



TYPE 947D, DC LINK CAPACITORS



**CORNELL
DUBILIER**

Capacitor Solutions for Power Electronics



FILM CAPACITORS FOR DC LINK, TYPE 947D

High Current, High Capacitance for Inverter Applications



Type 947D series uses the most advanced metallized film technology for long life and high reliability in DC Link applications. This series combines high capacitance and very high ripple current capability needed for today's inverter designs for wind, solar, fuel cells, UPS systems and more.

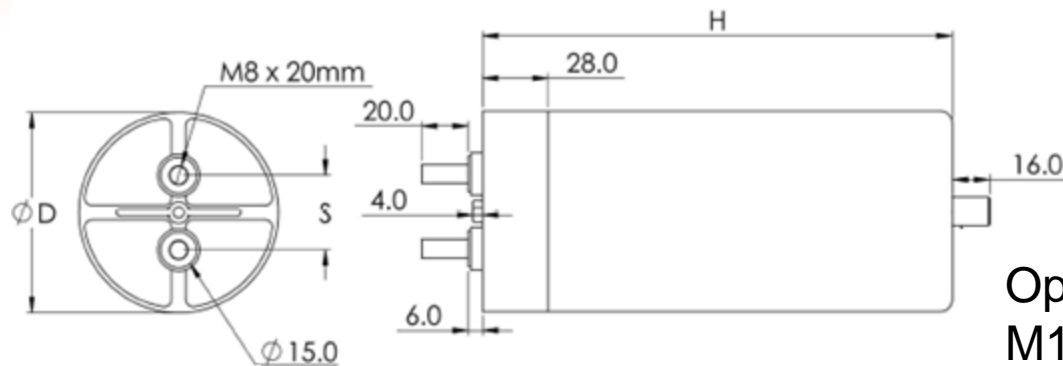
Specifications

Capacitance Range	130 to 1500 μ F
Capacitance Tolerance	$\pm 10\%$ standard
Rated Voltage	900 to 1300 Vdc
Operating Temperature Range	-45 °C to 85 °C (ambient)
Maximum rms Current	see data tables
Maximum rms Voltage	230 Vac
Test Voltage between Terminals @ 25 °C	150% rated DC voltage for 10 s
Test Voltage between Terminals and Case @ 25°C	4 kVac @ 50/60 Hz for 10 s
Life Test	7000 h @ 85 °C, rated voltage
Life Expectancy	350,000 h @ 60 °C Core, rated voltage
RoHS Compliant	



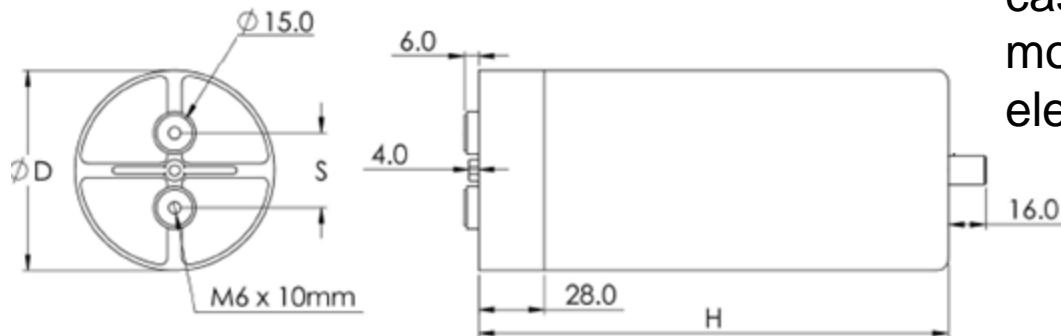
TYPE 947D MECHANICAL SPECIFICATIONS

Connected to the
+ and - inverter
bus bars using M8
threaded studs



or

M6 threaded
inserts.



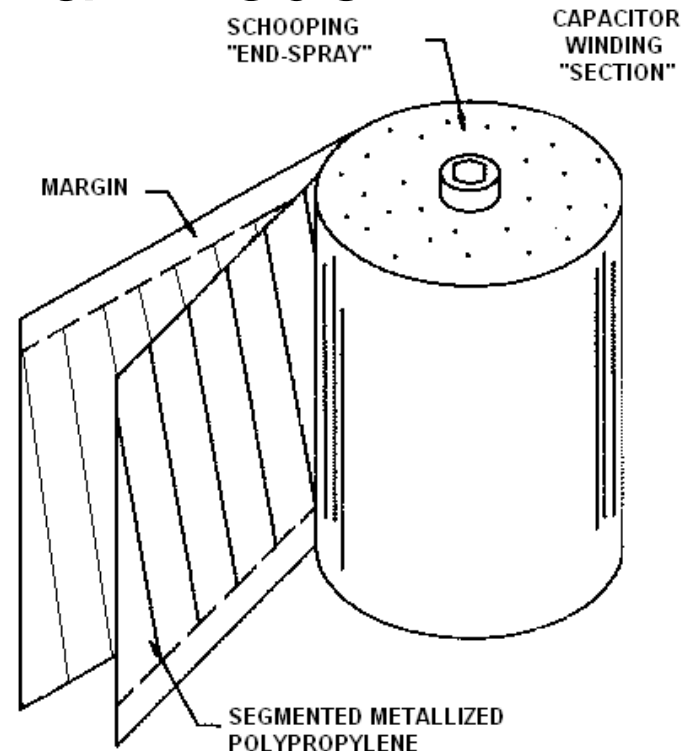
Optional
M12 X 16 stud
at bottom of
case for chassis
mounting. Non
electrical



TYPE 947D TECHNOLOGY

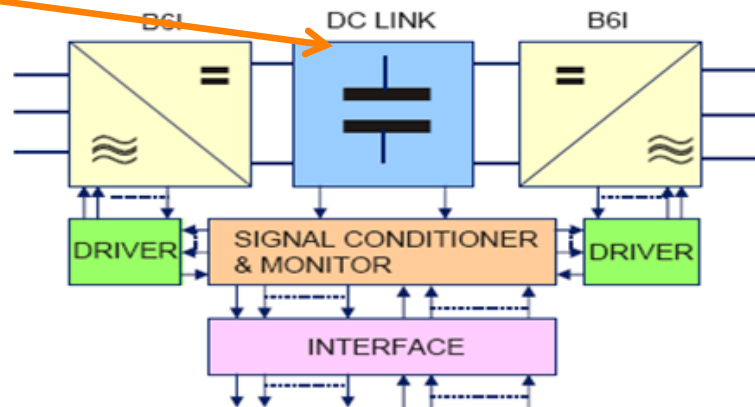
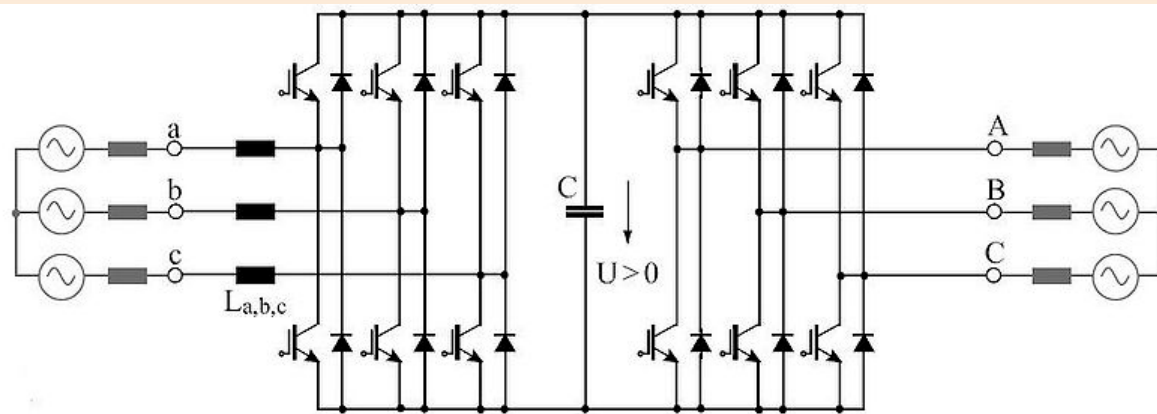
Segmented Metallized Polypropylene, Controlled Cap Loss, Open Circuit Fail mode.

- ⊙ Types 947D utilizes segmented metallized polypropylene
- ⊙ Segmented metallized pattern offers the advantages of controlled cap loss and open circuit protection.





TYPE 947D USED AS DC LINK IN LARGE INVERTER SYSTEMS





INVERTER TOPOLOGY



DC-link Capacitors
(Electrolytic/Film)

Frame

Optical Interface
(Optional)

Paralleling Interface
(Optional)

Driver (EiceDRIVER™
or Concept Driver)

Driver PCB

Is Bars

Snubber
Capacitors

IGBT MODULES

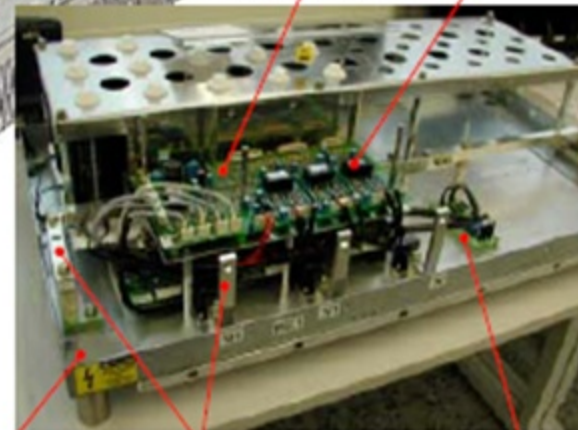
Module Adaptor Board

Current Sensors

Heatsink (Forced-air
or Water Cooled)

Power
Terminals

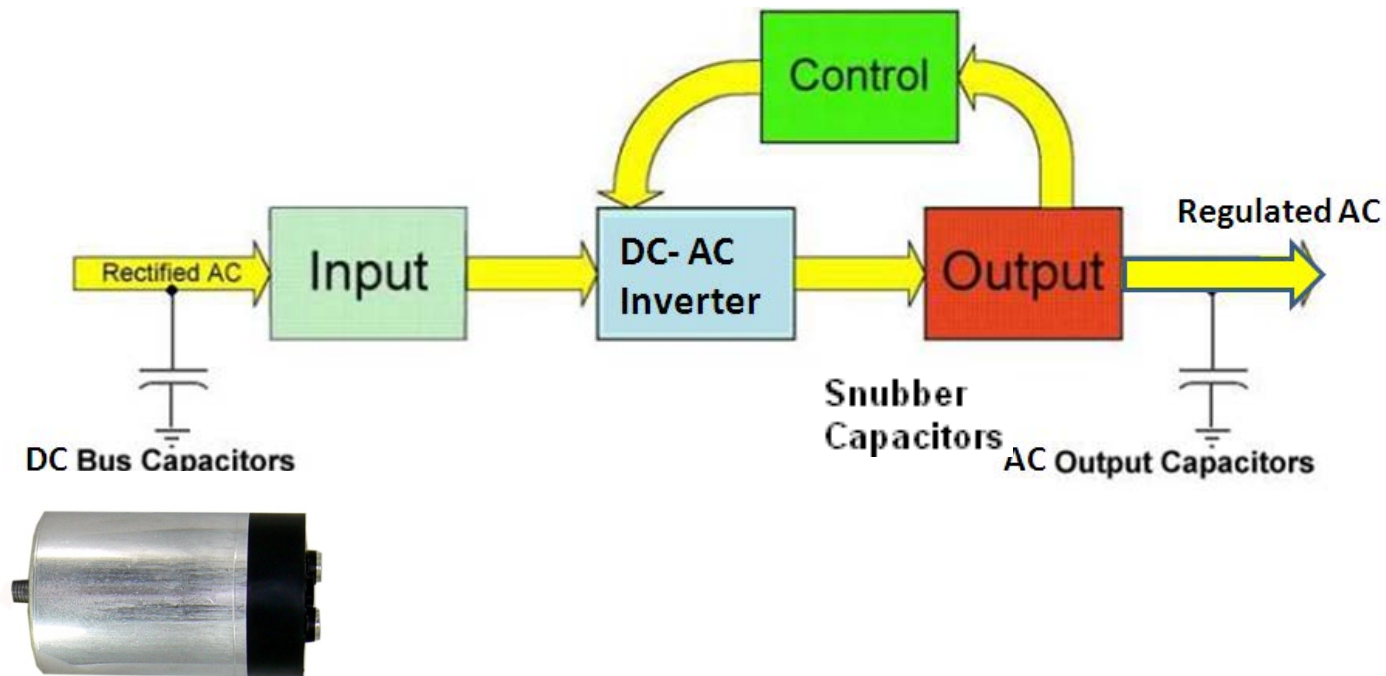
Voltage Sensor
(Optional)





INVERTER APPLICATIONS

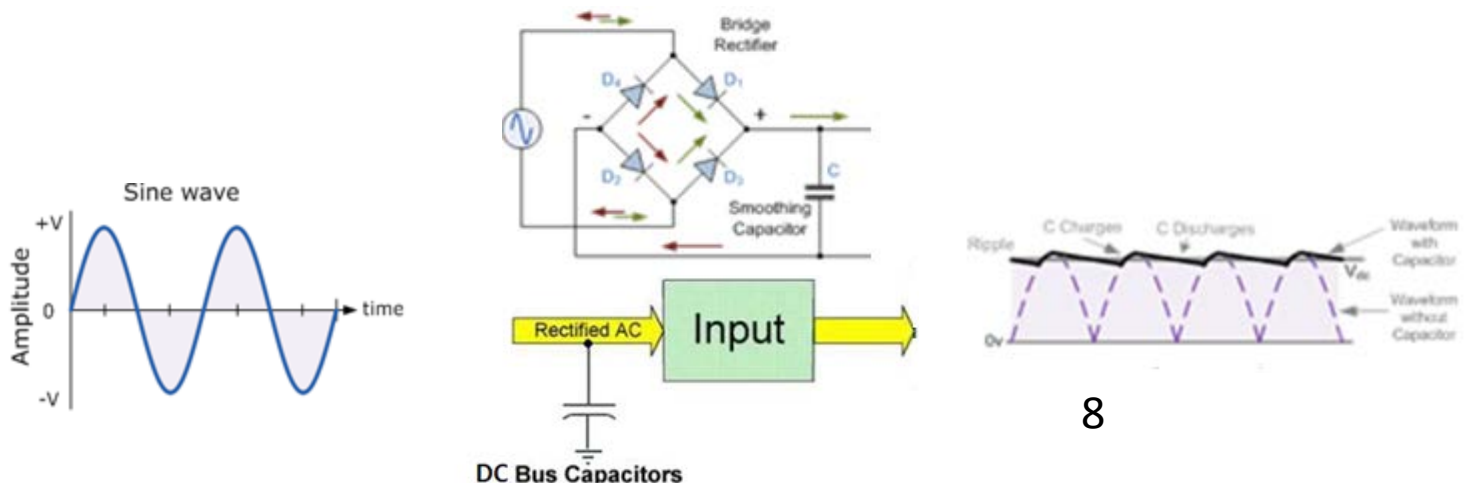
INVERTERS CONVERT DC TO AC





DC FILTERING AT INPUT

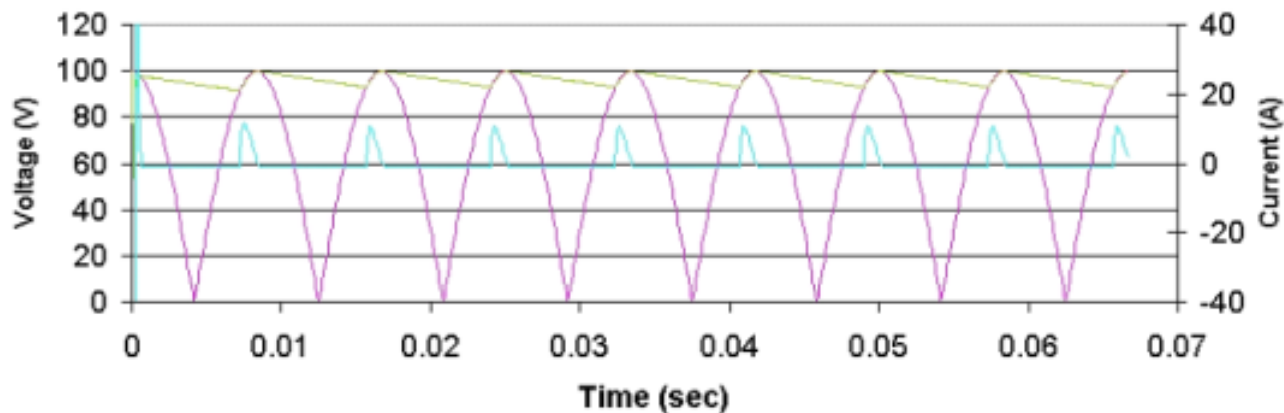
- ❑ 60 Hz AC is rectified to DC with high ripple AC
- ❑ Most electronic applications do not perform well with high AC ripple.
- ❑ A filter, capacitor is placed between the rectifier and the load to smooth the voltage by filtering out much of the unwanted AC.





INVERTER APPLICATIONS

- ❑ Inverter switching produces ripple voltage across the capacitors resulting in high ripple current.
- ❑ Total ripple current is from rectification and switching
- ❑ Ripple current heats the capacitor (blue peaks below)
- ❑ Higher temperature shortens capacitor life





INVERTER APPLICATIONS

Inverters Convert DC Voltage Into AC Voltage

INVERTER

Most solar and wind inverters use film capacitors for DC Link

Industrial

- Welding
- Lasers
- Semiconductor Processing



Motor Drives

- Elevator
- Industrial Motor Drives
- Electric Vehicles



Power Backup

- UPS
- Flywheel
- Battery Chargers
- SMPS



Renewable Energy

- Wind
- Solar
- Fuel Cells





THANK YOU!