

3D Ultrasound for Breast Imaging

At Hologic, we strive to make advances toward greater certainty for our customers and their patients. On **SUPERSONIC™ MACH™ SYSTEMS**, 3D ultrasound imaging opens the door as an additional application in breast diagnostics and may support accurate interpretation.

SuperSonic MACH ultrasound systems now provides access to high-resolution B-mode and ShearWave™ PLUS elastography 3D volumes. It is equipped with:

- **3D breast software-based application** that offers unique visualizations of breast anatomy and detailed characterization of lesions (multiplanar and multislice displays).
- **LV 16-5 a volumetric transducer** that rapidly acquires 3D volumes of the breast.¹
- **Intuitive SonicPad™ touchpad** that gives clinicians the ability to easily manipulate the 3D volume.



SUPERSONIC™ MACH™

Introducing 3D Ultrasound Imaging on SuperSonic™ MACH™ Systems

Designed to enhance diagnostic certainty

Lesion characteristics and morphometry can be leveraged together with the coronal plane imaging to provide supplementary information.

- 3D breast ultrasound may provide **greater diagnostic information** due to whole volume images and the unique coronal plane.
- Resolution is maintained at all depths. For example, **lesions next to the pectoralis muscle** are easily visible to the clinician.
- It may also assist physicians in the **workup of difficult lesions**, such as patients with dense breasts.²

In addition, using **ShearWave™ PLUS elastography** may:

- Aid in the diagnostic workup of breast lesions and positively impact patient management.³
- Contribute to more accurate tumor size estimation⁴ and clear margin definition in the preoperative setting.
- Play a role in monitoring and evaluation of breast cancer patients during and after neoadjuvant chemotherapy.⁵

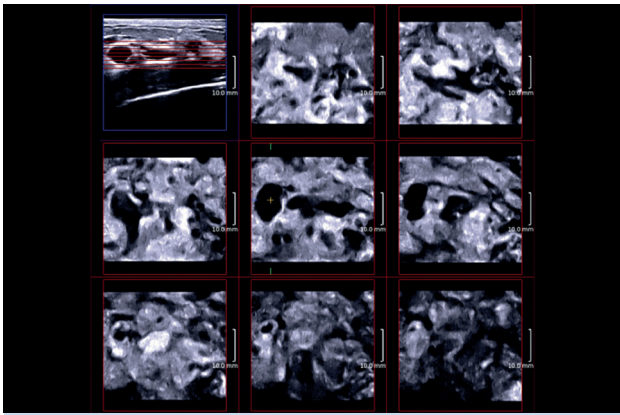
Our **ShearWave™ PLUS elastography** allows for dynamic evaluation of stiffness changes. Its added value to medical imaging landscape is recognized by major scientific societies in ultrasound⁶ and it is backed by a long track record of scientific research

Ultrasound provides **cost-effective, robust capabilities** to quickly assess anatomical structures and breast lesions **without any ionizing radiation exposure.**

Optimized workflow to facilitate reading and interpretation experience

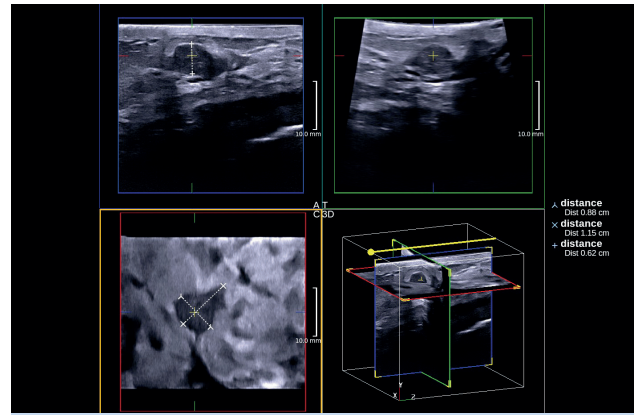
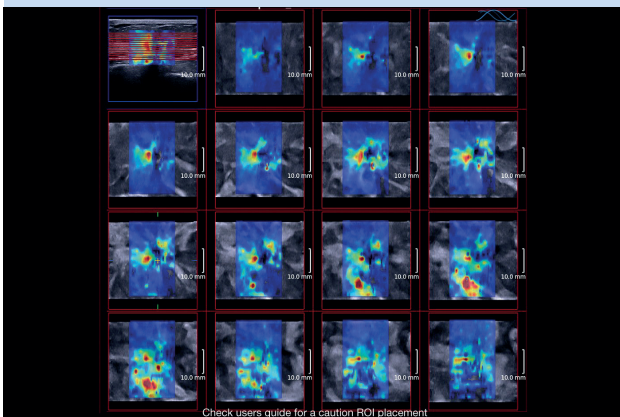


Once the ultrasound sweep is performed, 3D images are automatically stored and no additional handling is required.



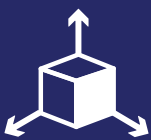
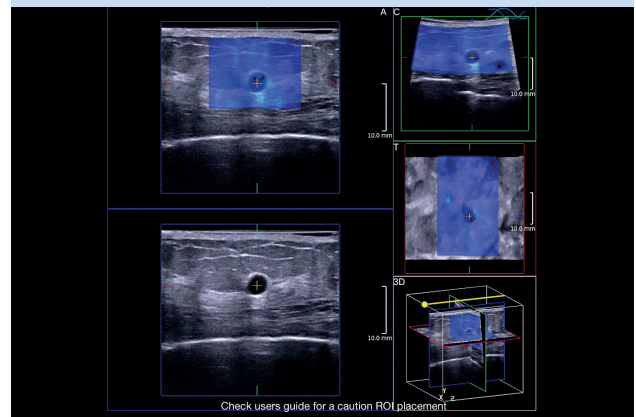
MultiSlice display allows 3D volumes of breast anatomy and lesions of interest to be viewed slice-by-slice.

- Slice thickness can be adjusted down to a minimum of 0.25 mm, which is particularly useful for small lesions.
- Automatic display of slices throughout the selected volume (up to 16 views).



MultiPlanar display allows for virtual reconstruction of slices through the acquired and stored volume in any orientation.

- Default display of the standard three orthogonal planes



3D display options provide the ability to lay out imaging planes for reading and interpretation.



Advanced navigation tools (translation and rotation) allow you to analyze areas of interest from a new perspective.



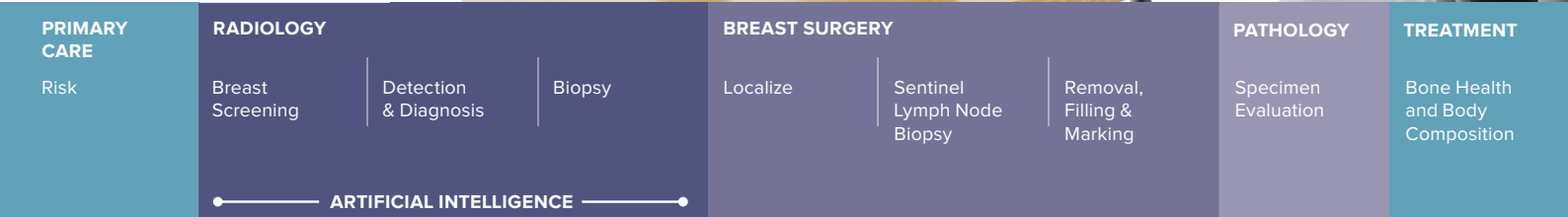
Measurement workflows are optimized to provide easy access to measurement results and volume evaluations (ellipse, distance and 3-distance volume tools).

Seamless Integration

with Hologic Continuum of Care

SuperSonic™ MACH™ systems were designed to integrate well with the infrastructure of PACS, archives and the image display already in place at your facility.

- Import mammography images retrieved from PACS for simultaneous display.
- Export the optimal view and images to the workstation for interpretation.



References

1. Please refer to SuperSonic™ MACH 30 system specification guide. 2. Berg WA, Blume JD, Cormack JB, et al. Combined screening with ultrasound and mammography vs. mammography alone in women at elevated risk of breast cancer [published correction appears in JAMA. 2010 Apr 21;303(15):1482]. JAMA. 2008;299(18):2151-2163. doi:10.1001/jama.299.18.2151 3. Chen YL, Chang C, Zeng W, et al. 3 Dimensional shear wave elastography of breast lesions: Added value of color patterns with emphasis on crater sign of coronal plane. Medicine (Baltimore). 2016;95(39):e4877. doi: 10.1097/MD.0000000000004877 | Shearwave elastography improves the specificity of breast US: the BE1 multinational study of 939 masses. Berg WA et al. Radiology. 2012 Feb;262(2):435-49. 4. Accuracy of tumor size measurement: Comparison of B-mode ultrasound, strain elastography, and 2D and 3D shear wave elastography with histopathological lesion size. Farrokh A, Maass N, Treu L, et al. Acta Radiol. 2018;60(4):451-458. doi: 10.1177/0284185118787354. | Shear-wave elastography contributes to accurate tumour size estimation when assessing small breast cancers. Mullen R et al. Clin Radiol. 2014 Dec;69(12):1259-63. 5. Feasibility of Imaging and Treatment Monitoring of Breast Lesions with Three-Dimensional Shear Wave Elastography. Athanasiou A, Latorre-Ossa H, Criton A, Tardivon A, Gennisson JL, Tanter M. Ultraschall Med. 2015 Mar 5. | Comparison of strain and shear-wave ultrasonic elastography in predicting the pathological response to neoadjuvant chemotherapy in breast cancers. Ma Y et al. Eur Radiol. 2017 Jun;27(6):2282-2291. | Shear-Wave Elastography for the Detection of Residual Breast Cancer After Neoadjuvant Chemotherapy. Lee SH et al. Ann Surg Oncol. 2015 Dec;22 Suppl 3:S376-84. 6. ACR BI RADS: Ultrasound (2015), KSUM Guidelines for breast elastography (2014), EFSUMB (2013) and WFUMB Guidelines

SuperSonic Imagine

For more information contact:

+33 (0)4 42 99 24 24

contacts@supersonicimagine.com



Indications for Use: The SuperSonic Imagine - SuperSonic™ MACH™ range ultrasound diagnostic systems and transducers are intended for general purpose pulse echo ultrasound imaging, soft tissue viscoelasticity imaging and Doppler fluid flow analysis of the human body. The SuperSonic™ MACH™ ultrasound diagnostic systems are indicated for use in the following applications, for imaging and measurement of anatomical structures: Abdominal, Small Organs, Musculoskeletal, Superficial Musculoskeletal, Vascular, Peripheral Vascular, Intraoperative, OB-GYN, Pelvic, Pediatric, Transrectal, Transvaginal, Urology, Neonatal/Adult Cephalic and Non-invasive Cardiac. In addition, the SuperSonic Imagine - SuperSonic™ MACH™ ultrasound diagnostic systems and associated transducers are intended for: measurements of abdominal anatomical structures; measurements of broadband shear wave speed, and tissue stiffness in internal structures of the liver and the spleen; measurements of brightness ratio between liver and kidney; visualization of abdominal vascularization, microvascularization and perfusion; quantification of abdominal vascularization and perfusion. The shearwave speed, beam attenuation, viscosity and stiffness measurements, the brightness ratio, the visualization of vascularization, microvascularization and perfusion, the quantification of vascularization and perfusion may be used as an aid to clinical management of adult and pediatric patients with liver disease. It is intended for use by licensed personnel qualified to direct the use of the medical ultrasound devices. CE certificate no. 26415, FDA cleared K180572.

2020 Hologic Inc., All rights reserved. Hologic, SuperSonic, Aixplorer, MACH, Aixplorer Multiwave, Planewave UltraSensitive, ShearWave, SonicPad, SWE and associated logos are trademarks and/or registered trademarks of Hologic, Inc., and/or its subsidiaries in the United States and other countries. This information is intended for medical professionals in the U.S. and other markets and is not intended as a product solicitation or promotion where such activities are prohibited. Because Hologic materials are distributed through websites, eBroadcasts and tradeshows, it is not always possible to control where such materials appear. For specific information on what products are available for sale in a particular country, please contact your local Hologic representative.