



Catalog  
HG 11.07

Edition  
03/2022

# SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Medium-Voltage Equipment  
[siemens.com/SION](https://www.siemens.com/SION)



# SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

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

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## Description

General information

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

### SION Vacuum Circuit-Breaker 3AE6 12 kV and 24 kV

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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 optional installation accessories enable easy integration into switchgear panels. Our range of lateral circuit-breakers offers a wide selection of pole-center distances as well as various equip-

ment options for voltage levels from 12 kV to 24 kV. Compact dimensions and well-protected terminals enable simple integration into commonly used medium-voltage switchgear. High reliability and availability are a matter of course, as are 10,000 maintenance-free operating cycles.

#### SION Lateral 3AE61 for 12 kV



HG11-07\_3AE61.tif

#### SION Lateral 3AE63 for 24 kV



HG11-07\_3AE63.tif

Thanks to a range of options, SION vacuum circuit-breakers can be precisely tailored to your requirements.

## Switching medium

Proven and fully developed for more than 40 years, vacuum switching technology is the principal arc-quenching medium used in vacuum interrupters.

## Pole assemblies

The pole assemblies consist of vacuum interrupters and pole shells. The vacuum interrupters are air-insulated and freely accessible. The pole assemblies are fixed on the mechanism mounting plate and supported by means of the pole shell (3). 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 (3) absorbs external forces resulting from switching operations and the contact pressure.

## Operating mechanism

The whole operating mechanism with spring energy store, motor (12), releases, indicators and actuating devices is fixed in the operating mechanism housing (8). 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 (11) can be charged either electrically or manually, and latches in automatically when charging is complete. The closing spring (11) acts as a mechanical energy store.

To close the circuit-breaker, the closing spring (11) can be unlatched either mechanically at the device (ON pushbutton), or electrically by remote control. The closing spring (11) charges the opening and/or contact-pressure springs as the circuit-breaker closes. The now discharged closing spring (11) is charged again automatically by the motor (12).

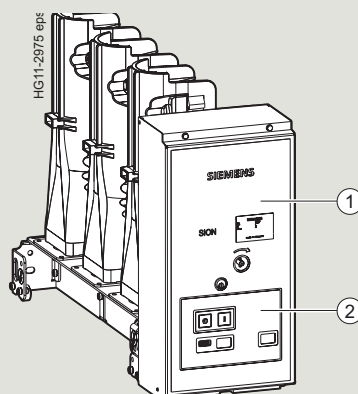
In this way, the stored-energy spring mechanism stores the OPEN – CLOSE – OPEN operating sequence. Thus, it can fulfill the following switching duties: synchronizing, rapid load transfer, and auto-reclosing.

## Trip-free mechanism

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

For charging the closing spring (11), the motor (12) operates in short-time duty. For this reason, the voltage and power consumption might differ from the data of the motor nameplate.

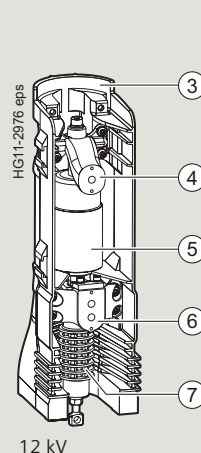
3AE6



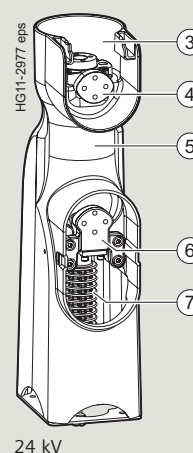
Front view

1 Cover of low-voltage interface

2 Central control board



12 kV



24 kV

Pole structure

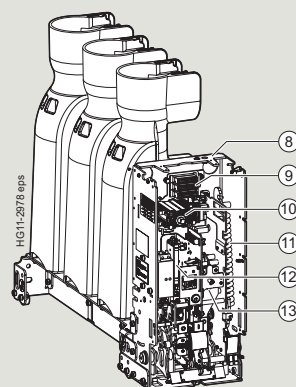
3 Pole shell

4 Upper connection

5 Vacuum interrupter

6 Lower connection

7 Insulator



8 Operating mechanism housing

9 Connection strip housing

10 Auxiliary switch

11 Closing spring

12 Motor

13 Gear

## Description

Construction and mode of operation

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

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### Releases

A release is a device that transfers electrical commands from an external source, such as a control room, to the latching mechanism of the circuit-breaker so that it can be opened or closed. The releases are designed for short-time duty up to 1 minute and are reset internally.

A maximum of two releases can be equipped in accordance with page 19. The consumption data of the releases is listed on page 36.

The various types of releases available are described in detail below:

#### Closing solenoid

The closing solenoid unlatches the charged closing spring of the 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 consist of a mechanical energy store, an unlatching mechanism, and an electromagnetic system. They are used when there is no external source of auxiliary power (e.g. a battery). Tripping is effected by means of a protection relay (e.g. time-overcurrent protection) acting on the current-transformer-operated release.

#### Undervoltage releases

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

### Closing and anti-pumping

In the standard version, the circuit-breakers can be closed electrically from remote. In addition, they can be mechanically closed locally by direct unlatching of the closing spring. If constant electrical signals for CLOSE and OPEN commands are present at the circuit-breaker at the same time, the circuit-breaker will carry out an OPEN-CLOSE-OPEN or a CLOSE-OPEN operating sequence. A new closing operation only takes place after a brief interruption of the closing signal. This prevents continuous closing and opening (= "pumping") operations.

### Closing spring charged indication

The circuit-breaker has a mechanically operated spring status indicator. The charging status can also be queried 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.

### Interlocking

#### Mechanical interlocking

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

#### Manual interlocking

As an alternative to the mechanical interlocking, the circuit-breaker can also be protected against unauthorized closing via a key-operated interlocking at the front.

#### Electrical interlocking

The auxiliary and signaling contacts, which show the switch position of the circuit-breaker electrically, can be integrated into the interlocking concept of the switchgear. This makes it possible to exclude impermissible switching sequences.

### Low-voltage interface

The removable cover of the SION vacuum circuit-breaker 3AE6 allows easy access to the low-voltage interface. All customer-side controls and signals are available here. The 64-pole plug enables easy disconnection from the switchgear.

For the corresponding circuit diagrams, see page 37.



## Standards

The vacuum circuit-breakers 3AE6 conform to the following standards:

- IEC 62271-1
- IEC 62271-100.

All vacuum circuit-breakers 3AE6 fulfill the following classes:

C2, E2, M2 and S1 according to IEC 62271-100, as well as the shortest rated operating sequence O - 0.3s - CO - 15s - CO. Class M1 for operation without a motor.

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

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

The single capacitor bank breaking current is always tested at 400 A according to the standard. However, the circuit-breakers can generally switch capacitive currents up to  $0.7 \cdot I_r$ .

## Maintenance-free design

The circuit-breakers are maintenance-free:

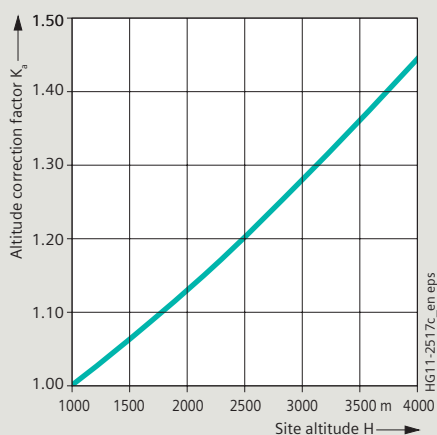
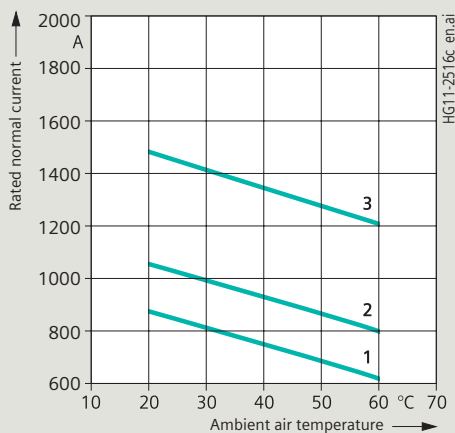
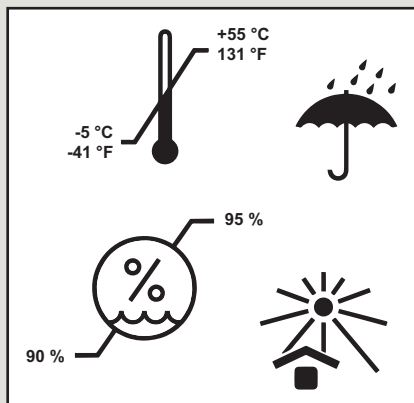
- Under normal ambient conditions according to IEC 62271-1
- Up to 10,000 operating cycles
  - no greasing
  - no readjusting

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

## Description

Ambient conditions, current-carrying capacity, dielectric strength

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism



### Ambient conditions

The circuit-breakers are designed for normal service conditions as defined in IEC 62271-100. Condensation can occasionally occur under the ambient conditions shown opposite.

The circuit-breakers are suitable for use in the following climatic classes according to IEC 60721, Part 3-3:

Climatic ambient conditions:	Class 3K22 <sup>1)</sup>
Biological ambient conditions:	Class 3B1
Mechanical ambient conditions:	Class 3M11
Chemically active substances:	Class C3 <sup>3)</sup>
Mechanically active substances:	Class 3S6 <sup>2)</sup>

- 1) Lower temperature limit: -5 °C (with order code A40 down to -25 °C)
- 2) Restriction: clean insulating 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 +55 °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 630 A
- Characteristics curve 2 = Rated normal current 800 A
- Characteristics curve 3 = Rated normal current 1250 A

### Dielectric strength

The dielectric strength of air insulation decreases with increasing altitude due to the lower air density. According to IEC 62271-1, the values of the rated lightning impulse withstand voltage and the rated short-duration power-frequency withstand voltage specified in the Chapter "Technical data" apply to a site altitude of up to 1000 m above sea level. For altitudes above 1000 m, the insulation level must be corrected according to the opposite diagram.

The characteristics curve shown applies to both rated withstand voltages.

When selecting the devices, the following applies:

$$U \geq U_0 \times K_a$$

$U$  Rated withstand voltage under reference atmosphere

$U_0$  Rated withstand voltage requested for the place of installation

$K_a$  Altitude correction factor according to the opposite diagram

### Example

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

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

## Equipment

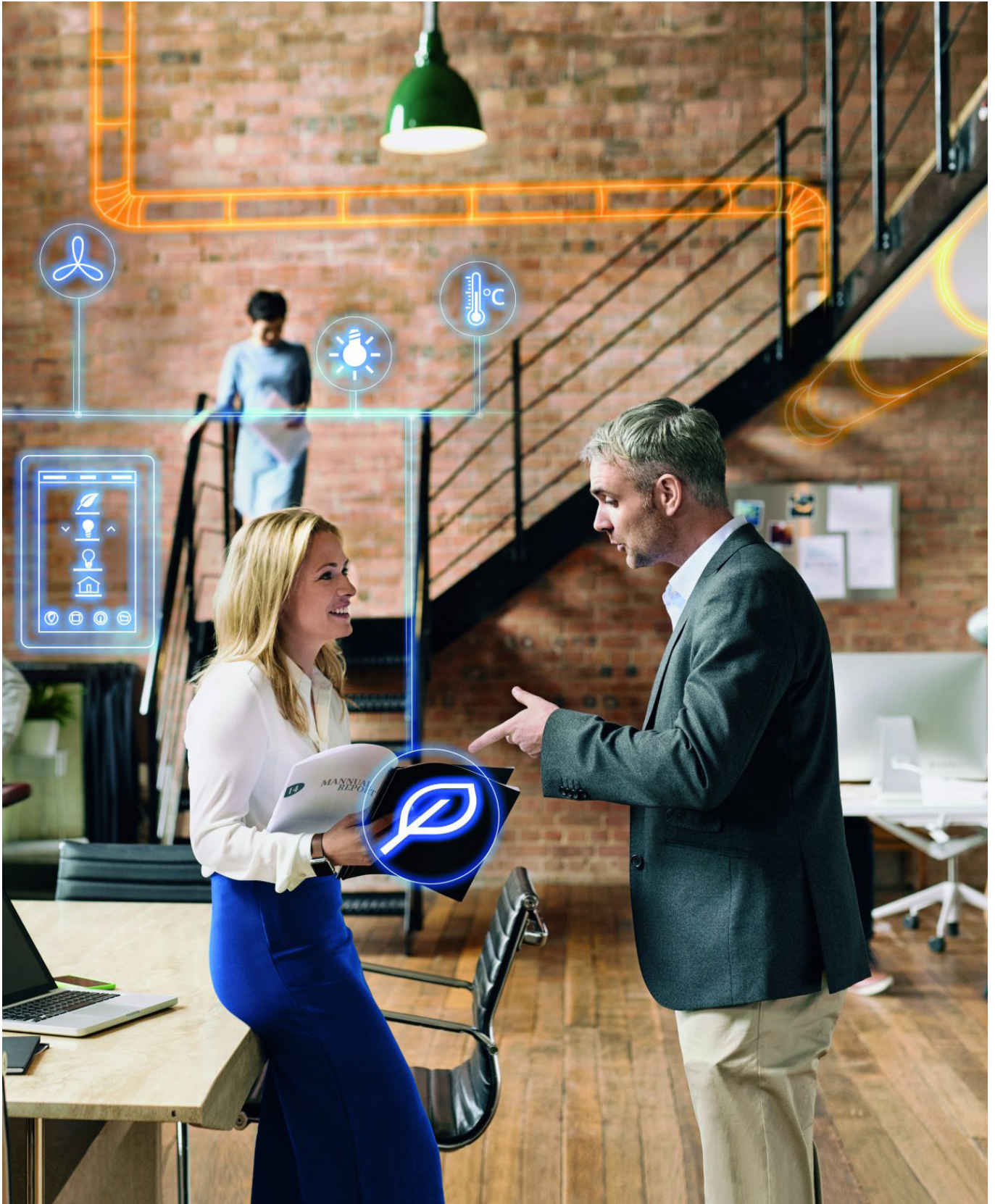
Feature	Basic equipment	Configuration	Remarks
Operating mechanism	Electrical operating mechanism	Without motor, but prepared for retrofitting	Also for manual operation
Closing	Closing solenoid and mechanical manual closing	–	–
1 <sup>st</sup> release	Shunt release	–	–
2 <sup>nd</sup> release	None	Shunt release, undervoltage release, c.t.-operated release	A maximum of two releases are possible in total
Varistor circuit	Standard for $\geq 60$ V DC	–	For limiting switching overvoltages
Auxiliary switch	6 NO + 6 NC	12 NO + 12 NC	–
Low-voltage interface	20-pole connection strip (internal)	64-pole plug	In combination with 12 NO + 12 NC
Anti-pumping	Available	–	–
Circuit-breaker tripping signal	Available	–	–
Operation counter	Available	–	–
Interlocking	None	Key-operated interlocking Electrical closing lockout Mechanical interlocking	Interlock to prevent reclosing
Insertion aid	None	Wheels	–
Cover	Plastic cover	Metal cover	–

## Product range overview

Type	Rated voltage kV	Rated short-circuit breaking current kA	Rated normal current A	Pole-center distance (in mm)					
				150	210	230	250	300	
				Vertical distance between terminals <sup>1)</sup> [mm]					
				205	237.5				
3AE6	12	16	630/800/1250	■	■	■	■		
		20	630/800/1250	■	■	■	■		
		25	630/800/1250	■	■	■	■		
	24	16	630/800/1250		■	■	■	■	
		20	630/800/1250		■	■	■	■	
		25	630/800/1250		■	■	■	■	

Note: The circuit-breaker is available with various installation accessories. These versions can be configured on the following pages.

1) Distance between upper and lower connection hole



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## Device configuration

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

### Order number structure

#### Order number structure

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

#### Order codes

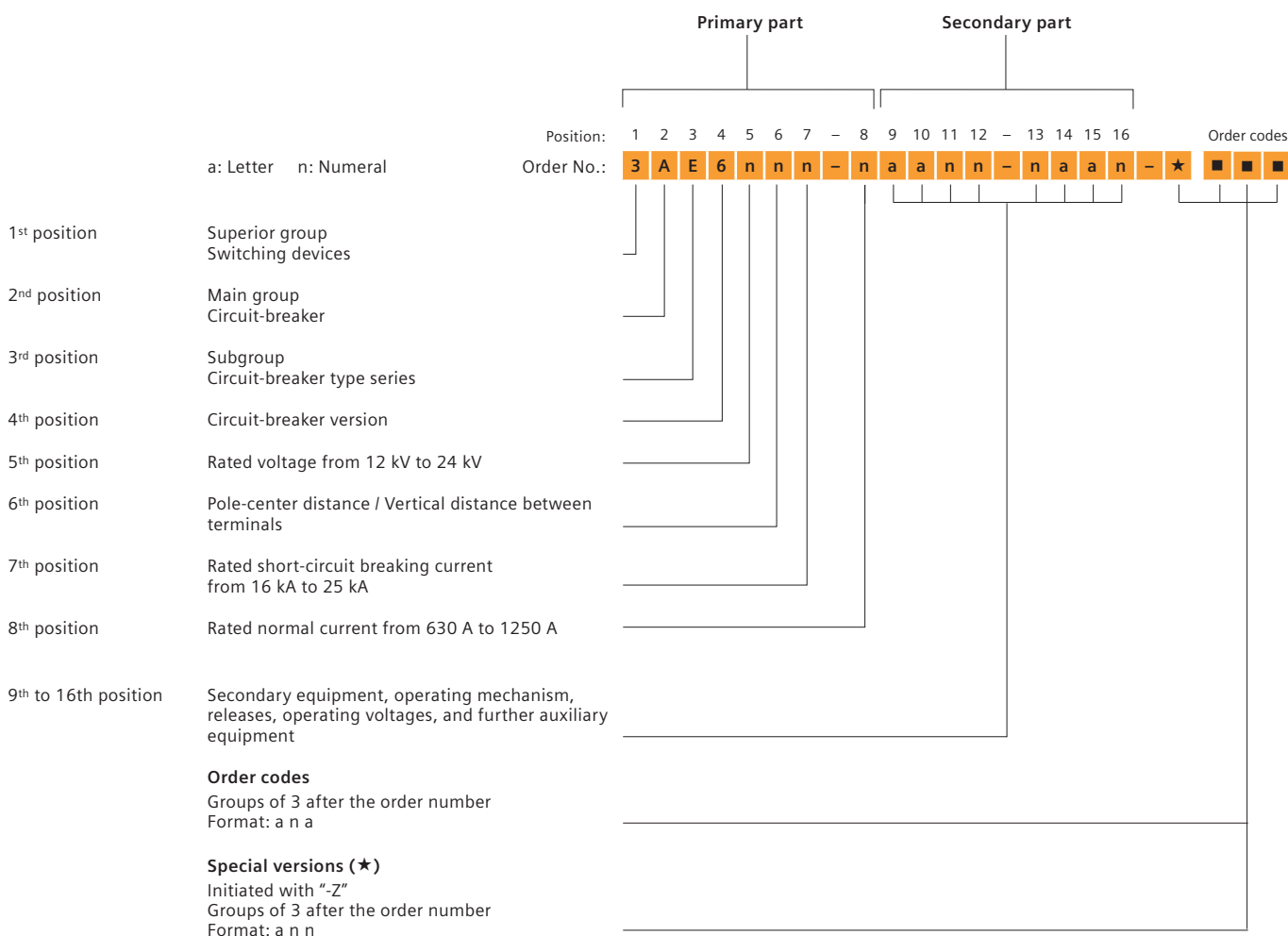
Individual options, marked with **9** or **Z** in the 9<sup>th</sup> to 16<sup>th</sup> position, are explained in more detail by a 3-digit order code. Several order codes can be added to the order number in succession and in any sequence.

#### Special versions (★)

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

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

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Rated voltage for 50/60 Hz $U_n$ 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	Vertical distance between terminals mm	Connections left (L)/right (R)	Rated normal current $I_n$ A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Order codes								
									3	A	E	6	3	3	2	-	0	see page 18															
24	125	50	16	40/42	250	237.5	R	630	3	A	E	6	3	3	2	-	0																
							L	630	3	A	E	6	3	3	2	-	0																
			16	40/42	250		R	800	3	A	E	6	3	3	2	-	1																
							L	800	3	A	E	6	3	3	2	-	1																
			16	40/42	250		R	1250	3	A	E	6	3	3	2	-	2																
							L	1250	3	A	E	6	3	3	2	-	2																
24	125	50	20	50/52	250	237.5	R	630	3	A	E	6	3	3	3	-	0																
							L	630	3	A	E	6	3	3	3	-	0																
			20	50/52	250		R	800	3	A	E	6	3	3	3	-	1																
							L	800	3	A	E	6	3	3	3	-	1																
			20	50/52	250		R	1250	3	A	E	6	3	3	3	-	2																
							L	1250	3	A	E	6	3	3	3	-	2																
24	125	50	25	63/65	250	237.5	R	630	3	A	E	6	3	3	4	-	0																
							L	630	3	A	E	6	3	3	4	-	0																
			25	63/65	250		R	800	3	A	E	6	3	3	4	-	1																
							L	800	3	A	E	6	3	3	4	-	1																
			25	63/65	250		R	1250	3	A	E	6	3	3	4	-	2																
							L	1250	3	A	E	6	3	3	4	-	2																
24	125	50	16	40/42	300	237.5	R	630	3	A	E	6	3	4	2	-	0																
							L	630	3	A	E	6	3	4	2	-	0																
			16	40/42	300		R	800	3	A	E	6	3	4	2	-	1																
							L	800	3	A	E	6	3	4	2	-	1																
			16	40/42	300		R	1250	3	A	E	6	3	4	2	-	2																
							L	1250	3	A	E	6	3	4	2	-	2																
24	125	50	20	50/52	300	237.5	R	630	3	A	E	6	3	4	3	-	0																
							L	630	3	A	E	6	3	4	3	-	0																
			20	50/52	300		R	800	3	A	E	6	3	4	3	-	1																
							L	800	3	A	E	6	3	4	3	-	1																
			20	50/52	300		R	1250	3	A	E	6	3	4	3	-	2																
							L	1250	3	A	E	6	3	4	3	-	2																
24	125	50	25	63/65	300	237.5	R	630	3	A	E	6	3	4	4	-	0																
							L	630	3	A	E	6	3	4	4	-	0																
			25	63/65	300		R	800	3	A	E	6	3	4	4	-	1																
							L	800	3	A	E	6	3	4	4	-	1																
			25	63/65	300		R	1250	3	A	E	6	3	4	4	-	2																
							L	1250	3	A	E	6	3	4	4	-	2																

Special version

$U_d = 65$  kV for 24 kV devices

- Z E 6 5







11 <sup>th</sup> position		1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	Order codes					
<b>Operating voltage of the 1st release</b>		3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■	
Standard voltages	Standard voltages															see page 22	see page 20	see page 20	see page 21						
DC 24 V														1											
DC 48 V														2											
DC 60 V														3											
DC 110 V														4											
DC 220 V														5											
AC 100 V 50/60 Hz <sup>1)</sup>														6											
AC 110 V 50/60 Hz <sup>1)</sup>														7											
AC 230 V 50/60 Hz <sup>1)</sup>														8											
	DC 30 V													9									L	1	A
	DC 32 V													9									L	1	B
	DC 120 V													9									L	1	C
	DC 125 V													9									L	1	D
	DC 127 V													9									L	1	E
	DC 240 V													9									L	1	F
	AC 120 V 50/60 Hz <sup>1)</sup>													9									L	1	K
	AC 125 V 50/60 Hz <sup>1)</sup>													9									L	1	L
	AC 240 V 50/60 Hz <sup>1)</sup>													9									L	1	M

12 <sup>th</sup> position		1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	Order codes						
<b>Operating voltage of the 2nd release</b>		3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■		
Standard voltages	Standard voltages																									
None or c.t.-operated release														0												
DC 24 V														1												
DC 48 V														2												
DC 60 V														3												
DC 110 V														4												
DC 220 V														5												
AC 100 V 50/60 Hz <sup>1)</sup>														6												
AC 110 V 50/60 Hz <sup>1)</sup>														7												
AC 230 V 50/60 Hz <sup>1)</sup>														8												
	DC 30 V													9										M	1	A
	DC 32 V													9										M	1	B
	DC 120 V													9										M	1	C
	DC 125 V													9										M	1	D
	DC 127 V													9										M	1	E
	DC 240 V													9										M	1	F
	AC 120 V 50/60 Hz <sup>1)</sup>													9										L	1	K
	AC 125 V 50/60 Hz <sup>1)</sup>													9										M	1	L
	AC 240 V 50/60 Hz <sup>1)</sup>													9										M	1	M

<sup>1)</sup> The power-frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 21)

## Device configuration

### SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Selection of secondary equipment (position 9–12 and position 14–16)

#### 14<sup>th</sup> position

##### Operating voltage of the drive motor

	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	Order codes				
Operating voltage of the drive motor	3	A	E	6	■	■	■	-	■	■	■	■	■	-	■	■	■	■	-	★	■	■	■
Standard voltages																							
Prepared for motor installation																							A
DC 24 V																							B
DC 48 V																							C
DC 60 V																							D
DC 110 V																							E
DC 220 V																							F
AC 100 V 50/60 Hz <sup>1)</sup>																							H
AC 110 V 50/60 Hz <sup>1)</sup>																							J
AC 230 V 50/60 Hz <sup>1)</sup>																							K
DC 30 V																							M
DC 32 V																							N
DC 120 V																							P
DC 125 V																							Q
DC 127 V																							R
DC 240 V																							S
AC 120 V 50/60 Hz <sup>1)</sup>																							U
AC 125 V 50/60 Hz <sup>1)</sup>																							V
AC 240 V 50/60 Hz <sup>1)</sup>																							W

<sup>1)</sup> Power-frequency voltage refers to the low-voltage equipment

#### 15<sup>th</sup> position

##### Interlocking, low-voltage interface, auxiliary switch

					1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	Order codes															
					3	A	E	6	■	■	■	-	■	■	■	■	■	-	■	■	■	■	-	★	■	■	■											
Mechanical interlocking	Low-voltage interface				Auxiliary switch																																	
	Internal 20-pole connection strip	64-pole plug	6 NO + 6 NC							12 NO + 12 NC																												
	■			■																								B										
	■		■	■																								T										
	■		■	■																								K										
	■		■	■																								R										
■	■		■	■																								A										
■	■		■	■																								V										
■	■		■	■																								J										
■	■		■	■																								N										
■	■		■	■																								S										
																			Modified for SIMOSEC (only with 7 at the 13th position)			7																

Circuit breaker tripping signal is included as standard for all configurations shown

2

16<sup>th</sup> position

Languages of operating instructions and nameplate; power frequency of operating voltages <sup>1)</sup>

Language selection				Frequency selection		1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	Order codes												
German	English	French	Spanish	DC or AC 50 Hz	60 Hz	3	A	E	6	■	■	■	–	■	■	■	■	–	■	■	■	■	■	–	★	■	■	■								
■				■																								0								
■					■																								1							
	■			■																									2							
		■			■																								3							
			■																										4							
				■	■																								5							
			■																										6							
					■																								7							
<b>Special versions</b>																																				
Portuguese, 50 Hz/DC																														9		R	1	C		
Portuguese, 60 Hz																															9			R	1	D
Italian, 50 Hz/DC																															9			R	1	F
Russian, 50 Hz/DC																															9			R	1	G
Polish, 50 Hz/DC																															9			R	1	K
Other languages on request																																				

<sup>1)</sup> Power-frequency voltage refers to the low-voltage equipment



## Device configuration

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Selection of installation options (position 13)

13 <sup>th</sup> position	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	Order codes				
<b>Attachment of wheels</b>	3	A	E	6	■	■	■	-	■	■	■	■	■	-	■	■	■	■	-	★	■	■	■
Transport/racking wheels																							
No racking wheels															0								
With racking wheels															1								
Prepared for SIMOSEC															7	S							

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## Additional equipment

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Order codes					
	3	A	E	6	■	■	■	-	■	■	■	■	-	■	■	■	-	★	■	■	■	
Options																						
Cable ends with marking at the plug																						
Wiring cables halogen-free and flame-retardant																						
Anti-condensation heating, heater for 110 V AC, 50 W																						
Anti-condensation heating, heater for 230 V AC, 50 W																						
Circuit-breaker for operation down to -25 °C																						
Electrical closing lockout (not together with J60)																						
C.t.-operated release 5 A																						
Additional nameplate, loose delivery																						
Without upper part of plug																						
Without material pack																						
Long insulating shell (standard)																						
2 kV/1 min insulation routine test																						
Rated short-duration power-frequency withstand voltage 42 kV (at 12 kV)																						
Rated short-duration power-frequency withstand voltage 65 kV (at 24 kV)																						
Extended routine test certificate																						
Routine test certificate enclosed																						
Hand crank for manual charging of the closing spring (scope of supply: one hand crank per circuit-breaker)																						
Metal cover																						
Lock-in for feeder (for SIMOSEC only)																						
Key-operated interlocking (not together with A47)																						
Electrical lock-in (for SIMOSEC only, voltage on request)																						
Warranty 24 months																						
Warranty 36 months																						
Warranty 60 months																						
Warranty 84 months																						
Other special versions that are not listed (only after consultation with the order processing department at the Switchgear Factory in Berlin, Germany). Specifications additionally in clear text																						

However, circuit-breakers can generally switch capacitive currents up to  $0.7 \times I_r$



### Ordering information for accessories and spare parts

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

### 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 scope of supply.

Spare parts may only be replaced by qualified personnel.

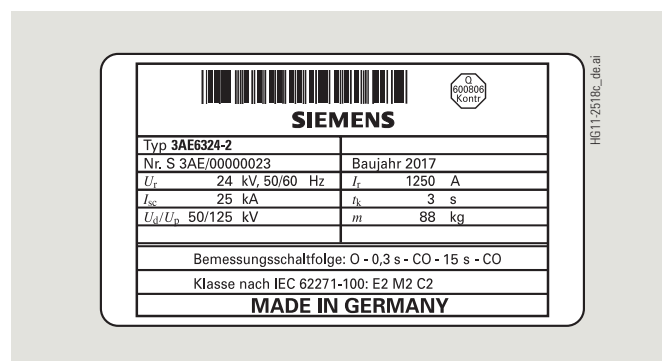
### Accessories for the plug connection

Included in the scope of supply of the basic equipment for vacuum circuit-breakers 3AE6:

#### For 64-pole plug connection

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

### Nameplate



#### Note:

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

- Type designation
- Serial No.
- Year of manufacture

Designation	Description	Feature	Position:	Order No.
Handles	Hand crank for circuit-breaker		1 – 9	3AX1530-4B
Lubricants	180 g of Klüber-Isoplex Topas L32N			3AX1133-3H
	1 kg of Klüber-Isoplex Topas L32N			3AX1133-3E
	1 kg of Molykote grease			3AX1133-2L
	1 kg of Vaseline, Atlantic			3AX1133-4A
Front cover	Metal cover for terminal strip connection			3AX1470-4A
	Metal cover for SIMOSEC			3AX1470-4B
	Metal cover for plug connection			3AX1470-4C
ON/OFF pushbuttons	Plastic cover			3AX1470-5A
	For metal cover			3AX1470-5K
Interlocking	Mounting kit for key-operated interlocking			3AX1437-4A
Insulating shells for contact arms	Upper insulating shell	24 kV		3AX1438-4B
	Lower insulating shell	24 kV		3AX1438-5B

			Position:	1 – 9
Designation	Description	Feature	Order No.	
<b>Operating solenoid</b>	For CLOSE function/1st release/2nd release (from year of manufacture 2022)	DC 24 ... 32 V	3AY1410-0B	
		DC 48 V	3AY1410-0C	
		DC 60 V	3AY1410-0D	
		DC 110 ... 127 V	3AY1410-0E	
		DC 220 ... 240 V	3AY1410-0F	
		AC 100/125 V, 50/60 Hz	3AY1410-0J	
		AC 230/240 V, 50/60 Hz	3AY1410-0K	
<b>Mounting parts</b>	For 2nd shunt release (from year of manuf. 2022)		3AX1411-6A	
<b>2nd shunt release</b>	Up to and incl. year of manuf. 2021	DC 24 ... 32 V	3AX1101-2B	
		DC 48 ... 60 V	3AX1101-2C	
		DC 110 ... 127 V	3AX1101-2E	
		DC 220 ... 240 V	3AX1101-2F	
		AC 100 ... 125 V, 50 Hz	3AX1101-2G	
		AC 230 ... 240 V, 50 Hz	3AX1101-2J	
		AC 100 ... 125 V, 60 Hz	3AX1101-3G	
		AC 230 ... 240 V, 60 Hz	3AX1101-3J	
<b>Mounting parts</b>	For 2nd shunt release (up to year of manuf. 2021)		3AX1411-5A	
<b>Current-transformer-operated</b>	For rated normal current 0.5 A For rated normal current 1 A For rated normal current 5 A incl. rectifier For tripping pulse $\geq 0.1$ Ws, 20 $\Omega$ for protection system 7SJ45		3AX1102-2A	
			3AX1102-2B	
			3AX1402-2E	
			3AX1104-2B	
<b>Mounting parts</b>	For current-transformer-operated release		3AX1411-5A	
<b>Undervoltage release</b>		DC 24 V	3AX1103-2B	
		DC 30/32 V	3AX1103-2L	
		DC 48 V	3AX1103-2C	
		DC 60 V	3AX1103-2D	
		DC 110 V	3AX1103-2E	
		DC 120/127 V	3AX1103-2N	
		DC 220 V	3AX1103-2F	
		DC 240 V	3AX1103-2P	
		AC 100 V, 50 Hz	3AX1103-2G	
		AC 110/125 V, 50 Hz	3AX1103-2H	
		AC 230 V, 50 Hz	3AX1103-2J	
		AC 240 V, 50 Hz	3AX1103-2M	
		AC 100 V, 60 Hz	3AX1103-3G	
		AC 110/125 V, 60 Hz	3AX1103-3H	
		AC 230 V, 60 Hz	3AX1103-3J	
		AC 240 V, 60 Hz	3AX1103-3M	
<b>Mounting parts</b>	For undervoltage release		3AX1413-5A	
<b>Drive motor</b>		DC 24/30/32 V	3AY1411-1B	
		DC 48/60 V	3AY1411-1C	
		DC 110 ... 127 V AC 100 ... 125 V	3AY1411-1E	
		DC 220 ... 240 V AC 220 ... 240 V	3AY1411-1F	
<b>Electrical closing lockout</b>	From year of manuf. 2022	DC 24 ... 32 V	3AX1405-4B	
		DC 48 ... 60 V	3AX1405-4C	
		DC 110 ... 127 V	3AX1405-4E	
		DC 220 ... 250 V	3AX1405-4F	
		AC 100 ... 125 V, 50/60 Hz	3AX1405-4G	
		AC 230 ... 240 V, 50/60 Hz	3AX1405-4J	
<b>Mounting parts</b>		Not required		

## Device configuration

### Accessories and spare parts

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

			Position:	1 – 9
Designation	Description	Feature	Order No.	
<b>Electronic module</b>		DC 24 ... 32 V	3AY1420-2A	
		DC 48 ... 60 V	3AY1420-2C	
		DC 110 ... 127 V AC 100 ... 125 V	3AY1420-2E	
		DC 220 ... 240 V AC 230 ... 240 V	3AY1420-2G	
	<b>PG cable gland</b>			3AX1458-0A
<b>Anti-condensation heating</b>	Heater for 230 V AC, 50 W		3AX1457-5A	
	Heater for 110 V AC, 50 W		3AX1457-5B	
<b>Position switch</b>	Type SE4 without mounting accessories		3AX4206-0A	
	Used for:	Quantity		
	– Electrical anti-pumping (-S3)	1		
	– Electrical interlocking (-S12)	1		
	– Motor control (-S21, -S22)	2		
	– Closing spring charged (-S4)	1		
	– Circuit-breaker tripping signal (-S6)	1		
<b>Auxiliary switch (-S1)</b>	6 NO + 6 NC		3SV9473-2AA0	
	12 NO + 12 NC		3SV9474-2AA0	
<b>Accessories for 64-pole plug</b>	Crimp pins (for lower part of plug)	64-pole	3AX1134-4B	
	Crimp sockets (for upper part of plug)	64-pole	3AX1134-4C	
	Crimping pliers		3AX1134-4D	
	Disassembly tool		3AX1134-4G	
	Plug, complete	64-pole	3AX1134-6A	
<b>Plug adapter</b>	From 64-pole on circuit-breaker side to 24-pole on customer side		3AX1410-1A	

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## Technical data

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Electrical data, weights, operating cycle diagrams



Order No.	12 kV 50/60 Hz		Vertical distance between terminals (VDT)	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 $\Delta U$ between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	Rated normal current	Pole-center distance (PCD)															
	$I_r$ A	mm															
3AE6102-0	630	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-0	630	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6102-1	800	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-1	800	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6102-2	1250	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-2	1250	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6103-0	630	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-0	630	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6103-1	800	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-1	800	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6103-2	1250	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-2	1250	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6104-0	630	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-0	630	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6104-1	800	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-1	800	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6104-2	1250	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-2	1250	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6112-0	630	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-0	630	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6112-1	800	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-1	800	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6112-2	1250	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-2	1250	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6113-0	630	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-0	630	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6113-1	800	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-1	800	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6113-2	1250	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-2	1250	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6114-0	630	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-0	630	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3



Order No.	12 kV 50/60 Hz																
	Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	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 $\Delta U$ between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	$I_r$ A	mm	mm	$I_{sc}$ kA	%	kA	$I_{ma}$ kA	$U_p$ kV	$U_d$ kV	mV	mm	mm	mm	mm	kg		
3AE6114-1	800	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-1	800	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6114-2	1250	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-2	1250	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6122-0	630	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-0	630	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6122-1	800	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-1	800	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6122-2	1250	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-2	1250	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6123-0	630	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-0	630	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6123-1	800	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-1	800	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6123-2	1250	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-2	1250	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6124-0	630	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-0	630	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6124-1	800	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-1	800	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6124-2	1250	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-2	1250	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6132-0	630	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-0	630	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6132-1	800	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-1	800	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6132-2	1250	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-2	1250	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6133-0	630	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-0	630	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6133-1	800	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-1	800	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2

## Technical data

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Electrical data, weights, operating cycle diagrams

Order No.	12 kV 50/60 Hz		Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	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 $\Delta U$ between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	$I_r$		A	mm	mm	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	kg		
3AE6133-2			1250	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-2			1250	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6134-0			630	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-0			630	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6134-1			800	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-1			800	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6134-2			1250	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-2			1250	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3

Order No.	24 kV 50/60 Hz		Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	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 $\Delta U$ between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	$I_r$		A	mm	mm	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	kg		
3AE6312-0			630	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	70	A7E10903000	4
3AE6362-0			630	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	70	A7E10903000	4
3AE6312-1			800	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6362-1			800	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6312-2			1250	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6362-2			1250	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6313-0			630	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6363-0			630	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5



Order No.	24 kV 50/60 Hz		Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	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 $\Delta U$ between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	$I_r$		mm	mm	kA	%	kA	$I_{ma}$	$U_p$	$U_d$	mV	mm	mm	mm	mm	kg			
	A							kA	kV	kV									
3AE6313-1	800		210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5	
3AE6363-1	800		210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5	
3AE6313-2	1250		210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5	
3AE6363-2	1250		210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5	
3AE6314-0	630		210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6	
3AE6364-0	630		210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6	
3AE6314-1	800		210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6	
3AE6364-1	800		210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6	
3AE6314-2	1250		210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6	
3AE6364-2	1250		210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6	
3AE6322-0	630		230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	72	A7E10903000	4	
3AE6372-0	630		230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	72	A7E10903000	4	
3AE6322-1	800		230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4	
3AE6372-1	800		230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4	
3AE6322-2	1250		230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4	
3AE6372-2	1250		230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4	
3AE6323-0	630		230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5	
3AE6373-0	630		230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5	
3AE6323-1	800		230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5	
3AE6373-1	800		230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5	
3AE6323-2	1250		230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5	
3AE6373-2	1250		230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5	
3AE6324-0	630		230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6	
3AE6374-0	630		230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6	
3AE6324-1	800		230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6	
3AE6374-1	800		230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6	
3AE6324-2	1250		230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6	
3AE6374-2	1250		230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6	
3AE6332-0	630		250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	73	A7E10903000	4	
3AE6382-0	630		250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	73	A7E10903000	4	
3AE6332-1	800		250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4	
3AE6382-1	800		250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4	

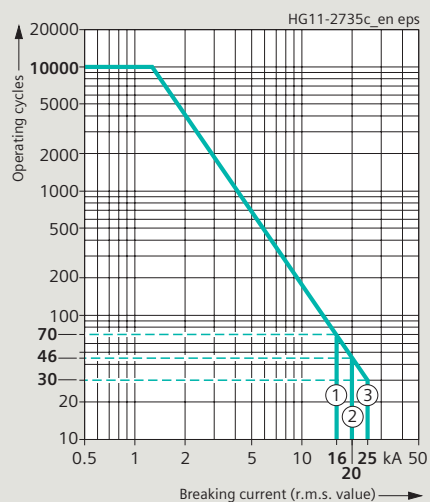
## Technical data

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

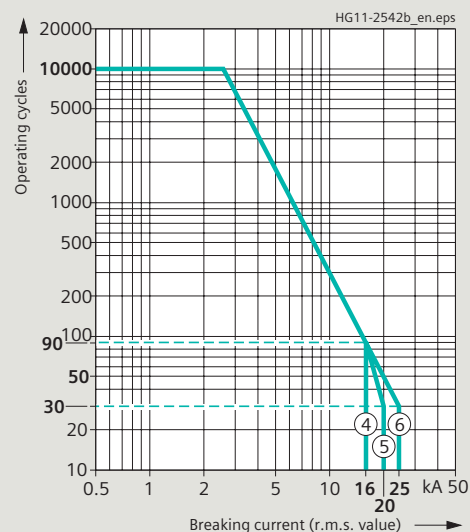
Electrical data, weights, operating cycle diagrams

Order No.	24 kV 50/60 Hz		Vertical distance between terminals (VDT)	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 $\Delta U$ between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	Rated normal current	Pole-center distance (PCD)															
	$I_r$ A	mm															
3AE6332-2	1250	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6382-2	1250	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6333-0	630	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-0	630	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6333-1	800	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-1	800	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6333-2	1250	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-2	1250	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6334-0	630	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-0	630	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6334-1	800	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-1	800	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6334-2	1250	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-2	1250	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6342-0	630	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	75	A7E10903000	4
3AE6392-0	630	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	75	A7E10903000	4
3AE6342-1	800	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6392-1	800	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6342-2	1250	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6392-2	1250	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6343-0	630	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-0	630	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6343-1	800	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-1	800	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6343-2	1250	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-2	1250	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6344-0	630	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-0	630	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6344-1	800	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-1	800	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6344-2	1250	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-2	1250	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6

Operating cycle diagrams for 12 kV



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 fulfill the endurance classes E2, M2 and C2 according to IEC 62271-100.

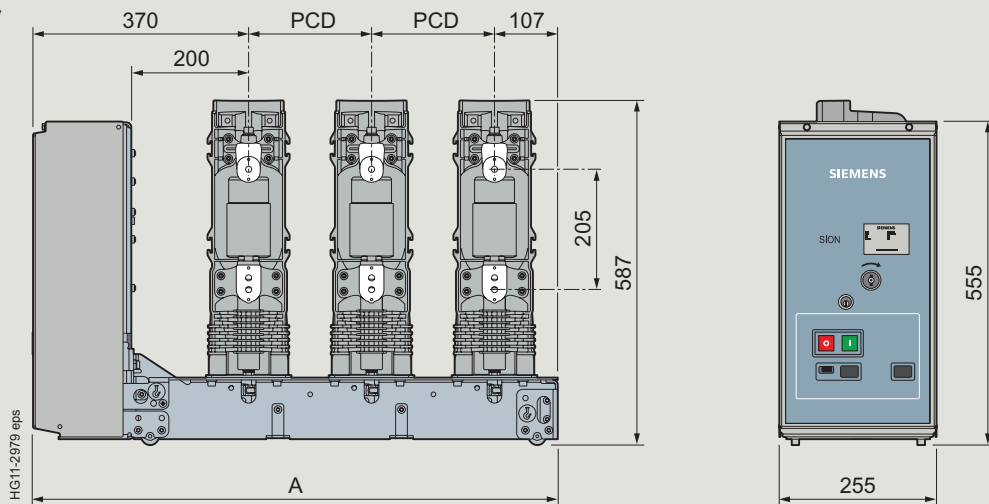
The curve shape beyond the parameters defined in IEC 62271-100 is based on average empirical data. The number of operating cycles that can actually be reached may be different depending on the respective application.

## Technical data

### Dimensional drawings

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

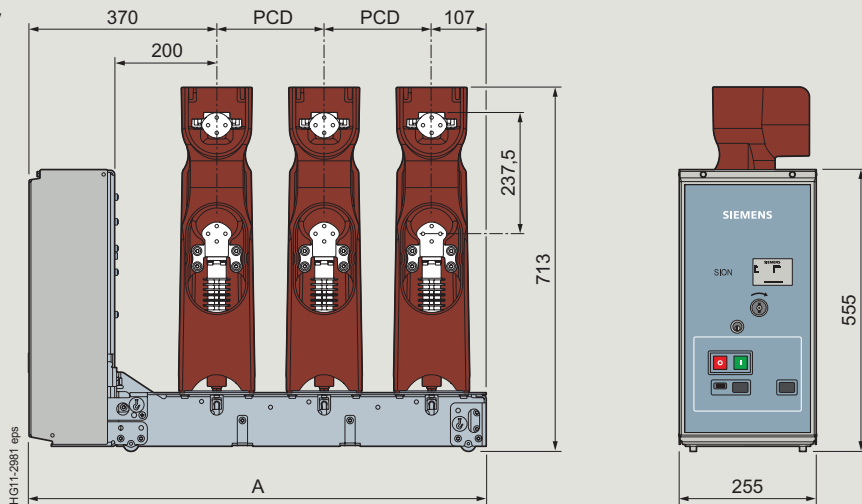
### 3AE61 for 12 kV



$U_r$ [kV]	$I_{sc}$ [kA]	$I_r$ [A]	PCD [mm]	A [mm]	Weight [kg]	Dimensional drawing
12	16/20/25	630/800/1250	150	777	65	A7E10903020
12	16/20/25	630/800/1250	210	897	70	A7E10903020
12	16/20/25	630/800/1250	230	937	72	A7E10903020
12	16/20/25	630/800/1250	250	977	73	A7E10903020

Note: Minor deviations from shown dimensions permitted

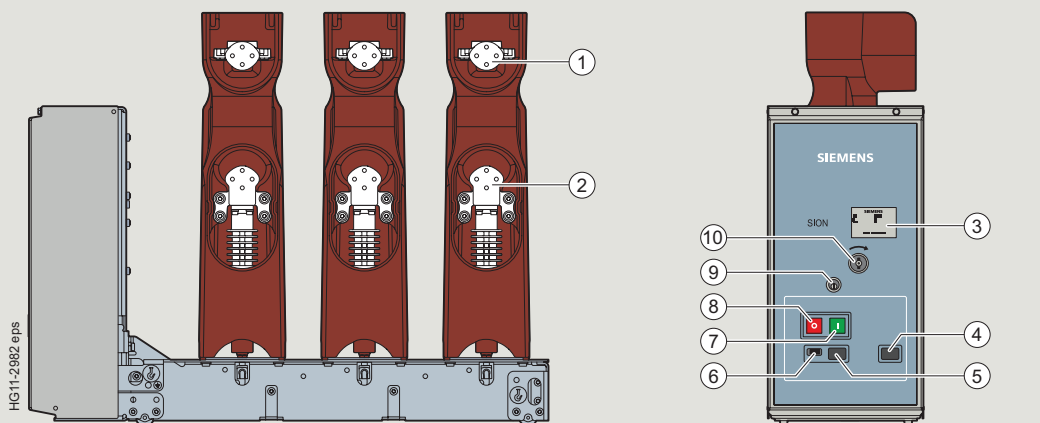
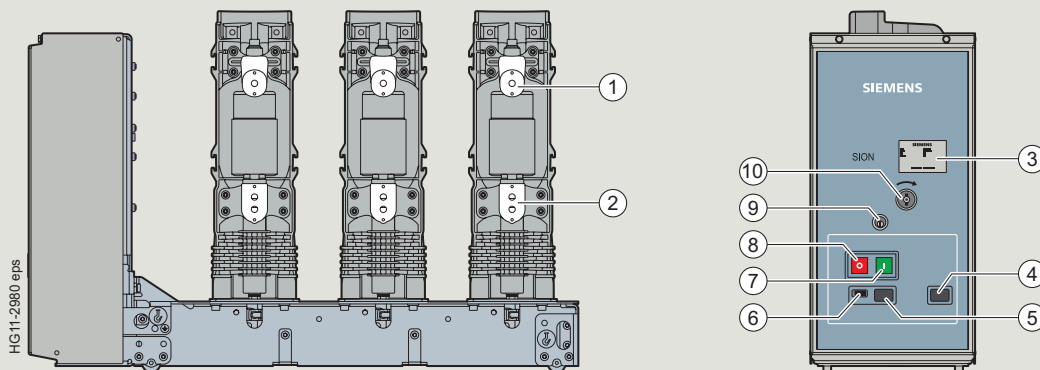
### 3AE63 for 24 kV



$U_r$ [kV]	$I_{sc}$ [kA]	$I_r$ [A]	PCD [mm]	A [mm]	Weight [kg]	Dimensional drawing
24	16/20/25	630/800/1250	210	897	87	A7E10903000
24	16/20/25	630/800/1250	230	937	88	A7E10903000
24	16/20/25	630/800/1250	250	977	88	A7E10903000
24	16/20/25	630/800/1250	300	1077	89	A7E10903000

Note: Minor deviations from shown dimensions permitted

For all other details, please refer to the Catalog SION Vacuum Circuit-Breakers 3AE5, HG11.02.



- ① Upper terminal
- ② Lower terminal
- ③ Nameplate

- ④ "Charged" indicator
- ⑤ Position indicator
- ⑥ Operation counter

- ⑦ "ON" pushbutton
- ⑧ "OFF" pushbutton
- ⑨ Opening for hand crank

**General data:**

Rating of conductor bars according to DIN 43 670/671



## Technical data

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

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



### Operating times and internal times

Operating times at rated voltage of the secondary circuit	Circuit-breaker equipment	Circuit-breaker operating time
Closing time	–	≤ 60 ms
Opening time	1 <sup>st</sup> and 2 <sup>nd</sup> shunt release	≤ 30 ms
	Further releases	≤ 45 ms
Arcing time	–	< 15 ms
Break time	1 <sup>st</sup> and 2 <sup>nd</sup> shunt release	≤ 45 ms
	Further releases	≤ 60 ms
CLOSE/OPEN time	1 <sup>st</sup> and 2 <sup>nd</sup> shunt release	≤ 45 ms
	Further releases	≤ 60 ms
Minimum command duration	Closing solenoid	45 ms
	1 <sup>st</sup> and 2 <sup>nd</sup> shunt release	40 ms
	Further releases	20 ms
Impulse time for circuit-breaker tripping signal	1 <sup>st</sup> and 2 <sup>nd</sup> shunt release	> 10 ms
	Further releases	> 6 ms
Charging time for electrical operation		< 15 s
Synchronism error between the poles		≤ 2 ms

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

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

<sup>1)</sup> The inrush current in the motor can be neglected due to its very short presence.

### Consumption data of releases

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 ... 110% U	85 ... 110% U
1 <sup>st</sup> and 2 <sup>nd</sup> shunt release (without mechanical energy store) 3AY14 10	300	300	70 ... 110% U	85 ... 110% U
Undervoltage release 3AX11 03	20	20	35 ... 0% U	35 ... 0% U
Current-transformer-operated release 3AX14 02 (rated normal current 0.5 A, 1 A or 5 A)	–	10 <sup>2)</sup>	–	90 ... 110% I <sub>a</sub>
Current-transformer-operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

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



Circuit diagrams / operating instructions and dimensions for 3AE6 can be found at the Siemens Industry Online Support (SIOS):

[www.siemens.com/product-support](http://www.siemens.com/product-support)



Manual for SION Lateral - Vacuum Circuit-Breakers  
(12 kV – 24 kV/16 kA – 25 kA)  
Available in the following languages:  
Portuguese, Spanish, French, English, Italian, Russian,  
Polish, German  
[www.siemens.com/product-support \(109767547\)](http://www.siemens.com/product-support (109767547))



Circuit diagrams for SION circuit-breakers 3AE6  
[www.siemens.com/product-support \(109746957\)](http://www.siemens.com/product-support (109746957))



3



Medium-voltage components portfolio 3AE6  
[www.siemens.com/product-support \(109770010\)](http://www.siemens.com/product-support (109770010))



3











Switchgear Factory in Berlin, Germany

R-HGT1-180.eps

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Foldout page

**Annex**

## Inquiry form

## SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

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

Inquiry concerning

SION  
vacuum circuit-breaker  
for 12 kV and 24 kV

Please

- Submit an offer  
 Call us  
 Visit us

Your address

Company

Department

Name

Street

Postal code / city

Country

Phone

Fax

E-mail

Siemens AG

Department

Name

Street

Postal code/ city

Country

Fax

**Technical data**

	Other values			
Rated voltage	<input type="checkbox"/> 12 kV	<input type="checkbox"/> 24 kV	<input type="checkbox"/> ___ kV	
Rated lightning impulse withstand voltage	<input type="checkbox"/> 75 kV	<input type="checkbox"/> 125 kV	<input type="checkbox"/> ___ kV	
Rated short-duration power-frequency withstand voltage	<input type="checkbox"/> 28 kV <input type="checkbox"/> 65 kV	<input type="checkbox"/> 42 kV	<input type="checkbox"/> 50 kV	<input type="checkbox"/> ___ kV
Rated short-circuit breaking current	<input type="checkbox"/> 16 kA	<input type="checkbox"/> 20 kA	<input type="checkbox"/> 25 kA	<input type="checkbox"/> ___ kA
Rated normal current	<input type="checkbox"/> 630 A	<input type="checkbox"/> 800 A	<input type="checkbox"/> 1250 A	<input type="checkbox"/> ___ A
Pole-center distance	<input type="checkbox"/> 150 mm <input type="checkbox"/> 300 mm	<input type="checkbox"/> 210 mm	<input type="checkbox"/> 230 mm	<input type="checkbox"/> 250 mm

**Secondary equipment**

For possible combinations, see page 18 to 21

Circuit-breaker installation accessories	<input type="checkbox"/> Fixed mounting	<input type="checkbox"/> With rollers
Drive motor	<input type="checkbox"/> DC ___ V	<input type="checkbox"/> AC ___ V, ___ Hz
Closing solenoid	<input type="checkbox"/> DC ___ V	<input type="checkbox"/> AC ___ V, ___ Hz
1 <sup>st</sup> shunt release	<input type="checkbox"/> DC ___ V	<input type="checkbox"/> AC ___ V, ___ Hz
2 <sup>nd</sup> shunt release	<input type="checkbox"/> DC ___ V	<input type="checkbox"/> AC ___ V, ___ Hz
C.t.-operated release	<input type="checkbox"/>	
Undervoltage release	<input type="checkbox"/> DC ___ V	<input type="checkbox"/> AC ___ V, ___ Hz
Auxiliary switch	<input type="checkbox"/> 6 NO + 6 NC	<input type="checkbox"/> 12 NO + 12 NC
Low-voltage connection	<input type="checkbox"/> 20-pole connection strip	<input type="checkbox"/> 64-pole plug
<input type="checkbox"/> Mechanical interlocking		
<input type="checkbox"/> Electrical closing lockout	<input type="checkbox"/> Key-operated interlocking	
Operating instructions	<input type="checkbox"/> German	<input type="checkbox"/> English
	<input type="checkbox"/> French	<input type="checkbox"/> Spanish

**Application and other requirements**


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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

1<sup>st</sup> step: Definition of the circuit-breaker and equipment package (see pages 15 to 17)

<u>Please specify the following ratings:</u>	<u>Possible options:</u>
Rated voltage ( $U_r$ )	$U_r$ : 12 kV and 24 kV
Rated lightning impulse withstand voltage ( $U_p$ )	$U_p$ : 75 kV and 125 kV
Rated short-duration power-frequency withstand voltage ( $U_d$ )	$U_d$ : 28 kV, 42 kV, 50 kV, 65 kV
Rated short-circuit breaking current ( $I_{sc}$ )	$I_{sc}$ : 16 kA to 25 kA
Rated normal current ( $I_r$ )	$I_r$ : 630 A to 1250 A
Pole-center distance	150 mm to 300 mm

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

2<sup>nd</sup> step: Definition of the secondary equipment (see pages 18 to 21)

<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 voltages of the releases (positions 11/12)	Operating voltages from 24 V DC to 240 V AC
Installation accessories (position 13)	Fixed-mounted, with rollers, special SIMOSEC version
Drive motor (position 14)	Operating voltages from 24 V DC to 240 V AC
Type of auxiliary switches (position 15)	6 NO + 6 NC, 12 NO + 12 NC
Design of the control cable connection (position 15)	20-pole connection strip, 64-pole plug
Mechanical interlocking, key-operated interlocking, electrical closing lockout (position 15, and further supplements)	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.

3<sup>rd</sup> step: Do you have any further requirements concerning the equipment? (see page 23)

Your Siemens sales partner will be pleased to assist you.







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