

Technology Backgrounder

Philips Magnetic Resonance Imaging

Philips offers a comprehensive portfolio of magnetic resonance imaging (MRI) diagnostic and therapeutic solutions at ECR. It has expanded its digital MR offering to meet local market needs with the launch of **Ingenia CX**, available both in 1.5T and 3.0T. This introduction is based on the company's unique dStream architecture that allows for excellent image quality with major benefits in workflow and throughput time. As the latest in the Ingenia product line, the Ingenia CX features a 60cm bore. As such, Philips managed to bring the unique dStream digital capabilities to a broader audience, by addressing both their economical and clinical needs.

Ingenia 1.5T and 3.0T systems



Philips Ingenia is the first-ever digital broadband MR solution, a true breakthrough in MR imaging. Ingenia MR delivers a new standard in image clarity, scanning efficiency and scalability. Ingenia was designed to produce stellar images in less time, redefining what you can expect from an MR system and to make advanced diagnostic solutions mainstream pushing your radiology service to new levels of clinical utility and referral value. Delivering on the promise to put the radiologist at the center of diagnostic and therapeutic processes, Ingenia drives clinical performance, enhances patient experience and ensures economic value.

Key benefits/features:

Drive clinical performance

- dStream delivers premium Image quality with digital clarity and speed¹, delivering more diagnostic information in shorter timeslots
- MultiTransmit 4D enables enhanced contrast, uniformity and consistency in challenging applications at 3T
- Advanced diagnostic solutions are provided in neurology, oncology and cardiology including a rich set of advanced visualization applications through Philips Intellispace Portal

Enhance patient experience

- iPatient provides fast, comfortable patient setup – even for challenging patients – and supports high quality reproducible results through patient-centric imaging

Ensure economic value

- dStream features a channel independent architecture for future expansion of clinical capabilities
- Designed for lower cost of ownership

dStream delivers premium image quality with digital clarity & speed¹

The unique digital broadband MR platform, dStream, brings MR signal digitization where it has never been before – in the RF coil, as close to the patient as possible. dStream unleashes the

power of digitization by delivering a high purity MR signal for increased SNR, combined with industry leading dS-SENSE acceleration and impactful imaging techniques like mDIXON and MultiVane, that enable superb fast fat and motion suppression in almost all procedures. dStream enables clinicians to get more information, more consistently in the same time by delivering premium image quality with digital clarity and speed. With its superb level of performance, dStream supports confident diagnosis, new applications exploration and productivity generation required to meet today's health care challenges.

Key benefits/features:

- Digitization close to the patient provides significant improvements in SNR
- dS-SENSE drives speed through industry leading acceleration factors
- mDIXON-TSE provides fat-free imaging at 2/3 of the speed of conventional DIXON techniques
- MultiVane XD supports excellent motion-free imaging with SENSE acceleration

iPatient puts you in control of patient-centric imaging

iPatient is Philips approach to patient-centric imaging across CT, MRI and AMI. iPatient for MRI is an advanced platform that delivers patient-centric imaging to support greater consistency and efficiency, from patient setup to image result. Fast and comfortable patient setup is supported by flexible and efficient coil workflow designed around the needs of a variety of patients. Automated imaging strategies and assistance to adapt imaging to the patient in a consistent manner supports standardized results, first time right. Advanced imaging techniques ensure the best possible quality for any situation and any patient. It helps you deliver more from your investment by allowing you the ability to do complex and advanced procedures.

Key benefits/features:

- Fast and comfortable patient setup, even for challenging patients
- Personalized and automated imaging strategies
- Assistance to adapt imaging to the patient in a consistent manner
- Imaging techniques for greater consistency in challenging circumstances

MultiTransmit 4D drives 3T performance

MultiTransmit helps to improve the performance of Philips 3T systems for greater utility in mainstream radiology. MultiTransmit adapts the RF signal for each patient's unique anatomy to address dielectric shading and specific absorption rate limitations inherent in 3T systems. The result is improved image contrast, uniformity and consistency, and up to 40 percent faster scans. 3T imaging with MultiTransmit provides benefits in anatomies, such as spine, breast and liver and real-time imaging applications, such as cardiac.

Advanced diagnostic solutions, ready for mainstream radiology

Our advanced diagnostic solutions increase the diagnostic capabilities of MRI addressing the major health care care trends in neurology, oncology and cardiology:

- More definite diagnosis of cerebrovascular disease, or traumatic brain injury
- Better understanding and objective diagnosis of neurodegenerative and psychiatric diseases, including dementia
- Improving cancer detection and characterization anywhere in the body
- Monitoring and guiding treatments through accurate quantitative diagnosis

- Image guided interventions ranging from localized biopsies to localized treatment
- Staging of lifestyle diseases such as fatty liver disease
- Providing insights for cardiology treatments for post-infarct treatment analysis and risk assessment for ischemic heart patients

Key benefits/features:

- IntelliSpace Portal 6 features a rich set of MR applications in advanced neurology, cardiology and oncology
- With pCASL and SWIp, Philips brings high quality non contrast-enhanced brain perfusion and susceptibility weighted imaging to mainstream clinical practice. Both techniques benefit from dS-SENSE
- mDIXON-TSE for fat-free imaging in challenging areas, like head and neck
- mDIXON Quant brings high quality fat quantification in the liver to mainstream clinical practice, both at 3.0T and 1.5T

Multiva 1.5T system

The Multiva 1.5T system builds on Philips innovation and proven technologies from both the Ingenia and Achieva platforms. At the heart of Multiva 1.5T is the FlexStream workflow, which enables more efficient handling of coils for head, spine, musculoskeletal and neurovascular exams.

Multiva 1.5T also features SmartSelect, a feature that automatically determines which coils and elements should be activated to yield the maximum signal-to-noise ratio (SNR) in the region of interest for greater efficiency and higher image resolution. Additionally, a large neurovascular coil design allows patients to use headphones during their scan, which can help improve the patient's overall comfort and experience. These improvements to workflow and the patient experience maximize the value of the system and allow clinicians to treat more patients each day without compromising image quality.

Key benefits/features:

- High quality routine imaging in as little as 10 minutes
- Advanced clinical applications, including whole body, oncology and breast imaging
- Up to 40 percent reduction in patient/coil set up time with new FlexStream workflow
- Affordability – today and for the life of your system

IntelliSpace Portal

IntelliSpace Portal is a thin client applications server, virtually accessible-anywhere solution for multimodality clinical review, analysis and diagnosis. It is a rich, advanced visualization solution with key applications, such as Tumor Tracking and Cartilage Assessment. Furthermore, the IntelliSpace Portal empowers the radiologist in patient care by providing the tools to access and create actionable information throughout the enterprise, on a secure, real-time, collaborative platform. Extensive clinical coverage IntelliSpace Portal applications are designed around care disciplines. Our portfolio is constantly growing in terms of width and depth. New applications, for example, offer a comprehensive suite of MR applications in cardiology and neurology. At the same time, improvements to existing applications deliver rich insight, fast.

Philips SmartPath to dStream - bringing Ingenia's digital capabilities to the majority of the installed base

The revolutionary dStream broadband technology, which Philips introduced with Ingenia, is available to the majority of the installed base. SmartPath to dStream provides enhanced image quality, improved workflow, easy coil handling and exceptional patient comfort. SmartPath to dStream builds on the existing system and is a cost-effective way to provide the clarity, scanning efficiency and scalability of digital broadband MRI. Compared with system replacement, it saves on magnet and reconstruction costs and results in fewer disturbances during installation for the facility.

Philips Ingenia MR-OR solution for intraoperative neurosurgery

Philips is expanding MRI into the therapy area. One of the new solutions in this field is the next generation MR-OR solution for intraoperative neurosurgery with Ingenia.

Philips has been a leader in interventional MR since 1995, and has been offering both 1.5T and 3.0T MR-guided neurosurgery solutions. An MR-OR suite for intraoperative MRI adds value to neurosurgical facilities by supporting resection procedures that can save precious time for both surgeon and patient. For example, when intraoperative MR reveals incomplete resection, the resection can be completed in the same procedure and can reduce the need for subsequent surgery. When Philips introduced Ingenia, the first digital broadband MR system, the next generation intraoperative MR-OR was conceived as well.

Key benefits/features:

- Save precious time by obtaining fast intraoperative MRI results with smooth and quick patient transfer, which can reduce the need for subsequent surgery
- Gain access to Ingenia's high MR image quality for neuronavigation with full MR diagnostic capabilities
- Increase MR utilization through dual-room (MR-OR) or triple-room (OR-MR-OR) approach

Ingenia MR-RT Oncology Configuration²

A dedicated MR imaging solution, the Philips Ingenia MR-RT Oncology Configuration allows radiation oncology departments to integrate MR imaging alongside CT in radiation therapy (RT) planning. With an Ingenia MRI as its backbone, this solution is designed to provide high-quality MR images acquired in the treatment position that can boost accuracy in delineating tumors and critical structures.

Key features/benefits:

- Flexibility in patient positioning and immobilization solutions supports reproducible MR imaging in the treatment position
- Dedicated imaging for RT planning is underpinned by Ingenia's high image quality with versatile coil solutions
- Smoothly integrate MR in radiation oncology workflows with a truly comprehensive solution including tailored training and ExamCards

For more information, additional materials and images, go to www.philips.com/ECR and click on the “News Center” tab.

Notes to Editors:

¹ Compared to Philips Achieva

² Ingenia MR-RT Oncology Configuration is not available in all countries. Please check the availability with your local Philips sales representative.