The most comprehensive solution for automatic power factor correction

Power Quality Products | Brochure

Low voltage capacitor banks

Series 100, 300, 500, 700, 300R and 500R

Series	Max. Stages	Max. kvar/Step	Max. kvar	Voltage	Dimension (inches)	Enclosure type	Aprox. Weight	Cable entry
100	3	15	45	480 / 600	24 x 20 x 10	1, 12, 3R	90 lb	Top
300	3	50	150	480 / 600	36 x 30 x 16	1, 12, 3R	200 lb	Top / Side
500	5	50	250	480 / 600	60 x 36 x 16	1, 12, 3R	300 lb	Top / Side
700	5	100	500	480 / 600	72 x 42 x 20	1, 12, 3R	500 lb	Top / Side
300R	3	50	150	480 / 600	60 x 36 x 16	1, 12, 3R	400 lb	Top / Side
500R	5	50	250	480 / 600	72 x 42 x 20	1, 12, 3R	650 lb	Top / Side

Powerful and compact

Easy installation and operation

High reliability and security

CLM3 and CLMR capacitor banks series

More Modularity and Ease of Configuration

CLM3 - Automatic capacitor bank

Possible configurations:

- 4-5-6-7-8 steps of single units
- Main protection can be added to the bank on request.
- Maximum step size is 100 kvar @ 480V / 600V

Technical specification:

- Maximum kvar size 1200 kvar @ 480V / 600V
- Dimensions: depends on the size
  - 4 steps (90‘‘H x 38‘‘W x 20‘‘D)
  - 5 steps (90‘‘H x 50‘‘W x 20‘‘D)
  - 6 steps (90‘‘H x 62‘‘W x 20‘‘D)
  - 7/8 steps (90‘‘H x 74‘‘W x 20‘‘D)
- Weight: depend on bank configuration
- Cable entry: top, bottom or side
- Up 12 steps configuration with slave unit

CLMR - Detuned capacitor bank (with reactors)

Possible configurations:

- 3-4-5-6 steps
- Main protection can be added to the bank on request.
- Maximum step size is 100 kvar @ 480V / 600V

Technical specification:

- Maximum kvar size 1200 kvar @ 480V / 600V
- Dimensions: depends on the size
  - 3 steps (90‘‘H x 38‘‘W x 20‘‘D)
  - 4 steps (90‘‘H x 50‘‘W x 20‘‘D)
  - 5 steps (90‘‘H x 62‘‘W x 20‘‘D)
  - 6 steps (90‘‘H x 74‘‘W x 20‘‘D))
- Weight: depend on bank configuration
- Cable entry: top, bottom or side
- Up 12 steps configuration with slave unit

Automatic capacitor banks

Components: Capacitors

capacitors: CLMD

The dielectric of the capacitor windings is made of in-house metallized polypropylene film resulting in exceptional properties:

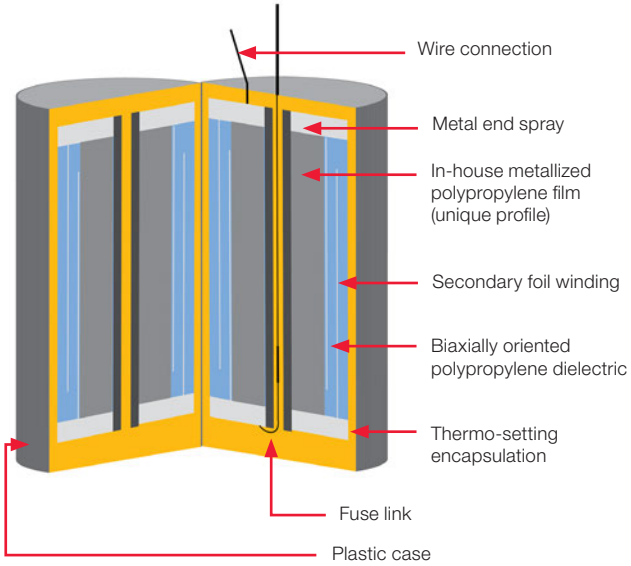
- High voltage withstand capability
- Excellent peak current handling capacity
- High capacitance stability
- Long life, even under high electrical stress
- Very low losses
- Exceptional self-healing properties
- Fire protection

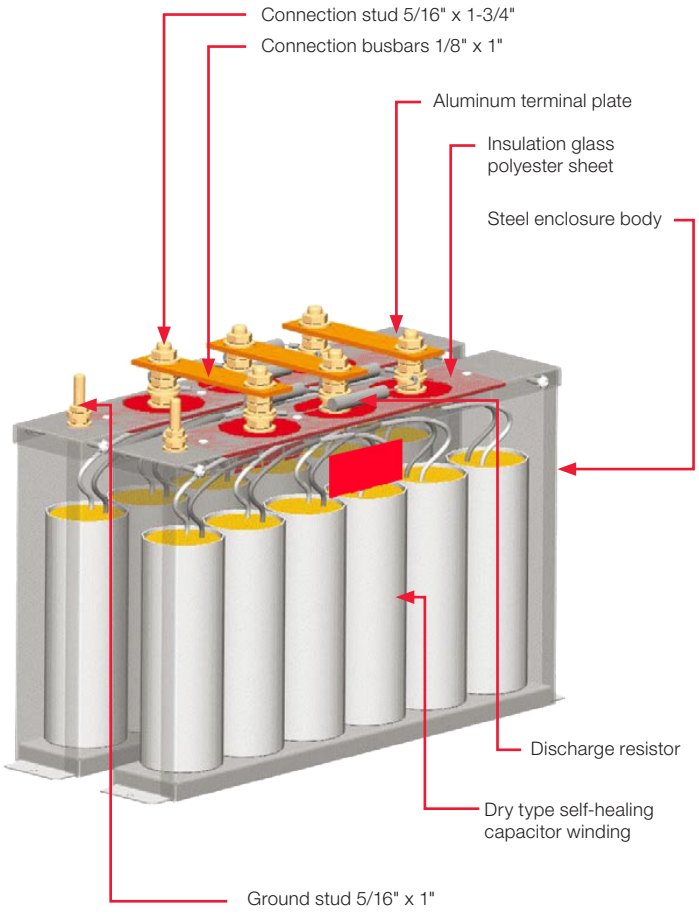
CLMD33C capacitors, utilized in series 300 to 700 bank, come with a unique voltage rating suitable for all voltage networks

The CLMD33C protection system offers reliable and safe protection. It is based on:

- The instant reaction of state of the art overpressure detection and disconnection devices.
- Double casing insulation protects the windings from the environment and assures high capacitance stability over the whole capacitor service life.

The CLMD33C is suitable for a maximum ambient temperature of +55°C (class D) and a minimum of -25°C.
The ISO 9001 and 14001 certification guarantees our commitment to the environment.





Automatic capacitor banks

Components: Power factor controller

RVT, for maximum protection of your capacitor bank against temporary deterioration of network quality

Features of RVT power factor controller

- Programmable protection thresholds (under voltage, over temperature, excessive harmonic distortion, etc…). RVT is recommended for installation where over voltage, resonance or over temperature occurs
- Guided navigation and programming
- Network information and bank monitoring (voltage, current, harmonic spectrum, etc...).
- Optional RS-485 Modbus adapter allowing communication with a monitoring system. All RVT parameters are remotely accessible (including harmonic spectra and tables)
- Multi-language support
- Help button giving instant access to a description of all RVT features and functionality
- Optional printer connection
- Input contacts for day/night power factor correction (cos φ) and external alarm
- Output contacts for alarm and fan relays (For further information on the RVT controller, please refer to the technical spec of the RVT controller)
- Backlit

LCD display with indication of:
- Full graphics display
- Inductive/Capacitive Power Factor
- Active outputs
- Demand for switching on/off of a capacitor step
- Alarm conditions
- Overtemperature condition
- Phase shift
- C/k
- Number of outputs
- Type of switching sequence
- Alarm conditions

Keypad with auto/manual mode, enabling easy commissioning with automatic recognition of:
- Special connections (Single-phase, CT leads)
- Number of outputs
- Number of outputs
- Type of switching sequence
- Alarm conditions

Modbus adapter

Automatic capacitor banks

Components: Reactors and other items

Reactors (for series ...R execution)

The dry type resin embedded reactors are specially designed to suit the reactive power compensation application. Their exceptional linearity and thermal stress resistance characteristics ensure a high reliability degree even in case of temporary overvoltage.

Contactors*

Contactors for automatic capacitor banks are specially selected for their excellent handling capability during endurance tests.

A key feature of the contactors is a special configuration (e.g. a front-mounted contact block) ensuring the serial insertion into the circuit of damping resistors limiting current peak on energizing of the capacitor bank. This connection also ensures capacitor pre-charging in order to limit the second current peak occurring on closing of the main poles a few milliseconds later.

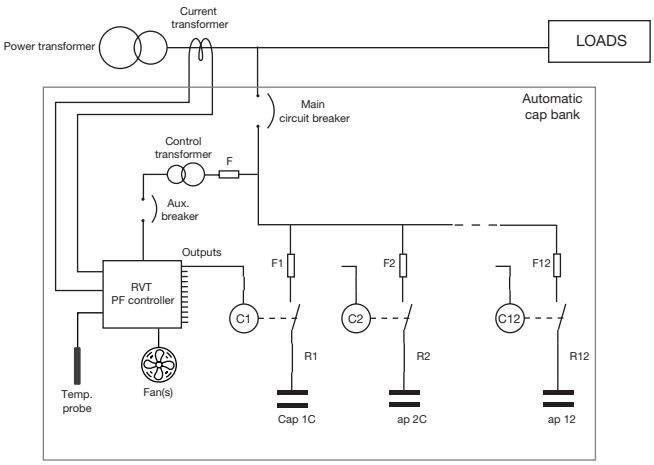
Ventillation

Except for series 100 systems, all capacitor bank are equipped with a ventilation system specially selected for their duration longevity. The capacitor bank ventilation system consists of fans with temperature-dependent probes which provide the fans with the necessary thermal data. In case of temporary overheating, the capacitor bank is automatically deactivated.

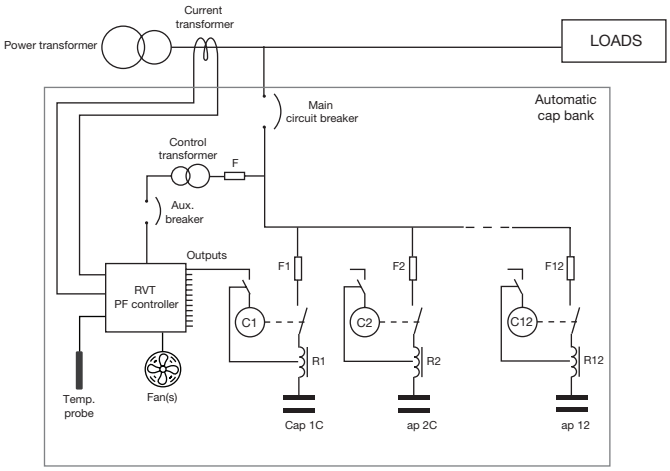
Other options

- Main circuit-breaker.
- Main disconnect switch.
- Main fusible disconnect switch.
- Main fusible disconnect switch with blown fuse indicators.
- Indicating lights; blown fuse indicators, state indicators, etc…
- Metering devices; ammeter, voltmeter, etc…
- Protection types; type 12, type 3R, dripshield, etc…
- Enclosure mounting brackets and legs.

Standard capacitor banks



Detuned / Tuned capacitor banks



Automatic capacitor banks: Part number configuration

B 03 G - 60 0100 B 2 1 - 1 0 0

Bank type
B = Automatic bank
A = Auxiliary bank (optional)
F = Fixed bank (optional)
S = Semi-automatic bank (optional)

Enclosure model
01 = Series 100 (24"H x 20"W x 12"D), up to 3 steps
03 = Series 300 (36"H x 30"W x 16"D), up to 3-5 steps
05 = Series 500 (60"H x 36"W x 16"D), up to 5 steps
07 = Series 700 (72"H x 42"W x 20"D), up to 5 steps
R3 = Series 300R (60"H x 36"W x 16"D), up to 3 steps
R5 = Series 500R (72"H x 42"W x 20"D), up to 5 steps
MA = CLM3 (90"H x 38"W x 20"D), up to 4 steps
MB = CLM3 (90"H x 50"W x 20"D), up to 5 steps
MC = CLM3 (90"H x 62"W x 20"D), up to 6 steps
MD = CLM3 (90"H x 74"W x 20"D), up to 8 steps
RA = CLMR (90"H x 38"W x 20"D), up to 3 steps
RB = CLMR (90"H x 50"W x 20"D), up to 4 steps
RC = CLMR (90"H x 62"W x 20"D), up to 5 steps
RD = CLMR (90"H x 74"W x 20"D), up to 6 steps
RE = CLMR (42"H x 24"W x 20"D), 1 step only
RF = CLMR (54"H x 36"W x 20"D), up to 2 step
XX = Multiple enclosures individual incoming (Optional)
YY = Multiple enclosures single incoming (Optional)

Enclosure type
G = Type 1
D = Type 12
R = Type 3R (Optional)

Network voltage
20 = 208 Volts (Optional)
22 = 220 Volts (Optional)
24 = 240 Volts (Optional)
48 = 480 Volts
60 = 600 Volts

kvar rating
0010 = 10 kvar
0100 = 100 kvar
0200 = 200 kvar
0300 = 300 kvar
0400 = 400 kvar
0500 = 500 kvar
0700 = 700 kvar
0800 = 800 kvar
0900 = 900 kvar (Optional)
1000 = 1000 kvar (Optional)
1200 = 1200 kvar (Optional)

Main incoming
B = Busbars or splitter
N = Non-fusible disc. switch
F = Fusible disconnect switch (Fuse not included)
C = Circuit breaker

No. of steps
2 = 2 Steps
3 = 3 Steps
4 = 4 Steps
5 = 5 Steps
6 = 6 Steps
7 = 7 Steps
8 = 8 Steps
9 = 9 Steps
A = 10 Steps
B = 11 Steps
C = 12 Steps

Future steps
0 = 0 Step
1 = 1 Step
2 = 2 Steps
3 = 3 Steps
4 = 4 Steps
5 = 5 Steps
6 = 6 Steps
7 = 7 Steps
8 = 8 Steps
9 = 9 Steps
A = 10 Steps

Switching sequence
0 = No switching, for Fixed Banks
1 = 1:1:1:1:1:...:1
2 = 1:2:2:2:2:...:2
3 = 1:2:4:4:4:...:4 (Optional)
4 = 1:2:4:8:8:...:8 (Optional)
5 = 1:1:2:2:2:...:2 (Optional)
6 = 1:1:2:4:4:...:4 (Optional)
7 = 1:1:2:4:8:...:8 (Optional)
8 = 1:2:3:3:3:...:3 (Optional)
9 = 1:2:3:6:6:...:6 (Optional)
A = 1:1:2:3:3:...:3 (Optional)
B = 1:1:2:3:6:...:6 (Optional)

Frequency
0 = No Reactor at 60Hz
1 = 170 Hz (Optional)
2 = 227 Hz
3 = 245 Hz (Optional)
4 = 252 Hz (Optional)
5 = 282 Hz (Optional)
6 = 190 Hz at 50 Hz (Optional)
A = No Reactor at 50 Hz (Optional)

Options
0 / A = No options
1 / B = BFIs (Optional)
2 / C = State indicators (Optional)
3 / D = BFI's & State indicators (Optional)
4 / E = Reactor "Overheat" indicators (Optional)
5 / F = Pilot light "Power On" (Optional)
6 / G = Options 1, 4 & 5 (Optional)
7 / H = Push to test "BFI" (Optional)
8 / I = Over Voltage relay "OVR" (Optional)
9 / J = To be determined (Optional)

LV capacitor banks: Standard assemblies

Series 100, 300, 500, 700

Series 100

480 V

Total kvar	Part number	Steps x kvar	Main protection (A)
15	B01G-480015B30-100	3 x 5	100
20	B01G-480020B30-500	1 x 10 + 2 x 5	100
25	B01G-480025B30-200	2 x 10 + 1 x 5	100
30	B01G-480030B30-100	3 x 10	100
45	B01G-480045B30-100	3 x 15	100

600 V

Total kvar	Part number	Steps x kvar	Main protection (A)
15	B01G-600015B30-100	3 x 5	100
20	B01G-600020B30-150	1 x 10 + 2 x 5	100
25	B01G-600025B30-120	2 x 10 + 1 x 5	100
30	B01G-600030B30-100	3 x 10	100
45	B01G-600045B30-100	3 x 15	100

Series 300

480 V

Total kvar	Part number	Steps x kvar	Main protection (A)
60	B03G-480060B30-100	3 x 20	150
75	B03G-480075B30-100	3 x 25	150
90	B03G-480090B30-100	3 x 30	200
100	B03G-480100B30-500	1 x 50 + 2 x 25	200
120	B03G-480120B30-100	3 x 40	225
135	B03G-480135B30-100	3 x 45	250
150	B03G-480150B30-100	3 x 50	400

600 V

Total kvar	Part number	Steps x kvar	Main protection (A)
60	B03G-600060B30-100	3 x 20	100
75	B03G-600075B30-100	3 x 25	150
90	B03G-600090B30-100	3 x 30	150
100	B03G-600100B30-500	1 x 50 + 2 x 25	150
120	B03G-600120B30-100	3 x 40	200
135	B03G-600135B30-100	3 x 45	200
150	B03G-600150B30-100	3 x 50	225

Series 500

480 V

Total kvar	Part number	Steps x kvar	Main protection (A)
175	B05G-480175B30-300	1x100+1x50 +1x25	400
200	B05G-480200B40-100	4 x 50	400
200	B05G-480200B30-500	1 x 100 + 2 x 50	400
225	B05G-480225B50-200	4 x 50 + 1 x 25	600
250	B05G-480250B30-200	2 x 100 + 1 x 50	600
250	B05G-480250B50-100	5 x 50	600

600 V

Total kvar	Part number	Steps x kvar	Main protection (A)
175	B05G-600175B30-300	1x100+1x50 +1x25	250
200	B05G-600200B40-100	4 x 50	400
200	B05G-600200B30-500	1 x 100 + 2 x 50	400
225	B05G-600225B50-200	4 x 50 + 1 x 25	400
250	B05G-600250B30-200	2 x 100 + 1 x 50	400
250	B05G-600250B50-100	5 x 50	400
300	BR5G-600300B60-100	6 x 50	600

Series 700

480 V

Total kvar	Part number	Steps x kvar	Main protection (A)
275	B07G-480275B60-300	5 x 50 + 1 x 25	600
300	B07G-480300B60-100	6 x 50	600
350	B07G-480350B40-500	3 x 100 + 1 x 50	800
400	B07G-480400B40-200	4 x 100	800
450	B07G-480450B50-200	4 x 100 + 1 x 50	800
500	B07G-480500B50-100	5 x 100	1000

600 V

Total kvar	Part number	Steps x kvar	Main protection (A)
275	B07G-600275B60-300	5 x 50 + 1 x 25	400
300	B07G-600300B60-100	6 x 50	600
350	B07G-600350B40-500	3 x 100 + 1 x 50	600
400	B07G-600400B40-200	4 x 100	600
450	B07G-600450B50-200	4 x 100 + 1 x 50	800
500	B07G-600500B50-100	5 x 100	800

LV capacitor banks: Standard assemblies

Series 300R and 500R

Series 300R

480 V

Total kvar	Part number	Steps x kvar	Main protection (A)
60	BR3G-480060B30-120	3 x 20	150
75	BR3G-480075B30-120	3 x 25	150
100	BR3G-480100B30-520	1 x 50 + 2 x 25	200
125	BR3G-480125B30-220	2 x 50 + 1 x 25	250
150	BR3G-480150B30-120	3 x 50	400

600 V

Total kvar	Part number	Steps x kvar	Main protection (A)
60	BR3G-600060B30-120	3 x 20	100
75	BR3G-600075B30-120	3 x 25	150
100	BR3G-600100B30-520	1 x 50 + 2 x 25	150
125	BR3G-600125B30-220	2 x 50 + 1 x 25	200
150	BR3G-600150B30-120	3 x 50	225

Series 500R

480 V

Total kvar	Part number	Steps x kvar	Main protection (A)
175	BR5G-480175B30-320	1x100+1x50 +1x25	400
200	BR5G-480200B40-120	4 x 50	400
225	BR5G-480225B50-220	4 x 50 + 1 x 25	600
250	BR5G-480250B50-120	5 x 50	600
300	BR5G-480300B60-120	6 x 50	600

600 V

Total kvar	Part number	Steps x kvar	Main protection (A)
175	BR5G-600175B30-320	1x100+1x50 +1x25	250
200	BR5G-600200B40-120	4 x 50	400
225	BR5G-600225B50-220	4 x 50 + 1 x 25	400
250	BR5G-600250B50-120	5 x 50	600
300	BR5G-600300B60-120	6 x 50	600

- Main Lugs are provided with each assemblies and main protection may be added as an option.
- Disconnect switches, fusible disconnect switches or molded case circuit breakers may be added as a main protection. Selection table on following page.
- Type 12 and 3R are available options upon request.
- Additional sizes, ratings, or options are available upon request.

LV capacitor banks: Components

Standard selection for main incoming splitter blocks

480 V

Max. kvar	Capacitor bank type	Incoming lugs
45	Series 100	1 x (#6AWG - #350MCM)
150	Series 300	2 x (#4AWG - #500MCM)
250	Series 500	2 x (4AWG - #500MCM)
500	Series 700	2 x (#4AWG - #500MCM)
600	CLM3 / CLMR	4 x (#4AWG - #500MCM)
> 600	CLM3 / CLMR	4 x (#4AWG - #500MCM)

600 V

Max. kvar	Capacitor bank type	Incoming lugs
45	Series 100	1 x (#6AWG - #350MCM)
150	Series 300	2 x (#4AWG - #500MCM)
250	Series 500	2 x (4AWG - #500MCM)
500	Series 700	2 x (#4AWG - #500MCM)
600	CLM3 / CLMR	4 x (#4AWG - #500MCM)
> 600	CLM3 / CLMR	4 x (#4AWG - #500MCM)

Standard selection / recommendation for main disconnect switches

480 V

Total max. kvar	Current rating (Amp.)	Incoming lugs
50	100	1 x (#8AWG - #1/0AWG)
110	200	1 x (#4AWG - #300MCM)
220	400	1 x (#2AWG - #600MCM)
330	600	2 x (#2AWG - #600MCM)
440	800	4 x (#2AWG - #600MCM)
660	1200	4 x (#2AWG - #600MCM)
880	1600	6 x (#1/0AWG - #750MCM)
1100	2000	6 x (#1/0AWG - #750MCM)

600 V

Total max. kvar	Current rating (Amp.)	Incoming lugs
60	100	1 x (#8AWG - #1/0AWG)
135	200	1 x (#4AWG - #300MCM)
275	400	1 x (#2AWG - #600MCM)
415	600	2 x (#2AWG - #600MCM)
550	800	4 x (#2AWG - #600MCM)
830	1200	4 x (#2AWG - #600MCM)
N/A	1600	6 x (#1/0AWG - #750MCM)
N/A	2000	6 x (#1/0AWG - #750MCM)

Standard selection / recommendation for fusible disconnect switches

480 V

Total max. kvar	Current rating (Amp.)	Incoming lugs
50	100	1 x (#8AWG - #1/0AWG)
110	200	1 x (#4AWG - #300MCM)
220	400	1 x (#2AWG - #600MCM)
330	600	2 x (#2AWG - #600MCM)
440	800	4 x (#2AWG - #600MCM)
660	1200	4 x (#2AWG - #600MCM)
880	1600	6 x (#1/0AWG - #750MCM)
1100	2000	6 x (#1/0AWG - #750MCM)

600 V

Total max. kvar	Current rating (Amp.)	Incoming lugs
60	100	1 x (#8AWG - #1/0AWG)
135	200	1 x (#4AWG - #300MCM)
275	400	1 x (#2AWG - #600MCM)
415	600	2 x (#2AWG - #600MCM)
550	800	4 x (#2AWG - #600MCM)
830	1200	4 x (#2AWG - #600MCM)
N/A	1600	6 x (#1/0AWG - #750MCM)
N/A	2000	6 x (#1/0AWG - #750MCM)

Standard selection / recommendation for main circuit breakers

480 V

Total max. kvar	Current rating (Amp.)	Incoming lugs
55	100	1 x (#14AWG - #1/0AWG)
110	200	1 x (#6WG - #350MCM)
220	400	2 x (#3/0AWG - #250MCM)
330	600	2 x (#250MCM - #500MCM)
440	800	3 x (#2/0AWG - #400MCM)
660	1000	4 x (#4/0AWG - #500MCM)
880	1200	4 x (#4/0AWG - #500MCM)

600 V

Total max. kvar	Current rating (Amp.)	Incoming lugs
60	100	1 x (#14AWG - #1/0AWG)
135	200	1 x (#6WG - #350MCM)
275	400	2 x (#3/0AWG - #250MCM)
415	600	2 x (#250MCM - #500MCM)
550	800	3 x (#2/0AWG - #400MCM)
690	1000	4 x (#4/0AWG - #500MCM)
830	1200	4 x (#4/0AWG - #500MCM)

LV capacitor banks

Technical specifications

Nominal voltage and frequency: 208 up to 600V – 60Hz (standard range)

Connection: Three phase.

Configuration:
- Series 100, 300, 500, 700, 300R, 500R, CLM3 and CLMR: master unit only.
- Series 100, 300, 500, 700, 300R, 500R, CLM3 and CLMR: auxiliary unit only.

(Auxiliary units are not equipped with PF controller but are fitted with interconnection wires to the master unit.)

Power factor setting:
From 0.7 inductive to 0.7 capacitive.
Starting current setting (C/k): From 0.01 A to 5 A for the RVT

Operation: Automatic or manual setting of the controller with indication of:
- The number of active outputs.
- The inductive or capacitive power factor.
- Alarm conditions.
- Overtemperature.
- Demand for switching on/off of a capacitor step.
- Overvoltage and undervoltage protection.

Losses:
- Dielectric losses: less than 0.2 Watt/kvar.
- Capacitor total losses: less than 0.5 Watt/kvar (discharge resistors included).

Automatic bank total losses:
- without reactors: less than 1.5 Watt/kvar (including losses
- from all accessories),
- with reactors: less than 5.5 Watt/kvar (including accessories losses).

Capacitors:
Dry type, self-healing, according to EN 60831-1&2.
Voltage test: 2.15 times Un (Un = Line to line) between terminals for a duration of 10 s. at the rated frequency (above EN 60831-1&2).
Acceptable overloads:
- Overvoltage tolerance: 10% max. Intermittently.
- Overcurrent tolerance: 30% permanently.

Temperature range: -25°C / class D according to IEC 60831-1&2.

Compliance: CSA C22.2.C190, UL/cUL 508A

Automatic capacitor bank tests: Insulation test, Functional test.

Protection: Type 1, Type 12 (optional), Type 3R (optional)

Color: Gray ASA61

Ambient temperature: -10°C/+40°C

Ventilation:
Forced for series 300, 500, 700, 300R, 500R, CLM3 and CLMR

Dimensions:
- Series 100: 24”H x 20”W x 12”D (609mm x 508mm x 304m)
- Series 300: 36”H x 30”W x 16”D (915mm x 762mm x 406mm)
- Series 500 and 300R: 60”H x 36”W x 16”D (1524mm x 915mm x 406mm)
- Series 700 and 500R: 72”H x 42”W x 20”D (1828mm x 1066mm x 508mm)
- Series CLM3:
  - 4 Steps: 90‘‘H x 38‘‘W x 20‘‘D (2286mm x 965mm x 508mm)
  - 5 Steps: 90‘‘H x 50‘‘W x 20‘‘D (2286mm x 1270mm x 508mm)
  - 6 Steps: 90‘‘H x 62‘‘W x 20‘‘D (2286mm x 1575mm x 508mm)
  - 8 Steps: 90‘‘H x 74‘‘W x 20‘‘D (2286mm x 1880mm x 508mm)
- Series CLMR:
  - 3 Steps: 90‘‘H x 38‘‘W x 20‘‘D (2286mm x 965mm x 508mm)
  - 4 Steps: 90‘‘H x 50‘‘W x 20‘‘D (2286mm x 1270mm x 508mm)
  - 5 Steps: 90‘‘H x 62‘‘W x 20‘‘D (2286mm x 1575mm x 508mm)
  - 6 Steps: 90‘‘H x 74‘‘W x 20‘‘D (2286mm x 1880mm x 508mm)

Weight (approx.):
- Series 100, 90lbs (45kg)
- Series 300, 200lbs (90kg), series 300R, 380lbs (172kg)
- Series 500, 300lbs (137kg), series 500R, 600lbs (272kg)
- Series 700, 500lbs (227kg)
- Series CLM3, depend on bank configuration.
- Series CLMR, depend on bank configuration

Installation:
Series 100, 300, 500 and 300R;
- Wall mounting (fixation brackets optional).
- Top or side cable entry.

Series 700, 500R, CLM3 and CLMR;
- Modular free-standing cubicle.
- Floor fixation.
- Lifting eye-bolts provided.
- Top or side cable entry.