



SIEMENS

Ingenuity for life

Medium-voltage vacuum generator circuit breaker switchgear

Siemens vacuum generator circuit breakers offering for 10 MW to 80 MW machines

Siemens offers a fully customizable stationary type vacuum generator circuit breaker tested to IEEE C37.013. Each design is engineered to meet the specific electrical and mechanical application requirements of the project.

Features and benefits:

- Continuous ratings of 3,000 A, 4,000 A, 5,000 A and 6,000 A
- Interrupting ratings of 50 kA, 63 kA, and 72 kA
- Maximum design voltage up to 24 kV
- Tested to IEEE C37.013 and C37.013a standard for generator circuit breakers
- Meets or exceeds the latest ANSI, IEEE, and NEMA standards
- Up to 50 full-fault interruptions
- No SF₆ gas for insulation or interruption
- Pair with Siemens protective relays to provide complete generator protection
- Uses the latest developments in vacuum interrupter technology
- Highly reliable vacuum interrupters - MTTF over 50,000 years
- Common type 3AH3 operator platform
- Over 120,000 type 3AH3 operators produced since 1998
- Five-cycle interrupting time; three-cycle interrupting time optional
- Complete enclosure shipped as a unit
- Stationary (fixed) mounted construction with disconnect and/or grounding switches on transformer side and generator side
- Front-accessible circuit breaker operating mechanism for ease of maintenance
- Self-cooled ratings available to 4,000 A and higher (ratings dependent)
- Arrangements available for typical non-segregated phase bus duct connections
- Optional arrangements for segregated-phase bus duct, cable duct, or other connections
- Current and voltage transformers available to suit specifications.

For smaller machines under 80 MW, refer to Siemens drawout type vacuum generator circuit breaker offering.



Rated values and related capabilities	IEEE C37.013 clause	Units	Circuit breaker type	
			17.5	24.0
Rated maximum voltage (V)	5.1	kV	17.5	24.0
Power frequency	5.2	Hz	60	60
Rated continuous current	5.3	A	3,000, 4,000, 5,000, 6,000	3,000, 4,000, 5,000, 6,000
Rated dielectric strength (withstand voltage) 1. Power frequency (dry) 2. Full-wave impulse (1.2 x 50)	5.4.2 C37.013a, Table 4	kV kV peak	50 110	60 125
Rated short-circuit duty cycle	5.5		CO-30 min-CO	CO-30 min-CO
Rated interrupting time ¹	5.6	ms	83	83
Rated closing time	5.7	ms	< 80	< 80
Rated short-circuit current 1. System source (100%) (I) 2. Generator source (50%)	5.8.1 5.8.2.3	kA sym kA sym	50/63/72 25/31.5/36	50/63/72 25/31.5/36
dc component		%	75/65/65	50/63/72
Asymmetry ratio (historical "S" factor)		----	1.45/1.36/1.36	25/31.5/36
Asymmetrical interrupting (ref)		kA rms	73/86/98	73/86/98
Delayed current zero capability		ms	40/40/25	30/30/25
Close and latch capability (274% I)		kA peak	137/173/198	137/173/198
Short-time current carrying capability (100% I)	5.8.2.7	kA sym	50/63/72	50/63/72
Short-time current duration	5.8.2.7	s	3	3
Transient recovery voltage (TRV) rating System source 1. E ₂ peak voltage 2. RRRV (TRV rate) 3. T ₂ time-to-peak Generator source 1. E ₂ crest voltage 2. RRRV (TRV rate) 3. T ₂ time-to-peak Out-of-phase 1. E ₂ crest voltage 2. RRRV (TRV rate) 3. T ₂ time-to-peak	5.9 C37.013a, Table 5 C37.013a, Table 6 C37.013a, Table 9	kV kV/μs μs kV kV/μs μs kV kV/μs μs	32.2/32.2/31.0 4.5 8.4 32.2/32.2/31.0 1.6 23.6 45.5/45.5/45.5 3.3 18.5	44.2 4.5 11.5 44.2 1.6 32.4 62.4 3.3 25.4
Rated load-current switching capability	5.10	A	3,000, 4,000, 5,000, 6,000	3,000, 4,000, 5,000, 6,000
Out-of-phase current switching capability	5.12	kA	25/31.5/36	25/31.5/36
Mechanical endurance		operations	10,000	10,000

Footnote:

¹ Interrupting time is based on the first current zero occurring not later than 66 ms after fault initiation, for example, %dc component <100.

Published by Siemens Industry, Inc. 2018

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Order No.: E50001-F710-A357-V2-4A00

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