MAGNETOM Combi Suite
Radiation Therapy
Combining MRI intelligence and therapeutic expertise
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Introducing MAGNETOM Combi Suite Radiation Therapy

MAGNETOM® Combi Suite Radiation Therapy brings the MR imaging (MRI) intelligence of MAGNETOM Aera 1.5T and MAGNETOM Skyra 3T to your radiation therapy (RT) treatment planning process. MRI’s excellent soft-tissue differentiation supports target structure delineation, helps you to identify structures and organs at risk, and contributes to accurate treatment planning and delivery.

Your benefits:

• A new level of confidence
• Adding value to your practice
• Sharpening your edge

High precision RT treatment planning based on multimodality image data including MRI. MRI’s excellent soft-tissue differentiation supports target structure delineation and identification of structures at risk. Advanced applications such as MR spectroscopy and syngo REVEAL provide additional pathology characterization. Courtesy of University of Tübingen, Germany
Imaging excellence
Combining MRI with CT imaging

MRI offers excellent soft-tissue contrast without radiation dose, making it ideal for oncology imaging and especially RT planning where computed tomography (CT) information can be enriched with the valuable MR information. Advanced applications and imaging sequences, such as MR spectroscopy and syngo® REVEAL, provide additional pathology characterization. And with fast isotropic 3D sequences—like syngo SPACE or syngo VIBE—along with 3D distortion correction, you can achieve better anatomical correlation.

MAGNETOM Aera and MAGNETOM Skyra, both featuring a 70-cm Open Bore design, are today’s top-of-the-line choices in 1.5T and 3T MRI systems. Integrated Tim® 4G coil technology offers up to 204 coil elements, delivering more signal than ever. With its ultra high-density coils, Tim 4G also enables up to 128 channels and can be flexibly integrated into a variety of different applications to support even large anatomical coverage. The Tim Dockable Table supports your MRI workflow by allowing your patient to be prepared outside the scanner room. This enables scanning within standard radiological time-slots and gives you the flexibility you want.

The next generation of MR accessories for RT-like patient positioning brings the benefits of MAGNETOM Aera and MAGNETOM Skyra to the RT planning process, where it adds to the benefits of CT imaging. For more confident planning and, therefore, treatment decisions.

MAGNETOM Aera 1.5T – Transforming 1.5T economics.
The top-of-the-line MAGNETOM Aera is the 1.5T choice for MRI-guided therapy.

MAGNETOM Skyra 3T – Transforming 3T productivity.
The top-of-the-line system, MAGNETOM Skyra is the 3T choice for MRI-guided therapy.

SOMATOM Definition AS Open 20/64 – CT Excellence for Radiation Therapy.
Easy CT acquisition, always with automatically optimized parameters.
Superior image quality at low dose for precise contouring and sustainable radiotherapy treatment.
Identical patient positioning for both CT and LINAC.
Optimized workflow
Precise and reproducible patient positioning

In 2004, nearly one million patients in the U.S. received radiation therapy. Approximately 88% of the patients treated with RT received external beam treatments from a linear accelerator (LINAC). External radiation therapy demands careful treatment planning, precise patient set-up, and reproducible patient positioning. Patients are immobilized during imaging and the whole treatment course with thermoplastic masks, knee supports, or vacuum cushions, ideally always in exactly the same way.

Today’s standard for RT planning
Of all image-based treatment plans in the U.S. in 2009, 98% used CT images. In case MR images were used within the context of treatment planning, these were used in conjunction with CT images in nearly all of the cases. The CT data—acquired for example with a Siemens SOMATOM® Definition AS Open system—are used to localize target structures and organs at risk, to calculate dose, and to simulate the treatment.

Multimodality insights
The radiation oncologist can greatly benefit from data acquired through other modalities—such as MR—by registering these data to the primary CT planning images.

Supporting the planning process
Tumors of the brain or prostate are two good examples—here, MRI can provide useful additional information for planning, allowing you to offer high-quality image-guided treatments to your patients. Another case in point: MR images provide great accuracy in defining target structures and organs to be spared during treatment for cervical and generally gynecological tumors.
Centered on RT planning

More confidence and accuracy for treatment

The multimodality advantage
Siemens’ software solutions can fuse and co-register multimodality images for improved planning accuracy. Using combined images from different modalities results in increased confidence in RT treatment planning. What’s more, it helps you minimize the radiation dose to healthy tissues while improving the focus on the targeted structures.

Accuracy throughout your workflow
CIVCO offers a variety of MR-compatible positioning accessories including head rests, a range of thermoplastic masks, and vacuum cushions in its MRSeries™. Together, Siemens and CIVCO have developed a flat tabletop for RT-like positioning and dedicated mounting devices for Siemens’ various flexible MR coils.

Partnering for precision
For MR image data to be precisely registered with CT images, patient positioning needs to be identical throughout the RT workflow. The positioning needs to be easily reproduced at the CT scanner, at the LINAC, and at the MR system. To help ensure accurate patient positioning, Siemens has partnered with CIVCO Medical Solutions, a market leader for RT patient positioning solutions.

What this brings to your practice
Combining Siemens MRI, the Tim Dockable Table, an RT-like flat tabletop, MR-compatible positioning devices and even an external laser system offers you:

• Efficient, precise, and reproducible patient preparation for treatment planning imaging, supporting
• Intuitive patient positioning and planning, resulting in
• High image quality without compromise
MAGNETOM Combi Suite Radiation Therapy

MAGNETOM Combi Suite Radiation Therapy comprises Siemens’ comprehensive offering of MRI solutions to provide high accuracy RT treatment planning. The table below explains the various components.

<table>
<thead>
<tr>
<th>Components</th>
<th>Vendor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR coils</td>
<td>Siemens</td>
<td>Required</td>
</tr>
<tr>
<td>Tim Dockable Table</td>
<td>Siemens</td>
<td>Recommended, available for MAGNETOM Aera 1.5T and MAGNETOM Skyra 3T</td>
</tr>
<tr>
<td>Positioning package (CIVCO MR-compatible couchtop and coil mounts)</td>
<td>CIVCO</td>
<td>Required</td>
</tr>
<tr>
<td>Positioning accessories</td>
<td>CIVCO³</td>
<td>MR-compatible patient positioning devices (fitting the CIVCO Positioning package)</td>
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<tr>
<td>External laser</td>
<td>LAP</td>
<td>Optional simulation laser system</td>
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Precise and reproducible patient positioning is made possible by dedicated positioning solutions.
Options and compatibility
Packages for RT-like patient positioning

CIVCO couchtop

CIVCO MR-compatible couchtop

The couchtop—part of the CIVCO positioning package—is flat and rigid, with a 14-cm IPPSTM indexing system and a corresponding MRI Lok-Bar. It is placed on the scanner’s patient table when used for RT imaging.

Combinations to suit your needs

CIVCO’s Type-S head masks and Silverman head rests can be connected directly to the couchtop; Type-S head and shoulder masks can be connected using a dedicated adapter (to be ordered directly from CIVCO as not part of the couchtop). Other MR-compatible positioning devices, such as CIVCO vacuum cushions, can be used in combination with the MRI Lok-Bar.

CIVCO coil mounts

Head coil mounts

For positioning flexible coils above the head or the head/neck area of a patient, even if fixated with a thermoplastic mask.

Body coil mounts

For positioning a body coil above the abdomen or pelvis without touching the body.

Precise and reproducible patient positioning is made possible by dedicated positioning solutions.
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