ОФЕРТА

за участие в открита процедура за сключване
на рамково споразумение

Доставка на прекъсвачи ниско напрежение

Обособена позиция 1—Доставка на автоматични прекъсвачи НН с лят корпус

Реф. № **PPD 15-033**

Възложител:

ЧЕЗ Разпределение България АД

Участник:

Техник Енерджи ЕООД
гр. Варна

ПРЕДЛОЖЕНИЕ ЗА ИЗПЪЛНЕНИЕ НА ПОРЪЧКАТА

VII. ОБРАЗЕЦ НА ТЕХНИЧЕСКО ПРЕДЛОЖЕНИЕ *Поставя се в плик № 2 на офертата*
VII. 1. За обособена позиция 1

ТЕХНИЧЕСКО ПРЕДЛОЖЕНИЕ

за открита процедура за възлагане на обществена поръчка с наименование:
„Доставка на прекъсвачи ниско напрежение" и реф. № PPD 15-033.

ДО: **„ЧЕЗ РАЗПРЕДЕЛЕНИЕ БЪЛГАРИЯ" АД, ГР. СОФИЯ, УЛ. „ЦАР СИМЕОН" № 330**
ОТ: **Техник Енерджи ЕООД – гр. Варна**
(участник)
Адрес на управление: гр. Варна, бул. «Янош Хунияди» № 6, ет.2, офис 1
Тел.: 052 / 801946; факс: 052 / 801955; e-mail: office@techen.bg
Единен идентификационен код: 200798130
Представляван от Севдалина Петкова – управител (*длъжност*)
Упълномощен представител за тази процедура (*ако е предвидено*) ……,
с приложено пълномощно № ……, дата ……Тел.: ..... / .....; факс: .....; e-mail: ……

УВАЖАЕМИ ГОСПОДА,

1. Запознат съм и приемам изискванията на Възложителя, като представям техническите спецификации от раздел IV на документацията с попълнени всички изисквани стойности за всички позиции от стоката по предмета на поръчката за обособена позиция 1.
2. Представям всички изисквани данни и документи, посочени в Приложение 2 от настоящото техническо предложение. Запознат съм с изиксването, че представените документи трябва да бъдат на български език или с превод на български език, придружени с оригиналните документи, с изключение на каталозите и протоколите от типовите изпитвания, които могат да се представят и само на английски език.
3. Запознат съм, че представените от нас технически документи (протоколи от изпитания, каталози и др) са доказателство за декларираните от мен технически данни и параметри в техническите спецификации на стоката.
4. Потвърждавам, че представяните от нас стоки, описани в Техническото ни предложение ще отговарят на посочените от възложителя стандарти или на еквивалентни. В случай, че даден материал отговаря на стандарт, еквивалентен на посочения се задължаваме да го отразим в отделен документ и да представим доказателства за еквивалентността на двата стандарта.
5. Всички стойности, попълнени в колона **„Гарантирано предложение"** на приложените таблици от Технически спецификации от раздел IV от документацията за участие са точни и истински.
6. Предлагам гаранционен срок за предлаганите стоки – 24 (двадесет и четири) месеца / *не по-малко от 24 месеца*/, от датата на приемо – предавателен протокол за получаване на стоката от Възложителя.
7. Запознат съм, че видовете стоки и ориентировъчни количества за доставка ще бъдат посочени от Възложителя при провеждане на процедура на договаряне без обявление.
8. Приемем, че в срок до ……(*не повече от 10 дни*) от датата на подписване на договор с възложителя, ще сключа договор с посоченият/те в офертата подизпълнител/и (*попълва се, ако участникът е декларирал, че ще използва подизпълнител/и*).
9. Запознат съм, че в процедурата на договаряне без обявление, изборът на изпълнител ще бъде направен по критерий "най-ниска цена".
10. Запознат съм, че максималният срок за изпълнение на конкретен договор ще бъде определен от Възложителя в поканата за договаряне.

Приложения:

1. *Технически изисквания и спецификации за изпълнение на поръчката – раздел IV от документацията за участие – попълнени на съответните места;*
2. *Изисквани документи от Технически изисквания и спецификации.*

Дата 06.08.2015 г. **ПОДПИС и ПЕЧАТ:**

Севдалина Петкова
(име и фамилия)
Управител
(длъжност на представляващия участника)

IV.ТЕХНИЧЕСКИ ИЗИСКВАНИЯ И СПЕЦИФИКАЦИИ ЗА ИЗПЪЛНЕНИЕ НА ПОРЪЧКАТА

IV.1. ТЕХНИЧЕСКИ ИЗИСКВАНИЯ И СПЕЦИФИКАЦИИ ЗА ИЗПЪЛНЕНИЕ НА ПОРЪЧКАТА ЗА ОБОСОБЕНА ПОЗИЦИЯ 1

Наименование на материала: Триполюсни автоматични прекъсвачи НН с лят корпус, от 100 А до 400 А, с термомагнитна защита, категория А

Съкратено наименование на материала: Трип. авт. прек. НН, с ТМ защита, 100-400 А, кат. А

Област: Н – Електрически уредби СрН/НН

Категория: 17– Комутационни апарати НН за защита

Мерна единица: Брой

Аварийни запаси: Да

Характеристика на материала:

Триполюсните автоматични прекъсвачи НН с лят корпус представляват механични комутационни апарати от фиксиран тип с предно свързване на шинната система. Автоматичните прекъсвачи са способни да провеждат и да включват/изключват ръчно електрически токове във вериги при нормални условия и да включват, да провеждат за определено време и да изключват автоматично посредством електромеханична защита от термомагнитен тип токове във вериги при условията на претоварване и късо съединение.

Тялото (корпусът) на автоматичните прекъсвачи НН е изработено чрез формоване на устойчив на нагряване, на огън и на механични удари изолационен материал. Използваните в конструкцията изолационни материали съответстват на изискванията на т. 7.1. от БДС EN 60947-2:2006.

Управлението се осъществява ръчно посредством лост. Включването/изключването на контактите на трите полюса се осъществява едновременно с висока скорост, която не зависи от действията на оператора. Автоматичният прекъсвач изпълнява разединяваща функция, която е обозначена със съответния символ. На челния панел на прекъсвача е разположен тест-бутон за проверка на изключвателния механизъм. Лостът за управление при вертикално монтиране на автоматичните прекъсвачи се движи в направление „нагоре – надолу", при което контактите се затварят при движение „нагоре". Лостът има три ясно индицирани положения, съответстващи на позицията на контактната система: „Включено", „Изключено" и „Автоматично изключено от свръхтокове /Тест".

Конструкцията осигурява защита срещу проникване на твърди тела и вода до степен най-малко IP20 за клемните съединения и IP40 за челната повърхност на прекъсвача, съгласно БДС EN 60529+A1:2004.

Стойностите на прегряването на частите на триполюсните автоматични прекъсвачи НН с лят корпус при нормален работен режим при температура до 40°C не трябва да надвишават посочените в таблица 7 от БДС EN 60947-2:2006 стойности. Прекъсвачите са маркирани с информацията съгласно т. 5.2 от БДС EN 60947-2:2006 и CE маркировка за съответствие.

Прекъсвачите се доставят с предпазни клемови капаци, изолиращи фазови сепаратори и разширители и удължители на входа и на изхода, които са подходящи за свързване към шинна система, която е изработена с алуминиеви шини с правоъгълно сечение.

По искане на възложителя прекъсвачите трябва да бъдат доставени с адапторни планки, които са съобразени с присъединителните и габаритните размери на автоматичните прекъсвачи от сериите: A100, A1, A250, A2 и A2-400 съгласно табл. 1 и фиг. 1 по-долу, произвеждани от бившия ЕАЗ гр. Пловдив.

Триполюсните автоматични прекъсвачи са пакетирани в картонени кутии, на които е залепен етикет с наименование на материала „Автоматичен прекъсвач", техническите данни, годината на производство, партидните номера и стандарта, в съответствие с който са произведени и изпитани - БДС EN 60947-2:2006.

Използване:

- Триполюсните автоматични прекъсвачи НН с лят корпус се монтират в разпределителни табла в трансформаторните постове и се използват за защита на електропроводните линии.

Съответствие на предлаганото изпълнение с нормативно-техническите документи:
Триполюсните автоматични прекъсвачи НН с лят корпус трябва да отговарят на посочените по-долу стандарт, или еквиваленти, включително на техните валидни изменения и допълнения:

- БДС EN 60947-1:2007 "Комутационни апарати за ниско напрежение. Част 1: Общи правила (IEC 60947-1:2007)"; и
- БДС EN 60947-2:2006 „Комутационни апарати за ниско напрежение. Част 2: Автоматични прекъсвачи (IEC 60947-2:2006)" и техните валидни изменения и допълнения и
- БДС EN 60529+A1:2004 Степени на защита, осигурени от обвивката (IP код) (IEC 60529:1989+A1:1999)

да бъдат оценени положително по реда и при условията на Наредбата за съществените изисквания и оценяване на съответствието на електрически съоръжения, предназначени за използване в определени граници на напрежението (приета с ПМС № 182 от 6.07.2001 г., обн., ДВ, бр. 62 от 13.07.2001 г., в сила от 14.01.2003 г., изм. и доп., бр. 74 от 22.08.2003 г., бр. 24 от 21.03.2006 г., в сила от 21.03.2006 г., изм., бр. 40 от 16.05.2006 г., в сила от 5.05.2006 г., изм. и доп., бр. 37 от 8.05.2007 г., изм., бр. 50 от 17.06.2014 г.).

Изисквания към документацията и изпитванията:

№ по ред	Документ	Приложение № (или текст)
1.	Точно означение на типа, производителя и страната на производство (произход) и последно издание на каталога на производителя	EasyPact CVS Schneider Electric Industries Приложен каталог
2.	Техническо описание и чертежи с нанесени на тях размери	Да. Каталог
3.	ЕО декларация за съответствие	Да
4.	Протоколи от типови изпитвания на английски или български език, проведени от независима изпитвателна лаборатория – заверени копия, с приложен списък на отделните изпитвания на български език	Да
5.	Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания по т. 4 – заверено копие	Да
6.	Техническо описание и чертежи с нанесени размери на монтажни планки, единичната цена на които не се включва в цената на прекъсвачите	Да. Каталог.Глава С
7.	Инструкции за транспортиране, складиране, монтиране, вкл. въртящия момент на затягане на клемовите съединения, обслужване и поддържане	Да

Забележка: Всички оригинални документи трябва да бъдат на български език или с превод на български език. (Каталозите и протоколите от проверките и изпитванията могат да бъдат и само на английски.)

Технически данни

1. Характеристики на работната среда

№ по ред	Характеристика	Стойност

№ по ред	Характеристика	Стойност
1.1	Място на монтиране	На закрито
1.2	Максимална околна температура	+ 40°C
1.3	Минимална околна температура	Минус 5°C
1.4	Максимална средна околна температура за период от 24 ч.	+ 35°C
1.5	Относителна влажност (при 20°C)	До 90 %
1.6	Степен на замърсяване	3
1.7	Надморска височина	До 2000 m

2. Параметри на електроразпределителната мрежа

№ по ред	Параметър	Стойност
2.1	Номинално напрежение	400 / 230 V
2.2	Максимално напрежение	440 / 253 V
2.3	Номинална честота	50 Hz
2.4	Брой проводници в разпределителната мрежа	4 проводна мрежа (L_1, L_2, L_3, PEN)
2.5	Схема на разпределителната мрежа	TN-C

3. Общи технически параметри и други данни

№ по ред	Технически параметър	Изискване	Гарантирано предложение
3.1	Брой на полюсите	3	YES
3.2	Обявено работно напрежение (U_e)	min 690 V AC	440V
3.3	Обявена честота	50 Hz	YES
3.4	Обявено импулсно напрежение (U_{imp})	min 6 kV	8kv
3.5	Обявено изолационно напрежение (U_i)	min 690 V	690V
3.6	Категория на приложение	A	A
3.7	Работна изключвателна възможност при късо съединение (I_{cs})	min 50% от I_{cu}	75% от I_{cu}
3.8	Защита от свръхтокове	-	YES
3.8.1	Тип на защитата	Защитата от свръхтокове трябва да бъде от термомагнитен тип. (Допускат се изпълнения със защита от електронен тип.)	TM
3.8.2	Защита от претоварване	а) Диапазон на настройване на тока на изключване I_R=(min 0,8÷1)xI_n	I_R=(min 0,7÷1)xI_n

№ по ред	Технически параметър	Изискване	Гарантирано предложение
		б) Условен ток на неизключване I_{nd}=1,05xI_R във времеви интервал от 120 минути	Yes
		в) Условен ток на изключване I_d = 1,30xI_R във времеви интервал до 120 минути	Yes
3.8.3	Защита от къси съединения	Токът на изключване I_i трябва да бъде фиксиран на една от стойностите или регулируем в диапазона препоръчително от min 4x I_n до 10x I_n	min 5x I_n до 10x I_n Да
3.9	Степен на защита от проникване на твърди тела и вода съгласно БДС EN 60529+A1:2004	-	-
3.9.1	Клемни съединения	IP 20	Да
3.9.2	Челна повърхност	IP 40	Да
3.10	Аксесоари	а) Два комплекта разширители и удължител за свързване към шинна система от алуминиева шина с правоъгълно сечение	Да. Опция

4. Триполюсни автоматични прекъсвачи НН с лят корпус, 100 А ÷ 400 А, с термомагнитна защита, категория А

4.1 Триполюсен автоматичен прекъсвач НН с лят корпус, 100 А, с термомагнитна защита, кат. А

Номер на стандарта		**Тип/референтен номер съгласно каталога на производителя**	
БДС EN 60947-2/ IEC/EN 60947-2		LV510307	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 100 А, с термомагнитна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ТМ защита, 100 А, кат. А	
№ по ред	**Технически параметър**	**Изискване**	**Гарантирано предложение**
4.1.1	Обявен ток (I_n)	100 А	100 А
4.1.2	Обявена максимална изключвателна възможност при к.с. (I_{cu})	min 12 kA / 500 V	15kA / 440 V
4.1.3	Работна изключвателна възможност при късо съединение (I_{cs})	Съгласно т. 3.7 и т. 4.1.2 Да се посочи	75% от I_{cu}
4.1.4	Ток на изключване на защитата от къси съединения (I_i)	Съгласно т. 3.8.3 Да се посочи	min 5x I_n до 10x I_n Да
4.1.5	Време за изключване при I_{cu}	max 0,010 s	Да
4.1.6	Износоустойчивост	-	-
4.1.6a	Електрическа (брой к.ц.)	min 1500 бр.	12 000 бр.
4.1.6b	Механична (брой к.ц.)	min 8500 бр.	30 000 бр.

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
БДС EN 60947-2/ IEC/EN 60947-2		LV510307	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 100 А, с термомагнитна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ТМ защита, 100 А, кат. А	
№ по ред	**Технически параметър**	**Изискване**	**Гарантирано предложение**
4.1.7	Максимални размери ВхШхД (Дълбочината „Д" не включва лоста за управление)	165x110x125 mm	161x105x86 mm
4.1.8	Тегло, kg	Да се посочи	1,8 kg

4.2 Триполюсен автоматичен прекъсвач НН с лят корпус, 160 А, с термомагнитна защита, кат. А

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
БДС EN 60947-2/ IEC/EN 60947-2		LV516303	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 160 А, с термомагнитна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ТМ защита, 160 А, кат. А	
№ по ред	**Технически параметър**	**Изискване**	**Гарантирано предложение**
4.2.1	Обявен ток (I_n)	160 А	160 А
4.2.2	Обявена максимална изключвателна възможност при к.с. (I_{cu})	min 12 kA / 500 V	15kA / 440 V
4.2.3	Работна изключвателна възможност при късо съединение (I_{cs})	Съгласно т. 3.7 и т. 4.2.2 Да се посочи	75% от I_{cu}
4.1.4	Ток на изключване на защитата от къси съединения (I_i)	Съгласно т. 3.8.3 Да се посочи	min 5x I_n до 10x I_n Да
4.2.5	Време за изключване при I_{cu}	max 0,010 s	Да
4.2.6	Износоустойчивост	-	-
4.2.6a	Електрическа (брой к.ц.)	min 1000 бр.	12 000 бр
4.2.6b	Механична (брой к.ц.)	min 7000 бр.	25 000 бр
4.2.7	Максимални размери ВхШхД (Дълбочината „Д" не включва лоста за управление)	185x140x100 mm	161x105x86 mm
4.2.8	Тегло, kg	Да се посочи	1,8 kg

4.3 Триполюсен автоматичен прекъсвач НН с лят корпус, 250 А, с термомагнитна защита, кат. А

Номер на стандарта		**Тип/референтен номер съгласно каталога на производителя**	
БДС EN 60947-2/ IEC/EN 60947-2		LV525303	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 250 А, с термомагнитна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ТМ защита, 250 А, кат. А	
№ по ред	**Технически параметър**	**Изискване**	**Гарантирано предложение**
4.3.1	Обявен ток (I_n)	250 А	250 А
4.3.2	Обявена максимална изключвателна възможност при к.с. (I_{cu})	min 16 kA / 500 V	20kA / 440 V
4.3.3	Работна изключвателна възможност при късо съединение (I_{cs})	Съгласно т. 3.7 и т. 4.3.2 Да се посочи	75% от I_{cu}
4.3.4	Ток на изключване на защитата от къси съединения (I_i)	Съгласно т. 3.8.3 Да се посочи	min 5x I_n до 10x I_n Да
4.3.5	Време за изключване при I_{cu}	max 0,010 s	Да
4.3.6	Износоустойчивост	-	-
4.3.6a	Електрическа (брой к.ц.)	min 1000 бр.	10 000 бр
4.3.6b	Механична (брой к.ц.)	min 7000 бр.	20 000 бр
4.3.7	Максимални размери ВхШхД (Дълбочината „Д" не включва лоста за управление)	225x140x130 mm	161x105x86 mm
4.3.8	Тегло, kg	Да се посочи	2,0 kg

4.4 Триполюсен автоматичен прекъсвач НН с лят корпус, 400 А, с термомагнитна защита, кат. А

Номер на стандарта		**Тип/референтен номер съгласно каталога на производителя**	
БДС EN 60947-2/ IEC/EN 60947-2		LV540306	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 400 А, с термомагнитна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ТМ защита, 400 А, кат. А	
№ по ред	**Технически параметър**	**Изискване**	**Гарантирано предложение**
4.5.1	Обявен ток (I_n)	400 А	400 А
4.5.2	Обявена максимална изключвателна възможност при к.с. (I_{cu})	min 20 kA / 500 V	30kA / 440 V
4.5.3	Работна изключвателна възможност при късо съединение (I_{cs})	Съгласно т. 3.7 и т. 4.4.2 Да се посочи	75% от I_{cu}
4.5.4	Ток на изключване на защитата от	Съгласно т. 3.8.3	min 5x I_n до 10x I_n

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
БДС EN 60947-2/ IEC/EN 60947-2		LV540306	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 400 А, с термомагнитна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ТМ защита, 400 А, кат. А	
№ по ред	**Технически параметър**	**Изискване**	**Гарантирано предложение**
	къси съединения (I_l)	Да се посочи	Да
4.5.5	Време за изключване при I_{cu}	max 0,010 s	Да
4.5.6	Износоустойчивост	-	-
4.5.6a	Електрическа (брой к.ц.)	min 1000 бр.	6 000 бр
4.5.6b	Механична (брой к.ц.)	min 4000 бр.	15 000 бр
4.5.7	Максимални размери ВхШхД (Дълбочината „Д" не включва лоста за управление)	300x195x160 mm	255x140x110 mm
4.5.8	Тегло, kg	Да се посочи	4,7 kg

Наименование на материала: Триполюсни автоматични прекъсвачи НН с лят корпус, от 160 А до 1250 А, с електронна защита, категория А

Съкратено наименование на материала: Трип. авт. прек. НН, с ел. защита, 160-1250 А, кат. А

Област: Н – Електрически уредби СрН/НН

Категория: 17–Комутационни апарати НН за защита

Мерна единица: Брой

Аварийни запаси: Да

Характеристика на материала:

Триполюсните автоматични прекъсвачи НН с лят корпус представляват механични комутационни апарати от фиксиран тип с предно свързване на шинната система. Автоматичните прекъсвачи са способни да провеждат и да включват/изключват ръчно електрически токове във вериги при нормални условия и да включват, да провеждат за определено време и да изключват автоматично посредством защита от електронен тип токове във вериги при условията на претоварване и късо съединение.

Тялото (корпусът) на автоматичните прекъсвачи НН е изработено чрез формоване на устойчив на нагряване, на огън и на механични удари изолационен материал. Използваните в конструкцията изолационни материали съответстват на изискванията на т. 7.1. от БДС EN 60947-2:2006.

Управлението се осъществява ръчно посредством лост. Включването/изключването на контактите на трите полюса се осъществява едновременно с висока скорост, която не зависи от действията на оператора. Автоматичният прекъсвач изпълнява разединяваща функция, която е обозначена с предвидения от стандарта символ. На челния панел на прекъсвача е разположен тест-бутон за проверка на изключвателния механизъм. Лостът за управление при вертикално монтиране на автоматичните прекъсвачи се движи в направление „нагоре – надолу", при което контактите се затварят при движение „нагоре". Лостът има три ясно индицирани положения, съответстващи на позицията на контактната система: „Включено", „Изключено" и „Автоматично изключено от свръхтокове /Тест". Конструкцията осигурява защита срещу проникване на твърди тела и вода до степен най-малко IP20 за клемните съединения и IP40 за челната повърхност на прекъсвача, съгласно БДС EN 60529+A1:2004.

Стойностите на прегряването на частите на триполюсните автоматични прекъсвачи НН с лят корпус при нормален работен режим при температура до 40°С не трябва да надвишават посочените в таблица 7 от БДС EN 60947-2:2006 стойности. Прекъсвачите са маркирани с информацията съгласно т. 5.2 от БДС EN 60947-2:2006 и СЕ маркировка за съответствие.
Прекъсвачите се доставят с предпазни клемови капаци, изолиращи фазови сепаратори и разширители и удължители на входа и на изхода, които са подходящи за свързване към шинна система, която е изработена с алуминиеви шини с правоъгълно сечение.
По искане на възложителя прекъсвачите трябва да бъдат доставени с адапторни планки, които са съобразени с присъединителните и габаритните размери на автоматичните прекъсвачи от сериите: А100, А1, А250, А2, А2-400, А3, А4 и А5 съгласно табл. 1 и фиг. 1 по-долу, произвеждани от бившия ЕАЗ гр. Пловдив.
Триполюсните автоматични прекъсвачи са пакетирани в картонени кутии, на които е залепен етикет с наименование на материала „Автоматичен прекъсвач", техническите данни, годината на производство, партидните номера и стандарта, в съответствие с който са произведени и изпитани - БДС EN 60947-2:2006.

Използване:

- Триполюсните автоматични прекъсвачи НН с лят корпус се монтират в главните разпределителни табла в трансформаторните постове и се използват за защита на силови трансформатори СрН/0,4 kV с мощност до 800 kVA.

Съответствие на предлаганото изпълнение с нормативно-техническите документи:
Триполюсните автоматични прекъсвачи НН с лят корпус трябва да отговарят на посочените по-долу стандарти или еквиваленти, включително на техните валидни изменения и допълнения:
- БДС EN 60947-1:2007 "Комутационни апарати за ниско напрежение. Част 1: Общи правила (IEC 60947-1:2007)"; и
- БДС EN 60947-2:2006 „Комутационни апарати за ниско напрежение. Част 2: Автоматични прекъсвачи (IEC 60947-2:2006)" и техните валидни изменения и допълнения
- БДС EN 60529+A1:2004 Степени на защита, осигурени от обвивката (IP код) (IEC 60529:1989+A1:1999) и

да бъдат оценени положително по реда и при условията на Наредбата за съществените изисквания и оценяване на съответствието на електрически съоръжения, предназначени за използване в определени граници на напрежението (Приета с ПМС № 182 от 6.07.2001 г., обн., ДВ, бр. 62 от 13.07.2001 г., в сила от 14.01.2003 г., изм. и доп., бр. 74 от 22.08.2003 г., бр. 24 от 21.03.2006 г., в сила от 21.03.2006 г., изм., бр. 40 от 16.05.2006 г., в сила от 5.05.2006 г., изм. и доп., бр. 37 от 8.05.2007 г., изм., бр. 50 от 17.06.2014 г.).

Изисквания към документацията и изпитванията:

№ по ред	Документ	Приложение № или текст
1.	Точно означение на типа, производителя и страната на производство (произход) и последно издание на каталога на производителя	Compact NS Schneider Electric Industries Приложен каталог
2.	Техническо описание и чертежи с нанесени на тях размери	Да. Каталог
3.	ЕО декларация за съответствие	Да
4.	Протоколи от типови изпитвания на английски или български език, проведени от независима изпитвателна лаборатория – заверени копия, с приложен списък на отделните изпитвания на български език	Да

№ по ред	Документ	Приложение № или текст
5.	Сертификат/акредитация на независимата изпитвателна лаборатория, провела типовите изпитвания по т. 4 – заверено копие	Да
6.	Техническо описание и чертежи с нанесени размери на монтажни планки, единичната цена на които не се включва в цената на прекъсвачите	Да. Каталог.Глава С
7.	Инструкции за транспортиране, складиране, монтиране, вкл. въртящия момент на затягане на клемовите съединения, обслужване и поддържане	Да

Забележка: Всички оригинални документи трябва да бъдат на български език или с превод на български език. (Каталозите и протоколите от проверките и изпитванията могат да бъдат и само на английски.)

Технически данни:

1. Характеристики на работната среда

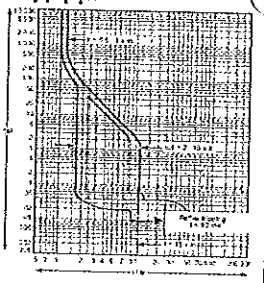
№ по ред	Характеристика	Стойност
1.1	Място на монтиране	На закрито
1.2	Максимална околна температура	+ 40°C
1.3	Минимална околна температура	Минус 5°C
1.4	Максимална средна околна температура за период от 24 ч.	+ 35°C
1.5	Относителна влажност (при 20°C)	До 90 %
1.6	Степен на замърсяване	3
1.7	Надморска височина	До 2000 m

2. Параметри на електроразпределителната мрежа

№ по ред	Параметър	Стойност
2.1	Номинално напрежение	400 / 230 V
2.2	Максимално напрежение	440 / 253 V
2.3	Номинална честота	50 Hz
2.4	Брой проводници в разпределителната мрежа	4 проводна мрежа (L_1, L_2, L_3, PEN)
2.5	Схема на разпределителната мрежа	TN-C

3. Общи технически параметри и други данни

№ по ред	Технически параметър	Изискване	Гарантирано предложение
3.1	Брой на полюсите	3	3

№ по ред	Технически параметър	Изискване	Гарантирано предложение
3.2	Обявено работно напрежение (U_e)	min 690 V AC	690 V AC
3.3	Обявена честота	50 Hz	50 Hz
3.4	Обявено импулсно напрежение (U_{imp})	min 6 kV	8 kV
3.5	Обявено изолационно напрежение (U_i)	min 690 V	800 V
3.6	Категория на приложение	A	A
3.7	Работна изключвателна възможност при късо съединение (I_{cs})	min 50% от I_{cu}	75% от I_{cu}
3.8	Защита от свръхтокове	-	-
3.8.1	Тип и времетокова характеристика	Защитата от свръхтокове трябва да бъде от електронен тип с времетокова характеристика от показания по-долу вид: t L I I_n I_i I	Защитата от свръхтокове е от електронен тип с времетокова характеристика от показания по-долу вид: Да 
3.8.2	Защита от претоварване	а) Диапазон на настройване I_R=(min 0,5÷1)xI_n	I_R=(min 0,5÷1)xI_n Да
		б) Условен ток на неизключване I_{nd}=1,05xI_R във времеви интервал от 120 минути	Да
		в) Условен ток на изключване I_d = 1,30xI_R във времеви интервал до 120 минути	Да
3.8.3	Защита от къси съединения	Токът на изключване I_i трябва да бъде фиксиран на една от стойностите или регулируем в диапазона препоръчително от min 4x I_n до 10x I_n	2x I_n до 10x I_n Да
3.9	Степен на защита от проникване на твърди тела и вода съгласно БДС EN 60529+A1:2004	-	-
3.9.1	Клемни съединения	IP 20	IP 20
3.9.2	Челна повърхност	IP 40	IP 40

№ по ред	Технически параметър	Изискване	Гарантирано предложение
3.10	Аксесоари	а) Два комплекта разширители и удължител за свързване към шинна система от алуминиева шина с правоъгълно сечение	Да. Опция
		б) Два комплекта предпазни клемови капаци и изолиращи фазови сепаратори.	Да. Опция

4. Триполюсни автоматични прекъсвачи НН с лят корпус, от 160 А ÷ 1250 А, с електронна защита, категория А

4.1 Триполюсен автоматичен прекъсвач НН с лят корпус, 630 А, с електронна защита, кат. А

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
БДС EN 60947-2/ IEC/EN 60947-2		LV563505	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 630 А, с електронна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ел. защита, 630 А, кат. А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.3.1	Обявен ток (I_n)	630 А	630 А
4.3.2	Обявена максимална изключвателна възможност при к.с. (I_{cu})	min 20 kA / 500 V	23 kA / 440V
4.3.3	Работна изключвателна възможност при късо съединение (I_{cs})	Съгласно т. 3.7 и т. 4.3.2 Да се посочи	75% от I_{cu}
4.3.4	Ток на изключване на защитата от къси съединения (I_i)	Съгласно т. 3.8.3 Да се посочи	2x I_n до 10x I_n Да
4.3.5	Време за изключване при I_{cu}	max 0,010 s	0,01 s
4.3.6	Износоустойчивост	-	-
4.3.6a	Електрическа (брой к.ц.)	min 1000 бр.	4000 бр.
4.3.6b	Механична (брой к.ц.)	min 4000 бр.	15 000 бр.
4.3.7	Максимални размери ВхШхД (Дълбочината „Д" не включва лоста за управление)	290x215x160 mm	255x140x110 mm
4.3.8	Тегло, kg	Да се посочи	5,2 kg

4.2 Триполюсен автоматичен прекъсвач НН с лят корпус, 1000 А, с електронна защита, кат. А

Номер на стандарта	Тип/референтен номер съгласно каталога на производителя
БДС EN 60947-2/ IEC/EN 60947-2	33472

Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 1000 А, с електронна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ел. защита, 1000 А, кат. А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.4.1	Обявен ток (I_n)	1000 А	1000 А
4.4.2	Обявена максимална изключвателна възможност при к.с. (I_{cu})	min 45 kA / 500 V	50 kA / 440 V
4.4.3	Работна изключвателна възможност при късо съединение (I_{cs})	Съгласно т. 3.7 и т. 4.4.2 Да се посочи	75% от I_{cu}
4.4.4	Ток на изключване на защитата от къси съединения (I_i)	Съгласно т. 3.8.3 Да се посочи	1,5x I_n до 10x I_n
4.4.5	Време за изключване при I_{cu}	max 0,030 s	0,02 s
4.4.6	Износоустойчивост	-	-
4.4.6a	Електрическа (брой к.ц.)	min 500 бр.	2000 бр.
4.4.6b	Механична (брой к.ц.)	min 2500 бр.	10 000 бр.
4.4.7	Максимални размери ВхШхД (Дълбочината „Д" не включва лоста за управление)	375x210x160 mm	327x210x147 mm
4.4.8	Тегло, kg	Да се посочи	14 kg

4.3 Триполюсен автоматичен прекъсвач НН с лят корпус, 1250 А, с електронна защита, кат. А

Номер на стандарта		Тип/референтен номер съгласно каталога на производителя	
БДС EN 60947-2/ IEC/EN 60947-2		33478	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 1250 А, с електронна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ел. защита, 1250 А, кат. А	
№ по ред	Технически параметър	Изискване	Гарантирано предложение
4.5.1	Обявен ток (I_n)	1250 А	1250 А
4.5.2	Обявена максимална изключвателна възможност при к.с. (I_{cu})	min 45 kA / 500 V	50 kA / 440 V
4.5.3	Работна изключвателна възможност при късо съединение (I_{cs})	Съгласно т. 3.7 и т. 4.5.2 Да се посочи	75% от I_{cu}
4.5.4	Ток на изключване на защитата от къси съединения (I_i)	Съгласно т. 3.8.3 Да се посочи	1,5x I_n до 10x I_n
4.5.5	Време за изключване при I_{cu}	max 0,030 s	0,02 s
4.5.6	Износоустойчивост	-	-
4.5.6a	Електрическа (брой к.ц.)	min 500 бр.	2000 бр.
4.5.6b	Механична (брой к.ц.)	min 2500 бр.	10000 бр.
4.5.7	Максимални размери ВхШхД (Дълбочината „Д" не включва лоста за	375x210x160 mm	327x210x147 mm

Номер на стандарта		**Тип/референтен номер съгласно каталога на производителя**	
БДС EN 60947-2/ IEC/EN 60947-2		33478	
Наименование на материала		Триполюсен автоматичен прекъсвач НН с лят корпус, 1250 А, с електронна защита, кат. А	
Съкратено наименование на материала		Трип. авт. прек. НН, с ел. защита, 1250 А, кат. А	
№ по ред	**Технически параметър**	**Изискване**	**Гарантирано предложение**
	управление)		
4.5.8	Тегло, kg	Да се посочи	14 kg

ТЕХНИК ЕНЕРДЖИ ЕООД
гр.Варна 9000, бул."Янош Хунияди" №6
тел: +359 52 801946, факс: +359 52 801955, e-mail: office@techen.bg

Списък на типови изпитвания на автоматични прекъсвачи „Easy Pact CVS“ и „Compact NS“

Типови изпитвания:

- Номинален ток (In)
- Работно напрежение (Ue)
- Честота
- Импулсно напрежение (U_{imp})
- Изолационно напрежение (U_i)
- Работна изключвателна възможност при късо съединение (I_{cs})
- Максимална изключвателна възможност при к.с. (I_{cu})
- Ток на изключване на защитата от къси съединения (I_i)
- Време за изключване при I_{cu}

-Електрическа износоустойчивост- брой комутационни цикли.

-Механична износоустойчивост- брой комутационни цикли

- Степен на защита от проникване на твърди тела и вода за клемни съединения и челна повърхност.

-Други

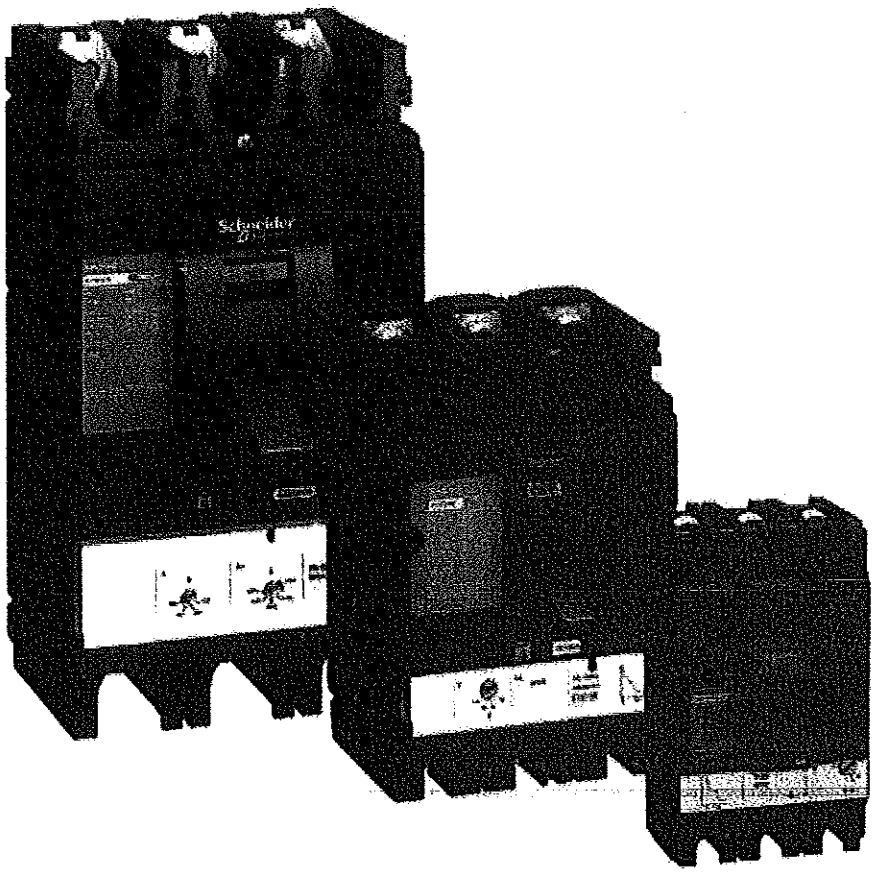
Техник Енерджи ЕООД

Low Voltage

EasyPact CVS

Moulded-case circuit breakers and switch-disconnectors
from 100 to 630 A

Catalogue
2013



Schneider Electric

> Safe

> Reliable

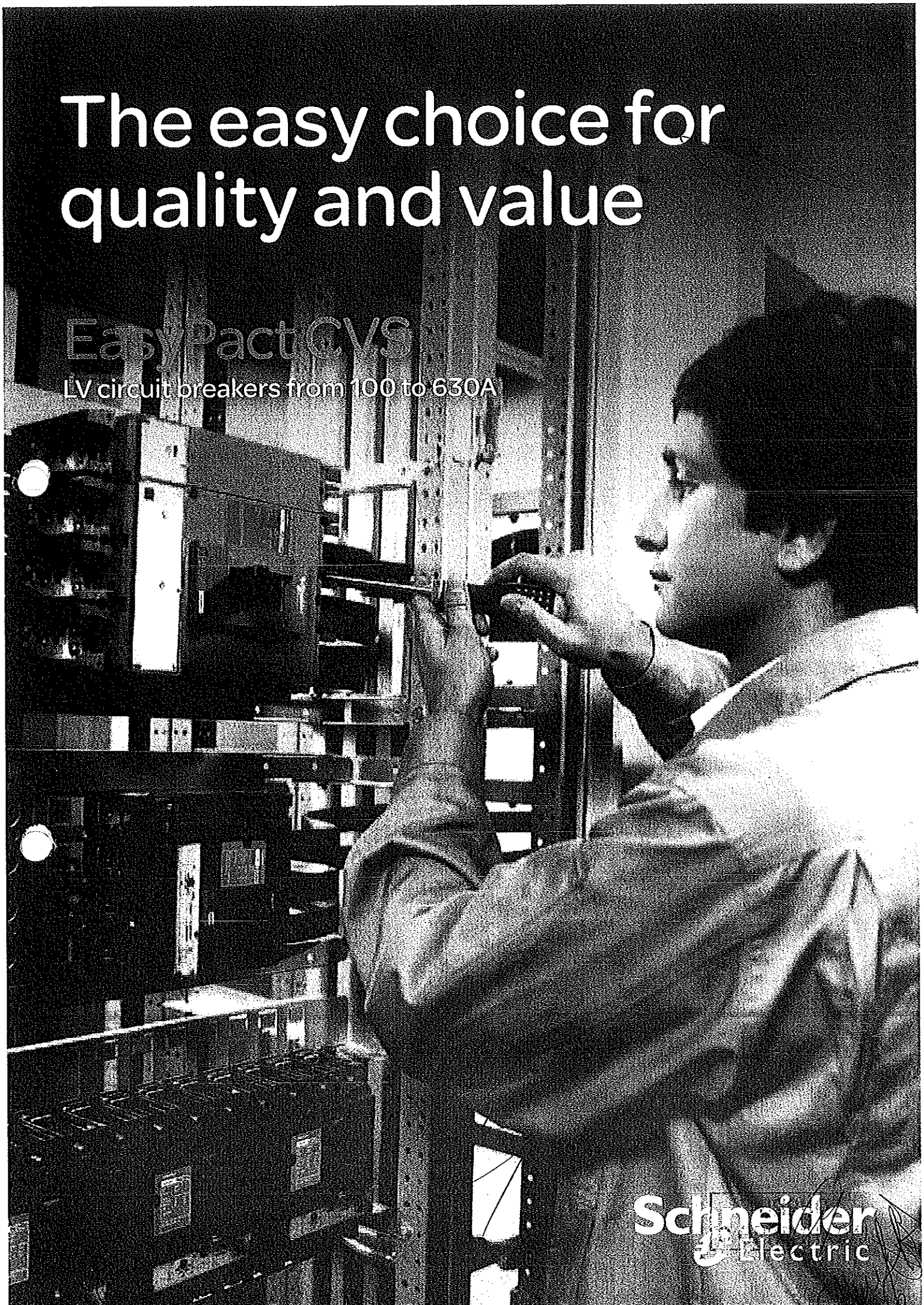
> Simple

ВЯРНО
С ОРИГИНАЛА

The easy choice for quality and value

EasyPact CVS

LV circuit breakers from 100 to 630A

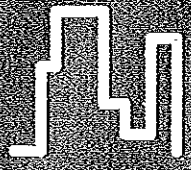


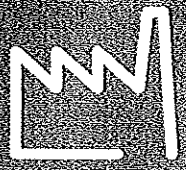
Schneider Electric

> Do you strain to find circuit breakers that are simple as well as flexible and safe?

> Has it been difficult to find high quality circuit breakers at the right price point?

> Do you need the reach, support and accessibility of a global leader, with the value of a local supplier?





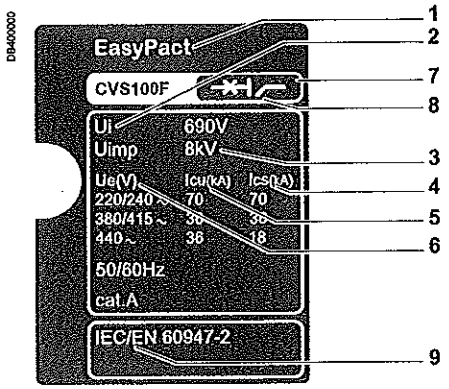
Gain peace of mind, quality, and value for your installations

General contents

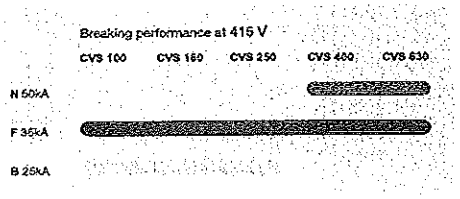
Functions and characteristics

Functions and characteristics

Introduction
General characteristics



Standardised characteristics indicated on the rating plate:
1 *Type of device: frame size and breaking capacity class*
2 *Ui: rated insulation voltage.*
3 *Uimp: rated impulse withstand voltage.*
4 *Ics: service breaking capacity.*
5 *Icu: ultimate breaking capacity for various values of the rated operational voltage Ue*
6 *Ue: operational voltage.*
7 *Colour label indicating the breaking capacity class.*



8 *Suitable for Isolation symbol.*
9 *Reference standard.*
Note: when the circuit breaker is equipped with an extended rotary handle, the door must be opened to access the rating plate.

Compliance with standards
EasyPact CVS circuit breakers and auxiliaries comply with the following international recommendations:
- IEC 60947-1: general rules
- IEC 60947-2: circuit breakers
- IEC 60947-3: switch-disconnectors

Pollution degree
EasyPact CVS circuit breakers are certified for operation in pollution-degree III environments as defined by IEC standards 60947-1 and 60664-1 (industrial environments).

Climatic withstand
EasyPact CVS circuit breakers have successfully passed the tests defined by the following standards for extreme atmospheric conditions:
- IEC 60068-2-1: dry cold (-55°C)
- IEC 60068-2-2: dry heat (+85°C)
- IEC 60068-2-30: damp heat (95 % relative humidity at 55°C)
- IEC 60068-2-52 severity level 2: salt mist.

Environment
EasyPact CVS respects the European environment directive EC/2002/95 concerning the restriction of hazardous substances (RoHS).
All EasyPact CVS production sites have set up an ISO 14001 certified environmental management system.

Ambient temperature
- EasyPact CVS circuit breakers can be used between -25°C and +70°C. For temperatures higher than 40°C (65°C for circuit breakers used to protect motor feeders), devices must be derated (see page B-2).
- Circuit breakers should be put into service under normal ambient, operating-temperature conditions. Exceptionally, the circuit breaker can be put into service when the ambient temperature is between -35°C and -25°C.
- The permissible storage-temperature range for EasyPact CVS circuit breakers in the original packing is -50°C and +85°C.

Suitable for isolation with positive contact indication

All EasyPact CVS circuit breakers are suitable for isolation as defined in IEC standard 60947-2:

- The isolation position corresponds to the O (OFF) position.
- The operating handle cannot indicate the OFF position unless the contacts are effectively open.
- Padlocks cannot be installed unless the contacts are open.

Installation of a rotary handle does not alter the reliability of the position-indication system.

The isolation function is certified by tests guaranteeing:

- The mechanical reliability of the position-indication system
- The absence of leakage currents
- Over voltage withstand capacity between upstream and downstream connections.

The tripped position does not ensure isolation with positive contact indication.

Only the OFF position guarantees isolation.

Installation in class II switchboards

All EasyPact CVS circuit breakers are class II front face devices. They can be installed through the door of class II switchboards (as per IEC standards 61140 and 60664-1) without downgrading switchboard insulation. Installation requires no special operations, even when the circuit breaker is equipped with a rotary handle.

Degree of protection

The following indications are in accordance with standards IEC 60529 (IP degree of protection) and IEC 62262 (IK protection against external mechanical impacts).

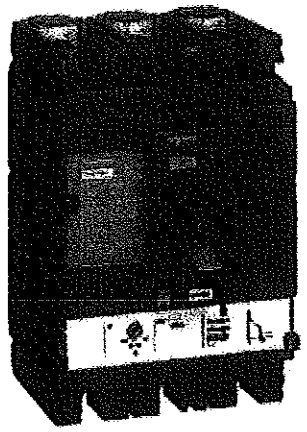
Bare circuit breaker:

- with toggle: IP40, IK07 front face
- with extended rotary handle: IP 55, IK08

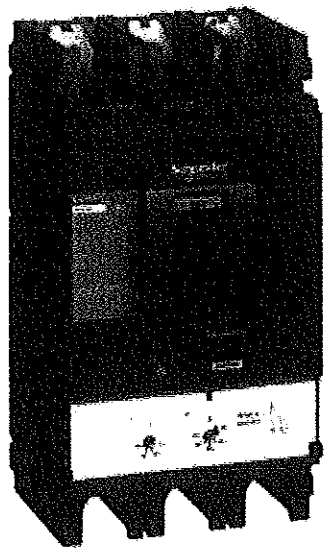
Circuit breaker installed in a switchboard:

- with toggle: IP40, IK07 front face
- with extended rotary handle: IP 55, IK08

Introduction
Characteristics and performance



EasyPact CVS100/160/250



EasyPact CVS400/630

Common characteristics			
Rated voltages			
Insulation voltage (V)	Ui		690
Impulse withstand voltage (kV)	Uimp		8
Operational voltage (V)	Ue	AC 50/60 Hz	440
Suitability for isolation		IEC/EN 60947-2	yes
Utilisation category			A
Pollution degree		IEC 60664-1	3

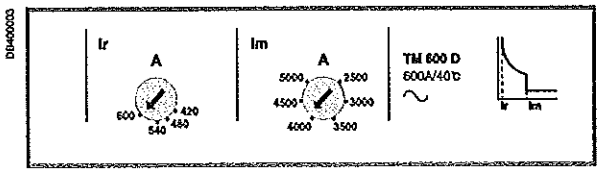
Circuit breakers				
Performance				
Electrical characteristics as per IEC 60947-2				
Rated current (A)	In	40 °C		
Number of poles				
Breaking capacity levels				
Breaking capacity (kA rms)				
	Icu	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
Service breaking capacity (kA rms)				
	Ics	AC 50/60 Hz	220/240 V	
			380/415 V	
			440 V	
Durability (C-O cycles)		Mechanical		
		Electrical	415V	In/2
				In
Protection				
Short-circuit protection	Magnetic only			
Overload/short-circuit protection	Thermal magnetic			
	Electronic			
		with neutral protection (Off-0.5-1)		
Earth-leakage protection	By Vigi module			
Installation/connections				
Dimensions and weights				
Dimensions (mm)	Fixed, front connections		3P	
W x H x D			4P	
Weight (kg)	Fixed, front connections		3P	
			4P	
Connections				
Connection terminals	Pitch		Without/With spreaders	
Large Cu or Al cables	Cross-section		mm²	

CVS100	CVS160	CVS250	CVS400	CVS630
100	160	250	400	630
3, 4	3, 4	3, 4	3, 4	3, 4
B F	B F	B F	F N	F N
40 70	40 70	40 70	40 70	40 70
25 36	25 36	25 36	36 50	36 50
20 36	20 36	20 36	30 42	30 42
40 70	40 70	40 70	40 70	40 70
25 36	25 36	25 36	36 50	36 50
15 18	15 18	15 18	23 32	23 32
30000	25000	20000	15000	15000
30000	25000	20000	12000	8000
12000	12000	10000	6000	4000
■	■	■	■	■
■	■	■	■	■
-	-	-	■	■
-	-	-	■	■
■	■	■	■	■
105 x 161 x 86	105 x 161 x 86	105 x 161 x 86	140 x 255 x 110	140 x 255 x 110
140 x 161 x 86	140 x 161 x 86	140 x 161 x 86	185 x 255 x 110	185 x 255 x 110
1.8	1.8	2.0	4.7	5.2
2.2	2.3	2.6	6.3	7.1
35/45 mm	35/45 mm	35/45 mm	45/52.5 mm 45/70 mm	45/52.5 mm 45/70 mm
300	300	300	4 x 240	4 x 240

ВЯРНО
С ОРИГИНАЛА

TM-D thermal-magnetic trip units can be used on EasyPact CVS100-630 circuit breakers with performance levels B/F/N.

TM-D thermal-magnetic trip units



Protection

TM-D trip units are used mainly in electrical distribution applications for protection of cables supplied by transformers.

Thermal protection (Ir)
Thermal protection operates according to:
- Ir that can be adjusted in amps from 0.7 to 1 times the rating of the trip unit (16 A to 250 A), corresponding to settings from 11 to 250 A for the range of trip units
- a non-adjustable time delay.

Magnetic protection (Im)
Short-circuit protection with a fixed or adjustable pick-up Im that initiates instantaneous tripping if exceeded.
- TM-D: fixed pick-up, Im, for 16 to 250 A ratings and adjustable from 5 to 10 x In for 400 A ratings, 4.2 to 8.3 x In for 600 A rating.

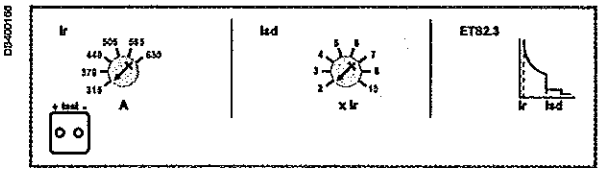
Protection versions
- 3-pole:
- 3P 3D: 3-pole frame (3P) with detection on all 3 poles (3D)
- 4-pole:
- 4P 3D: 4-pole frame (4P) with detection on 3 poles (3D).
- 4P 4D: 4-pole frame (4P) with detection on all 4 poles (same threshold for phases and neutral).

Thermal-magnetic trip units		TM16D to 250D												TM320D to 600D			
Ratings (A)	**In at 40 °C (1)**	**16**	**25**	**32**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**320**	**400**	**500**	**600**
Circuit breaker	CVS100	■	■	■	■	■	■	■	■	-	-	-	-				
	CVS160	-	-	-	-	-	-	-	■	■	■	-	-				
	CVS250	-	-	-	-	-	-	-	-	-	■	■	■				
	CVS400													■	■	-	-
	CVS630													-	-	■	■
Magnetic protection																	
Pick-up (A)	Im	fixed												adjustable			
accuracy ±20 %	CVS100	190	300	400	500	500	500	640	800								
	CVS160/250								800	1250	1250	2000	2500				
	CVS400													1600 to 3200 (320A), 2000 to 4000 (400A)			
	CVS630													2500 to 5000			
Thermal protection																	
Pick-up (A) tripping between 1.05 and 1.30 Ir	Ir = In x ...	adjustable in amps from 0.7 to 1 x In															
Neutral protection																	
Unprotected neutral	4P 3D	no detection															
Fully protected neutral	4P 4D	1 x Ir															

(1) For temperatures not equal to 40°C, the thermal protection characteristics are modified. See the temperature derating table on page B-2.

Note: All the trip units have a transparent lead-sealable cover that protects access to the adjustment dials.

ETS 2.3 electronic trip unit



Protection

The protection functions can be set using the adjustment dials.

Overload protection

Long-time protection with an adjustable threshold and fixed tripping delay:
- Ir base setting (6-position dial from 0.5 to 1)

Short-circuit protection

Short-time and instantaneous protection:
- short-time protection with an adjustable pick-up and fixed tripping delay
- instantaneous protection with fixed pick-up.

Protection of the fourth pole

On 4-pole circuit breakers, neutral protection is set using a three-position switch to 4P 3D (neutral unprotected), 4P 3D + N/2 (neutral protection at 0.5 In) or 4P 4D (neutral protection at In).

Trip units		ETS 2.3	
Ratings (A) of circuit breaker	In 20 to 70 °C	400	630
Circuit breaker	CVS400 F/N	■	-
	CVS630 F/N	-	■
Overload protection (Long time)			
Current setting	Ir = In x ...	0.5...1 adj., 6 settings	
Time delay (s)		fixed	
(min....max.)	at 1.5 x Ir	90...180	
	at 6 x Ir	5...7.5	
	at 7.2 Ir	3.2...5.0	
Short-circuit protection (Short time)			
Pick-up (A) accuracy ± 15 %	Isd = Ir x ...	2...10 adj, 8 settings	
Time delay (ms)		fixed	
	max. resettable time	≤ 40	
	max. break time	≤ 60	
Short-circuit protection (instantaneous)			
Pick-up (A)	Ii = In x ...	11	
Protection of the fourth pole			
Neutral unprotected	4P 3D	no protection	
Neutral protection at 0.5 In	4P 3D + N/2	0.5 x Ir	
Neutral protection at In	4P 4D	1 x Ir	
Thermal memory			
	CVS400 F/N	Yes	
	CVS630 F/N	Yes	

Test equipment for ETS electronic trip unit

Mini test kit

The mini test kit is a portable unit requiring no external power supply, used to check operation of the electronic trip unit and circuit breaker tripping.
It connects to the test connector on the front of the circuit breaker.
Required power source: five 9 V alkaline batteries (not supplied).

Portable test kit

The portable test kit is used to check all aspects of the protection functions:
- long time protection
- short time protection
- instantaneous protection
- earth-fault protection.

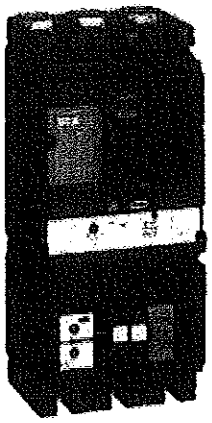
Required power source: 110 or 220 V AC, 50/60 Hz.

Spare test plug and wiring kit

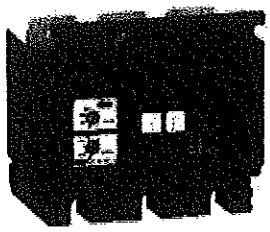
A spare test plug and wiring kit are available for this offer.

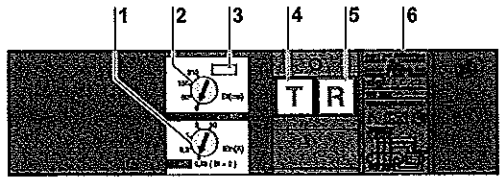
Earth-leakage protection
Add-on protection against insulation faults using a Vigi module

A Vigi module can be added to any three or four-pole CVS100 to 630 circuit breaker to form a Vigi CVS.



Vigi CVS100 to 630





1 Sensitivity setting
2 Time-delay setting (for selective earth-leakage protection).
3 Lead-seal fixture for controlled access to settings.
4 Test button simulating an earth-fault for regular checks on the tripping function
5 Reset button (reset required after earth-fault tripping).
6 Rating plate

Circuit breaker with add-on Vigi module (Vigi CVS)

- For general characteristics of circuit breakers, see pages A-2 and A-3.
- Add-on Vigi modules: Earth-leakage protection is achieved by installing a Vigi module (characteristics and selection criteria on next page) directly on the circuit breaker terminals. It directly actuates the trip unit (magnetic, thermal-magnetic or ETS).

Vigi CVS100 to 630 circuit breakers with earth-leakage protection

Addition of the Vigi module does not alter circuit-breaker characteristics:
- compliance with standards
- degree of protection, class II front-face insulation
- positive contact indication
- electrical characteristics
- trip-unit characteristics
- installation and connection modes
- indication, measurement and control auxiliaries
- installation and connection accessories.

Dimensions and weights		CVS100/160/250	CVS400/630
Dimensions	3-pole	105 x 236 x 86	140 x 355 x 110
W x H x D (mm)	4-pole	140 x 236 x 86	185 x 355 x 110
Weight (kg)	3-pole	2.5	8.8
	4-pole	3.2	10.8

Vigi earth-leakage protection modules

Compliance with standards
- IEC 60947-2, annex B.
- Decree dated 14 November 1988 (for France).
- IEC 60755, class A, immunity to DC components up to 6 mA
- operation down to -25 °C as per VDE 664.

Vigi module selection

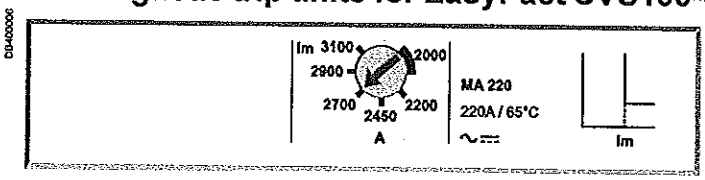
Type	Vigi ME	Vigi MH	Vigi MB
Number of poles	3, 4 (1)	3, 4 (1)	3, 4 (1)
CVS100	■	■	-
CVS160	■	■	-
CVS250	-	■	-
CVS400	-	-	■
CVS630	-	-	■
Protection characteristics			
Sensitivity	fixed	adjustable	adjustable
I△n (A)	0.3	0.03 - 0.3 - 1 - 3 - 10	0.3 - 1 - 3 - 10 - 30
Time delay	fixed	adjustable	adjustable
Intentional delay (ms)	< 40	0 - 60 (2) - 150 (2) - 310 (2)	0 - 60 - 150 - 310
Max. break time (ms)	< 40	< 40 < 140 < 300 < 800	< 40 < 140 < 300 < 800
Rated voltage VAC 50/60 Hz	200...440	200... 440	200...440

(1) Vigi 3P modules may also be used on 3P circuit breakers used for two-phase protection.
(2) If the sensitivity is set to 30 mA, there is no time delay, whatever the time-delay setting.

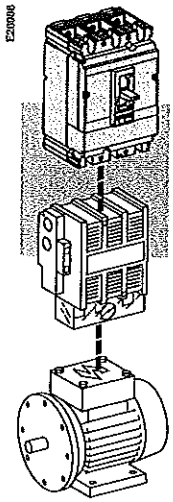
Operating safety

The Vigi module is a user safety device. It must be tested at regular intervals (every 6 months) via the test button.

MA magnetic trip units for EasyPact CVS100-630A



Circuit breakers with an MA trip unit are combined with a thermal relay and a contactor or a starter.



CVS100 to 630 circuit breakers, equipped with an MA magnetic trip unit with adjustable thresholds, offer:
- short-circuit protection
- suitability for isolation.

CVS100 to 630 circuit breakers with trip unit are supplied ready-assembled.

Protection

Magnetic protection (Im)

Short-circuit protection with an adjustable pick-up Im that initiates instantaneous tripping if exceeded.

- ■ Im = In x ... is set on an adjustment dial in multiples of the rating:
- □ 6 to 14 x In (2.5 to 100 A ratings)
- □ 9 to 14 x In (150 to 220 A ratings)
- □ 6 to 13 x In (320 to 500 A ratings)

Protection version

- ■ 3-pole (3P 3D): 3-pole frame (3P) equipped with detection on all 3 poles (3D).

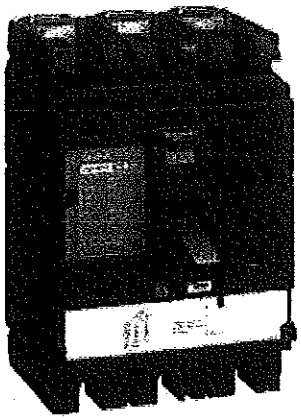
Motor protection up to 250 kW

Motor protection rating (kW)			
CVS 100/160/250 CVS 400/630		1.1...110	18.5...250
Breaking	B	25	25
capacity (kA rms)	F	36	36
380/415 V	N	-	-

MA trip units											
Ratings (A)	**In at 65 °C**	**2.5**	**6.3**	**12.5**	**25**	**50**	**100**	**150**	**220**	**320**	**500**
Circuit breaker	CVS100	■	■	■	■	■	■	-	-	-	-
	CVS160	-	-	-	-	-	■	■	-	-	-
	CVS250	-	-	-	-	-	-	■	■	-	-
	CVS400	-	-	-	-	-	-	-	-	■	-
	CVS630	-	-	-	-	-	-	-	-	-	■
Short-circuit protection (magnetic)											
Pick-up (A)	Im = In x ...	setting						setting		setting	
CVS100		6...14 x In						-		-	
CVS160/250		-						9...14 x In		-	
CVS400/630		-						-		6...13 x In	

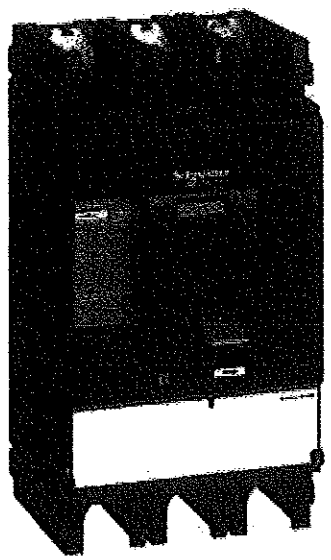
Switch-disconnectors
Characteristics and performance

Installation standards require upstream protection. However EasyPact CVS100 to 630 NA switch-disconnectors are self-protected by their high-set magnetic release.



PB106451

EasyPact CVS100 to 250 NA



PB106452

EasyPact CVS400 to 630 NA

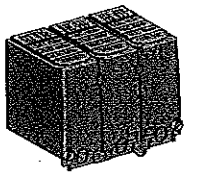
Switch-disconnectors				
Electrical characteristics as per IEC 60947-3 and EN 60947-3				
Conventional thermal current (A)	Ith 50 °C			
Number of poles				
Operational current (A) depending on the utilisation category	Ie	AC 50/60 Hz		
			220/240 V	
			380/415 V	
			440 V	
Short-circuit making capacity (kA peak)	Icm	min. (switch-disconnector alone)		
		max. (protection by upstream circuit breaker)		
Rated short-time withstand current (A rms)	Icw	for	1 s	
			3 s	
			20 s	
Durability (C-O cycles)	mechanical			
	electrical	AC		
			415 V	In
Protection				
Add-on earth-leakage protection	By Vigi module			
Additional indication and control auxiliaries				
Indication contacts				
Voltage releases	MX shunt release			
	MN undervoltage release			
Installation/connections				
Dimensions (mm)	fixed, front connections		3P	
W x H x D			4P	
Weight (kg)	fixed, front connections		3P	
			4P	

CVS100NA	CVS160NA	CVS250NA	CVS400NA	CVS630NA
100	160	250	400	630
3, 4	3, 4	3, 4	3, 4	3, 4
AC22A / AC23A	AC22A / AC23A	AC22A / AC23A	AC22A / AC23A	AC22A / AC23A
100	160	250	400	630/500
100	160	250	400	630/500
100	160	250	400	630/500
2.6	3.6	4.9	7.1	8.5
75	75	75	105	105
1800	2500	3500	5000	6000
1800	2500	3500	5000	6000
690	960	1350	1930	2320
30000	25000	20000	15000	15000
AC22A / AC23A	AC22A / AC23A	AC22A / AC23A	AC22A / AC23A	AC22A / AC23A
8000	8000	6500	4000	2500
■			■	
■			■	
■			■	
■			■	
105 x 161 x 86			140 x 255 x 110	
140 x 161 x 86			185 x 255 x 110	
1.5 to 1.8			5.2	
2.0 to 2.2			6.8	

Accessories and auxiliaries
Overview

DB400001

Insulation accessories ▶ E-9, E-19

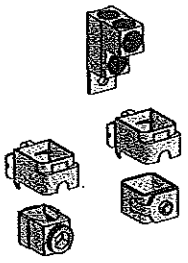


Sealable terminal shields

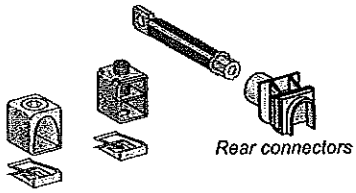
Interphase barriers

Connection ▶ A-14

Terminal extensions



Cable connectors



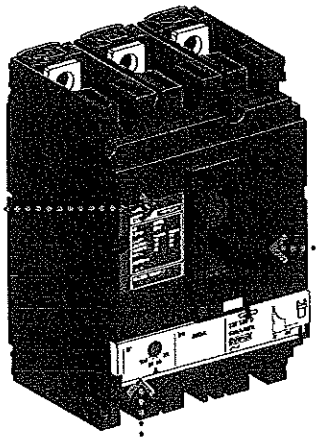
Cable connectors

Rear connectors

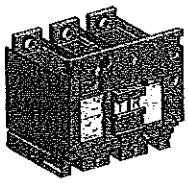
Electrical auxiliaries ▶ A-17

Indication contact

Voltage release

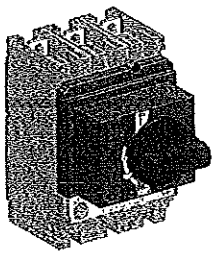


Monitoring ▶ A-8

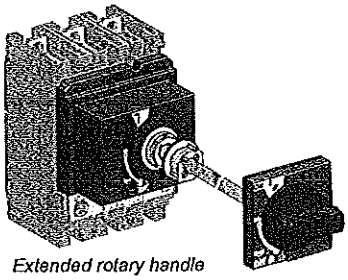


Earth leakage protection (VigiCVS)

Control accessories ▶ A-19



Direct rotary handle



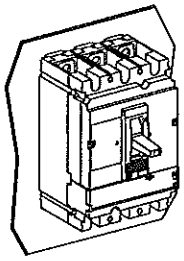
Extended rotary handle

CVS circuit breakers may be installed horizontally, vertically or flat on their back, without derating performance levels.

Fixed circuit breakers

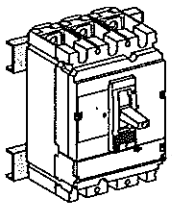
Fixed circuit breakers are designed for standard connection using bars or cables with lugs. Bare-cable connectors are available for connection to bare copper or aluminium cables.

DD400009



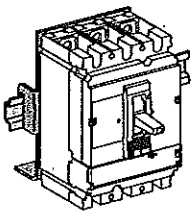
Mounting on a backplate.

DD400010



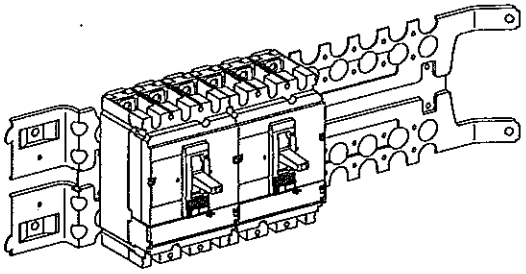
Mounting on rails.

DD400011



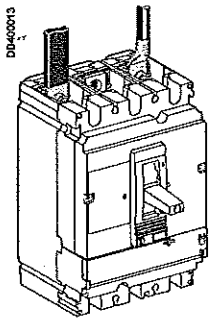
Mounting on DIN rail (with adaptor).

DD400012



Mounting on a Prisma mounting plate.

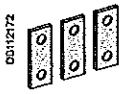
Fixed circuit breakers are designed for standard front connection using bars or cables with lugs.
Cable connectors are available for bare cables. Rear connection is also possible.



Insulated bar.

Small lug for copper cables.

Small lug for Al cables.



Straight terminal extensions.

Right-angle terminal extensions

Spreaders.

Front connection

Bars or cables with lugs

Standard terminals

EasyPact CVS100 to 630 come with terminals comprising snap-in nuts with screws:
- EasyPact CVS100: M6 nuts and screws.
- EasyPact CVS160/250: M8 nuts and screws
- EasyPact CVS400/630: M10 nuts and screws.

These terminals may be used for:
- direct connection of insulated bars or cables with lugs
- terminal extensions.

Interphase barriers or terminal shields are recommended. They are mandatory for certain connection accessories (in which case the interphase barriers are provided).

Bars

When the switchboard configuration has not been tested, insulated bars are mandatory.

Maximum size of bars

EasyPact CVS circuit breaker		100/160/250	400/630
Without spreaders	pitch (mm)	35	45
	maximum bar size (mm)	20 x 3	32 x 8
With spreaders	pitch (mm)	45	52.5
	maximum bar size (mm)	32 x 2	40 x 6

Crimp lugs

There are two modules of lugs, for aluminium and copper cables.
Interphase barriers or long terminal shields must be used with narrow lugs. The lugs are supplied with interphase barriers.

EasyPact CVS circuit breaker		100/160/250	400/630
Copper cables	size (mm²)	150, 185	240, 300
	crimping	hexagonal barrels or punching	
Aluminium cables	size (mm²)	150, 185	240, 300
	crimping	hexagonal barrels	

Terminal extensions

Extensions with anti-rotation ribs can be attached to the standard terminals to provide numerous connection possibilities in little space:
- straight terminal extensions
- right-angle terminal extensions

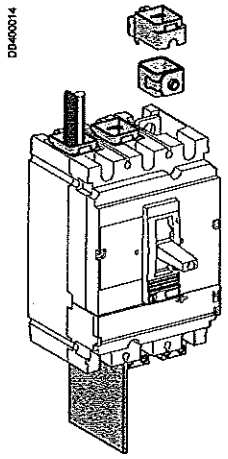
Spreaders

Spreaders may be used to increase the pitch:
- CVS100 to 250: the 35 mm pitch can be increased to 45 mm
- CVS400/630: the 45 mm pitch can be increased to 52 or 70 mm.

Bars, cable lugs or cable connectors can be attached to the ends.

Pitch (mm) depending on the type of spreader

EasyPact CVS circuit breaker	CVS100 to 250	CVS100 to 630
Without spreaders	35	45
With spreaders	45	52.5 or 70



Bare cable.

Bare cables

Bare-cable connectors may be used for both copper and aluminium cables.

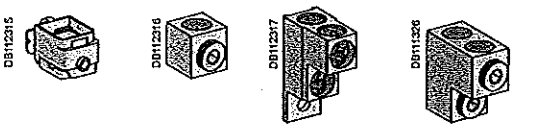
1-cable connectors for EasyPact CVS100 to 250
The connectors snap directly on to the device terminals or are secured by clips to right-angle and straight terminal extensions as well as spreaders.

1-cable connectors for EasyPact CVS400 to 630
The connectors are screwed directly to the device terminals.

2-cable connectors for EasyPact CVS100 to 250 and 400/630
The connectors are screwed to device terminals or right-angle terminal extensions.

Maximum size of cables depending on the type of connector

EasyPact CVS circuit breaker		100/160	250	400	630
Steel connectors	1.5 to 95 mm²	■			
Aluminium connectors	25 to 95 mm²	■	■		
	120 to 185 mm²	■	■		
	2 cables 50 to 120 mm²	■	■		
	2 cables 35 to 240 mm²			■	■
	35 to 300 mm²			■	■



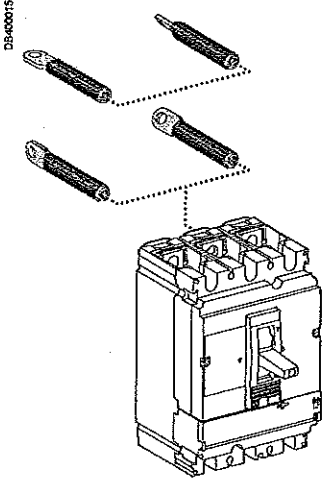
1-cable connector for CVS100 to 250

CVS400/630.

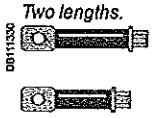
2-cable connector for CVS100 to 250

CVS400/630.

Four positions.



Two lengths.



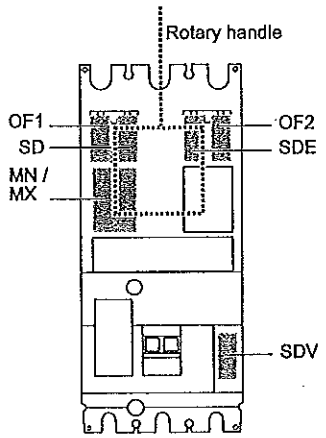
Rear connection

Device mounting on a backplate with suitable holes enables rear connection.

Bars or cables with lugs

Rear connections for bars or cables with lugs are available in two lengths. Bars may be positioned flat, on edge or at 45° angles depending on how the rear connections are positioned.
The rear connections are simply fitted to the device connection terminals. All combinations of rear connection lengths and positions are possible on a given device.

DB115563



EasyPact CVS100/160/250

Standard

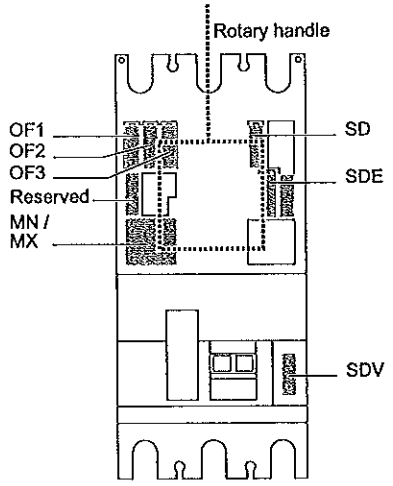
All EasyPact CVS100/160/250 circuit breakers and switch-disconnectors have slots for the electrical auxiliaries listed below.

5 indication contacts (see page A-17)
- 2 ON/OFF (OF1 and OF2)
- 1 trip indication (SD)
- 1 fault-trip indication (SDE)
- 1 earth-fault indication (SDV), when the device is equipped with a Vigi module.

1 remote-tripping release (see page A-18)
- either 1 MN undervoltage release
- or 1 MX shunt release.

All these auxiliaries can be installed with a rotary handle.

DB115580



EasyPact CVS400/630

Standard

All EasyPact CVS400/630 circuit breakers and switch-disconnectors have slots for the electrical auxiliaries listed below.

6 indication contacts (see page A-17)
- 3 ON/OFF (OF3)
- 1 trip indication (SD)
- 1 fault-trip indication (SDE)
- 1 earth-fault indication (SDV), when the device is equipped with a Vigi module.

1 remote-tripping release (see page A-18)
- either 1 MN undervoltage release
- or 1 MX shunt release.

All these auxiliaries can be installed with a rotary handle.
The illustration shown (TMD, MA, NA and ETS 2.3 standard) indicates auxiliary possibilities depending on the type of trip unit.

One contact model provides circuit-breaker status indications (OF - SD - SDE - SDV).

Indication contacts.

These common-point changeover contacts provide remote circuit-breaker status information.
They can be used for indications, electrical locking, relaying, etc.
They comply with the IEC 60947-5 international recommendation.

Functions

Breaker-status indications, during normal operation or after a fault
A single type of contact provides all the different indication functions:
- OF (ON/OFF) indicates the position of the circuit breaker contacts
- SD (trip indication) indicates that the circuit breaker has tripped due to:
  - an overload
  - a short-circuit
  - an earth fault (Vigi)
  - operation of a voltage release
  - operation of the "push to trip" button
  - disconnection when the device is ON.

The SD contact returns to de-energised state when the circuit breaker is reset.
- SDE (fault-trip indication) indicates that the circuit breaker has tripped due to:
  - an overload
  - a short-circuit
  - an earth fault (Vigi)
- SDV indicates that the circuit breaker has tripped due to an earth fault. It returns de-energised state when the Vigi module is reset.

Installation

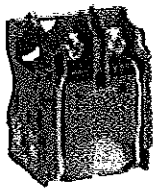
- OF, SD, SDE and SDV functions: a single type of contact provides all these different indication functions, depending on where it is inserted in the device. The contacts clip into slots behind the front cover of the circuit breaker (or the Vigi module for the SDV function).

The SDE function on a CVS100 - 630 A equipped with a magnetic, thermal-magnetic or ETS2.3 trip unit requires the SDE adaptor.

Electrical characteristics of auxiliary contacts

Contacts			Standard				Low level			
Types of contacts			All				OF, SD, SDE, SDV			
Rated thermal current (A)			6				5			
Minimum load			100 mA at 24 V DC				1 mA at 4 V DC			
Utilisation cat. (IEC 60947-5-1)			AC12	AC15	DC12	DC14	AC12	AC15	DC12	DC14
Operational current (A)	24 V	AC/DC	6	6	6	1	5	3	5	1
	48 V	AC/DC	6	6	2.5	0.2	5	3	2.5	0.2
	110 V	AC/DC	6	5	0.6	0.05	5	2.5	0.6	0.05
	220/240 V	AC	6	4	-	-	5	2	-	-
	250 V	DC	-	-	0.3	0.03	5	-	0.3	0.03
	380/440 V	AC	6	2	-	-	5	1.5	-	-

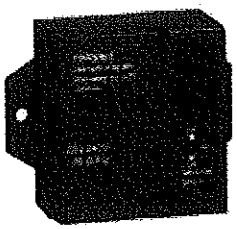
Accessories and auxiliaries
Remote tripping



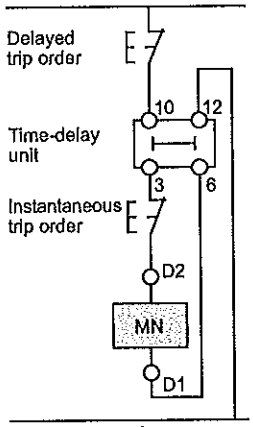
MX or MN voltage release.

Opening conditions of the MN release.

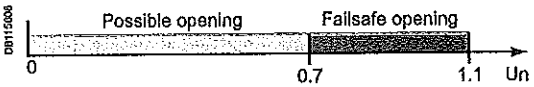
Closing conditions of the MN release.



MN release with a time-delay unit.



Wiring diagram for emergency-off function with MN + time-delay unit.



Opening conditions of the MX release.

MN undervoltage release

- This release trips the circuit breaker when the control voltage drops below a tripping threshold
- The tripping threshold is between 0.35 and 0.7 times the rated voltage
- Circuit breaker closing is possible only if the voltage exceeds 0.85 times the rated voltage.

Characteristics

Power supply	VAC	50/60 Hz: 24 - 48 - 100/130 - 200/240
		50 Hz: 380/415 60 Hz: 208/277
	V DC	12 - 24 - 30 - 48 - 60 - 125 -250
Operating threshold	Opening	0.35 to 0.7 Un
	Closing	0.85 Un
Operating range		0.85 to 1.1 Un
Consumption (VA or W)		Pick-up: 10 - Hold: 5
Response time (ms)		50

Time-delay unit for an MN release

A time delay unit for the MN release eliminates the risk of nuisance tripping due to a transient voltage dip lasting ≤ 200 ms. For shorter micro-outages, a system of capacitors provides temporary supply to the MN at U > 0.7 to ensure non tripping.
The correspondence between MN releases and time-delay units is shown below.

Power supply	Corresponding MN release
Unit with fixed delay 200 ms	
48 VAC	48 V DC
220 / 240 VAC	250 V DC
Unit with adjustable delay (0.5s, 0.9s, 1.5s, 3s)	
48 - 60 VAC/DC	48 V DC
100 - 130 VAC/DC	125 V DC
220 - 250 VAC/DC	250 V DC

MX shunt release

The MX release opens the circuit breaker via an impulse-type (≥ 20 ms) or maintained order.

Opening conditions

When the MX release is supplied, it automatically opens the circuit breaker. Opening is ensured for a voltage U ≥ 0.7 x Un.

Characteristics

Power supply	VAC	50/60 Hz: 24 - 48 - 100/130 - 200/240
		50 Hz: 380/415 60 Hz: 208/277
	V DC	12 - 24 - 30 - 48 - 60 - 125 -250
Operating range		0.7 to 1.1 Un
Consumption (VA or W)		Pick-up: 10
Response time (ms)		50

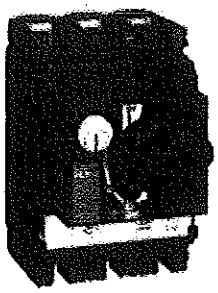
Circuit breaker control by MN or MX

When the circuit breaker has been tripped by an MN or MX release, it must be reset before it can be reclosed.
MN or MX tripping takes priority over manual closing.
In the presence of a standing trip order, closing of the contacts, even temporary, is not possible.
Connection using wires up to 1.5mm² to integrated terminal blocks.

Note: circuit breaker opening using an MN or MX release must be reserved for safety functions. This type of tripping increases wear on the opening mechanism. Repeated use reduces the mechanical endurance of the circuit breaker by 50 %.

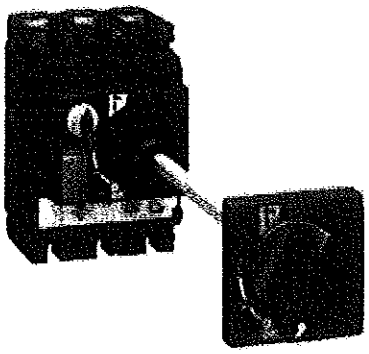
There are two types of rotary handle:
- direct rotary handle
- extended rotary handle.

PB100453



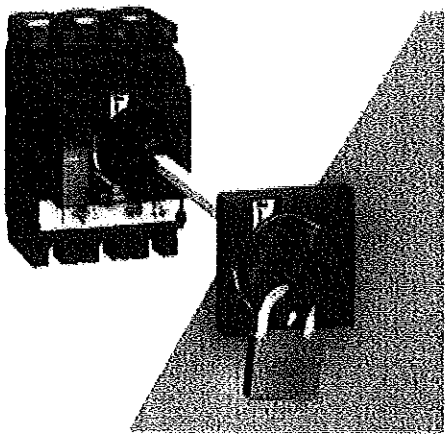
EasyPact CVS with a rotary handle.

PB1

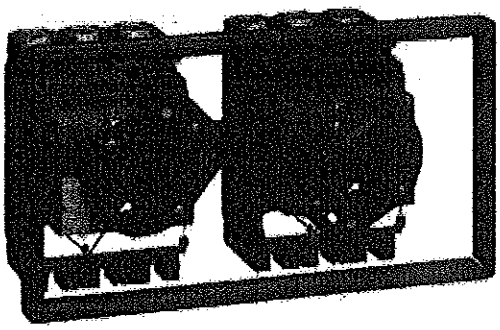


EasyPact CVS with an extended rotary handle installed at the back of a switchboard, with the keylock option and key.

PB100455



PB100456



Direct rotary handle

Standard handle

Degree of protection IP40, IK07.
The direct rotary handle maintains:
- visibility of and access to trip-unit settings
- suitability for isolation
- indication of the three positions O (OFF), I (ON) and tripped
- access to the "push to trip" button.

Device locking
The rotary handle facilitates circuit-breaker locking.
- Padlocking:
  - standard situation, in the OFF position, using 1 to 3 padlocks, shackle diameter 5 to 8 mm, not supplied

Extended rotary handle

Degree of protection IP56, IK08.
The extended rotary handle makes it possible to operate circuit breakers installed at the back of switchboards, from the switchboard front.
It maintains:
- visibility of and access to trip-unit settings
- suitability for isolation
- indication of the three positions O (OFF), I (ON) and tripped.

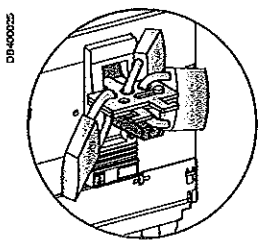
Device and door padlocking
Padlocking locks the circuit-breaker handle and disables door opening:
- standard situation, in the OFF position, using 1 to 3 padlocks, shackle diameter 5 to 8 mm, not supplied

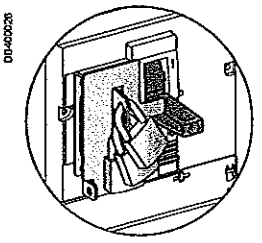
Parts of the extended rotary handles
- A unit that replaces the front cover of the circuit breaker (secured by screws).
- An assembly (handle and front plate) on the door that is always secured in the same position, whether the circuit breaker is installed vertically or horizontally.
- An extension shaft that must be adjusted to the distance. The min/max distance between the back of circuit breaker and door is:
  - 185...600 mm for EasyPact CVS100 to 250
  - 209...600 mm for EasyPact CVS 400/630.

Manual source-changeover systems

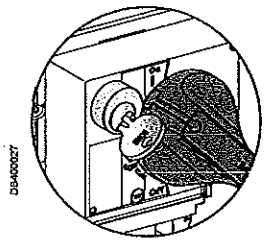
An additional accessory interlocks two devices with rotary handles to create a source-changeover system. Closing of one device is possible only if the second is open.
This function is compatible with direct or extended rotary handles.
Up to three padlocks can be used to lock in the OFF or ON position.

Accessories and auxiliaries
Locks and sealing accessories

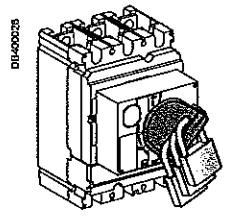


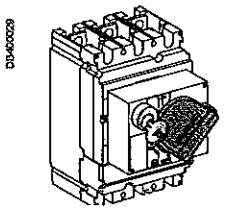


Toggle locking using padlocks and an accessory:
Removable device *Fixed device attached to the case.*

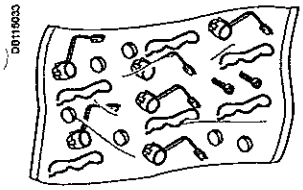


Rotary-handle locking using a keylock.





Rotary-handle locking using a padlock or a keylock.



Sealing accessories.

Locks

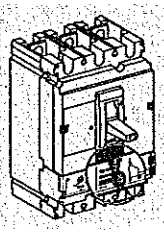
Locking in the OFF position guarantees isolation as per IEC 60947-2. Padlocking systems can receive up to three padlocks with shackle diameters ranging from 5 to 8 mm (padlocks not supplied). Certain locking systems require an additional accessory.

Control device	Function	Means	Required accessories
Toggle	Lock in OFF position	Padlock	Removable device
	Lock in OFF or ON position	Padlock	Fixed device
Direct rotary handle Standard	Lock in ■ OFF position ■ OFF or ON position (1)	Padlock	-
		Keylock	Locking device + keylock
Extended rotary handle	Lock in ■ OFF position ■ OFF or ON position (1) with door opening prevented (2)	Padlock	-
	Lock in OFF position	Padlock	UL508 control accessory
	■ OFF or ON position (1) inside the switchboard	Keylock	Locking device + keylock

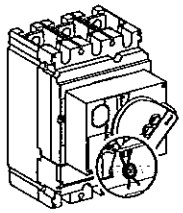
(1) Following a simple modification of the mechanism.
(2) Unless door locking has been voluntarily disabled.

Sealing accessories

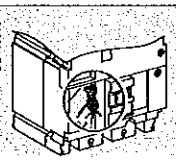
Toggle control



Rotary handle



Access to Vigi-module settings



Types of seals

Protected operations

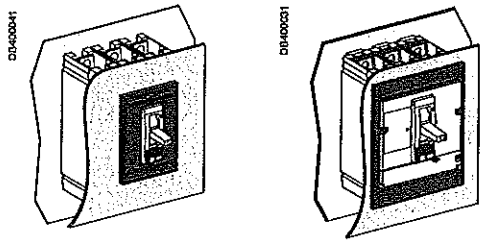
Protection cover for settings

■ modification of settings.

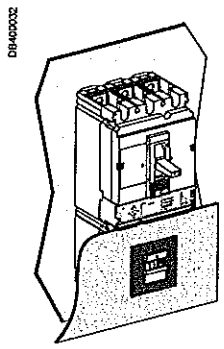
Escutcheons are an optional feature mounted on the switchboard door. They increase the degree of protection to IP40, IK07. Protection collars maintain the degree of protection, whatever the position of the device (connected, disconnected).

IP40 escutcheons for fixed devices

There are three types of escutcheon with a gasket which are screwed to the door cut-out:
- three escutcheons for all control types (toggle, handle or motor mechanism)
- a wide model for Vigi modules that can be combined with the above.



Escutcheon for toggle without and with access to the trip unit.



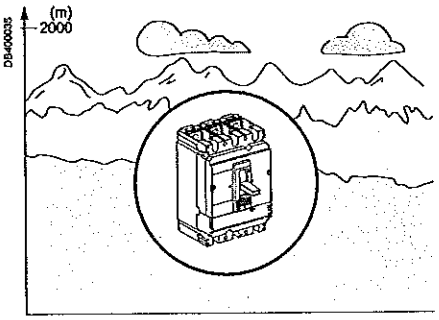
Escutcheon for Vigi module.

Installation recommendations

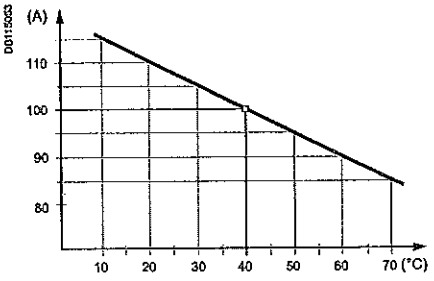
Installation recommendations
Contents

Installation recommendations

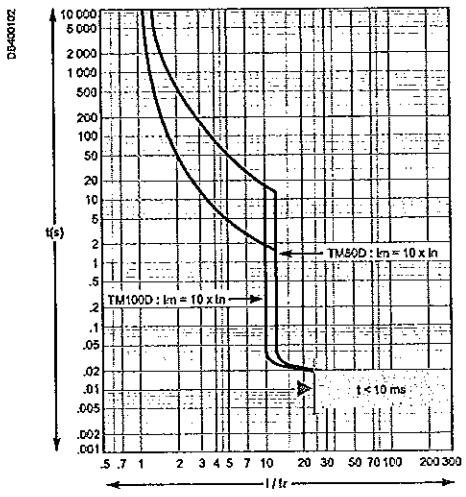
When thermal-magnetic trip units are used at ambient temperatures other than 40 °C, the Ir pick-up is modified.



Electronic trip units are not affected by variations in temperature. If the trip units are used in high-temperature environments, the ETS setting must nevertheless take into account the temperature limits of the circuit breaker.



Temperature derating curve for CVS100.



Thermal-protection curve with minimum and maximum values.

Operating conditions and temprature derating

Altitude derating

Altitude does not significantly affect the characteristics of EasyPact CVS circuit breakers up to 2000 m. Above this altitude, it is necessary to take into account the decrease in the dielectric strength and cooling capacity of air.

Altitude (m)	2000	3000	4000	5000	
Impulse withstand voltage Uimp (kV)	8	7	6	5.2	
Current ratio	1,00	0,96	0,93	0,90	EasyPact CVS
Ui	690	600	520	450	100-630
Ue	440	400	400	380	

Vibrations

CVS devices resist electromagnetic or mechanical vibrations.
Tests are carried out in compliance with standard IEC 60068-2-6 for the levels required by merchant-marine inspection organisations (Veritas, Lloyds, etc.):
- 2 to 13.2 Hz: amplitude ±1 mm
- 13.2 to 100 Hz: constant acceleration 0.7 g.

Excessive vibration may cause tripping, breaks in connections or damage to mechanical parts.

Degree of protection

CVS circuit breakers have been tested for degree of protection (IP) and mechanical impact protection (IK). See page A-3.

The overload protection is calibrated at 40 °C in the lab. This means that when the ambient temperature is less than or greater than 40 °C, the Ir protection pick-up is slightly modified.
To obtain the tripping time for a given temperature:
- see the tripping curves for 40 °C (see pages D-2 and D-3)
- determine tripping times corresponding to the Ir value (thermal setting on the device), corrected for the ambient temperature as indicated in the tables below.

Settings of CVS100 to 630 equipped with TM-D trip units as a function of the temperature

The table indicates the real Ir (A) value for a given rating and temperature.

Rat.	Temperature (°C)												
(A)	10	15	20	25	30	35	40	45	50	55	60	65	70
16	18.4	18	18	18	17	16.6	16	15.6	15.2	14.8	14.5	14	13.8
25	28.8	28	27.5	27	26.3	25.6	25	24.5	24	23.5	23	22	21
32	36.8	36	35.2	34.4	33.6	32.8	32	31.3	30.5	30	29.5	29	28.5
40	46	45	44	43	42	41	40	39	38	37	36	35	33.5
50	57.5	56	55	54	53	51	50	49	47	46	44	43	41
63	73	72	70	68	67	65	63	61	59	57	55	53	50
80	92	90	88	86	84	82	80	78	75.5	73	70.7	68	65
100	114	112	110	107	105	102.5	100	97	95	92.0	89	86	83
125	144	141	138	134	131	128	125	122	119	116	113	109	106
160	184	180	176	172	168	164	160	156	152	148	144	140	136
200	230	225	220	215	210	205	200	195	190	185	180	175	170
250	288	281	277	269	263	256	250	244	238	231	225	219	213
320	365	358	350.5	343	335.6	328	320	312	303.6	295	286	277	267.7
400	456.6	447.7	438.6	429	419.7	410	400	390	379.3	368.5	357.3	345.8	334
500	558.6	549	539.7	530	520.3	510.2	500	489.6	479	468	457	445.4	433.6
600	672	660.5	649	637	625	612.6	600	587	574	560.6	547	532.7	518

Operating conditions and temprature derating

CVS400 and 630 (equipped with ETS2.3 electronic trip unit)

The table below indicates the maximum long-time (LT) protection setting Ir (A) depending on the ambient temperature.

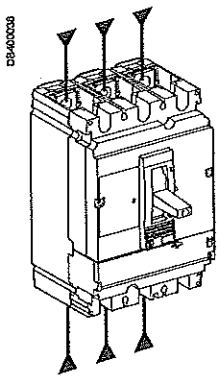
Type of device	Rating (A)	Temperature (°C) 40	45	50	55	60	65	70
CVS400								
Fixed	400	400	400	400	390	380	370	360
CVS630								
Fixed	630	630	615	600	585	570	550	535

Additional derating coefficient for an add-on module

For fixed circuit breakers equipped with a Vigi module, the coefficients in the table below must be applied.

Circuit breaker	Trip unit	Coefficient
CVS400	TMD320	0.98
	TMD400	0.94
	ETS2.3	0.97
CVS630	TMD500	0.9
	TMD600	0.89
	ETS2.3	0.9

Installation in switchboards
Power supply and weights



Power supply from the top or bottom

CVS circuit breakers can be supplied from either the top or the bottom, even when equipped with a Vigi earth-leakage protection module, without any reduction in performance. This capability facilitates connection when installed in a switchboard. All connection and insulation accessories can be used on circuit breakers supplied either from the top or bottom.

Weight

The table below presents the weights (in kg) of the circuit breakers and Vigi module.

Type of device		Circuit breakers		Vigi module
		CVS with TM-D	CVS with ETS	
CVS100	3P 3D	1.64	-	0.87
	4P 4D	2.01	-	1.13
	4P 3D	2.01	-	1.13
CVS160	3P 3D	1.60	-	0.87
	4P 4D	2.08	-	1.13
	4P 3D	2.08	-	1.13
CVS250	3P 3D	1.79	-	0.87
	4P 4D	2.39	-	1.13
	4P 3D	2.39	-	1.13
CVS400	3P 3D	4.37	4.71	2.8
	4P 4D	5.83	6.32	3
	4P 3D	5.83	6.32	3
CVS630	3P 3D	4.80	5.24	2.8
	4P 4D	6.40	7.14	3
	4P 3D	6.40	7.14	3

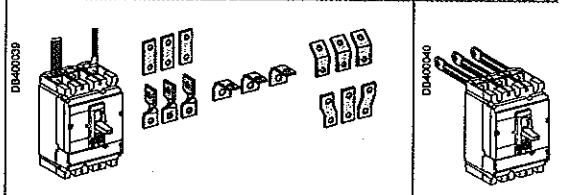
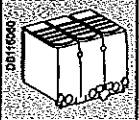
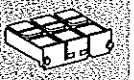
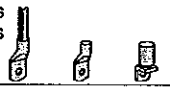
Installation in switchboards
Safety clearances and minimum distances

General rules
When installing a circuit breaker, minimum distances (safety clearances) must be maintained between the device and panels, bars and other protection devices installed nearby. These distances, which depend on the ultimate breaking capacity, are defined by tests carried out in accordance with standard IEC 60947-2.
If installation conformity is not checked by type tests, it is also necessary to:
- use insulated bars for circuit-breaker connections
- segregate the busbars using insulating screens.

For CVS100 to 630 devices, terminal shields and interphase barriers are recommended and may be mandatory depending on the operating voltage of the device and type of installation (fixed, withdrawable, etc.).

Power connections
The table below indicates the rules to be respected for CVS100 to 630 devices to ensure insulation of live parts for fixed devices.

CVS100 to 630: rules to be respected to ensure insulation of live parts

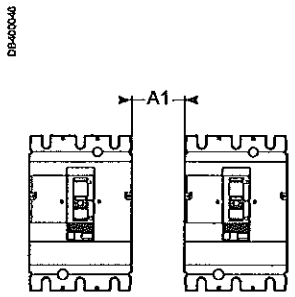
Type of connection		Fixed, front connection			Fixed, rear connection
					
Possible, recommended or mandatory accessories: With:		No insulating accessory	Interphase barriers 	Long terminal shields (1) 	Short terminal shields 
operating voltage	type of conductor				
≤ 440 V	Insulated bars 	Possible	Possible	Possible	Recommended
	Extension terminals Cables + crimp lugs 	No	Mandatory (supplied)	Possible (instead of ph. barriers)	Recommended
	Bare cables + connectors 	Possible for CVS100 to 250	Possible for CVS100 to 250	Possible for CVS100 to 250	Recommended
		No	Mandatory (supplied)	Possible (instead of ph. barriers)	

(1) Long terminal shields provide a degree of protection of IP40 (ingress) and IK07 (mechanical impact).

Installation in switchboards
Installation example

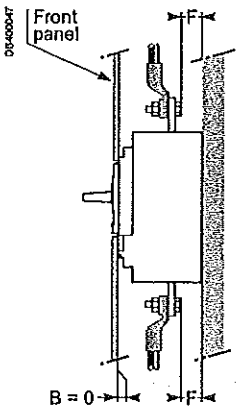
Safety clearance

Minimum distance between two adjacent circuit breakers



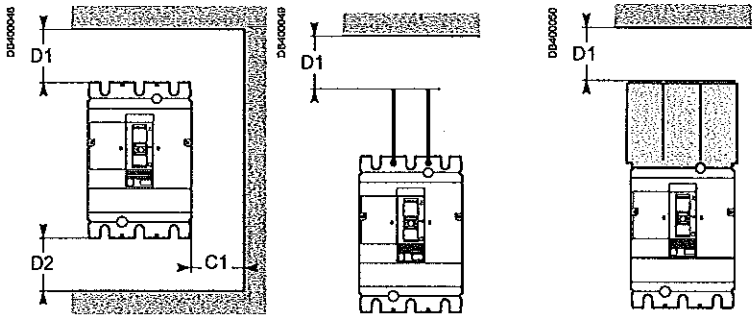
Bare or painted sheet metal

Minimum distance between circuit breaker and front or rear panels



Note: if F < 8 mm: an insulating screen or long terminal shield is mandatory.

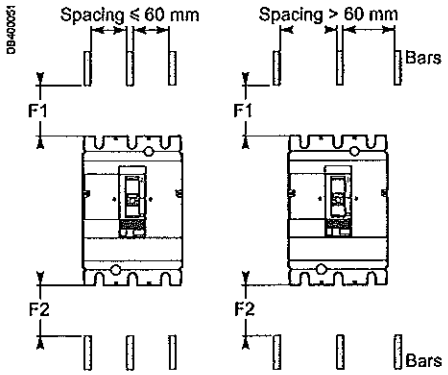
Minimum distance between circuit breaker and top, bottom or side panels



Devices without accessories. *Devices with interphase barriers or long terminal shields.*

Minimum safety clearances for CVS100 to 630

Dimensions (mm) Compact circuit breaker	Insulation, insulated bars or painted sheet metal			Bare sheetmetal			
	C1	D1	D2	C1	D1	D2	A1
CVS100-250 U ≤ 440V	0	30	30	5	35	35	0
CVS400-630 U ≤ 440V	0	30	30	5	60	60	0



Live busbars.

Clearances with respect to live bare busbars

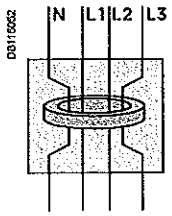
Minimum clearances for CVS100 to 630

Operating voltage	Clearances with respect to live bare busbars			
	spacing ≤ 60 mm		spacing > 60 mm	
	F1	F2	F1	F2
U < 440 V	350	350	80	80
U = 440 V	350	350	120	120

These clearances can be reduced for special installations as long as the configuration is checked by tests.

Power loss/ Resistance
EasyPact CVS equipped with thermalmagnetic trip units

EasyPact CVS thermal power loss values are used to calculate total temperature rise in the switchboard in which the circuit breakers are installed.



With a Vigi module, the deviation of the N and L3 bars required to pass through the toroid results in higher power losses compared to those of the L1 and L2 bars.

The values indicated in the tables below are typical values for a device at full rated load and 50/60 Hz.

Power loss per pole (P/pole) in Watts (W)
The value indicated is the power loss at I_N, 50/60 Hz, for a three-pole or four-pole circuit breaker. Measurement and calculation of power loss are carried out in compliance with the recommendations of Annex G of standard IEC 60947-2.

Resistance per pole (R/pole) in milliohms (mΩ)
The value of the resistance per pole is provided as a general indication for a new device.
The value of the contact resistance must be determined on the basis of the measured voltage drop, in accordance with the manufacturer's test procedure (ABT instruction document no. 1 - BEE - 02.2 -A).
Note: this measurement is not sufficient to determine the quality of the contacts, i.e. the capacity of the circuit breaker to carry its rated current.

Additional power loss
Additional power loss is equal to the sum of the power dissipated by the following:
- Vigi module: note that the deviation of the N and L3 bars required to pass through the toroid results in higher power losses compared to those of the L1 and L2 bars (diagram opposite). When calculating total power loss, use L1, L2, L3 for a 3P device and N, L1, L2, L3 for a 4P device
- disconnecting contacts (plug-in and withdrawable devices)
- ammeter module
- transformer module.

Calculation of total power loss
Total power loss at full rated load and 50/60 Hz is equal to the sum of the device and additional power losses per pole multiplied by the number of poles (2, 3 or 4).
If a Vigi module is installed, it is necessary to differentiate between N and L3 on one hand and L1 and L2 on the other.

EasyPact CVS100 to 630 equipped with TM-D trip units

Type of device 3/4 poles	Fixed device			Additional power/pole	
	Rat (A)	R/pole	P/pole	Vigi (N L3)	Vigi (L1 L2)
CVS100	16	11.91	3.05	0	0
	25	6.91	4.32	0	0
	32	4.43	4.54	0.06	0.03
	40	4.125	6.60	0.1	0.05
	50	3.30	8.25	0.15	0.08
	63	1.92	7.62	0.3	0.15
	80	1.86	11.90	0.4	0.2
	100	1.37	13.70	0.7	0.35
CVS160	100	0.77	7.70	0.7	0.35
	125	0.69	10.78	1.1	0.55
	160	0.55	14.08	1.8	0.9
CVS250	160	0.46	11.78	1.8	0.9
	200	0.39	15.60	2.8	1.4
	250	0.3	18.75	4.4	2.2
CVS400	320	0.24	24.00	2.05	1.03
	400(1)	0.19	30.00	2.86	1.43
CVS630	500(2)	0.17	40.80	4.08	2.04
	600(3)	0.15	53.80	5.7	2.85

(1) The power loss value for Vigi module is given for 378A
(2) The power loss value for Vigi module is given for 451A
(3) The power loss value for Vigi module is given for 534A

EasyPact CVS100 to 630 equipped with MA trip units

Type of device 3/4 poles	Fixed device			Additional power/pole	
	Rat (A)	R/pole	P/pole	Vigi (N L3)	Vigi (L1 L2)
CVS100	2.5	148.91	0.93	0	0
	6.3	99.51	3.95	0	0
	12.5	4.54	0.71	0	0
	25	2.15	1.34	0	0
	50	1.16	2.90	0.2	0.1
	100	0.52	5.20	0.7	0.35
CVS160	150	0.38	8.55	1.35	0.68
CVS250	220	0.3	14.52	2.9	1.45
CVS400	320	0.15	15.40	3.2	1.6
CVS630	500	0.13	32.20	13.99	7

Power loss/ Resistance
EasyPact CVS equipped with electronic trip units

The values indicated in the table below are typical values for a device at full rated load and 50/60 Hz. The definitions and information are the same as that for circuit breakers equipped with thermal-magnetic trip units.

CVS400 to 630 equipped with electronic trip units

Type of device 3/4 poles	Fixed device			Additional power/pole	
	Rat. (A)	R/pole	P/pole	Vigi (N,L3)	Vigi (L1,L2)
CVS400	400	0.15	24.00	3.2	1.6
CVS630	630(4)	0.12	47.63	6.5	3.25

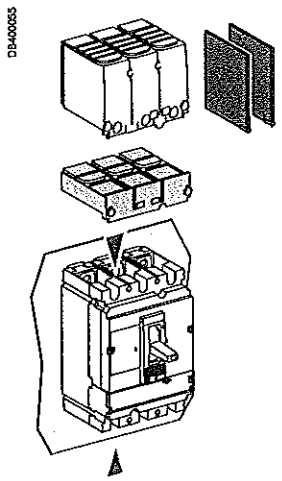
(4) The power loss value for Vigi module is given for 570A

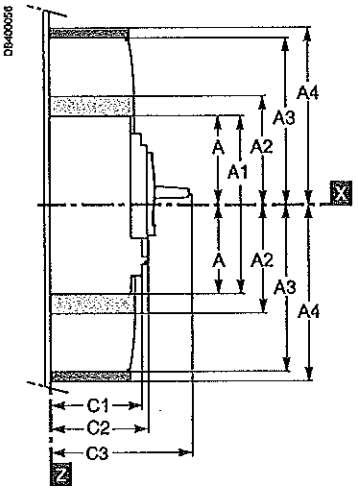
Dimensions and connection

Dimensions and connection
Contents

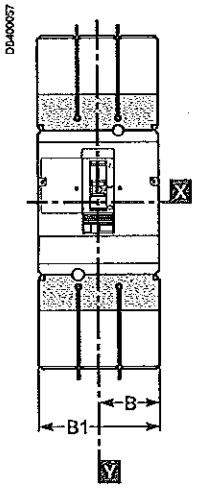
Dimensions and mounting
EasyPact CVS100 to 630

Dimensions

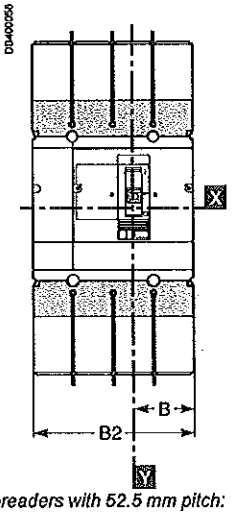




3P



4P



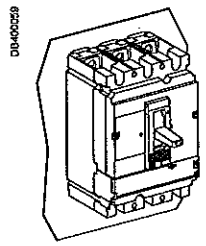
Interphase barriers.
Short terminal shields.

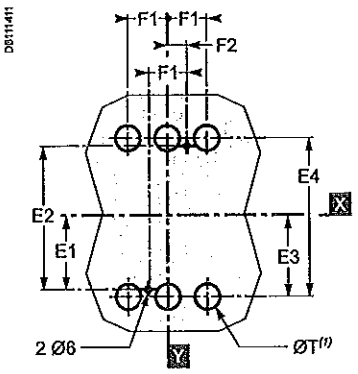
Long terminal shields (also available for CVS400/630 spreaders with 52.5 mm pitch: B1 = 157.5 mm, B2 = 210 mm).

Mounting

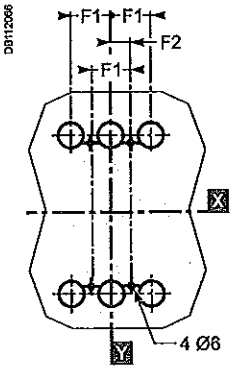
On backplate

CVS100 to 250 — 3P

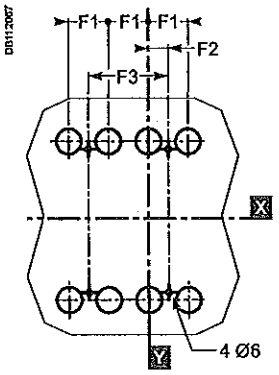




CVS400/630 — 3P



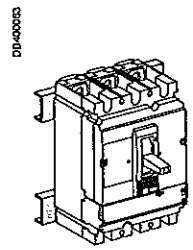
CVS100 to 630 — 4P

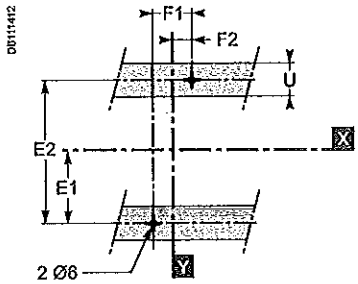


(1) The ØT holes are required for rear connection only.

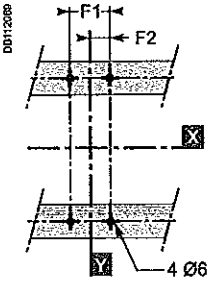
On rails

3P

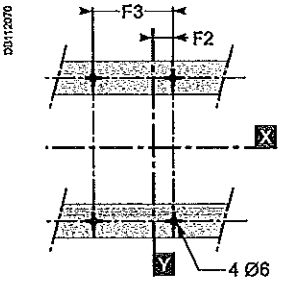




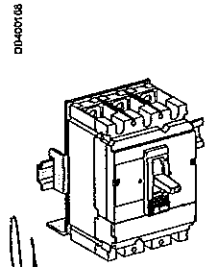
3P

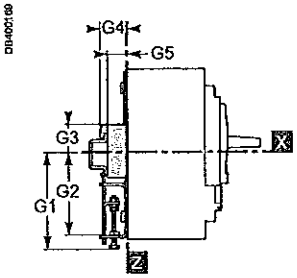


4P



On DIN rail with adaptor plate (CVS100 to 250)

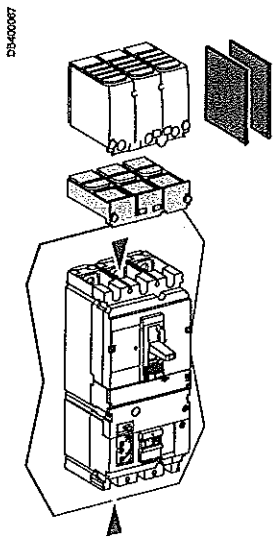


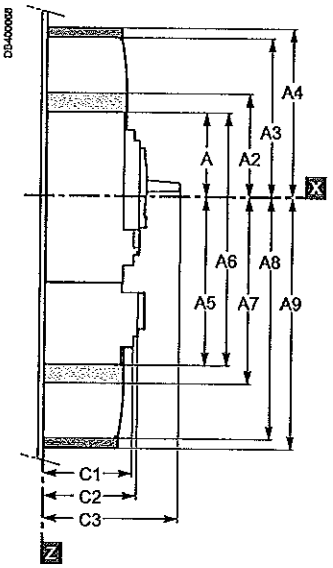


Dimensions and mounting
Vigi CVS100 to 630

Dimensions

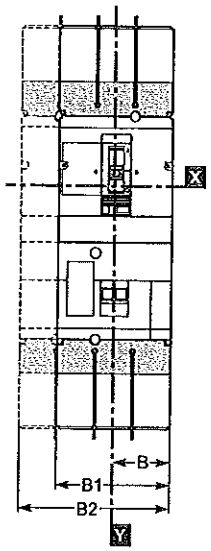
3/4P



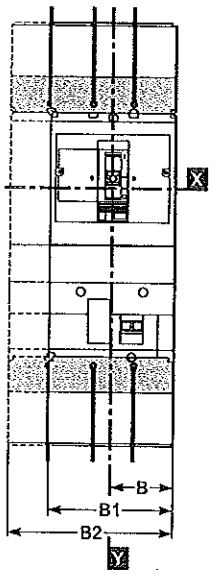


3/4P

CVS100 to 250



CVS400/630

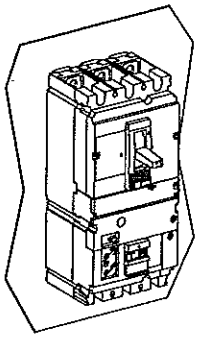


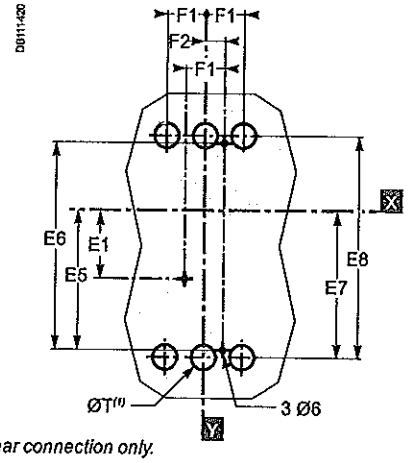
Mounting

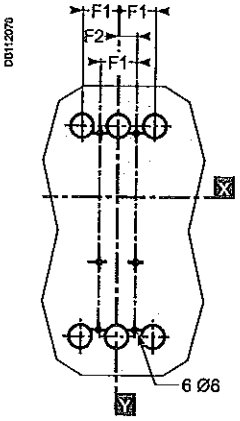
CVS100 to 250 | CVS400/630 | CVS100 to 630

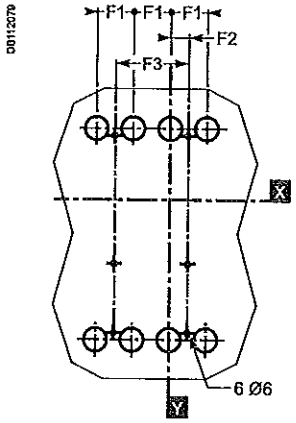
On backplate

3P | 3P | 4P





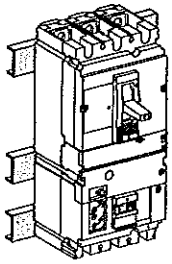


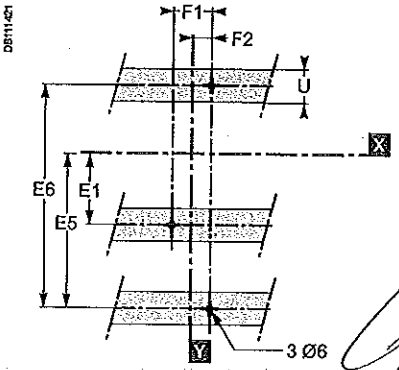


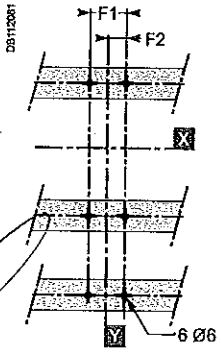
(1) The ØT holes are required for rear connection only.

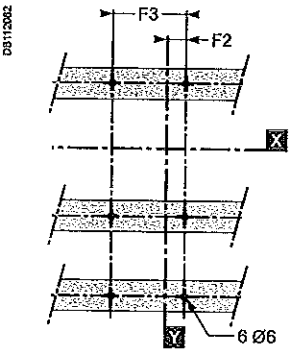
On rails

3P | 3P | 4P









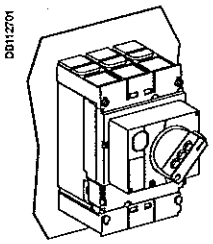
Type	A	A1	A2	A3	A4	A5	A6	A7	A8	A9	B	B1	B2	C1	C2	C3	E1
CVS100/160/250	80.5	161	94	145	178.5	155.5	236	199	220	253.5	52.5	105	140	81	86	111(2)	62.5
CVS400/630	127.5	255	142.5	200	237	227.5	355	242.5	300	337	70	140	185	95.5	110	168	100
Type	**E2**	**E3**	**E4**	**E5**	**E6**	**E7**	**E8**	**F1**	**F2**	**F3**	**G1**	**G2**	**G3**	**G4**	**G5**	**ØT**	**U**
CVS100/160/250	125	70	140	137.5	200	145	215	35	17.5	70	95	75	13.5	23	17.5	24	⩽32
CVS400/630	200	113.5	227	200	300	213.5	327	45	22.5	90	-	-	-	-	-	32	⩽35

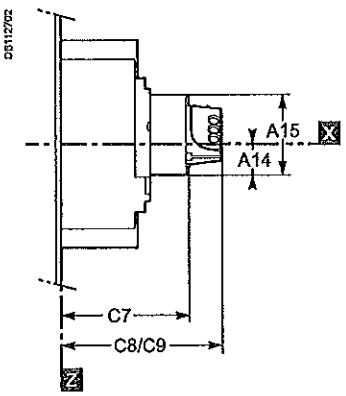
(2) C3=126mm for EasyPact CVS250B/F.

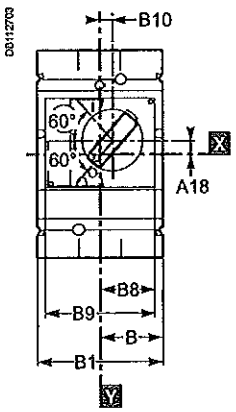
Dimensions and mounting
Direct rotary handle for EasyPact and Vigi CVS100 to 630

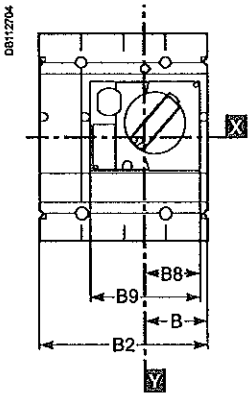
Dimensions — 3P — 4P

Fixed circuit breaker







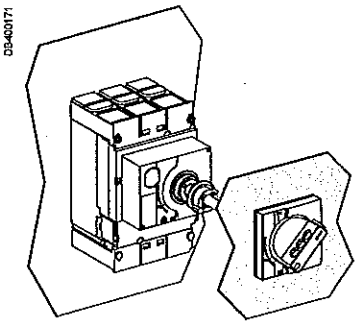


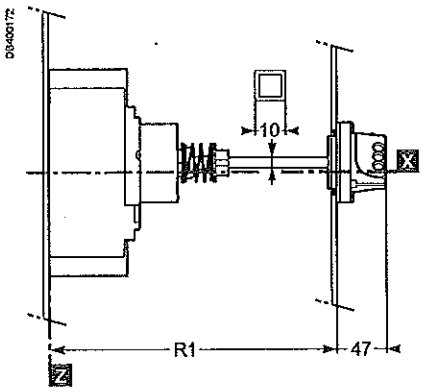
C8: without keylock
C9: with keylock

Type	A14	A15	A18	B8	B9	B10	C7	C8	C9
CVS100/160/250	27.5	73	9	45.5	91	9.25	121	155	164
CVS400/630	40	123	24.6	61.5	123	5	145	179	188

Dimensions and mounting
Extended rotary handle for EasyPact CVS100 to 630

Dimensions
Fixed circuit breakers

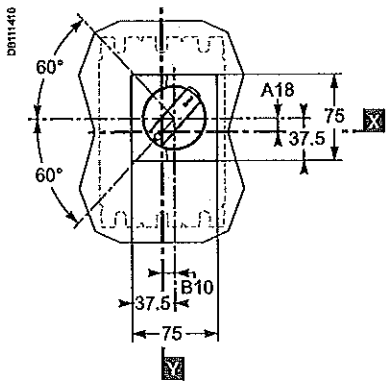


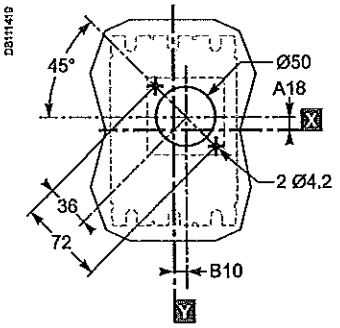


Cutout for shaft (mm)

Type	R1
CVS100/160/250	min. 171 max. 600
CVS400/630	min. 195 max. 600

Dimensions and front-panel cutout

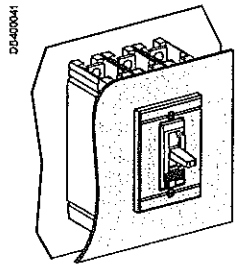


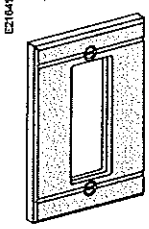


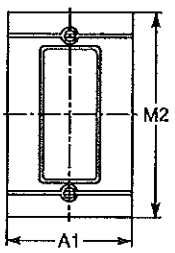
Type	A18	B10
CVS100/160/250	9	9.25
CVS400/630	24.6	5

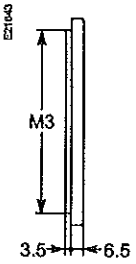
IP40 front-panel escutcheons

For toggle

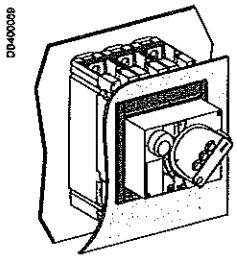


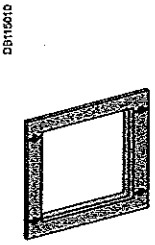


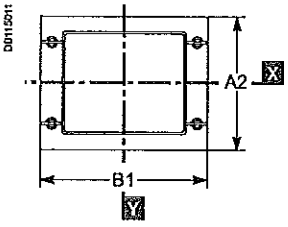


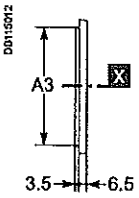


For rotary handle or module and protection collar

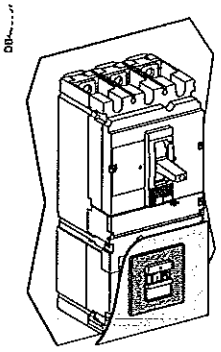


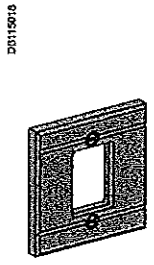


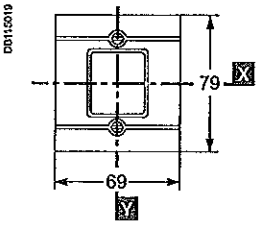


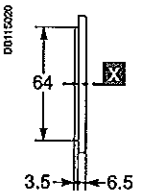


For Vigi







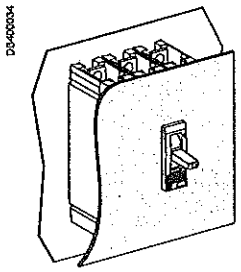


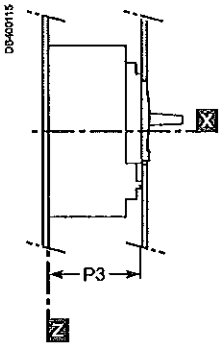
Type	A1	A2	A3	B1	M2	M3
CVS100/160/250	91	114	101	157	115	102
CVS400/630	123	164	151	189	155	142

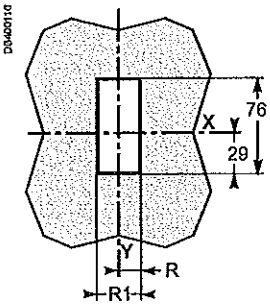
Front-panel cutouts
EasyPact CVS100 to 630

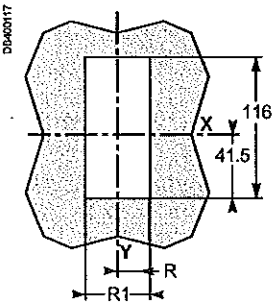
Bare sheet metal — **CVS100 to 250** — **CVS400/630**

For toggle

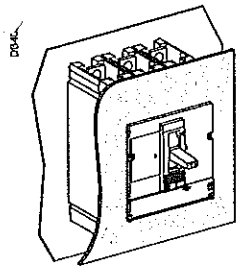


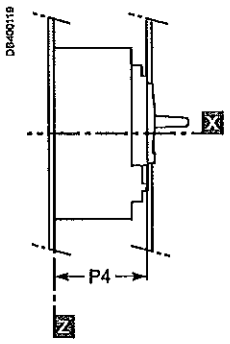


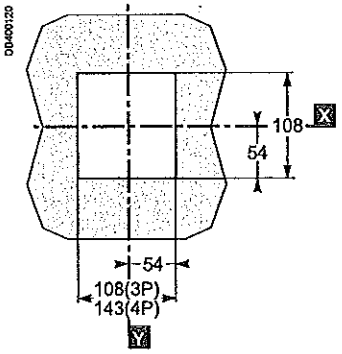


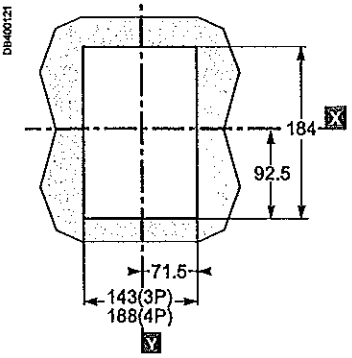


For toggle with access to trip unit







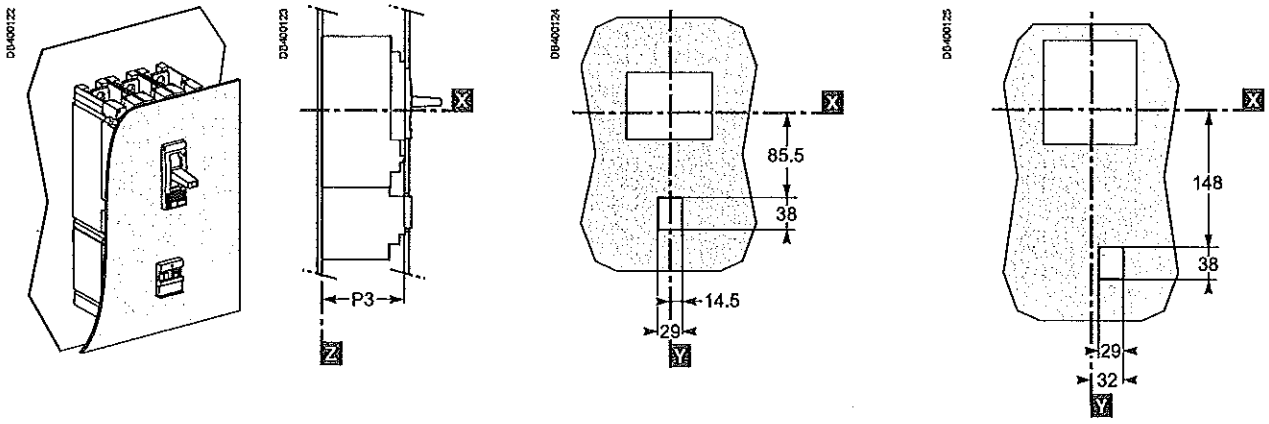


Type	P3	P4	R	R1
CVS100/160/250	88	83	14.5	29
CVS400/630	112	107	31.5	63

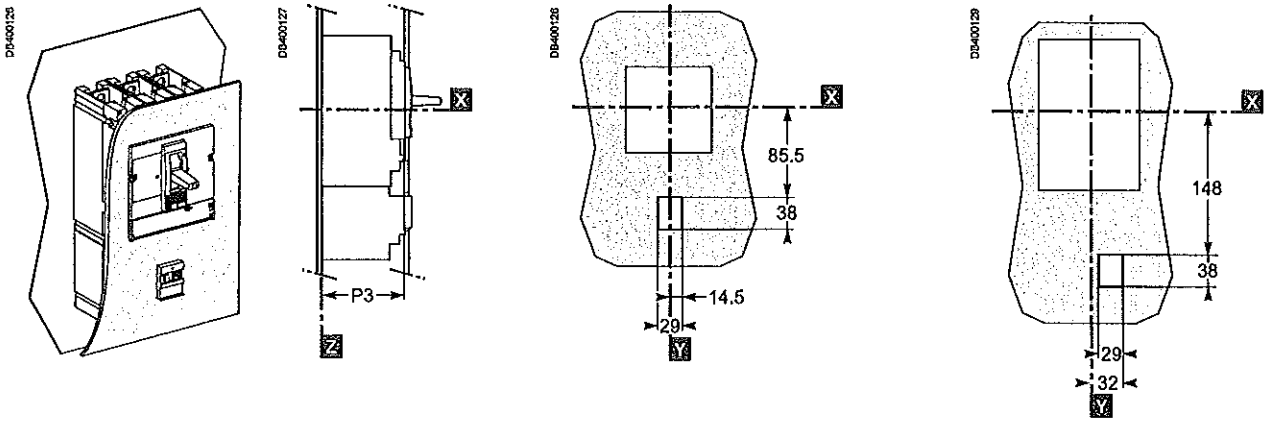
Front-panel cutouts
Vigi CVS100 to 630

Bare sheet metal — **CVS100 to 250** — **CVS400/630**

For toggle



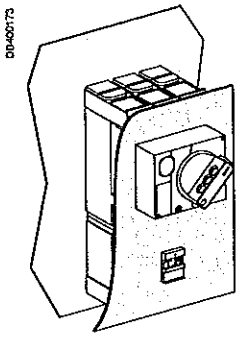
For toggle with access to trip unit

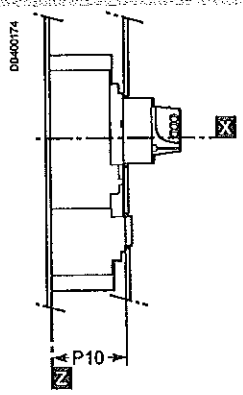


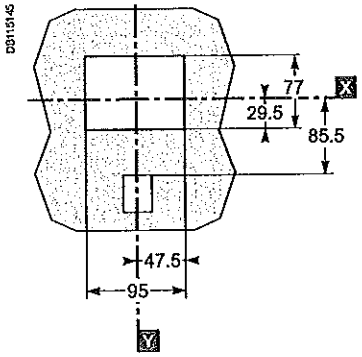
Front-panel cutouts
Direct rotary handle for EasyPact and Vigi CVS100 to 630

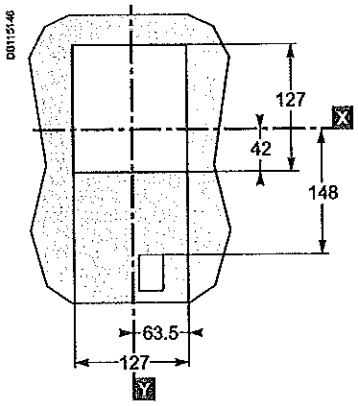
Fixed circuit breakers — CVS100 to 250 — CVS400/630

Bare sheet metal

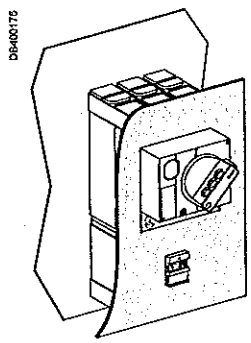


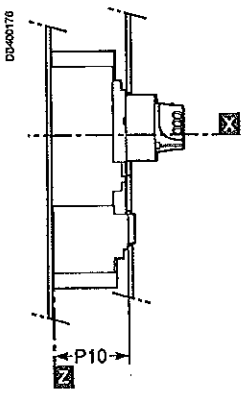


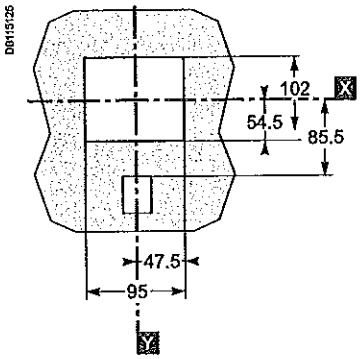


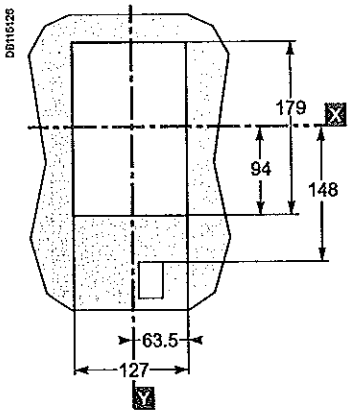


Bare sheet metal with access to the trip unit

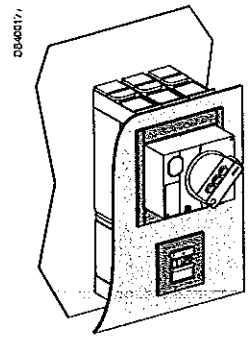


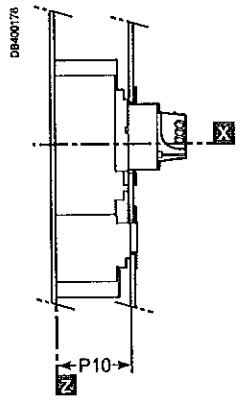


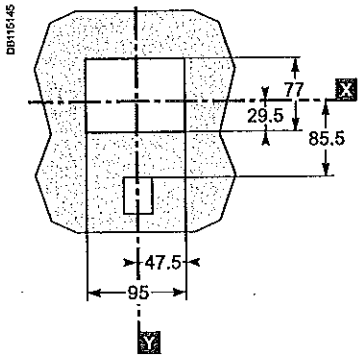


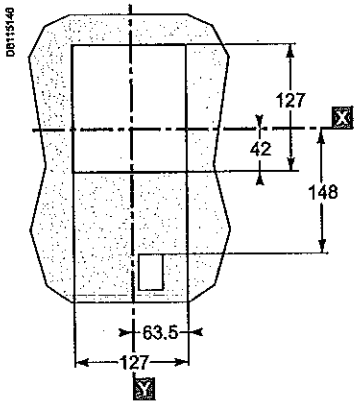


With IP30 front-panel escutcheon





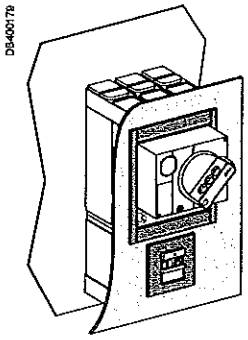


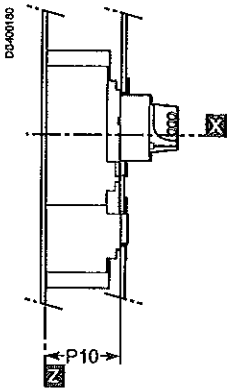


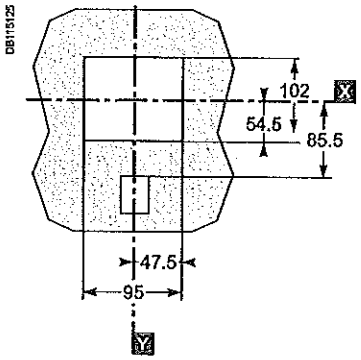
Front-panel cutouts
Direct rotary handle for EasyPact and Vigi CVS100 to 630

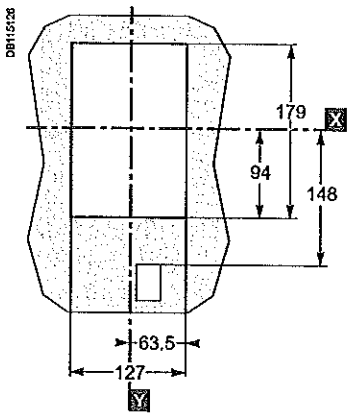
Fixed circuit breakers (cont.) — **CVS100 to 250** — **CVS400/630**

With IP30 front-panel escutcheon with access to the trip unit

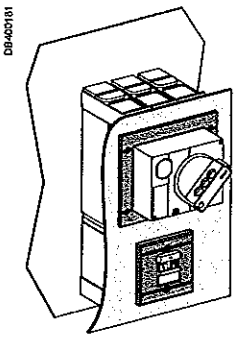


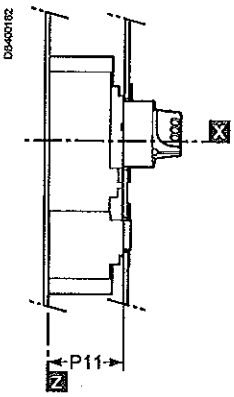


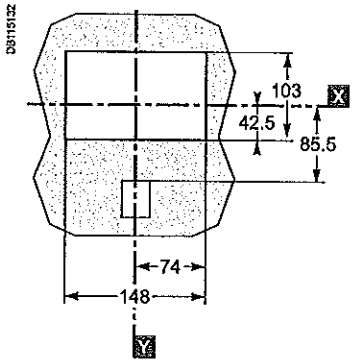


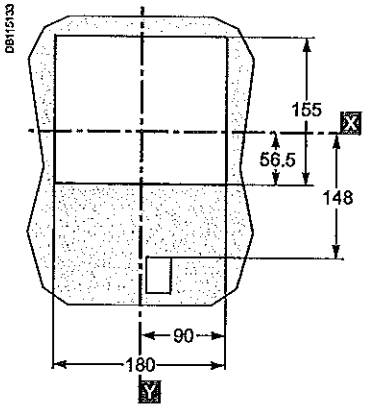


With IP40 front-panel escutcheon





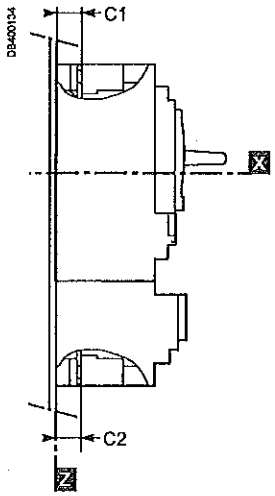


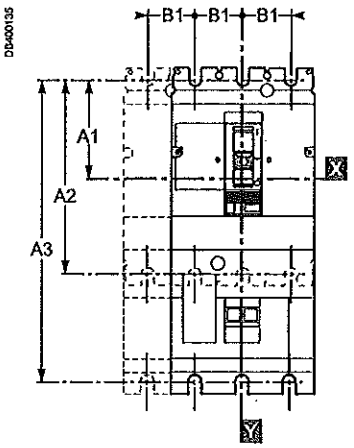


Type	P10	P11	P12
CVS100/160/250	89	90	123
CVS400/630	112	113	147

Power connections
EasyPact and Vigi CVS100 to 630

Connection locations

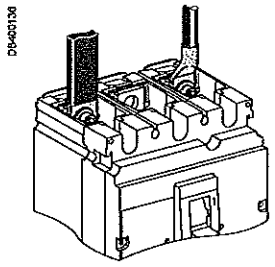




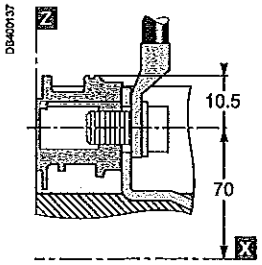
Type	A1	A2	B1	C1	C2
CVS100/160	70	140	35	19.5	19.5
CVS250	70	140	35	21.5	19.5
CVS400/630	113.5	227	45	26	26

Type	A1	A3	B1	C1	C2
CVS100/160 + Vigi	70	215	35	19.5	21.5
CVS250 + Vigi	70	215	35	21.5	21.5
CVS400/630 + Vigi	113.5	327	45	26	26

Front connection without accessories

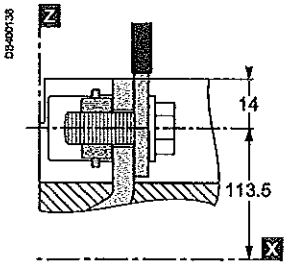


CVS100 to 250



Cables with lugs/bars

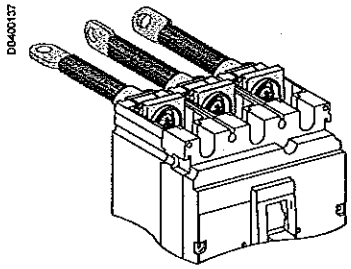
CVS400/630



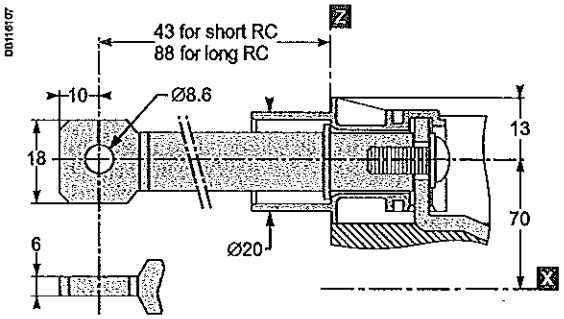
Bars/cables with lugs

Connection with accessories

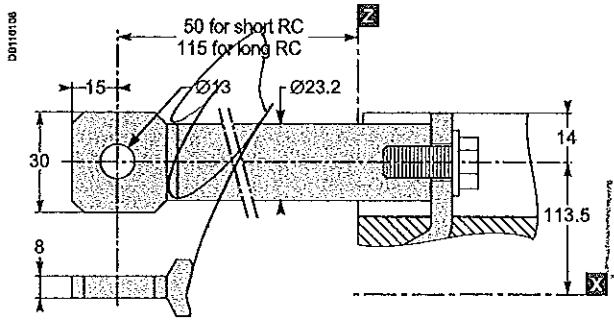
Long and short rear connectors



CVS100 to 250



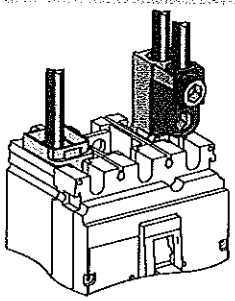
CVS400/630



Connection with accessories (cont.)

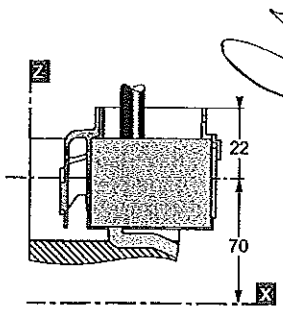
Bare-cable connectors

DB400138

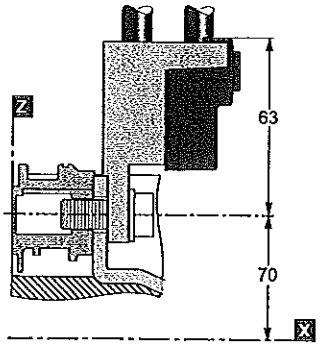


DB115451

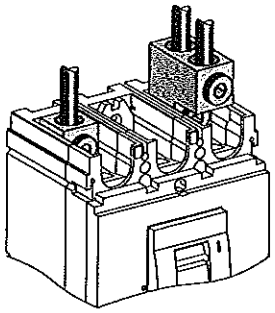
CVS100 to 250



DB115452

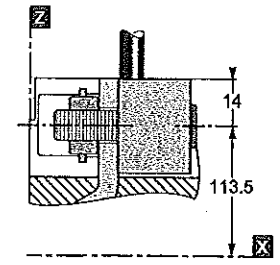


DB400139

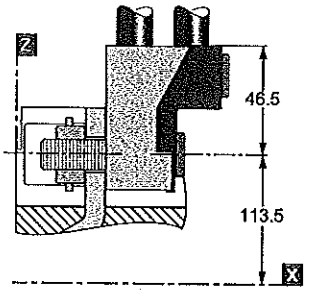


DB115454

CVS400/630

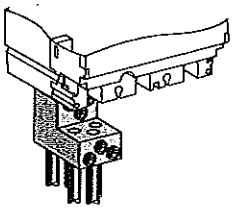


DB115455

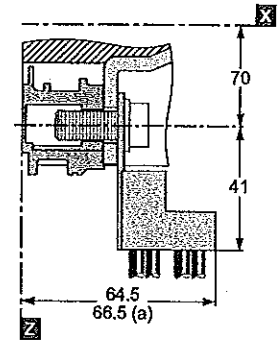


Distribution connectors (for CVS100 to 250 only)

DB115456



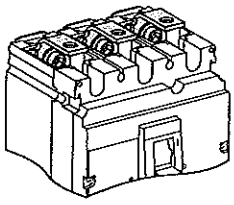
DB115457



(a) Vigi module or CVS250.

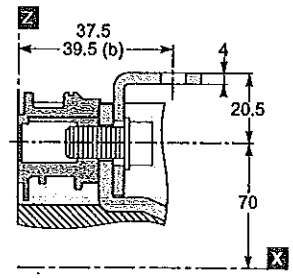
Right-angle terminal extensions (upstream only)

DB400140



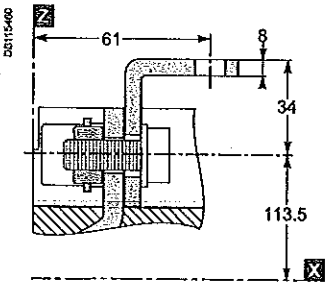
CVS100 to 250

DB115459



CVS400/630

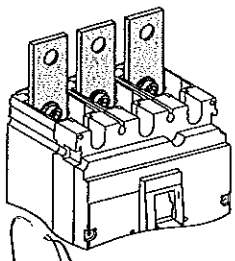
DB115460



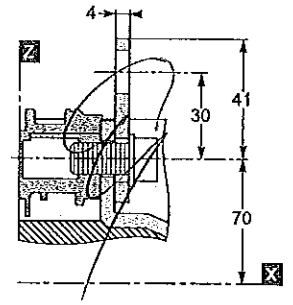
(b) CVS250.

Straight terminal extensions (for CVS100 to 250 only)

DB400141

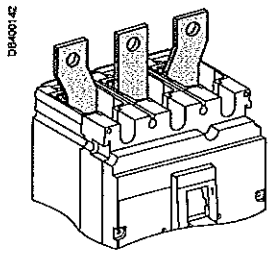


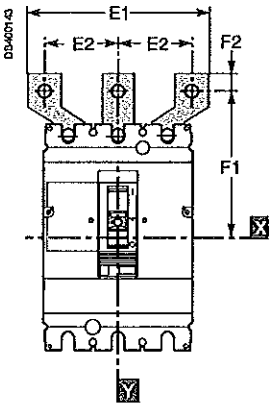
DB115462

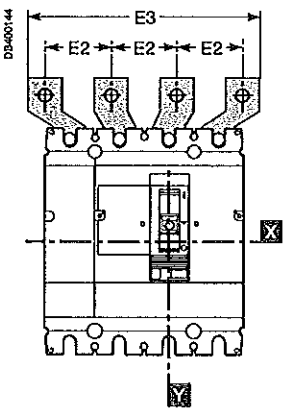


Connection with accessories (cont.)

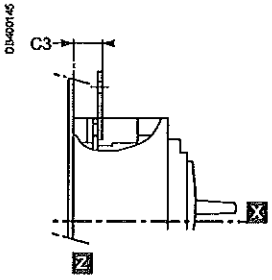
Spreaders **3P** **4P**



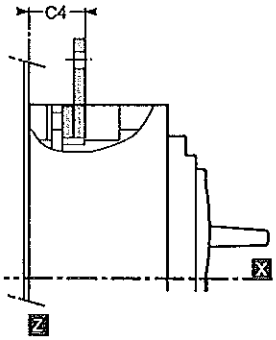




CVS100 to 250



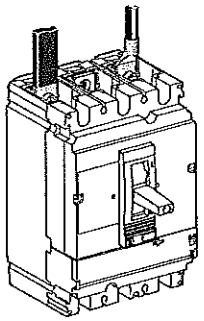
CVS400/630



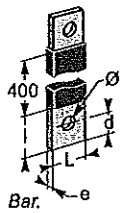
Type	C3	C4	E1	E2	E3	F1	F2
CVS100/160	23.5	-	114	45	159	100	11
CVS250	25.5	-	114	45	159	100	11
CVS400/630	-	44	135 170	52.5 70	187.5 240	152.5 166	15 15

Power connections
Connection of insulated bars or cables with lugs to EasyPact and Vigi CVS100 to 630

DB400013



DB115653



Bar.

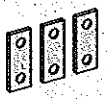
DB115654

Lug.

Accessories for CVS100 to 250

Straight terminal extensions

DB112172



Tinned copper

Spreaders: separate parts

DB112177

Tinned copper

Accessories for CVS400 and 630

Spreaders made up of separate parts for 52.5 and 70 mm pitch

DB115657

Tinned copper

Accessories for CVS100 to 630

Right-angle terminal extensions

DB112173

Tinned copper
To be mounted on upstream side.

Direct connection to CVS100 to 630

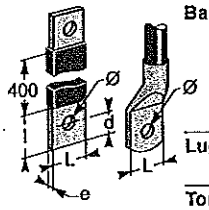
Dimensions		CVS100	CVS160/250	CVS400/630
Bars	L (mm)	⩽ 25	⩽ 25	⩽ 32
	l (mm)	d + 10	d + 10	d + 15
	d (mm)	⩽ 10	⩽ 10	⩽ 15
	e (mm)	⩽ 6	⩽ 6	3 ⩽ e ⩽ 10
	Ø (mm)	6.5	8.5	10.5
Lugs	L (mm)	⩽ 25	⩽ 25	⩽ 32
	Ø (mm)	6.5	8.5	10.5
Torque (Nm) (1)		10	15	50
Torque (Nm) (2)		5/5	5/5	20/11

(1) Tightening torque on the circuit breaker for lugs or bars.
(2) Tightening torque on fixed devices for rear connectors.

Connection with accessories to CVS100 to 250 (IEC 228)

Pole pitch	
Without spreaders	35 mm
With spreaders	45 mm

DB115655



Dimensions		With spreaders or terminal extensions CVS100	CVS160/250
Bars	L (mm)	⩽ 25	⩽ 25
	l (mm)	20 ⩽ l ⩽ 25	20 ⩽ l ⩽ 25
	d (mm)	⩽ 10	⩽ 10
	e (mm)	⩽ 6	⩽ 6
	Ø (mm)	6.5	8.5
Lugs	L (mm)	⩽ 25	⩽ 25
	Ø (mm)	6.5	8.5
Torque (Nm) (1)		10	15

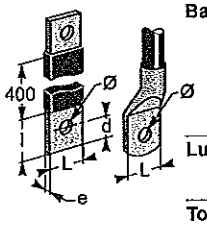
(1) Tightening torque on the circuit breaker for spreaders or terminal extensions.

Spreaders and straight, right-angle, 45°, double-L and edgewise terminal extensions are supplied with flexible interphase barriers.

Connection with accessories to CVS400 and 630 (IEC 228)

Pole pitch	
Without spreaders	45 mm
With spreaders	52.5 or 70 mm

DB115655

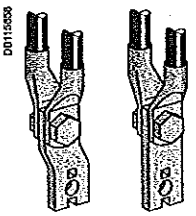


Dimensions		With spreaders	With terminal extensions
Bars	L (mm)	⩽ 40	⩽ 32
	l (mm)	d + 15	30 ⩽ l ⩽ 34
	d (mm)	⩽ 20	⩽ 15
	e (mm)	3 ⩽ e ⩽ 10	3 ⩽ e ⩽ 10
	Ø (mm)	12.5	10.5
Lugs	L (mm)	⩽ 40	⩽ 32
	Ø (mm)	12.5	10.5
Torque (Nm) (1)		50	50

(1) Tightening torque on the circuit breaker for spreaders or terminal extensions.

Spreaders and right-angle, 45° and edgewise terminal extensions are supplied with flexible interphase barriers.

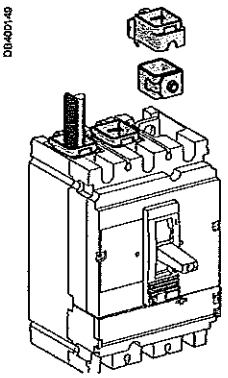
DB115656



Mounting detail: 2 cables with lugs.

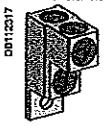
68

Power connections
Connection of bare cables to EasyPact and Vigi CVS100 to 630

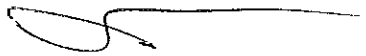


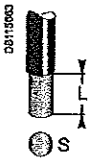
Connection for CVS100 to 250

1-cable connector



2-cable connector





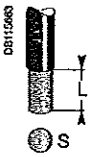
1-cable connector	Steel ≤ 160 A	Aluminium ≤ 250 A		
L (mm)	25	25		
S (mm²) Cu/Al	1.5 to 95 (1)	25 to 50	70 to 95	120 to 185 150 max. flex.
Torque (Nm)	12	20	26	26
2-cable connector				
L (mm)	25 or 50			
S (mm²) Cu/Al	2 x 50 to 2 x 120			
Torque (Nm)	22			

(1) For flexible cables from 1.5 to 4 mm², connection with crimped or self-crimping ferrules.

Connection to CVS400 and 630

1-cable connector

2-cable connector



	1-cable connector	2-cable connector
L (mm)	30	30 or 60
S (mm²) Cu/Al	35 to 300 rigid 240 max. flex.	2 x 35 to 2 x 240 rigid 240 max. flex.
Torque (Nm)	31	31

Conductor materials and electrodynamic stresses

EasyPact CVS circuit breakers can be connected indifferently with bare-copper, tinned-copper and tinned-aluminium conductors (flexible or rigid bars, cables).
In the event of a short-circuit, thermal and electrodynamic stresses will be exerted on the conductors. They must therefore be correctly sized and held in place by supports.
Electrical connection points on switchgear devices (switch-disconnectors, contactors, circuit breakers, etc.) should not be used for mechanical support.
Any partition between upstream and downstream connections of the device must be made of non-magnetic material.

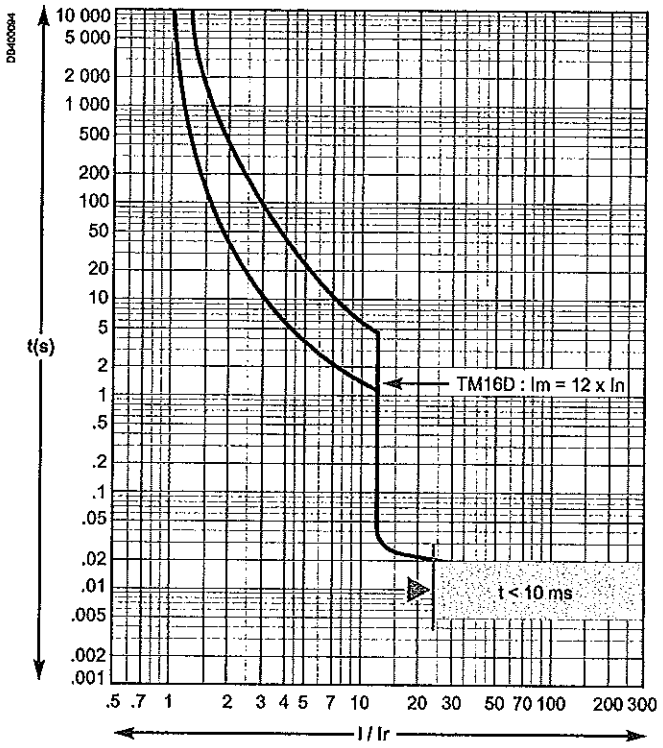
Additional characteristics

Additional characteristics
Contents

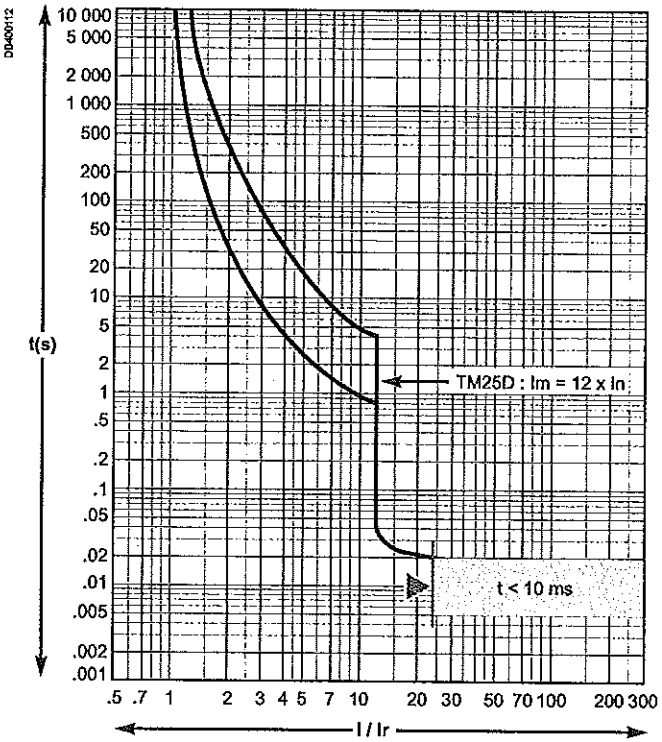
Tripping curves
EasyPact CVS100 to 630
Protection of distribution systems

TM magnetic trip units

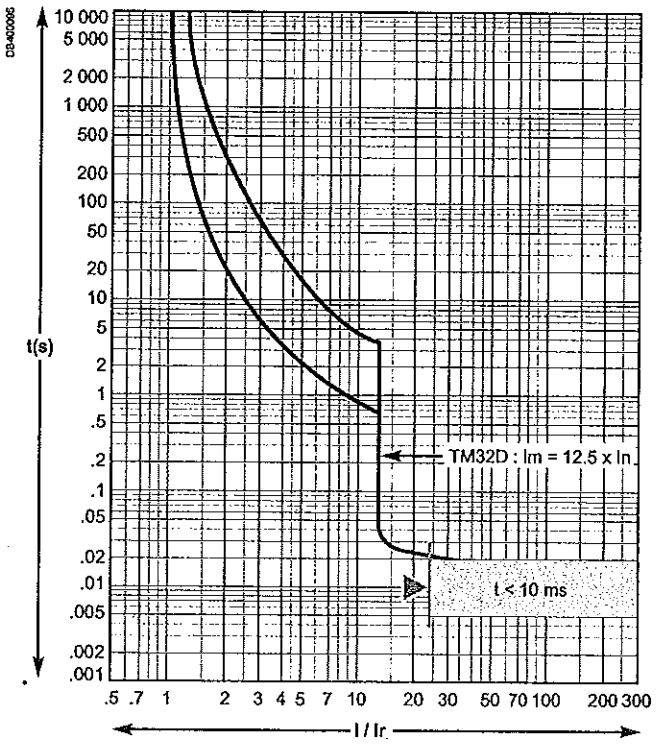
TM16D



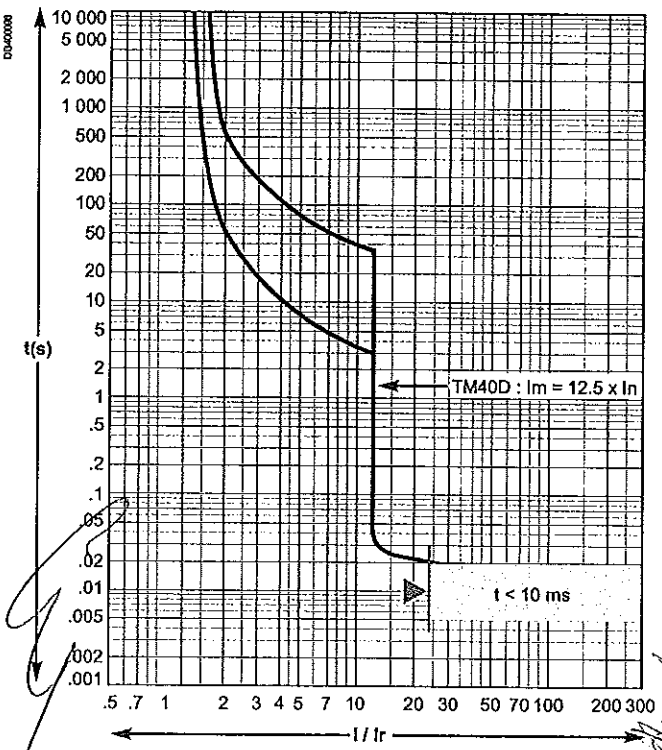
TM25D



TM32D



TM40D

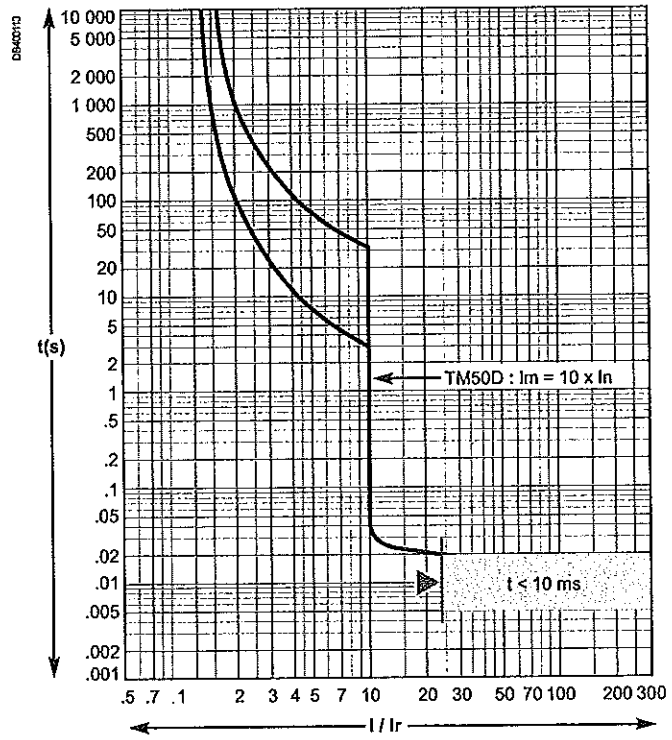


Reflex tripping.

Schneider Electric

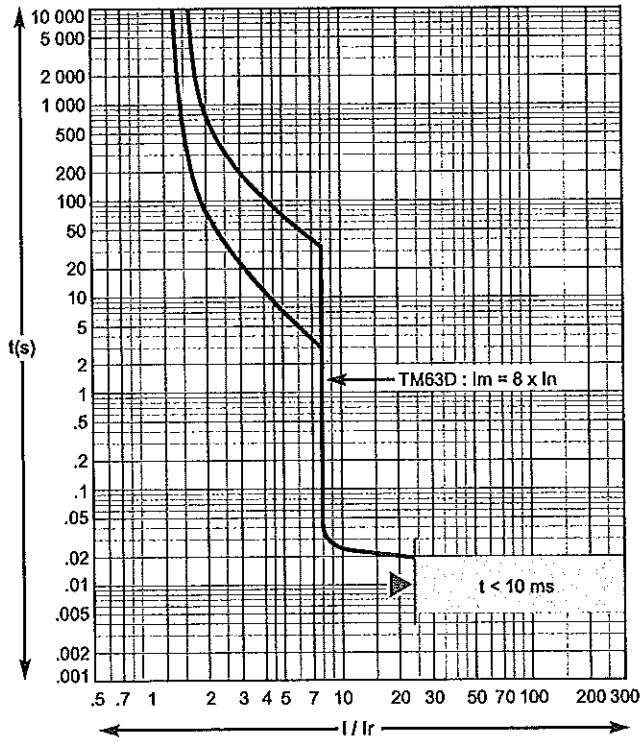
TM magnetic trip units (cont.)

TM50D



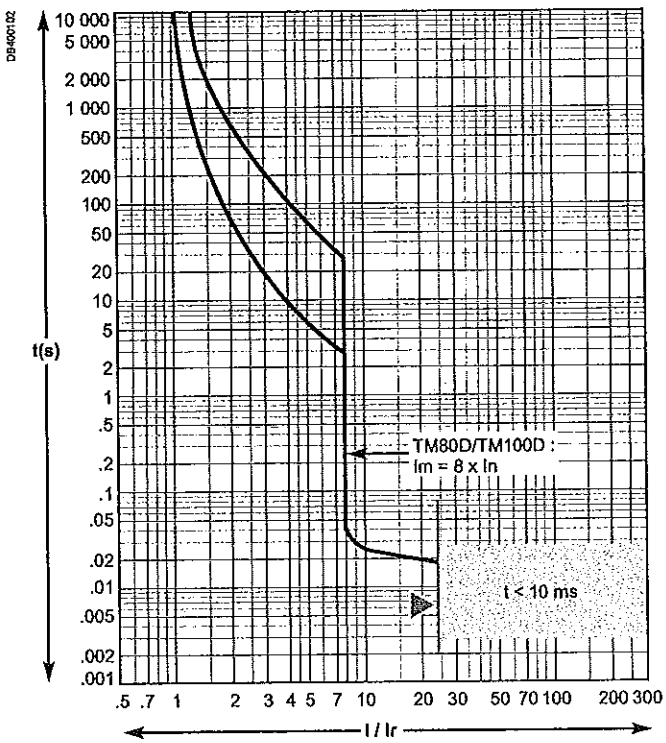
Reflex tripping.

TM63D

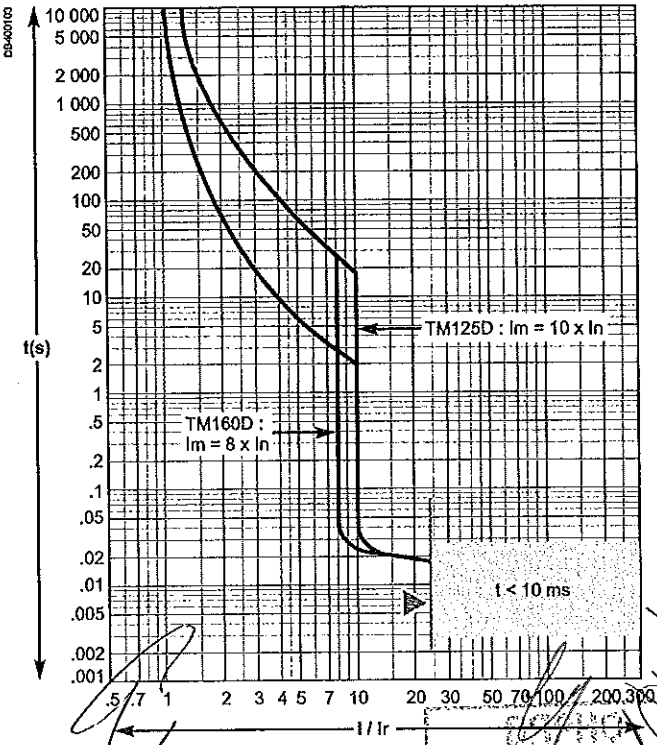


Reflex tripping.

TM80D/100D

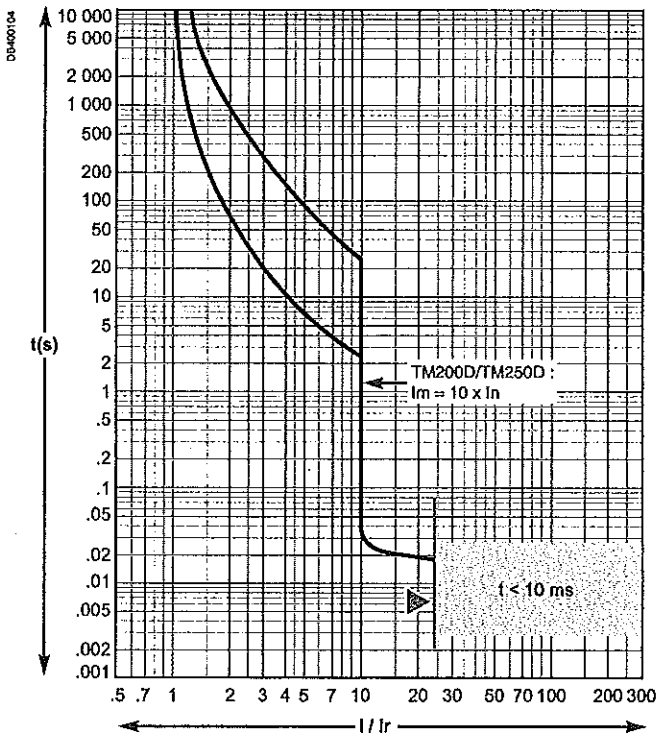


TM125D/160D

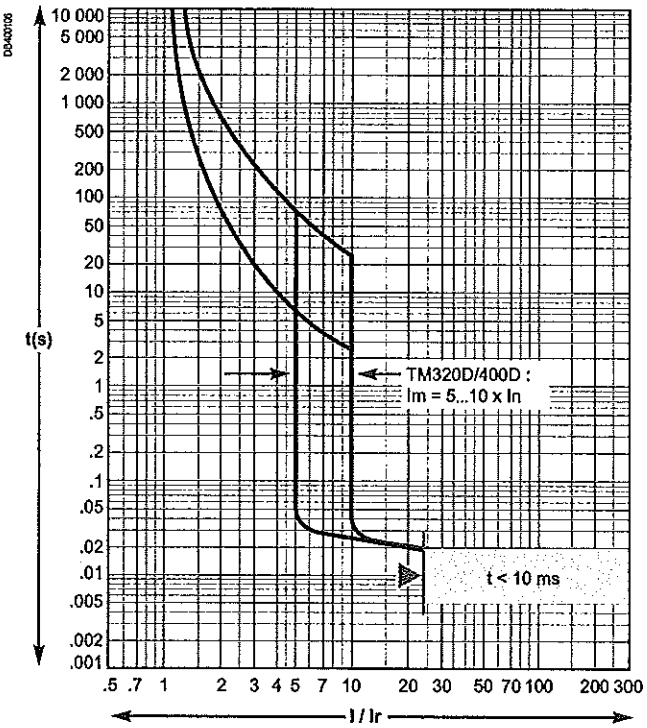


Tripping curves
EasyPact CVS400 to 630
Protection of distribution systems

TM200D/250D

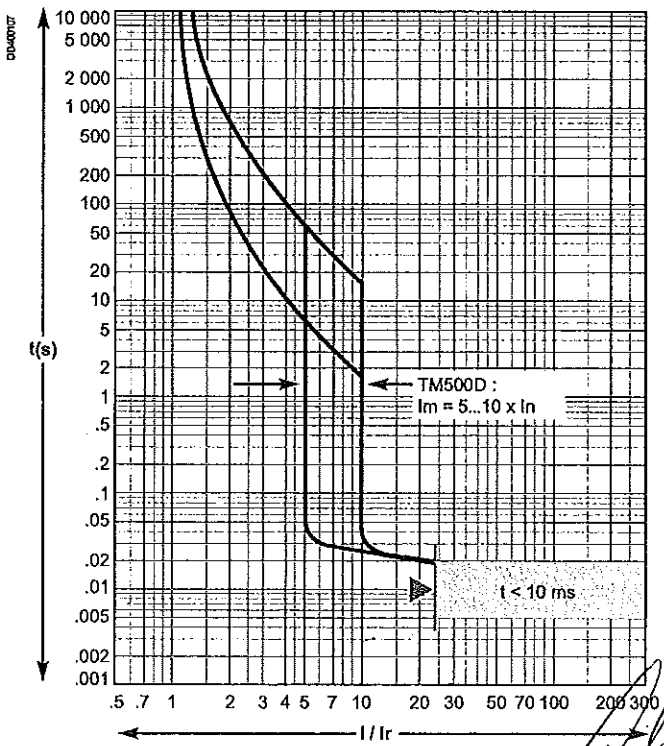


TM320D/400D



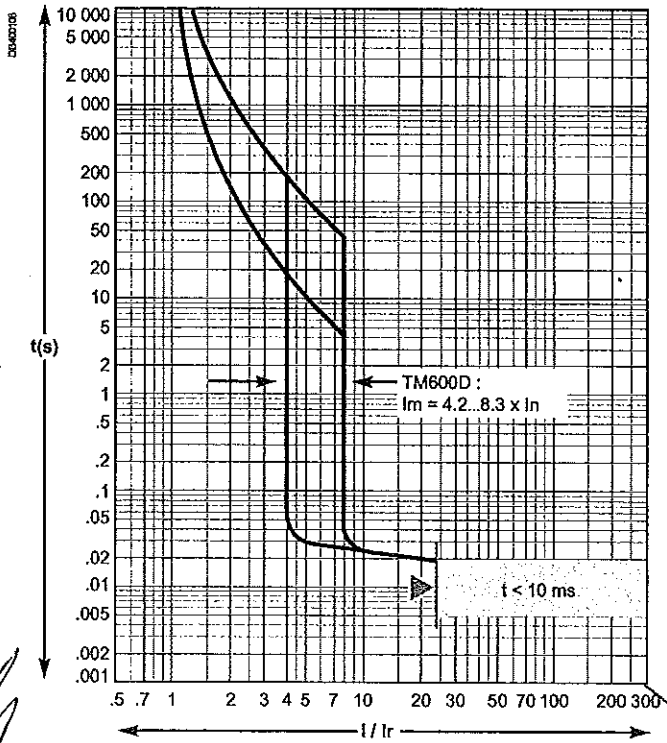
Reflex tripping.

TM500D



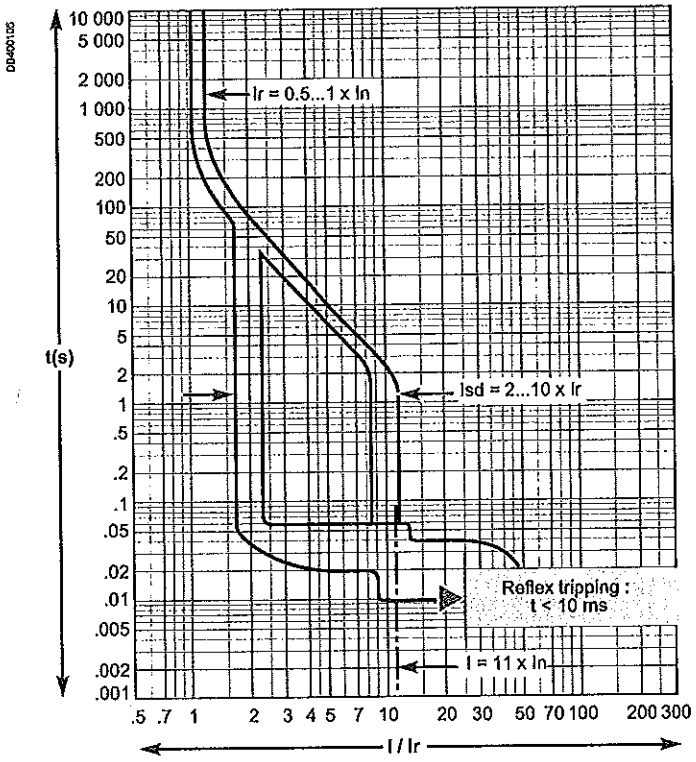
Reflex tripping.

TM600D



Reflex tripping.

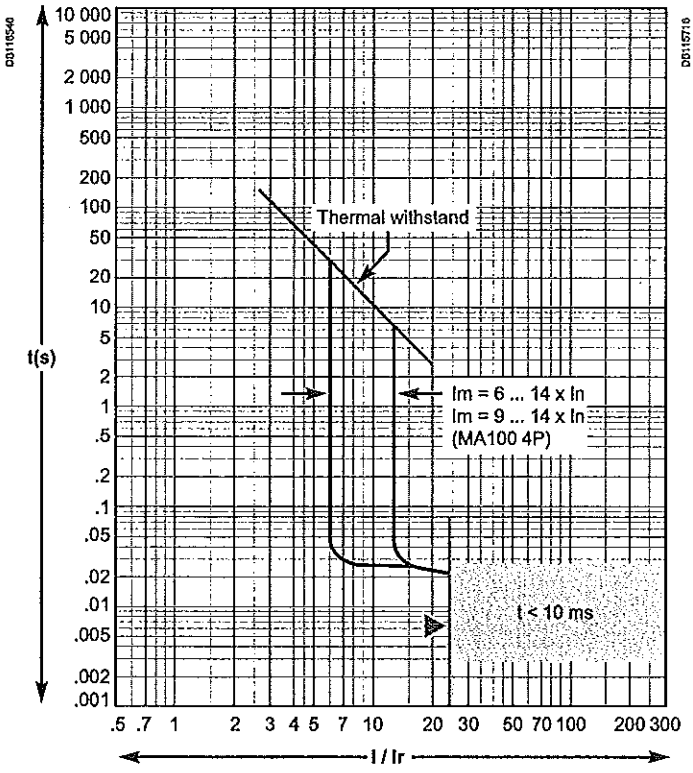
ETS 2.3 electronic trip units



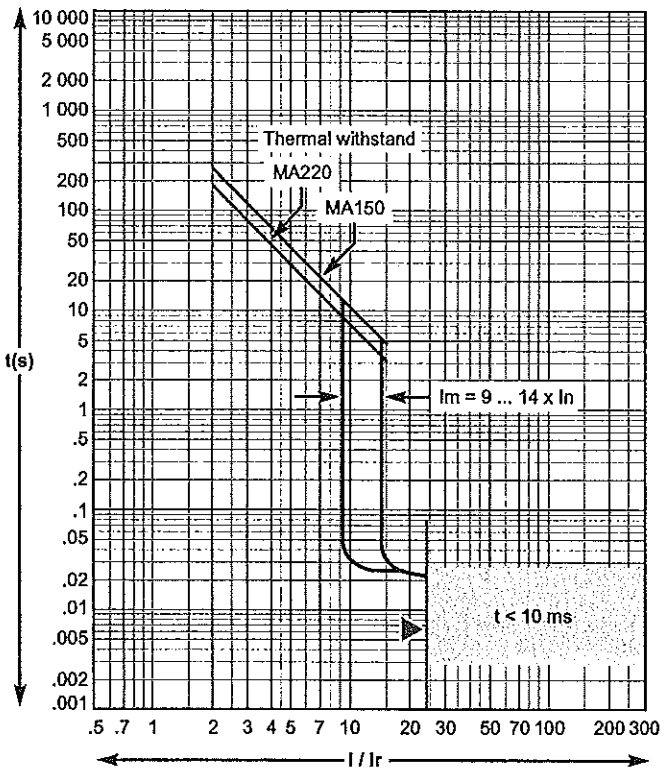
Tripping curves
EasyPact CVS100 to 250
Motor protection

MA magnetic trip units

MA2.5... MA100

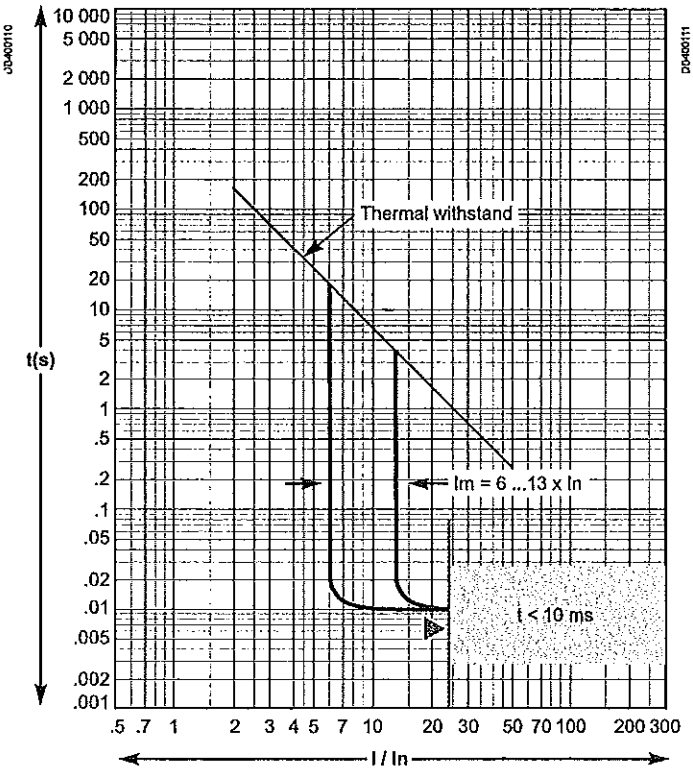


MA150 and MA220

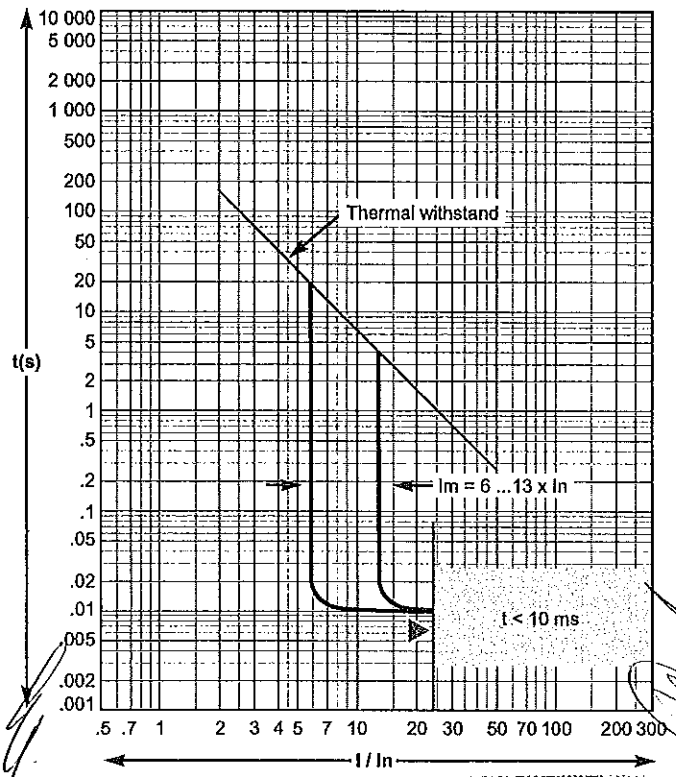


Reflex tripping.

MA320



MA500



Reflex tripping.

Reflex tripping.

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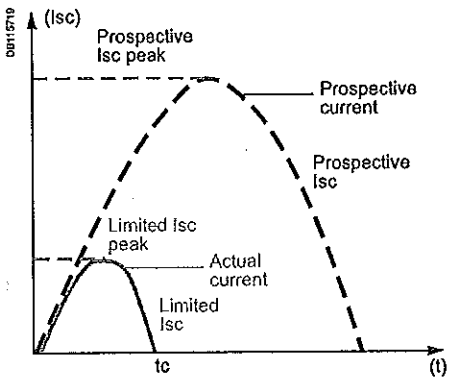
The limiting capacity of a circuit breaker is its aptitude to let through a current, during a short-circuit, that is less than the prospective short-circuit current.



The exceptional limiting capacity of the EasyPact CVS range is due to the rotating double-break technique (very rapid natural repulsion of contacts and the appearance of two arc voltages in-series with a very steep wave front).

Ics = 100 % Icu

The exceptional limiting capacity of the EasyPact CVS range greatly reduces the forces created by fault currents in devices.
The result is a major increase in breaking performance.
In particular, the service breaking capacity Ics is equal to 100 % of Icu.
The Ics value, defined by IEC standard 60947-2, is guaranteed by tests comprising the following steps:

- ■ break three times consecutively a fault current equal to 100% of Icu
- ■ check that the device continues to function normally, that is:
- □ it conducts the rated current without abnormal temperature rise
- □ protection functions perform within the limits specified by the standard
- □ suitability for isolation is not impaired.

Longer service life of electrical installations

Current-limiting circuit breakers greatly reduce the negative effects of short-circuits on installations.

Thermal effects
Less temperature rise in conductors, therefore longer service life for cables.

Mechanical effects
Reduced electrodynamic forces, therefore less risk of electrical contacts or busbars being deformed or broken.

Electromagnetic effects
Fewer disturbances for measuring devices located near electrical circuits.

Current and energy limiting curves

The limiting capacity of a circuit breaker is expressed by two curves which are a function of the prospective short-circuit current (the current which would flow if no protection devices were installed):

- ■ the actual peak current (limited current)
- ■ thermal stress (A^2s), i.e. the energy dissipated by the short-circuit in a conductor with a resistance of 1 Ω.

Maximum permissible cable stresses

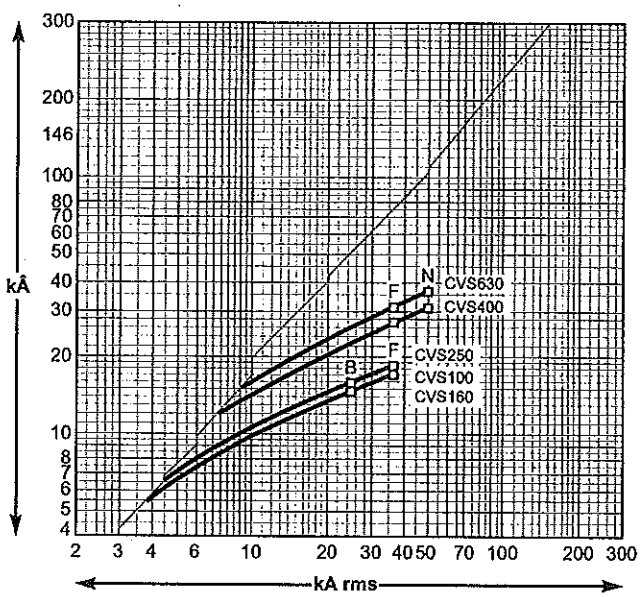
The table below indicates the maximum permissible thermal stresses for cables depending on their insulation, conductor (Cu or Al) and their cross-sectional area (CSA). CSA values are given in mm^2 and thermal stresses in A^2s.

CSA		1.5 mm²	2.5 mm²	4 mm²	6 mm²	10 mm²
PVC	Cu	$2.97x10^4$	$8.26x10^4$	$2.12x10^5$	$4.76x10^5$	$1.32x10^5$
	Al					$5.41x10^5$
PRC	Cu	$4.10x10^4$	$1.39x10^5$	$2.92x10^5$	$6.56x10^5$	$1.82x10^5$
	Al					$7.52x10^5$
CSA		**16 mm²**	**25 mm²**	**35 mm²**	**50 mm²**	
PVC	Cu	$3.4x10^5$	$8.26x10^6$	$1.62x10^7$	$3.31x10^7$	
	Al	$1.39x10^5$	$3.38x10^6$	$6.64x10^6$	$1.35x10^7$	
PRC	Cu	$4.69x10^5$	$1.39x10^7$	$2.23x10^7$	$4.56x10^7$	
	Al	$1.93x10^6$	$4.70x10^6$	$9.23x10^6$	$1.88x10^7$	

Tripping curves
Current and energy limiting curves

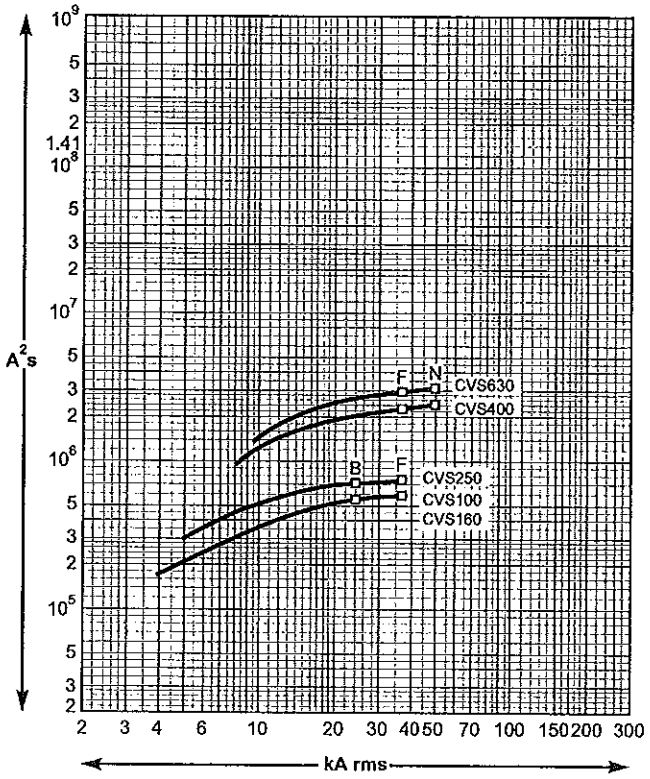
Current-limiting curves

DB116508



Energy-limiting curves

DB116571



Schneider Electric

Notes

Catalogue numbers

Catalogue numbers
Contents

EasyPact CVS100 to 250
Contents

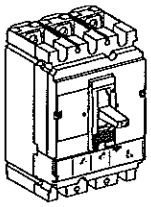
CVS100/160/250B: complete fixed/FC device

EasyPact and Vigi CVS100/160/250B (25 kA 380/415 V)

EasyPact CVS100/160/250B

With TM-D thermal-magnetic trip unit

DB400150



EasyPact CVS100B (25 kA at 380/415 V)

Rating	3P 3d	4P 3d	4P 4d
TM16D	LV510300	LV510310	LV510320
TM25D	LV510301	LV510311	LV510321
TM32D	LV510302	LV510312	LV510322
TM40D	LV510303	LV510313	LV510323
TM50D	LV510304	LV510314	LV510324
TM63D	LV510305	LV510315	LV510325
TM80D	LV510306	LV510316	LV510326
TM100D	LV510307	LV510317	LV510327

EasyPact CVS160B (25 kA at 380/415 V)

Rating	3P 3d	4P 3d	4P 4d
TM100D	LV516301	LV516311	LV516321
TM125D	LV516302	LV516312	LV516322
TM160D	LV516303	LV516313	LV516323

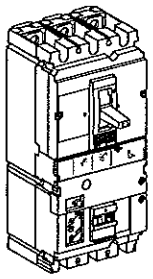
EasyPact CVS250B (25 kA at 380/415 V)

Rating	3P 3d	4P 3d	4P 4d
TM160D	LV525301	LV525311	LV525321
TM200D	LV525302	LV525312	LV525322
TM250D	LV525303	LV525313	LV525323

EasyPact CVS100/160/250B

With Magnetic trip unit MA

DB400153



EasyPact CVS100B (25 kA at 380/415 V)

Rating	3P 3d
MA2,5	LV510430
MA6,3	LV510431
MA12,5	LV510432
MA25	LV510433
MA50	LV510434
MA100	LV510435

EasyPact CVS160B (25 kA at 380/415 V)

Rating	3P 3d
MA100	LV516430
MA150	LV516431

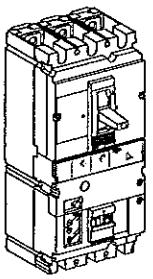
EasyPact CVS250B (25 kA at 380/415 V)

Rating	3P 3d
MA150	LV525435
MA220	LV525436

Vigi CVS100/160/250B

With TM-D thermal-magnetic trip unit

DB400153



Vigi CVS100B (25 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)

Rating	3P 3d	4P 3d	4P 4d
TM16D	LV510360	LV510370	LV510380
TM25D	LV510361	LV510371	LV510381
TM32D	LV510362	LV510372	LV510382
TM40D	LV510363	LV510373	LV510383
TM50D	LV510364	LV510374	LV510384
TM63D	LV510365	LV510375	LV510385
TM80D	LV510366	LV510376	LV510386
TM100D	LV510367	LV510377	LV510387

Vigi CVS160B (25 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)

Rating	3P 3d	4P 3d	4P 4d
TM100D	LV516361	LV516371	LV516381
TM125D	LV516362	LV516372	LV516382
TM160D	LV516363	LV516373	LV516383

Vigi CVS250B (25 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)

Rating	3P 3d	4P 3d	4P 4d
TM160D	LV525361	LV525371	LV525381
TM200D	LV525362	LV525372	LV525382
TM250D	LV525363	LV525373	LV525383

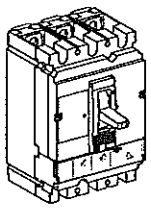
CVS100/160/250F: complete fixed/FC device

EasyPact and Vigi CVS100/160/250F (36 kA 380/415 V)

EasyPact CVS100/160/250F

With TM-D thermal-magnetic trip unit

DB400150

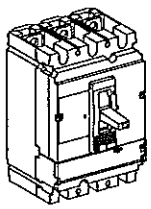


EasyPact CVS100F (36 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM16D	LV510330	LV510340	LV510350
TM25D	LV510331	LV510341	LV510351
TM32D	LV510332	LV510342	LV510352
TM40D	LV510333	LV510343	LV510353
TM50D	LV510334	LV510344	LV510354
TM63D	LV510335	LV510345	LV510355
TM80D	LV510336	LV510346	LV510356
TM100D	LV510337	LV510347	LV510357
EasyPact CVS160F (36 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM100D	LV516331	LV516341	LV516351
TM125D	LV516332	LV516342	LV516352
TM160D	LV516333	LV516343	LV516353
EasyPact CVS250F (36 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM160D	LV525331	LV525341	LV525351
TM200D	LV525332	LV525342	LV525352
TM250D	LV525333	LV525343	LV525353

EasyPact CVS100/160/250F

With MA magnetic trip unit

DB400155



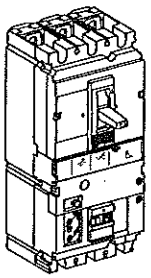
EasyPact CVS100F (36 kA at 380/415 V)	
Rating	3P 3d
MA2.5	LV510440
MA6.3	LV510441
MA12.5	LV510442
MA25	LV510443
MA50	LV510444
MA100	LV510445
EasyPact CVS160F (36 kA at 380/415 V)	
Rating	3P 3d
MA100	LV516439
MA150	LV516440
EasyPact CVS250F (36 kA at 380/415 V)	
Rating	3P 3d
MA150	LV525438
MA220	LV525439

CVS100/160/250F: complete fixed/FC device (cont.)
Vigi CVS100/160/250F (36 kA 380/415 V)

Vigi CVS100/160/250F

With TM-D thermal-magnetic trip unit

DB400153



Vigi CVS100F (36 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)

Rating	3P 3d	4P 3d	4P 4d
TM16D	LV510390	LV510400	LV510410
TM25D	LV510391	LV510401	LV510411
TM32D	LV510392	LV510402	LV510412
TM40D	LV510393	LV510403	LV510413
TM50D	LV510394	LV510404	LV510414
TM63D	LV510395	LV510405	LV510415
TM80D	LV510396	LV510406	LV510416
TM100D	LV510397	LV510407	LV510417

Vigi CVS160F (36 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)

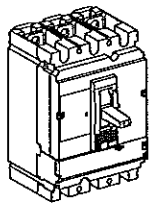
Rating	3P 3d	4P 3d	4P 4d
TM100D	LV516391	LV516401	LV516411
TM125D	LV516392	LV516402	LV516412
TM160D	LV516393	LV516403	LV516413

Vigi CVS250F (36 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)

Rating	3P 3d	4P 3d	4P 4d
TM160D	LV525391	LV525401	LV525411
TM200D	LV525392	LV525402	LV525412
TM250D	LV525393	LV525403	LV525413

EasyPact CVS100/160/250NA switch-disconnector

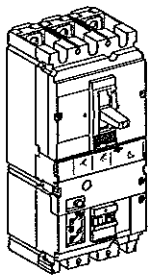
With NA switch-disconnector unit



EasyPact CVS100NA		
Rating	3P	4P
100	LV510425	LV510426
EasyPact CVS160NA		
Rating	3P	4P
160	LV516425	LV516426
EasyPact CVS250NA		
Rating	3P	4P
250	LV525425	LV525426

VigiCompact CVS100/160/250NA switch-disconnector

With NA switch-disconnector unit



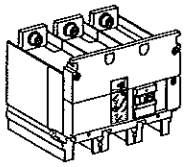
EasyPact CVS100NA		
Rating	3P	4P
100	LV510427	LV510428
EasyPact CVS160NA		
Rating	3P	4P
160	LV516427	LV516428
EasyPact CVS250NA		
Rating	3P	4P
250	LV525427	LV525428

Add-on Vigi module
EasyPact and Vigi
CVS100/160/250

Vigi module

Vigi module

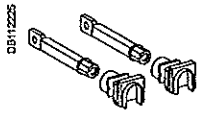
DD111404



	3P	4P
ME type for CVS100/160 (200 to 440V)	LV429212	LV429213
MH type for CVS100/160 (220 to 440 V)	LV429210	LV429211
MH type for CVS250 (220 to 440 V)	LV431535	LV431536

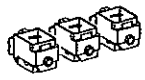
Connection accessories (3 or 4)

Rear connections



2 short		LV429235
2 long		LV429236

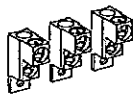
Bare cable connectors



Steel connectors	1 x (1.5 to 95 mm²) ; ≤ 160 A	Set of 3	LV429242
		Set of 4	LV429243

Aluminium connectors	1 x (25 to 95 mm²) ; ≤ 250 A	Set of 3	LV429227
		Set of 4	LV429228
	1 x (120 to 185 mm²) ; ≤ 250 A	Set of 3	LV429259
		Set of 4	LV429260

Clips for connectors	Set of 10	LV429241

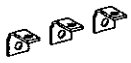


Aluminium connectors for 2 cables [1]	2 x (50 to 120 mm²) ; ≤ 250 A	Set of 3	LV429218
		Set of 4	LV429219

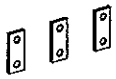
6.35 mm voltage tap for steel or aluminium connectors	Set of 10	LV429348

Terminal extensions

Edgewise terminal extensions [1]	Set of 3	LV429308
	Set of 4	LV429308



Right-angle terminal extensions [1]	Set of 3	LV429261
	Set of 4	LV429262



Straight terminal extensions [1]	Set of 3	LV429263
	Set of 4	LV429264

Spreaders from 35 to 45 mm pitch [1]	Set of 3	LV431563
	Set of 4	LV431564

[1] *Supplied with 2 or 3 interphase barriers.*

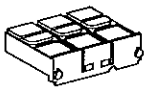
Crimp lugs for copper cable [1]

For cable 120 mm²	Set of 3	LV429252
	Set of 4	LV429256
For cable 150 mm²	Set of 3	LV429253
	Set of 4	LV429257
For cable 185 mm²	Set of 3	LV429254
	Set of 4	LV429258

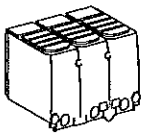
Crimp lugs for aluminium cable [1]

For cable 150 mm²	Set of 3	LV429504
	Set of 4	LV429505
For cable 185 mm²	Set of 3	LV429506
	Set of 4	LV429507

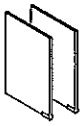
Insulation accessories



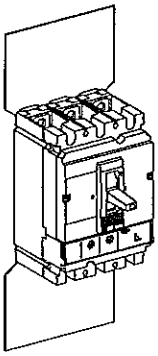
1 short terminal shield for breaker	3 P	LV429515
	4 P	LV429516



1 long terminal shield for breaker	3 P	LV429517
	4 P	LV429518



Interphase barriers for breaker	Set of 6	LV429329



2 insulating screens for breaker (45 mm pitch)	3P	LV429330
	4P	LV429331

[1] *Supplied with 2 or 3 interphase barriers.*

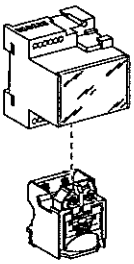
Electrical auxiliaries

Auxiliary contacts (changeover)

OF or SD or SDE or SDV	29450
OF or SD or SDE or SDV low level	29452
SDE adaptor, mandatory for trip unit TM, MA	LV429451

Voltage releases

	Voltage	MX	MN
AC	24 V 50/60 Hz	LV429384	LV429404
	48 V 50/60 Hz	LV429385	LV429405
	110-130 V 50/60 Hz	LV429386	LV429406
	220-240 V 50/60 Hz and 208-277 V 60 Hz	LV429387	LV429407
	380-415 V 50 Hz and 440-480 V 60 Hz	LV429388	LV429408
DC	12 V	LV429382	LV429402
	24 V	LV429390	LV429410
	30 V	LV429391	LV429411
	48 V	LV429392	LV429412
	60 V	LV429383	LV429403
	125 V	LV429393	LV429413
	250 V	LV429394	LV429414

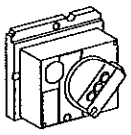


MN 48 V 50/60 Hz with fixed time delay		
Composed of:	MN 48 V DC	LV429412
	Delay unit 48 V 50/60 Hz	LV429426
MN 220-240 V 50/60 Hz with fixed time delay		
Composed of:	MN 250 V DC	LV429414
	Delay unit 220-240 V 50/60 Hz	LV429427
MN 48 V DC/AC 50/60 Hz with adjustable time delay		
Composed of:	MN 48 V DC	LV429412
	Delay unit 48 V 50/60 Hz	33680
MN110-130 V DC/AC 50/60 Hz with adjustable time delay		
Composed of:	MN 125 V DC	LV429413
	Delay unit 110-130 V 50/60 Hz	33681
MN 220-250 V 50/60 Hz with adjustable time delay		
Composed of:	MN 250 V DC	LV429414
	Delay unit 220-250 V 50/60 Hz	33682

Rotary handles

Direct rotary handle

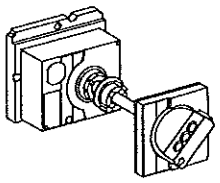
DB112259



With black handle	LV429337

Extended rotary handle

DB112260

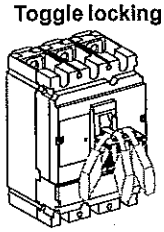


With black handle	LV429338

Locks

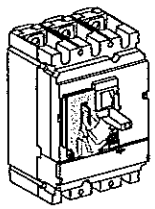
Toggle locking device for 1 to 3 padlocks

DB400164



By removable device	29370

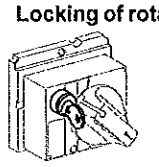
DB400165



By fixed device	29371

Locking of rotary handle

DB112263



Keylock adaptor (keylock not included)		LV429344
Keylock (keylock adaptor not included)	Ronis 1351B.500	41940
	Profalux KS5 B24 D4Z	42888

Accessories
EasyPact and Vigi CVS100/160/250

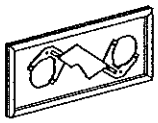
Interlocking

Mechanical interlocking for circuit breakers

D3111405

With toggles — **29354**

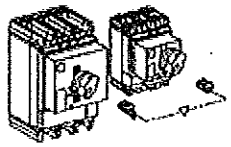
D3111407



With rotary handles — **LV429369**

Interlocking with key (2 keylocks / 1 key) for rotary handles

E20760

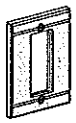


Keylock kit (keylock not includd) (1)		**LV429344**
1 set of 2 keylocks (1 key only, keylock kit not included)	Ronis 1351B.500	**41950**
	Profalux KS5 B24 D4Z	**42878**

Installation accessories

Front-panel escutcheons

E21641



IP40

IP40 toogle escutcheon (small cut-out)	**29315**
IP40 escutcheon for Rotary handle	**LV429317**
IP40 escutcheon for Vigi module	**LV429316**

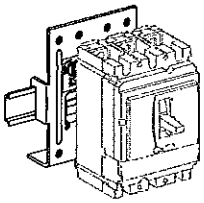
Lead-sealing accessories

D3115515

Bag of accessories — **LV429375**

Din rail adaptor

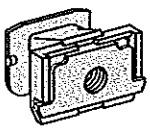
D3112739



1 adaptor — **LV429305**

Spare parts

E18624



10 toggle extensions		**LV429313**
Bag of screws		**LV429312**
12 snap-in nuts (fixed/FC)	M6 for CVS100B/F	**LV510100**
	M8 for CVS160/250B/F	**LV516060**
1 set of 10 identification labels		**LV429226**

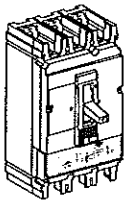
(1) *For only 1 device.*

EasyPact CVS400 to 630
Contents

CVS400/630: complete fixed/FC device
EasyPact and Vigi CVS400/630F/N

EasyPact CVS400/630F

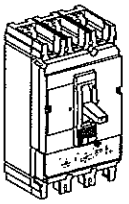
With TM-D thermal-magnetic trip unit



EasyPact CVS400F (36 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM320D	LV540305	LV540308	LV540311
TM400D	LV540306	LV540309	LV540312
EasyPact CVS630F (36 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM500D	LV563305	LV563308	LV563311
TM600D	LV563306	LV563309	LV563312

EasyPact CVS400/630N

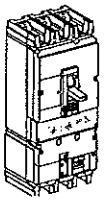
With TM-D thermal-magnetic trip unit



EasyPact CVS400N (50 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM320D	LV540315	LV540318	LV540321
TM400D	LV540316	LV540319	LV540322
EasyPact CVS630N (50 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM500D	LV563315	LV563318	LV563321
TM600D	LV563316	LV563319	LV563322

Vigi add-on module CVS400/630F

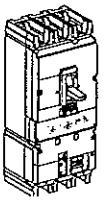
With TM-D thermal-magnetic trip unit



Vigi CVS400F (36 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM320D	LV540335	LV540338	LV540341
TM400D	LV540336	LV540339	LV540342
Vigi CVS630F (36 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM500D	LV563335	LV563338	LV563341
TM600D	LV563336	LV563339	LV563342

Vigi add-on module CVS400/630N

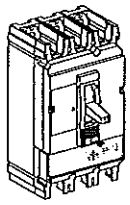
With TM-D thermal-magnetic trip unit



Vigi CVS400N (50 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM320D	LV540345	LV540348	LV540351
TM400D	LV540346	LV540349	LV540352
Vigi CVS630N (50 kA at 380/415 V)			
Rating	3P 3d	4P 3d	4P 4d
TM500D	LV563345	LV563348	LV563351
TM600D	LV563346	LV563349	LV563352

EasyPact CVS400/630F/N

With MA magnetic trip unit



DB400020

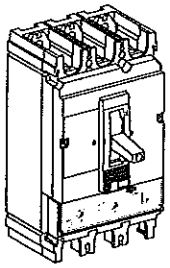
EasyPact CVS400F (36 kA at 380/415 V)	
Rating	3P 3D
MA320	LV540550
EasyPact CVS400N (50 kA at 380/415 V)	
Rating	
MA320	LV540552
EasyPact CVS630F (36 kA at 380/415 V)	
Rating	
MA500	LV563550
EasyPact CVS630N (50 kA at 380/415 V)	
Rating	
MA500	LV563552

CVS400/630: complete fixed/FC device
EasyPact CVS400/630F/N (36 kA 380/415 V)

EasyPact CVS400/630F

ETS 2.3 electronic trip unit (LS_0I protection)

DB400021

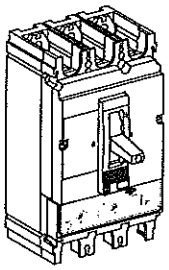


		3P 3d	4P 3d, 4d, 3d + N/2
EasyPact CVS400F (36 kA at 380/415 V)	400 A	LV540505	LV540506
EasyPact CVS630F (36 kA at 380/415 V)	630 A	LV563505	LV563506

EasyPact CVS400/630N

ETS 2.3 electronic trip unit (LS_0I protection)

DB400021

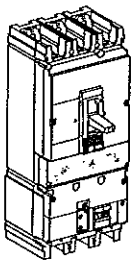


		3P 3d	4P 3d, 4d, 3d + N/2
EasyPact CVS400N (50 kA at 380/415 V)	400 A	LV540510	LV540511
EasyPact CVS630N (50 kA at 380/415 V)	630 A	LV563510	LV563511

Vigi add-on module CVS400/630F

ETS 2.3 electronic trip unit (LS_0I protection)

DB400022

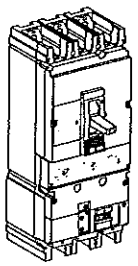


		3P 3d	4P 3d, 4d, 3d + N/2
Vigi CVS400F (36 kA at 380/415 V)	400 A	LV540520	LV540521
Vigi CVS630F (36 kA at 380/415 V)	630 A	LV563520	LV563521

Vigi add-on module CVS400/630N

ETS 2.3 electronic trip unit (LS_0I protection)

DB400022

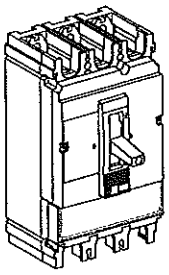


		3P 3d	4P 3d, 4d, 3d + N/2
Vigi CVS400N (50 kA at 380/415 V)	400 A	LV540524	LV540525
Vigi CVS630N (50 kA at 380/415 V)	630 A	LV563524	LV563525

CVS400/630:
complete fixed/FC device
EasyPact CVS400/630NA

EasyPact CVS400/630 NA switch-disconnector

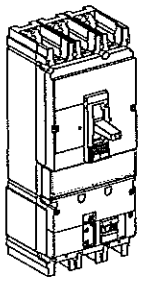
DB400023



	3P	4P
EasyPact CVS400 NA	LV540400	LV540401
EasyPact CVS630 NA, 45 mm pitch	LV563400	LV563401

Vigi CVS400/630 NA switch-disconnector

DB400024



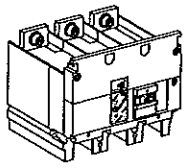
	3P	4P
Vigi CVS400 NA	LV540402	LV540403
Vigi CVS630 NA, 45 mm pitch	LV563402	LV563403

Add-on Vigi module
EasyPact and Vigi
CVS400/630

Vigi module

Vigi module

DB111464



		3P	4P
Type MB	200 to 440 V	LV432455	LV432456

Connection accessories (Cu or Al)

Rear connections

2 short		LV432475
2 long		LV432476

Cable connectors [1]

Aluminium connector 1x (35 to 300 mm²)	Set of 3	LV432479
	Set of 4	LV432480

Aluminium connector 2x (35 to 240 mm²)	Set of 3	LV432481
	Set of 4	LV432482
Voltage plug for aluminium connector 1 or 2 cables	Set of 10	LV429348

Terminal extension [1]

Right-angle terminal extension	Set of 3	LV432484
	Set of 4	LV432485

Edgewise terminal extensions	Set of 3	LV432486
	Set of 4	LV432487

Spreaders	52.5 mm	3P	LV432490
		4P	LV432491
	70 mm	3P	LV432492
		4P	LV432493

Crimp lugs for copper cable [1]

For cable 240 mm²	Set of 3	LV432500
	Set of 4	LV432501
For cable 300 mm²	Set of 3	LV432502
	Set of 4	LV432503

Supplied with 2 (or 3) interphase barriers

Crimp lugs for aluminium cable [1]

For cable 240 mm²	Set of 3	LV432504
	Set of 4	LV432505
For cable 300 mm²	Set of 3	LV432506
	Set of 4	LV432507

Supplied with 2 (or 3) interphase barriers

Insulation accessories

Short terminal shield, 45 mm (1 piece)	3P	LV432591
	4P	LV432592
Long terminal shield, 45 mm (1 piece)	3P	LV432593
	4P	LV432594
Interphase barriers	Set of 6	LV432570

Long terminal shiled for spreaders, 52,5mm (1 piece) (supplied with insulating plate)	3P	LV432595
	4P	LV432596
2 insulating screens (70 mm pitch)	3P	LV432578
	4P	LV432579

[1] *supplied with 2 or 3 interphase barriers*

Electrical auxiliaries

Auxiliary contacts (changeover)

OF or SD or SDE or SDV	29450
OF or SD or SDE or SDV low level	29452
SDE adaptor mandatory for trip unit TM, MA and ETS2.3	LV540050

Voltage releases

	Voltage	MX	MN
AC	24 V 50/60 Hz	LV429384	LV429404
	48 V 50/60 Hz	LV429385	LV429405
	110-130 V 50/60 Hz	LV429386	LV429406
	220-240 V 50/60 Hz and 208-277 V 60 Hz	LV429387	LV429407
	380-415 V 50 Hz and 440-480 V 60 Hz	LV429388	LV429408
DC	Voltage		
	12 V	LV429382	LV429402
	24 V	LV429390	LV429410
	30 V	LV429391	LV429411
	48 V	LV429392	LV429412
	60 V	LV429383	LV429403
	125 V	LV429393	LV429413
	250 V	LV429394	LV429414

MN 48 V 50/60 Hz with fixed time delay		
Composed of:	MN 48 V DC	LV429412
	Delay unit 48 V 50/60 Hz	LV429426
MN 220-240 V 50/60 Hz with fixed time delay		
Composed of:	MN 250 V DC	LV429414
	Delay unit 220-240 V 50/60 Hz	LV429427
MN 48 V DC/AC 50/60 Hz with adjustable time delay		
Composed of:	MN 48 V DC	LV429412
	Delay unit 48 V 50/60 Hz	33680
MN110-130 V DC/AC 50/60 Hz with adjustable time delay		
Composed of:	MN 125 V DC	LV429413
	Delay unit 110-130 V 50/60 Hz	33681
MN 220-250 V 50/60 Hz with adjustable time delay		
Composed of:	MN 250 V DC	LV429414
	Delay unit 220-250 V 50/60 Hz	33682

Rotary handle

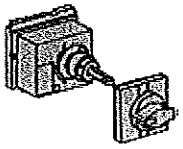
Direct rotary handle

E15911

Standard black handle — **LV432597**

Extended rotary handle

E10612



Standard extended rotary handle — **LV432598**

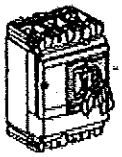
Locks

Toggle locking device for 1 to 3 padlocks

E10621

By removable device — **29370**

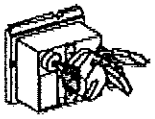
E10613



By fixed device — **32631**

Locking of the rotary handle

E10620



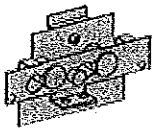
Keylock adaptor (keylock not included)		**LV432604**
Keylock (keylock adaptor not included)	Ronis 1351B.500	**41940**
	Profalux KS5 B24 D4Z	**42888**

Accessories
EasyPact and Vigi CVS400/630

Interlocking

Mechanical interlocking for circuit breakers

E21295



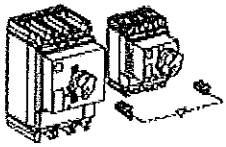
With toggles — **32614**

E16700

With rotary handles — **LV432621**

Interlocking with key (2 keylocks/1 key) for rotary handles

E20706



Keylock kit (keylock not included) (1)		**LV432604**
1 set of 2 keylocks (1 key only, keylock kit not included)	Ronis 1351B.500	**41950**
	Profalux KS5 B24 D4Z	**42878**

(1) for only 1 device

Installation accessories

Front-panel escutcheons

E21641

IP40 Toggle escutcheon (small cut-out)	**32556**
IP40 escutcheon for rotary handle	**LV432558**
IP40 escutcheon for Vigi module	**LV429316**

Lead-sealing accessories

LV429375

Spare parts

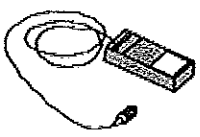
Front-panel escutcheons

Toggle extension	**LV432553**
Bag of screws	**LV432552**
1 set of 10 identification labels	**LV429226**

Test

Test kits

E21290



Mini test kit for STR trip units — **43362**

E30271

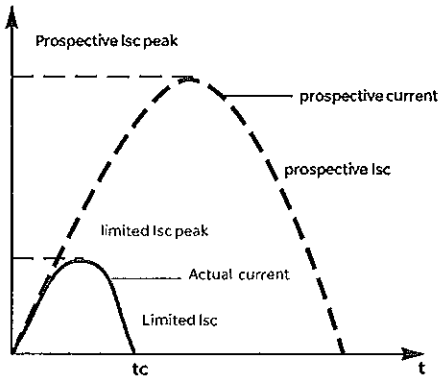
Portable test kit for STR trip units	**34547**
Spare test plug for portable test kit 34547	**34503**
Wiring kit (spare part)	**34546**

Notes

EasyPact CVS100BS

EasyPact CVS100BS
Contents

EasyPact CVS100BS



EasyPact CVS100BS

Simplicity and perfection – That's what Schneider Electric brings to you.
EasyPact CVS100BS not only reflects high quality of Scheider Electric, but also features performance, protection functions, and performance/price ratio.

EasyPact CVS100BS

- up to 100A 3 Pole/4Pole products
- Icu 25kA, Ics 17kA
- Reliable protections of power distribution systems
- Flexible installation solutions including fixed, plug-intypes
- Complete solutions for AC and DC networks

More reliable and safer

Powerful current-limiting capacity to ensure more cost-effective and more reliable protection.