



3AH5 **Vacuum** Circuit-Breakers

Medium-Voltage Equipment
Selection and Ordering Data

Catalog HG 11.05 · 2007

SIEMENS



3AH5 Vacuum
Circuit-Breakers

Medium-Voltage Equipment
Catalog HG 11.05 · 2007

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RH611-1731f



Industrial application: Refinery

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3AH5 vacuum circuit-breaker from 12 to 36 kV – The Economical

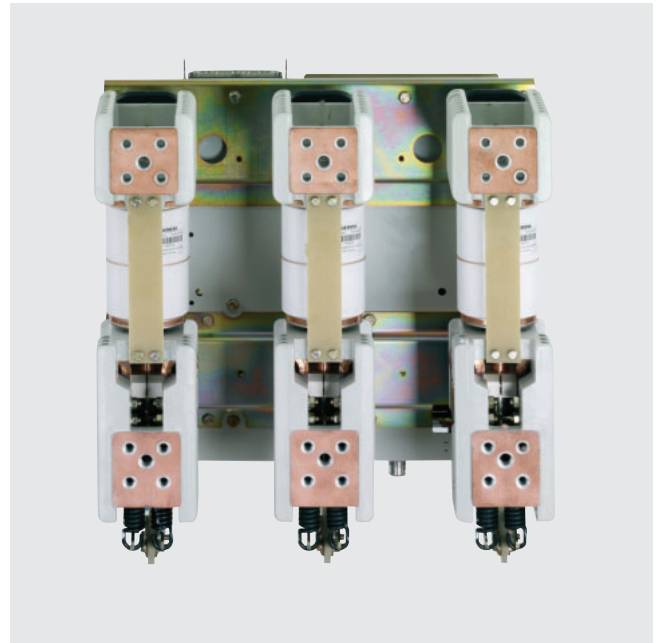
3AH5 vacuum circuit-breakers control all switching duties in medium-voltage systems. They are applicable for operation of e.g. overhead lines, cables, transformers, genera-

tors, capacitors, filter circuits, motors and reactors. Here, small short-circuit ratings in distribution systems face high breaking currents in industrial systems.

3AH5 – the universal circuit-breaker in the product range



R-HG11-201.eps



R-HG11-185.eps

The 3AH5 vacuum circuit-breaker is a real all-round device in its field of application. With its compact dimensions, it fits in all customary switchgear types. The comprehensive variety of types with different normal currents and short-circuit cur-

rents as well as various pole-center distances for voltage levels from 12 kV to 36 kV enables its universal application for all medium-voltage requirements.

The 3AH5 vacuum 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.

Pole assemblies

The pole assemblies consist of the vacuum interrupters (5) 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 rigidly fixed to the upper interrupter support (6). The lower part of the interrupter is guided in the lower interrupter support (7), allowing axial movement. The braces (8) absorb the external forces resulting from switching operations and the contact pressure.

Operating mechanism box

The whole operating mechanism with releases, auxiliary switches, indicators and actuating devices is accommodated in the operating mechanism box.

The extent of the secondary equipment depends on the case of application and offers a multiple variety of options in order to meet almost every requirement.

Operating mechanism

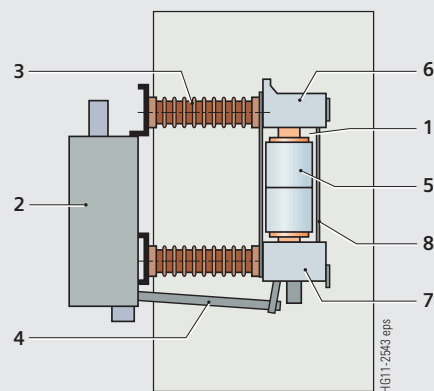
For circuit-breaker operation, both spring-operated and stored-energy mechanisms are available. With manual spring-operated mechanisms, the closing process takes place automatically after manual charging of the closing spring. The opening or contact springs are charged simultaneously during the closing operation, which means that a stored-energy mechanism is available for the opening operation.

With motor or manual operating stored-energy mechanisms, the closing spring is either charged electrically or manually. It latches tight at the end of the charging process and serves as an energy store.

To close the breaker, the closing spring can be unlatched either mechanically by means of the local "ON" pushbutton or electrically by remote control. The closing spring charges the opening or contact pressure springs as the breaker closes. The now discharged closing spring will be charged again automatically by the mechanism motor or manually. Then the operating sequence OPEN-CLOSE-OPEN is stored in the springs.

Trip-free mechanism

3AH5 vacuum circuit-breakers have a trip-free mechanism according to IEC 62271-100. In the event of an opening command being given after a closing operation has been initiated, the moving contacts return to the open position and remain there even if the closing command is sustained. This means that the contacts of the vacuum circuit-breakers are momentarily in the closed position, which is permissible according to IEC 62271-100.

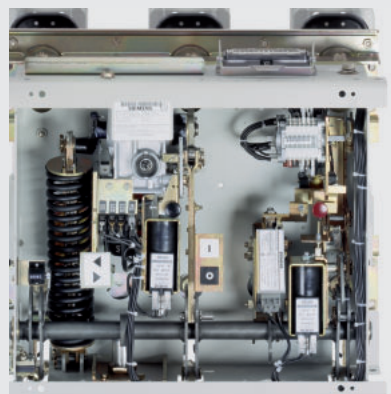


Circuit-breaker structure

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



Front view



Open operating mechanism box

Releases

A release is a device which transfers commands from an external source, such as a control room, to the latching mechanism of the vacuum circuit-breaker so that it can be opened or closed. The maximum possible equipment is one shunt release and another release to be selected at will. For release combinations, refer to page 15.

- The closing solenoid unlatches the charged closing spring of the vacuum circuit-breaker, closing it by electrical means.
- Shunt releases are used for automatic tripping of vacuum circuit-breakers by suitable protection relays and for deliberate tripping by electrical means. They are intended for connection to an external power supply (DC or AC voltage) but, in special cases, may also be connected to a voltage transformer for manual operation.
- Current-transformer operated releases comprise a stored-energy mechanism, an unlatching mechanism and an electromagnetic system. They are used when there is no external source of auxiliary power (e.g. a battery). Tripping is effected by means of a protection relay (e.g. overcurrent-time protection) acting on the current-transformer operated release.
- Undervoltage releases comprise a stored-energy mechanism, an unlatching mechanism and an electromagnetic system which is permanently connected to the secondary or auxiliary voltage while the vacuum circuit-breaker is closed. If the voltage falls below a predetermined value, unlatching of the release is enabled and the circuit-breaker is opened via the stored-energy mechanism. The deliberate tripping of the undervoltage release generally takes place via an NC contact in the tripping circuit or via an NO contact by short-circuiting the magnet coil. With this type of tripping, the short-circuit current is limited by the built-in resistors.

Undervoltage releases can also be connected to voltage transformers. When the operating voltage drops to impermissibly low levels, the circuit-breaker is tripped automatically.

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

Closing

In the standard version of the stored-energy mechanisms, 3AH5 vacuum circuit-breakers can be remote-closed electrically. They can also be closed locally by mechanical unlatching of the closing spring via pushbutton. With spring-operated mechanisms, closing takes place after the charging process.

An electrical closing lock-out prevents unpermissible closing of the circuit-breaker. The closing lock-out releases the operation of the circuit-breaker when auxiliary voltage is available, and blocks both local manual closing and remote electrical closing mechanically when there is no auxiliary voltage available.

The operating voltage of the electrical closing lock-out is the same as that of the 1st release. If constant CLOSE and OPEN commands are present at the vacuum circuit-breaker at the same time, the vacuum circuit-breaker will return to the open position after closing. It remains in this position until a new CLOSE command is given. In this manner, continuous closing and opening (= "pumping") is prevented.

Interlocking

Mechanical interlocking for stored-energy mechanisms

To interlock circuit-breaker trucks, withdrawable parts or disconnectors according to the switch position, the stored-energy mechanisms of 3AH5 circuit-breakers can be equipped with a mechanical interlocking. A sensor at the switchgear checks the position of the circuit-breaker and prevents the open circuit-breaker in a reliable way from being closed mechanically and electrically.

Electrical interlocking

The vacuum circuit-breakers can be integrated in electromagnetic feeder or switchgear interlocks. In case of electrical interlocking, the disconnector or its operating mechanism is equipped with a magnetic lock-out mechanism. This mechanism is controlled by an auxiliary contact of the circuit-breaker, so that the disconnector can only be operated when the circuit-breaker is open. On the other hand, the vacuum circuit-breaker is also controlled by the disconnector or its operating mechanism, so that it can only be closed when the disconnector is in an end position. For this purpose, the circuit-breaker operating mechanism must be equipped with a closing lock-out (see "Closing").

Standards

The vacuum circuit-breakers conform to the following standards:

- IEC 62271-100 (former IEC 60056)
- IEC 60694 (in future IEC 62271-1)
- VDE 0671 (former VDE 0670 Part 100 and VDE 0670 Part 1000)

All 3AH5 vacuum circuit-breakers fulfil the endurance classes E2, M2 and C2 according to IEC 62271-100.

Ambient conditions

The vacuum circuit-breakers are designed for the normal operating conditions defined in IEC 62271-100.

Condensation can occasionally occur under the ambient conditions shown opposite. 3AH5 vacuum circuit-breakers are suitable for use in the following climatic classes according to IEC 60721, Part 3-3:

Climatic ambient conditions:	Class 3K4 ¹⁾
Biological ambient conditions:	Class 3B1
Mechanical ambient conditions:	Class 3M2
Chemically-active substances:	Class 3C2 ²⁾
Mechanically-active substances:	Class 3S2 ³⁾

1) Low temperature limit: – 5 °C

2) Without icing and wind-driven precipitation

3) Restriction: Clean insulation parts

Current carrying capacity

The rated normal currents specified in the opposite diagram have been defined according to IEC 62271-100 for an ambient temperature of + 40 °C and apply to open switchgear. For enclosed switchgear the data of the switchgear manufacturer applies.

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

Characteristics curve 1 ≙ Rated normal current 800 A

Characteristics curve 2 ≙ Rated normal current 1250 A

Characteristics curve 3 ≙ Rated normal current 2000 A

Characteristics curve 4 ≙ Rated normal current 2500 A

Dielectric strength

The dielectric strength of air insulation decreases with increasing altitude due to low air density. According to IEC 60694, the rated lightning impulse withstand voltage values specified in the chapter "Technical Data" apply to a site altitude of 1000 m above sea level. For an altitude above 1000 m, the insulation level must be corrected according to the opposite diagram.

The characteristic shown applies to the rated short-duration power-frequency withstand voltage and the rated lightning impulse withstand voltage.

To select the devices, the following applies:

$$U \geq U_0 \times K_a$$

U Rated withstand voltage under standard reference atmosphere

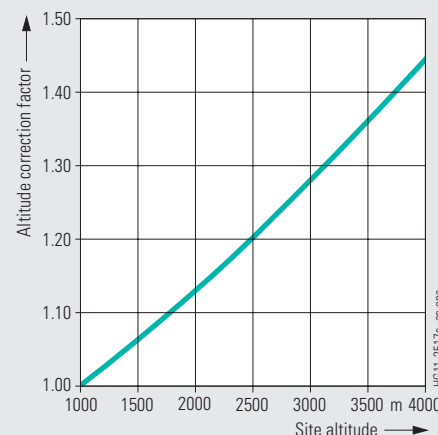
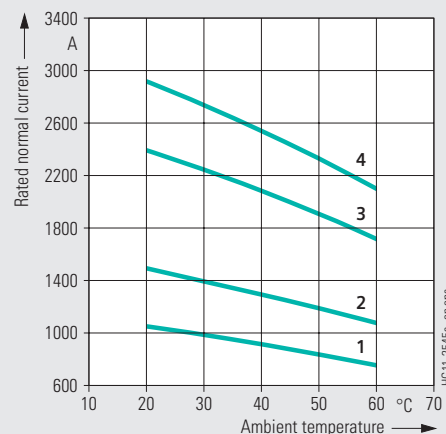
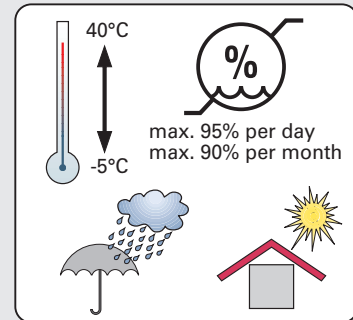
U_0 Rated withstand voltage requested for the place of installation

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 90 kV under standard reference atmosphere is required as a minimum:

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



Product range overview

Rated voltage kV	Rated short-circuit breaking current kA	Rated normal current (A)											
		800			1250				2000			2500	
		Pole-center distance (in mm)											
		160	210	275	160	210	275	350	210	275	350	210	275
12	13.1	■	■										
	16	■	■		■	■							
	20	■	■		■	■			■				
	25	■	■		■	■						■	
	31.5				■	■						■	
	17.5	25	■	■		■	■					■	
	31.5				■	■						■	
	24	16		■	■		■	■					
	20					■	■		■	■		■	■
	25					■	■					■	■
36	16						■	■					
	25						■	■			■		

Basic equipment

Features	Minimum equipment	Alternative equipment	Remarks
Operating mechanism	Manual spring-operated mechanism	Manual operating stored-energy mechanism Motor operating stored-energy mechanism	Manual operating mechanism always with hand crank
Closing	Manual closing	Closing solenoid	Closing solenoid only with stored-energy mechanisms
1 st release	Shunt release	–	–
2 nd release	Without	Shunt release, undervoltage release, c.t.-operated release	–
Varistor circuit	Installed for ≥ 60 V DC	–	For limiting switching overvoltages
Auxiliary switch	2 NO + 2 NC	6 NO + 6 NC 12 NO + 12 NC	12 NO + 12 NC Only with 64-pole plug
Plug connector	Without	24-pole terminal strip 24-pole plug 64-pole plug	24-pole plug Not with 12 NO + 12 NC
Anti-pumping	–	For motor operating stored-energy mechanism	–
Circuit-breaker tripping signal	Without	Possible	–
Operating cycle counter	Available	–	–
Electrical closing lock-out	Without	Possible	Prevents unpermissible closing of the circuit-breaker
Interlocking	Without	Mechanical interlocking	–



3AH5 135-6 vacuum circuit-breaker



3AH5 204-1 vacuum circuit-breaker

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Order codes

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

Special versions (★)

In case of special versions, **“-Z”** is added to the order 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 between your responsible sales partner and the order processing department (PTD M C S) in our Switchgear Factory in Berlin.

2

		a: alphabetical n: numerical																Order codes							
Position:		1	2	3	4	5	6	7	—	8	9	10	11	12	—	13	14	15	16						
Order No.:		3	A	H	5	n	n	n	—	n	a	a	n	n	—	n	a	a	n	—	★	■	■	■	
1 st position	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 primary part																								
9 th to 16 th position	Secondary part Secondary equipment Operating mechanism, releases, operating voltages and further auxiliary equipment																								
Order codes Group of 3 after the Order No. Format: a n a																									
Special versions (★) Initiated with “Z” Group of 3 after the Order No. Format: a n n																									

Configuration example

In order to simplify the selection of the correct order number for the requested circuit-breaker type, you will find a configuration example on each side of the chapter "Equipment Selection". For the selection of the secondary part, always the last example of the primary part was taken over and continued, so that at the end of the equipment selection (page 20) a completely configured circuit-breaker results as an example.

*On the foldout page we offer a configuring aid.
Here you can fill in the order number you have deter-
mined for your circuit-breaker.*

Example for Order No.:
Order codes:

3 A H 5 1 2 2 - 1 ■ ■ ■ ■ - ■ ■ ■



50/60 Hz

Order No.:

2

50/60 Hz

Special version (available for all 17.5 kV circuit-breakers)

[illegible]

Special version $U_d = 42 \text{ kV}$

Order codes:

[illegible]

Equipment Selection

Selection of basic types, circuit-breakers

3AH5 Vacuum Circuit-Breakers



24 kV

50/60 Hz

Rated voltage	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Rated short-circuit breaking current at 36 % DC component	Rated short-circuit making current (at 50/60 Hz)	Pole-center distance	Rated normal current											See page 15	See page 16	See page 16	See page 17		See page 18	See page 18	See page 19	See page 19		See page 20			
U_r	U_p	U_d	I_{sc}	I_{ma}	mm	I_r																								
kV	kV	kV	kA	kA	mm	A																								
24	125	50	16	40/42	210	800	3	A	H	5	2	7	2	-	1															
						1250	3	A	H	5	2	7	2	-	2															
					275	800	3	A	H	5	2	8	2	-	1															
						1250	3	A	H	5	2	8	2	-	2															
			20	50/52	210	1250	3	A	H	5	2	7	3	-	2															
						2000	3	A	H	5	2	7	3	-	4															
						2500	3	A	H	5	2	7	3	-	6															
					275	1250	3	A	H	5	2	8	3	-	2															
						2000	3	A	H	5	2	8	3	-	4															
						2500	3	A	H	5	2	8	3	-	6															
			25	63/65	210	1250	3	A	H	5	2	7	4	-	2															
						2500	3	A	H	5	2	7	4	-	6															
					275	1250	3	A	H	5	2	8	4	-	2															
						2500	3	A	H	5	2	8	4	-	6															

36 kV

50/60 Hz

U_r kV	U_p kV	U_d kV	I_{sc} kA	I_{ma} kA	mm	I_r A																						
36	170	70	16	40/42	275	1250	3	A	H	5	3	2	2	-	2													
					350	1250	3	A	H	5	3	1	2	-	2													
			25	63/65	275	1250	3	A	H	5	3	2	4	-	2													
					350	1250	3	A	H	5	3	1	4	-	2													
						2000	3	A	H	5	3	1	4	-	4													

Configuration example

3AH5 vacuum circuit-breaker

Rated voltage $U_r = 36$ kV

Rated short-circuit breaking current $I_{sc} = 25$ kA

Rated normal current $I_r = 2000$ A

Pole-center distance = 350 mm

Example for Order No.:

Order codes:

3 A H 5

3 1 4 - 4

3	A	H	5	3	1	4	-	4	■	■	■	■	-	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---



Equipment features for the different types of operating mechanisms

[illegible]

9th position

Release combination

9 th position							Position:																	Order codes						
Release combination							Order No.:																							
1 st shunt release	2 nd shunt release	Undervoltage release	C.t.-operated release 0.5 A	C.t.-operated release 1.0 A	C.t.-operated release with tripping pulse ≥ 0.1 Ws (10 Ω)	C.t.-operated release with tripping pulse ≥ 0.1 Ws (20 Ω)	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	-	★				
■																	M													
■	■																N													
■		■															R													
■			■														U													
■				■													U								-	Z		A	4	6
■					■												V													
■						■											V								-	Z		A	4	5

Configuration example

3AH5 vacuum circuit-breaker

($U_i = 36\text{ kV}$, $I_{sc} = 25\text{ kA}$, $I_f = 2000\text{ A}$, pole-center distance = 350 mm)

1st shunt release; c.t.-operated release with 1.0 A

3

A

H

5

3

1

4

-

4

U

-

Z

A

4

6

Example for Order No.:

3 A H 5 3 1 4 - 4 U ■ ■ ■ - ■ ■ ■ ■ - Z

Order codes:

A 4 6

2

Operating voltage of the closing solenoid

Order No.:

10 th position		Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Order codes
Operating voltage of the closing solenoid		Order No.:	3	A	H	5	■	■	■	—	■	■	■	■	—	■	■	■	—	■
Standard voltages	Special voltages													See page 17		See page 18	See page 18	See page 19	See page 19	See page 20

- Manual spring-operat. mechan. generally without closing solenoid (A)
- Man. operat. stored-energy mechan. option. with closing solenoid (A – Z)
- Motor op. stored-energy mech. generally with closing solenoid (B – Z)

Without closing solenoid			A			
24 V DC			B			
48 V DC			C			
60 V DC			D			
110 V DC			E			
220 V DC			F			
100 V AC	50/60 Hz ¹⁾		H			
110 V AC	50/60 Hz ¹⁾		J			
230 V AC	50/60 Hz ¹⁾		K			
	30 V DC		Z	With order code	K 1	A
	32 V DC		Z	With order code	K 1	B
	120 V DC		Z	With order code	K 1	C
	125 V DC		Z	With order code	K 1	D
	127 V DC		Z	With order code	K 1	E
	240 V DC		Z	With order code	K 1	F
	120 V AC	50/60 Hz ¹⁾	Z	With order code	K 1	K
	125 V AC	50/60 Hz ¹⁾	Z	With order code	K 1	L
	240 V AC	50/60 Hz ¹⁾	Z	With order code	K 1	

Operating voltage of the 1st shunt release

Standard voltages			Special voltages																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Operating voltage of the 1st shunt release **48 V DC**

Order codes:

energy mechanism)

12th positionOperating voltage of the 2nd release

		Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Order codes		
		Order No.:	3	A	H	5	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Standard voltages	Special voltages																				
Without, or c.t.-operated release														0							
24 V DC														1							
48 V DC														2							
60 V DC														3							
110 V DC														4							
220 V DC														5							
100 V AC 50/60 Hz ¹⁾														6							
110 V AC 50/60 Hz ¹⁾														7							
230 V AC 50/60 Hz ¹⁾														8							
	30 V DC													9	With order code				M 1 A		
	32 V DC													9	With order code				M 1 B		
	120 V DC													9	With order code				M 1 C		
	125 V DC													9	With order code				M 1 D		
	127 V DC													9	With order code				M 1 E		
	240 V DC													9	With order code				M 1 F		
	120 V AC 50/60 Hz ¹⁾													9	With order code				M 1 K		
	125 V AC 50/60 Hz ¹⁾													9	With order code				M 1 L		
	240 V AC 50/60 Hz ¹⁾													9	With order code				M 1 M		
Special version																					
To operate the 2 nd release as an undervoltage release on an energy store type AN1902- (for DC) or AN1902-2 (for AC), both make Bender, the operating voltage must be defined – and whether the energy store will be provided by the customer or included in the scope of supply.																					
Energy store																					
	Type In the scope of delivery																				
60 V DC	AN1902- no													9	With order code				M 2 D		
110 V DC	AN1902- no													9	With order code				M 2 E		
220 V DC	AN1902- no													9	With order code				M 2 F		
100/110/230 V AC	AN1901-2 no													9	With order code				M 2 G		
60 V DC	AN1902- yes													9	With order code				M 3 D		
110 V DC	AN1902- yes													9	With order code				M 3 E		
220 V DC	AN1902- yes													9	With order code				M 3 F		
100/110/230 V AC	AN1901-2 yes													9	With order code				M 3 G		

1) The AC frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 19)

Configuration example

3AH5 vacuum circuit-breaker

(U_r = 36 kV, I_{sc} = 25 kA, I_r = 2000 A, pole-center distance = 350 mm)2nd release as c.t.-operated release with 1.0 A

Example for Order No.:

Order codes:

3 A H 5

3 1 4 - 4 U C 2

0

3	A	H	5	3	1	4	-	4	U	C	2	0	-	■	■	■	■	-	Z		
A	4	6																			

Counter and circuit-breaker tripping signal

Position:

Order No.:

Attention! The selection of the counter and the circuit-breaker tripping signal depends on the selection of the secondary connection.

[illegible]

1) Equipment only possible in combination with motor operating stored-energy mechanism

Operating voltage of the operating mechanism/
type of operating mechanism

Standard voltages			Special voltages																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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2) The AC frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language, see page 19

Manual operating stored-energy mechanism

Example for Order No.:

Order codes:



15th position

Auxiliary switch, secondary connection, interlocking

Position:

Order No.:

1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 Order codes

Order codes

Attention! The selection of these options depends on the already selected counter and circuit-breaker tripping signal (13th position)

[illegible]

- 1) Not possible with motor operating stored-energy mechanism
- 2) Only possible with motor operating stored-energy mechanism
- 3) Electrical components are wired to the lower part of the plug. The free auxiliary switch connections are not wired
- 4) Electrical components are wired to the lower part of the plug. The auxiliary switches are wired to the lower part of the plug according to the circuit diagrams

16th position

AC frequency of operating voltages

Languages of operating instructions and rating plate

[illegible]

Configuration example

3AH5 vacuum circuit-breaker

($U_r = 36$ kV, $I_{cc} = 25$ kA, $I_r = 2000$ A, pole-center distance = 350 mm)

Auxiliary switch 6 NO + 6 NC, 24-pole plug and mechanical interlocking

Frequency 50 Hz or DC, operating instructions and rating plate in English

Example for Order No.:

Order codes:



Additional equipment

Table with 16 positions for additional equipment and 3 order codes. Includes options like wiring cables, condensation protection, and electrical closing lock-out.

1) The operating voltage of the closing lock-out is the same as that of the 1st shunt release.

Configuration example

3AH5 vacuum circuit-breaker
Rated voltage Ur = 36 kV
Rated short-circuit breaking current Isc = 25 kA
Rated normal current Ir = 2000 A
Pole-center distance = 350 mm
1st shunt release, c.t.-operated release with 1.0 A
Operating voltage of the closing solenoid 48 V DC
Operating voltage of the 1st shunt release 48 V DC
2nd release as c.t.-operated release with 1.0 A
With counter and breaker tripping signal
Manual operating stored-energy mechanism
Auxiliary switch 6 NO + 6 NC, 24-pole plug and mechanical interlocking
Frequency 50 Hz or DC, operating instructions and rating plate in English
With electrical closing lock-out (not for 3AH512, 3AH520)
Routine test certificate enclosed

Table showing the configuration example for the 3AH5 vacuum circuit-breaker, including position codes and order codes.

Retrofitting

When releases/solenoids are retrofitted, the order numbers of the built-on parts must also be specified. For other additional equipment, the required mounting parts are included in the delivery.

Spare parts

When releases/solenoids are required as spare parts, the order number and the type of construction of the associated circuit-breaker type must also be specified.

Remark for orders

The order numbers are applicable to circuit-breakers of current manufacture. When mounting parts or spare parts are being ordered for an existing vacuum circuit-breaker, always quote the type designation, serial number, design code and the year of manufacture of the circuit-breaker to be sure to get the correct delivery.

Accessories for the plug connector

Included in the scope of supply of the basic equipment for 3AH5 vacuum circuit-breakers:

For 24-pole plug connector

- Lower part of plug
- Crimp sockets acc. to number of contacts
- Upper part of plug with screw contacts (no crimp sockets required)

For 64-pole plug connector

- Lower part of plug
- Upper part of plug
- Crimp sockets according to number of contacts

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

2

Designation	Remarks	Operating voltage	Order No.
Hand crank			3AX15 30-2B
Lubricant	(for special application conditions)		
	180 g Klüber-Isoflex Topas L32N		3AX11 33-3H
	1 kg Klüber-Isoflex Topas L32N		3AX11 33-3E
	1 kg Shell Tellus oil 32 (special oil)		3AX11 33-2D
Operating solenoid			
	Used as closing solenoid or	24 V DC	3AY15 10-5B
	1 st shunt release	30/32 V DC	3AY15 10-5M
		48 V DC	3AY15 10-5C
	Including varistor	60 V DC	3AY15 10-5D
		100/120 V DC	3AY15 10-5E
		125/127 V DC	3AY15 10-5N
		220/240 V DC	3AY15 10-5F
	Including rectifier	100 – 125 V AC, 50/60 Hz	3AY15 10-5E
		230/240 V AC, 50/60 Hz	3AY15 10-5F
2nd shunt release			
	Without varistor, without rectifier	24/32 V DC	3AX11 01-2B
	Including varistor	48/60 V DC	3AX11 01-2C
		110/127 V DC	3AX11 01-2E
		220/240 V DC	3AX11 01-2F
	Including rectifier	100/125 V AC, 50 Hz	3AX11 01-2G
		230/240 V AC, 50 Hz	3AX11 01-2J
		100/125 V AC, 60 Hz	3AX11 01-3G
		230/240 V AC, 60 Hz	3AX11 01-3J
Mounting parts (for retrofitting)	With one existing shunt release		3AX16 11-2A
Current-transformer operated release			
	For rated normal current 0.5 A, including varistor and rectifier		3AX11 02-2A
	For rated normal current 1.0 A, including varistor and rectifier		3AX11 02-2B
	For tripping pulse ≥ 0.1 WS, for protection system 7SJ451 (10 Ω)		3AX11 04-0B
	For tripping pulse ≥ 0.1 WS, for protection relay 7SJ45 and SEG WIP 1 (20 Ω)		3AX11 04-2B
Mounting parts (for retrofitting)	With one existing shunt release		3AX16 11-2A

2

Designation	Remarks	Operating voltage	Order No.
Undervoltage release			
	Without varistor, without rectifier	24 V DC	3AX11 03-2B
		48 V DC	3AX11 03-2C
	Including varistor	60 V DC	3AX11 03-2D
		110 V DC	3AX11 03-2E
		120 – 127 V DC	3AX11 03-2N
		220 V DC	3AX11 03-2F
		240 V DC	3AX11 03-2P
	Including rectifier and varistor	100 V AC, 50 Hz	3AX11 03-2G
		110 – 125 V AC, 50 Hz	3AX11 03-2H
		230 V AC, 50 Hz	3AX11 03-2J
		100 V AC, 60 Hz	3AX11 03-3G
		110 – 125 V AC, 60 Hz	3AX11 03-3H
		230 V AC, 60 Hz	3AX11 03-3J
Mounting parts (for retrofitting)	With one existing shunt release		3AX16 13-2A
Undervoltage release			
	In combination with energy store AN1902- (make Bender), specified voltage corresponds to the input voltage of the energy store	60 V DC	3AX11 03-2D
		110 V DC	3AX11 03-2E
		220 V DC	3AX11 03-2F
	In combination with energy store AN1901-2 (make Bender), specified voltage corresponds to the input voltage of the energy store	100 V AC, 50/60 Hz	3AX11 03-3K
		110 V AC, 50/60 Hz	3AX11 03-3K
		230 V AC, 50/60 Hz	3AX11 03-3K
Energy store	(for delayed tripping of undervoltage release)		
Make Bender	Type AN1901-2B, with dropout delay of approx. 1/1.8/2.5 s	Input voltage 100/110/230 V AC, 50/60 Hz, Output voltage 220 V DC	3AX11 35-0A
	Type AN1902-1B, with dropout delay of approx. 0.5/0.9/1.5 s	Input and output voltage 220 V DC	3AX11 35-0B
	Type AN1902-2B, with dropout delay of approx. 0.8/0.9/1.5 s	Input and output voltage 110 V DC	3AX11 35-0C
	Type AN1902-3B, with dropout delay of approx. 0.5/0.9/1.5 s	Input and output voltage 60 V DC	3AX11 35-0D
Digital, c.t.-operated overcurrent-time relay			
	As release, make SEG, type WIP 1	For overcurrent	3AX11 35-1A
		For earth fault	3AX11 35-1B
Drive motor			
	No retrofitting for manual spring-operated mechanism	24/30/32 V DC	3AY17 11-2B
		48 V DC	3AY17 11-2C
	Including varistor	60 V DC	3AY17 11-2D
	Required for AC rectifier	100/110/126 V DC/AC	3AY17 11-2E
		220 V DC/230 V AC	3AY17 11-2F
Rectifier component			
		100/250 V AC	3AY15 25-1F
Auxiliary contactor (type 3TH20 22-7)			
	For anti-pumping	24/30/32 V DC	SWB: 48683
		48 V DC	SWB: 48687
		60 V DC	SWB: 48684
		110/120 V DC	SWB: 48685
		125 V DC	SWB: 47730
		220 V – 240 V DC	SWB: 48686
		100 V – 125 V AC, 50 Hz	SWB: 48680
		230 V – 240 V AC, 50 Hz	SWB: 49906
		100 V – 125 V AC, 60 Hz	SWB: 48679
		230 V – 240 V AC, 60 Hz	SWB: 49907

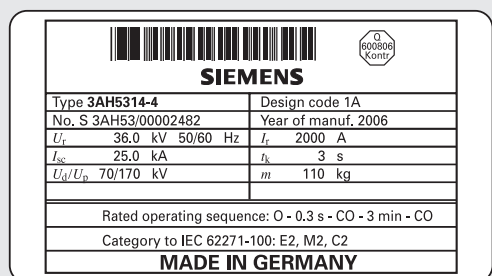
Designation	Remarks	Operating voltage	Order No.
Electrical closing lock-out			
		24 V DC	3AX16 05-5B
		48 V DC	3AX16 05-5C
		60 V DC	3AX16 05-5D
		110 V DC	3AX16 05-5E
		220 V DC	3AX16 05-5F
		100 V AC, 50/60 Hz	3AX16 05-5G
		110 V AC, 50/60 Hz	3AX16 05-5H
		230 V AC, 50/60 Hz	3AX16 05-5J
Mounting parts (for retrofitting)			3AX16 15-2A
Position switch	Type 3SE4 (as spare part), without installation accessories		
	Used for:	Nos.	SWB: 46677
	– Electrical anti-pumping (-S3)	1	
	– Motor control (-S21, -S22)	2	
	– Closing spring charged (-S4)	1	
	– Circuit-breaker tripping signal (-S6, -S7)	2	
	– Electrical closing lock-out (-S5)	1	
Auxiliary switch (-S1)			
	2 NO + 2 NC		3SV92 23-2AA0
	6 NO + 6 NC		3SV92 73-2AA0
	12 NO + 12 NC		3SV92 74-2AA0
Switch position sensor	For manual spring-operated mechanism		3AX16 20-2C
Mechanical interlocking	For stored-energy mechanism		
	– for normal panel, pole-center distance 210 mm, 275 mm and 350 mm		3AX16 20-2A
	– for small panel, pole-center distance 160 mm		3AX16 20-2B
Varistor module	With 2 varistors		3AX15 26-0F
Wire bundle	With 10 wires for auxiliary switch connection to		
	– 64-pole plug connector		3AX11 34-4F
	– 24-pole plug connector		3AX11 34-2B
	– 24-pole terminal strip		3AX11 34-2C
Accessories for plug connector	(for wire cross-section 1.5 mm ²)		
	Crimp pins for lower part of plug	24-pole	3AX11 34-3A
		64-pole	3AX11 34-4B
	Crimp sockets for upper part of plug	64-pole	3AX11 34-4C
	Crimping pliers		3AX11 34-4D
	Disassembly tool		3AX11 34-4G

Designation	Remarks	Design code	Order No.
Spare pole assemblies (complete)			
For circuit breakers:	3AH5 121-1, 3AH5 131-1	1 A	3AY17 14-6A
	3AH5 122-1, 3AH5 123-1, 3AH5 124-1	1 A	3AY17 14-6B
	3AH5 132-1, 3AH5 133-1, 3AH5 134-1	1 A	3AY17 14-6B
	3AH5 122-2, 3AH5 123-2, 3AH5 124-2	1 A	3AY17 14-6C
	3AH5 132-2, 3AH5 133-2, 3AH5 134-2	1 A	3AY17 14-6C
	3AH5 135-2, 3AH5 125-2	1 A	3AY17 14-6D
	3AH5 135-6, 3AH5 133-4, 3AH5 134-6	1 A	3AY17 14-6E
	3AH5 204-1, 3AH5 214-1	3 D	3AY17 14-3D
	3AH5 204-2, 3AH5 214-2	3 D	3AY17 14-4D
	3AH5 214-6, 3AH5 215-6	1 A	3AY17 14-6F
	3AH5 215-2, 3AH5 205-2	1 A	3AY17 14-6G
	3AH5 272-1, 3AH5 282-1	3 A	3AY17 14-8H
	3AH5 272-2, 3AH5 282-2	3 A	3AY17 14-8J
	3AH5 273-4, 3AH5 273-6, 3AH5 274-6	2 A	3AY17 14-7K
	3AH5 283-4, 3AH5 283-6, 3AH5 284-6	2 A	3AY17 14-7K
	3AH5 273-2, 3AH5 283-2, 3AH5 284-2, 3AH5 274-2	3 A	3AY17 14-8L
	3AH5 322-2, 3AH5 324-2	1 A	3AY17 14-3N
	3AH5 312-2, 3AH5 314-2	3 N	3AY17 14-3N
	3AH5 314-4	1 A	3AY17 14-6M

As spare parts, the vacuum interrupters are always supplied as a complete pole including post insulator.

To select the correct spare interrupter, please specify the type designation, serial number, design code and year of manufacture of the circuit-breaker. All data is given on the rating plate. Vacuum interrupters and other spare parts must only be replaced by instructed personnel.

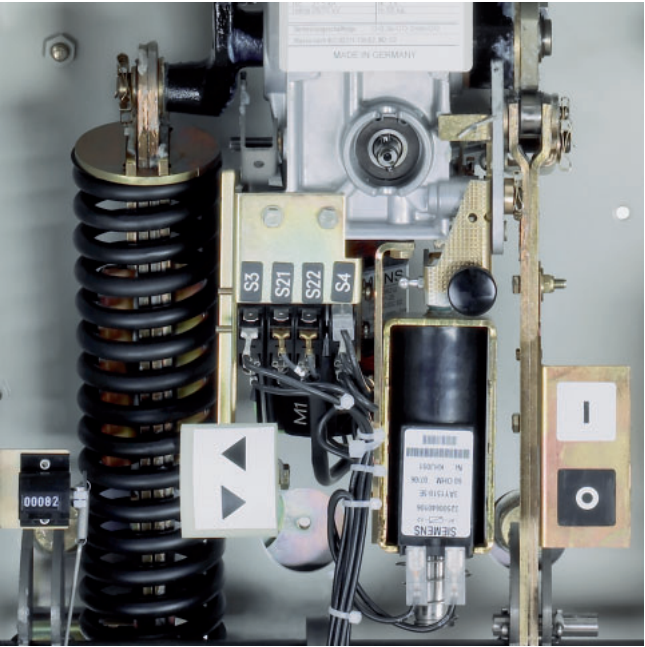
Data on the rating plate



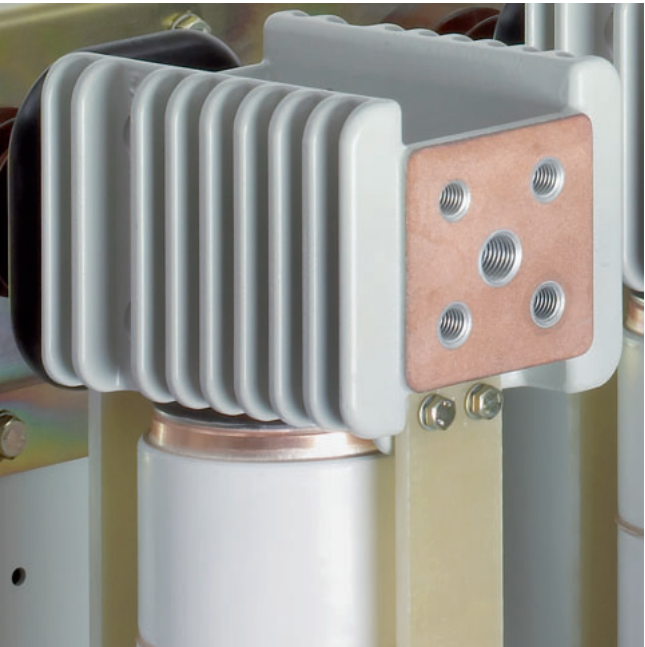
Note:

For any query regarding spare parts, subsequent deliveries, etc. the following four details are necessary:

- Type designation
- Serial No.
- Design code
- Year of manufacture



Motor operating mechanism with energy store and closing solenoid



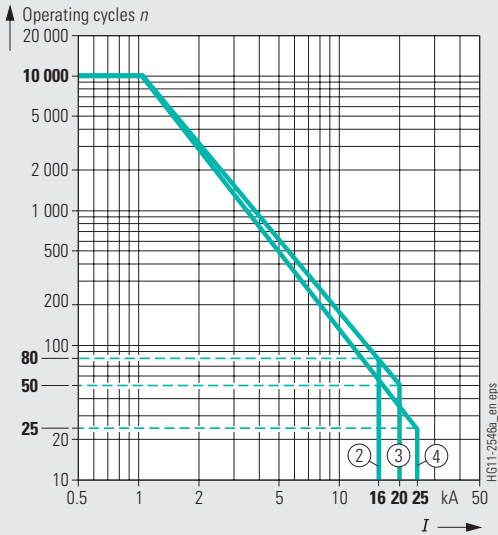
Upper pole support with conductor bar connection

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Voltage level 17.5 kV	28
Voltage level 24 kV	28
Voltage level 36 kV	30
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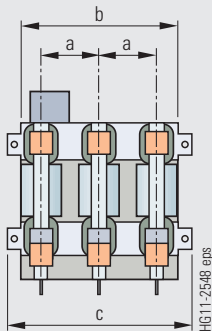
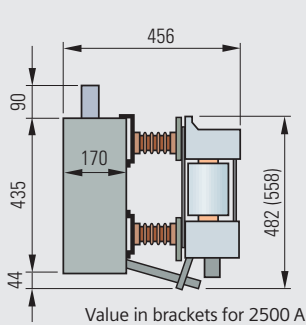
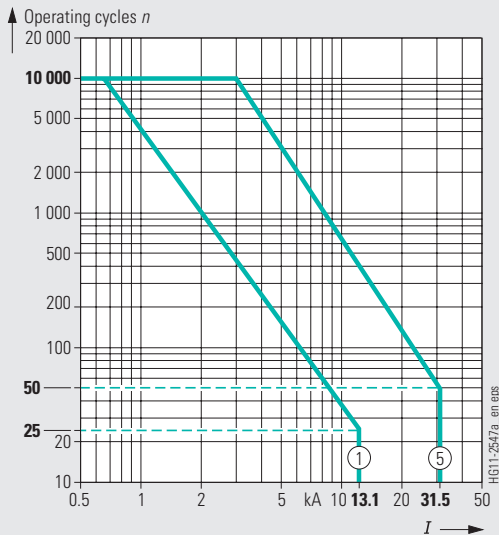
Order No.	12 kV 50/60 Hz																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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■ Standard according to IEC 62271-100 ○ Possible

Operating cycle diagrams and dimension drawings 12 kV



The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All vacuum circuit-breakers fulfil the endurance 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 experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.



Dimension drawing	a mm	b mm	c mm
1.1	160	390	490
1.2	210	490	592
1.3	160	405	490
1.4	210	505	592
1.5	210	510	592
1.6	210	534	592
1.7	160	410	490

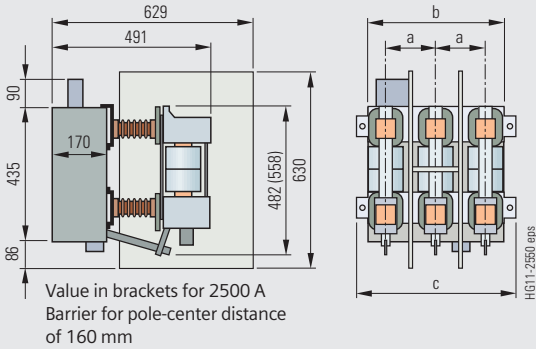
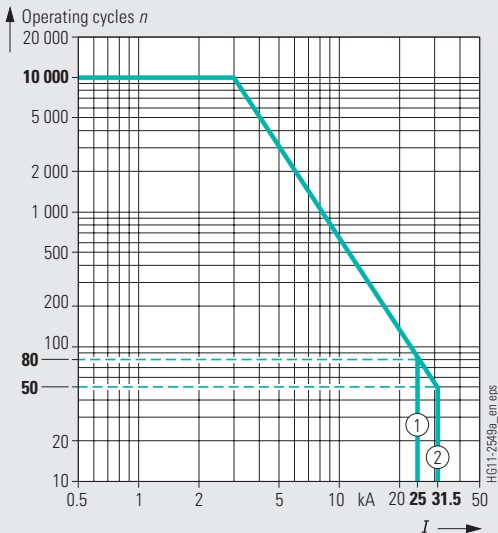
Order No.	17.5 kV 50/60 Hz		Rated normal current		Pole-center distance		Rated operating sequence: O - 3 min - CO - 3 min - CO O - 0.3 s - CO - 3 min - CO O - 0.3 s - CO - 15 s - CO			Rated short-circuit duration		Rated short-circuit breaking current		DC component in % of the rated short-circuit breaking current		Asymmetrical breaking current		Rated short-circuit making current (at 50/60 Hz)		Rated lightning impulse withstand voltage		Rated short-duration power-frequency withstand voltage		Voltage drop ΔU between connections (according to IEC 60694 at DC 100 A)		Minimum creepage distance, interrupter		Minimum creepage distance, phase-to-earth		Minimum clearance, phase-to-phase		Minimum clearance, phase-to-earth		Weights		Detailed dimension drawing (has to be ordered)		Operating cycle diagram No. (see page 29)		Catalog dimension drawing No. (see page 29)	
	I_r A	mm				t_k s	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	mm	mm	kg																					
3AH5 204-1...	800	160	■	○	○	3	25	36	28	63/65	95	38	3.4	129	170	176	130	40	3M 441 00705	1	2.1																				
3AH5 204-2...	1250	160	■	○	○	3	25	36	28	63/65	95	38	3.4	129	170	176	130	40	3M 441 00705	1	2.1																				
3AH5 205-2...	1250	160	■	○	○	3	31.5	36	35.4	80/82	95	38	2.7	129	170	140	130	40	3M 441 00652	2	2.1																				
3AH5 214-1...	800	210	■	○	○	3	25	36	28	63/65	95	38	3.4	129	170	108	130	45	3M 441 00706	1	2.2																				
3AH5 214-2...	1250	210	■	○	○	3	25	36	28	63/65	95	38	3.4	129	170	108	130	45	3M 441 00706	1	2.2																				
3AH5 214-6...	2500	210	■	○	○	3	25	36	28	63/65	95	38	1.6	129	170	163	130	55	3M 441 00649	1	2.3																				
3AH5 215-2...	1250	210	■	○	○	3	31.5	36	35.4	80/82	95	38	2.7	129	170	108	130	45	3M 441 00648	2	2.2																				
3AH5 215-6...	2500	210	■	○	○	3	31.5	36	35.4	80/82	95	38	1.6	129	170	163	130	55	3M 441 00649	2	2.3																				

	24 kV 50/60 Hz		I_r A	mm		t_k s	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg			
3AH5 272-1...	800	210	■	○	○	3	16	36	17.9	40/42	125	50	3.8	200	190	215	175	55	3M 441 00660	4	3.1
3AH5 272-2...	1250	210	■	○	○	3	16	36	17.9	40/42	125	50	3.8	200	190	215	175	55	3M 441 00660	4	3.1
3AH5 273-2...	1250	210	■	○	○	3	20	36	22.4	50/52	125	50	3.8	200	190	215	175	55	3M 441 00662	5	3.1
3AH5 273-4...	2000	210	■	○	○	3	20	36	22.4	50/52	125	50	2.2	200	190	227	175	80	3M 441 00663	5	3.1
3AH5 273-6...	2500	210	■	○	○	3	20	36	22.4	50/52	125	50	2.2	200	190	227	175	80	3M 441 00663	5	3.1
3AH5 274-2...	1250	210	■	○	○	3	25	36	28	63/65	125	50	3.8	200	190	260	175	55	3M 441 00662	7	3.1
3AH5 274-6...	2500	210	■	○	○	3	25	36	28	63/65	125	50	2.2	200	190	227	175	80	3M 441 00663	7	3.1
3AH5 282-1...	800	275	■	○	○	3	16	36	17.9	40/42	125	50	3.8	200	190	180	175	55	3M 441 00661	4	3.2
3AH5 282-2...	1250	275	■	○	○	3	16	36	17.9	40/42	125	50	3.8	200	190	180	175	55	3M 441 00661	4	3.2
3AH5 283-2...	1250	275	■	○	○	3	20	36	22.4	50/52	125	50	3.8	200	190	165	175	55	3M 441 00664	5	3.2
3AH5 283-4...	2000	275	■	○	○	3	20	36	22.4	50/52	125	50	2.2	200	190	135	175	80	3M 441 00668	5	3.3
3AH5 283-6...	2500	275	■	○	○	3	20	36	22.4	50/52	125	50	2.2	200	190	135	175	80	3M 441 00668	5	3.3
3AH5 284-2...	1250	275	■	○	○	3	25	36	28	63/65	125	50	3.8	200	190	165	175	50	3M 441 00664	7	3.2
3AH5 284-6...	2500	275	■	○	○	3	25	36	28	63/65	125	50	2.2	200	190	135	175	80	3M 441 00668	7	3.34

■ Standard according to IEC 62271-100

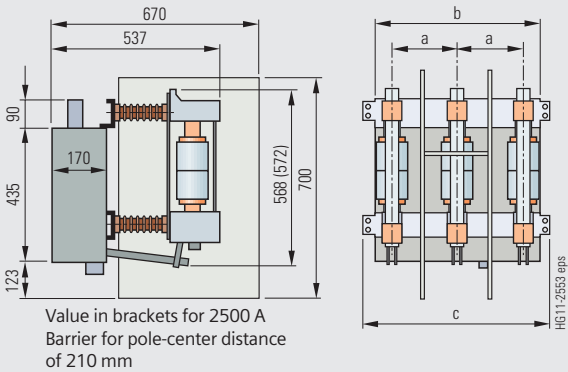
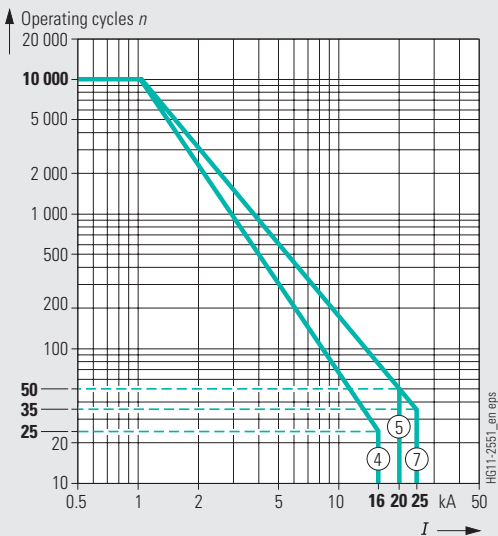
○ Possible

Operating cycle diagram and dimension drawings 17.5 kV



Dimension drawing	a mm	b mm	c mm
2.1	160	412	490
2.2	210	514	592
2.3	210	534	592

Operating cycle diagram and dimension drawings 24 kV



Dimension drawing	a mm	b mm	c mm
3.1	210	534	592
3.2	275	650	708
3.3	275	690	708

The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All vacuum circuit-breakers fulfil the endurance 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 experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.

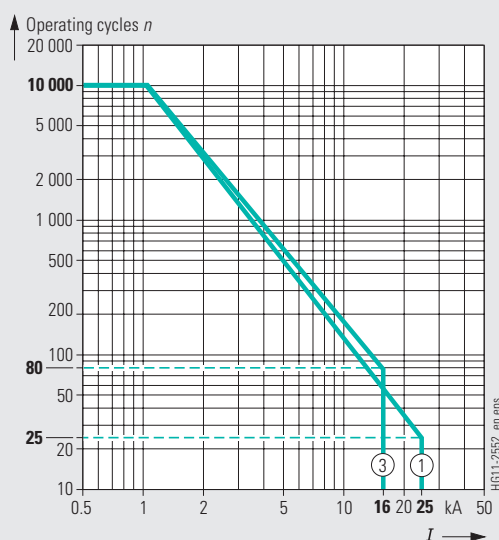
Order No.	36 kV 50/60 Hz																							
	Rated normal current I_r A	Pole-center distance mm	Rated operating sequence: O - 3 min - CO - 3 min - CO O - 0.3 s - CO - 3 min - CO O - 0.3 s - CO - 15 s - CO			Rated short-circuit duration t_k s	Rated short-circuit breaking current I_{sc} kA			DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 60694 at DC 100 A) mV	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth mm	Weights kg	Detailed dimension drawing (has to be ordered)			Operating cycle diagram No. (see below)
3AH5 312-2...	1250	350	■	○	○	3	16	36	28		40/ 42	170	70	3.0	240	310	256	300	85	3M 441 00910	3	4.2		
3AH5 314-2...	1250	350	■	○	○	3	25	36	28		63/ 65	170	70	3.0	240	310	256	300	85	3M 441 00910	1	4.2		
3AH5 314-4...	2000	350	■	○	○	3	25	36	28		63/ 65	170	70	2.5	240	310	256	300	110	3M 441 00676	1	4.3		
3AH5 322-2...	1250	275	■	○	○	3	16	36	28		40/ 42	170	70	3.0	240	310	256	300	75	3M 441 00990	3	4.1		
3AH5 324-2...	1250	275	■	○	○	3	25	36	28		63/ 65	170	70	3.0	240	310	256	300	75	3M 441 00990	1	4.1		

■ Standard according to IEC 62271-100

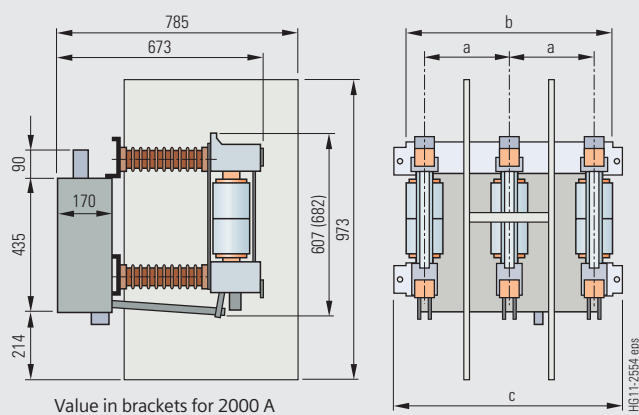
○ Possible

3

Operating cycle diagram and dimension drawings 36 kV



The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All vacuum circuit-breakers fulfil the endurance 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 experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.



Dimension drawing	a mm	b mm	c mm
4.1	275	650	708
4.2	350	810	868
4.3	350	844	868

Operating times

Operating times at rated voltage of the secondary circuit	Equipment of circuit-breaker	Operating time of circuit-breaker
Closing time		< 75 ms ¹⁾
Opening time	1 st shunt release	< 65 ms ¹⁾
	2 nd release	< 50 ms
Arcing time		< 15 ms
Opening time	1 st shunt release	< 80 ms
	2 nd release	< 65 ms
Dead time		300 ms
CLOSE/OPEN contact time	1 st shunt release	< 75 ms
	2 nd release	< 60 ms
Minimum command duration	Closing solenoid	45 ms
	1 st shunt release	40 ms
	2 nd release	20 ms
Pulse time for circuit-breaker tripping signal	1 st shunt release	> 15 ms
	2 nd release	> 10 ms
Charging time for electrical operation		< 15 s
Synchronism error between the poles		≤ 2 ms

1) Shorter operating times on request

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

Rated voltage of the motor	Operating voltage		Power consumption of the motor		Smallest possible rated current ²⁾ of the m.c.b. (miniature circuit-breaker) with C-characteristic
	max. V	min. V	W (at DC)	VA (at AC)	
V					A
DC 24	26	20	350	–	8
DC 48	53	41	350	–	6
DC 60	66	51	350	–	4
DC 110	121	93	350	–	2
DC 220	242	187	350	–	1.6
AC 110	121	93	–	400	2
AC 230	244	187	–	400	1.6

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

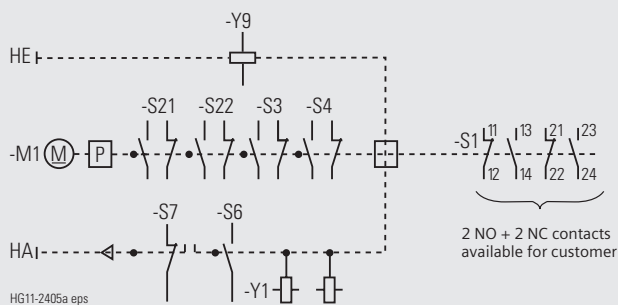
Consumption data of releases

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 3AY15 10	140	140	85 bis 110 % U	85 bis 110 % U
1 st shunt release (without energy store) 3AY15 10	140	140	70 bis 110 % U	85 bis 110 % U
2 nd shunt release (without energy store) 3AY11 01	70	50	70 bis 110 % U	85 bis 110 % U
Undervoltage release 3AY11 03	20	20	35 bis 0 % U	35 bis 0 % U
Current-transformer operated release 3AX11 02 (rated current 0.5 or 1 A)	–	10 ³⁾	–	90 bis 110 % I _a
Current-transformer operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

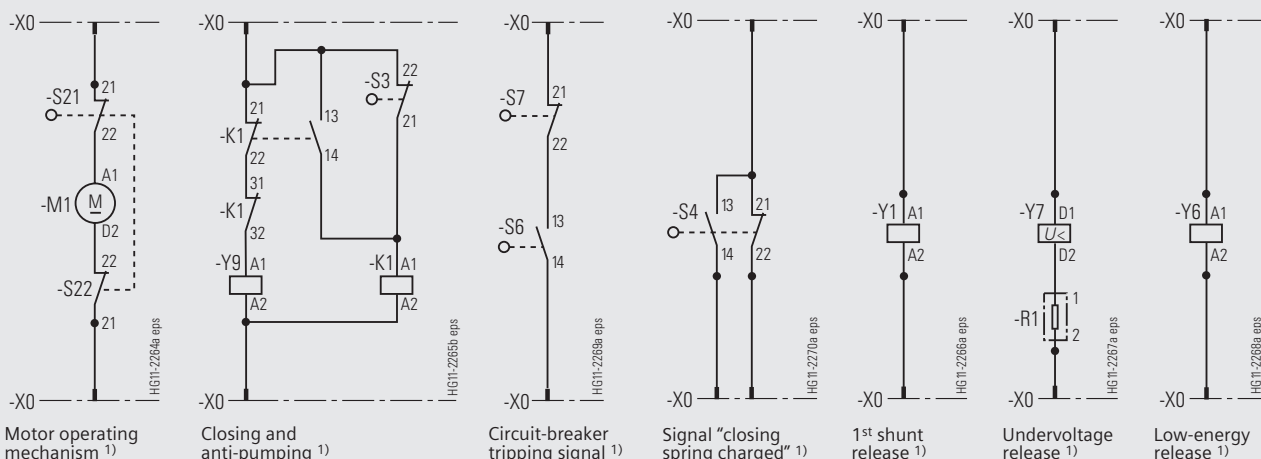
3) Consumption at pickup current (90 % of the rated current) and open armature

Basic equipment

Manual closing Manual opening without wiring



Additional equipment



1) Only upon order, for combination possibilities see "Selection of secondary equipment"

Legend

HA Manual opening
HE Manual closing
K1 Contactor (anti-pumping)
M1 Motor operating mechanism
P Energy store
R1 Resistance
S1 Auxiliary switch

S21, Position switch
S22 (to de-energize the motor operating mechanism after charging)
S3 Position switch (opens when closing spring is charged)

S4 Position switch (indicates the charging state)
S6 Circuit-breaker tripping signal
S7 Cutout switch for circuit-breaker tripping signal

X0 Lower part of plug
Y6 Low-energy current-transformer operated release
Y7 Undervoltage release
Y9 Closing solenoid



Brandenburger Tor, Berlin, Germany



Switchgear Factory in Berlin, Germany

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Inquiry form	34
Configuration instructions	35
Configuration aid	Foldout page

Please copy and return to your Siemens partner
or you can use our prompted online configurator
under www.siemens.com/energy

Inquiry concerning

☐ 3AH5 circuit-breaker

Please

- ☐ Submit an offer
☐ Call us
☐ Visit us

Your address

Company _____
Dept. _____
Name _____
Street _____
Postal code/city _____
Phone _____
Fax _____
E-mail _____

Siemens AG

Dept. _____
Name _____
Street _____
Postal code/city _____
Fax _____

Technical data

				Other values
Rated voltage	<input type="checkbox"/> 12 kV	<input type="checkbox"/> 17.5 kV		
	<input type="checkbox"/> 24 kV	<input type="checkbox"/> 36 kV	<input type="checkbox"/> ____ kV	
Rated lightning impulse withstand voltage	<input type="checkbox"/> 75 kV	<input type="checkbox"/> 95 kV		
	<input type="checkbox"/> 125 kV	<input type="checkbox"/> 170 kV	<input type="checkbox"/> ____ kV	
Rated short-duration power-frequency withstand voltage	<input type="checkbox"/> 28 kV	<input type="checkbox"/> 38 kV	<input type="checkbox"/> 42 kV	<input type="checkbox"/> ____ kV
	<input type="checkbox"/> 50 kV	<input type="checkbox"/> 70 kV		
Rated short-circuit breaking current	<input type="checkbox"/> 13.1 kA	<input type="checkbox"/> 16 kA	<input type="checkbox"/> 20 kA	<input type="checkbox"/> ____ kA
	<input type="checkbox"/> 25 kA	<input type="checkbox"/> 31.5 kA		
Rated normal current	<input type="checkbox"/> 800 A	<input type="checkbox"/> 1250 A		
	<input type="checkbox"/> 2000 A	<input type="checkbox"/> 2500 A	<input type="checkbox"/> ____ A	
Pole-center distance	<input type="checkbox"/> 160 mm	<input type="checkbox"/> 210 mm	<input type="checkbox"/> 275 mm	<input type="checkbox"/> 350 mm

Secondary equipment

For possible combinations see pages 15 to 20

Circuit-breaker equipment	<input type="checkbox"/> Manual spring-operated mechanism			
	<input type="checkbox"/> Manual operating stored-energy mechanism			
	<input type="checkbox"/> Motor operating stored-energy mechanism			
Motor operating mechanism	<input type="checkbox"/> ____ V DC		<input type="checkbox"/> ____ V AC, ____ Hz	
Closing solenoid	<input type="checkbox"/> ____ V DC		<input type="checkbox"/> ____ V AC, ____ Hz	
1 st shunt release	<input type="checkbox"/> ____ V DC		<input type="checkbox"/> ____ V AC, ____ Hz	
2 nd shunt release	<input type="checkbox"/> ____ V DC		<input type="checkbox"/> ____ V AC, ____ Hz	
Current-transformer operated release	<input type="checkbox"/> 0.5 A	<input type="checkbox"/> 1 A	<input type="checkbox"/> ≥ 0.1 Ws 10 Ω	<input type="checkbox"/> ≥ 0.1 Ws 20 Ω
Undervoltage release	<input type="checkbox"/> ____ V DC		<input type="checkbox"/> ____ V AC, ____ Hz	
Auxiliary switch	<input type="checkbox"/> 2 NO + 2 NC	<input type="checkbox"/> 6 NO + 6 NC	<input type="checkbox"/> 12 NO + 12 NC	
Low-voltage connection	<input type="checkbox"/> without	<input type="checkbox"/> 24-pole terminal strip	<input type="checkbox"/> 24-pole plug	<input type="checkbox"/> 64-pole plug
<input type="checkbox"/> Mechanical interlocking				
<input type="checkbox"/> Counter				
<input type="checkbox"/> Circuit-breaker tripping signal				
<input type="checkbox"/> Electrical closing lock-out				
Operating instructions	<input type="checkbox"/> English	<input type="checkbox"/> German	<input type="checkbox"/> French	<input type="checkbox"/> Spanish

Application and other requirements

☐ Please check off ____ Please fill in

You prefer to configure your 3AH5 vacuum circuit-breaker on your own?

Please follow the steps for configuration and enter the order number in the configuration aid.

Alternatively you can also use our prompted online configurator under www.siemens.com/energy

For configuration of your 3AH5 vacuum circuit-breaker

Instruction for configuration of the 3AH5 vacuum circuit-breaker

1st step: Definition of the primary part (see pages 13 and 14)

Please specify the following ratings:	Possible options:
Rated voltage (U_r)	U_r : 12 kV, 17.5 kV, 24 kV, 36 kV
Rated lightning impulse withstand voltage (U_p)	U_p : 75 kV, 95 kV, 125 kV, 170 kV
Rated short-duration power-frequency withstand voltage (U_d)	U_d : 28 kV, 38 kV, 42 kV, 50 kV, 70 kV
Rated short-circuit breaking current (I_{sc})	I_{sc} : 13.1 kA, 16 kA, 20 kA, 25 kA, 31.5 kA
Pole-center distance	160 mm, 210 mm, 275 mm, 350 mm
Rated normal current (I_r)	I_r : 800 A, 1250 A, 2000 A, 2500 A

These ratings define the positions 5 to 8 of the order number

2nd step: Definition of the secondary equipment (see pages 15 to 19)

Please specify the following equipment features:	Possible options:
Release combination (position 9)	Shunt release, current-transformer operated release and undervoltage release
Closing solenoid (position 10)	Operating voltages from 24 V DC to 240 V AC
Operating voltage of the releases (positions 11/12)	Operating voltages from 24 V DC to 240 V AC
Equipment with circuit-breaker tripping signal (position 13)	Equipment depends on the selection of the secondary connection
Type of operating mechanism and operating voltage of a motor, if available (position 14)	Manual spring-operated mechanism, manual operating stored-energy mechanism, motor operating stored-energy mechanism with operating voltages from 24 V DC to 240 V AC
Number of auxiliary contacts (position 15)	2 NO + 2 NC, 6 NO + 6 NC, 12 NO + 12 NC
Design of the secondary connection (position 15)	24-pole terminal strip, 24-pole plug connector, 64-pole plug connector, without connection system
Language of the documentation (position 16)	English, German, French, Spanish
Frequency of the operating voltage of the secondary equipment at AC (position 16)	50 Hz/60 Hz

These equipment features define the positions 9 to 16 of the order number

3rd step: Do you have any further requirements concerning the equipment? (Please refer to page 20)

Should you still need more options than the possible special equipment like halogen-free and flame-retardant or silicone-free version, condensate protection or an additional rating plate, etc., please contact your responsible sales partner.

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The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

