

MRI RF-Coils

- Highest sensitivity for your preclinical MRI and MRS applications

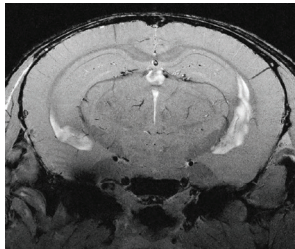
Molecular and Preclinical Imaging

Preclinical magnetic resonance imaging of laboratory animals is often mandatory for the in depth understanding of biological and pharmacological processes and has become the accepted gold standard for many investigations. The range of applications has expanded dramatically over the past few years - especially through the introduction of dedicated RF-coils.

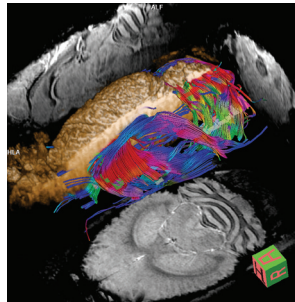
Choose from a wide range of different designs, optimized for various applications. Volume coils ensure optimal image homogeneity, while surface coils guarantee the highest available sensitivity through application optimized geometry and integrated preamplifiers. Multi-channel array designs offer an even greater flexibility by enabling accelerated parallel acquisition applications.

The patented MRI CryoProbe™ opens up new sensitivity dimensions with a x2 to x5 sensitivity boost. Identify finest anatomical details at near cellular resolution and save precious instrument time with a proven up to x6 accelerated throughput.

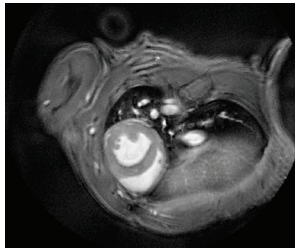
Fully automatic hardware recognition is included in all coils and ensures safe operation of up to four different coils at a time. Easy-to-use positioning, pneumatic fixation and color-coded plugs ensure reliable coil handling in seconds. The automatic recognition of Bruker coils guarantees safe operation within the power limits of each individual coil. Thus, the non-expert can produce fast and reliable results, whilst the comprehensive flexibility and operation needed by the MR researcher is never compromised.



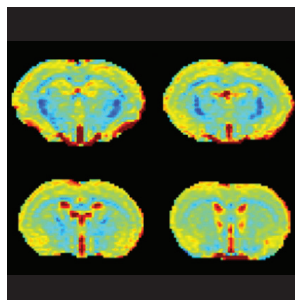
High resolution mouse brain acquired with MRI CryoProbe™ at 15.2 T



DTI fiber tracking in mouse brain, acquired with mouse brain 2x2 array coil



IntragateUTE cardiac imaging with circularly polarized 35 mm mouse body coil



Quantification of cerebral blood flow with arterial spin labeling coil

Advanced Technologies



Phased Array Surface Coils

- 4 channel receive coil array
- Shaped design for optimal sensitivity in mouse or rat head, body or cardiac applications
- Integrated preamplifiers
- Easy-to-use animal cradle interface

MRI CryoProbe™

- Helium-cooled coil and preamplifiers
- Available for mice and rats
- Available as circularly polarized, phased-array, and x-nuclei designs
- Precise temperature control at contact surface
- Easy handling and insertion
- Automatic cool down / warm up outside of the magnet

Phased Array Volumetric Coils

- Up to 16 receive channels
- Integrated transmit circularly polarized resonator
- Integrated preamplifier
- Fully integrated animal cradles (for up to 8 channel arrays)
- Body and head split arrays with variable distance to ensure optimal sensitivity



Flexible Surface Coils with dedicated Preamplifier

- Loop coils with inner diameter 10-30 mm
- Unique and user-friendly quick connect system for easy exchange of receive coils
- Three different multi-purpose receive coils for optimal SNR-performance

MRI RF-Coils by Application

Mouse brain & mouse head coils		
Mouse brain	Anatomically shaped ¹ H receive-only surface coil	Circularly polarized
	Planar receive-only ¹ H surface coil	ID=10-20 mm
	Anatomically shaped receive-only ¹ H coil array	2x2 array
	Receive-only ¹ H array optimized for opto-genetics experiments	3x1 array with 3 openings for open access to the skull
	Anatomically shaped receive-only ¹ H Array MRI CryoProbe™	2x2 array
	Anatomically shaped ¹ H MRI CryoProbe™	2-channel transmit/receive
Mouse head	Circularly polarized transmit/receive ¹ H volume coil	ID=23 mm
Mouse heart & mouse body applications		
Mouse heart, body	Anatomically shaped receive-only surface coil array	2x2 array
	Circularly polarized transmit/receive ¹ H volume coil	ID=30, 35, 40, 50 mm
	Planar receive-only ¹ H surface coil	ID=10-20 mm
	8 element ¹ H volume array	split array, variable distance
	Double resonant ¹ H/X transmit/receive volume coil	ID=40 mm
Mouse spine	4x1 element receive-only ¹ H surface coil array	10x50 mm
Rat brain & rat head applications		
Rat brain	Anatomically shaped receive-only ¹ H surface coil	Circularly polarized
	Planar receive-only ¹ H surface coil	ID=10-30 mm
	Anatomically shaped ¹ H transmit/receive ASL labeling coil	adjustable z position
	Anatomically shaped receive-only surface coil array	2x2 array
	Anatomically shaped receive-only ¹ H Array MRI CryoProbe™	2x2 array
Rat head	8 element ¹ H volume array	split array, variable distance
	Circular polarized ¹ H transmit/receive volume coil	ID=40 mm
	Double resonant ¹ H/X transmit/receive volume coil	ID=40 mm
Rat heart & rat body applications		
Rat heart, body	Anatomically shaped receive-only surface coil array	4x1 array
	Circular polarized transmit/receive ¹ H volume coil	ID=60, 72, 82, 86 mm
	Planar receive-only ¹ H surface coil	ID=20-30 mm
	8 x 2 element ¹ H volume array	ID=60 mm
	Double resonant ¹ H/X transmit-receive volume coils	ID=72 mm
Rat spine	4x1 element receive-only ¹ H surface coil array	10x50 mm
	Planar receive-only ¹ H surface coil	ID=10-30 mm
X-Nucleus surface coils		
¹³ C, ³¹ P, ¹⁹ F, ²³ Na	¹ H/X double resonant transmit-receive surface coil	ID=10-30 mm
Materials & other applications		
Materials	Circular polarized transmit/receive ¹ H volume coil	ID=15, 25, 35 mm
Guinea pig, rabbit	Circular polarized transmit/receive ¹ H volume coil	ID=154, 197 mm

Features

All coils have automatic hardware recognition for safe operation and selection of operation modes.

Volume coils for body applications

- Wide range of volumetric coils for mice, rats and larger animals
- Optimized for ^1H or X nuclei.
- Circular polarization ensures optimal signal-to-noise and RF-homogeneity
- Actively switched combiner/splitter
- Active RF detuning allows the flexible combination of up to four independent transmit and/or receive coils
- Pneumatic fixation, mounted in bore

Volume coils for head and body applications

- Mounted on mouse and rat animal cradles for maximum sensitivity
- Optimized for ^1H or $^1\text{H}/\text{X}$ nuclei.
- Circular polarization ensures optimal signal-to-noise and RF-homogeneity
- Actively switched combiner/splitter

Helium-cooled MRI CryoProbe™

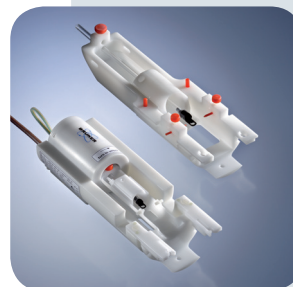
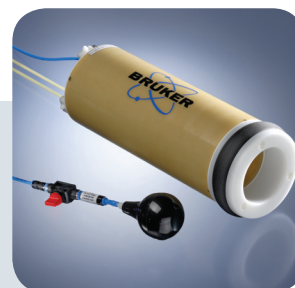
- Increase in sensitivity up to a factor of 5, depending on the design, frequency, and nucleus
- Higher spatial resolution and shorter scan times
- Flexible design for easy siting
- Cold surface contact with the animal eliminated by monitoring and warming provisions
- Safe handling, no cold surfaces
- All safety requirements with respect to the user and the animal are fulfilled

Phased Array Coils

- Anatomically shaped for mouse and rat brain and heart applications
- Volume coils for rat body, rat head and mouse body applications
- Integrated low noise - low impedance preamplifier

Surface Coils

- Anatomically shaped for mouse and rat brain ^1H or X nuclei applications
- Planar type with exchangeable coils for various diameters and flexible positioning
- Integrated low noise preamplifier
- Double resonant transmit-receive surface coils



Pioneering Preclinical Imaging Solutions

Bruker is a leading provider of high-performance scientific instrumentation and the global market leader in preclinical MRI. With over 50 years of experience, we continue our commitment to develop a portfolio of preclinical imaging solutions designed to support your research. From translational to high-field magnetic resonance imaging, trust Bruker for the results you need.

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