

2018 Catalog



# CBX - CVX

Vacuum contactors up to 12 kV  
Fixed and withdrawable range of contactors

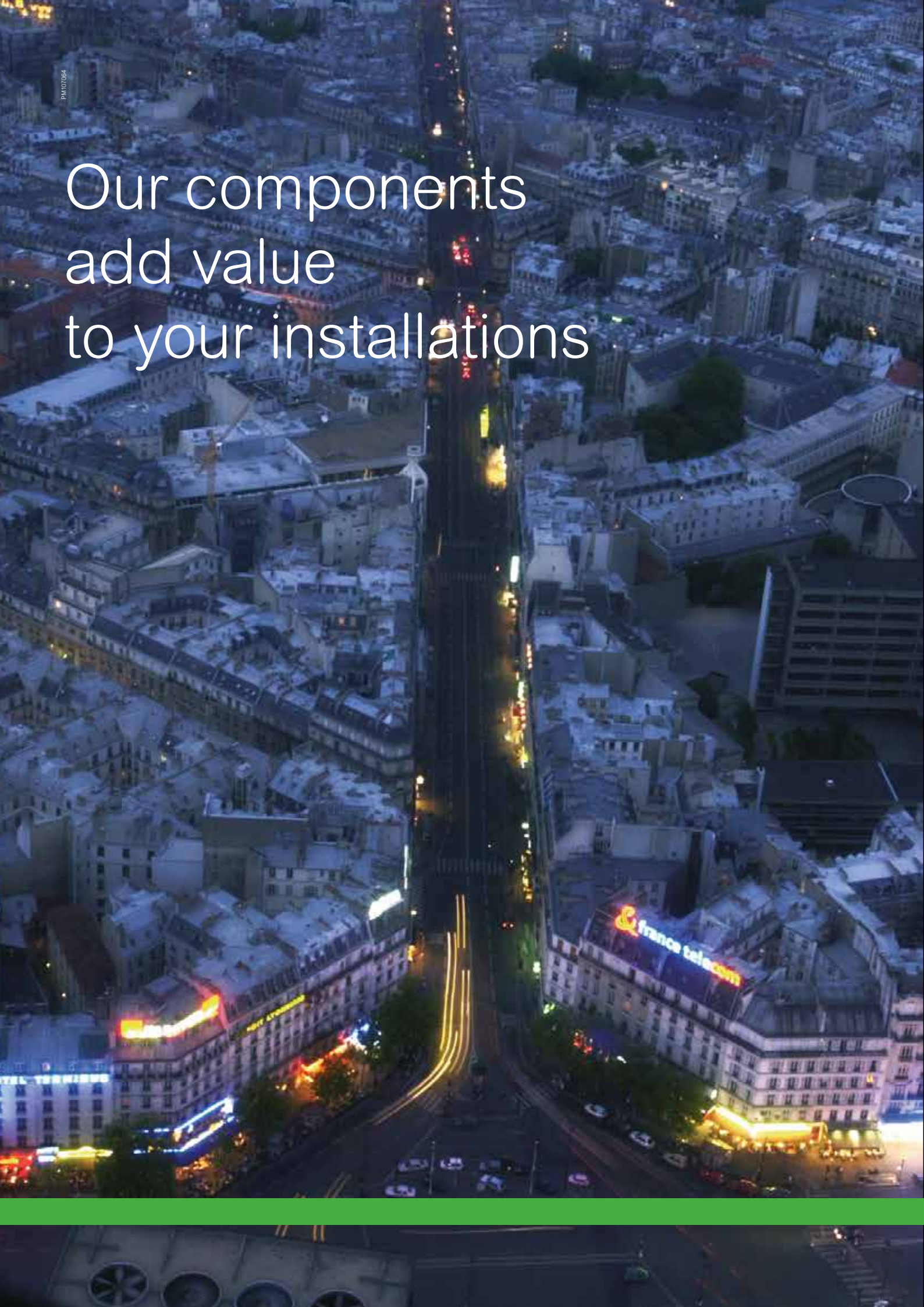
Medium Voltage Distribution

[CBX/CVX/schneider-electric.com](http://CBX/CVX/schneider-electric.com)

Life Is On

**Schneider**  
Electric

Our components  
add value  
to your installations



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CBX - CBX

Vacuum contactors  
up to 12 kV

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## Your requirements

High Safety



Ease of installation



Robustness



## Our solutions

### High safety

- Highly visible mechanical indicators
  - No hazardous tripping
  - Comprehensive interlocks
  - Strict application of quality standards
  - Compliance with the highest standards
- 

### Ease of installation

- Usage for all application in medium voltage
  - Compact dimensions
  - Easy to integrate into any panel
  - Easy to operate, well suited for retrofit
- 

### Robustness

- Solid construction
- High mechanical stability against vibrations, altitude and temperature
- Limited Maintenance

Our proven range of vacuum contactors offers the best solution to suit MV feeders for industrial projects. They have a fast switching rate and a long mechanical life.

The design and contact materials fulfil the general requirements for contactor applications of motor starters, transformers or capacitor bank feeders (incl. back-to-back installations) in various industrial sectors.

# General

# General

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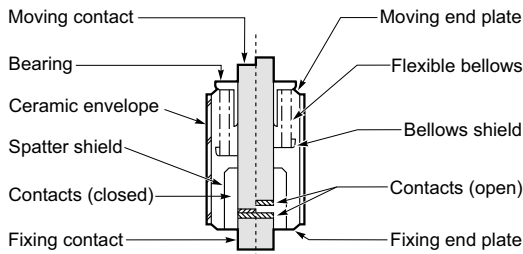


## Pioneers of Vacuum Interrupter technology

Environmental regulations and constraints are becoming increasingly stringent. Vacuum technology is the perfect answer by investing in electrical equipment with a minimal environmental impact.

More than 70 years ago, Schneider Electric started to explore the feasibility of interruption by vacuum. Schneider Electric was among the earliest trend setters when vacuum switching technology became industrially viable in the 1950's.

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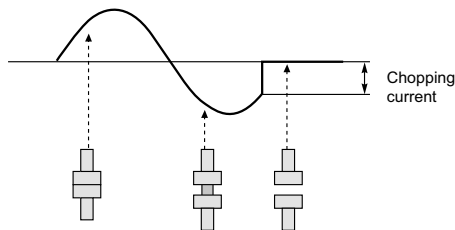
## A complete range of high performance interrupters

Schneider Electric's vacuum interrupter product range is the result of this ongoing effort to be the pacesetter in the field.

It features:

- Up to 7.2 kV, AC3/AC4 duty for motors, transformers, resistors and general switching (CBX, CVX7 and CVX12 types)
  - Low chopping current up to 0.5 A
  - High interrupting current up to 6 kA
- Up to 12 kV, AC3/AC4 duty for capacitor switching (CBX-C, CVX7-C and CVX12-C types)
  - Low shopping current up to 2.3 A
  - High interrupting current up to 4 kA

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The range includes dedicated and optimized interrupter models for the different ratings and both for insulation in air and other insulating media.



Vacuum contactors are mainly used in MV switchboards for high requirement applications such as motor starting applications, and applications in the Industrial, Mine & Metal or Oil & Gas sectors. Industries,

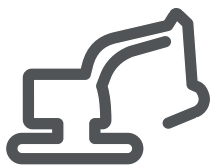
They can be used in more specific activities such as public lighting or power factor correction.



Public lighting



Oil & Gas



Mine & Metal



Industry





## Quality production management

The vacuum interrupter manufacturing units are certified ISO 9001 employing a mature and robust Quality Management System (QMS).

- Fully automated controlled line for surface treatment and silver plating
- High performance ultra-high vacuum furnaces with automated loading equipment
- Semi-automatic equipment for voltage and current conditioning
- Fully automated and computer controlled test line for routine testing
- All vacuum interrupters undergo X-ray radiography of their inner and outer parts



## Protected environment

Schneider Electric is committed to a long-term environmental approach. All necessary measures have been taken in connection with our services, suppliers and subcontractors to ensure that the materials used in the composition of the equipment do not contain any substances prohibited by regulations and directives.

In order to help you protect the environment and relieve you of any concerns in terms of stocking or dismantling, Schneider Electric Services offers to take back your equipment at the end of its life.



## Standards & Certifications

### Compliance with standards

Our vacuum contactors have been designed to meet or exceed the requirement of international standards and BV certificate:

- IEC 62271-106
- Marine certification

The design and production are certified:

- ISO 9001

Production sites are certified:

- ISO 14001 (Environmental standard)

# Service and storage conditions

## Normal service conditions

According to IEC 62271-1

**CBX /CVX series have been designed to operate in the following conditions**

Ambient air temperature	<ul style="list-style-type: none"> <li>• Minimum value: -5°C</li> <li>• Maximum value: 40°C</li> <li>• Average measured over 24 hours period <math>\leq 35^\circ\text{C}</math></li> </ul>
Altitude	Less than or equal to 1 000 m above sea level (derating coefficient to be applied for altitudes higher than 1 000 m)
Atmosphere	No dust, smoke, salt, corrosive or flammable gas or vapor
Humidity	<ul style="list-style-type: none"> <li>• Average relative humidity over 24 hours <math>\leq 95\%</math></li> <li>• Average relative humidity over 1 month <math>\leq 90\%</math></li> <li>• Average vapor pressure over 24 hours <math>\leq 2.2 \text{ kPa}</math></li> <li>• Average vapor pressure over 1 month <math>\leq 1.8 \text{ kPa}</math></li> </ul>

## Other service conditions

If operated beyond the normal service conditions, the contactor is submitted to accelerated aging.

The contactor may only be used under conditions other than the normal service conditions with express written permission from Schneider Electric.

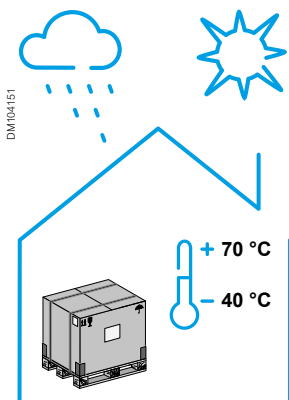
## Storage

In order to preserve all of the device's characteristics when stored for prolonged periods, we recommend to store the device in its original packaging, in dry conditions, and sheltered from the sun and rain at a temperature between  $-40^\circ\text{C}$  and  $+70^\circ\text{C}$ .

The maximum storage period is 12 months.

If the device was stored:

- Between 6 and 12 months: perform basic preventive maintenance to ensure a correct device operation
- Beyond 12 months: Contact your Schneider Electric Service local representative for device check-up.



# Vacuum contactor range

# Vacuum contactor range

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# Description

Our range of vacuum contactors, based on years of development within the Schneider Electric Research & Development department, and the use of latest technologies and extensive experience enable us to offer a leading range of vacuum-type contactors up to 7.2 kV and 12 kV.

## CBX series

### CBX/CBX-C/CBXS-C

A cube type configuration for up to 7.2 kV & 12 kV applications:

- Three-phase (CBX, CBX-C), or single-phase (CBXS-C)
- Inductive load or capacitive load category
- Mechanical interlock between two contactors for motor reverse commands

## CVX series

### CVX7/CVX7-C

Withdrawable type of CBX equipped with fuse holders (DIN or BS standard) up to 7.2 kV:

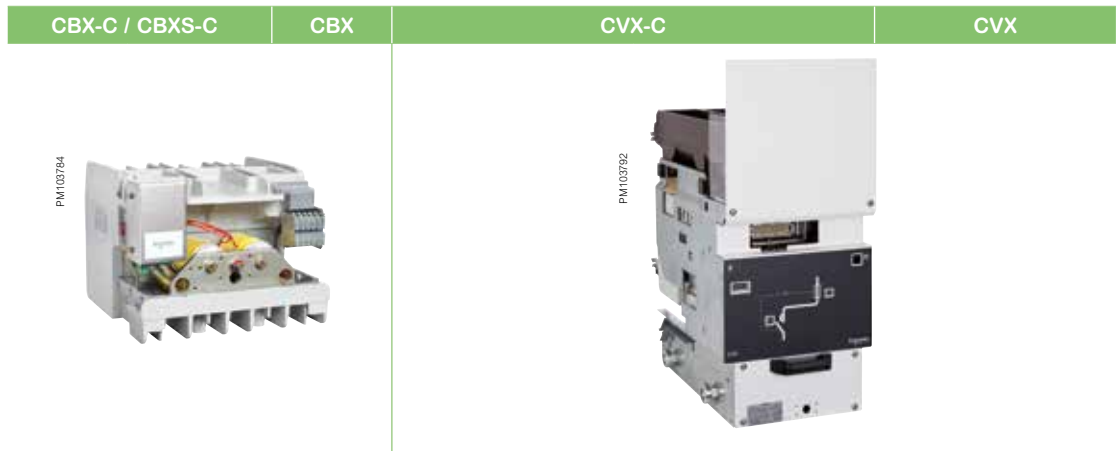
- Inductive load or capacitive load categories

### CVX12/CVXC-12

A withdrawable type of CBX equipped with fuse holders (DIN or BS standard) up to 12 kV.

- Inductive load or capacitive load categories

# Characteristics



	CBX-C / CBXS-C		CBX	CVX-C		CVX
<b>Functions</b>	<b>Protection and control of network</b>					
Rated voltage (kV)	7.2	12	7.2	7.2	12	7.2
Short circuit breaking current (kA)	4	4	6	4	4	6
Rated operational current (A)	315	315	400	315	315	400
Utilization category	AC3-AC4					
Rated back to back capacitor bank breaking current (A) (C2 Class)	400	400	N/A	400	400	N/A
Versions	<ul style="list-style-type: none"> <li>Fixed</li> </ul>	<ul style="list-style-type: none"> <li>Fixed</li> </ul>	<ul style="list-style-type: none"> <li>Fixed</li> </ul>	<ul style="list-style-type: none"> <li>Withdrawable CBX-C version equipped with DIN or BS fuses</li> <li>Optional on board auxiliary voltage transformer (7,2 kV only)</li> </ul>		<ul style="list-style-type: none"> <li>Withdrawable CBX version equipped with DIN or BS fuses</li> <li>Optional on board auxiliary voltage transformer (7.2 kV only)</li> </ul>
Number of poles	1 or 3	1 or 3	3	3	3	3
Mechanical switching cycles (ON/OFF)	1 000 000 (magnetically held) 300 000 (mechanical latch)					
Mechanism	Magnetic or mechanical latch					
Standards	IEC standards					
Benefits	Specific version for capacitor banks	Specific version for capacitor banks	AC3 and AC4 category	<ul style="list-style-type: none"> <li>Specific withdrawable version for capacitor banks</li> <li>LV supply thanks to optional on board VT</li> </ul>		<ul style="list-style-type: none"> <li>AC3 and AC4 category</li> <li>High short circuit breaking capacity in combination with fuses</li> <li>LV supply thanks to optional on board VT</li> </ul>

# CBX series, up to 12 kV fixed version



# CBX series, up to 12 kV fixed version

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# Description of the device

## The vacuum contactors CBX/CBX-C include:

For electromagnetic mechanism and mechanical latch mechanism:

- Main and armature moulding with two pivot points
- A steel mounting plate
- Three vacuum switches (one vacuum switch in CBXS-C)
- Two closing coils
- One auxiliary contact block
- One electronic card and operations counter

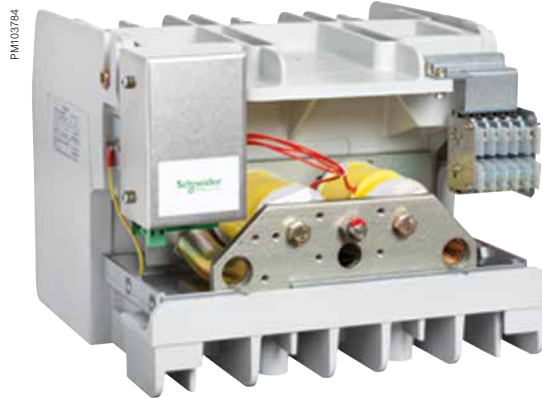
And for the mechanical latch mechanism:

- One mechanical latch
- One tripping coil

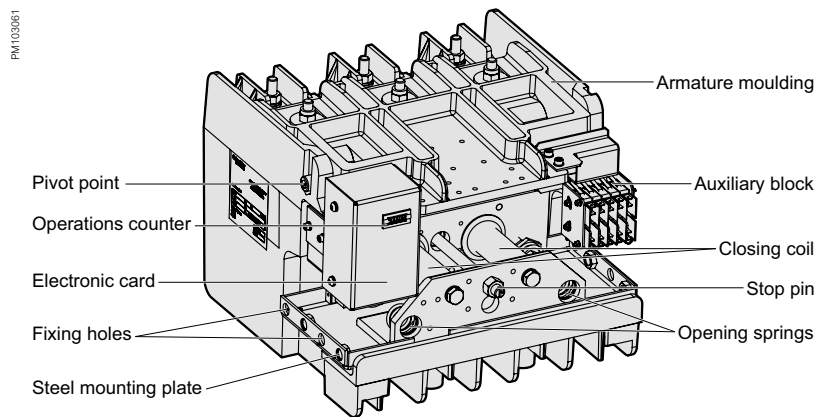
## Applications

CBX/CBX-C vacuum contactors are three phase switching devices, and each phase has a separate vacuum switch that switches at the first available current zero point.

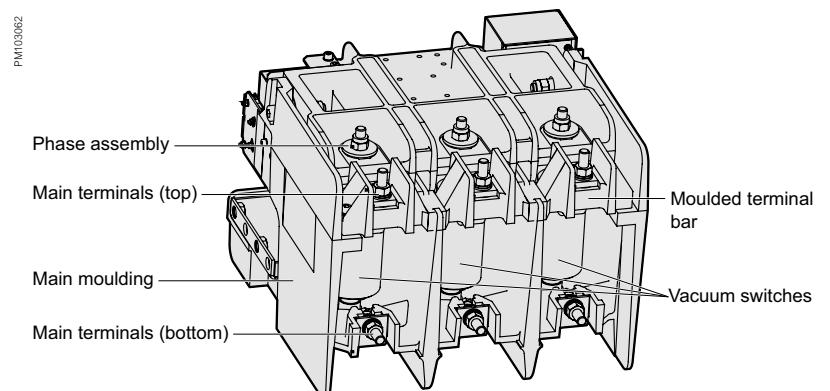
- CBX: Up to 7.2 kV, for motor starting/reversing applications
- CBX-C: Up to 12 kV, for capacitor bank switching applications
- CBXS-C: Up to 12 kV, for single phase applications



## Front view



## Rear view



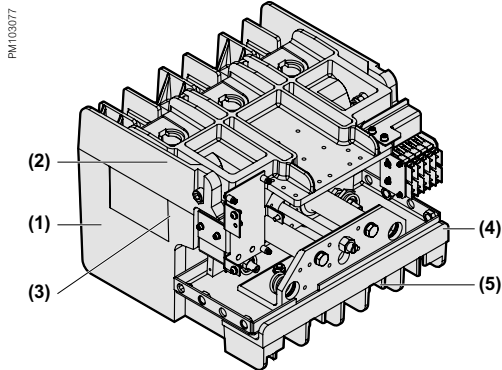
# Description of the device

## Main characteristics

Electrical characteristics according to IEC 62271-106			CBX	CBX-C	CBXS-C	
Phase to phase distance		mm	108	108	/	
Rated voltage	Ur	kV 50/60 Hz	7.2	12	12	
Insulation level	power frequency withstand	Ud	kV 50/60 Hz, 1 min <sup>(*)</sup>	20	28	28
	lightning impulse withstand	Up	kV peak	60	75	75
Rated operational current	Ie	A	400	315	315	
Utilization category			AC3-AC4			
Rated thermal current	Ith	A	400	400	400	
Rated short-circuit breaking current	Isc	kA	6	4	4	
Rated short-time withstand current	Ik/tk	kA/1 s	6	5	5	
Rated peak withstand current	Ip	kA	15	12.5	12.5	
Rated back to back capacitor bank breaking current		A	N/A	400	400	

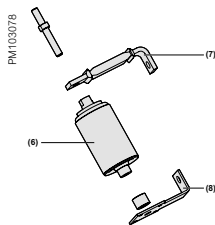
<sup>(\*)</sup> Ud 32 kV, 50 Hz, 1 min available in standard

Common characteristics according to IEC 62271-106			CBX	CBX-C	CBXS-C
Mechanical endurance	for electromagnetic mechanism	op.	1 000 000		1 000 000
	for mechanical latch mechanism	op.	300 000		300 000
Electrical endurance at rated current		op.	250 000		250 000
Consumption closing power		W	500		80
Consumption holding power (magnet type)		W	80		80
Closing time		ms	120-200		70-110
Consumption opening power (mechanical type)		W	240		240
Opening time	for DC supply	ms	50-100		25-50
	for AC supply	ms	50-100		25-50
Operating rated ambient temperature		°C	-5/40		-5/40
Average relative humidity		over 24 h	< 95%		< 95%
		over 1 month	< 95%		< 95%



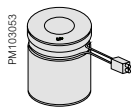
## Basic frame

1. Main moulding
2. Armature moulding
3. Two pivot points
4. A steel mounting plate
5. Stop pin



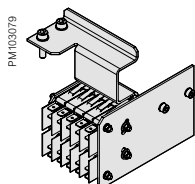
## Power part

6. Vacuum switch
7. Main terminals (top)
8. Main terminals (bottom)



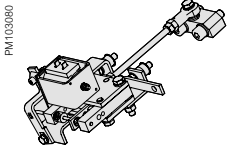
## Closing coil

- DC 24-60 V
- DC 110-250 V/AC 110-240 V.



## Auxiliary contact

- 5NO + 5NC, right hand side assembly



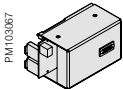
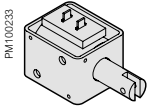
## Mechanical latch with Tripping coil

The mechanical latch mechanism with the tripping coil can be selected instead of the electromagnetic hold mechanism. It is comprised by 1 piece mechanical latch and 1 piece tripping coil:

- A mechanical latch part

A corresponding tripping coil with various options for supply voltage:

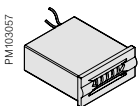
- DC 24-30 V
- DC 48 V
- DC 110-250 V/AC 110-240 V



## Electronic card

A set of electronic card is equipped, and has various options for supply voltage:

- DC 24-60 V
- DC 110-250 V/AC 110-240 V



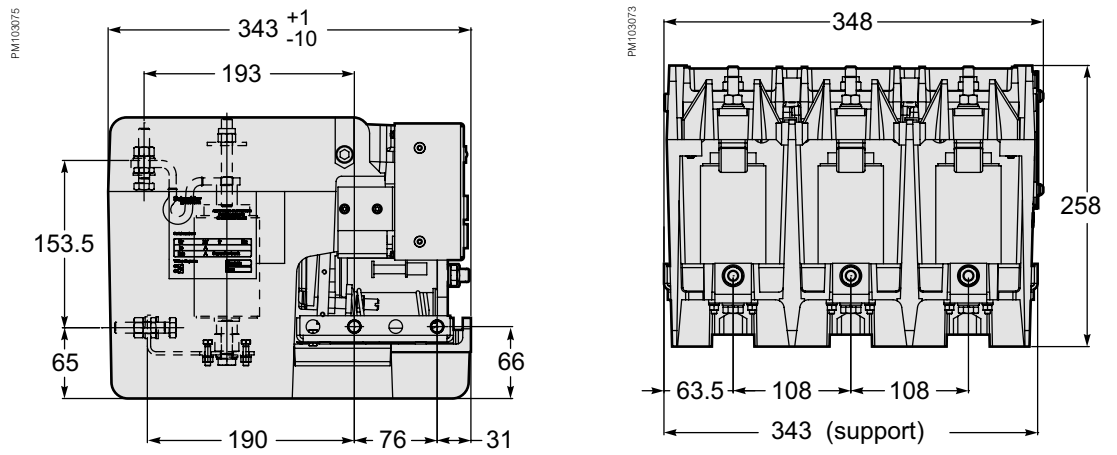
## Operations counter

For vacuum contactors CBX/CBX-C, an operations counter is equipped.

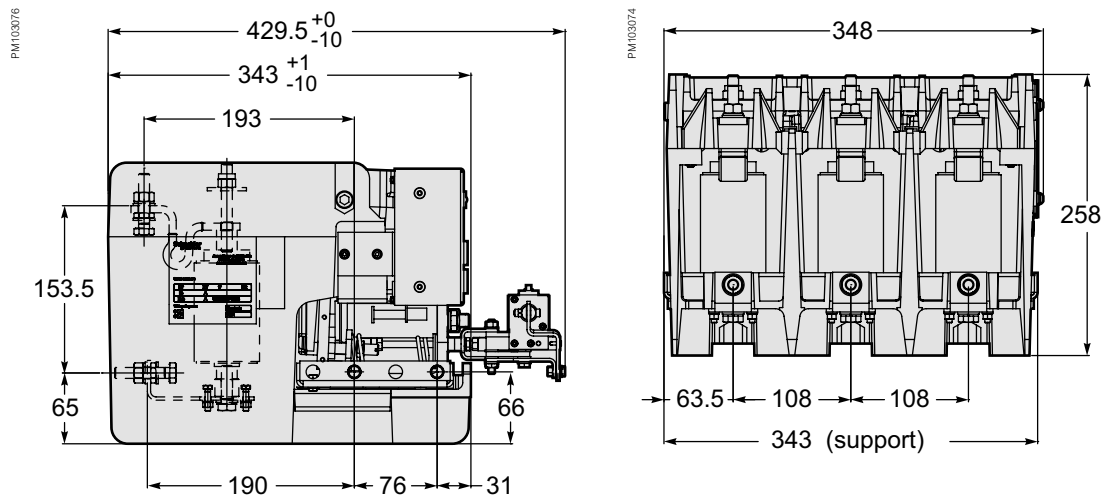
# Dimensions

For CBX/CBX-C		Electromagnetic hold	Mechanical latch
Phase to phase distance	mm	108	108
Size (W x D x H)	mm	348 x 343 x 258	348 x 429 x 258
Weight	kg	28	28

## For electromagnetic hold mechanism

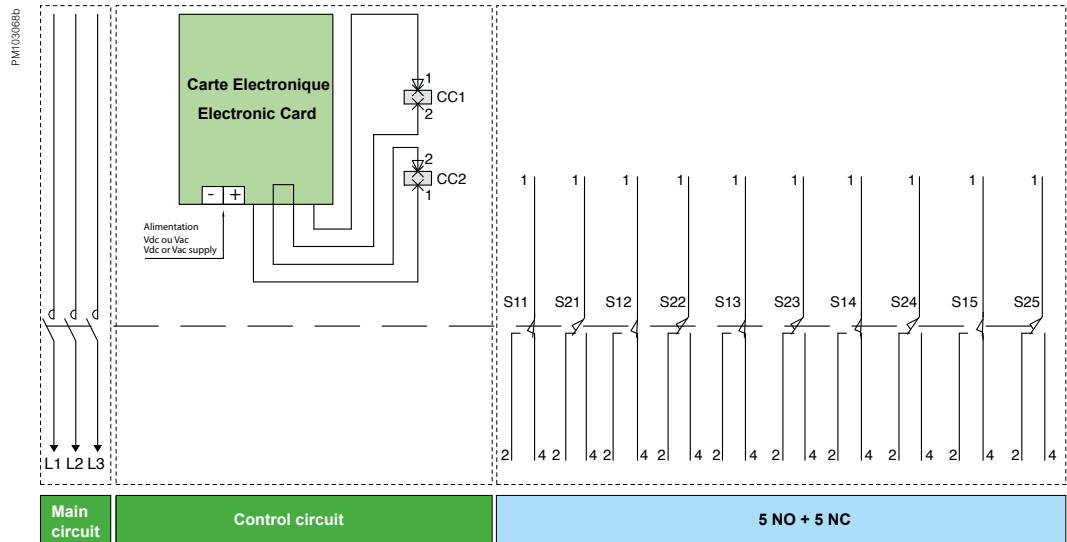


## For mechanical latch mechanism

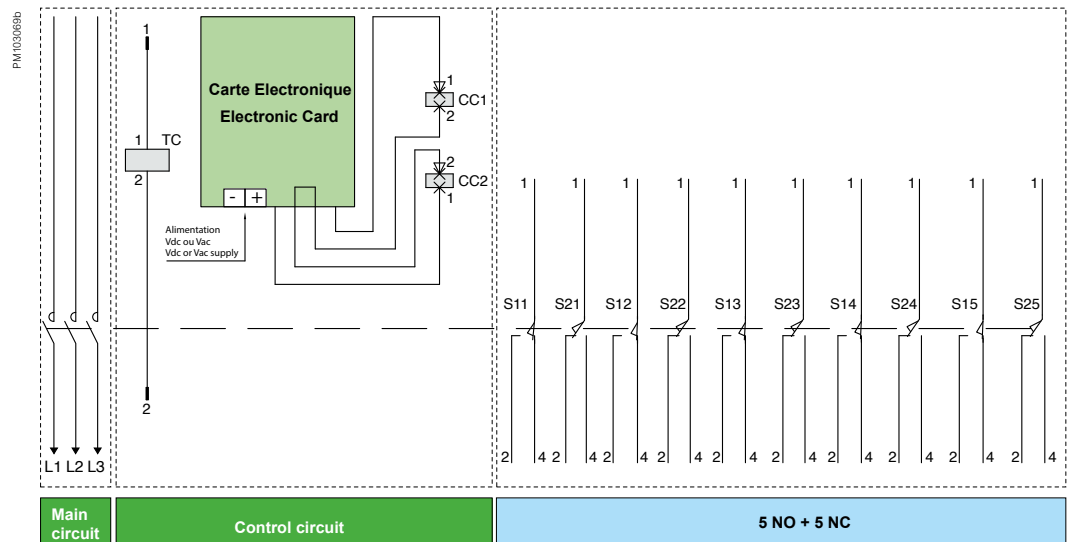


# Electric circuit diagram

For CBX electromagnetic hold mechanism and DC & AC supply voltage:



For CBX mechanical latch mechanism and DC & AC supply voltage:



Note: Tripping coil (TC) must not be supplied more than 2 seconds

# CVX series, up to 12 kV withdrawable version



# CVX series, up to 12 kV withdrawable version

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# Description of the device

## CBX/CBX-C contactor body

The vacuum contactors CVX series include:

- CBX/CBX-C contactor body
- Enclosure for CVX7/CVX7-C
- Enclosure for CVX12-C
- Fuse holder for CVX series
- Drawer for CVX Series
- Option: Cradle

## CBX/CBX-C contactor body

For the electromagnetic mechanism and mechanical latch mechanism:

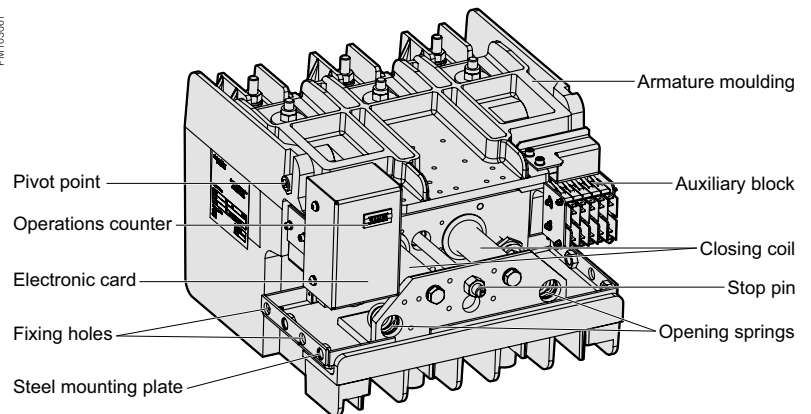
- Main and armature moulding with two pivot points
- A steel mounting plate
- Three vacuum switches
- Two closing coils
- One auxiliary contact block
- One electronic card and operations counter

And for the mechanical latch mechanism:

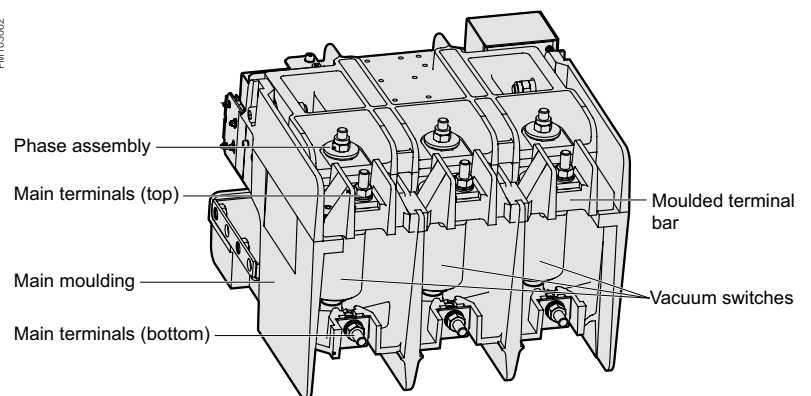
- One mechanical latch
- One tripping coil



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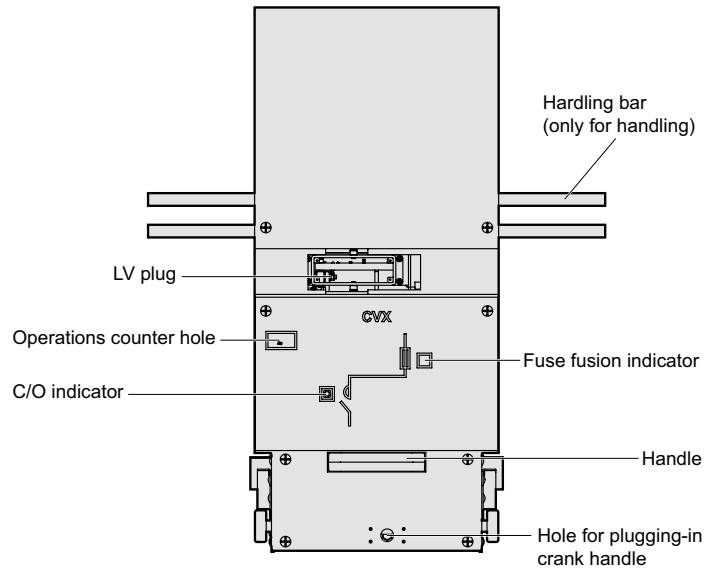


# Description of the device

## Enclosures

### Enclosure for CVX7/CVX7-C

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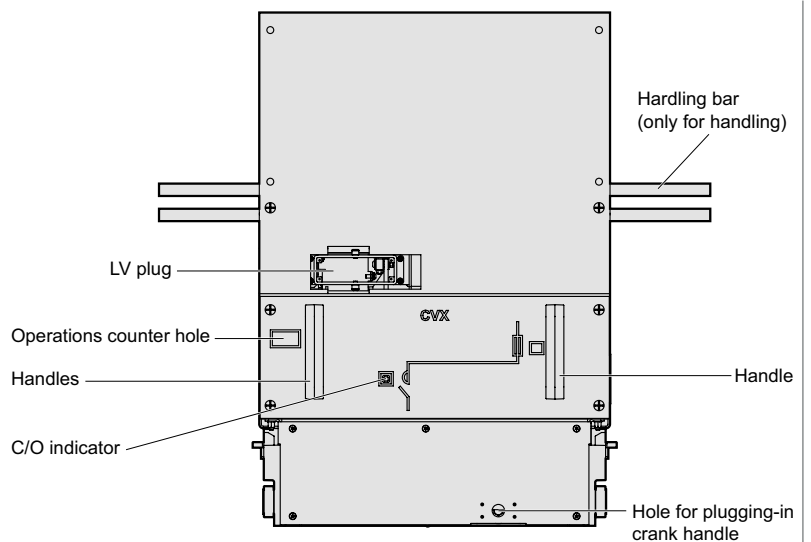


**Mainly contains:**

- LV plugging-in plug
- Indicators (C/O, fuse fusion, operations counter)
- Handling bar
- Handles
- Operation holes for crank

### Enclosure for CVX12-C

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**Mainly contains:**

- LV plug
- Indicators (C/O, fuse fusion, operations counter)
- Handling bar
- Handles
- Operation holes for crank

# Description of the device

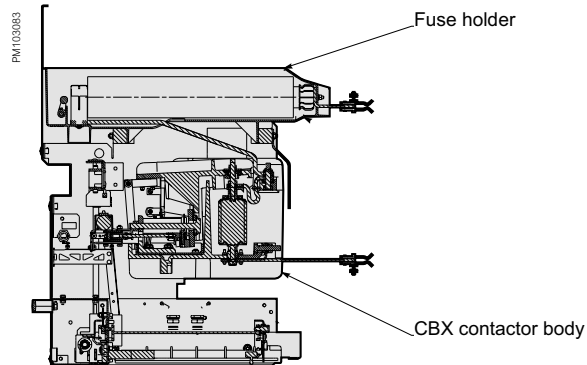
Fuse holder for CVX series /  
Cradle (option)

## Fuse holder for CVX series

### Mainly contains:

- Fuse holder
- DIN fuse: 442 mm / 292 mm with extension.  
Or BS fuse: 454 mm / 410 mm / 305 mm

*Fuses to be ordered separately*



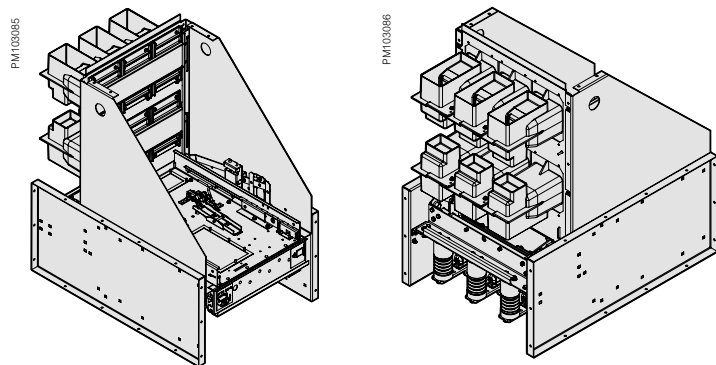
## Option: Cradle

The cradle is used to enable the rack in and rack out functions of contactor through rising shuttle mechanism interlocking and earthing switch mechanism. This allows easy integration of CVX for the panel builders.

### Adaptation for:

- CVX7/CVX7-C (Width = 400 mm)
- CVX12-C (Width = 650 mm)

*Remark: the cradle could be ordered through the logistics of the manufacturing plant. Please consult us for requirement details.*



# Description of the device

## Main characteristics

Electrical characteristics according to IEC 62271-106				CVX7	CVX7-C	CVX12	CVX12-C
Phase to phase distance		mm		106	106	185	185
Rated voltage	Ur	kV 50/60 Hz		7.2	7.2	7.2	7,2 12
Insulation level	power frequency withstand	Ud	kV 50/60 Hz 1 min <sup>(1)</sup>	20	20	20	20 28
	lightning impulse withstand	Up	kV peak	60	60	60	60 75
Rated operational current	Ie	A		400 <sup>(2)</sup>	315 <sup>(2)</sup>	400 <sup>(2)</sup>	315 <sup>(3)</sup>
Utilization category						AC3-AC4	
Rated thermal current	Ith	A		400 <sup>(2)</sup>	400 <sup>(2)</sup>	400 <sup>(3)</sup>	400 <sup>(3)</sup>
Rated short-circuit breaking current	Isc	kA		6 <sup>(4)</sup>	4 <sup>(4)</sup>	6 <sup>(4)</sup>	4 <sup>(4)</sup>
Rated short-time withstand current	I <sub>k</sub> /t <sub>k</sub>	kA/1 s		6	5	6	5
Rated peak withstand current	I <sub>p</sub>	kA		15	15	15	12.5
Rated back to back capacitor bank breaking current		A		N/A	400	N/A	400

*(1) Ud 32 kV, 50 Hz, 1 min available in standard*

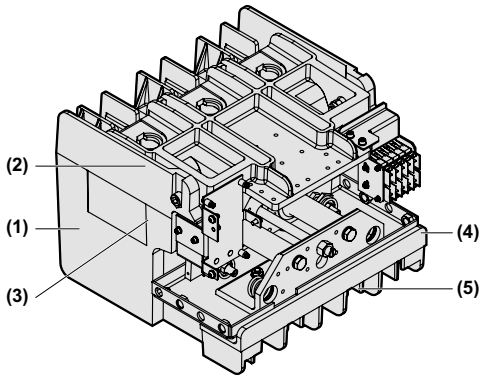
*(2) The rated current linked to the capacity of the fuse: 270 A with a maximum fuse size of 315 A*

*(3) The rated current linked to the capacity of the fuse: 195 A with a maximum fuse size of 250 A*

*(4) The rated current linked to the capacity of the fuse: 50 kA for the standard DIN fuse*

Common characteristics according to IEC 62271-106		
Switch frequency	op./h	300
Mechanical endurance	for electromagnetic mechanism	op. 1 000 000
	for mechanical latch mechanism	op. 300 000
Electrical endurance at rated current	op.	250 000
Consumption closing power	W	500
Consumption holding power (magnet type)	W	80
Closing time	ms	120-200
Consumption opening power (mechanical type)	W	240
Opening time	ms	50-100
Operating rated ambient temperature	°C	-5/40
Average relative humidity	over 24 h	< 95%
	over 1 month	< 90%

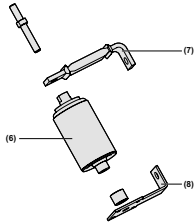
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## Basic frame

1. Main moulding
2. Armature moulding
3. Two pivot points
4. A steel mounting plate
5. Stop pin

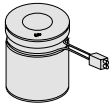
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## Power part

6. Vacuum switch
7. Main terminals (top)
8. Main terminals (bottom)

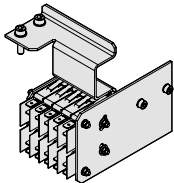
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## Closing coil

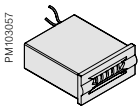
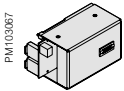
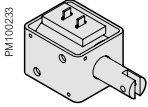
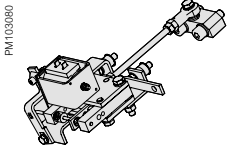
- DC 24-60 V
- DC 110-250 V/AC 110-240 V.

PM103079



## Auxiliary contact

- 5NO + 5NC, right hand side assembly



## Mechanical latch with Tripping coil

The mechanical latch mechanism with the tripping coil can be selected instead of the electromagnetic hold mechanism. It is comprised by 1 piece mechanical latch and 1 piece tripping coil:

- A mechanical latch part

A corresponding tripping coil with various options for supply voltage:

- DC 24-30 V
- DC 48 V
- DC 110-250 V/AC 110-240 V

## Electronic card

A set of electronic card is equipped, and has various options for supply voltage:

- DC 24-60 V
- DC 110-250 V/AC 110-240 V

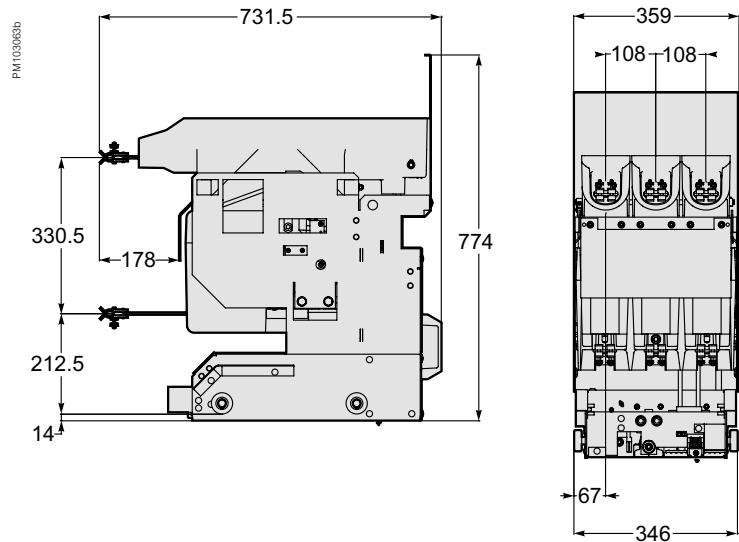
## Operations counter

For vacuum contactors CVX/CVX-C, an operations counter is equipped.

# Dimensions

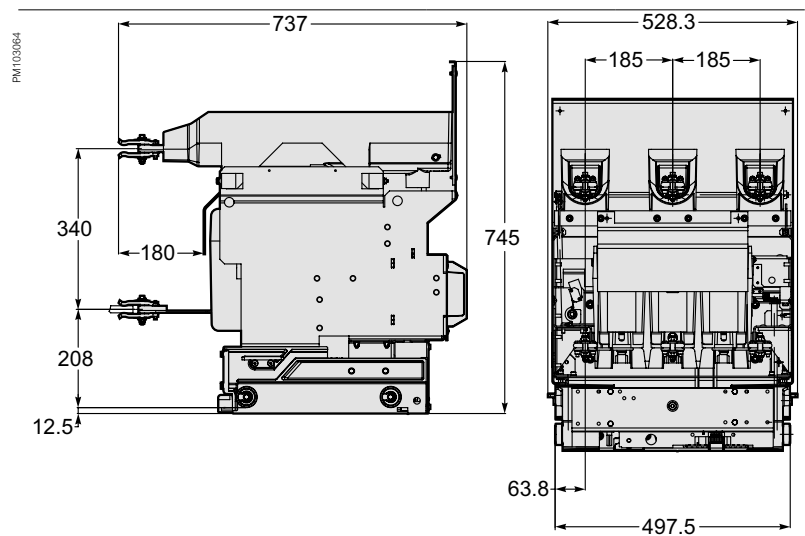
## CVX7/CVX7-C

Phase to phase distance	mm	106
Size (W x D x H)	mm	359 x 731.5 x 774
Weight	kg	60



## CVX12 / CVX12-C

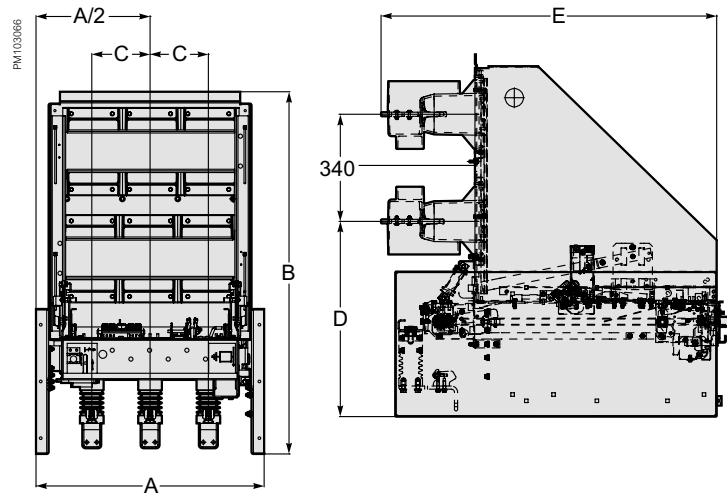
Phase to phase distance	mm	185
Size (W x D x H)	mm	528.3 x 737 x 745
Weight	kg	74





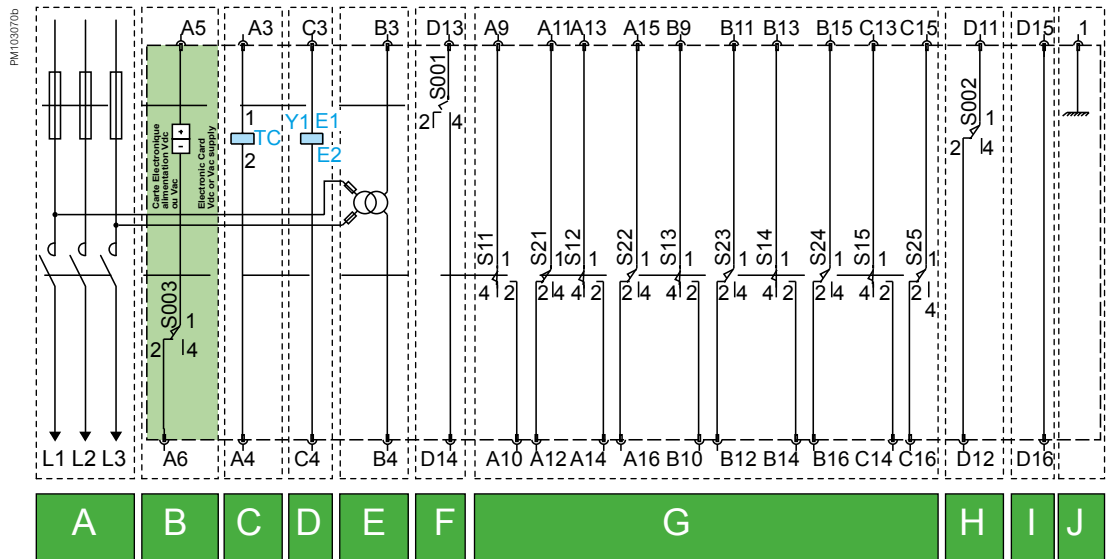
# Dimensions

Cradle's for		CVX7 / CVX7-C & CVX12 / CVX12-C				
Adapted CVX ranges		A	B	C	D	E
CVX7 / CVX7-C	mm	474	1 120	108	621	1 021.2
CVX12 / CVX12-C	mm	724	1 149.5	185	619.5	1 065.2



# Electric circuit diagram

For CVX7 / CVX7-C / CVX12 / CVX12-C  
DC & AC supply voltage



**Note:**

Tripping coil (TC) must not be supplied more than 2 seconds

## Components:

- A. Fuse contactor
- B. Closing
- C. Tripping coil (for the mechanical latch mechanism)
- D. (Options) Blocking magnet (handle)
- E. (Options) Control power transformer (only for CVX7/CVX7-C)
- F. Fuse blowing
- G. Auxiliary contact: 5NO + 5NC
- H. Mandatory electrical interlock
- I. Plug-in socket
- J. Earthing

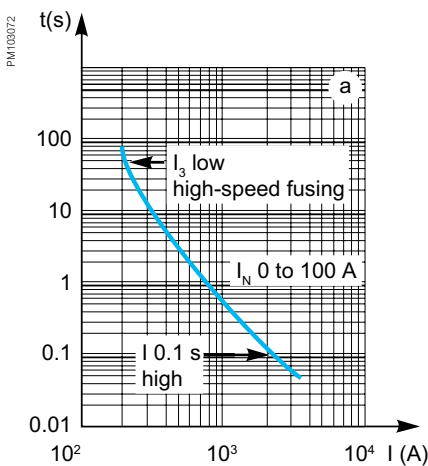
# Fuse selection

The table in below contains a summary of the requirements of the different types of fuse according to the type of load:

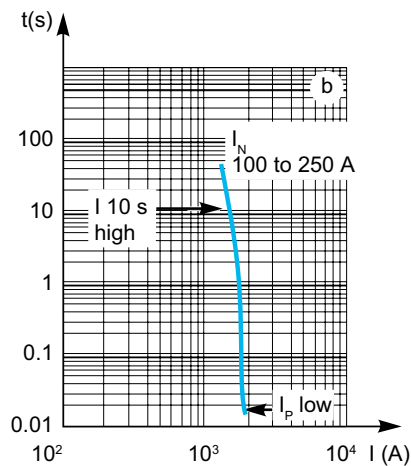
Type of load	Transformer	Motor	Capacitors	
			Single bank	Multiple step banks
Ordre of magnitude of fuse rating (A)	4 to 100	100 to 250	100 to 250	
Selection rules	$I_A < I_N \text{ transf.} < I_B$	Fixed by IP and tD $I_N \text{ motor} \times 1.2$	$I_N \text{ bank} \times 1.7 < I_N \text{ fuse}$ $I_{nsc}$ fixed by $f, t$	
$I_p$	No specification	Low	High $\tau \approx 1 \text{ ms}$	High $\tau \approx 1 \text{ ms}$
I fusing 0.1 s	High	No specification	High ( $\tau \approx 0.1 \text{ s}$ )	No specification
I fusing 10 s	Low for close-up protection	High	Low for close-up protection	
$I_3$	No specification	No specification	No specification	
UN (kV)	0 to 36	0 to 12	0 to 36	

These specifications can be used to plot the ideal time/current characteristic for a fuse according to its use (refer to the diagram in below). This diagram clearly shows the requirement parameters for each type of protected load. It also clearly illustrates the relative insignificance of the  $I_N$  value of a fuse when it is taken alone as a selection criterion (as is unfortunately too often the case).

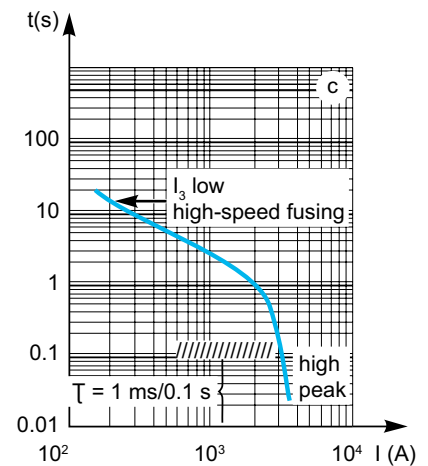
## Ideal time/current characteristics for protecting



a) a transformer



b) a motor



c) a capacitor

# Order forms

# Order forms

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CBX series, up to 12 kV fixed version	38
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CVX series, up to 12 kV withdrawable version	38
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# CBX Series, up to 12 kV fixed version

## Order form



PM103784

**Fixed vacuum contactor, CBX/CBX-C/CBXS-C** Quantity

Phase numbers	Single phase <input type="checkbox"/>	Three phases <input type="checkbox"/>
Load category	Capacitive (CBX-C/CBXS-C) <input type="checkbox"/>	Inductive (CBX) <input type="checkbox"/>
Rated voltage	7.2 kV <input type="checkbox"/>	12 kV <input type="checkbox"/>

**Vacuum contactor options**

Closing coils	DC 24-60 V <input type="checkbox"/>
	DC 110-250 V/AC 110-240 V <input type="checkbox"/>

Contactor mechanism type	Electromagnetic hold <input type="checkbox"/>	Mechanism latch <input type="checkbox"/>
--------------------------	---	--

Tripping coil (only for mechanical latch mechanism)	DC 24-30 V <input type="checkbox"/>
	DC48-60 V <input type="checkbox"/>
	DC 110-250 V/AC 110-240 V <input type="checkbox"/>

Electronic card	DC 24-60 V <input type="checkbox"/>
	DC 110-250 V <input type="checkbox"/>
	AC 110-240 V <input type="checkbox"/>

100 ms opening delay	YES <input type="checkbox"/>
	NO <input type="checkbox"/>

Interlock between 2pcs contactors	YES <input type="checkbox"/>
	NO <input type="checkbox"/>

Position indicator	YES <input type="checkbox"/>
	NO <input type="checkbox"/>

Gauge	YES <input type="checkbox"/>
	NO <input type="checkbox"/>

# CVX series, up to 12 kV withdrawable version

## Order form

PM103792



<b>CVX series</b>		Quantity	<input type="text"/>
CVX Type	CVX7* <input type="checkbox"/>	CVX12	<input type="checkbox"/>
Load category	Capacitive <input type="checkbox"/>	Inductive	<input type="checkbox"/>
Rated voltage Ur	7.2 kV <input type="checkbox"/>	12 kV	<input type="checkbox"/>

\* Available only in 7.2 kV

<b>Vacuum contactor options</b>			
Closing coils		DC 24-60 V	<input type="checkbox"/>
		DC 110-250 V/AC 110-240 V	<input type="checkbox"/>
Contactor mechanism type	Electromagnetic hold <input type="checkbox"/>	Mechanism latch	<input type="checkbox"/>
Tripping coil (only for mechanical latch mechanism)		DC 24-30 V	<input type="checkbox"/>
		DC 48-60 V	<input type="checkbox"/>
		DC 110-250 V/AC 110-240 V	<input type="checkbox"/>
Electronic card		DC 24-60 V	<input type="checkbox"/>
		DC 110-250 V	<input type="checkbox"/>
		AC 110-240 V	<input type="checkbox"/>
100 ms opening delay		YES	<input type="checkbox"/>
		NO	<input type="checkbox"/>
Fuse holder (BS fuse is only for 7.2kV application)	For BS 454 mm <input type="checkbox"/>	For DIN 442 mm	<input type="checkbox"/>
	For BS 410 mm <input type="checkbox"/>	For DIN 292 mm with fuse extension	<input type="checkbox"/>
	For BS 410 mm <input type="checkbox"/>		
Voltage transformer (for CVX7 only)	AC 6.6kV/110V <input type="checkbox"/>	AC 3.3kV/230V	<input type="checkbox"/>
	AC 6.6kV/230V <input type="checkbox"/>	AC 6.9kV/220V	<input type="checkbox"/>
	AC 3.3kV/110V <input type="checkbox"/>	AC 4.16kV/120V	<input type="checkbox"/>
		AC 4.16kV/110V	<input type="checkbox"/>
Truck blocked when magnet energized (Only for withdrawable CVX)	DC 24V <input type="checkbox"/>	DC 220-230V	<input type="checkbox"/>
	DC 48V <input type="checkbox"/>	AC 110V	<input type="checkbox"/>
	DC 110V <input type="checkbox"/>	AC 127V	<input type="checkbox"/>
	DC 125V <input type="checkbox"/>	AC 220-230V	<input type="checkbox"/>
Truck blocked when magnet unenergized (Only for withdrawable CVX)	DC 24V <input type="checkbox"/>	DC 220-230V	<input type="checkbox"/>
	DC 48V <input type="checkbox"/>	AC 110V	<input type="checkbox"/>
	DC 110V <input type="checkbox"/>	AC 127V	<input type="checkbox"/>
	DC 125V <input type="checkbox"/>	AC 220-230V	<input type="checkbox"/>
Gauge		YES	<input type="checkbox"/>
		NO	<input type="checkbox"/>

# Services



# Services

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For CBX / CVX series, up to 12 kV fixed version	44

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# Schneider Electric services

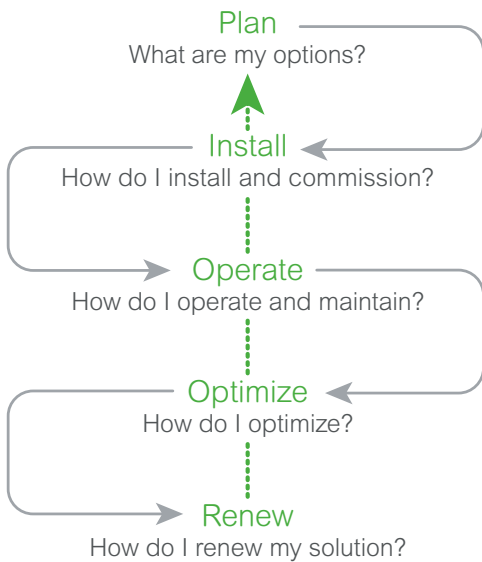
Peace of mind throughout your installation life cycle

How can you cut costs and improve performance at the same time?

When it comes to your electrical distribution infrastructure, the answer is straightforward: get professional expertise.

## Life Cycle Services

DB403843



When it comes to your electrical distribution installation, we can help you:

- Increase productivity, reliability, and safety
- Mitigate risk and limit downtime
- Keep equipment up to date and extend lifespan
- Cut cost and increase savings
- Improve your return on investment

### CONTACT US!

[www.schneider-electric.com/b2b/en/services/](http://www.schneider-electric.com/b2b/en/services/)

## Plan

Schneider Electric helps you plan the full design and execution of your solution, looking at how to improve your process and optimize your time:

- **Technical feasibility studies:** Design a solution in your environment
- **Preliminary design:** Accelerate turnaround time to reach a final solution design

## Install

Schneider Electric will help you to install solutions based on your plans improving efficiency, reliability and safety.

- **Project management:** Complete your projects on time and within budget
- **Commissioning:** Ensure your actual performance matches the design, through on-site testing and commissioning, and tools and procedures

## Operate

Schneider Electric helps you improve your installation uptime and control your capital expenditure through its service offer.

- **Asset operation solutions:** Provide the information you need to increase safety, enhance installation performance, and optimize asset maintenance and investment
- **Advantage service plans:** Customize service plans that cover preventive, predictive and corrective maintenance
- **On-site maintenance services:** Deliver extensive knowledge and experience in electrical distribution maintenance
- **Spare parts management:** Ensure spare parts availability and optimized maintenance budget of your spare parts
- **Technical training:** Build the necessary skills and competencies to properly and safely operate your installations

## Optimize

Schneider Electric can make recommendations for improved safety, availability, reliability and quality.

- **MP4 electrical assessment:** Define an improvement and risk management program

## Renew

Schneider Electric extends the life of your system (under installation, operation and environmental conditions) while providing upgrades.

- **ECOFIT™:** Keep up to date and improve the performance of your electrical installations (LV, MV, protection relays, etc.)
- **MV product end of life:** Recycle and recover outdated equipment with end-of-life services

# Schneider Electric services

## ProDiag Breaker

### Diagnosis of MV and LV Circuit Breakers



PMT104628

## What is ProDiag Breaker?

ProDiag Breaker is a Schneider Electric diagnosis tool. ProDiag Breaker compares the mechanical and electrical parameters measured during the full operation of circuit breakers with the data collected from our production facilities. This allows detecting possible failure in advance. It measures, records and displays on a screen the key electrical parameters in MV and LV circuit breakers, relating to opening, closing and springloading operations.

All this data is automatically compared with the criteria for the circuit breaker designated in the software, which indicates which values are within the acceptable range, which are on the limit and which are outside it.

Two tests are always performed on each circuit breakers, one at minimum voltage and one at nominal voltage. A written report is generated and provided by Schneider Electric so that the customer can use it as a tool to define the necessary corrective action (maintenance, repair or replacement).

### ProDiag Breaker is part of ProDiag preventive maintenance plan

Evaluation of circuit breakers using ProDiag Breaker includes:

- Evaluation of the operating mechanism.
- Measurement and comparison of the actual contact resistance with that specified by the manufacturer.
- Measurement and comparison of the insulation resistance.
- Evaluation of the general circuit breaker conditions based on the captured data.

Moreover, analysis of the ProDiag Breaker time/ travel curve combined with the current curve of the coil and phase contact detects possible faults, such as:

- Worn out latches and operating mechanisms.
- Faulty coils.
- Mechanical wear and tear and hardening of lubricating grease.
- Defective shock absorbers.
- Defective simultaneous contact operation (opening/closing).

Some maintenance programmes involve dismantling the circuit breaker mechanism to check its condition. ProDiag Breaker using signals captured from the circuit breaker operation, reduces maintenance costs compared with programs which check the circuit breakers manually.

## ProDiag Breaker Objectives

Your priority is to enhance the reliability of your installation:

- to ensure its continuity of service,
- to minimize the time for maintenance & repair
- to perform maintenance
- Only on the equipment requiring it and only when necessary (conditional preventive maintenance)

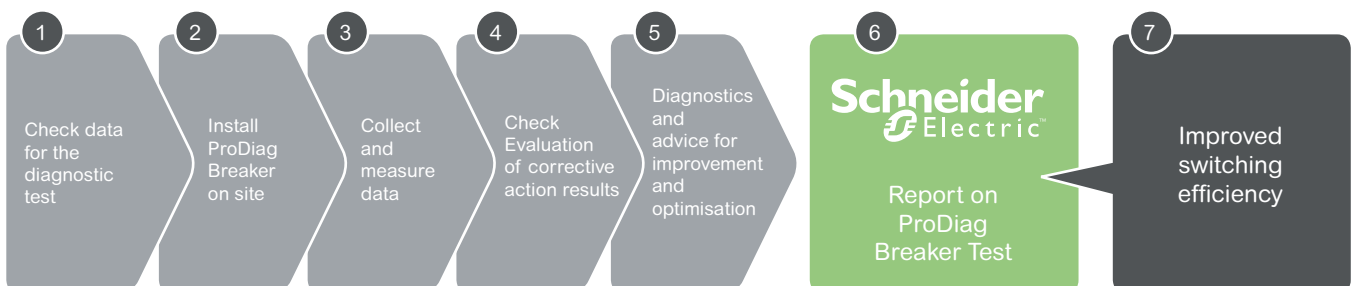
## Results

ProDiag Breaker provides a report of the complete nature of the circuit breaker, detailing: closing / opening time, contact simultaneity, bounce and resistance, mechanical closing and opening forces.

This report enables any required maintenance to be targeted and time in order to optimize the customer's maintenance plan.

## Where can ProDiag Breaker reduce costs?

- ProDiag Breaker significantly reduces the time taken to identify potential faults in a circuit breaker, using operational analysis rather than inspection and mechanical resets.
- The software analyses the captured data and identifies the specific problem area.
- A device's normal operating life is increased by timely diagnostics of when and what repairs are necessary.
- The tool comprises both hardware and software, resulting in a highly efficient predictive maintenance program.

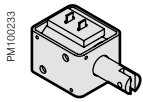


# Spare parts

For CBX / CVX series

The following components can be ordered separately and can be adapted or replaced by the customer.

## CBX / CVX series

Tripping coil		Reference
	24 / 30 Vdc	MV262399
	48 / 60 Vdc	MV262419
	110 / 250 Vdc	MV262420
	110 / 240 Vac	MV262420

Gauge	Reference
	MV263147

## CVX series only

	Reference
Fuse extraction tool (DIN fuse type)	MV263150
Crank handle	MV263152
Handling bar	MV263151

CVX7 only		Reference
Voltage transformer	6.6 kV / 110 Vac	MV263140
	6.6 kV / 230 Vac	MV263141
	3.3 kV / 110 Vac	MV263142
	3.3 kV / 230 Vac	MV263143
	6.9 kV / 220 Vac	MV263144
	4.16 kV / 120 Vac	MV263145
	4.16 kV / 110 Vac	MV263146
VT fuse		MV263158

Notes

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# TOOLS

## schneider-electric.com

This international web site allows you to access all the Schneider Electric solutions and product information via:

- Comprehensive descriptions
- Range datasheets
- A download area
- Product selectors

You can also access information dedicated to your business and contact your Schneider Electric country support.





# TOOLS

## Web selector

This site allows you to access the Schneider Electric products in just two clicks via a comprehensive range of datasheets, with direct links to:

- Complete libraries: technical documents, catalogs, FAQs, brochures
- Selection guides from the e-catalog
- Product discovery sites and their animations

You will also find illustrated overviews, news to which you can subscribe, and a list of country contacts

## Training

Training allows you to acquire the expertise (installation design, work with power on, etc.) to increase efficiency and improve customer service.

The training catalog includes beginner's courses in electrical distribution, knowledge of MV and LV switchgear, operation and maintenance of installations, and design of LV installations to give a few examples.

Schneider Electric Industries SAS

35 rue Joseph Monier  
92500 Rueil-Malmaison, France  
Tel : +33 (0)1 41 29 70 00

[www.schneider-electric.com](http://www.schneider-electric.com)

30, May, 2018

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