



APC03 capacitor bank series  
The ABB comprehensive solution for  
automatic power factor correction

APC03 series provides the ideal power factor correction solution for industrial and commercial applications.

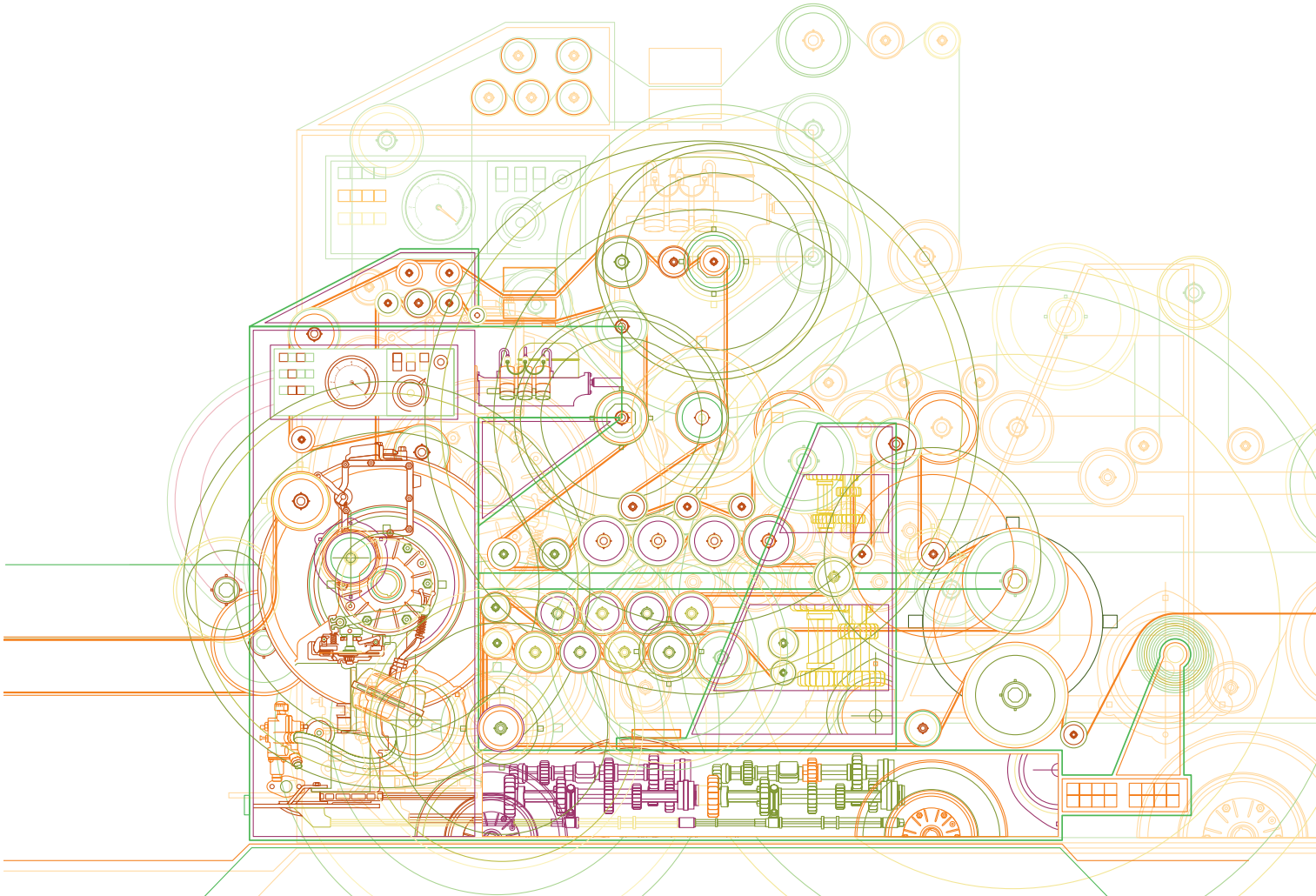


ABB APC03 series is a powerful and compact range of automatic capacitor banks that provide the ideal power factor correction solution for industrial and commercial applications.

APC03 series is easy to install, operate and service while ensuring exceptional reliability, efficiency and safety.

The key feature of APC03 series is the CLMD03 power module, the latest evolution of CLMD capacitor.

APC03 series improves the power factor in a wide variety of applications including:

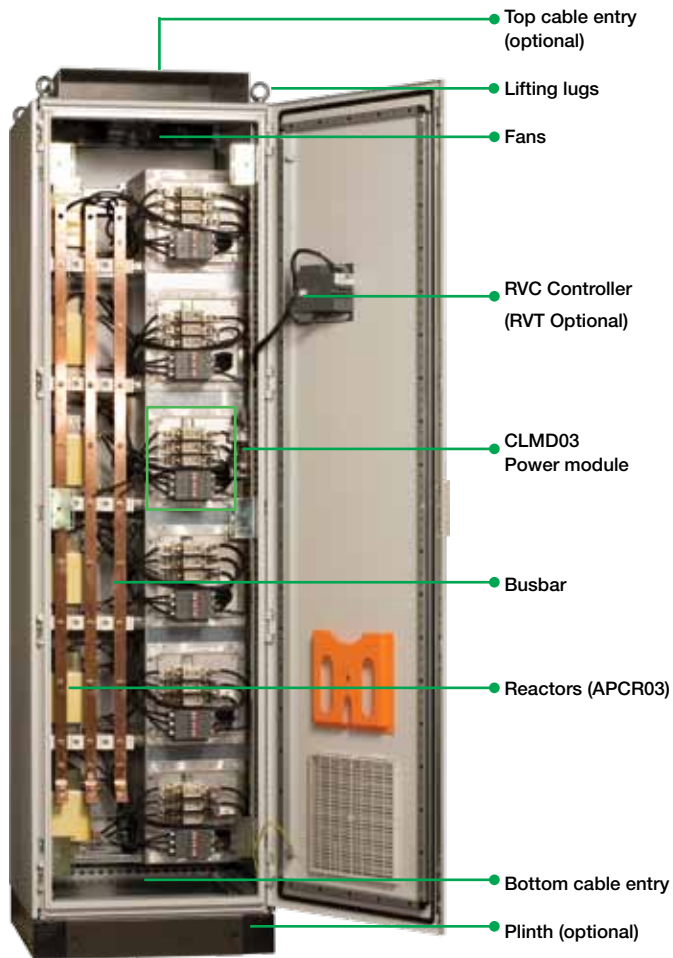
- Buildings
- Mining
- Steel industry
- Chemical
- Pulp and paper
- Cement
- Plastics
- Printing
- Food industry



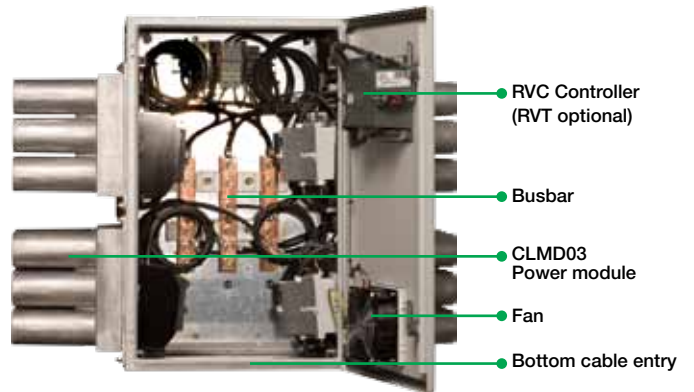
# Powerful and compact

With up to 600 kvar in one single cubicle, APC03 series delivers maximum reactive power within minimum footprint.

APC03 series is available in two executions: wall-mounted (APCL03) and free floor standing cubicles (APCM03 and APCR03).



APCR03 cubicle



APCL03 enclosure

# Reliable and safe

## Exceptional reliability and safety

Reliability and safety are key issues for capacitors. With CLMD capacitor, ABB provides the most reliable, durable and fail-safe dry capacitors on the market. It is the result of a state-of-the-art and unique protection technology.

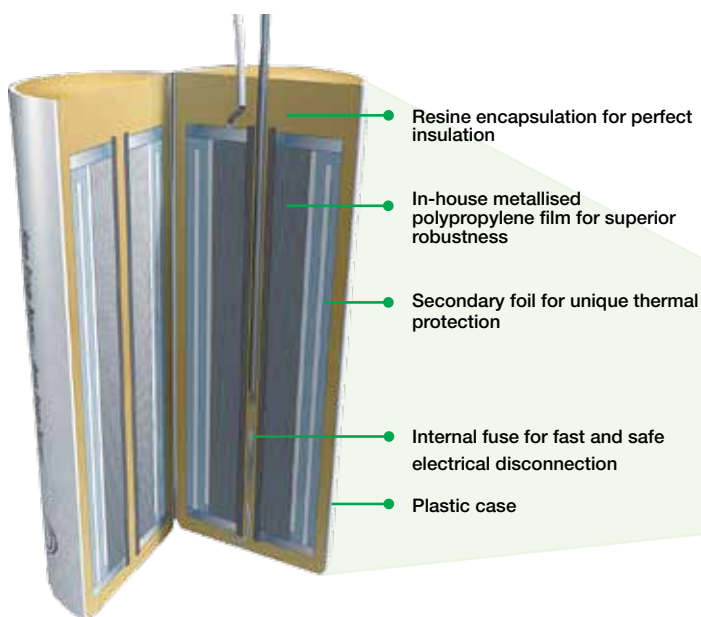
## CLMD03 Power Module and CLMD technology

CLMD03 power module is the latest evolution of CLMD capacitor. CLMD03 power module is all-in-one pre-wired power module, which includes capacitor – CLMD03 type, contactor, fuses and discharge resistors. CLMD03 power module provides all advantages of CLMD dry capacitor technology in a compact case, delivering high performance within a small footprint.

CLMD03 power module offers a number of exceptional properties such as: high voltage withstand capability, excellent peak current handling capacity, high capacitance stability, long life even under high electrical stress, very low losses and exceptional reliability and safety.

## Total service approach

ABB offers a total service approach that goes well beyond supplying equipments. ABB is able to support customers through every step of their project, from identification of the needs till installation and commissioning of the equipment. ABB also offers a comprehensive equipment maintenance and repair service everywhere in the world.



IPE Capacitor element



CLMD03 Power Module

# Easy to use

## RVC Controller

APC03 series is simple and easy to operate thanks to the automatic functions provided by the RVC controller:

- User-friendly interface
- Easy commissioning
- Complete automatic set-up
- Display of:  $\cos \phi$ , V, I, THDV, THDI
- Multiple built-in protections
- Not affected by harmonics
- Designed for hot environments (+60°C)
- Hardware and software switches



RVC Controller

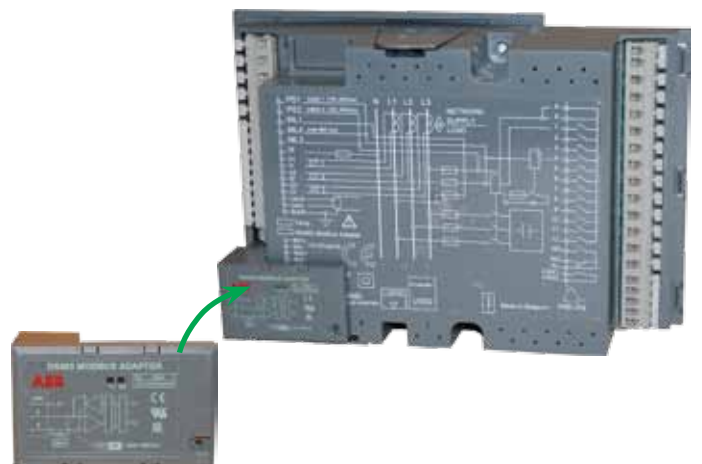
## RVT Controller

For enhanced functionality, ABB proposes its advanced RVT controller:

- Three-phase measurement and control
- Communication interfaces: Ethernet, USB2 and RS-485 Modbus adapter Full graphics display, touchscreen with back-lighting
- Multi-language
- Programmable protection thresholds



RVT Controller



RS-485 Modbus adapter attached to the RVT controller

# ABB expertise

## Detuned installation

The presence of harmonics might seriously overstress the capacitors, resulting in technical issues or premature ageing.

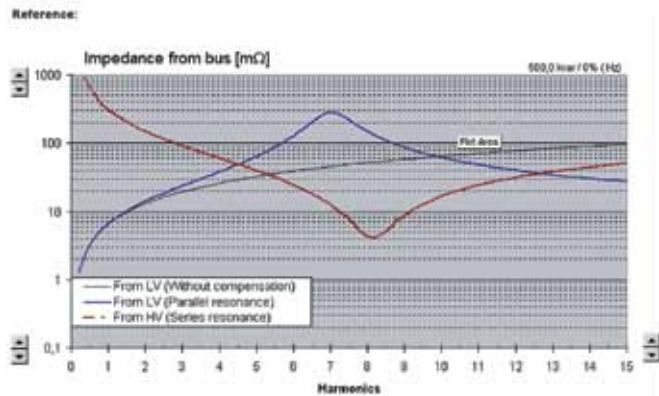
In such case, a proven answer is to protect the capacitors with reactors.



ABB Reactor, specific design

## Network study

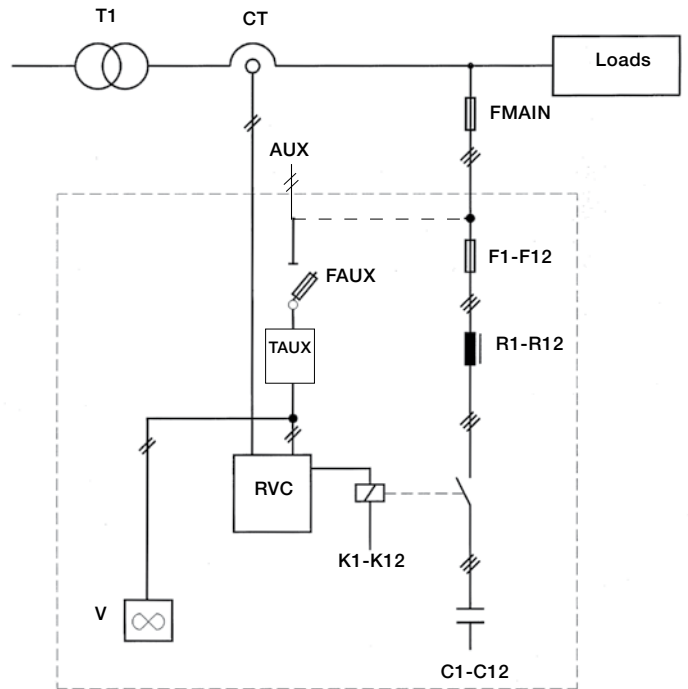
ABB Power Quality specialists can perform a detailed harmonic study in order to propose you dedicated and safe solutions to your installation.



Harmonic analysis

## Wiring diagram

- C1...C12 capacitor steps
- FMAIN main fuses or protective devices (not provided)
- FAUX auxiliary fuses
- F1...F12 capacitor step fuses
- K1...K12 contactors
- RVC Power Factor controller
- T1 power transformer
- TAUX auxiliary transformer (optional)
- CT current transformer (not provided)
- V fan(s)
- R1...R12 reactors (APCR03 only)
- AUX auxiliary power supply



# APL03 and APCM03 range

## Standard range

### 400V and 415V 50Hz - Clean network

Type	Power (kvar)	Regulation (x*kvar)
APCL03	50	2*25
APCL03	75	3*25
APCL03	100	4*25
APCL03	125	5*25
APCL03	150	6*25
APCL03	150	3*50
APCL03	175	7*25
APCL03 and APCM03	200	4*50
APCM03	200	8*25
APCM03	225	9*25
APCM03	250	5*50
APCM03	300	6*50
APCM03	350	7*50
APCM03	400	8*50
APCM03	450	9*50
APCM03	500	10*50
APCM03	550	11*50
APCM03	600	12*50

## Standard range

### 380V and 480V 60Hz - Clean network

Type	Power (kvar)	Regulation (x*kvar)
APCL03	50	2*25
APCL03	75	3*25
APCL03	100	4*25
APCL03	125	5*25
APCL03	150	6*25
APCL03	150	3*50
APCL03	175	7*25
APCL03 and APCM03	200	4*50
APCM03	200	8*25
APCM03	225	9*25
APCM03	250	5*50
APCM03	300	6*50
APCM03	350	7*50
APCM03	400	8*50
APCM03	450	9*50
APCM03	500	10*50
APCM03	550	11*50
APCM03	600	12*50

For other rating, please consult us.

## Reinforced range (capacitor rated at 457V)

### 400V 50Hz - Slightly polluted network

Type	Power (kvar)	Regulation (x*kvar)
APCL03	43.2	2*21.6
APCL03	64.8	3*21.6
APCL03	86.4	4*21.6
APCL03	108	5*21.6
APCL03	130	6*21.6
APCL03	130	3*43.2
APCL03	151	7*21.6
APCL03 and APCM03	173	4*43.2
APCM03	173	8*21.6
APCM03	194	9*21.6
APCM03	216	5*43.2
APCM03	259	6*43.2
APCM03	302	7*43.2
APCM03	346	8*43.2
APCM03	389	9*43.2
APCM03	432	10*43.2
APCM03	475	11*43.2
APCM03	518	12*43.2



# APCR03 range

## De-tuned range

### 400V and 415V 50Hz - Polluted network

5.67% - 7% - 12.5% <sup>1</sup> reactors	Power (kvar)	Regulation (x*kvar)
APCR03 - Masters	100	4*25
	125	5*25
	150	6*25
	150	3*50
	175	7*25
	200	8*25
	200	4*50
	225	9*25
	250	5*50
	300	6*50
APCR03 - Slaves	200	4*50
	250	5*50
	300	6*50

<sup>1</sup> At 415V with 12.5% reactor, output power has to be derated by 7.5% (e.g.: max power is 300 x 92,5% = 278 kvar).

For other rating, please consult us.

## De-tuned range

### 380V and 480V 60Hz - Polluted network

6% - 12.5% <sup>2</sup> reactors	Power (kvar)	Regulation (x*kvar)
APCR03 - Masters	100	4*25
	125	5*25
	150	6*25
	150	3*50
	175	7*25
	200	8*25
	200	4*50
	225	9*25
	250	5*50
	300	6*50
APCR03 - Slaves	200	4*50
	250	5*50
	300	6*50

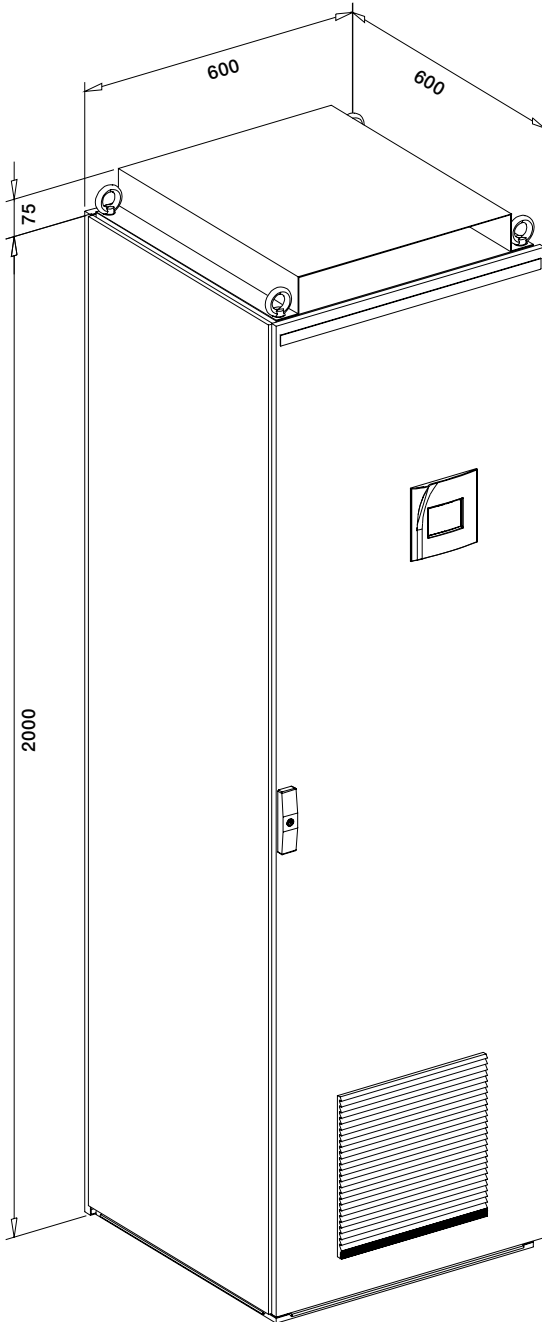
<sup>2</sup> At 480V with 12.5% reactor, output power has to be derated by 33% (e.g.: max power is 300 x 66% = 200 kvar).

# Technical specifications

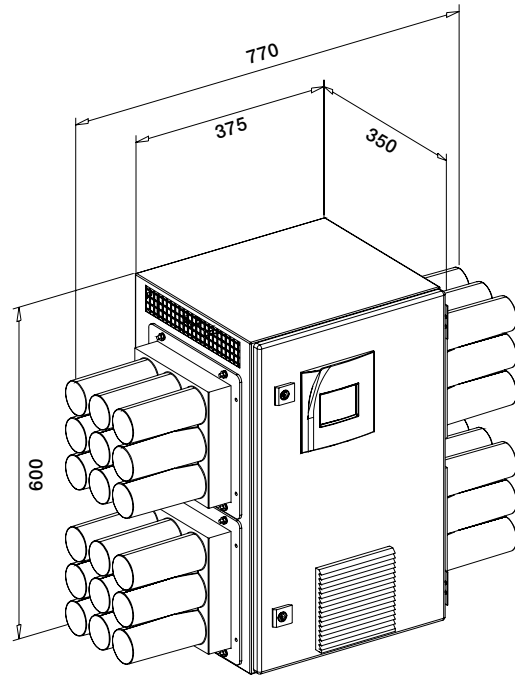
<b>Voltage range</b>	400V and 415V at 50Hz 380V and 480V at 60Hz For other voltages, please consult us
<b>Working ambient temperature</b>	-5°C (23°F)/+40°C (104°F) according to EN 61921
<b>Installation</b>	- APCL03: wall mounting, bottom cable entry - APCM03 and APCR03 cubicles: free floor standing, bottom cable entry (top cable entry optional)
<b>Connection</b>	Three-phase, balanced network
<b>Protection</b>	- APCM03 and APCR03: IP23 (closed door) - APCL03: IP21 (closed door) - Protected against direct and accidental contact (open door).
<b>Execution</b>	Indoor
<b>Color</b>	Beige RAL 7035
<b>Ventilation</b>	Air forced cooling
<b>Power factor setting</b>	From 0.7 inductive to 0.7 capacitive
<b>Starting current setting (C/k)</b>	From 0.01A to 3A for the RVC controller From 0.01A to 5A for the RVT controller (optional)
<b>Operation</b>	During operation, RVC (RVT) controller displays: - the number of active outputs - the inductive or capacitive power factor - the alarm conditions; target $\cos \phi$ , over/undervoltage, THDV, overtemperature - the demand for switching on/off a capacitor step
<b>Losses at 400V 50 Hz</b>	- Without reactors: less than 1.5 Watt/kvar - With reactors: less than 5.5 Watt/kvar
<b>Capacitors CLMD03 type</b>	- Dry type self healing according to IEC 60831-1&2 - Dielectric: 2.15 $U_n$ between terminals during 10 sec at rated frequency - Acceptable overvoltage: +10% max. intermittently - Acceptable overcurrent: +30% permanently - Temperature range: -25°C (-13°F)/ class D according to IEC 60831-1&2
<b>Reactors (APCR03 only)</b>	- Dry type resin embedded according to IEC 289, IEC 76 - Maximum harmonic pollution: 8% THDV with specific spectrum
<b>Standards</b>	EN 61921 CE marked
<b>Options</b>	RVT controller Top cable entry (for APCM03 and APCR03 only) Circuit breaker Temperature probe (with RVT only) Auxiliary transformer Base frame: 100 or 200 mm

# Dimensions

Type	H (mm)	W (mm)	D (mm)	Weight
APCL03	600	770	350	Maximum 65 kg
APCM03	2075	600	600	Maximum 280 kg
APCR03	2075	600	600	Maximum 465 kg



APCR03 and APCM03



APCL03

# Contact us

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