

SENTRON Switching and Protection Devices – Molded Case Circuit Breakers

Introduction

Overview

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[Http://www.100y.com.tw](http://www.100y.com.tw)



Type

VL160X/3VL1

VL160/3VL2

VL250/3VL3

VL400/3VL4

Molded case circuit breakers

3VL molded case circuit breakers up to 1600 A

Rated current I_n at 50 °C ambient temperature ¹⁾	A	16 to 160		26 to 160		80 to 250		125 to 400	
		3	4	3	4	3	4	3	4
Rated operational voltage U_e AC 50/60 Hz DC ²⁾	V	690	690	690	690	690	690	690	690
	V	250	250	600	600	600	600	600	600
Electronic trip units									
Thermal-magnetic		✓	✓	✓	✓	✓	✓	✓	✓
Electronic ETU LCD		--	--	✓	✓	✓	✓	✓	✓
Replaceable		--	--	✓	✓	✓	✓	✓	✓
PROFIBUS module COM10		--	--	✓	✓	✓	✓	✓	✓
Dimensions									
	A	mm	105	139	105	139	105	139	139
	B	mm	157	157	175	175	175	175	279
	C	mm	81	81	81	81	81	81	102
	D	mm	107	107	107	107	107	107	138

Switching capacity I_{cu}/I_{cs} RMS value according to IEC 60947-2

Standard switching capacity N ³⁾		16 to 160	26 to 160	80 to 250	125 to 400
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 440 V AC	kA	25/20	25/20	25/20	35/26
up to 500/525 V AC	kA	18/14	25/20	25/20	25/20
up to 690 V AC	kA	8/4 ⁵⁾	12/6	12/6	15/8
up to 250 V DC ⁴⁾	kA	30/30	32/32	32/32	32/32
up to 500 V DC ⁴⁾	kA	--	--	--	--
up to 600 V DC ⁴⁾	kA	--	--	--	--
NEMA breaking capacity⁶⁾					
up to 480 V AC	kA	25	25	25	35
up to 600 V AC	kA	8 ⁵⁾	12	12	20
High switching capacity H³⁾					
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 440 V AC	kA	42/32	50/38	50/38	50/38
up to 500/525 V AC	kA	30/23	40/30	40/30	40/30
up to 690 V AC	kA	12/6 ⁵⁾	12/6	12/6	15/8
up to 250 V DC ⁴⁾	kA	30/30	32/32	32/32	32/32
up to 500 V DC ⁴⁾	kA	--	32/32	32/32	32/32
up to 600 V DC ⁴⁾	kA	--	--	--	--
NEMA breaking capacity⁶⁾					
up to 480 V AC	kA	42	50	50	50
up to 600 V AC	kA	12 ⁵⁾	12	12	20
Very high switching capacity L³⁾					
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 440 V AC	kA	--	75/50	75/50	75/50
up to 500/525 V AC	kA	--	50/38	50/38	50/38
up to 690 V AC	kA	--	12/6	12/6	15/8
up to 250 V DC ⁴⁾	kA	--	32/32	32/32	32/32
up to 500 V DC ⁴⁾	kA	--	32/32	32/32	32/32
up to 600 V DC ⁴⁾	kA	--	30/30	30/30	30/30
NEMA breaking capacity⁶⁾					
up to 480 V AC	kA	--	75	75	75
up to 600 V AC	kA	--	12	12	20

✓ Available

-- Not available

1) 3VF2 at 40 °C ambient temperature.

2) Rated DC voltage applies only for circuit breakers with thermal-magnetic trip unit.

3) At 240 V AC, 415 V AC and 525 V AC max. 5 % overvoltage, at 440 V AC, 500 V AC and 690 V AC max. 10 % overvoltage.

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Introduction



VL630/3VL5 VL800/3VL6 VL1250/3VL7 VL1600/3VL8 3VF2

3VL molded case circuit breakers up to 1600 A

3VF2 molded case circuit breakers up to 100 A

252 to 630		320 to 800		400 to 1250		640 to 1600		16 to 100
3	4	3	4	3	4	3	4	3 and 4
690	690	690	690	690	690	690	690	up to 415
600	600	--	--	--	--	--	--	--
✓	✓	--	--	--	--	--	--	✓
✓	✓	✓	✓	✓	✓	✓	✓	--
✓	✓	✓	✓	✓	✓	✓	✓	--
190	253	190	253	229	305	229	305	76/102
279	279	406	406	406	406	406	406	124
102	102	114	114	152	152	152	152	68
138	138	151	151	207	207	207	207	73

65/65 45/45 35/26 25/20 20/10 32/32 -- --	65/65 50/50 35/26 25/20 20/10 -- -- --	65/35 50/25 35/26 25/20 20/10 -- -- --	65/35 50/25 35/26 25/20 20/10 -- -- --	65/33 18/9 -- -- -- -- -- --
25 20	25 20	25 20	25 20	-- --
100/75 70/70 50/38 40/30 30/15 32/32 32/32 --	100/75 70/70 50/38 40/30 30/15 -- -- --	100/75 70/35 50/38 40/30 30/15 -- -- --	100/50 70/35 50/38 40/30 30/15 -- -- --	-- -- -- -- -- -- -- --
50 30	50 30	50 30	50 30	-- --
200/150 100/75 75/50 50/38 35/17 32/32 32/32 30/30	200/150 100/75 75/50 50/38 35/17 -- -- --	200/100 100/50 75/50 50/38 35/17 -- -- --	200/100 100/50 75/50 50/38 35/17 -- -- --	-- -- -- -- -- -- -- --
65 35	65 35	65 35	65 35	-- --

4) The maximum permitted DC voltage for each conducting path needs to be taken into account for DC switching applications, see Technical Information LV 1 T, "Configuration", "Switching of DC Currents", time constant $t = 15$ ms.

5) Rated current $I_n \geq 25$ A.
6) The NEMA breaking capacity can be found on the rating plate of each IEC circuit breaker.

3VL Molded Case Circuit Breakers

3VL Molded Case Circuit Breakers up to 1600 A

4-pole

Type	Rated current I_n	Set current of the inverse-time delayed overload trip unit "L" I_R	Operational current of the instantaneous short-circuit releases "I" I_I	DT **	I_{cu} up to 40/50 kA at 415 V, standard switching capacity N See "Overview".	Order No.	Basic price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
	A	A	A			Order No. supplement required, see page 16/36					kg

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



System protection, TM, LIN function

with permanently set thermal overload releases, permanently set short-circuit releases, with "N" overload and short-circuit release
N = 100 % protection for overload and short-circuit releases

Type	Rated current I_n	Set current of the inverse-time delayed overload trip unit "L" I_R	Operational current of the instantaneous short-circuit releases "I" I_I	DT **	Order No.	Basic price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
VL160X/3VL1	16	16	300	B	3VL17 96-1EA43-....		1	1 unit	113	2.300
	20	20	300	B	3VL17 02-1EA43-....		1	1 unit	113	2.300
	25	25	300	B	3VL17 25-1EA43-....		1	1 unit	113	2.500
	32	32	300	B	3VL17 03-1EA43-....		1	1 unit	113	2.500
	40	40	600	B	3VL17 04-1EA43-....		1	1 unit	113	2.500
	50	50	600	B	3VL17 05-1EA43-....		1	1 unit	113	2.500
	63	63	600	B	3VL17 06-1EA43-....		1	1 unit	113	2.500
	80	80	1000	B	3VL17 08-1EA43-....		1	1 unit	113	2.500
	100	100	1000	B	3VL17 10-1EA43-....		1	1 unit	113	2.500
	125	125	1000	B	3VL17 12-1EL43-....		1	1 unit	113	2.500
	160	160	1500	B	3VL17 16-1EL43-....		1	1 unit	113	2.500

Connection can be selected by assignment of the 12th position of the Order No.

- Connection with box terminal
- Connection with screw terminal¹⁾

3
6



System protection, TM, LIN function

with permanently set thermal overload releases, permanently set short-circuit releases, with "N" overload and short-circuit release
N = 60 % protection for overload and short-circuit releases

Type	Rated current I_n	Set current of the inverse-time delayed overload trip unit "L" I_R	Operational current of the instantaneous short-circuit releases "I" I_I	DT **	Order No.	Basic price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx.
VL160X/3VL1	125	125	1000	B	3VL17 12-1EA43-....		1	1 unit	113	2.500
	160	160	1500	B	3VL17 16-1EA43-....		1	1 unit	113	2.500

Connection can be selected by assignment of the 12th position of the Order No.

- Connection with box terminal
- Connection with screw terminal¹⁾

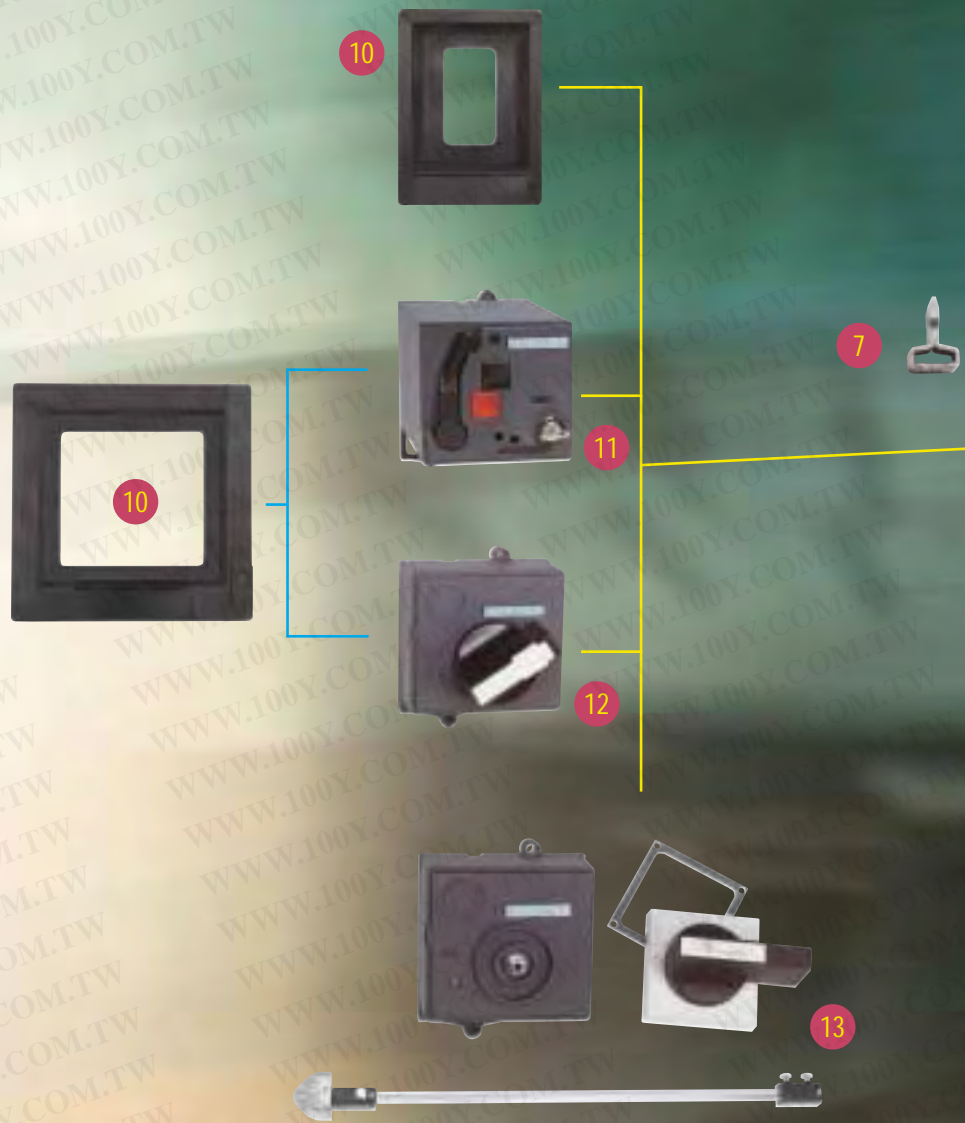
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** Delivery time class A for Order No. supplement "0AA0", see page 16/36.

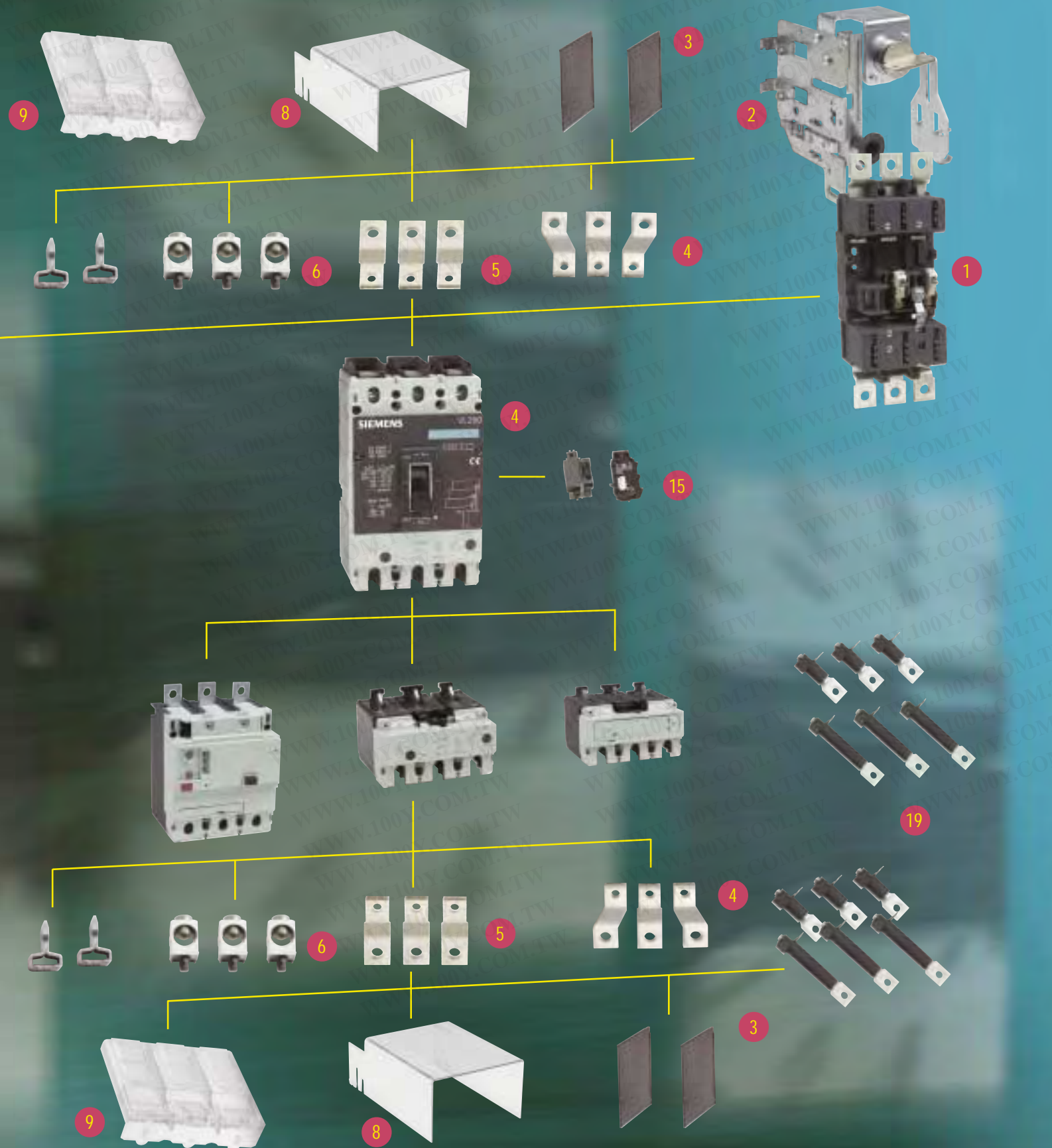
¹⁾ Cannot be used in conjunction with RCD module.

详细一览表：3V

- 1 插入式安装底座
- 2 抽出式安装框架
- 3 相间隔板
- 4 放射状母排延伸件
- 5 直母排延伸件
- 6 电缆接线端子
- 7 背后母排端子
- 8 延长端子盖板
- 9 标准端子盖板
- 10 柜门开孔盖板框架
- 11 储能操作机构
- 12 正面旋转操作手柄
- 13 正面旋转操作延伸手柄
- 14 断路器本体
- 15 欠压分励脱扣器 / 辅助报警开关
- 16 电子式过电流脱扣器
- 17 热磁式过流脱扣器
- 18 剩余电流脱扣器
- 19 背后连接端子 - 扁平状和圆形



PLC 及其可选附件



3VL 订货号结构说明



3VL 断路器选型简表

3极 AC 415V Icu 40/45/50kA	线路保护										电动机/发电机保护 电子式脱扣器									
	热磁式脱扣器					电子式脱扣器														
	过载固定/短路固定		过载可调/短路固定			ETU 10 (LI)	ETU 12 (LI ^{1)G})	ETU 20 (LSI)	ETU 42 (LSI ^{1)G})	ETU 10M (LI)										
VL160X	16	3VL1796 - 1DA33 -	3VL1702 - 1DD33 -	3VL1703 - 1DD33 -	3VL1704 - 1DD33 -	3VL1705 - 1DD33 -	3VL1706 - 1DD33 -	3VL1708 - 1DD33 -	3VL1710 - 1DD33 -	3VL1712 - 1DD33 -	3VL1716 - 1DD33 -	---	---	---	---	---	---	---	---	---
VL160	50	3VL2705 - 1DC33 -	3VL2706 - 1DC33 -	3VL2708 - 1DC33 -	3VL2710 - 1DC33 -	3VL2712 - 1DC33 -	3VL2716 - 1DC33 -	3VL2706 - 1AC33 -	3VL2710 - 1AC33 -	3VL2716 - 1AC33 -	3VL2706 - 1AE33 -	3VL2710 - 1AE33 -	3VL2716 - 1AE33 -	3VL2706 - 1CL33 -	3VL2710 - 1CL33 -	3VL2716 - 1CL33 -	3VL2706 - 1AP33 -	3VL2706 - 1AP33 -	3VL2706 - 1AP33 -	3VL2706 - 1AP33 -
VL250	200	3VL3720 - 1DC36 -	3VL3725 - 1DC36 -	3VL3720 - 1AB36 -	3VL3725 - 1AB36 -	3VL3720 - 1AC36 -	3VL3725 - 1AC36 -	3VL3720 - 1AC36 -	3VL3725 - 1AC36 -	3VL3720 - 1AE36 -	3VL3725 - 1AE36 -	3VL3720 - 1AE36 -	3VL3725 - 1AE36 -	3VL3720 - 1CL36 -	3VL3725 - 1CL36 -	3VL3720 - 1CL36 -	3VL3720 - 1AP36 -	3VL3725 - 1AP36 -	3VL3720 - 1AP36 -	3VL3725 - 1AP36 -
VL400	200	3VL4720 - 1DC36 -	3VL4725 - 1DC36 -	3VL4731 - 1AB36 -	3VL4740 - 1AB36 -	3VL4731 - 1AC36 -	3VL4740 - 1AC36 -	3VL4731 - 1AE36 -	3VL4740 - 1AE36 -	3VL4731 - 1CL36 -	3VL4740 - 1CL36 -	3VL4731 - 1AP36 -	3VL4740 - 1AP36 -	3VL4731 - 1AP36 -	3VL4740 - 1AP36 -	3VL4731 - 1AP36 -	3VL4731 - 1AP36 -	3VL4731 - 1AP36 -	3VL4731 - 1AP36 -	3VL4731 - 1AP36 -
VL630	315	3VL5731 - 1DC36 -	3VL5740 - 1DC36 -	3VL5731 - 1AB36 -	3VL5740 - 1AB36 -	3VL5731 - 1AC36 -	3VL5740 - 1AC36 -	3VL5731 - 1AE36 -	3VL5740 - 1AE36 -	3VL5731 - 1CL36 -	3VL5740 - 1CL36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -
	400	3VL5731 - 1DC36 -	3VL5740 - 1DC36 -	3VL5731 - 1AB36 -	3VL5740 - 1AB36 -	3VL5731 - 1AC36 -	3VL5740 - 1AC36 -	3VL5731 - 1AE36 -	3VL5740 - 1AE36 -	3VL5731 - 1CL36 -	3VL5740 - 1CL36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -
	500	3VL5731 - 1DC36 -	3VL5740 - 1DC36 -	3VL5731 - 1AB36 -	3VL5740 - 1AB36 -	3VL5731 - 1AC36 -	3VL5740 - 1AC36 -	3VL5731 - 1AE36 -	3VL5740 - 1AE36 -	3VL5731 - 1CL36 -	3VL5740 - 1CL36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -
	630	3VL5731 - 1DC36 -	3VL5740 - 1DC36 -	3VL5731 - 1AB36 -	3VL5740 - 1AB36 -	3VL5731 - 1AC36 -	3VL5740 - 1AC36 -	3VL5731 - 1AE36 -	3VL5740 - 1AE36 -	3VL5731 - 1CL36 -	3VL5740 - 1CL36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5740 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -	3VL5731 - 1AP36 -

注：1) 对于接地故障保护，必须注意其接地系统，上表中提供的是三相三线系统的选型。

2) 上表中“1”可以换为“2”(Icu = 70kA, 415V AC) 和“3”(Icu = 100kA, 415V AC, VL160X 除外)。

*) 上表中不包括断路器附件，详情请参见样本。