



**MITSUBISHI
ELECTRIC**

**MITSUBISHI ELECTRIC
POWER PRODUCTS, INC.**

145kV

40KA SF₆ GAS CIRCUIT BREAKER

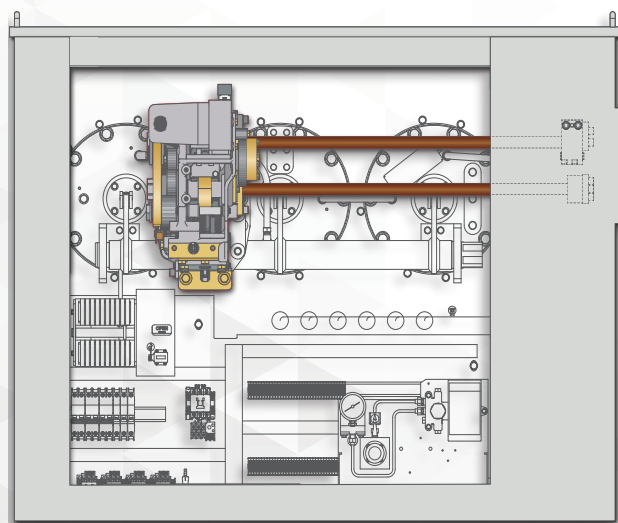


145KV SF₆ GAS CIRCUIT BREAKER

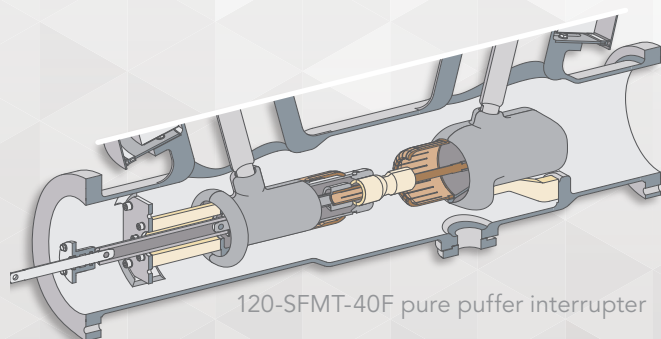
MITSUBISHI ELECTRIC POWER PRODUCTS, INC.

The 120-SFMT-40F is the latest addition to the HVSD SF₆ gas dead-tank circuit breaker family, protecting our customers' critical transmission assets. The 120-SFMT-40F offers significant advantages to the operation and maintenance of any power utility's infrastructure:

- ◆ Circuit breaker rated to 145kV max voltage, 3,150A continuous current, and 40kA interrupting current.
- ◆ Proprietary gas sealing system minimizes leaks.
- ◆ Designed to meet a minimal 30-year life.
- ◆ Class M2 rated (10,000 operations) for a robust and lasting mechanism.
- ◆ Class C2 rated for back-to-back capacitance switching.
- ◆ Rated for transformer limited fault applications.
- ◆ Pure puffer interrupter for predictable, reliable current interruption.



120-SFMT-40F standard cabinet layout



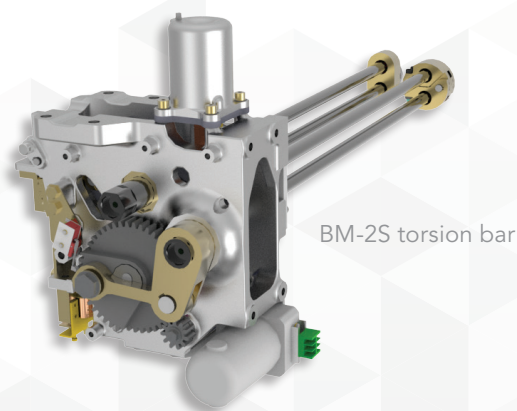
120-SFMT-40F pure puffer interrupter

STANDARDS & CERTIFICATIONS

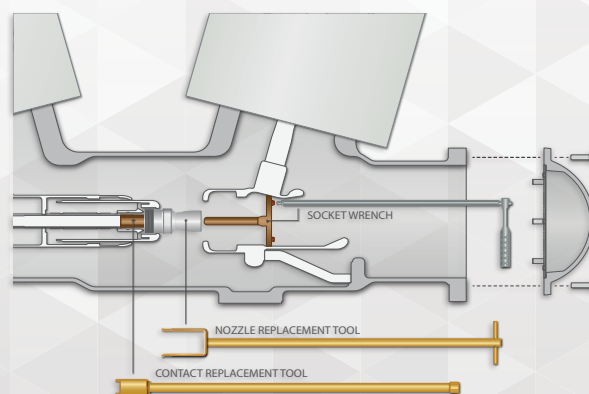
- ◆ IEC 62271-100
- ◆ IEC 62271-1
- ◆ IEEE 693
- ◆ IEEE C37.04
- ◆ IEEE C37.06
- ◆ IEEE C37.06.1
- ◆ IEEE C37.09

BM-2S TORSION BAR MECHANISM

The 120-SFMT-40F circuit breaker features the BM-2S torsion bar spring-open/spring-close operating mechanism. The BM-2S is the most recent addition to the Mitsubishi Electric family of innovative and proprietary torsion bar mechanisms. Torsion bar technology harnesses the energy stored within small angles of deflection, rather than through the stored energy of a compressed helical spring. All Mitsubishi Electric torsion bar mechanisms have zero maintenance requirements for the life of the circuit breaker.



BM-2S torsion bar



Nozzle and contact maintenance achieved without bushing or interrupter removal



Capability to confirm
0.1% gas tightness.

Maintenance free,
next generation
spring-spring
torsion bar
mechanism
(BM-2S) reduces
O+M expenses.

Easy access to
contacts and nozzles
for inspection or
replacement without
the added expense
of removing the
bushings or the
interrupter assembly.

Ships fully assembled
with positive SF₆
pressure to enable
quick offloading,
installation, and
commissioning.

Compact design minimizes gas
volumes, reduces foundation
requirements, & facilitates retrofits.

All controls, linkages,
and gas system
components are
protected within a
NEMA 3X cabinet to
minimize exposure
to environmental
extremes.

And more...

- ◆ Proprietary gas sealing system minimizes leaks.
- ◆ Designed, assembled, and tested in the USA.
- ◆ ISO 9001:2015 certified facilities and quality processes.
- ◆ Proprietary production and quality control system (QUINTERA) maximizes manufacturing consistency, efficiency, and product performance.
- ◆ Stringent supplier quality program to ensure high-quality components.
- ◆ Responsive customer service and technical support.

Quality, Reliability, Responsiveness.

A Powerful Promise.



WORKING TOGETHER FOR EXCELLENCE

We earn our customer's respect, every day, by providing high quality products and services; by taking our customer's priorities to heart, consistently meeting or exceeding those commitments; and leveraging our company's global supply network and expertise to deliver on our promises. We invite you to join our growing family of satisfied clients and partners who benefit from:

- ◆ Reserved production capacity to reduce lead-time issues.
- ◆ Dedicated sales and engineering teams to facilitate business interactions.
- ◆ Easy access to production reporting and advanced shipping notification.

INVESTING IN HIGH QUALITY ASSETS

Making a wise investment in critical transmission assets extends well beyond the initial price consideration. Engineer and statistician, Genichi Taguchi once said, "Cost is more important than quality, but quality is the best way to reduce costs." In line with this reasoning, Mitsubishi Electric remains committed to producing superior quality circuit breakers. Our time-proven designs and rigorous manufacturing and vendor management processes achieve robust, long lasting products with minimal service costs. Together, we can help you evaluate the expected savings through our total cost of ownership evaluation model.

RESPONSIVE FIELD SERVICE WHEN YOU NEED IT

Mitsubishi Electric's Customer Response Team (CRT) consists of strategically placed resources in regional offices across the United States to provide customers with quick answers to technical inquiries, field service needs, project supervision, breaker commissioning, parts inventory management, training, turnkey offerings, and warranty support.

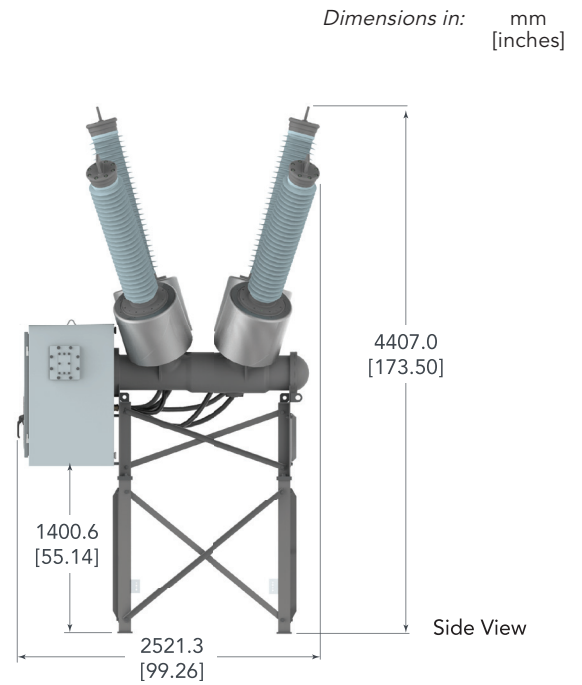
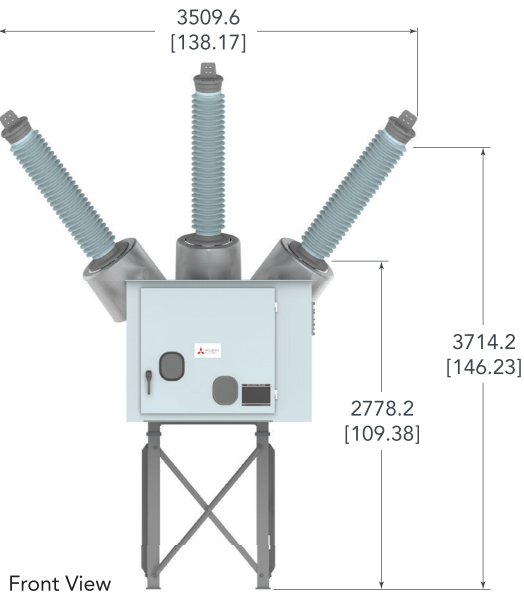
The CRT team also provides customized maintenance programs and equipment monitoring services, along with classroom and field-based training for engineers, project managers, and maintenance personnel. These courses are designed to enhance the effectiveness, knowledge, and skillset of our customers.

Our reputation for providing high quality SF₆ gas circuit breakers, along with our exceptional levels of customer support and total cost of ownership advantages, elevate both our customer's trust in our products and their use in critical transmission infrastructure.



MITSUBISHI ELECTRIC 145KV GAS CIRCUIT BREAKER

Technical Specifications



Description	ANSI Rating	IEC Rating	Notes
Rated Voltage	145kV	145kV	
Frequency	50/60 Hz	50/60 Hz	
Continuous Current	3000	3,150A	
Interrupting Current	40kA	40kA	
System Time Constant	45msec	45msec	X/R = 17 @ 60Hz, = 15 @ 50Hz
Withstand Voltage – 1 Min. Dry	310kV	315kV	
Withstand Voltage – 1 Min. Wet	275kV	275kV	
Full Wave Impulse Voltage	650kV	650kV	Closed
Full Wave Impulse Voltage	750kV	750kV	Open
2 μ S Chopped Wave Impulse Voltage	838kV	838kV	
Capacitive Current Switching	C2 compliant	C2 compliant	
Short Time Current	40kA rms	40kA rms	3 Sec
Close and Latch Current	104kA peak	104kA peak	
Interrupting Time	3 Cycles	3 Cycles	
Reclosing Time	300msec	300msec	
Radio Influence Voltage	<2,500 μ V	<2,500 μ V	
Temperature Range	-30° to +40°C	-30° to +40°C	-40° to +40°C (with tank heaters)
Humidity	100%	100%	
Seismic Rating	High	High	IEEE 693
No Load Operations	10,000 operations	10,000 operations	M2 tested
Minimum Design Life	30 years	30 years	
Control Voltage	125VDC	125VDC	
Operating Voltage	125/120 VDC/VAC	125/120 VDC/VAC	Universal motor and heaters
Trip Current	2.1A	2.1A	
Close Current	3.8A	3.8A	
Trip Coil	Double	Double	
Close Coil	Single	Single	
Control Cabinet	NEMA 3X	NEMA 3X	

Mitsubishi Electric Power Products, Inc. serves the North American power systems, rail transportation, and large visual display markets with electrical and electronic products, systems and services. The products offered include gas circuit breakers, vacuum circuit breakers, power transformers, gas-insulated substations, power electronics and electricity transmission technologies including high voltage DC, battery energy storage systems, generator services, nuclear power plant control systems, uninterruptible power supplies, rail transportation equipment, and high-definition LED displays for sports, commercial, and retail installations. For more information please visit us at, www.MEPPi.com

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for a greener tomorrow

