

# SIEMENS



## SENTRON

# 3VL molded case circuit breakers for the UL market

3VL molded case circuit breakers according to UL 489 with new Electronic Trip Units

### Integrated communication

The 3VL molded case circuit breakers according to UL 489 with new Electronic Trip Units (equipped with or without LCD) can be integrated via PROFIBUS DP or Modbus RTU into higher-level systems, e.g. in a power monitoring system, via the COM20 and COM21 (Release 2) communication modules. COM20 and COM21 (Release 2) reliably transfer circuit breaker status information and current measured values of the conductor currents, thus creating transparency about the state of a system at all times.

### New alarm function in the event of ground fault

The new Electronic Trip Units (ETUs) with LCD are additionally equipped with an alarm function – LSIG (alarm) – in the event of a ground fault. If a ground fault occurs, the ETU only issues an alarm, without tripping the circuit breaker. This alarm is displayed locally on the LCD and/or is communicated to higher-level systems via PROFIBUS DP/Modbus RTU, thus avoiding a system shutdown due to the existence of a ground fault.

### Highlights

- Consistent communication with all ETU versions via the COM20 (PROFIBUS DP) and COM21 (Modbus RTU) communication modules
- Enhanced system availability thanks to a new alarm function in the event of a ground fault – LSIG (alarm)
- System transparency at all times thanks to reliable communication of circuit breaker status and current measured values

Answers for infrastructure and cities.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Introduction

### Overview



Type VL150X UL, CG frame VL150 UL, DG frame VL250 UL, FG frame VL400 UL, JG frame

#### Molded case circuit breakers

#### 3VL molded case circuit breakers up to 1600 A, according to UL 489

	A	20 to 150	50 to 150	100 to 250	250 to 400
Rated current $I_n$ <sup>1)</sup> at 40 °C ambient temperature	A	20 to 150	50 to 150	100 to 250	250 to 400
Number of poles		3	3	3	3
Rated operational voltage $U_e$ (UL) 50/60 Hz AC	V	480, 600/347	480, 600/347	480, 600/347	600
DC <sup>2)</sup>	V	250	500	500	500

#### Overcurrent releases

Thermal-magnetic		✓	✓	✓	✓
Electronic, ETU with setting knobs		--	✓	✓	✓
Electronic LCD ETU		--	✓	✓	✓

#### Dimensions

	A	B	C	D	mm	105	105	105	139
A	mm	105	105	105	139				
B	mm	157	175	175	279				
C	mm	81	81	81	102				
D	mm	107	107	107	138				

#### Breaking capacity

##### Standard breaking capacity N N

Up to 240 V AC	kA	65	65	65	65
Up to 480 V AC	kA	35	35	35	35
Up to 600 V AC	kA	--	--	--	25
Up to 600/347 V AC	kA	10	18	18	--
Up to 250 V DC <sup>3)</sup>	kA	30	30	30	30
Up to 500 V DC <sup>3) 4)</sup>	kA	--	18	18	25
Breaking capacity $I_{cu}/I_{cs}$ RMS value according to IEC 60947-2					
Up to 240 V AC	kA	65/65	65/65	65/65	65/65
Up to 415 V AC	kA	40/40	40/40	40/40	45/45
Up to 690 V AC	kA	8/4 <sup>5)</sup>	12/6	12/6	12/6
Up to 250 V DC <sup>3)</sup>	kA	30/30	30/30	30/30	30/30

##### High breaking capacity H H

Up to 240 V AC	kA	100	100	100	100
Up to 480 V AC	kA	65	65	65	65
Up to 600 V AC	kA	--	--	--	25
Up to 600/347 V AC	kA	10	18	18	--
Up to 250 V DC <sup>3)</sup>	kA	30	30	30	30
Up to 500 V DC <sup>3) 4)</sup>	kA	--	18	25	35
Breaking capacity $I_{cu}/I_{cs}$ RMS value according to IEC 60947-2					
Up to 240 V AC	kA	100/75	100/75	100/75	100/75
Up to 415 V AC	kA	70/70	70/70	70/70	70/70
Up to 690 V AC	kA	10/5 <sup>5)</sup>	12/6	12/6	15/8
Up to 250 V DC <sup>3)</sup>	kA	30/30	30/30	30/30	30/30

##### Very high breaking capacity L L

Up to 240 V AC	kA	--	200	200	200
Up to 480 V AC	kA	--	100	100	100
Up to 600 V AC	kA	--	--	--	25
Up to 600/347 V AC	kA	--	18	18	--
Up to 250 V DC <sup>3)</sup>	kA	--	30	30	30
Up to 500 V DC <sup>3) 4)</sup>	kA	--	18	30	35
Breaking capacity $I_{cu}/I_{cs}$ RMS value according to IEC 60947-2					
Up to 240 V AC	kA	--	200/150	200/150	200/150
Up to 415 V AC	kA	--	100/75	100/75	100/75
Up to 690 V AC	kA	--	12/6	12/6	15/8
Up to 250 V DC <sup>3)</sup>	kA	--	30/30	30/30	30/30

✓ Available -- Not available

<sup>1)</sup> 80 % rated current applications according to UL 489, 100 % rated current applications according to IEC 60947-2.

<sup>2)</sup> Rated DC voltage applies only for molded case circuit breakers with thermal-magnetic release.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

## Introduction



VL400X UL, LG frame



VL800 UL, MG frame



VL1200 UL, NG frame



VL1600 UL, PG frame

### 3VL molded case circuit breakers up to 1600 A, according to UL 489

400 to 600	600 to 800	800 to 1200	1200 to 1600
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3	3	3	3
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600 500	600 500	600 500	600 500
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✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
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139 279 102 138	190 406 118 151	229 406 157 209	229 406 157 209
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65 35 18 --	65 35 25 --	65 35 25 --	65 35 25 --
30 25	22 35	22 35	22 35
65/65 45/45 12/6 30/30	65/65 50/50 20/10 30/30	65/35 50/25 20/10 30/30	65/35 50/25 20/10 30/30

100 65 18 --	100 65 35 --	100 65 35 --	100 65 35 --
30 35	25 50	25 50	25 50
100/75 70/70 15/8 30/30	100/75 70/70 20/10 30/30	100/50 70/35 30/15 30/30	100/50 70/35 30/15 30/30

200 100 18 --	200 100 50 --	200 100 65 --	200 100 65 --
30 35	42 65	42 65	42 65
200/150 100/75 15/8 30/30	200/150 100/75 20/10 30/30	200/100 100/50 35/17 30/30	200/100 100/50 35/17 30/30

<sup>3)</sup> The maximum permitted DC voltage for each conducting path needs to be taken into account for DC switching applications.

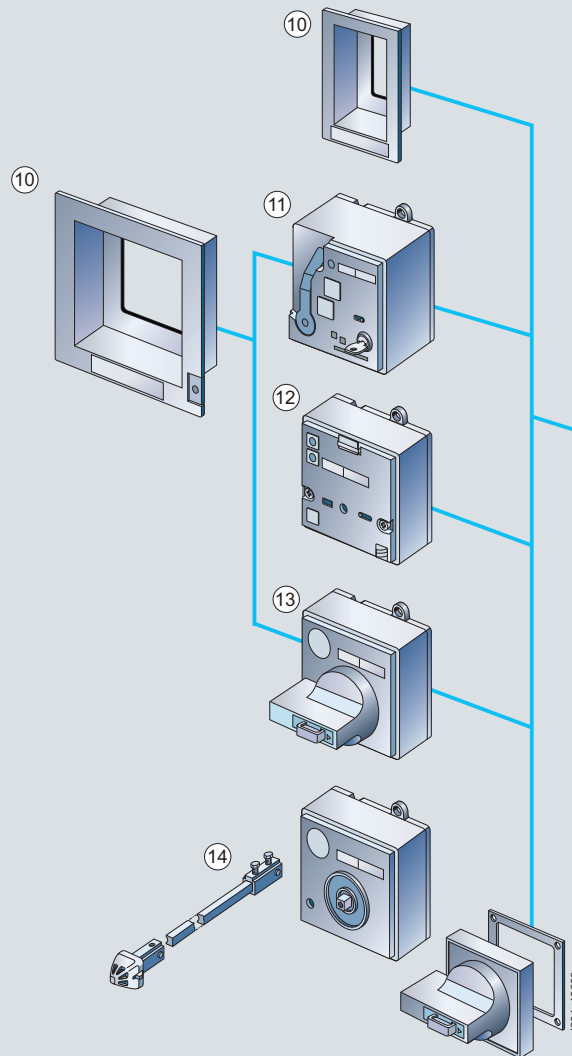
<sup>4)</sup> 500 VDC rated/600 VDC max. for use in ungrounded UPS DC applications (according to UL 489, Supplement SC)

<sup>5)</sup> Rated current  $I_n \geq 25$  A.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Introduction

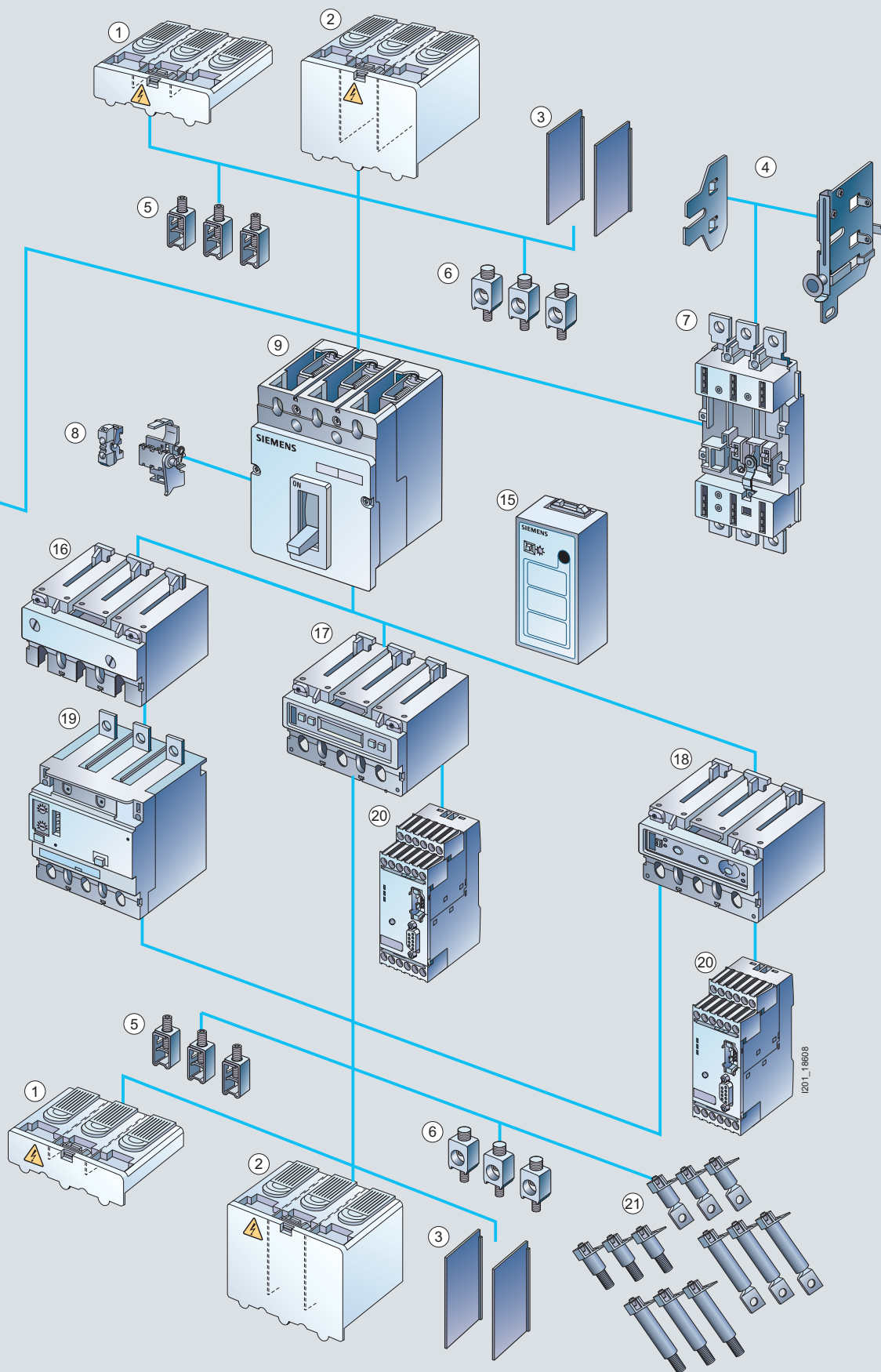


- ① Standard terminal cover
- ② Extended terminal cover
- ③ Phase barriers
- ④ Withdrawable side panels
- ⑤ Box terminal for Cu
- ⑥ Circular conductor terminal for Al/Cu
- ⑦ Withdrawable/plug-in base
- ⑧ Internal accessories
- ⑨ 3VL molded case circuit breakers
- ⑩ Masking/cover frame for door cutout
- ⑪ Motorized operating mechanism with stored energy mechanism (SEO)
- ⑫ Motorized operating mechanism (MO)
- ⑬ Front-operated rotary operating mechanism
- ⑭ Door-coupling rotary operating mechanism
- ⑮ Battery power supply with test function for Electronic Trip Unit
- ⑯ Thermal-magnetic overcurrent release
- ⑰ Electronic Trip Unit with LCD (LCD ETU)
- ⑱ Electronic Trip Unit with setting knobs (ETU)
- ⑲ RCD module
- ⑳ Communication module COM20/21 (Release 2)
- ㉑ Rear connections – flat and round

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Introduction



# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

### Benefits



- 3VL molded case circuit breakers according to UL 489 optimally fulfill the high demands prevalent in modern power distribution.
- The molded case circuit breakers feature a compact design, are distinguished by improved technology and are easy to operate.
- They are available both in thermal-magnetic (20 A to 1,600 A) and in electronic versions (60 A to 1,600 A).
- Via PROFIBUS DP and Modbus RTU, the molded case circuit breakers with Electronic Trip Units (ETUs) are consistently communication-capable.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Introduction

#### Applications

The different versions of 3VL molded case circuit breakers according to UL are suitable for the following applications:

- Incoming circuit breakers (feeders) and outgoing circuit breakers (branches) in distribution systems
- Switching and protection devices for motors (motor protection in combination with a contactor and motor protection relay), transformers and capacitors
- Disconnecter units with features for stopping and switching off in an emergency (main control switches and EMERGENCY-STOP switches) in conjunction with lockable rotary operating mechanisms.

The 3VL molded case circuit breakers according to UL are available in the following versions:

1. For system protection  
The overload and short-circuit releases are designed for the protection of cables, leads and non-motor loads.
2. For starter combinations  
These molded case circuit breakers are used both for short-circuit protection as well as for isolating functions, which may be required in starter combinations consisting of molded case circuit breakers, overload relays and motor contactors. These molded case circuit breakers exclusively feature adjustable, instantaneous short-circuit releases.
3. As non-automatic circuit breakers  
These molded case circuit breakers can be used as feeder circuit breakers, main control switches or non-automatic circuit breakers without overload protection. They incorporate an integrated short-circuit self-protection system.

#### Breaking capacity

- N** Molded case circuit breakers with standard breaking capacity N ( $I_{cu}$  up to 35 kA at 480 V)
- H** Molded case circuit breakers with high breaking capacity H ( $I_{cu}$  up to 65 kA at 480 V)
- L** Molded case circuit breakers with very high breaking capacity L ( $I_{cu}$  up to 100 kA at 480 V)

These molded case circuit breakers are indicated in the selection and ordering data by green backgrounds.

#### Standards and specifications

3VL molded case circuit breakers comply with:

UL 489,  
CSA (CSA C22.2 NO. 5-13),  
IEC/EN 60947-2,  
For isolating features according to IEC 60947-2, EN 60947-2, NOM (NMX-J-266-ANCE-2013), please enquire.  
CCC (only VL2 UL/DG, VL3 UL/FG, VL4 UL/JG and VL4X UL/LG)  
GOST and FireSafety (Russia)

The 3VL molded case circuit breakers comply in addition with requirements for "disconnecter units with features for stopping and switching off in an emergency" (EMERGENCY-STOP switches) in conjunction with lockable rotary operating mechanisms (red-yellow) and terminal covers.

Please contact Siemens for details of other standards.

#### Operating conditions

The 3VL molded case circuit breakers according to UL are designed for operation in enclosed areas.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

## Selection and ordering data

Type	Rated current $I_n$	Current setting of the inverse-time delayed overload releases "L" $I_r$	Operating current of the instantaneous short-circuit releases "I" $I_i$	DT	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity N See "Overview".					
					Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	A	A	A		Order No. supplement required, see page 24					kg

Fixed-mounted molded case circuit breakers,  
VL150X UL (CG frame) up to VL1600 UL (PG frame),  
thermal-magnetic releases (UL file: E10848, CCN<sup>1)</sup>): DIVQ)

**System protection, TM, LI function**

With non-adjustable thermal overcurrent releases, adjustable short-circuit releases,  
VL150X UL: non-adjustable short-circuit releases

**Connection type:**

Molded case circuit breakers without pre-mounted connections,  
connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or  
under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.

VL150X UL, CG frame	20	20	300	<b>3VL11 02-1KM30-□□□□</b>	1	1 unit	113	1,900
	25	25	300	<b>3VL11 25-1KM30-□□□□</b>	1	1 unit	113	2,000
	30	30	300	<b>3VL11 03-1KM30-□□□□</b>	1	1 unit	113	2,000
	35	35	600	<b>3VL11 35-1KM30-□□□□</b>	1	1 unit	113	2,000
	40	40	600	<b>3VL11 04-1KM30-□□□□</b>	1	1 unit	113	2,000
	50	50	600	<b>3VL11 05-1KM30-□□□□</b>	1	1 unit	113	2,000
	60	60	600	<b>3VL11 06-1KM30-□□□□</b>	1	1 unit	113	2,000
	70	70	1000	<b>3VL11 07-1KM30-□□□□</b>	1	1 unit	113	2,000
	80	80	1000	<b>3VL11 08-1KM30-□□□□</b>	1	1 unit	113	2,000
	90	90	1000	<b>3VL11 91-1KM30-□□□□</b>	1	1 unit	113	2,000
	100	100	1000	<b>3VL11 10-1KM30-□□□□</b>	1	1 unit	113	2,000
	125	125	1000	<b>3VL11 12-1KM30-□□□□</b>	1	1 unit	113	2,000
	150	150	1500	<b>3VL11 15-1KM30-□□□□</b>	1	1 unit	113	2,000
VL150 UL, DG frame	50	50	450 ... 700	<b>3VL25 05-1KN30-□□□□</b>	1	1 unit	113	2,200
	60	60	450 ... 700	<b>3VL25 06-1KN30-□□□□</b>	1	1 unit	113	2,200
	70	70	450 ... 700	<b>3VL25 07-1KN30-□□□□</b>	1	1 unit	113	2,200
	80	80	450 ... 800	<b>3VL25 08-1KN30-□□□□</b>	1	1 unit	113	2,200
	90	90	500 ... 1000	<b>3VL25 91-1KN30-□□□□</b>	1	1 unit	113	2,200
	100	100	500 ... 1000	<b>3VL25 10-1KN30-□□□□</b>	1	1 unit	113	2,200
	110	110	550 ... 1100	<b>3VL25 11-1KN30-□□□□</b>	1	1 unit	113	2,200
	125	125	625 ... 1250	<b>3VL25 12-1KN30-□□□□</b>	1	1 unit	113	2,200
150	150	800 ... 1600	<b>3VL25 15-1KN30-□□□□</b>	1	1 unit	113	2,200	
VL250 UL, FG frame	100	100	625 ... 1250	<b>3VL35 10-1KN30-□□□□</b>	1	1 unit	113	2,300
	110	110	800 ... 1600	<b>3VL35 11-1KN30-□□□□</b>	1	1 unit	113	2,300
	125	125	800 ... 1600	<b>3VL35 12-1KN30-□□□□</b>	1	1 unit	113	2,300
	150	150	800 ... 1600	<b>3VL35 15-1KN30-□□□□</b>	1	1 unit	113	2,300
	175	175	1000 ... 2000	<b>3VL35 17-1KN30-□□□□</b>	1	1 unit	113	2,300
	200	200	1000 ... 2000	<b>3VL35 20-1KN30-□□□□</b>	1	1 unit	113	2,300
	225	225	1250 ... 2500	<b>3VL35 22-1KN30-□□□□</b>	1	1 unit	113	2,300
	250	250	1250 ... 2500	<b>3VL35 25-1KN30-□□□□</b>	1	1 unit	113	2,300
VL400 UL, JG frame	250	250	1250 ... 2500	<b>3VL41 25-1KN30-□□□□</b>	1	1 unit	113	5,700
	300	300	1500 ... 3000	<b>3VL41 30-1KN30-□□□□</b>	1	1 unit	113	5,700
	350	350	1750 ... 3500	<b>3VL41 35-1KN30-□□□□</b>	1	1 unit	113	5,700
	400	400	2000 ... 4000	<b>3VL41 40-1KN30-□□□□</b>	1	1 unit	113	5,700
VL400X UL, LG frame	400	400	2000 ... 4000	<b>3VL48 40-1KN30-□□□□</b>	1	1 unit	113	5,700
	500	500	2500 ... 5000	<b>3VL48 50-1KN30-□□□□</b>	1	1 unit	113	5,700
	600	600	2750 ... 5500	<b>3VL48 60-1KN30-□□□□</b>	1	1 unit	113	5,700
VL800 UL, MG frame	600	600	3000 ... 6000	<b>3VL61 60-1KN30-□□□□</b>	1	1 unit	113	14,000
	700	700	3250 ... 6500	<b>3VL61 70-1KN30-□□□□</b>	1	1 unit	113	14,000
	800	800	3250 ... 6500	<b>3VL61 80-1KN30-□□□□</b>	1	1 unit	113	14,000
VL1200 UL, NG frame	800	800	4000 ... 8000	<b>3VL71 80-1KN30-□□□□</b>	1	1 unit	113	21,800
	900	900	5000 ... 10000	<b>3VL71 90-1KN30-□□□□</b>	1	1 unit	113	21,800
	1000	1000	5000 ... 10000	<b>3VL71 10-1KN30-□□□□</b>	1	1 unit	113	21,800
	1200	1200	7000 ... 12000	<b>3VL71 12-1KN30-□□□□</b>	1	1 unit	113	21,800
VL1600 UL, PG frame <sup>2)</sup>	1200	1200	7000 ... 12000	<b>3VL81 12-1KN30-□□□□</b>	1	1 unit	113	32,800
	1400	1400	7000 ... 12000	<b>3VL81 14-1KN30-□□□□</b>	1	1 unit	113	32,800
	1600	1600	7000 ... 12000	<b>3VL81 16-1KN30-□□□□</b>	1	1 unit	113	32,800

<sup>1)</sup> UL Code Classification Number.

<sup>2)</sup> Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT $I_{CU}$ up to 65 kA at 480 V, high breaking capacity H						DT $I_{CU}$ up to 100 kA at 480 V, very high breaking capacity L					
(H)						(L)					
Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
Order No. supplement required, see page 24						Order No. supplement required, see page 24					
kg						kg					
3VL11 02-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 25-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 03-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 35-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 04-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 05-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 06-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 07-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 08-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 91-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 10-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 12-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL11 15-2KM30-□□□□		1	1 unit	113	2.000	--					
3VL25 05-2KN30-□□□□		1	1 unit	113	2.200	3VL25 05-3KN30-□□□□		1	1 unit	113	2.200
3VL25 06-2KN30-□□□□		1	1 unit	113	2.200	3VL25 06-3KN30-□□□□		1	1 unit	113	2.200
3VL25 07-2KN30-□□□□		1	1 unit	113	2.200	3VL25 07-3KN30-□□□□		1	1 unit	113	2.200
3VL25 08-2KN30-□□□□		1	1 unit	113	2.200	3VL25 08-3KN30-□□□□		1	1 unit	113	2.200
3VL25 91-2KN30-□□□□		1	1 unit	113	2.200	3VL25 91-3KN30-□□□□		1	1 unit	113	2.200
3VL25 10-2KN30-□□□□		1	1 unit	113	2.200	3VL25 10-3KN30-□□□□		1	1 unit	113	2.200
3VL25 11-2KN30-□□□□		1	1 unit	113	2.200	3VL25 11-3KN30-□□□□		1	1 unit	113	2.200
3VL25 12-2KN30-□□□□		1	1 unit	113	2.200	3VL25 12-3KN30-□□□□		1	1 unit	113	2.200
3VL25 15-2KN30-□□□□		1	1 unit	113	2.200	3VL25 15-3KN30-□□□□		1	1 unit	113	2.200
3VL35 10-2KN30-□□□□		1	1 unit	113	2.300	3VL35 10-3KN30-□□□□		1	1 unit	113	2.300
3VL35 11-2KN30-□□□□		1	1 unit	113	2.300	3VL35 11-3KN30-□□□□		1	1 unit	113	2.300
3VL35 12-2KN30-□□□□		1	1 unit	113	2.300	3VL35 12-3KN30-□□□□		1	1 unit	113	2.300
3VL35 15-2KN30-□□□□		1	1 unit	113	2.300	3VL35 15-3KN30-□□□□		1	1 unit	113	2.300
3VL35 17-2KN30-□□□□		1	1 unit	113	2.300	3VL35 17-3KN30-□□□□		1	1 unit	113	2.300
3VL35 20-2KN30-□□□□		1	1 unit	113	2.300	3VL35 20-3KN30-□□□□		1	1 unit	113	2.300
3VL35 22-2KN30-□□□□		1	1 unit	113	2.300	3VL35 22-3KN30-□□□□		1	1 unit	113	2.300
3VL35 25-2KN30-□□□□		1	1 unit	113	2.300	3VL35 25-3KN30-□□□□		1	1 unit	113	2.300
3VL41 25-2KN30-□□□□		1	1 unit	113	5.700	3VL41 25-3KN30-□□□□		1	1 unit	113	5.700
3VL41 30-2KN30-□□□□		1	1 unit	113	5.700	3VL41 30-3KN30-□□□□		1	1 unit	113	5.700
3VL41 35-2KN30-□□□□		1	1 unit	113	5.700	3VL41 35-3KN30-□□□□		1	1 unit	113	5.700
3VL41 40-2KN30-□□□□		1	1 unit	113	5.700	3VL41 40-3KN30-□□□□		1	1 unit	113	5.700
3VL48 40-2KN30-□□□□		1	1 unit	113	5.700	3VL48 40-3KN30-□□□□		1	1 unit	113	5.700
3VL48 50-2KN30-□□□□		1	1 unit	113	5.700	3VL48 50-3KN30-□□□□		1	1 unit	113	5.700
3VL48 60-2KN30-□□□□		1	1 unit	113	5.700	3VL48 60-3KN30-□□□□		1	1 unit	113	5.700
3VL61 60-2KN30-□□□□		1	1 unit	113	14.000	3VL61 60-3KN30-□□□□		1	1 unit	113	14.000
3VL61 70-2KN30-□□□□		1	1 unit	113	14.000	3VL61 70-3KN30-□□□□		1	1 unit	113	14.000
3VL61 80-2KN30-□□□□		1	1 unit	113	14.000	3VL61 80-3KN30-□□□□		1	1 unit	113	14.000
3VL71 80-2KN30-□□□□		1	1 unit	113	21.800	3VL71 80-3KN30-□□□□		1	1 unit	113	21.800
3VL71 90-2KN30-□□□□		1	1 unit	113	21.800	3VL71 90-3KN30-□□□□		1	1 unit	113	21.800
3VL71 10-2KN30-□□□□		1	1 unit	113	21.800	3VL71 10-3KN30-□□□□		1	1 unit	113	21.800
3VL71 12-2KN30-□□□□		1	1 unit	113	21.800	3VL71 12-3KN30-□□□□		1	1 unit	113	21.800
3VL81 12-2KN30-□□□□		1	1 unit	113	32.800	3VL81 12-3KN30-□□□□		1	1 unit	113	32.800
3VL81 14-2KN30-□□□□		1	1 unit	113	32.800	3VL81 14-3KN30-□□□□		1	1 unit	113	32.800
3VL81 16-2KN30-□□□□		1	1 unit	113	32.800	3VL81 16-3KN30-□□□□		1	1 unit	113	32.800

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### 3-pole

Type	Rated current $I_n$	Operating current of the instantaneous short-circuit releases "I" $I_i$	DT	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity N See "Overview".	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	A	A			Order No. supplement required, see page 24					kg

Fixed-mounted molded case circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), magnetic and Electronic Trip Units



NSE0\_00707

**Molded case circuit breakers for starter combination, I function (motor circuit protectors; UL file: E10848, CCN<sup>4</sup>): DKPUZ<sup>1</sup>)**

Without overcurrent release, with adjustable short-circuit release

Connection type:

Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.

VL150 UL, DG frame	150	450 ... 900	--	
	150	750 ... 1500	--	
	150	1250 ... 2500	--	
VL250 UL, FG frame	250	600 ... 1200	--	
	250	1000 ... 2000	--	
	250	1750 ... 3500	--	
VL400 UL, JG frame	400	1250 ... 2500	--	
	400 <sup>2)</sup>	2000 ... 4000	--	
VL400X UL, LG frame	600	2000 ... 4000	--	
	600 <sup>2)</sup>	2750 ... 5500	--	
VL800 UL, MG frame	800	3250 ... 6500	--	
VL1200 UL, NG frame	1200	7000 ... 12000	--	



NSE0\_00708

**Non-automatic molded case circuit breakers (molded case switches; UL file: E68312, CCN<sup>4</sup>): WJAZ**

Without overcurrent release, with non-adjustable short-circuit release (for intrinsic protection only)

Connection type:

Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.

VL150X UL, CG frame	100	1800		3VL11 10-1KE30-□□□□	1	1 unit	113	2.000
	150	1800		3VL11 15-1KE30-□□□□	1	1 unit	113	2.000
VL150 UL, DG frame	150	2500	--					
VL250 UL, FG frame	250	3500	--					
VL400 UL, JG frame	400	4400	--					
VL400X UL, LG frame	600	5500	--					
VL800 UL, MG frame	800	6500	--					
VL1200 UL, NG frame	1200	12000	--					
VL1600 UL, PG frame <sup>3)</sup>	1600	14000	--					

1) UL-recognized.

2) Motor current according to NEC 430-110.

3) Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

4) UL Code Classification Number.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT	$I_{cu}$ up to 65 kA at 480 V, high breaking capacity H <span style="float: right;">(H)</span>						DT	$I_{cu}$ up to 100 kA at 480 V, very high breaking capacity L <span style="float: right;">(L)</span>					
	Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg		Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg

3VL25 15-2KJ30-□□□□	1	1 unit	113	2.200	--	
3VL25 15-2KK30-□□□□	1	1 unit	113	2.200	--	
3VL25 15-2KL30-□□□□	1	1 unit	113	2.200	--	
3VL35 25-2KJ30-□□□□	1	1 unit	113	2.300	--	
3VL35 25-2KK30-□□□□	1	1 unit	113	2.300	--	
3VL35 25-2KL30-□□□□	1	1 unit	113	2.300	--	
3VL41 40-2KJ30-□□□□	1	1 unit	113	5.700	--	
3VL41 40-2KK30-□□□□	1	1 unit	113	5.700	--	
3VL48 60-2KJ30-□□□□	1	1 unit	113	5.700	--	
3VL48 60-2KK30-□□□□	1	1 unit	113	5.700	--	
3VL61 80-2KK30-□□□□	1	1 unit	113	14.000	--	
3VL71 12-2KK30-□□□□	1	1 unit	113	21.800	--	

3VL11 10-2KE30-□□□□	1	1 unit	113	2.000	--				
3VL11 15-2KE30-□□□□	1	1 unit	113	2.000	--				
3VL25 15-2KE30-□□□□	1	1 unit	113	2.200	3VL25 15-3KE30-□□□□	1	1 unit	113	2.200
3VL35 25-2KE30-□□□□	1	1 unit	113	2.300	3VL35 25-3KE30-□□□□	1	1 unit	113	2.300
3VL41 40-2KE30-□□□□	1	1 unit	113	5.700	3VL41 40-3KE30-□□□□	1	1 unit	113	5.700
3VL48 60-2KE30-□□□□	1	1 unit	113	5.700	3VL48 60-3KE30-□□□□	1	1 unit	113	5.700
3VL61 80-2KE30-□□□□	1	1 unit	113	15.700	3VL61 80-3KE30-□□□□	1	1 unit	113	15.700
3VL71 12-2KE30-□□□□	1	1 unit	113	23.500	3VL71 12-3KE30-□□□□	1	1 unit	113	23.500
3VL81 16-2KE30-□□□□	1	1 unit	113	29.800	3VL81 16-3KE30-□□□□	1	1 unit	113	29.800

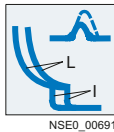
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

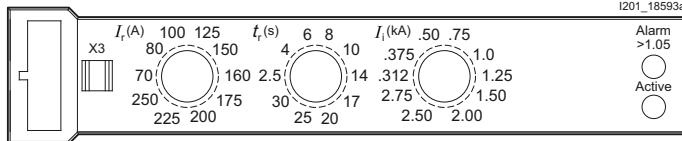
### 3-pole

Type	Rated current $I_n$	Current setting of the inverse-time delayed overload releases "L" $I_r$	Response time of the inverse-time delayed overload releases "L" $t_r$	Operating current of the instantaneous short-circuit releases "I" $I_i$	DT	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity N See "Overview".					(N)
	A	A	s	A		Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.

Fixed-mounted molded case circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), Electronic Trip Units (UL file: E10848)



NSE0\_00691



I201\_18593a

### System protection

With Electronic Trip Unit ETU (model 555)  
LI function

#### Connection type:

Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.

VL150 UL, DG frame	60	30 ... 60	2.5 ... 30	75 ... 660 (11 x $I_n$ )	<b>3VL25 06-1PB30-□□□□</b>	1	1 unit	113	2.400
	100	40 ... 100	2.5 ... 30	125 ... 1100 (11 x $I_n$ )	<b>3VL25 10-1PB30-□□□□</b>	1	1 unit	113	2.400
	150	60 ... 150	2.5 ... 30	187 ... 1650 (11 x $I_n$ )	<b>3VL25 15-1PB30-□□□□</b>	1	1 unit	113	2.400
VL250 UL, FG frame	100	40 ... 100	2.5 ... 30	125 ... 1100 (11 x $I_n$ )	<b>3VL35 10-1PB30-□□□□</b>	1	1 unit	113	2.500
	150	60 ... 150	2.5 ... 30	187 ... 1650 (11 x $I_n$ )	<b>3VL35 15-1PB30-□□□□</b>	1	1 unit	113	2.500
	250	70 ... 250	2.5 ... 30	312 ... 2750 (11 x $I_n$ )	<b>3VL35 25-1PB30-□□□□</b>	1	1 unit	113	2.500
VL400 UL, JG frame	250	70 ... 250	2.5 ... 30	312 ... 2750 (11 x $I_n$ )	<b>3VL41 25-1PB30-□□□□</b>	1	1 unit	113	5.900
	400	150 ... 400	2.5 ... 30	500 ... 4400 (11 x $I_n$ )	<b>3VL41 40-1PB30-□□□□</b>	1	1 unit	113	5.900
VL400X UL, LG frame	400	150 ... 400	2.5 ... 30	500 ... 4400 (11 x $I_n$ )	<b>3VL48 40-1PB30-□□□□</b>	1	1 unit	113	5.900
	600	200 ... 600	2.5 ... 30	750 ... 6000 (10 x $I_n$ )	<b>3VL48 60-1PB30-□□□□</b>	1	1 unit	113	5.900
VL800 UL, MG frame	600	200 ... 600	2.5 ... 30	750 ... 6000 (10 x $I_n$ )	<b>3VL61 60-1PB30-□□□□</b>	1	1 unit	113	16.000
	800	300 ... 800	2.5 ... 30	1000 ... 6000 (7.5 x $I_n$ )	<b>3VL61 80-1PB30-□□□□</b>	1	1 unit	113	16.000
VL1200 UL, NG frame	800	300 ... 800	2.5 ... 30	1000 ... 8800 (11 x $I_n$ )	<b>3VL71 80-1PB30-□□□□</b>	1	1 unit	113	25.000
	1000	400 ... 1000	2.5 ... 30	1250 ... 11000 (11 x $I_n$ )	<b>3VL71 10-1PB30-□□□□</b>	1	1 unit	113	25.000
	1200	400 ... 1200	2.5 ... 30	1500 ... 12000 (10 x $I_n$ )	<b>3VL71 12-1PB30-□□□□</b>	1	1 unit	113	25.000
VL1600 UL, PG frame <sup>1)</sup>	1200	400 ... 1200	2.5 ... 30	1500 ... 12000 (10 x $I_n$ )	<b>3VL81 12-1PB30-□□□□</b>	1	1 unit	113	31.300
	1600	700 ... 1600	2.5 ... 30	2000 ... 9600 (6 x $I_n$ )	<b>3VL81 16-1PB30-□□□□</b>	1	1 unit	113	31.300

L = overload

I = short-circuit protection, instantaneous

<sup>1)</sup> Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT $I_{cu}$ up to 65 kA at 480 V, high breaking capacity H <span style="float: right;">(H)</span>						DT $I_{cu}$ up to 100 kA at 480 V, very high breaking capacity L <span style="float: right;">(L)</span>					
Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg	Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg
<b>3VL25 06-2PB30-□□□□</b>		1	1 unit	113	2.400	<b>3VL25 06-3PB30-□□□□</b>		1	1 unit	113	2.400
<b>3VL25 10-2PB30-□□□□</b>		1	1 unit	113	2.400	<b>3VL25 10-3PB30-□□□□</b>		1	1 unit	113	2.400
<b>3VL25 15-2PB30-□□□□</b>		1	1 unit	113	2.400	<b>3VL25 15-3PB30-□□□□</b>		1	1 unit	113	2.400
<b>3VL35 10-2PB30-□□□□</b>		1	1 unit	113	2.500	<b>3VL35 10-3PB30-□□□□</b>		1	1 unit	113	2.500
<b>3VL35 15-2PB30-□□□□</b>		1	1 unit	113	2.500	<b>3VL35 15-3PB30-□□□□</b>		1	1 unit	113	2.500
<b>3VL35 25-2PB30-□□□□</b>		1	1 unit	113	2.500	<b>3VL35 25-3PB30-□□□□</b>		1	1 unit	113	2.500
<b>3VL41 25-2PB30-□□□□</b>		1	1 unit	113	5.900	<b>3VL41 25-3PB30-□□□□</b>		1	1 unit	113	5.900
<b>3VL41 40-2PB30-□□□□</b>		1	1 unit	113	5.900	<b>3VL41 40-3PB30-□□□□</b>		1	1 unit	113	5.900
<b>3VL48 40-2PB30-□□□□</b>		1	1 unit	113	5.900	<b>3VL48 40-3PB30-□□□□</b>		1	1 unit	113	5.900
<b>3VL48 60-2PB30-□□□□</b>		1	1 unit	113	5.900	<b>3VL48 60-3PB30-□□□□</b>		1	1 unit	113	5.900
<b>3VL61 60-2PB30-□□□□</b>		1	1 unit	113	16.000	<b>3VL61 60-3PB30-□□□□</b>		1	1 unit	113	16.000
<b>3VL61 80-2PB30-□□□□</b>		1	1 unit	113	16.000	<b>3VL61 80-3PB30-□□□□</b>		1	1 unit	113	16.000
<b>3VL71 80-2PB30-□□□□</b>		1	1 unit	113	25.000	<b>3VL71 80-3PB30-□□□□</b>		1	1 unit	113	25.000
<b>3VL71 10-2PB30-□□□□</b>		1	1 unit	113	25.000	<b>3VL71 10-3PB30-□□□□</b>		1	1 unit	113	25.000
<b>3VL71 12-2PB30-□□□□</b>		1	1 unit	113	25.000	<b>3VL71 12-3PB30-□□□□</b>		1	1 unit	113	25.000
<b>3VL81 12-2PB30-□□□□</b>		1	1 unit	113	31.300	<b>3VL81 12-3PB30-□□□□</b>		1	1 unit	113	31.300
<b>3VL81 16-2PB30-□□□□</b>		1	1 unit	113	31.300	<b>3VL81 16-3PB30-□□□□</b>		1	1 unit	113	31.300

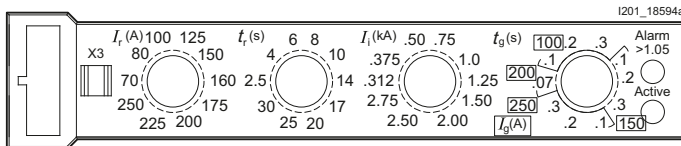
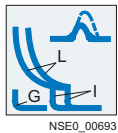
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### 3-pole

Type	Rated current $I_n$	Current setting of the inverse-time delayed overload releases "L" $I_r$	Response time of the inverse-time delayed overload releases "L" $t_r$	Operating current of the instantaneous short-circuit releases "I" $I_i$	Standard setting of $I_g/A$ and $t_g/s$	$t_g/s$ adjustable to 0.1, 0.2 and 0.3 s for the following $I_g/A$	D T	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity N See "Overview".					(N)
	A	A	s	A				Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
								Order No. supplement required, see page 24					kg

Fixed-mounted molded case circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), Electronic Trip Units (UL file: E10848)



### System protection

With Electronic Trip Unit ETU (model 555)

LIG function

for 4-wire three-phase systems (vectorial summation current formation)

Connection type:

Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories",

"Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories",

"Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.

Current transformers must be ordered under Accessories, page 60.

VL150 UL, DG frame	60	30 ... 60	2.5 ... 30	75 ... 660 (11 x $I_n$ )	48/0.07	24/36/60	<b>3VL25 06-1PD30-□□□□</b>	1	1 unit	113	2.400
	100	40 ... 100	2.5 ... 30	125 ... 1100 (11 x $I_n$ )	80/0.07	40/60/100	<b>3VL25 10-1PD30-□□□□</b>	1	1 unit	113	2.400
	150	60 ... 150	2.5 ... 30	187 ... 1650 (11 x $I_n$ )	120/0.07	60/90/150	<b>3VL25 15-1PD30-□□□□</b>	1	1 unit	113	2.400
VL250 UL, FG frame	100	40 ... 100	2.5 ... 30	125 ... 1100 (11 x $I_n$ )	80/0.07	40/60/100	<b>3VL35 10-1PD30-□□□□</b>	1	1 unit	113	2.500
	150	60 ... 150	2.5 ... 30	187 ... 1650 (11 x $I_n$ )	120/0.07	60/90/150	<b>3VL35 15-1PD30-□□□□</b>	1	1 unit	113	2.500
	250	70 ... 250	2.5 ... 30	312 ... 2750 (11 x $I_n$ )	200/0.07	100/150/250	<b>3VL35 25-1PD30-□□□□</b>	1	1 unit	113	2.500
VL400 UL, JG frame	250	70 ... 250	2.5 ... 30	312 ... 2750 (11 x $I_n$ )	200/0.07	100/150/250	<b>3VL41 25-1PD30-□□□□</b>	1	1 unit	113	5.900
	400	150 ... 400	2.5 ... 30	500 ... 4400 (11 x $I_n$ )	320/0.11	160/240/400	<b>3VL41 40-1PD30-□□□□</b>	1	1 unit	113	5.900
VL400X UL, LG frame	400	150 ... 400	2.5 ... 30	500 ... 4400 (11 x $I_n$ )	320/0.11	160/240/400	<b>3VL48 40-1PD30-□□□□</b>	1	1 unit	113	5.900
	600	200 ... 600	2.5 ... 30	750 ... 6000 (10 x $I_n$ )	360/0.18	240/360/600	<b>3VL48 60-1PD30-□□□□</b>	1	1 unit	113	5.900
VL800 UL, MG frame	600	200 ... 600	2.5 ... 30	750 ... 6000 (10 x $I_n$ )	360/0.18	240/360/600	<b>3VL61 60-1PD30-□□□□</b>	1	1 unit	113	16.000
	800	300 ... 800	2.5 ... 30	1000 ... 6000 (7.5 x $I_n$ )	480/0.25	320/480/800	<b>3VL61 80-1PD30-□□□□</b>	1	1 unit	113	16.000
VL1200 UL, NG frame	800	300 ... 800	2.5 ... 30	1000 ... 8800 (11 x $I_n$ )	480/0.25	320/480/800	<b>3VL71 80-1PD30-□□□□</b>	1	1 unit	113	25.000
	1000	400 ... 1000	2.5 ... 30	1250 ... 11000 (11 x $I_n$ )	600/0.32	400/600/1000	<b>3VL71 10-1PD30-□□□□</b>	1	1 unit	113	25.000
	1200	400 ... 1200	2.5 ... 30	1500 ... 12000 (10 x $I_n$ )	720/0.32	480/720/1200	<b>3VL71 12-1PD30-□□□□</b>	1	1 unit	113	25.000
VL1600 UL, PG frame <sup>1)</sup>	1200	400 ... 1200	2.5 ... 30	1500 ... 12000 (10 x $I_n$ )	720/0.32	480/720/1200	<b>3VL81 12-1PD30-□□□□</b>	1	1 unit	113	31.300
	1600	700 ... 1600	2.5 ... 30	2000 ... 9600 (6 x $I_n$ )	960/0.4	640/960/1200	<b>3VL81 16-1PD30-□□□□</b>	1	1 unit	113	31.300

L = overload

I = short-circuit protection, instantaneous

G = ground fault protection

<sup>1)</sup> Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT	$I_{cu}$ up to 65 kA at 480 V, high breaking capacity H <span style="float: right;">(H)</span>						DT	$I_{cu}$ up to 100 kA at 480 V, very high breaking capacity L <span style="float: right;">(L)</span>					
	Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg		Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg

<b>3VL25 06-2PD30-□□□□</b>	1	1 unit	113	2.400	<b>3VL25 06-3PD30-□□□□</b>	1	1 unit	113	2.400
<b>3VL25 10-2PD30-□□□□</b>	1	1 unit	113	2.400	<b>3VL25 10-3PD30-□□□□</b>	1	1 unit	113	2.400
<b>3VL25 15-2PD30-□□□□</b>	1	1 unit	113	2.400	<b>3VL25 15-3PD30-□□□□</b>	1	1 unit	113	2.400
<b>3VL35 10-2PD30-□□□□</b>	1	1 unit	113	2.500	<b>3VL35 10-3PD30-□□□□</b>	1	1 unit	113	2.500
<b>3VL35 15-2PD30-□□□□</b>	1	1 unit	113	2.500	<b>3VL35 15-3PD30-□□□□</b>	1	1 unit	113	2.500
<b>3VL35 25-2PD30-□□□□</b>	1	1 unit	113	2.500	<b>3VL35 25-3PD30-□□□□</b>	1	1 unit	113	2.500
<b>3VL41 25-2PD30-□□□□</b>	1	1 unit	113	5.900	<b>3VL41 25-3PD30-□□□□</b>	1	1 unit	113	5.900
<b>3VL41 40-2PD30-□□□□</b>	1	1 unit	113	5.900	<b>3VL41 40-3PD30-□□□□</b>	1	1 unit	113	5.900
<b>3VL48 40-2PD30-□□□□</b>	1	1 unit	113	5.900	<b>3VL48 40-3PD30-□□□□</b>	1	1 unit	113	5.900
<b>3VL48 60-2PD30-□□□□</b>	1	1 unit	113	5.900	<b>3VL48 60-3PD30-□□□□</b>	1	1 unit	113	5.900
<b>3VL61 60-2PD30-□□□□</b>	1	1 unit	113	16.000	<b>3VL61 60-3PD30-□□□□</b>	1	1 unit	113	16.000
<b>3VL61 80-2PD30-□□□□</b>	1	1 unit	113	16.000	<b>3VL61 80-3PD30-□□□□</b>	1	1 unit	113	16.000
<b>3VL71 80-2PD30-□□□□</b>	1	1 unit	113	25.000	<b>3VL71 80-3PD30-□□□□</b>	1	1 unit	113	25.000
<b>3VL71 10-2PD30-□□□□</b>	1	1 unit	113	25.000	<b>3VL71 10-3PD30-□□□□</b>	1	1 unit	113	25.000
<b>3VL71 12-2PD30-□□□□</b>	1	1 unit	113	25.000	<b>3VL71 12-3PD30-□□□□</b>	1	1 unit	113	25.000
<b>3VL81 12-2PD30-□□□□</b>	1	1 unit	113	31.300	<b>3VL81 12-3PD30-□□□□</b>	1	1 unit	113	31.300
<b>3VL81 16-2PD30-□□□□</b>	1	1 unit	113	31.300	<b>3VL81 16-3PD30-□□□□</b>	1	1 unit	113	31.300

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

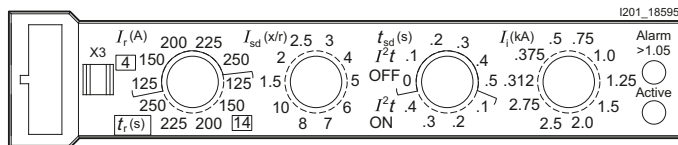
### 3-pole

Type	Rated current $I_n$	Current setting of the inverse-time delayed overload releases "L" $I_r$	Response time of the inverse-time delayed overload releases "L" $t_r$	Operating current of the instantaneous short-circuit releases "I" $I_i$	Operating current of the short-time delayed short-circuit releases "S" $I_{sd}$	DT	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity N See "Overview".					(N)
	A	A	s	A	A		Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
							Order No. supplement required, see page 24					kg

Fixed-mounted molded case circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), Electronic Trip Units (UL file: E10848)



NSE0\_00920



I201\_18595a

### System and generator protection

With Electronic Trip Unit ETU (model 555)  
LSI function ( $t_{sd} = 0$  to 0.5 s)

#### Connection type:

Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.

VL150 UL, DG frame	60 100 150	30 ... 60 40 ... 100 70 ... 150	4/14 4/14 4/14	75 ... 660 (11 x $I_n$ ) 125 ... 1100 (11 x $I_n$ ) 187 ... 1650 (11 x $I_n$ )	1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$	<b>3VL25 06-1PE30-□□□□</b> <b>3VL25 10-1PE30-□□□□</b> <b>3VL25 15-1PE30-□□□□</b>	1 1 1	1 unit 1 unit 1 unit	113 113 113	2.400 2.400 2.400
VL250 UL, FG frame	100 150 250	40 ... 100 70 ... 150 125 ... 250	4/14 4/14 4/14	125 ... 1100 (11 x $I_n$ ) 187 ... 1650 (11 x $I_n$ ) 312 ... 2750 (11 x $I_n$ )	1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$	<b>3VL35 10-1PE30-□□□□</b> <b>3VL35 15-1PE30-□□□□</b> <b>3VL35 25-1PE30-□□□□</b>	1 1 1	1 unit 1 unit 1 unit	113 113 113	2.500 2.500 2.500
VL400 UL, JG frame	250 400	125 ... 250 200 ... 400	4/14 10/20	312 ... 2750 (11 x $I_n$ ) 500 ... 4400 (11 x $I_n$ )	1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$	<b>3VL41 25-1PE30-□□□□</b> <b>3VL41 40-1PE30-□□□□</b>	1 1	1 unit 1 unit	113 113	5.900 5.900
VL400X UL, LG frame	400 600	200 ... 400 350 ... 600	10/20 10/20	500 ... 4400 (11 x $I_n$ ) 750 ... 6000 (10 x $I_n$ )	1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$	<b>3VL48 40-1PE30-□□□□</b> <b>3VL48 60-1PE30-□□□□</b>	1 1	1 unit 1 unit	113 113	5.900 5.900
VL800 UL, MG frame	600 800	350 ... 600 400 ... 800	10/20 10/20	750 ... 6000 (10 x $I_n$ ) 1000 ... 6000 (7.5 x $I_n$ )	1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$	<b>3VL61 60-1PE30-□□□□</b> <b>3VL61 80-1PE30-□□□□</b>	1 1	1 unit 1 unit	113 113	16.000 16.000
VL1200 UL, NG frame	800 1000 1200	400 ... 800 600 ... 1000 700 ... 1200	10/20 10/20 10/20	1000 ... 8800 (11 x $I_n$ ) 1250 ... 11000 (11 x $I_n$ ) 1500 ... 12000 (10 x $I_n$ )	1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$	<b>3VL71 80-1PE30-□□□□</b> <b>3VL71 10-1PE30-□□□□</b> <b>3VL71 12-1PE30-□□□□</b>	1 1 1	1 unit 1 unit 1 unit	113 113 113	25.000 25.000 25.000
VL1600 UL, PG frame <sup>1)</sup>	1200 1600	700 ... 1200 1000 ... 1600	10/20 10/20	1500 ... 12000 (10 x $I_n$ ) 2000 ... 9600 (6 x $I_n$ )	1.5 ... 10 x $I_r$ 1.5 ... 10 x $I_r$	<b>3VL81 12-1PE30-□□□□</b> <b>3VL81 16-1PE30-□□□□</b>	1 1	1 unit 1 unit	113 113	31.300 31.300

L = overload

S = short-circuit protection, short-time delayed

I = short-circuit protection, instantaneous

<sup>1)</sup> Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT	$I_{cu}$ up to 65 kA at 480 V, high breaking capacity H <span style="float: right;">(H)</span>						DT	$I_{cu}$ up to 100 kA at 480 V, very high breaking capacity L <span style="float: right;">(L)</span>					
	Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg		Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg

<b>3VL25 06-2PE30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 06-3PE30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 10-2PE30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 10-3PE30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 15-2PE30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 15-3PE30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL35 10-2PE30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 10-3PE30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 15-2PE30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 15-3PE30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 25-2PE30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 25-3PE30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL41 25-2PE30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 25-3PE30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL41 40-2PE30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 40-3PE30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 40-2PE30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 40-3PE30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 60-2PE30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 60-3PE30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL61 60-2PE30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 60-3PE30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL61 80-2PE30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 80-3PE30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL71 80-2PE30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 80-3PE30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 10-2PE30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 10-3PE30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 12-2PE30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 12-3PE30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL81 12-2PE30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 12-3PE30-□□□□</b>	1	1 unit	113	31.300		
<b>3VL81 16-2PE30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 16-3PE30-□□□□</b>	1	1 unit	113	31.300		

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

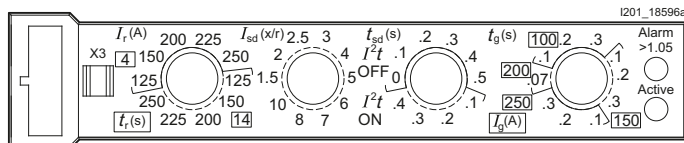
3-pole

Type	Rated current $I_n$	Current setting of the inverse-time delayed overload releases "L" $I_r$	Response time of the inverse-time delayed overload releases "L" $t_r$	Operating current of the instantaneous short-circuit releases "I" $I_i$	Operating current of the short-time delayed short-circuit releases "S" $I_{sd}$	Standard setting of $I_g/A$ and $t_g/s$	$t_g/s$ adjustable to 0.1, 0.2 and 0.3 s for the following $I_g/A$	D T	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity <sup>(N)</sup>	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	A	A	s	A	A					Order No. supplement required, see page 24					kg

Fixed-mounted molded case circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), Electronic Trip Units (UL file: E10848)



NSE0\_00921



i201\_18596a

### System and generator protection

With Electronic Trip Unit ETU (model 555)  
LSIG function ( $t_{sd} = 0$  to 0.5 s)  
for 4-wire three-phase systems (vectorial summation current formation)

#### Connection type:

Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.

Current transformers must be ordered under Accessories, page 60.

VL150 UL, DG frame	60	30 ... 60	4/14	300/660 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	48/0.07	24/36/60	<b>3VL25 06-1PH30-□□□□</b>	1	1 unit	113	2.400
	100	40 ... 100	4/14	500/1100 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	80/0.07	40/60/100	<b>3VL25 10-1PH30-□□□□</b>	1	1 unit	113	2.400
	150	70 ... 150	4/14	750/1650 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	120/0.07	60/90/150	<b>3VL25 15-1PH30-□□□□</b>	1	1 unit	113	2.400
VL250 UL, FG frame	100	40 ... 100	4/14	500/1100 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	80/0.07	40/60/100	<b>3VL35 10-1PH30-□□□□</b>	1	1 unit	113	2.500
	150	70 ... 150	4/14	750/1650 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	120/0.07	60/90/150	<b>3VL35 15-1PH30-□□□□</b>	1	1 unit	113	2.500
	250	125 ... 250	4/14	1250/2750 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	200/0.07	100/150/250	<b>3VL35 25-1PH30-□□□□</b>	1	1 unit	113	2.500
VL400 UL, JG frame	250	125 ... 250	4/14	1250/2750 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	200/0.07	100/150/250	<b>3VL41 25-1PH30-□□□□</b>	1	1 unit	113	5.900
	400	200 ... 400	10/20	2000/4400 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	320/0.11	160/240/400	<b>3VL41 40-1PH30-□□□□</b>	1	1 unit	113	5.900
VL400X UL, LG frame	400	200 ... 400	10/20	2000/4400 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	320/0.11	160/240/400	<b>3VL48 40-1PH30-□□□□</b>	1	1 unit	113	5.900
	600	350 ... 600	10/20	3000/6000 (5/10 x $I_n$ )	1.5 ... 10 x $I_r$	360/0.18	240/360/600	<b>3VL48 60-1PH30-□□□□</b>	1	1 unit	113	5.900
VL800 UL, MG frame	600	350 ... 600	10/20	3000/6000 (5/10 x $I_n$ )	1.5 ... 10 x $I_r$	360/0.18	240/360/600	<b>3VL61 60-1PH30-□□□□</b>	1	1 unit	113	16.000
	800	400 ... 800	10/20	4000/6000 (5/7.5 x $I_n$ )	1.5 ... 10 x $I_r$	480/0.25	320/480/800	<b>3VL61 80-1PH30-□□□□</b>	1	1 unit	113	16.000
VL1200 UL, NG frame	800	400 ... 800	10/20	4000/8800 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	480/0.25	320/480/800	<b>3VL71 80-1PH30-□□□□</b>	1	1 unit	113	25.000
	1000	600 ... 1000	10/20	5000/11000 (5/11 x $I_n$ )	1.5 ... 10 x $I_r$	600/0.32	400/600/1000	<b>3VL71 10-1PH30-□□□□</b>	1	1 unit	113	25.000
	1200	700 ... 1200	10/20	6000/12000 (5/10 x $I_n$ )	1.5 ... 10 x $I_r$	720/0.32	480/720/1200	<b>3VL71 12-1PH30-□□□□</b>	1	1 unit	113	25.000
VL1600 UL, PG frame <sup>1)</sup>	1200	700 ... 1200	10/20	6000/12000 (5/10 x $I_n$ )	1.5 ... 10 x $I_r$	720/0.32	480/720/1200	<b>3VL81 12-1PH30-□□□□</b>	1	1 unit	113	31.300
	1600	1000...1600	10/20	8000/9600 (5/6 x $I_n$ )	1.5 ... 10 x $I_r$	960/0.4	640/960/1200	<b>3VL81 16-1PH30-□□□□</b>	1	1 unit	113	31.300

L = overload

S = short-circuit protection, short-time delayed

I = short-circuit protection, instantaneous

G = ground fault protection

<sup>1)</sup> Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT	<b><math>I_{cu}</math> up to 65 kA at 480 V, high breaking capacity H</b>						DT	<b><math>I_{cu}</math> up to 100 kA at 480 V, very high breaking capacity L</b>					
	Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg		Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg

<b>3VL25 06-2PH30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 06-3PH30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 10-2PH30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 10-3PH30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 15-2PH30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 15-3PH30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL35 10-2PH30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 10-3PH30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 15-2PH30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 15-3PH30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 25-2PH30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 25-3PH30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL41 25-2PH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 25-3PH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL41 40-2PH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 40-3PH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 40-2PH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 40-3PH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 60-2PH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 60-3PH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL61 60-2PH30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 60-3PH30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL61 80-2PH30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 80-3PH30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL71 80-2PH30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 80-3PH30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 10-2PH30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 10-3PH30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 12-2PH30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 12-3PH30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL81 12-2PH30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 12-3PH30-□□□□</b>	1	1 unit	113	31.300		
<b>3VL81 16-2PH30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 16-3PH30-□□□□</b>	1	1 unit	113	31.300		

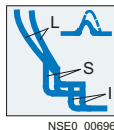
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

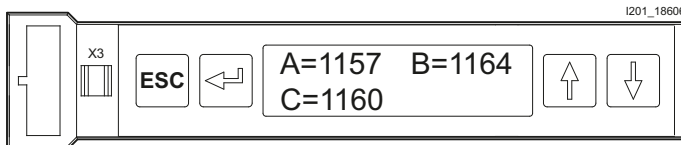
### 3-pole

Type	Rated current $I_n$	Current setting of the inverse-time delayed overload releases "L"	Operating current of the instantaneous short-circuit releases "I"	DT	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity N See "Overview".					
					Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	A	A	A		Order No. supplement required, see page 24					kg

Fixed-mounted molded case circuit breakers,  
VL150 UL (DG frame) to VL1600 UL (PG frame),  
up to 1600 A, Electronic Trip Units (UL file: E10848)



NSE0\_00696



I201\_18606

#### Molded case circuit breakers with Electronic Trip Units with LCD, system protection with L/LS/LSI function

- Connection type:  
Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.
- $t_{sd} = 0$  to 0.5 s
- $t_f/s$ : 2.5, 4, 6, 8, 10, 14, 17, 20, 25, 30
- $I_{sd}/A$ : 1.25 to 10 x  $I_r$ <sup>1)</sup>
- Pre-alarm % of  $I_r$ : 80 to 100

VL150 UL, DG frame	60 100 150	30 ... 60 40 ... 100 60 ... 150	75 ... 660 (11 x $I_n$ ) 125 ... 1100 (11 x $I_n$ ) 187 ... 1650 (11 x $I_n$ )	<b>3VL25 06-1VH30-□□□□</b> <b>3VL25 10-1VH30-□□□□</b> <b>3VL25 15-1VH30-□□□□</b>	1 1 1	1 unit 1 unit 1 unit	113 113 113	2.400 2.400 2.400
VL250 UL, FG frame	100 150 250	40 ... 100 60 ... 150 70 ... 250	125 ... 1100 (11 x $I_n$ ) 187 ... 1650 (11 x $I_n$ ) 312 ... 2750 (11 x $I_n$ )	<b>3VL35 10-1VH30-□□□□</b> <b>3VL35 15-1VH30-□□□□</b> <b>3VL35 25-1VH30-□□□□</b>	1 1 1	1 unit 1 unit 1 unit	113 113 113	2.500 2.500 2.500
VL400 UL, JG frame	250 400	70 ... 250 150 ... 400	312 ... 2750 (11 x $I_n$ ) 500 ... 4400 (11 x $I_n$ )	<b>3VL41 25-1VH30-□□□□</b> <b>3VL41 40-1VH30-□□□□</b>	1 1	1 unit 1 unit	113 113	5.900 5.900
VL400X UL, LG frame	400 600	150 ... 400 200 ... 600	500 ... 4400 (11 x $I_n$ ) 750 ... 6000 (10 x $I_n$ )	<b>3VL48 40-1VH30-□□□□</b> <b>3VL48 60-1VH30-□□□□</b>	1 1	1 unit 1 unit	113 113	5.900 5.900
VL800 UL, MG frame	600 800	200 ... 600 300 ... 800	750 ... 6000 (10 x $I_n$ ) 1000 ... 6000 (7.5 x $I_n$ )	<b>3VL61 60-1VH30-□□□□</b> <b>3VL61 80-1VH30-□□□□</b>	1 1	1 unit 1 unit	113 113	16.000 16.000
VL1200 UL, NG frame	800 1000 1200	300 ... 800 400 ... 1000 400 ... 1200	1000 ... 8800 (11 x $I_n$ ) 1250 ... 11000 (11 x $I_n$ ) 1500 ... 12000 (10 x $I_n$ )	<b>3VL71 80-1VH30-□□□□</b> <b>3VL71 10-1VH30-□□□□</b> <b>3VL71 12-1VH30-□□□□</b>	1 1 1	1 unit 1 unit 1 unit	113 113 113	25.000 25.000 25.000
VL1600 UL, PG frame <sup>2)</sup>	1200 1600	400 ... 1200 700 ... 1600	1500 ... 12000 (10 x $I_n$ ) 2000 ... 9600 (6 x $I_n$ )	<b>3VL81 12-1VH30-□□□□</b> <b>3VL81 16-1VH30-□□□□</b>	1 1	1 unit 1 unit	113 113	31.300 31.300

L = overload

S = short-circuit protection, short-time delayed

I = short-circuit protection, instantaneous

<sup>1)</sup> Only correct for frame sizes for which  $I_i$  (max) = 11 x  $I_n$

<sup>2)</sup> Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT	$I_{cu}$ up to 65 kA at 480 V, high breaking capacity H <span style="float: right;">(H)</span>						DT	$I_{cu}$ up to 100 kA at 480 V, very high breaking capacity L <span style="float: right;">(L)</span>					
	Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg		Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg

<b>3VL25 06-2VH30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 06-3VH30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 10-2VH30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 10-3VH30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 15-2VH30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 15-3VH30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL35 10-2VH30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 10-3VH30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 15-2VH30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 15-3VH30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 25-2VH30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 25-3VH30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL41 25-2VH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 25-3VH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL41 40-2VH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 40-3VH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 40-2VH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 40-3VH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 60-2VH30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 60-3VH30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL61 60-2VH30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 60-3VH30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL61 80-2VH30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 80-3VH30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL71 80-2VH30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 80-3VH30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 10-2VH30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 10-3VH30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 12-2VH30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 12-3VH30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL81 12-2VH30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 12-3VH30-□□□□</b>	1	1 unit	113	31.300		
<b>3VL81 16-2VH30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 16-3VH30-□□□□</b>	1	1 unit	113	31.300		

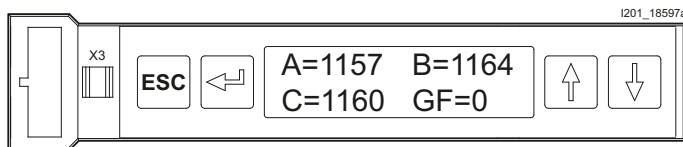
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### 3-pole

Type	Rated current $I_n$	Current setting of the inverse-time delayed overload releases "L" $I_r$	Operating current of the instantaneous short-circuit releases "I" $I_i$	$I_g$ in % of $I_n$	DT	$I_{cu}$ up to 35 kA at 480 V, standard breaking capacity N See "Overview".					(N)	
	A	A	A			Order No. Order No. supplement required, see page 24	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	kg

Fixed-mounted molded case circuit breakers, VL150 UL (DG frame) to VL1600 UL (PG frame), up to 1600 A, Electronic Trip Units (UL file: E10848)



### Molded case circuit breakers with Electronic Trip Units with LCD, system protection with LSIG function or LSIG (alarm) function

- Connection type:  
Molded case circuit breakers without pre-mounted connections, connections must be ordered under "Accessories", "Plug-in versions/withdrawable versions", pages 39 to 44 or under "Accessories", "Connection parts for fixed-mounted molded case circuit breakers", pages 45 to 52.
- $t_f/s$ : 2.5, 4, 6, 8, 10, 14, 17, 20, 25, 30
- $I_{sd}/A$ : 1.25 to 0 x  $I_r$ <sup>1)</sup>
- Pre-alarm % of  $I_r$ : 80 to 100
- $t_g/s$ : 0.1; 0.2; 0.3; 0.4; 0.5

VL150 UL, DG frame	60 100 150	30 ... 60 40 ... 100 60 ... 150	75 ... 660 (11 x $I_n$ ) 125 ... 1100 (11 x $I_n$ ) 187 ... 1650 (11 x $I_n$ )	40 ... 100 40 ... 100 40 ... 100	<b>3VL25 06-1</b> □□30-□□□□ <b>3VL25 10-1</b> □□30-□□□□ <b>3VL25 15-1</b> □□30-□□□□	1 1 1	1 unit 1 unit 1 unit	113 113 113	2.400 2.400 2.400
VL250 UL, FG frame	100 150 250	40 ... 100 60 ... 150 70 ... 250	125 ... 1100 (11 x $I_n$ ) 187 ... 1650 (11 x $I_n$ ) 312 ... 2750 (11 x $I_n$ )	40 ... 100 40 ... 100 40 ... 100	<b>3VL35 10-1</b> □□30-□□□□ <b>3VL35 15-1</b> □□30-□□□□ <b>3VL35 25-1</b> □□30-□□□□	1 1 1	1 unit 1 unit 1 unit	113 113 113	2.500 2.500 2.500
VL400 UL, JG frame	250 400	70 ... 250 150 ... 400	312 ... 2750 (11 x $I_n$ ) 500 ... 4400 (11 x $I_n$ )	40 ... 100 40 ... 100	<b>3VL41 25-1</b> □□30-□□□□ <b>3VL41 40-1</b> □□30-□□□□	1 1	1 unit 1 unit	113 113	5.900 5.900
VL400X UL, LG frame	400 600	150 ... 400 200 ... 600	500 ... 4400 (11 x $I_n$ ) 750 ... 6000 (10 x $I_n$ )	40 ... 100 40 ... 100	<b>3VL48 40-1</b> □□30-□□□□ <b>3VL48 60-1</b> □□30-□□□□	1 1	1 unit 1 unit	113 113	5.900 5.900
VL800 UL, MG frame	600 800	200 ... 600 300 ... 800	750 ... 6000 (10 x $I_n$ ) 1000 ... 6000 (7.5 x $I_n$ )	40 ... 100 40 ... 100	<b>3VL61 60-1</b> □□30-□□□□ <b>3VL61 80-1</b> □□30-□□□□	1 1	1 unit 1 unit	113 113	16.000 16.000
VL1200 UL, NG frame	800 1000 1200	300 ... 800 400 ... 1000 400 ... 1200	1000 ... 8800 (11 x $I_n$ ) 1250 ... 11000 (11 x $I_n$ ) 1500 ... 12000 (10 x $I_n$ )	40 ... 100 40 ... 100 40 ... 100	<b>3VL71 80-1</b> □□30-□□□□ <b>3VL71 10-1</b> □□30-□□□□ <b>3VL71 12-1</b> □□30-□□□□	1 1 1	1 unit 1 unit 1 unit	113 113 113	25.000 25.000 25.000
VL1600 UL, PG frame <sup>2)</sup>	1200 1600	400 ... 1200 700 ... 1600	1500 ... 12000 (10 x $I_n$ ) 2000 ... 9600 (6 x $I_n$ )	40 ... 100 40 ... 75	<b>3VL81 12-1</b> □□30-□□□□ <b>3VL81 16-1</b> □□30-□□□□	1 1	1 unit 1 unit	113 113	31.300 31.300

### Electronic Trip Units with LCD, 3-pole version

#### System protection with LSIG function

For 4-wire three-phase systems  
(vectorial summation current formation)  
 $t_{sd}$  = 0 to 0.5 s,  $t_g$  = 0 to 0.5 s

VM

#### System protection with LSIG (alarm) function

For 4-wire three-phase systems  
(vectorial summation current formation)  
 $t_{sd}$  = 0 to 0.5 s,  $t_g$  = 0 to 0.5 s

VJ

- L = overload
- S = short-circuit protection, short-time delayed
- I = short-circuit protection, instantaneous
- G = ground fault protection

<sup>1)</sup> Only correct for frame sizes for which  $I_i$  (max) = 11 x  $I_n$

<sup>2)</sup> Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base (see page 52).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

3-pole

DT	$I_{cu}$ up to 65 kA at 480 V, high breaking capacity H <span style="float: right;">(H)</span>						DT	$I_{cu}$ up to 100 kA at 480 V, very high breaking capacity L <span style="float: right;">(L)</span>					
	Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg		Order No. Order No. supplement required, <a href="#">see page 24</a>	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg

<b>3VL25 06-2□□30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 06-3□□30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 10-2□□30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 10-3□□30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL25 15-2□□30-□□□□</b>	1	1 unit	113	2.400			<b>3VL25 15-3□□30-□□□□</b>	1	1 unit	113	2.400		
<b>3VL35 10-2□□30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 10-3□□30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 15-2□□30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 15-3□□30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL35 25-2□□30-□□□□</b>	1	1 unit	113	2.500			<b>3VL35 25-3□□30-□□□□</b>	1	1 unit	113	2.500		
<b>3VL41 25-2□□30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 25-3□□30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL41 40-2□□30-□□□□</b>	1	1 unit	113	5.900			<b>3VL41 40-3□□30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 40-2□□30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 40-3□□30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL48 60-2□□30-□□□□</b>	1	1 unit	113	5.900			<b>3VL48 60-3□□30-□□□□</b>	1	1 unit	113	5.900		
<b>3VL61 60-2□□30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 60-3□□30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL61 80-2□□30-□□□□</b>	1	1 unit	113	16.000			<b>3VL61 80-3□□30-□□□□</b>	1	1 unit	113	16.000		
<b>3VL71 80-2□□30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 80-3□□30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 10-2□□30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 10-3□□30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL71 12-2□□30-□□□□</b>	1	1 unit	113	25.000			<b>3VL71 12-3□□30-□□□□</b>	1	1 unit	113	25.000		
<b>3VL81 12-2□□30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 12-3□□30-□□□□</b>	1	1 unit	113	31.300		
<b>3VL81 16-2□□30-□□□□</b>	1	1 unit	113	31.300			<b>3VL81 16-3□□30-□□□□</b>	1	1 unit	113	31.300		

VM

VM

VJ

VJ

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Options

#### Selection and ordering data

##### 1st Order No. supplement: Undervoltage or shunt release, wiring directly to accessories

Rated control supply voltage $U_c$ / frequency		Order No. supplement	Molded case circuit breakers	
50/60 Hz AC DC		3VL ..... - □ □ ..	Type	Type
			VL150X UL (CG frame) to VL400X UL (LG frame) <sup>1)</sup>	VL800 UL (MG frame) to VL1600 UL (PG frame)
			Additional price	Additional price
<b>Without auxiliary release</b>		<b>0 A</b>		
<b>With undervoltage releases</b> Only right pole				
V AC	V DC			
--	12	2 N	✓ <sup>1)</sup>	✓
--	24	2 P	✓ <sup>1)</sup>	✓
--	48	2 U	✓ <sup>1)</sup>	✓
--	60	2 V	✓ <sup>1)</sup>	✓
--	110-127	2 R	✓ <sup>1)</sup>	✓
--	220-250	2 S	✓ <sup>1)</sup>	✓
24	--	2 D <sup>2)</sup>	✓ <sup>1)</sup>	✓
110-127	--	2 G	✓ <sup>1)</sup>	✓
220-250	--	2 H	✓ <sup>1)</sup>	✓
208	--	2 M	✓ <sup>1)</sup>	✓
277	--	2 Q	✓ <sup>1)</sup>	✓
380-415	--	2 J	✓ <sup>1)</sup>	✓
440-480	--	2 K	✓ <sup>1)</sup>	✓
500-525	--	2 L	✓ <sup>1)</sup>	✓
<b>With shunt releases</b> Only right pole				
V AC	V DC			
24	24	8 C	✓ <sup>1)</sup>	✓
--	48-60	8 J	✓ <sup>1)</sup>	✓
--	110-127	8 K	✓ <sup>1)</sup>	✓
--	220-250	8 Q	✓ <sup>1)</sup>	✓
48-60	--	8 M	✓ <sup>1)</sup>	✓
110-127	--	8 R	✓ <sup>1)</sup>	✓
208-277	--	8 T	✓ <sup>1)</sup>	✓
380-600	--	8 V	✓ <sup>1)</sup>	✓

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

Equipment	Order No. supplement	Molded case circuit breakers	
HS = 1 NO or 1 NC contact block AS = 1 NO contact block	3VL ..... - □ □	Type	Type
		VL150X UL (CG frame) to VL400X UL (LG frame)	VL800 UL (MG frame) to VL1600 UL (PG frame)
		Additional price	Additional price
Without auxiliary/alarm switches	<b>A 0</b>		
2 HS (1 NO/1 NC) <sup>3)</sup>	<b>B 1</b>	✓ <sup>4)</sup>	--
4 HS (2 NO/2 NC)	<b>C 1</b>	--	✓
2 HS (1 NO/1 NC) + 1 AS (1 NO)	<b>D 1</b>	✓ <sup>4)</sup>	--
2 HS (1 NO/1 NC) + 1 AS (1 NO) <sup>5)</sup>	<b>E 1</b>	--	✓

✓ Additional price

-- Not available

- 1) Only an undervoltage release or a shunt release or an auxiliary/alarm switch combination is possible for VL150 UL (DG frame)/VL250 UL (FG frame) molded case circuit breakers with an Electronic Trip Unit.
- 2) Not for VL800 UL (MG frame), VL1200 UL (NG frame) and VL1600 UL (PG frame) molded case circuit breakers
- 3) Up to 3 HS are possible with a mounting adapter.
- 4) Except for installation in the left accessory compartment of the VL150 UL (DG frame)/VL250 UL (FG frame) molded case circuit breakers with Electronic Trip Unit because this compartment is fitted with the tripping solenoid. Only an auxiliary release or an auxiliary/alarm switch combination can be installed on the right.
- 5) Up to 2 HS + 2 AS are possible with a mounting adapter.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Options

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

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)  
  + . . . + . . .

Additional price

Code for further versions **-Z**

For fixed-mounted molded case circuit breakers (wired in factory)				
<b>Wiring for motorized operating mechanisms</b> (Motorized operating mechanism not included in scope of supply, for selection and ordering data, see pages 30 to 38) with connecting cables (3 m long) or brought out at the top in the case of VL150X UL (CG frame) to VL400X UL (LG frame) or brought out at the right in the case of VL800 UL (MG frame) to VL1600 UL (PG frame)	VL150X UL (CG frame) to VL1600 UL (PG frame)	L	1 2	✓
	<b>Motorized operating mechanism (24 V DC)</b> Mounted on molded case circuit breaker (motorized operating mechanism included in the scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame)	M	2 4
<b>with wiring for internal accessories</b> of the molded case circuit breaker with connecting cables (3 m long) brought out at the rear (auxiliary switches, alarm switches, or auxiliary releases not included in scope of supply)	VL400 UL (JG frame) to VL400X UL (LG frame)			✓
	VL800 UL (MG frame)			✓
<b>Motorized operating mechanism (42-48 V AC/DC)</b> Mounted on molded case circuit breaker (motorized operating mechanism included in the scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame)	M	4 2	✓
	<b>with wiring for internal accessories</b> of the molded case circuit breaker with connecting cables (3 m long) brought out at the rear (auxiliary switches, alarm switches, or auxiliary releases not included in scope of supply)	VL400 UL (JG frame) to VL400X UL (LG frame)		✓
<b>Motorized operating mechanism (60 V AC/DC)</b> Mounted on molded case circuit breaker (motorized operating mechanism included in the scope of supply)	VL800 UL (MG frame)			✓
	<b>with wiring for internal accessories</b> of the molded case circuit breaker with connecting cables (3 m long) brought out at the rear (auxiliary switches, alarm switches, or auxiliary releases not included in scope of supply)	VL1200 UL (NG frame) to VL1600 UL (PG frame)		✓
<b>Motorized operating mechanism (110-127 V AC/DC)</b> Mounted on molded case circuit breaker (motorized operating mechanism included in the scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame)	M	6 0	✓
	<b>with wiring for internal accessories</b> of the molded case circuit breaker with connecting cables (3 m long) brought out at the rear (auxiliary switches, alarm switches, or auxiliary releases not included in scope of supply)	VL400 UL (JG frame) to VL400X UL (LG frame)		✓
<b>Motorized operating mechanism (220-250 V AC/DC)</b> Mounted on molded case circuit breaker (motorized operating mechanism included in the scope of supply)	VL800 UL (MG frame)			✓
	<b>with wiring for internal accessories</b> of the molded case circuit breaker with connecting cables (3 m long) brought out at the rear (auxiliary switches, alarm switches, or auxiliary releases not included in scope of supply)	VL1200 UL (NG frame) to VL1600 UL (PG frame)		✓
<b>Motorized operating mechanism (110-127 V AC/DC)</b> Mounted on molded case circuit breaker (motorized operating mechanism included in the scope of supply)	VL150X UL (CG frame) to VL250 UL (FG frame)	M	1 1	✓
	<b>with wiring for internal accessories</b> of the molded case circuit breaker with connecting cables (3 m long) brought out at the rear (auxiliary switches, alarm switches, or auxiliary releases not included in scope of supply)	VL400 UL (JG frame) to VL400X UL (LG frame)		✓
<b>Motorized operating mechanism (220-250 V AC/DC)</b> Mounted on molded case circuit breaker (motorized operating mechanism included in the scope of supply)	VL800 UL (MG frame)			✓
	<b>with wiring for internal accessories</b> of the molded case circuit breaker with connecting cables (3 m long) brought out at the rear (auxiliary switches, alarm switches, or auxiliary releases not included in scope of supply)	VL1200 UL (NG frame) to VL1600 UL (PG frame)		✓

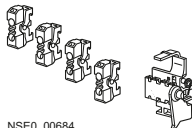
✓ Additional price  
 -- Not available

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

#### Selection and ordering data

Wiring directly to accessories		DT	For VL150X UL (CG frame) to VL400X UL (LG frame)	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
			Order No.	Price per PU			kg
<b>Auxiliary switches and auxiliary releases</b> (UL file: E69455)							
<b>3-pole</b>							
<b>Auxiliary switches (HS) and alarm switches (AS)</b> For retrofitting							
Assembly kits		Mounting side					
 NSE0_00684 3VL9 400-2A.01	2 HS (1 NO + 1 NC)	N, left <sup>1)</sup> , right	<b>3VL9 400-2AB01</b>		1	1 unit	113 0.054
	4 HS (2 NO + 2 NC)	N, left, right	--				
	2 HS (1 NC + 1 NO)	Left, right <sup>3)</sup>	<b>3VL9 400-2AD01</b>		1	1 unit	113 0.075
	+ 1 AS (1 NO) (assembly kit)	Left	--				
Additional auxiliary switch/alarm switch combinations			See page 28.				
<b>Shunt releases<sup>2)</sup></b> For retrofitting							
V AC	V DC	Mounting side					
24	24	Right pole only	<b>3VL9 400-1SC01</b>		1	1 unit	113 0.101
--	48 ... 60	Right pole only	<b>3VL9 400-1SJ01</b>		1	1 unit	113 0.103
--	110 ... 127	Right pole only	<b>3VL9 400-1SK01</b>		1	1 unit	113 0.101
--	220 ... 250	Right pole only	<b>3VL9 400-1SQ01</b>		1	1 unit	113 0.099
48 ... 60	--	Right pole only	<b>3VL9 400-1SM01</b>		1	1 unit	113 0.969
110 ... 127	--	Right pole only	<b>3VL9 400-1SR01</b>		1	1 unit	113 0.100
208 ... 277	--	Right pole only	<b>3VL9 400-1ST01</b>		1	1 unit	113 1.640
380 ... 600	--	Right pole only	<b>3VL9 400-1SV01</b>		1	1 unit	113 0.103
<b>Undervoltage releases</b> For retrofitting							
V AC	V DC	Mounting side					
--	12	Right pole only	<b>3VL9 400-1UN01</b>		1	1 unit	113 0.080
--	24	Right pole only	<b>3VL9 400-1UP01</b>		1	1 unit	113 0.096
--	48	Right pole only	<b>3VL9 400-1UU01</b>		1	1 unit	113 0.097
--	60	Right pole only	<b>3VL9 400-1UV01</b>		1	1 unit	113 0.098
24	--	Right pole only	<b>3VL9 400-1UD01</b>		1	1 unit	113 0.099
110 ... 127	--	Right pole only	<b>3VL9 400-1UG01</b>		1	1 unit	113 0.098
--	110 ... 127	Right pole only	<b>3VL9 400-1UR01</b>		1	1 unit	113 0.099
208	--	Right pole only	<b>3VL9 400-1UM01</b>		1	1 unit	113 0.101
220 ... 250	--	Right pole only	<b>3VL9 400-1UH01</b>		1	1 unit	113 0.099
--	220 ... 250	Right pole only	<b>3VL9 400-1US01</b>		1	1 unit	113 0.092
277	--	Right pole only	<b>3VL9 400-1UQ01</b>		1	1 unit	113 0.104
380 ... 415	--	Right pole only	<b>3VL9 400-1UJ01</b>		1	1 unit	113 0.103
440 ... 480	--	Right pole only	<b>3VL9 400-1UK01</b>		1	1 unit	113 0.099
500 ... 525	--	Right pole only	<b>3VL9 400-1UL01</b>		1	1 unit	113 0.100

<sup>1)</sup> Except for installation in the left accessory compartment of the VL150 UL (DG frame)/VL250 UL (FG frame) molded case circuit breakers with Electronic Trip Unit because this compartment is fitted with the tripping solenoid.

<sup>2)</sup> Shunt releases with disconnection contact (3SB3 for ON/OFF position) not floating (see "Circuit diagrams").

<sup>3)</sup> In the case of VL400 UL (JG frame)/VL400X UL (LG frame): Unsuitable for mounting in the right-hand accessory compartment. The 3VL9 400-2AB01 assembly kit with auxiliary switches only is recommended.



# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

For molded case circuit breakers	Maximum combination of auxiliary switches (HS) and alarm switches (AS)	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
<b>3SB adapters and 3SB contact blocks</b>								
<b>Mounting adapters for auxiliary and alarm switch combinations (UL file: E69455)</b>								
<b>For installation in the left pole of the molded case circuit breaker</b>								
VL150X UL (CG frame), VL150 UL (DG frame), VL250 UL (FG frame), VL400 UL (JG frame), VL400X UL (LG frame)	Up to 3 HS <sup>1)</sup>		<b>3VL9 400-2AH01</b>		1	1 unit	113	0.036
VL400 UL (JG frame), VL400X UL (LG frame)	2 HS + 1 AS <sup>1) 2)</sup>		<b>3VL9 400-2AJ11</b>		1	1 unit	113	0.037
VL800 UL (MG frame), VL1200 UL (NG frame), VL1600 UL (PG frame)	Up to 4 HS		<b>3VL9 816-2AL01</b>		1	1 unit	113	0.050
VL1600 UL (PG frame)	2 HS + 2 AS		<b>3VL9 816-2AN11</b>		1	1 unit	113	0.054
<b>For installation in the right pole of the molded case circuit breaker</b>								
VL150X UL (CG frame), VL150 UL (DG frame), VL250 UL (FG frame), VL400 UL (JG frame), VL400X UL (LG frame) <sup>2)</sup>	Up to 3 HS <sup>1)</sup>		<b>3VL9 400-2AH01</b>		1	1 unit	113	0.036
VL400 UL (JG frame), VL400X UL (LG frame) <sup>2)</sup>	2 HS + 1 AS <sup>1) 2)</sup>		<b>3VL9 400-2AJ21</b>		1	1 unit	113	0.038
VL800 UL (MG frame), VL1200 UL (NG frame), VL1600 UL (PG frame)	Up to 4 HS		<b>3VL9 816-2AL01</b>		1	1 unit	113	0.050
VL1600 UL (PG frame)	2 HS + 2 AS		--					

<sup>1)</sup> Except for installation in the left pole for VL150 UL (DG frame)/VL250 UL (FG frame) molded case circuit breakers with Electronic Trip Unit. Only an auxiliary release or an auxiliary/alarm switch combination can be installed on the right.

<sup>2)</sup> In the case of VL400 UL (JG frame)/VL400X UL (LG frame): 3VL9 400-2AJ21 unsuitable for mounting in the right-hand accessory compartment.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

For auxiliary/alarm switches	DT	Molded case circuit breakers	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		Type				
		<b>VL150X UL (CG frame) to VL1600 UL (PG frame)</b>				
		Order No.	Price per PU			kg
<b>Contact blocks for auxiliary and alarm switch combinations</b>						
1 NO		<b>3SB34 00-0J</b>	1	1 unit	41J	0.009
1 NC		<b>3SB34 00-0K</b>	1	1 unit	41J	0.009

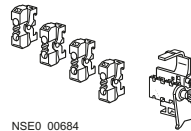
For auxiliary switch or alarm switch combinations not included in the kits provided as standard, the mounting adapters specified can be ordered separately together with the required contact blocks:

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

#### Notes:

A maximum of 6 contact blocks (HS) per molded case circuit breaker (VL150X UL (CG frame) to VL400X UL (LG frame)) and a maximum of 8 contact blocks (HS) per molded case circuit breaker (VL800 UL (MG frame) to VL1600 UL (PG frame)) are possible.

Four 3SB3 auxiliary contact blocks and one mounting adapter (right), suitable for VL800 UL (MG frame) to VL1600 UL (PG frame) molded case circuit breakers.



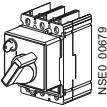
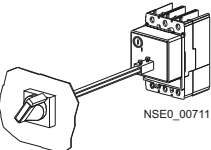
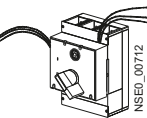
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For retrofitting/possible complement, see "Design", "Auxiliary releases and auxiliary switches".

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150X UL (CG frame) to VL250 UL (FG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
<b>Operating mechanisms</b>							
 3VL9 .00-3H.01	<b>3-pole</b>						
	<b>Front-operated rotary operating mechanisms (UL file: E69455)</b> For direct mounting on the molded case circuit breaker, without leading auxiliary switch, degree of protection IP30 <sup>1)</sup> , <u>black</u> <b>EMERGENCY-STOP version</b> Red handle, yellow indicator plate Safety locks for installation by the customer <a href="#">see pages 53 to 57</a> .		<b>3VL9 300-3HA01</b>	1	1 unit	113	0.493
 3VL9 .00-3H.06	<b>Door-coupling rotary operating mechanisms, complete<sup>2)</sup>, installation in doors and covers (UL file: E69455)</b> NEMA 1, 12 Degree of protection IP65, including <u>black</u> handle with masking plate, indicator plate, removable door coupling, extension shaft 300 mm and front-operated rotary operating mechanism for the respective molded case circuit breaker <b>EMERGENCY-STOP version,</b> Red handle, yellow indicator plate, without leading auxiliary switch Safety locks for installation by the customer <a href="#">see pages 53 to 57</a> .		<b>3VL9 300-3HF06</b>	1	1 unit	113	0.870
			<b>3VL9 300-3HG06</b>	1	1 unit	113	0.828
 3VL9 .00-3A.11	<b>Interlocking module UL 508A<sup>3)</sup></b> For use with 3VL1, 3VL2, 3VL3, 3VL4, 3VL4X and 3RV19 .6-2		<b>8UC9 400</b>	1	1 unit	103	1.639
	<b>Leading auxiliary switches for installation in a front-operated rotary operating mechanism or door-coupling rotary operating mechanism (UL file: E69455)</b> Standard or EMERGENCY-STOP version <b>"OFF after ON"</b> Leading auxiliary switches when switching on 1 changeover contact with 1.5 m long cables <b>3VL9 300-3AS11</b> <b>3VL9 300-3AT11</b> 2 changeover contacts with 1.5 m long cables <b>"ON after OFF"</b> Leading auxiliary switches when switching off 1 changeover contact with 1.5 m long cables <b>3VL9 300-3AU11</b> <b>3VL9 300-3AW11</b> 2 changeover contacts with 1.5 m long cables		<b>3VL9 300-3HE01</b>	1	1 unit	113	0.720
<b>Rotary operating mechanisms with shaft stub, without handle</b> Without leading auxiliary switch, for auxiliary switches <a href="#">see above</a> .							

1) IP40 with additional masking frame mounted on the door cutout.

2) Can be used with 8UC94 00 interlocking module.

3) In combination with 3VL1, 3VL2, 3VL3, the interlocking module can be used with the complete door-coupling rotary operating mechanisms 3VL9 300-..... In combination with 3VL4 and 3VL4X, the components of the door-coupling rotary operating mechanism must be ordered individually:

	3VL1/3VL2/3VL3	3VL4/3VL4X
Door-coupling rotary operating mechanisms, complete	3VL9 300-3HF06 3VL9 300-3HG06	-- --
Handle	--	8UC72 10-6BD or 8UC72 20-8BD +
Coupling driver	--	8UC60 17-2AA +
Extension shaft	--	8UC60 32 +
Reducer	--	8UC70 50 +
Rotary operating mechanism shaft stub	--	3VL9 400-3HE01

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

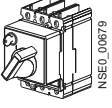
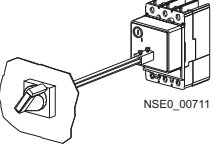

### Accessories and spare parts

DT	For VL400 UL (JG frame) to VL400X UL (LG frame)		PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg	DT	For VL800 UL (MG frame)		PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg
	Order No.	Price per PU						Order No.	Price per PU				
	<b>3VL9 400-3HA01</b>		1	1 unit	113	1.100		<b>3VL9 600-3HA01</b>		1	1 unit	113	1.245
	<b>3VL9 400-3HC01</b>		1	1 unit	113	1.240		<b>3VL9 600-3HC01</b>		1	1 unit	113	1.210
	<b>3VL9 400-3HF06</b>		1	1 unit	113	1.515		<b>3VL9 600-3HF06</b>		1	1 unit	113	1.700
	<b>3VL9 400-3HG06</b>		1	1 unit	113	1.490		<b>3VL9 600-3HG06</b>		1	1 unit	113	1.600
	<b>8UC9 400</b>		1	1 unit	103	1.639		--					
	<b>3VL9 400-3AS11</b>		1	1 unit	113	0.088		<b>3VL9 600-3AS11</b>		1	1 unit	113	0.080
	<b>3VL9 400-3AT11</b>		1	1 unit	113	0.127		<b>3VL9 600-3AT11</b>		1	1 unit	113	0.158
	<b>3VL9 400-3AU11</b>		1	1 unit	113	0.085		<b>3VL9 600-3AU11</b>		1	1 unit	113	0.090
	<b>3VL9 400-3AW11</b>		1	1 unit	113	0.120		<b>3VL9 600-3AW11</b>		1	1 unit	113	0.159
	<b>3VL9 400-3HE01</b>		1	1 unit	113	1.010		<b>3VL9 600-3HE01</b>		1	1 unit	113	1.193

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489


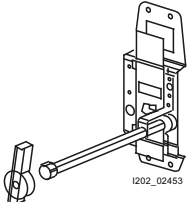
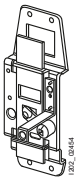

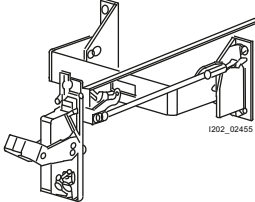
### Accessories and spare parts

Version	DT	For VL1200 UL (NG frame) to VL1600 UL (PG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		Order No.	Price per PU			kg
<b>Operating mechanisms</b>						
 NSE0_00679 3VL9 .00-3H.01	<b>3-pole</b> <b>Front-operated rotary operating mechanisms</b> <b>(UL file: E69455)</b> For direct mounting on the molded case circuit breaker, without leading auxiliary switch, degree of protection IP30 <sup>1)</sup> , <u>black</u>		<b>3VL9 800-3HA01</b>	1	1 unit	113 3.550
	EMERGENCY-STOP version Red handle, yellow indicator plate Safety locks for installation by the customer <a href="#">see pages 53 to 57</a> .		<b>3VL9 800-3HC01</b>	1	1 unit	113 3.145
 NSE0_00711 3VL9 .00-3H.06	<b>Door-coupling rotary operating mechanisms, complete, installation in doors and covers</b> <b>(UL file: E69455)</b> Degree of protection IP65, including <u>black</u> handle with masking plate, indicator plate, removable door coupling, extension shaft 300 mm and front-operated rotary operating mechanism for the respective molded case circuit breaker		<b>3VL9 800-3HF06</b>	1	1 unit	113 4.538
	EMERGENCY-STOP version, Red handle, yellow indicator plate, without leading auxiliary switch Safety locks for installation by the customer <a href="#">see pages 53 to 57</a> .		<b>3VL9 800-3HG06</b>	1	1 unit	113 5.500
 NSE0_00712 3VL9 .00-3A.11	<b>Leading auxiliary switches for installation in a front-operated rotary operating mechanism or door-coupling rotary operating mechanism</b> <b>(UL file: E69455)</b> Standard or EMERGENCY-STOP version					
	"OFF after ON" Leading auxiliary switches when switching on 1 changeover contact with 1.5 m long cables		<b>3VL9 800-3AS21</b>	1	1 unit	113 0.080
	2 changeover contacts with 1.5 m long cables		<b>3VL9 800-3AT21</b>	1	1 unit	113 0.130
	"ON after OFF" Leading auxiliary switches when switching off 1 changeover contact with 1.5 m long cables		<b>3VL9 800-3AU11</b>	1	1 unit	113 0.100
2 changeover contacts with 1.5 m long cables		<b>3VL9 800-3AW11</b>	1	1 unit	113 0.140	
<b>Rotary operating mechanisms with shaft stub, without handle</b> Without leading auxiliary switch, for auxiliary switches <a href="#">see above</a> .		<b>3VL9 800-3HE01</b>	1	1 unit	113 8.147	

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

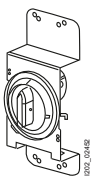
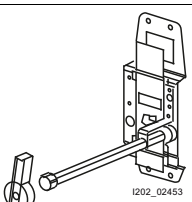
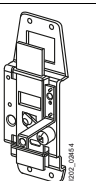
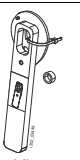
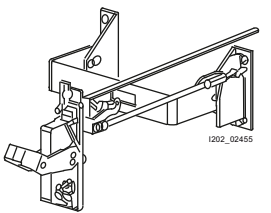
Version	DT	For VL150 UL (DG frame) to VL250 UL (FG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
<b>Operating mechanisms</b>							
		<b>3-pole Front-operated rotary operating mechanisms</b> Fixed depth; handle is fastened directly on molded case circuit breaker, silver handle, black lettering Lockable with up to 3 padlocks					
3VL9 .00-3JA01		<b>3VL9 300-3JA01</b>		1	1 unit	113	0.100
		<b>Door-coupling rotary operating mechanisms, complete</b> Variable installation depth, handle for door fitting, including handle with masking plate Black handle Indicator plate, removable door coupling 12-inch extension shaft and front-operated rotary operating mechanism for the respective molded case circuit breaker Lockable handle (up to 3 padlocks), NEMA 1, 12					
3VL9 .00-3JD01		<b>3VL9 300-3JD01</b>		1	1 unit	113	0.100
		<b>Switching mechanism for door-coupling rotary operating mechanism</b> Switching mechanism					
3VL9 .00-3JE01		<b>3VL9 300-3JE01</b>		1	1 unit	113	0.100
		<b>Handle for door-coupling rotary operating mechanism</b>					
		<b>Standard version</b>					
		NEMA 1, 12	<b>3VL9 600-3JF11</b>	1	1 unit	113	0.100
		NEMA 3R	<b>3VL9 600-3JF01</b>	1	1 unit	113	0.100
		NEMA 4X	<b>3VL9 600-3JF41</b>	1	1 unit	113	0.100
		<b>Extension shaft for door-coupling rotary operating mechanism</b>					
		2 inch (50 mm)	<b>3VL9 600-3JJ01</b>	1	1 unit	113	0.100
		3 inch (76 mm)	--				
		12 inch (0.3 m)	<b>3VL9 600-3JJ11</b>	1	1 unit	113	0.100
		16 inch (0.4 m)	<b>3VL9 600-3JJ21</b>	1	1 unit	113	0.100
		24 inch (0.6 m) with support bracket	--				
		<b>NFPA-79 intermediate operating mechanism</b> for door-coupling rotary operating mechanism					
3VL9 300-3JF81		<b>3VL9 300-3JF81</b>		1	1 unit	113	0.010
		<b>Operating mechanism with flange connection for variable installation depth</b> Adjustable from 8 to 16 inch (approx. 200 to 400 mm) Complete kit, including handle Red/black handle <sup>1)</sup> NEMA 1, 3R, 12 plastic NEMA 4, 4X chrome-plated steel Black handle <sup>1)</sup> NEMA 1, 3R, 12 plastic NEMA 4, 4X chrome-plated steel					
3VL9 300-3JS01		<b>3VL9 300-3JS01</b>		1	1 unit	113	1.717
		<b>3VL9 300-3JS41</b>		1	1 unit	113	0.010
		<b>3VL9 300-3JS11</b>		1	1 unit	113	0.010
		<b>3VL9 300-3JS51</b>		1	1 unit	113	2.417

<sup>1)</sup> The handles in monochrome gray or black are preferably used in IEC markets. Red/black handles (red for ON) are standard in UL markets.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL400 UL (JG frame) to VL400X UL (LG frame)	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
								kg
<b>Operating mechanisms</b>								
		<b>3-pole</b>						
		<b>Front-operated rotary operating mechanisms</b>						
		Fixed depth; handle is fastened directly on molded case circuit breaker, silver handle, black lettering Lockable with up to 3 padlocks						
3VL9 .00-3JA01			<b>3VL9 400-3JA01</b>		1	1 unit	113	0.100
		<b>Door-coupling rotary operating mechanisms, complete</b>						
		Variable installation depth, handle for door fitting, including handle with masking plate Black handle Indicator plate, removable door coupling 12-inch extension shaft and front-operated rotary operating mechanism for the respective molded case circuit breaker Lockable handle (up to 3 padlocks) NEMA 1, 12						
3VL9 .00-3JD01			<b>3VL9 400-3JD01</b>		1	1 unit	113	0.100
		<b>Switching mechanism for door-coupling rotary operating mechanism</b>						
		Switching mechanism						
3VL9 800-3JE01			<b>3VL9 400-3JE01</b>		1	1 unit	113	0.100
		<b>Handle for door-coupling rotary operating mechanism</b>						
		<b>Standard version</b>						
		NEMA 1, 12	<b>3VL9 600-3JF11</b>		1	1 unit	113	0.100
		NEMA 3R	<b>3VL9 600-3JF01</b>		1	1 unit	113	0.100
		NEMA 4X	<b>3VL9 600-3JF41</b>		1	1 unit	113	0.100
		<b>Extension shaft for door-coupling rotary operating mechanism</b>						
		2 inch (50 mm)	<b>3VL9 600-3JJ01</b>		1	1 unit	113	0.100
		3 inch (76 mm)	–					
		12 inch (0.3 m)	<b>3VL9 600-3JJ11</b>		1	1 unit	113	0.100
		16 inch (0.4 m)	<b>3VL9 600-3JJ21</b>		1	1 unit	113	0.100
		24 inch (0.6 m) with support bracket	–					
		<b>NFPA-79 intermediate operating mechanism</b>						
		for door-coupling rotary operating mechanism						
3VL9 800-3JF81			<b>3VL9 600-3JF81</b>		1	1 unit	113	0.010
		<b>Operating mechanism with flange connection for variable installation depth</b>						
		Adjustable from 8 to 16 inch (approx. 200 to 400 mm) Complete kit, including handle Red/black handle <sup>1)</sup> NEMA 1, 3R, 12 plastic NEMA 4, 4X chrome-plated steel Black handle <sup>1)</sup> NEMA 1, 3R, 12 plastic NEMA 4, 4X chrome-plated steel						
3VL9 400-3JS01			<b>3VL9 400-3JS01</b>		1	1 unit	113	0.010
			<b>3VL9 400-3JS41</b>		1	1 unit	113	0.010
			<b>3VL9 400-3JS11</b>		1	1 unit	113	0.010
			<b>3VL9 400-3JS51</b>		1	1 unit	113	2.505

<sup>1)</sup> The handles in monochrome gray or black are preferably used in IEC markets. Red/black handles (red for ON) are standard in UL markets.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

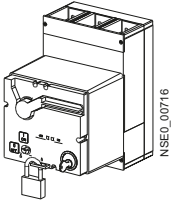
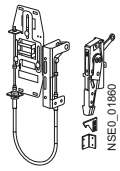
### Accessories and spare parts

For VL800 UL (MG frame)					For VL1200 UL (NG frame) to VL1600 UL (PG frame)								
DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
	--							--					
	<b>3VL9 600-3JD01</b>		1	1 unit	113	0.100 C		--					
	<b>3VL9 600-3JE01</b>		1	1 unit	113	0.100		<b>3VL9 800-3JE01</b>		1	1 unit	113	0.100
	<b>3VL9 600-3JF11</b>		1	1 unit	113	0.100		<b>3VL9 800-3JF01</b>		1	1 unit	113	0.100
	<b>3VL9 600-3JF01</b>		1	1 unit	113	0.100		<b>3VL9 800-3JF01</b>		1	1 unit	113	0.100
	<b>3VL9 600-3JF41</b>		1	1 unit	113	0.100		<b>3VL9 800-3JF41</b>		1	1 unit	113	0.100
	<b>3VL9 600-3JJ01</b>		1	1 unit	113	0.100		--					
	--							<b>3VL9 800-3JJ01</b>		1	1 unit	113	0.100
	<b>3VL9 600-3JJ11</b>		1	1 unit	113	0.100		<b>3VL9 800-3JJ11</b>		1	1 unit	113	0.100
	<b>3VL9 600-3JJ21</b>		1	1 unit	113	0.100		--					
	--							<b>3VL9 800-3JJ21</b>		1	1 unit	113	0.100
	<b>3VL9 600-3JF81</b>		1	1 unit	113	0.010		<b>3VL9 800-3JF81</b>		1	1 unit	113	0.010
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# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150X UL (CG frame) to VL250 UL (FG frame)	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	
		Order No.	Price per PU			kg	
<b>Operating mechanisms</b>							
 <p>3VL9 .00-3M.01</p>	<b>3-pole</b> <b>Motorized operating mechanism with stored energy mechanism<sup>1)</sup></b> <b>(UL file: E69455)</b> Degree of protection IP30, with locking device for 3 padlocks, synchronizable						
	50/60 Hz V AC		V DC				
	--	24	<b>3VL9 300-3MJ01</b>	1	1 unit	113	2.797
	42 ... 48	42 ... 48	<b>3VL9 300-3ML01</b>	1	1 unit	113	0.001
	60	60	<b>3VL9 300-3MS01</b>	1	1 unit	113	2.140
	110 ... 127	110 ... 127	<b>3VL9 300-3MN01</b>	1	1 unit	113	2.777
220 ... 250	220 ... 250	<b>3VL9 300-3MQ01</b>	1	1 unit	113	2.735	
<b>Toggle lever extension</b>							
 <p>3VL9 .00-3JM01</p>	<b>Max Flex operating mechanism, complete, including switching mechanism, Bowden wire, red/black handle, NEMA 1, 3R, 12 plastic</b> Bowden wire, 36 inch (0.9 m) Bowden wire, 48 inch (1.2 m)		<b>3VL9 300-3JM01</b>	1	1 unit	113	0.800
			--				
<b>Handle for Max Flex operating mechanism</b>							
Red/black handle <sup>2)</sup>							
NEMA 1, 3R, 12 plastic		<b>3VL9 600-3JP01</b>	1	1 unit	113	0.100	
NEMA 1, 3R, 12 steel – epoxy sheathed		<b>3VL9 600-3JP21</b>	1	1 unit	113	4.536	
NEMA 4, 4X chrome-plated steel		<b>3VL9 600-3JP41</b>	1	1 unit	113	0.100	
Gray handle <sup>2)</sup>							
NEMA 1, 3R, 12 plastic		<b>3VL9 600-3JP11</b>	1	1 unit	113	0.100	
Black handle <sup>2)</sup>							
NEMA 1, 3R, 12 steel – epoxy sheathed		<b>3VL9 600-3JP61</b>	1	1 unit	113	0.100	
<b>Switching mechanism for Max Flex operating mechanism</b>		<b>3VL9 300-3JN01</b>	1	1 unit	113	4.536	
<b>Bowden wire for Max Flex operating mechanism</b>							
36 inch (0.9 m)		<b>3VL9 300-3JQ31</b>	1	1 unit	113	0.335	
48 inch (1.2 m)		<b>3VL9 300-3JQ41</b>	1	1 unit	113	0.383	
60 inch (1.5 m)		<b>3VL9 300-3JQ61</b>	1	1 unit	113	0.100	
72 inch (1.8 m)		<b>3VL9 300-3JQ71</b>	1	1 unit	113	0.100	
84 inch (2.1 m)		<b>3VL9 300-3JQ81</b>	1	1 unit	113	0.100	
96 inch (2.4 m)		<b>3VL9 300-3JQ21</b>	1	1 unit	113	0.100	
120 inch (3.0 m)		<b>3VL9 300-3JQ01</b>	1	1 unit	113	0.100	
144 inch (3.6 m)		<b>3VL9 300-3JQ11</b>	1	1 unit	113	0.100	

<sup>1)</sup> For safety lock as an assembly kit for retrofitting see pages 53 to 57.

<sup>2)</sup> The handles in monochrome gray or black are preferably used in IEC markets. Red/black handles (red for ON) are standard in UL markets.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

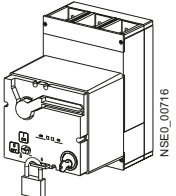
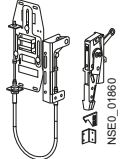
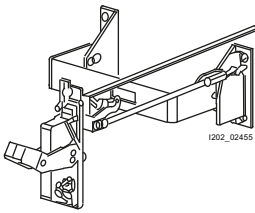
### Accessories and spare parts

DT	For VL400 UL (JG frame) to VL400X UL (LG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg	DT	For VL800 UL (MG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.  kg
	Order No.						Order No.				
	Price per PU						Price per PU				
	<b>3VL9 400-3MJ01</b>	1	1 unit	113	4.550		<b>3VL9 600-3MJ01</b>	1	1 unit	113	5.603
	<b>3VL9 400-3ML01</b>	1	1 unit	113	3.910		<b>3VL9 600-3ML01</b>	1	1 unit	113	4.800
	<b>3VL9 400-3MS01</b>	1	1 unit	113	3.910		<b>3VL9 600-3MS01</b>	1	1 unit	113	4.800
	<b>3VL9 400-3MN01</b>	1	1 unit	113	4.651		<b>3VL9 600-3MN01</b>	1	1 unit	113	5.656
	<b>3VL9 400-3MQ01</b>	1	1 unit	113	4.592		<b>3VL9 600-3MQ01</b>	1	1 unit	113	5.800
	<b>3VL9 400-3HN01</b>	1	1 unit	113	0.024		<b>3VL9 600-3HN01</b>	1	1 unit	113	0.026
	--						--				
	<b>3VL9 400-3JM01</b>	1	1 unit	113	2.051		<b>3VL9 600-3JM01</b>	1	1 unit	113	2.097
	<b>3VL9 600-3JP01</b>	1	1 unit	113	0.100		<b>3VL9 600-3JP01</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JP21</b>	1	1 unit	113	4.536		<b>3VL9 600-3JP21</b>	1	1 unit	113	4.536
	<b>3VL9 600-3JP41</b>	1	1 unit	113	0.100		<b>3VL9 600-3JP41</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JP11</b>	1	1 unit	113	0.100		<b>3VL9 600-3JP11</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JP61</b>	1	1 unit	113	0.100		<b>3VL9 600-3JP61</b>	1	1 unit	113	0.100
	<b>3VL9 400-3JN01</b>	1	1 unit	113	0.974		<b>3VL9 600-3JN01</b>	1	1 unit	113	0.932
	<b>3VL9 600-3JQ31</b>	1	1 unit	113	4.536		<b>3VL9 600-3JQ31</b>	1	1 unit	113	4.536
	<b>3VL9 600-3JQ41</b>	1	1 unit	113	0.100		<b>3VL9 600-3JQ41</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JQ61</b>	1	1 unit	113	0.100		<b>3VL9 600-3JQ61</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JQ71</b>	1	1 unit	113	0.100		<b>3VL9 600-3JQ71</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JQ81</b>	1	1 unit	113	0.100		<b>3VL9 600-3JQ81</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JQ21</b>	1	1 unit	113	0.100		<b>3VL9 600-3JQ21</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JQ01</b>	1	1 unit	113	0.100		<b>3VL9 600-3JQ01</b>	1	1 unit	113	0.100
	<b>3VL9 600-3JQ11</b>	1	1 unit	113	0.100		<b>3VL9 600-3JQ11</b>	1	1 unit	113	0.100

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL1200 UL (NG frame) to VL1600 UL (PG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.										
		Order No.	Price per PU			kg										
<b>Operating mechanisms</b>																
 NSE0_00716 3VL9 .00-3M.01	<b>3-pole</b> <b>Motorized operating mechanism<sup>1)</sup></b> <b>(UL file: E69455)</b> Degree of protection IP30, with locking device for 3 padlocks, not synchronizable															
	<table border="1"> <thead> <tr> <th>50/60 Hz V AC</th> <th>V DC</th> </tr> </thead> <tbody> <tr> <td>--</td> <td>24</td> </tr> <tr> <td>42 ... 48</td> <td>42 ... 48</td> </tr> <tr> <td>60</td> <td>60</td> </tr> <tr> <td>110 ... 127</td> <td>110 ... 127</td> </tr> <tr> <td>220 ... 250</td> <td>220 ... 250</td> </tr> </tbody> </table>	50/60 Hz V AC	V DC	--	24	42 ... 48	42 ... 48	60	60	110 ... 127	110 ... 127	220 ... 250	220 ... 250			
50/60 Hz V AC	V DC															
--	24															
42 ... 48	42 ... 48															
60	60															
110 ... 127	110 ... 127															
220 ... 250	220 ... 250															
		<b>3VL9 800-3MJ01</b> <b>3VL9 800-3ML01</b> <b>3VL9 800-3MS01</b> <b>3VL9 800-3MN01</b> <b>3VL9 800-3MQ01</b>	1	1 unit	113	7.847 6.800 6.800 7.797 7.770										
		<b>Toggle lever extension</b>	<b>3VL9 800-3HN01</b>	1	1 unit	113 0.241										
 NSE0_01880 3VL9 .00-3JM01	<b>Max Flex operating mechanism, complete, including switching mechanism, Bowden wire, red/black handle, NEMA 1, 3R, 12 plastic</b> Bowden wire, 36 inch (0.9 m) Bowden wire, 48 inch (1.2 m)															
			<b>3VL9 800-3JM01</b>	1	1 unit	113 4.340										
	<b>Handle for Max Flex operating mechanism</b> Red/black handle <sup>2)</sup> NEMA 1, 3R, 12 plastic NEMA 1, 3R, 12 steel – epoxy sheathed NEMA 4, 4X chrome-plated steel Gray handle <sup>2)</sup> NEMA 1, 3R, 12 plastic Black handle <sup>2)</sup> NEMA 1, 3R, 12 steel – epoxy sheathed															
		<b>3VL9 800-3JP01</b> <b>3VL9 800-3JP41</b> -- <b>3VL9 800-3JP11</b>	1	1 unit	113	0.100 0.100 0.100										
		<b>Switching mechanism for Max Flex operating mechanism</b>	<b>3VL9 800-3JN01</b>	1	1 unit	113 0.100										
	<b>Bowden wire for Max Flex operating mechanism</b> 36 inch (0.9 m) 48 inch (1.2 m) 60 inch (1.5 m) 72 inch (1.8 m) 84 inch (2.1 m) 96 inch (2.4 m) 120 inch (3.0 m) 144 inch (3.6 m)															
		<b>3VL9 800-3JQ41</b> <b>3VL9 800-3JQ61</b> <b>3VL9 800-3JQ71</b> <b>3VL9 800-3JQ81</b> <b>3VL9 800-3JQ21</b> <b>3VL9 800-3JQ01</b> <b>3VL9 800-3JQ11</b>	1	1 unit	113	0.100 0.100 0.100 0.100 0.100 0.100 0.100										
 I202_02455	<b>Operating mechanism with flange connection for variable installation depth</b> Adjustable from 8 to 16 inch (approx. 200 to 400 mm) Complete kit, including handle Red/black handle <sup>2)</sup> NEMA 1, 3R, 12 plastic NEMA 4, 4X chrome-plated steel Black handle <sup>2)</sup> NEMA 1, 3R, 12 plastic NEMA 4, 4X chrome-plated steel															
			-- -- -- --													

<sup>1)</sup> For safety lock as an assembly kit for retrofitting see pages 53 to 57.

<sup>2)</sup> The handles in monochrome gray or black are preferably used in IEC markets. Red/black handles (red for ON) are standard in UL markets.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

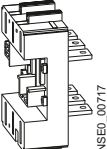
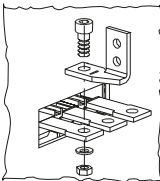
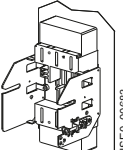
Version	DT	For VL150X UL (CG frame) Order No.	PU (UNIT, SET, M) Price per PU	PS*/ P. unit	PG	Weight per PU approx. kg
<b>Plug-in versions/withdrawable versions (UL file: E69455)</b>						
<b>3-pole</b>						
<b>Plug-in base assembly kits</b> Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin						
<b>Rear terminals</b>						
3-pole		<b>3VL9 100-4PA31</b>		1	1 unit	113 2.710
<b>Front-accessible connections</b>						
3-pole		<b>3VL9 100-4PC31</b>		1	1 unit	113 2.440
<b>Blade contacts</b> As replacement for converting fixed-mounted into plug-in/withdrawable molded case circuit breakers, including trip pin						
1 set = 6 units	3-pole	<b>3VL9 100-4PS31</b>		1	1 unit	113 0.332
<b>Trip pins and springs</b> As replacement for plug-in molded case circuit breaker						
		<b>3VL9 100-4PF01</b>		1	1 unit	113 0.013
<b>Auxiliary circuit plug connections for plug-in bases</b> Accessory connections for plug-in molded case circuit breakers (factory-wired connectors) and for plug-in bases (coupling with screw terminal)						
8 terminals		<b>3VL9 300-4PJ01</b>	1)	1	1 unit	113 0.238
<b>Position signaling switches</b> (connected/disconnected position) For plug-in base, 1 changeover contact, max. 2 signaling switches possible						
		<b>3VL9 000-4WL01</b>		1	1 unit	113 0.040

1) It is recommended to use a maximum of 2 auxiliary circuit plug-in systems per molded case circuit breaker (16 terminals).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150 UL (DG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg	
<b>Plug-in versions/withdrawable versions (UL file: E69455)</b>								
 <p>3VL9 .00-4PA31</p>	<b>3-pole</b>							
	<b>Plug-in base assembly kits</b> Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin							
	<b>Rear terminals</b> 3-pole		<b>3VL9 200-4PA31</b>		1	1 unit	113	2.500
 <p>3VL9 .00-4PE31</p>	<b>90° angle connecting adapters</b> For rear connection, 3-pole							
		<b>3VL9 300-4PE31</b>		1	1 unit	113	0.391	
<b>Front-accessible connections</b> 3-pole		<b>3VL9 200-4PC31</b>		1	1 unit	113	2.530	
 <p>3VL9 .00-4WA31</p>	<b>Withdrawable version</b> Same as plug-in base assembly kit, with additional side panels and racking mechanism							
	<b>Rear terminals</b> 3-pole		<b>3VL9 200-4WA31</b>		1	1 unit	113	5.231
	<b>Front-accessible connections</b> 3-pole		<b>3VL9 200-4WC31</b>		1	1 unit	113	4.987
<b>Blade contacts</b> As replacement for converting fixed-mounted into plug-in/withdrawable molded case circuit breakers, including trip pin 1 set = 6 units      3-pole		<b>3VL9 200-4PS31</b>		1	1 unit	113	0.248	
<b>Trip pins and springs</b> As replacement for plug-in/withdrawable circuit breaker		<b>3VL9 300-4PF01</b>		1	1 unit	113	0.013	
<b>Auxiliary circuit plug connections for plug-in bases</b> Accessory connections for plug-in molded case circuit breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw terminal) 8 terminals		<sup>1)</sup> <b>3VL9 300-4PJ01</b>		1	1 unit	113	0.238	
<b>Position signaling switches</b> (connected/disconnected position) For plug-in/withdrawable base, 1 changeover contact, max. 2 signaling switches possible		<b>3VL9 000-4WL01</b>		1	1 unit	113	0.040	

<sup>1)</sup> It is recommended to use a maximum of 2 auxiliary circuit plug-in systems per molded case circuit breaker (16 terminals).

<sup>2)</sup> It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per molded case circuit breaker (24 terminals).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

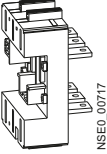
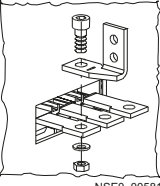
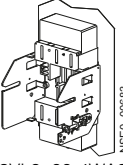
### Accessories and spare parts

DT	For VL250 UL (FG frame)		PU	PS*/	PG	Weight	DT	For VL400 UL (JG frame)		PU	PS*/	PG	Weight
	Order No.	Price per PU	(UNIT, SET, M)	P. unit		per PU approx.		Order No.	Price per PU	(UNIT, SET, M)	P. unit		per PU approx.
						kg							kg
	<b>3VL9 300-4PA31</b>		1	1 unit	113	2.920		<b>3VL9 400-4PA31</b>		1	1 unit	113	6.942
	<b>3VL9 300-4PE31</b>		1	1 unit	113	0.391		--					
	<b>3VL9 300-4PC31</b>		1	1 unit	113	2.672		<b>3VL9 400-4PC31</b>		1	1 unit	113	42.000
	<b>3VL9 300-4WA31</b>		1	1 unit	113	5.089		<b>3VL9 400-4WA31</b>		1	1 unit	113	12.650
	<b>3VL9 300-4WC31</b>		1	1 unit	113	4.940		<b>3VL9 400-4WC31</b>		1	1 unit	113	10.200
	<b>3VL9 300-4PS31</b>		1	1 unit	113	0.342		<b>3VL9 400-4PS31</b>		1	1 unit	113	0.720
	<b>3VL9 300-4PF01</b>		1	1 unit	113	0.013		<b>3VL9 400-4PF01</b>		1	1 unit	113	0.015
	1) <b>3VL9 300-4PJ01</b>		1	1 unit	113	0.238		2) <b>3VL9 400-4PJ01</b>		1	1 unit	113	0.316
	<b>3VL9 000-4WL01</b>		1	1 unit	113	0.040		<b>3VL9 000-4WL01</b>		1	1 unit	113	0.040

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL400X (LG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg		
		Order No.	Price per PU					
<b>Plug-in versions/withdrawable versions (UL file: E69455)</b>								
 <p>3VL9 .00-4PA31</p>	<b>3-pole</b> <b>Plug-in base assembly kits</b> Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin							
	<b>Rear terminals</b> 3-pole	<b>3VL9 460-4PA31</b>		1	1 unit	113	8.200	
 <p>3VL9 .00-4PE31</p>	<b>90° angle connecting adapters</b> For rear connection, 3-pole		--					
	<b>Front-accessible connections</b> 3-pole	<b>3VL9 460-4PC31</b>		1	1 unit	113	6.670	
 <p>3VL9 .00-4WA31</p>	<b>Withdrawable version</b> Same as plug-in base assembly kit, with additional side panels and racking mechanism							
	<b>Rear terminals<sup>1)</sup></b> 3-pole	<b>3VL9 460-4WA31</b>		1	1 unit	113	11.500	
	<b>Front-accessible connections</b> 3-pole	<b>3VL9 460-4WC31</b>		1	1 unit	113	10.200	
	<b>Blade contacts</b> As replacement for converting fixed-mounted into plug-in/withdrawable molded case circuit breakers, including trip pin 1 set = 6 units      3-pole		<b>3VL9 460-4PS31</b>		1	1 unit	113	1.313
	<b>Trip pins and springs</b> As replacement for plug-in/withdrawable molded case circuit breaker		<b>3VL9 460-4PF01</b>		1	1 unit	113	0.018
	<b>Auxiliary circuit plug connections for plug-in bases</b> Accessory connections for plug-in molded case circuit breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw terminal) 8 terminals		<sup>2)</sup> <b>3VL9 460-4PJ01</b>		1	1 unit	113	0.316
	<b>Position signaling switches</b> (connected/disconnected position) For plug-in/withdrawable base, 1 changeover contact, max. 2 signaling switches possible		<b>3VL9 000-4WL01</b>		1	1 unit	113	0.040

<sup>1)</sup> With VL800 UL (MG frame) to VL1200 UL (NG frame) as vertical connection.

<sup>2)</sup> It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per molded case circuit breaker (24 terminals).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

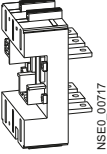
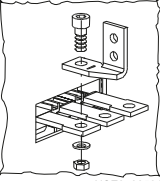
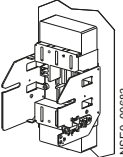
### Accessories and spare parts

DT	For VL800 UL (MG frame)				DT	For VL1200 UL (NG frame)					
Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
--						--					
--						--					
--						--					
	<b>3VL9 600-4WA31</b>		1 1 unit	113	44.400		<b>3VL9 700-4WA31</b>		1 1 unit	113	30.333
	<b>3VL9 600-4WC31</b>		1 1 unit	113	45.520		<b>3VL9 700-4WC31</b>		1 1 unit	113	41.800
	<b>3VL9 600-4PS31</b>		1 1 unit	113	3.602		<b>3VL9 700-4PS31</b>		1 1 unit	113	4.536
	<b>3VL9 600-4PF01</b>		1 1 unit	113	0.025		<b>3VL9 800-4PF01</b>		1 1 unit	113	0.030
	2) <b>3VL9 600-4PJ01</b>		1 1 unit	113	0.258		2) <b>3VL9 800-4PJ01</b>		1 1 unit	113	0.246
	<b>3VL9 000-4WL01</b>		1 1 unit	113	0.040		<b>3VL9 000-4WL01</b>		1 1 unit	113	0.040

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts



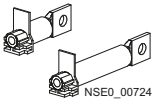
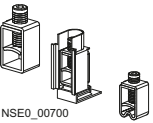

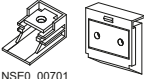



Version	DT	For VL1600 UL (PG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
<b>Plug-in versions/withdrawable versions (UL file: E69455)</b>							
 <p>3VL9 .00-4PA31</p>	<b>3-pole</b>						
	<b>Plug-in base assembly kits</b> Complete with base plate, base, blade contacts for circuit breakers, terminal covers for degree of protection IP20, fixing screws, trip pin						
	<b>Rear terminals</b> 3-pole		--				
 <p>3VL9 .00-4PE31</p>	<b>90° angle connecting adapters</b> For rear connection, 3-pole						
	<b>Front-accessible connections</b> 3-pole		--				
	<b>Withdrawable version</b> Same as plug-in base assembly kit, with additional side panels and racking mechanism						
 <p>3VL9 .00-4WA31</p>	<b>Rear terminals</b> 3-pole		--				
	<b>Front-accessible connections</b> 3-pole		--				
	<b>Blade contacts</b> As replacement for converting fixed-mounted into plug-in/withdrawable molded case circuit breakers, including trip pin 1 set = 6 units 3-pole		<b>3VL9 800-4PS31</b>		1	1 unit	113
<b>Trip pins and springs</b> As replacement for plug-in/withdrawable molded case circuit breaker		<b>3VL9 800-4PF01</b>		1	1 unit	113	0.030
<b>Auxiliary circuit plug connections for plug-in bases</b> Accessory connections for plug-in molded case circuit breakers (factory-wired connectors) and for plug-in bases or withdrawable version (coupling with screw terminal) 8 terminals		<sup>1)</sup> <b>3VL9 800-4PJ01</b>		1	1 unit	113	0.246
<b>Position signaling switches</b> (connected/disconnected position) For plug-in/withdrawable base, 1 changeover contact, max. 2 signaling switches possible		<b>3VL9 000-4WL01</b>		1	1 unit	113	0.040

<sup>1)</sup> It is recommended to use a maximum of 3 auxiliary circuit plug-in systems per molded case circuit breaker (24 terminals).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150X UL (CG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
<b>Connection parts for fixed-mounted molded case circuit breakers</b>							
<b>3-pole</b>							
<b>Rear terminals</b>							
  NSE0_00723 3VL9 .00-4RA01, 3VL9 .00-4RB01	Short connection (1 unit)	<b>3VL9 100-4RA01</b>		1	1 unit	113	0.158
	Long connection (1 unit)	<b>3VL9 100-4RB01</b>		1	1 unit	113	0.261
 NSE0_00724 3VL9 .00-4RK01, 3VL9 .00-4RL01	Terminal kit (2 short + 1 long) 3-pole	<b>3VL9 100-4RC31</b>		1	1 unit	113	0.552
	Short flat connection (1 unit)	<b>3VL9 100-4RK01</b>		1	1 unit	113	0.126
	Long flat connection (1 unit)	<b>3VL9 100-4RL01</b>		1	1 unit	113	0.222
	Flat connector kit (2 short + 1 long) 3-pole	<b>3VL9 100-4RM31</b>		1	1 unit	113	0.421
<b>Steel box terminal with auxiliary conductor connection</b>							
	Terminal with auxiliary conductor connection up to 0.5 A	<b>3VL9 120-4TN31</b>		1	1 unit	113	0.269
<b>Box terminals</b>							
 NSE0_00700 3VL9 ...-4TC.1	Connection for flexible flat copper busbar or cable	<b>3VL9 120-4TC31</b>		1	1 unit	113	0.105
	1 set = 3 units						
<b>Circular conductor terminals<sup>1)</sup></b>							
 3VL9 ...-4TD.1	Only for cables (Al or Cu) Aluminum terminal (tinned)	<b>3VL9 130-4TD31</b>		1	1 unit	113	0.093
	1 set = 3 units						
<b>Terminals with screw connection</b>							
 NSE0_00701 3VL9 .00-4TA.1	With insulator (for rear) for use with busbars and cable lugs	<b>3VL9 100-4TA31</b>		1	1 unit	113	0.063
	1 set = 3 units metric thread						
<b>Connection covers (terminal covers) for circuit breakers<sup>2)</sup></b>							
 NSE0_00681 3VL9 .00-3CA.1	Degree of protection IP30 for main connections 1 set = 2 units	<b>3VL9 300-8CA31</b>		1	1 unit	113	0.306
	Extended 3-pole	<b>3VL9 300-8CB31</b>		1	1 unit	113	0.076
 NSE0_00730 3VL9 .00-3CB.1	Standard 3-pole						
	Covers Degree of protection IP2X for main connections 1 set = 2 units 3-pole	<b>3VL9 300-8CD31</b>		1	1 unit	113	0.160
<b>Phase barriers for molded case circuit breakers, fixed-mounted, plug-in or withdrawable versions</b>							
 NSE0_00731 3VL9 .00-8CE01	1 set = 2 units	<b>3VL9 300-8CE01</b>		1	1 unit	113	0.034

#### Note:

Only rear terminals with different lengths may be fitted next to one another (e.g. short-long-short or long-short-long).

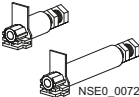
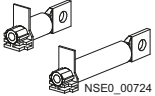

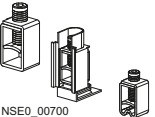


<sup>1)</sup> Circular conductor terminals for VL150X UL (CG frame) suitable for 60 A to 150 A.

<sup>2)</sup> Not UL-listed.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150 UL (DG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
		Order No.	Price per PU			
<b>Connection parts for fixed-mounted molded case circuit breakers</b>						
<b>3-pole</b>						
<b>Rear terminals</b>						
 NSE0_00723 3VL9 .00-4RA01, 3VL9 .00-4RB01		Short connection (1 unit)	<b>3VL9 200-4RA01</b>	1	1 unit	113 0.661
		Long connection (1 unit)	<b>3VL9 200-4RB01</b>	1	1 unit	113 0.271
 NSE0_00724 3VL9 .00-4RK01, 3VL9 .00-4RL01		Terminal kit (2 short + 1 long) 3-pole	<b>3VL9 200-4RC31</b>	1	1 unit	113 0.566
		Short flat connection (1 unit)	<b>3VL9 200-4RK01</b>	1	1 unit	113 0.132
		Long flat connection (1 unit)	<b>3VL9 200-4RL01</b>	1	1 unit	113 0.233
 NSE0_00725		Flat connector kit (2 short + 1 long)	<b>3VL9 200-4RM31</b>	1	1 unit	113 0.460
		3-pole	--			
		Flat connecting bar (1 unit)	--			
		Flat connecting bars 1 set = 3 units, 3-pole	--			
 NSE0_00700 3VL9 ...-4TC.1		<b>Box terminals</b> Connection for flexible flat copper busbar or cable	<b>3VL9 220-4TC31</b>	1	1 unit	113 0.115
		1 set = 3 units				
		<b>Circular conductor terminal with terminal covers for cable (only for Al or Cu cables)</b> Terminal with auxiliary conductor connection up to 0.5 A	<b>3VL9 215-4TD31</b>	1	1 unit	113 0.356
		1 set = 3 units				
		<b>Steel box terminal with auxiliary conductor connection</b> Terminal with auxiliary conductor connection up to 0.5 A	<b>3VL9 220-4TN31</b>	1	1 unit	113 0.277
 3VL9 ...-4TD.1		<b>Circular conductor terminals<sup>1)</sup></b> Only for cables (Al or Cu) Aluminum terminal (tinned)	<b>3VL9 230-4TD31</b>	1	1 unit	113 0.117
		1 set = 3 units				
 NSE0_01542 3VL9 ...-4TF.1		<b>Multiple feed-in terminals</b> Only for cables (Al or Cu) Aluminum terminal (tinned)	--			
		3 units	2-fold			
		<b>Multiple feed-in terminal with terminal covers</b> Terminal with auxiliary conductor connection up to 0.5 A	--			
		1 set = 3 units	2-fold			

#### Note:

Only rear terminals with different lengths may be fitted next to one another (e.g. short-long-short or long-short-long).

<sup>1)</sup> Circular conductor terminals for VL150 UL suitable for 60 to 150 A.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489





### Accessories and spare parts

DT	For VL250 UL (FG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	DT	For VL400 UL (JG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	Order No.					kg		Order No.					kg
	<b>3VL9 300-4RA01</b>		1	1 unit	113	0.164		<b>3VL9 400-4RA01</b>		1	1 unit	113	0.428
	<b>3VL9 300-4RB01</b>		1	1 unit	113	0.264		<b>3VL9 400-4RB01</b>		1	1 unit	113	0.712
	<b>3VL9 300-4RC31</b>		1	1 unit	113	0.555		<b>3VL9 400-4RC31</b>		1	1 unit	113	1.050
	<b>3VL9 300-4RK01</b>		1	1 unit	113	0.129		<b>3VL9 400-4RK01</b>		1	1 unit	113	0.343
	<b>3VL9 300-4RL01</b>		1	1 unit	113	0.224		<b>3VL9 400-4RL01</b>		1	1 unit	113	1.190
	<b>3VL9 300-4RM31</b>		1	1 unit	113	0.451		<b>3VL9 400-4RM31</b>		1	1 unit	113	1.408
	--							--					
	--							--					
	<b>3VL9 335-4TC31</b>		1	1 unit	113	0.204		<b>3VL9 460-4TC31</b>		1	1 unit	113	0.467
	--							--					
	<b>3VL9 335-4TN31</b>		1	1 unit	113	0.374		<b>3VL9 460-4TN31</b>		1	1 unit	113	0.795
	<b>3VL9 335-4TD31</b>		1	1 unit	113	0.150		<b>3VL9 475-4TD31</b>		1	1 unit	113	0.353
	--							<b>3VL9 425-4TF31</b>		1	1 unit	113	0.495
	--							<b>3VL9 460-4TF31</b>		1	1 unit	113	0.899

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150 UL (DG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
<b>Connection parts for fixed-mounted molded case circuit breakers</b>							
<b>3-pole</b>							
<b>Connection with screw terminal</b>							
With insulator (for rear) for use with busbars and cable lugs							
 NSE0_00701							
3VL9 .00-4TA.1	1 set = 3 units	metric thread	<b>3VL9 200-4TA31</b>	1	1 unit	113	0.082
	1 set = 3 units	Inch thread	<b>3VL9 200-4TB31</b>	1	1 unit	113	0.068
<b>Cable lug connection</b>							
	1 set = 3 units		<b>3VL9 220-4TM31</b>	1	1 unit	113	0.001
<b>Connection covers (terminal covers) for circuit breakers<sup>1)</sup></b>							
Degree of protection IP30 for main connections							
1 set = 2 units							
 NSE0_00681	Extended	3-pole	<b>3VL9 300-8CA31</b>	1	1 unit	113	0.306
3VL9 .00-3CA.1							
 NSE0_00730	Standard	3-pole	<b>3VL9 300-8CB31</b>	1	1 unit	113	0.076
3VL9 .00-3CB.1							
<b>Connection covers (terminal covers) for circuit breakers</b>							
Degree of protection IP2X for main connections							
1 set = 2 units							
			<b>3VL9 300-8CD31</b>	1	1 unit	113	0.160
<b>Phase barriers for molded case circuit breakers, fixed-mounted, plug-in or withdrawable versions</b>							
 NSE0_00731	1 set = 2 units		<b>3VL9 300-8CE01</b>	1	1 unit	113	0.034
3VL9 .00-8CE01							

<sup>1)</sup> Not UL-listed.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489



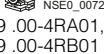












### Accessories and spare parts

DT	For VL250 UL (FG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg	DT	For VL400 UL (JG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
	<b>3VL9 300-4TA31</b>		1	1 unit	113	0.107		<b>3VL9 400-4TA31</b>		1	1 unit	113	0.116
	<b>3VL9 300-4TB31</b>		1	1 unit	113	0.095		--					
	<b>3VL9 335-4TM31</b>		1	1 unit	113	0.349		<b>3VL9 460-4TM31</b>		1	1 unit	113	0.639
	<b>3VL9 300-8CA31</b>		1	1 unit	113	0.306		<b>3VL9 400-8CA31</b>		1	1 unit	113	0.615
	<b>3VL9 300-8CB31</b>		1	1 unit	113	0.076		<b>3VL9 400-8CB31</b>		1	1 unit	113	0.132
	<b>3VL9 300-8CD31</b>		1	1 unit	113	0.160		<b>3VL9 400-8CD31</b>		1	1 unit	113	0.308
	<b>3VL9 300-8CE01</b>		1	1 unit	113	0.034		<b>3VL9 600-8CE01</b>		1	1 unit	113	0.056

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL400X UL (LG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
<b>Connection parts for fixed-mounted molded case circuit breakers</b>							
<b>3-pole</b>							
<b>Rear terminals</b>							
		Short connection (1 unit)	--				
		Long connection (1 unit)	--				
		Terminal kit (2 short + 1 long) 3-pole	--				
3VL9 .00-4RA01, 3VL9 .00-4RB01							
		Short flat connection (1 unit)	--				
		Long flat connection (1 unit)	<b>3VL9 460-4RP01</b>	1	1 unit	113	0.810
		Flat connector kit (2 short + 1 long) 3-pole	--				
3VL9 .00-4RK01, 3VL9 .00-4RL01							
		Flat connecting bar (1 unit)	<b>3VL9 460-4RG01</b>	1	1 unit	113	0.452
		Flat connecting bars 1 set = 3 units, 3-pole	<b>3VL9 460-4RH31</b>	1	1 unit	113	1.075
3VL9 .00-4R..1							
<b>Box terminals</b>							
<u>Connection for flexible flat copper busbar or cable</u>							
		1 set = 3 units	--				
3VL9 .00-4TC.1							
<b>Circular conductor terminals</b>							
<u>Only for cables (Al or Cu)</u>							
<u>Aluminum terminal (tinned)</u>							
		1 set = 3 units	<b>3VL9 475-4TD31</b>	1	1 unit	113	0.353
3VL9 .00-4TD.1							
<b>Multiple feed-in terminals</b>							
<u>Only for cables (Al or Cu)</u>							
<u>Aluminum terminal (tinned)</u>							
		1 set = 3 units	--				
3VL9 ...-4TF.1							
		2-fold	<b>3VL9 460-4TX31</b>	1	1 unit	113	0.822
		• Terminal feeder side <sup>1)</sup>	<b>3VL9 460-4TY31</b>	1	1 unit	113	0.820
		• Terminal outgoing side <sup>1)</sup>	--				
		3-fold	--				
		4-fold	--				
<b>Connection with screw terminal</b>							
With insulator (for rear) for use with busbars and cable lugs							
		1 set = 3 units	<b>3VL9 460-4TA31</b>	1	1 unit	113	0.171
3VL9 .00-4TA.1		metric thread	<b>3VL9 460-4TB31</b>	1	1 unit	113	0.143
		1 set = 3 units					
		Inch thread					
<b>Connection covers (terminal covers) for circuit breakers<sup>2)</sup></b>							
Degree of protection IP30 for main connections							
		1 set = 2 units	<b>3VL9 400-8CA31</b>	1	1 unit	113	0.615
3VL9 .00-3CA.1		Extended	<b>3VL9 400-8CB31</b>	1	1 unit	113	0.132
		3-pole					
		Standard					
3VL9 .00-3CB.1		3-pole					
<b>Phase barriers for molded case circuit breakers, fixed-mounted, plug-in or withdrawable versions<sup>3)</sup></b>							
		1 set = 2 units	<b>3VL9 600-8CE01</b>	1	1 unit	113	0.056
3VL9 .00-8CE01							

#### Note:

Only rear terminals with different lengths may be fitted next to one another (e.g. short-long-short or long-short-long).

<sup>1)</sup> Extended terminal cover included in scope of supply.

<sup>2)</sup> Not UL-listed.

<sup>3)</sup> Plug-in version: not for VL1200 UL (NG frame); withdrawable version: not for VL800 UL (MG frame) and VL1200 UL (NG frame).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489



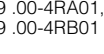


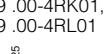








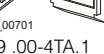



### Accessories and spare parts

DT	For VL800 UL (MG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	DT	For VL1200 UL (NG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	Order No.					kg		Order No.					kg
--							--						
--							--						
--							--						
	<b>3VL9 600-4RP01</b>		1	1 unit	113	1.653							
--							--						
	<b>3VL9 600-4RG01</b>		1	1 unit	113	1.305		<b>3VL9 700-4RG01</b>		1	1 unit	113	1.708
	<b>3VL9 600-4RH31</b>		1	1 unit	113	4.080		<b>3VL9 700-4RH31</b>		1	1 unit	113	4.970
--							--						
--							--						
	<b>3VL9 675-4TF31</b>		1	1 unit	113	1.228							
--							--						
	<b>3VL9 650-4TG31</b>		1	1 unit	113	1.173		<b>3VL9 775-4TG31</b>		1	1 unit	113	3.414
--							--	<b>3VL9 750-4TH31</b>		1	1 unit	113	2.562
	<b>3VL9 600-4TA31</b>		1	1 unit	113	0.293		<b>3VL9 800-4TA31</b>		1	1 unit	113	0.362
	<b>3VL9 600-4TB31</b>		1	1 unit	113	0.305		<b>3VL9 800-4TB31</b>		1	1 unit	113	0.055
	<b>3VL9 600-8CA31</b>		1	1 unit	113	0.860		<b>3VL9 800-8CA31</b>		1	1 unit	113	1.268
	<b>3VL9 600-8CB31</b>		1	1 unit	113	0.220		<b>3VL9 800-8CB31</b>		1	1 unit	113	0.370
	<b>3VL9 600-8CE01</b>		1	1 unit	113	0.056		<b>3VL9 800-8CE01</b>		1	1 unit	113	0.150

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

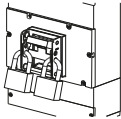
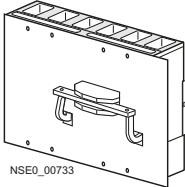
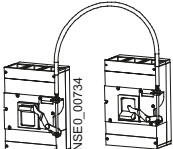
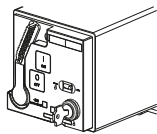

Version	DT	For VL1600 UL (PG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
		Order No.	Price per PU			kg
<b>Connection parts for fixed-mounted molded case circuit breakers</b>						
<b>3-pole</b>						
<b>Rear terminals</b>						
		Short connection (1 unit)	--			
		Long connection (1 unit)	--			
		Terminal kit (2 short + 1 long) 3-pole	--			
NSE0_00723 3VL9 .00-4RA01, 3VL9 .00-4RB01						
		Short flat connection (1 unit)	--			
		Long flat connection (1 unit)	--			
		Flat connector kit (2 short + 1 long) 3-pole	--			
NSE0_00724 3VL9 .00-4RK01, 3VL9 .00-4RL01						
		Flat connecting bar (1 unit)	--			
		Flat connecting bars 1 set = 3 units, 3-pole	--			
NSE0_00725 3VL9 .00-4R..1						
<b>Box terminals</b>						
		Connection for flexible flat copper busbar or cable	--			
		1 set = 3 units	--			
NSE0_00700 3VL9 ...-4TC.1						
<b>Circular conductor terminals</b>						
		Only for cables (Al or Cu) <u>Aluminum terminal (tinned)</u>	--			
3VL9 ...-4TD.1		1 set = 3 units	--			
<b>Multiple feed-in terminals</b>						
		Only for cables (Al or Cu) <u>Aluminum terminal (tinned)</u>				
		4-fold (for installation with mounting base) 1 unit	<b>3VL9 875-4TH01</b>	1	1 unit	113 1.223
120 L 16667 3VL9 ...-4T..1						
<b>Terminals with screw connection -</b>						
		With insulator (for rear) for use with busbars and cable lugs				
		1 set = 3 units metric thread	<b>3VL9 800-4TA31</b>	1	1 unit	113 0.362
NSE0_00701 3VL9 .00-4TA.1		1 set = 3 units Inch thread	<b>3VL9 800-4TB31</b>	1	1 unit	113 0.055
<b>Connection covers (terminal covers) for circuit breakers<sup>1)</sup></b>						
		Degree of protection IP30 for main connections 1 set = 2 units				
3VL9 .00-3CA.1		Extended 3-pole	<b>3VL9 800-8CA31</b>	1	1 unit	113 1.268
		Standard 3-pole	<b>3VL9 800-8CB31</b>	1	1 unit	113 0.370
NSE0_00730 3VL9 .00-3CB.1						
<b>Phase barriers for molded case circuit breakers, fixed-mounted</b>						
		1 set = 2 units	<b>3VL9 800-8CE01</b>	1	1 unit	113 0.150
NSE0_00731 3VL9 .00-8CE01						
<b>Mounting base</b>						
		Operation of the molded case circuit breaker within the scope of application of UL 489/CSA is permitted only in conjunction with the mounting base				
		Front-accessible connections	<b>3VL9 800-4TU31</b>	1	1 unit	113 24.830
		Rear terminals	<b>3VL9 800-4TV31</b>	1	1 unit	113 23.396

<sup>1)</sup> Not UL-listed.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150X UL (CG frame) and VL150 UL (DG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg								
<b>Interlocks</b>															
 NSE0_00732 3VL9 .00-3HL01	<b>3-pole</b> <b>Locking devices for toggle levers</b> For locking the molded case circuit breaker in the "OFF" position. Up to 3 padlocks with Ø 5–8 mm can be used. Removable (padlocks not included)		<b>3VL9 300-3HL01</b>		1	1 unit	113 0.068								
	 NSE0_00733 3VL9 .00-8L.01	<b>Rear interlocking modules</b> For the mechanical interlocking of two adjacent molded case circuit breakers. The circuit breakers must be of the same installation type and frame size. (Mounting plate not included in scope of supply) Fixed-mounted molded case circuit breakers		<b>3VL9 300-8LC01</b>		1	1 unit	113 0.473							
 NSE0_00734 3VL9 .00-8LA01		<b>Interlocking modules for Bowden wire interlocking<sup>1)</sup></b> For the mechanical interlocking of two molded case circuit breakers. Interlocking module for one molded case circuit breaker		Combination with next size up/down possible (see Order No.)  <b>3VL9 300-8LA01</b>		1	1 unit	113 0.194							
	<b>Bowden wires</b> for Bowden wire interlocking <sup>1)</sup> Wire length 0.5 m Wire length 1.0 m Wire length 1.5 m		<b>3VL9 000-8LH11</b> <b>3VL9 000-8LH21</b> <b>3VL9 000-8LH31</b>		1 1 1	1 unit 1 unit 1 unit	113 113 113	0.330 0.400 0.790							
<b>Sets of fixing screws (metric thread)</b> Including the screws, washers and nuts required to secure a molded case circuit breaker to a prepared surface Set with 4 screws		<b>3VL9 300-8SA40</b>		1	1 unit	113	0.057								
 NSE0_00680 3VL9 .00-8L.01	<b>Safety lock assembly kits</b> Key can be removed with the molded case circuit breaker in the "OFF" position <u>For front-operated rotary operating mechanisms</u> Ronis lock type		<b>3VL9 715-8HA01</b>		1	1 unit	113 0.271								
	<u>For motorized operating mechanism with stored energy mechanism</u> Filli Giussani lock type		<b>3VL9 321-8HA01</b>		1	1 unit	113 0.044								
<table border="1"> <thead> <tr> <th>Version</th> <th>DT</th> <th>For VL150 UL (DG frame) Order No.</th> <th>Price per PU</th> <th>PU (UNIT, SET, M)</th> <th>PS*/P. unit</th> <th>PG</th> <th>Weight per PU approx. kg</th> </tr> </thead> </table>								Version	DT	For VL150 UL (DG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
Version	DT	For VL150 UL (DG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg								
<b>Transparent covers for releases, sealable</b> To prevent access by unqualified personnel and unauthorized changes to settings (seal not included) Electronic Trip Units Thermal-magnetic <sup>2)</sup>		<b>3VL9 700-8BL01</b> <b>3VL9 300-8BM01</b>		1 1	1 unit 1 unit	113 113	0.015 0.052								
 NSE0_00724 3VL9 000-8AP01	<b>Battery power supply for activating/parameterizing/tripping the Electronic Trip Units</b> (two 9 V blocks are required in addition)		<b>3VL9 000-8AP01</b>		1	1 unit	113 0.212								

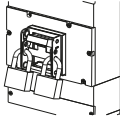
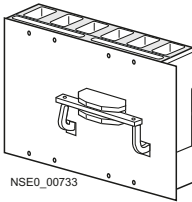
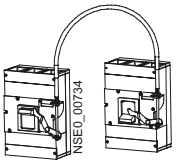
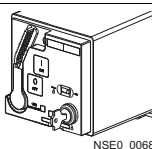

<sup>1)</sup> Two interlocking modules and one Bowden wire are required.  
 Cannot be used in conjunction with motorized operating mechanism.

<sup>2)</sup> Also suitable for VL150X UL (CG frame).

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL250 UL (FG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
<b>Interlocks</b>							
 NSE0_00732 3VL9 .00-3HL01		<b>3-pole Locking devices for toggle levers</b> For locking the molded case circuit breaker in the "OFF" position. Up to 3 padlocks with Ø 5–8 mm can be used. Removable (padlocks not included)					
 NSE0_00733 3VL9 .00-8L.01		<b>Rear interlocking modules</b> For the mechanical interlocking of two adjacent molded case circuit breakers. The circuit breakers must be of the same installation type and frame size. (Mounting plate not included in scope of supply) Fixed-mounted molded case circuit breakers					
 NSE0_00734 3VL9 .00-8LA01		<b>Interlocking modules for Bowden wire interlocking<sup>1)</sup></b> For the mechanical interlocking of two molded case circuit breakers. Interlocking module for one molded case circuit breaker					
		<b>Bowden wires</b> for Bowden wire interlocking <sup>1)</sup> Wire length 0.5 m Wire length 1.0 m Wire length 1.5 m					
 NSE0_00680 3VL9 ...-8HA01		<b>Safety lock assembly kits</b> Key can be removed with the molded case circuit breaker in the "OFF" position <u>For front-operated rotary operating mechanisms</u> Lock types • Ronis  <u>For motorized operating mechanism with stored energy mechanism</u> Lock types • Ronis • Filli Giussani					
		<b>Sets of fixing screws (metric thread)</b> Including the screws, washers and nuts required to secure a molded case circuit breaker to a prepared surface Set with 4 screws					
		<b>Transparent covers for releases, sealable</b> To prevent access by unqualified personnel and unauthorized changes to settings (seal not included) for Electronic Trip Unit for thermal-magnetic overcurrent release					
 3VL9 000-8AP01		<b>Battery power supply for activating/parameterizing/tripping the Electronic Trip Units</b> (two 9 V blocks are required in addition)					

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

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

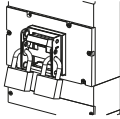
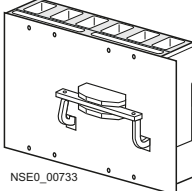
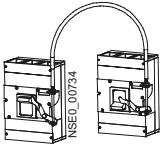
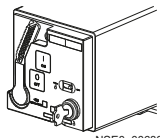

### Accessories and spare parts

DT	For VL400 UL (JG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg	DT	For VL400X UL (LG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
	<b>3VL9 400-3HL01</b>		1	1 unit	113	0.140		<b>3VL9 400-3HL01</b>		1	1 unit	113	0.140
	<b>3VL9 400-8LC01</b>		1	1 unit	113	0.386		<b>3VL9 400-8LC01</b>		1	1 unit	113	0.386
Combination with next size up/down possible (see Order No.)													
	<b>3VL9 400-8LA01</b>		1	1 unit	113	0.217		<b>3VL9 400-8LA01</b>		1	1 unit	113	0.217
	--		1	1 unit	113	0.400		--		1	1 unit	113	0.400
	<b>3VL9 000-8LH21</b>		1	1 unit	113	0.790		<b>3VL9 000-8LH21</b>		1	1 unit	113	0.790
	<b>3VL9 000-8LH31</b>		1	1 unit	113	0.790		<b>3VL9 000-8LH31</b>		1	1 unit	113	0.790
	<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271		<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271
	<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271		<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271
	--							--					
	<b>3VL9 500-8SA40</b>		1	1 unit	113	0.109		<b>3VL9 500-8SA40</b>		1	1 unit	113	0.109
	<b>3VL9 700-8BL01</b>		1	1 unit	113	0.015		<b>3VL9 700-8BL01</b>		1	1 unit	113	0.015
	<b>3VL9 400-8BM01</b>		1	1 unit	113	0.033		<b>3VL9 400-8BM01</b>		1	1 unit	113	0.033
	<b>3VL9 000-8AP01</b>		1	1 unit	113	0.212		<b>3VL9 000-8AP01</b>		1	1 unit	113	0.212

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL800 UL (MG frame) Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
<b>Interlocks</b>							
 NSE0_00732 3VL9.00-3HL00		<b>3-pole Locking device for toggle levers</b> For locking the molded case circuit breaker in the "OFF" position. Up to 3 padlocks with Ø 5–8 mm can be used. Removable (padlocks not included)					
		<b>3VL9 600-3HL01</b>		1	1 unit	113	0.130
 NSE0_00733 3VL9.00-8L.01		<b>Rear interlocking modules</b> For the mechanical interlocking of two adjacent molded case circuit breakers. The circuit breakers must be of the same installation type and frame size. (Mounting plate not included in scope of supply) Fixed-mounted molded case circuit breakers					
		<b>3VL9 600-8LC01</b>		1	1 unit	113	1.499
 NSE0_00734 3VL9.00-8LA01		<b>Interlocking modules for Bowden wire interlocking<sup>1)</sup></b> For the mechanical interlocking of two molded case circuit breakers. Interlocking module for one molded case circuit breaker					
		Combination with next size up/down possible (see Order No.)					
		<b>3VL9 600-8LA01</b>		1	1 unit	113	0.269
		<b>Bowden wires</b> for Bowden wire interlocking <sup>1)</sup> Wire length 0.5 m Wire length 1.0 m Wire length 1.5 m					
		---					
		<b>3VL9 000-8LH21</b>		1	1 unit	113	0.400
		<b>3VL9 000-8LH31</b>		1	1 unit	113	0.790
 NSE0_00680 3VL9 .....8HA01		<b>Safety lock assembly kits</b> Key can be removed with the molded case circuit breaker in the "OFF" position <u>For front-operated rotary operating mechanisms</u> Lock types • Ronis <u>For motorized operating mechanism with stored energy mechanism</u> Lock types • Ronis • Filli Giussani					
		<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271
		<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271
		---					
		<b>Sets of fixing screws (metric thread)</b> Including the screws, washers and nuts required to secure a molded case circuit breaker to a prepared surface Set with 4 screws					
		<b>3VL9 600-8SA40</b>		1	1 unit	113	0.099
		<b>Transparent covers for releases, sealable</b> To prevent access by unqualified personnel and unauthorized changes to settings (seal not included) for Electronic Trip Units for thermal-magnetic overcurrent release					
		<b>3VL9 700-8BL01</b>		1	1 unit	113	0.015
		---					
 3VL9 000-8AP01		<b>Battery power supply for activating/parameterizing/tripping the Electronic Trip Units</b> (two 9 V blocks are required in addition)					
		<b>3VL9 000-8AP01</b>		1	1 unit	113	0.212

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

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

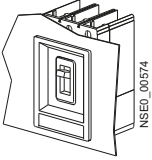
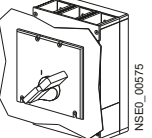
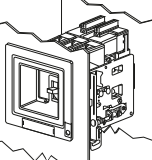
### Accessories and spare parts

DT	For VL1200 UL (NG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.	DT	For VL1600 UL (PG frame)	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx.
	Order No.							Order No.					
						kg							kg
	<b>3VL9 800-3HL01</b>		1	1 unit	113	0.250		<b>3VL9 800-3HL01</b>		1	1 unit	113	0.250
	<b>3VL9 800-8LC01</b>		1	1 unit	113	4.262		<b>3VL9 800-8LC01</b>		1	1 unit	113	4.262
Combination with next size up/down possible (see Order No.)													
	<b>3VL9 800-8LA01</b>		1	1 unit	113	0.298		<b>3VL9 800-8LA01</b>		1	1 unit	113	0.298
	--							--					
	<b>3VL9 000-8LH31</b>		1	1 unit	113	0.790		<b>3VL9 000-8LH31</b>		1	1 unit	113	0.790
	<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271		<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271
	<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271		<b>3VL9 715-8HA01</b>		1	1 unit	113	0.271
	--							--					
	<b>3VL9 800-8SA40</b>		1	1 unit	113	0.116		<b>3VL9 800-8SA40</b>		1	1 unit	113	0.116
	<b>3VL9 700-8BL01</b>		1	1 unit	113	0.015		<b>3VL9 700-8BL01</b>		1	1 unit	113	0.015
	--							--					
	<b>3VL9 000-8AP01</b>		1	1 unit	113	0.212		<b>3VL9 000-8AP01</b>		1	1 unit	113	0.212

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	For VL150X UL (CG frame)	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
		Order No. Price per PU				
<b>Further accessories</b>						
<b>3-pole</b>						
<b>Masking frames (cover frames)</b>						
<b>For door cutouts</b>						
 Masking frame A	<b>A</b> <b>IP40</b>	Fixed-mounted or plug-in molded case circuit breaker	<b>3VL9 300-8BC01</b>	1	1 unit	113 0.053
 Masking frame B	<b>B<sup>1)</sup></b> <b>IP40</b>	Fixed-mounted, plug-in or withdrawable molded case circuit breaker with front-operated rotary operating mechanism or motorized operating mechanism	<b>3VL9 300-8BG01</b>	1	1 unit	113 0.080
 Masking frame C	<b>C</b> <b>IP20</b>	Withdrawable molded case circuit breaker with toggle lever actuation. Assembly kit contains masking frame and extended escutcheon (cannot be used together with a motorized operating mechanism/rotary operating mechanism)	--			
<b>Further accessories</b>						
<b>3-pole</b>						
<b>Masking frames (cover frames)</b>						
<b>For door cutouts</b>						
	<b>A</b> <b>IP40</b>	Fixed-mounted or plug-in molded case circuit breaker	<b>3VL9 600-8BC01</b>	1	1 unit	113 0.074
	<b>B<sup>1)</sup></b> <b>IP40</b>	Fixed-mounted, plug-in or withdrawable molded case circuit breaker with front-operated rotary operating mechanism or motorized operating mechanism	<b>3VL9 600-8BG01</b>	1	1 unit	113 0.192
	<b>C</b> <b>IP20</b>	Withdrawable molded case circuit breaker with toggle lever actuation. Assembly kit contains masking frame and extended escutcheon (cannot be used together with a motorized operating mechanism/rotary operating mechanism)	<b>3VL9 600-8BH01</b>	1	1 unit	113 0.259

<sup>1)</sup> For withdrawable version IP20.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

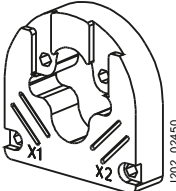
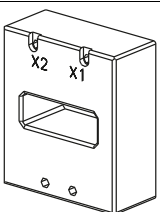
### Accessories and spare parts

DT	For VL150 UL (DG frame) and VL250 UL (FG frame)	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.	DT	For VL400 UL (JG frame) and VL400X UL (LG frame)	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	Order No.					kg		Order No.					kg
	<b>3VL9 300-8BC01</b>		1	1 unit	113	0.053		<b>3VL9 400-8BC01</b>		1	1 unit	113	0.046
	<b>3VL9 300-8BG01</b>		1	1 unit	113	0.080		<b>3VL9 400-8BG01</b>		1	1 unit	113	0.173
	<b>3VL9 300-8BH01</b>		1	1 unit	113	0.325		<b>3VL9 400-8BH01</b>		1	1 unit	113	0.435
DT	For VL1200 UL (NG frame)	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.	DT	For VL1600 UL (PG frame)	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx.
	Order No.					kg		Order No.					kg
	<b>3VL9 800-8BC01</b>		1	1 unit	113	0.060		<b>3VL9 800-8BC01</b>		1	1 unit	113	0.060
	<b>3VL9 800-8BG01</b>		1	1 unit	113	0.223		<b>3VL9 800-8BG01</b>		1	1 unit	113	0.223
	<b>3VL9 800-8BH01</b>		1	1 unit	113	0.422		<b>3VL9 800-8BH01</b>		1	1 unit	113	0.422

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
<b>Further accessories</b>							
<b>3-pole</b>							
<b>Current transformers for N conductor/ grounded neutral point of the transformer</b>							
for ground fault protection in 4-wire three-phase systems							
<i>I<sub>N</sub></i> /A of the ETU Purpose							
 3VL9 206-8TT01	60	for VL150 UL (DG frame)	<b>3VL9 206-8TT01</b>	1	1 unit	113	0.100
	100	for VL150 UL (DG frame)	<b>3VL9 310-8TT01</b>	1	1 unit	113	0.200
 3VL9 660-8TT01		for VL250 UL (FG frame)	<b>3VL9 310-8TT01</b>	1	1 unit	113	0.200
	150	for VL150 UL (DG frame)	<b>3VL9 315-8TT01</b>	1	1 unit	113	0.045
		for VL250 UL (FG frame)	<b>3VL9 315-8TT01</b>	1	1 unit	113	0.045
	250	for VL250 UL (FG frame)	<b>3VL9 425-8TT01</b>	1	1 unit	113	0.200
		for VL400 UL (JG frame)	<b>3VL9 425-8TT01</b>	1	1 unit	113	0.200
	400	for VL400 UL (JG frame)	<b>3VL9 440-8TT01</b>	1	1 unit	113	0.100
		for VL400X UL (LG frame)	<b>3VL9 440-8TT01</b>	1	1 unit	113	0.100
	600	for VL400X UL (LG frame)	<b>3VL9 660-8TT01</b>	1	1 unit	113	0.100
		for VL800 UL (MG frame)	<b>3VL9 660-8TT01</b>	1	1 unit	113	0.100
	800	for VL800 UL (MG frame)	<b>3VL9 780-8TT01</b>	1	1 unit	113	0.020
		for VL1200 UL (NG frame)	<b>3VL9 780-8TT01</b>	1	1 unit	113	0.020
	1000	for VL1200 UL (NG frame)	<b>3VL9 812-8TT01</b>	1	1 unit	113	0.075
	1200	for VL1200 UL (NG frame)	<b>3VL9 812-8TT01</b>	1	1 unit	113	0.075
		for VL1600 UL (PG frame)	<b>3VL9 812-8TT01</b>	1	1 unit	113	0.075
1600	for VL1600 UL (PG frame)	<b>3VL9 816-8TT01</b>	1	1 unit	113	0.100	

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Accessories and spare parts

For type	Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*/P. unit	PG	Weight per PU approx. kg
<b>Accessories for communication</b>								
<b>3-pole</b>								
<b>Data transmission</b>								
VL150 UL (DG frame) to VL1600 UL (PG frame)	<b>COM20 Release 2 (PROFIBUS module for 3VL molded case circuit breaker according to UL)</b> Module for connecting the 3VL molded case circuit breaker according to UL with Electronic Trip Unit to the PROFIBUS DP, including switching function and Zone Selective Interlocking functionality, connection cable to ETU not included in delivery		<b>3VL9 000-8AU00</b>		1	1 unit	113	0.287
VL150 UL (DG frame) to VL1600 UL (PG frame)	<b>COM21 Release 2 (Modbus module for 3VL molded case circuit breaker according to UL)</b> Module for connecting the 3VL molded case circuit breaker according to UL with Electronic Trip Unit to a Modbus RTU bus system, including switching function and Zone Selective Interlocking functionality, connection cable to ETU not included in delivery		<b>3VL9 000-8AV00</b>		1	1 unit	113	0.295
	<b>Addressing plugs</b> For assigning the module addresses without using a PC/PG on COM20/COM21 (Release 2) through the system interface	▶	<b>3UF7 910-0AA00-0</b>		1	1 unit	42J	0.015
VL150 UL (DG frame) to VL250 UL (FG frame)	<b>COMKIT3</b> Communication interface for connecting a 3VL molded case circuit breaker according to UL to a COM20/COM21 (Release 2) communication module. Comprising: • Connecting cable (length 1.5 m) • Alarm switch • Protective cover to protect the connecting cable		<b>3VL9 300-8AQ61</b>		1	1 unit	113	0.142
VL400 UL (JG frame) to VL400X UL (LG frame)	<b>COMKIT4</b> Communication interface for connecting a 3VL molded case circuit breaker according to UL to a COM20/COM21 (Release 2) communication module. Comprising: • Connecting cable (length 1.5 m) • Auxiliary switch and alarm switch • Protective cover to protect the connecting cable		<b>3VL9 400-8AQ61</b>		1	1 unit	113	0.161
VL600 UL (MG frame) to VL1600 UL (PG frame)	<b>COMKIT5</b> Communication interface for connecting a 3VL molded case circuit breaker according to UL to a COM20/COM21 (Release 2) communication module. Comprising: • Connecting cable (length 1.5 m) • Auxiliary switch and alarm switch • Protective cover to protect the connecting cable		<b>3VL9 800-8AQ61</b>		1	1 unit	113	0.208
VL150 UL (DG frame) to VL250 UL (FG frame)	<b>COMKIT6</b> Communication interface for connecting a 3VL molded case circuit breaker according to UL to a COM20/COM21 (Release 2) communication module. Comprising: • Connecting cable (length 3 m) • Alarm switch • Protective cover to protect the connecting cable		<b>3VL9 300-8AQ71</b>		1	1 unit	113	0.229
VL400 UL (JG frame) to VL400X UL (LG frame)	<b>COMKIT7</b> Communication interface for connecting a 3VL molded case circuit breaker according to UL to a COM20/COM21 (Release 2) communication module. Comprising: • Connecting cable (length 3 m) • Auxiliary switch and alarm switch • Protective cover to protect the connecting cable		<b>3VL9 400-8AQ71</b>		1	1 unit	113	0.231
VL600 UL (MG frame) to VL1600 UL (PG frame)	<b>COMKIT8</b> Communication interface for connecting a 3VL molded case circuit breaker according to UL to a COM20/COM21 (Release 2) communication module. Comprising: • Connecting cable (length 3 m) • Auxiliary switch and alarm switch • Protective cover to protect the connecting cable		<b>3VL9 800-8AQ71</b>		1	1 unit	113	0.246

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### Design

- Rated current range from 20 A to 1600 A
- Different making and braking capacities for each frame size

<b>N</b>	Standard (35 kA)
<b>H</b>	High (65 kA)
<b>L</b>	Very high (100 kA)

- No power reduction/derating up to 40 °C
- Electronic Trip Unit from size 150 A (VL150 UL, DG frame), especially for time-based discrimination and ground fault protection
- 2 families of internal accessories
- Complete bandwidth of external accessories, e.g. connection terminals also for aluminum cables.

All molded case circuit breakers are supplied with integrated overcurrent releases. The VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers are available with different connection variants (see "Main connections, basic equipment and options", page 66). Auxiliary switches, alarm switches and auxiliary releases can be easily retrofitted in the molded case circuit breakers or, if requested, are already installed when delivered.

The switching capacity is indicated on the front of every molded case circuit breaker.

- Standard breaking capacity:  
 $I_{cu} = 35 \text{ kA}$  at 480 V AC 50/60 Hz
- High breaking capacity:  
 $I_{cu} = 65 \text{ kA}$  at 480 V AC 50/60 Hz
- Very high breaking capacity:  
 $I_{cu} = 100 \text{ kA}$  at 480 V AC 50/60 Hz

#### Connection

The following connection types are available for 3VL molded case circuit breakers according to UL 489:

- Box terminal, suitable for multiple-wire conductors,
- Screw terminals for flat connection,
- Circular conductor/multiple feed-in terminal for Al/Cu cables,
- Cable lug connection.

The infeed and outgoing sides can be chosen on the molded case circuit breaker to suit requirements. The electrical data remains unaffected.

Various terminals feature an auxiliary conductor connection. Up to 0.5 A can be tapped here to directly power other devices.

Bare conductors at the top terminals must be insulated in the space that is needed above the arc chute.

For VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers, the terminals for internal accessories (auxiliary releases, auxiliary switches and alarm switches) are available with terminal screws.

For all 3VL molded case circuit breakers, the auxiliary releases (shunt releases and undervoltage releases), auxiliary switches and alarm switches can be connected easily and directly.

The motorized operating mechanisms with stored energy mechanisms always feature terminals. The leading auxiliary switches for the rotary operating mechanisms are always supplied with connecting cables.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### **VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers**

The main components of the 3VL molded case circuit breakers according to UL are the three conducting paths with incoming and outgoing terminals. The fixed and movable contacts are designed in such a way that magnetic repulsion of the contacts takes place under short-circuit conditions. In conjunction with the arc splitter chambers, a dynamic impedance is created that causes a current limitation through the reduction in the harmful effects of  $I^2t$  and the  $I_p$  energy resulting during short-circuits.

The 3VL molded case circuit breaker has a trip-free mechanism.

The double-insulated accessory compartments for the auxiliary releases and auxiliary switches are located on the left and right of the circuit breaker's operating mechanism.

The overcurrent releases for the VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers have the following characteristics:

- The overcurrent releases are available in a thermal-magnetic version and in an electronic<sup>1)</sup> version.
- The thermal-magnetic releases have permanently set overload releases and adjustable<sup>2)</sup> short-circuit releases.

In the case of all versions of the 3VL molded case circuit breakers according to UL with Electronic Trip Unit, the current transformers are in the same enclosure as the tripping electronics. They supply a signal proportional to the load current to the Electronic Trip Unit.

All 3VL molded case circuit breakers according to UL with Electronic Trip Units measure the actual rms current. This is the most accurate method of measuring. Currents in present-day electrical distribution systems with very high harmonics are evaluated reliably.

#### **Overcurrent tripping systems**

The switching unit (frame) and trip unit are assembled and tested at the factory. Accordingly, the trip unit can only be replaced at the factory. The infeed and outgoing sides can be chosen on the molded case circuit breakers to suit requirements.

#### **1. Thermal-magnetic overcurrent releases of the VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers**

The overcurrent releases and short-circuit releases work with bimetals and magnetic releases. They are available with non-adjustable overload releases and adjustable short-circuit releases.<sup>2)</sup>

The 3VL molded case circuit breakers for starter combination applications are usually combined with a motor contactor and a suitable overload relay.

<sup>1)</sup> VL150X UL (CG frame) only thermal-magnetic.

<sup>2)</sup> VL150X UL (CG frame) only with non-adjustable short-circuit release.

The non-automatic air circuit breakers have integrated self-protection against short-circuit so that back-up fuses can be omitted. Non-automatic air circuit breakers do not have overload protection.

#### **2. Electronic Trip Units (ETUs) of the VL150X UL (DG frame) to VL1600 UL (PG frame) molded case circuit breakers**

The electronic overcurrent tripping system consists of:

- 3 current transformers
- Evaluation electronics with microprocessor
- Intrinsic power supply, no external auxiliary power necessary
- Tripping solenoid.

In the case of VL150 UL (DG frame) and VL250 (FG frame) molded case circuit breakers, the left accessory compartment is needed for the tripping solenoid included in the scope of supply. In the case of all other sizes, the tripping solenoid is integrated in the trip unit and the left and right accessory compartments can be used for auxiliary switches, alarm switches and additional auxiliary releases.

The protection functions of the Electronic Trip Units are ensured without additional auxiliary voltage. The Electronic Trip Units are supplied with energy via internal current transformers in the circuit breaker.

#### **3. Electronic Trip Units, LCD ETU, of the VL150X UL (DG frame) to VL1600 UL (PG frame) molded case circuit breakers**

For parameterizing, the Electronic Trip Unit must be activated. A load current amounting to at least 20 % of the relevant molded case circuit breaker's rated current  $I_n$  is needed to do this. If this load current is not available, the necessary auxiliary energy can be supplied via a battery power supply. In the case of molded case circuit breakers that are connected to an active COM20 (PROFIBUS) or COM21 (Modbus) communication module (Release 2) for data transmission, the trip unit is powered via the module.

Abbreviations (functions)		
<b>L</b>	= Long Time Delay	= Overload protection
<b>S</b>	= Short Time Delay	= Short-circuit protection (short-time delayed)
<b>I</b>	= Instantaneous	= Short-circuit protection (instantaneous)
<b>N</b>	= Neutral Protection	= Neutral conductor protection
<b>G</b>	= Ground Fault	= Ground fault protection

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### VL150 UL (DG frame) to VL1600 UL (PG frame) overcurrent releases – functional overview

Order No. supplement	Release/model	System protection	Starter protection	Generator protection	Functions	Setting options				
						L <sup>1)</sup>	S <sup>1)</sup>		I <sup>1)</sup>	G <sup>1)</sup>
						Overload protection $I_r = \times I_n$	Short-circuit protection (short-time delayed) $I_{sd} = \times I_r$ $t_{sd}$ [s]		Short-circuit protection (instantaneous) $I_t = \times I_n$	Ground fault protection $I_g = \times I_n$
KJ	M	--	✓	--	I	--	--	--	3 ... 6	--
KK	M	--	✓	--	I	--	--	--	4 ... 10	--
KL	M	--	✓	--	I	--	--	--	7 ... 16	--
KN	TM/525	✓	--	--	LI	1	--	--	5 ... 10	--
PB	ETU/555	✓	--	--	LI	0.4 ... 1	--	--	1.25 ... 11	--
PD	ETU/555	✓	--	--	LIG	0.4 ... 1	--	--	1.25 ... 11	0.4 ... 1 <sup>3)</sup>
PU	ETU/555	✓	--	✓	LSI	0.4 ... 1	1.5 ... 10	0 ... 0.5	1.25 ... 11	--
PH	ETU/555	✓	--	✓	LSIG	0.4 ... 1	1.5 ... 10	0 ... 0.5	1.25 ... 11	0.4 ... 1 <sup>3)</sup>
VH	LCD-ETU/586	✓	--	--	LI, LSI	0.4 ... 1	1.25 ... 10	0 ... 0.5	1.25 ... 11	--
VM	LCD-ETU/586	✓	--	--	LSIG	0.4 ... 1	1.25 ... 10	0 ... 0.5	1.25 ... 11	0.4 ... 1 <sup>2)</sup>
VJ	LCD-ETU/586	✓	--	--	LSI G (alarm)	0.4 ... 1	1.25 ... 10	0 ... 0.5	1.25 ... 11	0.4 ... 1 <sup>2)</sup>

Order No. supplement	Release/model	Thermal image	Communication-capable	Ground fault protection	Number of poles	I <sup>2</sup> t (ON/OFF)	Time-lag class (t <sub>r</sub> )	Thermal-magnetic release	Magnetic release	Electronic Trip Unit	LCD display
KJ	M	--	--	--	3	--	--	--	✓	--	--
KK	M	--	--	--	3	--	--	--	✓	--	--
KL	M	--	--	--	3	--	--	--	✓	--	--
KN	TM/525	✓	--	--	3	--	--	✓	--	--	--
PB	ETU/555	✓	✓	--	3	--	2.5 ... 30	--	--	✓	--
PD	ETU/555	✓	✓	①	3	--	2.5 ... 30	--	--	✓	--
PU	ETU/555	✓	✓	--	3	✓	--	--	--	✓	--
PH	ETU/555	✓	✓	①	3	✓	--	--	--	✓	--
VH	LCD-ETU/586	✓	✓	--	3	✓	2.5 ... 30	--	--	✓	✓
VM	LCD-ETU/586	✓	✓	① / ②	3	✓	2.5 ... 30	--	--	✓	✓
VJ	LCD-ETU/586	✓	✓	① / ②	3	✓	2.5 ... 30	--	--	✓	✓

#### Ground fault protection

① Vectorial summation current formation (4-wire system)

② Direct detection of ground-fault current in the neutral point of the transformer

1) Frame size-dependent.

2)  $t_g$  0.1 s to 0.5 s.

3)  $t_g$  0.07 s to 0.4 s frame size-dependent

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

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

3VL molded case circuit breakers according to UL can be supplied completely equipped with internal accessories (e.g. auxiliary switches, undervoltage releases or shunt releases). Refer to the tables of order No. supplements for details of possible versions.

#### Fixed-mounted, plug-in or withdrawable version

The fixed-mounted molded case circuit breaker is the basic version. Using the appropriate assembly kit, it can be changed to a plug-in or withdrawable version. This assembly kit contains blade contacts, a locking pin and terminal covers for the plug-in version. The assembly kit for the withdrawable version additionally includes side panels and a racking mechanism. Even when the masking frame is fitted, movement using the withdrawable unit's handle is possible while the door is closed.

#### Operating mechanisms

In the basic version, the 3VL molded case circuit breakers according to UL have a toggle lever as an operating mechanism. This also functions as an indicator of the switch position. The "Tripped" position is also displayed in addition to the "ON" and "OFF" positions.

The toggle lever goes to the "tripped" position when the internal trip mechanism is activated by overcurrent tripping, e.g. on overload or short-circuit. Activation of an undervoltage release or shunt release will also cause the toggle lever to move to the "Tripped" position. The toggle lever must be moved to the "OFF/RESET" position before the molded case circuit breaker can be closed again. This enables reset of the internal trip mechanism and reactivation of the molded case circuit breaker's main contacts (*see figure*).

A toggle lever extension is supplied with the VL 1200 UL (NG frame) and VL1600 UL (PG frame) molded case circuit breakers. For the VL400 UL (JG frame) to VL800 UL (MG frame) molded case circuit breakers, this accessory must be ordered separately if required.

#### Front-operated rotary operating mechanisms

These operating mechanisms are designed for direct attachment to 3VL molded case circuit breakers according to UL and convert movement of the toggle lever from a linear to a rotary movement.

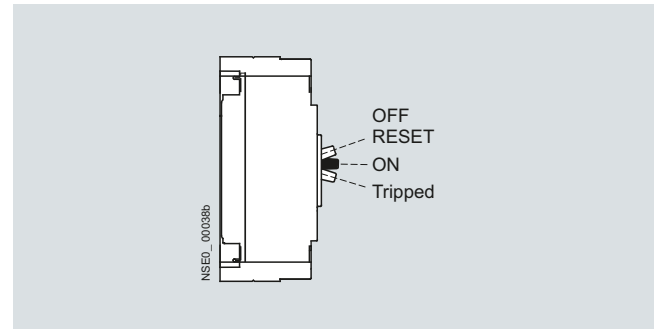
For a molded case circuit breaker with leading auxiliary switches, the undervoltage release can be connected to voltage in a leading fashion, as a result of which the molded case circuit breaker is ready for closing.

#### Door-coupling rotary operating mechanisms (complete operating mechanisms)

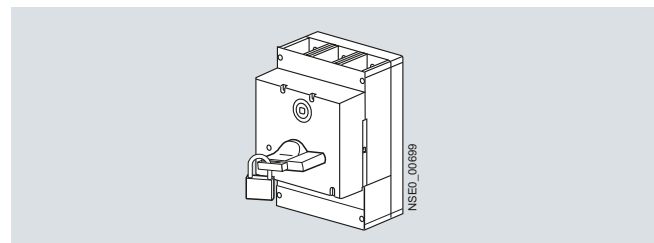
When the molded case circuit breakers are installed in control cabinets and distribution boards, door-coupling rotary operating mechanisms are available for doors and removable covers. These operating mechanisms are supplied as complete assembly kits, including an articulated-shaft mechanism.

With regard to switch positions and the "RESET" position, the same applies to rotary operating mechanisms as to toggle lever operating mechanisms. Indication is by the position of the control lever (handle).

All 3VL molded case circuit breakers according to UL that feature these rotary operating mechanisms and corresponding terminal covers can be used as main circuit breakers.



Toggle lever operating mechanism positions



Rotary operating mechanism locked with padlock

#### Motorized operating mechanisms

VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers can be equipped with motorized operating mechanisms for operational remote closing and opening.

The motorized operating mechanisms for VL150X UL (CG frame) to VL800 UL (MG frame) molded case circuit breakers have a stored energy mechanism (for synchronization) with a maximum duty cycle of  $t_{\Sigma} \leq 80$  ms.

Motorized operating mechanisms without stored energy mechanism for remotely controlled ON and OFF switching are available for the VL1200 UL (NG frame) and VL1600 UL (PG frame) molded case circuit breakers.

All motorized operating mechanisms are always supplied with a locking device for padlocks. Moreover, optional safety locks for motorized operating mechanisms with stored energy mechanism are also available.

The locking devices can be used for electrical and mechanical blocking of the operating mechanism. All remote operating mechanisms are equipped with a manual operating possibility for maintenance purposes.

Optionally, the motorized operating mechanisms for VL150X UL (CG frame) to VL800 UL (MG frame) and also the motorized operating mechanisms for VL1200 UL (NG frame) and VL1600 UL (PG frame) are each internally equipped with a floating signaling contact (normally open) for the following functions:

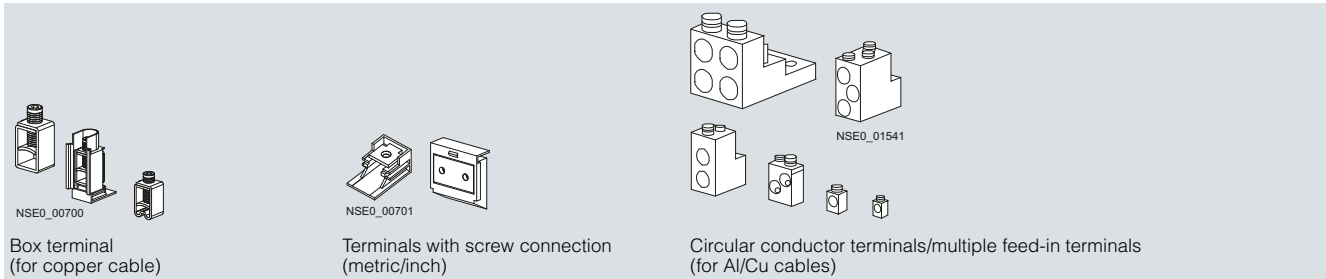
- Querying the AUTO/Manual selector switch for VL150X UL (CG frame) to VL800 UL (MG frame)
- Operating the mechanical OFF/0 button

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### Main connections, basic equipment and options



#### Main connections

Molded case circuit breakers	Connection overview and further options						
	Box terminals	Screw terminals for flat connection		Circular conductor terminal/ multiple feed-in terminal	Rear terminals	Cable lug connection	Direct connection of bars possible (IEC-approved circuit breakers only)
	Cu only	with metric thread	with inch thread	Cu or Al			
VL150X UL (CG frame)	x	x	--	x	x	--	--
VL150 UL (DG frame)	x	x	x	x	x	x	--
VL250 UL (FG frame)	x	x	x	x	x	x	--
VL400 UL (JG frame)	x	x	--	x <sup>1) 2)</sup>	x	x	--
VL400X UL (LG frame)	--	x	x	x <sup>1) 2)</sup>	x	x	--
VL800 UL (MG frame)	--	x	x	x <sup>1)</sup>	x	x	--
VL1200 UL (NG frame)	--	x	x	x <sup>1)</sup>	x	x	--
VL1600 UL (PG frame)	--	x	x	x <sup>1)</sup>	x	--	--

x Available  
-- Not available

1) Multiple feed-in terminal  
2) Circular conductor terminal also available.

#### Note

See operating instructions for [conductor cross-sections](#).

#### Auxiliary switches and auxiliary releases

##### Undervoltage releases, leading auxiliary switches

The molded case circuit breaker cannot be closed until the undervoltage release is connected to a voltage. When no voltage is applied to the release, operating the circuit breaker leads to no-load switching.

Frequent no-load switching should be avoided to prevent shortening the molded case circuit breaker's useful life.

For a molded case circuit breaker with leading auxiliary switches, the undervoltage release can be connected to voltage in a leading fashion, as a result of which the molded case circuit breaker is ready for closing.

In the case of 3VL molded case circuit breakers according to UL, the leading auxiliary switch can be supplied together with the front-operated rotary operating mechanisms and complete operating mechanisms. For further information, [see the selection and ordering data table for accessories](#).

##### Shunt releases

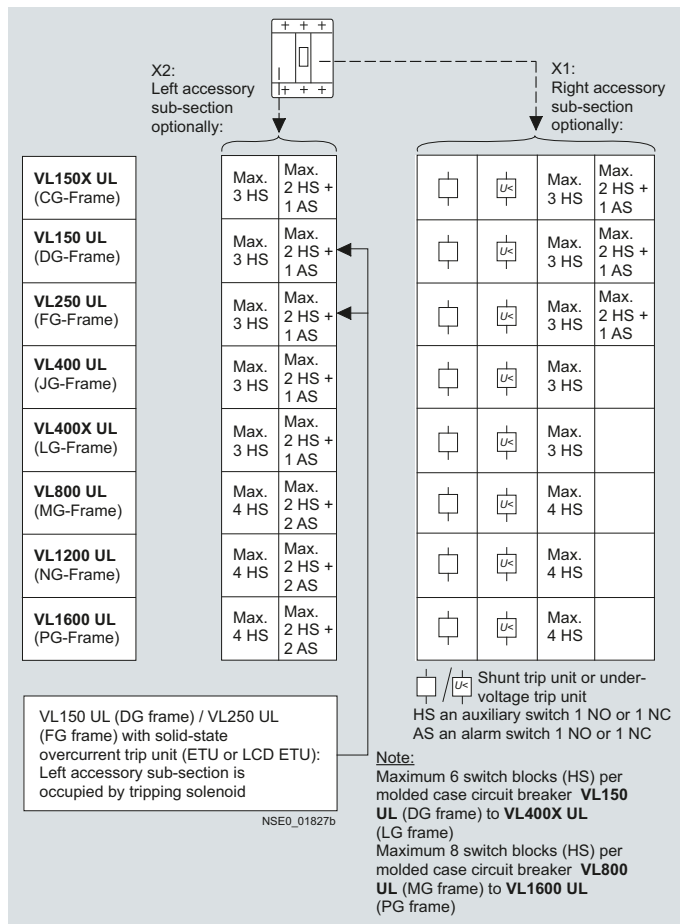
Shunt releases are used to remotely trip the molded case circuit breaker.

The shunt release's coil is designed for short-time operation. Coil deactivation is installed internally.

When a molded case circuit breaker is open, it is not permitted to apply a continuous opening command to the shunt release to prevent closing. A center tap is available as standard to test the coil for continuity.

#### Note

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



Equipment options for the insulated accessory compartments in the 3VL molded case circuit breakers according to UL

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

## General data

Auxiliary switches

Auxiliary switches (HS) are used for signaling and controlling. The contacts of the auxiliary switch open and close along with the main contacts.

Alarm switches

Alarm switches (AS) operate when the molded case circuit breaker has been tripped due to an overcurrent situation, e.g. an overload or short-circuit. However, they are also activated when the molded case circuit breaker has been tripped by a shunt release or an undervoltage release.

Installation of internal accessories

The insulated accessory compartments in the molded case circuit breakers for installation of internal accessories (auxiliary releases and auxiliary/alarm switches) are designated X1, X2 and X4.

Equipment of the molded case circuit breaker with internal accessories and the possibility of combination with auxiliary releases and auxiliary/alarm switches depend on the installation position and frame size of the molded case circuit breaker (see figure entitled "Equipment options for the insulated accessory compartments in the 3VL molded case circuit breakers according to UL").

PLC control

The auxiliary and alarm switches are suitable for PLC control. These switching elements are from the Siemens 3SB3 program.

Leading auxiliary switches

The leading auxiliary switches from OFF to ON or from ON to OFF are available as retrofit kits and for Max Flex operating mechanisms.

**Function****Current limiting<sup>1)</sup>**

3VL molded case circuit breakers according to UL are designed on the principle of magnetic repulsion of the contacts. The contacts open before the expected peak value of the short-circuit current is reached. The current-limiting effects of the 3VL molded case circuit breakers according to UL protect the system components effectively against thermal and dynamic effects of the short-circuit current in the event of an electrical fault.

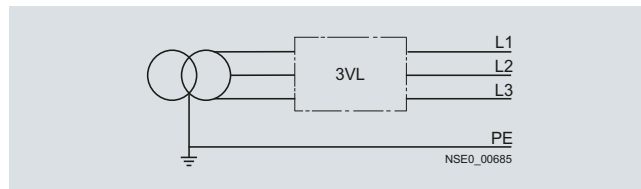
**Ground fault protection**

The ground fault release "G" captures fault currents escaping to ground that can cause fires in the plant. Several molded case circuit breakers connected in series can be assigned time-graded discrimination by means of the adjustable delay time.

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

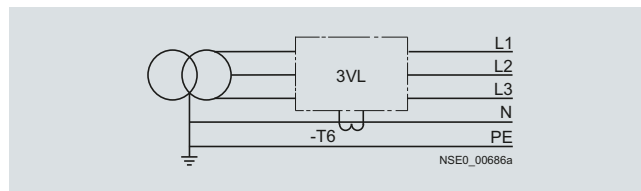
Vectorial summation current formation (measurement method 1)Ground fault detection in balanced systems

The three phase currents are evaluated using vectorial summation current formation.

Ground fault detection in unbalanced systems

The neutral conductor current is measured directly and, in the case of the 3-pole circuit breakers, is only evaluated for ground fault protection.

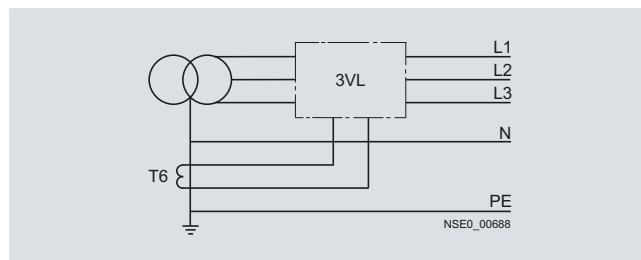
The overcurrent release calculates the ground-fault current using the vectorial summation of the three phase currents and the neutral conductor current.



3-pole molded case circuit breaker, current transformer in neutral conductor

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

The current transformer is installed directly at the grounded star point of the transformer.



3-pole molded case circuit breaker, current transformer at the grounded star point of the transformer

Transformer protection

3VL molded case circuit breakers according to UL protect power distribution systems in the event of overload and short-circuit as from the low-voltage side of the infeed transformer. The resulting requirements for current and/or time-based discrimination are fulfilled reliably by 3VL molded case circuit breakers according to UL for system protection – equipped with thermal-magnetic (TM) or Electronic Trip Units (ETU or LCD ETU).

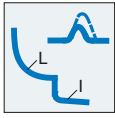
<sup>1)</sup> Current-limiting according to IEC 60947-2.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### Thermal-magnetic overcurrent releases (TM)

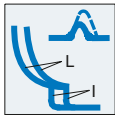


NSE0\_00689

Application: system protection –  
TM, LI/LIN function

Overload protection, non-adjustable, short-circuit protection, non-adjustable, see "Selection and ordering data" for VL150X UL (CG frame), integrated releases in the circuit breaker enclosure;

KM version.

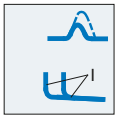


NSE0\_00691

Application: system protection –  
TM/model 525, LI/LIN function

Overload protection, non-adjustable, short-circuit protection, adjustable  $I_i = 5$  to  $10 \times I_n$ , for VL150 UL (DG frame) to VL1600 UL (PG frame);

KN version.

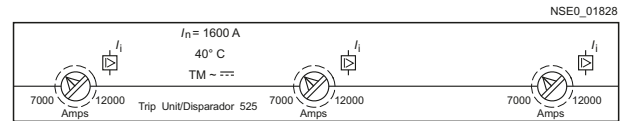


NSE0\_01539

Application: starter protection –  
M, I function

Short-circuit protection, adjustable  $I_i = 3$  to  $16 \times I_n^{1)}$ , for VL150 UL (DG frame) to VL1200 UL (NG frame);

KJ, KK, KL versions.



NSE0\_01828

<sup>1)</sup> Frame size-dependent, see "Selection and ordering data".

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### Electronic Trip Units (ETUs)

For types VL150 UL (DG frame) to VL1600 UL (PG frame)

##### General information:

- No auxiliary voltage required for release system
- All ETUs have a thermal image
- A flashing green LED indicates correct operation of the microprocessor

- Overload status ( $t > 1.05 \times t_r$ ) is indicated by a permanently lit yellow LED (alarm)
- Integral self-test function
- Socket for battery power supply
- Communication link to PROFIBUS DP and Modbus RTU possible

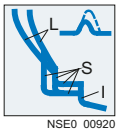
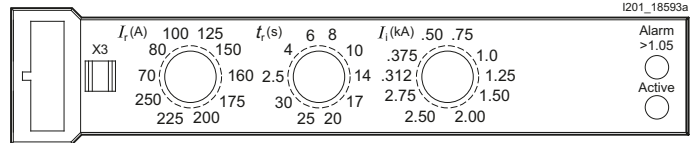


Application: system protection – model 555, LI function

Overload protection  $I_r = 0.28$  to  $1 \times I_n^{(1)}$ , time-lag class  $t_r = 2.5$  to  $30$

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

PB version



Application: system and generator protection – model 555, LSI function

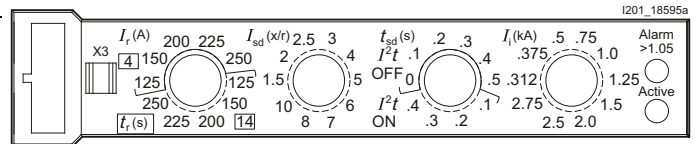
Overload protection  $I_r = 0.4$  to  $1 \times I_n^{(1)}$ ,

Short-circuit protection (short-time delay)  $I_{sd} = 1.5$  to  $10 \times I_n^{(1)}$ ,  $t_{sd} = 0$  to  $0.5$  s,

$I^2t$  on/off selectable

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

PE version.



Application: system protection – model 555, LIG function

Overload protection  $I_r = 0.28$  to  $1 \times I_n^{(1)}$ , time-lag class  $t_r = 2.5$  to  $30$

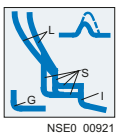
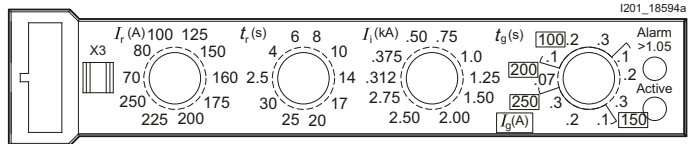
Short-circuit protection (instantaneous)  $I_i = 1.25$  to  $11 \times I_n^{(1)}$

Ground fault protection: Measuring method No. 1:

( $G_R$ ) vectorial summation current formation of the currents in the three phases and the neutral conductor (4-wire systems);

$I_g = 0.4$  to  $1 \times I_n^{(1)}$

PD version



Application: system and generator protection – model 555, LSIG function

Overload protection  $I_r = 0.4$  to  $1 \times I_n^{(1)}$ ,

Short-circuit protection (short-time delay)  $I_{sd} = 1.5$  to  $10 \times I_n^{(1)}$ ,  $t_{sd} = 0$  to  $0.5$  s,

$I^2t$  on/off selectable

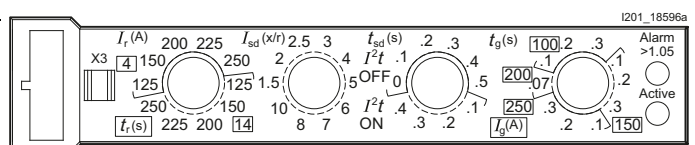
Short-circuit protection (instantaneous)  $I_i = 1.25$  to  $11 \times I_n^{(1)}$

Ground fault protection: measuring method No. 1:

( $G_R$ ) vectorial summation current formation of the currents in the three phases and the neutral conductor (4-wire systems);

$I_g = 0.4$  to  $1 \times I_n^{(1)}$

PH version



<sup>1)</sup> Frame size-dependent, see "Selection and ordering data".

# Molded Case Circuit Breakers

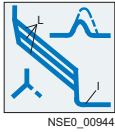
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### Electronic Trip Units with LCD (LCD ETU)

##### General information:

- No auxiliary voltage required for release system
- Current display
- An illuminated green LCD display indicates correct operation of the microprocessor
- Overload status ( $I > 105\% I_r$ ) is indicated by "Overload" on the LCD display
- Direct, user-friendly, menu-driven setting of the absolute values of the protection parameters in the Ampere values via keys
- Integral self-test function
- Socket for battery power supply
- Communication link to PROFIBUS DP and Modbus RTU possible



##### Application: system protection – model 586, LSI function

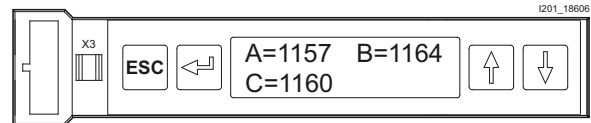
Overload protection  $I_r = 0.4$  to  $1 \times I_n$ ,  
time-lag class  $t_r = 2.5$  to  $30$

Thermal image selectable on/off

Short-circuit protection (short-time delay)  
 $I_{sd} = 1.25$  to  $10 \times I_R^{(1)}$ ,  $t_{sd} = 0$  to  $0.5$  s,  
 $I^2t$  on/off selectable

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

VH version



##### Application: system protection – model 586, LSIG function

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

Thermal image selectable on/off

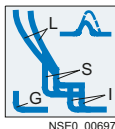
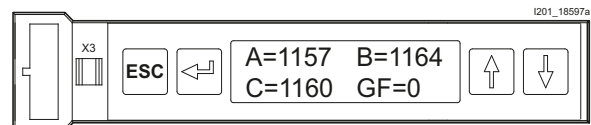
Short-circuit protection (short-time delay)  
 $I_{sd} = 1.25$  to  $10 \times I_R^{(1)}$ ,  $t_{sd} = 0$  to  $0.5$  s,  
 $I^2t$  on/off selectable

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

Ground fault protection: measuring method No. 1:  
( $G_R$ ) vectorial summation current formation of the currents in the three phases and the neutral conductor (4-wire systems);  
 $I_g = 0.4$  to  $1 \times I_n^{(1)}$ .

Measuring method No. 2:  
( $G_{GND}$ ) direct measurement of the ground-fault current using a current transformer,  $I_g = 0.4$  to  $1 \times I_n$ ,  
 $t_g = 0.1$  to  $0.5$  s.

VM version



##### Application: system protection – model 586, LSI G (alarm) function

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

Thermal image selectable on/off

Short-circuit protection (short-time delay)  
 $I_{sd} = 1.25$  to  $10 \times I_R^{(1)}$ ,  $t_{sd} = 0$  to  $0.5$  s,  
 $I^2t$  on/off selectable

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

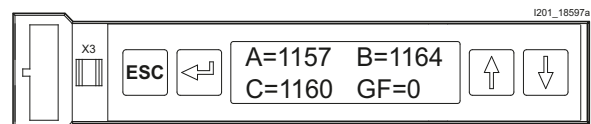
Ground fault protection:

Measuring method No. 1:  
( $G_R$ ) vectorial summation current formation of the currents in the three phases and the neutral conductor (4-wire systems);  
 $I_g = 0.4$  to  $1 \times I_n^{(1)}$ .

Measuring method No. 2:  
( $G_{GND}$ ) direct measurement of the ground-fault current using a current transformer,  $I_g = 0.4$  to  $1 \times I_n$ ,  
 $t_g = 0.1$  to  $0.5$  s.

If a ground fault is detected, the LCD ETU only issues an alarm, without tripping the circuit breaker. This alarm is displayed direct on the display and/or is communicated to higher-level systems via PROFIBUS DP/Modbus RTU.

VJ version



<sup>1)</sup> Frame size-dependent, see "Selection and ordering data".

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

General data

### Configuration

#### Communications

All 3VL molded case circuit breakers according to UL 489 with Electronic Trip Units (ETUs) are communication-capable. To this end, the molded case circuit breaker's ETU is connected to a COM20 or COM21 communication module by means of a cable. The COM20 module (Release 2) supports the PROFIBUS DP protocol, while the COM21 module (Release 2) enables data transfer via Modbus RTU.

A communication kit – COMKIT 3 to 8 – is needed to connect the 3VL molded case circuit breaker (see page 61).

The COMKITs consists of a connecting cable including a protective cover and also one alarm and auxiliary switch each for installation in the molded case circuit breaker.<sup>1)</sup> These are also connected to the Electronic Trip Unit and signal the ON/OFF/TRIPPED circuit breaker status to the Electronic Trip Unit.

The communication modules enable activation and deactivation of an optional motorized operating mechanism.

	Data transmission through COM20/COM21 (Release 2)
<b>Data transferred</b>	
<b>Commands</b>	
Switching on or off	✓
Deleting alarm and tripping operation buffer and also maintenance information	✓
<b>Operating states<sup>2)</sup></b>	
ON or OFF status trip position	✓
<b>Event messages</b>	
Tripped messages with tripping current	✓
Alarms (e.g. overload, phase unbalance current, etc.)	✓
Threshold violation (e.g. phase currents)	✓
<b>Measured values</b>	
Phase currents and neutral conductor current	✓
<b>Parameter values</b>	
Reading and writing	✓
<b>Maintenance information</b>	
(e.g. number of trips, number of switching operations)	✓
<b>Data for device identification</b>	
	✓
<b>Clock synchronization</b>	
	✓

✓ Available

-- Not available

Functions	COM20/21 (Release 2) module with overcurrent release version	
	ETU	LCD ETU
<b>Functions of communication components</b>		
Transfer of the operating state (ON, OFF, Tripped, warnings, tripped causes, event log, etc) to the PROFIBUS	✓	✓
Display of measured values (current only) and parameters in the release, modifying parameters via the display	--	✓ <sup>3)</sup>
Transferring the maximum value of the actual current in %	✓	✓
Transferring the individual current phase currents	✓	✓
Transferring PROFIBUS identification data	✓	✓
Reading protection parameters via PROFIBUS/Modbus	✓	✓
Reading and setting protection parameters via PROFIBUS/Modbus	--	✓

✓ Function available

Function can optionally be adopted by several trips.

-- Function not available

<sup>1)</sup> Only an alarm switch is included with the COMKITs 3 and 6 because the auxiliary switch in the case of DG and FG frame sizes of the 3VL molded case circuit breakers is already included in the magnetic release (Maglatch).

<sup>2)</sup> Only in the case of built-in auxiliary switches connected to COM20/21 (Release 2)

<sup>3)</sup> COM20/21 not required

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### Switching direct current

The VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers (for system protection with TM, for starter combinations, and for non-automatic air circuit breakers) with the exception of the VL150 UL (DG frame) to VL1600 UL (PG frame) molded case circuit breakers with Electronic Trip Units (ETU), are also suitable for switching and protecting direct current.

The maximum permitted DC voltage for each conducting path needs to be taken into account for DC switching applications, however.

Series connection of 2 to 3 conducting paths is required for voltages in excess of 250 V in the case of VL150 UL (DG frame) to VL1600 UL (PG frame).

The following circuits are recommended since the current must flow through all conducting paths in order to conform to the thermal tripping characteristic curves.

The threshold values of the instantaneous short-circuit release ("I" release) increase by 30 to 40%.

Recommended circuit/maximum permitted DC voltage $U_e$		Remarks
Circuit A	Circuit B	
<b>For 3-pole molded case circuit breakers</b>		
250 V DC	500 V DC	2-pole switching (ungrounded system) If there is no possibility of a ground fault occurring, or if any ground fault that does occur is dealt with immediately (ground-fault monitoring), then the maximum permissible direct voltage can amount to up to 500 V (circuit B). In the event of a ground fault, 2 conducting paths in the case of circuit A/ 3 conducting paths in the case of circuit B must always be in series.
 NSE0_01861	 NSE0_00741a	

### Technical specifications

Type	VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame
<b>Max. rated current <math>I_n</math></b>	A 150		250	400	600	800	1200	1600
<b>Rated insulation voltage <math>U_i</math> only in accordance with IEC 60947-2</b>								
Main conducting paths	AC V 800							
Auxiliary circuits	AC V 690							
<b>Rated operational voltage <math>U_e</math></b>								
NEMA 50/60 Hz	AC V 600 DC <sup>1)</sup> V 250	500						
IEC 50/60 Hz	AC V 690							
<b>Utilization category</b>	A							
<b>Permissible ambient temperature</b>								
Operation: 0 °C ... +70 °C for devices with TM release (cf. IEC system manual)	°C -25 ... +70							
Storage	°C -40 ... +80							
<b>Permissible load at different ambient temperatures</b>								
Directly next to the molded case circuit breaker, referred to the molded case circuit breaker's rated current								
• Molded case circuit breaker for system protection	TM/ETU up to 40 °C	% 100	100/100			--/100		
	TM/ETU at 50 °C	% 93	93/95			--/95		
	TM/ETU at 60 °C	% 86	86/80			--/80		
• Molded case circuit breaker for starter combinations and non-automatic air circuit breakers	up to 40 °C	% 100						
	at 50 °C	% 93						
	at 60 °C	% 86						
<b>Weight data of 3-pole molded case circuit breakers</b>								
• Basic circuit breaker without overcurrent release	kg --	1.5	1.6	4.2	7.8	14.2	21	27.3
• Thermal-magnetic overcurrent release	kg --	0.7	0.7	1.5	1.2	--	--	--
• Electronic Trip Unit	kg --	0.9	0.9	1.7	1.5	1.8	4.0	4.0
Basic circuit breaker								
• With thermal-magnetic overcurrent release	kg 2.5	2.2	2.3	5.7	9.0	--	--	--
• With Electronic Trip Unit	kg --	2.4	2.5	5.9	9.3	16.0	25.0	31.3
<b>Rated short-circuit breaking capacity</b>	Rated short-circuit breaking capacity: <a href="#">see under "Overview" in table.</a>							

<sup>1)</sup> DC rated data applies to thermal-magnetic overcurrent releases only.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

Type		VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame	
<b>Service life</b>	Operating cycles	20000				10000		3000		
<b>Electrical endurance</b>	Operating cycles	10000				5000		3000		
<b>Max. switching frequency</b>	1/h	120				60		30		
<b>Connection types</b>		See "Main connections, basic equipment and options"								
<b>Connection cross-sections for stranded cables</b>										
Box terminal (Cu)	AWG/kcmil	1 x (14 ... 1/0)	1 x (8 ... 1/0)	1 x (3 ... 250)	1 x (1/0 ... 600)	--				
	mm <sup>2</sup>	1 x (2.5 ... 50)	1 x (10 ... 50)	1 x (35 ... 120)	1 x (70 ... 300)	--				
Circular conductor terminal (Cu/Al)	AWG/kcmil	1 x (6 ... 3/0)		1 x (4 ... 350)	1 x Cu: 3/0 ... 600 Al: 250 ... 750	--				
	mm <sup>2</sup>	1 x (16 ... 70)		1 x (25 ... 150)	1 x Cu: 95 ... 300 Al: 150 ... 300	--				
Multiple feed-in terminal (Cu/Al)	AWG/kcmil	--		2 x (3/0 ... 250)	2 x (2 ... 600)	2 x (500 ... 750)	--			
	mm <sup>2</sup>	--		2 x (95 ... 120)	2 x (35 ... 300)	2 x 300	--			
	AWG/kcmil	--		--		3 x (1/0 ... 500)	3 x (500 ... 750)	--		
	mm <sup>2</sup>	--		--		3 x (70 ... 240)	3 x 300	--		
	AWG/kcmil	--		--		--		4 x (1/0 ... 500)	--	
	mm <sup>2</sup>	--		--		--		4 x (70 ... 240)	--	
Direct connection of busbars (Cu/Al, for IEC only)	mm	17 x 7	22 x 7	24 x 7	32 x 10	32 x 10	2 x 40 x 10	2 x 50 x 10	2 x 60 x 10	
	Screw for connection with screw terminal metric	M 6	M 8		M 10		M 8			
	inch	--	10-32 UNF	5/16	--	3/8	5/16			
<b>Power losses per molded case circuit breaker at max. rated current</b>										
System protection	TM 0.8 ... 1.0	W	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 air circuit breakers		W	40	60	90	160	250	210	260	
<b>Permissible mounting position<sup>1)</sup></b>										

<sup>1)</sup> For VL800 UL (MG frame) to VL1600 UL (PG frame) molded case circuit breakers with withdrawable unit frame in lateral installation position. Adapter set on request.

<sup>2)</sup> Permissible current load factor 0.9; with internal accessories only.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

Type		VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame	
<b>Auxiliary switches and alarm switches</b>										
Conventional free-air thermal current $I_{th}$	A	10								
Rated making capacity	A	10								
<b>AC</b>										
Rated operational voltage	V	24	48	110	230	400	600	--		
Rated operational current	AC-12 A	10		3		1		--		
	AC-15 A	6		3		1		--		
<b>DC</b>										
Rated operational voltage	V	24	48	110	230	--				
Rated operational 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								
<b>Leading auxiliary switches in rotary operating mechanism</b>										
Rated thermal current $I_{th}$	A	2								
Rated making capacity	A	2 (ind. 0.5)								
Rated operational voltage	V AC	230								
Rated operational current	A	2								
Rated breaking capacity, inductive, $\cos \varphi = 0.7$	A	0.5								
Rated breaking capacity	A	2								
Quick-response short-circuit fuse	A	2								
<b>Position signaling switches</b>										
Rated thermal current $I_{th}$	A	16	--							
Rated making capacity	A	16	10	--						
Rated operational voltage	V AC	250	400	--						
Rated operational current	A	16	10	--						
Rated breaking capacity, inductive, $\cos \varphi = 0.7$	A	4	--							
Rated breaking capacity	A	16	10	--						
Quick-response short-circuit fuse	A	16	10	--						
<b>Releases</b>										
		<b>Family 1: VL150X UL (CG frame) to VL400X UL (LG frame)</b>					<b>Family 2: VL800 UL (MG frame) to VL1600 UL (PG frame)</b>			
<b>Undervoltage releases</b>										
Response voltage:										
• Drop (circuit breaker trips)	V	0.35 ... 0.70 × $U_s$					0.35 ... 0.70 × $U_s$			
• Pick-up (circuit breaker can be switched on)	V	0.85 ... 1.1 × $U_s$					0.85 ... 1.1 × $U_s$			
Power consumption (continuous operation) at:										
• 24 V AC 50/60 Hz <sup>1)</sup>	VA	1.4	1.2							
• 110 ... 127 V AC 50/60 Hz	VA	1.0	1.8							
• 220 ... 250 V AC 50/60 Hz	VA	1.0	1.8							
• 208 V AC 50/60 Hz	VA	1.0	1.8							
• 277 V AC 50/60 Hz	VA	1.0	1.8							
• 380 ... 415 V AC 50/60 Hz	VA	1.0	1.8							
• 440 ... 480 V AC 50/60 Hz	VA	1.0	1.8							
• 500 ... 525 V AC 50/60 Hz	VA	1.0	--							
• 12 V DC	W	0.8	1.5							
• 24 V DC	W	0.8	1.5							
• 48 V DC	W	0.8	1.5							
• 60 V DC	W	0.8	1.5							
• 110 ... 127 V DC	W	0.8	1.5							
• 220 ... 250 V DC	W	0.8	1.5							
Max. opening time	ms	50	50							
<b>Shunt releases</b>										
Response voltage:										
Pick-up (circuit breaker trips)	V	$U_s$					$U_s$			
		0.7 ... 1.1					0.7 ... 1.1			
Power consumption (short-time) at:										
• 24 V AC 50/60 Hz	VA	310	330							
• 48 ... 60 V AC 50/60 Hz	VA	335 ... 465	380 ... 460							
• 110 ... 127 V AC 50/60 Hz	VA	470 ... 630	330 ... 430							
• 208 ... 277 V AC 50/60 Hz	VA	585 ... 1000	520 ... 800							
• 380 ... 600 V AC 50/60 Hz	VA	180 ... 500	228 ... 750							
• 24 V DC	W	360	385							
• 48 ... 60 V DC	W	380 ... 590	480 ... 720							
• 110 ... 127 V DC	W	506 ... 680	362 ... 424							
• 220 ... 250 V DC	W	470 ... 580	418 ... 476							
Max. opening time	ms	50	50							
Max. in-service period	s	interrupts automatically, less than 10 ms					interrupts automatically, less than 10 ms			

1) On request.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

Type	VL150X UL CG frame	VL150 UL DG frame	VL250 UL FG frame	VL400 UL JG frame	VL400X UL LG frame	VL800 UL MG frame	VL1200 UL NG frame	VL1600 UL PG frame
<b>Motorized operating mechanism</b>	--						x	
<b>Motorized operating mechanism with stored energy mechanism (synchronizable)</b>	x						--	
<b>Motorized operating mechanism</b>								
Power consumption	VA/W	--					< 250	
Rated control supply voltage $U_s$	50/60Hz V AC	--					42 ... 48/60	110 ... 127/220 ... 250
	V DC	--					24 / 42 ... 48/60	110 ... 127/220 ... 250
Fuse (operational class gG, slow-blow characteristic)	A	--					4	2
Miniature circuit breaker	A	--					4	2
Operating range	V	--					0.85 ... 1.1 x $U_s$	
Min. command duration $U_s$	ms	--					50	
Max. command duration, connection-dependent <sup>1)</sup>		Jog/pushbutton or continuous command			--		Jog/pushbutton or continuous command	
Total closing time	s	--					< 5	
OFF time	s	--					< 5	
Interval between the commands OFF and ON	s	--					> 5	
Interval between the commands ON and OFF	s	--					> 5	
Max. permissible switching frequency	1/h	--					30	
<b>Motorized operating mechanism with stored energy mechanism (synchronizable)</b>								
Power consumption	VA/W	< 100		< 200	< 250		--	
Rated control supply voltage $U_s$	50/60Hz V AC	42 ... 48 / 60		110 ... 127 / 220 ... 250			--	
	V DC	24 / 42 ... 48 / 60		110 ... 127 / 220 ... 250			--	
Fuse (operational class gG, slow-blow characteristic)	A	4		2			--	
Miniature circuit breaker	A	4		2			--	
Operating range	V	0.85 ... 1.1 x $U_s$					--	
Min. command duration $U_s$	ms	50					--	
Max. command duration, connection-dependent <sup>1)</sup>		Jog/pushbutton or continuous command					--	
Total closing time	ms	< 100					--	
OFF time	s	< 5					--	
Interval between the commands OFF and ON	s	> 5					--	
Interval between the commands ON and OFF	s	> 1					--	
Max. permissible switching frequency	1/h	120			60		--	

x Available

-- Not available

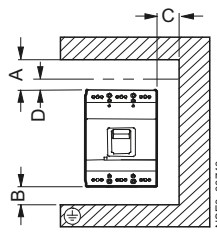
<sup>1)</sup> Changeover contact also permissible, but note the interval times between ON and OFF.

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### General data

#### Space requirement above arc chutes, safety clearance (applicable to IEC application)



#### Arcing spaces

Minimum clearances from adjacent grounded parts and non-insulated live parts.

Inside the arcing space, bare conductors and bars must be insulated with phase barriers.

For bare conductors and bars outside the arcing space, the specific mounting instructions for the different frame sizes must be observed.

Mounting instructions can be found [on the Internet](#)

#### Space requirement above arcing spaces according to IEC 60947-2

Molded case circuit breaker	Switching capacity	Minimum enclosure volume m <sup>3</sup>	A		B		C	D
			≤ 415 V without/with terminal cover	>415 ... 690 V without terminal cover	>415 ... 690 V with terminal cover	≤ 690 V	≤ 690 V	≤ 690 V
Type								
VL150X UL (CG frame)	Standard High Very high	0.011	35	70	35	25	25	35
VL150 UL (DG frame)	Standard High Very high	0.011	50	100	50	25	25	35
VL250 UL (FG frame)	Standard High Very high	0.015	50	100	50	25	25	35
VL400 UL (JG frame)	Standard High Very high	0.036	50	100	50	25	25	35
VL400X UL (LG frame)	Standard High Very high	0.18	50	100	50	25	25	35
VL800 UL (MG frame)	Standard High Very high	0.22	50	100	50	25	25	35
VL1200 UL (NG frame)	Standard High Very high	0.22	70	100	70	30	30	50
VL1600 UL (PG frame)	Standard High Very high	0.264	100	100	100	100	30	100

Definition of permissible safety clearances

Clearance between

- A: molded case circuit breaker and busbars (uninsulated and grounded metal); terminal cover required above 600 V AC, 500 V DC
- B: molded case circuit breaker terminal and lower panel
- C: side of the molded case circuit breaker and side panels (uninsulated and grounded metal)
- D: molded case circuit breaker and non-conductive parts with at least 3 mm thick insulation (insulator, insulated bar, painted plate)

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

Configuration tools

### Characteristic curves

#### Characteristic curves and certificates

- General information:

The specified tripping values of the inverse-time delayed overcurrent releases (thermal overcurrent releases, "L" releases) are average values of the scatter bands of all setting ranges out of the cold state and with equal loading of the conducting paths.

The tripping characteristic curves of the instantaneous (electromagnetic) short-circuit releases ("I" releases) are based on the rated phase current  $I_N$ .

- The following applies to thermal-magnetic releases (TM):

The characteristic curves apply to the cold state; at operating temperature, the tripping times of the thermal releases drop to approximately 25%.

In normal operation the device must be loaded at 3 poles. You are advised to switch all 3 main conducting paths in series to protect single-phase or DC loads.

- Tripping characteristic curves of VL150 UL (DG frame) to VL1600 UL (PG frame) molded case circuit breakers for generator protection with Electronic Trip Units.

The tripping times of the inverse-time delayed overcurrent releases are only valid for the previously unloaded (cold) state. At operating temperature (after loading with rated current), tripping times drop to about 33 %. After tripping due to overcurrent, the tripping times are reduced according to the tripping time response so that a few minutes of cooling time are needed after renewed motor starting.

Detailed time/current characteristic curves, current-limiting characteristic curves,  $I^2t$  characteristic curves and certificates can be requested via "Technical Assistance" (e-mail: [support.automation@siemens.com](mailto:support.automation@siemens.com)) or can be downloaded from the following Internet pages:

At the Service & Support portal  
[www.siemens.com/lowvoltage/product-support](http://www.siemens.com/lowvoltage/product-support)  
[www.siemens.com/lowvoltage/technical-support](http://www.siemens.com/lowvoltage/technical-support)

For further information:

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

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

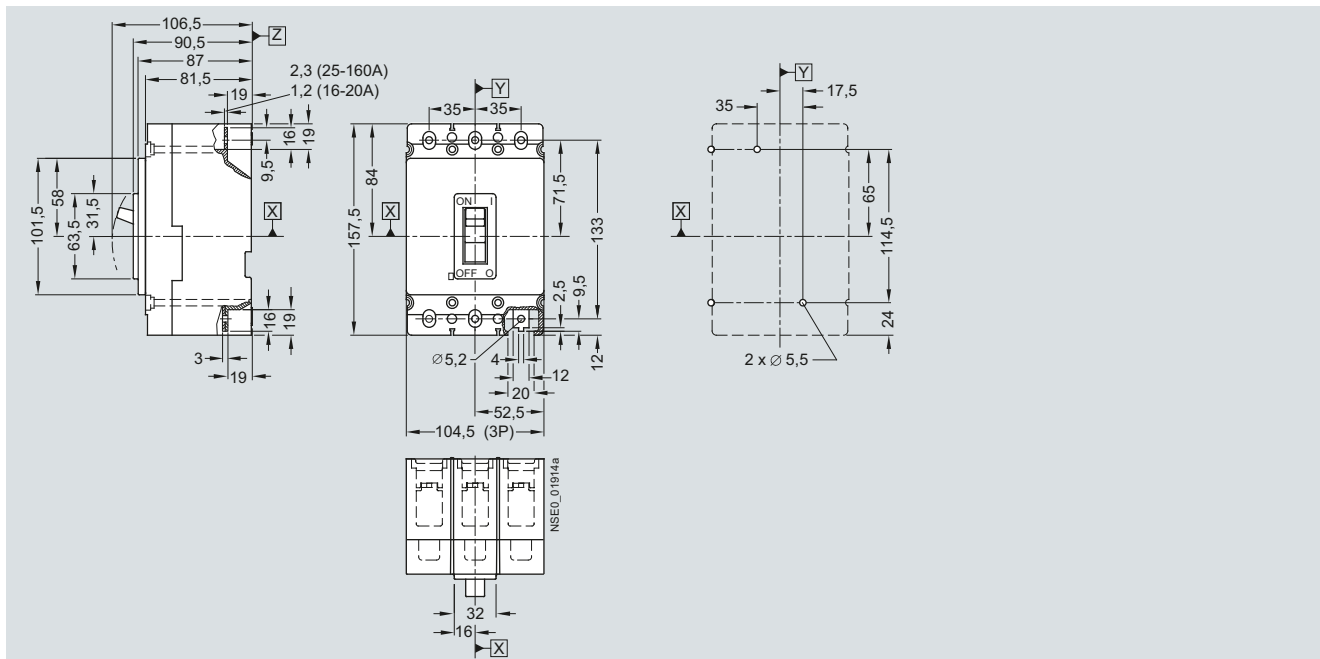
#### Dimensional drawings

**VL150X UL (CG frame), 3-pole, up to 150 A**

**Molded case circuit breakers**

VL150X UL (CG frame) molded case circuit breaker

Molded case circuit breaker installation note



**VL150 UL (DG frame), 3-pole, up to 150 A**

**VL250 UL (FG frame), 3-pole, up to 250 A**

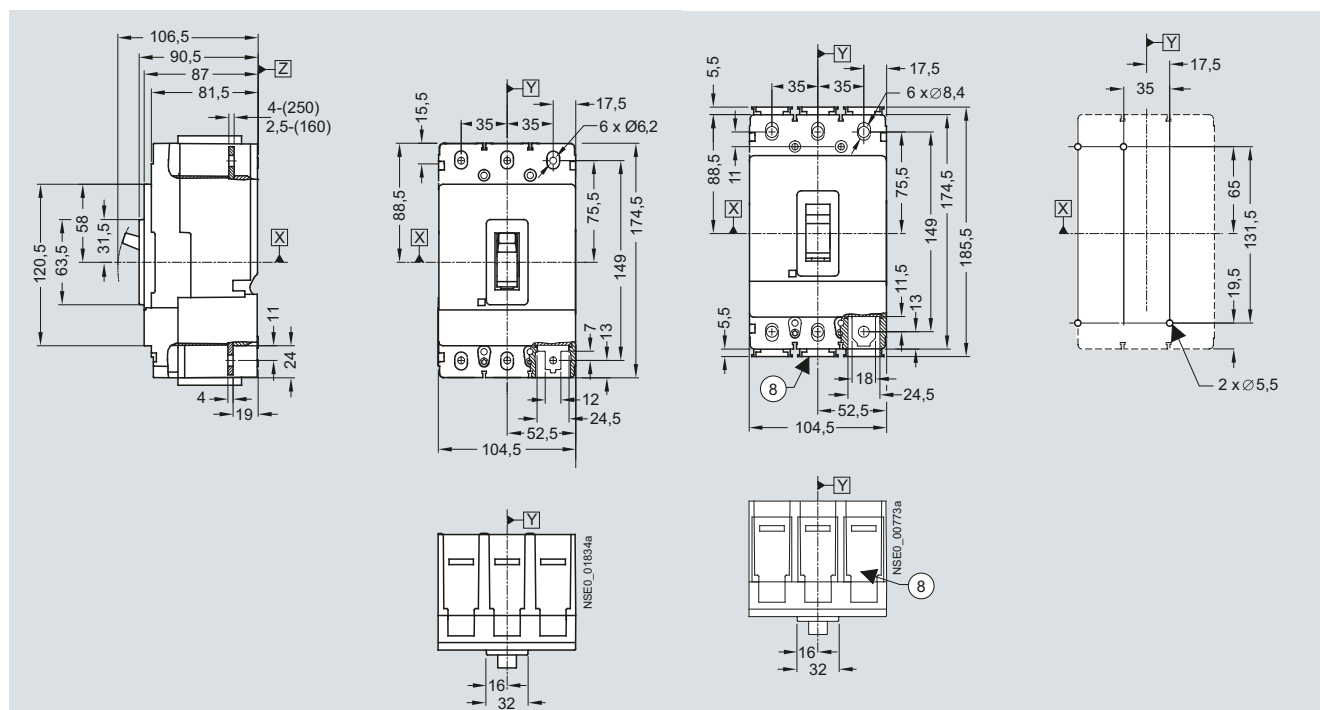
**Molded case circuit breakers**

Molded case circuit breaker  
VL150 UL/VL250 UL  
(DG frame and FG frame)

Molded case circuit breaker  
VL150 UL  
(DG frame)

Molded case circuit breaker  
VL250 UL  
(FG frame)

Molded case circuit breaker  
VL150 UL and VL250 UL  
(DG frame and FG frame)  
Installation note



Note:

The 5.5 mm extension at each end of the VL250 UL (FG frame) molded case circuit breaker is only to be observed when using box terminals or circular conductor terminals (8).

# Molded Case Circuit Breakers

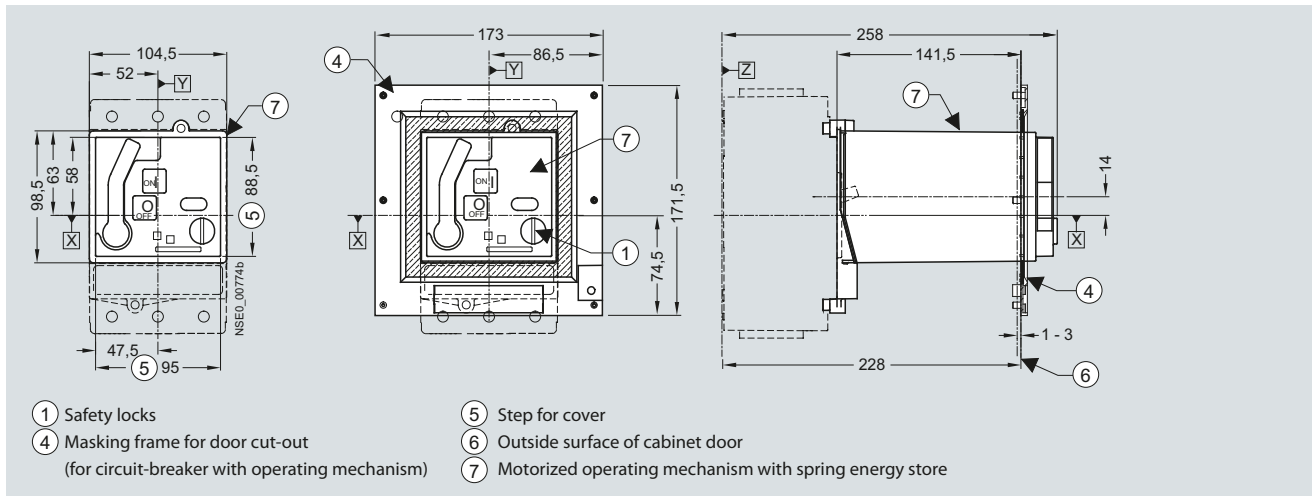
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

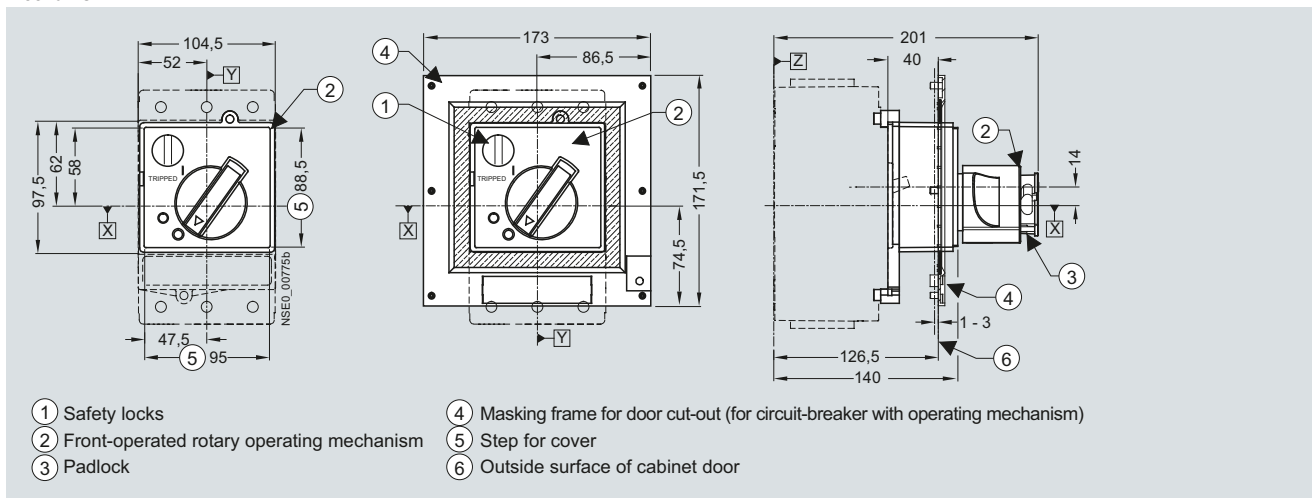
VL150X UL (CG frame), 3-pole, up to 150 A, VL150 UL (DG frame), 3-pole, up to 150 A, VL250 UL (FG frame), 3-pole, up to 250 A

### Operating mechanisms

#### Motorized operating mechanism with stored energy mechanism

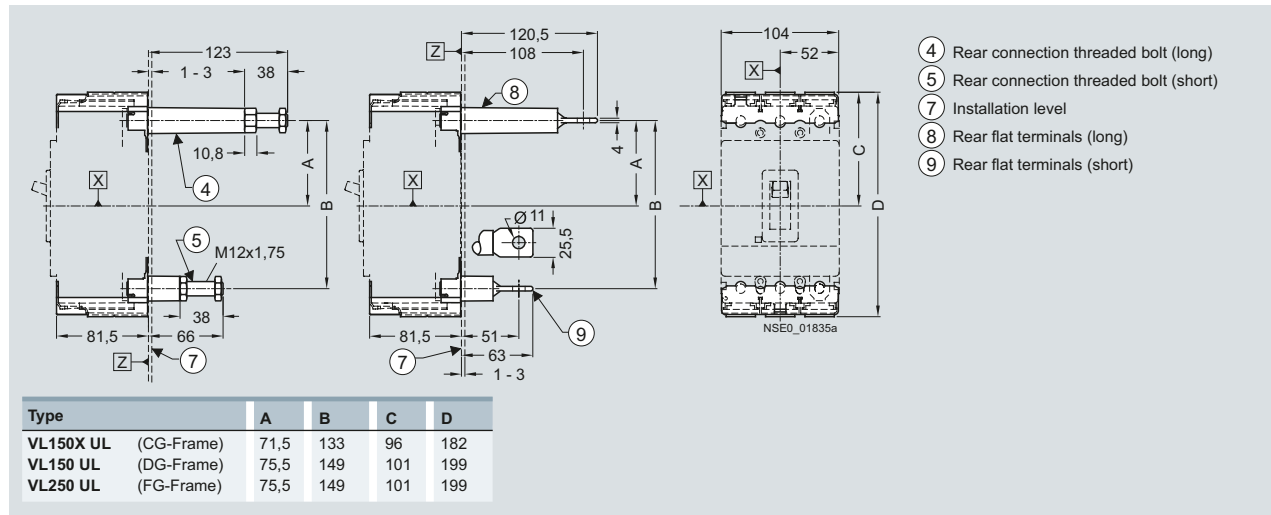


#### Front-operated rotary operating mechanism



### Connections

#### Molded case circuit breaker with rear connections – long and short



# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

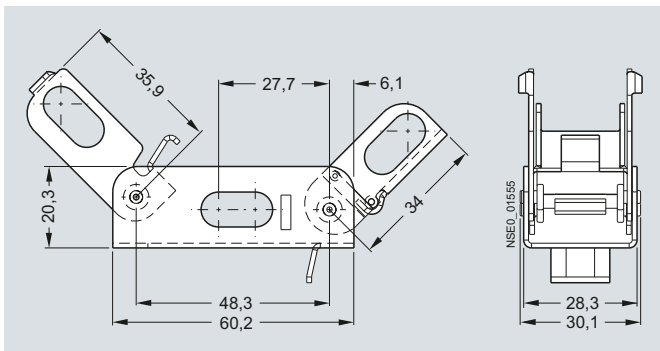
### Configuration tools

VL150X UL (CG frame), 3-pole, up to 150 A

VL150 UL (DG frame), 3-pole, up to 150 A

VL250 UL (FG frame), 3-pole, up to 250 A

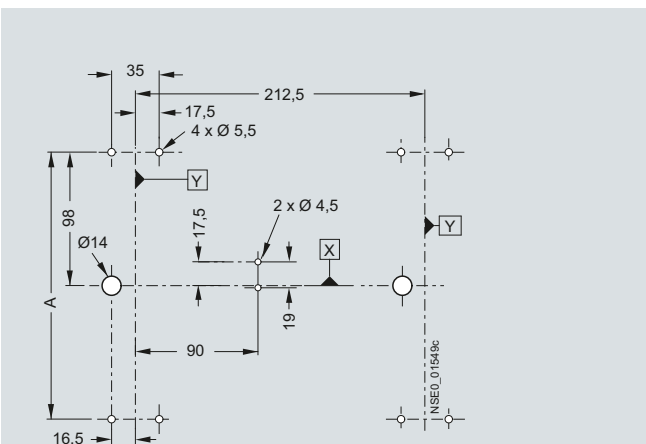
Locking device for toggle levers



### Rear interlocking module

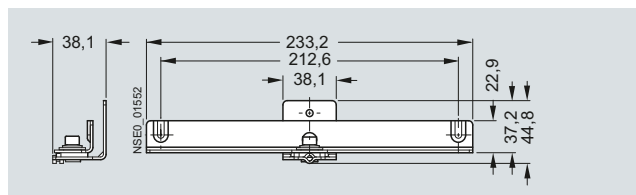
Rear interlocking module for plug-in/withdrawable molded case circuit breakers with front connection

For other detailed dimensional drawings, please refer to the mounting instructions for the rear interlocking module.

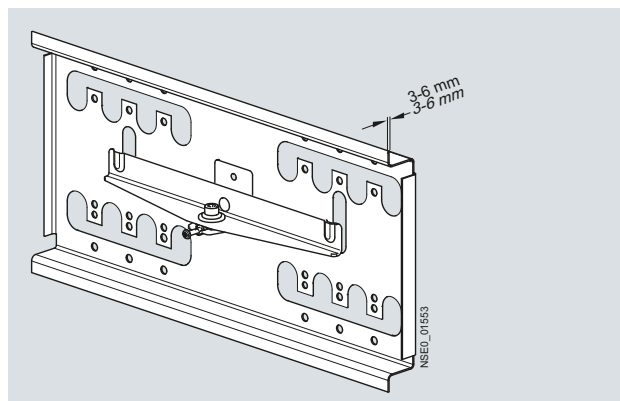


Type	A
VL 150X UL (CG-Frame)	194
VL 150 UL (DG-Frame)	
VL 250 UL (FG-Frame)	

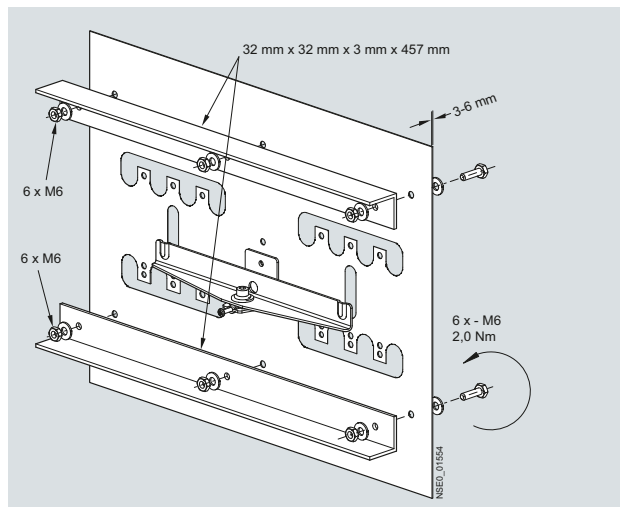
### Rear interlocking module



### Mounting plate, example 1, not included in the scope of supply



### Mounting plate, example 2, not included in the scope of supply



# Molded Case Circuit Breakers

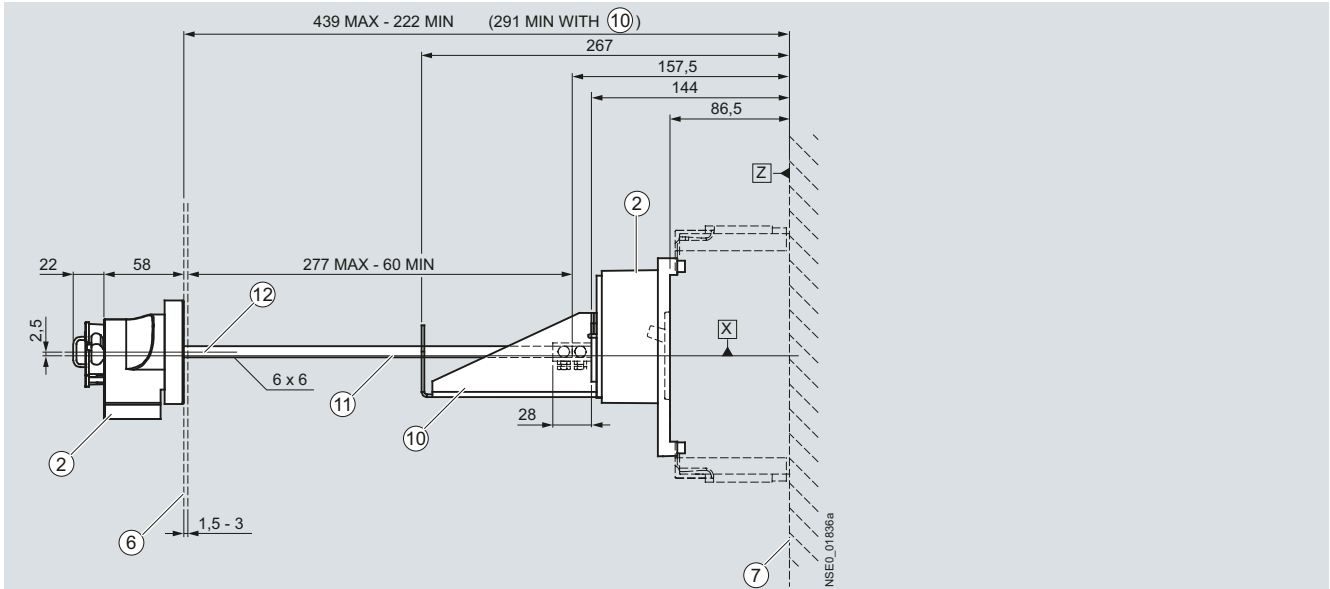
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

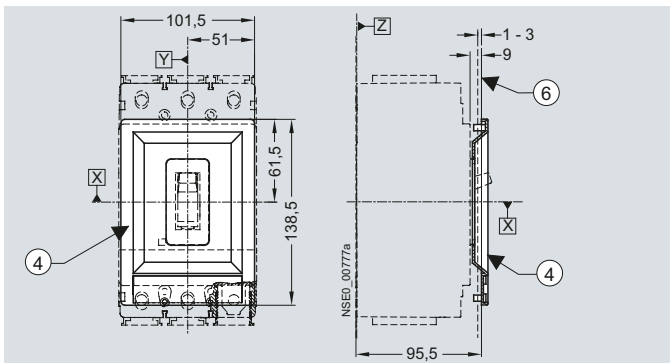
**VL150X UL (CG frame), 3-pole, up to 150 A**  
**VL150 UL (DG frame), 3-pole, up to 150 A**  
**VL250 UL (FG frame), 3-pole, up to 250 A**

**Accessories**

**Molded case circuit breaker with door-coupling rotary operating mechanism**

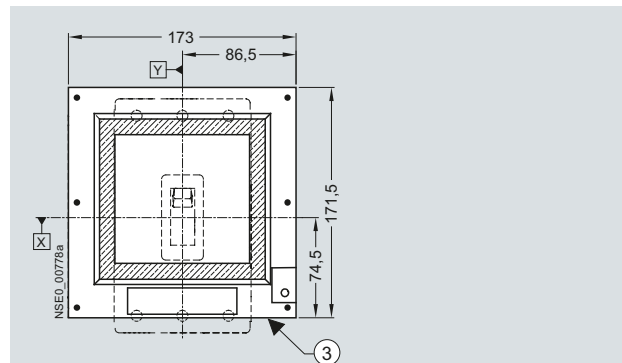


**Masking frame for door cutout for molded case circuit breakers with toggle lever**



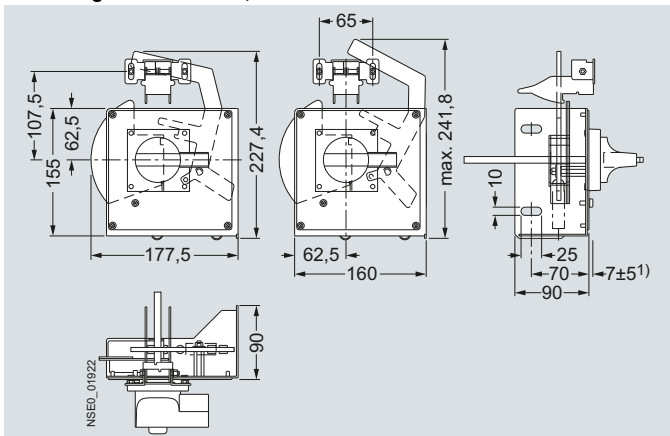
- ② Door-coupling rotary operating mechanisms
- ③ Masking frame for door cutout (for molded case circuit breakers with operating mechanism)
- ④ masking frame for door cutout (for molded case circuit breakers with toggle lever)

**Masking frame for door cutout for molded case circuit breakers with operating mechanism**



- ⑥ Outer surface of cabinet door
- ⑦ Installation level
- ⑩ Support bracket
- ⑪ Extension
- ⑫ Center line of operating mechanism shaft

**Interlocking module UL 508A, 8UC94 00**



1) depending on seal

# Molded Case Circuit Breakers

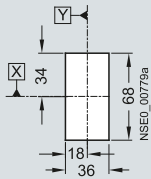
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

- VL150X UL (CG frame), 3-pole, up to 150 A
- VL150 UL (DG frame), 3-pole, up to 150 A
- VL250 UL (FG frame), 3-pole, up to 250 A

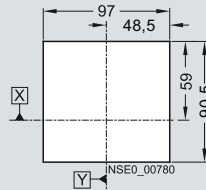
#### Door cutouts

Door cutout toggle lever (without masking frame)



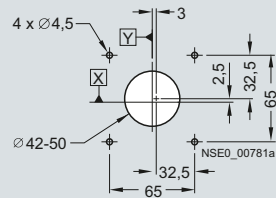
Door cutout toggle lever (with masking frame)

Door cutout front-operated rotary operating mechanism and motorized operating mechanism with stored energy mechanism (without masking frame)

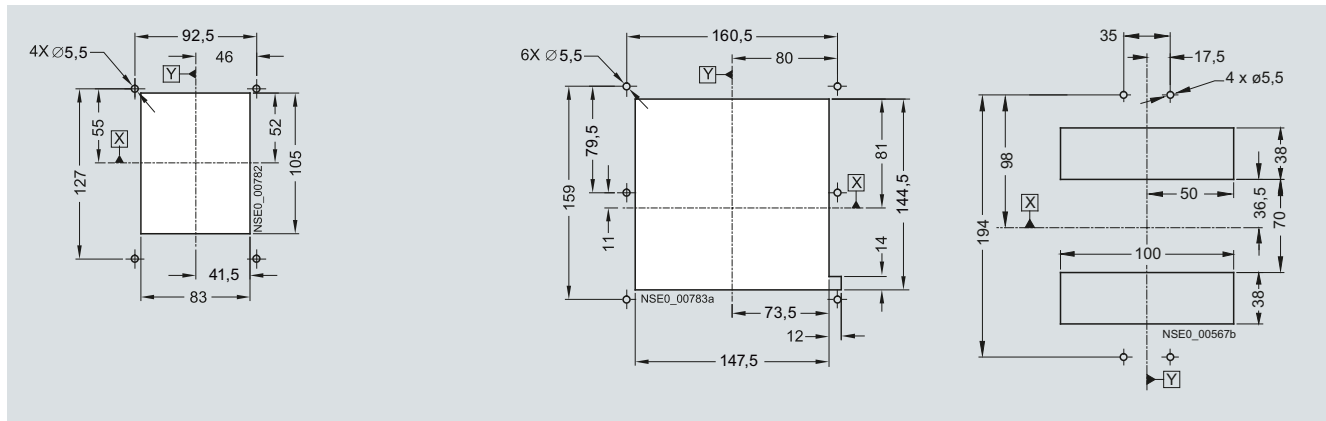


Door cutout front-operated rotary operating mechanism, motorized operating mechanism with stored energy operating mechanism and extended escutcheon (with masking frame)

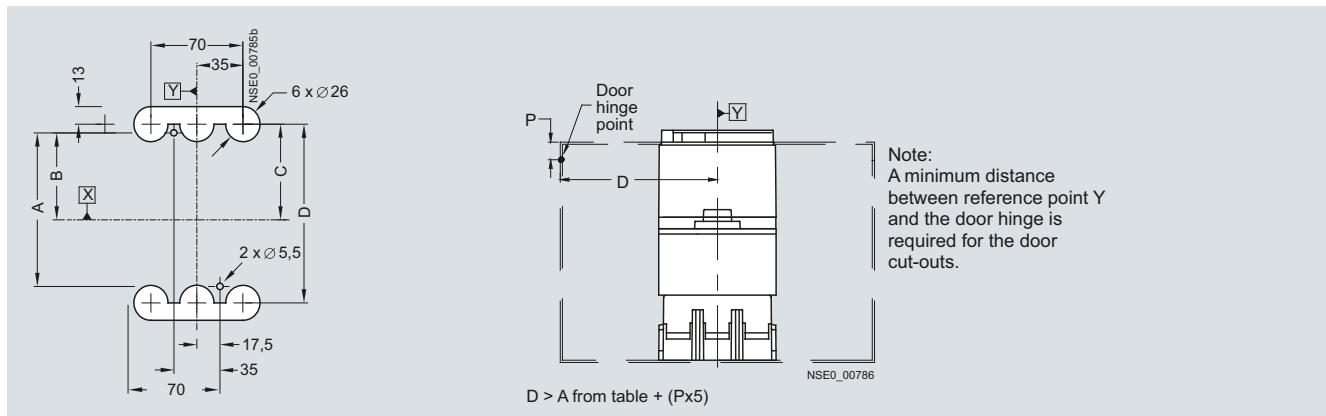
Door cutout Door-coupling rotary operating mechanism



Drilling template and cutout for plug-in base with connecting bars on rear



Drilling template and cutout for rear connection



Type	A	B	C	D
VL150X UL (CG frame)	114,5	65	71,5	133
VL150 UL (DG frame)	131,5	65	75,5	149
VL250 UL (FG frame)	131,5	65	75,5	149

Combination	A
Molded case circuit breaker only	100
Molded case circuit breaker + plug-in base + motorized operating mechanism with stored energy mechanism	100
Molded case circuit breaker + plug-in base + front-operated rotary operating mechanism	200
Molded case circuit breaker + withdrawable version	200

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

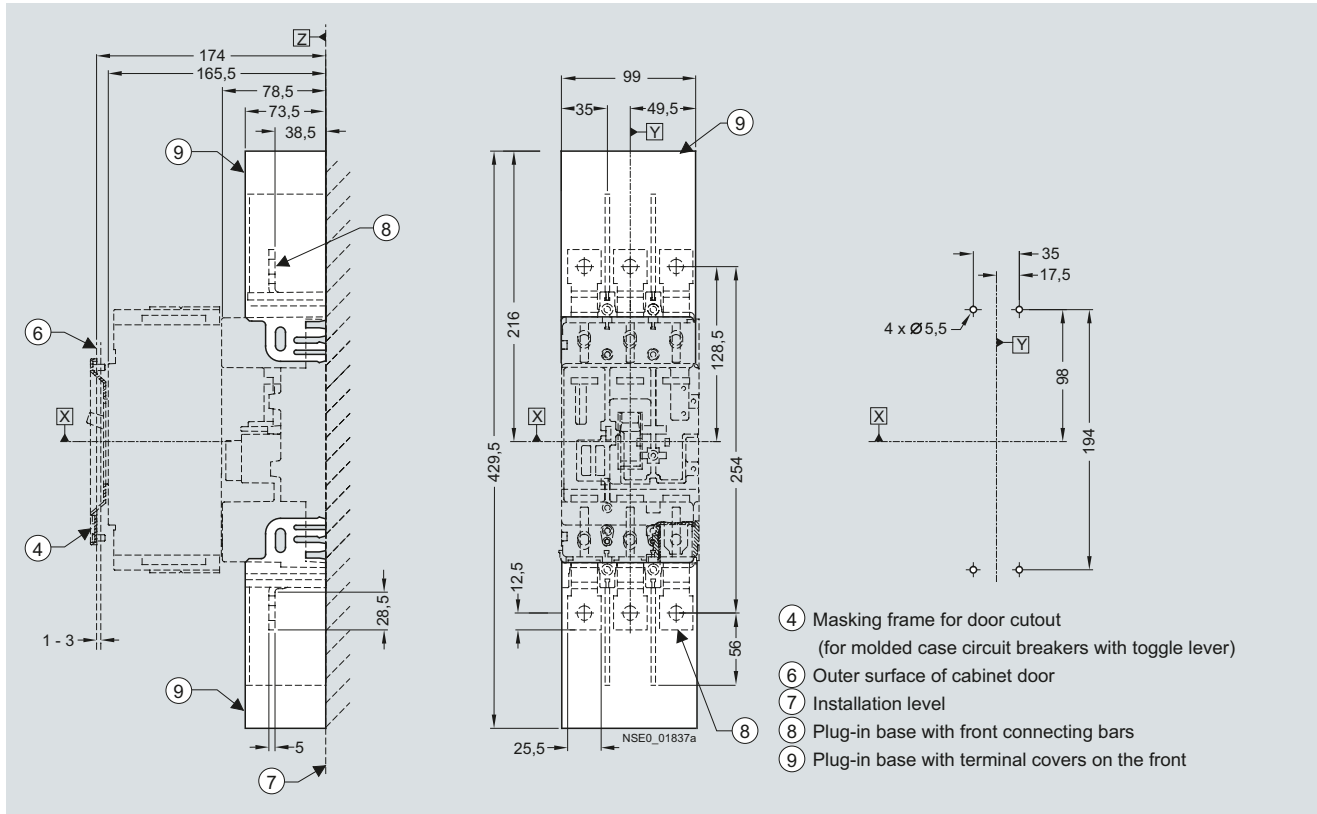
Configuration tools

**VL150X UL (CG frame), 3-pole, up to 150 A**  
**VL150 UL (DG frame), 3-pole, up to 150 A**  
**VL250 UL (FG frame), 3-pole, up to 250 A**

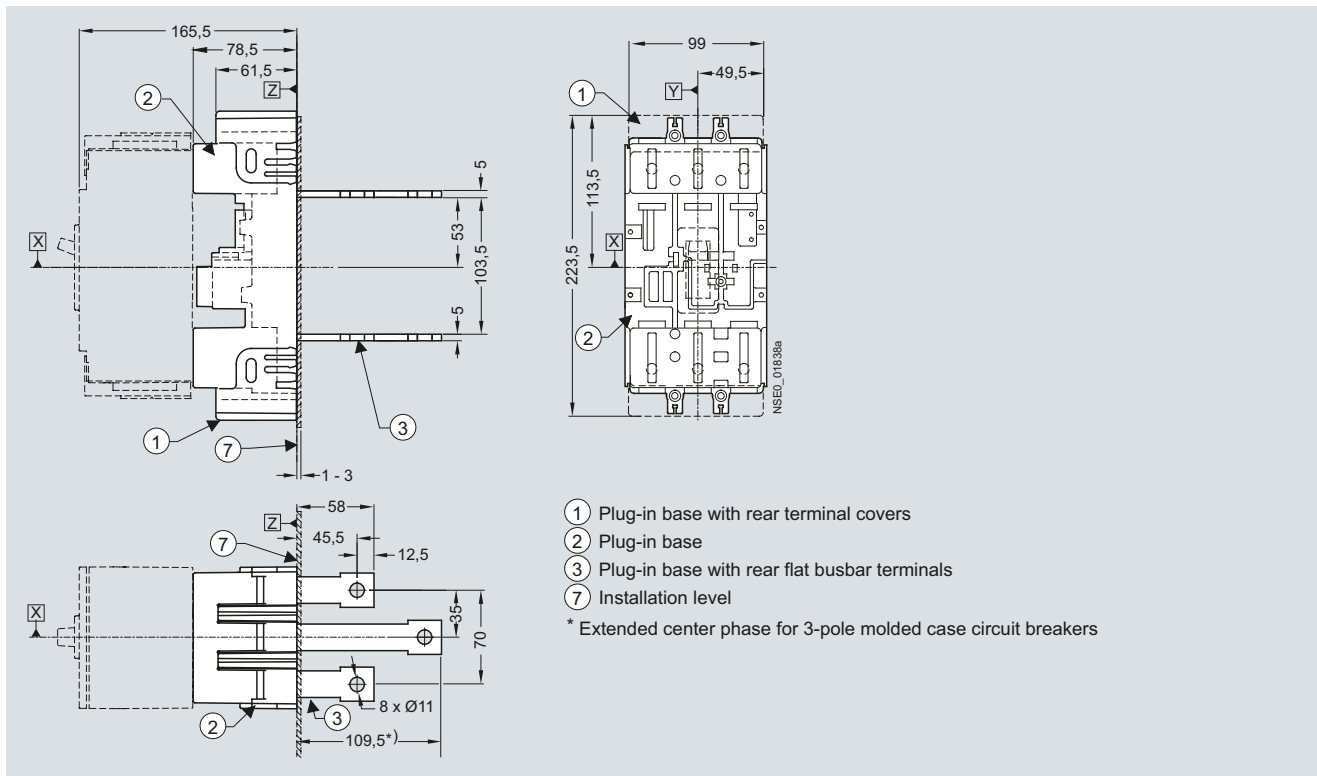
### Plug-in base and accessories

Plug-in base with front connecting bars

Drilling template for plug-in base with front connecting bars



### Plug-in base with rear flat busbar terminals



# Molded Case Circuit Breakers

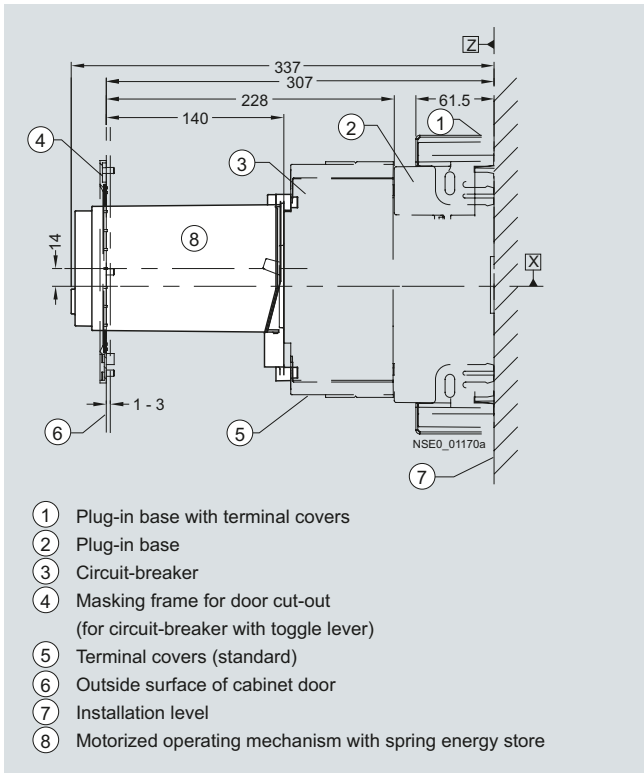
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

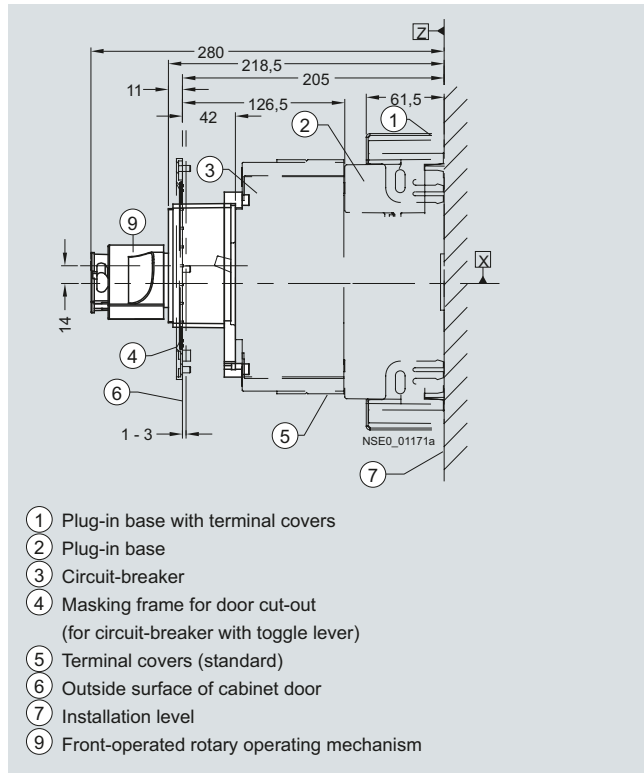
#### VL150X UL (CG frame), 3-pole, up to 150 A

##### Plug-in base and accessories

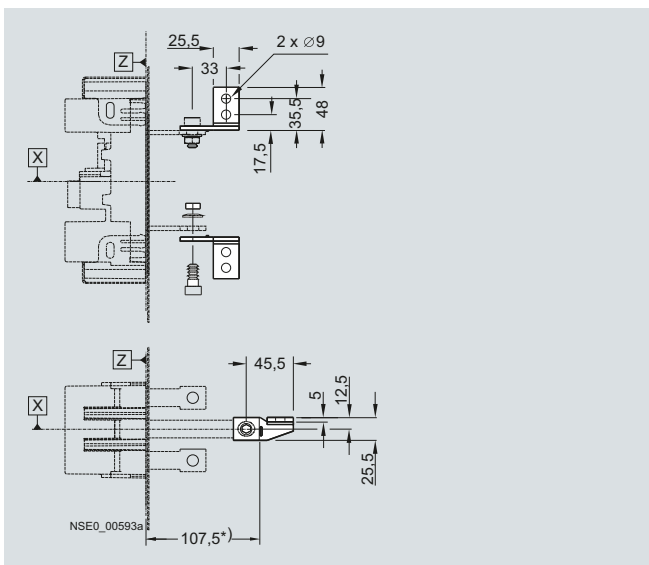
VL150X UL (CG frame) molded case circuit breaker with motorized operating mechanism with stored energy mechanism, mounted on plug-in base



VL150X UL (CG frame) molded case circuit breaker with front-operated rotary operating mechanism, mounted on plug-in base



#### 90° angle connecting adapters



# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

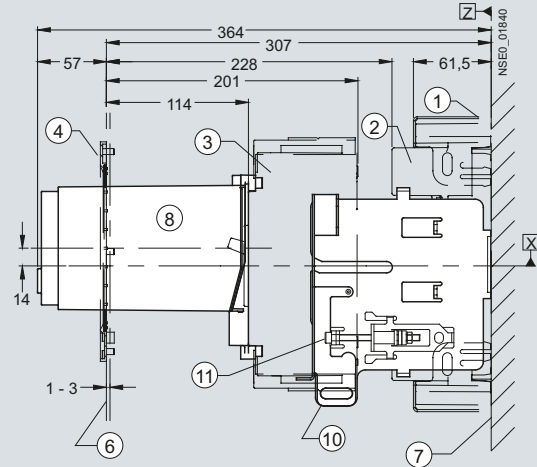
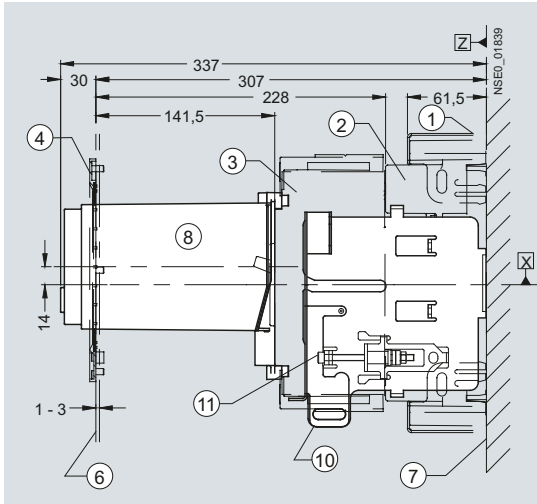
**Configuration tools**

**VL150 UL (DG frame), 3-pole, up to 150 A**  
**VL250 UL (FG frame), 3-pole, up to 250 A**

### Withdrawable version and accessories

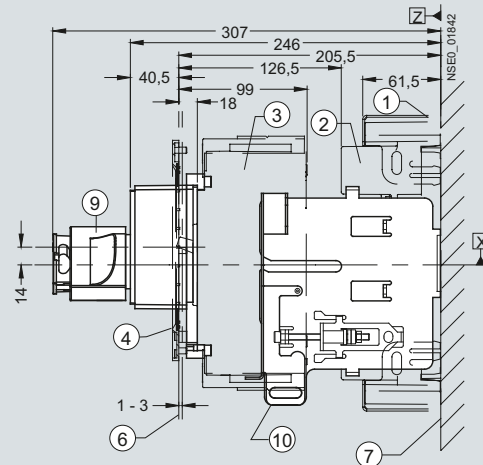
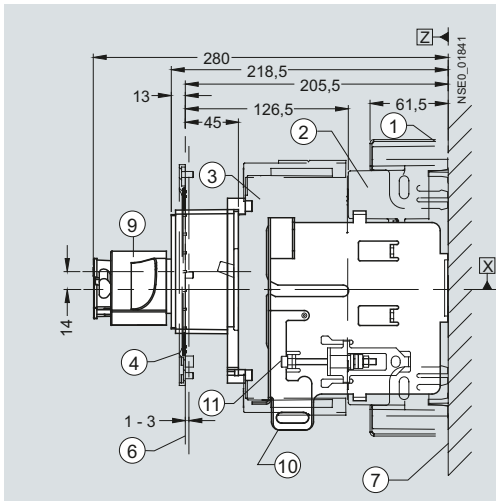
VL150 UL (DG frame) and VL250 UL (FG frame) molded case circuit breaker with motorized operating mechanism with stored energy mechanism (connected position)

VL150 UL (DG frame) and VL250 UL (FG frame) molded case circuit breaker with motorized operating mechanism with stored energy mechanism (disconnected position)



VL150 UL (DG frame) and VL250 UL (FG frame) molded case circuit breaker with front-operated rotary operating mechanism (connected position)

VL150 UL (DG frame) and VL250 UL (FG frame) molded case circuit breaker with front-operated rotary operating mechanism (disconnected position)



- ① Plug-in base with terminal covers
- ② Plug-in base
- ③ Molded case circuit breaker
- ④ Masking frame for door cutout (for molded case circuit breakers with operating mechanism)
- ⑥ Outer surface of cabinet door
- ⑦ Installation level
- ⑧ Motorized operating mechanism with stored energy mechanism
- ⑨ Front-operated rotary operating mechanism
- ⑩ Locking device for racking mechanism
- ⑪ Racking mechanism

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

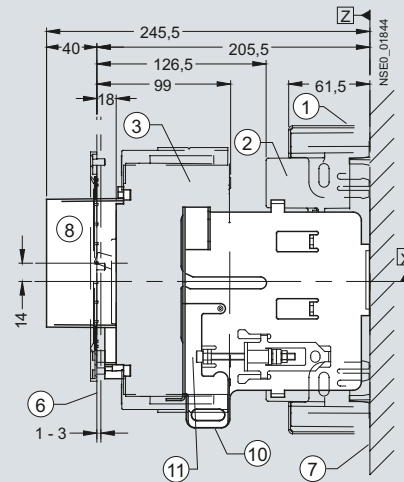
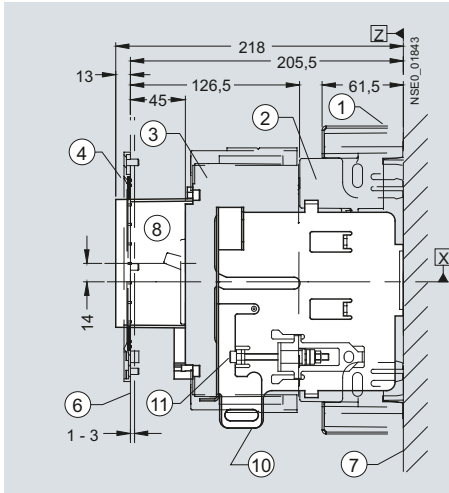
### Configuration tools

**VL150 UL (DG frame), 3-pole, up to 150 A**  
**VL250 UL (FG frame), 3-pole, up to 250 A**

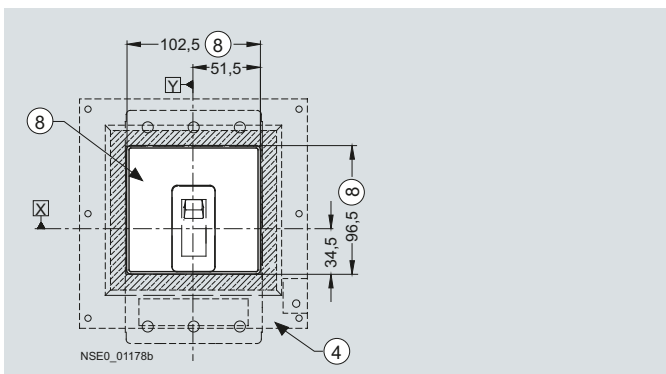
#### Withdrawable version and accessories

**VL150 UL (DG frame) and VL250 UL (FG frame)**  
**molded case circuit breaker with extended escutcheon**  
**(connected position)**

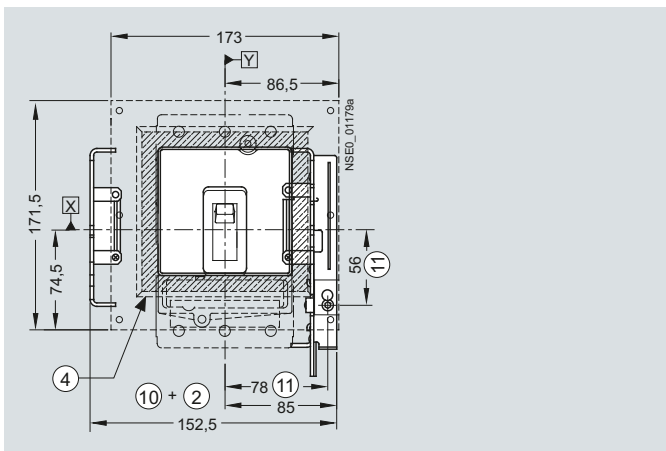
**VL150 UL (DG frame) and VL250 UL (FG frame)**  
**molded case circuit breaker with extended escutcheon**  
**(disconnected position)**



#### Extended escutcheon dimensions



#### Withdrawable version dimensions



- ① Plug-in base with terminal covers
- ② Plug-in base
- ③ Molded case circuit breaker
- ④ Masking frame for door cutout  
(for molded case circuit breakers with operating mechanism)
- ⑥ Outer surface of cabinet door
- ⑦ Installation level
- ⑧ Extended escutcheon
- ⑩ Locking device for racking mechanism
- ⑪ Racking mechanism

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

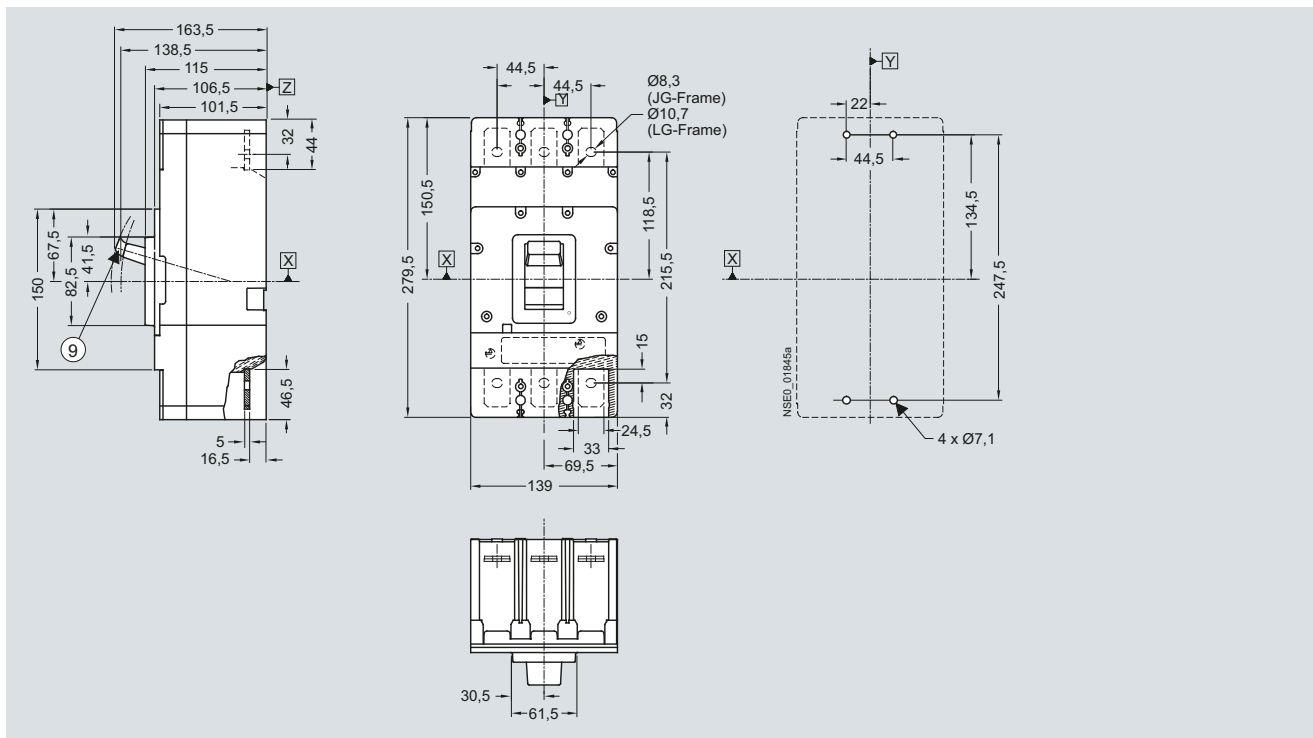
Configuration tools

VL400 UL (JG frame), 3-pole, up to 400 A, VL400X UL (LG frame), 3-pole, up to 600 A

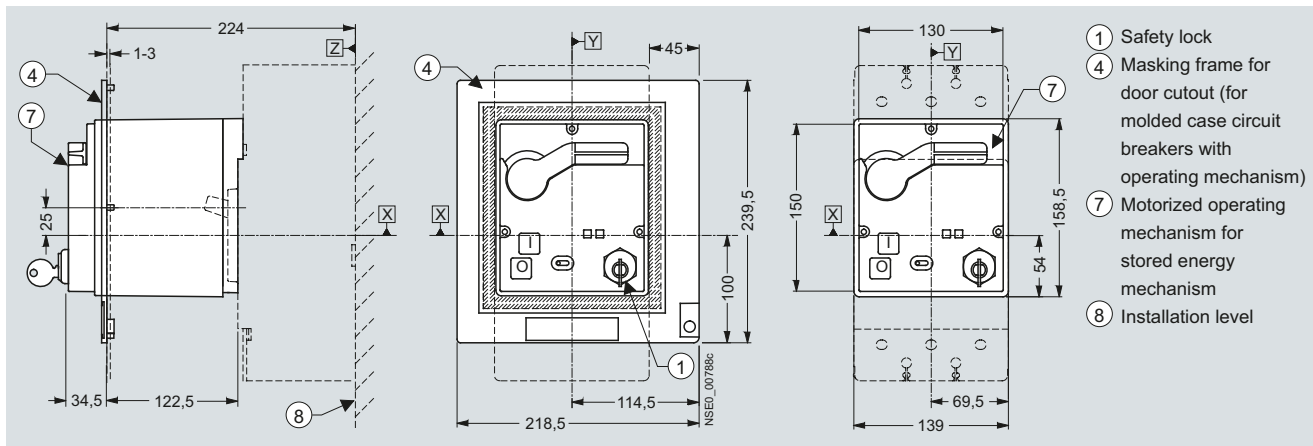
Molded case circuit breakers

VL400 UL (JG frame) and VL400X UL (LG frame) molded case circuit breaker

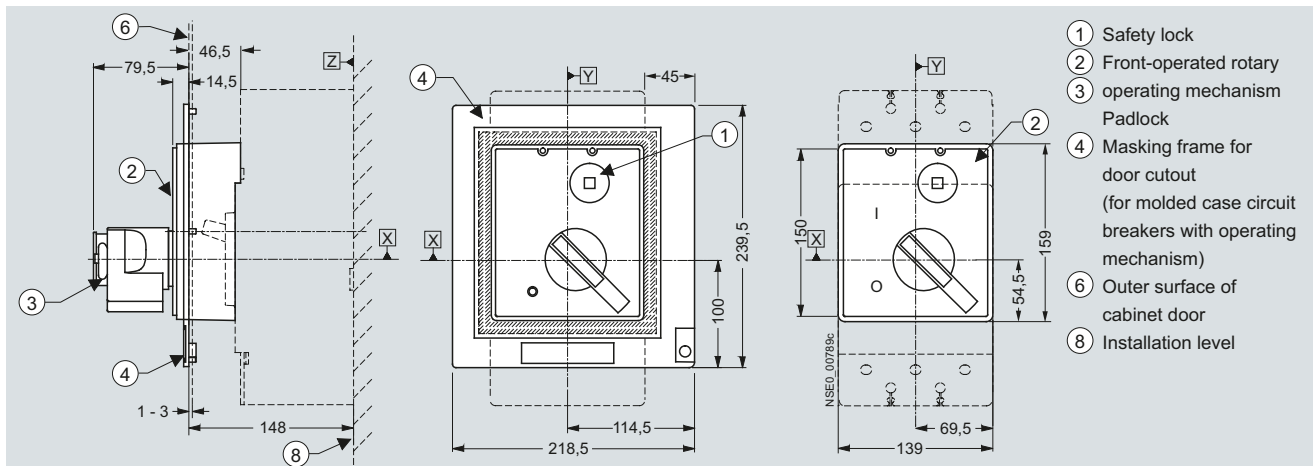
Molded case circuit breaker installation note



### Motorized operating mechanism with stored energy mechanism



### Front-operated rotary operating mechanism



# Molded Case Circuit Breakers

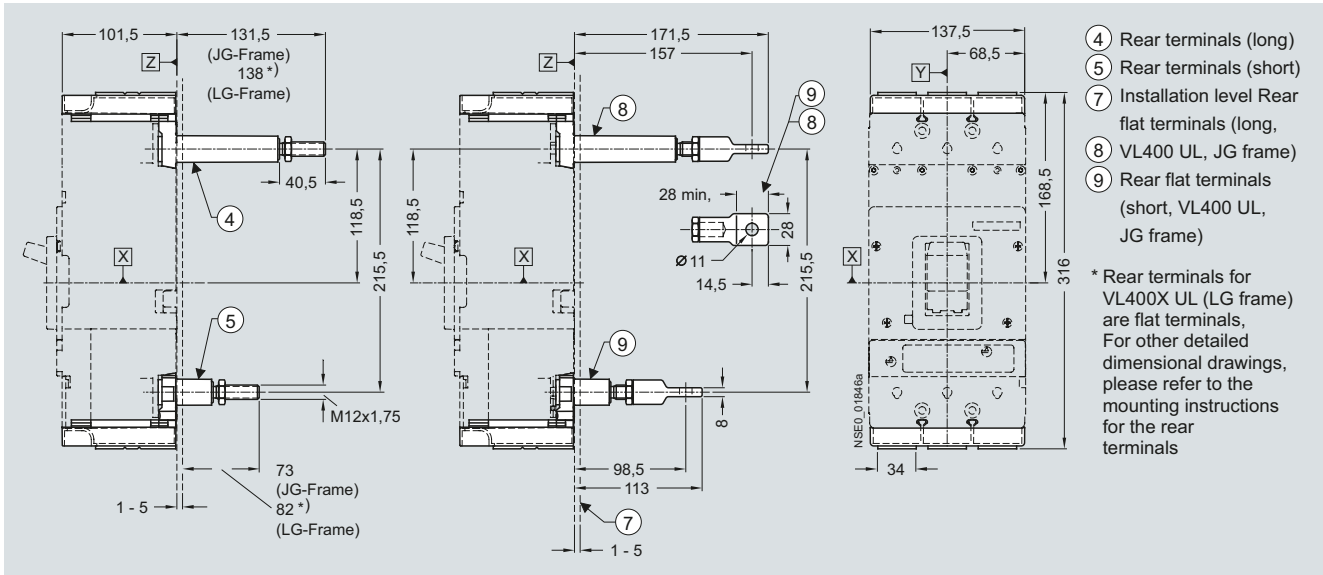
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

**VL400 UL (JG frame), 3-pole, up to 400 A**  
**VL400X UL (LG frame), 3-pole, up to 600 A**

#### Connections

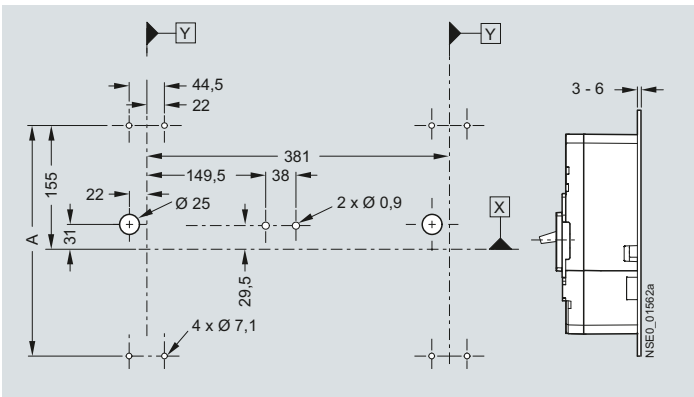
For VL400 UL (JG frame) only



#### Rear interlocking module

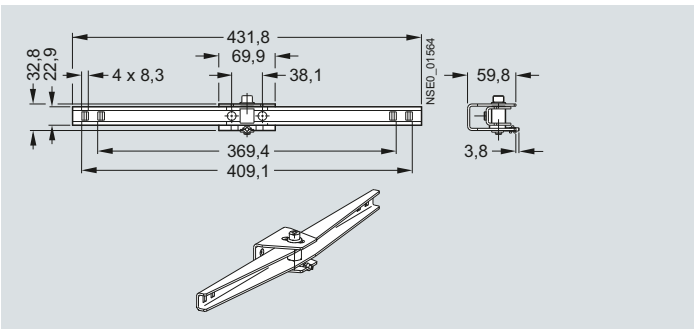
Rear interlocking module for plug-in/withdrawable molded case circuit breakers for front connection

For other detailed dimensional drawings, please refer to the mounting instructions for the rear interlocking module.



Type	A
VL400 UL (JG frame) and VL400X UL (LG frame)	289

#### Rear interlocking module



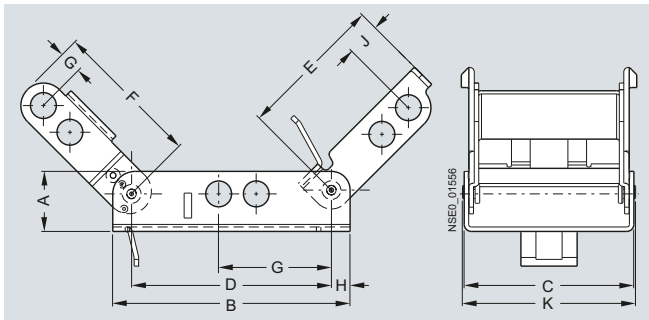
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

**VL400 UL (JG frame), 3-pole, up to 400 A**  
**VL400X UL (LG frame), 3-pole, up to 600 A**

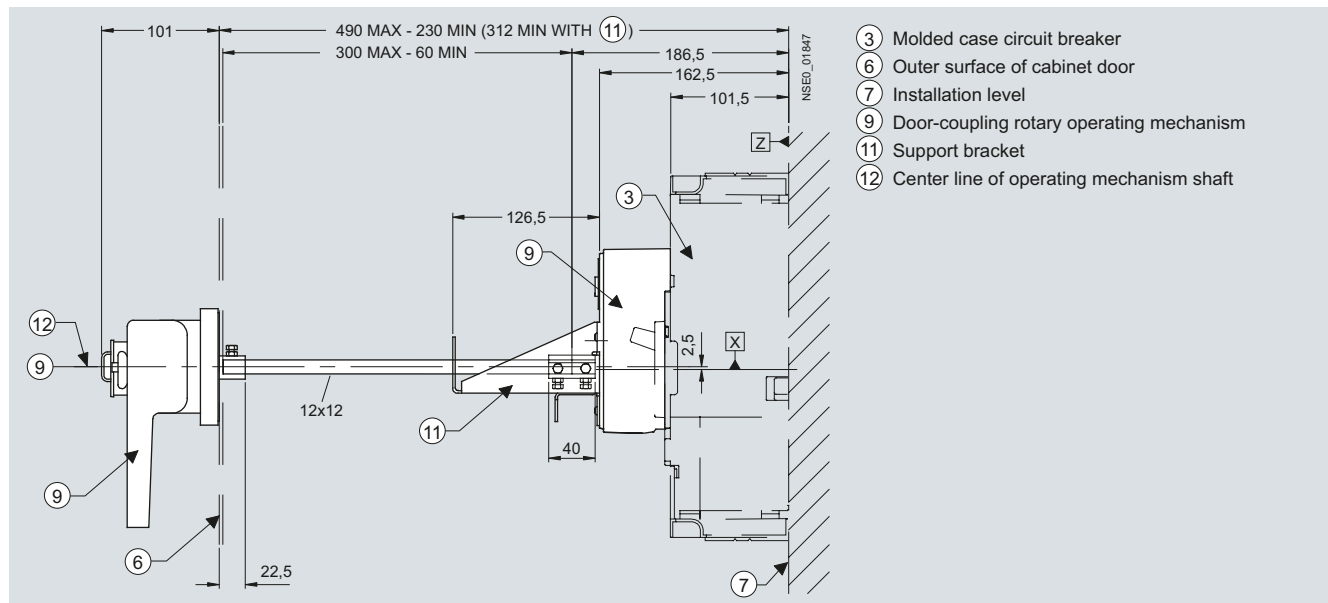
**Locking device for toggle levers**



Type	a	b	c	d	e	f	g	h	i	k
3VL9 4	20,3	80,3	57,4	52,8	49,3	49,8	6,35	6,3	11,2	58,5
3VL9 6	21,6	79,8	71,1	62,0	50,4	46,5	12,9	8,9	8,6	72,2
3VL9 8	21,6	110,5	88,9	96,5	77,2	69,1	11,7	5,1	24,8	90,0

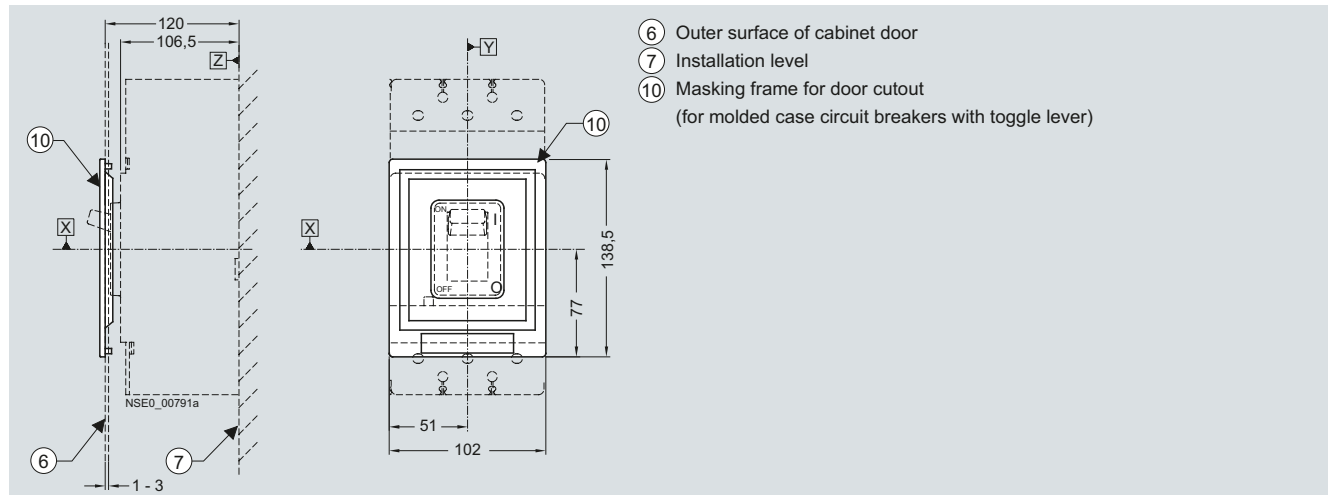
### Accessories

#### Plug-in base door-coupling rotary operating mechanism



Interlocking module UL 508A, 8UC94 00; see Page 81.

#### Masking frame for door cutout for molded case circuit breakers with toggle lever



# Molded Case Circuit Breakers

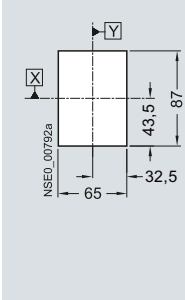
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

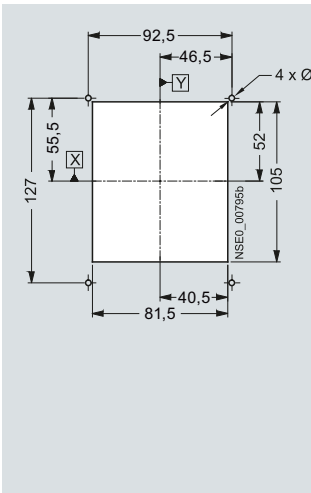
**VL400 UL (JG frame), 3-pole, up to 400 A**  
**VL400X UL (LG frame), 3-pole, up to 600 A**

#### Door cutouts

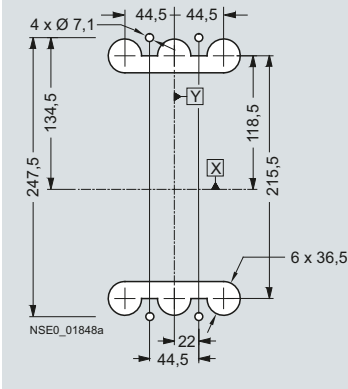
Door cutout toggle lever operating mechanism (without masking frame)



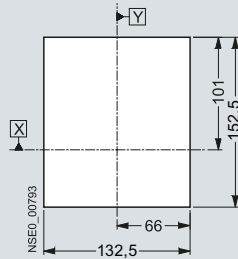
Door cutout toggle lever operating mechanism (with masking frame)



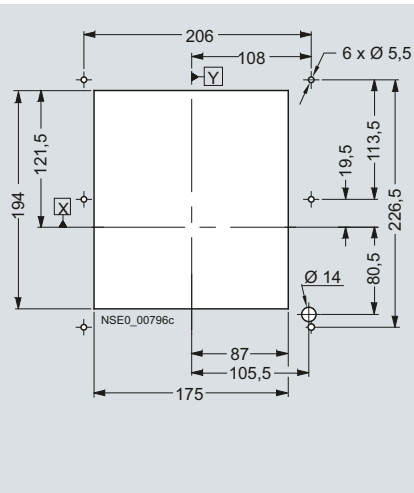
Drilling template and cutout for rear connection



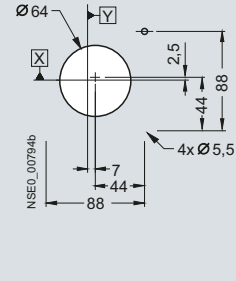
Door cutout front-operated rotary operating mechanism and motorized operating mechanism with stored energy mechanism (without masking frame)



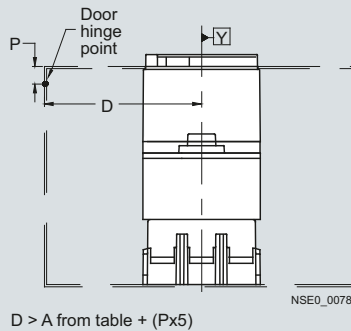
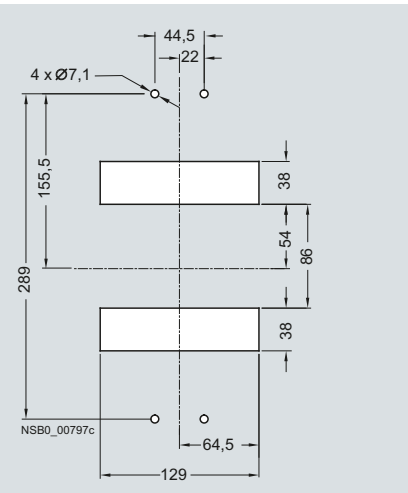
Door cutout front-operated rotary operating mechanism, motorized operating mechanism and extended escutcheon (with masking frame)



Door cutout Door-coupling rotary operating mechanism



Drilling template and cutout for plug-in base with flat connecting bars on rear



D > A from table + (Px5)

Combination	A
Molded case circuit breaker only	150
Molded case circuit breaker + plug-in base + motorized operating mechanism with stored energy mechanism	150
Molded case circuit breaker + plug-in base + front-operated rotary operating mechanism	200
Molded case circuit breaker + withdrawable version	200

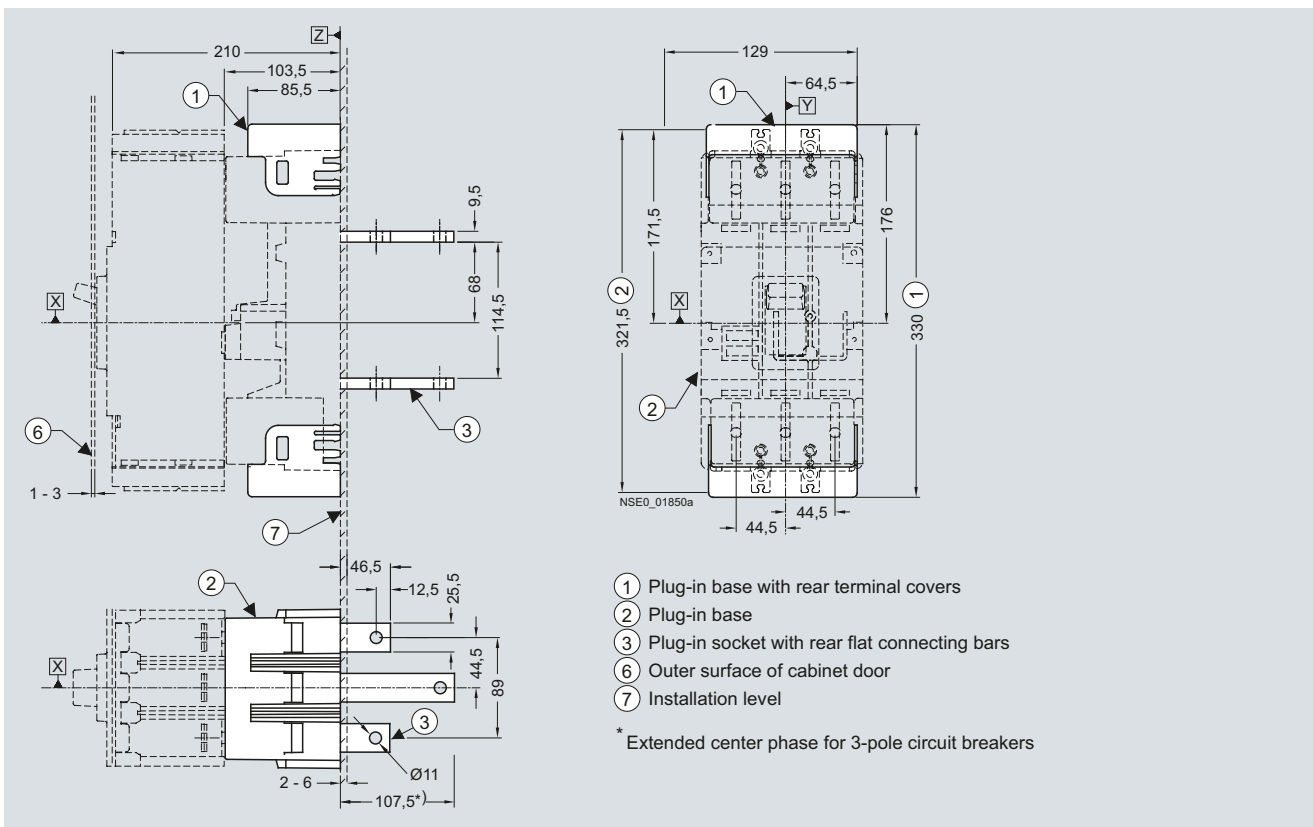
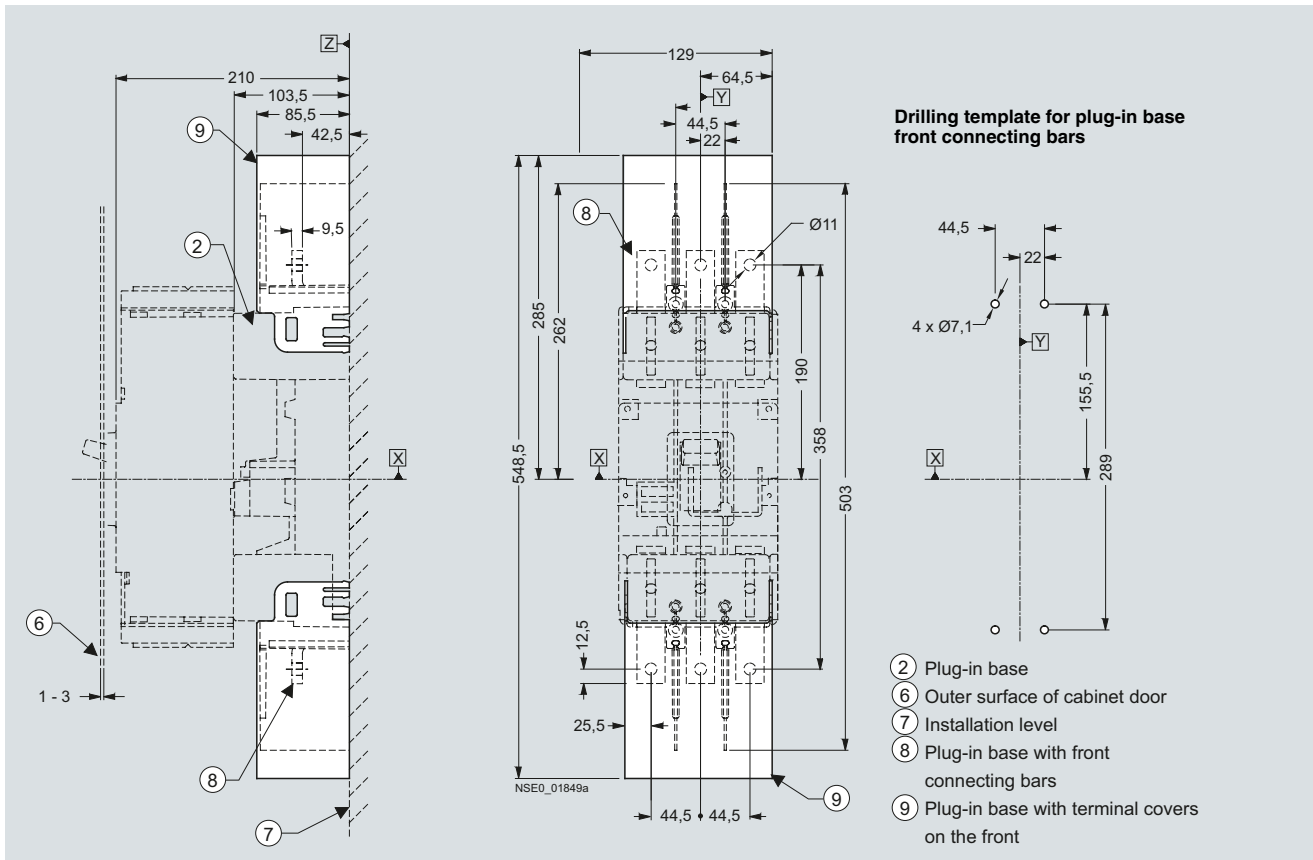
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

**VL400 UL (JG frame), 3-pole, up to 400 A**  
**VL400X UL (LG frame), 3-pole, up to 600 A**

**Plug-in base and accessories**



# Molded Case Circuit Breakers

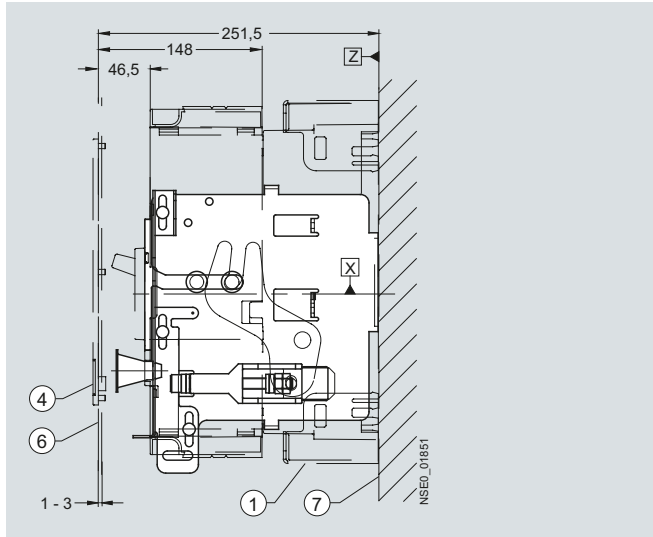
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

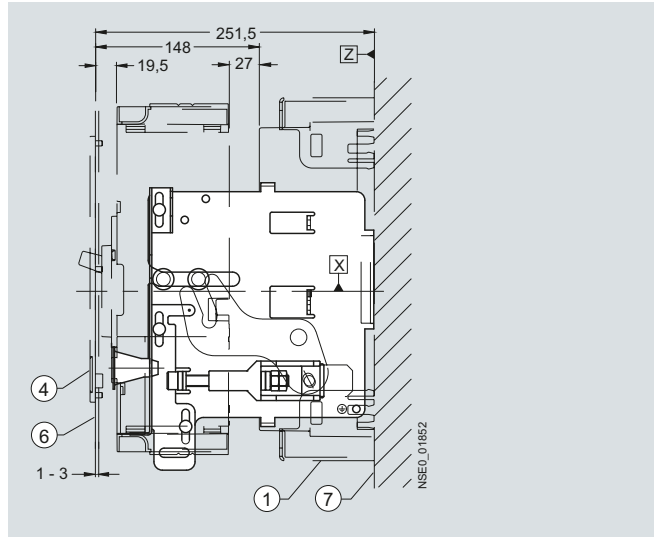
**VL400 UL (JG frame), 3-pole, up to 400 A**  
**VL400X UL (LG frame), 3-pole, up to 600 A**

#### Plug-in base and accessories

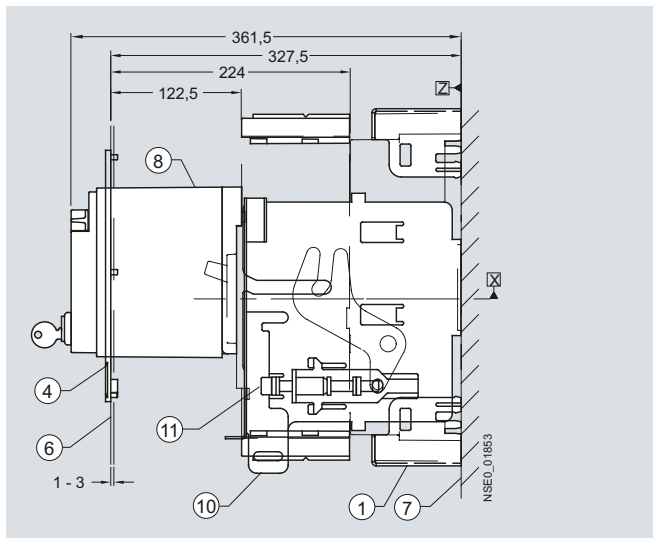
**Plug-in base front-operated rotary operating mechanism (connected position)**



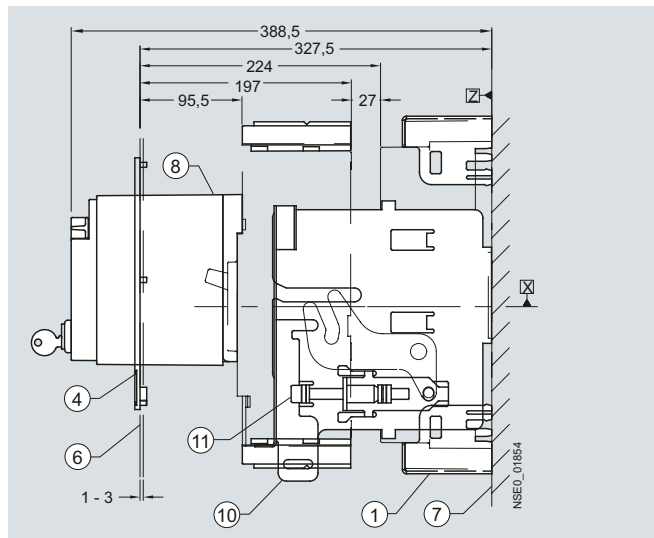
**Plug-in base front-operated rotary operating mechanism (disconnected position)**



**Plug-in base motorized operating mechanism with stored energy mechanism (connected position)**



**Plug-in base motorized operating mechanism with stored energy mechanism (disconnected position)**



- ① Plug-in base with terminal covers
- ④ Masking frame for door cutout  
(for molded case circuit breakers with operating mechanism)
- ⑥ Outer surface of cabinet door
- ⑦ Installation level
- ⑧ Motorized operating mechanism with stored energy mechanism
- ⑨ Front-operated rotary operating mechanism
- ⑩ Locking device for racking mechanism
- ⑪ Racking mechanism

# Molded Case Circuit Breakers

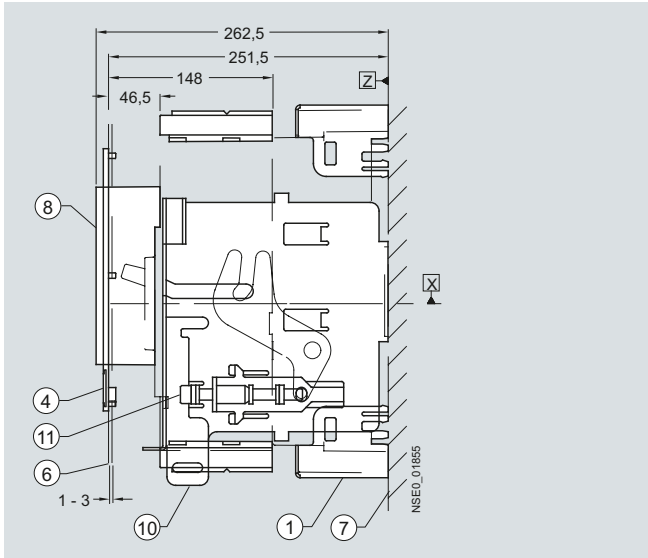
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

Configuration tools

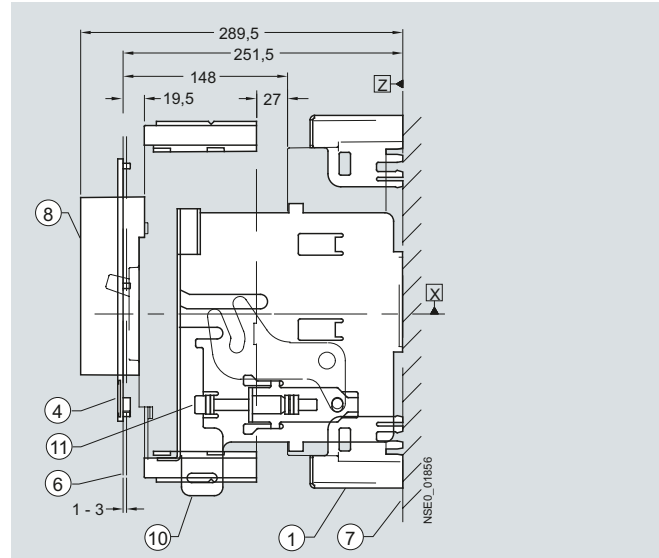
**VL400 UL (JG frame), 3-pole, up to 400 A**  
**VL400X UL (LG frame), 3-pole, up to 600 A**

### Plug-in base and accessories

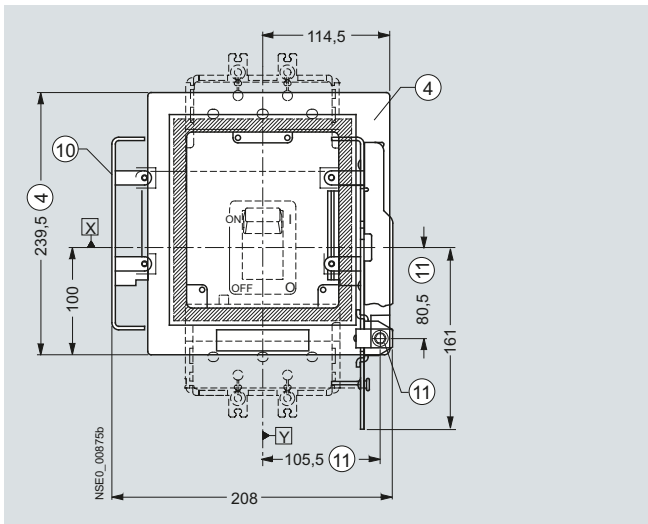
**Plug-in base extended escutcheon  
(connected position)**



**Plug-in base extended escutcheon  
(disconnected position)**



**Extended escutcheon mounted  
on withdrawable version**



- ① Plug-in base with terminal covers
- ④ Masking frame for door cutout  
(for molded case circuit breakers with operating mechanism)
- ⑥ Outer surface of cabinet door
- ⑦ Installation level
- ⑧ Extended escutcheon
- ⑩ Locking device for racking mechanism
- ⑪ Racking mechanism

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

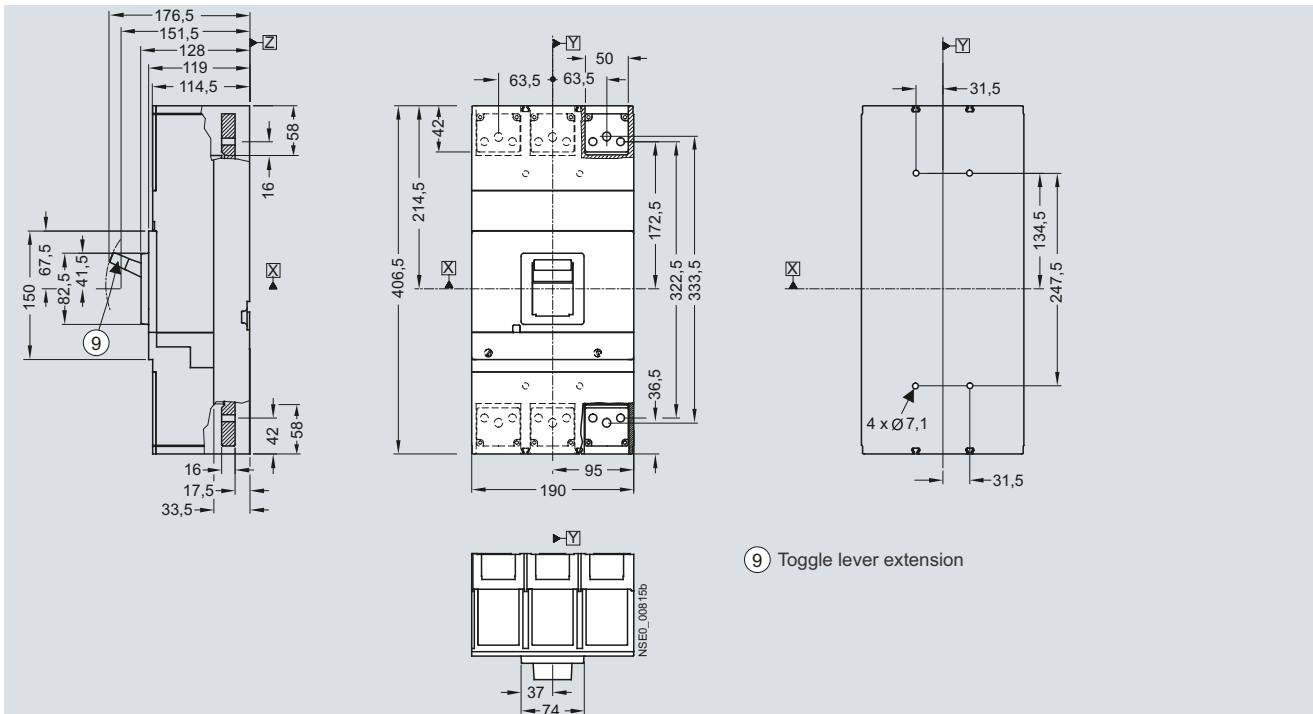
### Configuration tools

**VL800 UL (MG frame), 3-pole, up to 800 A**

**Molded case circuit breakers**

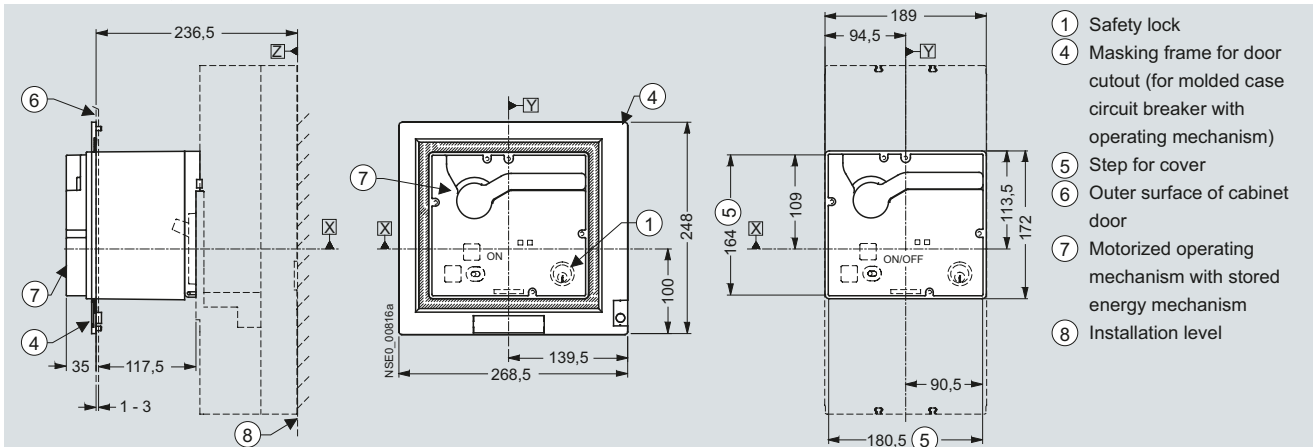
**VL800 UL (MG frame) molded case circuit breaker**

**Molded case circuit breaker installation note**

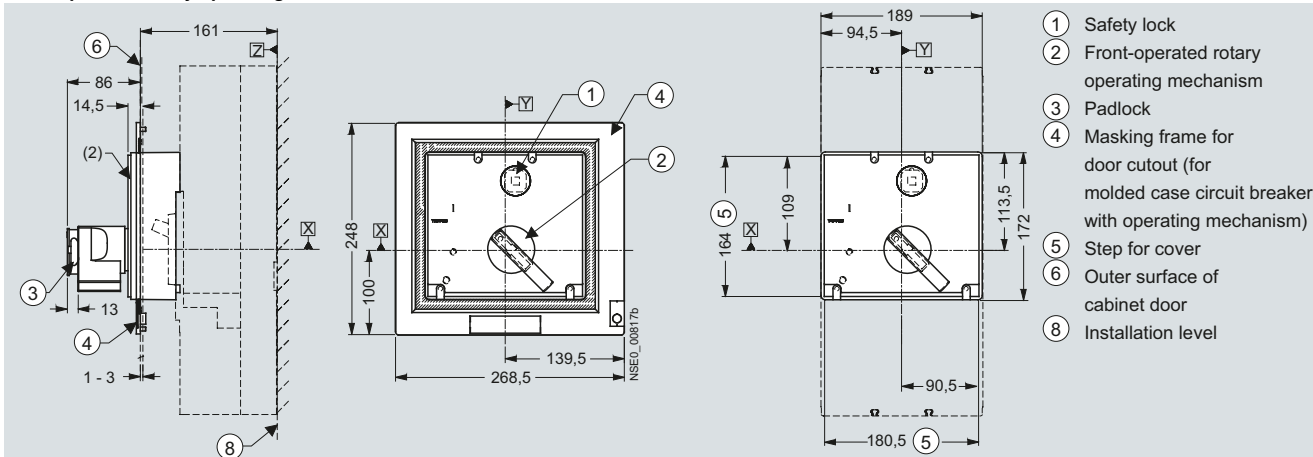


### Operating mechanisms

**Motorized operating mechanism with stored energy mechanism**



**Front-operated rotary operating mechanism**



# Molded Case Circuit Breakers

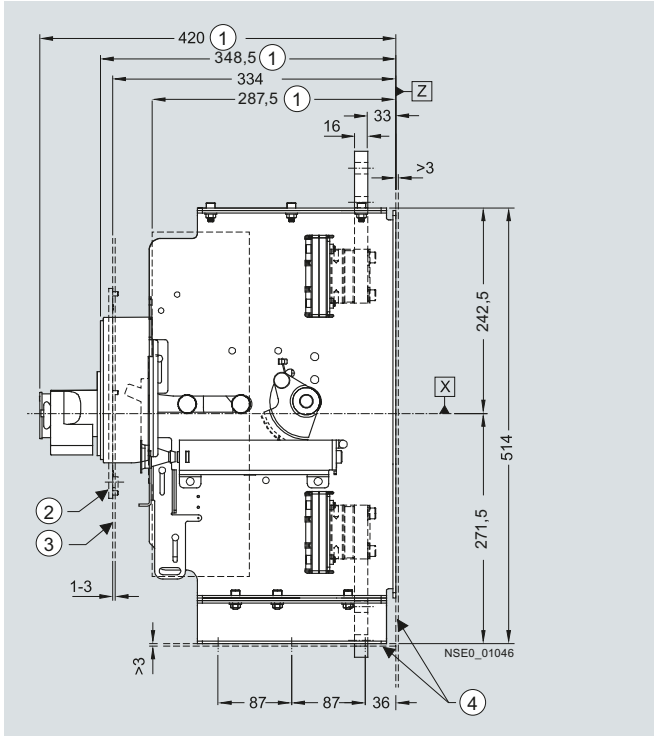
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

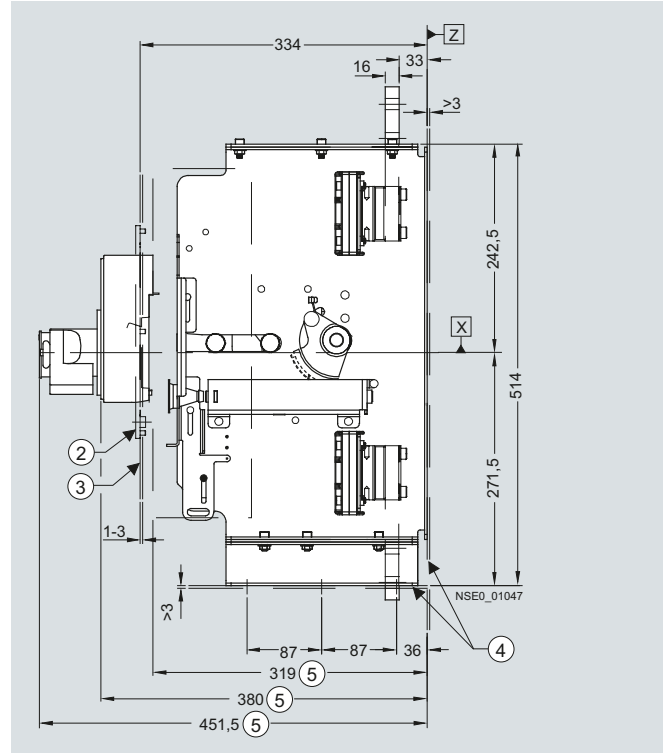
#### VL800 UL (MG frame), 3-pole, up to 800 A

##### Withdrawable versions

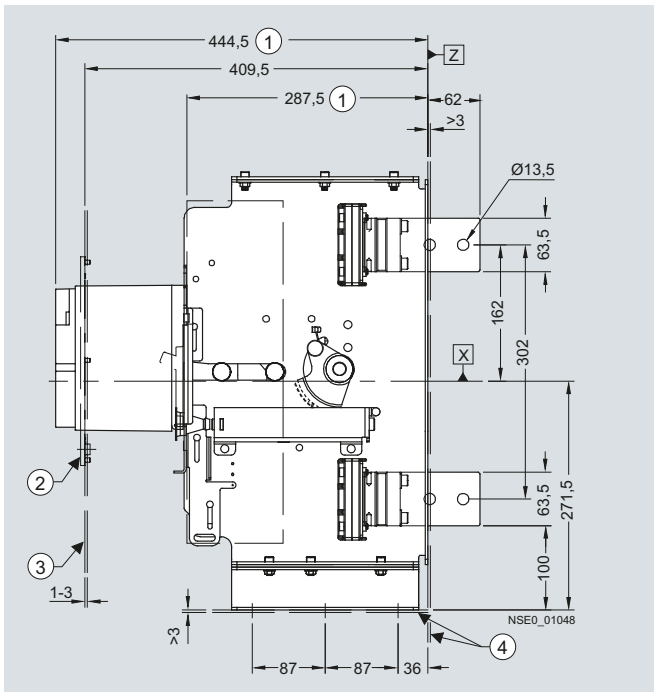
Withdrawable version with front-operated rotary operating mechanism  
Retracted position



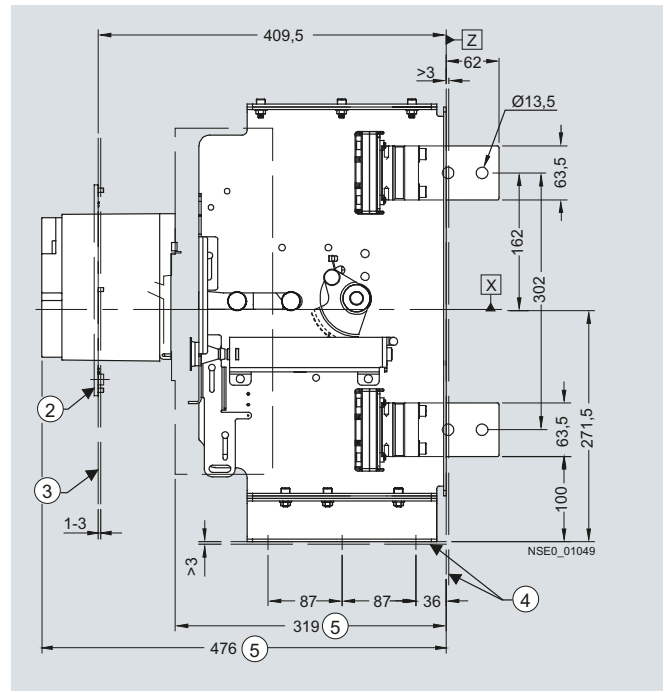
Withdrawable version with front-operated rotary operating mechanism  
Extended position



Withdrawable version with motorized operating mechanism with stored energy mechanism  
Retracted position



Withdrawable version with motorized operating mechanism with stored energy mechanism  
Extended position



- ① Connected position
- ② Masking frame for door cutout
- ③ Outer surface of cabinet door
- ④ Installation level
- ⑤ Disconnected position

# Molded Case Circuit Breakers

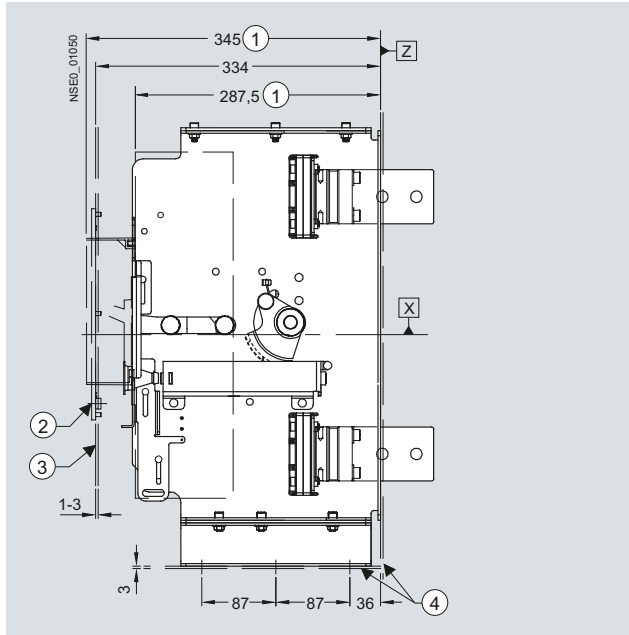
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

#### VL800 UL (MG frame), 3-pole, up to 800 A

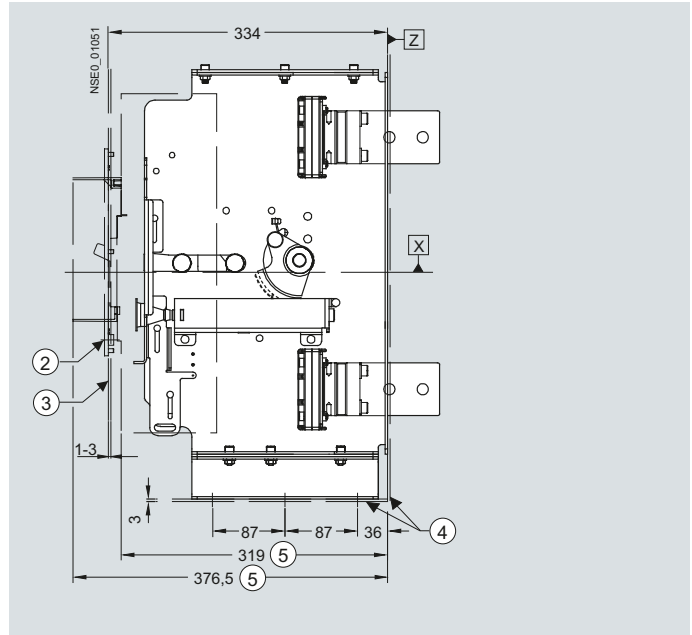
Withdrawable version with extended escutcheon  
(without masking frame)

Retracted position



Withdrawable version with extended escutcheon  
(without masking frame)

Extended position



- ① Connected position
- ② Masking frame for door cutout
- ③ Outer surface of cabinet door
- ④ Installation level
- ⑤ Disconnected position

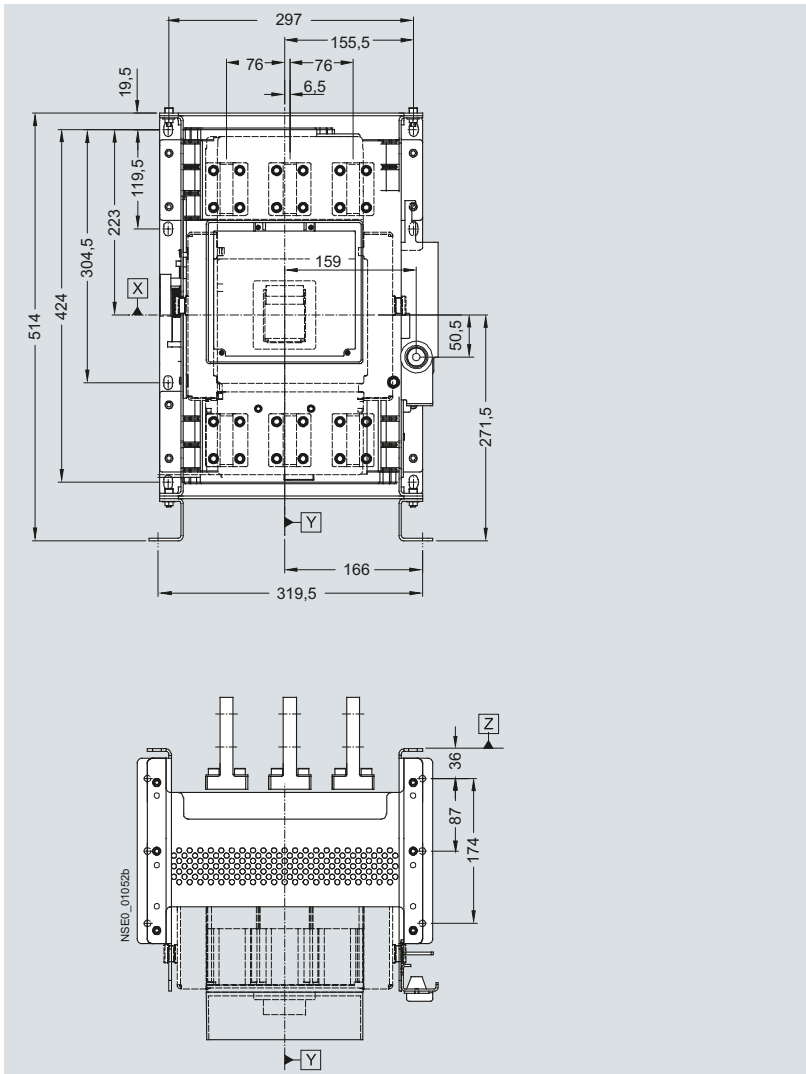
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

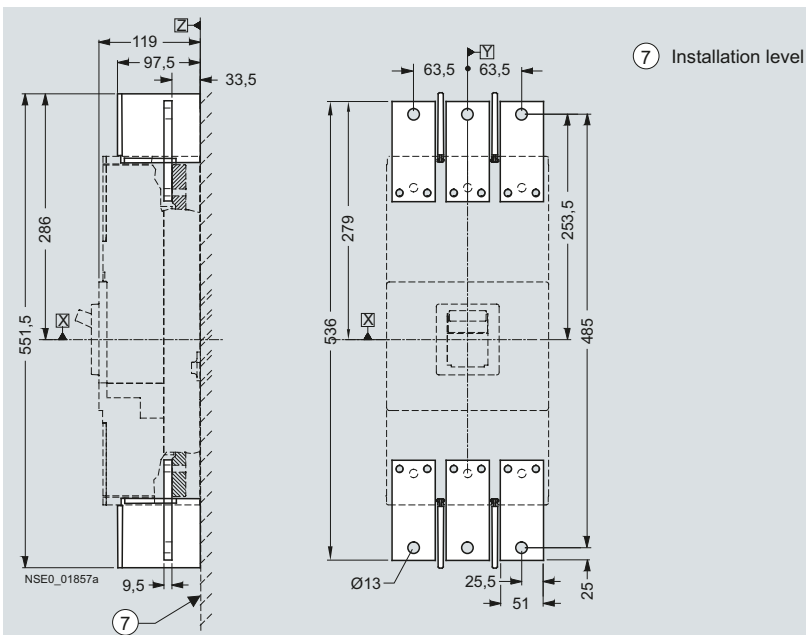
Configuration tools

### VL800 UL (MG frame), 3-pole, up to 800 A

#### Withdrawable versions



#### Connections



# Molded Case Circuit Breakers

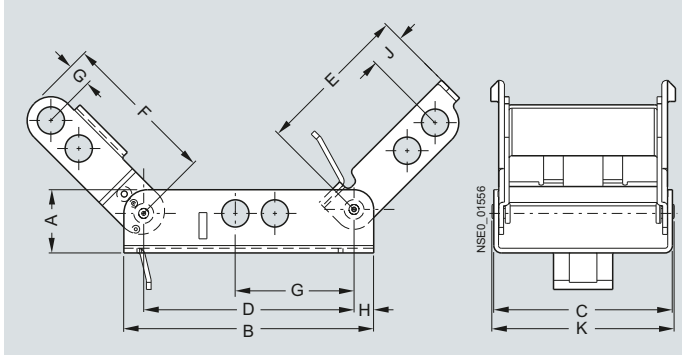
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

**VL800 IUL (MG frame), 3-pole, up to 800 A**

#### Interlocks

**Locking device for toggle levers**

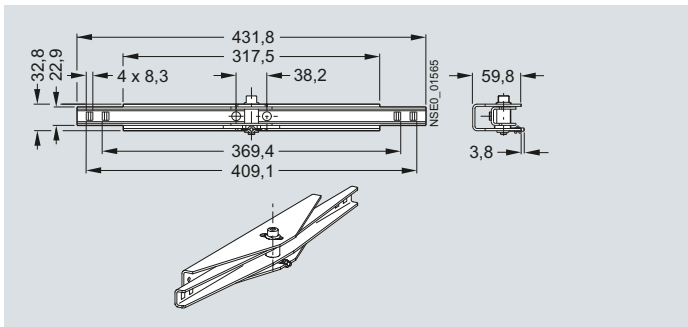


Type	a	b	c	d	e	f	g	h	i	k
3VL9 4	20,3	80,3	57,4	52,8	49,3	49,8	6,35	6,3	11,2	58,5
3VL9 6	21,6	79,8	71,1	62,0	50,4	46,5	12,9	8,9	8,6	72,2
3VL9 8	21,6	110,5	88,9	96,5	77,2	69,1	11,7	5,1	24,8	90,0

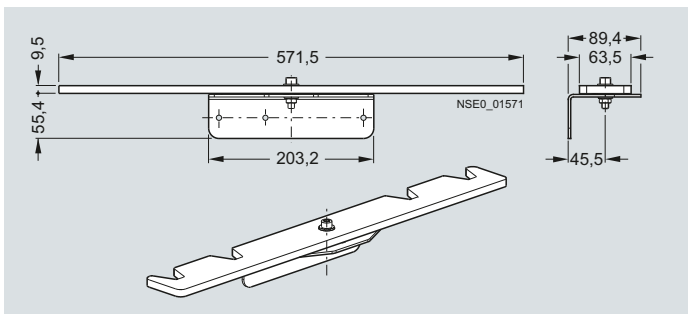
#### Rear interlocking module

**Rear interlocking module  
3-pole molded case circuit breaker**

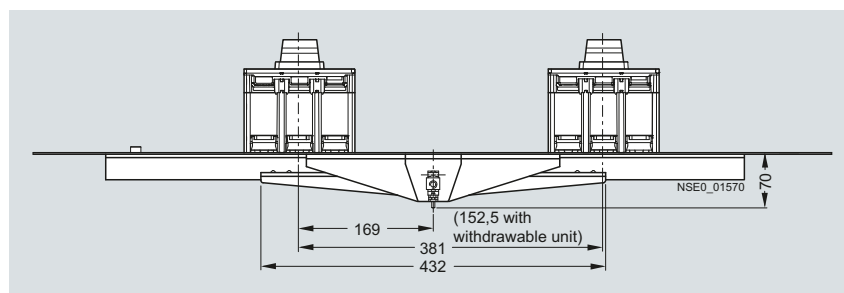
For other detailed dimensional drawings, please refer to the mounting instructions for the rear interlocking module.



**Rear interlocking module  
4-pole molded case circuit breaker**



#### Rear interlocking module



# Molded Case Circuit Breakers

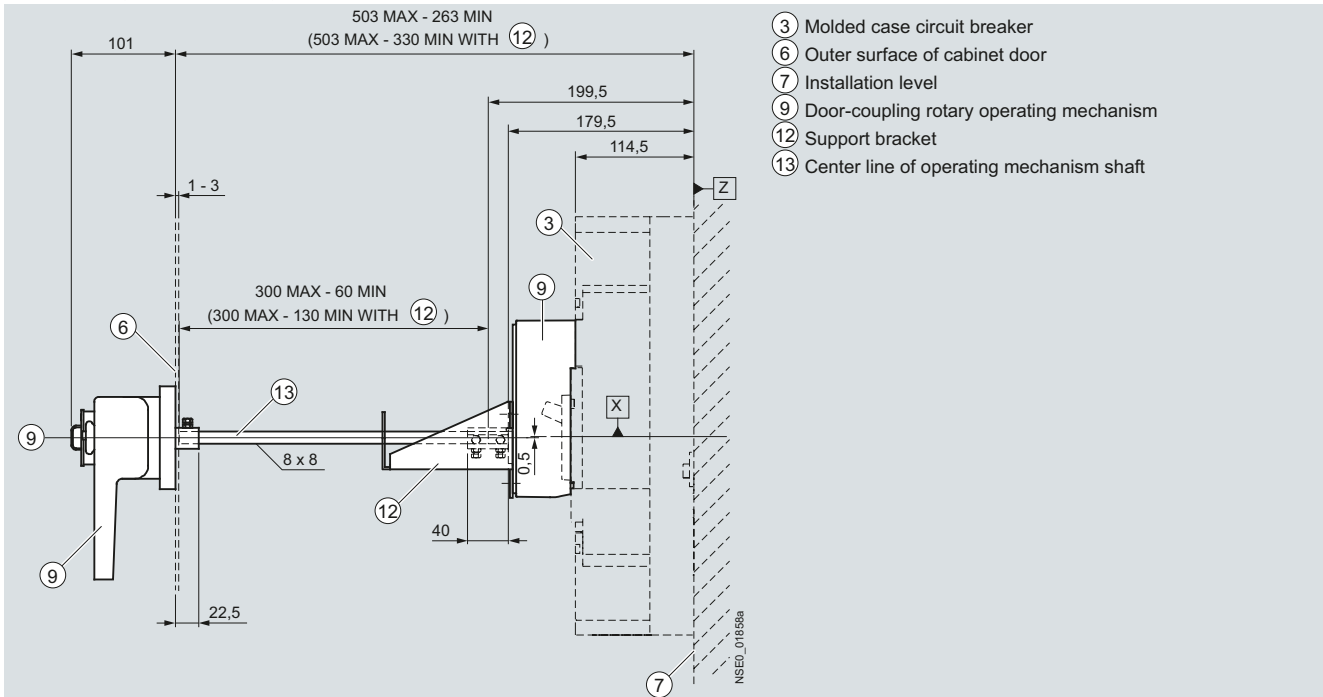
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

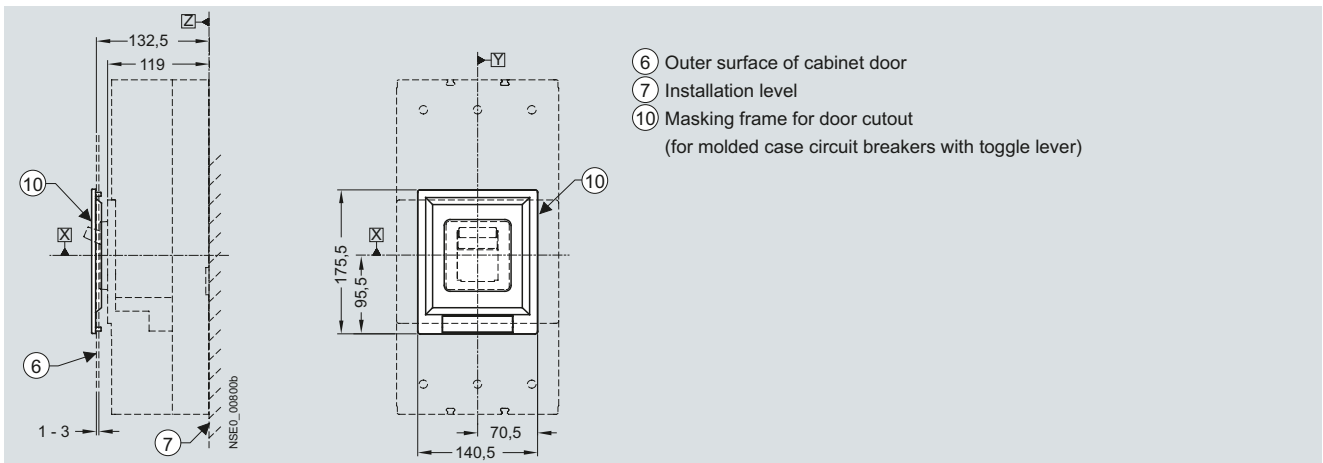
#### VL800 UL (MG frame), 3-pole, up to 800 A

#### Accessories

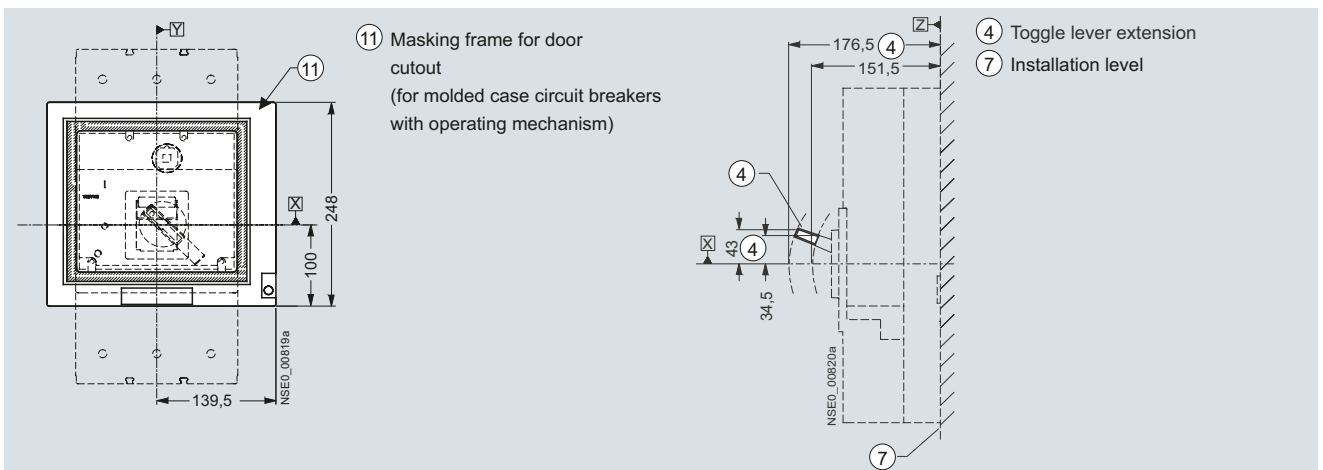
#### Door-coupling rotary operating mechanism



#### Masking frame for door cutout for molded case circuit breakers with toggle lever



#### Masking frame for door cutout for molded case circuit breakers with operating mechanism



# Molded Case Circuit Breakers

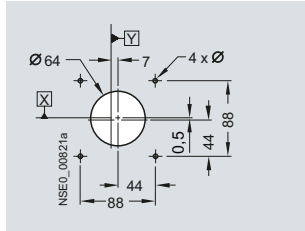
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

#### VL800 UL (MG frame), 3-pole, up to 800 A

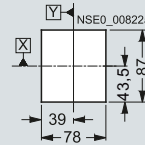
##### Door cutouts

Door cutout  
Door-coupling rotary operating mechanism

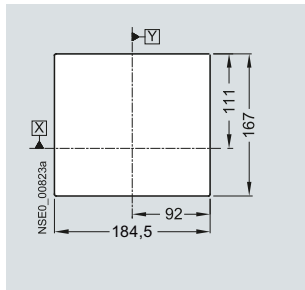


Door cutout front-operated rotary operating mechanism, motorized operating mechanism with stored energy mechanism and extended escutcheon (without masking frame)

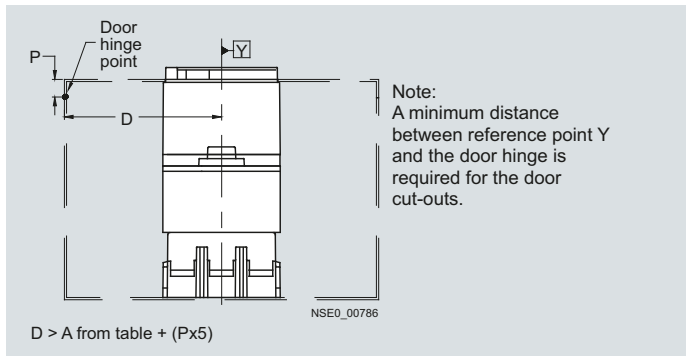
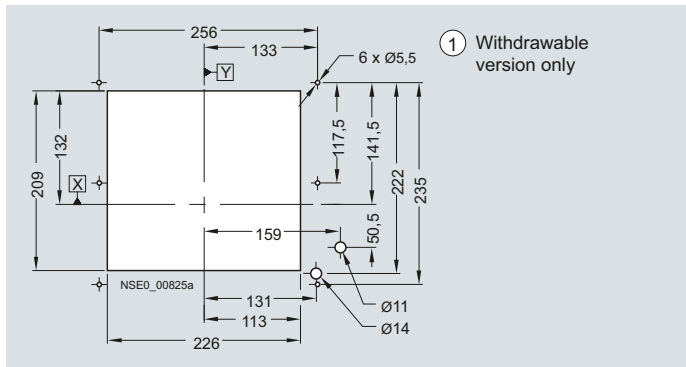
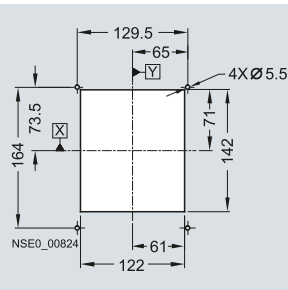
Door cutout toggle lever  
(without masking frame)



Door cutout toggle lever  
(with masking frame)



Door cutout front-operated rotary operating mechanism, motorized operating mechanism with stored energy mechanism and extended escutcheon (with masking frame)



Combination	A
Molded case circuit breaker only	150
Molded case circuit breaker + plug-in base + motorized operating mechanism with stored energy mechanism	150
Molded case circuit breaker + plug-in base + front-operated rotary operating mechanism	200
Molded case circuit breaker + withdrawable version	200

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

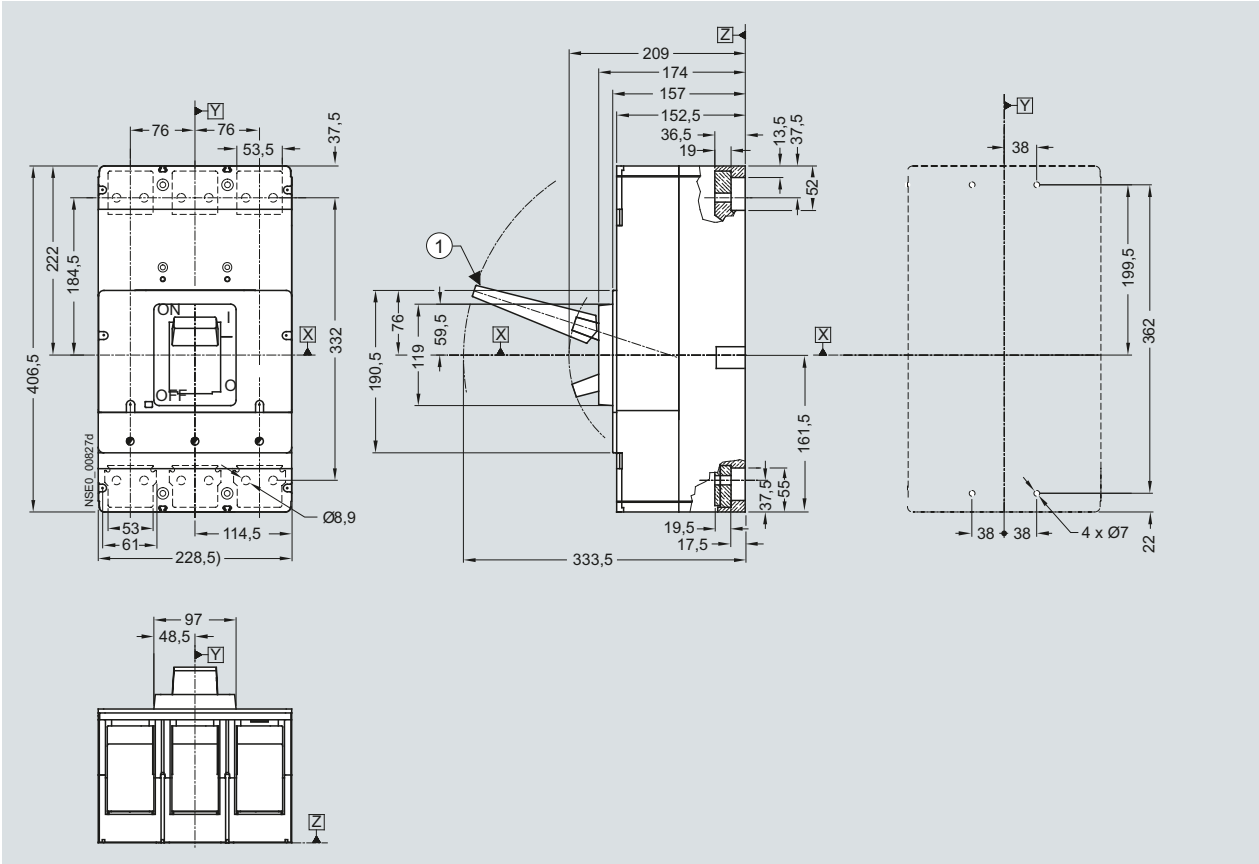
Configuration tools

**VL1200 UL (NG frame), 3-pole, up to 1200 A**  
**VL1600 UL (PG frame), 3-pole, up to 1600 A**

**Molded case circuit breakers**

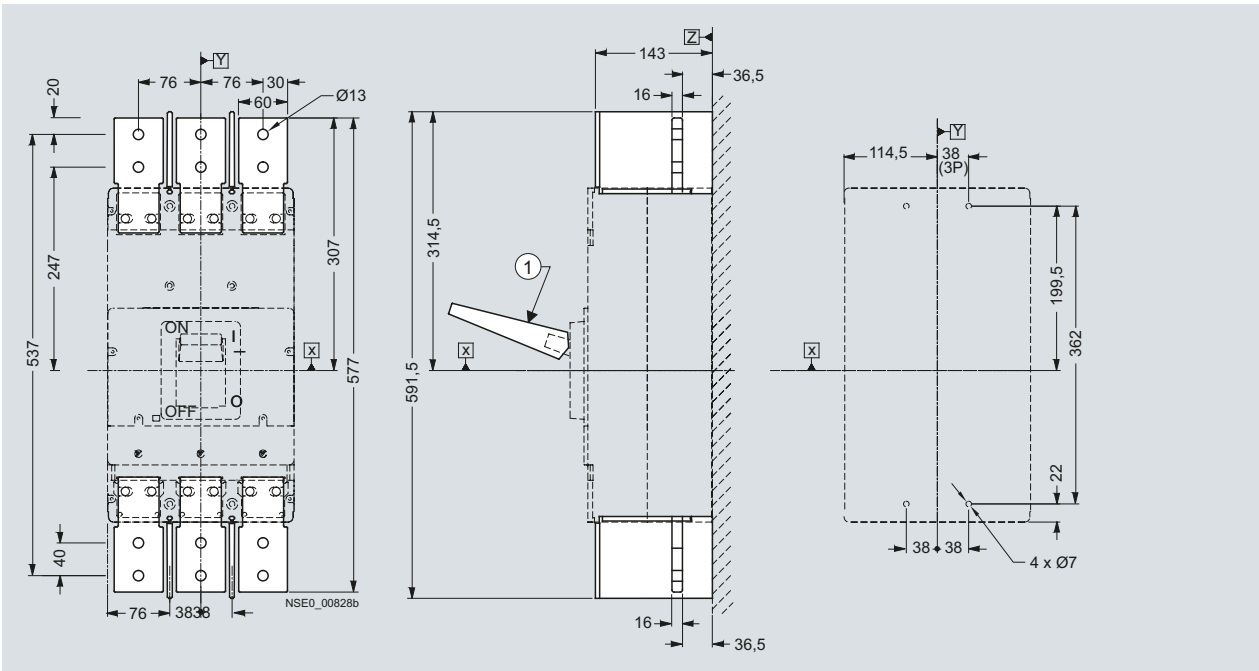
Molded case circuit breaker VL1200 UL (NG frame)

Molded case circuit breaker installation note



Molded case circuit breaker VL1600 UL (PG frame)

Molded case circuit breaker installation note



① Toggle lever extension

# Molded Case Circuit Breakers

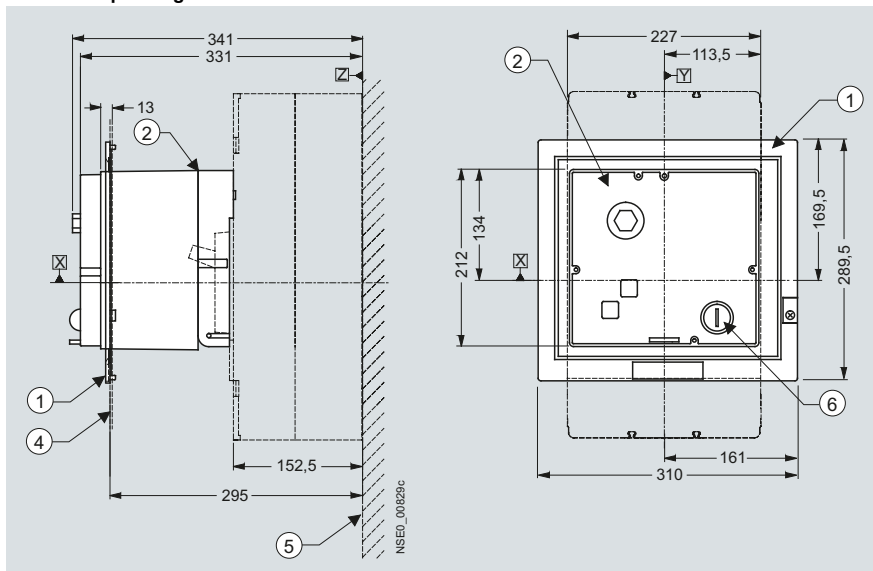
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

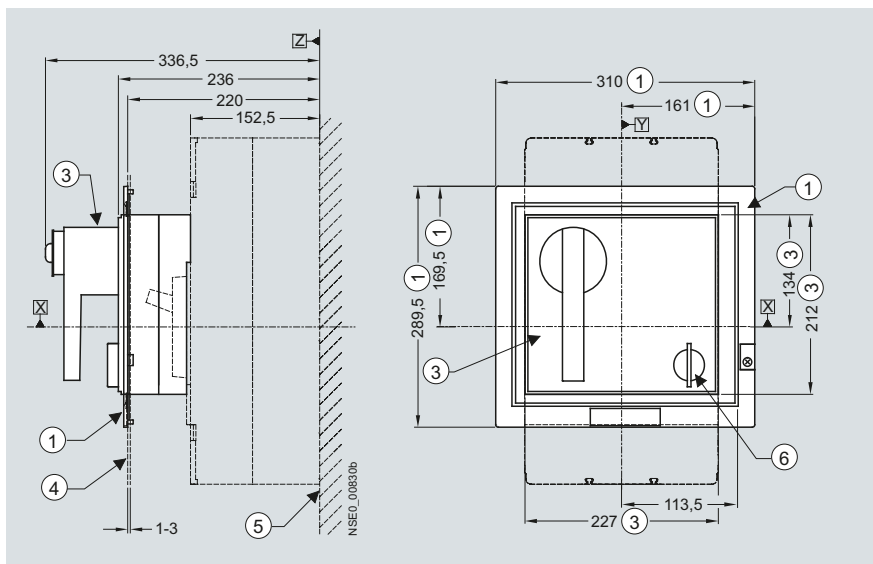
**VL1200 UL (NG frame), 3-pole, up to 1200 A**  
**VL1600 UL (PG frame), 3-pole, up to 1600 A**

#### Operating mechanisms

##### Motorized operating mechanism



##### Front-operated rotary operating mechanism



Masking frame for door cutout

- ① (for molded case circuit breakers with operating mechanism)
- ② Motorized operating mechanism
- ③ Front-operated rotary operating mechanism
- ④ Outer surface of cabinet door
- ⑤ Installation level
- ⑥ Safety lock

# Molded Case Circuit Breakers

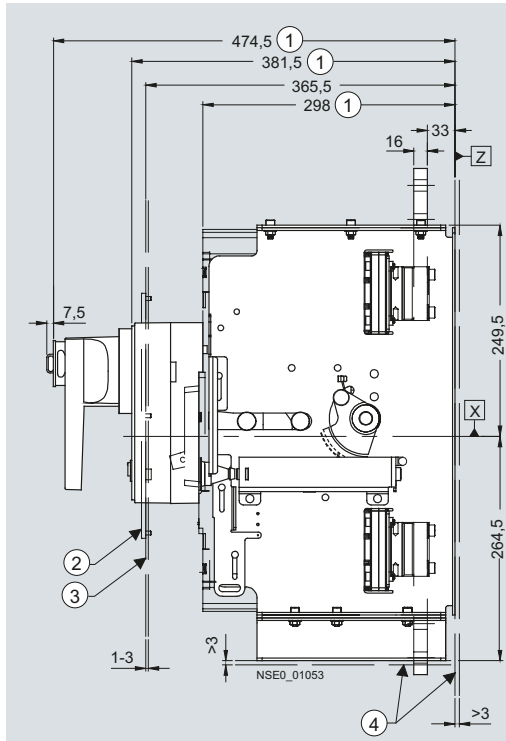
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

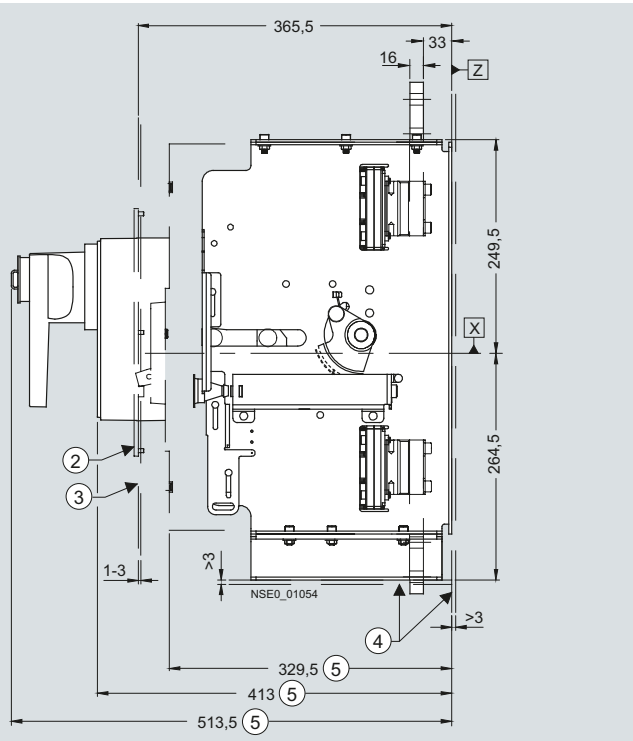
**VL1200 UL (NG frame), 3-pole, up to 1200 A**  
**VL1600 UL (PG frame), 3-pole, up to 1600 A**

**Withdrawable versions**

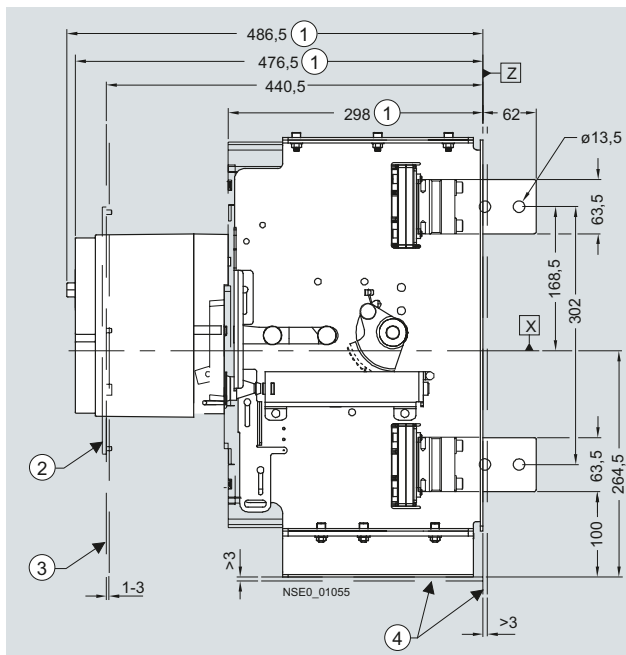
Withdrawable version with front-operated rotary operating mechanism  
 Retracted position



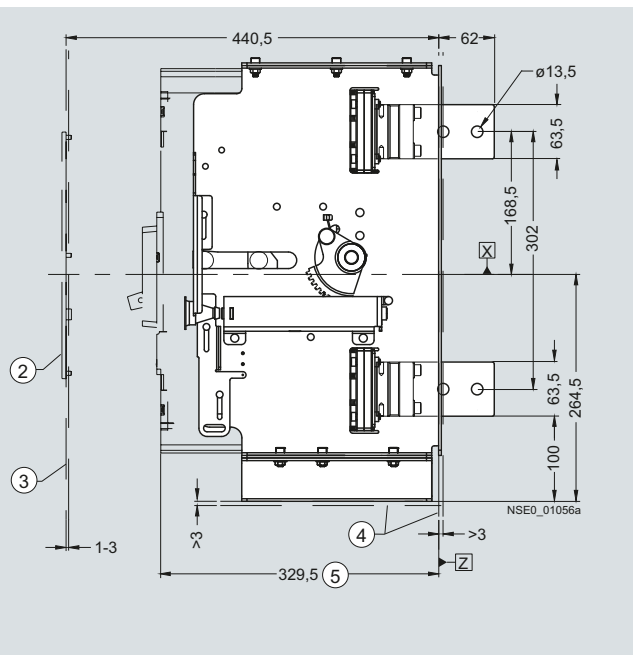
Withdrawable version with front-operated rotary operating mechanism  
 Extended position



Withdrawable version with motorized operating mechanism with stored energy mechanism  
 Retracted position



Withdrawable version with motorized operating mechanism with stored energy mechanism  
 Extended position



- ① Connected position
- ② Masking frame for door cutout
- ③ Outer surface of cabinet door
- ④ Installation level
- ⑤ Disconnected position

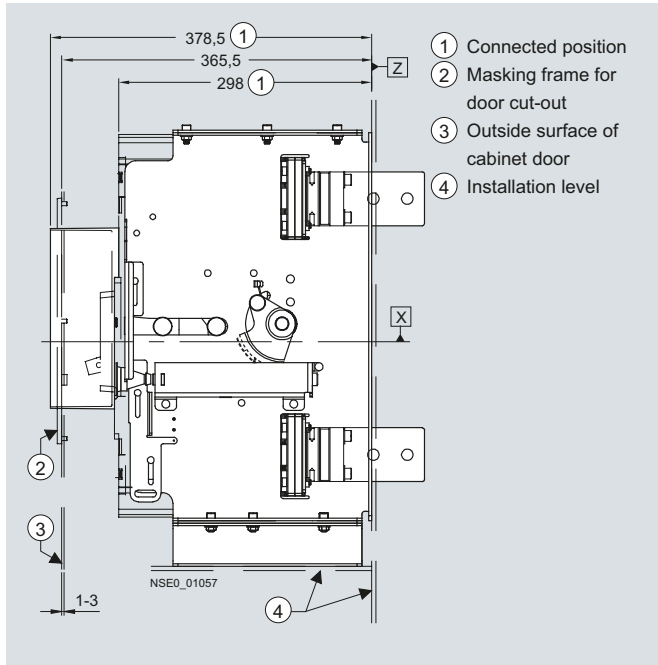
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

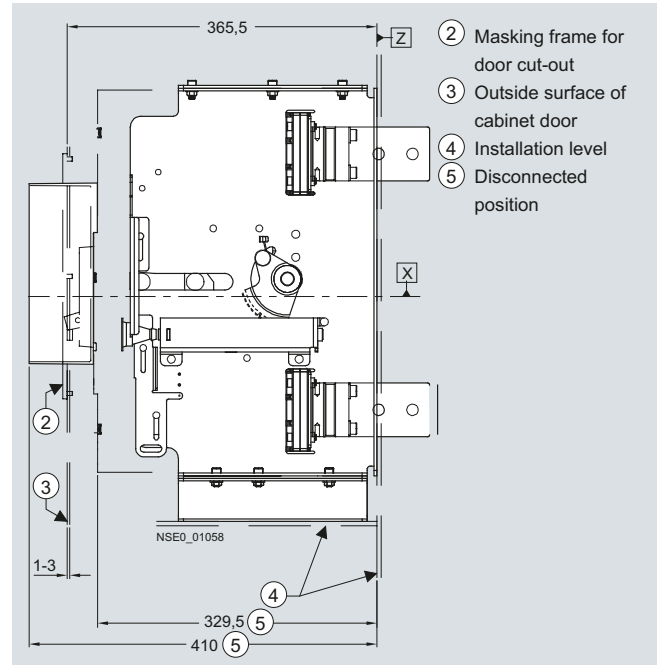
### Configuration tools

**VL1200 UL (NG frame), 3-pole, up to 1200 A**  
**VL1600 UL (PG frame), 3-pole, up to 1600 A**  
**Withdrawable versions**

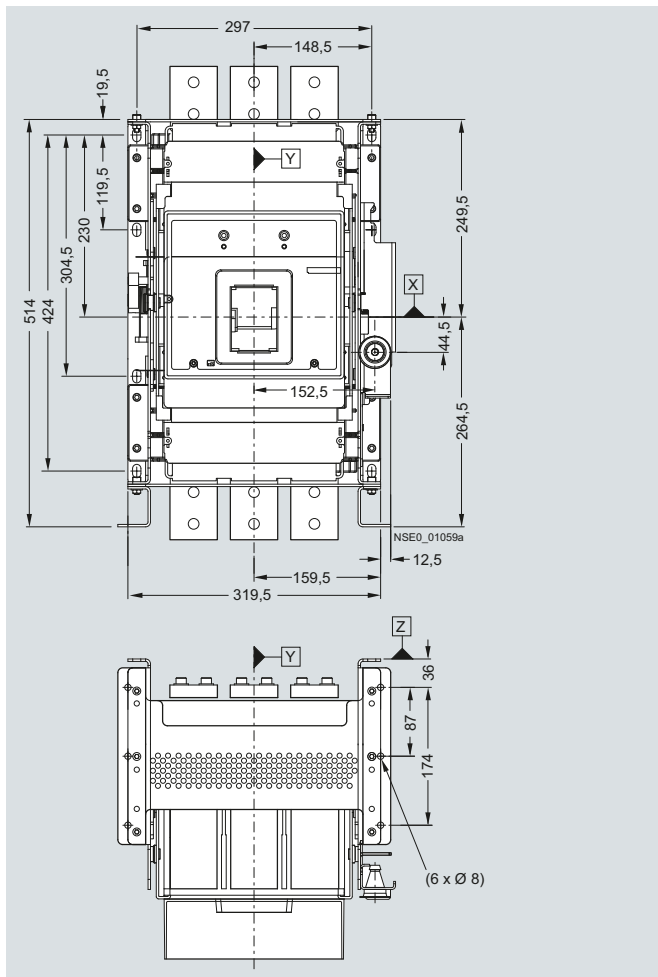
**Withdrawable version with extended escutcheon (without masking frame)**  
**Retracted position**



**Withdrawable version with extended escutcheon (without masking frame)**  
**Extended position**



### Withdrawable versions



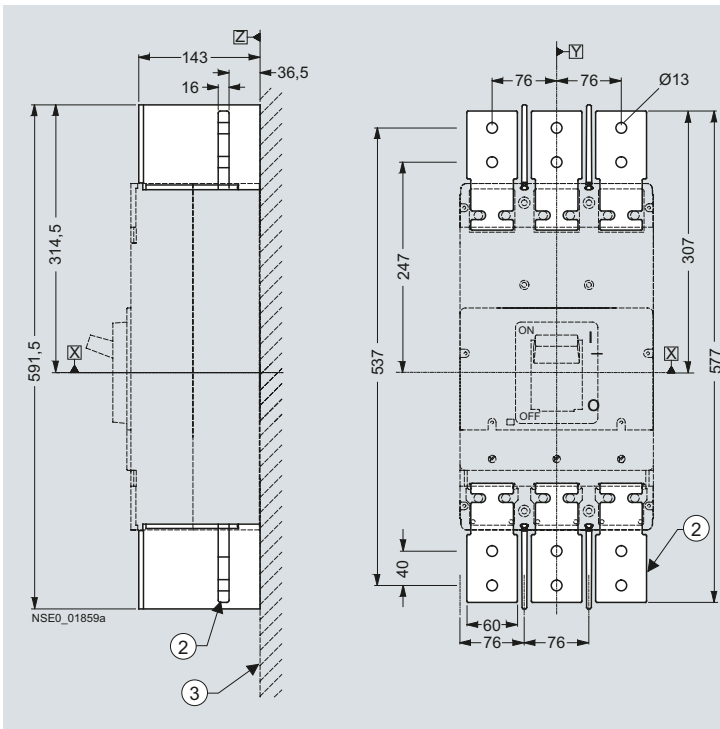
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

**VL1200 UL (NG frame), 3-pole, up to 1200 A**  
**VL1600 UL (PG frame), 3-pole, up to 1600 A**

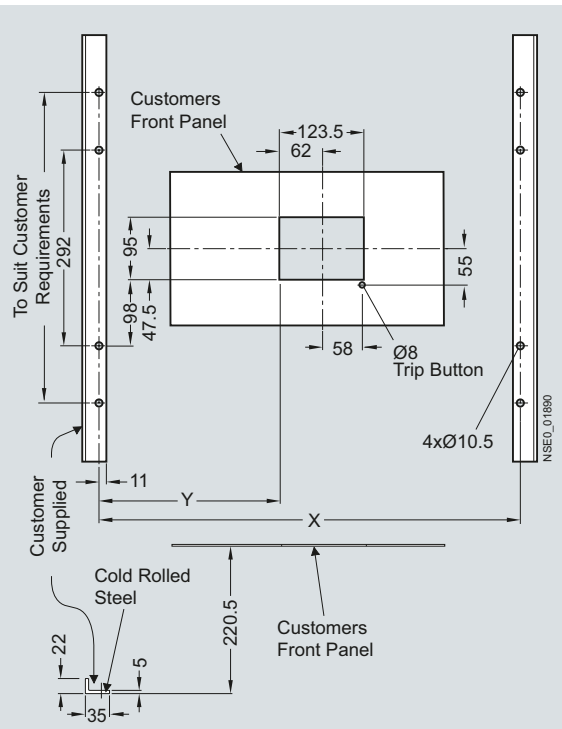
**Connections**



- ② Front connecting bars (for VL1600 UL only)
- ③ Installation level

**VL1600 UL (PG frame), 3-pole, up to 1600 A**

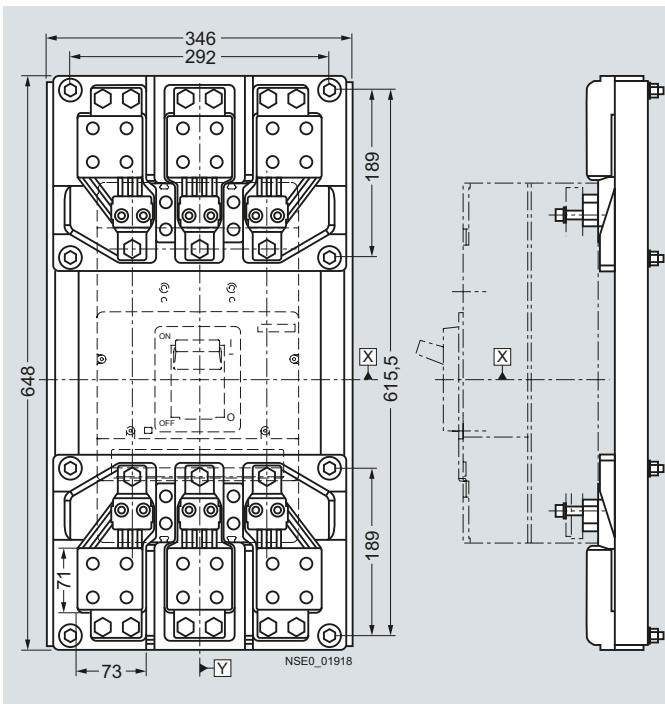
**Mounting base**



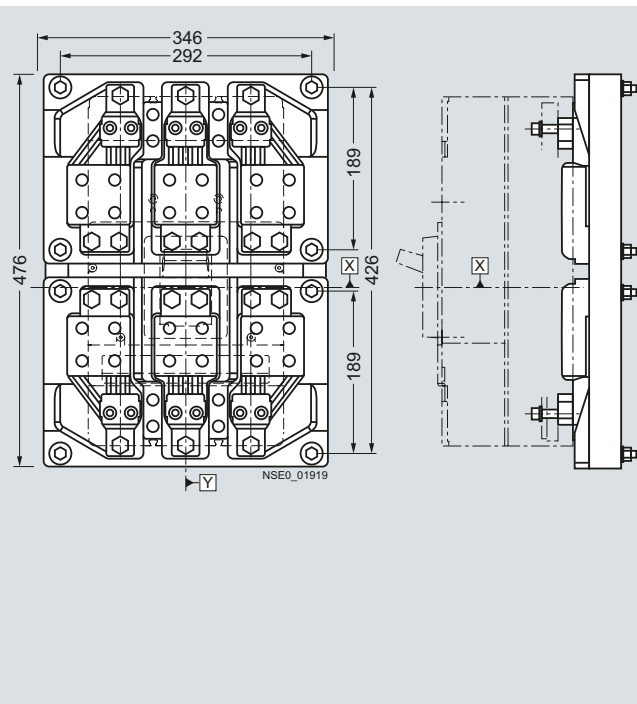
Type	X	Y
Front-accessible connections	616	264
3VL9 800-4TU31		
Rear terminals	444	180
3VL9 800-4TV31		

**VL1600 UL (PG frame), 3-pole, up to 1600 A**

**Mounting base, front-accessible connection**



**Mounting base, rear terminals**





# Molded Case Circuit Breakers

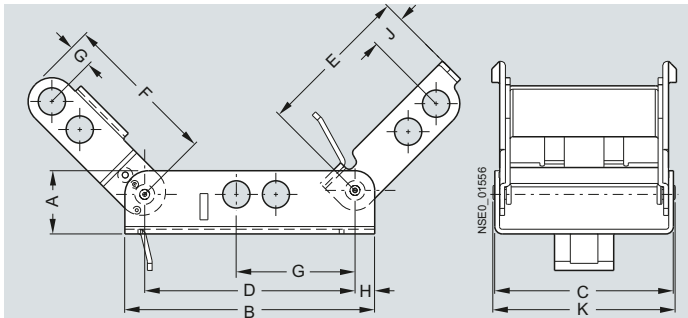
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

Configuration tools

**VL1200 UL (NG frame), 3-pole, up to 1200 A**  
**VL1600 UL (PG frame), 3-pole, up to 1600 A**

**Interlocks**

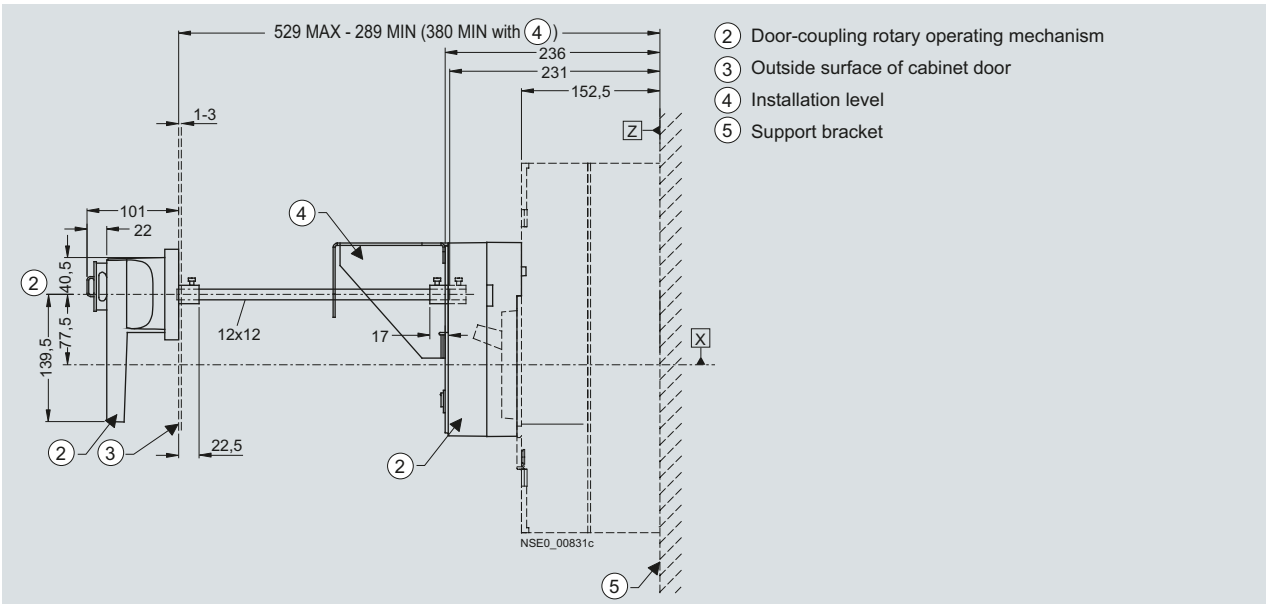
**Locking device for toggle levers**



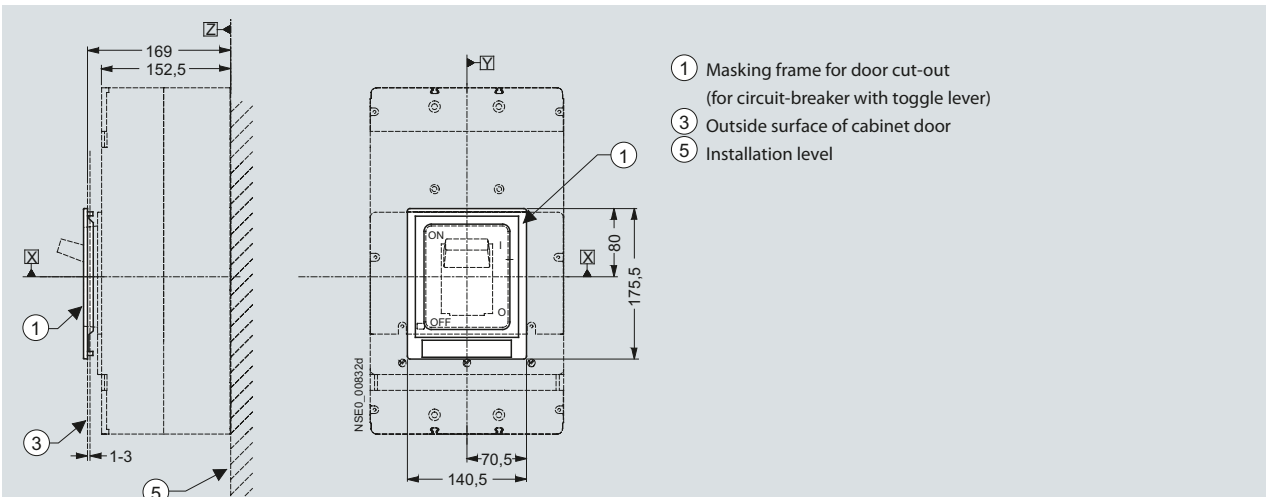
Type	a	b	c	d	e	f	g	h	i	k
3VL9 4	20,3	80,3	57,4	52,8	49,3	49,8	6,35	6,3	11,2	58,5
3VL9 6	21,6	79,8	71,1	62,0	50,4	46,5	12,9	8,9	8,6	72,2
3VL9 8	21,6	110,5	88,9	96,5	77,2	69,1	11,7	5,1	24,8	90,0

**Accessories**

**Door-coupling rotary operating mechanism**



**Masking frame for door cutout for molded case circuit breakers with toggle lever**



# Molded Case Circuit Breakers

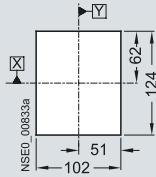
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools

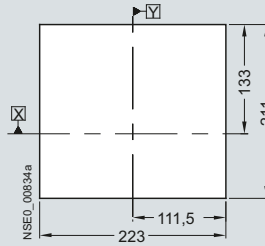
VL1200 UL (NG frame) and VL1600 UL (PG frame), 3-pole, up to 1600 A

#### Door cutouts

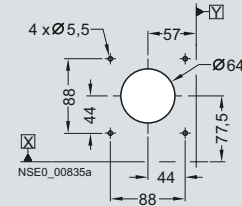
Door cutout toggle lever (without masking frame)



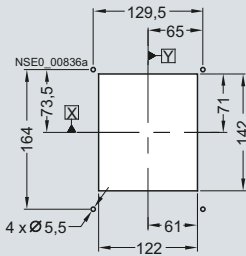
Door cutout front-operated rotary operating mechanism and motorized operating mechanism (without masking frame)



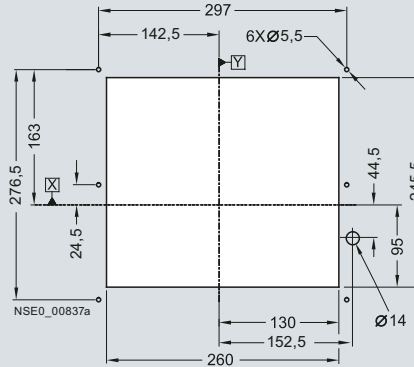
Door cutout Door-coupling rotary operating mechanism



Door cutout toggle lever (with masking frame)



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



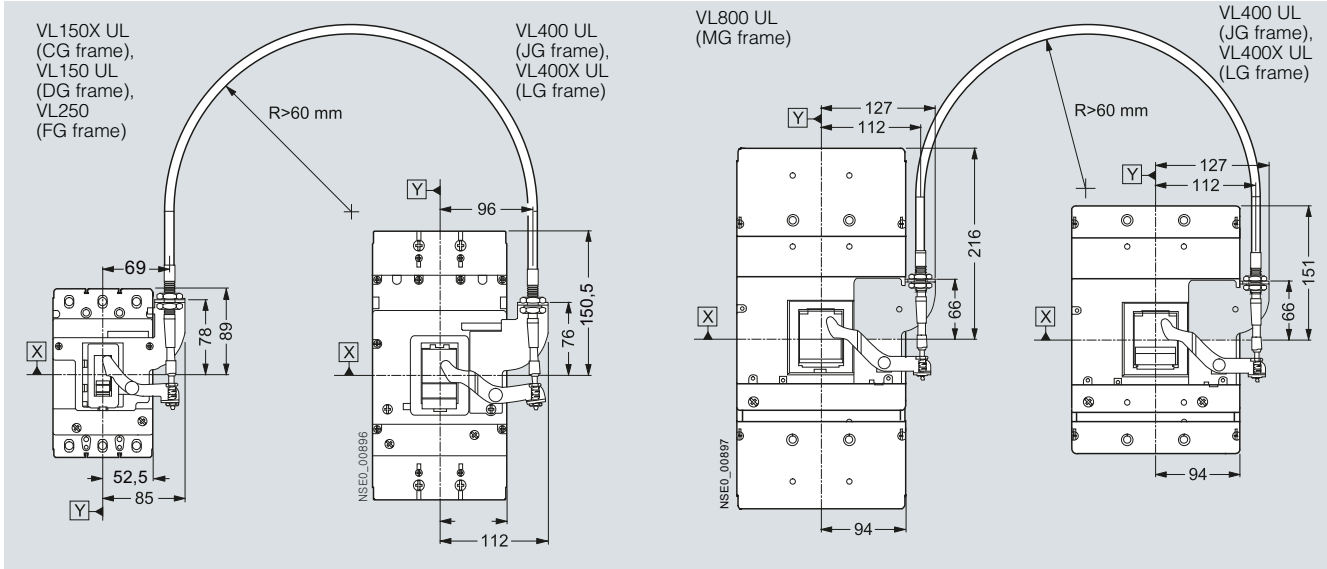
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

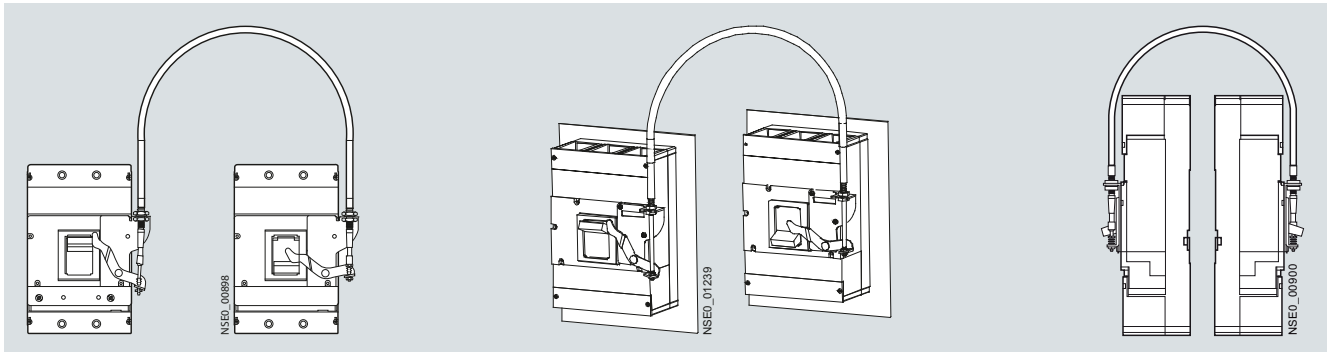
### Configuration tools

**VL150X UL (CG frame), 3-pole, up to 150 A,  
VL1600 UL (PG frame), 3-pole, up to 1600 A**

**Interlock with Bowden wire**



**Combination options**



	<b>3VL9 300-8LA01</b> for VL150X UL (CG frame), VL150 UL (DG frame) and VL250 UL (FG frame)	<b>3VL9 400-8LA01</b> for VL400 UL (JG frame) and VL400X UL (LG frame)	<b>3VL9 600-8LA01</b> for VL800 UL (MG frame)	<b>3VL9 800-8LA01</b> for VL1200 UL (NG frame) and VL1600 UL (PG frame)
--	--	--	--	---

<b>Interlock with Bowden wire</b>				
<b>3VL9 300-8LA01</b> for VL150X UL (CG frame), VL150 UL (DG frame) and VL250 UL (FG frame)	✓	✓	✓	--
<b>3VL9 400-8LA01</b> for VL400 UL (JG frame) and VL400X UL (LG frame)	✓	✓	✓	--
<b>3VL9 600-8LA01</b> for VL800 UL (MG frame)	✓	✓	✓	✓
<b>3VL9 800-8LA01</b> for VL1200 UL (NG frame) and VL1600 UL (PG frame)	--	--	✓	✓

✓ Combination possible

# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

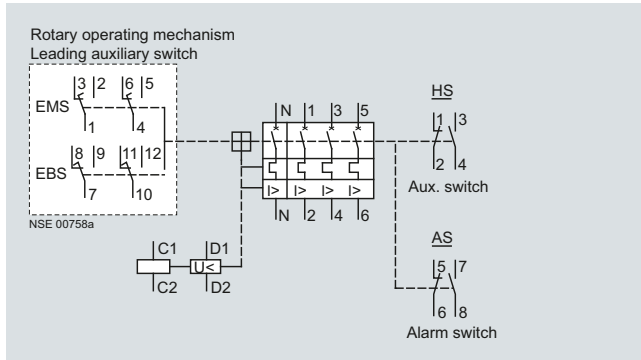
### Configuration tools

#### Circuit diagrams

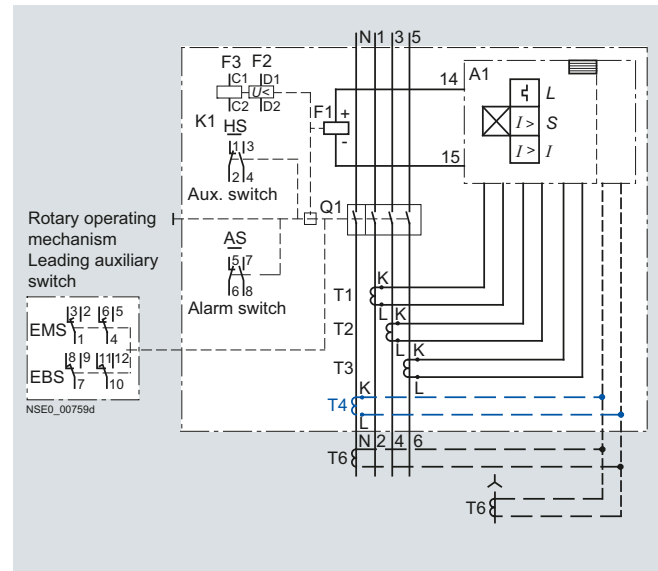
The graphical symbols that the internal circuit diagrams contain only provide information on the type, connection and mode of operation of devices, but not on their type of construction.

It is not possible to show combinations here. For versions that differ from those shown, the diagrams must be modified appropriately.

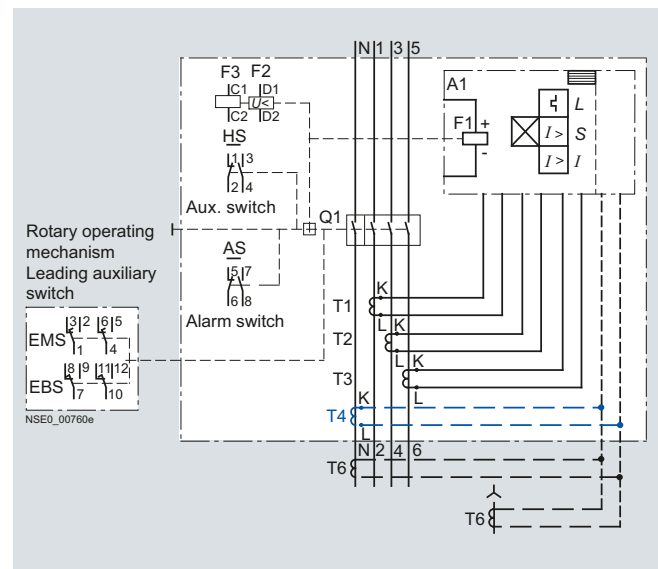
Circuit diagrams are provided only where they are required for improved understanding of the operation of the device.



Connection diagram for VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers, for system protection with thermal-magnetic overcurrent releases



Internal circuit diagram for VL150X UL (CG frame) to VL250 UL (FG frame) molded case circuit breakers for system protection with Electronic Trip Units



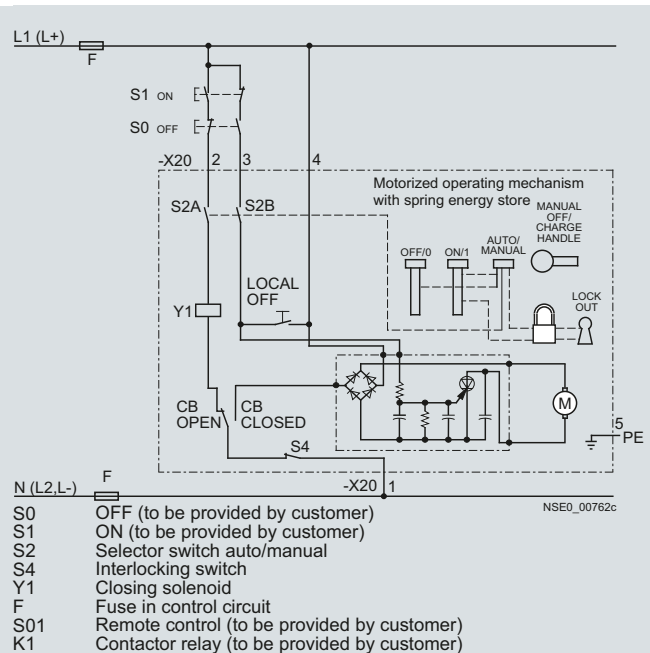
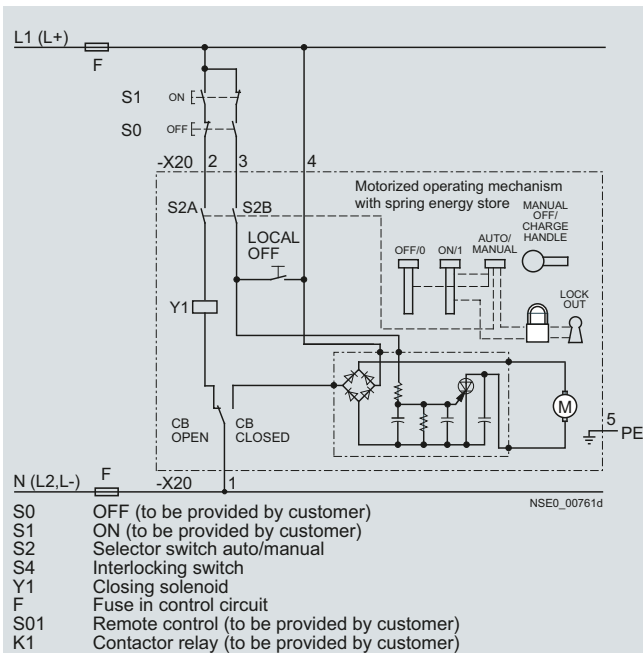
Internal circuit diagram for VL400 UL (JG frame) to VL1600 UL (PG frame) molded case circuit breakers for system protection with Electronic Trip Units

Q1	Main contacts
A1	Electronic Trip Units
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 (integrated in the rotary operating mechanism)
EMS	Leading auxiliary switch from OFF to ON (integrated in the rotary operating mechanism)
T1 ... T6	Current transformer

# Molded Case Circuit Breakers

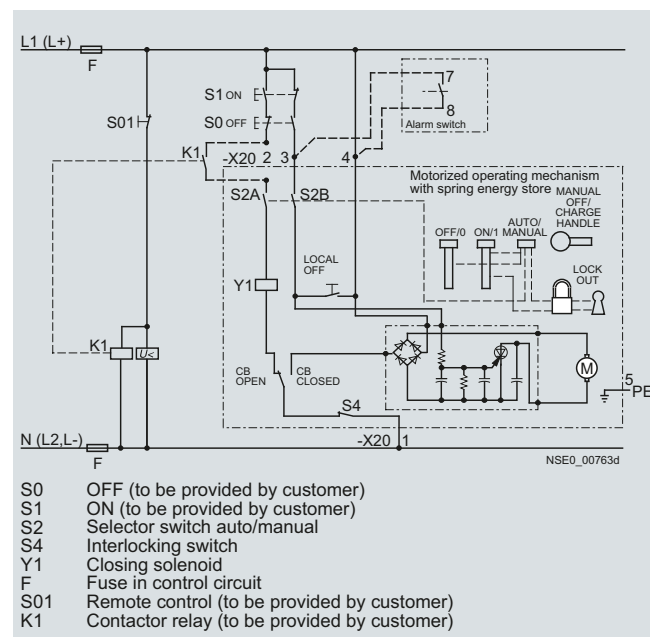
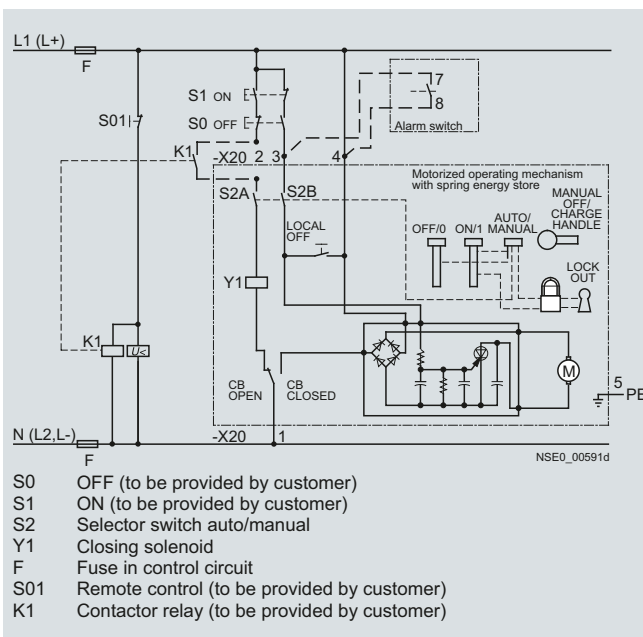
## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Configuration tools



Motorized operating mechanism with stored energy mechanism for VL150X UL (CG frame) to VL250 UL (FG frame) molded case circuit breakers without undervoltage release

Motorized operating mechanism with stored energy mechanism for VL400 UL (JG frame) to VL800 UL (MG frame) molded case circuit breakers without undervoltage release



Note: A separate alarm switch (7-8) can be provided for automatic charging after tripping.  
To prevent a fault occurring in the protected circuit, automatic closing of a tripped molded case circuit breaker is not recommended.

Note: A separate alarm switch (7-8) can be provided for automatic charging after tripping.  
To prevent a fault occurring in the protected circuit, automatic closing of a tripped molded case circuit breaker is not recommended.

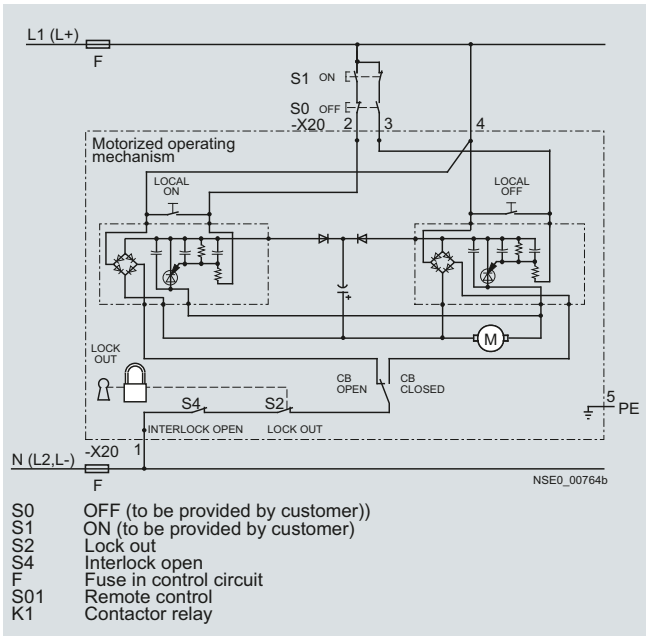
Motorized operating mechanism with stored energy mechanism for VL150X UL (CG frame) to VL250 UL (FG frame) molded case circuit breakers with undervoltage release

Motorized operating mechanism with stored energy mechanism for VL400 UL (JG frame) to VL800 UL (MG frame) molded case circuit breakers with undervoltage release

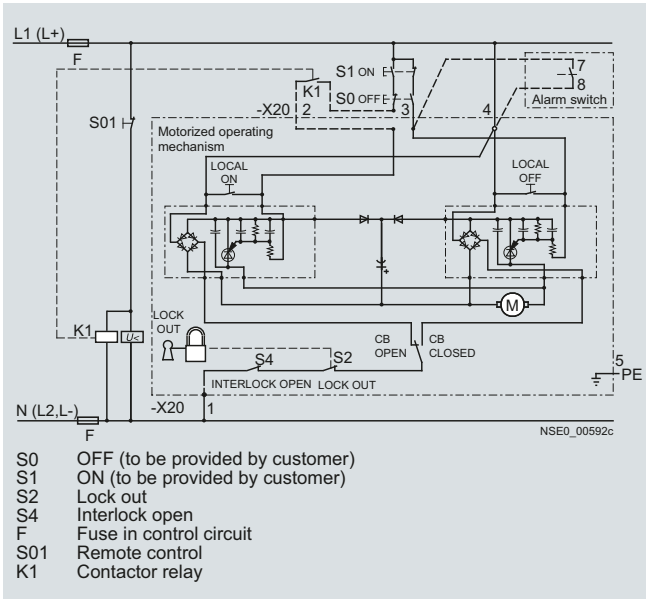
# Molded Case Circuit Breakers

## 3VL Molded Case Circuit Breakers up to 1600 A, according to UL 489

### Notes

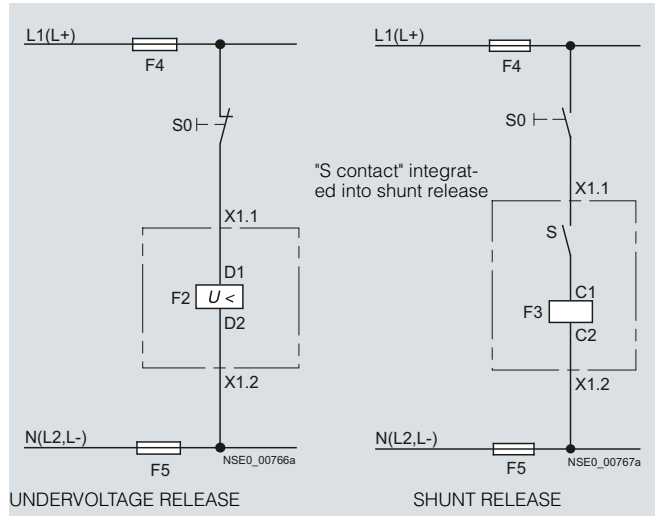


Motorized operating mechanism for VL1200 UL (NG frame) and VL1600 UL (PG frame) molded case circuit breakers without undervoltage release



Note: A separate alarm switch (7-8) can be provided for automatic charging after tripping.  
 To prevent a fault occurring in the protected circuit, automatic closing of a tripped molded case circuit breaker is not recommended.

Motorized operating mechanism for VL1200 UL (NG frame) and VL1600 UL (PG frame) molded case circuit breakers with undervoltage release



Undervoltage and shunt releases for VL150X UL (CG frame) to VL1600 UL (PG frame) molded case circuit breakers

## Overview

Order No.	Page	Export markings	
		ECCN	AL
<b>3SB34</b>			
3SB34 00-0J	29	N	N
3SB34 00-0K	29	N	N
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3UF7 910-0AA00-0	61	N	N
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3VL11 03-1KM30-□□□□	8	EAR99	N
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3VL25 15-2KE30-□□□□	11	EAR99	N
3VL25 15-2KJ30-□□□□	11	EAR99	N
3VL25 15-2KK30-□□□□	11	EAR99	N
3VL25 15-2KL30-□□□□	11	EAR99	N
3VL25 15-2KN30-□□□□	9	EAR99	N
3VL25 15-2PB30-□□□□	13	EAR99	N
3VL25 15-2PD30-□□□□	15	EAR99	N
3VL25 15-2PE30-□□□□	17	EAR99	N
3VL25 15-2PH30-□□□□	19	EAR99	N
3VL25 15-2VH30-□□□□	21	EAR99	N
3VL25 15-3□□□30-□□□□	23	EAR99	N
3VL25 15-3KE30-□□□□	11	EAR99	N
3VL25 15-3KN30-□□□□	9	EAR99	N
3VL25 15-3PB30-□□□□	13	EAR99	N
3VL25 15-3PD30-□□□□	15	EAR99	N
3VL25 15-3PE30-□□□□	17	EAR99	N
3VL25 15-3PH30-□□□□	19	EAR99	N
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3VL25 91-3KN30-□□□□	9	EAR99	N
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3VL35 10-1□□30-□□□□	22	EAR99	N
3VL35 10-1KN30-□□□□	8	EAR99	N
3VL35 10-1PB30-□□□□	12	EAR99	N
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3VL35 10-1VH30-□□□□	20	EAR99	N
3VL35 10-2□□30-□□□□	23	EAR99	N
3VL35 10-2KN30-□□□□	9	EAR99	N
3VL35 10-2PB30-□□□□	13	EAR99	N
3VL35 10-2PD30-□□□□	15	EAR99	N
3VL35 10-2PE30-□□□□	17	EAR99	N
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3VL35 10-2VH30-□□□□	21	EAR99	N
3VL35 10-3□□30-□□□□	23	EAR99	N
3VL35 10-3KN30-□□□□	9	EAR99	N
3VL35 10-3PB30-□□□□	13	EAR99	N
3VL35 10-3PD30-□□□□	15	EAR99	N
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3VL35 10-3VH30-□□□□	21	EAR99	N
3VL35 11-1KN30-□□□□	8	EAR99	N
3VL35 11-2KN30-□□□□	9	EAR99	N
3VL35 11-3KN30-□□□□	9	EAR99	N
3VL35 12-1KN30-□□□□	8	EAR99	N
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3VL35 12-3KN30-□□□□	9	EAR99	N
3VL35 15-1□□30-□□□□	22	EAR99	N
3VL35 15-1KN30-□□□□	8	EAR99	N
3VL35 15-1PB30-□□□□	12	EAR99	N
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3VL35 15-1VH30-□□□□	20	EAR99	N
3VL35 15-2□□30-□□□□	23	EAR99	N
3VL35 15-2KN30-□□□□	9	EAR99	N
3VL35 15-2PB30-□□□□	13	EAR99	N
3VL35 15-2PD30-□□□□	15	EAR99	N
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3VL35 15-3□□30-□□□□	23	EAR99	N
3VL35 15-3KN30-□□□□	9	EAR99	N
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3VL35 15-3PD30-□□□□	15	EAR99	N
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3VL35 25-1PD30-□□□□	14	EAR99	N
3VL35 25-1PE30-□□□□	16	EAR99	N
3VL35 25-1PH30-□□□□	18	EAR99	N
3VL35 25-1VH30-□□□□	20	EAR99	N
3VL35 25-2□□30-□□□□	23	EAR99	N
3VL35 25-2KE30-□□□□	11	EAR99	N
3VL35 25-2KJ30-□□□□	11	EAR99	N
3VL35 25-2KK30-□□□□	11	EAR99	N
3VL35 25-2KL30-□□□□	11	EAR99	N
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3VL35 25-3□□30-□□□□	23	EAR99	N
3VL35 25-3KE30-□□□□	11	EAR99	N
3VL35 25-3KN30-□□□□	9	EAR99	N
3VL35 25-3PB30-□□□□	13	EAR99	N
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3VL41 25-1PB30-□□□□	12	EAR99	N
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3VL41 25-1VH30-□□□□	20	EAR99	N
3VL41 25-2□□30-□□□□	23	EAR99	N
3VL41 25-2KN30-□□□□	9	EAR99	N
3VL41 25-2PB30-□□□□	13	EAR99	N
3VL41 25-2PD30-□□□□	15	EAR99	N
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3VL41 25-2VH30-□□□□	21	EAR99	N
3VL41 25-3□□30-□□□□	23	EAR99	N
3VL41 25-3KN30-□□□□	9	EAR99	N
3VL41 25-3PB30-□□□□	13	EAR99	N
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3VL41 35-3KN30-□□□□	9	EAR99	N
3VL41 40-1□□30-□□□□	22	EAR99	N
3VL41 40-1KN30-□□□□	8	EAR99	N
3VL41 40-1PB30-□□□□	12	EAR99	N
3VL41 40-1PD30-□□□□	14	EAR99	N
3VL41 40-1PE30-□□□□	16	EAR99	N
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3VL41 40-2KK30-□□□□	11	EAR99	N
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3VL41 40-2VH30-□□□□	21	EAR99	N
3VL41 40-3□□30-□□□□	23	EAR99	N
3VL41 40-3KE30-□□□□	11	EAR99	N
3VL41 40-3KN30-□□□□	9	EAR99	N
3VL41 40-3PB30-□□□□	13	EAR99	N
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3VL48 40-1□□30-□□□□	22	EAR99	N
3VL48 40-1KN30-□□□□	8	EAR99	N
3VL48 40-1PB30-□□□□	12	EAR99	N
3VL48 40-1PD30-□□□□	14	EAR99	N
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3VL48 40-2□□30-□□□□	23	EAR99	N
3VL48 40-2KN30-□□□□	9	EAR99	N
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3VL48 40-2VH30-□□□□	21	EAR99	N
3VL48 40-3□□30-□□□□	23	EAR99	N
3VL48 40-3KN30-□□□□	9	EAR99	N
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3VL48 60-1□□30-□□□□	22	EAR99	N
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3VL48 60-2□□30-□□□□	23	EAR99	N
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3VL48 60-2KJ30-□□□□	11	EAR99	N
3VL48 60-2KK30-□□□□	11	EAR99	N
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3VL48 60-3□□30-□□□□	23	EAR99	N
3VL48 60-3KE30-□□□□	11	EAR99	N
3VL48 60-3KN30-□□□□	9	EAR99	N
3VL48 60-3PB30-□□□□	13	EAR99	N
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3VL48 60-3PE30-□□□□	17	EAR99	N
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3VL61 60-1□□30-□□□□	22	EAR99	N
3VL61 60-1KN30-□□□□	8	EAR99	N
3VL61 60-1PB30-□□□□	12	EAR99	N
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3VL61 60-1VH30-□□□□	20	EAR99	N
3VL61 60-2□□30-□□□□	23	EAR99	N
3VL61 60-2KN30-□□□□	9	EAR99	N
3VL61 60-2PB30-□□□□	13	EAR99	N
3VL61 60-2PD30-□□□□	15	EAR99	N
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3VL61 60-2VH30-□□□□	21	EAR99	N
3VL61 60-3□□30-□□□□	23	EAR99	N
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3VL61 60-3PB30-□□□□	13	EAR99	N
3VL61 60-3PD30-□□□□	15	EAR99	N
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3VL61 70-3KN30-□□□□	9	EAR99	N
3VL61 80-1□□30-□□□□	22	EAR99	N
3VL61 80-1KN30-□□□□	8	EAR99	N
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3VL61 80-1PD30-□□□□	14	EAR99	N
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3VL61 80-2□□30-□□□□	23	EAR99	N
3VL61 80-2KE30-□□□□	11	EAR99	N
3VL61 80-2KN30-□□□□	11	EAR99	N
3VL61 80-2KN30-□□□□	9	EAR99	N
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3VL61 80-2VH30-□□□□	21	EAR99	N
3VL61 80-3□□30-□□□□	23	EAR99	N
3VL61 80-3KE30-□□□□	11	EAR99	N
3VL61 80-3KN30-□□□□	9	EAR99	N
3VL61 80-3PB30-□□□□	13	EAR99	N
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3VL61 80-3VH30-□□□□	21	EAR99	N
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3VL71 10-1KN30-□□□□	8	EAR99	N
3VL71 10-1PB30-□□□□	12	EAR99	N
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3VL71 10-2VH30-□□□□	21	EAR99	N
3VL71 10-3□□30-□□□□	23	EAR99	N
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3VL71 10-3PB30-□□□□	13	EAR99	N
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3VL71 10-3VH30-□□□□	21	EAR99	N
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3VL71 12-1PD30-□□□□	14	EAR99	N
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3VL71 12-2□□30-□□□□	23	EAR99	N
3VL71 12-2KE30-□□□□	11	EAR99	N
3VL71 12-2KK30-□□□□	11	EAR99	N
3VL71 12-2KN30-□□□□	9	EAR99	N
3VL71 12-2PB30-□□□□	13	EAR99	N
3VL71 12-2PD30-□□□□	15	EAR99	N
3VL71 12-2PE30-□□□□	17	EAR99	N
3VL71 12-2PH30-□□□□	19	EAR99	N
3VL71 12-2VH30-□□□□	21	EAR99	N
3VL71 12-3□□30-□□□□	23	EAR99	N
3VL71 12-3KE30-□□□□	11	EAR99	N
3VL71 12-3KN30-□□□□	9	EAR99	N
3VL71 12-3PB30-□□□□	13	EAR99	N
3VL71 12-3PD30-□□□□	15	EAR99	N
3VL71 12-3PE30-□□□□	17	EAR99	N
3VL71 12-3PH30-□□□□	19	EAR99	N
3VL71 12-3VH30-□□□□	21	EAR99	N
3VL71 80-1□□30-□□□□	22	EAR99	N
3VL71 80-1KN30-□□□□	8	EAR99	N
3VL71 80-1PB30-□□□□	12	EAR99	N
3VL71 80-1PD30-□□□□	14	EAR99	N
3VL71 80-1PE30-□□□□	16	EAR99	N
3VL71 80-1PH30-□□□□	18	EAR99	N
3VL71 80-1VH30-□□□□	20	EAR99	N
3VL71 80-2□□30-□□□□	23	EAR99	N
3VL71 80-2KN30-□□□□	9	EAR99	N
3VL71 80-2PB30-□□□□	13	EAR99	N
3VL71 80-2PD30-□□□□	15	EAR99	N
3VL71 80-2PE30-□□□□	17	EAR99	N
3VL71 80-2PH30-□□□□	19	EAR99	N
3VL71 80-2VH30-□□□□	21	EAR99	N
3VL71 80-3□□30-□□□□	23	EAR99	N
3VL71 80-3KN30-□□□□	9	EAR99	N
3VL71 80-3PB30-□□□□	13	EAR99	N
3VL71 80-3PD30-□□□□	15	EAR99	N
3VL71 80-3PE30-□□□□	17	EAR99	N
3VL71 80-3PH30-□□□□	19	EAR99	N
3VL71 80-3VH30-□□□□	21	EAR99	N

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3VL71 90-2KN30-□□□□	9	EAR99	N
3VL71 90-3KN30-□□□□	9	EAR99	N
<b>3VL8</b>			
3VL81 12-1□□30-□□□□	22	EAR99	N
3VL81 12-1KN30-□□□□	8	EAR99	N
3VL81 12-1PB30-□□□□	12	EAR99	N
3VL81 12-1PD30-□□□□	14	EAR99	N
3VL81 12-1PE30-□□□□	16	EAR99	N
3VL81 12-1PH30-□□□□	18	EAR99	N
3VL81 12-1VH30-□□□□	20	EAR99	N
3VL81 12-2□□30-□□□□	23	EAR99	N
3VL81 12-2KN30-□□□□	9	EAR99	N
3VL81 12-2PB30-□□□□	13	EAR99	N
3VL81 12-2PD30-□□□□	15	EAR99	N
3VL81 12-2PE30-□□□□	17	EAR99	N
3VL81 12-2PH30-□□□□	19	EAR99	N
3VL81 12-2VH30-□□□□	21	EAR99	N
3VL81 12-3□□30-□□□□	23	EAR99	N
3VL81 12-3KN30-□□□□	9	EAR99	N
3VL81 12-3PB30-□□□□	13	EAR99	N
3VL81 12-3PD30-□□□□	15	EAR99	N
3VL81 12-3PE30-□□□□	17	EAR99	N
3VL81 12-3PH30-□□□□	19	EAR99	N
3VL81 12-3VH30-□□□□	21	EAR99	N
3VL81 14-1KN30-□□□□	8	EAR99	N
3VL81 14-2KN30-□□□□	9	EAR99	N
3VL81 14-3KN30-□□□□	9	EAR99	N
3VL81 16-1□□30-□□□□	22	EAR99	N
3VL81 16-1KN30-□□□□	8	EAR99	N
3VL81 16-1PB30-□□□□	12	EAR99	N
3VL81 16-1PD30-□□□□	14	EAR99	N
3VL81 16-1PE30-□□□□	16	EAR99	N
3VL81 16-1PH30-□□□□	18	EAR99	N
3VL81 16-1VH30-□□□□	20	EAR99	N
3VL81 16-2□□30-□□□□	23	EAR99	N
3VL81 16-2KE30-□□□□	11	EAR99	N
3VL81 16-2KN30-□□□□	9	EAR99	N
3VL81 16-2PB30-□□□□	13	EAR99	N
3VL81 16-2PD30-□□□□	15	EAR99	N
3VL81 16-2PE30-□□□□	17	EAR99	N
3VL81 16-2PH30-□□□□	19	EAR99	N
3VL81 16-2VH30-□□□□	21	EAR99	N
3VL81 16-3□□30-□□□□	23	EAR99	N
3VL81 16-3KE30-□□□□	11	EAR99	N
3VL81 16-3KN30-□□□□	9	EAR99	N
3VL81 16-3PB30-□□□□	13	EAR99	N
3VL81 16-3PD30-□□□□	15	EAR99	N
3VL81 16-3PE30-□□□□	17	EAR99	N
3VL81 16-3PH30-□□□□	19	EAR99	N
3VL81 16-3VH30-□□□□	21	EAR99	N
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3VL9 000-4WL01	39,...44	EAR99	N
3VL9 000-8AP01	53,... 57	EAR99	N
3VL9 000-8AU00	61	N	N
3VL9 000-8AV00	61	EAR99	N
3VL9 000-8LH11	53, 54	EAR99	N
3VL9 000-8LH21	53 ... 6	N	N
3VL9 000-8LH31	53 ... 57	EAR99	N
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3VL9 100-4RA01	45	EAR99	N
3VL9 100-4RB01	45	EAR99	N
3VL9 100-4RC31	45	EAR99	N
3VL9 100-4RK01	45	EAR99	N
3VL9 100-4RL01	45	EAR99	N
3VL9 100-4RM31	45	EAR99	N
3VL9 100-4TA31	45	EAR99	N
3VL9 120-4TC31	45	EAR99	N
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3VL9 300-3AU11	30	EAR99	N
3VL9 300-3AW11	30	EAR99	N
3VL9 300-3HA01	30	EAR99	N
3VL9 300-3HC01	30	EAR99	N
3VL9 300-3HE01	30	EAR99	N
3VL9 300-3HF06	30	EAR99	N
3VL9 300-3HG06	30	EAR99	N
3VL9 300-3HL01	53, 54	EAR99	N
3VL9 300-3JA01	32	EAR99	N
3VL9 300-3JD01	32	EAR99	N
3VL9 300-3JE01	32	EAR99	N
3VL9 300-3JF81	32	EAR99	N
3VL9 300-3JM01	34	EAR99	N
3VL9 300-3JN01	34	EAR99	N
3VL9 300-3JQ01	34	EAR99	N
3VL9 300-3JQ11	34	EAR99	N
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3VL9 300-3JQ61	34	EAR99	N
3VL9 300-3JQ71	34	EAR99	N
3VL9 300-3JQ81	34	EAR99	N
3VL9 300-3JS01	34	EAR99	N
3VL9 300-3JS11	34	EAR99	N
3VL9 300-3JS41	34	EAR99	N
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3VL9 300-3MJ01	34	EAR99	N
3VL9 300-3ML01	34	EAR99	N

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3VL9 300-3MQ01	34	EAR99	N
3VL9 300-3MS01	34	EAR99	N
3VL9 300-4PA31	41	EAR99	N
3VL9 300-4PC31	41	EAR99	N
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3VL9 300-4RA01	47	EAR99	N
3VL9 300-4RB01	47	EAR99	N
3VL9 300-4RC31	47	EAR99	N
3VL9 300-4RK01	47	EAR99	N
3VL9 300-4RL01	47	EAR99	N
3VL9 300-4RM31	47	EAR99	N
3VL9 300-4TA31	49	N	N
3VL9 300-4TB31	49	N	N
3VL9 300-4WA31	41	EAR99	N
3VL9 300-4WC31	41	EAR99	N
3VL9 300-8AQ61	61	EAR99	N
3VL9 300-8AQ71	61	EAR99	N
3VL9 300-8BC01	58, 59	EAR99	N
3VL9 300-8BG01	58, 59	EAR99	N
3VL9 300-8BH01	59	EAR99	N
3VL9 300-8BM01	53, 54	EAR99	N
3VL9 300-8CA31	45, 48, 49	N	N
3VL9 300-8CB31	45, 48, 49	EAR99	N
3VL9 300-8CD31	45, 48, 49	EAR99	N
3VL9 300-8CE01	45, 48, 49	N	N
3VL9 300-8LA01	53, 54	EAR99	N
3VL9 300-8LC01	53, 54	EAR99	N
3VL9 300-8SA40	53, 54	EAR99	N
3VL9 310-8TT01	60	EAR99	N
3VL9 315-8TT01	60	EAR99	N
3VL9 321-8HA01	53, 54	EAR99	N
3VL9 335-4TC31	47	EAR99	N
3VL9 335-4TD31	47	EAR99	N
3VL9 335-4TM31	49	EAR99	N
3VL9 335-4TN31	47	EAR99	N
3VL9 400-1SC01	26	N	N
3VL9 400-1SJ01	26	N	N
3VL9 400-1SK01	26	N	N
3VL9 400-1SM01	26	N	N
3VL9 400-1SQ01	26	N	N
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3VL9 400-1ST01	26	N	N
3VL9 400-1SV01	26	N	N
3VL9 400-1UD01	26	N	N
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3VL9 400-1UJ01	26	EAR99	N
3VL9 400-1UK01	26	EAR99	N
3VL9 400-1UL01	26	EAR99	N
3VL9 400-1UM01	26	N	N
3VL9 400-1UN01	26	EAR99	N
3VL9 400-1UP01	26	EAR99	N
3VL9 400-1UQ01	26	EAR99	N
3VL9 400-1UR01	26	N	N
3VL9 400-1US01	26	N	N
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3VL9 400-2AH01	28	EAR99	N
3VL9 400-2AJ11	28	EAR99	N
3VL9 400-2AJ21	28	EAR99	N
3VL9 400-3AS11	31	EAR99	N
3VL9 400-3AT11	31	EAR99	N
3VL9 400-3AU11	31	EAR99	N
3VL9 400-3AW11	31	EAR99	N
3VL9 400-3HA01	31	EAR99	N
3VL9 400-3HC01	31	EAR99	N
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3VL9 400-3HF06	31	EAR99	N
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3VL9 400-3HL01	55	EAR99	N
3VL9 400-3HN01	35	EAR99	N
3VL9 400-3JA01	33	EAR99	N
3VL9 400-3JD01	33	EAR99	N
3VL9 400-3JE01	33	EAR99	N
3VL9 400-3JM01	35	EAR99	N
3VL9 400-3JN01	35	EAR99	N
3VL9 400-3JS01	35	EAR99	N
3VL9 400-3JS11	35	EAR99	N
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3VL9 400-4RK01	47	EAR99	N
3VL9 400-4RL01	47	EAR99	N
3VL9 400-4RM31	47	EAR99	N
3VL9 400-4TA31	49	N	N
3VL9 400-4WA31	41	EAR99	N
3VL9 400-4WC31	41	EAR99	N
3VL9 400-8AQ61	61	EAR99	N
3VL9 400-8AQ71	61	EAR99	N
3VL9 400-8BC01	59	EAR99	N
3VL9 400-8BG01	59	EAR99	N
3VL9 400-8BH01	59	EAR99	N
3VL9 400-8BM01	55	EAR99	N
3VL9 400-8CA31	49, 50	EAR99	N
3VL9 400-8CB31	49, 50	N	N
3VL9 400-8CD31	49	EAR99	N
3VL9 400-8LA01	55	EAR99	N
3VL9 400-8LC01	55	EAR99	N
3VL9 425-4TF31	47	EAR99	N
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3VL9 460-4RH31	50	EAR99	N
3VL9 460-4RP01	50	EAR99	N
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3VL9 460-4WA31	42	EAR99	N
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3VL9 475-4TD31	47, 50	EAR99	N
3VL9 500-8SA40	55	EAR99	N
3VL9 600-3AS11	31	EAR99	N
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3VL9 600-3AU11	31	EAR99	N
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3VL9 600-3HA01	31	EAR99	N
3VL9 600-3HC01	31	EAR99	N
3VL9 600-3HE01	31	N	N
3VL9 600-3HF06	31	N	N
3VL9 600-3HG06	31	N	N
3VL9 600-3HL01	56	EAR99	N
3VL9 600-3HN01	35	EAR99	N
3VL9 600-3JD01	33	EAR99	N
3VL9 600-3JE01	33	EAR99	N
3VL9 600-3JF01	32, 33	EAR99	N
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3VL9 600-3JF81	33	EAR99	N
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3VL9 600-3JP41	34, 35	EAR99	N
3VL9 600-3JP61	34, 35	EAR99	N
3VL9 600-3JQ01	35	EAR99	N
3VL9 600-3JQ11	35	EAR99	N
3VL9 600-3JQ21	35	EAR99	N
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3VL9 600-3MQ01	35	EAR99	N
3VL9 600-3MS01	35	EAR99	N
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3VL9 600-4WA31	43	EAR99	N
3VL9 600-4WC31	43	EAR99	N
3VL9 600-8BC01	58	EAR99	N
3VL9 600-8BG01	58	EAR99	N
3VL9 600-8BH01	58	EAR99	N
3VL9 600-8CA31	51	EAR99	N
3VL9 600-8CB31	51	EAR99	N
3VL9 600-8CE01	49, 50, 51	N	N
3VL9 600-8LA01	56	EAR99	N
3VL9 600-8LC01	56	EAR99	N
3VL9 600-8SA40	56	EAR99	N
3VL9 650-4TG31	51	EAR99	N
3VL9 660-8TT01	60	EAR99	N
3VL9 675-4TF31	51	EAR99	N
3VL9 700-4PS31	43	EAR99	N
3VL9 700-4RG01	51	EAR99	N
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3VL9 715-8HA01	53... 57	EAR99	N
3VL9 750-4TH31	51	EAR99	N
3VL9 775-4TG31	51	EAR99	N
3VL9 780-8TT01	60	EAR99	N
3VL9 800-1SC01	27	N	N
3VL9 800-1SJ01	27	N	N
3VL9 800-1SK01	27	N	N
3VL9 800-1SM01	27	N	N
3VL9 800-1SQ01	27	N	N
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3VL9 800-1ST01	27	N	N
3VL9 800-1SV01	27	N	N
3VL9 800-1UG01	27	EAR99	N
3VL9 800-1UH01	27	N	N
3VL9 800-1UJ01	27	N	N
3VL9 800-1UK01	27	EAR99	N
3VL9 800-1UM01	27	N	N
3VL9 800-1UN01	27	N	N
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3VL9 800-1UQ01	27	N	N
3VL9 800-1UR01	27	N	N
3VL9 800-1US01	27	N	N
3VL9 800-1UU01	27	N	N
3VL9 800-1UV01	27	N	N
3VL9 800-2AC01	27	EAR99	N
3VL9 800-2AE01	27	EAR99	N
3VL9 800-3AS21	36	EAR99	N
3VL9 800-3AT21	36	EAR99	N
3VL9 800-3AU11	36	EAR99	N
3VL9 800-3AW11	36	EAR99	N
3VL9 800-3HA01	36	EAR99	N
3VL9 800-3HC01	36	EAR99	N
3VL9 800-3HE01	36	EAR99	N
3VL9 800-3HF06	36	EAR99	N
3VL9 800-3HG06	36	EAR99	N
3VL9 800-3HL01	57	EAR99	N
3VL9 800-3HN01	38	EAR99	N

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		ECCN	AL
3VL9 800-3JE01	37	EAR99	N
3VL9 800-3JF01	37	EAR99	N
3VL9 800-3JF41	37	EAR99	N
3VL9 800-3JF81	37	EAR99	N
3VL9 800-3JJ01	37	EAR99	N
3VL9 800-3JJ11	37	EAR99	N
3VL9 800-3JJ21	37	EAR99	N
3VL9 800-3JM01	38	EAR99	N
3VL9 800-3JN01	38	EAR99	N
3VL9 800-3JP01	38	EAR99	N
3VL9 800-3JP11	38	EAR99	N
3VL9 800-3JP41	38	EAR99	N
3VL9 800-3JQ01	38	EAR99	N
3VL9 800-3JQ11	38	EAR99	N
3VL9 800-3JQ21	38	EAR99	N
3VL9 800-3JQ41	38	EAR99	N
3VL9 800-3JQ61	38	EAR99	N
3VL9 800-3JQ71	38	EAR99	N
3VL9 800-3JQ81	38	EAR99	N
3VL9 800-3MJ01	38	EAR99	N
3VL9 800-3ML01	38	EAR99	N
3VL9 800-3MN01	38	EAR99	N
3VL9 800-3MQ01	38	N	N
3VL9 800-3MS01	38	EAR99	N
3VL9 800-4PF01	43, 44	EAR99	N
3VL9 800-4PJ01	43, 44	EAR99	N
3VL9 800-4PS31	44	EAR99	N
3VL9 800-4TA31	51, 52	EAR99	N
3VL9 800-4TB31	51, 52	EAR99	N
3VL9 800-4TU31	52	EAR99	N
3VL9 800-4TV31	52	EAR99	N
3VL9 800-8AQ61	61	EAR99	N
3VL9 800-8AQ71	61	EAR99	N
3VL9 800-8BC01	59	EAR99	N
3VL9 800-8BG01	59	EAR99	N
3VL9 800-8BH01	59	EAR99	N
3VL9 800-8CA31	51, 52	EAR99	N
3VL9 800-8CB31	51, 52	EAR99	N
3VL9 800-8CE01	51, 52	EAR99	N
3VL9 800-8LA01	57	EAR99	N
3VL9 800-8LC01	57	EAR99	N
3VL9 800-8SA40	57	EAR99	N
3VL9 812-8TT01	60	EAR99	N
3VL9 816-2AL01	28	EAR99	N
3VL9 816-2AN11	28	EAR99	N
3VL9 816-8TT01	60	EAR99	N
3VL9 875-4TH01	52	EAR99	N
8UC94 00	30, 31	N	N

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