PHILIPS

Magnetic Resonance

Customer story

Bringing MRI closer to patients in Tokyo, thanks to a MR system with Helium free operations.

Installation in a basement with no quench pipe needed[1]

In a crowded city like Tokyo, it's important to offer patients an accessible location that lets them reach the clinic without time-consuming and expensive travel. Dr. Hiroyuki Sugaya wanted to establish his new clinic in a mixed-use building in the city center of Tokyo, with nearby public transportation connections offering convenient access to a broad patient population. The clinic needed to have everything required for the quick diagnosis and treatment of shoulder and elbow conditions with the goal of improving clinical outcomes.

"For easy patient access, I needed to establish the new clinic in the city center of Tokyo, but it was very difficult to find a place this big that could also accommodate an MRI system."

Dr. Hiroyuki Sugaya, President,
Tokyo Sports & Orthopedic Clinic, Tokyo, Japan

The challenges of MR imaging in Tokyo

Building a new healthcare facility in Tokyo is a challenge to say the least – it is the most densely populated city on the planet, with limited space at high cost. Dr. Sugaya spent two years searching for a suitable central location for his clinic, looking for a place that was easily accessible for patients needing fast, high-quality care.

When he found an ideal space in a building that was large enough and close to transportation options, he discovered that the building's mixed-use functionality created siting challenges that were difficult to overcome with a traditional zero boil-off magnet, specifically the system's weight and the need for a costly quench pipe. With a conventional MR magnet, long vent pipes must be installed to meet safety requirements and to direct helium to an external outlet in case of a magnet quench.

Choosing a Philips BlueSeal magnet helped Dr. Sugaya overcome these specific concerns, reducing system weight by 900 kg[2] and eliminating the need for the construction and maintenance of a quench pipe.[1] Using an MR system with a BlueSeal magnet means that the facility can offer fast, high-quality imaging in a mixed-use building in the center of one of the most densely populated cities in the world. This allows for exceptional orthopedic care in the heart of Tokyo, in a building that would not be able to accommodate a traditional MR system.

"We don't need to use a quench pipe and, we don't need to refill the helium. That is very important point, it is very important for the circumstances of this building and the financial risk, good for the customer."

Dr. Hiroyuki Sugaya

Reducing helium to unlock new possibilities

MR systems with a BlueSeal magnet use a highly efficient micro-cooling technology which requires just seven liters of liquid helium, instead of the 1,500 liters used in conventional MR magnets.

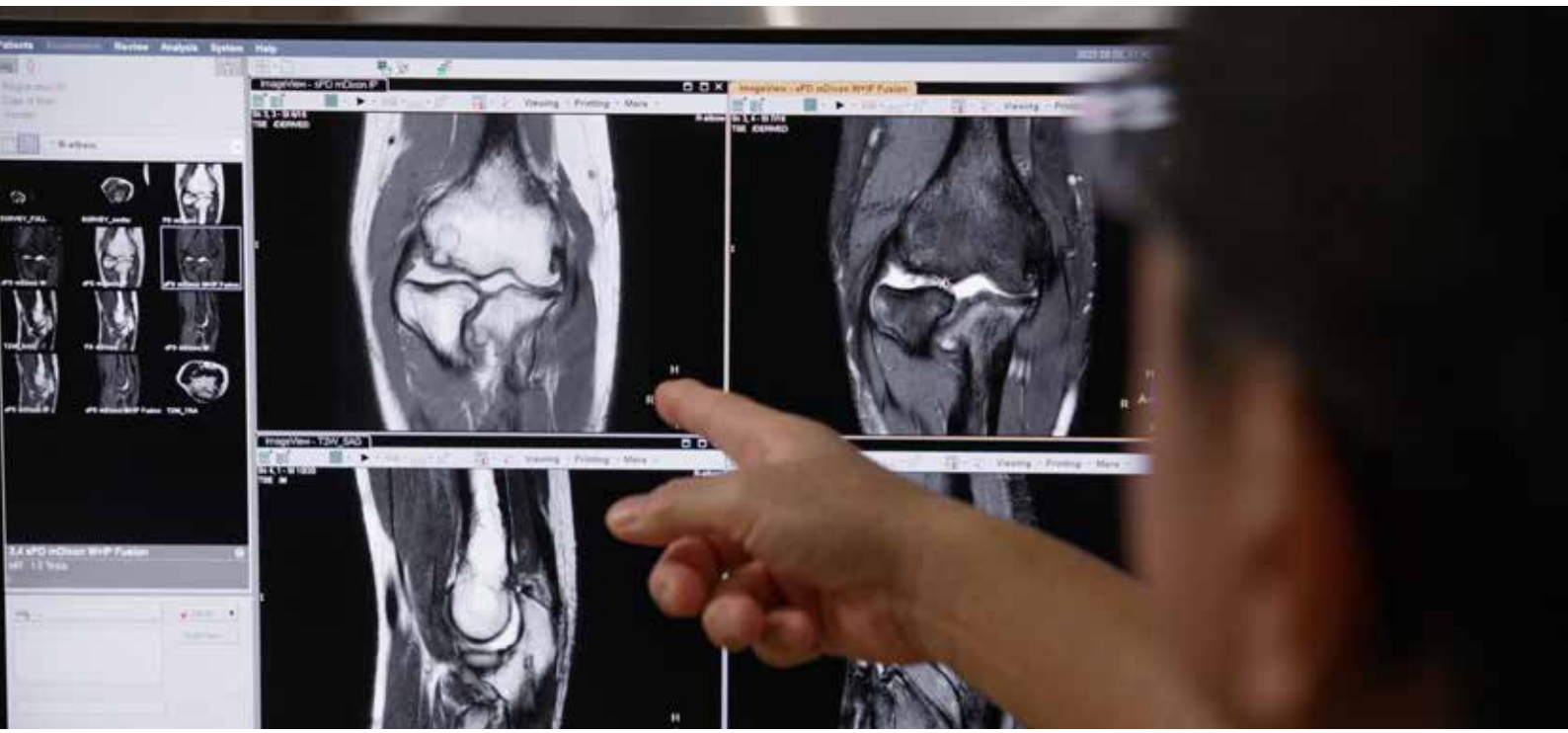
The tiny amount of liquid helium stays fully sealed[3] in the magnet for the system's life, which makes a quench pipe[1] unnecessary, reducing construction costs for a new installation.

"I chose an MR system with a BlueSeal magnet because the image quality is very nice, and because we don't need a quench pipe.[1] And we don't need to refill the helium, which is very important because of the conditions of this building."

Dr. Hiroyuki Sugaya

Expectations of excellence

With more than 20 years of experience, Dr. Sugaya is a renowned orthopedic surgeon and professor in the field of shoulder and elbow surgery. A pioneer in arthroscopic surgery, he has treated several high-performance athletes and has numerous publications to his name. Dr. Sugaya's passion for innovation and patient-centric care led him to establish his own clinic, where he can implement new and improved approaches to orthopedic care. With a track-record of outstanding patient care, Dr. Sugaya was determined to find the right system that could keep up with his clinical and operational demands.



Fast, high-quality exams are essential

Dr. Sugaya was clear about his requirements for an MRI scanner in the new clinic: he wanted a fast system with excellent image quality. "Many patients are coming from very far away," he says. "That's why it is very convenient for patients to get their diagnosis on the same day. The imaging speed is very important because that allows me to make the clinical decision on the same day. Only 10 minutes of scanning are required, and the image quality is beyond my required level."

Image quality crucial for ongoing accurate diagnosis

Dr. Sugaya receives new patients every day. Some of them arrive with previous exams, but Dr. Sugaya often finds that these prior scans are not detailed enough to make a confident diagnosis. High image quality is important to clearly see anatomical structures such as the rotator cuff and labrum. This is why his clinic has CT and MR scanners available onsite, so that he can perform the scanning he needs to make his diagnoses fast and confidently.

Sports injuries and other orthopedic injuries often recur due to incomplete rehabilitation, overuse, repetitive movement, poor training or improper use of equipment. This means that many of Dr. Sugaya's patients are repeat visitors who require comparative imaging to evaluate the evolution of the injury. As Dr. Sugaya says, "Just a one-time diagnosis is often not enough. Some patients are injured again in the shoulder or elbow a couple of months later. So, then we again perform an MRI examination and compare this with the previous images. The imaging reproducibility is extremely important for these patients." Philips MRI systems offer many features that support reproducibility, such as automated tools for patient positioning, planning and acquisition, image reconstruction and postprocessing.

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Disclaimer and footnotes:
Results from case studies are not predictive of results in other cases. Results in other cases may vary.

1. Due to closed magnet system
2. Compared to the Ingenia 1.5T ZBO magnet.
3. Even in the rare case of the magnet becoming unsealed, the negligible amount of helium escaping would not materially affect the oxygen level within the room.

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