

TYPE BAM HIGH VOLTAGE CAPACITORS

WARNING : HIGH VOLTAGE

Many of the products in this catalog can store lethal voltages and energies. Utmost care should be exercised in the use of these products to assure that the voltage or power source is disconnected and that the capacitor is discharged, grounded, and shorted before servicing equipment into which a capacitor has been installed. Installation should comply with all federal, state, and local electrical code requirements.

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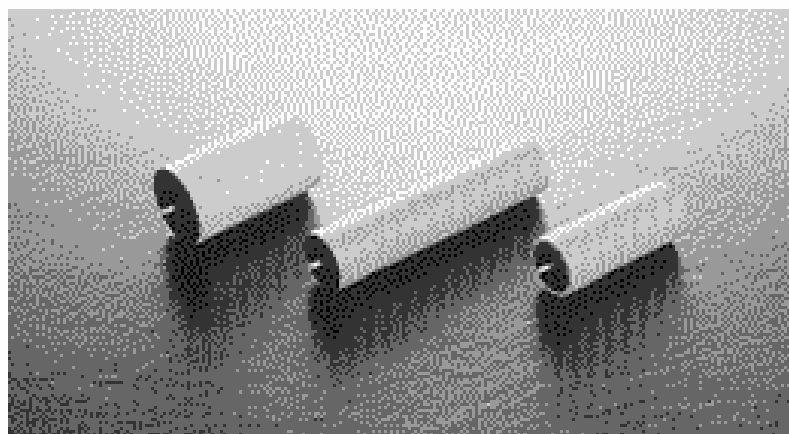
CHICAGO CONDENSER CORPORATION manufactures a wide variety of impregnated plastic film and paper dielectric capacitors in many styles, including metal cans, non-conducting cases, "wrap-and-fill" with axial leads, and capacitor bypass leadthroughs. Some MIL. Spec product lines (e.g., CP53 "bathtubs" and CQ72) are available. During its forty years in business, CCC has gained a reputation for the quality and reliability of its products. It counts many of the world's largest corporations among its customers in the fields of lasers, military electronics, scientific apparatus, etc. While

CCC has standard product lines, such as that represented in this catalog, it manufactures essentially all products to order, typically with four to eight weeks delivery. As a result of this semi-custom manufacture, product characteristics can be customized through alterations in winding type, winding materials, etc. to optimize the product for the user's application. For this reason, CCC maintains expert engineering staff ready help the customer in determining his needs. The brief applications information on the next page introduces some of the relevant criteria.

GENERAL DESCRIPTION

TYPE BAM CAPACITORS offer superior electrical characteristics coupled with small size. They are conservatively designed for long life under harsh conditions. Winding and case design can be customized to the conditions of use, including ambient operating environment (oil, air, SF₆, etc.), electrical environment (pulsed discharge, ac, ripple voltage and current, etc.)

TYPE BAM CAPACITORS are normally housed in phenolic tubing with epoxy end seals and a threaded stud at each end for connections. Special housings are available in epoxy fiberglass, PVC, polycarbonate, and polysil (for outdoor applications). Threaded inserts and axial leads are also available.



Case: Insulating, terminal at each end

Temperature: -55 °C to +85 °C

Capacitance: 0.5 nF to 50 µF ±10% Std.
±5%, ±2%, and ±1% on request.

APPLICATIONS:

Energy Storage	Rectifier Filters
Power Factor Correction	RF Bypass
Spark Suppression	Audio Coupling
Oscillator Circuits	Integrating Circuits
Pulse Forming Networks	Tuned Filters

Complete Specifications Below

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APPLICATION NOTES

SIZE: The case sizes listed below are not necessarily the smallest possible for a given capacitor. If size and shape are critical to your application, CCC will be pleased to work with you to optimize a capacitor to your needs. CCC stocks a wide range of case sizes in several styles. A revised design which employs stock material may result in little additional cost. If a custom case is required, cost may depend heavily on quantity.

CONTAINER: BAM capacitors are housed in phenolic tubing, with a threaded stud terminal at each end. Epoxy-fibreglas, PVC, Polysil, or Polycarbonate tubular containers are available upon request. For large BAM's, use of an alternative enclosure can sometimes result in substantial savings. BAM capacitors tend to be much more cost effective than metal-cased units for voltages >50 kV. This results from the high cost of terminals and custom cases for large, metal-enclosed, high voltage capacitors. As BAM capacitors are fabricated in an insulating tubular container with the a terminal at each end, the case becomes the insulation between the terminals. As a result of the epoxy seal at each end, BAM capacitors tend to be somewhat more fragile than metal-enclosed capacitors.

IMPREGNANT: BAM capacitors are normally impregnated with a high grade organic-based dielectric fluid; however, silicone-based dielectric fluid can often be used upon request. The use of organic-based dielectric fluids in BAM designs results in substantial cost reductions relative to silicone-based fluids, at the expense of operating temperature range.

WINDING DESIGN: Capacitors can be constructed in a range of winding designs (e.g., extended foil, tab constructions, etc.) and can be fabricated from a wide range of dielectric materials including polypropylene, polyester ("Mylar"), polycarbonate, etc. with varying layers and configurations of paper. Each combination of construction and materials has its advantages and disadvantages. Your successful application of any high technology capacitor depends on matching the capacitor design to your requirements. Using computerized design programs, CCC will work with you to determine your requirements and customize the design of your capacitors at no additional cost. Relevant considerations include Inductance, ESR (equivalent series resistance), Peak Current, RMS Current, degree of polarity reversal under pulsed discharge, ac or ripple voltage, absorption current, dissipation factor, etc. For example, an extended foil design gives the greatest current carrying capability and lowest ESR at the expense of a somewhat higher inductance than can be achieved with a tab design. The inductance and ESR in tab designs depends on the number of tabs. Increasing the number of tabs in a winding increases the time required in manufacture, and, therefore, the cost to the customer. Mylar is a good general purpose dielectric with a relatively high dielectric constant which results in a smaller capacitor than polypropylene; however, polypropylene has much better high frequency characteristics. The proper use of fluid-impregnated paper layers is important in capacitors which see frequent and wide swings in voltage (ac, pulse discharge, etc.) as it can provide a "self-healing" medium in highly stressed regions of the capacitor.

SPECIFICATIONS

TEMPERATURE RANGE: -55 to +85 °C

TOLERANCE: ±10% standard. Tolerances of ±5%, ±2%, and ±1% are also available. Nominal capacitance values ≤1 µF are measured with an excitation frequency of 1 kHz. 60 Hz excitation is employed for nominal capacitance values >1 µF.

IMPREGNATION: TYPE BAM capacitors are mineral oil-impregnated, mineral oil-filled, and hermetically sealed.

CASE: Phenolic tubing standard. PVC, etc. upon request.

FINISH: Tube wall with epoxy or metal ends.

TERMINALS: 10-32 threaded stud at each end, standard.

DIELECTRIC: Polyester resin film and the capacitor grade Kraft paper impregnated with an organic dielectric fluid.

IMPREGNANT: Organic (non-PCB) dielectric fluid.

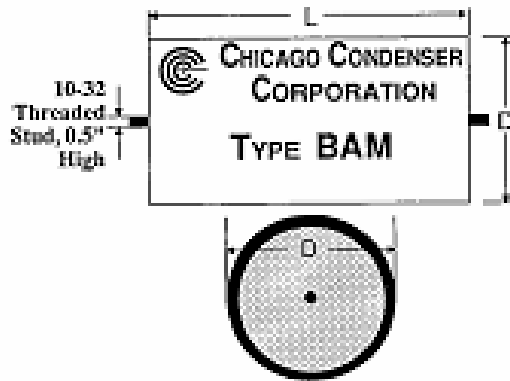
MOUNTING POSITION: All type BAM capacitors will operate satisfactorily mounted in any position.

TEST VOLTAGE: For capacitors rated ≤20 kV, 200% rated voltage for one minute at room temperature. For rated voltages between 20 kV and 50 kV, 150% rated voltage for two minutes at room temperature. For rated voltages >50 kV, 125% rated voltage for 2 minutes at room temperature. Test voltage shall be applied and discharged through a resistance of at least 1 Ω/rated volt to a maximum of 5 kΩ.

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Consult Factory for information on sizes or design options not listed.



Model Number	kV DC	Cap μ F	D inches	L inches
BAM103-5M	5	0.010	0.75	2.00
BAM303-5M	5	0.030	1.00	2.00
BAM503-5M	5	0.100	1.00	2.75
BAM104-5M	5	0.050	1.00	2.00
BAM304-5M	5	0.300	1.50	3.00
BAM504-5M	5	0.500	1.75	3.75
BAM105-5M	5	1.000	2.25	4.50
BAM305-5M	5	3.000	3.50	4.50
BAM505-5M	5	5.000	4.50	4.50
BAM106-5M	5	10.000	6.50	4.50
BAM502-10M	10	0.005	0.50	3.00
BAM103-10M	10	0.010	0.75	3.00
BAM303-10M	10	0.030	1.00	3.00
BAM503-10M	10	0.050	1.25	3.00
BAM104-10M	10	0.100	1.75	3.00
BAM304-10M	10	0.300	2.50	3.75
BAM504-10M	10	0.500	3.25	3.75
BAM105-10M	10	1.000	4.25	4.50
BAM305-10M	10	3.000	6.50	5.50
BAM505-10M	10	5.000	8.00	5.50
BAM302-15M	15	0.003	0.50	3.00
BAM502-15M	15	0.005	0.75	3.00
BAM103-15M	15	0.010	1.00	3.00
BAM303-15M	15	0.030	1.50	3.00
BAM503-15M	15	0.050	1.75	3.00
BAM104-15M	15	0.100	2.25	3.75
BAM304-15M	15	0.300	3.75	3.75
BAM504-15M	15	0.500	4.25	4.50
BAM105-15M	15	1.000	5.50	5.50
BAM305-15M	15	3.000	9.25	5.50
BAM102-20M	20	0.001	0.50	5.50
BAM302-20M	20	0.003	0.50	5.50
BAM502-20M	20	0.005	0.75	5.50
BAM103-20M	20	0.010	0.75	5.50
BAM303-20M	20	0.030	1.25	5.50
BAM503-20M	20	0.050	1.75	5.50
BAM104-20M	20	0.100	2.25	5.50
BAM304-20M	20	0.300	3.50	7.50
BAM504-20M	20	0.500	4.50	7.50
BAM105-20M	20	1.000	5.75	8.50
BAM102-30M	30	0.001	0.50	5.50
BAM302-30M	30	0.003	0.75	5.50
BAM502-30M	30	0.005	1.00	5.50
BAM103-30M	30	0.010	1.25	5.50
BAM303-30M	30	0.030	2.00	5.50

Model Number	kV DC	Cap μ F	D inches	L inches
BAM503-30M	30	0.050	2.50	5.50
BAM104-30M	30	0.100	3.00	7.50
BAM304-30M	30	0.300	5.00	7.50
BAM504-30M	30	0.500	6.00	8.50
BAM105-30M	30	1.000	7.50	10.50
BAM102-40M	40	0.001	0.75	5.75
BAM302-40M	40	0.003	1.00	5.75
BAM502-40M	40	0.005	1.25	5.75
BAM103-40M	40	0.010	1.50	5.75
BAM303-40M	40	0.030	2.50	5.75
BAM503-40M	40	0.050	2.75	7.50
BAM104-40M	40	0.100	4.00	7.50
BAM304-40M	40	0.300	6.25	8.50
BAM504-40M	40	0.500	7.00	10.50
BAM105-40M	40	1.000	10.00	10.50
BAM102-50M	50	0.001	0.75	5.75
BAM302-50M	50	0.003	1.25	5.75
BAM502-50M	50	0.005	1.50	5.75
BAM103-50M	50	0.010	2.00	5.75
BAM303-50M	50	0.030	2.75	7.50
BAM503-50M	50	0.050	3.50	7.50
BAM104-50M	50	0.100	4.50	8.50
BAM304-50M	50	0.300	7.75	8.50
BAM504-50M	50	0.500	8.75	10.50
BAM105-50M	50	1.000	12.50	10.50
BAM102-75M	75	0.001	0.75	8.50
BAM302-75M	75	0.003	1.25	8.50
BAM502-75M	75	0.005	1.75	8.50
BAM103-75M	75	0.010	2.25	8.50
BAM303-75M	75	0.030	3.75	8.50
BAM503-75M	75	0.050	5.00	8.50
BAM104-75M	75	0.100	6.00	10.75
BAM304-75M	75	0.300	9.50	12.25
BAM504-75M	75	0.500	10.75	15.25
BAM501-100M	100	0.0005	1.0	11.50
BAM102-100M	100	0.001	1.00	11.50
BAM302-100M	100	0.003	1.50	11.50
BAM502-100M	100	0.005	2.00	11.50
BAM103-100M	100	0.010	2.75	11.50
BAM303-100M	100	0.030	4.50	11.50
BAM503-100M	100	0.050	5.75	11.50
BAM104-100M	100	0.100	7.00	14.75
BAM304-100M	100	0.300	11.00	16.75
BAM501-150M	150	0.0005	1.25	17.50
BAM102-150M	150	0.001	1.25	17.50
BAM302-150M	150	0.003	1.75	17.50
BAM502-150M	150	0.005	2.25	17.50
BAM103-150M	150	0.010	3.25	17.50
BAM303-150M	150	0.030	5.00	22.00
BAM503-150M	150	0.050	6.00	22.00
BAM104-150M	150	0.100	8.00	25.00
BAM501-200M	200	0.0005	1.25	24.00
BAM102-200M	200	0.001	1.25	24.00
BAM302-200M	200	0.003	2.25	24.00
BAM502-200M	200	0.005	2.75	24.00
BAM103-200M	200	0.010	3.75	24.00
BAM303-200M	200	0.030	5.50	30.00
BAM503-200M	200	0.050	7.00	30.00
BAM104-200M	200	0.100	9.25	34.00