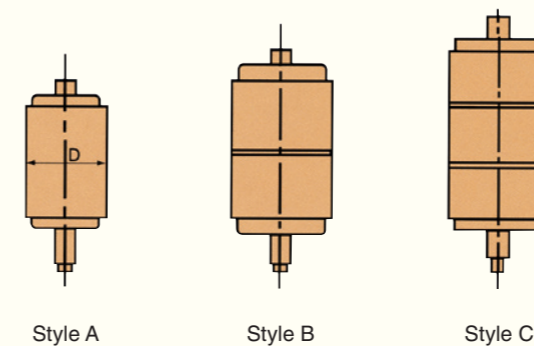
Rated Voltage	Rated lightning impulse withstand voltage	Power frequency withstand Voltage	Rated Current	Short circuit breaking current	VI Type (Dia.-Style)
kV	kV	kV	A	kA	
6.6	45	16	400	4	5G-1 (φ52-A)
6.6	45	16	400	6	7.5CA (φ75-A)

Vacuum Interrupters for Mobile Railway Interrupter Switches

Rated Voltage	Rated lightning impulse withstand voltage	Power frequency withstand Voltage	Rated Current	Short circuit breaking current	Short circuit making current	VI Type (Dia.-Style)
kV	kV	kV	A	kA	kA	
18/36	170	70(16.6Hz) 70(50/60Hz)	750(16.6Hz) 450(50/60Hz)	→25(16.6Hz) at 36kV →20(50/60Hz)	at 18kV →62.5(16.6Hz)	163SCM (φ132-C)

***Diameter**

Interrupter types and diameters are shown in the tables.





MEIDENSHA CORPORATION

ThinkPark Tower, 2-1-1, Osaki, Shinagawa-ku, Tokyo, 141-6029 Japan

www.meidensha.com

Overseas Offices & Group Companies

CHINA

MEIDEN ZHENGZHOU ELECTRIC CO., LTD.
MEIDENSHA (SHANGHAI) CORPORATE MANAGEMENT CO., LTD.
MEIDEN HANGZHOU DRIVE SYSTEM CO., LTD.
SHANGHAI MEIDENSHA CHANGCHENG SWITCHGEAR CO., LTD.
MEIDEN (HANGZHOU) DRIVE TECHNOLOGY CO., LTD.

HONG KONG

MEIDEN PACIFIC (CHINA) LTD.

INDIA

MEIDEN INDIA PVT. LTD.
MEIDEN T&D (INDIA) LTD.

INDONESIA

P.T. MEIDEN ENGINEERING INDONESIA

KOREA

MEIDEN KOREA CO., LTD.

MALAYSIA

MEIDEN MALAYSIA SDN.BHD.
MEIDEN METAL ENGINEERING SDN. BHD.

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MEIDEN ASIA PTE. LTD.
MEIDEN SINGAPORE PTE. LTD.

THAILAND

THAI MEIDENSHA CO., LTD.

VIETNAM

VIETSTAR MEIDEN CORPORATION

GERMANY

MEIDEN EUROPE GMBH.
TRIDELTA MEIDENSHA GMBH.

THE UNITED STATES

MEIDEN AMERICA, INC.
MEIDEN AMERICA SWICHGEAR, INC.