



# Proven Pulse Power Capacitor Technology

Knowles offers unparalleled expertise through its Cornell Dubilier brand in the designing and manufacturing of custom pulse power capacitors for life-saving medical devices, industrial lasers, fusion research and critical military applications. Built to function in a wide variety of operating environments, our pulse power capacitors deliver reliable performance over long periods of time.



INDUSTRIES: MEDICAL » INDUSTRIAL » MILITARY » RESEARCH



## APPLICATIONS:

- External Defibrillators
- Industrial and Medical Lasers
- Diagnostic Imaging Equipment
- MARX Generator Banks
- Electromagnetic Pulse Forming (EMP)
- Flash Lamps
- Strobe Lights
- Particle Accelerators
- Fusion Research
- High Energy Dynodes
- Electromagnetic Propulsion Systems (EMPS)

## EXTENSIVE CAPACITOR DESIGN AND MANUFACTURING CAPABILITIES INCLUDE:

- All types of film and paper dielectrics
- Metallized and foil electrodes
- Dry and oil-filled constructions
- Metal or plastic enclosures with terminations ranging from flexible wire leads to screw terminals with high voltage ceramic insulators.
- A broad range of plastic and metal packaging options



## GENERAL PULSE POWER SPECIFICATIONS:

- Capacitance Range: 5 nF to 50,000  $\mu$ F
- Capacitance Tolerance: Custom
- Voltage Range: Up to 150 kV
  - » Peak Current Level: up to 250 kA
- Inductance: <10 nH (Custom Designs)
- Energy Density: 2.75 J/cc
- Pulse Life (Nominal): 100 to  $1 \times 10^9$  Cycles
- Rep Rate: .01 to 1000 Hz



## Defibrillator Capacitors

Medical pulse capacitors are designed to meet the reliability demands of a Class III medical device. With no room for failure, you can count on our 100% field reliability.

## Industrial, Military, Medical, and Research Capacitors

Draw on our deep technical capabilities and flexible manufacturing processes. We have a long history in the pulse power area where multiple capacitor technologies are needed to satisfy the particularly stringent requirements of high-energy pulsing applications.

## Custom is Standard for Us!

Work with our design engineers to achieve size and performance to fit your application

### WHY CUSTOMIZE?

- Collaboration is the key to top performance!
- Leverage our expertise to achieve your performance goals. Our engineering team has over 100 years of collective pulse capacitor design and manufacturing experience!
- We work with you every step of the way!

## MEDICAL DEVICE (DEFIBRILLATOR) SPECIFICATIONS:

- Capacitance Tolerance:  $\pm 5\%$  Standard
- Typical DC Voltage Range: 800 VDC to 6,000 VDC
- Energy Density: up to 2.0 J/cc
- 5000 – 40,000 pulse life rating

## HIGHLIGHTS

- Typical voltage ranges
  - » Defibrillators: 1000 – 6000 Vdc
  - » Pulse/Laser: 100 – 150,000 Vdc
- Peak current delivery up to 250 kA
- Designed for user-specified life
- Dry or oil-filled with an environmentally “green” fluid
- Various terminal configurations to fit custom requirements
- Metal or plastic enclosures
- Low inductance



Visit our website at [knowlescapacitors.com](http://knowlescapacitors.com) or [cde.com](http://cde.com) for more information on this and our other vast product offerings.