

SINE60™

A High Efficiency Sine Wave Filter
Optimized for 60Hz Applications



magnetics

REMOVING HARM FROM HARMONICS™



SINE60™ 60Hz

UL Listed Package Options



MagStand™ Cabinet

- NEMA 3R Cabinet
- External Junction Box: 3In/3Out
- Hinged Door for Field Service



MagPallet™ Cabinet

- NEMA 3R Cabinet
- External Junction Box: 3In/3Out
- Access Panel for Electrical Connections



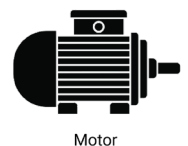
MagPac™ VFD Integrated

- Drive Mounted NEMA 3R Cabinet
- Internal Power Connection
- External Junction Box: 3In/3Out
- Hinged Door for Field Service

SINE60™ Filter

Harmful square waves, voltage spikes, and harmonic distortion are all filtered from the inverter output, reducing motor heating, wear, and winding stress, providing critical motor protection.

CTM's Sine60™ sine wave filters are specifically designed for optimal performance with 60 Hz motors. Attenuated for PWM switching frequencies as low as 2 kHz (and up to 20 kHz), Sine 60™ filters will meet your most demanding motor filtering needs for all 60 Hz applications. Coupled with a liquid cooled option, CTM's patented liquid cooled technology traps and removes 97% of the filter's heat in the highest power density solution available to the market.



PROBLEM: Motor Durability

SOLUTION: SINE60™ 60Hz



SINE60™ filter reduces motor heat, noise, vibration, and ripple current - extending motor life

- Air or Liquid Cooled
- 100% Load at Cold-Start
- Maximum Motor Lead Length
- Filter Reliability
- Critical Motor Protection



MADE
★ IN THE ★
USA

The Ultimate Motor Protection Solution!

SINE60™ eliminates high voltage spikes & lessens harmonic distortion, minimizing motor heating.

PERFORMANCE SPECIFICATIONS

Harmonic Voltage Dist.	<5% THVD @ 2 kHz	
Voltage Range	480 V ±10%	
Voltage Insertion Loss	<3.3%	
Fundamental Frequency	6 - 70 Hz (higher with de-rating) - For up to 500 Hz applications, see HighSine Series Sine Wave Filters	
Switching Frequency	2 - 20 kHz (Above 8 kHz, contact CTM for application verification)	
Current Range	100 - 2160 A (Air cooled) 100 - 2880 A (Liquid cooled)	
Overload Capability	200% rated current for 1 minute (Air) 200% rated current for 1 minute (Liquid)	
Ambient Temperature Range	Maximum: 50 °C (122 °F)-Air 65 °C (149 °F)-Liquid	Minimum: -40 °C (-40 °F)-Air -40 °C (-40 °F)-Liquid ^A
Audible Noise	~40 dB (Air)	~0 dB (Liquid)
Relative Humidity	95% without condensation	
Enclosure Options	Modular Panel Flying Leads NEMA 3R Cabinet MagPac®	
Motor Cable Length	Up to 15,000 feet	
Maximum Altitude	3,300 ft (Air) Higher with derate	No Limit (Liquid)
Agency Recognitions	UL508A, E94241 in compliance with UL1446	

Liquid Cooled Options:

Maximum Coolant Temp.	50 °C (122 °F) (Higher with de-rating)
Approved Coolants	Deionized water Water-glycol mixture For R134A, contact CTM
Plumbing Material Options	Aluminum (standard) Copper
Heat Removal	97% to Liquid Coolant 3% to Ambient Air

^A Preventative measures should be taken to ensure the coolant does not freeze in the system.

^B MagPac® is a NEMA 3R enclosure that mounts to the side of an existing VFD cabinet.

Open Chassis Options



CTM vs The Competition

SINE60™

- ☒ Cooling System
Air or Liquid Cooled
- ☒ 100% Load at Cold-Start
(Automatic Restart)
- ☒ NO Common Mode Noise
- ☒ High-Reliability Capacitors

The Competition

- ☒ Cooling System
NOT Air or Liquid Cooled
- ☒ 100% Load at Cold-Start
(Automatic Restart)
- ☒ NO Common Mode Noise
- ☒ High-Reliability Capacitors

Liquid-Cooled Technology

- **Highest Power Density**
Superior heat removal enables smaller magnetics.
- **Thermal Isolation**
Up to 97% of heat removed. No climate control required.
- **Rugged Design**
Military-grade sealed inductors provide reliability for harsh environments.
- **Low Audible Noise**
Our superior materials & geometric shapes, noise is significantly lower.

"We Fixed it" - Motor Protection

MILITARY



HIGH
SPEED
MOTORS

WE
FIXED
IT



HARMONIC
DISTORTION



HVAC
CHILLERS



THIS IS WHAT PERSISTENCE LOOKS LIKE!