



Biograph mCT

A wide bore and more

Healthcare demands a high level of productivity — providers are pushed to offer better results while maintaining profitability. Designed as a truly hybrid system, Biograph mCT supports your ability to serve more patients and generate more revenue. The fast, high-resolution PET scan enables detectability of small lesions without compromising scheduling, while the large bore (78 cm) accommodates large patients and enables an easy and precise positioning of radiotherapy devices.

Biograph mCT provides all the functionalities of a high-end, standalone CT — plus a range of CT configurations and options — for maximum system utilization.

Better care starts at the molecular level

In today's healthcare environment, small details can lead to significant value — for patients, caregivers and enterprises. Our advances in molecular imaging help you reveal critical details that result in meaningful improvements for all.





A wide bore and more

To grow your business, you need a flexible system that can accommodate all patients and procedures for PET and CT. The standard bore sizes or limited CT functionality of conventional PET/CT systems limit your ability to serve all patients or expand into new service lines.

Biograph mCT is engineered as a true dual-use solution to help grow your business.

With the industry's only 78 cm bore^[a], Biograph mCT can accommodate a wide range of patients, including bariatric and allows easy RT planning. It provides the clinical flexibility you need to address a broad range of indications and to increase your revenue.





Set the standard in PET/CT

Our foundation of reliable, sustainable and proven technologies allows you to start from a position of clinical power using our entire family of Biograph™ scanners.



Leverage an open design

Streamline user experience and address a broader patient population with design purposefully built on our key technology.



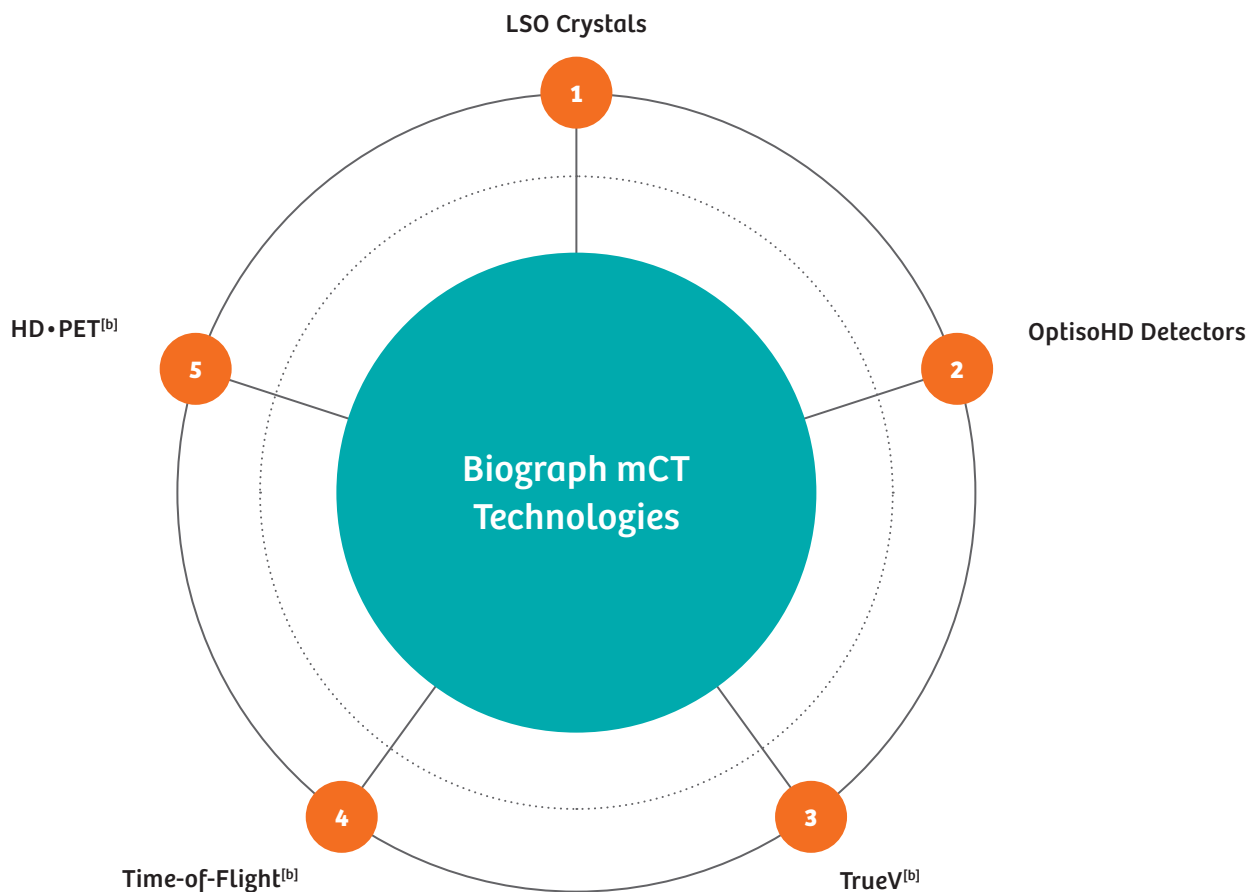
Move your business forward

Evolve your business with the changing healthcare market with our scalable PET/CT platform that opens doors to new opportunities and helps to maximize and protect your investment for the future.

Set the standard in PET/CT

The value of PET/CT is in the details — more precise information leads to greater potential for an earlier diagnosis and a more definitive treatment strategy, helping to improve patient outcomes. Our entire product portfolio is built on technology that all together adds up to more.

Our wide range of features expand your clinical capabilities and deliver excellent lesion detectability, spatial resolution and quantification accuracy — letting you bring a higher standard of care to more patients.



1

LSO crystals

Address a broad range of indications

Everything starts with the smallest element — the crystals. We are the only company to grow and individually select LSO crystals in house. Compared to BGO crystals, ours scintillate faster and have a higher light output, enabling better image quality and Time-of-Flight.^[1] With LSO crystals you are able to use all available PET tracers for a broad range of indications.



80%

Market share of lutetium-based scanners in 2015^[1]

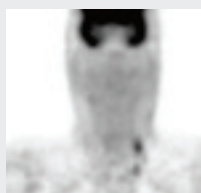
2

OptisoHD detector

Visualize more lesions

After our crystals are grown and individually selected, they are arranged with no gaps between detector blocks to provide very high spatial resolution and lesion visualization. The smaller the crystal element, the more detailed the image. Biograph mCT's patented OptisoHD detectors feature our unique LSO crystals cut into only four millimeter elements.

A smaller crystal size improves the visualization of small structures. In this head and neck cancer case, for example, **two additional small lesions** are identified.



6.3 mm crystal element



4.0 mm crystal element



36% smaller
2x more crystal elements per scanner

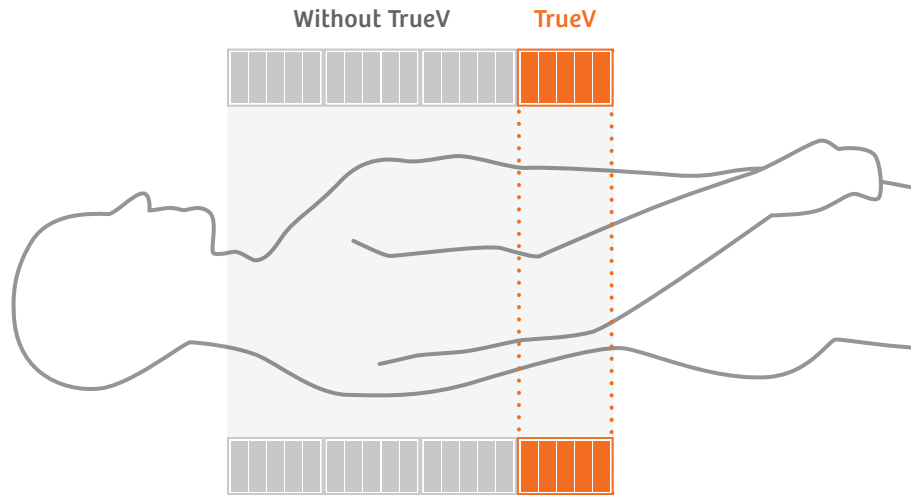
Data courtesy of University of Tennessee, Knoxville, Tennessee, USA.

3

TrueV^[b]

Scan faster or offer a lower dose

Once the block detectors are assembled, they can be arranged in standard or extended configurations. Our extended configuration, TrueV, widens the axial FOV for an increased count rate. **33% more^[c]** detector elements results in more than a **70% increase** in count rate performance,^[d] enabling either half the dose or two times the speed.

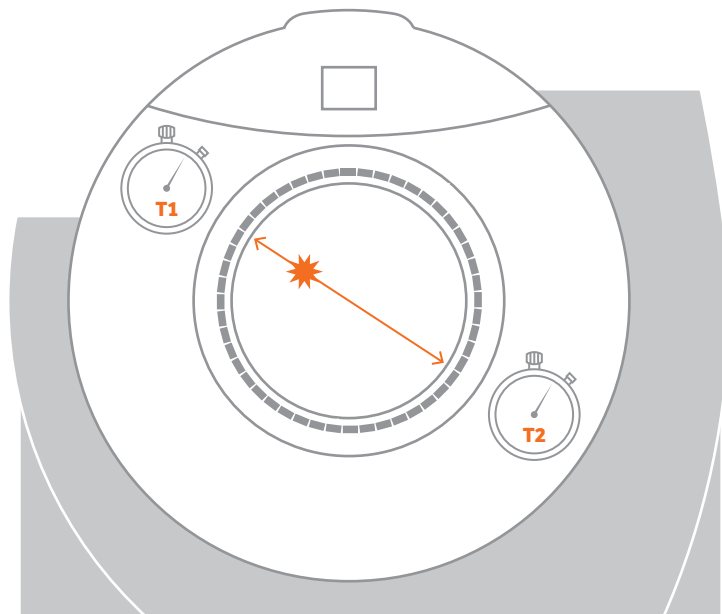


4

Time-of-Flight^[b]

Generate increased image quality, lower dose or faster scans

LSO's short decay time enables you to measure the time difference between the detection of the two photons from the annihilation. That timing information, known as Time-of-Flight, can offer up to 200% improvement in signal-to-noise ratio, for even better image quality, lower dose or faster scan speed. It is quickly becoming an industry standard as 99% of all Biograph mCT systems sold in 2016 included TOF.^[c]



5

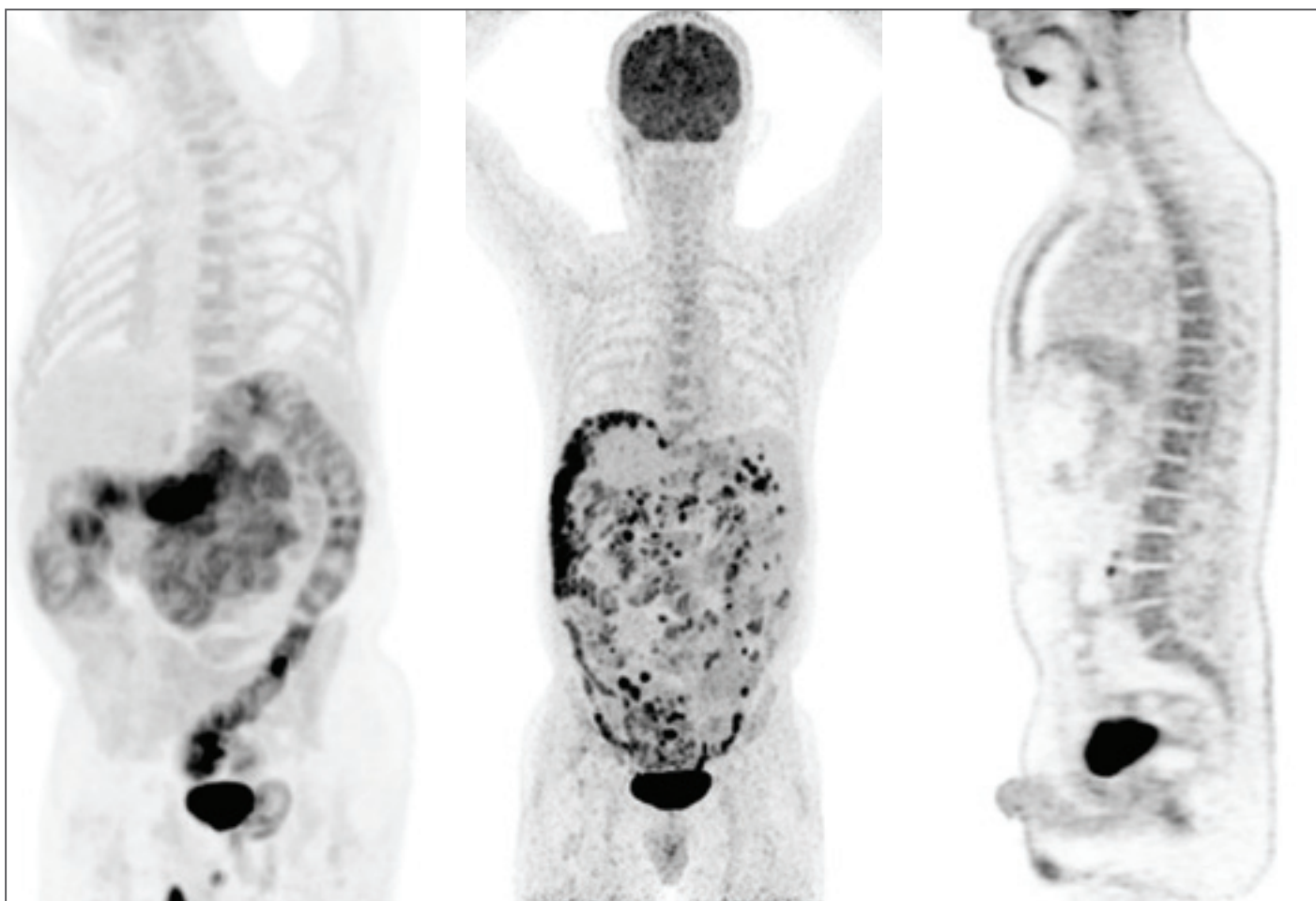
HD•PET^[b]

Create visually sharper images^[e]

The high-quality raw data provided by the combination of the high-resolution LSO detectors and Time-of-Flight is now reconstructed to generate the final images for interpretation. HD•PET incorporates

measured point spread functions (PSF) into the iterative reconstruction algorithm. Through modeling of the PSF, HD•PET more precisely accounts for the positioning of the line of response (LOR), yielding visually sharper clinical images.

Achieve excellent image quality with combined HD•PET and TOF



Sarcoma of the mesentery

Data courtesy of University of Tennessee, Knoxville, Tennessee, USA.

Peritoneal metastases

Data courtesy of Keio Gijyuku University Hospital, Tokyo, Japan.

Testicular carcinoma

Data courtesy of Spectrum Health, Grand Rapids, Michigan, USA.

SIEMENS
Healthineers





IOGRAPH mCT

Expand your potential with Biograph mCT — through a high standard of imaging and great clinical flexibility, you can serve more patients and grow your business.

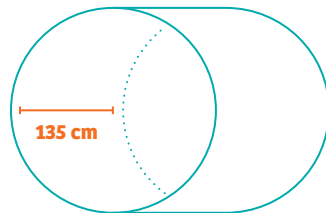
Leverage an open design

The changing healthcare landscape calls for state-of-the-art medical systems — ones that can accommodate a broader patient population, offer expansion into new service lines like radiation therapy, minimize rescans due to patient motion, reduce patient discomfort and deliver a streamlined user experience to give staff more time to spend with each patient.

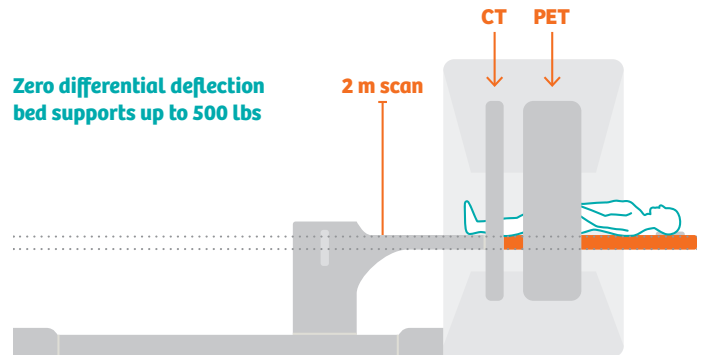
Biograph mCT's design addresses these needs today for success into the future. A large 78 cm bore, short 135 cm tunnel and 227 kg (500 lb) table capacity support the examination of a heavier patient population, allow for easier patient positioning, offer space for additional therapy accessories and help increase patient comfort.



Large bore



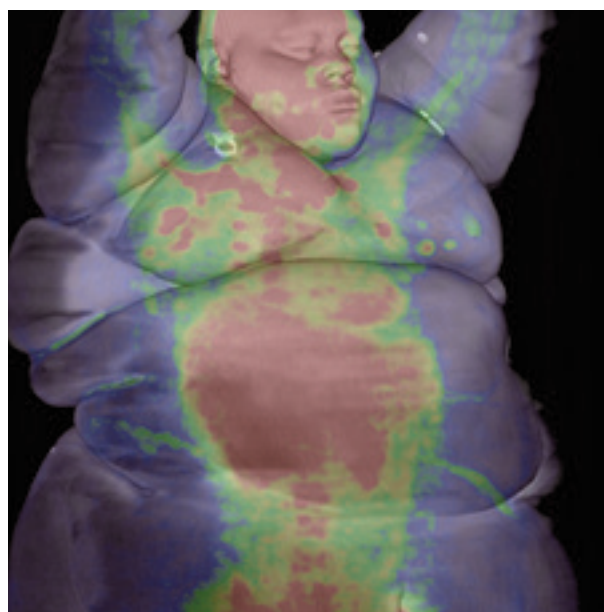
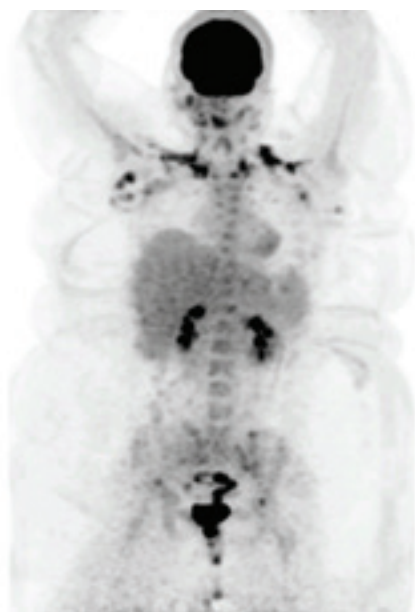
Short tunnel



Unique bed design

Bariatric imaging

Biograph mCT's 78 cm bore can deliver high-quality PET/CT images for large patients.



Data courtesy of Ohio State University, Columbus, Ohio, USA.

Parameters: Weight: 217 kg (478 lbs); height: 155 cm (5'1"); BMI: 90.3; dose: 15.6 mCi.

Maximize your patient base

Conventional technology sometimes fails to accommodate for a diverse patient demographic, especially now that over one-third of U.S. adults are obese. Biograph mCT is engineered for clinical flexibility, promoting a larger referral base and the growth of your business.



Obesity as percentage of adult population — World Health Organization¹

USA	37%	United Kingdom	30%
Turkey	32%	Argentina	29%
Canada	31%	Mexico	28%
Australia	30%	Germany	26%

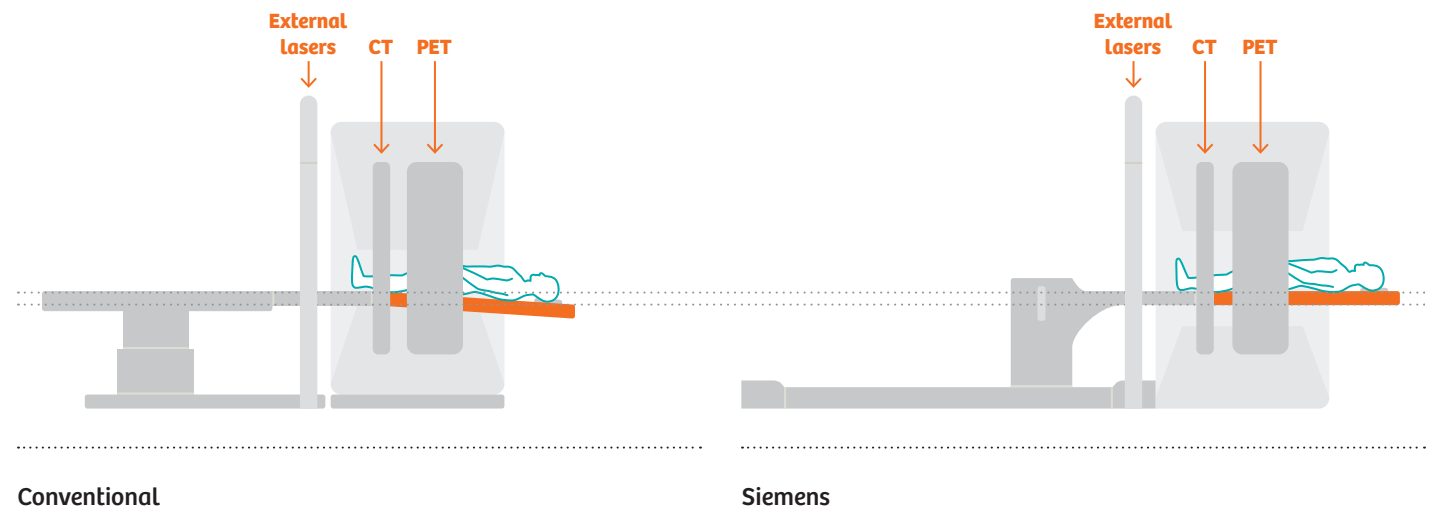
An optimal experience for patients and technologists

For patients, the large bore and short tunnel help reduce discomfort. The system's water cooling component, which eliminates the need for noisy fans and overly cold air conditioning, creates a calmer environment. For technologists, physiological devices in the bed reduce clutter and well-located controls make patient positioning easy.

Fine-tune your radiation therapy planning

To provide effective treatments, imaging for radiation therapy planning is often complicated and demands great care in replicating treatment positions. Biograph mCT's zero-differential-deflection, patient bed provides accurate registration

between the external lasers and the CT and PET fields of view, for precise treatment delivery while the large bore lets you fit a variety of radiation accessories.

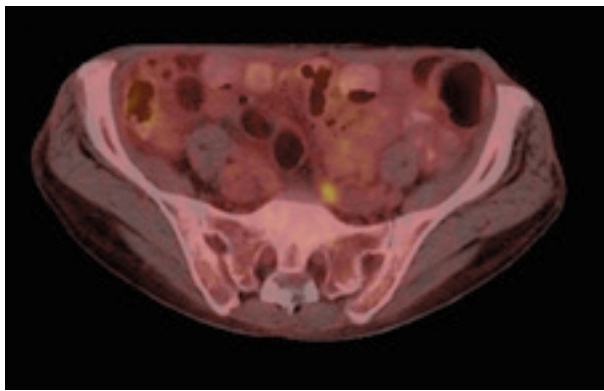


Conventional

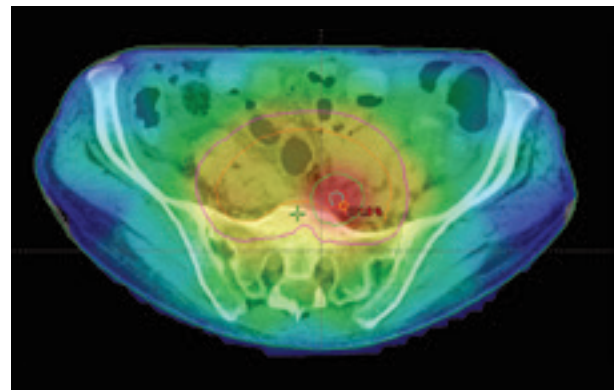
Siemens

Radiation therapy planning

Delineation of delivery target volume for rectal cancer treatment plan with iliac lymph node metastases



PET/CT



Radiation therapy plan

Data courtesy of Keio Gijyuku University Hospital, Tokyo, Japan.

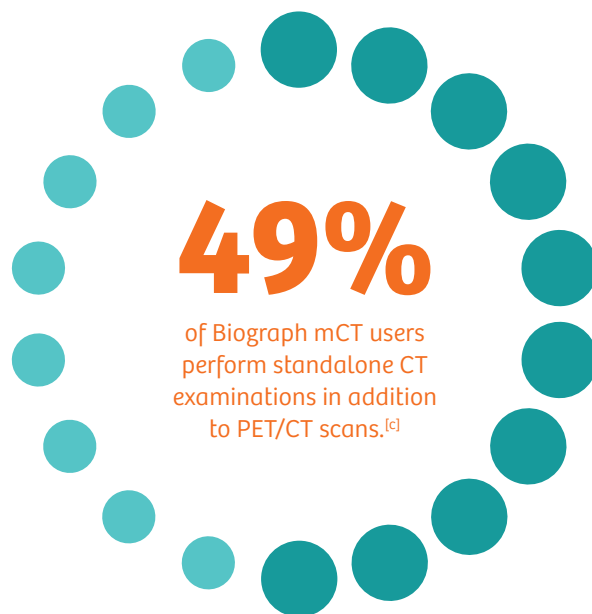
5x

The proportion of radiation treatment plans using PET images has increased by five times since 2006.²



Move your business forward

The changing healthcare market has introduced increasing cost pressures, reimbursement cuts and the need to attract more referring physicians and patients. Biograph mCT is configured to address challenging patient situations, giving you the opportunity to maximize your return on investment. A remarkably scalable PET/CT platform, it's designed to evolve with your business, helping you to attract referrals now and well into the future.



Do more in radiology with true dual-use

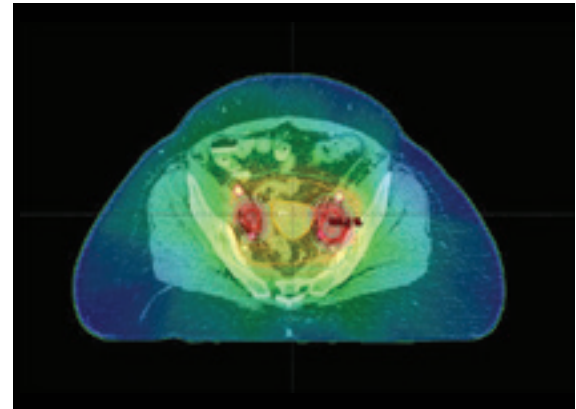
Biograph mCT is engineered as a true dual-modality scanner, which integrates the best performance of both PET and CT into a single compact system. Available in CT configurations of up to 128 acquired slices per rotation, it provides all the functionalities of high-end standalone CT, including intervention so that it can potentially generate revenue by performing dedicated CT scans. Requiring just one room and one team, it saves you space, time and cost.

Highly tailored radiotherapy planning

PET/CT usage in radiation therapy planning is gaining momentum — particularly as modern radiotherapy and radiosurgery treatments deliver higher doses to more targeted areas. Biograph RT Pro edition is designed to take full advantage of the premium PET and CT technologies of the Biograph mCT family of large bore scanners, giving you an accurate image for planning personalized treatment strategies with confidence.

88%

of radiation therapy sites incorporate PET into their radiation therapy planning protocols.²



Data courtesy of Keio Gijyuku University Hospital, Tokyo, Japan.

Excellent pediatric care

Pediatric oncology patients must often endure multiple examinations that include radiation exposure. Because they're still growing, such exposure is a major concern. To minimize it — and attract a greater pediatric population — you can harness Biograph mCT's 70 kV protocols, Adaptive Dose Shield for dose minimization.

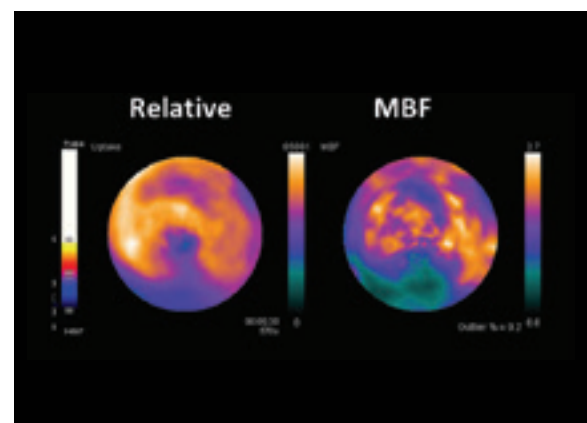


Enhanced accuracy in cardiology

Due to the short half life of isotopes used in cardiac imaging, a high injected dose is typically used and demands a higher count rate camera. Slow detectors, such as BGO, can't handle such high count rates and provide less accurate results. With Biograph mCT, you can achieve precise quantitative values by performing PET-based perfusion or myocardial blood flow examinations.

47%

increase in cardiac PET imaging scans in the U.S. from 2011 to 2017.³

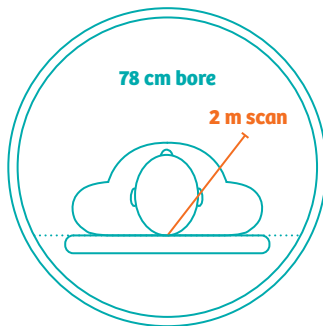


Data courtesy of University of Michigan, Ann Arbor, Michigan, USA.

Uniquely suited to your needs

Large bore

A large 78 cm bore and a table capacity of 227 kg (500 lb) support the study of a larger patient population.



Exclusive bed design

Zero differential deflection between PET and CT for accurate attenuation correction, and TG-66 compliant for radiation therapy.

TrueV^[b]

TrueV increases the axial field of view to enable two times faster scans or half the injected dose without compromising image quality.

Bed-integrated physiological inputs

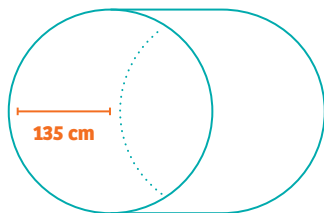
Integrated physiological inputs and IV support provide a clutter-free work environment.

Time-of-flight^[b]

up to 200% improvement in signal-to-noise ratio for better image quality, lower dose or faster scan speed.

Short tunnel

135 cm tunnel improves patient comfort and allows more room for patient positioning.

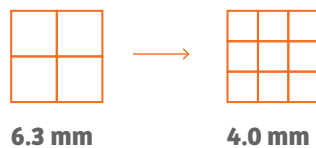


4 mm LSO crystals

Better image quality and greater NEMA spatial resolution than BGO crystals.

Time-of-flight + HD•PET + TrueV^[b]

A combination of technologies that offers the potential for five-minute and five mCi PET scans.





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We now consolidate this unprecedented volume of data and insights and turn them into pioneering and enterprise in digital health services. With those, we maximize opportunities and share risks of your entire health system.

Partnerships are built on people. With Siemens Healthineers there is no team more committed and more connected and we are to realize your success together.

Siemens AG, "Sustainable healthcare strategy — Indicators in fiscal 2014", page 3-4

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^[a] Based on competitive literature available at time of publication. Data on file.

^[b] Optional.

^[c] Based on internal measurements at time of publication. Data on file.

^[d] Compared to the standard configuration. Data on file.

^[e] Conventionally reconstructed images compared to images reconstructed with HD•PET.

References

¹ World Health Organization data accessed August, 2018: http://apps.who.int/gho/athena/data/GHO/NCD_BMI_30A,NCD_

² IMV 2017 Radiation Therapy Market Summary Report.

³ IMV 2018 PET Imaging Market Summary Report.

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