

MRS*PET/CT

MR SOLUTIONS

Preclinical PET/CT



MRS*PET/CT Benchtop

MRS*PET/CT 80

MRS*PET/CT 120

MRS*PET/CT 220

Imaging Innovations bringing real benefit to researchers

Nuclear Molecular Imaging

MRS*PET/CT

MR SOLUTIONS Preclinical PET/CT systems

MRS*PET/CT: Real innovation for Preclinical PET/CT's

MR SOLUTIONS has developed four new preclinical PET/CT from rodents up to 12kg animals. All **MRS*PET/CT** use the most advanced PET and CT technologies.

A benchtop version has also been developed. The compactness and the light weight of of the Benchtop MRS*PET/CT permits its installation on any bench and in any small or restricted environment where traditional floor standing units cannot fit. The compactness and the light weight of the Benchtop MRS*PET/CT permits its installation on any bench and in any small or restricted environment.

MRS*PET/CT's are built with a unique plug and play concept making the same PET component compatible with MR for PET/MR imaging **up to 9.4T**. We call this technology the **CLIP-ON**. This modular approach offers significant advantages in efficiency and workflow, and most importantly, considerably reduces the investment for the research institute.

Optimizing workflow and investment



One PET Clip-ON for PET/CT and PET/MR

PET TECHNOLOGY

The MRS*PET for small animal imaging uses the latest silicon photomultiplier (SiPM) technology. The detector assembly (crystal/ SiPM) allows true DOI (depth of interaction) with two pixelated layers of scintillator crystal with different matrices. This design enables the MR SOLUTIONS PET module to reach under 0.8mm resolution.

MRS*PET models:

MRS*PET-CO 80: Clip-On for MR and CT, up to 15cm axial FOV, rodents and marmoset
MRS*PET-CO 120: Clip-On for MR and CT, 15cm axial FOV, up to 3kg animals
MRS*PET-220: PET scanner for CT and large bore MR, up to 12kg animals



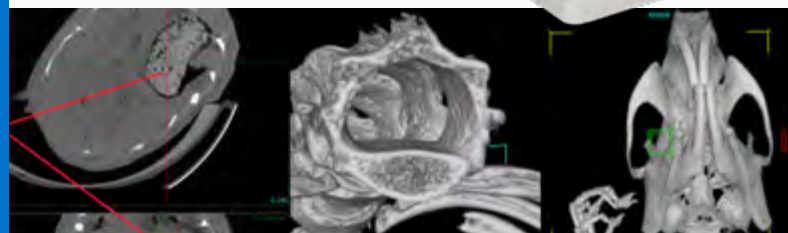
CT TECHNOLOGY

MR SOLUTIONS has developed 4 preclinical MRS*CT's from Benchtop size for rodents imaging up to very large bore CT for 12kg animal imaging. As some research requires very high-resolution CT imaging, therefore our MRS*CT 80 and MRS*CT 120 offer variable zoom allowing high resolution up to 5µm

MRS*CT models:

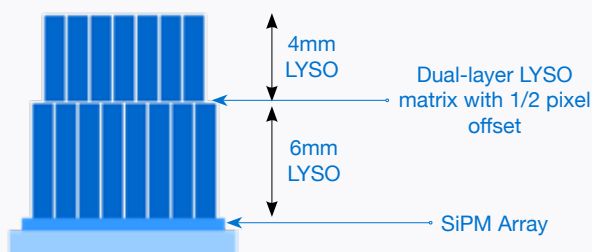
MRS*CT BT: Benchtop CT for rodents and marmoset, up to 25µm resolution
MRS*CT 80: Floor stand CT for rodents and marmoset, up to 5µm resolution
MRS*CT 120: Floor stand CT for animals up to 3kg, up to 10µm resolution
MRS*CT 220: Floor stand CT, up to 12kg animals, up to 25µm resolution

High-resolution CT scanners
MRS*CT 80 and MRS*CT 120



TRUE DOI

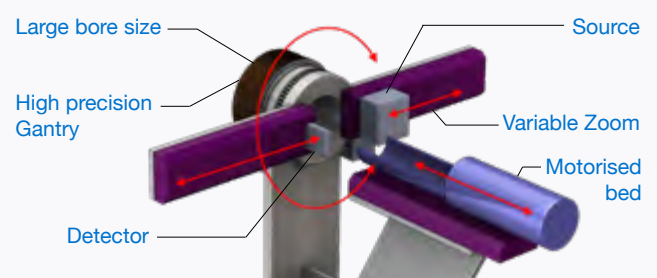
All the PET systems from MR SOLUTIONS are built up with true depth of interaction hardware allowing a uniform high resolution across the entire field of view. All systems have dual-layer LYSO matrix with 1/2 pixel offset between the top and bottom layers and continuous detectors.



VARIABLE ZOOM HIGH RESOLUTION

The MRS*CT 80 and MRS*CT 120 models provide advanced features such as variable zoom and dual energy

These systems are suitable for both in-vivo and ex-vivo applications



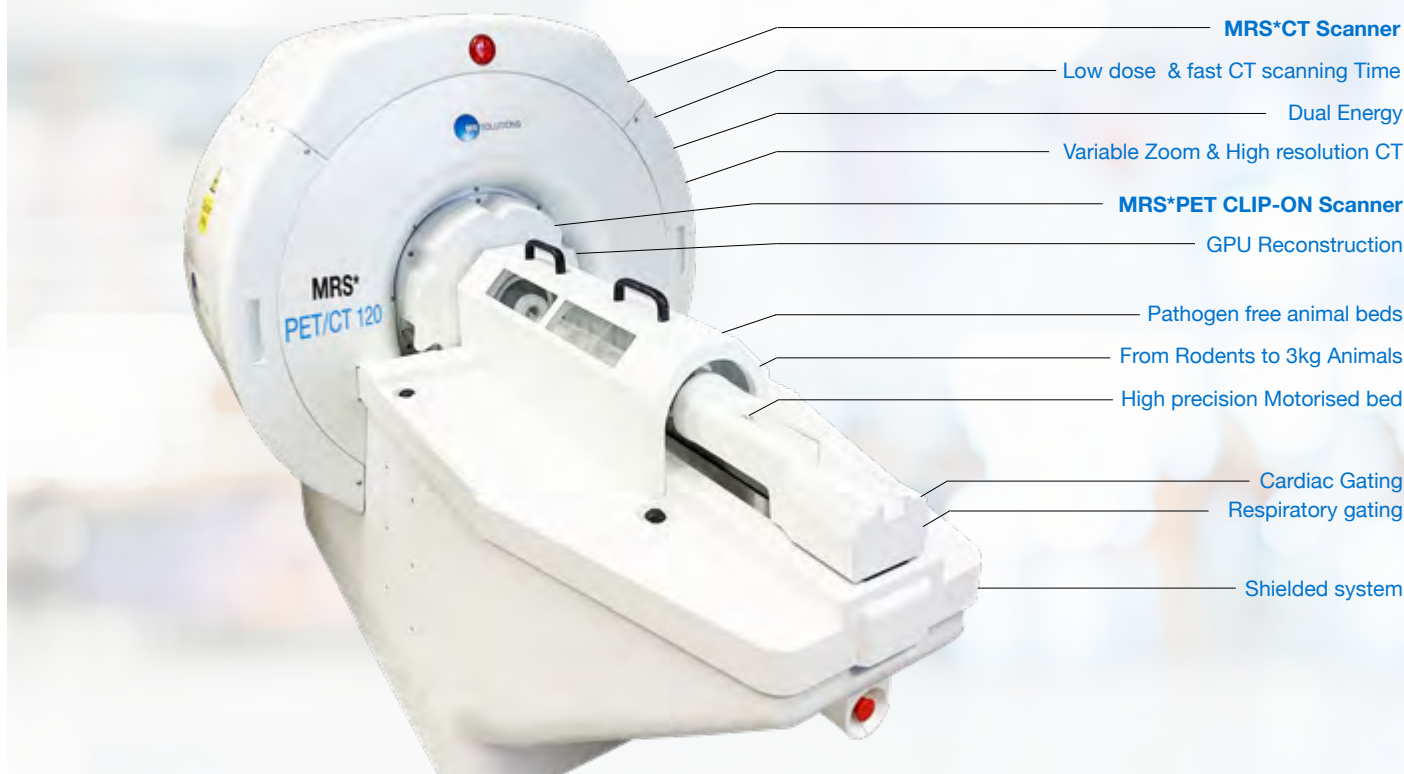
Benchtop MRS*PET/CT

The Benchtop MRS*PET/CT is an in-line scanner incorporating a motorised bed with a sub-millimetre precision, allowing the animal to be scanned automatically without any manual intervention from the operator.

The benchtop design from MR Solutions provides perfect co-registration of the images between each modality, thus avoiding the users having to move the animal manually from one modality to the other.



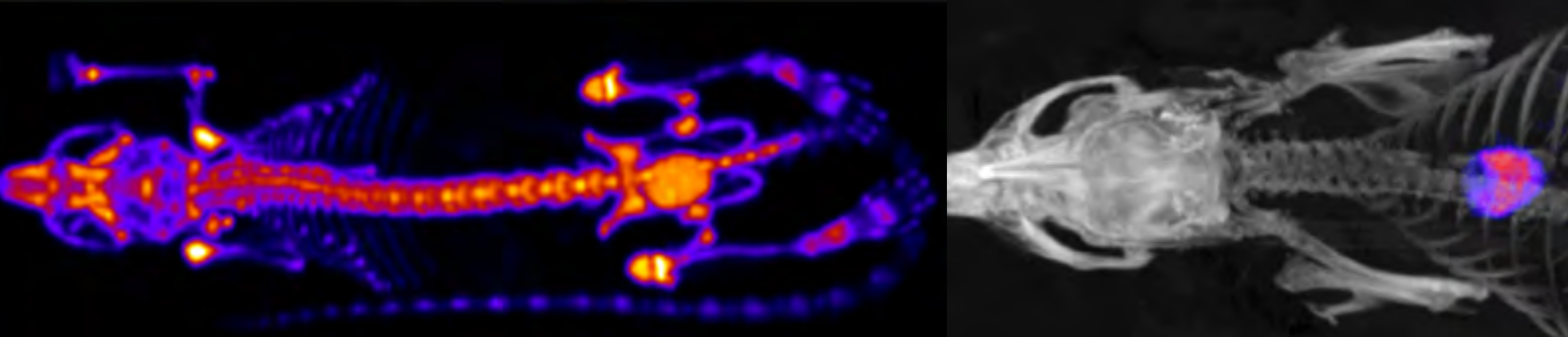
MRS*PET/CT 80 & MRS*PET/CT 120



The MRS*PET/CT 80 and MRS*PET/CT 120 are designed for high resolution imaging from rodents up to 3Kg animals.

The PET is based on the MRS*PET Clip-On technology, built with the latest silicon photomultiplier (SiPM) technology. The detector assembly (crystal/SiPM) allows true DOI (depth of interaction) with two pixelated layers of scintillator crystal with different matrices.

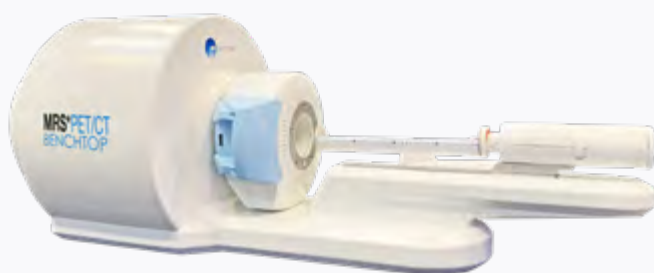
The PET has continuous detectors with no gaps between «the rings». The CT is using variable zoom achieving very high resolution up to 5µm and also dual energy



Benchtop PET/CT
for rodents imaging

PET/CT for rodents imaging
with very high-resolution CT

MRS*PET/CT Benchtop

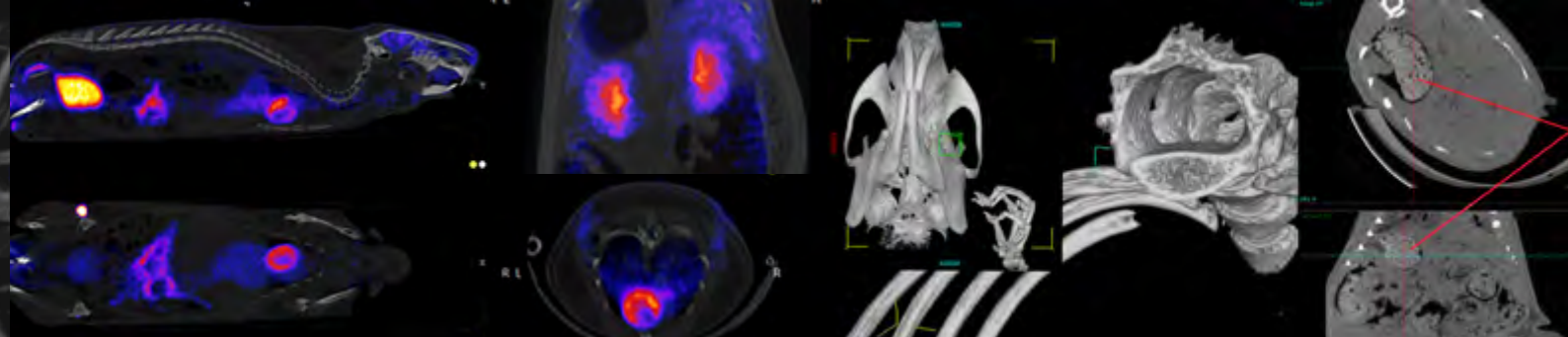


Main Specifications	
Animal type	Mice, rats & Marmosets
PET/CT System type	Benchtop
PET component	MRS*PET-CO 80 (CLIP-ON)
CT component	MRS*CT BT (Benchtop)
PET CLIP-ON detachable from CT	Yes
PET CLIP-ON connectable to MR	Yes, for sequential PET/MR Imaging
PET Specifications	
Inner diameter & Transaxial FOV (mm)	112 mm (ID) & 80 mm (tFOV)
Axial FOV (mm)	50.2 mm - 102.48 mm - 151.2 mm
Extended axial FOV (mm)	300 mm with motorised bed
PMT & Detectors configuration	Silicon PM, Continuous detectors
Crystal material & Thickness (mm)	Double Layers, LYSO/LYSO, 10mm
Spatial Resolution with 3D OSEM (mm)	0.7mm
Depth of Interaction (DOI)	Yes- true DOI
Sensitivity	up to 12% depending on configuration
Average Energy Resolution (%)	19%
CT Specifications	
Power Output /Tube (W)	60W
X-Ray Tube Voltage Range	4-60kV
X-Ray Tube Current Range	1 mA
Detector Pixel Matrix	1944 x 1536
Magnification	1,73
Spatial Resolution	50 μ m
Voxel size Resolution	25 μ m
Low dose system	Yes
Dimensions and weight with animal table	
Total Weight PET/CT	170 kg
PET/CT Dimensions (mm)	730 (h) x 720(w) x 1660 (l)

MRS*PET/CT 80



Main Specifications	
Animal type	Mice, rats & Marmosets
PET/CT System type	Floor stand
PET component	MRS*PET-CO 80 (CLIP-ON)
CT component	MRS*CT 80
PET CLIP-ON detachable from CT	Yes
PET CLIP-ON connectable to MR	Yes, for sequential PET/MR Imaging
PET Specifications	
Inner diameter & Transaxial FOV (mm)	112 mm (ID) & 80 mm (tFOV)
Axial FOV (mm)	50.2 mm - 102.48 mm - 151.20 mm
Extended axial FOV (mm)	300 mm with motorised bed
PMT & Detectors configuration	Silicon PM, Continuous detectors
Crystal material & Thickness (mm)	Double Layers, LYSO/LYSO, 10mm
Spatial Resolution with 3D OSEM (mm)	0.7mm
Depth of Interaction (DOI)	Yes- true DOI
Sensitivity	up to 12% depending on configuration
Average Energy Resolution (%)	19%
CT Specifications	
Power Output /Tube (W)	90W
X-Ray Tube Voltage Range	40 - 90kVp
X-Ray Tube Current Range	0.5 mA
Detector Pixel Matrix	1944 x 1536
Magnification	Up to 8.8x (variable zoom)
Spatial Resolution	up to 15 μ m
Voxel size Resolution	up to 5 μ m
Low dose system	Yes
Dimensions and weight with animal table	
Total Weight PET/CT	900 kg
PET/CT Dimensions (mm)	1740 (h) x 1460 (w) x 2580 (l)



PET/CT for animals up to 3kg
with very high-resolution CT

Large bore PET/CT
for animals up to 12kg

MRS*PET/CT 120



Main Specifications	
Animal type	up to 3kg animals (shape depending)
PET/CT System type	Floor stand
PET component	MRS*PET-CO 120 (CLIP-ON)
CT component	MRS*CT 140
PET CLIP-ON detachable from CT	Yes, depending on PET CLIP-ON model
PET CLIP-ON connectable to MR	Yes, for sequential PET/MR imaging
PET Specifications	
Inner diameter & Transaxial FOV (mm)	160 mm (ID) & 120 mm (tFOV)
Axial FOV (mm)	50.4mm - 102.48mm - 150.40mm
Extended axial FOV (mm)	300 mm with motorised bed
PMT & Detectors configuration	Silicon PM, Continuous detectors
Crystal material & Thickness (mm)	Double Layers, LYSO/LYSO, 10mm
Spatial Resolution with 3D OSEM (mm)	≤0.8mm
Depth of Interaction (DOI)	Yes- true DOI
Sensitivity	up to 9% depending on configuration
Average Energy Resolution (%)	21%
CT Specifications	
Power Output /Tube (W)	90W
X-Ray Tube Voltage Range	40 - 90kVp
X-Ray Tube Current Range	0.5 mA
Detector Pixel Matrix	3096 x 3100
Magnification	Up to 5.5x (variable zoom)
Spatial Resolution	≤20 µm
Voxel size Resolution	≤10 µm
Low dose system	Yes
Dimensions and weight with animal table	
Total Weight PET/CT	900 kg
PET/CT Dimensions (mm)	1740 (h) x 1460 (w) x 2580 (l)

MRS*PET/CT 220



Main Specifications	
Animal type	up to 12kg animals (shape depending)
PET/CT System type	Floor stand
PET component	MRS*PET 220
CT component	MRS*CT 240
PET CLIP-ON detachable from CT	N/A
PET CLIP-ON connectable to MR	N/A
PET Specifications	
Inner diameter & Transaxial FOV (mm)	295 mm (ID) & 220 mm (tFOV)
Axial FOV (mm)	202.95 mm
Extended axial FOV (mm)	400.0 mm
PMT & Detectors configuration	Silicon PM, Continuous detectors
Crystal material & Thickness (mm)	Double Layers, LYSO/LYSO, 12.5 mm
Spatial Resolution with 3D OSEM (mm)	≤1.3mm
Depth of Interaction (DOI)	Yes- true DOI
Sensitivity	7,5%
Average Energy Resolution (%)	22%
CT Specifications	
Power Output /Tube (W)	90W
X-Ray Tube Voltage Range	40 - 90kVp
X-Ray Tube Current Range	0.5 mA
Detector Pixel Matrix	3096 x 3100
Magnification	1.2
Spatial Resolution	80 µm
Voxel size Resolution	40 µm
Low dose system	Yes
Dimensions and weight with animal table	
Total Weight PET/CT	1200 kg
PET/CT Dimensions (mm)	1740 (h) x 1460 (w) x 2580 (l)

MRS*PET/CT

The path to Preclinical PET/MR imaging



From PET/CT to PET/MR or from PET/CT to PET/MR with only one PET scanner !

“Cost effective and laboratory work optimization”

“Plug and Scan”

With MR Solutions CLIP-ON technology, no need to duplicate the modalities. Only one PET scanner, one CT scanner and one MR system permits researchers to perform automatic sequential multimodality imaging of PET/MR, PET/CT, stand-alone PET and stand-alone CT.

Benchtop **MRS*PET/CT** to **MRS*PET/MR** sequential imaging - From rodents to marmosets



MRS*PET/CT 80 & MRS*PET/CT 120 to **MRS*PET/MR** sequential imaging - Up to 3KG animals



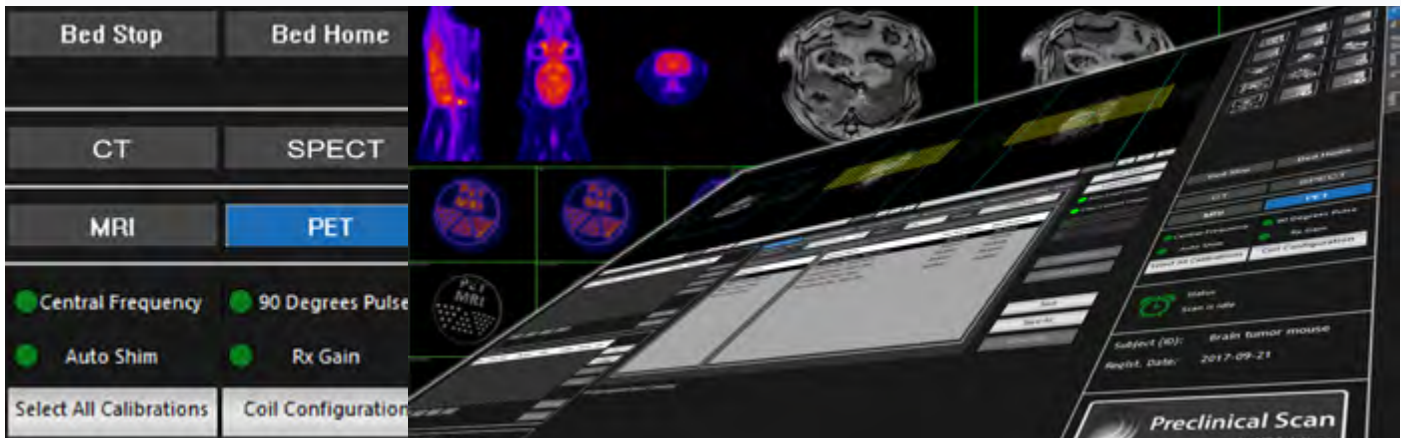
MRS*PET/CT 220 - Up to 12KG animals



The large bore **MRS*PET/CT 220** is designed for animal imaging and veterinary use from rodents to animals up to 12KG (upon animal shape). The **MRS*PET 220** has an inner bore size of 311 mm and provides an active transaxial field of view of 220mm. The system offers the latest technology with true Depth of Interaction (DOI). This enables high resolutions across the whole field of view to be achieved.

220 mm transaxial FOV
295 mm bore size
206 mm axial FOV

MRS*Preclinical Scan Software



All imaging modalities under one interface

The most advanced multimodality imaging software

Preclinical Scan is the multimodality interface for preclinical imaging. Under one interface users have access to all MRI functionality such as adjusting MRI pulse sequences parameters, but also have access to the PET, SPECT and CT extended functionalities.

There is no need for our users to move from one console to another as they change imaging modality. Everything is covered within the Preclinical Scan software.

We have designed the graphical user interface to be friendly and easy to set up, even for the new user. For the advanced user, real-time optimisation and advanced functionalities are available. Preclinical Scan software can be configured with different levels of access depending on the experience of designated users.

Animal Handling



Anaesthesia

Cardiac Gating

Respiratory Gating

Pathogen-free beds

The Imaging beds on MR SOLUTIONS systems are designed to provide important support functions to the animal during the preparation stage and throughout the imaging process. The beds provide anaesthetic gas to the animal and thermo-regulation of the animal during the scan.



Pathogen-free Imaging Cells with physiological control for mice, rats, marmoset, monkeys and rabbits. Ensures reproducible imaging conditions for longitudinal studies and provides a pathogen-free environment for immunodeficient animals and infectious disease studies.

ANIMAL IMAGING BEDS MRI COMPATIBLE

Mice

Rats

Large Animals 3Kg up to 12kg

Ø38mm

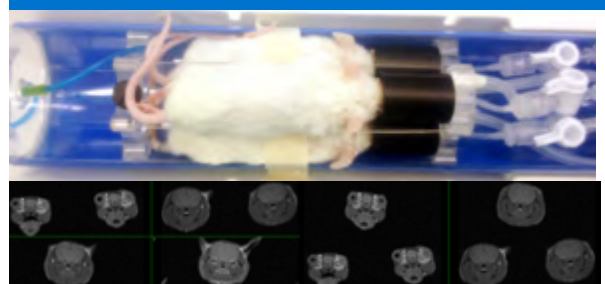
Ø70mm

Ø115mm

Ø150mm



High-throughput scanning Imaging 3 mice simultaneously





Imaging INNOVATION

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