

Medium Voltage & Systems

Vacuum generator circuit-breaker Type HB3-C

Without enclosure, optional with integrated line and earth disconnecting switches

HB3-Compact is the most versatile solution for your retrofit application and new projects

With its HB3-Compact Siemens provides an unique generator circuit breaker solution to the most challenging constraints. It offers one of the highest level of customization: The HB3-C can be mounted either vertically or horizontally, its phase-to phase spacing and phase height axis can be adjusted to match perfectly the existing busbar connection points. Optionally, the circuit-breaker can be fitted with integrated line disconnecting switch and earth disconnecting switch on generator side and/or on transformer side.

Features:

- Up to 110 kA breaking capabilities
- Up to 15,000 A rated nominal current
- Up to 24 kV rated nominal voltage
- Vertical and horizontal installation
- Common and individual supporting frame design
- Can be delivered with integrated line disconnecting switch, earth disconnecting switch on generator side and/or transformer side

Benefits:

- Up to 75% OPEX savings due to vacuum technology performance
- Maintenance free vacuum technology with up to 10,000 CO operating cycles at full nominal rated current
- Features full-spring operating mechanism stated to be the most reliable* way to operate a GCB with lifespan up to 20,000 CO operation
- Equipped with sealed-for-lifetime** vacuum interrupter
- Simplified footprint without dynamic forces during switching operations, facilitating desing and sizing of GBS's supporting structure
- Effortless on-site erection thanks to forklift-ready design or retractable wheels



One pole of type HB3-C vacuum generator circuit-breaker



HB3-C in vertical and individual frame configuration

* Most reliable operating mechanism as per final report number A3-206 from the CIGRE 2012 General Report SC A3.

** R. Renz, D. Gentsch, P. Slade, H. Fink, M. Schlaug, "Vacuum Interrupters – Sealed for Life", 19th Int. Conf. on Electr. Distr. (CIRED), Paper 0156, 21-24 May 2007

Technical data			
Rated values and related capabilities	IEEE C37.013 standard	Units	Circuit-breaker type (up to)
Rated maximum voltage	5.1	kV	24
Power frequency	5.2	Hz	50/60
Rated continuous current with natural cooling	5.3	A	15,000
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	60, 70 125, 145
Rated short-circuit duty cycle	5.5		CO-30 min-CO
Rated short-circuit current (up to) 1. System source (100%) (I) • dc component • Asymmetrical (total) 2. Generator source • dc component • Asymmetrical (total)	5.8.1 5.8.2.3	kA sym % kA rms kA sym % kA rms	110 60 144 75 130 157
Close and latch capability (274% I)		kA peak	302
Short-time current carrying capability (100% I)	5.8.2.7	kA sym	110
Short-time current duration	5.8.2.7	s	3
Transient recovery voltage (TRV) rating System source 1. E ₂ peak voltage 2. RRRV (TRV rate) Generator source 1. E ₂ crest voltage 2. RRRV (TRV rate) Out-of-phase 1. E ₂ crest voltage 2. RRRV (TRV rate)	5.9 C37.013a, Table 5 C37.013a, Table 6 C37.013a, Table 9	 kV kV/μs kV kV/μs kV kV/μs	 32.2 5 32.2 2 45.5 3.1
Rated load-current switching capability	5.10	A	15,000
Out-of-phase current switching capability	5.12	kA	55
Mechanical endurance		operations	20,000
Continuous current switching endurance		operations	10,000

Published by
Siemens AG

Smart Infrastructure
Distribution Systems
Mozartstrasse 31c
91052 Erlangen
Germany

For the U.S. published by
Siemens Industry Inc.

100 Technology Drive
Alpharetta, GA 30005
United States

Article No. SIDS-B10018-00-7600
TH 260-190974 DA 1019

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