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Totally Integrated Power: SION

SION Vacuum Circuit Breaker 3AE5

Medium-Voltage Equipment

Catalog HG 11.02

Edition 2020

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SION Vacuum Circuit Breakers 3AE5

Medium-Voltage Equipment Catalogue HG 11.02 · 2020

Supersedes:
Catalogue HG 11.02 · 2018

TYPE APPROVED PRODUCT
DNV·GL
DNVGL.COM/AF

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001 = ISO 14001
OHSAS 18001

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

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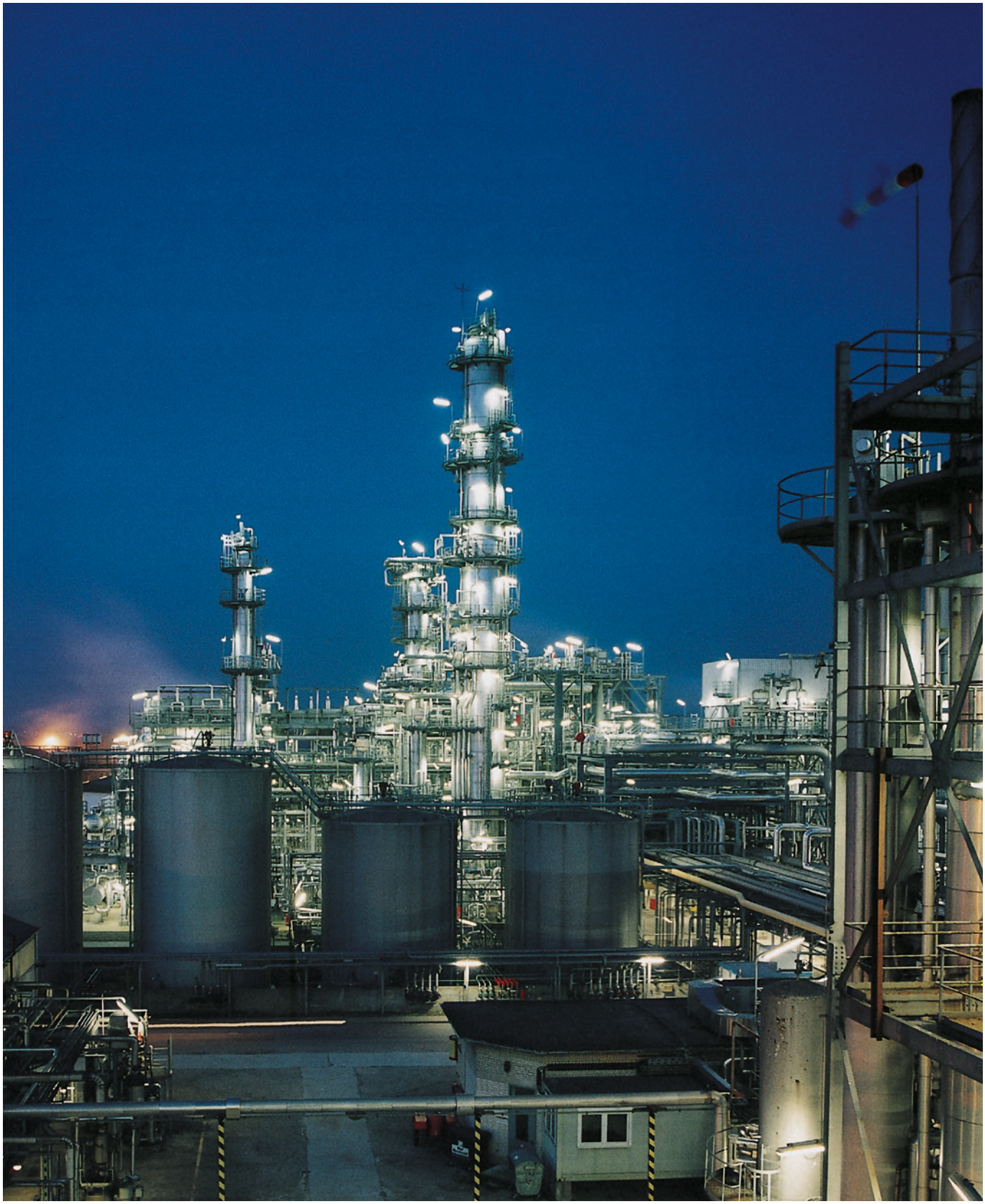

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Industrial application: Refinery

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SION Vacuum Circuit Breaker 3AE5 from 7.2 kV to 24 kV – The Modular Devices

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

They are applicable for operation of, for example, overhead lines, cables, transformers, capacitors and motors. The optional installation accessories enable easy integration into switchgear panels, and, maximally equipped as a module with an earthing switch, form almost the complete circuit breaker compartment inside the switchgear.

Our comprehensive range of circuit breakers offers a wide selection of pole-centre distances and vertical distances between terminals as well as various equipment options for voltage levels from 7.2 kV to 24 kV. The withdrawable element, 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 variety of panel versions. High reliability and availability are a matter of course, as are 10,000 maintenance-free operating cycles.

SION vacuum circuit breaker for fixed mounting

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Thanks to a range of options, SION vacuum circuit breakers can be precisely tailored to your requirements. This switching device can be mounted on a withdrawable element. Furthermore, mountable contact arms, contacts and bushings allow easy integration into your switchgear.

SION vacuum circuit breaker on withdrawable element – with contacts

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

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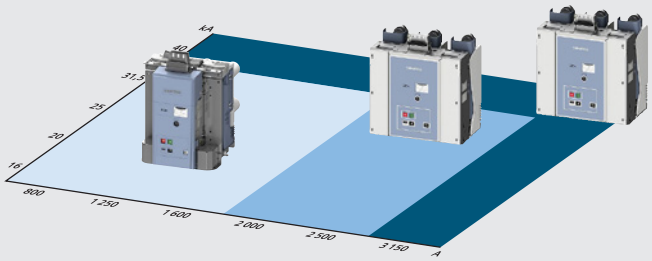
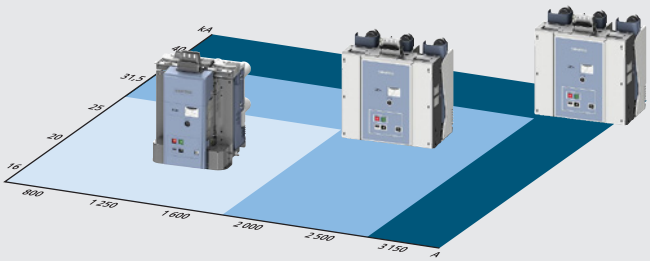
SION 3AE5 Portfolio

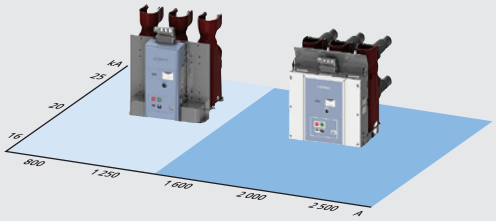
SION vacuum circuit breaker 3AE5, 7.2 kV – 12 kV

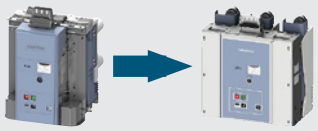


SION vacuum circuit breaker 3AE5, 17.5 kV



SION vacuum circuit breaker 3AE5, 24 kV





All 3AE5 with a small cover can be ordered optionally with a wide cover.

SION Installation options

	SION for fixed mounting	SION with components				
	Fixed-mounted	with contact arms and contacts	with contact arms and contacts, fixed contacts and bushings	on withdrawable element	on withdrawable element with contact arms and contacts	on withdrawable element with contact arms and contacts, fixed contacts and bushings
Circuit breaker	■	■	■	■	■	■
withdrawable element	–			■	■	■
Contact arm and contacts	–	■	■	–	■	■
Bushings and fixed contacts	–	–	■	–	–	■
Order No.	13th position = 0	13th position = 2 order code M22	13th position = 3 order code M23	13th position = 1	13th position = 2	13th position = 3

SION on withdrawable element

	"Heavy Duty"		"Standard"
	≤17.5 kV	24 kV	≤17.5 kV
Order No.	Order No. without order code	Order No. without order code	Order No. with order code W89
Kinematic chain	■	■	–
Racking path	220 mm (180/200 mm optional)	260 mm	200 mm
Interlocking with earthing switch	Suitable for SION modules	Suitable for SION modules	Suitable for most panels
Motor-operated racking	–	–	optional DC 110/220 V

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Switching medium

Proven and fully developed for more than 40 years, vacuum switching technology is the principal arc-quenching element 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 (6). The vacuum interrupter (5) is mounted rigidly to the upper interrupter support. The lower part of the interrupter is guided into the lower interrupter support, allowing axial movement. The pole shell (6) absorbs 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 in automatically 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 and/or contact-pressure springs (17) as the breaker closes. The now discharged closing spring (15) will be charged again automatically by the motor (13).

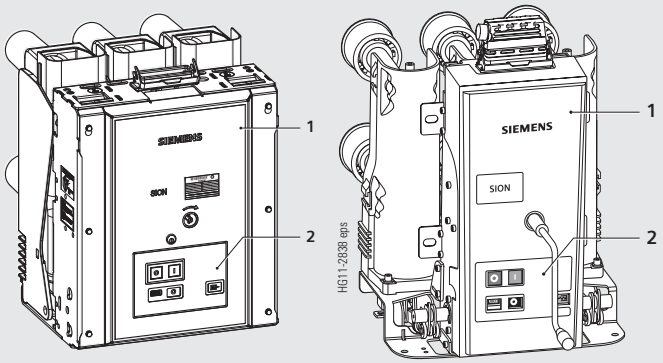
In this way, the stored-energy mechanism stores the OPEN – CLOSE – OPEN operating sequence that is required for an auto-reclosing operation on the system side. All stored-energy mechanisms perform the switching duties of synchronizing, rapid load transfer, and auto-reclosing.

Trip-free mechanism

The 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. However, the vacuum circuit breaker contacts are momentarily in the closed position.

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

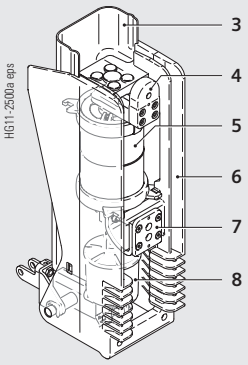
3AE5



Front view

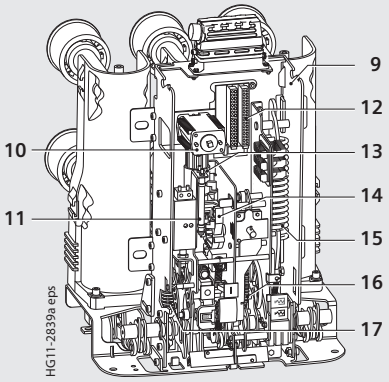
1 Cover of low-voltage interface

2 Central control board



Pole structure

3 Insulating shell to the operating mechanism
4 Upper connection
5 Vacuum interrupter
6 Pole shell
7 Lower connection
8 Insulator



Operating mechanism 3AE5 without cover

9 Mechanism mounting plate
10 Auxiliary switch
11 1st release
12 Terminal strip
13 Motor
14 Closing solenoid
15 Closing spring
16 Gear
17 Opening spring

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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 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 release

Current-transformer-operated releases consist of a stored energy mechanism, an unlatching mechanism and an electromagnet 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 consist of a stored-energy mechanism, an unlatching mechanism and an electromagnet 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 release is enabled and the circuit breaker is opened via the stored-energy mechanism.

A maximum of three releases can be equipped in accordance with page 24–26. The consumption data of the releases is listed on page 60.

Closing and anti-pumping

In the standard version, the circuit breakers can be closed electrically via 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 CLOSE command is given only following a brief interruption of the closing signal. This prevents continuous closing and opening (= "pumping") operations.

Closing spring charged indication

SION circuit breakers have a mechanically operated spring charged indicator. The status of the closing spring is also indicated electrically by means of an integrated position limit 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.

The corresponding circuit diagrams can be found in the associated circuit manuals. See also page 64.

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 disconnector 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.

Circuit breakers mounted on withdrawable elements are mechanically interlocked so that the handle for racking the withdrawable element can only be inserted while the breaker is in the OPEN position. The lock of the withdrawable element can be released by operating the pushing handles and only while the withdrawable element is in the disconnected position.

If the circuit breaker on the withdrawable element is in an intermediate position (neither in the service nor in the disconnected position), operation is prevented by the mechanical interlocking.

An optional key-operated interlock enables mechanical and electrical closing only in combination with the operated lock.

Electrical interlocking

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

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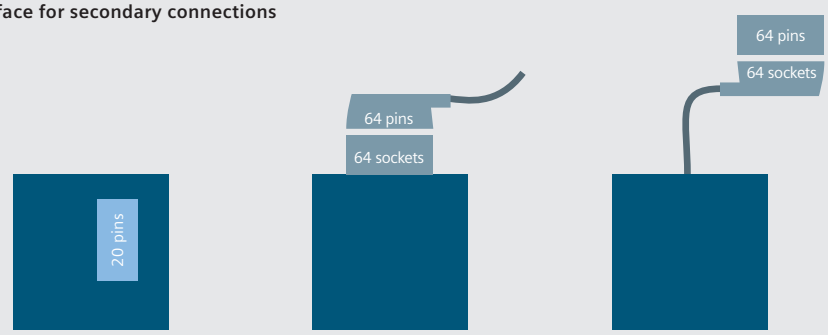
Low-voltage interface

The removable cover of the SION 3AE5 vacuum circuit breakers allows easy access to the low-voltage interface. All customer-side options for controls and signals are available here.

SION customer interface for secondary connections



internal 20-pole terminal strip	64-pole plug	extended cable harness with 64-pole plug	
Order No.	15th Position = A or J	15th Position = N or V	15th Position = X (length via order codes B01–B08)

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, as well as the shortest rated operating sequence O - 0.3s - CO - 15s - CO.

3AE5 circuit breakers up to 12 kV / 31.5 kA / 1250 A comply with the DNVGL-CG-0339 classification for marine applications.

The modules have been tested according to

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

For class C2, all circuit breakers fulfil 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	I_l	I_c	I_{sb}	I_{bb}	f_{bi}
kV, r.m.s.	A, r.m.s.	A, r.m.s.	A, r.m.s.	A, r.m.s.	Hz
7.2	10	10	400	400	4250
12	10	25	400	400	4250
17.5	10	31.5	400	400	4250
24	10	31.5	400	400	4250

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

Maintenance-free design

The circuit breakers are maintenance-free:

- Under normal ambient conditions according to IEC 62271-1
- Up to 10,000 operating cycles maintenance-free
  - no regreasing
  - no readjusting
- Up to 30,000 operating cycles with maintenance work

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

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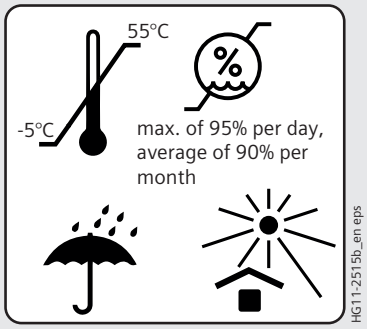

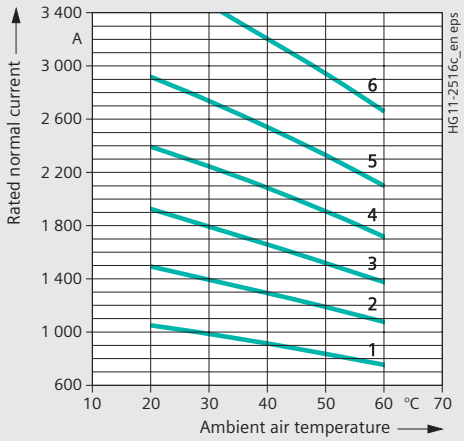

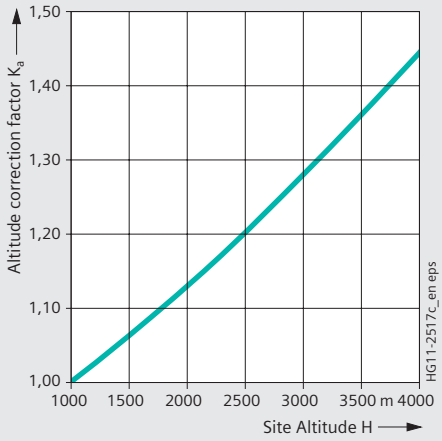

Ambient conditions

The circuit breakers are designed for normal operating 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 (1994):

Ambient climatic conditions:	Class 3K4 [1]
Biological environmental conditions:	Class 3B1
Mechanical environmental conditions:	Class 3M2
Chemically-active substances	Class 3C2 [3]
Mechanically active substances:	Class 3S2 [2]

1) Lower temperature limit: –5 °C (with order code A40 down 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 operating 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 lower air density. According to IEC 62271-1, the rated lightning impulse voltage and the rated short-time AC withstand voltage values specified in the Chapter "Technical data" apply for an installation altitude of up to 1000 m above sea level. For altitudes above 1000 m, the insulation level must be corrected according to the diagram opposite.

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 installation location
K_a Altitude correction factor according to the opposite diagram

Example

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

90 kV ≥ 75 kV x 1.2

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Equipment

Features	Minimum equipment	Alternative equipment	Remarks
Operating mechanism	Electrical operating mechanism	None	Also for manual operation
Closing	Closing solenoid and mechanical manual closing	None	–
1st release	shunt release	None	–
2nd release	None	Shunt release, undervoltage release, c.-t.-operated release	–
3rd release	None	Shunt release, Current-transformer-operated release	–
Varistor circuit	Standard for ≥ 60 V DC	None	For limiting switching overvoltages
Auxiliary switch	6 NO + 6 NC	12 NO + 12 NC	The actual number of available auxiliary switch contacts varies depending on the equipment level.
Plug connection	20-pole terminal strip	64-pole plug	–
Anti-pumping	Available	None	–
Circuit breaker tripping signal	Available	None	–
Operation cycles counter	Available	None	–
Position switches for withdrawable element	4 momentary-contact position switches per position	None	–
Interlocking	Mechanical interlocking for withdrawable element available	Electrical closing interlock Key-operated interlocking	–
Installation type	Fixed-mounted	Withdrawable element with/without contact arms and contact, fixed contacts and bushings	–

Product range overview: Circuit breaker without installation accessories

Type	Rated voltage	Rated short-circuit breaking current	Rated normal current	Pole-centre distance (in mm)									
				150			160			210			275
				Vertical distance between terminals (in mm)									
	kV	kA	A	205	275	310	205	275	310	205	275	310	310
3AE50	7.2	16/20/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	
3AE50	7.2	16/20/25/31.5	1600									■	
3AE50	7.2	25/31.5	2000/2500									■	
3AE50	7.2	40	1250/2000, 2500/3150									■	
3AE51	12	16/20/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	
3AE51	12	16/20/25/31.5	1600									■	
3AE51	12	20/25/31.5	2000/2500									■	■
3AE51	12	40	1250/2000, 2500/3150									■	■
3AE52	17.5	16/25/31.5	800/1250	■	■	■	■	■	■	■	■	■	
3EA52	17.5	16/25/31.5	1600			■			■			■	■
3AE52	17.5	25/31.5	2000/2500									■	■
3AE52	17.5	40	1250/2000, 2500/3150									■	■
3AE53	24	16/20/25	800/1250									■	■
3AE53	24	16	800/1250/2000									■	■
3AE53	24	20/25	2000/2500									■	■

Note: The circuit breaker is available with various installation accessories.
These versions can be configured from page 16 onwards.

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Article number structure

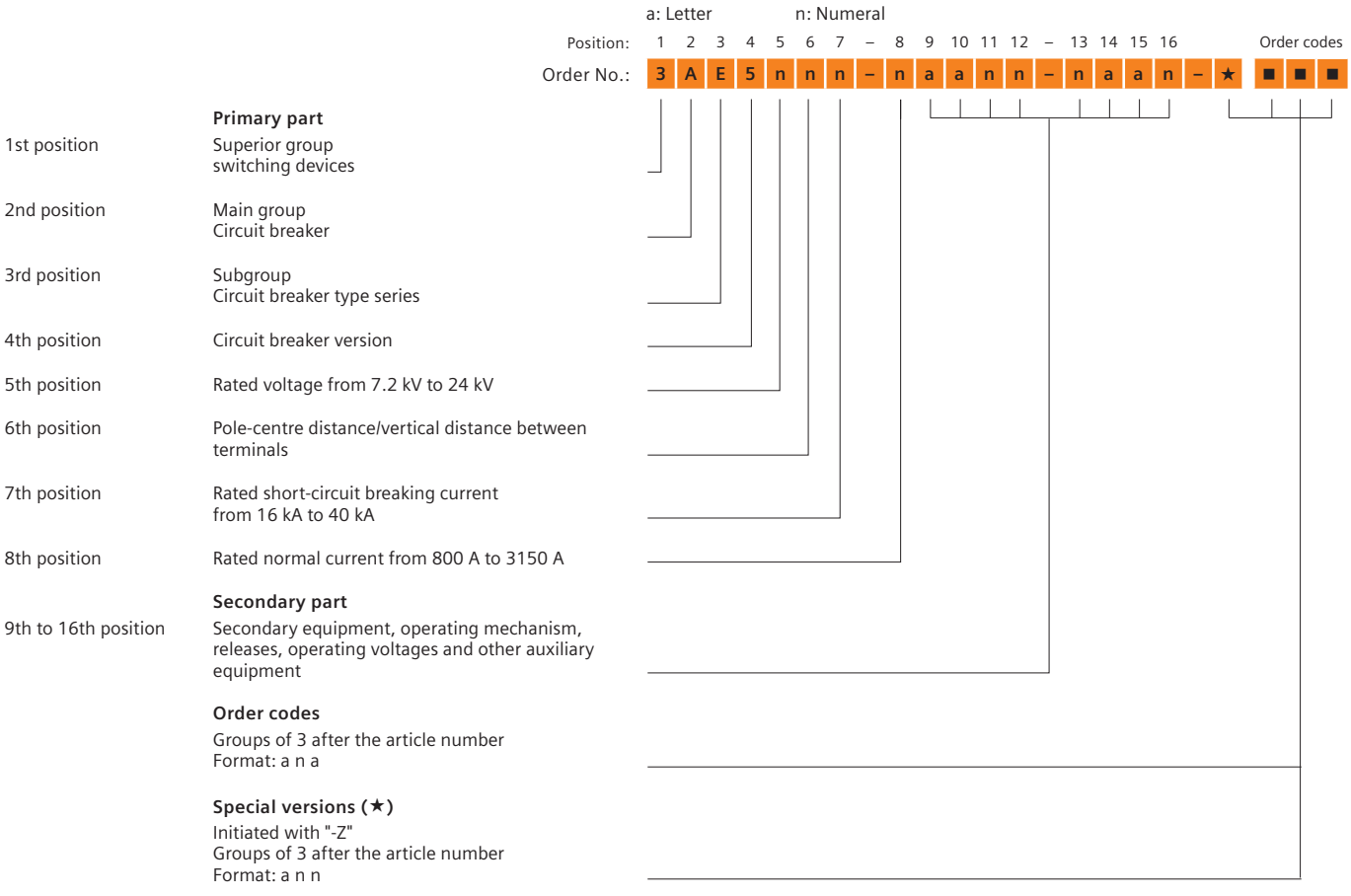
The circuit breakers consist of a primary and a secondary part. The primary part covers the main electrical data of the circuit breaker poles. The secondary part covers the auxiliary devices which are necessary for operating and controlling the vacuum circuit breaker. The relevant data makes up the 16-digit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

Order codes

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

Special versions (★)

In case of special versions, "-**Z**" is added to the article number and a descriptive order code follows. If several special versions are required, the suffix "-**Z**" is listed only once. If a requested special version is not in the catalogue and can therefore not be ordered via order code, it has to be identified with **Y 9 9** after consultation with us. The consultation must take place directly between your sales partner and the order processing department at Siemens. Special wiring designs can also be ordered with **B99**.



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Configuration example

To help you select the correct article number for the circuit breaker type that you require, you will find two configuration examples below. Two complete circuit breakers have been configured as examples.

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 module (vacuum circuit breaker on withdrawable element 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 kV, 50/60 Hz**																						
Rated lightning impulse voltage U_p = **75 kV**																						
Rated short-circuit breaking current I_{SC} = **25 kA**																						
Rated normal current I_r = **1250 A**																						
Pole-centre distance = **150 mm**																						
Vertical distance between terminals = **310 mm**					1	2	4	–	2													
1st shunt release (only one shunt release)										A												
Operating voltage of the closing solenoid **48 V DC**											C											
Operating voltage of the 1st release **32 V DC**												9								L	1	B
Without 2nd Release													0	–								
Circuit breaker on withdrawable element, with L-frame, contact arms, contacts, fixed contacts, bushings, shutters, earthing switch with short-circuit making capacity															6							
Operating voltage of the drive motor **230 V AC**																K						
With mechanical interlocking, circuit breaker tripping signal, auxiliary switch 12 NO + 12 NC and 64-pole plug																	N					
Frequency of the operating voltage 50 Hz and DC, operating instructions and rating plate in German																		0				
Hand crank																			–	Z	F	3	0

Example of an order no.:	3	A	E	5	1	2	4	–	2	A	C	9	0	–	6	K	N	0	–	Z			
Order codes:	L	1	B	+	F	3	0																

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Device selection

Circuit breaker and equipment package

7.2 kV

Position:					1 – 8	9 – 16	–Z	Order codes						
Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 50% DC component I_{SC} kA	Pole-centre distance mm	Vertical distance between terminals mm	Rated operating current I_r A		See page 24 onwards	See page 31 onwards	see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
7.2	16	150	205	800	**3AE5002-1**					J64	W89		D59	
			205	1250	**3AE5002-2**					J64	W89		D59	
			275	800	**3AE5012-1**								D59	
			275	1250	**3AE5012-2**								D59	
			310	800	**3AE5022-1**								D59	
			310	1250	**3AE5022-2**								D59	
			310	1600	**3AE5022-3**								D59	
		160	205	800	**3AE5032-1**								D59	
			205	1250	**3AE5032-2**								D59	
			275	800	**3AE5042-1**								D59	
			275	1250	**3AE5042-2**								D59	
			310	800	**3AE5052-1**								D59	
			310	1250	**3AE5052-2**								D59	
			310	1600	**3AE5052-3**								D59	
		210	205	800	**3AE5062-1**					J64	W89		D59	
			205	1250	**3AE5062-2**					J64	W89		D59	
			275	800	**3AE5072-1**								D59	
			275	1250	**3AE5072-2**								D59	
			310	800	**3AE5082-1**					J64	W89		D59	
			310	1250	**3AE5082-2**					J64	W89		D59	
			310	1600	**3AE5082-3**					J64	W89		D59	
	20	150	205	800	**3AE5003-1**					J64	W89		D59	
			205	1250	**3AE5003-2**					J64	W89		D59	
			275	800	**3AE5013-1**								D59	
			275	1250	**3AE5013-2**								D59	
			310	800	**3AE5023-1**								D59	
			310	1250	**3AE5023-2**								D59	
			310	1600	**3AE5023-3**								D59	
		160	205	800	**3AE5033-1**								D59	
			205	1250	**3AE5033-2**								D59	
			275	800	**3AE5043-1**								D59	
			275	1250	**3AE5043-2**								D59	
			310	800	**3AE5053-1**								D59	
			310	1250	**3AE5053-2**								D59	
			310	1600	**3AE5053-3**								D59	
		210	205	800	**3AE5063-1**					J64	W89		D59	
			205	1250	**3AE5063-2**					J64	W89		D59	
			275	800	**3AE5073-1**								D59	
			275	1250	**3AE5073-2**								D59	
			310	800	**3AE5083-1**					J64	W89		D59	
			310	1250	**3AE5083-2**					J64	W89		D59	
			310	1600	**3AE5083-3**					J64	W89		D59	
	25	150	205	800	**3AE5004-1**					J64	W89		D59	
			205	1250	**3AE5004-2**					J64	W89		D59	
			275	800	**3AE5014-1**								D59	
			275	1250	**3AE5014-2**								D59	
			310	800	**3AE5024-1**								D59	
			310	1250	**3AE5024-2**								D59	
Special version		U_d = 32 kV						E16						

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7.2 kV

Position:					1 – 8	9 – 16	–Z	Order codes						
Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 50% DC component I_{SC} kA	Pole-centre distance mm	Vertical distance between terminals mm	Rated operating current I_r A		See page 24 onwards	See page 31 onwards	see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
			310	1600	**3AE5024-3**								D59	
		160	205	800	**3AE5034-1**								D59	
			205	1250	**3AE5034-2**								D59	
			275	800	**3AE5044-1**								D59	
			275	1250	**3AE5044-2**								D59	
			310	800	**3AE5054-1**								D59	
			310	1250	**3AE5054-2**								D59	
			310	1600	**3AE5054-3**								D59	
		210	205	800	**3AE5064-1**					J64	W89		D59	
			205	1250	**3AE5064-2**					J64	W89		D59	
			275	800	**3AE5074-1**								D59	
			275	1250	**3AE5074-2**								D59	
			310	800	**3AE5084-1**					J64	W89		D59	
			310	1250	**3AE5084-2**					J64	W89		D59	
			310	1600	**3AE5084-3**					J64	W89		D59	
			310	2000	**3AE5084-4**					J64	W89			M30
			310	2500	**3AE5084-6**					J64	W89			M30
	31.5	150	205	800	**3AE5005-1**					J64	W89		D59	
			205	1250	**3AE5005-2**					J64	W89		D59	
			275	800	**3AE5015-1**								D59	
			275	1250	**3AE5015-2**								D59	
			310	800	**3AE5025-1**								D59	
			310	1250	**3AE5025-2**								D59	
			310	1600	**3AE5025-3**								D59	
		160	205	800	**3AE5035-1**								D59	
			205	1250	**3AE5035-2**								D59	
			275	800	**3AE5045-1**								D59	
			275	1250	**3AE5045-2**								D59	
			310	800	**3AE5055-1**								D59	
			310	1250	**3AE5055-2**								D59	
			310	1600	**3AE5055-3**								D59	
		210	205	800	**3AE5065-1**					J64	W89		D59	
			205	1250	**3AE5065-2**					J64	W89		D59	
			275	800	**3AE5075-1**								D59	
			275	1250	**3AE5075-2**								D59	
			310	800	**3AE5085-1**					J64	W89		D59	
			310	1250	**3AE5085-2**					J64	W89		D59	
			310	1600	**3AE5085-3**					J64	W89		D59	
			310	2000	**3AE5085-4**					J64	W89			M30
			310	2500	**3AE5085-6**					J64	W89			M30
	40	210	310	1250	**3AE5086-2**					J64	W89			
			310	2000	**3AE5086-4**					J64	W89			
			310	2500	**3AE5086-6**					J64	W89			
			310	3150	**3AE5086-7**					J64	W89			
Special version		U_d = 32 kV						E16						

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Device selection

Circuit breaker and equipment package

12 kV

Position:					1 – 8	9 – 16	–Z	Order codes						
Rated voltage for 50/60 Hz U_r	Rated short-circuit breaking current with 50% DC component I_{SC}	Pole-centre distance	Vertical distance between terminals	Rated operating current I_r		See page 24 onwards	See page 31 onwards	see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
kV	kA	mm	mm	A										
12	16	150	205	800	**3AE5102-1**					J64	W89	D9x	D59	
			205	1250	**3AE5102-2**					J64	W89	D9x	D59	
			275	800	**3AE5112-1**								D59	
			275	1250	**3AE5112-2**								D59	
			310	800	**3AE5122-1**								D59	
			310	1250	**3AE5122-2**								D59	
			310	1600	**3AE5122-3**								D59	
		160	205	800	**3AE5132-1**								D59	
			205	1250	**3AE5132-2**								D59	
			275	800	**3AE5142-1**								D59	
			275	1250	**3AE5142-2**								D59	
			310	800	**3AE5152-1**								D59	
			310	1250	**3AE5152-2**								D59	
			310	1600	**3AE5152-3**								D59	
		210	205	800	**3AE5162-1**					J64	W89	D9x	D59	
			205	1250	**3AE5162-2**					J64	W89	D9x	D59	
			275	800	**3AE5172-1**								D59	
			275	1250	**3AE5172-2**								D59	
			310	800	**3AE5182-1**					J64	W89	D9x	D59	
			310	1250	**3AE5182-2**					J64	W89	D9x	D59	
			310	1600	**3AE5182-3**					J64	W89	D9x	D59	
	20	150	205	800	**3AE5103-1**					J64	W89	D9x	D59	
			205	1250	**3AE5103-2**					J64	W89	D9x	D59	
			275	800	**3AE5113-1**								D59	
			275	1250	**3AE5113-2**								D59	
			310	800	**3AE5123-1**								D59	
			310	1250	**3AE5123-2**								D59	
			310	1600	**3AE5123-3**								D59	
		160	205	800	**3AE5133-1**								D59	
			205	1250	**3AE5133-2**								D59	
			275	800	**3AE5143-1**								D59	
			275	1250	**3AE5143-2**								D59	
			310	800	**3AE5153-1**								D59	
			310	1250	**3AE5153-2**								D59	
			310	1600	**3AE5153-3**								D59	
		210	205	800	**3AE5163-1**					J64	W89	D9x	D59	
			205	1250	**3AE5163-2**					J64	W89	D9x	D59	
			275	800	**3AE5173-1**								D59	
			275	1250	**3AE5173-2**								D59	
			310	800	**3AE5183-1**					J64	W89	D9x	D59	
			310	1250	**3AE5183-2**					J64	W89	D9x	D59	
			310	1600	**3AE5183-3**					J64	W89	D9x	D59	
			310	2000	**3AE5183-4**					J64	W89	D9x		M30
			310	2500	**3AE5183-6**					J64	W89	D9x		M30
		275	310	2000	**3AE5583-4**					J64	W89	D9x		M30
			310	2500	**3AE5583-6**					J64	W89	D9x		M30
Special version		U_d = 42 kV						E13						
		U_p = 95 kV						E95						

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12 kV

Position:					1 – 8	9 – 16	–Z	Order codes						
Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 50% DC component I_{SC} kA	Pole-centre distance mm	Vertical distance between terminals mm	Rated operating current I_r A		See page 24 onwards	See page 31 onwards	see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
	25	150	205	800	**3AE5104-1**					J64	W89	D9x	D59	
			205	1250	**3AE5104-2**					J64	W89	D9x	D59	
			275	800	**3AE5114-1**								D59	
			275	1250	**3AE5114-2**								D59	
			310	800	**3AE5124-1**				W66				D59	
			310	1250	**3AE5124-2**				W66				D59	
			310	1600	**3AE5124-3**								D59	
		160	205	800	**3AE5134-1**								D59	
			205	1250	**3AE5134-2**								D59	
			275	800	**3AE5144-1**								D59	
			275	1250	**3AE5144-2**								D59	
			310	800	**3AE5154-1**								D59	
			310	1250	**3AE5154-2**								D59	
			310	1600	**3AE5154-3**								D59	
		210	205	800	**3AE5164-1**					J64	W89	D9x	D59	
			205	1250	**3AE5164-2**					J64	W89	D9x	D59	
			275	800	**3AE5174-1**								D59	
			275	1250	**3AE5174-2**								D59	
			310	800	**3AE5184-1**					J64	W89	D9x	D59	
			310	1250	**3AE5184-2**				W66	J64	W89	D9x	D59	
			310	1600	**3AE5184-3**				W66	J64	W89	D9x	D59	
			310	2000	**3AE5184-4**					J64	W89	D9x		M30
			310	2500	**3AE5184-6**				W66	J64	W89	D9x		M30
		275	310	2000	**3AE5584-4**					J64	W89	D9x		M30
			310	2500	**3AE5584-6**					J64	W89	D9x		M30
	31.5	150	205	1250	**3AE5105-1**					J64	W89	D9x	D59	
			205	1250	**3AE5105-2**					J64	W89	D9x	D59	
			275	800	**3AE5115-1**								D59	
			275	800	**3AE5115-2**								D59	
			310	800	**3AE5125-1**				W66				D59	
			310	1250	**3AE5125-2**				W66				D59	
			310	1600	**3AE5125-3**								D59	
		160	205	800	**3AE5135-1**								D59	
			205	1250	**3AE5135-2**								D59	
			275	800	**3AE5145-1**								D59	
			275	1250	**3AE5145-2**								D59	
			310	800	**3AE5155-1**								D59	
			310	1250	**3AE5155-2**								D59	
			310	1600	**3AE5155-3**								D59	
		210	205	800	**3AE5165-1**					J64	W89	D9x	D59	
			205	1250	**3AE5165-2**					J64	W89	D9x	D59	
			275	800	**3AE5175-1**								D59	
			275	1250	**3AE5175-2**								D59	
			310	800	**3AE5185-1**					J64	W89	D9x	D59	
			310	1250	**3AE5185-2**				W66	J64	W89	D9x	D59	
			310	1600	**3AE5185-3**				W66	J64	W89	D9x	D59	
Special version		U_d = 42 kV						E13						
		U_p = 95 kV						E95						

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Device selection

Circuit breaker and equipment package

12 kV

Position:					1 – 8	9 – 16	–Z	Order codes						
Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 50% DC component I_{SC} kA	Pole-centre distance mm	Vertical distance between terminals mm	Rated operating current I_r A		See page 24 onwards	See page 31 onwards	see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
			310	2000	**3AE5185-4**					J64	W89	D9x		M30
			310	2500	**3AE5185-6**				W66	J64	W89	D9x		M30
			310	1250	**3AE5585-2**					J64	W89	D9x		M30
		275	310	2000	**3AE5585-4**					J64	W89	D9x		M30
			310	2500	**3AE5585-6**					J64	W89	D9x		M30
	40	210	310	1250	**3AE5186-2**					J64	W89	D9x		
			310	2000	**3AE5186-4**					J64	W89	D9x		
			310	2500	**3AE5186-6**					J64	W89	D9x		
			310	3150	**3AE5186-7**					J64	W89	D9x		
		275	310	1250	**3AE5586-2**					J64	W89	D9x		
			310	2000	**3AE5586-4**					J64	W89	D9x		
			310	2500	**3AE5586-6**					J64	W89	D9x		
			310	3150	**3AE5586-7**					J64	W89	D9x		
Special version		U_d = 42 kV						E13						
		U_p = 95 kV						E95						
Circuit breaker for installation in NXAIR World [1]														
12	25	160	275	800	**3AE5554-1**			W63				D9x		
			275	1250	**3AE5554-2**			W63				D9x		
		210	275	800	**3AE5564-1**			W63				D9x		
			275	1250	**3AE5564-2**			W63				D9x		
			275	1600	**3AE5564-3**			W63				D9x		
	31.5	160	275	800	**3AE5555-1**			W63				D9x		
			275	1250	**3AE5555-2**			W63				D9x		
		210	275	1250	**3AE5565-2**			W63				D9x		
			275	1600	**3AE5565-3**			W63				D9x		
			275	2500	**3AE5565-6**			W63				D9x		M30
	40	210	275	1250	**3AE5566-2**			W63				D9x		
			275	2500	**3AE5566-6**			W63				D9x		
			275	3150	**3AE5566-7**			W63				D9x		
			275	4000 [2]	**3AE5566-8**			W63				D9x		
Special version		U_d = 42 kV						E13						
		U_p = 95 kV						E95						

1) It is essential to state the order code W63
2) with active ventilation

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17.5 kV

Position:					1 – 8	9 – 16	–Z	Order codes						
Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 50% DC component I_{SC} kA	Pole-centre distance mm	Vertical distance between terminals mm	Rated operating current I_r A		See page 24 onwards	See page 31 onwards	see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
17.5	16	150	205	800	**3AE5202-1**					J64	W89	D9x	D59	
			205	1250	**3AE5202-2**					J64	W89	D9x	D59	
			275	800	**3AE5212-1**							D9x	D59	
			275	1250	**3AE5212-2**							D9x	D59	
			310	800	**3AE5222-1**							D9x	D59	
			310	1250	**3AE5222-2**							D9x	D59	
			310	1600	**3AE5222-3**							D9x	D59	
		160	205	800	**3AE5232-1**							D9x	D59	
			205	1250	**3AE5232-2**							D9x	D59	
			275	800	**3AE5242-1**							D9x	D59	
			275	1250	**3AE5242-2**							D9x	D59	
			310	800	**3AE5252-1**							D9x	D59	
			310	1250	**3AE5252-2**							D9x	D59	
			310	1600	**3AE5252-3**							D9x	D59	
		210	205	800	**3AE5262-1**					J64	W89	D9x	D59	
			205	1250	**3AE5262-2**					J64	W89	D9x	D59	
			275	800	**3AE5272-1**							D9x	D59	
			275	1250	**3AE5272-2**							D9x	D59	
			310	800	**3AE5282-1**					J64	W89	D9x	D59	
			310	1250	**3AE5282-2**					J64	W89	D9x	D59	
			310	1600	**3AE5282-3**					J64	W89	D9x	D59	
	25	150	205	800	**3AE5204-1**					J64	W89	D9x	D59	
			205	1250	**3AE5204-2**					J64	W89	D9x	D59	
			275	800	**3AE5214-1**							D9x	D59	
			275	1250	**3AE5214-2**							D9x	D59	
			310	800	**3AE5224-1**				W66			D9x	D59	
			310	1250	**3AE5224-2**				W66			D9x	D59	
			310	1600	**3AE5224-3**							D9x	D59	
		160	205	800	**3AE5234-1**							D9x	D59	
			205	1250	**3AE5234-2**							D9x	D59	
			275	800	**3AE5244-1**							D9x	D59	
			275	1250	**3AE5244-2**							D9x	D59	
			310	800	**3AE5254-1**							D9x	D59	
			310	1250	**3AE5254-2**							D9x	D59	
			310	1600	**3AE5254-3**							D9x	D59	
		210	205	800	**3AE5264-1**					J64	W89	D9x	D59	
			205	1250	**3AE5264-2**					J64	W89	D9x	D59	
			275	800	**3AE5274-1**							D9x	D59	
			275	1250	**3AE5274-2**							D9x	D59	
			310	800	**3AE5284-1**					J64	W89	D9x	D59	
			310	1250	**3AE5284-2**				W66	J64	W89	D9x	D59	
			310	1600	**3AE5284-3**				W66	J64	W89	D9x	D59	
			310	2000	**3AE5284-4**					J64	W89	D9x		M30
			310	2500	**3AE5284-6**				W66	J64	W89	D9x		M30
		275	310	2000	**3AE5654-4**					J64	W89	D9x		M30
			310	2500	**3AE5654-6**					J64	W89	D9x		M30
	31.5	150	205	800	**3AE5205-1**					J64	W89	D9x		M30
			205	1250	**3AE5205-2**					J64	W89	D9x		M30
			275	800	**3AE5215-1**							D9x		M30
			275	1250	**3AE5215-2**							D9x		M30

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Device selection

Circuit breaker and equipment package

17.5 kV

Position:					1 – 8	9 – 16	–Z	Order codes						
Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 50% DC component I_{SC} kA	Pole-centre distance mm	Vertical distance between terminals mm	Rated operating current I_r A		See page 24 onwards	See page 31 onwards	see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
			310	800	3AE5225-1				W66			D9x		M30
			310	1250	3AE5225-2				W66			D9x		M30
			310	1600	3AE5225-3							D9x		M30
		160	205	800	3AE5235-1							D9x		M30
			205	1250	3AE5235-2							D9x		M30
			275	800	3AE5245-1							D9x		M30
			275	1250	3AE5245-2							D9x		M30
			310	800	3AE5255-1							D9x		M30
			310	1250	3AE5255-2							D9x		M30
			310	1600	3AE5255-3							D9x		M30
		210	205	800	3AE5265-1					J64	W89	D9x		M30
			205	1250	3AE5265-2					J64	W89	D9x		M30
			275	800	3AE5275-1							D9x		M30
			275	1250	3AE5275-2							D9x		M30
			310	800	3AE5285-1					J64	W89	D9x		M30
			310	1250	3AE5285-2				W66	J64	W89	D9x		M30
			310	1600	3AE5285-3				W66	J64	W89	D9x		M30
			310	2000	3AE5285-4					J64	W89	D9x		M30
			310	2500	3AE5285-6				W66	J64	W89	D9x		M30
		275	310	1250	3AE5655-2					J64	W89	D9x		M30
			310	1600	3AE5655-3					J64	W89	D9x		M30
			310	2000	3AE5655-4					J64	W89	D9x		M30
			310	2500	3AE5655-6					J64	W89	D9x		M30
	40	210	310	1250	3AE5286-2					J64	W89	D9x		
			310	2000	3AE5286-4					J64	W89	D9x		
			310	2500	3AE5286-6					J64	W89	D9x		
			310	3150	3AE5286-7					J64	W89	D9x		
		275	310	1250	3AE5656-2					J64	W89	D9x		
			310	2000	3AE5656-4					J64	W89	D9x		
			310	2500	3AE5656-6					J64	W89	D9x		
			310	3150	3AE5656-7					J64	W89	D9x		
Circuit breaker for installation in NXAIR World [1]														
17.5	25	160	275	800	3AE5624-1			W63				D9x		
			275	1250	3AE5624-2			W63				D9x		
		210	275	800	3AE5664-1			W63				D9x		
			275	1250	3AE5664-2			W63				D9x		
			275	1600	3AE5664-3			W63				D9x		
	31.5	160	275	800	3AE5625-1			W63				D9x		M30
			275	1250	3AE5625-2			W63				D9x		M30
		210	275	1250	3AE5665-2			W63				D9x		M30
			275	1600	3AE5665-3			W63				D9x		M30
			275	2500	3AE5665-6			W63				D9x		M30
	40	210	275	1250	3AE5666-2			W63				D9x		
			275	2500	3AE5666-6			W63				D9x		
			275	3150	3AE5666-7			W63				D9x		
			275	4000 [2]	3AE5666-8			W63				D9x		

1) It is essential to state the order code W63
2) with active ventilation

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24 kV

Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 50% DC component I_{SC} kA	Pole-centre distance mm	Vertical distance between terminals mm	Rated operating current I_r A	Position: 1 – 8	9 – 16 See page 24 onwards	–Z See page 31 onwards	Order codes: see page 31	for SIMOPRIME	for MALu 12 – 24 (with "Heavy Duty" components)	with withdrawable element "Standard"	Insulating shells (mandatory)	wide cover	30000 switching cycles (low-maintenance)
24	16	210	310	800	3AE5322-1							D9x	D59	
			310	1250	3AE5322-2							D9x	D59	
			310	2000	3AE5322-4							D9x		
		275	310	800	3AE5352-1							D9x	D59	
			310	1250	3AE5352-2							D9x	D59	
			310	2000	3AE5352-4							D9x		
	20	210	310	800	3AE5323-1							D9x	D59	
			310	1250	3AE5323-2							D9x	D59	
			310	2000	3AE5323-4							D9x		
			310	2500	3AE5323-6							D9x		
		275	310	800	3AE5353-1							D9x	D59	
			310	1250	3AE5353-2							D9x	D59	
			310	2000	3AE5353-4							D9x		
			310	2500	3AE5353-6							D9x		
	25	210	310	800	3AE5324-1				W66			D9x	D59	
			310	1250	3AE5324-2				W66			D9x	D59	
			310	2000	3AE5324-4							D9x		
			310	2500	3AE5324-6							D9x		
		275	310	800	3AE5354-1							D9x	D59	
			310	1250	3AE5354-2				W66			D9x	D59	
			310	2000	3AE5354-4				W66			D9x		
			310	2500	3AE5354-6				W66			D9x		
Special version		U_d = 55 kV						E55						
		U_d = 65 kV						E65						
Circuit breaker for installation in NXAIR World [1]														
24	25	210	310	800	3AE5714-1			W63				D9x		
				1250	3AE5714-2			W63				D9x		
		275	310	2000	3AE5744-4			W63				D9x		
				2500	3AE5744-6			W63				D9x		
Special version		U_d = 55 kV						E55						

1) It is essential to state the order code W63

2

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2

9th position

Release combination [1]

Position:	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–		Order codes		
Order No.:	3	A	E	■	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

1st shunt release	2nd shunt release	3rd shunt release	Undervoltage release	C.t.-operated release 0.5 A [2]	C.t.-operated release 1.0 A	C.t.-operated release with tripping pulse ≥ 0.1 Ws (20 Ω)		see page 25	see page 26		see page 28	see page 29	see page 30		see page 31			
I							A											
I	II						B											
I	II	III [3]					B							–	Z	F	1	5
I						II	C											
I				II			G											
I					II		H											
I			II				F											
I	III [3]		II				S											
I	II			III [3]			T											
I	II				III [3]		T							–	Z	A	4	6
I	II					III [3]	T							–	Z	A	4	5
I				II + III [3]			U											
I			II	III [3]			V											
I			II		III [3]		V							–	Z	A	4	6
I			II			III [3]	V							–	Z	A	4	5

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

1) Operating voltage is selected at positions 11 + 12, for the 3rd shunt release select order code Jxx (see below)

2) Alternatively, order code A49 can be used to configure a special version of the c.t.-operated release with 5 A on position II. A 3rd shunt release is not possible then.

3) A 3rd release can only be supplied in circuit breakers with a wide cover

																			–	Z	A	4	9

Operating voltage of the 3rd release

Standard voltages		Special voltages																					
24 V DC									B/S										–	Z	J	8	0
48 V DC									B/S										–	Z	J	8	3
60 V DC									B/S										–	Z	J	8	4
110 V DC									B/S										–	Z	J	8	5
220 V DC									B/S										–	Z	J	8	9
100 V AC	50/60 Hz [4]								B/S										–	Z	J	9	2
110 V AC	50/60 Hz [4]								B/S										–	Z	J	9	3
230 V AC	50/60 Hz [4]								B/S										–	Z	J	9	7
		30 V DC							B/S										–	Z	J	8	1
		32 V DC							B/S										–	Z	J	8	2
		120 V DC							B/S										–	Z	J	8	6
		125 V DC							B/S										–	Z	J	8	7
		127 V DC							B/S										–	Z	J	8	8
		240 V DC							B/S										–	Z	J	9	0
		120 V AC	50/60 Hz [4]						B/S										–	Z	J	9	5
		125 V AC	50/60 Hz [4]						B/S										–	Z	J	9	6
		240 V AC	50/60 Hz [4]						B/S										–	Z	J	9	8

4) The AC frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 30)

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Position:	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes		
Order No.:	3	A	E	■	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
																see page 28	see page 29	see page 30		see page 31			

10th position
Operating voltage of the closing solenoid

Standard voltages		Special voltages		10th position
24 V DC				B
48 V DC				C
60 V DC				D
110 V DC				E
220 V DC				F
100 V AC	50/60 Hz [1]			H
110 V AC	50/60 Hz [1]			J
230 V AC	50/60 Hz [1]			K
		30 V DC		M
		32 V DC		N
		120 V DC		P
		125 V DC		Q
		127 V DC		R
		240 V DC		S
		120 V AC	50/60 Hz [1]	U
		125 V AC	50/60 Hz [1]	V
		240 V AC	50/60 Hz [1]	W

11th position
Operating voltage of the 1st release

Standard voltages		Special voltages		11th position	Order codes
24 V DC				1	
48 V DC				2	
60 V DC				3	
110 V DC				4	
220 V DC				5	
100 V AC	50/60 Hz [1]			6	
110 V AC	50/60 Hz [1]			7	
230 V AC	50/60 Hz [1]			8	
		30 V DC		9	L 1 A
		32 V DC		9	L 1 B
		120 V DC		9	L 1 C
		125 V DC		9	L 1 D
		127 V DC		9	L 1 E
		240 V DC		9	L 1 F
		120 V AC	50/60 Hz [1]	9	L 1 K
		125 V AC	50/60 Hz [1]	9	L 1 L
		240 V AC	50/60 Hz [1]	9	L 1 M

1) The AC frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 30)

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12th position
Operating voltage of the 2nd release

			Position: 1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes		
			Order No.: 3	A	E	■	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Standard voltages		Special voltages																see page 28	see page 29	see page 30		see page 31			
None or c.t.-operated release															0									
24 V DC															1									
48 V DC															2									
60 V DC															3									
110 V DC															4									
220 V DC															5									
100 V AC	50/60 Hz [1]														6									
110 V AC	50/60 Hz [1]														7									
230 V AC	50/60 Hz [1]														8									
		30 V DC													9							M	1	A
		32 V DC													9							M	1	B
		120 V DC													9							M	1	C
		125 V DC													9							M	1	D
		127 V DC													9							M	1	E
		240 V DC													9							M	1	F
		120 V AC 50/60 Hz [1]													9							M	1	K
		125 V AC 50/60 Hz [1]													9							M	1	L
		240 V AC 50/60 Hz [1]													9							M	1	M

1) The AC frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 30)

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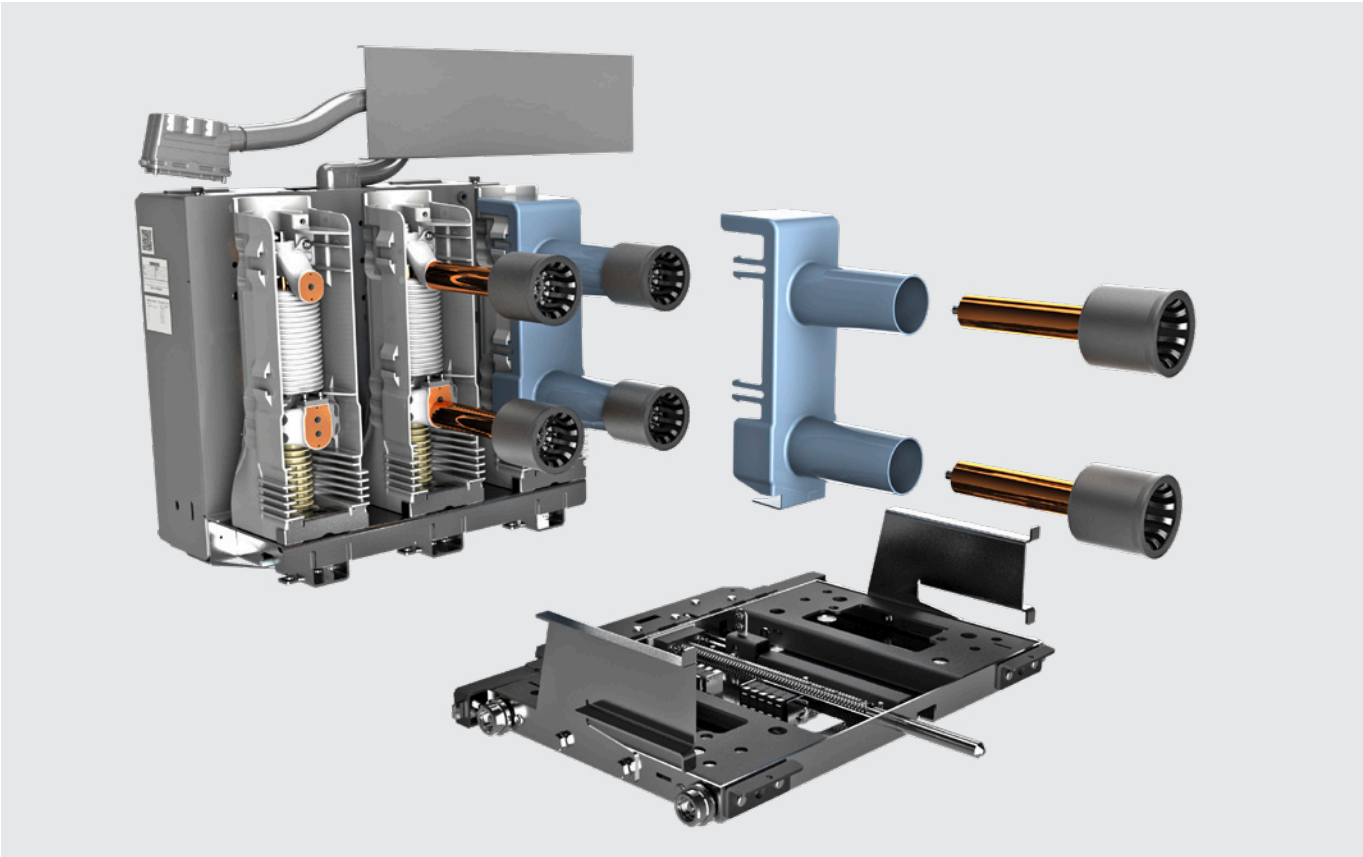
13th position

Circuit breaker installation accessories

Options	Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16																		Order codes		
	Order No.: 3	A	E	■	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
															see page 28	see page 29	see page 30		see page 31				
Circuit breaker for fixed mounting																							
Without circuit breaker installation accessories, circuit breaker for fixed mounting															0								
Circuit breaker prepared for separate mounting of withdrawable element																							
Without withdrawable element, with contact arms, contacts [1], wiring of withdrawable element (supplied loose)															2				–	Z	M	2	2
Without withdrawable element, with contact arms, contacts [1], fixed contacts, bushings, wiring of withdrawable element (supplied loose)															3				–	Z	M	2	3
Circuit breaker on withdrawable element																							
On withdrawable element															1								
On withdrawable element, with contact arms, contacts [1]															2								
On withdrawable element, with contact arms, contacts [1], fixed contacts, bushings															3								

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



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14th position

Operating voltage of the drive motor

Standard voltages		Special voltages		Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16																	Order codes		
				Order No.: 3 A E ■ ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■																	■	■	■
																	see page 29	see page 30	–	see page 31			
24 V DC																B							
48 V DC																C							
60 V DC																D							
110 V DC																E							
220 V DC																F							
100 V AC	50/60 Hz [1]															H							
110 V AC	50/60 Hz [1]															J							
230 V AC	50/60 Hz [1]															K							
		30 V DC														M							
		32 V DC														N							
		120 V DC														P							
		125 V DC														Q							
		127 V DC														R							
		240 V DC														S							
		120 V AC	50/60 Hz [1]													U							
		125 V AC	50/60 Hz [1]													V							
		240 V AC	50/60 Hz [1]													W							

1) The AC frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 30)

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15th position

Low-voltage interface, auxiliary switch

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	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

Low-voltage terminal			Auxiliary switch			
Plug strip	64-pole plug	64-pole plug connector pulled out of switch	6 NO + 6 NC	12 NO + 12 NC		
■			■		A	
■				■	J	
	■		■		V	
	■			■	N	
		■		■	X [1)2)]	– Z B x x

see page 30

see page 31

Mechanical interlocking and circuit breaker tripping signal are included in the standard equipment

1) Specification of length necessary (B01 - B08).
For more details see additional equipment

2) Limitation of the maximum number of wires does not permit the following options:
- 3. Release
- More than 2 NO contact and NC contact on auxiliary switch
- halogen-free wires

2

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2

16th position

Languages of operating instructions and rating plate; AC frequency of operating voltages [1)]

Position:	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes		
Order No.:	3	A	E	■	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

Language selection				Frequency selection				
German	English	French	Spanish	50 Hz DC or AC	60 Hz		see page 31	
■				■		0		
■					■	1		
	■			■		2		
	■				■	3		
		■		■		4		
		■			■	5		
			■	■		6		
			■		■	7		
Special versions								
Portuguese, 50 Hz or DC						9		R 1 C
Portuguese, 60 Hz						9		R 1 D
Italian, DC or AC 50 Hz						9		R 1 F
Russian, DC or AC 50 Hz						9		R 1 G
Russian, 60 Hz						9		R 1 H
Polish, DC or AC 50 Hz						9		R 1 K
Other languages on request								

1) AC voltage refers to the low-voltage equipment

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Options	Circuit breaker 13th position = 0, 1, 2, 3		Order codes
Cable ends with target end marking (for plug or terminal strip), not together with A11	■	–Z	A05
Wiring cables halogen-free and flame-retardant	■	–Z	A10
Cable ends with target end marking, end sleeves, pulled out without plug	■	–Z	A11
Wiring cables tinned	■	–Z	A12
Flat connector with insulating sleeve	■	–Z	A13
gold-plated auxiliary switch 12 NO + 12 NC and 64-pole plug	■	–Z	A21
Anti-condensation heating for 110 V AC, 50 W	■	–Z	A29
Anti-condensation heating for 230 V AC, 50 W	■	–Z	A30
Version free of silicone emissions	■	–Z	A31
Circuit breaker for operation down to –25 °C	■	–Z	A40
Electrical closing lockout (not together with key-operated interlock)	■	–Z	A47
C.t.-operated release 5 A	■	–Z	A49
Additional rating plate, supplied loose	■	–Z	B00
Cable harness 800 mm, pulled out	■	–Z	B01
Cable harness 500 mm, pulled out	■	–Z	B02
Cable harness 2000 mm, pulled out	■	–Z	B03
Cable harness 1200 mm, pulled out	■	–Z	B04
Cable harness 1500 mm, pulled out	■	–Z	B05
Cable harness 2500 mm, pulled out (not with 24 V DC control voltage)	■	–Z	B06
Cable harness 3000 mm, pulled out (not with 24 V DC control voltage)	■	–Z	B07
Cable harness 3500 mm, pulled out (not with 24 V DC control voltage)	■	–Z	B08
Cable harness of withdrawable element	■	–Z	B13
Cable set wired for low-voltage compartment	■	–Z	B14
Sleeve housing PG21/PG29 at pulled out cable harness (B01-B08) for all versions except 13th position = 7	■	–Z	B16
Without upper part of plug	■	–Z	B23
Without supplementary equipment	■	–Z	B24
Cable harness with double insulation for shipbuilding industry	■	–Z	B68
Special circuit diagram	■	–Z	B99
For use in aggressive environment, specially H2S (upon request)	■	–Z	D20
Withdrawable element with 220 mm racking path	■	–Z	D22
Withdrawable element with 200 mm racking path	■	–Z	D23
Withdrawable element with 180 mm racking path	■	–Z	D24
Pressure plate above	■	–Z	D28
IP plate	■	–Z	D55
Shaft cover	■	–Z	D56
Wide cover	■	–Z	D59
Long insulating shell (standard)	■	–Z	D90
Insulating shell (shortened design)	■	–Z	D91
Insulating shell for GT system	■	–Z	D92
Insulating shell for MALu 12 – 24 system	■	–Z	D93
Insulating shell to contact arm side (completely shortened)	■	–Z	D94
Insulating shell for NXAIR	■	–Z	D95
Insulating shell shortened for NXAIR	■	–Z	D97
Only lower pole shell for NXAIR	■	–Z	D98
Rated short-duration power-frequency withstand voltage 42 kV (at 12 kV)	■	–Z	E13
Rated short-duration power-frequency withstand voltage 32 kV (at 7.2 kV)	■	–Z	E16
Rated short-circuit breaking current I_{SC} = 26.3 kA (only possible with 7.2 kV, 25 kA and 12 kV, 25 kA)	■	–Z	E46
Rated short-duration power-frequency withstand voltage 55 kV (at 24 kV)	■	–Z	E55
Rated short-duration power-frequency withstand voltage 65 kV (at 24 kV)	■	–Z	E65
Rated lightning impulse voltage 95 kV (at 12 kV)	■	–Z	E95

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Options	Circuit breaker 13th position = 0, 1, 2, 3		Order codes
Routine test certificate enclosed with stamp and passport	■	–Z	F19
Routine test certificate enclosed	■	–Z	F20
Routine test certificate with stamp and signature	■	–Z	F21
Routine test certificate (to orderer)	■	–Z	F23
Hand crank for manual charging of the closing spring (scope of supply: one hand crank per circuit breaker)	■	–Z	F30
Hand crank (long) for manual charging of the closing spring (scope of supply: one hand crank per circuit breaker)	■	–Z	F31
Handle for withdrawable element for racking the circuit breaker on the withdrawable element (scope of supply: one handle per circuit breaker). Only required when a withdrawable element is ordered	■	–Z	F32
Rated operating sequence O - 0.3 s - CO - 3 min - CO	■	–Z	F38
Key-operated interlock (for circuit breakers with mechanical interlocking and without A47)	■	–Z	J60
Circuit breaker for "MALu 12-24" panel; only relevant ratings; only with 2 at the 13th Position, requires insulating shell D93	■	–Z	J64
Withdrawable element "Standard" motor-operated 110 VDC (requires order code W89)	■	–Z	M04
Withdrawable element "Standard" motor-operated 220 VDC (requires order code W89)	■	–Z	M05
Contact with 13 contact fingers (up to 1250 A and 31.5 kA), (selection via 13th position)	■	–Z	M13
Frequent operation with up to 30,000 operating cycles (low-maintenance): For ≥ 2000 A at ≤ 31.5 kA and ≤ 12 kV or 31.5 kA at 17.5 kV	■	–Z	M30
Warranty 36 months	■	–Z	W71
Warranty 60 months	■	–Z	W72
Warranty 84 months	■	–Z	W73
Circuit breaker with withdrawable element "Standard" (relevant ratings, for 13th position = 1 or 2, racking path 200 mm, optionally also motor-operated via order code M0x	1 / 2	–Z	W89
Operating instructions and special labels for USA	■	–Z	Y40
Other special versions that are not listed (only after consultation with Order Processing at Switchgear Factory in Berlin, Germany). Specifications additionally in clear text	■	–Z	Y99

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Ordering information for accessories and spare parts

The article numbers in the spare part overviews are valid for currently manufactured vacuum circuit breakers. When mounting parts or spare parts are being ordered for 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 parts.

Retrofitting

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

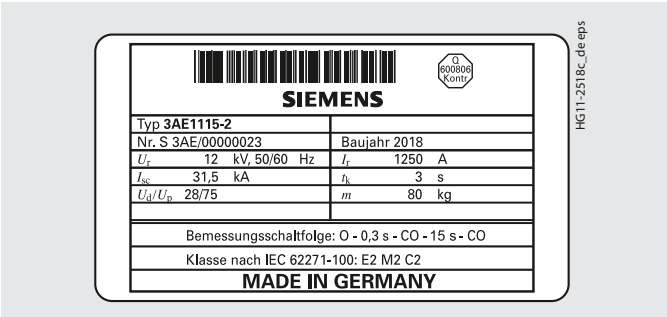
Spare parts may only be replaced by qualified personnel.

Accessories for the plug connector

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

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

Rating plate



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

					Position: 1 – 9
Designation	Description		Spare parts	Mounting parts	Order No.
Handles	Hand crank for circuit breaker 3AX15 30-4B				3AX1530-4B
	Long hand crank for circuit breaker				3AX1430-2B
	Hand crank for withdrawable element				3AX1430-2C
Lubricants	180 g of Klüber-Isoflex Topas L32N				3AX1133-3H
	1 kg of Klüber-Isoflex Topas L32N				3AX1133-3E
	1 kg Molykote grease				3AX1133-2L
	1 kg Vaseline, Atlantic				3AX1133-4A
Closing solenoid	24 – 32 V DC		■	■	3AY1410-0B
for On and 1st Shunt	48 V DC		■	■	3AY1410-0C
release	60 V DC		■	■	3AY1410-0D
	110 – 127 V DC		■	■	3AY1410-0E
	220 – 240 V DC		■	■	3AY1410-0F
	100/125 V AC, 50/60 Hz		■	■	3AY1410-0J
	230/240 V AC, 50/60 Hz		■	■	3AY1410-0K
2nd and 3rd Working	24 – 32 V DC		■	■	3AX1101-2B
current release	48 – 60 V DC		■	■	3AX1101-2C
	110 – 127 V DC		■	■	3AX1101-2E
	220 – 240 V DC		■	■	3AX1101-2F
	100 – 125 V AC, 50 Hz		■	■	3AX1101-2G
	230 – 240 V AC, 50 Hz		■	■	3AX1101-2J
	100 – 125 V AC, 60 Hz		■	■	3AX1101-3G
	230 – 240 V AC, 60 Hz		■	■	3AX1101-3J
Current-transformer-	For rated operating current 0.5 A		■	■	3AX1102-2A
operated release	For rated operating current 1 A		■	■	3AX1102-2B
	For tripping impulse ≥ 0.1 Ws, 20 Ω for 7SJ45 protection system		■	■	3AX1104-2B
	For rated operating current 5 A incl. rectifier		■	■	3AX1402-2E
Mounting parts	For 2nd working current/c.t.-operated release			■	3AX1411-5A
	For 2nd and 3rd Release			■	3AX1411-5B

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					Position: 1 – 9
Designation	Description		Spare parts	Mounting parts	Order No.
Undervoltage release	24 V DC		■	■	3AX1103-2B
	30/32 V DC		■	■	3AX1103-2L
	48 V DC		■	■	3AX1103-2C
	60 V DC		■	■	3AX1103-2D
	110 V DC		■	■	3AX1103-2E
	120/127 V DC		■	■	3AX1103-2N
	220 V DC		■	■	3AX1103-2F
	100 V AC, 50 Hz		■	■	3AX1103-2G
	110/125 V AC, 50 Hz		■	■	3AX1103-2H
	230 V AC, 50 Hz		■	■	3AX1103-2J
	240 V AC, 50 Hz		■	■	3AX1103-2M
	100 V AC, 60 Hz		■	■	3AX1103-3G
	110/125 V AC, 60 Hz		■	■	3AX1103-3H
	230 V AC, 60 Hz		■	■	3AX1103-3J
	240 V AC, 60 Hz		■	■	3AX1103-3M
Mounting parts	For undervoltage releases			■	3AX1413-5A
Drive motor	24 – 32 V DC		■	■	3AY1411-1B
	48 – 60 V DC		■	■	3AY1411-1C
	DC 110 – 127 V AC 100 – 125 V		■	■	3AY1411-1E
	DC 220 – 240 V AC 220 – 240 V		■	■	3AY1411-1F
Electronic module	24 – 32 V DC		■	■	3AY1420-1C
for anti-pumping	24 – 60 V DC		■	■	3AY1420-1D
	DC 110 – 127 V AC 100 – 125 V		■	■	3AY1420-1F
	DC 220 – 240 V AC 230 – 240 V		■	■	3AY1420-1G
Position switch	Type 3SE4 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			
	– Electrical closing lock-out (-S5) 1	1			
	– Withdrawable element (-S1.0 to -S1.9)	10			
	– Electrical closing lock-out (-S5) 1	1			
	– Key-operated interlock				
Auxiliary switches (-S1)	6 NO + 6 NC		■		3SV9273-2AA0
	12 NO + 12 NC		■		3SV9274-2AA0
Electrical closing	24 V DC		■	■	3AX1405-3B
lock	30/32 V DC		■	■	3AX1405-3K
	48 V DC		■	■	3AX1405-3C
	60 V DC		■	■	3AX1405-3D
	100/127 V DC		■	■	3AX1405-3E
	220/240 V DC		■	■	3AX1405-3F
	100 V AC, 50/60 Hz		■	■	3AX1405-3G
	100/125 V AC, 50/60 Hz		■	■	3AX1405-3H
	220/240 V AC, 50/60 Hz		■	■	3AX1405-3J
Mounting parts	For electrical closing lockout		■	■	3AX1415-3A
Anti-condensation heating	Heating for 230 V AC, 50 W		■		3AX1457-5A
	Heating for 110 V AC, 50 W		■		3AX1457-5B
Key-operated interlocking	only in combination with plastic cover		■		3AX1437-4A
PG cable gland			■		3AX1458-0A
Accessories for the	Crimp pins (for lower part of plug) 64-pole			■	3AX1134-4B
plug direction	Crimp sockets (for upper part of plug) 64-pole			■	3AX1134-4C
	Crimping pliers			■	3AX1134-4D

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				Position:	1 – 9
Designation	Description		Spare parts	Mount-ing parts	Order No.
Accessories for the plug	Disassembly tool			■	3AX1134-4G
direction (continued)	Plug connection complete, 64-pole			■	3AX1134-6A
	Plug connection (lower part), 64-pole			■	3AX1134-5B
	Plug connection (upper part), 64-pole			■	3AX1134-5A
Covers*	Plastic cover, standard		■		3AX1470-5A
	Plastic cover, standard for key-operated interlocking		■		3AX1470-6A
	Plastic cover, neutral		■		3AX1470-5B
	Metal cover, PCD 150 mm		■		3AX1470-5C
	Metal cover, PCD 160 mm		■		3AX1470-5D
	Metal cover, PCD 210 mm		■		3AX1470-5E
	Metal cover, PCD 275 mm		■		3AX1470-5F
* Serial number required Label printing					
Can be switched on/off	Operating switch		■		3AX1470-5K
Metal protection plate	150 mm pole-centre distance and Isc ≤ 25 kA		■		3AX1456-0A
(IP plate)	160 mm pole-centre distance and Isc ≤ 25 kA		■		3AX1456-0B
	210 mm pole-centre distance		■		3AX1456-0C
	275 mm pole-centre distance		■		3AX1456-0D
	150 mm pole-centre distance and Isc ≤ 31.5 kA		■		3AX1456-1A
	160 mm pole-centre distance and Isc ≤ 31.5 kA		■		3AX1456-1B
Shaft cover	150/160 mm pole-centre distance		■		3AX1466-0A
	210 mm pole-centre distance		■		3AX1466-0B
	275 mm pole-centre distance		■		3AX1466-0D
Pressure plate above the	210 mm pole-centre distance	24 kV	■	■	3AX1456-2H
Operating mechanisms	275 mm pole-centre distance	24 kV	■	■	3AX1456-2J
Insulating shell for contact arm side	Standard version, vertical distance between terminals 310 mm	7.2 to 12 kV / ≤ 2000 kA / ≤ 2500 A 17.5 kV / 31.5 kA	■		3AX1438-2A
	Shortened version, vertical distance between terminals 310 mm (MALu)	7.2 to 12 kV / 2000 – 2500 A 17.5 kV / 31.5 kA	■		3AX1438-4H
	Standard version, vertical distance between terminals 310 mm	7.2 to 17.5 kV (40 kA)	■		3AX1438-2E
	Standard version, vertical distance between terminals 275 mm	7.2 to 17.5 kV	■		3AX1438-2C
	Standard version, vertical distance between terminals 310 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-5K
	Shortened version, vertical distance between terminals 310 mm (MALu)	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-7K
	Shortened version, vertical distance between terminals 310 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-6K
	Standard version, vertical distance between terminals 275 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-5H
	Shortened version, vertical distance between terminals 275 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-6H
	Standard version, vertical distance between terminals 205 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-5J
	Shortened version, vertical distance between terminals 205 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-6J
	Shortened version, vertical distance between terminals 205 mm (MALu)	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-7H
	Standard version, vertical distance between terminals 275 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-6M
	Shortened version, vertical distance between terminals 275 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-5M
	Special version D95, vertical distance between terminals 275 mm	7.2 to 12 kV / ≤ 31.5 kA / ≤ 1600 A 17.5 kV / 25 kA	■		3AX1438-5P
	Standard version above	24 kV	■		3AX1438-4B
	Standard version below	24 kV	■		3AX1438-5B
	Shortened version above (NXAIR)	24 kV	■		3AX1438-6B
	Shortened version below (NXAIR)	24 kV	■		3AX1438-8B
Gate for L-frame	Shortened version		■		3AX1452-2B

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					Position: 1 – 9
Designation	Description		Spare parts	Mount-ing parts	Order No.
Contact system "Heavy Duty"	26 contact fingers	7.2/12/24 kV, 800 – 1250 A	■	■	3AX1442-2A
	26 contact fingers	17.5 kV, 800 to 1250 A	■	■	3AX1442-2B
	26 contact fingers	7.2/12/24 kV, to 3150 A	■	■	3AX1442-2C
	26 contact fingers	17.5 kV, up to 3150 A	■	■	3AX1442-2D
	13 contact fingers	7.2/12/24 kV, 800 – 1250 A	■	■	3AX1442-2E
	13 contact fingers	17.5 kV, 800 to 1250 A	■	■	3AX1442-2F
Contact arm and contact system "Heavy Duty"	Vertical distance between terminals: all contact fingers: 13	7.2/12 kV, to 31.5 kA, to 1250 A		■	3AX1443-2R
	Vertical distance between terminals: all contact fingers: 26	7.2/12 kV, to 31.5 kA, to 1600 A		■	3AX1443-2P
	Vertical distance between terminals: all contact fingers: 13	17.5 kV, up to 25 kA, up to 1250 A		■	3AX1443-2S
	Vertical distance between terminals: all contact fingers: 26	17.5 kV, up to 25 kA, up to 1600 A		■	3AX1443-2Q
	Vertical distance between terminals: all contact fingers: 13	24 kV, up to 25 kA, up to 1250 A		■	3AX1443-2N
	Vertical distance between terminals: 205 mm contact fingers: 26 for MALu 12-24	7.2/12 kV, to 31.5 kA, to 1250 A		■	3AX1443-5A
	Vertical distance between terminals: 205 mm contact fingers: 26 for MALu 12-24	7.2/12 kV, to 31.5 kA, to 1250 A		■	3AX14 43-5A
	Vertical distance between terminals: 205 mm contact fingers: 26 for MALu 12-24	17.5 kV, up to 25 kA, up to 1250 A		■	3AX14 43-5B
	Vertical distance between terminals: 205 mm contact fingers: 13 for MALu 12-24	7.2/12 kV, to 31.5 kA, to 1250 A		■	3AX14 43-5C
	Vertical distance between terminals: 205 mm contact fingers: 13 for MALu 12-24	17.5 kV, up to 25 kA, up to 1250 A		■	3AX14 43-5D
	Vertical distance between terminals: 310 mm contact fingers: 26 for MALu 12-24	7.2/12 kV, to 31.5 kA, to 1600 A		■	3AX14 43-5G
	Vertical distance between terminals: 310 mm contact fingers: 26 for MALu 12-24	17.5 kV, up to 25 kA, up to 1600 A		■	3AX14 43-5H
	Vertical distance between terminals: 310 mm contact fingers: 13 for MALu 12-24	7.2/12 kV, to 31.5 kA, to 1600 A		■	3AX14 43-5J
	Vertical distance between terminals: 310 mm contact fingers: 13 for MALu 12-24	17.5 kV, up to 25 kA, up to 1600 A		■	3AX14 43-5K
Fixed contact (60 mm) for contact system "Heavy Duty"		7.2/12/17.5 kV, to 31.5 kA, to 1250 A			3AX1444-2A
		7.2/12/17.5 kV, to 31.5 kA, to 2500 A 7.2/12/17.5 kV, 40 kA, to 3150 A			3AX1444-2B
		7.2/12/17.5 kV, 40 kA, to 3150 A (MALu)			3AX1444-2D
		24 kV, up to 25 kA, up to 2500 A			3AX1444-2C
Contact system "Standard"	for 35 mm fixed contact	7.2/12/17.5 kV, to 1250 A, to 31.5 kA	■	■	3AX1442-7C
	for 79 mm fixed contact	7.2/12/17.5 kV, to 2000 A, to 31.5 kA	■	■	3AX1442-7P
Contact arm and contact system "Standard"	for 35 mm fixed contact	7.2/12/17.5 kV, to 1250 A, to 31.5 kA		■	3AX1443-7C
	for 79 mm fixed contact	7.2/12/17.5 kV, to 2000 A, to 31.5 kA		■	3AX1443-7P

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							Position:	1 – 9	10	
Designation	Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 36% DC component I_{sc} kA	Pole-centre distance PCD mm	Vertical distance between terminals VDT mm	Rated operating current I_r A	Racking path/feature mm		Order No.	Language code *	Order codes
Bushing complete	≤ 17.5	= 31.5 kA	150/160		≤ 1600			**3AX1452-2A**		
	≤ 17.5	= 31.5 kA	210		≤ 1600			**3AX1452-2B**		
	≤ 17.5	= 31.5 kA	210		2000 / 2500			**3AX1452-2C**		
	24	25	210		≤ 1250			**3AX1452-2D**		
	24	25	210		2000 / 2500			**3AX1452-2E**		
	24	25	275		≤ 1250			**3AX1452-2F**		
	24	25	275		2000 / 2500			**3AX1452-2G**		
	≤ 17.5	40 kA	210/275		≤ 3150			**3AX1452-2H**		
Withdrawable element	≤ 17.5		150/160			180 / without cable harness		**3AX7112-2E**	■	
"Heavy Duty"	≤ 17.5		150/160			180 / with cable harness		**3AX7112-4E**	■	
	≤ 17.5		150/160			200 / without cable harness		**3AX7112-2G**	■	
	≤ 17.5		150/160			200 / with cable harness		**3AX7112-4G**	■	
	≤ 17.5		150/160			220 / without cable harness		**3AX7112-2A**	■	
	≤ 17.5		150/160			220 / with cable harness		**3AX7112-4A**	■	
	≤ 17.5		210			180 / without cable harness		**3AX7112-2F**	■	
	≤ 17.5		210			180 / with cable harness		**3AX7112-4F**	■	
	≤ 17.5		210			200 / without cable harness		**3AX7112-2H**	■	
	≤ 17.5		210			200 / with cable harness		**3AX7112-4H**	■	
	≤ 17.5		210			220 / without cable harness		**3AX7112-2B**	■	
	≤ 17.5		210			220 / with cable harness		**3AX7112-4B**	■	
	24		210			260 / without cable harness		**3AX7112-2C**	■	
	24		210			260 / with cable harness		**3AX7112-4C**	■	
	24		275			260 / without cable harness		**3AX7112-2D**	■	
	24		275			260 / with cable harness		**3AX7112-4D**	■	
Withdrawable element	≤ 17.5	= 31.5 kA	150			200 / with cable harness		**3AX7112-8F**	■	
"Standard"	≤ 17.5	= 31.5 kA	210			200 / with cable harness		**3AX7112-8G**	■	
	≤ 17.5	= 31.5 kA	275			200 / with cable harness		**3AX7112-8H**	■	
	≤ 17.5	40 kA	210			200 / with cable harness		**3AX7112-8J**	■	
	≤ 17.5	40 kA	275			200 / with cable harness		**3AX7112-8K**	■	

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Position:							1 – 9	10	
Designation	Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current with 36% DC component I_{sc} kA	Pole-centre distance PCD mm	Vertical distance between terminals VDT mm	Rated operating current I_r A	Racking path/feature mm	**Order No.**	**Language code ***	**Order codes**
Withdrawable element "Standard"	≤ 17.5	= 31.5 kA	150			200 / with cable harness / 110 VDC	**3AX7112-8F**	■	M04
(motor-operated)	≤ 17.5	= 31.5 kA	150			200 / with cable harness / 220 VDC	**3AX7112-8F**	■	M05
	≤ 17.5	= 31.5 kA	210			200 / with cable harness / 110 VDC	**3AX7112-8G**	■	M04
	≤ 17.5	= 31.5 kA	210			200 / with cable harness / 220 VDC	**3AX7112-8G**	■	M05
	≤ 17.5	40 kA	210			200 / with cable harness / 110 VDC	**3AX7112-8J**	■	M04
	≤ 17.5	40 kA	210			200 / with cable harness / 220 VDC	**3AX7112-8J**	■	M05

*) The language of the rating plate is stated 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

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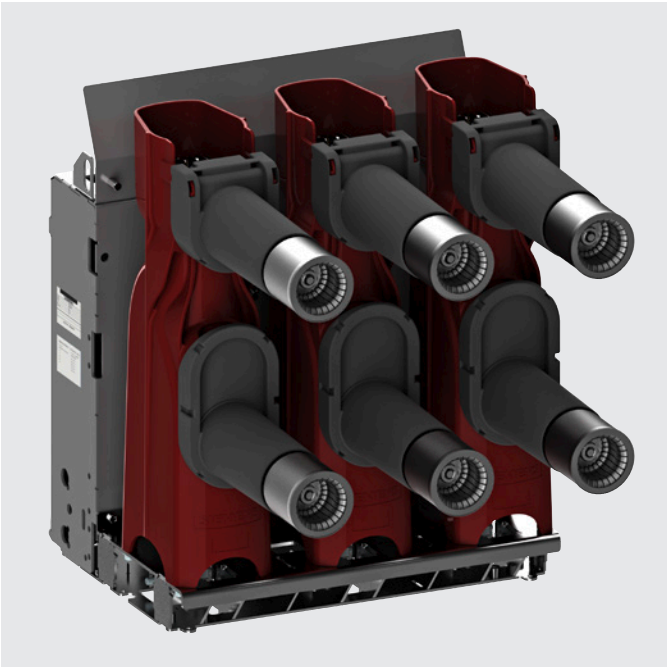
SION vacuum circuit breaker for fixed mounting



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SION vacuum circuit breaker with contacts

Contents Page

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Technical data

Electrical data, dimensions and masses

7.2 kV 50/60 Hz Order No.	Rated operating current I_r A	Pole-centre distance mm	Vertical distance between terminals mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5002-1	800	150	205	16	50	19.6	40/42	▲	60	20	3	93	245	93	97	49/–	A7E44202010	1
3AE5002-2	1250	150	205	16	50	19.6	40/42	▲	60	20	3	93	245	93	97	49/–	A7E44202010	1
3AE5003-1	800	150	205	20	50	24.5	50/52	▲	60	20	3	93	245	93	97	49/–	A7E44202010	2
3AE5003-2	1250	150	205	20	50	24.5	50/52	▲	60	20	3	93	245	93	97	49/–	A7E44202010	2
3AE5004-1	800	150	205	25	50	30.6	63/65	▲	60	20	3	93	245	93	97	49/–	A7E44202010	3a
3AE5004-2	1250	150	205	25	50	30.6	63/65	▲	60	20	3	93	245	93	97	49/–	A7E44202010	3a
3AE5005-1	800	150	205	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	97	53.5/–	A7E44202010	4a
3AE5005-2	1250	150	205	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	97	53.5/–	A7E44202010	4a
3AE5012-1	800	150	275	16	50	19.6	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202011	1
3AE5012-2	1250	150	275	16	50	19.6	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202011	1
3AE5013-1	800	150	275	20	50	24.5	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202011	2
3AE5013-2	1250	150	275	20	50	24.5	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202011	2
3AE5014-1	800	150	275	25	50	30.6	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202011	3a
3AE5014-2	1250	150	275	25	50	30.6	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202011	3a
3AE5015-1	800	150	275	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202011	4a
3AE5015-2	1250	150	275	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202011	4a
3AE5022-1	800	150	310	16	50	19.6	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202012	1
3AE5022-2	1250	150	310	16	50	19.6	40/42	▲	60	20	3	93	245	93	97	49/85	A7E44202012	1
3AE5022-3	1600	150	310	16	50	19.6	40/42	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202011	1a
3AE5023-1	800	150	310	20	50	24.5	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202012	2
3AE5023-2	1250	150	310	20	50	24.5	50/52	▲	60	20	3	93	245	93	97	49/85	A7E44202012	2
3AE5023-3	1600	150	310	20	50	24.5	50/52	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202012	2a
3AE5024-1	800	150	310	25	50	30.6	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202012	3a
3AE5024-2	1250	150	310	25	50	30.6	63/65	▲	60	20	3	93	245	93	97	49/85	A7E44202012	3a

▲ On request

Note: Dimension drawings from page 58

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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7.2 kV 50/60 Hz **Order No.**	**Rated operating current** I_r A	**Pole-centre distance** mm	**Vertical distance between terminals** mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current % kA	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5024-3	1600	150	310	25	50	30.6	63/65	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202012	3b
3AE5025-1	800	150	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202012	4a
3AE5025-2	1250	150	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/89.5	A7E44202012	4a
3AE5025-3	1600	150	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	59.5/95.5	A7E44202012	4a
3AE5032-1	800	160	205	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202016	1
3AE5032-2	1250	160	205	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202016	1
3AE5033-1	800	160	205	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202016	2
3AE5033-2	1250	160	205	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202016	2
3AE5034-1	800	160	205	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202016	3a
3AE5034-2	1250	160	205	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202016	3a
3AE5035-1	800	160	205	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/–	A7E44202016	4a
3AE5035-2	1250	160	205	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/–	A7E44202016	4a
3AE5042-1	800	160	275	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202017	1
3AE5042-2	1250	160	275	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202017	1
3AE5043-1	800	160	275	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202017	2
3AE5043-2	1250	160	275	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202017	2
3AE5044-1	800	160	275	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202017	3a
3AE5044-2	1250	160	275	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202017	3a
3AE5045-1	800	160	275	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/–	A7E44202017	4a
3AE5045-2	1250	160	275	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/–	A7E44202017	4a
3AE5052-1	800	160	310	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202018	1
3AE5052-2	1250	160	310	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	49/–	A7E44202018	1
3AE5052-3	1600	160	310	16	50	19.6	40/42	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	1a
3AE5053-1	800	160	310	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202018	2

▲ On request

Note: Dimension drawings from page 58

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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Technical data

Electrical data, dimensions and masses

7.2 kV 50/60 Hz Order No.	Rated operating current I_r A	Pole-centre distance mm	Vertical distance between terminals mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5053-2	1250	160	310	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	49/–	A7E44202018	2
3AE5053-3	1600	160	310	20	50	24.5	50/52	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	2a
3AE5054-1	800	160	310	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202018	3a
3AE5054-2	1250	160	310	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	49/–	A7E44202018	3a
3AE5054-3	1600	160	310	25	50	30.6	63/65	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	3b
3AE5055-1	800	160	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/–	A7E44202018	4a
3AE5055-2	1250	160	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	53.5/–	A7E44202018	4a
3AE5055-3	1600	160	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	59.5/-	A7E44202018	4a
3AE5062-1	800	210	205	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202022	1
3AE5062-2	1250	210	205	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202022	1
3AE5063-1	800	210	205	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	2
3AE5063-2	1250	210	205	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	2
3AE5064-1	800	210	205	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	3a
3AE5064-2	1250	210	205	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	51.5/–	A7E44202022	3a
3AE5065-1	800	210	205	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	56.5/–	A7E44202022	4a
3AE5065-2	1250	210	205	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	56.5/–	A7E44202022	4a
3AE5072-1	800	210	275	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	1
3AE5072-2	1250	210	275	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	1
3AE5073-1	800	210	275	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	2
3AE5073-2	1250	210	275	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	2
3AE5074-1	800	210	275	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	3a
3AE5074-2	1250	210	275	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202023	3a
3AE5075-1	800	210	275	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202023	4a
3AE5075-2	1250	210	275	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202023	4a

▲ On request

Note: Dimension drawings from page 58

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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7.2 kV 50/60 Hz Order No.	**Rated operating current** I_r A	**Pole-centre distance** mm	**Vertical distance between terminals** mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5082-1	800	210	310	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	1
3AE5082-2	1250	210	310	16	50	19.6	40/42	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	1
3AE5082-3	1600	210	310	16	50	19.6	40/42	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	1a
3AE5083-1	800	210	310	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	2
3AE5083-2	1250	210	310	20	50	24.5	50/52	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	2
3AE5083-3	1600	210	310	20	50	24.5	50/52	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	2a
3AE5084-1	800	210	310	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	3a
3AE5084-2	1250	210	310	25	50	30.6	63/65	▲	60	20	3	93	245	93	129	51.5/91.5	A7E44202024	3a
3AE5084-3	1600	210	310	25	50	30.6	63/65	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	3b
3AE5084-4	2000	210	310	25	50	30.6	63/65	20	60	20	1.8	130	240	125	138	100	A7E10907000	3c
3AE5084-6	2500	210	310	25	50	30.6	63/65	20	60	20	1.8	130	240	125	138	100	A7E10907000	3c
3AE5085-1	800	210	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202024	4a
3AE5085-2	1250	210	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	56.5/96.5	A7E44202024	4a
3AE5085-3	1600	210	310	31.5	50	38.6	80/82	20	60	20	2.5	90	255	98	122	62.5/102.5	A7E44202024	4a
3AE5085-4	2000	210	310	31.5	50	38.6	80/82	20	60	20	1.8	130	240	125	138	100	A7E10907000	4b
3AE5085-6	2500	210	310	31.5	50	38.6	80/82	20	60	20	1.8	130	240	125	138	100	A7E10907000	4b
3AE5086-2	1250	210	310	40	50	49.0	100/104	20	60	20	1.8	140	240	150	130	125/165	A7E10910000	5
3AE5086-4	2000	210	310	40	50	49.0	100/104	20	60	20	1.1	140	240	150	130	140/190	A7E10910000	5
3AE5086-6	2500	210	310	40	50	49.0	100/104	20	60	20	1.1	140	240	150	130	140/190	A7E10910000	5
3AE5086-7	3150	210	310	40	50	49.0	100/104	20	60	20	0.9	140	240	150	130	160/210	A7E10910000	5

▲ On request

Note: Dimension drawings from page 58

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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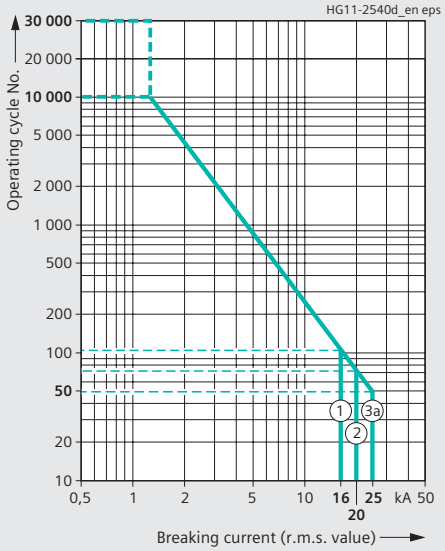
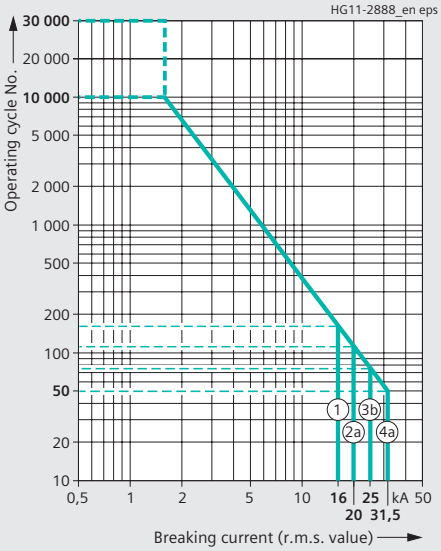
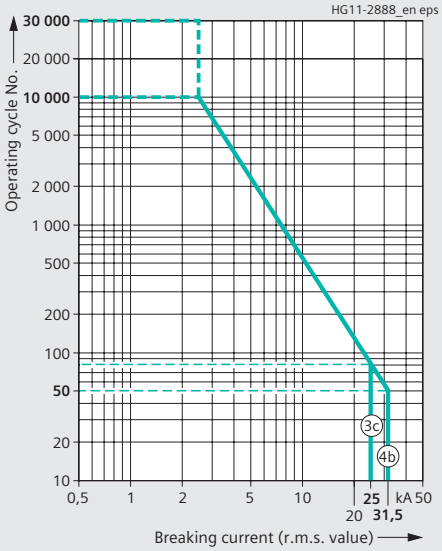
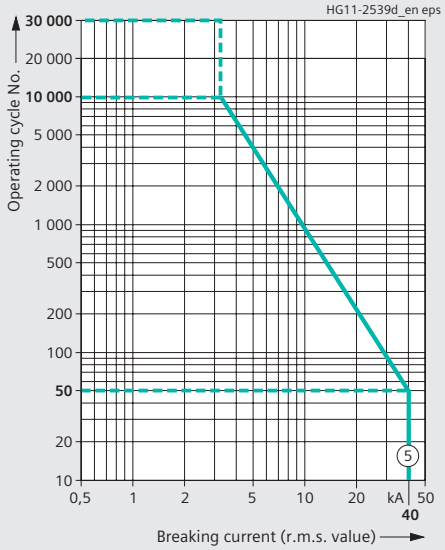
Operating cycle diagrams for 7.2 kV









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

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12 kV 50/60 Hz **Order No.**	**Rated operating current** I_r A	**Pole-centre distance** mm	**Vertical distance between terminals** mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current % kA	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5102-1	800	150	205	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202010	6
3AE5102-2	1250	150	205	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202010	6
3AE5103-1	800	150	205	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202010	7
3AE5103-2	1250	150	205	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202010	7
3AE5104-1	800	150	205	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202010	8a
3AE5104-2	1250	150	205	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202010	8a
3AE5105-1	1250	150	205	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202010	9a
3AE5105-2	1250	150	205	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202010	9a
3AE5112-1	800	150	275	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202011	6
3AE5112-2	1250	150	275	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202011	6
3AE5113-1	800	150	275	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202011	7
3AE5113-2	1250	150	275	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202011	7
3AE5114-1	800	150	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202011	8a
3AE5114-2	1250	150	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202011	8a
3AE5115-1	800	150	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202011	9a
3AE5115-2	800	150	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202011	9a
3AE5122-1	800	150	310	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202012	6
3AE5122-2	1250	150	310	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/85	A7E44202012	6
3AE5122-3	1600	150	310	16	50	19.6	40/42	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	6a
3AE5123-1	800	150	310	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202012	7
3AE5123-2	1250	150	310	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/85	A7E44202012	7
3AE5123-3	1600	150	310	20	50	24.5	50/52	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	7a
3AE5124-1	800	150	310	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202012	8a
3AE5124-2	1250	150	310	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/85	A7E44202012	8a

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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Technical data

Electrical data, dimensions and masses

12 kV 50/60 Hz Order No.	Rated operating current I_r A	Pole-centre distance mm	Vertical distance between terminals mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5124-3	1600	150	310	25	50	30.6	63/65	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	8b
3AE5125-1	800	150	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202012	9a
3AE5125-2	1250	150	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/89.5	A7E44202012	9a
3AE5125-3	1600	150	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	59.5/95.5	A7E44202012	9a
3AE5132-1	800	160	205	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202016	6
3AE5132-2	1250	160	205	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202016	6
3AE5133-1	800	160	205	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202016	7
3AE5133-2	1250	160	205	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202016	7
3AE5134-1	800	160	205	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202016	8a
3AE5134-2	1250	160	205	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202016	8a
3AE5135-1	800	160	205	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202016	9a
3AE5135-2	1250	160	205	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202016	9a
3AE5142-1	800	160	275	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202017	6
3AE5142-2	1250	160	275	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202017	6
3AE5143-1	800	160	275	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202017	7
3AE5143-2	1250	160	275	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202017	7
3AE5144-1	800	160	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202017	8a
3AE5144-2	1250	160	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202017	8a
3AE5145-1	800	160	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202017	9a
3AE5145-2	1250	160	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202017	9a
3AE5152-1	800	160	310	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202018	6
3AE5152-2	1250	160	310	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	49/–	A7E44202018	6
3AE5152-3	1600	160	310	16	50	19.6	40/42	20	75	28	2.5	90	255	98	122	59.5/-	A7E44202018	6a
3AE5153-1	800	160	310	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202018	7

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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12 kV 50/60 Hz **Order No.**	**Rated operating current** I_r A	**Pole-centre distance** mm	**Vertical distance between terminals** mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current % kA	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5153-2	1250	160	310	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	49/–	A7E44202018	7
3AE5153-3	1600	160	310	20	50	24.5	50/52	20	75	28	2.5	90	255	98	122	59.5/-	A7E44202018	7a
3AE5154-1	800	160	310	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202018	8a
3AE5154-2	1250	160	310	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202018	8a
3AE5154-3	1600	160	310	25	50	30.6	63/65	20	75	28	2.5	90	255	98	122	59.5/-	A7E44202018	8b
3AE5155-1	800	160	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202018	9a
3AE5155-2	1250	160	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	53.5/–	A7E44202018	9a
3AE5155-3	1600	160	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	59.5/-	A7E44202018	9a
3AE5162-1	800	210	205	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	6
3AE5162-2	1250	210	205	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	6
3AE5163-1	800	210	205	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	7
3AE5163-2	1250	210	205	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	51.5/–	A7E44202022	7
3AE5164-1	800	210	205	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202022	8a
3AE5164-2	1250	210	205	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202022	8a
3AE5165-1	800	210	205	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	56.5/–	A7E44202022	9a
3AE5165-2	1250	210	205	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	56.5/–	A7E44202022	9a
3AE5172-1	800	210	275	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	6
3AE5172-2	1250	210	275	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	6
3AE5173-1	800	210	275	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	7
3AE5173-2	1250	210	275	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	7
3AE5174-1	800	210	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	8a
3AE5174-2	1250	210	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202023	8a
3AE5175-1	800	210	275	31.5	50	38.6	80/82	▲	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202023	9a
3AE5175-2	1250	210	275	31.5	50	38.6	80/82	▲	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202023	9a

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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Technical data

Electrical data, dimensions and masses

12 kV 50/60 Hz Order No.	Rated operating current I_r A	Pole-centre distance mm	Vertical distance between terminals mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5182-1	800	210	310	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	6
3AE5182-2	1250	210	310	16	50	19.6	40/42	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	6
3AE5182-3	1600	210	310	16	50	19.6	40/42	▲	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	6a
3AE5183-1	800	210	310	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	7
3AE5183-2	1250	210	310	20	50	24.5	50/52	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	7
3AE5183-3	1600	210	310	20	50	24.5	50/52	20	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	7a
3AE5183-4	2000	210	310	20	50	24.5	50/52	20	75	28	1.8	130	240	125	138	100	A7E10907000	7b
3AE5183-6	2500	210	310	20	50	24.5	50/52	20	75	28	1.8	130	240	125	138	100	A7E10907000	7b
3AE5184-1	800	210	310	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	8a
3AE5184-2	1250	210	310	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	51.5/91.5	A7E44202024	8a
3AE5184-3	1600	210	310	25	50	30.6	63/65	20	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	8b
3AE5184-4	2000	210	310	25	50	30.6	63/65	20	75	28	1.8	130	240	125	138	100	A7E10907000	8c
3AE5184-6	2500	210	310	25	50	30.6	63/65	20	75	28	1.8	130	240	125	138	100	A7E10907000	8c
3AE5185-1	800	210	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202024	9a
3AE5185-2	1250	210	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	56.5/96.5	A7E44202024	9a
3AE5185-3	1600	210	310	31.5	50	38.6	80/82	20	75	28	2.5	90	255	98	122	62.5/102.5	A7E44202024	9a
3AE5185-4	2000	210	310	31.5	50	38.6	80/82	20	75	28	1.8	130	240	125	138	100	A7E10907000	9b
3AE5185-6	2500	210	310	31.5	50	38.6	80/82	20	75	28	1.8	130	240	125	138	100	A7E10907000	9b
3AE5186-2	1250	210	310	40	50	49.0	100/104	20	75	28	1.8	140	240	150	130	125/165	A7E10910000	10
3AE5186-4	2000	210	310	40	50	49.0	100/104	20	75	28	1.1	140	240	150	130	140/190	A7E10910000	10
3AE5186-6	2500	210	310	40	50	49.0	100/104	20	75	28	1.1	140	240	150	130	140/190	A7E10910000	10
3AE5186-7	3150	210	310	40	50	49.0	100/104	20	75	28	0.9	140	240	150	130	160/210	A7E10910000	10
3AE5554-1	800	160	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202024	8a
3AE5554-2	1250	160	275	25	50	30.6	63/65	▲	75	28	3	93	245	93	129	49/–	A7E44202024	8a
3AE5555-1	800	160	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	130	135	66.5/–	A7E44202038	9a

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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12 kV 50/60 Hz Order No.	**Rated operating current** I_r A	**Pole-centre distance** mm	**Vertical distance between terminals** mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current % kA	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5555-2	1250	160	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	130	135	66.5/–	A7E44202038	9a
3AE5564-3	1600	210	275	25	50	30.6	63/65	20	75	28	2.5	90	255	98	122	74.5/–	A7E44202040	8a
3AE5565-2	1250	210	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	130	135	69.5/–	A7E44202040	9a
3AE5565-3	1600	210	275	31.5	50	38.6	80/82	20	75	28	2.5	90	255	130	135	74.5/–	A7E44202040	9a
3AE5565-6	2500	210	275	31.5	50	38.6	80/82	20	75	28	1.8	130	240	125	138	110	A7E10907005	9b
3AE5566-2	1250	210	275	40	50	49.0	100/104	20	75	28	1.8	140	240	150	130	125/–	A7E10910005	10
3AE5566-6	2500	210	275	40	50	49.0	100/104	20	75	28	1.1	140	240	150	130	140/–	A7E10910005	10
3AE5566-7	3150	210	275	40	50	49.0	100/104	20	75	28	0.9	140	240	150	130	160/–	A7E10910005	10
3AE5566-8	4000	210	275	40	50	49.0	100/104	20	75	28	0.9	140	240	150	130	160/–	A7E10910005	10
3AE5583-4	2000	275	310	20	50	24.5	50/52	20	75	28	1.8	130	240	190	138	105	A7E10907000	7b
3AE5583-6	2500	275	310	20	50	24.5	50/52	20	75	28	1.8	130	240	190	138	105	A7E10907000	7b
3AE5584-4	2000	275	310	25	50	30.6	63/65	20	75	28	1.8	130	240	190	138	105	A7E10907000	8c
3AE5584-6	2500	275	310	25	50	30.6	63/65	20	75	28	1.8	130	240	190	138	105	A7E10907000	8c
3AE5585-2	1250	275	310	31.5	50	38.6	80/82	20	75	28	1.8	130	240	225	143	105	A7E10907000	9b
3AE5585-4	2000	275	310	31.5	50	38.6	80/82	20	75	28	1.8	130	240	225	143	105	A7E10907000	9b
3AE5585-6	2500	275	310	31.5	50	38.6	80/82	20	75	28	1.8	130	240	225	143	105	A7E10907000	9b
3AE5586-2	1250	275	310	40	50	49.0	100/104	20	75	28	1.8	140	240	215	130	130/–	A7E10910000	10
3AE5586-4	2000	275	310	40	50	49.0	100/104	20	75	28	1.1	140	240	215	130	145/–	A7E10910000	10
3AE5586-6	2500	275	310	40	50	49.0	100/104	20	75	28	1.1	140	240	215	130	145/–	A7E10910000	10
3AE5586-7	3150	275	310	40	50	49.0	100/104	20	75	28	0.9	140	240	215	130	165/–	A7E10910000	10

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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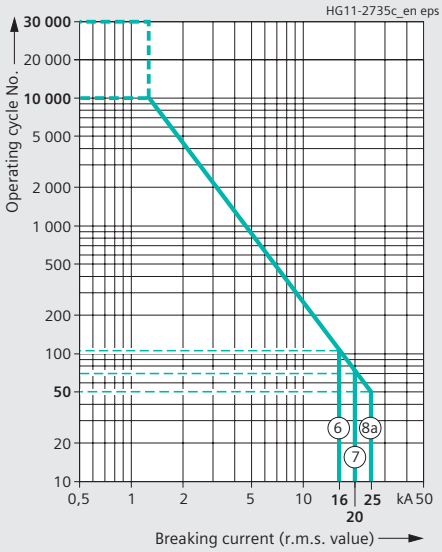
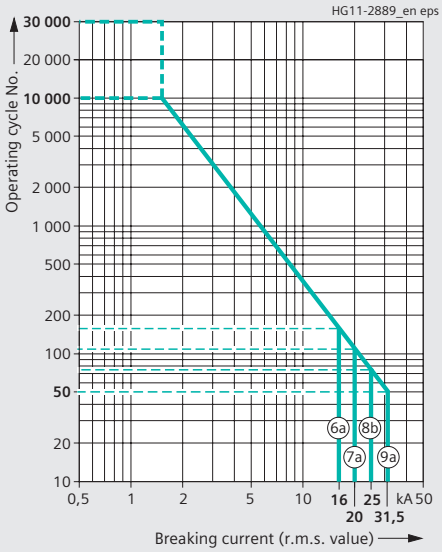
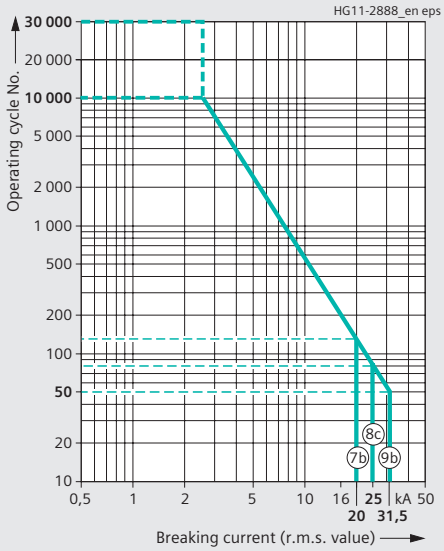
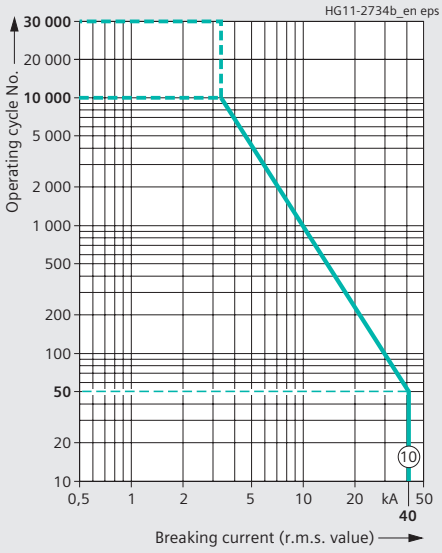
Operating cycle diagrams for 12 kV









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

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17.5 kV 50/60 Hz Order No.	**Rated operating current** I_r A	**Pole-centre distance** mm	**Vertical distance between terminals** mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5202-1	800	150	205	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	12a
3AE5202-2	1250	150	205	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	12a
3AE5204-1	800	150	205	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	13a
3AE5204-2	1250	150	205	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202010	13a
3AE5205-1	800	150	205	31.5	50	38.6	80/82	20	95	38	2	130	240	150	143	83	A7E10907000	14
3AE5205-2	1250	150	205	31.5	50	38.6	80/82	20	95	38	2	130	240	150	143	83	A7E10907000	14
3AE5212-1	800	150	275	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	12a
3AE5212-2	1250	150	275	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	12a
3AE5214-1	800	150	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	13a
3AE5214-2	1250	150	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202011	13a
3AE5215-1	800	150	275	31.5	50	38.6	80/82	20	95	38	2	130	240	150	143	83	A7E10907000	14
3AE5215-2	1250	150	275	31.5	50	38.6	80/82	20	95	38	2	130	240	150	143	83	A7E10907000	14
3AE5222-1	800	150	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	12a
3AE5222-2	1250	150	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	12a
3AE5222-3	1600	150	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	60/100	A7E44202012	12a
3AE5224-1	800	150	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	13a
3AE5224-2	1250	150	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/94	A7E44202012	13a
3AE5224-3	1600	150	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	60/100	A7E44202012	13a
3AE5225-1	800	150	310	31.5	50	38.6	80/82	20	95	38	2	130	240	150	143	83	A7E10907000	14
3AE5225-2	1250	150	310	31.5	50	38.6	80/82	20	95	38	2	130	240	150	143	83	A7E10907000	14
3AE5225-3	1600	150	310	31.5	50	38.6	80/82	20	95	38	2	130	240	150	143	83	A7E10907000	14
3AE5232-1	800	160	205	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	12a
3AE5232-2	1250	160	205	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	12a
3AE5234-1	800	160	205	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	13a

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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Technical data

Electrical data, dimensions and masses

17.5 kV 50/60 Hz Order No.	Rated operating current I_r A	Pole-centre distance mm	Vertical distance between terminals mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5234-2	1250	160	205	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202016	13a
3AE5235-1	800	160	205	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	83	A7E10907000	14
3AE5235-2	1250	160	205	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	83	A7E10907000	14
3AE5242-1	800	160	275	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202017	12a
3AE5242-2	1250	160	275	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202017	12a
3AE5244-1	800	160	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202017	13a
3AE5244-2	1250	160	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202017	13a
3AE5245-1	800	160	275	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	83	A7E10907000	14
3AE5245-2	1250	160	275	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	83	A7E10907000	14
3AE5252-1	800	160	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202018	12a
3AE5252-2	1250	160	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	54/–	A7E44202018	12a
3AE5252-3	1600	160	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	60/–	A7E44202018	12a
3AE5254-1	800	160	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202018	13a
3AE5254-2	1250	160	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	54/–	A7E44202018	13a
3AE5254-3	1600	160	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	60/–	A7E44202018	13a
3AE5255-1	800	160	310	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	83	A7E10907000	14
3AE5255-2	1250	160	310	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	83	A7E10907000	14
3AE5255-3	1600	160	310	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	83	A7E10907000	14
3AE5262-1	800	210	205	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	57/–	A7E44202022	12a
3AE5262-2	1250	210	205	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	57/–	A7E44202022	12a
3AE5264-1	800	210	205	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	57/–	A7E44202022	13a
3AE5264-2	1250	210	205	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	57/–	A7E44202022	13a
3AE5265-1	800	210	205	31.5	50	38.6	80/82	20	95	38	2	130	240	210	143	88	A7E10907000	14
3AE5265-2	1250	210	205	31.5	50	38.6	80/82	20	95	38	2	130	240	210	143	88	A7E10907000	14

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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17.5 kV 50/60 Hz Order No.	**Rated operating current** I_r A	**Pole-centre distance** mm	**Vertical distance between terminals** mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current % kA	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5272-1	800	210	275	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	12a
3AE5272-2	1250	210	275	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	12a
3AE5274-1	800	210	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	13a
3AE5274-2	1250	210	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202023	13a
3AE5275-1	800	210	275	31.5	50	38.6	80/82	20	95	38	2	130	240	210	143	88	A7E10907000	14
3AE5275-2	1250	210	275	31.5	50	38.6	80/82	20	95	38	2	130	240	210	143	88	A7E10907000	14
3AE5282-1	800	210	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	12a
3AE5282-2	1250	210	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	12a
3AE5282-3	1600	210	310	16	50	19.6	40/42	20	95	38	2.5	240	255	130	135	63/103	A7E44202024	12a
3AE5284-1	800	210	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	13a
3AE5284-2	1250	210	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	57/97	A7E44202024	13a
3AE5284-3	1600	210	310	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	63/103	A7E44202024	13a
3AE5284-4	2000	210	310	25	50	30.6	63/65	20	95	38	1.8	130	240	196	138	100	A7E10907000	13
3AE5284-6	2500	210	310	25	50	30.6	63/65	20	95	38	1.8	130	240	196	138	100	A7E10907000	13
3AE5285-1	800	210	310	31.5	50	38.6	80/82	20	95	38	2	130	240	210	143	88	A7E10907000	14
3AE5285-2	1250	210	310	31.5	50	38.6	80/82	20	95	38	2	130	240	210	143	88	A7E10907000	14
3AE5285-3	1600	210	310	31.5	50	38.6	80/82	20	95	38	2	130	240	210	143	88	A7E10907000	14
3AE5285-4	2000	210	310	31.5	50	38.6	80/82	20	95	38	1.8	130	240	196	138	105	A7E10907000	14
3AE5285-6	2500	210	310	31.5	50	38.6	80/82	20	95	38	1.8	130	240	196	138	105	A7E10907000	14
3AE5286-2	1250	210	310	40	50	49.0	100/104	20	95	38	1.8	140	240	150	130	125/165	A7E10910000	15
3AE5286-4	2000	210	310	40	50	49.0	100/104	20	95	38	1.1	140	240	150	130	140/190	A7E10910000	15
3AE5286-6	2500	210	310	40	50	49.0	100/104	20	95	38	1.1	140	240	150	130	140/190	A7E10910000	15
3AE5286-7	3150	210	310	40	50	49.0	100/104	20	95	38	0.9	140	240	150	130	160/210	A7E10910000	15
3AE5624-1	800	160	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	67/–	A7E44202038	13a

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

3

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Technical data

Electrical data, dimensions and masses

17.5 kV 50/60 Hz Order No.	Rated operating current I_r A	Pole-centre distance mm	Vertical distance between terminals mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5624-2	1250	160	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	67/–	A7E44202038	13a
3AE5625-1	800	160	275	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	85	A7E10907005	14
3AE5625-2	1250	160	275	31.5	50	38.6	80/82	20	95	38	2	130	240	160	143	85	A7E10907005	14
3AE5654-4	2000	275	310	25	50	30.6	63/65	20	95	38	1.8	130	240	261	138	105	A7E10907000	13
3AE5654-6	2500	275	310	25	50	30.6	63/65	20	95	38	1.8	130	240	261	138	105	A7E10907000	13
3AE5655-2	1250	275	310	31.5	50	38.6	80/82	20	95	38	2	130	240	275	143	96	A7E10907000	14
3AE5655-3	1600	275	310	31.5	50	38.6	80/82	20	95	38	2	130	240	275	143	96	A7E10907000	14
3AE5655-4	2000	275	310	31.5	50	38.6	80/82	20	95	38	1.8	130	240	261	138	105	A7E10907000	14
3AE5655-6	2500	275	310	31.5	50	38.6	80/82	20	95	38	1.8	130	240	261	138	108	A7E10907000	14
3AE5656-2	1250	275	310	40	50	49.0	100/104	20	95	38	1.8	140	240	215	130	130/–	A7E10910000	15
3AE5656-4	2000	275	310	40	50	49.0	100/104	20	95	38	1.1	140	240	215	130	145/–	A7E10910000	15
3AE5656-6	2500	275	310	40	50	49.0	100/104	20	95	38	1.1	140	240	215	130	145/–	A7E10910000	15
3AE5656-7	3150	275	310	40	50	49.0	100/104	20	95	38	0.9	140	240	215	130	165/–	A7E10910000	15
3AE5664-1	800	210	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	70/–	A7E10907005	13a
3AE5664-2	1250	210	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	70/–	A7E44202040	13a
3AE5664-3	1600	210	275	25	50	30.6	63/65	20	95	38	2.5	240	255	130	135	75/–	A7E44202040	13a
3AE5665-2	1250	210	275	31.5	50	38.6	80/82	20	95	38	2	130	240	196	143	91	A7E10907005	14
3AE5665-3	1600	210	275	31.5	50	38.6	80/82	20	95	38	2	130	240	196	138	84	A7E10907005	14
3AE5665-6	2500	210	275	31.5	50	38.6	80/82	20	95	38	1.8	130	240	196	138	110	A7E10907005	14
3AE5666-2	1250	210	275	40	50	49.0	100/104	20	95	38	1.8	140	240	150	130	125/–	A7E10910005	15
3AE5666-6	2500	210	275	40	50	49.0	100/104	20	95	38	1.1	140	240	150	130	140/–	A7E10910005	15
3AE5666-7	3150	210	275	40	50	49.0	100/104	20	95	38	0.9	140	240	150	130	160/–	A7E10910005	15
3AE5666-8	4000	210	275	40	50	49.0	100/104	20	95	38	0.9	140	240	150	130	160/–	A7E10910005	15

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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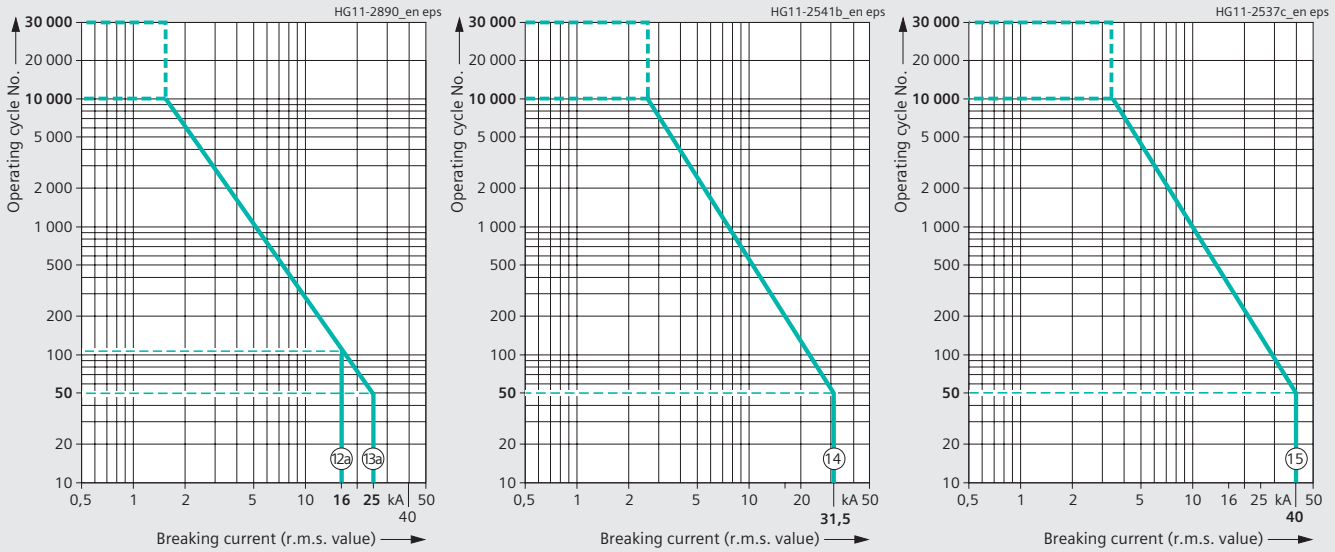
Operating cycle diagrams for 17.5 kV



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

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Technical data

Electrical data, dimensions and masses

24 kV 50/60 Hz Order No.	Rated operating current I_r A	Pole-centre distance mm	Vertical distance between terminals mm	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current % kA	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated back-to-back-capacitor-bank inrush making current I_{bi} kA, peak	Rated lightning impulse voltage U_p kV	Rated short-time AC withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance vacuum interrupters mm	Minimum creepage distance phase-to-earth mm	Minimum clearance phase-to-phase mm	Minimum clearance phase-to-earth mm	Mass [1] (fixed-mounted circuit breaker / module) kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 60)
3AE5322-1	800	210	310	16	50	19.6	40/42	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	17a
3AE5322-2	1250	210	310	16	50	19.6	40/42	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	17a
3AE5322-4	2000	210	310	16	50	19.6	40/42	20	125	50	1.3	240	248	194	152	126/176	A7E10908000	17
3AE5323-1	800	210	310	20	50	24.5	50/52	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	18a
3AE5323-2	1250	210	310	20	50	24.5	50/52	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	18a
3AE5323-4	2000	210	310	20	50	24.5	50/52	20	125	50	1.3	240	248	194	152	126/176	A7E10908000	18
3AE5323-6	2500	210	310	20	50	24.5	50/52	20	125	50	1.3	240	248	194	152	126/176	A7E10908000	18
3AE5324-1	800	210	310	25	50	30.6	63/65	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	19a
3AE5324-2	1250	210	310	25	50	30.6	63/65	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	19a
3AE5324-4	2000	210	310	25	50	30.6	63/65	20	125	50	1.3	240	248	194	152	126/176	A7E10908000	19
3AE5324-6	2500	210	310	25	50	30.6	63/65	20	125	50	1.3	240	248	194	152	126/176	A7E10908000	19
3AE5352-1	800	275	310	16	50	19.6	40/42	20	125	50	2.4	240	250	245	185	68/108	A7E10950000	17a
3AE5352-2	1250	275	310	16	50	19.6	40/42	20	125	50	2.4	240	250	245	185	68/108	A7E10950000	17a
3AE5352-4	2000	275	310	16	50	19.6	40/42	20	125	50	1.3	240	248	259	152	136/186	A7E10908000	17
3AE5353-1	800	275	310	20	50	24.5	50/52	20	125	50	2.4	240	250	245	185	68/108	A7E10950000	18a
3AE5353-2	1250	275	310	20	50	24.5	50/52	20	125	50	2.4	240	250	245	185	68/108	A7E10950000	18a
3AE5353-4	2000	275	310	20	50	24.5	50/52	20	125	50	1.3	240	248	259	152	136/186	A7E10908000	18
3AE5353-6	2500	275	310	20	50	24.5	50/52	20	125	50	1.3	240	248	259	152	136/186	A7E10908000	18
3AE5354-1	800	275	310	25	50	30.6	63/65	20	125	50	2.4	240	250	245	185	68/108	A7E10950000	19a
3AE5354-2	1250	275	310	25	50	30.6	63/65	20	125	50	2.4	240	250	245	185	68/108	A7E10950000	19a
3AE5354-4	2000	275	310	25	50	30.6	63/65	20	125	50	1.3	240	248	259	152	136/186	A7E10908000	19
3AE5354-6	2500	275	310	25	50	30.6	63/65	20	125	50	1.3	240	248	259	152	136/186	A7E10908000	19
3AE5714-0	1000	210	310	25	50	30.6	63/65	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	19a
3AE5714-1	800	210	310	25	50	30.6	63/65	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	19a
3AE5714-2	1250	210	310	25	50	30.6	63/65	20	125	50	2.4	240	250	180	185	65/105	A7E10950000	19a
3AE5744-4	2000	275	310	25	50	30.6	63/65	20	125	50	1.3	240	248	259	152	136/186	A7E10908005	19
3AE5744-6	2500	275	310	25	50	30.6	63/65	20	125	50	1.3	240	248	259	152	136/186	A7E10908005	19

▲ On request

1) The mass of the fixed-mounted circuit breaker, mounted on the withdrawable element, increases by the values specified in the dimension drawing of the withdrawable element (page 58)

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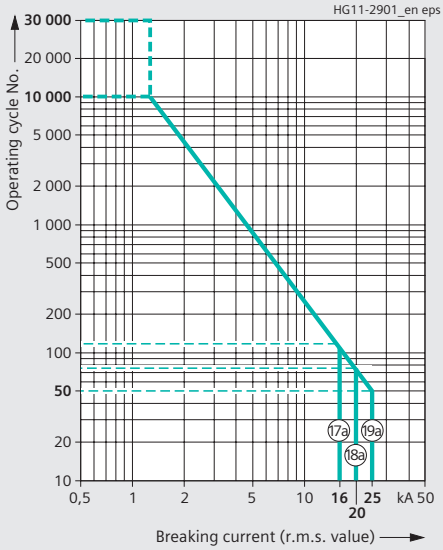
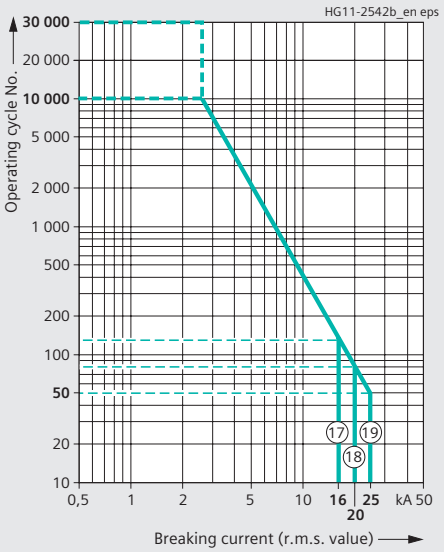
Operating cycle diagrams for 24 kV



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

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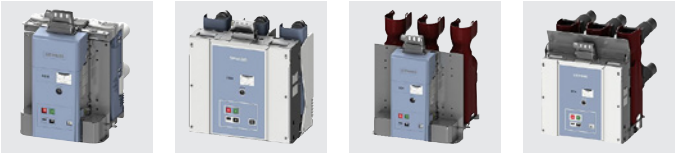
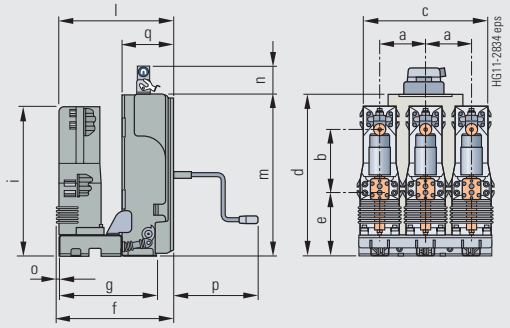
Technical data

Dimensional drawings for voltage levels 7.2 to 24 kV



Dimension drawings for 7.2 to 24 kV

Vacuum circuit breaker without contact arm



Rated short-circuit breaking current to 31.5 kA

Voltage level	Pole-centre distance a mm	Vertical distance between terminals 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	540 [2]	371 [3]	540	105	8	305	169
	150	275	445	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	150	310	445	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	205	465	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	275	465	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	310	465	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	205	565	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	275	565	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	310	565	540	237.5	380	329	540 [2]	371 [3]	540	105	8 [1]	305	169
12 kV	150	205	445	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	150	275	445	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	150	310	445	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	205	465	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	275	465	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	310	465	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	205	565	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	275	565	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	310	565	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	275	310	565	540	237.5	380	329	540 [2]	371 [3]	540	105	30	305	169
17.5 kV	150	205	445	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	150	275	445	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	150	310	445	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	205	465	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	275	465	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	160	310	465	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	205	565	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	275	565	540	217.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	210	310	565	540	237.5	380	329	540 [2]	371 [3]	540	105	8	305	169
	275	310	695	540	237.5	380	329	540 [2]	371 [3]	540	105	30	305	169
24 kV	210	310	570	540	283	459	399	667 [4]	421 [5]	540	105	7	305	169
	275	310	695	540	283	459	399	667 [4]	421 [5]	540	105	7	305	169

1) At I_r = >1600 A --> 30 mm
2) At I_r = >1600 A or 17.5 kV/31.5 kA --> 585 mm
3) At I_r = >1600 A or 17.5 kV/31.5 kA --> 379 mm
4) At I_r = >1600 A --> 697 mm
5) At I_r = >1600 A --> 458 mm

Rated short-circuit breaking current 40 kA

Voltage level	Pole-centre distance a mm	Vertical distance between terminals 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	210	275	600	540	237.5	447.6	397	610	449	540	105	30	305	169
	210	310	600	540	237.5	447.6	397	610	449	540	105	30	305	169
12 kV	210	275	600	540	237.5	447.6	397	610	449	540	105	30	305	169
	210	310	600	540	237.5	447.6	397	610	449	540	105	30	305	169
	275	310	730	540	237.5	447.6	397	610	449	540	105	30	305	169
17.5 kV	210	275	600	540	237.5	447.6	397	610	449	540	105	30	305	169
	210	310	600	540	237.5	447.6	397	610	449	540	105	30	305	169
	275	310	730	540	237.5	447.6	397	610	449	540	105	30	305	169

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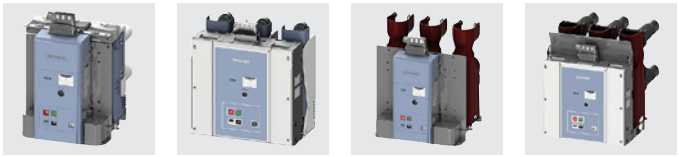
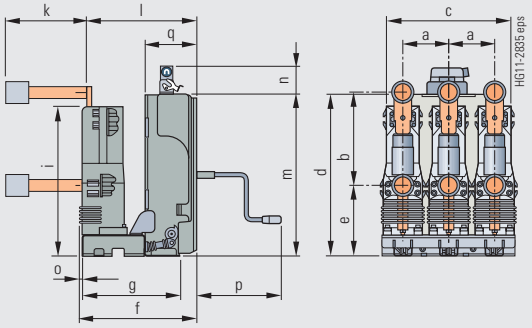


Dimension drawings for 7.2 to 24 kV

Vacuum circuit breaker with contact arm



Rated short-circuit breaking current to 31.5 kA

Voltage level	Pole-centre distance a mm	Vertical distance between terminals 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	540 2)	274	371 3)	540	105	8	305	169
	150	275	445	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	150	310	445	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	205	465	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	275	465	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	310	465	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	205	565	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	275	565	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	310	565	540	237.5	380	329	540 2)	274	371 3)	540	105	8 1)	305	169
12 kV	150	205	445	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	150	275	445	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	150	310	445	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	205	465	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	275	465	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	310	465	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	205	565	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	275	565	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	310	565	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	275	310	695	540	237.5	380	329	540 2)	274	371 3)	540	105	30	305	169
17.5 kV	150	205	445	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	150	275	445	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	150	310	445	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	205	465	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	275	465	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	160	310	465	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	205	565	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	275	565	540	217.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	210	310	565	540	237.5	380	329	540 2)	274	371 3)	540	105	8	305	169
	275	310	695	540	237.5	380	329	540 2)	274	371 3)	540	105	30	305	169
24 kV	210	310	570	540	283	459	399	667 4)	274	421 5)	540	105	7	305	169
	275	310	695	540	283	459	399	667 4)	274	421 5)	540	105	7	305	169

1) At I_r = >1600 A --> 30 mm
2) At I_r = >1600 A or 17.5 kV/31.5 kA --> 585 mm
3) At I_r = >1600 A or 17.5 kV/31.5 kA --> 379 mm
4) At I_r = >1600 A --> 697 mm
5) At I_r = >1600 A --> 458 mm

Rated short-circuit breaking current 40 kA

Voltage level	Pole-centre distance a mm	Vertical distance between terminals 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	210	275	600	540	237.5	447.6	397	610	274	449	540	105	30	305	169
	210	310	600	540	237.5	447.6	397	610	274	449	540	105	30	305	169
12 kV	210	275	600	540	237.5	447.6	397	610	274	449	540	105	30	305	169
	210	310	600	540	237.5	447.6	397	610	274	449	540	105	30	305	169
	275	310	730	540	237.5	447.6	397	610	274	449	540	105	30	305	169
17.5 kV	210	275	600	540	237.5	447.6	397	610	274	449	540	105	30	305	169
	210	310	600	540	237.5	447.6	397	610	274	449	540	105	30	305	169
	275	310	730	540	237.5	447.6	397	610	274	449	540	105	30	305	169

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Technical data

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




Operating times and internal times for 3AE5

Operating times at rated voltage of the secondary circuit	Equipment of circuit breaker	Circuit breaker operating time
Closing time	–	≤ 60 ms
Opening time	1st shunt release	≤ 30 ms
	2nd and 3rd release	≤ 45 ms
Arcing time	–	< 15 ms
Break time	1st shunt release	≤ 45 ms
	2nd and 3rd release	≤ 60 ms
CLOSE/OPEN contact time	1st shunt release	≤ 45 ms
	2nd and 3rd release	≤ 60 ms
Minimum command duration	Closing solenoid	45 ms
	1st shunt release	40 ms
	2nd and 3rd release	20 ms
Pulse time for circuit breaker tripping signal	1st shunt release	> 10 ms
	2nd and 3rd Release	> 6 ms
Charging time for electrical operation		< 15 s
Synchronism error between the poles		≤ 2 ms

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

Rated voltage of the motor	Operating voltage		Power consumption of the motor	Smallest possible rated current [1] of the miniature circuit breaker with C-characteristic
V	max. V	min. V	W / VA	A
24 DC	26	20	140	6
48 DC	53	41	110	3
60 DC	66	51	130	3
110 DC	121	93	100	3
220 DC	242	187	110	1.2
110 AC	121	93	170	3
230 AC	244	187	200	1.2

1) The inrush current 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	Tripping voltage or triggering current
	DC approx. W	AC 50/60 Hz approx. VA	at DC	At 50/60 Hz AC
Closing solenoid 3AY14 10	300 – 370	300 – 370	85 to 110% *U*	85 to 110% *U*
1st shunt release (without stored-energy mechanism) 3AY14 10	300	300	70 to 110% *U*	85 to 110% *U*
2nd and 3rd Shunt release (with stored-energy mechanism) 3AX11 01	70	50	70 to 110% *U*	85 to 110% *U*
Undervoltage release 3AX11 03	20	20	35 to 100% *U*	35 to 100% *U*
C.t.-operated release 3AX (rated operating current 0.5 A, 1 A or 5 A)	–	10 [2]	–	90 to 110% I_a
C.t.-operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

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

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Circuit diagrams for 3AE5 can be found at the Siemens Industry Online Support (SIOS):

http://support.industry.siemens.com/

Circuit manual 3AE5 (64-pole): SA7E449 99009 021

Circuit manual 3AE5 (20-pole): SA7E449 99009 013

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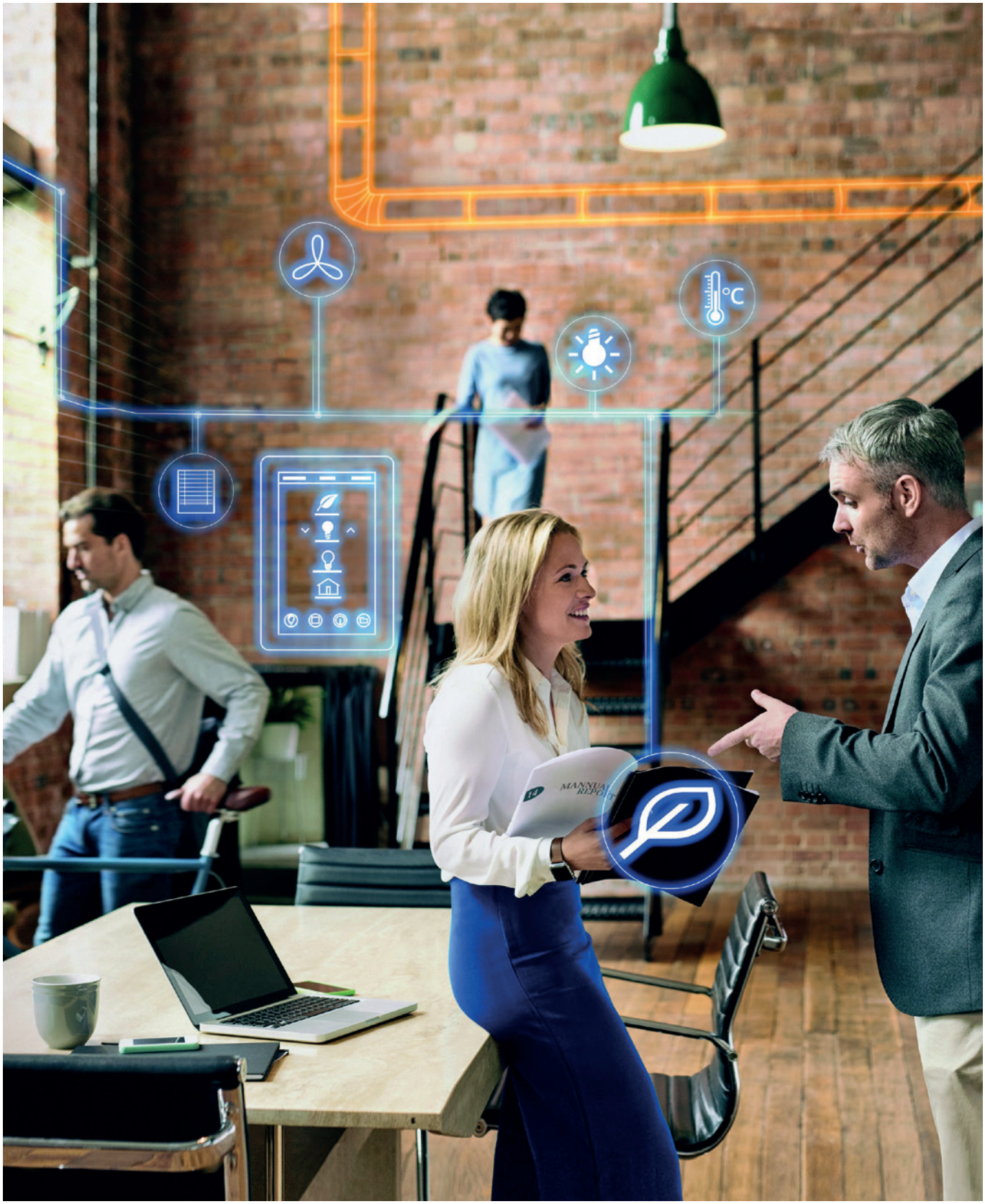

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Switchgear Factory in Berlin, Germany

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4

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Annex
Inquiry form

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

Inquiry concerning

SION vacuum circuit breaker from 7.2 kV to 24 kV

Please

☐ Submit an offer
☐ Call us
☐ Visit us

Your address

Company

Department

Name

Street

Postal code/ city

Country

Phone

Fax

Email

Siemens AG

Department

Name

Street

Postal code/ city

Country

Fax

Technical data

				Other values
Rated voltage	☐ 7.2 kV ☐ 24 kV	☐ 12 kV	☐ 17.5 kV	☐ ___ kV
Rated lightning impulse voltage	☐ 60 kV ☐ 125 kV	☐ 75 kV	☐ 95 kV	☐ ___ kV
Rated short-duration power-frequency withstand voltage	☐ 20 kV ☐ 42 kV	☐ 28 kV ☐ 50 kV	☐ 38 kV ☐ 55 kV	☐ ___ kV
Rated short-circuit breaking current	☐ 12.5 kA ☐ 25 kA	☐ 16 kA ☐ 31.5 kA	☐ 20 kA ☐ 40 kA	☐ ___ kA
Rated operating current	☐ 800 A ☐ 2500 A	☐ 1250 A ☐ 3150 A	☐ 2000 A	☐ ___ A
Pole-centre distance	☐ 150 mm	☐ 160 mm	☐ 210 mm	☐ 275 mm
Vertical distance between terminals	☐ 205 mm	☐ 275 mm	☐ 310 mm	

Secondary equipment
For possible combinations, see pages 26 to 32

Circuit breaker installation equipment	☐ Fixed mounting		☐ Withdrawable element, contact arms ☐ Withdrawable element, contact arms, bushings	
Drive motor	☐ DC ___ V		☐ AC ___ V, ___ Hz	
Closing solenoid	☐ DC ___ V		☐ AC ___ V, ___ Hz	
1st shunt release	☐ DC ___ V		☐ AC ___ V, ___ Hz	
2nd shunt release	☐ DC ___ V		☐ AC ___ V, ___ Hz	
C.t.-operated release	☐			
Undervoltage release	☐ DC ___ V		☐ AC ___ V, ___ Hz	
Auxiliary switch	☐ 6 NO + 6 NC		☐ 12 NO + 12 NC	
Low-voltage terminal	☐ 20-pole plug strip or 27-pole terminal strip		☐ 64-pole plug	
☐ Electrical closing lock-out				
Operating instructions	☐ German	☐ English	☐ French	☐ Spanish

Application and other requirements

☐ Please check off ___ Please fill in

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

Please follow the steps for configuration and enter the article 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 16 to 23)

Please specify the following ratings:	Possible options:
Rated voltage (U_r)	U_r: 7.2 kV to 24 kV
Rated lightning impulse 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-centre distance	150 mm to 275 mm
Vertical distance between terminals	205 mm to 310 mm

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

2nd step: Definition of the secondary equipment (see pages 24 to 30)

Please specify the following equipment features:	Possible options:
Release combination (position 9)	Shunt release, current-transformer-operated release and undervoltage release
Closing solenoid (position 10)	Operating voltages from 24 V DC to 240 V AC
Operating voltage of the releases (positions 11/12)	Operating voltages from 24 V DC to 240 V AC
Installation accessories (position 13)	Fixed mounting, with withdrawable element, with contact, fixed contact, bushing
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-pole plug connector, 64-pole plug
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 article number.

3rd step: Have any further requirements concerning the equipment? (Please refer to page 31)

Your Siemens sales partner will be happy to assist you.

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For configuration of your SION vacuum circuit breaker

1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		
3	A	E	■	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	Z
					see page 16	to	see page 23		see page 24	see page 25	see page 25	see page 26		see page 27	see page 28	see page 29	see page 30		see page 31
3	A	E					–						–						
				+				+				+				+			
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3	A	E					–						–						
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Siemens AG

Smart Infrastructure
Low Voltage Products
Siemensstraße 10
93055 Regensburg, Germany

For the U.S. published by
Siemens Industry Inc.

100 Technology Drive
Alpharetta, GA 30005
United States

PDF (EMLP-C10162-00-7600)
KG 0320 66 En
Produced in Germany
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