PRESSE-INFORMATION

SACHSEN-ANHALT
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"We are pioneers in the field of magnet technology“

Neoscan Solutions from Magdeburg introduces the first MRI device for infants to the market.

It has been a year since Neoscan Solutions celebrated a groundbreaking innovation in the field of magnetic resonance imaging. A photo on the website nostalgically captures the festive atmosphere within the 'coolest company with the best team.' Initially, only experts recognize the significance behind the numbers on the balloons: the combination '60601-2-33' represents the international safety standard allowing for the clinical use of the neo315. 'neo315' is a pivotal term in the future of pediatric care. Embedded within the product name are references to the 30-centimeter-wide patient aperture and the 1.5 Tesla strong main magnetic field of the first MRI specifically designed for newborns and children up to six years old.

Agile Network in Magdeburg's Science Harbor

When not traveling to exhibitions and conferences, a model of the neo315—compact and portable compared to the MRI machines firmly installed in the vast basements of hospitals—is displayed in the entrance area of Neoscan Solutions GmbH. Located in Magdeburg's Science Harbor, this company facilitates the exchange of innovative ideas and the transformation of those ideas into products. A guiding beacon in close proximity to Neoscan Solutions is the STIMULATE research campus. This collaborative network between Otto von Guericke University Magdeburg, Siemens Healthineers AG, the STIMULATE association, and numerous partners from medicine, engineering, and business is dedicated to developing medical technology for image-guided minimally invasive therapies.

This agile network and the prevailing attitude that it is cool to develop and build future medical technology at this location were significant reasons for me to establish my startup in Saxony-Anhalt,' says Stefan Röll. Initially arriving in Magdeburg from Erlangen with just one employee and a computer model of the pediatric MRI, he reflects on the years gone by. 'It was in 2017. How time flies! I was 49 when I ventured into entrepreneurship. But having a certain number of years of life experience also has its advantages,' remarks Stefan Röll with a smile.

With years of experience advancing MRI developments at Siemens, the seasoned physicist is well-versed in the technologies and customer needs. He describes the market gap he identified: 'MRI imaging is a much gentler imaging technique than X-rays, especially for infants, as they are not exposed to radiation. However, despite significant medical interest in MRI imaging, it is rarely used in daily pediatric care due to the risks associated with transporting young children to radiology departments. Moreover, securing short-notice appointments for using an MRI machine scheduled in routine planning is challenging.

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Firm Belief in the Startup Idea

The startup founder was aware that bringing his idea to production would cost millions of euros, and no revenue would be generated during the development phase. However, his conviction in successfully positioning this niche product in the market reinforced his determination. He was able to garner support for his compact MRI device, which could be directly installed in pediatric wards, within his Magdeburg environment. Two entrepreneurs from Magdeburg, Karl Gerhold, founder of GETEC, and Klemens Gutmann, co-founder of regiocom, invested private funds in the medical technology startup, laying the financial foundation for Neoscan Solutions.

As the startup grew, there arose a need for someone to 'manage' the business in a literal sense. In 2019, Diplom-Kaufmann Dirk Meyer from Magdeburg joined the company as the second managing director. 'Many members of our now 36-strong team come from the region,' emphasizes Dirk Meyer, listing: mechanical engineers, electrical engineers, physicists, computer scientists, medical engineers, postdoctoral researchers, and student assistants. For all of them, the motivation lies in the fact that even after five decades, there are still new discoveries to be made in the field of MRI.

New MRI Technology Utilizes High-Temperature Superconductors

To be able to build future magnetic resonance tomographs that are compact, lightweight, and energy-efficient, we are developing a fundamentally new magnet technology,' explains Stefan Röll, introducing the 'superconductor' into the conversation. Prepared for inquisitive looks, he displays a piece of the conductor. This component, cooled with liquid helium, ensures a constant magnetic flux in the MRI tube by reducing its electrical resistance to zero. Even a short piece of this superconductor feels heavy in the hand. In contrast, the high-temperature superconductor, abbreviated as HTS, is lightweight. It is composed of materials that operate dry, without helium, and generate strong magnetic fields even at higher temperatures.

By pioneering the establishment of HTS technology in magnetic resonance tomography, we are taking a leading role,' emphasizes Stefan Röll, drawing a parallel to a much older pioneer, the famous mayor of Magdeburg and namesake of Otto von Guericke University. Physicist Otto von Guericke laid the foundation for vacuum technology in the mid-17th century. Röll points out the timeless significance of the invention: 'The production of our superconductors takes place in high vacuum to ensure the purity of the thin layers.

The pioneers at Neoscan Solutions are on track to become renowned. Along their path of success, they are drawing attention to Magdeburg's Science Harbor as a high-tech center for medical technology. A digital twin of the harbor is currently being developed. Those interested in any of the companies or institutes here from afar will soon be able to visit the virtual space, tour laboratories or production facilities, and even test products. Neoscan Solutions recently had such an opportunity: for a demonstration at an exhibition in Dubai,the neo315 was shipped ahead by sea. As the deadline approached, it became clear that the ship would not arrive on time, recall Stefan Röll and Dirk

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Meyer. Thanks to STIMULATE, they were able to bring along the digital twin of the neo315. Its presentation was a great success.

The managing directors of Neoscan Solutions now envision inviting customers into their virtual MRI examination room or explaining the functionality of the digital MRI to them. They think of their new order from the Netherlands in this context. At Radboud University Nijmegen, they are installing the world's first 14 Tesla MRI magnet based on their new HTS magnet technology. Considering the possibilities that arise from the combination of the digital and analog worlds, to be literally visible even from afar—the pioneers of Neoscan in Magdeburg are already contemplating this direction.

For more information:

www.neoscan-solutions.com

Neo315 – an MRI specifically designed for newborns and infants. Photo: Neoscan

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