Molded-Case Circuit-Breakers (MCCB)

4

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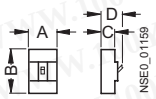
4/2 **Introduction**

SENTRON VL circuit-breakers up to 1600 A
4/4 General data
4/22 3-pole
4/28 4-pole
4/34 Options
4/36 Accessories/spare parts
4/60 Project planning aids

Circuit-breakers up to 2500 A
4/130 General data
4/142 3-pole, fixed-mounted design
4/150 3-pole, plug-in/ withdrawable design
4/156 4-pole, fixed-mounted design
4/164 4-pole, plug-in/ withdrawable design
4/170 General use switch, 3-pole, fixed-mounted design
4/171 Options
4/173 Accessories/spare parts
4/190 Project planning aids

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	
up to AC 415 V	kA	40/40		40/40		40/40		45/45		45/45		50/50	
up to AC 690 V	kA	8/4		12/6		12/6		15/8		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	
up to AC 415 V	kA	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	
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	
up to AC 415 V	kA	–		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	
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

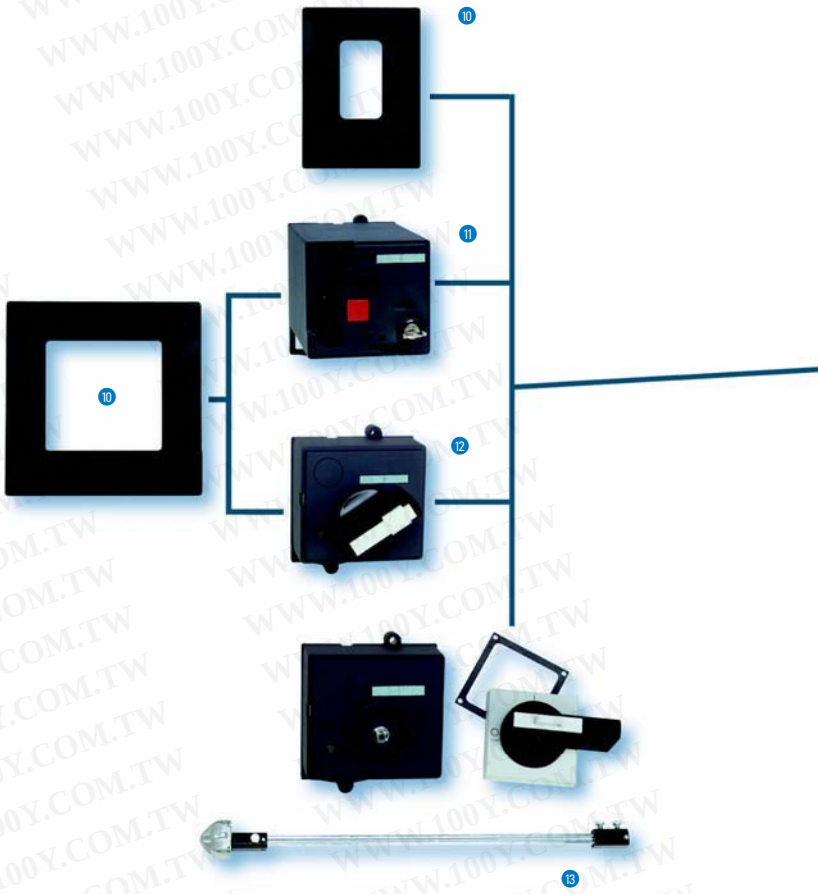
	VL1250		VL1600		3VF2	3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
SENTRON VL molded-case circuit-breakers up to 1600 A					**Molded-case circuit-breakers up to 2500 A**						
	400 ... 1250 A		640 ... 1600 A		16 ... 125	160, 205, 225	220/250	315/400	500/630/800	800/1250	1600/2000, 2500
	3	4	3	4	3 and 4	3 and 4	3 and 4	3 and 4	3 and 4	3 and 4	3 and 4
	690		690		up to 415	690	690	690	690	690	690
	–		–		–	750	750	750	750	–	–
	–	–	–	–	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	–	✓	–	✓	✓	✓	✓
	✓	✓	✓	✓	–	–	–	–	–	–	–
	✓	✓	✓	✓	–	–	–	–	–	–	–
	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
	65/35		65/35		65/33	85/85[1])	85/85	85/85	85/85[2])	85/85	–
	50/25		50/25		18/9	40/40[1])	40/40	45/45	45/45[2])	50/50	–
	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	–	–
	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	–	–
	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.

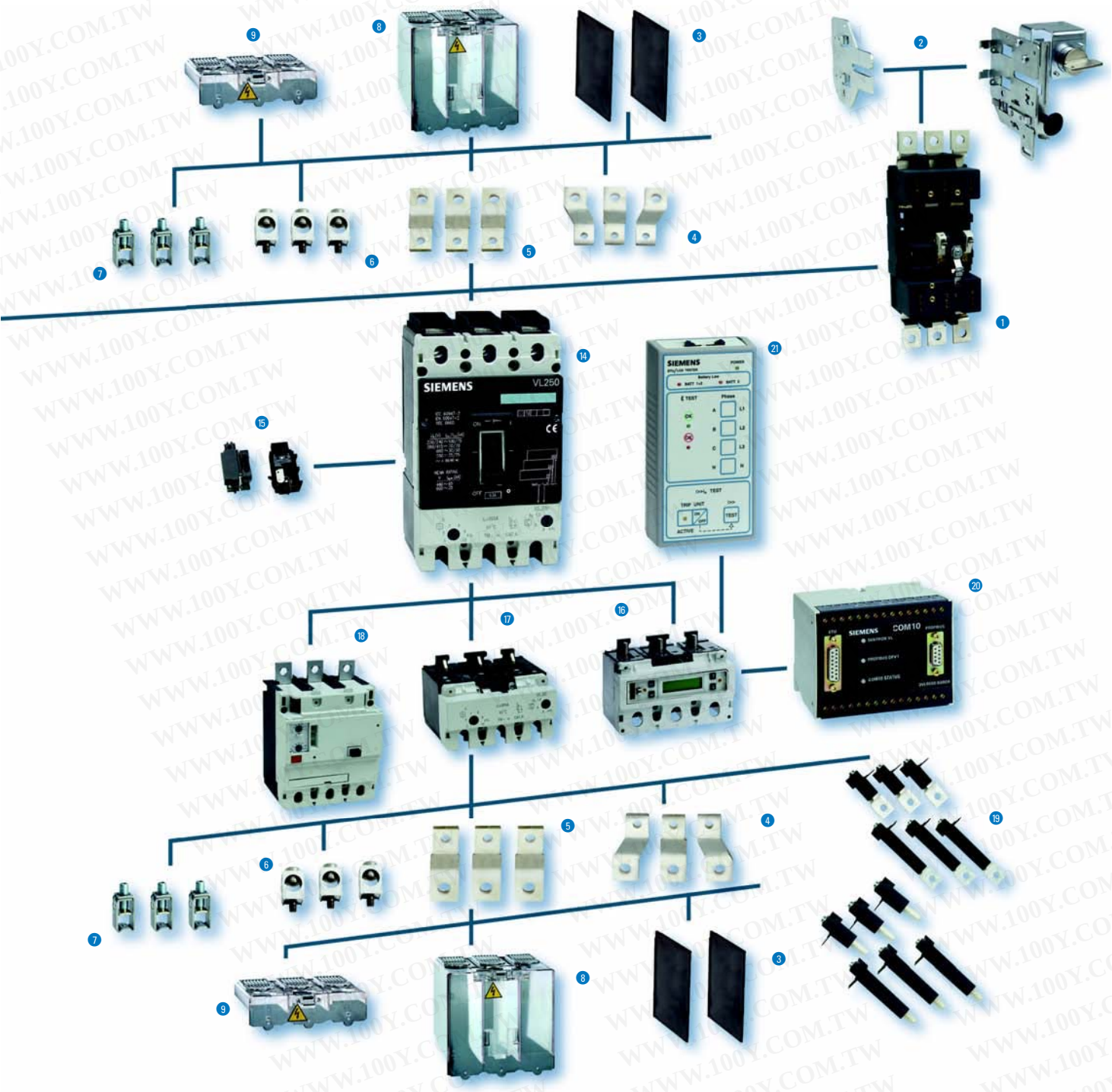
2) or at I_n = 800 A; up to AC 240 V: 65/33 kA; up to AC 415 V: 50/25 kA; up to 690 V: 20/10 kA.

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


SIEMENS
VL250
SIEMENS
COM10

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).

Switching of DC currents

The VL160X to VL630 circuit-breakers (for system protection with TM, for starter combinations, non-automatic circuit-breakers) can also be used for DC switching and protection applications.

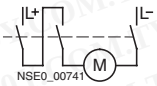
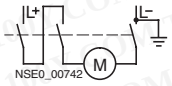
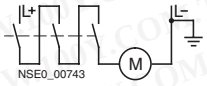
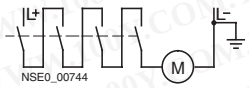
The VL160 to VL1600 circuit-breakers with electronic trip units (ETU) are not suitable for DC applications.

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_e	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 VL160X to VL1600 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

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

VL160X to VL1600 overcurrent trip units

System protection	Motor protection	Generator protection	Function	Setting options L	S (i)	S (t)	I	G	Thermal image	Phase failure	Communication-capable	Thermal-magnetic trip unit (TM)	Electronic trip unit (ETU)	Electronic trip unit with LCD display (LCD ETU)	Trip unit	Technical specifications see Page
✓ [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.

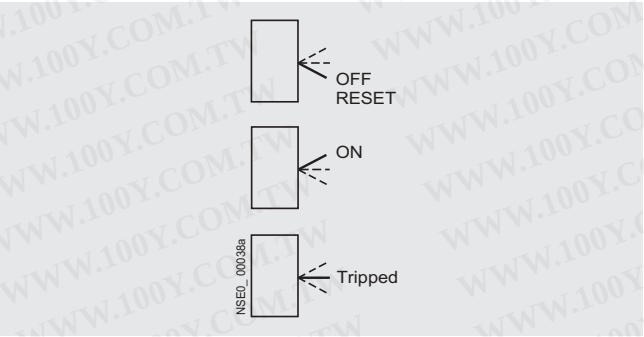
A leading voltage can be applied to the undervoltage release of a circuit-breaker with leading auxiliary switches which makes the circuit-breaker ready-to-close.

Door-coupling rotary operating mechanisms
(complete operating mechanisms)

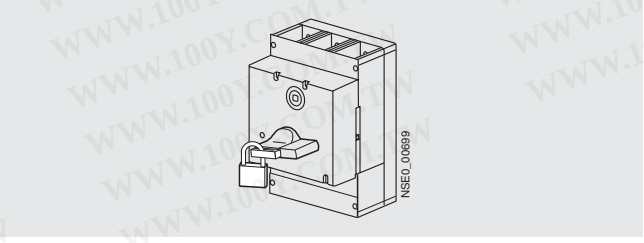
Door-coupling rotary operating mechanisms and removable covers are available for circuit-breakers which are installed into control cabinets and distribution boards. These are supplied as complete sets, including an articulated-shaft mechanism.

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

General data

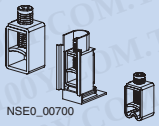
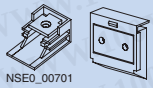
Motorized operating mechanism with spring energy store

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)

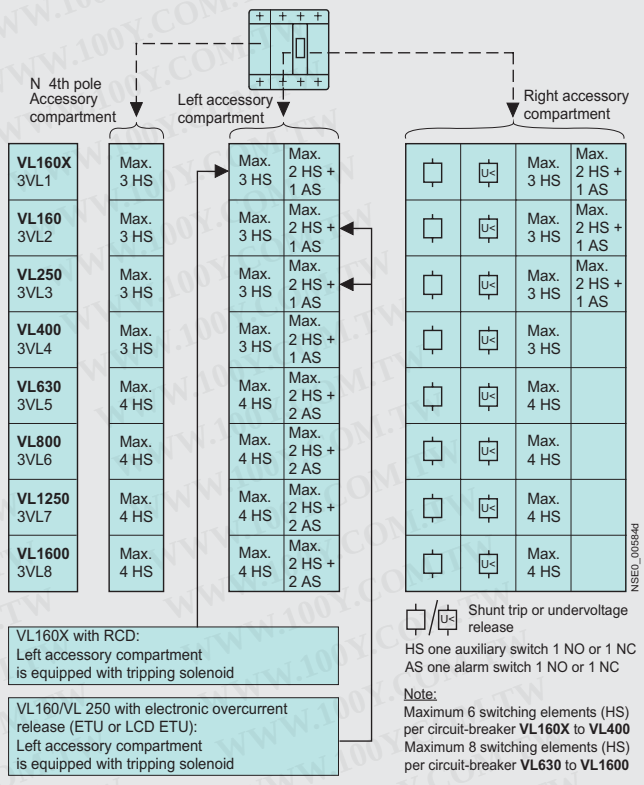
The configuration possibilities for circuit-breakers with auxiliary and alarm switches depend on the mounting position of the auxiliary/alarm switches on the circuit-breaker and on the accessory groups (1 or 2) of the circuit-breakers.

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
    ≤ 25 % I_Δ of $I_{\Delta n}$
  - Green + yellow
    25 % < I_Δ = 50 % of the set $I_{\Delta n}$
  - Green + yellow + red
    I_Δ ≥ 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).

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

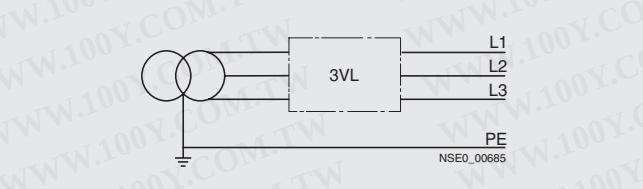
Ground-fault releases "g" sense fault currents that flow to ground and that can cause fire in the plant. Several circuit-breakers connected in series can provide graduated discrimination by means of the adjustable delay time.

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

Vectorial summation current formation (measurement method 1)

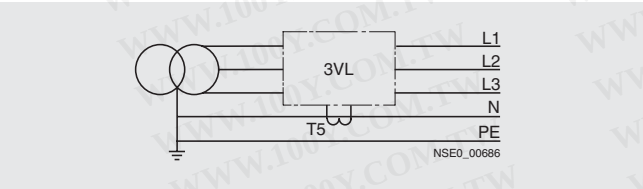
Ground-fault detection in symmetrically loaded systems

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

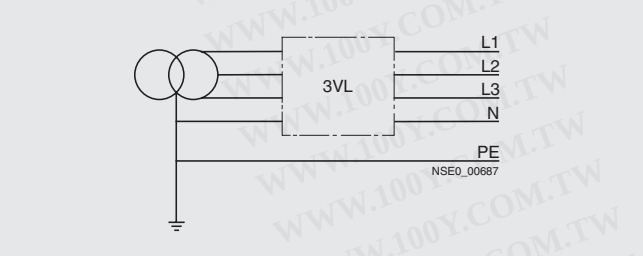


Ground-fault detection in asymmetrically loaded systems

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.



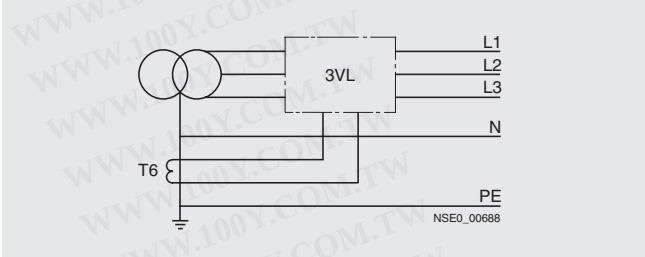
3-pole circuit-breaker, current transformer in the neutral conductor



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

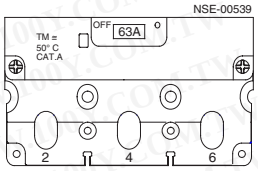
The SENTRON VL circuit-breakers protect energy distribution systems against overload and short-circuit on the low-voltage side of the infeed transformer. The resulting requirements with respect to current-based and/or time-based discrimination are reliably fulfilled by the SENTRON VL circuit-breakers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

Thermal-magnetic overcurrent trip unit

NSE0_00689

Application: system protection – TM, LI/LIN function

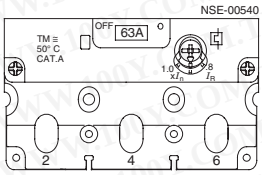
Overload protection (fixed), short-circuit protection (fixed); see selection table for VL160X (trip units installed in the switch enclosure)



NSE0_00690

Application: system protection – TM, LI/LIN function

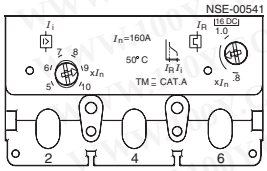
Overload protection (adjustable I_R = 0.8 to 1 × I_n), short-circuit protection (fixed); see selection tables for VL160X (trip units installed in the switch enclosure)



NSE0_00691

Application: system protection – TM, LI/LIN function

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



Electronic overcurrent trip units ETU

For types VL160 to VL1600

General

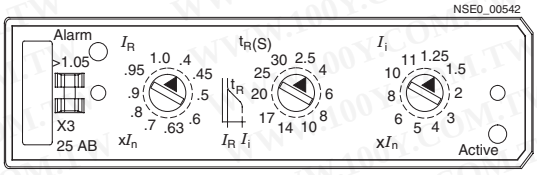
- No auxiliary voltage for tripping unit required
- All ETUs have a thermal image
- Flashing green LED indicates faultless operation of microprocessor
- Overload status (I > 1.05 × I_R) is indicated by continuous yellow LED (alarm)
- Integrated self-test function
- Female connector for test unit

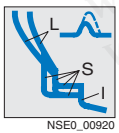
NSE0_00691

Application: system protection – ETU10, LI/LIN function

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

Short-circuit protection (instantaneous) I_i = 1.25 to 11 × I_n[1])





NSE0_00920

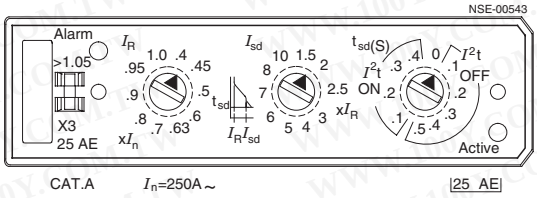
Application: system and generator protection – ETU20, LSI/LSIN function

Overload protection I_R = 0.4; 0.45; 0.5 to 0.95; 1 × I_n,

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

I^2t selectable on/off

Short-circuit protection (instantaneous) I_i = 11 × I_n (fixed)[1])



NSE0_00693

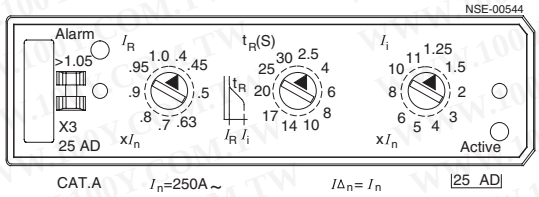
Application: system protection – ETU12, LIG/LING function

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

Short-circuit protection (instantaneous) I = 1.25 to 11 × I_n[1])

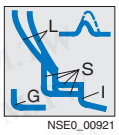
Ground-fault protection:
Measurement method no. 1:
(G_R) vectorial summation current formation for the currents of the three phases/and neutral conductor (four-conductor systems); $I_{\Delta n}$ = I_n, versions "AC", "AD", "BC", "BD" (for Order No. supplements see Page 4/25 or 4/31)

Measurement method no. 2:
(G_{GND}) 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)

General data



NSE0_00921

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

Overload protection I_R = 0.4; 0.45; 0.5 to 0.95; 1 × I_n,

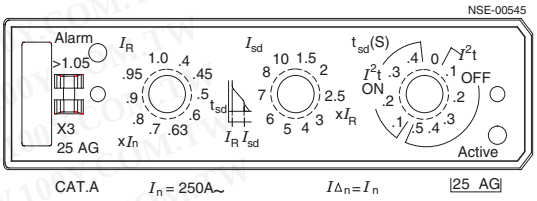
Short-circuit protection (short-time delayed) I_{sd} = 1.5 to 10 × I_R, t_{sd} = 0 to 0.5 s,

I^2t selectable on/off

Short-circuit protection (instantaneous) I_i = 11 × 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)



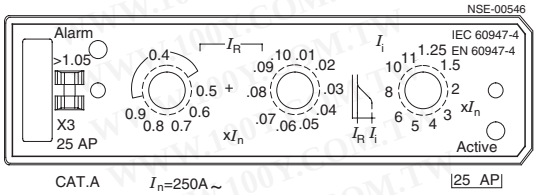
NSE0_00943

Application: motor protection – ETU10M, LI function

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

Thermal image

Short-circuit protection (instantaneous) I_i = 1.25 to 11 × I_n[1]) with phase failure sensitivity



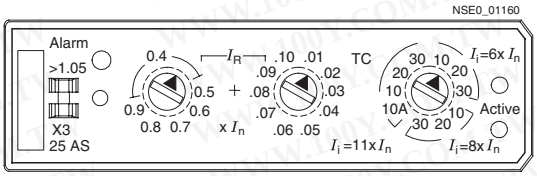
NSE0_00691

Application: motor protection – ETU30M, LI function

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

Thermal image

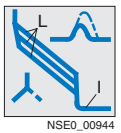
Short-circuit protection (instantaneous) I_i = 6 to 11 × I_n with phase failure sensitivity



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".



NSE0_00944

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

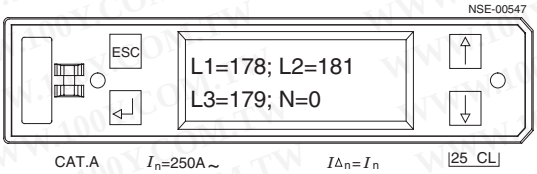
Overload protection I_R = 0.4 to 1 × I_n, trip class t_c = 2.5 to 30

On/off selectable thermal image

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

I^2t selectable on/off

Short-circuit protection (instantaneous) I_i = 1.25 to 11 × I_n[1])



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

NSE0_00697

Application: system protection – ETU42, LSIG/LSING function

Overload protection I_R = 0.4 to 1 x 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 × I_R, t_{sd} = 0 to 0.5 s,

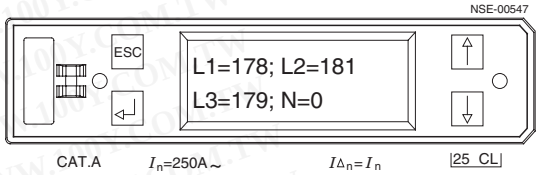
I^2t selectable on/off

Short-circuit protection (instantaneous) I_i = 1.25 to 11 × 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 × 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 × I_n, t_g = 0.1 to 0.5 s; version "CM"
(for Order No. supplements see Page 4/26)

NSE-00547



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".

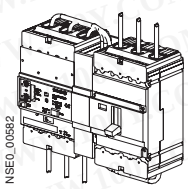
General data

Technical specifications

Type			VL160X 3VL1	VL160 3VL2	VL250 3VL3	VL400 3VL4	VL630 3VL5	VL800 3VL6	VL1250 3VL7	VL1600 3VL8
Max. rated current I_n depending on the version		A	160	160	250	400	630	800	1250	1600
Rated insulation voltage U_i to IEC 60947-2										
Main circuits	AC	V	800	800	800	800	800	800	800	800
Auxiliary circuits	AC	V	690	690	690	690	690	690	690	690
Rated impulse withstand voltage U_{imp}										
Main circuits		kV	8	8	8	8	8	8	8	8
Auxiliary circuits		kV	4	4	4	4	4	4	4	4
Rated operating voltage U_e, 50/60 Hz										
IEC	AC	V	690	690	690	690	690	690	690	690
NEMA	AC	V	600	600	600	600	600	600	600	600
Permissible ambient temperature		°C	–25 ... +70	–25 ... +70	–25 ... +70	–25 ... +70	–25 ... +70	–25 ... +70	–25 ... +70	–25 ... +70
Permissible load at various ambient temperatures close to the circuit-breaker, related to the rated current of the circuit-breaker										
• Circuit-breakers for system protection	at 40 °C	%	100	100	100	100	100	100	100	100
	at 50 °C	%	100	100	100	100	100	100	100	100
	at 60 °C	%	93	93	93	93	93	95	95	95
	at 70 °C	%	86	86	86	86	86	86	86	80
• Circuit-breakers for motor protection	at 40 °C	%	–	100	100	100	100	–	–	–
	at 50 °C	%	–	100	100	100	100	–	–	–
	at 60 °C	%	–	93	93	93	93	–	–	–
	at 70 °C	%	–	86	86	86	86	–	–	–
• Circuit-breakers for starter combinations and non-automatic circuit-breakers	at 40 °C	%	100	100	100	100	100	100	100	100
	at 50 °C	%	100	100	100	100	100	100	100	100
	at 60 °C	%	93	93	93	93	93	95	95	95
	at 70 °C	%	86	86	86	86	86	86	86	80
Rated short-circuit switching capacity (DC)										
for SENTRON VL circuit-breakers with TM trip unit Time constant t = 15 ms										
1 current path up to DC 250 V	2 current paths in series DC 440 V	3 current paths in series DC 600 V	kA	30	30	30	30	30	–[1]	–[1]	–[1]
NEMA Time constant t = 8 ms										
1 current path	2 current paths in series										
DC 250 V	–		kA	30	30	30	30	30	–[1]	–[1]	–[1]
–	DC 250 V		kA	30	30	30	30	30	–[1]	–[1]	–[1]
Weights of 3-pole circuit-breakers										
Basic unit without overcurrent trip unit		kg	–	1.5	1.6	4.2	7.8	14.2	21	27.3
Thermal-magnetic overcurrent trip unit		kg	–	0.7	0.7	1.5	1.2	–	–	–
Electronic overcurrent trip unit		kg	–	0.9	0.9	1.7	1.5	1.8	4.0	4.0
Basic unit										
with thermal-magnetic overcurrent trip unit		kg	2.0	2.2	2.3	5.7	9.0	–	–	–
with electronic overcurrent trip unit		kg	–	2.4	2.5	5.9	9.3	16.0	25.0	31.3
Weights of 4-pole circuit-breakers										
Basic unit without overcurrent trip unit		kg	–	2.0	2.2	5.5	9.7	18.2	27.5	34.8
Thermal-magnetic overcurrent trip unit		kg	–	1.0	1.0	1.9	1.5	–	–	–
Electronic overcurrent trip unit		kg	–	1.1	1.1	2.1	2.0	2.3	6.0	6.0
Basic unit										
with thermal-magnetic overcurrent trip unit		kg	2.5	3.0	3.2	7.4	11.2	–	–	–
with electronic overcurrent trip unit		kg	–	3.1	3.3	7.6	11.7	20.5	33.5	40.8
Rated short-circuit switching capacity to IEC 60947-2 (at 50/60 Hz)			For rated short-circuit switching capacity see table on page 4/21.							

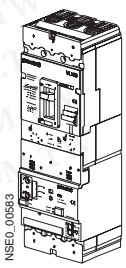
SENTRON VL160X with RCD module

mounted laterally on the circuit-breaker (on left side)

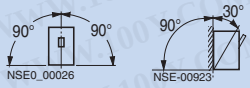


SENTRON VL160X to VL400 with RCD module

mounted below the circuit-breaker



1) Circuit-breaker cannot be used for direct current.

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
Box terminal										
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	–	–	–	–
Multiple feed-in terminal for cable										
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)
Rated operating voltage		AC V	230	230	230	230	230	230	230	230
Rated operating current		A	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
Rated breaking capacity		A	2	2	2	2	2	2	2	2
Back-up fuse, quick		A	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						

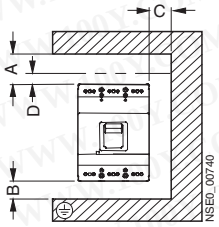
General data

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:									
Release (circuit-breaker is tripped)	V	0.35-0.70 × U_s				0.35-0.70 × U_s			
Pick-up (circuit-breaker can be closed)	V	0.85-1.1 × U_s				0.85-1.1 × U_s			
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.

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 DC V			– 24	48 48	60 60	110–127 110–127	220–250 220–250	
Back-up fuse or miniature circuit-breaker (time-lag)	A			20	16	10	6	2	
Operating range	V				0.85-1.1				
Minimum command duration at U_s	ms				50				
Total make-time	ms				<100			<5000	<5000
Break-time	S				<5				
Charging time	S				<5				
Reclosure after approx.	S				1			50	50
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 Type	Switching capacity	Minimum enclosure volume m^3	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
VL160X	Standard High	0.011	35	70	35	25	25	35
VL160	Standard High Very high	0.011	50	100	100	25	25	35
VL250	Standard High Very high	0.015	50	100	100	25	25	35
VL400	Standard High Very high	0.036	50	100	50	25	25	35
VL630	Standard High Very high	0.18	50	100	50	25	25	35
VL800	Standard High Very high	0.22	50	100	50	25	25	35
VL1250	Standard High Very high	0.22	70	100	70	30	30	50
VL1600	Standard High Very high	0.264	100	100	100	100	30	100

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)

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

e.g. VL250H (H ≙ high switching capacity): I_{cu} = 70 kA (AC 415 V)
I_{cm} = 2.2 × 70 000 = 154 kA (AC 415 V)

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	35	75	100	35	50	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
• I_{cs}	kA	65	75	150	65	75	150	65	75	150	65	75	150
up to AC 380/415 V													
• I_{cu}	kA	40	70	100	40	70	100	45	70	100	45	70	100
• I_{cs}	kA	40	70	75	40	70	75	45	70	75	45	70	75
up to AC 690 V													
• I_{cu}	kA	12	12	12	12	12	12	15	15	15	20	30	35
• I_{cs}	kA	6	6	6	6	6	6	8	8	8	10	15	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	12	15	15	15	20	30	35	20	30	35	20	30	35	20	30	35

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.

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

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

Type	Rated current I_n A	Setting current of inverse-time delayed overload release "L" I_R A	Operating current of instantaneous short-circuit release "I" I_i A	DT	Standard switching capacity N 40/45/50 kA at 380/415 V AC see Page 4/21. Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx. kg	DT	High switching capacity H 70 kA at 380/415 V AC Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx. kg	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
NSE0_00922	**Circuit-breaker for system and generator protection, ETU20, LSI function for time-based discrimination** (S function: I_{sd} = 1.5 to 10 x I_R, t_{sd} = 0 to 0.5 s)											
VL160	63	0.4-1.0 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	10 × 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 × I_n	8 × 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 × I_n	11 × 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 × I_n	10 × 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 × I_n	9 × I_n	B	**3VL87 16-1AE30-....**	31.300	B	**3VL87 16-2AE30-....**	31.300	B	**3VL87 16-3AE30-....**	31.300
NSE0_00705	**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 × 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 × 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 × 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 × 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 × 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 × 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 × 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 × I_n	B	**3VL57 50-1AP36-....**	9.300	B	**3VL57 50-2AP36-....**	9.300	B	**3VL57 50-3AP36-....**	9.300
NSE0_00706	**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 × 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 × 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 × 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 × 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 × 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 × 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 × 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 × 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).

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. Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.	DT	High switching capacity H 70 kA at 380/415 V AC Order No. Order No. supplement required, see Page 4/34	Weight per PU approx.	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.
	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-breakers[1]) 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

NSE0_00707

NSE0_00708

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).

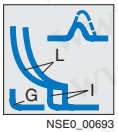
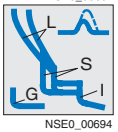
For further versions, including for short-circuit and ground-fault protection, see Pages 4/25 and 4/26.

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

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

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

ETU trip unit, 3-pole version

	Order No. supplements	Order No. supplements	Order No. supplements
NSE0_00943 **Motor protection with LI function, ETU10M** up to 500 A (VL160 to VL630)	**AP** [4]	**AP** [4]	**AP** [4]
System protection with LI function, ETU10	**AB**	**AB**	**AB**
 NSE0_00693 **System protection with LIG function, ETU12** for 3-wire three-phase systems[2])	**AC**	**AC**	**AC**
for 4-wire three-phase systems[1])[2])	**AD**	**AD**	**AD**
System protection with LIG function, ETU12 for direct detection of the ground-fault current in the neutral point of the transformer[1])	**AJ**	**AJ**	**AJ**
NSE0_00692 **System and generator protection with LSI function, ETU20**	**AE**	**AE**	**AE**
 NSE0_00694 **System and generator protection with LSIG function, ETU22** for 3-wire three-phase systems[2])	**AG**	**AG**	**AG**
for 4-wire three-phase systems[1])[2])	**AH**	**AH**	**AH**
System and generator protection with LSIG function, ETU22 for direct detection in the neutral point of the transformer[1])	**AK**	**AK**	**AK**
NSE0_00691 **Motor protection with LI function ETU30M** up to 500 A (VL160 to VL630)	**AS**	**AS**	**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).

3-pole

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

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

CP [4]
CH
CL
CM

Order No. supplements

CP [4]
CH
CL
CM

Order No. supplements

CP [4]
CH
CL
CM

LCD ETU trip unit, 3-pole version

NSE0_00696

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

System protection with LI/LS/LSI function, ETU40

NSE0_00697

System protection with LSIG function, ETU42
for 3-wire three-phase systems [2])
for 4-wire three-phase systems [1])[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).

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. Order No.	Weight per PU approx. kg	DT	High switching capacity H 70 kA at 380/415 V AC Order No.	Weight per PU approx. kg	DT	Very high switching capacity L 100 kA at 380/415 V AC 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 Type	Setting current of the inverse-time delayed overload release "L" I_R A	DT	Order No.	AP[1]	AB[1]	AC[1]	AD[1]	AJ[1]	AE[1]	AG[1]	AH[1]	AK[1]	AS[1]
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	–
			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 Type	Setting current of the inverse-time delayed overload release "L" I_R A	DT	Order No.	CP[1]	CH[1]	CL[1]	CM[1]
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
			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.

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. Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx.	DT	**High switching capacity H 70 kA at 380/415 V AC** Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx.	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.
	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

NSE0_00695

NSE0_00704

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).

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

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

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. Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx.	DT	High switching capacity H 70 kA at 380/415 V AC Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx.	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.
	A	A	A			kg			kg			kg
Circuit-breakers for system and generator protection, ETU20, LSI function for time-based discrimination (S function: I_{sd} = 1.5 to 10 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	10 × 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 × I_n	8 × 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 × I_n	11 × 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 × I_n	10 × 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 × I_n	9 × 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, LSIN function for time-based discrimination (S function: I_{sd} = 1.5 to 10 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	11 × 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 × I_n	10 × 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 × I_n	8 × 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 × I_n	11 × 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 × I_n	10 × 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 × I_n	9 × I_n	B	**3VL87 16-1BF40-....**	40.800	B	**3VL87 16-2BF40-....**	40.800	B	**3VL87 16-3BF40-....**	40.800
Non-automatic circuit-breakers[1] 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

NSE0_00922

NSE0_00922

NSE0_00708

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.

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

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

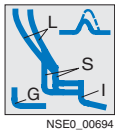
ETU trip unit, 4-pole version

	Order No. supplements	Order No. supplements	Order No. supplements
System protection with LI/LIN function, ETU10			
N pole not protected against overcurrent	**BB**	**BB**	**BB**
N pole protected against overcurrent (50 %)	**BA**	**BA**	**BA**
System protection with LIG/LING function, ETU12 Residual current for 4-wire three-phase systems			
N pole not protected against overcurrent	**BC**	**BC**	**BC**
N pole protected against overcurrent (50 %)	**BD**	**BD**	**BD**
System protection with LSI/LSIN function, ETU20			
N pole not protected against overcurrent	**BE**	**BE**	**BE**
N pole protected against overcurrent (50 %)	**BF**	**BF**	**BF**
System protection with LSIG/LSING function, ETU22 Residual current for 4-wire three-phase systems			
N pole not protected against overcurrent	**BG**	**BG**	**BG**
N pole protected against overcurrent (50 %)	**BH**	**BH**	**BH**

NSE0_00691

NSE0_00693

NSE0_00692



NSE0_00694

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).

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. Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx.	DT	High switching capacity H 70 kA at 380/415 V AC Order No. / Order No. supplement required, see Page 4/34	Weight per PU approx.	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.
	A	A			kg			kg			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
				Order No. supplements: **CJ** … **CN**			Order No. supplements: **CJ** … **CN**			Order No. supplements: **CJ** … **CN**	

LCD ETU trip unit, 4-pole version

NSE0_00696

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

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

NSE0_00697

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).

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. Switching all poles Order No.	Weight per PU approx. kg	DT	High switching capacity H 70 kA at 380/415 V AC Switching all poles Order No.	Weight per PU approx. kg	DT	Very high switching capacity L 100 kA at 380/415 V AC 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 Type	Setting current of the inverse-time delayed overload release "L" I_R A left pole = N	DT	Order No.								
				BB[1]	BA[1]	BC[1]	BD[1]	BE[1]	BF[1]	BG[1]	BH[1]
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
Trip unit				ETU10	ETU10	ETU12	ETU12	ETU20	ETU20	ETU22	ETU22

LCD ETU trip unit

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

For circuit-breakers Type	Setting current of the inverse-time delayed overload release "L" I_R A left pole = N	DT	Order No.		
				CJ[1]	CN[1]
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
Trip unit				ETU40	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.

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.

Options

Selection and ordering data

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

Rated control supply voltage U_s/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).

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**

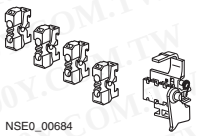
For fixed-mounted circuit-breakers (wired in factory)

Wiring for internal accessories (auxiliary switches, alarm switches, auxiliary releases not included in scope of supply) with connecting leads (2 m long) brought out at the rear	VL160X to VL1600	L 0 2 □□□
Wiring for motorized operating mechanism (motorized operating mechanism nor 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	VL160X to VL1600	L 1 2 □□□
Motorized operating mechanism (AC/DC 220-250 V) mounted on the circuit-breaker (motorized operating mechanism included in scope of supply) **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	VL160X, VL160, VL250 VL400 VL630, VL800 VL1250, VL1600	M 2 2 □□□

4

Accessories/spare parts

Selection and ordering data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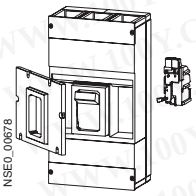
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Wiring directly at accessories		DT	For VL160X to VL400 Order No.	PS*	Weight per PU approx. kg	DT	For VL630 to VL1600 Order No.	PS*	Weight per PU approx. kg
3- or 4-pole									
Auxiliary switches and auxiliary releases									
For retrofitting (for 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, left[1], right	B	**3VL9 400-2AB00**	1 unit	0.073		–		
4 HS (2 NO + 2 NC)	N, left, right		–			B	**3VL9 800-2AC00**	1 unit	0.094
2 HS (1 NC + 1 NO)	left, right[3])	B	**3VL9 400-2AD00**	1 unit	0.111		–		
+ 1 AS (1 NO) (kit)	left		–			B	**3VL9 800-2AE00**	1 unit	0.092
1 AS (1 NC + 1 NO)[4])	left[1]), right[3])	B	**3VL9 400-2AG00**	1 unit	0.071		–		
Additional switching elements			For Group 1 see Page 4/37.				For Group 2 see Page 4/37.		
Shunt releases[2]) for retrofitting									
AC V	DC V								
–	24	right pole only	B	**3VL9 400-1SC00**	1 unit	0.120	B	**3VL9 800-1SC00**	1 unit	0.175
–	48-60	right pole only	B	**3VL9 400-1SJ00**	1 unit	0.116	B	**3VL9 800-1SJ00**	1 unit	0.180
–	110-127	right pole only	B	**3VL9 400-1SK00**	1 unit	0.119	B	**3VL9 800-1SK00**	1 unit	0.177
–	220-250	right pole only	B	**3VL9 400-1SQ00**	1 unit	0.133	B	**3VL9 800-1SQ00**	1 unit	0.163
48-60	–	right pole only	B	**3VL9 400-1SM00**	1 unit	0.124	B	**3VL9 800-1SM00**	1 unit	0.162
110-127	–	right pole only	B	**3VL9 400-1SR00**	1 unit	0.116	B	**3VL9 800-1SR00**	1 unit	0.196
208-277	–	right pole only	B	**3VL9 400-1ST00**	1 unit	0.140	B	**3VL9 800-1ST00**	1 unit	0.183
380-600	–	right pole only	B	**3VL9 400-1SV00**	1 unit	0.138	B	**3VL9 800-1SV00**	1 unit	0.181
Undervoltage releases for retrofitting									
AC V	DC V								
–	12	right pole only	B	**3VL9 400-1UN00**	1 unit	0.128	B	**3VL9 800-1UN00**	1 unit	0.169
–	24	right pole only	B	**3VL9 400-1UP00**	1 unit	0.118	B	**3VL9 800-1UP00**	1 unit	0.147
–	48	right pole only	B	**3VL9 400-1UU00**	1 unit	0.135	B	**3VL9 800-1UU00**	1 unit	0.170
–	60	right pole only	B	**3VL9 400-1UV00**	1 unit	0.131	B	**3VL9 800-1UV00**	1 unit	0.166
110-127	–	right pole only	B	**3VL9 400-1UG00**	1 unit	0.138	B	**3VL9 800-1UG00**	1 unit	0.160
–	110-127	right pole only	B	**3VL9 400-1UR00**	1 unit	0.129	B	**3VL9 800-1UR00**	1 unit	0.168
208	–	right pole only	B	**3VL9 400-1UM00**	1 unit	0.120	B	**3VL9 800-1UM00**	1 unit	0.178
220-250	–	right pole only	B	**3VL9 400-1UH00**	1 unit	0.121	B	**3VL9 800-1UH00**	1 unit	0.132
–	220-250	right pole only	B	**3VL9 400-1US00**	1 unit	0.136	B	**3VL9 800-1US00**	1 unit	0.172
277	–	right pole only	B	**3VL9 400-1UQ00**	1 unit	0.131	B	**3VL9 800-1UQ00**	1 unit	0.166
380-415	–	right pole only	B	**3VL9 400-1UJ00**	1 unit	0.119	B	**3VL9 800-1UJ00**	1 unit	0.158
440-480	–	right pole only	B	**3VL9 400-1UK00**	1 unit	0.140	B	**3VL9 800-1UK00**	1 unit	0.172
500-525	–	right pole only	B	**3VL9 400-1UL00**	1 unit	0.120	B	**3VL9 800-1UL00**	1 unit	0.172
600	–	right pole only	B	**3VL9 400-1UT00**	1 unit	0.140	B	**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.

*** This quantity or a multiple thereof can be ordered.**

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 400-2AJ20[2])**	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).

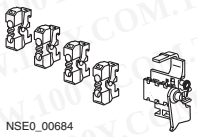
2) In the case of VL400: 3VL9 400-2AJ20 unsuitable for mounting in the right-hand accessory sub-section.

For auxiliary/alarm switches	DT	Circuit-breaker Type **VL160X to VL1600** Order No.	PS*	Weight per PU approx. 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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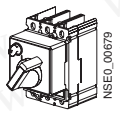
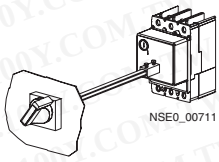
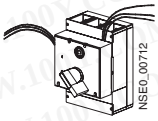
*** This quantity or a multiple thereof can be ordered.**

Accessories/spare parts







	DT	For VL160X to VL250 Order No.	PS*	Weight per PU approx. kg
3- or 4-pole				
Operating mechanisms				
Front-operated rotary operating mechanism[1] for direct mounting on the circuit-breaker, without leading auxiliary switch, degree of protection IP30[2]), black, max. 3 padlocks	B	**3VL9 300-3HA00**	1 unit	0.618
EMERGENCY-STOP version red knob, yellow indicator plate	B	**3VL9 300-3HC00**	1 unit	0.618
Safety locks for installation by the customer, see Pages 4/50 to 4/53.				
Door-coupling rotary mechanism, complete[1] **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	B	**3VL9 300-3HF04**	1 unit	0.965
EMERGENCY-STOP version red selector switch, yellow indicator plate, without leading auxiliary switches	B	**3VL9 300-3HG04**	1 unit	0.980
Safety locks for installation by the customer, see Pages 4/50 to 4/53.				
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	B	**3VL9 300-3AS10**	1 unit	0.070
2 changeover contacts with 1.5 m long leads	B	**3VL9 300-3AT10**	1 unit	0.120
"ON after OFF" leading auxiliary switch when switching off				
1 changeover contact with 1.5 m long leads	B	**3VL9 300-3AU10**	1 unit	0.080
2 changeover contacts with 1.5 m long leads	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
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

1) Not possible on VL160X with RCD module.

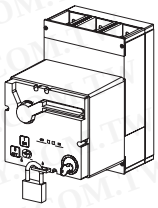
2) IP40 with additional masking frame mounted on the door cut-out.

*** This quantity or a multiple thereof can be ordered.**

	For VL400				For VL630 to VL800				For VL1250 to VL1600		
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg	DT	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.**

Accessories/spare parts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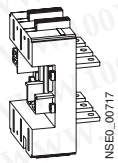
3- or 4-pole

Operating mechanisms

		DT	For VL160X to VL250 Order No.	PS*	Weight per PU approx. kg
Motorized operating mechanism[1]) Degree of protection IP30, with locking device for 3 padlocks			with spring energy store t_E < 100 ms		
AC 50/60 Hz V	DC V				
–	24	B	**3VL9 300-3MJ00**	1 unit	2.510
42-48	42-48	B	**3VL9 300-3ML00**	1 unit	2.500
60	60	B	**3VL9 300-3MS00**	1 unit	2.530
110-127	110-127	B	**3VL9 300-3MN00**	1 unit	2.530
220-250	220-250	B	**3VL9 300-3MQ00**	1 unit	2.530
with integrated safety lock[2])					
–	24	B	**3VL9 321-3MK00**	1 unit	2.530
42-48	42-48	B	**3VL9 321-3MM00**	1 unit	2.570
60	60	B	**3VL9 321-3MT00**	1 unit	2.530
110-127	110-127	B	**3VL9 321-3MP00**	1 unit	2.530
220-250	220-250	B	**3VL9 321-3MR00**	1 unit	2.560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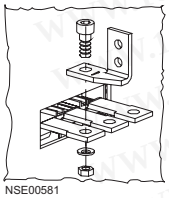
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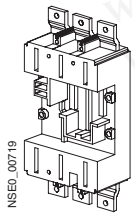
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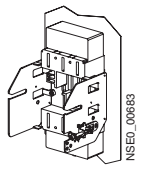
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3- or 4-pole

Plug-in version/withdrawable version

		DT	For VL160X Order No.	PS*	Weight per PU approx. kg	DT	For VL160 Order No.	PS*	Weight per PU approx. kg
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 100-4PA30**	1 unit	2.610	B	**3VL9 200-4PA30**	1 unit	2.660
3-pole with RCD module		B	**3VL9 100-4PB30**	1 unit	3.000	B	**3VL9 200-4PB30**	1 unit	2.990
4-pole		B	**3VL9 100-4PA40**	1 unit	3.270	B	**3VL9 200-4PA40**	1 unit	3.290
4-pole with RCD module		B	**3VL9 100-4PB40**	1 unit	3.790	B	**3VL9 200-4PB40**	1 unit	3.750
90° angle connecting adapter									
for rear connection, 3-pole		B	**3VL9 300-4PE30**	1 unit	0.391	B	**3VL9 300-4PE30**	1 unit	0.391
for rear connection, 4-pole		B	**3VL9 300-4PE40**	1 unit	0.515	B	**3VL9 300-4PE40**	1 unit	0.515
Front-accessible terminals									
3-pole		B	**3VL9 100-4PC30**	1 unit	2.410	B	**3VL9 200-4PC30**	1 unit	2.450
3-pole with RCD module		B	**3VL9 100-4PD30**	1 unit	2.810	B	**3VL9 200-4PD30**	1 unit	2.480
4-pole		B	**3VL9 100-4PC40**	1 unit	2.940	B	**3VL9 200-4PC40**	1 unit	3.000
4-pole with RCD module		B	**3VL9 100-4PD40**	1 unit	3.500	B	**3VL9 200-4PD40**	1 unit	3.490
Withdrawable version installation kit Upgrade of the plug-in base kit to									
Withdrawable version including side walls and racking mechanism.	3-pole		–			B	**3VL9 300-4WF30**	1 unit	2.730
	3-pole with RCD		–			B	**3VL9 300-4WG30**	1 unit	2.740
	4-pole		–			B	**3VL9 300-4WF40**	1 unit	2.740
	4-pole with RCD		–			B	**3VL9 300-4WG40**	1 unit	3.550
Withdrawable version Same as plug-in base kit, with additional side walls and racking mechanism									
Rear terminals									
3-pole			–			B	**3VL9 200-4WA30**	1 unit	5.230
3-pole with RCD module			–			B	**3VL9 200-4WB30**	1 unit	6.300
4-pole			–			B	**3VL9 200-4WA40**	1 unit	5.830
4-pole with RCD module			–			B	**3VL9 200-4WB40**	1 unit	6.910
Front-accessible terminals									
3-pole			–			B	**3VL9 200-4WC30**	1 unit	4.980
3-pole with RCD module			–			B	**3VL9 200-4WD30**	1 unit	6.040
4-pole			–			B	**3VL9 200-4WC40**	1 unit	5.560
4-pole with RCD module			–			B	**3VL9 200-4WD40**	1 unit	6.730
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)			[3])				[3])		
8 positions		B	**3VL9 300-4PJ00**	1 unit	0.285	B	**3VL9 300-4PJ00**	1 unit	0.285
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

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).

*** This quantity or a multiple thereof can be ordered.**

	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

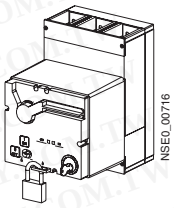
	For VL250				For VL400		
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg
B	**3VL9 300-4PA30**	1 unit	3.400	B	**3VL9 400-4PA30**	1 unit	3.400
B	**3VL9 300-4PB30**	1 unit	3.120	B	–[4]		
B	**3VL9 300-4PA40**	1 unit	3.400	B	**3VL9 400-4PA40**	1 unit	3.400
B	**3VL9 300-4PB40**	1 unit	3.890	B	**3VL9 400-4PB40**	1 unit	3.890
B	**3VL9 300-4PE30**	1 unit	0.391	B	–		
B	**3VL9 300-4PE40**	1 unit	0.515	B	–		
B	**3VL9 300-4PC30**	1 unit	2.550	B	**3VL9 400-4PC30**	1 unit	2.450
B	**3VL9 300-4PD30**	1 unit	2.970	B	–[4]		
B	**3VL9 300-4PC40**	1 unit	2.660	B	**3VL9 400-4PC40**	1 unit	3.000
B	**3VL9 300-4PD40**	1 unit	3.650	B	**3VL9 400-4PD40**	1 unit	3.490
B	**3VL9 300-4WF30**	1 unit	2.730	B	**3VL9 400-4WF30**	1 unit	2.730
B	**3VL9 300-4WG30**	1 unit	2.740	B	–[4]		
B	**3VL9 300-4WF40**	1 unit	2.740	B	**3VL9 400-4WF40**	1 unit	2.740
B	**3VL9 300-4WG40**	1 unit	3.550	B	**3VL9 400-4WG40**	1 unit	3.550
B	**3VL9 300-4WA30**	1 unit	5.190	B	**3VL9 400-4WA30**	1 unit	5.230
B	**3VL9 300-4WB30**	1 unit	9.800	B	–[4]		
B	**3VL9 300-4WA40**	1 unit	6.040	B	**3VL9 400-4WA40**	1 unit	5.830
B	**3VL9 300-4WB40**	1 unit	7.490	B	**3VL9 400-4WB40**	1 unit	6.910
B	**3VL9 300-4WC30**	1 unit	5.100	B	**3VL9 400-4WC30**	1 unit	4.980
B	**3VL9 300-4WD30**	1 unit	6.240	B	–[4]		
B	**3VL9 300-4WC40**	1 unit	5.710	B	**3VL9 400-4WC40**	1 unit	5.560
B	**3VL9 300-4WD40**	1 unit	6.890	B	**3VL9 400-4WD40**	1 unit	6.730
	[3]				[5]		
B	**3VL9 300-4PJ00**	1 unit	0.285	B	**3VL9 400-4PJ00**	1 unit	on req.
B	**3VL9 000-4WL00**	1 unit	0.040	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).

*** This quantity or a multiple thereof can be ordered.**

Accessories/spare parts


NSE0_00716

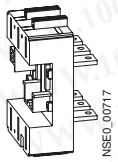
3- or 4-pole

Operating mechanisms

AC 50/60 Hz V	DC V	DT	For VL630 to VL800 Order No.	PS*	Weight per PU approx. kg
Motorized operating mechanism[1]) Degree of protection IP30, with locking device for 3 padlocks			with spring energy store t_E < 100 ms		
–	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

3- or 4-pole

Plug-in version/withdrawable version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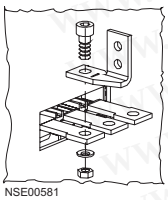
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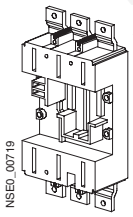
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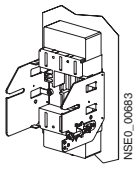
NSE0_00683

		DT	For VL630 Order No.	PS*	Weight per PU approx. kg	DT	For VL800 Order No.	PS*	Weight per PU approx. kg
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			–				–		
4-pole		B	**3VL9 500-4PA40**	1 unit	12.400		–		
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			–				–		
4-pole		B	**3VL9 500-4PC40**	1 unit	10.900		–		
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		–				–		
	4-pole	B	**3VL9 500-4WF40**	1 unit	5.290		–		
	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			–				–		
4-pole		B	**3VL9 500-4WA40**	1 unit	14.300	B	**3VL9 600-4WA40**	1 unit	43.800
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			–				–		
4-pole		B	**3VL9 500-4WC40**			B	**3VL9 600-4WC40**	1 unit	43.200
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)			[3])				[3])		
8 positions		B	**3VL9 600-4PJ00**	1 unit	0.276	B	**3VL9 600-4PJ00**	1 unit	0.276
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

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).

*** This quantity or a multiple thereof can be ordered.**

	For VL1250 to VL1600							
DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.	
			kg				kg	
	Motorized oper. mech. without spring energy store (not for synchronization) $t_E < 5$ 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.	DT	Order No.	PS*	Weight per PU approx.	
			kg				kg	
	–				–			
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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.**

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.

*** This quantity or a multiple thereof can be ordered.**

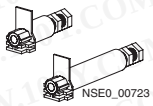
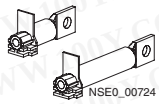
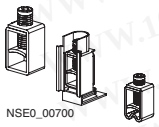
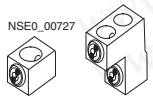
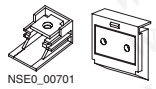
Circuit-breakers with RCD module

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	instantaneous			
		0.10	0.06	127-480	A 0 1 [1)]	A 0 1 [1)]
		0.30	0.10			
		0.50	0.25			
VL160	160	1.00	0.50	127-480	A 0 1	A 0 1
		3.00	1.00	230-690	A 0 2	A 0 2
VL250	250			127-480	A 0 1	A 0 1
				230-690	A 0 2	A 0 2
VL400	400			127-480	–	A 0 1
				230-690	–	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.

4

Accessories/spare parts

			DT	For VL160X Order No.	PS*	Weight per PU approx. kg	DT	For VL160 Order No.	PS*	Weight per PU approx. 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
NSE0_00722	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
	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
 NSE0_00723	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
 NSE0_00724	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
NSE0_00725	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) Aluminum terminal (tinned)									
	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
NSE0_00730	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.

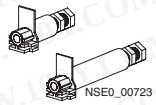
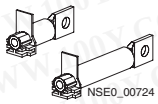
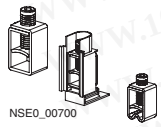
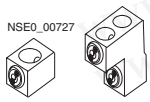
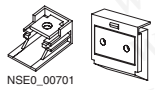
2) Round cable terminal with 2 holes for 2 copper or aluminum cables, each with 2 × 50-120 mm^2
1 unit: 3VL9 400–4TF00
3 units: 3VL9 400–4TF30
4 units: 3VL9 400–4TF40

*** This quantity or a multiple thereof can be ordered.**

	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.**

Accessories/spare parts

		DT	For VL630 Order No.	PS*	Weight per PU approx. kg	DT	For VL800 Order No.	PS*	Weight per PU approx. 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 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
NSE0_00722	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)		–				–		
 NSE0_00723	Long terminal (1 unit)		–				–		
	Terminal kit (2 short + 1 long) 3-pole		–				–		
	Terminal kit (2 short + 2 long) 4-pole		–				–		
 NSE0_00724	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		–				–		
NSE0_00725	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
 NSE0_00700	**Box terminal** Connection for flexible flat copper busbar or cable, see Page 4/10.								
	1 set = 3 units		–				–		
	1 set = 4 units		–				–		
 NSE0_00727	**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
 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 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
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 600-8CA30**	1 unit	0.864	B	**3VL9 600-8CA30**	1 unit	0.864
NSE0_00730	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
NSE0_00731	**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

*** This quantity or a multiple thereof can be ordered.**

	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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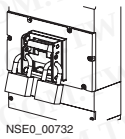
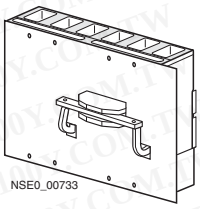
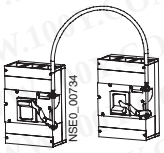
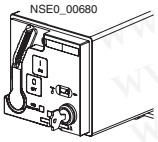
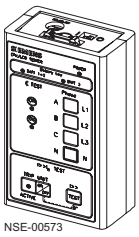
	–				–		
	–				–		
	–				–		
B	**3VL9 700-4RG00**	1 unit	6.900	B	**3VL9 800-4RG00**	1 unit	1.640
B	**3VL9 700-4RH30**	1 unit	5.300	B	**3VL9 800-4RH30**	1 unit	4.680
B	**3VL9 700-4RH40**	1 unit	6.800	B	**3VL9 800-4RH40**	1 unit	6.210
	–				–		
	–				–		
B	**3VL9 700-4TG30**	1 unit	2.340		–		
B	**3VL9 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.**

Accessories/spare parts

	DT	For VL160X Order No.	PS*	Weight per PU approx. kg	DT	For VL160 Order No.	PS*	Weight per PU approx. 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 300-3HL00**	1 unit	0.075	B	**3VL9 300-3HL00**	1 unit	0.075
 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. (mounting plate not within scope of supply)								
Fixed-mounting circuit-breakers	B	**3VL9 300-8LC00**	1 unit	0.386	B	**3VL9 300-8LC00**	1 unit	0.386
Plug-in/withdrawable circuit-breakers	B	**3VL9 300-8LD00**	1 unit	0.436	B	**3VL9 300-8LD00**	1 unit	0.436
 NSE0_00734 **Interlocking module for Bowden wire interlocking**[1] for the mechanical interlocking of two circuit-breakers. Interlocking module for one circuit-breaker		Combinations of next size up/down possible (see Order No.)						
	B	**3VL9 300-8LA00**	1 unit	0.182	B	**3VL9 300-8LA00**	1 unit	0.182
Bowden wire for Bowden wire interlocking[1]								
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 kits[2] 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
 NSE0_00680 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
 NSE-00573 **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.

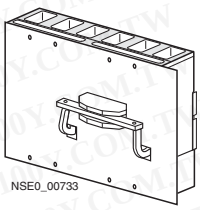
*** This quantity or a multiple thereof can be ordered.**

	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.**

Accessories/spare parts

NSE0_00732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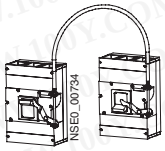
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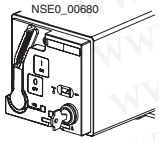
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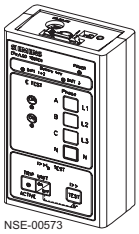

NSE-00573

	DT	For VL630 Order No.	PS*	Weight per PU approx. kg	DT	For VL800 Order No.	PS*	Weight per PU approx. kg
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)	B	**3VL9 600-3HL00**	1 unit	0.184	B	**3VL9 600-3HL00**	1 unit	0.184
Rear interlocking module for the mechanical interlocking of two adjacent circuit-breakers. The circuit-breakers must be of the same installation type and size.								
Fixed-mounting circuit-breakers	B	**3VL9 600-8LC00**	1 unit	1.900	B	**3VL9 600-8LC00**	1 unit	1.900
Plug-in/withdrawable circuit-breakers	B	**3VL9 600-8LD00**	1 unit	5.070	B	**3VL9 600-8LD00**	1 unit	5.070
Interlocking module for Bowden wire interlocking[1]) for the mechanical interlocking of two circuit-breakers. Interlocking module for one circuit-breaker		Combinations of next size up/down possible (see Order No.)						
	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		–				–		
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 kits[2]) 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	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								
Set with 4 screws	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)								
Electronic overcurrent trip unit	B	**3VL9 700-8BL00**	1 unit	0.011	B	**3VL9 700-8BL00**	1 unit	0.011
Thermal-magnetic	B	**3VL9 600-8BM00**	1 unit	0.026		–		
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.

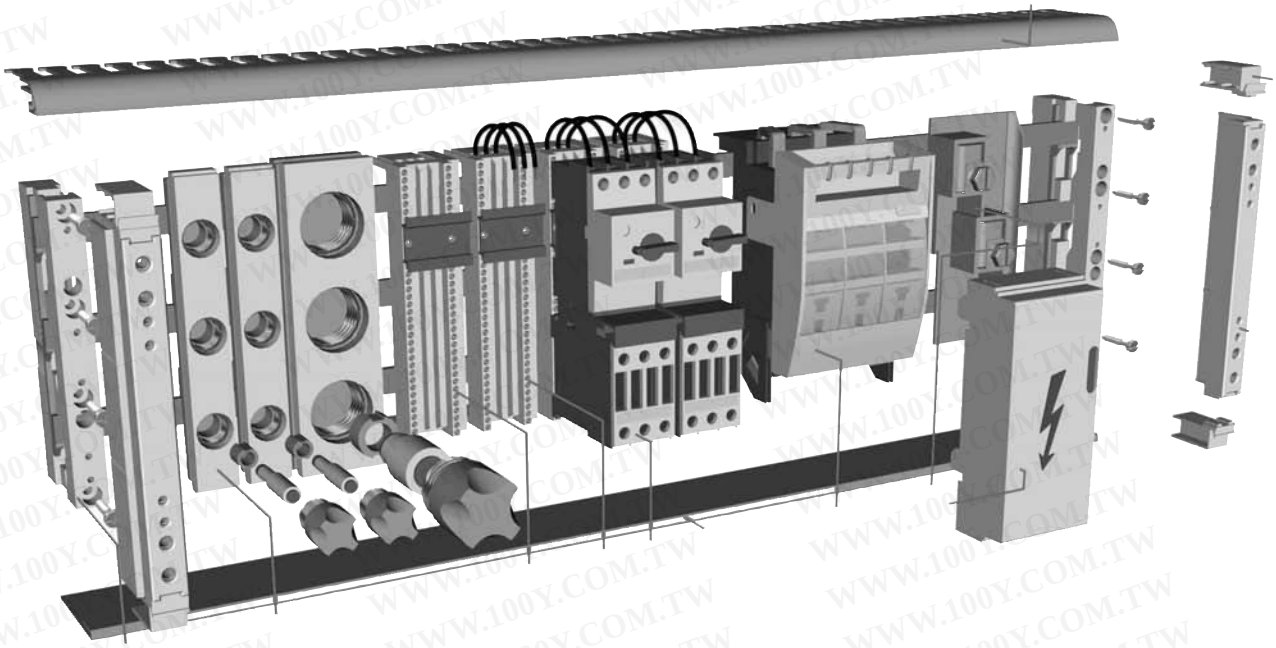
2) Assembled safety lock in motorized operating mechanism, see Pages 4/40 to 4/43.

*** This quantity or a multiple thereof can be ordered.**

	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.**

Accessories/spare parts



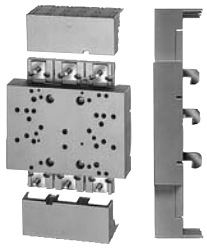
Busbar adapter systems with 40 mm or 60 mm busbar center-to-center distance with components for busbar runs, adapters and supports for individual configuration possibilities, devices with an integrated adapter, as well as accessories and busbar copper. Observe the short-circuit strength of the busbar 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 46 433) 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



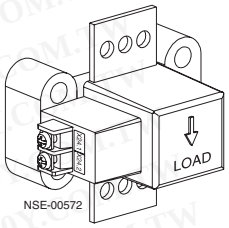
8US12 10–4AF00

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).

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.**

Other accessories

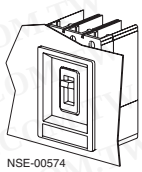


Type	Rated current I_n A	DT	Order No.	PS*	Weight per PU approx. kg
Current transformers for neutral conductor/grounded neutral point of the transformer for ground-fault protection in 4-conductor three-phase systems [1]					
VL160	63	B	**3VL9 280-8TC00**	1 unit	0.500
	100	B	**3VL9 210-8TC00**	1 unit	0.450
	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.

*** This quantity or a multiple thereof can be ordered.**

Accessories/spare parts

A

NSE-00574

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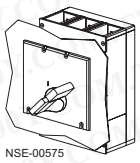
NSE-00575

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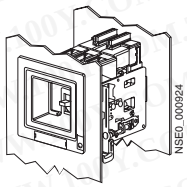
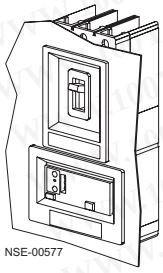
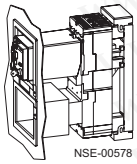


D

NSE-00577

E

NSE-00578

		DT	For VL160X Order No.	PS*	Weight per PU approx. kg	DT	For VL160 Order No.	PS*	Weight per PU approx. kg
3- or 4-pole									
Other accessories									
Masking frame (cover frame) for door cut-out									
A IP40	Fixed-mounted or plug-in circuit-breaker	B	**3VL9 300-8BC00**	1 unit	0.140	B	**3VL9 300-8BC00**	1 unit	0.140
B IP40	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 IP20	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 IP40	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] **IP40**	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			–				–		

1) For withdrawable version IP20.

*** This quantity or a multiple thereof can be ordered.**

	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

*** This quantity or a multiple thereof can be ordered.**

Accessories/spare parts

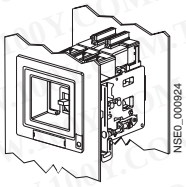
A

NSE-00574

B

NSE-00575

C



NSE0_000924

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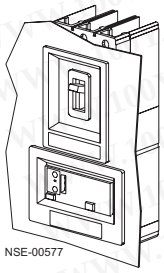
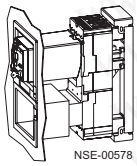


NSE-00577

E



NSE-00578

		DT	For VL630 Order No.	PS*	Weight per PU approx. kg	DT	For VL800 Order No.	PS*	Weight per PU approx. kg
3 or 4-pole									
Other accessories									
Masking frame (cover frame) for door cut-out									
A IP40	Fixed-mounted or plug-in circuit-breaker	B	**3VL9 600-8BC00**	1 unit	0.062	B	**3VL9 600-8BC00**	1 unit	0.062
B IP40	Circuit-breaker with front-operated rotary operating mechanism or motorized operating mechanism	B	**3VL9 600-8BG00**	1 unit	0.177	B	**3VL9 600-8BG00**	1 unit	0.177
C IP20	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 600-8BH00**	1 unit	0.575	B	**3VL9 600-8BH00**	1 unit	0.575
D IP40	Fixed-mounted or plug-in circuit-breaker RCD switch masking frame		–				–		
	RCD masking frame		–				–		
E [1] **IP40**	Circuit-breaker with RCD module and front-operated rotary operating mechanism. Installation kit contains masking frame and extended escutcheon		–				–		
	Circuit-breaker with RCD module and motorized operating mechanism. Installation kit contains masking frame and extended escutcheon		–				–		
Toggle lever extension		B	**3VL9 600-3HN00**	1 unit	0.038	B	**3VL9 600-3HN00**	1 unit	0.038

1) For withdrawable version IP20.

*** This quantity or a multiple thereof can be ordered.**

	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

* This quantity or a multiple thereof can be ordered.

Project planning aids

Characteristics

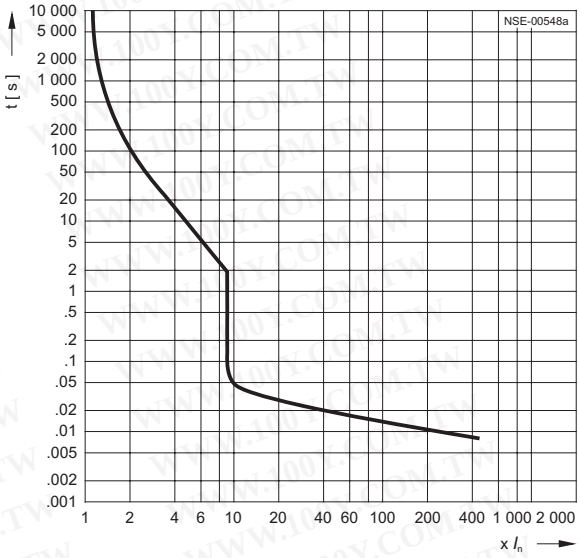
Tripping characteristics

The indicated tripping values for the inverse-time delayed overcurrent trip units (thermal overload releases, "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.

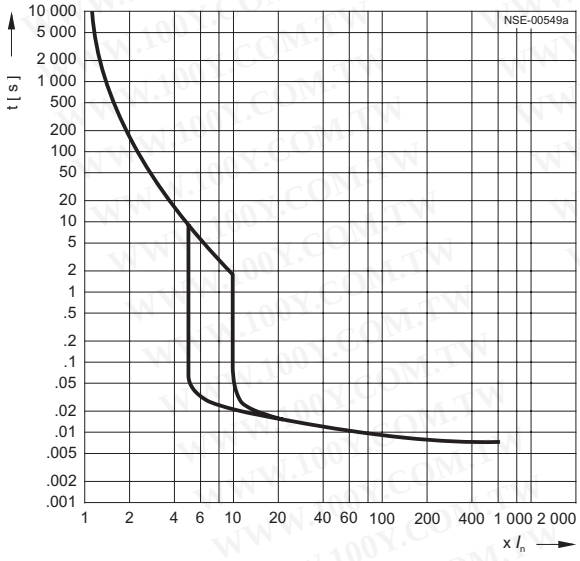
The tripping characteristics of the instantaneous (electromagnetic) short-circuit releases ("I" trip units) are based on the phase rated current I_n, which also represents the upper value of the setting range on circuit-breakers with adjustable thermal overload release. With a lower operating current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

"L" thermal overload release

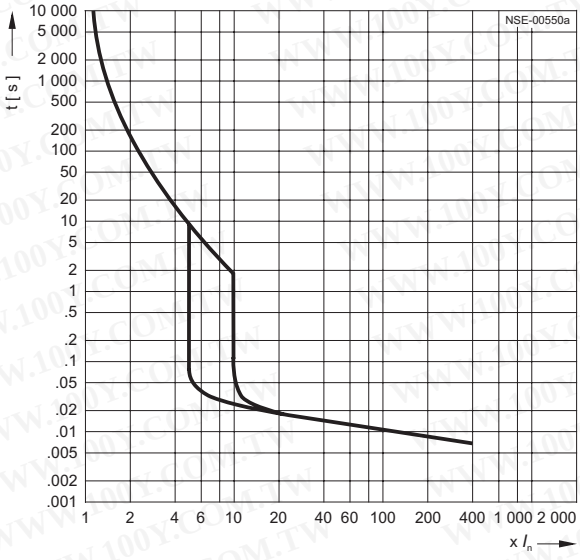
"I" instantaneous (electromagnetic) short-circuit release



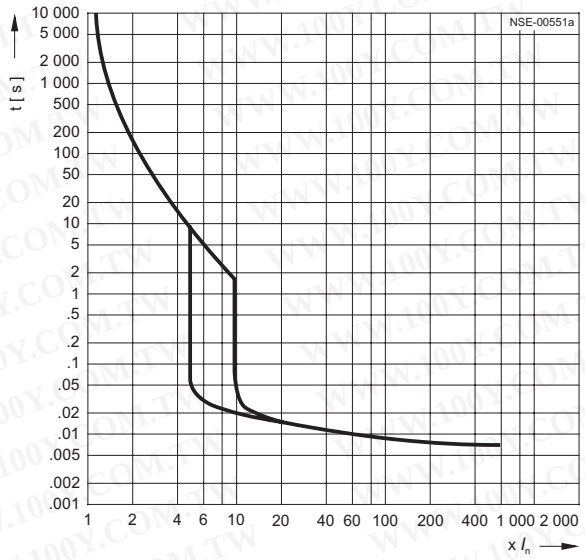
SENTRON VL160X circuit-breaker
Tripping characteristic for system protection circuit-breaker,
I_{cu} 70 kA max. at 415 V; "I" trip unit with fixed setting



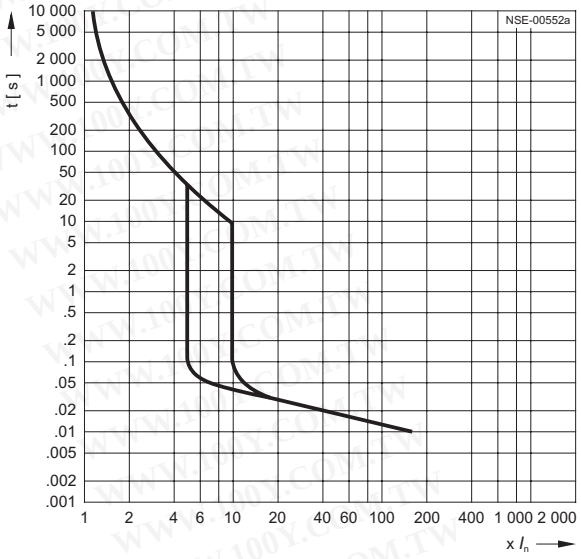
SENTRON VL160 circuit-breaker
Tripping characteristic for system protection circuit-breaker,
I_{cu} 100 kA max. at 415 V; adjustable "I" trip unit



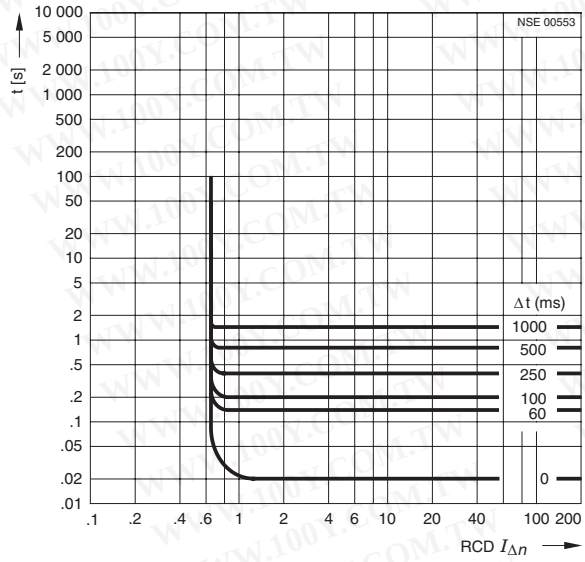
SENTRON VL250 circuit-breaker
Tripping characteristic for system protection circuit-breaker,
I_{cu} 100 kA max. at 415 V; adjustable "I" trip unit



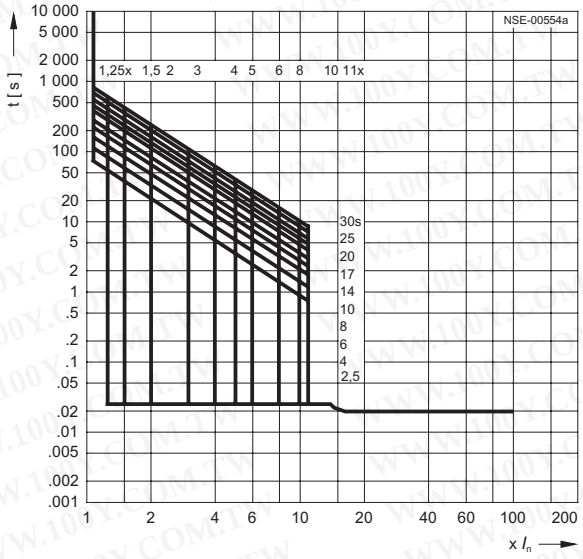
SENTRON VL400 circuit-breaker
Tripping characteristic for system protection circuit-breaker, I_{cu} 100 kA max. at 415 V; adjustable "I" trip unit



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

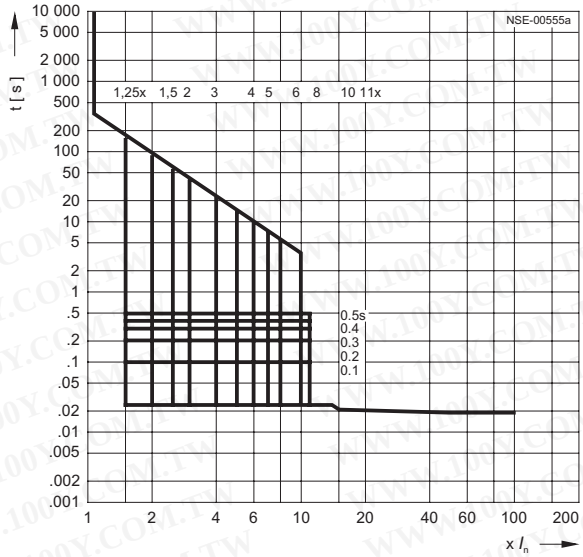


RCD module
Tripping characteristic for RCD, t_d and $I_{\Delta n}$ adjustable

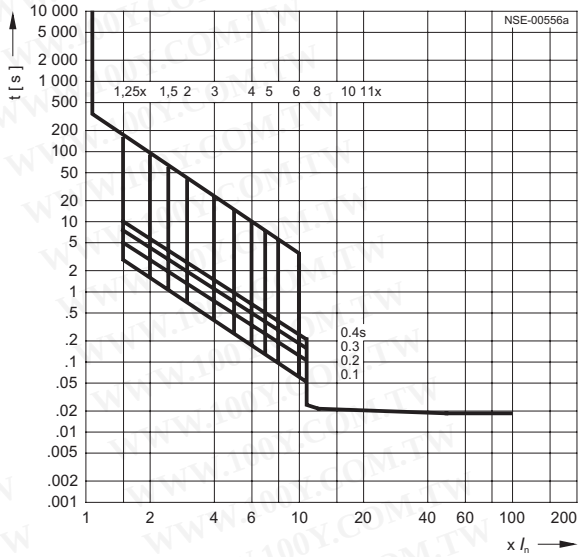


ETU with system protection
Tripping characteristic for circuit-breaker with electronic overload release, I_{cu} 100 kA max. at 415 V; the end of the curve is determined by the application

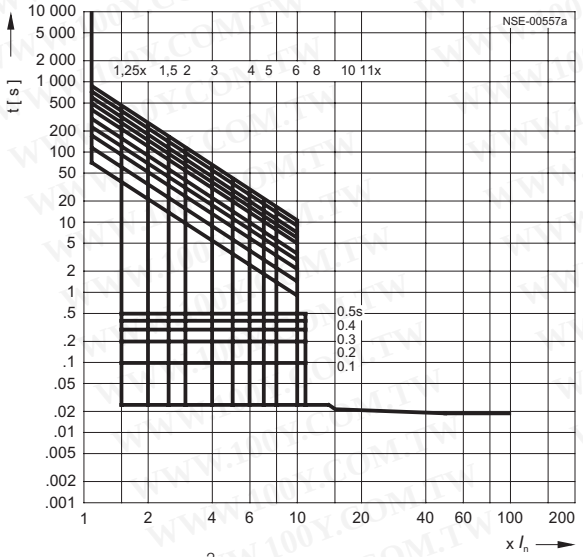
Project planning aids



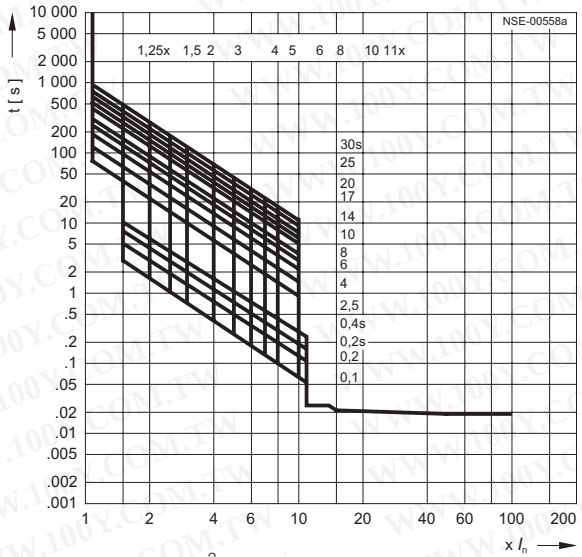
ETU with LSI, I^2t OFF
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V; the end of the curve is determined by the application



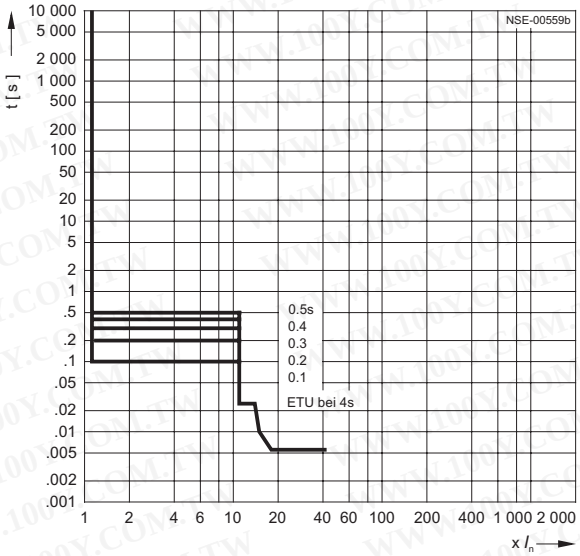
ETU with LSI, I^2t ON
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V; the end of the curve is determined by the application



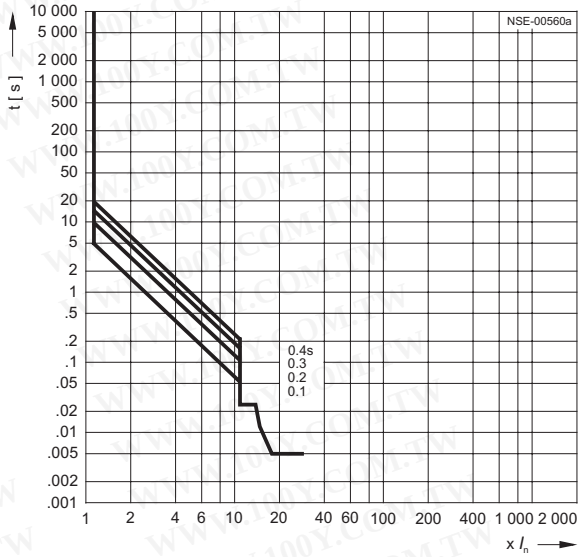
LCD ETU with LSI, I^2t OFF
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V; the end of the curve is determined by the application



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



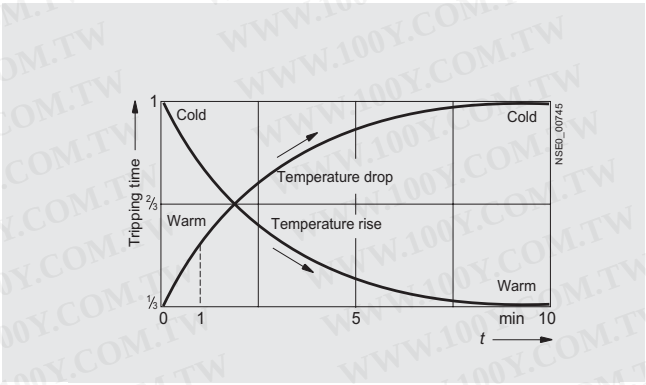
LCD ETU and ETU (t_d = 400 ms only) with ground-fault protection, I^2t OFF
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V



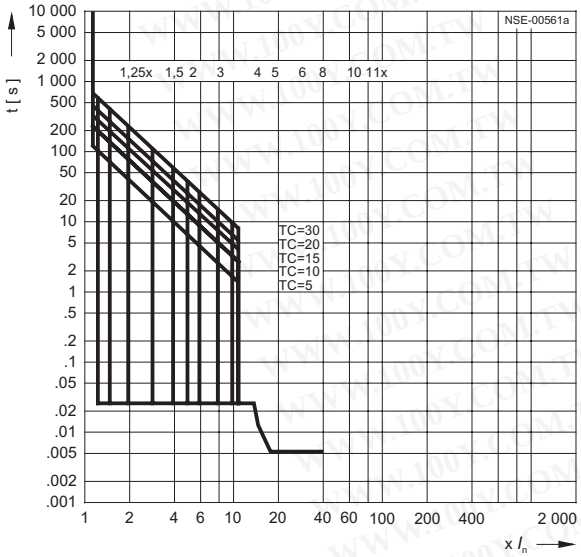
LCD ETU with ground-fault protection, I^2t ON
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V;

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

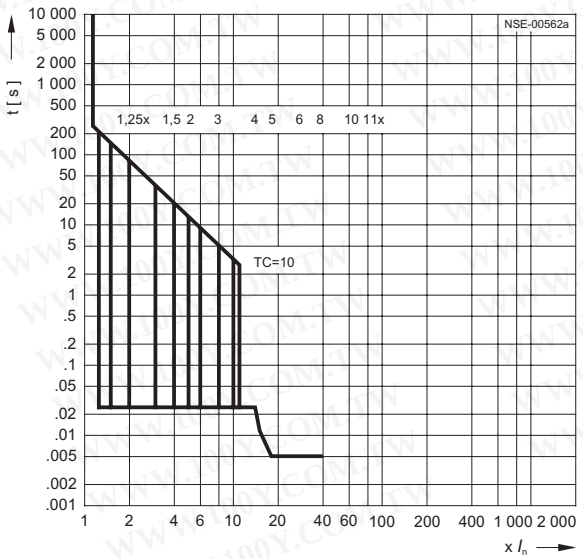
The tripping times of the inverse-time delayed overcurrent trip units apply to the non-preloaded (cold) state. In the operating/warm state (after application of a load at the rated current), the tripping times are reduced to approx. 33 %. After a tripping operation due to overcurrent, the tripping times 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)

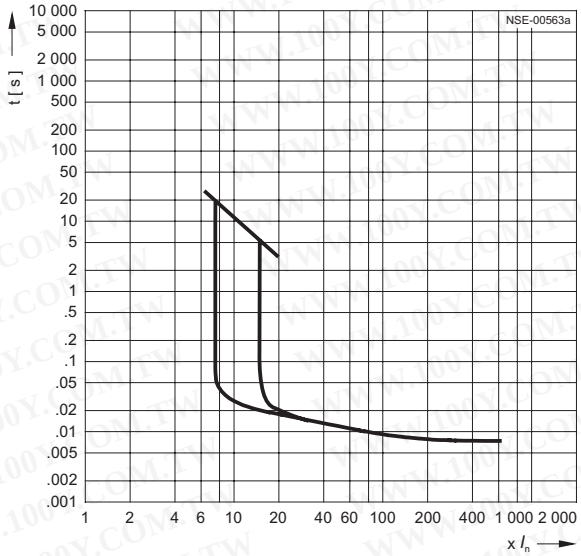


LCD ETU with time-lag class 5, 10, 15, 20, 30
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V

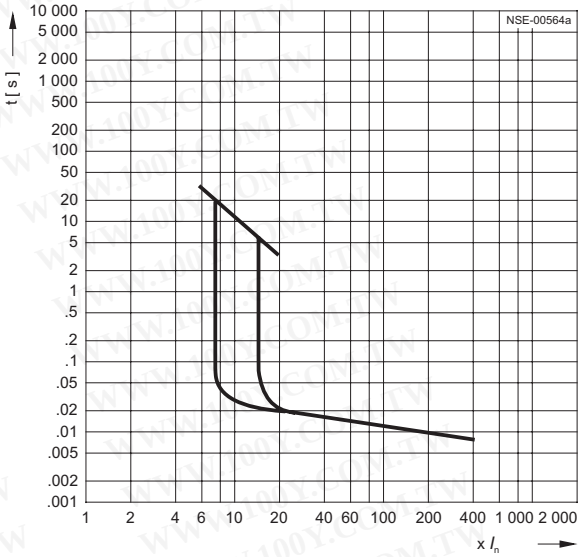


ETU with time-lag class 10
Tripping characteristic for circuit-breaker with electronic overcurrent trip unit, I_{cu} 100 kA max. at 415 V

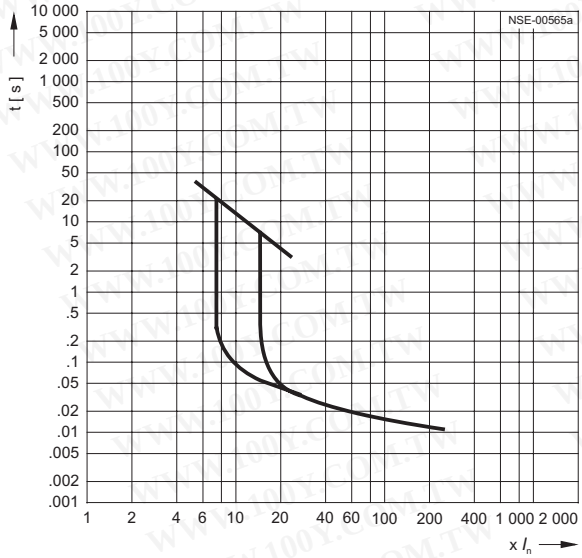
Project planning aids



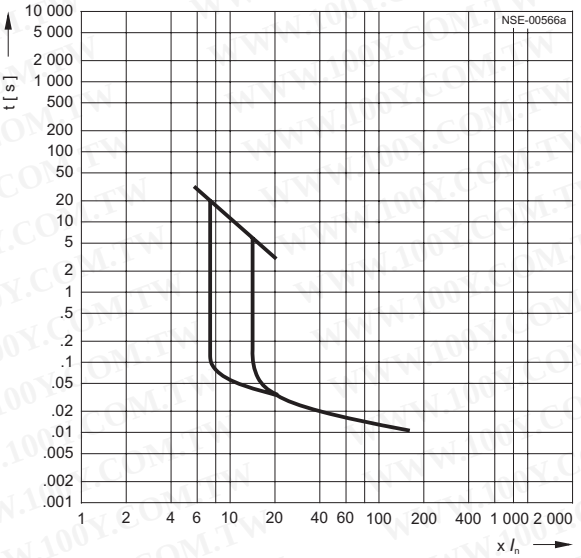
SENTRON VL160 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
I_{cu} 40/70/100 kA



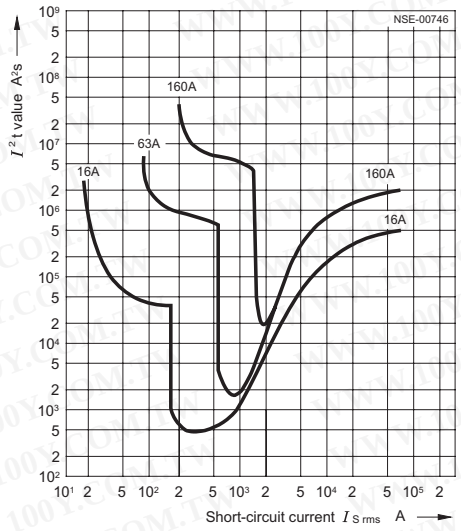
SENTRON VL250 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
I_{cu} 40/70/100 kA



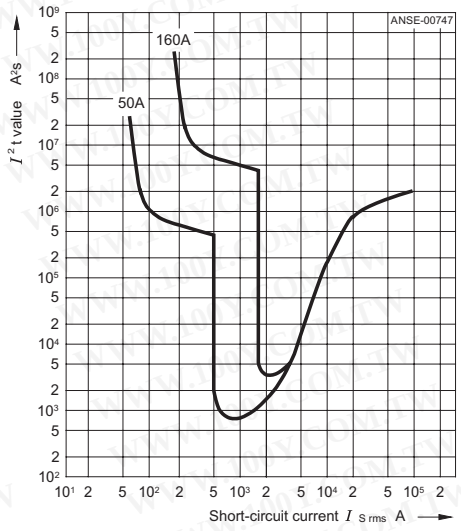
SENTRON VL400 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
I_{cu} 100 kA max. at 415 V



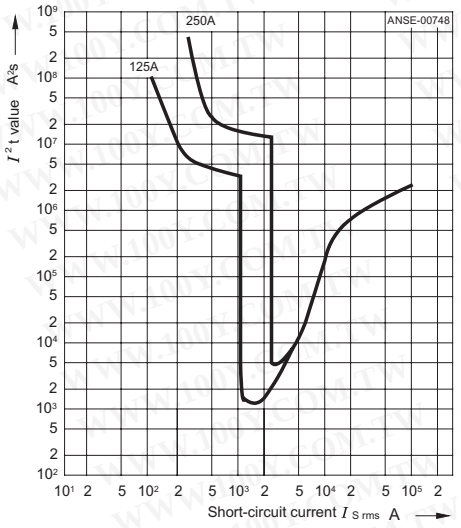
SENTRON VL630/VL800 circuit-breaker
Tripping characteristic for circuit-breaker for starter combinations,
I_{cu} 100 kA max. at 415 V



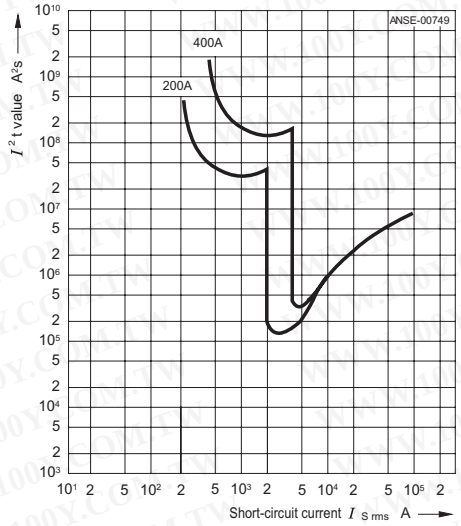
SENTRON VL160X circuit-breaker, 16 A to 160 A at 415 V
Thermal-magnetic overcurrent trip unit



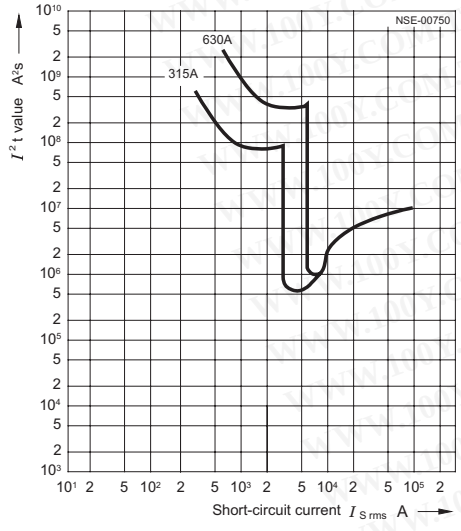
SENTRON VL160 circuit-breaker, 50 A to 160 A at 415 V
Thermal-magnetic overcurrent trip unit



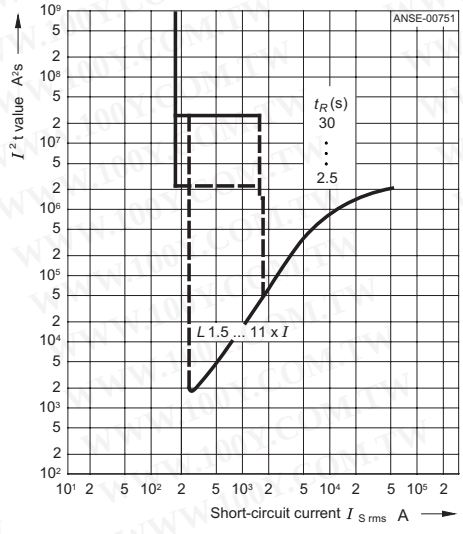
SENTRON VL250 circuit-breaker, 125 A to 250 A at 415 V
Thermal-magnetic overcurrent trip unit



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

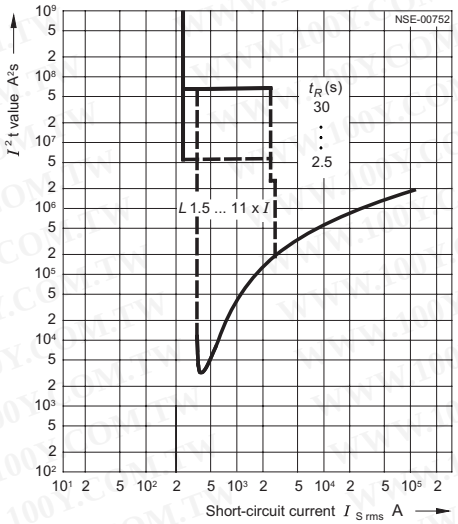


SENTRON VL630 circuit-breaker, 315 A to 630 A at 415 V
Thermal-magnetic overcurrent trip unit

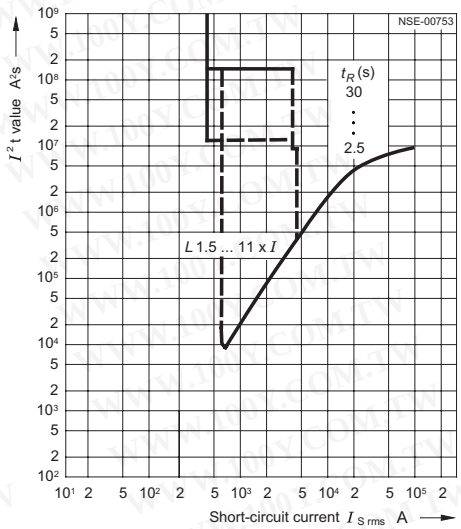


SENTRON VL160 circuit-breaker, 63 A to 160 A
Electronic overcurrent trip unit
Characteristics for I_R = 160 A at 415 V, LSI with I^2t OFF

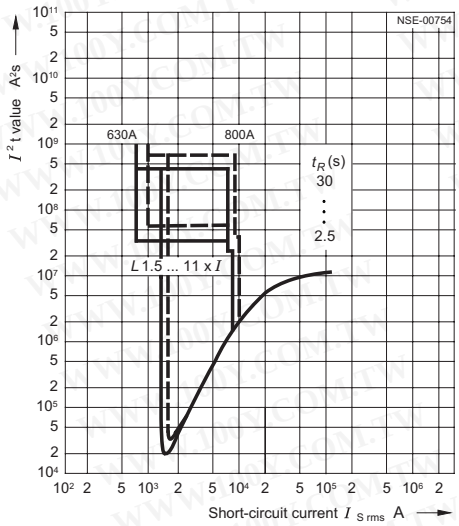
Project planning aids



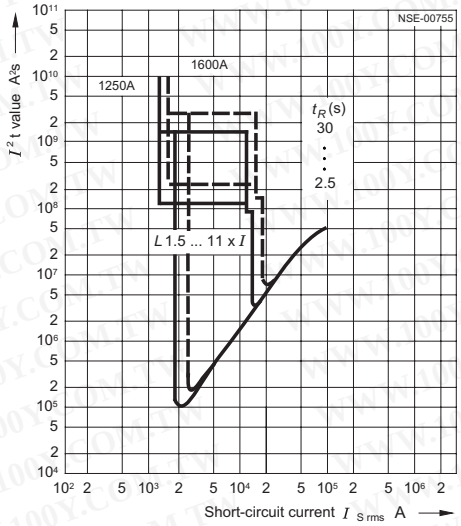
SENTRON VL250 circuit-breaker, 200 A to 250 A
Electronic overcurrent trip unit
Characteristics for I_R = 250 A at 415 V, LSI with I^2t OFF



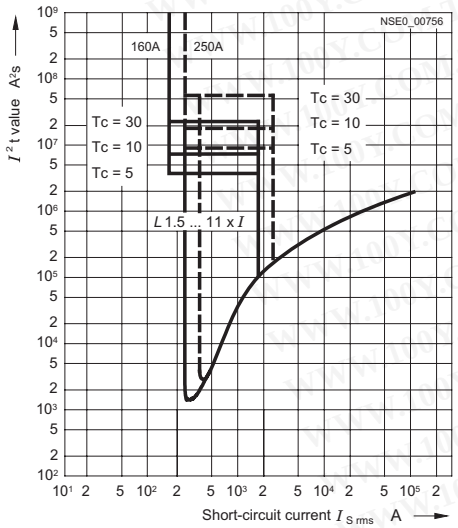
SENTRON VL400 circuit-breaker, 315 A to 630 A
Electronic overcurrent trip unit
Characteristics for I_R = 400 A at 415 V, LSI with I^2t OFF



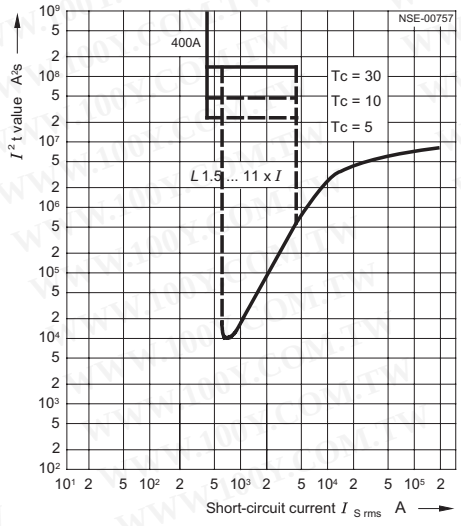
SENTRON VL630/VL800 circuit-breaker, 630 A to 800 A
Electronic overcurrent trip unit
Characteristics for I_R = 630 and I_R = 800 A at 415 V, LSI with I^2t OFF



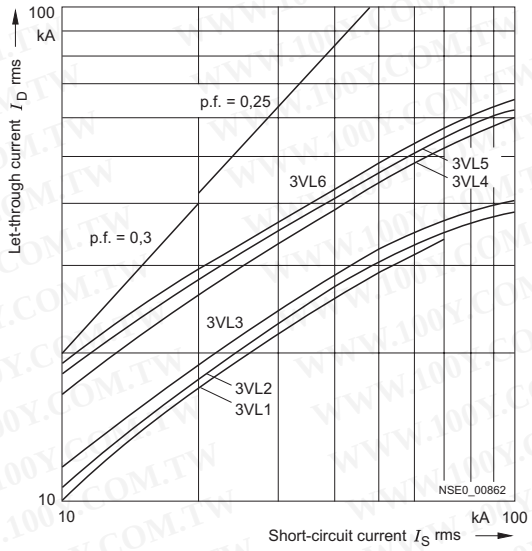
SENTRON VL1250/VL1600 circuit-breaker, 1000 A to 1600 A
Electronic overcurrent trip unit
Characteristics for I_R = 1250 and I_R = 1600 A at 415 V, LSI with I^2t OFF



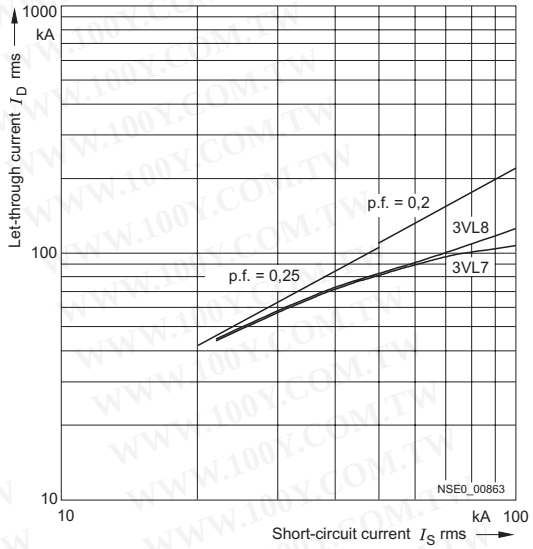
SENTRON VL160/VL250 circuit-breaker, 63 A to 250 A
Motor/generator protection with electronic overcurrent trip unit
Characteristics for I_R = 160 A and I_R = 250 A at 415 V, T_c = 0.5 to 30



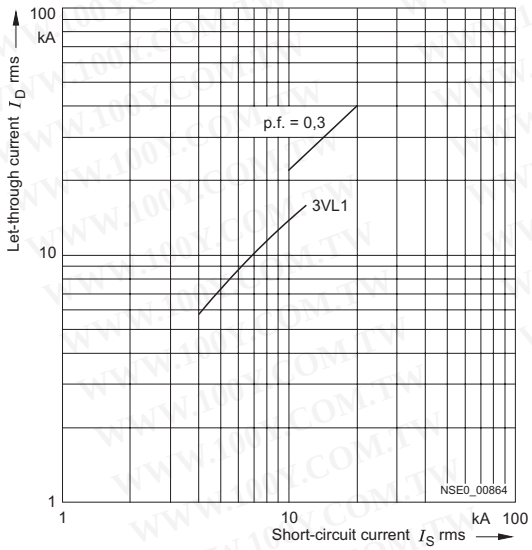
SENTRON VL400 circuit-breaker, 315 A to 400 A
Motor/generator protection with electronic overcurrent trip unit
Characteristics for I_R = 400 A at 415 V, T_c = 0.5 to 30



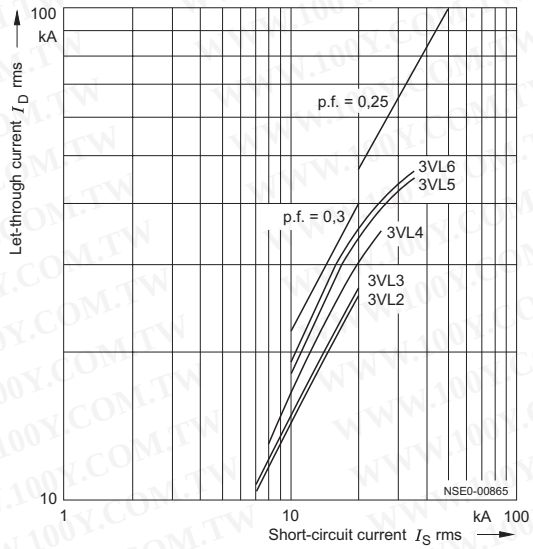
Current limiting characteristics for SENTRON VL160X (3VL1) to VL800 (3VL6), AC 50/60 Hz 415 V



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

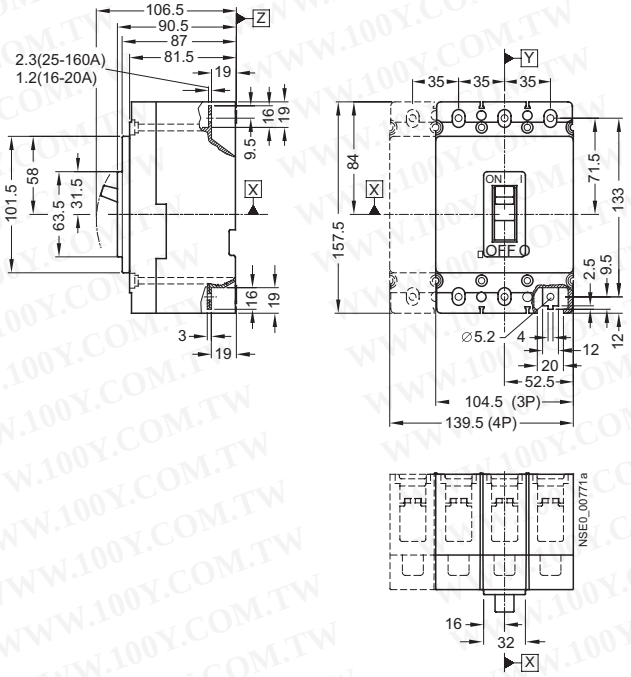
Project planning aids

Dimension drawings

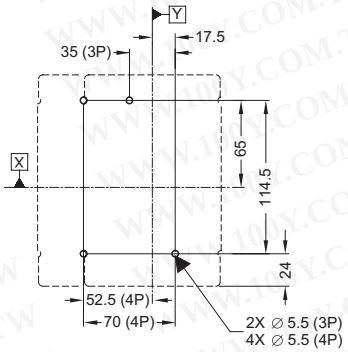
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Circuit-breakers

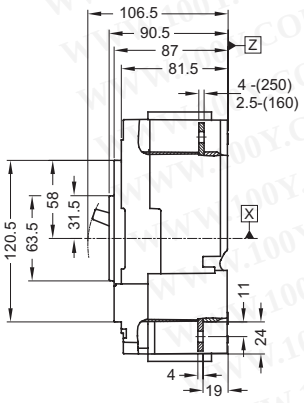
SENTRON VL160X circuit-breakers



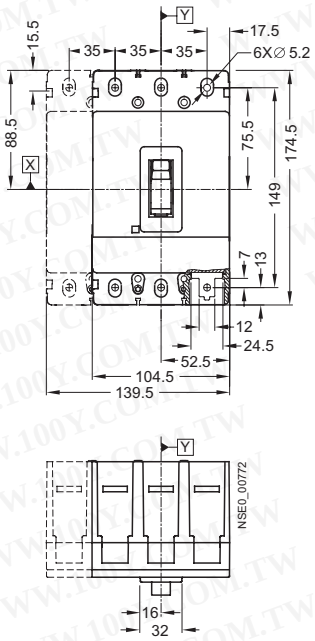
Circuit-breaker installation instructions



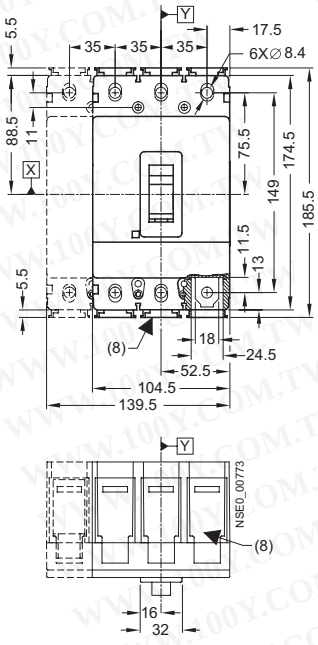
SENTRON VL160/VL250 circuit-breakers



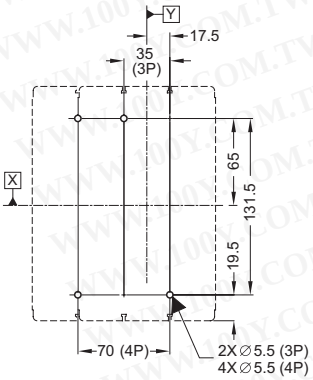
SENTRON VL160 circuit-breakers



SENTRON VL250 circuit-breakers



SENTRON VL160 and VL250 circuit-breakers Installation instructions

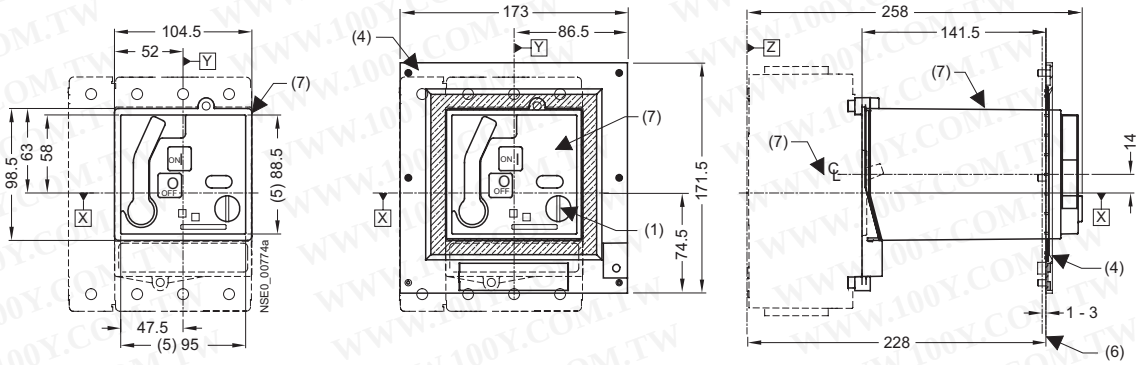


Note:
The 5.5 mm extension at each end of the SENTRON VL250 circuit-breaker only applies when using box terminals or round cable terminals (8).

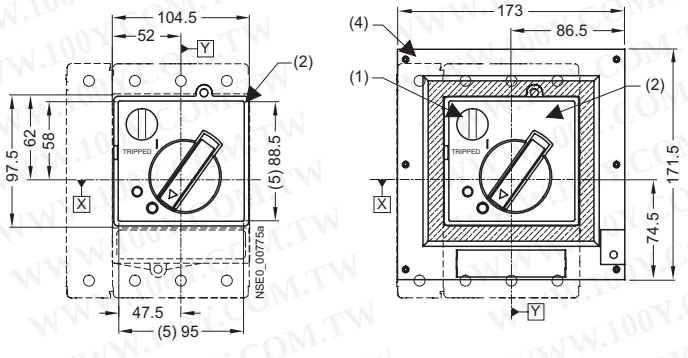
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Operating mechanisms

Motorized operating mechanism with spring energy store



Front-operated rotary operating mechanism

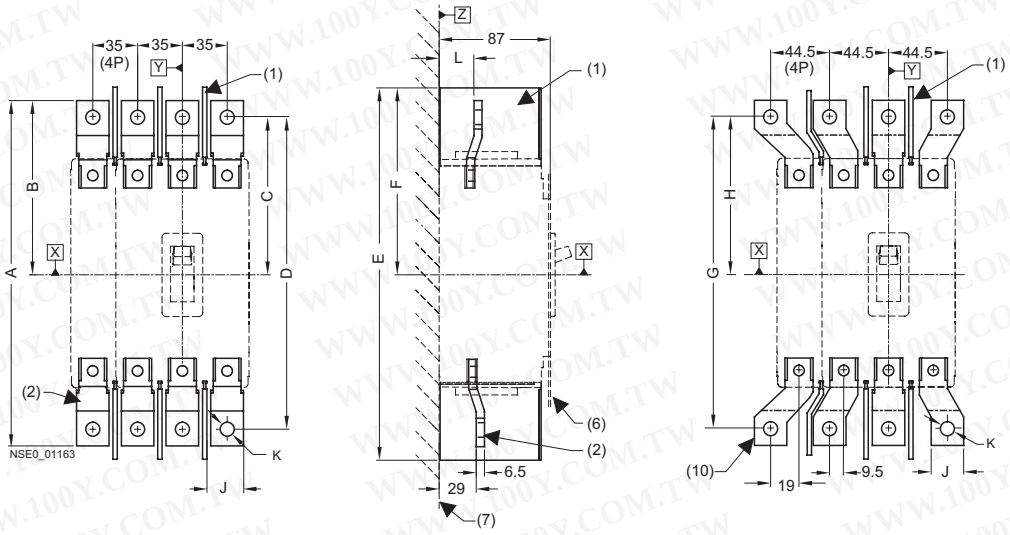


(1) Safety locks
(2) Front-operated rotary operating mechanism
(3) Padlock
(4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(5) Step for cover
(6) Outside surface of cabinet door
(7) Motorized operating mechanism with spring energy store
(8) Terminal insulation

Project planning aids

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

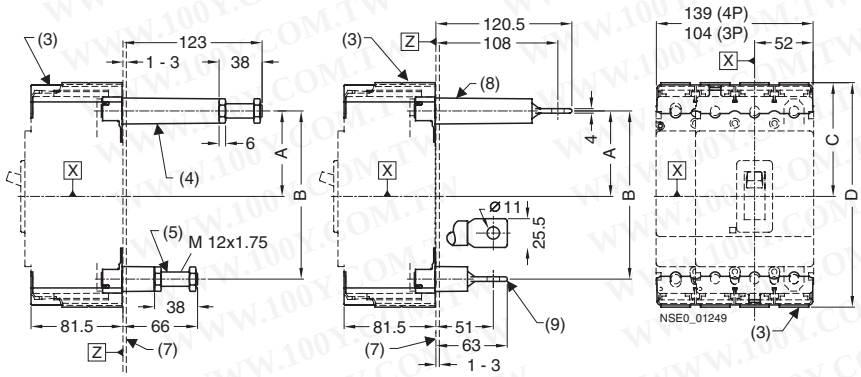
Terminals and phase barriers



	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

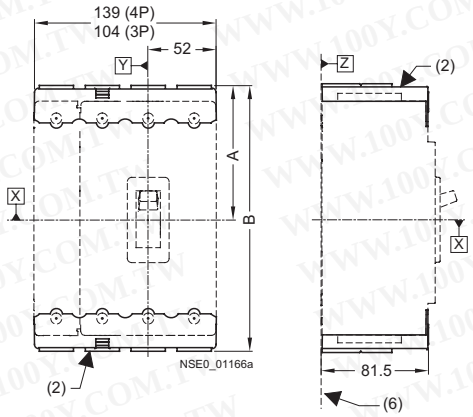


	A	B	C	D
VL160X	71.5	133	96	182
VL160	75.5	149	101	199
VL250	75.5	149	101	199

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

Terminal covers

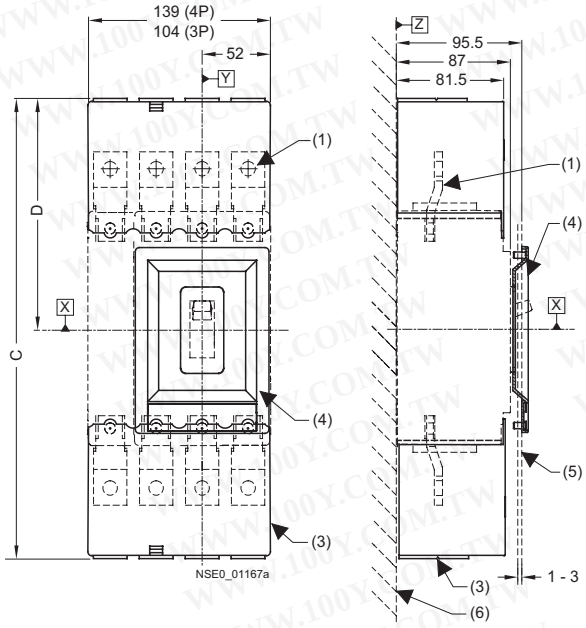
Terminal covers, standard



	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

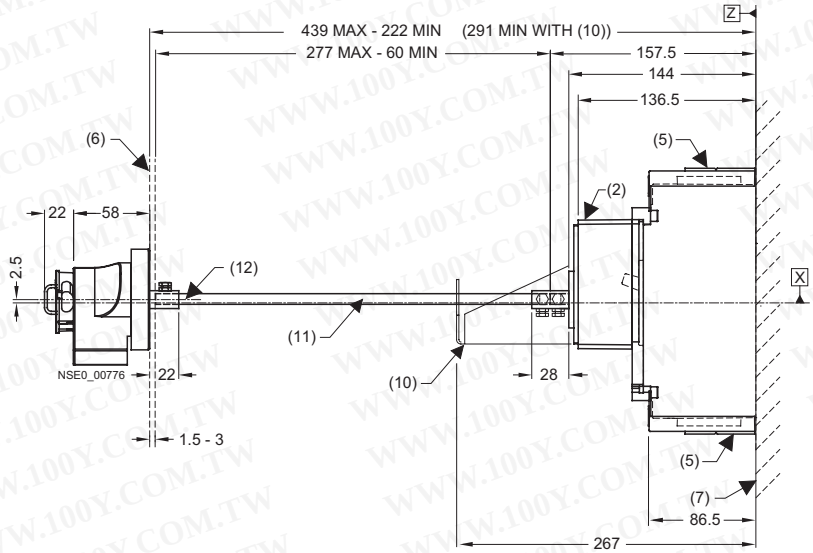


Project planning aids

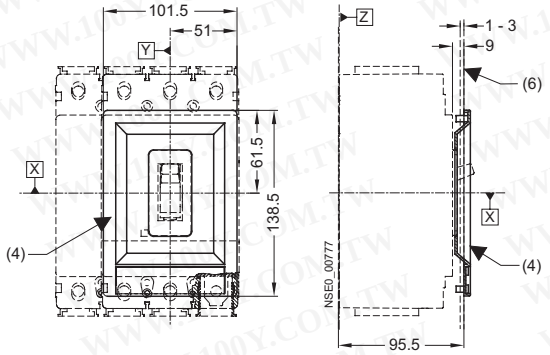
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Accessories

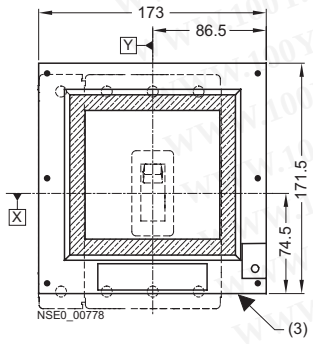
Circuit-breaker with door-coupling rotary operating mechanism



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



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

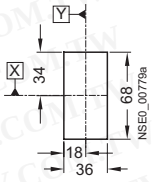


(2) Door-coupling rotary operating mechanism
(3) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
(4) Masking frame for door cut-out
(for circuit-breaker with toggle lever)
(5) Terminal covers
(6) Outside surface of cabinet door
(7) Installation level
(10) Support bracket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

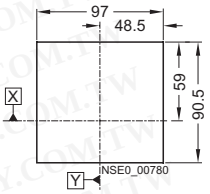
VL160X, VL160 and VL250, 3- and 4-pole, up to 250 A

Door cut-outs

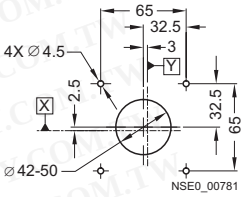
Door cut-out for toggle lever (without masking frame)



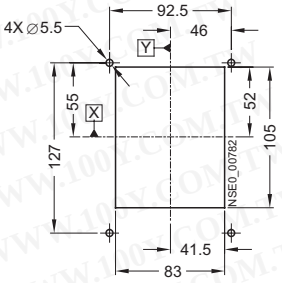
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (without masking frame)



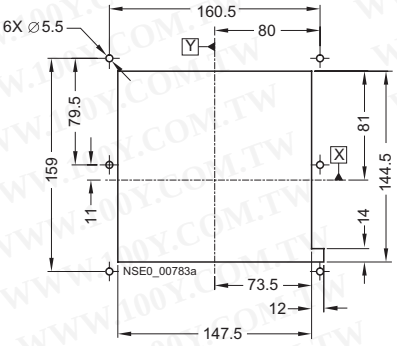
Door cut-out for door-coupling rotary operating mechanism



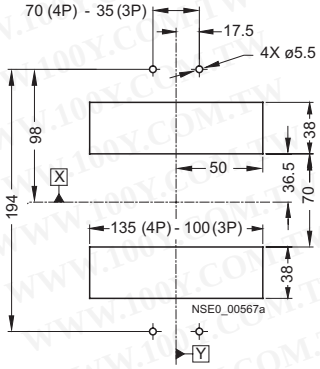
Door cut-out for toggle lever (with masking frame)



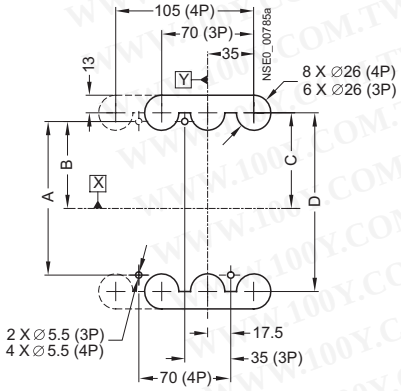
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutch-eon (with masking frame)



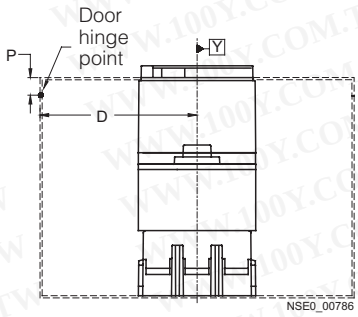
Hole pattern and cut-out for plug-in base with rear connecting bars



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



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.

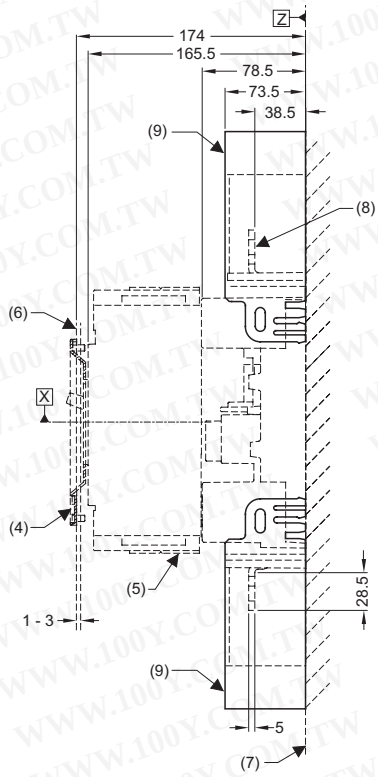
	A
Circuit-breaker only	100
Circuit-breaker + plug-in base + motorized operating mechanism with spring energy store	100
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

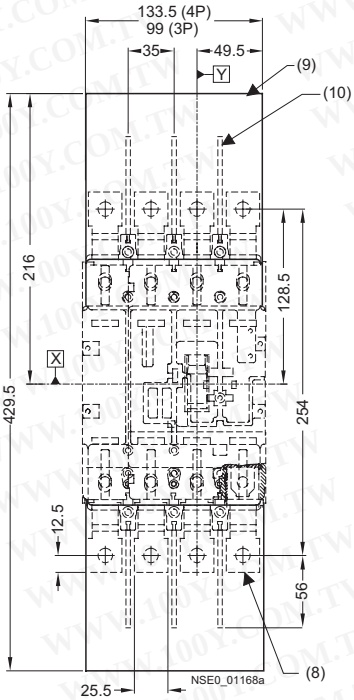
Project planning aids

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

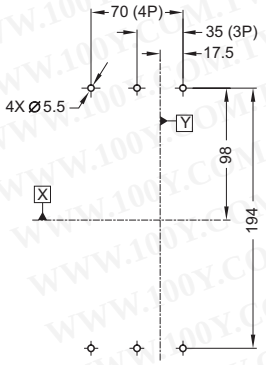
Plug-in bases and accessories

Plug-in base with front connecting bars

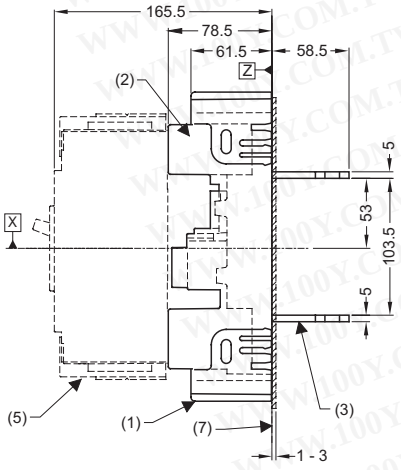


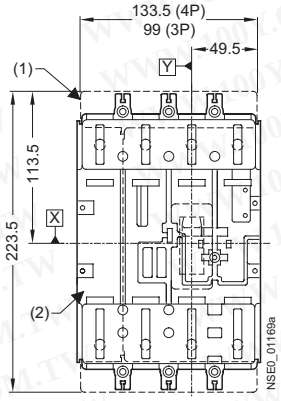


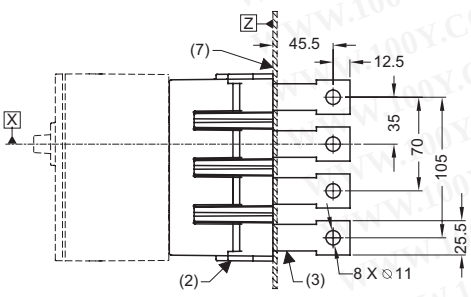
Hole pattern for plug-in base with front connecting bars



Plug-in base with rear flat bar connection





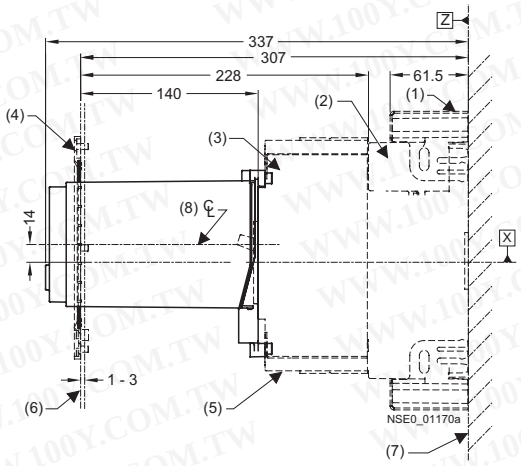


(1) Plug-in base with rear terminal covers
(2) Plug-in base
(3) Plug-in base with rear flat bar connection
(4) Masking frame for door cut-out (for circuit-breaker with toggle lever)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Plug-in base with front connecting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

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

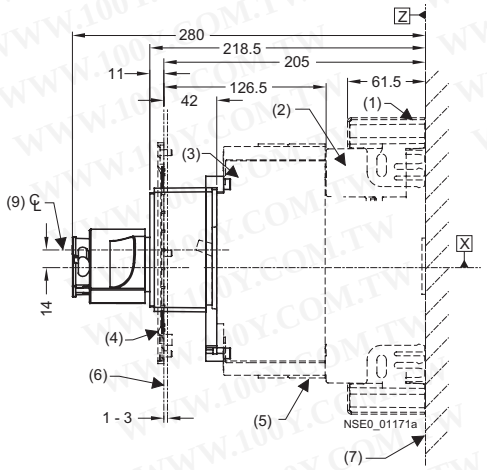
Plug-in bases and accessories

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

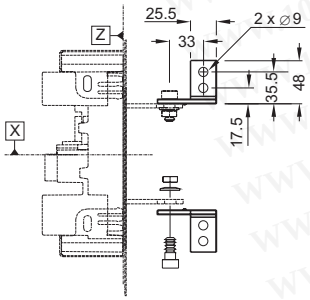


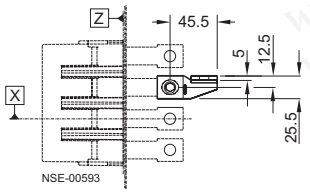
(1) Plug-in base with terminal covers
(2) Plug-in base
(3) Circuit-breaker
(4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Motorized operating mechanism with spring energy store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



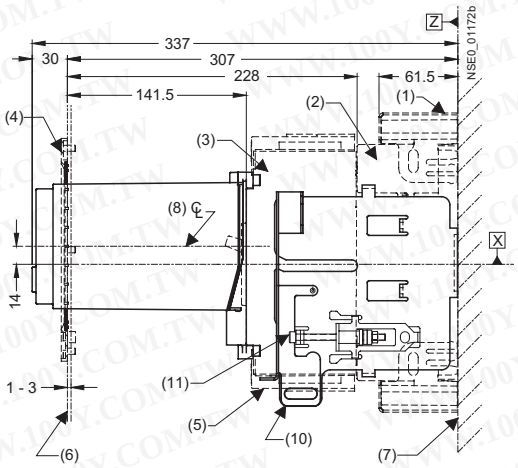


Project planning aids

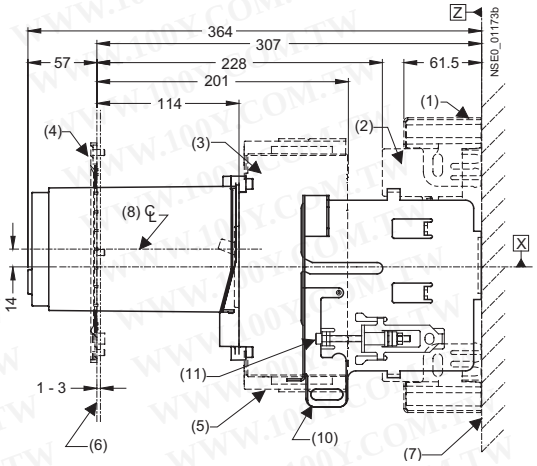
VL160 and VL250, 3- and 4-pole, up to 250 A

Withdrawable version and accessories

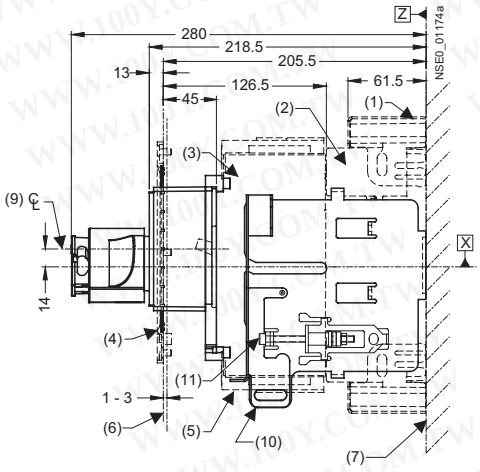
SENTRON VL160 and VL250 circuit-breakers with motorized operating mechanism with spring energy store (connected position)



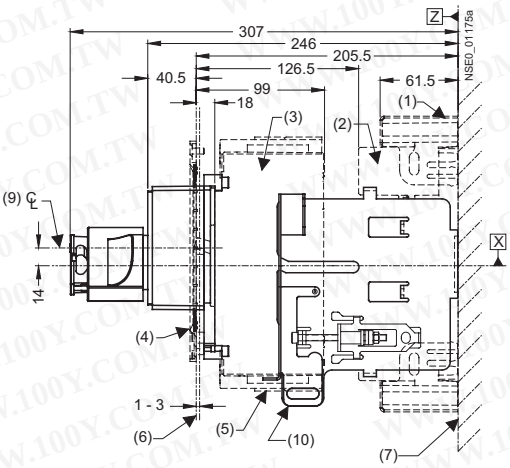
SENTRON VL160 and VL250 circuit-breakers with motorized operating mechanism with spring energy store (disconnected position)



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



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

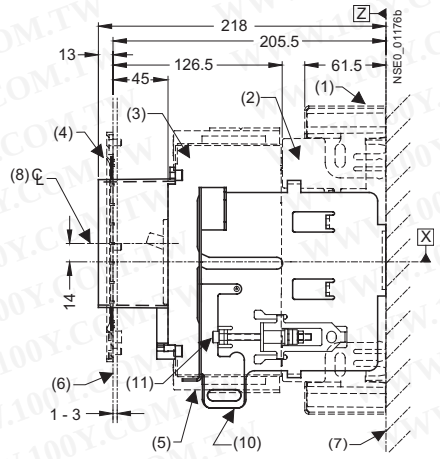


(1) Plug-in base with terminal covers
(2) Plug-in base
(3) Circuit-breaker
(4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Motorized operating mechanism with spring energy store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

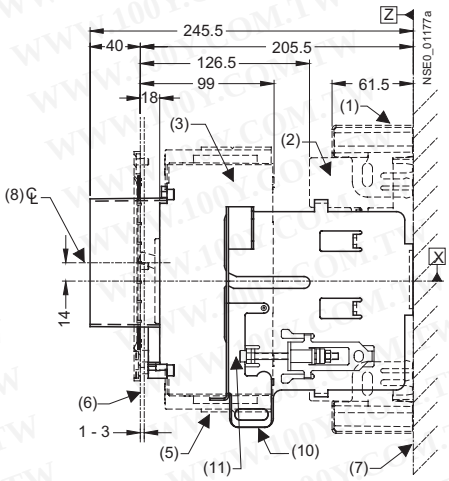
VL160 and VL250, 3- and 4-pole, up to 250 A

Withdrawable version and accessories

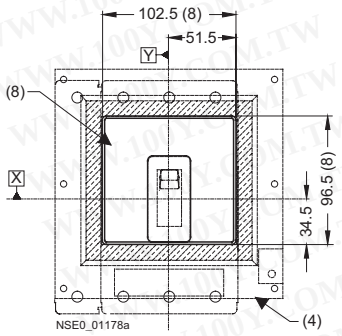
SENTRON VL160 and VL250 circuit-breakers with extended escutcheon (connected position)



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

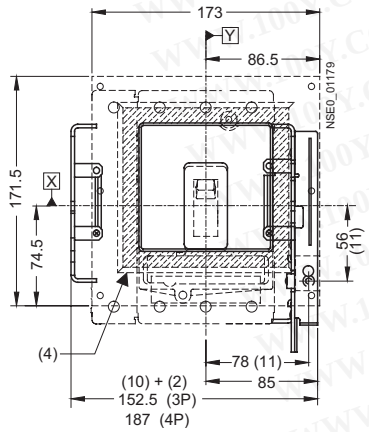


Dimensions of extended escutcheon



(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

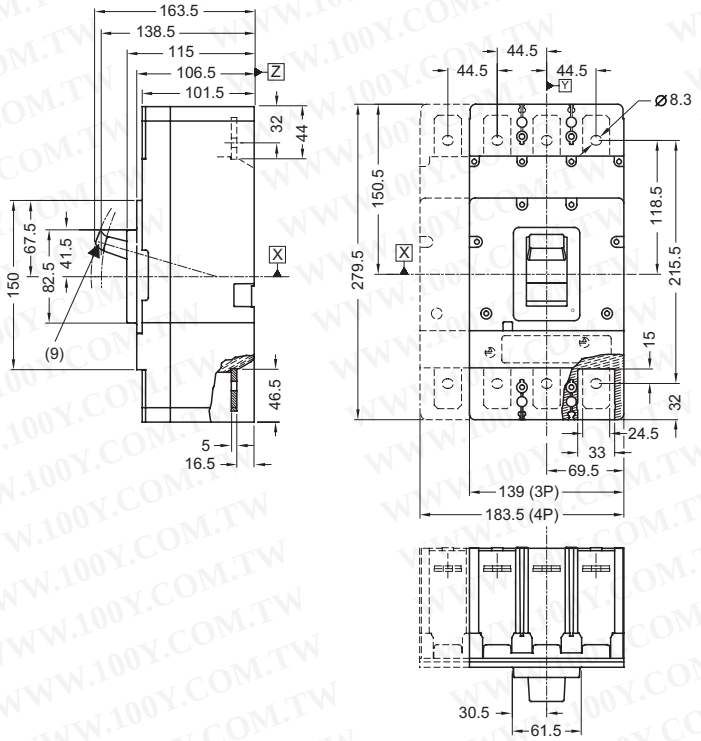


Project planning aids

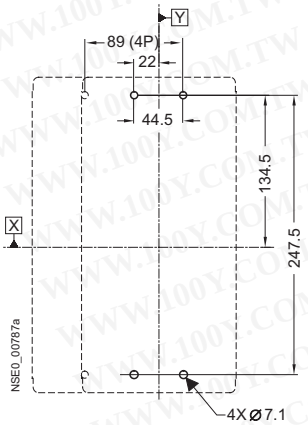
VL400, 3- and 4-pole, up to 400 A

Circuit-breakers

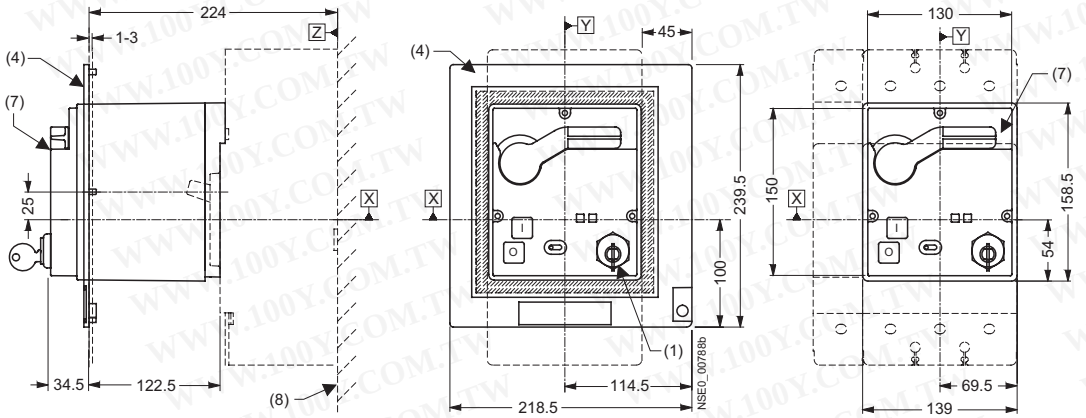
SENTRON VL400 circuit-breakers



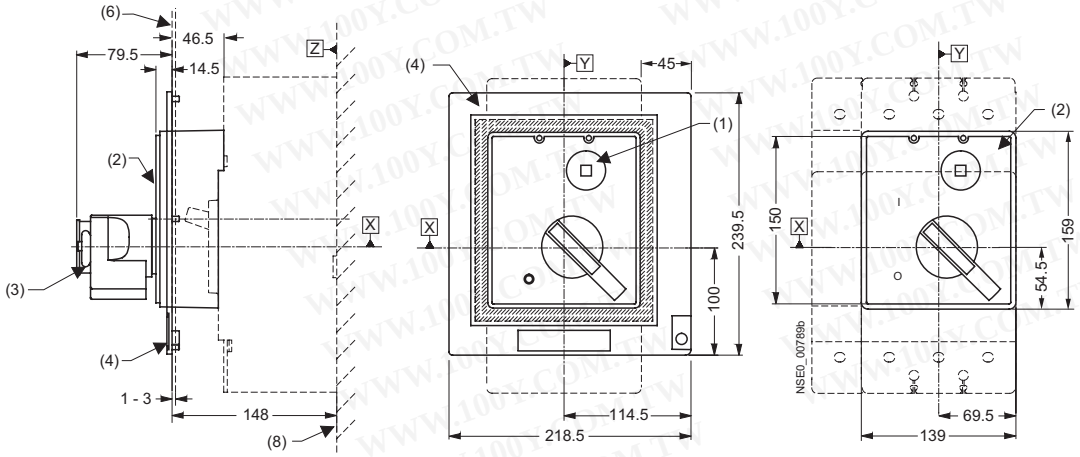
Circuit-breaker installation instructions



Motorized operating mechanism with spring energy store



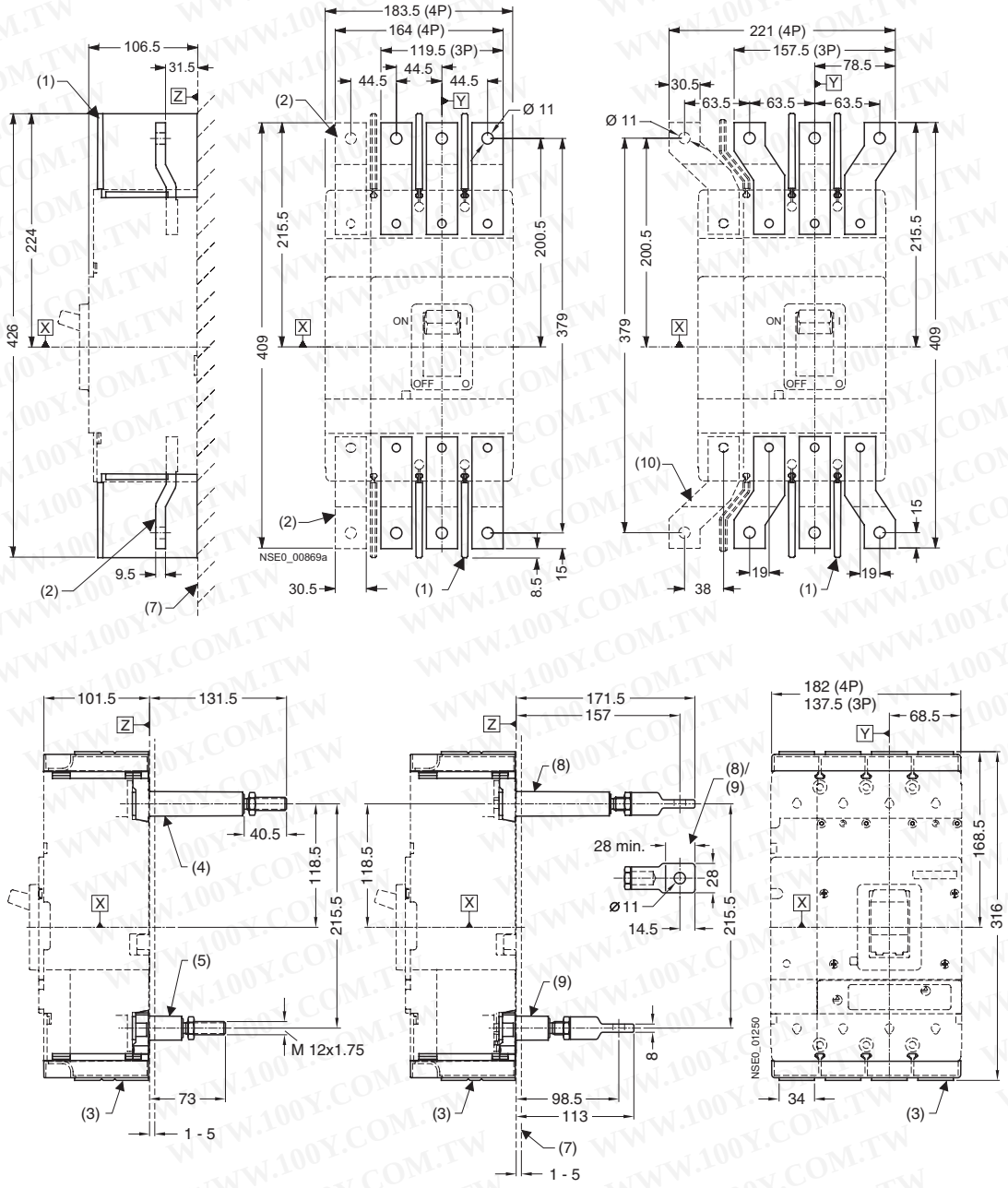
Front-operated rotary operating mechanism



(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



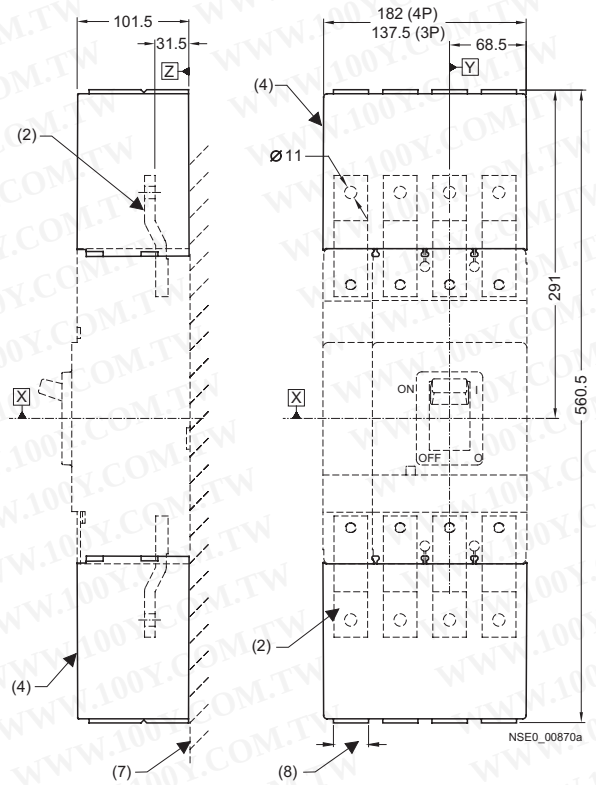
(1) Phase barrier
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Rear terminal (long)
(5) Rear terminal (short)
(7) Installation level
(8) Rear flat connector (long)
(9) Rear flat connector (short)
(10) Flared front busbar connecting bars

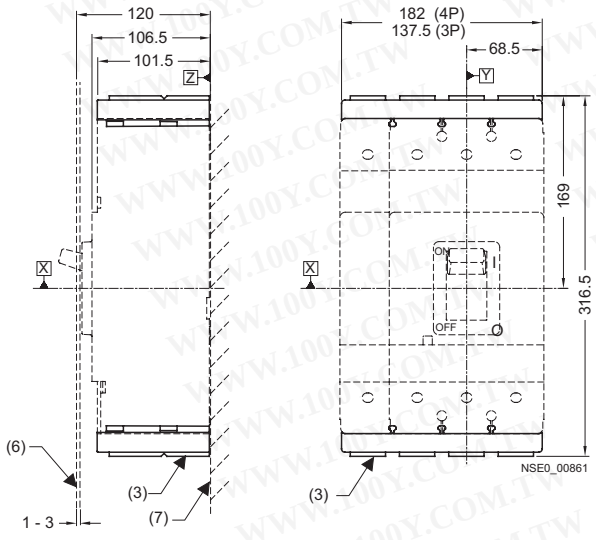
Project planning aids

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

Terminal covers

Circuit-breaker installation instructions
Front connecting bars



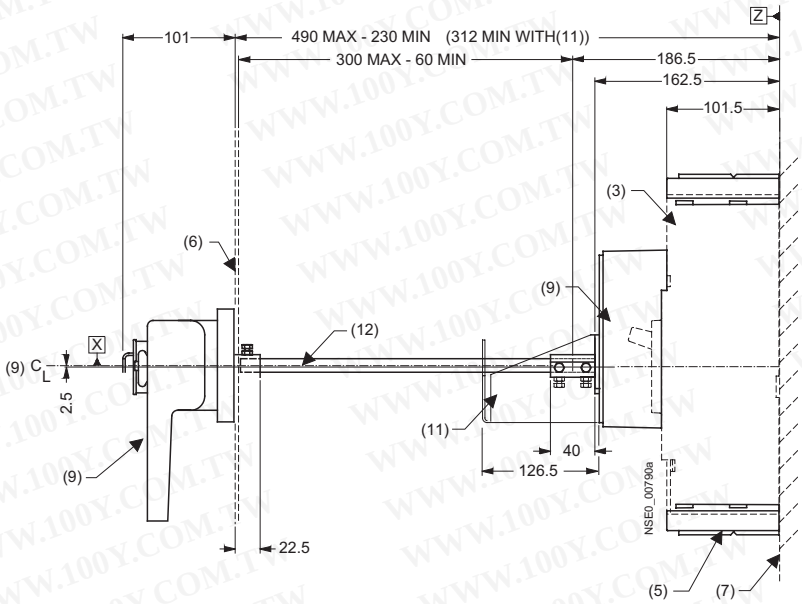


(1) Front connecting bars
(2) Terminal covers (standard)
(3) Terminal covers (extended)
(6) Outside surface of cabinet door
(7) Installation level
(8) Cut-out

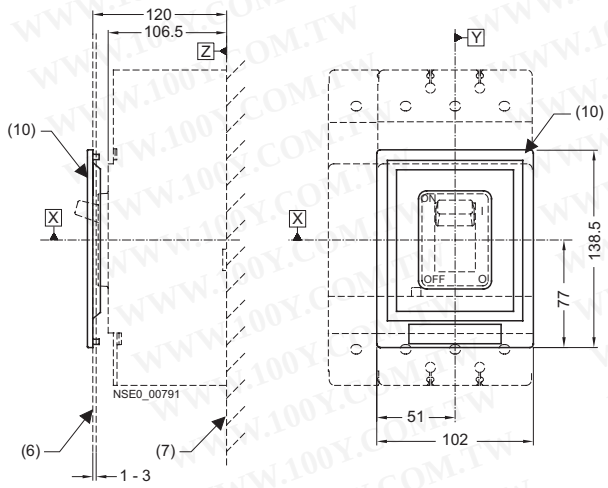
VL400, 3- and 4-pole, up to 400 A

Accessories

Plug-in base for door-coupling rotary operating mechanism



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



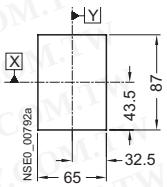
(3) Circuit-breaker
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(9) Door-coupling rotary operating mechanism
(10) Masking frame for door cut-out (for circuit-breaker with toggle lever)
(11) Support bracket
(12) Center line of operating shaft

Project planning aids

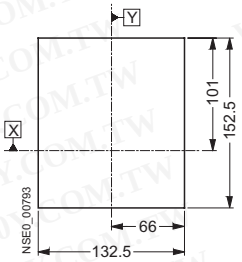
VL400, 3- and 4-pole, up to 400 A

Door cut-outs

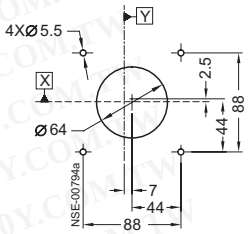
Door cut-out for toggle lever operating mechanism (without masking frame)



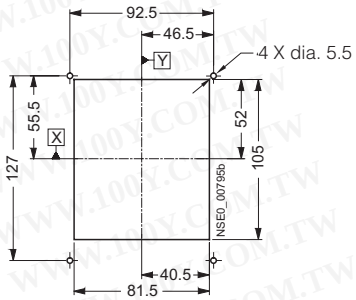
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (without masking frame)



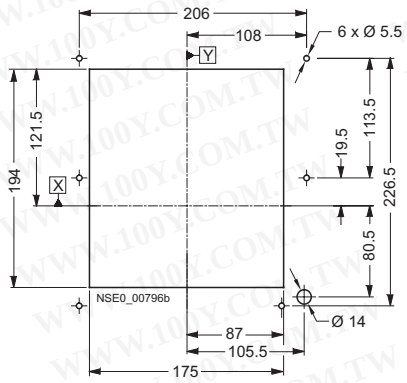
Door cut-out for door-coupling rotary operating mechanism



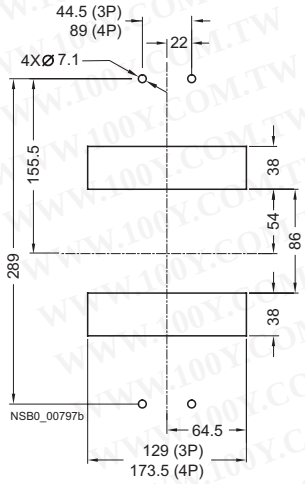
Door cut-out for toggle lever operating mechanism (with masking frame)



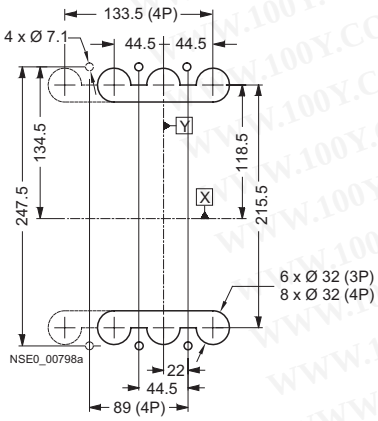
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)

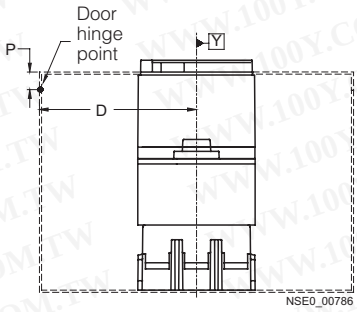


Hole pattern and cut-out for plug-in base with rear flat connecting bars



Hole pattern and cut-out for rear terminals





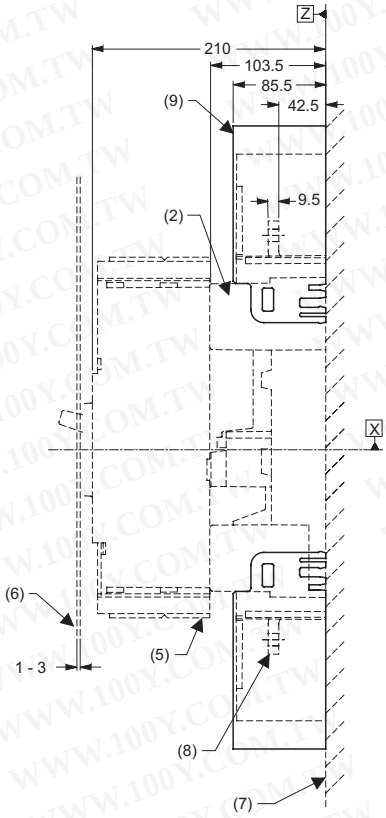
D > A from table + (P x 5)

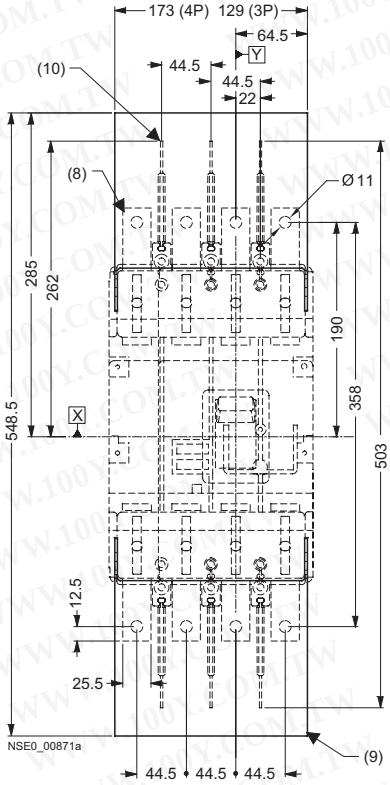
	A
Circuit-breaker only	150
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	150
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

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

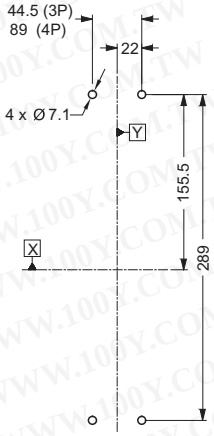
VL400, 3- and 4-pole, up to 400 A

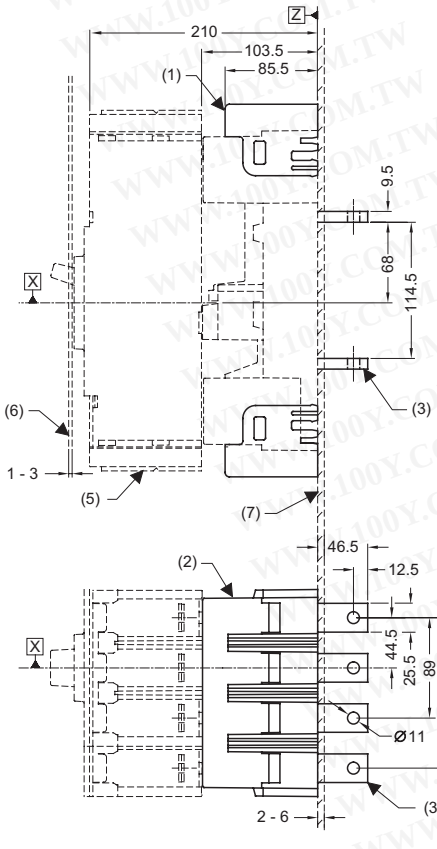
Plug-in bases and accessories

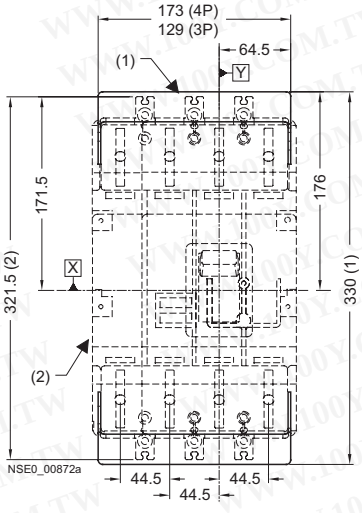




Hole pattern for plug-in base for front connecting bars







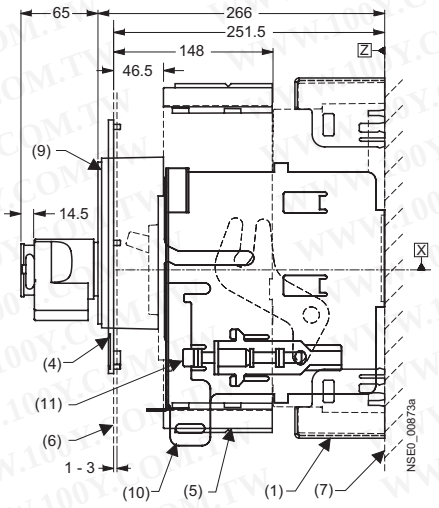
(1) Plug-in base with rear terminal covers
(2) Plug-in base
(3) Plug-in base with rear flat connecting bars
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Plug-in base with front connecting bars
(9) Plug-in base with terminal covers on the front
(10) Phase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

Project planning aids

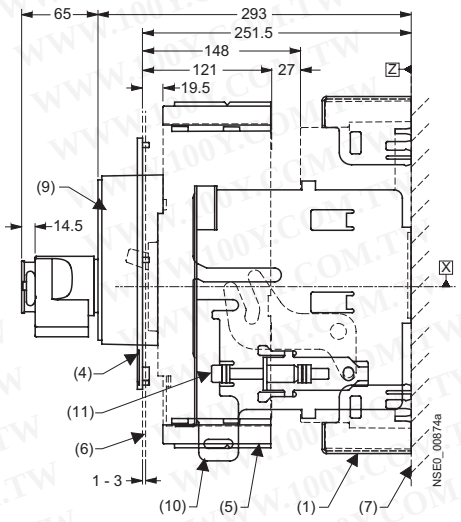
VL400, 3- and 4-pole, up to 400 A

Plug-in bases and accessories

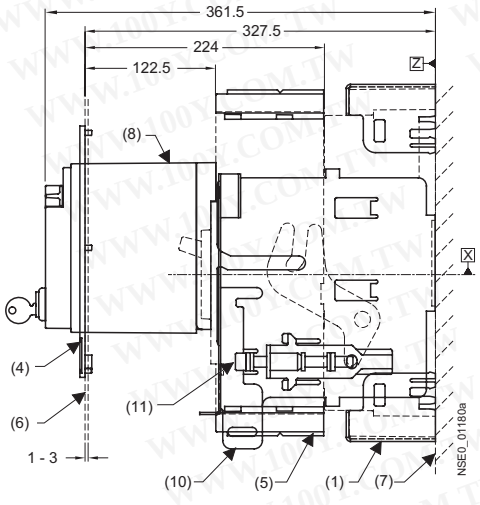
Plug-in base for front-operated rotary operating mechanism (connected position)



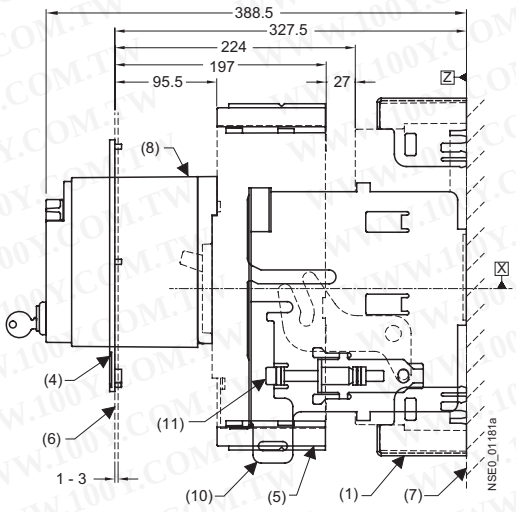
Plug-in base for front-operated rotary operating mechanism (disconnected position)



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)

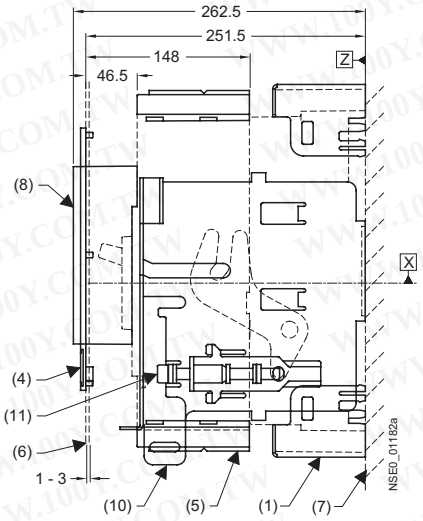


(1) Plug-in base with terminal covers
(4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Motorized operating mechanism with spring energy store
(9) Front-operated rotary operating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

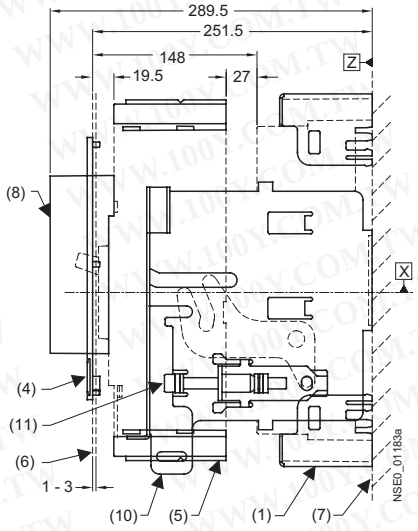
VL400, 3- and 4-pole, up to 400 A

Plug-in bases and accessories

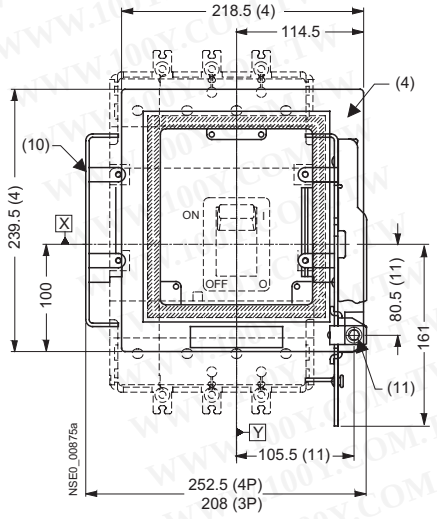
Plug-in base for extended escutcheon (connected position)



Plug-in base for extended escutcheon (disconnected position)



Extended escutcheon mounted on withdrawable version



LOCKING DEVICE
FOR RACKING MECHANISM

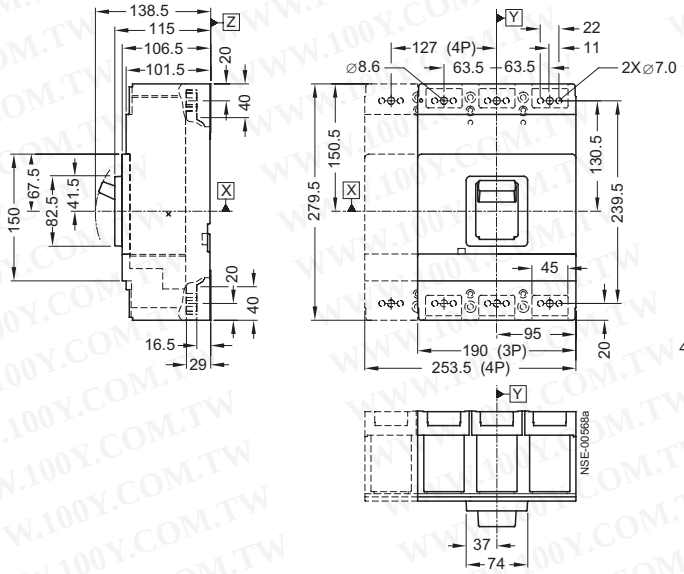
(1) Plug-in base with terminal covers
(4) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Extended escutcheon
(10) Locking device for racking mechanism
(11) Racking mechanism

Project planning aids

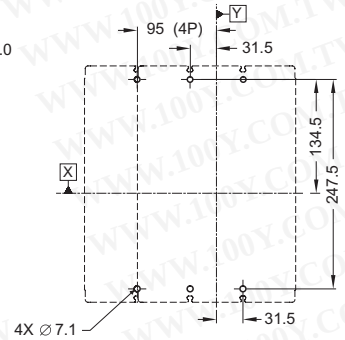
VL630, 3- and 4-pole, up to 630 A

Circuit-breakers

SENTRON VL630 circuit-breakers

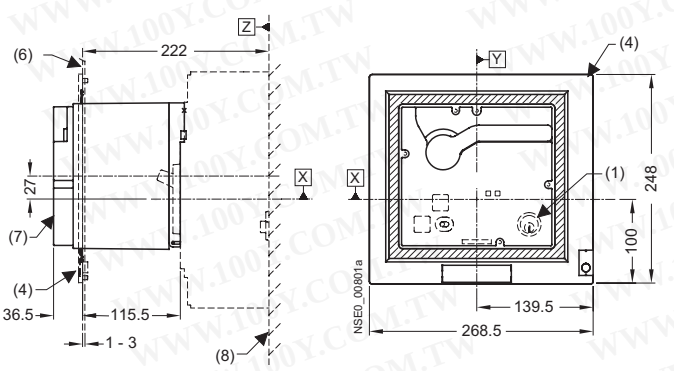


Circuit-breaker installation instructions

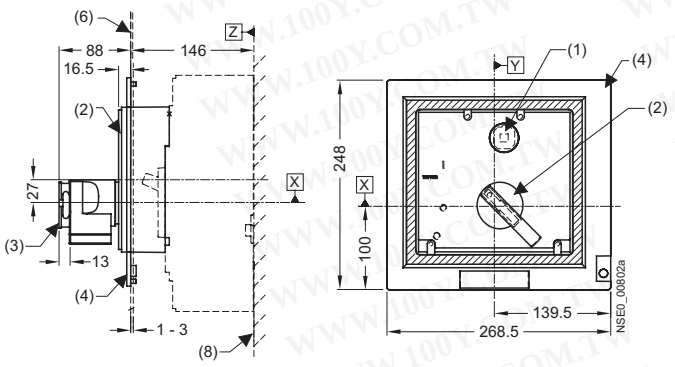


Operating mechanisms

Motorized operating mechanism with spring energy store



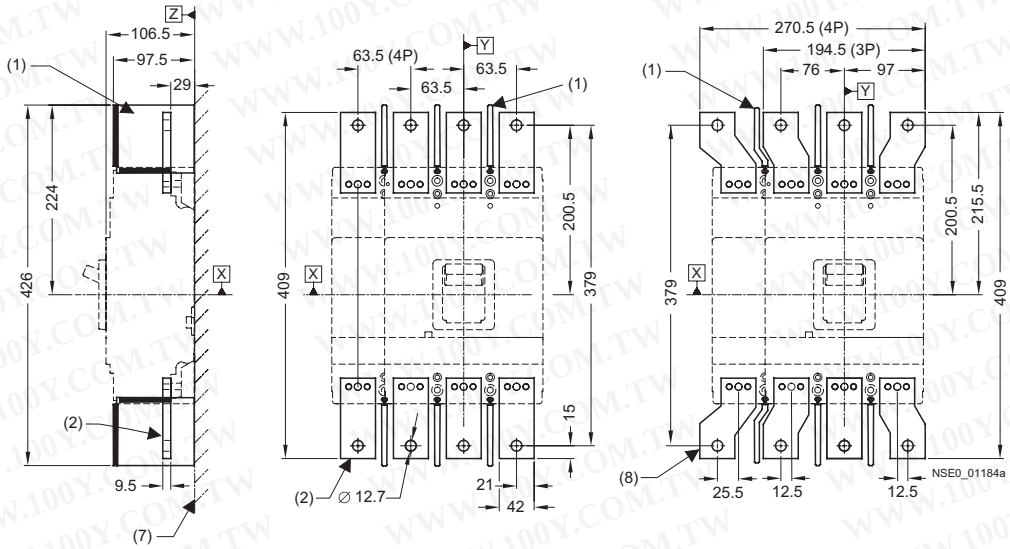
Front-operated rotary operating mechanism

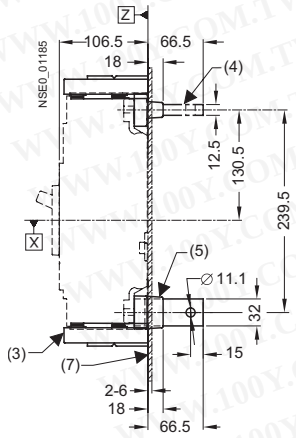


(1) Safety lock
(2) Front-operated rotary operating mechanism
(3) Padlock
(4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(5) Step for cover
(6) Outside surface of cabinet door
(7) Motorized operating mechanism with spring energy store
(8) Installation level

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

Terminals and phase barriers



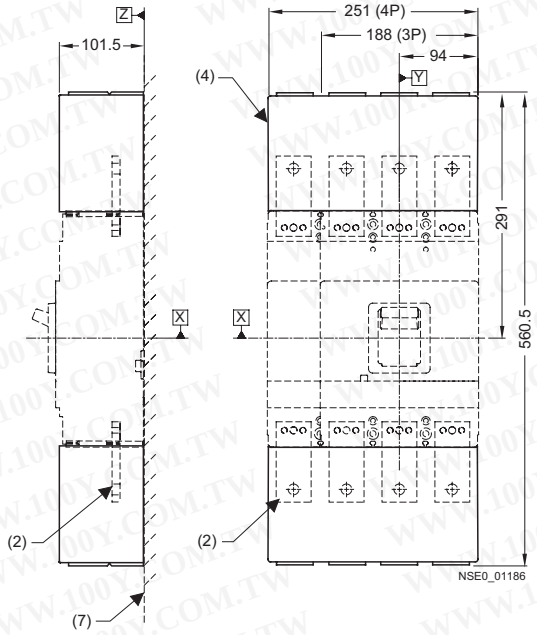


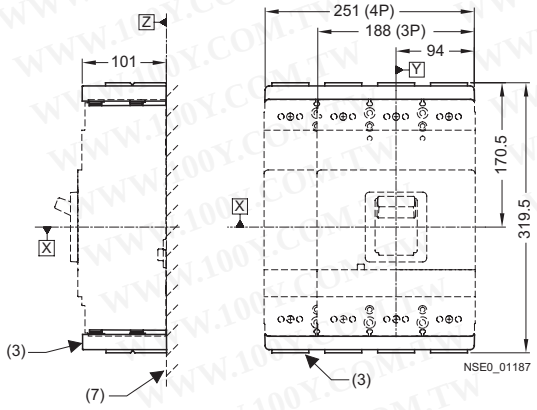
(1) Phase barrier
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Rear terminal (horizontal connection)
(5) Rear terminal (vertical connection)
(7) Installation level
(8) Flared front busbar connecting bars

Project planning aids

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

Terminal covers



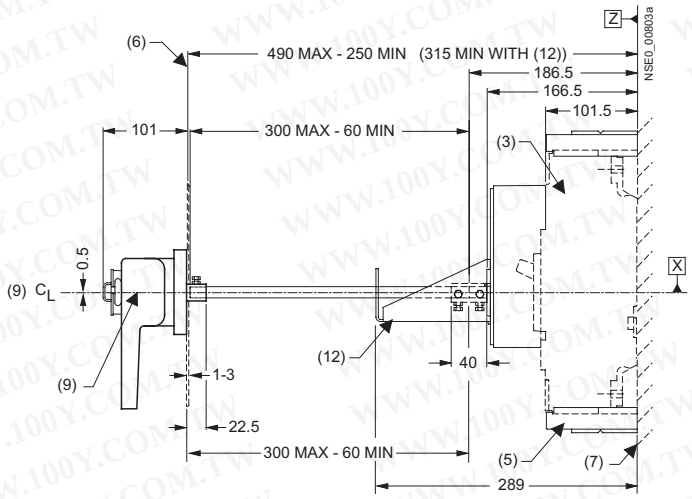


(2) Front connecting bars
(3) Terminal covers (standard)
(4) Terminal covers (extended)
(7) Installation level

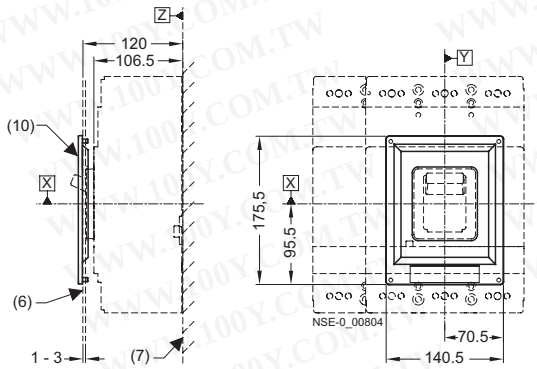
VL630, 3- and 4-pole, up to 630 A

Accessories

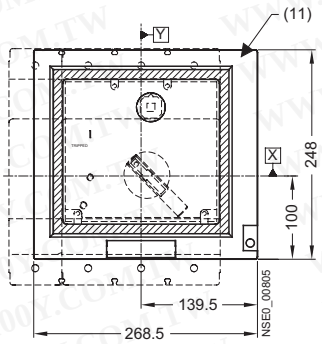
Door-coupling rotary operating mechanism



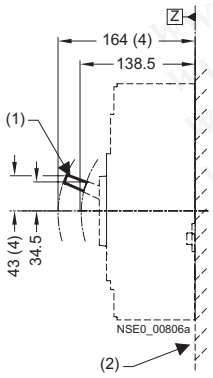
Masking frame for door cut-out for circuit-breaker with toggle lever



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



Toggle lever extension



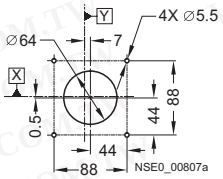
(1) Toggle lever extension
(2) Installation level
(3) Circuit-breaker
(4) Toggle lever extension
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(9) Door-coupling rotary operating mechanism
(10) Masking frame for door cut-out (for circuit-breaker with toggle lever)
(11) Masking frame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

Project planning aids

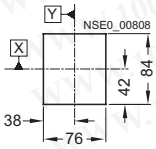
VL630, 3- and 4-pole, up to 630 A

Door cut-outs

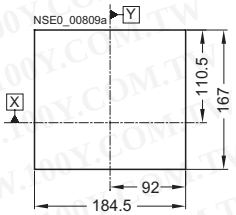
Door cut-out for door-coupling rotary operating mechanism



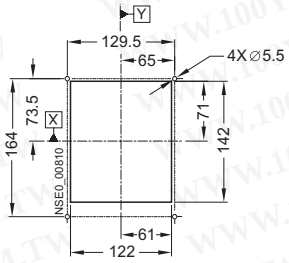
Door cut-out for toggle lever operating mechanism (without masking frame)



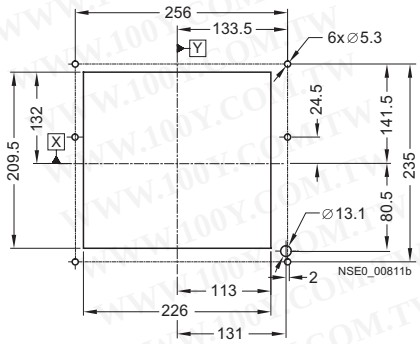
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (without masking frame)

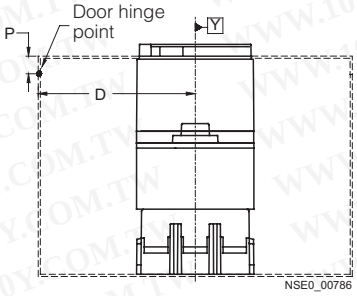


Door cut-out for toggle lever operating mechanism (with masking frame)



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



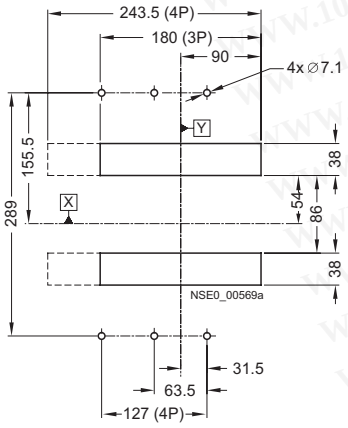


D > A from table + (P x 5)

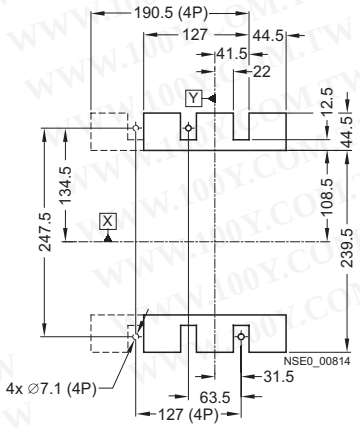
Note:
A minimum distance between reference point Y and the door hinge is required for the door cut-outs.

	A
Circuit-breaker only	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 plug-in base (with rear flat bar connection)



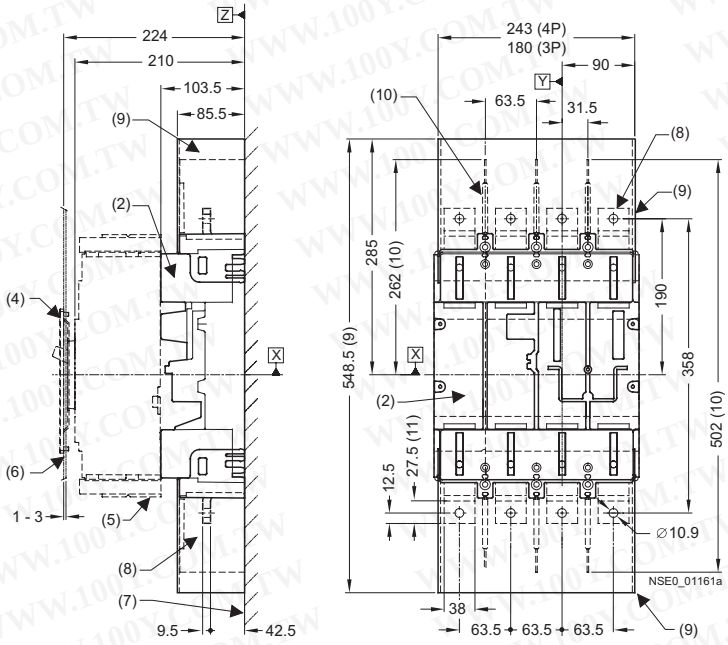
Hole pattern and cut-out for circuit-breaker (with rear flat bar connection)



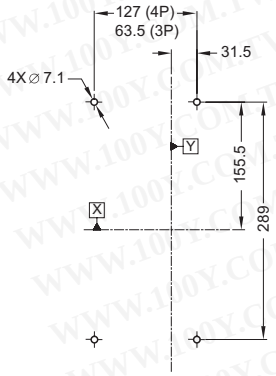
VL630, 3- and 4-pole, up to 630 A

Plug-in bases and accessories

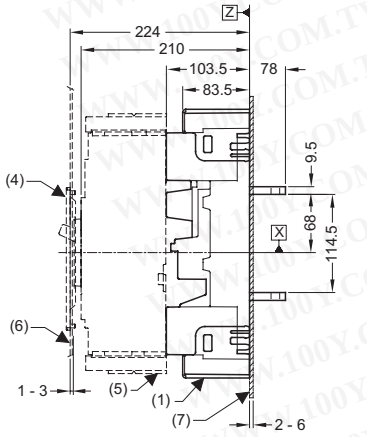
Plug-in base with terminal covers on the front

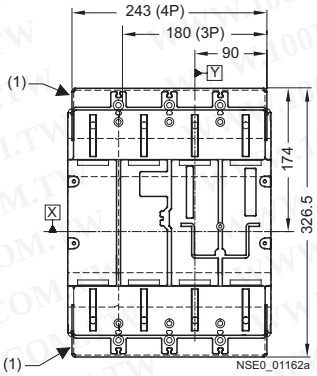


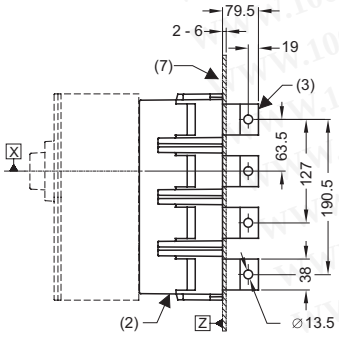
Hole pattern for plug-in base for front connecting bars



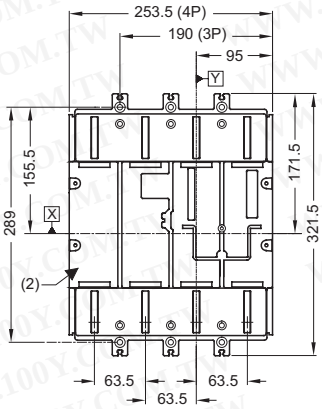
Plug-in base, with terminal covers, rear flat connecting bars







Plug-in base



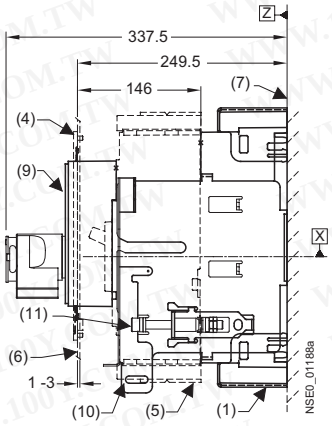
(1) Plug-in base with rear terminal covers
(2) Plug-in base
(3) Plug-in base with rear flat connecting bars
(4) Masking frame for door cut-out (for circuit-breaker with toggle lever)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Plug-in base with front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

Project planning aids

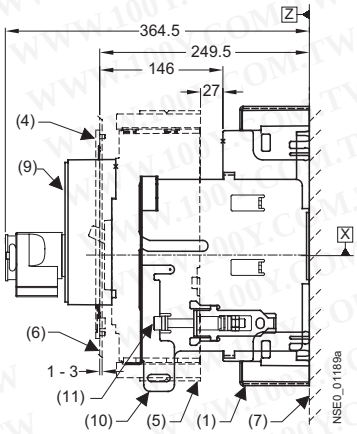
VL630, 3- and 4-pole, up to 630 A

Withdrawable version and accessories

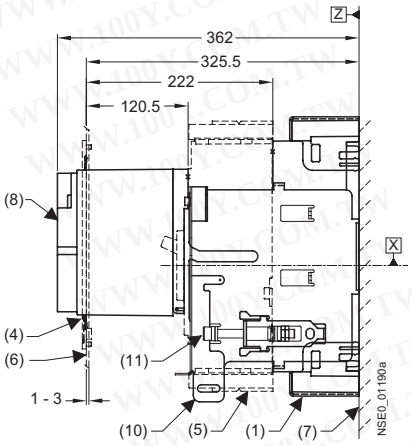
SENTRON VL630 circuit-breakers with rotary operating mechanism, withdrawable version (connected position)



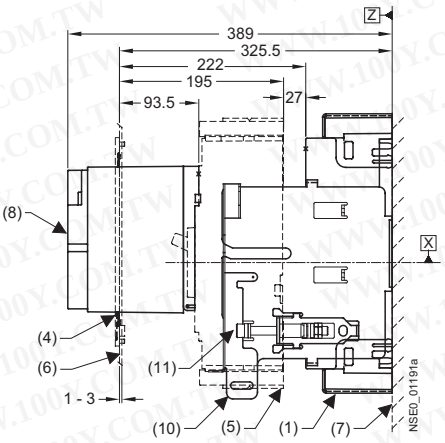
SENTRON VL630 circuit-breakers with rotary operating mechanism, withdrawable version (disconnected position)



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)

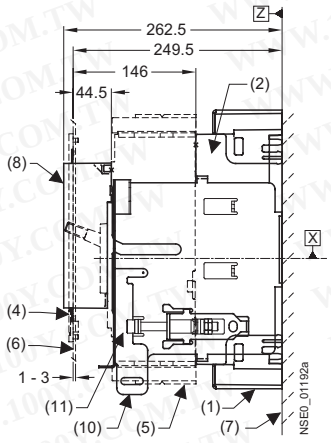


(1) Plug-in base with terminal covers
(4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Motorized operating mechanism with energy store
(9) Front-operated rotary operating mechanism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

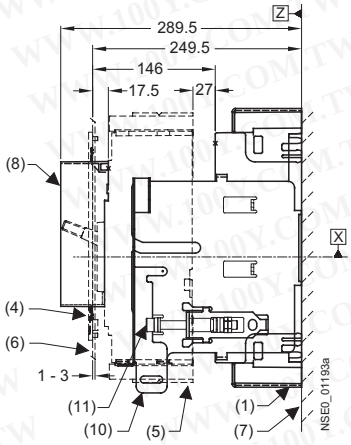
VL630, 3- and 4-pole, up to 630 A

Withdrawable version and accessories

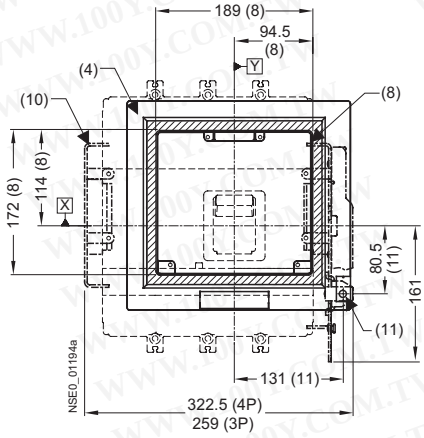
SENTRON VL630 circuit-breakers with extended escutcheon, withdrawable version (connected position)



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



SENTRON VL630 circuit-breakers with extended escutcheon, withdrawable version



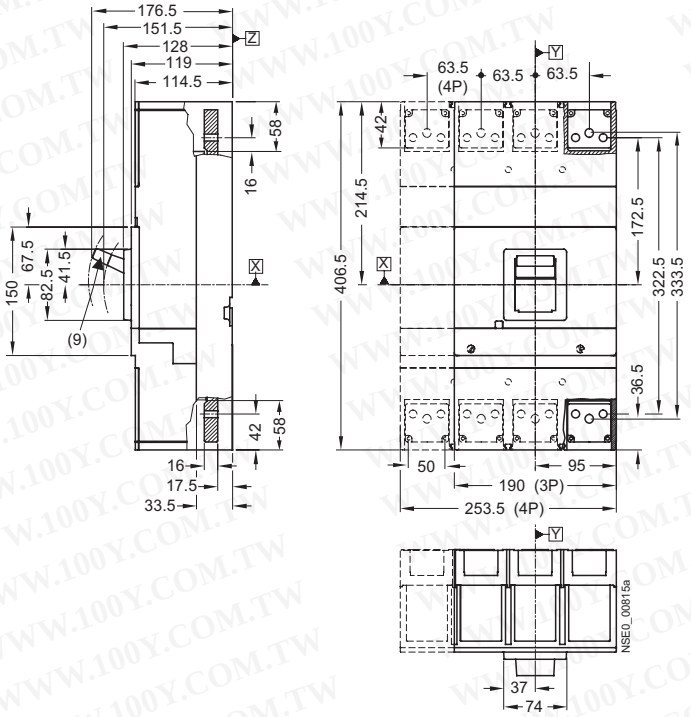
(1) Plug-in base with terminal covers
(2) Plug-in base
(4) Masking frame for door cut-out
(for circuit-breaker with operating mechanism)
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(8) Extended escutcheon
(10) Locking device for racking mechanism
(11) Racking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

Project planning aids

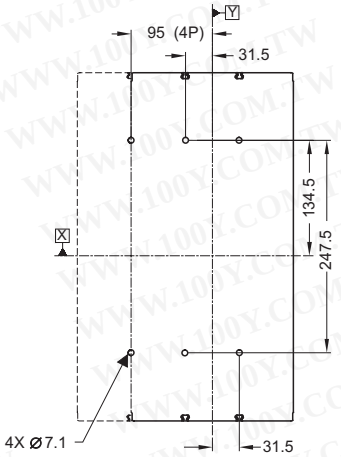
VL800, 3- and 4-pole, up to 800 A

Circuit-breakers

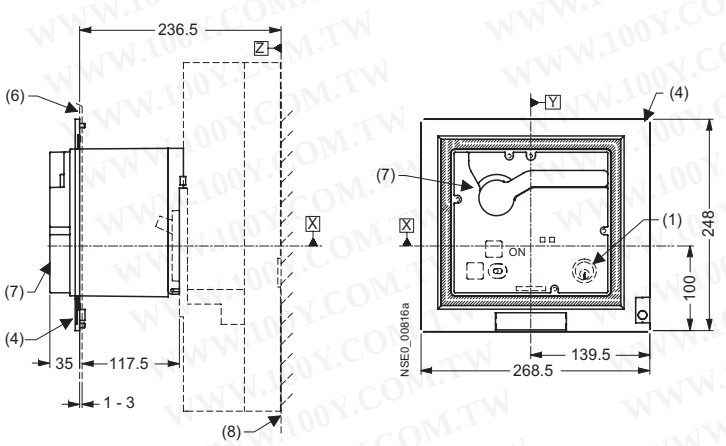
SENTRON VL800 circuit-breakers

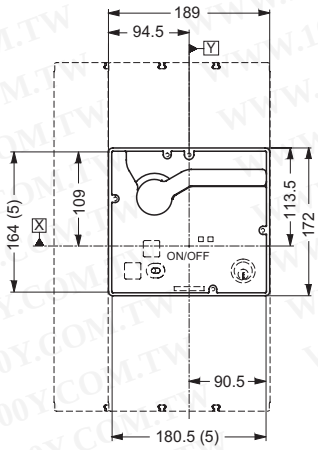


Circuit-breaker installation instructions

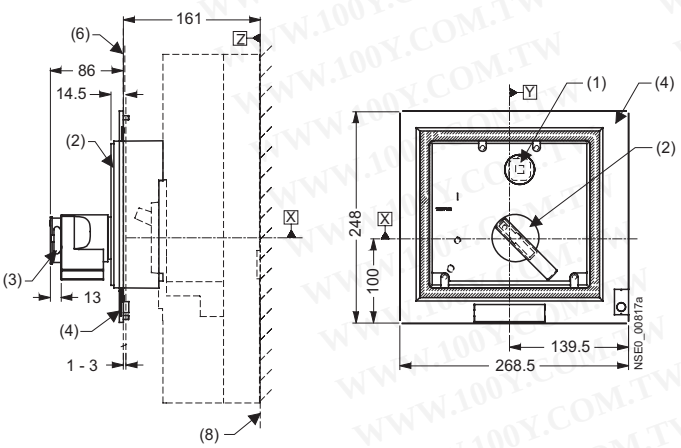


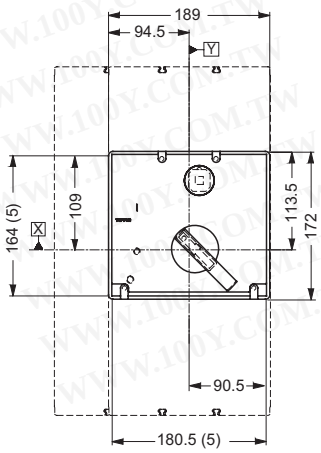
Motorized operating mechanism with spring energy store





Front-operated rotary operating mechanism

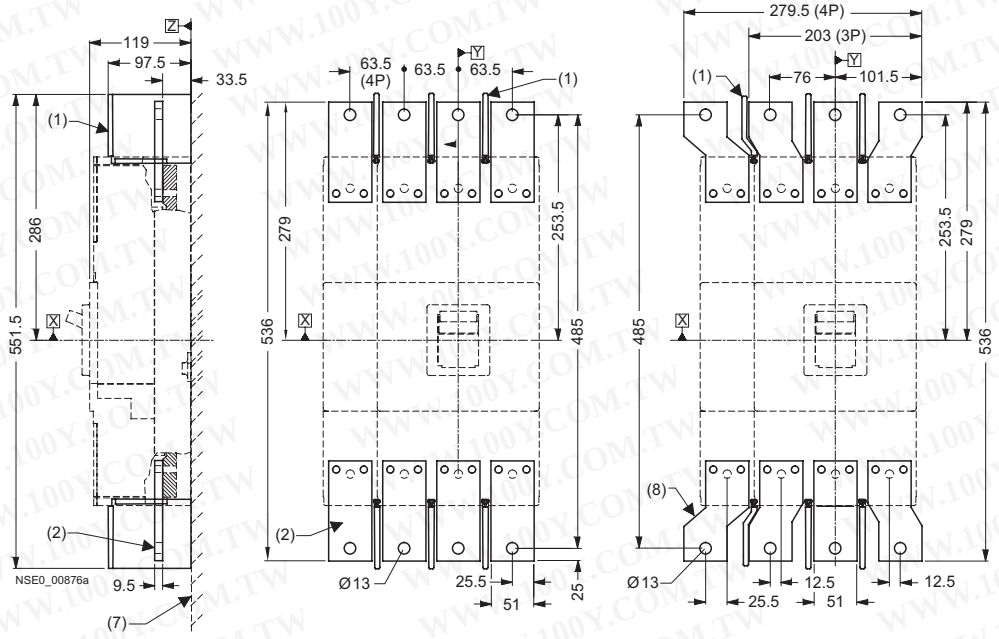




(1) Safety lock
(2) Front-operated rotary operating mechanism
(3) Padlock
(4) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(5) Step for cover
(6) Outside surface of cabinet door
(7) Motorized operating mechanism with spring energy store
(8) Installation level
(9) Toggle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

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

Terminals and phase barriers

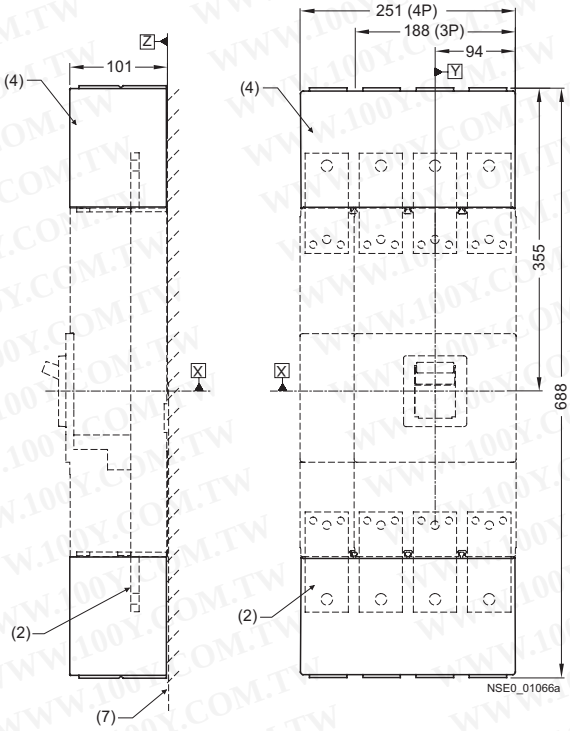


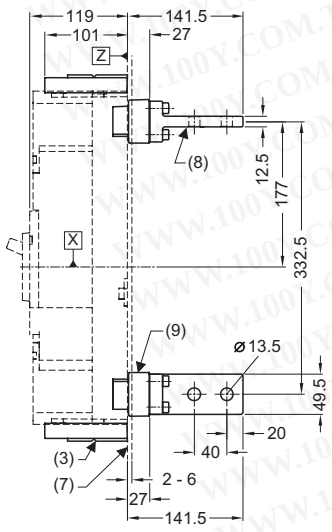
(1) Phase barrier
(2) Front connecting bars
(7) Installation level
(8) Flared front busbar connecting bars

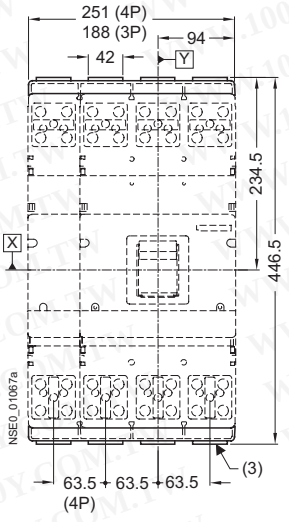
Project planning aids

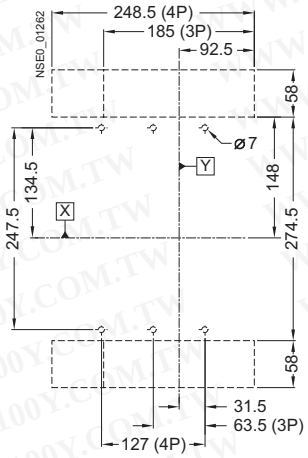
VL800, 3- and 4-pole, up to 800 A

Terminal covers







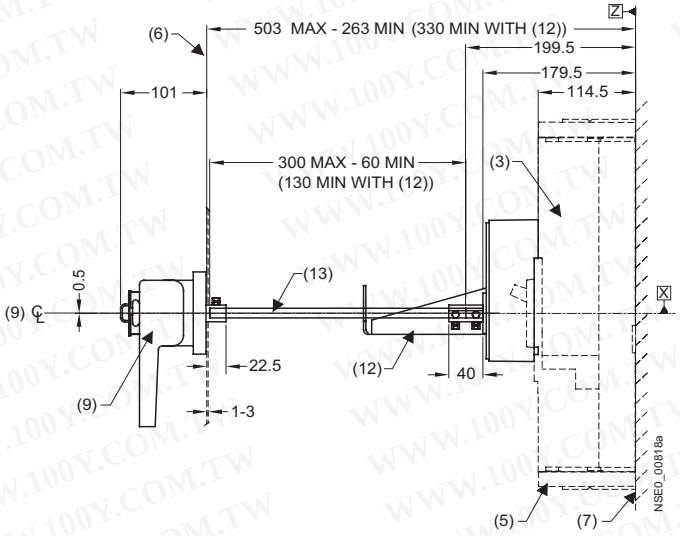


(2) Front connecting bars
(3) Terminal covers (standard)
(4) Terminal covers (extended)
(7) Installation level
(8) Rear terminal (mounted horizontally)
(9) Rear terminal (mounted vertically)

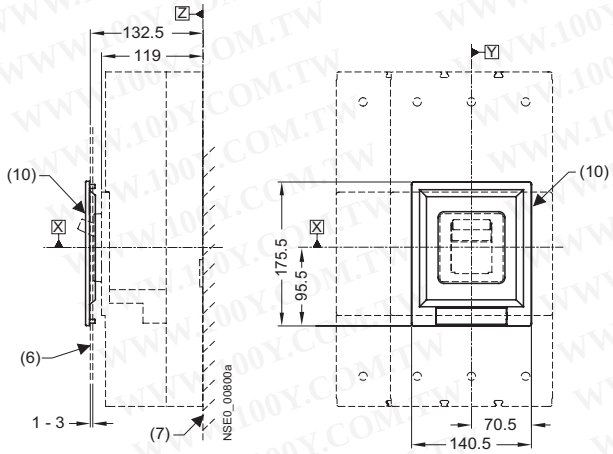
VL800, 3- and 4-pole, up to 800 A

Accessories

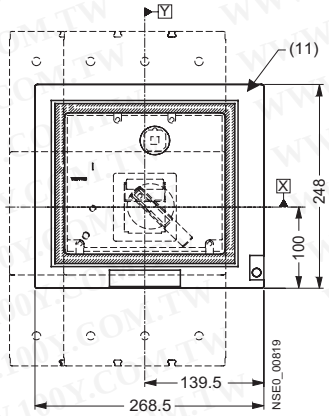
Door-coupling rotary operating mechanism



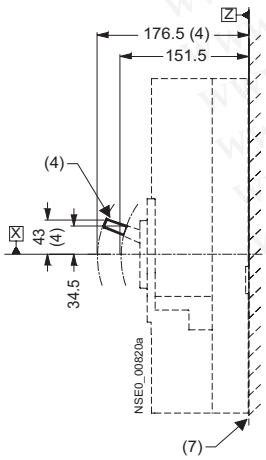
Masking frame for door cut-out for circuit-breaker with toggle lever



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



Toggle lever extension



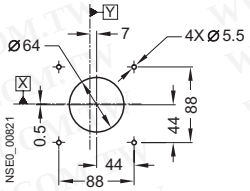
(3) Circuit-breaker
(4) Toggle lever extension
(5) Terminal covers (standard)
(6) Outside surface of cabinet door
(7) Installation level
(9) Door-coupling rotary operating mechanism
(10) Masking frame for door cut-out (for circuit-breaker with toggle lever)
(11) Masking frame for door cut-out (for circuit-breaker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

Project planning aids

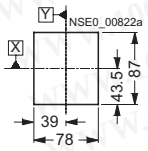
VL800, 3- and 4-pole, up to 800 A

Door cut-outs

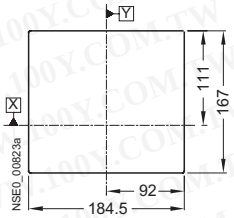
Door cut-out
Door-coupling rotary operating mechanism



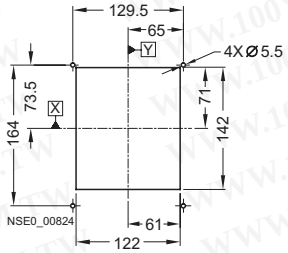
Door cut-out for toggle lever (without masking frame)



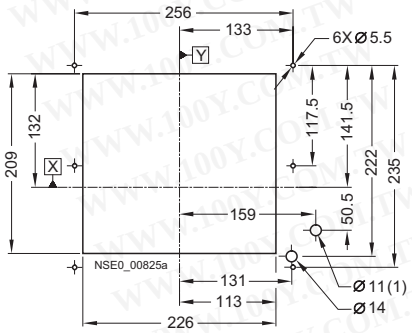
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (without masking frame)



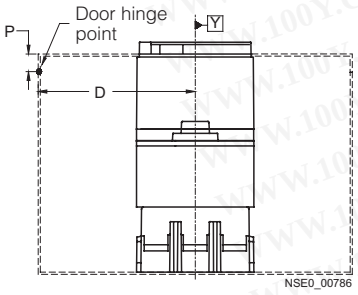
Door cut-out for toggle lever (with masking frame)



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.

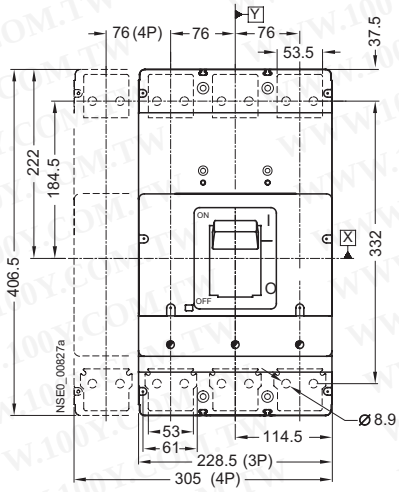
D > A from table + (P x 5)

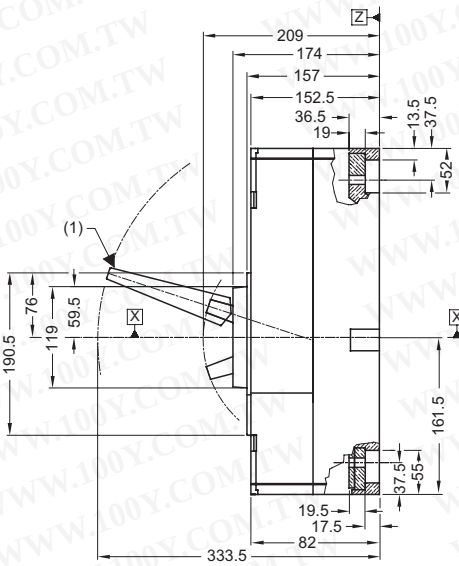
	A
Circuit-breaker only	150
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	150
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

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

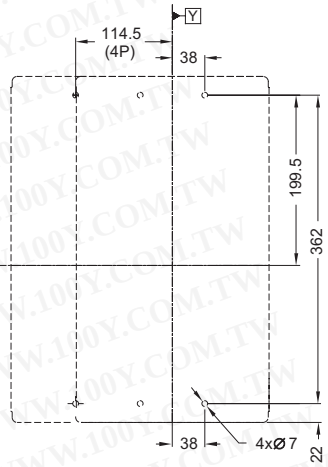
Circuit-breakers

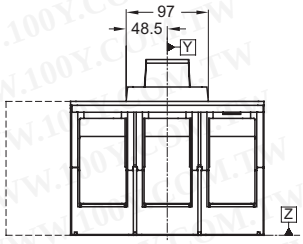
SENTRON VL1250 circuit-breakers



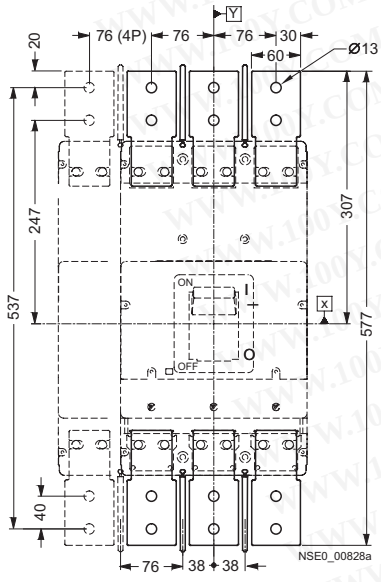


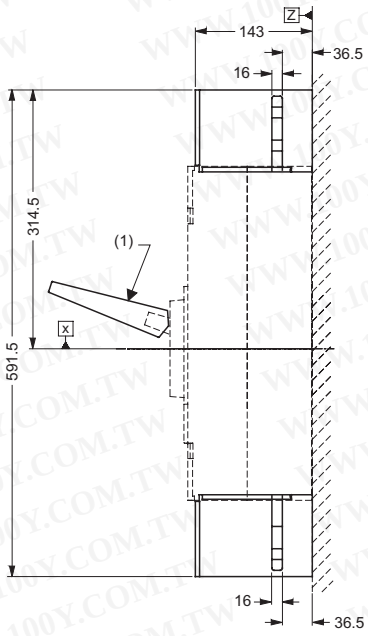
Circuit-breaker installation instructions



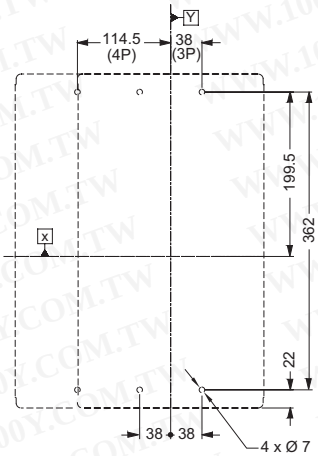


SENTRON VL1600 circuit-breakers





Circuit-breaker installation instructions



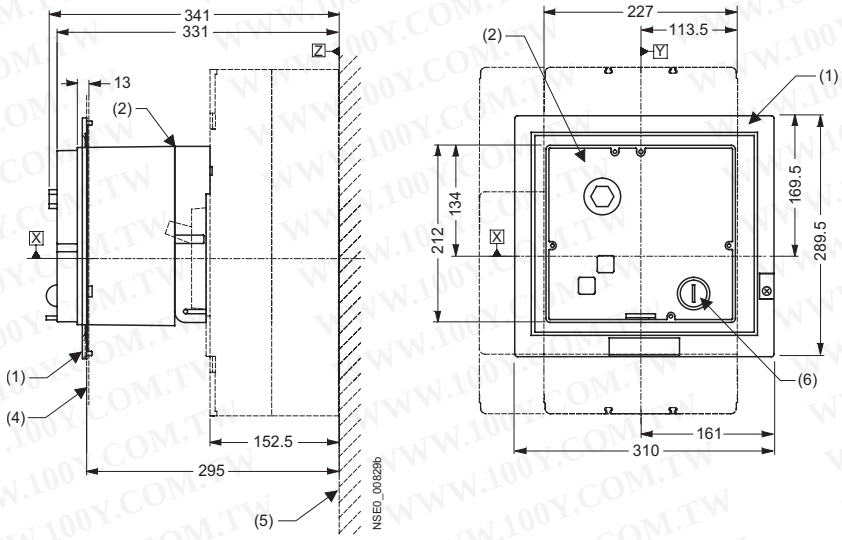
(1) Toggle lever extension

Project planning aids

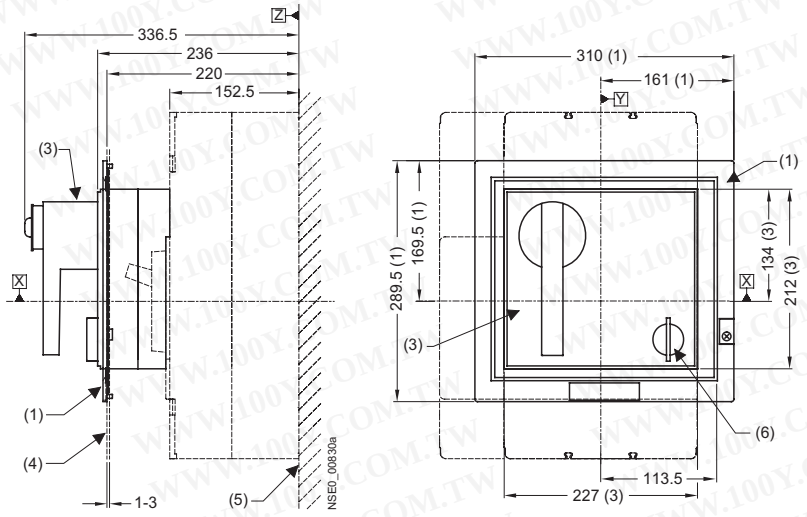
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Operating mechanisms

Motorized operating mechanism



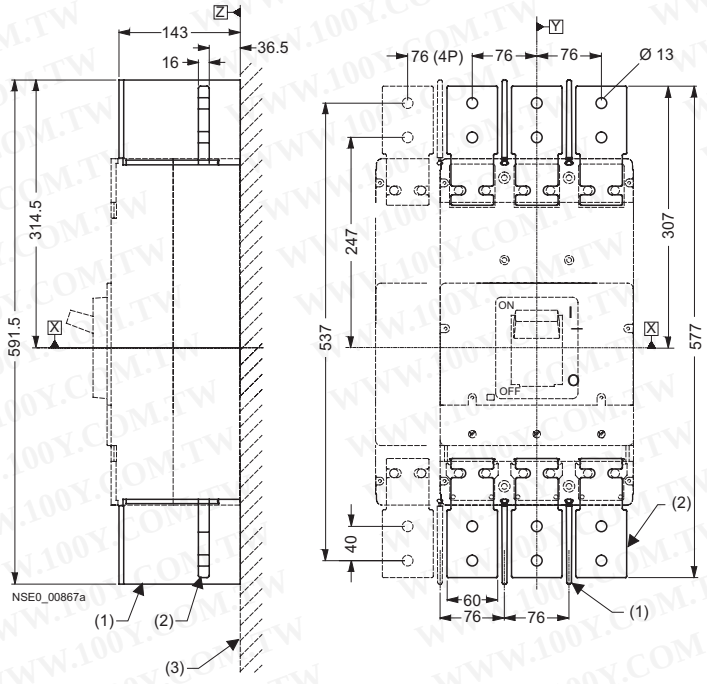
Front-operated rotary operating mechanism



(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

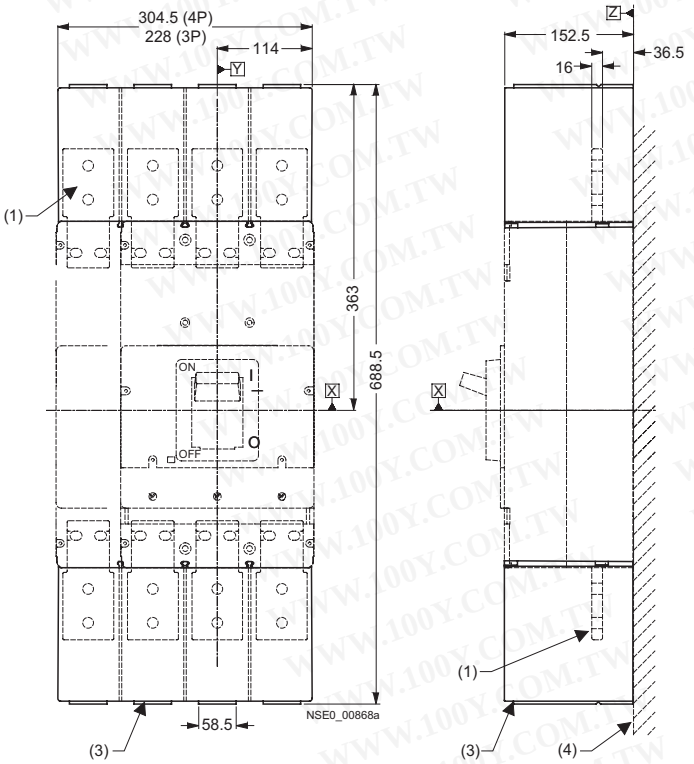
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Terminals and phase barriers



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

Terminal covers



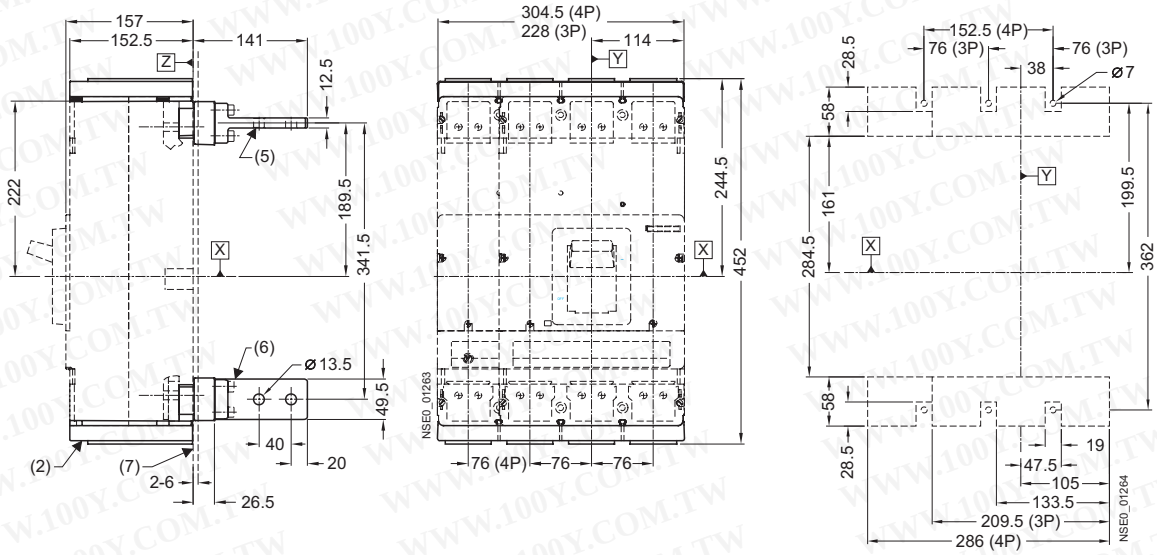
(1) Front connecting bars
(2) Terminal covers (short) – only for SENTRON VL1250 circuit-breakers
(3) Terminal covers (extended)
(4) Installation level
(5) Rear terminal (mounted horizontally)
(6) Rear terminal (mounted vertically)
(7) Phase barriers

Project planning aids

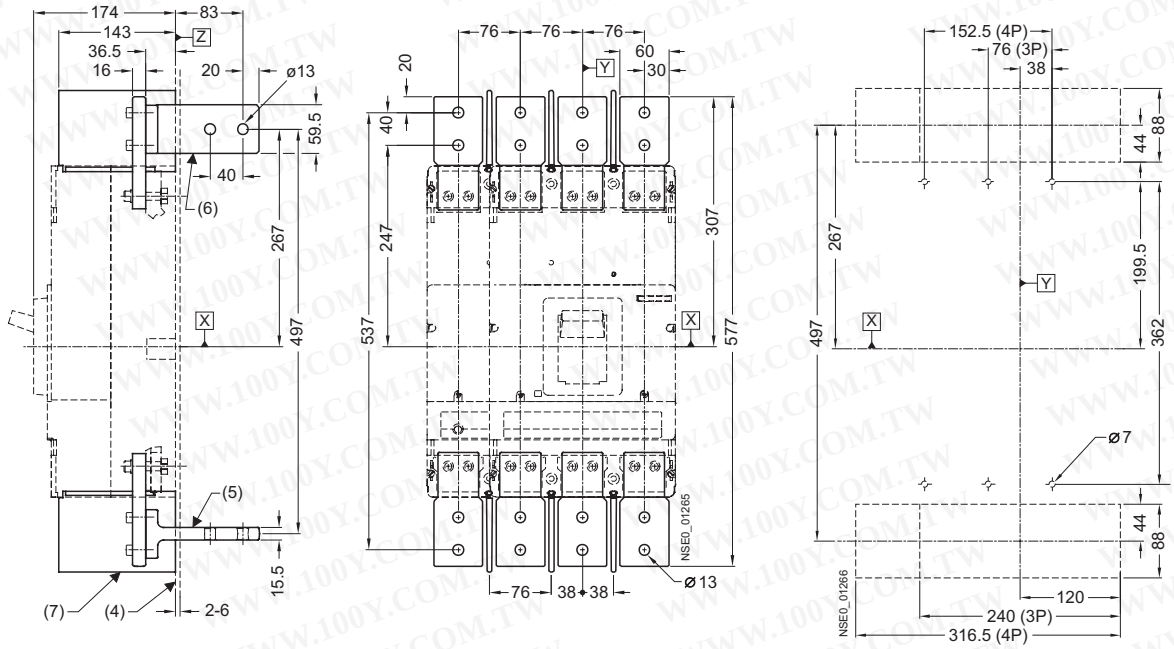
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Terminal covers

SENTRON VL1250 circuit-breakers only



SENTRON VL1600 circuit-breakers only

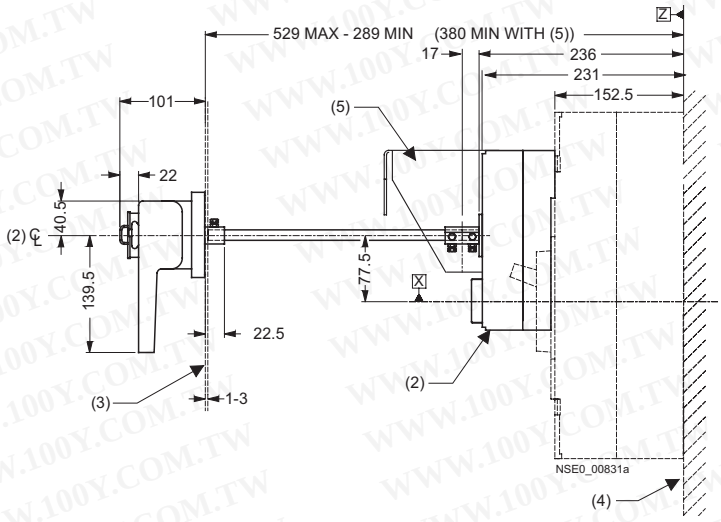


(1) Front connecting bars
(2) Terminal covers (short) –
only for SENTRON VL1250 circuit-breaker
(3) Terminal covers (extended)
(4) Installation level
(5) Rear terminal (mounted horizontally)
(6) Rear terminal (mounted vertically)
(7) Phase barriers

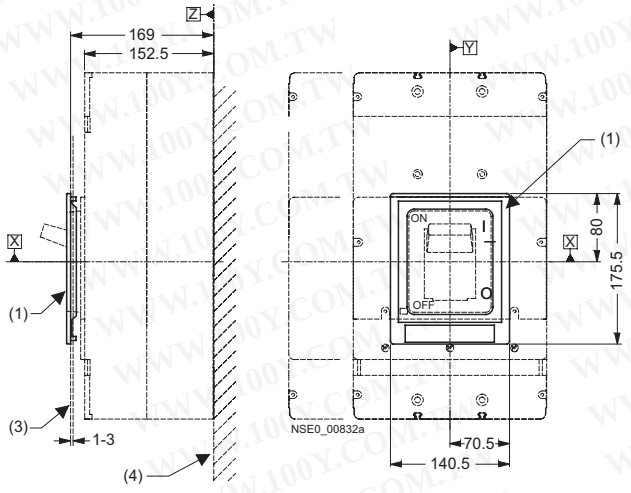
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Accessories

SENTRON VL1250 circuit-breaker
Door-coupling rotary operating mechanism



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



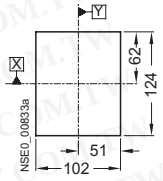
(1) Masking frame for door cut-out
(for circuit-breaker with toggle lever)
(2) Door-coupling rotary operating mechanism
(3) Outside surface of cabinet door
(4) Installation level
(5) Support bracket

Project planning aids

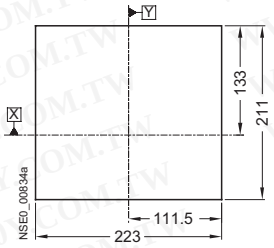
VL1250 and VL1600, 3- and 4-pole, up to 1600 A

Door cut-outs

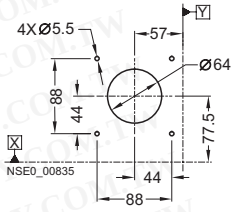
Door cut-out for toggle lever (without masking frame)



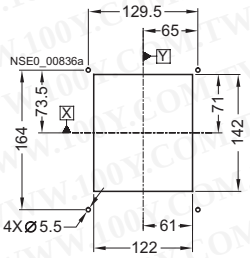
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism (without masking frame)



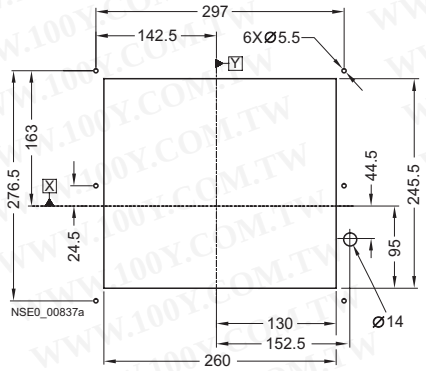
Door cut-out for door-coupling rotary operating mechanism



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

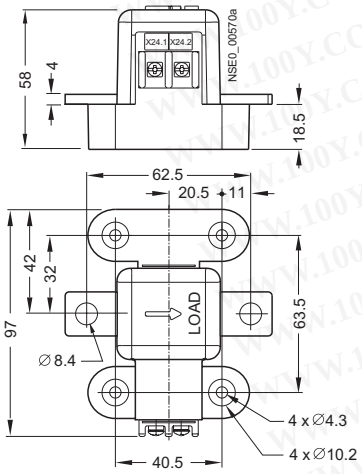


Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism and extended escutcheon (with masking frame)

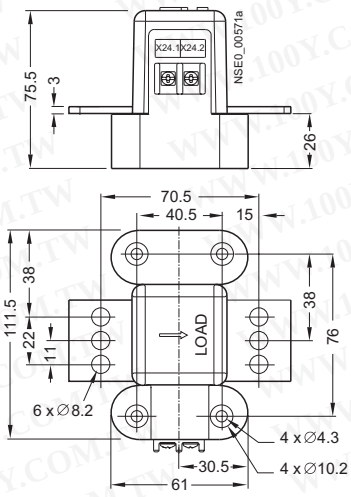


Current transformers

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

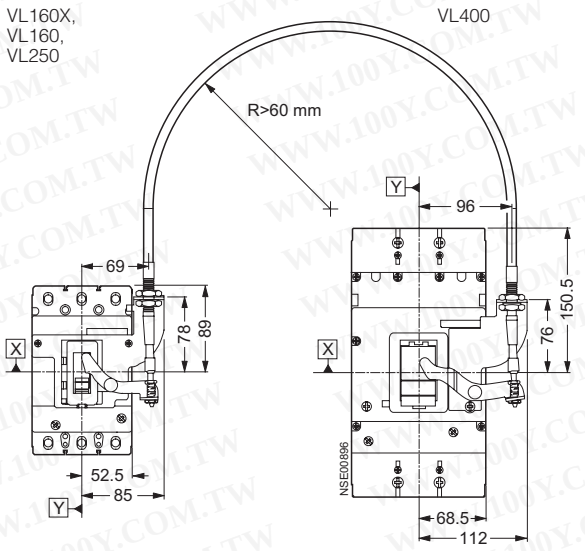


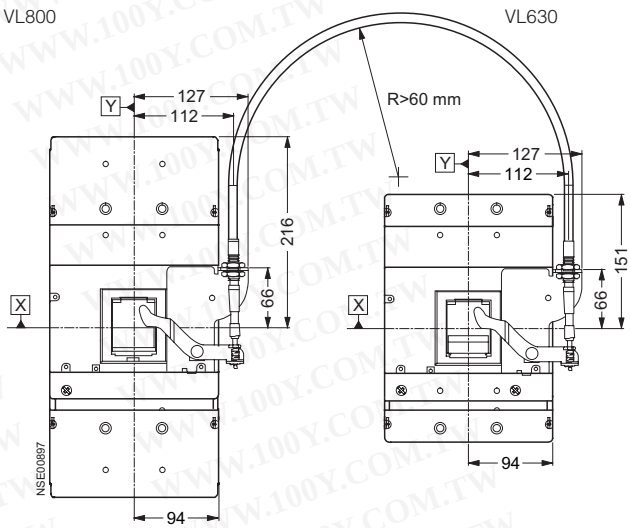
Current transformers for neutral conductors for ground-fault protection in 4-wire three-phase systems for SENTRON VL630/VL800 circuit-breakers



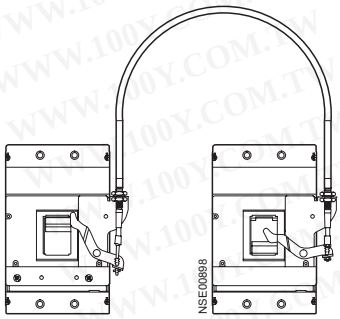
VL160X to VL800, 3- and 4-pole, up to 800 A

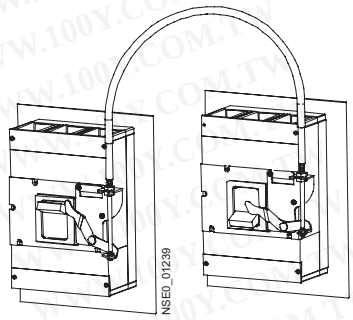
Interlock with Bowden wire

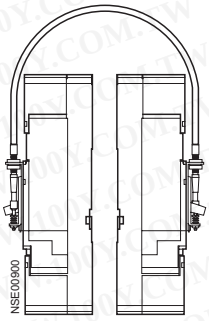




Combination options







	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			■	■

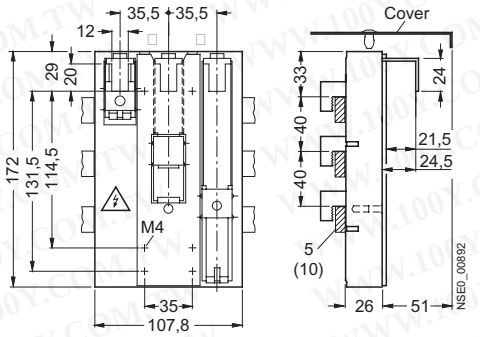
■ Combination possible

Project planning aids

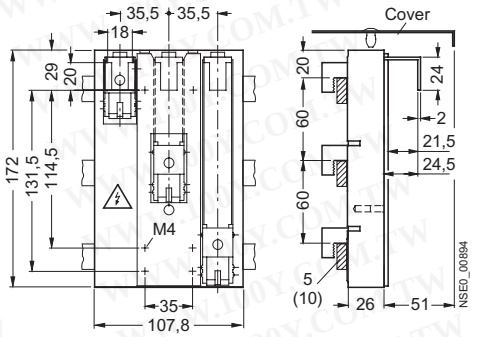
VL160X to VL400, 3- and 4-pole, up to 400 A

8US1 busbar adapter system

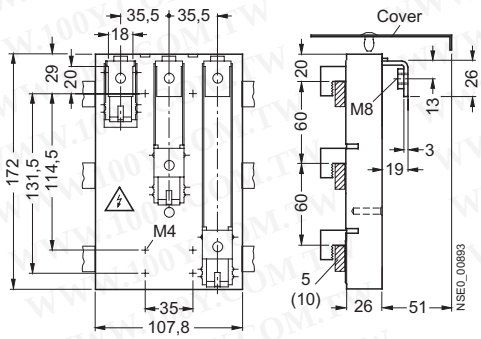
8US10 11-4SL01
(40 mm system)



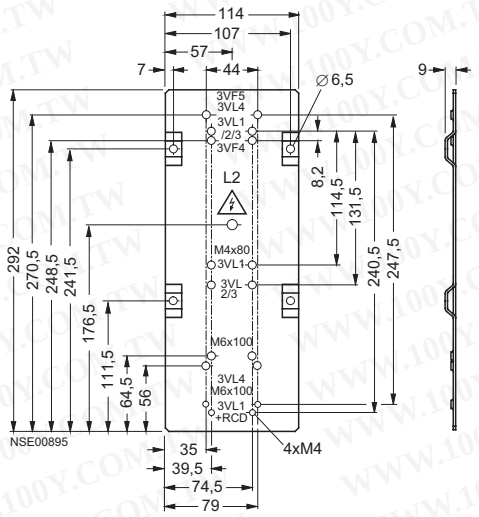
8US12 11-4SL01
(60 mm system)



8US12 11-4SL00
(60 mm system)



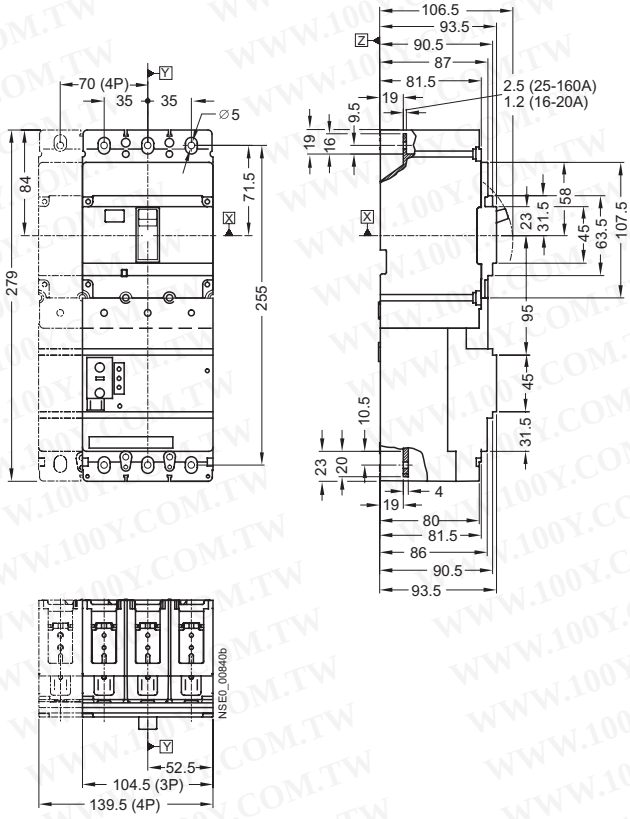
8US19 27-4AF01
(60 mm system)



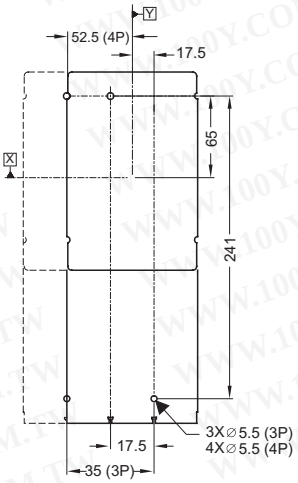
VL160X with RCD module, 3- and 4-pole, up to 160 A

Circuit-breakers

SENTRON VL160X circuit-breakers with RCD module



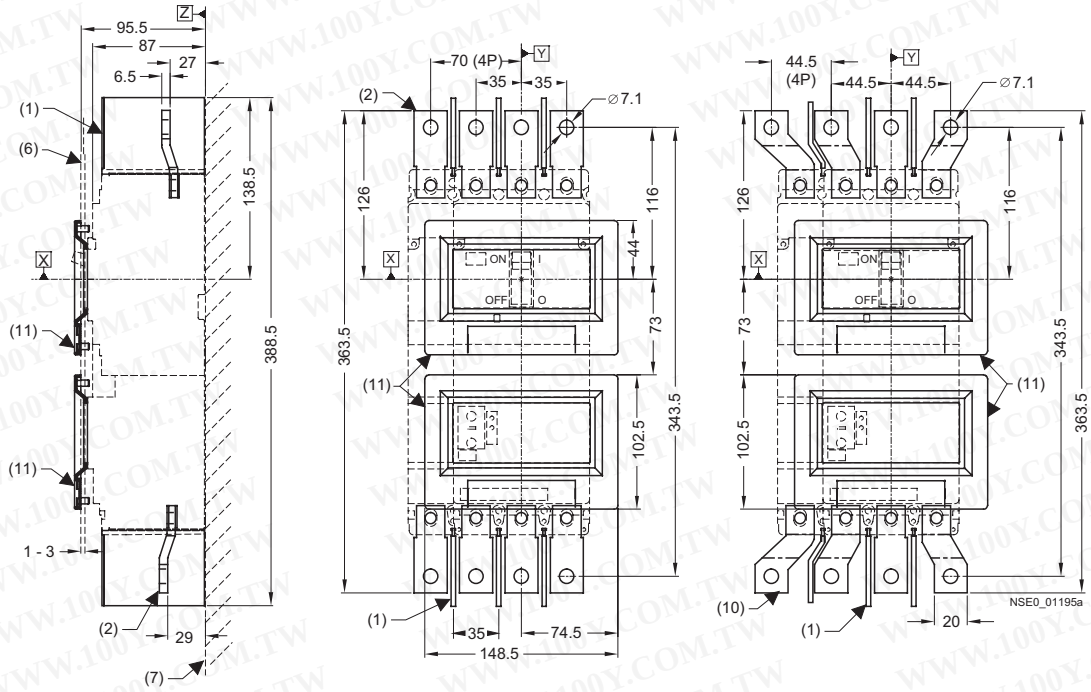
Circuit-breaker installation instructions

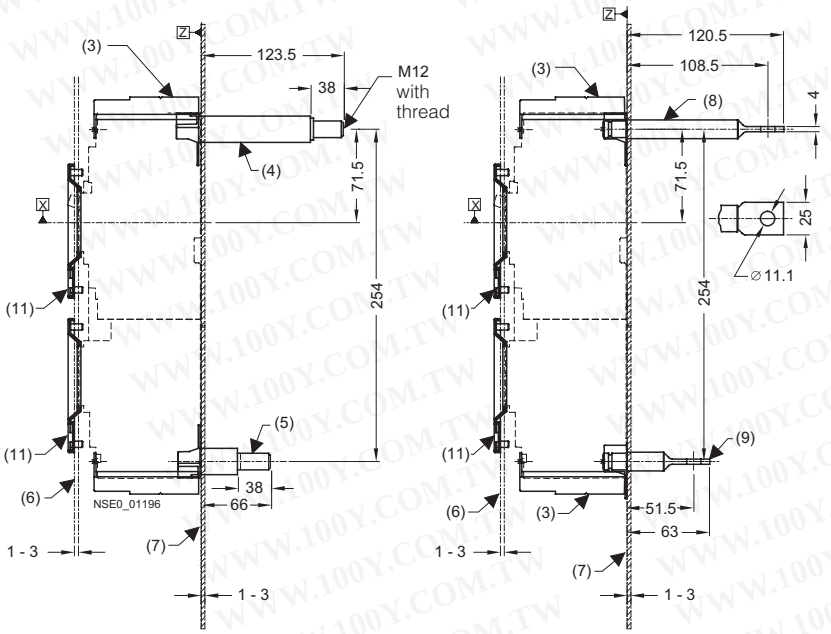


Project planning aids

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

Terminals and phase barriers

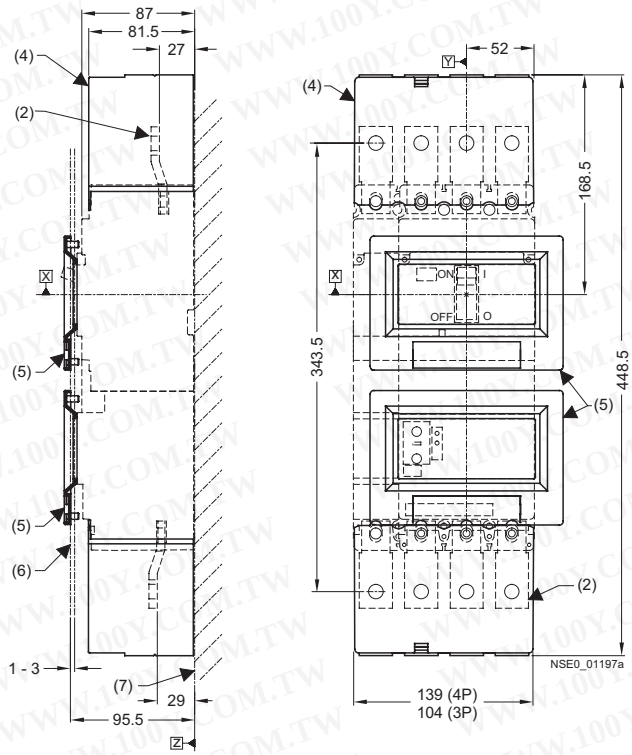


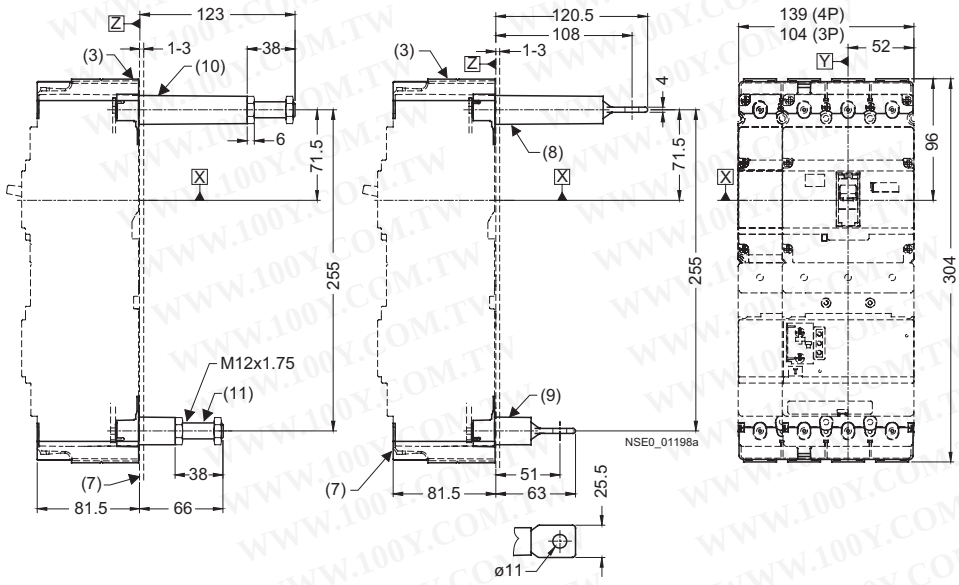


(1) Phase barrier
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Threaded rear terminals, round stock (long)
(5) Threaded rear terminals, round stock (short)
(6) Outside surface of cabinet door
(7) Installation level
(8) Rear flat connector, (long)
(9) Rear flat connector, (short)
(10) 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





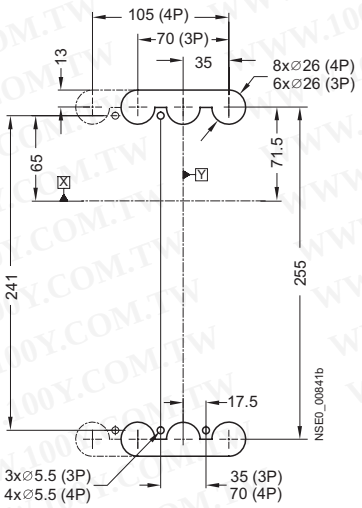
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Terminal covers (extended)
(5) Masking frame for door cut-out (for circuit-breaker with RCD module)
(6) Outside surface of cabinet door
(7) Installation level
(8) Rear terminal, long flat connector
(9) Rear terminal, short flat connector
(10)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

Project planning aids

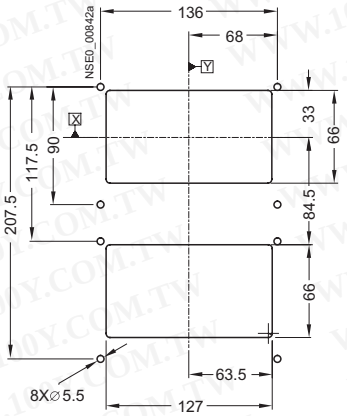
VL160X with RCD module, 3- and 4-pole, up to 160 A

Door cut-outs

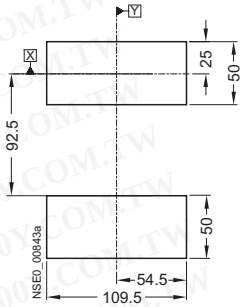
Hole pattern, cut-out for rear terminals

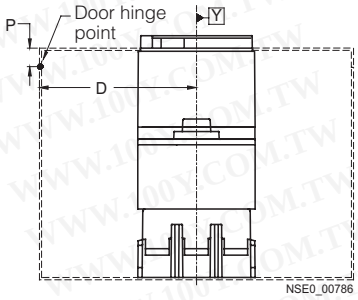


Door cut-out for toggle lever (with masking frame)



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



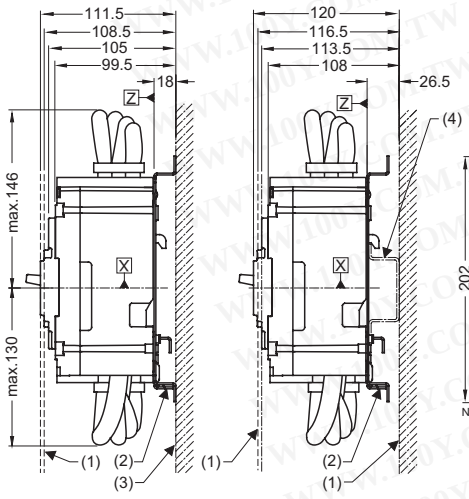


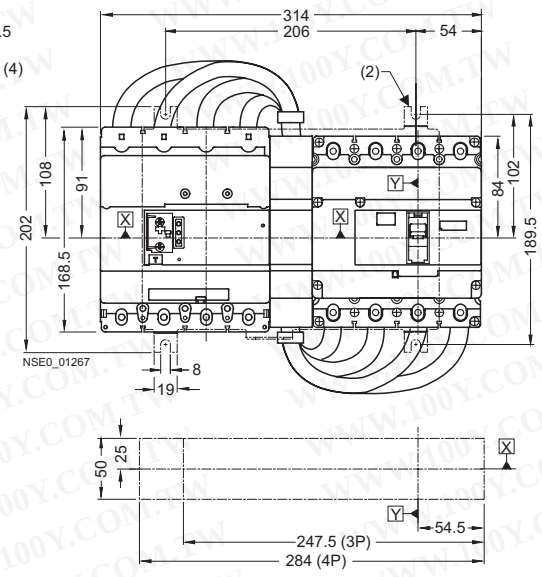
D > A from table + (P × 5)

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

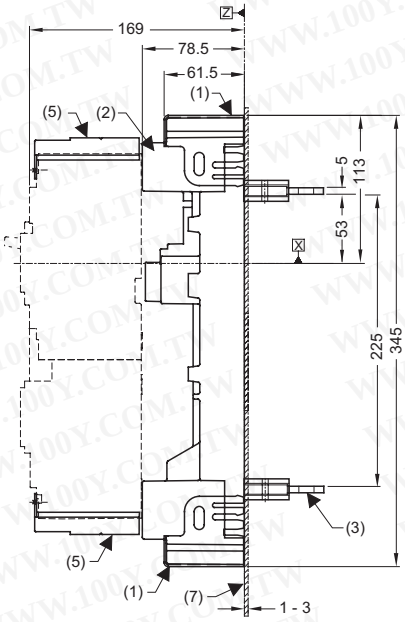


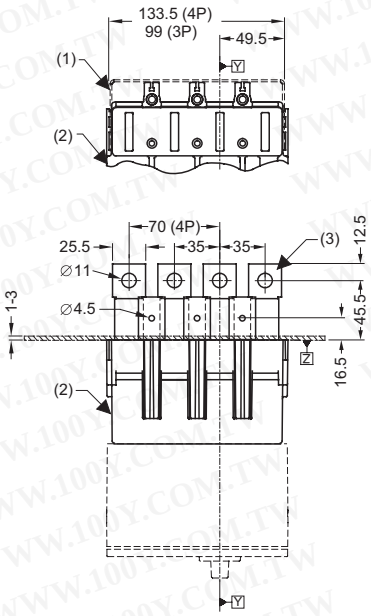


(1) Outside surface of cabinet door
(2) Mounting bracket
(3) Installation level
(4) 75 mm standard mounting rail to DIN 50023 (to be provided by customer)

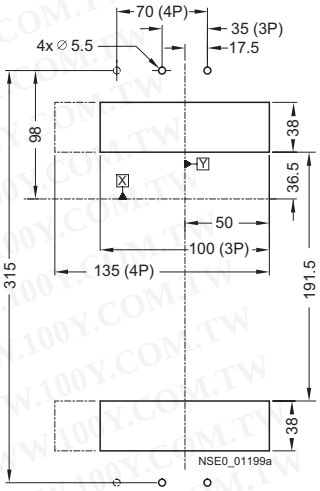
VL160X with RCD module, 3- and 4-pole, up to 160 A

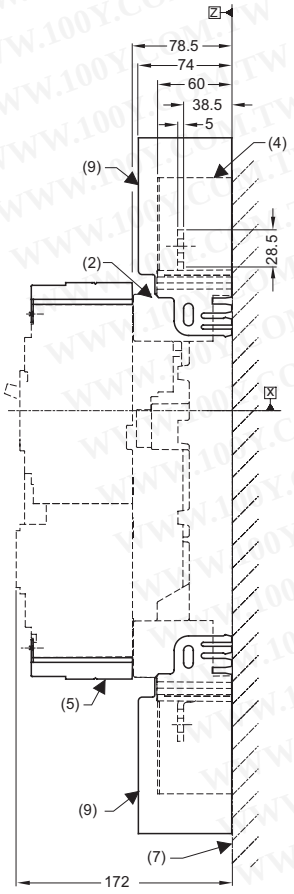
Plug-in base and accessories

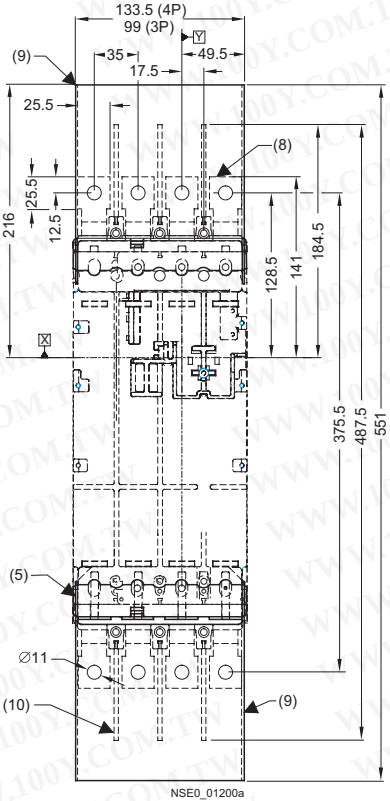




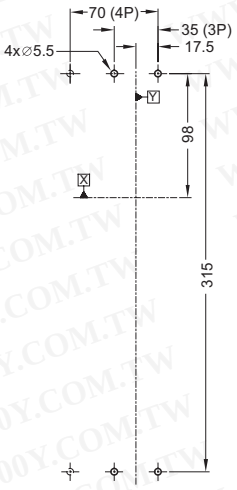
Hole pattern and cut-out for plug-in base with rear flat bar connection







Hole pattern for plug-in base with front connecting bars



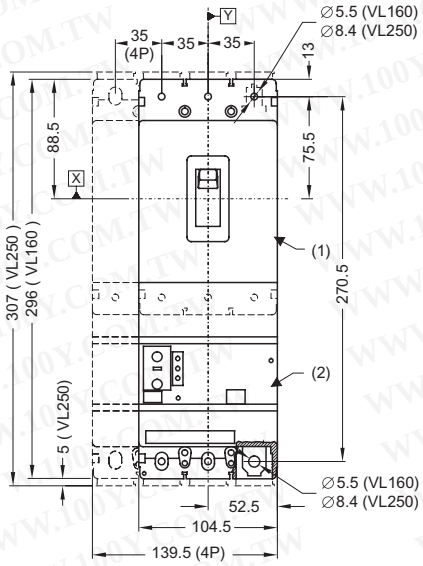
(1) Plug-in base with rear terminal covers
(2) Plug-in base for circuit-breaker with RCD module
(3) Plug-in base with rear flat bar connection
(4) Masking frame for door cut-out (for circuit-breaker with RCD module)
(5) Terminal cover (standard)
(6) Outside surface of cabinet door
(7) Installation level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

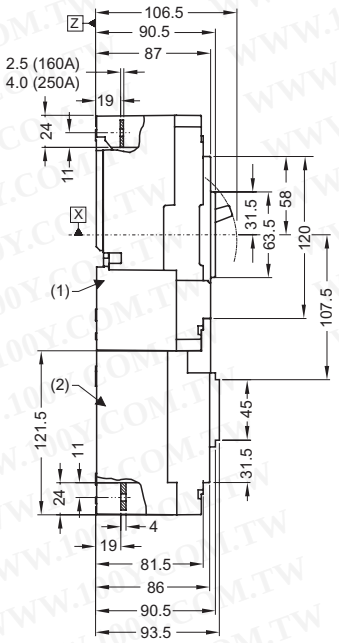
Project planning aids

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

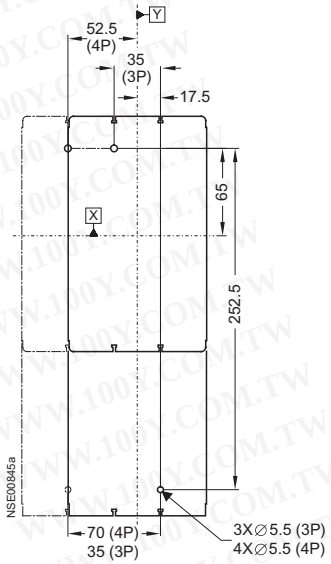
Circuit-breakers

SENTRON VL160 and VL250 circuit-breakers with RCD module





Circuit-breaker installation instructions

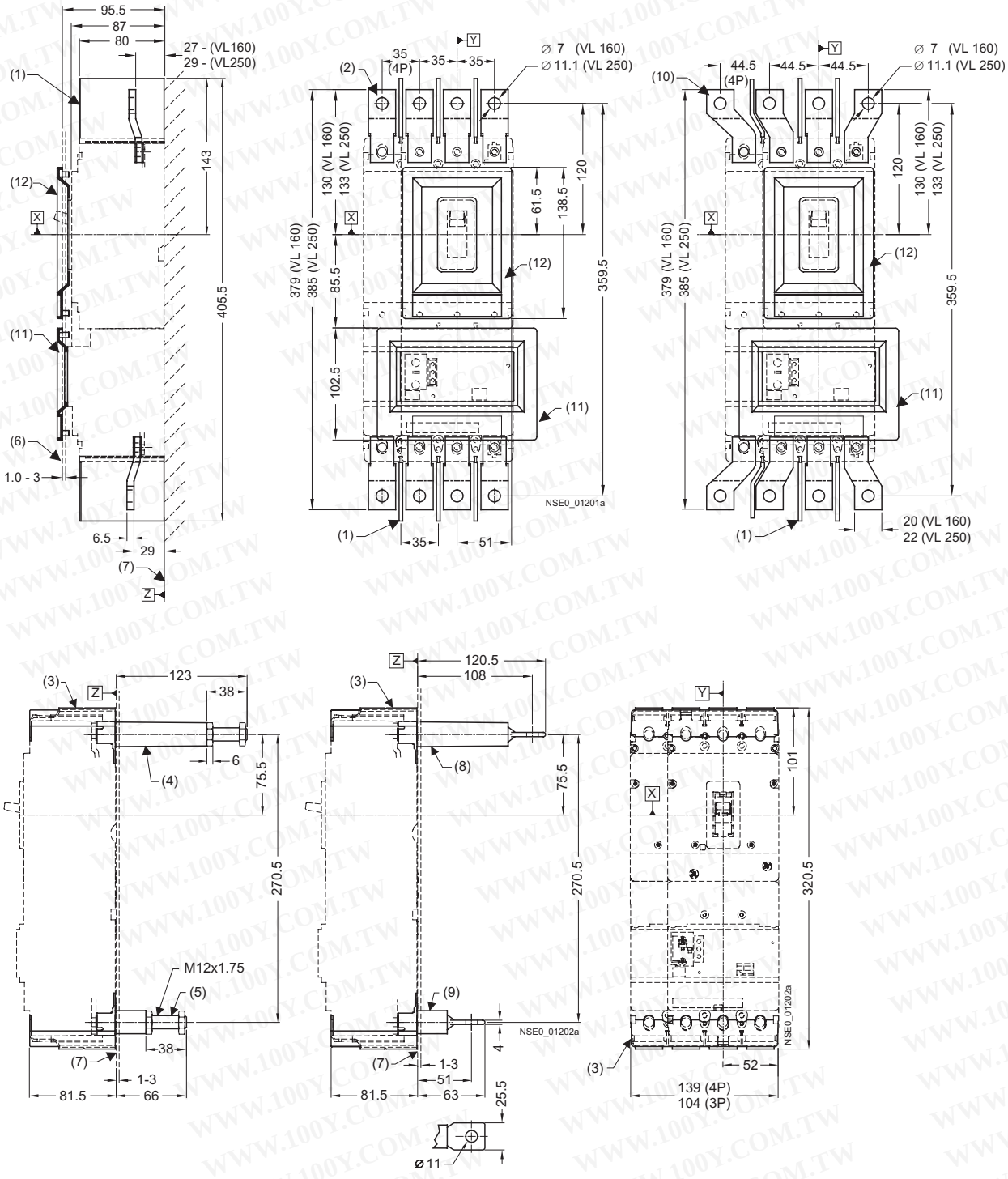


(1) Circuit-breaker
(2) RCD module

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

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

Terminals and phase barriers



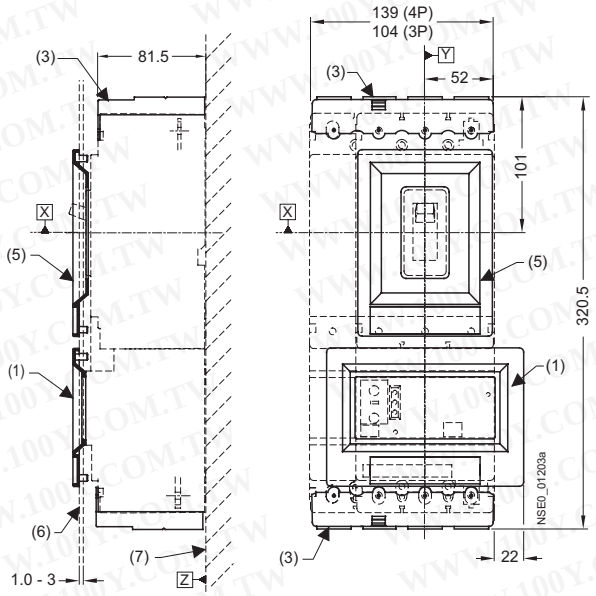
(1) Phase barrier
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Rear terminals (long)
(5) Rear terminals (short)
(6) Outside surface of cabinet door
(7) Installation level
(8) Rear flat connector (long)
(9) Rear flat connector (short)
(10) Flared front busbar connecting bars
(11) Masking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

Project planning aids

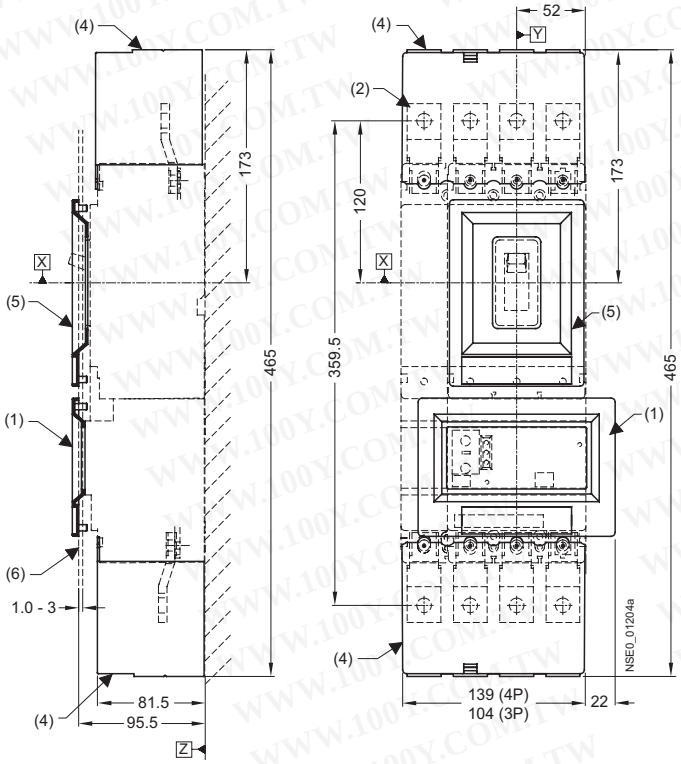
VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

Terminal covers

4



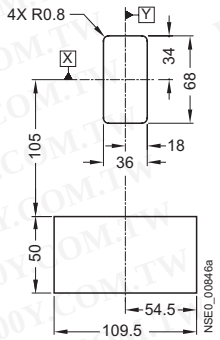
For dimensions of the lower masking frame, see bottom of Page 4/109.



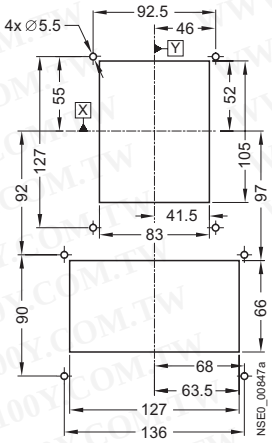
(1) Masking frame for door cut-out (for circuit-breaker with RCD module)
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Terminal covers (extended)
(5) Masking frame for door cut-out (for circuit-breaker with toggle lever)
(6) Outside surface of cabinet door
(7) Installation level

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

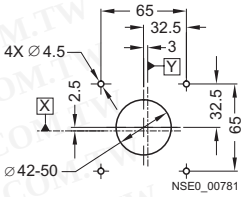
Door cut-out for toggle lever (without masking frame)



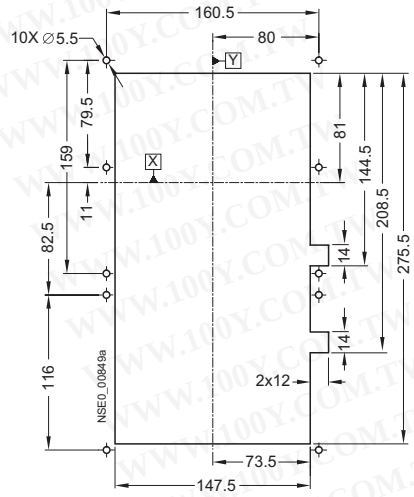
Door cut-out for toggle lever (with masking frame)



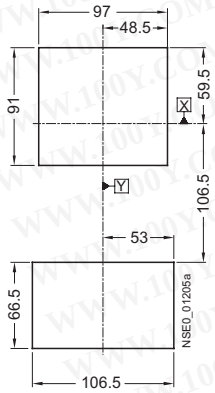
Door cut-out for door-coupling rotary operating mechanism



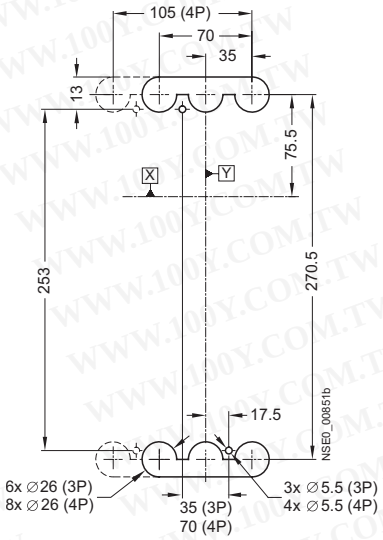
Door cut-out for front-operated rotary operating mechanism and motorized operating mechanism with spring energy store (with masking frame)

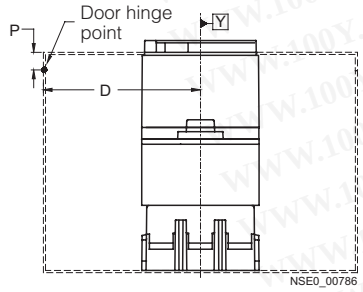


Door cut-out for front-operated rotary operating mechanism (without masking frame)



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.

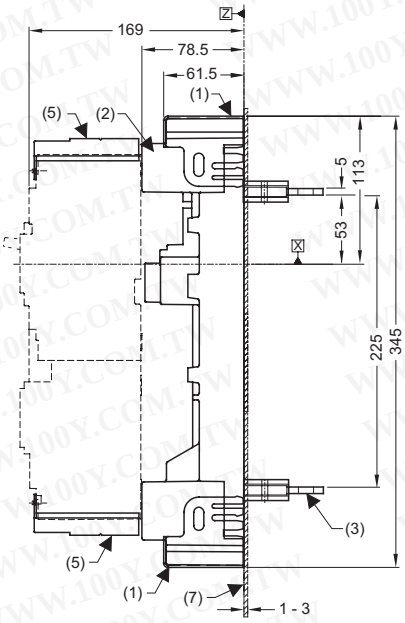
D > A from table + (P x 5)

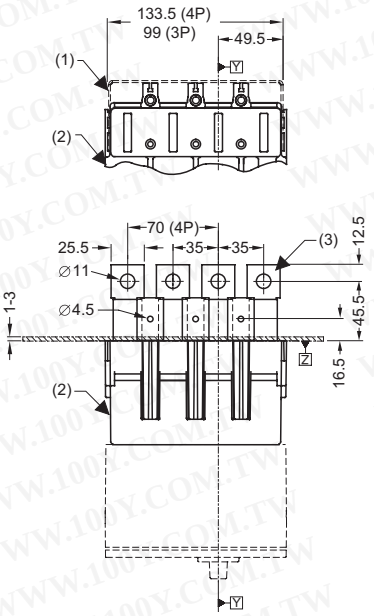
	A
Circuit-breaker only	100
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	100
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

Project planning aids

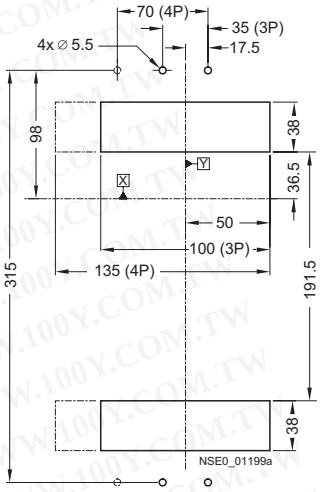
VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

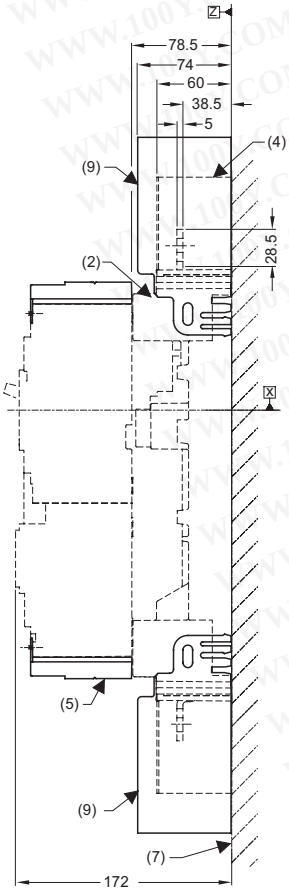
Plug-in bases and accessories

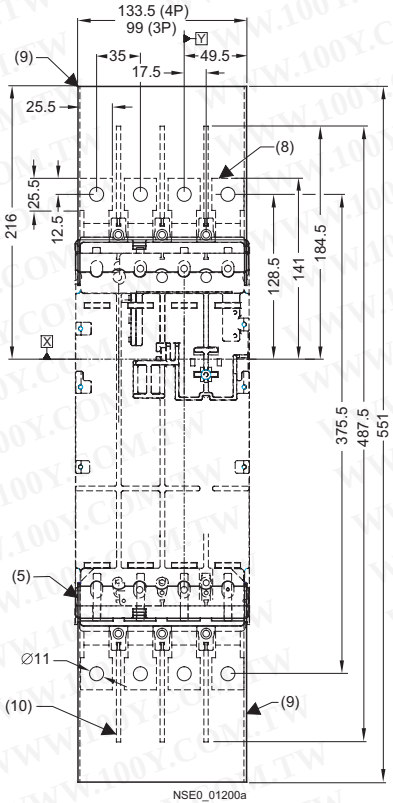




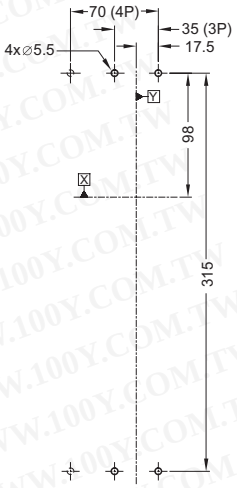
Hole pattern and cut-out for plug-in base with rear flat bar connection







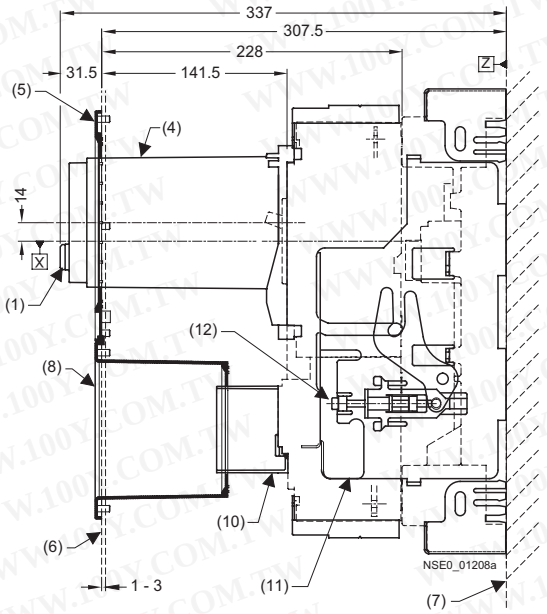
Hole pattern for plug-in base with front connecting bars



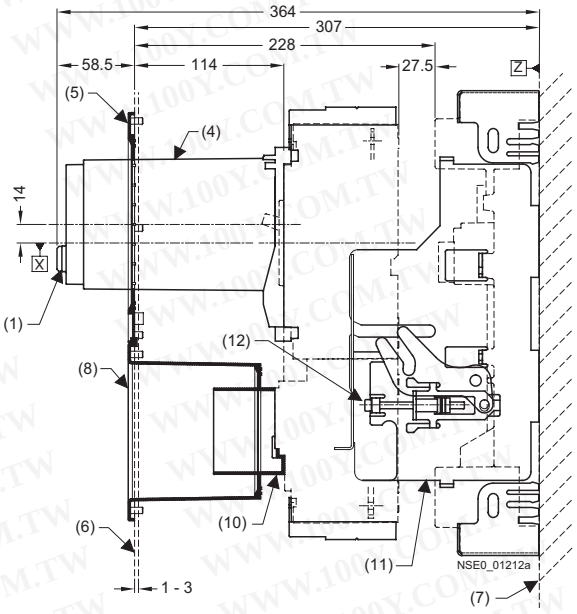
(1) Plug-in base with rear terminal covers
(2) Plug-in base for circuit-breaker with RCD module
(3) Plug-in base with rear flat bar connection
(4) Masking frame for door cut-out (for circuit-breaker with RCD module)
(5) Terminal cover (standard)
(6) Outside surface of cabinet door
(7) Installation level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

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

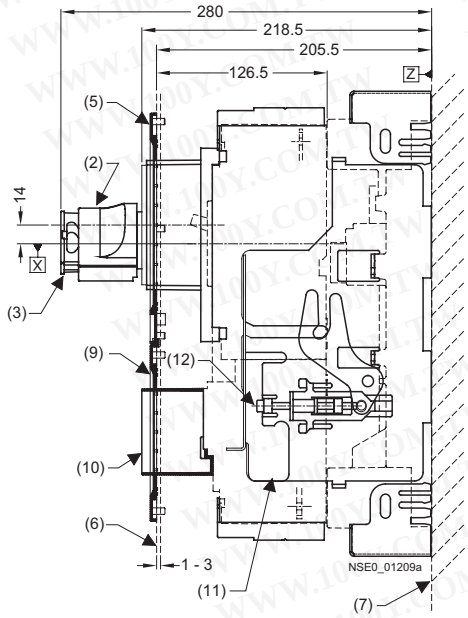
SENTRON VL160 and VL250 circuit-breakers with RCD module and motorized operating mechanism with spring energy store (connected position)



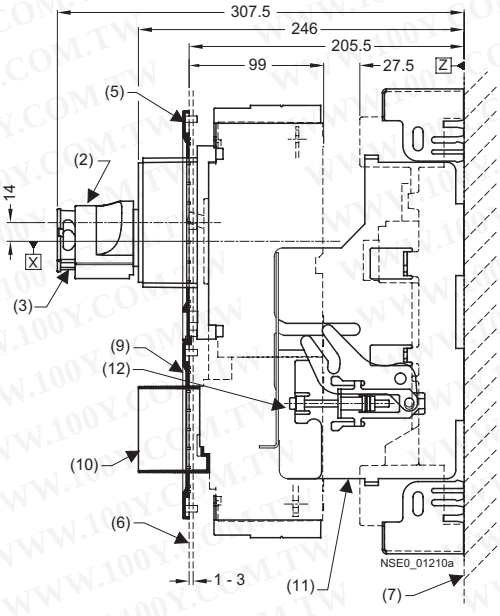
SENTRON VL160 and VL250 circuit-breakers with RCD module and motorized operating mechanism with spring energy store (disconnected position)



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 front-operated rotary operating mechanism (disconnected position)



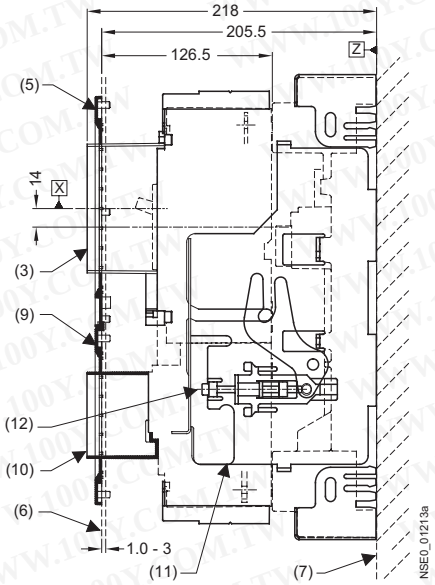
(1) Safety lock
(2) Front-operated rotary operating mechanism
(3) Padlock
(4) Motorized operating mechanism with energy store
(5) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(6) Outside surface of cabinet door
(7) Installation level
(8) Masking frame for door cut-out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

Project planning aids

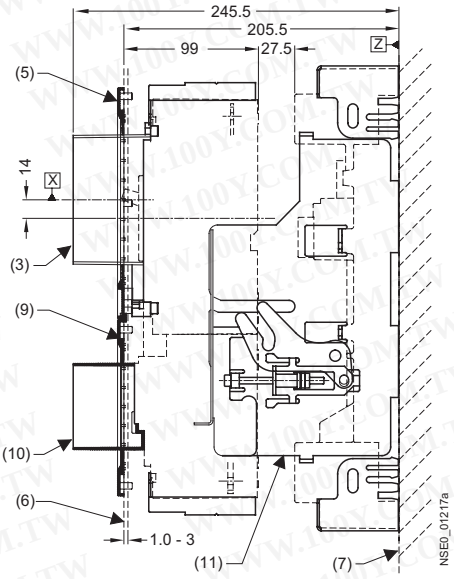
VL160 and VL250 with RCD module, 3- and 4-pole, up to 250 A

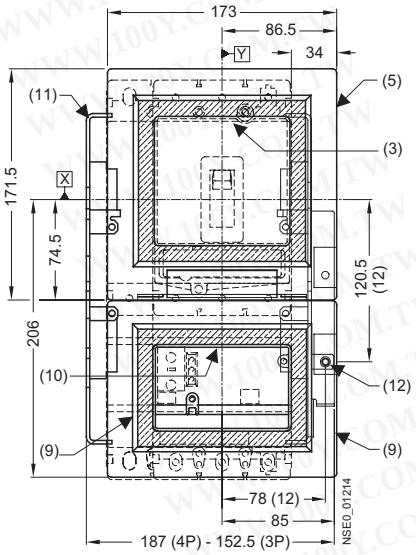
Plug-in bases and accessories

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

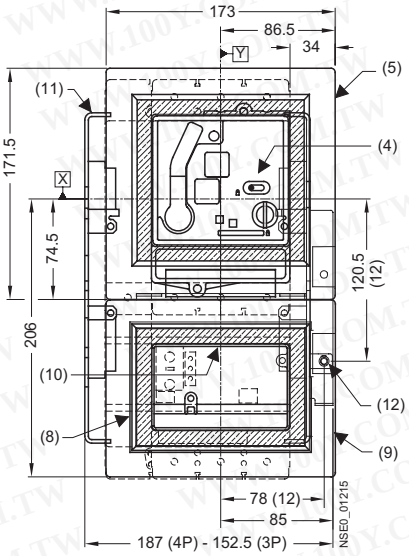


SENTRON VL160 and VL250 circuit-breakers with RCD module and extended escutcheon (disconnected position)

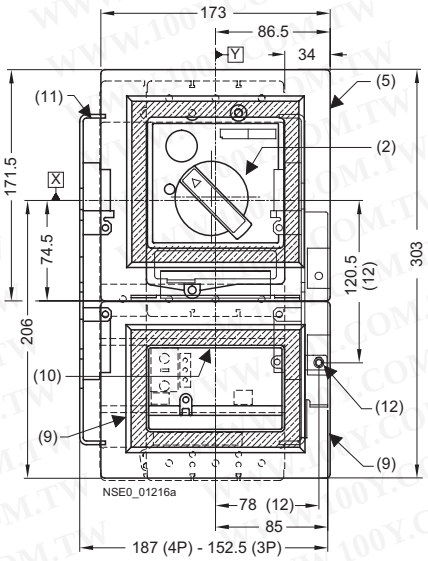




Withdrawable version



Withdrawable version



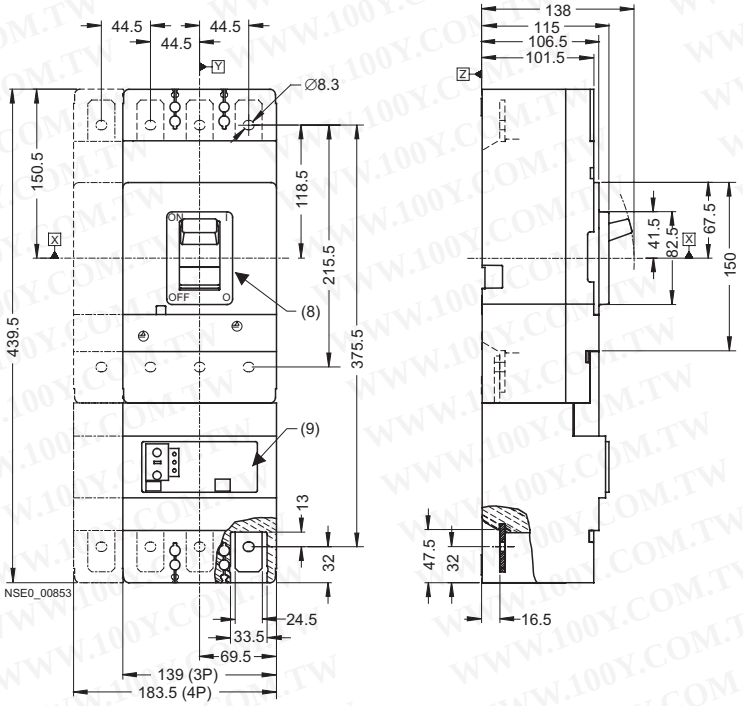
Withdrawable version

(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

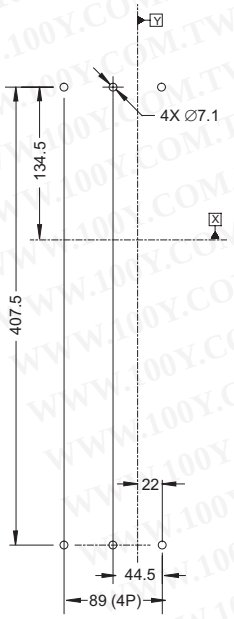
VL400 with RCD module, 3- and 4-pole, up to 400 A

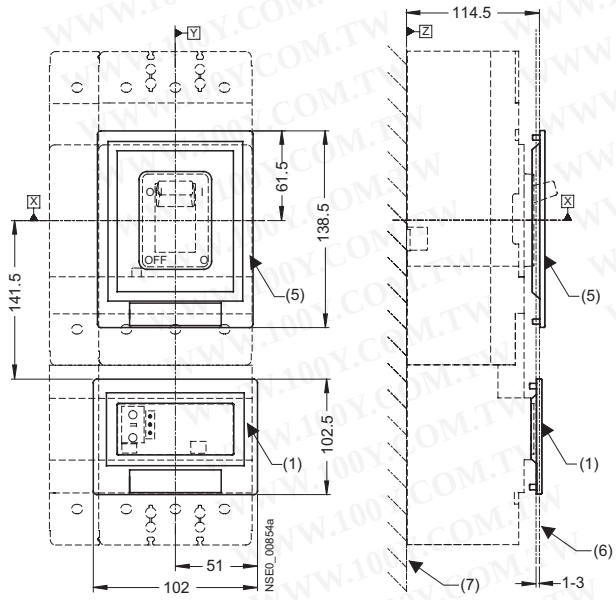
Circuit-breakers

SENTRON VL400 circuit-breakers with RCD module



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



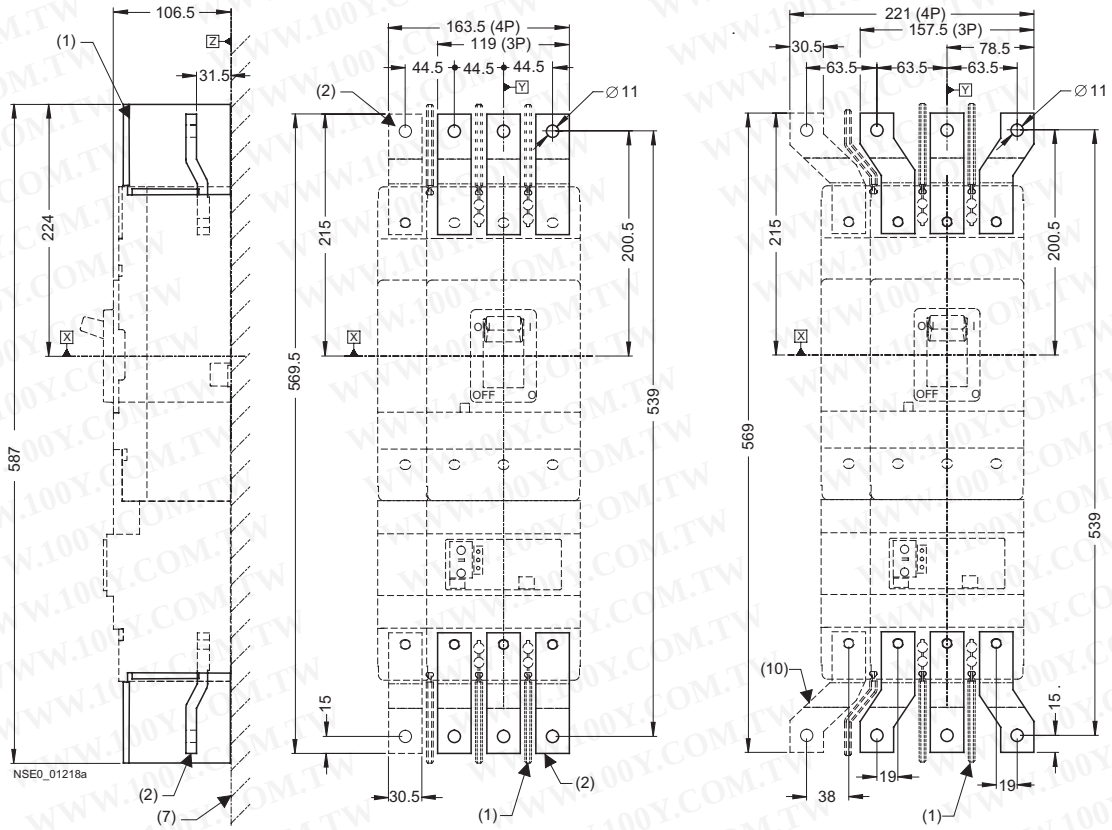


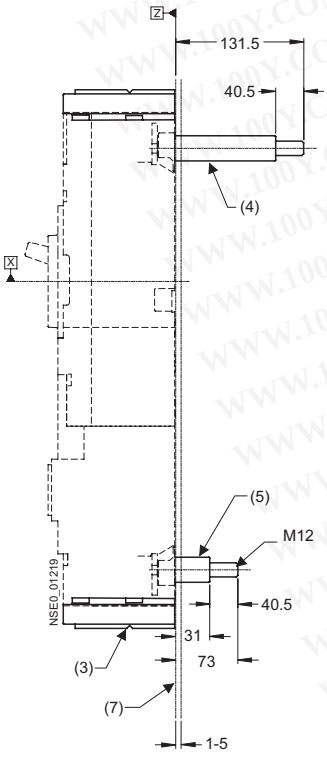
(1) Masking frame for door cut-out (for circuit-breaker with RCD module)
(5) Masking frame for door cut-out (for circuit-breaker with toggle lever)
(6) Outside surface of cabinet door
(7) Installation level
(8) Circuit-breaker
(9) RCD module

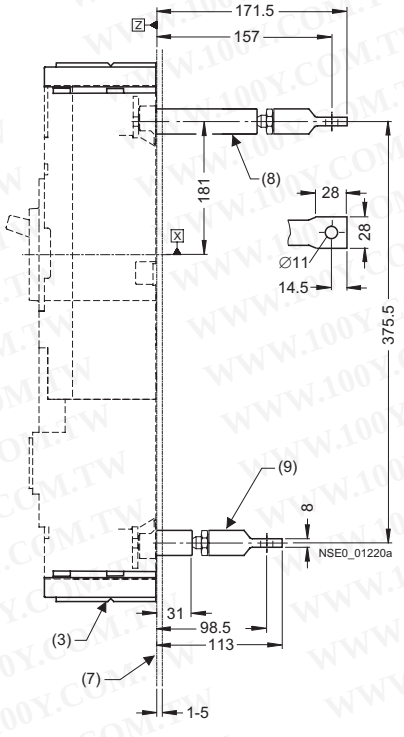
Project planning aids

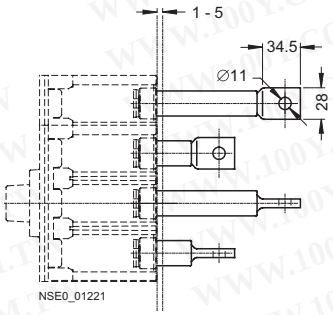
VL400 with RCD module, 3- and 4-pole, up to 630 A

Terminals and phase barriers





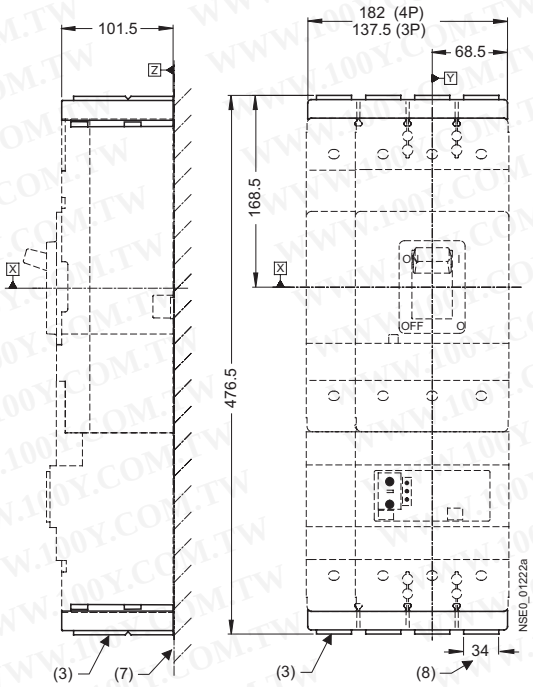


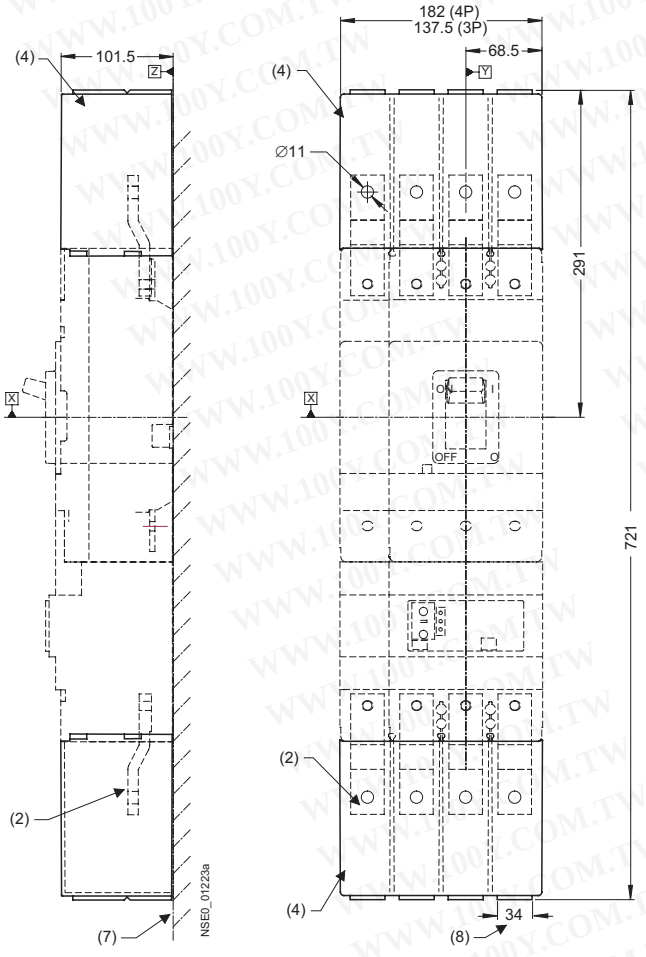


(1) Phase barrier
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Rear terminals (long)
(5) Rear terminals (short)
(7) Installation level
(8) Rear flat connector (long)
(9) Rear flat connector (short)
(10) Flared front busbar connecting bars

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

Terminal covers





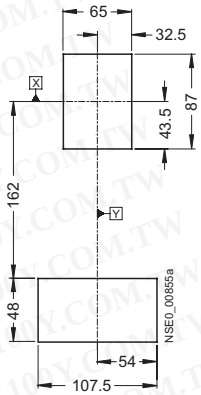
(2) Front connecting bars
(3) Terminal covers (standard)
(4) Terminal covers (extended)
(7) Installation level
(8) Cut-out

Project planning aids

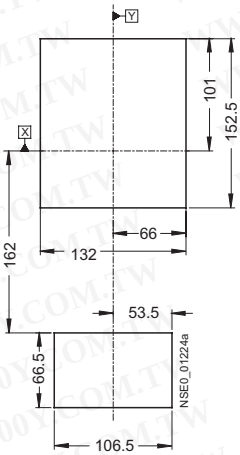
VL400 with RCD module, 3- and 4-pole, up to 400 A

Door cut-outs

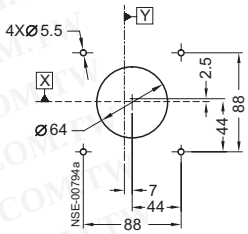
Door cut-out for toggle lever (with masking frame)



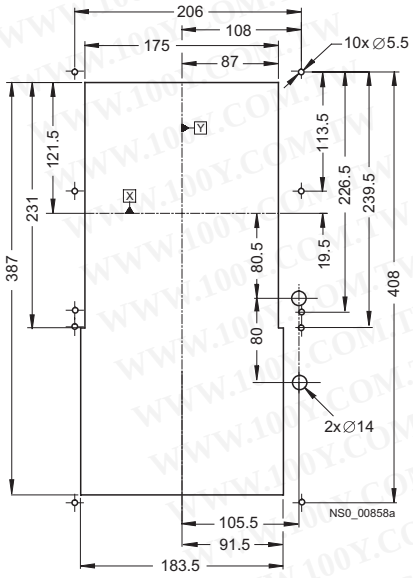
Door cut-out for front-operated rotary operating mechanism (without masking frame)



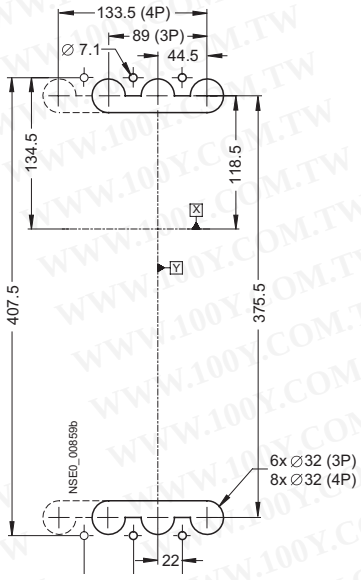
Door cut-out for door-coupling rotary operating mechanism



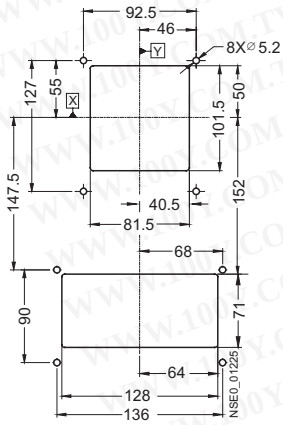
Door cut-out for front-operated rotary operating mechanism, motorized operating mechanism with spring energy store and extended escutcheon (with masking frame)

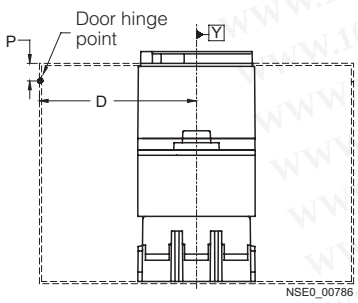


Hole pattern and cut-out for rear connecting studs



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





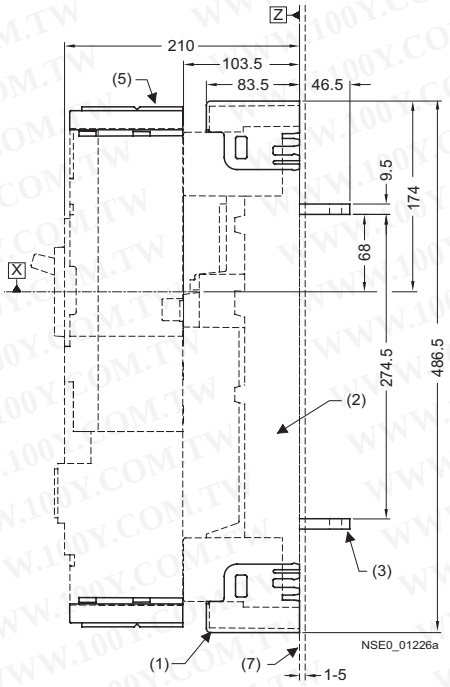
Note:
a minimum distance between reference point Y and the door hinge is required for the door cut-outs.

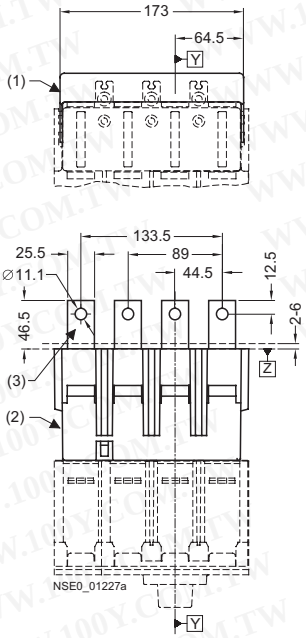
	A
Circuit-breaker only	150
Circuit-breaker + plug-in base + motorized operating mechanism with energy store	150
Circuit-breaker + plug-in base + front-operated rotary operating mechanism	200
Circuit-breaker + withdrawable version	200

D > A from table + (P × 5)

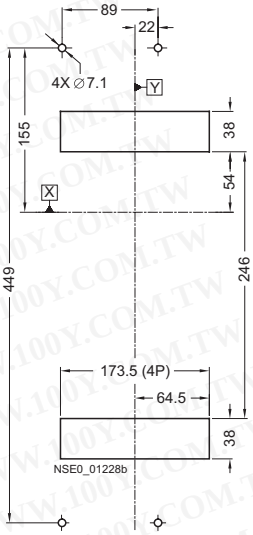
VL400 with RCD module, 3- and 4-pole, up to 400 A

Plug-in bases and accessories

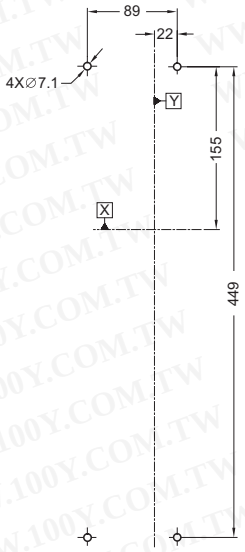


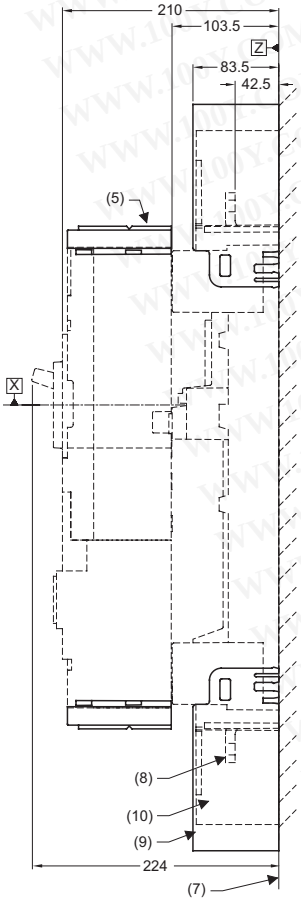


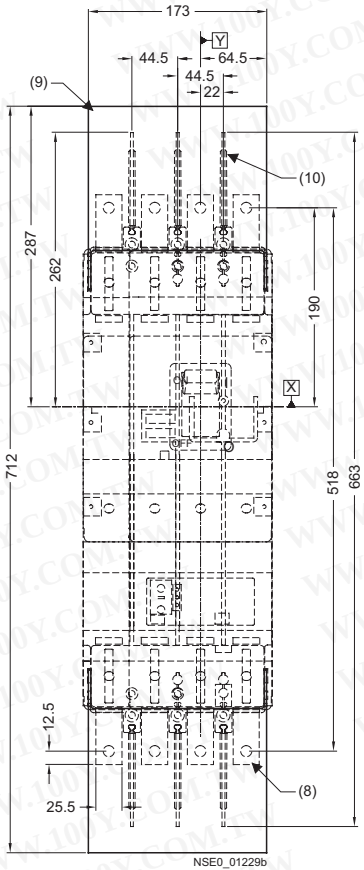
Hole pattern and cut-out for plug-in base, rear flat bar connection



Hole pattern for plug-in base for front connecting bars







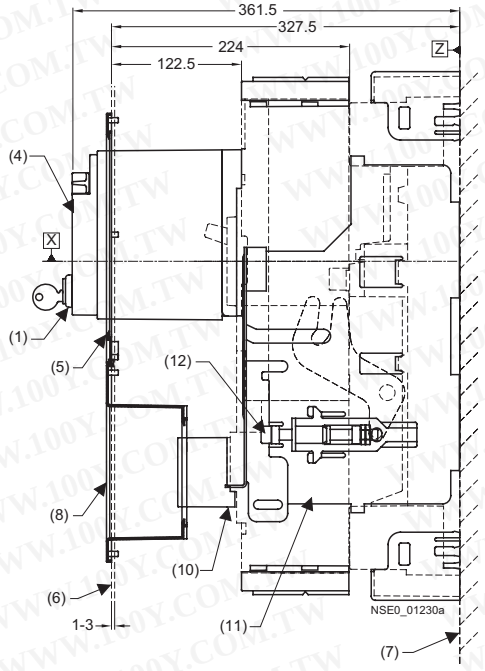
(1) Plug-in base with terminal covers
(2) Plug-in base
(3) Plug-in base with rear flat bar connection
(5) Terminal covers (standard)
(7) Installation level
(8) Plug-in base with front connecting bars
(9) Plug-in base with terminal covers on the front
(10) Phase barrier

Project planning aids

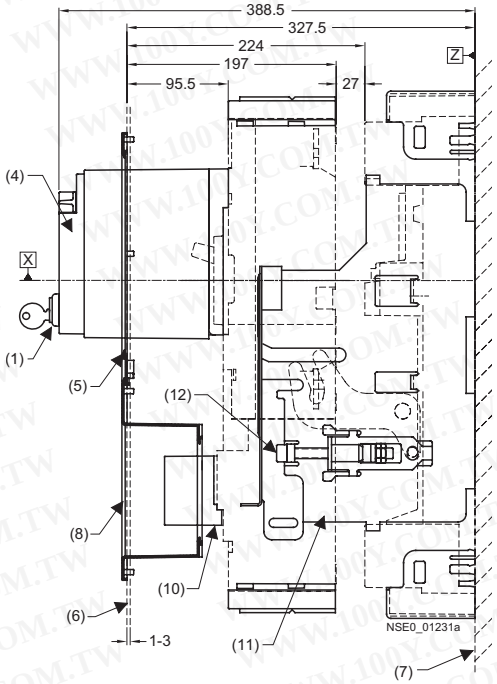
VL400 with RCD module, 3- and 4-pole, up to 400 A

Plug-in bases and accessories

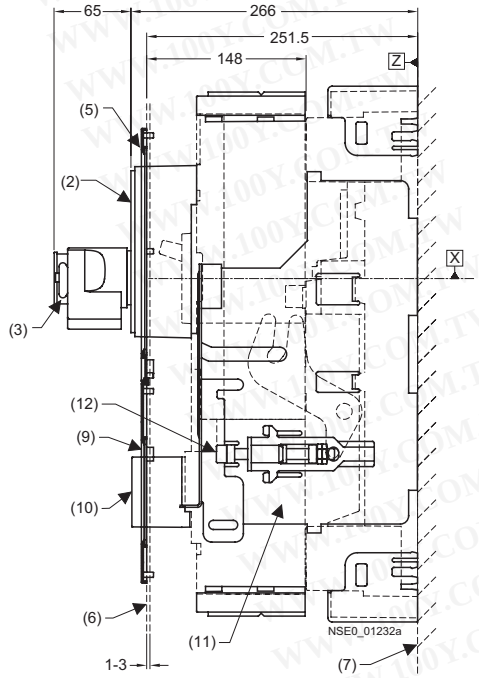
SENTRON VL400 circuit-breakers with RCD module, withdrawable, with motorized operating mechanism with spring energy store (connected position)



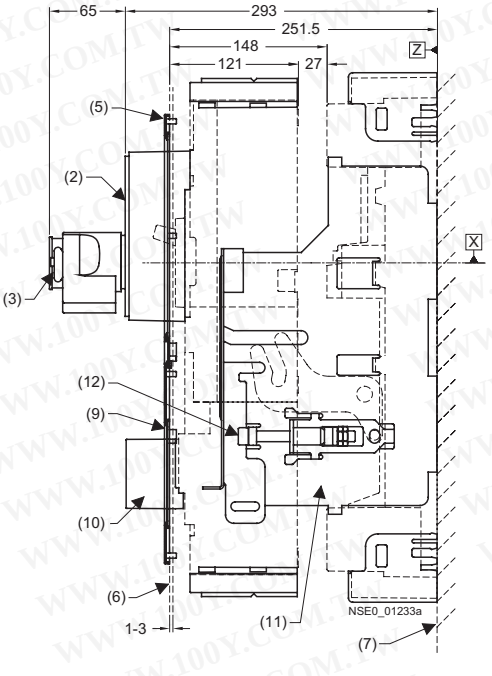
SENTRON VL400 circuit-breakers with RCD module, withdrawable, with motorized operating mechanism with spring energy store (disconnected position)



SENTRON VL400 circuit-breakers with RCD module, plug-in, with front-operated rotary operating mechanism (connected position)



SENTRON VL400 circuit-breakers with RCD module, plug-in, with front-operated rotary operating mechanism (disconnected position)

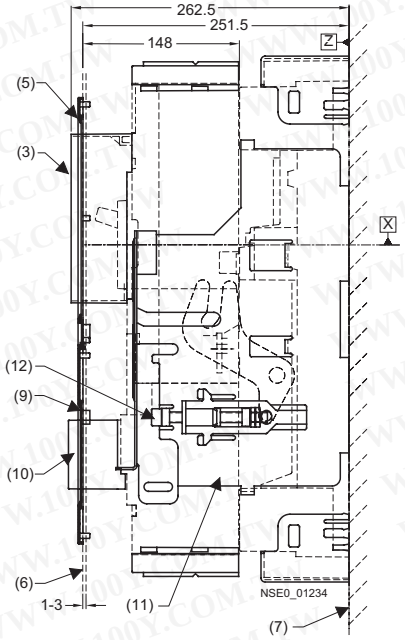


(1) Safety lock
(2) Front-operated rotary operating mechanism
(3) Padlock
(4) Motorized operating mechanism with spring energy store
(5) Masking frame for door cut-out (for circuit-breaker with operating mechanism)
(6) Outside surface of cabinet door
(7) Installation level
(8) Masking frame for door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

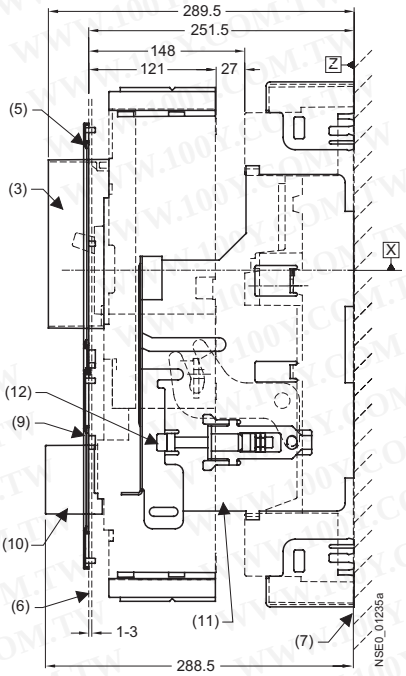
VL400 with RCD module, 3- and 4-pole, up to 400 A

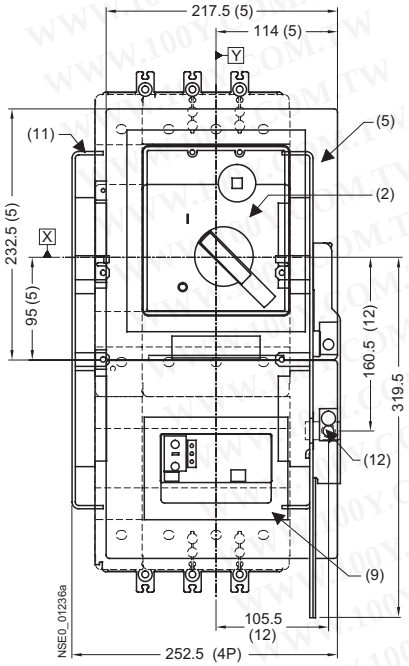
Plug-in bases and accessories

SENTRON VL400 circuit-breakers with RCD module, withdrawable, with extended escutcheon (connected position)



SENTRON VL400 circuit-breakers with RCD module, withdrawable, with extended escutcheon (disconnected position)





(1) Safety lock
(2) Front-operated rotary operating mechanism
(3) Circuit-breaker extended escutcheon
(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

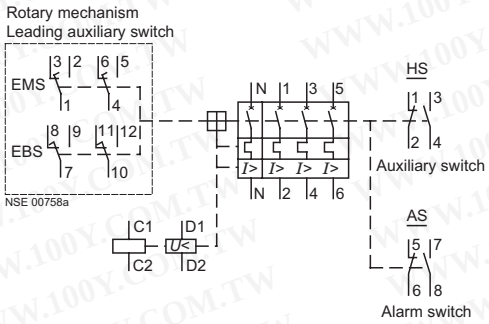
Project planning aids

Circuit diagrams

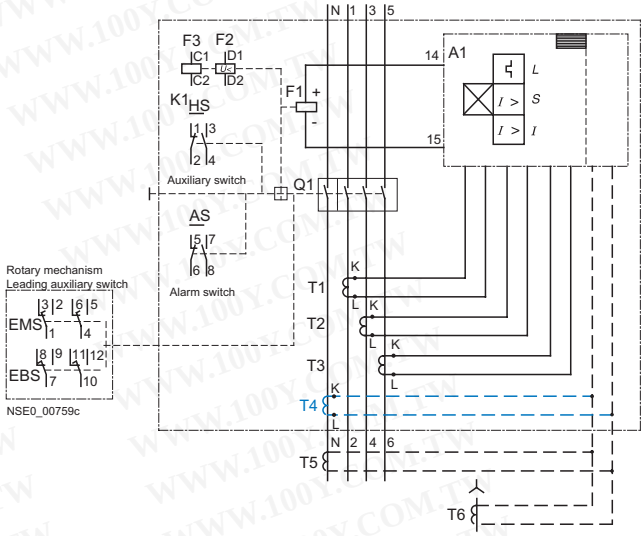
The graphical symbols used in the circuit diagrams provide information about the type, circuit and method of operation of the equipment in accordance with DIN 40713, but contain no information about the design.

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.

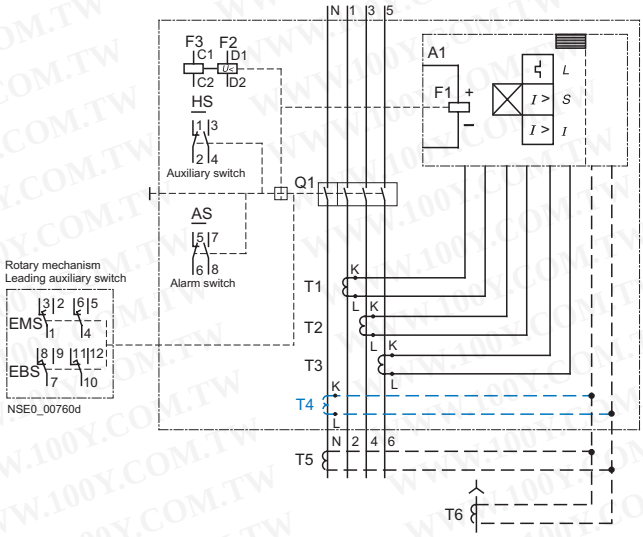


Connection diagram for SENTRON VL160X to VL630, 3 and 4-pole circuit-breakers for system protection with thermal-magnetic overcurrent trip units

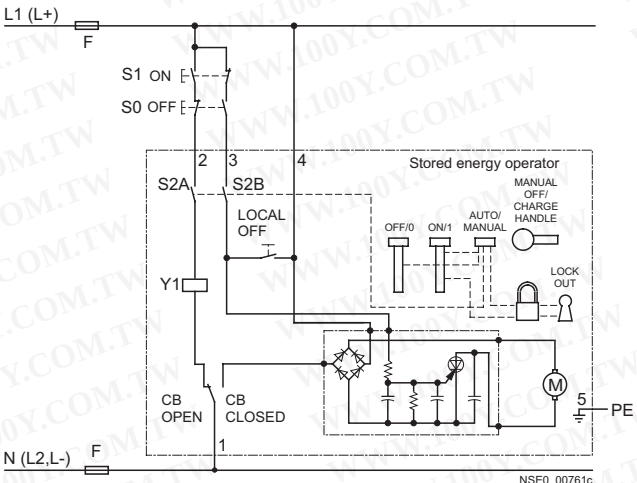


Internal circuit diagram for SENTRON VL160 and VL250, 3 and 4-pole circuit-breakers for system protection and motor protection with electronic overcurrent trip units

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

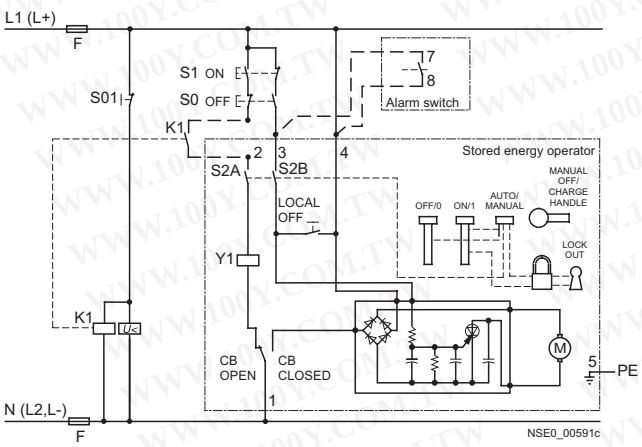


Internal circuit diagram for SENTRON VL400 circuit-breaker for motor protection and SENTRON VL400 to VL1600, 3- and 4-pole circuit-breakers for system protection with electronic overcurrent trip units



S0	OFF (to be supplied by customer)
S1	ON (to be supplied by customer)
S2	Selector switch auto/manual
S4	Interlocking switch
Y1	Closing solenoid
F	Fuse in control circuit
S01	Remote control (to be supplied by customer)
K1	Auxiliary contactor (to be supplied by customer)

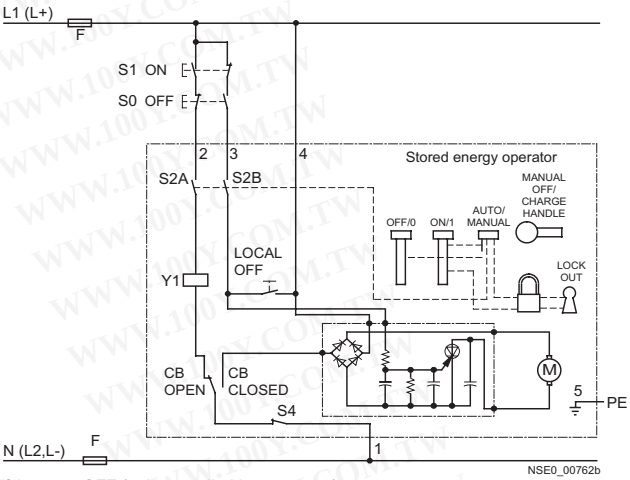
Motorized operating mechanism with spring energy store for SENTRON VL160X to VL250 circuit-breakers without undervoltage release



S0	OFF (to be supplied by customer)
S1	ON (to be supplied by customer)
S2	Selector switch auto/manual
Y1	Closing solenoid
F	Fuse in control circuit
S01	Remote control (to be supplied by customer)
K1	Auxiliary contactor (to be supplied by customer)

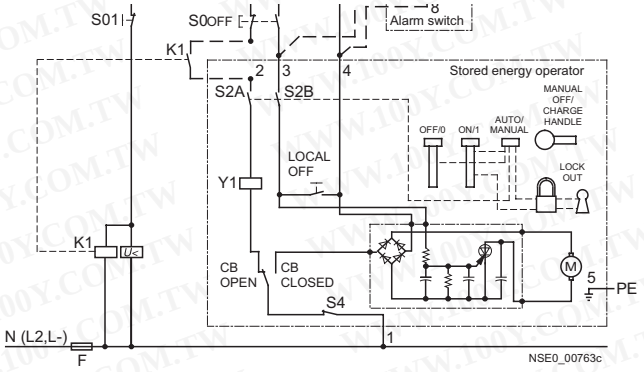
Note: a separate alarm switch (7-8) can be incorporated for automatic charging after a release.
Automatic closing of a tripped circuit-breaker is not recommended, in order to prevent a switch of the circuit-breaker to a fault in the protected circuit.

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



S0	OFF (to be supplied by customer)
S1	ON (to be supplied by customer)
S2	Selector switch auto/manual
S4	Interlocking switch
Y1	Closing solenoid
F	Fuse in control circuit
S01	Remote control (to be supplied by customer)
K1	Auxiliary contactor (to be supplied by customer)

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

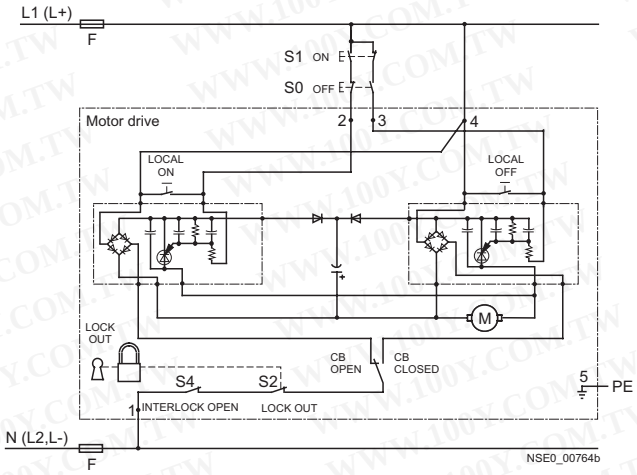


S0	OFF (to be supplied by customer)
S1	ON (to be supplied by customer)
S2	Selector switch auto/manual
S4	Interlocking switch
Y1	Closing solenoid
F	Fuse in control circuit
S01	Remote control (to be supplied by customer)
K1	Auxiliary contactor (to be supplied by customer)

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.

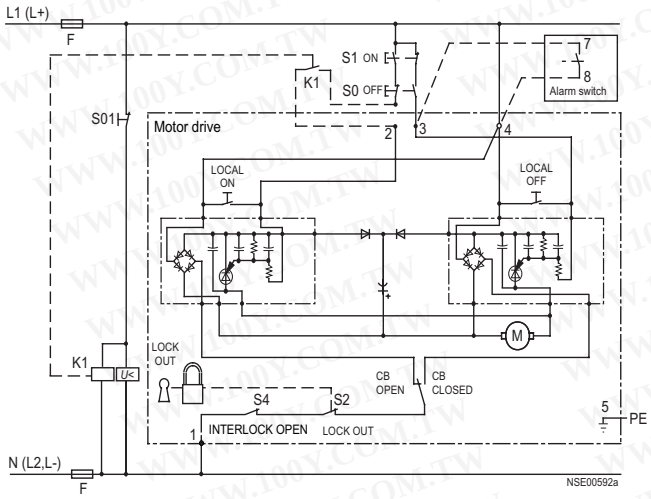
Motorized operating mechanism with spring energy store for SENTRON VL400 to VL800 circuit-breakers with undervoltage release

Project planning aids



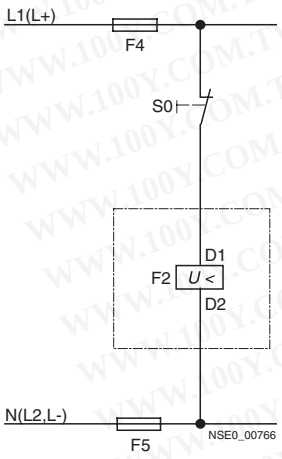
S0 OFF (to be supplied by customer)
S1 ON (to be supplied by customer)
S2 Lock-out
S4 Interlock open
F Fuse in control circuit
S01 Remote control
K1 Auxiliary contactor

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

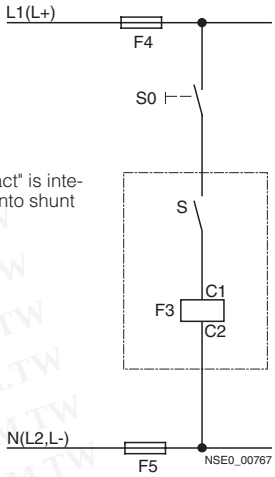


Note: a separate alarm switch (7-8) can be incorporated for automatic charging after a release.
Automatic closing of a tripped circuit-breaker is not recommended, in order to prevent a switch of the circuit-breaker to a fault in the protected circuit.

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

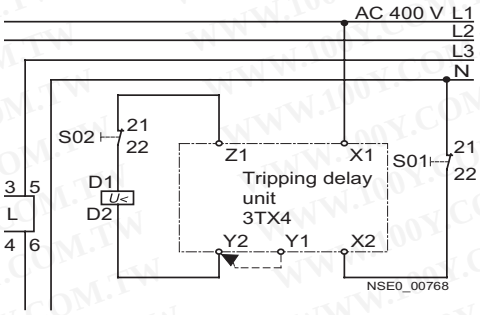


UNDERVOLTAGE RELEASE



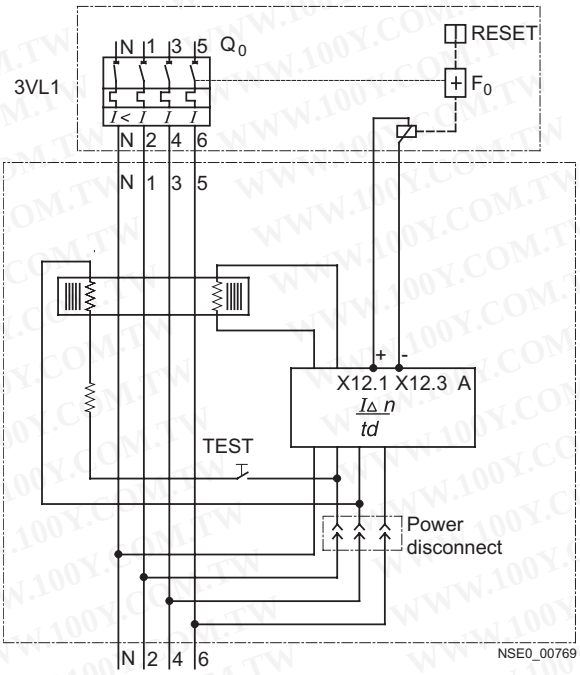
SHUNT RELEASE

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



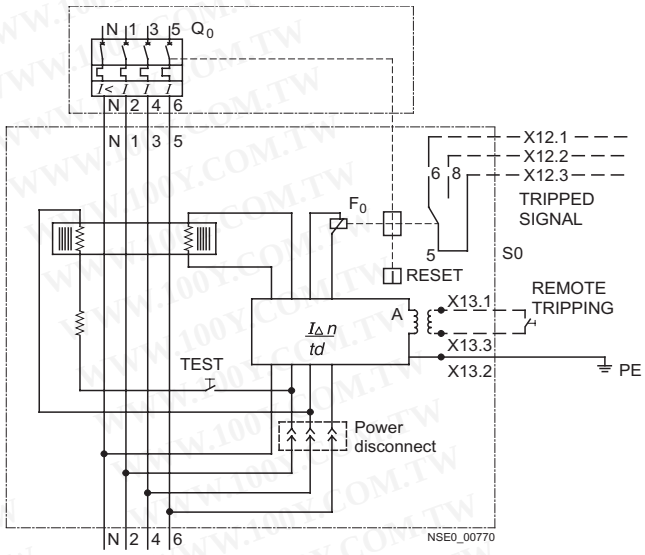
S01 Delayed tripping
S02 Instantaneous tripping for EMERGENCY-STOP circuit (if required)

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



Q_0 Circuit-breaker
A Solid-state evaluation unit
F_0 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.



Q_0 Circuit-breaker
A Solid-state evaluation unit
F_0 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

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 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

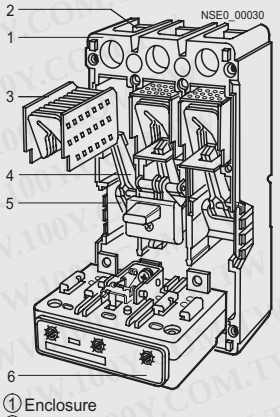
The basic versions of the 3VF circuit-breakers are equipped with a toggle lever as an operating mechanism (see figure "Toggle lever" ①), which is also used as a switch position indicator. In addition to the "ON" and "OFF" positions, the "Tripped" position is also possible.

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.

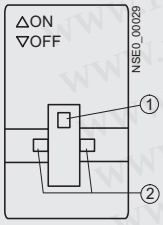
Overcurrent trip system

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



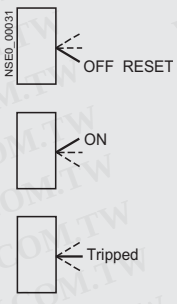
① Enclosure
② Main circuit connections
③ Arc chute
④ Moving contacts
⑤ Breaker mechanism
⑥ Electronic overcurrent trip unit module

3VF5 circuit-breaker, internal construction



① Toggle lever
② Window for operating state

Toggle lever



Positions of toggle lever

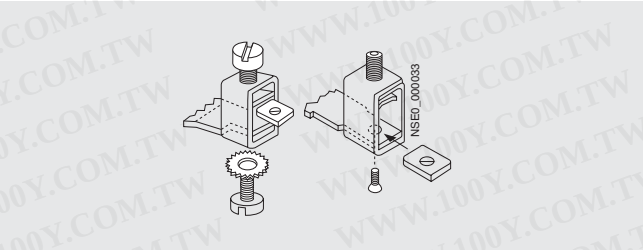
Connection

(See also Accessories, Page 4/182)

The basic circuit-breakers are supplied as follows:

With box terminals

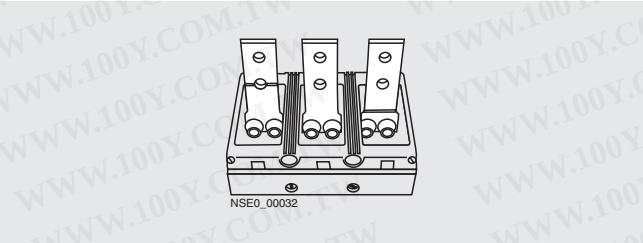
3VF2 to 3VF5 circuit-breakers for the direct connection of stranded or finely-stranded conductors with end sleeves (see figure "Box terminals for 3VF3 and 3VF4" and Technical data).



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

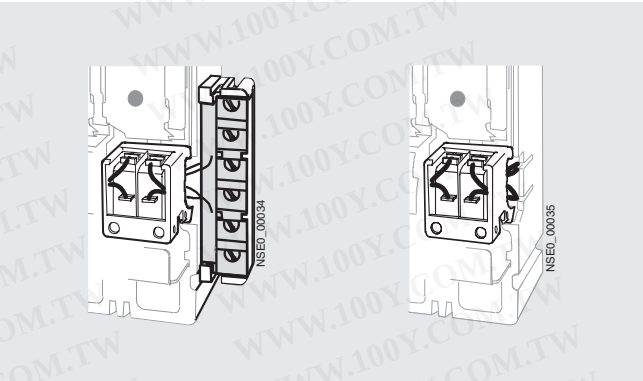
Two types of connection are possible for internally-fitted accessories (auxiliary releases, auxiliary switches) (see figure "Auxiliary release and auxiliary switch"):

- 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)

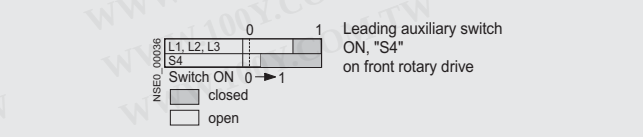
Front-operated rotary operating mechanisms (figure "Front-operated rotary operating mechanism for 3VF3")

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.

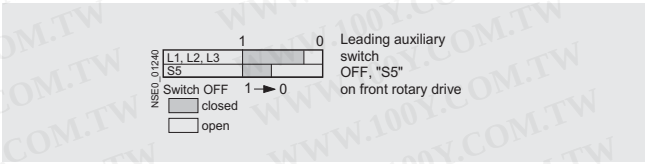


Leading auxiliary switch after ON "S4" in front-operated rotary operating mechanism

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.

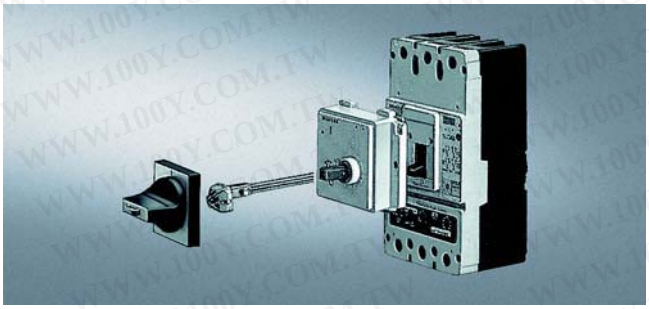


Leading auxiliary switch after OFF "S5" in front-operated rotary operating mechanism

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.

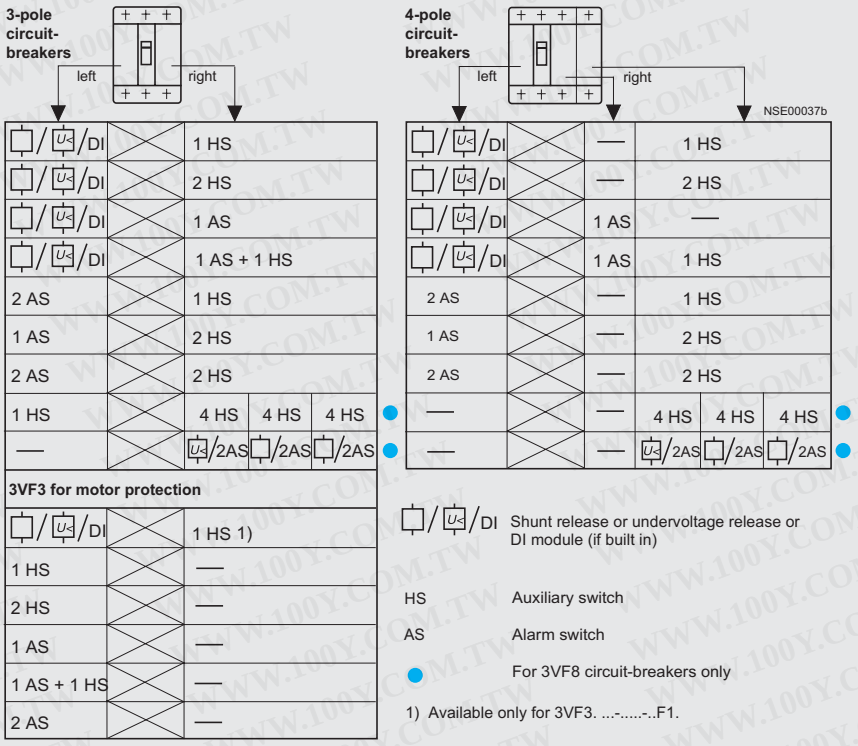
It is not permissible to apply a continuous trip command to a shunt release to prevent closing when the circuit-breaker is tripped, i.e. interlocking circuits with a continuous command must not be designed to operate a shunt release.

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.



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
OFF (RESET)	3(6) 1(4) 2(5)	3 1 2	12(22) 14(24) 11(21)	16(26) 18(28) 15(25)	67 77 68 78	63 73 64 74
ON	3(6) 1(4) 2(5)	3 1 2	12(22) 14(24) 11(21)	16(26) 18(28) 15(25)	67 77 68 78	63 73 64 74
Tripped	3(6) 1(4) 2(5)	3 1 2	12(22) 14(24) 11(21)	16(26) 18(28) 15(25)	67 77 68 78	63 73 64 74

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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.

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).

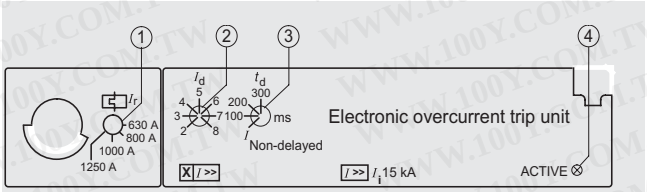
General data

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.



① Current setting I_r
② Operating current I_d
③ Delay time t_d
④ LED flashes:
Fault-free operation of electronic overcurrent trip unit;
LED steady light:
Overload state

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 ± 15% for 3VF5,
- 5.5 kA ± 15% for 3VF5,
- 15 kA ± 15% for 3VF7 and
- 20 kA ± 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.

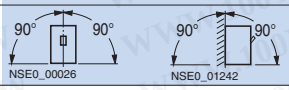
Integration

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).

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 for system protection	at 40 °C	%	100
	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 in conjunction with lockable rotary operating mechanisms			yes
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

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 τ = 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			–[2])	–[2])	
NEMA															
Time constant τ = 8 ms															
1 current path	2 current paths in series														
DC 250 V	–			kA	10		10			10			–[2])	–[2])	
–	DC 250 V			kA	22/20[7])		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	100
	50 °C	%	96	92	96	94	96	92	100	96	91	100	91	100	100
	55 °C	%	93	87	94	90	93	87	100	93	86	100	85	100	96
	60 °C	%	91	83	92	87	90	84	100	90	82	100	81	100	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	100
	50 °C	%	100		100		100			100			91	100	100
	55 °C	%	96		96		95			95			85	100	96
	60 °C	%	91		92		90			90			81	100	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 cycles		10000		10000		8000			8000			3000	3000	
Operating frequency		1/h	300		240		240			240			60	20	
Conductor cross-sections and types of connection for main conductors[5])															
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 x 10^4)			2×40×10^3)	2×60×10^3)/ 2×80×10^3)	3×80×10
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		20			40 (max 630 A)			40 (max 800 A)	–	–
Tightening torque for box terminals		Nm	5/9		20		42			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....–....

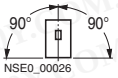
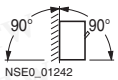
8) 240 mm^2 not suitable for segmented conductors as the terminal has an oval aperture.

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.

General data

Type		3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Conductor cross-sections for control circuits[1]) 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 / 75 ③	255 / 120 ③	87/210	135/240 / 400
– Non-automatic circuit-breakers	W	45	75	107	160	87/210	135/240 / 400
– For starter combinations	W	45	45	107	160	–	– / –
– Motor protection	W	60	–	75	120	–	– / –
Permissible mounting position		 NSE0_00026		 NSE0_01242			

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	230 / 415 / 690	230 / 415 / 690	230 / 415 / 690	230 / 415 / 690
– Rated operating current	A	6 / 3 / 0.25	6 / 3 / 0.25	6 / 3 / 0.25	6 / 3 / 0.25	6 / 3 / 0.25	6 / 3 / 0.25
DC (DC-13)							
– Rated operating voltage	V	24 / 125 / 240	24 / 125 / 240	24 / 125 / 240	24 / 125 / 240	24 / 125 / 240	24 / 125 / 240
– Rated operating current	A	6 / 0.5 / 0.15	6 / 0.5 / 0.15	6 / 0.5 / 0.15	6 / 0.5 / 0.15	6 / 0.5 / 0.15	6 / 0.5 / 0.15
Back-up fuse	A	6 / 4 / 4	6 / 4 / 4	6 / 4 / 4	6 / 4 / 4	6 / 4 / 4	6 / 4 / 4
Miniature circuit-breaker	A	6 / 4 / 4	6 / 4 / 4	6 / 4 / 4	6 / 4 / 4	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 "L" 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	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	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					

General data

Switching of DC currents

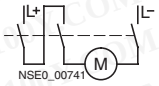
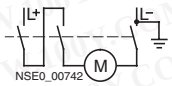
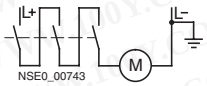
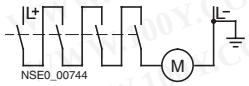
The 3VF3 to 3VF6 circuit-breakers for system protection with overcurrent trip unit versions "LI" can also be used to switch DC currents.

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 × I
4500 < I ≤ 6000	0.7	1.5 × I
6000 < I ≤ 10000	0.5	1.7 × I
10000 < I ≤ 20000	0.3	2.0 × I
20000 < I ≤ 50000	0.25	2.1 × I
50000 < I	0.2	2.2 × 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		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.

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" I_r	Operating current of instantaneous short-circuit release "I" I_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 Order No.	Weight per PU approx.
	A	A	A			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.

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_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** Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx.
	A	A ⌐¬	A I >>			kg
System protection, TM						
Circuit-breakers with permanently set thermal overload releases; for I_n up to 40 A: U_e max. AC 415 A						
3VF3 NSE0_00695	16	16	400	B	**3VF31 13–1FC41–....**	2.300
	20	20	400	B	**3VF31 13–1FD41–....**	2.300
	25	25	400	B	**3VF31 13–1FE41–....**	2.300
	32	32	400	B	**3VF31 13–1FG41–....**	2.300
	40	40	400	B	**3VF31 13–1FJ41–....**	2.300
	50	50	400	B	**3VF31 11–1FL41–....**	2.300
	63	63	500	B	**3VF31 11–1FN41–....**	2.300
	80	80	630	B	**3VF31 11–1FQ41–....**	2.300
	100	100	800	B	**3VF31 11–1FS41–....**	2.300
	125	125	1000	B	**3VF32 11–1FU41–....**	2.300
	160	160	1280	B	**3VF32 11–1FW41–....**	2.300
	200	200	2400	B	**3VF33 11–1FX41–....**	2.300
	225	225	2400	B	**3VF33 11–1FY41–....**	2.300
3VF4 NSE0_00015	125	125	625–1250	B	**3VF42 11–1DF41–....**	4.200
	160	160	800–1600	B	**3VF42 11–1DH41–....**	4.200
	200	200	1000–2000	B	**3VF42 11–1DK41–....**	4.200
	250	250	1250–2500	B	**3VF42 11–1DM41–....**	4.200
3VF5	200	200	1000–2000	B	**3VF52 11–1DF41–....**	5.500
	250	250	1250–2500	B	**3VF52 11–1DH41–....**	5.500
	315	315	1575–3150	B	**3VF52 11–1DK41–....**	5.500
	400	400	2000–4000	B	**3VF52 11–1DM41–....**	5.500
3VF6	315	315	1575–3150	B	**3VF62 11–1DF44–....**	8.400 [1]
	400	400	2000–4000	B	**3VF62 11–1DH44–....**	8.400 [1]
	500	500	2500–5000	B	**3VF62 11–1DK44–....**	8.400 [1]
	630	630	3150–6300	B	**3VF62 11–1DM44–....**	8.400 [1]
	800	800	3200–6400	B	**3VF63 11–2DQ44–....**	8.400 [1][2]
Circuit-breakers with adjustable thermal overload releases						
3VF3 NSE0_00704	50	40– 50	300– 500	B	**3VF31 11–1BL41–....**	2.300
	63	50– 63	315– 630	B	**3VF31 11–1BN41–....**	2.300
	80	63– 80	400– 800	B	**3VF31 11–1BQ41–....**	2.300
	100	80–100	500–1000	B	**3VF31 11–1BS41–....**	2.300
	125	100–125	625–1250	B	**3VF32 11–1BU41–....**	2.300
	160	125–160	800–1600	B	**3VF32 11–1BW41–....**	2.300
	200	160–200	1000–2000	B	**3VF33 11–1BX41–....**	2.300
3VF4	125	100–125	625–1250	B	**3VF42 11–1BF41–....**	4.200
	160	125–160	800–1600	B	**3VF42 11–1BH41–....**	4.200
	200	160–200	1000–2000	B	**3VF42 11–1BK41–....**	4.200
	250	200–250	1250–2500	B	**3VF42 11–1BM41–....**	4.200
3VF5	200	160–200	1000–2000	B	**3VF52 11–1BF41–....**	5.500
	250	200–250	1250–2500	B	**3VF52 11–1BH41–....**	5.500
	315	250–315	1575–3150	B	**3VF52 11–1BK41–....**	5.500
	400	315–400	2000–4000	B	**3VF52 11–1BM41–....**	5.500
3VF6	315	250–315	1575–3150	B	**3VF62 11–1BF44–....**	8.400 [1]
	400	315–400	2000–4000	B	**3VF62 11–1BH44–....**	8.400 [1]
	500	400–500	2500–5000	B	**3VF62 11–1BK44–....**	8.400 [1]
	630	500–630	3150–6300	B	**3VF62 11–1BM44–....**	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.

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 Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg	DT	Very high switching capacity 100 kA at AC 380/415 V Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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]

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 instantaneous short-circuit release "I" I_i	DT	**Standard switching capacity 40/45/50 kA at AC 380/415 V** Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx.
		A	A	A	ms	A			kg
System protection, ETU									
Circuit-breakers with adjustable thermal overload releases									
3VF5	With time-based discrimination	400	200, 250, 315, 400	2 ... 8 × I_r	0 ... 300	4000	B	**3VF52 11–1BM61–....**	5.500
3VF6	NSE0_00008	630	315, 400, 500, 630	2 ... 8 × I_r	0 ... 300	5500	B	**3VF62 11–1BM64–....**	8.400 [1]
3VF7		800	400, 500, 630, 800	2 ... 8 × I_r	0 ... 300	15000[4]	B	**3VF71 11–1BK60–....**	19.600 [2]
		1250	630, 800, 1000, 1250	2 ... 8 × I_r	0 ... 300	15000[4]	B	**3VF72 11–1BM60–....**	19.600 [2]
3VF8		1600	800, 1000, 1250, 1600	2 ... 8 × I_r	0 ... 300	20000[4]		–	
		2000	1000, 1250, 1600, 2000	2 ... 8 × I_r	0 ... 300	20000[4]			
		2500	1600, 1800, 2000, 2500	2 ... 8 × 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 × I_r and 0 to 300 ms.

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 Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg	DT	Very high switching capacity 100 kA at AC 380/415 V Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg
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]

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 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** Fixed-mounted circuit-breakers Order No. / Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx.
			380/ 415 V up to	500 V up to						
		A	kW	kW	A	A				kg
Motor protection, ETU[2])										
without adjustable time lag class, without phase failure sensitivity										
3VF3	NSE0_01243	80	37	55	40– 80	15 × I_r	10	B	**3VF31 11–5DN71–....**	2.300
		100	45	55	80–100	15 × I_r	10	B	**3VF31 11–5DQ71–....**	2.300
		160	75	110	100–160	15 × I_r	10	B	**3VF32 11–5DS71–....**	2.300
		205	110	132	160–205	13 × I_r	10	B	**3VF33 11–5DU71–....**	2.300
3VF5		315	160	200	160–315	15 × I_r	20	B	**3VF51 11–5DL71–....**	4.200
3VF6		500	250	355	250–500	15 × I_r	20	B	**3VF61 11–5DL74–....**	4.200 [3])
with adjustable time lag class, with phase failure sensitivity										
3VF3	NSE0_00706	80	37	55	40– 80	15 × I_r	5/10/15/20	B	**3VF31 11–5EN71–....**	2.300
		100	45	55	80–100	15 × I_r	5/10/15/20	B	**3VF31 11–5EQ71–....**	2.300
		160	75	110	100–160	15 × I_r	5/10/15/20	B	**3VF32 11–5ES71–....**	2.300
		205	110	132	160–205	13 × I_r	10	B	**3VF33 11–5FU71–....**	2.300
3VF5		315	160	200	160–315	15 × I_r	10/15/20/30	B	**3VF51 11–5EL71–....**	4.200
3VF6		500	250	355	250–500	15 × I_r	10/15/20/30	B	**3VF61 11–5EL74–....**	4.200 [3])
Starter combinations										
3VF3	NSE0_00707	up to 63	30	37	–	500–1000	–		–	
		up to 100	45	55		750–1500				
		up to 160	75	110		1200–2400				
3VF4		up to 125	55	75	–	1000–2000	–		–	
		up to 160	75	110		1250–2500				
		up to 200	90	132		1500–3000				
3VF5		up to 200	90	132	–	1500–3000	–		–	
		up to 250	110	160		1900–3800				
		up to 315	160	200		2400–4800				
3VF6		up to 315	160	200	–	2400–4800	–		–	
		up to 400	200	250		3000–6000				
		up to 500	250	355		3800–7500				
Non-automatic circuit-breakers										
3VF3	NSE0_00708	up to 100	–	–	–	2400	–		–	
		up to 160				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	–	–	–	7500	–	B	**3VF62 11–5BM34–....**	8.400 [3])
		up to 630				7500				
3VF7		up to 800	–	–	–	15000	–	B	**3VF71 11–1BK30–....**	19.600 [4])
		up to 1250				15000		B	**3VF72 11–1BM30–....**	19.600 [4])
3VF8		up to 1600	–	–	–	20000	–		–	
		up to 2000				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).

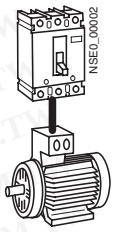
1) Guide values for 4-pole standard motors. The start-up data and ratings of the motor to be protected are the determining factors.

2) System protection circuit-breakers must be used in combination with frequency converters or soft starters.

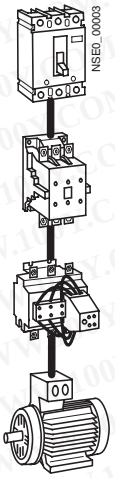
3) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.

4) Busbar connection pieces must be ordered separately (see Accessories).

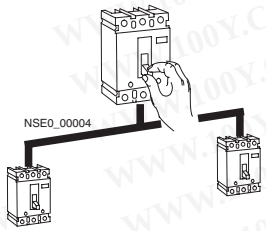
DT	High switching capacity 65/70 kA at AC 380/415 V **Fixed-mounted circuit-breakers**	Weight per PU approx.
	Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg
B	**3VF31 11–6DN71–....**	2.300
B	**3VF31 11–6DQ71–....**	2.300
B	**3VF32 11–6DS71–....**	2.300
B	**3VF33 11–6DU71–....**	2.300
B	**3VF51 11–6DL71–....**	4.200
B	**3VF61 11–6DL74–....**	4.200 3)
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
B	**3VF61 11–6EL74–....**	4.200 3)
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
B	**3VF52 11–6BM31–....**	5.500
B	**3VF61 11–6BK34–....**	8.400 3)
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 motor protection



3VF circuit-breaker for starter combinations



3VF non-automatic circuit-breaker

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** 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.
	A	A ⊏	A $I \gg$			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 NSE0_00695	16	16	400	B	**3VF31 13–1FC47–....**	2.300
	20	20	400	B	**3VF31 13–1FD47–....**	2.300
	25	25	400	B	**3VF31 13–1FE47–....**	2.300
	32	32	400	B	**3VF31 13–1FG47–....**	2.300
	40	40	400	B	**3VF31 13–1FJ47–....**	2.300
	50	50	400	B	**3VF31 11–1FL47–....**	2.300
	63	63	500	B	**3VF31 11–1FN47–....**	2.300
	80	80	630	B	**3VF31 11–1FQ47–....**	2.300
	100	100	800	B	**3VF31 11–1FS47–....**	2.300
	125	125	1000	B	**3VF32 11–1FU47–....**	2.300
	160	160	1280	B	**3VF32 11–1FW47–....**	2.300
	200	200	2400	B	**3VF33 11–1FX47–....**	2.300
	225	225	2400	B	**3VF33 11–1FY47–....**	2.300
3VF4 NSE0_00015	125	125	625–1250	B	**3VF42 11–1DF47–....**	4.200
	160	160	800–1600	B	**3VF42 11–1DH47–....**	4.200
	200	200	1000–2000	B	**3VF42 11–1DK47–....**	4.200
	250	250	1250–2500	B	**3VF42 11–1DM47–....**	4.200
3VF5	200	200	1000–2000	B	**3VF52 11–1DF47–....**	5.500
	250	250	1250–2500	B	**3VF52 11–1DH47–....**	5.500
	315	315	1575–3150	B	**3VF52 11–1DK47–....**	5.500
	400	400	2000–4000	B	**3VF52 11–1DM47–....**	5.500
3VF6	315	315	1575–3150	B	**3VF62 11–1DF47–....**	8.400
	400	400	2000–4000	B	**3VF62 11–1DH47–....**	8.400
	500	500	2500–5000	B	**3VF62 11–1DK47–....**	8.400
	630	630	3150–6300	B	**3VF62 11–1DM47–....**	8.400
	800	800	3200–6400		–	
Circuit-breakers with adjustable thermal overload releases						
3VF3 NSE0_00704	50	40– 50	300– 500	B	**3VF31 11–1BL47–....**	2.300
	63	50– 63	315– 630	B	**3VF31 11–1BN47–....**	2.300
	80	63– 80	400– 800	B	**3VF31 11–1BQ47–....**	2.300
	100	80–100	500–1000	B	**3VF31 11–1BS47–....**	2.300
	125	100–125	625–1250	B	**3VF32 11–1BU47–....**	2.300
	160	125–160	800–1600	B	**3VF32 11–1BW47–....**	2.300
	200	160–200	1000–2000	B	**3VF33 11–1BX47–....**	2.300
3VF4	125	100–125	625–1250	B	**3VF42 11–1BF47–....**	4.200
	160	125–160	800–1600	B	**3VF42 11–1BH47–....**	4.200
	200	160–200	1000–2000	B	**3VF42 11–1BK47–....**	4.200
	250	200–250	1250–2500	B	**3VF42 11–1BM47–....**	4.200
3VF5	200	160–200	1000–2000	B	**3VF52 11–1BF47–....**	5.500
	250	200–250	1250–2500	B	**3VF52 11–1BH47–....**	5.500
	315	250–315	1575–3150	B	**3VF52 11–1BK47–....**	5.500
	400	315–400	2000–4000	B	**3VF52 11–1BM47–....**	5.500
3VF6	315	250–315	1575–3150	B	**3VF62 11–1BF47–....**	8.400
	400	315–400	2000–4000	B	**3VF62 11–1BH47–....**	8.400
	500	400–500	2500–5000	B	**3VF62 11–1BK47–....**	8.400
	630	500–630	3150–6300	B	**3VF62 11–1BM47–....**	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 recommended in addition (see Pages 4/182 to 4/185).

3VF6 circuit-breaker, with front busbar connection pieces

3VF7 circuit-breaker
Busbar connection pieces must be ordered separately

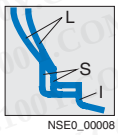
DT	High switching capacity 70 kA at AC 380/415 V Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185. Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg	DT	Very high switching capacity 100 kA at AC 380/415 V Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185. Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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

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 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** 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.
		A	A	A	ms	A			kg
System protection, ETU									
Circuit-breakers with adjustable thermal overload releases									
3VF5	With time-based discrimination	400	200, 250, 315, 400	2 ... 8 × I_r	0 ... 300	4000	B	**3VF52 11–1BM67–....**	5.500
3VF6	 NSE0_00008	630	315, 400, 500, 630	2 ... 8 × I_r	0 ... 300	5500	B	**3VF62 11–1BM67–....**	8.400
3VF7		800	400, 500, 630, 800	2 ... 8 × I_r	0 ... 300	15000	B	**3VF71 11–1BK67–....**	19.600
		1250	630, 800, 1000, 1250	2 ... 8 × I_r	0 ... 300	15000	B	**3VF72 11–1BM67–....**	19.600
3VF8		1600	800, 1000, 1250, 1600	2 ... 8 × I_r	0 ... 300	20000		–	
		2000	1000, 1250, 1600, 2000	2 ... 8 × I_r	0 ... 300	20000			
		2500	1600, 1800, 2000, 2500	2 ... 8 × 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 recommended in addition (see Pages 4/182 to 4/185).

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 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	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. Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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
	–			–	

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** 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.
			380/ 415 V up to	500 V up to					Order No. Order No. supplements, see Pages 4/171 and 4/172.	
		A	kW	kW	A	A $I \gg$				kg
Motor protection, ETU[2])										
without adjustable time lag class, without phase failure sensitivity										
3VF3	NSE0_01243	80	37	55	40– 80	15 × I_r	10	B	**3VF31 11–5DN77–....**	2.300
		100	45	55	80–100	15 × I_r	10	B	**3VF31 11–5DQ77–....**	2.300
		160	75	110	100–160	15 × I_r	10	B	**3VF32 11–5DS77–....**	2.300
		205	110	132	160–205	13 × I_r	10	B	**3VF33 11–5DU77–....**	2.300
3VF5		315	160	200	160–315	15 × I_r	20	B	**3VF51 11–5DL77–....**	4.200
3VF6		500	250	355	250–500	15 × I_r	20	B	**3VF61 11–5DL77–....**	4.200
with adjustable time lag class, with phase failure sensitivity										
3VF3	NSE0_00706	80	37	55	40– 80	15 × I_r	5/10/15/20	B	**3VF31 11–5EN77–....**	2.300
		100	45	55	80–100	15 × I_r	5/10/15/20	B	**3VF31 11–5EQ77–....**	2.300
		160	75	110	100–160	15 × I_r	5/10/15/20	B	**3VF32 11–5ES77–....**	2.300
		205	110	132	160–205	13 × I_r	10	B	**3VF33 11–5FU77–....**	2.300
3VF5		315	160	200	160–315	15 × I_r	10/15/20/30	B	**3VF51 11–5EL77–....**	4.200
3VF6		500	250	355	250–500	15 × I_r	10/15/20/30	B	**3VF61 11–5EL77–....**	4.200
Starter combinations										
3VF3	NSE0_00707	up to 63	30	37	–	500–1000	–		**–**	
		up to 100	45	55		750–1500				
		up to 160	75	110		1200–2400				
3VF4		up to 125	55	75	–	1000–2000	–		**–**	
		up to 160	75	110		1250–2500				
		up to 200	90	132		1500–3000				
3VF5		up to 200	90	132	–	1500–3000	–		**–**	
		up to 250	110	160		1900–3800				
		up to 315	160	200		2400–4800				
3VF6		up to 315	160	200	–	2400–4800	–		**–**	
		up to 400	200	250		3000–6000				
		up to 500	250	355		3800–7500				
Non-automatic circuit-breakers										
3VF3	NSE0_00708	up to 100	–	–	–	2400	–		**–**	
		up to 160				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	–	–	–	7500	–		**–**	
		up to 630				7500		B	**3VF62 11–5BM37–....**	8.400
3VF7		up to 800	–	–	–	15000	–	B	**3VF71 11–1BK37–....**	19.600
		up to 1250				15000		B	**3VF72 11–1BM37–....**	19.600
3VF8		up to 1600	–	–	–	20000	–		**–**	
		up to 2000				20000				

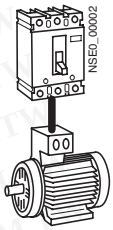
Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

For degree of protection IP30, terminal covers are recommended in addition (see Pages 4/182 to 4/185).

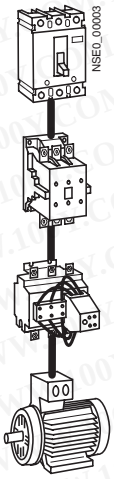
1) Guide values for 4-pole standard motors. The start-up data and ratings of the motor to be protected are the determining factors.

2) System protection circuit-breakers must be used in combination with frequency converters or soft starters.

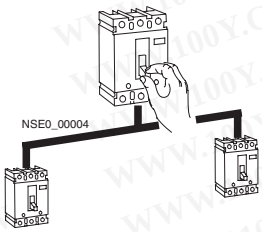
DT	High switching capacity 65/70 kA at AC 380/415 V Plug-in circuit-breakers Plug-in base required – for 3VF6 and 3VF7: Guide frame – see Pages 4/182 to 4/185.	Weight per PU approx.
	Order No. Order No. supplements, see Pages 4/171 and 4/172.	kg
B	**3VF31 11–6DN77–....**	2.300
B	**3VF31 11–6DQ77–....**	2.300
B	**3VF32 11–6DS77–....**	2.300
B	**3VF33 11–6DU77–....**	2.300
B	**3VF51 11–6DL77–....**	4.200
B	**3VF61 11–6DL77–....**	4.200
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
B	**3VF61 11–6EL77–....**	4.200
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
B	**3VF52 11–6BM37–....**	5.500
B	**3VF61 11–6BK37–....**	8.400
	–	
B	**3VF71 11–2BK37–....**	25.500
B	**3VF72 11–2BM37–....**	25.500
	–	



3VF circuit-breaker for motor protection



3VF circuit-breaker for starter combinations



3VF non-automatic circuit-breaker

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.

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 Order No.	Weight per PU approx.	
	A	A	A			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 %.

4-pole, fixed-mounted design

3VF3 to 3VF6 circuit-breakers

Type	Rated current I_n A	Setting current of the inverse-time delayed overload release "L" I_r A	Operating current of the short-time delayed short-circuit release "S" I_d A	Operating time of the short-time delayed short-circuit release "S" t_d ms	Operating current of the instantaneous short-circuit release "I" I_i A	DT	**Standard switching capacity 40/45/50 kA at AC 380/415 V** Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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 NSE0_00704	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	
	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	
3VF4	125	100–125	–	–	630–1250	B	**3VF42 12–1MF41–....**	5.500	
	160	125–160			800–1600	B	**3VF42 12–1MH41–....**	5.500	
	200	160–200			1000–2000	B	**3VF42 12–1MK41–....**	5.500	
	250	200–250			1250–2500	B	**3VF42 12–1MM41–....**	5.500	
3VF5	200	160–200	–	–	1000–2000	B	**3VF52 12–1MF41–....**	6.500	
	250	200–250			1250–2500	B	**3VF52 12–1MH41–....**	6.500	
	315	250–315			1575–3150	B	**3VF52 12–1MK41–....**	6.500	
	400	315–400			2000–4000	B	**3VF52 12–1MM41–....**	6.500	
3VF6	315	250–315	–	–	1575–3150	B	**3VF62 12–1MF44–....**	11.000	1)
	400	315–400			2000–4000	B	**3VF62 12–1MH44–....**	11.000	1)
	500	400–500			2500–5000	B	**3VF62 12–1MK44–....**	11.000	1)
	630	500–630			3150–6300	B	**3VF62 12–1MM44–....**	11.000	1)
	800	800	–	–	3200–6400	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 NSE0_00704	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	
	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	
3VF4	200	160–200	–	–	1000–2000[4])	B	**3VF42 12–1HK41–....**	5.500	
	250	200–250			1250–2500[4])	B	**3VF42 12–1HM41–....**	5.500	
3VF5	315	250–315	–	–	1575–3150[4])	B	**3VF52 12–1HK41–....**	6.500	
	400	315–400			2000–4000[4])	B	**3VF52 12–1HM41–....**	6.500	
3VF6	500	400–500	–	–	2500–5000[4])	B	**3VF62 12–1HK44–....**	11.000	5)
	630	500–630			3150–6300[4])	B	**3VF62 12–1HM44–....**	11.000	5)
	800	800	–	–	3200–6400[4])	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.

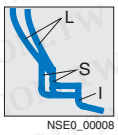
5) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.

DT	High switching capacity 70 kA at AC 380/415 V Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg	DT	Very high switching capacity 100 kA at AC 380/415 V Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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]
	–			–	

3VF6 circuit-breaker, 4-pole
without trip unit in the 4th pole (N).

4-pole, fixed-mounted design

3VF3 to 3VF8 circuit-breakers

Type		Rated current I_n A	Setting current of the inverse-time delayed overload release "L" I_r A	Operating current of the short-time delayed short-circuit release "S" I_d A	Operating time of the short-time delayed short-circuit release "S" t_d ms	Operating current of the instantaneous short-circuit release "I" I_i A	DT	**Standard switching capacity 40/45/50 kA at AC 380/415 V** Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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 ... 8 × I_r	0 ... 300	4000	B	**3VF52 12–1KM61–....**	6.500
3VF6	 NSE0_00008	630	315, 400, 500, 630	2 ... 8 × I_r	0 ... 300	5500	B	**3VF62 12–1KM64–....**	11.000 [1]
3VF7		800	400, 500, 630, 800	2 ... 8 × I_r	0 ... 300	15000	B	**3VF71 12–1KK60–....**	25.500 [2]
		1250	630, 800, 1000, 1250	2 ... 8 × I_r	0 ... 300	15000	B	**3VF72 12–1KM60–....**	25.500 [2]
3VF8		1600	800, 1000, 1250, 1600	2 ... 8 × I_r	0 ... 300	20000		–	
		2000	1000, 1250, 1600, 2000	2 ... 8 × I_r	0 ... 300	20000			
		2500	1600, 1800, 2000, 2500	2 ... 8 × 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 ... 8 × I_r	0 ... 300	4000 [4]	B	**3VF52 12–1FM61–....**	6.500
3VF6	NSE0_00008	630	315, 400, 500, 630	2 ... 8 × I_r	0 ... 300	5500 [4]	B	**3VF62 12–1FM64–....**	11.000 [1]
3VF7		800	400, 500, 630, 800	2 ... 8 × I_r	0 ... 300	15000 [4]	B	**3VF71 12–1FK60–....**	25.500 [2]
		1250	630, 800, 1000, 1250	2 ... 8 × I_r	0 ... 300	15000 [4]	B	**3VF72 12–1FM60–....**	25.500 [2]
3VF8		1600	800, 1000, 1250, 1600	2 ... 8 × I_r	0 ... 300	20000 [4]		–	
		2000	1000, 1250, 1600, 2000	2 ... 8 × I_r	0 ... 300	20000 [4]			
		2500	1600, 1800, 2000, 2500	2 ... 8 × 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).

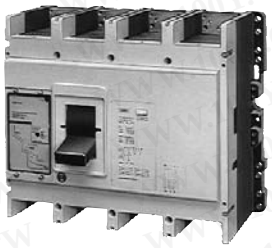
1) Front busbar connection pieces are included in the scope of supply and are to be fitted by the customer.

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.

DT	High switching capacity 70 kA at AC 380/415 V Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg	DT	Very high switching capacity 100 kA at AC 380/415 V Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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).

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 Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx.
		A	A $I >>$			kg
Non-automatic circuit-breakers						
3VF3	NSE0_00708	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.

DT	**High switching capacity 65/70 kA at AC 380/415 V** Fixed-mounted circuit-breakers Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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

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** 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.
	A	A	A	ms	A			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 NSE0_00704	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
	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
3VF4	125	100–125	–	–	630–1250	B	**3VF42 12–1MF47–....**	5.500
	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
3VF5	200	160–200	–	–	1000–2000	B	**3VF52 12–1MF47–....**	6.500
	250	200–250			1250–2500	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
3VF6	315	250–315	–	–	1575–3150	B	**3VF62 12–1MF47–....**	11.000
	400	315–400			2000–4000	B	**3VF62 12–1MH47–....**	11.000
	500	400–500			2500–5000	B	**3VF62 12–1MK47–....**	11.000
	630	500–630			3150–6300	B	**3VF62 12–1MM47–....**	11.000
	800	800	–	–	3200–6400		**–**	
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 NSE0_00704	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
	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
3VF4	200	160–200	–	–	1000–2000[2])	B	**3VF42 12–1HK47–....**	5.500
	250	200–250			1250–2500[2])	B	**3VF42 12–1HM47–....**	5.500
3VF5	315	250–315	–	–	1575–3150[2])	B	**3VF52 12–1HK47–....**	6.500
	400	315–400			2000–4000[2])	B	**3VF52 12–1HM47–....**	6.500
3VF6	500	400–500	–	–	2500–5000[2])	B	**3VF62 12–1HK47–....**	11.000
	630	500–630			3150–6300[2])	B	**3VF62 12–1HM47–....**	11.000
	800	800	–	–	3200–6400[2])		**–**	

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 %.

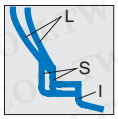
2) N = 60 %. To be observed in DC applications.

DT	High switching capacity 70 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	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. Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. 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).

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** 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.
		A	A	A	ms	A			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 ... 8 × I_r	0 ... 300	4000	B	**3VF52 12–1KM67–....**	6.500
3VF6	 NSE0_00008	630	315, 400, 500, 630	2 ... 8 × I_r	0 ... 300	5500	B	**3VF62 12–1KM67–....**	11.000
3VF7		800	400, 500, 630, 800	2 ... 8 × I_r	0 ... 300	15000	B	**3VF71 12–1KK67–....**	25.500
		1250	630, 800, 1000, 1250	2 ... 8 × I_r	0 ... 300	15000	B	**3VF72 12–1KM67–....**	25.500
3VF8		1600	800, 1000, 1250, 1600	2 ... 8 × I_r	0 ... 300	20000		–	
		2000	1000, 1250, 1600, 2000	2 ... 8 × I_r	0 ... 300	20000			
		2500	1600, 1800, 2000, 2500	2 ... 8 × 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 ... 8 × I_r	0 ... 300	4000[1])	B	**3VF52 12–1FM67–....**	6.500
3VF6	NSE0_00008	630	315, 400, 500, 630	2 ... 8 × I_r	0 ... 300	5500[1])	B	**3VF62 12–1FM67–....**	11.000
3VF7		800	400, 500, 630, 800	2 ... 8 × I_r	0 ... 300	15000[1])	B	**3VF71 12–1FK67–....**	25.500
		1250	630, 800, 1000, 1250	2 ... 8 × I_r	0 ... 300	15000[1])	B	**3VF72 12–1FM67–....**	25.500
3VF8		1600	800, 1000, 1250, 1600	2 ... 8 × I_r	0 ... 300	20000[1])		–	
		2000	1000, 1250, 1600, 2000	2 ... 8 × I_r	0 ... 300	20000[1])			
		2500	1600, 1800, 2000, 2500	2 ... 8 × I_r	0 ... 300	20000[1])			

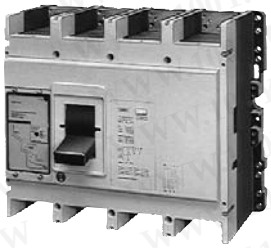
Pack size for 3VF is one unit, i.e. one unit or a multiple thereof can be ordered.

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.

4-pole, plug-in/withdrawable design

DT	High switching capacity 70 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	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. Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx. kg
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).

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. Order No. Order No. supplements, see Pages 4/171 and 4/172.	Weight per PU approx.
		A	A $I \gg$			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).

DT	**High switching capacity 65/70 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.
	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
	–	

3-pole, fixed-mounted design

Approved according to IEC 60947-2, UL 508 and CSA C22.2, No. 14[1])/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 "I" I_i	DT	Standard switching capacity Fixed-mounted circuit-breakers with box terminals[2]) Order No. Order No. supplements, see Pages 4/171 and 4/172[3]).	Weight per PU approx. kg	DT	High switching capacity Fixed-mounted circuit-breakers with box terminals[2]) Order No. Order No. supplements, see Pages 4/171 and 4/172[3]).	Weight per PU approx. kg	DT	Very high switching capacity Fixed-mounted circuit-breakers with box terminals[2]) Order No. Order No. supplements, see Pages 4/171 and 4/172[3]).	Weight per PU approx. kg
	A	A									
Circuit-breakers for system protection											
with permanently set overload/short-circuit releases											
				Short-circuit breaking capacity (NEMA rating): 25 kA with AC 480 V 18 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 65 kA with AC 480 V 25 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 100 kA with AC 480 V 35 kA with AC 600 V	
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											
				Short-circuit breaking capacity (NEMA rating): 25 kA with AC 480 V 18 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 65 kA with AC 480 V 25 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 100 kA with AC 480 V 50 kA with AC 600 V	
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
				Short-circuit breaking capacity (NEMA rating): 35 kA with AC 480 V 25 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 65 kA with AC 480 V 35 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 100 kA with AC 480 V 50 kA with AC 600 V	
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
				Short-circuit breaking capacity (NEMA rating): 35 kA with AC 480 V 25 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 65 kA with AC 480 V 35 kA with AC 600 V			Short-circuit breaking capacity (NEMA rating): 100 kA with AC 480 V 50 kA with AC 600 V	
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 mm^2);
on 3VF4 for Cu/Al cables AWG 4–350 MCM (25 to 185 mm^2);
on 3VF5 and 3VF6 for Cu/Al cables MCM 250–350 (120 to 150 mm^2)
(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_S/frequency AC 50/60 Hz DC	Order No. supplement 3VF.. ..–....–□□. .	Circuit-breakers 3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Without auxiliary release	**0A**	×	×	×	×	×	×
Undervoltage releases							
AC 9 ... 12 V	**1B**	×	–	–	–	–	–
AC 12 V	**1C**	–	×	×	×	×	×
AC 24 V	**1D**	×	×	×	×	×	×
AC 48 V	**1U**	×	–	–	–	–	–
AC 48 ... 60 V	**1F**	–	×	×	×	×	×
AC 60 V	**1 V**	×	–	–	–	–	–
AC 110 ... 127 V	**1G**	×	×	×	×	×	×
AC 208 ... 240 V	**1H**	×	×	×	×	×	×
AC 380 ... 500 V	**1J**	–	×	×	×	×	×
AC 380 ... 480 V	**1K**	×	–	–	–	–	–
AC 480 ... 525 V	**1L**	×	–	–	–	–	–
DC 12 V	**1N**	×	×	×	×	×	×
DC 24 V	**1P**	×	×	×	×	×	×
DC 48 V	**1U**	×	–	–	–	–	–
DC 48 ... 60 V	**1Q**	–	×	×	×	×	×
DC 60 V	**1 V**	×	–	–	–	–	–
DC 110 ... 125 V	**1R**	×	×	×	×	×	×
DC 220 ... 250 V	**1S**	×	×	×	×	×	×
Shunt releases							
AC / DC							
12 ... 24 V / 12 ... 24 V	**7C**	×	×	×	×	×	×
48 ... 60 V / 48 ... 60 V	**7J**	–	×	×	–	–	–
48 ... 60 V / –	**7F**	–	–	–	×	×	×
48 ... 127 V / 48 ... 60 V	**7G**	×	–	–	–	–	–
– / 48 ... 60 V	**7H**	–	–	–	×	×	×
110 ... 240 V / 110 ... 125 V	**7K**	×	×	×	–	–	–
– / 110 ... 125 V	**7L**	–	–	–	×	×	×
110 ... 240 V / –	**7M**	–	–	–	×	×	×
380 ... 440 V / 220 ... 250 V	**7S**	–	×	×	×	×	×
380 ... 600 V / 220 ... 250 V	**7T**	×	–	–	–	–	–

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 HS=1 changeover contact AS=1 changeover contact	Order No. supplement 3VF.. ..–....–..□□	Circuit-breakers 3VF3	3VF4	3VF5	3VF6	3VF7	3VF8
Without auxiliary/alarm switch	**A0**	×	×	×	×	×	×
1 HS	**B1**	×[2]	×	×	×	×	–
2 HS	**C1**	×[2]	×	×	×	×	–
4 HS	**E1**	–	–	–	–	–	×
1 HS	**F1**	×[3]	–	–	–	–	–
1 AS	**G1**	×[2]	×	×	×	×	–
4 HS + 2 AS	**T1**	–	–	–	–	–	×
1 HS + 1 AS	**N1**	×[2]	×	×	×	×	–
If no undervoltage release or shunt release is fitted, the following complements are also possible:							
1 HS + 2 AS } only	**R1**	×[1]	–	×	×	×	–
2 HS + 1 AS } 3-pole	**P1**	×[1]	×	×	×	×	–
2 HS + 2 AS } circuit-breaker	**S1**	×[1]	–	×	×	×	–

× 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.

Options

1st Order No. supplement: undervoltage release or shunt release

Version with terminal block[1])
(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_S/frequency AC 50/60 Hz DC	Order No. supplement 3VF.. ..–.....–□□. .	Circuit-breakers 3VF3	3VF4	3VF5	3VF6	3VF7
Without auxiliary release	**0A**	×	×	×	×	×
Undervoltage releases						
AC 9 ... 12 V	**2B**	×	–	–	–	–
AC 12 V	**2C**	–	×	×	×	×
AC 24 V	**2D**	×	×	×	×	×
AC 48 V	**2U**	×	–	–	–	–
AC 48 ... 60 V	**2F**	–	×	×	×	×
AC 60 V	**2 V**	×	–	–	–	–
AC 110 ... 127 V	**2G**	×	×	×	×	×
AC 208 ... 240 V	**2H**	×	×	×	×	×
AC 380 ... 500 V	**2J**	–	×	×	×	×
AC 380 ... 480 V	**2K**	×	–	–	–	–
AC 480 ... 525 V	**2L**	×	–	–	–	–
DC 12 V	**2N**	×	×	×	×	×
DC 24 V	**2P**	×	×	×	×	×
DC 48 V	**2U**	×	–	–	–	–
DC 48 ... 60 V	**2Q**	–	×	×	×	×
DC 60 V	**2 V**	×	–	–	–	–
DC 110 ... 125 V	**2R**	×	×	×	×	×
DC 220 ... 250 V	**2S**	×	×	×	×	×
Shunt releases						
AC / DC						
12 ... 24 V / 12 ... 24 V	**8C**	×	×	×	×	×
48 ... 60 V / 48 ... 60 V	**8J**	–	×	×	–	–
48 ... 60 V / –	**8F**	–	–	–	×	×
48 ... 127 V / 48 ... 60 V	**8G**	×	–	–	–	–
– / 48 ... 60 V	**8H**	–	–	–	×	×
110 ... 240 V / 110 ... 125 V	**8K**	×	×	×	–	–
– / 110 ... 125 V	**8L**	–	–	–	×	×
110 ... 240 V / –	**8M**	–	–	–	×	×
380 ... 440 V / 220 ... 250 V	**8S**	–	×	×	×	×
380 ... 600 V / 220 ... 250 V	**8T**	×	–	–	–	–

2nd Order No. supplement: auxiliary switches (HS) and alarm switches (AS)

Version with terminal block[1])
(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**	×	×	×	×	×
1 HS		**B2**	×[2])	×	×	×	×
2 HS		**C2**	×[2])	×	×	×	×
1 AS	only for 3-pole circuit-breakers	**G2**	×[2])	×	×	×	×
1 HS + 1 AS	only for 3-pole circuit-breakers	**N2**	×[2])	×	×	×	×
If no undervoltage release or shunt release is fitted, the following complements are also possible:							
1 HS + 2 AS		**R2**	×[3])	–	×	×	×
2 HS + 1 AS		**P2**	×[3])	×	×	×	×
2 HS + 2 AS		**S2**	×[3])	–	×	×	×

× 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

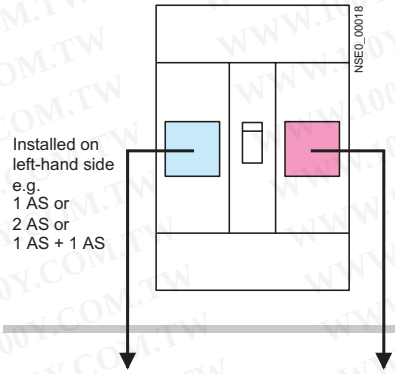
Operating mechanisms		DT	Order No.	PS*	Weight per PU approx. kg
Operating mechanisms					
Front-operated rotary operating mechanism					
for direct mounting on circuit-breakers Degree of protection IP30, black knob Max. 3 padlocks		B	**3VF9 223–1AA00**	1 unit	0.232
EMERGENCY-STOP version Red knob, yellow 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	B	**3VF9 224–1LD10**	1 set	0,252
	for 4-pole circuit-breakers 1 set = 8 units	B	**3VF9 224–1LD20**	1 set	0.333
Terminal covers					
for main terminal, cable terminal	for 3-pole circuit-breakers 1 set = 2 units	B	**3VF9 224–1NB10**	1 set	0.063
	for 4-pole circuit-breakers 1 set = 2 units	B	**3VF9 224–1NB20**	1 set	0.079
Cover with cap dimension 45 mm					
for distributor structure	for 3-pole circuit-breakers	B	**3VF9 220–1CA10**	1 unit	0.019
	for 4-pole circuit-breakers	B	**3VF9 220–1CA20**	1 unit	0.021
Masking frame for door cut-out					
For circuit-breakers	1 set = 1 unit	B	**3VF9 220–1AA00**	1 set	0.048
Shunt releases[1])					
Version with terminal block					
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 switches[1])					
Version with terminal block					
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.

*** This quantity or a multiple thereof quantity can be ordered.**

Accessories/spare parts

Auxiliary and alarm switches



Possible complements for 3VF3 to 3VF8 circuit-breakers

The options for equipping the circuit-breakers with auxiliary switches or alarm switches, shunt releases, undervoltage releases and RCD modules depends on the position in which they are fitted in the circuit-breaker (left or right), see Table. Refer to Page 4/133 for versions of auxiliary switches and alarm switches.

4

3- or 4-pole

Auxiliary and alarm switches (HS + AS) for retrofitting
Version with connecting leads

	Left mounting side	Right mounting side		DT	Accessories for 3VF3 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF4 Order No.	PS*	Weight per PU approx.
	3- or 4-pole	3-pole	4-pole				kg				kg
HS	1 HS			B	**3VF9 322–1BB30**	1 unit	0.180	B	**3VF9 422–1BB30**	1 unit	2.000
or		1 HS	1 HS	B	**3VF9 322–1BB30**	1 unit	0.180	3) B	**3VF9 422–1BB30**	1 unit	2.000
		1 HS	1 HS	B	**3VF9 322–1BB40**	1 unit	0.180	2)4)	–		
	2 HS			B	**3VF9 322–1CB10**	1 unit	0.180	2) B	**3VF9 422–1CB30**	1 unit	2.000
		2 HS	2 HS	B	**3VF9 322–1CB20**	1 unit	0.180	3) B	**3VF9 422–1CB30**	1 unit	2.000
		4 HS	4 HS		–				–		
AS	1 AS			B	**3VF9 322–1GB10**	1 unit	0.180	B	**3VF9 422–1GB10**	1 unit	2.000
or		1 AS		B	**3VF9 322–1GB20**	1 unit	0.180	3) B	**3VF9 422–1GB20**	1 unit	2.000
			1 AS	B	**3VF9 322–1GF20**	1 unit	0.180	B	**3VF9 422–1GF20**	1 unit	2.000
	2 AS			B	**3VF9 322–1HB10**	1 unit	0.180		–		
		2 AS	2 AS		–				–		
HS + AS	1 HS + 1 AS			B	**3VF9 322–1NB10**	1 unit	0.180		–		
or		1 HS + 1 AS		B	**3VF9 322–1NB20**	1 unit	0.180	3) B	**3VF9 422–1NB20**	1 unit	2.000
			1 HS + 1 AS	B	**3VF9 322–1NF20**	1 unit	0.180		–		
⊓, ⊡, RCD	⊓ or ⊡ or RCD				see Pages 4/176 and 4/186.				see Pages 4/176 and 4/186.		
Other alternatives for 3VF8 circuit-breaker											
HS		max. 3 × 4 HS	max. 3 × 4 HS								
or											
HS + AS		max. 3 × 4 HS +	max. 3 × 4 HS								
or		max. 3 × 2 AS	+ 3 × 2 AS								
⊓ + HS + AS		⊓ + max. 3 × 4 HS	⊓ + max. 3 × 4 HS								
or		+ max. 2 × 2 AS	+ max. 2 × 2 AS								
⊓ + HS		max. 3 × ⊓ +	max. 3 × ⊓ +								
or		max. 3 × 4 HS	max. 3 × 4 HS								
⊡ + HS + AS		⊡ + max. 3 × 4 HS	⊡ + max. 3 × 4 HS								
or		+ max. 2 × 2 AS	+ max. 2 × 2 AS								
⊡ + ⊓ + HS		⊡ + max. 2 × ⊓ +	⊡ + max. 2 × ⊓ +								
or		max. 3 × 4 HS	max. 3 × 4 HS								

Auxiliary and alarm switches (HS + AS) for retrofitting
Version with terminal block[1])

	Left mounting side	Right mounting side		DT	Accessories for 3VF3 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF4 Order No.	PS*	Weight per PU approx.
	3 or 4-pole	3-pole	4-pole				kg				kg
HS	1 HS (only for 3-pole)			B	**3VF9 322–1BC10**	1 unit	0.180		–		
or		1 HS	1 HS	B	**3VF9 322–1BC20**	1 unit	0.180	3) B	**3VF9 422–1BC20**	1 unit	2.000
	2 HS (only for 3-pole)			B	**3VF9 322–1CC10**	1 unit	0.180		–		
		2 HS	2 HS	B	**3VF9 322–1CC20**	1 unit	0.180	3) B	**3VF9 422–1CC20**	1 unit	2.000
AS	1 AS or			B	**3VF9 322–1GC10**	1 unit	0.180	B	**3VF9 422–1GC10**	1 unit	2.000
or		1 AS		B	**3VF9 322–1GC20**	1 unit	0.180	3) B	**3VF9 422–1GC20**	1 unit	2.000
	2 AS or			B	**3VF9 322–1HC10**	1 unit	0.180		–		
HS + AS	1 HS + 1 AS or			B	**3VF9 322–1NC10**	1 unit	0.180		–		
or		1 HS + 1 AS		B	**3VF9 322–1NC20**	1 unit	0.180	3) B	**3VF9 422–1NC20**	1 unit	2.000
⊓, ⊡, RCD	⊓ or ⊡ or RCD				see Pages 4/176 and 4/186.				see Pages 4/176 and 4/186.		

1) Due to the terminal block, the lateral spacing of the circuit-breakers must be at least 25 mm.

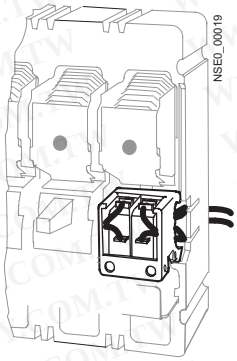
2) Only for 3VF3 for motor protection.

⊓ Shunt release (see Page 4/176)

⊡ Undervoltage release (see Page 4/176)

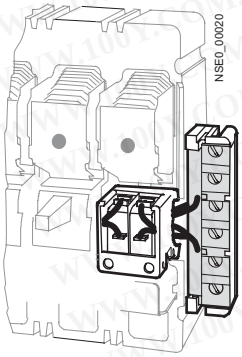
RCD RCD module

*** This quantity or a multiple thereof quantity can be ordered.**



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

	Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8		
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. 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.		

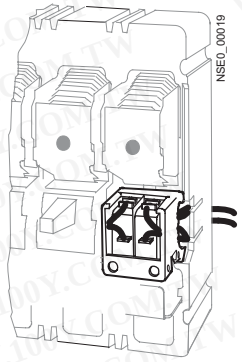
3) Not suitable for 3VF3 for motor protection.

4) Can be retrofitted with circuit-breakers supplied from Feb. 96.

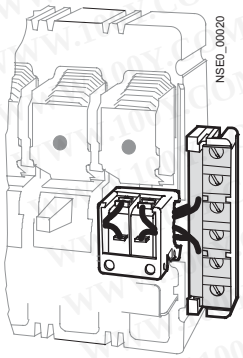
*** This quantity or a multiple thereof quantity can be ordered.**

Accessories/spare parts

Shunt releases and undervoltage releases (see Page 4/133 for possible complements)



Auxiliary release for fitting to left side up to 3VF7 (auxiliary switch shown as example) version with connecting leads



Auxiliary release for fitting to left side up to 3VF7 (auxiliary switch shown as example) version with terminal block

		DT	Accessories for 3VF3 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF4 Order No.	PS*	Weight per PU approx.
3- or 4-pole					kg				kg
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	**3VF9 421–1 . C10**	1 unit	on req.
48– 60	48– 60		**–**			B	**3VF9 421–1 . J10**	1 unit	on req.
48– 60	–		**–**				**–**		
48–127	48– 60	B	**3VF9 321–1 . G10**	1 unit	0.180		**–**		
–	48– 60		**–**				**–**		
110–240	110–125	B	**3VF9 321–1 . K10**	1 unit	0.180	B	**3VF9 421–1 . K10**	1 unit	0.180
–	110–125		**–**				**–**		
110–240	–		**–**				**–**		
380–440	220–250		**–**			B	**3VF9 421–1 . S10**	1 unit	0.180
380–600	220–250	B	**3VF9 321–1 . T 10**	1 unit	0.180		**–**		
Version with connecting leads			**H**				**H**		
Version with terminal block[1])			**J**				**J**		
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	**3VF9 421–1 . C10**	1 unit	0.220
AC 24 V		B	**3VF9 321–1 . D10**	1 unit	0.220	B	**3VF9 421–1 . D10**	1 unit	0.220
AC 48–60 V (3VF3 only 48 V)		B	**3VF9 321–1 . U10**	1 unit	0.220	B	**3VF9 421–1 . F10**	1 unit	0.220
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	**3VF9 421–1 . G10**	1 unit	0.220
AC 208–240 V		B	**3VF9 321–1 . H10**	1 unit	0.220	B	**3VF9 421–1 . H10**	1 unit	0.220
AC 380–500 V (3VF3 only up to 480 V)		B	**3VF9 321–1 . K10**	1 unit	0.220	B	**3VF9 421–1 . J10**	1 unit	0.220
AC 480–525 V		B	**3VF9 321–1 . L10**	1 unit	0.220		**–**		
Version with connecting leads			**B**				**B**		
Version with terminal block[1])			**C**				**C**		
DC 12 V		B	**3VF9 321–1 . N10**	1 unit	0.220	B	**3VF9 421–1 . N10**	1 unit	0.220
DC 24 V		B	**3VF9 321–1 . P10**	1 unit	0.220	B	**3VF9 421–1 . P10**	1 unit	0.220
DC 48–60 V (3VF3 only 48 V)		B	**3VF9 321–1 . U10**	1 unit	0.220	B	**3VF9 421–1 . Q10**	1 unit	0.220
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	**3VF9 421–1 . R10**	1 unit	0.220
DC 220–250 V		B	**3VF9 321–1 . S10**	1 unit	0.220	B	**3VF9 421–1 . S10**	1 unit	0.220
Version with connecting leads			**B**				**B**		
Version with terminal block[1])			**C**				**C**		
Time-delay device for undervoltage release (DC 220 ... 250 V)									
Rated control supply voltage U_s = AC/DC 220 ... 230 V									
Delay time									
0.3 ... 3.5 s stepless		X	**3WX31 56–3JJ10**	1 unit	0.500	X	**3WX31 56–3JJ10**	1 unit	0.500
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		**–**		
0.7; 1.4 s			**–**			A	**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.**

DT	Accessories for 3VF5 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF6 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF7 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF8 Order No.	PS*	Weight per PU approx. 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

4

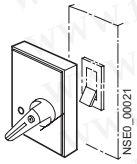
* This quantity or a multiple thereof can be ordered.

Accessories/spare parts

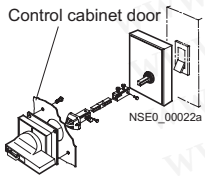
Operating mechanisms

Front rotary operating mechanism for 3VF3

Front rotary operating mechanism for 3VF6



Front rotary operating mechanism with knob



Rotary operating mechanism, complete, scope of supply

	DT	Accessories for 3VF3 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF4 Order No.	PS*	Weight per PU approx. kg
3- or 4-pole								
Front rotary operating mechanism for direct mounting on circuit-breakers Degree of protection IP30, black Max. 3 padlocks								
• without leading HS	B	**3VF9 323–1AA00**	1 unit	0.180	B	**3VF9 423–1AA00**	1 unit	2.000
• with leading HS after ON (2 NO) "S4"	B	**3VF9 323–1AB00**	1 unit	0.180	B	**3VF9 423–1AB00**	1 unit	2.000
• with leading HS after OFF (2 NC) "S5"	B	**3VF9 323–1AD00**	1 unit	0.180	B	**3VF9 423–1AD00**	1 unit	2.000
• with leading HS after ON/OFF (2 NO/2 NC) "S4/S5"	B	**3VF9 323–1AF00**	1 unit	0.180	B	**3VF9 423–1AF00**	1 unit	2.000
Version with connecting leads								
EMERGENCY-STOP version Red knob, yellow indicator plate								
• without leading HS	B	**3VF9 323–1BA00**	1 unit	0.180	B	**3VF9 423–1BA00**	1 unit	2.000
• with leading HS after ON (2 NO) "S4"	B	**3VF9 323–1BB00**	1 unit	0.180	B	**3VF9 423–1BB00**	1 unit	2.000
• with leading HS after OFF (2 NC) "S5"	B	**3VF9 323–1BD00**	1 unit	0.180	B	**3VF9 423–1BD00**	1 unit	2.000
• with leading HS after ON/OFF (2 NO/2 NC) "S4/S5"	B	**3VF9 323–1BF00**	1 unit	0.180	B	**3VF9 423–1BF00**	1 unit	2.000
Version with connecting leads								
Version with shaft stub, without knob (additional door-coupling rotary operating mechanism required see Page 4/189)								
• without leading HS	B	**3VF9 323–1JA00**	1 unit	0.180	B	**3VF9 423–1JA00**	1 unit	2.000
• with leading HS after ON (2 NO) "S4"	B	**3VF9 323–1JB00**	1 unit	0.180	B	**3VF9 423–1JB00**	1 unit	2.000
• with leading HS after OFF (2 NC) "S5"	B	**3VF9 323–1JD00**	1 unit	0.180	B	**3VF9 423–1JD00**	1 unit	2.000
• with leading HS after ON/OFF (2 NO/2 NC) "S4/S5"	B	**3VF9 323–1JF00**	1 unit	0.180	B	**3VF9 423–1JF00**	1 unit	2.000
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								
• without leading HS	B	**3VF9 323–1EA00**	1 unit	0.180	B	**3VF9 423–1EA00**	1 unit	2.000
• with leading HS after ON (2 NO) "S4"	B	**3VF9 323–1EB00**	1 unit	0.180	B	**3VF9 423–1EB00**	1 unit	2.000
• with leading HS after OFF (2 NC) "S5"	B	**3VF9 323–1ED00**	1 unit	0.180	B	**3VF9 423–1ED00**	1 unit	2.000
• with leading HS after ON/OFF (2 NO/2 NC) "S4/S5"	B	**3VF9 323–1EF00**	1 unit	0.180	B	**3VF9 423–1EF00**	1 unit	2.000
Version with connecting leads								
EMERGENCY-STOP version Red knob, yellow indicator plate								
• without leading HS	B	**3VF9 323–1FA00**	1 unit	0.180	B	**3VF9 423–1FA00**	1 unit	2.000
• with leading HS after ON (2 NO) "S4"	B	**3VF9 323–1FB00**	1 unit	0.180	B	**3VF9 423–1FB00**	1 unit	2.000
• with leading HS after OFF (2 NC) "S5"	B	**3VF9 323–1FD00**	1 unit	0.180	B	**3VF9 423–1FD00**	1 unit	2.000
• with leading HS after ON/OFF (2 NO/2 NC) "S4/S5"	B	**3VF9 323–1FF00**	1 unit	0.180	B	**3VF9 423–1FF00**	1 unit	2.000
Version with connecting leads								
Additional locking device for rotary operating mechanism, complete[2])	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.

*** This quantity or a multiple thereof can be ordered.**

DT	Accessories for 3VF5 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF6 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF7 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF8 Order No.	PS*	Weight per PU approx. 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		

4

* This quantity or a multiple thereof can be ordered.

Accessories/spare parts

Operating mechanisms

Motorized operating mechanism for 3VF3

Motorized operating mechanism for 3VF4, 3VF5, 3VF6 (shown with 3VF6)

Motorized operating mechanism for 3VF8

			Accessories for 3VF3				Accessories for 3VF4		
		DT	Order No.	PS*	Weight per PU approx.	DT	Order No.	PS*	Weight per PU approx.
3- or 4-pole					kg				kg
Motorized operating mechanism[1] 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
–	48 V		**–**				**–**		
42 V	48 V	B	**3VF9 323–1NB10**	1 unit	0.180	B	**3VF9 423–1NB10**	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	110/127 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		**–**				**–**		
42 V	48 V		**–**			C	**3VF9 423–1QB10**	1 unit	2.120
–	60 V		**–**			C	**3VF9 423–1QC20**	1 unit	2.120
110/127 V	110/127 V		**–**			C	**3VF9 423–1QD10**	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.
The motorized operating mechanism must be ordered for AC 50/60 Hz 220 V.
} Catalog LV 10 "Switchgear and Controlgear for Industry"

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.

*** This quantity or a multiple thereof can be ordered.**

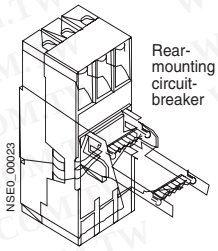
DT	Accessories for 3VF5 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF6 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF7 Order No.	PS*	Weight per PU approx. kg	DT	Accessories for 3VF8 Order No.	PS*	Weight per PU approx. kg
B	**3VF9 523–1MA20**	1 unit	1.080	B	**3VF9 623–1MA20**	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]		–				–		
	–				–			D	**3VF9 723–1NB20**	1 unit	3.680 [3]	B	**3VF9 833–1NB20**	1 unit	17.300
B	**3VF9 523–1NB10**	1 unit	1.080	B	**3VF9 623–1NB10**	1 unit	2.500 [3]		–				–		
B	**3VF9 523–1NC20**	1 unit	1.080	B	**3VF9 623–1NC20**	1 unit	2.500 [3]		–				–		
	–				–			D	**3VF9 723–1ND20**	1 unit	3.680 [3]		–		
B	**3VF9 523–1ND10**	1 unit	1.080	B	**3VF9 623–1ND10**	1 unit	2.500 [3]	D	**3VF9 723–1ND30**	1 unit	3.680 [3][4]	B	**3VF9 833–1ND30**	1 unit	17.300 [4]
B	**3VF9 523–1NE10**	1 unit	1.080	B	**3VF9 623–1NE10**	1 unit	2.500 [3]	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		–				–		
	–				–				–				–		
	–				–				–				–		
	–				–				–				–		
	–				–				–				–		

4

* This quantity or a multiple thereof can be ordered.

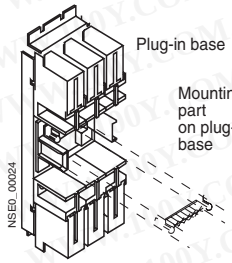
Accessories/spare parts

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 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF4 Order No.	PS*	Weight per PU approx.
3- or 4-pole				kg				kg
Auxiliary conductor plug-in device for plug-in circuit-breakers/ withdrawable circuit-breakers								
External mounting on side of plug-in circuit-breaker[1])	▶	**3VF9 624–1VA40**	1 unit	0.258	▶	**3VF9 624–1VA40**	1 unit	0.258
Fitted to rear of circuit-breaker		–			▶	**3VF9 524–1VA50**	1 unit	0.429
Additional lateral connector[1])	▶	**3VF9 624–1VJ40**	1 unit	0.128	▶	**3VF9 624–1VJ40**	1 unit	0.128
Additional rear connector		–			▶	**3VF9 624–1VJ50**	1 unit	0.158
Pull-out device[2]) 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 barrier[3]) 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	B	**3VF9 324–1FA10**	1 unit	3.650	B	**3VF9 424–1FA10**	1 unit	2.760
for circuit-breaker with ' RCD module	B	**3VF9 324–1FE10**	1 unit	3.650	B	**3VF9 424–1FE10**	1 unit	2.760
Plug-in base with baseplate								
for rear connection	B	**3VF9 324–1FB10**	1 unit	3.650	B	**3VF9 424–1FB10**	1 unit	2.760
for circuit-breaker with RCD module	B	**3VF9 324–1FF10**	1 unit	3.650	B	**3VF9 424–1FF10**	1 unit	2.760
Guide frame[4]) 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** for cable connection	1 set	0.146	▶	**3VF9 424–1NB10** for cable connection	1 set	0.160

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.

*** This quantity or a multiple thereof can be ordered.**

Accessories for 3VF5				Accessories for 3VF6				Accessories for 3VF7				Accessories for 3VF8			
DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. kg	DT	Order No.	PS*	Weight per PU approx. 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	–				–				–		
	–			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.**

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 terminal for 3VF5

3VF9 524–1RA10
Phase barrier for 3VF4/3VF5

3VF9 624–1GB10
Guide frame with 3VF6 plug-in circuit-breaker

	DT	Accessories for 3VF3 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF4 Order No.	PS*	Weight per PU approx.
4-pole only				kg				kg
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 frame[1]) 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.

*** This quantity or a multiple thereof can be ordered.**

DT	Accessories for 3VF5 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF6 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF7 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF8 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.**

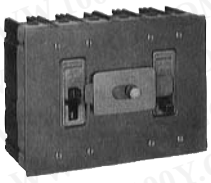
Accessories/spare parts

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 mechanism, for 3VF3 to 3VF7, complete for fitting in doors and covers



3VF9 323–1VG00
Module for mutual interlocking of toggle levers for 3VF3

3VF9 623–1VB00
Toggle lever extension for 3VF6

		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								
Locking device for toggle lever	B	**3VF9 323–1VC00**	1 unit	0.180	B	**3VF9 523–1VC00**	1 unit	1.080
Toggle lever extension for retrofitting by plugging onto the toggle lever of the circuit-breaker		**–**			B	**3VF9 523–1VB00**	1 unit	1.080
Mutual interlocking of two circuit-breakers order 2 × door-coupling rotary operating mechanisms with this device[1])	▶	**3VF9 523–1VL00**	1 unit	0.258	▶	**3VF9 523–1VL00**	1 unit	0.258
Masking frame for door cut-out IP30 for circuit-breaker								
without RCD module	B	**3VF9 320–1AA00**	1 unit	0.220	B	**3VF9 420–1AA00**	1 unit	0.120
with RCD module	B	**3VF9 320–1AB00**	1 unit	0.220	B	**3VF9 420–1AB00**	1 unit	0.120
Sheet-steel enclosure IP54 without operating mechanism (Molded-plastic enclosure Section 7 "Switchboards, distribution and cabinet systems"	C	**3VF9 324–1DA00**	1 unit	3.650		For molded-plastic enclosure see Section 7 "Switchboards, distribution systems and cabinet systems"		
Accessories:								
Front-operated rotary operating mechanism with shaft stub, without knob Also required:		see Page 4/178.						
Black knob, lockable	B	**3VF9 323–1VN10**	1 unit	0.180				
Red knob, with yellow plate, lockable, for EMERGENCY-STOP switch	B	**3VF9 323–1VN20**	1 unit	0.180				
		3-pole only						
Module for mutual interlocking of toggle levers[2]) (this is not a changeover device)	B	**3VF9 323–1VG00**	1 unit	0.180	B	**3VF9 423–1VG00**	1 unit	2.120

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	
							3-pole	4-pole	3-pole	4-pole	3-pole	4-pole
		A	A	S	V	Identification code for further versions **–Z**					kg	kg
3VF31	For system and motor protection, disconnectors or starter combinations	100	0.03	instantaneous	110–415	**A01**	×	×	×	×	0.48	0.5
3VF32		160	0.1		110–690	**A02**	×	×	×	×	0.48	0.5
3VF4		250	0.3	0.06			×	×	×	×	0.94	1.25
			0.5	0.1								
			1.0	0.25								
			3.0	0.5								
3VF5	For system protection[1])	400[1])	10	1.0			×	×	×	×	1.18	1.21
			30									

1) Not for electronic trip units (11th position of Order No. "6").

× version possible.

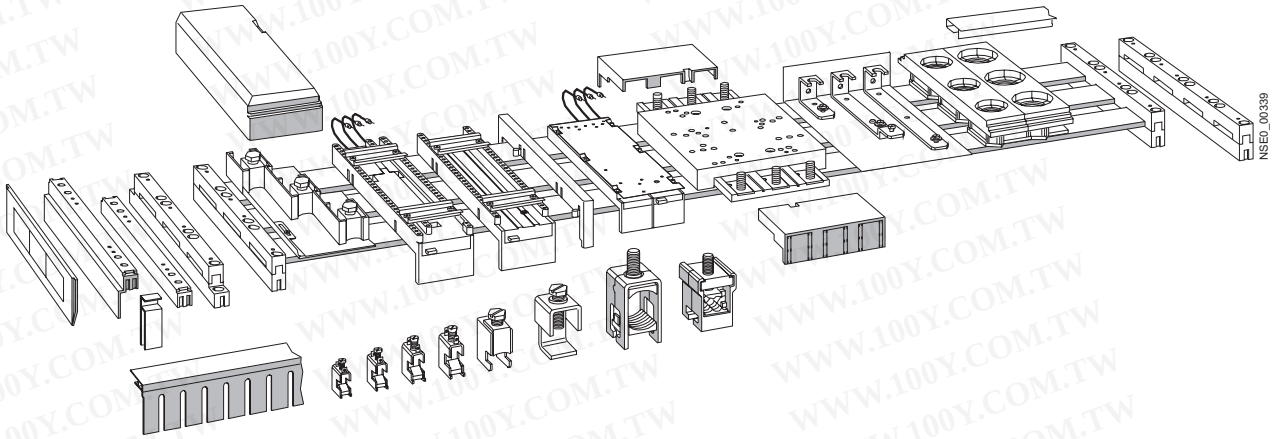
*** This quantity or a multiple thereof can be ordered.**

DT	Accessories for 3VF5 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF6 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF7 Order No.	PS*	Weight per PU approx.	DT	Accessories for 3VF8 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	**3VF9 520–1AA00**	1 unit	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
B	**3VF9 520–1AB00**	1 unit	0.120		**–**				**–**				**–**		
	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		–				–		

*** This quantity or a multiple thereof can be ordered.**

Accessories/spare parts

8US1 busbar adapter system

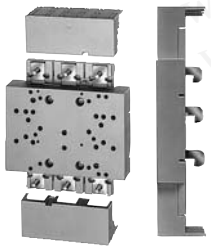


Busbar adapter systems with 40 mm or 60 mm busbar center-to-center distance with components for busbar runs, adapters and switching device holders for individual configuration possibilities, devices with an integrated adapter, as well as accessories and busbar copper.

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
	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					
	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).					

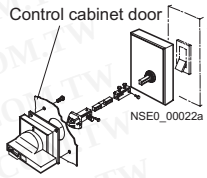
8US12 11–4SB00 with 3VF3



8US12 10–4AF00

*** This quantity or a multiple thereof can be ordered.**

8UC6 door-coupling rotary operating mechanisms



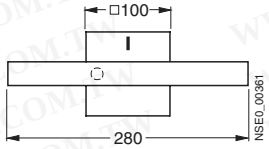
Rotary operating mechanism, complete see Pages 4/178 and 4/179

8UC61

8UC62

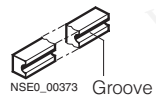
8UC65

For type	Rated current A	Cross-section of actuating shaft mm	Torque Nm	DT	Door-coupling rotary operating mechanism, complete Lockable with padlocks, with door interlocking Supplied with gasket and fixing screws Handle black, light-gray indicator plate with black inscription Order No.	PS*	Weight per PU approx. kg	DT	EMERGENCY-STOP version Handle red, yellow indicator plate with black inscription Order No.	PS*	Weight per PU approx. kg
Illustrated: handle, masking frame											
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]
3VF4	125 ... 250	8 × 8	6								
3VF5	200 ... 400	8 × 8	6								
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								

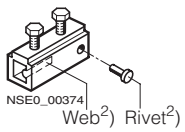


Components

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



8UC60 3.
8UC60 8.



8UC60 2.

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.

*** This quantity or a multiple thereof can be ordered.**

Project planning aids

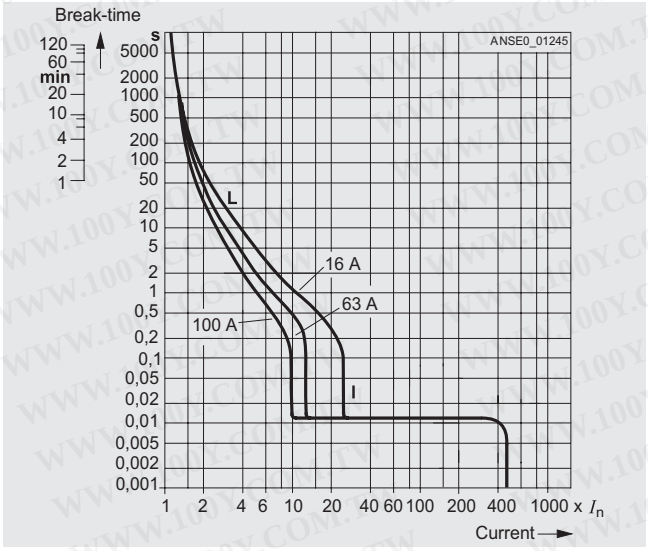
Characteristics

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.

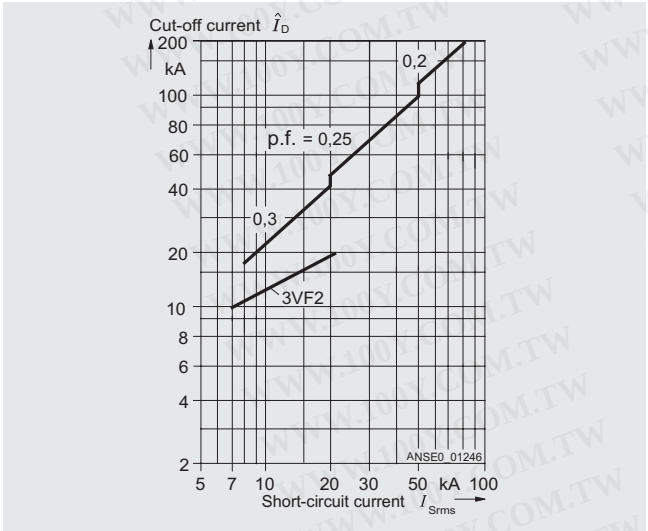
The tripping characteristics of the instantaneous (electromagnetic) short-circuit releases ("I" trip units) are based on the phase rated current I_n, which also represents the upper value of the setting range on circuit-breakers with adjustable thermal overload release. With a lower operational current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

"L" thermal overload release

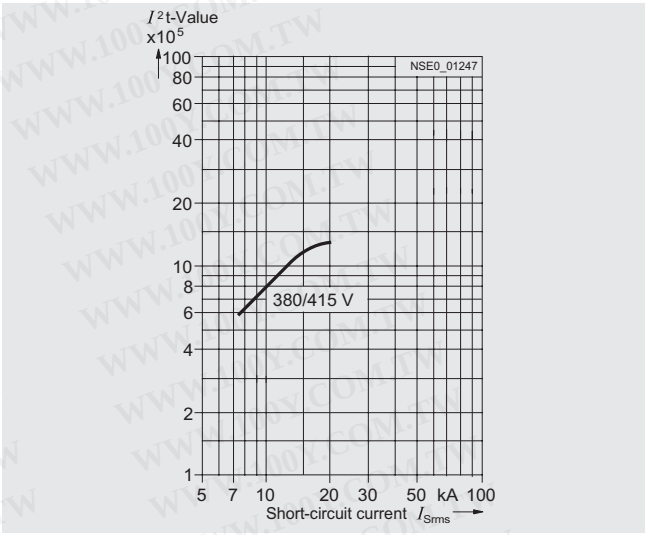
"I" instantaneous (electromagnetic) short-circuit release



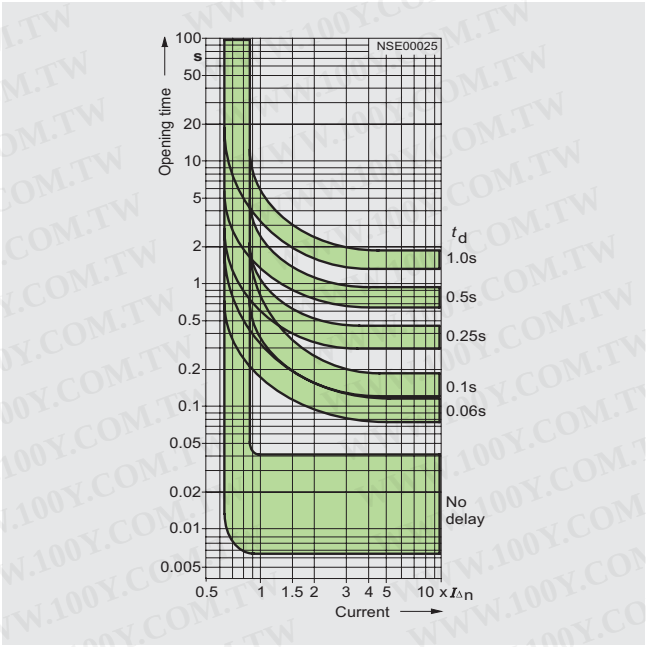
Tripping characteristic for 3VF2 circuit-breaker



Current limiting characteristics for 3VF2, AC 50/60 Hz 380/415 V



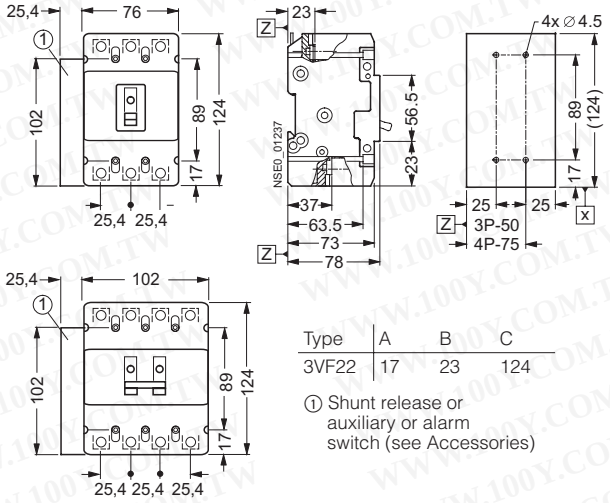
Maximum I^2t values for 3VF2, AC 50/60 Hz 380/415 V



Tripping characteristic of the RCD module

Dimension drawings

3VF2 circuit-breakers, 3 and 4-pole

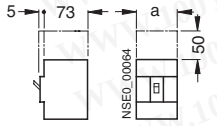


Type	A	B	C
3VF22	17	23	124

① Shunt release or auxiliary or alarm switch (see Accessories)

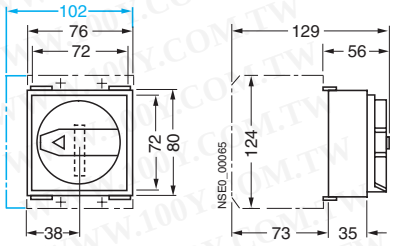
3VF2

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.

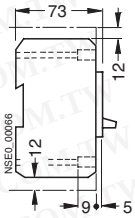


Type	a
3VF2, 3-pole	78
3VF2, 4-pole	101

Accessories for 3VF2 circuit-breakers, 3 and 4-pole

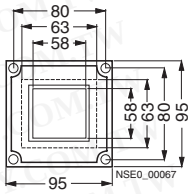


3VF9 223–1.A00 front rotary operating mechanism with knob for 3VF2

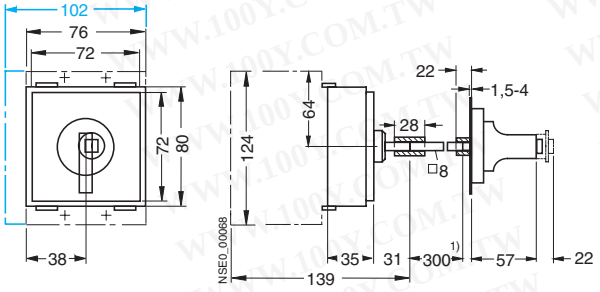


3VF9 224–1NB.0 terminal cover for 3VF2

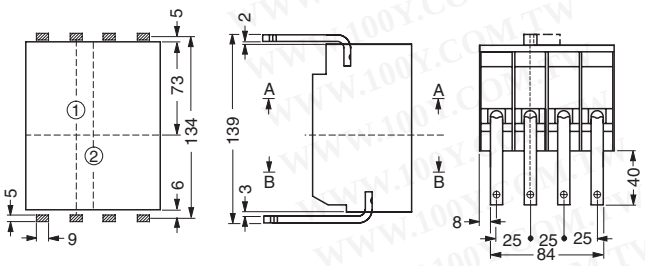
3VF9 220–1CA10 cover with cap dimensions of 45 mm for 3VF2



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

Center line
① 3-pole circuit-breaker
② 4-pole circuit-breaker

1) As-supplied, shorten shaft to suit if necessary. With lengths >130 mm a support is necessary.

4-pole version

Note:
4-pole circuit-breakers always have the 4th pole (N) on the left!

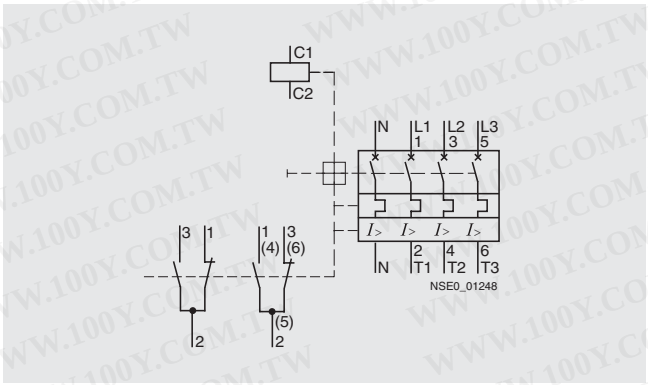
Project planning aids

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

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