

Molded-Case Circuit-Breakers (MCCB)

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Molded-Case Circuit-Breakers (MCCB)

Introduction

Overview



Type VL160X VL160 VL250 VL400 VL630 VL800

SENTRON VL molded-case circuit-breakers up to 1600 A

Rated current I_n at 50 °C ambient temperature	A	16 ... 160 A		25 ... 160 A		80 ... 250 A		126 ... 400 A		252 ... 630 A		320 ... 800 A	
Number of poles		3	4	3	4	3	4	3	4	3	4	3	4
Rated operating voltage U_e AC 50/60 Hz	V	690		690		690		690		690		690	
DC (only with thermal-magnetic trip unit)	V	500	500	600	750	600	750	600	750	600	750	–	–
Overcurrent trip units													
Thermal-magnetic		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	–
Electronic ETU/LCD		–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Replaceable		–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PROFIBUS module COM10		–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Dimensions

	A	mm	105	140	105	140	105	140	139	184	190	254	190	254
	B	mm	158	158	175	175	175	175	280	280	280	280	407	407
	C	mm	82	82	82	82	82	82	102	102	102	102	115	115
	D	mm	107	107	107	107	107	107	139	139	139	139	152	152

Switching capacity I_{cu}/I_{cs} r.m.s. value, to IEC 60947-2

Standard switching capacity N														
up to AC 240 V	kA	65/65		65/65		65/65		65/65		65/65		65/65		65/65
up to AC 415 V	kA	40/40		40/40		40/40		45/45		45/45		50/50		50/50
up to AC 690 V	kA	8/4		12/6		12/6		15/8		20/10		20/10		20/10
up to DC 250 V	kA	30		30		30		30		30		–		–
up to DC 600 V	kA	–		–		–		–		–		–		–
up to DC 750 V	kA	–		–		–		–		–		–		–
High switching capacity H														
up to AC 240 V	kA	100/75		100/75		100/75		100/75		100/75		100/75		100/75
up to AC 415 V	kA	70/70		70/70		70/70		70/70		70/70		70/70		70/70
up to AC 690 V	kA	12/6		12/6		12/6		15/8		30/15		30/15		30/15
up to DC 250 V	kA	30		30		30		30		30		–		–
up to DC 600 V	kA	–		–		–		–		30		–		–
up to DC 750 V	kA	–		–		–		–		–		–		–
Very high switching capacity L														
up to AC 240 V	kA	–		150/150		200/150		200/150		200/150		200/150		200/150
up to AC 415 V	kA	–		100/75		100/75		100/75		100/75		100/75		100/75
up to AC 690 V	kA	–		12/6		12/6		15/8		35/17		35/17		35/17
up to DC 250 V	kA	–		30		30		30		30		–		–
up to DC 600 V	kA	–		30		30		30		30		–		–
up to DC 750 V	kA	–		30		30		30		30		–		–

- ✓ available
- not available

Molded-Case Circuit-Breakers (MCCB)

Introduction



VL1250

VL1600

3VF2

3VF3

3VF4

3VF5

3VF6

3VF7

3VF8

SENTRON VL molded-case circuit-breakers up to 1600 A

Molded-case circuit-breakers up to 2500 A

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
400 ... 1250 A		640 ... 1600 A		16 ... 125	160, 205, 225	220/250	315/400	500/630/800	800/1250	1600/2000, 2500

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
3	4	3	4	3 and 4	3 and 4	3 and 4	3 and 4	3 and 4	3 and 4	3 and 4

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
690		690		up to 415	690 750	690 750	690 750	690 750	690	690

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
–		–		–	–	–	–	–	–	–

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	–	–	–	–	–	–	–
✓	✓	✓	✓	–	–	–	–	–	–	–

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
229	305	229	305	76/102	105/140	105/140	140/183	210/280	210/280	394/508
407	407	537	537	124	153	254	258	273	406	407
153	153	153	153	68	81	97	97	97	140	229
209	209	209	209	73	105	126	126	141	183	305

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
65/35	65/35	65/35	65/35	65/33	85/85 ¹⁾	85/85	85/85	85/85 ²⁾	85/85	–
50/25	50/25	50/25	50/25	18/9	40/40 ¹⁾	40/40	45/45	45/45 ²⁾	50/50	–
20/10	20/10	20/10	20/10	–	12/6	14/7	20/10	20/10 ²⁾	20/10	–
–	–	–	–	–	20/10	20	20	20	–	–
–	–	–	–	–	20/10	20	20	20	–	–
–	–	–	–	–	20/10	20	20	20	–	–

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
75/50	100/50	–	–	–	100/100	100/100	100/100	100/100	100/100	135/100
70/35	70/35	–	–	–	70/70	70/70	70/70	70/70	70/50	70/50
30/15	30/15	–	–	–	14/7	18/9	25/13	25/13	25/13	25/13
–	–	–	–	–	20/10	20	20	20	–	–
–	–	–	–	–	20/10	20	20	20	–	–
–	–	–	–	–	20/10	20	20	20	–	–

VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
200/100	200/100	–	–	–	200/150	200/150	200/150	200/150	200/100	200/100
100/50	100/50	–	–	–	100/75	100/75	100/75	100/75	100/50	100/50
35/17	35/17	–	–	–	18/9	22/11	35/18	35/18	35/18	35/18
–	–	–	–	–	20/10	20	20	20	–	–
–	–	–	–	–	20/10	20	20	20	–	–
–	–	–	–	–	20/10	20	20	20	–	–

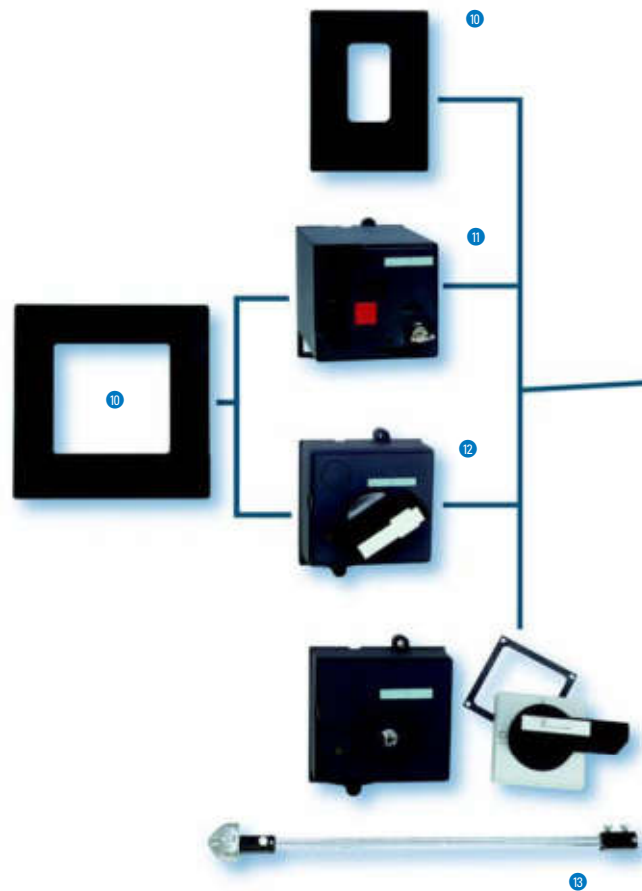
1) or up to AC 240 V: 40/40 kA and up to AC 415 V: 25/25 kA.

2) or at $I_n = 800$ A; up to AC 240 V: 65/33 kA; up to AC 415 V: 50/25 kA; up to 690 V: 20/10 kA.

SENTRON VL Circuit-Breakers up to 1600 A

General data

Overview

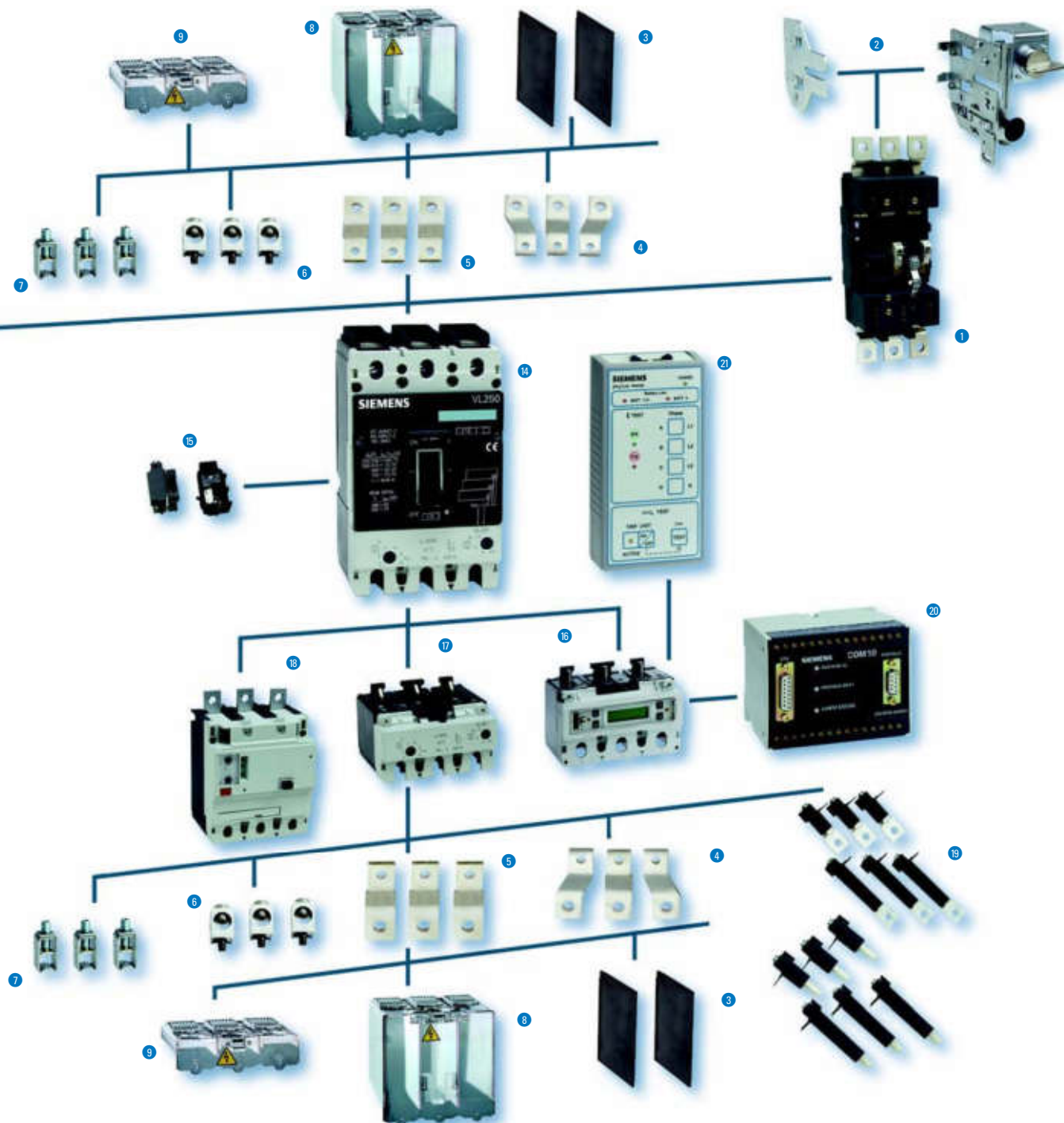


- ① Withdrawable/plug-in base
- ② Side walls for withdrawable version
- ③ Phase barriers
- ④ Flared front busbar connecting bars
- ⑤ Straight connecting bars
- ⑥ Multiple supply terminal for Al/Cu
- ⑦ Box terminal for Cu
- ⑧ Extended terminal cover
- ⑨ Standard terminal cover
- ⑩ Masking frame/cover frame for door cut-out
- ⑪ Motorized operating mechanism with spring energy store
- ⑫ Front-operated rotary operating mechanism
- ⑬ Door-coupling rotary operating mechanism
- ⑭ SENTRON VL circuit-breaker
- ⑮ Internal accessories
- ⑯ Electronic overcurrent trip unit
- ⑰ Thermal/magnetic overcurrent trip unit
- ⑱ RCD module
- ⑲ Rear terminals – flat and round
- ⑳ COM10 communication module to the PROFIBUS DP
- ㉑ Manual tester for electronic trip unit

SENTRON VL Circuit-Breakers up to 1600 A

General data

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SENTRON VL Circuit-Breakers up to 1600 A

General data

Benefits

- The compact design of the SENTRON VL circuit-breakers coupled with excellent characteristics fulfills the high demands of today's electrical distribution systems.
- These circuit-breakers offer a broad product range, improved technology, space savings and easy operation.
- They are available both in thermal/magnetic (16 A to 630 A) and in electronic versions (63 A to 1600 A).

Area of application

The different versions of SENTRON VL circuit-breakers are suitable for the following applications:

- Incoming and outgoing circuit-breakers in distribution systems
- Switching and protection devices for motors, transformers and capacitors
- Main control switches and EMERGENCY-STOP switches in conjunction with lockable rotary operating mechanism and terminal covers.

The SENTRON VL circuit-breakers are available in the following versions:

1. For system protection (in 3 and 4-pole versions)

The overload and short-circuit releases are designed for the protection of cables, leads and non-motor loads.

2. For motor protection (in 3-pole versions)

The overload and short-circuit releases are designed for optimized protection and direct starting of three-phase squirrel-cage motors. The circuit-breakers for motor protection are susceptible to phase failure and feature an adjustable trip class. The overcurrent trip units operate with a microprocessor.

3. For starter combinations (in 3-pole versions)

These circuit-breakers are used both for short-circuit protection as well as for isolating functions, which may be required in starter combinations consisting of circuit-breakers, overload relays and motor contactors. These circuit-breakers exclusively feature adjustable, instantaneous short-circuit releases.

4. As non-automatic circuit-breakers (in 3- and 4-pole versions)

These circuit-breakers can be used as feeder circuit-breakers, main control switches or disconnecting switches without overload protection. They incorporate an integrated short-circuit self-protection system, eliminating the need for back-up fuses.

Standards and specifications

SENTRON VL circuit-breakers comply with:

IEC 60947-1, EN 60947-1,
DIN VDE 0660, Part 100,
IEC 60947-2, EN 60947-2,
DIN VDE 0660, Part 101.
Isolating features to IEC 60947-3, EN 60947-3.

Please contact Siemens for details of other standards.

The overcurrent trip units of the circuit-breakers for motor protection also fulfill IEC 60947-4-1, DIN VDE 0660, Part 102.

Main control switches to EN 60204 or DIN VDE 0113 (see Area of application). EMERGENCY-STOP switches to EN 60204 or DIN VDE 0113 (see Area of application).

Operating conditions

The SENTRON VL circuit-breakers are climate-proof. They are intended for use in enclosed areas where no severe operating conditions (e.g. dust, corrosive vapors, damaging gases) are present.

When installed in dusty and damp areas, suitable enclosures must be provided.

Utilization category

All SENTRON VL circuit-breakers satisfy utilization category A.



Degree of protection

Circuit-breaker	IP20
Masking frame	IP40
Terminal covers	IP30
With front rotary operating mechanism	IP40
With door-coupling rotary mechanism	IP65
With motorized operating mechanism	IP30
With motorized operating mechanism and masking frame for the door cut-out	IP40
Plug-in base/withdrawable version	IP20

RCD module

The RCD module is designed for retrofitting to the switch. It can also be retrofitted by the customer.

The combination of SENTRON VL circuit-breaker and RCD module can be fed from the top or bottom.

All SENTRON VL circuit-breakers with RCD modules are available with auxiliary switches, alarm switches, undervoltage and shunt releases.

Protection of plant and equipment against overload or damage by ground faults (ground fault protection).

The RCD module trips the circuit-breaker through vectorial summation current formation for all phase currents if the vectorial sum of the currents in the poles (= the ground fault current) exceeds the pre-set response and delay time values. AC currents and pulsating DC currents are measured (CBR, design A to EN 60947-2).

SENTRON VL Circuit-Breakers up to 1600 A

General data

Switching of DC currents

The VL 160X to VL 630 circuit-breakers (for system protection with TM, for starter combinations, non-automatic circuit-breakers) can also be used for DC switching and protection applications.

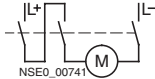
The VL 160 to VL 1600 circuit-breakers with electronic trip units (ETU) are not suitable for DC applications.

However, the maximum permitted DC voltage for each current path needs to be taken into account for DC switching applications.

For voltages above 250 V, a series connection of 2 or 3 current paths is required.

As the current has to flow through all of the current paths, the following connections are recommended in order to satisfy the thermal tripping characteristics.

With DC applications, the response values of the instantaneous short-circuit releases ("I" trip units) are increased by 30 to 40%.

Recommended connection	Maximum permitted DC voltage U_g	Remarks
For 3 and 4-pole circuit-breakers		
	DC 250 V	2-pole switching (ungrounded system) If there is no possibility of a ground fault, or if every ground fault is rectified immediately (ground-fault monitoring), then the maximum permitted DC voltage is 600 V.
	DC 500 V	2-pole switching (grounded system) The grounded pole is always assigned to the individual current path, so that there are always 2 current paths in series in the event of a ground fault.
	DC 600 V	1-pole switching (grounded system) 3 current paths in series. The grounded pole is assigned to the unconnected current path.
	DC 750 V	1-pole switching (grounded system) 4 current paths in series. The grounded pole is assigned to the unconnected current path.

Design

- Rated current range from 16 A to 1600 A
- Different switching capacity for each frame size

N	Standard (40 to 50 kA)
H	High (70 kA)
L	Very high (100 kA)

- No derating or loss of performance up to 50 °C
- Electronic overcurrent trip units from size 160 A (VL160), particularly for time-based discrimination and ground-fault protection
- 2 families of internal accessories
- Full range of external accessories e.g. terminals for aluminum cable.

All circuit-breakers are supplied with integrated overcurrent trip units. The SENTRON VL 160X to VL 1600 circuit-breakers are available with busbar connection pieces or box terminals (up to 400 A; see Page 4/10). Auxiliary switches/alarm switches or auxiliary releases can be easily adapted by the customer, or they are also available ready installed if required. The switching capacity is shown on the front of every circuit-breaker.

- Standard switching capacity:
 $I_{cu} = 40$ to 50 kA at AC 50/60 Hz 380/415 V
- High switching capacity:
 $I_{cu} = 70$ kA at AC 50/60 Hz 380/415 V
- Very high switching capacity:
 $I_{cu} = 100$ kA at AC 50/60 Hz 380/415 V

SENTRON VL Circuit-Breakers up to 1600 A

General data

Connection

The SENTRON VL160X to VL160 circuit-breakers are equipped with incoming and outgoing terminals which are suitable for stranded conductors, flexible copper rails and conductors with end sleeves. Different supply terminals are available for VL630 to VL1600 (sizes 630 A to 1600 A).

Appropriate accessories for screw connection to fixed and flexible copper bars or cables are available for SENTRON VL160X to VL1600 circuit-breakers.

SENTRON VL160X to VL1600 circuit-breakers can be equipped with connecting bars. These are intended for connection of standard busbars and can be used for front or rear connection. The SENTRON VL1600 circuit-breaker is supplied with front connecting bars.

The incoming and outgoing connections for the circuit-breaker can be freely selected. The electrical specifications remain the same.

The infeed for circuit-breakers with RCD modules can be connected above or below.

Bare conductors at the top connections must be insulated in the arc quenching space that is necessary above the arcing chambers. Phase barriers or terminal covers can be used for this purpose.

For the SENTRON VL160X to VL1600 circuit-breakers, the connections for the internal accessories (auxiliary releases, auxiliary switches and alarm switches) are supplied with terminal screws.

The auxiliary releases (shunt releases and undervoltage releases), auxiliary switches and alarm switches for all SENTRON VL circuit-breakers can be connected easily and directly.

The motorized operating mechanisms with spring energy stores are always equipped with terminals. The leading auxiliary switches for the rotary operating mechanisms are always supplied with connecting leads.

SENTRON VL160X circuit-breakers

The main components of the SENTRON VL160X circuit-breakers are the three conducting paths with the incoming and outgoing terminals. The fixed and moving contacts are designed in such a way that the contacts are magnetically repelled if there is a short-circuit. In conjunction with the arcing chambers, a dynamic impedance is created that causes current limiting due to a reduction in the damaging effects of I^2t and I_p energy that arises during short-circuits.

The trip unit is preassembled and equipped with fixed or adjustable overload releases as well as with fixed short-circuit releases for each pole.

The circuit-breaker is trip-free.

To the right and left of the operating mechanism, the double-insulated accessory compartments are situated for the auxiliary releases and auxiliary switches.

SENTRON VL160 to VL630 circuit-breakers

The arrangement of the current path, main contact and switching mechanism corresponds to that of the SENTRON VL160X circuit-breakers.

The trip units for the SENTRON VL160 to VL630 have the following features:

- The trip units are available in thermal-magnetic and electronic versions. They can be replaced by the customer using a special tool.
- The thermal-magnetic trip units have adjustable overload and short-circuit releases.

SENTRON VL800 to VL1600 circuit-breakers

The arrangement of the current paths and switching mechanisms corresponds with those of the SENTRON VL160X to VL630 circuit-breakers.

The SENTRON VL800 to VL1600 circuit-breakers are only available with electronic trip units.

As is the case for all versions of the SENTRON VL circuit-breakers with electronic trip units, the current transformers are in the same enclosure as the trip units. They send a signal which is proportional to the load current to the electronic overcurrent tripping unit.

All SENTRON VL circuit-breakers with electronic trip units measure the actual r.m.s. current. This type of measurement is the most accurate method. Currents in today's electrical distribution systems with many harmonics are evaluated reliably.

Overcurrent trip unit systems

1. Overcurrent trip unit system of the SENTRON VL160X to VL630 circuit-breakers - thermal-magnetic

The overcurrent and short-circuit releases function with bimetallic and magnetic trip units. They are available in fixed set or adjustable versions.

The four-pole circuit-breakers for system protection can be equipped with overcurrent trip units for all four poles or without an overcurrent trip unit for the fourth pole (N). From 100 A and higher, the trip units for the fourth pole (N) are set to 60 % of the current for the 3 main current paths, so that safe protection for neutral conductors with a reduced cross-section is ensured.

The circuit-breakers for starter combination applications are usually combined with a motor contactor and a suitable overload relay.

The non-automatic circuit-breakers have an integrated short-circuit self-protection system eliminating the need for back-up fuses. These circuit-breakers have no overload protection. Four-pole circuit-breakers do not have a short-circuit release for the fourth pole (N).

2. Overcurrent trip unit system for SENTRON VL160 to VL1600 circuit-breakers, electronic, ETU

The electronic overcurrent trip unit system consists of:

- 3 current transformers
- Evaluation electronics with microprocessor
- Tripping solenoid.

For SENTRON VL160 and VL250, the tripping solenoid is installed in the left accessory compartment.

An auxiliary power supply is not necessary for the release.

A minimum load current of approx. 20 % of the corresponding rated current I_n of the circuit-breaker is required to activate the microprocessor trip units.

At the output of the electronic overcurrent trip unit module there is a tripping solenoid which trips in the case of overload or short-circuit.

Abbreviations (functions)

L	= Long Time Delay	= Overload protection
S	= Short Time Delay	= Short-circuit protection (short-time delayed)
I	= Instantaneous	= Short-circuit protection (instantaneous)
G	= Ground Fault	= Ground-fault protection

L, S, I, G designations in accordance with IEC 60947

SENTRON VL Circuit-Breakers up to 1600 A

General data

VL160X to VL1600 overcurrent trip units

System protection	Motor protection	Generator protection	Function	Setting options					Thermal image	Phase failure	Communication-capable	Thermal-magnetic trip unit (TM)	Electronic trip unit (ETU)	Electronic trip unit with LCD display (LOD ETU)	Trip unit	Technical specifications see Page
				L	S (I)	S (t)	I	G								
✓ ¹⁾			LI	1			10		✓			✓			TM ¹⁾	4/13
✓ ¹⁾			LI	0,8-1			10		✓			✓			TM ¹⁾	4/13
✓ ¹⁾			LI	0,8-1			5-10		✓			✓			TM ¹⁾	4/13
✓	✓	✓	LI	0,4-1			1,25-11		✓	✓			✓		ETU 10 M	4/14
✓			LI	0,4-1			1,25-11		✓				✓		ETU 10	4/13
✓			LIG	0,4-1			1,25-11	I _n	✓				✓		ETU 12	4/13
✓		✓	LSI	0,4-1	1,5-10	0-0,5	11		✓				✓		ETU 20	4/13
✓		✓	LSIG	0,4-1	1,5-10	0-0,5	11	I _n	✓				✓		ETU 22	4/14
	✓		LI	0,4-1			1,25-11		✓	✓			✓		ETU 30 M	4/14
✓	✓	✓	LSI	0,4-1	1,5-10	0-0,5	1,25-11		✓	✓				✓	LCD ETU 40 M	4/14
			LI/LSI	0,4-1	1,5-10	0-0,5	1,25-11		✓		✓			✓	LCD ETU 40	4/14
✓			LSIG	0,4-1	1,5-10	0-0,5	1,25-11	adjustable	✓		✓			✓	LCD ETU 42	4/15

No rated current reduction up to 50 °C

Adjustable neutral conductor protection with LCD ETU 42

1) TM up to 630 A

Internal accessories (auxiliary switches, undervoltage releases, shunt releases)

The SENTRON VL circuit-breakers can be supplied with all the internal accessories (e.g. auxiliary switches, undervoltage releases or shunt releases). The available versions can be found in the tables with the Order No. prefixes.

Fixed-mounting, plug-in or withdrawable version

The fixed-mounting circuit-breaker is the basic version. This can be converted very easily into a plug-in or withdrawable version with the aid of the appropriate mounting set. This set contains blade contacts, a locking pin and terminal covers for the plug-in version. The set for the withdrawable version also contains side covers and a moving mechanism. Even with the masking frame mounted, it is still possible to move using the handle with the door closed.

Operating mechanisms

The basic versions of the SENTRON VL circuit-breakers are equipped with a toggle lever as an operating mechanism which is also used as a position indicator. In addition to "ON" and "OFF", "Tripped" is also indicated.

The toggle lever assumes the "tripped" position when the internal tripping mechanism is activated by an overcurrent trip operation, e.g. an overload or short-circuit. The activation of an undervoltage release or shunt release also causes the toggle lever to assume the "tripped" position. The toggle lever must be put into the "OFF/RESET" position before the circuit-breakers can be reclosed. It will then be possible to reset the internal release mechanism and reclose the main contacts on the circuit-breaker (see figure).

A toggle handle extension is supplied with the SENTRON VL1250 and VL1600 circuit-breakers. This accessory must be ordered separately for SENTRON VL400 to VL800 circuit-breakers, if required.

Front-operated rotary operating mechanisms

These operating mechanisms have been designed for direct mounting to the circuit-breaker and change the toggle lever movement from a linear to a rotary motion.

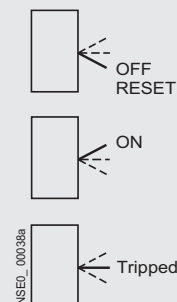
A leading voltage can be applied to the undervoltage release of a circuit-breaker with leading auxiliary switches which makes the circuit-breaker ready-to-close.

Door-coupling rotary operating mechanisms (complete operating mechanisms)

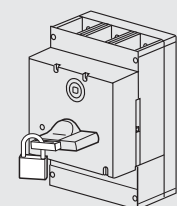
Door-coupling rotary operating mechanisms and removable covers are available for circuit-breakers which are installed into control cabinets and distribution boards. These are supplied as complete sets, including an articulated-shaft mechanism.

With regard to the switching status indication and the "RESET" position, the same applies to the rotary operating mechanisms as to the toggle lever. The position of the operator lever (toggle) indicates the status.

All rotary operating mechanisms can be locked in the OFF position with the help of suitable padlocks. This means that all SENTRON VL circuit-breakers which have these operating mechanisms as well as the corresponding terminal covers can be used as main switches.



Toggle lever operating mechanism positions



Rotary operating mechanism secured with a padlock

SENTRON VL Circuit-Breakers up to 1600 A

General data

Motorized operating mechanism with spring energy store

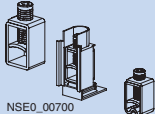
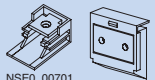
The SENTRON VL160X to VL1600 circuit-breakers (sizes 160 to 1600 A) can be equipped with motorized operating mechanisms for remote opening and closing during operation.

These motorized operating mechanisms with spring energy stores for SENTRON VL160X to VL800 circuit-breakers have a stored-energy feature (for synchronization) with a maximum ON period of $t_E \leq 100$ ms. The SENTRON VL1250 and VL1600 circuit-breakers are motor driven ($t_E \leq 5$ s). In addition, they permit remote opening of the circuit-breaker. The motorized operating mechanisms with spring energy store are always supplied with

a locking device for padlocks. Optional safety locks are also available.

These devices can be used to block the operating mechanism electrically and mechanically. All remote-controlled mechanisms are equipped with a manual operation option for maintenance purposes.

Main connections, basic equipment and options

SENTRON VL160X and VL160 circuit-breakers	SENTRON VL250 to VL1250 circuit-breakers	SENTRON VL1600 circuit-breakers
 NSE0_00700	 NSE0_00701	 NSE0_00702
Box terminal for copper cables or busbars	Connection with screw connection (available with direct cable lug connection on VL160X, VL160, VL250, VL400)	Connection to front busbar connecting bars For conductor cross-sections see Page 4/17

Main connections

Circuit-breakers	Connection overview and further options				
	Box terminals	Connection with screw connection with metric thread	Circular conductor terminal (for Al/Cu cables)	Rear-mounting terminals	Front-accessible connecting bars
VL160X	o	x	x	x	x
VL160	o	x	x	x	x
VL250	x	o	x	x	x
VL400	x	o	x	x	x
VL630	—	o	x	x	x
VL800	—	o	x	x	x
VL1250	—	o	x	x	x
VL1600	—	x	—	x	o

○ = scope of supply

x = available

— = not available

Auxiliary releases and auxiliary switches

Undervoltage releases, leading auxiliary switches

If there is no voltage present, closing of the breaker is not possible. If voltage is not applied to the trip unit, operation of the circuit-breaker will result in no-load switching.

Frequent re-tripping should be avoided because of its adverse effect on the service life of the circuit-breaker.

All undervoltage releases have been designed and tested to fulfill all applicable requirements in accordance with IEC 60947 (release voltage 0.70 to 0.35 U_e , response voltage 0.85 to 1.10 U_e).

A leading voltage can be applied to the undervoltage release of a circuit-breaker with leading auxiliary switches which makes the circuit-breaker ready-to-close.

For SENTRON VL circuit-breakers, the leading auxiliary switch can be supplied with the front rotary operating mechanism or complete operating mechanism. For more detailed information please refer to the selection and ordering tables for accessories.

Shunt release

The shunt release is used for remote tripping of the circuit-breaker.

The coil of the shunt release is designed for short-time operation only. A coil trip is implemented internally.

These devices operate in compliance with IEC 60947 (tripping voltage 0.70 to 1.10 U_e).

It is not permissible to apply a continuous trip command to a shunt release to prevent closing when the circuit-breaker is tripped.

A central tap is provided as standard for checking the conductivity of the coil.

Auxiliary switch

Auxiliary switches are used for indication and control. The different combination options for the auxiliary switches are shown in the diagram above.

Alarm switch

The alarm switches (AS) are active when the circuit-breaker has been tripped due to an overcurrent e.g. overload or short-circuit. However, they are also activated if the circuit-breaker has been tripped by a shunt release or undervoltage release.

Installing auxiliary/alarm switches (see diagram)

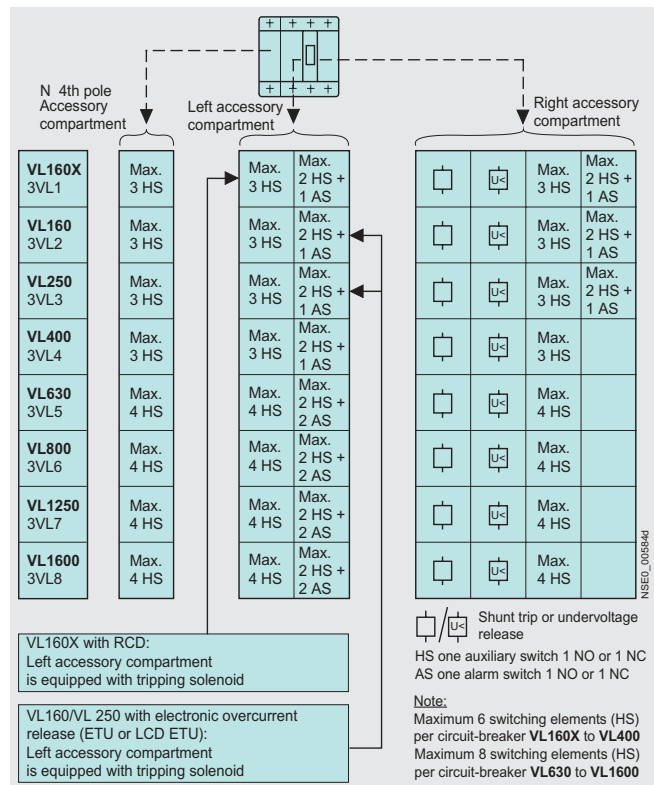
The configuration possibilities for circuit-breakers with auxiliary and alarm switches depend on the mounting position of the auxiliary/alarm switches on the circuit-breaker and on the accessory groups (1 or 2) of the circuit-breakers.

PLC control

The auxiliary and alarm switches can be used to send signals to programmable controllers. These switches are part of the Siemens 3SB3 range.

Leading auxiliary switches

The leading auxiliary switches OFF to ON or ON to OFF are available as a retrofit set for rotary operating mechanisms.



Possible complements for the insulated accessory subsections in the SENTRON VL circuit-breakers

Before ordering, use the table above to check whether the required combination of shunt releases, undervoltage releases and auxiliary/alarm switches is feasible.

RCD module

- Easy mounting
- Installation kit for lateral assembly to DIN 50023 for SENTRON VL160X circuit-breakers under Order No. 3VL9 112-5GB30/3VL9 112-5GB40
- A tripping button enables the function of the integrated RCD module to be tested.
- Protruding reset/tripping button (prevents the circuit-breaker from being reclosed before the reset/tripping button has been reset)
- Circuit for remote-controlled tripping of the circuit-breaker does not require an additional external voltage supply (for SENTRON VL160 to VL400 circuit-breakers).
- LED displays which enable visual monitoring of the RCD module
 - Green $\leq 25\% I_{\Delta n}$ of $I_{\Delta n}$
 - Green + yellow $25\% < I_{\Delta n} = 50\%$ of the set $I_{\Delta n}$
 - Green + yellow + red $I_{\Delta n} \geq 50\%$ of the set $I_{\Delta n}$
- RCD alarm switch (changeover contact) for VL160 to VL400 to indicate a tripping operation by the RCD module
- AC 690 V application
- "Power disconnect" enables electrical testing without disconnecting the cables
- The functional properties of the circuit-breaker are not adversely affected by the addition of the RCD module
- Internal power supply, no external voltage.

(For diagrams see Page 4/16).

SENTRON VL Circuit-Breakers up to 1600 A

General data

Functions

Current limitation

The SENTRON VL circuit-breakers utilize the design principle of magnetic repulsion of the contacts. The contacts open before the anticipated peak value of the short-circuit current is achieved. The current-limiting effects of the SENTRON VL circuit-breakers provide effective protection for system components against the thermal and dynamic effects of the short-circuit current in the event of an electrical fault.

Ground-fault protection

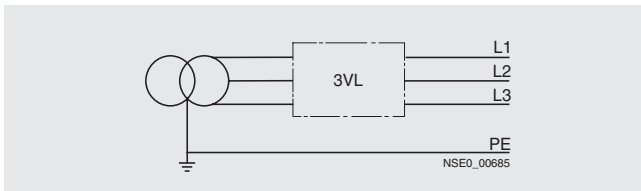
Ground-fault releases "g" sense fault currents that flow to ground and that can cause fire in the plant. Several circuit-breakers connected in series can provide graduated discrimination by means of the adjustable delay time.

The following measurement methods can be used to detect neutral conductor and ground-fault currents:

Vectorial summation current formation (measurement method 1)

Ground-fault detection in symmetrically loaded systems

The three phase currents are evaluated with the help of the vectorial summation current.

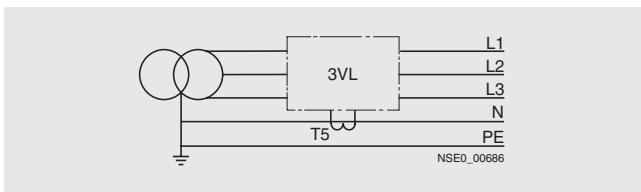


Ground-fault detection in asymmetrically loaded systems

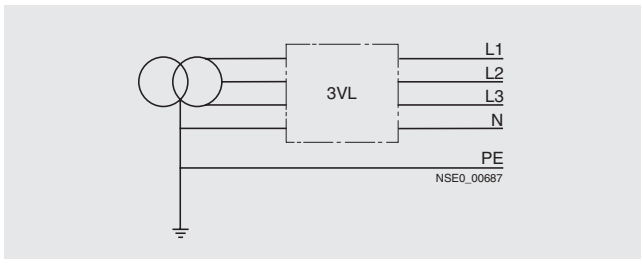
The neutral conductor current is measured directly. For the three-pole circuit-breakers this measurement is only evaluated for ground-fault protection; for four-pole circuit-breakers it is also evaluated for neutral conductor overload protection.

The overcurrent trip unit determines the ground-fault current for the three phase currents and neutral conductor current by means of vectorial summation current formation.

For 4-pole circuit-breakers, the fourth current transformer for the neutral conductor is installed internally.



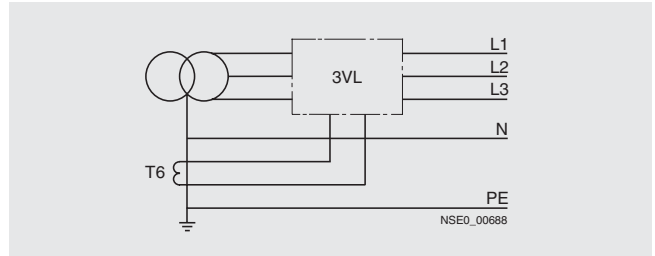
3-pole circuit-breaker, current transformer in the neutral conductor



4-pole circuit-breaker, current transformer installed internally

Direct detection of the ground-fault current via a current transformer in the grounded neutral point of the transformer (measurement method 2)

The current transformer is installed directly in the grounded neutral point of the transformer.



Three-pole circuit-breakers, current transformers in the grounded neutral point of the transformer.

For RCD module, see Pages 4/44 and 4/45.

For external current transformer, see Page 4/55.

Transformer protection

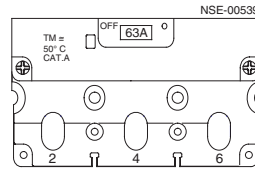
The SENTRON VL circuit-breakers protect energy distribution systems against overload and short-circuit on the low-voltage side of the infeed transformer. The resulting requirements with respect to current-based and/or time-based discrimination are reliably fulfilled by the SENTRON VL circuit-breakers for system protection (equipped with thermal-magnetic (TM) or electronic overcurrent trip units (ETU or LCD ETU)).

Thermal-magnetic overcurrent trip unit



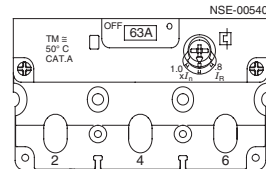
Application: system protection – TM, LI/LIN function

Overload protection (fixed), short-circuit protection (fixed); see selection table for VL160X (trip units installed in the switch enclosure)



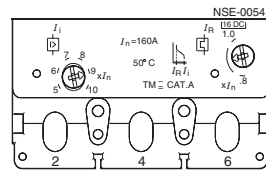
Application: system protection – TM, LI/LIN function

Overload protection (adjustable $I_R = 0.8$ to $1 \times I_n$), short-circuit protection (fixed); see selection tables for VL160X (trip units installed in the switch enclosure)



Application: system protection – TM, LI/LIN function

Overload protection (adjustable $I_R = 0.8$ to $1 \times I_n$), short-circuit protection (adjustable $I_i = 5$ to $10 \times I_n$, for VL160 to VL630)



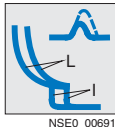
Electronic overcurrent trip units ETU

For types
VL160 to
VL1600

General

- No auxiliary voltage for tripping unit required
- All ETUs have a thermal image
- Flashing green LED indicates faultless operation of microprocessor

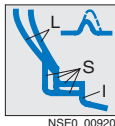
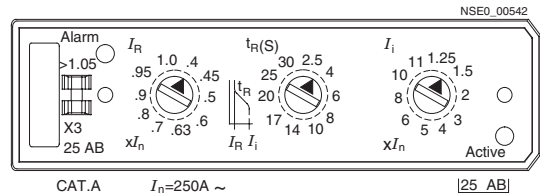
- Overload status ($I > 1.05 \times I_R$) is indicated by continuous yellow LED (alarm)
- Integrated self-test function
- Female connector for test unit



Application: system protection – ETU10, LI/LIN function

Overload protection $I_R = 0.4; 0.45; 0.5$ to $0.95; 1 \times I_n$, time-lag class $t_R = 2.5$ to 30

Short-circuit protection (instantaneous) $I_i = 1.25$ to $11 \times I_n^{(1)}$



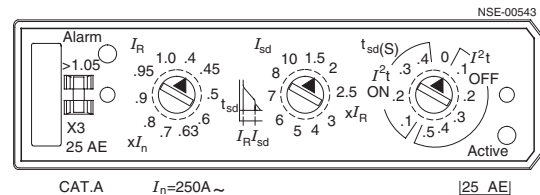
Application: system and generator protection – ETU20, LS/L SIN function

Overload protection $I_R = 0.4; 0.45; 0.5$ to $0.95; 1 \times I_n$,

Short-circuit protection (short-time delayed) $I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s,

$I^2 t$ selectable on/off

Short-circuit protection (instantaneous) $I_i = 11 \times I_n^{(1)}$ (fixed)



Application: system protection – ETU12, LIG/LING function

Overload protection $I_R = 0.4; 0.45; 0.5$ to $0.95; 1 \times I_n$, time-lag class $t_R = 2.5$ to 30

Short-circuit protection (instantaneous) $I_i = 1.25$ to $11 \times I_n^{(1)}$

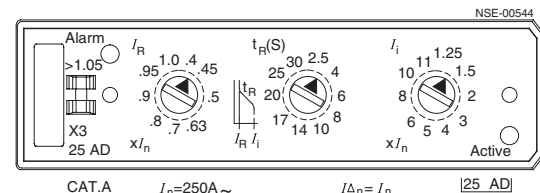
Ground-fault protection:

Measurement method no. 1:

(G_R) vectorial summation current formation for the currents of the three phases/and neutral conductor (four-conductor systems); $I_{\Delta n} = I_n$, versions "AC", "AD", "BC", "BD" (for Order No. supplements see Page 4/25 or 4/31)

Measurement method no. 2:

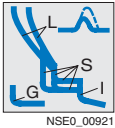
(G_{ND}) direct detection of ground-fault current via current transformer installed in grounded neutral point, $I_G = I_n$ (instantaneous); version "AJ" (for Order No. supplements see Page 4/25)



1) Depending on size, see Page 4/23 (3-pole) and Page 4/30 (4-pole)

SENTRON VL Circuit-Breakers up to 1600 A

General data



Application: system and generator protection – ETU22, LSIG/LSING function

Overload protection $I_R = 0.4; 0.45; 0.5$ to $0.95; 1 \times I_n$,

Short-circuit protection (short-time delayed)
 $I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s,

I^2t selectable on/off

Short-circuit protection (instantaneous) $I_i = 11 \times I_n$ (fixed)¹⁾

Ground-fault protection:

Measurement method no. 1:

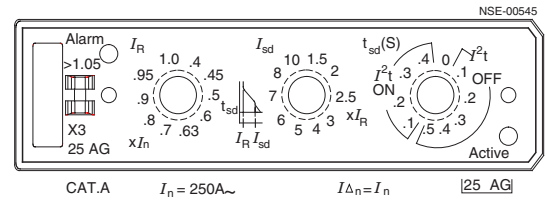
(G_R) vectorial summation current formation for the currents of the three phases/and neutral conductor (4-conductor systems);

$I_{\Delta n} = I_n$, versions "AG", "AH", "BG", "BH"

(for Order No. supplements see Page 4/25 or 4/31)

Measurement method no. 2:

(G_{GND}) direct detection of ground-fault current via current transformer, $I_g = I_n$ (instantaneous); version "AK" (for Order No. supplements see Page 4/25)



Application: motor protection – ETU10M, LI function

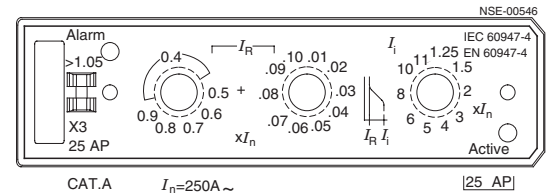
Overload protection adjustable in small steps
 $I_R = 0.41; 0.42$ to $0.98; 0.99; 1 \times I_n$,
trip class $t_c = 10$ (fixed)

Thermal image

Short-circuit protection (instantaneous)

$I_i = 1.25$ to $11 \times I_n$ ¹⁾

with phase failure sensitivity



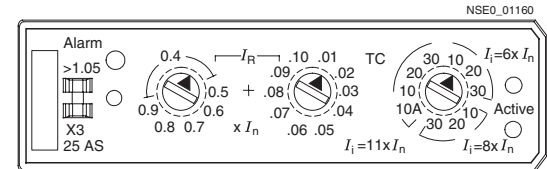
Application: motor protection – ETU30M, LI function

Overload protection adjustable in small steps
 $I_R = 0.41; 0.42$ to $0.98; 0.99; 1 \times I_n$,
trip class $t_c = 10$ A, 10, 20, 30

Thermal image

Short-circuit protection (instantaneous)

$I_i = 6$ to $11 \times I_n$ with phase failure sensitivity



Electronic overcurrent trip units LCD ETU

General

- No auxiliary voltage for trip unit required
- Current indicator
- Illuminated LCD display indicates faultless operation of microprocessor
- Overload status ($I > 105\% I_R$) is indicated by "overload" on the LCD display

- User-friendly, menu-driven setting of protection parameters in absolute ampere values via keys
- Integrated self-test function
- Female connector for test/programming device
- For communication link to PROFIBUS DP see Section 3 "Communication-capable circuit-breakers".



Application: system protection – ETU40, LSI functions and motor protection – ETU40M, LSI/LSIN function

Overload protection $I_R = 0.4$ to $1 \times I_n$,
trip class $t_c = 2.5$ to 30

On/off selectable thermal image

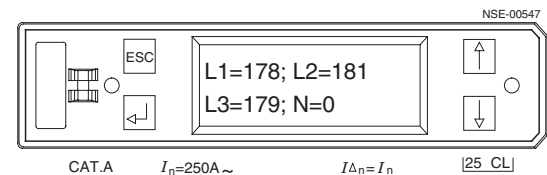
Short-circuit protection (short-time delayed)

$I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s,

I^2t selectable on/off

Short-circuit protection (instantaneous)

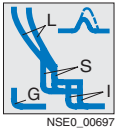
$I_i = 1.25$ to $11 \times I_n$ ¹⁾



¹⁾ Depending on size, see Page 4/23 (3-pole) and Page 4/30 (4-pole)

SENTRON VL Circuit-Breakers up to 1600 A

General data



Application: system protection – ETU42, LSIG/LSING function

Overload protection $I_R = 0.4$ to $1 \times I_n$,
time-lag class $t_R = 2.5$ to 30

On/off selectable thermal image

Short-circuit protection (short-time delayed)

$I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s,

I^2t selectable on/off

Short-circuit protection (instantaneous)

$I_i = 1.25$ to $11 \times I_n^{(1)}$

Ground-fault protection:

Measurement method 1:

(G_R) vectorial summation current formation for the
currents of the three phases/and neutral conductor
(4-conductor systems);

$I_{\Delta n} = 0.4$ to $1 \times I_n$, versions "CL", "CM", "CN"

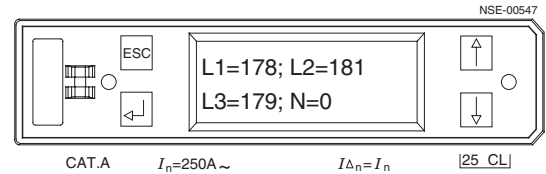
(for Order No. supplements see Page 4/26 or 4/32)

Measurement method 2:

(G_{GND}) direct detection of ground-fault current via
current transformer, $I_g = 0.4$ to $1 \times I_n$,

$t_g = 0.1$ to 0.5 s; version "CM"

(for Order No. supplements see Page 4/26)



1) Depending on size, see Page 4/23 (3-pole) and Page 4/30 (4-pole)

Integration

Mounting

The SENTRON VL circuit-breakers are suitable for use in open and enclosed switchboards and distribution systems. The recommended mounting positions for the SENTRON VL circuit-breakers are shown in the diagrams under "Technical specifications, permissible mounting positions".

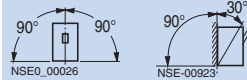
4

Technical specifications

4/16

SENTRON VL Circuit-Breakers up to 1600 A

General data

Type		VL160X 3VL1	VL160 3VL2	VL250 3VL3	VL400 3VL4	VL630 3VL5	VL800 3VL6	VL1250 3VL7	VL1600 3VL8
Mechanical endurance	Operating cycles	20000	20000	20000	20000	10000	5000	3000	3000
Max. switching frequency	1/h	120	120	120	120	60	60	30	30
Conductor cross-sections and connection types for main conductors (see Page 4/10)		box terminal	box terminal	flat	flat	flat	flat	flat	flat
<u>Box terminal</u>									
Solid or stranded cable	copper only	mm ² 2.5-70	2.5-70	25-150	50-240	–	–	–	–
Finely stranded with end sleeve		mm ² 2.5-50	2.5-50	25-120	50-185	–	–	–	–
Busbar		mm 12 × 10	12 × 10	17 × 10	25 × 10	–	–	–	–
Tightening torque for terminals		Nm 4/8	4/8	12	25	–	–	–	–
<u>Multiple feed-in terminal for cable</u>									
Solid or stranded cable	Cu or Al	mm ² 10-95	10-95	25-185	50-240	–	–	–	–
Multiple feed-in terminal	Cu or Al	mm ² –	–	–	2 units 50-120	2 units 50-240	3 units 50-240	4 units 120-240	–
Tightening torque for Al terminal	Cu or Al	Nm 6/14	6/14	14/31	56/31	34	42	42	–
Tightening torque for fixing screw		Nm –	–	11	15/15	15	26	26	–
Direct connection of busbars	Cu or Al	mm 17 × 7	22 × 7	24 × 7	32 × 10	40 × 10	2 × 40 × 10	2 × 50 × 10	3 × 60 × 10
Screw for connection with screw terminal		M 5	M 5	M 8	M 8	M 6	M 8	M 8	–
Tightening torque for busbar connection piece		Nm 5	5	11	15	15	26	26	–
Conductor cross-sections for control circuits with terminal connection or terminal strip									
Solid		mm ² 0.75-1.5	0.75-1.5	0.75-1.5	0.75-1.5	0.75-1.5	0.75-1.5	0.75-1.5	0.75-1.5
Finely stranded with end sleeve		mm ² 0.75-1.0	0.75-1.0	0.75-1.0	0.75-1.0	0.75-1.0	0.75-1.0	0.75-1.0	0.75-1.0
Tightening torque for terminal screw		Nm 1	1	1	1	1	1	1	1
Power loss per circuit-breaker at max. rated current									
System protection	TM 0.8-1.0	W 12-70	15-48	32-80	60-175	85-230	–	–	–
System protection	ETU or LCD ETU	W –	40	60	90	160	250	210	260
for starter combinations or non-automatic circuit-breakers		W 40	40	60	90	160	250	210	260
for motor protection		W –	40	60	90	160	–	–	–
Permissible mounting position									
3SB34 00-0K and 3SB34 00-0J auxiliary and alarm switches									
Conventional free-air thermal current I_{th}		A 10	10	10	10	10	10	10	10
Rated making capacity		A 10	10	10	10	10	10	10	10
AC (AC-15)									
Rated operating voltage		V 24	48	110	230	400	600		
Rated operating current	AC-12	A 10	10	10	10	10	10		
	AC-15	A 6	6	6	6	3	1		
DC (DC-13)									
Rated operating voltage		V 24	48	110	230				
Rated operating current	DC-12	A 10	5	2.5	1				
	DC-13	A 3	1.5	0.7	0.3				
Back-up fuse/ miniature circuit-breaker		A 10 TDz / 10							
Leading auxiliary switch with rotary operating mechanism									
Rated thermal current I_{th}	A	2	2	2	2	2	2	2	2
Rated making capacity	A 2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)	2 (ind. 0.5)
Rated operating voltage	AC V 230	230	230	230	230	230	230	230	230
Rated operating current	A 2	2	2	2	2	2	2	2	2
Rated breaking capacity, induc., p.f. = 0.7	A 0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rated breaking capacity	A 2	2	2	2	2	2	2	2	2
Back-up fuse, quick	A 2	2	2	2	2	2	2	2	2
Position indicator switches									
Conventional thermal current I_{th}	A 16	16							
Rated making capacity	A 16	10							
Rated operating voltage	AC V 250	400							
Rated operating current	A 16	10							
Rated breaking capacity, induc., p.f. = 0.7	A 4	4							
Rated breaking capacity	A 16	10							
Back-up fuse, quick	A 16	10							

SENTRON VL Circuit-Breakers up to 1600 A

General data

Type	VL160X 3VL1	VL160 3VL2	VL250 3VL3	VL400 3VL4	VL630 3VL5	VL800 3VL6	VL1250 3VL7	VL1600 3VL8	
3SB34 00-0K and 3SB34 00-0J auxiliary and alarm switches									
Tripped indication switch in RCD module ¹⁾									
Conventional thermal current I_{th}	A	2							
Rated making capacity	A	2							
Rated operating voltage	AC V	250							
Rated operating current	A	2							
Rated breaking capacity, induc., p.f.= 0.7	A	0.5							
Rated breaking capacity	A	2							
Back-up fuse, quick	A	2							
Trip units	Group 1: VL160X to VL400				Group 2: VL630 to VL1600				
Undervoltage release									
Response voltage:	V 0.35-0.70 × U_s 0.85-1.1 × U_s				0.35-0.70 × U_s 0.85-1.1 × U_s				
Release (circuit-breaker is tripped)									V
Pick-up (circuit-breaker can be closed)									V
Power input (continuous duty) at:									
AC 50/60 Hz 110-127 V	VA	1.0					1.8		
AC 50/60 Hz 220-250 V	VA	1.0					1.8		
AC 50/60 Hz 208 V	VA	1.0					1.8		
AC 50/60 Hz 277 V	VA	1.0					1.8		
AC 50/60 Hz 380-415 V	VA	1.0					1.8		
AC 50/60 Hz 440-480 V	VA	1.0					1.8		
AC 50/60 Hz 500-525 V	VA	1.0					1.8		
AC 50/60 Hz 600 V	VA	1.0					1.8		
DC 12 V	W	0.8					1.5		
DC 24 V	W	0.8					1.5		
DC 48 V	W	0.8					1.5		
DC 60 V	W	0.8					1.5		
DC 110-127 V	W	0.8					1.5		
DC 220-250 V	W	0.8					1.5		
Max. opening time	ms	50					50		
Shunt release									
Operating voltage:	U_s				U_s				
Pick-up (circuit-breaker is tripped)	V	0.7-1.1				0.7-1.1			
Power input (short time) at:									
AC 50/60 Hz 48-60 V	VA	158-200				300-480			
AC 50/60 Hz 110-127 V	VA	136-158				302-353			
AC 50/60 Hz 208-277 V	VA	274-350				330-349			
AC 50/60 Hz 380-600 V	VA	158-237				243-384			
DC 12 V	W	110				110			
DC 24 V	W	110				360			
DC 48-60 V	W	110-172				500-820			
DC 110-127 V	W	220-254				302-353			
DC 220-250 V	W	97-110				348-397			
Max. opening time	ms	50					50		
Max. in-service period	S interrupts automatically								

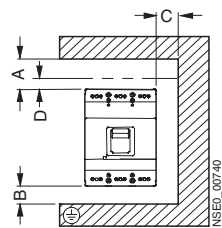
1) Max. DC rated operating voltage 125 V, minimum load 50 mA at DC 5 V.

SENTRON VL Circuit-Breakers up to 1600 A

General data

Type	VL160X 3VL1	VL160 3VL2	VL250 3VL3	VL400 3VL4	VL630 3VL5	VL800 3VL6	VL1250 3VL7	VL1600 3VL8
○ = Motorized operating mechanism x = With spring energy store (synchronizable)	x	x	x	x	x	x	○	○
Power input VA/W	<500							
Rated control supply voltage U_s AC 50/60 Hz V	48							
DC V	60							
Back-up fuse or miniature circuit-breaker (time-lag) A	2							
Operating range V	0.85-1.1							
Minimum command duration at U_s ms	50							
Total make-time ms	<100							
Break-time S	<5							
Charging time S	<5							
Reclosure after approx. S	1							
Max. permissible switching frequency 1/h	120	120	120	120	60	60	30	30
Max. command duration ms	Inching command and pushbutton command							

Space requirements above arcing chambers



Arcing spaces

Minimum clearances from adjacent grounded parts and from non-insulated live parts. Plain conductors and busbars must be insulated with interphase barriers within the arcing space.

The specific installation instructions for the various sizes must be observed for plain conductors and busbars outside the arcing space.

For installation instructions refer to the Internet www.ad.siemens.de

Circuit-breaker	Switching capacity	Minimum enclosure volume	A ≤ 415 V without terminal cover (cover)	A >415 – 690 V without terminal cover (cover)	A >415 – 690 V with terminal cover (cover)	B ≤690 V	C ≤690 V	D ≤690 V
Type		m ³						
VL160X	Standard	0.011	35	70	35	25	25	35
VL160	High	0.011	50	100	100	25	25	35
VL250	Very high	0.015	50	100	100	25	25	35
VL400	Standard	0.036	50	100	50	25	25	35
VL630	High	0.18	50	100	50	25	25	35
VL800	Very high	0.22	50	100	50	25	25	35
VL1250	Standard	0.22	70	100	70	30	30	50
VL1600	High	0.264	100	100	100	100	30	100
	Very high							

Definition of the permissible safety clearances

Clearance between

A: circuit-breaker and busbars (bare metal and grounded metal); terminal cover required above AC 600 V, DC 500 V

B: circuit-breaker connection and floor

C: side of the circuit-breaker and the side walls (bare metal and grounded metal)

D: circuit-breaker and non-conducting parts with an insulation thickness of at least 3 mm (insulator, insulated busbar, painted plate)

SENTRON VL Circuit-Breakers up to 1600 A

General data

Correlation between short-circuit making capacity, short-circuit breaking capacity and the corresponding power factor (to IEC 60947-2)

Short-circuit breaking capacity I_{cu} A	Power factor p.f.	Minimum value for short-circuit making capacity I_{cm} (n x short-circuit breaking capacity) $n \times I_{cu}$
$4\,500 < I_{cu} \leq 6\,000$	0.7	$1.5 \times I_{cu}$
$6\,000 < I_{cu} \leq 10\,000$	0.5	$1.7 \times I_{cu}$
$10\,000 < I_{cu} \leq 20\,000$	0.3	$2.0 \times I_{cu}$
$20\,000 < I_{cu} \leq 50\,000$	0.25	$2.1 \times I_{cu}$
$50\,000 < I_{cu}$	0.2	$2.2 \times I_{cu}$

e.g. VL250H (H $\hat{=}$ high switching capacity): $I_{cu} = 70$ kA (AC 415 V)
 $I_{cm} = 2.2 \times 70\,000 = 154$ kA (AC 415 V)

SENTRON VL Circuit-Breakers up to 1600 A

General data

Rated short-circuit breaking capacity

Rated ultimate short-circuit breaking capacity I_{cu}

Rated service short-circuit breaking capacity I_{cs}

Circuit-breakers for system protection and non-automatic circuit-breakers																																
Type	VL160X				VL160				VL250				VL400				VL630				VL800				VL1250				VL1600			
Rated current I_n	A 160				160				250				400				630				800				1250				1600			
up to AC 220/240 V																																
• I_{Cu}	kA	65	100	–	65	100	200	65	100	200	65	100	200	65	100	200	65	100	200	65	100	200	65	100	200							
• I_{CS}	kA	65	75	–	65	75	150	65	75	150	65	75	150	65	75	150	65	75	150	65	75	150	65	75	100							
up to AC 380/415 V																																
• I_{Cu}	kA	40	70	–	40	70	100	40	70	100	45	70	100	45	70	100	50	70	100	50	70	100	50	70	100							
• I_{CS}	kA	40	70	–	40	70	75	40	70	75	45	70	75	45	70	75	50	70	75	25	35	50	25	35	50							
up to AC 690 V																																
• I_{Cu}	kA	8 ¹⁾	12 ¹⁾	–	12	12	12	12	12	12	15	15	15	20	30	35	20	30	35	20	30	35	20	30	35							
• I_{CS}	kA	4 ¹⁾	6 ¹⁾	–	6	6	6	6	6	6	8	8	8	10	15	17	10	15	17	10	15	17	10	15	17							

Circuit-breakers for motor protection and starter combinations																	
Type		VL160				VL250				VL400				VL630			
Rated current I_n	A	160				250				400				630			
up to AC 220/240 V																	
• I_{Cu}	kA	65	100	200	65	100	200	65	100	200	65	100	200	65			
• I_{CS}	kA	65	75	150	65	75	150	65	75	150	65	75	150	65			
up to AC 380/415 V																	
• I_{Cu}	kA	40	70	100	40	70	100	45	70	100	45	70	100	45			
• I_{CS}	kA	40	70	75	40	70	75	45	70	75	45	70	75	45			
up to AC 690 V																	
• I_{Cu}	kA	12	12	12	12	12	12	15	15	15	20	30	35	35			
• I_{CS}	kA	6	6	6	6	6	6	8	8	8	10	15	17	17			

NEMA breaking capacity																																
Type	VL160X				VL160				VL250				VL400				VL630				VL800				VL1250				VL1600			
Rated current I_n	A 160				160				250				400				630				800				1250				1600			
up to AC 480 V																																
NEMA	kA	18	42	–	25	50	65	25	50	65	25	50	65	25	50	65	25	50	65	25	50	65	25	50	65							
up to AC 600 V																																
NEMA	kA	8 ¹⁾	12 ¹⁾	–	12	12	12	12	12	15	15	15	20	30	35	20	30	35	20	30	35	20	30	35	20	30						

The NEMA breaking capacity can be found on the rating plate of each IEC circuit-breaker.

	= standard switching capacity N
	= high switching capacity H
	= very high switching capacity L

1) For rated currents of 25 A and above. Rated currents of 16 A/20 A at AC 690 V are not available for VL160 X.

SENTRON VL Circuit-Breakers up to 1600 A

3-pole

Selection and ordering data

Fixed-mounted circuit-breakers, VL160X to VL630, up to 630 A, thermal-magnetic overcurrent trip units

Type	Rated current I_n	Setting current of inverse-time delayed overload release "L" I_R	Operating current of instantaneous short-circuit release "I" I_i	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.	DT	High switching capacity H 70 kA at 380/415 V AC	DT	Very high switching capacity L 100 kA at 380/415 V AC
					Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.	Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.	Order No. Order No. supplement required, see Page 4/34
	A	A	A			kg		kg	



NSE0_00695

Circuit-breakers for system protection, TM, LI function
with permanently set thermal overload releases, permanently set short-circuit releases

VL160X	16	16	300	B	3VL17 96-1DA33-....	1.900	B	3VL17 96-2DA33-....	1.900	—
	20	20	300	B	3VL17 02-1DA33-....	1.900	B	3VL17 02-2DA33-....	1.900	
	25	25	300	B	3VL17 25-1DA33-....	2.000	B	3VL17 25-2DA33-....	2.000	
	32	32	300	B	3VL17 03-1DA33-....	2.000	B	3VL17 03-2DA33-....	2.000	
	40	40	600	B	3VL17 04-1DA33-....	2.000	B	3VL17 04-2DA33-....	2.000	
	50	50	600	B	3VL17 05-1DA33-....	2.000	B	3VL17 05-2DA33-....	2.000	
	63	63	600	B	3VL17 06-1DA33-....	2.000	B	3VL17 06-2DA33-....	2.000	
	80	80	1000	B	3VL17 08-1DA33-....	2.000	B	3VL17 08-2DA33-....	2.000	
	100	100	1000	B	3VL17 10-1DA33-....	2.000	B	3VL17 10-2DA33-....	2.000	
	125	125	1000	B	3VL17 12-1DA33-....	2.000	B	3VL17 12-2DA33-....	2.000	
	160	160	1500	B	3VL17 16-1DA33-....	2.000	B	3VL17 16-2DA33-....	2.000	



NSE0_00703

Circuit-breakers for system protection, TM, LI function
with adjustable thermal overload releases, permanently set short-circuit releases

VL160X	20	16- 20	300	B	3VL17 02-1DD33-....	1.900	B	3VL17 02-2DD33-....	1.900	—
	32	25- 32	300	B	3VL17 03-1DD33-....	2.000	B	3VL17 03-2DD33-....	2.000	
	40	32- 40	600	B	3VL17 04-1DD33-....	2.000	B	3VL17 04-2DD33-....	2.000	
	50	40- 50	600	B	3VL17 05-1DD33-....	2.000	B	3VL17 05-2DD33-....	2.000	
	63	50- 63	600	B	3VL17 06-1DD33-....	2.000	B	3VL17 06-2DD33-....	2.000	
	80	63- 80	1000	B	3VL17 08-1DD33-....	2.000	B	3VL17 08-2DD33-....	2.000	
	100	80-100	1000	B	3VL17 10-1DD33-....	2.000	B	3VL17 10-2DD33-....	2.000	
	125	100-125	1000	B	3VL17 12-1DD33-....	2.000	B	3VL17 12-2DD33-....	2.000	
	160	125-160	1500	B	3VL17 16-1DD33-....	2.000	B	3VL17 16-2DD33-....	2.000	



NSE0_00704

Circuit-breakers for system protection, TM, LI function
with adjustable thermal overload releases, adjustable short-circuit releases

VL160	50	40- 50	300- 600	B	3VL27 05-1DC33-....	2.200	B	3VL27 05-2DC33-....	2.200	B	3VL27 05-3DC33-....	2.200
	63	50- 63	300- 600	B	3VL27 06-1DC33-....	2.200	B	3VL27 06-2DC33-....	2.200	B	3VL27 06-3DC33-....	2.200
	80	63- 80	400- 800	B	3VL27 08-1DC33-....	2.200	B	3VL27 08-2DC33-....	2.200	B	3VL27 08-3DC33-....	2.200
	100	80-100	500-1000	B	3VL27 10-1DC33-....	2.200	B	3VL27 10-2DC33-....	2.200	B	3VL27 10-3DC33-....	2.200
	125	100-125	625-1250	B	3VL27 12-1DC33-....	2.200	B	3VL27 12-2DC33-....	2.200	B	3VL27 12-3DC33-....	2.200
	160	125-160	800-1600	B	3VL27 16-1DC33-....	2.200	B	3VL27 16-2DC33-....	2.200	B	3VL27 16-3DC33-....	2.200
VL250	200	160-200	1000-2000	B	3VL37 20-1DC36-....	2.300	B	3VL37 20-2DC36-....	2.300	B	3VL37 20-3DC36-....	2.300
	250	200-250	1200-2500	B	3VL37 25-1DC36-....	2.300	B	3VL37 25-2DC36-....	2.300	B	3VL37 25-3DC36-....	2.300
VL400	200	160-200	1000-2000	B	3VL47 20-1DC36-....	5.700	B	3VL47 20-2DC36-....	5.700	B	3VL47 20-3DC36-....	5.700
	250	200-250	1200-2500	B	3VL47 25-1DC36-....	5.700	B	3VL47 25-2DC36-....	5.700	B	3VL47 25-3DC36-....	5.700
	315	250-315	1575-3150	B	3VL47 31-1DC36-....	5.700	B	3VL47 31-2DC36-....	5.700	B	3VL47 31-3DC36-....	5.700
	400	320-400	2000-4000	B	3VL47 40-1DC36-....	5.700	B	3VL47 40-2DC36-....	5.700	B	3VL47 40-3DC36-....	5.700
VL630	315	250-315	1575-3150	B	3VL57 31-1DC36-....	9.000	B	3VL57 31-2DC36-....	9.000	B	3VL57 31-3DC36-....	9.000
	400	315-400	2000-4000	B	3VL57 40-1DC36-....	9.000	B	3VL57 40-2DC36-....	9.000	B	3VL57 40-3DC36-....	9.000
	500	400-500	2500-5000	B	3VL57 50-1DC36-....	9.000	B	3VL57 50-2DC36-....	9.000	B	3VL57 50-3DC36-....	9.000
	630	500-630	3250-6300	B	3VL57 63-1DC36-....	9.000	B	3VL57 63-2DC36-....	9.000	B	3VL57 63-3DC36-....	9.000

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the plug-in base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

3-pole

Fixed-mounted circuit-breakers, VL160 to VL1600, up to 1600 A, magnetic and electronic overcurrent trip units

Type	Rated current I_n	Setting current of inverse-time delayed overload release "L" I_R	Operating current of instantaneous short-circuit release "I" I_i	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.	DT	High switching capacity H 70 kA at 380/415 V AC	DT	Very high switching capacity L 100 kA at 380/415 V AC
					Order No. Order No. supplement required, see Page 4/34	Weight per PU approx. kg	Order No. Order No. supplement required, see Page 4/34	Weight per PU approx. kg	Order No. Order No. supplement required, see Page 4/34
	A	A	A						



Circuit-breaker for system and generator protection, ETU20, LSI function for time-based discrimination
(S function: $I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s)

VL160	63	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 06-1AE33-....	2.400 B	3VL27 06-2AE33-....	2.400 B	3VL27 06-3AE33-....	2.400
	100	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 10-1AE33-....	2.400 B	3VL27 10-2AE33-....	2.400 B	3VL27 10-3AE33-....	2.400
	160	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 16-1AE33-....	2.400 B	3VL27 16-2AE33-....	2.400 B	3VL27 16-3AE33-....	2.400
VL250	200	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL37 20-1AE36-....	2.500 B	3VL37 20-2AE36-....	2.500 B	3VL37 20-3AE36-....	2.500
	250	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL37 25-1AE36-....	2.500 B	3VL37 25-2AE36-....	2.500 B	3VL37 25-3AE36-....	2.500
VL400	315	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL47 31-1AE36-....	5.900 B	3VL47 31-2AE36-....	5.900 B	3VL47 31-3AE36-....	5.900
	400	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL47 40-1AE36-....	5.900 B	3VL47 40-2AE36-....	5.900 B	3VL47 40-3AE36-....	5.900
VL630	630	$0.4-1.0 \times I_n$	$10 \times I_n$	B	3VL57 63-1AE36-....	9.300 B	3VL57 63-2AE36-....	9.300 B	3VL57 63-3AE36-....	9.300
VL800	800	$0.4-1.0 \times I_n$	$8 \times I_n$	B	3VL67 80-1AE36-....	16.000 B	3VL67 80-2AE36-....	16.000 B	3VL67 80-3AE36-....	16.000
VL1250	1000	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL77 10-1AE36-....	25.000 B	3VL77 10-2AE36-....	25.000 B	3VL77 10-3AE36-....	25.000
	1250	$0.4-1.0 \times I_n$	$10 \times I_n$	B	3VL77 12-1AE36-....	25.000 B	3VL77 12-2AE36-....	25.000 B	3VL77 12-3AE36-....	25.000
VL1600	1600	$0.4-1.0 \times I_n$	$9 \times I_n$	B	3VL87 16-1AE30-....	31.300 B	3VL87 16-2AE30-....	31.300 B	3VL87 16-3AE30-....	31.300



Circuit-breakers for motor/generator protection, ETU10M, LI function
with permanently set time-lag class $t_R = 10$,
with phase failure sensitivity

VL160	63	25- 63	$1.25-11 \times I_n$	B	3VL27 06-1AP33-....	2.400 B	3VL27 06-2AP33-....	2.400 B	3VL27 06-3AP33-....	2.400
	100	40-100	$1.25-11 \times I_n$	B	3VL27 10-1AP33-....	2.400 B	3VL27 10-2AP33-....	2.400 B	3VL27 10-3AP33-....	2.400
	160	64-160	$1.25-11 \times I_n$	B	3VL27 16-1AP33-....	2.400 B	3VL27 16-2AP33-....	2.400 B	3VL27 16-3AP33-....	2.400
VL250	200	80-200	$1.25-11 \times I_n$	B	3VL37 20-1AP36-....	2.500 B	3VL37 20-2AP36-....	2.500 B	3VL37 20-3AP36-....	2.500
	250	100-250	$1.25-11 \times I_n$	B	3VL37 25-1AP36-....	2.500 B	3VL37 25-2AP36-....	2.500 B	3VL37 25-3AP36-....	2.500
VL400	315	125-315	$1.25-11 \times I_n$	B	3VL47 31-1AP36-....	5.900 B	3VL47 31-2AP36-....	5.900 B	3VL47 31-3AP36-....	5.900
	400	160-400	$1.25-11 \times I_n$	B	3VL47 40-1AP36-....	5.900 B	3VL47 40-2AP36-....	5.900 B	3VL47 40-3AP36-....	5.900
VL630	500	200-500	$1.25-12.5 \times I_n$	B	3VL57 50-1AP36-....	9.300 B	3VL57 50-2AP36-....	9.300 B	3VL57 50-3AP36-....	9.300



Circuit-breakers for motor protection, ETU30M, LI function
with adjustable time-lag class t_R (10A, 10, 15, 20, 30),
with phase failure sensitivity

VL160	63	25- 63	$6/8/11 \times I_n$	B	3VL27 06-1AS33-....	2.400 B	3VL27 06-2AS33-....	2.400 B	3VL27 06-3AS33-....	2.400
	100	40-100	$6/8/11 \times I_n$	B	3VL27 10-1AS33-....	2.400 B	3VL27 10-2AS33-....	2.400 B	3VL27 10-3AS33-....	2.400
	160	63-160	$6/8/11 \times I_n$	B	3VL27 16-1AS33-....	2.400 B	3VL27 16-2AS33-....	2.400 B	3VL27 16-3AS33-....	2.400
VL250	200	80-200	$6/8/11 \times I_n$	B	3VL37 20-1AS36-....	2.500 B	3VL37 20-2AS36-....	2.500 B	3VL37 20-3AS36-....	2.500
	250	100-250	$6/8/11 \times I_n$	B	3VL37 25-1AS36-....	2.500 B	3VL37 25-2AS36-....	2.500 B	3VL37 25-3AS36-....	2.500
VL400	315	125-315	$6/8/11 \times I_n$	B	3VL47 31-1AS36-....	5.900 B	3VL47 31-2AS36-....	5.900 B	3VL47 31-3AS36-....	5.900
	400	160-400	$6/8/11 \times I_n$	B	3VL47 40-1AS36-....	5.900 B	3VL47 40-2AS36-....	5.900 B	3VL47 40-3AS36-....	5.900
VL630	500	200-500	$6/8/12.5 \times I_n$	B	3VL57 50-1AS36-....	9.300 B	3VL57 50-2AS36-....	9.300 B	3VL57 50-3AS36-....	9.300

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the plug-in base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

3-pole

Fixed-mounted circuit-breakers, VL160X to VL1600, up to 1600 A, magnetic and electronic overcurrent trip units

Type	Rated current I_n	Setting current of inverse-time delayed overload release "L" I_R	Operating current of instantaneous short-circuit release "I" I_i	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.		DT	High switching capacity H 70 kA at 380/415 V AC		DT	Very high switching capacity L 100 kA at 380/415 V AC	
					Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.
	A	A	A			kg			kg			kg



Circuit-breakers for starter combinations, I function
without overload release, with adjustable short-circuit release

VL160	63	–	450- 900	B	3VL27 06-1DK33-....	2.200	B	3VL27 06-2DK33-....	2.200	B	3VL27 06-3DK33-....	2.200
	100	–	750-1500	B	3VL27 10-1DK33-....	2.200	B	3VL27 10-2DK33-....	2.200	B	3VL27 10-3DK33-....	2.200
	160	–	1250-2500	B	3VL27 16-1DK33-....	2.200	B	3VL27 16-2DK33-....	2.200	B	3VL27 16-3DK33-....	2.200
VL250	250	–	1750-3500	B	3VL37 25-1DK36-....	2.300	B	3VL37 25-2DK36-....	2.300	B	3VL37 25-3DK36-....	2.300
VL400	200	–	1250-2500	B	3VL47 20-1DK36-....	5.700	B	3VL47 20-2DK36-....	5.700	B	3VL47 20-3DK36-....	5.700
	250	–	2000-4000	B	3VL47 25-1DK36-....	5.700	B	3VL47 25-2DK36-....	5.700	B	3VL47 25-3DK36-....	5.700
	400	–	2750-5500	B	3VL47 40-1DK36-....	5.700	B	3VL47 40-2DK36-....	5.700	B	3VL47 40-3DK36-....	5.700
VL630	315	–	2000-4000	B	3VL57 31-1DK36-....	9.000	B	3VL57 31-2DK36-....	9.000	B	3VL57 31-3DK36-....	9.000
	500	–	3250-6300	B	3VL57 50-1DK36-....	9.000	B	3VL57 50-2DK36-....	9.000	B	3VL57 50-3DK36-....	9.000



Non-automatic circuit-breakers¹⁾
without overload release, with permanently set short-circuit releases (for intrinsic protection only)

VL160X	100	–	1800	B	3VL17 10-1DE33-....	2.000	B	3VL17 10-2DE33-....	2.000	–		
	160	–	1800	B	3VL17 16-1DE33-....	2.000	B	3VL17 16-2DE33-....	2.000	–		
VL160	100	–	2500	B	3VL27 10-1DE33-....	2.200	B	3VL27 10-2DE33-....	2.200	B	3VL27 10-3DE33-....	2.200
	160	–	2500	B	3VL27 16-1DE33-....	2.200	B	3VL27 16-2DE33-....	2.200	B	3VL27 16-3DE33-....	2.200
VL250	250	–	3500	B	3VL37 25-1DE36-....	2.300	B	3VL37 25-2DE36-....	2.300	B	3VL37 25-3DE36-....	2.300
VL400	400	–	5500	B	3VL47 40-1DE36-....	5.700	B	3VL47 40-2DE36-....	5.700	B	3VL47 40-3DE36-....	5.700
VL630	630	–	6500	B	3VL57 63-1DE36-....	9.000	B	3VL57 63-2DE36-....	9.000	B	3VL57 63-3DE36-....	9.000
VL800	800	–	6500	B	3VL67 80-1DE36-....	15.700	B	3VL67 80-2DE36-....	15.700	B	3VL67 80-3DE36-....	15.700
VL1250	1250	–	12000	B	3VL77 12-1DE36-....	23.500	B	3VL77 12-2DE36-....	23.500	B	3VL77 12-3DE36-....	23.500
VL1600	1600	–	14400	B	3VL87 16-1DE30-....	29.800	B	3VL87 16-2DE30-....	29.800	B	3VL87 16-3DE30-....	29.800

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

For further versions, including for short-circuit and ground-fault protection, see Pages 4/25 and 4/26.

¹⁾ See also 3K. switch disconnectors in Section 6. 3K. switch disconnectors are also available with rear-mounting operating mechanism and leading contacts.

SENTRON VL Circuit-Breakers up to 1600 A

3-pole

Fixed-mounted circuit-breakers, VL160 to VL1600, up to 1600 A, electronic overcurrent trip units

Type	Rated current I_n	Setting current of the inverse-time delayed overload release "L" I_R	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.		DT	High switching capacity H 70 kA at 380/415 V AC		DT	Very high switching capacity L 100 kA at 380/415 V AC	
				Order No.	Weight per PU approx.		Order No.	Weight per PU approx.		Order No.	Weight per PU approx.
				Order No. supplement required, see Page 4/34	kg		Order No. supplement required, see Page 4/34	kg		Order No. supplement required, see Page 4/34	kg
A	A										

Circuit-breakers

with electronic overcurrent trip unit ETU

VL160	63	25- 63	B	3VL27 06-1□□33-....	2.400	B	3VL27 06-2□□33-....	2.400	B	3VL27 06-3□□33-....	2.400
	100	40- 100	B	3VL27 10-1□□33-....	2.400	B	3VL27 10-2□□33-....	2.400	B	3VL27 10-3□□33-....	2.400
	160	64- 160	B	3VL27 16-1□□33-....	2.400	B	3VL27 16-2□□33-....	2.400	B	3VL27 16-3□□33-....	2.400
VL250	200	80- 200	B	3VL37 20-1□□36-....	2.500	B	3VL37 20-2□□36-....	2.500	B	3VL37 20-3□□36-....	2.500
	250	100- 250	B	3VL37 25-1□□36-....	2.500	B	3VL37 25-2□□36-....	2.500	B	3VL37 25-3□□36-....	2.500
VL400	315	128- 315	B	3VL47 31-1□□36-....	5.900	B	3VL47 31-2□□36-....	5.900	B	3VL47 31-3□□36-....	5.900
	400	160- 400	B	3VL47 40-1□□36-....	5.900	B	3VL47 40-2□□36-....	5.900	B	3VL47 40-3□□36-....	5.900
VL630	500 ³⁾	200- 500	B	3VL57 50-1□□36-....	9.300 ³⁾	B	3VL57 50-2□□36-....	9.300 ³⁾	B	3VL57 50-3□□36-....	9.300 ³⁾
	630 ⁵⁾	252- 630	B	3VL57 63-1□□36-....	9.300 ⁵⁾	B	3VL57 63-2□□36-....	9.300 ⁵⁾	B	3VL57 63-3□□36-....	9.300 ⁵⁾
VL800	800	320- 800	B	3VL67 80-1□□36-....	16.000	B	3VL67 80-2□□36-....	16.000	B	3VL67 80-3□□36-....	16.000
VL1250	1000	400-1000	B	3VL77 10-1□□36-....	25.000	B	3VL77 10-2□□36-....	25.000	B	3VL77 10-3□□36-....	25.000
	1250	500-1250	B	3VL77 12-1□□36-....	25.000	B	3VL77 12-2□□36-....	25.000	B	3VL77 12-3□□36-....	25.000
VL1600	1600	640-1600	B	3VL87 16-1□□30-....	31.300	B	3VL87 16-2□□30-....	31.300	B	3VL87 16-3□□30-....	31.300

Order No.
supple-
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Order No.
supple-
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Order No.
supple-
ments

ETU trip unit, 3-pole version



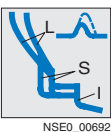
Motor protection with LI function, ETU10M
up to 500 A (VL160 to VL630)

System protection with LI function, ETU10

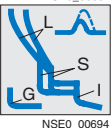


System protection with LIG function, ETU12
for 3-wire three-phase systems²⁾
for 4-wire three-phase systems¹⁾²⁾

System protection with LIG function, ETU12
for direct detection of the ground-fault current in the neutral point of the transformer¹⁾



System and generator protection with LSI function, ETU20



System and generator protection with LSIG function, ETU22
for 3-wire three-phase systems²⁾
for 4-wire three-phase systems¹⁾²⁾

System and generator protection with LSIG function, ETU22
for direct detection in the neutral point of the transformer¹⁾



Motor protection with LI function ETU30M
up to 500 A (VL160 to VL630)

AP⁴⁾
AB

AC
AD

AJ
AE

AG
AH

AK

AS

AP⁴⁾
AB

AC
AD

AJ
AE

AG
AH

AK

AS

AP⁴⁾
AB

AC
AD

AJ
AE

AG
AH

AK

AS

L = overload

S = short-circuit protection, short-time delayed

I = short-circuit protection, instantaneous

G = ground-fault protection

1) External current transformer required in addition, see Pages 4/12 and 4/55.

2) Vectorial summation current formation of the currents

3) Only for motor protection.

4) Not for VL800, VL1250, VL1600.

5) Not for motor protection.

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the plug-in base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

3-pole

Fixed-mounted circuit-breakers, VL160 to VL1600, up to 1600 A, electronic overcurrent trip units

Type	Rated current I_n	Setting current of the inverse-time delayed overload release "L" I_R	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.		DT	High switching capacity H 70 kA at 380/415 V AC		DT	Very high switching capacity L 100 kA at 380/415 V AC	
				Order No.	Weight per PU approx.		Order No.	Weight per PU approx.		Order No.	Weight per PU approx.
				Order No. supplement required, see Page 4/34	kg		Order No. supplement required, see Page 4/34	kg		Order No. supplement required, see Page 4/34	kg
A	A										

Circuit-breakers

with electronic trip unit ETU

VL160	63	25- 63	B	3VL27 06-1□□33-....	2.400	B	3VL27 06-2□□33-....	2.400	B	3VL27 06-3□□33-....	2.400
	100	40- 100	B	3VL27 10-1□□33-....	2.400	B	3VL27 10-2□□33-....	2.400	B	3VL27 10-3□□33-....	2.400
	160	64- 160	B	3VL27 16-1□□33-....	2.400	B	3VL27 16-2□□33-....	2.400	B	3VL27 16-3□□33-....	2.400
VL250	200	80- 200	B	3VL37 20-1□□36-....	2.500	B	3VL37 20-2□□36-....	2.500	B	3VL37 20-3□□36-....	2.500
	250	100- 250	B	3VL37 25-1□□36-....	2.500	B	3VL37 25-2□□36-....	2.500	B	3VL37 25-3□□36-....	2.500
VL400	315	128- 315	B	3VL47 31-1□□36-....	5.900	B	3VL47 31-2□□36-....	5.900	B	3VL47 31-3□□36-....	5.900
	400	160- 400	B	3VL47 40-1□□36-....	5.900	B	3VL47 40-2□□36-....	5.900	B	3VL47 40-3□□36-....	5.900
VL630	500 ³⁾	250- 500	B	3VL57 50-1□□36-....	9.300 ³⁾	B	3VL57 50-2□□36-....	9.300 ³⁾	B	3VL57 50-3□□36-....	9.300 ³⁾
	630 ⁵⁾	252- 630	B	3VL57 63-1□□36-....	9.300 ⁵⁾	B	3VL57 63-2□□36-....	9.300 ⁵⁾	B	3VL57 63-3□□36-....	9.300 ⁵⁾
VL800	800	320- 800	B	3VL67 80-1□□36-....	16.000	B	3VL67 80-2□□36-....	16.000	B	3VL67 80-3□□36-....	16.000
VL1250	1000	400-1000	B	3VL77 10-1□□36-....	25.000	B	3VL77 10-2□□36-....	25.000	B	3VL77 10-3□□36-....	25.000
	1250	500-1250	B	3VL77 12-1□□36-....	25.000	B	3VL77 12-2□□36-....	25.000	B	3VL77 12-3□□36-....	25.000
VL1600	1600	640-1600	B	3VL87 16-1□□30-....	31.300	B	3VL87 16-2□□30-....	31.300	B	3VL87 16-3□□30-....	31.300

Order No.
supple-
ments

CP ⁴⁾

CH

CL

CM

Order No.
supple-
ments

CP ⁴⁾

CH

CL

CM

Order No.
supple-
ments

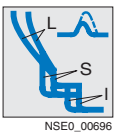
CP ⁴⁾

CH

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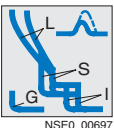
CM

LCD ETU trip unit, 3-pole version



Motor protection with LI function, ETU40M, up to 500 A (VL160 to VL630)

System protection with LI/LS/LSI function, ETU40



System protection with LSIG function, ETU42

for 3-wire three-phase systems²⁾

for 4-wire three-phase systems¹⁾²⁾

L = overload

S = short-circuit protection, short-time delayed

I = short-circuit protection, instantaneous

G = ground-fault protection

1) External current transformer required in addition, see Pages 4/12 and 4/55.

2) Vectorial summation current formation of the currents

3) Only for motor protection.

4) Not for VL800, VL1250, VL1600.

5) Not for motor protection.

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

3-pole

Contact units (only in combination with overcurrent trip unit – see below) VL160 to VL1600, up to 1600 A

Type	Rated current range I_n A	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.		DT	High switching capacity H 70 kA at 380/415 V AC		DT	Very high switching capacity L 100 kA at 380/415 V AC	
			Order No.	Weight per PU approx. kg		Order No.	Weight per PU approx. kg		Order No.	Weight per PU approx. kg
VL160	25- 160	B	3VL27 16-1AA31-0AA0	1.500 B		3VL27 16-2AA31-0AA0	1.500 B		3VL27 16-3AA31-0AA0	1.500
VL250	80- 250	B	3VL37 25-1AA34-0AA0	1.600 B		3VL37 25-2AA34-0AA0	1.600 B		3VL37 25-3AA34-0AA0	1.600
VL400	126- 400	B	3VL47 40-1AA34-0AA0	4.200 B		3VL47 40-2AA34-0AA0	4.200 B		3VL47 40-3AA34-0AA0	4.200
VL630	252- 630	B	3VL57 63-1AA36-0AA0	7.800 B		3VL57 63-2AA36-0AA0	7.800 B		3VL57 63-3AA36-0AA0	7.800
VL800	320- 800	B	3VL67 80-1AA36-0AA0	14.200 B		3VL67 80-2AA36-0AA0	14.200 B		3VL67 80-3AA36-0AA0	14.200
VL1250	400-1250	B	3VL77 12-1AA36-0AA0	21.000 B		3VL77 12-2AA36-0AA0	21.000 B		3VL77 12-3AA36-0AA0	21.000
VL1600	640-1600	B	3VL87 16-1AA30-0AA0	27.300 B		3VL87 16-2AA30-0AA0	27.300 B		3VL87 16-3AA30-0AA0	27.300

Overcurrent trip units (only in combination with contact unit – see above)

ETU trip unit

For trip functions see 10th digit of the circuit-breaker Order No. on the previous pages.

For circuit-breakers	Setting current of the inverse-time delayed overload release "L" I_R	DT	Order No.										
Type	A												
VL160	25- 63	B	3VL9 206-6□□32	x	x	x	x	x	x	x	x	x	x
	40- 100	B	3VL9 210-6□□32	x	x	x	x	x	x	x	x	x	x
	64- 160	B	3VL9 216-6□□32	x	x	x	x	x	x	x	x	x	x
VL250	80- 200	B	3VL9 320-6□□35	x	x	x	x	x	x	x	x	x	x
	100- 250	B	3VL9 325-6□□35	x	x	x	x	x	x	x	x	x	x
VL400	126- 315	B	3VL9 431-6□□35	x	x	x	x	x	x	x	x	x	x
	160- 400	B	3VL9 440-6□□35	x	x	x	x	x	x	x	x	x	x
VL630	200- 500	B	3VL9 550-6□□30	x	–	–	–	–	–	–	–	–	x
	252- 630	B	3VL9 563-6□□30	–	x	x	x	x	x	x	x	x	–
VL800	320- 800	B	3VL9 680-6□□30	–	x	x	x	x	x	x	x	x	–
VL1250	400-1000	B	3VL9 710-6□□30	–	x	x	x	x	x	x	x	x	–
	500-1250	B	3VL9 712-6□□30	–	x	x	x	x	x	x	x	x	–
VL1600	640-1600	B	3VL9 816-6□□30	–	x	x	x	x	x	x	x	x	–
				AP ¹⁾ AB ¹⁾ AC ¹⁾ AD ¹⁾ AJ ¹⁾ AE ¹⁾ AG ¹⁾ AH ¹⁾ AK ¹⁾ AS ¹⁾									
				Trip unit ETU10M ETU10 ETU12 ETU12 ETU12 ETU20 ETU22 ETU22 ETU22 ETU30M									

LCD ETU trip unit

For trip functions see 10th digit of the circuit-breaker Order No. on the previous pages.

For circuit-breakers	Setting current of the inverse-time delayed overload release "L" I_R	DT	Order No.				
Type	A						
VL160	25- 63	B	3VL9 206-6□□32	x	x	x	x
	40- 100	B	3VL9 210-6□□32	x	x	x	x
	64- 160	B	3VL9 216-6□□32	x	x	x	x
VL250	80- 200	B	3VL9 320-6□□35	x	x	x	x
	100- 250	B	3VL9 325-6□□35	x	x	x	x
VL400	126- 315	B	3VL9 431-6□□35	x	x	x	x
	160- 400	B	3VL9 440-6□□35	x	x	x	x
VL630	200- 500	B	3VL9 550-6□□30	x	–	–	–
	252- 630	B	3VL9 563-6□□30	–	x	x	x
VL800	320- 800	B	3VL9 680-6□□30	–	x	x	x
VL1250	400-1000	B	3VL9 710-6□□30	–	x	x	x
	500-1250	B	3VL9 712-6□□30	–	x	x	x
VL1600	640-1600	B	3VL9 816-6□□30	–	x	x	x
				CP ¹⁾ CH ¹⁾ CL ¹⁾ CM ¹⁾			
				Trip unit ETU40M ETU40 ETU42 ETU42			

When the overcurrent trip unit has been installed in the circuit-breaker, it is recommended that it is tested using the manual testing unit for electronic trip units (see Pages 4/50 to 4/53).

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

When ordering trip units, insert the function specification in the Order No.

x available
– not available

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

1) For description see Pages 4/13 to 4/15.

SENTRON VL Circuit-Breakers up to 1600 A

4-pole

Fixed-mounted circuit-breakers, VL160X to VL630, up to 630 A, thermal-magnetic and electronic overcurrent trip units

Type	Rated current I_n	Setting current of inverse-time delayed overload release "L" I_R	Operating current of instantaneous short-circuit release "I" I_i	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.		DT	High switching capacity H 70 kA at 380/415 V AC		DT	Very high switching capacity L 100 kA at 380/415 V AC	
					Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.
A	A	A	A			kg			kg			kg



Circuit-breakers for system protection, TM, LI function
with permanently set thermal overload releases, permanently set short-circuit releases,
without overload and short-circuit releases in the 4th pole (N)

VL160X	16	16	300	B	3VL17 96-1EH43-....	2.300	B	3VL17 96-2EH43-....	2.300	—
	20	20	300	B	3VL17 02-1EH43-....	2.300	B	3VL17 02-2EH43-....	2.300	
	25	25	300	B	3VL17 25-1EH43-....	2.500	B	3VL17 25-2EH43-....	2.500	
	32	32	300	B	3VL17 03-1EH43-....	2.500	B	3VL17 03-2EH43-....	2.500	
	40	40	600	B	3VL17 04-1EH43-....	2.500	B	3VL17 04-2EH43-....	2.500	
	50	50	600	B	3VL17 05-1EH43-....	2.500	B	3VL17 05-2EH43-....	2.500	
	63	63	600	B	3VL17 06-1EH43-....	2.500	B	3VL17 06-2EH43-....	2.500	
	80	80	1000	B	3VL17 08-1EH43-....	2.500	B	3VL17 08-2EH43-....	2.500	
	100	100	1000	B	3VL17 10-1EH43-....	2.500	B	3VL17 10-2EH43-....	2.500	
	125	125	1000	B	3VL17 12-1EH43-....	2.500	B	3VL17 12-2EH43-....	2.500	
	160	160	1500	B	3VL17 16-1EH43-....	2.500	B	3VL17 16-2EH43-....	2.500	



Circuit-breakers for system protection, TM, LI function
with adjustable thermal overload releases, adjustable short-circuit releases,
without overload and short-circuit releases in the 4th pole (N)

VL160	50	40- 50	300- 600	B	3VL27 05-1EJ43-....	3.000	B	3VL27 05-2EJ43-....	3.000	B	3VL27 05-3EJ43-....	3.000
	63	50- 63	300- 600	B	3VL27 06-1EJ43-....	3.000	B	3VL27 06-2EJ43-....	3.000	B	3VL27 06-3EJ43-....	3.000
	80	63- 80	400- 800	B	3VL27 08-1EJ43-....	3.000	B	3VL27 08-2EJ43-....	3.000	B	3VL27 08-3EJ43-....	3.000
	100	80-100	500-1000	B	3VL27 10-1EJ43-....	3.000	B	3VL27 10-2EJ43-....	3.000	B	3VL27 10-3EJ43-....	3.000
	125	100-125	625-1250	B	3VL27 12-1EJ43-....	3.000	B	3VL27 12-2EJ43-....	3.000	B	3VL27 12-3EJ43-....	3.000
	160	125-160	800-1600	B	3VL27 16-1EJ43-....	3.000	B	3VL27 16-2EJ43-....	3.000	B	3VL27 16-3EJ43-....	3.000
VL250	200	160-200	1000-2000	B	3VL37 20-1EJ46-....	3.200	B	3VL37 20-2EJ46-....	3.200	B	3VL37 20-3EJ46-....	3.200
	250	200-250	1250-2500	B	3VL37 25-1EJ46-....	3.200	B	3VL37 25-2EJ46-....	3.200	B	3VL37 25-3EJ46-....	3.200
VL400	200	160-200	1000-2000	B	3VL47 20-1EJ46-....	7.400	B	3VL47 20-2EJ46-....	7.400	B	3VL47 20-3EJ46-....	7.400
	250	200-250	1250-2500	B	3VL47 25-1EJ46-....	7.400	B	3VL47 25-2EJ46-....	7.400	B	3VL47 25-3EJ46-....	7.400
	315	250-315	1575-3150	B	3VL47 31-1EJ46-....	7.400	B	3VL47 31-2EJ46-....	7.400	B	3VL47 31-3EJ46-....	7.400
	400	320-400	2000-4000	B	3VL47 40-1EJ46-....	7.400	B	3VL47 40-2EJ46-....	7.400	B	3VL47 40-3EJ46-....	7.400
VL630	315	250-315	1575-3150	B	3VL57 31-1EJ46-....	11.200	B	3VL57 31-2EJ46-....	11.200	B	3VL57 31-3EJ46-....	11.200
	400	320-400	2000-4000	B	3VL57 40-1EJ46-....	11.200	B	3VL57 40-2EJ46-....	11.200	B	3VL57 40-3EJ46-....	11.200
	500	400-500	2500-5000	B	3VL57 50-1EJ46-....	11.200	B	3VL57 50-2EJ46-....	11.200	B	3VL57 50-3EJ46-....	11.200
	630	500-630	3250-6300	B	3VL57 63-1EJ46-....	11.200	B	3VL57 63-2EJ46-....	11.200	B	3VL57 63-3EJ46-....	11.200

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

4-pole

Fixed-mounted circuit-breakers, VL160X to VL630, up to 630 A, thermal-magnetic overcurrent trip units

Type	Rated current I_n	Setting current of inverse-time delayed overload release "L" I_R	Operating current of instantaneous short-circuit release "I" I_i	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.		DT	High switching capacity H 70 kA at 380/415 V AC		DT	Very high switching capacity L 100 kA at 380/415 V AC	
					Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.
	A	A	A			kg			kg			kg



NSE0_00695

Circuit-breakers for system protection, TM, LIN function
with permanently set thermal overload releases, permanently set short-circuit releases,
with "N" overload and short-circuit releases

VL160X	16	16	300	B	3VL17 96-1EA43-....	2.300	B	3VL17 96-2EA43-....	2.300	—
	20	20	300	B	3VL17 02-1EA43-....	2.300	B	3VL17 02-2EA43-....	2.300	
	25	25	300	B	3VL17 25-1EA43-....	2.500	B	3VL17 25-2EA43-....	2.500	
	32	32	300	B	3VL17 03-1EA43-....	2.500	B	3VL17 03-2EA43-....	2.500	
	40	40	600	B	3VL17 04-1EA43-....	2.500	B	3VL17 04-2EA43-....	2.500	
	50	50	600	B	3VL17 05-1EA43-....	2.500	B	3VL17 05-2EA43-....	2.500	
	63	63	600	B	3VL17 06-1EA43-....	2.500	B	3VL17 06-2EA43-....	2.500	
	80	80	1000	B	3VL17 08-1EA43-....	2.500	B	3VL17 08-2EA43-....	2.500	
	100	100	1000	B	3VL17 10-1EA43-....	2.500	B	3VL17 10-2EA43-....	2.500	
	125	125	1000	B	3VL17 12-1EA43-....	2.500	B	3VL17 12-2EA43-....	2.500	
	160	160	1500	B	3VL17 16-1EA43-....	2.500	B	3VL17 16-2EA43-....	2.500	



NSE0_00704

Circuit-breakers for system protection, TM, LIN function
with adjustable thermal overload releases, adjustable short-circuit releases,
with "N" overload and short-circuit releases

VL160	50	40- 50	300- 600	B	3VL27 05-1EC43-....	3.000	B	3VL27 05-2EC43-....	3.000	B	3VL27 05-3EC43-....	3.000
	63	50- 63	300- 600	B	3VL27 06-1EC43-....	3.000	B	3VL27 06-2EC43-....	3.000	B	3VL27 06-3EC43-....	3.000
	80	63- 80	400- 800	B	3VL27 08-1EC43-....	3.000	B	3VL27 08-2EC43-....	3.000	B	3VL27 08-3EC43-....	3.000
	100	80-100	500-1000	B	3VL27 10-1EC43-....	3.000	B	3VL27 10-2EC43-....	3.000	B	3VL27 10-3EC43-....	3.000
	125	100-125	625-1250	B	3VL27 12-1EC43-....	3.000	B	3VL27 12-2EC43-....	3.000	B	3VL27 12-3EC43-....	3.000
	160	125-160	800-1600	B	3VL27 16-1EC43-....	3.000	B	3VL27 16-2EC43-....	3.000	B	3VL27 16-3EC43-....	3.000
VL250	200	160-200	1000-2000	B	3VL37 20-1EC46-....	3.200	B	3VL37 20-2EC46-....	3.200	B	3VL37 20-3EC46-....	3.200
	250	200-250	1200-2500	B	3VL37 25-1EC46-....	3.200	B	3VL37 25-2EC46-....	3.200	B	3VL37 25-3EC46-....	3.200
VL400	200	160-200	1000-2000	B	3VL47 20-1EC46-....	7.400	B	3VL47 20-2EC46-....	7.400	B	3VL47 20-3EC46-....	7.400
	250	200-250	1200-2500	B	3VL47 25-1EC46-....	7.400	B	3VL47 25-2EC46-....	7.400	B	3VL47 25-3EC46-....	7.400
	315	250-315	1575-3150	B	3VL47 31-1EC46-....	7.400	B	3VL47 31-2EC46-....	7.400	B	3VL47 31-3EC46-....	7.400
	400	320-400	2000-4000	B	3VL47 40-1EC46-....	7.400	B	3VL47 40-2EC46-....	7.400	B	3VL47 40-3EC46-....	7.400
VL630	315	250-315	1575-3150	B	3VL57 31-1EC46-....	11.200	B	3VL57 31-2EC46-....	11.200	B	3VL57 31-3EC46-....	11.200
	400	320-400	2000-4000	B	3VL57 40-1EC46-....	11.200	B	3VL57 40-2EC46-....	11.200	B	3VL57 40-3EC46-....	11.200
	500	400-500	2500-5000	B	3VL57 50-1EC46-....	11.200	B	3VL57 50-2EC46-....	11.200	B	3VL57 50-3EC46-....	11.200
	630	500-630	3250-6300	B	3VL57 63-1EC46-....	11.200	B	3VL57 63-2EC46-....	11.200	B	3VL57 63-3EC46-....	11.200

N = 100 % protection for $I_n \leq 100$ A

N = 60 % protection for $I_n \geq 125$ A

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

4-pole

Fixed-mounted circuit-breakers, VL160X to VL1600, up to 1600 A, magnetic and electronic overcurrent trip units

Type	Rated current I_n	Setting current of inverse-time delayed overload release "L" I_R	Operating current of instantaneous short-circuit release "I" I_i	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.	DT	High switching capacity H 70 kA at 380/415 V AC	DT	Very high switching capacity L 100 kA at 380/415 V AC
					Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.	Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.	Order No. Order No. supplement required, see Page 4/34
	A	A	A			kg		kg	



Circuit-breakers for system and generator protection, ETU20, LSI function for time-based discrimination (S function: $I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s), without overload and short-circuit releases in the 4th pole (N)

VL160	63	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 06-1BE43-....	3.100 B	3VL27 06-2BE43-....	3.100 B	3VL27 06-3BE43-....	3.100
	100	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 10-1BE43-....	3.100 B	3VL27 10-2BE43-....	3.100 B	3VL27 10-3BE43-....	3.100
	160	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 16-1BE43-....	3.100 B	3VL27 16-2BE43-....	3.100 B	3VL27 16-3BE43-....	3.100
VL250	200	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL37 20-1BE46-....	3.300 B	3VL37 20-2BE46-....	3.300 B	3VL37 20-3BE46-....	3.300
	250	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL37 25-1BE46-....	3.300 B	3VL37 25-2BE46-....	3.300 B	3VL37 25-3BE46-....	3.300
VL400	315	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL47 31-1BE46-....	7.600 B	3VL47 31-2BE46-....	7.600 B	3VL47 31-3BE46-....	7.600
	400	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL47 40-1BE46-....	7.600 B	3VL47 40-2BE46-....	7.600 B	3VL47 40-3BE46-....	7.600
VL630	630	$0.4-1.0 \times I_n$	$10 \times I_n$	B	3VL57 63-1BE46-....	11.700 B	3VL57 63-2BE46-....	11.700 B	3VL57 63-3BE46-....	11.700
VL800	800	$0.4-1.0 \times I_n$	$8 \times I_n$	B	3VL67 80-1BE46-....	20.500 B	3VL67 80-2BE46-....	20.500 B	3VL67 80-3BE46-....	20.500
VL1250	1000	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL77 10-1BE46-....	33.500 B	3VL77 10-2BE46-....	33.500 B	3VL77 10-3BE46-....	33.500
	1250	$0.4-1.0 \times I_n$	$10 \times I_n$	B	3VL77 12-1BE46-....	33.500 B	3VL77 12-2BE46-....	33.500 B	3VL77 12-3BE46-....	33.500
VL1600	1600	$0.4-1.0 \times I_n$	$9 \times I_n$	B	3VL87 16-1BE40-....	40.800 B	3VL87 16-2BE40-....	40.800 B	3VL87 16-3BE40-....	40.800



Circuit-breakers for system and generator protection, ETU20, LSI function for time-based discrimination (S function: $I_{sd} = 1.5$ to $10 \times I_R$, $t_{sd} = 0$ to 0.5 s), with overload and short-circuit releases in the 4th pole (N): 50 %

VL160	63	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 06-1BF43-....	3.100 B	3VL27 06-2BF43-....	3.100 B	3VL27 06-3BF43-....	3.100
	100	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 10-1BF43-....	3.100 B	3VL27 10-2BF43-....	3.100 B	3VL27 10-3BF43-....	3.100
	160	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL27 16-1BF43-....	3.100 B	3VL27 16-2BF43-....	3.100 B	3VL27 16-3BF43-....	3.100
VL250	200	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL37 20-1BF46-....	3.300 B	3VL37 20-2BF46-....	3.300 B	3VL37 20-3BF46-....	3.300
	250	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL37 25-1BF46-....	3.300 B	3VL37 25-2BF46-....	3.300 B	3VL37 25-3BF46-....	3.300
VL400	315	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL47 31-1BF46-....	7.600 B	3VL47 31-2BF46-....	7.600 B	3VL47 31-3BF46-....	7.600
	400	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL47 40-1BF46-....	7.600 B	3VL47 40-2BF46-....	7.600 B	3VL47 40-3BF46-....	7.600
VL630	630	$0.4-1.0 \times I_n$	$10 \times I_n$	B	3VL57 63-1BF46-....	11.700 B	3VL57 63-2BF46-....	11.700 B	3VL57 63-3BF46-....	11.700
VL800	800	$0.4-1.0 \times I_n$	$8 \times I_n$	B	3VL67 80-1BF46-....	20.500 B	3VL67 80-2BF46-....	20.500 B	3VL67 80-3BF46-....	20.500
VL1250	1000	$0.4-1.0 \times I_n$	$11 \times I_n$	B	3VL77 10-1BF46-....	33.500 B	3VL77 10-2BF46-....	33.500 B	3VL77 10-3BF46-....	33.500
	1250	$0.4-1.0 \times I_n$	$10 \times I_n$	B	3VL77 12-1BF46-....	33.500 B	3VL77 12-2BF46-....	33.500 B	3VL77 12-3BF46-....	33.500
VL1600	1600	$0.4-1.0 \times I_n$	$9 \times I_n$	B	3VL87 16-1BF40-....	40.800 B	3VL87 16-2BF40-....	40.800 B	3VL87 16-3BF40-....	40.800



Non-automatic circuit-breakers¹⁾
without overload release, with permanently set short-circuit release (for intrinsic protection only)

VL160X	100	—	1800	B	3VL17 10-1EE43-....	2.500 B	3VL17 10-2EE43-....	2.500	—	—
	160	—	1800	B	3VL17 16-1EE43-....	2.500 B	3VL17 16-2EE43-....	2.500	—	—
VL160	100	—	2500	B	3VL27 10-1EE43-....	3.000 B	3VL27 10-2EE43-....	3.000 B	3VL27 10-3EE43-....	3.000
	160	—	2500	B	3VL27 16-1EE43-....	3.000 B	3VL27 16-2EE43-....	3.000 B	3VL27 16-3EE43-....	3.000
VL250	250	—	3500	B	3VL37 25-1EE46-....	3.200 B	3VL37 25-2EE46-....	3.200 B	3VL37 25-3EE46-....	3.200
VL400	400	—	5500	B	3VL47 40-1EE46-....	7.400 B	3VL47 40-2EE46-....	7.400 B	3VL47 40-3EE46-....	7.400
VL630	630	—	6300	B	3VL57 63-1EE46-....	11.200 B	3VL57 63-2EE46-....	11.200 B	3VL57 63-3EE46-....	11.200
VL800	800	—	6300	B	3VL67 80-1EE46-....	19.900 B	3VL67 80-2EE46-....	19.900 B	3VL67 80-3EE46-....	19.900
VL1250	1250	—	12000	B	3VL77 12-1EE46-....	31.000 B	3VL77 12-2EE46-....	31.000 B	3VL77 12-3EE46-....	31.000
VL1600	1600	—	14400	B	3VL87 16-1EE40-....	38.300 B	3VL87 16-2EE40-....	38.300 B	3VL87 16-3EE40-....	38.300

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

¹⁾ See also 3K. switch disconnectors in Section 6. 3K. switch disconnectors are also available with rear-mounting operating mechanism and leading contacts.

SENTRON VL Circuit-Breakers up to 1600 A

4-pole

Fixed-mounted circuit-breakers, VL160 to VL1600, VL1600 A, electronic overcurrent trip units

Type	Rated current I_n	Setting current of the inverse-time delayed overload release "L" I_R	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.	DT	High switching capacity H 70 kA at 380/415 V AC	DT	Very high switching capacity L 100 kA at 380/415 V AC
	A	A		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx. kg	Order No. Order No. supplement required, see Page 4/34	Weight per PU approx. kg	Order No. Order No. supplement required, see Page 4/34
								Weight per PU approx. kg

Circuit-breakers

with electronic overcurrent trip unit ETU

VL160	63	25- 63	B	3VL27 06-1□□43-....	3.100 B	3VL27 06-2□□43-....	3.100 B	3VL27 06-3□□43-....	3.100
	100	40- 100	B	3VL27 10-1□□43-....	3.100 B	3VL27 10-2□□43-....	3.100 B	3VL27 10-3□□43-....	3.100
	160	64- 160	B	3VL27 16-1□□43-....	3.100 B	3VL27 16-2□□43-....	3.100 B	3VL27 16-3□□43-....	3.100
VL250	200	80- 200	B	3VL37 20-1□□46-....	3.300 B	3VL37 20-2□□46-....	3.300 B	3VL37 20-3□□46-....	3.300
	250	100- 250	B	3VL37 25-1□□46-....	3.300 B	3VL37 25-2□□46-....	3.300 B	3VL37 25-3□□46-....	3.300
VL400	315	128- 315	B	3VL47 31-1□□46-....	7.600 B	3VL47 31-2□□46-....	7.600 B	3VL47 31-3□□46-....	7.600
	400	160- 400	B	3VL47 40-1□□46-....	7.600 B	3VL47 40-2□□46-....	7.600 B	3VL47 40-3□□46-....	7.600
VL630	630	252- 630	B	3VL57 63-1□□46-....	11.700 B	3VL57 63-2□□46-....	11.700 B	3VL57 63-3□□46-....	11.700
VL800	800	320- 800	B	3VL67 80-1□□46-....	20.500 B	3VL67 80-2□□46-....	20.500 B	3VL67 80-3□□46-....	20.500
VL1250	1000	400-1000	B	3VL77 10-1□□46-....	33.500 B	3VL77 10-2□□46-....	33.500 B	3VL77 10-3□□46-....	33.500
	1250	500-1250	B	3VL77 12-1□□46-....	33.500 B	3VL77 12-2□□46-....	33.500 B	3VL77 12-3□□46-....	33.500
VL1600	1600	640-1600	B	3VL87 16-1□□40-....	40.800 B	3VL87 16-2□□40-....	40.800 B	3VL87 16-3□□40-....	40.800

ETU trip unit, 4-pole version



System protection with LI/LIN function, ETU10

N pole not protected against overcurrent
N pole protected against overcurrent (50 %)

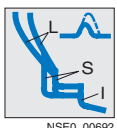
BB
BA



System protection with LIG/LING function, ETU12

Residual current for 4-wire three-phase systems
N pole not protected against overcurrent
N pole protected against overcurrent (50 %)

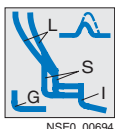
BC
BD



System protection with LSI/LSIN function, ETU20

N pole not protected against overcurrent
N pole protected against overcurrent (50 %)

BE
BF



System protection with LSIG/LSING function, ETU22

Residual current for 4-wire three-phase systems
N pole not protected against overcurrent
N pole protected against overcurrent (50 %)

BG
BH

BB
BA

BC
BD

BE
BF

BG
BH

BB
BA

BC
BD

BE
BF

BG
BH

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

4-pole

Fixed-mounted circuit-breakers, VL160 to VL1600, up to 1600 A, electronic overcurrent trip units

Type	Rated current I_n	Setting current of the inverse-time delayed overload release "L" I_R	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.	DT	High switching capacity H 70 kA at 380/415 V AC	DT	Very high switching capacity L 100 kA at 380/415 V AC
	A	A		Order No. Order No. supplement required, see Page 4/34	Weight per PU approx. kg	Order No. Order No. supplement required, see Page 4/34	Weight per PU approx. kg	Order No. Order No. supplement required, see Page 4/34

Circuit-breakers

with electronic overcurrent trip unit ETU

VL160	63	25- 63	B	3VL27 06-1□□43-....	3.100 B	3VL27 06-2□□43-....	3.100 B	3VL27 06-3□□43-....	3.100
	100	40- 100	B	3VL27 10-1□□43-....	3.100 B	3VL27 10-2□□43-....	3.100 B	3VL27 10-3□□43-....	3.100
	160	64- 160	B	3VL27 16-1□□43-....	3.100 B	3VL27 16-2□□43-....	3.100 B	3VL27 16-3□□43-....	3.100
VL250	200	80- 200	B	3VL37 20-1□□46-....	3.300 B	3VL37 20-2□□46-....	3.300 B	3VL37 20-3□□46-....	3.300
	250	100- 250	B	3VL37 25-1□□46-....	3.300 B	3VL37 25-2□□46-....	3.300 B	3VL37 25-3□□46-....	3.300
VL400	315	128- 315	B	3VL47 31-1□□46-....	7.600 B	3VL47 31-2□□46-....	7.600 B	3VL47 31-3□□46-....	7.600
	400	160- 400	B	3VL47 40-1□□46-....	7.600 B	3VL47 40-2□□46-....	7.600 B	3VL47 40-3□□46-....	7.600
VL630	630	252- 630	B	3VL57 63-1□□46-....	11.700 B	3VL57 63-2□□46-....	11.700 B	3VL57 63-3□□46-....	11.700
VL800	800	320- 800	B	3VL67 80-1□□46-....	20.500 B	3VL67 80-2□□46-....	20.500 B	3VL67 80-3□□46-....	20.500
VL1250	1000	400-1000	B	3VL77 10-1□□46-....	33.500 B	3VL77 10-2□□46-....	33.500 B	3VL77 10-3□□46-....	33.500
	1250	500-1250	B	3VL77 12-1□□46-....	33.500 B	3VL77 12-2□□46-....	33.500 B	3VL77 12-3□□46-....	33.500
VL1600	1600	640-1600	B	3VL87 16-1□□40-....	40.800 B	3VL87 16-2□□40-....	40.800 B	3VL87 16-3□□40-....	40.800

Order No.
supple-
ments

CJ

CN

Order No.
supple-
ments

CJ

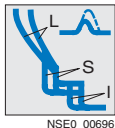
CN

Order No.
supple-
ments

CJ

CN

LCD ETU trip unit, 4-pole version



System protection with LI/LSI/LIN/LSIN function, ETU40

N pole: protection adjustable (50–100 %) or disconnectable (0 %)
Factory preset at 50 %



System protection with LSIG/LSING function, ETU42

for 4-wire three-phase systems
N pole: protection adjustable (50–100 %) or disconnectable (0 %)
Factory preset at 50 %

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

SENTRON VL Circuit-Breakers up to 1600 A

4-pole

Contact units (only in combination with overcurrent trip unit – see below) VL160 to VL1600, up to 1600 A

Type	Rated current I_n A	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21.		DT	High switching capacity H 70 kA at 380/415 V AC		DT	Very high switching capacity L 100 kA at 380/415 V AC	
			Switching all poles Order No.	Weight per PU approx. kg		Switching all poles Order No.	Weight per PU approx. kg		Switching all poles Order No.	Weight per PU approx. kg
VL160	25- 160	B	3VL27 16-1AA41-0AA0	2.000 B		3VL27 16-2AA41-0AA0	2.000 B		3VL27 16-3AA41-0AA0	2.000
VL250	80- 250	B	3VL37 25-1AA44-0AA0	2.200 B		3VL37 25-2AA44-0AA0	2.200 B		3VL37 25-3AA44-0AA0	2.200
VL400	128- 400	B	3VL47 40-1AA44-0AA0	5.500 B		3VL47 40-2AA44-0AA0	5.500 B		3VL47 40-3AA44-0AA0	5.500
VL630	252- 630	B	3VL57 63-1AA46-0AA0	9.700 B		3VL57 63-2AA46-0AA0	9.700 B		3VL57 63-3AA46-0AA0	9.700
VL800	320- 800	B	3VL67 80-1AA46-0AA0	18.200 B		3VL67 80-2AA46-0AA0	18.200 B		3VL67 80-3AA46-0AA0	18.200
VL1250	400-1250	B	3VL77 12-1AA46-0AA0	27.500 B		3VL77 12-2AA46-0AA0	27.500 B		3VL77 12-3AA46-0AA0	27.500
VL1600	640-1600	B	3VL87 16-1AA40-0AA0	34.800 B		3VL87 16-2AA40-0AA0	34.800 B		3VL87 16-3AA40-0AA0	34.800

Overcurrent trip units (only in combination with contact unit – see above)

ETU trip unit

For trip functions see 10th digit of the circuit-breaker Order No. on the previous pages.

For circuit-breakers	Setting current of the inverse-time delayed overload release "L" I_R	DT	Order No.								
Type	A										
VL160	25- 63	B	3VL9 206-6□□42	x	x	x	x	x	x	x	x
	40- 100	B	3VL9 210-6□□42	x	x	x	x	x	x	x	x
	64- 160	B	3VL9 216-6□□42	x	x	x	x	x	x	x	x
VL250	80- 200	B	3VL9 320-6□□45	x	x	x	x	x	x	x	x
	100- 250	B	3VL9 325-6□□45	x	x	x	x	x	x	x	x
VL400	126- 315	B	3VL9 431-6□□45	x	x	x	x	x	x	x	x
	160- 400	B	3VL9 440-6□□45	x	x	x	x	x	x	x	x
VL630	252- 630	B	3VL9 563-6□□40	x	x	x	x	x	x	x	x
VL800	320- 800	B	3VL9 680-6□□40	x	x	x	x	x	x	x	x
VL1250	400-1000	B	3VL9 710-6□□40	x	x	x	x	x	x	x	x
	500-1250	B	3VL9 712-6□□40	x	x	x	x	x	x	x	x
VL1600	640-1600	B	3VL9 816-6□□40	x	x	x	x	x	x	x	x
				BB¹⁾	BA¹⁾	BC¹⁾	BD¹⁾	BE¹⁾	BF¹⁾	BG¹⁾	BH¹⁾
				Trip unit	ETU10	ETU10	ETU12	ETU12	ETU20	ETU20	ETU22

LCD ETU trip unit

For trip functions see 10th digit of the circuit-breaker Order No. on the previous pages.

For circuit-breakers	Setting current of the inverse-time delayed overload release "L" I_R	DT	Order No.		
Type	A				
VL160	25- 63	B	3VL9 206-6□□42	x	x
	40- 100	B	3VL9 210-6□□42	x	x
	64- 160	B	3VL9 216-6□□42	x	x
VL250	80- 200	B	3VL9 320-6□□45	x	x
	100- 250	B	3VL9 325-6□□45	x	x
VL400	126- 315	B	3VL9 431-6□□45	x	x
	160- 400	B	3VL9 440-6□□45	x	x
VL630	252- 630	B	3VL9 563-6□□40	x	x
VL800	320- 800	B	3VL9 680-6□□40	x	x
VL1250	400-1000	B	3VL9 710-6□□40	x	x
	500-1250	B	3VL9 712-6□□40	x	x
VL1600	640-1600	B	3VL9 816-6□□40	x	x
				CJ¹⁾	CN¹⁾
				Trip unit	ETU40

When the overcurrent trip unit has been installed in the circuit-breaker, it is recommended that it is tested using the manual testing unit for electronic trip units (see Pages 4/50 to 4/53).

For conversion into a plug-in or withdrawable version using the base kit or the withdrawable version kit, see Pages 4/9, 4/40 to 4/43.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/46 to 4/49).

When ordering trip units, insert the function specification in the Order No.

ETU – N-pole trip unit set to 100 % I_R = 26 A to 100 A and 50 % 110 A to 1600 A

LCD trip unit – N protection selectable
On/Off – factory preset: 50 %

x available
– not available

Pack size is one SENTRON VL circuit-breaker, i.e. 1 unit or a multiple thereof can be ordered.

1) For description see Pages 4/13 to 4/15.

SENTRON VL Circuit-Breakers up to 1600 A

Options

Selection and ordering data

1st Order No. supplement:
undervoltage or shunt releases,
wiring directly to accessories

Rated control supply voltage U_g /frequency		Order No. supplement	Circuit-breaker Type			
AC 50/60 Hz DC		3VL.....-□□..	VL160X	VL160/VL250 ¹⁾	VL400	VL630 to VL1600
Without auxiliary release		0 A	x	x	x	x
With undervoltage release right pole only						
AC V	DC V					
–	12	2 N	x	x ¹⁾	x	x
–	24	2 P	x	x ¹⁾	x	x
–	48	2 U	x	x ¹⁾	x	x
–	60	2 V	x	x ¹⁾	x	x
–	110-127	2 R	x	x ¹⁾	x	x
–	220-250	2 S	x	x ¹⁾	x	x
110-127	–	2 G	x	x ¹⁾	x	x
220-250	–	2 H	x	x ¹⁾	x	x
208	–	2 M	x	x ¹⁾	x	x
277	–	2 Q	x	x ¹⁾	x	x
380-415	–	2 J	x	x ¹⁾	x	x
440-480	–	2 K	x	x ¹⁾	x	x
500-525	–	2 L	x	x ¹⁾	x	x
600	–	2 T	x	x ¹⁾	x	x
With shunt release right pole only						
AC V	DC V					
–	24	8 C	x	x ¹⁾	x	x
–	48-60	8 J	x	x ¹⁾	x	x
–	110-127	8 K	x	x ¹⁾	x	x
–	220-250	8 Q	x	x ¹⁾	x	x
48-60	–	8 M	x	x ¹⁾	x	x
110-127	–	8 R	x	x ¹⁾	x	x
208-277	–	8 T	x	x ¹⁾	x	x
380-600	–	8 V	x	x ¹⁾	x	x

2nd Order No. supplement:
auxiliary switches (HS) and alarm switches (AS),
left/right pole,
wiring directly to accessories

Complement	Order No. supplement	Circuit-breaker Type			
HS = 1 NO or 1 NC switching element AS = 1 NO switching element	3VL.....-□□..	VL160X	VL160/VL250	VL400	VL630 to VL1600
Without auxiliary/alarm switch	A 0	x	x	x	x
2 HS (1 NO/1 NC)	B 1	x ²⁾	x ²⁾	x	–
4 HS (2 NO/2 NC)	C 1	–	–	–	x
1 AS (1 NO)	G 1	x ²⁾	x ²⁾	x	–
2 HS (1 NO/1 NC) + 1 AS (1 NO)	D 1	x ²⁾	x ²⁾	x	–
2 HS (1 NO/1 NC) + 1 AS (1 NO)	E 1	–	–	–	x

x available

– not available

1) For VL160/VL250 circuit-breakers with electronic overcurrent trip units, the only option is one undervoltage release or shunt release, or one auxiliary/alarm switch combination.

2) Except for mounting in the left accessory sub-section of the SENTRON VL160X circuit-breakers with RCD module and the SENTRON VL160, VL250 circuit-breakers with electronic overcurrent trip units, since this sub-section is occupied by the tripping solenoid.
On the right-hand side it is only possible to install an auxiliary release or an auxiliary/alarm switch combination (see also Page 4/11). For this application only, a 3SB adapter can be installed in the N pole (for 4-pole circuit-breakers only).

SENTRON VL Circuit-Breakers up to 1600 A

Options

When ordering, add **"-Z"** to the complete Order No. and add the relevant order code(s).

Order code

Order No. with **"-Z"**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
3VL - -Z
 and additional order code(s)
 □ □ □ + . . . + . . .

Identification code for further versions **-Z**

For fixed-mounted circuit-breakers (wired in factory)

Wiring for internal accessories VL160X to VL1600
 (auxiliary switches, alarm switches, auxiliary releases not included in scope of supply) with connecting leads (2 m long) brought out at the rear

L02 → □ □ □

Wiring for motorized operating mechanism VL160X to VL1600
 (motorized operating mechanism not included in scope of supply, to order see Pages 4/40 to 4/43) with connecting leads (2 m long), brought out at the top on VL160X to VL400, or brought out at the right on VL630 to VL1600

L12 → □ □ □

Motorized operating mechanism (AC/DC 220-250 V) VL160X, VL160, VL250
 mounted on the circuit-breaker VL400
 (motorized operating mechanism included in scope of supply) VL630, VL800
 VL1250, VL1600

M22 → □ □ □

Wiring for internal accessories of the circuit-breaker (auxiliary switches, alarm switches, auxiliary releases not included in scope of supply) with connecting leads (2 m long) brought out at the rear

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

Selection and ordering data

Wiring directly at accessories

DT

For VL160X to VL400

DT

For VL630 to VL1600

Order No.

PS*

Weight
per PU
approx.

Order No.

PS*

Weight
per PU
approx.

kg

kg

3- or 4-pole

Auxiliary switches and auxiliary releases

For retrofitting (for possible complements see figure on Page 4/11)

Auxiliary switches (HS) and alarm switches (AS) for retrofitting

Kits Mounting side

2 HS (1 NO + 1 NC) N, left¹⁾, right B

4 HS (2 NO + 2 NC) N, left, right

2 HS (1 NC + 1 NO) left, right³⁾ B

+ 1 AS (1 NO) (kit) left

1 AS (1 NC + 1 NO)⁴⁾ left¹⁾, right³⁾ B

3VL9 400-2AB00

1 unit 0.073

–

–

3VL9 400-2AD00

1 unit 0.111

–

3VL9 400-2AG00

1 unit 0.071

–

–

3VL9 800-2AC00

1 unit 0.094

–

3VL9 800-2AE00

1 unit 0.092

Additional switching elements

For Group 1 see Page 4/37.

For Group 2 see Page 4/37.

Shunt releases²⁾ for retrofitting

AC V DC V

– 24 right pole only B

– 48-60 right pole only B

– 110-127 right pole only B

– 220-250 right pole only B

– 48-60 right pole only B

110-127 right pole only B

208-277 right pole only B

380-600 right pole only B

3VL9 400-1SC00

1 unit 0.120

3VL9 400-1SJ00

1 unit 0.116

3VL9 400-1SK00

1 unit 0.119

3VL9 400-1SQ00

1 unit 0.133

3VL9 400-1SM00

1 unit 0.124

3VL9 400-1SR00

1 unit 0.116

3VL9 400-1ST00

1 unit 0.140

3VL9 400-1SV00

1 unit 0.138

3VL9 800-1SC00

1 unit 0.175

3VL9 800-1SJ00

1 unit 0.180

3VL9 800-1SK00

1 unit 0.177

3VL9 800-1SQ00

1 unit 0.163

3VL9 800-1SM00

1 unit 0.162

3VL9 800-1SR00

1 unit 0.196

3VL9 800-1ST00

1 unit 0.183

3VL9 800-1SV00

1 unit 0.181

Undervoltage releases for retrofitting

AC V DC V

– 12 right pole only B

– 24 right pole only B

– 48 right pole only B

– 60 right pole only B

110-127 right pole only B

– 110-127 right pole only B

208 right pole only B

220-250 right pole only B

– 220-250 right pole only B

277 right pole only B

380-415 right pole only B

440-480 right pole only B

500-525 right pole only B

600 right pole only B

3VL9 400-1UN00

1 unit 0.128

3VL9 400-1UP00

1 unit 0.118

3VL9 400-1UU00

1 unit 0.135

3VL9 400-1UV00

1 unit 0.131

3VL9 400-1UG00

1 unit 0.138

3VL9 400-1UR00

1 unit 0.129

3VL9 400-1UM00

1 unit 0.120

3VL9 400-1UH00

1 unit 0.121

3VL9 400-1US00

1 unit 0.136

3VL9 400-1UQ00

1 unit 0.131

3VL9 400-1UJ00

1 unit 0.119

3VL9 400-1UK00

1 unit 0.140

3VL9 400-1UL00

1 unit 0.120

3VL9 400-1UT00

1 unit 0.140

3VL9 800-1UN00

1 unit 0.169

3VL9 800-1UP00

1 unit 0.147

3VL9 800-1UU00

1 unit 0.170

3VL9 800-1UV00

1 unit 0.166

3VL9 800-1UG00

1 unit 0.160

3VL9 800-1UR00

1 unit 0.168

3VL9 800-1UM00

1 unit 0.178

3VL9 800-1UH00

1 unit 0.132

3VL9 800-1US00

1 unit 0.172

3VL9 800-1UQ00

1 unit 0.166

3VL9 800-1UJ00

1 unit 0.158

3VL9 800-1UK00

1 unit 0.172

3VL9 800-1UL00

1 unit 0.172

3VL9 800-1UT00

1 unit 0.168

Time-delay device for undervoltage release (DC 220-250 V)

Rated control supply voltage U_s

AC/DC 220 V–250 V

Delay time

> 200 ms

A

3TX4 701-0AN1

1 unit 0.169

A

3TX4 701-0AN1

1 unit 0.169

1) Except for mounting in the left accessory sub-section of the SENTRON VL160X circuit-breakers with RCD module and the SENTRON VL160, VL250 circuit-breakers with electronic overcurrent trip units, since this sub-section is occupied by the tripping solenoid. For this application only, a 3SB adapter can be installed in the N pole (for 4-pole circuit-breakers only).

2) In the case of VL160X to VL400: shunt release with disconnection contact (3SB3 for ON/OFF position) not isolated (see Page 4/128).

3) In the case of VL400: unsuitable for mounting in the right-hand accessory sub-section. The 3VL9 400-2AB00 installation kit with auxiliary switches only is recommended.

4) A switching element can be mounted.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

3SB adapters and 3SB switching elements

For circuit-breakers	Maximum combination of auxiliary switches (HS) and alarm switches (AS)	DT	For fitting in the N-pole of a circuit-breaker	PS*	Weight per PU approx.	DT	For fitting in the left pole of a circuit-breaker	PS*	Weight per PU approx.	DT	For fitting in the right pole of a circuit-breaker	PS*	Weight per PU approx.
Type			Order No.		kg		Order No.		kg		Order No.		kg
Mounting adapters for auxiliary and alarm switch combinations													
VL160X, VL160, VL250, VL400	up to 3 HS ¹⁾	B	3VL9 400-2AH00	1 unit	0.073	B	3VL9 400-2AH00	1 unit	0.073	B	3VL9 400-2AH00	1 unit	0.073
	2 HS + 1 AS ¹⁾²⁾		—			B	3VL9 400-2AJ10	1 unit	0.073	B	3VL9 400-2AJ20²⁾	1 unit	0.056
VL630, VL800, VL1250, VL1600	up to 4 HS	B	3VL9 816-2AL00	1 unit	0.075	B	3VL9 816-2AL00	1 unit	0.075	B	3VL9 816-2AL00	1 unit	0.075
	2 HS + 2 AS		—			B	3VL9 816-2AN10	1 unit	0.072		—		

1) Except for mounting in the left pole for SENTRON VL160X circuit-breakers with RCD module and SENTRON VL160, VL250 circuit-breakers with electronic overcurrent trip unit.

On the right-hand side it is only possible to install an auxiliary release or an auxiliary/alarm switch combination (see also Page 4/11).

For this application only, a 3SB adapter can be installed in the N pole (for 4-pole circuit-breakers only).

2) In the case of VL400: 3VL9 400-2AJ20 unsuitable for mounting in the right-hand accessory sub-section.

For auxiliary/alarm switches	DT	Circuit-breaker Type	PS*	Weight per PU approx.
		VL160X to VL1600		
		Order No.		kg

Switching elements for auxiliary and alarm switch combinations

1 NO	B	3SB34 00-0J	1 unit	0.010
1 NC	B	3SB34 00-0K	1 unit	0.010

For auxiliary switch or alarm switch combinations not included in the kits provided as standard, the mounting adapters specified in the above table can be ordered separately together with the required switching elements:

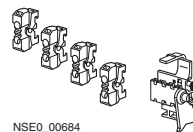
1 HS or 1 AS with NO contact 3SB34 00-0J

1 HS or 1 AS with NC contact 3SB34 00-0K

Note:

a maximum of 6 switching elements (HS) per circuit-breaker (VL160X, VL160, VL250, VL400) and a maximum of 8 switching elements (HS) per circuit-breaker (VL630, VL800, VL1250, VL1600) are possible.

4 3SB3 auxiliary switching elements and one mounting adapter (right), suitable for VL630, VL800, VL1250, VL1600 circuit-breakers.

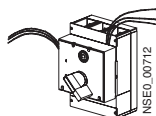
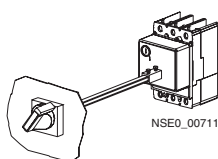
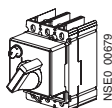


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SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

4



DT	For VL160X to VL250		
	Order No.	PS*	Weight per PU approx. kg

3- or 4-pole

Operating mechanisms

Front-operated rotary operating mechanism¹⁾

for direct mounting on the circuit-breaker, without leading auxiliary switch, degree of protection IP30²⁾, black, max. 3 padlocks

EMERGENCY-STOP version
red knob, yellow indicator plate

Safety locks for installation by the customer, see Pages 4/50 to 4/53.

B	3VL9 300-3HA00	1 unit	0.618
B	3VL9 300-3HC00	1 unit	0.618

Door-coupling rotary mechanism, complete¹⁾

Installation in doors and covers

Degree of protection IP65, incl. black selector switch with masking frame, indicator plate, removable door coupling, 300 mm extension shaft and front-operated rotary operating mechanism for the relevant circuit-breaker, lockable with up to 3 padlocks, with door interlocking

EMERGENCY-STOP version
red selector switch, yellow indicator plate, without leading auxiliary switches

Safety locks for installation by the customer, see Pages 4/50 to 4/53.

B	3VL9 300-3HF04	1 unit	0.965
B	3VL9 300-3HG04	1 unit	0.980

Leading auxiliary switches for installation in a front-operated rotary mechanism or door-coupling rotary operating mechanism

Standard or EMERGENCY-STOP version

"OFF after ON"

leading auxiliary switch when switching on

1 changeover contact with 1.5 m long leads

2 changeover contacts with 1.5 m long leads

"ON after OFF"

leading auxiliary switch when switching off

1 changeover contact with 1.5 m long leads

2 changeover contacts with 1.5 m long leads

B	3VL9 300-3AS10	1 unit	0.070
B	3VL9 300-3AT10	1 unit	0.120
B	3VL9 300-3AU10	1 unit	0.080
B	3VL9 300-3AW10	1 unit	0.130

Retaining bracket

Retaining bracket is mounted on the operating mechanism, recommended for extension shafts >250 mm

B	3VL9 300-3HP02	1 unit	0.435
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Rotary operating mechanism with shaft end, without selector switch

without leading auxiliary switch, for auxiliary switches see above

B	3VL9 300-3HE00	1 unit	0.537
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1) Not possible on VL160X with RCD module.

2) IP40 with additional masking frame mounted on the door cut-out.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

DT	For VL400			DT	For VL630 to VL800			DT	For VL1250 to VL1600		
	Order No.	PS*	Weight per PU approx. kg		Order No.	PS*	Weight per PU approx. kg		Order No.	PS*	Weight per PU approx. kg
B	3VL9 400-3HA00	1 unit	0.618	B	3VL9 600-3HA00	1 unit	1.370	B	3VL9 800-3HA00	1 unit	1.370
B	3VL9 400-3HC00	1 unit	0.618	B	3VL9 600-3HC00	1 unit	1.360	B	3VL9 800-3HC00	1 unit	1.370
B	3VL9 400-3HF04	1 unit	0.965	B	3VL9 600-3HF04	1 unit	2.460	B	3VL9 800-3HF04	1 unit	4.100
B	3VL9 400-3HG04	1 unit	1.100	B	3VL9 600-3HG04	1 unit	2.460	B	3VL9 800-3HG04	1 unit	4.100
B	3VL9 400-3AS10	1 unit	0.070	B	3VL9 600-3AS10	1 unit	0.097	B	3VL9 800-3AS10	1 unit	0.090
B	3VL9 400-3AT10	1 unit	0.120	B	3VL9 600-3AT10	1 unit	0.146	B	3VL9 800-3AT10	1 unit	0.145
B	3VL9 400-3AU10	1 unit	0.070	B	3VL9 600-3AU10	1 unit	0.082	B	3VL9 800-3AU10	1 unit	0.098
B	3VL9 400-3AW10	1 unit	0.120	B	3VL9 600-3AW10	1 unit	0.143	B	3VL9 800-3AW10	1 unit	0.143
B	3VL9 400-3HP02	1 unit	0.435	B	3VL9 600-3HP02	1 unit	0.570	B	3VL9 800-3HP02	1 unit	0.723
B	3VL9 400-3HE00	1 unit	0.618	B	3VL9 600-3HE00	1 unit	1.250	B	3VL9 800-3HE00	1 unit	2.760

* This quantity or a multiple thereof can be ordered.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

4

DT

For VL160X to VL250

Order No.	PS*	Weight per PU approx.
		kg

3- or 4-pole

Operating mechanisms

Motorized operating mechanism¹⁾

Degree of protection IP30, with locking device for 3 padlocks

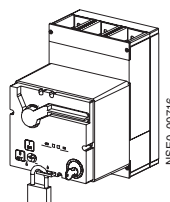
AC 50/60 Hz V	DC V	
–	24	B
42-48	42-48	B
60	60	B
110-127	110-127	B
220-250	220-250	B

with integrated safety lock²⁾

–	24	B
42-48	42-48	B
60	60	B
110-127	110-127	B
220-250	220-250	B

with spring
energy store
 $t_E < 100$ ms

3VL9 300-3MJ00	1 unit	2.510	
3VL9 300-3ML00	1 unit	2.500	
3VL9 300-3MS00	1 unit	2.530	
3VL9 300-3MN00	1 unit	2.530	
3VL9 300-3MQ00	1 unit	2.530	
3VL9 321-3MK00	1 unit	2.530	
3VL9 321-3MM00	1 unit	2.570	
3VL9 321-3MT00	1 unit	2.530	
3VL9 321-3MP00	1 unit	2.530	
3VL9 321-3MR00	1 unit	2.560	



NSE0.00716

DT

For VL160X

Order No.	PS*	Weight per PU approx.
		kg

3- or 4-pole

Plug-in version/withdrawable version

Plug-in base installation kit

complete with baseplate, base, blade contacts for switches, terminal covers for degree of protection IP20, fixing screws, locking pin

Rear terminals

3-pole	B
3-pole with RCD module	B
4-pole	B
4-pole with RCD module	B

90° angle connecting adapter

for rear connection, 3-pole	B
for rear connection, 4-pole	B

Front-accessible terminals

3-pole	B
3-pole with RCD module	B
4-pole	B
4-pole with RCD module	B

Withdrawable version installation kit

Upgrade of the plug-in base kit to

Withdrawable version	3-pole	–
including side walls	3-pole with RCD	–
and racking mechanism.	4-pole	–
	4-pole with RCD	–

Withdrawable version

Same as plug-in base kit, with additional side walls and racking mechanism

Rear terminals

3-pole	–
3-pole with RCD module	–
4-pole	–
4-pole with RCD module	–

Front-accessible terminals

3-pole	–
3-pole with RCD module	–
4-pole	–
4-pole with RCD module	–

Auxiliary circuit plug connection for plug-in base

Accessory connections for plug-in circuit-breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw connection)

8 positions	B
-------------	---

Position signaling switch

(connected/disconnected position) for plug-in/withdrawable base, 1 changeover contact, max. 2 signaling switches possible

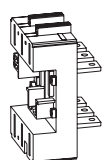
	B
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3VL9 100-4PA30	1 unit	2.610	B
3VL9 100-4PB30	1 unit	3.000	B
3VL9 100-4PA40	1 unit	3.270	B
3VL9 100-4PB40	1 unit	3.790	B
3VL9 300-4PE30	1 unit	0.391	B
3VL9 300-4PE40	1 unit	0.515	B
3VL9 100-4PC30	1 unit	2.410	B
3VL9 100-4PD30	1 unit	2.810	B
3VL9 100-4PC40	1 unit	2.940	B
3VL9 100-4PD40	1 unit	3.500	B

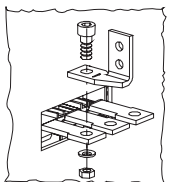
For VL160

Order No.	PS*	Weight per PU approx.
		kg

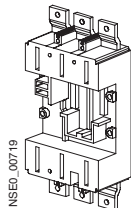
3VL9 200-4PA30	1 unit	2.660	
3VL9 200-4PB30	1 unit	2.990	
3VL9 200-4PA40	1 unit	3.290	
3VL9 200-4PB40	1 unit	3.750	
3VL9 300-4PE30	1 unit	0.391	
3VL9 300-4PE40	1 unit	0.515	
3VL9 200-4PC30	1 unit	2.450	
3VL9 200-4PD30	1 unit	2.480	
3VL9 200-4PC40	1 unit	3.000	
3VL9 200-4PD40	1 unit	3.490	



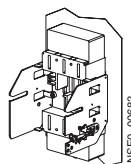
NSE0.00717



NSE00581



NSE0.00719



NSE0.00683

1) Not possible on VL160X with RCD module.

2) For safety lock as an installation kit for retrofitting, see Pages 4/50 to 4/53.

3) It is recommended to use a maximum of 2 auxiliary circuit plug-in systems per circuit-breaker (16 positions).

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

				For VL400		
				DT	Order No.	PS* Weight per PU approx. kg
					with spring energy store $t_E < 100$ ms	
				B	3VL9 400-3MJ00	1 unit 2.510
				B	3VL9 400-3ML00	1 unit 2.510
				B	3VL9 400-3MS00	1 unit 2.510
				B	3VL9 400-3MN00	1 unit 2.510
				B	3VL9 400-3MQ00	1 unit 2.510
				B	3VL9 415-3MK00	1 unit 2.530
				B	3VL9 415-3MM00	1 unit 2.530
				B	3VL9 415-3MT00	1 unit 2.530
				B	3VL9 415-3MP00	1 unit 2.530
				B	3VL9 415-3MR00	1 unit 2.530
				For VL250		
				DT	Order No.	PS* Weight per PU approx. kg
				DT	Order No.	PS* Weight per PU approx. kg
				B	3VL9 300-4PA30	1 unit 3.400
				B	3VL9 300-4PB30	1 unit 3.120
				B	3VL9 300-4PA40	1 unit 3.400
				B	3VL9 300-4PB40	1 unit 3.890
				B	3VL9 300-4PE30	1 unit 0.391
				B	3VL9 300-4PE40	1 unit 0.515
				B	3VL9 300-4PC30	1 unit 2.550
				B	3VL9 300-4PD30	1 unit 2.970
				B	3VL9 300-4PC40	1 unit 2.660
				B	3VL9 300-4PD40	1 unit 3.650
				B	3VL9 300-4WF30	1 unit 2.730
				B	3VL9 300-4WG30	1 unit 2.740
				B	3VL9 300-4WF40	1 unit 2.740
				B	3VL9 300-4WG40	1 unit 3.550
				B	3VL9 300-4WA30	1 unit 5.190
				B	3VL9 300-4WB30	1 unit 9.800
				B	3VL9 300-4WA40	1 unit 6.040
				B	3VL9 300-4WB40	1 unit 7.490
				B	3VL9 300-4WC30	1 unit 5.100
				B	3VL9 300-4WD30	1 unit 6.240
				B	3VL9 300-4WC40	1 unit 5.710
				B	3VL9 300-4WD40	1 unit 6.890
				B	3VL9 300-4PJ00	1 unit 0.285
				B	3VL9 000-4WL00	1 unit 0.040
				B	3VL9 400-4PA30	1 unit 3.400
				B	3VL9 400-4PB30	1 unit 3.120
				B	3VL9 400-4PA40	1 unit 3.400
				B	3VL9 400-4PB40	1 unit 3.890
				B	3VL9 400-4PE30	1 unit 0.391
				B	3VL9 400-4PE40	1 unit 0.515
				B	3VL9 400-4PC30	1 unit 2.450
				B	3VL9 400-4PD30	1 unit 2.970
				B	3VL9 400-4PC40	1 unit 3.000
				B	3VL9 400-4PD40	1 unit 3.490
				B	3VL9 400-4WF30	1 unit 2.730
				B	3VL9 400-4WG30	1 unit 2.740
				B	3VL9 400-4WF40	1 unit 2.740
				B	3VL9 400-4WG40	1 unit 3.550
				B	3VL9 400-4WA30	1 unit 5.230
				B	3VL9 400-4WB30	1 unit 9.800
				B	3VL9 400-4WA40	1 unit 5.830
				B	3VL9 400-4WB40	1 unit 6.910
				B	3VL9 400-4WC30	1 unit 4.980
				B	3VL9 400-4WD30	1 unit 6.240
				B	3VL9 400-4WC40	1 unit 5.560
				B	3VL9 400-4WD40	1 unit 6.730
				B	3VL9 400-4PJ00	1 unit on req.
				B	3VL9 000-4WL00	1 unit 0.040

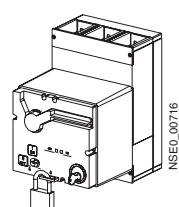
4) For 3-pole applications please use 4-pole withdrawable version with 4-pole RCD module.

5) It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per circuit-breaker (24 positions).

SETRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

4



3- or 4-pole

Operating mechanisms

Motorized operating mechanism¹⁾

Degree of protection IP30, with locking device for 3 padlocks

AC 50/60 Hz V

DC V

–	24	B	3VL9 600-3MJ00	1 unit	5.480
42-48	42-48	B	3VL9 600-3ML00	1 unit	5.480
60	60	B	3VL9 600-3MS00	1 unit	5.470
110-127	110-127	B	3VL9 600-3MN00	1 unit	5.470
220-250	220-250	B	3VL9 600-3MQ00	1 unit	5.460
with integrated safety lock ²⁾					
–	24	B	3VL9 615-3MK00	1 unit	5.620
42-48	42-48	B	3VL9 615-3MM00	1 unit	5.600
60	60	B	3VL9 615-3MT00	1 unit	5.570
110-127	110-127	B	3VL9 615-3MP00	1 unit	5.580
220-250	220-250	B	3VL9 615-3MR00	1 unit	5.640

DT

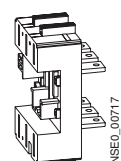
For VL630 to VL800

Order No.

PS*

Weight per
PU approx.

kg



3- or 4-pole

Plug-in version/withdrawable version

Plug-in base installation kit

complete with baseplate, base, blade contacts for switches, terminal covers for degree of protection IP20, fixing screws, locking pin

Rear terminals

3-pole	B	3VL9 500-4PA30	1 unit	8.530	–
3-pole with RCD module	B	3VL9 500-4PA40	1 unit	12.400	–
4-pole	–	–	–	–	–
4-pole with RCD module	–	–	–	–	–

90° angle connecting adapter

for rear connection, 3-pole
for rear connection, 4-pole

Front-accessible terminals

3-pole	B	3VL9 500-4PC30	1 unit	8.510	–
3-pole with RCD module	B	3VL9 500-4PC40	1 unit	10.900	–
4-pole	–	–	–	–	–
4-pole with RCD module	–	–	–	–	–

Withdrawable version installation kit

Upgrade of the plug-in base kit to

Withdrawable version including side walls and racking mechanism.	3-pole	B	3VL9 500-4WF30	1 unit	5.200	–
	3-pole with RCD	B	3VL9 500-4WF40	1 unit	5.290	–
	4-pole	–	–	–	–	–
	4-pole with RCD	–	–	–	–	–

Withdrawable version

Same as plug-in base kit, with additional side walls and racking mechanism

Rear terminals

3-pole	B	3VL9 500-4WA30	1 unit	15.300	B	3VL9 600-4WA30	1 unit	34.300
3-pole with RCD module	B	3VL9 500-4WA40	1 unit	14.300	B	3VL9 600-4WA40	1 unit	43.800
4-pole	–	–	–	–	–	–	–	–
4-pole with RCD module	–	–	–	–	–	–	–	–

Front-accessible terminals

3-pole	B	3VL9 500-4WC30	1 unit	15.300	B	3VL9 600-4WC30	1 unit	38.400
3-pole with RCD module	B	3VL9 500-4WC40	1 unit	15.300	B	3VL9 600-4WC40	1 unit	43.200
4-pole	–	–	–	–	–	–	–	–
4-pole with RCD module	–	–	–	–	–	–	–	–

Aux. circ. plug connection for plug-in base

Accessory connections for plug-in circuit-breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw connection)

8 positions	B	3VL9 600-4PJ00	1 unit	0.276	B	3VL9 600-4PJ00	1 unit	0.276
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Position signaling switch

(connected/disconnected position)
for plug-in/withdrawable base, 1 changeover contact, max. 2 signaling switches possible

	B	3VL9 000-4WL00	1 unit	0.040	B	3VL9 000-4WL00	1 unit	0.040
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DT

For VL630

Order No.

PS*

Weight per
PU approx.

kg

For VL800

Order No.

PS*

Weight per
PU approx.

kg

NSE00581

NSE0_00719

NSE0_00683

1) Not possible on VL160X with RCD module.

2) For safety lock as an installation kit for retrofitting, see Pages 4/50 to 4/53.

3) It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per circuit-breaker (24 positions).

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

4

For VL1250 to VL1600			
DT	Order No.	PS*	Weight per PU approx. kg
	Motorized oper. mech. without spring energy store (not for syn- chronization) $t_E < 5$ s		
B	3VL9 800-3MJ00	1 unit	7.540
B	3VL9 800-3ML00	1 unit	7.540
B	3VL9 800-3MS00	1 unit	7.540
B	3VL9 800-3MN00	1 unit	0.750
B	3VL9 800-3MQ00	1 unit	7.580
B	3VL9 815-3MK00	1 unit	7.540
B	3VL9 815-3MM00	1 unit	7.540
B	3VL9 815-3MT00	1 unit	7.540
B	3VL9 815-3MP00	1 unit	7.540
B	3VL9 815-3MR00	1 unit	7.730

For VL1250				For VL1600			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
	—				—		
	—				—		
	—				—		
	—				—		
	—				—		
	—				—		
	—				—		
	—				—		
	—				—		
	—				—		
B	3VL9 800-4WA30	1 unit	30.300	B	3VL9 800-4WA30	1 unit	30.300
B	3VL9 800-4WA40	1 unit	28.400	B	3VL9 800-4WA40	1 unit	28.400
B	3VL9 800-4WC30	1 unit	41.800	B	3VL9 800-4WC30	1 unit	41.800
B	3VL9 800-4WC40	1 unit	41.100	B	3VL9 800-4WC40	1 unit	41.100
	3)				3)		
B	3VL9 800-4PJ00	1 unit	0.289	B	3VL9 800-4PJ00	1 unit	0.289
B	3VL9 000-4WL00	1 unit	0.040	B	3VL9 000-4WL00	1 unit	0.040

* This quantity or a multiple thereof can be ordered.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

RCD module

Circuit-breakers for system protection, only for TM, starters, disconnectors	Rated current I_n	Residual currents I adjustable	Delay t_d adjustable	Rated operating voltage U_e	DT	Circuit-breaker 3-pole	PS*	Weight per PU approx.	DT	Circuit-breaker 4-pole	PS*	Weight per PU approx.
3- and 4-pole	A	A	S	AC V		Order No.		kg		Order No.		kg
VL160X		0.03	instantaneous									
(Bottom mounting ¹⁾)	160	0.10	0.06	127-480	B	3VL9 112-5GA30	1 unit	1.510	B	3VL9 112-5GA40	1 unit	1.840
(Mounting kit for left side, without RCD) ¹⁾²⁾		0.30	0.10		B	3VL9 112-5GB30	1 unit	1.960	B	3VL9 112-5GB40	1 unit	2.340
		0.50	0.25									
VL160	160	1.00	0.50	127-480	B	3VL9 216-5GC30	1 unit	1.430	B	3VL9 216-5GC40	1 unit	1.740
		3.00	1.00	230-690	B	3VL9 216-5GD30	1 unit	1.440	B	3VL9 216-5GD40	1 unit	1.750
VL250	250			127-480	B	3VL9 325-5GE30	1 unit	1.500	B	3VL9 325-5GE40	1 unit	1.800
				230-690	B	3VL9 325-5GF30	1 unit	1.490	B	3VL9 325-5GF40	1 unit	1.820
VL400	400			127-480		—			B	3VL9 440-5GG40	1 unit	3.320
				230-690		—			B	3VL9 440-5GH40	1 unit	3.320

1) Only the right-hand accessory compartment and the neutral conductor (4-pole) accessory compartment can be used for the installation of accessories, see Page 4/11.

2) The installation kit consists of the mounting plate, wiring and covers for switches and RCD module (for 75 mm standard mounting rail). The RCD module (3VL9 112-5GA30/-5GA40) must be ordered separately.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

Circuit-breakers with RCD module

Circuit-breakers for system protection, only for TM, starters, disconnectors

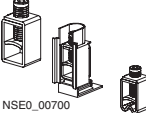
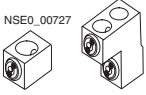
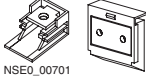
	Rated current I_n	Residual currents I adjustable	Delay t_d adjustable	Rated operating voltage U_e	Circuit-breaker 3-pole	Circuit-breaker 4-pole
					Order No. with "-Z" 3VL...-D...-....-Z and additional order code □□□	Order No. with "-Z" 3VL...-E...-....-Z and additional order code □□□
3- and 4-pole	A	A	S	AC V		
VL160X (bottom mounting)	160	0.03 0.10 0.30 0.50	instantaneous 0.06 0.10 0.25	127-480	A 0 1 ¹⁾ ↑↑↑↑	A 0 1 ¹⁾ ↑↑↑↑
VL160	160	1.00 3.00	0.50 1.00	127-480 230-690	A 0 1 A 0 2 ↑↑↑↑	A 0 1 A 0 2 ↑↑↑↑
VL250	250			127-480 230-690	A 0 1 A 0 2 ↑↑↑↑	A 0 1 A 0 2 ↑↑↑↑
VL400	400			127-480 230-690	– –	A 0 1 A 0 2 ↑↑↑↑

1) Only the right-hand accessory compartment and the neutral conductor (4-pole) accessory compartment can be used for the installation of accessories, see Page 4/11.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

4

		DT	For VL160X				DT	For VL160		
			Order No.	PS*	Weight per PU approx.			Order No.	PS*	Weight per PU approx.
					kg					kg
3- or 4-pole										
Connection parts for fixed-mounted circuit-breakers										
 NSE0_00702			Front connecting bars Terminal with screw connection required, see Page 4/10. Phase barriers included.							
Standard										
1 set = 3 units	3-pole	B	3VL9 200-4EC30	1 unit	0.251 ¹⁾	B	3VL9 200-4EC30	1 unit	0.251	
1 set = 4 units	4-pole	B	3VL9 200-4EC40	1 unit	0.336 ¹⁾	B	3VL9 200-4EC40	1 unit	0.336	
For increased pole spacing										
1 set = 3 units	3-pole	B	3VL9 200-4ED30	1 unit	0.233 ¹⁾	B	3VL9 200-4ED30	1 unit	0.233	
1 set = 4 units	4-pole	B	3VL9 200-4ED40	1 unit	0.402 ¹⁾	B	3VL9 200-4ED40	1 unit	0.402	
 NSE0_00722			Rear-mounting terminals							
Short terminal (1 unit)		B	3VL9 100-4RA00	1 unit	0.152	B	3VL9 200-4RA00	1 unit	0.151	
Long terminal (1 unit)		B	3VL9 100-4RB00	1 unit	0.250	B	3VL9 200-4RB00	1 unit	0.268	
Terminal kit (2 short + 1 long)										
3-pole		B	3VL9 100-4RC30	1 unit	0.525	B	3VL9 200-4RC30	1 unit	0.514	
Terminal kit (2 short + 2 long)										
4-pole		B	3VL9 100-4RF40	1 unit	0.791	B	3VL9 200-4RF40	1 unit	0.774	
Short flat connector (1 unit)		B	3VL9 100-4RK00	1 unit	0.121	B	3VL9 200-4RK00	1 unit	0.120	
Long flat connector (1 unit)		B	3VL9 100-4RL00	1 unit	0.223	B	3VL9 200-4RL00	1 unit	0.231	
Flat connector kit (2 short + 1 long)										
3-pole		B	3VL9 100-4RM30	1 unit	0.456	B	3VL9 200-4RM30	1 unit	0.462	
Flat connector kit (2 short + 2 long)										
4-pole		B	3VL9 100-4RN40	1 unit	0.671	B	3VL9 200-4RN40	1 unit	0.682	
Flat connecting bar (1 unit)			–				–			
Flat connecting bar			–				–			
Set = 3 units, 3-pole			–				–			
Flat connecting bar			–				–			
Set = 4 units, 4-pole			–				–			
 NSE0_00700			Box terminal Connection for flexible flat copper busbar or cable, see Page 4/10.							
1 set = 3 units		B	3VL9 100-4TC30	1 unit	0.103	B	3VL9 200-4TC30	1 unit	0.130	
1 set = 4 units		B	3VL9 100-4TC40	1 unit	0.135	B	3VL9 200-4TC40	1 unit	0.161	
 NSE0_00727			Multiple feed-in terminal Only for cables (Al or Cu) <u>Aluminum terminal (tinned)</u>							
1 set = 3 units		B	3VL9 100-4TD30	1 unit	0.099	B	3VL9 200-4TD30	1 unit	0.110	
1 set = 4 units		B	3VL9 100-4TD40	1 unit	0.127	B	3VL9 200-4TD40	1 unit	0.144	
 NSE0_00701			Terminal with screw connection - metric thread with insulator (for rear) for use with busbars and cable lugs, see Page 4/10.							
1 set = 3 units		B	3VL9 100-4TA30	1 unit	0.102	B	3VL9 200-4TA30	1 unit	0.123	
1 set = 4 units		B	3VL9 100-4TA40	1 unit	0.136	B	3VL9 200-4TA40	1 unit	0.164	
 NSE0_00681			Terminal covers (connection covers) for circuit-breakers Degree of protection IP30 for main terminals							
1 set = 2 units										
Extended	3-pole	B	3VL9 300-8CA30	1 unit	0.304	B	3VL9 300-8CA30	1 unit	0.304	
Standard	3-pole	B	3VL9 300-8CB30	1 unit	0.083	B	3VL9 300-8CB30	1 unit	0.083	
Extended	4-pole	B	3VL9 300-8CA40	1 unit	0.328	B	3VL9 300-8CA40	1 unit	0.328	
Standard	4-pole	B	3VL9 300-8CB40	1 unit	0.078	B	3VL9 300-8CB40	1 unit	0.078	
 NSE0_00731			Phase barriers for circuit-breakers, fixed-mounting, plug-in or withdrawable versions							
1 set = 2 units		B	3VL9 300-8CE00	1 unit	0.038	B	3VL9 300-8CE00	1 unit	0.038	

1) Screw terminal connections are required for SENTRON VL160X and VL160 circuit-breakers, see Page 4/10.

2) Round cable terminal with 2 holes for 2 copper or aluminum cables, each with 2 x 50-120 mm²
1 unit: 3VL9 400-4TF00
3 units: 3VL9 400-4TF30
4 units: 3VL9 400-4TF40

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

For VL250				For VL400			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
B	3VL9 300-4EC30	1 unit	0.318	B	3VL9 400-4EC30	1 unit	0.318
B	3VL9 300-4EC40	1 unit	0.440	B	3VL9 400-4EC40	1 unit	0.440
B	3VL9 300-4ED30	1 unit	0.319	B	3VL9 400-4ED30	1 unit	0.319
B	3VL9 300-4ED40	1 unit	0.514	B	3VL9 400-4ED40	1 unit	0.514
B	3VL9 300-4RA00	1 unit	0.161	B	3VL9 400-4RA00	1 unit	0.151
B	3VL9 300-4RB00	1 unit	0.256	B	3VL9 400-4RB00	1 unit	0.268
B	3VL9 300-4RC30	1 unit	0.494	B	3VL9 400-4RC30	1 unit	0.514
B	3VL9 300-4RF40	1 unit	0.774	B	3VL9 400-4RF40	1 unit	0.774
B	3VL9 300-4RK00	1 unit	0.130	B	3VL9 400-4RK00	1 unit	0.129
B	3VL9 300-4RL00	1 unit	0.229	B	3VL9 400-4RL00	1 unit	0.231
B	3VL9 300-4RM30	1 unit	0.459	B	3VL9 400-4RM30	1 unit	0.462
B	3VL9 300-4RN40	1 unit	0.675	B	3VL9 400-4RN40	1 unit	0.682
—	—	—	—	—	—	—	—
B	3VL9 300-4TC30	1 unit	0.285	B	3VL9 400-4TC30	1 unit	0.124
B	3VL9 300-4TC40	1 unit	0.283	B	3VL9 400-4TC40	1 unit	0.161
B	3VL9 300-4TD30	1 unit	0.164	B	3VL9 400-4TD30	1 unit	0.110 ²⁾
B	3VL9 300-4TD40	1 unit	0.227	B	3VL9 400-4TD40	1 unit	0.144 ²⁾
B	3VL9 300-4TA30	1 unit	0.168	B	3VL9 400-4TA30	1 unit	0.105
B	3VL9 300-4TA40	1 unit	0.224	B	3VL9 400-4TA40	1 unit	0.140
B	3VL9 300-8CA30	1 unit	0.304	B	3VL9 400-8CA30	1 unit	0.304
B	3VL9 300-8CB30	1 unit	0.083	B	3VL9 400-8CB30	1 unit	0.083
B	3VL9 300-8CA40	1 unit	0.328	B	3VL9 400-8CA40	1 unit	0.966
B	3VL9 300-8CB40	1 unit	0.078	B	3VL9 400-8CB40	1 unit	0.078
B	3VL9 300-8CE00	1 unit	0.038	B	3VL9 600-8CE00	1 unit	0.061

* This quantity or a multiple thereof can be ordered.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

	DT	For VL630			DT	For VL800		
		Order No.	PS*	Weight per PU approx. kg		Order No.	PS*	Weight per PU approx. kg
3- or 4-pole								
Connection parts for fixed-mounted circuit-breakers								
Front connecting bars								
Terminal with screw connection required, see Page 4/10. Phase barriers included.								
Standard								
1 set = 3 units 3-pole B 3VL9 500-4EC30 1 unit 1.170 B 3VL9 600-4EC30 1 unit 1.810								
1 set = 4 units 4-pole B 3VL9 500-4EC40 1 unit 1.550 B 3VL9 600-4EC40 1 unit 2.380								
For increased pole spacing								
1 set = 3 units 3-pole B 3VL9 500-4ED30 1 unit 1.200 B 3VL9 600-4ED30 1 unit 1.840								
1 set = 4 units 4-pole B 3VL9 500-4ED40 1 unit 1.570 B 3VL9 600-4ED40 1 unit 2.400								
Rear-mounting terminals								
Short terminal (1 unit)								
Long terminal (1 unit)								
Terminal kit (2 short + 1 long)								
3-pole								
Terminal kit (2 short + 2 long)								
4-pole								
Short flat-type terminal (1 unit)								
Long flat-type terminal (1 unit)								
Flat connector kit (2 short + 1 long)								
3-pole								
Flat connector kit (2 short + 2 long)								
4-pole								
Flat connecting bar (1 unit)								
B 3VL9 500-4RG00 1 unit 0.372 B 3VL9 600-4RG00 1 unit 1.730								
Flat connecting bar								
Set = 3 units, 3-pole								
B 3VL9 500-4RH30 1 unit 1.540 B 3VL9 600-4RH30 1 unit 6.870								
Flat connecting bar								
Set = 4 units, 4-pole								
B 3VL9 500-4RH40 1 unit 1.540 B 3VL9 600-4RH40 1 unit 6.870								
Box terminal								
Connection for flexible flat copper busbar or cable, see Page 4/10.								
1 set = 3 units								
1 set = 4 units								
Multiple feed-in terminal								
Only for cables (Al or Cu)								
aluminum terminal (tinned)								
1 set = 3 units								
B 3VL9 500-4TG30 1 unit 0.570 B 3VL9 600-4TG30 1 unit 1.090								
1 set = 4 units								
B 3VL9 500-4TG40 1 unit 0.720 B 3VL9 600-4TG40 1 unit 1.410								
Terminal with screw connection – metric thread								
with insulator (for rear) for use with busbars and cable lugs, see Page 4/10.								
1 set = 3 units								
B 3VL9 500-4TA30 1 unit 0.195 B 3VL9 600-4TA30 1 unit 0.357								
1 set = 4 units								
B 3VL9 500-4TA40 1 unit 0.260 B 3VL9 600-4TA40 1 unit 0.476								
Terminal covers								
(connection covers) for circuit-breakers								
Degree of protection IP30 for main terminals								
1 set = 2 units								
Extended 3-pole B 3VL9 600-8CA30 1 unit 0.864 B 3VL9 600-8CA30 1 unit 0.864								
Standard 3-pole B 3VL9 600-8CB30 1 unit 0.261 B 3VL9 600-8CB30 1 unit 0.261								
Extended 4-pole B 3VL9 600-8CA40 1 unit 1.230 B 3VL9 600-8CA40 1 unit 1.230								
Standard 4-pole B 3VL9 600-8CB40 1 unit 0.327 B 3VL9 600-8CB40 1 unit 0.327								
Phase barriers for circuit-breakers, fixed-mounting, plug-in or withdrawable versions								
1 set = 2 units								
B 3VL9 600-8CE00 1 unit 0.061 B 3VL9 600-8CE00 1 unit 0.061								

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

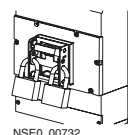
For VL1250				For VL1600			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
B	3VL9 800-4EC30	1 unit	3.520	B	3VL9 800-4EC30	1 unit	3.520
B	3VL9 800-4EC40	1 unit	4.630	B	3VL9 800-4EC40	1 unit	4.630
	—				—		
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	—				—		
	—				—		
B	3VL9 700-4RG00	1 unit	6.900	B	3VL9 800-4RG00	1 unit	1.640
B	3VL9 700-4RH30	1 unit	5.300	B	3VL9 800-4RH30	1 unit	4.680
B	3VL9 700-4RH40	1 unit	6.800	B	3VL9 800-4RH40	1 unit	6.210
	—				—		
	—				—		
B	3VL9 700-4TG30	1 unit	2.340		—		
B	3VL9 700-4TG40	1 unit	2.960		—		
B	3VL9 700-4TA30	1 unit	0.378	B	3VL9 800-4TA30	1 unit	0.378
B	3VL9 700-4TA40	1 unit	0.504	B	3VL9 800-4TA40	1 unit	0.504
B	3VL9 800-8CA30	1 unit	1.420	B	3VL9 800-8CA30	1 unit	1.420
B	3VL9 800-8CB30	1 unit	0.514	B	3VL9 800-8CB30	1 unit	0.514
B	3VL9 800-8CA40	1 unit	1.700	B	3VL9 800-8CA40	1 unit	1.700
B	3VL9 800-8CB40	1 unit	0.490	B	3VL9 800-8CB40	1 unit	0.490
B	3VL9 800-8CE00	1 unit	0.147	B	3VL9 800-8CE00	1 unit	0.147

* This quantity or a multiple thereof can be ordered.

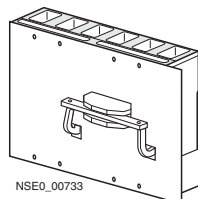
SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

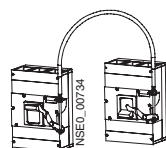
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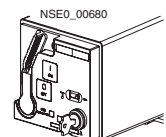
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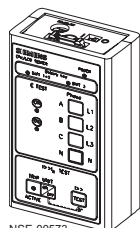
NSE0_00733



NSE0_00734



NSE0_00680



NSE-00573

3- or 4-pole

Interlocks

Locking device for toggle handle

for locking the circuit-breaker in the OFF position. Up to 3 padlocks with diameter from 5 to 8 mm can be used. Removable (padlocks not included)

DT

For VL160X

Order No.

PS*

Weight
per PU
approx.
kg

DT

For VL160

Order No.

PS*

Weight
per PU
approx.
kg

B

3VL9 300-3HL00

1 unit

0.075

B

3VL9 300-3HL00

1 unit

0.075

Rear interlocking module

for the mechanical interlocking of two adjacent circuit-breakers. The circuit-breakers must be of the same installation type and size. (mounting plate not within scope of supply)

B

3VL9 300-8LC00

1 unit

0.386

B

3VL9 300-8LC00

1 unit

0.386

Fixed-mounting circuit-breakers

B

3VL9 300-8LD00

1 unit

0.436

B

3VL9 300-8LD00

1 unit

0.436

Interlocking module for Bowden wire interlocking¹⁾

for the mechanical interlocking of two circuit-breakers. Interlocking module for one circuit-breaker

B

3VL9 300-8LA00

1 unit

0.182

B

3VL9 300-8LA00

1 unit

0.182

Combinations of next size up/down possible (see Order No.)

Bowden wire for Bowden wire interlocking¹⁾

Wire length 0.5 m

B

3VL9 000-8LH10

1 unit

0.367

B

3VL9 000-8LH10

1 unit

0.367

Wire length 1.0 m

B

3VL9 000-8LH20

1 unit

0.478

B

3VL9 000-8LH20

1 unit

0.478

Wire length 1.5 m

B

3VL9 000-8LH30

1 unit

0.646

B

3VL9 000-8LH30

1 unit

0.646

Safety lock installation kits²⁾

Key can be removed with the circuit-breaker in the OFF position
For front-operated rotary operating mechanisms

Lock types

Ronis

B

3VL9 715-8HA00

1 unit

0.309

B

3VL9 715-8HA00

1 unit

0.309

CES

B

3VL9 711-8HA00

1 unit

0.210

B

3VL9 711-8HA00

1 unit

0.210

For motorized operating mechanism with spring energy store

Lock types

Ronis

—

Filli Giussani

B

3VL9 321-8HA00

1 unit

0.053

B

3VL9 321-8HA00

1 unit

0.053

Set of fixing screws (metric thread)

including the screws, washers and nuts required to secure a 3- or 4-pole circuit-breaker to a prepared surface

Set with 4 screws

B

3VL9 300-8SA40

1 unit

0.045

B

3VL9 300-8SA40

1 unit

0.045

Transparent cover for trip unit, sealable

To prevent access by unqualified personnel and unauthorized changes to settings (seal not included)

Electronic overcurrent trip unit

—

B

3VL9 700-8BL00

1 unit

0.011

Thermal-magnetic

B

3VL9 300-8BM00

1 unit

0.052

B

3VL9 300-8BM00

1 unit

0.052

Manual tester for electronic trip units

(battery-operated)
for ETU/LCD ETU trip units, also interface with laptop or PC

—

3VL9 000-8AK00

1 unit

0.660

Universal power supply (AC 50/60 Hz 120–240 V)

Adapter unit – required if the battery power for the manual tester is not used

—

B

3VL9 000-8AL00

1 unit

0.605

1) Two interlocking modules and one Bowden wire are required. Cannot be used in conjunction with motorized operating mechanism.

2) Assembled safety lock in motorized operating mechanism, see Pages 4/40 to 4/43.

SENTRON VL Circuit-Breakers up to 1600 A

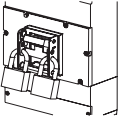
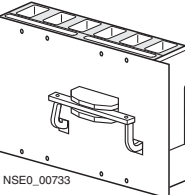
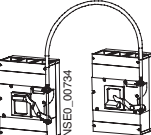
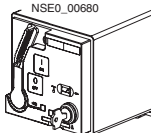
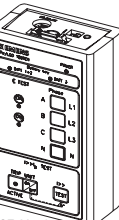
Accessories/spare parts

For VL250				For VL400			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
B	3VL9 300-3HL00	1 unit	0.075	B	3VL9 400-3HL00	1 unit	0.075
B	3VL9 300-8LC00	1 unit	0.386	B	3VL9 400-8LC00	1 unit	0.386
B	3VL9 300-8LD00	1 unit	0.436	B	3VL9 400-8LD00	1 unit	0.436
B	3VL9 300-8LA00	1 unit	0.182	B	3VL9 400-8LA00	1 unit	0.182
B	3VL9 000-8LH10	1 unit	0.367	–			
B	3VL9 000-8LH20	1 unit	0.478	B	3VL9 000-8LH20	1 unit	0.478
B	3VL9 000-8LH30	1 unit	0.646	B	3VL9 000-8LH30	1 unit	0.646
B	3VL9 715-8HA00	1 unit	0.309	B	3VL9 715-8HA00	1 unit	0.309
B	3VL9 711-8HA00	1 unit	0.210	B	3VL9 711-8HA00	1 unit	0.210
–				B	3VL9 715-8HA00	1 unit	0.309
B	3VL9 321-8HA00	1 unit	0.053	–			
B	3VL9 300-8SA40	1 unit	0.045	B	3VL9 500-8SA40	1 unit	0.096
B	3VL9 700-8BL00	1 unit	0.011	B	3VL9 700-8BL00	1 unit	0.011
B	3VL9 300-8BM00	1 unit	0.052	B	3VL9 400-8BM00	1 unit	0.052
B	3VL9 000-8AK00	1 unit	0.660	B	3VL9 000-8AK00	1 unit	0.660
B	3VL9 000-8AL00	1 unit	0.605	B	3VL9 000-8AL00	1 unit	0.605

* This quantity or a multiple thereof can be ordered.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

	DT	For VL630	PS*	Weight per PU approx.	DT	For VL800	PS*	Weight per PU approx.
		Order No.		kg		Order No.		kg
3- or 4-pole								
Interlocks								
 NSE0_00732		Locking device for toggle handle for locking the circuit-breaker in the OFF position. Up to 3 padlocks with diameter from 5 to 8 mm can be used. Removable (padlocks not included)						
	B	3VL9 600-3HL00	1 unit	0.184	B	3VL9 600-3HL00	1 unit	0.184
 NSE0_00733		Rear interlocking module for the mechanical interlocking of two adjacent circuit-breakers. The circuit-breakers must be of the same installation type and size.						
	B	3VL9 600-8LC00	1 unit	1.900	B	3VL9 600-8LC00	1 unit	1.900
	B	3VL9 600-8LD00	1 unit	5.070	B	3VL9 600-8LD00	1 unit	5.070
 NSE0_00734		Interlocking module for Bowden wire interlocking¹⁾ for the mechanical interlocking of two circuit-breakers. Interlocking module for one circuit-breaker						
	B	3VL9 600-8LA00	1 unit	0.256	B	3VL9 600-8LA00	1 unit	0.256
		Bowden wire for Bowden wire interlocking ¹⁾ Wire length 0.5 m						
	B	3VL9 000-8LH20	1 unit	0.478	B	3VL9 000-8LH20	1 unit	0.478
	B	3VL9 000-8LH30	1 unit	0.646	B	3VL9 000-8LH30	1 unit	0.646
		Safety lock installation kits²⁾ Key can be removed with the circuit-breaker in the OFF position For front-operated rotary operating mechanisms						
		Lock types						
	B	3VL9 715-8HA00	1 unit	0.309	B	3VL9 715-8HA00	1 unit	0.309
	B	3VL9 711-8HA00	1 unit	0.210	B	3VL9 711-8HA00	1 unit	0.210
 NSE0_00680		For motorized operating mechanism with spring energy store Lock types						
	B	3VL9 715-8HA00	1 unit	0.309	B	3VL9 715-8HA00	1 unit	0.309
		Filli Giussani						
		Set of fixing screws (metric thread) including the screws, washers and nuts required to secure a 3 or 4-pole circuit-breaker to a prepared surface						
	B	3VL9 500-8SA40	1 unit	0.096	B	3VL9 600-8SA40	1 unit	0.107
		Transparent cover for trip unit, sealable To prevent access by unqualified personnel and unauthorized changes to settings (seal not included)						
	B	3VL9 700-8BL00	1 unit	0.011	B	3VL9 700-8BL00	1 unit	0.011
	B	3VL9 600-8BM00	1 unit	0.026		—		
 NSE-00573		Manual tester for electronic trip units (battery-operated) for ETU/LCD ETU trip unit, also interface with laptop or PC						
	B	3VL9 000-8AK00	1 unit	0.660	B	3VL9 000-8AK00	1 unit	0.660
		Universal power supply (AC 50/60 Hz 120–240 V) Adapter unit – required if the battery power for the manual tester is not used						
	B	3VL9 000-8AL00	1 unit	0.605	B	3VL9 000-8AL00	1 unit	0.605

- 1) Two interlocking modules and one Bowden wire are required.
Cannot be used in conjunction with motorized operating mechanism.
- 2) Assembled safety lock in motorized operating mechanism, see Pages 4/40 to 4/43.

SENTRON VL Circuit-Breakers up to 1600 A

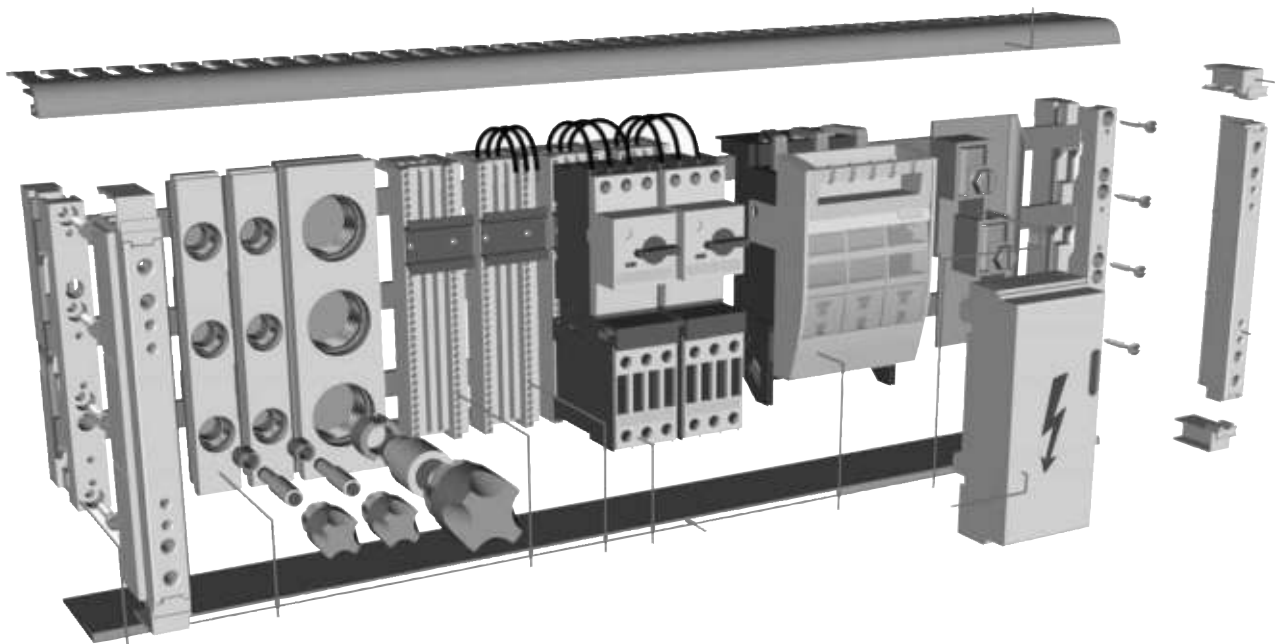
Accessories/spare parts

For VL1250				For VL1600			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
B	3VL9 800-3HL00	1 unit	0.240	B	3VL9 800-3HL00	1 unit	0.240
B	3VL9 800-8LC00	1 unit	2.930	B	3VL9 800-8LC00	1 unit	2.930
B	3VL9 800-8LD00	1 unit	3.820	B	3VL9 800-8LD00	1 unit	3.820
B	3VL9 800-8LA00	1 unit	0.287	B	3VL9 800-8LA00	1 unit	0.287
B	3VL9 000-8LH30	1 unit	0.646	B	3VL9 000-8LH30	1 unit	0.646
B	3VL9 715-8HA00	1 unit	0.309	B	3VL9 715-8HA00	1 unit	0.309
B	3VL9 711-8HA00	1 unit	0.210	B	3VL9 711-8HA00	1 unit	0.210
B	3VL9 715-8HA00	1 unit	0.309	B	3VL9 715-8HA00	1 unit	0.309
B	3VL9 800-8SA40	1 unit	0.102	B	3VL9 800-8SA40	1 unit	0.102
B	3VL9 700-8BL00	1 unit	0.011	B	3VL9 700-8BL00	1 unit	0.011
B	3VL9 000-8AK00	1 unit	0.660	B	3VL9 000-8AK00	1 unit	0.660
B	3VL9 000-8AL00	1 unit	0.605	B	3VL9 000-8AL00	1 unit	0.605

* This quantity or a multiple thereof can be ordered.

SETRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts



Busbar adapter systems with 40 mm or 60 mm busbar center-to-center distance with components for busbar runs, adapters and supports for individual configuration possibilities, devices with an integrated adapter, as well as accessories and busbar copper. Observe the short-circuit strength of the busbar system. Short-circuit strength greater than 50 kA on request.

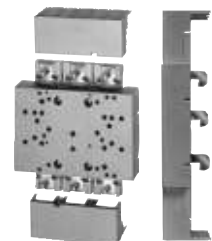
For further information see Section 8.

Busbar adapter systems

Version		DT	Order No.	PS*	Weight per PU approx. kg
40 mm system					
to DIN 43870 Part 2 for Cu busbars with sharp (DIN 1759) or rounded (DIN 46433) edges, width 12 mm or 15 mm, thickness 5 mm or 10 mm.					
up to 160 A Busbar adapter , length 175 mm with plug connection tags, 3-pole with terminal cover (degree of protection IP10) ¹⁾ for 1 VL160X circuit-breaker	108 mm wide	A	8US10 11-4SL01	1 unit	0.585
60 mm system					
for Cu busbars with sharp (DIN 1759) or rounded (DIN 46433) edges, width 12 mm to 30 mm, thickness 5 mm or 10 mm, also for T and I special profiles					
up to 160 A Busbar adapter , length 175 mm with plug connection tags, 3-pole with terminal cover (degree of protection IP10) ¹⁾ for 1 VL160X/VL160 circuit-breaker	108 mm wide	A	8US12 11-4SL01	1 unit	0.597
up to 250 A Busbar adapter , length 175 mm with plug connection tags, 3-pole with terminal cover (degree of protection IP10) ¹⁾ for 1 VL250 circuit-breaker	108 mm wide	A	8US12 11-4SL00	1 unit	0.662
up to 400 A Busbar adapter , length 320 mm with threaded inserts M 4, M 6 and M 8 for various types of switchgear, 3-pole without connecting leads, with M 10 terminal screws at top and bottom ¹⁾ Adapter	185 mm wide	A	8US12 10-4AF00	1 unit	2.760
Mounting plate for 8US12 10-4AF00 for VL400 circuit-breaker (also possible for VL160X+RCD, VL160, VL250 circuit-breakers)		A	8US19 27-4AF01	1 unit	0.575



8US12 11-4SL00



8US12 10-4AF00

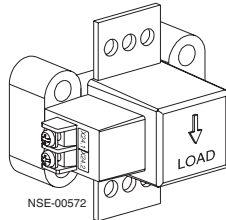
1) For degree of protection IP30, the terminal covers on pages 4/46 to 4/49 should be ordered. Connecting leads to the adapter/switching device must be provided by the customer as round cables, e.g. H07V-R with a cable lug, or as flat conductors for bolt-type connection M10, depending on the rated current.

* This quantity or a multiple thereof can be ordered.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

Other accessories

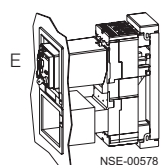
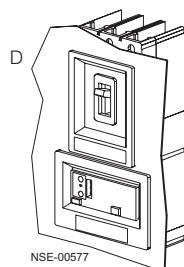
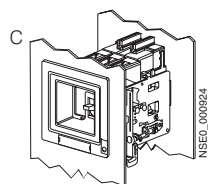
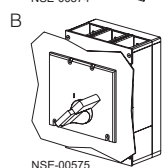
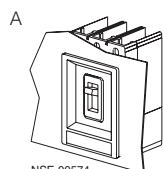


Type	Rated current I_n A	DT	Order No.	PS*	Weight per PU approx. kg
Current transformers for neutral conductor/grounded neutral point of the transformer for ground-fault protection in 4-conductor three-phase systems ¹⁾					
VL160	63	B	3VL9 280-8TC00	1 unit	0.500
	100	B	3VL9 210-8TC00	1 unit	0.450
	160	B	3VL9 216-8TC00	1 unit	0.485
VL250	200	B	3VL9 320-8TC00	1 unit	0.445
	250	B	3VL9 325-8TC00	1 unit	0.493
VL400	315	B	3VL9 440-8TC00	1 unit	0.493
	400	B	3VL9 440-8TC00	1 unit	0.493
VL630	630	B	3VL9 563-8TC00	1 unit	0.760
VL800	800	B	3VL9 680-8TC00	1 unit	0.778
VL1250	1000	B	3VL9 712-8TC00	1 unit	2.080
	1250	B	3VL9 712-8TC00	1 unit	2.080
VL1600	1600	B	3VL9 816-8TC00	1 unit	2.110

1) Please note the rated current of the circuit-breaker.

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts



1) For withdrawable version IP20.

				For VL160X			For VL160		
DT				Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS* Weight per PU approx. kg
3- or 4-pole									
Other accessories									
Masking frame (cover frame) for door cut-out									
A	Fixed-mounted or plug-in circuit-breaker	B		3VL9 300-8BC00	1 unit	0.140	B	3VL9 300-8BC00	1 unit 0.140
B	Circuit-breaker with front-operated rotary operating mechanism or motorized operating mechanism	B		3VL9 300-8BG00	1 unit	0.099	B	3VL9 300-8BG00	1 unit 0.099
C	Withdrawable circuit-breaker with toggle lever actuation. Installation kit contains masking frame and extended escutcheon (cannot be used together with a motorized operating mechanism/rotary operating mechanism)	—					B	3VL9 300-8BH00	1 unit 0.267
D	Fixed-mounted or plug-in circuit-breaker RCD switch masking frame	B		3VL9 300-8BD00	1 unit	0.047	B	3VL9 300-8BD00	1 unit 0.047
	RCD masking frame	B		3VL9 300-8BD00	1 unit	0.047	B	3VL9 300-8BD00	1 unit 0.047
E 1)	Circuit-breaker with RCD module and front-operated rotary operating mechanism. Installation kit contains masking frame and extended escutcheon	—					B	3VL9 300-8BH00	1 unit 0.267
	Circuit-breaker with RCD module and motorized operating mechanism. Installation kit contains masking frame and extended escutcheon	—					B	3VL9 300-8BJ00	1 unit 1.040
Toggle lever extension				—			—		

SETRON VL Circuit-Breakers up to 1600 A

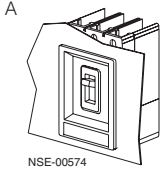
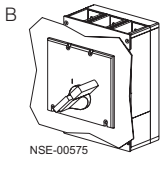
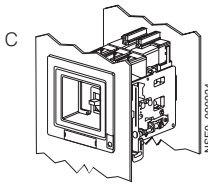
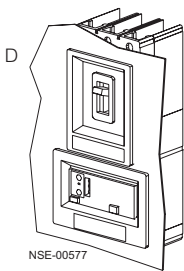
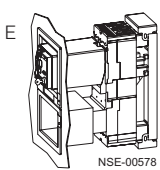
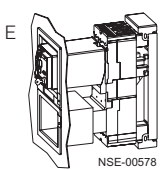
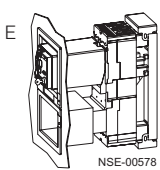
Accessories/spare parts

For VL250				For VL400			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
B	3VL9 300-8BC00	1 unit	0.140	B	3VL9 400-8BC00	1 unit	0.057
B	3VL9 300-8BG00	1 unit	0.099	B	3VL9 400-8BG00	1 unit	0.145
B	3VL9 300-8BH00	1 unit	0.267	B	3VL9 400-8BH00	1 unit	0.267
B	3VL9 300-8BD00	1 unit	0.047	B	3VL9 400-8BC00	1 unit	0.057
B	3VL9 300-8BD00	1 unit	0.047	B	3VL9 400-8BD00	1 unit	0.047
B	3VL9 300-8BH00	1 unit	0.267	B	3VL9 400-8BH00	1 unit	0.267
B	3VL9 300-8BJ00	1 unit	1.040	B	3VL9 400-8BJ00	1 unit	1.040
—				B	3VL9 400-3HN00	1 unit	0.038

4

SENTRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

		For VL630			For VL800		
		Order No.	PS*	Weight per PU approx.	Order No.	PS*	Weight per PU approx.
				kg			kg
3 or 4-pole							
Other accessories							
Masking frame (cover frame) for door cut-out							
 NSE-00574	A	Fixed-mounted or plug-in circuit-breaker					
	IP40						
	B	Circuit-breaker with front-operated rotary operating mechanism or motorized operating mechanism					
	IP40						
	C	Withdrawable circuit-breaker with toggle lever actuation. Installation kit contains masking frame and extended escutcheon (cannot be used together with a motorized operating mechanism/rotary operating mechanism)					
 NSE-00575	IP20						
	B						
	C	Withdrawable circuit-breaker with toggle lever actuation. Installation kit contains masking frame and extended escutcheon (cannot be used together with a motorized operating mechanism/rotary operating mechanism)					
	IP20						
	D	Fixed-mounted or plug-in circuit-breaker RCD switch masking frame					
 NSE0_000924	IP40						
	D	Fixed-mounted or plug-in circuit-breaker RCD switch masking frame					
	E	Circuit-breaker with RCD module and front-operated rotary operating mechanism. Installation kit contains masking frame and extended escutcheon					
	IP40						
	E	Circuit-breaker with RCD module and motorized operating mechanism. Installation kit contains masking frame and extended escutcheon					
 NSE-00577	IP40						
	E	Circuit-breaker with RCD module and front-operated rotary operating mechanism. Installation kit contains masking frame and extended escutcheon					
	IP40						
	E	Circuit-breaker with RCD module and motorized operating mechanism. Installation kit contains masking frame and extended escutcheon					
	IP40						
 NSE-00578	Toggle lever extension						
	B						
	3VL9 600-8BC00						
	1 unit						
	0.062						
 NSE-00578	3VL9 600-8BG00						
	1 unit						
	0.177						
	3VL9 600-8BH00						
	1 unit						
 NSE-00578	0.575						
	3VL9 600-3HN00						
	1 unit						
	0.038						
	3VL9 600-3HN00						
	1 unit						
	0.038						

1) For withdrawable version IP20.

SETRON VL Circuit-Breakers up to 1600 A

Accessories/spare parts

For VL1250				For VL1600			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
B	3VL9 800-8BC00	1 unit	0.050	B	3VL9 800-8BC00	1 unit	0.050
B	3VL9 800-8BG00	1 unit	0.254	B	3VL9 800-8BG00	1 unit	0.254
B	3VL9 800-8BH00	1 unit	0.805	B	3VL9 800-8BH00	1 unit	0.805
—	—			—	—		
—	—			—	—		
B	3VL9 800-3HN00	1 unit	0.244	B	3VL9 800-3HN00	1 unit	0.244

4

SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

Characteristics

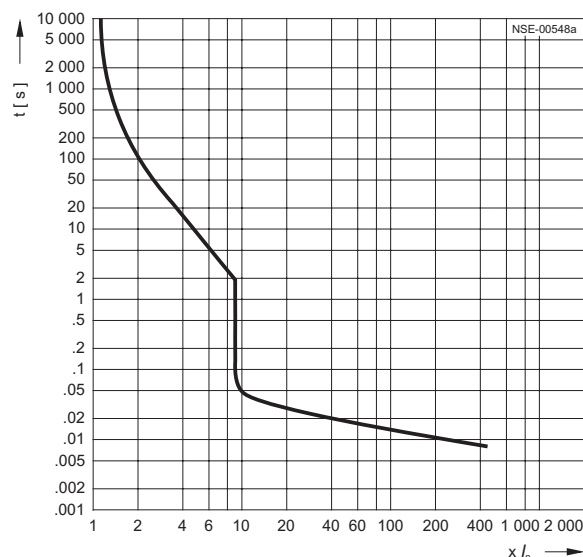
Tripping characteristics

The indicated tripping values for the inverse-time delayed over-current trip units ("L" trip units) are mean values taken from the spread of all setting ranges from the cold state and under even load conditions on the conducting paths.

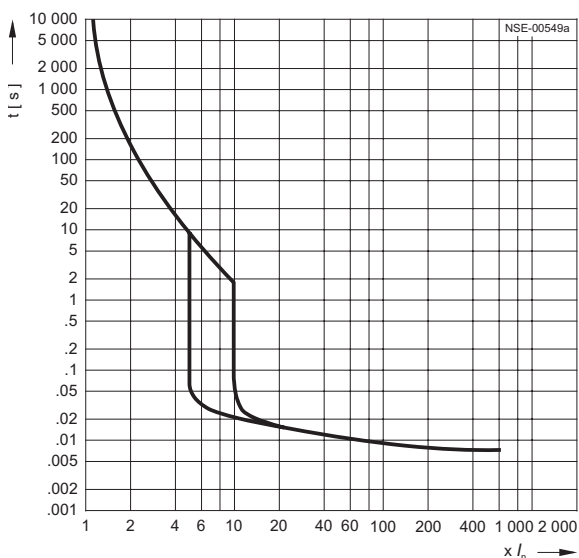
The tripping characteristics of the instantaneous (electromagnetic) short-circuit releases ("I" trip units) are based on the phase rated current I_n , which also represents the upper value of the setting range on circuit-breakers with adjustable thermal overload release. With a lower operating current there is a correspondingly higher multiple for the tripping current of the "I" trip unit.

"L" thermal overload release

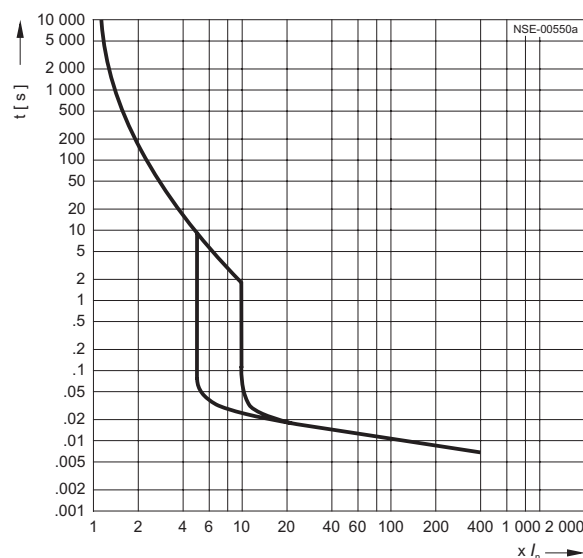
"I" instantaneous (electromagnetic) short-circuit release



SENTRON VL160X circuit-breaker
Tripping characteristic for system protection circuit-breaker,
 I_{cu} 70 kA max. at 415 V; "I" trip unit with fixed setting



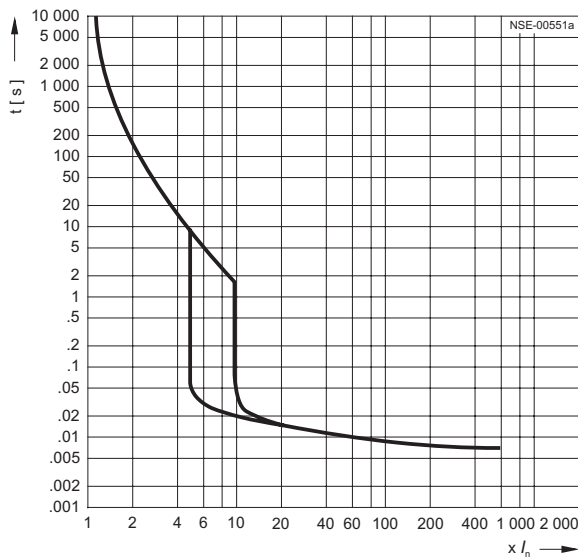
SENTRON VL160 circuit-breaker
Tripping characteristic for system protection circuit-breaker,
 I_{cu} 100 kA max. at 415 V; adjustable "I" trip unit



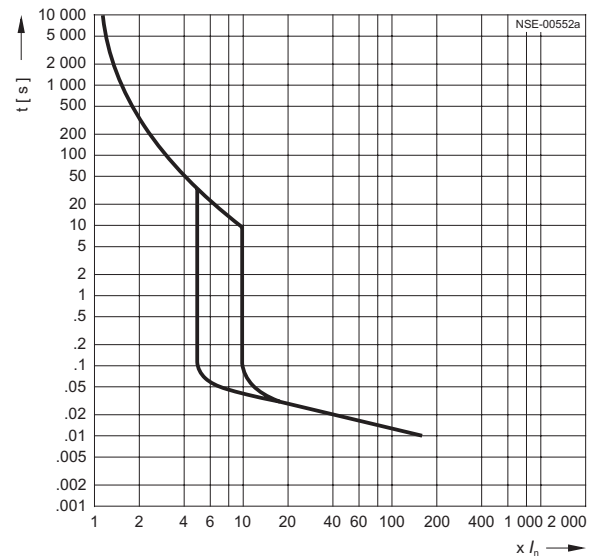
SENTRON VL250 circuit-breaker
Tripping characteristic for system protection circuit-breaker,
 I_{cu} 100 kA max. at 415 V; adjustable "I" trip unit

SENTRON VL Circuit-Breakers up to 1600 A

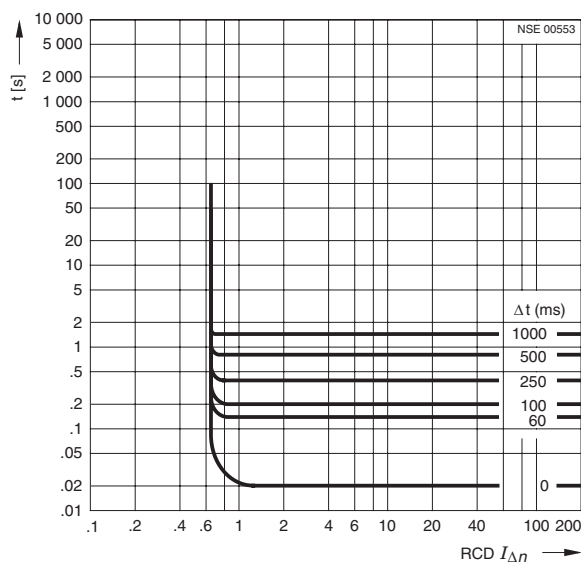
Project planning aids



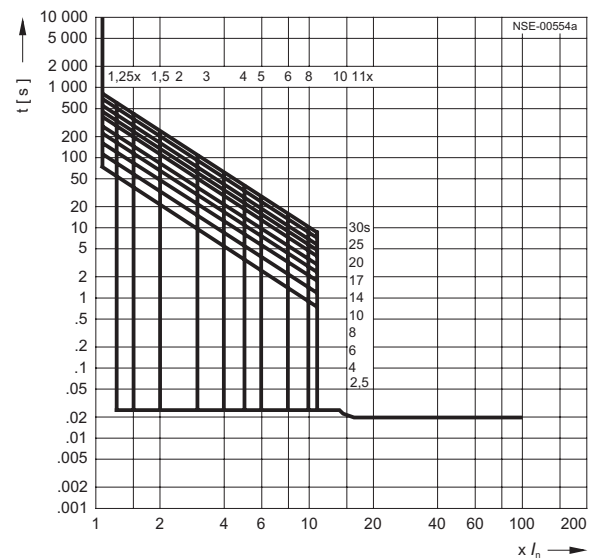
SENTRON VL400 circuit-breaker
Tripping characteristic for system protection circuit-breaker,
 I_{CU} 100 kA max. at 415 V; adjustable "I" trip unit



SENTRON VL630 circuit-breaker
Tripping characteristic for system protection circuit-breaker,
 I_{CU} 100 kA max. at 415 V; adjustable "I" trip unit



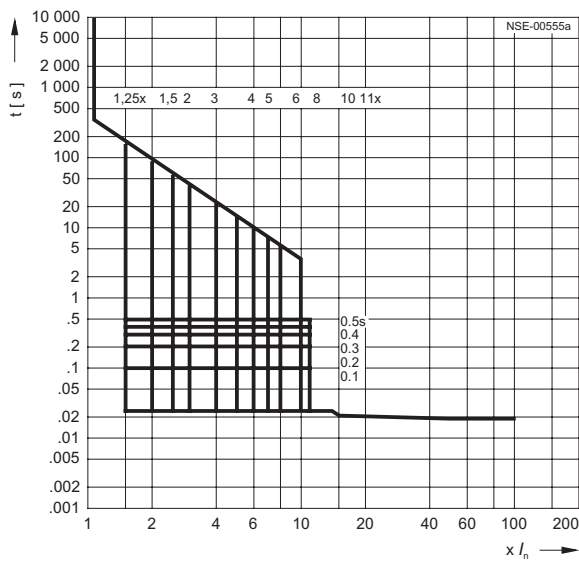
RCD module
Tripping characteristic for RCD, t_d and $I_{\Delta n}$ adjustable



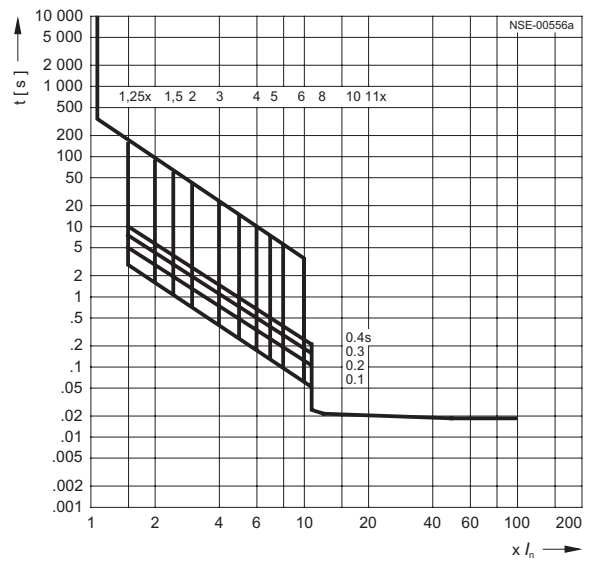
ETU with system protection
Tripping characteristic for circuit-breaker with electronic overload release,
 I_{CU} 100 kA max. at 415 V; the end of the curve is determined by the application

SENTRON VL Circuit-Breakers up to 1600 A

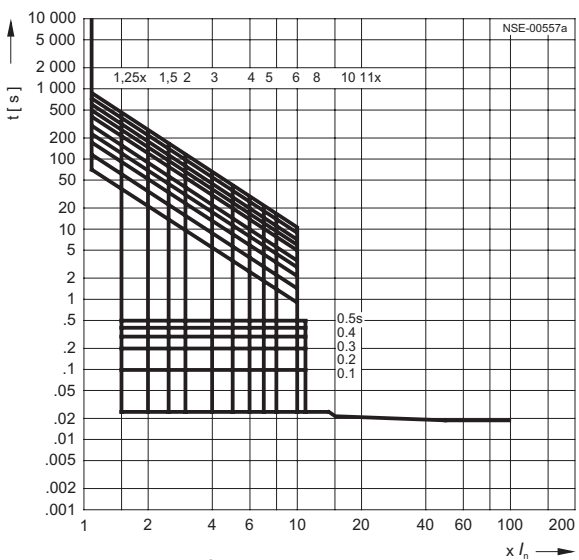
Project planning aids



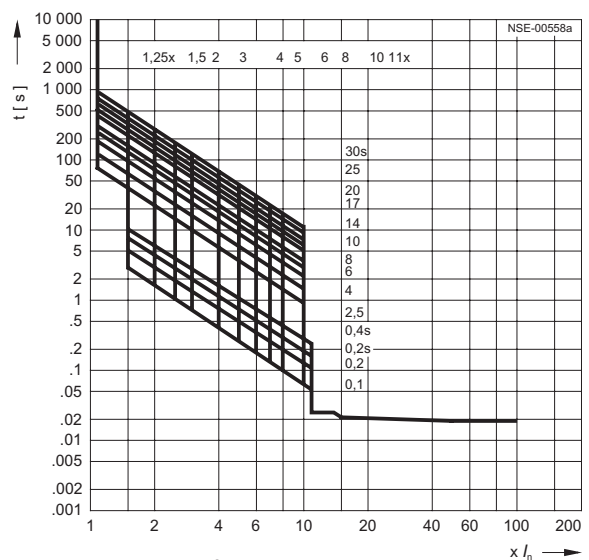
ETU with LSI, I^2t OFF
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{CU} 100 kA max. at 415 V; the end of the curve is determined by the application



ETU with LSI, I^2t ON
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{CU} 100 kA max. at 415 V; the end of the curve is determined by the application



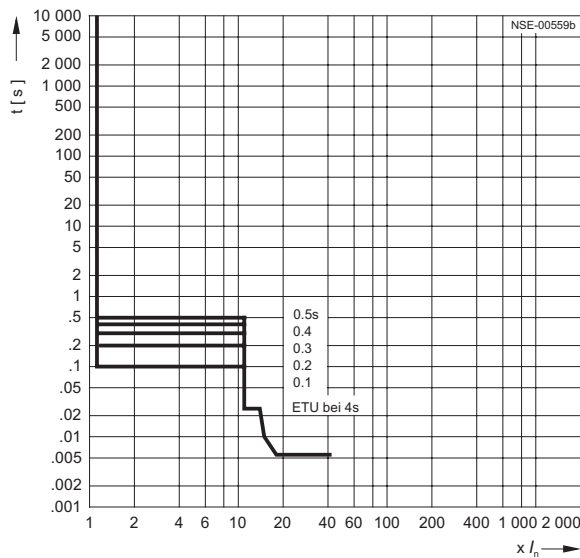
LCD ETU with LSI, I^2t OFF
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{CU} 100 kA max. at 415 V; the end of the curve is determined by the application



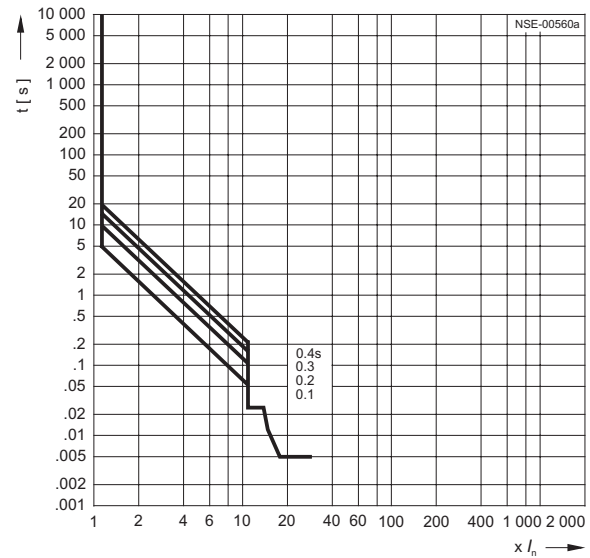
LCD ETU with LSI, I^2t ON
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{CU} 100 kA max. at 415 V; the end of the curve is determined by the application

SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids



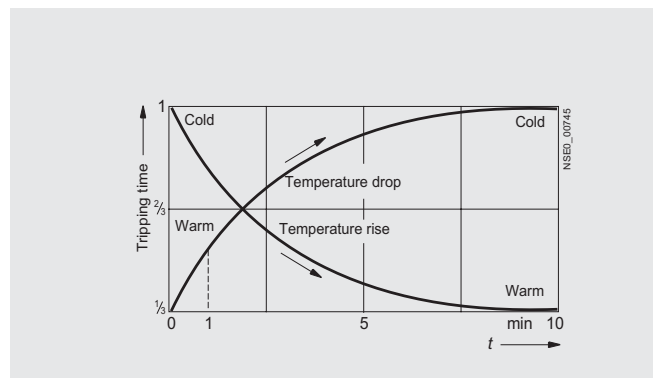
LCD ETU and ETU ($t_d = 400$ ms only) with ground-fault protection, I^2t OFF
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V



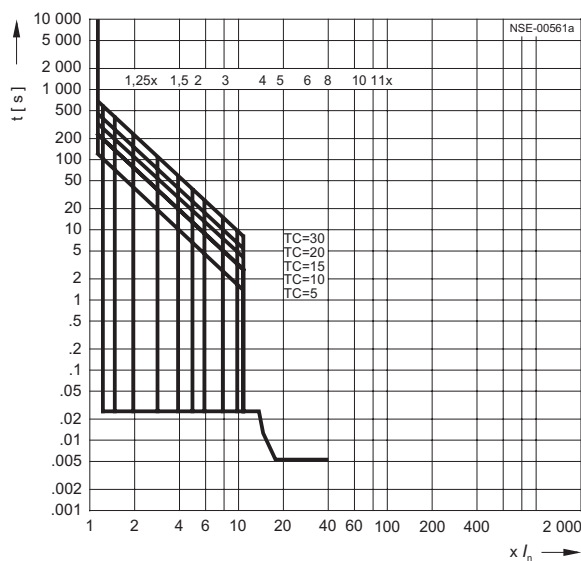
LCD ETU with ground-fault protection, I^2t ON
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V;

Tripping characteristics of the SENTRON VL160, VL250, VL400 and VL630 circuit-breakers for motor/generator protection with electronic overcurrent trip unit.

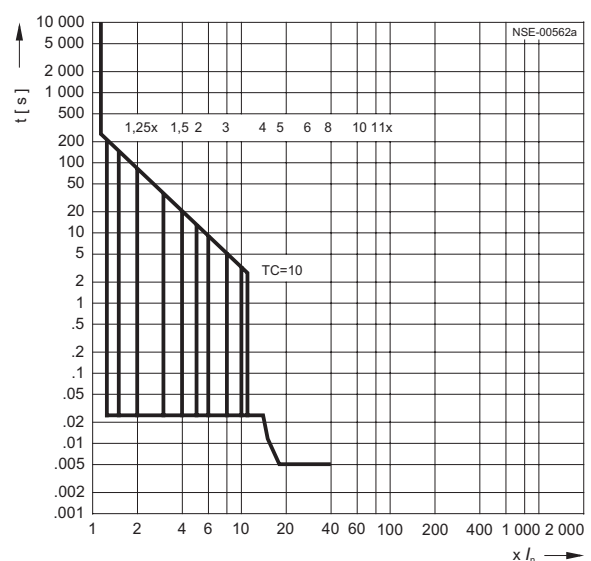
The tripping times of the inverse-time delayed overcurrent trip units apply to the non-preloaded (cold) state. In the operating/warm state (after application of a load at the rated current), the tripping times are reduced to approx. 33%. After a tripping operation due to overcurrent, the tripping times are reduced in accordance with the dynamic tripping response (see diagram), as a result of which a cooling time of a few minutes is required before the next motor start.



Dynamic tripping response (thermal image)



LCD ETU with time-lag class 5, 10, 15, 20, 30
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V

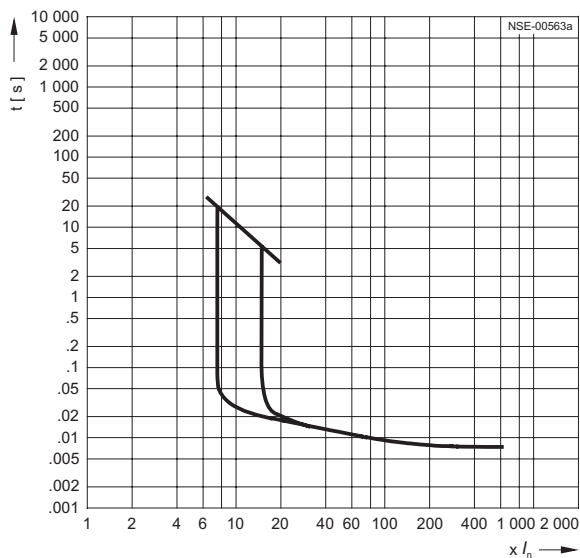


ETU with time-lag class 10
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V

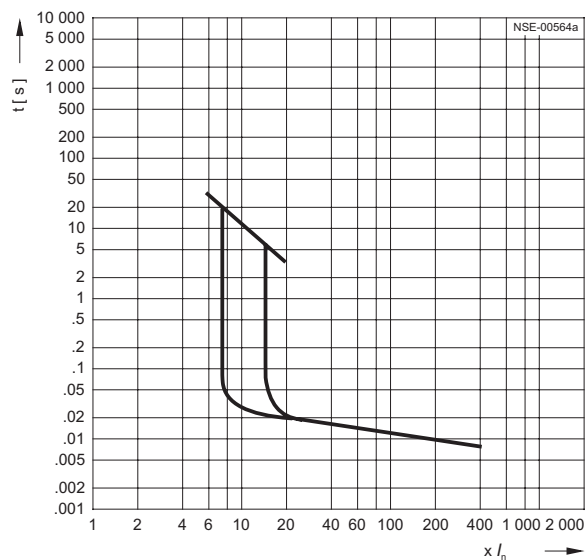
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

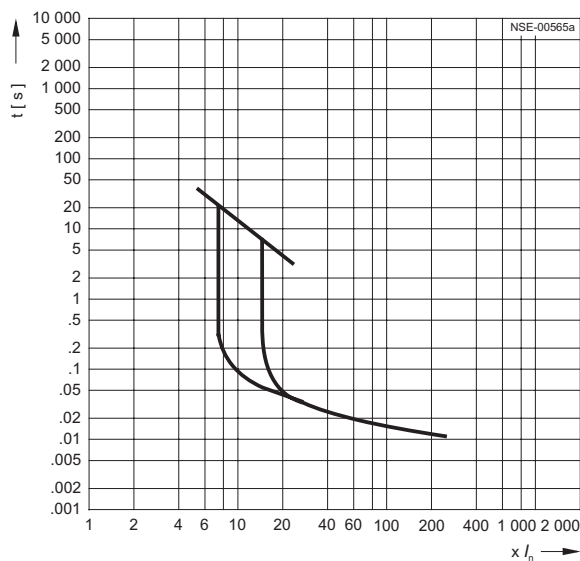
4



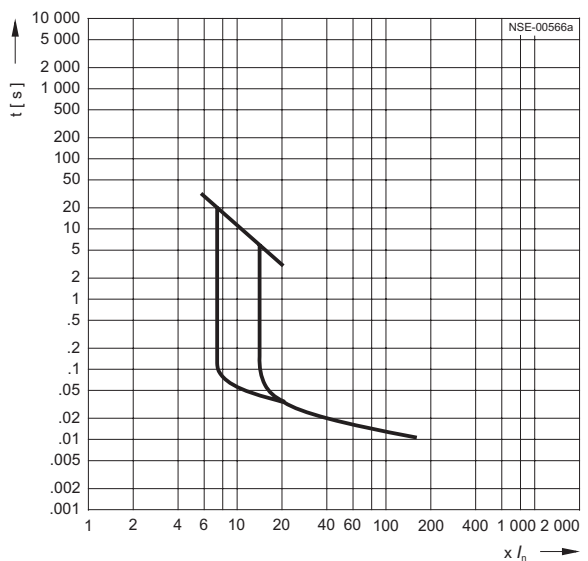
SENTRON VL160 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
 I_{cu} 40/70/100 kA



SENTRON VL250 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
 I_{cu} 40/70/100 kA



SENTRON VL400 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
 I_{cu} 100 kA max. at 415 V

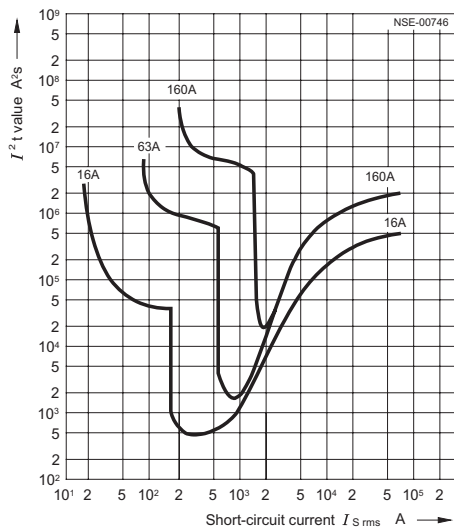


SENTRON VL630/VL800 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
 I_{cu} 100 kA max. at 415 V

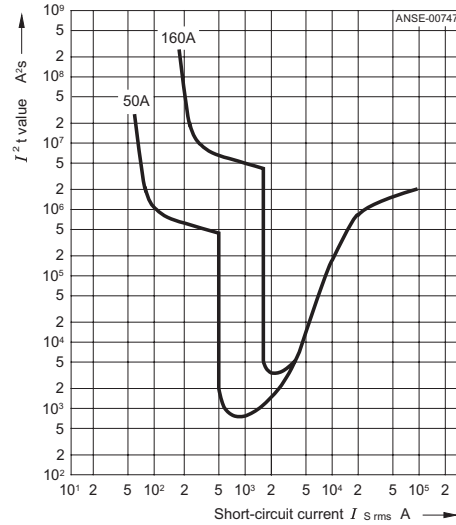
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

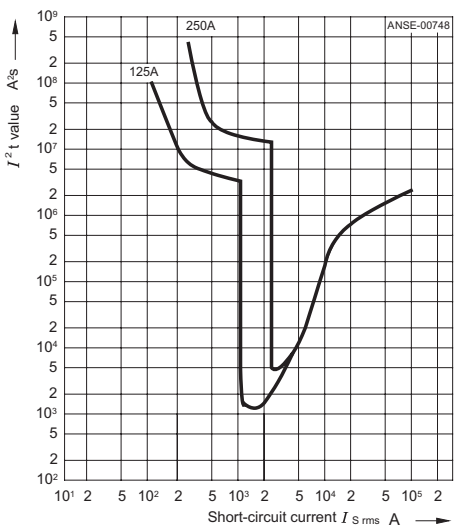
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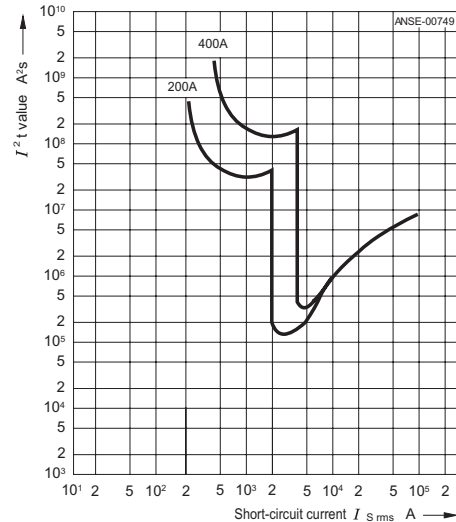
SENTRON VL160X circuit-breaker, 16 A to 160 A at 415 V
Thermal-magnetic overcurrent trip unit



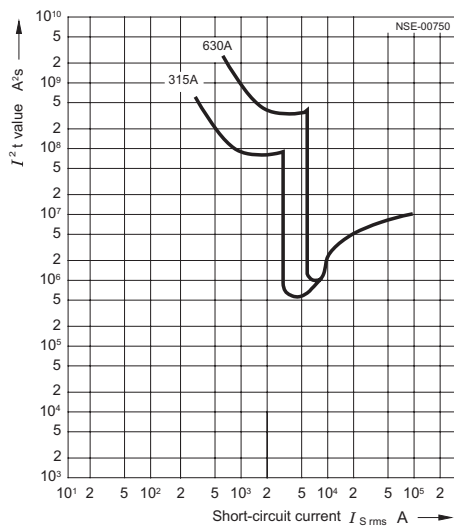
SENTRON VL160 circuit-breaker, 50 A to 160 A at 415 V
Thermal-magnetic overcurrent trip unit



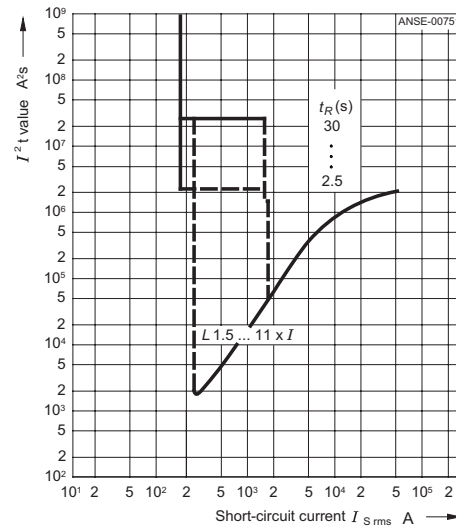
SENTRON VL250 circuit-breaker, 125 A to 250 A at 415 V
Thermal-magnetic overcurrent trip unit



SENTRON VL400 circuit-breaker, 200 A to 400 A at 415 V
Thermal-magnetic overcurrent trip unit



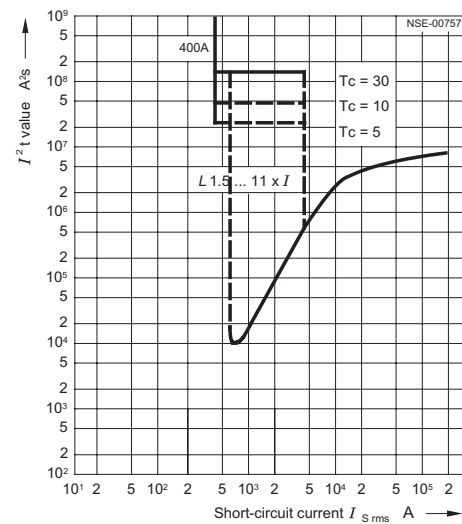
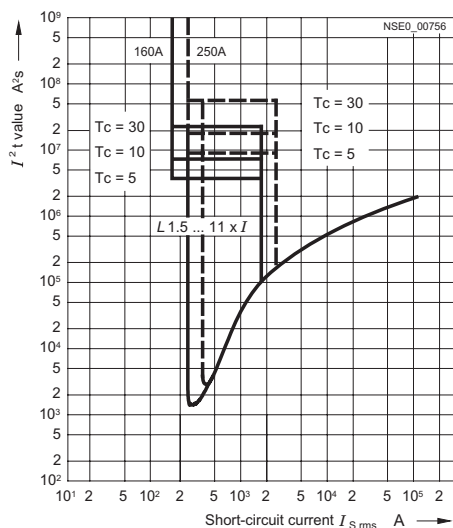
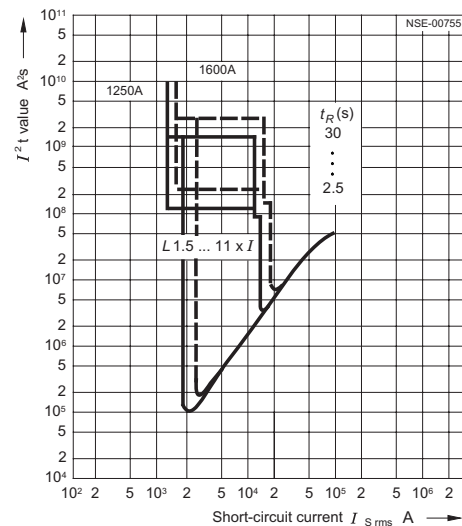
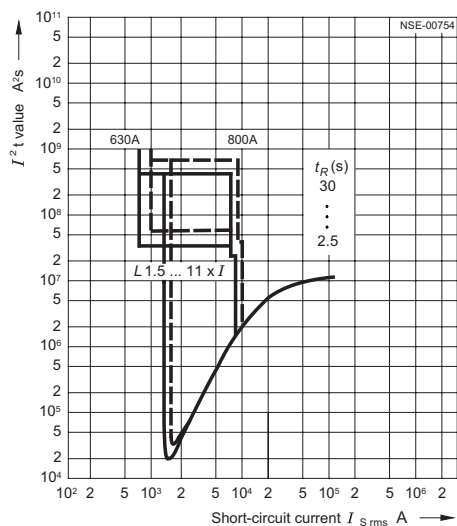
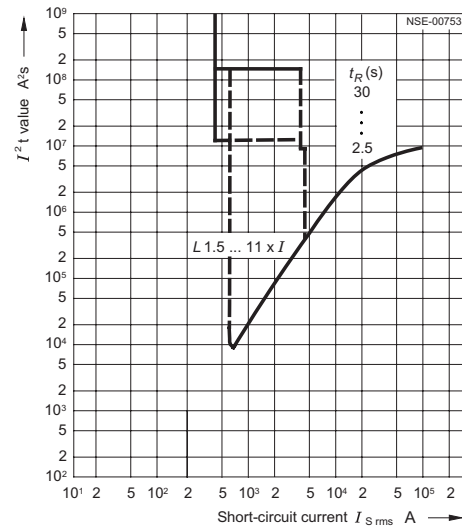
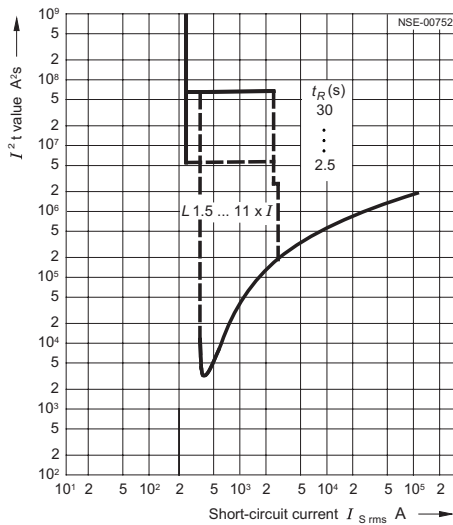
SENTRON VL630 circuit-breaker, 315 A to 630 A at 415 V
Thermal-magnetic overcurrent trip unit



SENTRON VL160 circuit-breaker, 63 A to 160 A
Electronic overcurrent trip unit
Characteristics for $I_R = 160$ A at 415 V, LSI with I^2t OFF

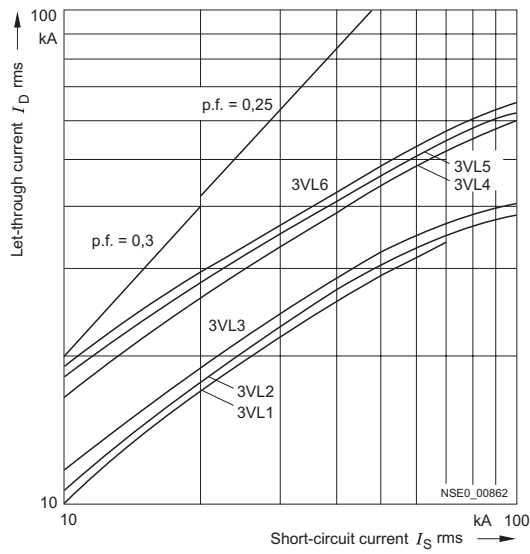
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

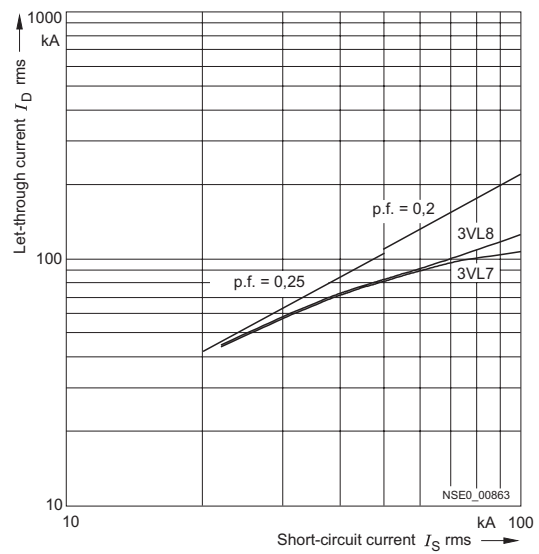


SENTRON VL Circuit-Breakers up to 1600 A

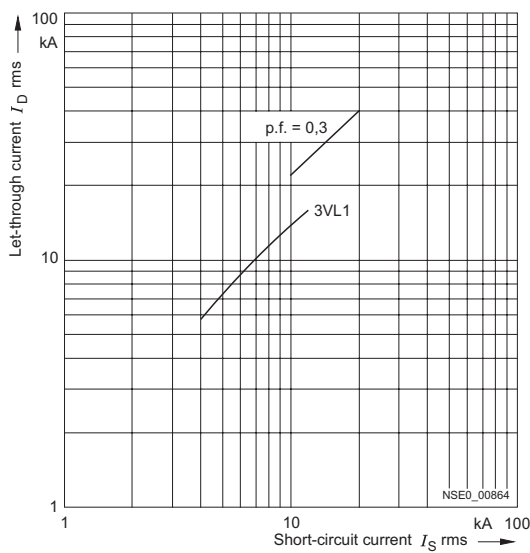
Project planning aids



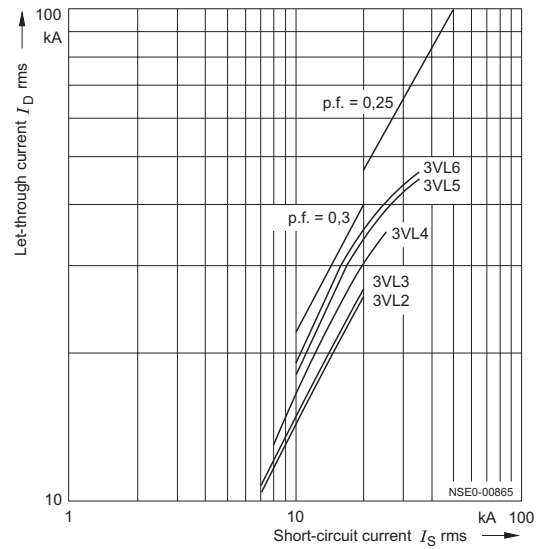
Current limiting characteristics for SENTRON VL160X (3VL1) to VL800 (3VL6), AC 50/60 Hz 415 V



Current limiting characteristics for SENTRON VL1250 (3VL7) and VL1600 (3VL8), AC 50/60 Hz 415 V



Current limiting characteristics for SENTRON VL160X (3VL1), AC 50/60 Hz 690 V



Current limiting characteristics for SENTRON VL160 (3VL2) to VL800 (3VL6), AC 50/60 Hz 690 V

SETRON VL Circuit-Breakers up to 1600 A

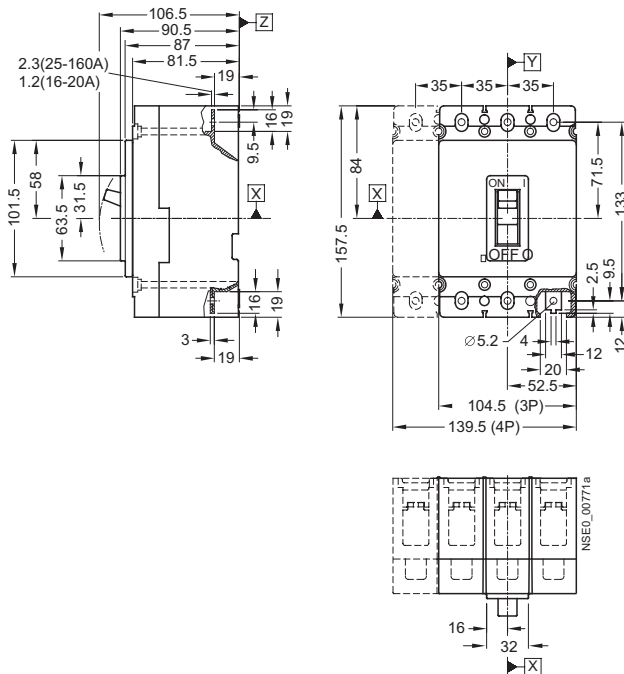
Project planning aids

Dimension drawings

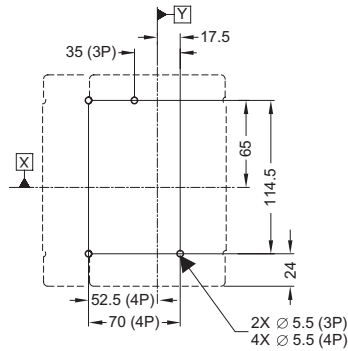
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Circuit-breakers

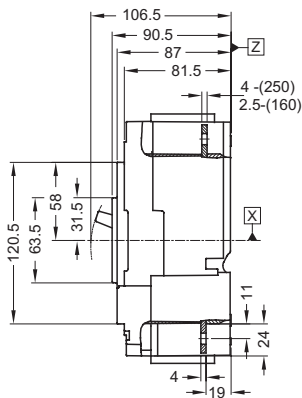
SETRON VL160X circuit-breakers



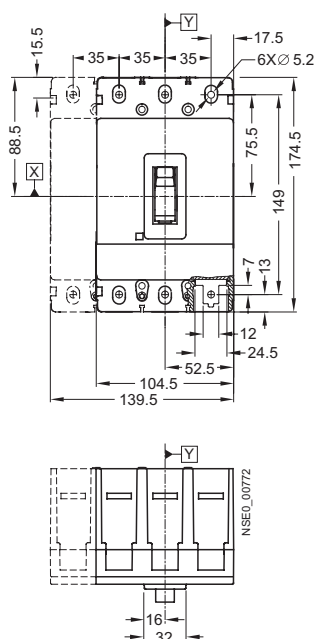
Circuit-breaker installation instructions



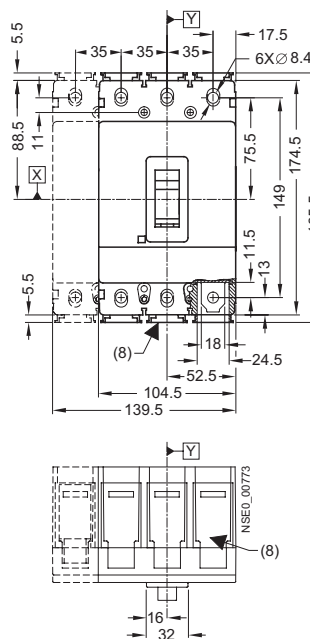
SETRON VL160/VL250 circuit-breakers



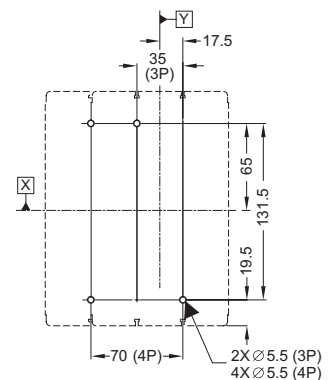
SETRON VL160 circuit-breakers



SETRON VL250 circuit-breakers



SETRON VL160 and VL250 circuit-breakers Installation instructions



Note:
The 5.5 mm extension at each end of the SETRON VL250 circuit-breaker only applies when using box terminals or round cable terminals (8).

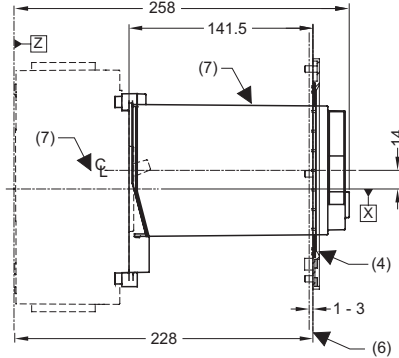
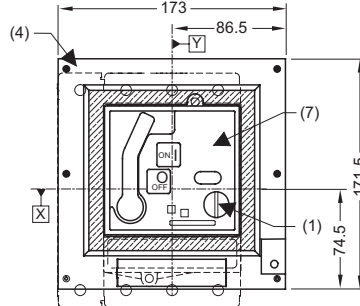
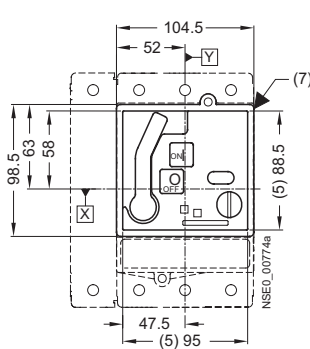
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

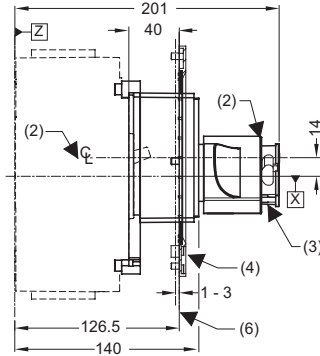
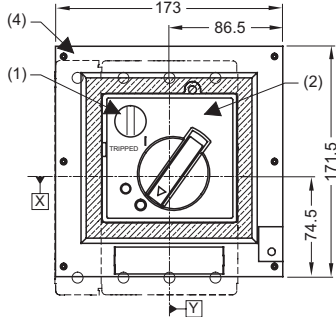
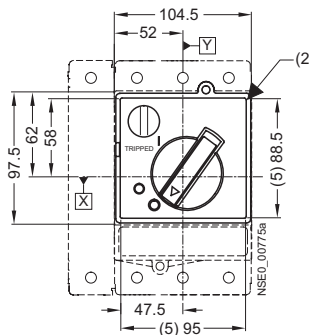
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Operating mechanisms

Motorized operating mechanism with spring energy store



Front-operated rotary operating mechanism



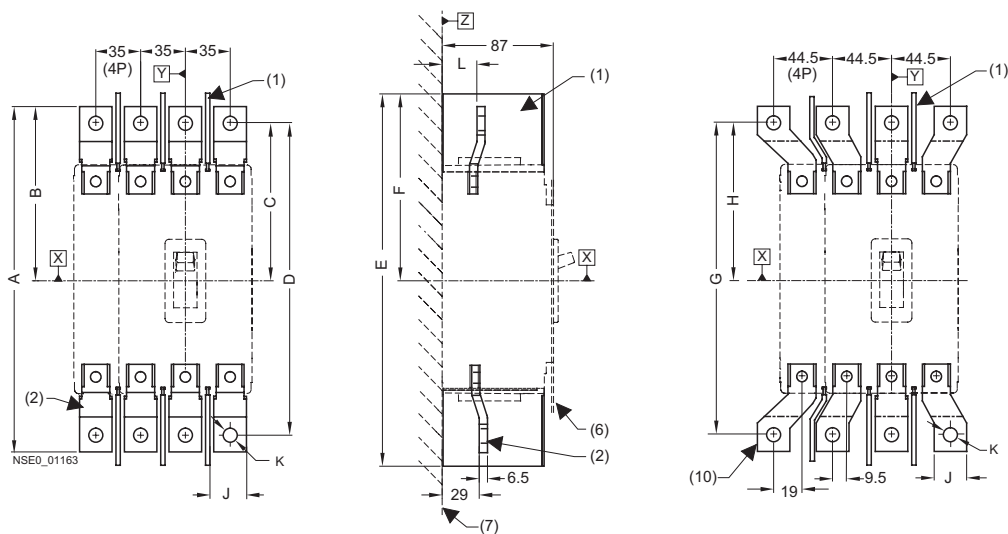
- (1) Safety locks
- (2) Front-operated rotary operating mechanism
- (3) Padlock
- (4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (5) Step for cover
- (6) Outside surface of cabinet door
- (7) Motorized operating mechanism with spring energy store
- (8) Terminal insulation

SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

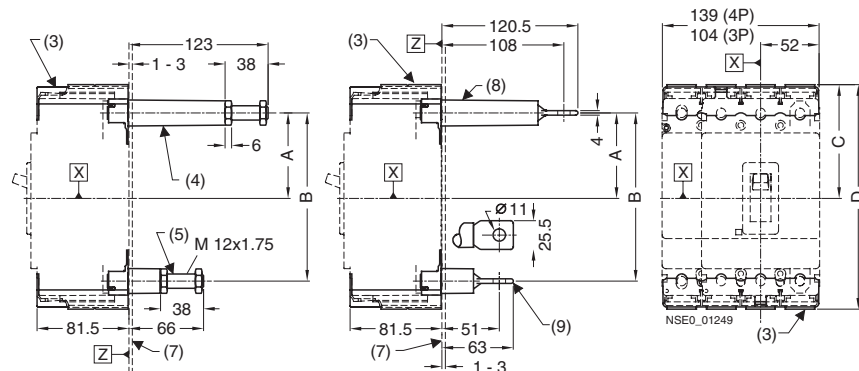
Terminals and phase barriers



	A	B	C	D	E	F	G	H	J	K	L
VL160X	242	126	116	222	266.5	138.5	222	116	20	7	27
VL160	258	130	120	238	283.5	143	238	120	20	7	27
VL250	263.5	133	120	238	283.5	143	238	120	22	11	29

- (1) Phase barrier
- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Rear terminals, threaded pin (long)
- (5) Rear terminals, threaded pin (short)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Rear flat connector, (long)
- (9) Rear flat connector, (short)
- (10) Flared front busbar connecting bars

Circuit-breaker with rear terminals – long and short

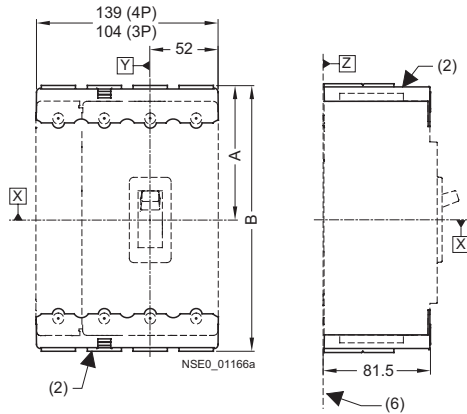


	A	B	C	D
VL160X	71.5	133	96	182
VL160	75.5	149	101	199
VL250	75.5	149	101	199

VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Terminal covers

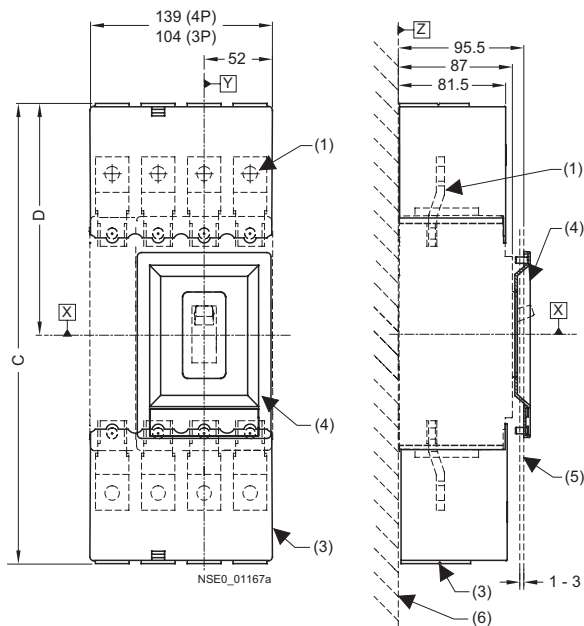
Terminal covers, standard



	A	B	C	D
VL160X	96	182	326.5	168.5
VL160	101	199	343	173
VL250	101	199	343	173

- (1) Front connecting bars
- (2) Terminal covers (standard)
- (3) Terminal covers (extended)
- (4) Masking frame for door cut-out
(for circuit-breaker with toggle lever)
- (5) Outside surface of cabinet door
- (6) Installation level

Extended terminal covers



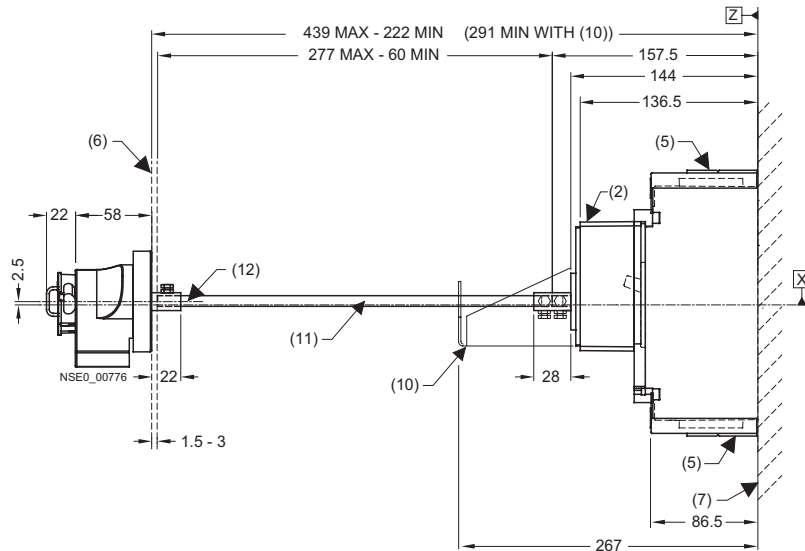
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

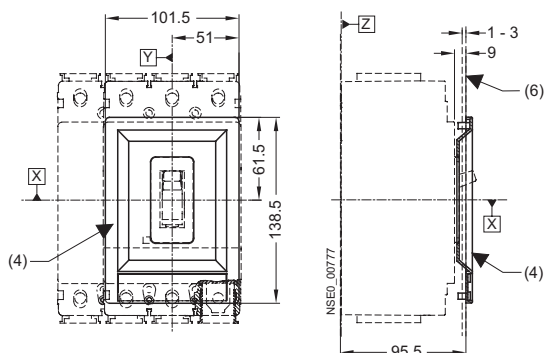
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Accessories

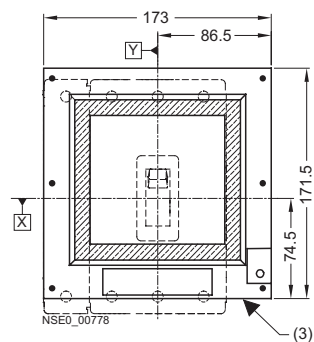
Circuit-breaker with door-coupling rotary operating mechanism



Masking frame for door cut-out for circuit-breaker with toggle lever



Masking frame for door cut-out for circuit-breaker with operating mechanism



- (2) Door-coupling rotary operating mechanism
- (3) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
- (4) Masking frame for door cut-out
(for circuit-breaker with toggle lever)
- (5) Terminal covers
- (6) Outside surface of cabinet door
- (7) Installation level
- (10) Support bracket
- (11) Extension
- (12) Center line of operating shaft

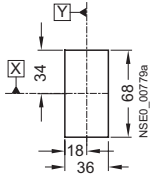
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

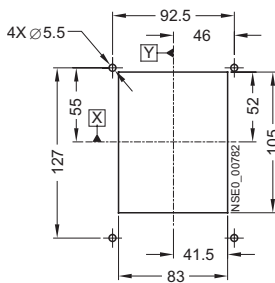
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Door cut-outs

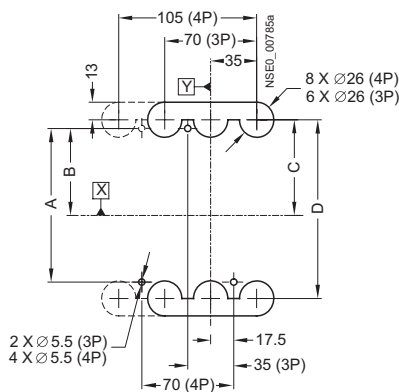
Door cut-out for toggle lever
(without masking frame)



Door cut-out for toggle lever
(with masking frame)

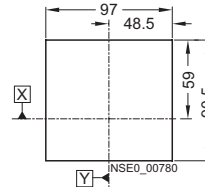


Hole pattern and cut-out for rear terminals

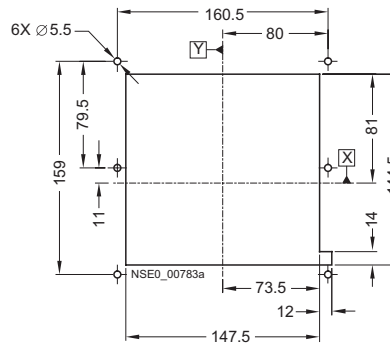


	A	B	C	D
VL160X	114.5	65	71.5	133
VL160	131.5	65	75.5	149
VL250	131.5	65	75.5	149

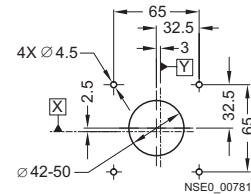
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (without masking frame)



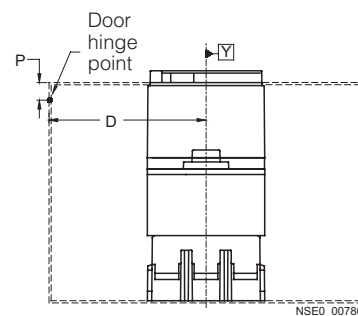
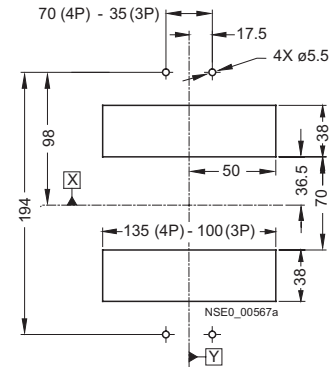
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



Door cut-out for door-coupling rotary operating mechanism



Hole pattern and cut-out for plug-in base with rear connecting bars



D > A from table + (P x 5)

Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

	A
Circuit-breaker only	100
Circuit-breaker + plug-in base + motorized operating mechanism with spring energy store	100
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

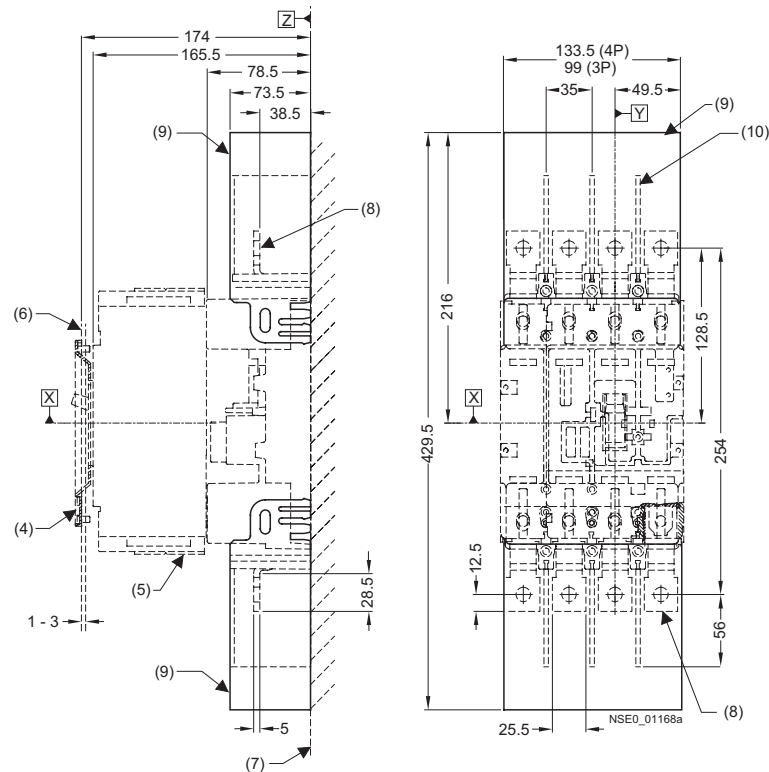
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

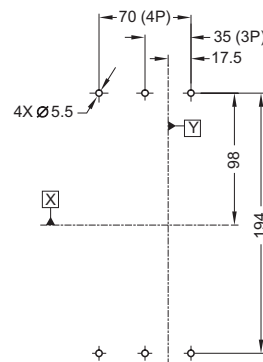
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Plug-in bases and accessories

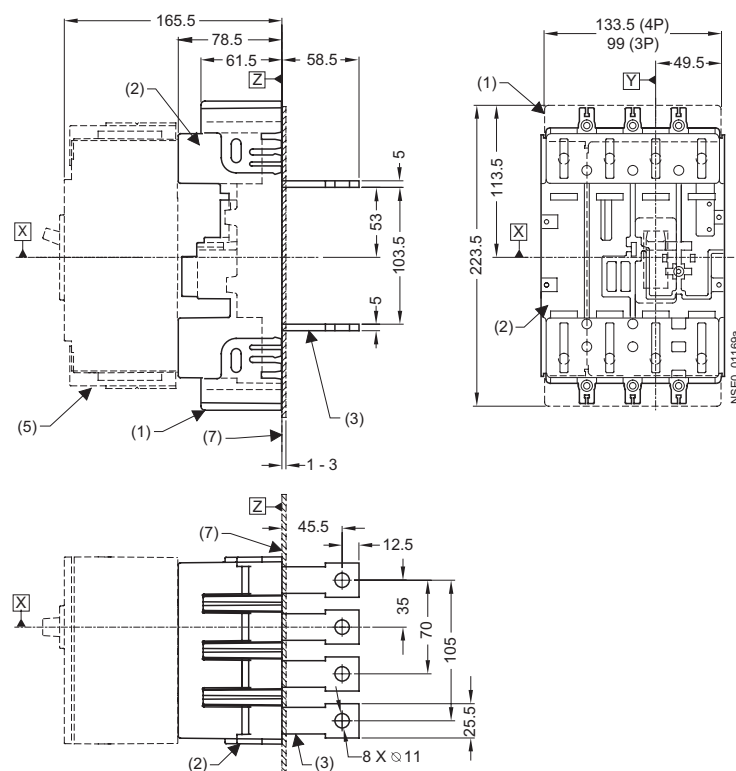
Plug-in base with front connecting bars



Hole pattern for plug-in base with front connecting bars



Plug-in base with rear flat bar connection

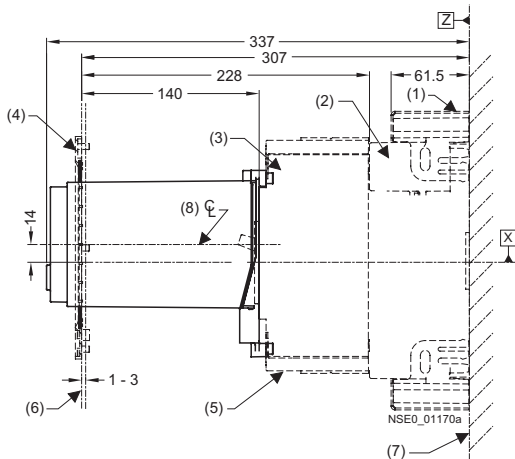


- (1) Plug-in base with rear terminal covers
- (2) Plug-in base
- (3) Plug-in base with rear flat bar connection
- (4) Masking frame for door cut-out (for circuit-breaker with toggle lever)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Plug-in base with front connecting bars
- (9) Plug-in base with terminal covers on the front
- (10) Interphase barriers

VL160X, 3- and 4-pole, up to 160 A

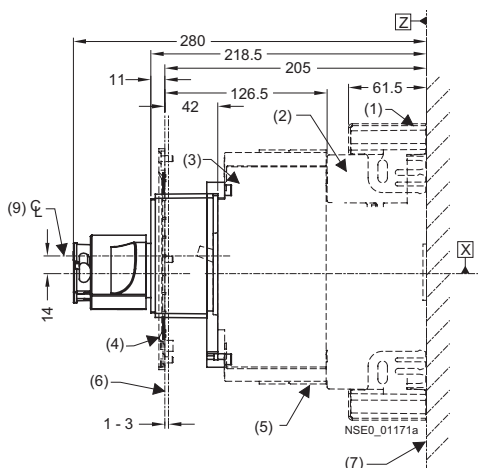
Plug-in bases and accessories

SENTRON VL160X circuit-breakers with motorized operating mechanism with spring energy store, mounted on plug-in base

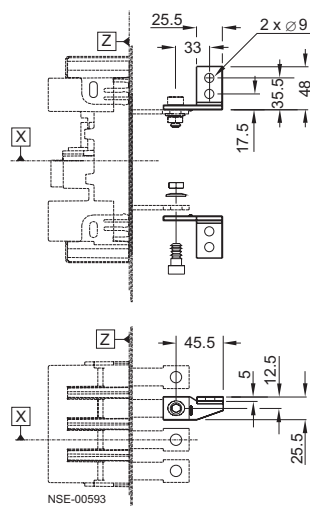


- (1) Plug-in base with terminal covers
- (2) Plug-in base
- (3) Circuit-breaker
- (4) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Motorized operating mechanism with spring energy store
- (9) Front-operated rotary operating mechanism

SENTRON VL160X circuit-breakers with front-operated rotary operating mechanism mounted on plug-in base



90° angle connecting adapter



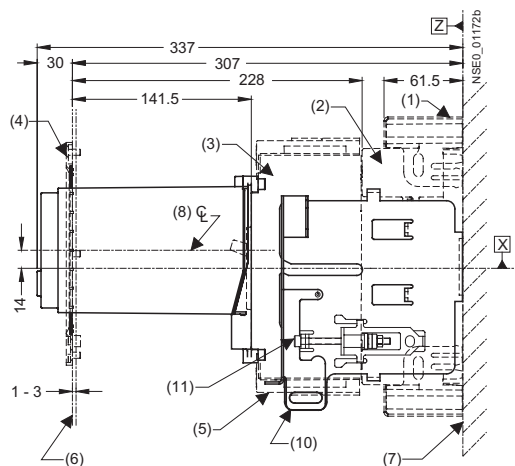
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

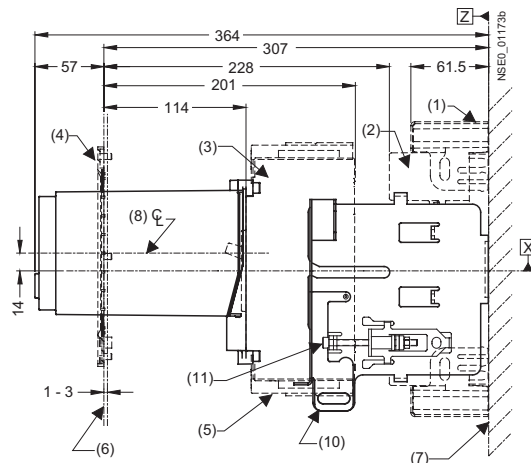
VL160 and VL250, 3- and 4-pole, up to 250 A

Withdrawable version and accessories

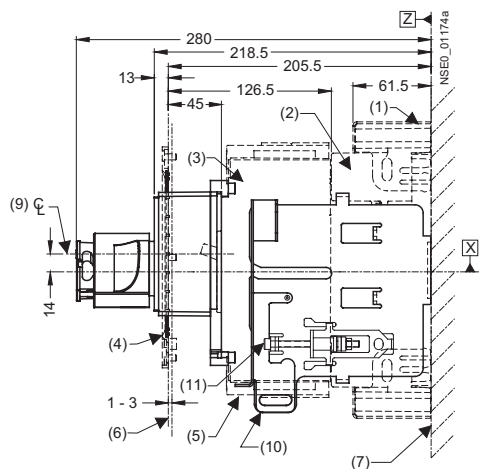
SENTRON VL160 and VL250 circuit-breakers with motorized operating mechanism with spring energy store (connected position)



SENTRON VL160 and VL250 circuit-breakers with motorized operating mechanism with spring energy store (disconnected position)



SENTRON VL160 and VL250 circuit-breakers with front-operated rotary operating mechanism (connected position)



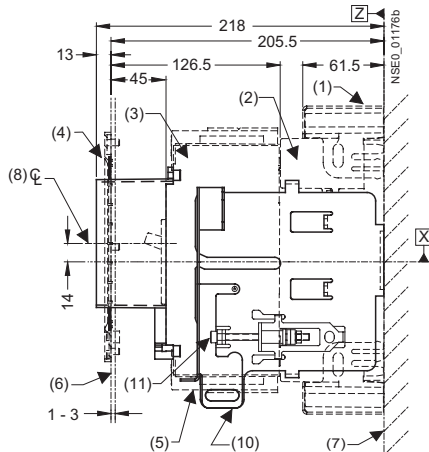
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

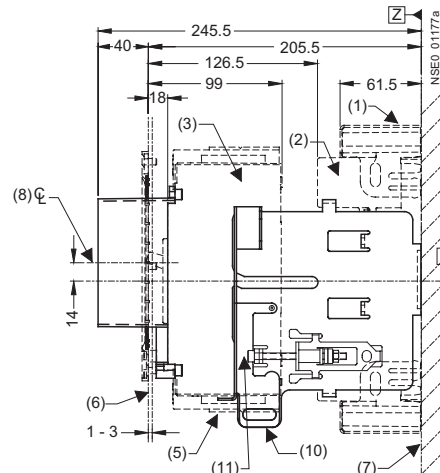
VL160 and VL250, 3- and 4-pole, up to 250 A

Withdrawable version and accessories

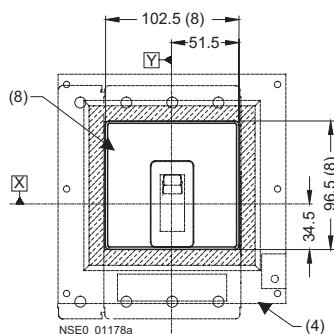
SENTRON VL160 and VL250 circuit-breakers with extended escutcheon (connected position)



SENTRON VL160 and VL250 circuit-breakers with extended escutcheon (disconnected position)

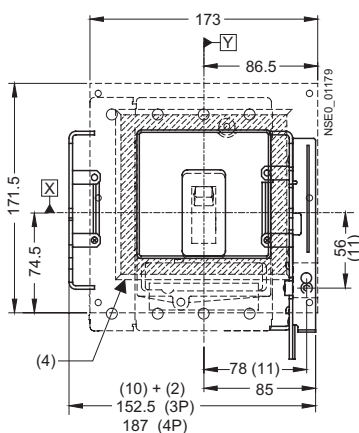


Dimensions of extended escutcheon



- (1) Plug-in base with terminal covers
- (2) Plug-in base
- (3) Circuit-breaker
- (4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Extended escutcheon
- (10) Locking device for racking mechanism
- (11) Racking mechanism

Dimensions of withdrawable version



SENTRON VL Circuit-Breakers up to 1600 A

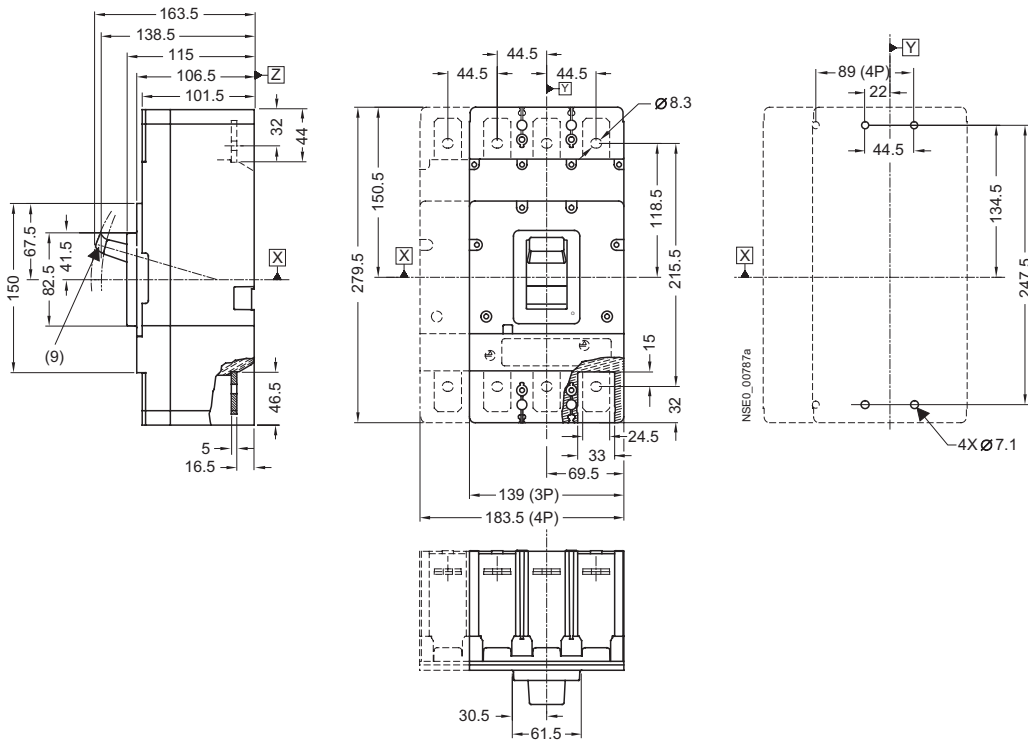
Project planning aids

VL400, 3- and 4-pole, up to 400 A

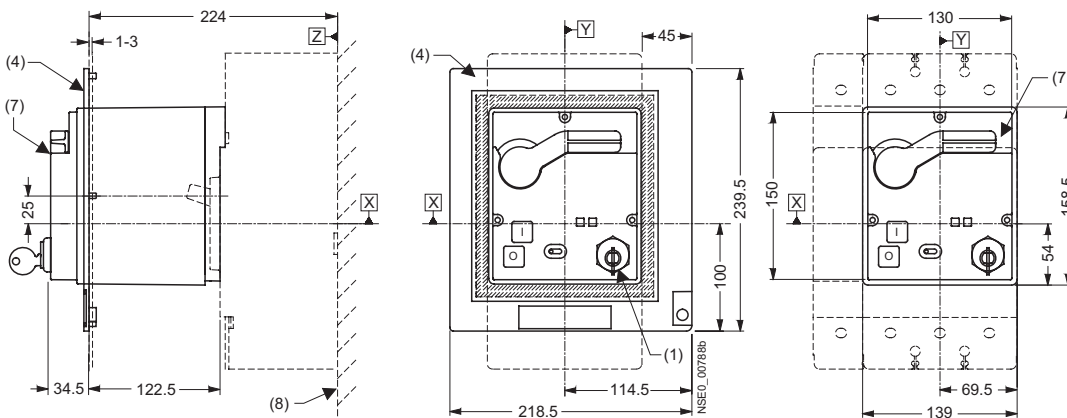
Circuit-breakers

SENTRON VL400 circuit-breakers

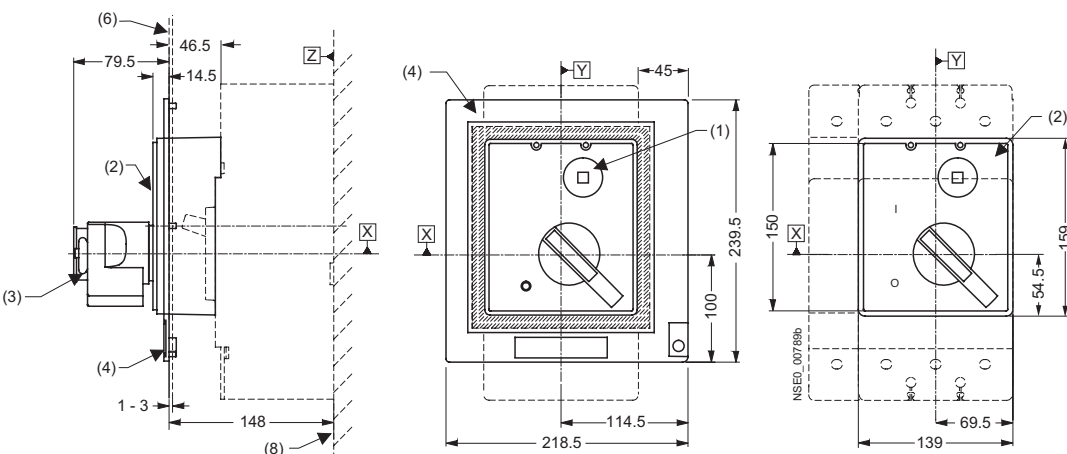
Circuit-breaker installation instructions



Motorized operating mechanism with spring energy store



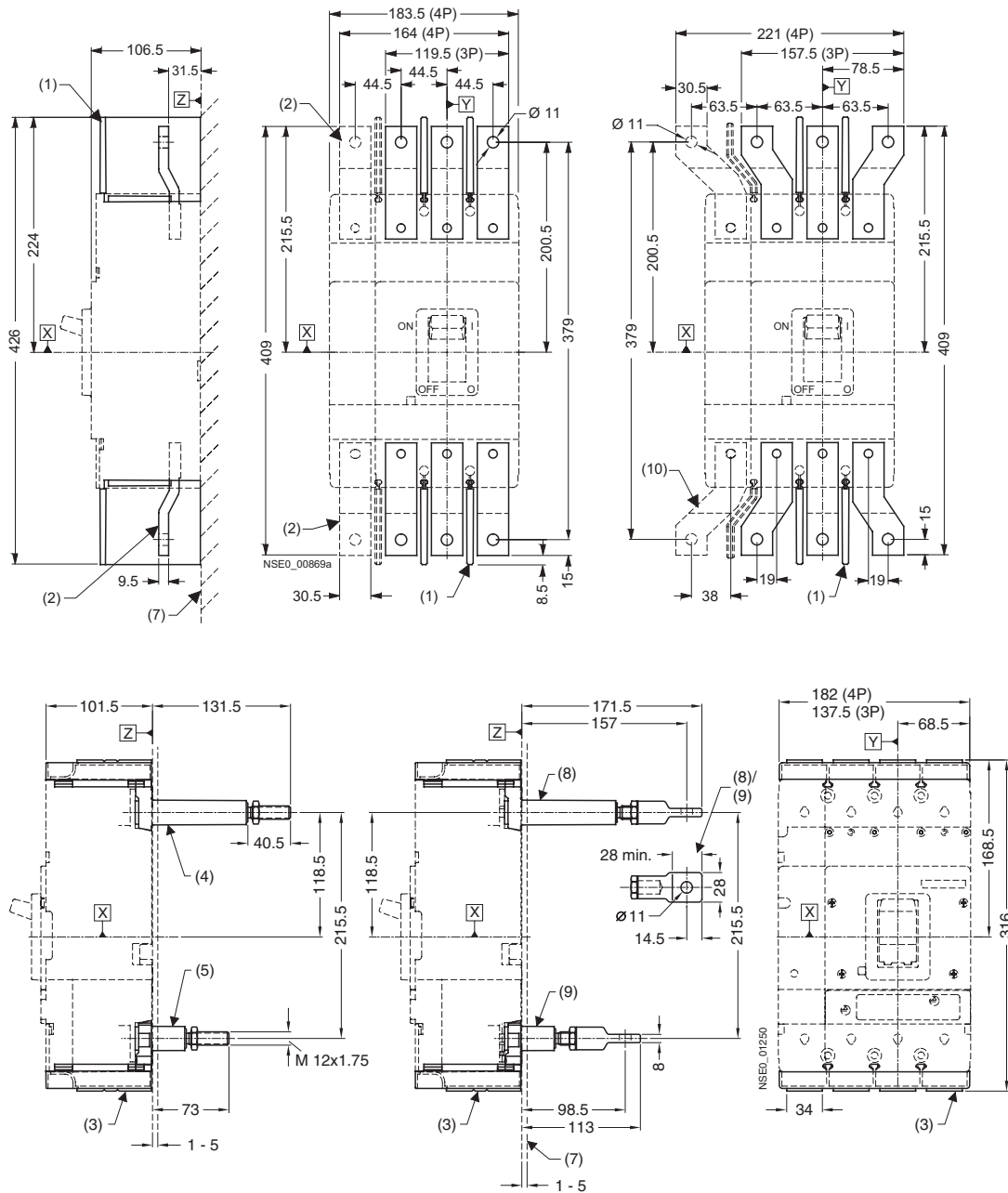
Front-operated rotary operating mechanism



- (1) Safety lock
- (2) Front-operated rotary operating mechanism
- (3) Padlock
- (4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (6) Outside surface of cabinet door
- (7) Motorized operating mechanism with spring energy store
- (8) Installation level
- (9) Toggle lever extension

VL400, 3- and 4-pole, up to 400 A

Terminals and phase barriers



- (1) Phase barrier
- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Rear terminal (long)
- (5) Rear terminal (short)
- (7) Installation level
- (8) Rear flat connector (long)
- (9) Rear flat connector (short)
- (10) Flared front busbar connecting bars

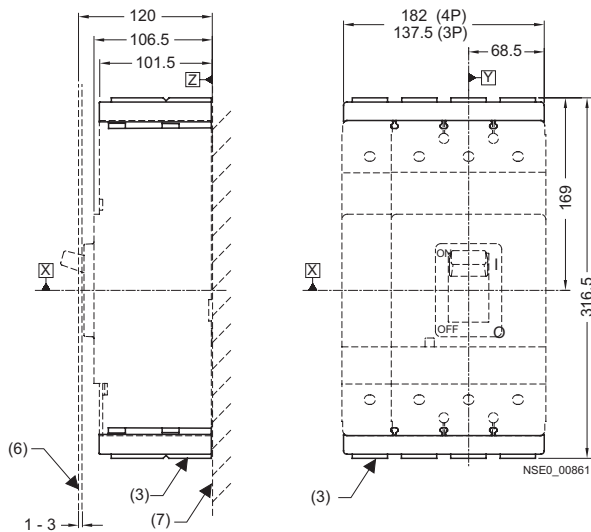
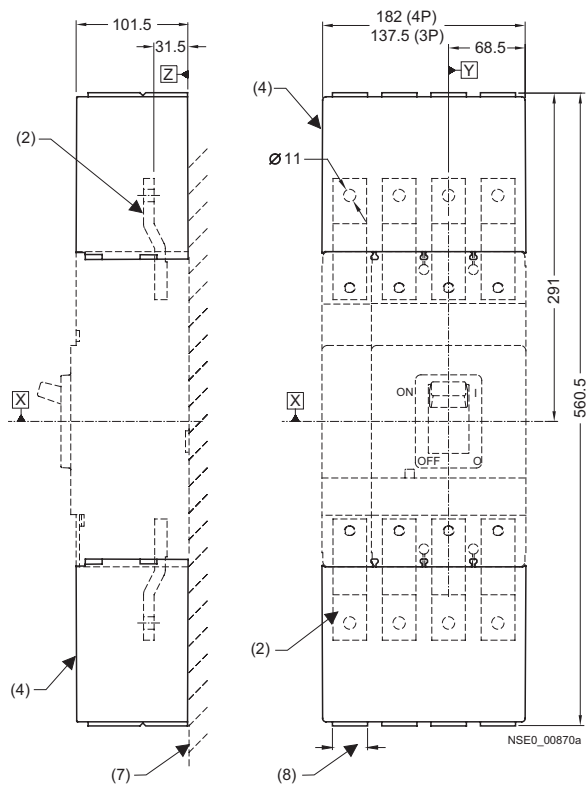
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

VL400, 3- and 4-pole, up to 400 A

Terminal covers

Circuit-breaker installation instructions Front connecting bars

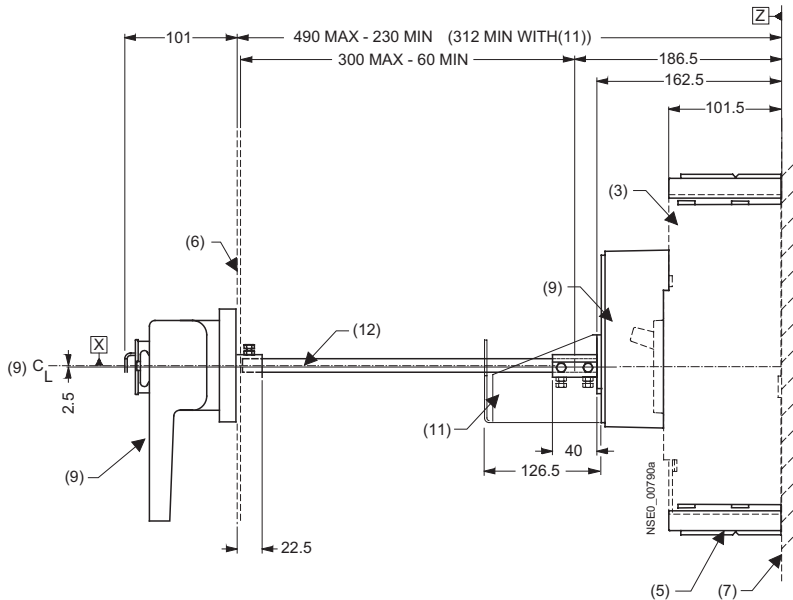


- (1) Front connecting bars
- (2) Terminal covers (standard)
- (3) Terminal covers (extended)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Cut-out

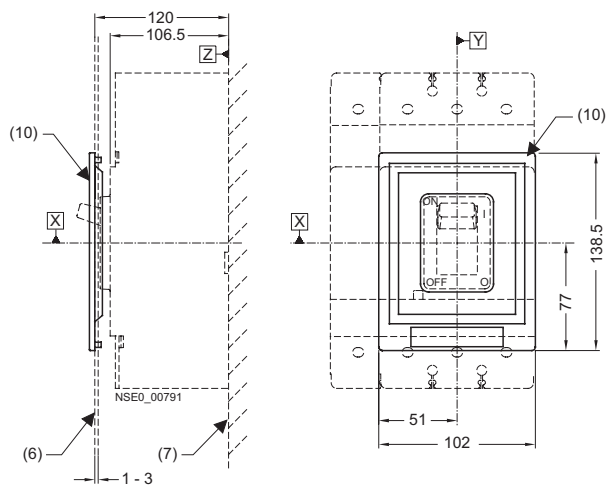
VL400, 3- and 4-pole, up to 400 A

Accessories

Plug-in base for door-coupling rotary operating mechanism



Masking frame for door cut-out for circuit-breaker with toggle lever



- (3) Circuit-breaker
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (9) Door-coupling rotary operating mechanism
- (10) Masking frame for door cut-out (for circuit-breaker with toggle lever)
- (11) Support bracket
- (12) Center line of operating shaft

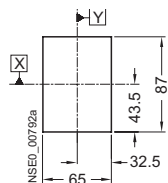
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

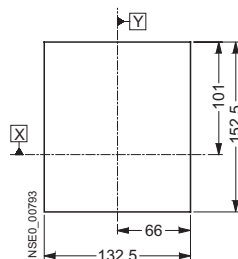
VL400, 3- and 4-pole, up to 400 A

Door cut-outs

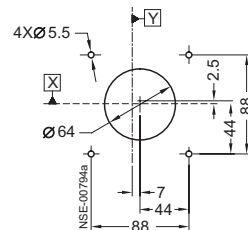
Door cut-out for toggle lever operating mechanism (without masking frame)



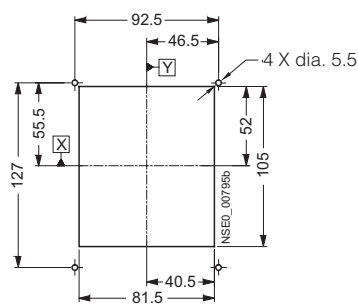
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (without masking frame)



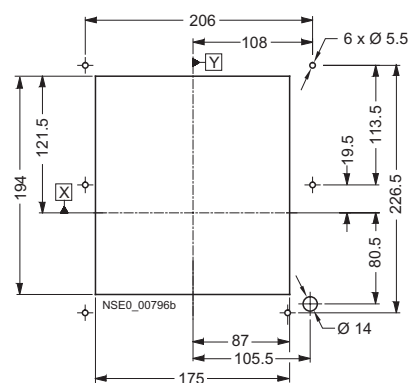
Door cut-out for door-coupling rotary operating mechanism



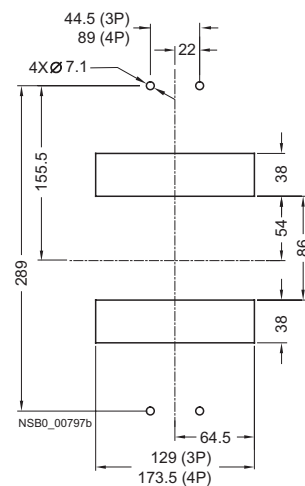
Door cut-out for toggle lever operating mechanism (with masking frame)



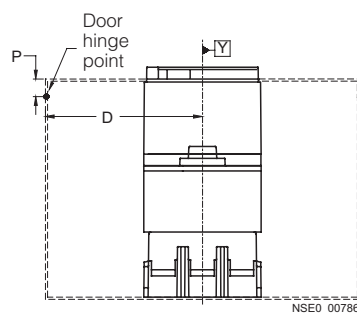
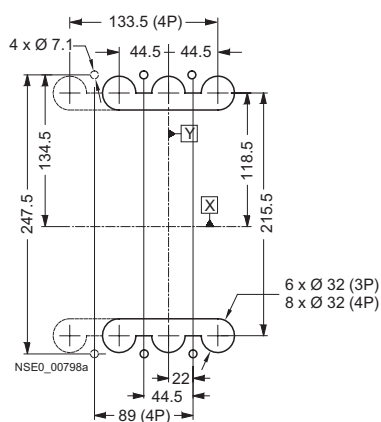
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



Hole pattern and cut-out for plug-in base with rear flat connecting bars



Hole pattern and cut-out for rear terminals



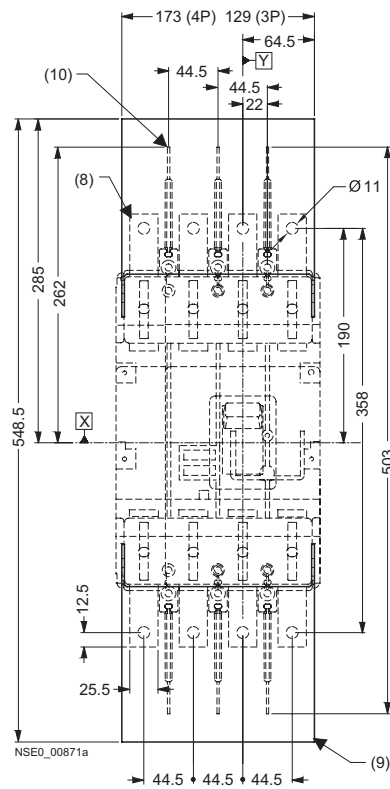
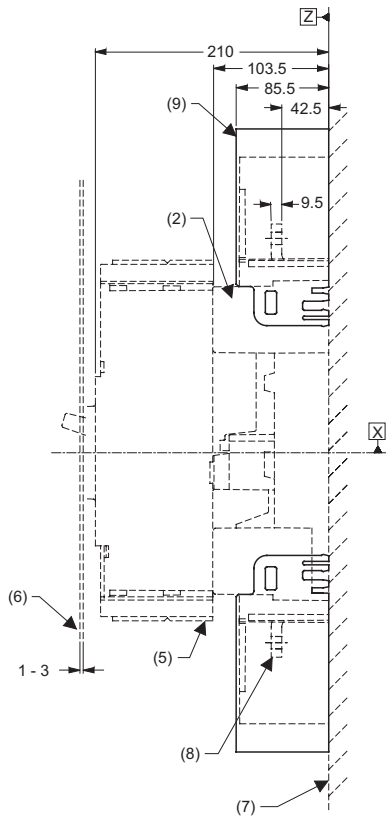
$D > A$ from table + $(P \times 5)$

Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

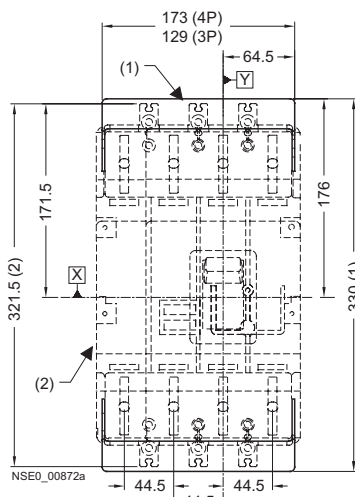
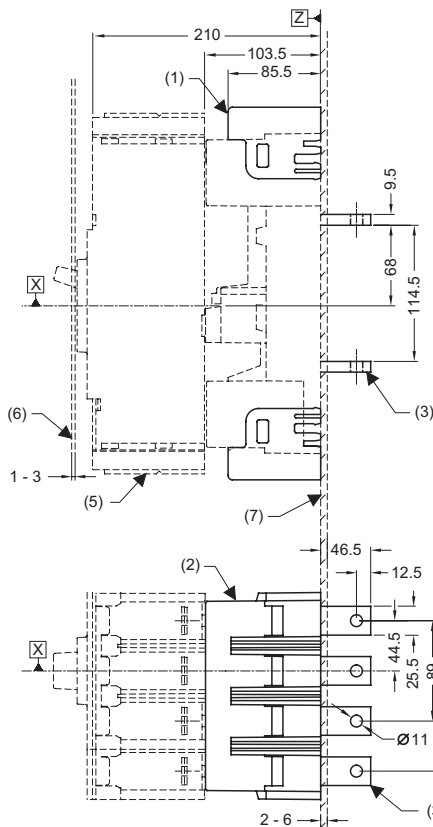
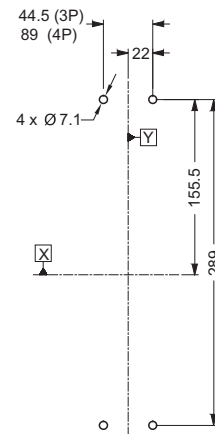
	A
Circuit-breaker only	150
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	150
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

VL400, 3- and 4-pole, up to 400 A

Plug-in bases and accessories



Hole pattern for plug-in base for front connecting bars



- (1) Plug-in base with rear terminal covers
- (2) Plug-in base
- (3) Plug-in base with rear flat connecting bars
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Plug-in base with front connecting bars
- (9) Plug-in base with terminal covers on the front
- (10) Phase barrier

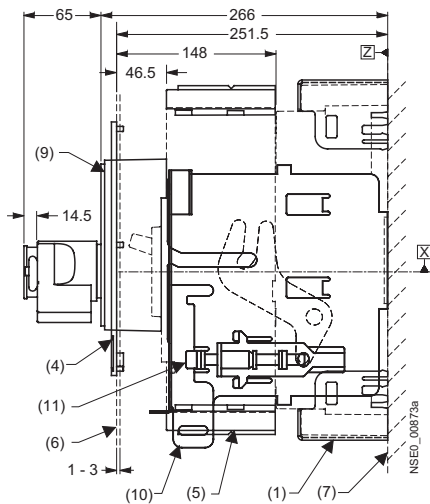
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

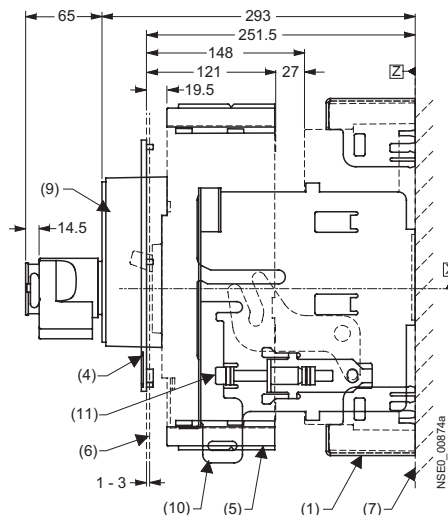
VL400, 3- and 4-pole, up to 400 A

Plug-in bases and accessories

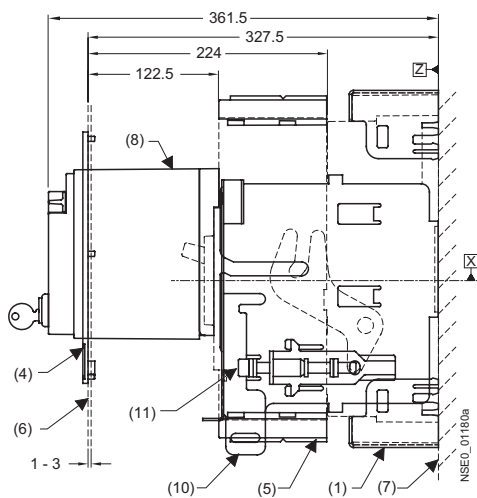
Plug-in base for front-operated rotary operating mechanism (connected position)



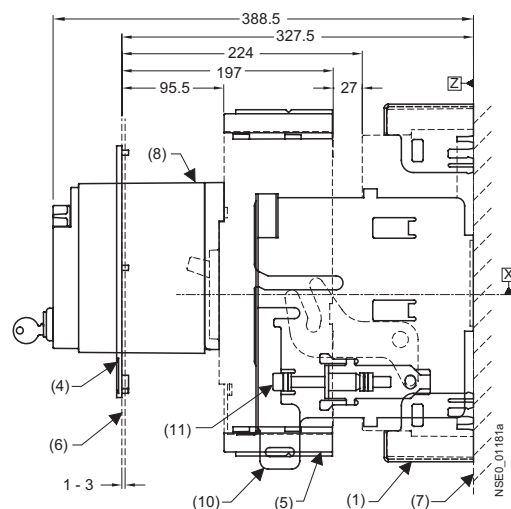
Plug-in base for front-operated rotary operating mechanism (disconnected position)



Plug-in base for motorized operating mechanism with spring energy store (connected position)



Plug-in base for motorized operating mechanism with spring energy store (disconnected position)

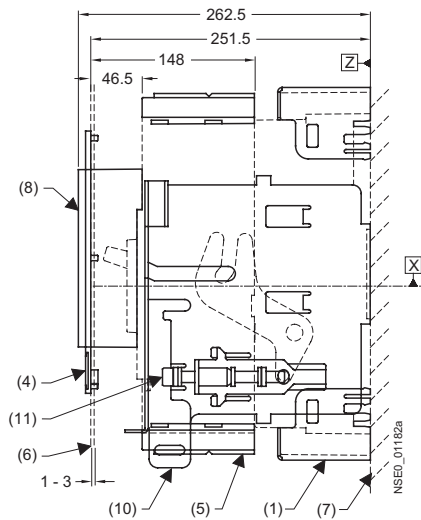


- (1) Plug-in base with terminal covers
- (4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Motorized operating mechanism with spring energy store
- (9) Front-operated rotary operating mechanism
- (10) Locking device for racking mechanism
- (11) Racking mechanism

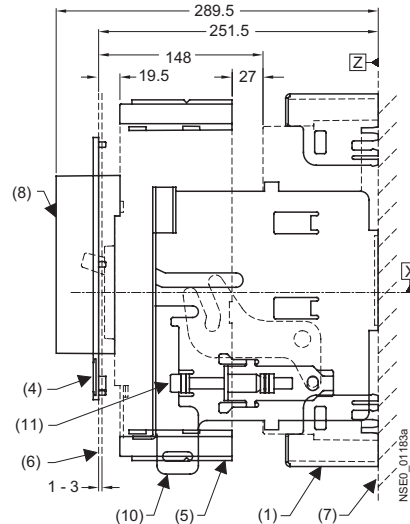
VL400, 3- and 4-pole, up to 400 A

Plug-in bases and accessories

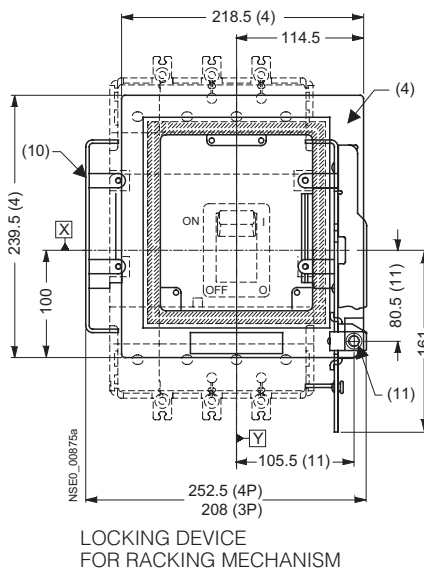
Plug-in base for extended escutcheon (connected position)



Plug-in base for extended escutcheon (disconnected position)



Extended escutcheon mounted on withdrawable version



- (1) Plug-in base with terminal covers
- (4) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Extended escutcheon
- (10) Locking device for racking mechanism
- (11) Racking mechanism

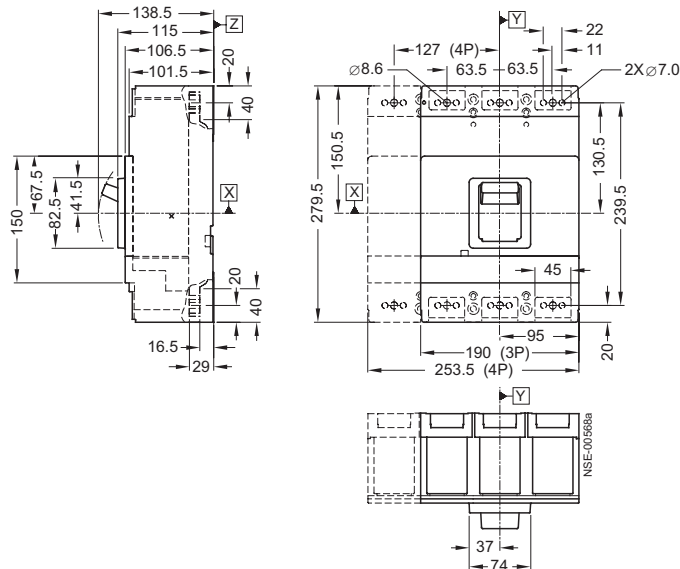
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

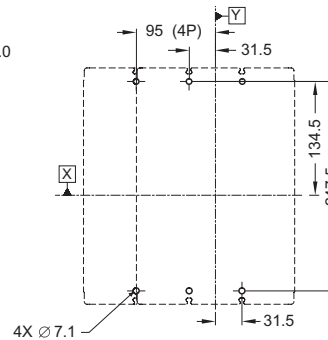
VL630, 3- and 4-pole, up to 630 A

Circuit-breakers

SETRON VL630 circuit-breakers

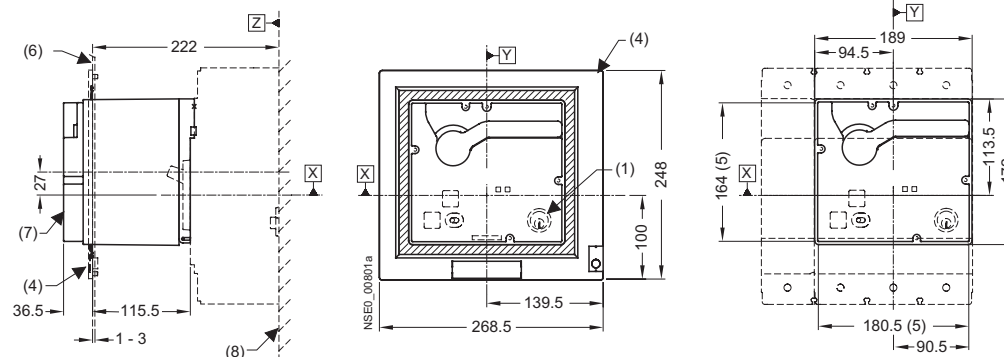


Circuit-breaker installation instructions

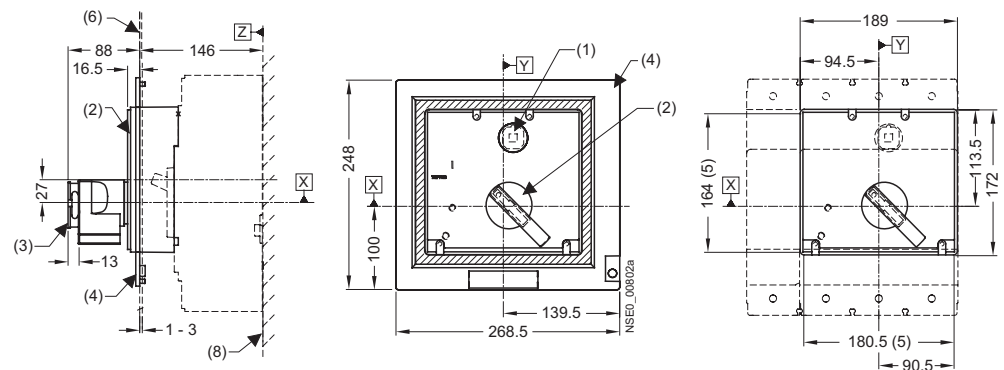


Operating mechanisms

Motorized operating mechanism with spring energy store



Front-operated rotary operating mechanism



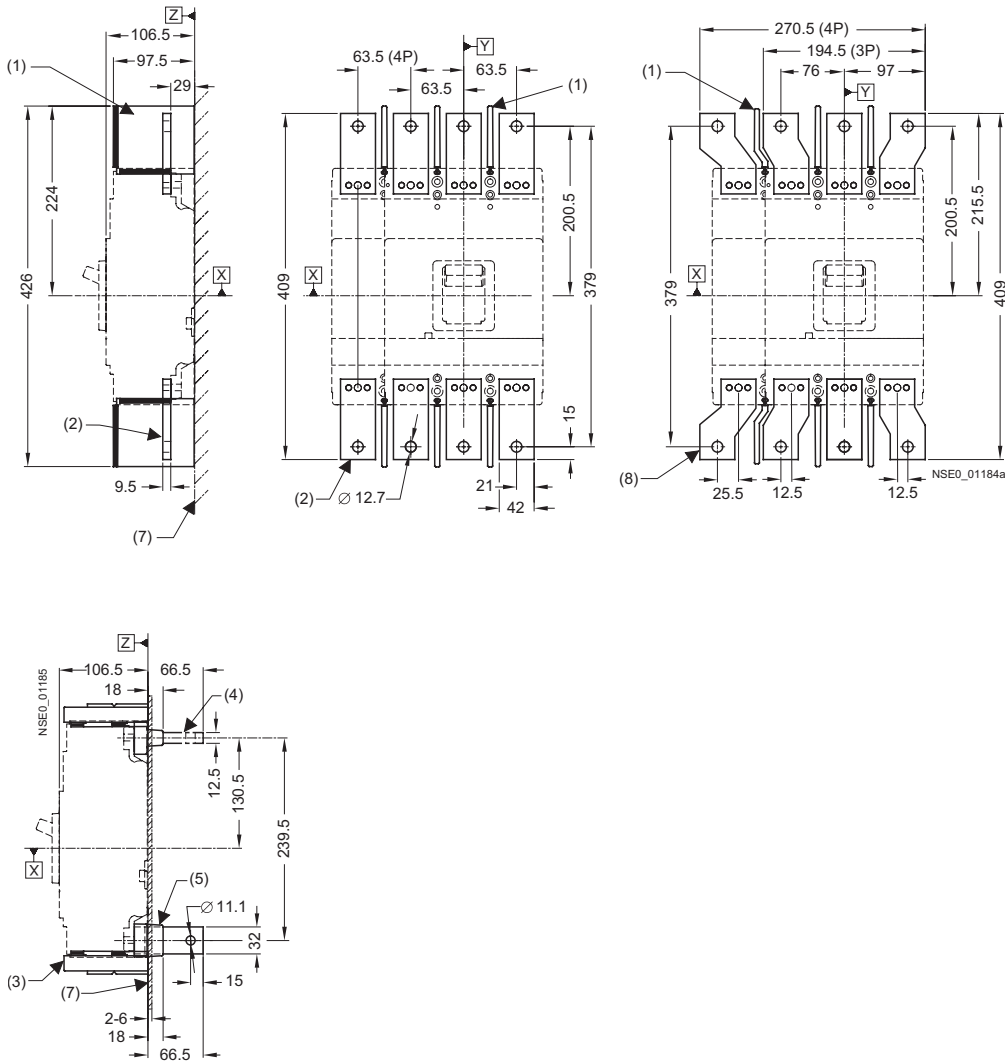
- (1) Safety lock
- (2) Front-operated rotary operating mechanism
- (3) Padlock
- (4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (5) Step for cover
- (6) Outside surface of cabinet door
- (7) Motorized operating mechanism with spring energy store
- (8) Installation level

SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

VL630, 3- and 4-pole, up to 630 A

Terminals and phase barriers



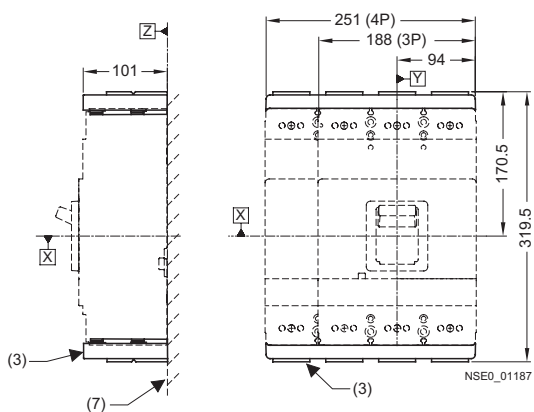
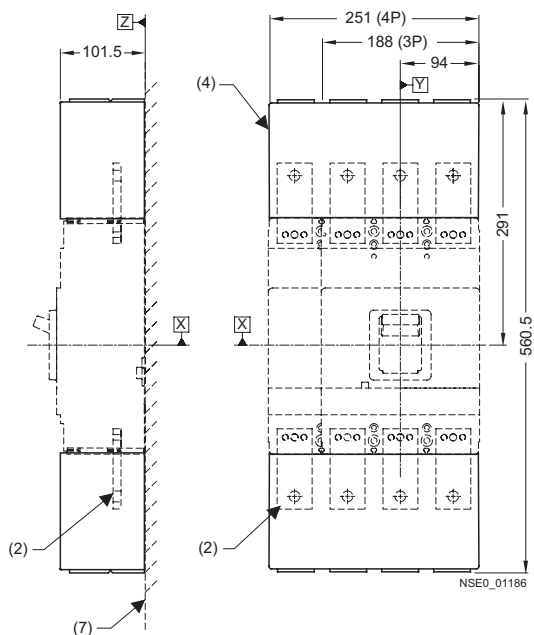
- (1) Phase barrier
- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Rear terminal (horizontal connection)
- (5) Rear terminal (vertical connection)
- (7) Installation level
- (8) Flared front busbar connecting bars

SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

VL630, 3- and 4-pole, up to 630 A

Terminal covers

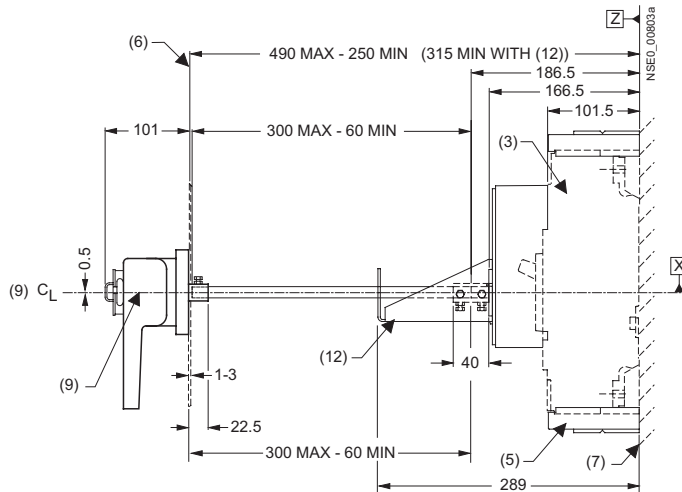


- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Terminal covers (extended)
- (7) Installation level

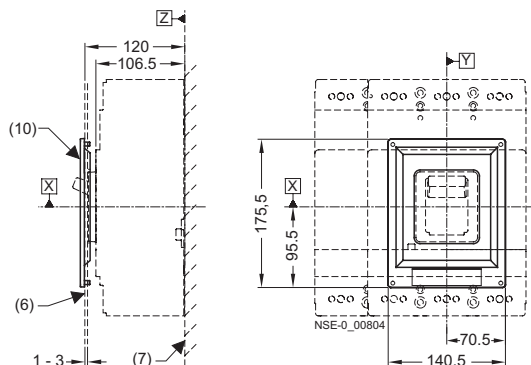
VL630, 3- and 4-pole, up to 630 A

Accessories

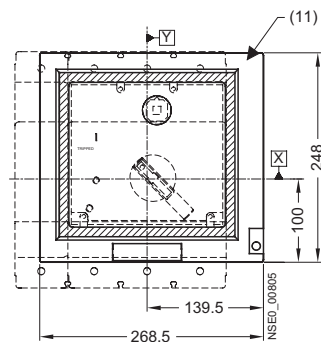
Door-coupling rotary operating mechanism



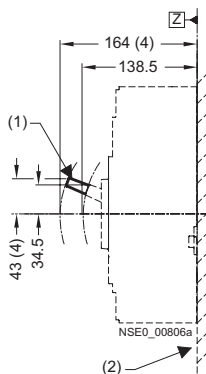
Masking frame for door cut-out for circuit-breaker with toggle lever



Masking frame for door cut-out for circuit-breaker with operating mechanism



Toggle lever extension



- (1) Toggle lever extension
- (2) Installation level
- (3) Circuit-breaker
- (4) Toggle lever extension
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (9) Door-coupling rotary operating mechanism
- (10) Masking frame for door cut-out (for circuit-breaker with toggle lever)
- (11) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (12) Support bracket

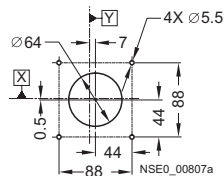
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

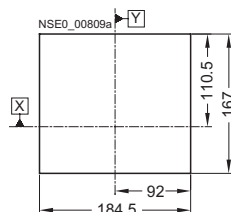
VL630, 3- and 4-pole, up to 630 A

Door cut-outs

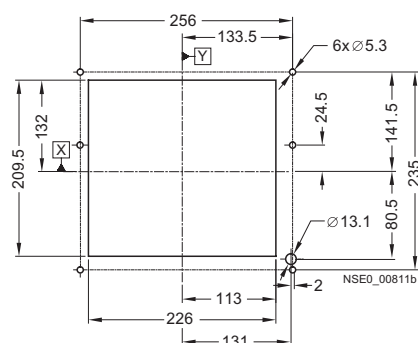
Door cut-out for door-coupling rotary operating mechanism



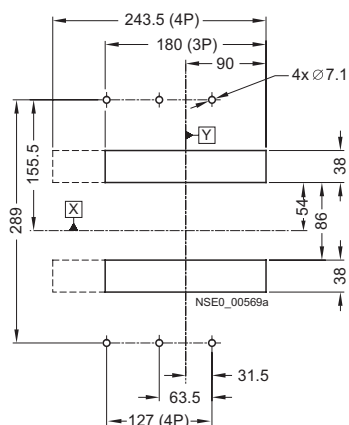
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (without masking frame)



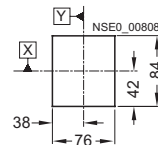
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



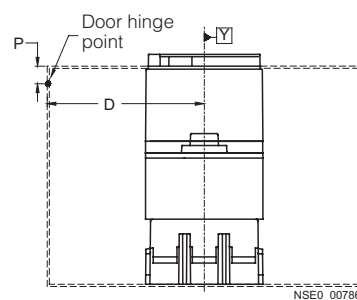
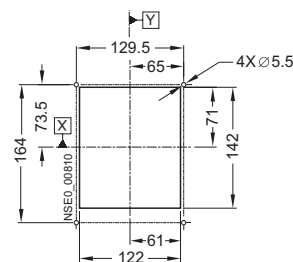
Hole pattern and cut-out for plug-in base (with rear flat bar connection)



Door cut-out for toggle lever operating mechanism (without masking frame)



Door cut-out for toggle lever operating mechanism (with masking frame)

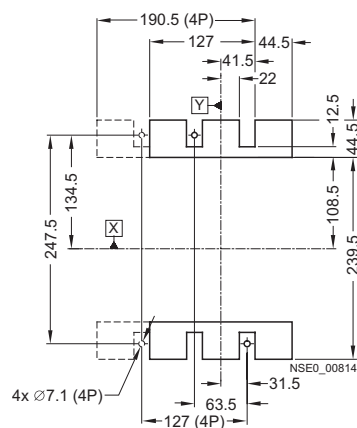


Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

$D > A$ from table + $(P \times 5)$

	A
Circuit-breaker only	150
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	150
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

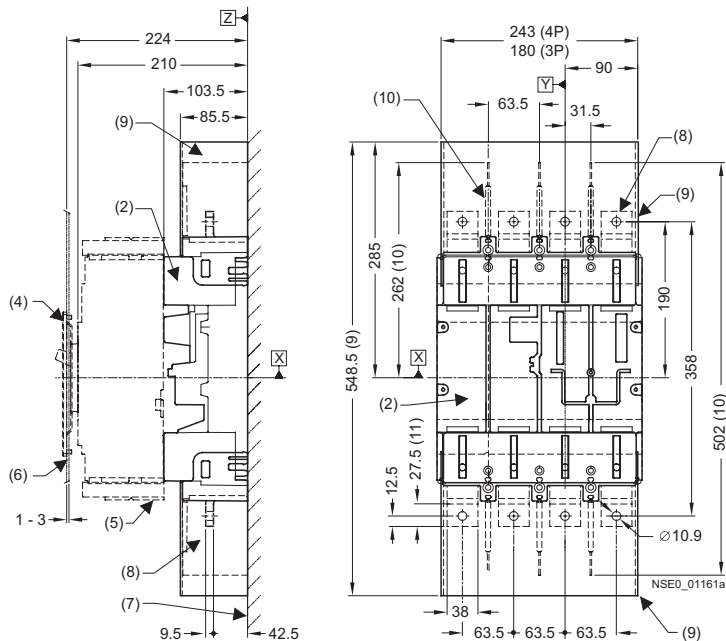
Hole pattern and cut-out for circuit-breaker (with rear flat bar connection)



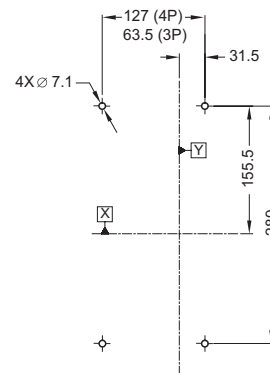
VL630, 3- and 4-pole, up to 630 A

Plug-in bases and accessories

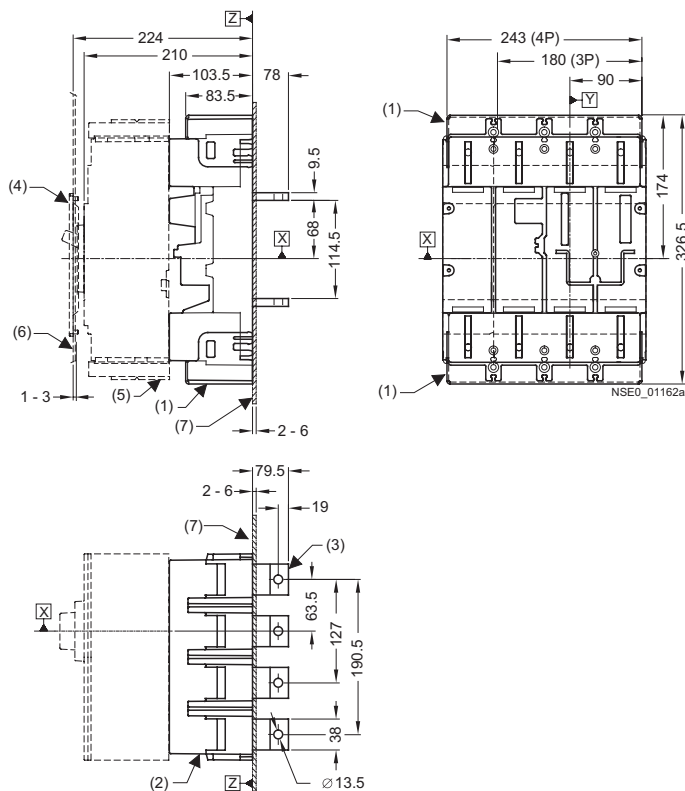
Plug-in base with terminal covers
on the front



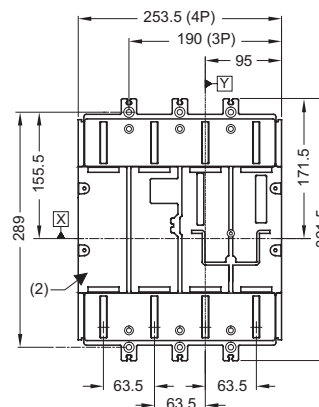
Hole pattern for plug-in base
for front connecting bars



Plug-in base, with terminal covers,
rear flat connecting bars



Plug-in base



- (1) Plug-in base with rear terminal covers
- (2) Plug-in base
- (3) Plug-in base with rear flat connecting bars
- (4) Masking frame for door cut-out
(for circuit-breaker with toggle lever)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Plug-in base with front connecting bars
- (9) Plug-in base with terminal covers
on the front
- (10) Phase barrier
- (11) Terminal face

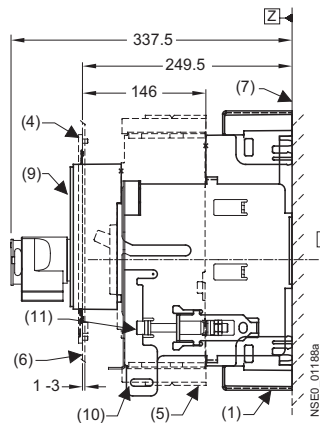
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

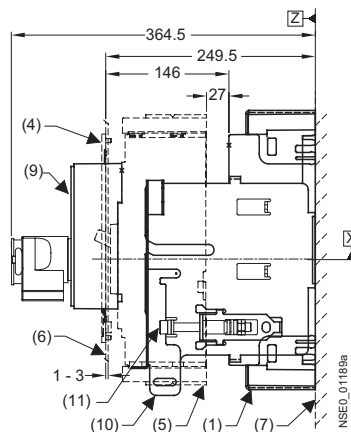
VL630, 3- and 4-pole, up to 630 A

Withdrawable version and accessories

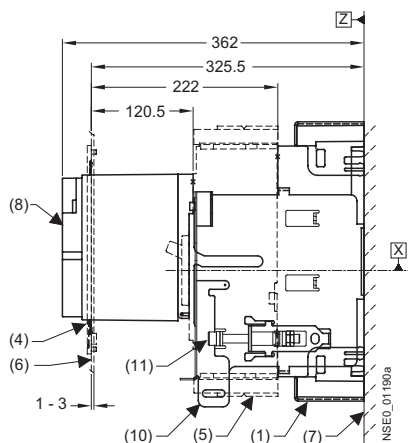
SENTRON VL630 circuit-breakers with rotary operating mechanism, withdrawable version (connected position)



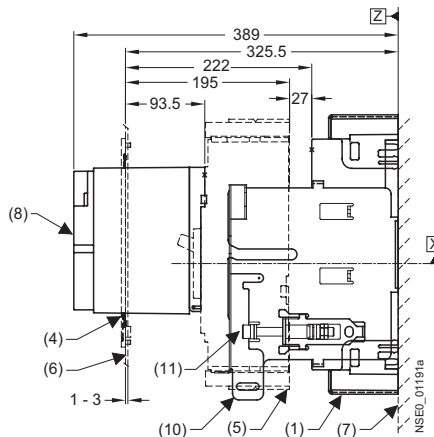
SENTRON VL630 circuit-breakers with rotary operating mechanism, withdrawable version (disconnected position)



SENTRON VL630 circuit-breakers with motorized operating mechanism with spring energy store, withdrawable version (connected position)



SENTRON VL630 circuit-breakers with motorized operating mechanism with spring energy store, withdrawable version (disconnected position)



- (1) Plug-in base with terminal covers
- (4) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Motorized operating mechanism with energy store
- (9) Front-operated rotary operating mechanism
- (10) Locking device for racking mechanism
- (11) Racking mechanism

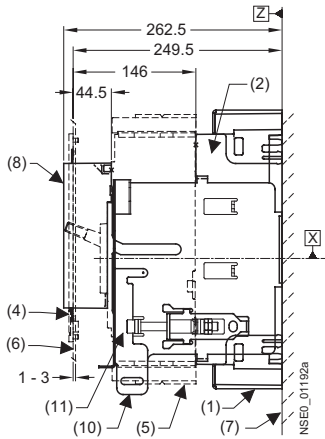
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

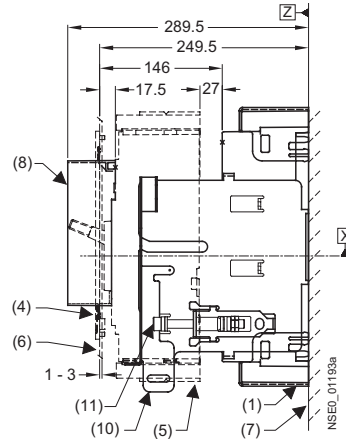
VL630, 3- and 4-pole, up to 630 A

Withdrawable version and accessories

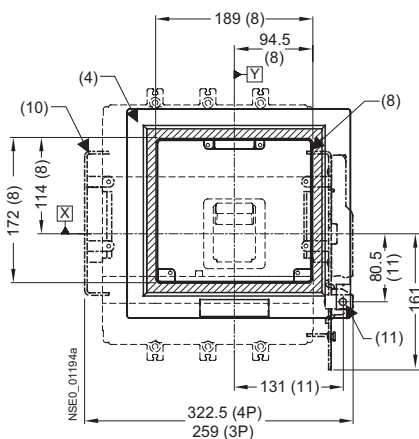
SENTRON VL630 circuit-breakers with extended escutcheon, withdrawable version (connected position)



SENTRON VL630 circuit-breakers with extended escutcheon, withdrawable version (disconnected position)



SENTRON VL630 circuit-breakers with extended escutcheon, withdrawable version



- (1) Plug-in base with terminal covers
- (2) Plug-in base
- (4) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Extended escutcheon
- (10) Locking device for racking mechanism
- (11) Racking mechanism

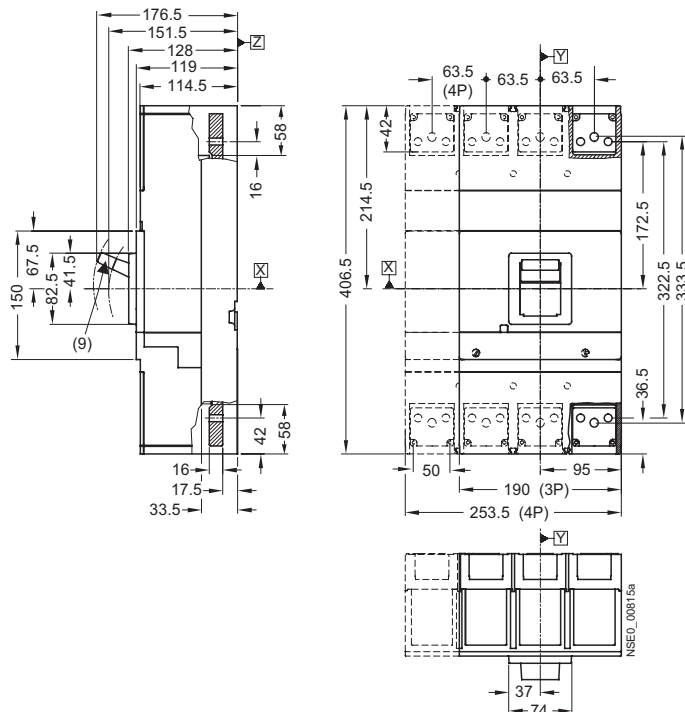
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

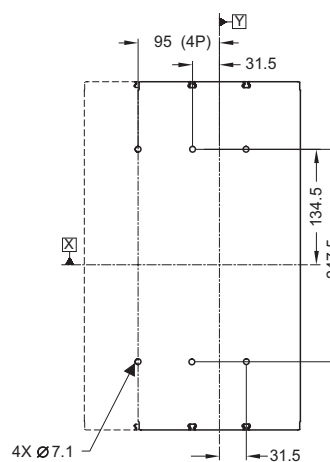
VL800, 3- and 4-pole, up to 800 A

Circuit-breakers

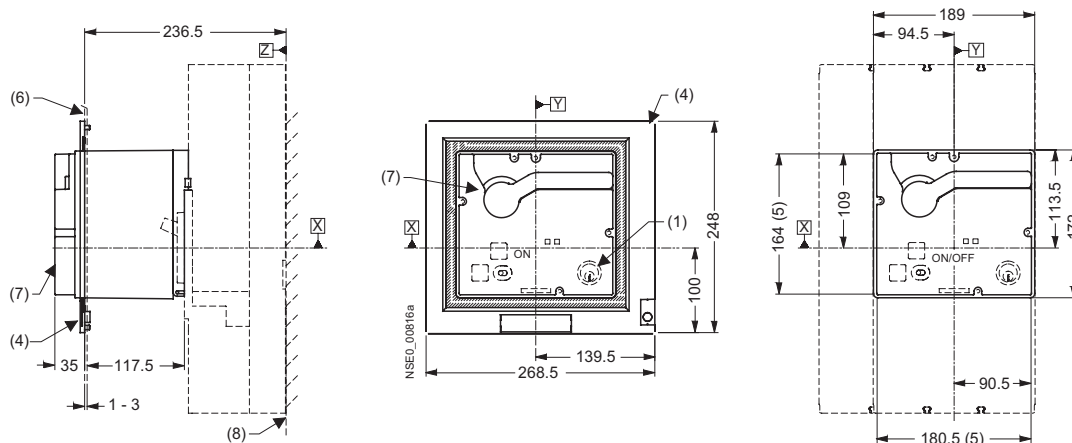
SENTRON VL800 circuit-breakers



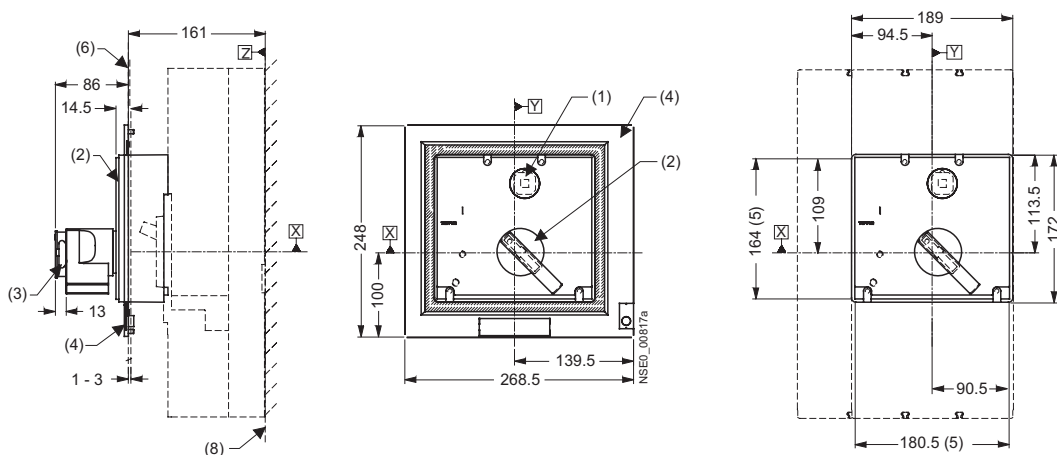
Circuit-breaker installation instructions



Motorized operating mechanism with spring energy store



Front-operated rotary operating mechanism



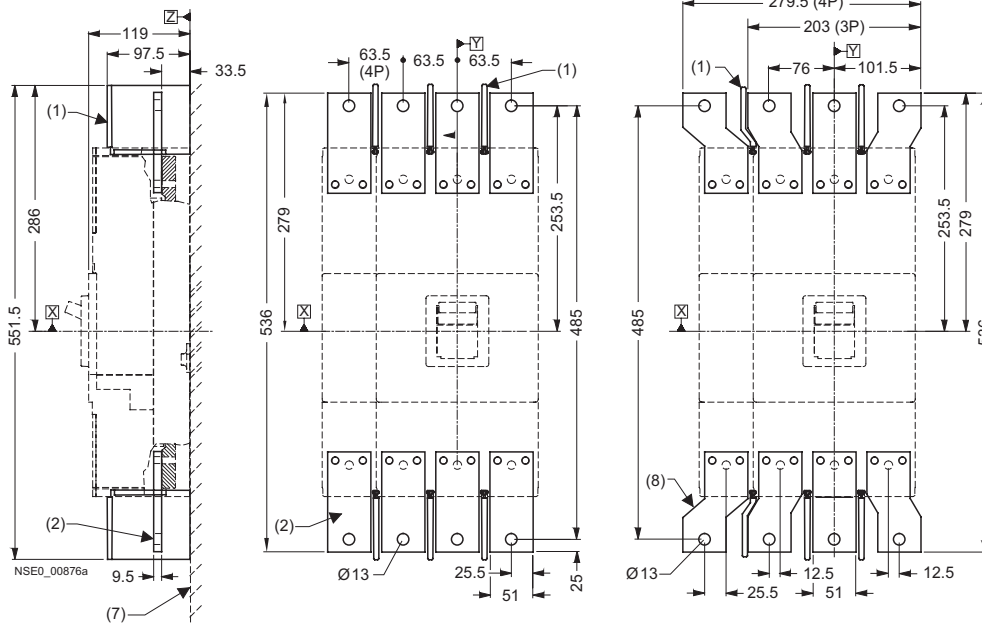
- (1) Safety lock
- (2) Front-operated rotary operating mechanism
- (3) Padlock
- (4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (5) Step for cover
- (6) Outside surface of cabinet door
- (7) Motorized operating mechanism with spring energy store
- (8) Installation level
- (9) Toggle lever

SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

VL800, 3- and 4-pole, up to 800 A

Terminals and phase barriers



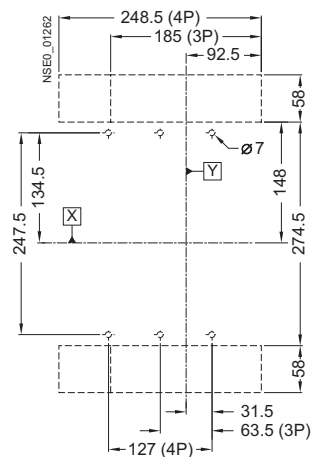
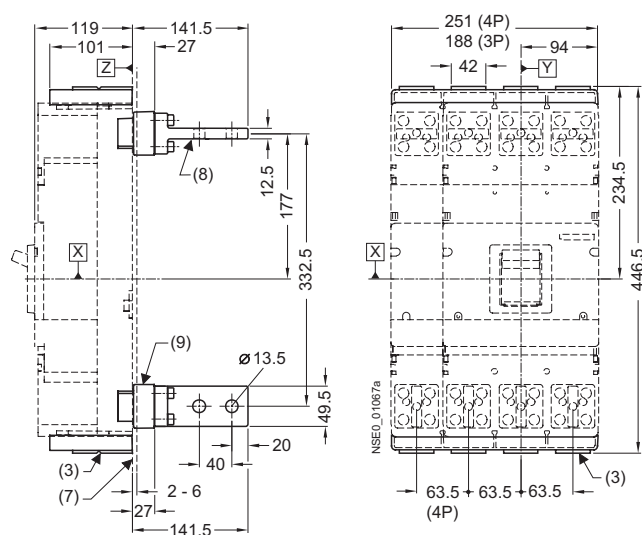
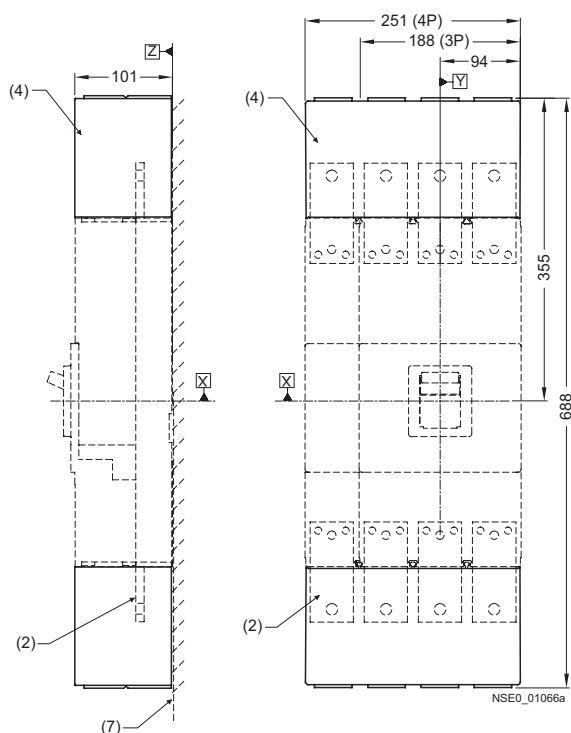
- (1) Phase barrier
- (2) Front connecting bars
- (7) Installation level
- (8) Flared front busbar connecting bars

SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

VL800, 3- and 4-pole, up to 800 A

Terminal covers

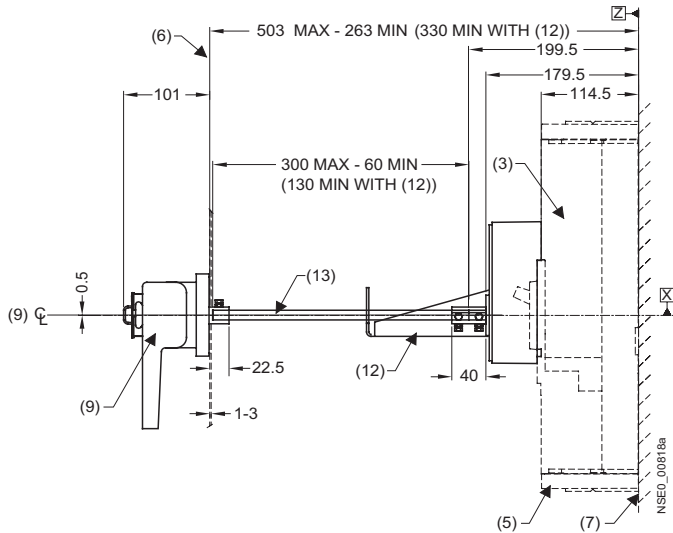


- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Terminal covers (extended)
- (7) Installation level
- (8) Rear terminal (mounted horizontally)
- (9) Rear terminal (mounted vertically)

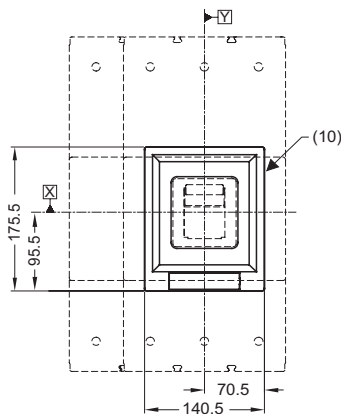
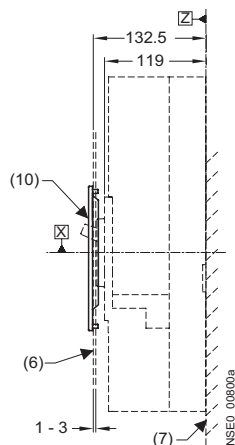
VL800, 3- and 4-pole, up to 800 A

Accessories

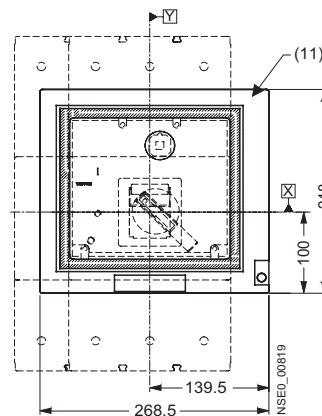
Door-coupling rotary operating mechanism



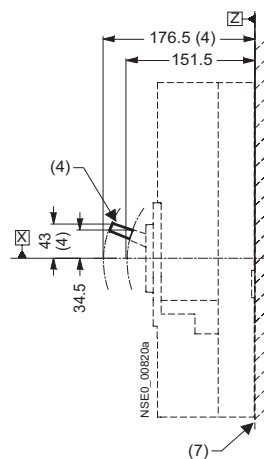
Masking frame for door cut-out for circuit-breaker with toggle lever



Masking frame for door cut-out for circuit-breaker with operating mechanism



Toggle lever extension



- (3) Circuit-breaker
- (4) Toggle lever extension
- (5) Terminal covers (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (9) Door-coupling rotary operating mechanism
- (10) Masking frame for door cut-out (for circuit-breaker with toggle lever)
- (11) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (12) Support bracket
- (13) Center line of operating shaft

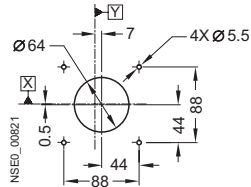
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

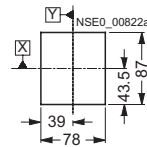
VL800, 3- and 4-pole, up to 800 A

Door cut-outs

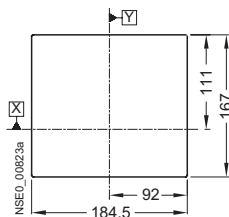
Door cut-out Door-coupling rotary operating mechanism



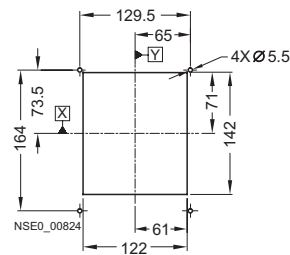
Door cut-out for toggle lever (without masking frame)



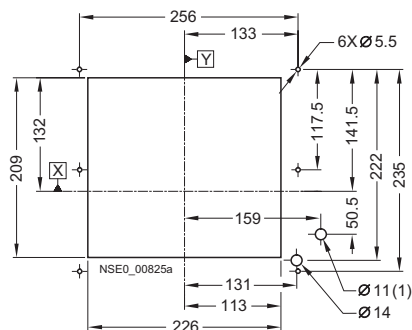
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (without masking frame)



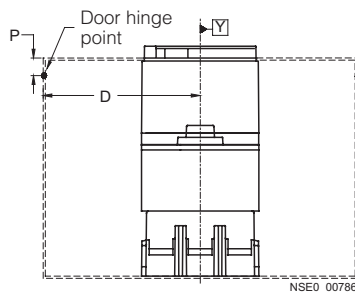
Door cut-out for toggle lever (with masking frame)



Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



(1) Withdrawable version only



Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

$D > A$ from table + $(P \times 5)$

	A
Circuit-breaker only	150
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	150
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

SENTRON VL Circuit-Breakers up to 1600 A

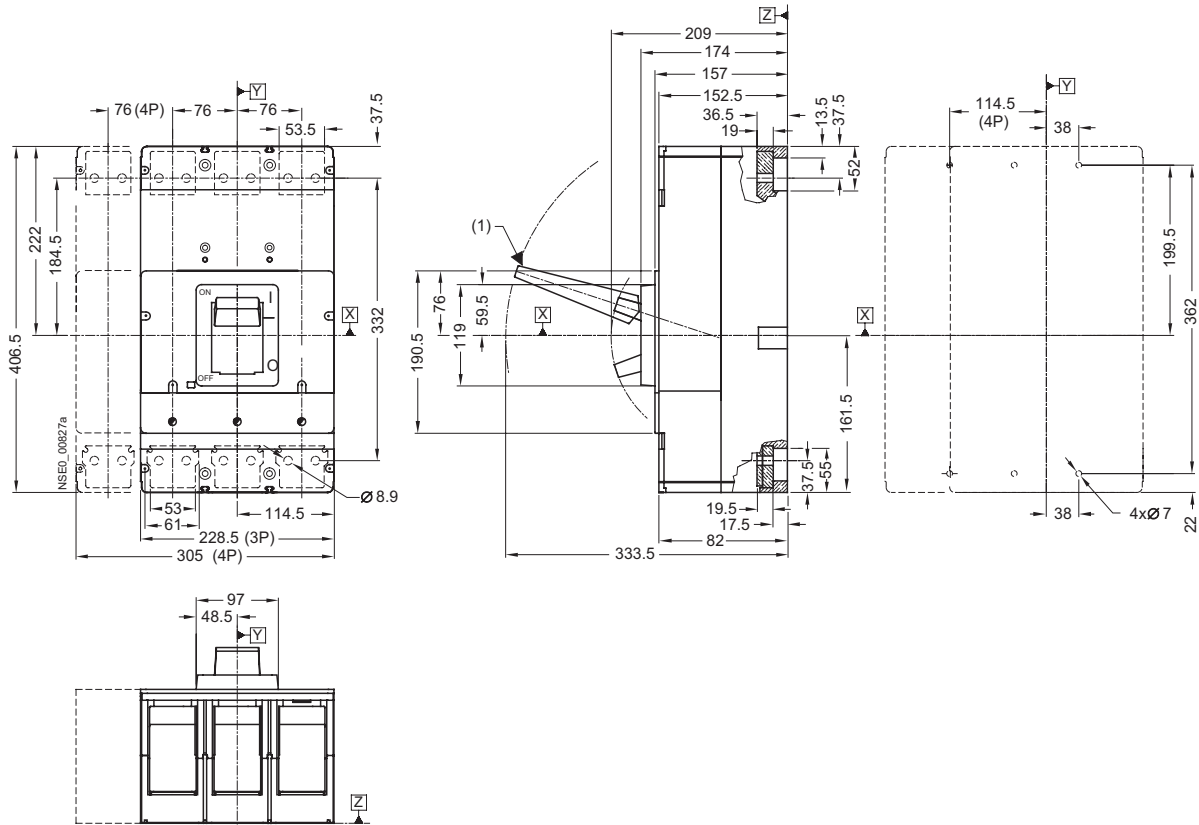
Project planning aids

VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Circuit-breakers

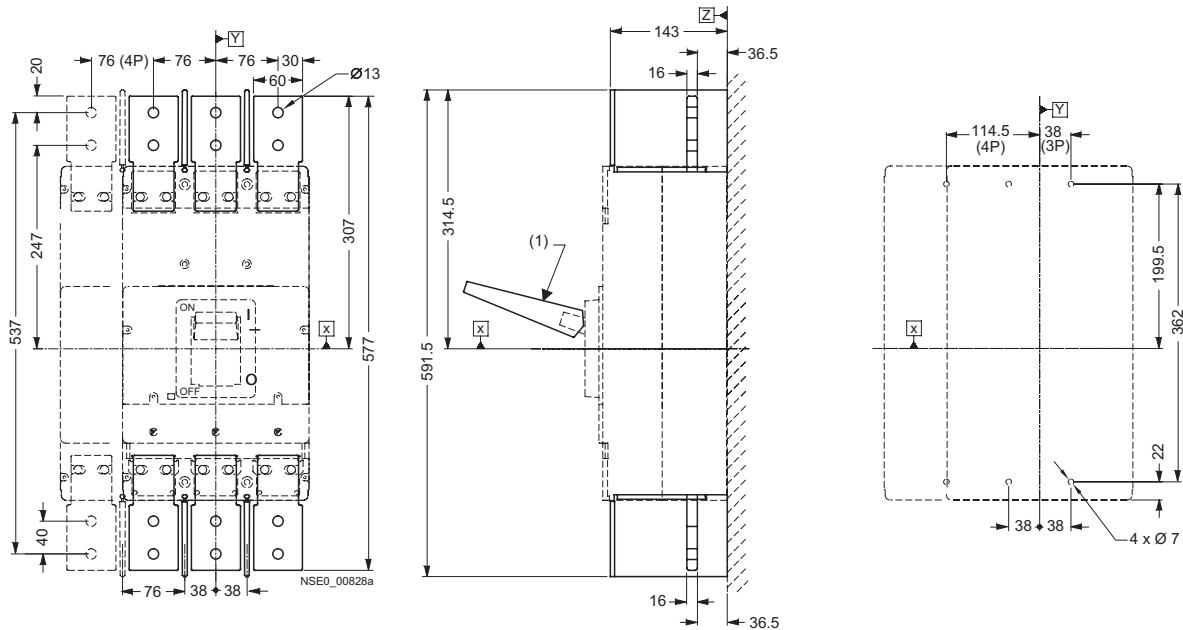
SENTRON VL1250 circuit-breakers

Circuit-breaker installation instructions



SENTRON VL1600 circuit-breakers

Circuit-breaker installation instructions



(1) Toggle lever extension

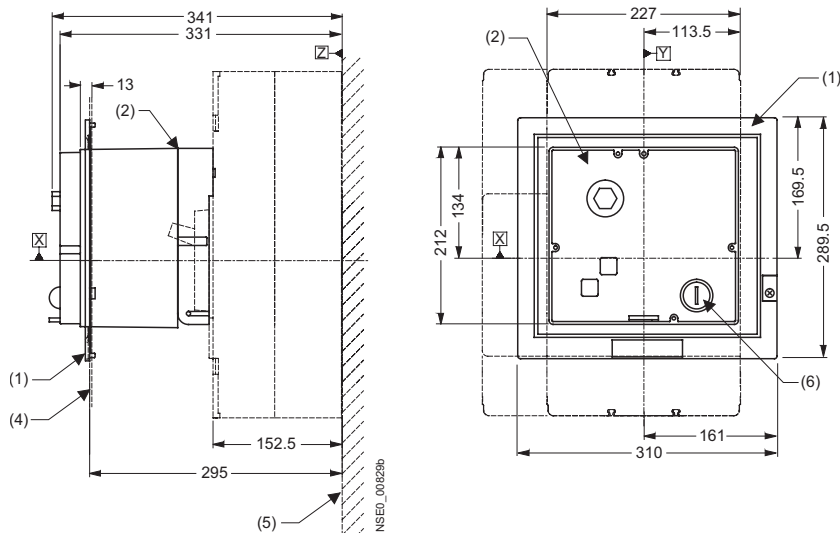
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

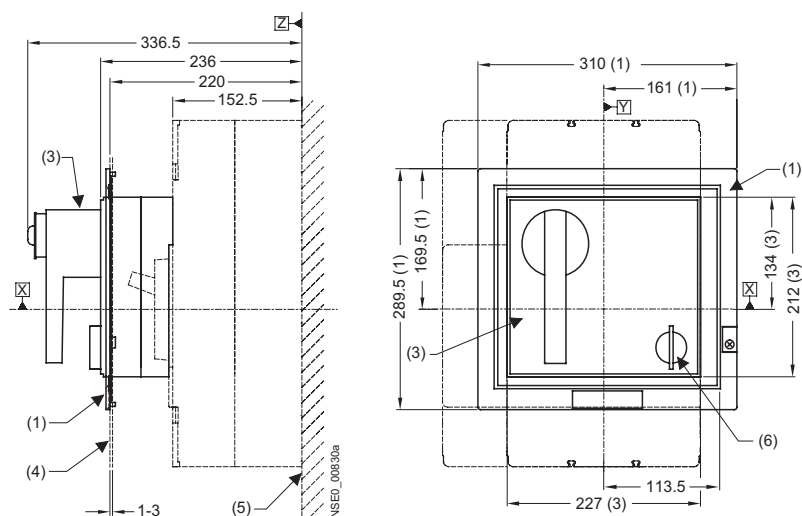
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Operating mechanisms

Motorized operating mechanism



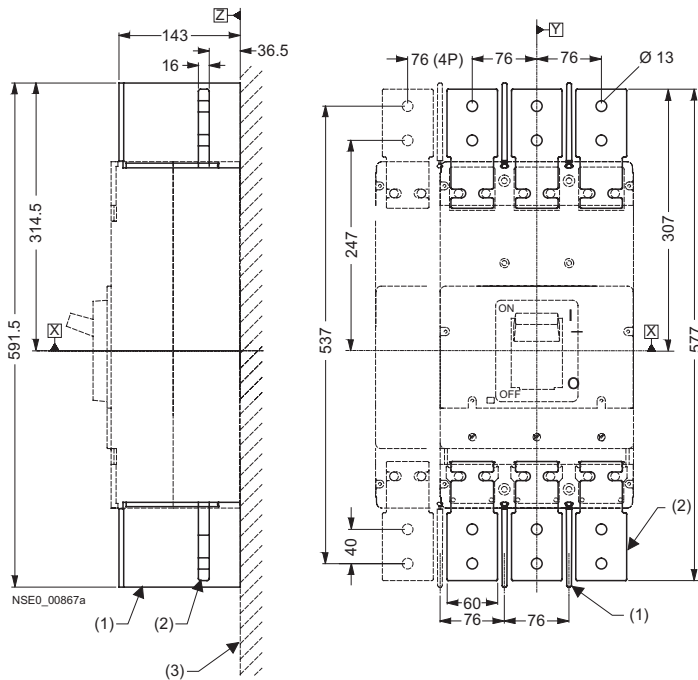
Front-operated rotary operating mechanism



- (1) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
- (2) Motorized operating mechanism
- (3) Front-operated rotary operating mechanism
- (4) Outside surface of cabinet door
- (5) Installation level
- (6) Safety lock

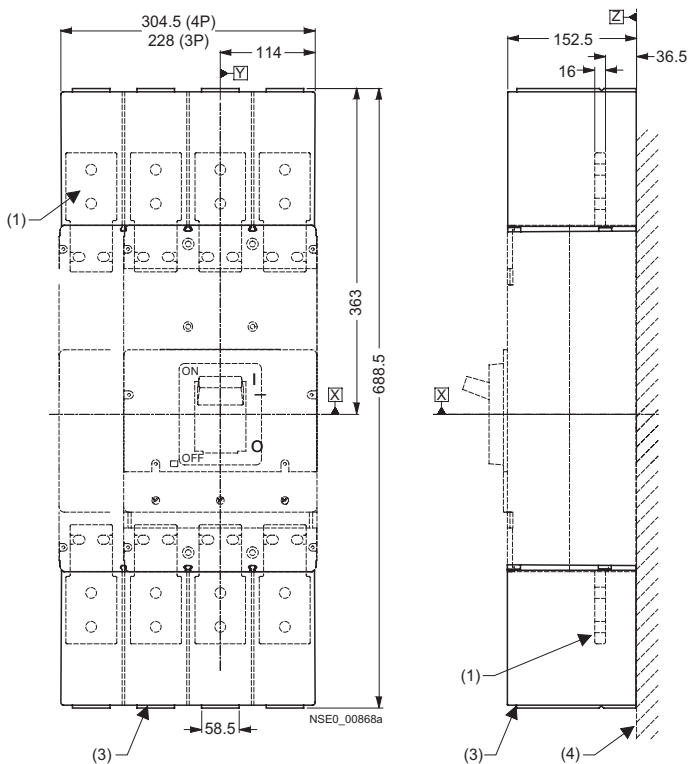
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Terminals and phase barriers



- (1) Phase barrier
- (2) Front connecting bars
- (3) Installation level

Terminal covers



- (1) Front connecting bars
- (2) Terminal covers (short) – only for SENTRON VL1250 circuit-breakers
- (3) Terminal covers (extended)
- (4) Installation level
- (5) Rear terminal (mounted horizontally)
- (6) Rear terminal (mounted vertically)
- (7) Phase barriers

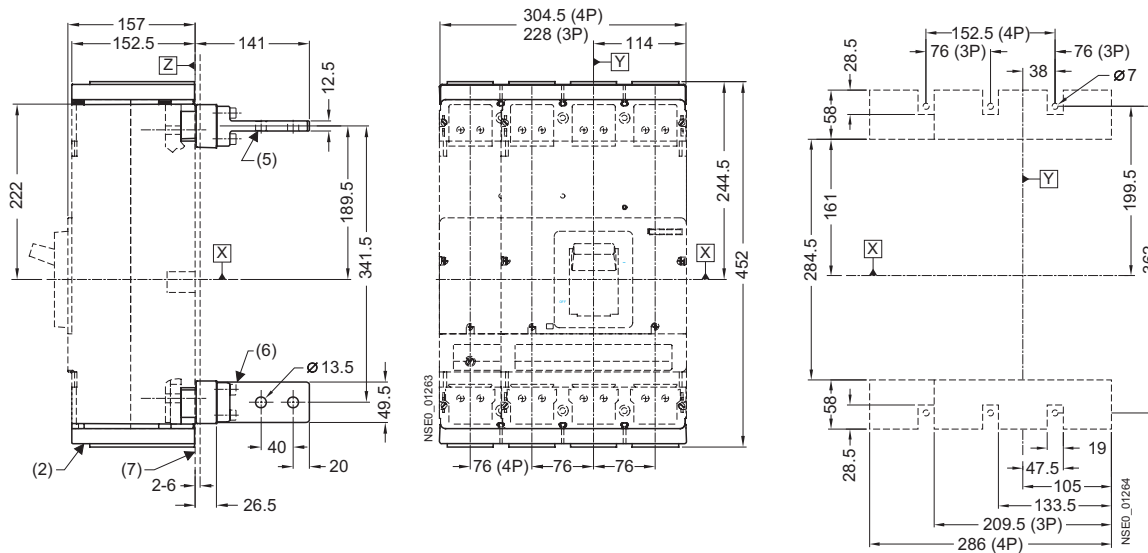
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

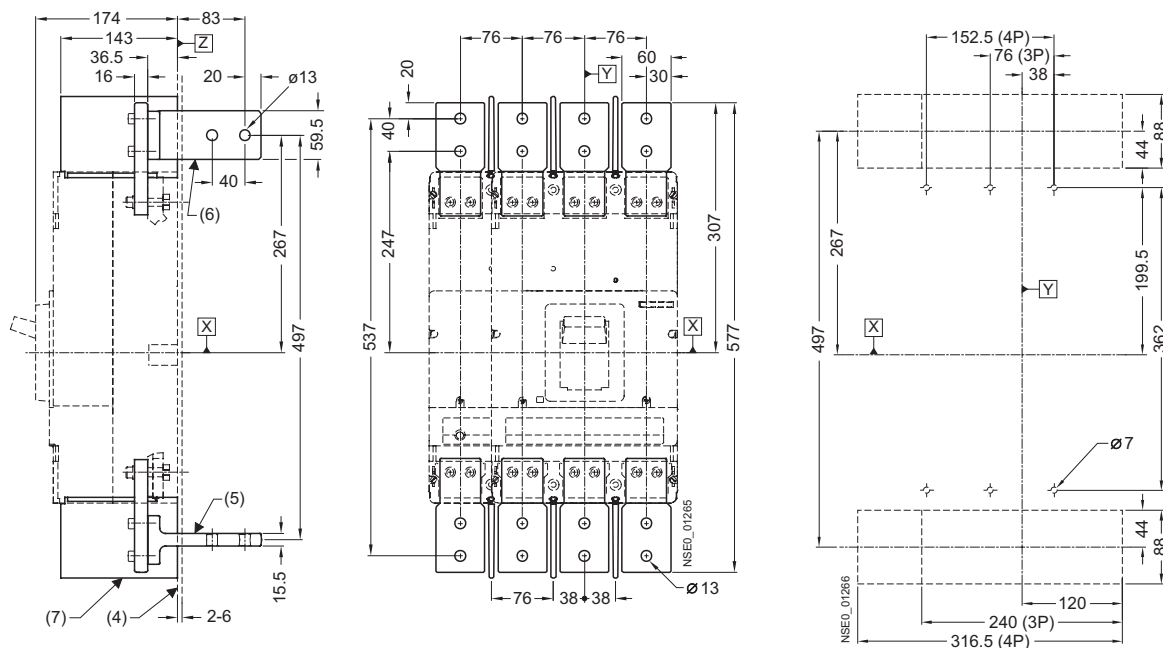
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Terminal covers

SENTRON VL1250 circuit-breakers only



SENTRON VL1600 circuit-breakers only

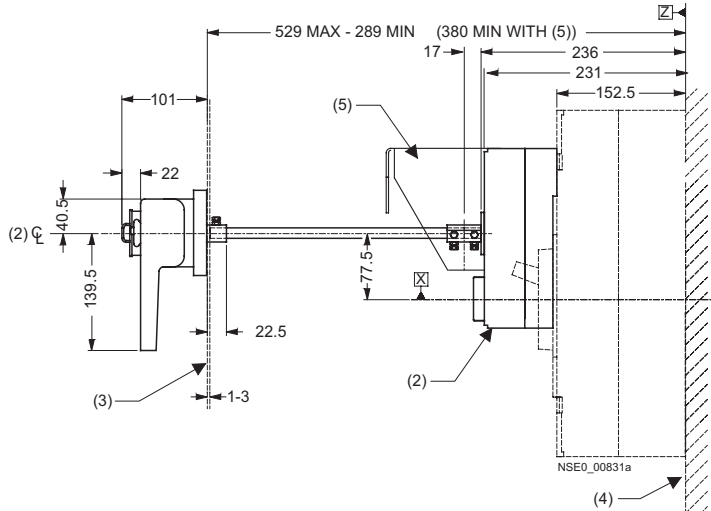


- (1) Front connecting bars
- (2) Terminal covers (short) – only for SENTRON VL1250 circuit-breaker
- (3) Terminal covers (extended)
- (4) Installation level
- (5) Rear terminal (mounted horizontally)
- (6) Rear terminal (mounted vertically)
- (7) Phase barriers

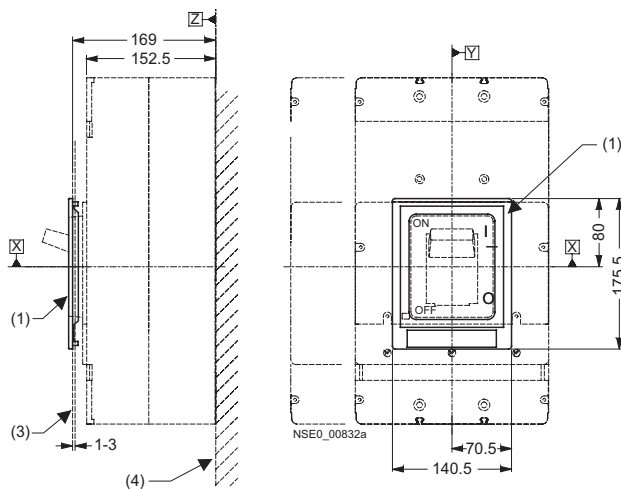
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Accessories

SENTRON VL1250 circuit-breaker Door-coupling rotary operating mechanism



Masking frame for door cut-out for circuit-breaker with toggle lever



- (1) Masking frame for door cut-out
(for circuit-breaker with toggle lever)
- (2) Door-coupling rotary operating mechanism
- (3) Outside surface of cabinet door
- (4) Installation level
- (5) Support bracket

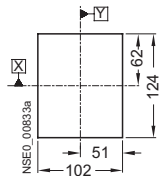
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

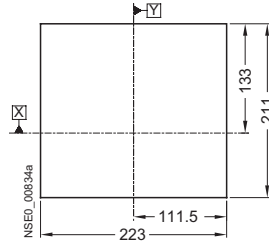
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Door cut-outs

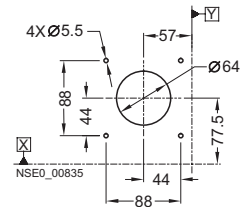
Door cut-out for toggle lever
(without masking frame)



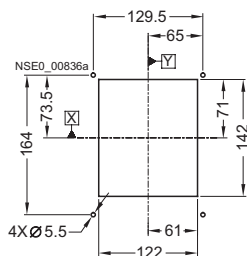
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism
(without masking frame)



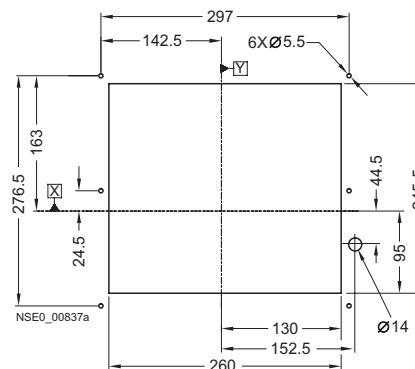
Door cut-out for door-coupling rotary operating mechanism



Door cut-out for toggle lever
(with masking frame)

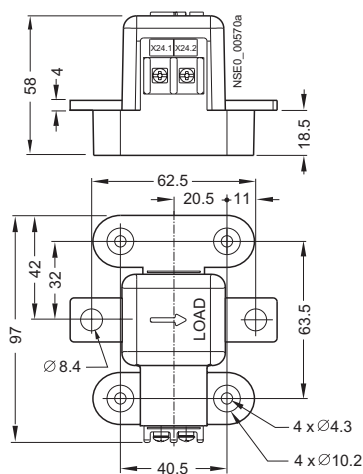


Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism and extended escutcheon (with masking frame)

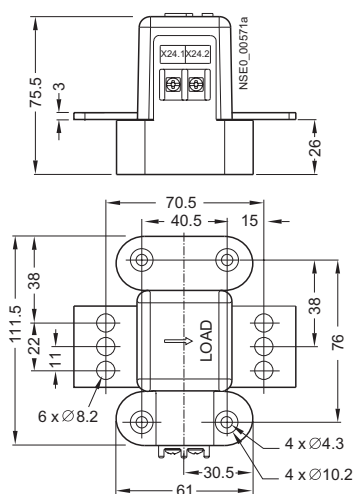


Current transformers

Current transformers for neutral conductors for ground-fault protection in 4-wire three-phase systems for SENTRON VL160/VL250 circuit-breakers



Current transformers for neutral conductors for ground-fault protection in 4-wire three-phase systems for SENTRON VL630/VL800 circuit-breakers



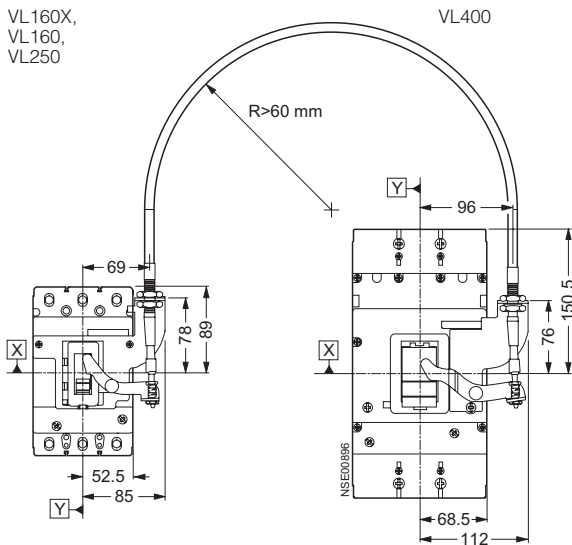
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

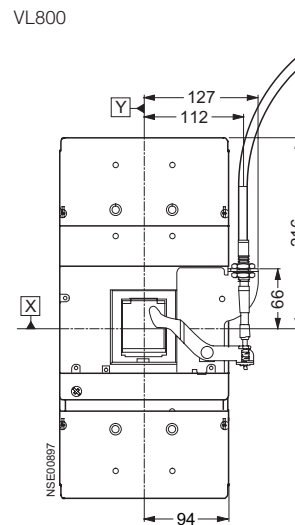
VL160X to VL800, 3- and 4-pole, up to 800 A

Interlock with Bowden wire

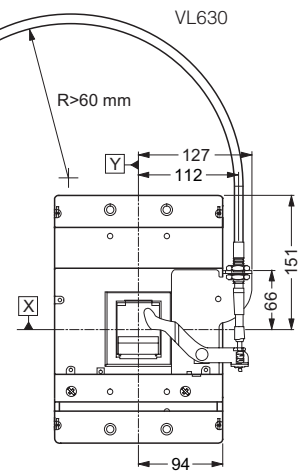
VL160X,
VL160,
VL250



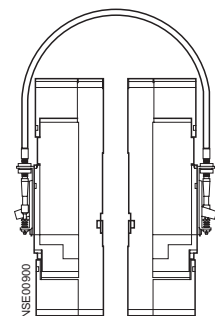
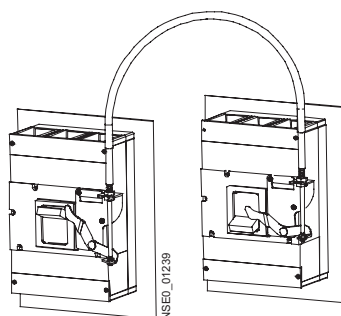
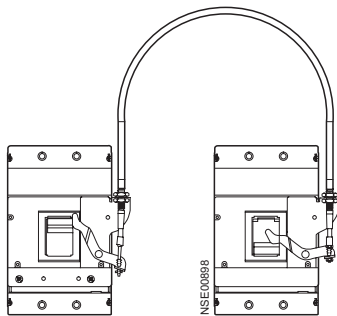
VL800



VL630



Combination options



	3VL9 300-8LA00 for VL160X, VL160 and VL250	3VL9 400-8LA00 for VL400	3VL9 600-8LA00 for VL630 and VL800	3VL9 800-8LA00 for VL1250 and VL1600
3VL9 300-8LA00 for VL160X, VL160 and VL250				
3VL9 400-8LA00 for VL400				
3VL9 600-8LA00 for VL630 and VL800				
3VL9 800-8LA00 for VL1250 and VL1600				

Combination possible

SENTRON VL Circuit-Breakers up to 1600 A

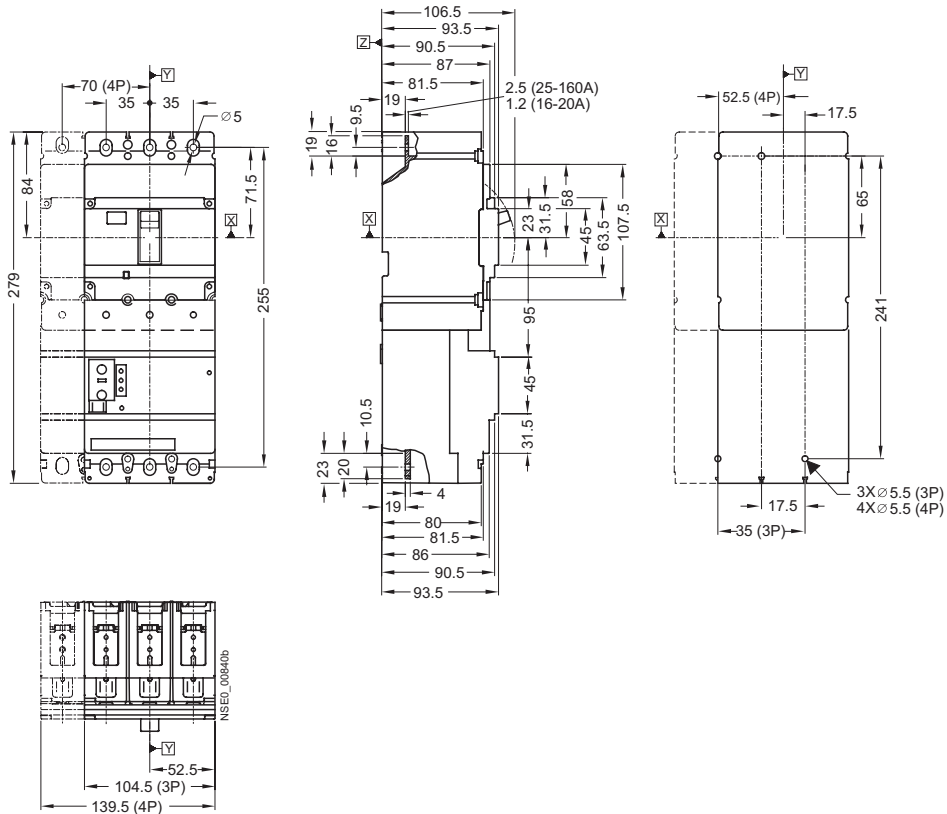
Project planning aids

VL160X with RCD module, 3- and 4-pole, up to 160 A

Circuit-breakers

**SENTRON VL160X circuit-breakers
with RCD module**

Circuit-breaker installation instructions

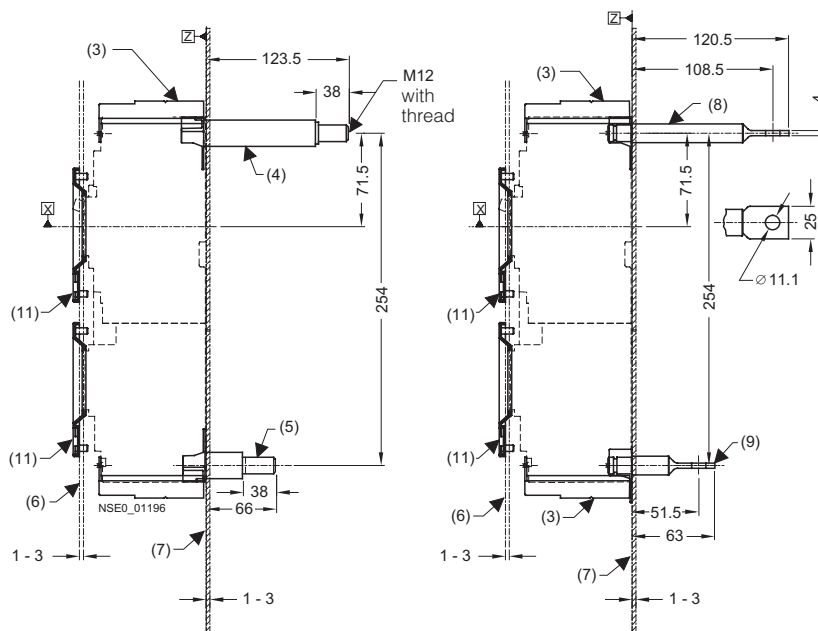
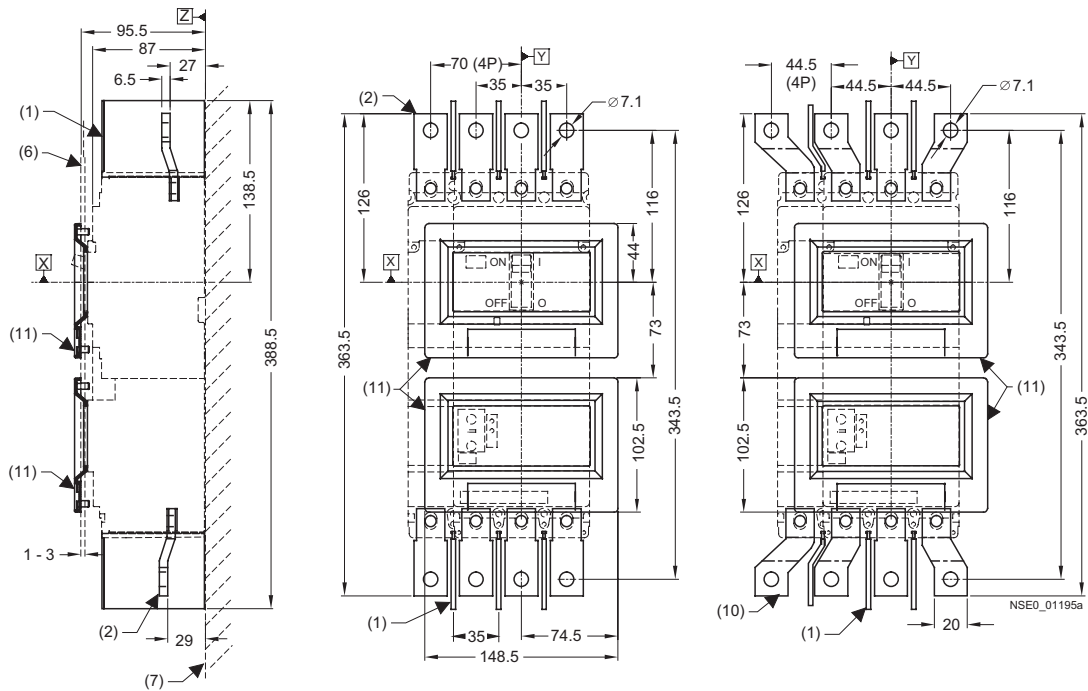


SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

VL160X with RCD module, 3- and 4-pole, up to 160 A

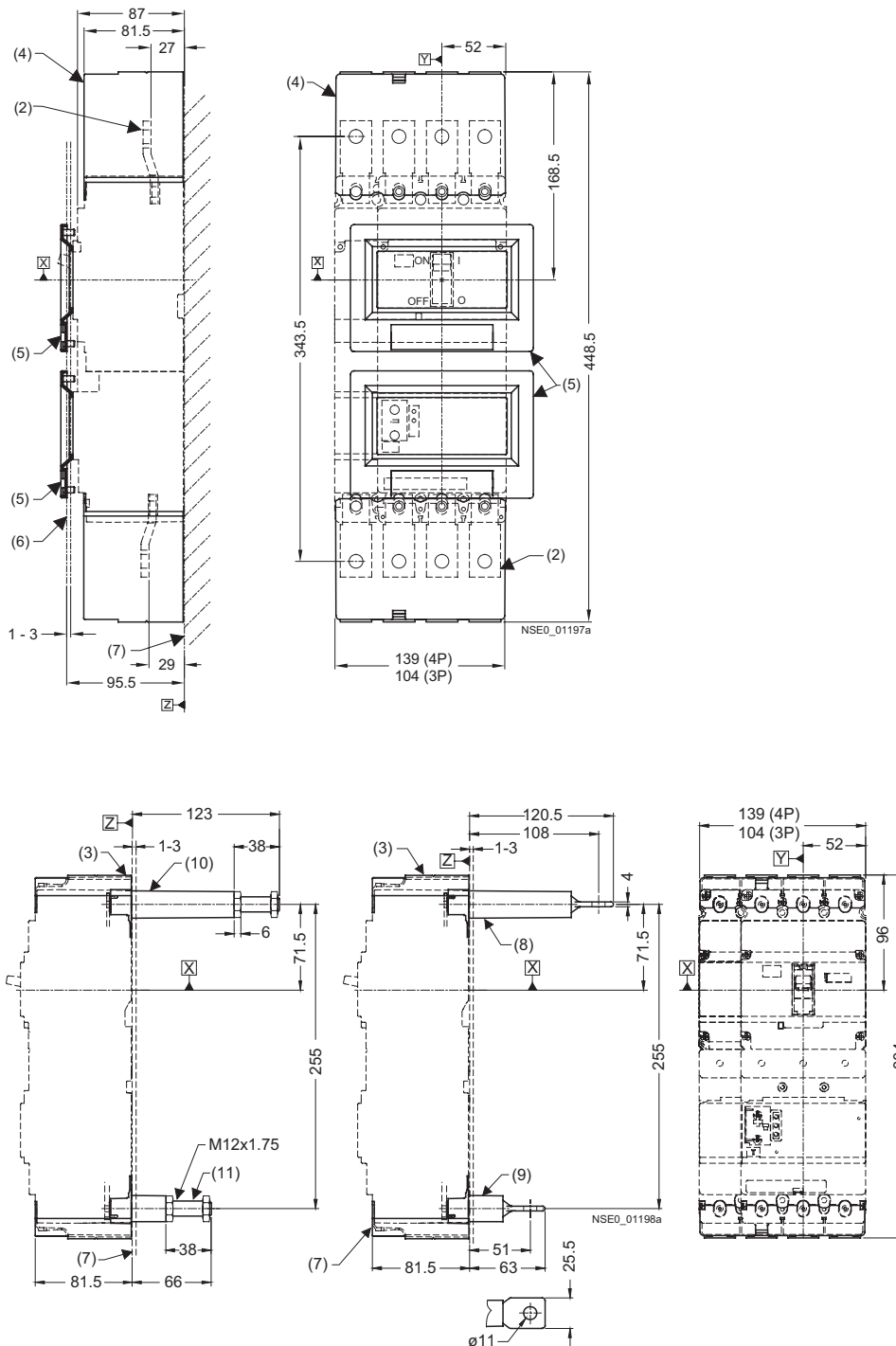
Terminals and phase barriers



- (1) Phase barrier
- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Threaded rear terminals, round stock (long)
- (5) Threaded rear terminals, round stock (short)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Rear flat connector, (long)
- (9) Rear flat connector, (short)
- (10) Flared front busbar connecting bars
- (11) Masking frame for door cut-out
(for circuit-breaker with RCD module)

VL160X with RCD module, 3- and 4-pole, up to 160 A

Terminal covers



- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Terminal covers (extended)
- (5) Masking frame for door cut-out
(for circuit-breaker with RCD module)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Rear terminal, long flat connector
- (9) Rear terminal, short flat connector
- (10) Rear terminal, long
- (11) Rear terminal, short

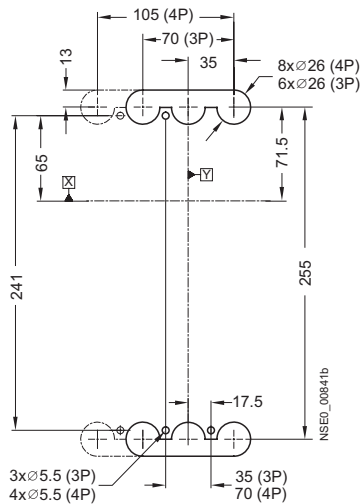
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

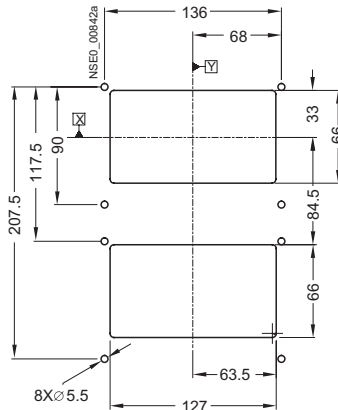
VL160X with RCD module, 3- and 4-pole, up to 160 A

Door cut-outs

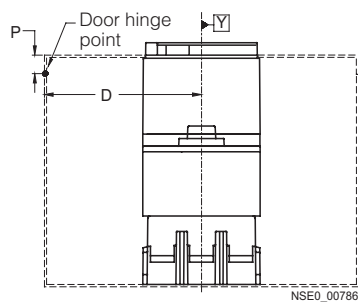
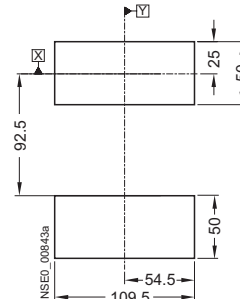
Hole pattern, cut-out for rear terminals



Door cut-out for toggle lever (with masking frame)



Door cut-out for toggle lever (without masking frame)

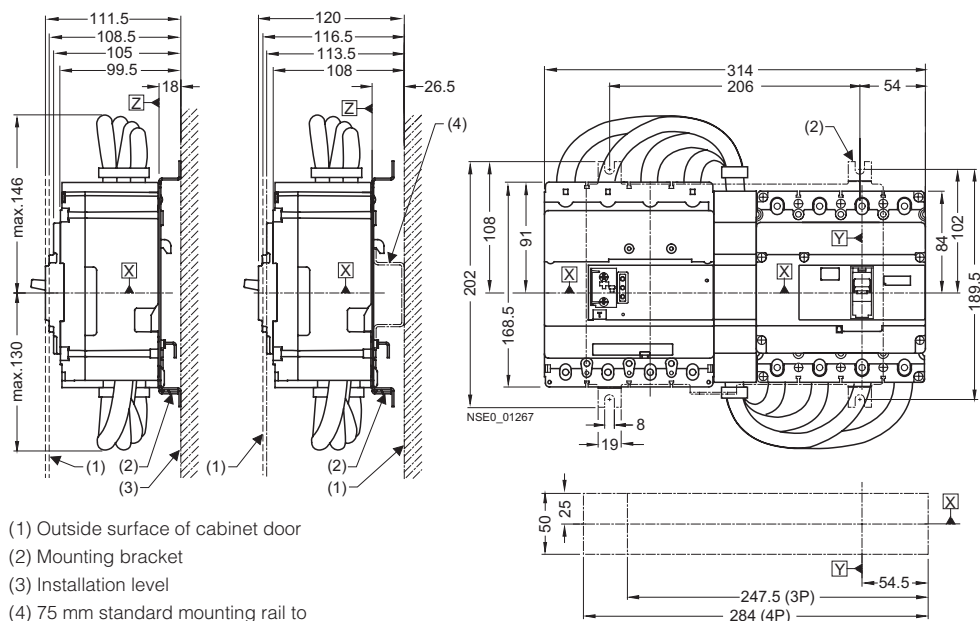


$D > A$ from table + $(P \times 5)$

Note:
a minimum distance between
reference point Y and the door
hinge is required for the door cut-outs.

	A
Circuit-breaker only	100
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	100
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200

Circuit-breaker with laterally attached RCD module



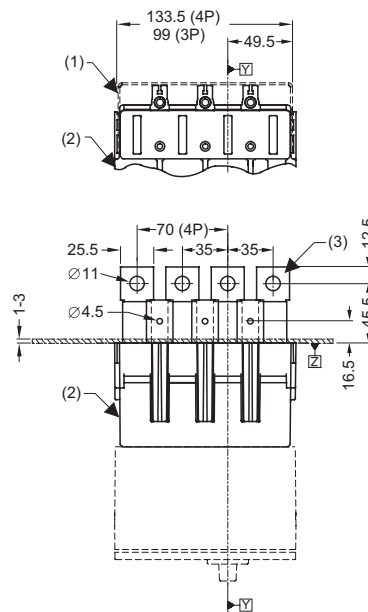
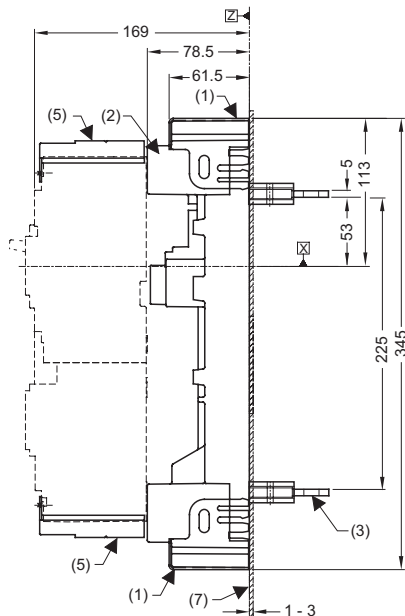
- (1) Outside surface of cabinet door
- (2) Mounting bracket
- (3) Installation level
- (4) 75 mm standard mounting rail to
DIN 50023
(to be provided by customer)

SENTRON VL Circuit-Breakers up to 1600 A

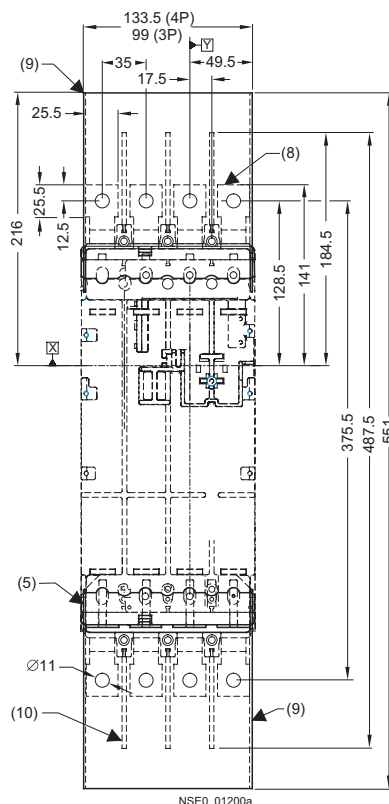
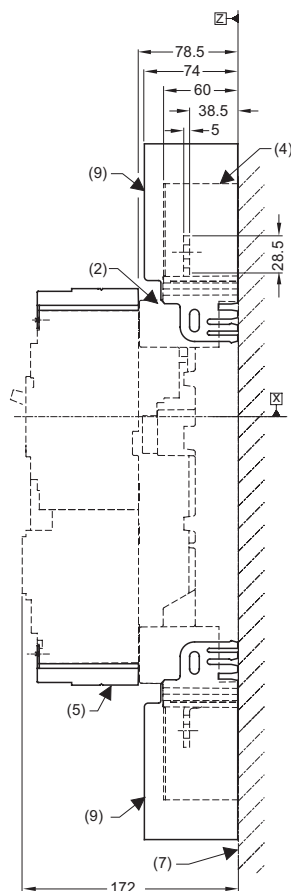
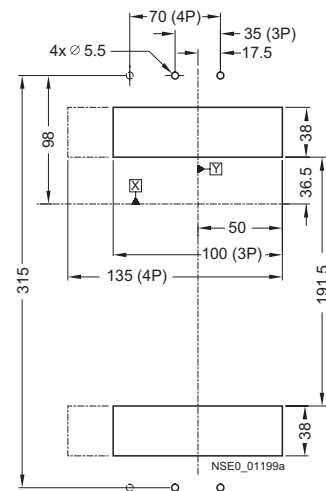
Project planning aids

VL160X with RCD module, 3- and 4-pole, up to 160 A

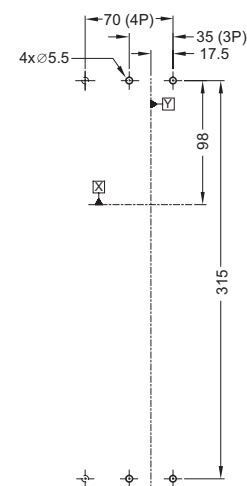
Plug-in base and accessories



Hole pattern and cut-out for plug-in base with rear flat bar connection



Hole pattern for plug-in base with front connecting bars



- (1) Plug-in base with rear terminal covers
- (2) Plug-in base for circuit-breaker with RCD module
- (3) Plug-in base with rear flat bar connection
- (4) Masking frame for door cut-out (for circuit-breaker with RCD module)
- (5) Terminal cover (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Plug-in base with front connecting bars
- (9) Plug-in base with terminal covers on the front

SETRON VL Circuit-Breakers up to 1600 A

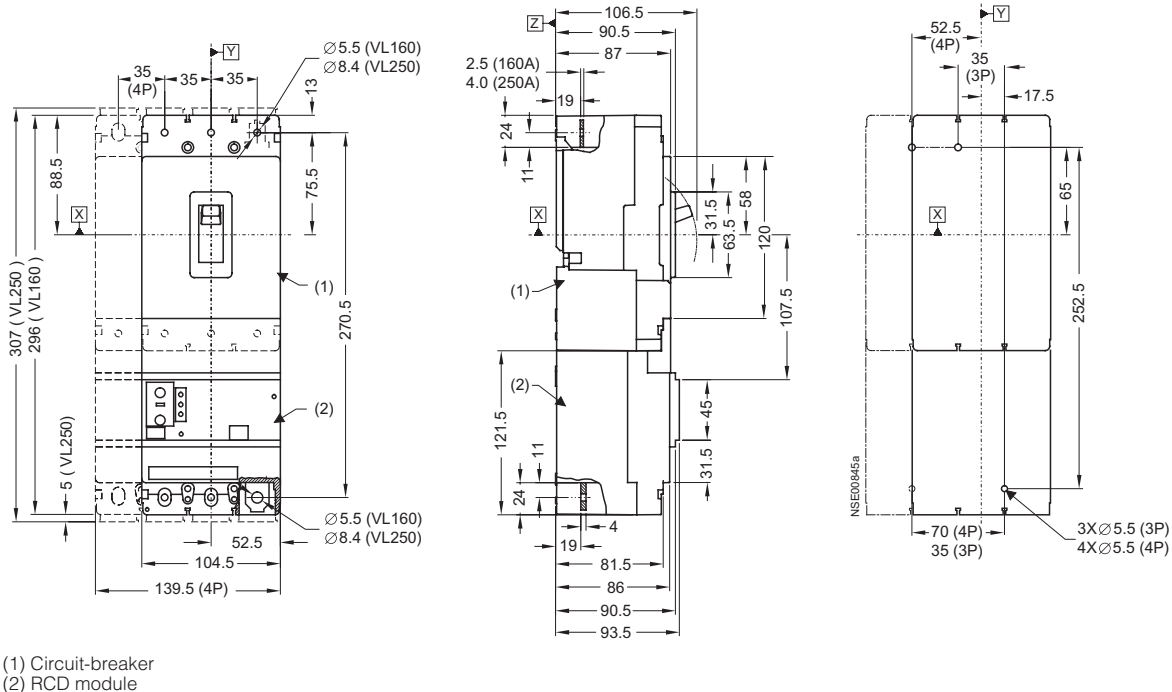
Project planning aids

VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

Circuit-breakers

SETRON VL160 and VL250 circuit-breakers with RCD module

Circuit-breaker installation instructions



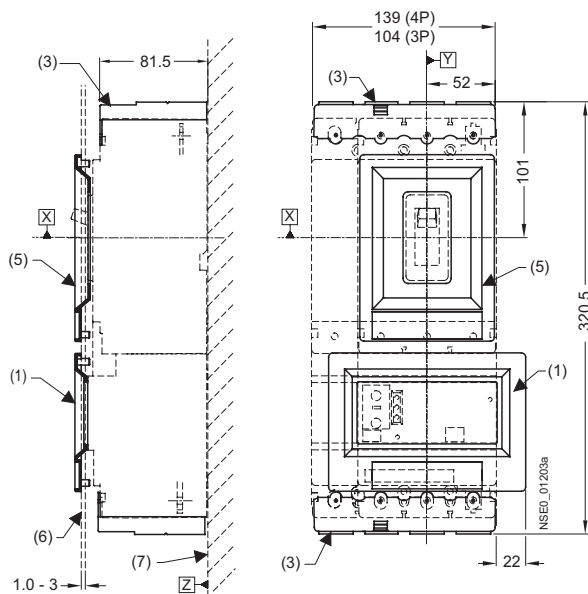
Note for the SETRON VL250 circuit-breaker: The 5 mm extension (overall height 307 mm) at each end only applies when using box terminals and round cable terminals.

SETRON VL Circuit-Breakers up to 1600 A

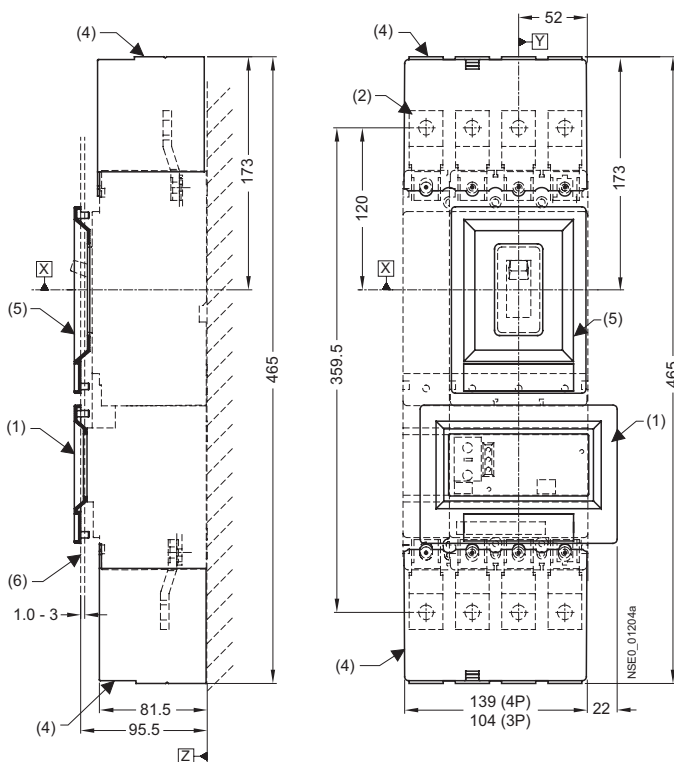
Project planning aids

VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

Terminal covers



For dimensions of the lower masking frame, see bottom of Page 4/109.



- (1) Masking frame for door cut-out (for circuit-breaker with RCD module)
- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Terminal covers (extended)
- (5) Masking frame for door cut-out (for circuit-breaker with toggle lever)
- (6) Outside surface of cabinet door
- (7) Installation level

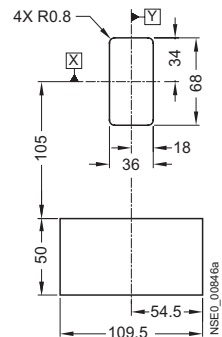
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

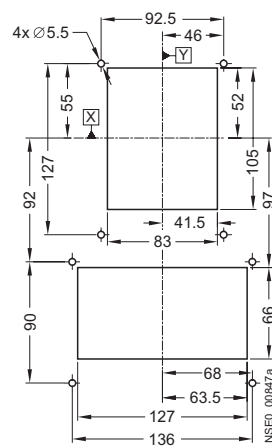
VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

Door cut-outs

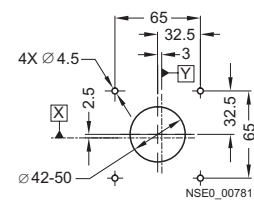
Door cut-out for toggle lever (without masking frame)



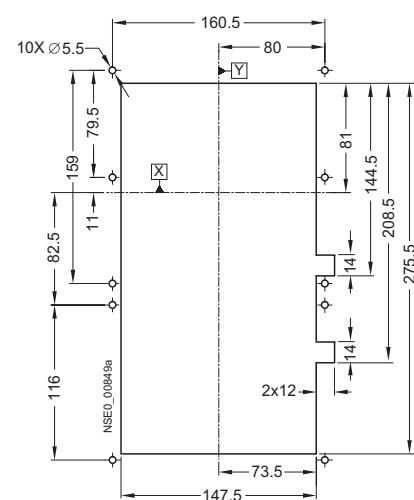
Door cut-out for toggle lever (with masking frame)



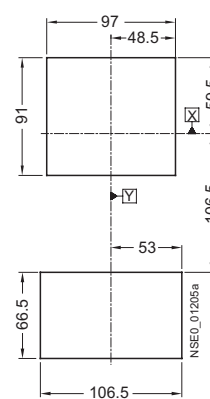
Door cut-out for door-coupling rotary operating mechanism



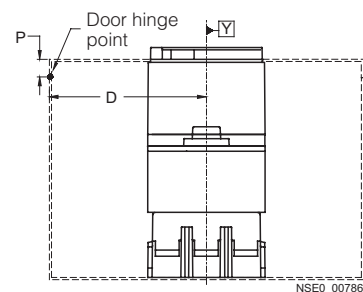
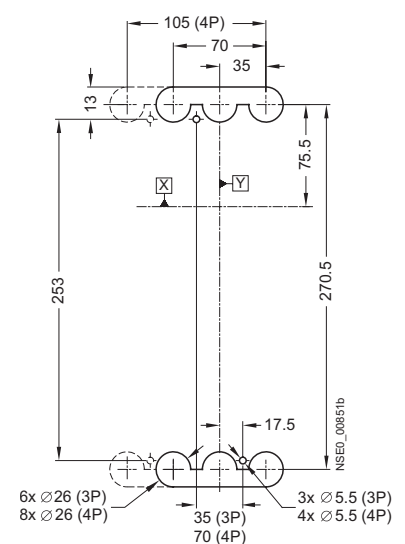
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (with masking frame)



Door cut-out for front-operated rotary operating mechanism (without masking frame)



Hole pattern, cut-out for rear connecting studs



Note:
a minimum distance between
reference point Y and the door
hinge is required for the door cut-outs.

$D > A$ from table + $(P \times 5)$

	A
Circuit-breaker only	100
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	100
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

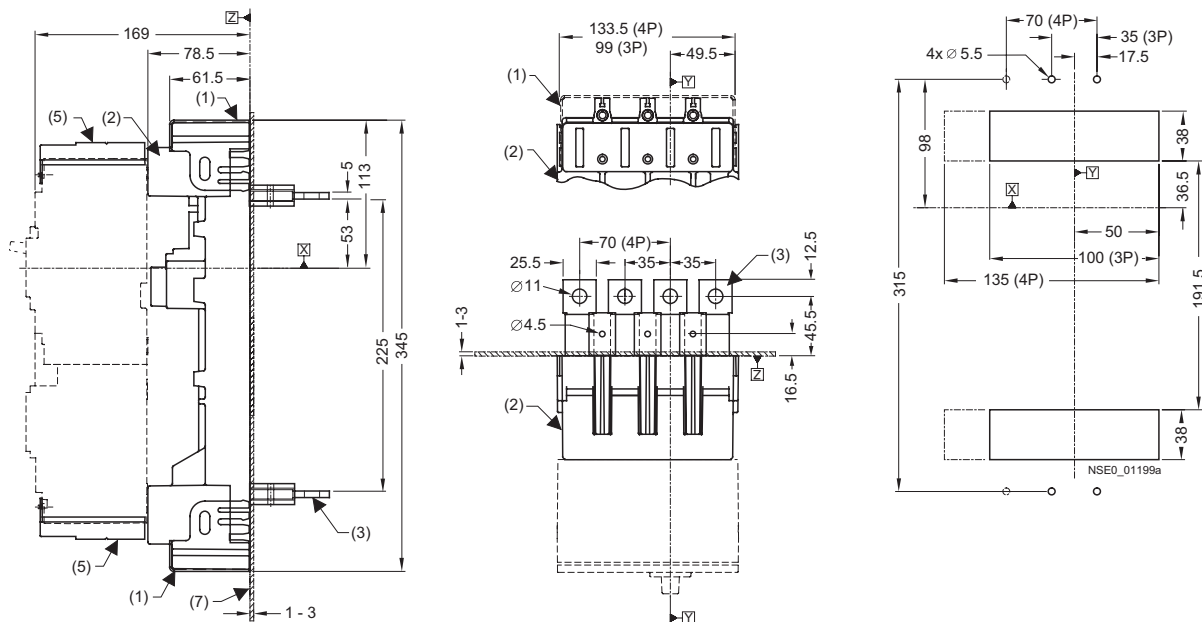
SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

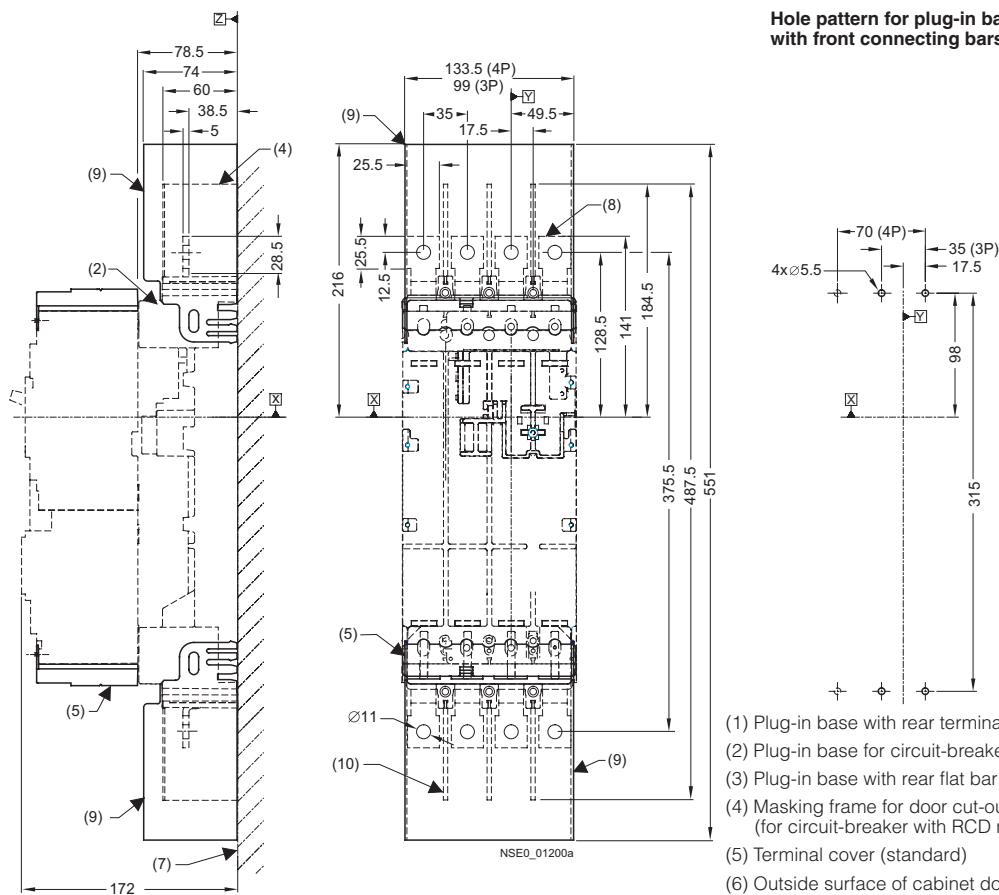
VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

Plug-in bases and accessories

Hole pattern and cut-out for plug-in base with rear flat bar connection



Hole pattern for plug-in base with front connecting bars



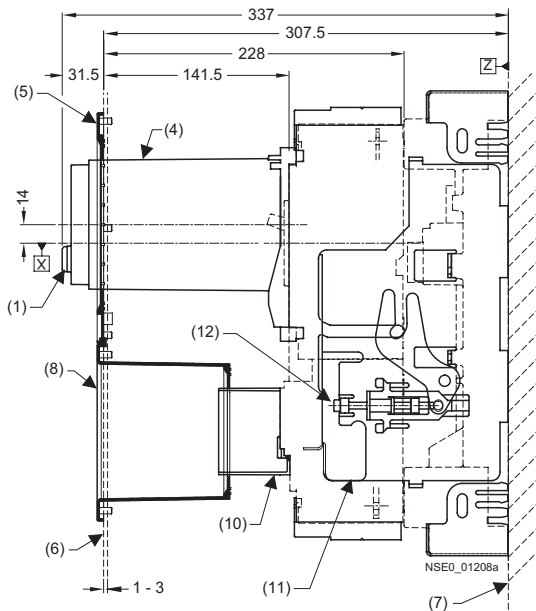
- (1) Plug-in base with rear terminal covers
- (2) Plug-in base for circuit-breaker with RCD module
- (3) Plug-in base with rear flat bar connection
- (4) Masking frame for door cut-out (for circuit-breaker with RCD module)
- (5) Terminal cover (standard)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Plug-in base with front connecting bars
- (9) Plug-in base with terminal covers on the front

SENTRON VL Circuit-Breakers up to 1600 A

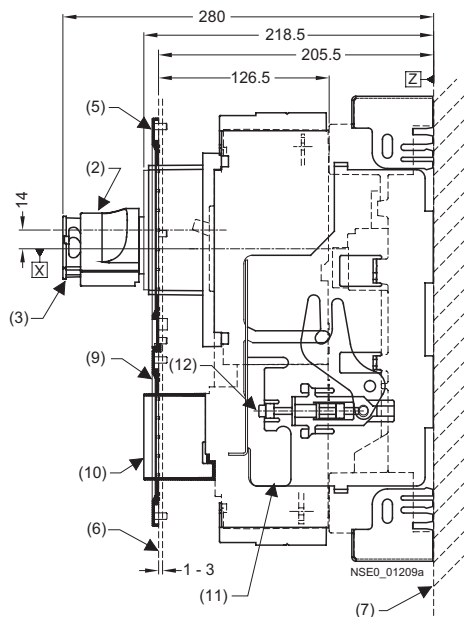
Project planning aids

VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A Plug-in bases and accessories

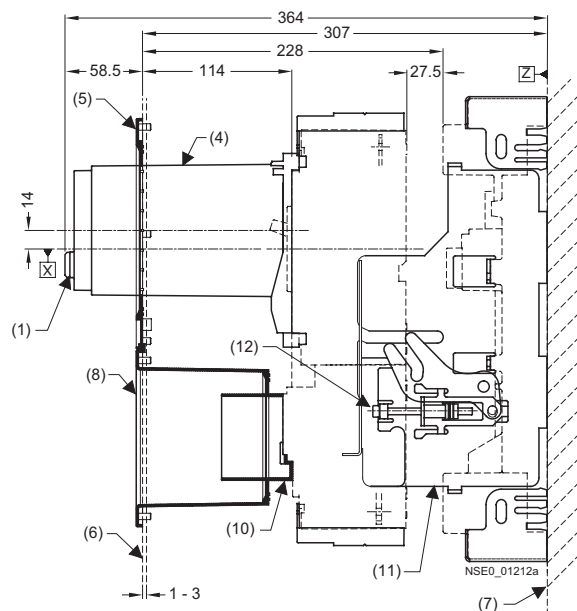
SENTRON VL160 and VL250 circuit-breakers with RCD module and motorized operating mechanism with spring energy store (connected position)



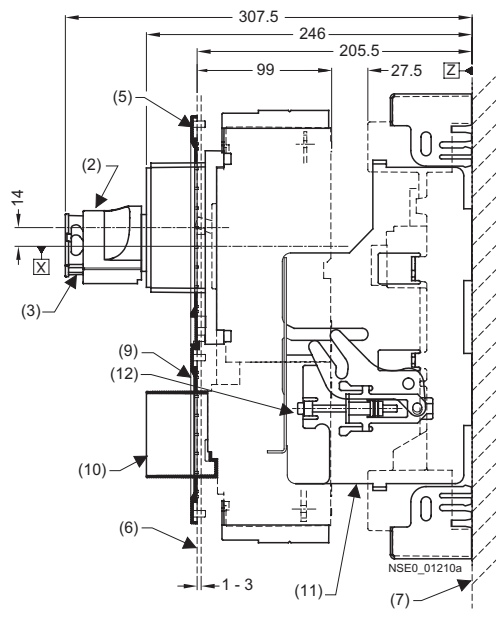
SENTRON VL160 and VL250 circuit-breakers with RCD module and front-operated rotary operating mechanism (connected position)



SENTRON VL160 and VL250 circuit-breakers with RCD module and motorized operating mechanism with spring energy store (disconnected position)



SENTRON VL160 and VL250 circuit-breakers with RCD module and front-operated rotary operating mechanism (disconnected position)



- (1) Safety lock
- (2) Front-operated rotary operating mechanism
- (3) Padlock
- (4) Motorized operating mechanism with energy store
- (5) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Masking frame for door cut-out (for circuit-breaker with RCD module, motorized operating mechanism)
- (9) Masking frame for door cut-out (for circuit-breaker with RCD module, toggle lever/rotary operating mechanism)
- (10) RCD extended escutcheon
- (11) Locking device for racking mechanism
- (12) Racking mechanism

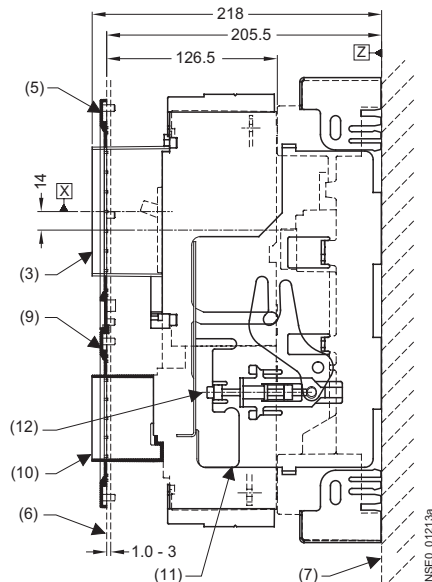
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

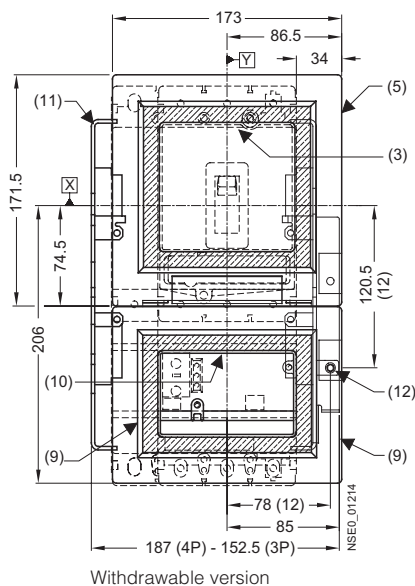
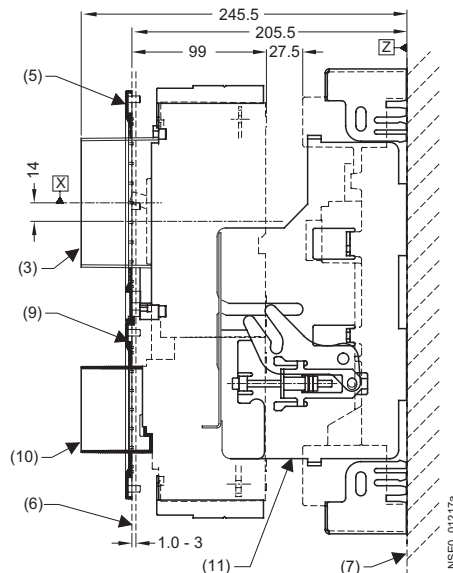
VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

Plug-in bases and accessories

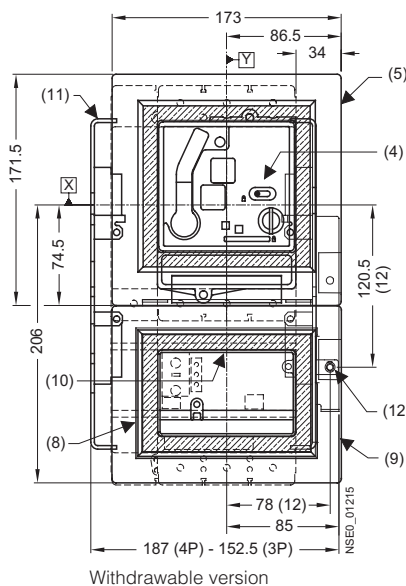
SENTRON VL160 and VL250 circuit-breakers with RCD module and extended escutcheon (connected position)



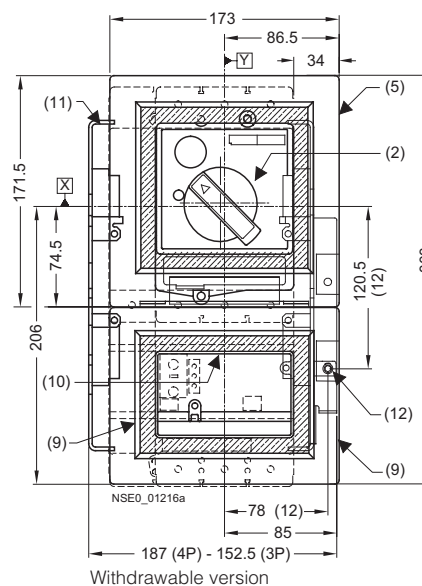
SENTRON VL160 and VL250 circuit-breakers with RCD module and extended escutcheon (disconnected position)



Withdrawable version



Withdrawable version



Withdrawable version

- (2) Front-operated rotary operating mechanism
- (3) Circuit-breaker extended escutcheon
- (4) Motorized operating mechanism with spring energy store
- (5) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Masking frame for door cut-out (for circuit-breaker with RCD module, motorized operating mechanism)
- (9) Masking frame for door cut-out (for circuit-breaker with RCD module, toggle lever/rotary operating mechanism)
- (10) RCD extended escutcheon
- (11) Locking device for racking mechanism
- (12) Racking mechanism

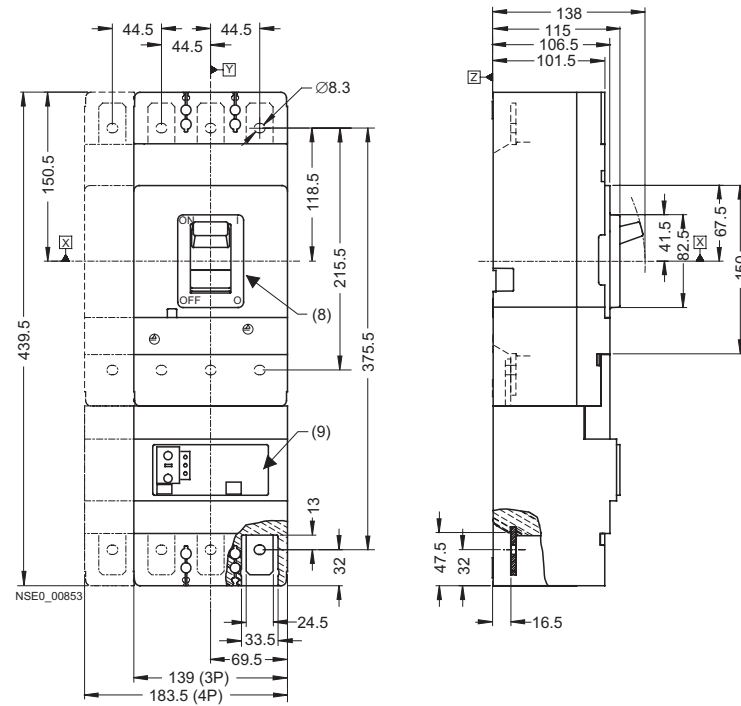
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

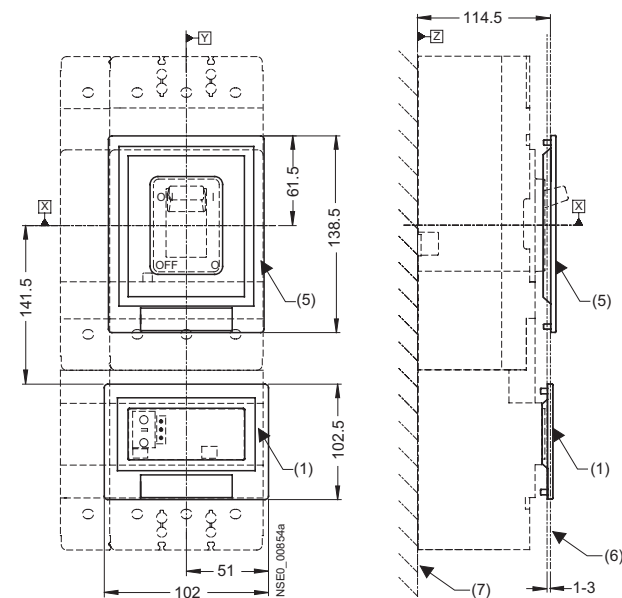
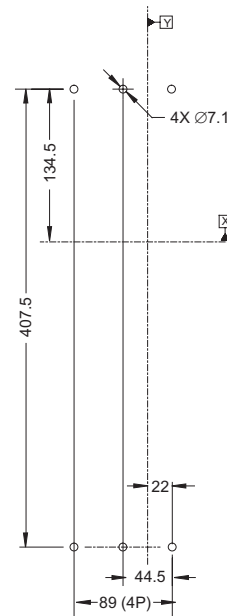
VL400 with RCD module, 3- and 4-pole, up to 400 A

Circuit-breakers

SENTRON VL400 circuit-breakers with RCD module



Mounting hole pattern for SENTRON VL400 circuit-breakers with RCD front connecting bar



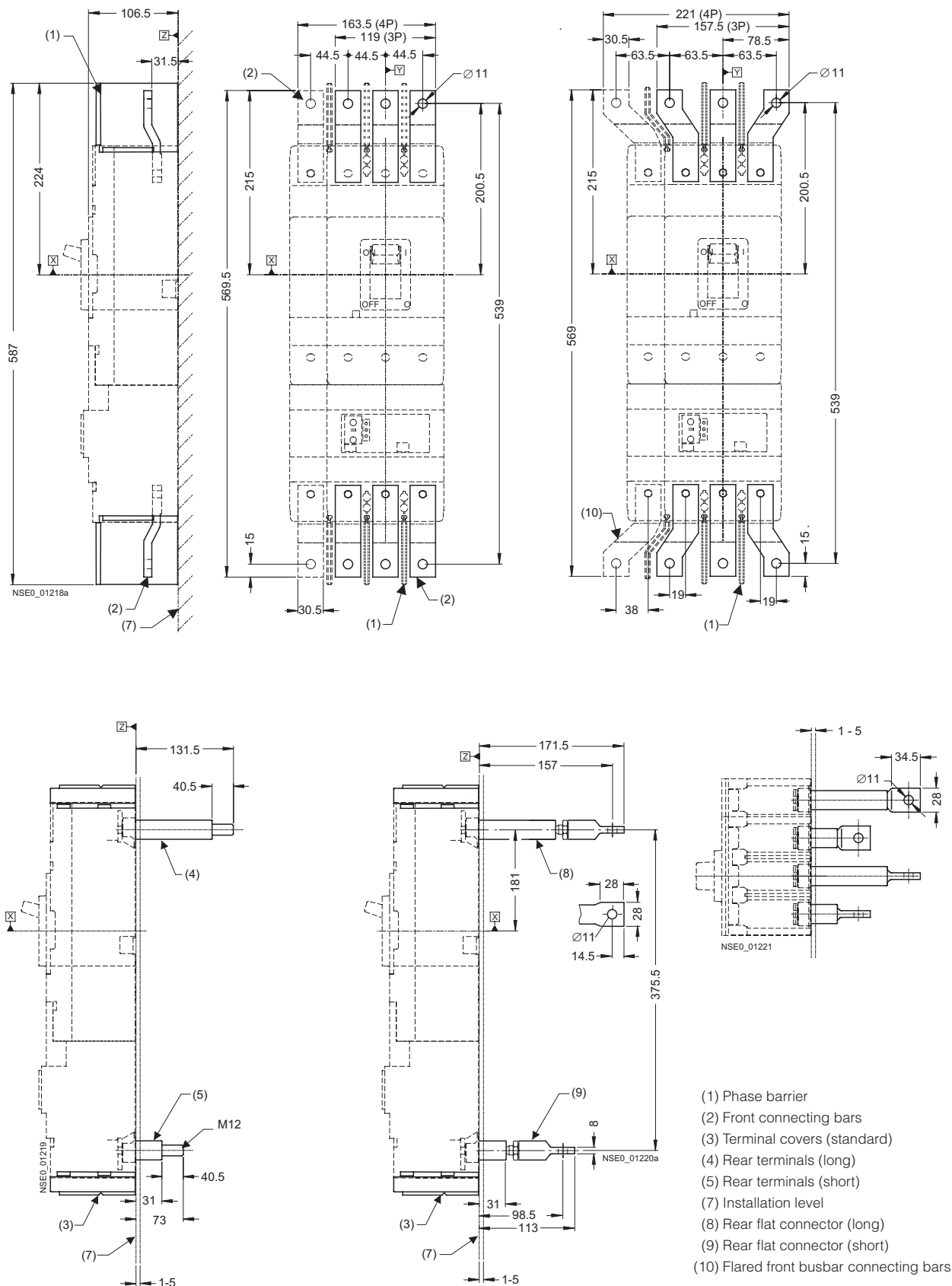
- (1) Masking frame for door cut-out (for circuit-breaker with RCD module)
- (5) Masking frame for door cut-out (for circuit-breaker with toggle lever)
- (6) Outside surface of cabinet door
- (7) Installation level
- (8) Circuit-breaker
- (9) RCD module

SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

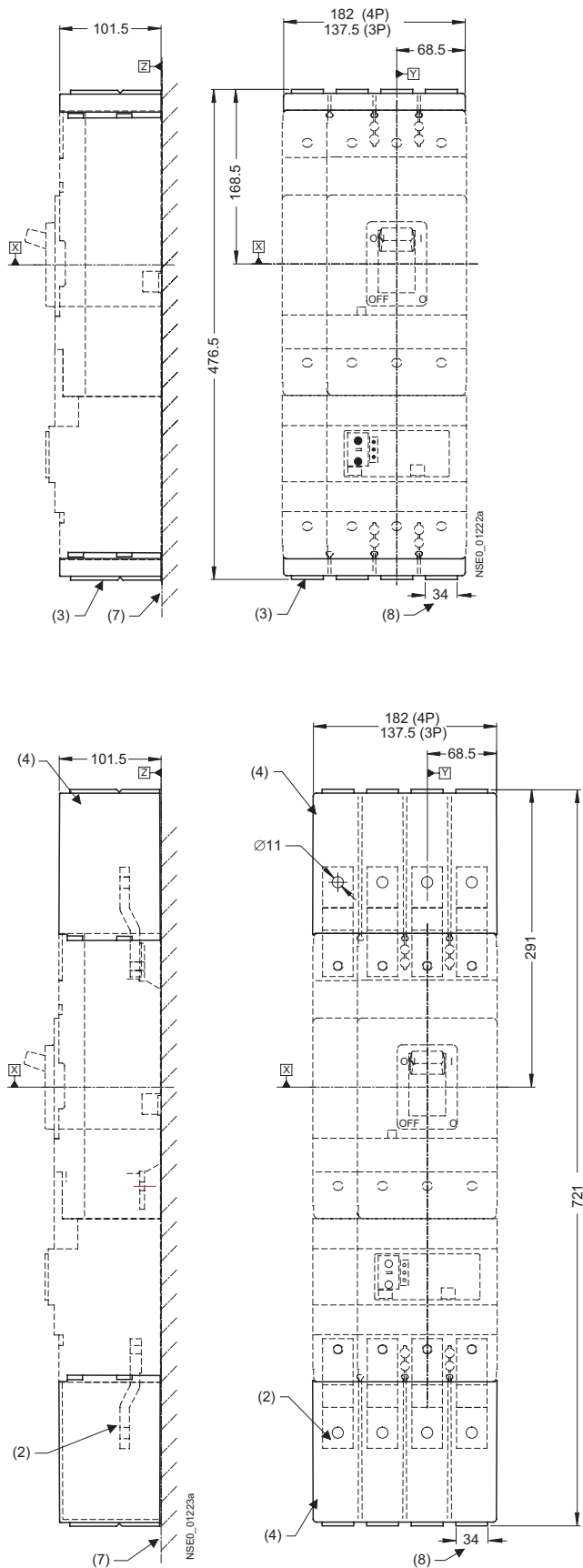
VL400 with RCD module, 3- and 4-pole, up to 630 A

Terminals and phase barriers



VL400 with RCD module, 3- and 4-pole, up to 400 A

Terminal covers



- (2) Front connecting bars
- (3) Terminal covers (standard)
- (4) Terminal covers (extended)
- (7) Installation level
- (8) Cut-out

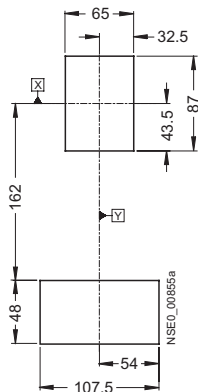
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids

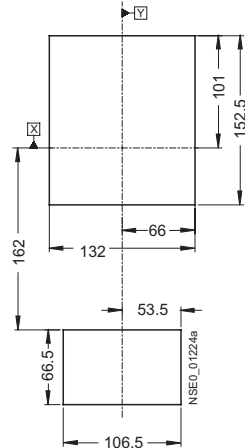
VL400 with RCD module, 3- and 4-pole, up to 400 A

Door cut-outs

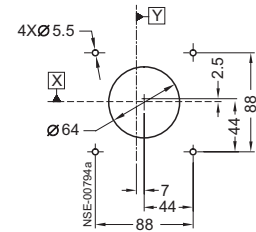
Door cut-out for toggle lever
(with masking frame)



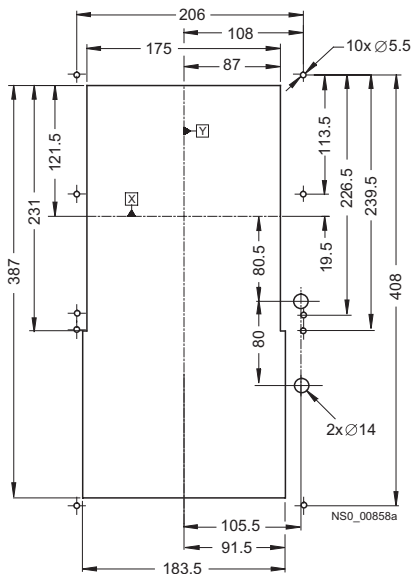
Door cut-out for front-operated rotary operating mechanism
(without masking frame)



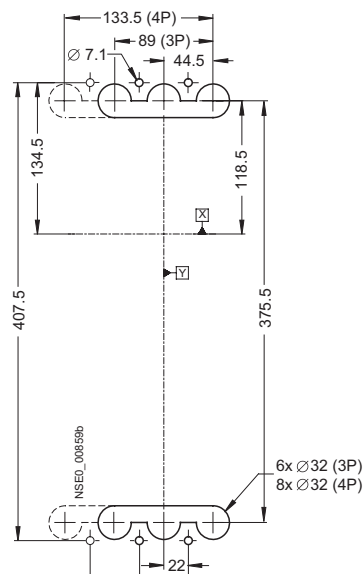
Door cut-out for door-coupling rotary operating mechanism



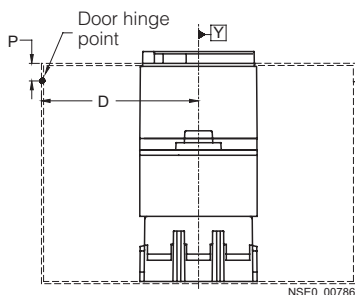
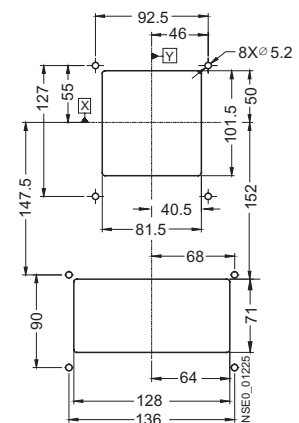
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)



Hole pattern and cut-out for rear connecting studs



Door cut-out for toggle lever
(with masking frame)



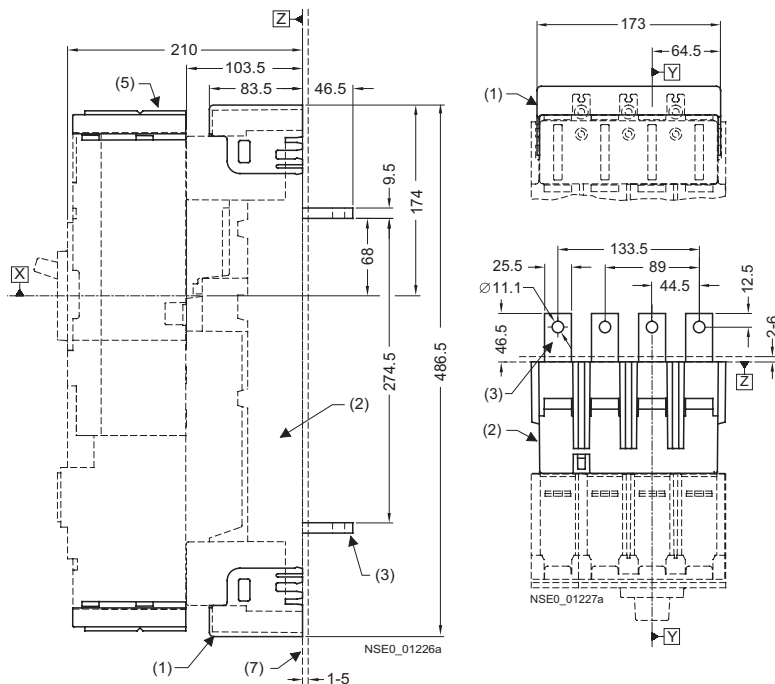
Note:
a minimum distance between reference point Y and the door hinge is required for the door cut-outs.

$D > A$ from table + $(P \times 5)$

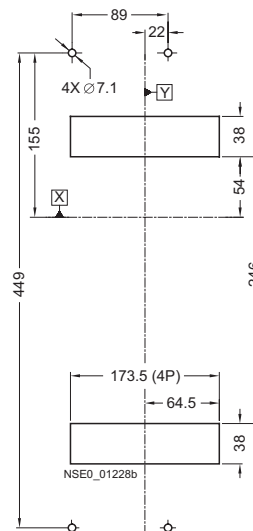
	A
Circuit-breaker only	150
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	150
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

VL400 with RCD module, 3- and 4-pole, up to 400 A

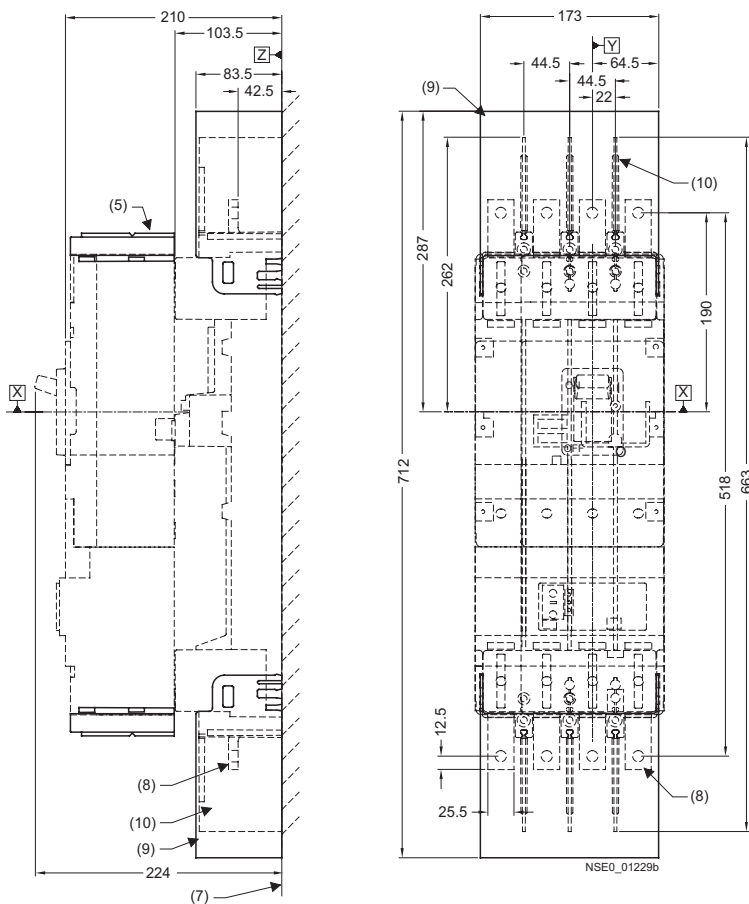
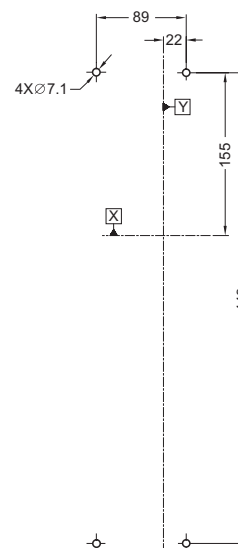
Plug-in bases and accessories



Hole pattern and cut-out for plug-in base, rear flat bar connection



Hole pattern for plug-in base for front connecting bars



- (1) Plug-in base with terminal covers
- (2) Plug-in base
- (3) Plug-in base with rear flat bar connection
- (5) Terminal covers (standard)
- (7) Installation level
- (8) Plug-in base with front connecting bars
- (9) Plug-in base with terminal covers on the front
- (10) Phase barrier

4

Siemens LV 30 · 2004

SENTRON VL Circuit-Breakers up to 1600 A

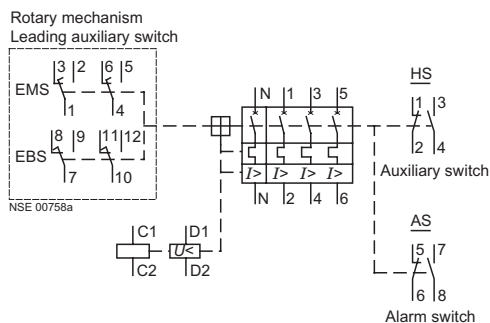
Project planning aids

Circuit diagrams

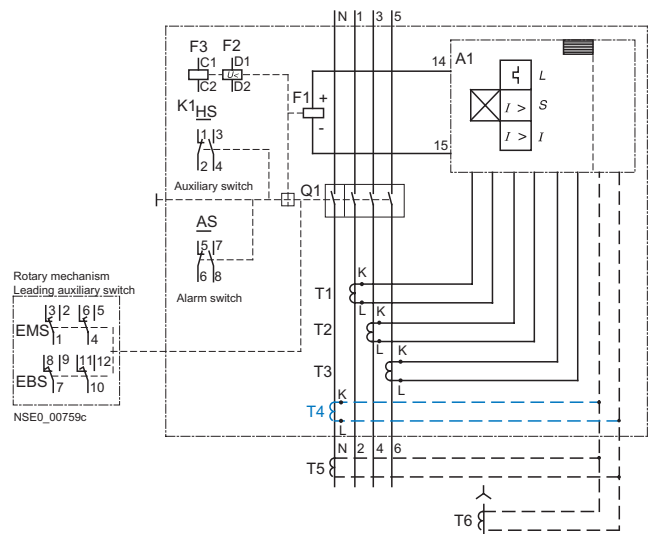
The graphical symbols used in the circuit diagrams provide information about the type, circuit and method of operation of the equipment in accordance with DIN 40713, but contain no information about the design.

As it is not possible to show all of the potential combinations here, it may be necessary to alter the circuit diagrams accordingly for different versions.

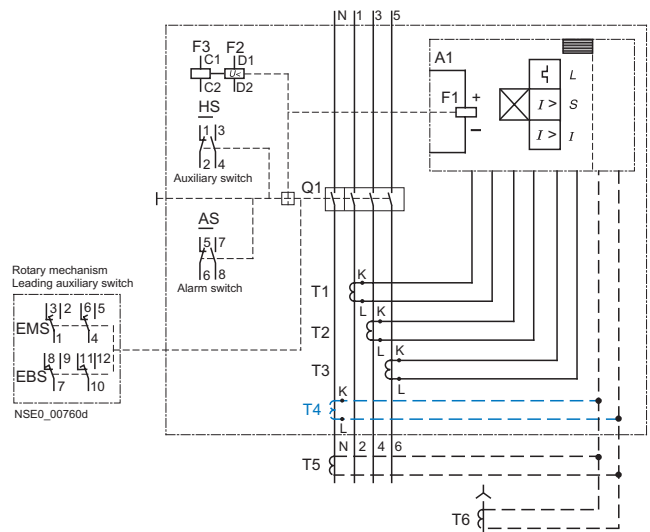
The purpose of these circuit diagrams is merely to help improve the understanding of how the devices function.



- Q1 Main contacts
- A1 Electronic overcurrent trip unit
- F1 Tripping solenoid for A1
- F2 Undervoltage release
- F3 Shunt release
- HS Auxiliary switch
- AS Alarm switch
- EBS Leading auxiliary switch from ON to OFF (installed in rotary operating mechanism)
- EMS Leading auxiliary switch from OFF to ON (installed in rotary operating mechanism)
- T1 ... T6 Current transformers



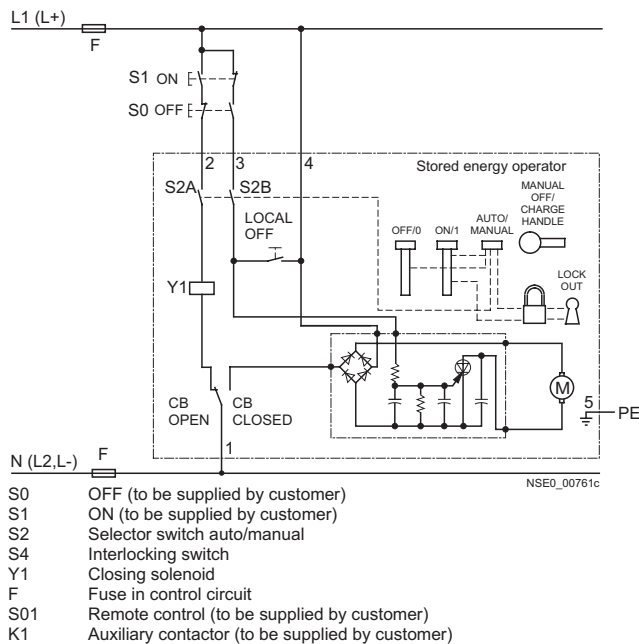
Internal circuit diagram for SENTRON VL160 and VL250, 3 and 4-pole circuit-breakers for system protection and motor protection with electronic overcurrent trip units



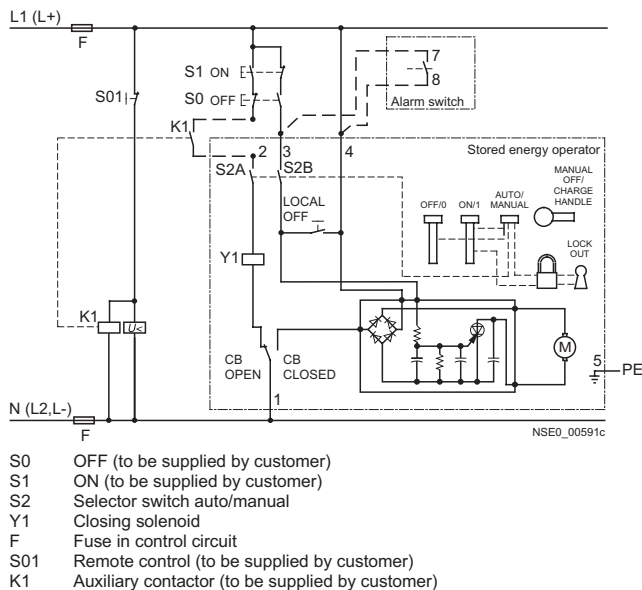
Internal circuit diagram for SENTRON VL400 circuit-breaker for motor protection and SENTRON VL400 to VL1600, 3- and 4-pole circuit-breakers for system protection with electronic overcurrent trip units

SETRON VL Circuit-Breakers up to 1600 A

Project planning aids

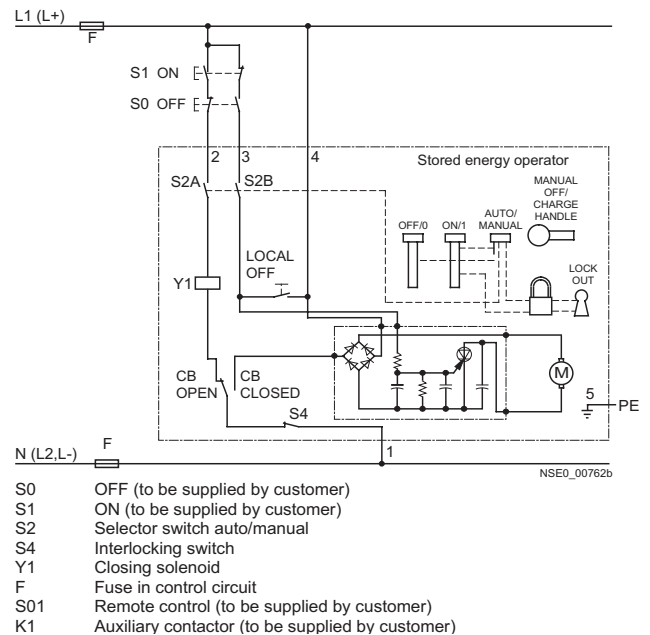


Motorized operating mechanism with spring energy store for SETRON VL160X to VL250 circuit-breakers without undervoltage release

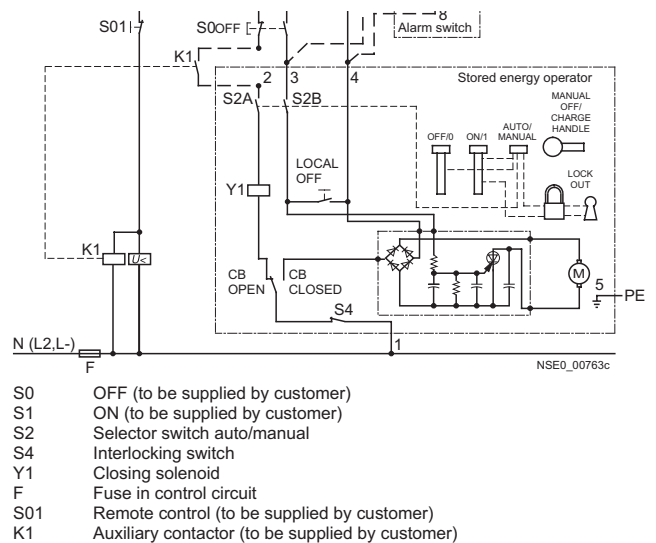


Note: a separate alarm switch (7-8) can be incorporated for automatic charging after a release.
Automatic closing of a tripped circuit-breaker is not recommended, in order to prevent a switch of the circuit-breaker to a fault in the protected circuit.

Motorized operating mechanism with spring energy store for SETRON VL160X to VL250 circuit-breakers with undervoltage release



Motorized operating mechanism with spring energy store for SETRON VL400 to VL800 circuit-breakers without undervoltage release

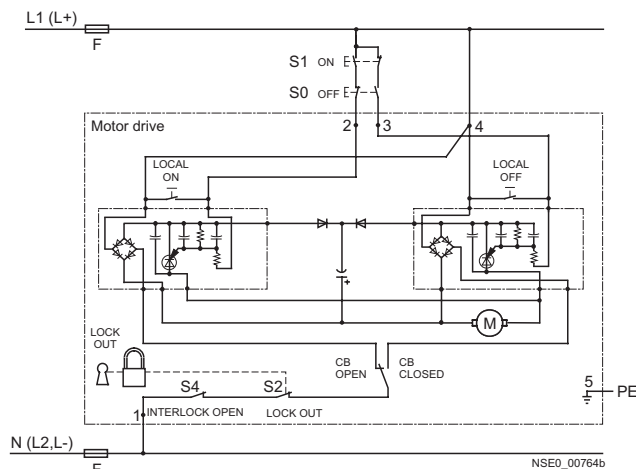


Note: a separate alarm switch (7-8) can be incorporated for automatic charging after a release.
Automatic closing of a tripped circuit-breaker is not recommended, in order to prevent a switch of the circuit-breaker to a fault in the protected circuit.

Motorized operating mechanism with spring energy store for SETRON VL400 to VL800 circuit-breakers with undervoltage release

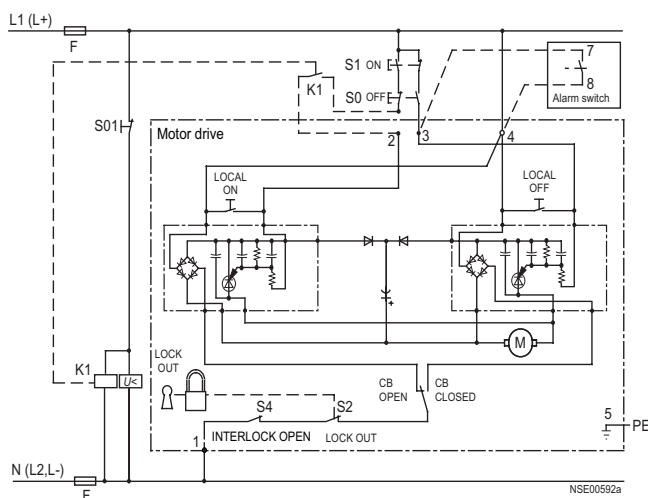
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids



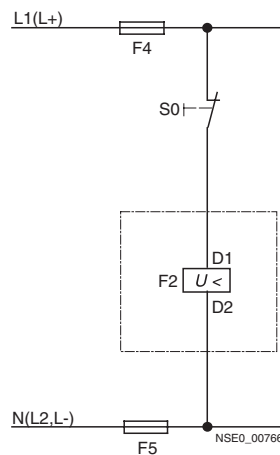
- S0 OFF (to be supplied by customer)
- S1 ON (to be supplied by customer)
- S2 Lock-out
- S4 Interlock open
- F Fuse in control circuit
- S01 Remote control
- K1 Auxiliary contactor

Motorized operating mechanism for SENTRON VL1250 and VL1600 circuit-breakers without undervoltage release



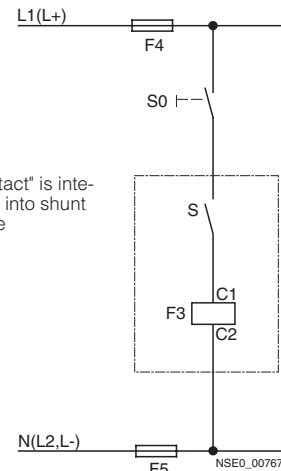
Note: a separate alarm switch (7-8) can be incorporated for automatic charging after a release.
Automatic closing of a tripped circuit-breaker is not recommended, in order to prevent a switch of the circuit-breaker to a fault in the protected circuit.

Motorized operating mechanism for SENTRON VL1250 and VL1600 circuit-breakers with undervoltage release

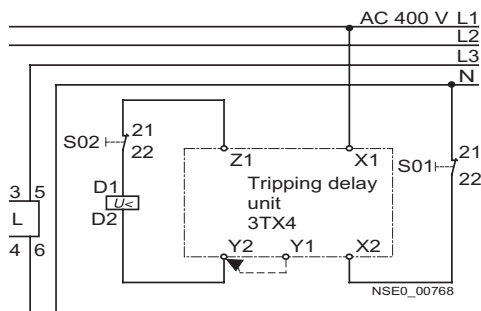


UNDERVOLTAGE RELEASE

Undervoltage release and shunt release for SENTRON VL160X to VL1600 circuit-breakers



SHUNT RELEASE

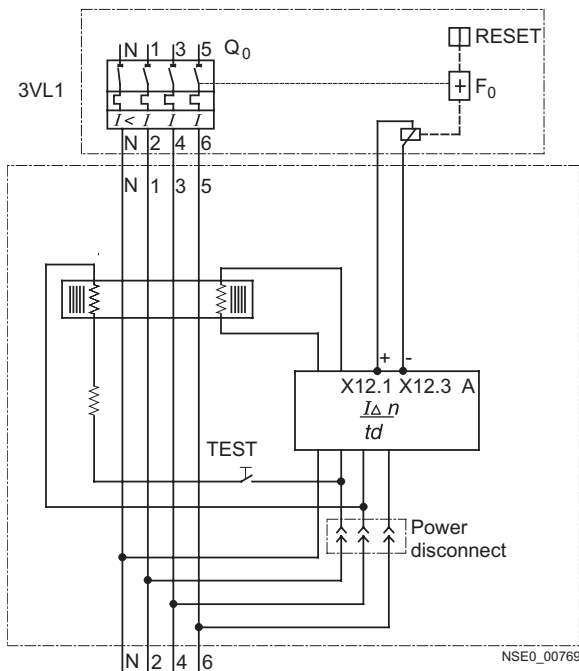


S01 Delayed tripping
S02 Instantaneous tripping for EMERGENCY-STOP circuit (if required)

Time-delay device for undervoltage release for SENTRON VL160X to VL1600 circuit-breakers

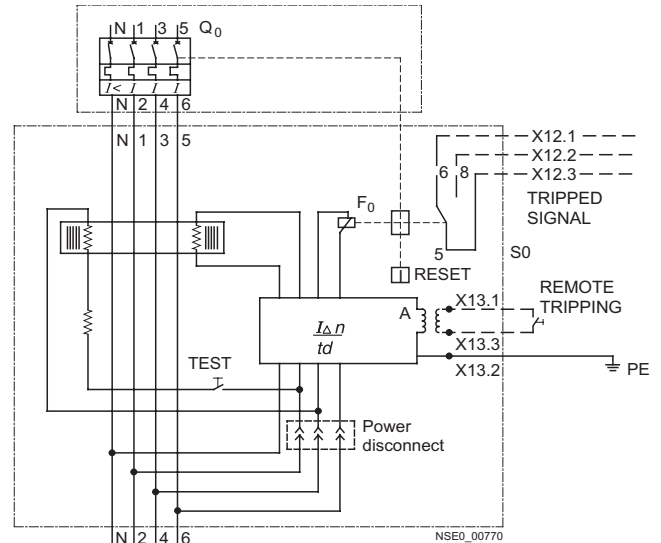
SENTRON VL Circuit-Breakers up to 1600 A

Project planning aids



Q₀ Circuit-breaker
A Solid-state evaluation unit
F₀ Tripping solenoid with local tripping display and reset
TEST Test button

SENTRON VL160X 4-pole circuit-breaker with RCD module shown.
3-pole version similar, but without N-pole.



Q₀ Circuit-breaker
A Solid-state evaluation unit
F₀ Tripping solenoid with local tripping display and reset
TEST Test button
S0 Remote tripping (to be set by customer)

4-pole circuit-breaker for SENTRON VL160, VL250 and VL400
circuit-breakers with remote-controlled tripping and RCD alarm switch.
3-pole version similar, but without N-pole.

Further information

Manual for the SENTRON VL circuit-breakers

This manual contains additional technical information, covering a product description, mode of operation, electrical wiring system and retrofitting.

The manual and operating instructions are available in PDF format at:

www.siemens.de/energieverteilung

Circuit-Breakers up to 2500 A

General data

Area of application

Specifications

All 3VF circuit-breakers comply with:
IEC 60947-1/DIN VDE 0660, Part 100;
IEC 60947-2/DIN VDE 0660, Part 101.
Isolation characteristics according to IEC 60947-3

In addition, the overload protection for motor protection circuit-breakers complies with:
IEC 60947-4-1/DIN VDE 0660, Part 132.

The main control switches comply with
DIN VDE 0113, see Page 4/132.

Circuit-breakers with DI modules comply with IEC 60947 -2 and
DIN VDE 0660 Part 101, the differential current protection complies with IEC 60947-2, Appendix B.

Electromagnetic compatibility (EMC) of circuit-breakers with DI modules complies with IEC 60801-2 to -5.

Operating conditions

3VF circuit-breakers are climate proof. They are intended for use in enclosed areas where no severe operating conditions (e.g. dust, corrosive vapors, damaging gases) are present.

When installed in dusty and damp areas, suitable enclosures (enclosures, cabinets) must be provided.

The permissible ambient temperatures and the associated rated currents are listed in the Technical data (see Page 4/136).

Degree of protection

Circuit-breaker	IP30
With front rotary operating mechanism	IP54
With door-coupling rotary operating mechanism	IP65
With motor/solenoid operation	IP20
With plug-in socket	IP20

Circuit-breaker with DI module

- Personal safety in TT, IT and TN systems (setting $I_{\Delta n} = 30 \text{ mA}$, t_d instantaneous)¹⁾
- Protection of plant and equipment against overload or damage by ground faults (ground fault protection).

1) IEC specifications (not DIN VDE 0100 Part 4/10).

Design

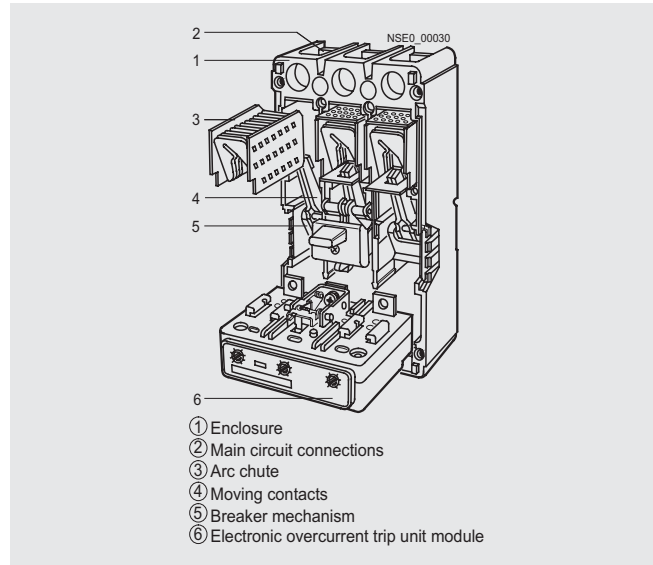
The basic versions of the 3VF circuit-breakers are equipped with a toggle lever as an operating mechanism (see figure "Toggle lever" ①), which is also used as a switch position indicator. In addition to the "ON" and "OFF" positions, the "Tripped" position is also possible.

The toggle lever jumps to the "Tripped" position if the circuit-breaker has been tripped by the operation of its overload, short-circuit, shunt or undervoltage release or by pressing the "TEST"-button. To be able to reclose the circuit-breaker after tripping, the toggle lever must be moved beyond the "OFF" position ("RESET"). It is then ready to close again (see figure "Positions of toggle lever").

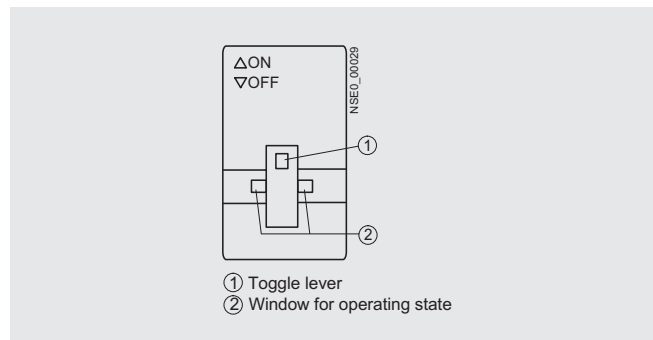
As additional switching status indication, the 3VF3 to 3VF8 circuit-breakers have 2 windows to the left and right of the toggle lever (see figure "Toggle lever" ②) in which the colors red, green and white correspond to the "ON", "OFF" and "Tripped" positions.

Overcurrent trip system

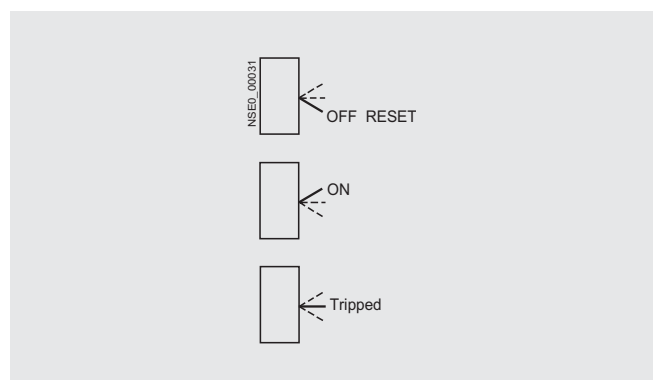
All circuit-breakers are supplied complete with an integral overcurrent trip unit (see figure "3VF5 circuit-breaker, internal construction" ⑥).



3VF5 circuit-breaker, internal construction



Toggle lever



Positions of toggle lever

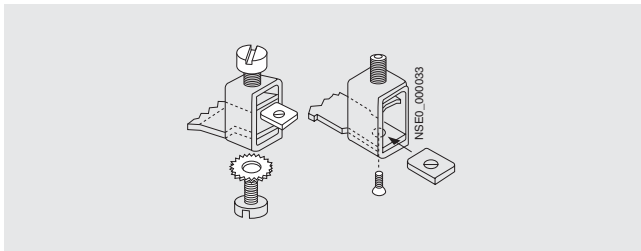
Connection

(See also Accessories, Page 4/182)

The basic circuit-breakers are supplied as follows:

With box terminals

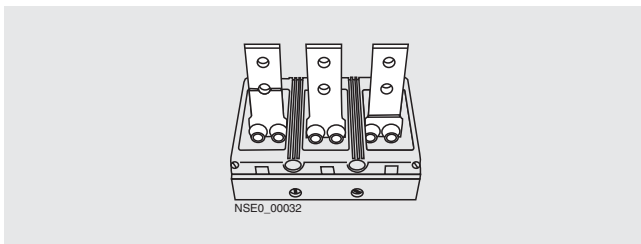
3VF2 to 3VF5 circuit-breakers for the direct connection of stranded or finely-stranded conductors with end sleeves (see figure "Box terminals for 3VF3 and 3VF4" and Technical data).



Box terminal for 3VF3 (left) and 3VF4 (right)

Busbar connection pieces

3VF6 to 3VF8 circuit-breakers are connected using busbar connection pieces. These are designed for the connection of standard busbars and are available for front or rear connection.



Front busbar connection pieces for 3VF7

3VF6 circuit-breakers are supplied with front connection pieces.

The connection of laminated flat copper bars using clamp terminations is possible with breaker types 3VF3 (up to 160 A), 3VF4, 3VF5, 3VF6 and 3VF7 (up to 800 A).

The incoming and outgoing side can be chosen as desired for all circuit-breakers. The electrical data remains unchanged. An exception to this are circuit-breakers fitted with DI modules: these breakers must be fed from the top.

Bare conductors and bars at the top connections must be insulated in the space above the arc chute (see dimension drawings on Page 4/191). Phase barriers (see Accessories, Pages 4/182 and 4/183) can also be used for this purpose.

Installation type

Fixed-mounting

In the standard version

Plug-in circuit-breakers

Instead of box terminals, the circuit-breakers have 6 blade contacts and also a safety trip pin. This causes the breaker to be tripped if an attempt is made to unplug it while it is closed and prevents the breaker from being switched on before it is properly located in its socket.

Withdrawable circuit-breakers

3VF6 and 3VF7 circuit-breakers are available in a withdrawable design. Withdrawable circuit-breakers cannot be fitted with motorized operating mechanisms.

Connection accessories

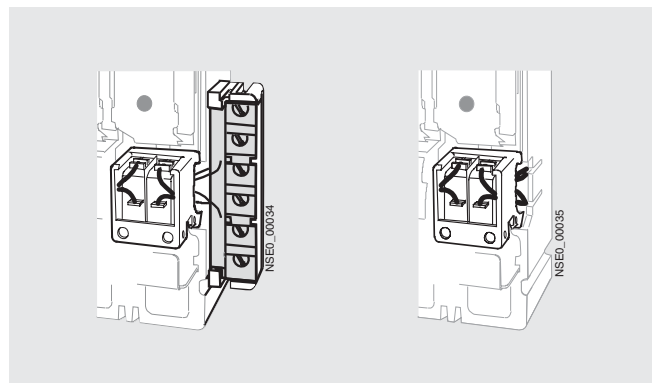
Two types of connection are possible for internally-fitted accessories (auxiliary releases, auxiliary switches) (see figure "Auxiliary release and auxiliary switch"):

- With terminal block (on the side of the breaker)
- With connecting leads (finely stranded)

Motorized operating mechanisms always have connection terminals.

Accessories

All circuit-breakers are supplied complete with internally-fitted accessories according to order (e.g. auxiliary or alarm switches, undervoltage or shunt releases). The equipment options can be seen from the ordering tables on Page 4/174. Externally fitted accessories, such as rotary operating mechanisms, motorized operating mechanisms, connection accessories etc. are always supplied separately.



Auxiliary release, auxiliary switch - connection with terminal strip (left) connection with connecting leads (right)

Operating mechanisms (see also Page 4/178)

Front-operated rotary operating mechanisms (figure "Front-operated rotary operating mechanism for 3VF3")

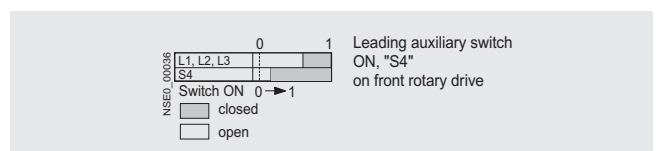
These are designed for fitting directly on the circuit-breaker and convert the vertical toggle lever movement into a rotary motion (rotary operating mechanism with knob).



Front-operated rotary operating mechanism for 3VF6

Leading auxiliary switch on closing "S4" for front-operated rotary operating mechanisms (figure below).

If the circuit-breaker has a leading auxiliary switch, it is possible to apply voltage early to the undervoltage release and thus prepare the breaker for closing.



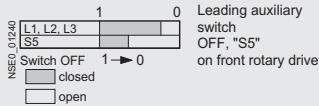
Leading auxiliary switch after ON "S4" in front-operated rotary operating mechanism

Circuit-Breakers up to 2500 A

General data

Leading auxiliary switch "S5" on opening for front-operated rotary operating mechanisms (figure below)

If a circuit-breaker has a leading auxiliary switch on opening, the leading deactivation of, for example, thyristors is possible.

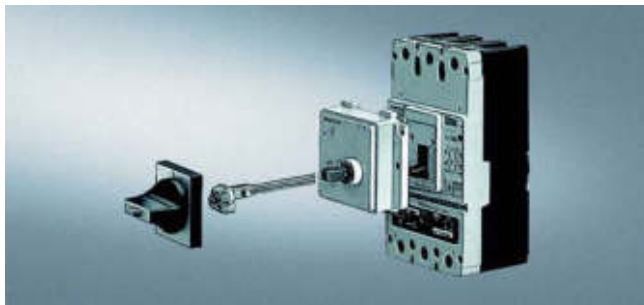


Leading auxiliary switch after OFF "S5" in front-operated rotary operating mechanism

Door-coupling rotary operating mechanisms (see figure "Door-coupling rotary operating mechanism for 3VF4") (complete operating mechanisms)

Door coupling mechanisms in the 8UC6 range are available for fitting to circuit-breakers in control cabinets and distribution boards with doors and detachable covers. These are supplied as complete kits, including an articulated-shaft mechanism; see Page 4/189.

With regard to the switching positions and the "RESET" operation, the same applies to rotary operating mechanisms as to toggle levers. Indication is by the position of the knob (see figure "Position of toggle lever").



Door-coupling rotary operating mechanism for 3VF4

Front rotary operating mechanisms and door-coupling rotary operating mechanisms

All rotary operating mechanisms can be locked in the "OFF" position using padlocks. All 3VF circuit-breakers equipped with these mechanisms and with suitable terminal covers can therefore be used as main switches in accordance with DIN VDE 0113.

Motorized operating mechanisms (figure "Motorized operating mechanism for 3VF4")

3VF3 to 3VF8 circuit-breakers can be equipped with motorized operating mechanisms to permit remote-controlled opening and closing.



Motorized operating mechanism for 3VF4

Synchronizable motorized operating mechanisms (stored energy operating mechanisms)

For synchronizable rapid closing ($t_E < 80$ ms) or for normal remote tripping, solenoid or stored energy operating mechanisms are available.

Locking devices to accept padlocks are available as an option for motorized operating mechanisms and are generally fitted to stored energy and solenoid operating mechanisms. These provide electrical and mechanical lockout of the mechanism. All remotely-controlled mechanisms are provided with a manual operation device that permits all switching operations to be performed locally.

Auxiliary releases and auxiliary switches

Undervoltage releases, leading auxiliary switches

The circuit-breaker can only be closed if voltage is applied to the undervoltage release. If voltage is not applied to the release, operation of the circuit-breaker will result in no-load switching.

Frequent re-tripping should be avoided because of its adverse effect on the service life of the circuit-breaker.

If the circuit-breaker has a leading auxiliary switch, it is possible to apply voltage early to the undervoltage release and thus prepare the breaker for closing.

For 3VF circuit-breakers, the leading auxiliary switch can be supplied with the front rotary operating mechanisms or complete operating mechanisms. See "Accessories" for more information.

Time-delay device for undervoltage release

To avoid tripping of the circuit-breaker during brief interruptions or drops in the voltage, delay devices can be fitted in the undervoltage release circuit. When selecting a circuit-breaker with delayed undervoltage release, it must be noted that the voltage of the undervoltage release must be selected for DC.

Shunt release

The shunt release (f release) is used for remote tripping.

The coil of the shunt release is designed for short-time operation only.

It is not permissible to apply a continuous trip command to a shunt release to prevent closing when the circuit-breaker is tripped, i.e. interlocking circuits with a continuous command must not be designed to operate a shunt release.

Auxiliary switches

Auxiliary switches are used for indication and control. The various functions of the auxiliary switch (1 changeover) can be seen from the table.

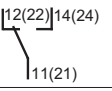
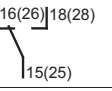
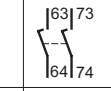
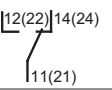
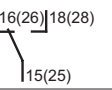
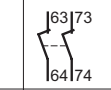
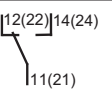
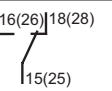
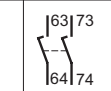
Alarm switches

The alarm switch operates when the circuit-breaker is tripped by short-circuit or overcurrent, and also when tripped by the shunt release or undervoltage release.

3-pole circuit-breakers				4-pole circuit-breakers			
left		right		left		right	
			1 HS				1 HS
			2 HS				2 HS
			1 AS				1 AS
			1 AS + 1 HS				1 AS 1 HS
2 AS			1 HS	2 AS			1 HS
1 AS			2 HS	1 AS			2 HS
2 AS			2 HS	2 AS			2 HS
1 HS			4 HS	1 HS			4 HS
—			 /2AS	—			 /2AS
3VF3 for motor protection							
			1 HS 1)				
1 HS			—				
2 HS			—				
1 AS			—				
1 AS + 1 HS			—				
2 AS			—				

/ / / DI Shunt release or undervoltage release or DI module (if built in)
 HS Auxiliary switch
 AS Alarm switch
 ● For 3VF8 circuit-breakers only
 1) Available only for 3VF3.F1.

Options for equipping 3VF3 to 3VF8 circuit-breakers with auxiliary and alarm switches (for complete range of equipment options see Page 4/174).

Position of toggle lever (also applies to rotary operating mechanism)	Position of 3VF2 auxiliary switches	Position of 3VF2 alarm switches	Position of 3VF3 to 3 VF8 auxiliary 1) 2) switches	Position of 3VF3 to 3VF8 alarm 1) switches	Position of 3VF3 to 3VF8 leading auxiliary switch 3) after ON	Position of 3VF3 to 3VF8 leading auxiliary switch 3) after OFF
						
						
						

1) Values in brackets apply to second switch block

2) The terminal designations for the 3rd and 4th auxiliary switch can be seen from the circuit diagram on the Internet under www.ad.siemens.de/csi/cd

3) Integrated in rotary operating mechanisms.

NSE0_01241

Operation of contacts of auxiliary and alarm switches depending on the switching status of the circuit-breaker

Mounting of auxiliary and alarm switches (see Accessories, Page 4/174)

The equipping of a circuit-breaker with auxiliary switches and alarm switches depends on the position in which these switches are fitted in the circuit-breaker and on the size of the circuit-breaker.

The mounting position of the auxiliary switches and alarm switches differs according to the version of the circuit-breaker (see Page 4/174).

PLC control

Coupling units or contactor relays should be used to interface with a PLC.

Circuit-breaker with DI module

Displays/shunt release

A visual indicator in the circuit-breaker cover and an auxiliary switch for remote monitoring indicate whether the circuit-breaker has been tripped by the DI trip unit. The DI trip unit can also be used as a shunt release for remote tripping of the circuit-breaker.

The circuit-breaker and DI module combination is fed from the top.

The 3VF circuit-breakers (3- and 4-pole) with DI module can be supplied with auxiliary and alarm switches (2nd Order No. supplement, see Pages 4/171 and 4/172).

No undervoltage or additional shunt release is possible for circuit-breakers with DI module (1st Order No. supplement: "0A", see Pages 4/171 and 4/172).

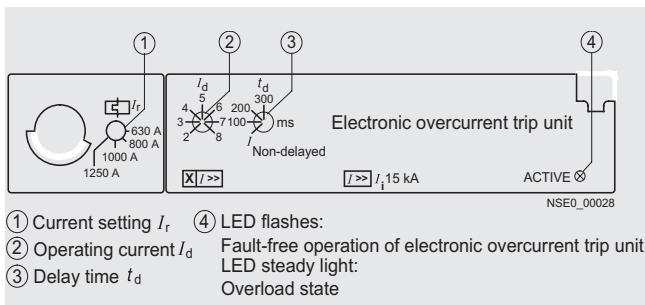
General data

Functions

3VF2 to 3VF6 circuit-breakers for system protection with mechanical overload and short-circuit release, i.e. overcurrent trip unit version "LI"

The overload and short-circuit releases function with bimetallic or magnetic elements. They can be supplied as non-adjustable or adjustable units.

Four-pole circuit-breakers for system protection can be supplied optionally with overcurrent trip units in all 4 poles or without overcurrent trip unit in the 4th pole (N). Above 100 A rated current the trip units in the 4th pole (N) are designed for 60 % of the current of the 3 main conductors to ensure safe protection for cables with reduced cross-section neutral conductors.



Electronic overcurrent trip unit for system protection (example 3VF7)

3VF5 to 3VF8 system protection circuit-breakers with electronic overcurrent trip unit

All 3VF7 to 3VF8 circuit-breakers are equipped with "LSI" electronic overcurrent trip units for short-delay short-circuit tripping.

The electronic overcurrent trip unit system consists of:

- 3 current transformers
- Evaluation electronics with microprocessor
- Tripping solenoid.

No auxiliary voltage supply is required for the release system.

A minimum load current of approximately 20% of the corresponding rated current I_n of the circuit-breaker is required to activate the overcurrent trip unit.

Fault-free operation of the overcurrent trip unit is indicated by the "heartbeat", a flashing LED ④ ("ACTIVE") (see figure "Electronic overcurrent trip unit" ④). A maintained light indicates an overload condition $I > 100 \% I_n$ an.

Inverse-time delayed overload tripping operation "L"

The 3VF5 to 3VF8 circuit-breakers for system protection with electronic trip units have real r.m.s. current measuring and are therefore also suitable for use in networks with a high harmonic content. The harmonics are evaluated for overload protection in the usual manner.

The set current I_r can be set from 0.5 to 1 times the value of the rated current I_n of the circuit-breaker in 4 increments.

The time-lag class of the inverse-time delayed tripping operation corresponds to 10 s with $7.2 \times I_r$ (see figure "Electronic overcurrent trip unit" ①).

Short-time delayed short-circuit tripping operation "S"

The operating value I_d can be set in 7 increments between 2 and 8 times the value of I_r .

The delay time t_d can be set from 0 (instantaneous) to 300 ms in 4 increments.

This means that time-based discrimination to downstream circuit-breakers can be achieved up to current values of

- 4.0 kA $\pm 15\%$ for 3VF5,
- 5.5 kA $\pm 15\%$ for 3VF6,
- 15 kA $\pm 15\%$ for 3VF7 and
- 20 kA $\pm 15\%$ for 3VF8.

Instantaneous short-circuit tripping operation "I"

The operating value I_i of the instantaneous short-circuit release is set to a fixed value of 4 kA for 3VF5, 5.5 kA for 3VF6, 15 kA for 3VF7 and 20 kA for 3VF8. The electronic circuit of the overcurrent trip unit is inherently safe at high temperatures: if the temperature of the printed circuit board rises to 90 °C the circuit-breaker trips.

Circuit-breakers for motor protection

All circuit-breakers for motor protection are equipped with electronic overcurrent trip units. These work on the same principle as the electronic overcurrent trip units fitted to the line protection circuit-breakers.

The characteristic curve of the inverse-time delayed overcurrent trip unit is optimally matched to the overload behavior of three-phase motors. Depending on the version, the time lag characteristic of the overload release can be set in steps between "Class 5" and "Class 30".

Phase failure sensitivity is also integrated into this version variant, so that the motor is provided with reliable protection even in the event of phase failure or severe asymmetry.

All 3VF3 to 3VF6 circuit-breakers for motor protection have a so-called "thermal memory" which stores the preload of the breaker and tripping history due to overload and takes account of the heating of the motor by reducing the tripping time. A cooling period of a few minutes may therefore be required following tripping due to overload before the motor can be re-started.

The same applies if there are too many starts within a short period which can cause the motor to heat up excessively. A reclosing lockout remains in force for one minute following a trip on overload.

In circuits with very high harmonic content caused by frequency converters or soft starters, 3VF2 to 3VF6 circuit-breakers with "LI" bimetal releases are recommended.

Circuit-breakers for starter combinations

Circuit-breakers for starter combinations are used in practice together with a motor contactor and a matched overload relay.

Non-automatic circuit-breakers

Non-automatic circuit-breakers have integral short-circuit protection so that back-up fuses are not required. 4-pole non-automatic circuit-breakers do not have a short-circuit release in the 4th pole (N).

Circuit-breakers as main control switches to EN 60204 or DIN VDE 0113 in combination with lockable rotary operating mechanisms with terminal covers or as **EMERGENCY-STOP switches** to EN 60204 or DIN VDE 0113 in combination with red operating mechanisms on yellow backgrounds and undervoltage releases, if required.

Circuit-breaker with DI module

The DI module detects ground fault currents in 3- and 4-wire systems (AC or pulsating DC) and causes the circuit-breaker to switch off the faulty circuit.

Equipping a 3VF circuit-breaker with a DI module has no effect on the characteristics of the circuit-breaker:

- Rated voltage (50/60 Hz), rated current, switching capacity
- Electrical and mechanical life
- Connections
- Operating mechanisms
- Auxiliary switches and releases.

In a fault-free system, the sum of the conductor currents in the current transformer of the DI module is equal to zero. If a fault current flows to ground due to an insulation fault in the part of the system being protected, a differential current results. This produces a voltage in the secondary winding of the current transformer. The induced voltage is evaluated electronically and a trip signal is given to the DI trip unit in the circuit-breaker if the trip conditions are fulfilled.



3VF circuit-breaker with DI module

Settings

- The differential tripping current $I_{\Delta n}$ is adjustable in increments from 30 mA to 30 A.
- The trip delay can be set from instantaneous to 1 sec in increments. Exception: with setting $I_{\Delta n} = 30$ mA, tripping is instantaneous.
- The setting knob can be sealed to prevent unauthorized access.
- The control panel incorporates a test button to electronically test the function of the current transformers, the evaluation electronics and the DI trip unit in the circuit-breaker.
- The DI module detects 1, 2, 3 or 4-pole loads with its integral summation current transformer.

Integration

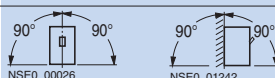
Installation

Mounting the circuit-breakers in line without intermediate spacing is, in fact, possible but is not recommended because of the reduced heat dissipation (and possible reduction of current rating).

Circuit-Breakers up to 2500 A

General data

Technical specifications

Type		3VF2	
Standards		IEC 60947, EN 60947	
Max. rated current I_n		A	16 ... 100
Rated insulation voltage U_i			
Main circuits	AC V	415	
Control circuits	AC V	415	
Rated impulse withstand voltage U_{imp}			
Main circuits	kV	6	
Control circuits	kV	4	
Rated operating voltage U_e , 50/60 Hz			
IEC	AC V	up to 415	
Permissible ambient temperature		°C	–20 ... +70
Permissible load			
at various ambient temperatures close to the circuit-breaker, related to the rated current of the circuit-breaker			up to 100 A
– Circuit-breakers	at 40 °C %		100
for system protection	50 °C %		92
	55 °C %		87
	60 °C %		83
	70 °C %		73
Rated short-circuit breaking capacity		Switching capacity class	A
Rated ultimate short-circuit breaking capacity I_u		up to 240 V kA	65
		up to 415 V kA	18
Rated service short-circuit breaking capacity I_{cs}		up to 240 V kA	33
		up to 415 V kA	9
Rated short-circuit making capacity I_{cm}		up to 240 V kA	143
		up to 415 V kA	36
Main control switch properties to IEC 60947-2		yes	
in conjunction with lockable rotary operating mechanisms			
EMERGENCY-STOP switch properties to DIN VDE 0113		yes	
Mechanical endurance		Operating cycles	10000
Operating frequency		1/h	120
Conductor cross-sections and types of connection for main conductors (copper or aluminum)			
Connection type			Box terminal
Solid or stranded	up to 45 A	mm ²	2.5 ... 10
	45 ... 100 A	mm ²	16 ... 50
	125 A	mm ²	70
Tightening torque for box terminals		Nm	4.0 (up to 40 A)/5.7 (45 ... 100 A)
Conductor cross-sections for control circuits with terminal connection or terminal strip, solid		mm ²	0.5 ... 2.5
Tightening torque for terminal screws		Nm	0.9
Power loss per circuit-breaker at max. rated current I_n with 3-phase symmetrical load			
– System protection	W	16	
Permissible mounting position			
Auxiliary switches			
Conventional thermal current I_{th}		A	6
Rated making capacity		A	15
AC (AC-15)			
– Rated operating voltage	V	240	
– Rated operating current	A	6	
DC (DC-13)			
– Rated operating voltage	V	125	
– Rated operating current	A	0.5	
Back-up fuse		A	4
Trip units			
Shunt release (f-release)			
Operating voltage			
– Pick-up (circuit-breaker is tripped)			
Power input (short time) at:			
AC 50/60 Hz 12 ... 24 V	VA	108	
AC 50/60 Hz 48 ... 60 V	VA	120	
AC 50/60 Hz 48 ... 127 V	VA	162	
DC 12 ... 24 V	W	14.4	
DC 48 ... 60 V	W	19.2	
DC 110 ... 125 V	W	38.4	
DC 220 ... 250 V	W	44	
Max. duration of operating voltage		interrupts automatically	
Max. opening time		ms	50

Circuit-Breakers up to 2500 A

General data

Type		3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Max. rated current I_n depending on version	AC/DC A	160; 205/225	200/250	315/400	500/630/800	800/1250	1600/2000 2500
Rated insulation voltage U_i to IEC 60947-2							
Main circuits	AC V	750	750	750	750	750	750
Control circuits	AC V	690	690	690	690	690	690
Rated impulse withstand voltage U_{imp}							
Main circuits	kV	8					
Control circuits	kV	4					
Rated operating voltage U_e, 50/60 Hz							
IEC	AC V	690 ¹⁾	690	690	690	690	690
NEMA	AC V	600 ¹⁾	600	600	600	600	600
IEC	DC V	750	750	750	750	– ²⁾	– ²⁾
Permissible ambient temperature	°C	–20 ... + 70				–5 ... + 60	
Rated short-circuit breaking capacity (DC) not for 3VF motor protection circuit-breakers Time constant $\tau = 10$ ms							
1 current path							
2 current paths in series							
3 current paths in series							
4 current paths in series							
for 3VF3 to 3VF6 up to DC 250 V DC 440 V DC 600 V DC 750 V	kA	20/10 ⁷⁾	20	20	20	– ²⁾	– ²⁾
NEMA							
Time constant $\tau = 8$ ms							
1 current path 2 current paths in series							
DC 250 V	kA	10	10	10	10	– ²⁾	– ²⁾
– DC 250 V	kA	22/20 ⁷⁾	22	22	22	– ²⁾	– ²⁾
Permissible load at various ambient temperatures close to the circuit-breaker, related to the rated current of the circuit-breaker		① ②	① ②	① ② ③	① ② ③	① ③	③
– Circuit-breakers for system protection	at 40 °C %	100 100	100 100	100 100 100	100 100 100	100	100
	50 °C %	96 92	96 94	96 92 100	96 91 100	91	100
	55 °C %	93 87	94 90	93 87 100	93 86 100	85	96
	60 °C %	91 83	92 87	90 84 100	90 82 100	81	92
	70 °C %	86 73	88 80	85 75 85	85 70 84	–	–
– Circuit-breakers for motor protection	at 40 °C %	100; 100	–	100	100	–	–
	50 °C %	100; 96	–	100	100	–	–
	55 °C %	100; 90	–	100	100	–	–
	60 °C %	100; 86	–	100	100	–	–
	70 °C %	100; 77	–	87	90	–	–
– Circuit-breakers for starter combinations and non-automatic circuit-breakers	at 40 °C %	100	100	100	100	100	100
	50 °C %	100	100	100	100	91	100
	55 °C %	96	96	95	95	85	96
	60 °C %	91	92	90	90	81	92
	70 °C %	86	88	85	84	–	–
Main control switch properties to IEC 60947-2 in conjunction with lockable rotary operating mechanisms		yes	yes	yes	yes	yes	yes
EMERGENCY-STOP switch properties to DIN VDE 0113		yes	yes	yes	yes	yes	yes
Rated short-circuit breaking capacity to IEC 60947-2 (AC 50/60 Hz) ⁶⁾		See Page 4/141 for rated short-circuit breaking capacity.					
Mechanical endurance Operating frequency	Operating cycles 1/h	10000 300	10000 240	8000 240	8000 240	3000 60	3000 20
Conductor cross-sections and types of connection for main conductors⁵⁾ Connection type		Box terminals	Box terminals	Box terminals	Flat connector	Flat connector	Flat connector Mount busbars vertically
Solid or stranded	mm ²	2.5 ... 70; 95	50 ... 150	95 ... 240 ⁸⁾	–	–	–
Finely stranded with end sleeve	mm ²	2.5 ... 50; 70	35 ... 120	70 ... 150	–	–	–
Busbar	mm	–	–	–	1 × 40 × 10 ⁴⁾	2 × 40 × 10 ³⁾	2 × 60 × 10 ³⁾ / 2 × 80 × 10 ³⁾
Multiple feed-in terminal (accessory)							
Cu or Al, stranded	mm ²	–	–	–	2 × (185...240)	4 × (95...185)	–
Laminated flat copper, max. width	mm	13 (max 160 A)	15	42	40 (max 630 A)	40 (max 800 A)	–
Tightening torque for box terminals	Nm	5/9	20	31	31	31	–
Tightening torque for busbar connection pieces	Nm	4.5/4.5	15	30	6	50	37 20

1) For circuit-breakers with rated currents ≤ 40 A:
 U_e max. 415 V.

2) Circuit-breaker cannot be used for direct current.

3) Busbar connection pieces (see Accessories).

4) 800 A: 3 × 40 × 5.

5) Max. cross-section for one conductor only. For smaller cross-sections: sum up to max. cross-section can be connected. Use identical cross-sections. CupAl end sleeves/cable lugs or CupAl shims are recommended for connecting aluminum conductors.

6) Also suitable for use in 400 Hz systems, technical specifications on request.

7) 10 kA for 3VF. ...–0....–....

8) 240 mm² not suitable for segmented conductors as the terminal has an oval aperture.

① Thermal overload release set to the upper value, or permanently set thermal overload release.

② Thermal overload release set to the lower value.

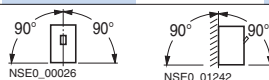
③ Electronic trip unit.

Circuit-Breakers up to 2500 A

General data

Type	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Conductor cross-sections for control circuits¹⁾ with terminal connection or terminal strip						
Solid	mm ² 0.75 ... 2.5	0.75 ... 2.5	0.75 ... 2.5	0.75 ... 2.5	up ... 2×4	up ... 2×4
Finely stranded with end sleeve	mm ² 0.75 ... 2.5	0.75 ... 2.5	0.75 ... 2.5	0.75 ... 2.5	up ... 2×2.5	up ... 2×2.5
With brought-out cable ends	mm ² 0.82 (AWG 18)	0.82 (AWG 18)	0.82 (AWG 18)	0.82 (AWG 18)	0.82 (AWG 18)	0.82 (AWG 18)
Tightening torque for terminal screws	Nm 0.8 ... 1.4	0.8 ... 1.4	0.8 ... 1.4	0.8 ... 1.4	0.8 ... 1.4	0.8 ... 1.4
Power loss per circuit-breaker at max. rated current I_n with 3-phase symmetrical load						
(The power loss of the undervoltage release (r-release) must also be taken into account where applicable)						
– System protection	W 60	75	175	255	87/210	135/240
– Non-automatic circuit-breakers	W 45	75	107	160	87/210	135/240
– For starter combinations	W 45	45	107	160	–	–
– Motor protection	W 60	–	75	120	–	–

Permissible mounting position



1) 2 conductors can be connected.

③ Electronic trip unit.

Type	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Auxiliary switches						
Conventional thermal current I_{th}	A 6	6	6	6	6	6
Rated making capacity	A 20	20	20	20	20	20
AC (AC-15)						
– Rated operating voltage	V 230	415	690	230	415	690
– Rated operating current	A 6	3	0.25	6	3	0.25
DC (DC-13)						
– Rated operating voltage	V 24	125	240	24	125	240
– Rated operating current	A 6	0.5	0.15	6	0.5	0.15
Back-up fuse						
Miniature circuit-breaker	A 6	4	4	6	4	4

Leading auxiliary switches (only in combination with rotary operating mechanism)

Continuous thermal current I_{th}	A 2	–	16
Rated making capacity	A 2 (inductive 0.5)	–	60
AC			
p.f.	0.7	–	0.7
– Rated operating voltage	V 220	–	380
– Rated operating current	A 2 (inductive 0.5)	–	6
– Rated breaking capacity	A 2	–	60
Back-up fuse (quick)	A 2	–	16

Trip units

Undervoltage release (r-release)						
Operating voltage:						
– Drop (breaker trips)	V 0.7 ... 0.35 U_s	0.7 ... 0.35 U_s	0.7 ... 0.35 U_s	0.7 ... 0.35 U_s	0.7 ... 0.35 U_s	0.7 ... 0.35 U_s
– Pick-up (breaker can be closed)	V 0.85 ... 1.1 U_s	0.85 ... 1.1 U_s	0.85 ... 1.1 U_s	0.85 ... 1.1 U_s	0.85 ... 1.1 U_s	0.85 ... 1.1 U_s
Power consumption in continuous operation at:						
AC 50/60 Hz 12 V	VA 2.5	1.6	1.6	1.6	1.9	2.9
AC 50/60 Hz 24 V	VA 1.4	6.0	6.0	6.0	2.4	3.1
AC 50/60 Hz 48–60 V	VA 1.2 ... 1.9	3.2 ... 5.5	3.2 ... 5.5	3.2 ... 5.5	2.3 ... 4.1	3.4 ... 6.0
AC 50/60 Hz 110–127 V	VA 1.3 ... 1.7	2.2 ... 2.9	2.2 ... 2.9	2.2 ... 2.9	3.4 ... 4.2	3.3 ... 3.8
AC 50/60 Hz 208–240 V	VA 2.2 ... 2.9	3.5 ... 4.6	3.5 ... 4.6	3.5 ... 4.6	4.8 ... 6.5	4.2 ... 7.2
AC 50/60 Hz 380–500 V	VA 2.9 ... 5	3.9 ... 6.9	3.9 ... 6.9	3.9 ... 6.9	6.8 ... 12.0	3.8 ... 10.0
DC 12 V	W 2.8	2.5	2.5	2.5	2.8	3.4
DC 24 V	W 1.6	3.1	3.1	3.1	3.6	4.3
DC 48–60 V	W 1.3–2.0	3.5 ... 5.4	3.5 ... 5.4	3.5 ... 5.4	3.5–6.5	4.8 ... 7.2
DC 110–125 V	W 1.5 ... 1.9	3.2 ... 4.1	3.2 ... 4.1	3.2 ... 4.1	2.9 ... 3.6	3.3 ... 3.8
DC 220–250 V	W 2.6 ... 3.4	5.5 ... 6.9	5.5 ... 6.9	5.5 ... 6.9	4.8 ... 6.3	6.6 ... 7.5
Max. opening time	ms 50	50	50	50	80	80
Shunt release (f-release)						
Operating voltage						
– Pick-up (circuit-breaker is tripped)	V 0.7 ... 1.1 U_s	0.7 ... 1.1 U_s	0.7 ... 1.1 U_s	0.7 ... 1.1 U_s	0.7 ... 1.1 U_s	0.7 ... 1.1 U_s
Power input (short time) at:						
AC 50/60 Hz 12–24 V	VA 40 ... 300	87 ... 405	87 ... 405	81 ... 701	86 ... 631	177 ... 1207
AC 50/60 Hz 48–60 V	VA –	710 ... 1105	710 ... 1105	58 ... 90	48 ... 71	443 ... 731
AC 50/60 Hz 48–127 V	VA 92 ... 640	–	–	–	–	–
AC 50/60 Hz 110–240 V	VA 51 ... 240	66 ... 432	66 ... 432	118 ... 665	81 ... 505	323 ... 1466
AC 50/60 Hz 380–440 V	VA –	127 ... 188	127 ... 188	125 ... 181	43 ... 68	1193 ... 1641
AC 50/60 Hz 380–600 V	VA 278 ... 700	–	–	–	–	–
AC 50/60 Hz 480–600 V	VA –	34 ... 60	34 ... 60	43 ... 79	41 ... 69	197 ... 312
DC 12–24 V	W 54 ... 400	164 ... 631	164 ... 631	79 ... 1000	46 ... 405	289 ... 865
DC 48–60 V	W 100 ... 160	830 ... 1580	830 ... 1580	18 ... 31	58 ... 94	468 ... 696
DC 110–125 V	W 55 ... 71	112 ... 150	112 ... 150	112 ... 150	74 ... 98	363 ... 473
DC 220–250 V	W 110 ... 140	40 ... 58	40 ... 58	38 ... 52	38 ... 49	513 ... 665
Max. duration of operating voltage	S interrupted automatically					
Max. opening time	ms 50	50	50	50	62	62

Back-up fuses according to UL/CSA for "General Use Switch"

In conformance with Approval File E167267, 3VF circuit-breakers to UL 508 are only permitted to be operated with the following UL- or CSA-approved back-up fuses up to AC 600 V:

Type	Rated current "I" I_n A	max. UL back-up fuse (AC 600 V) A
3VF31 31-.FL41-....	50	200
3VF31 31-.FN41-....	60	225
3VF31 31-.FQ41-....	80	300
3VF31 31-.FS41-....	100	400
3VF42 31-.DF41-....	125	500
3VF42 31-.DH41-....	150	600
3VF42 31-.DK41-....	200	800
3VF42 31-.DM41-....	250	1000
3VF52 31-.DF41-....	200	800
3VF52 31-.DH41-....	250	1000
3VF62 31-.DF41-....	300	1200
3VF62 31-.DH41-....	400	1600
3VF62 31-.DK41-....	500	2000

Technical specifications

Type		3VF3	3VF4	3VF5	3VF6	3VF7	3VF8	
Motorized operating mechanism								
Power input	W	200	200	200	300	1000	2000	
Rated control voltage	AC 50/60 Hz V	–	42	–	110–127	220–240	110–127 220–240	110–127 220–240
	DC V	24	48	60	110	220	48 110	48 –
Back-up fuse or miniature circuit-breaker	A	10 (for 3VF6: 16 A)	6 (for 3VF6: 10 A)	6	6	25 (for DC 32 (A))	16 32	20
Operating range	V	0.85 ... 1.1 U _s	0.85 ... 1.1 U _s	0.85 ... 1.1 U _s	0.85 ... 1.1 U _s	0.85 ... 1.1 U _s	0.85 ... 1.1 U _s	
Minimum command duration at U _s	s	1	1	1	1	0.5	0,03	
Max. make- or break-time	s	1	1	1	1	0.5	0.5	
Reclosure after approx.	s	2	2	2	2	60	60	
Max. permissible switching frequency	1/h	120	120	60	60 (4-pole: 20)	60	20	
Max. command duration	s	Non-maintained or continuous signal (depends on circuit)						
Synchronized motorized operating mechanism								
Power input	W	–	200	200	300	–	–	
Rated control voltage	AC 50/60 Hz V	–	– 42	–	110 ... 127 220 ... 240	–	–	
	DC V	–	24 48	60	110 220	–	–	
Back-up fuse or miniature circuit-breaker	A	–	10 6 (for 3VF6: 10 A)	6	6	–	–	
Operating range	V	–	0.85 ... 1.1 U _s	0.85 ... 1.1 U _s	0.85 ... 1.1 U _s	–	–	
Minimum command duration at U _s	ms	–	45	45	45	–	–	
Total make-time	ms	–	50	50	50	–	–	
Break-time	s	–	1	1	1	–	–	
Charging time	s	–	2	2	2	–	–	
Reclosure after approx.	s	–	3	3	3	–	–	
Max. permissible switching frequency	1/h	–	60	60	60 (4-pole: 20)	–	–	
Max. command duration	s	–	Non-maintained or continuous signal (depends on circuit)					
Solenoid operating mechanism								
Making current								
at rated operating voltage								
AC 110–120 V, DC 110–120 V	A	20	–	–	–	–	–	
AC 220–240 V, DC 220–240 V	A	11						
Back-up fuse								
AC 110–120 V, DC 110–120 V	A	6						
AC 220–240 V, DC 220–240 V	A	4						
Operating range	V	0.85 ... 1.1 U _s	–	–	–	–	–	
Minimum command duration at U _s	ms	30						
Max. make- or break-time	ms	80						
Minimum necessary interval after make-break operation	s	15						

Circuit-Breakers up to 2500 A

General data

Switching of DC currents

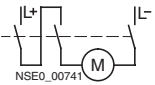
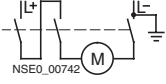
The 3VF3 to 3VF6 circuit-breakers for system protection with overcurrent trip unit versions "LI" can also be used to switch DC currents.

The 3VF5 to 3VF8 circuit-breakers for system protection with overcurrent trip unit version "LSI" and 3VF for motor protection are not suitable for DC currents because of their electronic overload release.

However, the maximum permitted DC voltage for each current path needs to be taken into account for DC switching applications.

For higher voltages, 2 or 3 current paths must be connected in series. If 4 current paths are connected in series, it must be ensured that the 4th pole (N) does not have an overload and short-circuit release (see Page 4/160 and 4/166, footnote 2).

Since all current paths must carry a current to comply with the thermal tripping characteristics, we suggest implementation of the following circuits. With DC applications, the response values of the instantaneous short-circuit releases ("I" trip units) are increased by 30 to 40 %.

Recommended circuit configuration	Max. permissible DC voltage U_e	Note
For 3 and 4-pole circuit-breakers		
	DC 250 V	2-pole switching If there is no possibility of a ground fault, or if every ground fault is rectified immediately (ground-fault monitoring), then the maximum permitted DC voltage is 600 V.
	DC 440 V	2-pole switching (grounded system) The grounded pole is always assigned to the individual current path, so that there are always 2 current paths in series in the event of a ground fault.
	DC 600 V	1-pole switching (grounded system) 3 current paths in series. The grounded pole is assigned to the unconnected current path.
	DC 750 V	1-pole switching (grounded system) 4 current paths in series. The grounded pole is assigned to the unconnected current path.

Correlation between the short-circuit making capacity, the short-circuit breaking capacity and the corresponding power factor (to IEC 60947-2)

Short-circuit breaking capacity I_A	Power factor p.f.	Minimum value for short-circuit making capacity (n times short-circuit breaking capacity) $n \times I$
$4500 < I \leq 6000$	0.7	$1.5 \times I$
$6000 < I \leq 10000$	0.5	$1.7 \times I$
$10000 < I \leq 20000$	0.3	$2.0 \times I$
$20000 < I \leq 50000$	0.25	$2.1 \times I$
$50000 < I$	0.2	$2.2 \times I$

Rated short-circuit breaking capacity

Rated ultimate short-circuit breaking capacity I_{cu} and rated service short-circuit breaking capacity I_{cs}

Type		3VF3	3VF5	3VF6
Rated current I_n	A	205	315	500

3VF circuit-breakers for motor protection

up to AC 220/240 V																				
I_{cu}	kA		85	100				65	100			65	100							
I_{cs}	kA		85	100				33	50			33	50							
up to AC 380/415 V																				
I_{cu}	kA		40	70				40	65			40	65							
I_{cs}	kA		40	70				20	33			20	33							
up to AC 440 V																				
I_{cu}	kA		25	40				35	50			35	50							
I_{cs}	kA		13	20				18	25			18	25							
up to AC 500 V																				
I_{cu}	kA		18	25				30	42			30	42							
I_{cs}	kA		9	13				15	21			15	21							
up to AC 690 V																				
I_{cu}	kA		12	14				20	25			20	25							
I_{cs}	kA		6	7				10	13			10	13							

Type		3VF2	3VF3	3VF3 ¹⁾	3VF4	3VF5	3VF6	3VF6	3VF7	3VF8
Rated current I_n	A	125	160	160/200 ⁵⁾ 225 ⁵⁾	250	400	630	800	800/1250	1600/2000/2500

3VF circuit-breakers for system protection

up to AC 220/240 V																					
I_{Cu}	kA	65	40	85	100	200	85	100	200	85	100	200	85	100	200	65	85	100	200	135	200
I_{CS}	kA	40	40	85	100	150	85	100	150	85	100	150	85	100	150	33	85	100	100	100	100
up to AC 380/415 V																					
I_{Cu}	kA	18	25	40	70	100	40	70	100	45	70	100	45	70	100	50	50	70	100	70	100
I_{CS}	kA	9	25	40	70	75	40	70	75	45	70	75	45	70	75	25	50	50	50	50	50
up to AC 440 V																					
I_{Cu}	kA	–	–	25	40	65	25	50	80	35	50	80	35	50	80	35	35	50	80	50	80
I_{CS}	kA	–	–	13	20	33	13	25	40	18	25	40	18	25	40	18	18	25	40	25	40
up to AC 500 V																					
I_{Cu}	kA	–	–	18	25	50	20	42	65	30	42	65	30	42	65	35	30	42	65	42	65
I_{CS}	kA	–	–	9	13	25	10	21	33	15	21	33	15	21	33	18	15	21	33	21	33
up to AC 690 V																					
I_{Cu}	kA	–	–	12 ¹⁾	14 ¹⁾	18 ¹⁾⁵⁾	14	18	22	20	25	35	20	25	35	20	20	25	35	25	35
I_{CS}	kA	–	–	6 ¹⁾	7 ¹⁾	6 ¹⁾⁵⁾	7	9	11	10	13	18	10	13	18	10	10	13	18	13	18

Type		3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Rated current I_n	A	160/225 ⁴⁾	250 (200) ²⁾	315/400	500/630	800/1250	1600/2000

3VF circuit-breakers for starter combinations

3VF non-automatic circuit-breakers

up to AC 220/240 V																				
I_{cu}	kA		100	85 ³⁾	100	65 ³⁾	100	65 ³⁾	100		85 ³⁾	100 ³⁾		125 ³⁾						
I_{cs}	kA		100	85 ³⁾	100	33 ³⁾	50	33 ³⁾	50		85 ³⁾	100 ³⁾		63 ³⁾						
up to AC 380/415 V																				
I_{cu}	kA		70	40 ³⁾	70	40 ³⁾	65	40 ³⁾	65		50 ³⁾	70 ³⁾		65 ³⁾						
I_{cs}	kA		70	40 ³⁾	70	20 ³⁾	33	20 ³⁾	33		50 ³⁾	50 ³⁾		33 ³⁾						
up to AC 440 V																				
I_{cu}	kA		40	25 ³⁾	50	35 ³⁾	50	35 ³⁾	50		35 ³⁾	50 ³⁾		50 ³⁾						
I_{cs}	kA		20	13 ³⁾	25	18 ³⁾	25	18 ³⁾	25		18 ³⁾	25 ³⁾		25 ³⁾						
up to AC 500 V																				
I_{cu}	kA		25	20 ³⁾	42	30 ³⁾	42	30 ³⁾	42		30 ³⁾	42 ³⁾		42 ³⁾						
I_{cs}	kA		13	10 ³⁾	21	15 ³⁾	21	15 ³⁾	21		15 ³⁾	21 ³⁾		21 ³⁾						
up to AC 690 V																				
I_{cu}	kA		14	14 ³⁾	18	20 ³⁾	25	20 ³⁾	25		20 ³⁾	25 ³⁾		25 ³⁾						
I_{cs}	kA		7	7 ³⁾	9	10 ³⁾	13	10 ³⁾	13		10 ³⁾	13 ³⁾		13 ³⁾						

1) 3VF3 circuit-breakers with rated currents I_n up to 40 A; max. rated operating voltage U_e = AC 500 V (3VF31 13, 3VF31 14 circuit-breakers).

2) Values in brackets for circuit-breakers for starter combinations

3) Values apply to non-automatic circuit-breakers only.

4) 225 A: for non-automatic circuit-breakers only.

5) 205/225 A: with AC 690 V I_{cu} = 14 kA, I_{cs} = 7 kA.

Circuit-Breakers up to 2500 A

3-pole, fixed-mounted design

Selection and ordering data

System protection, TM

3VF2 circuit-breakers, up to 18 kA

Making/breaking capacity class			A
Rated ultimate short-circuit breaking capacity I_{cu}	up to 240 V	kA	65
	up to 415 V	kA	18
Rated service short-circuit breaking capacity I_{cs}	up to 240 V	kA	33
	up to 415 V	kA	9
Rated short-circuit making capacity I_{cm}	up to 240 V	kA	143
	up to 415 V	kA	38



	Rated current I_n	Setting current of the inverse-time delayed overload release "L"	Operating current of instantaneous short-circuit release "I"	DT	VF100 circuit-breaker Making/breaking capacity class A	Weight per PU approx.
	A	A	A		Order No.	kg
	With permanently set thermal overload releases					
 NSE0_00695	16	16	350	B	3VF22 13-0FC41-0AA0	0.948
	20	20	450	B	3VF22 13-0FD41-0AA0	0.953
	25	25	500	B	3VF22 13-0FE41-0AA0	0.961
	32	32	600	B	3VF22 13-0FG41-0AA0	0.949
	40	40	750	B	3VF22 13-0FJ41-0AA0	0.973
	45	45	750	B	3VF22 13-0FK41-0AA0	0.960
	50	50	800	B	3VF22 13-0FL41-0AA0	0.963
	63	63	800	B	3VF22 13-0FN41-0AA0	0.967
	70	70	900	B	3VF22 13-0FP41-0AA0	0.980
	80	80	900	B	3VF22 13-0FQ41-0AA0	0.976
	90	90	1000	B	3VF22 13-0FR41-0AA0	0.968
	100	100	1000	B	3VF22 13-0FS41-0AA0	0.977

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For shunt releases and auxiliary/alarm switches see Accessories, Page 4/173.

System protection, TM

3VF3 circuit-breaker, up to 25 kA

Making/breaking capacity class			A
Rated ultimate short-circuit breaking capacity I_{CU}	up to 240 V	kA	40
	up to 415 V	kA	25
Rated service short-circuit breaking capacity I_{CS}	up to 240 V	kA	40
	up to 415 V	kA	25
Rated short-circuit making capacity I_{CM}	up to 240 V	kA	84
	up to 415 V	kA	52

	Rated current I_n	Setting current of the inverse-time delayed overload release "L" I_r	Operating current of instantaneous short-circuit release "I" I_i	DT	3VF3 circuit-breaker	Weight per PU approx.
	A	A	A		Order No.	kg
	With permanently set thermal overload releases					
 NSE0_00695	16	16	400	B	3VF31 13-0FC41-0AA0	2.300
	20	20	400	B	3VF31 13-0FD41-0AA0	2.300
	25	25	400	B	3VF31 13-0FE41-0AA0	2.300
	32	32	400	B	3VF31 13-0FG41-0AA0	2.300
	40	40	400	B	3VF31 13-0FJ41-0AA0	2.300
	50	50	400	B	3VF31 11-0FL41-0AA0	2.300
	63	63	500	B	3VF31 11-0FN41-0AA0	2.300
	80	80	630	B	3VF31 11-0FQ41-0AA0	2.300
	100	100	800	B	3VF31 11-0FS41-0AA0	2.300
	125	125	1000	B	3VF32 11-0FU41-0AA0	2.300
	160	160	1280	B	3VF32 11-0FW41-0AA0	2.300

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For accessories, see from Page 4/174 onwards.

Auxiliary releases and auxiliary/alarm switches to be retrofitted by the customer.

Circuit-Breakers up to 2500 A

3-pole, fixed-mounted design

3VF3 to 3VF6 circuit-breakers



3VF5 circuit-breaker
for fixed mounting



3VF5 plug-in circuit-breaker
with plug-in base
(for plug-in bases
see Pages 4/182 to 4/185)

Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_L	Operating current of the instanta- neous short- circuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V	Weight per PU approx.
	A	A	A		Fixed-mounted circuit-breakers	
					Order No.	
					Order No. supplements, see Pages 4/171 and 4/172.	kg

System protection, TM

Circuit-breakers with permanently set thermal overload releases; for I_n up to 40 A: U_g max. AC 415 A

3VF3		16 20 25 32 40	16 20 25 32 40	400 400 400 400 400	B B B B B	3VF31 13-1FC41-.... 3VF31 13-1FD41-.... 3VF31 13-1FE41-.... 3VF31 13-1FG41-.... 3VF31 13-1FJ41-....	2.300 2.300 2.300 2.300 2.300
		50 63 80 100 125 160 200 225	50 63 80 100 125 160 200 225	400 500 630 800 1000 1280 2400 2400	B B B B B B B B	3VF31 11-1FL41-.... 3VF31 11-1FN41-.... 3VF31 11-1FQ41-.... 3VF31 11-1FS41-.... 3VF32 11-1FU41-.... 3VF32 11-1FW41-.... 3VF33 11-1FX41-.... 3VF33 11-1FY41-....	2.300 2.300 2.300 2.300 2.300 2.300 2.300 2.300
3VF4		125 160 200 250	125 160 200 250	625-1250 800-1600 1000-2000 1250-2500	B B B B	3VF42 11-1DF41-.... 3VF42 11-1DH41-.... 3VF42 11-1DK41-.... 3VF42 11-1DM41-....	4.200 4.200 4.200 4.200
3VF5		200 250 315 400	200 250 315 400	1000-2000 1250-2500 1575-3150 2000-4000	B B B B	3VF52 11-1DF41-.... 3VF52 11-1DH41-.... 3VF52 11-1DK41-.... 3VF52 11-1DM41-....	5.500 5.500 5.500 5.500
3VF6		315 400 500 630 800	315 400 500 630 800	1575-3150 2000-4000 2500-5000 3150-6300 3200-6400	B B B B B	3VF62 11-1DF44-.... 3VF62 11-1DH44-.... 3VF62 11-1DK44-.... 3VF62 11-1DM44-.... 3VF63 11-2DQ44-....	8.400 ¹⁾ 8.400 ¹⁾ 8.400 ¹⁾ 8.400 ¹⁾ 8.400 ¹⁾²⁾

Circuit-breakers with adjustable thermal overload releases

3VF3		50 63 80 100 125 160 200	40- 50 50- 63 63- 80 80-100 100-125 125-160 160-200	300- 500 315- 630 400- 800 500-1000 625-1250 800-1600 1000-2000	B B B B B B B	3VF31 11-1BL41-.... 3VF31 11-1BN41-.... 3VF31 11-1BQ41-.... 3VF31 11-1BS41-.... 3VF32 11-1BU41-.... 3VF32 11-1BW41-.... 3VF33 11-1BX41-....	2.300 2.300 2.300 2.300 2.300 2.300 2.300
3VF4		125 160 200 250	100-125 125-160 160-200 200-250	625-1250 800-1600 1000-2000 1250-2500	B B B B	3VF42 11-1BF41-.... 3VF42 11-1BH41-.... 3VF42 11-1BK41-.... 3VF42 11-1BM41-....	4.200 4.200 4.200 4.200
3VF5		200 250 315 400	160-200 200-250 250-315 315-400	1000-2000 1250-2500 1575-3150 2000-4000	B B B B	3VF52 11-1BF41-.... 3VF52 11-1BH41-.... 3VF52 11-1BK41-.... 3VF52 11-1BM41-....	5.500 5.500 5.500 5.500
3VF6		315 400 500 630	250-315 315-400 400-500 500-630	1575-3150 2000-4000 2500-5000 3150-6300	B B B B	3VF62 11-1BF44-.... 3VF62 11-1BH44-.... 3VF62 11-1BK44-.... 3VF62 11-1BM44-....	8.400 ¹⁾ 8.400 ¹⁾ 8.400 ¹⁾ 8.400 ¹⁾

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

1) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.

2) 50 kA at AC 380/415 V.

Circuit-Breakers up to 2500 A

3-pole, fixed-mounted design



3VF6 circuit-breaker,
with front busbar connection
pieces



3VF7 circuit-breaker
Busbar connection pieces
must be ordered separately

DT High switching capacity 70 kA at AC 380/415 V			DT Very high switching capacity 100 kA at AC 380/415 V		
Fixed-mounted circuit-breakers		Weight per PU approx.	Fixed-mounted circuit-breakers		Weight per PU approx.
Order No.			Order No.		
Order No. supplements, see Pages 4/171 and 4/172.		kg	Order No. supplements, see Pages 4/171 and 4/172.		kg
B 3VF31 13-2FC41-....	2.300		—		
B 3VF31 13-2FD41-....	2.300		—		
B 3VF31 13-2FE41-....	2.300		—		
B 3VF31 13-2FG41-....	2.300		B 3VF31 13-3FG41-....	2.300	
B 3VF31 13-2FJ41-....	2.300		B 3VF31 13-3FJ41-....	2.300	
B 3VF31 11-2FL41-....	2.300		B 3VF31 11-3FL41-....	2.300	
B 3VF31 11-2FN41-....	2.300		B 3VF31 11-3FN41-....	2.300	
B 3VF31 11-2FQ41-....	2.300		B 3VF31 11-3FQ41-....	2.300	
B 3VF31 11-2FS41-....	2.300		B 3VF31 11-3FS41-....	2.300	
B 3VF32 11-2FU41-....	2.300		B 3VF32 11-3FU41-....	2.300	
B 3VF32 11-2FW41-....	2.300		B 3VF32 11-3FW41-....	2.300	
B 3VF33 11-2FX41-....	2.300		B 3VF33 11-3FX41-....	2.300	
B 3VF33 11-2FY41-....	2.300		B 3VF33 11-3FY41-....	2.300	
B 3VF42 11-2DF41-....	4.200		B 3VF42 11-3DF41-....	4.200	
B 3VF42 11-2DH41-....	4.200		B 3VF42 11-3DH41-....	4.200	
B 3VF42 11-2DK41-....	4.200		B 3VF42 11-3DK41-....	4.200	
B 3VF42 11-2DM41-....	4.200		B 3VF42 11-3DM41-....	4.200	
B 3VF52 11-2DF41-....	5.500		B 3VF52 11-3DF41-....	5.500	
B 3VF52 11-2DH41-....	5.500		B 3VF52 11-3DH41-....	5.500	
B 3VF52 11-2DK41-....	5.500		B 3VF52 11-3DK41-....	5.500	
B 3VF52 11-2DM41-....	5.500		B 3VF52 11-3DM41-....	5.500	
B 3VF62 11-2DF44-....	8.400 ¹⁾		B 3VF62 11-3DF44-....	8.400 ¹⁾	
B 3VF62 11-2DH44-....	8.400 ¹⁾		B 3VF62 11-3DH44-....	8.400 ¹⁾	
B 3VF62 11-2DK44-....	8.400 ¹⁾		B 3VF62 11-3DK44-....	8.400 ¹⁾	
B 3VF62 11-2DM44-....	8.400 ¹⁾		B 3VF62 11-3DM44-....	8.400 ¹⁾	
—			—		
B 3VF31 11-2BL41-....	2.300		B 3VF31 11-3BL41-....	2.300	
B 3VF31 11-2BN41-....	2.300		B 3VF31 11-3BN41-....	2.300	
B 3VF31 11-2BQ41-....	2.300		B 3VF31 11-3BQ41-....	2.300	
B 3VF31 11-2BS41-....	2.300		B 3VF31 11-3BS41-....	2.300	
B 3VF32 11-2BU41-....	2.300		B 3VF32 11-3BU41-....	2.300	
B 3VF32 11-2BW41-....	2.300		B 3VF32 11-3BW41-....	2.300	
B 3VF33 11-2BX41-....	2.300		B 3VF33 11-3BX41-....	2.300	
B 3VF42 11-2BF41-....	4.200		B 3VF42 11-3BF41-....	4.200	
B 3VF42 11-2BH41-....	4.200		B 3VF42 11-3BH41-....	4.200	
B 3VF42 11-2BK41-....	4.200		B 3VF42 11-3BK41-....	4.200	
B 3VF42 11-2BM41-....	4.200		B 3VF42 11-3BM41-....	4.200	
B 3VF52 11-2BF41-....	5.500		B 3VF52 11-3BF41-....	5.500	
B 3VF52 11-2BH41-....	5.500		B 3VF52 11-3BH41-....	5.500	
B 3VF52 11-2BK41-....	5.500		B 3VF52 11-3BK41-....	5.500	
B 3VF52 11-2BM41-....	5.500		B 3VF52 11-3BM41-....	5.500	
B 3VF62 11-2BF44-....	8.400 ¹⁾		B 3VF62 11-3BF44-....	8.400 ¹⁾	
B 3VF62 11-2BH44-....	8.400 ¹⁾		B 3VF62 11-3BH44-....	8.400 ¹⁾	
B 3VF62 11-2BK44-....	8.400 ¹⁾		B 3VF62 11-3BK44-....	8.400 ¹⁾	
B 3VF62 11-2BM44-....	8.400 ¹⁾		B 3VF62 11-3BM44-....	8.400 ¹⁾	

Circuit-Breakers up to 2500 A

3-pole, fixed-mounted design

3VF5 to 3VF8 circuit-breakers



3VF5 circuit-breaker
for fixed mounting



3VF5 plug-in circuit-breaker
with plug-in base
(for plug-in bases
see Pages 4/182 to 4/185)

Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating current of the short-time delayed short-circuit release "S" I_d	Operating time of the short-time delayed short-circuit release "S" t_d	Operating current of the instan- taneous short-cir- cuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V	Weight per PU approx.
	A	A	A	ms	A		Fixed-mounted circuit-breakers	
							Order No.	
							Order No. supplements, see Pages 4/171 and 4/172.	kg

System protection, ETU

Circuit-breakers with adjustable thermal overload releases

Type	With time-based discrimination	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating current of the short-time delayed short-circuit release "S" I_d	Operating time of the short-time delayed short-circuit release "S" t_d	Operating current of the instan- taneous short-cir- cuit release "I" I_i	DT	Order No.	Weight per PU approx.
3VF5	With time-based discrimination	400	200, 250, 315, 400	$2 \dots 8 \times I_r$	0 ... 300	4000	B	3VF52 11-1BM61-....	5.500
3VF6		630	315, 400, 500, 630	$2 \dots 8 \times I_r$	0 ... 300	5500	B	3VF62 11-1BM64-....	8.400 ¹⁾
3VF7		800	400, 500, 630, 800	$2 \dots 8 \times I_r$	0 ... 300	15000 ⁴⁾	B	3VF71 11-1BK60-....	19.600 ²⁾
		1250	630, 800, 1000, 1250	$2 \dots 8 \times I_r$	0 ... 300	15000 ⁴⁾	B	3VF72 11-1BM60-....	19.600 ²⁾
3VF8		1600	800, 1000, 1250, 1600	$2 \dots 8 \times I_r$	0 ... 300	20000 ⁴⁾		—	
		2000	1000, 1250, 1600, 2000	$2 \dots 8 \times I_r$	0 ... 300	20000 ⁴⁾			
		2500	1600, 1800, 2000, 2500	$2 \dots 8 \times I_r$	0 ... 300	20000 ⁴⁾			

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

- 1) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.
- 2) Busbar connection pieces or multiple feed-in terminals must be ordered separately (see Accessories).
- 3) Rear busbar connection pieces are included in the scope of supply and are to be fitted vertically.
- 4) Operating value of the short-time delayed short-circuit release 2 to $8 \times I_r$ and 0 to 300 ms.

Circuit-Breakers up to 2500 A

3-pole, fixed-mounted design



3VF6 circuit-breaker,
with front busbar connection pieces



3VF7 circuit-breaker
Busbar connection pieces
must be ordered separately

DT **High switching capacity**
70 kA at AC 380/415 V

Fixed-mounted circuit-breakers

Weight
per PU
approx.

Order No.

Order No. supplements,
see Pages 4/171 and 4/172.

kg

DT **Very high switching capacity**
100 kA at AC 380/415 V

Fixed-mounted circuit-breakers

Weight
per PU
approx.

Order No.

Order No. supplements,
see Pages 4/171 and 4/172.

kg

4

B	3VF52 11-2BM61-....	5.500	B	3VF52 11-3BM61-....	5.500
B	3VF62 11-2BM64-....	8.400 ¹⁾	B	3VF62 11-3BM64-....	8.400 ¹⁾
B	3VF71 11-2BK60-....	19.600 ²⁾	B	3VF71 11-3BK60-....	19.600 ²⁾
B	3VF72 11-2BM60-....	19.600 ²⁾	B	3VF72 11-3BM60-....	19.600 ²⁾
B	3VF82 11-2BM60-....	49.000 ²⁾	B	3VF82 11-3BM60-....	49.000 ²⁾
B	3VF83 11-2BM60-....	50.000 ²⁾	B	3VF83 11-3BM60-....	50.000 ²⁾
B	3VF84 11-2BM64-....	50.000 ³⁾	B	3VF84 11-3BM64-....	50.000 ³⁾

Circuit-Breakers up to 2500 A

3-pole, fixed-mounted design

3VF3 to 3VF8 circuit-breakers

Type	Rated current I_n	Rating of the three-phase motors to be protected ¹⁾ at AC 50 Hz		Setting current of the inverse-time delayed over-load release "L" I_r	Operating current of the instantaneous short-circuit release "I" I_i	Time lag class T_c	DT	Standard switching capacity 40/50 kA at AC 380/415 V Fixed-mounted circuit-breakers	Weight per PU approx.
	A	380/415 V up to kW	500 V up to kW	A	A			Order No.	
								Order No. supplements, see Pages 4/171 and 4/172.	kg

Motor protection, ETU²⁾

without adjustable time lag class, without phase failure sensitivity

3VF3		80 100 160 205	37 45 75 110	55 55 110 132	40–80 80–100 100–160 160–205	$15 \times I_r$ $15 \times I_r$ $15 \times I_r$ $13 \times I_r$	10 10 10 10	B B B B	3VF31 11–5DN71–.... 3VF31 11–5DQ71–.... 3VF32 11–5DS71–.... 3VF33 11–5DU71–....	2.300 2.300 2.300 2.300
3VF5		315	160	200	160–315	$15 \times I_r$	20	B	3VF51 11–5DL71–....	4.200
3VF6		500	250	355	250–500	$15 \times I_r$	20	B	3VF61 11–5DL74–....	4.200 ³⁾

with adjustable time lag class, with phase failure sensitivity

3VF3		80 100 160 205	37 45 75 110	55 55 110 132	40–80 80–100 100–160 160–205	$15 \times I_r$ $15 \times I_r$ $15 \times I_r$ $13 \times I_r$	5/10/15/20 5/10/15/20 5/10/15/20 10	B B B B	3VF31 11–5EN71–.... 3VF31 11–5EQ71–.... 3VF32 11–5ES71–.... 3VF33 11–5FU71–....	2.300 2.300 2.300 2.300
3VF5		315	160	200	160–315	$15 \times I_r$	10/15/20/30	B	3VF51 11–5EL71–....	4.200
3VF6		500	250	355	250–500	$15 \times I_r$	10/15/20/30	B	3VF61 11–5EL74–....	4.200 ³⁾

Starter combinations

3VF3		up to 63 up to 100 up to 160	30 45 75	37 55 110	–	500–1000 750–1500 1200–2400	–	–		
3VF4		up to 125 up to 160 up to 200	55 75 90	75 110 132	–	1000–2000 1250–2500 1500–3000	–	–		
3VF5		up to 200 up to 250 up to 315	90 110 160	132 160 200	–	1500–3000 1900–3800 2400–4800	–	–		
3VF6		up to 315 up to 400 up to 500	160 200 250	200 250 355	–	2400–4800 3000–6000 3800–7500	–	–		

Non-automatic circuit-breakers

3VF3		up to 100 up to 160	– –	– –	–	2400 2400	–	–		
3VF4		up to 250	–	–	–	3000	–	B	3VF42 11–5BM31–....	4.200
3VF5		up to 400	–	–	–	4800	–	B	3VF52 11–5BM31–....	5.500
3VF6		up to 500 up to 630	– –	– –	–	7500 7500	–	B	3VF62 11–5BM34–....	8.400 ³⁾
3VF7		up to 800 up to 1250	– –	– –	–	15000 15000	–	B B	3VF71 11–1BK30–.... 3VF72 11–1BM30–....	19.600 ⁴⁾ 19.600 ⁴⁾
3VF8		up to 1600 up to 2000	– –	– –	–	20000 20000	–	–		

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

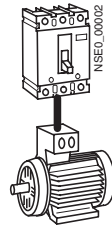
For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

- 1) Guide values for 4-pole standard motors. The start-up data and ratings of the motor to be protected are the determining factors.
- 2) System protection circuit-breakers must be used in combination with frequency converters or soft starters.
- 3) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.
- 4) Busbar connection pieces must be ordered separately (see Accessories).

Circuit-Breakers up to 2500 A

3-pole, fixed-mounted design

DT	High switching capacity 65/70 kA at AC 380/415 V	
	Fixed-mounted circuit-breakers	Weight per PU approx.
	Order No.	
	Order No. supplements, see Pages 4/171 and 4/172.	kg



3VF circuit-breaker
for motor protection

B	3VF31 11-6DN71-....	2.300
B	3VF31 11-6DQ71-....	2.300
B	3VF32 11-6DS71-....	2.300
B	3VF33 11-6DU71-....	2.300

B	3VF51 11-6DL71-....	4.200
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B	3VF61 11-6DL74-....	4.200 ³⁾
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B	3VF31 11-6EN71-....	2.300
B	3VF31 11-6EQ71-....	2.300
B	3VF32 11-6ES71-....	2.300
B	3VF33 11-6FU71-....	2.300

B	3VF51 11-6EL71-....	4.200
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B	3VF61 11-6EL74-....	4.200 ³⁾
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B	3VF31 11-6BS21-....	2.300
B	3VF31 11-6BU21-....	2.300
B	3VF32 11-6BW21-....	2.300

B	3VF42 11-6BH21-....	4.200
B	3VF42 11-6BK21-....	4.200
B	3VF42 11-6BM21-....	4.200

B	3VF51 11-6BH21-....	5.500
B	3VF51 11-6BK21-....	5.500
B	3VF51 11-6BM21-....	5.500

B	3VF61 11-6BH24-....	8.400 ³⁾
B	3VF61 11-6BK24-....	8.400 ³⁾
B	3VF61 11-6BM24-....	8.400 ³⁾

B	3VF31 11-6BS31-....	2.300
B	3VF32 11-6BW31-....	2.300

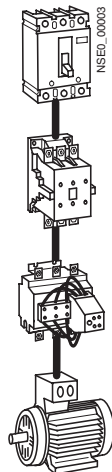
B	3VF42 11-6BM31-....	4.200
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B	3VF52 11-6BM31-....	5.500
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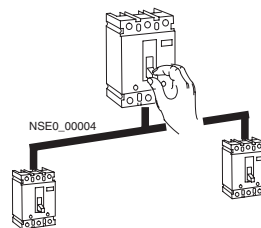
B	3VF61 11-6BK34-....	8.400 ³⁾
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B	3VF71 11-2BK30-....	25.500 ⁴⁾
B	3VF72 11-2BM30-....	25.500 ⁴⁾

B	3VF82 11-2BM30-....	25.500 ⁴⁾
B	3VF83 11-2BM30-....	25.500 ⁴⁾



3VF circuit-breaker
for starter combinations



3VF non-automatic circuit-
breaker

Circuit-Breakers up to 2500 A

3-pole, plug-in/withdrawable design

3VF3 to 3VF6 circuit-breakers



3VF5 circuit-breaker
for fixed mounting



3VF5 plug-in circuit-breaker
with plug-in base
(for plug-in bases
see Pages 4/182 to 4/185)

Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating current of the instantaneous short- circuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V	Weight per PU approx.
	A	A	A		Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185. Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg

System protection, TM

Circuit-breakers with permanently set thermal overload releases; for I_n up to 40 A: U_e max AC 415 V

3VF3		16 20 25 32 40	16 20 25 32 40	400 400 400 400 400	B B B B B	3VF31 13-1FC47-.... 3VF31 13-1FD47-.... 3VF31 13-1FE47-.... 3VF31 13-1FG47-.... 3VF31 13-1FJ47-....	2.300 2.300 2.300 2.300 2.300
		50 63 80 100 125 160 200 225	50 63 80 100 125 160 200 225	400 500 630 800 1000 1280 2400 2400	B B B B B B B B	3VF31 11-1FL47-.... 3VF31 11-1FN47-.... 3VF31 11-1FQ47-.... 3VF31 11-1FS47-.... 3VF32 11-1FU47-.... 3VF32 11-1FW47-.... 3VF33 11-1FX47-.... 3VF33 11-1FY47-....	2.300 2.300 2.300 2.300 2.300 2.300 2.300 2.300
3VF4		125 160 200 250	125 160 200 250	625–1250 800–1600 1000–2000 1250–2500	B B B B	3VF42 11-1DF47-.... 3VF42 11-1DH47-.... 3VF42 11-1DK47-.... 3VF42 11-1DM47-....	4.200 4.200 4.200 4.200
3VF5		200 250 315 400	200 250 315 400	1000–2000 1250–2500 1575–3150 2000–4000	B B B B	3VF52 11-1DF47-.... 3VF52 11-1DH47-.... 3VF52 11-1DK47-.... 3VF52 11-1DM47-....	5.500 5.500 5.500 5.500
3VF6		315 400 500 630 800	315 400 500 630 800	1575–3150 2000–4000 2500–5000 3150–6300 3200–6400	B B B B B	3VF62 11-1DF47-.... 3VF62 11-1DH47-.... 3VF62 11-1DK47-.... 3VF62 11-1DM47-.... –	8.400 8.400 8.400 8.400 –

Circuit-breakers with adjustable thermal overload releases

3VF3		50 63 80 100 125 160 200	40– 50 50– 63 63– 80 80–100 100–125 125–160 160–200	300– 500 315– 630 400– 800 500–1000 625–1250 800–1600 1000–2000	B B B B B B B	3VF31 11-1BL47-.... 3VF31 11-1BN47-.... 3VF31 11-1BQ47-.... 3VF31 11-1BS47-.... 3VF32 11-1BU47-.... 3VF32 11-1BW47-.... 3VF33 11-1BX47-....	2.300 2.300 2.300 2.300 2.300 2.300 2.300
3VF4		125 160 200 250	100–125 125–160 160–200 200–250	625–1250 800–1600 1000–2000 1250–2500	B B B B	3VF42 11-1BF47-.... 3VF42 11-1BH47-.... 3VF42 11-1BK47-.... 3VF42 11-1BM47-....	4.200 4.200 4.200 4.200
3VF5		200 250 315 400	160–200 200–250 250–315 315–400	1000–2000 1250–2500 1575–3150 2000–4000	B B B B	3VF52 11-1BF47-.... 3VF52 11-1BH47-.... 3VF52 11-1BK47-.... 3VF52 11-1BM47-....	5.500 5.500 5.500 5.500
3VF6		315 400 500 630	250–315 315–400 400–500 500–630	1575–3150 2000–4000 2500–5000 3150–6300	B B B B	3VF62 11-1BF47-.... 3VF62 11-1BH47-.... 3VF62 11-1BK47-.... 3VF62 11-1BM47-....	8.400 8.400 8.400 8.400

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof
can be ordered.

For degree of protection IP30, terminal covers are recom-
mended in addition (see Pages 4/182 to 4/185).

Circuit-Breakers up to 2500 A

3-pole, plug-in/withdrawable design



3VF6 circuit-breaker,
with front busbar connection pieces



3VF7 circuit-breaker
Busbar connection pieces
must be ordered separately

DT High switching capacity 70 kA at AC 380/415 V			DT Very high switching capacity 100 kA at AC 380/415 V		
Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.			Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.		
Order No.			Order No.		
Order No. supplements, see Pages 4/171 and 4/172.			Order No. supplements, see Pages 4/171 and 4/172.		
		kg			kg
B	3VF31 13-2FC47-....	2.300	–		
B	3VF31 13-2FD47-....	2.300	–		
B	3VF31 13-2FE47-....	2.300	–		
B	3VF31 13-2FG47-....	2.300	B	3VF31 13-3FG47-....	2.300
B	3VF31 13-2FJ47-....	2.300	B	3VF31 13-3FJ47-....	2.300
B	3VF31 11-2FL47-....	2.300	B	3VF31 11-3FL47-....	2.300
B	3VF31 11-2FN47-....	2.300	B	3VF31 11-3FN47-....	2.300
B	3VF31 11-2FQ47-....	2.300	B	3VF31 11-3FQ47-....	2.300
B	3VF31 11-2FS47-....	2.300	B	3VF31 11-3FS47-....	2.300
B	3VF32 11-2FU47-....	2.300	B	3VF32 11-3FU47-....	2.300
B	3VF32 11-2FW47-....	2.300	B	3VF32 11-3FW47-....	2.300
B	3VF33 11-2FX47-....	2.300	B	3VF33 11-3FX47-....	2.300
B	3VF33 11-2FY47-....	2.300	B	3VF33 11-3FY47-....	2.300
B	3VF42 11-2DF47-....	4.200	B	3VF42 11-3DF47-....	4.200
B	3VF42 11-2DH47-....	4.200	B	3VF42 11-3DH47-....	4.200
B	3VF42 11-2DK47-....	4.200	B	3VF42 11-3DK47-....	4.200
B	3VF42 11-2DM47-....	4.200	B	3VF42 11-3DM47-....	4.200
B	3VF52 11-2DF47-....	5.500	B	3VF52 11-3DF47-....	5.500
B	3VF52 11-2DH47-....	5.500	B	3VF52 11-3DH47-....	5.500
B	3VF52 11-2DK47-....	5.500	B	3VF52 11-3DK47-....	5.500
B	3VF52 11-2DM47-....	5.500	B	3VF52 11-3DM47-....	5.500
B	3VF62 11-2DF47-....	8.400	B	3VF62 11-3DF47-....	8.400
B	3VF62 11-2DH47-....	8.400	B	3VF62 11-3DH47-....	8.400
B	3VF62 11-2DK47-....	8.400	B	3VF62 11-3DK47-....	8.400
B	3VF62 11-2DM47-....	8.400	B	3VF62 11-3DM47-....	8.400
–			–		
B	3VF31 11-2BL47-....	2.300	B	3VF31 11-3BL47-....	2.300
B	3VF31 11-2BN47-....	2.300	B	3VF31 11-3BN47-....	2.300
B	3VF31 11-2BQ47-....	2.300	B	3VF31 11-3BQ47-....	2.300
B	3VF31 11-2BS47-....	2.300	B	3VF31 11-3BS47-....	2.300
B	3VF32 11-2BU47-....	2.300	B	3VF32 11-3BU47-....	2.300
B	3VF32 11-2BW47-....	2.300	B	3VF32 11-3BW47-....	2.300
B	3VF33 11-2BX47-....	2.300	B	3VF33 11-3BX47-....	2.300
B	3VF42 11-2BF47-....	4.200	B	3VF42 11-3BF47-....	4.200
B	3VF42 11-2BH47-....	4.200	B	3VF42 11-3BH47-....	4.200
B	3VF42 11-2BK47-....	4.200	B	3VF42 11-3BK47-....	4.200
B	3VF42 11-2BM47-....	4.200	B	3VF42 11-3BM47-....	4.200
B	3VF52 11-2BF47-....	5.500	B	3VF52 11-3BF47-....	5.500
B	3VF52 11-2BH47-....	5.500	B	3VF52 11-3BH47-....	5.500
B	3VF52 11-2BK47-....	5.500	B	3VF52 11-3BK47-....	5.500
B	3VF52 11-2BM47-....	5.500	B	3VF52 11-3BM47-....	5.500
B	3VF62 11-2BF47-....	8.400	B	3VF62 11-3BF47-....	8.400
B	3VF62 11-2BH47-....	8.400	B	3VF62 11-3BH47-....	8.400
B	3VF62 11-2BK47-....	8.400	B	3VF62 11-3BK47-....	8.400
B	3VF62 11-2BM47-....	8.400	B	3VF62 11-3BM47-....	8.400

Circuit-Breakers up to 2500 A

3-pole, plug-in/withdrawable design

3VF5 to 3VF8 circuit-breakers



3VF5 circuit-breaker
for fixed mounting



3VF5 plug-in circuit-breaker
with plug-in base
(for plug-in bases
see Pages 4/182 to 4/185)

Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating cur- rent of the short-time delayed short-circuit release "S" I_d	Operating time of the short-time delayed short-circuit release "S" t_d	Operating current of the instanta- neous short- circuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V	Weight per PU approx.
	A	A	A	ms	A		Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185. Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg

System protection, ETU

Circuit-breakers with adjustable thermal overload releases

3VF5	With time-based discrimination	400	200, 250, 315, 400	$2 \dots 8 \times I_r$	0 ... 300	4000	B	3VF52 11-1BM67-....	5.500
3VF6		630	315, 400, 500, 630	$2 \dots 8 \times I_r$	0 ... 300	5500	B	3VF62 11-1BM67-....	8.400
3VF7		800	400, 500, 630, 800	$2 \dots 8 \times I_r$	0 ... 300	15000	B	3VF71 11-1BK67-....	19.600
		1250	630, 800, 1000, 1250	$2 \dots 8 \times I_r$	0 ... 300	15000	B	3VF72 11-1BM67-....	19.600
3VF8		1600	800, 1000, 1250, 1600	$2 \dots 8 \times I_r$	0 ... 300	20000	–		
		2000	1000, 1250, 1600, 2000	$2 \dots 8 \times I_r$	0 ... 300	20000			
		2500	1600, 1800, 2000, 2500	$2 \dots 8 \times I_r$	0 ... 300	20000			

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof
can be ordered.

For degree of protection IP30, terminal covers are recom-
mended in addition (see Pages 4/182 to 4/185).

Circuit-Breakers up to 2500 A

3-pole, plug-in/withdrawable design



3VF6 circuit-breaker,
with front busbar connection pieces



3VF7 circuit-breaker
Busbar connection pieces
must be ordered separately

DT	High switching capacity 70 kA at AC 380/415 V	Weight per PU approx.		DT	Very high switching capacity 100 kA at AC 380/415 V	Weight per PU approx.	
	Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.				Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.		
	Order No.				Order No.		
	Order No. supplements, see Pages 4/171 and 4/172.	kg			Order No. supplements, see Pages 4/171 and 4/172.	kg	
B	3VF52 11–2BM67–....	5.500	B	3VF52 11–3BM67–....	5.500		
B	3VF62 11–2BM67–....	8.400	B	3VF62 11–3BM67–....	8.400		
B	3VF71 11–2BK67–....	19.600	B	3VF71 11–3BK67–....	19.600		
B	3VF72 11–2BM67–....	19.600	B	3VF72 11–3BM67–....	19.600		
	–			–			

Circuit-Breakers up to 2500 A

3-pole, plug-in/withdrawable design

3VF3 to 3VF8 circuit-breakers

Type	Rated current I_n	Rating of the three-phase motors to be protected ¹⁾ at AC 50 Hz		Setting current of the inverse-time delayed overload release "L" I_r	Operating current of the instantaneous short-circuit release "I" I_i	Time lag class T_c	DT	Standard switching capacity 40/50 kA at AC 380/415 V	Weight per PU approx.
		380/415 V	500 V					Plug-in circuit-breakers	
	A	up to kW	up to kW	A 	A 			Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.	
								Order No.	
								Order No. supplements, see Pages 4/171 and 4/172.	kg

Motor protection, ETU²⁾

without adjustable time lag class, without phase failure sensitivity

3VF3		80 100 160 205	37 45 75 110	55 55 110 132	40–80 80–100 100–160 160–205	$15 \times I_r$ $15 \times I_r$ $15 \times I_r$ $13 \times I_r$	10 10 10 10	B B B B	3VF31 11–5DN77–.... 3VF31 11–5DQ77–.... 3VF32 11–5DS77–.... 3VF33 11–5DU77–....	2.300 2.300 2.300 2.300
3VF5		315	160	200	160–315	$15 \times I_r$	20	B	3VF51 11–5DL77–....	4.200
3VF6		500	250	355	250–500	$15 \times I_r$	20	B	3VF61 11–5DL77–....	4.200

with adjustable time lag class, with phase failure sensitivity

3VF3		80 100 160 205	37 45 75 110	55 55 110 132	40–80 80–100 100–160 160–205	$15 \times I_r$ $15 \times I_r$ $15 \times I_r$ $13 \times I_r$	5/10/15/20 5/10/15/20 5/10/15/20 10	B B B B	3VF31 11–5EN77–.... 3VF31 11–5EQ77–.... 3VF32 11–5ES77–.... 3VF33 11–5FU77–....	2.300 2.300 2.300 2.300
3VF5		315	160	200	160–315	$15 \times I_r$	10/15/20/30	B	3VF51 11–5EL77–....	4.200
3VF6		500	250	355	250–500	$15 \times I_r$	10/15/20/30	B	3VF61 11–5EL77–....	4.200

Starter combinations

3VF3		up to 63 up to 100 up to 160	30 45 75	37 55 110	–	500–1000 750–1500 1200–2400	–	–		
3VF4		up to 125 up to 160 up to 200	55 75 90	75 110 132	–	1000–2000 1250–2500 1500–3000	–	–		
3VF5		up to 200 up to 250 up to 315	90 110 160	132 160 200	–	1500–3000 1900–3800 2400–4800	–	–		
3VF6		up to 315 up to 400 up to 500	160 200 250	200 250 355	–	2400–4800 3000–6000 3800–7500	–	–		

Non-automatic circuit-breakers

3VF3		up to 100 up to 160	– –	– –	–	2400 2400	–	–		
3VF4		up to 250	–	–	–	3000	–	B	3VF42 11–5BM37–....	4.200
3VF5		up to 400	–	–	–	4800	–	B	3VF52 11–5BM37–....	5.500
3VF6		up to 500 up to 630	– –	– –	–	7500 7500	–	B	3VF62 11–5BM37–....	8.400
3VF7		up to 800 up to 1250	– –	– –	–	15000 15000	–	B	3VF71 11–1BK37–.... 3VF72 11–1BM37–....	19.600 19.600
3VF8		up to 1600 up to 2000	– –	– –	–	20000 20000	–	–		

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

- 1) Guide values for 4-pole standard motors. The start-up data and ratings of the motor to be protected are the determining factors.
- 2) System protection circuit-breakers must be used in combination with frequency converters or soft starters.

Circuit-Breakers up to 2500 A

3-pole, plug-in/withdrawable design

DT	High switching capacity 65/70 kA at AC 380/415 V	
	Plug-in circuit-breakers	Weight per PU approx.
	Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.	
	Order No.	
	Order No. supplements, see Pages 4/171 and 4/172.	kg

B	3VF31 11-6DN77-....	2.300
B	3VF31 11-6DQ77-....	2.300
B	3VF32 11-6DS77-....	2.300
B	3VF33 11-6DU77-....	2.300

B	3VF51 11-6DL77-....	4.200
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B	3VF61 11-6DL77-....	4.200
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B	3VF31 11-6EN77-....	2.300
B	3VF31 11-6EQ77-....	2.300
B	3VF32 11-6ES77-....	2.300
B	3VF33 11-6FU77-....	2.300

B	3VF51 11-6EL77-....	4.200
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B	3VF61 11-6EL77-....	4.200
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B	3VF31 11-6BS27-....	2.300
B	3VF31 11-6BU27-....	2.300
B	3VF32 11-6BW27-....	2.300

B	3VF42 11-6BH27-....	4.200
B	3VF42 11-6BK27-....	4.200
B	3VF42 11-6BM27-....	4.200

B	3VF51 11-6BH27-....	5.500
B	3VF51 11-6BK27-....	5.500
B	3VF51 11-6BM27-....	5.500

B	3VF61 11-6BH27-....	8.400
B	3VF61 11-6BK27-....	8.400
B	3VF61 11-6BM27-....	8.400

B	3VF31 11-6BS37-....	2.300
B	3VF32 11-6BW37-....	2.300

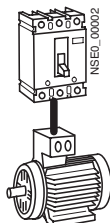
B	3VF42 11-6BM37-....	5.500
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B	3VF52 11-6BM37-....	5.500
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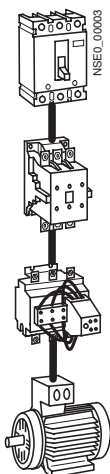
B	3VF61 11-6BK37-....	8.400
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B	3VF71 11-2BK37-....	25.500
B	3VF72 11-2BM37-....	25.500

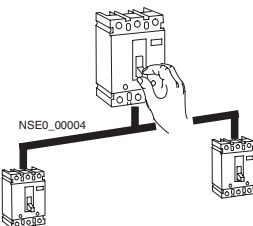
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3VF circuit-breaker
for motor protection



3VF circuit-breaker
for starter combinations



3VF non-automatic circuit-
breaker

Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

System protection, TM

3VF2 circuit-breaker, up to 18 kA

Making/breaking capacity class			A
Rated ultimate short-circuit breaking capacity I_{cu}	up to 240 V	kA	65
	up to 415 V	kA	18
Rated service short-circuit breaking capacity I_{cs}	up to 240 V	kA	33
	up to 415 V	kA	9
Rated short-circuit making capacity I_{cm}	up to 240 V	kA	143
	up to 415 V	kA	38



	Rated current I_n	Setting current of the inverse-time delayed overload release "L" I_r	Operating current of instantaneous short-circuit release "I" I_r	DT	VF100 circuit-breaker Making/breaking capacity class A	Weight per PU approx.
	A	A	A		Order No.	kg
	With permanently set thermal overload releases, with overload and short-circuit release in the 4th pole (N = 100 %).					
 NSE0_00695	16	16	350	B	3VF22 14-0JC41-0AA0	1.290
	20	20	450	B	3VF22 14-0JD41-0AA0	1.270
	25	25	500	B	3VF22 14-0JE41-0AA0	1.250
	32	32	600	B	3VF22 14-0JG41-0AA0	1.250
	40	40	750	B	3VF22 14-0JJ41-0AA0	1.300
	45	45	750	B	3VF22 14-0JK41-0AA0	1.290
	50	50	800	B	3VF22 14-0JL41-0AA0	1.270
	63	63	800	B	3VF22 14-0JN41-0AA0	1.270
	70	70	900	B	3VF22 14-0JP41-0AA0	1.290
	80	80	900	B	3VF22 14-0JQ41-0AA0	1.280
	90	90	1000	B	3VF22 14-0JR41-0AA0	1.290
	100	100	1000	B	3VF22 14-0JS41-0AA0	1.290

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For shunt releases and auxiliary/alarm switches
see Accessories, Page 4/173.

Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

System protection, TM

3VF3 circuit-breaker, up to 25 kA

Making/breaking capacity class			A
Rated ultimate short-circuit breaking capacity I_{CU}	up to 240 V	kA	40
	up to 415 V	kA	25
Rated service short-circuit breaking capacity I_{CS}	up to 240 V	kA	40
	up to 415 V	kA	25
Rated short-circuit making capacity I_{CM}	up to 240 V	kA	84
	up to 415 V	kA	52

Rated current I_n		Setting current of the inverse-time delayed overload release "L" I_r	Operating current of instantaneous short-circuit release "I" I_i	DT	3VF3 circuit-breaker	Weight per PU approx.
A	A	A			Order No.	kg
With permanently set thermal overload releases, with overload and short-circuit release in the 4th pole						
 NSE0_00695	16	16	400	B	3VF31 14-0JC41-0AA0	2.600 ¹⁾
	20	20	400	B	3VF31 14-0JD41-0AA0	2.600 ¹⁾
	25	25	400	B	3VF31 14-0JE41-0AA0	2.600 ¹⁾
	32	32	400	B	3VF31 14-0JG41-0AA0	2.600 ¹⁾
	40	40	400	B	3VF31 14-0JJ41-0AA0	2.600 ¹⁾
	50	50	400	B	3VF31 12-0JL41-0AA0	2.600 ¹⁾
	63	63	500	B	3VF31 12-0JN41-0AA0	2.600 ¹⁾
	80	80	630	B	3VF31 12-0JQ41-0AA0	2.600 ¹⁾
	100	100	800	B	3VF31 12-0JS41-0AA0	2.600 ¹⁾
	125	125	1000	B	3VF32 12-0JU41-0AA0	2.600 ²⁾
	160	160	1280	B	3VF32 12-0JW41-0AA0	2.600 ²⁾

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For accessories, see from Page 4/174 onwards.

Auxiliary releases and auxiliary/alarm switches to be retrofitted by the customer.

1) N = 100 %.

2) N = 60 %.

Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

3VF3 to 3VF6 circuit-breakers

Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating current of the short-time delayed short-circuit release "S" I_d	Operating time of the short-time delayed short-circuit release "S" t_d	Operating current of the instantaneous short- circuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V Fixed-mounted circuit-breakers	Weight per PU approx.
	A	A 	A 	ms 	A 		Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg

System protection, TM

without overload release and short-circuit release in the 4th pole (N); at I_n up to 40 A: U_e max. AC 415 V

3VF3 	16	16	–	–	400	B	3VF31 14-1RC41-....	2.600
	20	20	–	–	400	B	3VF31 14-1RD41-....	2.600
	25	25	–	–	400	B	3VF31 14-1RE41-....	2.600
	32	32	–	–	400	B	3VF31 14-1RG41-....	2.600
	40	40	–	–	400	B	3VF31 14-1RJ41-....	2.600
	50	40– 50	–	–	300– 500	B	3VF31 12-1ML41-....	2.600
	63	50– 63	–	–	315– 630	B	3VF31 12-1MN41-....	2.600
	80	63– 80	–	–	400– 800	B	3VF31 12-1MQ41-....	2.600
	100	80–100	–	–	500–1000	B	3VF31 12-1MS41-....	2.600
	125	100–125	–	–	630–1250	B	3VF32 12-1MU41-....	2.600
3VF4	160	125–160	–	–	800–1600	B	3VF32 12-1MW41-....	2.600
	200	160–200	–	–	1000–2000	B	3VF33 12-1MX41-....	2.600
	225	225	–	–	2400	B	3VF33 12-1RY41-....	2.600
	250	200–250	–	–	1250–2500	B	3VF42 12-1MF41-....	5.500
3VF5	200	160–200	–	–	630–1250	B	3VF42 12-1MH41-....	5.500
	250	200–250	–	–	800–1600	B	3VF42 12-1MK41-....	5.500
	315	250–315	–	–	1000–2000	B	3VF42 12-1MM41-....	5.500
	400	315–400	–	–	1250–2500	B	3VF52 12-1MF41-....	6.500
3VF6	200	160–200	–	–	1000–2000	B	3VF52 12-1MH41-....	6.500
	250	200–250	–	–	1250–2500	B	3VF52 12-1MK41-....	6.500
	315	250–315	–	–	1575–3150	B	3VF52 12-1MM41-....	6.500
	400	315–400	–	–	2000–4000	B	3VF62 12-1MF44-....	11.000 ¹⁾
	500	400–500	–	–	2500–5000	B	3VF62 12-1MH44-....	11.000 ¹⁾
	630	500–630	–	–	3150–6300	B	3VF62 12-1MK44-....	11.000 ¹⁾
	800	800	–	–	3200–6400	B	3VF62 12-1MM44-....	11.000 ¹⁾
			–	–		B	3VF63 12-2TQ44-....	11.000 ²⁾

with overload and short-circuit releases in the 4th pole (N); at I_n up to 40 A: U_e max. AC 415 V

3VF3 	16	16	–	–	400 ³⁾	B	3VF31 14-1JC41-....	2.600
	20	20	–	–	400 ³⁾	B	3VF31 14-1JD41-....	2.600
	25	25	–	–	400 ³⁾	B	3VF31 14-1JE41-....	2.600
	32	32	–	–	400 ³⁾	B	3VF31 14-1JG41-....	2.600
	40	40	–	–	400 ³⁾	B	3VF31 14-1JJ41-....	2.600
	50	40– 50	–	–	300– 500 ³⁾	B	3VF31 12-1HL41-....	2.600
	63	50– 63	–	–	315– 630 ³⁾	B	3VF31 12-1HN41-....	2.600
	80	63– 80	–	–	400– 800 ³⁾	B	3VF31 12-1HQ41-....	2.600
	100	80–100	–	–	500–1000 ³⁾	B	3VF31 12-1HS41-....	2.600
	125	100–125	–	–	630–1250 ⁴⁾	B	3VF32 12-1HU41-....	2.600
3VF4	160	125–160	–	–	800–1600 ⁴⁾	B	3VF32 12-1HW41-....	2.600
	200	160–200	–	–	1000–2000 ⁴⁾	B	3VF33 12-1HX41-....	2.600
	225	225	–	–	2400 ⁴⁾	B	3VF33 12-1JY41-....	2.600
	250	200–250	–	–	1250–2500 ⁴⁾	B	3VF42 12-1HK41-....	5.500
3VF5	315	250–315	–	–	1575–3150 ⁴⁾	B	3VF42 12-1HM41-....	5.500
	400	315–400	–	–	2000–4000 ⁴⁾	B	3VF52 12-1HK41-....	6.500
3VF6	500	400–500	–	–	2500–5000 ⁴⁾	B	3VF52 12-1HM41-....	6.500
	630	500–630	–	–	3150–6300 ⁴⁾	B	3VF62 12-1HK44-....	11.000 ⁵⁾
	800	800	–	–	3200–6400 ⁴⁾	B	3VF62 12-1HM44-....	11.000 ⁵⁾
			–	–		B	3VF63 12-2LQ44-....	11.000 ²⁾ ⁵⁾

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

1) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.

2) 50 kA at 380/415 V.

3) N = 100 %.

4) N = 60 %. To be observed in DC applications.

5) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.

Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

DT	High switching capacity 70 kA at AC 380/415 V	Weight per PU approx.	DT	Very high switching capacity 100 kA at AC 380/415 V	Weight per PU approx.
	Fixed-mounted circuit-breakers			Fixed-mounted circuit-breakers	
	Order No.			Order No.	
	Order No. supplements, see Pages 4/171 and 4/172.	kg		Order No. supplements, see Pages 4/171 and 4/172.	kg

B	3VF31 14-2RD41-....	2.600	B	3VF31 14-3RD41-....	2.600
B	3VF31 14-2RE41-....	2.600	B	3VF31 14-3RE41-....	2.600
B	3VF31 14-2RG41-....	2.600	B	3VF31 14-3RG41-....	2.600
B	3VF31 14-2RJ41-....	2.600	B	3VF31 14-3RJ41-....	2.600
B	3VF31 12-2ML41-....	2.600	B	3VF31 12-3ML41-....	2.600
B	3VF31 12-2MN41-....	2.600	B	3VF31 12-3MN41-....	2.600
B	3VF31 12-2MQ41-....	2.600	B	3VF31 12-3MQ41-....	2.600
B	3VF31 12-2MS41-....	2.600	B	3VF31 12-3MS41-....	2.600
B	3VF32 12-2MU41-....	2.600	B	3VF32 12-3MU41-....	2.600
B	3VF32 12-2MW41-....	2.600	B	3VF32 12-3MW41-....	2.600
B	3VF33 12-2MX41-....	2.600	B	3VF33 12-3MX41-....	2.600
B	3VF33 12-2RY41-....	2.600	B	3VF33 12-3RY41-....	2.600
B	3VF42 12-2MF41-....	5.500	B	3VF42 12-3MF41-....	5.500
B	3VF42 12-2MH41-....	5.500	B	3VF42 12-3MH41-....	5.500
B	3VF42 12-2MK41-....	5.500	B	3VF42 12-3MK41-....	5.500
B	3VF42 12-2MM41-....	5.500	B	3VF42 12-3MM41-....	5.500
B	3VF52 12-2MF41-....	6.500	B	3VF52 12-3MF41-....	6.500
B	3VF52 12-2MH41-....	6.500	B	3VF52 12-3MH41-....	6.500
B	3VF52 12-2MK41-....	6.500	B	3VF52 12-3MK41-....	6.500
B	3VF52 12-2MM41-....	6.500	B	3VF52 12-3MM41-....	6.500
B	3VF62 12-2MF44-....	11.000 ¹⁾	B	3VF62 12-3MF44-....	11.000 ¹⁾
B	3VF62 12-2MH44-....	11.000 ¹⁾	B	3VF62 12-3MH44-....	11.000 ¹⁾
B	3VF62 12-2MK44-....	11.000 ¹⁾	B	3VF62 12-3MK44-....	11.000 ¹⁾
B	3VF62 12-2MM44-....	11.000 ¹⁾	B	3VF62 12-3MM44-....	11.000 ¹⁾
	—			—	
B	3VF31 14-2JD41-....	2.600	B	3VF31 14-3JD41-....	2.600
B	3VF31 14-2JE41-....	2.600	B	3VF31 14-3JE41-....	2.600
B	3VF31 14-2JG41-....	2.600	B	3VF31 14-3JG41-....	2.600
B	3VF31 14-2JJ41-....	2.600	B	3VF31 14-3JJ41-....	2.600
B	3VF31 12-2HL41-....	2.600	B	3VF31 12-3HL41-....	2.600
B	3VF31 12-2HN41-....	2.600	B	3VF31 12-3HN41-....	2.600
B	3VF31 12-2HQ41-....	2.600	B	3VF31 12-3HQ41-....	2.600
B	3VF31 12-2HS41-....	2.600	B	3VF31 12-3HS41-....	2.600
B	3VF32 12-2HU41-....	2.600	B	3VF32 12-3HU41-....	2.600
B	3VF32 12-2HW41-....	2.600	B	3VF32 12-3HW41-....	2.600
B	3VF33 12-2HX41-....	2.600	B	3VF33 12-3HX41-....	2.600
B	3VF33 12-2JY41-....	2.600	B	3VF33 12-3JY41-....	2.600
B	3VF42 12-2HK41-....	5.500	B	3VF42 12-3HK41-....	5.500
B	3VF42 12-2HM41-....	5.500	B	3VF42 12-3HM41-....	5.500
B	3VF52 12-2HK41-....	6.500	B	3VF52 12-3HK41-....	6.500
B	3VF52 12-2HM41-....	6.500	B	3VF52 12-3HM41-....	6.500
B	3VF62 12-2HK44-....	11.000 ⁵⁾	B	3VF62 12-3HK44-....	11.000 ⁵⁾
B	3VF62 12-2HM44-....	11.000 ⁵⁾	B	3VF62 12-3HM44-....	11.000 ⁵⁾
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3VF6 circuit-breaker, 4-pole
without trip unit in the 4th pole (N).

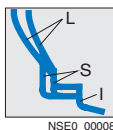
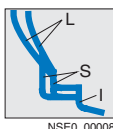
Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

3VF3 to 3VF8 circuit-breakers

Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating current of the short-time delayed short-circuit release "S" I_d	Operating time of the short-time delayed short-circuit release "S" t_d	Operating current of the instantaneous short- circuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V Fixed-mounted circuit-breakers	Weight per PU approx.
	A	A 	A 	ms 	A 		Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg

System protection, ETU

without overload release and short-circuit release in the 4th pole (N); at I_n up to 40 A: $U_{e\ max}$ AC 415 V									
3VF5	With time-based discrimination	400	200, 250, 315, 400	$2 \dots 8 \times I_r$	0 ... 300	4000	B	3VF52 12-1KM61-....	6.500
3VF6		630	315, 400, 500, 630	$2 \dots 8 \times I_r$	0 ... 300	5500	B	3VF62 12-1KM64-....	11.000 ¹⁾
3VF7		800	400, 500, 630, 800	$2 \dots 8 \times I_r$	0 ... 300	15000	B	3VF71 12-1KK60-....	25.500 ²⁾
		1250	630, 800, 1000, 1250	$2 \dots 8 \times I_r$	0 ... 300	15000	B	3VF72 12-1KM60-....	25.500 ²⁾
3VF8		1600	800, 1000, 1250, 1600	$2 \dots 8 \times I_r$	0 ... 300	20000	—		
		2000	1000, 1250, 1600, 2000	$2 \dots 8 \times I_r$	0 ... 300	20000			
		2500	1600, 1800, 2000, 2500	$2 \dots 8 \times I_r$	0 ... 300	20000			
with overload and short-circuit releases in the 4th pole (N); at I_n up to 40 A: $U_{e\ max}$ AC 415 V									
3VF5	With time-based discrimination	400	200, 250, 315, 400	$2 \dots 8 \times I_r$	0 ... 300	4000 ⁴⁾	B	3VF52 12-1FM61-....	6.500
3VF6		630	315, 400, 500, 630	$2 \dots 8 \times I_r$	0 ... 300	5500 ⁴⁾	B	3VF62 12-1FM64-....	11.000 ¹⁾
3VF7		800	400, 500, 630, 800	$2 \dots 8 \times I_r$	0 ... 300	15000 ⁴⁾	B	3VF71 12-1FK60-....	25.500 ²⁾
		1250	630, 800, 1000, 1250	$2 \dots 8 \times I_r$	0 ... 300	15000 ⁴⁾	B	3VF72 12-1FM60-....	25.500 ²⁾
3VF8		1600	800, 1000, 1250, 1600	$2 \dots 8 \times I_r$	0 ... 300	20000 ⁴⁾	—		
		2000	1000, 1250, 1600, 2000	$2 \dots 8 \times I_r$	0 ... 300	20000 ⁴⁾			
		2500	1600, 1800, 2000, 2500	$2 \dots 8 \times I_r$	0 ... 300	20000 ⁴⁾			

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

- 1) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.
- 2) Busbar connection pieces must be ordered separately (see Accessories).
- 3) Rear busbar connection pieces are included in the scope of supply and are to be fitted vertically.
- 4) N = 60 %. To be observed in DC applications.

Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

DT	High switching capacity 70 kA at AC 380/415 V	Weight per PU approx.	DT	Very high switching capacity 100 kA at AC 380/415 V	Weight per PU approx.
	Fixed-mounted circuit-breakers			Fixed-mounted circuit-breakers	
	Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg		Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg

B	3VF52 12-2KM61-....	6.500	B	3VF52 12-3KM61-....	6.500
B	3VF62 12-2KM64-....	11.000 ¹⁾	B	3VF62 12-3KM64-....	11.000 ¹⁾
B	3VF71 12-2KK60-....	25.500 ²⁾	B	3VF71 12-3KK60-....	25.500 ²⁾
B	3VF72 12-2KM60-....	25.500 ²⁾	B	3VF72 12-3KM60-....	25.500 ²⁾
B	3VF82 12-2KM60-....	61.000 ²⁾	B	3VF82 12-3KM60-....	62.000 ²⁾
B	3VF83 12-2KM60-....	62.000 ²⁾	B	3VF83 12-3KM60-....	62.000 ²⁾
B	3VF84 12-2KM64-....	62.000 ³⁾	B	3VF84 12-3KM64-....	62.000 ³⁾
B	3VF52 12-2FM61-....	6.500	B	3VF52 12-3FM61-....	6.500
B	3VF62 12-2FM64-....	11.000 ¹⁾	B	3VF62 12-3FM64-....	11.000 ¹⁾
B	3VF71 12-2FK60-....	25.500 ²⁾	B	3VF71 12-3FK60-....	25.500 ²⁾
B	3VF72 12-2FM60-....	25.500 ²⁾	B	3VF72 12-3FM60-....	25.500 ²⁾
B	3VF82 12-2FM60-....	61.000 ²⁾	B	3VF82 12-3FM60-....	61.000 ²⁾
B	3VF83 12-2FM60-....	62.000 ²⁾	B	3VF83 12-3FM60-....	62.000 ²⁾
B	3VF84 12-2FM64-....	62.000 ³⁾	B	3VF84 12-3FM64-....	62.000 ³⁾



3VF8 circuit-breaker, 4-pole
with trip unit in the 4th pole (N).

Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

3VF3 to 3VF8 circuit-breakers

Type	Rated current I_n	Operating current of the instantaneous short-circuit release "I" I_i	DT	Standard switching capacity 40/50 kA at AC 380/415 V Fixed-mounted circuit-breakers	Weight per PU approx.
	A	A $I \gg$		Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg

Non-automatic circuit-breakers

3VF3		up to 100 up to 160	1500 2400	–	
3VF4		up to 250	3000	B	3VF42 12–5DM31–.... 5.500
3VF5		up to 400	4800	B	3VF52 12–5DM31–.... 6.500
3VF6		up to 500 up to 630	7500 7500	B	– 3VF62 12–5DM34–.... 11.000 ¹⁾
3VF7		up to 800 up to 1250	15000 15000	B B	3VF71 12–1DK30–.... 3VF72 12–1DM30–.... Busbar connection pieces must be ordered separately (see Accessories) 25.500 25.500
3VF8		up to 1600 up to 2000	20000 20000	–	

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

¹⁾ Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.

Circuit-Breakers up to 2500 A

4-pole, fixed-mounted design

DT	High switching capacity 65/70 kA at AC 380/415 V	Weight per PU approx.
	Fixed-mounted circuit-breakers	
	Order No.	
	Order No. supplements, see Pages 4/171 and 4/172.	kg

B	3VF31 12-6DS31-....	2.600
B	3VF32 12-6DW31-....	2.600
B	3VF42 12-6DM31-....	5.500
B	3VF52 12-6DM31-....	6.500
B	3VF61 12-6DK34-.... —	11.000 ¹⁾
B	3VF71 12-2DK30-....	19.600
B	3VF72 12-2DM30-.... Busbar connection pieces must be ordered separately (see Accessories)	19.600
B	3VF82 12-2DM30-....	25.500
B	3VF83 12-2DM30-.... Busbar connection pieces must be ordered separately (see Accessories)	25.500

Circuit-Breakers up to 2500 A

4-pole, plug-in/withdrawable design

3VF3 to 3VF8 circuit-breakers

Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating current of the short-time delayed short-circuit release "S" I_d	Operating time of the short-time delayed short-circuit release "S" t_d	Operating current of the instantaneous short- circuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V	Weight per PU approx.
	A	A 	A 	ms 	A 		Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.	
							Order No.	
							Order No. supplements, see Pages 4/171 and 4/172.	kg

System protection, TM

without overload release and short-circuit release in the 4th pole (N); at I_n up to 40 A: $U_{e\max}$ AC 415 V

3VF3		16	16	–	–	400	B	3VF31 14–1RC47–....	2.600
		20	20	–	–	400	B	3VF31 14–1RD47–....	2.600
		25	25	–	–	400	B	3VF31 14–1RE47–....	2.600
		32	32	–	–	400	B	3VF31 14–1RG47–....	2.600
		40	40	–	–	400	B	3VF31 14–1RJ47–....	2.600
		50	40– 50	–	–	300– 500	B	3VF31 12–1ML47–....	2.600
		63	50– 63	–	–	315– 630	B	3VF31 12–1MN47–....	2.600
		80	63– 80	–	–	400– 800	B	3VF31 12–1MQ47–....	2.600
		100	80–100	–	–	500–1000	B	3VF31 12–1MS47–....	2.600
		125	100–125	–	–	630–1250	B	3VF32 12–1MU47–....	2.600
3VF4		160	125–160	–	–	800–1600	B	3VF32 12–1MW47–....	2.600
		200	160–200	–	–	1000–2000	B	3VF33 12–1MX47–....	2.600
		225	225	–	–	2400	B	3VF33 12–1RY47–....	2.600
		250	200–250	–	–	1250–2500	B	3VF42 12–1MF47–....	5.500
3VF5		160	125–160	–	–	800–1600	B	3VF42 12–1MH47–....	5.500
		200	160–200	–	–	1000–2000	B	3VF42 12–1MK47–....	5.500
		250	200–250	–	–	1250–2500	B	3VF42 12–1MM47–....	5.500
		315	250–315	–	–	1575–3150	B	3VF52 12–1MF47–....	6.500
3VF6		400	315–400	–	–	2000–4000	B	3VF52 12–1MH47–....	6.500
		315	250–315	–	–	1575–3150	B	3VF52 12–1MK47–....	6.500
		400	315–400	–	–	2000–4000	B	3VF52 12–1MM47–....	6.500
		630	500–630	–	–	3150–6300	B	3VF62 12–1MF47–....	11.000
3VF7		800	800	–	–	3200–6400	B	3VF62 12–1MH47–....	11.000
		1000	1000	–	–	4000–10000	B	3VF62 12–1MK47–....	11.000
		1250	1250	–	–	5000–12500	B	3VF62 12–1MM47–....	11.000
		1600	1600	–	–	6400–16000	B	3VF62 12–1MM47–....	11.000

with overload release and short-circuit release in the 4th pole (N); at I_n up to 40 A: $U_{e\max}$ AC 415 V

3VF3		16	16	–	–	400 ¹⁾	B	3VF31 14–1JC47–....	2.600
		20	20	–	–	400 ¹⁾	B	3VF31 14–1JD47–....	2.600
		25	25	–	–	400 ¹⁾	B	3VF31 14–1JE47–....	2.600
		32	32	–	–	400 ¹⁾	B	3VF31 14–1JG47–....	2.600
		40	40	–	–	400 ¹⁾	B	3VF31 14–1JJ47–....	2.600
		50	40– 50	–	–	300– 500 ¹⁾	B	3VF31 12–1HL47–....	2.600
		63	50– 63	–	–	315– 630 ¹⁾	B	3VF31 12–1HN47–....	2.600
		80	63– 80	–	–	400– 800 ¹⁾	B	3VF31 12–1HQ47–....	2.600
		100	80–100	–	–	500–1000 ¹⁾	B	3VF31 12–1HS47–....	2.600
		125	100–125	–	–	630–1250 ²⁾	B	3VF32 12–1HU47–....	2.600
3VF4		160	125–160	–	–	800–1600 ²⁾	B	3VF32 12–1HW47–....	2.600
		200	160–200	–	–	1000–2000 ²⁾	B	3VF33 12–1HX47–....	2.600
		225	225	–	–	2400 ²⁾	B	3VF33 12–1JY47–....	2.600
		250	200–250	–	–	1250–2500 ²⁾	B	3VF42 12–1HK47–....	5.500
3VF5		315	250–315	–	–	1575–3150 ²⁾	B	3VF42 12–1HM47–....	5.500
		400	315–400	–	–	2000–4000 ²⁾	B	3VF52 12–1MF47–....	6.500
		500	400–500	–	–	2500–5000 ²⁾	B	3VF52 12–1MH47–....	6.500
		630	500–630	–	–	3150–6300 ²⁾	B	3VF62 12–1MK47–....	11.000
3VF6		800	800	–	–	3200–6400 ²⁾	B	3VF62 12–1MM47–....	11.000
		1000	1000	–	–	4000–10000 ²⁾	B	3VF62 12–1MM47–....	11.000

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

1) N = 100 %.

2) N = 60 %. To be observed in DC applications.

Circuit-Breakers up to 2500 A

4-pole, plug-in/withdrawable design

DT	High switching capacity 70 kA at AC 380/415 V	Weight per PU approx.	DT	Very high switching capacity 100 kA at AC 380/415 V	Weight per PU approx.
	Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.			Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.	
	Order No.			Order No.	
	Order No. supplements, see Pages 4/171 and 4/172.	kg		Order No. supplements, see Pages 4/171 and 4/172.	kg

B	3VF31 14-2RD47-....	2.600	B	3VF31 14-3RD47-....	2.600
B	3VF31 14-2RE47-....	2.600	B	3VF31 14-3RE47-....	2.600
B	3VF31 14-2RG47-....	2.600	B	3VF31 14-3RG47-....	2.600
B	3VF31 14-2RJ47-....	2.600	B	3VF31 14-3RJ47-....	2.600
B	3VF31 12-2ML47-....	2.600	B	3VF31 12-3ML47-....	2.600
B	3VF31 12-2MN47-....	2.600	B	3VF31 12-3MN47-....	2.600
B	3VF31 12-2MQ47-....	2.600	B	3VF31 12-3MQ47-....	2.600
B	3VF31 12-2MS47-....	2.600	B	3VF31 12-3MS47-....	2.600
B	3VF32 12-2MU47-....	2.600	B	3VF32 12-3MU47-....	2.600
B	3VF32 12-2MW47-....	2.600	B	3VF32 12-3MW47-....	2.600
B	3VF33 12-2MX47-....	2.600	B	3VF33 12-3MX47-....	2.600
B	3VF33 12-2RY47-....	2.600	B	3VF33 12-3RY47-....	2.600
B	3VF42 12-2MF47-....	5.500	B	3VF42 12-3MF47-....	5.500
B	3VF42 12-2MH47-....	5.500	B	3VF42 12-3MH47-....	5.500
B	3VF42 12-2MK47-....	5.500	B	3VF42 12-3MK47-....	5.500
B	3VF42 12-2MM47-....	5.500	B	3VF42 12-3MM47-....	5.500
B	3VF52 12-2MF47-....	6.500	B	3VF52 12-3MF47-....	6.500
B	3VF52 12-2MH47-....	6.500	B	3VF52 12-3MH47-....	6.500
B	3VF52 12-2MK47-....	6.500	B	3VF52 12-3MK47-....	6.500
B	3VF52 12-2MM47-....	6.500	B	3VF52 12-3MM47-....	6.500
B	3VF62 12-2MF47-....	11.000	B	3VF62 12-3MF47-....	11.000
B	3VF62 12-2MH47-....	11.000	B	3VF62 12-3MH47-....	11.000
B	3VF62 12-2MK47-....	11.000	B	3VF62 12-3MK47-....	11.000
B	3VF62 12-2MM47-....	11.000	B	3VF62 12-3MM47-....	11.000
B	3VF31 14-2JD47-....	2.600	B	3VF31 14-3JD47-....	2.600
B	3VF31 14-2JE47-....	2.600	B	3VF31 14-3JE47-....	2.600
B	3VF31 14-2JG47-....	2.600	B	3VF31 14-3JG47-....	2.600
B	3VF31 14-2JJ47-....	2.600	B	3VF31 14-3JJ47-....	2.600
B	3VF31 12-2HL47-....	2.600	B	3VF31 12-3HL47-....	2.600
B	3VF31 12-2HN47-....	2.600	B	3VF31 12-3HN47-....	2.600
B	3VF31 12-2HQ47-....	2.600	B	3VF31 12-3HQ47-....	2.600
B	3VF31 12-2HS47-....	2.600	B	3VF31 12-3HS47-....	2.600
B	3VF32 12-2HU47-....	2.600	B	3VF32 12-3HU47-....	2.600
B	3VF32 12-2HW47-....	2.600	B	3VF32 12-3HW47-....	2.600
B	3VF33 12-2HX47-....	2.600	B	3VF33 12-3HX47-....	2.600
B	3VF33 12-2JY47-....	2.600	B	3VF33 12-3JY47-....	2.600
B	3VF42 12-2HK47-....	5.500	B	3VF42 12-3HK47-....	5.500
B	3VF42 12-2HM47-....	5.500	B	3VF42 12-3HM47-....	5.500
B	3VF52 12-2HK47-....	6.500	B	3VF52 12-3HK47-....	6.500
B	3VF52 12-2HM47-....	6.500	B	3VF52 12-3HM47-....	6.500
B	3VF62 12-2HK47-....	11.000	B	3VF62 12-3HK47-....	11.000
B	3VF62 12-2HM47-....	11.000	B	3VF62 12-3HM47-....	11.000



3VF6 circuit-breaker, 4-pole
without trip unit in the 4th pole (N).

Circuit-Breakers up to 2500 A

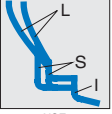
4-pole, plug-in/withdrawable design

3VF3 to 3VF8 circuit-breakers

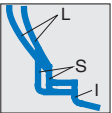
Type	Rated current I_n	Setting current of the inverse- time delayed overload release "L" I_r	Operating current of the short-time delayed short-circuit release "S" I_d	Operating time of the short-time delayed short-circuit release "S" t_d	Operating current of the instanta- neous short- circuit release "I" I_i	DT	Standard switching capacity 40/45/50 kA at AC 380/415 V Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185. Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg
	A	A 	A 	ms 	A 			

System protection, ETU

without overload release and short-circuit release in the 4th pole (N); at I_n up to 40 A: $U_{e\max}$ AC 415 V

3VF5	With time-based discrimination	400	200, 250, 315, 400	$2 \dots 8 \times I_r$	0 ... 300	4000	B	3VF52 12-1KM67-....	6.500
3VF6		630	315, 400, 500, 630	$2 \dots 8 \times I_r$	0 ... 300	5500	B	3VF62 12-1KM67-....	11.000
3VF7		800	400, 500, 630, 800	$2 \dots 8 \times I_r$	0 ... 300	15000	B	3VF71 12-1KK67-....	25.500
		1250	630, 800, 1000, 1250	$2 \dots 8 \times I_r$	0 ... 300	15000	B	3VF72 12-1KM67-....	25.500
3VF8		1600	800, 1000, 1250, 1600	$2 \dots 8 \times I_r$	0 ... 300	20000		–	
		2000	1000, 1250, 1600, 2000	$2 \dots 8 \times I_r$	0 ... 300	20000			
		2500	1600, 1800, 2000, 2500	$2 \dots 8 \times I_r$	0 ... 300	20000			

with overload release and short-circuit release in the 4th pole (N); at I_n up to 40 A: $U_{e\max}$ AC 415 V

3VF5	With time-based discrimination	400	200, 250, 315, 400	$2 \dots 8 \times I_r$	0 ... 300	4000 ¹⁾	B	3VF52 12-1FM67-....	6.500
3VF6		630	315, 400, 500, 630	$2 \dots 8 \times I_r$	0 ... 300	5500 ¹⁾	B	3VF62 12-1FM67-....	11.000
3VF7		800	400, 500, 630, 800	$2 \dots 8 \times I_r$	0 ... 300	15000 ¹⁾	B	3VF71 12-1FK67-....	25.500
		1250	630, 800, 1000, 1250	$2 \dots 8 \times I_r$	0 ... 300	15000 ¹⁾	B	3VF72 12-1FM67-....	25.500
3VF8		1600	800, 1000, 1250, 1600	$2 \dots 8 \times I_r$	0 ... 300	20000 ¹⁾		–	
		2000	1000, 1250, 1600, 2000	$2 \dots 8 \times I_r$	0 ... 300	20000 ¹⁾			
		2500	1600, 1800, 2000, 2500	$2 \dots 8 \times I_r$	0 ... 300	20000 ¹⁾			

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

1) N = 60 %. To be observed in DC applications.

Circuit-Breakers up to 2500 A

4-pole, plug-in/withdrawable design

DT			DT		
High switching capacity 70 kA at AC 380/415 V		Weight per PU approx.	Very high switching capacity 100 kA at AC 380/415 V		Weight per PU approx.
Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.			Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.		
Order No.		kg	Order No.		kg
Order No. supplements, see Pages 4/171 and 4/172.			Order No. supplements, see Pages 4/171 and 4/172.		
B	3VF52 12–2KM67–....	6.500	B	3VF52 12–3KM67–....	6.500
B	3VF62 12–2KM67–....	11.000	B	3VF62 12–3KM67–....	11.000
B	3VF71 12–2KK67–....	25.500	B	3VF71 12–3KK67–....	25.500
B	3VF72 12–2KM67–....	25.500	B	3VF72 12–3KM67–....	25.500
–			–		
B	3VF52 12–2FM67–....	6.500	B	3VF52 12–3FM67–....	6.500
B	3VF62 12–2FM67–....	11.000	B	3VF62 12–3FM67–....	11.000
B	3VF71 12–2FK67–....	25.500	B	3VF71 12–3FK67–....	25.500
B	3VF72 12–2FM67–....	25.500	B	3VF72 12–3FM67–....	25.500
–			–		



3VF8 circuit-breaker, 4-pole
with trip unit in the 4th pole (N).

Circuit-Breakers up to 2500 A

4-pole, plug-in/withdrawable design

3VF3 to 3VF8 circuit-breakers

Type	Rated current I_n	Operating current of the instantaneous short-circuit release " I " I_i	DT	Standard switching capacity 40/50 kA at AC 380/415 V Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.	Weight per PU approx.
	A	A $I \gg$		Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg

Non-automatic circuit-breakers

3VF3	 NSE0_00708	up to 100 up to 160	1500 2400	–	
3VF4		up to 250	3000	B	3VF42 12–5DM37–.... 5.500
3VF5		up to 400	4800	B	3VF52 12–5DM37–.... 6.500
3VF6		up to 500 up to 630	7500 7500	B	– 3VF62 12–5DM37–.... 11.000
3VF7		up to 800 up to 1250	15000 15000	B B	3VF71 12–1DK37–.... 3VF72 12–1DM37–.... 25.500 25.500
3VF8		up to 1600 up to 2000	20000 20000	–	

Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

Circuit-Breakers up to 2500 A

4-pole, plug-in/withdrawable design

DT	High switching capacity 65/70 kA at AC 380/415 V	Weight per PU approx.
	Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.	
	Order No.	
	Order No. supplements, see Pages 4/171 and 4/172.	kg

B	3VF31 12-6DS37-....	2.600
B	3VF32 12-6DW37-....	2.600
B	3VF42 12-6DM37-....	5.500
B	3VF52 12-6DM37-....	6.500
B	3VF61 12-6DK37-....	11.000
B	3VF71 12-2DK37-....	19.600
B	3VF72 12-2DM37-....	19.600

4

Circuit-Breakers up to 2500 A

General Use Switch

3-pole, fixed-mounted design

Approved according to IEC 60947-2, UL 508 and CSA C22.2, No. 14¹⁾/circuit-breakers according to UL 489 on request
3VF3 to 3VF6 circuit-breakers

Type	Rated current I_n	Operating current of the instantaneous short-circuit release $1'' I_i$	DT	Standard switching capacity		DT	High switching capacity		DT	Very high switching capacity	
				Fixed-mounted circuit-breakers with box terminals ²⁾	Weight per PU approx.		Fixed-mounted circuit-breakers with box terminals ²⁾	Weight per PU approx.		Fixed-mounted circuit-breakers with box terminals ²⁾	Weight per PU approx.
				Order No.			Order No.			Order No.	
				Order No. supplements, see Pages 4/171 and 4/172 ³⁾ .	kg		Order No. supplements, see Pages 4/171 and 4/172 ³⁾ .	kg		Order No. supplements, see Pages 4/171 and 4/172 ³⁾ .	kg
	A 	A 									

Circuit-breakers for system protection

with permanently set overload/short-circuit releases

Type	Rated current I_n	Operating current of the instantaneous short-circuit release $1'' I_i$	DT	Short-circuit breaking capacity (NEMA rating): 25 kA with AC 480 V 18 kA with AC 600 V	Weight per PU approx.	DT	Short-circuit breaking capacity (NEMA rating): 65 kA with AC 480 V 25 kA with AC 600 V	Weight per PU approx.	DT	Short-circuit breaking capacity (NEMA rating): 100 kA with AC 480 V 35 kA with AC 600 V	Weight per PU approx.
3VF3	50	400	B	3VF31 31-1FL41-....	2.300 B		3VF31 31-2FL41-....	2.300 B		3VF31 31-3FL41-....	2.300
	60	500	B	3VF31 31-1FN41-....	2.300 B		3VF31 31-2FN41-....	2.300 B		3VF31 31-3FN41-....	2.300
	80	630	B	3VF31 31-1FQ41-....	2.300 B		3VF31 31-2FQ41-....	2.300 B		3VF31 31-3FQ41-....	2.300
	100	800	B	3VF31 31-1FS41-....	2.300 B		3VF31 31-2FS41-....	2.300 B		3VF31 31-3FS41-....	2.300

with permanently set thermal overload releases
and adjustable instantaneous short-circuit releases

Type	Rated current I_n	Operating current of the instantaneous short-circuit release $1'' I_i$	DT	Short-circuit breaking capacity (NEMA rating): 25 kA with AC 480 V 18 kA with AC 600 V	Weight per PU approx.	DT	Short-circuit breaking capacity (NEMA rating): 65 kA with AC 480 V 25 kA with AC 600 V	Weight per PU approx.	DT	Short-circuit breaking capacity (NEMA rating): 100 kA with AC 480 V 50 kA with AC 600 V	Weight per PU approx.
3VF4	125	625–1250	B	3VF42 31-1DF41-....	4.200 B		3VF42 31-2DF41-....	4.200 B		3VF42 31-3DF41-....	4.200
	150	800–1600	B	3VF42 31-1DH41-....	4.200 B		3VF42 31-2DH41-....	4.200 B		3VF42 31-3DH41-....	4.200
	200	1000–2000	B	3VF42 31-1DK41-....	4.200 B		3VF42 31-2DK41-....	4.200 B		3VF42 31-3DK41-....	4.200
	250	1250–2500	B	3VF42 31-1DM41-....	4.200 B		3VF42 31-2DM41-....	4.200 B		3VF42 31-3DM41-....	4.200
3VF5	200	1000–2000	B	3VF52 31-1DF41-....	5.500 B		3VF52 31-2DF41-....	5.500 B		3VF52 31-3DF41-....	5.500
	250	1250–2500	B	3VF52 31-1DH41-....	5.500 B		3VF52 31-2DH41-....	5.500 B		3VF52 31-3DH41-....	5.500
3VF6	300	1575–3150	B	3VF62 31-1DF41-....	8.400 B		3VF62 31-2DF41-....	8.400 B		3VF62 31-3DF41-....	8.400
	400	2000–4000	B	3VF62 31-1DH41-....	8.400 B		3VF62 31-2DH41-....	8.400 B		3VF62 31-3DH41-....	8.400
	500	2500–5000	B	3VF62 31-1DK41-....	8.400 B		3VF62 31-2DK41-....	8.400 B		3VF62 31-3DK41-....	8.400

1) Only operated with back-up fuses approved according to UL or CSA (see Page 4/139) up to AC 600 V.

2) With box terminals:
on 3VF3 for Cu cables AWG 14–2/0 (25 to 50 mm²);
on 3VF4 for Cu/Al cables AWG 4–350 MCM (25 to 185 mm²);
on 3VF5 and 3VF6 for Cu/Al cables MCM 250–350 (120 to 150 mm²)
(on 3VF6 for 2 cables).

3) Accessories with connecting leads required.

Selection and ordering data

1st Order No. supplement: undervoltage release or shunt release

Version with connecting leads (1 m long)

For plug-in circuit-breakers, order auxiliary conductor plug-in device separately (see Pages 4/182 and 4/183).

Rated control supply voltage U_c /frequency AC 50/60 Hz DC	Order No. supplement 3VF.. ..-...-□□ .	Circuit-breakers					
		3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Without auxiliary release	0A	x	x	x	x	x	x
Undervoltage releases							
AC 9 ... 12 V	1B	x	—	—	—	—	—
AC 12 V	1C	—	x	x	x	x	x
AC 24 V	1D	x	x	x	x	x	x
AC 48 V	1U	x	—	—	—	—	—
AC 48 ... 60 V	1F	—	x	x	x	x	x
AC 60 V	1V	x	—	—	—	—	—
AC 110 ... 127 V	1G	x	x	x	x	x	x
AC 208 ... 240 V	1H	x	x	x	x	x	x
AC 380 ... 500 V	1J	—	x	x	x	x	x
AC 380 ... 480 V	1K	x	—	—	—	—	—
AC 480 ... 525 V	1L	x	—	—	—	—	—
DC 12 V	1N	x	x	x	x	x	x
DC 24 V	1P	x	x	x	x	x	x
DC 48 V	1U	x	—	—	—	—	—
DC 48 ... 60 V	1Q	—	x	x	x	x	x
DC 60 V	1V	x	—	—	—	—	—
DC 110 ... 125 V	1R	x	x	x	x	x	x
DC 220 ... 250 V	1S	x	x	x	x	x	x
Shunt releases							
AC	DC						
12 ... 24 V	12 ... 24 V	7C	x	x	x	x	x
48 ... 60 V	48 ... 60 V	7J	—	x	x	—	—
48 ... 60 V	—	7F	—	—	x	x	x
48 ... 127 V	48 ... 60 V	7G	x	—	—	—	—
—	48 ... 60 V	7H	—	—	x	x	x
110 ... 240 V	110 ... 125 V	7K	x	x	x	—	—
—	110 ... 125 V	7L	—	—	x	x	x
110 ... 240 V	—	7M	—	—	x	x	x
380 ... 440 V	220 ... 250 V	7S	—	x	x	x	x
380 ... 600 V	220 ... 250 V	7T	x	—	—	—	—

2nd Order No. supplement: auxiliary switches (HS) and alarm switches (AS)

Version with connecting leads (1 m long)

For plug-in circuit-breakers, order auxiliary conductor plug-in device separately (see Pages 4/182 and 4/183).

Complement	Order No. supplement 3VF.. ..-...-□□	Circuit-breakers					
HS=1 changeover contact AS=1 changeover contact		3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Without auxiliary/alarm switch	A0	x	x	x	x	x	x
1 HS	B1	x ²⁾	x	x	x	x	—
2 HS	C1	x ²⁾	x	x	x	x	—
4 HS	E1	—	—	—	—	—	x
1 HS	F1	x ³⁾	—	—	—	—	—
1 AS	G1	x ²⁾	x	x	x	x	—
4 HS + 2 AS	T1	—	—	—	—	—	x
1 HS + 1 AS	N1	x ²⁾	x	x	x	x	—

If no undervoltage release or shunt release is fitted, the following complements are also possible:

1 HS + 2 AS only	R1	x ¹⁾	—	x	x	x	—
2 HS + 1 AS 3-pole	P1	x ¹⁾	x	x	x	x	—
2 HS + 2 AS circuit-breaker	S1	x ¹⁾	—	x	x	x	—

x version possible.

— version not possible

- 1) Not for 3VF3 circuit-breaker for motor protection.
- 2) Not for 3VF3 circuit-breaker for motor protection with auxiliary release/RCD module.
- 3) Only for 3VF3 circuit-breaker for motor protection.

Circuit-Breakers up to 2500 A

Options

1st Order No. supplement: undervoltage release or shunt release

Version with terminal block¹⁾

(not for plug-in circuit-breakers for withdrawable version and "General Use Switch" acc. to UL/CSA, Page 4/170)

Rated control supply voltage U_c /frequency AC 50/60 Hz DC	Order No. supplement 3VF.. ..-□□. .	Circuit-breakers				
		3VF3	3VF4	3VF5	3VF6	3VF7
Without auxiliary release	0A	x	x	x	x	x
Undervoltage releases						
AC 9 ... 12 V	2B	x	–	–	–	–
AC 12 V	2C	–	x	x	x	x
AC 24 V	2D	x	x	x	x	x
AC 48 V	2U	x	–	–	–	–
AC 48 ... 60 V	2F	–	x	x	x	x
AC 60 V	2 V	x	–	–	–	–
AC 110 ... 127 V	2G	x	x	x	x	x
AC 208 ... 240 V	2H	x	x	x	x	x
AC 380 ... 500 V	2J	–	x	x	x	x
AC 380 ... 480 V	2K	x	–	–	–	–
AC 480 ... 525 V	2L	x	–	–	–	–
DC 12 V	2N	x	x	x	x	x
DC 24 V	2P	x	x	x	x	x
DC 48 V	2U	x	–	–	–	–
DC 48 ... 60 V	2Q	–	x	x	x	x
DC 60 V	2 V	x	–	–	–	–
DC 110 ... 125 V	2R	x	x	x	x	x
DC 220 ... 250 V	2S	x	x	x	x	x
Shunt releases						
AC	DC					
12 ... 24 V	12 ... 24 V	8C	x	x	x	x
48 ... 60 V	48 ... 60 V	8J	–	x	x	–
48 ... 60 V	–	8F	–	–	x	x
48 ... 127 V	48 ... 60 V	8G	x	–	–	–
–	48 ... 60 V	8H	–	–	x	x
110 ... 240 V	110 ... 125 V	8K	x	x	–	–
–	110 ... 125 V	8L	–	–	x	x
110 ... 240 V	–	8M	–	–	x	x
380 ... 440 V	220 ... 250 V	8S	–	x	x	x
380 ... 600 V	220 ... 250 V	8T	x	–	–	–

2nd Order No. supplement: auxiliary switches (HS) and alarm switches (AS)

Version with terminal block¹⁾

(not for plug-in circuit-breakers for withdrawable version or "General Use Switch" acc. to UL/CSA, Page 4/170)

Complement HS=1 changeover AS=1 changeover	Order No. supplement 3VF.. ..-□□. .	Circuit-breakers				
		3VF3	3VF4	3VF5	3VF6	3VF7
Without auxiliary/alarm switch	A0	x	x	x	x	x
1 HS	B2	x ²⁾	x	x	x	x
2 HS	C2	x ²⁾	x	x	x	x
1 AS	G2	x ²⁾	x	x	x	x
1 HS + 1 AS only for 3-pole circuit-breakers only for 3-pole circuit-breakers	N2	x ²⁾	x	x	x	x

If no undervoltage release or shunt release is fitted, the following complements are also possible:

1 HS + 2 AS	R2	x ³⁾	–	x	x	x
2 HS + 1 AS	P2	x ³⁾	x	x	x	x
2 HS + 2 AS	S2	x ³⁾	–	x	x	x

x version possible.

– version not possible

1) Due to the terminal block, the lateral spacing of the circuit-breakers must be at least 25 mm.

2) Not for 3VF3 circuit-breaker for motor protection with auxiliary release/RCD module.

3) Not for 3VF3 circuit-breaker for motor protection.

Selection and ordering data

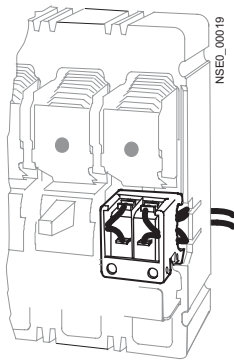
for 3VF2 circuit-breakers

Operating mechanisms	DT	Order No.	PS*	Weight per PU approx.	
				kg	
Operating mechanisms					
Front-operated rotary operating mechanism for direct mounting on circuit-breakers Degree of protection IP30, black knob Max. 3 padlocks	B	3VF9 223-1AA00	1 unit	0.232	
EMERGENCY-STOP version Red knob, yellow indicator plate	B	3VF9 223-1BA00	1 unit	0.232	
Version with shaft stub without knob (required operating mechanism 8UC61, see below)	B	3VF9 223-1JA00	1 unit	0.204	
Door-coupling rotary operating mechanisms Standard version, black	B	8UC61 12-1BD22	1 unit	0.417	
EMERGENCY-STOP version, red/yellow	B	8UC61 22-3BD22	1 unit	0.402	
to be ordered separately: front rotary operating mechanism with shaft stub	B	3VF9 223-1JA00	1 unit	0.204	
Connection systems, covers					
3VF22 rear terminals for 45 to 100 A (cover, see below)	for 3-pole circuit-breakers 1 set = 6 units	3VF9 224-1LD10	1 set	0,252	
	for 4-pole circuit-breakers 1 set = 8 units	3VF9 224-1LD20	1 set	0.333	
Terminal covers for main terminal, cable terminal	for 3-pole circuit-breakers 1 set = 2 units	3VF9 224-1NB10	1 set	0.063	
	for 4-pole circuit-breakers 1 set = 2 units	3VF9 224-1NB20	1 set	0.079	
Cover with cap dimension 45 mm for distributor structure	for 3-pole circuit-breakers	3VF9 220-1CA10	1 unit	0.019	
	for 4-pole circuit-breakers	3VF9 220-1CA20	1 unit	0.021	
Masking frame for door cut-out For circuit-breakers	1 set = 1 unit	3VF9 220-1AA00	1 set	0.048	
Shunt releases¹⁾					
<i>Version with terminal block</i>					
Shunt release AC 50/60 Hz	DC				
–	12 V	B	3VF9 221-1JC10	1 unit	0.282
–	24 V	B	3VF9 221-1JD10	1 unit	0.281
–	48 V	B	3VF9 221-1JH10	1 unit	0.289
–	110–125 V	B	3VF9 221-1JL10	1 unit	0.271
110–127 V	–	B	3VF9 221-1JP10	1 unit	0.292
220–240 V	–	B	3VF9 221-1JM10	1 unit	0.280
380–415 V	–	B	3VF9 221-1JV10	1 unit	0.282
Shunt release with auxiliary switch 1 CO AC 50/60 Hz	DC				
–	12 V	B	3VF9 221-1KC10	1 unit	0.298
–	24 V	B	3VF9 221-1KD10	1 unit	0.302
–	48 V	B	3VF9 221-1KH10	1 unit	0.303
–	110–125 V	B	3VF9 221-1KL10	1 unit	0.296
110–127 V	–	B	3VF9 221-1KP10	1 unit	0.300
220–240 V	–	B	3VF9 221-1KM10	1 unit	0.302
380–415 V	–	B	3VF9 221-1KV10	1 unit	0.297
Auxiliary switches and alarm switches¹⁾					
<i>Version with terminal block</i>					
Tripped signaling/alarm switch	1 CO	B	3VF9 222-1AC10	1 unit	0.233
Alarm switches (AS) and auxiliary switches (HS)	1 CO (AS) + 1 CO (HS)	B	3VF9 222-1DC10	1 unit	0.243
Auxiliary switches	1 CO	B	3VF9 222-1BC10	1 unit	0.215
	2 CO	B	3VF9 222-1CC10	1 unit	0.235

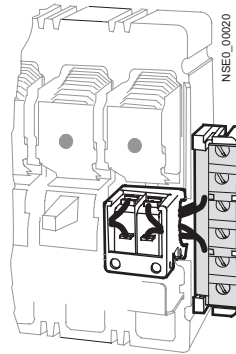
¹⁾ Only one accessory part possible per 3VF2 circuit-breaker; mounting on left side of circuit-breaker.

Circuit-Breakers up to 2500 A

Accessories/spare parts



**1 auxiliary switch
and 1 alarm switch
fitted on the right**
Version with connecting leads



**1 auxiliary switch
and 1 alarm switch
fitted on the right**
Version with terminal block

4

Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8			
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
			kg				kg				kg				kg
B	3VF9 522-1BB30	1 unit	0.200	B	3VF9 622-1BB30	1 unit	0.200	B	3VF9 722-1BB30	1 unit	0.180	—			
B	3VF9 522-1BB30	1 unit	0.200	B	3VF9 622-1BB30	1 unit	0.200	B	3VF9 722-1BB30	1 unit	0.180	—			
—	—	—	—	—	—	—	—	—	—	—	—	—			
B	3VF9 522-1CB30	1 unit	0.200	B	3VF9 622-1CB30	1 unit	0.140	B	3VF9 722-1CB30	1 unit	0.180	—			
B	3VF9 522-1CB30	1 unit	0.200	B	3VF9 622-1CB30	1 unit	0.140	B	3VF9 722-1CB30	1 unit	0.180	—			
—	—	—	—	—	—	—	—	—	—	—	—	B	3VF9 822-1EB40	1 unit	0.200
B	3VF9 522-1GB10	1 unit	0.200	B	3VF9 622-1GB10	1 unit	0.140	B	3VF9 722-1GB10	1 unit	0.180	—			
B	3VF9 522-1GB20	1 unit	0.200	B	3VF9 622-1GB20	1 unit	0.140	B	3VF9 722-1GB20	1 unit	0.180	—			
B	3VF9 522-1GF20	1 unit	0.200	B	3VF9 622-1GF20	1 unit	0.140	B	3VF9 722-1GF20	1 unit	0.180	—			
B	3VF9 522-1HB10	1 unit	0.200	B	3VF9 622-1HB10	1 unit	0.140	B	3VF9 722-1HB10	1 unit	0.180	—			
—	—	—	—	—	—	—	—	—	—	—	—	B	3VF9 822-1HB40	1 unit	0.200
—	—	—	—	—	—	—	—	—	—	—	—	—			
B	3VF9 522-1NB20	1 unit	0.180	B	3VF9 622-1NB20	1 unit	0.140	B	3VF9 722-1NB20	1 unit	0.180	—			
—	—	—	—	—	—	—	—	—	—	—	—	—			
see Pages 4/177 and 4/186.				see Pages 4/177 and 4/186.				see Pages 4/177 and 4/186.				see Pages 4/177 and 4/186.			

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
B	3VF9 522-1BC20	1 unit	0.200	B	3VF9 622-1BC20	1 unit	0.200	B	3VF9 722-1BC20	1 unit	0.180	—			
—	—	—	—	—	—	—	—	—	—	—	—	—			
B	3VF9 522-1CC20	1 unit	0.200	B	3VF9 622-1CC20	1 unit	0.140	B	3VF9 722-1CC20	1 unit	0.180	—			
B	3VF9 522-1GC10	1 unit	0.200	B	3VF9 622-1GC10	1 unit	0.140	B	3VF9 722-1GC10	1 unit	0.180	—			
B	3VF9 522-1GC20	1 unit	0.200	B	3VF9 622-1GC20	1 unit	0.140	B	3VF9 722-1GC20	1 unit	0.180	—			
B	3VF9 522-1HC10	1 unit	0.200	B	3VF9 622-1HC10	1 unit	0.140	B	3VF9 722-1HC10	1 unit	0.180	—			
—	—	—	—	—	—	—	—	—	—	—	—	—			
B	3VF9 522-1NC20	1 unit	0.180	B	3VF9 622-1NC20	1 unit	0.140	B	3VF9 722-1NC20	1 unit	0.180	—			
see Pages 4/177 and 4/186.				see Pages 4/177 and 4/186.				see Pages 4/177 and 4/186.				see Pages 4/177 and 4/186.			

3) Not suitable for 3VF3 for motor protection.

4) Can be retrofitted with circuit-breakers supplied from Feb. 96.

* This quantity or a multiple thereof quantity can be ordered.

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Circuit-Breakers up to 2500 A

Accessories/spare parts

Shunt releases and undervoltage releases (see Page 4/133 for possible complements)

Accessories for 3VF3				Accessories for 3VF4			
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
			kg				kg
3- or 4-pole							
Shunt release for retrofitting left for 3VF3 to 3VF7, right for 3VF8							
	AC V	DC V					
	12– 24	12– 24	B		3VF9 321–1 . C10	1 unit 0.180	B
	48– 60	48– 60	–		–	–	B
	48– 60	–	B		3VF9 321–1 . G10	1 unit 0.180	–
	48–127	48– 60	–		–	–	–
	–	48– 60	B		3VF9 321–1 . K10	1 unit 0.180	B
	110–240	110–125	–		–	–	–
	–	110–125	B		–	–	B
	110–240	–	–		–	–	B
	380–440	220–250	–		3VF9 321–1 . T 10	1 unit 0.180	–
	380–600	220–250	B		–	–	–
					H		H
					J		J
Version with connecting leads Version with terminal block¹⁾							
Undervoltage release for retrofitting left for 3VF3 to 3VF7, right for 3VF8							
	AC 12 V		B		3VF9 321–1 . B10	1 unit 0.220	B
	AC 24 V		B		3VF9 321–1 . D10	1 unit 0.220	B
	AC 48–60 V (3VF3 only 48 V)		B		3VF9 321–1 . U10	1 unit 0.220	B
	AC 60 V (only 3VF3)		B		3VF9 321–1 . V10	1 unit 0.220	–
	AC 110–127 V		B		3VF9 321–1 . G10	1 unit 0.220	B
	AC 208–240 V		B		3VF9 321–1 . H10	1 unit 0.220	B
	AC 380–500 V (3VF3 only up to 480 V)		B		3VF9 321–1 . K10	1 unit 0.220	B
	AC 480–525 V		B		3VF9 321–1 . L10	1 unit 0.220	–
					B		B
					C		C
Version with connecting leads Version with terminal block¹⁾							
	DC 12 V		B		3VF9 321–1 . N10	1 unit 0.220	B
	DC 24 V		B		3VF9 321–1 . P10	1 unit 0.220	B
	DC 48–60 V (3VF3 only 48 V)		B		3VF9 321–1 . U10	1 unit 0.220	B
	DC 60 V (only 3VF3)		B		3VF9 321–1 . V10	1 unit 0.220	–
	DC 110–125 V		B		3VF9 321–1 . R10	1 unit 0.220	B
	DC 220–250 V		B		3VF9 321–1 . S10	1 unit 0.220	B
					B		B
					C		C
Version with connecting leads Version with terminal block¹⁾							
Time-delay device for undervoltage release (DC 220 ... 250 V)							
Rated control supply voltage $U_s = AC/DC 220 \dots 230 \text{ V}$							
Delay time							
	0.3 ... 3.5 s stepless		X		3WX31 56–3JJ10	1 unit 0.500	X
	0.5; 0.8 s		A		3TX4 490–1A	1 unit 0.085	–
	1.7; 3.3 s		A		3TX4 701–0AN1	1 unit 0.169	A
	0.7; 1.4 s		–		–	–	–
					3TX4 701–0AN1	1 unit 0.169	–

1) Due to the terminal block, the lateral spacing of the circuit-breakers must be at least 25 mm.

* This quantity or a multiple thereof can be ordered.

Circuit-Breakers up to 2500 A

Accessories/spare parts

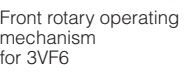
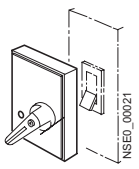
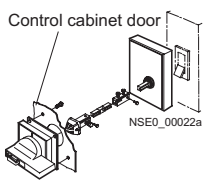
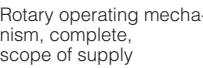
Accessories for 3VF5			Accessories for 3VF6			Accessories for 3VF7			Accessories for 3VF8		
DT	Order No.	PS* Weight per PU approx.	DT	Order No.	PS* Weight per PU approx.	DT	Order No.	PS* Weight per PU approx.	DT	Order No.	PS* Weight per PU approx.
		kg			kg			kg			kg
B	3VF9 521-1 . C10	1 unit on req.	B	3VF9 621-1 . C10	1 unit 0.200	B	3VF9 721-1 . C10	1 unit 0.180	B	3VF9 821-1 . C40	1 unit 0.200
B	3VF9 521-1 . J10	1 unit on req.	B	3VF9 621-1 . F10	1 unit 0.200	B	3VF9 721-1 . F10	1 unit 0.180	B	3VF9 821-1 . F40	1 unit 0.200
	—		B	3VF9 621-1 . H10	1 unit 0.200	B	3VF9 721-1 . H10	1 unit 0.180	B	3VF9 821-1 . H40	1 unit 0.200
B	3VF9 521-1 . K10	1 unit 0.180	B	3VF9 621-1 . L10	1 unit 0.200	B	3VF9 721-1 . L10	1 unit 0.180	B	3VF9 821-1 . L40	1 unit 0.200
	—		B	3VF9 621-1 . M10	1 unit 0.200	B	3VF9 721-1 . M10	1 unit 0.180	B	3VF9 821-1 . M40	1 unit 0.200
B	3VF9 521-1 . S10	1 unit 0.180	B	3VF9 621-1 . S10	1 unit 0.200	B	3VF9 721-1 . S10	1 unit 0.180	B	3VF9 821-1 . S40	1 unit 0.200
	↑ H J			↑ H J			↑ H J			↑ H —	
B	3VF9 521-1 . C10	1 unit on req.	B	3VF9 621-1 . C10	1 unit 0.200	B	3VF9 721-1 . C10	1 unit 0.180	B	3VF9 821-1 . C40	1 unit 0.200
B	3VF9 521-1 . D10	1 unit on req.	B	3VF9 621-1 . D10	1 unit 0.200	B	3VF9 721-1 . D10	1 unit 0.180	B	3VF9 821-1 . D40	1 unit 0.200
B	3VF9 521-1 . F10	1 unit on req.	B	3VF9 621-1 . F10	1 unit 0.200	B	3VF9 721-1 . F10	1 unit 0.180	B	3VF9 821-1 . F40	1 unit 0.200
	—			—			—			—	
B	3VF9 521-1 . G10	1 unit on req.	B	3VF9 621-1 . G10	1 unit 0.200	B	3VF9 721-1 . G10	1 unit 0.180	B	3VF9 821-1 . G40	1 unit 0.200
B	3VF9 521-1 . H10	1 unit 0.220	B	3VF9 621-1 . H10	1 unit 0.200	B	3VF9 721-1 . H10	1 unit 0.180	B	3VF9 821-1 . H40	1 unit 0.200
B	3VF9 521-1 . J10	1 unit 0.220	B	3VF9 621-1 . J10	1 unit 0.200	B	3VF9 721-1 . J10	1 unit 0.180	B	3VF9 821-1 . J40	1 unit 0.200
	↑ B C			↑ B C			↑ B C			↑ B —	
B	3VF9 521-1 . N10	1 unit 0.220	B	3VF9 621-1 . N10	1 unit 0.200	B	3VF9 721-1 . N10	1 unit 0.180	B	3VF9 821-1 . N40	1 unit 0.200
B	3VF9 521-1 . P10	1 unit 0.220	B	3VF9 621-1 . P10	1 unit 0.200	B	3VF9 721-1 . P10	1 unit 0.180	B	3VF9 821-1 . P40	1 unit 0.200
B	3VF9 521-1 . Q10	1 unit 0.220	B	3VF9 621-1 . Q10	1 unit 0.200	B	3VF9 721-1 . Q10	1 unit 0.180	B	3VF9 821-1 . Q40	1 unit 0.200
	—			—			—			—	
B	3VF9 521-1 . R10	1 unit 0.220	B	3VF9 621-1 . R10	1 unit 0.200	B	3VF9 721-1 . R10	1 unit 0.180	B	3VF9 821-1 . R40	1 unit 0.200
B	3VF9 521-1 . S10	1 unit 0.220	B	3VF9 621-1 . S10	1 unit 0.200	B	3VF9 721-1 . S10	1 unit 0.180	B	3VF9 821-1 . S40	1 unit 0.200
	↑ B C			↑ B C			↑ B C			↑ B —	
X	3WX31 56-3JJ10	1 unit 0.500	X	3WX31 56-3JJ10	1 unit 0.500	X	3WX31 56-3JJ10	1 unit 0.500	X	3WX31 56-3JJ10	1 unit 0.500
	—			—			—			—	
A	3TX4 701-0AN1	1 unit 0.169	A	3TX4 701-0AN1	1 unit 0.169	A	3TX4 701-0AN1	1 unit 0.169	A	3TX4 701-0AN1	1 unit 0.169

* This quantity or a multiple thereof can be ordered.

Circuit-Breakers up to 2500 A

Accessories/spare parts

Operating mechanisms

	DT	Accessories for 3VF3			DT	Accessories for 3VF4		
		Order No.	PS*	Weight per PU approx.		Order No.	PS*	Weight per PU approx.
				kg				kg
3- or 4-pole								
 Front rotary operating mechanism for 3VF3		Front rotary operating mechanism for direct mounting on circuit-breakers Degree of protection IP30, black Max. 3 padlocks						
	B	3VF9 323-1AA00	1 unit	0.180	B	3VF9 423-1AA00	1 unit	2.000
	B	3VF9 323-1AB00	1 unit	0.180	B	3VF9 423-1AB00	1 unit	2.000
	B	3VF9 323-1AD00	1 unit	0.180	B	3VF9 423-1AD00	1 unit	2.000
	B	3VF9 323-1AF00	1 unit	0.180	B	3VF9 423-1AF00	1 unit	2.000
 Front rotary operating mechanism for 3VF6		Version with connecting leads EMERGENCY-STOP version Red knob, yellow indicator plate						
	B	3VF9 323-1BA00	1 unit	0.180	B	3VF9 423-1BA00	1 unit	2.000
	B	3VF9 323-1BB00	1 unit	0.180	B	3VF9 423-1BB00	1 unit	2.000
	B	3VF9 323-1BD00	1 unit	0.180	B	3VF9 423-1BD00	1 unit	2.000
	B	3VF9 323-1BF00	1 unit	0.180	B	3VF9 423-1BF00	1 unit	2.000
 Front rotary operating mechanism for 3VF6		Version with connecting leads Version with shaft stub, without knob (additional door-coupling rotary operating mechanism required see Page 4/189)						
	B	3VF9 323-1JA00	1 unit	0.180	B	3VF9 423-1JA00	1 unit	2.000
	B	3VF9 323-1JB00	1 unit	0.180	B	3VF9 423-1JB00	1 unit	2.000
	B	3VF9 323-1JD00	1 unit	0.180	B	3VF9 423-1JD00	1 unit	2.000
	B	3VF9 323-1JF00	1 unit	0.180	B	3VF9 423-1JF00	1 unit	2.000
 Front rotary operating mechanism with knob		Version with connecting leads Rotary operating mechanism, complete, for fitting in doors and covers Degree of protection IP65, with total insulation, incl. black knob, with masking frame, aluminized indicator plate, removable door coupling, 300 mm ¹) extension shaft and front rotary operating mechanism for the relevant circuit-breaker, lockable with max. 3 padlocks, with door interlocking						
	B	3VF9 323-1EA00	1 unit	0.180	B	3VF9 423-1EA00	1 unit	2.000
	B	3VF9 323-1EB00	1 unit	0.180	B	3VF9 423-1EB00	1 unit	2.000
	B	3VF9 323-1ED00	1 unit	0.180	B	3VF9 423-1ED00	1 unit	2.000
	B	3VF9 323-1EF00	1 unit	0.180	B	3VF9 423-1EF00	1 unit	2.000
 Control cabinet door		Version with connecting leads EMERGENCY-STOP version Red knob, yellow indicator plate						
	B	3VF9 323-1FA00	1 unit	0.180	B	3VF9 423-1FA00	1 unit	2.000
	B	3VF9 323-1FB00	1 unit	0.180	B	3VF9 423-1FB00	1 unit	2.000
	B	3VF9 323-1FD00	1 unit	0.180	B	3VF9 423-1FD00	1 unit	2.000
	B	3VF9 323-1FF00	1 unit	0.180	B	3VF9 423-1FF00	1 unit	2.000
 Rotary operating mechanism, complete, scope of supply		Version with connecting leads Additional locking device for rotary operating mechanism, complete²						
	B	3VF9 323-1VA00	1 unit	0.180	B	3VF9 423-1VA00	1 unit	2.120

- 1) For longer shafts, see Page 4/189 (support for the shaft required in the control cabinet).
 2) Only required if the circuit-breaker is also to be locked with the door open, i.e. with rotary operating mechanism decoupled.
 Lockable with max. 3 padlocks, 4.5 to 8 mm shackle diameter.
 HS = auxiliary switch.

Circuit-Breakers up to 2500 A

Accessories/spare parts

Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8			
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
			kg				kg				kg				kg
B	3VF9 523-1AA00	1 unit	1.080	B	3VF9 623-1AA00	1 unit	0.140	B	3VF9 723-1AA00	1 unit	3.680	B	3VF9 823-1AA01	1 unit	0.200
B	3VF9 523-1AB00	1 unit	1.080	B	3VF9 623-1AB00	1 unit	0.140	B	3VF9 723-1AB00	1 unit	3.680	B	3VF9 823-1AB01	1 unit	0.200
B	3VF9 523-1AD00	1 unit	1.080	B	3VF9 623-1AD00	1 unit	0.140	B	3VF9 723-1AD00	1 unit	3.680	B	3VF9 823-1AD01	1 unit	0.200
B	3VF9 523-1AF00	1 unit	1.080	B	3VF9 623-1AF00	1 unit	0.140	B	3VF9 723-1AF00	1 unit	3.680	B	3VF9 823-1AF01	1 unit	0.200
B	3VF9 523-1BA00	1 unit	1.080	B	3VF9 623-1BA00	1 unit	0.140	B	3VF9 723-1BA00	1 unit	3.680	B	3VF9 823-1BA01	1 unit	0.200
B	3VF9 523-1BB00	1 unit	1.080	B	3VF9 623-1BB00	1 unit	0.140	B	3VF9 723-1BB00	1 unit	3.680	B	3VF9 823-1BB01	1 unit	0.200
B	3VF9 523-1BD00	1 unit	1.080	B	3VF9 623-1BD00	1 unit	0.140	B	3VF9 723-1BD00	1 unit	3.680	B	3VF9 823-1BD01	1 unit	0.200
B	3VF9 523-1BF00	1 unit	1.080	B	3VF9 623-1BF00	1 unit	0.140	B	3VF9 723-1BF00	1 unit	3.680	B	3VF9 823-1BF01	1 unit	0.200
B	3VF9 523-1JA00	1 unit	1.080	B	3VF9 623-1JA00	1 unit	0.140	B	3VF9 723-1JA00	1 unit	3.680	B	3VF9 823-1JA01	1 unit	0.200
B	3VF9 523-1JB00	1 unit	1.080	B	3VF9 623-1JB00	1 unit	0.140	B	3VF9 723-1JB00	1 unit	3.680	B	3VF9 823-1JB01	1 unit	0.200
B	3VF9 523-1JD00	1 unit	1.080	B	3VF9 623-1JD00	1 unit	0.140	B	3VF9 723-1JD00	1 unit	3.680	B	3VF9 823-1JD01	1 unit	0.200
B	3VF9 523-1JF00	1 unit	1.080	B	3VF9 623-1JF00	1 unit	0.140	B	3VF9 723-1JF00	1 unit	3.680	B	3VF9 823-1JF01	1 unit	0.200
B	3VF9 523-1EA00	1 unit	1.080	B	3VF9 623-1EA00	1 unit	0.140	B	3VF9 723-1EA00	1 unit	3.680	B	3VF9 823-1EA01	1 unit	0.200
B	3VF9 523-1EB00	1 unit	1.080	B	3VF9 623-1EB00	1 unit	0.140	B	3VF9 723-1EB00	1 unit	3.680	B	3VF9 823-1EB01	1 unit	0.200
B	3VF9 523-1ED00	1 unit	1.080	B	3VF9 623-1ED00	1 unit	0.140	B	3VF9 723-1ED00	1 unit	3.680	B	3VF9 823-1ED01	1 unit	0.200
B	3VF9 523-1EF00	1 unit	1.080	B	3VF9 623-1EF00	1 unit	0.140	B	3VF9 723-1EF00	1 unit	3.680	B	3VF9 823-1EF01	1 unit	0.200
B	3VF9 523-1FA00	1 unit	1.080	B	3VF9 623-1FA00	1 unit	0.140	B	3VF9 723-1FA00	1 unit	3.680	B	3VF9 823-1FA01	1 unit	0.200
B	3VF9 523-1FB00	1 unit	1.080	B	3VF9 623-1FB00	1 unit	0.140	B	3VF9 723-1FB00	1 unit	3.680	B	3VF9 823-1FB01	1 unit	0.200
B	3VF9 523-1FD00	1 unit	1.080	B	3VF9 623-1FD00	1 unit	0.140	B	3VF9 723-1FD00	1 unit	3.680	B	3VF9 823-1FD01	1 unit	0.200
B	3VF9 523-1FF00	1 unit	1.080	B	3VF9 623-1FF00	1 unit	0.140	B	3VF9 723-1FF00	1 unit	3.680	B	3VF9 823-1FF01	1 unit	0.200
B	3VF9 523-1VA00	1 unit	1.080	B	3VF9 623-1VA00	1 unit	0.332	integrated in front rotary operating mechanism				integrated in front rotary operating mechanism			

* This quantity or a multiple thereof can be ordered.

Circuit-Breakers up to 2500 A

Accessories/spare parts

Operating mechanisms

		Accessories for 3VF3				Accessories for 3VF4				
		DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	
		kg				kg				
3- or 4-pole										
 Motorized operating mechanism for 3VF3	Motorized operating mechanism¹⁾ degree of protection IP00 without locking device									
	AC 50/60 Hz	DC								
	–	24 V	B	3VF9 323–1MA20	1 unit	0.180	B	3VF9 423–1MA20	1 unit	2.000
	42 V	48 V	B	3VF9 323–1MB10	1 unit	0.180	B	3VF9 423–1MB10	1 unit	2.000
	–	60 V	B	3VF9 323–1MC20	1 unit	0.180	B	3VF9 423–1MC20	1 unit	2.000
	110/127 V	110/127 V	B	3VF9 323–1MD10	1 unit	0.180	B	3VF9 423–1MD10	1 unit	2.000
	220/240 V	220 V	B	3VF9 323–1ME10	1 unit	0.180	B	3VF9 423–1ME10	1 unit	2.000
	with locking device for 3 padlocks									
	AC 50/60 Hz	DC								
	–	24 V	B	3VF9 323–1NA20	1 unit	0.180	B	3VF9 423–1NA20	1 unit	2.120
 Motorized operating mechanism for 3VF4, 3VF5, 3VF6 (shown with 3VF6)	–	48 V	B	3VF9 323–1NB10	1 unit	0.180	B	3VF9 423–1NB10	1 unit	2.120
	42 V	48 V	B	3VF9 323–1NC20	1 unit	0.180	B	3VF9 423–1NC20	1 unit	2.120
	–	60 V	B	3VF9 323–1NC20	1 unit	0.180	B	3VF9 423–1NC20	1 unit	2.120
	–	110/125 V		–	–	–	–	–	–	–
	110/127 V	110/125 V	B	3VF9 323–1ND10	1 unit	0.180	B	3VF9 423–1ND10	1 unit	2.120
	220/240 V	220 V	B	3VF9 323–1NE10	1 unit	0.180	B	3VF9 423–1NE10	1 unit	2.120
	Motorized operating mechanism suitable for synchronizing Degree of protection IP00 with locking device for 3 padlocks									
	AC 50/60 Hz	DC								
	–	24 V	–	–	C	3VF9 423–1QA20	–	1 unit	2.120	
	–	48 V	–	–	C	3VF9 423–1QB10	–	1 unit	2.120	
 Handle for motorized operating mechanisms suitable for synchronizing ²⁾	42 V	48 V	–	–	C	3VF9 423–1QC20	–	1 unit	2.120	
	–	60 V	–	–	C	3VF9 423–1QD10	–	1 unit	2.120	
	110/127 V	110/127 V	–	–	C	3VF9 423–1QE10	–	1 unit	2.120	
	220/240 V	220 V	–	–	C	3VF9 423–1QE10	–	1 unit	2.120	
	Handle for motorized operating mechanisms suitable for synchronizing ²⁾		–	–	B	3VF9 623–1WB00	–	1 unit	0.332	
	Solenoid operating mechanism									
	AC 50/60 Hz	110/120 V	B	3VF9 323–1SD30	1 unit	0.180	–	–	–	
	AC 50/60 Hz	220/240 V	B	3VF9 323–1SE30	1 unit	0.180	–	–	–	
	DC 110/120 V	–	B	3VF9 323–1SD20	1 unit	0.180	–	–	–	
	DC 220/240 V	–	B	3VF9 323–1SE20	1 unit	0.180	–	–	–	

1) With control voltages of 380/400 V or 500 V a transformer is required:
e.g. 400/230 V (380/220 V), Order No. 4AM34 42–5AT10–0FA0
e.g. 500/230 V, Order No. 4AM34 42–5FT10–0FA0. } Catalog LV 10 "Switchgear and Controlgear for Industry"
The motorized operating mechanism must be ordered for
AC 50/60 Hz 220 V.

2) For local manual closing.

3) Do not use motorized operating mechanisms in combination with guide frames in the case of 3VF6/3VF7.

4) Not for DC voltages.

Circuit-Breakers up to 2500 A

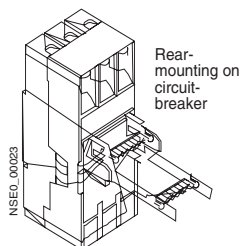
Accessories/spare parts

Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8			
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
			kg				kg				kg				kg
B	3VF9 523-1MA20	1 unit	1.080	B	3VF9 623-1MA20	1 unit	0.140 ³⁾	—	—	—	—	—	—	—	—
B	3VF9 523-1MB10	1 unit	1.080	B	3VF9 623-1MB10	1 unit	0.140 ³⁾	—	—	—	—	—	—	—	—
B	3VF9 523-1MC20	1 unit	1.080	B	3VF9 623-1MC20	1 unit	0.140 ³⁾	—	—	—	—	—	—	—	—
B	3VF9 523-1MD10	1 unit	1.080	B	3VF9 623-1MD10	1 unit	2.500 ³⁾	—	—	—	—	—	—	—	—
B	3VF9 523-1ME10	1 unit	1.080	B	3VF9 623-1ME10	1 unit	2.500 ³⁾	—	—	—	—	—	—	—	—
B	3VF9 523-1NA20	1 unit	1.080	B	3VF9 623-1NA20	1 unit	2.500 ³⁾	—	—	—	—	—	—	—	—
B	3VF9 523-1NB10	1 unit	1.080	B	3VF9 623-1NB10	1 unit	2.500 ³⁾	D	3VF9 723-1NB20	1 unit	3.680 ³⁾	B	3VF9 833-1NB20	1 unit	17.300
B	3VF9 523-1NC20	1 unit	1.080	B	3VF9 623-1NC20	1 unit	2.500 ³⁾	—	—	—	—	—	—	—	—
B	3VF9 523-1ND10	1 unit	1.080	B	3VF9 623-1ND10	1 unit	2.500 ³⁾	D	3VF9 723-1ND20	1 unit	3.680 ³⁾	—	—	—	—
B	3VF9 523-1NE10	1 unit	1.080	B	3VF9 623-1NE10	1 unit	2.500 ³⁾	D	3VF9 723-1ND30	1 unit	3.680 ³⁾⁴⁾	B	3VF9 833-1ND30	1 unit	17.300 ⁴⁾
								D	3VF9 723-1NE30	1 unit	3.680 ³⁾⁴⁾	B	3VF9 833-1NE30	1 unit	17.300 ⁴⁾
C	3VF9 523-1QA20	1 unit	1.080	C	3VF9 623-1QA20	1 unit	0.332	—	—	—	—	—	—	—	—
C	3VF9 523-1QB10	1 unit	1.080	C	3VF9 623-1QB10	1 unit	0.332	—	—	—	—	—	—	—	—
C	3VF9 523-1QC20	1 unit	1.080	C	3VF9 623-1QC20	1 unit	0.332	—	—	—	—	—	—	—	—
C	3VF9 523-1QD10	1 unit	1.080	C	3VF9 623-1QD10	1 unit	0.332	—	—	—	—	—	—	—	—
C	3VF9 523-1QE10	1 unit	1.080	C	3VF9 623-1QE10	1 unit	0.332	—	—	—	—	—	—	—	—
B	3VF9 623-1WB00	1 unit	0.332	B	3VF9 623-1WB00	1 unit	0.332	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
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Circuit-Breakers up to 2500 A

Accessories/spare parts

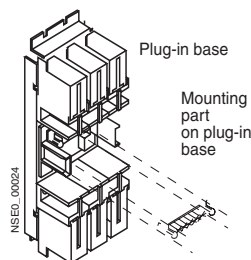
Connections



3VF9 524-1VA50
Auxiliary conductor plug-in
device for 3VF4/3VF5



3VF9 324-1LD10
Rear terminal for 3VF3



3VF9 524-1FA10
Plug-in base with baseplate
for front connection
for 3VF5



3VF9 724-1LD10
Rear connections
for 3VF7

DT	Accessories for 3VF3			DT	Accessories for 3VF4		
	Order No.	PS*	Weight per PU approx.		Order No.	PS*	Weight per PU approx.
			kg				kg
3- or 4-pole							
	Auxiliary conductor plug-in device for plug-in circuit-breakers/ withdrawable circuit-breakers External mounting on side of plug- in circuit-breaker ¹⁾ Fitted to rear of circuit-breaker Additional lateral connector ¹⁾ Additional rear connector						
	3VF9 624-1VA40	1 unit	0.258		3VF9 624-1VA40	1 unit	0.258
	—				3VF9 524-1VA50	1 unit	0.429
	3VF9 624-1VJ40	1 unit	0.128		3VF9 624-1VJ40	1 unit	0.128
	—				3VF9 624-1VJ50	1 unit	0.158
	Pull-out device²⁾ for plug-in circuit-breakers/ plug-in bases						
B	3VF9 624-1VF00	1 unit	0.498	B	3VF9 624-1VF00	1 unit	0.498
	Position indicator switches for disconnected position for guide frame						
	—				—		
	Phase barrier³⁾ for main connection 1 set = 2 units						
B	3VF9 324-1RA10	1 set	0.189	B	3VF9 524-1RA10	1 set	0.429
3-pole only							
	Front busbar connection pieces 1 set = 3 units						
B	3VF9 324-1JA10	1 set	3.650	B	3VF9 424-1JA10	1 set	2.760
	Rear terminals 1 set = 3 units						
B	3VF9 324-1LD10	1 set	3.650	B	3VF9 424-1LD10	1 set	0.380
	Terminal with phase barriers for flexible flat copper bars 1 set = 3 units						
	with standard terminal, included in scope of supply of circuit-breaker (up to 160 A)				with standard terminal, included in scope of supply of circuit-breaker		
	Multiple feed-in terminal 1 set = 3 units						
	—				—		
	Plug-in base complete with baseplate and 2 terminal covers for front connection for circuit-breaker with RCD module						
B	3VF9 324-1FA10	1 unit	3.650	B	3VF9 424-1FA10	1 unit	2.760
B	3VF9 324-1FE10	1 unit	3.650	B	3VF9 424-1FE10	1 unit	2.760
	Plug-in base with baseplate for rear connection for circuit-breaker with RCD module						
B	3VF9 324-1FB10	1 unit	3.650	B	3VF9 424-1FB10	1 unit	2.760
B	3VF9 324-1FF10	1 unit	3.650	B	3VF9 424-1FF10	1 unit	2.760
	Guide frame⁴⁾ with baseplate and crank handle for front connection for rear connection						
	—				—		
	—				—		
	Terminal covers IP30 with integrated phase barriers for main connections 1 set = 2 units						
	3VF9 324-1NB10	1 set	0.146		3VF9 424-1NB10	1 set	0.160
	for cable connection				for cable connection		

For 8US1 busbar adapter system, see Section 8
"Components for distribution systems".

- 1) Not in conjunction with guide frames.
- 2) For easy removal of 3VF circuit-breakers when mounted in a row.
- 3) 3 sets required for 4-pole circuit-breakers.
- 4) Use plug-in circuit-breakers with connecting leads (see Page 4/171).
- 5) The guide frame cannot be used in combination with the motorized operating mechanism for 3VF6 and 3VF7.

Circuit-Breakers up to 2500 A

Accessories/spare parts

Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8			
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
			kg				kg				kg				kg
▶	3VF9 624-1VA40	1 unit	0.258	▶	3VF9 624-1VA40	1 unit	0.258	–				–			
▶	3VF9 524-1VA50	1 unit	0.429	▶	3VF9 624-1VA50	1 unit	0.498	B	3VF9 724-1VA50	1 unit	0.643	–			
▶	3VF9 624-1VJ40	1 unit	0.128	▶	3VF9 624-1VJ40	1 unit	0.128	–				–			
▶	3VF9 624-1VJ50	1 unit	0.158	▶	3VF9 624-1VJ50	1 unit	0.158	▶	3VF9 624-1VJ50	1 unit	0.158	–			
B	3VF9 624-1VF00	1 unit	0.498	B	3VF9 624-1VF00	1 unit	0.498	B	–			–			
–				B	3VF9 624-1VL60 (1 changeover contact)	1 unit	0.498	B	3VF9 724-1VL60 (2 changeover contacts)	1 unit	0.643	–			
B	3VF9 524-1RA10	1 set	0.429	B	3VF9 624-1RA10	1 set	0.300	B	3VF9 724-1RA10	1 set	0.300	–			
B	3VF9 524-1JA10	1 set	0.260	B	included in scope of supply of circuit-breaker			B	3VF9 724-1JA10	1 set	1.820	B	3VF9 824-1JA10 (up to 2000 A)	1 set	0.200
B	3VF9 524-1LD10	1 set	0.260	B	3VF9 624-1LD10	1 set	on req.	B	3VF9 724-1LD10	1 set	1.820	B	3VF9 824-1LD10	1 set	0.200
B	3VF9 524-1JB10	1 set	0.260	B	3TX7 690-1F	1 set	1.930		on request			–			
–				B	3VF9 624-1AD10 (up to 630 A)	1 set	0.332	B	3VF9 724-1AD10	1 unit	20.000	–			
B	3VF9 524-1FA10	1 unit	0.260	B	3VF9 624-1FA10	1 unit	5.180	–				–			
B	3VF9 524-1FE10	1 unit	0.260	–				–				–			
B	3VF9 524-1FB10	1 unit	0.260	B	3VF9 624-1FB10	1 unit	5.180	–				–			
B	3VF9 524-1FF10	1 unit	0.260	–				–				–			
–				B	3VF9 624-1GA10	1 unit	18.000 ⁵⁾	B	3VF9 724-1GA10	1 unit	20.000 ⁵⁾	–			
–				B	3VF9 624-1GB10	1 unit	18.000 ⁵⁾	B	3VF9 724-1GB10	1 unit	20.000 ⁵⁾	–			
▶	3VF9 524-1NB10 for cable connection	1 set	0.207	▶	3VF9 624-1NB10 for cable or busbar connection	1 set	0.300	–				–			

* This quantity or a multiple thereof can be ordered.

Circuit-Breakers up to 2500 A

Accessories/spare parts

Connections



3VF9 624-1AD10
Multiple feed-in
terminal for 3VF6



3VF9 724-1JA10
Front busbar
connection pieces for 3VF7



3VF9 524-1NB10
Terminal cover for main ter-
minal for 3VF5



3VF9 524-1RA10
Phase barrier
for 3VF4/3VF5



3VF9 624-1GB10
Guide frame with 3VF6 plug-in circuit-
breaker

		Accessories for 3VF3			Accessories for 3VF4			
	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
		kg			kg			
4-pole only								
Front busbar connection pieces 1 set = 4 units	B	3VF9 324–1JA20	1 set	3.650	B	3VF9 424–1JA20	1 set	2.760
Rear terminal 1 set = 4 units	B	3VF9 324–1LD20	1 set	3.650	B	3VF9 424–1LD20	1 set	0.380
Terminal with phase barriers for flexible flat copper bars 1 set = 4 units		with standard terminal, included in scope of supply of circuit-breaker (up to 160 A)				with standard terminal, included in scope of supply of circuit-breaker		
Multiple feed-in terminal 1 set = 4 units		–				–		
Plug-in base complete with baseplate and 2 terminal covers for front connection for circuit-breaker with RCD module	B B	3VF9 324–1FA20 3VF9 324–1FE20	1 unit 1 unit	3.650 3.650	B B	3VF9 424–1FA20 3VF9 424–1FE20	1 unit 1 unit	2.760 2.760
Plug-in base with baseplate for rear connection for circuit-breaker with RCD module	B B	3VF9 324–1FB20 3VF9 324–1FF20	1 unit 1 unit	3.650 3.650	B B	3VF9 424–1FB20 3VF9 424–1FF20	1 unit 1 unit	2.760 2.760
Guide frame¹⁾ with baseplate and crank handle for front connection for rear connection		– –				– –		
Terminal covers IP30 with integrated phase barriers for main connections 1 set = 2 units	B	3VF9 324–1NB20 for cable connection	1 set	0.189	B	3VF9 424–1NB20 for cable connection	1 set	0.214

For 8US1 busbar adapter system, see Section 8 "Components for distribution systems".

- 1) Use plug-in circuit-breakers with connecting leads (see Page 4/171).
- 2) The guide frame cannot be used in combination with the motorized operating mechanism for 3VF6 and 3VF7.

Circuit-Breakers up to 2500 A

Accessories/spare parts

Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8			
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
			kg				kg				kg				kg
B	3VF9 524-1JA20	1 set	0.260		included in scope of supply of circuit-breaker			B	3VF9 724-1JA20	1 set	1.820	C	3VF9 824-1JA20 (up to 2000 A)	1 set	0.200
B	3VF9 524-1LD20	1 set	0.260	B	3VF9 624-1LD20	1 set on req.		B	3VF9 724-1LD20	1 set	0.300	C	3VF9 824-1LD20	1 set	0.200
B	3VF9 524-1JB20	1 set	0.260	B	3TX7 690-1F	1 set	1.930		on request				–		
	–			B	3VF9 624-1AD20 (up to 630 A)	1 unit	5.180	B	3VF9 724-1AD20	1 unit	20.000		–		
B	3VF9 524-1FA20	1 unit	0.260	B	3VF9 624-1FA20	1 unit	5.180		–				–		
B	3VF9 524-1FE20	1 unit	0.260		–				–				–		
B	3VF9 524-1FB20	1 unit	0.260	B	3VF9 624-1FB20	1 unit	5.180		–				–		
B	3VF9 524-1FF20	1 unit	0.260		–				–				–		
	–			B	3VF9 624-1GA20	1 unit	18.000 ²⁾	B	3VF9 724-1GA20	1 unit	20.000 ²⁾		–		
	–			B	3VF9 624-1GB20	1 unit	18.000 ²⁾	B	3VF9 724-1GB20	1 unit	20.000 ²⁾		–		
B	3VF9 524-1NB20 for cable-connection	1 set	0.270	B	3VF9 624-1NB20 for cable or busbar connection	1 set	0.391		–				–		

* This quantity or a multiple thereof can be ordered.

Circuit-Breakers up to 2500 A

Accessories/spare parts

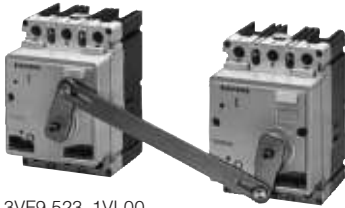
Interlocks, covers



3VF9 520-1AA00
Masking frame for
door cut-out
for 3VF5



3VF9 523-1VC00
Locking device for
toggle lever
for 3VF4/3VF5



3VF9 523-1VL00
Mutual interlocking of two
circuit-breakers with rotary operating mecha-
nism, for 3VF3 to 3VF7, complete for fitting
in doors and covers



3VF9 323-1VG00
Module for mutual inter-
locking of toggle levers
for 3VF3



3VF9 623-1VB00
Toggle lever
extension
for 3VF6

3- or 4-pole

Locking device for toggle lever

Toggle lever extension
for retrofitting by plugging onto
the toggle lever
of the circuit-breaker

**Mutual interlocking
of two circuit-breakers**
order 2 x door-coupling rotary
operating mechanisms
with this device¹⁾

Masking frame for door cut-out IP30

for circuit-breaker
without RCD module
with RCD module

Sheet-steel enclosure IP54
without operating mechanism
(Molded-plastic enclosure
Section 7 "Switchboards, distri-
bution and cabinet systems"

Accessories:

Front-operated rotary operat- ing mechanism

with shaft stub, without knob

Also required:

Black knob, lockable
Red knob, with yellow plate,
lockable, for
EMERGENCY-STOP switch

DT	Accessories for 3VF3			DT	Accessories for 3VF4		
	Order No.	PS*	Weight per PU approx.		Order No.	PS*	Weight per PU approx.
			kg				kg
	3VF9 323-1VC00	1 unit	0.180	B	3VF9 523-1VC00	1 unit	1.080
	—			B	3VF9 523-1VB00	1 unit	1.080
	3VF9 523-1VL00	1 unit	0.258		3VF9 523-1VL00	1 unit	0.258
	3VF9 320-1AA00	1 unit	0.220	B	3VF9 420-1AA00	1 unit	0.120
	3VF9 320-1AB00	1 unit	0.220	B	3VF9 420-1AB00	1 unit	0.120
	3VF9 324-1DA00	1 unit	3.650		For molded-plastic enclosure see Section 7 "Switchboards, distribution systems and cabinet systems"		
	see Page 4/178.						
	3VF9 323-1VN10	1 unit	0.180				
	3VF9 323-1VN20	1 unit	0.180				
3-pole only							
	3VF9 323-1VG00	1 unit	0.180	B	3VF9 423-1VG00	1 unit	2.120

**Module for mutual interlock-
ing of toggle levers²⁾**
(this is not a changeover
device)

1) see Page 4/178.

2) Only possible for version with connecting leads.

3VF circuit-breakers with RCD module

The RCD module is factory-mounted on the circuit-breaker (also for the plug-in version).

When ordering, add the suffix "**-Z**" to the full Order No. and add the relevant order code.

For 3 and 4-pole circuit-breakers		Rated current I_n of the circuit-breaker	Residual currents $I_{\Delta N}$ adjustable	Delay time t_d adjustable	Rated operational voltage U_e	Order No. with "-Z" 3VF...-0A...-Z and additional order code □□□	Circuit-breaker Order code A01		Circuit-breaker Order code A02		Extra weight for circuit-breaker	
		A	A	S	V		3-pole	4-pole	3-pole	4-pole	3-pole	4-pole
											kg	kg
Identification code for further versions -Z												
3VF31	For system and motor protection,	100	0.03	instantaneous	110-415	A01	x	x	x	x	0.48	0.5
3VF32	disconnectors or starter combinations	160	0.1	0.06	110-690	A02	x	x	x	x	0.48	0.5
3VF4		250	0.3	0.1			x	x	x	x	0.94	1.25
			1.0	0.25								
			3.0	0.5								
3VF5	For system protection ¹⁾	400 ¹⁾	10	1.0			x	x	x	x	1.18	1.21
			30									

1) Not for electronic trip units (11th position of Order No. "6").

x version possible.

Circuit-Breakers up to 2500 A

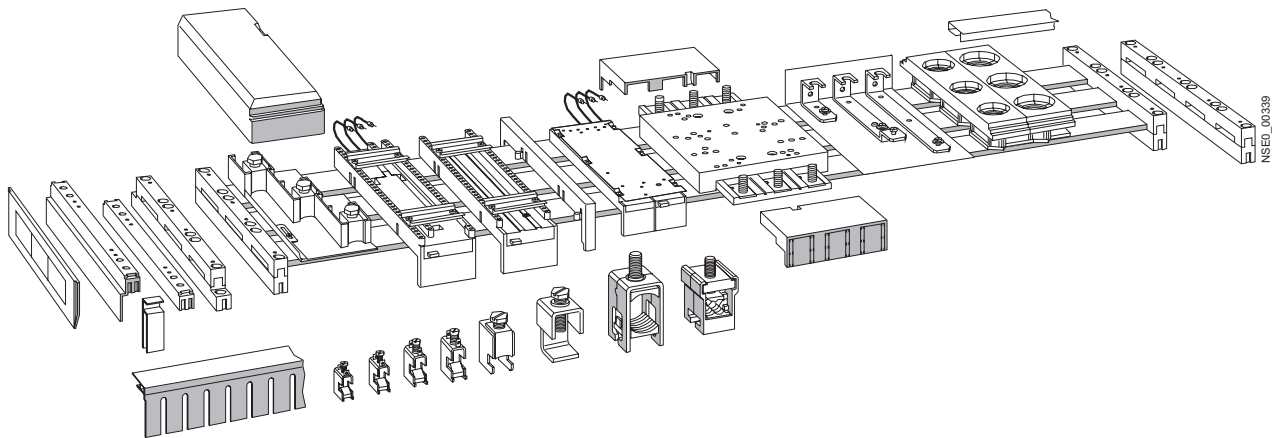
Accessories/spare parts

Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8			
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
			kg				kg				kg				kg
B	3VF9 523-1VC00	1 unit	1.080	B	3VF9 623-1VC00	1 unit	0.332	B	3VF9 723-1VC00	1 unit	3.680	—			
B	3VF9 523-1VB00	1 unit	1.080	B	3VF9 623-1VB00	1 unit	0.332	B	in scope of supply of circuit-breaker				in scope of supply of circuit-breaker		
▶	3VF9 523-1VL00	1 unit	0.258	▶	3VF9 623-1VL00	1 unit	0.332	▶	3VF9 623-1VL00	1 unit	0.332	—			
B B	3VF9 520-1AA00 3VF9 520-1AB00	1 unit 1 unit	0.120 0.120	B	3VF9 620-1AA00 —	1 unit	0.200	B	3VF9 720-1AA00 —	1 unit	0.120	B	3VF9 820-1AA00 —	1 unit	0.200
	For molded-plastic enclosure see Section 7 "Switchboards, distribution systems and cabinet systems"				For molded-plastic enclosure see Section 7 "Switchboards, distribution systems and cabinet systems"				For molded-plastic enclosure see Section 7 "Switchboards, distribution and cabinet systems"						
B	3VF9 523-1VG00	1 unit	1.080	B	3VF9 623-1VG00	1 unit	0.332	—				—			

Circuit-Breakers up to 2500 A

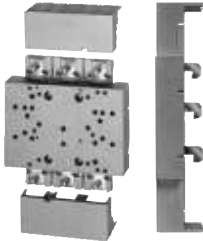
Accessories/spare parts

8US1 busbar adapter system

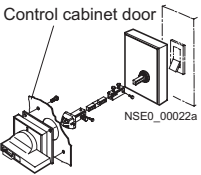
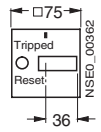
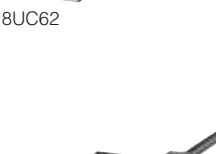
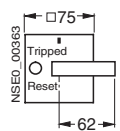
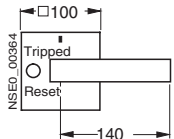
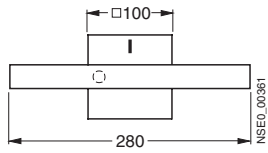


Busbar adapter systems with 40 mm or 60 mm busbar center-to-center distance with components for busbar runs, adapters and switching device holders for individual configuration possibilities, devices with an integrated adapter, as well as accessories and busbar copper.

For further information see Section 8 "Components for Distribution systems".

	Version	DT	Order No.	PS*	Weight per PU approx. kg
40 mm system					
to DIN 43870 Part 2 for Cu busbars with sharp (DIN 1759) or rounded (DIN 46433) edges, width 12 mm or 15 mm, thickness 5 mm or 10 mm	Busbar adapter , 175 mm long with plug connection tags, 3-pole for 1 3VF3 circuit-breaker, up to 200 A	108 mm wide	A	8US10 11-4SB00	1 unit 0.500
60 mm system					
for Cu busbars with sharp (DIN 1759) or rounded (DIN 46433) edges, width 12 mm or 30 mm, thickness 5 mm or 10 mm, also for T and double-T special profiles	Busbar adapter , 175 mm long with plug connection tags, 3-pole for 1 3VF3 circuit-breaker, up to 200 A	108 mm wide	A	8US12 11-4SB00	1 unit 0.580
	Busbar adapter , 254 mm long without tags, with pillar terminals 70 mm^2 for 1 3VF4 circuit-breaker, up to 200 A	108 mm wide with mounting plate	A	8US12 10-4AA04	1 unit 1.140
 8US12 11-4SB00 with 3VF3	The connecting lead between adapter and switching device should be manufactured in accordance with the rated current as a round cable, e.g. H07V-R, bared at both ends for pillar terminals				
	Busbar adapter , 320 mm long with M 4, M 6 and M 8 threaded inserts for various switching devices up to 630 A, 3-pole without connecting leads, with M 10 terminal screws on top and bottom				
 8US12 10-4AF00	Adapter for 3VF5 circuit-breaker (also possible for 3VF4 circuit-breaker) for 3KA53, 3KL52, 3KL53, 3NP42	185 mm wide	A	8US12 10-4AF00	1 unit 2.760
	Mounting plate for 8US12 10-4AF00		A	8US19 27-4AF00	1 unit 0.501
	The connecting lead between adapter and switching device should be manufactured in accordance with the rated current as a round cable, e.g. H07V-R, with a cable lug or as a flat conductor for bolt-type connection M 10 (adapter).				

8UC6 door-coupling rotary operating mechanisms

 Control cabinet door NSE0_00022a		For type	Rated current	Cross-section of actuating shaft	Torque	Door-coupling rotary operating mechanism, complete							
		A		mm	Nm	Lockable with padlocks, with door interlocking Supplied with gasket and fixing screws			EMERGENCY-STOP version				
 Rotary operating mechanism, complete see Pages 4/178 and 4/179 8UC61		Illustrated: handle, masking frame				DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
									kg				kg
 8UC62		3VF2	16 ... 100	8 × 8	2	B	8UC61 12-1BD22	1 unit	0.417 ¹⁾	B	8UC61 22-3BD22	1 unit	0.402 ¹⁾
													
		3VF3	16 ... 225	8 × 8	2	B	8UC62 12-1BD22	1 unit	0.440 ¹⁾	B	8UC62 22-3BD22	1 unit	0.445 ¹⁾
 8UC63		3VF4	125 ... 250	8 × 8	6								
		3VF5	200 ... 400	8 × 8	6								
													
 8UC65		3VF6	315 ... 800	12 × 12	16	B	8UC63 14-1BD44	1 unit	1.150 ¹⁾	B	8UC63 24-3BD44	1 unit	1.170 ¹⁾
													
		3VF7	800 ... 1250	12 × 12	25	B	8UC65 14-1BB44	1 unit	1.260 ¹⁾	B	8UC65 24-3BB44	1 unit	1.220 ¹⁾
		3VF8	1600 ... 2500	12 × 12	50								
													
Components													
For type		For operating mechanism		Cross-section of actuating shaft mm × mm		DT	Order No.	PS*	Weight per PU approx.				
									kg				
Extension shafts, 300 mm long													
3VF2-3VF5		8UC62		8 × 8		B	8UC60 32	1 unit	0.132				
3VF6-3VF8		8UC63, 8UC65		12 × 12		B	8UC60 34	1 unit	0.315				
Extension shafts, 600 mm long													
3VF2-3VF5		8UC62		8 × 8		B	8UC60 82	1 unit	0.265				
3VF6-3VF8		8UC63, 8UC65		12 × 12		B	8UC60 84	1 unit	0.640				
Shaft couplings													
3VF2-3VF5		8UC62		8 × 8		B	8UC60 22	1 unit	0.023				
3VF6-3VF8		8UC63, 8UC65		12 × 12		B	8UC60 24	1 unit	0.077				

1) 3VF circuit-breakers require in addition a front-operated rotary operating mechanism with shaft stub for direct mounting on the circuit-breaker, see Pages 4/178 and 4/179.

2) Non-interchangeability features.

Circuit-Breakers up to 2500 A

Project planning aids

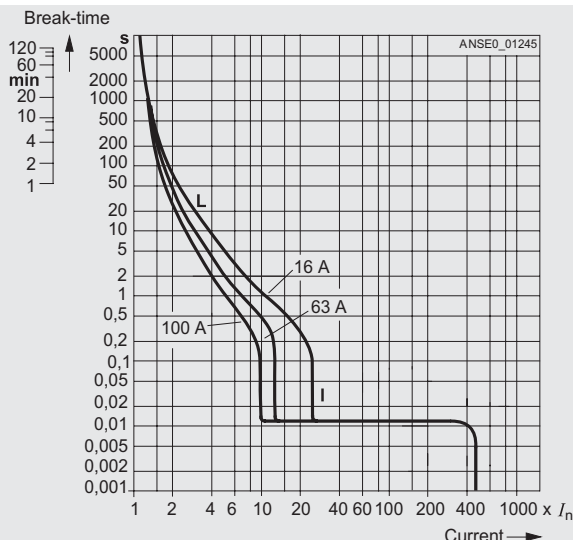
Characteristics

The indicated tripping values for the thermal overload releases ("L" trip units) are mean values taken from the spread of all setting ranges from the cold state under even load conditions on the conducting paths.

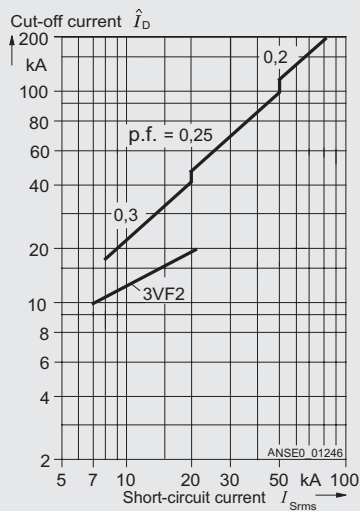
The tripping characteristics of the instantaneous (electromagnetic) short-circuit releases ("I" trip units) are based on the phase rated current I_n , which also represents the upper value of the setting range on circuit-breakers with adjustable thermal overload release. With a lower operational current there is a correspondingly higher multiple for the tripping current of the "I" trip units.

"L" thermal overload release

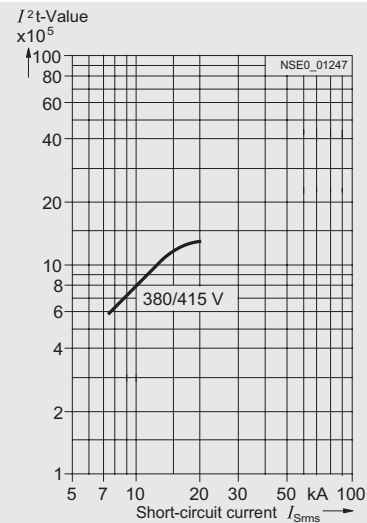
"I" instantaneous (electromagnetic) short-circuit release



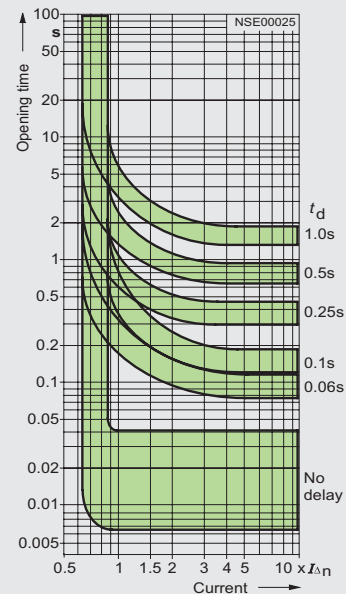
Tripping characteristic for 3VF2 circuit-breaker



Current limiting characteristics for 3VF2, AC 50/60 Hz 380/415 V



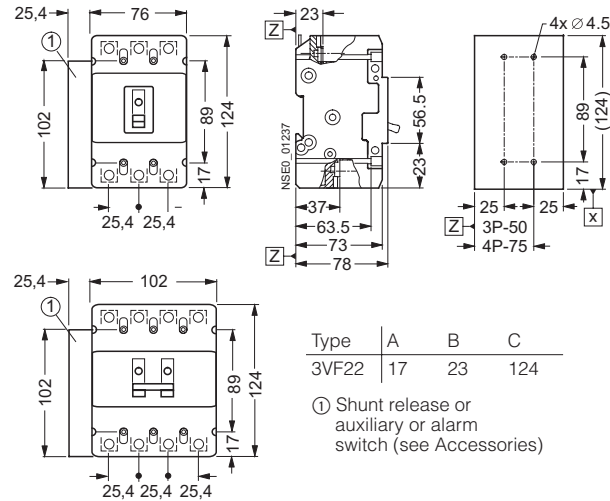
Maximum I^2t values for 3VF2, AC 50/60 Hz 380/415 V



Tripping characteristic of the RCD module

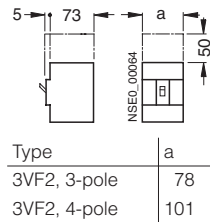
Dimension drawings

3VF2 circuit-breakers, 3 and 4-pole



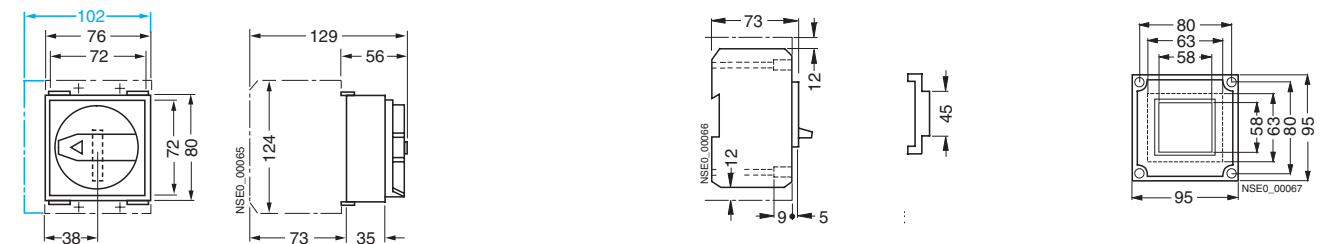
Arcing spaces

Minimum clearances from adjacent grounded parts and from non-insulated live parts at rated voltage.
The clearance of at least 2 cm between large covers and the arc chute openings should be observed for the 3VF2.
Plain conductors and busbars must be insulated within the arcing space.



3VF2

Accessories for 3VF2 circuit-breakers, 3 and 4-pole

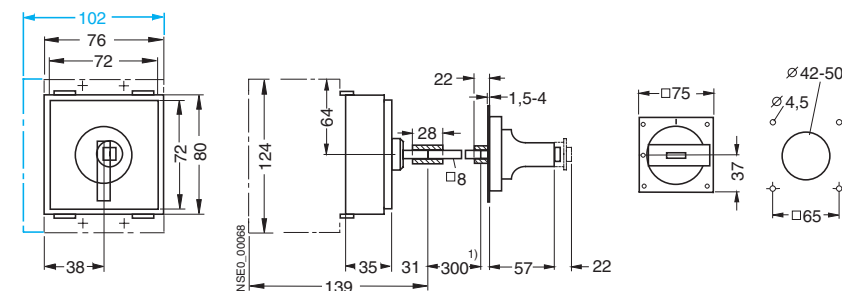


3VF9 223-1.A00 front rotary operating mechanism with knob
for 3VF2

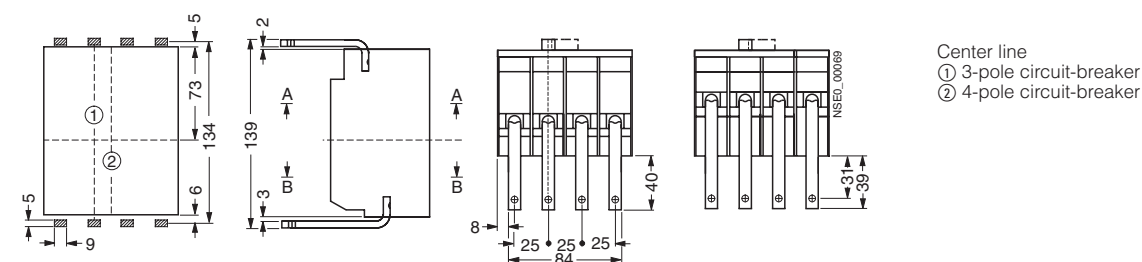
3VF9 224-1NB.0 terminal cover
for 3VF2

3VF9 220-1CA10 cover with cap dimensions of 45 mm
for 3VF2

3VF9 220-1AA00 masking frame for door cut-out
for 3VF2



Door-coupling rotary operating mechanism, complete 8UC61 .2-.BD22 (rotary operating mechanism) and 3VF9 223-1JA00 (front rotary operating mechanism with shaft stub) for 3VF2



3VF9 224-1LD.0 rear terminal for 3VF2

View A

View B

1) As-supplied, shorten shaft to suit if necessary.
With lengths >130 mm a support is necessary.

Note:

4-pole circuit-breakers always have the 4th pole (N) on the left!

4-pole version

Circuit-Breakers up to 2500 A

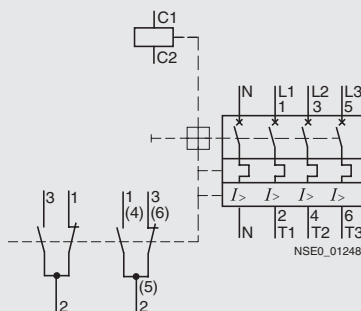
Project planning aids

Circuit diagrams

The graphical symbols used in the circuit diagrams provide information about the type, circuit and method of operation of the equipment in accordance with DIN 40713, but contain no information about the design.

As it is not possible to show all of the potential combinations here, it may be necessary to alter the circuit diagrams accordingly for different versions.

The purpose of these circuit diagrams is merely to help improve the understanding of way in which the devices function.



Connection diagram for 3 and 4-pole 3VF2 circuit-breakers