

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

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