Magnetec

CoolBlue® & NaLA® Installation Guide

CoolBlue® Inductive Absorbers

NaLA® Nanoperm Line Absorbers

Best Solution for Motors

CoolBlue® Inductive Absorbers

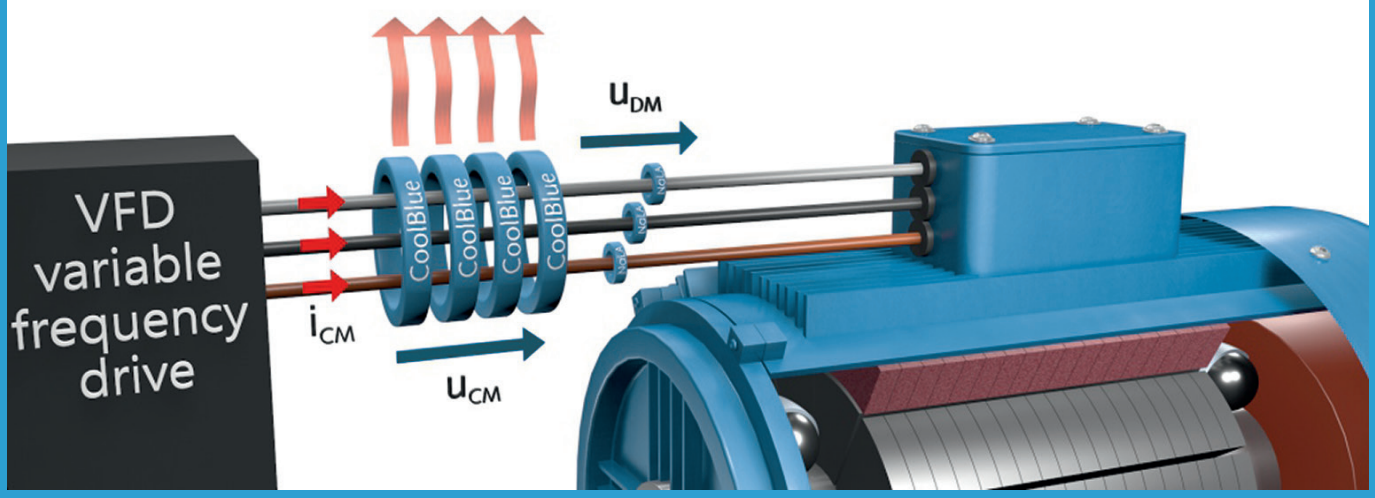
CoolBlue® Inductive Absorbers absorb the noise an the power cables generated from the VFD before it gets to the motor. The CoolBlue® cores act as a common mode choke (CMC) in this given configuration, and dissipates into thermal.

No motor modifications, no shaft preparation, very easy installation. Can be added to systems with very minimal downtime. No costly installations or downtime like traditional grounding ring solutions.

No insulated bearings or hybrid bearings.

Lasts the lifetime of system!

4 or more CoolBlue® Inductive Absorbers around power cables.



CoolBlue® and NaLA® toroid are used to reduce damaging motor bearing currents in modern high power inverter systems operating at high switching frequencies. Results of these unwanted currents - Bearings corrugate, leading to electrical breakdown in the lubrication, electrical discharge machining, and ultimately motor bearing failure.

The use of CoolBlue® and NaLA® cores not only significantly reduces the over voltage peaks at the motor terminals, but also suppresses the asymmetrical EMI currents which are generated by the parasitic currents of the motor itself together with the motor cable. In order to achieve an efficient reduction in these destructive effects, two or more CoolBlue® cores of suitable geometry have to be placed together over the connector cables in the DC-link as well as at the inverter output. In this configuration, the cores operate as a common-mode choke.

This method significantly increases the service life of the motor bearings and thus reduces maintenance costs and standstill periods.

Follow all workplace safety policies and procedures applicable to electrical testing, motor diagnoses, motor and electrical repair, and any other hazardous potentials. Wear all applicable personal protective equipment required by the applicable law including protective eye glasses, safety shoes, and hats if required.

Employees should be informed of the relevant safety rules and employers should enforce compliance. The manufacturer shall not be liable for any injury, loss or damage, direct or consequential arising out of the use, or attempt to use the product or procedures described in this guide.

CoolBlue® Inductive Absorbers

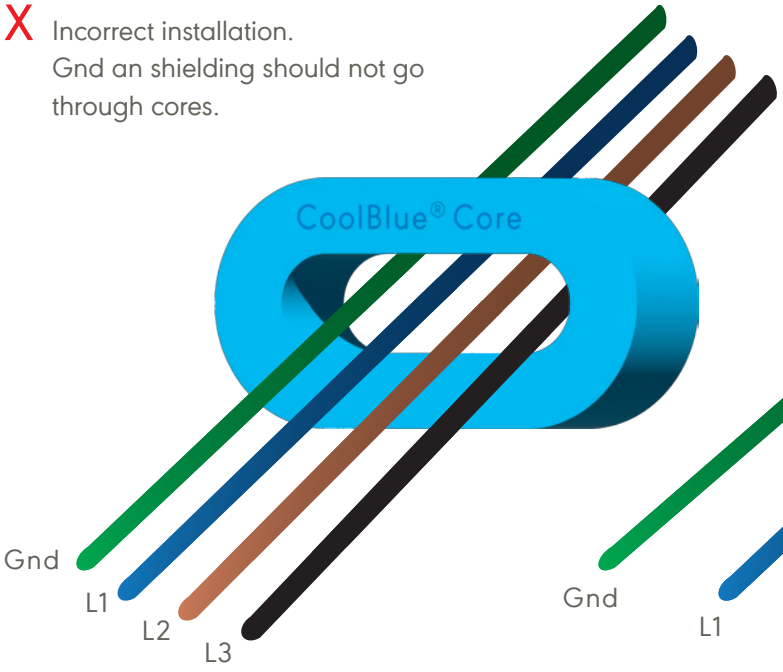
Correct Installation of CoolBlue® cores

3 power phases must go through cores as shown below.

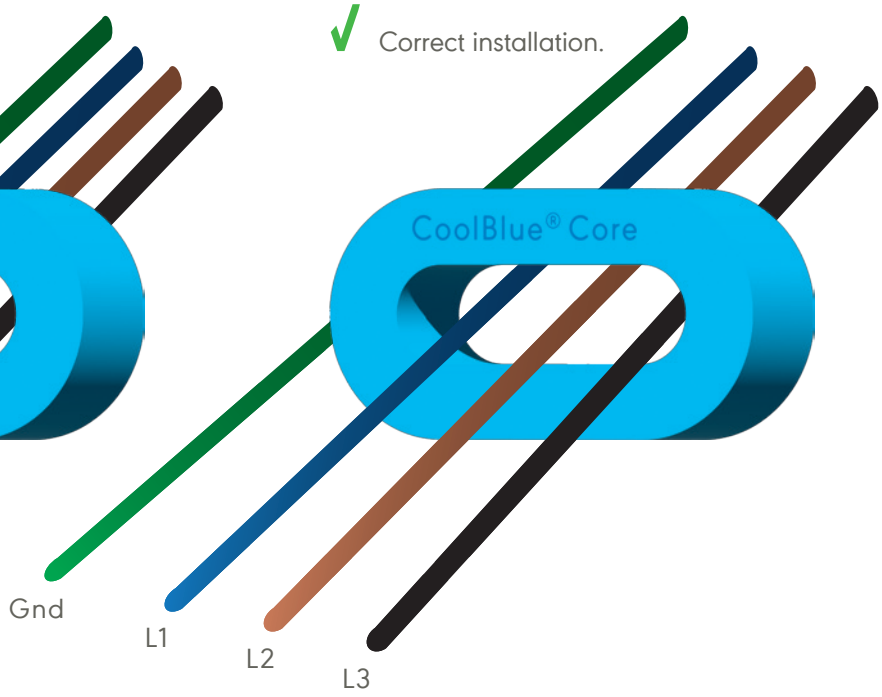
No grounding wire or shielding.

In the case of multiple conductors, all power conductors go through coground or shielding.

X Incorrect installation.
Gnd an shielding should not go through cores.



✓ Correct installation.



Below is example of multi-conductor cables per phase.

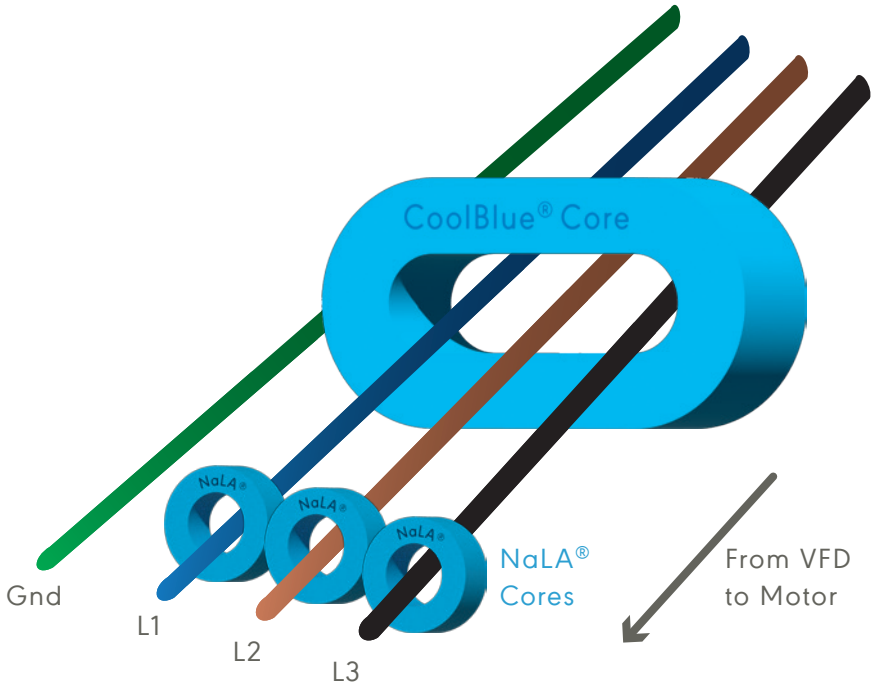
NaLA® Line absorber

Correct Installation of NaLA® cores

Each power cable must have at least one NaLA® core installed, as shown below. No grounding wire or shielding. In the case of multiple conductors, all power conductors will need at least one core per cable. Again, not ground or shielding.

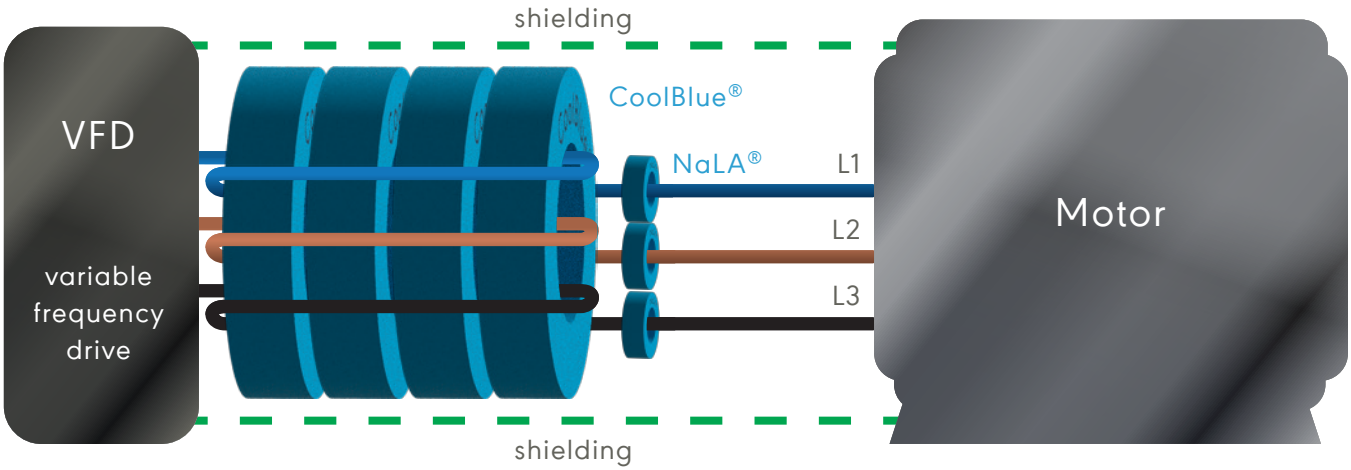
CoolBlue® and NaLA® (if applicable) must be installed as closed to the VFD as possible.

CoolBlue® cores are installed first, then NaLA® (if applicable), as shown below.



0,7 kW to 7,5 kW must have power cables run through CoolBlue® cores twice (two turns) in order to provide enough inductance to properly suppress common mode peak current. NaLA® is applicable in all power ranges just with one turn per NaLA® core.

Below is a simple diagram showing two turns through CoolBlue® for a < 7,5 kW application, and one pass through NaLA® after CoolBlue® cores.

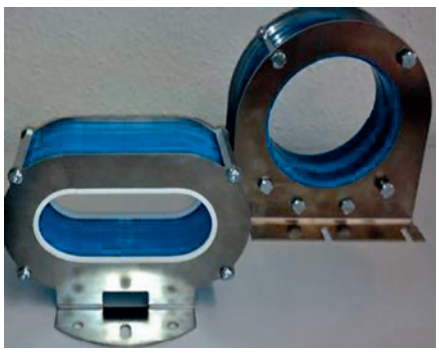


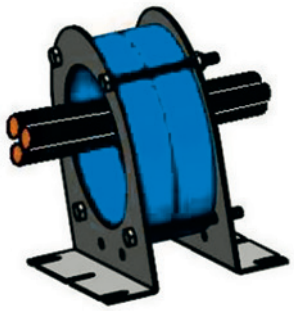
Mounting CoolBlue® cores

Because of the size and weight of CoolBlue® cores, it may be necessary to clamp and mount the cores to the wall of the drive, or other area between drive and motor. This is on a per need basis. It is not required, but does make the system look more esthetic, and provides support for heavier cores.

Available are special made brackets, with threaded rod, that can easily clamp and mount the cores to a structure.

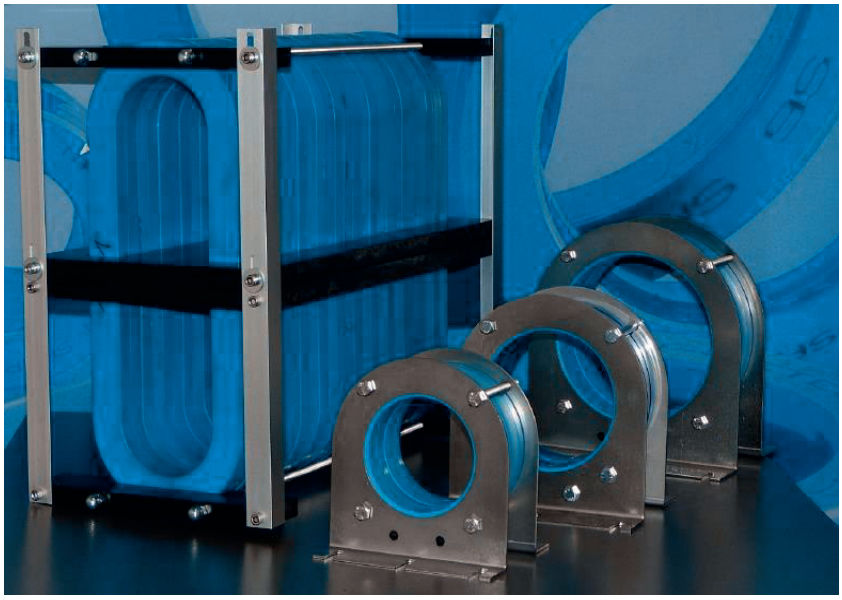
Two core brarcket configuration example.





There are a variety of bracket sizes to fit all CoolBlue® cores. NaLA® cores do not require any type of mounting, because of their size, weight, and how they are installed.

*It is very important to note that no metal (other than power cables) passes through the cores. The configuration of CoolBlue® cores is a common mode choke on the power cables. By passing other metals through the cores, except power cables, will negate the effects of absorption.



Each kit comes with the appropriate size and amount of CoolBlue® cores per kW of system, and length of power cable between drive and motor. ALL cores must be used according to kit.

Power down system according to all applicable guidelines. For safety, insure that all power is off before beginning to work on system.

1 Choose appropriate kit per kW of motor, and cable length, see:
https://www.magnetec.de/wp-content/uploads/2022/10/CoolBlue-Datasheet.pdf
https://www.magnetec.de/wp-content/uploads/2022/11/NaLA-Datasheet.pdf

2 CoolBlue® cores come tied together with cable ties. It is best to leave the cores in this configuration. In some cases, there may be a need to remove the cable ties, and mount using brackets, to the inside wall of the drive. See section https://www.magnetec.de/wp-content/uploads/2022/10/CoolBlue-Datasheet.pdf for more information.

3 Disconnect the three phases from the drive, carefully identifying the location of each power cable.

4 Place the appropriate type and amount of NaLA® cores around each power cable.

5 Place the appropriate type and amount of CoolBlue® cores around ALL power cables.

6 Reconnect the power cables appropriately.

System is now ready to be checked.