

Application: Electric – Motors
RF attenuation from DC up to 100 MHz
Inductive Absorbers to eliminate
high frequency noise from your
installation

Problem with Servo Motors - Part 1:

The main Bearings are normally not damaged by Electroerosion´.

The Sensor Bearings (Servo Motors) are easily damaged by high frequency Currents running over it.

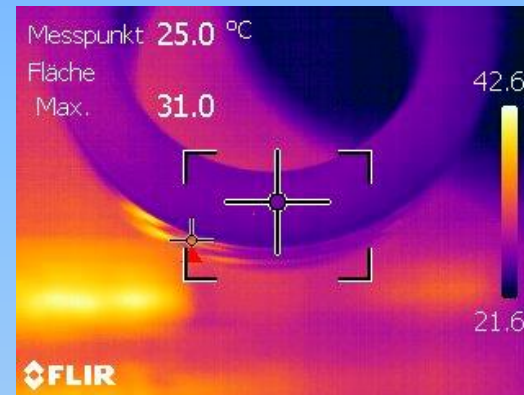
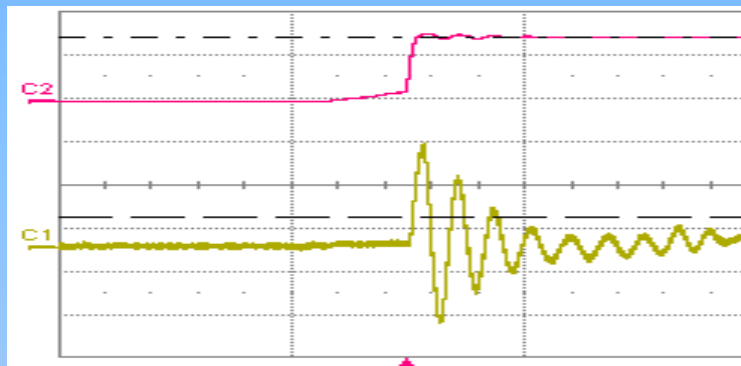
Target is to reduce the high frequency peak Current under 10 A.

Without having a too high temperature (below 60 °C) at the cores and the cost should be in an acceptable range.

Easy mounting and no maintenace is required.

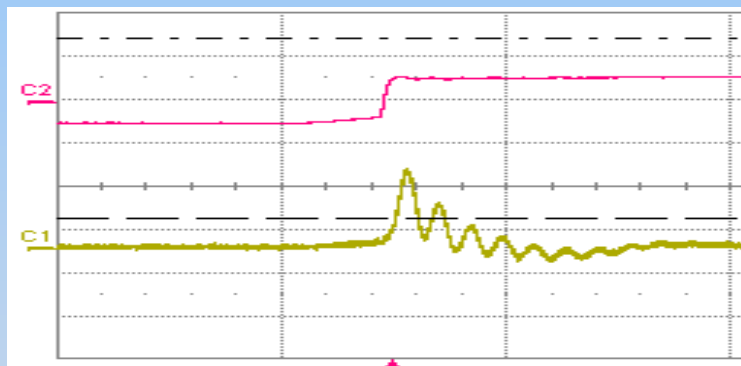
Servo – Motors are special: Absorption of HF-noise

Initial situation: nealy 40 A Ipeak Common Mode Currents



Cores deacitvated

Improvement: lower than 15A Ipeak Common Mode Currents



Cores acitvated

Problem with Servo Motors - Part 2:

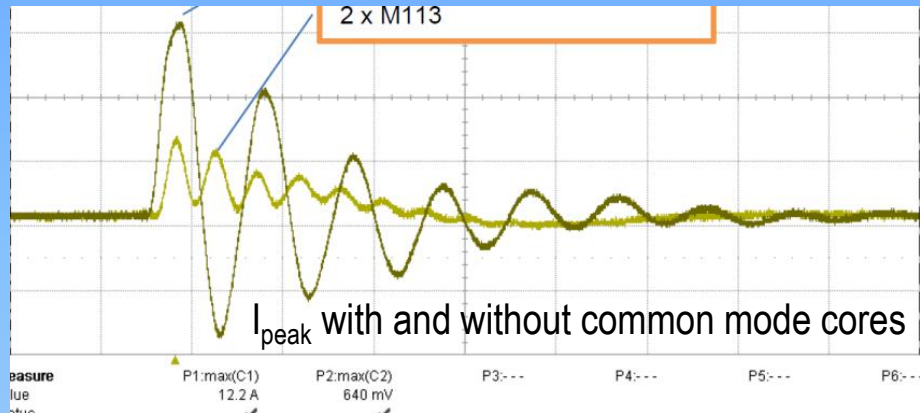
How to get more absorption without getting too hot ?

1. Use the suitable common mode COOL BLUE® cores by selecting the mechanical shape (inner hole has to be big enough) and the maximum peak current (Common Mode)

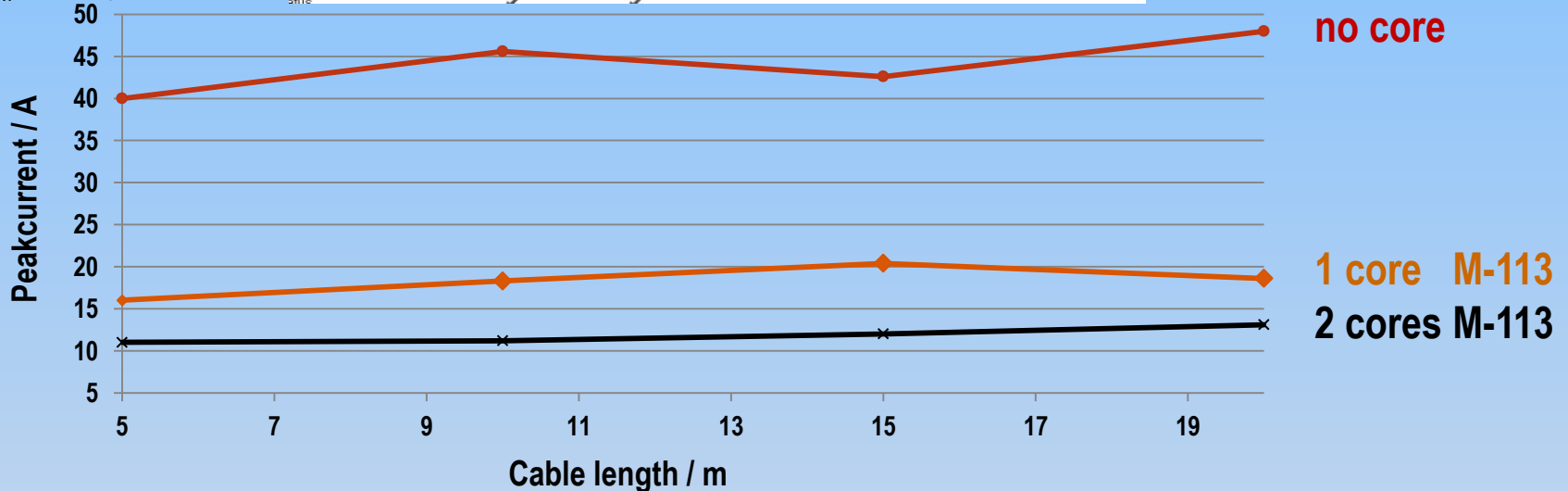
or look at the application table for different Power and Motor cable lengths

2. Add NANOPERM® Line Absorbers (NaLA® High Permeability ~ 80.000)

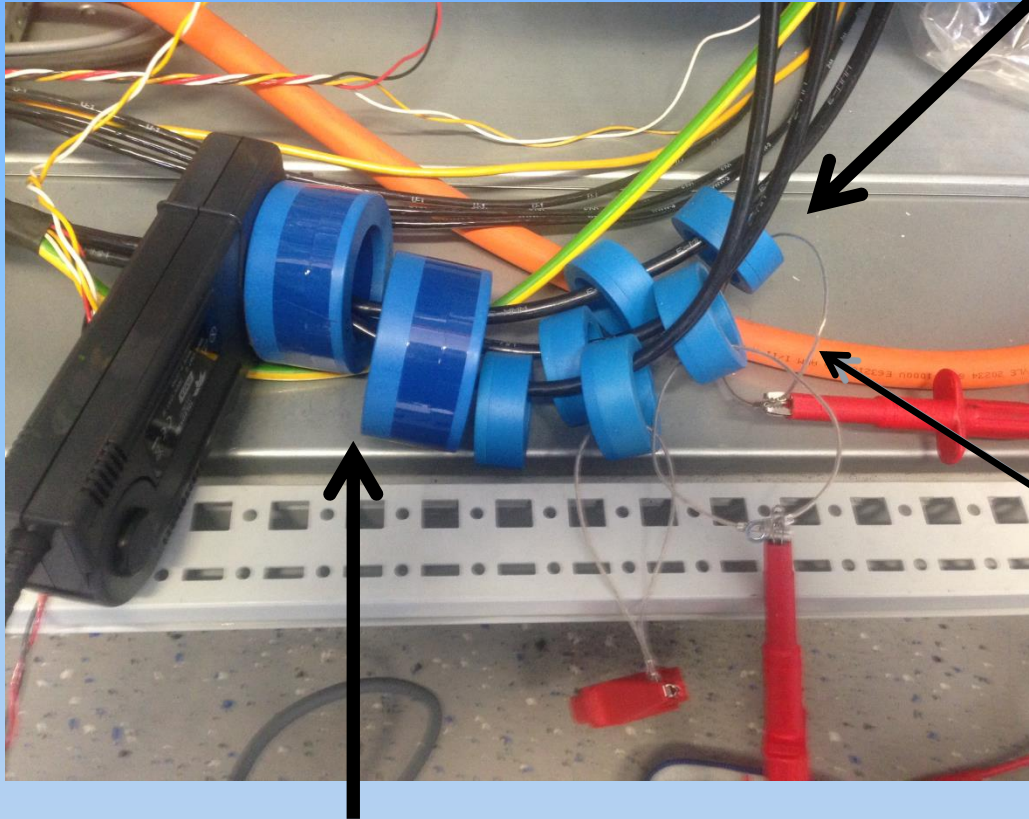
1. step: introducing COOL BLUE® Cores



AC-drive
($f_{PWM} = 5kHz$)



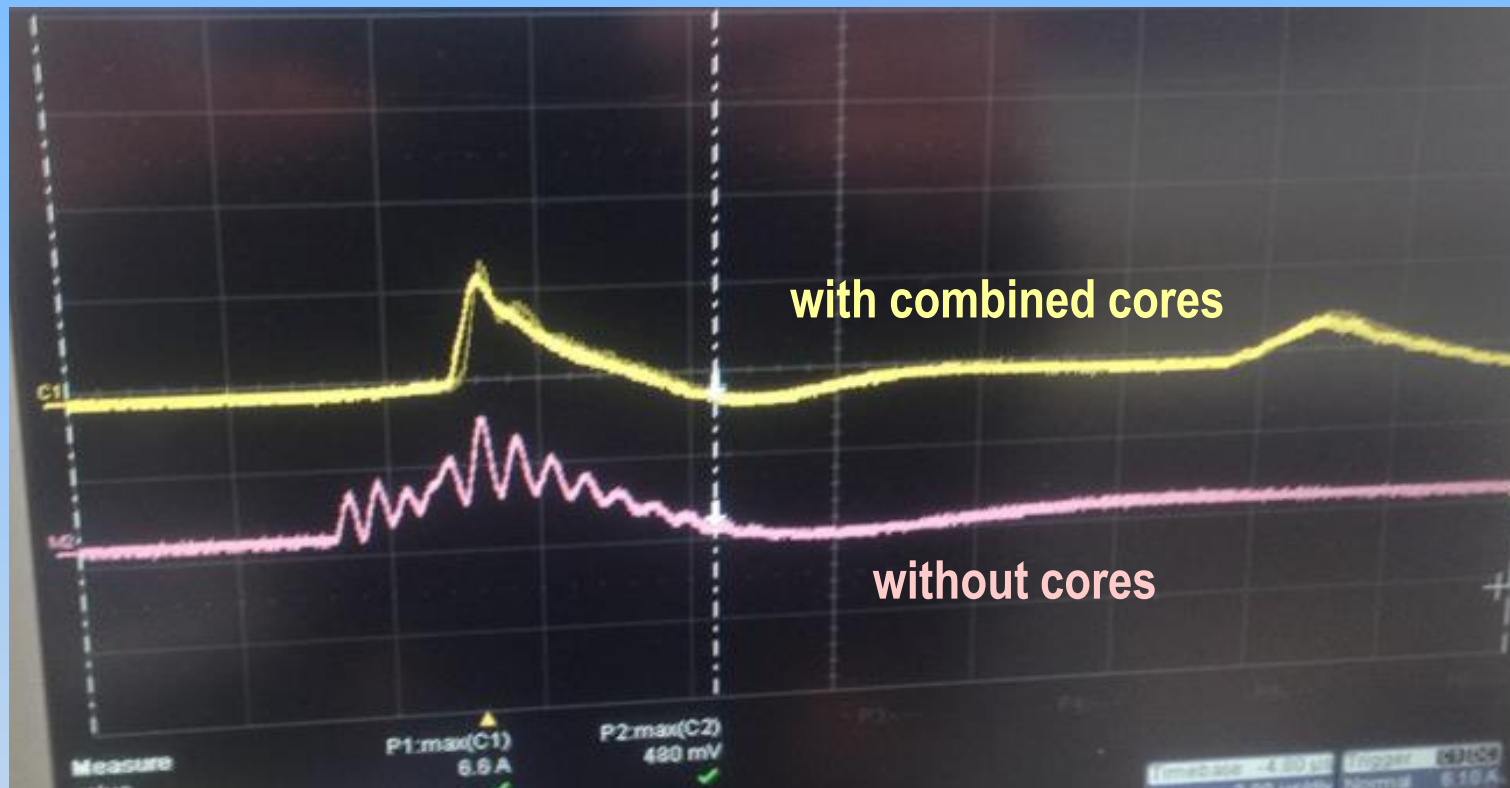
2. step: adding NANOPERM® Line Aborbers NaLA® type M-381



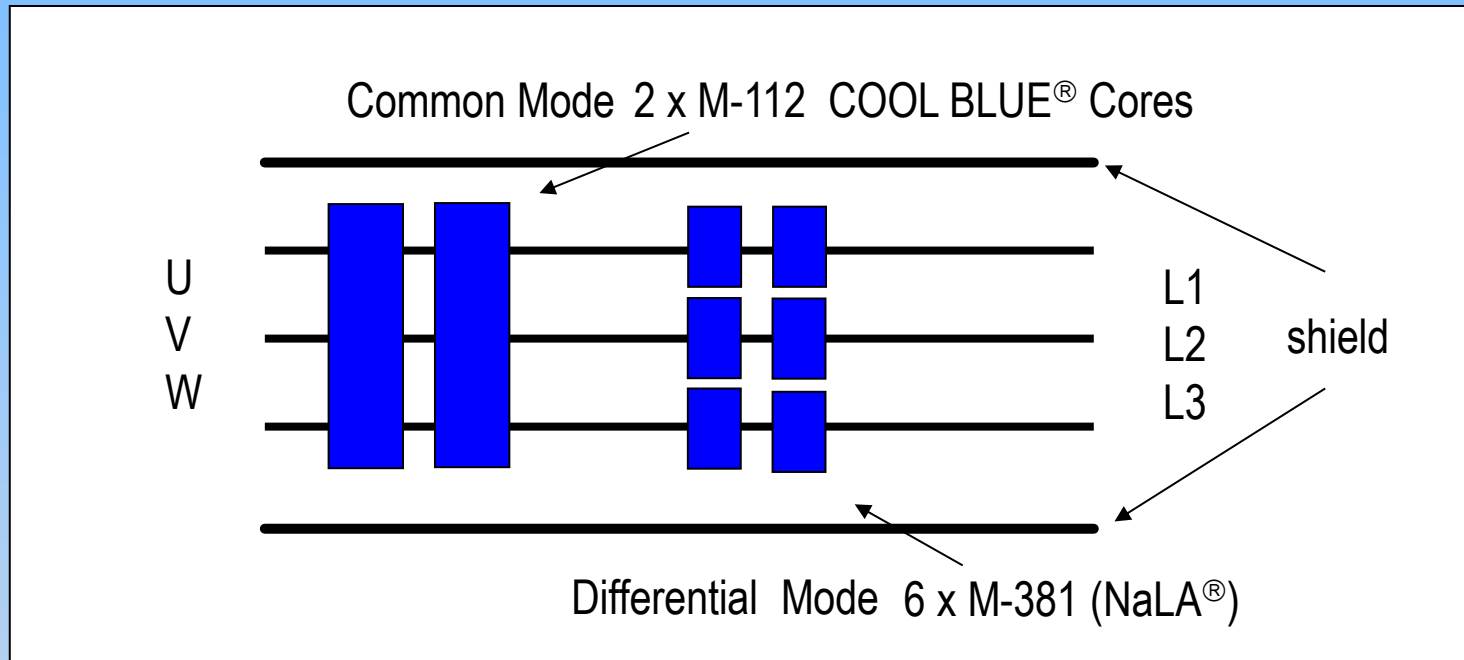
option for effect demonstration :
deactivate cores by a shortcut

2 x M-113

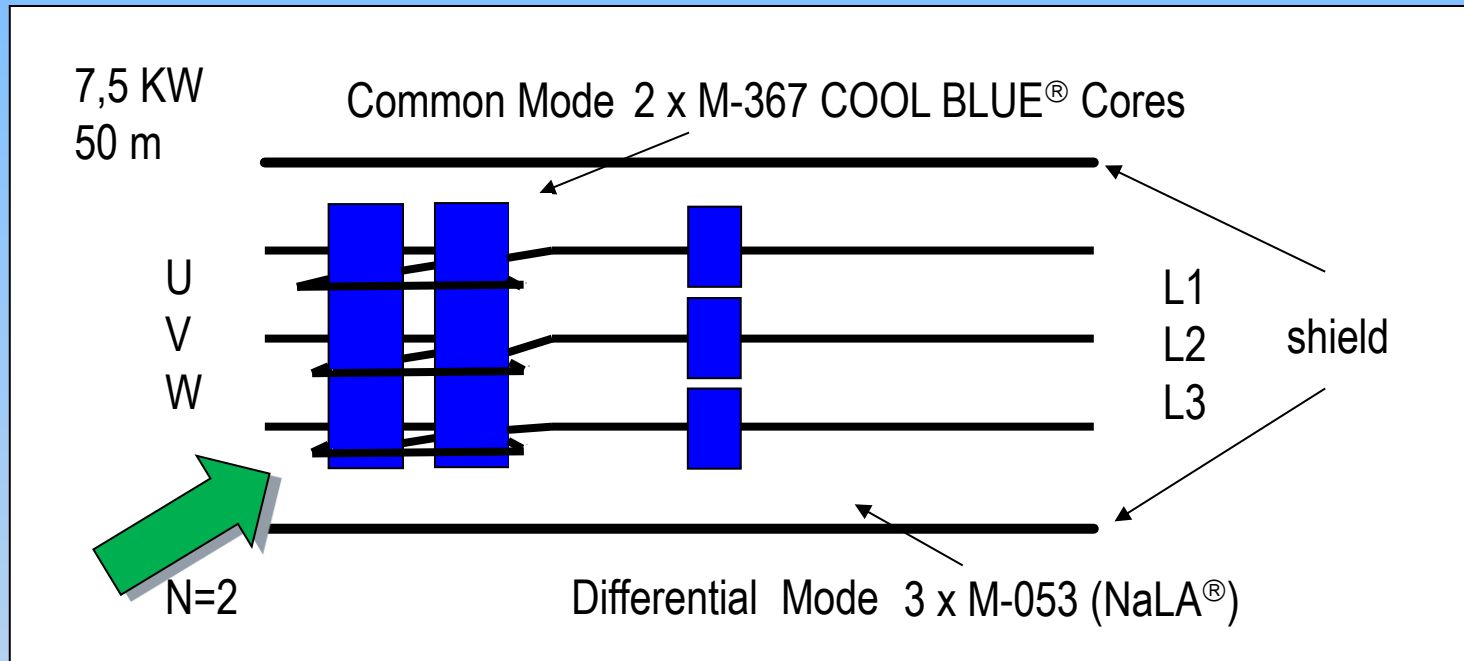
Reducing I_{peak} from ~ 40 A down to ~ 6 A by **combination** of COOL BLUE® Cores and NANOPERM® Line Absorbers NaLA® and smoothening the High Frequency away



Solution: Combine the **COOL BLUE**® Cores and **NaLA**® cores to absorb the Common Mode Noise to save thermal Energy



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1. Common Mode Noise suppression for Inverter drives with NANOPERM® Cores

Table: selection and amount of Cool Blue Cores depending on rated power and cable length Hans-Joachim Poes

All data are for information and not guaranteed values.

Inverter power range up to									
	Kilowatt	0,7	7,5	30	75	315	1.200	> 1.200	
	horse power	1	10	40	102	428	1.631	> 1.631	
	p/n oval	n/a	M-049	M-049	M-283	M-302	M-111	M-248	
	p/n round	M-923 N=2	M-367	M-367	M-113 N=1	M-116	M-117	n /a	
Cable length [m]	50/164 ft	2	2	4	4	4	4	4	Amount of cores [pcs.]
	100/328 ft	4	4	4	4	4	4	4	
	150/492 ft	4	4	6	6	6	6	6	
	300/984 ft	4	4	6	6	6	6	6	

Low power range (up to 10 kw) need some times 2 turns on the Nanoperm cores

2. Differential Mode Noise suppression for Inverter drives with NANOPERM® Line Absorbers NaLA®

Table : selection and amount of NaLA Cores depending on rated power and cable length

Hans-Joachim Poes

All data are for information and not guaranteed values.

		Inverter power range up to										
		Kilowatt	horse power	p/n	core size D _a D _i h [mm]	0,7	7,5	30	75	315	1.200	> 1.200
Cable length [m]	50/164 ft	2	1	1	1	1	1	1	1	1	1	1
	100/328 ft	4	2	2	2	2	2	2	2	2	2	2
	150/492 ft	6	3	3	3	3	3	3	3	3	3	3
	300/984 ft	8	4	4	4	4	4	4	4	4	4	4

If the NaLA cores getting too warm, use the double amount each line