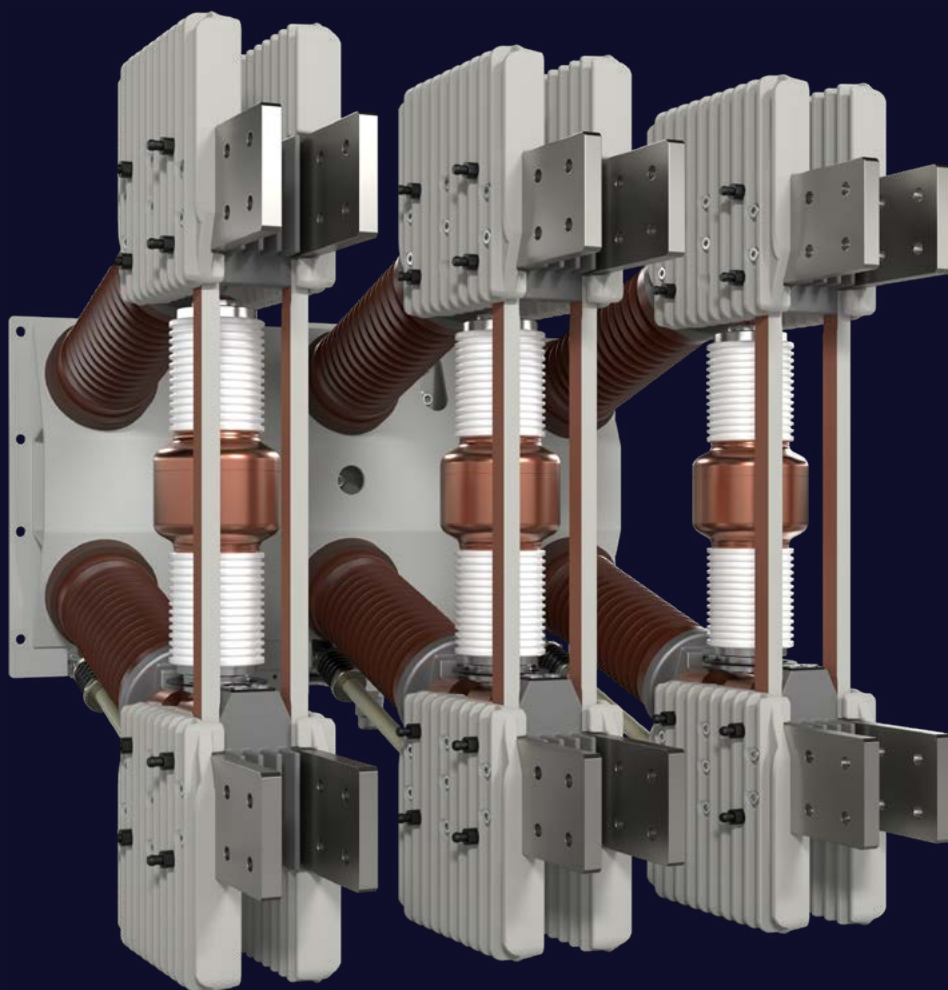




Catalog
HG 11.04
2025

MEDIUM-VOLTAGE EQUIPMENT

Vacuum Circuit-Breaker **3AH4**

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Vacuum Circuit-Breaker 3AH4

Medium-Voltage Equipment
Catalog HG 11.04 · 2025

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The products and systems listed in this catalog are manufactured and distributed using a certified management system (according to ISO 9001, ISO 14001 and ISO 45001).







Industrial application: Refinery

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1

Frequent-Operation Circuit-Breaker 3AH4 from 12 to 40.5 kV – The Persistent

Certain applications, especially in the industry, need high and up to very high numbers of operating cycles. The switching of arc furnaces, for example, requires more than 100 operating cycles a day.

3AH4 – the circuit-breaker for a maximum number of operating cycles

The vacuum circuit-breaker 3AH4 is designed for extremely high numbers of operating cycles: Depending on the application, it controls 30,000, 45,000, 90,000, or 120,000 operating cycles.

Minimum maintenance work, such as greasing of operating mechanisms after 15,000 operating cycles and replacement of vacuum interrupters after 30,000 or 45,000 operating cycles, preserves the reliability of these circuit-breakers throughout their entire service life – despite high mechanical stress.



The circuit-breaker consists of the pole assemblies (1) and the operating mechanism box (2). The pole assemblies are fixed to the operating mechanism box via post insulators (3). The switching movement is transferred by means of operating rods (4) and levers.

Switching medium

Proven and fully developed for approx. 50 years, vacuum switching technology is the principal arc-quenching medium used in vacuum interrupters.

Pole assemblies

The pole assembly (1) consists of the vacuum interrupter (6) and the interrupter supports. The vacuum interrupters are air-insulated and freely accessible. This makes it possible to clean the insulating parts easily in adverse ambient conditions. The vacuum interrupter is mounted rigidly to the upper interrupter support (5). The lower part of the vacuum interrupter is guided in the lower interrupter support (7), allowing axial movement. The braces and post insulators absorb both external forces resulting from switching operations and the contact pressure.

Operating mechanism

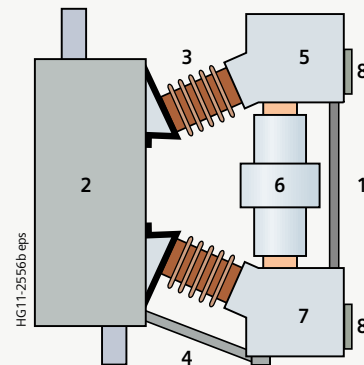
The whole operating mechanism with motor, releases, indicators and actuating devices is fixed in the operating mechanism box (2). The extent of this secondary equipment depends on the case of application and offers a multiple variety of options.

The circuit-breaker operating mechanism is a stored-energy spring mechanism. The force is transmitted from the operating mechanism to the pole assemblies via operating rods (4). The closing spring (17) can be charged either electrically or manually, and latches in automatically when charging is complete. The closing spring acts as an energy store.

To close the circuit-breaker, the closing spring (17) can be unlatched either mechanically at the device (ON push-button), or electrically by remote control. The closing spring (17) charges the opening and contact-pressure springs (21) as the circuit-breaker closes. The now discharged closing spring (17) is charged again automatically by the motor (19) or by hand. In this way, the stored-energy spring mechanism stores the OPEN – CLOSE – OPEN operating sequence that is required for an auto-reclosing operation on the system side. All stored-energy spring mechanisms perform the switching duties: synchronizing, rapid load transfer, and auto-reclosing.

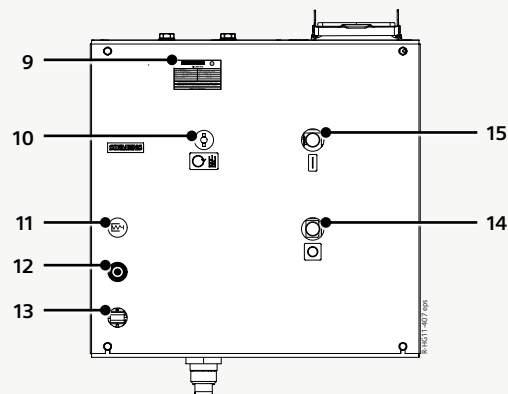
Trip-free mechanism

The vacuum circuit-breakers 3AH4 have a trip-free mechanism. In the event of an opening command being given after a closing operation has been initiated, the moving contacts of the vacuum interrupters return to the open position and remain there even if the closing command is sustained. However, the vacuum circuit-breaker contacts are momentarily in the closed position.



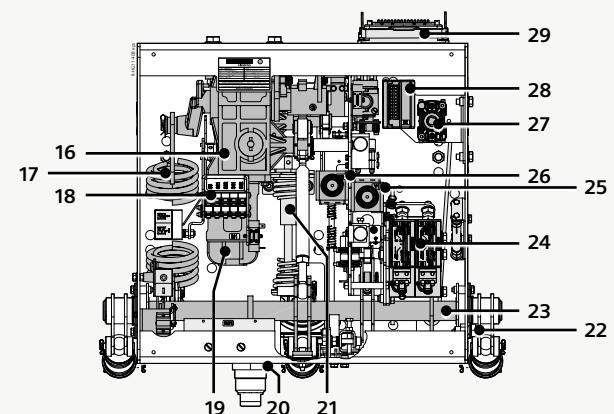
Circuit-breaker structure

- | | |
|---------------------------|-----------------------------|
| 1 Pole assembly | 5 Upper interrupter support |
| 2 Operating mechanism box | 6 Vacuum interrupter |
| 3 Post insulator | 7 Lower interrupter support |
| 4 Operating rod | 8 Terminal |



Control elements and indicators

- | | |
|----------------------------------|----------------------|
| 9 Nameplate | 13 Operation counter |
| 10 Opening for hand crank | 14 OFF pushbutton |
| 11 Spring charged indicator | 15 ON pushbutton |
| 12 CLOSE-OPEN position indicator | |



Open operating mechanism box

- | | |
|--------------------------|---|
| 16 Gear | 24 2 nd shunt release / undervoltage release (-Y2) |
| 17 Closing spring | 25 1 st shunt release (-Y1) |
| 18 Position switch | 26 Closing solenoid (-Y9) |
| 19 Motor | 27 Auxiliary switch (-S1) |
| 20 Dashpot | 28 Anti-pumping (-K1) |
| 21 Opening spring | 29 Low-voltage interface (-X0) |
| 22 Earthing connection | |
| 23 Circuit-breaker shaft | |

1

Releases

A release is a device that transfers electrical commands from an external source, such as a control room, to the latching mechanism of the circuit-breaker so that it can be opened or closed. The releases are designed for short-time duty and are reset internally. The various types of releases available are described in detail below:

Closing solenoid

The closing solenoid unlatches the charged closing spring of the vacuum circuit-breaker, closing it by electrical means.

Shunt releases

Shunt releases are used for automatic tripping of the circuit-breaker by suitable protection relays and by electrical operation. They are intended for connection to an external power supply (DC or AC voltage).

Current-transformer-operated releases

C.t.-operated releases consist of a mechanical energy store, an unlatching mechanism, and an electromagnetic system. They are used when there is no external source of auxiliary power (battery) available. Tripping is effected by means of a protection relay (e.g. time-overcurrent protection) acting on the c.t.-operated release.

Undervoltage releases

Undervoltage releases consist of a mechanical energy store, an unlatching mechanism, and an electromagnetic system that is permanently connected to the secondary or auxiliary voltage while the circuit-breaker is closed. If the voltage falls below a predetermined value, unlatching of the undervoltage release is enabled and the circuit-breaker is opened via the mechanical energy store.

A maximum of three releases can be equipped in accordance with page 19–23. The consumption data of the releases is listed on page 44.

For delayed tripping, the undervoltage release can be combined with energy stores.

Closing and anti-pumping

In the basic version, the circuit-breakers can be closed electrically from remote. In addition, they can be mechanically closed locally by direct unlatching of the closing spring.

Instead of this "manual mechanical closing", a "manual electrical closing" is also available. In this version, the closing circuit of the circuit-breaker is controlled electrically via a momentary contact instead of the pushbutton. Thus, switchgear-related interlocks can also be considered during local closing operations, and unintentional closing can be prevented.

If constant electrical signals for CLOSE and OPEN commands are present at the circuit-breaker at the same time, the circuit-breaker will carry out an OPEN-CLOSE-OPEN or a CLOSE-OPEN operating sequence. A new closing operation only takes place after a brief interruption of the closing signal. This prevents continuous closing and opening (= "pumping") operations.

Closing spring charged indication

The circuit-breaker has a mechanically operated spring charged indicator. The charging status of the closing spring can also be interrogated electrically. This is done via an integrated position switch.

Circuit-breaker tripping signal

During electrical opening, the NO contact -S6 makes brief contact. This is often used to operate a hazard warning system, which should respond to automatic tripping of the circuit-breaker. In case of local control, the NO contact -S6 does not close.

Interlocking

Mechanical interlocking

At the interface of the mechanical interlocking of the circuit-breaker, sensors on the switchgear side can check the switch position. This prevents the associated disconnecter from being operated while the circuit-breaker is closed. The system also prevents the circuit-breaker from being closed while the associated disconnecter is in fault position.

Electrical interlocking

The auxiliary and signaling contacts which query the switch position of the circuit-breaker or the position of the withdrawable part can be integrated in the switchgear interlocking concept. Furthermore, mechanical and electrical closing can also be prevented by means of an optional, electrical closing interlock. This makes it possible to exclude impermissible switching sequences.

Standards

The vacuum circuit-breakers 3AH4 conform to the following standards:

- IEC 62271-100
- IEC 62271-1.

All vacuum circuit-breakers 3AH4 comply with the classes E2, S1/S2 and C2 according to IEC 62271-100, and exceed class M2 by up to 12 times (30,000/45,000/90,000/120,000 operating cycles).

For class C2, all circuit-breakers fulfill the following values acc. to IEC 62271-100:

	Line	Cable	Capacitors	Back-to-back capacitor bank	
Rated voltage	Rated line-charging breaking current	Rated cable-charging breaking current	Rated single capacitor bank breaking current*	Rated back-to-back capacitor bank breaking current*	Frequency of the inrush current
U_r kV, r.m.s.	I_l A, r.m.s.	I_c A, r.m.s.	I_{sb} A, r.m.s.	I_{bb} A, r.m.s.	f_{bl} Hz
12	10	25	400, 1000	400, 1000	4250
17.5	10	31.5	400, 1000	400, 1000	4250
24	10	31.5	400, 1000	400, 1000	4250
36	10	50	400	400	4250
40.5	10	50	400	400	400

* Generally, vacuum circuit-breakers 3AH4 can break capacitive currents up to $0.7 \times I_r$.
The type test of the rated single capacitor bank breaking current was performed according to IEC 62271-100 with 400 A.
With the design update 2023 - 2025, additional tests were carried out with 1000 A.

Rated back-to-back capacitor bank inrush making current – see Chapter 3: Technical data.

Maintenance

Vacuum circuit-breakers 3AH4 are maintenance-free:

- Under normal ambient conditions according to IEC 62271-1
- Up to 15,000 operating cycles
 - No regreasing
 - No readjusting.

After that, maintenance is to be effected according to the maintenance schedule, e.g. regreasing every 15,000 operating cycles, and replacement of the vacuum interrupters every 30,000 or 45,000 operating cycles.

Description

Ambient conditions, current-carrying capacity, dielectric strength

Vacuum Circuit-Breaker 3AH4

1

Ambient conditions

The circuit-breakers are designed for normal service conditions as defined in IEC 62271-100.

Condensation can occasionally occur under the ambient conditions shown opposite.

The circuit-breakers are suitable for use in the following environmental conditions:

Environmental conditions	Class	Standard reference
Climatic environmental conditions	3K22 ¹⁾	IEC 60721-3-3
Biological environmental conditions	3B1	IEC 60721-3-3
Mechanical environmental conditions	3M11	IEC 60721-3-3
Chemically active substances	C3 ²⁾	ISO 9223
Mechanically active substances	3S6 ³⁾	IEC 60721-3-3

1) Lower temperature limit: -5 °C (with order code A40 down to -25 °C)

2) Without appearance of saline fog and simultaneous condensation

3) Restriction: clean insulation parts

Current-carrying capacity

The rated continuous currents specified in the diagram have been defined according to IEC 62271-100 for an ambient air temperature of +40 °C and apply to open switchgear.

For enclosed switchgear, the data of the switchgear manufacturer applies.

At ambient air temperatures below +40 °C, higher continuous currents can be carried (see diagram):

Characteristics curve 1 = Rated continuous current 1250 A
 Characteristics curve 2 = Rated continuous current 2000 A
 Characteristics curve 3 = Rated continuous current 2500 A
 Characteristics curve 4 = Rated continuous current 3150 A
 Characteristics curve 5 = Rated continuous current 4000 A

Dielectric strength

The dielectric strength of air insulation decreases with increasing altitude due to the lower air density.

According to IEC 62271-1, the values of the rated lightning impulse withstand voltage and the rated short-duration power-frequency withstand voltage specified in the chapter "Technical data" apply to a site altitude of up to 1000 m above sea level. For altitudes above 1000 m, the insulation level must be corrected according to the opposite diagram.

The characteristics curve shown applies to both rated withstand voltages.

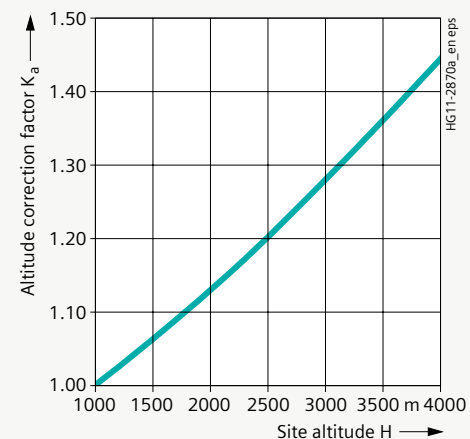
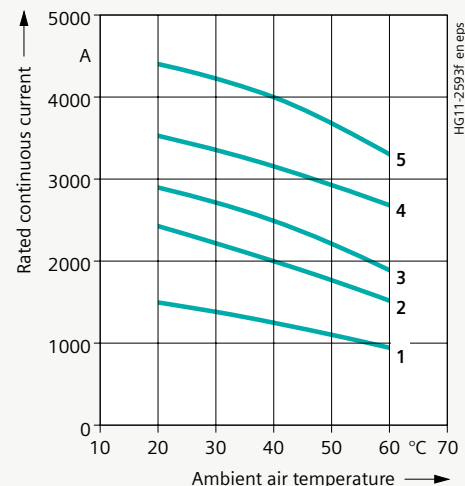
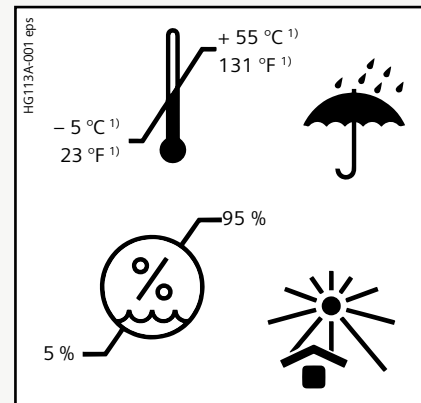
When selecting the devices, the following applies: $U \geq U_0 \times K_a$

U Rated withstand voltage under reference atmosphere
 U_0 Rated withstand voltage requested for the place of installation
 K_a Altitude correction factor according to the opposite diagram

Example

For a requested rated lightning impulse withstand voltage of 75 kV at an altitude of 2500 m, an insulation level of at least 90 kV under reference atmosphere is required:

$$90 \text{ kV} \geq 75 \text{ kV} \times 1.2$$



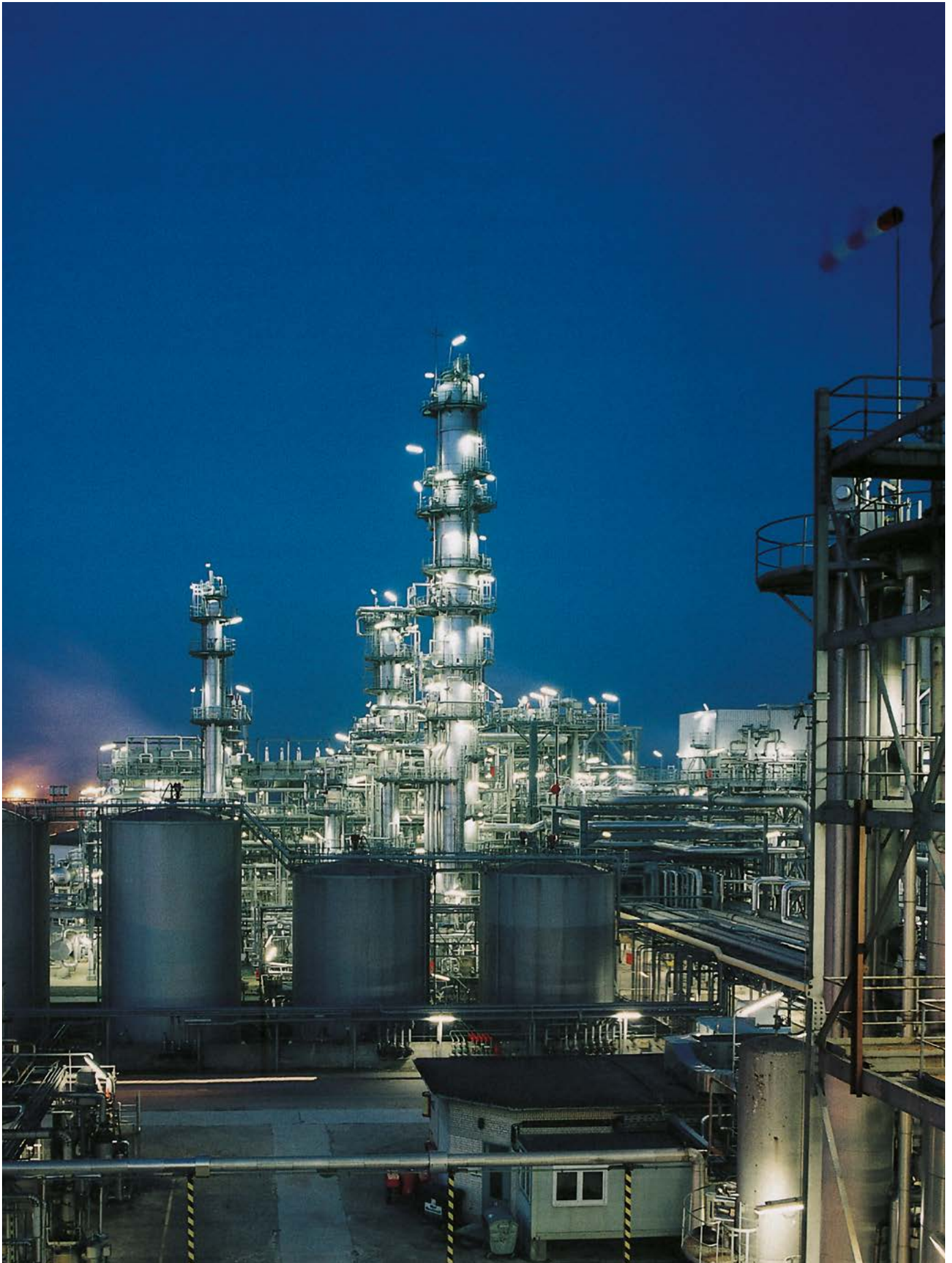
Overview of primary data 3AH4

Rated voltage	Rated short-circuit breaking current	Rated continuous current (A)												
		1250			2000			2500			3150			4000
		Pole-center distance (mm)												
kV	kA	210	275	350	210	275	350	210	275	350	210	275	350	350
12	31.5	□			□									
	40	□			□			□			□			
17.5	31.5	□			□									
	40	□			□			□			□			
24	25	□	□		□	□		□	□					
	40								■			■		
36	31.5			■			■			■			■	■
	40									■			■	■
40.5	31.5			■			■			■			■	■
	40									■			■	■

■ Available version: 120,000 operating cycles □ Available version: 30,000 / 45,000 / 90,000 operating cycles

Equipment

Features	Basic equipment	Configuration	Remarks
Operating mechanism	Electrical operating mechanism	None	Also for manual operation; hand crank available as accessory
Closing	Closing solenoid and manual mechanical closing	Manual electrical closing	–
1 st release	Shunt release	None	–
2 nd /3 rd release	Without	Shunt release, undervoltage release, c.t.-operated release	Max. 3 releases can be combined (for possible combinations, see page 19)
Varistor protection circuit	Standard for ≥ 60 V DC	None	For limiting switching overvoltages; interlocking solenoids do not have a protection circuit
Auxiliary switch	6 NO + 6 NC	12 NO + 12 NC	–
Low-voltage interface	30-pole connection strip	64-pole plug, 60-pole connection strip	–
Anti-pumping	Available	None	–
Circuit-breaker tripping signal	Available	None	–
Operation counter	Available	None	–
"Spring charged" signal and indication	Available	None	–
Interlocking	Without	Mechanical interlocking	–





Vacuum circuit-breaker 3AH4

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Voltage level 12 kV	16
Voltage level 17.5 kV	16
Voltage level 24 kV	17
Voltage level 36 kV	17
Voltage level 40.5 kV	18
Voltage level 52 kV	18
Selection of secondary equipment	19
Release combination	19
Operating voltage of the closing solenoid	20
Operating voltage of the 1 st release	21
Operating voltage of the 2 nd release	22
Operating voltage of the 3 rd release	23
Operating voltage of the drive motor	24
Low-voltage interface, auxiliary switch	25
Language of operating instructions and nameplate	26
Selection of additional equipment (order codes)	27
Accessories and spare parts	29
Nameplate	29

Article number structure

The vacuum circuit-breakers consist of a primary and a secondary part. The primary part of the article number covers the electrical and dimensional data of the circuit-breaker poles. The secondary part covers all auxiliary devices which are necessary for operating and controlling the circuit-breaker. The relevant data makes up the 16-digit article number.

Order codes

Individual equipment versions, marked with 9 or Z in the 9th to 16th position, are explained in more detail by a 3-digit order code. Several order codes can be added to the article number in succession and in any sequence.

Special versions (★):

In case of special versions, -Z is added to the article number and a descriptive order code follows.

If several special versions are required, the suffix -Z is listed only once. If a requested special version is not in the catalog and can therefore not be ordered via order code, it has to be identified with Y 9 9 after consultation. The agreement hereto is made directly between your responsible sales partner and the order management department at Siemens.

		a: Letter																n: Numeral						Order codes		
		Position: 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16									
Article No.:		3	A	H	4	n	n	n	-	n	a	a	n	n	-	n	a	a	n	-	★	■	■	■		
1 st position	Primary part Superior group Switching devices																									
2 nd position	Main group Circuit-breaker																									
3 rd position	Subgroup Circuit-breaker type series																									
4 th to 8 th position	Basic equipment Design and ratings of primary part																									
9 th to 16 th position	Secondary part Secondary equipment Operating mechanism, releases, operating voltages, and further auxiliary equipment																									
Order codes Groups of 3 after the article number Format: a n a																										
Special versions (★) Initiated with "-Z" Groups of 3 after the article number Format: a n n																										

You can configure your circuit-breaker manually on the next pages.

Or you can use our online configurator: www.siemens.com/mvp-configurator

Configuration example

To help you select the correct article number for the circuit-breaker type that you require, you will find a configuration example below.

A complete circuit-breaker has been configured as an example.

	Article number (position)																Order codes													
Selection of primary data	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16												
Vacuum circuit-breaker 3AH4	3	A	H	4	3	0	6		6																					
– Rated voltage $U_r = 36 \text{ kV}$, 50/60 Hz																														
– Rated lightning impulse withstand voltage $U_p = 170 \text{ kV}$																														
– Rated short-circuit breaking current $I_{sc} = 40 \text{ kA}$																														
– Pole-center distance = 350 mm																														
– Rated continuous current $I_r = 2500 \text{ A}$																														
Higher rated lightning impulse withstand voltage $U_p = 195 \text{ kV}$																			–	Z	E	2	4							
Rated short-duration power-frequency withstand voltage $U_d = 95 \text{ kV}$																			–	Z	E	2	5							
Selection of secondary equipment																														
Closing solenoid, 1 st shunt release, 2 nd shunt release and c.t.-operated release with rated continuous current 0.5 kA											P																			
Manual electrical closing at the circuit-breaker, operating voltage of the closing solenoid DC 30 V											Z												–	Z	K	2	A			
Operating voltage of the 1 st shunt release DC 48 V											2																			
2 nd release as shunt release with operating voltage DC 32 V											9												–	Z	M	1	B			
3 rd release as c.t.-operated release																							0							
Operating voltage of the drive motor AC 230 V, 50 Hz																							K							
Auxiliary switch 12 NO + 12 NC, 64-pole plug, without mechanical interlocking																								C						
Operating instructions and nameplate in English																								2						
Selection of additional equipment																														
Anti-condensation heating, heater for 230 V AC, 50 W																							–	Z	A	3	0			
Routine test certificate enclosed																							–	Z	F	2	0			

Example for article number: **3 A H 4 3 0 6 - 6 P Z 2 9 - 0 K C 2 - Z**
 Order codes: **E 2 4 + E 2 5 + K 2 A + M 1 B + A 3 0 + F 2 0**

50/60 Hz, 30,000/45,000/90,000 operating cycles

Rated voltage for 50/60 Hz	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Rated short-circuit breaking current with 36 % DC component	Rated short-circuit making current (at 50/60 Hz)	Pole-center distance	Rated continuous current	Article number (position)																Order codes				
							1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16			
							U_r	U_p	U_d	I_{sc}	I_{ma}	I_r															
kV	kV	kV	kA	kA	mm	A																					
12	75	28	31.5	80/82	210	1250	3	A	H	4	1	1	5	-	2		only together with	-	Z	M	■	■ ¹⁾					
						2000	3	A	H	4	1	1	5	-	4		only together with	-	Z	M	■	■ ¹⁾					
			40	100/104		1250	3	A	H	4	1	1	6	-	2		only together with	-	Z	M	■	■ ¹⁾					
						2000	3	A	H	4	1	1	6	-	4		only together with	-	Z	M	■	■ ¹⁾					
						2500	3	A	H	4	1	1	6	-	6		only together with	-	Z	M	■	■ ¹⁾					
						3150	3	A	H	4	1	1	6	-	7		only together with	-	Z	M	■	■ ¹⁾					

50/60 Hz, 30,000/45,000/90,000 operating cycles

U_r	U_p	U_d	I_{sc}	I_{ma}		I_r	Article number (position)																Order codes					
kV	kV	kV	kA	kA	mm	A	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16				
17.5	95	38	31.5	80/82	210	1250	3	A	H	4	2	1	5	–	2					only together with	–	Z	M	■	■ ¹⁾			
						2000	3	A	H	4	2	1	5	–	4					only together with	–	Z	M	■	■ ¹⁾			
			40	100/104	1250	3	A	H	4	2	1	6	–	2					only together with	–	Z	M	■	■ ¹⁾				
					2000	3	A	H	4	2	1	6	–	4					only together with	–	Z	M	■	■ ¹⁾				
					2500	3	A	H	4	2	1	6	–	6					only together with	–	Z	M	■	■ ¹⁾				
					3150	3	A	H	4	2	1	6	–	7					only together with	–	Z	M	■	■ ¹⁾				

1) Obligatory with selection of the number of operating cycles via order code:

30,000 operating cycles		-	Z	M	3	0
45,000 operating cycles	new	-	Z	M	4	5
90,000 operating cycles	new	-	Z	M	9	0
Special version						
$U_d = 42 \text{ kV}$		-	Z	E	1	3

Product upgrade: Our vacuum circuit-breakers – even better as from 2026

Starting in 2026, we will equip all our vacuum circuit-breakers 3AH4 for the voltage levels of 12 kV, 17.5 kV and 24 kV (up to 25 kA) with the latest generation of vacuum interrupters.

This means:

- An extended maintenance interval of 45,000 operating cycles for maximum availability and lower operating costs.
- Certified quality through comprehensive type tests according to the latest standards.
- Full compatibility thanks to retained primary and secondary interfaces, enabling seamless integration in your applications without any customization effort.

50/60 Hz, 30,000/45,000/90,000/120,000 operating cycles

2

30,000 operating cycles									-	Z	M	3	0	
45,000 operating cycles									new	-	Z	M	4	5
90,000 operating cycles									new	-	Z	M	9	0
Special version														
$U_f = 27.6 \text{ kV}$ (only for 3AH4294)														
										-	Z	E	4	1

50/60 Hz, 120,000 operating cycles

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Device configuration

Selection of primary data

Vacuum Circuit-Breaker 3AH4

40.5 kV

50/60 Hz, 120,000 operating cycles

Rated voltage for 50/60 Hz	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage ¹⁾	Rated short-circuit breaking current with 36 % DC component	Rated short-circuit making current (at 50/60 Hz)	Pole-center distance	Rated continuous current	Article number (position)																Order codes														
							1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16													
U_r kV	U_p kV	U_d kV	I_{sc} kA	I_{ma} kA	mm	I_r A														-	★	■	■	■	■	■	■	■	■	■	■	■					
40.5	185	85	31.5	80/82	350	1250	3	A	H	4	3	0	5	-	2					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
						2000	3	A	H	4	3	0	5	-	4					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
						2500	3	A	H	4	3	0	5	-	6					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
						3150	3	A	H	4	3	0	5	-	7					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
						4000	3	A	H	4	3	0	5	-	8					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
			40	100/104	350	2500	3	A	H	4	3	0	6	-	6					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
						3150	3	A	H	4	3	0	6	-	7					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
						4000	3	A	H	4	3	0	6	-	8					-	Z	Y	0	9	+	E	1	4	+	E	1	5					
Special version																																					
U_r kV	U_p kV	U_d kV																	-	★	■	■	■	■	■	■	■	■	■	■	■						
40.5	195	95	not for 8 th position 7 or 8																-	Z	Y	0	9	+	E	2	4	+	E	2	5						

Release combination ¹⁾
(9th position)

1 st shunt release	2 nd shunt release	3 rd shunt release	C.t.-operated release 0.5 A ²⁾	C.t.-operated release 1 A ²⁾	C.t.-operated tripping pulse equal to or greater than 0.1 Ws (10 Ω)	C.t.-operated tripping pulse equal to or greater than 0.1 Ws (20 Ω)	Undervoltage release	Article number (position)																Order codes						
								1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16					
I																	M													
I	II																N													
I	II	III															N								-	Z	F	1	5	
I	II		III														P													
I	II			III													P								-	Z	A	4	6	
I	II				III												P								-	Z	A	4	4	
I	II					III											P								-	Z	A	4	5	
I	II						III										T													
I							II										R													
I			II				III										S													
I				II			III										S								-	Z	A	4	6	
I					II		III										S								-	Z	A	4	4	
I						II	III										S								-	Z	A	4	5	
I			II														U													
I				II													U								-	Z	A	4	6	
I					II												V													
I						II											V								-	Z	A	4	5	

I = position of first release II = position of second release III = position of third release

- 1) The operating voltage is selected at the 11th to 13th position
2) Combinations of two c.t.-operated releases on request

On request, a faster release is available, which can implement tripping times of approx. 20 ms in combination with a special capacitor device.

Device configuration

Selection of secondary equipment

Vacuum Circuit-Breaker 3AH4

Operating voltage of the closing solenoid
(10th position)

Standard voltages	Special voltages	Article number (position)																Order codes				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16			
Mechanical closing at the circuit-breaker																						
DC 24 V												B										
DC 48 V												C										
DC 60 V												D										
DC 110 V												E										
DC 220 V												F										
AC 100 V 50/60 Hz												H										
AC 110 V 50/60 Hz												J										
AC 230 V 50/60 Hz												K										
	DC 30 V											Z							K	1	A	
	DC 32 V											Z							K	1	B	
	DC 120 V											Z							K	1	C	
	DC 125 V											Z							K	1	D	
	DC 127 V											Z							K	1	E	
	DC 240 V											Z							K	1	F	
	AC 120 V 50/60 Hz											Z							K	1	K	
	AC 125 V 50/60 Hz											Z							K	1	L	
	AC 240 V 50/60 Hz											Z							K	1	M	
Manual electrical closing at the circuit-breaker																						
DC 24 V												M										
DC 48 V												N										
DC 60 V												P										
DC 110 V												Q										
DC 220 V												R										
AC 100 V 50/60 Hz												T										
AC 110 V 50/60 Hz												U										
AC 230 V 50/60 Hz												V										
	DC 30 V											Z							K	2	A	
	DC 32 V											Z							K	2	B	
	DC 120 V											Z							K	2	C	
	DC 125 V											Z							K	2	D	
	DC 127 V											Z							K	2	E	
	DC 240 V											Z							K	2	F	
	AC 120 V 50/60 Hz											Z							K	2	K	
	AC 125 V 50/60 Hz											Z							K	2	L	
	AC 240 V 50/60 Hz											Z							K	2	M	

Operating voltage of the 1st shunt release
(11th position)

Standard voltages	Special voltages	Article number (position)																Order codes				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16			
DC 24 V													1									
DC 48 V													2									
DC 60 V													3									
DC 110 V													4									
DC 220 V													5									
AC 100 V 50/60 Hz													6									
AC 110 V 50/60 Hz													7									
AC 230 V 50/60 Hz													8									
	DC 30 V												9							L	1	A
	DC 32 V												9							L	1	B
	DC 120 V												9							L	1	C
	DC 125 V												9							L	1	D
	DC 127 V												9							L	1	E
	DC 240 V												9							L	1	F
	AC 120 V 50/60 Hz												9							L	1	K
	AC 125 V 50/60 Hz												9							L	1	L
	AC 240 V 50/60 Hz												9							L	1	M

Operating voltage of the 2nd release
Shunt release, undervoltage release or c.t.-operated release
(12th position)

Standard voltages	Special voltages	Article number (position)																Order codes				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16			
None or c.t.-operated release														0								
DC 24 V														1								
DC 48 V														2								
DC 60 V														3								
DC 110 V														4								
DC 220 V														5								
AC 100 V 50/60 Hz														6								
AC 110 V 50/60 Hz														7								
AC 230 V 50/60 Hz														8								
	DC 30 V													9						M	1	A
	DC 32 V													9						M	1	B
	DC 120 V													9						M	1	C
	DC 125 V													9						M	1	D
	DC 127 V													9						M	1	E
	DC 240 V													9						M	1	F
	AC 120 V 50/60 Hz													9						M	1	K
	AC 125 V 50/60 Hz													9						M	1	L
	AC 240 V 50/60 Hz													9						M	1	M

Special version

When operating the 2nd release as an undervoltage release on an energy store of type AN 1902- (for DC) or AN 1901-2 (for AC), both make Bender, the operating voltage must be specified – and whether the energy store is to be procured by the customer or included in the scope of supply.

	Energy store																			
	Type	included in the scope of supply																		
DC 60 V	AN 1902-	no																		
DC 110 V	AN 1902-	no																		
DC 220 V	AN 1902-	no																		
AC 100 V/110 V/230 V	AN 1901-2	no																		
DC 60 V	AN 1902-	yes																		
DC 110 V	AN 1902-	yes																		
DC 220 V	AN 1902-	yes																		
AC 100 V/110 V/230 V	AN 1901-2	yes																		

Operating voltage of the 3rd release
Undervoltage or c.t.-operated release
(13th position)

Standard voltages	Special voltages	Article number (position)																Order codes				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16			
None or c.t.-operated release																0						
DC 24 V																1						
DC 48 V																2						
DC 60 V																3						
DC 110 V																4						
DC 220 V																5						
AC 100 V 50/60 Hz																6						
AC 110 V 50/60 Hz																7						
AC 230 V 50/60 Hz																8						
	DC 30 V															9				N	1	A
	DC 32 V															9				N	1	B
	DC 120 V															9				N	1	C
	DC 125 V															9				N	1	D
	DC 127 V															9				N	1	E
	DC 240 V															9				N	1	F
	AC 120 V 50/60 Hz															9				N	1	K
	AC 125 V 50/60 Hz															9				N	1	L
	AC 240 V 50/60 Hz															9				N	1	M

Special version

When operating the 3rd release as an undervoltage release on an energy store of type AN 1902- (for DC) or AN 1901-2 (for AC), both make Bender, the operating voltage must be specified – and whether the energy store is to be procured by the customer or included in the scope of supply.

	Energy store																	
	Type	included in the scope of supply																
DC 60 V	AN 1902-	no	9 N 2 D															
DC 110 V	AN 1902-	no	9 N 2 E															
DC 220 V	AN 1902-	no	9 N 2 F															
AC 100 V / 110 V / 230 V	AN 1901-2	no	9 N 2 G															
DC 60 V	AN 1902-	yes	9 N 3 D															
DC 110 V	AN 1902-	yes	9 N 3 E															
DC 220 V	AN 1902-	yes	9 N 3 F															
AC 100 V / 110 V / 230 V	AN 1901-2	yes	9 N 3 G															

Operating voltage of the drive motor
(14th position)

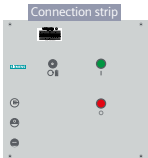
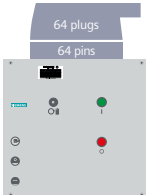
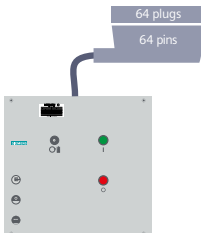
Standard voltages	Special voltages	Article number (position)																Order codes				
		1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16			
DC 24 V ¹⁾																		B				
DC 48 V ¹⁾																		C				
DC 60 V																		D				
DC 110 V																		E				
DC 220 V																		F				
AC 100 V 50/60 Hz																		H				
AC 110 V 50/60 Hz																		J				
AC 230 V 50/60 Hz																		K				
	DC 30 V ¹⁾																	Z		P	1	A
	DC 32 V ¹⁾																	Z		P	1	B
	DC 120 V																	Z		P	1	C
	DC 125 V																	Z		P	1	D
	DC 127 V																	Z		P	1	E
	DC 240 V																	Z		P	1	F
	AC 120 V 50/60 Hz																	Z		P	1	K
	AC 125 V 50/60 Hz																	Z		P	1	L
	AC 240 V 50/60 Hz																	Z		P	1	M

1) Drive motors with operating voltages from 24 to 48 V are always subject to a maintenance interval of 30,000 operating cycles

Low-voltage interface, auxiliary switch
(15th position)

Low-voltage interface			Auxiliary switch																								
64-pole plug ^{1) 2)}	30-pole connection strip ¹⁾	60-pole connection strip ²⁾	6 NO + 6 NC	12 NO + 12 NC	All contacts wired	Article number (position)																Order codes					
						1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16				
■			■																			A					
	■		■																			G					
■				■																		C					
■				■	■	■																C	-	Z	S	4	9
	■			■																		M					
		■		■	■	■																M	-	Z	B	6	0
■			■																			B					
	■		■																			H					
■				■																		D					
■				■	■	■																D	-	Z	S	4	9
	■				■																	N					
		■		■	■	■																N	-	Z	B	6	0
Special version with gold-plated auxiliary switch contacts:																											
6 NO + 6 NC with connection strip (not gold-plated) (G or H)																											
12 NO + 12 NC with connection strip (not gold-plated) (M or N)																											
6 NO + 6 NC with gold-plated plug pins (A or B)																											
12 NO + 12 NC with gold-plated plug pins (C or D)																											
The mechanical interlocking and circuit-breaker tripping signal are included as standard in all configurations shown above.																											

1) Depending on the equipment, terminals of the 64-pole plug, the 30-pole connection strip, and unused auxiliary switch contacts remain unwired.
(If necessary, they can be wired by the customer. Prefabricated wires are available as accessories.)
2) When selecting B60 or S49, free auxiliary switch contacts are wired.

Connection strip		64-pole plug		Extended cable harness and 64-pole plug																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
		Lower part of plug at the switching device, upper part of plug in the material pack		Upper part of plug at the end of the cable harness, lower part of plug in the material pack																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Article No.	15 th position = G, H, M or N	15 th position = A, B, C or D		15 th position = A, B, C or D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Language of operating instructions and nameplate
(16th position)

Language selection	Article number (position)																Order codes				
	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16			
German																		0			
English																		2			
French																		4			
Spanish																		6			
Special versions																					
Portuguese																		9	R	1	C
Italian																		9	R	1	F
Russian																		9	R	1	G
Polish																		9	R	1	K
Turkish																		9	R	1	L
Additional specifications on the nameplate. Specification in clear text.																					
Only after consultation with the order processing department at the																					
Switchgear Factory in Berlin, Germany. On request ¹⁾																			-	Z	Y 1 2
Operating instructions and product label for USA																			-	Z	Y 4 0

Other languages on request

1) Please clarify any inquiries via [siemens.com/mvp-support](https://www.siemens.com/mvp-support).

Options	Remarks	Order codes				
Cable ends with destination marking		–	Z	A	0	5
Wiring cable AWG14 SIS, gray (UL-Listed)		–	Z	A	0	6
Wiring cables halogen-free and flame-retardant		–	Z	A	1	0
Wiring cables tinned, halogen-free, and flame-retardant		–	Z	A	1	2
Wiring cable AWG16, gray (UL-Listed)		–	Z	A	1	4
Gold-plated auxiliary switch contacts 6 NO + 6 NC with connection strip (not gold-plated)	15 th position G or H	–	Z	A	1	7
Gold-plated auxiliary switch contacts 12 NO + 12 NC with connection strip (not gold-plated)	15 th position M or N	–	Z	A	1	8
Gold-plated auxiliary switch contacts 6 NO + 6 NC with gold-plated plug pins	15 th position A or B	–	Z	A	2	0
Gold-plated auxiliary switch contacts 12 NO + 12 NC with gold-plated plug pins	15 th position C or D	–	Z	A	2	1
Anti-condensation heating, heater for AC 110 V, 50 W		–	Z	A	2	9
Anti-condensation heating, heater for AC 230 V, 50 W		–	Z	A	3	0
Version free of silicone emissions		–	Z	A	3	1
Circuit-breaker for operation down to –25 °C		–	Z	A	4	0
C.t.-operated release for tripping pulse ≥ 0.1 Ws, 10 Ω		–	Z	A	4	4
C.t.-operated release for tripping pulse ≥ 0.1 Ws, 20 Ω		–	Z	A	4	5
Current-transformer-operated release 1.0 A		–	Z	A	4	6
Electrical closing lockout		–	Z	A	4	7
Spring-dump (release of energy store when the plug is disconnected)		–	Z	A	6	1
Prevalent trip (opening operation prevents closing)		–	Z	A	6	2
Prevalent trip, spring-dump, and closed breaker query ¹⁾	15 th position A, G, C or M	–	Z	A	6	4
Prevalent trip and spring-dump ¹⁾	15 th position A, G, C or M	–	Z	A	6	5
Additional nameplate, loose delivery		–	Z	B	0	0
Extended cable harness 500 mm		–	Z	B	0	2
Extended cable harness 800 mm		–	Z	B	0	1
Extended cable harness 1200 mm	Potential voltage losses must be taken into account when using long cable harnesses.	–	Z	B	0	4
Extended cable harness 1500 mm		–	Z	B	0	5
Extended cable harness 2000 mm		–	Z	B	0	3
Extended cable harness 2500 mm		–	Z	B	0	6
Extended cable harness 3000 mm	For operating voltage as from 48 V	–	Z	B	0	7
Extended cable harness 3500 mm		–	Z	B	0	8
Without cover		–	Z	B	2	0
Without upper part of plug		–	Z	B	2	3
Close-open solenoids with thermo switch	Only valid for 60 V / 110 V / 220 V DC	–	Z	B	4	7
60-pole connection strip	Not possible for A06/AWG with A14	–	Z	B	6	0
Special circuit diagram	On request ²⁾	–	Z	B	9	9
Primary circuits, silver-plated, for external connections and internal interconnection on both sides (standard for 4000 A circuit-breakers)	On request ²⁾	–	Z	D	1	0
For use in H ₂ S-containing environments: gold-plated contacts, tinned pole side	On request ²⁾	–	Z	D	2	0
2 kV/1 min test for secondary systems		–	Z	E	0	2
Rated lightning impulse withstand voltage 185 kV (as from 36 kV)		–	Z	E	1	4
Rated short-duration power-frequency withstand voltage 85 kV (as from 36 kV)		–	Z	E	1	5
Rated lightning impulse withstand voltage 195 kV (as from 36 kV)		–	Z	E	2	4
Rated short-duration power-frequency withstand voltage 95 kV (as from 36 kV)		–	Z	E	2	5

1) Functionalities of the mechanical interface for a solution with withdrawable part

Closed-breaker query: Through the mechanical interface, the circuit-breaker position can be inquired and racking of the closed circuit-breaker can be blocked.

Prevalent Trip: When the mechanical interlocking device is operated, the circuit-breaker is opened and reclosing is prevented.

Spring-dump: The circuit-breaker's closing and opening springs can be discharged by operating the mechanical interface.

2) Please clarify any inquiries via [siemens.com/mvp-support](https://www.siemens.com/mvp-support).

Device configuration

Vacuum Circuit-Breaker 3AH4

Selection of additional equipment (order codes)

Options	Remarks	Order codes				
$U_i = 27.6$ kV (only for 3AH4294)		-	Z	E	4	1
Seaworthy transport for Germany		-	Z	F	0	2
With 3 rd shunt release	Voltage according to 13 th position	-	Z	F	1	5
Routine test certificate enclosed with stamp and passport		-	Z	F	1	9
Routine test certificate enclosed		-	Z	F	2	0
Routine test certificate (with stamp and signature)		-	Z	F	2	1
Routine test certificate sent to ordering party in electronic form		-	Z	F	2	3
Rated operating sequence O – 3 min – CO – 3 min - CO	Only for IEC	-	Z	F	2	7
Rated operating sequence O - 0.3 s - CO - 15 s - CO	Only possible up to 31.5 kA	-	Z	F	2	8
Hand crank (also for motor operating mechanism) for manual charging of the closing spring		-	Z	F	3	0
Mounted cover for CLOSING (lockable)		-	Z	J	6	2
30,000 operating cycles	Only for 3AH41, 3AH42, 3AH43xx-2/4/6	-	Z	M	3	0
45,000 operating cycles	Only for 3AH41, 3AH42	-	Z	M	4	5
90,000 operating cycles		-	Z	M	9	0
Auxiliary switch completely wired	See selection at 15 th position C and D	-	Z	S	4	9
Coil monitoring Y1 via -S1		-	Z	S	7	4
Coil monitoring Y2 via -S1		-	Z	S	7	5
Coil monitoring Y1 without -S1		-	Z	S	7	9
Coil monitoring Y2 without -S1		-	Z	S	8	1
Warranty 24 months		-	Z	W	7	0
Warranty 36 months		-	Z	W	7	1
Warranty 60 months		-	Z	W	7	2
Higher rated voltage 40.5 kV (instead of 36 kV)	Only in conjunction with E14/E15 and E24/E25	-	Z	Y	0	9
Additional specifications on the nameplate. Specifications in clear text.	Only after consultation with the order processing department at the Switchgear Factory in Berlin, Germany. On request ¹⁾	-	Z	Y	1	2
Operating instructions and product label for USA		-	Z	Y	4	0
Other special version that is not listed. Specifications additionally in clear text.	Only after consultation with the order processing department at the Switchgear Factory in Berlin, Germany. On request ¹⁾	-	Z	Y	9	9

1) Please clarify any inquiries via [siemens.com/mvp-support](https://www.siemens.com/mvp-support).

Ordering information for accessories and spare parts

The article numbers in the spare part overviews are valid for currently manufactured vacuum circuit-breakers. When mounting parts or spare parts are being ordered for existing vacuum circuit-breakers, always quote the type designation, serial number, and the year of manufacture of the circuit-breaker to be sure to get the correct parts. This data is given on the nameplate.

Retrofitting

When releases/solenoids are retrofitted, the article number of the mounting parts must also be specified. For other additional equipment, the required mounting parts are included in the scope of supply.

Spare interrupters

As spare parts, the vacuum interrupters are supplied with an adapter.

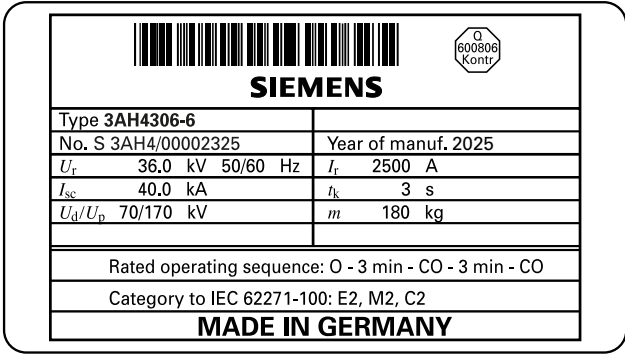
Vacuum interrupters and other spare parts must only be replaced by instructed personnel.

Accessories for the plug connector

Included in the scope of supply of the basic equipment for vacuum circuit-breakers 3AH4:

- For 64-pole plug
- Lower part of plug
 - Upper part of plug
 - Crimp sockets according to number of contacts.

Nameplate



Note:
The following 3 details are necessary for any query regarding spare parts, subsequent deliveries, etc.:
– Type designation
– Serial No.
– Year of manufacture

Designation	Description	Remarks	Article number
Hand crank for manual charging of the closing spring	Bit for battery-operated screwdriver		3AX1530-3D
	Short version		3AX1530-4A
	Standard version		3AX1530-4B
	Long version		3AX1530-4C
Lubricant	1 l Shell Tellus Oil 32 (special oil)		3AX1133-2D
	1000 ml of Klüber-Isoflex Topas L32N		3AX1133-3E
	180 ml of Klüber-Isoflex Topas L32N		3AX1133-3H
Wire bundle	With 10 wires for connection from the auxiliary switch to the 64-pole plug		3AX1134-2D
Accessories for 64-pole plug	Crimp pins (for lower part of plug, 64-pole)		3AX1134-4B
	Crimp sockets (for upper part of plug, 64-pole)		3AX1134-4C
	Crimping pliers		3AX1134-4D
	Disassembly tool		3AX1134-4G
	Upper part of plug, 64-pole (with sockets)		3AX1134-5A
	Lower part of plug, 64-pole (with pins)		3AX1134-5B
	Lower part of plug, 64-pole (with sockets)		3AX1134-5N
	64-pole plug (upper and lower part, with pins and sockets)		3AX1134-6A

Device configuration

Accessories and spare parts

Vacuum Circuit-Breaker 3AH4

2

Designation	Description	Remarks	Article number
Operating solenoid for closing solenoid and 1 st shunt release	DC 24 V		3AY1510-5K
	DC 30/32 V		3AY1510-5M
	DC 48 V		3AY1510-5C
	DC 60 V		3AY1510-5D
	DC 110/120 V		3AY1510-5E
	DC 125/127 V		3AY1510-5L
	DC 220/240 V		3AY1510-5F
	AC 100 – 125 V, 50/60 Hz	Including varistor and rectifier	3AY1510-5E
	AC 230/240 V, 50/60 Hz		3AY1510-5F
2 nd shunt release	DC 24 – 32 V		3AX1101-2B
	DC 48 – 60 V		3AX1101-2C
	DC 110 – 127 V		3AX1101-2E
	DC 220 – 240 V		3AX1101-2F
	AC 100 – 125 V, 50 Hz / 60 Hz		3AX1101-2G
	AC 230 – 240 V, 50 Hz / 60 Hz		3AX1101-2J
Undervoltage release, including series resistor	DC 24 V		3AX1103-2B
	DC 30/32 V		3AX1103-2L
	DC 48 V		3AX1103-2C
	DC 60 V		3AX1103-2D
	DC 110 V		3AX1103-2E
	DC 120 V – 127 V		3AX1103-2N
	DC 220 V		3AX1103-2F
	DC 240 V		3AX1103-2P
	AC 100 V, 50 Hz / 60 Hz		3AX1103-2G
	AC 110 V – 125 V, 50 Hz / 60 Hz		3AX1103-2H
	AC 230 V, 50 Hz / 60 Hz		3AX1103-2J
	AC 240 V, 50 Hz / 60 Hz		3AX1103-2M
Mounting parts	For one shunt release	Up to Serial No. 3AH4/00007611	3AX1711-3A
		As from Serial No. 3AH4/00007612	3AX1711-4A
	For two shunt releases	Up to Serial No. 3AH4/00007611	3AX1711-3B
		As from Serial No. 3AH4/00007612	3AX1711-4B
Drive motor	DC 24/30/32 V		3AY1511-3B
	DC 48 V		3AY1511-3C
	DC 60 V		3AY1511-3D
	DC/AC 100/110/125/127 V ²⁾		3AY1511-3E
	DC/AC 220 – 250 V ²⁾		3AY1511-3F
Rectifier module	For drive motor with AC operation ²⁾ AC 100 V – 250 V		3AX1525-1F
Electronic module for anti-pumping (for devices as from 2021) ¹⁾	DC 24 – 32 V		3AY1420-2A
	DC 48 V – 60 V		3AY1420-2C
	DC 110 V – 127 V		3AY1420-2E
	AC 100 V – 125 V		
	DC 220 V – 240 V		3AY1420-2G
	AC 230 V – 240 V		
Position switch	Type 3SE4 without fixing accessories		3AX4206-0A
	Used for:	Quantity	
	– Electrical anti-pumping (-S3)	1	
	– Motor control (-S21, -S22)	2	
	– Closing spring charged (-S4)	1	
	– Circuit-breaker tripping signal (-S6, -S7)	2	
	– Electrical closing lockout (-S5)	1	

1) For older devices, please contact the Technical Support

2) For AC operation, a DC motor with series rectifier module must be used

Continued on next page

Designation	Description	Remarks	Article number
Auxiliary switch (-S1)	6 NO + 6 NC		3SV9473-2AA0
	12 NO + 12 NC		3SV9474-2AA0
	12 NO + 12 NC, gold-plated auxiliary switch contacts		3SV9974-2AA0
Mechanical interlocking			3AX1520-4C
Retaining elements and cotter pins	For circuit-breaker overhaul	Set for one circuit-breaker	3AY1550-1A
Spare vacuum interrupters per phase: pre-adjusted interrupter with adapter and other accessories	For circuit-breaker:		
	3AH4115-2	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-2B
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-1V
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3V
	3AH4115-4	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-2B
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-2V
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3V
	3AH4116-2/4	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-1D
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-1W
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3W
	3AH4116-6/7	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-1D
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-2W
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3W
	3AH4215-2	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-2B
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-1V
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3V
	3AH4215-4	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-2B
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-2V
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3V
	3AH4216-2/4	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-1D
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-1W
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3W
	3AH4216-6/7	Up to Serial No. 3AH4/0000x (12'25) ¹⁾	3AY1715-1D
		Up to Serial No. 3AH4/0000x (12'25) ²⁾	3AY1715-2W
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-3W
	3AH4254-2	Up to Serial No. 3AH4/00012441 (07'23) ¹⁾	3AY1715-1F
		Up to Serial No. 3AH4/00012441 (07'23) ²⁾	3AY1715-1U
		Serial No. 3AH4/00012442 (08'23) up to 3AH4/0000x (12'25)	3AY1715-4U
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-5U
	3AH4254-4/6	Up to Serial No. 3AH4/00012441 (07'23) ¹⁾	3AY1715-1G
		Up to Serial No. 3AH4/00012441 (07'23) ²⁾	3AY1715-2U
		As from Serial No. 3AH4/00012442 (08'23)	3AY1715-5U
	3AH4264-2	Up to Serial No. 3AH4/00012441 (07'23) ¹⁾	3AY1715-3F
		Up to Serial No. 3AH4/00012441 (07'23) ²⁾	3AY1715-1U
		Serial No. 3AH4/00012442 (08'23) up to 3AH4/0000x (12'25)	3AY1715-4U
		As from Serial No. 3AH4/0000y (01'26)	3AY1715-5U
	3AH4264-4/6	Up to Serial No. 3AH4/00012441 (07'23) ¹⁾	3AY1715-1G
		Up to Serial No. 3AH4/00012441 (07'23) ²⁾	3AY1715-2U
		As from Serial No. 3AH4/00012442 (08'23)	3AY1715-5U
	3AH4266-6		3AY1715-2M
	3AH4266-7		3AY1715-6M
	3AH4294-4/6	Up to Serial No. 3AH4/00012441 (07'23) ¹⁾	3AY1715-3G
		Up to Serial No. 3AH4/00012441 (07'23) ²⁾	3AY1715-3U
		As from Serial No. 3AH4/00012442 (08'23)	3AY1715-4U

1) Original vacuum interrupter (only limited quantities available)

2) A new type of vacuum interrupter with adapter parts will be supplied, so that the circuit-breaker can be retrofitted to the newer version.

Continued on next page

Designation	Description	Remarks	Article number
Spare vacuum interrupters (continued) per phase: pre-adjusted interrupter with adapter and other accessories	For circuit-breaker:		
	3AH4305-2/4/6		3AY1715-6L
	3AH4305-7		3AY1715-5M ³⁾
	3AH4305-8	As from Serial No. 4434 (for older serial numbers, on request)	3AY1715-5M ³⁾
	3AH4306-6		3AY1715-1M
	3AH4306-7		3AY1715-5M ³⁾
	3AH4306-8	As from Serial No. 4434 (for older serial numbers, on request)	3AY1715-5M ³⁾
Spare contact pressure system per phase: coupling rod, contact pressure spring, socket, roller bearing, and other accessories	3AH4305-2/4/6		3AX1545-1C
	3AH4305-7/8		3AX1545-1A
	3AH4305-2/4/6 –Z E14+E15		3AX1545-1E
	3AH4305-7/8 –Z E14+E15		3AX1545-1A
	3AH4305-2/4/6 –Z E24+E25		3AX1545-1G
	3AH4305-7/8 –Z E24+E25		3AX1545-1A
	3AH4306-6		3AX1545-1D
	3AH4306-7/8		3AX1545-1A
	3AH4306-6 –Z E14+E15		3AX1545-1F
	3AH4306-7/8 –Z E14+E15		3AX1545-1A
	3AH4306-6 –Z E24+E25		3AX1545-1H
	3AH4306-7/8 –Z E24+E25		3AX1545-1A

3) The vacuum interrupters must be exchanged at the Siemens factory.



Power terminal 3AH4

Electrical data and weights	34
Voltage level 12 and 17.5 kV	34
Voltage level 24 kV	35
Voltage level 36 kV	36
Voltage level 40.5 kV	37
Operating cycle diagrams and dimensional drawings	38
Operating times and internal times, short-circuit protection of motors, consumption data and tripping ranges of releases	44
Circuit diagrams	45

12 kV
50/60 Hz

50/60 Hz

Article No.	Rated continuous current		Pole-center distance (PCD)		Rated operating sequence: O – 3 min – CO – 3 min – CO O – 0.3 s – CO – 3 min – CO O – 0.3 s – CO – 15 s – CO			Rated duration of short circuit		Rated short-circuit breaking current DC component in % of the rated short-circuit breaking current Asymmetrical breaking current			Rated short-circuit making current (at 50/60 Hz)		Rated back-to-back capacitor bank inrush making current		Rated lightning impulse withstand voltage		Rated short-duration power-frequency withstand voltage		Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)		Minimum creepage distance, interrupter		Minimum creepage distance, phase-to-earth		Minimum clearance, phase-to-phase		Minimum clearance, phase-to-earth		Weight		Detailed dimensional drawing (must be explicitly requested)		Operating cycle diagram no. (see page 38)		Catalog dimensional drawing no. (see page 38)			
	I_r							t_k	I_{sc}	%	kA	I_{ma}	I_{bi}	U_p	U_d		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
	A	mm					s	kA			kA	kA	kA	kV	kV	mV	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
3AH4115-2...	1250	210	□	■	○	3	31.5	36	35.4	80/82	20	75	28	2.5	130	164	103	119	100	32500912 01	1	1																		
3AH4115-4...	2000	210	□	■	○	3	31.5	36	35.4	80/82	20	75	28	2.5	130	164	97	119	105	32500901 01	1	2																		
3AH4116-2...	1250	210	■	Δ	Δ	3	40	36	44.9	100/104	20	75	28	2.5	140	144	85	110	116	32500932 01	2	3																		
3AH4116-4...	2000	210	■	Δ	Δ	3	40	36	44.9	100/104	20	75	28	2.5	140	144	85	110	118	32500933 01	2	4																		
3AH4116-6...	2500	210	■	Δ	Δ	3	40	36	44.9	100/104	20	75	28	2.5	140	144	85	110	123	32500934 01	2	4																		
3AH4116-7...	3150	210	■	Δ	Δ	3	40	36	44.9	100/104	20	75	28	2.5	140	144	85	110	123	32500934 01	2	4																		

17.5 kV
50/60 Hz

	I_r					t_k	I_{sc}			I_{ma}		I_{bi}	U_p	U_d									
	A	mm				s	kA	%	kA	kA	kA	peak	kV	kV	mV	mm	mm	mm	mm	kg	A7E		
3AH4215-2...	1250	210	□	■	○	3	31.5	36	35.4	80/82	20	95	36	2.5	130	164	153	117	100	32500951 01	1	1	
3AH4215-4...	2000	210	□	■	○	3	31.5	36	35.4	80/82	20	95	36	2.5	130	164	150	117	105	32500952 01	1	2	
3AH4216-2...	1250	210	■	△	△	3	40	36	44.9	100/104	20	95	36	2.5	140	144	153	110	121	32500958 01	2	3	
3AH4216-4...	2000	210	■	△	△	3	40	36	44.9	100/104	20	95	36	2.5	140	144	153	110	142	32500959 01	2	4	
3AH4216-6...	2500	210	■	△	△	3	40	36	44.9	100/104	20	95	36	2.5	140	144	153	110	142	32500960 01	2	4	
3AH4216-7...	3150	210	■	△	△	3	40	36	44.9	100/104	20	95	36	2.5	140	144	153	110	142	32500960 01	2	4	

- Standard information on nameplate
- Possible with order suffix Z and order code F27
- Possible with order suffix Z and order code F28
- Δ Rated operating sequence possible up to $I_{sc} = 31.5$ kA

24 kV
 50/60 Hz

Article No.	Rated continuous current	Pole-center distance (PCD)	Rated operating sequence: O – 3 min – CO – 3 min – CO O – 0.3 s – CO – 3 min – CO O – 0.3 s – CO – 15 s – CO			Rated duration of short circuit	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated back-to-back capacitor bank inrush making current	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 39)	Catalog dimensional drawing no. (see page 39 to 43)
	I_r	mm				t_k	I_{sc}	%	kA	I_{ma}	I_{bi}	U_p	U_d	mV	mm	mm	mm	mm	kg	A7E		
	A					s	kA			kA	kA peak	kV	kV									
3AH4254-2...	1250	210	□	■	○	3	25	36	28	63/65	20	125	50	2.5	207	210	202	162	112	32500935 01	3	9
3AH4254-4...	2000	210	□	■	○	3	25	36	28	63/65	20	125	50	2.5	207	210	271	162	131	32500936 01	3	7
3AH4254-6...	2500	210	□	■	○	3	25	36	28	63/65	20	125	50	2.5	207	210	271	162	131	32500936 01	3	7
3AH4264-2...	1250	275	□	■	○	3	25	36	28	63/65	20	125	50	2.5	207	210	173	162	112	32500937 01	3	10
3AH4264-4...	2000	275	□	■	○	3	25	36	28	63/65	20	125	50	2.5	207	210	244	162	131	32500938 01	3	8
3AH4264-6...	2500	275	□	■	○	3	25	36	28	63/65	20	125	50	2.5	207	210	244	162	131	32500938 01	3	8
3AH4266-6...	2500	275	■	Δ	Δ	3	40	36	44.9	100/104	20	125	50	2.0	360	226	244	163	165	32500007 00	5	5
3AH4266-7...	3150	275	■	Δ	Δ	3	40	36	44.9	100/104	20	125	50	2.0	360	226	244	163	165	32500007 00	5	5
3AH4294-4...*	2000	275	□	■	○	3	25	36	28	63/65	20	150	60	2.5	207	247	289	197	133	32500940 01	3	12
3AH4294-6...*	2500	275	□	■	○	3	25	36	28	63/65	20	150	60	2.5	207	247	289	197	133	32500940 01	3	12

■ Standard information on nameplate

□ Possible with order suffix Z and order code F27

○ Possible with order suffix Z and order code F28

 Δ Rated operating sequence possible up to $I_{sc} = 31.5$ kA

 * $U_r = 27.6$ kV with order code E41

36 kV
50/60 Hz

Article No.	Rated continuous current	Pole-center distance (PCD)	Rated operating sequence: O – 3 min – CO – 3 min – CO O – 0.3 s – CO – 3 min – CO O – 0.3 s – CO – 15 s – CO			Rated duration of short circuit	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated back-to-back capacitor bank inrush making current	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 39)	Catalog dimensional drawing no. (see page 40 to 43)
	I_r A	mm				t_k s	I_{sc} kA	%	kA	I_{ma} kA	I_{bi} kA peak	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg	A7E		
3AH4305-2...	1250	350	□	■	○	3	31.5	36	35.4	80/82	20	170	70	3.3	360	330	317	258	170	32500008 00	4	6
3AH4305-4...	2000	350	□	■	○	3	31.5	36	35.4	80/82	20	170	70	2.5	360	330	317	258	175	32500008 00	4	6
3AH4305-6...	2500	350	□	■	○	3	31.5	36	35.4	80/82	20	170	70	2.5	360	330	317	258	180	32500009 00	4	13
3AH4305-7...	3150	350	□	■	○	3	31.5	36	35.4	80/82	20	170	70	1.9	360	365	294	260	380	32500033 00	4	11
3AH4305-8...	4000	350	□	■	○	3	31.5	36	35.4	80/82	20	170	70	1.9	360	365	294	260	380	32500011 00	4	11
3AH4306-6...	2500	350	■	Δ	Δ	3	40	36	44.9	100/104	20	170	70	2.5	360	330	317	258	175	32500009 00	5	13
3AH4306-7...	3150	350	■	Δ	Δ	3	40	36	44.9	100/104	20	170	70	1.9	360	365	294	260	380	32500033 00	5	11
3AH4306-8...	4000	350	■	Δ	Δ	3	40	36	44.9	100/104	20	170	70	1.9	360	365	294	260	380	32500011 00	5	11
3AH4305-2...-Z E14+E15	1250	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	3.0	360	420	317	257	170	32500008 00	4	6
3AH4305-4...-Z E14+E15	2000	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	2.5	360	420	316	257	175	32500008 00	4	6
3AH4305-6...-Z E14+E15	2500	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	2.5	360	420	318	257	180	32500009 00	4	13
3AH4305-7...-Z E14+E15	3150	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	1.9	360	365	294	260	380	32500033 00	4	11
3AH4305-8...-Z E14+E15	4000	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	1.9	360	365	294	260	380	32500011 00	4	11
3AH4306-6...-Z E14+E15	2500	350	■	Δ	Δ	3	40	36	44.9	100/104	20	185	85	2.5	360	420	318	257	180	32500009 00	5	13
3AH4306-7...-Z E14+E15	3150	350	■	Δ	Δ	3	40	36	44.9	100/104	20	185	85	1.9	360	365	294	260	380	32500033 00	5	11
3AH4306-8...-Z E14+E15	4000	350	■	Δ	Δ	3	40	36	44.9	100/104	20	185	85	1.9	360	365	294	260	380	32500011 00	5	11
3AH4305-2...-Z E24+E25	1250	350	□	■	○	3	31.5	36	35.4	80/82	20	195	95	3.3	360	420	311	273	170	32500554 00	4	14
3AH4305-4...-Z E24+E25	2000	350	□	■	○	3	31.5	36	35.4	80/82	20	195	95	2.5	360	420	309	273	175	32500554 00	4	14
3AH4305-6...-Z E24+E25	2500	350	□	■	○	3	31.5	36	35.4	80/82	20	195	95	2.5	360	420	304	273	180	32500553 00	4	15
3AH4306-6...-Z E24+E25	2500	350	■	Δ	Δ	3	40	36	44.9	100/104	20	195	95	2.5	360	420	304	273	180	32500553 00	5	15

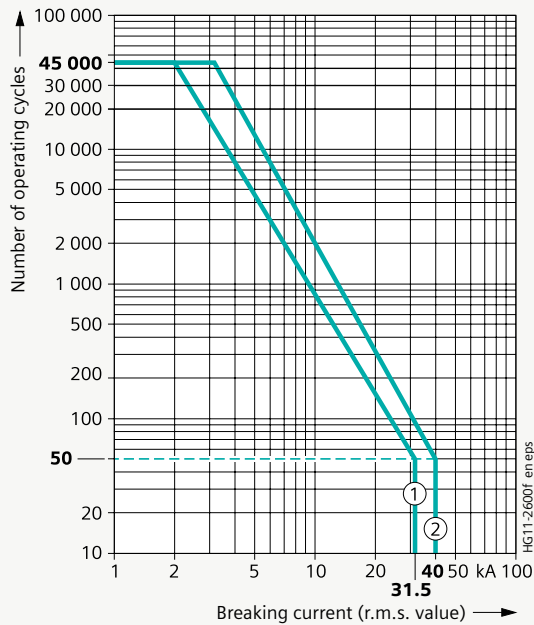
- Standard information on nameplate
- Possible with order suffix Z and order code F27
- Possible with order suffix Z and order code F28
- Δ Rated operating sequence possible up to $I_{sc} = 31.5$ kA

40.5 kV
 50/60 Hz

Article No.	Rated continuous current	Pole-center distance (PCD)	Rated operating sequence: O – 3 min – CO – 3 min – CO O – 0.3 s – CO – 3 min – CO O – 0.3 s – CO – 15 s – CO			Rated duration of short circuit	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated back-to-back capacitor bank inrush making current	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 39)	Catalog dimensional drawing no. (see page 40 to 43)
	I_r A	mm				t_k s	I_{sc} kA	%	kA	I_{ma} kA	I_{bi} kA peak	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg	A7E		
3AH4305-2... -Z Y09+E14+E15	1250	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	2.3	360	420	317	257	170	32500008 00	4	6
3AH4305-4... -Z Y09+E14+E15	2000	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	2.3	360	420	316	257	175	32500008 00	4	6
3AH4305-6... -Z Y09+E14+E15	2500	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	2.3	360	420	318	257	180	32500009 00	4	13
3AH4305-7... -Z Y09+E14+E15	3150	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	1.9	360	365	294	260	380	32500033 00	4	11
3AH4305-8... -Z Y09+E14+E15	4000	350	□	■	○	3	31.5	36	35.4	80/82	20	185	85	1.9	360	365	294	260	380	32500011 00	4	11
3AH4306-6... -Z Y09+E14+E15	2500	350	■	Δ	Δ	3	40	36	44.9	100/104	20	185	85	2.3	360	420	318	257	180	32500009 00	5	13
3AH4306-7... -Z Y09+E14+E15	3150	350	■	Δ	Δ	3	40	36	44.9	100/104	20	185	85	1.9	360	365	294	260	380	32500033 00	5	11
3AH4306-8... -Z Y09+E14+E15	4000	350	■	Δ	Δ	3	40	36	44.9	100/104	20	185	85	1.9	360	365	294	260	380	32500011 00	5	11
3AH4305-2... -Z Y09+E24+215	1250	350	□	■	○	3	31.5	36	35.4	80/82	20	195	95	2.3	360	420	311	273	170	32500554 00	4	14
3AH4305-4... -Z Y09+E24+215	2000	350	□	■	○	3	31.5	36	35.4	80/82	20	195	95	2.3	360	420	309	273	175	32500554 00	4	14
3AH4305-6... -Z Y09+E24+215	2500	350	□	■	○	3	31.5	36	35.4	80/82	20	195	95	2.3	360	420	304	273	180	32500553 00	4	15
3AH4306-6... -Z Y09+E24+215	2500	350	■	Δ	Δ	3	40	36	44.9	100/104	20	195	95	2.3	360	420	304	273	180	32500553 00	5	15

- Standard information on nameplate
- Possible with order suffix Z and order code F27
- Possible with order suffix Z and order code F28
- Δ Rated operating sequence possible up to $I_{sc} = 31.5$ kA

Operating cycle diagram for 12 and 17.5 kV



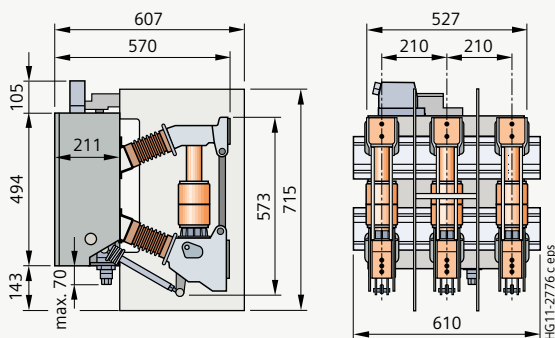
The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value).

All circuit-breakers fulfill the classes E2, M2 and C2 according to IEC 62271-100.

The curve shape beyond the parameters defined in IEC 62271-100 is based on average empirical data.

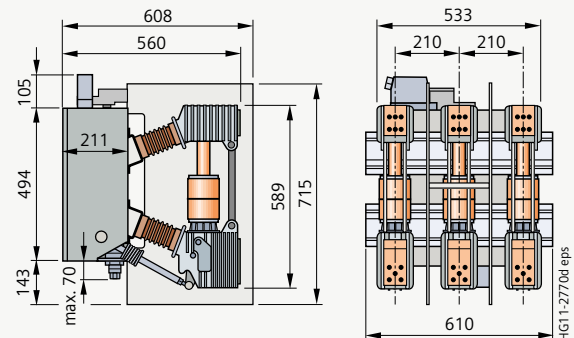
The number of operating cycles that can actually be reached can be different depending on the respective application.

Dimensional drawings for 12 and 17.5 kV



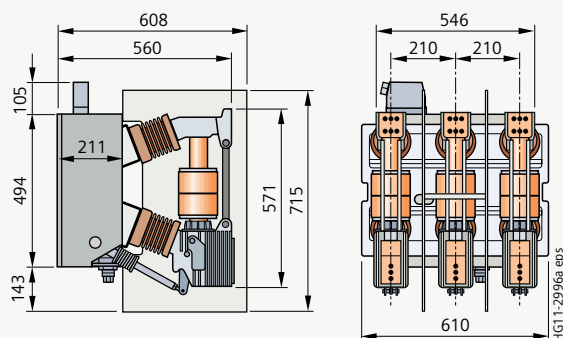
Dimensional drawing 1

3AH4115-2 without partitions
3AH4215-2 with partitions



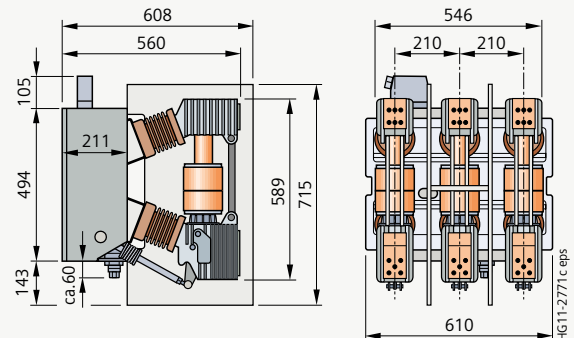
Dimensional drawing 2

3AH4115-4 without partitions
3AH4215-4 with partitions



Dimensional drawing 3

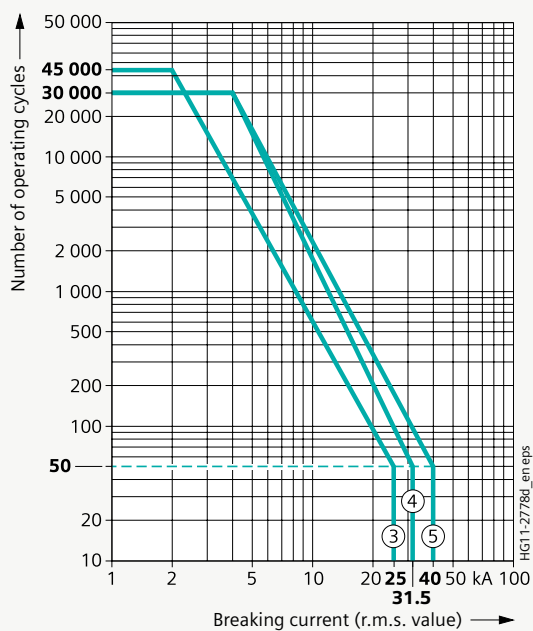
3AH4116-2 without partitions
3AH4216-2 with partitions



Dimensional drawing 4

3AH4116-4/-6/-7 without partitions
3AH4216-4/-6/-7 with partitions

Operating cycle diagram for 24, 36 and 40.5 kV

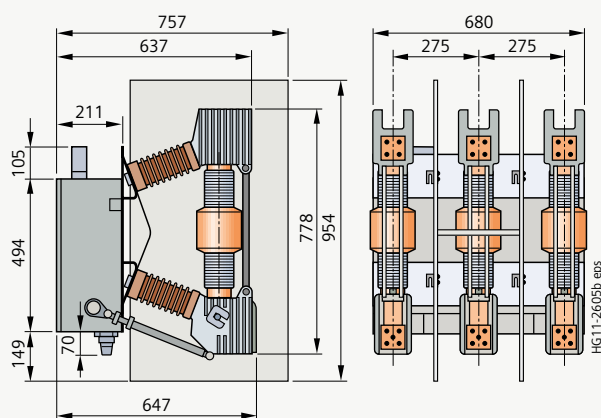


The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value).

All circuit-breakers fulfill the classes E2, M2 and C2 according to IEC 62271-100.

The curve shape beyond the parameters defined in IEC 62271-100 is based on average empirical data. The number of operating cycles that can actually be reached can be different depending on the respective application.

Dimensional drawings for 24, 36 and 40.5 kV

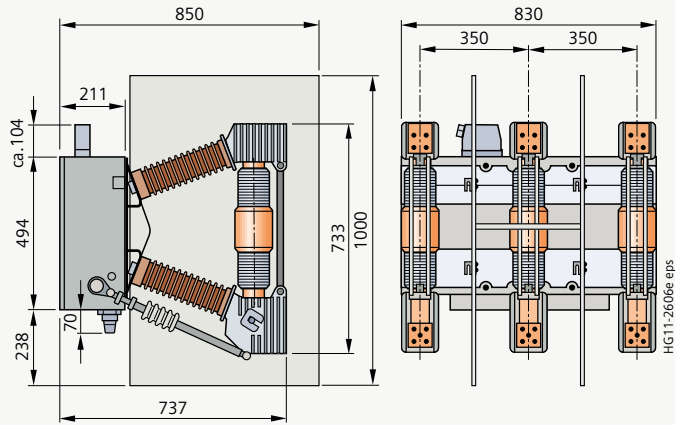


Dimensional drawing 5

3AH4266-6

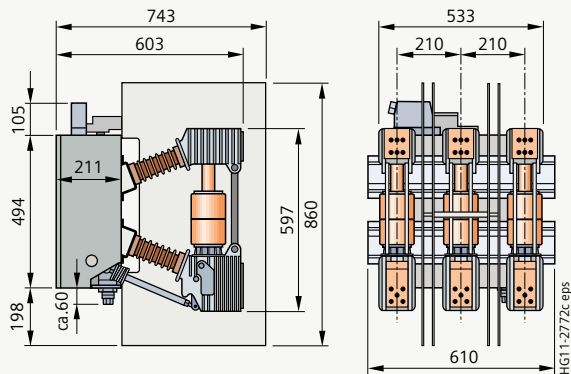
3AH4266-7

Dimensional drawings for 24, 36 and 40.5 kV (continued)



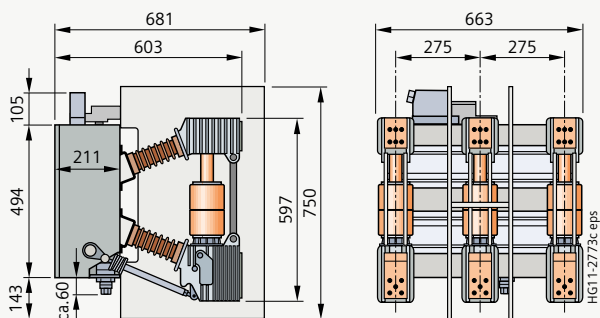
Dimensional drawing 6

3AH4305-2 3AH4305-2...-Z E14+E15 3AH4305-2...-Z Y09+E14+E15
3AH4305-4 3AH4305-4...-Z E14+E15 3AH4305-4...-Z Y09+E14+E15



Dimensional drawing 7

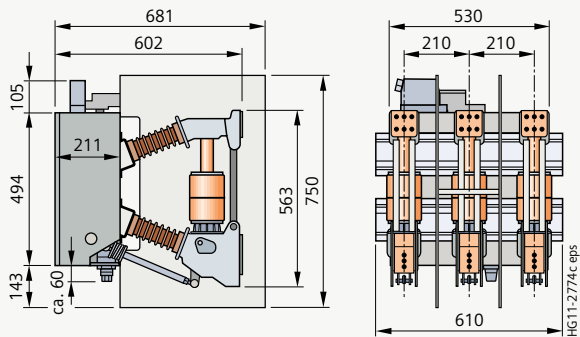
3AH4254-4
3AH4254-6



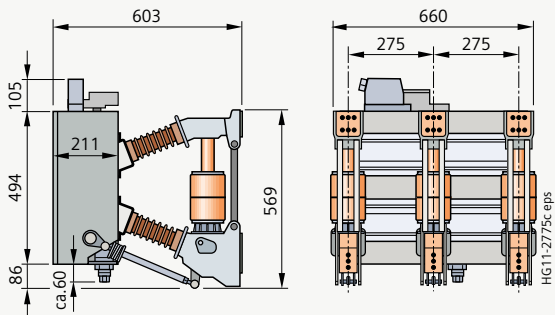
Dimensional drawing 8

3AH4264-4
3AH4264-6

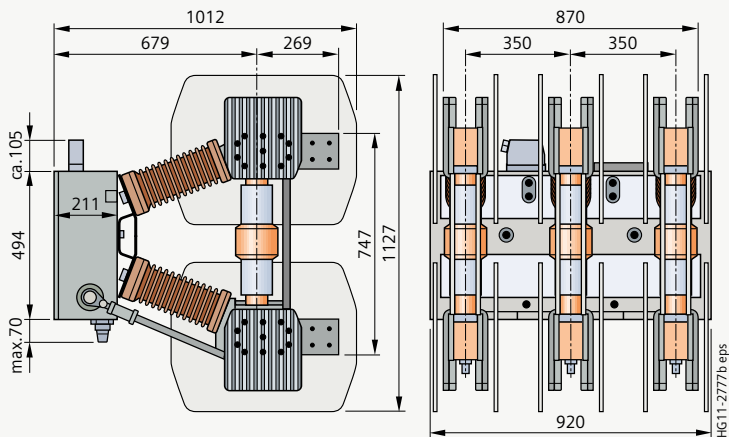
Dimensional drawings for 24, 36 and 40.5 kV (continued)



Dimensional drawing 9
3AH4254-2



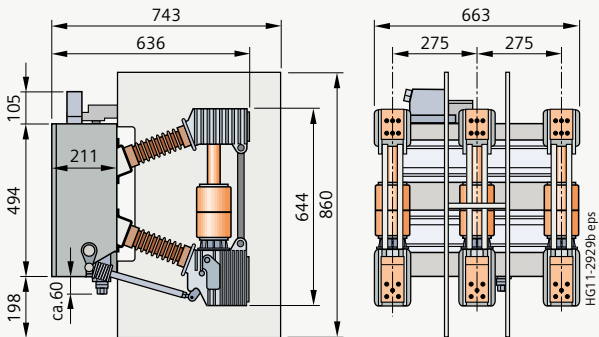
Dimensional drawing 10
3AH4264-2



Dimensional drawing 11

3AH4305-7	3AH4305-7...-Z E14+E15	3AH4305-7...-Z Y09+E14+E15
3AH4305-8	3AH4305-8...-Z E14+E15	3AH4305-8...-Z Y09+E14+E15
3AH4306-7	3AH4306-7...-Z E14+E15	3AH4306-7...-Z Y09+E14+E15
3AH4306-8	3AH4306-8...-Z E14+E15	3AH4306-8...-Z Y09+E14+E15

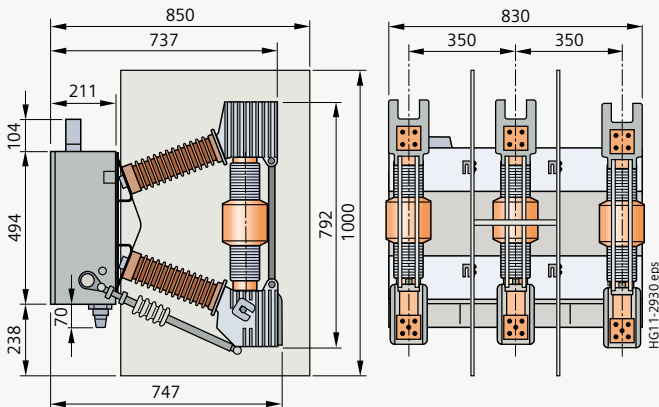
Dimensional drawings for 24, 36 and 40.5 kV (continued)



Dimensional drawing 12

3AH4294-4

3AH4294-6



Dimensional drawing 13

3AH4305-6

3AH4305-6...-Z E14+E15

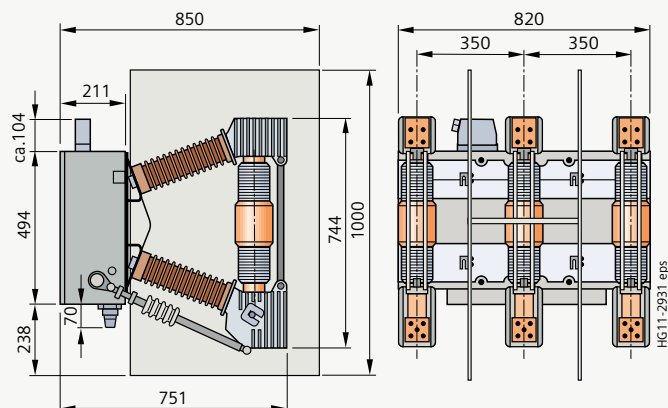
3AH4305-6...-Z Y09+E14+E15

3AH4306-6

3AH4306-6...-Z E14+E15

3AH4306-6...-Z Y09+E14+E15

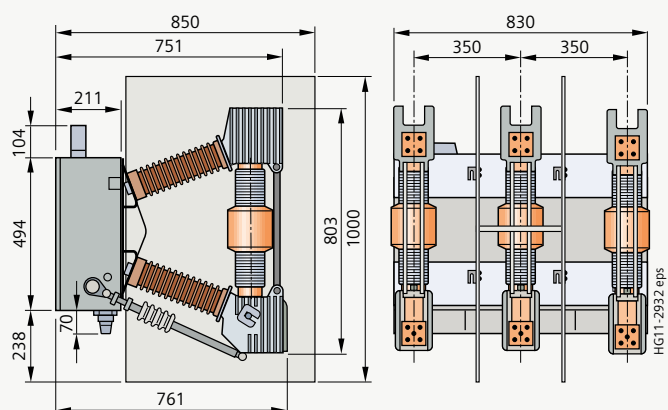
Dimensional drawings for 24, 36 and 40.5 kV (continued)



Dimensional drawing 14

3AH4305-2...-Z E24+E25 3AH4305-2...-Z Y09+E24+E25

3AH4305-4...-Z E24+E25 3AH4305-4...-Z Y09+E24+E25



Dimensional drawing 15

3AH4305-6...-Z E24+E25 3AH4305-6...-Z Y09+E24+E25

3AH4306-6...-Z E24+E25 3AH4306-6...-Z Y09+E24+E25

Technical data

Vacuum Circuit-Breaker 3AH4

Operating times and internal times, short-circuit protection of motors, consumption data and tripping ranges of releases

Operating times and internal times

Operating times at rated voltage of the secondary circuit	Circuit-breaker equipment	Circuit-breaker operating time
Closing time	–	< 75 ms ¹⁾
Opening time	1 st shunt release	< 60 ms ¹⁾
	2 nd and 3 rd release	< 55 ms
Arcing time	–	< 15 ms
Break time	1 st shunt release	< 75 ms
	2 nd and 3 rd release	< 70 ms
Dead time	–	300 ms
Close-open time	1 st shunt release	< 90 ms
	2 nd and 3 rd release	< 70 ms
Minimum command duration	Closing solenoid	45 ms
	1 st shunt release	100 ms
	2 nd and 3 rd release	39 ms
Impulse time for circuit-breaker tripping signal	1 st shunt release	> 15 ms
	2 nd and 3 rd release	> 10 ms
Charging time for electrical operation	–	< 15 ms
Synchronism error between the poles	–	≤ 2 ms

1) Shorter operating times on request.

Short-circuit protection of motors (protection of drive motors)

	Operating voltage of the drive motor	Rated voltage of the motor	Range of the operating voltage ¹⁾		Power consumption of the motor		Minimum current ²⁾ for dimensioning a protection device with C-characteristic
	V	V	Min. V	Max. V	W	VA	A
DC	24	24	20	26	750	–	22
	48	48	41	53	750	–	10
	60	60	51	66	750	–	10
	110/125	110	94	138	1000	–	4
	220/240	220	187	264	1000	–	2
AC	100/110/120/125	110	85	138	–	1000	5
	230/240	230	196	264	–	1000	2

1) The operator's supply voltage may deviate from the rated supply voltage of the drive motor by –15 % to +10 %.

2) The inrush current in the drive motor can be neglected due to its very short presence.

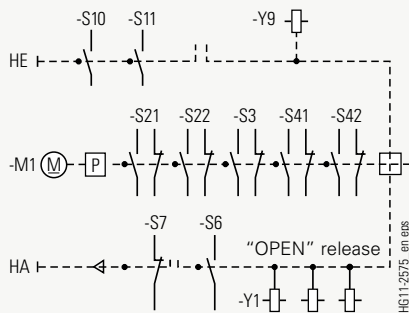
Consumption data and tripping ranges of releases

Release	Power consumption		Tripping ranges	
	Operation at		Tripping voltage	Tripping voltage or tripping current
	DC approx. W	AC 50/60 Hz approx. VA	at DC	at AC 50/60 Hz
Closing solenoid 3AY1510	140	140	85 to 110 % <i>U</i>	85 to 110 % <i>U</i>
1 st shunt release (without energy store) 3AY1510	140	140	70 to 110 % <i>U</i>	85 to 110 % <i>U</i>
2 nd shunt release (with energy store) 3AX1101	60	60	70 to 110 % <i>U</i>	85 to 110 % <i>U</i>
Undervoltage release 3AY1103	20	20	35 to 0 % <i>U</i>	35 to 0 % <i>U</i>
C.t.-operated release 3AX1102 (rated continuous current 0.5 A or 1 A)	–	10 ³⁾	–	90 to 110 % <i>I_n</i>
C.t.-operated release 3AX1104 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

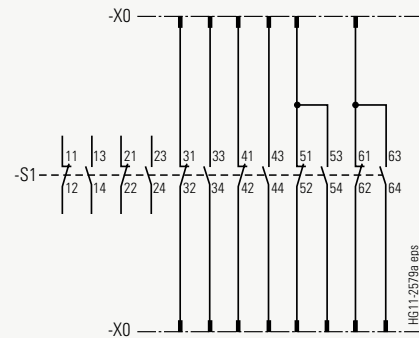
3) Consumption at pickup current (90 % of the rated continuous current) and open armature.

Circuit diagrams

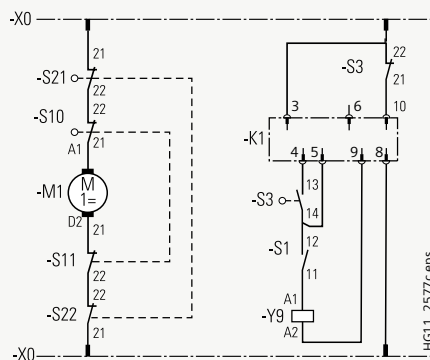
The circuit diagrams shown here are examples from the manifold possibilities of circuit-breaker wiring.



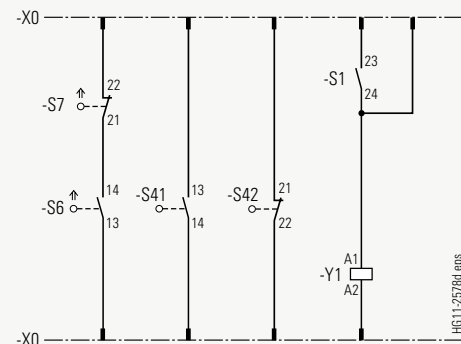
Manual closing – manual opening with auxiliary switch
6 NO + 6 NC



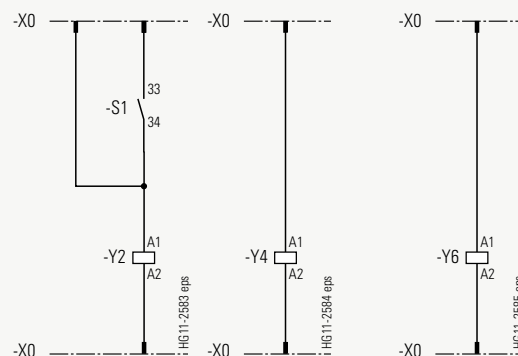
Contact elements available for customer with circuit-breaker basic equipment and auxiliary switch 6 NO + 6 NC



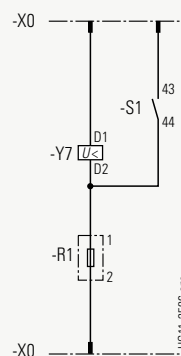
Motor operating mechanism with manual mechanical closing



Circuit-breaker tripping signal	Closing spring charged indication	1 st shunt release
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2 nd shunt release	C.t.-operated release 0.5 A or 1 A	Low-energy c.t.-operated release 0.1 Ws
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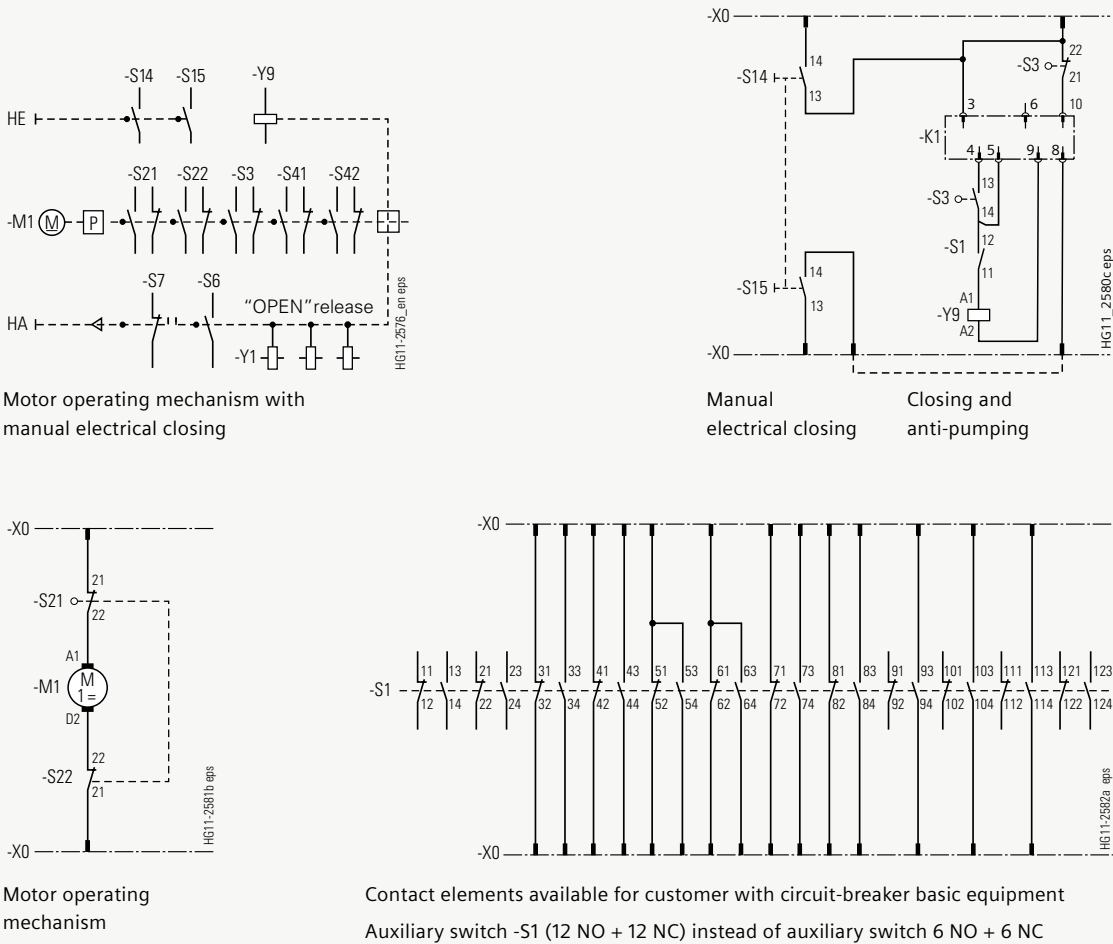
Undervoltage
release

Caption

HA	Manual opening	S1	Auxiliary switch	S14 , Electrical	X0	Lower part of plug / terminal strip
HE	Manual closing	S3	Position switch (opens when closing spring is charged)	S15 manual closing	Y1	1 st shunt release
K1	Anti-pumping device APD			S21 , Position switches	Y2	2 nd shunt release
M1	Motor operating mechanism	S6	Circuit-breaker tripping signal	S22 (to de-energize the motor operating mechanism after charging)	Y4	C.t.-operated release
P	Energy store	S7	Cutout switch for circuit-breaker tripping signal	S41 , Position switches (indicate the charging state)	Y6	Low-energy c.t.-operated release
R1	Resistance	S10	Anti-pumping for manual closing	S42	Y7	Undervoltage release
		S11	manual closing		Y9	Closing solenoid

Circuit diagrams (continued)
The available possible combinations are described in the chapter "Selection of secondary equipment".

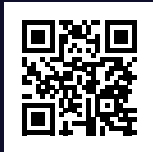
Additional equipment: motor operating mechanism and auxiliary switch



Caption

HA	Manual opening	S1	Auxiliary switch	S14, Electrical	X0	Lower part of plug /	
HE	Manual closing	S3	Position switch (opens	S15	manual closing	terminal strip	
K1	Anti-pumping device APD		when closing spring is	S21, Position switches	Y1	1 st shunt release	
M1	Motor operating		charged)	S22	(to de-energize the motor	Y2	2 nd shunt release
	mechanism	S6	Circuit-breaker tripping signal		operating mechanism after	Y4	C.t.-operated release
P	Energy store	S7	Cutout switch for		charging)	Y6	Low-energy
R1	Resistance		circuit-breaker tripping signal	S41, Position switches (indicate		c.t.-operated release	
		S10, Anti-pumping for		S42	the charging state)	Y7	Undervoltage release
		S11	manual closing			Y9	Closing solenoid

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