Магнитно-резонансные томографы Ingenia, MR, MRCAT
Технические характеристики

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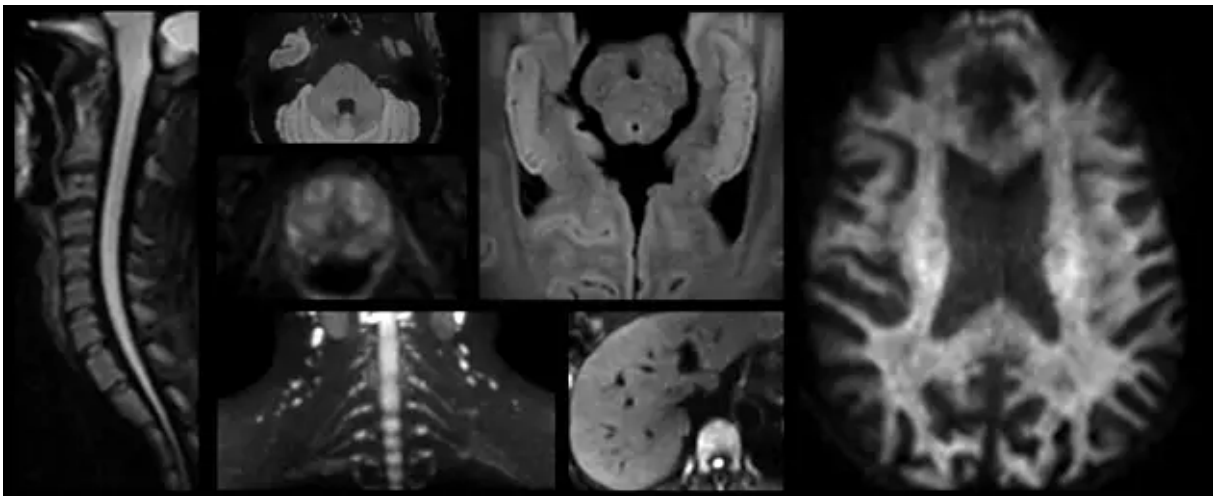
MR 7700

Unmatched performance and precision

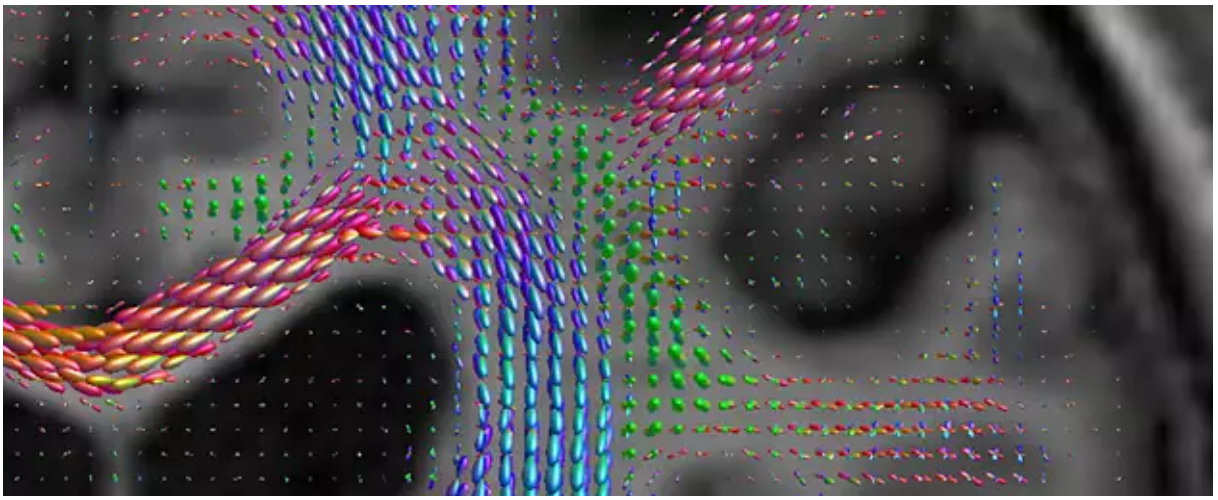
Experience breakthrough innovation in 3.0T imaging with the unique design of the Philips MR 7700 imaging system, enhanced with XP gradients and artificial intelligence (AI)*. The system is built to address a pressing need to deliver on the clinical expectations of today, and to facilitate the most demanding research programs. The MR 7700 provides high accuracy, power, and endurance to support confident diagnosis for every patient. It is the system of choice for highest quality diffusion imaging and advanced neuroscience. Extend your scanning capabilities with a fully integrated multi-nuclei imaging and spectroscopy solution to explore new clinical pathways without sacrificing clinical imaging workflow or wide-bore patient comfort. What's more? The MR 7700 promises a great experience for both users and patients through the ease-of-use features of a well-designed clinical 3.0T scanner together with a no compromise workflow. Now scientists and clinicians alike can schedule without conflict.

Features



Higher diffusion IQ, for all anatomies

Benefit from up to 35% faster echo-planar (EPI) diffusion imaging[1], with the same spatial resolution. Or achieve up to 35% higher signal-to-noise ratio (SNR), in similar scan time[2]. The additional SNR opens the possibility to scan with increased spatial resolution, enhancing clinical confidence. Enjoy robust suppression of motion artifacts in diffusion TSE, with up to 15% shorter scan times[1]. Exceptional gradient linearity limits distortion, even in large fields-of-view (FOV), and enables small lesions to become visible, benefiting applications like total body diffusion.



Excel in neuroscience

Excel in neuroscience with high gradient amplitudes of 65 mT/m and high slew rates of 220 T/m/s simultaneously, on each cartesian axis. Achieve up to 20% more fMRI sequences, with the same spatial resolution[2]. Or acquire 50% more DTI directions in the same scan time[3], by adding MultiBand SENSE acceleration. Due to efficient heat management (Grms of 27mT/m), the system can operate with the high average gradient amplitudes, required for DTI and fMRI imaging, without slowing down or overheating. Easy data transfer supports enhanced analysis outside of the default reviewing stations.

Innovative imaging solutions and workflow

Reach new levels of precision in anatomical and functional clinical imaging with a wealth of unique features such as 3D APT, black blood imaging, and susceptibility weighted imaging (SWIp). Achieve excellent patient-centered productivity via technology to guide and coach where required, and automate when possible. These workflow efficiencies help to keep exams on schedule and create a positive staff experience. Addition of our Ambient Experience solution will enhance your patients' scanning experience via positive distractions by incorporating dynamic lighting, projection, and sound.

Seamless integration of Multi Nuclei

Multi Nuclei opens a window of research for six different nuclei (1H, 31P, 13C, 23Na, 19F* and 129Xe*), across all anatomies. Thanks to a seamless integrated workflow, multi-nuclei image acquisition, spectroscopy, reconstruction, and viewing can become part of your daily clinical workflow. Multi-nuclei studies have become a simple protocol that can be "dragged and dropped" into your ExamCard. The nucleus is just a scan parameter like any other sequence parameter. A brain study, including both proton (1H) and multi-nuclei imaging can be completed using the same dual tuned head coil from RAPID biomedical.

Accelerate your exams

Accelerate your clinical scans by up to 50% with virtually equal image quality[3] thanks to Compressed SENSE. This method is suitable for all anatomies and can be used for all anatomical contrasts, in both 2D and 3D scanning. MultiBand SENSE allows to either accelerate DTI imaging by up to 45%, with virtually equal image quality[4], or to maintain similar scan time and acquire twice as many diffusion directions. For fMRI, two times larger anatomical coverage can be acquired[4], at similar scan times. Or gather two times more volumes per unit time, with virtually no compromise in SNR[4].

Protect and enhance your MR investment

Prevent issues before they occur through proactive remote monitoring, remote diagnostics and remote and field service support. Simplify lifecycle management through proactive upgrades, boosting clinical capabilities and performance. Stay up to date through access to the latest cybersecurity patches and mandatory safety fixes. Enjoy predictable cashflow by leveraging more diverse funding sources. Deliver care now and start your repayments later. Benefit from transparent, predictable cost structures and avoid the burden and risk of upfront expenditures.

Specifications

Magnet system

Field strength	3.0T
Bore design	70 cm
Magnet weight	4800 kg
Typical homogeneity at 50 x 50 x 45 cm V-RMS	≤ 0.9 ppm (at 45 cm DVS)
HeliumSave technology	Yes (zero boil-off)
Maximum FOV	55 cm
Cryogen boil-off rate	0 liter/hour (under regular scanning conditions)

RF transmit

Parallel RF transmission	Yes
Output power	≥ 2 x 18 kW

Siting information

Minimum siting requirement	3.4 m x 5.3 m
Ceiling height (minimum)	2.56 m

RF Receive

Number of independent receive channels	Channel independent
Location of analog-to-digital converter (ADC)	Inside the coil, close to receive channels
Signal chain from coil to reconstructor	Fully digital
dStream	Yes

SmartWorkflow

Guided exam set-up	Yes
Auto patient centering	Yes
Touchless respiratory-triggering	Yes
In-room exam start	Yes
ScanWise Implant	Yes
Automated planning and scanning	Yes
Automated patient coaching	Yes
Automated post-processing	Yes

XP gradients

Max. amplitude for each axis	65 mT/m
Max. slew rate for each axis	220 T/m/s

* According to the definition of AI from the EU High-Level Expert Group.

1 Compared to Ingenia Elition X with Vega HP gradients

2 Compared to Ingenia Elition X with Vega HP gradients, measured in brain white matter

3 Compared to Philips DTI/fMRI scans without MultiBand SENSE

4 Measured from start of first scan to end of last reconstruction. Includes 1H (T2w TSE, T2w FLAIR, SSh DWI, and 3D T1w FFE pre&post) + 23Na (with a voxel size of 4mm isotropic)

*Caution: Investigational device for imaging with fluorine (19F). Limited by federal (or United States) law to investigational use. Clinical imaging with this nucleus requires usage of a cleared drug. No FDA-cleared drugs are currently available for this nucleus.

Ingenia 1.5T Evolution

Boost your MR performance, and confidence

The Ingenia 1.5T Evolution[1] can boost your performance with innovative SmartWorkflow solutions that includes AI-driven patient sensing technology, in-room guidance and exam automation. Compressed SENSE allows you to scan up to 50% faster with virtually equal image quality, in both 2D- and 3D scanning and for all anatomies[2]. A positive patient experience is supported through an immersive audio-visual experience that calms and guides patients through MR exams. It also provides clinical confidence, with consistent and reproducible high image quality even for challenging anatomies.

Specifications

Xtend Magnet System

Magnet weight	3060 kg
Bore design	70 cm
Maximum FOV	55 cm
Typical homogeneity at 45 cm DSV	≤ 0.9 ppm
HeliumSave technology	Yes (zero boil-off)
Cryogen boil-off rate under regular scanning conditions	0.0 l/hr

Omega gradients

Max. amplitude for each axis	33 mT/m
Max. slew rate for each axis	120 T/m/s
Max. amplitude for each axis	45 mT/m
Max. slew rate for each axis	200 T/m/s

Number of independent receive channels	Channel independent
Location of analog-to-digital converter (ADC)	Inside the coil, close to receive elements
Signal chain from coil to reconstructor	Fully digital
dStream	Yes

Minimum siting requirement	3.4 m x 5.3 m[6]
Ceiling height (minimum)	2.5 m

Guided exam set-up	Yes
Auto patient centering	Yes
Touchless respiratory-triggering	Yes
In-room exam start	Yes
ScanWise Implant	Yes
Automated planning and scanning	Yes
Automated patient coaching	Yes
Automated post-processing	Yes

Features

Patient-centered productivity with SmartWorkflow solutions

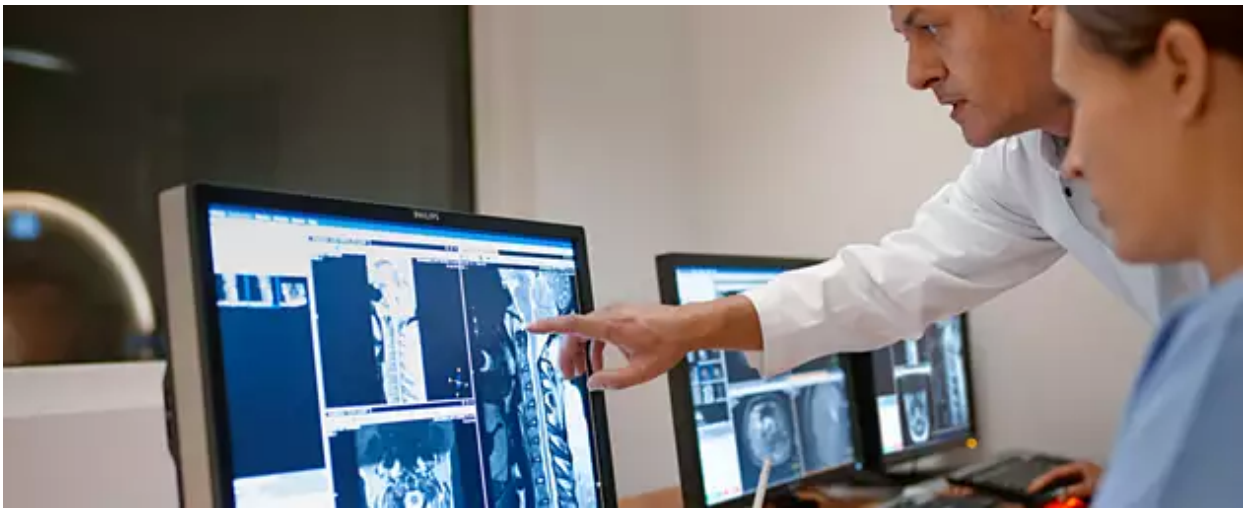
The increasing use of MR to diagnose a variety of conditions and illnesses has led to demands for greater efficiency. Too often, it seems that productivity is at odds with giving patients the time and attention they desire. SmartWorkflow provides an end-to-end workflow solution supporting a better patient and staff experience, resulting in patient-centered productivity.

Guidance at your fingertips

Increase staff confidence and speed up patient set-up through automated real-time guidance and insights on the details of the current patient study. Achieve high quality results, independent from staff’s expertise level. VitalScreen provides guidance at your staff’s fingertips.

Touchless patient sensing

Relieve your staff from the burden of positioning – and re-positioning – a respiratory belt. Positioning a belt shifts the operator's focus from the patient to the technology at a moment when it is critical that the patient is comfortable and reassured. Enjoy optical sensing and AI to automatically detect patient respiratory patterns. VitalEye touchless patient sensing provides a fast detection of patient's breathing without any operator interaction.



Up to 50% faster MRI exams with virtually equal image quality[2]

Time is one of the most precious commodities you have in your MR department. What if we told you there was a way to recover time you have been losing during your MR examinations? And use the time you do have more wisely? Imagine how that could help you make better use of your scarce resources and better meet the demands of referring physicians. That's exactly what Compressed SENSE can do for your MR department.

1 Ingenia 1.5T Evolution is a special configuration of Ingenia 1.5T registered product.

2 Compared to Philips scans without Compressed SENSE.

3 Dynamics are reconstructed at prescribed temporal resolution and will contain data shared from earlier and later time points.

4 Compared to eTHRIVE in subjects unable to hold their breath.

5 Check for compatibility with your Philips representative.

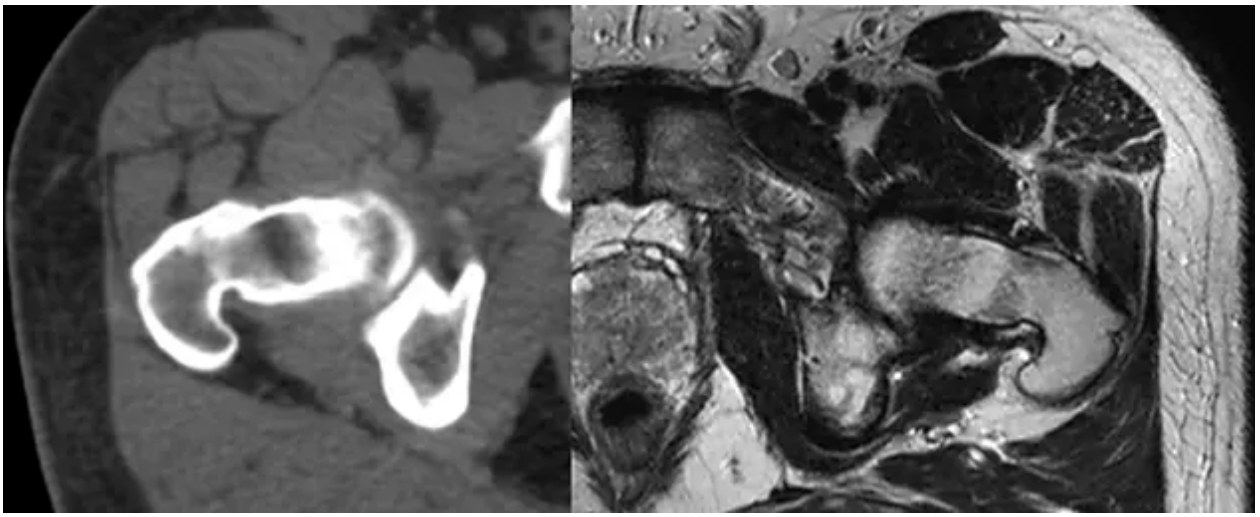
6 5.6 m in case of complete patient table length stroke.

Ingenia MR-RT XD

Versatility to fit your planning

The Philips Ingenia MR-RT XD platform harnesses the power and value of MRI for radiation therapy planning. It has been designed around the needs of radiation oncology, with ease-of-use, streamlined integration, and versatility in mind. Central to that concept is the ability to define a tailored approach with customizable functionality that meets your individual clinical, workflow, and budgetary requirements – all to provide better patient care.

Features

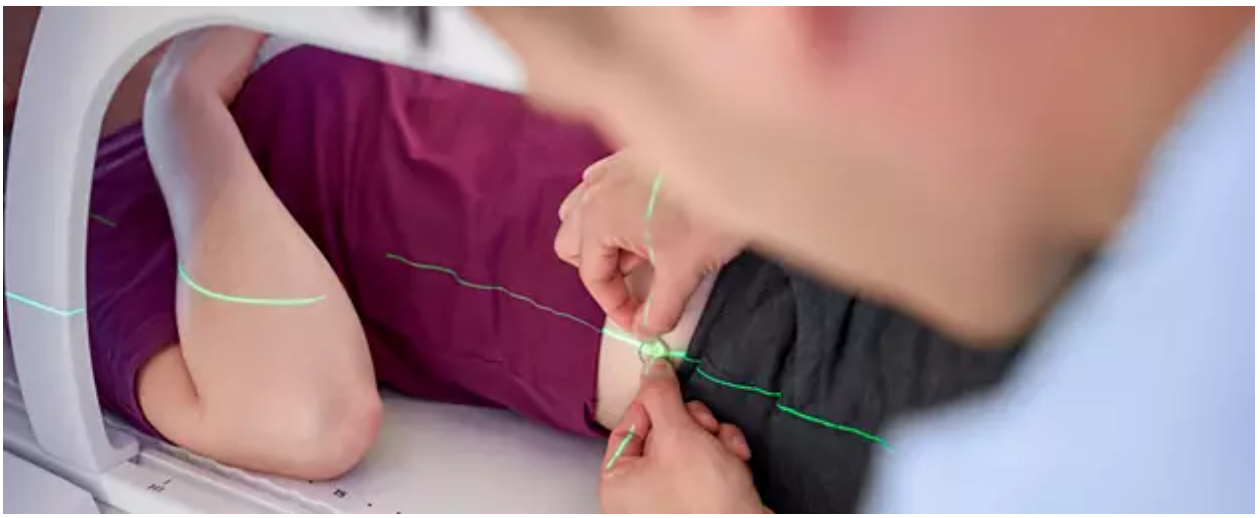


Experience the MRI difference

With its excellent soft-tissue contrast, MRI offers excellent visualization of tumor boundaries and proximity to nearby critical structures – a key factor for more confident delineation and improved treatment plans. What's more, MRI's advanced imaging capabilities provide you with a 'toolbox' to design personalize treatment options for each patient.

Be confident in image quality

With our state-of-the-art Ingenia (Ambition, Elition, Evolution) MR systems as its backbone, Ingenia MR-RT provides excellent geometric accuracy through its industry-leading gradient linearity and advanced 3D Gradient Distortion Correction functionality.



Position with precision

Ingenia MR-RT allows for accurate, reproducible patient positioning in treatment setup with an advanced couchtop design and tiltable Anterior Coil Support. Equipped with multi-indexing support, the RT CouchTop XD has one-to-one compatibility with various linacs and accommodates a variety of MRI-compatible immobilization accessories to match your procedural approach.

MR-only radiotherapy planning

The Ingenia MR-RT XD platform’s MR-only radiotherapy capability turns your MR into an authentic single modality simulator. With innovative MRCAT (MR for Calculating ATtenuation), you can obtain CT-like density information for dose calculations and position verification based on a single MR scan. So you can eliminate cumbersome and error-prone CT-MR registration, and make MR-based workflows more cost-efficient.

Specifications

Features

Ingenia MR systems	Ambition 1.5T, Elition 3.0T, Evolution 1.5T, Ingenia 1.5T/3.0T
Bore design	70cm
Geometric imaging accuracy	≤ 1 mm in Ø 32 cm volume (typical)
RT CouchTop XD multi-indexing	14cm indexing and Elekta Unity Indexing system (2cm increments)
Coil arrangements	dStream FlexCoverage Anterior Coil, Posterior Coil, and FlexCoils L
Diagnostic head coil compatibility	Yes
Applications supported	Brain, head and neck, pelvis, thorax, abdomen, spine
Patient immobilization accessories	Can be ordered via 3rd party vendors including CIVCO, Orfit, Qfix, Elekta
Patient transport	Yes, with FlexTrak trolley
Geometric QA	Yes, large field of view QA phantom and automated analysis

Optional external laser positioning system

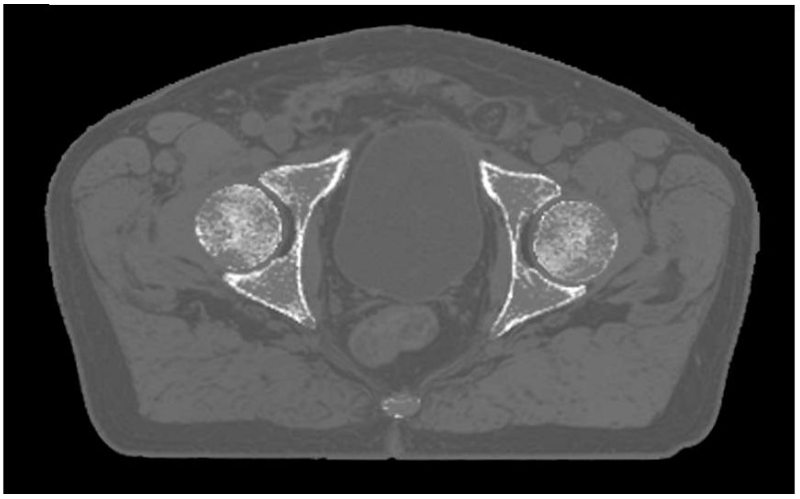
Type	LAP DORADOnova MR3T or APOLLO MR3T compatible
Allowed width range	2.594 - 5.000 m
Laser phantom	LAP Aquarius phantom and phantom holder, ELPS QA Test ExamCard

1. Compared to Philips scans without Compressed SENSE
2. Compared to the Ingenia 1.5T ZBO magnet

MRCAT Pelvis

MR-RT clinical application

MRCAT Pelvis lets you plan radiation therapy using MRI as a single modality solution. Within just one MR exam, MRCAT Pelvis provides excellent soft-tissue contrast for target and OAR delineation, and continuous Hounsfield units for dose calculations. MRCAT (MR for Calculating ATtenuation) data can be used for export to treatment planning systems for CT-equivalent** dose calculations. In addition, MR-based imaging enables CBCT-based positioning based on soft-tissue contrast with the look and feel of CT.



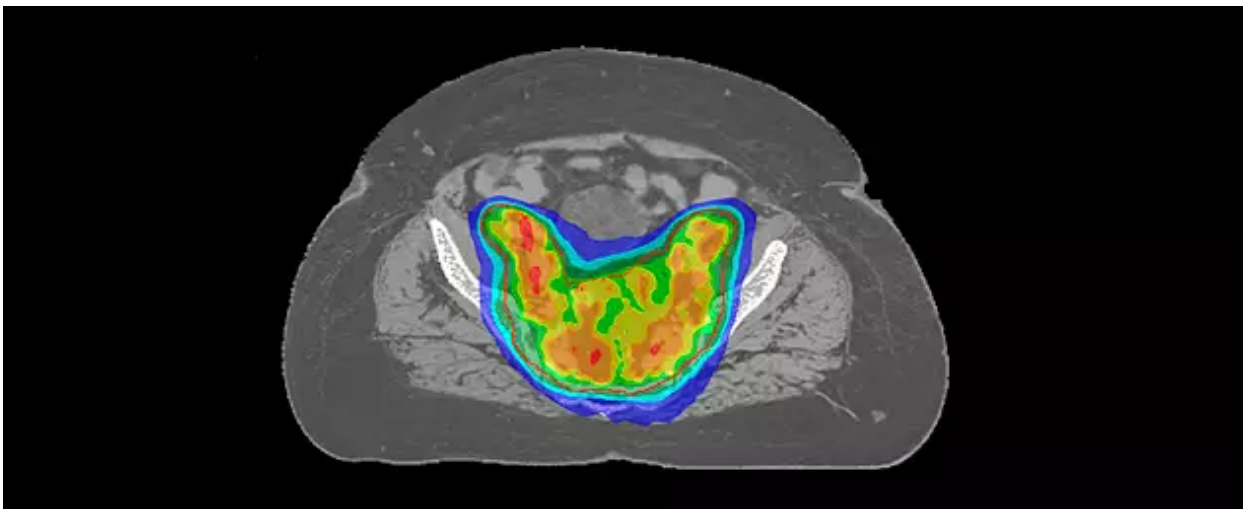
Features

Unleash the real power of MR simulation

MRCAT Pelvis lets you plan radiation therapy for male and female pelvic cancer patients with soft-tissue tumors using MRI as a single-modality solution. This not only extends the benefits of MRI's outstanding soft-tissue contrast to radiotherapy planning, but it also eliminates arduous, error-prone CT-MRI registration from the process, reducing uncertainties and complexity.

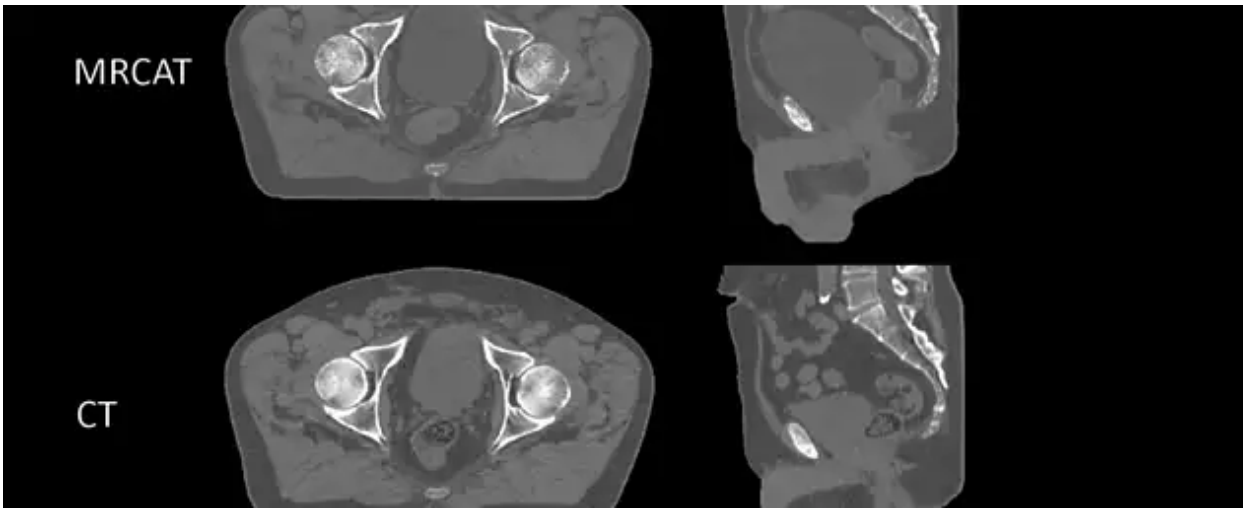
Fast, consistent imaging protocol

The dedicated MRCAT Pelvis imaging protocol includes a single, high-resolution, multi-contrast mDIXON sequence as the source for MRCAT generation. This scan is accelerated by Compressed SENSE, promoting patient comfort by minimizing time in the scanner. Moreover, it is standardized to deliver consistent results. A complementary 3D T2W scan provides high geometric accuracy and high-resolution image quality to support accurate delineation of target and critical structures. The total imaging protocol takes less than 15 minutes.



Automatic generation of synthetic CT images

MRCAT images are automatically generated using the mDIXON scan as source. Embedded image post-processing runs in the background, parallel to image acquisition, adding no time to the scanning session. Smart, validated algorithms enable automatic tissue segmentation and assignment of continuous Hounsfield units to deliver MRCAT images with CT-like density information for dose calculations.



Accuracy in dose planning

MRCAT images have high geometric accuracy* and validation studies have shown that MRCAT-based dose plans are robust and as accurate** as CT-based plans promoting confidence in dose planning.

Patient positioning based on MR-only imaging

The MR-based image sets with continuous Hounsfield units enable CBCT-based positioning based on soft-tissue contrast with the look and feel of CT. You can also use MRCAT data to generate MR-based digitally reconstructed radiographs (DRRs) to allow for patient positioning using bony structure.

Put Philips MR-only radiotherapy to work today

To successfully bring MR-only radiotherapy into your clinical routine, we recognize that you must look beyond the imaging itself and address important steps such as patient marking, position verification, and quality assurance. We are prepared to support you throughout this process. To this end, we offer dedicated workflow descriptions, best practice sharing and tailored training support, designed to provide assistance as you adopt this new treatment paradigm.

Specifications

MRCAT Pelvis

Compatibility MR system	Ingenia 1.5T and 3.0T MR-RT, Ambition 1.5T MR-RT and Elition 3.0T MR-RT

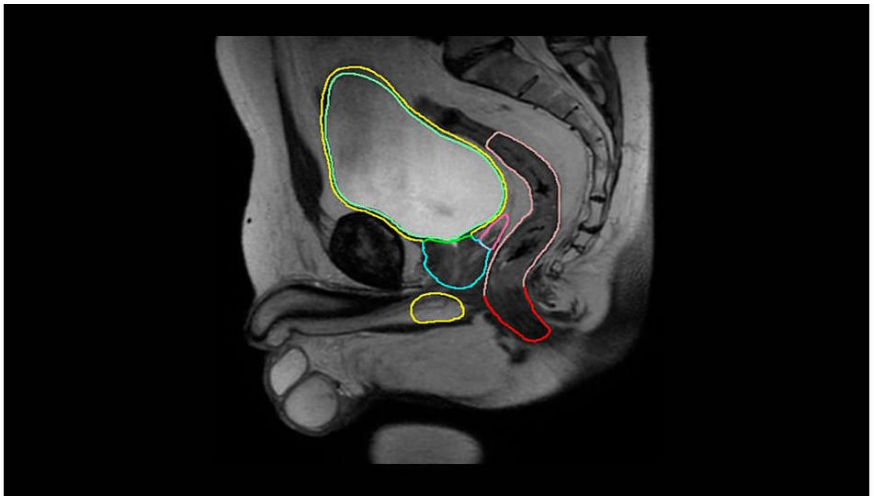
Accurate means: MRCAT image acquisition provides <lt/> ± 1 mm geometric accuracy of image data in <lt/> 20 cm Diameter Spherical Volume (DSV) and <lt/> ± 2 mm geometric accuracy of image data in <lt/> 40 cm Diameter Spherical Volume (DSV). * Limited to 32 cm in z-direction in more than 95% of the points within the volume

**The simulated dose based on MRCAT images does not differ (Gamma analysis criterion 3%/3mm realized in 99% of voxels within the PTV or exceeding 75% of the maximum dose) in 95% of the pelvic cancer patients when compared with CT-based plan for EBRT.

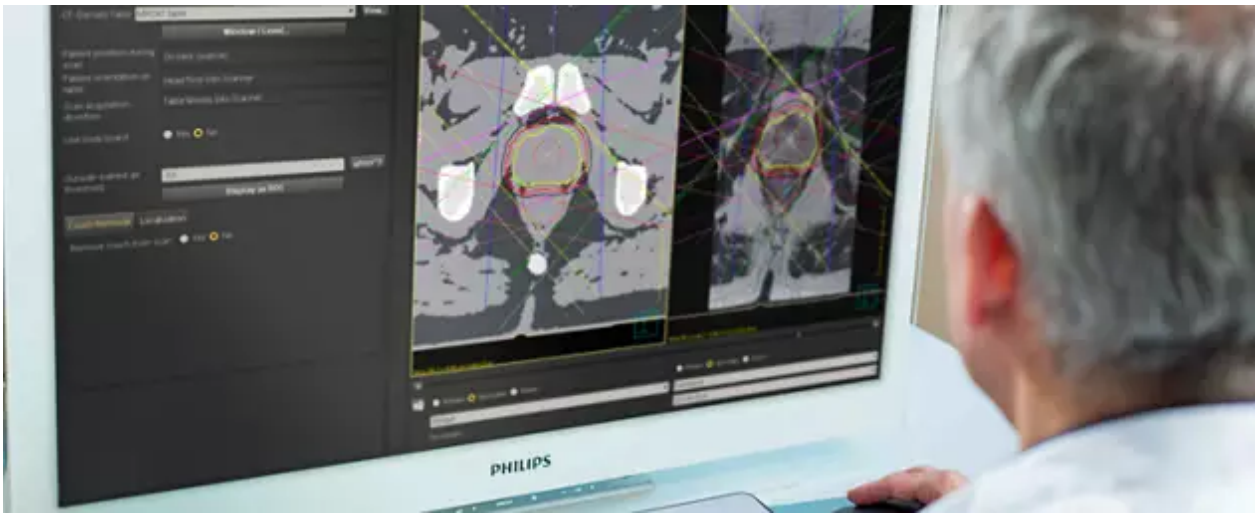
MRCAT Prostate + Auto-Contouring

MR-RT clinical application

As a plug-in clinical application to Ingenia MR-RT, MRCAT Prostate + Auto-Contouring provides attenuation maps and automated, MR-based contours of prostate and organs at risk in as little as 20 minutes – all in a repeatable 'one-click' workflow.

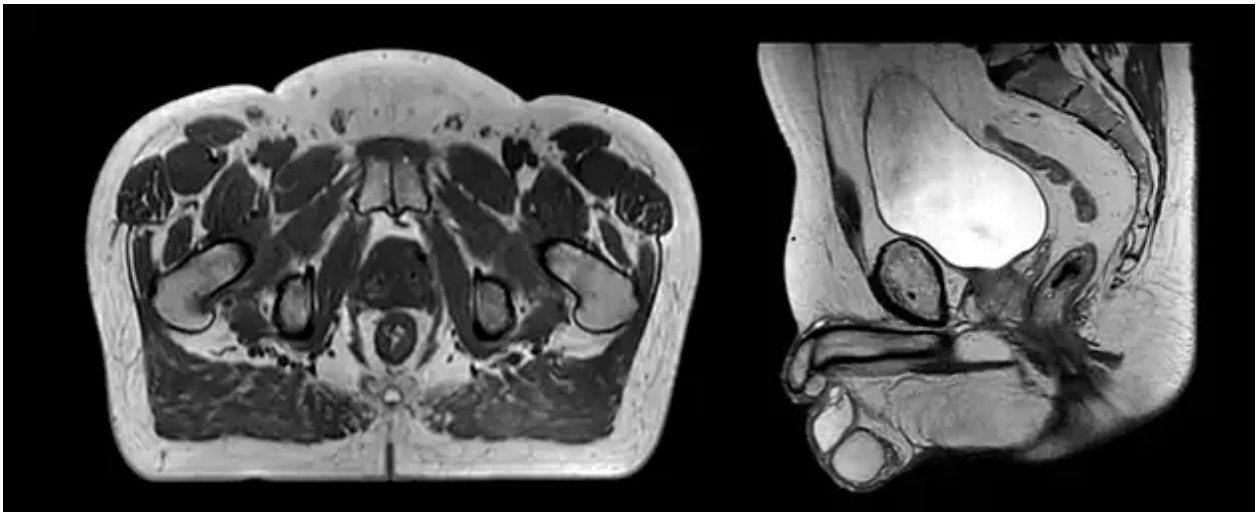


Features



Drive speed, accuracy and consistency

Because MRCAT Prostate requires input from MR images only, it reduces the organization and coordination of scans, eliminates the effort involved in MR-CT registration, and saves the patient from undergoing multiple procedures. Moreover, Auto-Contouring automates standard, labor-intensive and repetitive tasks, while at the same time reducing variability and errors caused by manual steps. This improves consistency and reproducibility - for more confidence in the planning process.



Fast, consistent imaging protocol

A dedicated, standardized imaging protocol includes a T1W mDIXON XD and a T2W TSE scan as source data for the generation of MRCAT (MR for Calculating ATtenuation) density maps and MR-based Auto-Contouring. Compressed SENSE acceleration keeps the total scan time short, which promotes patient comfort by minimizing time in the scanner and helps to boost productivity.

Automatic generation of synthetic CT images

MRCAT Prostate automatically generates attenuation maps using the high-resolution mDIXON scan as source. Smart, validated algorithms enable automatic tissue segmentation and assignment of Hounsfield Units to deliver MRCAT images with CT-like density information for dose calculations - directly on the MR console.

Accuracy in dose planning

The MRCAT Prostate scanning protocol and generation algorithms have been designed with the strict accuracy requirements of RT in mind. MRCAT Prostate images have high geometric accuracy* and validation studies have shown that MRCAT-based dose plans are robust and equivalent** to CT-based plans promoting confidence in dose planning.

Specifications

MRCAT Prostate and Auto-Contouring

Compatibility MR system	Ingenia 1.5T and 3.0T MR-RT, Ambition 1.5T MR-RT and Elition 3.0T MR-RT

Accurate means: MRCAT provides < ± 1 mm total geometric accuracy of image data in < 20 cm Diameter Spherical Volume (DSV) and < ± 2 mm total geometric accuracy of image data in < 40 cm Diameter Spherical Volume (DSV)). *Limited to 32 cm in z-direction in more than 95% of the points within the volume.

**The simulated dose based on MRCAT images does not differ in >95% of prostate cancer patients (Gamma analysis criterion 3%/3 mm realized in 99% of voxels exceeding 75% of the maximum dose) when compared with the CT-based plan for EBRT.

***Accurate means 95th percentile modified Hausdorff distance <5mm compared to contours made by experts manually. Average distance is <1.5 mm and is measured as average modified Hausdorff distance compared to contours made by experts manually.

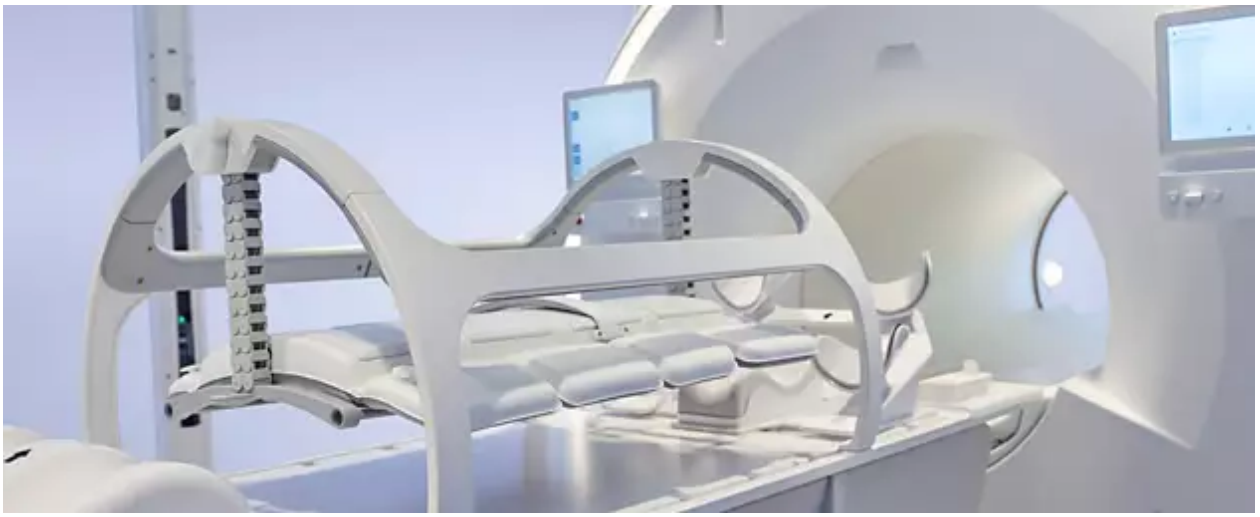
**** Based on 49 cases (each for anatomical prostate, bladder, rectum, penile bulb and femur heads).

MR-linac simulation package for Elekta Unity

Benefit from synergies and similarities

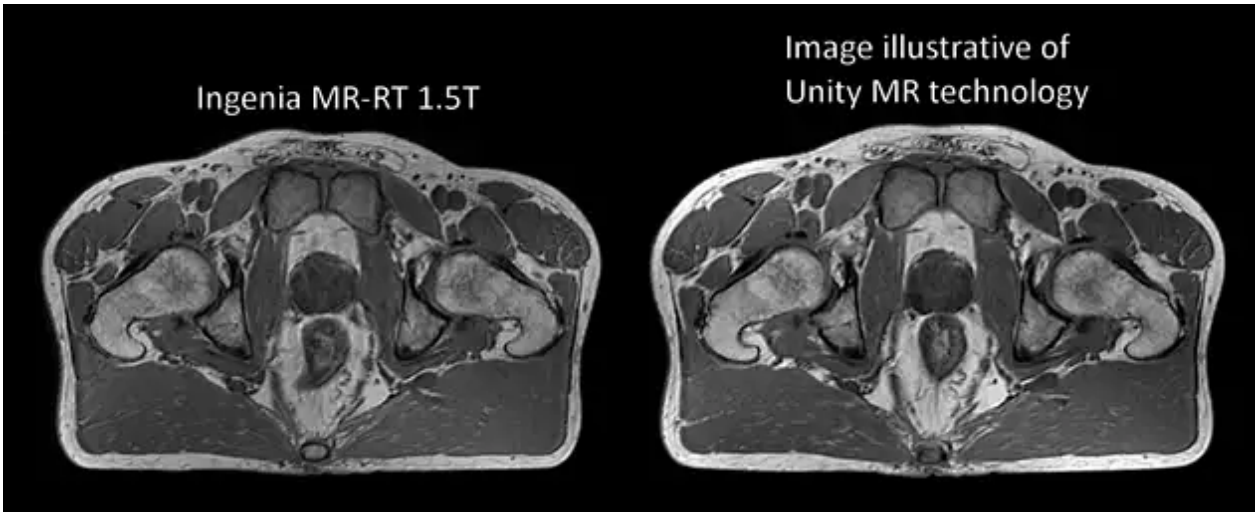
The Philips Ingenia MR-RT simulation platform with MR-linac simulation package is an ideal complement to Elekta Unity. With consistent workflows and image quality from MR simulation through to online MR guidance during radiation treatment, it lets you exploit the many similarities and synergies between Philips Ingenia MR-RT and Elekta Unity.

Features



Consistency across workflows

There is a high level of consistency in workflows between Philips Ingenia MR-RT and Elekta Unity. Similar coil handling and identical patient positioning devices that are included in the MR simulation package for Elekta MR-linac support reproducibility in patient set-up and efficient workflows.



Comparable image quality

The core image-generation technology shared by Ingenia MR-RT and Elekta Unity offers comparable and consistent high-field image quality. So you benefit from images with similar contrast across the care path. A set of dedicated MR-linac ExamCards for Ingenia MR-RT closely resemble Elekta's Unity preset MRI ExamCards, supporting standardization across the two platforms.

Smooth, swift learning curves

Gaining experience with Ingenia MR-RT MR simulation can serve as a stepping stone to MR-linac adoption. You begin to build expertise even before your Elekta Unity is up and running. A similar user interface and similar terminology and workflows mean knowledge can be easily transferred between scanners. This makes for fast, efficient learning curves and significantly reduces MRI training effort.

Compatibility through collaboration

A strong partnership between Philips and Elekta means the scope for synergy across the Ingenia and Unity platforms will grow. This means you benefit from additional shared and transferrable features as you continue your exciting MR-linac journey.

Specifications

Specifications

MR system	Ingenia MR-RT 1.5T and 3.0T
MR-linac similar ExamCards for Ingenia MR-RT	INCLUDED: MRL Brain, MRL HeadNeck, MRL Thorax, MRL Abdomen, MRL Pelvis
MR-linac simulation package	INCLUDED: KneeSTEP M, FeetSTEP M, KneeSTEP Elevation block M, Headrest M
MR-linac simulation package	INCLUDED: Prone Positioning Pillow M, Handgrip M, Armrest M, Headrest M Indexing Adapter
MR-linac simulation package	INCLUDED: Body repiratory navigator sw, System with STEP M low

Ingenia MR-OR

Intraoperative magnetic resonance system

Ingenia MR-OR intraoperative MRI delivers high-quality images during neurosurgical procedures. It helps you gain up-to-date insight on surgical progress and tumor resection to support confident intraoperative decisions and update neuronavigation. The solution supports smooth, in-line patient transfer between the operating room and the Philips Ingenia MR system, with minimal procedure time added. Moreover, it lets you preserve your OR set-up for efficient neurosurgical workflows. Thanks to versatile configuration options, Ingenia MR-OR supports high utilization, while driving cost-effectiveness and flexibility.

Features

Acquire up-to-date, detailed MR imaging data at virtually any time during surgery

Fast, streamlined transfer of your patient from the OR to the Ingenia MR scanner in the adjacent room allows you to acquire up-to-date MR information at virtually any time during surgical procedures. This supports clinical confidence in the dynamic OR environment.

Create a fluent transition from OR to scanning room

The patient transfer solution combining a Transmobil Patient Transporter and FlexTrak OR interface supports fast, in-line transfer from the surgical table to the MR scanner. Changeovers take just a few minutes, so you don’t lose valuable time. Your patient remains on the transfer board throughout the entire transition for smooth patient handling. The FlexTrak OR remains on the MR side of the doors throughout the entire intraoperative procedure, never crossing the sterile boundary into the OR.

Bring the benefits of an excellent imaging platform to surgical procedures

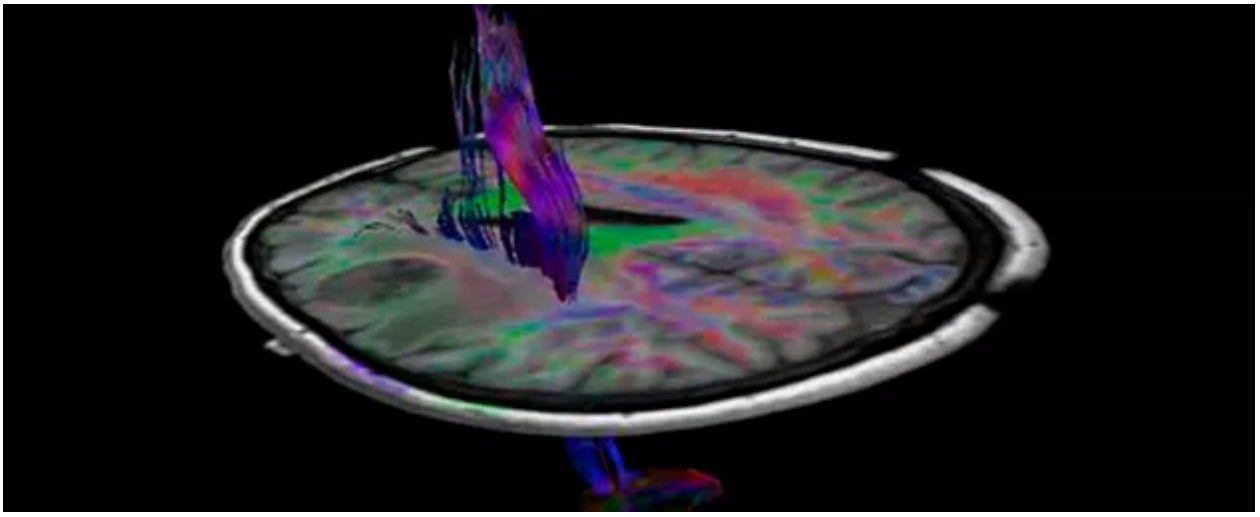
At the heart of Ingenia MR-OR is a 1.5T or 3.0T Ingenia MR-OR scanner, which delivers outstanding imaging thanks to dStream digital broadband technology. This offers excellent image quality for visualization of tumor margins and critical structures. What’s more, industry-leading gradient linearity helps generate images with high geometric accuracy to update neuronavigationand counter the source of brain shift.

Drive cost-effectiveness and create value for your institution

A well-planned intraoperative MR solution can create value for your institution. Using Ingenia MR-OR during surgery, as well as for regular diagnostic and followup scanning promotes cost-effective use of your resources.

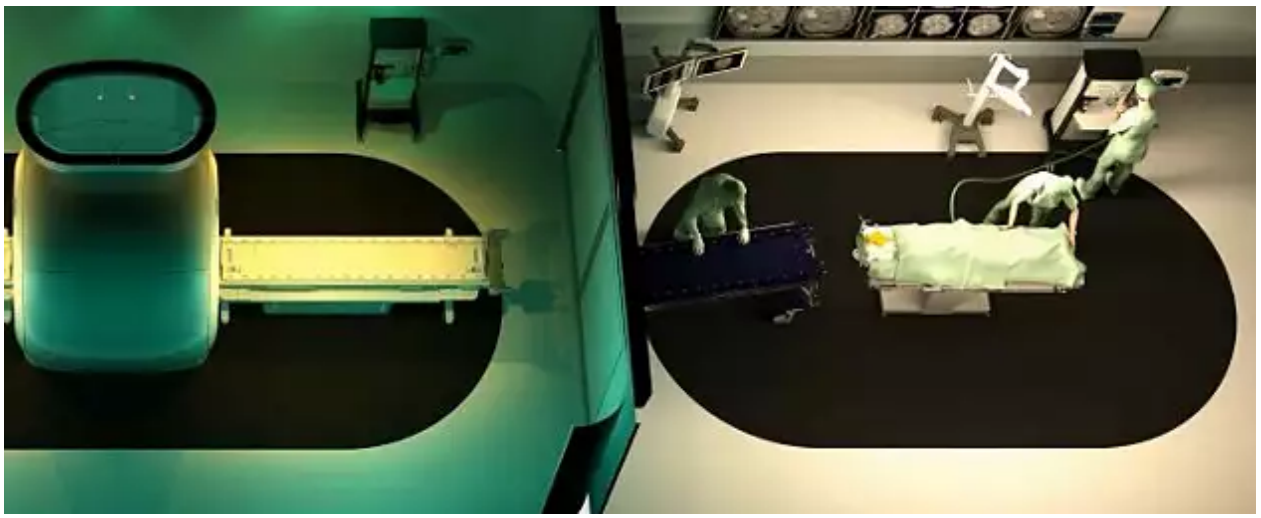
Save precious time with high-quality technology

The dStream digital architecture and scanning protocols based on ds SENSE feature high acceleration factors for fast imaging and short acquisition windows. As a result, you can streamline exams and minimize the time the patient is in the scanner.



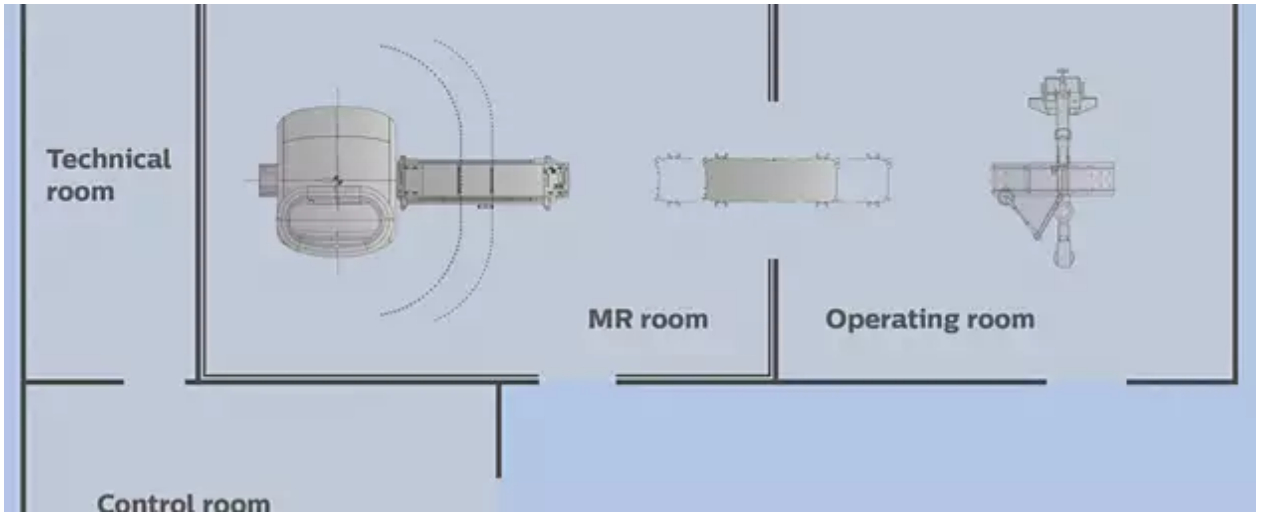
Support clinical excellence with an extensive range of neuro applications

Ingenia MR-OR gives you access to a broad portfolio of advanced neuro applications. These expand standard T1W/T2W anatomical imaging by adding fMRI, diffusion-weighted imaging (DWI) and diffusion tensor imaging (DTI), for example. These tools provide details of tumor infiltration, eloquent areas, and white matter tract definitions to help you spare critical structures.



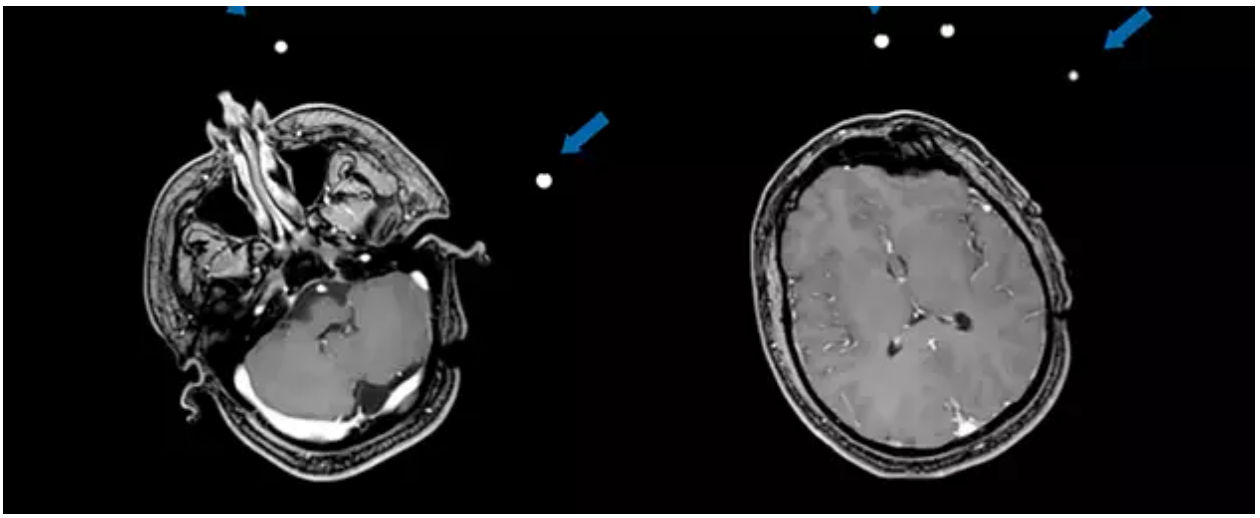
Perform advanced procedures

Philips Ingenia MR-OR solution allows you to perform interventions in three workspots: in the OR, from the front of the magnet, and at the rear of the magnet. This is useful for MR-guided brain biopsies and functional neurosurgery procedures, including placement of deep brain stimulators. This level of flexibility helps you increase the range of neurosurgical procedures.



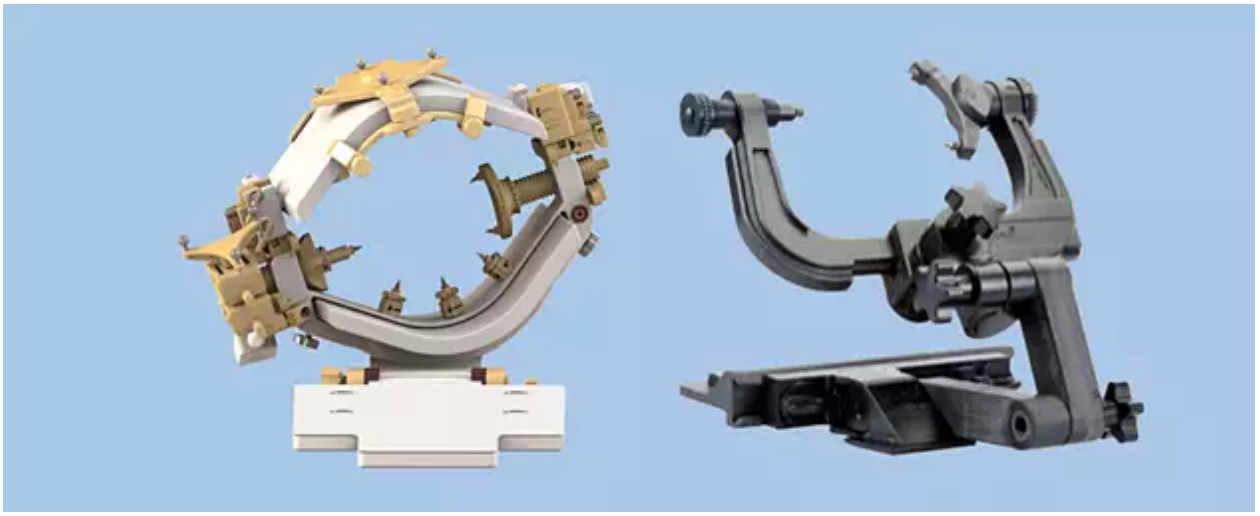
Keep your OR set-up intact

The dual-room MR-OR solution keeps the MR magnet and the operating suite close to each other while separating them via sliding doors. This means you can continue to use standard surgical instruments and devices in the OR with minimal deviation from established surgical routine.



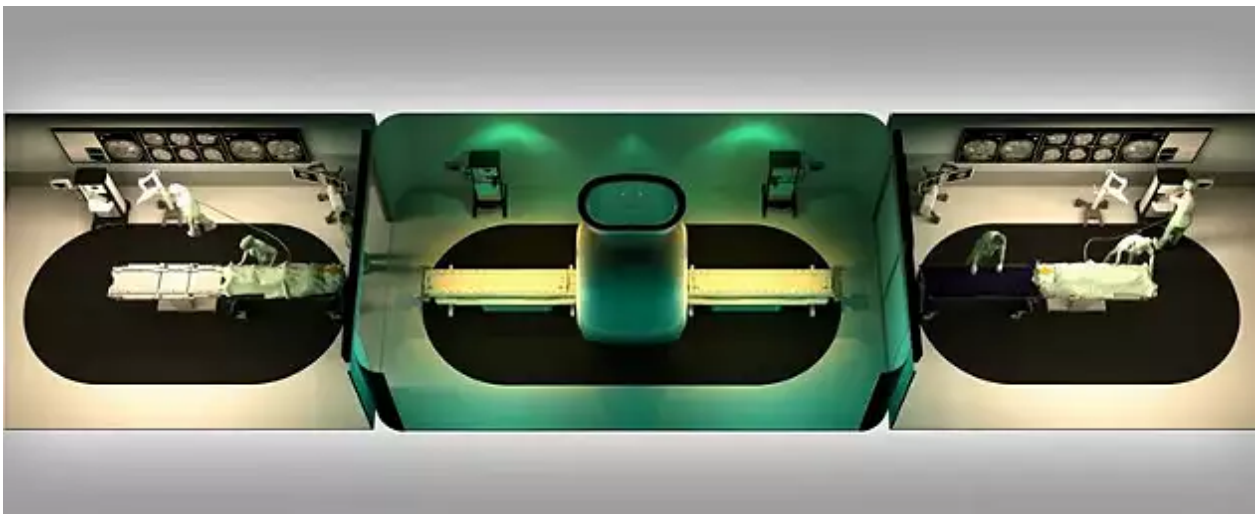
Gain flexibility in patient positioning

Ingenia’s 70-cm wide bore allows easy positioning of patients in the prone, supine or lateral positions for surgical flexibility. With up to 55 cm, Ingenia offers the highest homogenous field-of-view in a commercial 70-cm system –ideal for versatile head positioning and to accommodate challenging patients.



Get the versatility you need for flexible, efficient working

The Ingenia MR-OR system is compatible with both Maquet Otesus and Magnus universal tables, allowing you to work in your preferred OR set-up. Two MR-compatible head clamp solutions are available for fixating your patient. The NORAS head holder has an integrated 8-channel coil for high-quality intraoperative MR even in demanding patient positions. And the DORO® Headrest System is an open frame that combines with flexible RF coils for good accessibility and flexibility.



Select from flexible siting options

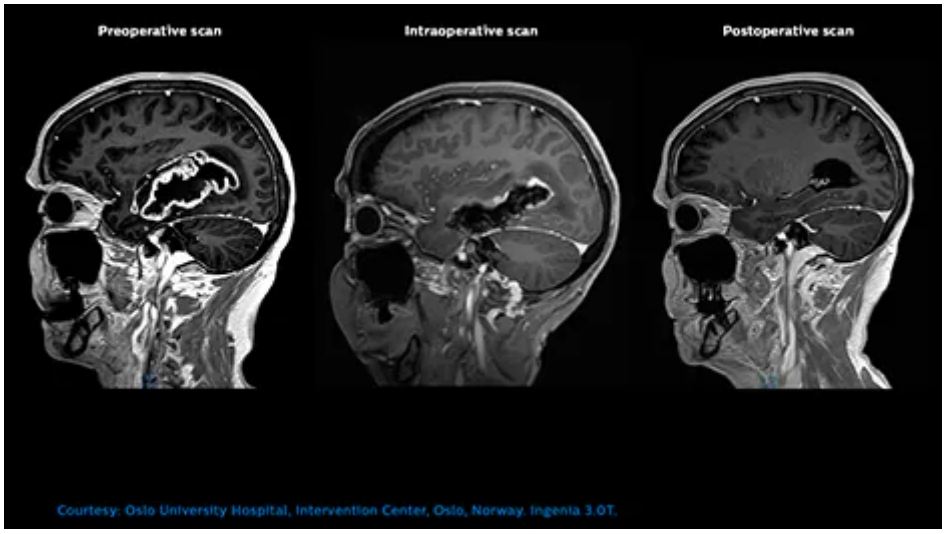
The Ingenia MRI scanner lets you access the magnet from the front and the rear. This enables a wide range of siting options that allow for a high level of customization in line with your organizational needs. In addition to the dual-room MR-OR solution, you can also connect multiple ORs to a single MR space, for procedures taking place concurrently. This gives you flexibility in patient scheduling, helping you make more from your resources and your investment.

Extend the benefits of MRI and drive throughput

When it is not being used intraoperatively, you can deploy the Ingenia MR-OR system for regular diagnostic procedures and pre-and post-operative imaging. This dual function lets you make efficient use of your scanner, support cost-effectiveness, and extend the benefits of high-quality MRI to other clinical disciplines.

Benefit from smooth installation

With effective planning, the Ingenia MR-OR solution can be installed without major restructuring to your existing surgical set-ups. Throughout the entire siting and installation process, Philips provides consultancy and assistance with identifying your clinical requirements and finding a solution that best meets your needs.



Make informed surgical decisions thanks to intraoperative MRI

Maximizing the extent of brain tumor resection during initial neurosurgery can make a critical difference to lowering recurrence and to your patient's prognosis.

Intraoperative MR images help you understand the extent of tumor resection and see critical structures. This aids you counter the issue of brain shift and make timely adjustments to your operating strategy.

Specifications

MRI system

Field strengths	1.5 and 3.0 T

Xtend Magnet System

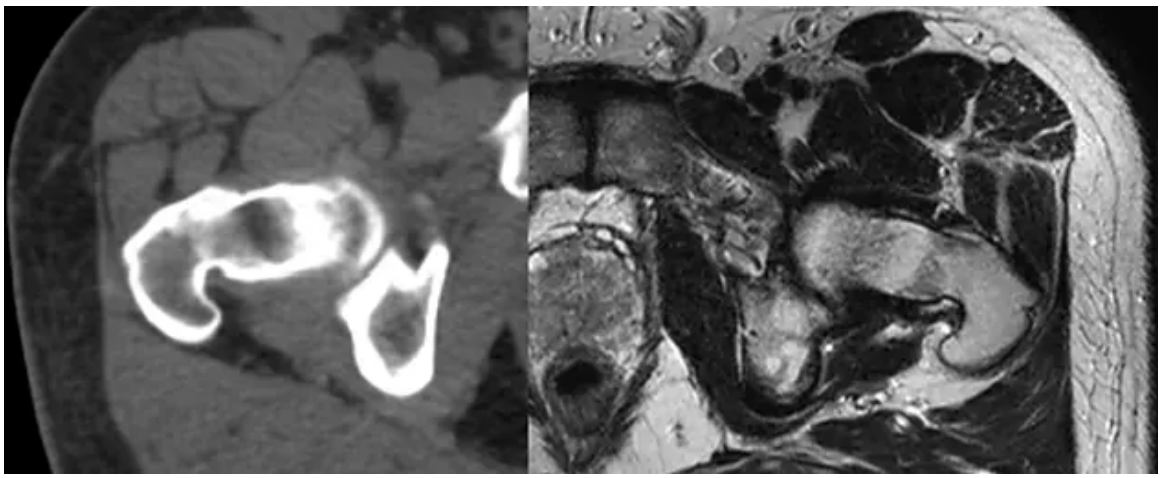
Bore design	70 cm

Ingenia MR-RT XD

Versatility to fit your planning

The Philips Ingenia MR-RT XD platform harnesses the power and value of MRI for radiation therapy planning. It has been designed around the needs of radiation oncology, with ease-of-use, streamlined integration, and versatility in mind. Central to that concept is the ability to define a tailored approach with customizable functionality that meets your individual clinical, workflow, and budgetary requirements – all to provide better patient care.

Features

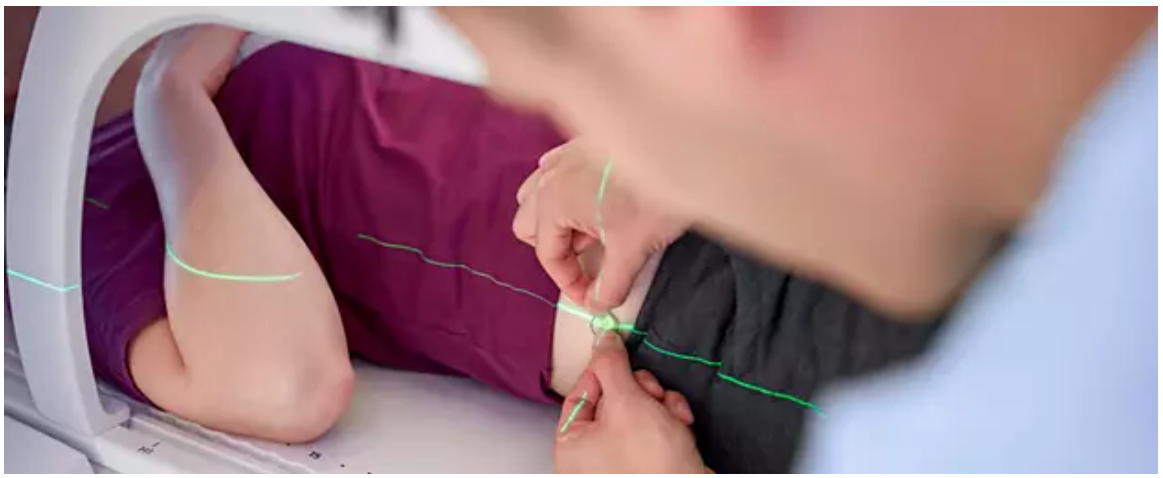


Experience the MRI difference

With its excellent soft-tissue contrast, MRI offers excellent visualization of tumor boundaries and proximity to nearby critical structures – a key factor for more confident delineation and improved treatment plans. What's more, MRI's advanced imaging capabilities provide you with a 'toolbox' to design personalize treatment options for each patient.

Be confident in image quality

With our state-of-the-art Ingenia (Ambition, Elition, Evolution) MR systems as its backbone, Ingenia MR-RT provides excellent geometric accuracy through its industry-leading gradient linearity and advanced 3D Gradient Distortion Correction functionality.



Position with precision

Ingenia MR-RT allows for accurate, reproducible patient positioning in treatment setup with an advanced couchtop design and tiltable Anterior Coil Support. Equipped with multi-indexing support, the RT CouchTop XD has one-to-one compatibility with various linacs and accommodates a variety of MRI-compatible immobilization accessories to match your procedural approach.

MR-only radiotherapy planning

The Ingenia MR-RT XD platform’s MR-only radiotherapy capability turns your MR into an authentic single modality simulator. With innovative MRCAT (MR for Calculating ATtenuation), you can obtain CT-like density information for dose calculations and position verification based on a single MR scan. So you can eliminate cumbersome and error-prone CT-MR registration, and make MR-based workflows more cost-efficient.

Coil solutions for RT imaging

Versatile arrangements of diagnostic quality dStream coils allow you to achieve outstanding image quality with the patient in treatment position. You can perform pelvis, abdomen, brain, head/neck, and spine scans tailored for radiotherapy planning – with intuitive patient setup and minimal coil handling.

A one table solution

You can either use RT head immobilization with Flex coils, or the diagnostic head coil on the RT CouchTop XD – without the need to swap tables. This allows you to respond more flexibly and efficiently to different scanning needs, ideal in a shared use model with Radiology.

Accelerate exams by up to 50%[1]

Fast overall exam-time can be achieved through Compressed SENSE. This breakthrough acceleration technique enables 2D and 3D scans up to 50%[1] faster than before with virtual equal image quality. This promotes patient comfort and can boost productivity.

Patient transport made easy

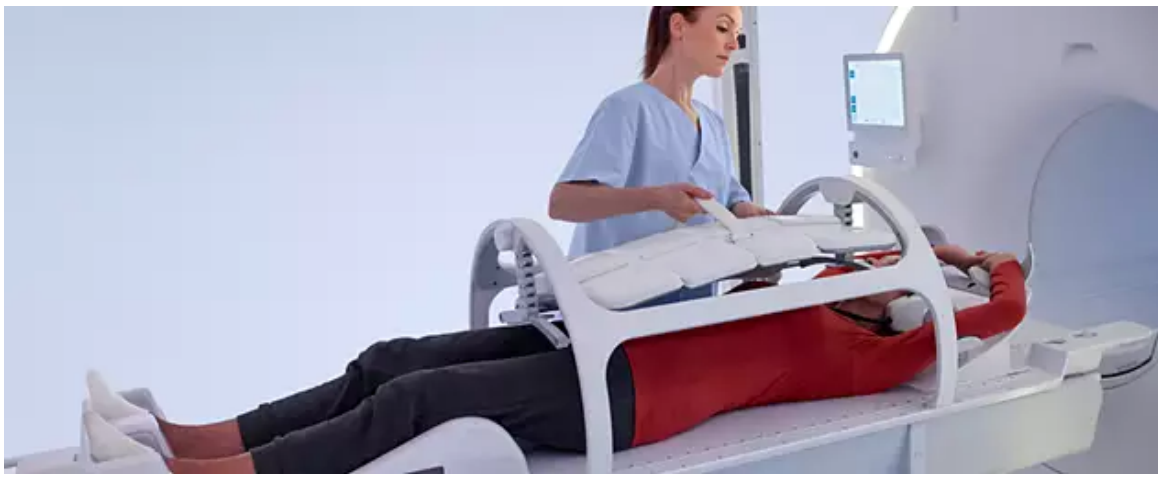
The RT CouchTop XD transports on the easy-to-maneuver FlexTrak trolley. As the patient can remain on the couchtop you have a robust, yet versatile patient transfer solution right at hand – one that encourages fast and fluent workflows, e.g. for patient preparation and brachytherapy procedures.

Know you can rely on MRI performance

Evaluate the geometric accuracy in a large field of view with the ready-to-use QA package that includes a large Field of View phantom and analysis software. Most steps are fully automated, so you can perform routine volumetric evaluations fast and in a repeatable manner. The on-console Pass/Fail analysis provides users with clear guidance on the outcome of the geometric accuracy analysis. The result is user independent and unambiguous.

Advanced imaging capabilities

The Ingenia MR-RT has full diagnostic capabilities to confidently tackle your complex radiotherapy imaging challenges. Advanced imaging techniques, such is distortion free diffusion with DWI XD TSE, robust-motion free imaging with 3D Vane and metal artefact reduction with O-MAR, help to refine your patient-centric planning tactics.



Benefit from synergies with Elekta Unity

The Ingenia MR-RT XD with the MR linac simulation package is an ideal complement to Elekta Unity. A common high-field image generation technology enabling similar image quality, similar MR console user interfaces, as well as similar coil setup and patient positioning workflows, enhance reproducibility, help accelerate learning curves, and drive continuity across the care path.

Support to excel

Successful implementation of MRI in the RT department requires workflow modifications and staff proficiency. To address this, Philips offers a comprehensive training program and welcomes you to join our active and engaged user community to share best-practices, tips and insights. Philips is committed to advancing the use of MRI in radiotherapy by providing you with the support to excel.

Specifications

Features

Ingenia MR systems	Ambition 1.5T, Elition 3.0T, Evolution 1.5T, Ingenia 1.5T/3.0T
Bore design	70cm
Geometric imaging accuracy	≤ 1 mm in Ø 32 cm volume (typical)
RT CouchTop XD multi-indexing	14cm indexing and Elekta Unity Indexing system (2cm increments)
Coil arrangements	dStream FlexCoverage Anterior Coil, Posterior Coil, and FlexCoils L
Diagnostic head coil compatibility	Yes
Applications supported	Brain, head and neck, pelvis, thorax, abdomen, spine
Patient immobilization accessories	Can be ordered via 3rd party vendors including CIVCO, Orfit, Qfix, Elekta
Patient transport	Yes, with FlexTrak trolley
Geometric QA	Yes, large field of view QA phantom and automated analysis

Optional external laser positioning system

Type	LAP DORADOnova MR3T or APOLLO MR3T compatible
Allowed width range	2.594 - 5.000 m
Laser phantom	LAP Aquarius phantom and phantom holder, ELPS QA Test ExamCard

1. Compared to Philips scans without Compressed SENSE
2. Compared to the Ingenia 1.5T ZBO magnet

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