

Power^{IT} LV Capacitor CLMD

Reliability for Power Factor Correction



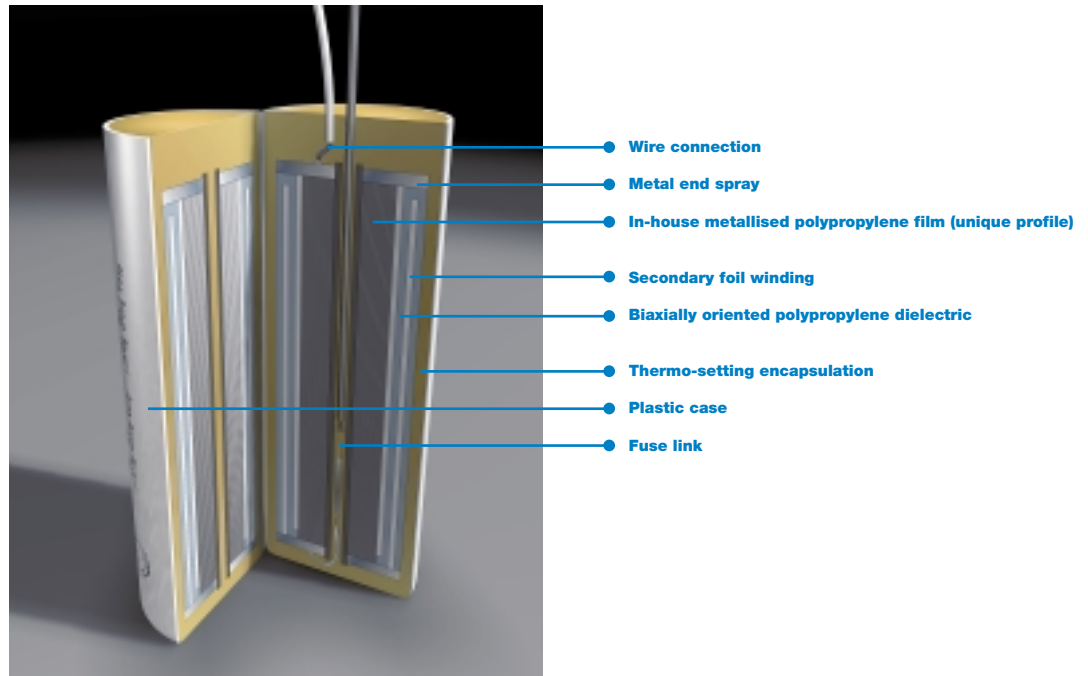
Industrial^{IT}
enabled™



CLMD: reliability for power factor correction

CLMD construction

- The CLMD capacitor consists of a number of wound elements made with a dielectric of metallized polypropylene film. These dry windings are provided with a sequential disconnecter ensuring that each element can be reliably and selectively disconnected from the circuit at the end of its life.
- The capacitor elements receive a treatment under vacuum in order to ensure perfect electrical characteristics. Each winding is placed in a plastic case and encapsulated in thermo-setting resin in order to obtain a perfectly sealed element.
- The elements are placed inside a sheet steel box and connected in such a way as to supply the single or three-phase power at the required voltage and frequency.
- The sheet steel box is filled with inorganic, inert and fire proof granules in order to absorb the energy produced or to extinguish any flames in case of a possible defect at the end of an element's life. The CLMD is also provided with thermal equalizers to ensure effective heat dissipation.



High performance in-house metallised film

ABB's completely integrated manufacturing process has resulted in the development of the special ABB high-performance film of which all ABB L.V. capacitors benefit:

- high breakdown strength
- excellent peak current handling capability
- high capacitance stability
- optimal self healing design
- long life

Reliable and safe

■ Dry type design

The CLMD has a dry type dielectric and therefore cannot give any risk of leakage or pollution of the environment.

■ Very low losses

Dielectric losses are less than 0.2 Watt per kvar. Total losses, including discharge resistors, are less than 0.5 Watt per kvar.

■ Long life - Self-healing

In the event of a fault developing in the dielectric of the capacitor, the metallized electrode adjacent to the fault is immediately vaporized, thus insulating the fault. The capacitor then continues normal operation.

■ Fire protection

All capacitor elements within the CLMD capacitor are surrounded by vermiculite which is an inorganic, inert, fire proof and non toxic granular material. In the event of any failure the vermiculite absorbs safely the energy produced within the capacitor box and extinguishes any possible flames.

■ Unique protection system

A unique Sequential Protection System ensures that each individual element can be disconnected from the circuit at the end of its life.

■ Easy to install - Light weight

The CLMD capacitor is very lightweight and therefore presents no handling difficulties during installation.

■ High reliability

The CLMD capacitor complies with the requirements of IEC 831-1 & 2. The use of robust terminals removes the risk of damage during installation and reduces maintenance requirements.

■ Security

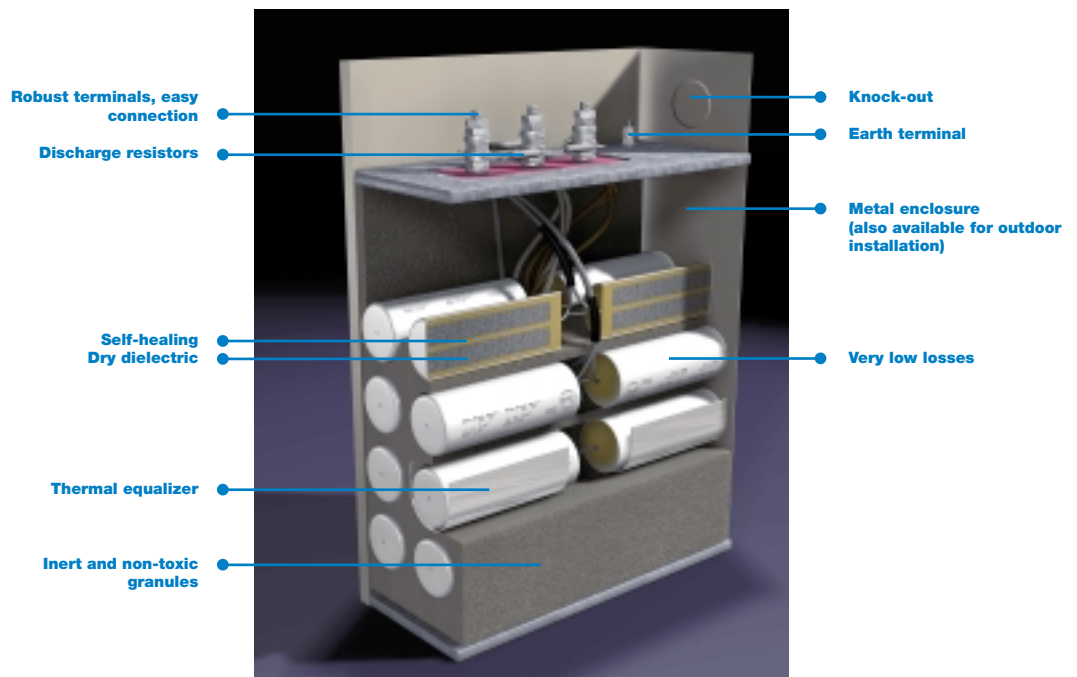
Thermal equalizers are fitted to surround each capacitor element and provide effective heat dissipation. The CLMD capacitor is equipped with discharge resistors.

■ ISO 9001

Our ISO 9001 Quality System registration provides the strongest assurance of our product quality.

■ ISO 14001

The CLMD capacitor has a dry type dielectric and is free from liquids or other impregnating agents. It has been designed for environmentally friendly manufacturing. Our ISO 14001 certification guarantees our commitment to the environment.



A comprehensive range - CLMD 43, 53, 63 & 83

The CLMD capacitor unit is designed in such a way to give the highest level of reliability, safety, performance and power all in a robust and compact fashion.



Modular - CLMD 13

The CLMD 13 is designed to make an easy parallel connection of capacitor units.

The CLMD 13 is the ideal basic unit for a modular system.



Compact - CLMD 33

The CLMD 33 is intended for use in capacitor banks.

It offers high power density and small dimensions.

Discharge resistors are not included.



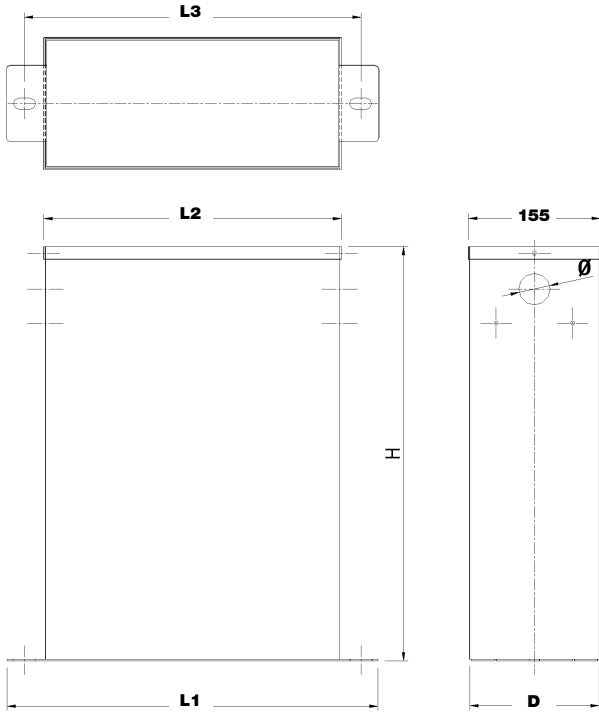
Technical specifications

Voltage range	From 220 to 1000 V.
Frequency	50 and 60 Hz.
Connection	3-phase as standard construction (single-phase on request).
Discharge resistors	Permanently connected built-in discharge resistors are sized to ensure safe discharge of the capacitor to less than 50V in 1 minute after a switch off. Discharge resistors are not included for CLMD33.
Terminals	- CLMD13 : three M6 terminals. - CLMD33 : three cable outputs. - CLMD43-53-63-83 : with threaded rods M6, 8, 10 or 12 according to the power of the capacitor.
Earth	CLMD13-33 : earth connection on the enclosure fixation. CLMD43-53-63-83 : a M8 terminal is included under the cover.
Cable input	By a knock out : CLMD13 : 22.5 mm. CLMD33-43-53 : 37 mm. CLMD63-83 : 47 mm.
Case material	Zinc electroplated mild steel.
Colour	Beige RAL 7032.
Fixing	- CLMD13 : with two slots, diameter 6.5 mm (suitable fixing for assembly in module). - CLMD33 : with eight fixation holes, diameter 5.4 mm. - CLMD43-53-63-83 : with two slots 26 X 12 mm.
Execution	Indoor (outdoor on request).
Protection	IP 42 (IP 54 on request).
Maximum ambient temperature	Class "D" (+55°C) according to IEC 831.
Minimum ambient temperature	- Indoor type: -25°C. - Outdoor type: -40°C.
Minimum distance between units	- CLMD13-33 : 20 mm. - CLMD43-53-63-83 : 50 mm.
Minimum distance between units and wall	- CLMD13-33 : 20 mm. - CLMD43-53-63-83 : 50 mm.
Losses (discharge resistors included)	< 0.5 Watt/kvar for 380 V rated voltage and above.
Tolerance on capacitance	- 5 % + 10 %.
Voltage test	- Between terminals: 2.15 Un for 10 seconds. - Between terminals and earth: 3 kV for 10 seconds.
The acceptable overloads are those specified in IEC 831-1&2	- Overvoltage tolerance: 10% max. at intervals. - Overcurrent tolerance: 30% permanently. - Maximum overload: stable operation at 135% of the nominal rating (generated by overvoltages and harmonics).

Important: the installation of capacitors on networks disturbed by harmonics may require special precautions, especially when there is a risk of resonance.

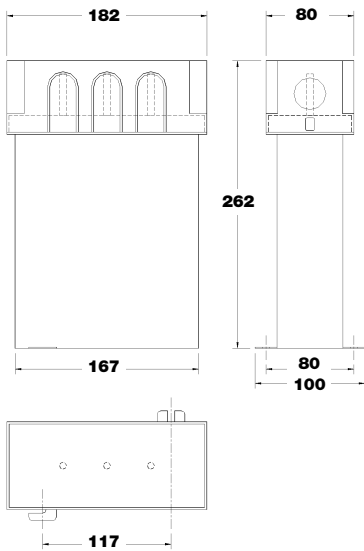
Dimensions

CLMD 43 - 53 - 63 - 83

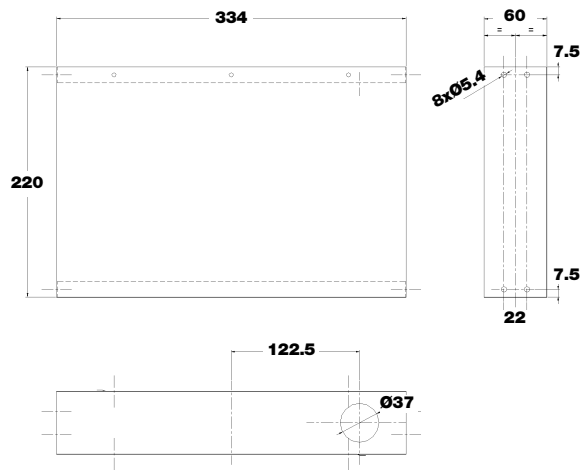


TYPE	H (mm)	L1 (mm)	L2 (mm)	L3 (mm)	D (mm)	Ø (mm)
CLMD 43	275	266	180	226	152	37
CLMD 53	310	436	350	396	152	37
CLMD 63	485	436	350	396	152	47
CLMD 83	670	436	350	396	152	47

CLMD 13



CLMD 33



**Range - 50 Hz
CLMD13, 43, 53, 63 & 83**

Voltage Frequency 50Hz	Type	Power [kvar]	Power [kvar]	
250V/230V	CLMD13	250 V 3.3	230 V 2.8	
	CLMD13	6.5	5.5	
	CLMD13	9.5	8.0	
	CLMD43	13.0	11.0	
	CLMD43	19.0	16.0	
	CLMD53	28.0	24.0	
	CLMD53	38.0	32.0	
	CLMD63	47.0	40.0	
	CLMD63	57.0	48.0	
	CLMD63	66.0	56.0	
	415V/400V	CLMD13	415 V 2.7	400 V 2.5
		CLMD13	6.0	5.5
CLMD13		7.2	6.7	
CLMD13		11.0	10.0	
CLMD13		13.5	12.5	
CLMD13		16.0	15.0	
CLMD13		18.0	16.6	
CLMD43		22.0	20.0	
CLMD43		27.0	25.0	
CLMD43		32.0	30.0	
CLMD53		37.5	35.0	
CLMD53		43.0	40.0	
CLMD53		50.0	45.0	
CLMD63		54.0	50.0	
CLMD63		65.0	60.0	
CLMD63		75.0	70.0	
CLMD63		86.0	80.0	
CLMD83		110.0	100.0	
CLMD83	130.0	120.0		
440V	CLMD13	5.0		
	CLMD13	10.0		
	CLMD13	12.0		
	CLMD13	14.0		
	CLMD43	20.0		
	CLMD43	25.0		
	CLMD53	30.0		
	CLMD53	35.0		
	CLMD53	40.0		
	CLMD53	50.0		
	CLMD63	60.0		
	CLMD63	70.0		
	CLMD63	80.0		
	CLMD83	90.0		
CLMD83	100.0			
460V	CLMD43	15.0		
	CLMD43	23.0		
	CLMD53	35.0		
	CLMD53	45.0		
	CLMD63	57.0		
	CLMD63	70.0		
	CLMD83	90.0		
CLMD83	100.0			

Voltage Frequency 50Hz	Type	Power [kvar]	Power [kvar]
525V/500V	CLMD13	525 V 10.0	500 V 9.0
	CLMD43	20.0	18.0
	CLMD43	30.0	27.0
	CLMD53	40.0	36.0
	CLMD53	50.0	45.0
	CLMD63	60.0	54.0
	CLMD63	80.0	73.0
	CLMD63	90.0	81.6
	CLMD83	100.0	91.0
	CLMD83	120.0	109.0
	550V	CLMD13	10.0
CLMD43		21.0	
CLMD53		32.0	
CLMD53		42.0	
CLMD63		53.0	
CLMD63		74.0	
CLMD63		84.0	
CLMD83		95.0	
CLMD83	105.0		
600V	CLMD13	12.5	
	CLMD43	25.0	
	CLMD53	37.5	
	CLMD53	50.0	
	CLMD63	62.0	
	CLMD63	75.0	
	CLMD63	85.0	
	CLMD83	100.0	
CLMD83	112.0		
660V	CLMD13	5.0	
	CLMD13	10.0	
	CLMD13	15.0	
	CLMD43	21.0	
	CLMD53	32.0	
	CLMD53	42.0	
	CLMD53	53.0	
	CLMD83	74.0	
CLMD83	85.0		
CLMD83	105.0		
690V	CLMD13	5.0	
	CLMD13	10.0	
	CLMD13	15.0	

Please consult us for other ratings, single phase units, outdoor execution.

**Range - 50 Hz
CLMD33**

Voltage Frequency 50Hz	Type	Power [kvar]
400V	CLMD33	20.0
	CLMD33	25.0
430V	CLMD33	17.3
	CLMD33	21.2
	CLMD33	26.8

Voltage Frequency 50Hz	Type	Power [kvar]
440V	CLMD33	25.0
473V	CLMD33	25.0
525V	CLMD33	25.0

Please consult us for other ratings, single phase units, outdoor execution.

Range - 60 Hz CLMD13, 43, 53, 63 & 83

Voltage Frequency 60Hz	Type	Power [kvar]	Power [kvar]
260V/240V		260 V	240 V
	CLMD13	3.5	3.0
	CLMD13	5.0	4.2
	CLMD13	7.0	6.0
	CLMD13	12.0	10.0
	CLMD43	17.0	15.0
	CLMD53	25.0	21.0
	CLMD53	29.0	25.0
	CLMD53	36.0	31.0
	CLMD63	50.0	43.0
	CLMD63	60.0	51.0
	CLMD63	74.0	63.0
	415V/400V		415 V
CLMD13		4.5	4.2
CLMD13		6.5	6.0
CLMD13		8.6	8.0
CLMD13		13.0	12.0
CLMD13		16.0	15.0
CLMD13		18.0	16.7
CLMD43		26.0	25.0
CLMD53		32.0	30.0
CLMD53		37.5	35.0
CLMD63		43.0	40.0
CLMD63		48.0	45.0
CLMD63		54.0	50.0
CLMD63		65.0	60.0
CLMD83		75.0	70.0
CLMD83	90.0	85.0	
CLMD83	105.0	100.0	
460V	CLMD13	9.0	
	CLMD13	14.0	
	CLMD43	18.0	
	CLMD43	27.5	
	CLMD53	32.0	
	CLMD53	40.0	
	CLMD63	55.0	
	CLMD83	70.0	
	CLMD83	80.0	
	CLMD83	95.0	
	CLMD83	110.0	
480V	CLMD13	10.0	
	CLMD13	15.0	
	CLMD43	20.0	
	CLMD43	25.0	
	CLMD53	30.0	
	CLMD53	35.0	
	CLMD63	40.0	
	CLMD63	45.0	
	CLMD63	50.0	
	CLMD63	60.0	
	CLMD83	70.0	
	CLMD83	75.0	
	CLMD83	80.0	
	CLMD83	90.0	
CLMD83	100.0		

Voltage Frequency 60Hz	Type	Power [kvar]	Power [kvar]
525V/500V		525 V	500 V
	CLMD13	12.0	11.0
	CLMD43	24.0	22.0
	CLMD53	36.0	33.0
	CLMD53	48.0	44.0
	CLMD63	60.0	54.0
	CLMD63	72.0	65.0
	CLMD63	84.0	76.0
	CLMD83	96.0	87.0
	CLMD83	120.0	108.8
	600V	CLMD13	10.0
CLMD13		15.0	
CLMD43		20.0	
CLMD53		25.0	
CLMD53		30.0	
CLMD53		35.0	
CLMD53		40.0	
CLMD53		50.0	
CLMD63		60.0	
CLMD83		70.0	
CLMD83		80.0	
660V	CLMD13	12.5	
	CLMD43	25.0	
	CLMD53	38.0	
	CLMD63	50.0	
	CLMD63	63.0	
	CLMD83	75.0	
	CLMD83	88.0	
	CLMD83	100.0	

Please consult us for other ratings, single phase units, outdoor execution.



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