QCap
Low-voltage capacitors for improved power quality

Power and productivity
for a better world™

Background

Power Quality is a major concern for all size of business- industrial or commercial. It impacts energy usage costs, pollution levels and CO2 emissions, equipment failure, malfunctioning and lifetime reduction as well as maintenance costs.
ABB‘s new low-voltage capacitor- QCap, helps improve the power quality of low voltage installations by addressing poor power factor issues.

QCap is a cylindrical type capacitor. It is based on ABB‘s latest technologies and developments and is a result of more than a century‘s knowledge on electrical engineering and over 70 years of expertise on capacitor technologies.

QCap answers the following customer needs:

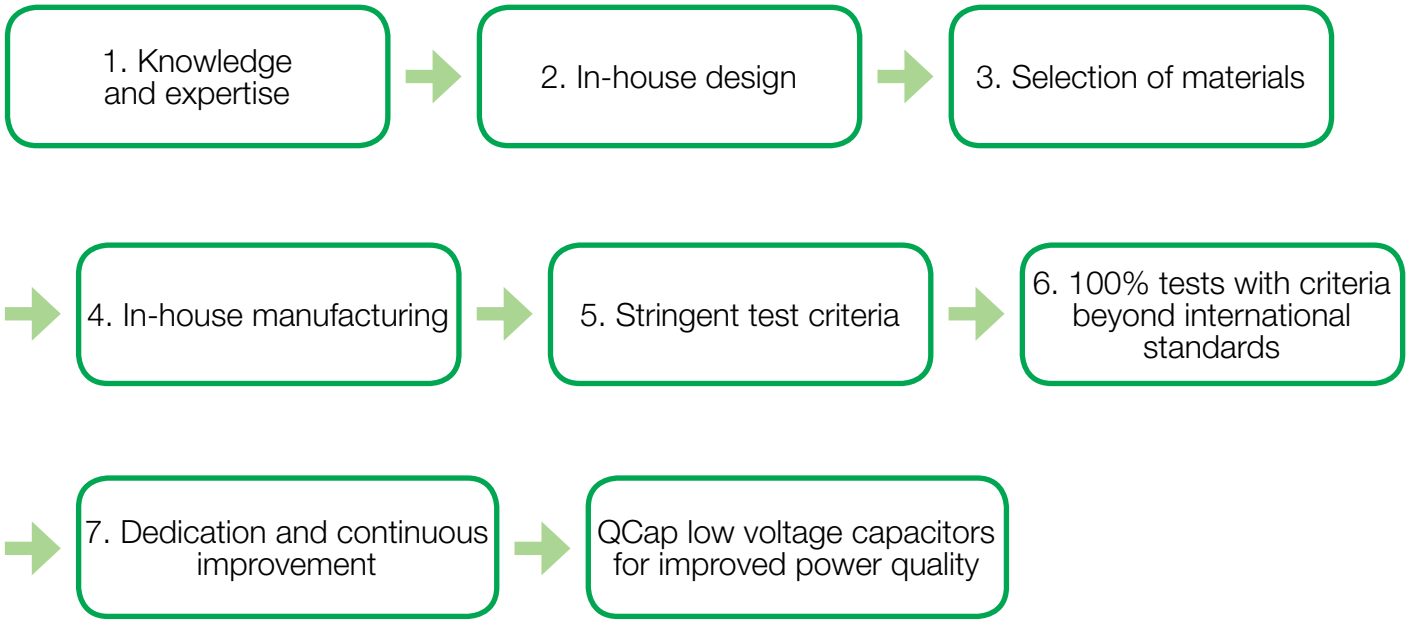
- Reliability: Capacitors can be of poor quality if made with non-capacitor grade-film. ABB‘s strict selection criteria of raw materials and it‘s first class capacitor film ensure QCap‘s high reliability.
- Quality: The unique low losses design of the QCap decreases the temperature of the capacitor and increases it‘s lifetime. The optimized thermal dissipation prevents premature failure which is not uncommon with many low quality capacitors.
- Safety: At the end of its lifetime the capacitor must disconnect itself safely. The specially designed overpressure disconnection device by ABB guarantees a safe disconnection.
- Consistency: A consistent quality over time is most often a challenge for manufacturers. ABB tests 100% of its products with criteria surpassing even international standards.

Requirements for a good capacitor

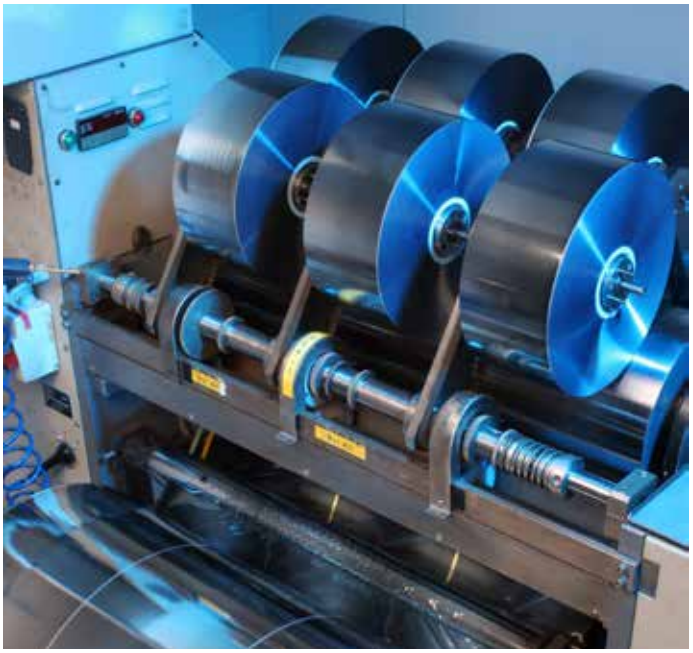
As the pioneers in manufacturing the first metalized power factor correction (PFC) capacitor, ABB believes in seven requirements in producing a quality capacitor.

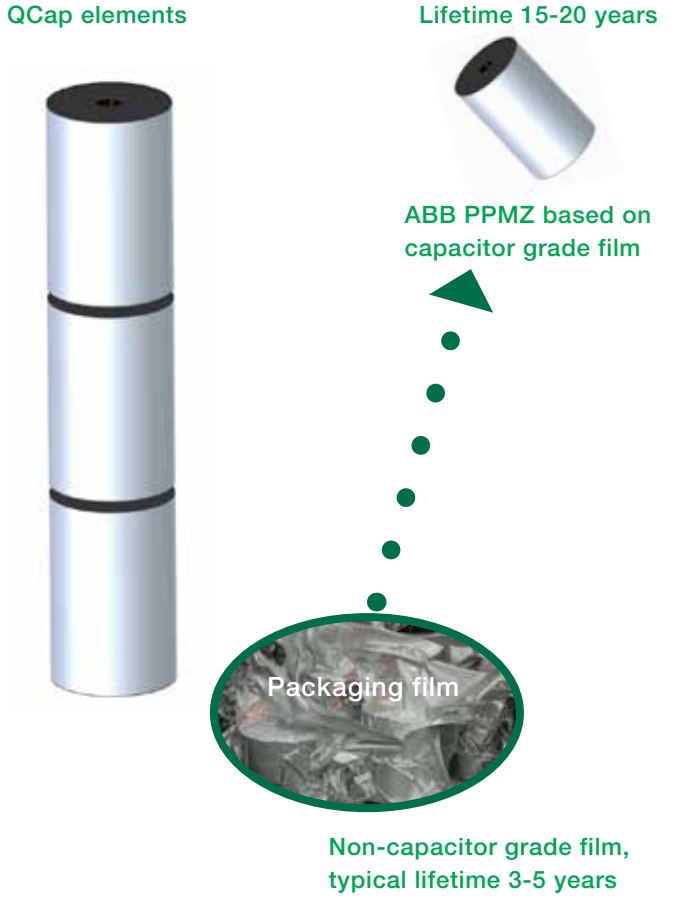
QCap‘s top class performances are not only guaranteed by ABB‘s technological innovations but also ensured by mastering the manufacturing process:

- Best performances of the capacitors thanks to ABB top class polypropylene film
- Stringent and unique tests procedures
- Products 100% tested with criteria surpassing international standards
- Quality controls from raw material inspection to finished products packing.
- Continuous improvement of the manufacturing process.



Design and process innovation





Top class raw material

ABB supplier‘s manufacture top class polypropylene film according to ABB specifications which guarantees the best performance.

Polypropylene (PP) film is the primary raw material that goes into making of dry capacitors. The quality one of the film is a determining factor for a dry capacitor‘s reliability and lifetime. There are thousands of different PP grades in the market. Even the capacitor grade films vary in properties like impurities, consistent thickness and thermal behavior. ABB has more than four decades of research and development experience in PP film. The ABB PPMZ (Zinc metalized PP film) guarantees top capacitor quality and long lifespan.

ABB low losses design means higher reliability and longer lifetime.

The following features have been included in the capacitor design in order to reduce the losses to a minimal level:

- Top class capacitor grade film
- Optimized ABB metallization profile to minimize the electrodes losses generation
- Optimized metal spray
- Low loss elements interconnection
- Optimized film width to minimize the current resistance

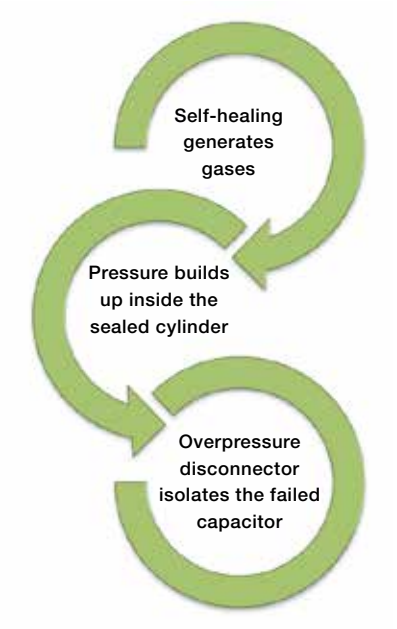
Stringent and unique test procedures

Before shipment, 100% units and its elements are tested. The test criteria are more stringent than as required by international standards.

Complete manufacturing process control

From incoming raw material inspection and quality control to packaging before shipment, every step of producing every single QCap is completely under ABB control.

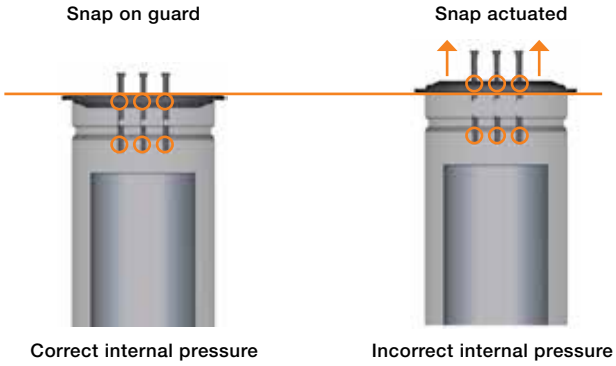
With decades of dedication and continuous improvement on each manufacturing process, ABB guarantees it‘s customers the best quality capacitor in the market.



Overpressure disconnection

Under faulty conditions, the safety mechanism guarantees a prompt and reliable breaking of all three wires . This mechanism consists of three parts:

- Airtight: the state-of-the-art beaming and seaming technology and equipment ensure a prefectly hermetic cylinder.
- Lock: the ABB unique design on a locking device to contain the three elements tight under both normal and faulty conditions.
- Snap: with the airtight and the lock as prerequisites, the snap breaks three wires promptly and completetly.



Range

50 Hz

Network voltage	Rated power [kvar]	Article number for ordering
400V	12.5	2GCA294450A0031
	15.0	2GCA294451A0031
	20.0	2GCA294452A0031
	25.0	2GCA294453A0031
415V	12.5	2GCA294454A0031
	15.0	2GCA294455A0031
	21.6	2GCA294452A0031
	25.0	2GCA294456A0031
440V	12.5	2GCA294457A0031
	14.2	2GCA294463A0031
	15.0	2GCA294458A0031
	20.0	2GCA294459A0031
	25.0	2GCA294460A0031
	28.2	2GCA294461A0031
	30.0	2GCA294722A0031
480V	12.5	2GCA294462A0031
	15.4	2GCA294457A0031
	16.7	2GCA294463A0031
	20.9	2GCA294473A0031
	25.0	2GCA294464A0031
	30.0	2GCA294723A0031
	31.5	2GCA294831A0031
525V	12.5	2GCA294465A0031
	15.0	2GCA294466A0031
	20.0	2GCA294467A0031
	25.0	2GCA294468A0031

Other ratings available on request.

60 Hz

Network voltage	Rated power [kvar]	Article number for ordering
220V	10.0	2GCA294950A0031
	15.0	2GCA294951A0031
380V	12.5	2GCA294454A0031
	15.0	2GCA294455A0031
	21.7	2GCA294452A0031
	25.0	2GCA294456A0031
400V	12.5	2GCA294469A0031
	15.0	2GCA294450A0031
	20.0	2GCA294470A0031
	24.1	2GCA294453A0031
440V	12.5	2GCA294462A0031
	15.0	2GCA294457A0031
	20.0	2GCA294471A0031
	25.0	2GCA294464A0031
	30.0	2GCA294460A0031
480V	12.5	2GCA294472A0031
	15.0	2GCA294462A0031
	18.0	2GCA294457A0031
	20.0	2GCA294463A0031
	25.0	2GCA294473A0031
	30.0	2GCA294464A0031
516V	26.9	2GCA295061A0031
525V	12.0	2GCA294474A0031
	15.0	2GCA294465A0031
	18.0	2GCA294466A0031
	20.0	2GCA294475A0031
	24.0	2GCA294467A0031
	30.0	2GCA294468A0031
600V	12.0	2GCA294477A0031
	15.0	2GCA294478A0031
	18.0	2GCA294479A0031
	20.0	2GCA294480A0031
	25.0	2GCA294481A0031
	30.0	2GCA294482A0031

Technical specifications

Voltage range	From 220 to 600 V.
Frequency	50 and 60 Hz.
Connection	Three-phase.
Net output power	From 12.5 to 30 kvar.
Tolerance on capacitance	0% / +10%.
Losses	< 0.2 Watt/kvar (dielectric only). < 0.35 Watt/kvar (typical without discharge resistor). < 0.5 Watt/kvar (including discharge resistor).
Discharge resistor	Discharge from Un to 50V in 1 minute.
Maximum permissible current	1.3 x In for continuous operation.
Tolerance on voltage	30% for maximum 1 minute (according to IEC 60831).
Case material	Recyclable aluminum.
Color	Raw aluminum.
Fixing	1 stud (M12).
Dimensions (DxH)	90x417 mm.
Weight	Approximately 3kg.
Terminals	Cage screws.
Minimum distance above unit	20 mm.
Minimum distance between capacitors	30 mm.
Earth	Earth connection on the enclosure fixation.
Execution	Indoor use only.
Temperature range	-25°C / +55°C (class D according to IEC 60831).
Altitude	Up to 2000m without derating.
Protection degree	IP20.
Standards	CE and CSA (with US indicator complying with UL810).

Dimensions

Total H	Can H	D	D fixation screw	H fixation screw
401 mm	368 mm	90 mm	M12	16 mm

Side view

Front view

Top view

Contact us

s.a. ABB n.v.
Power Quality Products
Avenue Centrale 10
Z.I. Jumet
B-6040 Charleroi, Belgium
Phone: +32(0) 71 250 811
Fax: +32 (0) 71 344 007
E-Mail: Power.Quality@be.abb.com

www.abb.com

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