SION Vacuum Circuit-Breakers

Medium-Voltage Equipment
Selection and Ordering Data

Catalog HG 11.02 · 2011

Answers for energy.

SIEMENS

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SION Vacuum Circuit-Breakers

Medium-Voltage Equipment
Catalog HG 11.02 · 2011

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ISO 9001
ISO 14001
DNV
Certified Company

OHSAS 18001
DNV
Certified Company

The products and systems described in this catalog are manufactured and sold according to a certified management system (acc. to ISO 9001, ISO 14001 and BS OHSAS 18001).
DNV Certificate No.: 92113-2011-AHSO-GER-TGA and Certificate No.: 87028-2010-AHSO-GER-TGA.

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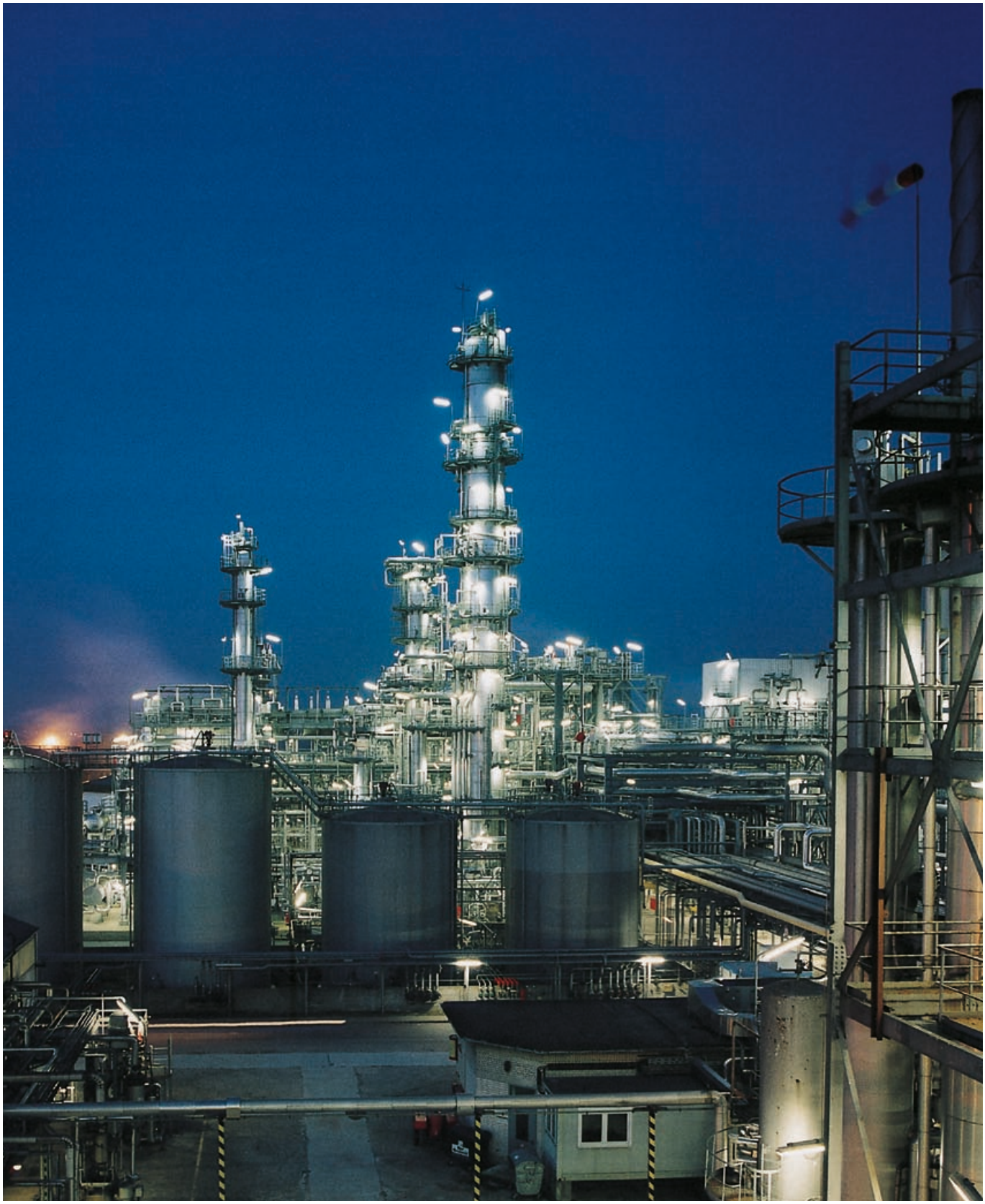

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Industrial application: Refinery

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1

SION vacuum circuit-breaker from 7.2 to 24 kV – The Innovative

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

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

Our comprehensive circuit-breaker product range offers a wide selection for pole-centre distances and widths across flats as well as various equipment options for voltage levels from 7.2 kV to 24 kV. The drawout 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 diversity of panel versions. High reliability and availability are just as much a matter of course as 10,000 maintenance-free operating cycles.

SION circuit-breaker for fixed mounting

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

SION circuit-breaker on drawout element

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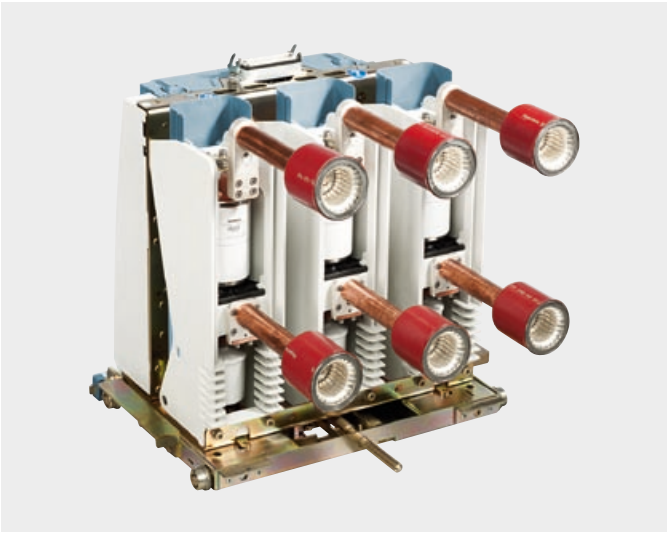
The circuit-breaker mounted on a drawout element can be supplied both with and without contact arms and contacts.

SION circuit-breaker on drawout element – with contacts



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

Slide-in module

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

Slide-in module with earthing switch

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

Circuit-breaker on truck for retrofitting 8B switchgear

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

1

Switching medium

The vacuum switching technology, proven and fully developed for more than 30 years, serves as arc-quenching principle by using vacuum interrupters.

Pole assemblies

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

Operating mechanism

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

The circuit-breaker operating mechanism is a stored-energy spring mechanism. The force is transmitted from the operating mechanism to the pole assemblies via operating levers. The closing spring (15) can be charged either electrically or manually, and latches automatically in when charging is complete. The closing spring (15) acts as a stored-energy mechanism.

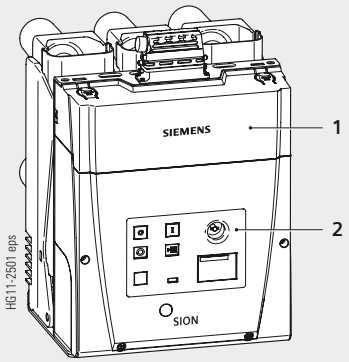
To close the breaker, the closing spring (15) can be unlatched either mechanically at the device ("ON" pushbutton), or electrically by remote control. The closing spring (15) charges the opening or contact-pressure springs (17) as the breaker closes. The now discharged closing spring (15) will be charged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

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

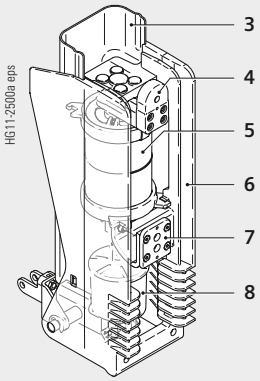
Trip-free mechanism

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

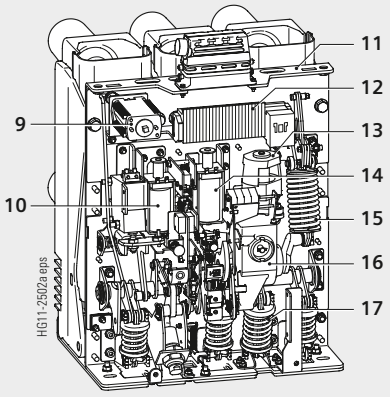
For charging the closing spring (15), the motor (13) operates in short-time duty. Therefore the voltage and power consumption might differ from the data of the motor rating plate.



Front view
- **1** Cover of low-voltage interface
- **2** Central control board



Pole structure
- **3** Separating shell to the operating mechanism
- **4** Upper connection
- **5** Vacuum interrupter
- **6** Pole shell
- **7** Lower connection
- **8** Bell-type insulator



Operating mechanism 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

Releases

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

Closing solenoid

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

Shunt releases

Shunt releases are used for automatic tripping of the circuit-breaker by suitable protection relays and for deliberate tripping by electrical means. They are intended for connection to an external power supply (DC or AC voltage) but, in special cases, may also be connected to a voltage transformer.

Current-transformer operated releases

Current-transformer operated releases comprise a stored-energy mechanism, an unlatching mechanism, and an electromagnetic system. They are used when there is no external source of auxiliary power (e.g. a battery). Tripping is effected by means of a protection relay (e.g. overcurrent-time protection) acting on the current-transformer operated release.

Undervoltage releases

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

The maximum equipment are two releases according to page 27. The consumption data of the releases is listed on page 57.

Closing and anti-pumping

In the standard version, the circuit-breakers can be remote-closed electrically. In addition, they can be mechanically closed locally by direct unlatching of the closing spring.
If constant CLOSE and OPEN commands are present at the circuit-breaker at the same time, the circuit-breaker will return to the open position after closing. It remains in this position until a new CLOSE command is given. In this manner, continuous closing and opening (= "pumping") is prevented.

Closing spring charged indication

The charging status of the closing spring can be interrogated electrically by means of a position switch.

Circuit-breaker tripping signal

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

For the corresponding circuit diagrams, refer to page 58.

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 a faulty position.

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

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

Electrical interlocking

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

Low-voltage interface

The separate cover enables easy access to the low-voltage interface. All possible customer-side control and signalling connections are concentrated here.

1

Slide-in module

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

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

Slide-in module with make-proof earthing switch

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

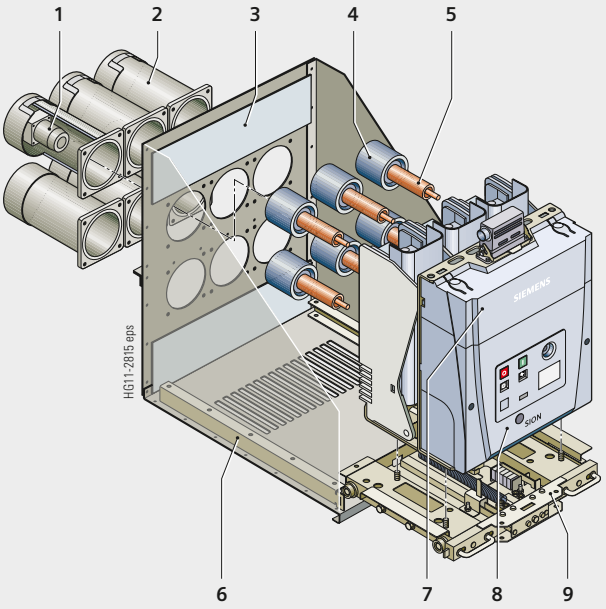
The make-proof earthing switch has been tested in the slide-in module and fulfills the relevant standards for the slide-in module.

Circuit-breaker on truck for retrofitting 8B switchgear

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

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

Slide-in module



1 Fixed contact
2 Bushing
3 Shutter
4 Contact
5 Contact arm
6 Cartridge
7 Low-voltage interface
8 Circuit-breaker
9 Drawout element

Retrofit

1

Standards

The circuit-breakers conform to the following standards:

- IEC 62271-1
- IEC 62271-100

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

The slide-in modules have been tested according to

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

Maintenance-free design

The circuit-breakers are maintenance-free:

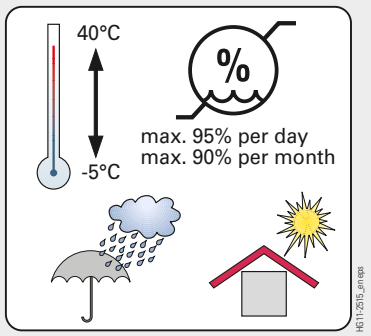
- Under normal ambient conditions according to IEC 62271-1
- Up to 10,000 operating cycles,
  - no regreasing
  - no readjusting,

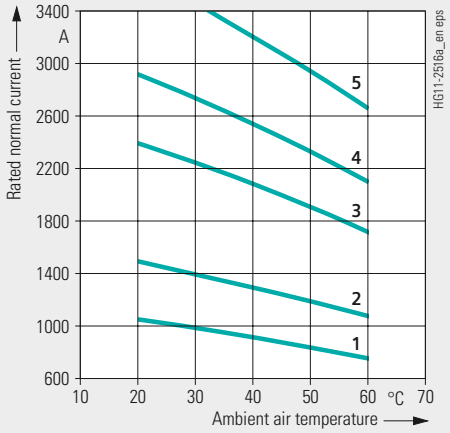
the ratings are independent – within their tolerances – of the switching rate or standing times without switching.

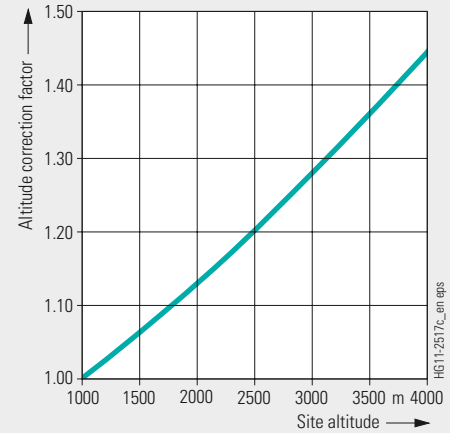
Interlocking

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

1







Ambient conditions

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

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

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

1) Low temperature limit: –5 °C
2) Without icing and wind-driven precipitation
3) Restriction: Clean insulation parts

Current carrying capacity

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

For enclosed switchgear the data of the switchgear manufacturer applies.

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

Characteristics curve **1** = Rated normal current 800 A
Characteristics curve **2** = Rated normal current 1250 A
Characteristics curve **3** = Rated normal current 2000 A
Characteristics curve **4** = Rated normal current 2500 A
Characteristics curve **5** = Rated normal current 3150 A

Dielectric strength

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

The characteristic shown applies to both rated withstand voltages.

To select the devices, the following applies:

$U \geq U_0 \times K_a$

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

Example

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

90 kV ≥ 75 kV x 1.2

1

Basic equipment

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

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
				Width across flats (in mm)									
	kV	kA	A	205	275	310	205	275	310	205	275	310	310
3AE10	7.2	16	800/1250	■	■	■	■	■	■	■	■	■	
		20	800/1250	■	■	■	■	■	■	■	■	■	
		25	800/1250	■	■	■	■	■	■	■	■	■	
		25	2000									■	
		31.5	800/1250	■	■	■	■	■	■	■	■	■	
		31.5	2000/2500									■	
		40	1250/2000									■	
		40	2500/3150									■	
3AE11	12	16	800/1250	■	■	■	■	■	■	■	■	■	
		20	800/1250	■	■	■	■	■	■	■	■	■	
		25	800/1250	■	■	■	■	■	■	■	■	■	
		25	2000									■	
		31.5	800/1250	■	■	■	■	■	■	■	■	■	
		31.5	2000/2500									■	
		40	1250/2000									■	
		40	2500/3150									■	
3AE12	17.5	12.5	800/1250	■	■	■	■	■	■	■	■	■	
		16	800/1250	■	■	■	■	■	■	■	■	■	
		25	800/1250	■	■	■	■	■	■	■	■	■	
		25	2000/2500									■	
		31.5	800/1250	■	■	■	■	■	■	■	■	■	
		31.5	2000/2500									■	
		40	1250/2000									■	
		40	2500/3150									■	
3AE13	24	12.5	800/1250									■	
		16	800/1250/2000									■	■
		20	800/1250									■	■
		20	2000/2500									■	■
		25	800/1250									■	■
		25	2000/2500									■	■

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

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Fixed-mounted circuit-breaker

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Order number structure

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

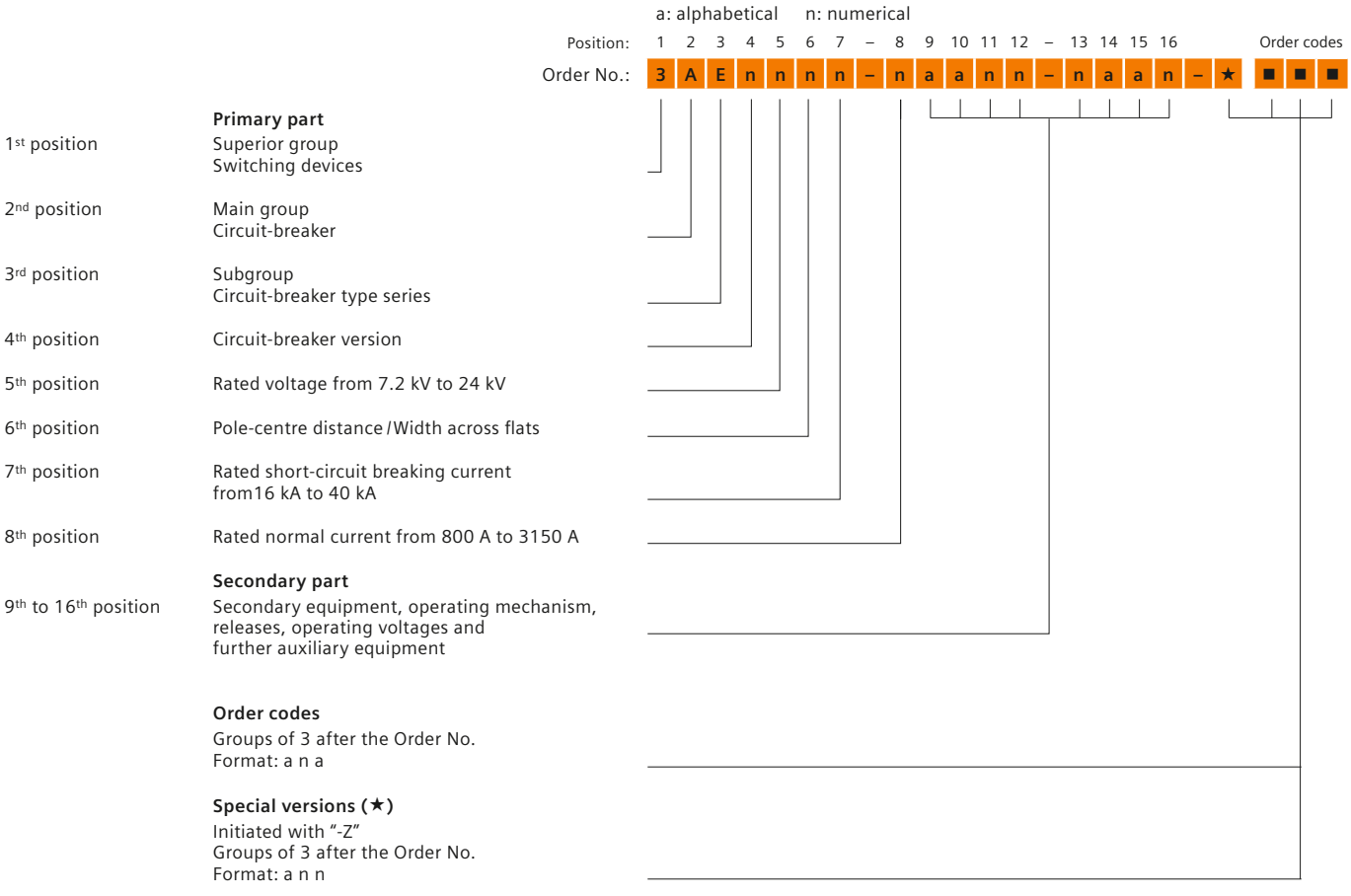
Order codes

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

Special versions (★)

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

2



Configuration example

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

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

Configuration example 1: SION vacuum slide-in module (vacuum circuit-breaker on drawout element in cartridge) and 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	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Configuration example																						
SION circuit-breaker	3	A	E	1																		
Rated voltage U_r = **24 kV, 50/60 Hz**																						
Rated lightning impulse withstand voltage U_p = **125 kV**																						
Rated short-circuit breaking current I_{SC} = **25 kA**																						
Rated normal current I_r = **2000 A**																						
Pole-centre distance = **275 mm**																						
Width across flats = **310 mm**					3	5	4	–	4													
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 drawout element, with cartridge, contact arm, contact, fixed contacts, bushing, shutters, make-proof earthing switch															6							
Operating voltage of the motor operating mechanism **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 for Order No.:	3	A	E	1	3	5	4	–	4	A	C	9	0	–	6	K	N	0	–	Z			
Order codes:	L	1	B	+	M	5	1	+	F	3	0												

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

Position:	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Configuration example																						
SION circuit-breaker	3	A	E	1																		
Rated voltage U_r = **12 kV, 50/60 Hz**																						
Rated lightning impulse withstand voltage U_p = **75 kV**																						
Rated short-circuit breaking current I_{SC} = **25 kA**																						
Rated normal current I_r = **1250 A**																						
Pole-centre distance = **210 mm**																						
Width across flats = **310 mm**					1	8	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	–								
8B retrofit: Circuit-breaker up to 12 kV, 25 kA, 1250 A, contact arm type A															7					R	2	1
Operating voltage of the motor operating mechanism **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 for Order No.:	3	A	E	1	1	8	4	–	2	A	C	9	0	–	7	K	N	0	–	Z			
Order codes:	L	1	B	+	R	2	1	+	F	3	0												

7.2 kV

Position:	1	2	3	4	5	6	7	–	8	9–12		13th position – Equipment package							14–16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	–	★	■	■	■
												Orderable versions												
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A			See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32		See page 33			
7.2	60	20	**16**	40/42	**210**	310	800	3	A	E	1	0	8	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	8	2	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	0	7	2	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	7	2	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	6	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	6	2	–	2		■	■	●	●								
					160	310	800	3	A	E	1	0	5	2	–	1		■	■	●	●								
						310	1250	3	A	E	1	0	5	2	–	2		■	■	●	●								
						275	800	3	A	E	1	0	4	2	–	1		■	■	●	●								
						275	1250	3	A	E	1	0	4	2	–	2		■	■	●	●								
						205	800	3	A	E	1	0	3	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	3	2	–	2		■	■	●	●								
					150	310	800	3	A	E	1	0	2	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	2	2	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	0	1	2	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	1	2	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	0	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	0	2	–	2		■	■	●	●								
7.2	60	20	**20**	50/52	**210**	310	800	3	A	E	1	0	8	3	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	8	3	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	0	7	3	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	7	3	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	6	3	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	6	3	–	2		■	■	●	●								
					160	310	800	3	A	E	1	0	5	3	–	1		■	■	●	●								
						310	1250	3	A	E	1	0	5	3	–	2		■	■	●	●								
						275	800	3	A	E	1	0	4	3	–	1		■	■	●	●								
						275	1250	3	A	E	1	0	4	3	–	2		■	■	●	●								
						205	800	3	A	E	1	0	3	3	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	3	3	–	2		■	■	●	●								
					150	310	800	3	A	E	1	0	2	3	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	2	3	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	0	1	3	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	1	3	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	0	3	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	0	3	–	2		■	■	●	●								
Special version U_d = 32 kV																						–	Z	E 1 6

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without drawout element, see page 29, 13th position

7.2 kV

Position:	1	2	3	4	5	6	7	–	8	9–12	–	13th position – Equipment package							14–16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	–	★	■	■	■
												Orderable versions												
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A			See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32		See page 33			
7.2	60	20	**25**	63/65	**210**	310	800	3	A	E	1	0	8	4	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	8	4	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	0	8	4	–	4		■	■	●	●	●	●						
						275	800	3	A	E	1	0	7	4	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	7	4	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	6	4	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	6	4	–	2		■	■	●	●								
					160	310	800	3	A	E	1	0	5	4	–	1		■	■	●	●								
						310	1250	3	A	E	1	0	5	4	–	2		■	■	●	●								
						275	800	3	A	E	1	0	4	4	–	1		■	■	●	●								
						275	1250	3	A	E	1	0	4	4	–	2		■	■	●	●								
						205	800	3	A	E	1	0	3	4	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	3	4	–	2		■	■	●	●								
					150	310	800	3	A	E	1	0	2	4	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	2	4	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	0	1	4	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	1	4	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	0	4	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	0	4	–	2		■	■	●	●								
7.2	60	20	**31.5**	80/82	**210**	310	800	3	A	E	1	0	8	5	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	8	5	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	0	8	5	–	4		■	■	●	●	●	●						
						310	2500	3	A	E	1	0	8	5	–	6		■	■	●	●	●	●						
						275	800	3	A	E	1	0	7	5	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	7	5	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	6	5	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	6	5	–	2		■	■	●	●								
					160	310	800	3	A	E	1	0	5	5	–	1		■	■	●	●								
						310	1250	3	A	E	1	0	5	5	–	2		■	■	●	●								
						275	800	3	A	E	1	0	4	5	–	1		■	■	●	●								
						275	1250	3	A	E	1	0	4	5	–	2		■	■	●	●								
						205	800	3	A	E	1	0	3	5	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	3	5	–	2		■	■	●	●								
					150	310	800	3	A	E	1	0	2	5	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	0	2	5	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	0	1	5	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	0	1	5	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	0	0	5	–	1		■	■	●	●								
						205	1250	3	A	E	1	0	0	5	–	2		■	■	●	●								
7.2	60	20	**40**	100/104	**210**	310	1250	3	A	E	1	0	8	6	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	0	8	6	–	4		■	■	●	●	●	●						
						310	2500	3	A	E	1	0	8	6	–	6		■	■	●	●	●	●						
						310	3150	3	A	E	1	0	8	6	–	7		■	■	●	●	●	●						
Special version U_d = 32 kV																					–	Z	E	1	6

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without drawout element, see page 29, 13th position

2

12 kV

Position:	1	2	3	4	5	6	7	–	8	9–12		13th position – Equipment package							14–16		Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	–	★	■	■	■
												Orderable versions											
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A			See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32	See page 33			
12	75	28	**16**	40/42	**210**	310	800	3	A	E	1	1	8	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	1	8	2	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	1	7	2	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	1	7	2	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	1	6	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	1	6	2	–	2		■	■	●	●								
					160	310	800	3	A	E	1	1	5	2	–	1		■	■	●	●								
						310	1250	3	A	E	1	1	5	2	–	2		■	■	●	●								
						275	800	3	A	E	1	1	4	2	–	1		■	■	●	●								
						275	1250	3	A	E	1	1	4	2	–	2		■	■	●	●								
						205	800	3	A	E	1	1	3	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	1	3	2	–	2		■	■	●	●								
					150	310	800	3	A	E	1	1	2	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	1	2	2	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	1	1	2	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	1	1	2	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	1	0	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	1	0	2	–	2		■	■	●	●								
12	75	28	**20**	50/52	**210**	310	800	3	A	E	1	1	8	3	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	1	8	3	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	1	7	3	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	1	7	3	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	1	6	3	–	1		■	■	●	●								
						205	1250	3	A	E	1	1	6	3	–	2		■	■	●	●								
					160	310	800	3	A	E	1	1	5	3	–	1		■	■	●	●								
						310	1250	3	A	E	1	1	5	3	–	2		■	■	●	●								
						275	800	3	A	E	1	1	4	3	–	1		■	■	●	●								
						275	1250	3	A	E	1	1	4	3	–	2		■	■	●	●								
						205	800	3	A	E	1	1	3	3	–	1		■	■	●	●								
						205	1250	3	A	E	1	1	3	3	–	2		■	■	●	●								
					150	310	800	3	A	E	1	1	2	3	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	1	2	3	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	1	1	3	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	1	1	3	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	1	0	3	–	1		■	■	●	●								
						205	1250	3	A	E	1	1	0	3	–	2		■	■	●	●								
Special version U_d = 42 kV																					–	Z	E	1	3

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without drawout element, see page 29, 13th position

12 kV

Position:	1	2	3	4	5	6	7	–	8	9–12	–	13th position – Equipment package							14–16		Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	– ★	■	■	■
												Orderable versions											
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A					See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32	See page 33			
12	75	28	**25**	63/65	**210**	310	800	3	A	E	1	1	8	4	–	1		■	■	●	●	●	●					
						310	1250	3	A	E	1	1	8	4	–	2		■	■	●	●	●	●	▲				
						310	2000	3	A	E	1	1	8	4	–	4		■	■	●	●	●	●	▲				
						310	2500	3	A	E	1	1	8	4	–	6		■	■	●	●	●	●	▲				
						275	800	3	A	E	1	1	7	4	–	1		■	■	●	●	●	●					
						275	1250	3	A	E	1	1	7	4	–	2		■	■	●	●	●	●					
						205	800	3	A	E	1	1	6	4	–	1		■	■	●	●							
						205	1250	3	A	E	1	1	6	4	–	2		■	■	●	●							
					160	310	800	3	A	E	1	1	5	4	–	1		■	■	●	●							
						310	1250	3	A	E	1	1	5	4	–	2		■	■	●	●							
						275	800	3	A	E	1	1	4	4	–	1		■	■	●	●							
						275	1250	3	A	E	1	1	4	4	–	2		■	■	●	●							
						205	800	3	A	E	1	1	3	4	–	1		■	■	●	●							
						205	1250	3	A	E	1	1	3	4	–	2		■	■	●	●							
					150	310	800	3	A	E	1	1	2	4	–	1		■	■	●	●	●	●					
						310	1250	3	A	E	1	1	2	4	–	2		■	■	●	●	●	●					
						275	800	3	A	E	1	1	1	4	–	1		■	■	●	●	●	●					
						275	1250	3	A	E	1	1	1	4	–	2		■	■	●	●	●	●					
						205	800	3	A	E	1	1	0	4	–	1		■	■	●	●							
						205	1250	3	A	E	1	1	0	4	–	2		■	■	●	●							
12	75	28	**31.5**	80/82	**210**	310	800	3	A	E	1	1	8	5	–	1		■	■	●	●	●	●					
						310	1250	3	A	E	1	1	8	5	–	2		■	■	●	●	●	●	▲				
						310	2000	3	A	E	1	1	8	5	–	4		■	■	●	●	●	●	▲				
						310	2500	3	A	E	1	1	8	5	–	6		■	■	●	●	●	●	▲				
						275	800	3	A	E	1	1	7	5	–	1		■	■	●	●	●	●					
						275	1250	3	A	E	1	1	7	5	–	2		■	■	●	●	●	●					
						205	800	3	A	E	1	1	6	5	–	1		■	■	●	●							
						205	1250	3	A	E	1	1	6	5	–	2		■	■	●	●							
					160	310	800	3	A	E	1	1	5	5	–	1		■	■	●	●							
						310	1250	3	A	E	1	1	5	5	–	2		■	■	●	●							
						275	800	3	A	E	1	1	4	5	–	1		■	■	●	●							
						275	1250	3	A	E	1	1	4	5	–	2		■	■	●	●							
						205	800	3	A	E	1	1	3	5	–	1		■	■	●	●							
						205	1250	3	A	E	1	1	3	5	–	2		■	■	●	●							
					150	310	800	3	A	E	1	1	2	5	–	1		■	■	●	●	●	●					
						310	1250	3	A	E	1	1	2	5	–	2		■	■	●	●	●	●					
						275	800	3	A	E	1	1	1	5	–	1		■	■	●	●	●	●					
						275	1250	3	A	E	1	1	1	5	–	2		■	■	●	●	●	●					
						205	800	3	A	E	1	1	0	5	–	1		■	■	●	●							
						205	1250	3	A	E	1	1	0	5	–	2		■	■	●	●							
Special version U_d = 42 kV																					– Z	E	1	3

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

*) Can also be ordered without drawout element, see page 29, 13th position

2

12 kV

Position:	1	2	3	4	5	6	7	–	8	9–12		13th position – Equipment package							14–16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	–	★	■	■	■
												Orderable versions												
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A			See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32		See page 33			
12	75	28	**40**	100/104	**210**	310	1250	3	A	E	1	1	8	6	–	2		■	■	●	●	●	●							
						310	2000	3	A	E	1	1	8	6	–	4		■	■	●	●	●	●							
						310	2500	3	A	E	1	1	8	6	–	6		■	■	●	●	●	●							
						310	3150	3	A	E	1	1	8	6	–	7		■	■	●	●	●	●							
Circuit-breaker for installation in NXAIR World [1]																														
12	75	28	**25**	63/65	**160**	275	800	3	A	E	1	5	5	4	–	1		■								–	Z	W	6	3
						275	1250	3	A	E	1	5	5	4	–	2		■								–	Z	W	6	3
			31.5	80/81.9	**160**	275	800	3	A	E	1	5	5	5	–	1		■								–	Z	W	6	3
						275	1250	3	A	E	1	5	5	5	–	2		■								–	Z	W	6	3
					210	275	1250	3	A	E	1	5	6	5	–	2		■								–	Z	W	6	3
						275	2500	3	A	E	1	5	6	5	–	6		■								–	Z	W	6	3
			40	100/104	**210**	275	1250	3	A	E	1	5	6	6	–	2		■								–	Z	W	6	3
						275	2500	3	A	E	1	5	6	6	–	6		■								–	Z	W	6	3
						275	3150	3	A	E	1	5	6	6	–	7		■								–	Z	W	6	3
Special version U_d = 42 kV																										–	Z	E	1	3

1) W63 ist absolutely necessary as order code

Legend: ● With contact system
■ Without contact system

*) Can also be ordered without drawout element, see page 29, 13th position

17.5 kV

Position:	1	2	3	4	5	6	7	–	8	9–12	–	13th position – Equipment package							14–16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	–	★	■	■	■
												Orderable versions												
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A					See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32	See page 33			
17.5	95	38	**12.5**	31/33	**210**	310	800	3	A	E	1	2	8	1	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	8	1	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	2	7	1	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	7	1	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	6	1	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	6	1	–	2		■	■	●	●								
					160	310	800	3	A	E	1	2	5	1	–	1		■	■	●	●								
						310	1250	3	A	E	1	2	5	1	–	2		■	■	●	●								
						275	800	3	A	E	1	2	4	1	–	1		■	■	●	●								
						275	1250	3	A	E	1	2	4	1	–	2		■	■	●	●								
						205	800	3	A	E	1	2	3	1	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	3	1	–	2		■	■	●	●								
					150	310	800	3	A	E	1	2	2	1	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	2	1	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	2	1	1	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	1	1	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	0	1	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	0	1	–	2		■	■	●	●								
17.5	95	38	**16**	40/42	**210**	310	800	3	A	E	1	2	8	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	8	2	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	2	7	2	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	7	2	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	6	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	6	2	–	2		■	■	●	●								
					160	310	800	3	A	E	1	2	5	2	–	1		■	■	●	●								
						310	1250	3	A	E	1	2	5	2	–	2		■	■	●	●								
						275	800	3	A	E	1	2	4	2	–	1		■	■	●	●								
						275	1250	3	A	E	1	2	4	2	–	2		■	■	●	●								
						205	800	3	A	E	1	2	3	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	3	2	–	2		■	■	●	●								
					150	310	800	3	A	E	1	2	2	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	2	2	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	2	1	2	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	1	2	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	0	2	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	0	2	–	2		■	■	●	●								
17.5	95	38	**25**	63/65	**210**	310	800	3	A	E	1	2	8	4	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	8	4	–	2		■	■	●	●	●	●	▲					
						310	2000	3	A	E	1	2	8	4	–	4		■	■	●	●	●	●	▲					
						310	2500	3	A	E	1	2	8	4	–	6		■	■	●	●	●	●	▲					

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

*) Can also be ordered without drawout element, see page 29, 13th position

17.5 kV

Position:	1	2	3	4	5	6	7	–	8	9–12		13th position – Equipment package							14–16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	–	★	■	■	■
												Orderable versions												
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A			See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32		See page 33			
17.5	95	38	**25**	63/65	**210**	275	800	3	A	E	1	2	7	4	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	7	4	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	6	4	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	6	4	–	2		■	■	●	●								
					160	310	800	3	A	E	1	2	5	4	–	1		■	■	●	●								
						310	1250	3	A	E	1	2	5	4	–	2		■	■	●	●								
						275	800	3	A	E	1	2	4	4	–	1		■	■	●	●								
						275	1250	3	A	E	1	2	4	4	–	2		■	■	●	●								
						205	800	3	A	E	1	2	3	4	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	3	4	–	2		■	■	●	●								
					150	310	800	3	A	E	1	2	2	4	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	2	4	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	2	1	4	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	1	4	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	0	4	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	0	4	–	2		■	■	●	●								
17.5	95	38	**31.5**	80/82	**210**	310	800	3	A	E	1	2	8	5	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	8	5	–	2		■	■	●	●	●	●	▲					
						310	2000	3	A	E	1	2	8	5	–	4		■	■	●	●	●	●						
						310	2500	3	A	E	1	2	8	5	–	6		■	■	●	●	●	●	▲					
						275	800	3	A	E	1	2	7	5	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	7	5	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	6	5	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	6	5	–	2		■	■	●	●								
					160	310	800	3	A	E	1	2	5	5	–	1		■	■	●	●								
						310	1250	3	A	E	1	2	5	5	–	2		■	■	●	●								
						275	800	3	A	E	1	2	4	5	–	1		■	■	●	●								
						275	1250	3	A	E	1	2	4	5	–	2		■	■	●	●								
						205	800	3	A	E	1	2	3	5	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	3	5	–	2		■	■	●	●								
					150	310	800	3	A	E	1	2	2	5	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	2	2	5	–	2		■	■	●	●	●	●						
						275	800	3	A	E	1	2	1	5	–	1		■	■	●	●	●	●						
						275	1250	3	A	E	1	2	1	5	–	2		■	■	●	●	●	●						
						205	800	3	A	E	1	2	0	5	–	1		■	■	●	●								
						205	1250	3	A	E	1	2	0	5	–	2		■	■	●	●								
17.5	95	38	**40**	100/104	**210**	310	1250	3	A	E	1	2	8	6	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	2	8	6	–	4		■	■	●	●	●	●						
						310	2500	3	A	E	1	2	8	6	–	6		■	■	●	●	●	●						
						310	3150	3	A	E	1	2	8	6	–	7		■	■	●	●	●	●						

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

*) Can also be ordered without drawout element, see page 29, 13th position

17.5 kV

Position:	1	2	3	4	5	6	7	–	8	9–12		13th position – Equipment package								14–16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■								■	–	★	■	■	■
												Orderable versions													
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{SC} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A					Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32	See page 33				
Circuit-breaker for installation in NXAIR World [1]												■								–	Z	W	6	3
17.5	95	38	**25**	63/65	**160**	275	800	3	A	E	1	6	2	4	–	1		■								–	Z	W	6	3
						275	1250	3	A	E	1	6	2	4	–	2		■								–	Z	W	6	3
			31.5	80/81.9	**160**	275	800	3	A	E	1	6	2	5	–	1		■								–	Z	W	6	3
						275	1250	3	A	E	1	6	2	5	–	2		■								–	Z	W	6	3
					210	275	1250	3	A	E	1	6	6	5	–	2		■								–	Z	W	6	3
						275	2500	3	A	E	1	6	6	5	–	6		■								–	Z	W	6	3
			40	100/104	**210**	275	1250	3	A	E	1	6	6	6	–	2		■								–	Z	W	6	3
						275	2500	3	A	E	1	6	6	6	–	6		■								–	Z	W	6	3
						275	3150	3	A	E	1	6	6	6	–	7		■								–	Z	W	6	3

1) W63 ist absolutely necessary as order code

Legend: ■ Without contact system

*) Can also be ordered without drawout element, see page 29, 13th position

2

2

24 kV

Position:	1	2	3	4	5	6	7	–	8	9–12		13th position – Equipment package							14–16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	–	■							■	–	★	■	■	■
												Orderable versions												
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 36 % DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A			See pages 27 and 28		Circuit-breaker for fixed mounting, without circuit-breaker installation accessories	On drawout element	On drawout element with complete contact system *	On drawout element with complete contact system and bushings *	Slide-in module without earthing switch	Slide-in module with earthing switch	Retrofit	See pages 30 and 32		See page 33			
24	125	50	**12.5**	31/33	**210**	310	800	3	A	E	1	3	2	1	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	3	2	1	–	2		■	■	●	●	●	●						
24	125	50	**16**	40/42	**210**	310	800	3	A	E	1	3	2	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	3	2	2	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	3	2	2	–	4		■	■	●	●	●	●						
					275	310	800	3	A	E	1	3	5	2	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	3	5	2	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	3	5	2	–	4		■	■	●	●	●	●						
24	125	50	**20**	50/52	**210**	310	800	3	A	E	1	3	2	3	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	3	2	3	–	2		■	■	●	●	●	●	▲					
						310	2000	3	A	E	1	3	2	3	–	4		■	■	●	●	●	●	▲					
						310	2500	3	A	E	1	3	2	3	–	6		■	■	●	●	●	●						
					275	310	800	3	A	E	1	3	5	3	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	3	5	3	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	3	5	3	–	4		■	■	●	●	●	●						
						310	2500	3	A	E	1	3	5	3	–	6		■	■	●	●	●	●						
24	125	50	**25**	63/65	**210**	310	800	3	A	E	1	3	2	4	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	3	2	4	–	2		■	■	●	●	●	●	▲					
						310	2000	3	A	E	1	3	2	4	–	4		■	■	●	●	●	●	▲					
						310	2500	3	A	E	1	3	2	4	–	6		■	■	●	●	●	●						
					275	310	800	3	A	E	1	3	5	4	–	1		■	■	●	●	●	●						
						310	1250	3	A	E	1	3	5	4	–	2		■	■	●	●	●	●						
						310	2000	3	A	E	1	3	5	4	–	4		■	■	●	●	●	●						
						310	2500	3	A	E	1	3	5	4	–	6		■	■	●	●	●	●						
Special version U_d = 55 kV																				–	Z	E	5	5 [1]
Special version U_d = 65 kV																				–	Z	E	6	5 [2]
Circuit-breaker for installation in NXAIR [3]																								
24	125	50	**25**	63/65	**210**	320	1250	3	A	E	1	7	2	4	–	2		■								–	Z	B	6	3
						320	2000	3	A	E	1	7	2	4	–	4		■								–	Z	B	6	3
						320	2500	3	A	E	1	7	2	4	–	6		■								–	Z	B	6	3
					275	320	2500	3	A	E	1	7	5	4	–	6		■								–	Z	B	6	3
Special version U_d = 55 kV																				–	Z	E	5	5 [1]

1) With special version E55 (selection is possible if 13th position 0, 1, 2, 3 and 5)

2) With special version E65 (selection is possible if 13th position 0 and 1)

3) B63 ist absolutely necessary as order code

*) Can also be ordered without drawout element, see page 29, 13th position

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

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	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

1st shunt release	2nd 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 (10 Ω)	C.t.-operated release with tripping pulse ≥ 0.1 Ws (20 Ω)																	
												See page 28	See page 28			See page 30	See page 31	See page 32		See page 33			
■										A													
■	■									B													
■						■				C													
■					■					D													
■			■							G													
■				■						H													
■		■								F													
		■								E													
		■				■				N													
		■	■							P													
		■		■						Q													
		■				■				J													
					■					K													
			■							L													
				■						M													

1) Operating voltage is selected at positions 11 + 12

2) **Special version** with c.t.-operated release 5 A: Can be ordered with order code A49 for all circuit-breakers (not for retrofit) with c.t.-operated release 0.5 A (4th column)

																					–	Z	A	4	9

10th position

Operating voltage of the closing solenoid

Standard voltages		Special voltages		
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 [3]			H
110 V AC	50/60 Hz [3]			J
230 V AC	50/60 Hz [3]			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 [3]	U
		125 V AC	50/60 Hz [3]	V
		240 V AC	50/60 Hz [3]	W

3) The AC frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 32)

2

11th position

Operating voltage of the 1st 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	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Standard voltages	Special voltages															See page 30	See page 31	See page 32		See page 33			
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							–	Z	L	1	A
	32 V DC											9							–	Z	L	1	B
	120 V DC											9							–	Z	L	1	C
	125 V DC											9							–	Z	L	1	D
	127 V DC											9							–	Z	L	1	E
	240 V DC											9							–	Z	L	1	F
	120 V AC 50/60 Hz [1]											9							–	Z	L	1	K
	125 V AC 50/60 Hz [1]											9							–	Z	L	1	L
	240 V AC 50/60 Hz [1]											9							–	Z	L	1	M

12th position

Operating voltage of the 2nd release

Standard voltages	Special voltages																						
Without, or c.t.-operated release													0										
24 V DC													1										
48 V DC													2										
60 V DC													3										
110 V DC													4										
220 V DC													5										
100 V AC 50/60 Hz [1]													6										
110 V AC 50/60 Hz [1]													7										
230 V AC 50/60 Hz [1]													8										
	30 V DC												9						–	Z	M	1	A
	32 V DC												9						–	Z	M	1	B
	120 V DC												9						–	Z	M	1	C
	125 V DC												9						–	Z	M	1	D
	127 V DC												9						–	Z	M	1	E
	240 V DC												9						–	Z	M	1	F
	120 V AC 50/60 Hz [1]												9						–	Z	M	1	K
	125 V AC 50/60 Hz [1]												9						–	Z	M	1	L
	240 V AC 50/60 Hz [1]												9						–	Z	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 32)

13th position

Circuit-breaker installation accessories

Position:	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16			Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Options																See page 30	See page 31	See page 32		See page 33			
Circuit-breaker for fixed mounting																							
Without circuit-breaker installation accessories, circuit-breaker for fixed mounting															0								
Circuit-breaker prepared for separate mounting of drawout element																							
Without drawout element, with contact arm, contact [1], wiring of drawout element (loose delivery)															2				–	Z	M	2	2
Without drawout element, with contact arm, contact [1], fixed contact, bushing, wiring of drawout element (loose delivery)															3				–	Z	M	2	3
Circuit-breaker on drawout element																							
On drawout element															1								
On drawout element, with contact arm, contact [1]															2								
On drawout element, with contact arm, contact [1], fixed contact, bushing															3								
Slide-in module																							
Circuit-breaker on drawout element, with cartridge, contact arm, contact [1], fixed contacts, bushing, shutters															5								
Circuit-breaker on drawout element, with cartridge, contact arm, contact [1], fixed contacts, bushing, shutters, make-proof earthing switch															6								
Retrofit 8B																							
Circuit-breaker on truck for retrofitting 8B switchgear, see next page															7								

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

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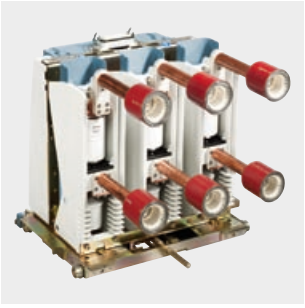
Example: Circuit-breaker for fixed mounting



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Example: Circuit-breaker on draw-out element with contact arms and contacts

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Example: Circuit-breaker with slide-in module

R-HG11-362.eps

Example: Circuit-breaker with slide-in module and earthing switch

2

13th position

Circuit-breaker installation accessories (continued)

Position:	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–		Order codes		
Order No.:	3	A	E	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Options																	See page 31	See page 32		See page 33			

Circuit-breaker on truck for retrofitting 8B switchgear

Ratings of your 8B swichgear				Order number	13th position		Order codes
7.2 – 12 kV	12.5 – 25 kA	630 – 1250 A	Contact arm type A	3AE1184-2	7	–Z	R21
7.2 – 12 kV	12.5 – 25 kA	1600 A	Contact arm type B	3AE1184-4	7	–Z	R22
7.2 – 12 kV	12.5 – 25 kA	2000 A	Contact arm type D	3AE1184-4	7	–Z	R23
7.2 – 12 kV	12.5 – 25 kA	2500 A	Contact arm type D	3AE1184-6	7	–Z	R24
12 kV	29 (10 kV)	630 – 1250 A	Contact arm type A	3AE1185-2	7	–Z	R25
7.2 – 12 kV	31.5 kA	630 – 1250 A	Contact arm type D	3AE1185-2	7	–Z	R26
12 kV	29 (10 kV)	1600 A	Contact arm type B	3AE1185-4	7	–Z	R27
7.2 – 12 kV	31.5 kA	1600 – 2500 A	Contact arm type D	3AE1185-6	7	–Z	R28
15 kV	12.5 – 25 kA	630 – 1250 A	Contact arm type A	3AE1284-2	7	–Z	R29
17.5 kV	8 – 25 kA	630 – 1250 A	Contact arm type C	3AE1284-2	7	–Z	R30
15 – 17.5 kV	20 – 25 kA	2000 A	Contact arm type D	3AE1284-4	7	–Z	R31
15 kV	25 kA	2500 A	Contact arm type D	3AE1284-6	7	–Z	R32
15 kV	31.5 kA	630 – 1250 A	Contact arm type D	3AE1285-2	7	–Z	R33
15 kV	31.5 kA	1600 – 2500 A	Contact arm type D	3AE1285-6	7	–Z	R34
24 kV	8 – 20 kA	630 – 1250 A	Contact arm type C	3AE1323-2	7	–Z	R35
24 kV	12.5 kA	1600 A	Contact arm type C	3AE1323-4	7	–Z	R36
24 kV	12.5 kA	1600 A	Contact arm type D	3AE1323-4	7	–Z	R37
24 kV	20 kA	2000 A	Contact arm type D	3AE1323-4	7	–Z	R38
24 kV	25 kA	1250 A	Contact arm type C	3AE1324-2	7	–Z	R39
24 kV	25 kA	2000 A	Contact arm type D	3AE1324-4	7	–Z	R40

Contact arm including contact

Type	Thickness of fixed contact	Lower insertion height
A	Fixed contact 10 mm	665 mm
B	Fixed contact 15 mm	665 mm
C	Fixed contact 10 mm	598 mm
D	Fixed contact 15 mm	598 mm

14th position

Operating voltage of the motor operating mechanism

Standard voltages		Special voltages		14th position	S. page 31	S. page 32	S. page 33
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 32)

15th position

Interlocking, auxiliary switch, circuit-breaker tripping signal and secondary connection

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

Mechanical interlocking	Auxiliary switch: 6 NO + 6 NC	Auxiliary switch: 12 NO + 12 NC	Circuit-breaker tripping signal	Secondary connection: 27-pole terminal strip [1]	Secondary connection: 24-pole plug [1]	Secondary connection: 64-pole plug [2]	13th position	15th position	See page 32	See page 33	Order codes
If 0 – 6 is selected at the 13th position: Circuit-breaker/slide-in circuit-breaker module											
	■		■	■			□	B			
	■			■			□	D			
	■		■		■		□	F			
	■				■		□	H			
		■	■	■			□	K			
		■		■			□	M			
		■	■			■	□	R			
		■				■	□	Q			
■	■		■	■				A			
■	■			■				C			
■	■		■		■		□	E			
■	■				■		□	G			
■		■	■	■				J			
■		■		■				L			
■		■	■			■		N			
■		■				■		P			
Standard for NXAIR World [3]							□	U		– Z	W 6 3
							□ – if 0 is selected at the 13th position				
If 7 is selected at the 13th position: Retrofit circuit-breaker											
■	■		■	■				A			
	■		■	■				B			
■	■			■				C			
	■			■				D			
■	■		■		■			E			
	■		■		■			F			
■	■				■			G			
	■				■			H			
Special versions											
Auxiliary switch contacts 6 NO + 6 NC and pins of the 24-pole plug connector gold-plated (not for retrofit)										– Z	A 2 0
Auxiliary switch contacts 12 NO + 12 NC and pins of the 64-pole plug connector gold-plated (not for retrofit)										– Z	A 2 1
Key-operated interlock (lock at the circuit-breaker) Only for circuit-breakers with mechanical interlocking and without electrical closing lockout (A47) (not for retrofit)										– Z	J 6 0

1) Electrical devices are wired to the lower part of a plug through the terminal strip. The free auxiliary switch connections are not wired.
2) Electrical devices are wired to the lower part of a plug through the terminal strip. The auxiliary switches are wired to the lower part of the plug according to the circuit diagrams.
3) W63 is absolutely necessary as order code.

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	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

Language selection				Frequency selection				
German	English	French	Spanish	DC or AC 50 Hz	60 Hz		See page 33	
■				■		0		
■					■	1		
	■			■		2		
	■				■	3		
		■		■		4		
		■			■	5		
			■	■		6		
			■		■	7		
Special versions								
Italian, DC or AC 50 Hz						9	– Z	R 1 F
Russian, DC or AC 50 Hz						9	– Z	R 1 G
Russian, 60 Hz						9	– Z	R 1 H
Polish, DC or AC 50 Hz						9	– Z	R 1 K
Other languages on request								

1) AC voltage refers to the secondary side and not to the primary part of the circuit-breaker

Additional equipment

Options	Circuit-breaker 13th position = 0, 1, 2, 3	Slide-in module 13th position = 5, 6	Retrofit 13th position = 7	Position: 1 2 3 4 5 6 7 – 8 9 10 11 12 – 13 14 15 16 – ★	Order codes
				Order No.: 3 A E 1 ■ ■ ■ – ■ ■ ■ ■ ■ – ■ ■ ■ ■ – ■ ■	■ ■ ■
Wiring cables, halogen-free	■	■	■	– Z	A 1 0
Condensation protection, heating for 230 V AC, 50 W	■	■	■	– Z	A 3 0
Silicone-free design	■	■		– Z	A 3 1
Circuit-breaker for operation at ambient air temperatures down to –25 °C	■	■		– Z	A 4 0
Electrical closing lock-out	■		■	– Z	A 4 7
C.t.-operated release 5 A	■	■		– Z	A 4 9
Additional rating plate, loose delivery	■		■	– Z	B 0 0
Without loose delivery	■	■		– Z	B 2 4
Prepared for NXAIR				– Z	B 6 3
Separating shell towards contact arm side (standard version)	■			– Z	D 9 0
Separating shell towards contact arm side (short version, for 24 kV)	■			– Z	D 9 1
Rated short-duration power-frequency withstand voltage 32 kV (at 7.2 kV)	■	■		– Z	E 1 6
Rated short-duration power-frequency withstand voltage 42 kV (at 12 kV)	■	■		– Z	E 1 3
Rated short-duration power-frequency withstand voltage 55 kV (at 24 kV)	■	■		– Z	E 5 5
Rated short-duration power-frequency withstand voltage 65 kV (at 24 kV) 1)	■			– Z	E 6 5
Routine test certificate (enclosed with delivery)	■	■	■	– Z	F 2 0
Routine test certificate (with stamp and signature to orderer)	■	■	■	– Z	F 2 1
Routine test certificate (to orderer)	■	■	■	– Z	F 2 3
Rated operating sequence O – 3 min – CO – 3 min – CO	■	■		– Z	F 2 7
Rated operating sequence (up to 31.5 kA) O – 0.3 s – CO – 15 s – CO	■	■	■	– Z	F 2 8
Hand crank (for manual charging of the closing spring) (scope of supply: one hand crank per circuit-breaker)	■	■	■	– Z	F 3 0
Hand crank, long (scope of supply: one hand crank per circuit-breaker)	■	■	■	– Z	F 3 1
Handle for drawout element (for racking the circuit-breaker on the drawout element) (scope of supply: one handle per circuit-breaker). Only required when a drawout element is ordered	■	■		– Z	F 3 2
Handle for make-proof earthing switch (for operation of the earthing switch at the slide-in module) (scope of supply: one handle per circuit-breaker). Only required when a slide-in module with earthing switch is ordered		■		– Z	F 3 4
Break time Y1 ≤ 60 ms at rated voltage	■	■		– Z	G 2 2
Closing time T Close < 55 ms	■	■		– Z	G 2 3
Key-operated interlock (for circuit-breakers with mechanical interlocking and without A47)	■	■		– Z	J 6 0
Contact with 13 contact fingers (up to 1250 A and 31.5 kA) (selection via 13th position / page 29)	■	■		– Z	M 1 3
30,000 operating cycles for all circuit-breakers: 12 kV, ≤ 25 kA, ≥ 2000 A and 12 kV, 31.5 kA and 17.5 kV, ≤ 31.5 kA	■			– Z	M 3 0
Prepared for NXAIR World				– Z	W 6 3

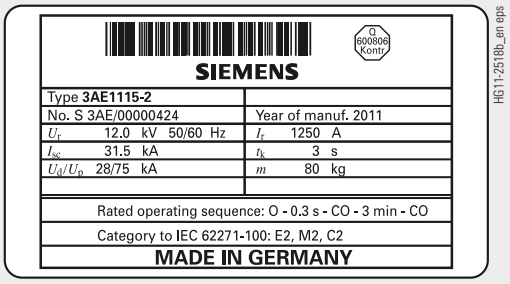
1) Only for 0 and 1 at the 13th position

2

On request we will be pleased to send you a complete overview of the accessories and spare parts. Please take the following information into account for ordering.

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

Rating plate



2

Please find an extract of our accessories catalog below

Position: 1 – 9

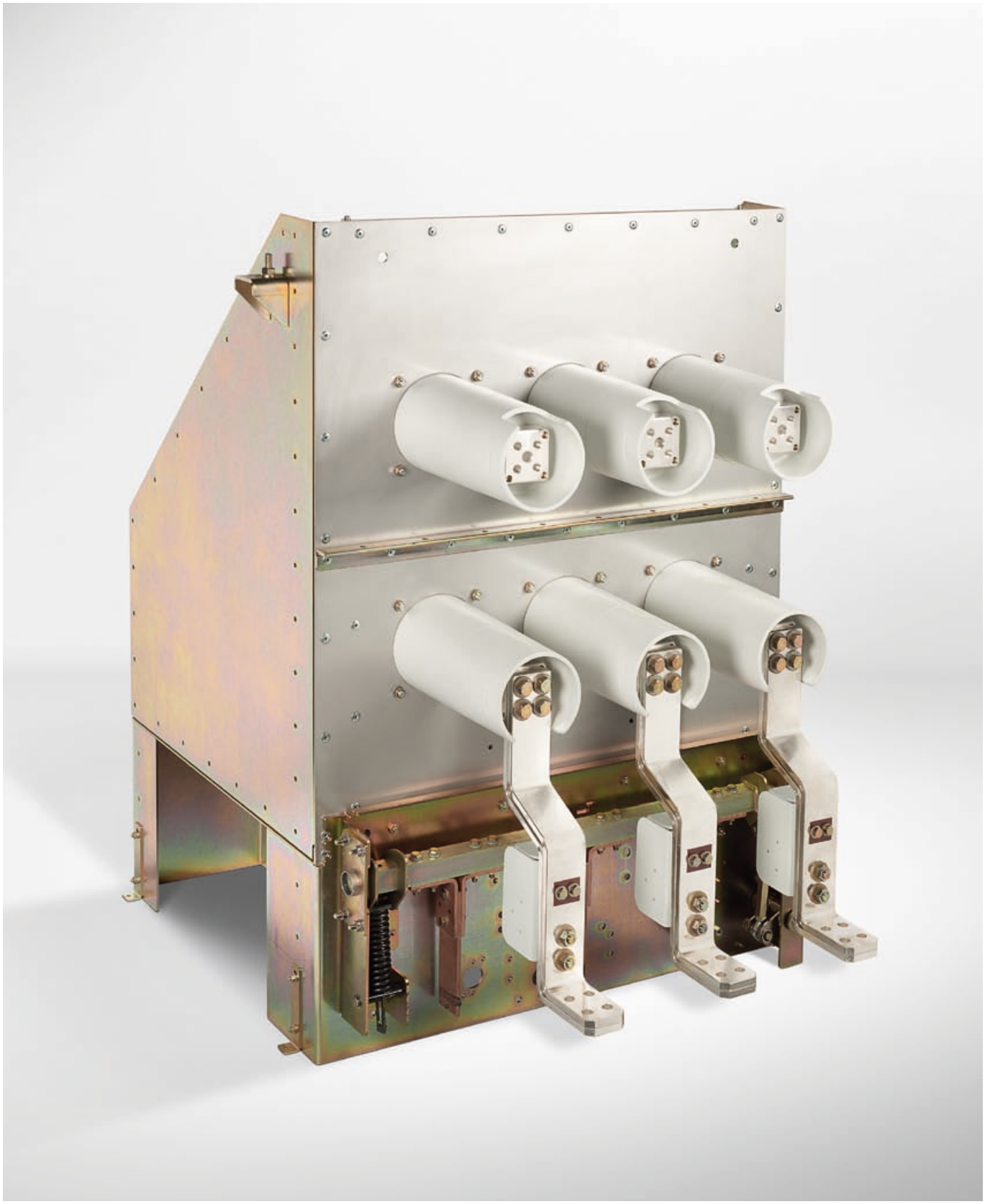
Designation	Description	Feature	Order No.
Handles	Hand crank for circuit-breaker		3AX15 30-2B
	Long hand crank for circuit-breaker		3AX14 30-2B
	Handle for drawout element		3AX14 30-2C
	Handle for earthing switch (for modules up to 31.5 kA)		3AX14 30-2D
	Handle for earthing switch (for 40 kA modules)		3AX14 30-3D
Lubricant	180 g of Klüber-Isoflex Topas L32N		3AX11 33-3H
	1 kg of Klüber-Isoflex Topas L32N		3AX11 33-3E
	1 kg of Molykote grease		3AX14 33-2L
Accessories for	(for conductor cross-section 1.5 mm)		
plug connector	Crimp pins (for lower part of plug)	24-pole	3AX11 34-3A
		64-pole	3AX11 34-4B
	Crimp sockets (for upper part of plug)	64-pole	3AX11 34-4C
	Crimping pliers		3AX11 34-4D
	Disassembly tool		3AX11 34-4G
	Plug connector, complete	24-pole	3AX11 34-7A
		64-pole	3AX11 34-6A

Please find an extract of our accessories catalog below

Designation	Description					Feature	Position: 1 – 9 Order No.	10 Language code *
	Rated voltage for 50/60 Hz U_r kV	Rated short-circuit breaking current at 36 % DC component I_{sc} kA	Pole-centre distance mm	Width across flats mm	Rated normal current I_r A			
Drawout element	≤ 17.5		160			With cable harness	**3AX71 12-3A**	■
	≤ 17.5		160			Without cable harness	**3AX71 12-2A**	■
	≤ 17.5		210			With cable harness	**3AX71 12-3B**	■
	≤ 17.5		210			Without cable harness	**3AX71 12-2B**	■
	24		210			With cable harness	**3AX71 12-3C**	■
	24		210			Without cable harness	**3AX71 12-2C**	■
	24		275			With cable harness	**3AX71 12-3D**	■
	24		275			Without cable harness	**3AX71 12-2D**	■
Cartridge without earthing switch	≤ 17.5	40	210	310	All I_r		**3AX71 11-2H**	■
	24	≤ 25	210	310	≤ 1250		**3AX71 11-2E**	■
	24	≤ 25	210	310	> 1250		**3AX71 11-2J**	■
	24	≤ 25	275	310	≤ 1250		**3AX71 11-2F**	■
	24	≤ 25	275	310	> 1250		**3AX71 11-2K**	■
Cartridge with earthing switch	≤ 17.5	≤ 31.5	150	275	≤ 1250	With partition	**3AX71 11-3A**	■
	≤ 17.5	≤ 31.5	150	310	≤ 1250	With partition	**3AX71 11-3B**	■
	≤ 17.5	≤ 31.5	210	275	≤ 1250	Without partition	**3AX71 11-3C**	■
	≤ 17.5	≤ 31.5	210	310	≤ 1250	Without partition	**3AX71 11-3D**	■
	≤ 17.5	≤ 31.5	210	310	> 1250	Without partition	**3AX71 11-3G**	■
	≤ 17.5	40	210	310	All I_r	Without partition	**3AX71 11-3H**	■
	24	≤ 25	210	310	≤ 1250	With partition	**3AX71 11-3E**	■
	24	≤ 25	210	310	> 1250	With partition	**3AX71 11-3J**	■
	24	≤ 25	275	310	≤ 1250	Without partition	**3AX71 11-3F**	■
	24	≤ 25	275	310	> 1250	Without partition	**3AX71 11-3K**	■

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

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



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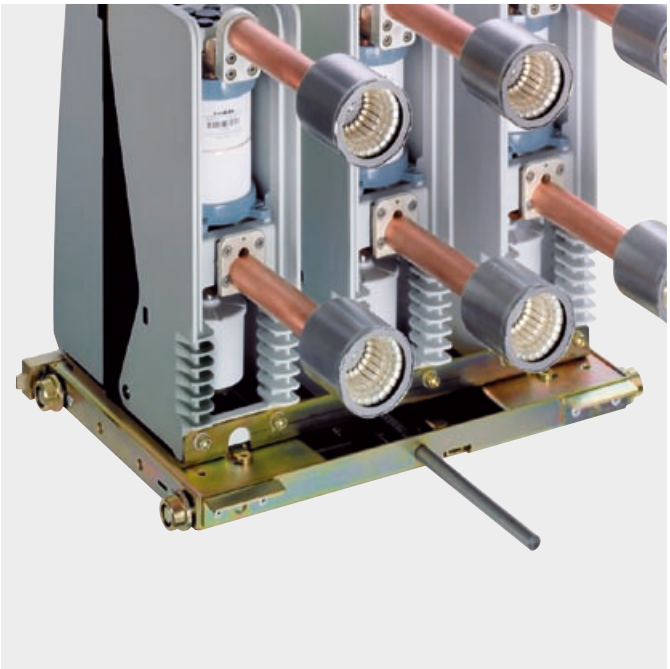
SION circuit-breaker on drawout element, with contacts



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SION circuit-breaker on drawout element, with contacts

Contents | Page

3

7.2 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 41)
3AE1 002-1...	800	205	150	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/–	S_A7E_44202010	1
3AE1 002-2...	1250	205	150	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/–	S_A7E_44202010	1
3AE1 003-1...	800	205	150	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/–	S_A7E_44202010	2
3AE1 003-2...	1250	205	150	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/–	S_A7E_44202010	2
3AE1 004-1...	800	205	150	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/–	S_A7E_44202010	3a
3AE1 004-2...	1250	205	150	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/–	S_A7E_44202010	3a
3AE1 005-1...	800	205	150	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/–	S_A7E_44202010	4
3AE1 005-2...	1250	205	150	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/–	S_A7E_44202010	4
3AE1 012-1...	800	275	150	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/103	S_A7E_44202011	1
3AE1 012-2...	1250	275	150	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	105	75	67/103	S_A7E_44202011	1
3AE1 013-1...	800	275	150	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/103	S_A7E_44202011	2
3AE1 013-2...	1250	275	150	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	105	75	67/103	S_A7E_44202011	2
3AE1 014-1...	800	275	150	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/103	S_A7E_44202011	3a
3AE1 014-2...	1250	275	150	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	105	75	67/103	S_A7E_44202011	3a
3AE1 015-1...	800	275	150	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/120	S_A7E_44202011	4
3AE1 015-2...	1250	275	150	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	105	75	80/120	S_A7E_44202011	4
3AE1 022-1...	800	310	150	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	100	75	67/103	S_A7E_44202012	1
3AE1 022-2...	1250	310	150	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	100	75	67/103	S_A7E_44202012	1
3AE1 023-1...	800	310	150	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	100	75	67/103	S_A7E_44202012	2
3AE1 023-2...	1250	310	150	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	100	75	67/103	S_A7E_44202012	2
3AE1 024-1...	800	310	150	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	100	75	67/103	S_A7E_44202012	3a
3AE1 024-2...	1250	310	150	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	100	75	67/103	S_A7E_44202012	3a
3AE1 025-1...	800	310	150	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	100	75	80/120	S_A7E_44202012	4
3AE1 025-2...	1250	310	150	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	100	75	80/120	S_A7E_44202012	4

Note: Dimension drawings from page 52

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

7.2 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 41)
3AE1 032-1...	800	205	160	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	S_A7E_44202016	1
3AE1 032-2...	1250	205	160	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	S_A7E_44202016	1
3AE1 033-1...	800	205	160	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	S_A7E_44202016	2
3AE1 033-2...	1250	205	160	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	S_A7E_44202016	2
3AE1 034-1...	800	205	160	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	S_A7E_44202016	3a
3AE1 034-2...	1250	205	160	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	S_A7E_44202016	3a
3AE1 035-1...	800	205	160	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	S_A7E_44202016	4
3AE1 035-2...	1250	205	160	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	S_A7E_44202016	4
3AE1 042-1...	800	275	160	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	S_A7E_44202017	1
3AE1 042-2...	1250	275	160	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	115	75	67/–	S_A7E_44202017	1
3AE1 043-1...	800	275	160	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	S_A7E_44202017	2
3AE1 043-2...	1250	275	160	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	115	75	67/–	S_A7E_44202017	2
3AE1 044-1...	800	275	160	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	S_A7E_44202017	3a
3AE1 044-2...	1250	275	160	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	115	75	67/–	S_A7E_44202017	3a
3AE1 045-1...	800	275	160	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	S_A7E_44202017	4
3AE1 045-2...	1250	275	160	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	115	75	80/–	S_A7E_44202017	4
3AE1 052-1...	800	310	160	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	110	75	67/103	S_A7E_44202018	1
3AE1 052-2...	1250	310	160	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	110	75	67/103	S_A7E_44202018	1
3AE1 053-1...	800	310	160	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	110	75	67/103	S_A7E_44202018	2
3AE1 053-2...	1250	310	160	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	110	75	67/103	S_A7E_44202018	2
3AE1 054-1...	800	310	160	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	110	75	67/103	S_A7E_44202018	3a
3AE1 054-2...	1250	310	160	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	110	75	67/103	S_A7E_44202018	3a
3AE1 055-1...	800	310	160	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	110	75	80120	S_A7E_44202018	4
3AE1 055-2...	1250	310	160	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	110	75	80/120	S_A7E_44202018	4
3AE1 062-1...	800	205	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/–	S_A7E_44202022	1
3AE1 062-2...	1250	205	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/–	S_A7E_44202022	1

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

3

7.2 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 41)
3AE1 063-1...	800	205	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/–	S_A7E_44202022	2
3AE1 063-2...	1250	205	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/–	S_A7E_44202022	2
3AE1 064-1...	800	205	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/–	S_A7E_44202022	3a
3AE1 064-2...	1250	205	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/–	S_A7E_44202022	3a
3AE1 065-1...	800	205	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/–	S_A7E_44202022	4
3AE1 065-2...	1250	205	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/–	S_A7E_44202022	4
3AE1 072-1...	800	275	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/103	S_A7E_44202023	1
3AE1 072-2...	1250	275	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	165	75	67/103	S_A7E_44202023	1
3AE1 073-1...	800	275	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/103	S_A7E_44202023	2
3AE1 073-2...	1250	275	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	165	75	67/103	S_A7E_44202023	2
3AE1 074-1...	800	275	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/103	S_A7E_44202023	3a
3AE1 074-2...	1250	275	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	165	75	67/103	S_A7E_44202023	3a
3AE1 075-1...	800	275	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/130	S_A7E_44202023	4
3AE1 075-2...	1250	275	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	165	75	90/130	S_A7E_44202023	4
3AE1 082-1...	800	310	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	160	75	67/103	S_A7E_44202024	1
3AE1 082-2...	1250	310	210	□	■	○	3	16	36	17.9	40/42	60	20	2.1	129	140	160	75	67/103	S_A7E_44202024	1
3AE1 083-1...	800	310	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	160	75	67/103	S_A7E_44202024	2
3AE1 083-2...	1250	310	210	□	■	○	3	20	36	22.4	50/52	60	20	2.1	129	140	160	75	67/103	S_A7E_44202024	2
3AE1 084-1...	800	310	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	160	75	67/103	S_A7E_44202024	3a
3AE1 084-2...	1250	310	210	□	■	○	3	25	36	28	63/65	60	20	2.1	129	140	160	75	67/103	S_A7E_44202024	3a
3AE1 084-4...	2000	310	210	□	■	○	3	25	36	28	63/65	60	20	1.5	129	265	130	130	110/150	S_A7E_44202028	3
3AE1 085-1...	800	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	160	75	90/130	S_A7E_44202024	4
3AE1 085-2...	1250	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	2.1	129	140	160	75	90/130	S_A7E_44202024	4
3AE1 085-4...	2000	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	1.5	129	265	130	130	110/150	S_A7E_44202028	4
3AE1 085-6...	2500	310	210	□	■	○	3	31.5	36	35.4	80/82	60	20	1.5	129	265	130	130	110/150	S_A7E_44202028	4

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

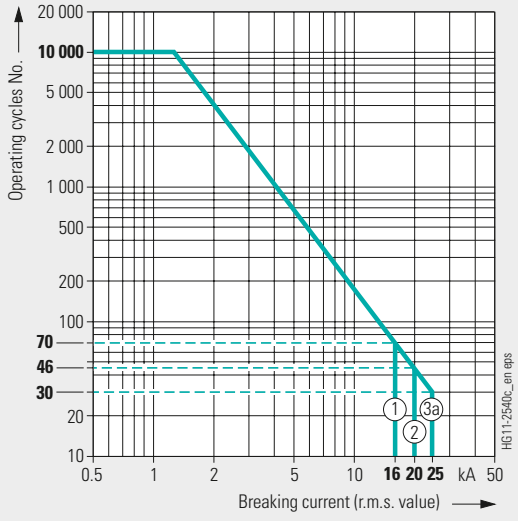
7.2 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)
3AE1 086-2...	1250	310	210	□	■	○	3	40	36	44.9	100/104	60	20	1.7	145	155	169	140	120/160	S_A7E_44202070	5
3AE1 086-4...	2000	310	210	□	■	○	3	40	36	44.9	100/104	60	20	1.0	145	249	149	140	160/210	S_A7E_44202071	5
3AE1 086-6...	2500	310	210	□	■	○	3	40	36	44.9	100/104	60	20	1.0	145	249	149	140	160/210	S_A7E_44202071	5
3AE1 086-7...	3150	310	210	□	■	○	3	40	36	44.9	100/104	60	20	1.0	145	249	149	140	160/210	S_A7E_44202071	5

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

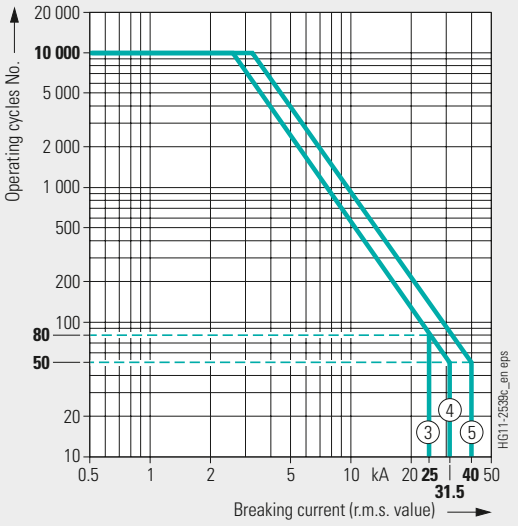
1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

3

Operating cycle diagrams for 7.2 kV



The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION circuit-breakers fulfil the endurance classes E2, M2 and C2 according to IEC 62271-100. The curve shape beyond the parameters defined in IEC 62271-100 is based on average experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.



12 kV 50/60 Hz Order No.	Rated normal current I_r A	Width across flats mm	Pole-centre distance mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 45)
3AE1 102-1...	800	205	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/–	S_A7E_44202010	6
3AE1 102-2...	1250	205	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/–	S_A7E_44202010	6
3AE1 103-1...	800	205	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/–	S_A7E_44202010	7
3AE1 103-2...	1250	205	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/–	S_A7E_44202010	7
3AE1 104-1...	800	205	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/–	S_A7E_44202010	8a
3AE1 104-2...	1250	205	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/–	S_A7E_44202010	8a
3AE1 105-1...	800	205	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/–	S_A7E_44202010	9
3AE1 105-2...	1250	205	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/–	S_A7E_44202010	9
3AE1 112-1...	800	275	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/103	S_A7E_44202011	6
3AE1 112-2...	1250	275	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	105	75	67/103	S_A7E_44202011	6
3AE1 113-1...	800	275	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/103	S_A7E_44202011	7
3AE1 113-2...	1250	275	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	105	75	67/103	S_A7E_44202011	7
3AE1 114-1...	800	275	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/103	S_A7E_44202011	8a
3AE1 114-2...	1250	275	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	105	75	67/103	S_A7E_44202011	8a
3AE1 115-1...	800	275	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/120	S_A7E_44202011	9
3AE1 115-2...	1250	275	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	105	75	80/120	S_A7E_44202011	9
3AE1 122-1...	800	310	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	100	75	67/103	S_A7E_44202012	6
3AE1 122-2...	1250	310	150	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	100	75	67/103	S_A7E_44202012	6
3AE1 123-1...	800	310	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	100	75	67/103	S_A7E_44202012	7
3AE1 123-2...	1250	310	150	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	100	75	67/103	S_A7E_44202012	7
3AE1 124-1...	800	310	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	100	75	67/103	S_A7E_44202012	8a
3AE1 124-2...	1250	310	150	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	100	75	67/103	S_A7E_44202012	8a
3AE1 125-1...	800	310	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	100	75	80/120	S_A7E_44202012	9
3AE1 125-2...	1250	310	150	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	100	75	80/120	S_A7E_44202012	9
3AE1 132-1...	800	205	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	S_A7E_44202016	6
3AE1 132-2...	1250	205	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	S_A7E_44202016	6

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

12 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 45)
3AE1 133-1...	800	205	160	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	S_A7E_44202016	7
3AE1 133-2...	1250	205	160	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	S_A7E_44202016	7
3AE1 134-1...	800	205	160	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	S_A7E_44202016	8a
3AE1 134-2...	1250	205	160	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	S_A7E_44202016	8a
3AE1 135-1...	800	205	160	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	S_A7E_44202016	9
3AE1 135-2...	1250	205	160	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	S_A7E_44202016	9
3AE1 142-1...	800	275	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	S_A7E_44202017	6
3AE1 142-2...	1250	275	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	115	75	67/–	S_A7E_44202017	6
3AE1 143-1...	800	275	160	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	S_A7E_44202017	7
3AE1 143-2...	1250	275	160	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	115	75	67/–	S_A7E_44202017	7
3AE1 144-1...	800	275	160	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	S_A7E_44202017	8a
3AE1 144-2...	1250	275	160	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	115	75	67/–	S_A7E_44202017	8a
3AE1 145-1...	800	275	160	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	S_A7E_44202017	9
3AE1 145-2...	1250	275	160	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	115	75	80/–	S_A7E_44202017	9
3AE1 152-1...	800	310	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	110	75	67/103	S_A7E_44202018	6
3AE1 152-2...	1250	310	160	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	110	75	67/103	S_A7E_44202018	6
3AE1 153-1...	800	310	160	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	110	75	67/103	S_A7E_44202018	7
3AE1 153-2...	1250	310	160	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	110	75	67/103	S_A7E_44202018	7
3AE1 154-1...	800	310	160	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	110	75	67/103	S_A7E_44202018	8a
3AE1 154-2...	1250	310	160	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	110	75	67/103	S_A7E_44202018	8a
3AE1 155-1...	800	310	160	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	110	75	80/120	S_A7E_44202018	9
3AE1 155-2...	1250	310	160	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	110	75	80/120	S_A7E_44202018	9
3AE1 162-1...	800	205	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/–	S_A7E_44202022	6
3AE1 162-2...	1250	205	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/–	S_A7E_44202022	6
3AE1 163-1...	800	205	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/–	S_A7E_44202022	7
3AE1 163-2...	1250	205	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/–	S_A7E_44202022	7

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

3

12 kV 50/60 Hz Order No.	Rated normal current I_r A	Width across flats mm	Pole-centre distance mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 45)
3AE1 164-1...	800	205	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/–	S_A7E_44202022	8a
3AE1 164-2...	1250	205	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/–	S_A7E_44202022	8a
3AE1 165-1...	800	205	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/–	S_A7E_44202022	9
3AE1 165-2...	1250	205	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/–	S_A7E_44202022	9
3AE1 172-1...	800	275	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/103	S_A7E_44202023	6
3AE1 172-2...	1250	275	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	165	75	67/103	S_A7E_44202023	6
3AE1 173-1...	800	275	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/103	S_A7E_44202023	7
3AE1 173-2...	1250	275	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	165	75	67/103	S_A7E_44202023	7
3AE1 174-1...	800	275	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/103	S_A7E_44202023	8a
3AE1 174-2...	1250	275	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	165	75	67/103	S_A7E_44202023	8a
3AE1 175-1...	800	275	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/130	S_A7E_44202023	9
3AE1 175-2...	1250	275	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	165	75	90/130	S_A7E_44202023	9
3AE1 182-1...	800	310	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	160	75	67/103	S_A7E_44202024	6
3AE1 182-2...	1250	310	210	□	■	○	3	16	36	17.9	40/42	75	28	2.1	129	140	160	75	67/103	S_A7E_44202024	6
3AE1 183-1...	800	310	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	160	75	67/103	S_A7E_44202024	7
3AE1 183-2...	1250	310	210	□	■	○	3	20	36	22.4	50/52	75	28	2.1	129	140	160	75	67/103	S_A7E_44202024	7
3AE1 184-1...	800	310	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	160	75	67/103	S_A7E_44202024	8a
3AE1 184-2...	1250	310	210	□	■	○	3	25	36	28	63/65	75	28	2.1	129	140	160	75	67/103	S_A7E_44202024	8a
3AE1 184-4...	2000	310	210	□	■	○	3	25	36	28	63/65	75	28	1.5	129	265	130	130	110/150	S_A7E_44202028	8
3AE1 184-6...	2500	310	210	□	■	○	3	25	36	28	63/65	75	28	1.5	129	265	130	130	110/150	S_A7E_44202028	8
3AE1 185-1...	800	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	160	75	90/130	S_A7E_44202024	9
3AE1 185-2...	1250	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	2.1	129	140	160	75	90/130	S_A7E_44202024	9
3AE1 185-4...	2000	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	1.5	129	265	130	130	110/150	S_A7E_44202028	9
3AE1 185-6...	2500	310	210	□	■	○	3	31.5	36	35.4	80/82	75	28	1.5	129	265	130	130	110/150	S_A7E_44202028	9
3AE1 186-2...	1250	310	210	□	■	–	3	40	36	44.9	100/104	75	28	1.7	145	155	169	140	120/160	S_A7E_44202070	10
3AE1 186-4...	2000	310	210	□	■	–	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	S_A7E_44202071	10

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

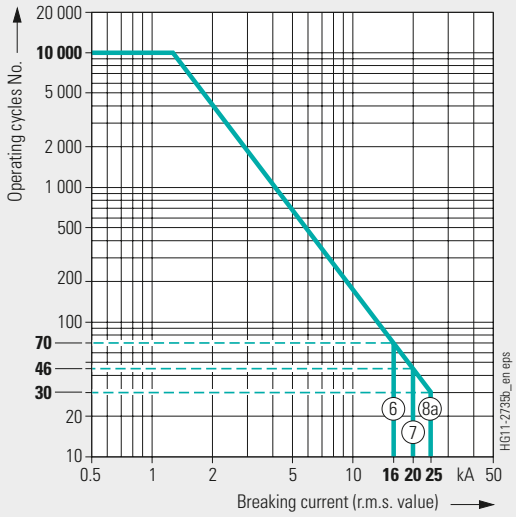
1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

12 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)
3AE1 186-6...	2500	310	210	□	■	–	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	S_A7E_44202071	10
3AE1 186-7...	3150	310	210	□	■	–	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	S_A7E_44202071	10
3AE1 554-1...	800	275	160	□	■	○	3	25	36	44.9	63/65	75	28	2.1	129	140	115	75	67/–	–	8a
3AE1 554-2...	1250	275	160	□	■	○	3	25	36	44.9	63/65	75	28	2.1	129	140	115	75	67/–	–	8a
3AE1 555-1...	800	275	160	□	■	○	3	31.5	36	44.9	80/82	75	28	2.1	129	140	115	75	80/–	–	9
3AE1 555-2...	1250	275	160	□	■	○	3	31.5	36	44.9	80/82	75	28	2.1	129	140	115	75	80/–	–	9
3AE1 565-2...	1250	275	210	□	■	○	3	31.5	36	44.9	80/82	75	28	2.1	129	140	165	75	90/130	–	9
3AE1 565-6...	2500	275	210	□	■	○	3	31.5	36	44.9	80/82	75	28	–	–	–	–	–	–	–	9
3AE1 566-2...	1250	275	210	□	■	–	3	40	36	44.9	100/104	75	28	1.7	145	155	169	140	120/160	–	10
3AE1 566-6...	2500	275	210	□	■	–	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	–	10
3AE1 566-7...	3150	275	210	□	■	–	3	40	36	44.9	100/104	75	28	1.0	145	249	149	140	160/210	–	10

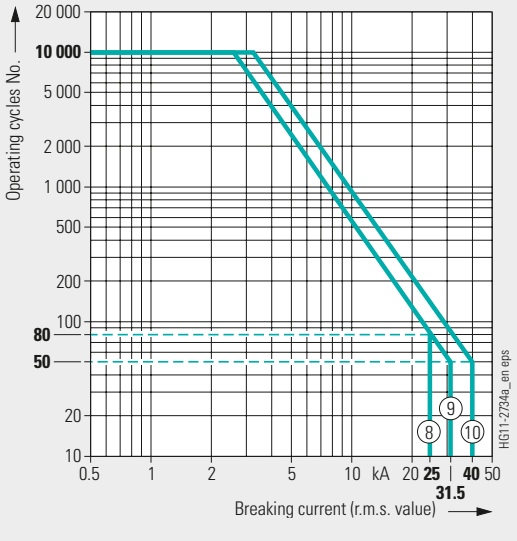
□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

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 circuit-breakers fulfil the endurance classes E2, M2 and C2 according to IEC 62271-100. The curve shape beyond the parameters defined in IEC 62271-100 is based on average experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.



3

17.5 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 49)
3AE1 201-1...	800	205	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	11
3AE1 201-2...	1250	205	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	11
3AE1 202-1...	800	205	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	12
3AE1 202-2...	1250	205	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	12
3AE1 204-1...	800	205	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	13
3AE1 204-2...	1250	205	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	13
3AE1 205-1...	800	205	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	14
3AE1 205-2...	1250	205	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	237	150	80/–	S_A7E_44202013	14
3AE1 211-1...	800	275	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	11
3AE1 211-2...	1250	275	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	11
3AE1 212-1...	800	275	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	12
3AE1 212-2...	1250	275	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	12
3AE1 214-1...	800	275	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	13
3AE1 214-2...	1250	275	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	13
3AE1 215-1...	800	275	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	14
3AE1 215-2...	1250	275	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	214	150	80/120	S_A7E_44202014	14
3AE1 221-1...	800	310	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	11
3AE1 221-2...	1250	310	150	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	11
3AE1 222-1...	800	310	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	12
3AE1 222-2...	1250	310	150	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	12
3AE1 224-1...	800	310	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	13
3AE1 224-2...	1250	310	150	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	13
3AE1 225-1...	800	310	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	14
3AE1 225-2...	1250	310	150	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	190	150	80/120	S_A7E_44202015	14
3AE1 231-1...	800	205	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	11
3AE1 231-2...	1250	205	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	11

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

17.5 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 49)
3AE1 232-1...	800	205	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	12
3AE1 232-2...	1250	205	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	12
3AE1 234-1...	800	205	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	13
3AE1 234-2...	1250	205	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	13
3AE1 235-1...	800	205	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	14
3AE1 235-2...	1250	205	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	247	150	80/–	S_A7E_44202019	14
3AE1 241-1...	800	275	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	11
3AE1 241-2...	1250	275	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	11
3AE1 242-1...	800	275	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	12
3AE1 242-2...	1250	275	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	12
3AE1 244-1...	800	275	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	13
3AE1 244-2...	1250	275	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	13
3AE1 245-1...	800	275	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	14
3AE1 245-2...	1250	275	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	224	150	80/–	S_A7E_44202020	14
3AE1 251-1...	800	310	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	11
3AE1 251-2...	1250	310	160	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	11
3AE1 252-1...	800	310	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	12
3AE1 252-2...	1250	310	160	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	12
3AE1 254-1...	800	310	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	13
3AE1 254-2...	1250	310	160	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	13
3AE1 255-1...	800	310	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	14
3AE1 255-2...	1250	310	160	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	200	150	80/120	S_A7E_44202021	14
3AE1 261-1...	800	205	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	11
3AE1 261-2...	1250	205	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	11
3AE1 262-1...	800	205	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	12
3AE1 262-2...	1250	205	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	12

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

3

17.5 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 49)
3AE1 264-1...	800	205	210	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	13
3AE1 264-2...	1250	205	210	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	13
3AE1 265-1...	800	205	210	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	14
3AE1 265-2...	1250	205	210	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	165	150	90/–	S_A7E_44202025	14
3AE1 271-1...	800	275	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	11
3AE1 271-2...	1250	275	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	11
3AE1 272-1...	800	275	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	12
3AE1 272-2...	1250	275	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	12
3AE1 274-1...	800	275	210	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	13
3AE1 274-2...	1250	275	210	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	13
3AE1 275-1...	800	275	210	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	14
3AE1 275-2...	1250	275	210	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	165	150	90/130	S_A7E_44202026	14
3AE1 281-1...	800	310	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	11
3AE1 281-2...	1250	310	210	□	■	○	3	12.5	36	14.9	31/33	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	11
3AE1 282-1...	800	310	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	12
3AE1 282-2...	1250	310	210	□	■	○	3	16	36	17.9	40/42	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	12
3AE1 284-1...	800	310	210	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	13
3AE1 284-2...	1250	310	210	□	■	○	3	25	36	28	63/65	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	13
3AE1 284-4...	2000	310	210	□	■	○	3	25	36	28	63/65	95	38	1.5	129	265	130	130	110/150	S_A7E_44202029	13
3AE1 284-6...	2500	310	210	□	■	○	3	25	36	28	63/65	95	38	1.5	129	265	130	130	110/150	S_A7E_44202029	13
3AE1 285-1...	800	310	210	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	14
3AE1 285-2...	1250	310	210	□	■	○	3	31.5	36	35.4	80/82	95	38	2.1	129	275	160	150	90/130	S_A7E_44202027	14
3AE1 285-4...	2000	310	210	□	■	○	3	31.5	36	35.4	80/82	95	38	1.5	129	265	130	130	110/150	S_A7E_44202029	14
3AE1 285-6...	2500	310	210	□	■	○	3	31.5	36	35.4	80/82	95	38	1.5	129	265	130	130	110/150	S_A7E_44202029	14
3AE1 286-2...	1250	310	210	□	■	–	3	40	36	44.9	100/104	95	38	1.7	145	249	169	140	120/160	S_A7E_44202070	15
3AE1 286-4...	2000	310	210	□	■	–	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/210	S_A7E_44202071	15

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

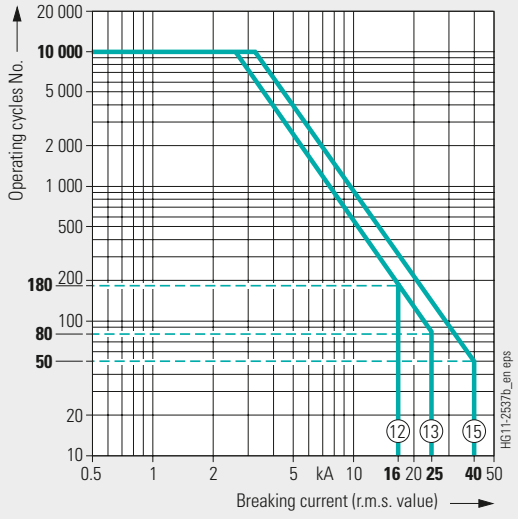
17.5 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)
3AE1 286-6...	2500	310	210	□	■	○	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/210	S_A7E_44202071	15
3AE1 286-7...	3150	310	210	□	■	○	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/210	S_A7E_44202071	15
3AE1 624-1...	800	275	160	□	■	○	3	25	36	44.9	63/65	95	38	2.1	129	275	224	150	80/–	–	13
3AE1 624-2...	1250	275	160	□	■	○	3	25	36	44.9	63/65	95	38	2.1	129	275	224	150	80/–	–	13
3AE1 625-1...	800	275	160	□	■	○	3	31.5	36	44.9	80/82	95	38	2.1	129	275	224	150	80/–	–	14
3AE1 625-2...	1250	275	160	□	■	○	3	31.5	36	44.9	80/82	95	38	2.1	129	275	224	150	80/–	–	14
3AE1 665-2...	1250	275	210	□	■	○	3	31.5	36	44.9	80/82	95	38	2.1	129	275	165	150	90/130	–	14
3AE1 665-6...	2500	275	210	□	■	○	3	31.5	36	44.9	80/82	95	38	–	–	–	–	–	–	–	14
3AE1 666-2...	1250	275	210	□	■	–	3	40	36	44.9	100/104	95	38	1.7	145	249	169	140	120/160	–	15
3AE1 666-6...	2500	275	210	□	■	–	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/210	–	15
3AE1 666-7...	3150	275	210	□	■	–	3	40	36	44.9	100/104	95	38	1.0	145	249	149	140	160/210	–	15

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

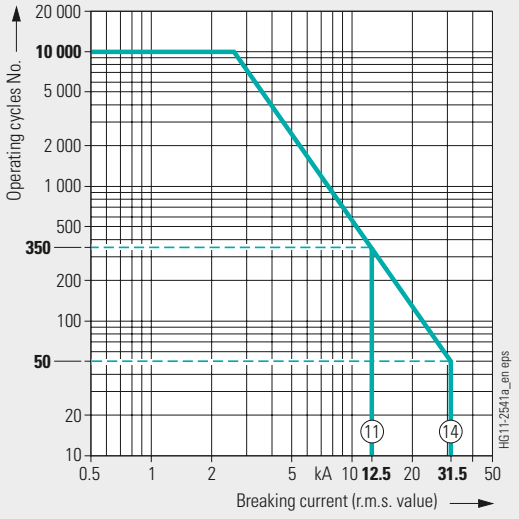
1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

3

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 circuit-breakers fulfil the endurance classes E2, M2 and C2 according to IEC 62271-100. The curve shape beyond the parameters defined in IEC 62271-100 is based on average experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.



24 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see page 51)
3AE1 321-1...	800	310	210	□	■	○	3	12.5	36	14.9	31/33	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	16
3AE1 321-2...	1250	310	210	□	■	○	3	12.5	36	14.9	31/33	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	16
3AE1 322-1...	800	310	210	□	■	○	3	16	36	17.9	40/42	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	17
3AE1 322-2...	1250	310	210	□	■	○	3	16	36	17.9	40/42	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	17
3AE1 322-4...	2000	310	210	□	■	○	3	16	36	17.9	40/42	125	50	2.0	200	340	200	205	140/180	S_A7E_44202051	17
3AE1 323-1...	800	310	210	□	■	○	3	20	36	22.4	50/52	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	18
3AE1 323-2...	1250	310	210	□	■	○	3	20	36	22.4	50/52	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	18
3AE1 323-4...	2000	310	210	□	■	○	3	20	36	22.4	50/52	125	50	2.0	200	340	200	205	140/180	S_A7E_44202051	18
3AE1 323-6...	2500	310	210	□	■	○	3	20	36	22.4	50/52	125	50	2.0	200	340	200	205	140/180	S_A7E_44202051	18
3AE1 324-1...	800	310	210	□	■	○	3	25	36	28	63/65	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	19
3AE1 324-2...	1250	310	210	□	■	○	3	25	36	28	63/65	125	50	2.6	200	350	200	210	120/160	S_A7E_44202050	19
3AE1 324-4...	2000	310	210	□	■	○	3	25	36	28	63/65	125	50	2.0	200	340	200	205	140/180	S_A7E_44202051	19
3AE1 324-6...	2500	310	210	□	■	○	3	25	36	28	63/65	125	50	2.0	200	340	200	205	140/180	S_A7E_44202051	19
3AE1 352-1...	800	310	275	□	■	○	3	16	36	17.9	40/42	125	50	2.6	200	350	265	210	130/180	S_A7E_44202052	17
3AE1 352-2...	1250	310	275	□	■	○	3	16	36	17.9	40/42	125	50	2.6	200	350	265	210	130/180	S_A7E_44202052	17
3AE1 352-4...	2000	310	275	□	■	○	3	16	36	17.9	40/42	125	50	2.0	200	340	265	205	150/200	S_A7E_44202053	17
3AE1 353-1...	800	310	275	□	■	○	3	20	36	22.4	50/52	125	50	2.6	200	350	265	210	130/180	S_A7E_44202052	18
3AE1 353-2...	1250	310	275	□	■	○	3	20	36	22.4	50/52	125	50	2.6	200	350	265	210	130/180	S_A7E_44202052	18
3AE1 353-4...	2000	310	275	□	■	○	3	20	36	22.4	50/52	125	50	2.0	200	340	265	205	150/200	S_A7E_44202053	18
3AE1 353-6...	2500	310	275	□	■	○	3	20	36	22.4	50/52	125	50	2.0	200	340	265	205	150/200	S_A7E_44202053	18

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

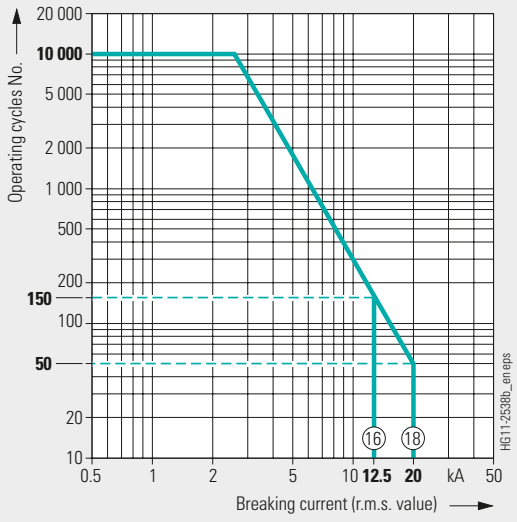
24 kV 50/60 Hz **Order No.**	**Rated normal current** I_r A	**Width across flats** mm	**Pole-centre distance** mm	Rated operating sequence: O – 3 min – CO – 3 min – CO	O – 0.3 s – CO – 3 min – CO	O – 0.3 s – CO – 15 s – CO	Rated duration of short-circuit t_k s	Rated short-circuit breaking current I_{SC} kA	DC component in % of the rated short-circuit breaking current %	Asymmetrical breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (according to IEC 62271-1 at DC 100 A) mm	Minimum creepage distance, interrupter mm	Minimum creepage distance, phase-to-earth mm	Minimum clearance, phase-to-phase mm	Minimum clearance, phase-to-earth	Weight [1] (fixed-mounted circuit-breaker / slide-in module) kg	Detailed dimension drawing (has to be ordered)	Operating cycle diagram no. (see below)
3AE1 354-1...	800	310	275	□	■	○	3	25	36	28	63/65	125	50	2.6	200	350	265	210	130/180	S_A7E_44202052	19
3AE1 354-2...	1250	310	275	□	■	○	3	25	36	28	63/65	125	50	2.6	200	350	265	210	130/180	S_A7E_44202052	19
3AE1 354-4...	2000	310	275	□	■	○	3	25	36	28	63/65	125	50	2.0	200	340	265	205	150/200	S_A7E_44202053	19
3AE1 354-6...	2500	310	275	□	■	○	3	25	36	28	63/65	125	50	2.0	200	340	265	205	150/200	S_A7E_44202053	19
3AE1 724-2...	1250	320	210	□	■	○	3	25	36	28	63/65	125	50	2.6	200	350	200	210	120/–	–	19
3AE1 754-6...	2500	320	275	□	■	○	3	25	36	28	63/65	125	50	2.0	200	340	200	205	150/–	–	19
3AE1 724-2...	1250	320	210	□	■	○	3	25	36	44.9	63/65	125	50	2.6	200	350	200	210	120/–	–	19
3AE1 724-4...	2000	320	210	□	■	○	3	25	36	44.9	63/65	125	50	–	–	–	–	–	–	–	19
3AE1 724-6...	2500	320	210	□	■	○	3	25	36	44.9	63/65	125	50	–	–	–	–	–	–	–	19
3AE1 754-6...	2500	320	275	□	■	○	3	25	36	44.9	63/65	125	50	2.0	200	340	200	205	150/–	–	19

□ Possible with order suffix "Z" and order code F27
■ Standard information on rating plate
○ Possible with order suffix "Z" and order code F28
Rated operating sequence possible up to I_{SC} = 31.5 kA

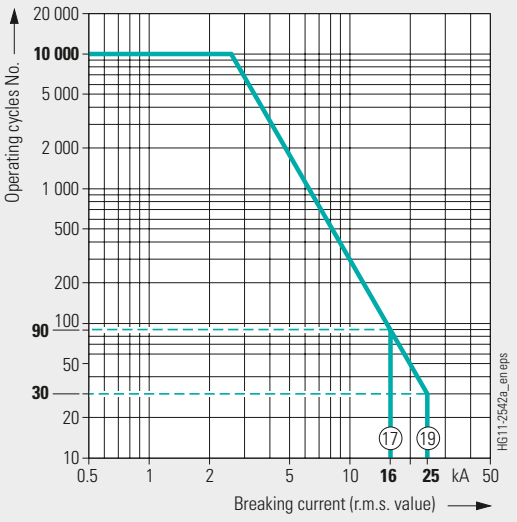
1) The weight of the fixed-mounted circuit-breaker with drawout element increases by the values specified in the dimension drawing of the drawout element (page 54)

3

Operating cycle diagrams for 24 kV

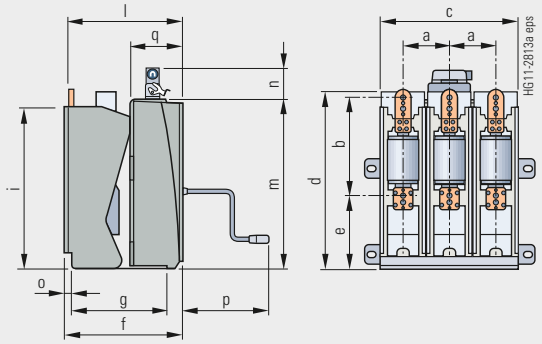


The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION circuit-breakers fulfil the endurance classes E2, M2 and C2 according to IEC 62271-100. The curve shape beyond the parameters defined in IEC 62271-100 is based on average experience data. The number of operating cycles that can actually be reached can be different depending on the respective application.



Dimension drawings for 7.2 to 24 kV

Circuit-breaker without contact arm



Voltage level	Pole-centre distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	150	275	445	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	150	310	445	562.5	237.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	205	465	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	275	465	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	310	465	562.5	237.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	205	565	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	275	565	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	310	565	562.5	237.5	380 [1]	310 [2]	517.5 [3]	370 [4]	540	approx. 93	20	279	170
12 kV	150	205	445	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	150	275	445	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	150	310	445	562.5	237.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	205	465	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	275	465	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	310	465	562.5	237.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	205	565	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	275	565	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	310	565	562.5	237.5	380 [1]	310 [2]	517.5 [3]	370 [4]	540	approx. 93	20	279	170
17.5 kV	150	205	445	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	150	275	445	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	150	310	445	562.5	237.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	205	465	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	275	465	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	160	310	465	562.5	237.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	205	565	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	275	565	562.5	217.5	380	310	517.5	370	540	approx. 93	20	279	170
	210	310	565	562.5	237.5	380 [1]	310 [2]	517.5 [3]	370 [4]	540	approx. 93	20	279	170
24 kV	210	310	570	739	283	468	360	739	420	540	approx. 93	58	269	170
	275	310	700	739	283	468	360	739	420	540	approx. 93	58	269	170

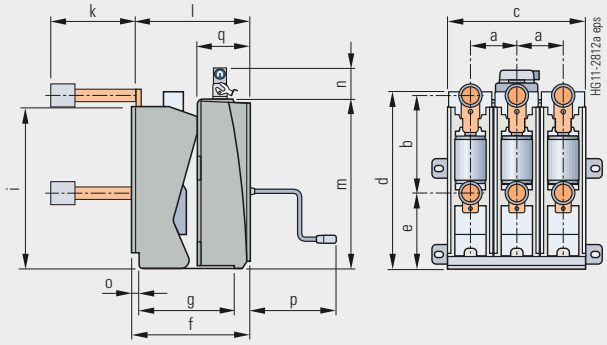
Note: Dimension drawings for 8B retrofit (13th position = 7) are available on request.

Note: Small deviations of the dimensions are permissible

1) For 40 kA = 450 mm
2) For 40 kA = 350 mm
3) For 40 kA = 606.5 mm
4) For 40 kA = 420 mm

Dimension drawings for 7.2 to 24 kV

Circuit-breaker with contact arm



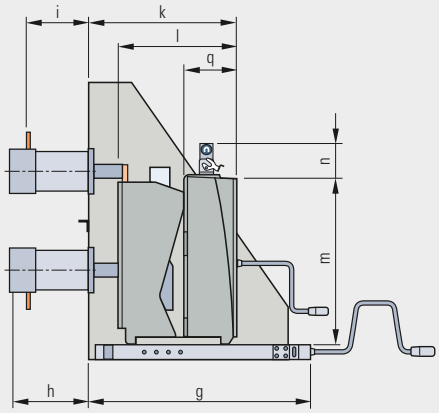
Voltage level	Pole-centre distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	i mm	k mm	l mm	m mm	n mm	o mm	p mm	q mm
7.2 kV	150	205	445	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	150	275	445	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	150	310	445	562.5	237.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	205	465	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	275	465	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	310	465	562.5	237.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	205	565	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	275	565	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	310	565	562.5	237.5	380 [1]	310 [2]	517.5 [3]	275	370 [4]	540	approx. 93	20	279	170
12 kV	150	205	445	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	150	275	445	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	150	310	445	562.5	237.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	205	465	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	275	465	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	310	465	562.5	237.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	205	565	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	275	565	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	310	565	562.5	237.5	380 [1]	310 [2]	517.5 [3]	275	370 [4]	540	approx. 93	20	279	170
17.5 kV	150	205	445	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	150	275	445	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	150	310	445	562.5	237.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	205	465	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	275	465	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	160	310	465	562.5	237.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	205	565	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	275	565	562.5	217.5	380	310	517.5	275	370	540	approx. 93	20	279	170
	210	310	565	562.5	237.5	380 [1]	310 [2]	517.5 [3]	275	370 [4]	540	approx. 93	20	279	170
24 kV	210	310	570	739	283	468	360	739	325	420	540	approx. 93	58	269	170
	275	310	700	739	283	468	360	739	325	420	540	approx. 93	58	269	170

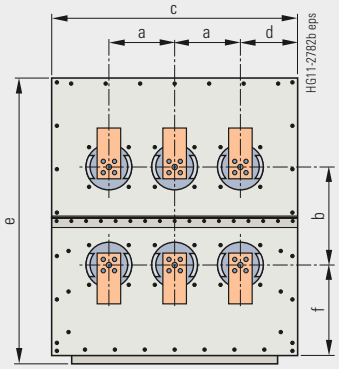
Note: Small deviations of the dimensions are permissible

1) For 40 kA = 450 mm
2) For 40 kA = 350 mm
3) For 40 kA = 606.5 mm
4) For 40 kA = 420 mm

Dimension drawings for 7.2 to 24 kV

Cartridge without earthing switch





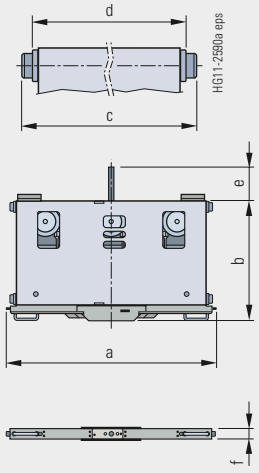
Voltage level	Pole-centre distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	h' mm	i mm	i' mm	k mm	l mm	m mm	n mm	q mm
7.2 kV	150	275	594	147	850	266.5	710	263	263	224	224	472	370	540	approx. 93	160
	150	310	594	147	905	266.5	710	263	263	224	224	472	370	540	approx. 93	160
	210	275	794	187	850	286.5	710	263	–	224	–	472	370	540	approx. 93	160
	210	310	794	187	905	286.5	710 1)	263	335	224	274	472 2)	370 3)	540	approx. 93	160
12 kV	150	275	594	147	850	266.5	710	263	263	224	224	472	370	540	approx. 93	160
	150	310	594	147	905	266.5	710	263	263	224	224	472	370	540	approx. 93	160
	210	275	794	187	850	286.5	710	263	–	224	–	472	370	540	approx. 93	160
	210	310	794	187	905	286.5	710 1)	263	335	224	274	472 2)	370 3)	540	approx. 93	160
17.5 kV	150	275	594	147	850	266.5	710	274	274	224	224	472	370	540	approx. 93	160
	150	310	594	147	905	266.5	710	274	274	224	224	472	370	540	approx. 93	160
	210	275	794	187	850	286.5	710	263	–	224	–	472	370	540	approx. 93	160
	210	310	794	187	905	286.5	710 1)	263	335	224	274	472 2)	370 3)	540	approx. 93	160
24 kV	210	310	794	187	1040.5	332	810	335	335	274	335	532	420	540	approx. 93	160
	275	310	994	222	1040.5	332	810	335	335	274	335	532	420	540	approx. 93	160

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

Note: Small deviations of the dimensions are permissible

1) For 40 kA = 760 mm
2) For 40 kA = 522 mm
3) For 40 kA = 420 mm

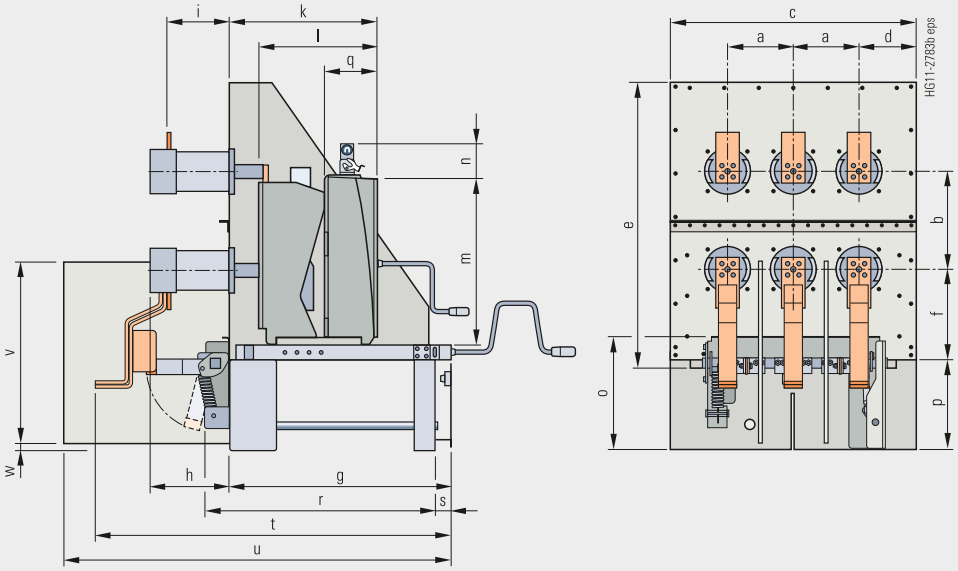
Drawout element



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

Dimension drawings for 7.2 to 24 kV

Cartridge with earthing switch



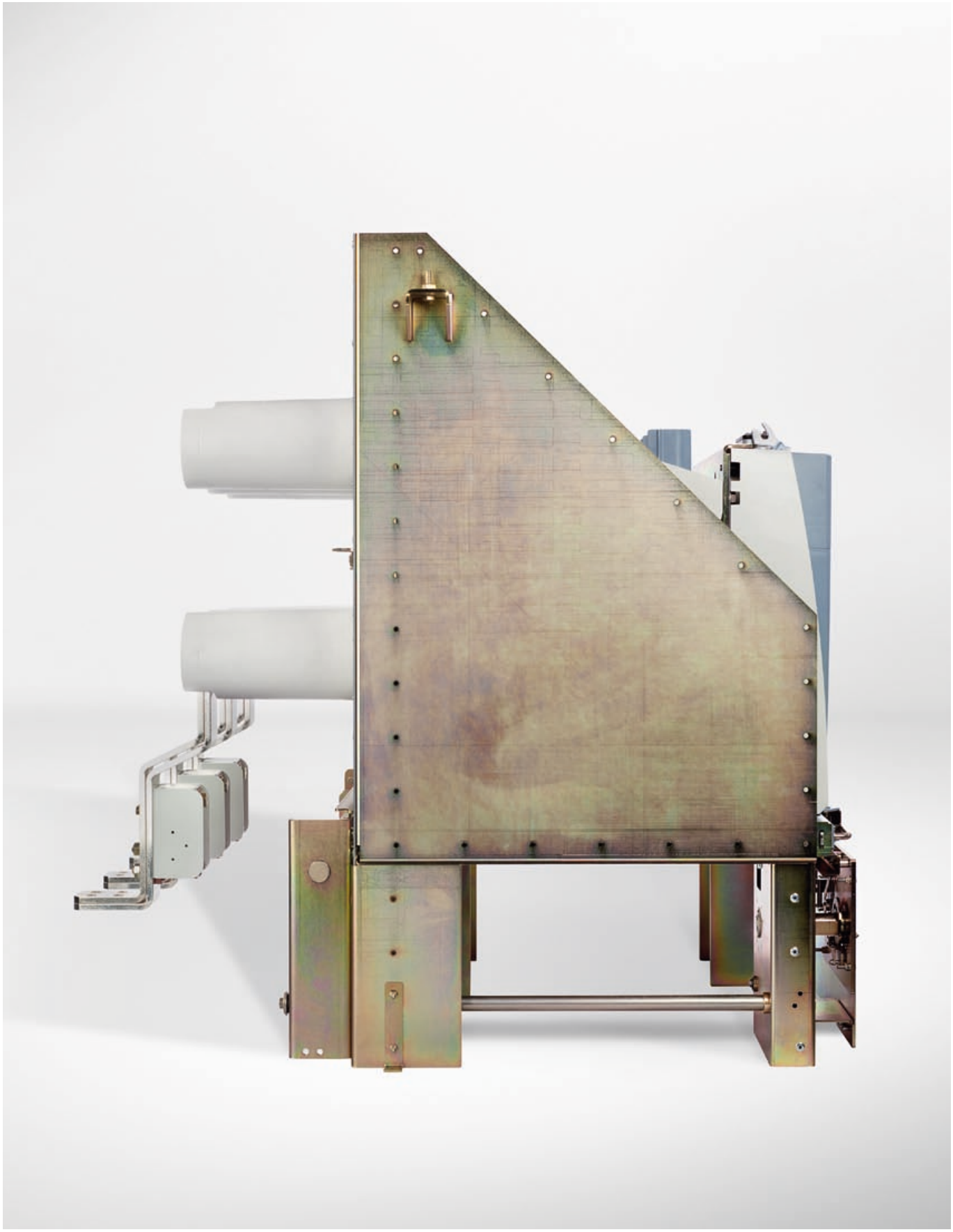
Voltage level	Pole-centre distance a mm	Width across flats b mm	c mm	d mm	e mm	f mm	g mm	h mm	h' mm	i mm	i' mm	k mm	l mm	m mm	n mm
7.2 kV	150	275	594	147	850	266.5	710	263	263	224	224	472	370	540	approx. 93
	150	310	594	147	905	266.5	710	263	263	224	224	472	370	540	approx. 93
	210	275	794	187	850	286.5	710	263	–	224	–	472	370	540	approx. 93
	210	310	794	187	905	286.5	710 [1]	263	335	224	274	472 [2]	370 [3]	540	approx. 93
12 kV	150	275	594	147	850	266.5	710	263	263	224	224	472	370	540	approx. 93
	150	310	594	147	905	266.5	710	263	263	224	224	472	370	540	approx. 93
	210	275	794	187	850	286.5	710	263	–	224	–	472	370	540	approx. 93
	210	310	794	187	905	286.5	710 [1]	263	335	224	274	472 [2]	370 [3]	540	approx. 93
17.5 kV	150	275	594	147	850	266.5	710	274	274	224	224	472	370	540	approx. 93
	150	310	594	147	905	266.5	710	274	274	224	224	472	370	540	approx. 93
	210	275	794	187	850	286.5	710	263	–	224	–	472	370	540	approx. 93
	210	310	794	187	905	286.5	710 [1]	263	335	224	274	472 [2]	370 [3]	540	approx. 93
24 kV	210	310	794	187	1040.5	332	810	335	335	274	335	532	420	540	approx. 93
	275	310	994	222	1040.5	332	810	335	335	274	335	532	420	540	approx. 93

Voltage level	o mm	p mm	q mm	r mm	s mm	t mm	u mm	v mm	w mm
7.2 kV	359	286	160	803	65	1142	1241	575	25
	363	286	160	803	65	1142	1241	575	25
	359	286	160	803	65	1142	–	–	–
	359	286	160	803	65	1142	–	–	–
12 kV	359	286	160	803	65	1142	1241	575	25
	363	286	160	803	65	1142	1241	575	25
	359	286	160	803	65	1142	–	–	–
	359	286	160	803	65	1142	–	–	–
17.5 kV	359	286	160	803	65	1142	1241	575	25
	363	286	160	803	65	1142	1241	575	25
	359	286	160	803	65	1142	–	–	–
	359	286	160	803	65	1142	–	–	–
24 kV	359	286	160	903	65	1243	1342	575	10
	359	286	160	903	65	1243	–	–	–

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

Note: Small deviations of the dimensions are permissible

1) For 40 kA = 760 mm
2) For 40 kA = 522 mm
3) For 40 kA = 420 mm



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Operating times and internal times

Operating times at rated voltage of the secondary circuit	Equipment of circuit-breaker	Operating time of the circuit-breaker
Closing time	–	< 60 ms
Opening time	1st shunt release	< 60 ms
	2nd release	< 55 ms
Arcing time	–	< 15 ms
Break time	1st shunt release	< 80 ms
	2nd release	< 65 ms
Dead time	–	300 ms
CLOSE / OPEN contact time	1st shunt release	< 75 ms
	2nd release	< 60 ms
Minimum command duration	Closing solenoid	45 ms
	1st shunt release	40 ms
	2nd release	20 ms
Pulse time for circuit-breaker tripping signal	1st shunt release	> 15 ms
	2nd release	> 10 ms
Charging time for electrical operation		< 10 s
Synchronism error between the poles		2 ms

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

Rated voltage of the motor	Operating voltage		Power consumption of the motor	Smallest possible rated current [1] of the m.c.b. (miniature circuit-breaker) with C-characteristic
V	max. V	min. V	W	A
24 DC	26	20	400	8
48 DC	53	41	400	6
60 DC	66	51	400	4
110 DC	121	93	400	2
220 DC	242	187	400	1.6
110 AC	121	93	400	2
230 AC	244	187	400	1.6

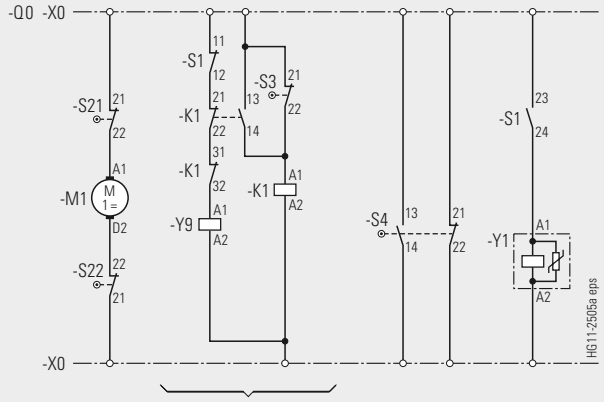
1) The current inrush in the drive motor can be neglected due to its very short presence.

Consumption data of releases

Release	Power consumption		Tripping ranges	
	Operation at		Tripping voltage	Tripping voltage or tripping current
	DC approx. W	AC 50/60 Hz approx. VA	at DC	at AC 50/60 Hz
Closing solenoid 3AY15 10	140	140	85 to 110 % *U*	85 to 110 % *U*
1st shunt release (without energy store) 3AY15 10	140	140	70 to 110 % *U*	85 to 110 % *U*
2nd shunt release (with energy store) 3AY11 01	70	50	70 to 110 % *U*	85 to 110 % *U*
Undervoltage release 3AY11 03	20	20	35 to 0 % *U*	35 to 0 % *U*
Current-transformer operated release 3AX11 02 (rated normal current 0.5 A or 1 A)	–	10 [2]	–	90 to 110 % I_a
Current-transformer operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

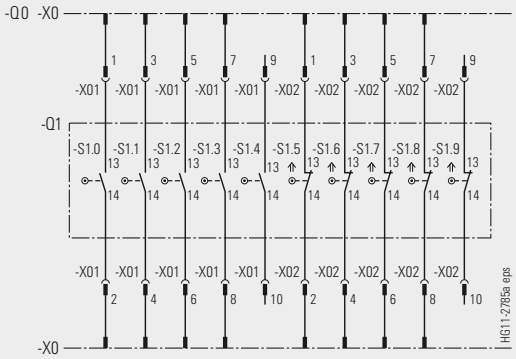
2) Consumption at pickup current (90 % of the rated normal current) and open armature.

Standard scheme for plug connector



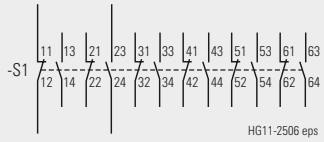
Motor operating mechanism | Closing and anti-pumping for motor operating stored-energy mechanism | Signal "closing spring charged" | 1st shunt release

Position switch for drawout element

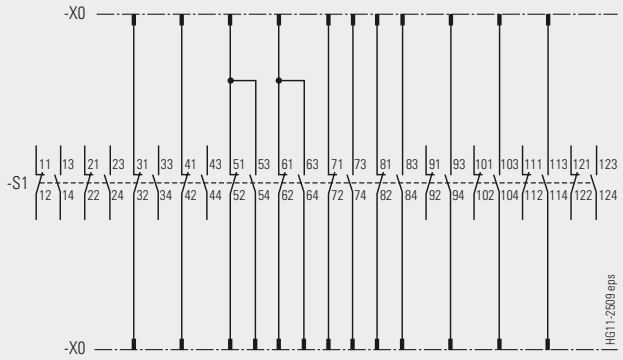


64-pole plug connector

Contact assignment for auxiliary switch



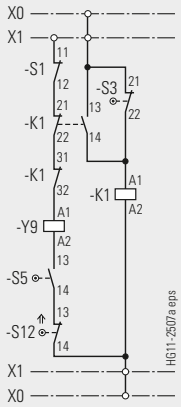
Auxiliary switch
6 NO + 6 NC



Auxiliary switch 12 NO + 12 NC

For legend, see page 59

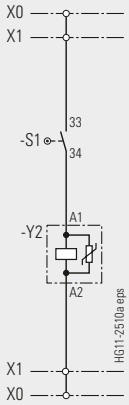
Additional equipment



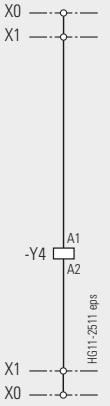
Closing and anti-pumping for motor operating stored-energy mechanism

Circuit-breaker tripping signal

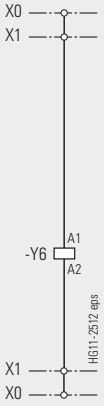
Additional equipment: Releases



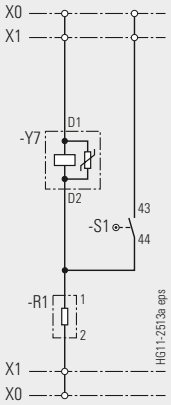
2nd shunt release



Current-transformer operated release 0.5 A or 1 A



Low-energy current-transformer operated release 0.1 Ws



Undervoltage release

(For possible combinations see chapter 2 "Secondary equipment")

Legend for pages 58 and 59

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

Abbreviations:
NC = Normally closed
NO = Normally open

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

R-HG11-181.tif

R-HG11-180.eps

Switchgear Factory in Berlin, Germany

Contents | Page

4

Annex
Inquiry form

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

Inquiry concerning

SION vacuum circuit-breaker from 7.2 to 24 kV

Please

☐ Submit an offer
☐ Call us
☐ Visit us

Your address

Company

Dept.

Name

Street

Postal code / city

Country

Phone

Fax

E-mail

Siemens AG

Dept.

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 withstand 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 normal current	☐ 800 A ☐ 2500 A	☐ 1250 A ☐ 3150 A	☐ 2000 A	☐ ___ A
Pole-centre distance	☐ 150 mm	☐ 160 mm	☐ 210 mm	☐ 275 mm
Width across flats	☐ 205 mm	☐ 275 mm	☐ 310 mm	

Secondary equipment

For possible combinations see pages 27 to 32

Circuit-breaker equipment	☐ Fixed mounting	☐ Drawout element, contact arms ☐ Drawout element, contact arms, bushings ☐ Slide-in module with earthing switch ☐ Slide-in module without earthing switch ☐ Retrofit		
Motor operating mechanism	☐ ___ V DC		☐ ___ V AC, ___ Hz	
Closing solenoid	☐ ___ V DC		☐ ___ V AC, ___ Hz	
1st shunt release	☐ ___ V DC		☐ ___ V AC, ___ Hz	
2nd shunt release	☐ ___ V DC		☐ ___ V AC, ___ Hz	
Current-transformer operated release	☐			
Undervoltage release	☐ ___ V DC		☐ ___ V AC, ___ Hz	
Auxiliary switch	☐ 6 NO + 6 NC		☐ 12 NO + 12 NC	
Low-voltage connection	☐ 27-pole terminal strip		☐ 24-pole plug	☐ 64-pole plug
☐ Mechanical interlocking				
☐ Circuit-breaker tripping signal				
☐ Electrical closing lock-out				
Operating instructions	☐ German	☐ English	☐ French	☐ Spanish

Application and other requirements

☐ Please check off ___ Please fill in

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

Please follow the steps for configuration and enter the order number in the configuration aid.
Alternatively you can also use our prompted online configurator under www.siemens.com/SION.

Instruction for configuration of the SION vacuum circuit-breaker

1st step: Definition of the circuit-breaker and equipment package (see pages 18 to 26)

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

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

2nd step: Definition of the secondary equipment (see pages 27 to 32)

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 drawout element, with contact, fixed contact, bushing, cartridge, with / without earthing switch, retrofit 8B
Motor operating mechanism (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)	27-pole terminal strip, 24-pole plug connector 64-pole plug connector
Mechanical interlocking, circuit-breaker tripping signal (position 15)	With or without
Language of the documentation (position 16)	English, German, French, Spanish, Russian, further languages on request
Frequency of the operating voltage of the secondary equipment at AC (position 16)	DC or AC 50 Hz; 60 Hz

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

3rd step: Do you have any further requirements concerning the equipment? (Please refer to page 33)

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

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	1	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	Z
					See page 18	to	page 26		See page 27	See page 27	See page 28	See page 28		See pages 29+30	See page 30	See page 31	See page 32		See page 33
3	A	E	1				–						–						
				+				+				+				+			
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13623 Berlin, Germany
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Customer Support Center.
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Fax: +49 180 524 24 71
(Charges depending on provider)
E-mail: support.energy@siemens.com

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