



Low Voltage and Medium Voltage EMP/HEMP Filters



About TSS USA Manufacturing

TSS USA Manufacturing is the sole qualified manufacturer of medium voltage high altitude EMP filters to protect mission-critical and medium voltage networks against HEMP events. TSS USA Manufacturing is ITAR registered and ensures all transactions are compliant with U.S. government laws and regulations.

With 35 years in the electronics and defense industry in sales, operations, program management, and engineering combined with 40 years of design experience for EMI and EMP filters—TSS USA Manufacturing offers the only MV5K medium voltage HEMP filter on the market, **as well as low-voltage HEMP filters meeting MIL-STD-188-125-1A.**



Why EMP/HEMP Filters?

These filters protect against electromagnetic pulses (EMP) and high altitude EMP (HEMP) events preventing system failures, electrical blackouts, and downtime. A high-altitude EMP event is when a nuclear weapon is detonated high in the atmosphere.

An electromagnetic pulse is an upsurge of electromagnetic energy, typically from a nuclear explosion or solar flare. There are three versions of EMPs: E1, E2, and E3.

Electromagnetic Pulse (EMP)

An Electro Magnetic Pulse (EMP) is a pulse of electromagnetic energy. The electrons from an EMP, which can be a machine-made or natural occurrence—such as solar flares—produce energy fields that damage electronics and electrical equipment. Propagated as a radiated pulse, the EMP energy can couple onto power lines damaging equipment on the line.





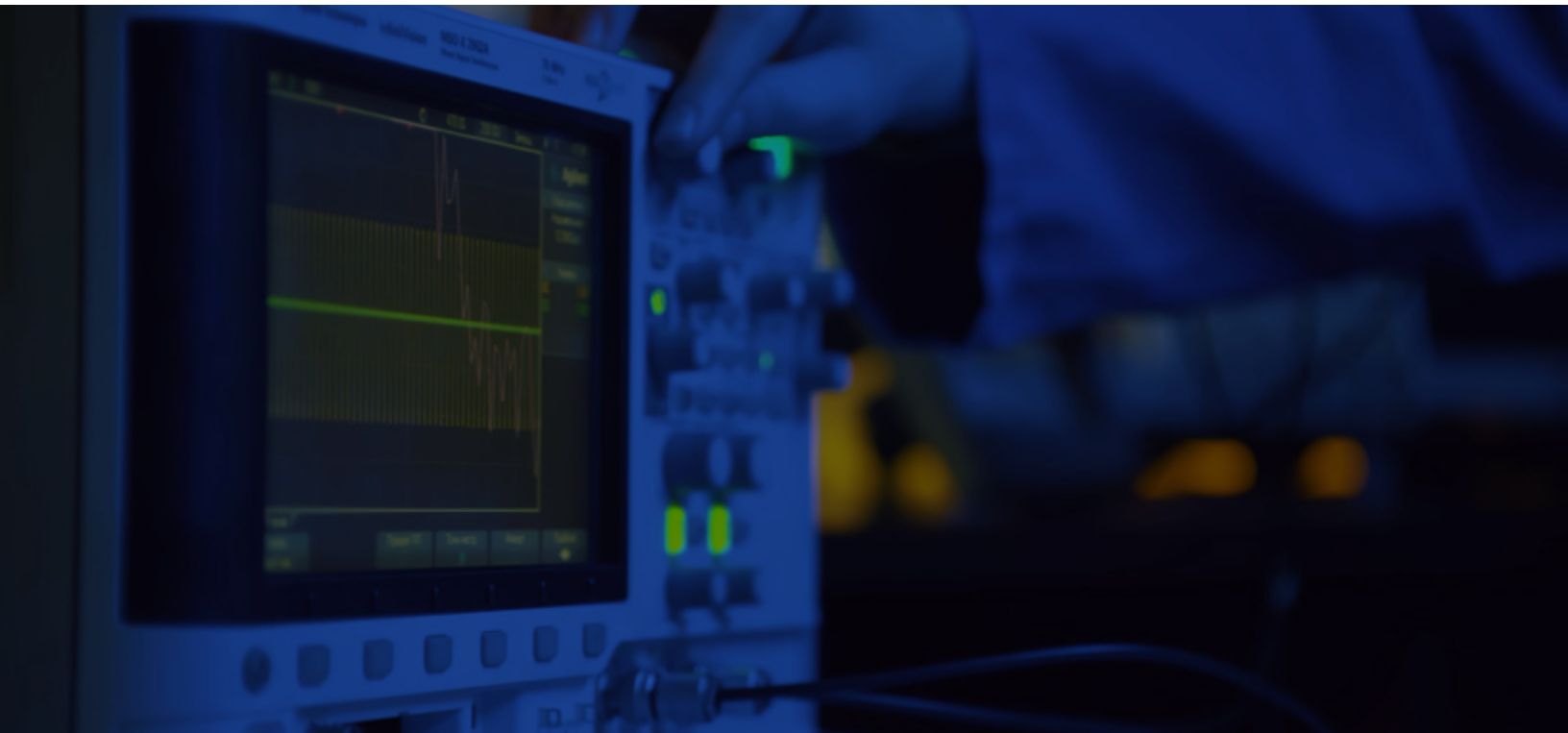
E1/E2/E3 Explanation

“HEMP event includes three waveforms: E1, E2, and E3. The E1 waveform is a fast (nanosecond rise time, hundreds of nanoseconds duration), broad-band pulse that disrupts systems in general, including long-line electrical systems, computers, sensors, and electronic-based control systems. The E2 waveform is longer and much lower in amplitude than the E1 waveform and manifests itself by enhancing the EMP currents on long lines in the microsecond and millisecond regime. E2 current pulses are comparable to currents induced by nearby lightning strikes. The E3 waveform is a low-amplitude, long-duration pulse, persisting for hundreds of seconds that induces currents in long power and communication lines, destabilizing or damaging connected equipment such as transformers and solid-state communication line drivers. E3 waveform effects are comparable to those from solar geomagnetic effects.”

U.S. Department of Energy, Electromagnetic Pulse Resilience Action, January 2017

Intentional Electromagnetic interference (IEMI)

IEMI is machine-made and is generated by a directed energy (DE) weapon. Energy from a DE weapon is directed at a target in the form of either a radiated or conducted pulse. As with EMP, a radiated pulse can couple onto wiring and become a conducted pulse damaging electronic and electrical equipment close to the radiated pulse or on the power line conducting the pulse.





Requirements

These filters exceed the performance requirements and have passed a five-year life test.

Government and Industry Standards:

- ISO 9001
- UL1283
- MIL-STD-461
- MIL-STD-220
- MIL-F-15733
- MIL-188-125-1
- MIL-188-125-2
- MIL-188-125-1A
- RoHS Compliance

Mobile Applications:

- Vehicles
- Mobile Command Center
- Aerospace
- Mobile Shelters
- Mobile Critical Infrastructure

Filter Options

- CG = Cradle to Grave Paperwork
- Ms = Special Mounting
- OT = Non-standard operating temperature range
- Ts = Special testing

What Are These Filters For?

- Critical infrastructure
- Military
- Power
- Commercial
- Control
- Data
- Telephone

Facility Applications:

- Government Security
- Data Storage
- Power Stations
- Secure Facilities
- Critical Infrastructure



Low Voltage Filters

The designing, manufacturing, and testing of **HEMP filters** are MIL-STD-220, MIL-F-15733, and UL1283. Tempest filters are a range of multi-line filters for filtering control lines and low current power lines on shielded rooms and general installations and carrying digital data circuits and analog telephone circuits into shielded rooms and communications cabins with a voltage rating of 120/230 VAC and 277/480 VAC at 60 Hz ranging from 10 amp to 1200 amp.

The designing, manufacturing, and testing of **LV1A low-voltage HEMP filters** are per **MIL-STD-188-125-1A**, MIL-STD-188-125-2, MIL-STD-220, MIL-F-15733, and UL1283. These HEMP filters are a range of multi-line filters for filtering control and low current power lines on shielded rooms and general installations and carrying digital data circuits and analog telephone circuits into shielded rooms with a voltage rating of 120/230 VAC and 277/480VAC at 60hz ranging from 10amp to 1200 amp.



Medium Voltage Filters

The designing, manufacturing, and testing of **MV5K medium voltage HEMP** are per MIL-STD-188-125-1 and MIL-STD-188-125-2. These HEMP filters are for any facility with a medium voltage power distribution network with a voltage rating of 4160VAC at 60 Hz ranging from 250 amp to 800 amp and an operating voltage of up to 5,000 volts.

Visit **TSS USA Manufacturing** for [the entire list of available filters.](#)



Quality

Our filters are "Made in the USA" per FAR 52.225-1. We offer a two-year warranty.

Contact

Prevent up to two years of downtime from transformer lead times—protect your critical infrastructure with USA-made filters. You can also contact us for a [custom quotation](#).

Medium Voltage EMP/HEMP Filter

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ISO 9001

ITAR Compliant

