

## 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.<sup>1</sup>
- **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.<sup>2</sup>

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

- Aid in the diagnostic workup of breast lesions and positively impact patient management.<sup>3</sup>
- Contribute to more accurate tumor size estimation<sup>4</sup> and clear margin definition in the preoperative setting.
- Play a role in monitoring and evaluation of breast cancer patients during and after neoadjuvant chemotherapy.<sup>5</sup>

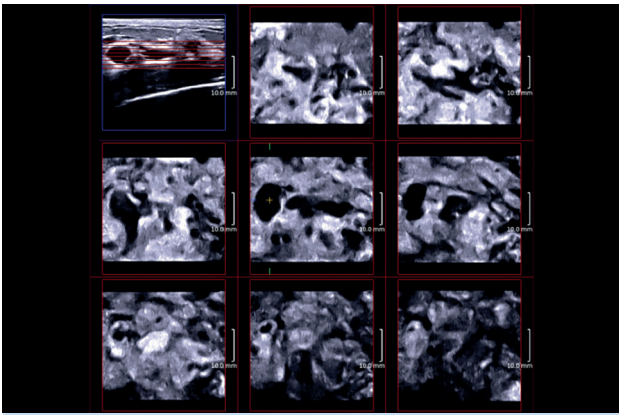
Our **ShearWave™ PLUS elastography** allows for dynamic evaluation of stiffness changes. Its added value to medical imaging landscape is recognized by major scientific societies in ultrasound<sup>6</sup> and it is backed by a long track record of scientific research

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

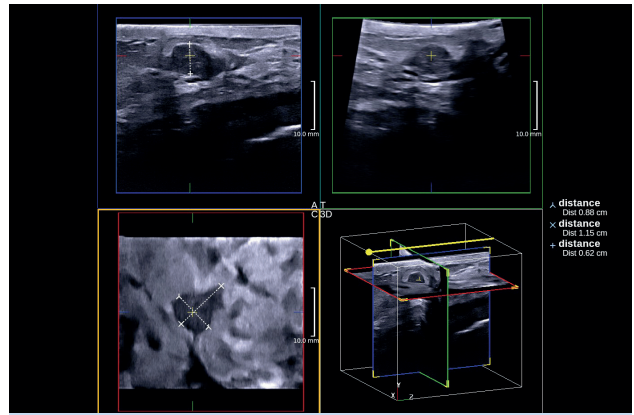
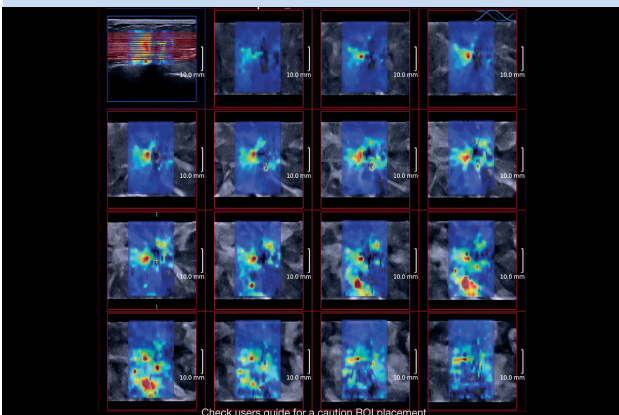


Once the ultrasound sweep is performed, 3D images are automatically stored and no additional handling is required.



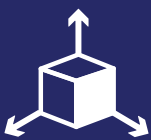
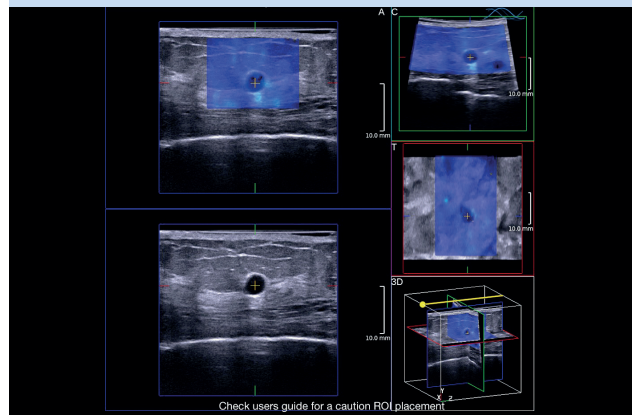
**MultiSlice display** allows 3D volumes of breast anatomy and lesions of interest to be viewed slice-by-slice.

- 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.



PRIMARY CARE	RADIOLOGY			BREAST SURGERY			PATHOLOGY	TREATMENT
Risk	Breast Screening	Detection & Diagnosis	Biopsy	Localize	Sentinel Lymph Node Biopsy	Removal, Filling & Marking	Specimen Evaluation	Bone Health and Body Composition

### 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

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A SuperSonic™ MACH™ ultrahangos diagnosztikai berendezés termécsalád és annak vizsgálófejei alkalmazási területe az általános radiológiai ultrahangos képalkotás, pulzus Doppler analízisek az emberi vérérdények áramlataiban valamint a szöveti rugalmasság/merevség elasztográfiás képalkotása. Az SuperSonic™ MACH™ ultrahangos képalkotó berendezés alkalmazási területeken képalkotási és az anatómiai struktúrákon mérési funkciók elvégzésére alkalmas: Hasi, Lágyrészek, Musculo-szkeletális, felületes Musculoskeletal, Errendszeri, Perifériás érrendszeri, OR-GYN, Nőgyógyászati, Gyerekgyógyászati, Transz-rektális, Transzvaginális, Urológiai, Újszülött és Felöltött Cephalikus és nem invazív Kardiológia. Kiegészítésként a vállalat SuperSonic™ MACH™ ultrahangos diagnosztikai berendezése és annak vizsgálófejei alkalmasak: hasi anatómiai struktúrák mérésére; a széles sávú shear wave sebesség mérése a belső szervek ( máj, lép) szöveti struktúrájában; komparatív szerkezeti szintónus elemzés a máj és a vese felületen; a hasi vaszkuláris megjelenítése; a mikrovaszkuláris és perifériás; a hasi vaszkuláris és perifériás kvantifikációja. A Shear Wave sebesség a merevségi mérések, a komparatív szerkezeti szintónus arányok mérése, a vaszkuláris megjelenítése, a mikrovaszkuláris, a vaszkuláris és perifériás kvantifikációja egy plusz segítség lehet a májkárosodásban szenvedő felnőtt vagy gyerek páciensek klinikai kezelésében. A berendezés kezelését csakis orvosi ultrahangos képalkotásban jártas és ilyen jogosultságokkal /engedéllyel rendelkező személyekkel ajánlatos tervezni. CE tanúsítvány no. 26415 - FDA jóváhagyás: K180572. A HOLOGIC SuperSonic Imagine magyarországi képviselete:

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