



# Inspired by you

3D Tomosynthesis with MAMMOMAT Inspiration

Answers for life.

**SIEMENS**

# 3D Tomosynthesis with MAMMOMAT Inspiration



# Inspir

The utmost diagnostic precision, a streamlined and highly efficient workflow, and a high degree of patient comfort – the demands placed upon radiologists and their staff today are enormous. However, all the various defining factors are mutually dependent and must all be considered together.

Therefore, we focused on continuous customer involvement during the research and development of MAMMOMAT Inspiration, our fully digital, future-proof mammography platform. That's why MAMMOMAT Inspiration features a highly automated workflow as well as a great number of intelligent details and options that open up new possibilities in mammography.

The newest development of MAMMOMAT Inspiration is the 3D tomosynthesis option, which addresses the primary problems of conventional mammography: hidden cancers and false positive and false negative results due to dense breast tissue and overlapping structures. MAMMOMAT Inspiration is easily upgradeable to tomosynthesis, and it takes digital mammography to the next level. Discover how 3D tomosynthesis with MAMMOMAT Inspiration adds a new degree of confidence and efficiency to your daily mammography routines.

The precise three-dimensional representation of the breast tissue leads to substantial improvements in the detection and classification of tissue changes. This means better early detection and a substantial decrease in the need for additional examinations and biopsies.



The excellent visualization and classifiability of microcalcifications and tumor-suspicious lesions reduces the number of false positive and false negative examination recalls. That allays the anxiety that many women may have toward mammography.



ed by you

# 3D Tomosynthesis

## Time for mammography to go 3D

Many early stage tumors cannot be detected by common 2D mammography, especially in women with dense breast tissue.

The main limitation of conventional two-dimensional mammography and Full Field Digital Mammography (FFDM) is the fact that the three-dimensional anatomical information is projected into a 2D image plane. This clearly limits the radiologist's ability to detect certain cancers, as anatomical structures can overlap lesions.

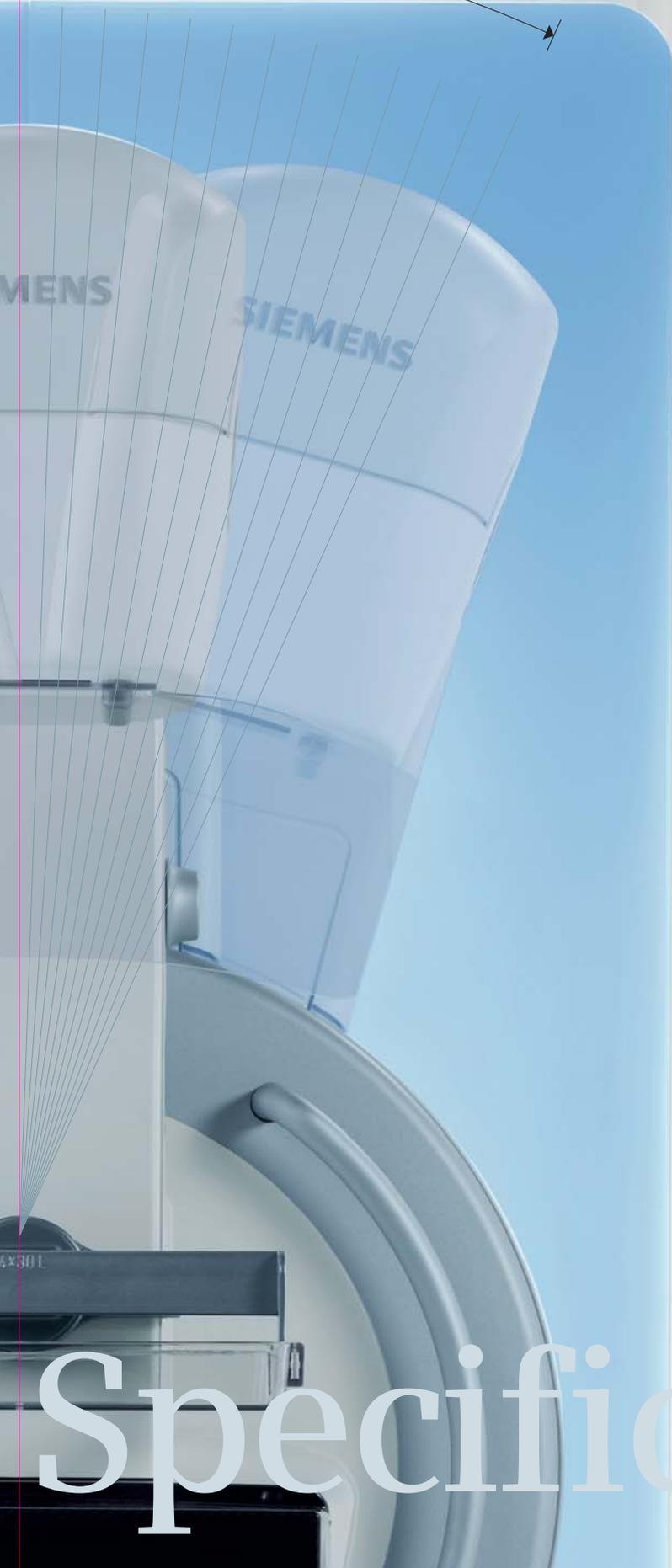
MAMMOMAT Inspiration with 3D tomosynthesis has the potential to overcome this limitation of projection imaging by acquiring several projections of the breast from different angles and reconstructing these into a 3D volume set. The tissue overlap problem inherent in conventional 2D mammography is reduced and 3D tomosynthesis thus reveals even hidden malignancies – a great contribution to detecting breast cancer early when it is most treatable.

Microcalcifications, as well as the shape and size of lesions, can be analyzed in 3D. At the same time, the contrast enhancement of lesions and the reduced tissue overlap obtained through tomosynthesis improves the sensitivity and specificity of the examination.

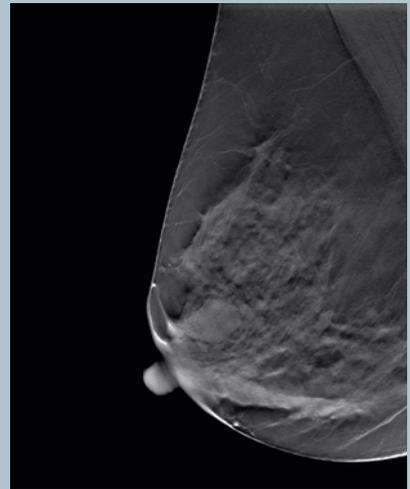
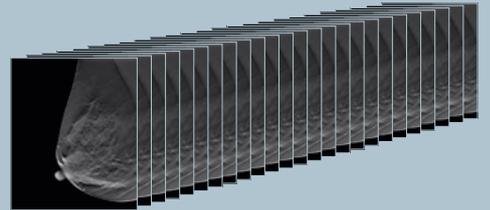


# Sensitive &

25 projections



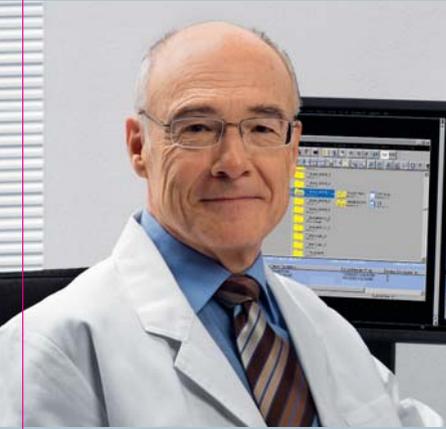
50° – 25 projections



With courtesy of Duke University,  
North Carolina, USA

3D tomosynthesis with MAMMOMAT Inspiration adds both sensitivity and specificity to diagnostic imaging. During the 50° sweep of the X-ray tube, 25 low-dose projection images are taken. With the “Flying through” functionality, the physician can browse through the reconstructed slices. At the same time, the reconstructed 3D volume of the tissue can be visualized via CineMode.

# Specific



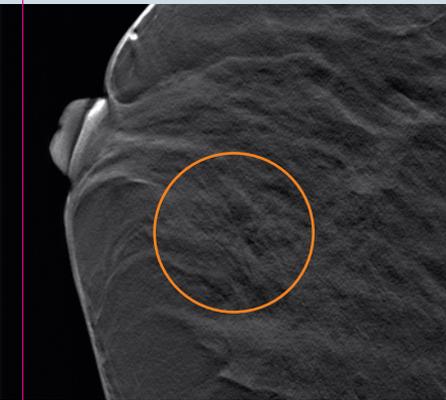
# Seeing better – seeing more

Just like a CT scan differs from standard X-ray imaging, tomosynthesis differs from standard mammography: The X-ray tube of MAMMOMAT Inspiration moves in a 50° arc around the breast while 25 low-dose images are taken during the examination with a frame rate of up to 2 images per second. The combination of high spatial resolution and a very large acquisition angle provides a high degree of depth resolution resulting in more precise reconstructions with fewer artifacts and more detail.

On the bottom line, that means hitherto unprecedented image quality in mammography, making possible the better detection of low-contrast mass lesions and the identification of subtle lesions and architectural distortion. However, the dose required for a full 3D tomosynthesis with MAMMOMAT Inspiration is similar to that of a conventional breast mammography.

All images below with courtesy of  
Duke University, North Carolina, USA

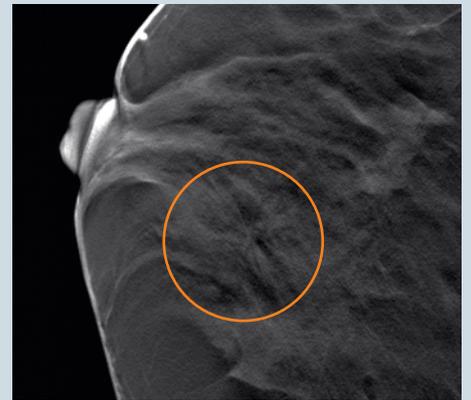
17°, 11 projections



30°, 17 projections

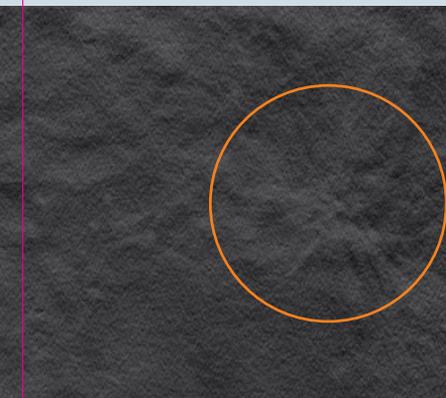


50°, 25 projections

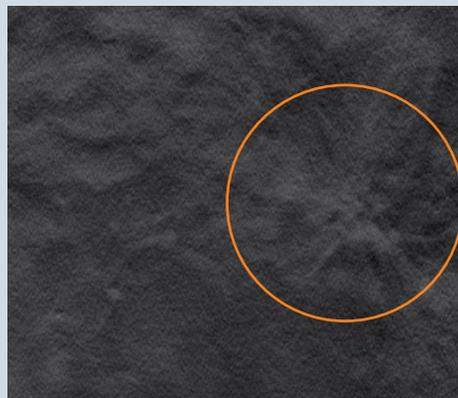


RMLO 3D Tomosynthesis; Architectural distortion missed by 2D mammography

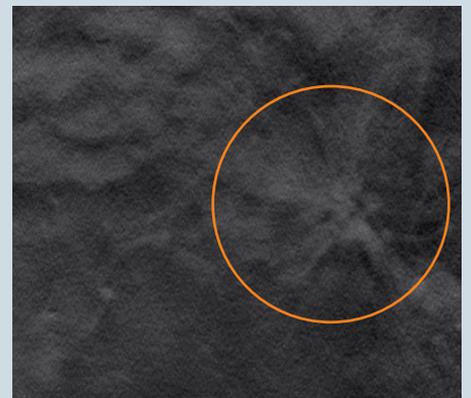
19°, 11 projections



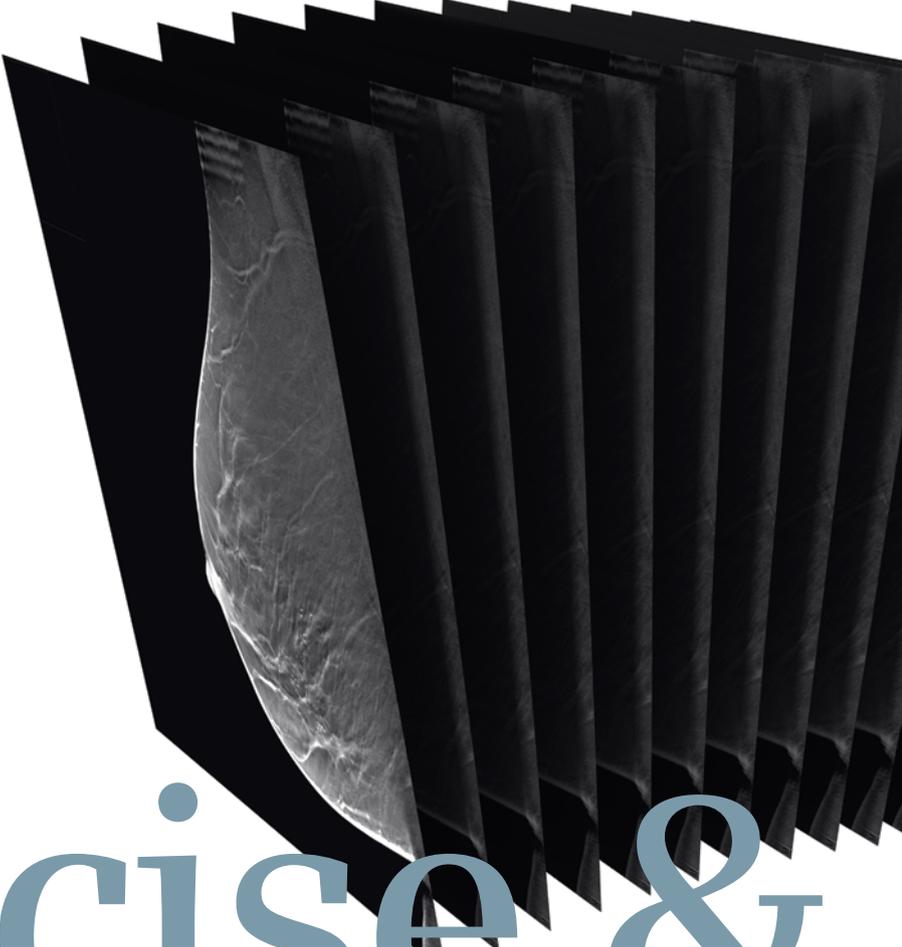
30°, 17 projections



50°, 25 projections



RMLO 3D Tomosynthesis; Invasive ductal carcinoma (IDC); Subtle architectural distortion not detected prospectively in 2D MLO and CC



# Precise &

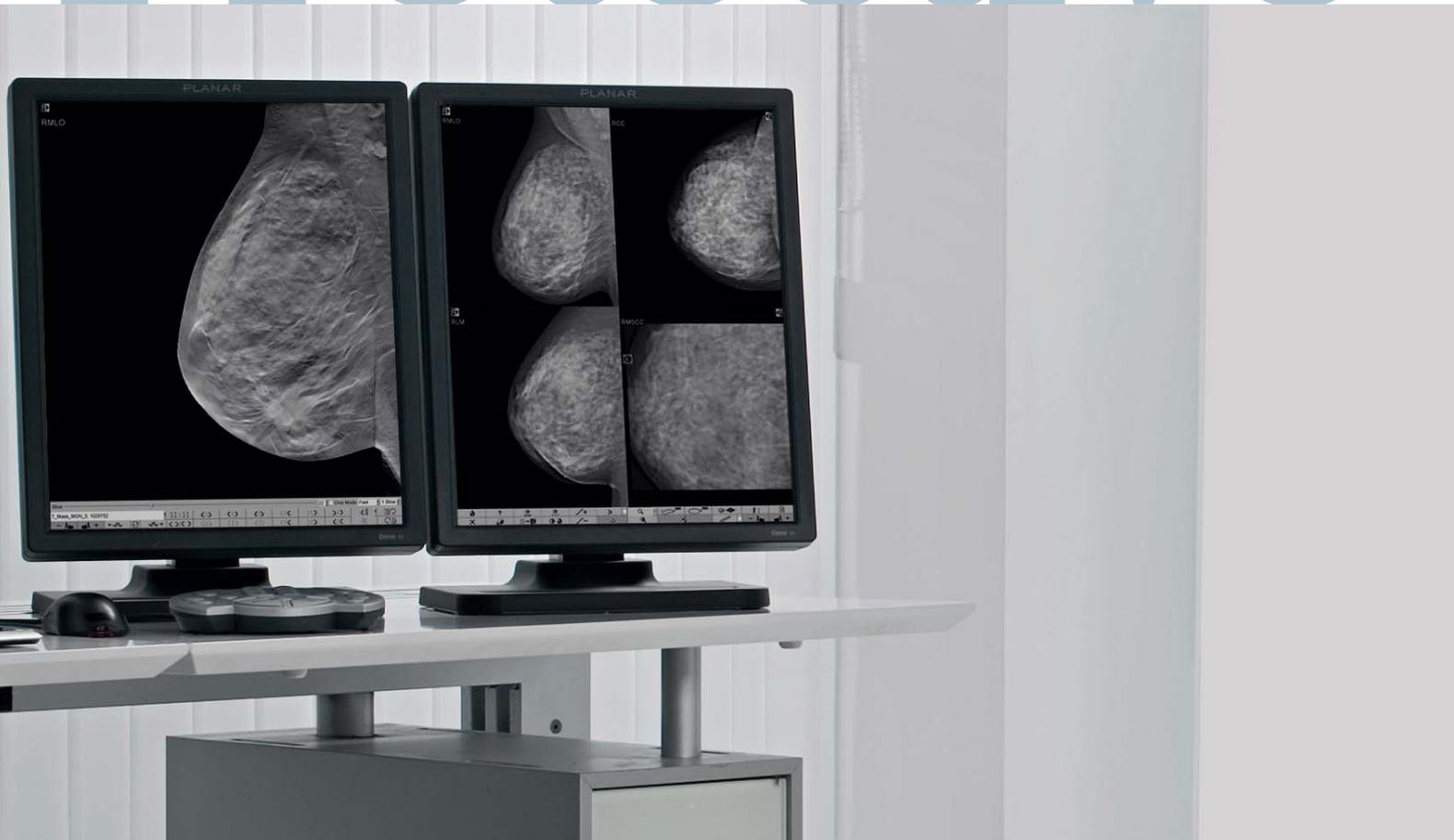
For optimized reading of breast tomosynthesis images acquired with MAMMOMAT Inspiration, Siemens' breast care workstation *syngo*® MammoReport with TomoViewer\* provides a dedicated workflow for the diagnosing of tomosynthesis images – including scrolling functionality and CineMode. This facilitates the direct comparison of the individual 2D images and the reconstructed 3D volume, as they can be displayed simultaneously on two monitors. Maximum intensity projection further improves the visualization of micro-calcifications. True multi-modality viewing including ultrasound and MRI, as well as numerous tools, makes *syngo* MammoReport with TomoViewer the ideal tool to further streamline the diagnostic workflow.



\* Optional



# Protective



# A quantum leap in diagnostic precision

3D tomosynthesis with MAMMOMAT Inspiration does away with the shortcomings of traditional two-dimensional mammography. Thanks to the availability of 3D data, the distribution of microcalcifications, as well as the size, shape, and margins of lesions can be analyzed in 3D. In a nutshell: the radiologist sees everything right away. Thus, the number of false positive studies, and likewise the need for multiple exposures of the same breast, biopsies, and even recalls, will be reduced, leading to a more streamlined workflow and more efficiency on the bottom line.

## Significantly improved early detection

Breast cancer is a serious health concern and one of the leading causes of mortality among women. But early detection and early treatment can assure a greater survival rate. 3D tomosynthesis with MAMMOMAT Inspiration improves the detectability of early stage tumors, especially in women with dense breast tissue. The isocentric design of MAMMOMAT Inspiration allows a wide isocentric movement of the tube and the detector. Cranio-caudal, medio-lateral oblique, and all other common projection views can be performed in a quick and convenient manner that also offers a high degree of patient comfort. Siemens' intelligent Opcomp® function additionally improves patient comfort, as it applies compression only as long as the patient's breast is soft and pliable and stops automatically at the point of optimal compression.



# 3D Tomosynthesis with MAMMOMAT Inspiration

“Cancer visibility with tomosynthesis is superior to digital mammography, which indicates that breast tomosynthesis will have a higher sensitivity for breast cancer detection.”

Dr. Ingvar Andersson, University Hospital Malmö, Sweden

## Sensitive & Specific

- Reduced tissue overlap and contrast enhancement of lesions
- 3D analysis of micro-calcs, as well as shape and size of lesions
- High depth and contrast resolution due to wide acquisition angle

## Precise & Protective

- Improved early detection, especially with dense breast tissue
- Reduced number of false-positive diagnoses
- Reduction in recall rates and biopsies

## Future-Proof & Flexible

- 2D and 3D imaging plus all diagnostic options for mammography within a single system
- Tried and tested, future-proof, and expandable platform concept
- Excellent security of investment



# Future-Proof

# All options integrated

Much more than a mammography system, MAMMOMAT Inspiration is a highly flexible mammography platform for screening, diagnostics, stereotactic biopsy, and 3D tomosynthesis. It increases diagnostic efficiency and confidence and makes possible a significant improvement of the early detection rate of breast cancer.

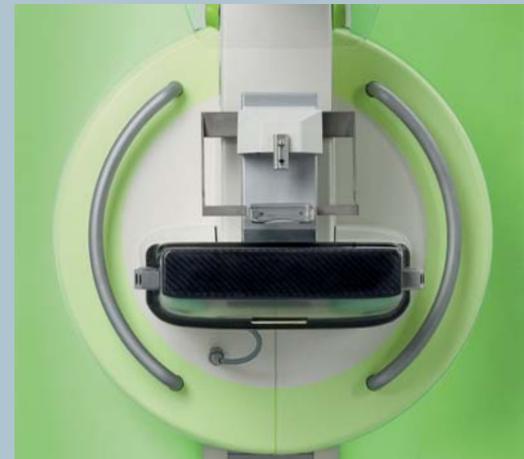
## Screening

MAMMOMAT Inspiration is ideally suited for screening purposes: It provides a high degree of comfort and care for the patient and convinces with its low dose concept. Intelligent details like one-click-to-image and single-touch positioning make handling and accurate diagnosis considerably easier for the clinical user. It meets the strategic needs of today's clinical facilities thanks to the high patient throughput as well as its future-proof concept, which translates into excellent security of investment.



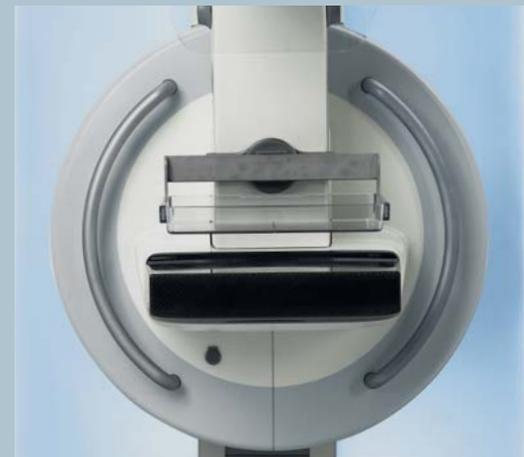
## Stereotactic biopsy

MAMMOMAT Inspiration was designed with a constant focus on keeping workflow as easy and simple as possible. Its intelligent, ergonomic concept and its intuitive operability make stereotactic biopsy a fast, straightforward, and user-friendly procedure. Biopsy images have the same image quality as regular mammography images, which boosts efficiency even further.



## 3D tomosynthesis

MAMMOMAT Inspiration paves the way for 3D tomosynthesis. With its wide acquisition angle of 50° and an angle increment of only 2°, it makes possible precise 3D digital breast imaging that significantly improves the early detection rate of breast cancer. Higher diagnostic efficiency and confidence, especially with dense breast tissue, a straight-forward, easy and comfortable workflow, and cutting-edge diagnostic possibilities benefit both the physician and the patients.



& Flexible

This product is not available in the U.S.

The information in this document contains general descriptions of the technical options available and may not always apply in individual cases.

The required features should therefore be specified in each individual case at completion of contract. Siemens reserves the right to modify the design and specifications contained herein without prior notice. Please contact your local Siemens sales representative for the most current information.

Original images always lose a certain amount of detail when reproduced.

In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources, waste conservation), we recycle certain components. Using the same extensive quality assurance measures as for new components, we guarantee the quality of these recycled components.

Please find fitting accessories:  
[www.siemens.com/medical-accessories](http://www.siemens.com/medical-accessories)

## Local Contact Information

### In Japan

Siemens-Asahi  
Medical Technologies Ltd.  
Takanawa Park Tower 14F  
3-20-14, Higashi-gotanda  
Shinagawa-ku  
Tokyo 141-8644  
Phone: +81 3 5423 8510

### In Asia

Siemens Pte Ltd  
The Siemens Center  
60 MacPherson Road  
Singapore 348615  
Phone: +65 6490 8182

### In Germany

Siemens AG  
Healthcare Sector  
Karlheinz-Kaske-Str. 2  
91052 Erlangen  
Phone: +49 9131 84-0

## Global Business Unit

Siemens AG  
Medical Solutions  
Special Systems  
Henkestr. 127  
DE-91052 Erlangen  
Germany  
Phone: +49 9131 84-0

## Global Siemens Headquarters

Siemens AG  
Wittelsbacherplatz 2  
80333 Muenchen  
Germany

## Global Siemens Healthcare Headquarters

Siemens AG  
Healthcare Sector  
Henkestr. 127  
91052 Erlangen  
Germany  
Phone: +49 9131 84-0  
[www.siemens.com/healthcare](http://www.siemens.com/healthcare)

## Legal Manufacturer

Siemens AG  
Wittelsbacherplatz 2  
DE-80333 Muenchen  
Germany

[www.siemens.com/healthcare](http://www.siemens.com/healthcare)