



# LV Capacitor QCap

## The ABB quality cylindrical capacitor

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Power Quality is a major concern to all size of business, be it industrial or commercial. It impacts energy usage costs, pollution levels and CO<sub>2</sub> emissions, equipment failure, malfunctioning and lifetime reduction but also maintenance costs.

The ABB QCap will help to improve the Power Quality of low voltage installations by addressing poor power factor issues.



The QCap is the cylindrical power factor correction capacitor based on ABB's latest technologies and developments. This is the result of more than a century of knowhow on electrical engineering and 70 years expertise on capacitor technologies.

### ABB QCap capacitor answers customer needs

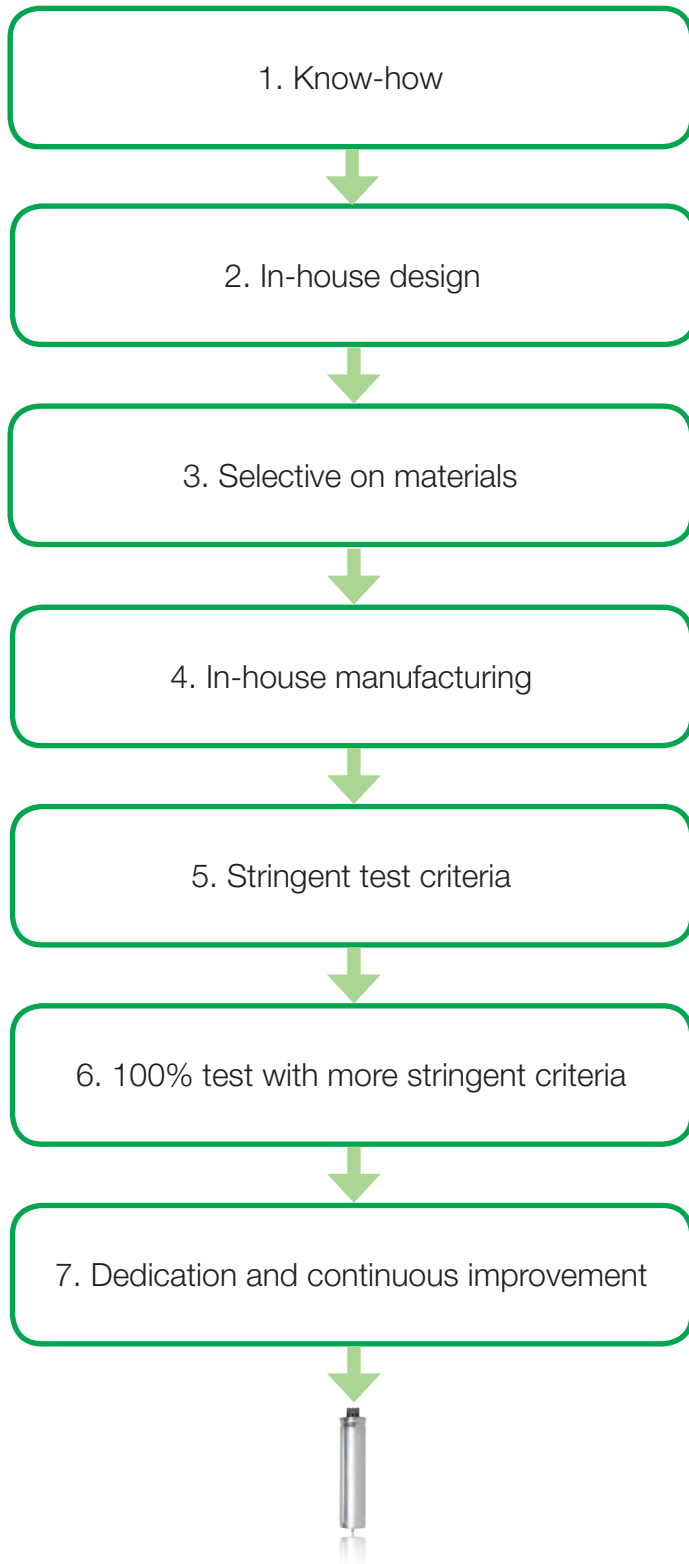
- Reliability: customers can easily become victims of poor quality capacitors made with non-capacitor grade-film. ABB strict selection of raw material and its first class capacitor film ensure QCap a high reliability.
- Quality: ABB low losses design decreases capacitor temperature and increases the lifetime. The optimized thermal dissipation will prevent the 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 ABB designed overpressure disconnection device guarantees a safe disconnection.
- Consistency: a constant quality over the time is most often a challenge for manufacturers. It's the reason why ABB is testing 100% of the products with criteria surpassing international standards.



# ABB know-how and vast experience

## Requirements to make a good capacitor

To make a good capacitor is not so easy as it seems. ABB, as one of the pioneers manufacturing the first metalized Power Factor correction (PFC) capacitor, believes in seven requirements to make a good capacitor.



ABB's PFC know-how lies in several decades of accumulated expertise and experiences.

QCap's top class performances are not only guaranteed by ABB's technology innovation 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 has been always very selective on the film supplier. We advise the world top class polypropylene suppliers to manufacture the film according to ABB specifications which guarantees the best performance.

- Polypropylene (PP) film is the primary raw material to make dry capacitors. Its quality is one of determining factors for a dry capacitor 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 vast R&D experience in PP film with more than four decades of dedication in this field.
- 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

ABB tests 100% of all QCap and its elements before shipment. Each element of the QCap unit is tested with more stringent criteria than international standards require.

## Complete manufacturing process control

From incoming raw material inspection and quality control till packing before shipment, every step of making each single QCap is 100% under ABB control.

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

## QCap elements

## Lifetime 15-20 years

## ABB PPMZ based on capacitor grade film

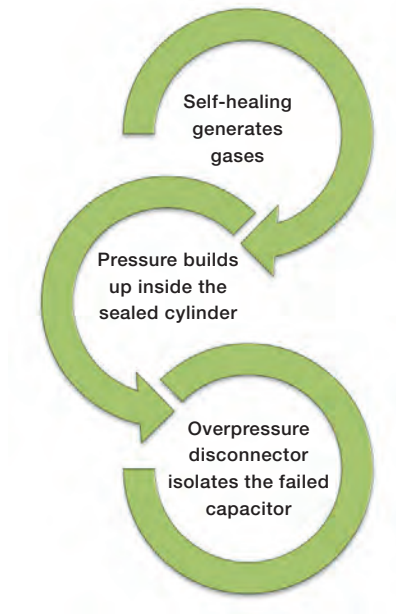
Packaging film

Non-capacitor grade film,  
typical lifetime 3-5 years



## Safety

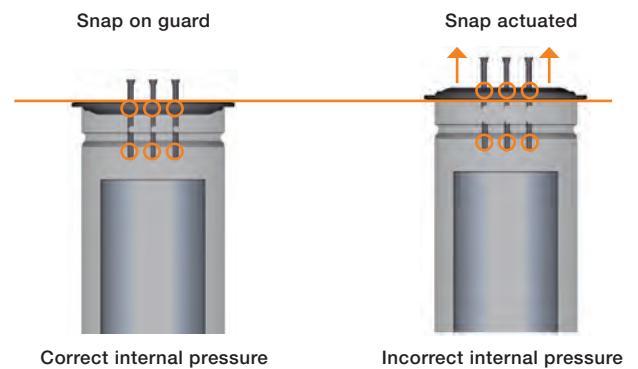
Safety is definitely one of the most important topic for a capacitor. The customer has to be sure that in case of issues the damage will be limited.



## Overpressure disconnection

ABB safety concept and mechanism guarantee a prompt and reliable breaking of all three wires under faulty conditions. This concept consists of three parts:

- Airtight: the state-of-the-art beaming and seaming technology and equipment ensure a perfectly 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 will break three wires promptly and completely.



# Range

## 50 Hz

Network voltage	Rated power [kvar]	Article number for ordering
400V	12.5	2GCA294450A0031
	15	2GCA294451A0031
	20	2GCA294452A0031
	25	2GCA294453A0031
415V	12.5	2GCA294454A0031
	15	2GCA294455A0031
	21.6	2GCA294452A0031
	25	2GCA294456A0031
440V	12.9	2GCA294457A0031
	14.2	2GCA294463A0031
	15	2GCA294458A0031
	20	2GCA294459A0031
	25	2GCA294460A0031
	28.2	2GCA294461A0031
480V	12.5	2GCA294462A0031
	15.4	2GCA294457A0031
	16.7	2GCA294463A0031
	20.9	2GCA294473A0031
	25	2GCA294464A0031
525V	12.5	2GCA294465A0031
	15	2GCA294466A0031
	20	2GCA294467A0031
	25	2GCA294468A0031

## 60 Hz

Network voltage	Rated power [kvar]	Article number for ordering
380V	12.5	2GCA294454A0031
	15	2GCA294455A0031
	21.7	2GCA294452A0031
	25	2GCA294456A0031
400V	12.5	2GCA294469A0031
	15	2GCA294450A0031
	20	2GCA294470A0031
	24.1	2GCA294453A0031
440V	12.5	2GCA294462A0031
	15	2GCA294457A0031
	20	2GCA294471A0031
	25	2GCA294464A0031
	30	2GCA294460A0031
480V	12.5	2GCA294472A0031
	15	2GCA294462A0031
	18	2GCA294457A0031
	20	2GCA294463A0031
	25	2GCA294473A0031
	30	2GCA294464A0031
525V	12	2GCA294474A0031
	15	2GCA294465A0031
	18	2GCA294466A0031
	20	2GCA294475A0031
	24	2GCA294467A0031
	30	2GCA294468A0031
600V	12	2GCA294477A0031
	15	2GCA294478A0031
	18	2GCA294479A0031
	20	2GCA294480A0031
	25	2GCA294481A0031
	30	2GCA294482A0031

# Technical specifications

Voltage range	From 380 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). < 0.5 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.
Case material	Recyclable aluminum.
Color	Raw aluminum.
Fixing	1 stud (M12).
Dimensions (DxH)	90x417mm.
Weight	Approximately 3kg.
Terminals	Cage screws.
Minimum distance above unit	20mm.
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.
Protection degree	IP20.

## Dimensions

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

