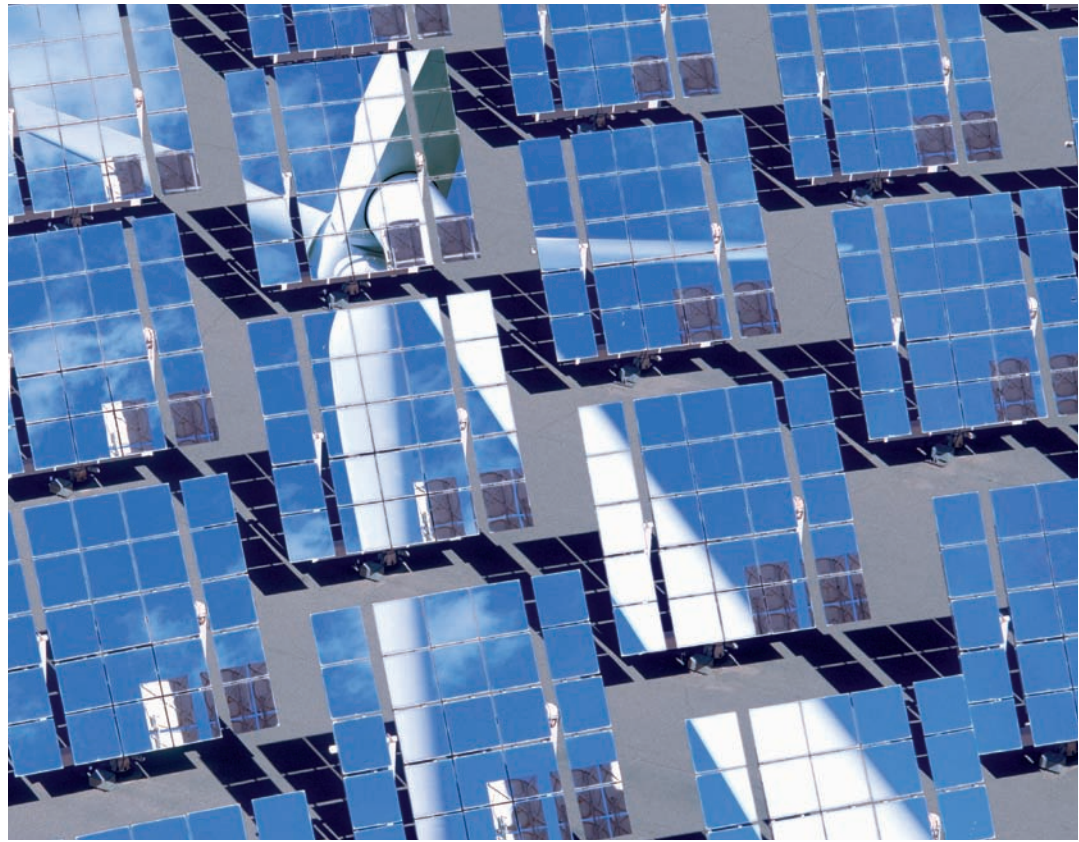




Innovative Inductors for Power Electronics

Power Quality Solutions with Somaloy® Technology



For a new breed of iron powder cores

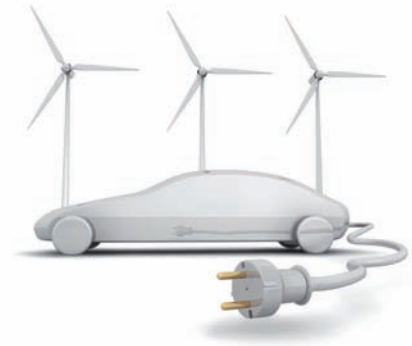
Higher performance at lower cost

Today legislative bodies and commercial markets alike are demanding more clean technology such as wind and solar power, hybrid electric vehicles, etc. As these technologies all involve inductive components with frequencies well suited for Somaloy i-series powders,

manufacturers of these components now have a cost effective alternative to laminated electro steel. An alternative that offers high power quality, better overall cost performance and far greater design freedom.

Features and benefits of Somaloy i-series

Material properties	3D-high resistivity	Customer benefits	Low eddy-current losses • Low air-gap losses
	Distributed air-gap		No or smaller air-gap
	Smooth surfaces		Cu savings • Less insulation • Improved thermal performance
	Components with high tolerance		Modular/segmented systems
	Flexible net shaping capabilities		Tailor made inductor geometries
	3D-geometry and flux path		Compact designs



Meeting new demands for clean technology

Setting new standards

We understand that as a manufacturer facing new demands from the market, you need more from us. That's why we think you should take a look at our latest Somaloy technology developed especially for inductive components. Compared to traditional iron powder cores, Somaloy i-series offers improved characteristics giving it a superior cost-to-performance ratio.

No ordinary iron powder

Our new Somaloy i-series has broken the mould when it comes to cores made from iron powder. The series is so superior to traditional iron powder that we prefer to think of it as an entirely new material instead. In fact, cores made from our new Somaloy i-series powders typically exhibit 50% lower losses and significantly higher saturation than traditional iron powder cores.

Somaloy i-series

For wind power

Somaloy 130i is an ideal material for achieving cost-efficient inductors for applications operating at frequencies in the range of 1 to 20 kHz. This makes Somaloy 130i an excellent choice for the growing wind power industry.

For solar power

Somaloy 110i, on the other hand, is optimised for higher frequencies ranging from 10 to 100 kHz, making it the preferred choice for applications such as solar inverters.

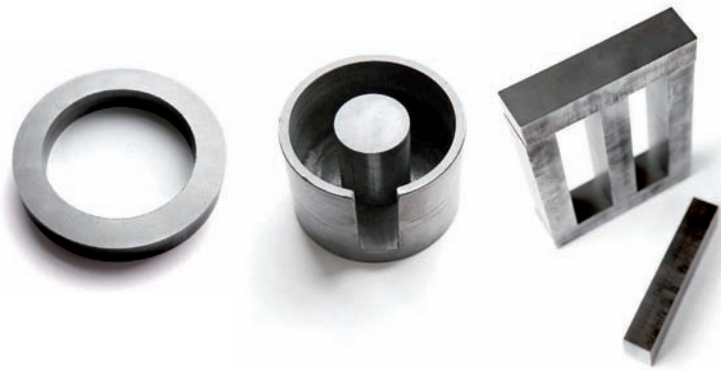
For electric vehicles

Somaloy i-series is also exceptionally well suited for manufacturing inductive components used in boost converters for electric and hybrid electric vehicles.

For electric motor drives

Another prime application for Somaloy i-series is the manufacture of Power Quality Filters used in electric motors.





More than just powder

Getting more of what you need

At Höganäs you'll find a lot more than just a supplier of iron powders. By working closely together we help you discover, develop and bring new breakthroughs to the market. We make it easier for you to convert your ideas into real solutions by sharing our knowledge of powder metallurgy at every stage of your project. The advantage of working with Höganäs is that you get one partner with knowledge of both powder technology and electromagnetism.



Development

- Optimal Material from every aspect
- Samples
- Material characteristics
- Prototypes
- Application testing
- Design assistance



Pilot manufacturing

- Pilot volumes
- Pre-production manufacture of customer specific components
- Supply of standard components
- QC-testing – development – optimisation for full production



Industrialization

- Identification of optimal supply chain solution
- Component supply
 - standard or tailor made geometries
 - from initial series to high volume production



Why Somaloy i-series is a better choice

No other material can match the i-series' unique combination of high magnetic saturation and low eddy current loss. Optimised for frequencies of 1 to 100 kHz, they are perfect for many cleantech applications.

For compact, lightweight solutions

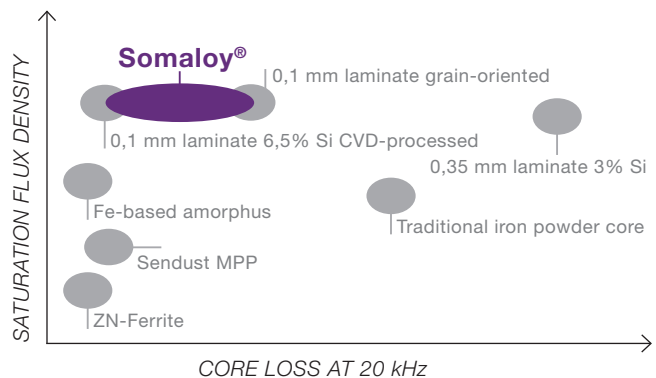
Somaloy materials are composed of surface-insulated, high-quality iron powder particles that can be pressed and compacted as a way to form complex, intricately shaped components with very tight tolerances. Also, modular or segmented Somaloy solutions offer efficient manufacturing processes, as well as the ability to tailor performance to suit individual customer and application requirements.

Superior cost performance

Using ferrites to design efficient inductors for power applications is very challenging due to the inherent poor saturation level of these materials. Whereas alloyed

powders generally have a somewhat higher saturation level than ferrites, such materials are typically much more expensive than iron powders.

As standard laminate solutions suffer from higher eddy currents, thinner and very costly lamination is often required. Furthermore, as with ferrites, laminated solutions typically require large, physical air gaps which significantly limit the design flexibility due to fringing flux.



General benefits

- Typically 50% lower losses in comparison with traditional iron powder cores
- Enables more compact solutions through greater design freedom
- Allows modular/segmented systems for cost efficient production and tailored performance
- Delivers superior cost performance
- Perfectly suited for applications in 1 – 100 kHz frequency range
- Unique combination of high saturation and low eddy current loss

Power of Powder

Metal powder offers entirely new possibilities to create more effective, lighter products with a reduced environmental impact. By combining the right alloy with a suitable morphology of the powder grains, new opportunities open up to match your challenges. Contact us and together we will release the power.

Metal powders are traditionally used to manufacture sintered components for vehicles. But there is a lot more to them. By fortifying food with elemental iron, anaemia can be reduced. By coating with nickel, glass bottle production life is prolonged with wear and temperature resistance. By employing new iron based powders, high temperature brazing of heat exchangers is possible. By utilising the three dimensional magnetic flux of encapsulated metal powders, smaller electrical motors can now be produced. And so on.

In fact, the possibilities of metal powder technology are almost endless. To take advantage of the inherent Power of Powder, please contact your nearest Höganäs office.



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