

# LV Capacitor CLMD03

## Reliability for Power Factor Correction

The CLMD03 extends the ABB's LV capacitor CLMD family. It is built on the well proven technology of ABB's capacitor elements in an innovative case offering high performance in a small volume.

### Powerful & well ventilated

The CLMD03 capacitor unit is made of 9 capacitor elements housed in an innovative aluminum case. The material used for this case and its special shape enhance the ventilation and the heat dissipation allowing as much as 50kvar in a single case.

### Versatile & compact

The CLMD03 is available in two executions: one single capacitor unit or two capacitor units within the same case. In the double-capacitor case execution the power is distributed over two sets of 3-phase terminals in order to achieve respectively 1/3 and 2/3 of the total power.



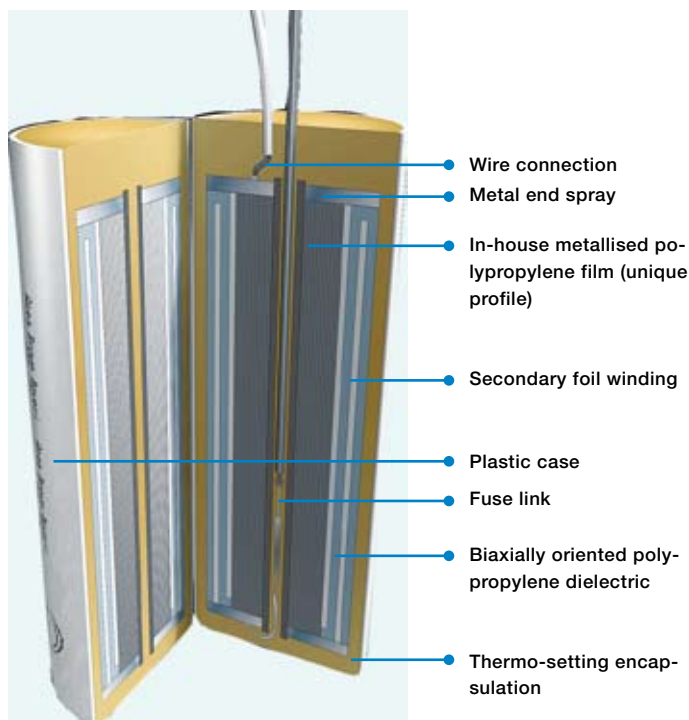
### Environment-friendly

LV capacitors dedicated to PF improvement aim to bring energy savings. The CLMD03 capacitor unit goes one step forward: thanks to its dry-type technology preventing from toxic oil leakage and the use of natural components like the vermiculite as well as its recyclable aluminum case the CLMD03 fully aligns on the ABB's worldwide program for higher electrical power efficiency with lower environmental impact.



### Safe & reliable

The ABB capacitor elements also called *Internally Protected Elements (IPE)* are wound with a dielectric made from an in-house metallized polypropylene film. A unique and sequential protection system insures a safe disconnection of each individual element at the end of its lifetime. These dry-type capacitor elements are the result of years of experience of an ABB engineering team and an A-to-Z in-house manufacturing process. In addition the CLMD03 case is filled with vermiculite, a natural and inert mineral providing high fireproof and energy absorption capabilities.





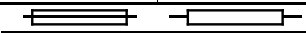

# Range

U network [V]	Detuned reactor [%] <sup>(1)</sup>	50kvar			37.5kvar (25+12.5kvar)			
		Single-capacitor case			Double-capacitor case			
		Reference number	Q [kvar] <sup>(2)</sup>	Uc,n[V]	Reference number	Q1 [kvar] <sup>(2)</sup>	Q2 [kvar] <sup>(2)</sup>	Uc,n[V]
<b>50 Hz network</b>								
400	-	2GCA291615A0030	50.2	400	2GCA291634A0030	25.0	12.5	400
	5.67%	2GCA291621A0030	54.2	430	2GCA291634A0030	27.9	13.4	430
	7.00%	2GCA291621A0030	54.2	430	2GCA291634A0030	27.9	13.4	430
	12.50%	2GCA291617A0030	56.7	457	2GCA291636A0030	27.9	15.2	457
415	-	2GCA291621A0030	54.2	430	2GCA291631A0030	25.0	12.5	415
	5.67%	2GCA291617A0030	56.7	457	2GCA291636A0030	27.9	15.2	457
	7.00%	2GCA291617A0030	56.7	457	2GCA291636A0030	27.9	15.2	457
440	-	2GCA291616A0030	50.2	440	2GCA291635A0030	25.8	11.8	440
690	-	2GCA291623A0030	49.8	690	2GCA291637A0030	26.2	12.4	690
	5.67%	2GCA291618A0030	54.4	742	2GCA291632A0030	27.7	13.3	742
	7.00%	2GCA291618A0030	54.4	742	2GCA291632A0030	27.7	13.3	742
	12.50%	2GCA291619A0030	56.3	789	2GCA291633A0030	29.0	15.6	802
	14.00%	2GCA291620A0030 <sup>(3)</sup>	50.4	802	2GCA291633A0030	29.0	15.6	802
<b>60 Hz network</b>								
380	-	2GCA291621A0030	50.8	380	2GCA291634A0030	26.1	12.6	380
	6.00%	2GCA291617A0030	54.4	409	2GCA291636A0030	26.7	14.5	409
	7.00%	2GCA291617A0030	54.4	409	2GCA291636A0030	26.7	14.5	409
	12.50%	2GCA291625A0030	57.9	442	2GCA291635A0030	30.2	13.8	434
	14.00%	2GCA291625A0030	57.9	442	2GCA291639A0030	28.9	14.7	442
440	-	2GCA291624A0030	50.6	440	2GCA291638A0030	26.2	12.1	440
	6.00%	2GCA291626A0030	53.7	473	2GCA291640A0030	26.8	14.7	473
	7.00%	2GCA291626A0030	53.7	473	2GCA291640A0030	26.8	14.7	473
480	-	2GCA291627A0030	50.4	480	2GCA291641A0030	25.0	12.5	480
	6.00%	2GCA291628A0030	52.4	516	2GCA291642A0030	27.8	13.3	516
	7.00%	2GCA291628A0030	52.4	516	2GCA291642A0030	27.8	13.3	516
600	7.00%	2GCA291623A0030	52.3	645	2GCA291637A0030	27.5	13.0	645
	12.50%	2GCA291629A0030	59.1	698	2GCA291643A0030	29.4	15.2	698
	14.00%	2GCA291629A0030	59.1	698	2GCA291643A0030	29.4	15.2	698

## Notes:

- (1) Reactors are not provided.
- (2) Q [kvar] is the exact rated power of the CLMD03 at its nominal voltage Uc,n.
- (3) The net output power of this CLMD03 case and its 14% reactor is limited to 43kvar.

The CLMD03 nameplate includes data about the possible working conditions whether with<sup>(1)</sup> or without<sup>(2)</sup> the use of reactors.

 				ART. Nr: 2GCA291621A0030
				Type: CAP F5/6 V430/380 Q54.2/50.8 S1 CLMD03
				<b>Warning :</b>
				After disconnecting from supply, wait 2 min. and check the absence of residual voltage before handling the parts
1 <sup>st</sup> option <sup>(1)</sup> →	400	50	50	5,67
2 <sup>nd</sup> option <sup>(1)</sup> →	400	50	50	7
3 <sup>rd</sup> option <sup>(2)</sup> →	415	50	50	0
4 <sup>th</sup> option <sup>(2)</sup> →	380	60	50	0
				Connection D
				IEC 60831-1 (2002) / IEC 60831-2 (1995)
Ui: 4/8kV		Cat: -25°C / D		Made in Belgium
Self-healing, dry				09-12-08

# Specification

**Voltage range:** From 380V to 690V.

**Frequency:** 50 and 60 Hz.

**Connection:** 3-phase.

**Net output power:**

- 50kvar for single-capacitor case.
- 37.5kvar (25+12.5) for double-capacitor case.

**Reactors (not supplied):**

Combinations with 5.67%, 6%, 7%, 12.5% and 14% reactors possible.

**Discharge resistors:**

Factory-installed discharge resistors sized to ensure safe discharge of the capacitor to less than 50V in 1 minute after a switch off (minimum off time: 40 seconds).

**Terminals:** M8 threaded terminals

- One set of 3-phase terminal for 50kvar units (single-capacitor case).
- Two sets of 3-phase terminals for 12.5kvar + 25kvar units (double-capacitor case).

**Earth:** Earth connection on the enclosure flange.

**Case material:** Recyclable aluminum enclosure.

**Color:** Raw aluminum.

**Fixing:**

Four slots for M6 screws (12x7mm) on the upper flange.

**Execution:** Indoor.

**Protection degree (according to IEC 60529):**

- IP00.
- IP20 with optional top cover.

**Weight:** Approx. 7.5 kg.

**Maximum ambient temperature:**

- Class D according to IEC60831.
- Highest mean over any period of 1 year: 35°C.
- Highest mean over any period of 24h: 45°C.
- Maximum: 55°C.

**Minimum ambient temperature:** -25°C.

**Minimum distance between units:**

- Flange to flange.
- 25 mm between unit and wall.

**Losses:** for 380V rated voltage and above

- 0.2 W/kvar (capacitor without discharge resistors).
- 0.5 W/kvar (total including discharge resistors).

**Tolerance on capacitance:** 0 % + 10 %.

**Voltage test (according to IEC 60831):**

- Between terminals:  $2.15 \times U_n$  for 10 seconds.
- Between terminals and earth:
  - 3kV for 10 sec:  $U_n \leq 500V$ .
  - 4kV for 10 sec:  $U_n > 500V$ .

**Overload capability (according to IEC 60831):**

- Overvoltage tolerance: 10% for maximum 8h in every 24h and 30% for maximum 1min.
- Maximum permissible current:  $1.3 \times I_n$  for continuous operation.

**Altitude:** Up to 1000m.

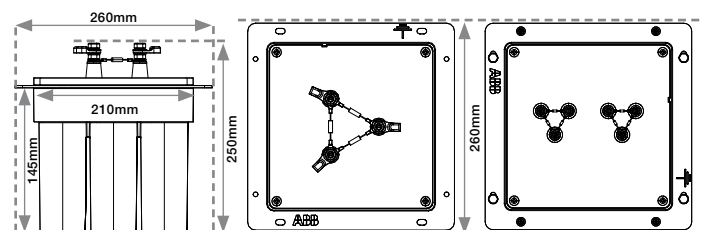
**Compliance:**

- IEC 60831 part 1 & 2.
- CE marked.

**Accessory:** Optional top cover.

**Dimensions:** Square flange with a side length of 260mm.

**Height (IP00):** 250 mm (including terminals).



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