

SIEMENS



Selection & Application Guide

SION Vacuum Circuit-Breakers 3AE5 and 3AE1

Medium-Voltage Equipment



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SION Vacuum Circuit-Breakers 3AE5 and 3AE1

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The products and systems described in this catalog are manufactured and sold according to a certified management system (acc. to ISO 9001, ISO 14001 and BS OHSAS 18001).



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Industrial application: Refinery

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1

SION Vakuum Circuit-Breakers 3AE5 and 3AE1 from 7.2 kV to 24 kV – The Modulars

SION vacuum circuit-breakers control all switching duties in medium-voltage distribution systems and are suitable for installation in all customary, new, air-insulated medium-voltage switchgear types as well as for retrofitting existing switchgear.

They are applicable for operation of e.g. overhead lines, cables, transformers, capacitors and motors. The comprehensive installation accessories enable easy integration in the switchgear panel, and form – maximally equipped as a withdrawable module with earthing switch – almost the complete circuit-breaker compartment inside the switchgear.

Our comprehensive circuit-breaker product range offers a wide selection for pole-center distances and widths across flats as well as various equipment options for voltage levels from 7.2 kV to 24 kV. The withdrawable part, contact arms, contacts and bushings enable easy integration in all customary medium-voltage switchgear types. Identical dimensions and connection dimensions across several voltage levels reduce planning costs and the diversity of panel versions. High reliability and availability are just as much a matter of course as 10,000 maintenance-free operating cycles.

SION vacuum circuit-breaker for fixed mounting



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The SION vacuum circuit-breaker can be adjusted to your requirements by means of various equipment options. This switching device can be mounted on a withdrawable part. Furthermore, mountable contact arms, contacts and bushings allow easy integration in your switchgear.

SION vacuum circuit-breaker on withdrawable part



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The circuit-breaker mounted on a withdrawable part can be supplied both with and without contact arms and contacts.

SION vacuum circuit-breaker on withdrawable part – with contacts



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The SION vacuum circuit-breakers can be supplied with contact arms and contacts.

Withdrawable module with 3AE5 vacuum circuit-breaker



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The withdrawable module contains all components required for the circuit-breaker compartment of a switchgear panel. It consists of the circuit-breaker mounted on a withdrawable part, with contact arms, fitted in a cartridge with side and rear walls. The withdrawable module is equipped with bushings, fixed contacts, shutters and the shutter mechanism. The side and rear walls form the tested connection compartment.

Withdrawable module with earthing switch



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The withdrawable module is also available with earthing switch. It contains all components required for the circuit-breaker compartment of a switchgear panel. It consists of the circuit-breaker mounted on a withdrawable part, with contact arms, fitted in a cartridge with side and rear walls. The withdrawable module is equipped with bushings, fixed contacts, shutters and the shutter mechanism, as well as with a make-proof earthing switch. The side and rear walls form the tested connection compartment.

Circuit-breaker on truck for retrofitting 8B switchgear (only for SION 3AE1 vacuum circuit-breaker)



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Our retrofit solutions allow for considerable cost savings. With the consequent design of a simple "plug & play principle", replacing the circuit-breaker requires extremely short operational interruptions. The retrofit solution for 8B switchgear is available up to 17.5 kV, 2500 A and 31.5 kA; for 24 kV, up to 2000 A and 25 kA. Other retrofit solutions are available on request.

Description

Construction and mode of operation

1

Switching medium

The vacuum switching technology, proven and fully developed for more than 40 years, serves as arc-quenching principle by using vacuum interrupters.

Pole assemblies

The pole assemblies consist of the vacuum interrupters and the pole shells. The vacuum interrupters are air-insulated and freely accessible. The pole assemblies are fixed on the mounting plate of the operating mechanism and supported by means of the pole shell (6). The vacuum interrupter (5) is mounted rigidly to the upper interrupter support. The lower part of the interrupter is guided in the lower interrupter support, allowing axial movement. The pole shell (6) absorbs the external forces resulting from switching operations and the contact pressure.

Operating mechanism

The whole operating mechanism with motor (13), releases (11), indicators and actuating devices is mounted on the mechanism mounting plate (9). This compact design enables very fast operating times.

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 levers. The closing spring (15) can be charged either electrically or manually, and latches automatically in when charging is complete. The closing spring (15) acts as a stored-energy mechanism.

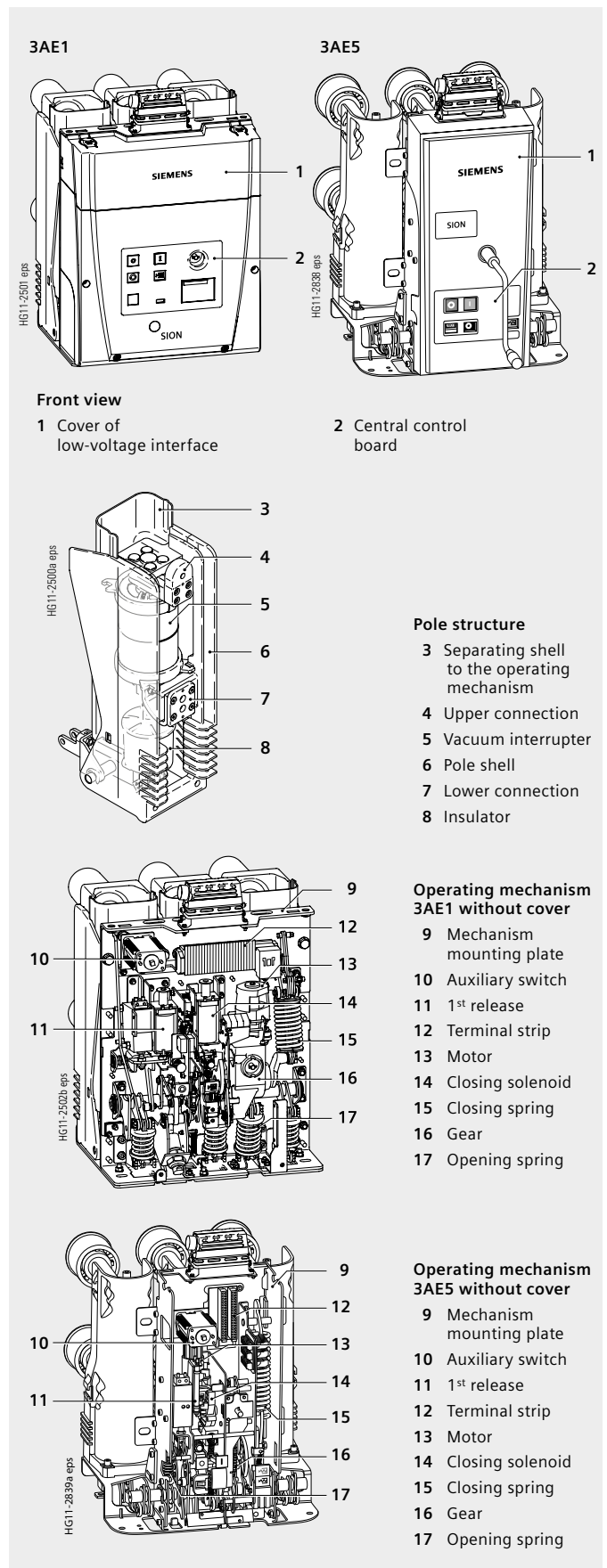
To close the breaker, the closing spring (15) can be unlatched either mechanically at the device (ON pushbutton), or electrically by remote control. The closing spring (15) charges the opening or contact-pressure springs (17) as the breaker closes. The now discharged closing spring (15) will be charged again automatically by the motor (13).

In this way, the stored-energy mechanism stores the OPEN – CLOSE – OPEN operating sequence that is required for an auto-reclosing operation on the system side. All stored-energy mechanisms transmit the switching duties of synchronising, rapid load transfer, and auto-reclosing.

Trip-free mechanism

SION vacuum circuit-breakers have a trip-free mechanism. 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.

For charging the closing spring (15), the motor (13) operates in short-time duty. Therefore the voltage and power consumption might differ from the data of the motor rating plate.



Releases

A release is a device which transfers electrical 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 releases are designed for short-time duty up to 1 minute 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 for deliberate tripping by electrical means. They are intended for connection to an external power supply (DC or AC voltage).

Current-transformer operated releases

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

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 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 maximum possible equipment are two releases according to page 34. The consumption data of the releases is listed on pages 80/81.

Closing and anti-pumping

In the standard version, the circuit-breakers can be remote-closed electrically. In addition, they can be mechanically closed locally by direct unlatching of the closing spring. 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 CLOSE command is given only following a short-time interruption of the closing signal. In this manner, continuous closing and opening (= "pumping") is prevented.

Closing spring charged indication

The circuit-breaker has a mechanically operated spring charged indication. The charging status of the closing spring can also be interrogated electrically by means of 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.

For the corresponding circuit diagrams, refer to page 82.

Interlocking

Mechanical interlocking

At the interface of the mechanical interlocking of the circuit-breaker, sensors on the switchgear side can check the switch position and prevent 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 a faulty position.

Circuit-breakers mounted on withdrawable parts are mechanically interlocked, with the result that the handle for racking the withdrawable part can only be inserted in the "OPEN" position. The lock of the withdrawable part can only be released in the disconnected position by operating the pushing handles.

If the circuit-breaker on the withdrawable part is in an intermediate position (neither in the service nor in the disconnected position), operation is not possible due to the mechanical interlocking.

Electrical interlocking

The auxiliary and signalling contacts which show the switch position of the circuit-breaker or the position of the withdrawable part can be integrated in the switchgear interlocking concept in order to exclude impermissible switching sequences.

Low-voltage interface

The removable cover of the SION 3AE1 and 3AE5 vacuum circuit-breakers enables easy access to the low-voltage interface. All possible customer-side control and signalling connections are concentrated here.

Description

Construction and mode of operation

1

Withdrawable module

The withdrawable module contains all necessary components for the circuit-breaker compartment of a switchgear panel. It consists of the circuit-breaker mounted on a withdrawable part, with contact arms, fitted in a cartridge with side and rear walls. The withdrawable module is equipped with bushings, fixed contacts, shutters and shutter mechanism. The side and rear walls form the tested connection compartment.

The vacuum circuit-breaker on the withdrawable part is racked into the cartridge with the associated handle by the rotary movement of the spindle. The shutter mechanism is controlled by lateral gates, and the shutters are opened for contacting. Signals for the service and disconnected positions are transmitted to the module connector at the low-voltage interface of the vacuum circuit-breaker via the position switches of the withdrawable part.

Withdrawable module with make-proof earthing switch

The make-proof earthing switch at the cartridge has a defined making capacity up to the values stated on the circuit-breaker rating plate. It features a compact design with spring-operated mechanism and a switching angle of 90°, low torques for closing and opening, as well as low maintenance.

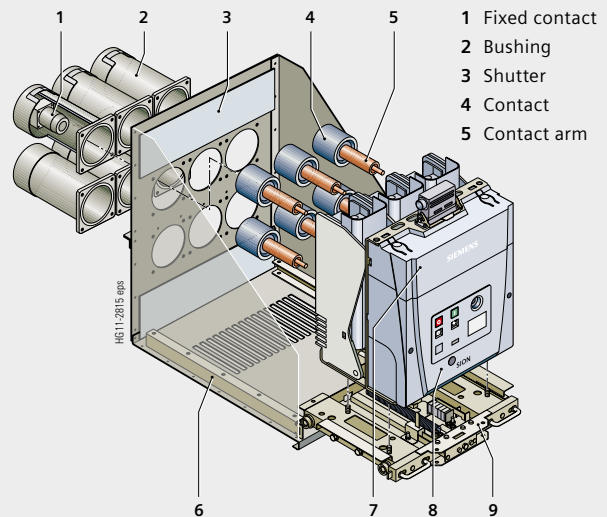
The make-proof earthing switch has been tested in the withdrawable module and fulfills the relevant standards for the switchgear panels.

Circuit-breaker on truck for retrofitting 8B switchgear (only for SION 3AE1 vacuum circuit-breaker)

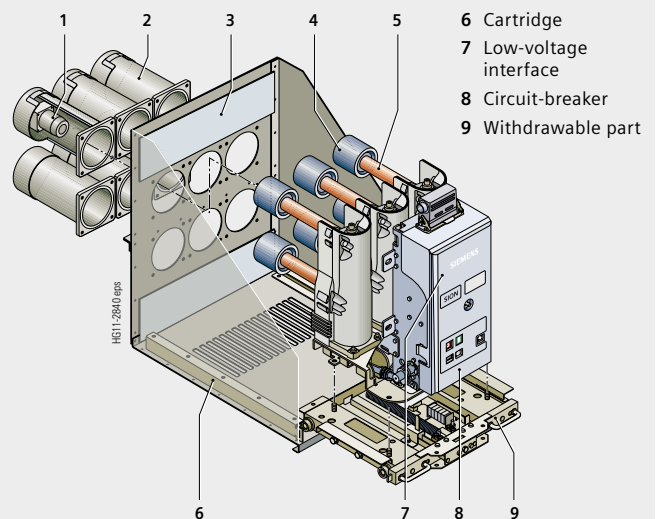
With our retrofit solution it is possible to replace only the components that have been stressed the most in long years of reliable operation, instead of the complete switchgear panel. As a rule, these are the circuit-breaker truck and the circuit-breaker itself. To do this, the new truck with the circuit-breaker – including contact arms with contacts, secondary equipment, interlocking, wiring and low-voltage plug connector – is adjusted at Siemens in such a way that replacement in the switchgear can take place based on a “plug & play principle”.

Solutions for other ratings or other switchgear types such as Reyrolle LMT are available on request. The switchgear documentation, e.g. circuit diagrams, must be provided by the customer. Special equipment like instrument transformers must be ordered separately. Dimension drawings for 8B retrofit are available on request.

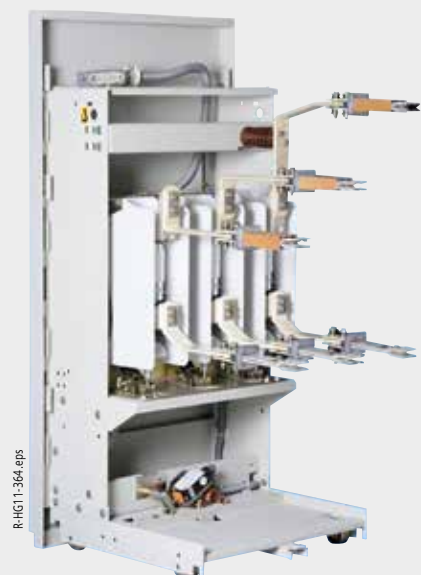
Withdrawable module 3AE1



Withdrawable module 3AE5



Retrofit





Standards

The circuit-breakers conform to the following standards:

- IEC 62271-1
- IEC 62271-100

All circuit-breakers fulfil the endurance classes C2, E2, M2 and S1 according to IEC 62271-100.

The withdrawable modules have been tested according to

- IEC 62271-200, 62271-1 and 62271-102 regarding
 - Dielectric strength
 - Temperature rise
 - Switching capacity.

Maintenance-free design

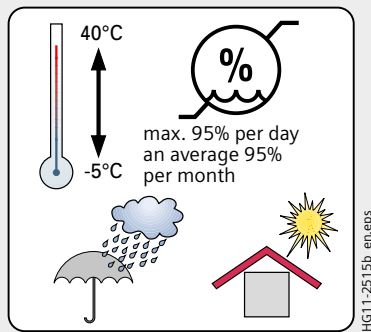
The circuit-breakers are maintenance-free:

- Under normal ambient conditions according to IEC 62271-1
- Up to 10,000 operating cycles,
 - no regreasing
 - no readjusting

The ratings are independent – within their tolerances – of the switching rate or standing times without switching.

Interlocking

Vacuum circuit-breaker	Disconnected position	Racking	Service position	Switching state of vacuum circuit-breaker	Interlocking of vacuum circuit-breaker against closing (optionally with key-operated interlock)	Interlocking of withdrawable part in the switchgear panel (latching of locking handles) in disconnected position	Interlocking of racking the withdrawable part (between disconnected, test and service position)	Switching state of earthing switch	Interlocking of earthing switch against closing
Fixed-mounted			■	OPEN	Interlockable				
			■	CLOSED					
Disconnecting on withdrawable part and in withdrawable module	■			CLOSED			Active		
	■			OPEN					
		■		OPEN	Active	Active			
Disconnecting on withdrawable part, in withdrawable module and with earthing switch			■	CLOSED		Active	Active		
	■			CLOSED			Active	OPEN	
	■			OPEN				OPEN	
		■		OPEN	Active	Active		OPEN	Active
Earthing on withdrawable part, in withdrawable module and with earthing switch			■	CLOSED		Active	Active	OPEN	Active
	■			CLOSED or OPEN				OPEN	
	■			CLOSED or OPEN			Active	OPEN	



Ambient conditions

The circuit-breakers are designed for the normal operating conditions 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 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 ³⁾
Mechanically-active substances:	Class 3S2 ²⁾

- 1) Low temperature limit: -5 °C (with order code A40 up to -25 °C)
- 2) Restriction: Clean insulation parts
- 3) Without appearance of saline fog and simultaneous condensation

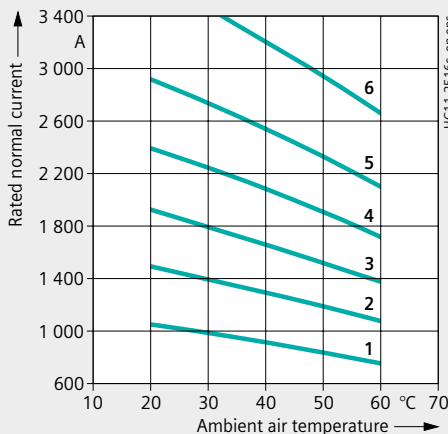
Current carrying capacity

The rated normal 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 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 1600 A
- Characteristics curve 4 = Rated normal current 2000 A
- Characteristics curve 5 = Rated normal current 2500 A
- Characteristics curve 6 = Rated normal current 3150 A



Dielectric strength

The dielectric strength of air insulation decreases with increasing altitude due to low 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 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 both rated withstand voltages.

To select the devices, the following applies:

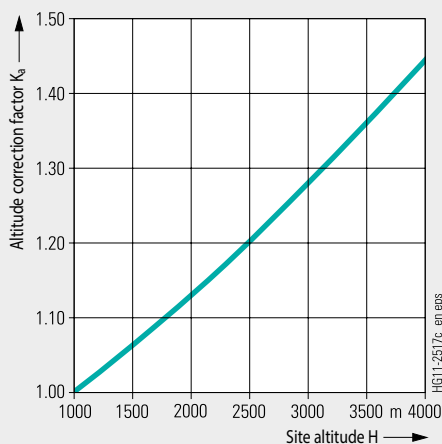
$$U \geq U_0 \times K_a$$

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 90 kV under reference atmosphere is required as a minimum:

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



Basic equipment

Equipment	Minimum equipment	Alternative equipment	Remarks
Operating mechanism	Electrical operating mechanism	None	Also for manual operation
Closing	Closing solenoid and mechanical manual closing	None	–
1 st release	Shunt release	Undervoltage release, c.t.-operated release	For SION 3AE5, only shunt releases are possible
2 nd release	Without	Shunt release, undervoltage release, c.t.-operated release	Combination of 2 undervoltage releases or 2 c.t.-operated releases is not possible. For SION 3AE5, the combination of undervoltage and c.t.-operated releases is not possible either
Varistor circuit	Standard for SION 3AE1 Installed with ≥ 60 V DC f. SION 3AE5	None	For limiting switching overvoltages
Auxiliary switch	6 NO + 6 NC	12 NO + 12 NC	–
Plug connection	27-pole terminal strip f. SION 3AE1 20-pole plug connector f. SION 3AE5	24-pole plug, 64-pole plug	12 NO + 12 NC not available with 24-pole plug
Anti-pumping	Available	None	–
Circuit-breaker tripping signal	Without	Possible	–
Operations counter	Available	None	–
Position switches for withdrawable part	5 momentary-contact position switches per position	None	–
Mechanical interlocking	Available for withdrawable module	Mechanical interlocking for circuit-breaker	Required for withdrawable module
Installation accessories	Fixed-mounted	With withdrawable part, contact arms and contact, fixed contacts and bushings, complete withdrawable module with and without make-proof earthing switch	–



Product range overview: Circuit-breaker without installation accessories

Type	Rated voltage kV	Rated short-circuit breaking current kA	Rated normal current A	Pole-center distance (in mm)										
				150				160			210			275
				Width across flats (in mm)										
				205	275	310	205	275	310	205	275	310	310	
3AE10/3AE50	7.2	16/20/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	■	
3AE50	7.2	16/20/25/31.5	1600										■	
3AE10	7.2	25	2000										■	
		31.5	2000/2500										■	
		40	1250/2000										■	
		40	2500/3150										■	
3AE11/3AE51	12	16/20/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	■	
3AE51	12	16/20/25/31.5	1600										■	
3AE11	12	25	2000/2500										■	
		31.5	2000/2500										■	
		40	1250/2000										■	
		40	2500/3150										■	
3AE12/3AE52	17.5	12.5/16/25	800/1250	■	■	■	■	■	■	■	■	■	■	
3EA52	17.5	12.5/16/25	1600										■	
3AE12	17.5	25	2000/2500										■	
		31.5	800/1250	■	■	■	■	■	■	■	■	■	■	
		31.5	2000/2500										■	
		40	1250/2000/2500/3150										■	
3AE13	24	12.5	800/1250										■	
		16	800/1250/2000										■	
		20	800/1250/2000/2500										■	
		25	800/1250/2000/2500										■	

Note: The circuit-breaker is available with various installation accessories: These versions can be configured from page 18.



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3AE5 vacuum circuit-breaker as fixed-mounted version



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3AE1 vacuum circuit-breaker as fixed-mounted version

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Order number structure

Order number structure

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

Order codes

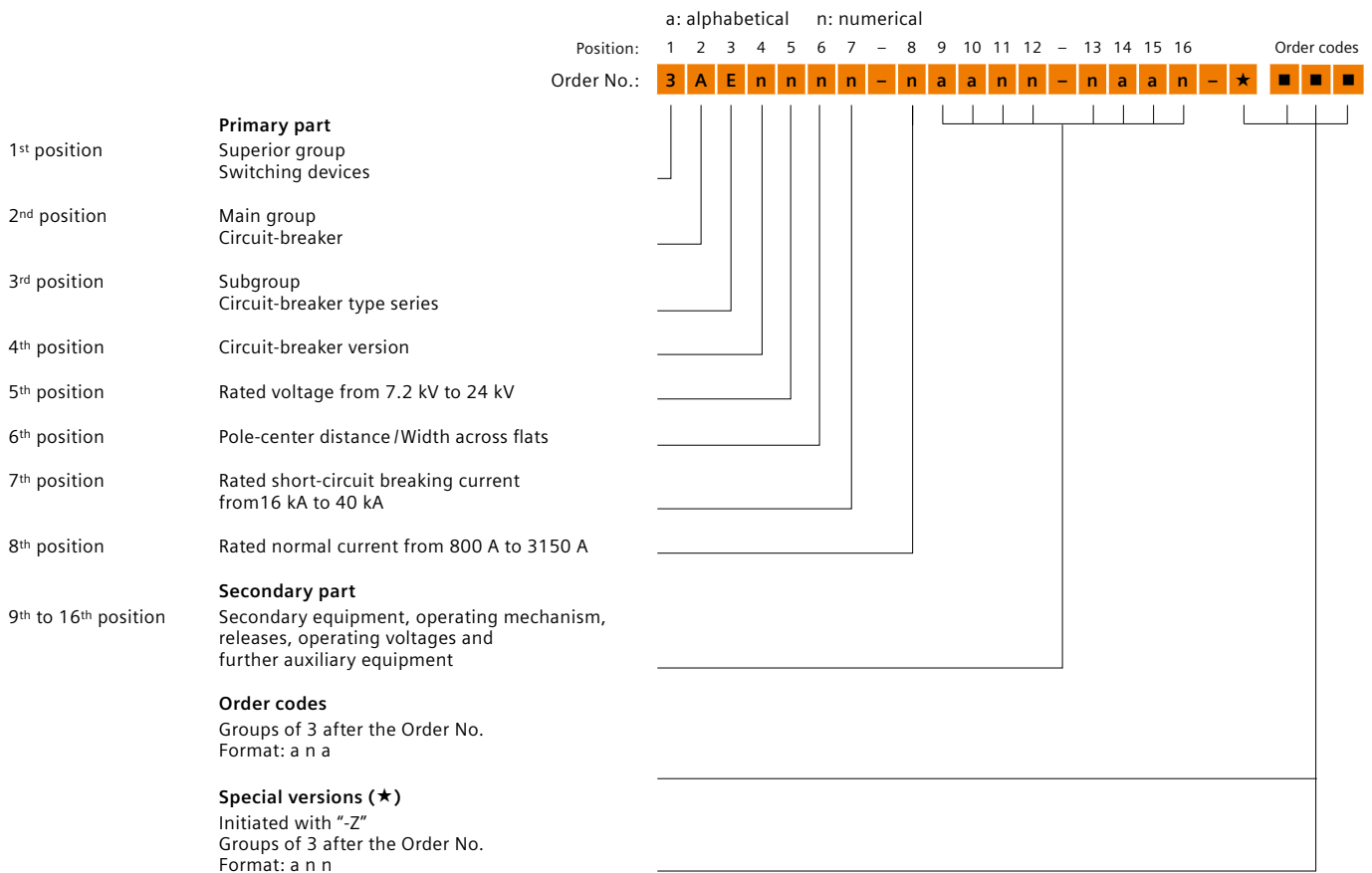
Individual equipment versions, marked with **9** or **Z** in the 9th to 16th position, are explained more in detail by a 3-digit order code. Several order codes can be added to the order number in succession and in any sequence. All 3AE1 and 3AE5 circuit breaker orders must include the Y40 order code.

All 3AE5 circuit breakers must include the IP Plate and Operating shaft with cover (D55 and D56 order code) Example Order No.: 3AE5124-2AC90-6KN2-Z, Z=D55,D56,Y40.

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 directly between your responsible sales partner and the order processing department at Siemens.

2



All 3AE5 circuit breakers must include the IP Plate and Operating shaft with cover (D55 and D56 order code). Example Order No.: 3AE5124-2AC90-6KN2-Z, Z=D55,D56,Y40.

Configuration example

In order to simplify the selection of the correct order number for the requested circuit-breaker type, you will find two configuration examples below. Two complete circuit-breakers have been configured as an example.

On the foldout page you can enter the Order No. determined for your circuit-breaker. Based on the Order No. you can request an offer from your Siemens partner.

Configuration example 1: SION 3AE5 vacuum withdrawable module (vacuum circuit-breaker on withdrawable part in cartridge)

	Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	Order codes			
Order No.:		3	A	E	5	■	■	■	-	■	■	■	■	■	-	■	■	■	■	★	■	■	■
Configuration example																							
SION vacuum circuit-breaker		3	A	E	5																		
Rated voltage $U_r = 12 \text{ kV}, 50/60 \text{ Hz}$																							
Rated lightning impulse withstand voltage $U_p = 75 \text{ kV}$																							
Rated short-circuit breaking current $I_{SC} = 25 \text{ kA}$																							
Rated normal current $I_r = 1250 \text{ A}$																							
Pole-center distance = 150 mm																							
Width across flats = 310 mm						1	2	4	-	2													
1 st shunt release (only one shunt release)														A									
Operating voltage of the closing solenoid 48 V DC																							
Operating voltage of the 1 st release 32 V DC																							
Without 2 nd release																							
Circuit-breaker on withdrawable part, with cartridge, contact arm, contact, fixed contacts, bushing, shutters, make-proof earthing switch																							
Operating voltage of the drive motor 230 V AC																							
With mechanical interlocking, circuit-breaker tripping signal, auxiliary switch 12 NO + 12 NC and 64-pole plug																							
Frequency of the operating voltage 50 Hz and DC, operating instructions and rating plate in english																							
Hand crank																							
Example for Order No.:		3	A	E	5	1	2	4	-	2	A	C	9	0	-	6	K	N	2	-	Z		
Order codes:		L	1	B	+	F	3	0															



Configuration example 2: SION vacuum circuit-breaker for 8B retrofit

	Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	Order codes			
Order No.:		3	A	E	1	■	■	■	-	■	■	■	■	■	-	■	■	■	■	★	■	■	■
Configuration example																							
SION vacuum circuit-breaker		3	A	E	1																		
Rated voltage $U_r = 17.5 \text{ kV}, 50/60 \text{ Hz}$																							
Rated lightning impulse withstand voltage $U_p = 95 \text{ kV}$																							
Rated short-circuit breaking current $I_{SC} = 25 \text{ kA}$																							
Rated normal current $I_r = 1250 \text{ A}$																							
Pole-center distance = 210 mm																							
Width across flats = 310 mm						2	8	4	-	2													
1 st shunt release (only one shunt release)																							
Operating voltage of the closing solenoid 48 V DC																							
Operating voltage of the 1 st release 32 V DC																							
Without 2 nd release																							
8B retrofit: Circuit-breaker up to 17.5 kV, 25 kA, 1250 A, contact arm type C																							
Operating voltage of the drive motor 230 V AC																							
With mechanical interlocking, circuit-breaker tripping signal, auxiliary switch 12 NO + 12 NC and 64-pole plug																							
Frequency of the operating voltage 50 Hz and DC, operating instructions and rating plate in english																							
Hand crank																							
Example for Order No.:		3	A	E	1	2	8	4	-	2	A	C	9	0	-	7	K	N	2	-	Z		
Order codes:		L	1	B	+	R	2	1	+	F	3	0											



7.2 kV

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Position:	1	2	3	4	5	6	7	8	9-12	13 th position – Equipment package	14-16	Order codes														
								Order No.:	3	A	E	1	0	8	4	-	1	-	13 th position – Equipment package	14-16	Order codes													
7.2	60	20	25	63/65	210	310	800	3	A	E	1	0	8	4	-	1	See pages 33 and 34	Orderable versions																
							1250	3	A	E	1	0	8	4	-	2	■	■	●	●	●	●	●	●	●	●								
							2000	3	A	E	1	0	8	4	-	4	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	7	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	7	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	6	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	6	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	5	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	5	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	4	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	4	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	3	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	3	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	2	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	2	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	1	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	1	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							800	3	A	E	1	0	0	4	-	1	■	■	●	●	●	●	■	■	■	■	■							
							1250	3	A	E	1	0	0	4	-	2	■	■	●	●	●	●	■	■	■	■	■							
							7.2	60	20	31.5	80/82	210	310	800	3	A	E	1	0	8	5	-	1	See pages 33 and 34	Orderable versions									
														1250	3	A	E	1	0	8	5	-	2	■	■	●	●	●	●	●	●	●		
														2000	3	A	E	1	0	8	5	-	4	■	■	●	●	●	●	■	■	■	■	■
														2500	3	A	E	1	0	8	5	-	6	■	■	●	●	●	●	■	■	■	■	■
														800	3	A	E	1	0	7	5	-	1	■	■	●	●	●	●	■	■	■	■	■
1250	3	A	E	1	0	7								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
800	3	A	E	1	0	6								5	-	1	■	■	●	●	●	●	■	■	■	■	■							
1250	3	A	E	1	0	6								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
800	3	A	E	1	0	5								5	-	1	■	■	●	●	●	●	■	■	■	■	■							
1250	3	A	E	1	0	5								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
800	3	A	E	1	0	4								5	-	1	■	■	●	●	●	●	■	■	■	■	■							
1250	3	A	E	1	0	4								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
800	3	A	E	1	0	3								5	-	1	■	■	●	●	●	●	■	■	■	■	■							
1250	3	A	E	1	0	3								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
800	3	A	E	1	0	2								5	-	1	■	■	●	●	●	●	■	■	■	■	■							
1250	3	A	E	1	0	2								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
800	3	A	E	1	0	1								5	-	1	■	■	●	●	●	●	■	■	■	■	■							
1250	3	A	E	1	0	1								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
800	3	A	E	1	0	0								5	-	1	■	■	●	●	●	●	■	■	■	■	■							
1250	3	A	E	1	0	0								5	-	2	■	■	●	●	●	●	■	■	■	■	■							
7.2	60	20	40	100/104	210	310								1250	3	A	E	1	0	8	6	-	2	See pages 33 and 34	Orderable versions									
														2000	3	A	E	1	0	8	6	-	4	■	■	●	●	●	●	●	●	●		
														2500	3	A	E	1	0	8	6	-	6	■	■	●	●	●	●	■	■	■	■	■
														3150	3	A	E	1	0	8	6	-	7	■	■	●	●	●	●	■	■	■	■	■

Special version $U_d = 32$ kV

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without withdrawable part, see page 35, 13th position





12 kV

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 50 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Position:	1	2	3	4	5	6	7	8	9-12	13 th position – Equipment package	14-16	Order codes				
								Order No.:	3	A	E	5	■	■	■	■	■	■	■	■	■	■	■	■
12	75	28	25	63/65	210	310	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						310	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
						310	1600	3	A	E	5	■	■	■	■	■	■	■	■	■				
						275	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						275	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
						205	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						205	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
					160	310	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						310	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
						310	1600	3	A	E	5	■	■	■	■	■	■	■	■	■				
						275	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						275	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
						205	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						205	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
					150	310	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						310	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
						310	1600	3	A	E	5	■	■	■	■	■	■	■	■	■				
						275	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						275	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
						205	800	3	A	E	5	■	■	■	■	■	■	■	■	■				
						205	1250	3	A	E	5	■	■	■	■	■	■	■	■	■				
Special version $U_d = 42$ kV																				- Z	E 1 3			
$I_{sc}^{**}) = 26.3$ kA																						- Z	E 4 6	
$U_p = 95$ kV																							- Z	E 9 5

1) W63 is absolutely necessary as order code

- Legend: ● With contact system
■ Without contact system
□ Retrofit contact system

*) Can also be ordered without withdrawable part, see page 35, 13th position

***) Only possible with $I_{sc} = 25$ kA



Equipment Selection

Circuit-breaker and equipment package



12 kV

									Position:	1	2	3	4	5	6	7	8	9-12	13 th position – Equipment package	14-16	Order codes									
									Order No.:	3	A	E	5	■	■	■	■	■	■	■	■	■								
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 50 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A		Orderable versions																					
									See pages 33 and 34	Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On withdrawable part	On withdrawable part with complete contact system *	On withdrawable part with complete contact system and bushings *	Withdrawable module without earthing switch	Withdrawable module with earthing switch	Retrofit	See pages 36 to 38	See page 39												
12	75	28	31.5	80/82	210	310	800		3	A	E	5	1	8	5	-	1	■	■	●	●	●	●							
						310	1250		3	A	E	5	1	8	5	-	2	■	■	●	●	●	●							
						310	1600		3	A	E	5	1	8	5	-	3	■	■	●	●	●	●							
						275	800		3	A	E	5	1	7	5	-	1	■	■	●	●	●	●							
						275	1250		3	A	E	5	1	7	5	-	2	■	■	●	●	●	●							
						205	800		3	A	E	5	1	6	5	-	1	■	■	●	●	●	●							
						205	1250		3	A	E	5	1	6	5	-	2	■	■	●	●	●	●							
					160	310	800		3	A	E	5	1	5	5	-	1	■	■	●	●	●	●							
						310	1250		3	A	E	5	1	5	5	-	2	■	■	●	●	●	●							
						310	1600		3	A	E	5	1	5	5	-	3	■	■	●	●	●	●							
						275	800		3	A	E	5	1	4	5	-	1	■	■	●	●	●	●							
						275	1250		3	A	E	5	1	4	5	-	2	■	■	●	●	●	●							
						205	800		3	A	E	5	1	3	5	-	1	■	■	●	●	●	●							
						205	1250		3	A	E	5	1	3	5	-	2	■	■	●	●	●	●							
					150	310	800		3	A	E	5	1	2	5	-	1	■	■	●	●	●	●							
						310	1250		3	A	E	5	1	2	5	-	2	■	■	●	●	●	●							
						310	1600		3	A	E	5	1	2	5	-	3	■	■	●	●	●	●							
						275	800		3	A	E	5	1	1	5	-	1	■	■	●	●	●	●							
						275	800		3	A	E	5	1	1	5	-	2	■	■	●	●	●	●							
						205	1250		3	A	E	5	1	0	5	-	1	■	■	●	●	●	●							
						205	1250		3	A	E	5	1	0	5	-	2	■	■	●	●	●	●							
Special version $U_d = 42$ kV																														
$U_p = 95$ kV																														
Circuit-breaker for installation in NXAIR World ¹⁾																														
12	75	28	25	63/65	160	275	800		3	A	E	5	5	5	4	-	1	■												
						275	1250		3	A	E	5	5	5	4	-	2	■												
						210	275	1600		3	A	E	5	5	6	4	-	3	■											
			31.5	80/82	160	275	800		3	A	E	5	5	5	5	-	1	■												
						275	1250		3	A	E	5	5	5	5	-	2	■												
						210	275	1600		3	A	E	5	5	6	5	-	3	■											
Special version $U_d = 42$ kV																														
$I_{sc}^{**}) = 26.3$ kA																														
$U_p = 95$ kV																														

1) W63 is absolutely necessary as order code

Legend: ● With contact system
 ■ Without contact system
 □ Retrofit contact system

*) Can also be ordered without withdrawable part, see page 35, 13th position

***) Only possible with $I_{sc} = 25$ kV

Equipment Selection

Circuit-breaker and equipment package



12 kV

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Position:	1	2	3	4	5	6	7	8	9-12	13 th position – Equipment package	14-16	Order codes						
								Order No.:	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12	75	28	25	63/65	210	310	800	3	A	E	1	■	■	■	■	■	■	■	■	■	■					
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							2000	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							2500	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
12	75	28	31.5	80/82	210	310	800	3	A	E	1	■	■	■	■	■	■	■	■	■	■					
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		
							2000	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							2500	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Special version $U_d = 42$ kV							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■					
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		
							2000	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							2500	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		
							800	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		
							1250	3	A	E	1	■	■	■	■	■	■	■	■	■	■	■	■	■		

Legend: ● With contact system
 ■ Without contact system
 □ Retrofit contact system

*) Can also be ordered without withdrawable part, see page 35, 13th position



12 kV

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Position:	1	2	3	4	5	6	7	-	8	9-12	13 th position – Equipment package	14-16	Order codes	
								Order No.:	3	A	E	1	■	■	■	-	■	-	■	■	■	■
12	75	28	40	100/104	210	310	1250	See pages 33 and 34	3	A	E	1	■	■	■	-	■	■	■	■	■	■
						310	2000		3	A	E	1	■	■	■	-	■	■	■	■	■	■
						310	2500		3	A	E	1	■	■	■	-	■	■	■	■	■	■
						310	3150		3	A	E	1	■	■	■	-	■	■	■	■	■	■
Circuit-breaker for installation in NXAIR World ¹⁾																						
Special version $U_d = 42$ kV																						
			31.5	80/81.9	160	275	800		3	A	E	1	■	■	■	-	■	■	■	■	■	■
						275	1250		3	A	E	1	■	■	■	-	■	■	■	■	■	■
					210	275	1250		3	A	E	1	■	■	■	-	■	■	■	■	■	■
						275	2500		3	A	E	1	■	■	■	-	■	■	■	■	■	■
			40	100/104	210	275	1250		3	A	E	1	■	■	■	-	■	■	■	■	■	■
						275	2500		3	A	E	1	■	■	■	-	■	■	■	■	■	■
						275	3150		3	A	E	1	■	■	■	-	■	■	■	■	■	■
Special version $U_d = 42$ kV																						

1) W63 is absolutely necessary as order code

*) Can also be ordered without withdrawable part, see page 35, 13th position

Legend: ● With contact system
■ Without contact system





17.5 kV

Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A	Position:	1	2	3	4	5	6	7	-	8	9-12	13 th position – Equipment package	14-16	Order codes	
								Order No.:	3	A	E	5	■	■	■	■	■	■	■	■	■	■
17.5	95	38	25	63/65	210	310	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						310	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						310	1600		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						275	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						275	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						205	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						205	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
					160	310	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						310	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						310	1600		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						275	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						275	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						205	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						205	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
					150	310	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						310	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						310	1600		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						275	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						275	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						205	800		3	A	E	5	■	■	■	■	■	■	■	■	■	■
						205	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	■
Circuit-breaker for installation in NXAIR World ¹⁾																						
17.5	95	38	25	63/65	160	275	800		3	A	E	5	■	■	■	■	■	■	■	■	■	- Z W 6 3
						275	1250		3	A	E	5	■	■	■	■	■	■	■	■	■	- Z W 6 3
						210	275	1600	3	A	E	5	■	■	■	■	■	■	■	■	■	- Z W 6 3

1) W63 is absolutely necessary as order code

*) Can also be ordered without withdrawable part, see page 35, 13th position

Legend: ● With contact system
■ Without contact system
□ Retrofit contact system



13 th position		Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	Order codes		
Circuit-breaker installation accessories		Order No.:	3	A	E	■	■	■	■	-	■	■	■	■	■	-	■	■	■	■	■	■	
Options																		See page 36	See page 37	See page 38	See page 39		
Circuit-breaker for fixed mounting																							
Without circuit-breaker installation accessories, circuit-breaker for fixed mounting																	0						
Circuit-breaker prepared for separate mounting of withdrawable part																							
Without withdrawable part, with contact arm, contact ¹⁾ , wiring of withdrawable part (loose delivery)																	2		-	Z	M	2	2
Without withdrawable part, with contact arm, contact ¹⁾ , fixed contact, bushing, wiring of withdrawable part (loose delivery)																	3		-	Z	M	2	3
Circuit-breaker on withdrawable part																							
On withdrawable part																		1					
On withdrawable part, with contact arm, contact ¹⁾																		2					
On withdrawable part, with contact arm, contact ¹⁾ , fixed contact, bushing																		3					
Withdrawable module																							
Circuit-breaker on withdrawable part, with cartridge, contact arm, contact ¹⁾ , fixed contacts, bushing, shutters																		5					
Circuit-breaker on withdrawable part, with cartridge, contact arm, contact ¹⁾ , fixed contacts, bushing, shutters, make-proof earthing switch																		6					
Retrofit 8B																							
Circuit-breaker on truck for retrofitting 8B switchgear, see next page																		7	not for 3AE5				

1) Special version: Contact with 13 contact fingers (only up to 1250 A and 31.5 kA) can be ordered with order code Z-M13



R-HG11-375.tif

Example: Circuit-breaker for fixed mounting



R-HG11-375.tif

Example: Circuit-breaker on withdrawable part element with contact arms and contacts



R-HG11-376.tif

Example: Circuit-breaker with withdrawable module



R-HG11-362.eps

Example: Circuit-breaker with withdrawable module and earthing switch

Remark for orders of accessories and spare parts

The order numbers in the spare part overviews are applicable to vacuum 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 and the year of manufacture of the circuit-breaker to be sure to get the correct delivery.

Retrofitting

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

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 3AE vacuum circuit-breakers:

For 24-pole plug connector

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

Rating plate



Note:

For any query regarding spare parts, subsequent deliveries, etc., the following 3 details are necessary:

- Type designation
- Serial no.
- Year of manufacture

Designation	Description	Feature	Position:	Order No.
Handles	Hand crank for circuit-breaker		1 - 9	3AX15 30-2B
	Long hand crank for circuit-breaker			3AX14 30-2B
	Handle for withdrawable part			3AX14 30-2C
	Handle for earthing switch (for modules up to 31.5 kA)			3AX14 30-2D
	Handle for earthing switch (for 40 kA modules)			3AX14 30-3D
Lubricant	180 g of Klüber-Isoplex Topas L32			3AX11 33-3H
	1 kg of Klüber-Isoplex Topas L32			3AX11 33-3E
	1 kg of Molykote grease			3AX14 33-2L
Operating solenoid	Used as closing solenoid or 1 st shunt release			
	For 3AE1	24 V DC		3AY15 10-5K
	For 3AE1	30/32 V DC		3AY15 10-5M
	For 3AE1	48 V DC		3AY15 10-5C
	For 3AE1	60 V DC		3AY15 10-5D
	For 3AE1	100/124 V DC		3AY15 10-5E
	For 3AE1	125/144 V DC		3AY15 10-5L
	For 3AE1	220/250 V DC		3AY15 10-5F
	For 3AE1	100/125 V AC, 50/60 Hz		3AY15 10-5E
For 3AE1	230/240 V AC, 50/60 Hz		3AY15 10-5F	



			Position:	1 – 9
Designation	Description	Feature	Order No.	
	For 3AE5	24 V DC	3AY14 10-0B	
	For 3AE5	30/32 V DC	3AY14 10-0M	
	For 3AE5	48 V DC	3AY14 10-0C	
	For 3AE5	60 V DC	3AY14 10-0D	
	For 3AE5	100/124 V DC	3AY14 10-0E	
	For 3AE5	125/144 V DC	3AY14 10-0N	
	For 3AE5	220/250 V DC	3AY14 10-0F	
	For 3AE5	100/125 V AC, 50/60 Hz	3AY14 10-0E	
	For 3AE5	230/240 V AC, 50/60 Hz	3AY14 10-0F	
2nd shunt release	For 3AE1 and 3AE5	24 – 32 V DC	3AX11 01-2B	
	For 3AE1 and 3AE5	48 – 60 V DC	3AX11 01-2C	
	For 3AE1 and 3AE5	110 – 127 V DC	3AX11 01-2E	
	For 3AE1 and 3AE5	220 – 240 V DC	3AX11 01-2F	
	For 3AE1 and 3AE5	100 – 125 V AC, 50 Hz	3AX11 01-2G	
	For 3AE1 and 3AE5	230 – 240 V AC, 50 Hz	3AX11 01-2J	
	For 3AE1 and 3AE5	100 – 125 V AC, 60 Hz	3AX11 01-3G	
	For 3AE1 and 3AE5	230 – 240 V AC, 60 Hz	3AX11 01-3J	
Mounting parts	For 2 nd shunt release			
	For 3AE1		3AX14 11-2A	
	For 3AE5		3AX14 11-5A	
Current-transformer operated release	For rated normal current 0.5 A	For 3AE1 and 3AE5	3AX11 02-2A	
	For rated normal current 1 A	For 3AE1 and 3AE5	3AX11 02-2B	
	For rated normal current 5 A	For 3AE1 and 3AE5	3AX11 02-2C	
	For tripping pulseW0.1Ws, 20 Ω for protection relay 7SJ45	For 3AE1 and 3AE5	3AX11 04-2B	
	For rated normal current 5 A incl. mounting parts:	For 3AE1	3AX14 02-2D	
	For rated normal current 5 A incl. mounting parts:	For 3AE5	3AX14 02-2E	
Mounting parts	For current-transformer operated release	For 3AE1	3AX14 11-2A	
		For 3AE5	3AX14 11-5A	
Undervoltage release		For 3AE1 and 3AE5	24 V DC	3AX11 03-2B
		For 3AE1 and 3AE5	30/32 V DC	3AX11 03-2L
		For 3AE1 and 3AE5	48 V DC	3AX11 03-2C
		For 3AE1 and 3AE5	60 V DC	3AX11 03-2D
		For 3AE1 and 3AE5	110 V DC	3AX11 03-2E
		For 3AE1 and 3AE5	120/127 V DC	3AX11 03-2N
		For 3AE1 and 3AE5	220 V DC	3AX11 03-2F
		For 3AE1 and 3AE5	240 V DC	3AX11 03-2P
		For 3AE1 and 3AE5	100 V AC, 50 Hz	3AX11 03-2G
		For 3AE1 and 3AE5	110/125 V AC, 50 Hz	3AX11 03-2H
		For 3AE1 and 3AE5	230 V AC, 50 Hz	3AX11 03-2J
		For 3AE1 and 3AE5	240 V AC, 50 Hz	3AX11 03-2M
		For 3AE1 and 3AE5	100 V AC, 60 Hz	3AX11 03-3G
		For 3AE1 and 3AE5	110/125 V AC, 60 Hz	3AX11 03-3H
		For 3AE1 and 3AE5	230 V AC, 60 Hz	3AX11 03-3J
		For 3AE1 and 3AE5	240 V AC, 60 Hz	3AX11 03-3M
Mounting parts	For undervoltage release	For 3AE1	3AX14 13-2A	
		For 3AE5	3AX14 13-5A	
Drive motor		For 3AE1	24/30/32 V DC	3AY17 11-2B
		For 3AE1	48 V DC	3AY17 11-2C
		For 3AE1	60 V DC	3AY17 11-2D
		For 3AE1	100/110/125 V DC/AC	3AY17 11-2E
		For 3AE1	220 V DC/230 V AC	3AY17 11-2F
		For 3AE5	24/30/32 V DC	3AY14 11-0B
		For 3AE5	48 V DC	3AY14 11-0C
		For 3AE5	60 V DC	3AY14 11-0C
		For 3AE5	100/110/125 V DC/AC	3AY14 11-0E
		For 3AE5	220 V DC/230 V AC	3AY14 11-0F

				Position:	1 – 9
Designation	Description	Feature	Order No.		
Auxiliary contactor	Type 3RH11 22				
	For anti-pumping	For 3AE1	24 V DC		SWB: 55656
		For 3AE1	30/32 V DC		SWB: 55658
		For 3AE1	48 V DC		SWB: 55659
		For 3AE1	60 V DC		SWB: 55660
		For 3AE1	110 V DC		SWB: 55661
		For 3AE1	120/127 V DC		SWB: 55662
		For 3AE1	220 V DC		SWB: 55663
		For 3AE1	240/250 V DC		SWB: 55665
		For 3AE1	110 V AC, 50/60 HZ		SWB: 55666
		For 3AE1	120 V AC, 50/60 HZ		SWB: 55667
		For 3AE1	125 V AC, 50/60 HZ		SWB: 55668
		For 3AE1	230 V AC, 50/60 HZ		SWB: 55669
	For 3AE1	240 V AC, 50/60 HZ		SWB: 55670	
Electronic module	For 3AE5		24 V – 60 V		3AY14 20-0B
			110 V – 230 V		3AY14 20-0E
Position switch	Type SE4 without installation accessories				3AX42 06-0A
	Used for:	Nos.			
	– Electrical anti-pumping (-S3)		1		
	– Electrical interlocking (-S12)		1		
	– Motor control (-S21, -S22)		2		
	– Closing spring charged (-S4)		1		
	– Circuit-breaker tripping signal (-S6)		2 not for 3AE5		
	– Electrical closing lock-out (-S5)		1		
– Withdrawable part (-S1.0 to -S1.9)		10			
Auxiliary switch (-S1)	6 NO + 6 NC				3SV92 73-2AA0
	12 NO + 12 NC				3SV92 74-2AA0
Mechanical interlocking		For 3AE1			3AX14 20-2A
Key-operated interlocking		For 3AE1			3AX14 37-2A
Accessories for plug connector	(for conductor cross-section 1.5 mm)				
	Crimp pins (for lower part of plug)	For 3AE1 and 3AE5	24-pole		3AX11 34-3A
		For 3AE1 and 3AE5	64-pole		3AX11 34-4B
	Crimp sockets (for upper part of plug)	For 3AE1 and 3AE5	64-pole		3AX11 34-4C
	Crimping pliers	For 3AE1 and 3AE5			3AX11 34-4D
	Disassembly tool	For 3AE1 and 3AE5			3AX11 34-4G
	Plug connector, complete	For 3AE1 and 3AE5	24-pole		3AX11 34-7A
		For 3AE1 and 3AE5	64-pole		3AX11 34-6A
Electrical closing lock-out		For 3AE1	24 V DC		3AX14 05-2B
		For 3AE1	30/32 V DC		3AX14 05-2K
		For 3AE1	48 V DC		3AX14 05-2C
		For 3AE1	60 V DC		3AX14 05-2D
		For 3AE1	100/127 V DC		3AX14 05-2E
		For 3AE1	220/240 V DC		3AX14 05-2F
		For 3AE1	100 V AC, 50/60 Hz		3AX14 05-2G
		For 3AE1	100/125 V AC, 50/60 Hz		3AX14 05-2H
		For 3AE1	220/240 V AC, 50/60 Hz		3AX14 05-2J
Mounting parts	For electrical closing lock-out	For 3AE1			3AX14 15-2A
		For 3AE1			3AX14 16-2A
Bushing		For 3AE1 and 3AE5	7.2 to 17.5 kV to 1250 A		3AX14 51-2A
		For 3AE1 and 3AE5	7.2 to 17.5 kV to 3150 A		3AX14 51-2B
		For 3AE1	24 kV to 2500 A		3AX14 51-2B



				Position:	1 – 9
Designation	Description	Feature	Order No.		
Separating shell towards contact arm side, for standard circuit-breakers only for additional screening in case of narrow installation conditions	Standard version, width across flats 310 mm	For 3AE1	7.2 to 17.5 kV (40 kA)	3AX14 38-2E	
	Standard version, width across flats 310 mm	For 3AE1	7.2 to 17.5 kV ($\leq 31,5$ kA)	3AX14 38-2A	
	Standard version, width across flats 275 mm	For 3AE1	7.2 to 17.5 kV	3AX14 38-2C	
	Standard version, width across flats 205 mm	For 3AE1	7.2 to 17.5 kV	3AX14 38-2D	
	Standard version, width across flats 310 mm	For 3AE5	7.2 to 12 kV	3AX14 38-5A	
	Standard version, width across flats 275 mm	For 3AE5	7.2 to 12 kV	3AX14 38-5C	
	Standard version, width across flats 205 mm	For 3AE5	7.2 to 12 kV	3AX14 38-5D	
	Standard version, width across flats 310 mm	For 3AE5	7.2 to 12 kV (31.5 kA)/17.5 kV (25 kA)	3AX14 38-5K	
	Standard version, width across flats 275 mm	For 3AE5	7.2 to 12 kV (31.5 kA)/17.5 kV (25 kA)	3AX14 38-5J	
	Standard version, width across flats 205 mm	For 3AE5	7.2 to 12 kV (31.5 kA)/17.5 kV (25 kA)	3AX14 38-5H	
	Standard version, width across flats 310 mm	For 3AE1	24 kV	3AX14 38-2B	
	Short version, width across flats 310 mm	For 3AE1	24 kV	3AX14 38-3B	
Gate for cartridge	Short version			3AX14 52-2B	
Cartridge					
Contact system		For 3AE1 and 3AE5	7.2/12/24 kV, 800 up to 1250 A	3AX14 42-2A	
		For 3AE1 and 3AE5	17.5 kV, 800 up to 1250 A	3AX14 42-2B	
		For 3AE1 and 3AE5	7.2/12/24 kV, up to 3150 A	3AX14 42-2C	
		For 3AE1 and 3AE5	17.5 kV, up to 3150 A	3AX14 42-2D	
Contact arm, complete with contact system		For 3AE1 and 3AE5	7.2/12 kV, up to 31.5 kA, up to 1250 A	3AX14 43-2A	
		For 3AE1 and 3AE5	7.2/12 kV, up to 31.5 kA, up to 2500 A	3AX14 43-2B	
		For 3AE1 and 3AE5	17.5 kV, up to 31.5 kA, up to 1250 A	3AX14 43-2C	
		For 3AE1 and 3AE5	17.5 kV, up to 31.5 kA, up to 2500 A	3AX14 43-2D	
		For 3AE1 and 3AE5	24 kV, up to 25 kA, up to 1250 A	3AX14 43-2E	
		For 3AE1 and 3AE5	24 kV, up to 25 kA, up to 2500 A	3AX14 43-2F	
		For 3AE1 and 3AE5	7.2/12 kV, 40 kA, up to 1250 A	3AX14 43-2G	
		For 3AE1 and 3AE5	7.2/12 kV, 40 kA, up to 3150 A	3AX14 43-2H	
		For 3AE1 and 3AE5	17.5 kV, 40 kA, up to 1250 A	3AX14 43-2J	
		For 3AE1 and 3AE5	17.5 kV, 40 kA, up to 3150 A	3AX14 43-2K	
Fixed contact		For 3AE1 and 3AE5	7.2/12/17.5 kV, up to 31.5 kA, to 1250 A	3AX14 44-2A	
		For 3AE1 and 3AE5	7.2/12/17.5 kV, up to 31.5 kA, to 2500 A	3AX14 44-2B	
		For 3AE1 and 3AE5	7.2/12/17.5 kV, 40 kA, up to 3150 A	3AX14 44-2A	
		For 3AE1 and 3AE5	24 kV, up to 25 kA, up to 2500 A	3AX14 44-2C	
Conductor bars (1 set each) for earthing switch connection	For 3AE1 and 3AE5				
	150/210 mm pole-center distance, 275 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, to 1250 A	3AX14 55-2A	
	150 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, to 1250 A	3AX14 55-2A	
	210 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, to 1250 A	3AX14 55-2B	
	210 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, up to 31.5 kA, to 2500 A	3AX14 55-2C	
	210 mm pole-center distance, 310 mm width across flats		7.2/12/17.5 kV, 40 kA, up to 3150 A	3AX14 55-2D	
	210 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2150 A	3AX14 55-2E	
	275 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2150 A	3AX14 55-2F	
	210 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2500 A	3AX14 55-2G	
	275 mm pole-center distance, 310 mm width across flats		24 kV, up to 25 kA, up to 2500 A	3AX14 55-2H	
Metal protection plate (IP plate)	150 mm pole-center distance	For 3AE5		3AX14 56-0A	
	160 mm pole-center distance	For 3AE5		3AX14 56-0B	
	210 mm pole-center distance	For 3AE5		3AX14 56-0C	
Operating shaft	150/160 mm pole-center distance	For 3AE5		3AX14 66-0A	
Cover	210 mm pole-center distance	For 3AE5		3AX14 66-0B	
Cable gland				3AX14 58-0A	

Designation	Description					Travel / feature	Position:	
	Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Pole-center distance mm	Width across flats mm	Rated normal current I_r A		1 – 9 Order No.	10 Language code *
Withdrawable part	≤ 17.5		150/160			220/without cable harness	3AX71 12-2A	■
	≤ 17.5		150/160			220/with cable harness for 3AE1	3AX71 12-3A	■
	≤ 17.5		150/160			220/with cable harness for 3AE5	3AX71 12-4A	■
	≤ 17.5		210			220/without cable harness	3AX71 12-2B	■
	≤ 17.5		210			220/with cable harness for 3AE1	3AX71 12-3B	■
	≤ 17.5		210			220/with cable harness for 3AE5	3AX71 12-4B	■
	24		210			260/without cable harness	3AX71 12-2C	■
	24		210			260/with cable harness for 3AE1	3AX71 12-3C	■
	24		275			260/without cable harness	3AX71 12-2D	■
	24		275			260/with cable harness for 3AE1	3AX71 12-3D	■
	≤ 17.5		150/160			180/without cable harness	3AX71 12-2E	■
	≤ 17.5		150/160			180/with cable harness for 3AE1	3AX71 12-3E	■
	≤ 17.5		150/160			180/with cable harness for 3AE5	3AX71 12-4E	■
	≤ 17.5		210			180/without cable harness	3AX71 12-2F	■
	≤ 17.5		210			180/with cable harness for 3AE1	3AX71 12-3F	■
≤ 17.5		210			180/with cable harness for 3AE5	3AX71 12-4F	■	
Cartridge without earthing switch	≤ 17.5	≤ 31.5	150	275	≤ 1250		3AX71 11-5A	■
	≤ 17.5	≤ 31.5	150	310	≤ 1250		3AX71 11-5B	■
	≤ 17.5	≤ 31.5	210	275	≤ 1250		3AX71 11-5C	■
	≤ 17.5	≤ 31.5	210	310	≤ 1250		3AX71 11-5D	■
	≤ 17.5	≤ 31.5	210	310	> 1250		3AX71 11-5G	■
	≤ 17.5	40	210	310	all I_r		3AX71 11-5H	■
	24	≤ 25	210	310	≤ 1250		3AX71 11-5E	■
	24	≤ 25	275	310	≤ 1250		3AX71 11-5F	■
	24	≤ 25	210	310	> 1250		3AX71 11-5J	■
24	≤ 25	275	310	> 1250		3AX71 11-5K	■	
Cartridge with earthing switch	≤ 17.5	≤ 31.5	150	275	≤ 1250	with partition	3AX71 11-6A	■
	≤ 17.5	≤ 31.5	150	310	≤ 1250	with partition	3AX71 11-6B	■
	≤ 17.5	≤ 31.5	210	275	≤ 1250	without partition	3AX71 11-6C	■
	≤ 17.5	≤ 31.5	210	310	≤ 1250	without partition	3AX71 11-6D	■
	≤ 17.5	≤ 31.5	210	310	> 1250	without partition	3AX71 11-6G	■
	≤ 17.5	40	210	310	all I_r	without partition	3AX71 11-6H	■
	24	≤ 25	210	310	≤ 1250	with partition	3AX71 11-6E	■
	24	≤ 25	275	310	≤ 1250	with partition	3AX71 11-6J	■
	24	≤ 25	210	310	> 1250	without partition	3AX71 11-6F	■
	24	≤ 25	275	310	> 1250	without partition	3AX71 11-6K	■

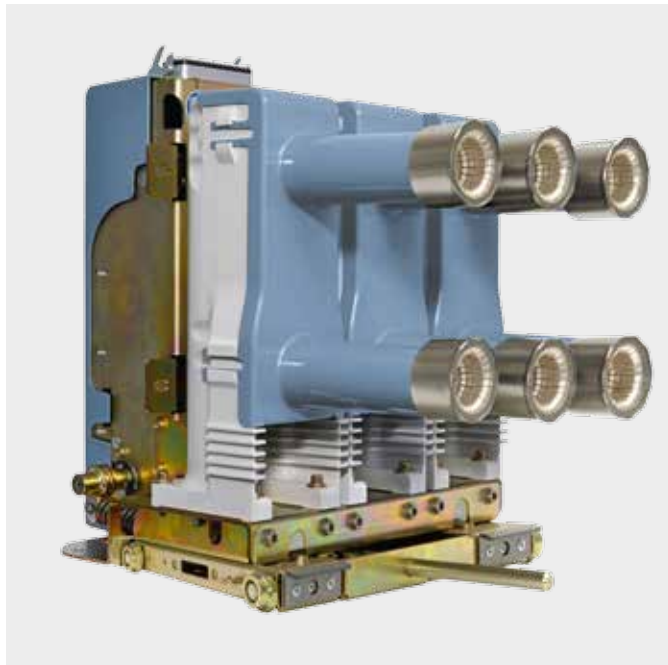
*) The language of the rating plate is given in the table. The individual code has to be added to the order number.

A	German
B	English
C	French
D	Spanish
E	Italian
F	Russian
G	Portuguese
H	Polish
Z	Open with Z = ...





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SION vacuum circuit-breaker on withdrawable part, with contacts



R-HIG11-375.tif

SION vacuum circuit-breaker on withdrawable part, with contacts

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Technical Data

Electrical data, dimensions and weights for 3AE5



Order No.	7.2 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 54)
	I_r	A	mm	mm	s	I_{sc}	%	kA	kA	I_{ma}	kV	kV	mV	mm	mm	mm	mm	kg					
3AE5 002-1...	800	205	150	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	97	49/-	A7E44202010	1				
3AE5 002-2...	1250	205	150	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	97	49/-	A7E44202010	1				
3AE5 003-1...	800	205	150	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	97	49/-	A7E44202010	2				
3AE5 003-2...	1250	205	150	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	97	49/-	A7E44202010	2				
3AE5 004-1...	800	205	150	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	97	49/-	A7E44202010	3a				
3AE5 004-2...	1250	205	150	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	97	49/-	A7E44202010	3a				
3AE5 005-1...	800	205	150	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E44202010	4a				
3AE5 005-2...	1250	205	150	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E442020210	4a				
3AE5 012-1...	800	275	150	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	97	49/85	A7E44202011	1				
3AE5 012-2...	1250	275	150	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	97	49/85	A7E44202011	1				
3AE5 013-1...	800	275	150	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	97	49/85	A7E44202011	2				
3AE5 013-2...	1250	275	150	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	97	49/85	A7E44202011	2				
3AE5 014-1...	800	275	150	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	97	49/85	A7E44202011	3a				
3AE5 014-2...	1250	275	150	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	97	49/85	A7E44202011	3a				
3AE5 015-1...	800	275	150	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/89.5	A7E442020211	4a				
3AE5 015-2...	1250	275	150	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/89.5	A7E442020211	4a				
3AE5 022-1...	800	310	150	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	97	49/85	A7E44202012	1				
3AE5 022-2...	1250	310	150	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	97	49/85	A7E44202012	1				
3AE5 022-3...	1600	310	150	□ ■ ○	3	16	50	17.9	40/42	60	20	2.5	90	255	98	122	59.5/95.5	A7E442020211	1a				
3AE5 023-1...	800	310	150	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	97	49/85	A7E44202012	2				
3AE5 023-2...	1250	310	150	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	97	49/85	A7E44202012	2				
3AE5 023-3...	1600	310	150	□ ■ ○	3	20	50	22.4	50/52	60	20	2.5	90	255	98	122	59.5/95.5	A7E442020212	2a				
3AE5 024-1...	800	310	150	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	97	49/85	A7E44202012	3a				
3AE5 024-2...	1250	310	150	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	97	49/85	A7E44202012	3a				
3AE5 024-3...	1600	310	150	□ ■ ○	3	25	50	28	63/65	60	20	2.5	90	255	98	122	59.5/95.5	A7E442020212	3b				
3AE5 025-1...	800	310	150	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/89.5	A7E442020212	4a				
3AE5 025-2...	1250	310	150	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/89.5	A7E442020212	4a				
3AE5 025-3...	1600	310	150	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	59.5/95.5	A7E442020212	4a				

Note: Dimension drawings from page 72

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Order No.	7.2 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 54)
	I_r	A	mm	mm	s	I_{sc}	%	kA	kA	I_{ma}	kV	U_p	kV	U_d	mV	mm	mm	mm	mm	kg			
3AE5 032-1...	800	205	160	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	49/-	A7E44202016	1				
3AE5 032-2...	1250	205	160	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	49/-	A7E44202016	1				
3AE5 033-1...	800	205	160	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	49/-	A7E44202016	2				
3AE5 033-2...	1250	205	160	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	49/-	A7E44202016	2				
3AE5 034-1...	800	205	160	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	129	49/-	A7E44202016	3a				
3AE5 034-2...	1250	205	160	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	129	49/-	A7E44202016	3a				
3AE5 035-1...	800	205	160	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E442020216	4a				
3AE5 035-2...	1250	205	160	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E442020216	4a				
3AE5 042-1...	800	275	160	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	49/-	A7E44202017	1				
3AE5 042-2...	1250	275	160	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	49/-	A7E44202017	1				
3AE5 043-1...	800	275	160	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	49/-	A7E44202017	2				
3AE5 043-2...	1250	275	160	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	49/-	A7E44202017	2				
3AE5 044-1...	800	275	160	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	129	49/-	A7E44202017	3a				
3AE5 044-2...	1250	275	160	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	129	49/-	A7E44202017	3a				
3AE5 045-1...	800	275	160	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E442020217	4a				
3AE5 045-2...	1250	275	160	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E442020217	4a				
3AE5 052-1...	800	310	160	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	49/-	A7E44202018	1				
3AE5 052-2...	1250	310	160	□ ■ ○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	49/-	A7E44202018	1				
3AE5 052-3...	1600	310	160	□ ■ ○	3	16	50	17.9	40/42	60	20	2.5	90	255	98	122	59.5/-	A7E442020218	1a				
3AE5 053-1...	800	310	160	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	49/-	A7E44202018	2				
3AE5 053-2...	1250	310	160	□ ■ ○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	49/-	A7E44202018	2				
3AE5 053-3...	1600	310	160	□ ■ ○	3	20	50	22.4	50/52	60	20	2.5	90	255	98	122	59.5/-	A7E442020218	2a				
3AE5 054-1...	800	310	160	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	129	49/-	A7E44202018	3a				
3AE5 054-2...	1250	310	160	□ ■ ○	3	25	50	28	63/65	60	20	3	93	245	93	129	49/-	A7E44202018	3a				
3AE5 054-3...	1600	310	160	□ ■ ○	3	25	50	28	63/65	60	20	2.5	90	255	98	122	59.5/-	A7E442020218	3b				
3AE5 055-1...	800	310	160	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E442020218	4a				
3AE5 055-2...	1250	310	160	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	53.5/-	A7E442020218	4a				
3AE5 055-3...	1600	310	160	□ ■ ○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	59.5/-	A7E442020218	4a				

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Technical Data

Electrical data, dimensions and weights for 3AE5



Order No.	7.2 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 54)
	I_r	A	mm	mm	t_k	s	I_{sc}	kA	%	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg	
3AE5 062-1...	800	205	210	□	■	○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	51.5/91.5	A7E44202022	1		
3AE5 062-2...	1250	205	210	□	■	○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	51.5/91.5	A7E44202022	1		
3AE5 063-1...	800	205	210	□	■	○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	51.5/-	A7E44202022	2		
3AE5 063-2...	1250	205	210	□	■	○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	51.5/-	A7E44202022	2		
3AE5 064-1...	800	205	210	□	■	○	3	25	50	28	63/65	60	20	3	93	245	93	129	51.5/-	A7E44202022	3a		
3AE5 064-2...	1250	205	210	□	■	○	3	25	50	28	63/65	60	20	3	93	245	93	129	51.5/-	A7E44202022	3a		
3AE5 065-1...	800	205	210	□	■	○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	56.5/-	A7E44202022	4a		
3AE5 065-2...	1250	205	210	□	■	○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	56.5/-	A7E44202022	4a		
3AE5 072-1...	800	275	210	□	■	○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	1		
3AE5 072-2...	1250	275	210	□	■	○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	1		
3AE5 073-1...	800	275	210	□	■	○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	2		
3AE5 073-2...	1250	275	210	□	■	○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	2		
3AE5 074-1...	800	275	210	□	■	○	3	25	50	28	63/65	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	3a		
3AE5 074-2...	1250	275	210	□	■	○	3	25	50	28	63/65	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	3a		
3AE5 075-1...	800	275	210	□	■	○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	56.5/96.5	A7E442020223	4a		
3AE5 075-2...	1250	275	210	□	■	○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	56.5/96.5	A7E442020223	4a		
3AE5 082-1...	800	310	210	□	■	○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	1		
3AE5 082-2...	1250	310	210	□	■	○	3	16	50	17.9	40/42	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	1		
3AE5 082-3...	1600	310	210	□	■	○	3	16	50	17.9	40/42	60	20	2.5	90	255	98	122	62.5/102.5	A7E442020224	1a		
3AE5 083-1...	800	310	210	□	■	○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	2		
3AE5 083-2...	1250	310	210	□	■	○	3	20	50	22.4	50/52	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	2		
3AE5 083-3...	1600	310	210	□	■	○	3	20	50	22.4	50/52	60	20	2.5	90	255	98	122	62.5/102.5	A7E442020224	2a		
3AE5 084-1...	800	310	210	□	■	○	3	25	50	28	63/65	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	3a		
3AE5 084-2...	1250	310	210	□	■	○	3	25	50	28	63/65	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	3a		
3AE5 084-3...	1600	310	210	□	■	○	3	25	50	28	63/65	60	20	2.5	90	255	98	122	62.5/102.5	A7E442020224	3b		
3AE5 085-1...	800	310	210	□	■	○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	56.5/96.5	A7E442020224	4a		
3AE5 085-2...	1250	310	210	□	■	○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	56.5/96.5	A7E442020224	4a		
3AE5 085-3...	1600	310	210	□	■	○	3	31.5	50	35.4	80/82	60	20	2.5	90	255	98	122	62.5/102.5	A7E442020224	4a		

□ Possible with order suffix "Z" and order code F27

■ Standard information on rating plate

○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Order No.	7.2 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 54)
	I_r	A	mm	mm	s	I_{sc}	%	kA	kA	I_{ma}	kA	kV	kV	kV	mV	mm	mm	mm	mm	kg			
3AE1 002-1...	800	205	150	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/–	A7E44202010	1				
3AE1 002-2...	1250	205	150	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/–	A7E44202010	1				
3AE1 003-1...	800	205	150	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/–	A7E44202010	2				
3AE1 003-2...	1250	205	150	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/–	A7E44202010	2				
3AE1 004-1...	800	205	150	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/–	A7E44202010	3a				
3AE1 004-2...	1250	205	150	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/–	A7E44202010	3a				
3AE1 005-1...	800	205	150	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/–	A7E44202010	4				
3AE1 005-2...	1250	205	150	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/–	A7E44202010	4				
3AE1 012-1...	800	275	150	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/103	A7E44202011	1				
3AE1 012-2...	1250	275	150	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/103	A7E44202011	1				
3AE1 013-1...	800	275	150	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/103	A7E44202011	2				
3AE1 013-2...	1250	275	150	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/103	A7E44202011	2				
3AE1 014-1...	800	275	150	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/103	A7E44202011	3a				
3AE1 014-2...	1250	275	150	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/103	A7E44202011	3a				
3AE1 015-1...	800	275	150	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/120	A7E44202011	4				
3AE1 015-2...	1250	275	150	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/120	A7E44202011	4				
3AE1 022-1...	800	310	150	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	100	75	67/103	A7E44202012	1				
3AE1 022-2...	1250	310	150	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	100	75	67/103	A7E44202012	1				
3AE1 023-1...	800	310	150	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	100	75	67/103	A7E44202012	2				
3AE1 023-2...	1250	310	150	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	100	75	67/103	A7E44202012	2				
3AE1 024-1...	800	310	150	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	100	75	67/103	A7E44202012	3a				
3AE1 024-2...	1250	310	150	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	100	75	67/103	A7E44202012	3a				
3AE1 025-1...	800	310	150	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	100	75	80/120	A7E44202012	4				
3AE1 025-2...	1250	310	150	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	100	75	80/120	A7E44202012	4				

Note: Dimension drawings from page 72

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 77)



Technical Data

Electrical data, dimensions and weights for 3AE1



Order No.	7.2 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 54)
	I_r	A	mm	mm	t_k	I_{SC}	%	kA	I_{ma}	kA	kV	kV	mV	mm	mm	mm	mm	mm	kg				
3AE1 032-1...	800	205	160	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	A7E44202016	1				
3AE1 032-2...	1250	205	160	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	A7E44202016	1				
3AE1 033-1...	800	205	160	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	A7E44202016	2				
3AE1 033-2...	1250	205	160	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	A7E44202016	2				
3AE1 034-1...	800	205	160	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	A7E44202016	3a				
3AE1 034-2...	1250	205	160	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	A7E44202016	3a				
3AE1 035-1...	800	205	160	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	A7E44202016	4				
3AE1 035-2...	1250	205	160	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	A7E44202016	4				
3AE1 042-1...	800	275	160	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	A7E44202017	1				
3AE1 042-2...	1250	275	160	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	A7E44202017	1				
3AE1 043-1...	800	275	160	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	A7E44202017	2				
3AE1 043-2...	1250	275	160	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	A7E44202017	2				
3AE1 044-1...	800	275	160	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	A7E44202017	3a				
3AE1 044-2...	1250	275	160	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	A7E44202017	3a				
3AE1 045-1...	800	275	160	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	A7E44202017	4				
3AE1 045-2...	1250	275	160	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	A7E44202017	4				
3AE1 052-1...	800	310	160	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	110	75	67	A7E44202018	1				
3AE1 052-2...	1250	310	160	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	110	75	67	A7E44202018	1				
3AE1 053-1...	800	310	160	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	110	75	67	A7E44202018	2				
3AE1 053-2...	1250	310	160	□ ■ ○	3	20	36	22.4	50/52	60	20	2.1	129	140	110	75	67	A7E44202018	2				
3AE1 054-1...	800	310	160	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	110	75	67	A7E44202018	3a				
3AE1 054-2...	1250	310	160	□ ■ ○	3	25	36	28	63/65	60	20	2.1	129	140	110	75	67	A7E44202018	3a				
3AE1 055-1...	800	310	160	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	110	75	80	A7E44202018	4				
3AE1 055-2...	1250	310	160	□ ■ ○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	110	75	80	A7E44202018	4				
3AE1 062-1...	800	205	210	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/–	A7E44202022	1				
3AE1 062-2...	1250	205	210	□ ■ ○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/–	A7E44202022	1				

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Order No.	7.2 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 54)
	I_r	A	mm	mm	t_k	s	I_{SC}	kA	%	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg	
3AE1 063-1...	800	205	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/–	A7E44202022	2		
3AE1 063-2...	1250	205	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/–	A7E44202022	2		
3AE1 064-1...	800	205	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/–	A7E44202022	3a		
3AE1 064-2...	1250	205	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/–	A7E44202022	3a		
3AE1 065-1...	800	205	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/–	A7E44202022	4		
3AE1 065-2...	1250	205	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/–	A7E44202022	4		
3AE1 072-1...	800	275	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/103	A7E44202023	1		
3AE1 072-2...	1250	275	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/103	A7E44202023	1		
3AE1 073-1...	800	275	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/103	A7E44202023	2		
3AE1 073-2...	1250	275	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/103	A7E44202023	2		
3AE1 074-1...	800	275	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/103	A7E44202023	3a		
3AE1 074-2...	1250	275	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/103	A7E44202023	3a		
3AE1 075-1...	800	275	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/130	A7E44202023	4		
3AE1 075-2...	1250	275	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/130	A7E44202023	4		
3AE1 082-1...	800	310	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	160	75	67/103	A7E44202024	1		
3AE1 082-2...	1250	310	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	160	75	67/103	A7E44202024	1		
3AE1 083-1...	800	310	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	160	75	67/103	A7E44202024	2		
3AE1 083-2...	1250	310	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	160	75	67/103	A7E44202024	2		
3AE1 084-1...	800	310	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	160	75	67/103	A7E44202024	3a		
3AE1 084-2...	1250	310	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	160	75	67/103	A7E44202024	3a		
3AE1 084-4...	2000	310	210	□	■	○	3	25	36	28	63/65	60	20	1.5	129	265	130	130	110/150	A7E44202028	3		
3AE1 085-1...	800	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	160	75	90/130	A7E44202024	4		
3AE1 085-2...	1250	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	160	75	90/130	A7E44202024	4		
3AE1 085-4...	2000	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	1.5	129	265	130	130	110/150	A7E44202028	4		
3AE1 085-6...	2500	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	1.5	129	265	130	130	110/150	A7E44202028	4		

□ Possible with order suffix "Z" and order code F27

■ Standard information on rating plate

○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Electrical data, dimensions and weights for 3AE1



Order No.	7.2 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)	
	I_r	A	mm	mm	s	I_{SC}	%	kA	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg	
3AE1 086-2...	1250	310	210	□ ■ ○	3	40	36	44.9	100/104	60	20	1.7	145	155	169	140	120/160	A7E44202070	5			
3AE1 086-4...	2000	310	210	□ ■ ○	3	40	36	44.9	100/104	60	20	1.0	145	249	149	140	160/210	A7E44202071	5			
3AE1 086-6...	2500	310	210	□ ■ ○	3	40	36	44.9	100/104	60	20	1.0	145	249	149	140	160/210	A7E44202071	5			
3AE1 086-7...	3150	310	210	□ ■ ○	3	40	36	44.9	100/104	60	20	1.0	145	249	149	140	160/210	A7E44202071	5			

□ Possible with order suffix "Z" and order code F27

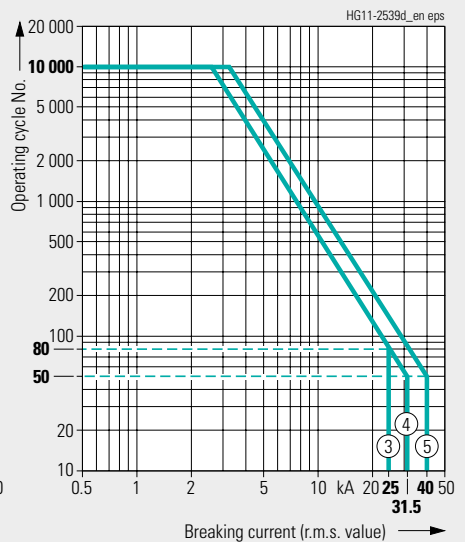
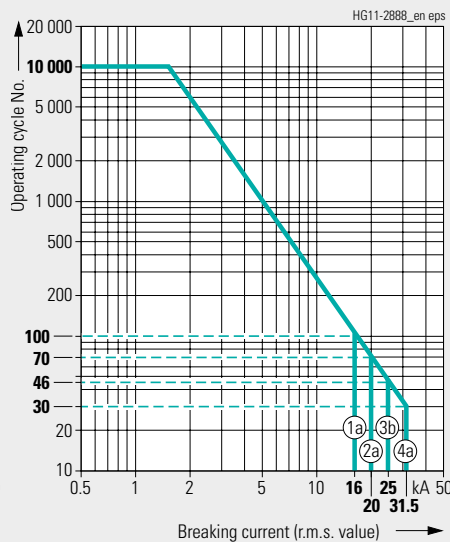
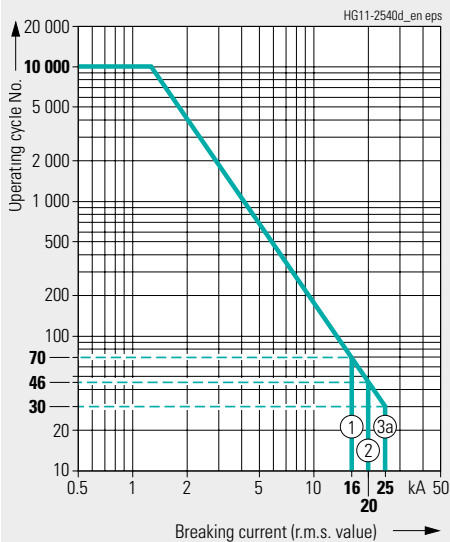
■ Standard information on rating plate

○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part, (page 76)

3

Operating cycle diagrams for 7.2 kV



The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION 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.	12 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 62)
	I_r	A	mm	mm	s	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	kg						
3AE5 102-1...	800	205	150	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202010	6				
3AE5 102-2...	1250	205	150	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202010	6				
3AE5 103-1...	800	205	150	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202010	7				
3AE5 103-2...	1250	205	150	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202010	7				
3AE5 104-1...	800	205	150	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/-	A7E44202010	8a				
3AE5 104-2...	1250	205	150	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/-	A7E44202010	8a				
3AE5 105-1...	800	205	150	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/-	A7E44202010	9a				
3AE5 105-2...	1250	205	150	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/-	A7E44202010	9a				
3AE5 112-1...	800	275	150	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/85	A7E44202011	6				
3AE5 112-2...	1250	275	150	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/85	A7E44202011	6				
3AE5 113-1...	800	275	150	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/85	A7E44202011	7				
3AE5 113-2...	1250	275	150	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/85	A7E44202011	7				
3AE5 114-1...	800	275	150	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/85	A7E44202011	8a				
3AE5 114-2...	1250	275	150	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/85	A7E44202011	8a				
3AE5 115-1...	800	275	150	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202011	9a				
3AE5 115-2...	1250	275	150	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202011	9a				
3AE5 122-1...	800	310	150	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/85	A7E44202012	6				
3AE5 122-2...	1250	310	150	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/85	A7E44202012	6				
3AE5 122-3...	1600	310	150	□ ■ ○	3	16	50	17.9	40/42	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	6a				
3AE5 123-1...	800	310	150	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/85	A7E44202012	7				
3AE5 123-2...	1250	310	150	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/85	A7E44202012	7				
3AE5 123-3...	1600	310	150	□ ■ ○	3	20	50	22.4	50/52	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	7a				
3AE5 124-1...	800	310	150	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/85	A7E44202012	8a				
3AE5 124-2...	1250	310	150	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/85	A7E44202012	8a				
3AE5 124-3...	1600	310	150	□ ■ ○	3	25	50	28	63/65	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	8b				

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Technical Data

Electrical data, dimensions and weights for 3AE5



Order No.	12 kV 50/60 Hz			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 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 62271-1 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	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 62)
	Rated normal current I_r A	Width across flats mm	Pole-center distance mm																		
3AE5 125-1...	800	310	150	□	■	○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202012	9a
3AE5 125-2...	1250	310	150	□	■	○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202012	9a
3AE5 125-3...	1600	310	150	□	■	○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	9a
3AE5 132-1...	800	205	160	□	■	○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202016	6
3AE5 132-2...	1250	205	160	□	■	○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202016	6
3AE5 133-1...	800	205	160	□	■	○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202016	7
3AE5 133-2...	1250	205	160	□	■	○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202016	7
3AE5 134-1...	800	205	160	□	■	○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/-	A7E44202016	8a
3AE5 134-2...	1250	205	160	□	■	○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/-	A7E44202016	8a
3AE5 135-1...	800	205	160	□	■	○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/-	A7E44202016	9a
3AE5 135-2...	1250	205	160	□	■	○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/-	A7E44202016	9a
3AE5 142-1...	800	275	160	□	■	○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202017	6
3AE5 142-2...	1250	275	160	□	■	○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202017	6
3AE5 143-1...	800	275	160	□	■	○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202017	7
3AE5 143-2...	1250	275	160	□	■	○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202017	7
3AE5 144-1...	800	275	160	□	■	○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/-	A7E44202017	8a
3AE5 144-2...	1250	275	160	□	■	○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/-	A7E44202017	8a
3AE5 145-1...	800	275	160	□	■	○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/-	A7E44202017	9a
3AE5 145-2...	1250	275	160	□	■	○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/-	A7E44202017	9a
3AE5 152-1...	800	310	160	□	■	○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202018	6
3AE5 152-2...	1250	310	160	□	■	○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	49/-	A7E44202018	6
3AE5 152-3...	1600	310	160	□	■	○	3	16	50	17.9	40/42	75	28	2.5	90	255	98	122	59.5/-	A7E44202018	6a
3AE5 153-1...	800	310	160	□	■	○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202018	7
3AE5 153-2...	1250	310	160	□	■	○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	49/-	A7E44202018	7
3AE5 153-3...	1600	310	160	□	■	○	3	20	50	22.4	50/52	75	28	2.5	90	255	98	122	59.5/-	A7E44202018	7a

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Order No.	12 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 62)
	I_r	A	mm	mm	s	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	mm	mm	mm	mm	kg		
3AE5 154-1...	800	310	160	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/–	A7E44202018	8a				
3AE5 154-2...	1250	310	160	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/–	A7E44202018	8a				
3AE5 154-3...	1600	310	160	□ ■ ○	3	25	50	28	63/65	75	28	2.5	90	255	98	122	59.5/–	A7E44202018	8b				
3AE5 155-1...	800	310	160	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/–	A7E44202018	9a				
3AE5 155-2...	1250	310	160	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	53.5/–	A7E44202018	9a				
3AE5 155-3...	1600	310	160	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	59.5/–	A7E44202018	9a				
3AE5 162-1...	800	205	210	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	51.5/–	A7E44202022	6				
3AE5 162-2...	1250	205	210	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	51.5/–	A7E44202022	6				
3AE5 163-1...	800	205	210	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	51.5/–	A7E44202022	7				
3AE5 163-2...	1250	205	210	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	51.5/–	A7E44202022	7				
3AE5 164-1...	800	205	210	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/–	A7E44202022	8a				
3AE5 164-2...	1250	205	210	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	49/–	A7E44202022	8a				
3AE5 165-1...	800	205	210	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	56.5/–	A7E44202022	9a				
3AE5 165-2...	1250	205	210	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	56.5/–	A7E44202022	9a				
3AE5 172-1...	800	275	210	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	6				
3AE5 172-2...	1250	275	210	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	6				
3AE5 173-1...	800	275	210	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	7				
3AE5 173-2...	1250	275	210	□ ■ ○	3	20	50	22.4	50/52	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	7				
3AE5 174-1...	800	275	210	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	8a				
3AE5 174-2...	1250	275	210	□ ■ ○	3	25	50	28	63/65	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	8a				
3AE5 175-1...	800	275	210	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202023	9a				
3AE5 175-2...	1250	275	210	□ ■ ○	3	31.5	50	35.4	80/82	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202023	9a				
3AE5 182-1...	800	310	210	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	6				
3AE5 182-2...	1250	310	210	□ ■ ○	3	16	50	17.9	40/42	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	6				
3AE5 182-3...	1600	310	210	□ ■ ○	3	16	50	17.9	40/42	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	6a				

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)





Order No.	12 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 62)
	I_r	A	mm	mm	t_k	s	I_{SC}	kA	%	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg	
3AE1 102-1...	800	205	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/–	A7E44202010	6		
3AE1 102-2...	1250	205	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/–	A7E44202010	6		
3AE1 103-1...	800	205	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/–	A7E44202010	7		
3AE1 103-2...	1250	205	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/–	A7E44202010	7		
3AE1 104-1...	800	205	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/–	A7E44202010	8a		
3AE1 104-2...	1250	205	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/–	A7E44202010	8a		
3AE1 105-1...	800	205	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/–	A7E44202010	9		
3AE1 105-2...	1250	205	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/–	A7E44202010	9		
3AE1 112-1...	800	275	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/103	A7E44202011	6		
3AE1 112-2...	1250	275	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/103	A7E44202011	6		
3AE1 113-1...	800	275	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/103	A7E44202011	7		
3AE1 113-2...	1250	275	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/103	A7E44202011	7		
3AE1 114-1...	800	275	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/103	A7E44202011	8a		
3AE1 114-2...	1250	275	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/103	A7E44202011	8a		
3AE1 115-1...	800	275	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/120	A7E44202011	9		
3AE1 115-2...	1250	275	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/120	A7E44202011	9		
3AE1 122-1...	800	310	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	100	75	67/103	A7E44202012	6		
3AE1 122-2...	1250	310	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	100	75	67/103	A7E44202012	6		
3AE1 123-1...	800	310	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	100	75	67/103	A7E44202012	7		
3AE1 123-2...	1250	310	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	100	75	67/103	A7E44202012	7		
3AE1 124-1...	800	310	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	100	75	67/103	A7E44202012	8a		
3AE1 124-2...	1250	310	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	100	75	67/103	A7E44202012	8a		
3AE1 125-1...	800	310	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	100	75	80/120	A7E44202012	9		
3AE1 125-2...	1250	310	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	100	75	80/120	A7E44202012	9		
3AE1 132-1...	800	205	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	A7E44202016	6		
3AE1 132-2...	1250	205	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	A7E44202016	6		

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)

Technical Data

Electrical data, dimensions and weights for 3AE1



Order No.	12 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 62)
	I_r	A	mm	mm	s	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	mm	kg					
3AE1 133-1...	800	205	160	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	A7E44202016	7				
3AE1 133-2...	1250	205	160	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	A7E44202016	7				
3AE1 134-1...	800	205	160	□ ■ ○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	A7E44202016	8a				
3AE1 134-2...	1250	205	160	□ ■ ○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	A7E44202016	8a				
3AE1 135-1...	800	205	160	□ ■ ○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	A7E44202016	9				
3AE1 135-2...	1250	205	160	□ ■ ○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	A7E44202016	9				
3AE1 142-1...	800	275	160	□ ■ ○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	A7E44202017	6				
3AE1 142-2...	1250	275	160	□ ■ ○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	A7E44202017	6				
3AE1 143-1...	800	275	160	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	A7E44202017	7				
3AE1 143-2...	1250	275	160	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	A7E44202017	7				
3AE1 144-1...	800	275	160	□ ■ ○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	A7E44202017	8a				
3AE1 144-2...	1250	275	160	□ ■ ○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	A7E44202017	8a				
3AE1 145-1...	800	275	160	□ ■ ○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	A7E44202017	9				
3AE1 145-2...	1250	275	160	□ ■ ○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	A7E44202017	9				
3AE1 152-1...	800	310	160	□ ■ ○	3	16	36	17.9	40/42	75	28	2.1	129	140	110	75	67/–	A7E44202018	6				
3AE1 152-2...	1250	310	160	□ ■ ○	3	16	36	17.9	40/42	75	28	2.1	129	140	110	75	67/–	A7E44202018	6				
3AE1 153-1...	800	310	160	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	110	75	67/–	A7E44202018	7				
3AE1 153-2...	1250	310	160	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	110	75	67/–	A7E44202018	7				
3AE1 154-1...	800	310	160	□ ■ ○	3	25	36	28	63/65	75	28	2.1	129	140	110	75	67/–	A7E44202018	8a				
3AE1 154-2...	1250	310	160	□ ■ ○	3	25	36	28	63/65	75	28	2.1	129	140	110	75	67/–	A7E44202018	8a				
3AE1 155-1...	800	310	160	□ ■ ○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	110	75	80/–	A7E44202018	9				
3AE1 155-2...	1250	310	160	□ ■ ○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	110	75	80/–	A7E44202018	9				
3AE1 162-1...	800	205	210	□ ■ ○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/–	A7E44202022	6				
3AE1 162-2...	1250	205	210	□ ■ ○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/–	A7E44202022	6				
3AE1 163-1...	800	205	210	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/–	A7E44202022	7				
3AE1 163-2...	1250	205	210	□ ■ ○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/–	A7E44202022	7				

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Order No.	12 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 62)
	I_r	A	mm	mm	t_k	s	I_{SC}	kA	%	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg	
3AE1 164-1...	800	205	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/–	A7E44202022	8a		
3AE1 164-2...	1250	205	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/–	A7E44202022	8a		
3AE1 165-1...	800	205	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/–	A7E44202022	9		
3AE1 165-2...	1250	205	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/–	A7E44202022	9		
3AE1 172-1...	800	275	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/103	A7E44202023	6		
3AE1 172-2...	1250	275	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/103	A7E44202023	6		
3AE1 173-1...	800	275	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/103	A7E44202023	7		
3AE1 173-2...	1250	275	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/103	A7E44202023	7		
3AE1 174-1...	800	275	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/103	A7E44202023	8a		
3AE1 174-2...	1250	275	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/103	A7E44202023	8a		
3AE1 175-1...	800	275	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/130	A7E44202023	9		
3AE1 175-2...	1250	275	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/130	A7E44202023	9		
3AE1 182-1...	800	310	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	160	75	67/103	A7E44202024	6		
3AE1 182-2...	1250	310	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	160	75	67/103	A7E44202024	6		
3AE1 183-1...	800	310	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	160	75	67/103	A7E44202024	7		
3AE1 183-2...	1250	310	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	160	75	67/103	A7E44202024	7		
3AE1 184-1...	800	310	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	160	75	67/103	A7E44202024	8a		
3AE1 184-2...	1250	310	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	160	75	67/103	A7E44202024	8a		
3AE1 184-4...	2000	310	210	□	■	○	3	25	36	28	63/65	75	28	1.5	129	265	130	130	110/150	A7E44202028	8		
3AE1 184-6...	2500	310	210	□	■	○	3	25	36	28	63/65	75	28	1.5	129	265	130	130	110/150	A7E44202028	8		
3AE1 185-1...	800	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	160	75	90/130	A7E44202024	9		
3AE1 185-2...	1250	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	160	75	90/130	A7E44202024	9		
3AE1 185-4...	2000	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	1.5	129	265	130	130	110/150	A7E44202028	9		
3AE1 185-6...	2500	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	1.5	129	265	130	130	110/150	A7E44202028	9		
3AE1 186-2...	1250	310	210	□	■	○	3	40	36	44.9	100/104	75	28	1.7	145	155	169	140	120/160	A7E44202070	10		
3AE1 186-4...	2000	310	210	□	■	○	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	A7E44202071	10		

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Electrical data, dimensions and weights for 3AE1



Order No.	12 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)
	I_r	A	mm	mm	s	kA	%	kA	kA	kA	kV	kV	mV	mm	mm	mm	mm	kg			
3AE1 186-6...	2500	310	210	□ ■ ○	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	A7E44202071	10		
3AE1 186-7...	3150	310	210	□ ■ ○	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	A7E44202071	10		
3AE1 554-1...	800	275	160	□ ■ ○	3	25	36	44.9	63/65	75	28	2.1	129	140	115	75	67/-	-	8a		
3AE1 554-2...	1250	275	160	□ ■ ○	3	25	36	44.9	63/65	75	28	2.1	129	140	115	75	67/-	-	8a		
3AE1 555-1...	800	275	160	□ ■ ○	3	31.5	36	44.9	80/82	75	28	2.1	129	140	115	75	80/-	-	9		
3AE1 555-2...	1250	275	160	□ ■ ○	3	31.5	36	44.9	80/82	75	28	2.1	129	140	115	75	80/-	-	9		
3AE1 565-2...	1250	275	210	□ ■ ○	3	31.5	36	44.9	80/82	75	28	2.1	129	140	165	75	90/-	-	9		
3AE1 565-6...	2500	275	210	□ ■ ○	3	31.5	36	44.9	80/82	75	28	-	-	-	-	-	-	-	-	9	
3AE1 566-2...	1250	275	210	□ ■ ○	3	40	36	44.9	100/104	75	28	1.7	145	155	169	140	120/-	-	-	10	
3AE1 566-6...	2500	275	210	□ ■ ○	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/-	-	-	10	
3AE1 566-7...	3150	275	210	□ ■ ○	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/-	-	-	10	

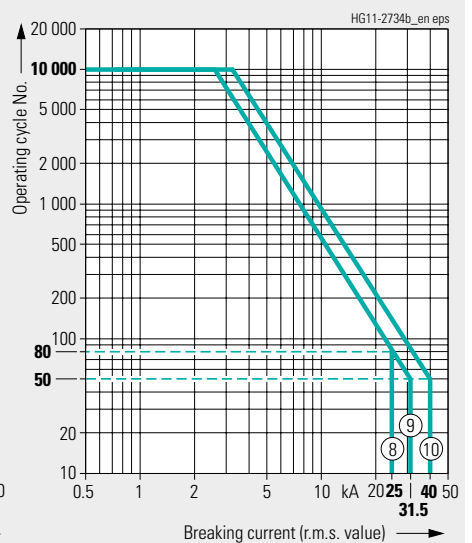
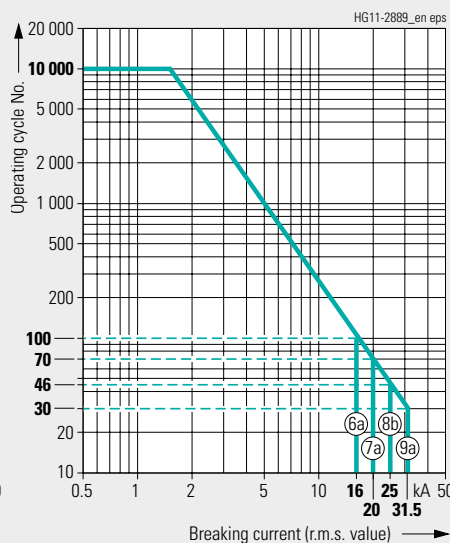
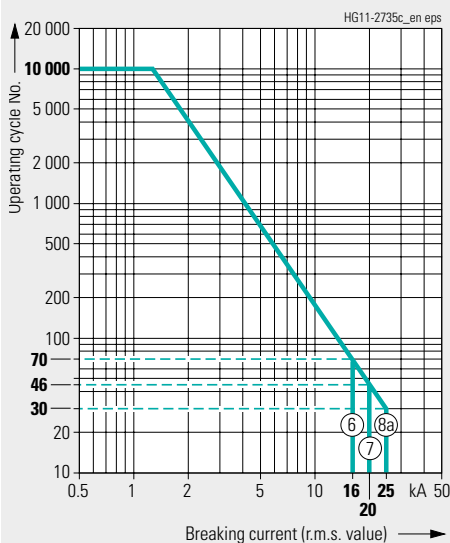
□ Possible with order suffix "Z" and order code F27

■ Standard information on rating plate

○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)

Operating cycle diagrams for 12 kV



The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION 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.	17.5 kV 50/60 Hz																					
	Rated normal current I_r A	Width across flats mm	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 duration of short-circuit 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 62271-1 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	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 69)	
3AE5 201-1...	800	205	150	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/-	A7E44202010	11a	
3AE5 201-2...	1250	205	150	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/-	A7E44202010	11a	
3AE5 202-1...	800	205	150	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/-	A7E44202010	12a	
3AE5 202-2...	1250	205	150	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/-	A7E44202010	12a	
3AE5 204-1...	800	205	150	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/-	A7E44202010	13a	
3AE5 204-2...	1250	205	150	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/-	A7E44202010	13a	
3AE5 211-1...	800	275	150	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/94	A7E44202011	11a	
3AE5 211-2...	1250	275	150	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/94	A7E44202011	11a	
3AE5 212-1...	800	275	150	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/94	A7E44202011	12a	
3AE5 212-2...	1250	275	150	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/94	A7E44202011	12a	
3AE5 214-1...	800	275	150	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/94	A7E44202011	13a	
3AE5 214-2...	1250	275	150	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/94	A7E44202011	13a	
3AE5 221-1...	800	310	150	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/94	A7E44202012	11a	
3AE5 221-2...	1250	310	150	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/94	A7E44202012	11a	
3AE5 221-3...	1600	310	150	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	60/100	A7E44202012	11a	
3AE5 222-1...	800	310	150	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/94	A7E44202012	12a	
3AE5 222-2...	1250	310	150	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/94	A7E44202012	12a	
3AE5 222-3...	1600	310	150	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	60/100	A7E44202012	12a	
3AE5 224-1...	800	310	150	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/94	A7E44202012	13a	
3AE5 224-2...	1250	310	150	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/94	A7E44202012	13a	
3AE5 224-3...	1600	310	150	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	60/100	A7E44202012	13a	
3AE5 231-1...	800	205	160	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/-	A7E44202016	11a	
3AE5 231-2...	1250	205	160	□	■	○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	54/-	A7E44202016	11a	
3AE5 232-1...	800	205	160	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/-	A7E44202016	12a	
3AE5 232-2...	1250	205	160	□	■	○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	54/-	A7E44202016	12a	
3AE5 234-1...	800	205	160	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/-	A7E44202016	13a	
3AE5 234-2...	1250	205	160	□	■	○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	54/-	A7E44202016	13a	

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)





Order No.	17.5 kV and NXAIR 50/60 Hz																				Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 69)
	Rated normal current I_r A	Width across flats mm	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 duration of short-circuit 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 62271-1 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	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module) kg					
3AE5 281-1...	800	310	210	□ ■ ○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	57/97	A7E44202024	11a			
3AE5 281-2...	1250	310	210	□ ■ ○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	57/97	A7E44202024	11a			
3AE5 281-3...	1600	310	210	□ ■ ○	3	12.5	50	14.9	31/33	95	38	2.5	240	255	130	135	63/103	A7E44202024	11a			
3AE5 282-1...	800	310	210	□ ■ ○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	57/97	A7E44202024	12a			
3AE5 282-2...	1250	310	210	□ ■ ○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	57/97	A7E44202024	12a			
3AE5 282-3...	1600	310	210	□ ■ ○	3	16	50	17.9	40/42	95	38	2.5	240	255	130	135	63/103	A7E44202024	12a			
3AE5 284-1...	800	310	210	□ ■ ○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	57/97	A7E44202024	13a			
3AE5 284-2...	1250	310	210	□ ■ ○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	57/97	A7E44202024	13a			
3AE5 284-3...	1600	310	210	□ ■ ○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	63/103	A7E44202024	13a			
3AE5 624-1...	800	275	160	□ ■ ○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	67/-	A7E44202038				
3AE5 624-2...	1250	275	160	□ ■ ○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	67/-	A7E44202038				
3AE5 664-2...	1250	275	210	□ ■ ○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	70/-	A7E44202040				
3AE5 664-3...	1600	275	210	□ ■ ○	3	25	50	28	63/65	95	38	2.5	240	255	130	135	75/-	A7E44202040				

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Technical Data

Electrical data, dimensions and weights for 3AE1



Order No.	17.5 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 69)
	I_r	A	mm	mm	t_k	s	I_{SC}	kA	%	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg	
3AE1 201-1...	800	205	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	237	150	80/–	A7E44202013	11		
3AE1 201-2...	1250	205	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	237	150	80/–	A7E44202013	11		
3AE1 202-1...	800	205	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	237	150	80/–	A7E44202013	12		
3AE1 202-2...	1250	205	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	237	150	80/–	A7E44202013	12		
3AE1 204-1...	800	205	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	237	150	80/–	A7E44202013	13		
3AE1 204-2...	1250	205	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	237	150	80/–	A7E44202013	13		
3AE1 205-1...	800	205	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	237	150	80/–	A7E44202013	14		
3AE1 205-2...	1250	205	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	237	150	80/–	A7E44202013	14		
3AE1 211-1...	800	275	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	214	150	80/120	A7E44202014	11		
3AE1 211-2...	1250	275	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	214	150	80/120	A7E44202014	11		
3AE1 212-1...	800	275	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	214	150	80/120	A7E44202014	12		
3AE1 212-2...	1250	275	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	214	150	80/120	A7E44202014	12		
3AE1 214-1...	800	275	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	214	150	80/120	A7E44202014	13		
3AE1 214-2...	1250	275	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	214	150	80/120	A7E44202014	13		
3AE1 215-1...	800	275	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	214	150	80/120	A7E44202014	14		
3AE1 215-2...	1250	275	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	214	150	80/120	A7E44202014	14		
3AE1 221-1...	800	310	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	190	150	80/120	A7E44202015	11		
3AE1 221-2...	1250	310	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	190	150	80/120	A7E44202015	11		
3AE1 222-1...	800	310	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	190	150	80/120	A7E44202015	12		
3AE1 222-2...	1250	310	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	190	150	80/120	A7E44202015	12		
3AE1 224-1...	800	310	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	190	150	80/120	A7E44202015	13		
3AE1 224-2...	1250	310	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	190	150	80/120	A7E44202015	13		
3AE1 225-1...	800	310	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	190	150	80/120	A7E44202015	14		
3AE1 225-2...	1250	310	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	190	150	80/120	A7E44202015	14		
3AE1 231-1...	800	205	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	247	150	80/–	A7E44202019	11		
3AE1 231-2...	1250	205	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	247	150	80/–	A7E44202019	11		

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Order No.	17.5 kV 50/60 Hz		Rated normal current	Width across flats	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 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 lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 69)
	I_r	A	mm	mm	t_k	s	I_{SC}	kA	%	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg	
3AE1 232-1...	800	205	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	247	150	80/-	A7E44202019	12		
3AE1 232-2...	1250	205	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	247	150	80/-	A7E44202019	12		
3AE1 234-1...	800	205	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	247	150	80/-	A7E44202019	13		
3AE1 234-2...	1250	205	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	247	150	80/-	A7E44202019	13		
3AE1 235-1...	800	205	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	247	150	80/-	A7E44202019	14		
3AE1 235-2...	1250	205	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	247	150	80/-	A7E44202019	14		
3AE1 241-1...	800	275	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	224	150	80/-	A7E44202020	11		
3AE1 241-2...	1250	275	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	224	150	80/-	A7E44202020	11		
3AE1 242-1...	800	275	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	224	150	80/-	A7E44202020	12		
3AE1 242-2...	1250	275	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	224	150	80/-	A7E44202020	12		
3AE1 244-1...	800	275	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	224	150	80/-	A7E44202020	13		
3AE1 244-2...	1250	275	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	224	150	80/-	A7E44202020	13		
3AE1 245-1...	800	275	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	224	150	80/-	A7E44202020	14		
3AE1 245-2...	1250	275	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	224	150	80/-	A7E44202020	14		
3AE1 251-1...	800	310	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	200	150	80/-	A7E44202021	11		
3AE1 251-2...	1250	310	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	200	150	80/-	A7E44202021	11		
3AE1 252-1...	800	310	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	200	150	80/-	A7E44202021	12		
3AE1 252-2...	1250	310	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	200	150	80/-	A7E44202021	12		
3AE1 254-1...	800	310	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	200	150	80/-	A7E44202021	13		
3AE1 254-2...	1250	310	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	200	150	80/-	A7E44202021	13		
3AE1 255-1...	800	310	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	200	150	80/-	A7E44202021	14		
3AE1 255-2...	1250	310	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	200	150	80/-	A7E44202021	14		
3AE1 261-1...	800	205	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	165	150	90/-	A7E44202025	11		
3AE1 261-2...	1250	205	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	165	150	90/-	A7E44202025	11		
3AE1 262-1...	800	205	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	165	150	90/-	A7E44202025	12		
3AE1 262-2...	1250	205	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	165	150	90/-	A7E44202025	12		

□ Possible with order suffix "Z" and order code F27
 ■ Standard information on rating plate
 ○ Possible with order suffix "Z" and order code F28

¹⁾ The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



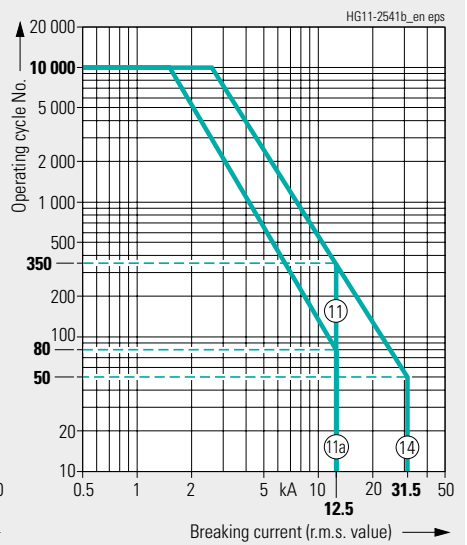
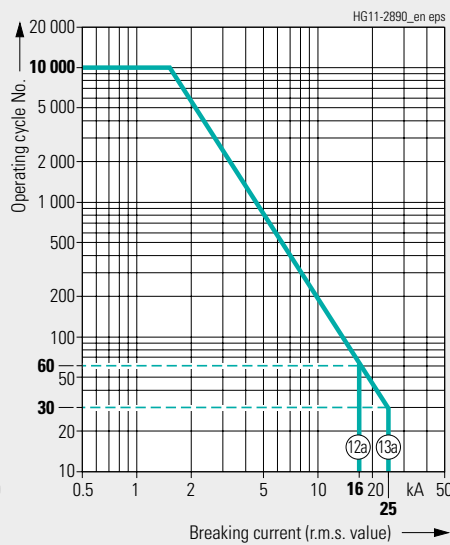
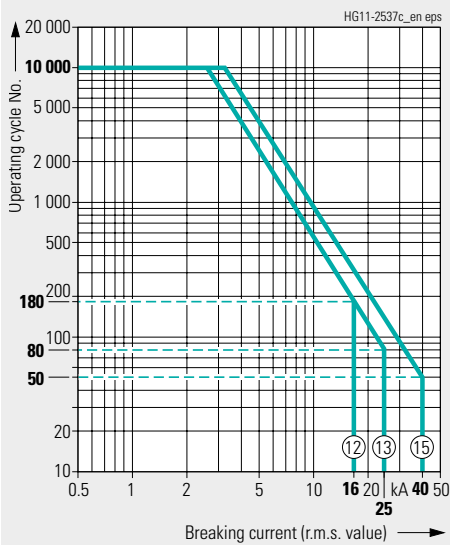
Order No.	17.5 kV 50/60 Hz		Rated normal current	Width across flats	Pole-center distance	Rated operating sequence: O – 3 min – CO – 3 min – CO O – 0.3 s – CO – 3 min – CO O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)		
	I_r	A	mm	mm	t_k	s	I_{SC}	%	kA	I_{ma}	kA	U_p	kV	U_d	kV	mV	mm	mm	mm	mm	kg		
	3AE1 286-6...	2500	310	210	□ ■ ○	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/210	A7E44202071	15			
3AE1 286-7...	3150	310	210	□ ■ ○	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/210	A7E44202071	15				
3AE1 625-1...	800	275	160	□ ■ ○	3	31.5	36	44.9	80/82	95	38	2.1	129	275	224	150	80/-	-	14				
3AE1 625-2...	1250	275	160	□ ■ ○	3	31.5	36	44.9	80/82	95	38	2.1	129	275	224	150	80/-	-	14				
3AE1 665-2...	1250	275	210	□ ■ ○	3	31.5	36	44.9	80/82	95	38	2.1	129	275	165	150	90/-	-	14				
3AE1 665-6...	2500	275	210	□ ■ ○	3	31.5	36	44.9	80/82	95	38	-	-	-	-	-	-	-	-	14			
3AE1 666-2...	1250	275	210	□ ■ ○	3	40	36	44.9	100/104	95	38	1.7	145	249	169	140	120/-	-	15				
3AE1 666-6...	2500	275	210	□ ■ ○	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/-	-	15				
3AE1 666-7...	3150	275	210	□ ■ ○	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/-	-	15				

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Operating cycle diagrams for 17.5 kV



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



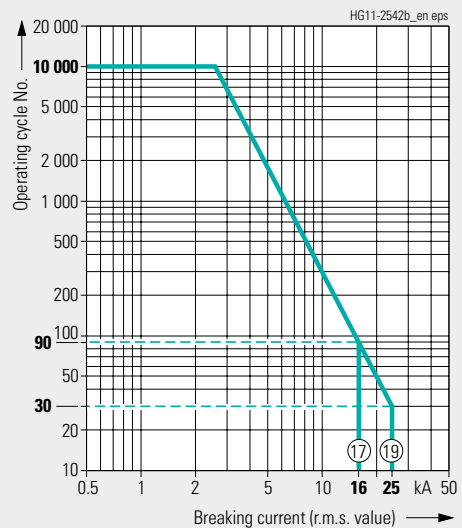
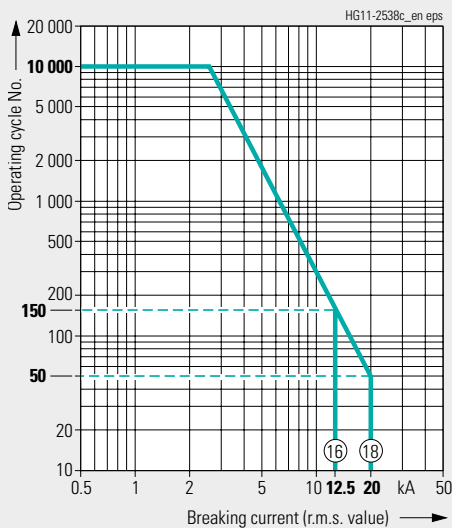
Order No.	24 kV 50/60 Hz		Rated normal current	Width across flats	Pole-center distance	Rated operating sequence: O – 3 min – CO – 3 min – CO O – 0.3 s – CO – 3 min – CO O – 0.3 s – CO – 15 s – CO			Rated duration of short-circuit	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight ¹⁾ (fixed-mounted circuit-breaker / withdrawable module)	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)
	I_r	A	mm	mm	s	I_{SC}	%	kA	kA	I_{ma}	kV	kV	mV	mm	mm	mm	mm	mm	kg				
3AE1 354-1...	800	310	275	□ ■ ○	3	25	36	28	63/65	125	50	2.6	200	350	265	210	130/180	A7E44202052	19				
3AE1 354-2...	1250	310	275	□ ■ ○	3	25	36	28	63/65	125	50	2.6	200	350	265	210	130/180	A7E44202052	19				
3AE1 354-4...	2000	310	275	□ ■ ○	3	25	36	28	63/65	125	50	2.0	200	340	265	205	150/200	A7E44202053	19				
3AE1 354-6...	2500	310	275	□ ■ ○	3	25	36	28	63/65	125	50	2.0	200	340	265	205	150/200	A7E44202053	19				
3AE1 714-2...	1250	320	210	□ ■ ○	3	25	36	28	63/65	125	50	2.6	200	350	200	210	120/-	-	19				
3AE1 744-4...	2000	320	275	□ ■ ○	3	25	36	28	63/65	125	50	2.0	200	340	200	205	150/-	-	19				
3AE1 744-6...	2500	320	275	□ ■ ○	3	25	36	44.9	63/65	125	50	2.0	200	340	200	205	150/-	-	19				

- Possible with order suffix "Z" and order code F27
- Standard information on rating plate
- Possible with order suffix "Z" and order code F28

1) The weight of the fixed-mounted circuit-breaker with withdrawable part increases by the values specified in the dimension drawing of the withdrawable part (page 76)



Operating cycle diagrams for 24 kV



The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION vacuum circuit-breakers fulfil the endurance classes E2, M2 and C2 according to IEC 62271-100. The curve

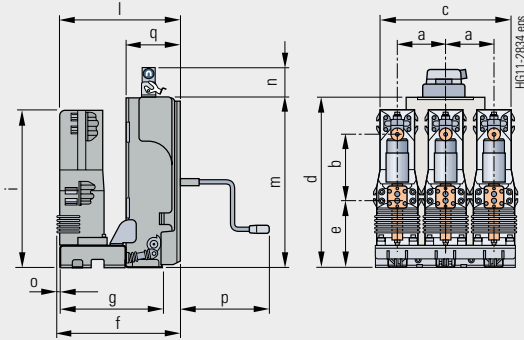
shape beyond the parameters defined in IEC 62271-100 is based on average experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.

Dimensions drawings for voltage levels 7.2 kV to 17.5 kV for 3AE5



Dimension drawings for 7.2 to 17.5 kV

Vacuum circuit-breaker without contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	150	275	445	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	150	310	445	540	237.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	160	205	465	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	160	275	465	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	160	310	465	540	237.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	210	205	565	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	210	275	565	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
12 kV	150	205	445	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	150	275	445	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	150	310	445	540	237.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	160	205	465	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	160	275	465	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	160	310	465	540	237.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	210	205	565	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
	210	275	565	540	217.5	380	329	500.5 ¹⁾	371	540	105	8	288	169
17.5 kV	150	205	445	540	217.5	380	329	540	371	540	105	8	288	169
	150	275	445	540	217.5	380	329	540	371	540	105	8	288	169
	150	310	445	540	237.5	380	329	540	371	540	105	8	288	169
	160	205	465	540	217.5	380	329	540	371	540	105	8	288	169
	160	275	465	540	217.5	380	329	540	371	540	105	8	288	169
	160	310	465	540	237.5	380	329	540	371	540	105	8	288	169
	210	205	565	540	217.5	380	329	540	371	540	105	8	288	169
	210	275	565	540	217.5	380	329	540	371	540	105	8	288	169

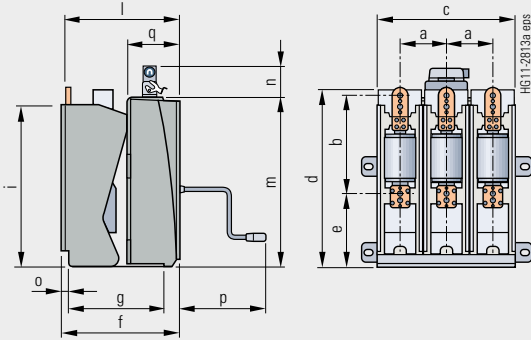
Note: Small deviations of the dimensions are permissible

1) At $I_{sc} = 31.5 \text{ kA}$ or $I_r = 1600 \text{ A}$ --> 540 mm



Dimension drawings for 7.2 to 24 kV

Vacuum circuit-breaker without contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	150	275	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	150	310	445	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	160	205	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	160	275	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	160	310	465	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	210	205	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	210	275	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
12 kV	210	310	565	540 ⁵⁾	237.5	380 ¹⁾	300 ^{2) 6)}	523 ^{3) 7)}	371 ⁴⁾	540	105	30 ⁸⁾	279	165
	150	205	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	150	275	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	150	310	445	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	160	205	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	160	275	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	160	310	465	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	210	205	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
17.5 kV	210	275	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	371	540	105	30	279	165
	210	310	565	540 ⁵⁾	237.5	380 ¹⁾	310 ²⁾	517.5 ³⁾	371 ⁴⁾	540	105	30 ⁸⁾	279	165
	150	205	445	562	217.5	380	310	517.5	371	540	105	30	279	165
	150	275	445	562	217.5	380	310	517.5	371	540	105	30	279	165
	150	310	445	562	237.5	380	310	517.5	371	540	105	30	279	165
	160	205	465	562	217.5	380	310	517.5	371	540	105	30	279	165
	160	275	465	562	217.5	380	310	517.5	371	540	105	30	279	165
	160	310	465	562	237.5	380	310	517.5	371	540	105	30	279	165
24 kV	210	205	565	562	217.5	380	310	517.5	371	540	105	30	279	165
	210	275	565	562	217.5	380	310	517.5	371	540	105	30	279	165
24 kV	210	310	570	739	283	469	360	739	421	540	105	58	279	165
	275	310	700	739	283	469	360	739	421	540	105	58	279	165

Note: Dimension drawings for 8B retrofit (13th position = 7) are available on request.

Note: Small deviations of the dimensions are permissible

- 1) At $I_{sc} = 40$ kA --> 450 mm
- 2) At $I_{sc} = 40$ kA --> 350 mm
- 3) At $I_{sc} = 40$ kA --> 610 mm
- 4) At $I_{sc} = 40$ kA --> 420 mm
- 5) At $I_r > 1250$ A or at $I_{sc} = 31.5$ kA --> 562 mm
- 6) At $I_r > 1250$ A or at $I_{sc} = 31.5$ kA --> 310 mm
- 7) At $I_r > 1250$ A or at $I_{sc} = 31.5$ kA --> 518 mm
- 8) At $I_{sc} = 40$ kA --> 50 mm

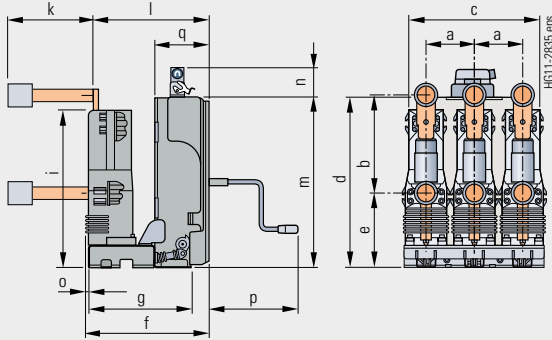


Dimensions drawings for voltage levels 7.2 kV to 17.5 kV for 3AE5



Dimension drawings for 7.2 to 17.5 kV

Vacuum circuit-breaker with contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	k mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	150	275	445	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	150	310	445	540	237.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	160	205	465	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	160	275	465	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	160	310	465	540	237.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	210	205	565	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	210	275	565	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
12 kV	150	205	445	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	150	275	445	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	150	310	445	540	237.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	160	205	465	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	160	275	465	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	160	310	465	540	237.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	210	205	565	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
	210	275	565	540	217.5	380	329	500.5 ¹⁾	274	371	540	105	8	288	169
17.5 kV	150	205	445	540	217.5	380	329	540	274	371	540	105	8	288	169
	150	275	445	540	217.5	380	329	540	274	371	540	105	8	288	169
	150	310	445	540	237.5	380	329	540	274	371	540	105	8	288	169
	160	205	465	540	217.5	380	329	540	274	371	540	105	8	288	169
	160	275	465	540	217.5	380	329	540	274	371	540	105	8	288	169
	160	310	465	540	237.5	380	329	540	274	371	540	105	8	288	169
	210	205	565	540	217.5	380	329	540	274	371	540	105	8	288	169
	210	275	565	540	217.5	380	329	540	274	371	540	105	8	288	169

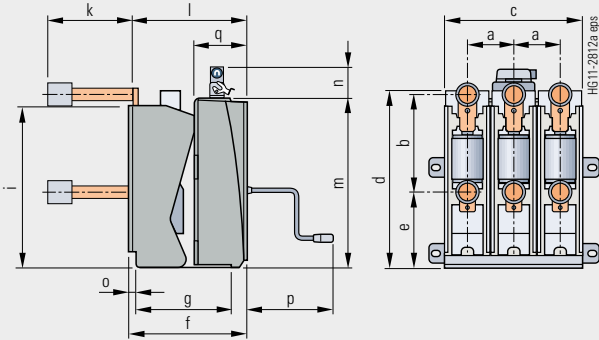
Note: Small deviations of the dimensions are permissible

1) At $I_{sc} = 31.5$ kA or $I_r = 1600$ A \rightarrow 540 mm



Dimension drawings for 7.2 to 24 kV

Vacuum circuit-breaker with contact arm



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	k mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	150	275	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	150	310	445	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	160	205	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	160	275	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	160	310	465	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	210	205	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	210	275	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
12 kV	210	310	565	540 ⁵⁾	237.5	380 ¹⁾	300 ^{2) 6)}	523 ^{3) 7)}	274	371 ⁴⁾	540	105	30 ⁸⁾	279	165
	150	205	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	150	275	445	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	150	310	445	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	160	205	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	160	275	465	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	160	310	465	540 ⁵⁾	237.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	210	205	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
17.5 kV	210	275	565	540 ⁵⁾	217.5	380	300 ⁶⁾	523 ⁷⁾	274	371	540	105	30	279	165
	210	310	565	540 ⁵⁾	237.5	380 ¹⁾	310 ²⁾	517.5 ³⁾	274	371 ⁴⁾	540	105	30 ⁸⁾	279	165
	150	205	445	562	217.5	380	310	517.5	274	371	540	105	30	279	165
	150	275	445	562	217.5	380	310	517.5	274	371	540	105	30	279	165
	150	310	445	562	237.5	380	310	517.5	274	371	540	105	30	279	165
	160	205	465	562	217.5	380	310	517.5	274	371	540	105	30	279	165
	160	275	465	562	217.5	380	310	517.5	274	371	540	105	30	279	165
	160	310	465	562	237.5	380	310	517.5	274	371	540	105	30	279	165
24 kV	210	205	565	562	217.5	380	310	517.5	274	371	540	105	30	279	165
	210	275	565	562	217.5	380	310	517.5	274	371	540	105	30	279	165
	210	310	565	562	237.5	380 ¹⁾	310 ²⁾	517.5 ³⁾	274	371 ⁴⁾	540	105	30 ⁸⁾	279	165
	210	310	570	739	283	469	360	739	324	421	540	105	58	279	165
	275	310	700	739	283	469	360	739	324	421	540	105	58	279	165

Note: Small deviations of the dimensions are permissible

- 1) At $I_{sc} = 40 \text{ kA} \rightarrow 450 \text{ mm}$
- 2) At $I_{sc} = 40 \text{ kA} \rightarrow 350 \text{ mm}$
- 3) At $I_{sc} = 40 \text{ kA} \rightarrow 610 \text{ mm}$
- 4) At $I_{sc} = 40 \text{ kA} \rightarrow 420 \text{ mm}$
- 5) At $I_r > 1250 \text{ A}$ or at $I_{sc} = 31.5 \text{ kA} \rightarrow 562 \text{ mm}$
- 6) At $I_r > 1250 \text{ A}$ or at $I_{sc} = 31.5 \text{ kA} \rightarrow 310 \text{ mm}$
- 7) At $I_r > 1250 \text{ A}$ or at $I_{sc} = 31.5 \text{ kA} \rightarrow 518 \text{ mm}$
- 8) At $I_{sc} = 40 \text{ kA} \rightarrow 50 \text{ mm}$

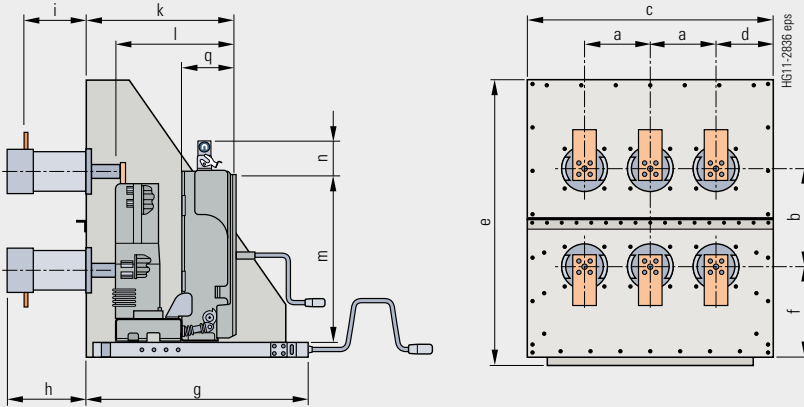


Dimensions drawings for voltage levels 7.2 kV to 17.5 kV for 3AE5



Dimension drawings for 7.2 to 17.5 kV

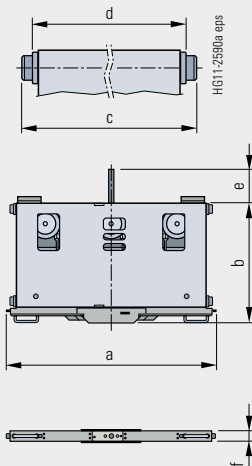
Cartridge without earthing switch



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	i mm	k mm	l mm	m mm	n mm	q mm
7.2 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105	169
	150	310	594	147	905	286.5	710	263	224	476	371	540	105	169
	210	275	794	187	850	266.5	710	263	224	476	371	540	105	169
	210	310	794	187	905	286.5	710	263	224	476	371	540	105	169
12 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105	169
	150	310	594	147	905	286.5	710	263	224	476	371	540	105	169
	210	275	794	187	850	266.5	710	263	224	476	371	540	105	169
	210	310	794	187	905	286.5	710	263	224	476	371	540	105	169
17.5 kV	150	205	594	147	850	266.5	710	263	224	476	371	540	105	169
	150	275	594	147	905	286.5	710	263	224	476	371	540	105	169
	210	205	794	187	850	266.5	710	263	224	476	371	540	105	169
	210	275	794	187	905	286.5	710	263	224	476	371	540	105	169

Note: Small deviations of the dimensions are permissible

Withdrawable part

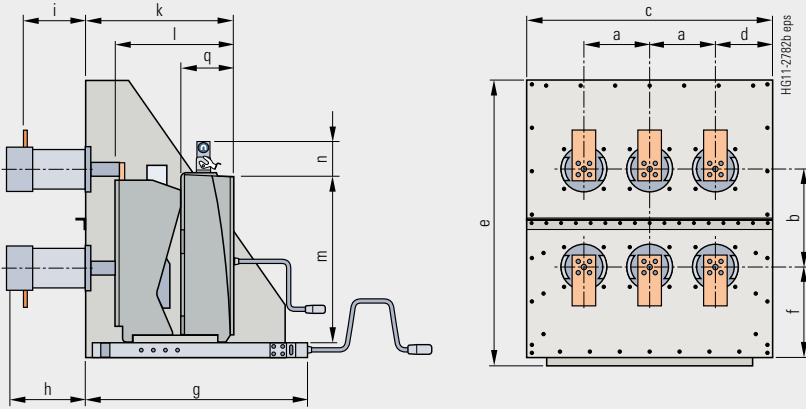


Voltage level	Pole-center distance mm	a mm	b mm	c mm	d mm	e mm	f mm	Weight
7.2 kV	150	529	424	500	470	107	42	approx. 15 kg
	160	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
12 kV	150	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
17.5 kV	150	529	424	500	470	107	42	approx. 15 kg
	160	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
24 kV	210	679	424	650	620	107	42	approx. 20 kg
	275	879	424	850	820	107	42	approx. 25 kg



Dimension drawings for 7.2 to 24 kV

Cartridge without earthing switch



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	h' mm	i mm	i' mm	k mm	l mm	m mm	n mm	q mm
7.2 kV	150	275	594	147	850	266.5	710	263	-	224	-	476	371	540	105	165
	150	310	594	147	905	266.5	710	263	-	224	-	476	371	540	105	165
	210	275	794	187	850	286.5	710	263	-	224	-	476	371	540	105	165
	210	310	794	187	905	286.5	710 ¹⁾	263	323	224	274	476 ²⁾	371 ³⁾	540	105	165
12 kV	150	275	594	147	850	266.5	710	263	-	224	-	476	371	540	105	165
	150	310	594	147	905	266.5	710	263	-	224	-	476	371	540	105	165
	210	275	794	187	850	286.5	710	263	-	224	-	476	371	540	105	165
17.5 kV	150	275	594	147	850	266.5	710	263	-	224	-	476	371	540	105	165
	150	310	594	147	905	266.5	710	263	-	224	-	476	371	540	105	165
	210	275	794	187	850	286.5	710 ¹⁾	263	323	224	274	476 ²⁾	371 ³⁾	540	105	165
24 kV	210	310	794	187	1040.5	332	810	323	323	274	323	537	421	540	105	165
	275	310	994	222	1040.5	332	810	323	323	274	323	537	421	540	105	165

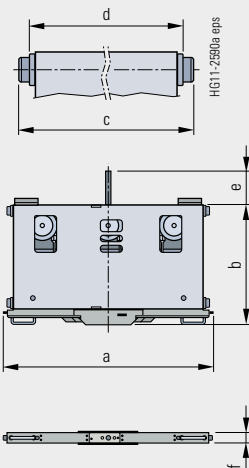


h/i = up to $I_r = 1250$ A
 h'/i' = up to $I_r = 2000$ A, 2500 A and 3150 A

Note: Small deviations of the dimensions are permissible

- 1) At $I_{sc} = 40$ kA --> 760 mm
- 2) At $I_{sc} = 40$ kA --> 526 mm
- 3) At $I_{sc} = 40$ kA --> 420 mm

Withdrawable part



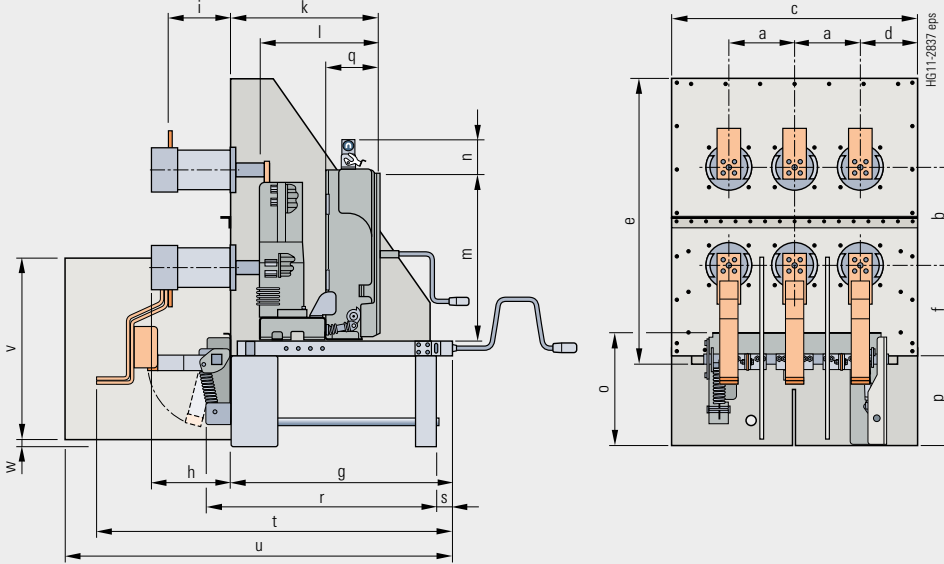
Voltage level	Pole-center distance mm	a mm	b mm	c mm	d mm	e mm	f mm	Weight
7.2 kV	150	529	424	500	470	107	42	approx. 15 kg
	160	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
12 kV	150	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
17.5 kV	150	529	424	500	470	107	42	approx. 15 kg
	210	679	424	650	620	107	42	approx. 20 kg
24 kV	210	679	424	650	620	107	42	approx. 20 kg
	275	879	424	850	820	107	42	approx. 25 kg

Dimensions drawings for voltage levels 7.2 kV to 17.5 kV for 3AE5



Dimension drawings for 7.2 to 17.5 kV

Cartridge with earthing switch



Voltage level	Pole-center distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	i mm	k mm	l mm	m mm	n mm
7.2 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105
	150	310	594	147	905	286.5	710	263	224	476	371	540	105
	210	275	794	187	850	266.5	710	263	224	476	371	540	105
	210	310	794	187	905	286.5	710	263	224	476	371	540	105
12 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105
	150	310	594	147	905	286.5	710	263	224	476	371	540	105
	210	275	794	187	850	266.5	710	263	224	476	371	540	105
	210	310	794	187	905	286.5	710	263	224	476	371	540	105
17.5 kV	150	275	594	147	850	266.5	710	263	224	476	371	540	105
	150	310	594	147	905	286.5	710	263	224	476	371	540	105
	210	275	794	187	850	266.5	710	263	224	476	371	540	105
	210	310	794	187	905	286.5	710	263	224	476	371	540	105

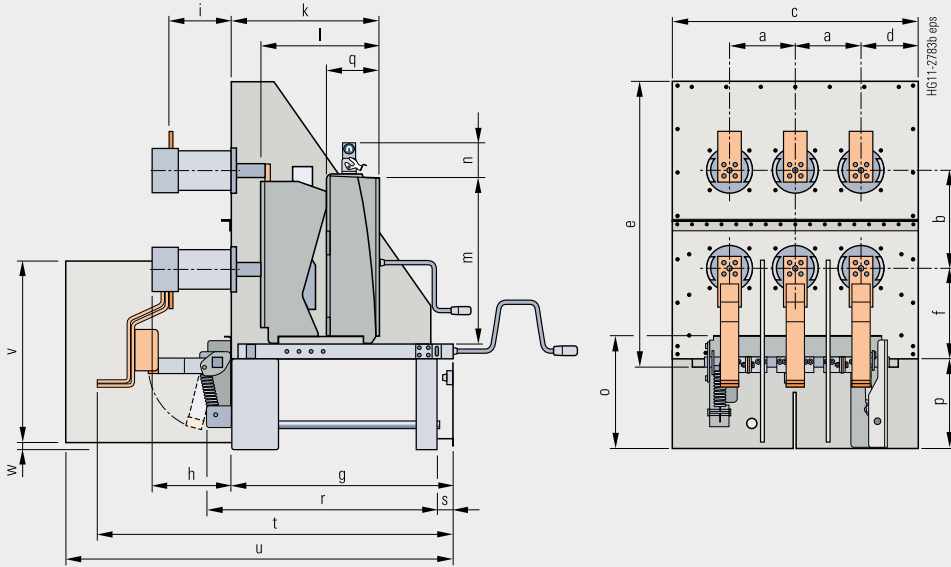
Voltage level	o mm	p mm	q mm	r mm	s mm	t mm	u mm	v mm	w mm
7.2 kV	359	287	169	803	64	1142	1233	575	25
	363	287	169	803	64	1142	1233	575	25
	359	287	169	803	65	1143	1234	-	-
	359	287	169	803	65	1142	1234	-	-
12 kV	359	287	169	803	64	1142	1233	575	25
	363	287	169	803	64	1142	1233	575	25
	359	287	169	803	65	1143	1234	-	-
	359	287	169	803	65	1143	1234	-	-
17.5 kV	359	287	169	803	64	1142	1233	575	25
	363	287	169	803	64	1142	1233	575	25
	359	287	169	803	65	1143	1234	-	-
	359	287	169	803	65	1143	1234	-	-

Note: Small deviations of the dimensions are permissible



Dimension drawings for 7.2 to 24 kV

Cartridge with earthing switch



Voltage level	Pole-center distance a		Width across flats b		Dimensions (mm)										
	mm	mm	c	d	e	f	g	h	h'	i	i'	k	l	m	n
7.2 kV	150	275	594	147	850	266.5	710	263	-	224	-	476	371	540	105
	150	310	594	147	905	286.5	710	263	-	224	-	476	371	540	105
	210	275	794	187	850	266.5	710	263	-	224	-	476	371	540	105
	210	310	794	187	905	286.5	710 ¹⁾	263	323	224	274	476 ²⁾	371 ³⁾	540	105
12 kV	150	275	594	147	850	266.5	710	263	-	224	-	476	371	540	105
	150	310	594	147	905	286.5	710	263	-	224	-	476	371	540	105
	210	275	794	187	850	266.5	710	263	-	224	-	476	371	540	105
	210	310	794	187	905	286.5	710 ¹⁾	263	323	224	274	476 ²⁾	371 ³⁾	540	105
17.5 kV	150	275	594	147	850	266.5	710	263	-	224	-	476	371	540	105
	150	310	594	147	905	286.5	710	263	-	224	-	476	371	540	105
	210	275	794	187	850	266.5	710	263	-	224	-	476	371	540	105
	210	310	794	187	905	286.5	710 ¹⁾	263	323	224	274	476 ²⁾	371 ³⁾	540	105
24 kV	210	310	794	187	1040.5	332	810	323	323	274	323	537	421	540	105
	275	310	994	222	1040.5	332	810	323	323	274	323	537	421	540	105

Voltage level	Dimensions (mm)								
	o	p	q	r	s	t	u	v	w
7.2 kV	359	287	165	803	64	1142	1233	575	25
	359	287	165	803	64	1142	1233	575	25
	359	287	165	803	65	1143	1234	-	-
	359	287	165	803	65	1142	1234	-	-
12 kV	359	287	165	803	64	1142	1233	575	25
	359	287	165	803	64	1142	1233	575	25
	359	287	165	803	65	1143	1234	-	-
	359	287	165	803	65	1143	1234	-	-
17.5 kV	359	287	165	803	64	1142	1233	575	25
	359	287	165	803	64	1142	1233	575	25
	359	287	165	803	65	1143	1234	-	-
	359	287	165	803	65	1143	1234	-	-
24 kV	359	287	165	902	64	1243	1433	575	10
	359	287	165	902	65	1243	1433	-	-

h/i = up to $I_r = 1250$ A
h'/i' = up to $I_r = 2000$ A, 2500 A and 3150 A

Note: Small deviations of the dimensions are permissible

- 1) At $I_{sc} = 40$ kA --> 760 mm
- 2) At $I_{sc} = 40$ kA --> 526 mm
- 3) At $I_{sc} = 40$ kA --> 420 mm





Operating times and internal times for 3AE5

Operating times at rated voltage of the secondary circuit	Equipment of circuit-breaker	Operating time of the circuit-breaker
Closing time	–	< 60 ms
Opening time	1 st shunt release	< 60 ms
	2 nd release	< 45 ms
Arcing time	–	< 15 ms
Break time	1 st shunt release	< 75 ms
	2 nd release	< 60 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	> 10 ms
	2 nd release	> 6 ms
Charging time for electrical operation	–	< 15 s
Synchronism error between the poles	–	≤ 2 ms

Short-circuit protection of motors (fuse protection of drive motors) for 3AE5

Rated voltage of the motor V	Operating voltage		Power consumption of the motor W/VA	Smallest possible rated current ¹⁾ of the m.c.b. (miniature circuit-breaker) with C-characteristic A
	max. V	min. V		
24 DC	26	20	140 + – 50	2
48 DC	53	41	110	1
60 DC	66	51	130	1
110 DC	121	93	100	0.5
220 DC	242	187	110	0,315
110 AC	121	93	170	0.315
230 AC	244	187	200	0.25

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

Consumption data of releases for 3AE5

Release	Power consumption		Tripping ranges	
	Operation at		Tripping voltage at DC	Tripping voltage or tripping current at AC 50/60 Hz
	DC approx. W	AC 50/60 Hz approx. VA		
Closing solenoid 3AY14 10	300 – 370	300 – 370	85 to 110 % U	85 to 110 % U
1 st shunt release (without energy store) 3AY14 10	300	300	70 to 110 % U	85 to 110 % U
2 nd shunt release (with energy store) 3AX11 01	70	50	70 to 110 % U	85 to 110 % U
Undervoltage release 3AX11 03	20	20	35 to 0 % U	35 to 0 % U
Current-transformer operated release 3AX11 02 (rated normal current 0,5 A, 1 A or 5 A)	–	10 ²⁾	–	90 to 110 % I _a
Current-transformer operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

2) Consumption at pickup current (90 % of the rated normal current) and open armature.



Operating times and internal times for 3AE1

Operating times at rated voltage of the secondary circuit	Equipment of circuit-breaker	Operating time of the circuit-breaker
Closing time	–	< 60 ms
Opening time	1 st shunt release	< 60 ms
	2 nd release	< 45 ms
Arcing time	–	< 15 ms
Break time	1 st shunt release	< 75 ms
	2 nd release	< 60 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

Short-circuit protection of motors (fuse protection of drive motors) for 3AE1

Rated voltage of the motor V	Operating voltage		Power consumption of the motor W/VA	Smallest possible rated current ¹⁾ of the m.c.b. (miniature circuit-breaker) with C-characteristic A
	max. V	min. V		
24 DC ²⁾	26	20	520 – 590	8
48 DC	53	41	470 – 600	6
60 DC	66	51	520 – 610	4
110 DC	121	93	650 – 740	4
220 DC	242	187	610 – 900	1.6
110 AC	121	93	670 – 740 VA	2
230 AC	244	187	620 – 960 VA	1.6

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

2) Does not apply to a rated short-circuit breaking current of 40 kA.

Consumption data of releases for 3AE1

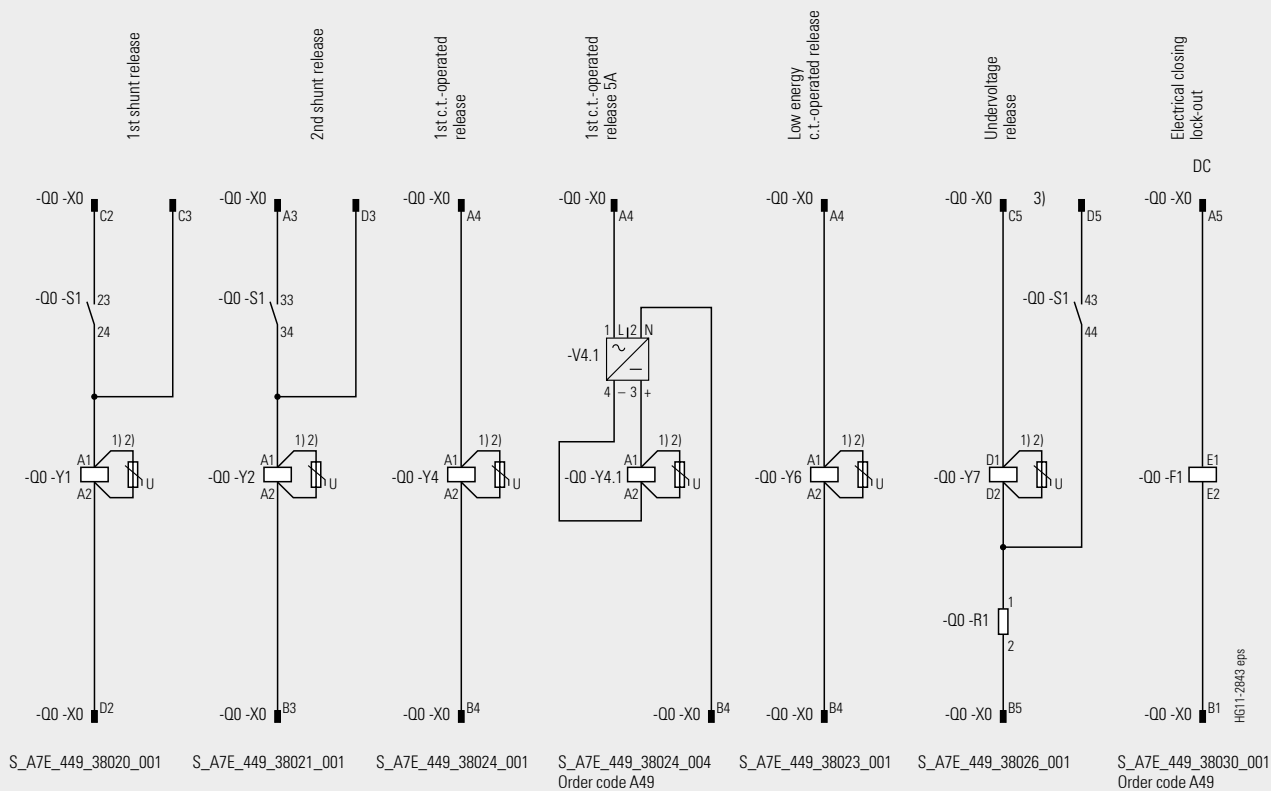
Release	Power consumption		Tripping ranges	
	Operation at		Tripping voltage at DC	Tripping voltage or tripping current at AC 50/60 Hz
	DC approx. W	AC 50/60 Hz approx. VA		
Closing solenoid 3AY15 10	140 – 210	140 – 210	85 to 110 % U	85 to 110 % U
1 st shunt release (without energy store) 3AY15 10	140	140	70 to 110 % U	85 to 110 % U
2 nd shunt release (with energy store) 3AX11 01	70	50	70 to 110 % U	85 to 110 % U
Undervoltage release 3AX11 03	20	20	35 to 0 % U	35 to 0 % U
Current-transformer operated release 3AX11 02 (rated normal current 0,5 A, 1 A or 5 A)	–	10 ²⁾	–	90 to 110 % I _a
Current-transformer operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

2) Consumption at pickup current (90 % of the rated normal current) and open armature.



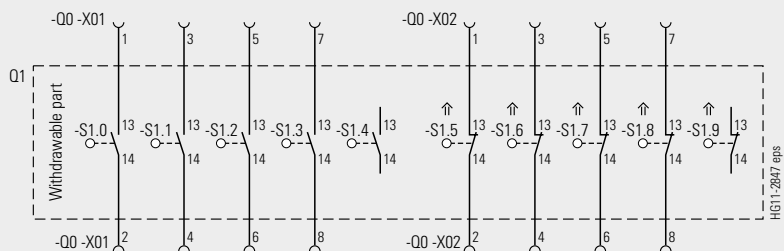


Standard scheme for plug connector

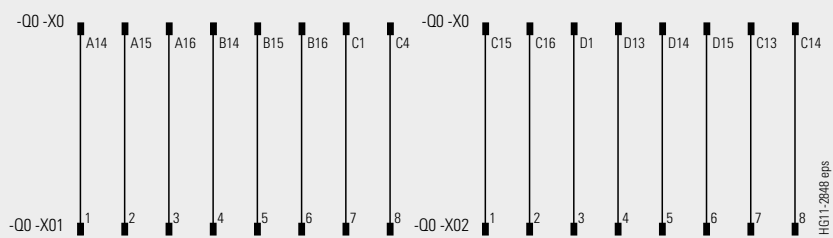


3

Position switch for withdrawable part



S_A7E_449_38085_001



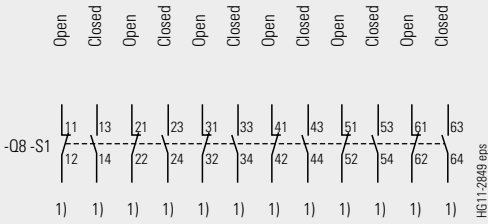
S_A7E_449_38085_002

Legend see page 84

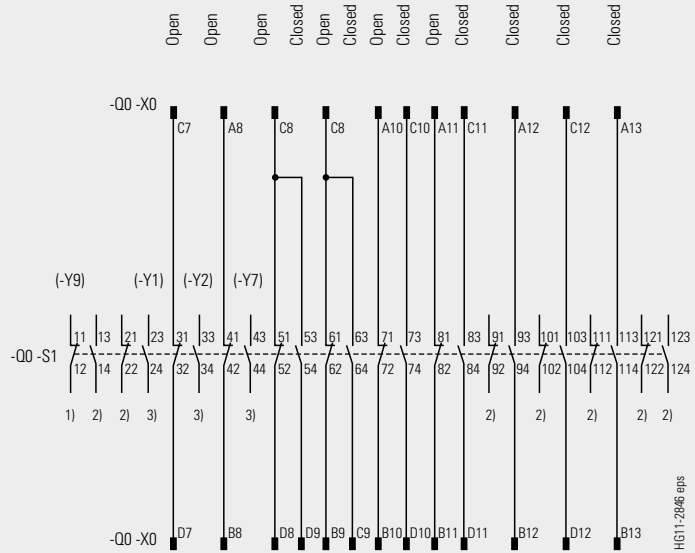


Contact assignment for auxiliary switch

Auxiliary switch 6NO/6NC



S_A7E_449_38066_001

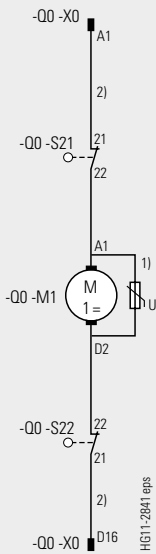


S_A7E_449_38063_001
Auxiliary switch 12NO/12NC

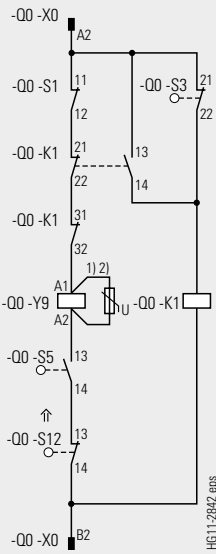
Additional equipment

Motor charging

Closing and anti-pumping with mechanical interlocking and closing lock-out



S_A7E_449_38001_001

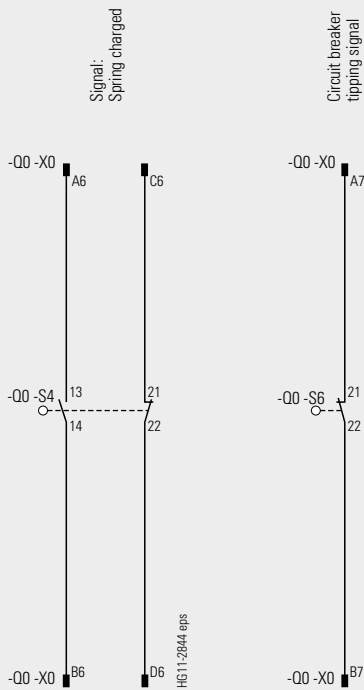


S_A7E_449_38011_504

Legend see page 84



Additional equipment: Releases



S_A7E_449_33042_001

S_A7E_449_38043_001

3

Legend (for pages 82 to 84)

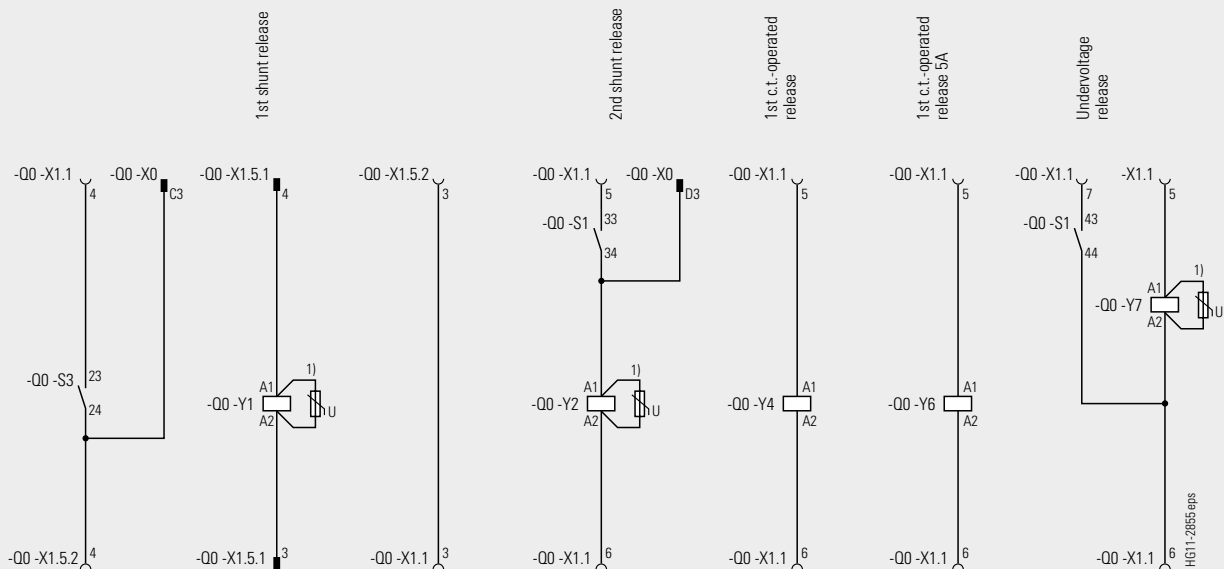
K1	Contactor (anti-pumping)	S4	Position switch (for closing spring charged)	X0	Plug connector, 24-pole or 64-pole	Y6	Current-transformer operated release (tripping pulse $W \geq 0.1$ Ws)
M1	Motor operating mechanism	S5	Electrical closing lock-out	X1	Terminal strip, 27-pole	Y7	Undervoltage release
Q0	Circuit-breaker wiring	S6	Circuit-breaker tripping signal	Y1	1 st shunt release	Y9	Closing solenoid
Q1	Wiring of withdrawable part	S12	Mechanical interlocking	Y2	2 nd shunt release		
R1	Resistance	S21	Position switches	Y4	Current-transformer operated release (rated normal current 0.5 A or 1 A)		
S1	Auxiliary switch	S22	(to de-energise the motor operating mechanism after charging)				
S3	Position switch (anti-pumping)						

Abbreviations:
NC = Normally closed
NO = Normally open

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

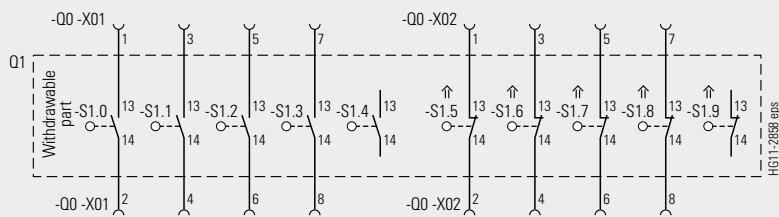


Standard scheme for plug connector

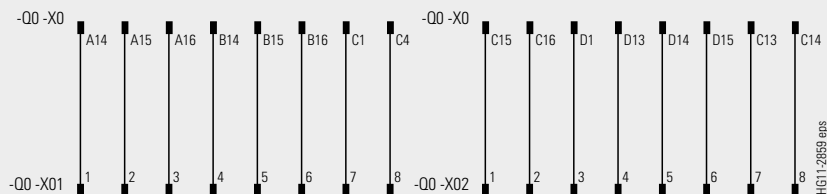


S_A7E_449_41020_001 S_A7E_449_41020_010 S_A7E_449_41020_002 S_A7E_449_41021_001 S_A7E_449_41024_001 S_A7E_449_41023_001 S_A7E_449_41026_001
Part of basic wiring
S_A7E_449_41099_010

Position switch for withdrawable part



S_A7E_449_41085_001

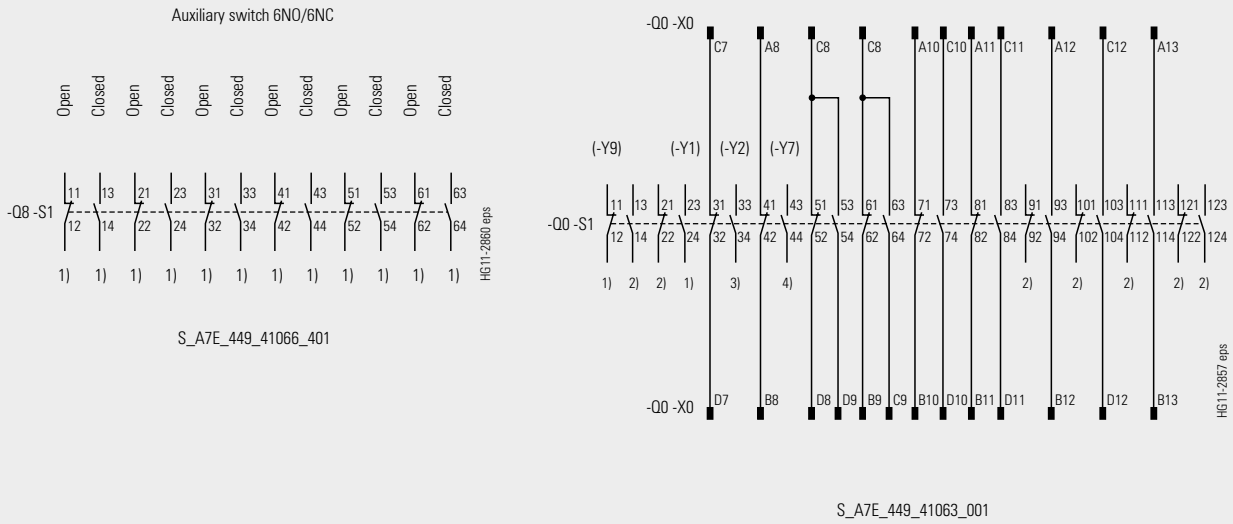


S_A7E_449_41085_002

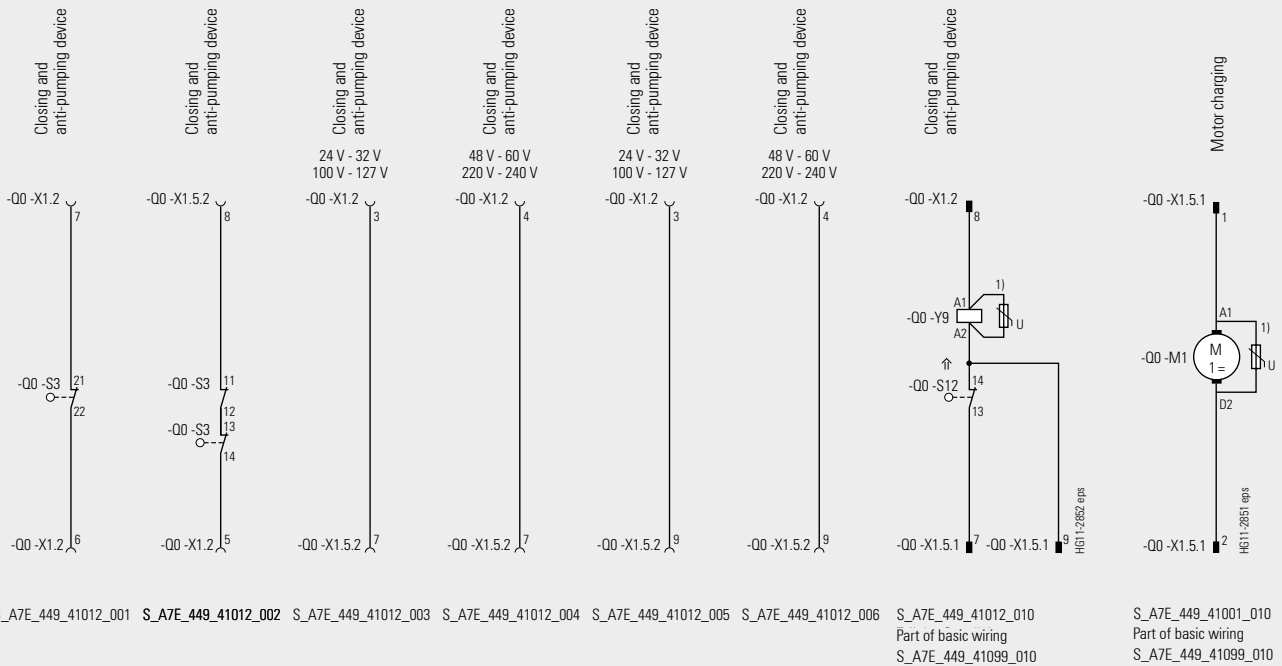
Legend see page 87



Contact assignment for auxiliary switch



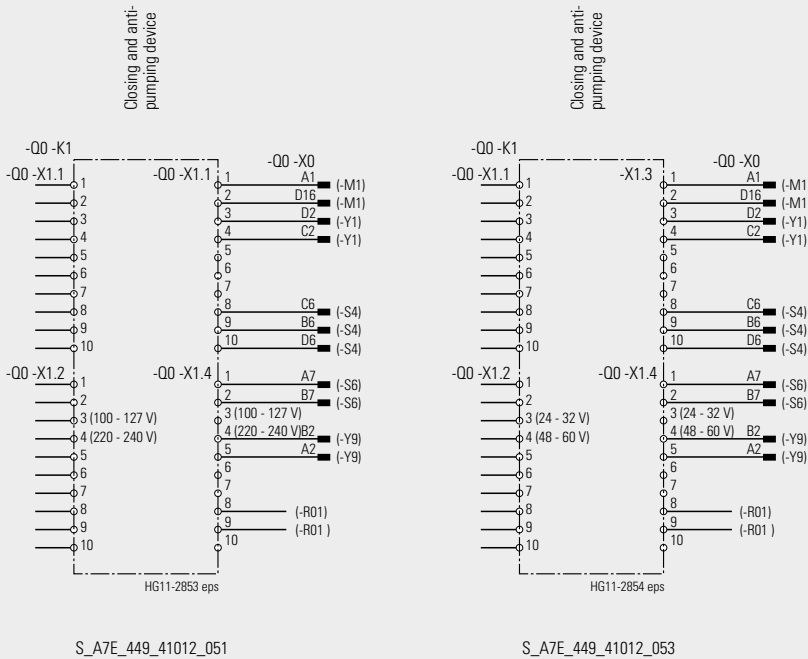
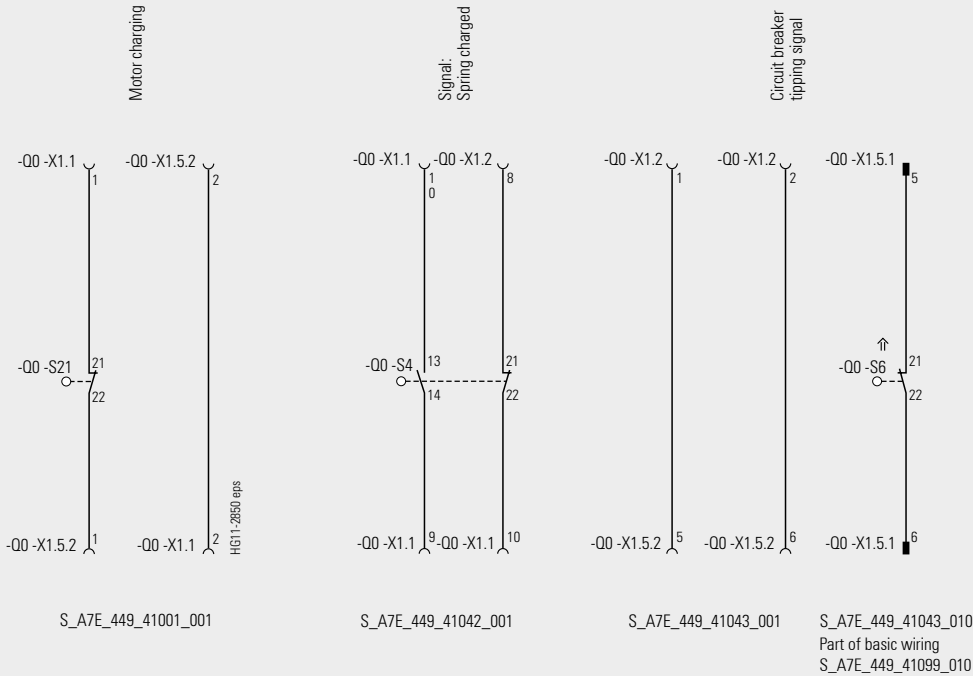
Additional equipment



Legend see page 87



Additional equipment: Releases



Legend (for pages 85 to 87)

- | | | | |
|-----------------------------------|---|---|--|
| K1 Contactor (anti-pumping) | S4 Position switch (for closing spring charged) | X0 Plug connector, 24-pole or 64-pole | Y6 Current-transformer operated release (tripping pulse $W \geq 0.1$ Ws) |
| M1 Motor operating mechanism | S5 Electrical closing lock-out | X1 Terminal strip, 27-pole | Y7 Undervoltage release |
| Q0 Circuit-breaker wiring | S6 Circuit-breaker tripping signal | Y1 1 st shunt release | Y9 Closing solenoid |
| Q1 Wiring of withdrawable part | S12 Mechanical interlocking | Y2 2 nd shunt release | |
| R1 Resistance | S21 Position switches | Y4 Current-transformer operated release (rated normal current 0.5 A or 1 A) | |
| S1 Auxiliary switch | S22 (to de-energise the motor operating mechanism after charging) | | |
| S3 Position switch (anti-pumping) | | | |

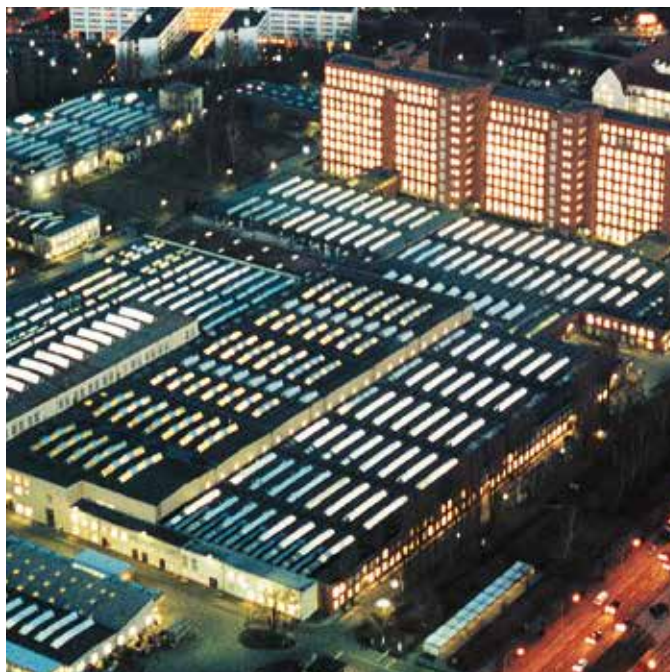
Abbreviations:
NC = Normally closed
NO = Normally open

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





RHG11-181.tif



Switchgear Factory in Berlin, Germany

R-HIG1-180.eps

Contents Page

Annex 89

Inquiry form 90
Configuration instructions 91
Configuration aid Foldout page

Please copy, fill in and return to your Siemens partner.

Inquiry concerning

SION vacuum circuit-breaker from 7.2 to 24 kV

Please

- Submit an offer
- Call us
- Visit us

Your address

Company _____

Dept. _____

Name _____

Street _____

Postal code /city _____

Country _____

Phone _____

Fax _____

E-mail _____

4

Siemens AG

Dept. _____

Name _____

Street _____

Postal code /city _____

Country _____

Fax _____

Technical data

				Other values
Rated voltage	<input type="checkbox"/> 7.2 kV <input type="checkbox"/> 24 kV	<input type="checkbox"/> 12 kV	<input type="checkbox"/> 17.5 kV	<input type="checkbox"/> ___ kV
Rated lightning impulse withstand voltage	<input type="checkbox"/> 60 kV <input type="checkbox"/> 125 kV	<input type="checkbox"/> 75 kV	<input type="checkbox"/> 95 kV	<input type="checkbox"/> ___ kV
Rated short-duration power-frequency withstand voltage	<input type="checkbox"/> 20 kV <input type="checkbox"/> 42 kV	<input type="checkbox"/> 28 kV <input type="checkbox"/> 50 kV	<input type="checkbox"/> 38 kV <input type="checkbox"/> 55 kV	<input type="checkbox"/> ___ kV
Rated short-circuit breaking current	<input type="checkbox"/> 12.5 kA <input type="checkbox"/> 25 kA	<input type="checkbox"/> 16 kA <input type="checkbox"/> 31.5 kA	<input type="checkbox"/> 20 kA <input type="checkbox"/> 40 kA	<input type="checkbox"/> ___ kA
Rated normal current	<input type="checkbox"/> 800 A <input type="checkbox"/> 2500 A	<input type="checkbox"/> 1250 A <input type="checkbox"/> 3150 A	<input type="checkbox"/> 2000 A	<input type="checkbox"/> ___ A
Pole-center distance	<input type="checkbox"/> 150 mm	<input type="checkbox"/> 160 mm	<input type="checkbox"/> 210 mm	<input type="checkbox"/> 275 mm
Width across flats	<input type="checkbox"/> 205 mm	<input type="checkbox"/> 275 mm	<input type="checkbox"/> 310 mm	

Secondary equipment

For possible combinations see pages 33 to 38

Circuit-breaker equipment	<input type="checkbox"/> Fixed mounting	<input type="checkbox"/> Withdrawable part, contact arms <input type="checkbox"/> Withdrawable part, contact arms, bushings <input type="checkbox"/> Withdrawable module with earthing switch <input type="checkbox"/> Withdrawable module without earthing switch <input type="checkbox"/> Retrofit	
Drive motor	<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"/>		
Undervoltage release	<input type="checkbox"/> ___ V DC	<input type="checkbox"/> ___ V AC, ___ Hz	
Auxiliary switch	<input type="checkbox"/> 6 NO + 6 NC	<input type="checkbox"/> 12 NO + 12 NC	
Low-voltage connection	<input type="checkbox"/> 20- or 27-pole terminal strip	<input type="checkbox"/> 24-pole plug	<input type="checkbox"/> 64-pole plug
<input type="checkbox"/> Mechanical interlocking			
<input type="checkbox"/> Circuit-breaker tripping signal			
<input type="checkbox"/> Electrical closing lock-out			
Operating instructions	<input type="checkbox"/> German	<input type="checkbox"/> English	<input type="checkbox"/> French <input type="checkbox"/> Spanish

Application and other requirements

Please check off ___ Please fill in

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

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

Instruction for configuration of the SION vacuum circuit-breaker

1st step: Definition of the circuit-breaker and equipment package (see pages 18 to 32)

<u>Please specify the following ratings:</u>	<u>Possible options:</u>
Rated voltage (U_r)	U_r : 7.2 kV to 24 kV
Rated lightning impulse withstand voltage (U_p)	U_p : 60 kV to 125 kV
Rated short-duration power-frequency withstand voltage (U_d)	U_d : 20 kV, 28 kV, 32 kV, 42 kV, 55 kV, 65 kV
Rated short-circuit breaking current (I_{SC})	I_{SC} : 16 kA to 40 kA
Rated normal current (I_r)	I_r : 800 A to 3150 A
Pole-center distance	150 mm to 275 mm
Width across flats	205 mm to 310 mm

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

2nd step: Definition of the secondary equipment (see pages 33 to 38)

<u>Please specify the following equipment features:</u>	<u>Possible options:</u>
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
Installation accessories (position 13)	Fixed mounting, with withdrawable part, with contact, fixed contact, bushing, cartridge, with / without earthing switch, retrofit 8B
Drive motor (position 14)	Operating voltages from 24 V DC to 240 V AC
Number of auxiliary contacts (position 15)	6 NO + 6 NC, 12 NO + 12 NC
Design of the secondary connection (position 15)	20- or 27-pole terminal strip, 24-pole plug connector 64-pole plug connector
Mechanical interlocking, circuit-breaker tripping signal (position 15)	With or without
Language of the documentation (position 16)	English, German, French, Spanish, Russian, further languages on request
Frequency of the operating voltage of the secondary equipment at AC (position 16)	DC or AC 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 39)

Do you have any further requirements, please contact your responsible sales partner.



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Siemens Industry, Inc.

5400 Triangle Parkway

Norcross, GA 30092

Order No. CBBR-SIONC-0715

Printed in USA

For more information, please contact:

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Customer Support: 1-888-646-8779

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