

## Series A dv/dt Filters

### 380VAC to 600VAC dv/dt Filters for Motor Protection

MTE SERIES A dv/dt FILTERS are designed to protect AC motors from the destructive effects of peak voltages facilitated by long cable runs between the inverter and motor. Depending on the switching time of the power semiconductor used in the inverter and the size of the motor, cable lengths as short as eight feet can result in peak motor voltages that exceed the rating of the motor's insulation system. The longer the cable, the greater the problem.

**GUARANTEED RESULTS** - The MTE dv/dt Filter is guaranteed to meet its maximum peak motor voltage specification (150% of bus voltage) with up to 1,000 feet of cable between the filter and the motor. It is also rated for a maximum dv/dt of 400V per microsecond. In specific applications, the filter has provided excellent performance with cable runs up to 3,000 feet. The dv/dt Filter has a "3% insertion impedance" which ensures motor torque is not affected by added voltage drops from the filter. Additional benefits include cooler running motors (typically 20-40°C cooler) and a 5dbA reduction in audible motor noise.

**EASY TO APPLY TECHNOLOGY ADVANTAGE** - The MTE dv/dt Filter is a passive fourth order device that reduces transmission line effects of motor cables by dampening the rate of voltage increase and minimizes the peak voltage that occurs at the motor terminals. MTE Series A dv/dt Filters are designed for use with inverters operated at switching frequencies between 900Hz and 8kHz.

The dv/dt Filter has a continuous current rating of 100% RMS, with intermittent current ratings of 150% for 1 minute and 200% for 10 seconds.



**PRODUCT SELECTION:** See [MTE dv/dt Filter Selection Brochure](#) or visit the MTE website at [www.mtecorp.com](http://www.mtecorp.com) for complete product selection. **Please note that Series A dv/dt Filters can only be used with PWM inverters with switching frequencies between 900Hz and 8kHz.**

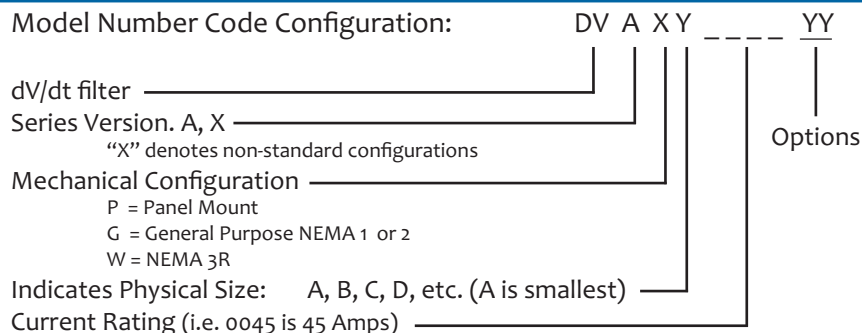
**BASIC SPECIFICATION RANGES** - The dv/dt Filter is available in voltage ranges of 380VAC to 600VAC & for motor sizes from 0.5 Hp to 600 Hp. For applications with motors rated 100 hp & below & standard NEMA B motors (MG1 Part 30) are prone to failure as a result of high voltage spikes & will benefit from an MTE dv/dt filter. The dv/dt Filter has a continuous current rating of 100% RMS & intermittent current ratings of 150% for 1 minute & 200% for 10 seconds. The maximum peak motor terminal voltage with 1000 ft cable or less is guaranteed not to exceed 150% of bus voltage.

**INSTALLATION OPTIONS:** Panel-mount or NEMA 1, 2 and 3R enclosures are available.

Typical uses include:

- Submersible Pumps
- HVAC Equipment
- Process Automation Lines
- Protect Motors from Long Lead Effects
- Reduce Output Voltage dv/dt
- Reduce Motor Temperature
- Reduce Motor Audible Noise

Model Number Code Configuration:



## DRIVING POWER QUALITY

# Product Specifications - dV/dt Filters

Refer to the Series A dV/dt Filter User Manual for Detailed Specifications

## Performance:

**Maximum Peak Motor Terminal**

**Voltage with 1000 ft cable:**

150% of bus voltage

**Maximum dV/dt:**

400 Volts per microsecond

## Ratings:

**Continuous Current Rating**

100% RMS

**Intermittent Current Ratings:**

150% for 1 minute

200% for 10 seconds

**Minimum Inverter Switching Frequency:** 900Hz

**Maximum Inverter Switching Frequency:** 8kHz

**Nominal Inverter Operating Frequency:** 60Hz

Minimum:

6Hz

Maximum with de-rating:

120Hz

**Altitude without de-rating:** 1000 meters

**Maximum ambient temperature:** 50° C open filters

40° C enclosed filters

**Insertion Loss:**

3% of rated voltage maximum

**Audible Noise:**

Maximum Audible Noise Level at

Two Meters for Standard Configuration: 76dB-A

**Output Compatibility/Loading:**

Conventional 3 phase motors,

“No Load / Open Circuit” continuous operation

**Agency Approvals, UL& cUL:**

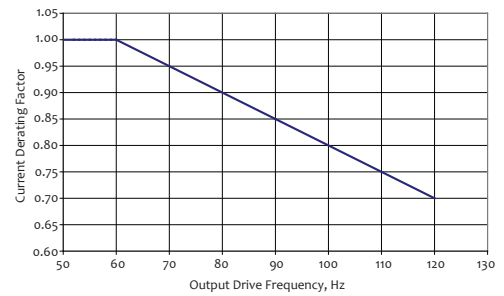
Listed to UL508 type MX and CSA-C22.2 No 14-95, File E180243

3HP to 1000HP, 120VAC to 600VAC, 50/60Hz Three Phase

**Note: Short Circuit rating not required under Exception No.1 of UL508A SB4.2.1**

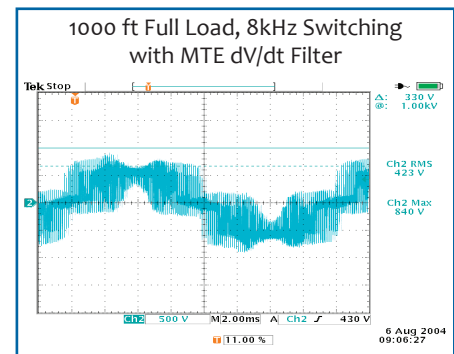
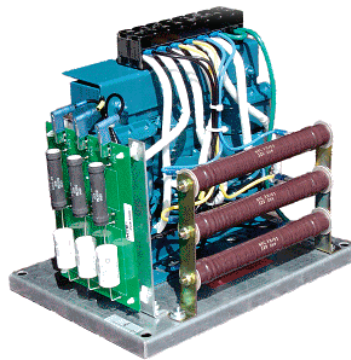
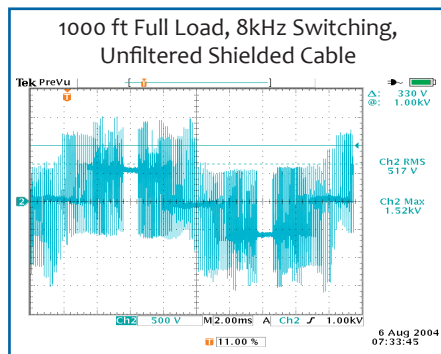
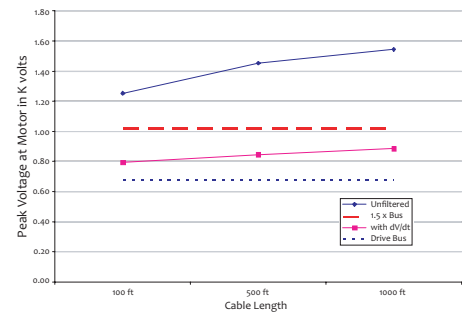
Data subject to change without notice.

dV/dt Filter Current Derating for Drive Output Frequency



dV/dT Filter Performance

22 Amp dV/dt Overall Performance 30hp 480 Vac Motor



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