

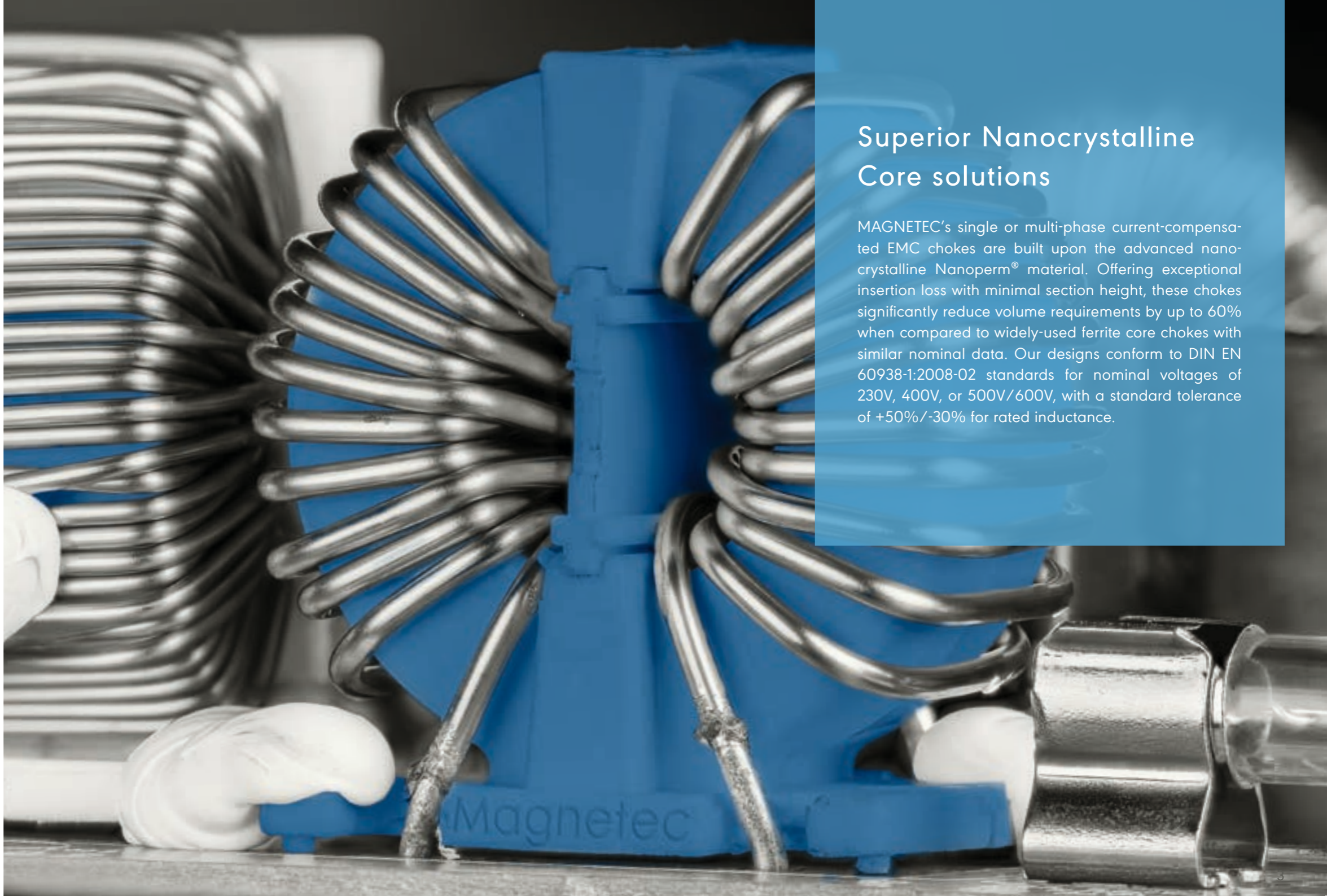


# Enhancing performance and reliability with Common-Mode Chokes

## Optimize your electronics: Protection against electro- magnetic interference

In today's fast-paced technological landscape, electronic devices have become increasingly intricate and powerful. Alongside this progress, the challenge of electromagnetic interference (EMI) continues to escalate. Ensuring flawless and reliable performance for your systems is paramount to their seamless operation. This is where Common Mode Chokes set a new standard, effectively minimizing unwanted disturbances and guaranteeing smooth functionality.

Electrical and electronic equipment must be shielded against external interferences (immissions) and ensure minimal emissions. Adhering to the corresponding Electromagnetic Compatibility (EMC) requirements is imperative. With an ever-increasing integration density to achieve compact designs, thermal issues can arise due to high currents on the printed circuit board (PCB). Insufficient spatial separation can lead to EMC interference affecting adjacent modules. Here, a compact filter on the PCB with discrete components often proves to be the most efficient solution. A current-compensated choke, commonly known as a common-mode choke, emerges as the optimal choice for suppressing EMC interference.



## Superior Nanocrystalline Core solutions

MAGNETEC's single or multi-phase current-compensated EMC chokes are built upon the advanced nanocrystalline Nanoperm® material. Offering exceptional insertion loss with minimal section height, these chokes significantly reduce volume requirements by up to 60% when compared to widely-used ferrite core chokes with similar nominal data. Our designs conform to DIN EN 60938-1:2008-02 standards for nominal voltages of 230V, 400V, or 500V/600V, with a standard tolerance of +50%/-30% for rated inductance.



## Maximize your electronics with MAGNETEC diverse Common-Mode Chokes

MAGNETEC offers a diverse selection of current-compensated chokes tailored for high-current applications on PCBs. Leveraging nanocrystalline cores, these chokes deliver eight times higher inductance than their ferrite counterparts. The compact and lightweight open design proves ideal for suppressing EMC interference generated by power applications on the PCB.

## MAGNETEC – Your reliable partner for innovative solutions!

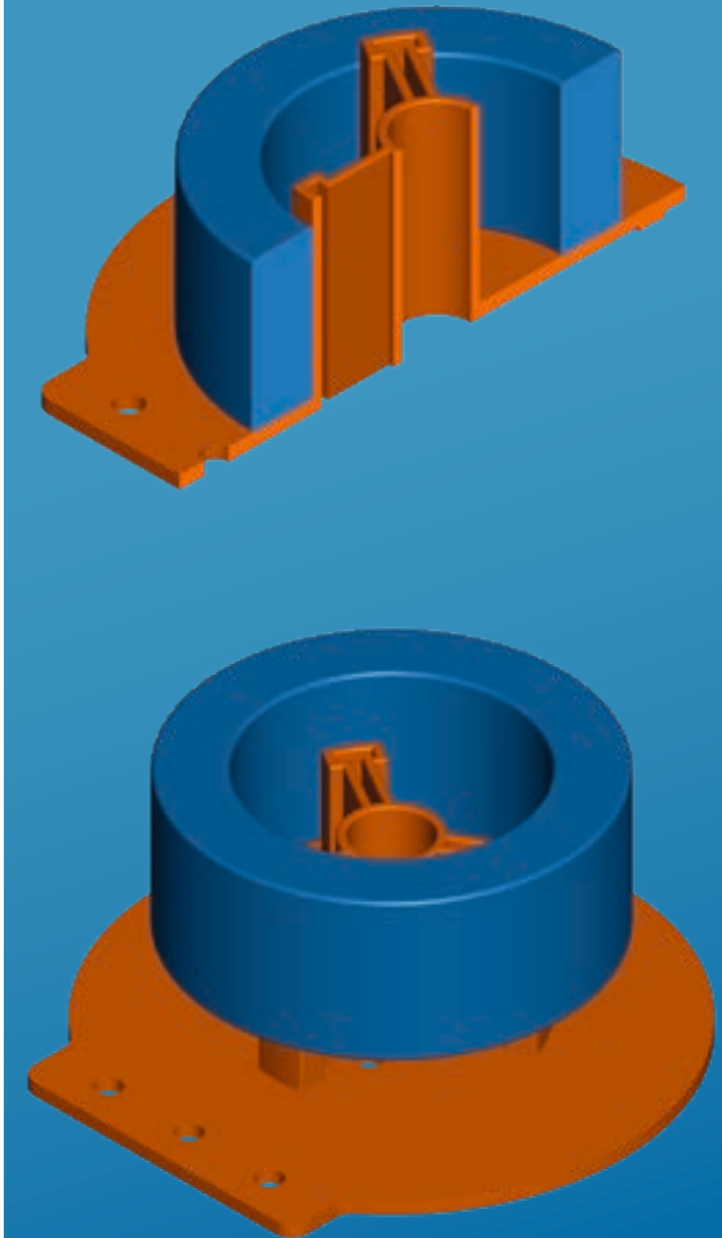
We recognize that every business and industry has its specific challenges and needs. That's why we strive to provide you with the exact solutions you need for your success. From the initial consultation to the final delivery, our expert teams work closely with you to turn your vision into reality.

Our customer-specific solutions empower you to bring your unique ideas to life and strengthen your competitive advantages. Whether it's developing new products, enhancing existing technologies, or tackling complex challenges, we ensure our products align perfectly with your needs.

Thanks to our passionate dedication to innovation and state-of-the-art technologies, we are equipped to meet even the most demanding requirements. Our customers value the flexibility and agility we offer and trust us to deliver genuine value.

Get in touch with us and discover how MAGNETEC can lead your business into the future. Let's unleash the power of innovation together and build a partnership that makes a difference.

MAGNETEC – Innovation for your success story with bespoke solutions that inspire!



## 2-fold Common-Mode Chokes

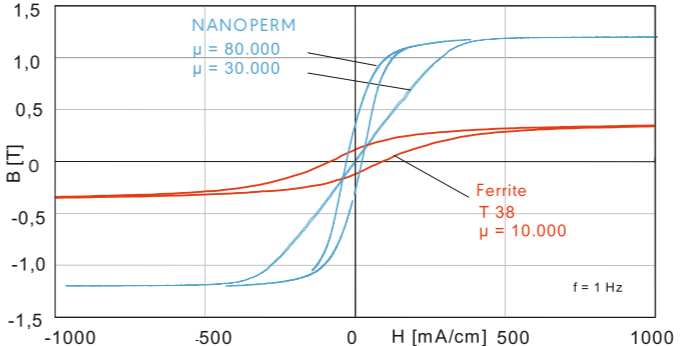
Our standard range of 2-fold common-mode chokes, based on nanocrystalline tape wound cores from Nanoperm®, surpasses widely-used ferrite versions. Enjoy significantly smaller and lighter EMI suppression filters, enabling integration of former external filters into inverter housings, resulting in lower copper losses, reduced cooling costs, and superior attenuation levels up to the MHz range. Designed according to EN60938-1, chokes are available for nominal current ranges from 2-40 Amps.

## 3-fold Common-Mode Chokes

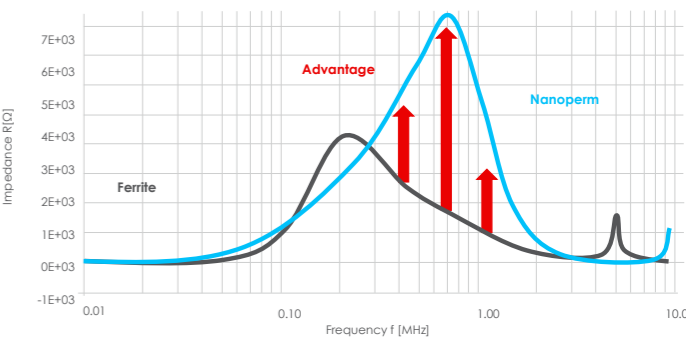
Similarly, our standard range of 3-fold common-mode chokes, also based on nanocrystalline tape wound cores, offers exceptional EMI filtering capabilities. With advantages over traditional ferrite chokes, such as higher attenuation levels, enhanced saturation performance, and greater temperature-resistance, these chokes cater to nominal current ranges from 3.5-160 Amps. Designed acc. to EN60938-1, they fulfill UL-94 V0 plastic material requirements and are UL listed.

## 4-fold Common-Mode Chokes

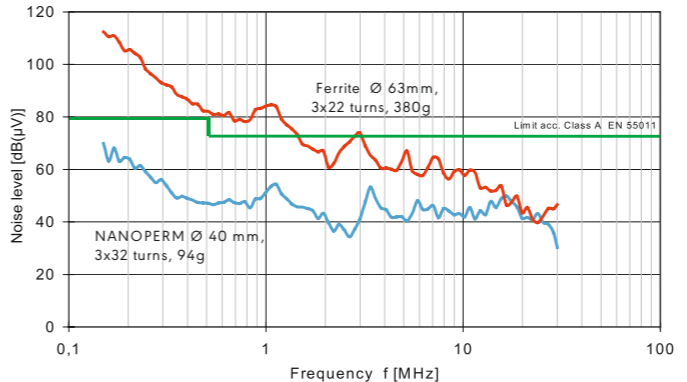
Magnetec offers this standard range of 4-fold common-mode chokes based on nanocrystalline tape wound cores from Nanoperm® for any EMI filter application. Compared to widely spread ferrite versions, Magnetec’s nanocrystalline solutions enable significantly smaller and lighter EMI suppression filters. In frequency inverter applications, the smaller size enables integration of former external filters into the inverter housing, which is a very attractive option for the market. Furthermore, the smaller design results in lower copper losses and thus lower overtemperature and reduced cooling cost.



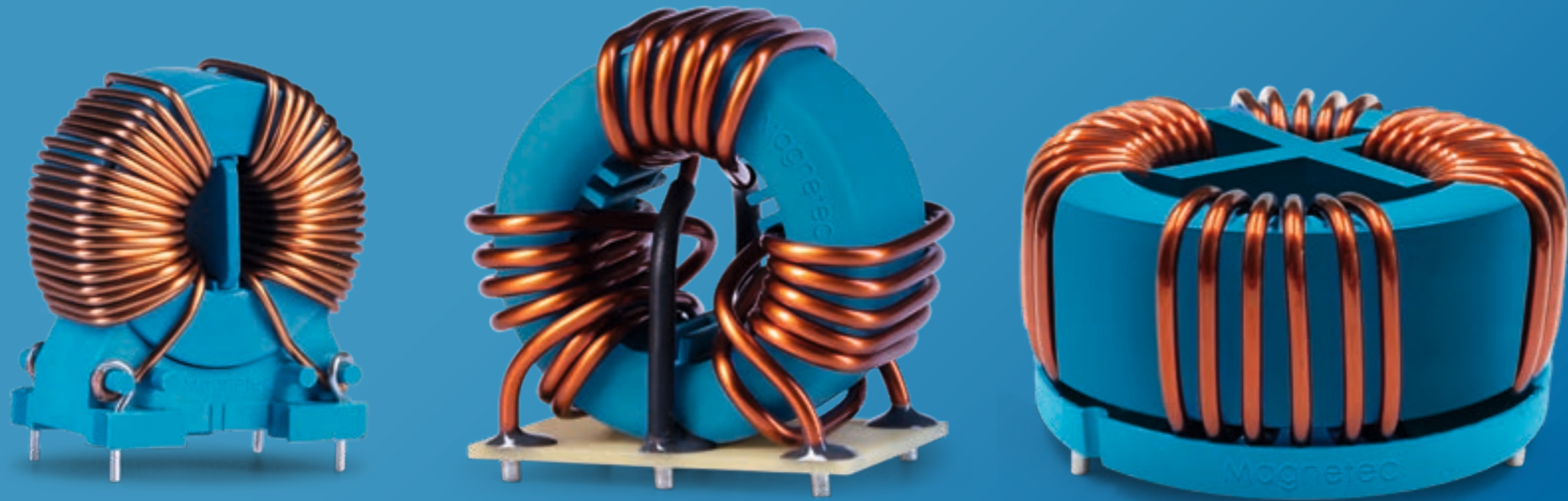
Hysteresis loops, saturation field as a function of permeability level



Nanoperm® - High inductance and high impedance in a wide frequency range



EMI - Achieving more stringent noise limits even at a smaller build volume



## Selection Guides

Discover the powerful and efficient world of Common Mode Chokes, where cutting-edge nanocrystalline technology ensures your systems operate flawlessly, immune to disruptive electromagnetic interferences. At MAGNETEC, we take pride in pioneering solutions and providing dedicated support to meet your diverse needs. Trust in our expertise to elevate the performance and reliability of your electronic applications.

## 2-fold common-mode RFI/EMI suppression chokes acc. to EN60938-1 for mains filter applications

Types	Inom [A] convection cooling	Inom [A] forced cooling	*Isat [mA]	Lnom @10kHz [mH]	Ls [μH]	Rcu [mΩ]	Pin-Ø [mm]	Style	Dimensions [mm] DomaxxDiminxHmax
MB-690	2	2,8	13	2 x 20,0	~ 19	< 85	0,7	flat	22,6 x 22,2 x 12,7
MB-631	3	4	17	2 x 11,5	~ 11	< 40	0,7	flat	22,6 x 22,2 x 12,7
MB-694	3	4	20	2 x 11,0	~ 10	< 40	0,56	upright	22 x 12,3 x 25
MB-602	4	5,5	15	2 x 75,0	~ 55	< 65	0,8	upright	34 x 19 x 35,5
MB-618	4,5	6	25	2 x 5,0	~ 8	< 23	0,7	flat	22,6 x 22,2 x 12,7
MB-640	6	8	25	2 x 6,3	~ 6	< 22	0,71	upright	22 x 12,3 x 25
MB-606	7	10	25	2 x 30,0	~ 55	< 27	1,0	upright	34 x 19 x 35,5
MB-609	8	11	30	2 x 18,0	~ 13	< 17	2 x 0,8	upright	34 x 19 x 35,5
MB-639	8,5	12	120	2 x 35,0	~ 20	< 21	1,12	upright	34 x 19 x 35,5
MB-622	10	14	450	2 x 0,6	~ 4	< 8,5	1,0	upright	34 x 19 x 35,5

Types	Inom [A] convection cooling	Inom [A] forced cooling	*Isat [mA]	Lnom @10kHz [mH]	Ls [μH]	Rcu [mΩ]	Pin-Ø [mm]	Style	Dimensions [mm] DomaxxDiminxHmax
MB-603	10	14	40	2 x 12,0	~ 10	< 11	2 x 0,85	upright	34 x 19 x 35,5
MB-696	12	17	100	2 x 7,1	~ 30	< 12,1	1,4	upright	38,5 x 23 x 40
MB-632	14	20	45	2 x 2,4	~ 3	< 8	0,9	upright	22 x 12,3 x 25
MB-684	16	22	80	2 x 3,0	~ 2,5	< 2,5	1,8	upright	30 x 20 x 30
MB-607	16	22	55	2 x 6,3	~ 5	< 6	2 x 1,12	upright	34 x 19 x 35,5
MB-605	18	25	80	2 x 3,0	~ 5	< 4	2 x 1,0	upright	34 x 19 x 35,5
MB-620	19	27	85	2 x 35,0	~ 12	< 7,5	2,0	flat	59 x 59 x 33,5
MB-9211	20	28	270	2 x 1,8	~ 8	< 6	1,6	flat	60 x 60 x 24
MB-615	22	30	110	2 x 1,6	~ 2	< 1,7	2 x 1,32	upright	34 x 19 x 35,5
MB-608	26	36	185	2 x 0,6	~ 5	< 1,6	2 x 1,18	upright	34 x 19 x 35,5
MB-633	30	42	140	2 x 1,0	~ 0,8	< 1,2	2 x 1,5	upright	34 x 19 x 35,5
MB-740	40	56	485	2 x 4,5	~ 3,9	< 1,85	2,5	flat	52 x 52 x 32

Download our selection guides for more information, and if you require Common Mode solutions with specific characteristics, shapes, and sizes, please contact us directly :



<https://www.magnetec.de/2-fold-chokes-datasheet/>

## 3-fold common-mode RFI/EMI suppression chokes acc. to EN60938-1 for mains filter applications

Types	Inom [A] convection cooling	Inom [A] forced cooling	*Isat [mA]	Lnom @10kHz [mH]	Ls [μH]	Rcu [mΩ]	Pin-Ø [mm]	Style	Dimensions [mm] DomaxxDiminxHmax
MB-0741	3,5	5	80	3 x 6	~ 20	< 40	0,8	upright	38 x 36 x 21
MB-0491	5	7	60	3 x 8	~ 60	< 36	1,12	flat	42 x 42 x 27
MB-6501	10	14	110	3 x 11	~ 56	< 15	1,6	flat	60 x 60 x 29
MB-687	12	17	450	3 x 2,5	~ 7	< 9	1,25	upright	47,5 x 47 x 26
MB-652	17	24	300	3 x 3	~ 30	< 7,9	1,8	flat	59 x 59 x 27
MB-637	14	20	80	3 x 4,4	~ 12	< 5,5	1,4	flat	69 x 69 x 29,5
MB-540	15	20	85	3 x 15	~ 16	< 7,0	1,8	flat	48,5 x 48,5 x 26
MB-617	16	22	90	3 x 11	~ 9	< 6	1,8	flat	59,5 x 59,5 x 36,5
MB-634	20	28	400	3 x 1,7	~ 14	< 4,85	2,0	flat	52 x 52 x 34
MB-427	20	28	4760	3 x 0,31	~ 8	< 2,6	2,5	upright	60 x 30 x 60
MB-653	22	31	270	3 x 4	~ 19	< 4,8	2,24	flat	99,5 x 99,5 x 38

Types	Inom [A] convection cooling	Inom [A] forced cooling	*Isat [mA]	Lnom @10kHz [mH]	Ls [μH]	Rcu [mΩ]	Pin-Ø [mm]	Style	Dimensions [mm] DomaxxDiminxHmax
MB-157	25	35	300	3 x 6,2	~ 22	< 5,5	2,36	flat	69 x 69 x 37
MB-043	22	31	300	3 x 1,5	~ 8	< 2,6	2,5	flat	75 x 75 x 34
MB-054	27	38	300	3 x 3,2	~ 9	< 2,6	3,0	flat	60 x 60 x 30
MB-367	28	40	800	3 x 1,2	~ 0,7	< 1,8	3,0	flat	73 x 73 x 35
MB-047	30	42	350	3 x 4	~ 20	< 3,8	5,0	upright	70 x 45 x 70
MB-691	35	50	150	3 x 3	~ 4	< 1,6	2,5	flat	81 x 81 x 62
MB-426	45	64	6660	3 x 0,16	~ 4,5	< 0,95	2 x 2,5	flat	60 x 60 x 34
MB-6561	60	85	450	3 x 3,5	~ 17	< 1,35	2 x 3,35	flat	99,5 x 99,5 x 38
MB-6571	100	140	500	3 x 2,5	~ 10	< 0,85	11,5	flat	115 x 115 x 50
MB-0581	160	225	1200	3 x 2	~ 10	< 0,5	22,5	flat	130 x 130 x 55

Download our selection guides for more information, and if you require Common Mode solutions with specific characteristics, shapes, and sizes, please contact us directly :



<https://www.magnetec.de/3-fold-chokes-datasheet/>

## 4-fold common-mode RFI/EMI suppression chokes acc. to EN60938-1 for mains filter applications

Types	Inom [A] convection cooling	Ln <sub>nom</sub> @10kHz [mH]	R <sub>cu</sub> [mΩ]	Pin-Ø [mm]	Style	Dimensions [mm] DomaxxDiminxHmax
MB-394	12	4 x 6,9	< 9,4	1,4	flat	33 x 51 x 51
MB-395	20	4 x 3,5	< 3,6	1,8	flat	33 x 51 x 51
MB-396	30	4 x 3,1	< 2,4	2,5	flat	33 x 51 x 51
MB-397	40	4 x 1,4	< 1,3	2,8	flat	33 x 51 x 51

Download our selection guides for more information, and if you require Common Mode solutions with specific characteristics, shapes, and sizes, please contact us directly :



<https://www.magnetec.de/4-fold-chokes-datasheet/>

## We look forward to your inquiry!

We will be happy to answer any questions you have about MAGNETEC's comprehensive product and service offering.

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