

CO₂-reduced electrical steel from thyssenkrupp as a sustainable base material for the energy turnaround: thyssenkrupp Electrical Steel supplies transformer specialist SGB-SMIT with electrical steel for E.ON's new digital stations

- bluemint® powercore with 50 % less CO₂ intensity
- delivery of 50 tons to transformer specialist SGB-SMIT
- transformers with CO₂-reduced electrical steel for new digital E.ON medium-voltage stations in Germany

The energy transition is a task for the century. And it also starts in Gelsenkirchen, at electrical steel specialist thyssenkrupp Electrical Steel. The company produces high-quality grain-oriented electrical steel, which is indispensable for the transmission and forwarding of electrical energy in low-loss power transformers. Now, for the first time, this basic material of the energy transition with significantly reduced CO₂ intensity is being supplied to a customer. The first quantities of bluemint® Steel with 50 % lower CO₂ emissions will be supplied to the Regensburg-based company SGB-SMIT for the production of transformers for new digital E.ON medium-voltage substations.

Gelsenkirchen hidden champion back on track for success

thyssenkrupp Electrical Steel is European market leader for grain-oriented electrical steel. This complex special material ensures that transformers operate at high efficiency to transport energy with as little loss as possible. The higher the grade of electrical steel, the higher the efficiency. Grain-oriented electrical steel of the powercore® brand from thyssenkrupp is used among other things in distribution and

power transformers, but also in charging columns for electric cars and innovative electric motors.

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The Gelsenkirchen-based company is back on track for success after a tight turnaround and performance program. Managing Director Georgios Giovanakis: "We have made targeted investments and also brought additional engineering expertise into the workforce. The aim was and is to produce the technologically sophisticated top grades that are in particular demand on the market, which are characterized by particularly low core losses and thus achieve high efficiencies in current transport." The top grades of the powercore® brand enable customers to produce transformers which comply with the EU Ecodesign Directive and contribute to reducing global energy consumption and CO₂ emissions. "Through the technological turnaround in our three plants in Germany, France and India, we are supplying improved products to our customers, thus indirectly contributing to energy savings of more than one thousand gigawatt hours and thus to the avoidance of over 400,000 tons of CO₂," adds Giovanakis. It is the clear goal of the Gelsenkirchen-based company to increase significantly the production of top grades with high efficiency. If low-CO₂ power generation from renewable sources becomes predominant in the future, the share of CO₂ emissions generated during the production phase of the transformer will come into even sharper focus. Therefore, the next logical step is now to offer electrical steel itself in reduced CO₂ intensity.

Transformer manufacturer SGB-SMIT receives first quantities of CO₂-reduced bluemint® Steel

Electrical steel made in Gelsenkirchen is now available in CO₂-reduced form for the first time. The first customer to receive bluemint® powercore with a 50 % lower CO₂ intensity is transformer specialist SGB-SMIT from Regensburg. The company manufactures transformers that ensure the transport of electrical energy from the points of origin to the energy consumers. "Energy suppliers and industrial companies all over the world rely on our products. It is great added value for us and our customers that thyssenkrupp's top grades are now also available in CO₂-reduced form. This is an important step towards further decarbonization of the energy process

chain," says Holger Ketterer, Managing Director of SGB-SMIT. The medium-sized company with a global customer base ordered bluemint® Steel from thyssenkrupp. This is used in power and distribution transformers. "It's also clear that the more green energy is generated and transported, the greater the importance of a climate-friendly supply chain and the use of climate-friendly materials, including green steel," adds Ketterer.

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Since October 2021 thyssenkrupp Steel has been offering certified CO₂-reduced steel under the bluemint® brand. Production will initially take place via the classic blast furnace route at the Duisburg site before the technological leap to hydrogen-based direct reduction technology from 2025.

For the batch now delivered to SGB-SMIT, reduced iron has already been used in the blast furnace, enabling a reduction in coal usage. This results in actual CO₂ savings in the primary steel route, which are converted on balance to a specific quantity of certified bluemint® Steel - while maintaining the same high quality and full range of grades. Including all further processing steps in Duisburg and in Gelsenkirchen, a CO₂ saving of 50 % per ton of bluemint® is achieved compared with conventional electrical steel. This means a reduction in the CO₂ intensity of one ton of bluemint® powercore from 3.7 tons to 1.8 tons.

The Gelsenkirchen site is aiming for complete climate neutrality in the medium term, for example by using green electricity and biomethane in production as early as this year.

Transformers with CO₂-reduced steel for new stations from E.ON

The energy company E.ON also sees great potential in the more climate-friendly version of its familiar and proven products. "We are committed to a sustainable energy world of tomorrow - so it makes a big difference to the overall rating of a plant if also transformers with CO₂-reduced electrical steel are used in a substation or station for green electricity," says Achim Hübner, International Category Lead for transformers at E.ON. The first small series is used by E.ON subsidiary Avacon. In the transport of electricity, transformers connect the individual voltage levels

between power generation and the end consumer. The fact that this transport functions extremely efficiently and with low losses is also due to the materials from thyssenkrupp Electrical Steel. Highly efficient electrical steel, whether in wind turbines, generators or transformers, is an indispensable base material for the energy transition.

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“Climate protection and the energy transition will be the predominant topics of the next decades”, says Giovanakis. "With its products thyssenkrupp Electrical Steel is helping to achieve the climate targets. This spurs us on even more to further improve our products for the energy transition."

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About thyssenkrupp Steel

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thyssenkrupp Steel AG is one of the leading suppliers of high-grade flat steel and stands for innovations in steel and high-quality products for the most advanced and demanding applications. Steel has a good 26,000 employees and produces about 11 million tons of crude steel per year – making it Germany’s largest flat steel manufacturer.

As a pioneer in climate transformation, thyssenkrupp Steel has set itself the goal to produce 3 million tons of CO₂-neutral steel per year as of 2030. Steelmaking at thyssenkrupp is to be completely climate-neutral by 2045. The first CO₂-reduced product, bluemint® Steel, was launched in October 2021.

thyssenkrupp Electrical Steel is a global premium manufacturer of grain oriented electrical steel products and market leader in Europe and has 1,700 employees. With the powercore® brand, the company offers the core material for the manufacture of energy-efficient transformers and large high-performance generators, and now, for the first time, CO₂-reduced electrical steel under the name bluemint® powercore®.

For more information, please visit: <https://www.thyssenkrupp-steel.com/de/>.

About SGB -SMIT

SGB-SMIT Group is one of the leading medium sized manufacturers of power transformers. The products are needed wherever electrical energy is generated, transported or used, such as in power plants, wind farms, solar power systems, power grids, industrial enterprises and transport such as trains or ships.

The company, headquartered in Regensburg, produces in 14 plants in 10 countries: Germany, the Netherlands, Malaysia, USA, Romania, India, China, the Czech Republic, South Africa and France.

With 3,600 employees the group manufactures the complete range from large transformers, medium power transformers, small power transformers, cast resin transformers and oil distribution via controllable shunt reactors and phase shifters to Lahmeyer-Compact® stations.

Transformer range: 30 kVA up to 1,200 MVA, voltages up to 765 kV.

The SGB-SMIT Group distributes its products through sales offices and agents in more than 50 countries.

About E.ON

E.ON is an international investor-owned energy company, which focuses on energy networks and customer solutions. As one of Europe's largest energy companies, E.ON plays a leading role in shaping a clean, digital, decentralized world of energy. To this end, around 78,000 employees develop and sell products and solutions for private, commercial and industrial customers. More than 50 million customers purchase electricity, gas, digital products or solutions for electric mobility, energy efficiency and climate protection from E.ON. E.ON is head quartered in Essen, Germany.

For more information, please visit: www.eon.com.

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