Reshape the mammography experience

Senographe Pristina™

gehealthcare.com/pristina

Reshape the mammography experience with comfort, confidence and clarity

At GE Healthcare, we believe it's time to improve the entire mammography experience.

We partnered with radiologists, technologists and patients to create a mammography platform that is designed to each of their needs – easing patients' anxieties, making technologists' jobs easier and helping radiologists diagnose with greater confidence.

The result of our rigorous, collaborative design process is the Senographe Pristina.

Comfort for patients

The gantry: attractive and well-designed like a beautiful piece of art

The new, inviting gantry promotes a sense of calm, with elegant lighting and gentle, rounded shapes. Senographe Pristina was built with one objective in mind: to ease patient anxiety when they enter the exam room.

A soft-curved surface invites patients into a space of comfort and support.

You'll need to experience it to truly realize what it can do for you.

Rethinking patient comfort

The new gentle, rounded edges of the detector can reduce discomfort and may also help reduce anxiety for patients. The soft armrests have replaced the typical hand grips. Patients can lean comfortably on the armrests relaxing their muscles to simplify compression and image acquisition.

In addition, the Senographe Pristina includes specialized paddles such as the flex paddle that can tilt to adapt to women's varying morphology and the implant paddle specifically for breast implants as well as small breasts.

Confidence for technologists

Patient comfort easing positioning

Anxious patients are more prone to moving and contracting muscles, creating challenges for technologists to position them appropriately.

By making patients more comfortable during the exam, technologists can then focus on more suitable positioning, enabling a faster and smoother experience for both patient and technologist.

A new design to avoid physical strain

Making it easy for technologists to position patients is critical to improving the overall mammography experience for both patients and technologists.

The upper space below the collimator is large, and the small tube design makes it easy for technologists to position patients.

The back space is also large enough to allow technologists to work without hitting their elbows when positioning the breast over the support.

Technologists can also position patients while facing them, allowing for better communication throughout the exam.

In addition, when positioning patients in mediolateral oblique (MLO), the tube head can be moved to a parked position away from the technologist's head.

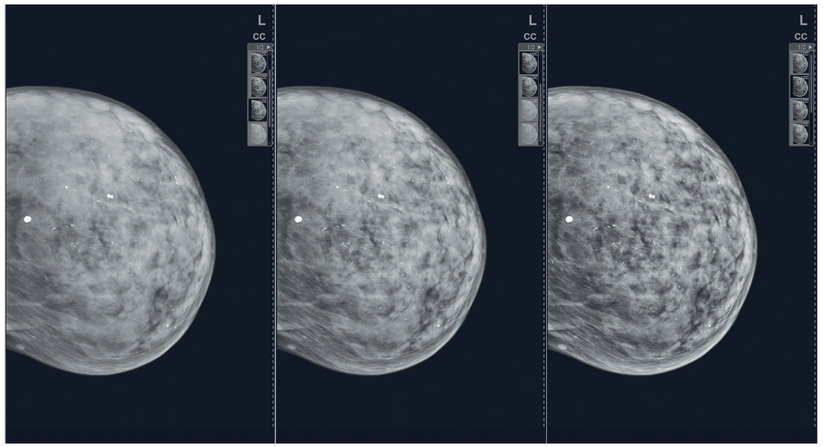
This clears the upper space from obstruction so that the technologists can position the patient without physical strain.

Reinventing the mammography experience to make the technologist's job easier

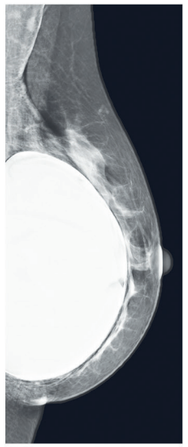
The console and gantry are ready to use within a few minutes after startup without requiring any calibration before starting the day.

The image contrast can also be modified in real time, among six levels available, in order to accommodate user preferences.

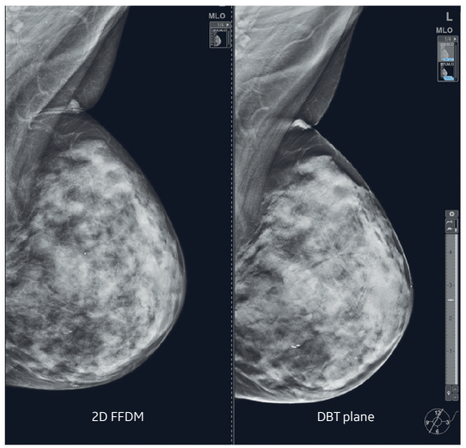
The acquisition console is well-aligned with other GE Healthcare products, so that the learning curve is minimal for those familiar with other GE Healthcare equipment.



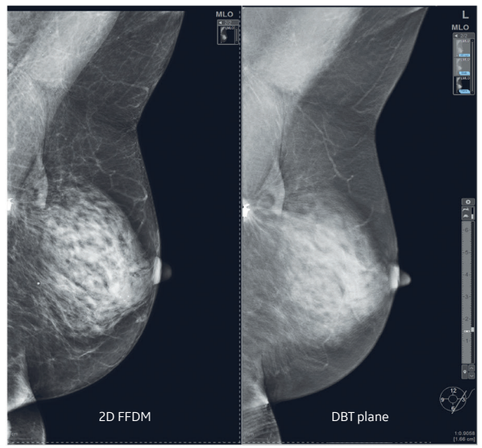
eContrast: 6 options available to accommodate users preferences



Automated Optimization of Parameters with implants



Invasive ductal carcinoma



Surgical scar

Clarity for radiologists

Pristine images for accurate diagnosis

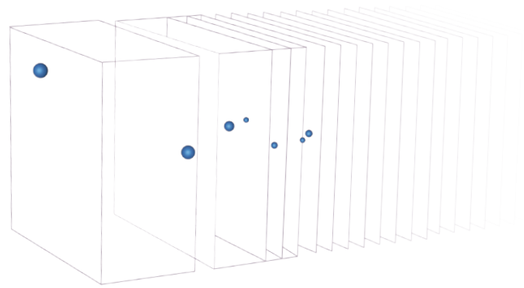
Pristina sets the bar for diagnostic confidence and performance, leveraging the Senographe family's widely recognized image quality.

GE Digital Breast Tomosynthesis delivers superior diagnostic accuracy at the same dose as 2D FFDM, the lowest patient dose of all FDA approved DBT systems[1].

1. GE screening protocol consists of 3D CC/MLO + V-Preview CC/MLO, V-Preview is the 2D synthesized image generated by GE Seno Iris mammography software from GE DBT images. FDA PMA P130020/S001 http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfPMA/pma.cfm?id=P130020S001, Data on file. Average glandular dose in digital mammography and digital breast tomosynthesis: comparison of phantom and patient data. Bouwman, R. W. and al., et. 2015, Physics in Medicine & Biology, pp. 7893-7907.

Excellent Visualization of Microcalcifications

3D mammography platform allows for excellent visualization of breast lesions without increasing the dose compared to a 2D exam.
GE's 3D tomosynthesis uses ASIR^{DBT}, an iterative reconstruction algorithm with a calcification artifact correction. ASIR^{DBT} delivers off-plane images, far superior to the traditional Filtered Back Projection (FBP) algorithm in terms of both in-plane and out-of-plane artifacts. Furthermore, a specific slabbing algorithm renders calcifications as if each were in its optimal plane, making the images easy to read.



Senographe Pristina™

The Senographe Pristina platform is designed to support future functionalities, such as: Contrast Enhanced Spectral Mammography, biopsy and Senographe Pristina in a mobile environment.

Comforting, empowering, enlightening

Never has a mammography system been so focused on patients, technologists and radiologists alike – putting everyone in a better position for a more relaxing experience, productive workflow and effective care.

The Senographe* Pristina is a full field digital mammography system designed to offer an extensive breast care solution with screening and diagnostic capabilities, focused on an ergonomic design for the technologist and patient comfort.

Senographe Pristina features a 24 x 29 cm detector, designed to offer full breast coverage in a single image. Smaller breasts can also be imaged in any view with paddles that can slide to both sides of the detector.

The Senographe Pristina does not require daily calibration.

Ergonomics for technologists

- Re-imagined user interface
- Park Positioning during patient positioning
- One touch access to preset rotation for positioning
- Variable speed motorized gantry movements
- Sliding compression paddles can move to the side of the detector for compression

Ergonomics and design for patient comfort

- Designed for Patient comfort
- Wheelchair access, MITA compliant
- Thinner Bucky than previous platform
- Rounded edges detector for patient comfort

Image quality

- Automatic Optimization of Parameters (AOP), selects all exposure parameters based on breast radiological properties
- Three AOP modes + 1 Automatic mode for implants
- eContrast is an image processing feature that makes automatic adjustments of brightness and contrast
- DQE at IEC 62220-2-3 equivalent spectrum, at 75µGy: 70% (+/-3) at 0.5lp/mm and 64% (+/-3) at 2lp/mm

Smooth digital workflow connectivity

- Automated Quality Control
- Integrated Repeat and Reject Analysis

Technical Specifications

Detector

- Detector ready to use right after system boot
- Detector size: 24 x 29 cm
- Pixel size (pitch): 100 µm
- Acquisition dynamic range: 14 bits
- Bucky front cover thickness: 40mm
- Optimized room for positioning due to the bucky depth: 470mm
- Image size:
  - LFOV image size - approx. 13 MB per image
  - Regular image size - approx. 9 MB per image
- Patented needle structure CsI scintillator, single piece construction
- Breast support with rounded edge
- Air cooling

Tube technology

- X-Ray tube type: Artemis
- Anode target materials - Dual track: Molybdenum (Mo) enriched with Vanadium, and Rhodium (Rh)
- Four focal spots: 0.1 and 0.3 IEC on each target
- Target angle: 0 degree
- Maximal high voltage: 49 kV
- Tube current:
  - Molybdenum target:
    - 100 mA from 25 to 30 kV on large focal spot
    - 40 mA from 25 to 30 kV on small focal spot
  - Rhodium target:
    - 62 mA from 25 to 30 kV on large focal spot
    - 35 mA from 25 to 30 kV on small focal spot
- Anode size (tracks diameter): 100 mm
- Anode heat storage capacity: 250kJ (340 kHU)
- Anode maximum dissipation: 500 W (40 kHU/min)
- Max casing continuous dissipation: 150 W (12 kHU/min) at 40 °C
- Permanent filtration: 0.69 mm Beryllium
- Weight: 7 kg
- X-ray tube assembly: self-encased X-ray tube, oil-free, lead-free, air-cooled head
- Tube protection: software monitoring of tube load

Grid/breast support

- Universal grid compatible with 2D Conventional Mammography and DBT
- Ergonomic breast support designed for patient comfort and cleanability
- Motorized lock of the grid and breast support
- Breast support material: carbon fiber composite
- Optimized grid motion ensuring no grid structure visible in the image
- Detector to breast support edge-to-edge distance ≤ 5 mm

Automatic exposure

Automatic Optimization of Parameters (AOP)
Fully automatic mode

• AOP is an automatic exposure system that selects all exposure parameters based on radiological density of the breast:
  - track (Mo or Rh)
  - filter (Mo or Ag)
  - kV
  - mAs
• The system identifies the densest part of the breast to select the appropriate exposure parameters
• Three AOP modes are available:
  – "Standard + ": dose to patient comparable to screen/film Mammography
  – "Dose -": priority is given to dose reduction
  – "Standard": balances low noise and dose reduction
• Automatic acquisition mode for implants

Manual mode

• Manual selection of all parameters: track, filter, kV and mAs

Collimator

• Filters: Molybdenum: 0.030 mm; Silver: 0.030 mm
• Field of View (FOV) in detector plane, in cm:
  – For standard contact views: 24 x 29 maximum FOV or 19 x 23 regular FOV, automatic adjustment depending on paddle used, breast support and gantry rotation angle
• Field of View (FOV) selection: automatic and manual
• FOV size: selected automatically based on the paddle or geometric magnification platform used, can be modified manually by using the collimation size switch on the tube head
• FOV location (left, right, center): selected automatically based on the tube arm angle, can be modified manually by using the collimation position switch on the tube head
• Compression and exposure are prevented if the FOV and compression paddle sizes or locations are not consistent
• Light centering device: a light automatically switches on when a preset position is reached, at compression start or at paddle insertion; can be turned on with the collimation switches buttons located on the tube head or on the acquisition console

Compression

• Compression modes:
  – Motor driven compression up to 20 daN
  – Manual compression up to 27 daN
• Dual foot-pedals for column height and compression adjustments
• User defined motorized compression force limit: 4 to 20 daN
• Min force for AOP: 3 daN
• Compression speed: 3 speed levels
• Selectable automatic decompression after exposure, to minimize patient time under compression

Positioner

• Isocentric arm with motorized rotation and vertical movement
• Source to image receptor distance: 660 mm
• Floor to image receptor distance: from 65 cm to 150 cm
• Rotation angle: -180/+180 degrees
• Ergonomic hand-rest: one at each side of the tube arm and two additional behind

Safety features

• Gantry motions locked when compression force applied

User interface

• Four sets of single speed switches for rotation, angulation and lift movements, with an accelerating speed profile
• Four sets of preset position switches for positioning in CC and MLO
• Automatic stop at +/- 90 degrees for lateral positions
• Collimation buttons on the tube head for field of view size and location
• Parameters display
  – Tube arm support rotation angle
  – Compressed breast thickness (in mm)
  – Compression force (in daN)
• Ergonomic control console
  – Controls exposure
  – Provides information on system status
  – Gives access to advanced parameters for system set-up
• Patented automatic view names marking based on breast laterality
• View name can be edited while the exam is performed

Acquisition workstation

- Time to display processed image (average): 10 seconds
- Time between exposures (typical): 12 seconds
- Dose calculated and displayed on the image after every exposure (Entrance Skin Dose and Average Glandular Dose)
- Quad core Intel i5 workstation:
  - Memory: 32GB
  - Hard disk: 1 internal 250GB disk for the system
  - Hard disk: 1TB for image storage
  - Ports: 4 Gigabit Ethernet port
  - DVI Display and port connector
- 2 types of display available
  - 1MP LCD Monitor
    - 48 cm (19") medical grade
    - 1280 x 1024 pixels (landscape)
    - High luminance - up to 300 Cd/m2
    - Contrast ratio: 2000:1
    - Viewing angle: 170 degrees
    - Mounted on a rotating arm for in-room access
  - 3MP monitor display:
    - High performance color IPS 3MP monitor
    - 54cm (21.2")
    - 2048 x 1536 pixels (landscape)
    - Brightness: 1000 Cd/m^2
    - Contrast ratio: 1400:1
    - Viewing angle: 170 degrees
    - Mounted on a rotating arm for in-room access
- Image Presentation
  eContrast allows you to choose among 6 levels to better adapt to breast morphology and radiologist display preferences:
  - eContrast 1 provides a "film-like" aspect with improved visibility of the skin line
  - eContrast 2 to 4 provide increasing steps of image sharpness and contrast
  - eContrast 5 provides a high level of sharpness and contrast, with a very high level of tissue penetration
  - eContrast 6 is adapted to very dense breast or implants
  - Automatic windowing (window level and window width)
  - Other features: zoom, roaming, inversion, flip, rotation of images, window width and level setting, annotations and measurements
- In case of power failure, an Uninterruptible Power Supply (UPS) allows to close the examination without loss of information

Connectivity

- DICOM** 3.0 platform:
  - Modality Worklist User
  - Storage Provider
  - Storage Commitment User
  - Query/Retrieve User
  - Basic Grayscale Print User
  - Verification Provider
  - DICOM-compliant CD, DVD-R/-RW and USB Data Interchange
- Connectivity features: customizable Autopush to multiple DICOM databases, Autoprint, Autodelete based on Storage Commitment
- Modality Perform Procedure Step User
- Connectivity to GE Service for remote diagnostic capability
- IHE Profiles: Scheduled workflow, Mammography image, Tomosynthesis profile, Portable data for imaging, Consistent time integration

Quality assurance

- Complete quality control program
- Automation of quality control tests: Flat Field, MTF, AOP, SNR
- Test history and results can be reviewed
- Data can be exported for data tracking
- Automated Repeat and Reject Analysis

Radiation shield

- Choice between two radiation shields:
  - Integrated to the control console
  - Standalone

High voltage generator

- Generator Integrated into the gantry for room saving
- Generator type: high frequency single-phase power supply
- Ripple: < 4% from peak to peak
- Power: 5 kW max
- Generator max rating:
  - 2 to 600 mAs (depending on track, filter and kV)
  - 22 to 49 kV, in 1 kV steps depending on track
- Generator protection: software monitoring tube load

Standard configuration

- Motorized isocentric gantry
- X-ray tube with rotating Mo/Rh anode
- 24 x 29 cm flat panel detector
- Acquisition workstation
  - CD, DVD-R/-RW
  - 1MP or 3MP display
  - Control console
  - UPS
- Pair of dual foot-pedals
- Standard Face shield
- 24 x 29 cm bucky with grid
- 24 x 29 cm paddle
- 19 x 23 cm sliding paddle
- 1.5 and 1.8 magnification stands
- Quality control toolkit
- User manual and technical documentation

Options

- Additional 24 x 29 cm paddle
- Additional 19 x 23 cm sliding paddle
- 24 x 29 cm Flexible compression paddle
- 19 x 23 cm Flexible & sliding compression paddle
- 10x23 Sliding Implant/Small breast compression paddle
- Square spot sliding compression paddle
- Round spot sliding paddle
- 2D Localization 19x23 Swiss Cheese sliding compression paddle
- 2D Localization 19x23 sliding standard compression paddle
- 2D crosshair device
- X-Ray protective shield
- Bar code reader
- Printers compatibility: AGFA DRYSTAR AXYS
- Upgradable to Senographe Pristina 3D

System Power supply

- Input frequency: 50Hz/60Hz
- Input voltage: single-phase 200-240 V~
- EATON UPS 5P650 650VA

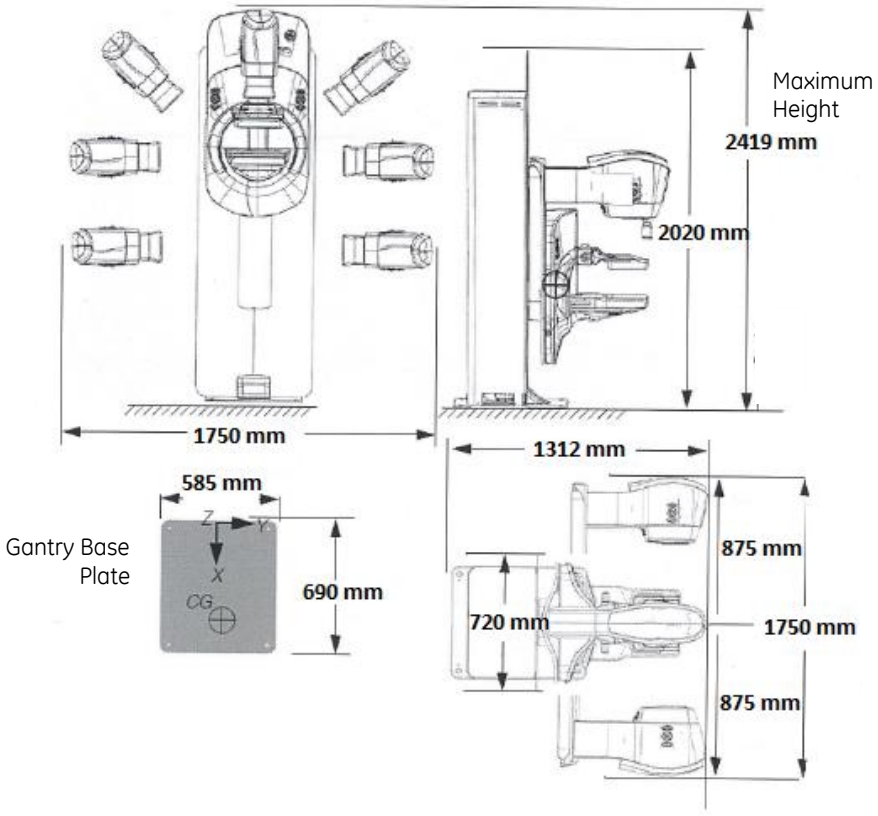
System Weight

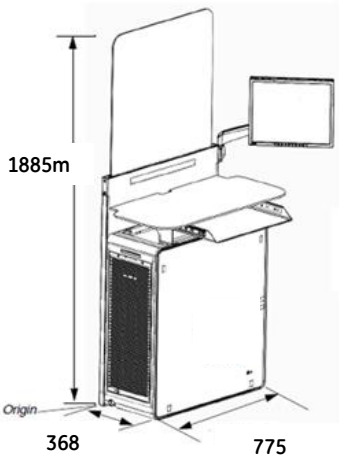
- Gantry: 420 kg
- Control Station without monitors: 160 kg

Environmental conditions

- Temperature range: 15° to 30°C
- Humidity range: 10% to 80%
- Atmospheric pressure range: 70 kPa to 106kPa (0 to 3000m altitude)

Senographe Pristina





NOTE:
- Weights and dimensions may vary slightly depending on equipment configuration.

Senographe Pristina it is not available in all countries.
Please refer to your GE Healthcare sales representative.

GE Healthcare
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GE imagination at work

Data subject to change.
Marketing Communications GE Medical Systems
Société en Commandite Simple au capital de 85.418.040 Euros
283, rue de la Minière, 78530 Buc France
RCS Versailles B 315 013 359
A General Electric company, doing business as GE Healthcare

UK: 0800 0329201	Spain: 0900 993620
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Austria: 0800 291888	Switzerland
Italy: 0800 786947	German: 0800 837279
	French: 0800 837279

About GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world.

GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

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