Powder Solutions for Soft Magnetic Composite Applications

Somaloy®

Metal powder technology has the power to open up a world of opportunities. The inherent properties of metal powders provide unique possibilities to tailor solutions to match your exact requirements. Our ambition is to constantly widen and grow the range of metal powder applications. That’s what we call Power of Powder. With our leading position in metal powder technology, Höganäs is perfectly placed to help you explore these opportunities.

A perfect example is our Soft Magnetic Composite (SMC) material Somaloy®, offering new solutions for electromagnetic applications. In the automotive industry and beyond, SMC is widely adopted by component manufacturers because of its high mechanical strength and 3D magnetic properties. Höganäs has developed solutions to produce cheaper, more competitive components. The Somaloy product portfolio includes tailor made iron-based SMC alloys for demanding applications.

To find out how you can apply the Power of Powder, please contact your nearest Höganäs office.

www.hoganas.com/somaloy

Power of Powder®
What is Somaloy®?

Material technology for the future

Somaloy is a Soft Magnetic Composite (SMC) material with unique 3D flux properties. Somaloy is developed for component manufacturing for electromagnetic applications, providing high performance and low losses. It is designed for efficient volume production at low costs, by utilizing the combination of Soft Magnetic Composite technology and Powder Metallurgy (PM) process. It is the 3D magnetic properties and the net shaping capabilities of Somaloy materials that open up new opportunities to design compact, light and cost-efficient solutions.

Core concept solutions

Somaloy® provides optimal core concept solutions for a range of market areas such as household appliances and heating, ventilation and air conditioning (HVAC). However, automotive is the widest market area with target applications as shown in the illustration below.

Opportunities everywhere

- Compact design
- High performance
- Cost-efficient

We care about your success

- Cost reduction by size and weight reduction
- High torque and power density solutions
- Unique 3D extended design approach
- Efficient volume production of components
- Simplified winding arrangements
- Permanent magnet and winding reduction
- Suitable for automated assembly

"We chose Somaloy primarily for its unique isotropic flux properties and ability to form it into 3D shapes. Höganäs was the only supplier of powdered materials that met our specifications."

Electric Torque Machines Inc.

Making components of powder

Powder Metallurgy

Somaloy is tailored for high volume, low-cost component production by utilizing the Powder Metallurgy (PM) method. The main benefits of the PM production method is the efficient, almost waste-less transformation of metal powder into complex net-shaped components, reducing the need for subsequent operations.

Components made of Somaloy are formed into net-shape at large compaction pressures to reach highest density possible. The forming is made in dedicated tool-sets mounted in automated presses working at efficient production rates. After compaction, the SMC component will pass through heat treatment to improve the magnetic performance by reducing the residual stress from the compaction deformation. After forming and heat-treatment the components are normally directly ready for further assembly into the magnetic circuit of the application. Careful design for manufacturing results in simplified, easy assembly and significant savings on other adjacent components in the application.
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How to design with Somaloy®?

Driven by a vision

Höganäs provide inspiration and guidance through the new generation of material technology in your development project.

We focus on customer success

Our target is to speed up time-to-market for our customers. With exclusive know-how of Somaloy material, design and production process, we provide services to support you all the way - from idea to high volume production. This will give you the benefits of cost-effective manufacturing, compact component design and high performance applications. Let us know how we can support you in your development project!

Power of Powder®

Examples of how Somaloy can provide lower production costs:

- Reduction of the total amount of parts
- Low scrap rate in manufacturing
- Modular design
- Easy assembly and automated production
- Reduction of the amount of copper
- Easy integration into application
- Reducing the need for subsequent operations

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