<table>
<thead>
<tr>
<th>Component</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalable Selection Field</td>
<td>0…2.5 T/m</td>
</tr>
<tr>
<td>Drive Field X/Y/Z</td>
<td>0…≥ 12 mT @ 25 kHz</td>
</tr>
<tr>
<td>Focus Field X/Y/Z</td>
<td>0…±18/0…±18/0…± 42 mT</td>
</tr>
<tr>
<td>Max. FOV</td>
<td>∅ 10 cm × 10 cm</td>
</tr>
<tr>
<td>Detection Bandwidth</td>
<td>Up to 1.25 MHz</td>
</tr>
</tbody>
</table>

**Magnetic Particle Imaging (MPI)**

**MPI - Bruker’s Revolutionary Modality for Preclinical Imaging**

**Innovation You Can Trust**

Offering the largest range of preclinical imaging systems, with an unmatched 9 in-vivo modalities, Bruker is committed to supporting the scientific community with high-end instruments dedicated to disease research, translational science and molecular imaging. Benefiting from more than 5 decades of passionate innovation, Bruker’s customers profit from the vast portfolio of modalities from a single source, providing endless opportunities to combine multiple modalities for seamless workflows and higher productivity. These non-invasive in-vivo imaging modalities are based on animal-centric solutions to deliver the greatest scientific insight.

**Features**

- Powerful drive, selection, and focus field technologies
- ParaVision® acquisition and processing platform with DICOM export and import
- Full 3D imaging and segmented acquisition capability
- Bolus injection triggering via ParaVision®
- Bruker’s high modality animal handling system
- 12 cm free access for imaging of mice, rats, guinea pigs and rabbits
- Bruker AVANCE III NMR technology
- Recommended morphology reference: Desktop MRI ICON™

**Your Personal Partner**

Bruker provides customized support and service designed to make your instrumentation choice and subsequent installation of cutting edge technology a smooth and welcoming experience.

You can expect the highest quality of support starting with the acquisition process and continuing throughout the lifetime of your chosen solution.

From the initial site evaluation, through the system installation, and for the entire lifetime of your instrument, Bruker’s service program is dedicated to providing personalized support.

**Welcome to the Community**

Bruker’s commitment to the imaging community means that we play an active role in supporting, strengthening and innovating.

You can rely on Bruker to deliver informative user support programs from a regular presence at international events, to users’ meetings, symposiums and workshops, and expanded interaction at social and networking opportunities.
MRI is a tomographic imaging technique that detects the magnetic properties of iron-oxide nanoparticles injected into the bloodstream to produce three-dimensional images.

The new technology, invented by Philips, and first introduced in a 2003 Nature paper, gave rise to high aspirations for a new era in biological imaging.

Now Bruker has combined its expertise in technological innovation with its passion for pushing the boundaries of understanding, and launched the previously only envisioned possibilities to the imaging community.

Unimagined Speed and Sensitivity

1,000 Times Faster Than PET

While MPI imaging of up to 66 volumes per second can be performed, allowing real-time imaging of biological processes at an equal or higher spatial resolution than PET.

100% Animal Preparation

MPI measures the 3D distribution of injected iron-oxide nanoparticles using a 25 kHz RF signal. This signal can easily be recorded from any depth within the animal allowing complete flexibility in choosing areas of interest.

100% More Sensitivity Than MRI

As MPI images only injected iron-oxide nanoparticles, there is no background signal. For a contrast agent dose of 1 mg/kg, MPI can be 100 times more sensitive than MRI.

100% User-Friendly

Bruker’s MPI System incorporates ParaVision® 6 and accommodates Bruker’s multi-modal bed, providing a seamless transition of your animal to and from your Bruker MRI system.

Unimagined Temporal Resolution

The ability to acquire high time-resolution images is a matter of milliseconds for novel applications in medical and industrial research and ultimately patient care in which temporal resolution is key.

Cardio-Vascular

- Coronary blood supply
- Quantitative myocardial perfusion
- Vulnerable plaque detection

Interventional Radiology (3D)

- Stent placement
- Catheter navigation

Oncology

- Micro-vascularization (blood volume)
- Intra- and extravascular kinetics (Pharmacokinetics)
- Interventional oncology
- Ablation monitoring
- Highly localized heating for therapy and thermal monitoring of local drug-release

Neuro-Vascular

- Blood detection
- Functional brain imaging

Cell Tracking

- White blood cell tracking – inflammation detection
- Therapeutic (stem) cell tracking

Breast Imaging

- Sentinel lymph-node detection
- Scanning

Organ Perfusion Imaging

- Liver perfusion
- Lung perfusion (incl. therapy response assessment)
- Lung ventilation

Animal Preparation

MRI Reference Imaging

The ParaVision® 6 Interface for MPI Measurements

4,000 repetitions in less than 90 seconds.

Real-Time Imaging of the Rat Heart

Contrast agent is seen approaching the heart via the main artery, entering the right atrium, the right ventricle and finally the left ventricle.

The mouse heart beats at a rate of 350 bpm under anesthesia.

The ParaVision® 6 Interface for MPI Measurements

4,000 repetitions in less than 90 seconds.

Imaging of Mouse Heart

Images show the injection of a Resovist bolus in a mouse after a tail vein injection. The coronal and axial view show a cross-section of the heart through the vena cava, the sagittal view shows the contrast agent reaching the heart from the vena cava.

A World of New Possibilities

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