

# M | CoolBlue - A MORE Powerful Solution

## CoolBlue Application Guide for Motor Bearing & Stray Ground Currents

MH&W presents **CoolBlue/NaLA** solutions, for the highest reliability and longevity of your VFD motor system!

VFD's create high frequency damaging motor bearing and circulating currents. If these currents aren't "choked" – bearing damage, lubrication breakdown, electrical discharge machining (EDM), and sensor interference will result. **CoolBlue** with **NaLA** absorbs this high frequency damaging current before it gets to the motor. This method significantly increases the service life of the motor bearings and reduces EMI, thereby reducing maintenance costs and standstill periods. You will appreciate this time and cost savings!

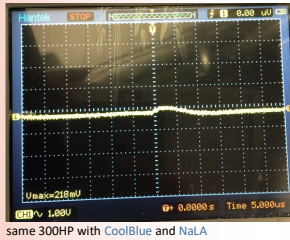


### WHAT is a "Choke"?

### WHAT is CoolBlue?



In electronics, a choke is a specially designed inductor used to block unwanted high frequency alternating current in an electrical circuit, while passing designed frequency currents.



The name "choke" comes from "choking" higher, unwanted, frequencies.

Noise generated from a VFD (IGBT, SiC MOSFET, GaN switching), is going out simultaneously from all outputs, but also coupling back to earth ground. The only solution is to absorb the unwanted noise and

keep it from being transmitted and coupling back to earth ground. To do this, high frequency currents should be captured through a magnetic core. **CoolBlue/NaLA** kits are used in this application to provide absorption and high impedance of the unwanted high frequency.

Common mode currents (CMC) will cause bearing damage in the motor, and electromagnetic interference which affects control signals, encoder feedback, communication links for programmable logic controllers, Remote I/O, metal detectors, pump monitors, and other types of sensors including, ultrasonic sensors, bar code/vision systems, weight and temperature sensors.

### CoolBlue and NaLA kitted solutions are used in:

- |  |                                       |                             |
|--|---------------------------------------|-----------------------------|
| Electric vehicle (EV) applications         | Automotive manufacturing              | Agriculture                 |
| OEM manufacturers of HVAC equipment        | Hospital/commercial/office buildings  | Chillers                    |
| All International VFD manufacturers        | Wind, solar, other renewable energies | All types of pumps and fans |
| Paper/bottling/food/chemical manufacturing |                                       |                             |

Call us for more information at (201) 252-8125, or visit us at [www.coolblue-mhw.com](http://www.coolblue-mhw.com)

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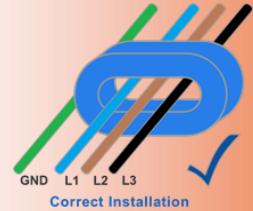
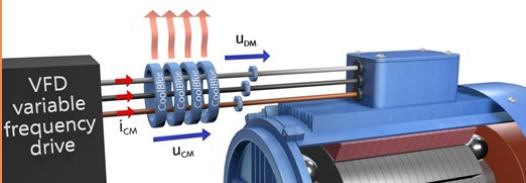
No Maintenance...unlike diverter rings which are subject to rust, dirt, grease, and worn grounding brushes. **CoolBlue** eliminates the need for ceramic bearings.

The **CoolBlue** kit solutions have already saved millions of \$\$ in the world's industrial plants, hospitals, and office buildings by avoiding down time and equipment failures.

The appropriate kit must be placed on the motor cables at the VFD output. In this configuration, the cores operate as common mode and differential mode chokes.

## Application Guide - CoolBlue kits per VFD horsepower/cable length

VFD Size	Cable Length	Cable Length	Cable Length	Cable Length
	1-150'	151-300'	301-450'	451'+
UP TO 1HP	OKIT.0-1HP-151	OKIT.0-1HP-300	OKIT.0-1HP-450	OKIT.0-1HP-451+
1.1-10HP	OKIT1.1-10HP-150	OKIT1.1-10HP-300	OKIT1.1-10HP-450	OKIT1.1-10HP-451+
11-40HP	OKIT11-40HP-150	OKIT11-40HP-300	OKIT11-40HP-450	OKIT11-40HP-451+
41-50HP	OKIT41-50HP-150	OKIT41-50HP-300	OKIT41-50HP-450	OKIT41-50HP-451+
51-100HP	OKIT51-100HP-150	OKIT51-100HP-300	OKIT51-100HP-450	OKIT51-100HP-451+
101-428HP	OKIT101-428HP-150	OKIT101-428HP-300	OKIT101-428HP-450	OKIT101-428HP-451+
429-1631HP	RKIT429-1631HP-150	RKIT429-1631HP-300	RKIT429-1631HP-450	RKIT429-1631HP-451+
1632HP+	OKIT1632+HP-150	OKIT1632+HP-300	OKIT1632+HP-450	OKIT1632+HP-451+



### Notes:

- 1 - Base kit on VFD size, not motor size.
- 2 - A complete installation guide is included in the kit.
- 3 - All cables/phases must travel through the CoolBlue cores.
- 4 - **NaLA** cores are per phase.
- 5 - No grounding wires, armored or shielded cables can go through any cores!
- 6 - On motors 10HP and below, two turns are needed through the CoolBlue cores. More information on this is in the installation guide.
- 7 - It is important to use the correct kit for each application.
- 8 - Install cores on the load side of the VFD for typical motor applications, temp dot visible.
- 9 - Brackets and additional cable ties are available from MH&W to help hold cores in place, if needed.
- 10 - Kits are applicable for servo and DC motors too. Call CoolBlue Engineering for more information.
- 11 - All kits are available in round (R) and oval (O) configurations.



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