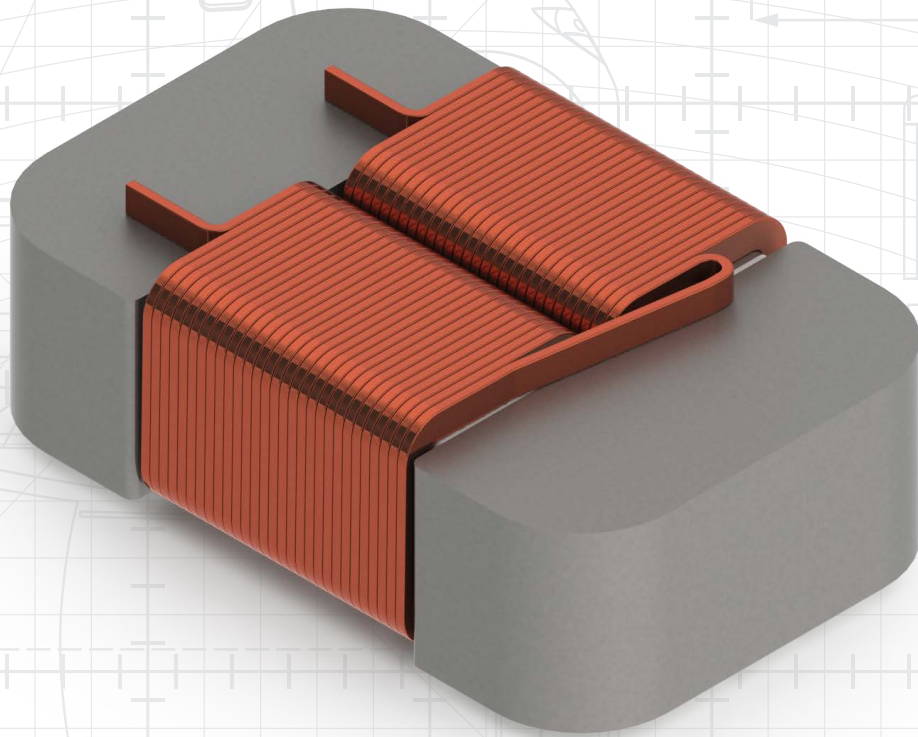
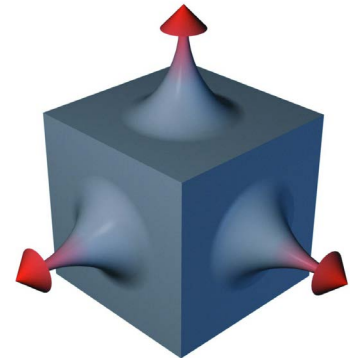


Technology for **DC/DC reactors**



Somaloy[®] is the optimal material choice for reactor systems

Somaloy is an isotropic, high resistive soft magnetic composite material for electromagnetic applications. By delivering reduced losses and improved saturation induction, Somaloy sets a new standard for iron powder cores aimed at inductive components.



Somaloy is tailored for high volume, cost-efficient component production by utilising the Powder Metallurgy (PM) forming process. The components are ready to use after compaction and heat treatment. They enable the design of space-efficient core assemblies in various converter topologies where high efficiency and compact design are required.

High frequency material

Somaloy provides a competitive alternative in applications that previously were restricted to laminated electro steel and Fe-Si powder components. The lower compaction pressure for Somaloy components is a great benefit over Fe-Si powder cores. The component shaping process and 3D properties offer greater design freedom. Therefore, Somaloy reactor solutions can be optimised and integrated to a greater extent in the specific application. Modular or segmented Somaloy solutions also offer efficient manufacturing and tailored performance. The unique combination of high magnetic saturation and low magnetic losses results in increased efficiency and a reduction in size and weight.

The Somaloy DC/DC converter reactors are especially suited for applications in Hybrid Electric Vehicles (HEV), Plug-in Hybrid Electric Vehicles (PHEV), and Electric Vehicles (EV).

Cost-efficient

- Low compaction pressure
- Modular/segmented components
- Simple, automated assembly with lower investments

Compact design

- Downsizing of components through high saturation magnetic flux density
- Flexible solutions thanks to 3D properties
- Greater design freedom

High performance

- High frequency operations at low losses
- High efficiency concepts possible
- Excellent heat conduction

Be inspired – concept solutions

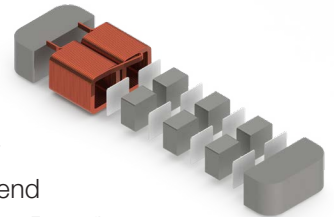
Pot core concept

The pot core solution is an example of a complex component compacted in one single step. This contributes to a simple and cost effective production. Benefit from compact design and simple assembly.



Segmented block core concept

The segmented block core is an example of a modular solution, consisting of two end cores and split middle cores. Benefit from great design freedom.



These concepts are especially suited for boost reactors for EV and HEV's, reactors for EV and PHEV chargers (on-board/off-board) and reactors for 12V/48V converters.



Recommended Somaloy[®] materials for reactor cores

Somaloy i-series - a competitive alternative for power electronics.

Somaloy grades are available in various formulations to cover a wide range of frequency (up to 100 kHz). The press-ready mixes combined with optimised processing results in components with different performance levels. Somaloy has the advantages of internal lubrication and low compaction pressure. Somaloy 5P offers new opportunities in applications requiring low hysteresis losses.

Typical data*

Somaloy material	Frequency range [kHz]	Resistivity [$\mu\text{Ohm m}$]	B@ 10000 A/m [T]	Coercive force [A/m]	Core losses [W/kg]	
					1 T/100 Hz	0.1 T/10 kHz
Medium particles #100						
Somaloy 130i 1P	1-20	8000	1.40	260	12	29
Somaloy 130i 5P	1-20	20000	1.47	153	8	24
Fine particles #200						
Somaloy 110i 1P	5-100	7600	1.33	315	14	27
Somaloy 110i 5P	5-100	18000	1.33	207	10	18

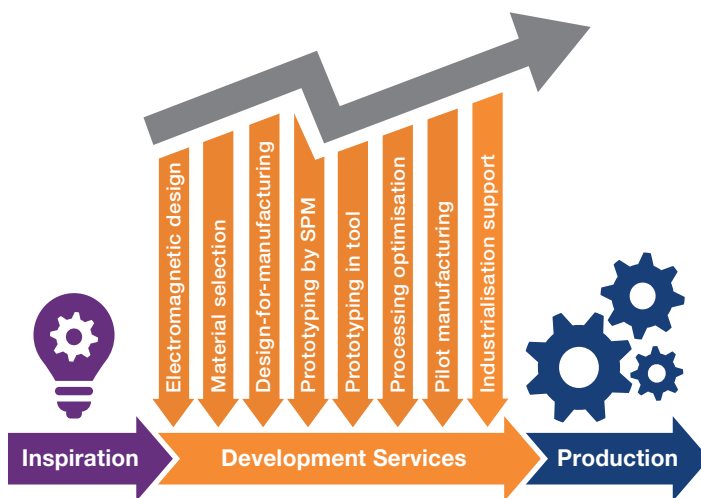
*Conditions: internal lubrication and compaction pressure 800MPa

Driven by vision

Our target is to speed up time-to-market for our customers, and by providing development services, Höganäs supports you from idea to high volume production. This will give you the benefits of cost-effective manufacturing, compact component design and high performance applications.



We will share the knowledge and the success factors to help you achieve your vision.

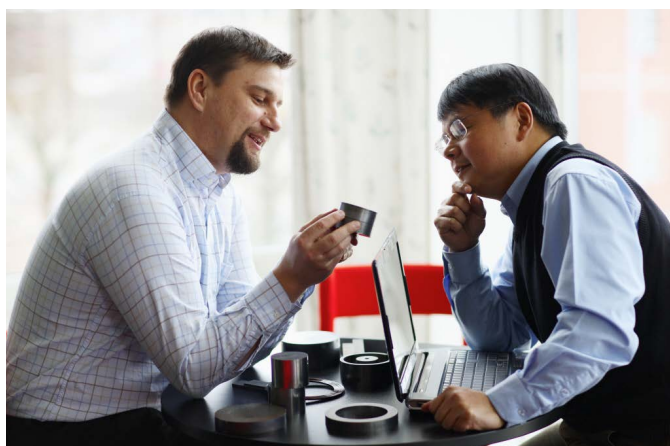


Fast forward to cost-effective production

Höganäs – your business partner

Höganäs is the world's leading producer of iron and metal powders. As an established business, you can rely on Höganäs to deliver whatever matches your needs. Höganäs has been developing soft magnetic composites for more than 15 years and we are well experienced in motor technology. As a major supplier to the automotive industry, Höganäs works with all the recognised quality standards.

With exclusive know-how of Somaloy® material, design and production process, Höganäs will inspire and guide you through the new generation of material technology in your development project.



Höganäs short facts

- 3,000 customers in 75 countries
- More than 1,500 products, mostly customer specific, from 13 production centres
- Around 700 granted patents
- Turnover 2015: 7,590 MSEK
- 1,800 employees
- Established in 1797 as a coal mining company.
- Owned by FAM and Lindégruppen



Find out more

Contact your local sales representative or visit www.hoganas.com/somaloy