Low Voltage

EasyPact CVS

Moulded-case circuit breakers and switch-disconnectors
from 16 to 630 A

Catalogue
2017

Life Is On | Schneider Electric

> Safe

> Reliable

> Simple

Easy choice for Quality and Value

EasyPact CVS is...Safe

Isolation

- EasyPact CVS circuit breakers are suitable for Isolation* as defined in IEC standards 60947-2 .The aim of isolation is to separate a circuit or apparatus from the remainder of a system which is energized in order the personnel may carry out work on the isolated part with complete safety.
- MCCB locking with external pad locks* enables user to isolate and undertake maintenance with utmost safety.

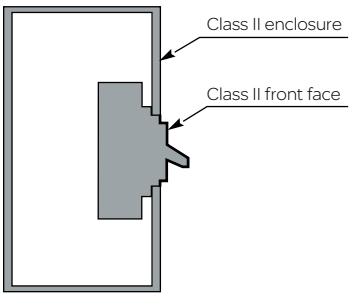
Isolation

Locking in OFF position

- Key locks enables to lock the breaker in OFF position ensuring safety and better control on installation.
- It also helps in interlocking multiple circuit breakers in an installation.

Class II front Face

- All EasyPact CVS* MCCBs are class II Front face devices, they may be installed through the door of class II switchboards without downgrading the switchboard insulation. Installation requires no special operation, even when the Circuit Breaker is equipped with a rotary handle.



Class II panel with circuit breaker having a class II front face

EasyPact CVS is...**Reliable**

IEC 60947-2

Conforms to IEC 60947-2 for circuit breaker

- Tested at renown international laboratories like KEMA
- Complete range with Ics = 100% Icu

High electrical & Mechanical endurance

- 30000 mechanical operations for 100A
- 12000 electrical operations for 100A

Reliable accessories

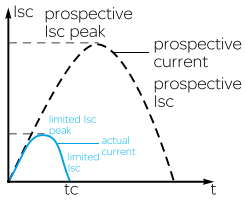
- Continuous rated shunt coils
- Multifunctional Aux./Alarm contact
- Unique electrical fault trip indication (SDE)

EasyPact CVS offer protection for human as well as Electrical installation

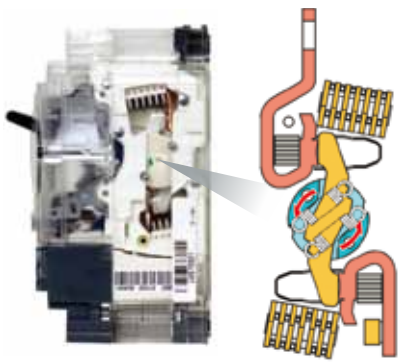
- Earth leakage protection through Vigi Module to protect human against leakage current

Fault current limitation technology

- EasyPact CVS Double break mechanism ensures high fault current limitation
  - @ Reduces thermal stresses on the electrical distribution network
  - @ Increases the life of cables and installation



Current limitation technology



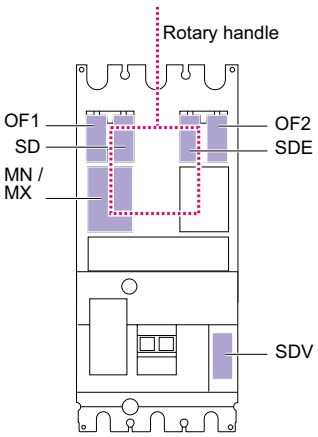
EasyPact CVS Double break Roto mechanism

EasyPact CVS is...Simple

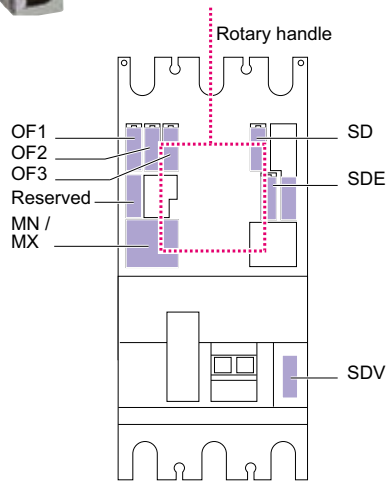
Only two frame sizes up to 630A

Frame - I	100 - 250 A
Frame – II	400 - 630A

- Common and snap fit accessories up to 630A
- Single OF contact for ON/OFF , Trip indication
- Single Shunt coil for remote tripping
- Single Under Voltage coil
- Easypact CVS share same foot print of Compact Family MCCBs.
  - mounting dimensions
  - easy retrofitting
  - system upgradeability



100 – 250A



400 – 630A

EasyPact CVS stands for customer value

EasyPact CVS 100 to 630 A

Panel builders

- Only two frame sizes up to 630A
- Common accessories for complete range (ON/OFF/Trip Auxiliaries/Shunt/UV etc)
- Line load reversibility for entire range
- Suitable for class II switchboards

End Users

- Isolation as a standard feature enhances safety
- Excellent current limiting capability reduces stresses on cables, busbars and loads
- Continuous rated accessories increase system reliability
- Moduler earth leakage protection ensure human/installation protection

OEMs

- High endurance's and maintenance free operation assure continuous performance of machines
- Unique common accessories help standardisation of components

Contractors

- Sufficient pole pitch helps to terminate Copper and Aluminum busbars or cables
- Easy availability of the product due to less number of frame size
- Designed to perform in demanding applications

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

Green Premium, stamping the most eco-friendly products of the industry

Green Premium™ Product

Green Premium is the only label allowing you to develop effectively an environmental policy and to promote it, while preserving your business efficiency.

It guarantees compliance with the most up-to-date environmental regulations, but it is more than this.

With Green Premium eco-mark, Schneider Electric helps you:

- Calculate the carbon footprint of the solutions you offer
- Ensure full regulation compliance about substances and chemical components
- Deliver all appropriate information to certify eco-design of your solutions
- Easily manage products end of life, while ensuring optimized recycling.

With Green Premium, Schneider Electric commits to be transparent disclosing extensive and reliable information on environmental impacts of its products:

RoHS

Schneider Electric applies RoHS requirements to all its products and worldwide, even for the numerous ones which are not in the scope of the regulation. Compliance certificates are available for all products involved.

REACh

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PEP: Product Environmental Profile

For all its products, Schneider Electric publishes the most complete set of environmental data, including carbon footprint and energy consumption for each of the life cycle phases, in compliance with ISO 14025 PEPecopassport program.

EoLI: End of Life Instructions

Available at a click, these documents provide:

- Recyclability rates of the products
- Information to mitigate personnel hazards during dismantling and before recycling operations
- Parts identification either for re-use, or for selective treatment to mitigate environmental hazards, or incompatibility with usual recycling process.

Discover what we mean by green .... and

CHECK a PRODUCT!

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Functions and characteristics

Functions and characteristics

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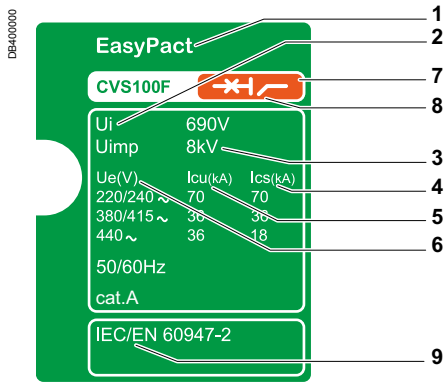
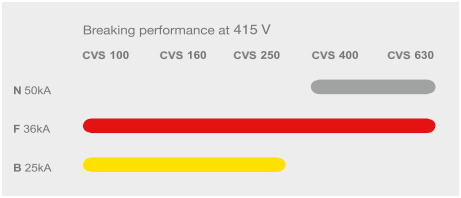
Introduction
General characteristics



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 Escutcheon:

- with toggle: IP40, IK07 front face
- with extended rotary handle: IP 54, IK08

Circuit breaker installed in a switchboard:

- with toggle: IP40, IK07 front face
- with extended rotary handle: IP 54, IK08

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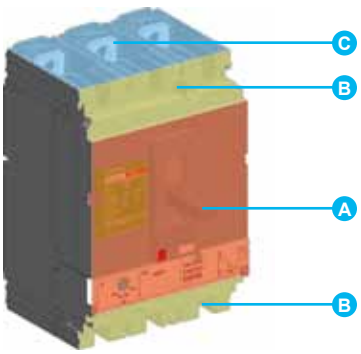


IP degree

	Toggle	Direct rotary handle	Extended rotary handle	Long terminal shields	Short terminal shields
A	IP40	IP40	IP54	IP40	IP40
B	IP20	IP20	IP20	IP40	IP40
C				IP40	IP40

Introduction
Characteristics and performance

PB106447

EasyPact CVS100/160/250

PB106448

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) W x H x D	Fixed, front connections	3P 4P	
Weight (kg)	Fixed, front connections	3P 4P	

Connections

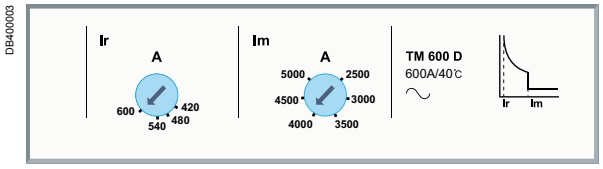
Connection terminals	Pitch	Without/With spreaders	
Large Cu or Al cables	Cross-section	mm²	

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 86 140 x 161 x 86	105 x 161 x 86 140 x 161 x 86	105 x 161 x 86 140 x 161 x 86	140 x 255 x 110 185 x 255 x 110	140 x 255 x 110 185 x 255 x 110
1.8 2.2	1.8 2.3	2.0 2.6	4.7 6.3	5.2 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

Protection of distribution systems
TM-D thermal-magnetic trip units

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).

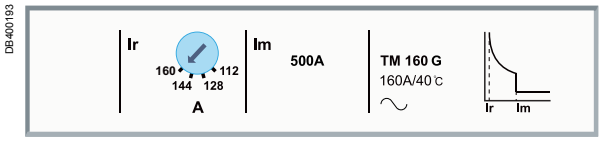
Thermal-magnetic trip units		TM16D to 250D												TM320D to 600D			
Ratings (A)	**In at 40 °C** (1)	**16**	**25**	**32**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**320**	**400**	**500**	**600**
Circuit breaker	CVS100	■	■	■	■	■	■	■	■	-	-	-	-				
	CVS160	-	-	-	-	-	-	-	■	■	■	-	-				
	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.

TM-G thermal-magnetic trip units can be used on EasyPact CVS160-250 circuit breakers with performance levels B for the protection of generators or long cable length.

TM-G thermal-magnetic trip units



Protection

TM-G, with a low pick-up for generators (lower short-circuit currents than with transformers) and distribution system with long cable lengths (fault current limited by impedance of the cable).

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 (80 A to 250 A), corresponding to settings from 56 to 250 A for the range of trip units
- a non-adjustable time delay.

Magnetic protection (Im)
Short-circuit protection with a fixed Im that initiates instantaneous tripping if exceeded.
- TM-G: fixed pick-up, Im, for 80 to 250 A ratings.

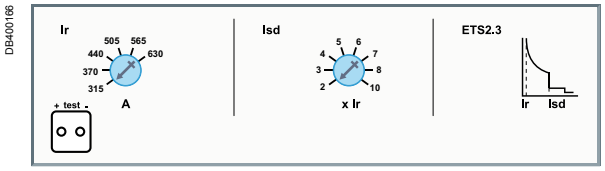
Protection versions
- 3-pole:
  - 3P 3D: 3-pole frame (3P) with detection on all 3 poles (3D)
- 4-pole:
  - 4P 3D: 4-pole frame (4P) with detection on 3 poles (3D).

Thermal-magnetic trip units		TM80G to 250G					
Ratings (A)	**In at 40 °C** [1]	**80**	**100**	**125**	**160**	**200**	**250**
Circuit breaker	CVS160	■	■	■	■	-	-
	CVS250	-	-	-	-	■	■
Magnetic protection							
Pick-up (A)	**Im**						
accuracy ±20 %	CVS160/250	200	320	440	500	600	750
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					

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

Protection of distribution systems
ETS 2.3 electronic trip unit and accessories

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) (min.…max.)		fixed	
	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.

PB106449

Vigi CVS100 to 630

PB103580-36

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

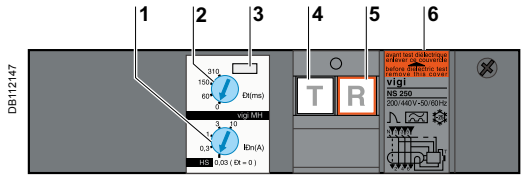
Addition of the Vigi module does not alter circuit-breaker characteristics:
- compliance with standards
- degree of protection, class II front-face insulation
- positive contact indication
- electrical characteristics
- trip-unit characteristics
- installation and connection modes
- indication, measurement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

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



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*

Vigi module selection

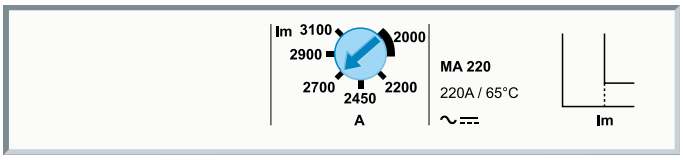
Type	Vigi MH	Vigi MB
Number of poles	3, 4 (1)	3, 4 (1)
CVS100	■	-
CVS160	■	-
CVS250	■	-
CVS400	-	■
CVS630	-	■
Protection characteristics		
Sensitivity	adjustable	adjustable
I△n (A)	0.03 - 0.3 - 1 - 3 - 10	0.3 - 1 - 3 - 10 - 30
Time delay	adjustable	adjustable
Intentional delay (ms)	0 - 60 (2) - 150 (2)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

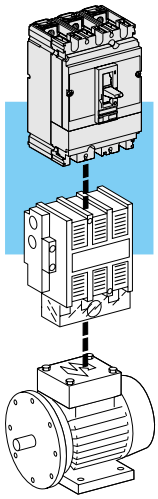
MA magnetic trip units for EasyPact CVS100-630A

DB400006



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

E26988



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) CVS100 CVS160/250 CVS400/630	**Im** = In x ...	setting 6...14 x In - -						setting - 9...14 x In -		setting - - 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

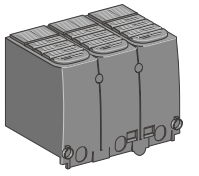
Switch-disconnectors				
Electrical characteristics as per IEC 60947-3 and EN 60947-3				
Conventional thermal current (A)	**Ith 50 °C**			
Number of poles				
Operational current (A) depending on the utilisation category	**Ie**	AC 50/60 Hz		
			220/240 V	
			380/415 V	
			440 V	
Short-circuit making 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	

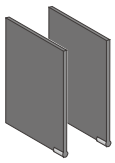
Accessories and auxiliaries
Overview

DB400001

Insulation accessories ▶ E-9, E-19

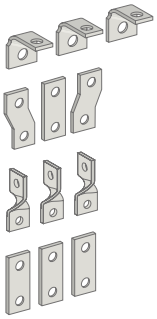


Sealable terminal shields

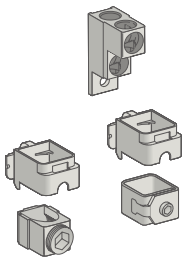


Interphase barriers

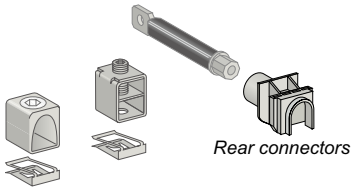
Connection ▶ A-14



Terminal extensions



Cable connectors



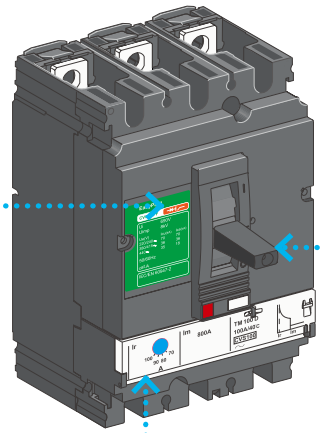
Cable connectors

Rear connectors

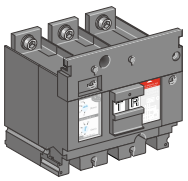
Electrical auxiliaries ▶ A-17

Indication contact

Voltage release

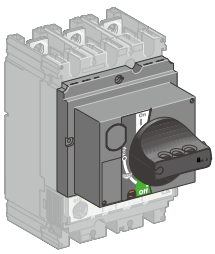


Monitoring ▶ A-8

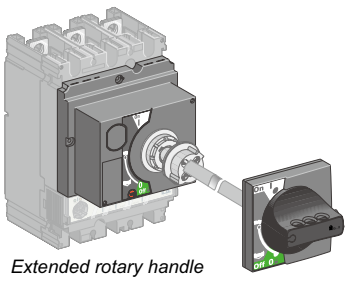


Earth leakage protection (VigiCVS)

Control accessories ▶ A-19



Direct rotary handle



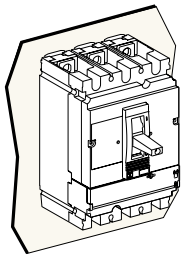
Extended rotary handle

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

Fixed circuit breakers

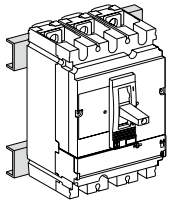
Fixed circuit breakers are designed for standard connection using bars or cables with lugs. Bare-cable connectors are available for connection to bare copper or aluminium cables.

DB400009



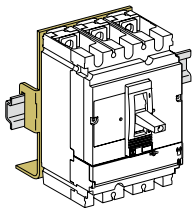
Mounting on a backplate.

DB400010



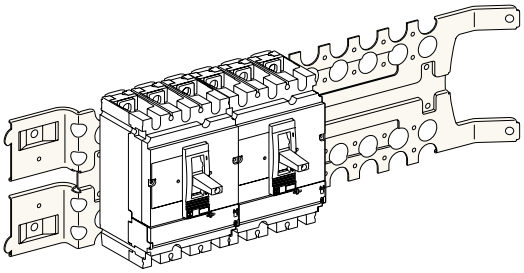
Mounting on rails.

DB400011



Mounting on DIN rail (with adaptor).

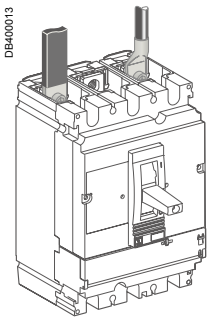
DB400012

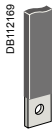


Mounting on a Prisma mounting plate.

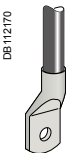
Accessories and auxiliaries
Connection of devices

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.

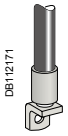




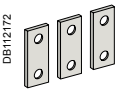
Insulated bar.



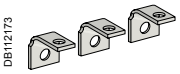
Small lug for copper cables.



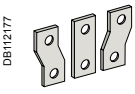
Small lug for Al cables.



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

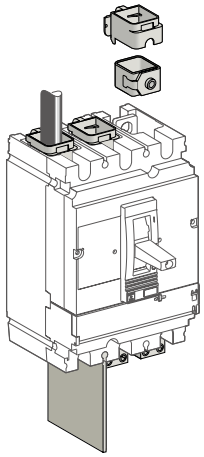
Spreaders may be used to increase the pitch:
- CVS100 to 250: the 35 mm pitch can be increased to 45 mm
- CVS400/630: the 45 mm pitch can be increased to 52 or 70 mm.

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

DB400014



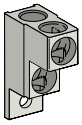
DB112314

Bare cable.

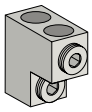
DB112315

DB112316

DB112317



DB111326



1-cable connector for CVS100 to 250

CVS400/630.

2-cable connector for CVS100 to 250

CVS400/630.

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.

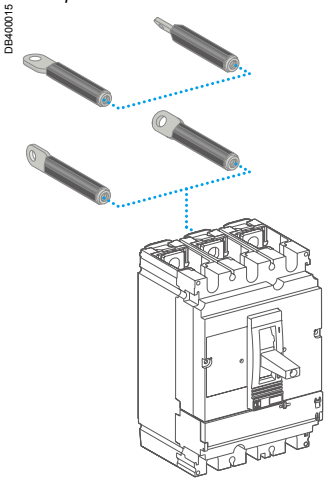
2-cable connectors for EasyPact CVS100 to 250 and 400/630
The connectors are screwed to device terminals or right-angle terminal extensions.

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			■	■

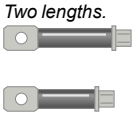
Four positions.

DB400015



Two lengths.

DB111330



Rear connection

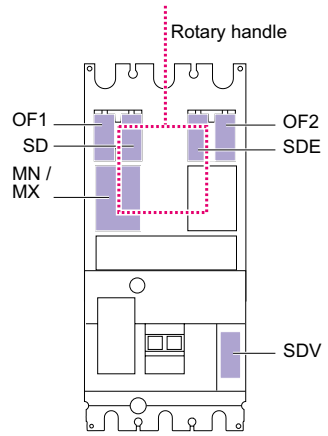
Device mounting on a backplate with suitable holes enables rear connection.

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.

Accessories and auxiliaries
Selection of auxiliaries

DB115583



EasyPact CVS100/160/250

Standard

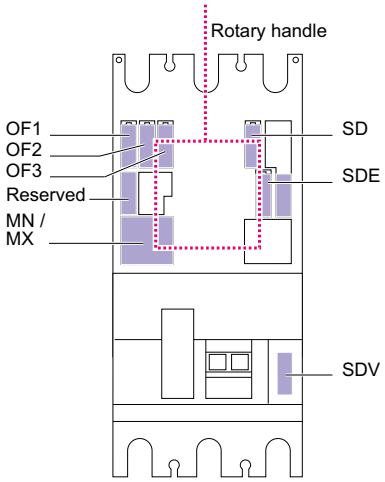
All EasyPact CVS100/160/250 circuit breakers and switch-disconnectors have slots for the electrical auxiliaries listed below.

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.

DB115590



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

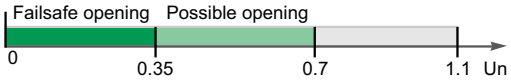
Contacts			**Standard**				**Low level**			
Types of contacts			**All**				**OF, SD, SDE, SDV**			
Rated thermal current (A)			6				5			
Minimum load			100 mA at 24 V DC				1 mA at 4 V DC			
Utilisation cat. (IEC 60947-5-1)			AC12	AC15	DC12	DC14	AC12	AC15	DC12	DC14
Operational current (A)	24 V	AC/DC	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

DB125550

MX or MN voltage release.

DB115605



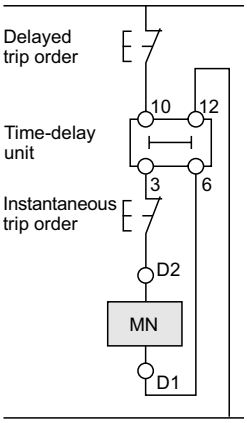
Opening conditions of the MN release.

DB115606

Closing conditions of the MN release.

PB103752-32

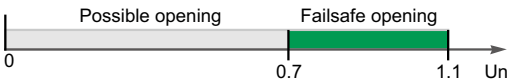
DB115607



MN release with a time-delay unit.

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

DB115608



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	V AC	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 V AC	48 V DC
220 / 240 V AC	250 V DC
Unit with adjustable delay (0.5s, 0.9s, 1.5s, 3s)	
48 - 60 V AC/DC	48 V DC
100 - 130 V AC/DC	125 V DC
220 - 250 V AC/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	V AC	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 1.5mm^2 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.

PB106453

EasyPact CVS with a rotary handle.

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

PB106454

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

Extended rotary handle

Degree of protection IP54, 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.

PB106455

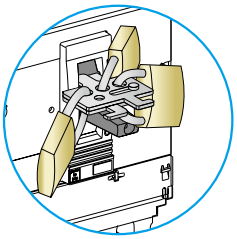
Manual source-changeover systems

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.

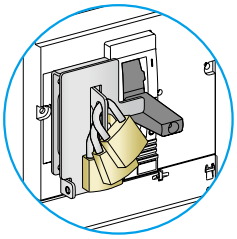
PB106456

Accessories and auxiliaries
Locks and sealing accessories

DB400025

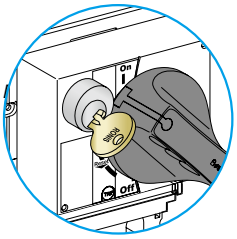


DB400026



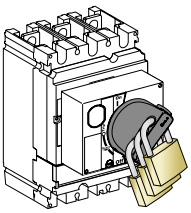
Toggle locking using padlocks and an accessory:
Removable device *Fixed device attached to the case.*

DB400027

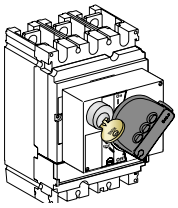


Rotary-handle locking using a keylock.

DB400028

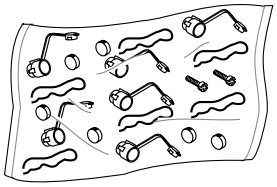


DB400029



Rotary-handle locking using a padlock or a keylock.

DB115033



Sealing accessories.

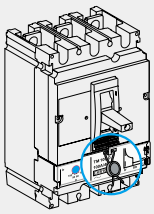
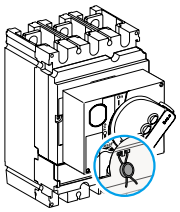
Locks

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

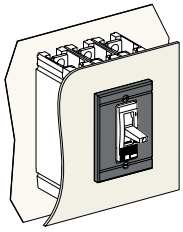
Toggle control	DB400017 
Rotary handle	DB400018 
Access to Vigi-module settings	DB400019
Types of seals **Protected operations**	**Protection cover for settings** ■ modification of settings.

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).

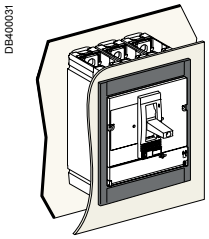
IP40 escutcheons for fixed devices

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.

DB400041

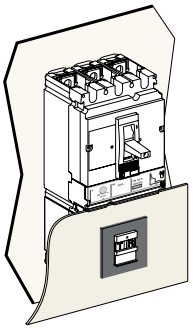


DB400031



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

DB400032



Escutcheon for Vigi module.

Installation recommendations

Installation recommendations
Contents

Functions and characteristics *A-1*

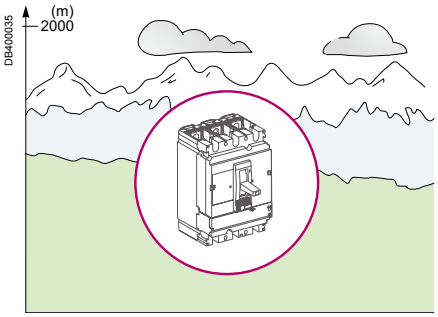
Operating conditions and temperature derating **B-2**

Installation in switchboards **B-4**
Power supply and weights B-4
Safety clearances and minimum distances B-5
Installation example B-6
Power loss/Resistance B-8

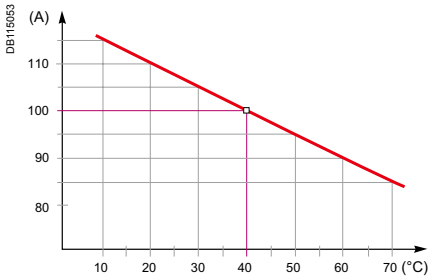
Dimensions and connection *C-1*
Additional characteristics *D-1*
Catalogue numbers *E-1*
EasyPact CVS100BS *F-1*

Operating conditions and temprature derating

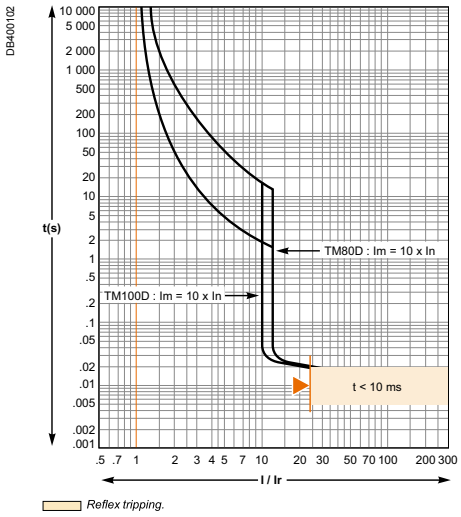
When thermal-magnetic trip units are used at ambient temperatures other than 40 °C, the Ir pick-up is modified.



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.

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 100-630
Ui	690	600	520	450	
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 or TM-G* trip units as a function of the temperature

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

Rat. (A)	Temperature (°C) 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

* For TM-G, the rating is from 80A to 250A.

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.

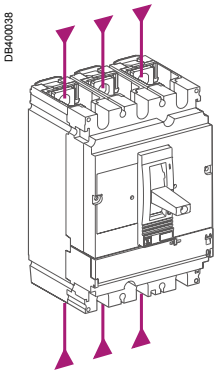
Type of device	Rating (A)	Temperature (°C)						
		40	45	50	55	60	65	70
CVS400								
Fixed	**400**	400	400	400	390	380	370	360
CVS630								
Fixed	**630**	630	615	600	585	570	550	535

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 TM-G	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	1.60	-	0.87
	4P 4D	2.08	-	-	1.13
	4P 3D	2.08	2.08	-	1.13
CVS250	3P 3D	1.79	1.79	-	0.87
	4P 4D	2.39	-	-	1.13
	4P 3D	2.39	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

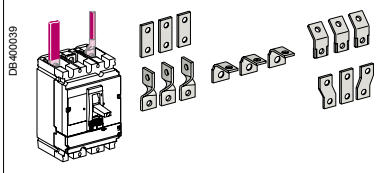
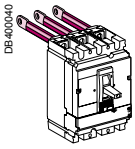
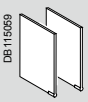
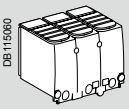
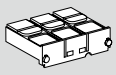
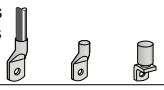
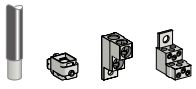
Installation in switchboards
Safety clearances and minimum distances

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

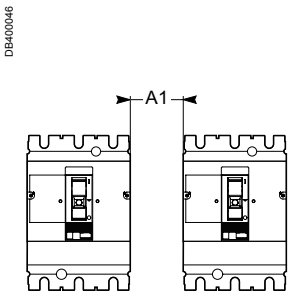
Type of connection		**Fixed, front connection**			**Fixed, rear connection**
					
Possible, recommended or mandatory accessories: With:		No insulating accessory	Interphase barriers 	Long terminal shields (1) 	Short terminal shields 
operating voltage	**type of conductor**				
⩽ **440 V**	Insulated bars	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

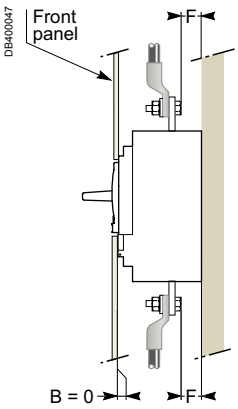
Safety clearance

Minimum distance between two adjacent circuit breakers



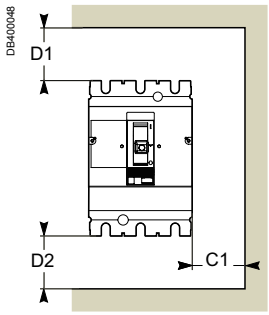
Bare or painted sheet metal

Minimum distance between circuit breaker and front or rear panels

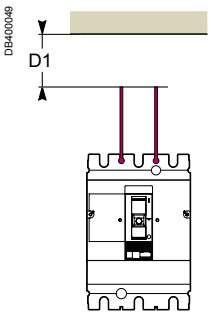


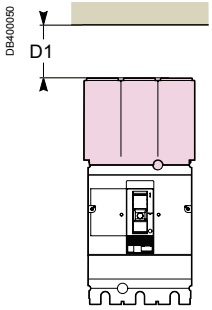
Note: if F < 8 mm: an insulating screen or long terminal shield is mandatory.

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



Devices without accessories.

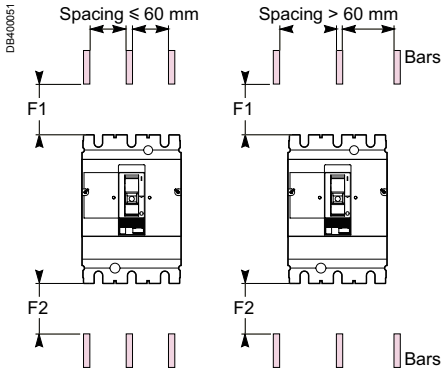




Devices with interphase barriers or long terminal shields.

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

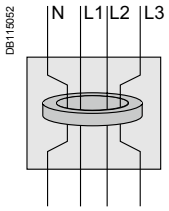
Minimum clearances for CVS100 to 630

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

Functions and characteristics *A-1*
Installation recommendations *B-1*

Dimensions and mounting **C-2**
EasyPact CVS100 to 630 C-2
Vigi CVS100 to 630 C-3
Direct rotary handle for EasyPact and Vigi CVS100 to 630 C-4
Extended rotary handle for EasyPact CVS100 to 630 C-5

Front-panel accessories **C-6**
EasyPact CVS100 to 630 C-6

Front-panel cutouts **C-7**
EasyPact CVS100 to 630 C-7
Vigi CVS100 to 630 C-8
Direct rotary handle for EasyPact and Vigi CVS100 to 630 C-9

Power connections **C-11**
EasyPact and Vigi CVS100 to 630 C-11
Connection of insulated bars or cables with lugs to EasyPact and Vigi CVS100 to 630 C-14
Connection of bare cables to EasyPact and Vigi CVS100 to 630 C-15

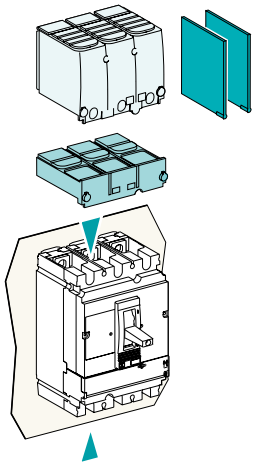
Additional characteristics *D-1*
Catalogue numbers *E-1*
EasyPact CVS100BS *F-1*

Dimensions and mounting
EasyPact CVS100 to 630

Dimensions

3P

DB400055



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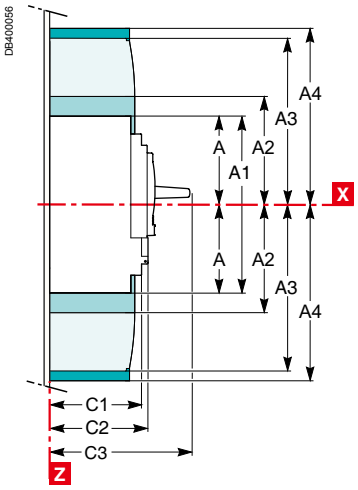

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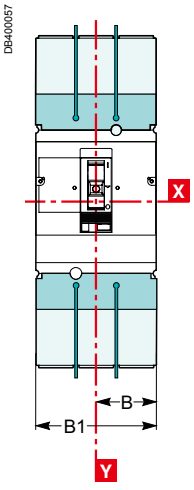

4P

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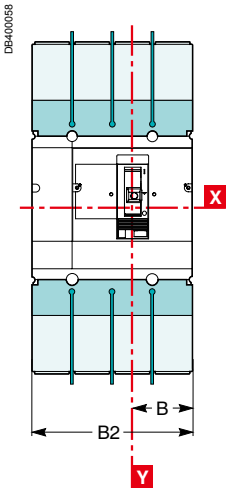


Interphase barriers.
Short terminal shields.

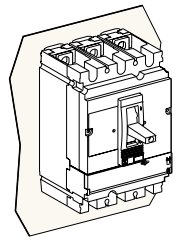
Long terminal shields (also available for CVS400/630 spreaders with 52.5 mm pitch: B1 = 157.5 mm, B2 = 210 mm).

Mounting

On backplate

CVS100 to 250	CVS400/630	CVS100 to 630
3P	3P	4P

DB400059



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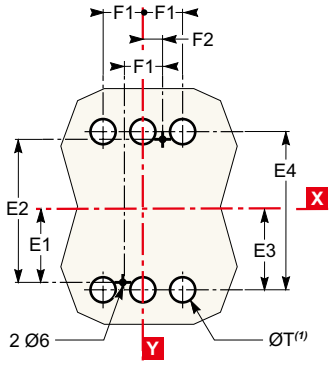

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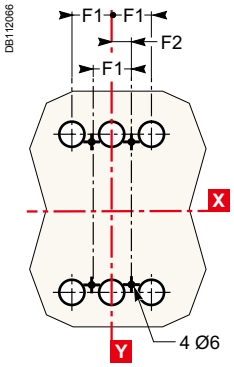

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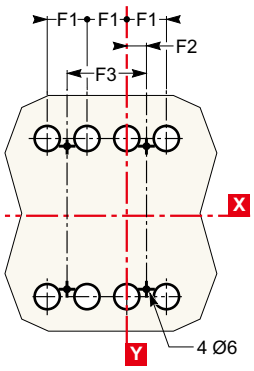
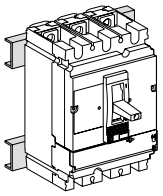


(1) The ØT holes are required for rear connection only.

On rails

3P	3P	4P

DB400063



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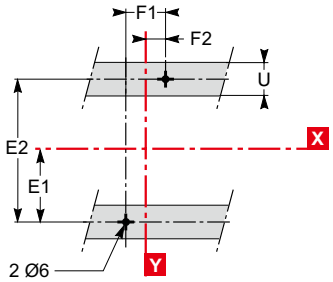

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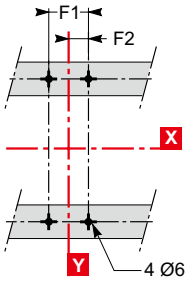

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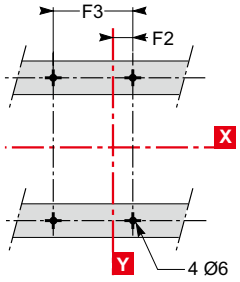
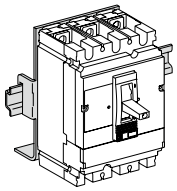


On DIN rail with adaptor plate (CVS100 to 250)

DB400168



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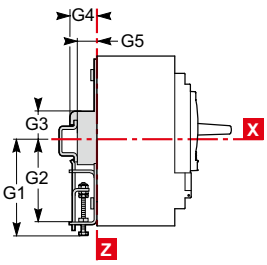
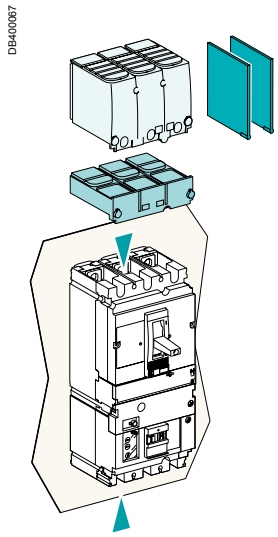


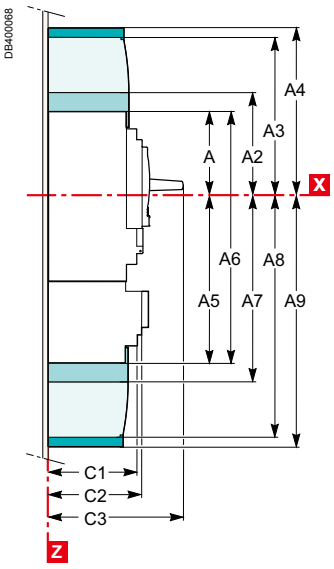
Dimensions and mounting
Vigi CVS100 to 630

Dimensions

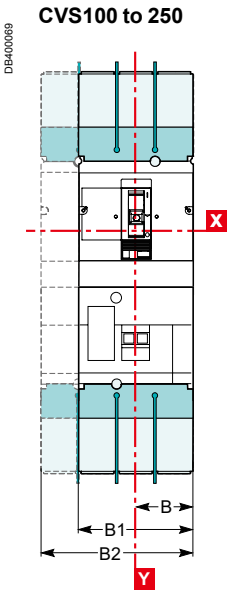
3/4P

3/4P

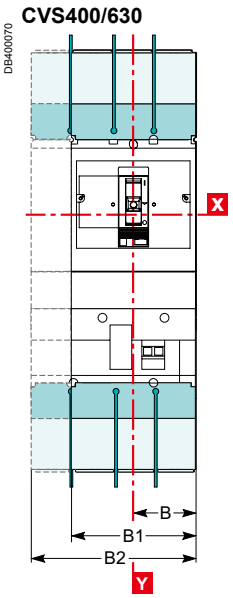




CVS100 to 250

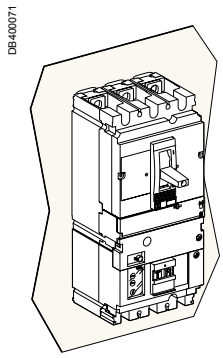


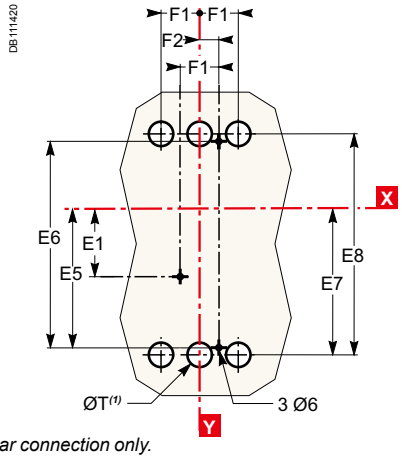
CVS400/630

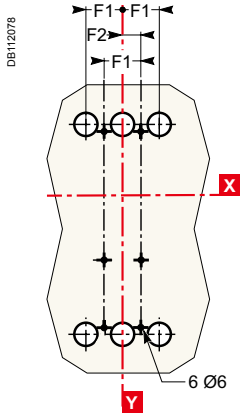


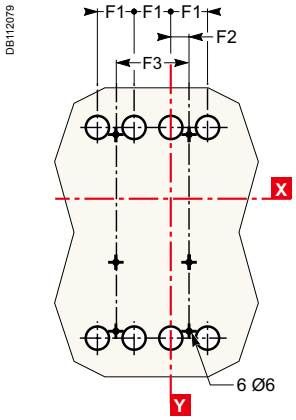
Mounting

On backplate	CVS100 to 250	CVS400/630	CVS100 to 630
	3P	3P	4P



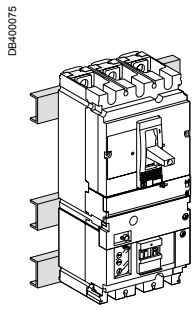


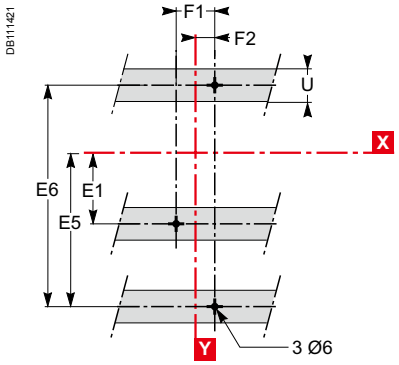


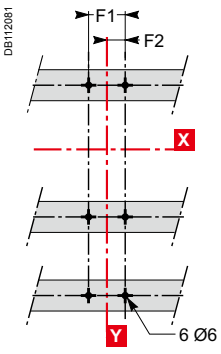


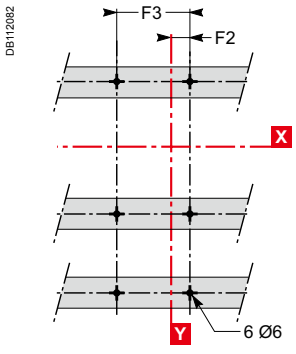
(1) The ØT holes are required for rear connection only.

On rails	3P	3P	4P









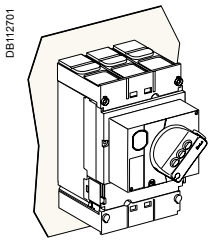
Type	A	A1	A2	A3	A4	A5	A6	A7	A8	A9	B	B1	B2	C1	C2	C3	E1
CVS100/160/250	80.5	161	94	145	178.5	155.5	236	169	220	253.5	52.5	105	140	81	86	111(2)	62.5
CVS400/630	127.5	255	142.5	200	237	227.5	355	242.5	300	337	70	140	185	95.5	110	168	100
Type	**E2**	**E3**	**E4**	**E5**	**E6**	**E7**	**E8**	**F1**	**F2**	**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

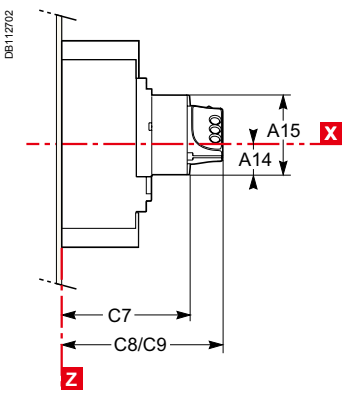
(2) C3=126mm for EasyPact CVS250B/F.

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

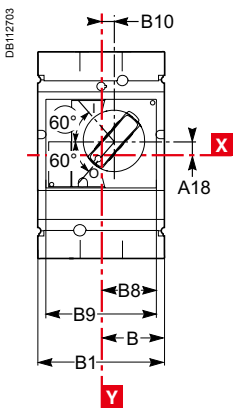
Dimensions — **3P** — **4P**

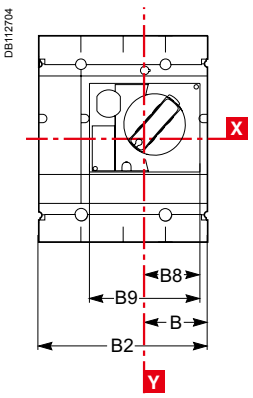
Fixed circuit breaker





C8: without keylock
C9: with keylock



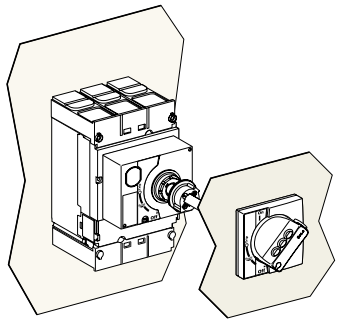


Type	A14	A15	A18	B8	B9	B10	C7	C8	C9
CVS100/160/250	27.5	73	9	45.5	91	9.25	121	155	164
CVS400/630	40	123	24.6	61.5	123	5	145	179	188

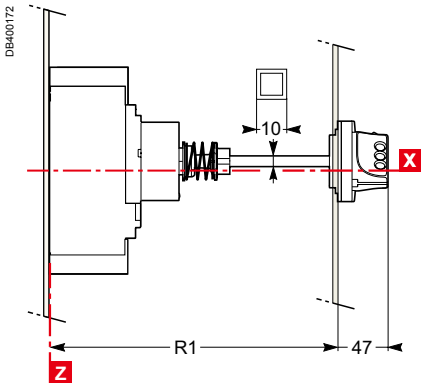
Dimensions

Fixed circuit breakers

DB400171



DB400172

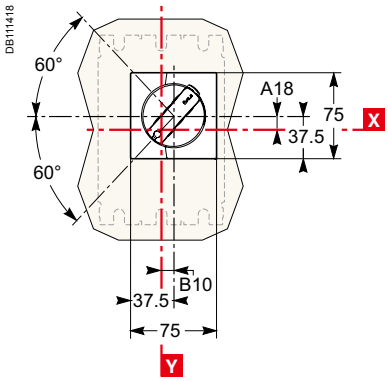


Cutout for shaft (mm)

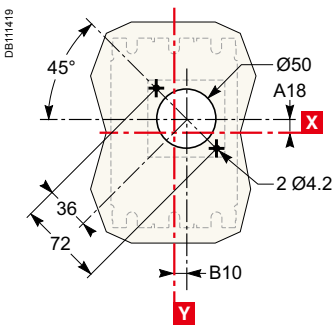
Type	R1
CVS100/160/250	min. 171 max. 600
CVS400/630	min. 195 max. 600

Dimensions and front-panel cutout

DB111418



DB111419



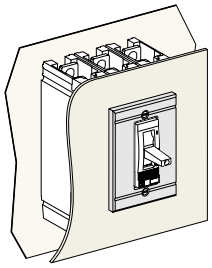
Type	A18	B10
CVS100/160/250	9	9.25
CVS400/630	24.6	5

Front-panel accessories
EasyPact CVS100 to 630

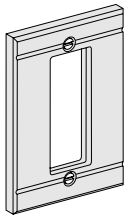
IP40 front-panel escutcheons

For toggle

DB400041



E21641



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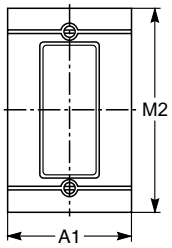

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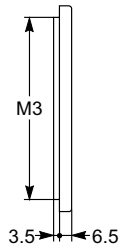
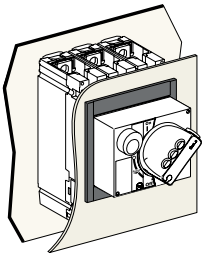


For rotary handle or module and protection collar

DB400089



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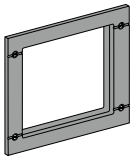

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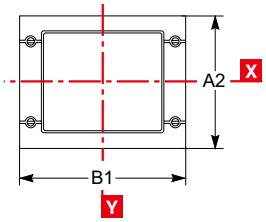

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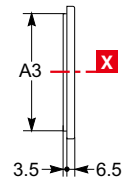
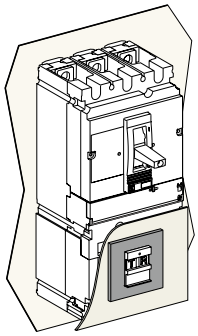


For Vigi

DB400097



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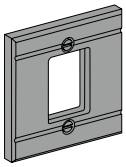

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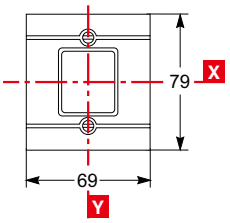
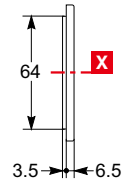


DB115020



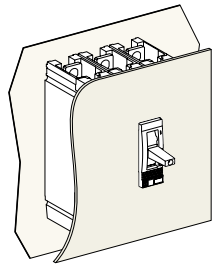
Type	A1	A2	A3	B1	M2	M3
CVS100/160/250	91	114	101	157	115	102
CVS400/630	123	164	151	189	155	142

Front-panel cutouts
EasyPact CVS100 to 630

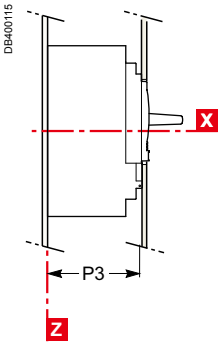
Bare sheet metal — **CVS100 to 250** — **CVS400/630**

For toggle

DB400034



DB400115



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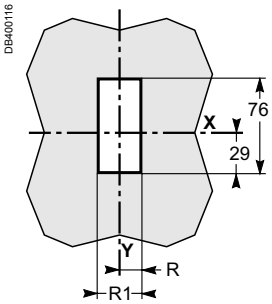

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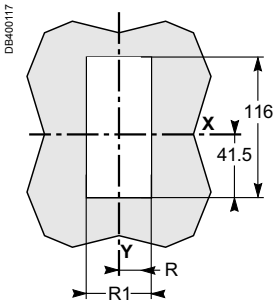
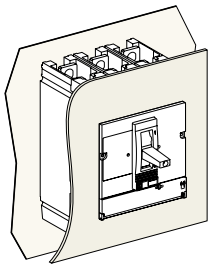
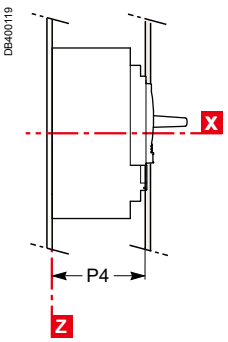


For toggle with access to trip unit

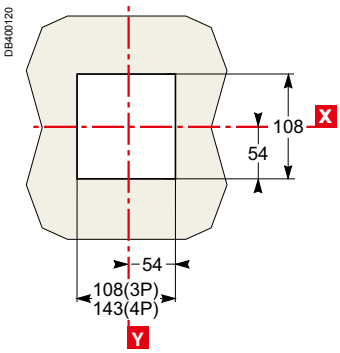
DB400118



DB400119



DB400120



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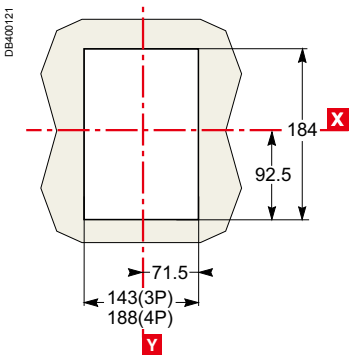


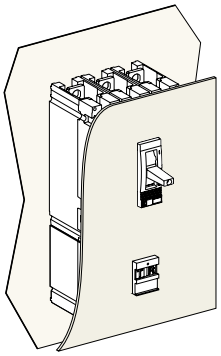
Type	P3	P4	R	R1
CVS100/160/250	88	83	14.5	29
CVS400/630	112	107	31.5	63

Front-panel cutouts
Vigi CVS100 to 630

Bare sheet metal	CVS100 to 250	CVS400/630

For toggle

DB400122



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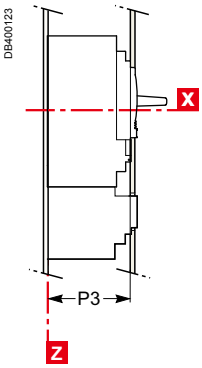

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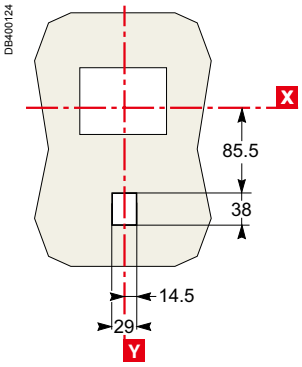

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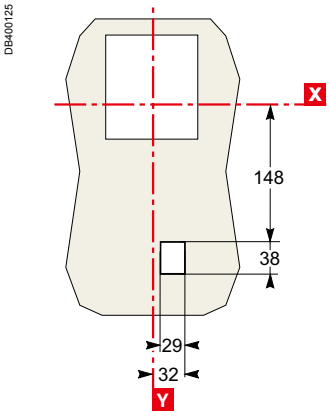
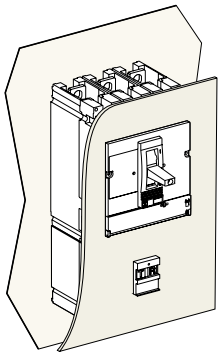


For toggle with access to trip unit

DB400126



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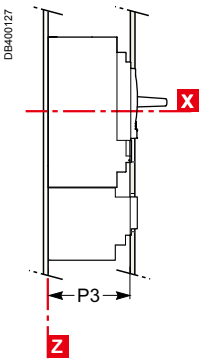

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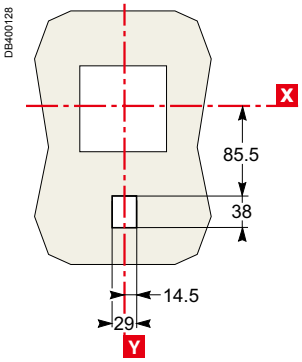

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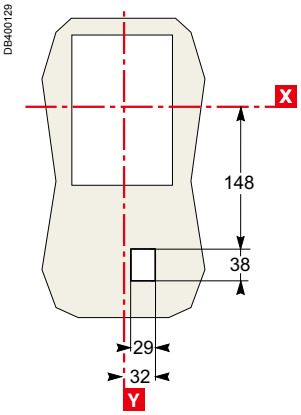
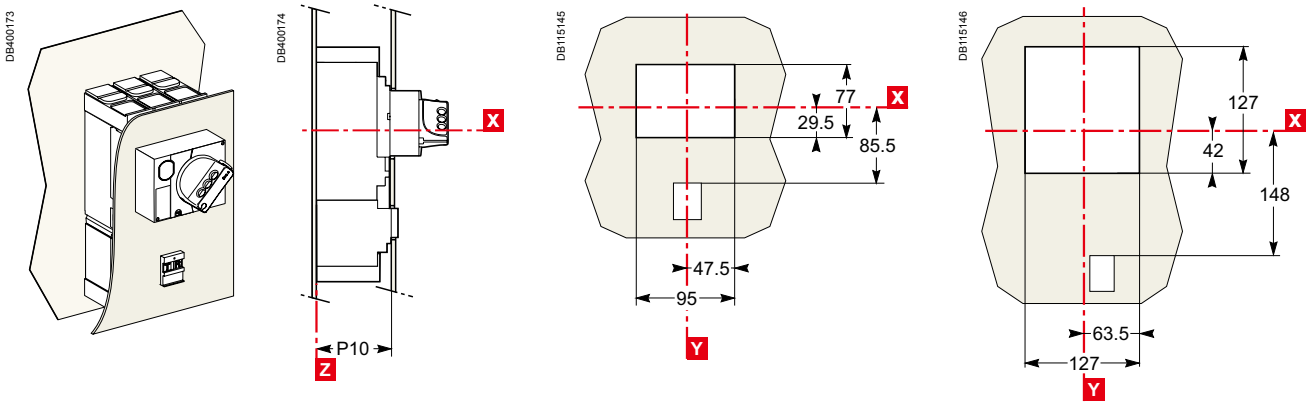


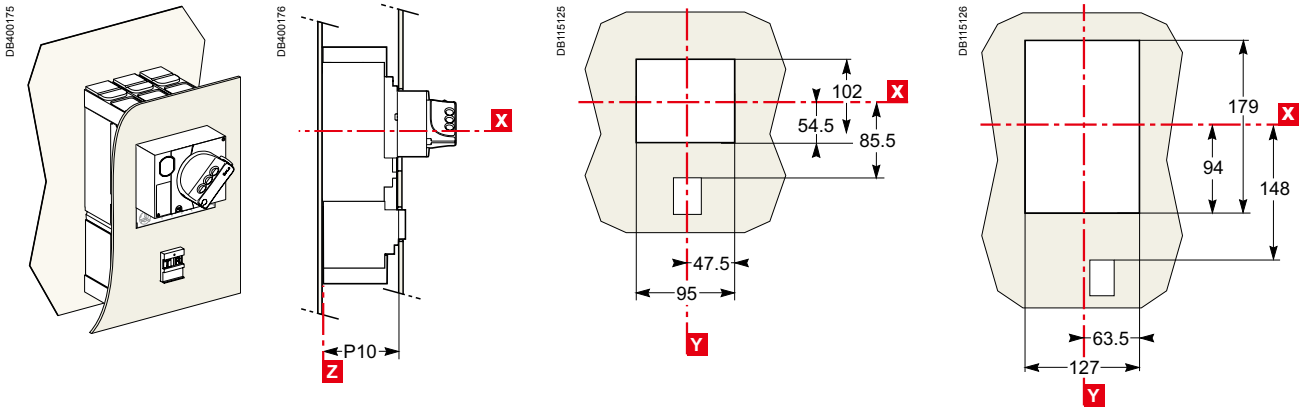
Front-panel cutouts
Direct rotary handle for EasyPact and Vigi CVS100 to 630

Fixed circuit breakers	CVS100 to 250	CVS400/630

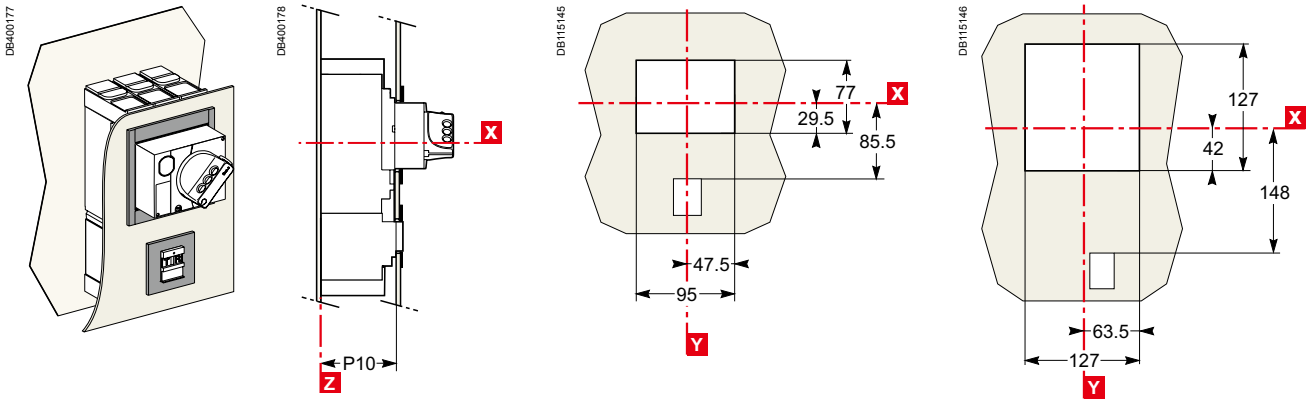
Bare sheet metal



Bare sheet metal with access to the trip unit



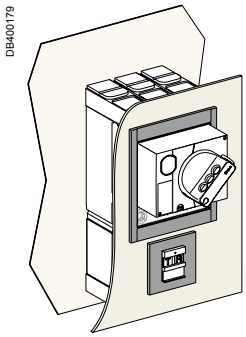
With IP30 front-panel escutcheon

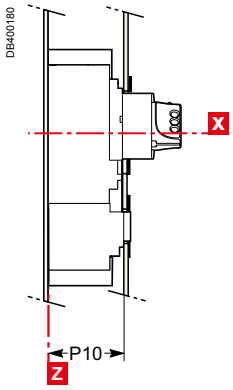


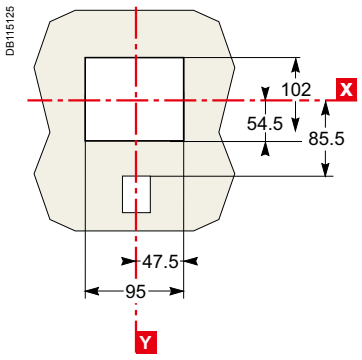
Front-panel cutouts
Direct rotary handle for EasyPact and Vigi CVS100 to 630

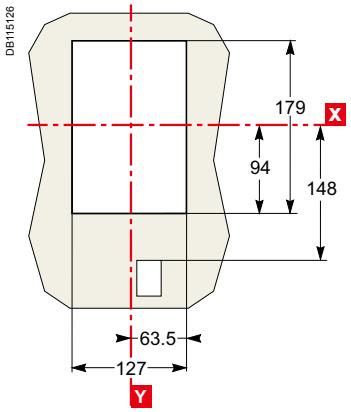
Fixed circuit breakers (cont.) — **CVS100 to 250** — **CVS400/630**

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

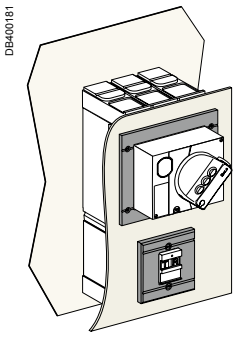


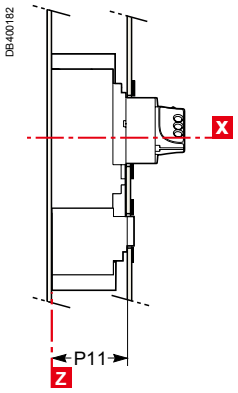


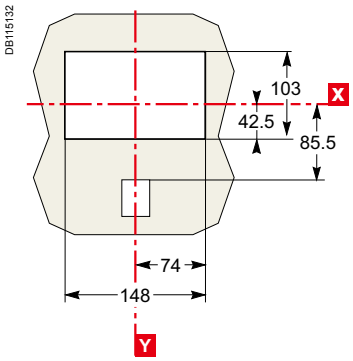


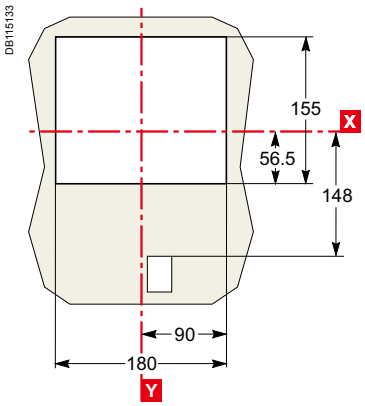


With IP40 front-panel escutcheon



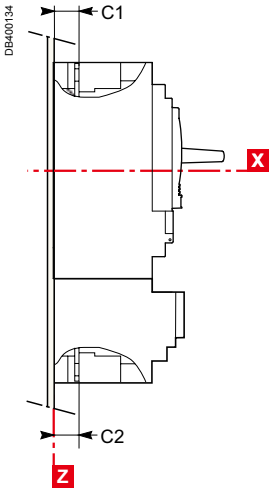


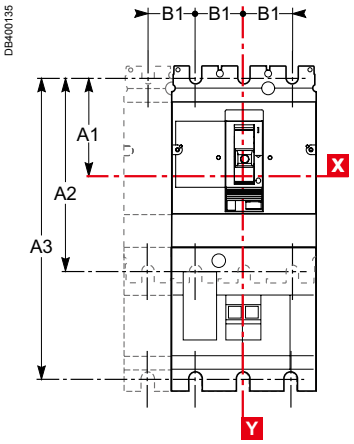




Type	P10	P11	P12
CVS100/160/250	89	90	123
CVS400/630	112	113	147

Connection locations

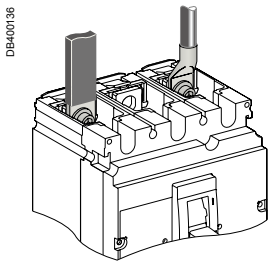




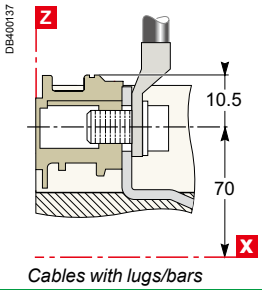
Type	A1	A2	B1	C1	C2
CVS100/160	70	140	35	19.5	19.5
CVS250	70	140	35	21.5	19.5
CVS400/630	113.5	227	45	26	26

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

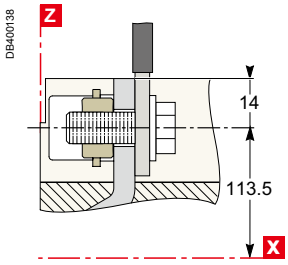


CVS100 to 250



Cables with lugs/bars

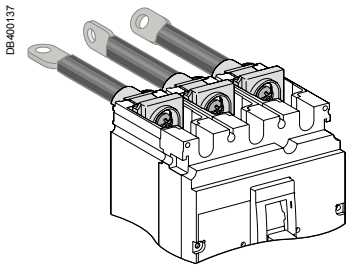
CVS400/630



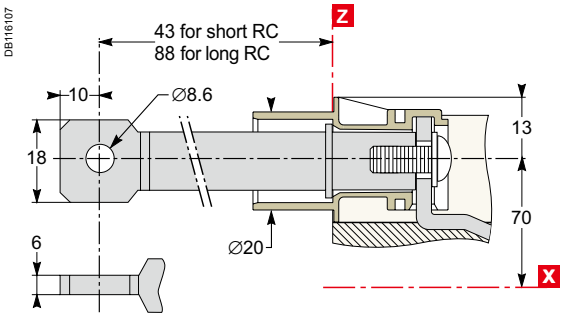
Bars/cables with lugs

Connection with accessories

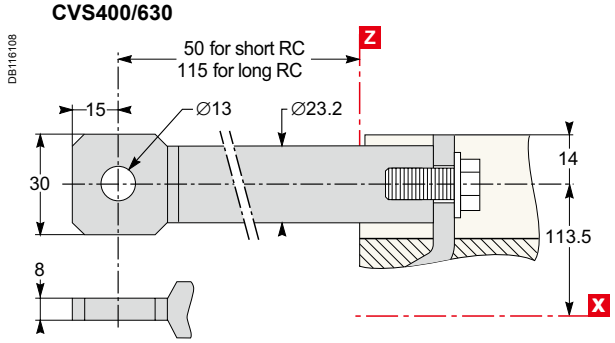
Long and short rear connectors



CVS100 to 250



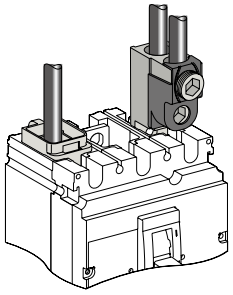
CVS400/630



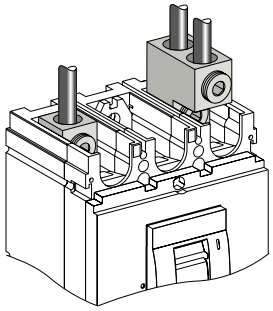
Connection with accessories (cont.)

Bare-cable connectors

DB400138

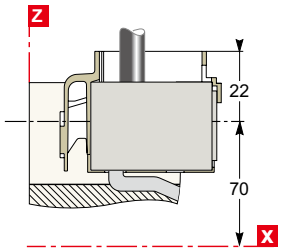


DB400139

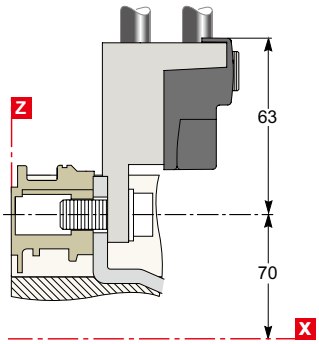


DB115451

CVS100 to 250

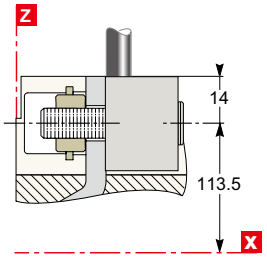


DB115452

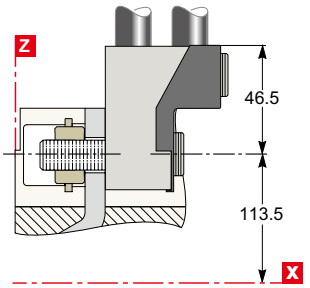


DB115454

CVS400/630

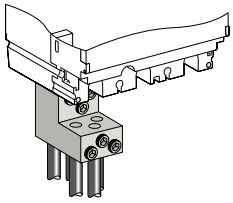


DB115455

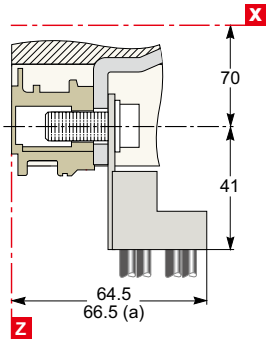


Distribution connectors (for CVS100 to 250 only)

DB115456



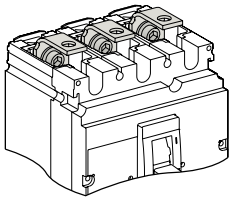
DB115457



(a) Vigi module or CVS250.

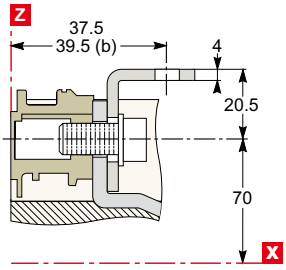
Right-angle terminal extensions (upstream only)

DB400140



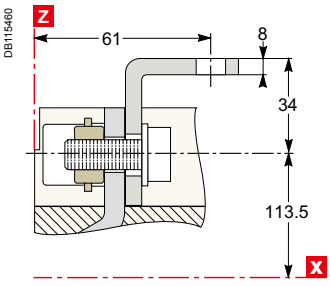
DB115459

CVS100 to 250



DB115460

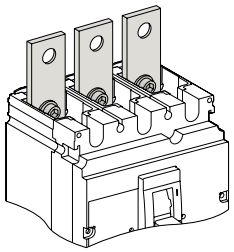
CVS400/630



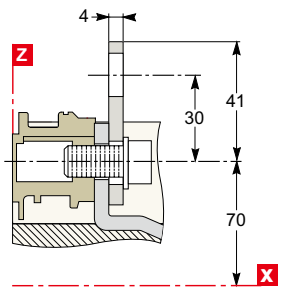
(b) CVS250.

Straight terminal extensions (for CVS100 to 250 only)

DB400141

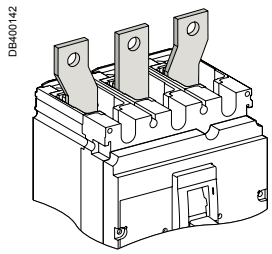


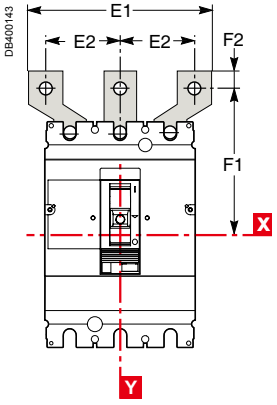
DB115462

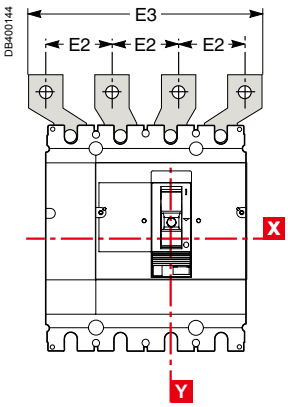


Connection with accessories (cont.)

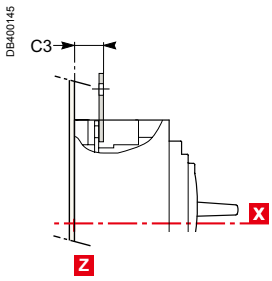
Spreaders **3P** **4P**



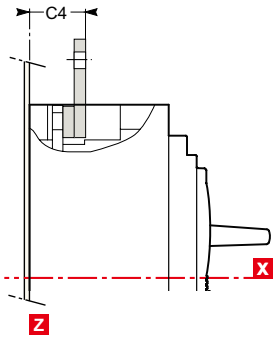




CVS100 to 250



CVS400/630

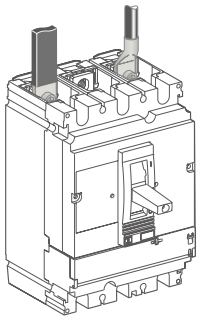


Type	C3	C4	E1	E2	E3	F1	F2
CVS100/160	23.5	-	114	45	159	100	**11**
CVS250	25.5	-	114	45	159	100	**11**
CVS400/630	-	44	135 170	52.5 70	187.5 240	152.5 166	15 15

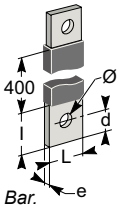
Power connections

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

DB400013

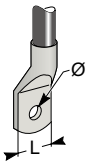


DB115653



Bar.

DB115654



Lug.

Accessories for CVS100 to 250

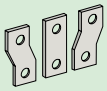
Straight terminal extensions

DB112172

Tinned copper

Spreaders: separate parts

DB112177

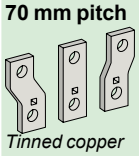


Tinned copper

Accessories for CVS400 and 630

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

DB115657

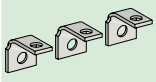


Tinned copper

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

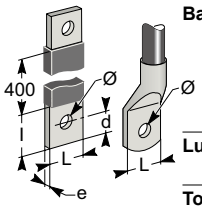
(1) Tightening torque on the circuit breaker for lugs or bars.
(2) Tightening torque on fixed devices for rear connectors.

Connection with accessories to CVS100 to 250 (IEC 228)

Pole pitch	
Without spreaders	35 mm
With spreaders	45 mm

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

DB115655



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

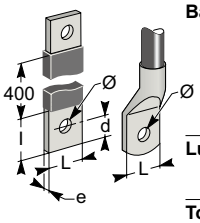
Spreaders and straight, right-angle, 45°, double-L and edgewise terminal extensions are supplied with flexible interphase barriers.

Connection with accessories to CVS400 and 630 (IEC 228)

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

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

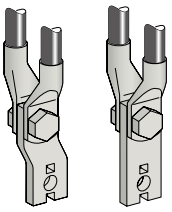
DB115655



(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.

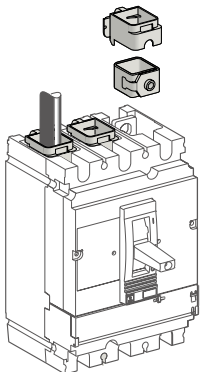
DB115658



Mounting detail: 2 cables with lugs.

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

DB400149

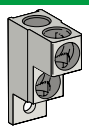


Connection for CVS100 to 250

DB112315

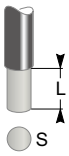
1-cable connector

DB112317



2-cable connector

DB115663



	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			

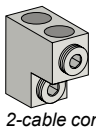
(1) For flexible cables from 1.5 to 4 mm², connection with crimped or self-crimping ferrules.

Connection to CVS400 and 630

DB112316

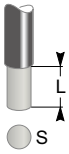
1-cable connector

DB111326



2-cable connector

DB115663



	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

Functions and characteristics *A-1*
Installation recommendations *B-1*
Dimensions and connection *C-1*

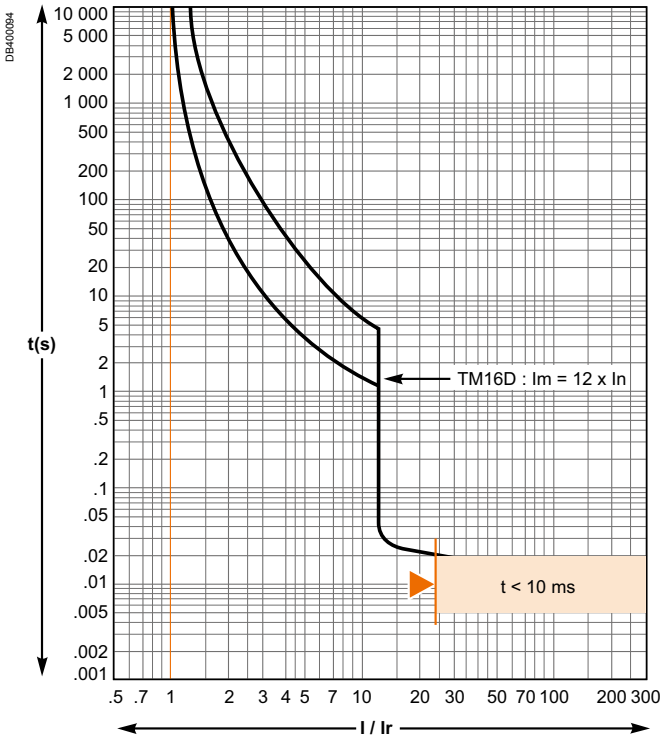
Tripping curves **D-2**
EasyPact CVS100 to 630 Protection of distribution systems D-2
EasyPact CVS100 to 250 Protection of generator systems D-6
EasyPact CVS100 to 250 Motor protection D-8
Current and energy limiting curves D-9

Catalogue numbers *E-1*
EasyPact CVS100BS *F-1*

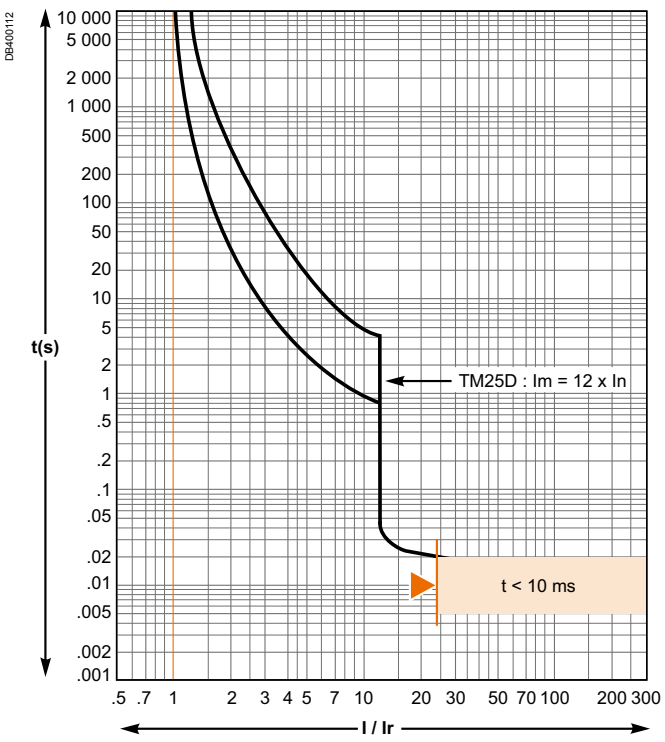
Tripping curves
EasyPact CVS100 to 630
Protection of distribution systems

TM magnetic trip units

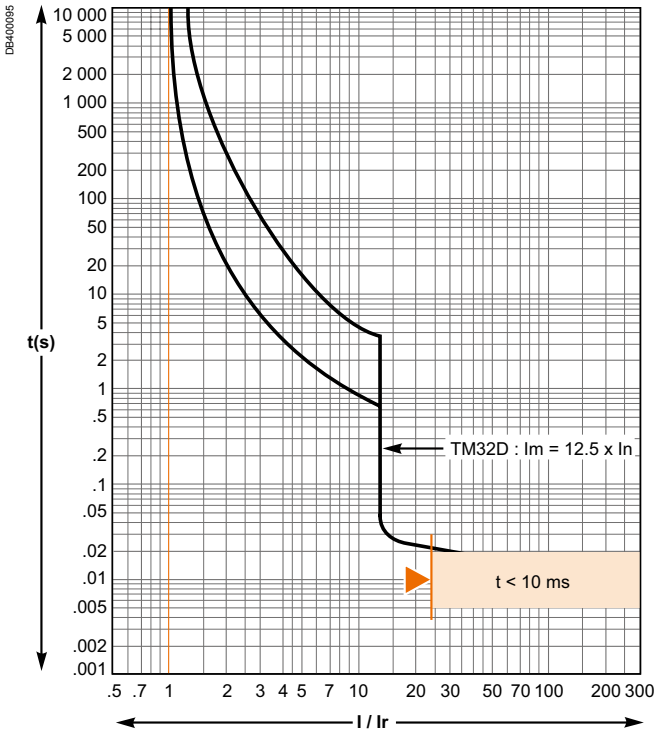
TM16D



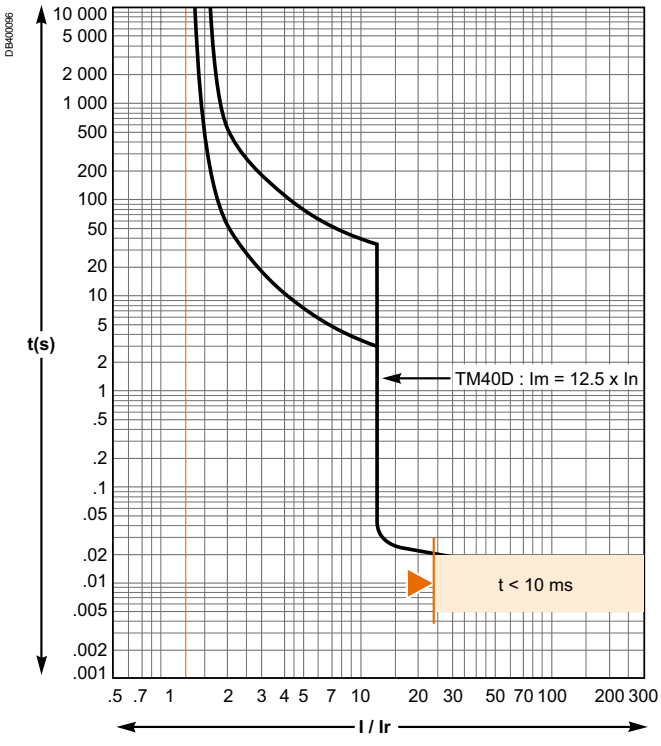
TM25D



TM32D



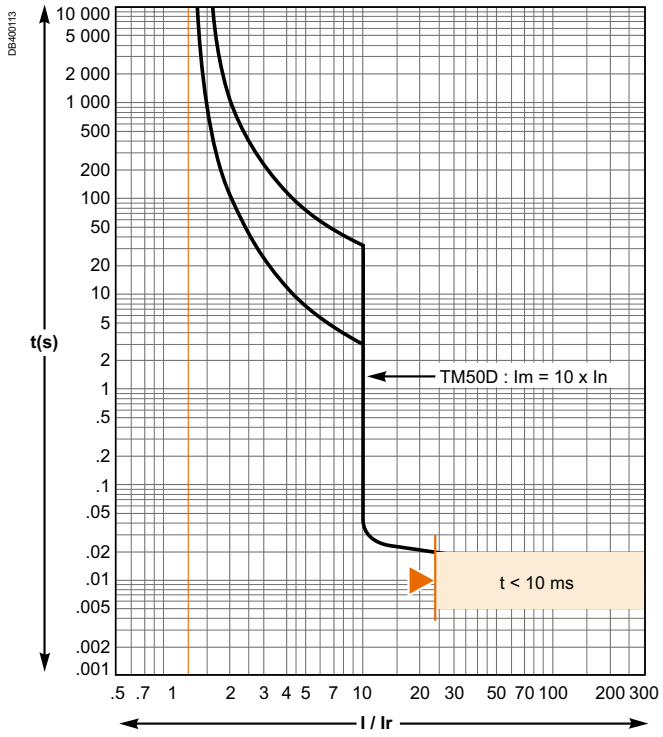
TM40D



Reflex tripping.

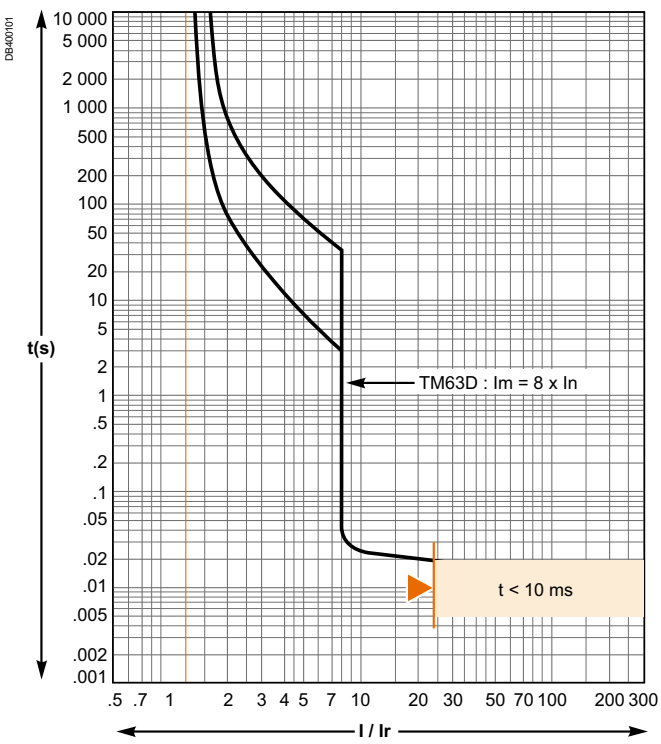
TM magnetic trip units (cont.)

TM50D



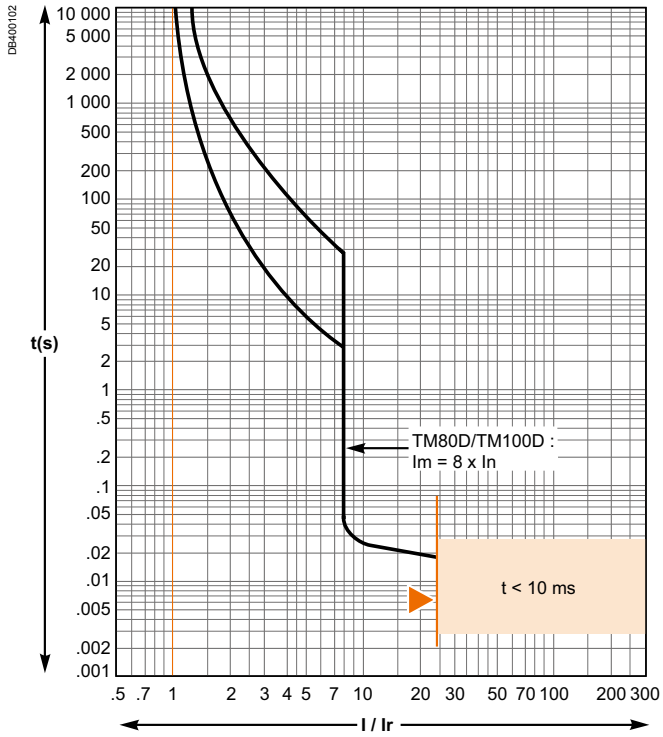
Reflex tripping.

TM63D

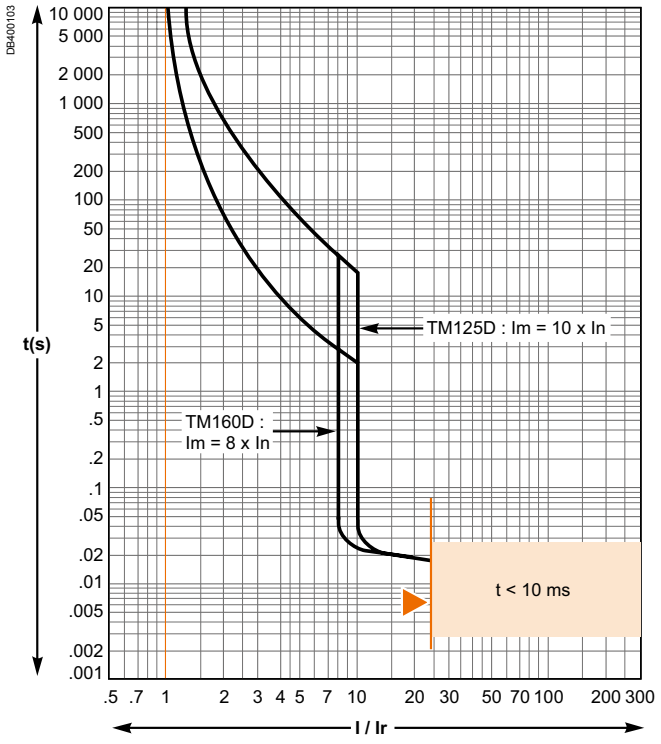


Reflex tripping.

TM80D/100D

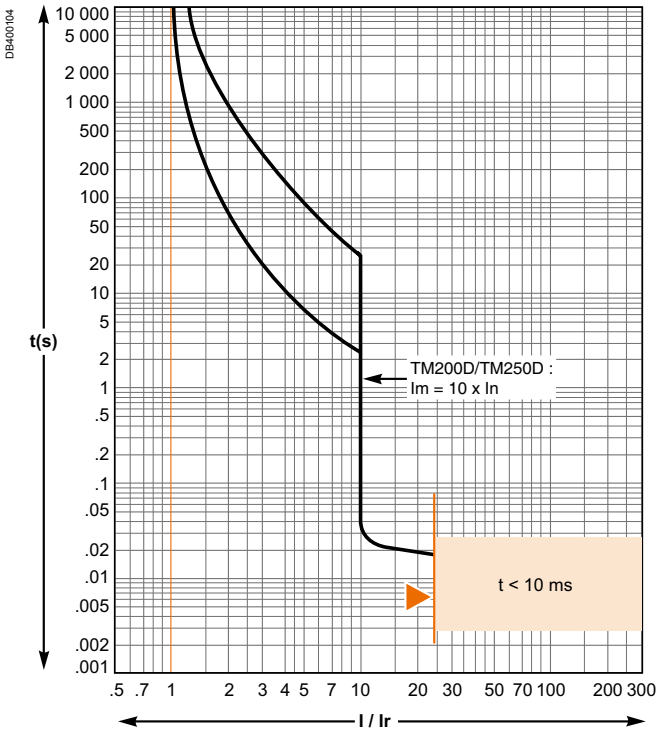


TM125D/160D

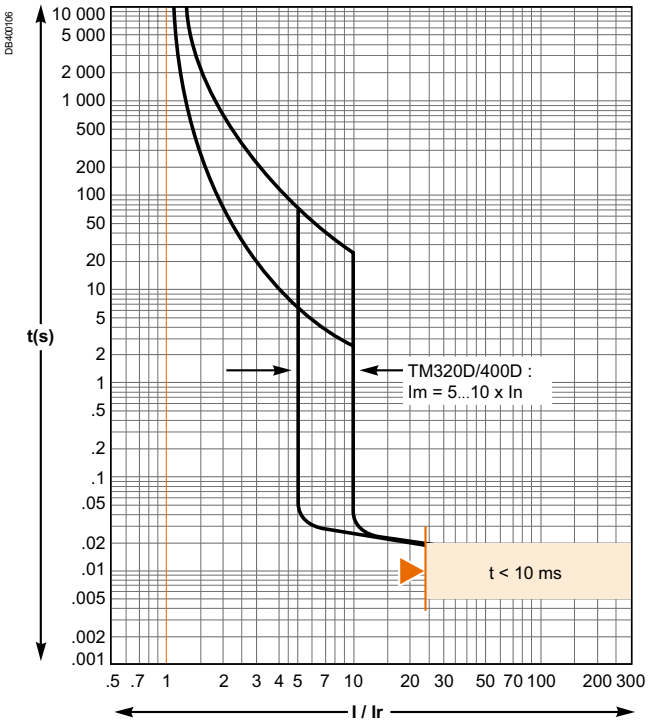


Tripping curves
EasyPact CVS400 to 630
Protection of distribution systems

TM200D/250D

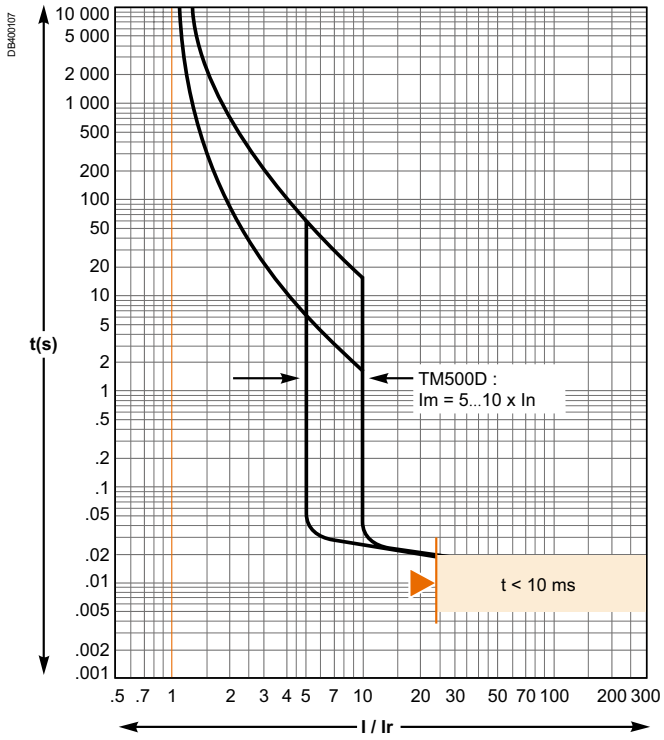


TM320D/400D



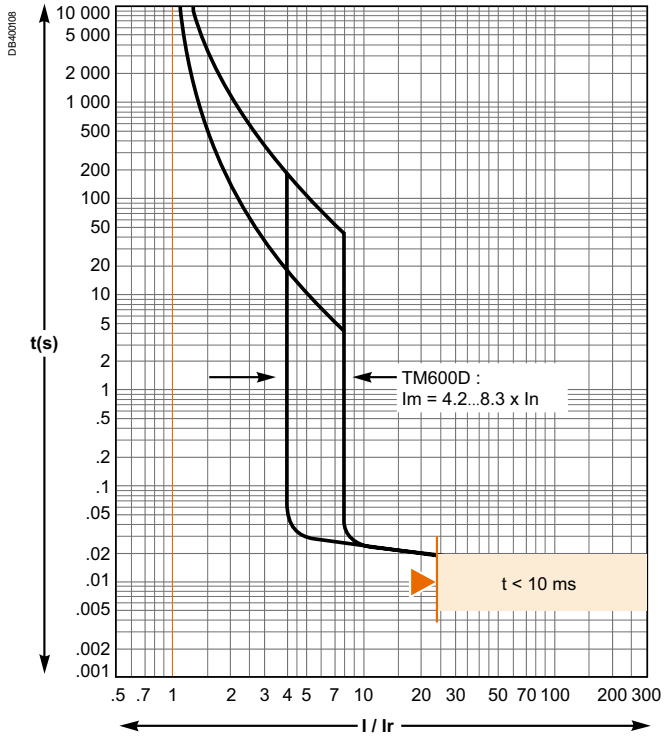
Reflex tripping.

TM500D



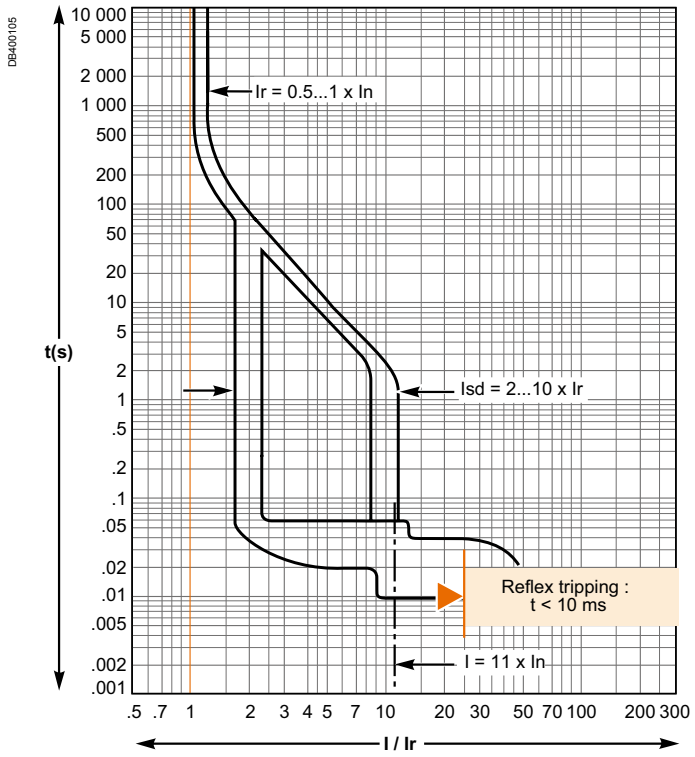
Reflex tripping.

TM600D



Reflex tripping.

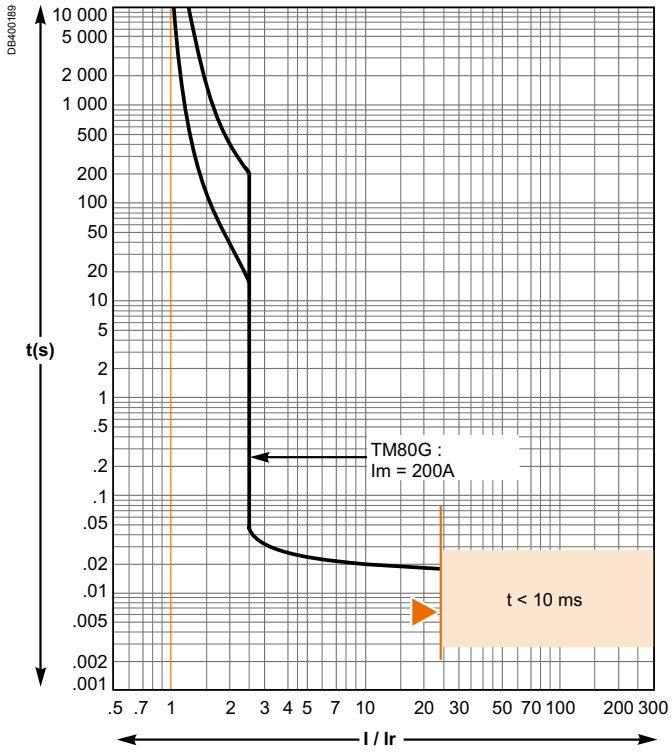
ETS 2.3 electronic trip units



Tripping curves
EasyPact CVS100 to 250
Protection of generator systems

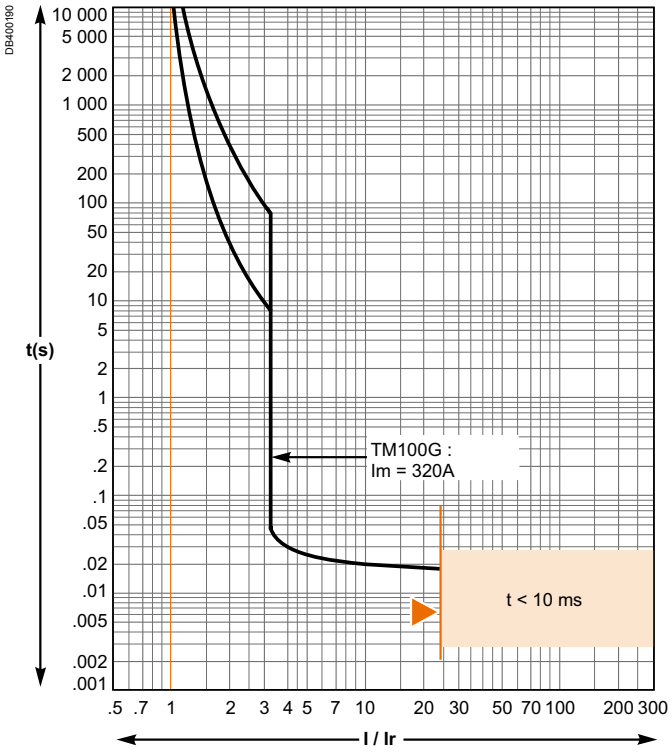
TM magnetic trip units

TM80G



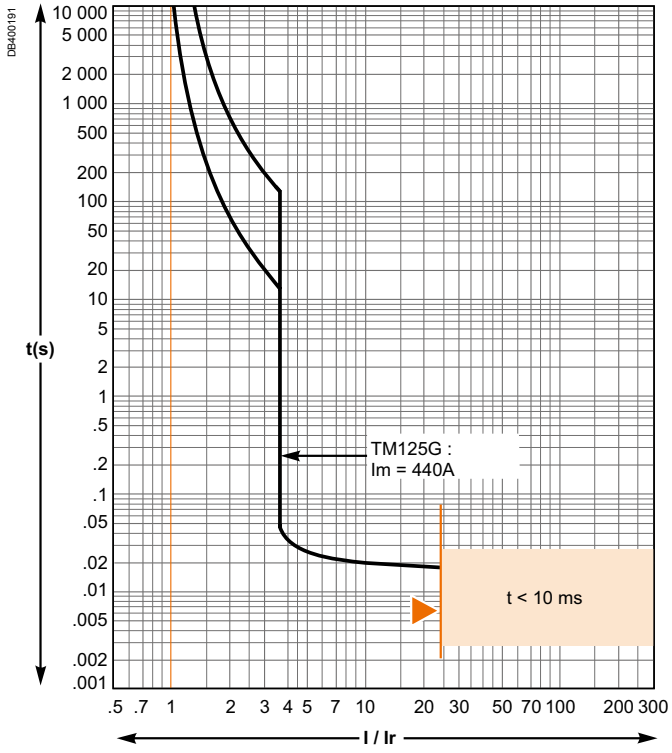
Reflex tripping.

TM100G



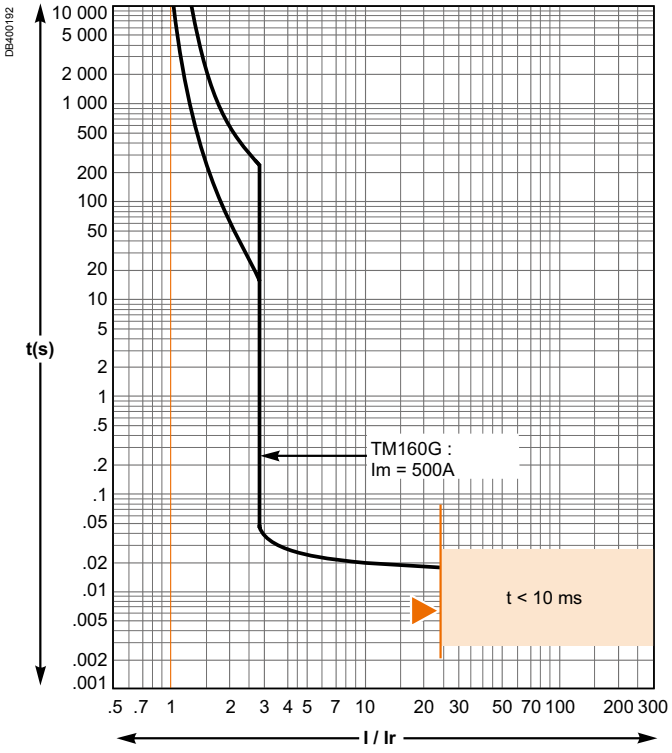
Reflex tripping.

TM125G



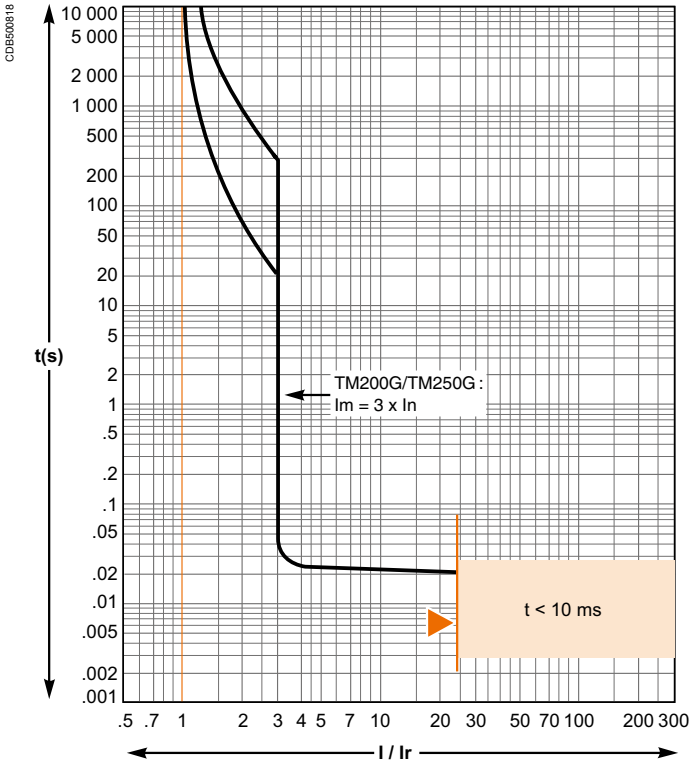
Reflex tripping.

TM160G



Reflex tripping.

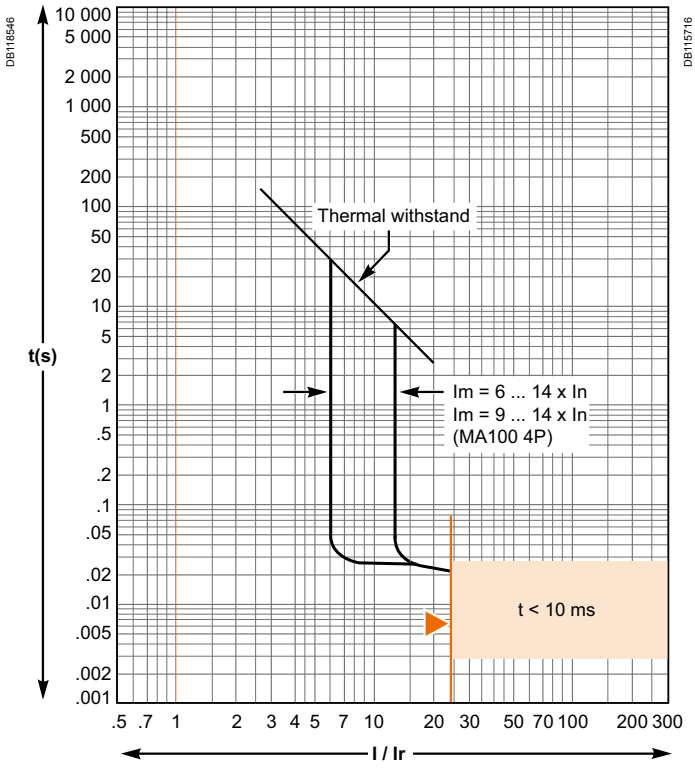
TM200G and TM250G



Tripping curves
EasyPact CVS100 to 250
Motor protection

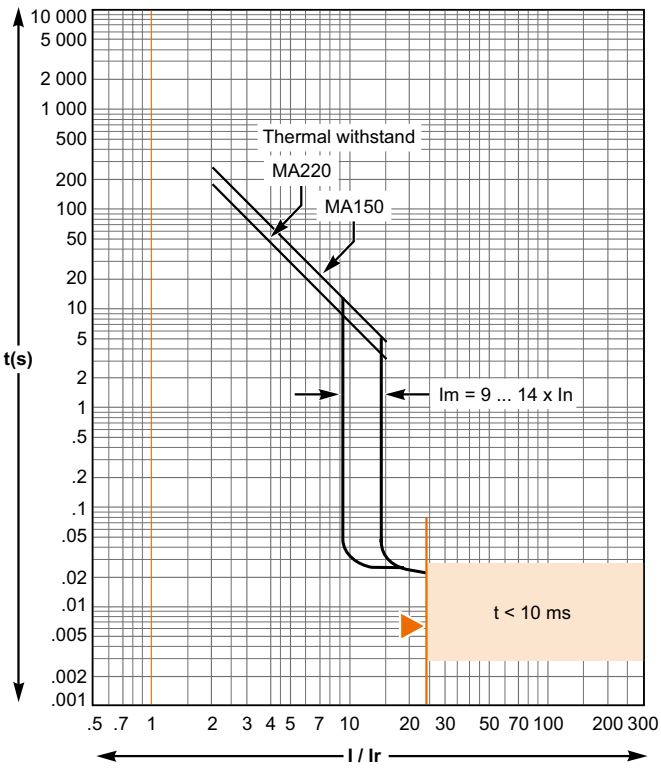
MA magnetic trip units

MA2.5... MA100

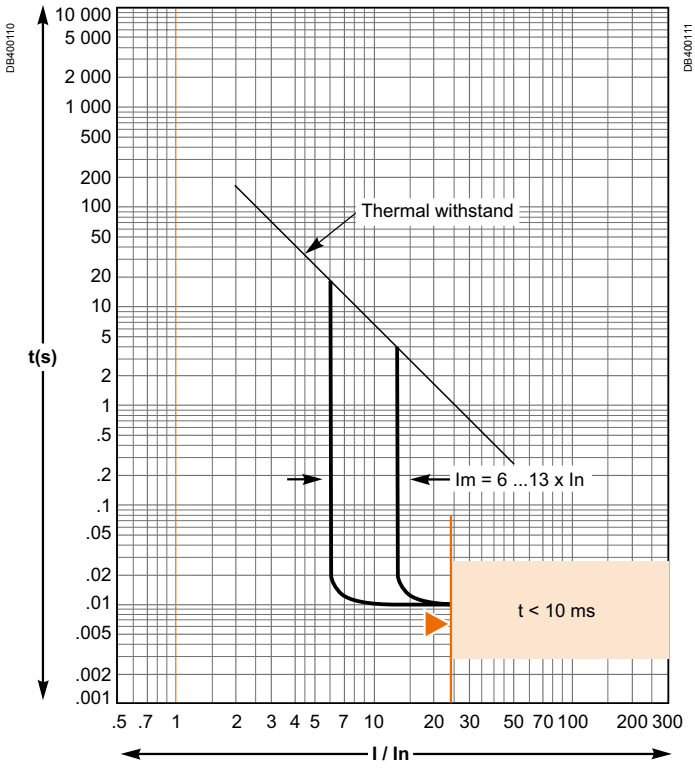


Reflex tripping.

MA150 and MA220

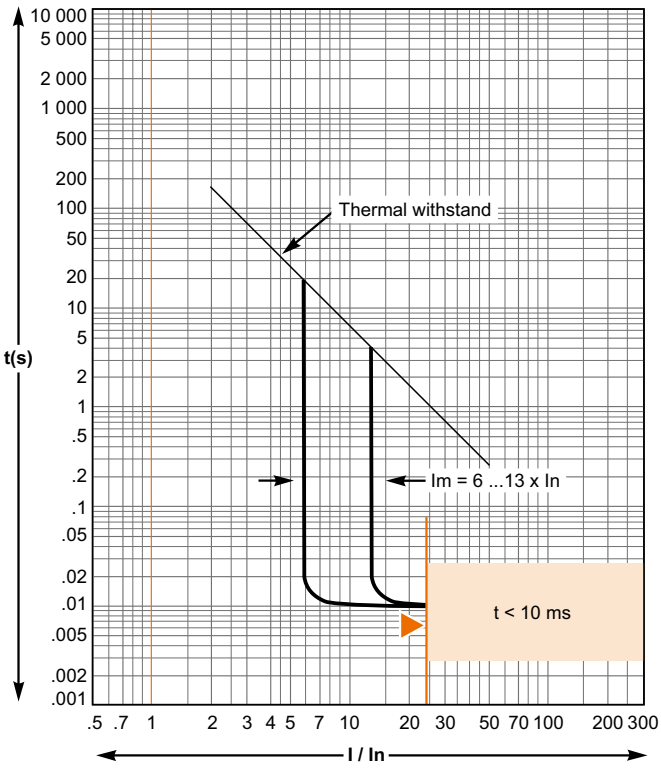


MA320



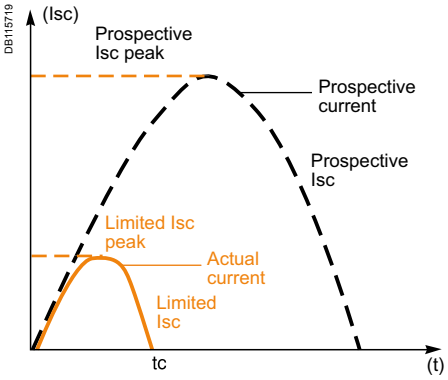
Reflex tripping.

MA500



Reflex tripping.

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

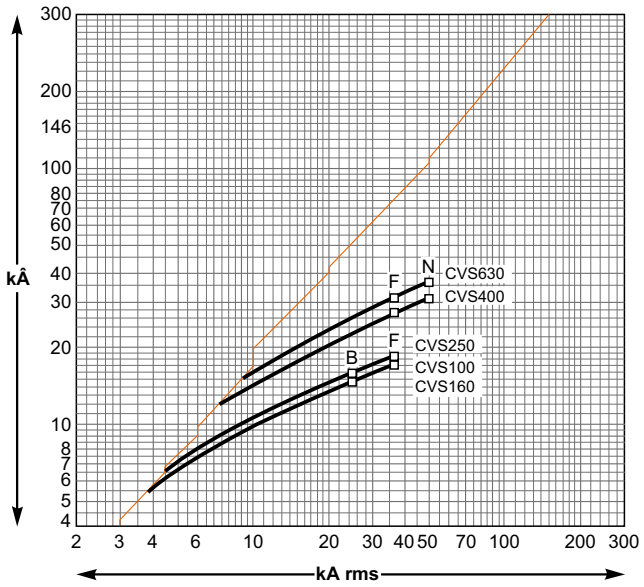
The table below indicates the maximum permissible thermal stresses for cables depending on their insulation, conductor (Cu or Al) and their cross-sectional area (CSA). CSA values are given in mm^2 and thermal stresses in A^2s.

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

Tripping curves
Current and energy limiting curves

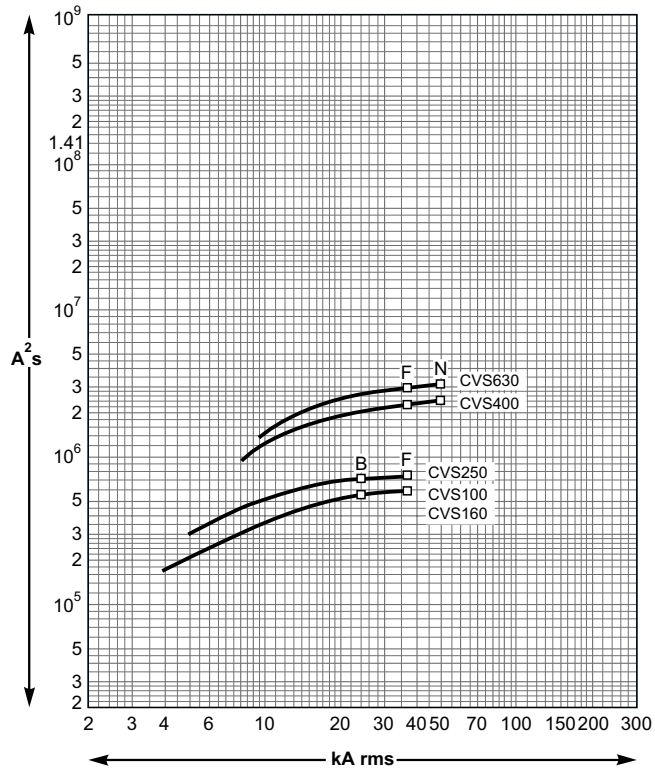
Current-limiting curves

DB116369



Energy-limiting curves

DB116371



Notes

Catalogue numbers

Catalogue numbers
Contents

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EasyPact CVS400 to 630 **E-15**

EasyPact CVS100BS *F-1*

EasyPact CVS100 to 250
Contents

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EasyPact and Vigi CVS100/160/250B (25 kA 380/415 V) E-4
EasyPact CVS160/250B (25 kA 380/415 V) E-5
EasyPact and Vigi CVS100/160/250F (36 kA 380/415 V) E-6

CVS100/160/250F: complete fixed/FC device **E-7**
Vigi CVS100/160/250F (36 kA 380/415 V) E-7

CVS100/160/250NA: complete fixed/FC device **E-8**
EasyPact CVS100/160/250NA E-8

Add-on Vigi module: EasyPact and Vigi **E-9**
CVS100/160/250 E-9

Accessories **E-10**
EasyPact and Vigi CVS100/160/250 E-10

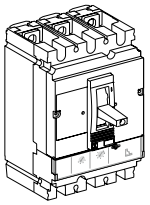
CVS100/160/250B: complete fixed/FC device

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

EasyPact CVS100/160/250B

With TM-D thermal-magnetic trip unit

DB400150

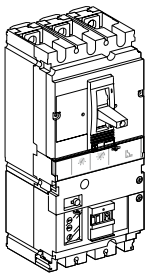


Rating	**3P** 3d	**4P** 3d	**4P** 4d
EasyPact CVS100B (25 kA at 380/415 V)			
TM16D	**LV510300**	**LV510310**	**LV510320**
TM25D	**LV510301**	**LV510311**	**LV510321**
TM32D	**LV510302**	**LV510312**	**LV510322**
TM40D	**LV510303**	**LV510313**	**LV510323**
TM50D	**LV510304**	**LV510314**	**LV510324**
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

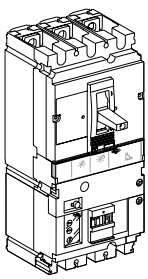


Rating	**3P** 3d
EasyPact CVS100B (25 kA at 380/415 V)	
MA2,5	**LV510430**
MA6,3	**LV510431**
MA12,5	**LV510432**
MA25	**LV510433**
MA50	**LV510434**
MA100	**LV510435**
EasyPact CVS160B (25 kA at 380/415 V)	
Rating	**3P** 3d
MA100	**LV516430**
MA150	**LV516431**
EasyPact CVS250B (25 kA at 380/415 V)	
Rating	**3P** 3d
MA150	**LV525435**
MA220	**LV525436**

Vigi CVS100/160/250B

With TM-D thermal-magnetic trip unit

DB400153

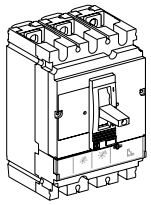


Rating	**3P** 3d	**4P** 3d	**4P** 4d
Vigi CVS100B (25 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)			
TM16D	**LV510360**	**LV510370**	**LV510380**
TM25D	**LV510361**	**LV510371**	**LV510381**
TM32D	**LV510362**	**LV510372**	**LV510382**
TM40D	**LV510363**	**LV510373**	**LV510383**
TM50D	**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**

EasyPact CVS160/250B

With TM-G thermal-magnetic trip unit

DB400150



EasyPact CVS160B (25 kA at 380/415 V)		
Rating	**3P** 3d	**4P** 3d
TM80G	**LV510736**	**LV510748**
TM100G	**LV510737**	**LV510749**
TM125G	**LV516732**	**LV516742**
TM160G	**LV516733**	**LV516743**
EasyPact CVS250B (25 kA at 380/415 V)		
Rating	**3P** 3d	**4P** 3d
TM200G	**LV525732**	**LV525742**
TM250G	**LV525733**	**LV525743**

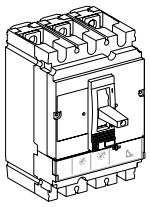
CVS100/160/250F: complete fixed/FC device

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

EasyPact CVS100/160/250F

With TM-D thermal-magnetic trip unit

DB400150

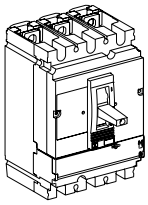


EasyPact CVS100F (36 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM16D	**LV510330**	**LV510340**	**LV510350**
TM25D	**LV510331**	**LV510341**	**LV510351**
TM32D	**LV510332**	**LV510342**	**LV510352**
TM40D	**LV510333**	**LV510343**	**LV510353**
TM50D	**LV510334**	**LV510344**	**LV510354**
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



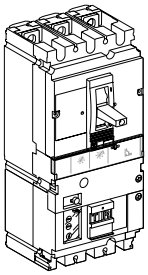
EasyPact CVS100F (36 kA at 380/415 V)	
Rating	**3P** 3d
MA2.5	**LV510440**
MA6.3	**LV510441**
MA12.5	**LV510442**
MA25	**LV510443**
MA50	**LV510444**
MA100	**LV510445**
EasyPact CVS160F (36 kA at 380/415 V)	
Rating	**3P** 3d
MA100	**LV516439**
MA150	**LV516440**
EasyPact CVS250F (36 kA at 380/415 V)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



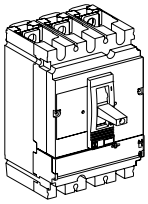
Rating	**3P** 3d	**4P** 3d	**4P** 4d
Vigi CVS100F (36 kA at 380/415 V) equipped with MH Vigi module (200 to 440 V)			
TM16D	**LV510390**	**LV510400**	**LV510410**
TM25D	**LV510391**	**LV510401**	**LV510411**
TM32D	**LV510392**	**LV510402**	**LV510412**
TM40D	**LV510393**	**LV510403**	**LV510413**
TM50D	**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**

CVS100/160/250NA: complete fixed/FC device
EasyPact CVS100/160/250NA

EasyPact CVS100/160/250NA switch-disconnector

With NA switch-disconnector unit

DB400155

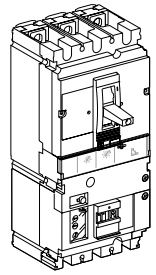


EasyPact CVS100NA		
Rating	**3P**	**4P**
100	**LV510425**	**LV510426**
EasyPact CVS160NA		
Rating	**3P**	**4P**
160	**LV516425**	**LV516426**
EasyPact CVS250NA		
Rating	**3P**	**4P**
250	**LV525425**	**LV525426**

VigiCompact CVS100/160/250NA switch-disconnector

With NA switch-disconnector unit

DB400153



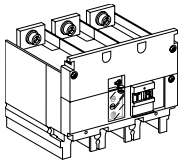
EasyPact CVS100NA		
Rating	**3P**	**4P**
100	**LV510427**	**LV510428**
EasyPact CVS160NA		
Rating	**3P**	**4P**
160	**LV516427**	**LV516428**
EasyPact CVS250NA		
Rating	**3P**	**4P**
250	**LV525427**	**LV525428**

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

+ Vigi module

Vigi module

DB111464

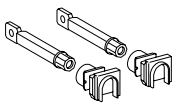


	3P	4P
MH type for CVS100/160 (220 to 440 V)	**LV529488**	**LV529489**
MH type for CVS250 (220 to 440 V)	**LV529492**	**LV529493**

Connection accessories (Cu or Al)

Rear connections

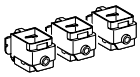
DB112225



2 short			**LV429235**
2 long			**LV429236**

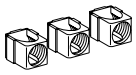
Bare cable connectors

DB112226



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

DB112225

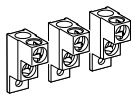


Aluminium connectors	1 x (25 to 95 mm²) ; ⩽ 250 A	Set of 3	**LV429227**
		Set of 4	**LV429228**
	1 x (120 to 185 mm²) ; ⩽ 250 A	Set of 3	**LV429259**
		Set of 4	**LV429260**

DB112726

Clips for connectors		Set of 10	**LV429241**

DB112227



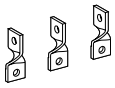
Aluminium connectors for 2 cables (1)	2 x (50 to 120 mm²) ; ⩽ 250 A	Set of 3	**LV429218**
		Set of 4	**LV429219**

DB112724

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

Terminal extensions

DB112231

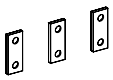


Edgewise terminal extensions (1)		Set of 3	**LV429308**
		Set of 4	**LV429308**

DB112232

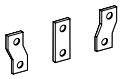
Right-angle terminal extensions (1)		Set of 3	**LV429261**
		Set of 4	**LV429262**

DB112233



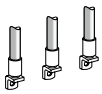
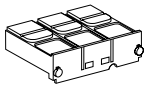
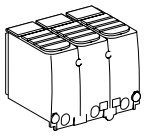
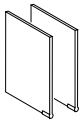
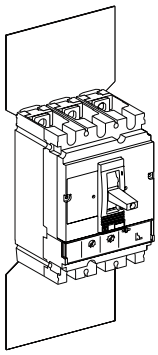
Straight terminal extensions (1)		Set of 3	**LV429263**
		Set of 4	**LV429264**

DB112235



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)			
DB112237	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)			
DB112238 	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			
DB400045 	1 short terminal shield for breaker	3 P	**LV429515**
		4 P	**LV429516**
DB400060 	1 long terminal shield for breaker	3 P	**LV429517**
		4 P	**LV429518**
DB400061 	Interphase barriers for breaker	Set of 6	**LV429329**
DB400163 	2 insulating screens for breaker (45 mm pitch)	3P	**LV429330**
		4P	**LV429331**

(1) Supplied with 2 or 3 interphase barriers.

Accessories
EasyPact and Vigi CVS100/160/250

Electrical auxiliaries

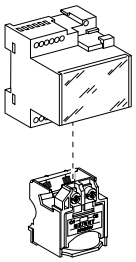
Auxiliary contacts (changeover)

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**

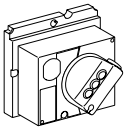


MN 48 V 50/60 Hz with fixed time delay		
Composed of:	MN 48 V DC	**LV429412**
	Delay unit 48 V 50/60 Hz	**LV429426**
MN 220-240 V 50/60 Hz with fixed time delay		
Composed of:	MN 250 V DC	**LV429414**
	Delay unit 220-240 V 50/60 Hz	**LV429427**
MN 48 V DC/AC 50/60 Hz with adjustable time delay		
Composed 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

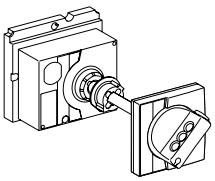
DB112259



With black handle	**LV429337**

Extended rotary handle

DB112260

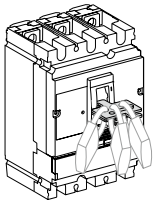


With black handle	**LV429338**

Locks

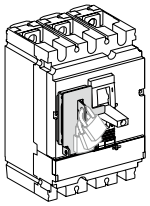
Toggle locking device for 1 to 3 padlocks

DB400164



By removable device	**29370**

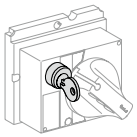
DB400165



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

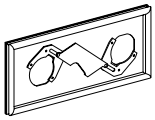
Interlocking

Mechanical interlocking for circuit breakers

DB111486

With toggles		**29354**

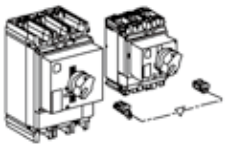
DB111487



With rotary handles		**LV429369**

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

E26766

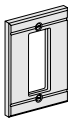


Keylock kit (keylock not includd) (1)		**LV429344**
1 set of 2 keylocks (1 key only, keylock kit not included)	Ronis 1351B.500	**41950**
	Profalux KS5 B24 D4Z	**42878**

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**

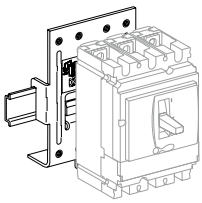
Lead-sealing accessories

DB115615

Bag of accessories	**LV429375**

Din rail adaptor

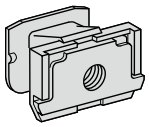
DB112739



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 **E-16**
EasyPact and Vigi CVS400/630F/N E-16
EasyPact CVS400/630F/N (36 kA 380/415 V) E-18
EasyPact CVS400/630NA E-19

Add-on Vigi module: EasyPact and Vigi **E-20**
CVS400/630 E-20

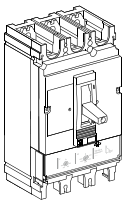
Accessories **E-21**
EasyPact and Vigi CVS400/630 E-21

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

EasyPact CVS400/630F

With TM-D thermal-magnetic trip unit

DB400008

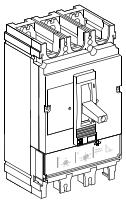


EasyPact CVS400F (36 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM320D	**LV540305**	**LV540308**	**LV540311**
TM400D	**LV540306**	**LV540309**	**LV540312**
EasyPact CVS630F (36 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM500D	**LV563305**	**LV563308**	**LV563311**
TM600D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

EasyPact CVS400/630N

With TM-D thermal-magnetic trip unit

DB400008

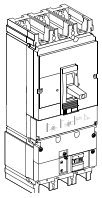


EasyPact CVS400N (50 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM320D	**LV540315**	**LV540318**	**LV540321**
TM400D	**LV540316**	**LV540319**	**LV540322**
EasyPact CVS630N (50 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM500D	**LV563315**	**LV563318**	**LV563321**
TM600D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

Vigi add-on module CVS400/630F

With TM-D thermal-magnetic trip unit

DB400016

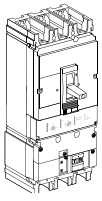


Vigi CVS400F (36 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM320D	**LV540335**	**LV540338**	**LV540341**
TM400D	**LV540336**	**LV540339**	**LV540342**
Vigi CVS630F (36 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	4P 4d
TM500D	**LV563335**	**LV563338**	**LV563341**
TM600D	**LV563336**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

Vigi add-on module CVS400/630N

With TM-D thermal-magnetic trip unit

DB400016

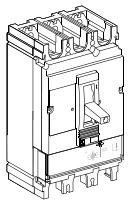


Vigi CVS400N (50 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM320D	**LV540345**	**LV540348**	**LV540351**
TM400D	**LV540346**	**LV540349**	**LV540352**
Vigi CVS630N (50 kA at 380/415 V)			
Rating	**3P** 3d	**4P** 3d	**4P** 4d
TM500D	**LV563345**	**LV563348**	**LV563351**
TM600D	**LV563346**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

EasyPact CVS400/630F/N

With MA magnetic trip unit

DB400020



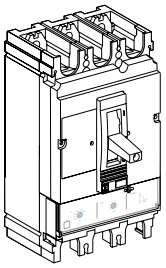
EasyPact CVS400F (36 kA at 380/415 V)	
Rating	**3P** 3D
MA320	**LV540550**
EasyPact CVS400N (50 kA at 380/415 V)	
Rating	
MA320	**LV540552**
EasyPact CVS630F (36 kA at 380/415 V)	
Rating	
MA500	**LV563550**
EasyPact CVS630N (50 kA at 380/415 V)	
Rating	
MA500	**LV563552**

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

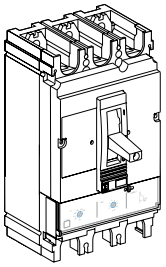


		3P 3d	**4P** 3d, 4d, 3d + N/2
EasyPact CVS400F (36 kA at 380/415 V)	400 A	**LV540505**	**LV540506**
EasyPact CVS630F (36 kA at 380/415 V)	630 A	**LV563505**	**LV563506**

EasyPact CVS400/630N

ETS 2.3 electronic trip unit (LS_0I protection)

DB400021

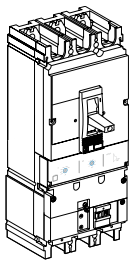


		3P 3d	**4P** 3d, 4d, 3d + N/2
EasyPact CVS400N (50 kA at 380/415 V)	400 A	**LV540510**	**LV540511**
EasyPact CVS630N (50 kA at 380/415 V)	630 A	**LV563510**	**LV563511**

Vigi add-on module CVS400/630F

ETS 2.3 electronic trip unit (LS_0I protection)

DB400022

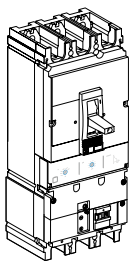


		3P 3d	**4P** 3d, 4d, 3d + N/2
Vigi CVS400F (36 kA at 380/415 V)	400 A	**LV540520**	**LV540521**
Vigi CVS630F (36 kA at 380/415 V)	630 A	**LV563520**	**LV563521**

Vigi add-on module CVS400/630N

ETS 2.3 electronic trip unit (LS_0I protection)

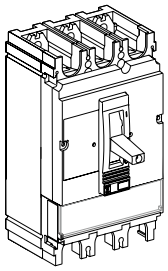
DB400022



		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**

EasyPact CVS400/630 NA switch-disconnector

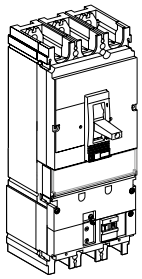
DB400023



	3P	4P
EasyPact CVS400 NA	**LV540400**	**LV540401**
EasyPact CVS630 NA	**LV563400**	**LV563401**

Vigi CVS400/630 NA switch-disconnector

DB400024



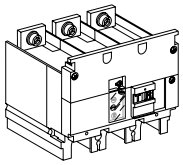
	3P	4P
Vigi CVS400 NA	**LV540402**	**LV540403**
Vigi CVS630 NA	**LV563402**	**LV563403**

Add-on Vigi module
EasyPact and Vigi
CVS400/630

+ Vigi module

Vigi module

DB111464



		3P	4P
Type MB	200 to 440 V	**LV532464**	**LV532465**

Connection accessories (Cu or Al)

Rear connections

DB112225

2 short		**LV432475**
2 long		**LV432476**

Cable connectors (1)

E22040

E22041

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)

E21276

E21012

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)

E18602

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)

E30908

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

E18618

E18606

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

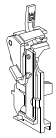
Accessories
EasyPact and Vigi CVS400/630

Electrical auxiliaries

Auxiliary contacts (changeover)

E18608

OF or SD or SDE or SDV	**29450**
OF or SD or SDE or SDV low level	**29452**


CDB5008821-00

SDE adaptor mandatory for trip unit TM, MA and ETS2.3	**LV540050**

Voltage releases

E18609

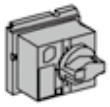
	Voltage	MX	MN
AC	24 V 50/60 Hz	**LV429384**	**LV429404**
	48 V 50/60 Hz	**LV429385**	**LV429405**
	110-130 V 50/60 Hz	**LV429386**	**LV429406**
	220-240 V 50/60 Hz and 208-277 V 60 Hz	**LV429387**	**LV429407**
	380-415 V 50 Hz and 440-480 V 60 Hz	**LV429388**	**LV429408**
DC	Voltage		
	12 V	**LV429382**	**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

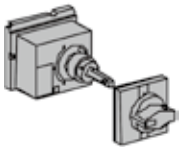
E18611



Standard black handle	**LV432597**

Extended rotary handle

E18612

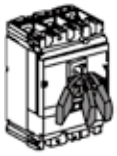


Standard extended rotary handle	**LV432598**

Locks

Toggle locking device for 1 to 3 padlocks

E18621



By removable device	**29370**

E18613

By fixed device	**32631**

Locking of the rotary handle

E18620

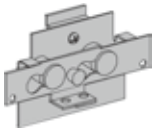
Keylock adaptor (keylock not included)		**LV432604**
Keylock (keylock adaptor not included)	Ronis 1351B.500	**41940**
	Profalux KS5 B24 D4Z	**42888**

Accessories
EasyPact and Vigi CVS400/630

Interlocking

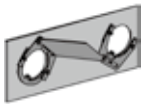
Mechanical interlocking for circuit breakers

E21288



With toggles — **32614**

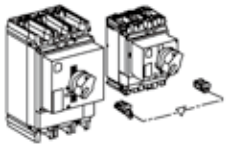
E18780



With rotary handles — **LV432621**

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

E26766



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

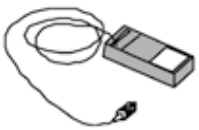
Front-panel escutcheons

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**

E36271

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
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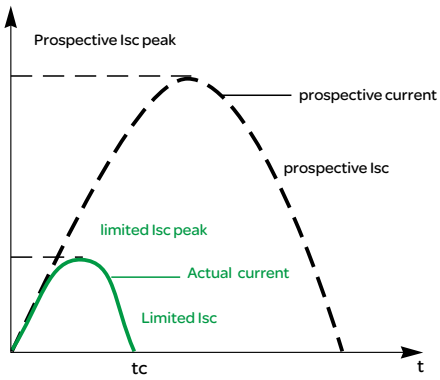
EasyPact CVS100BS



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

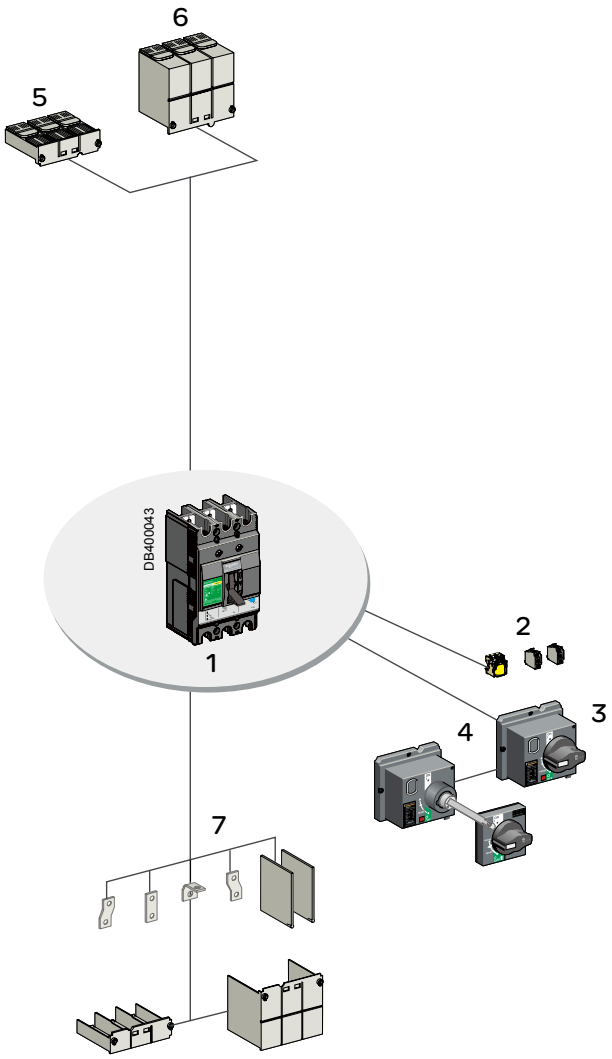
More reliable and safer

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

Optimal Combination

Modularized System

As shown below, wide range of modules or accessories are available.



1. breaking unit
2. MN and MX voltage releases
3. Direct rotary handle
4. Extended rotary handle
5. Short terminal shield
6. Long terminal shield
7. Connection accessorie

General characteristics

PB106445

EasyPact CVS100BS

Compliance with standards

- IEC 947-1: General rules (GB/T 14048.1)
- IEC 947-2: Circuit Breakers (GB/T 14048.2)
- IEC 947-4: Contactors and Motor Starters (GB 14048.4)
- IEC 946-5.1: Control circuit Devices and Switching elements; automatic Control Components (GB 14048.5)

Tropicalisation

EasyPact CVS100BS circuit breakers have successfully passed the tests prescribed by following standards for extreme atmospheric conditions:

- IEC 68-2-30, damp heat(95% relative humidity at 55ºC)
- QIEC 68-2-52 Salt mist (severity level 2)

Positive contact indication

All EasyPact CVS100BS 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 may not be installed unless the contacts are open

Installation of a rotary handle or a motor mechanism does not alter the reliabilityof the position-indication system.

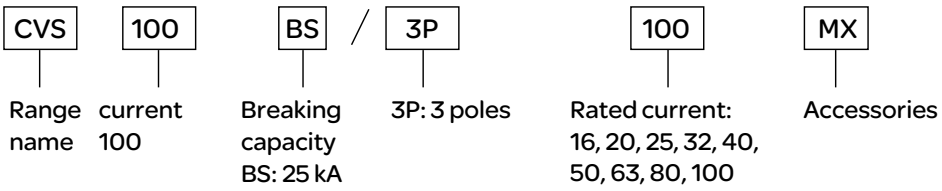
The isolation function is certified by tests guaranteeing:

- the mechanical reliability of the position indication system
- the absence of leakage currents
- overvoltage withstand capacity between upstream and downstream connections

Selection Guide

EasyPact CVS100BS (Protection of distribution system)

Selection guide

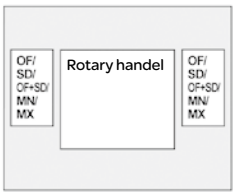


Protection of LV Power Distribution System
EasyPact CVS100BS

PB106445

EasyPact CVS100BS

EasyPact circuit breaker					**CVS100BS**
Number of Poles					3, 4
Control	Manual		Toggle		■
			Direct or extended rotary handle		■
Connection	Fixed		Front connection		■
	Plug-in		Front connection		■
Electrical characteristics as per IEC 60947-2 and EN 60947-2					
Rated current (A)		In	40 °C		100
Rated insulation voltage (V)		Ui			690
Rated impulse withstand voltage (kV)		Uimp			6
Rated operational voltage (V)		Ue	AC 50/60 Hz		440
			DC		
Circuit breaker type					BS
Ultimate breaking capacity (kA rms)		Icu	AC 50/60 Hz	220/240 V	50
				380/400 V	25
				415 V	25
Service breaking capacity (kA)		Ics		220/230 V	25kA
				380/400 V	17kA
Suitability for Isolation					■
Utilisation category					A
Durability (C-O cycles)	Mechanical				13000
	Electrical	415 V	In		4000
Protection					
Trip units					Thermal-magnetic
Overload protection		Long time	Ir (In x ...)		0.8 to 1xIn
Short-circuit protection		Short time	Isd (Ir x ...)		-
		Instantaneous	Ii (In x ...)		■
Indication and control auxiliaries					
Auxiliary switch					■
MX shunt release					■
MN under-voltage release					■
Installation					
Accessories		Terminal extensions and spreaders			-
		Terminal shields			■
		interphase barriers			■
Dimensions (mm) W×H×D		Fixed, front connection 3P/4P			75x130x60/
					100x130x60
Weight (kg)		Fixed, front connection 3P/4P			0.78/1.0

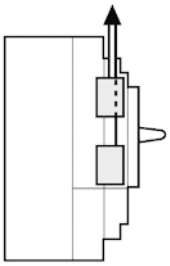


EasyPact CVS100BS

Connection of electrical auxiliaries

Fixed configuration

Auxiliary circuits exit the device through a knock-out in the front cover.



Each auxiliary device is equipped with a terminal block with numbered terminals for connection of wires up to:
● 1.5mm² for auxiliary contacts and voltage releases

EasyPact CVS100BS auxiliary contacts

EasyPact CVS100BS auxiliary switch

This auxiliary contacts can display status of circuit breakers remotely, and therefore can be used for indications electrical interlocking, relay control. etc.

Functions

- OF (On/off): Indicate position of circuit breaker contacts.
- SD (Trip indication): Indicate trip conditions of circuit breakers due to: overload, short-circuit,under-voltage or operation of the "push to trip" button. It returns to de-energised state when the circuit breaker is reset.

EasyPact CVS100BS multifunctional auxiliary switch

- OF/SD (Auxiliary + alarm): Indicateposition of circuit breaker contacts and trip condi- Qtions of circuit breakers.

Standard

This auxiliary contacts comply with IEC 947-5.

Installation and connection

- This auxiliary contacts clip into slot behind the front cover of the circuit breaker.
- The conductor connected to the central terminal block has a cross section up to 1.0mm^2.

All auxiliary contacts can be used to switch on/off electronic loads.

Electrical characteristics		In: 100A	
Rated thermal current (A)		5	
Minimum load		10mA, 24V	
Utilisation (IEC 947-4-1)		AC12	AC15
Operating current (A)	110V	5	3
	220~240V	3	2
	380~440V	-	-

EasyPact CVS100BS Voltage Release

Voltage tripping

The voltage releases can trip the circuit breaker.

Under-voltage release (MN) trips the circuit breaker:

- When the tripping threshold drops below the rated voltage of the trip unit.
- The tripping threshold is 0.35 to 0.7 times the rated voltage.
- If the circuit breaker can be closed when the voltage exceeds 0.85 times the rated voltage.

Circuit breaker tripping by an MN release meets the requirements of standard IEC60947-2.

Shunt releases (MX)

The circuit breaker will trip by this release if the control voltage exceeds 0.7 × Un.

Control signals can be of the impulse type (≥20 ms) or maintained.

Operation

- The circuit breaker can be reset locally or remotely after tripping by a MN or MX release.
- MN or MX tripping is faster than manual tripping (or trip by electric mechanism). In the presence of a standing trip order, other operations will not be executed.
- Endurance:
  - EasyPact CVS100BS circuit breaker, typically 50% of the rated mechanical endurance of the circuit breaker

Installation and connection

- The circuit breaker panel has MX and MN releases at the rear part.
- Connection using wires up to 1.5mm^2.

For EasyPact CVS100BS		EasyPact CVS100BS	
		AC	DC
Consumption	Pick-up (MX)	< 10VA	< 10W
	Seal-in (MN, MNR)	< 5VA	< 5W
Response time (ms)		< 50	< 50

Note: 1. CVS100BS: select any two from three auxiliary switches (OF, SD, OF/SD).

EasyPact CVS100BS with a direct rotary handle

Rotary handle

Two types of rotary handle are available:

- Direct rotary handle
- Extended rotary handle

Direct rotary handle

Protection degree: IP40, IK07, IP54

Operation

- Function:
  - Suitability for isolation
  - Indications of three positions including O (OFF), I (ON) and Tripped
  - Access to "push-to-trip" button
- Circuit breaker locking capability in the OFF position by 1 to 3 padlocks, with a shackle diameter 5 to 8 mm (not supplied)

Installation

The front cover of the circuit breaker can be removed and replaced by the extended handle.

EasyPact CVS100BS series

The direct rotary handle is used in the following cases:

- Switchboards in motor control center (MCC):
  - Circuit-breaker closing is disabled if the door is open.
  - Door opening is disabled when the circuit breaker is ON.
  - Protection degree: IP43, IK07 (IP54, IK08)
  - Machine tool control, in compliance with CNOMO E03.81.501N, with a protection degree of IP54, IK08

EasyPact CVS100BS with an extended rotary handle

Extended rotary handle

The circuit breaker on the switch cabinet can be operated with the rotary handle on the front.

Protection degree: IP55, IK08, IP54

OperationFunctions:

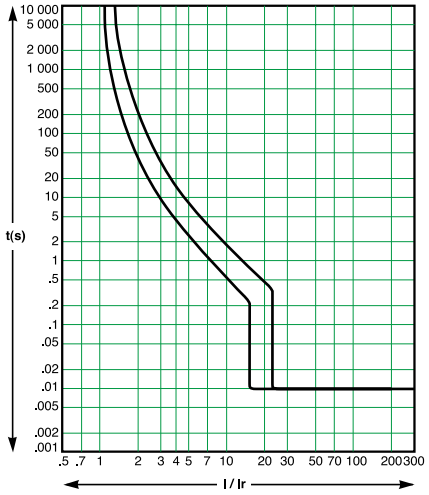
- Suitability for isolation
  - Indications of three positions including O (OFF), I (ON) and Tripped
  - Access to trip unit settings, when the switchboard door is open.
- Circuit breaker closing is disabled if the door is open.
- Circuit breaker locking capability in the OFF position by 1 to 3 padlocks, with a shackle diameter 5 to 8 mm (not supplied). These are used to prevent the door from being opened.

The extended rotary handle is made up of:

- A unit that replaces the front cover of the circuit breaker (1).
- An assembly (handle and front plate) on the door that is always secured in the same position, whether the circuit breaker is horizontally or vertically installed.
- An extension shaft that must be adjusted to the distance. The distance between the back of the circuit breaker and door is:
  - EasyPact CVS100BS: 145~422mm

Tripping Curve EasyPact CVS100BS
Power Distribution Protection System

16 A



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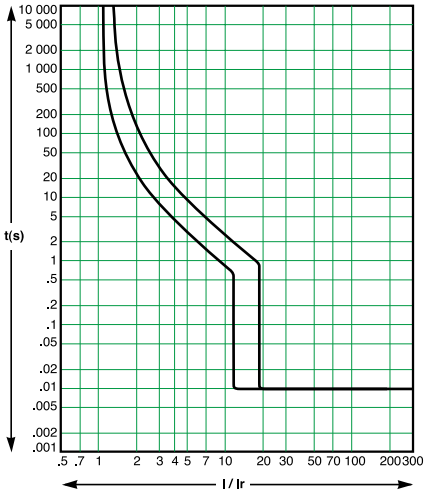

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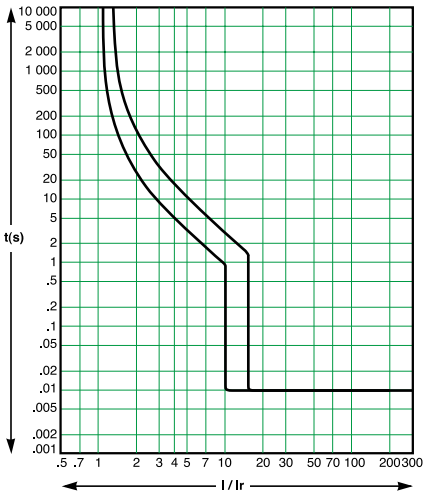

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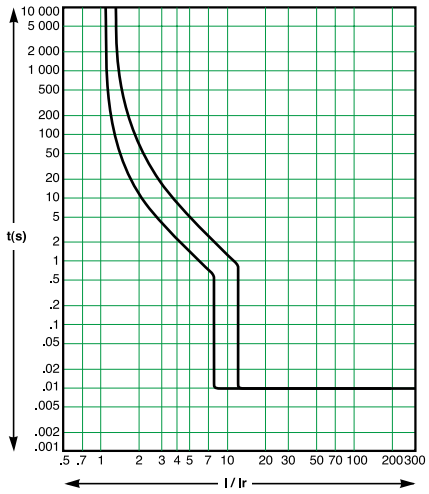

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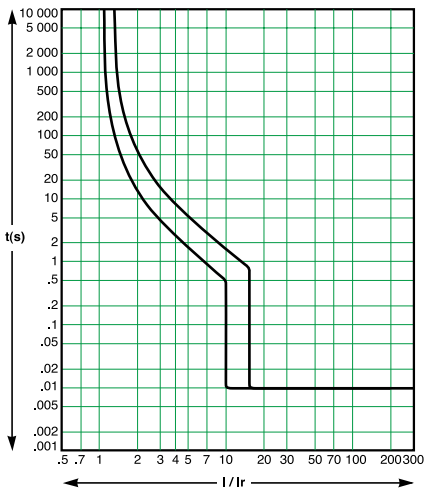

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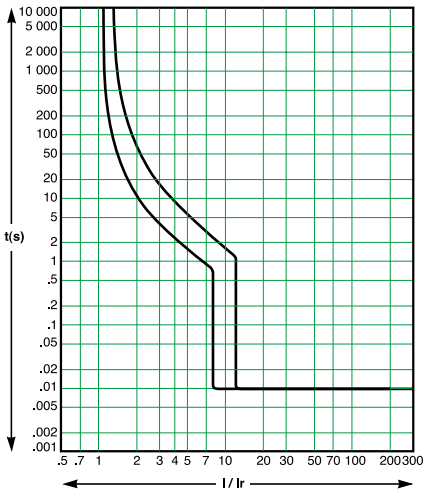
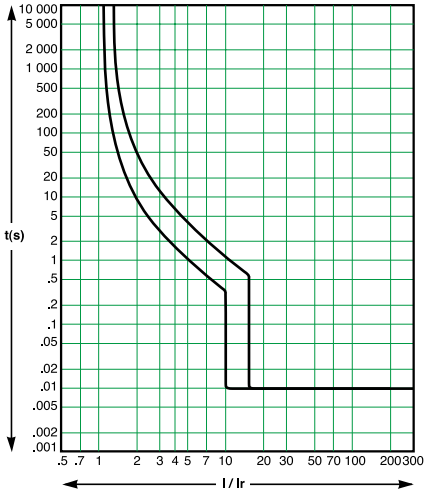
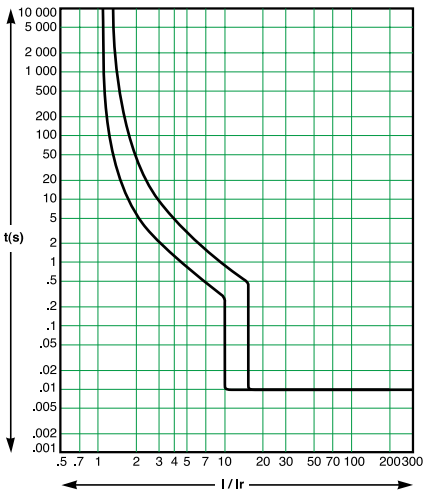


Tripping Curve EasyPact CVS100BS
Power Distribution Protection System

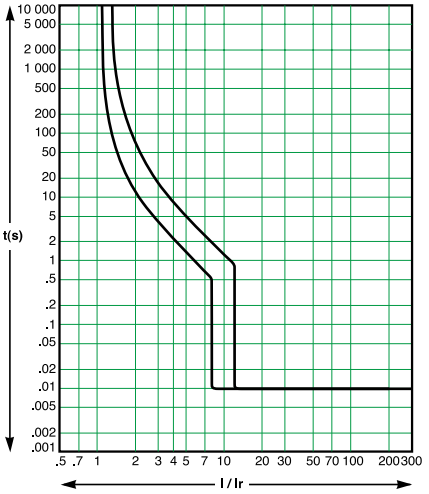
63 A



80 A



100 A



Temperature and Altitude Derating

Temperature derating of trip units

EasyPact CVS100BS

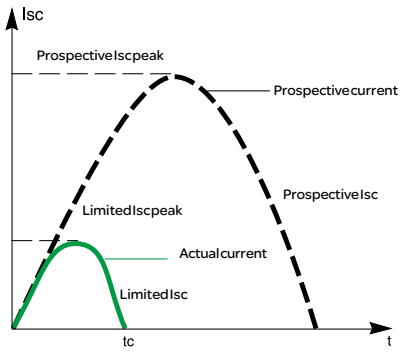
Rating (A)	40°C	45°C	50°C	55°C	60°C	65°C	70°C
16	16.7	16.3	16.0	15.7	15.6	15.1	14.7
20	20.4	20.2	20.0	19.7	19.2	18.9	18.5
25	25.7	25.3	25.0	24.7	24.5	24.3	24.0
32	33.5	32.7	32.0	31.4	31.0	30.4	29.9
40	40.9	40.4	40.0	39.5	38.0	37.6	37.1
50	52.1	51.0	50.0	49.3	48.1	47.3	46.6
63	64.9	63.9	63.0	62.0	60.4	59.4	58.5
80	82.2	81.1	80.0	78.6	77.3	76.7	76.1
100	103.0	101.0	100.0	99.0	94.0	94.0	93.0

Altitude Derating of trip units

Altitude does not significantly affect circuit-breaker characteristics up to 2000 m. Above this altitude, it is necessary to take into account the decrease in the dielectric strength an cooling capacity of air. It should be noted that the breaking capacity remained unchanged.

EasyPact CVS100BS			
Height (m)	2000	2600	3900
Dielectric strength (V)	3000	2850	2400
Maximum operation voltage (V)	690	655.5	552
Nominal current at 40°C(A)	1 x In	0.95 x In	0.8 x In

Current-limiting capacity refers to the ability of a circuit breaker to limit short-circuit current.



Ics 17kA

Current-limiting performance of EasyPact CVS100BS series helps lower power generated by fault current, and consequently improves breaking capacity of the circuit-breaker. Ics 17kA.

Extension of service life of electrical installation

Circuit breaker current-limiting technology greatly reduces damage to installation caused by short-circuit current.

Thermal effect
lowers temperature rise and extend service life of cable.

Mechanical effect
Risks of contact and busbar distortion and damage are greatly reduced since the electrodynamic force is decreased.

Electromagnetic effect
Disturbance on surrounding measurement instrument is relieved.

Current-limiting curve

Current-limiting capacity of a circuit breaker can be represented by two curves. It varies with the value of prospective short-circuit current (short-circuit current without any protective device).

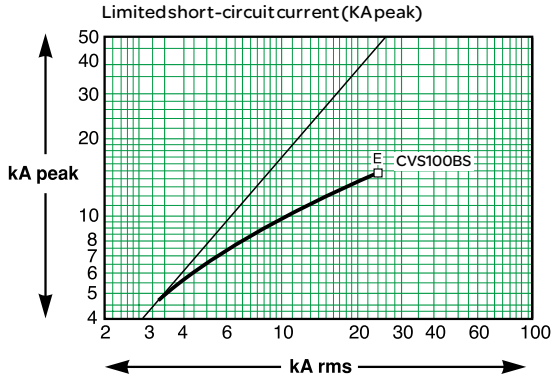
- Actual peak current (current-limiting)
- Thermal effect (A^2s), which means energy loss of a 1Ω conductor carrying the short-circuit current.

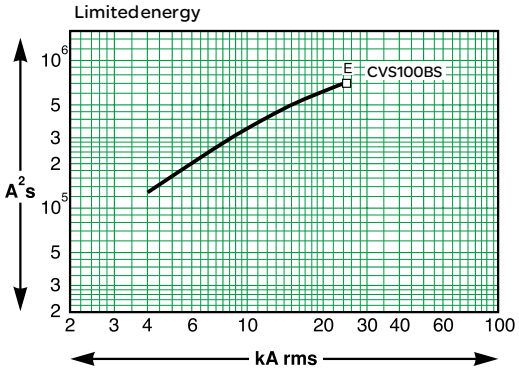
Maximum allowable thermal stress of cable

The maximum allowable overheat values (in A^2s), dependent on cable insulation material (Cu or Al) and cross section (mm^2), are listed in the following table.

Cross section (mm^2)		1.5	2.5	4	6	10
PVC	Copper	2.97×10^4	8.26×10^4	2.12×10^5	4.76×10^5	1.32×10^6
	Aluminum					5.41×10^5
PRC	Copper	4.10×10^4	1.39×10^5	2.92×10^5	6.56×10^5	1.82×10^6
	Aluminum					7.52×10^5
Cross section (mm^2)		**16**	**25**	**35**	**50**	
	Copper	3.4×10^6	8.26×10^6	1.62×10^7	3.31×10^7	
	Aluminum	1.39×10^6	3.38×10^6	6.64×10^6	1.35×10^7	
PRC	Copper	4.69×10^6	1.39×10^7	2.23×10^7	4.56×10^7	
	Aluminum	1.93×10^6	4.70×10^6	9.23×10^6	1.88×10^7	

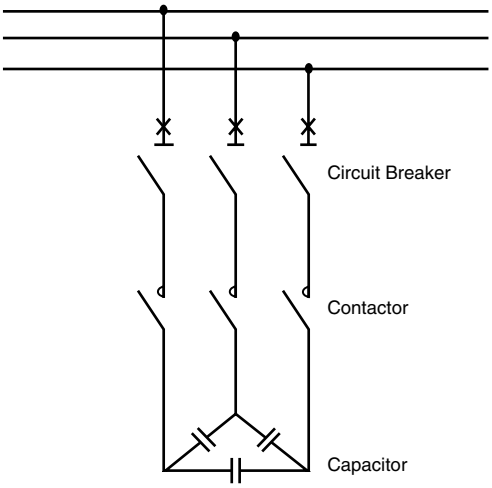
Current-limiting curves of EasyPact CVS100BS





PB106445

EasyPact CVS100BS



EasyPact CVS100BS circuit breaker is suitable for capacitor protection following the rules below:

■ **Inc = Nominal current of the capacitor**

$$Inc = \frac{Qc}{U\sqrt{3}}$$

Inc = Nominal Current Capacitor (A)
Qc = Reactive power (kVAR)
U = Nominal Voltage (V)

■ **Inb = Nominal current of the circuit breaker**
□ Inb = 1.36 x Inc for standard equipment
□ Inb = 1.5 x Inc for overrated type equipment
□ Inb = 1.12 x Inc for detuned type equipment: 2.7 tuning
□ Inb = 1.19 x Inc for detuned type equipment: 3.8 tuning
□ Inb = 1.31 x Inc for detuned type equipment: 4.3 tuning
□ the short-circuit (magnetic) protection-setting thresholds must enable passage of the energising transients: 10 x Inc for standard, overrated and detuned type equipment.

■ **Icu = Ultimate breaking capacity of the circuit breaker**
Icu short-circuit level is given by the installation.

Example:

Table at 400 V AC - 3 phases 50 Hz for standard equipment.

Reactive power (kVAR)	Inc (A)	Inb (A)	Breaking capacity to Circuit Breaker 30 kA
7.5	11	16	**CVS100BS3016**
10	14	20	**CVS100BS3020**
15	22	30	**CVS100BS3030**
20	29	40	**CVS100BS3040**
30	43	60	**CVS100BS3060**
40	58	80	**CVS100BS3080**
50	72	100	**CVS100BS3100**

Product specification	In	Catalogue number	
		3P3D	4P3D
CVS100BS			
	16	LV510930	LV510950
	20	LV510931	LV510951
	25	LV510932	LV510952
	32	LV510933	LV510953
	40	LV510934	LV510954
	50	LV510935	LV510955
	63	LV510936	LV510956
	80	LV510937	LV510957
	100	LV510938	LV510958

Connection accessories

Cable lugs

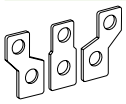
DB100821.eps

≤ 50 A	Cables from 2.5 to 16 mm²	Set of 2	**EZALUG0502**
		Set of 3	**EZALUG0503**

DB100822.eps

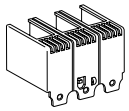
> 50 A	Cables from 10 to 50 mm²	Set of 2	**EZALUG1002**
		Set of 3	**EZALUG1003**

Spreaders


DB111674.eps

Spreaders for 3P breaker	Set of 3	**EZASPDR3P**
Spreaders for 4P breaker	Set of 4	**EZASPDR4P**

Terminal shields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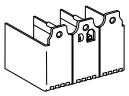
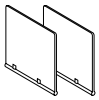


Terminal shields for 3P breaker	Set of 2	**EZATSHD3P**
Terminal shields for 4P breaker	Set of 2	**EZATSHD4P**

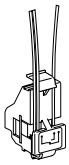
Phase barriers


DB100826.eps

Phase barriers	Set of 2	**EZAFASB2**

Electrical auxiliaries

Indication contacts


DB111662.eps

Auxiliary switch (AX)	**EZAUX10**

DB111663.eps

Alarm switch (AL)	**EZAUX01**

DB111669.eps

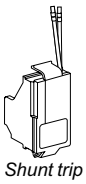
Auxiliary switch + alarm switch (AX + AL)	**EZAUX11**

EasyPact CVS100BS (cont.)
Accessories (cont.)

Electrical auxiliaries (cont.)

Voltage releases

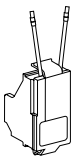
Db100830.eps



Shunt trip (SHT)

	Voltage	MX/SHT
AC	100-130 V	**EZASHT100AC**
	200-277 V	**EZASHT200AC**
	380-480 V	**EZASHT380AC**
DC	24 V	**EZASHT024DC**
	48 V	**EZASHT048DC**

Db100831.eps



Under voltage release (UVR)

	Voltage	MN/UVR
AC	110-130 V	**EZAUVR110AC**
	200-240 V	**EZAUVR200AC**
	380-415 V	**EZAUVR380AC**
DC	24 V	**EZAUVR024DC**
	48 V	**EZAUVR048DC**

Rotary handles

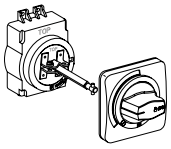
Direct rotary handle (for 3/4P breaker)

Db100832.eps

Direct rotary handle (black)	**EZAROTDS**
Direct rotary handle (red/yellow)	**EZAROTDSRY**

Extended rotary handle (for 3/4P breaker)

Db100833.eps



Extended rotary handle (black)	**EZAROTE**
Extended rotary handle (red/yellow)	**EZAROTERY**

Locks

Padlocking system

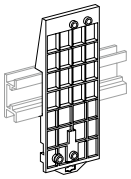
Db100834.eps

Padlocking system	**EZALOCK**

Installation accessory

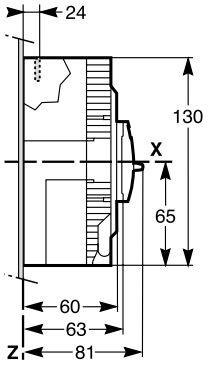
DIN rail adaptor

Db100835.eps

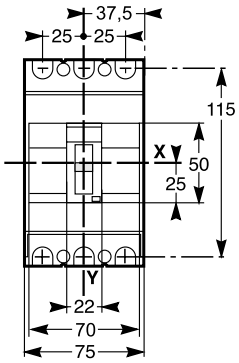


For 2 x 1P or 1 x 2P or 1 x 3P breaker	**EZADINR**
Note: for 4P breaker, use 2 adaptors	

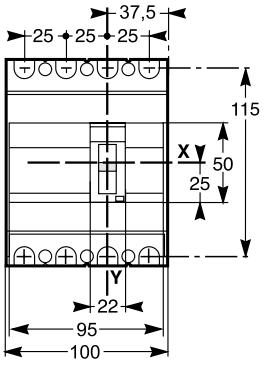
Dimensions



3P

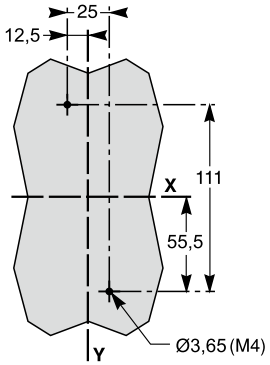


4P



Backplate mounting

3P



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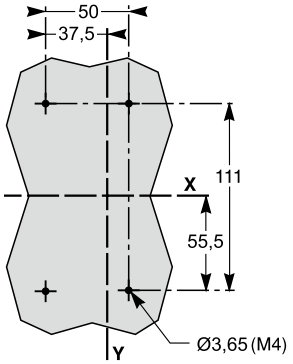
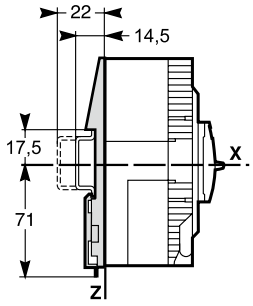
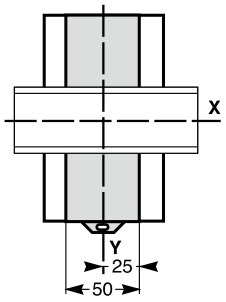
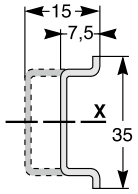


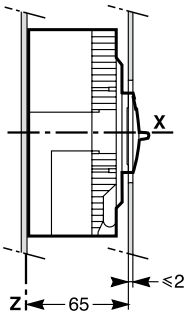
DIN rail mounting







Front panel cutout (small)



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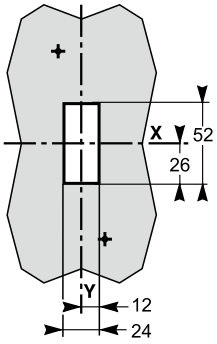

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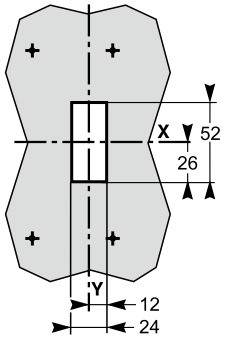
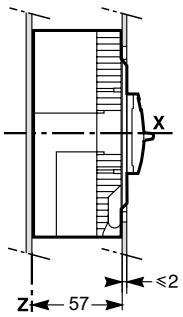


Front panel cutout (large)



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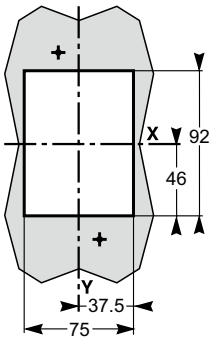

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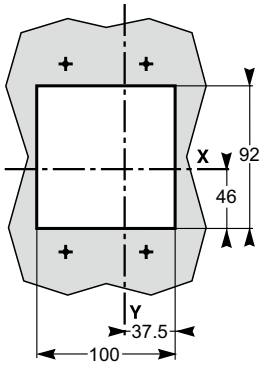
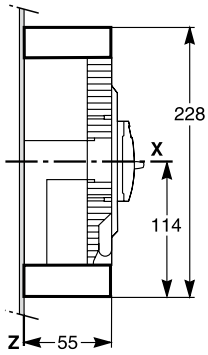
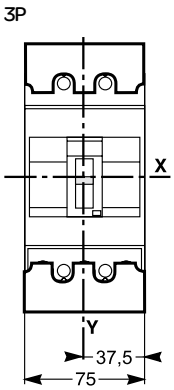
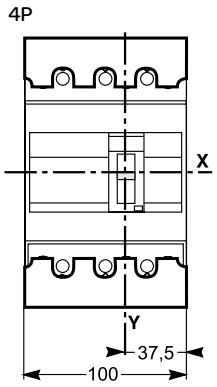


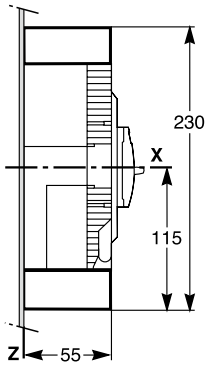
Terminal shield

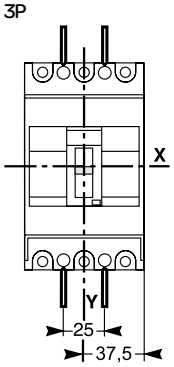


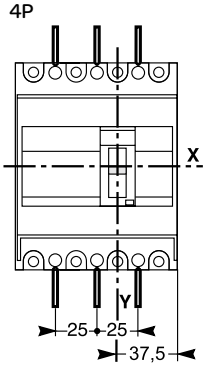




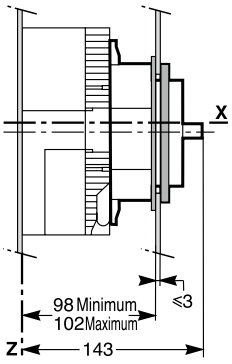
Interphase barrier

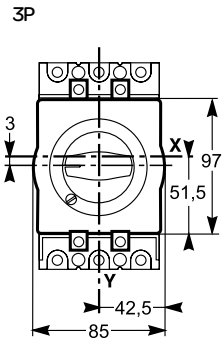


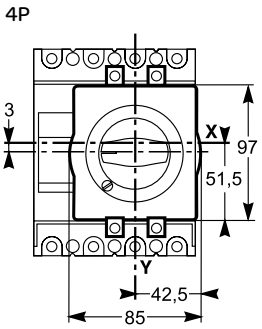


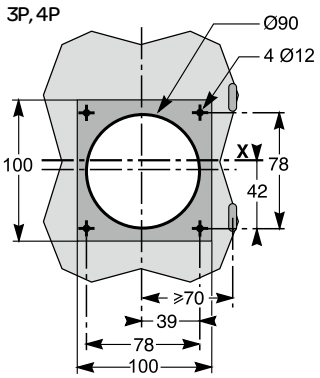


Direct rotary handle

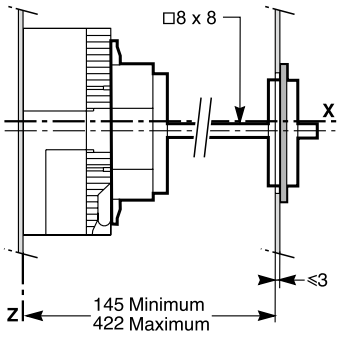


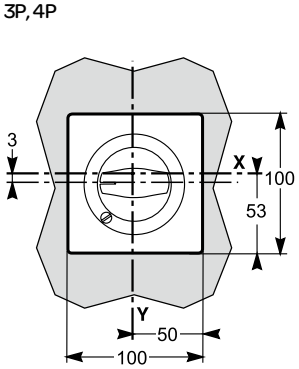


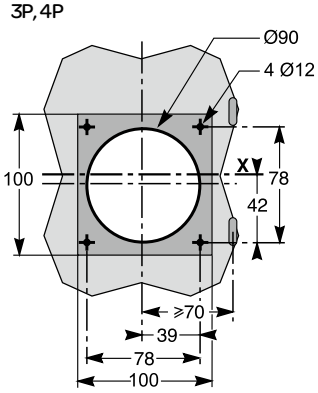




Extended rotary handle







Notes

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