



Type HB3



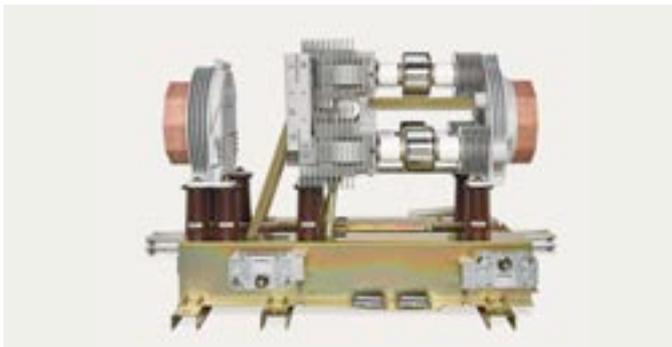
GENERATOR CIRCUIT-BREAKER SYSTEMS

Vacuum generator circuit-breaker **Type HB3**

Horizontal busbar, single-phase encapsulated
[siemens.com/hb3](https://www.siemens.com/hb3)

HB3 generator circuit-breaker switchgear with vacuum switching technology up to 400 MW

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



One pole of type HB3 vacuum generator circuit-breaker



HB3 vacuum generator circuit-breaker switchgear

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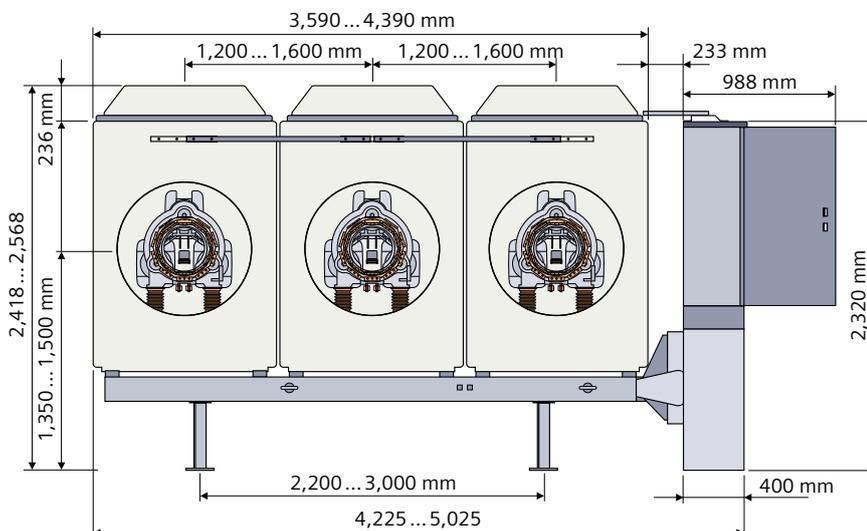


The forklift-ready and compact design enables up to two units in only one standard 40" HC-container

Features and benefits

- All medium-voltage switching components, including the vacuum generator circuit-breaker, are mounted on a removable, fully integrated, compact switching module for each pole
- Continuous current ratings up to 13,500 A, self-cooled
- Interrupting ratings up to 110 kA
- Maximum design voltage up to 24 kV
- Tested to IEEE C37.013 standard for generator circuit-breakers
- Up to 30 interruptions at rated short-circuit current
- No use of gas for insulation or interruption
- Pair with Siemens protective relay to provide complete generator protection switchgear
- Uses the latest developments in vacuum interrupter axial-magneticfield (AMF) technology
- Highly reliable vacuum interrupter: MTTF over 83,000 years
- Highly reliable spring-drive operating mechanism due to use of common type 3AH3 operator platform
- Over 120,000 type 3AH3 operators produced since 1998 and over 25,000 operators produced per year
- 10,000 continuous current switching operations
- Complete switchgear shipped as one final-assembled unit
- Significantly lower life-cycle costs due to maintenance-free, stored-energy (spring) operator
- Optional start-up disconnecter for connection to SFC
- Connections to generator and step-up transformer using isolated phase busbar (not furnished)
- Current and voltage transformers available to suit specifications
- Surge arresters and surge capacitors optionally available

Dimensions in mm



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	13,500
Rated dielectric strength (withstand voltage)	5.4.2 C37.013a, Table 4		
1. Power frequency (dry)		kV	60, 70
2. Full-wave impulse (1.2 x 50)		kV peak	125, 145
Rated short-circuit duty cycle	5.5		CO-30 min-CO
Rated short-circuit current (up to)			
1. System source (100% I)	5.8.1	kA sym	110
• DC component		%	60
• Asymmetrical (total)		kA rms	144
2. Generator source	5.8.2.3	kA sym	75
• DC component		%	130
• Asymmetrical (total)		kA rms	157
Close and latch capability (2.74% 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	5.9		
System source	C37.013a, Table 5	kV	32.2
1. E ₂ peak voltage		kV/μs	5
2. RRRV (TRV rate)			
Generator source	C37.013a, Table 6		
1. E ₂ crest voltage		kV	32.2
2. RRRV (TRV rate)		kV/μs	2
Out-of-phase	C37.013a, Table 9		
1. E ₂ crest voltage		kV	45.5
2. RRRV (TRV rate)		kV/μs	3.1
Rated load-current switching capability	5.10	A	13,500
Out-of-phase current switching capability	5.12	kA	55
Mechanical endurance		operations	20,000
Continuous current switching endurance		operations	10,000
Weight in lbs (kg)	6,300 A; 15,212 (6,900); 8,000 A; 15,873 (7,200); 10,000 A; 16,535 (7,500); 12,700 A; 16,535 (7,500)		

Published by Siemens AG

Smart Infrastructure
Electrification & Automation
Mozartstrasse 31c
91052 Erlangen
Germany

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

100 Technology Drive
Alpharetta, GA 30005
United States

Article No. SIEA-B10042-01-7600
TH 524-230493 BR 0923
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