

COOL BLUE® Tape wound cores to reduce motor-bearing currents



The **MAGNETEC** NANOPERM® CB line **COOL BLUE®** made from the nanocrystalline material **NANOPERM®** are being used to reduce damaging motor bearing currents in inverter – motor systems.

As a result of these unwanted currents, the bearings corrugate, leading to electrical breakdown in the lubrication and finally to a standstill of the entire motor.

The **COOL BLUE®** cores are used for suppresses the common mode EMI noise which is generated by the parasitic capacities of the motor itself together with the motor cable. In order to achieve an efficient reduction in these destructive effects, one or more **COOL BLUE®** cores of suitable geometry have to be placed over the connector cables in the DC-link or 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.

Please take care: If you put CB cores in, the asymmetric current can be redirected and run through unexpected parts.

See www.magnetec.de for **CB NaLA®** product infosheet.

Type	Nominal dimensions do x di x h [mm]	Finished dimensions OD _{1/2} x ID _{1/2} x H [mm]	lfe [cm]	afe [cm ²]	AL 10kHz [μH]	AL 100kHz [μH]	I _s * [A]
M-923	30 x 20 x 10	32,7 x 17,8 x 12,6	7,8	0,36	13,6 – 27,2	>6,70	2,0
M-967	50 x 40 x 20	53,4 x 36,6 x 23,5	14,1	0,73	10,4-20,8	>7,30	4,5
M-049	50 x 40 x 20	oval:60,7/40,7x42,7/24,8x22,3	14,1	0,8	12,6 – 28,4	>6,30	3,5
M-112	63 x 50 x 30	68 x 43 x 36	17,7	1,44	23,3 – 46,6	>11,0	4,5
M-649	63 x 50 x 30	oval:82,8/45,5x57,5/20,6x33	17,7	1,44	23,3 – 46,6	>11,0	4,5
M-378	75 x 50 x 30	80 x 43 x 36	19,4	2,78	37,3 – 74,6	>18,5	5,0
M-113	80 x 63 x 30	85 x 57 x 35,5	22,4	1,86	24,1 – 48,2	>12,0	6,0
M-283	80 x 63 x 30	oval: 101/62x68/28x37	22,4	1,86	24,1 – 48,2	>12,0	6,0
M-114	100 x 80 x 30	105 x 75 x 35	28,2	2,25	22,5 – 45,0	>11,2	7,5
M-284	100 x 80 x 30	oval: 130/66x94/30x37	28,2	2,25	22,5 – 45,0	>11,2	7,5
M-115	130 x 100 x 30	135 x 94 x 34	35,9	3,33	24,6 – 52,9	>12,2	9,5
M-116	160 x 130 x 30	165 x 123 x 34	45,4	3,24	20,9 – 45,0	>10,5	12
M-302	160 x 130 x 30	oval: 197/111x155/69x36	44,7	3,30	20,9 – 45,0	>10,5	12
M-117	200 x 175 x 30	208 x 166 x 37	58,8	2,74	12,3 – 24,6	>6,00	15,5
M-111	237 x 201 x 30	oval: 305/147x249/95x37	69,6	3,94	14,5 – 29,9	>7,20	18,5
M-205	300 x 254 x 30	304 x 246 x 36	87,1	5,20	15,8 – 31,5	7,20	23
M-248	300 x 254 x 30	oval: 392/160x326/94x37	87,1	5,20	15,8 – 31,5	>7,90	23
M-503**	500 x 450 x 30	513 x 437 x 37	149,1	5,60	8,0 – 20,0		40

oval:stadium shaped; * Informative (no liability assumed): "Quasi Saturation Current" @ B = 1,0 T / μ_{nom} / N = 1;**sample

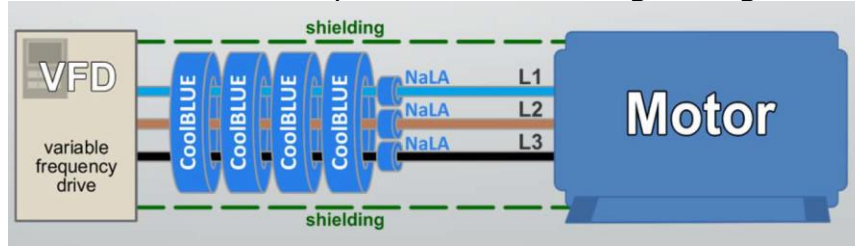
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Application of CoolBLUE®, no PE and shielding through the cores



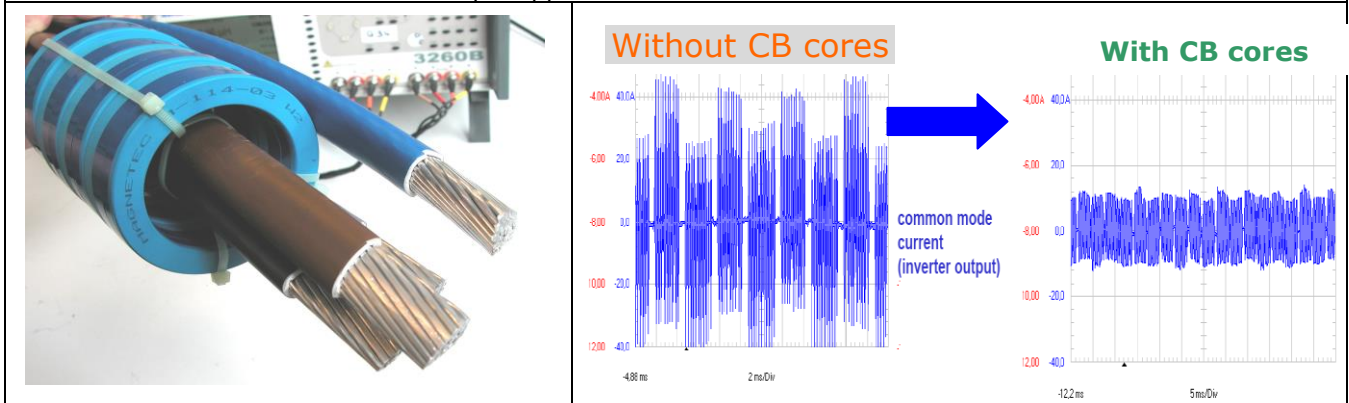
CoolBLUE® selection guide

Kilowatt	<0,7	<7,5	<30	<75	<315	<1.200	> 1.200
p/n oval	n/a	M-049	M-049	M-283	M-302	M-111	M-248
p/n round	M-923	M-967	M-967	M-113	M-116	M-117	M-205
Isat*/Apk N=1	2	4	4	6	12	16	22
Turns	N=2		N=1				

Cable length up to								around all 3 phases	
	50m	2	2	4	4	4	4		4
	100m	4	4	4	4	4	4		4
	200m	4	4	6	6	6	6		6
	300m	4	4	6	6	6	6		6

Only for information, no guaranteed values . For all information no liability assumed. *Saturation Current Isat of NANOPERM®: Peak value of the exiting current when the initial inductance level is dropped to 10 per cent

Example application of the CoolBLUE® cores



The **NANOPERM® CoolBLUE®** offers following benefits:

- **Advanced reduction of noise in motor-inverter systems**
- **Easy to install and to retrofit, easy to select with the above guideline**

Typical applications:

Pumps, fans, wind turbines, trains, paper industries, mills, turning machines and many more, please contact us for consultation.

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