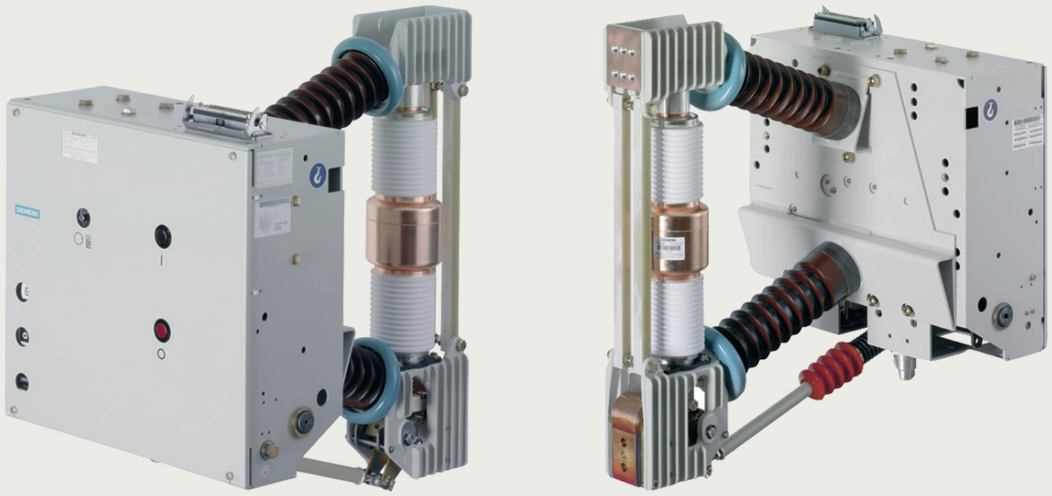


Version
1.1.2

PRODUCT INFORMATION

3AH47 – Vacuum circuit breaker for AC traction power supply

siemens.com/rail-electrification

SIEMENS

The 3AH47 series vacuum circuit-breakers are 1-pole or 2-pole circuit-breakers for indoor applications suitable for the special requirements and switching duties in AC traction power supply systems.

Features

- Proven vacuum switching technology for reliable switching duties
- Maximum operating safety due to
  – rated short-circuit breaking currents up to 50 kA
  – opening times up to 17 ms
- High number of make-break operations up to 60,000 times
- Maintenance-free up to 10,000 make-break operations
- Compact design

Technical data	**Unit**		
Rated voltage	[kV]	17.5	27.5
Rated frequency	[Hz]	16.7	50 / 60
Rated short duration power frequency withstand voltage	[kV]	≤70	≤105
Rated lightning impulse withstand voltage	[kV]	≤170	≤250
Rated normal current	[A]	≤2500	≤2500
Rated short-circuit breaking current	[kA]	≤50	31.5
Number of pole assemblies		1	1 or 2
Weight	[kg]	≤138	≤130
Maximum side altitude above sea level	[m]	1000*	1000*
Maximum humidity	[%]	≤95	≤95
Permissible ambient temperature	[°C]	-5...+40	-5...+40

* For altitudes above 1000 m the insulation level must be corrected.

Description

3AH47 vacuum circuit-breakers can be installed costeffectively in existing as well as in new switchgears.
They can be mounted on withdrawable switching trucks and plug-in modules or are also suitable for fi xed installation in factory-assembled and expandable switchgear arrangements.

Maintenance

The vacuum interrupters and the operating mechanism are maintenance-free and assure maintenance-free operation without relubrication and without subsequent adjustment throughout the entire equipment life.
According IEC 62271-1 this applies to all normal operating conditions up to 10,000 make-break operations both in cases of frequent actuation and after long periods of non-actuation.

Quality

The constant high quality and precision is achieved through a high degree of automation in production, machine-tool-made parts and due to design characteristics (few aligning places).

Environment

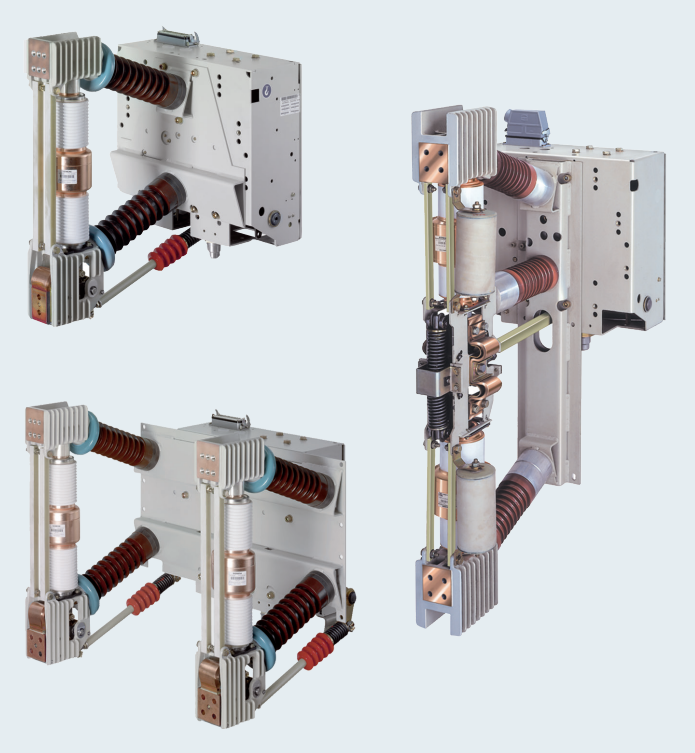
The vacuum circuit-breakers are:

- Environmentally compatible in terms of material selection and manufacturing processes
- Environmentally neutral in operation and during make-break operations
- Easy to dispose at the end of life time

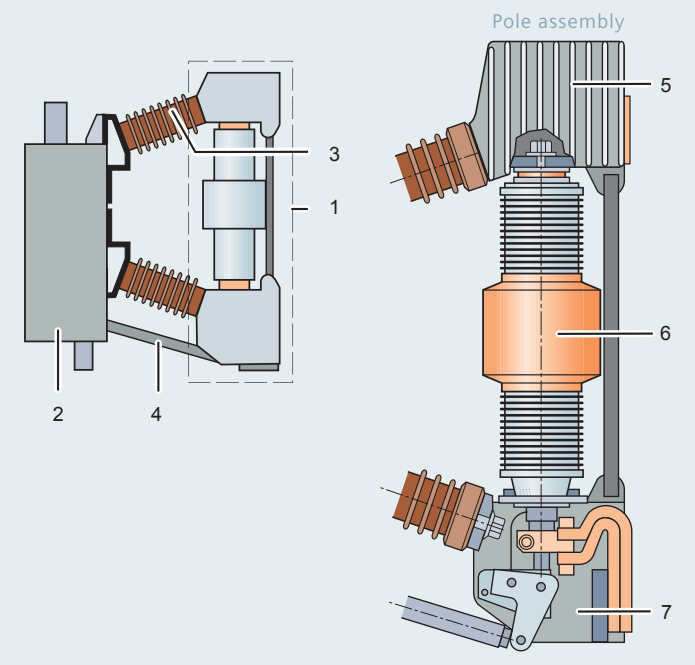
Standards

The vacuum circuit-breakers conform to the following standards (and the previous versions respectively applicable at the time of the type-test):

- IEC 62271-1
- IEC 62271-100
- EN 50152-1
- DIN VDE 0671
- DIN VDE 0115



1-pole and 2-pole vacuum circuit-breaker variants

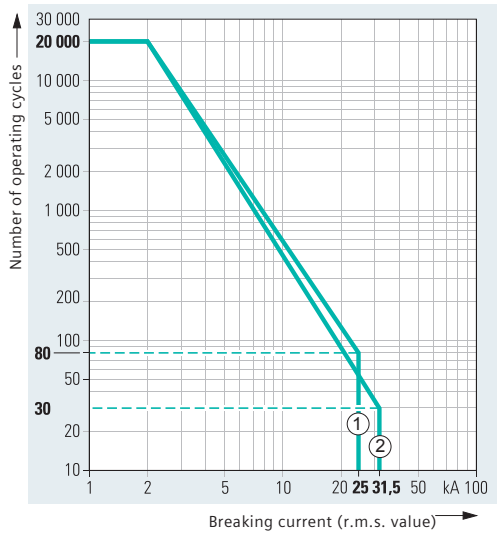


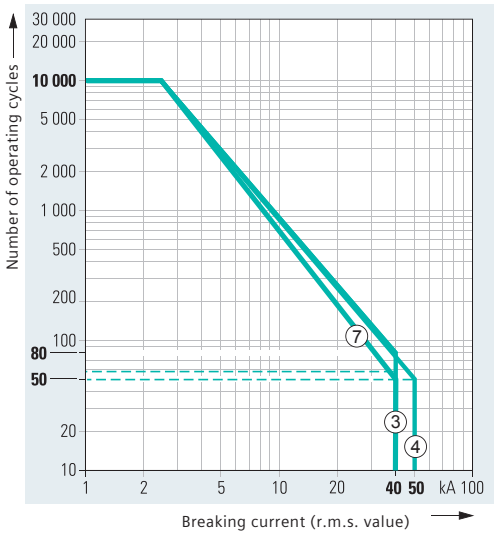
Design of a 1-pole vacuum circuit-breaker

1	Pole assembly	5	Upper interrupter support
2	Operating mechanism box	6	Vacuum interrupter
3	Post insulator	7	Lower interrupter support
4	Operating rod		

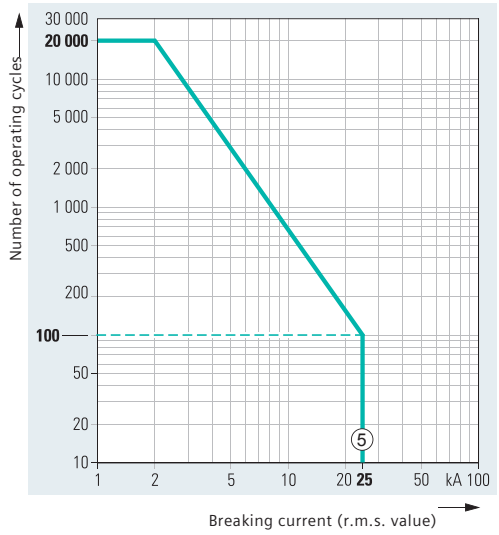
Operating cyle diagrams

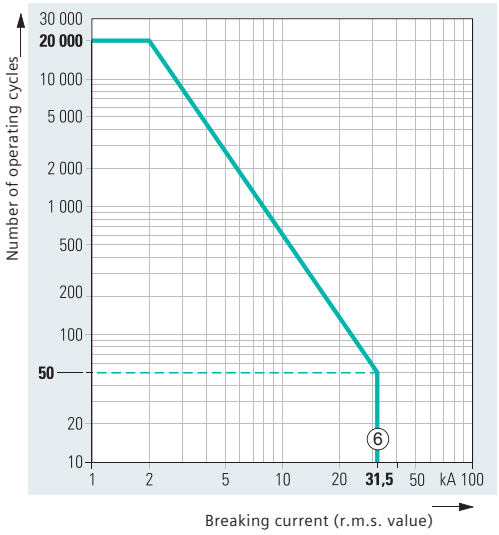
17.5 kV, 1-pole





27.5 kV, 1- and 2-pole





The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value).

Technical data

3AH47 Vacuum circuit- (17.5 kV; 16.7 Hz)	Unit	54-4	55-4	56-6	57-6	66-6
Rated short duration power frequency withstand voltage	[kV]	50	50	50 / 70*	50	50
Rated lightning impulse withstand voltage	[kV]	125	125	125 / 170*	125	125
Rated normal current	[A]	2,000	2,000	2,500	2,500	2,500
Rated short-circuit breaking current (duration)	[kA]	25 (3 s)	31.5 (3 s)	40 (3 s)	50 (3 s)	40 (3 s)
DC component of short-circuit breaking current	[%]	≤65	≤65	≤65	≤65	≤65
Peak value of rated transient recovery voltage	[kV]	36	36	36	36	36
Rate of rise of transient recovery voltage	[kV/µs]	0.481	0.481	0.481	0.481	0.33
Rated short-circuit making current	[kA]	63	80	100	125	100
Arcing time	[ms]	3 - 33	3 - 33	3 - 33	3 - 33	3 - 35
Rated operating sequence***		O - 3 min - CO - 3 min - CO or O - 15 s - CO				
Number of pole assemblies		1	1	1	1	1
Opening time with instantaneous release	[ms]	<17	<17	<17	<17	<17
Number of the characteristics curve in the operating cycle diagrams**		(1)	(2)	(3)	(4)	(7)
Weight	[kg]	90	90	138	138	110
Width	[mm]	531	531	531	531	510
Height	[mm]	732	732	1276	1276	668
Depth	[mm]	636	636	716	716	640

3AH47 Vacuum circuit-breaker (27.5 kV; 50 / 60 Hz)	Unit	84-2	84-4	85-6	94-2	94-4
Rated short duration power frequency withstand voltage	[kV]	85 / 95*	85 / 95*	85 / 95*	105	105
Rated lightning impulse withstand voltage	[kV]	185 / 200*	185 / 200*	185 / 200*	250	250
Rated normal current	[A]	1,250	2,000	2,500	1,250	2,000
Rated short-circuit breaking current (duration)	[kA]	25 (3 s)	25 (3 s)	31.5 (3 s)	25 (3 s)	25 (3 s)
DC component of short-circuit breaking current	[%]	≤36	≤36	≤36	≤36	≤36
Peak value of rated transient recovery voltage	[kV]	57	57	57	57	57
Rate of rise of transient recovery voltage	[kV/µs]	0.5	0.5	0.5	0.5	0.5
Rated short-circuit making current	[kA]	63	63	80	63	63
Arcing time	[ms]	3 - 13	3 - 13	3 - 13	3 - 13	3 - 13
Rated operating sequence***		O - 3 min - CO - 3 min - CO or O - 15 s - CO				
Number of pole assemblies		1 or 2	1 or 2	1 or 2	1	1
Number of the characteristics curve in the operating cycle diagrams**		(5)	(5)	(6)	(5)	(5)
Weight	[kg]	95	95	110	130	130
Width (for 1-pole version)	[mm]	534	534	534	531	531
Height (for 1-pole version)	[mm]	732	732	732	1203	1238
Depth (for 1-pole version)	[mm]	721	721	721	914	914

* optional ** see last page *** other values on request

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No. A6Z00002056096 | Version 1.1.2

Security information

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

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