Unique Wear-Free Discharging Unit for High Voltage Applications

High Voltage Discharger

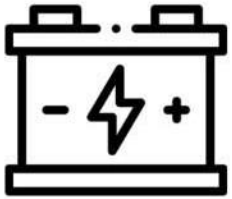
HVD 450

Agenda

1. What is discharging and why is it necessary?
2. What is the issue with discharging at high voltages?
3. Our solution – High Voltage Discharger HVD 450
4. Who needs it?

1st one in the world

1500 V DC Links are coming in style



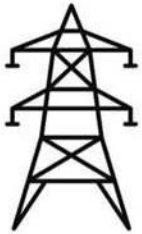
DC Power Supply
(Battery, Solar)

DC ->AC

DC ->DC

AC ->DC

AC Load
(e-Motor)

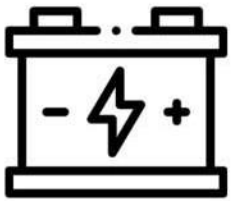


AC Power Supply
(Grid, Wind, Generator)

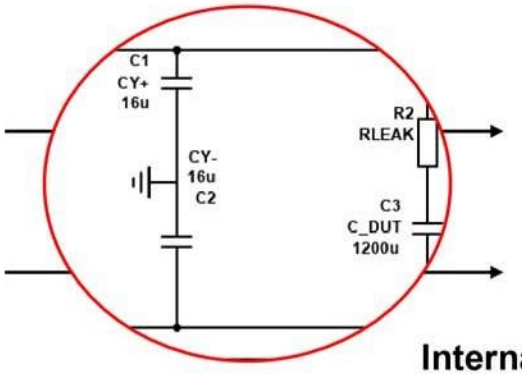
Power Electronics
(Inverter, Rectifier)

DC Load
(Electrolyser)

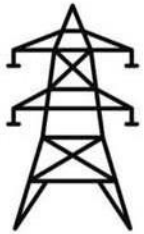
1500 V DC Links are coming in style



DC Power Supply
(Battery, Solar)



AC Load
(e-Motor)



AC Power Supply
(Grid, Wind, Generator)

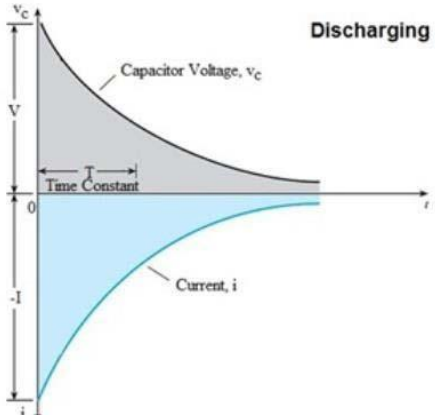
Power Electronics
(Inverter, Rectifier)

Internal Capacities that can be charged at 1500V ALTHOUGH the supply is disconnected
-> Major Safety Risk!

DC Load
(Electrolyser)

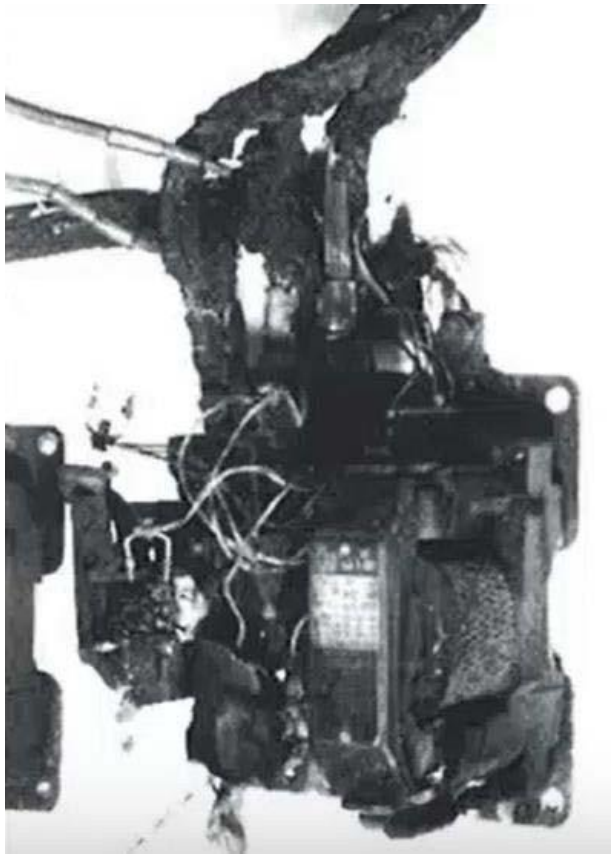
Each time you disconnect the load, the capacitors need to be discharged

- The capacities need to be discharged for handling, during production, testing or in case of emergency stops
- Conventionally, resistive loads and (for switching) **mechanical contactors / switches** are used to convert electrical to thermal energy
- This means:
  - High current and voltage
  - Mechanical & electrical wear and tear
  - Thermal stress



→ **In high-voltage applications mechanical contactors have a very limited lifetime!**

Replace mechanical contactors against wear-free HVD 450



Damaged mechanical contactor

Replace with

High Voltage HVD 450

NEW HVD 450 – Introducing the first intelligent, wear-free HV contactor

Wear-Free:

- Using special semiconductors, the HVD 450 can switch high voltages without any mechanical and electrical wear-down

Intelligent:

- The HVD 450 is equipped with internal safety routines as voltage / current monitoring and interfaces to the safety PLC to increase the reliability and safety

Flexible:

- HVDs with different discharging time constants available
- Up to 1500 VDC and 8A
- Multiple HVD 450 can be run in parallel, e.g. to discharge large power banks, e.g. 5 pc.* 8A = 40A

Unique!!!

NEW HVD 450 – Introducing the first intelligent, wear-free HV contactor

Common applications:

- Power electronics testing / manufacturing
  (e.g. inverters, rectifiers, motor control units, BMS)
- DC machines connected AC supply (Laser welding)
- Y or X capacitor networks, „capacitor to ground“
  (e.g. large EMC filters)
- etc.

Now available for order

First installations:

- 1st installations ongoing in e-vehicle-production (Vitesco/GER, BorgWarner/FR)

→ **Risks related to residual electrical charges are effectively managed**

→ **Significant cost-saving potential**

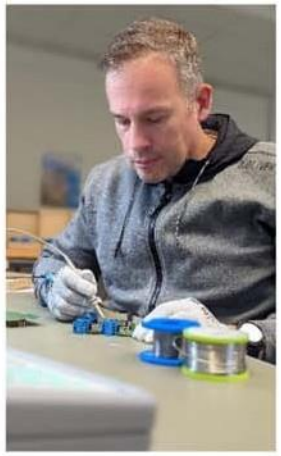
NEW Plug- & Play system for discharging purposes

- Many customers don‘t want to design discharging circuits form scratch
- Together with a partner, Mütec will provide the HVD 450 in a ready-made system with everything that‘s needed to safely discharge an HV application
- Depending on the application, the system can be seamlessly tuned to the customers requirements.

Coming late Q1‘24

Discharging

Voltage Monitoring


mütec
Your safe choice

Greenbank Energy Solutions Inc.
185 Plumpton Avenue
Washington Pa 15301 USA
Phone: 724-413-4021
724-852-2443
website: www.greenbankenergy.com