HITACHI
Inspire the Next

ARIETTA V70

NEXT GENERATION ULTRASOUND SYSTEM

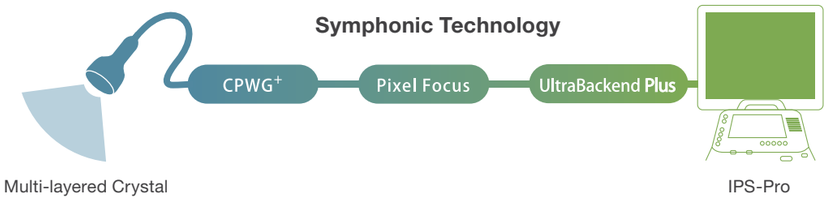
Sense and Visualize　Ultrasound

From prevention through diagnosis and treatment, ultrasound platforms are used to provide ever increasing levels of diagnostic information for many clinical applications. What ultrasound platform can meet these challenging requirements?
Hitachi manufactured one of the world's first diagnostic ultrasound platforms in 1960, and today ARIETTA incorporates all this technical know-how cultivated from our vast experience. With a strong level of basic performance able to detect the subtlest of changes and featuring many innovative technologies, the platform offers a high level of diagnostic performance and reliability to all its users.
It is ARIETTA V70. Next Generation Ultrasound System.

ARIETTA V70

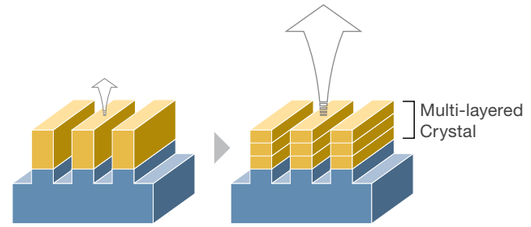
Clearly defined technologies of ARIETTA V70 underpin the outstanding quality of diagnostic images

The clinical performance of a diagnostic ultrasound system is built on the quality of the individual ultrasound beams. The advanced architecture of the ARIETTA V70 has been redesigned, its excellent performance created by the commitment to produce the highest quality "sound". Clearly defined technologies capture the subtlest of changes, steering you towards a rapid and accurate diagnosis.



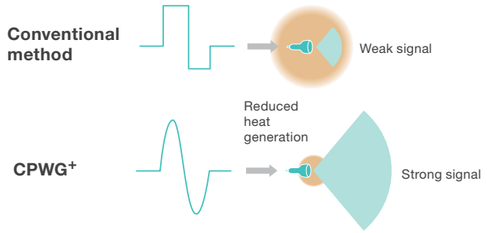
Multi-layered Crystal Technology

Hitachi uses an original technology to layer the piezoelectric elements, allowing more efficient transmission and reception of the ultrasound pulse with minimal energy loss, increasing both the sensitivity and clarity of the images.



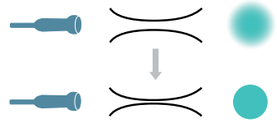
Front-end Technology

Enhanced S/N (signal to noise ratio) is achieved by integrating components of the probe connector to suppress noise. The Compound Pulse Wave Generator (CPWG+) produces efficient transmission waveforms that result in high sensitivity and resolution.



Pixel Focus

Focusing at pixel level for increased precision and clear delineation of the region of interest.



UltraBackend Plus

Fully software-oriented, high-speed computing is employed in the back-end enabling powerful image processing producing images with outstanding clarity.

IPS-Pro (In-Plane Switching) Panel Technology

With a high contrast ratio and wide viewing angle, the IPS-Pro monitor gives a rich representation of the displayed image.

Excellent scanning comfort supported by ARIETTA V70's usability

In order to achieve high-quality diagnostic images in various clinical settings, the ARIETTA V70 incorporates features that reduce stress and improve its ease-of-use. Detailed ergonomic design that meets recommended industry standards supports a comfortable working environment.

Lighter by 45%
We have achieved a weight reduction of 45% compared to our previous models. Combined with the adoption of large-sized casters, it makes the system very mobile.

User-friendly operation panel
Two-way multi rotary encoders enable the adjustment of many functions in one control, significantly reducing hand and arm movements. The large palm rest at the center of the operating console is designed to give optimum wrist support.

Adjustable panel height for your ease of use
The panel height can be lowered to 70 cm, allowing the operator to perform lower extremity examinations with a safe, comfortable reach to the operating console.

RADIOLOGY CLEARLY DEFINED

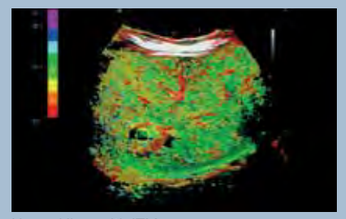
Reduce patient-dependent variability for safer, more accurate and faster examinations

In the radiology field, high-level accuracy and reliability are necessary to ensure early detection, precise diagnosis, and appropriate treatment. The ARIETTA V70 is equipped with advanced technologies that facilitate fast and accurate examinations.

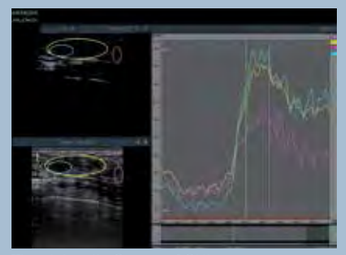
Small gallbladder stones with HdTHI

Portal varices with eFLOW

Liver lesion with CHI



Normal liver with ITM



Time Intensity Curves of CHI

High Quality Imaging

High-resolution B-mode/Doppler Mode
From wave generation to image display, Symphonic Technologies are harmonized, resulting in images with less noise, high penetration, and less patient-dependent variability.

HdTHI
Frequency bandwidth of harmonic signals are broadened, and the low-frequency coupled wave, most of which previously had not been used for imaging, is shifted into the transducer bandwidth. This improves spatial resolution and deep area penetration.

HI REZ
HI REZ performs spatial image processing several tens of thousand times per second. It reduces speckle noise, an artefact inherent in ultrasound images, to display the tissue structures more clearly without reducing the frame rate.

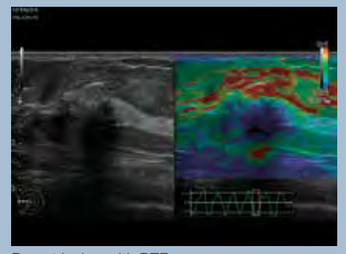
eFLOW
The high spatial resolution of eFLOW produces an accurate display of blood flow confined within the vessel walls even in fine vessels.

Contrast Harmonic Imaging (CHI)

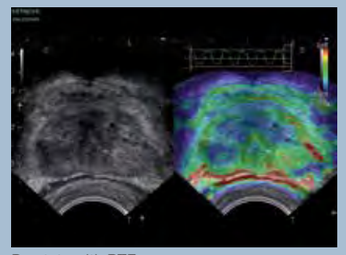
Increase Your Diagnostic Capabilities
Contrast-specific software is supported for use with contrast agents used with acoustic pressures from low to high MI. This is compatible with transducers for abdominal, cardiac and small parts. Amplitude Modulation mode can achieve improved sensitivity at depth over that of conventional pulse inversion methods.

Inflow-time Mapping (ITM)
ITM is a coloured parametric display of time to peak enhancement for each pixel in the display, to better differentiate tissues by their speed of contrast agent uptake.

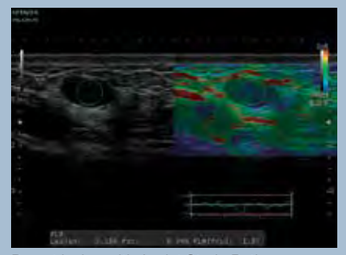
Time Intensity Curves
Time intensity curves can be used to quantify and display changes in contrast agent enhancement with time after injection in selected regions of interest.



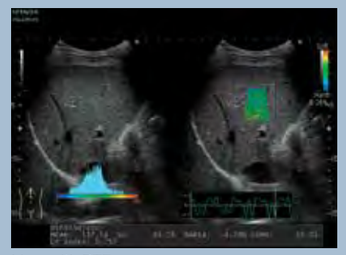
Breast lesion with RTE



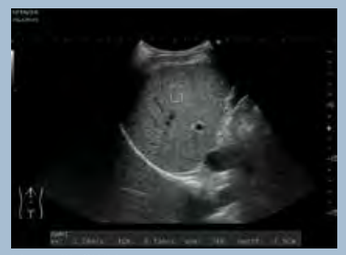
Prostate with RTE



Breast lesion with Assist Strain Ratio



Liver with RTE



Liver with SWM

Elastography

Real-time Tissue Elastography (RTE)
RTE assesses tissue strain in real time and displays the measured differences in tissue stiffness as a colour map. Its application has been validated in a wide variety of clinical fields: for the breast, thyroid gland and urinary structures. Using the abdominal convex transducer, it can also be applied for the assessment of diffuse liver/pancreatic disease.

Advanced Workflow
Auto Frame Selection: Higher reproducibility of Elastography is achieved and appropriate images for measurement are selected automatically without operator bias.
Assist Strain Ratio: Fat Lesion Ratio (FLR) can be used for quantification of regions of interest in the strain image. Assist Strain Ratio provides automatic FLR measurement, improving the reproducibility and the objectivity, whilst shortening the measurement time.

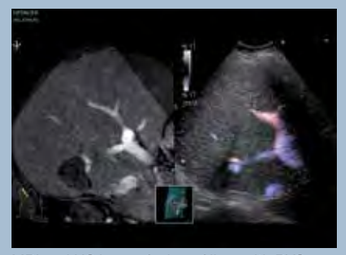
Abdominal Convex Transducer
RTE with the convex abdominal transducer offers intuitive assessment of liver fibrosis as an extension of the conventional B-mode examination. Its wide field of view enables easy ROI positioning, free from vessel artefacts and rib shadowing.

Shear Wave Measurement (SWM)
SWM incorporates a reliability indicator, VsN, from which the precision and reproducibility of the median shear wave speed measurement can be assessed. Combinational use of SWM and RTE is now achievable with one transducer, to gain a better understanding of the clinical condition of the liver.

SURGERY CLEARLY DEFINED

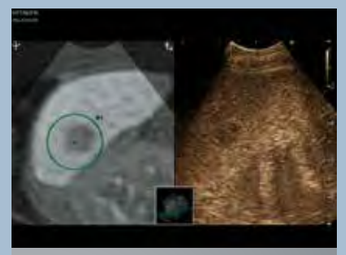
Emerging technologies offer reliable support for surgical precision

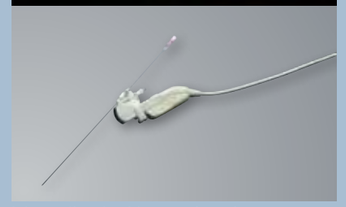
A diverse selection of transducers provides versatility for different surgical approaches. Advanced imaging modalities offer support that can lead to safer, more accurate diagnosis and treatment.



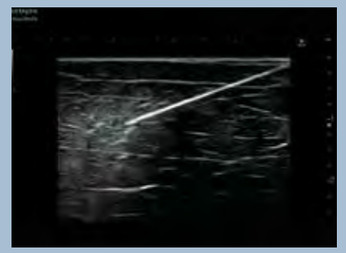
MRI and US image fusion of liver with RVS

Liver with 3D Sim-Navigator





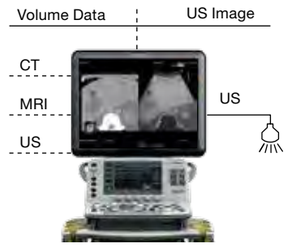
Interventional guidance using micro-convex transducer for biopsy



Interventional guidance using NE

Real-time Virtual Sonography (RVS)

Real-time Virtual Sonography (RVS)
RVS merges real-time ultrasound with previously acquired CT, MRI or ultrasound images. It allows a direct comparison of lesions taking advantage of the strengths of each imaging modality.

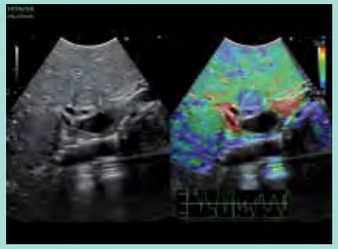


3D Sim-Navigator
In addition to RVS, the 3D Sim-Navigator simulates needle placement in fusion imaging mode. The positional relationship of multiple needles used for ablation treatment can be assessed using the 3D body mark created from the virtual CT or MRI volume data.

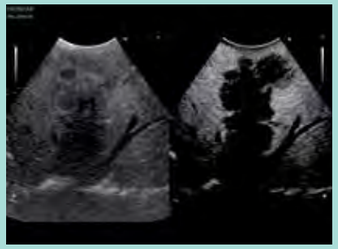
Interventional Guidance

Micro-convex Transducer for Biopsy Procedures
This transducer with a small footprint permits easy access and angulation of the scan plane from narrow intercostal spaces. This is advantageous for biopsy of liver segments V-VIII and can be used in conjunction with RVS to offer superior image guidance for RFA treatment.

Needle Emphasis Mode (NE)
NE enhances visibility of the needle to assist safe and accurate procedures.



Liver with RTE



Liver with CHI

Flexible intraoperative transducers

Intraoperative linear transducer (T-type)

4-way laparoscopic transducer

Various Scanning Approaches for Safe Surgery

Choose a transducer to match your particular surgical approach from our wide-ranging speciality line-up. Each transducer is designed for compactness and lightweight for easy operation while providing excellent performance.

Intraoperative Convex Transducer (T-type)
Held between the fingers, this transducer provides stability for scanning. CHI and RTE complement the high-definition B-mode and high-sensitivity Colour Flow Doppler. It can provide detailed information that contributes to the selection of the optimal surgical techniques.

Flexible Intraoperative Transducers
These transducers can be used with forceps commonly employed in laparoscopic procedures. The compact designs allow manipulation in small surgical fields.

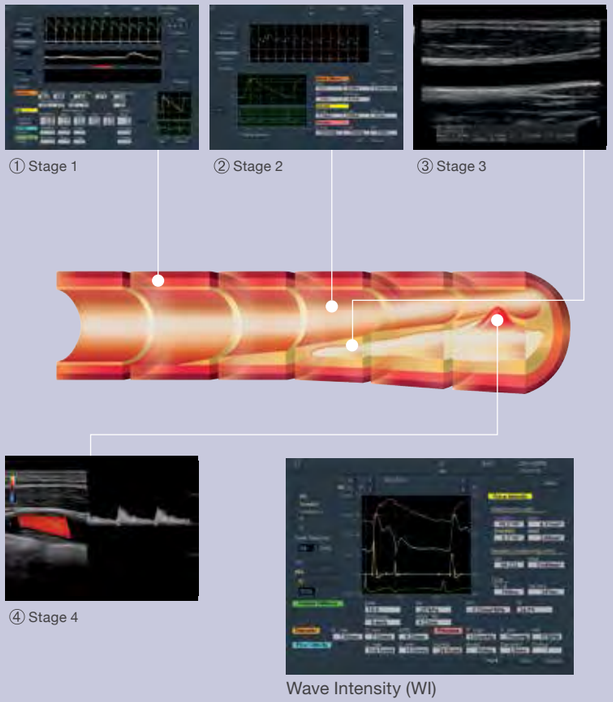
Intraoperative Linear Transducer (T-type)
The T-shaped linear transducer with high frequency and large aperture ensures high-resolution images across a wide field of view.

4-way Laparoscopic Transducer
Flexible laparoscopic transducer with vertical and horizontal flexion.

CARDIOLOGY CLEARLY DEFINED

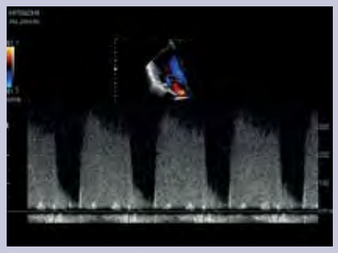
Monitoring the heart and vascular system – support disease prediction, early detection and diagnosis

ARIETTA V70 contributes to the early detection and diagnosis of cardiovascular disease using a variety of dedicated tools.



Wave Intensity (WI)

Long axis view with single crystal transducer



Continuous Wave Doppler

Single crystal

Piezoceramics

Blood Vessel Assessment - Atherosclerosis Diagnosis

① **Flow Mediated Dilatation (FMD)**
For non-invasive evaluation of endothelial function.

② **Evaluation of early Atherosclerosis (eTRACKING)**
Raw data is used to track the RF signal from the arterial wall to analyse changes in vessel diameter in real time.

③ **Automatic Measurement of Intima-media Thickness (IMT)**
The maximum and mean IMT are automatically calculated following the placement of the ROI on a long-axis section of the blood vessel.

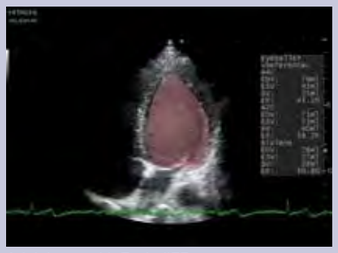
④ **Linear CW mode for evaluation of blood flow**
With CW Doppler mode, an accurate evaluation of high-grade stenosis is attainable with the linear transducers.

Interaction between Blood Vessels and Cardiac Function – Wave Intensity (WI)
WI evaluates the way in which the heart interacts with the arterial system. It is a calculation based on changes in blood pressure and flow velocity obtained at an arbitrary point in the circulatory system.

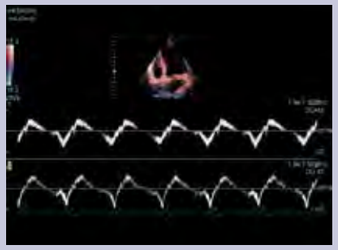
Excellence in Cardiac Imaging

B-mode images are displayed with minimal patient-dependent variability. Clarity of imaging with reduced noise contributes to faster examination times and improved workflow. A full complement of transducers includes versions for neonatal, paediatric and adult patients.

Single Crystal Transducers
The use of single crystal technology provides enhanced efficiency and stability for improved resolution and Doppler sensitivity.



Adult heart with EyeballEF

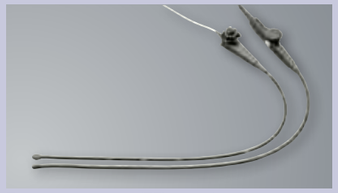


Adult heart with Dual Gate Doppler

Adult heart with 2DTT

Adult heart with Stress Echo

Long Axis view with Automated Cardiac Measurement



Transoesophageal (TE) transducers

Advanced Functions & Workflow

By implementing tools to support efficient examination, the burden of examiner and patient is reduced.

EyeballEF
Automatic tracing of the endocardium based on a built-in database of multiple tracings.

Dual Gate Doppler
Dual Gate Doppler enables observation of Doppler waveforms from two separate locations during the same heart cycle. The two traces offer blood flow and Tissue Doppler analysis in real time. Measurements such as the E/e' ratio can be performed while eliminating beat-to-beat variation.

2D Tissue Tracking (2DTT)
This speckle tracking technique provides precise quantitative measurements and information such as longitudinal and radial strain, torsion rotation angle, displacement, wall thickening or quantify myocardial mechanics.

Stress Echo
Multiple dynamic images taken before and after stress are simultaneously reproduced for effective evaluation of ischemic conditions and viability of cardiac muscle.

Automated Cardiac Measurement
Cardiac function measurements can be performed effectively with reference to a vast knowledge-based patient data bank. The EF (Teichholz) measurement is performed automatically, and Simpson method semi-automatically.

Transesophageal (TE) Transducers

The TE transducers are designed to reduce patient discomfort while providing high imaging performance.

-Rotary-plane TE transducer
-Motorized TE transducer

WOMEN'S HEALTH CLEARLY DEFINED

Reassurance delivered with more accurate, earlier diagnosis

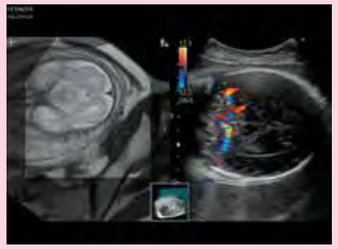
Accurate diagnosis of maternal and fetal well-being can be provided using a diverse range of advanced functions that offer more reliable diagnostic information, providing reassurance to parents.

Fetal face with surface rendering mode

Fetal face with 4Dshading

Fetal heart with HI REZ

Fetal heart with eFLOW



MRI-US image fusion of fetal brain with RVS

Bonding of Mother and Child

3D/4D Ultrasound Encourages Maternal-fetal Bonding
Three- and four-dimensional imaging can play a role as a prenatal communication tool, connecting a mother with her fetus. AutoClipper automatically defines an optimal cut plane to remove the placenta or other unwanted tissue signals in front of the fetal face, resulting in a clear surface-rendered fetal image.

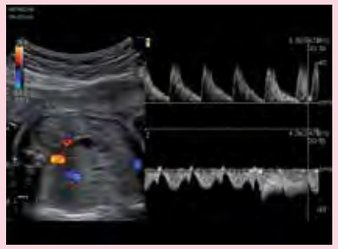
4Dshading
4Dshading is a rendering technology that simulates different positions of a virtual light source giving a more realistic appearance of natural shadows and skin texture to the 3D reconstructed image.

High-resolution B-mode Imaging
Clarity of detail in B-mode imaging is essential for fetal ultrasound examinations: to define the pregnancy, to observe fetal growth, and to exclude anomalies.

eFLOW
eFLOW is a flow mapping technology with exceptional spatial resolution. With accurate and detailed depiction of blood flow dynamics, both fine and larger vessels can be accurately presented.

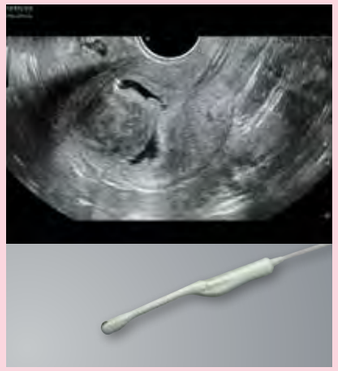
Real-time Virtual Sonography (RVS)
RVS fuses real-time ultrasound imaging with previously acquired CT/MRI data, taking advantage of the strengths of each imaging modality.

Fetal heart with AutoFHR

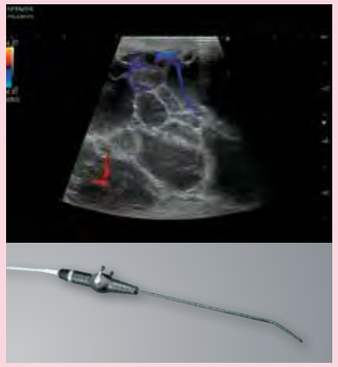


Fetal abdomen with Dual Gate Doppler

Fetal heart with STIC



Uterin myoma with transvaginal transducer



Interventional guidance with 4-way laparoscopic transducer

Functional Diagnostic Tools for Examination of the Fetal Heart

Starting from early pregnancy, we offer both basic and advanced features for detailed, reliable assessment of the fetal heart. Tools for screening, early detection, and follow-up treatment of fetal heart disease are supported.

AutoFHR
The fetal heart rate is automatically calculated from a tracking ROI placed over the fetal heart on the B-mode image. AutoFHR provides measurement of this important parameter without increasing the ultrasound power as with the Doppler or M-mode method.

Dual Gate Doppler
Dual Gate Doppler allows observation of Doppler waveforms from two different locations during the same heart cycle. Simple measurements from the two different waveforms can be useful in the diagnosis of fetal arrhythmia.

Spatio-temporal Image Correlation (STIC)
For the fast-moving fetal heart, multi-slice 3D volume data sets of one cardiac cycle are reconstructed for better observation of the normal and abnormal heart.

Women's Health

Tools for Treatment
A variety of transducers supports treatment of infertility and gynaecological diseases, as well as applications for therapy assistance.

Transvaginal Transducers
The transvaginal transducers are designed for patient comfort with a small insertion tip and thin shaft. They offer excellent image quality throughout the wide sector angle. Real-time Tissue Elastography is also supported.

4-way Laparoscopic Transducer
The flexible tip ensures a broad range of motion, and its trapezoidal scan mode effectively widens the field of view.

ARIETTA V70

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E457 (E) / 2015-12 EU-Version/EN, 03/2018/v2