

PHILIPS

Ultrasound

EPIQ CVx

Designed
for cardiology.
Built for
better care.

EPIQ CVx cardiovascular ultrasound system



Every heart matters

Today's cardiology departments are under pressure to implement cutting-edge imaging solutions that will not compromise workflow efficiency, diagnosis, treatment or patient care. At Philips, we understand your challenges as well as your commitment to providing outstanding diagnosis and care, fast. We also believe that, through specialized, patient-centric care, we can improve both outcomes and experiences. There's always a way to make life better.

Philips EPIQ CVx combines the premium performance of EPIQ with advances specifically designed for confident diagnostic decisions, easy workflow and seamless collaboration in the ever-more complex world of cardiovascular care. Start with the outstanding contrast of the organic light-emitting diode (OLED) monitor. Add leaps in transducer

technology, visualization, Anatomical Intelligence and 3D image alignment tools, and you have an ultrasound system designed for cardiology and built for better care. EPIQ CVx offers the high-quality images and clinical information to allow for answers with certainty. Because every patient matters, every image counts.

Building from the benefits of AIUS and protocols to provide the results or images the first time you apply our technology.

The premium ultrasound performance of EPIQ CVx can help address the strains on overburdened hospitals and healthcare systems, which are continually being challenged to provide a higher quality of care cost-effectively.

The goal? Improved clinical information from each scan, and faster and more consistent exams that are easier to perform and provide clinicians with a high level of confidence, even for technically difficult patients.

Designed for cardiovascular challenges

EPIQ CVx delivers the exceptional image quality you expect in a premium ultrasound system, along with exam efficiencies driven by new Anatomical Intelligence Ultrasound (AIUS) capabilities and a cardiology-focused interface. This superb image quality is now complemented by the latest OLED technology to bring to life the detail delivered by unique Philips **nSIGHT** Imaging.

Sharper, clearer images

95% of clinicians who saw the new EPIQ CVx believed it offered improved image quality.*1

AIUS across patients

Dynamic HeartModel^{AI}, built upon our HeartModel^{AI}, delivers a high level of robustness and reproducibility along with multi-beat quantification within one capture.

Efficient workflow

85% of clinicians who saw EPIQ CVx thought the customization of the user interface would improve their on-cart scanning workflow.**1

Improved communication among caregivers

TrueVue photorealistic 3D rendering aids communication of complicated echo images in the interventional suite, enhancing procedural confidence.



The OLED monitor offers outstanding visualization of anatomy.

* Based on responses from 42 respondents.

** Based on responses from 41 respondents.



89% of clinicians who saw the new EPIQ CVx perceived it as able to drive improved confidence during procedure guidance due to improved image quality, advanced workflow* and advanced visualization tools.**1

Confidence for even your most difficult cases

EPIQ CVx is a new direction for premium echo, featuring an exceptional level of clinical performance for diagnostic and interventional echo exams across a wide range of patients to meet the challenges of today's demanding practices.

* MultiVue – Live 3D cropping and MPR alignment tool. Based on responses from 38 respondents.

** TrueVue and the OLED monitor. Based on responses from 38 respondents.



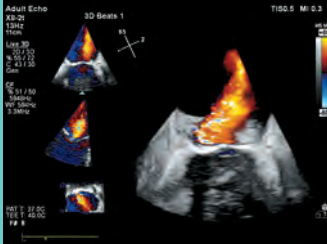


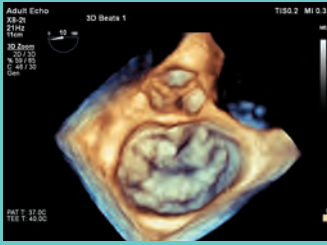


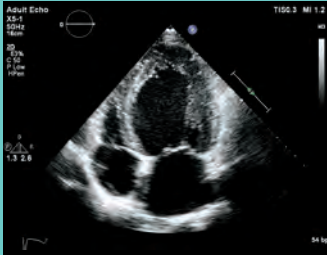
Creating new realities, redefining clinical expectations

Next-generation clinical capabilities

Philips pioneered groundbreaking technologies such as xMATRIX and PureWave. The revolutionary *n*SIGHT Imaging architecture and accelerated graphics processing unit (GPU) capabilities of EPIQ CVx make xMATRIX and PureWave even more powerful, providing for advanced visualization through photorealistic 3D rendering with moveable light source, our highest frame rates with Hyper 2D, and a system that's ready for the next generation of transducers and algorithms.

Superb resolution down to the pixel level

Proprietary *n*SIGHT Imaging architecture is unlike anything that has come before it. It captures an enormous amount of acoustic data from each transmit operation and performs digital beam reconstruction along with mathematically optimized focal processing to create real-time images with exceptional resolution and uniformity.

	Conventional	EPIQ CVx <i>n</i> SIGHT Imaging
Frame rate	 <p>Users must choose between frame rate and image quality.</p>	 <p>More than doubles the frame rate without impact to image quality. Creates focused images with fewer transmit operations so you can experience both highly detailed ultrasound images and extraordinary temporal resolution.</p>  <p>High volume rates in one-beat color zoom</p>
Uniformity	 <p>Best resolution is limited to transmit focal zone.</p>	 <p>Corrects focus during beam reconstruction for uniformity. Achieves uniformity through coherent beam reconstruction algorithms that apply mathematical focal correction coefficients continually at all depths of the image.</p>  <p>Live 3D volumes with good image quality throughout</p>
Penetration	 <p>Exhibits penetration limitations and poor sensitivity to weak signals.</p>	 <p>Superb penetration across full range of frequencies. Reinforces weak tissue signals with the ultra-wide dynamic range and unique beam reconstruction of the architecture, allowing enhanced penetration at higher frequencies, even on difficult patients.</p>  <p>X5-1 apical four-chamber view</p>



Place EPIQ CVx in sleep mode,
move it and boot up in seconds.

Revolutionize your user experience

EPIQ CVx completely reinvents the premium ultrasound user experience. Advances in ease of use, workflow, ergonomics and portability mean we've revolutionized how you interact with the ultrasound system from every angle, while keeping it beautifully intuitive.

Customizable interface designed for cardiology

Your most-used controls are now right where you want them. EPIQ CVx has a user interface configurable to your needs to drive efficiency, with a redesigned rotary function to reduce accidental button pushes and provide seamless entry to TDI PW, and a layout of controls that you've told us is most meaningful to you.

92% of clinicians who saw EPIQ CVx believed it would be easy to operate.*¹ Place the controls you need most often on the first screen display, reducing the need to swipe to the second page.

* Based on responses from 42 respondents.

Amazingly portable

Easily transport the lightweight EPIQ CVx on both carpet and tile floors. The monitor folds down to reduce overall system height for transport, and the integrated cable hooks and catch tray are ideal for portable studies. Wireless DICOM allows studies to be sent to the reading station or PACS while mobile.

A new dimension to 3D workflow

Fast, efficient exams save clinician time and provide for an excellent patient experience. With an interface designed specifically for cardiology and new 3D workflow tools such as QuickVue, FaceCrop, AutoVue and MultiVue, we have reduced the number of steps needed to get the data you want from any volume acquisition and for greater capabilities during interventional exams.

QuickVue

The intuitive workflow of QuickVue allows easy cropping of a Live 3D data set during imaging review or during interventional procedures.

AutoVue

A single click with AutoVue lets you obtain specific and standardized views of cardiac structures during Live 3D imaging.

Advancing interventional procedures

EPIQ CVx with MultiVue alignment puts control in the hands of the echocardiologist to deliver the right image at the right moment. MultiVue allows one-click cropping of a Live 3D image during interventional procedures, and one-click alignment of the catheter within cardiac anatomy. This was previously not possible using manual tools. Get better visualization of cardiac structures for procedure guidance in fewer steps, confidently visualize the region of interest for echo-guided interventional procedures such as mitral valve repair, and obtain faster 3D measurements for device sizing.

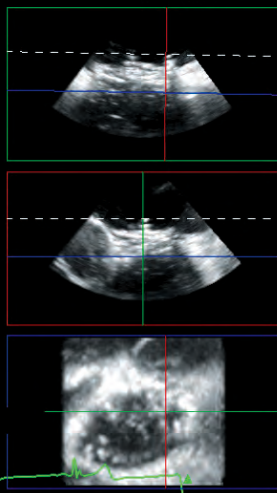
94% of clinicians who saw the new EPIQ CVx thought the EPIQ MultiVue real-time alignment solution could help to reduce the risk of choosing an incorrectly sized device during interventional procedures.*¹

Adult Echo

X8-2t
12Hz
5.3cm

3D Zoom
20 / 30
% 53 / 33
C 50 / 30
Gen

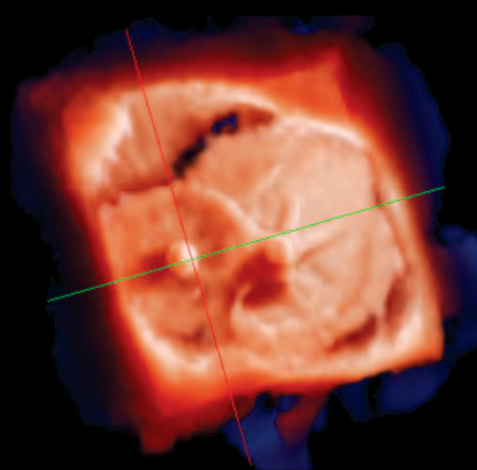
3D Beats 1



PAT T: 37.0C
TEE T: 33.9C
F# 25

TISO.2

MI 0.3



M4



46 bpm

MultiVue image alignment with TrueVue

* Based on responses from 38 respondents.

Extraordinary by any measure

Crystal clear

Visualization just got sharper with the Philips second-generation OLED monitor, which delivers increased dynamic range, wider color range and a 180° viewing angle.

Advanced visualization techniques and quantification tools of EPIQ CVx make ultrasound more definitive, even for more challenging patients.

Full high-definition viewing

At the touch of a button, Philips MaxVue allows you to experience ultrasound imaging in 16:9 full high definition, displaying 1,179,648 more image pixels than standard format mode. This display helps optimize viewing from a distance during interventional procedures, as well as enhances viewing of side-by-side, color compare, Live xPlane, Live 3D, MPRs, and stress echo images.

Make your image **38% larger** than the traditional ultrasound image with no loss of resolution.

Standard
format 4:3
1024 X 768
pixels

MaxVue
Full high-definition
format 16:9
1920 X 1080 pixels

Library quiet

EPIQ CVx is almost silent while running (37-41 dB, which is equivalent to the sound of a library) and is extremely welcome in small scanning and examination rooms.

Scanning comfort

Multiple degrees of articulation for both the control panel and monitor with 720° of freedom allow for ergonomic alignment, whether sitting or standing.

Smart for a reason

Philips SmartExam decreases exam time by 30-50% and keystrokes by as many as 300 per exam, and results in a high level of consistency among users.² It is fast and easy to customize, providing consistent annotation, automatic mode switching, and missed view alerts to streamline exams.

SmartExam also drives ZeroClick automation within Q-Apps for more complex analysis. The result is more time to focus on your patients, increased confidence in complete studies, less focus on requirements, less repetitive motion, less stress, and improved schedule maintenance and departmental efficiencies.

Auto Doppler for vascular imaging

Auto Doppler takes time-consuming color box positioning and sample volume placement from ten steps to three steps and reduces the number of repetitive button pushes by an average of 68%.

Active native data

Active native data allows for post-processing of many exam parameters, as well as providing the ideal format for Q-App quantification.

At home in the dark

EPIQ CVx offers easy viewing and efficient use, even in darker scanning environments, with a large and wide screen and ambient lighting for subtle visual cues. Four transducer ports decrease the amount of plug/unplug required during a day of scanning.

EPIQ CVx makes it easy to be green

25%
less power

EPIQ CVx is one of the greenest systems we have ever designed. It consumes 25% less power than our legacy premium ultrasound.



Maximize extreme clinical capabilities

Our most leading-edge, versatile transducer technology

No other premium ultrasound systems can run the complete suite of the world's most innovative ultrasound transducers. With the touch of a button, xMATRIX offers all modes in a single transducer: 2D, M-mode, color Doppler, Doppler, iRotate, Live xPlane, Live 3D, Live 3D Zoom and Live 3D Full Volume.

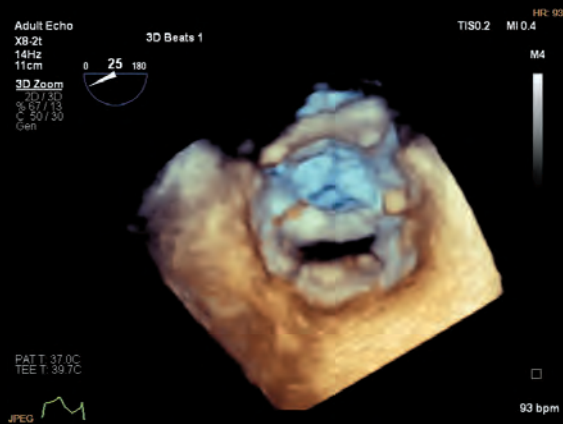
"Truly live" 3D echo

For Live 3D imaging in any mode, use our true one-beat volume acquisitions with high volume rates to visualize either wall function or flow dynamics more effectively. The lack of need for EKG triggering also simplifies the

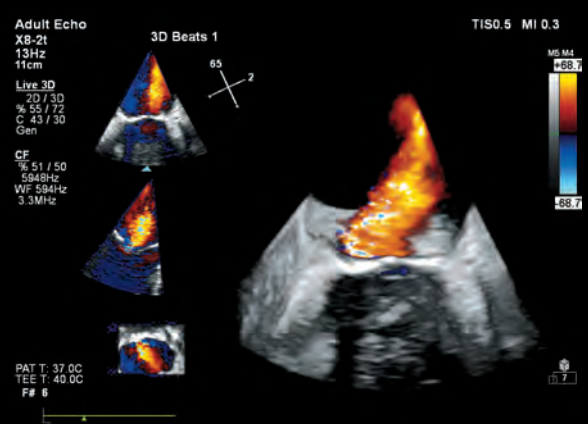
use of Live 3D because it eliminates the risk of stitching artifacts inherent when imaging patients in arrhythmia or with breathing difficulties.

3D throughout the care cycle

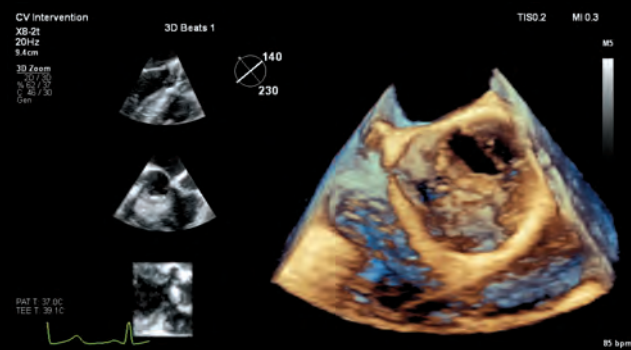
From transthoracic to transesophageal echo, EPIQ CVx helps you bring Live 3D to the forefront of your diagnostic and interventional echo research and practice. Start in the 2D space and seamlessly move into "truly live" Live 3D Echo. For all patients, even in arrhythmia, from assessing ejection fractions to flow dynamics, Philips helps you incorporate 3D throughout the entire care cycle.



Live 3D Zoom of mitral and aortic valve



Live 3D Zoom of mitral and aortic valve

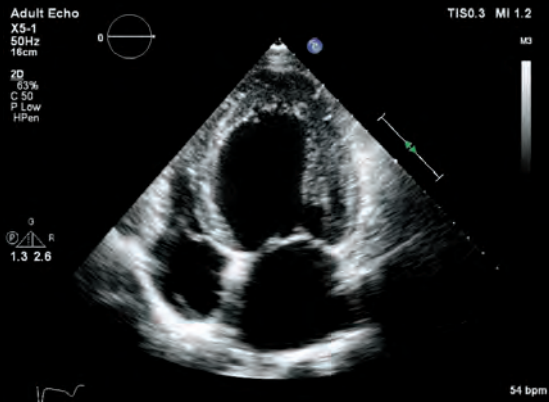


Live 3D Zoom of AV with MPRs



Live 3D Zoom of mitral valve and mitral catheter

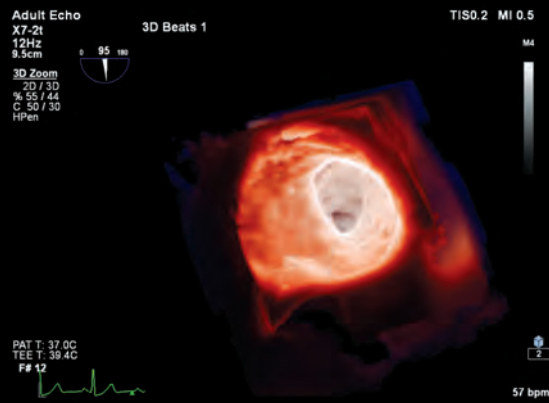
Definitive



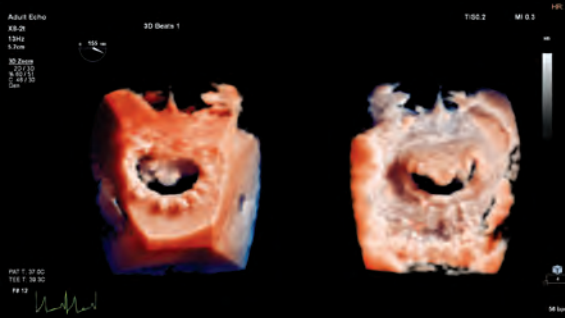
Apical four-chamber view with X5-1 transducer



Coronary view with S9-2 transducer



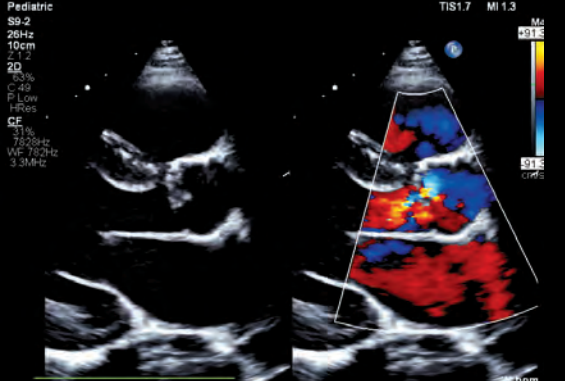
Live 3D Zoom of LAA using TrueVue



3D Dual Volume of mitral valve

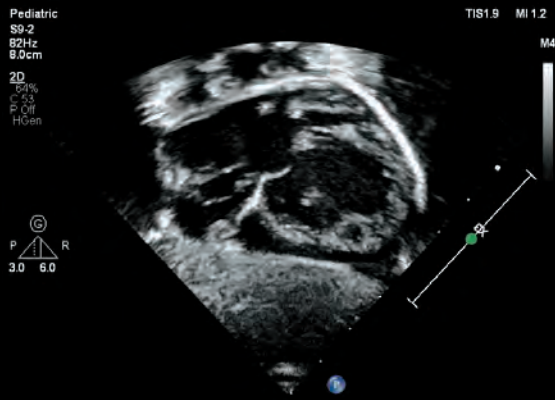


2D image of carotid bulb with L12-3 transducer

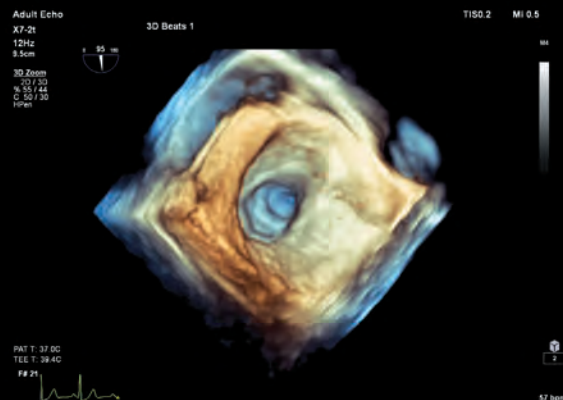


Color compare of PLAX

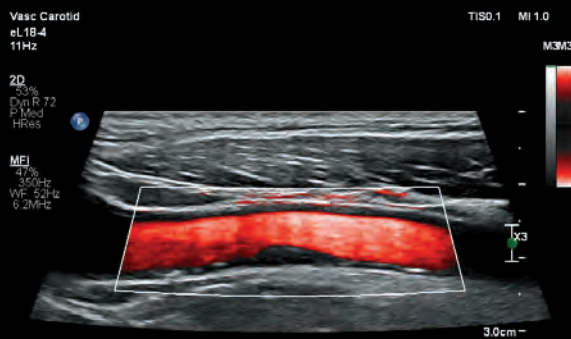
New levels of clinical information



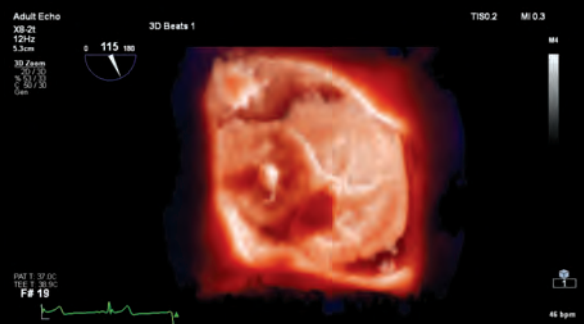
Subcostal view of PFO using S9-2 transducer



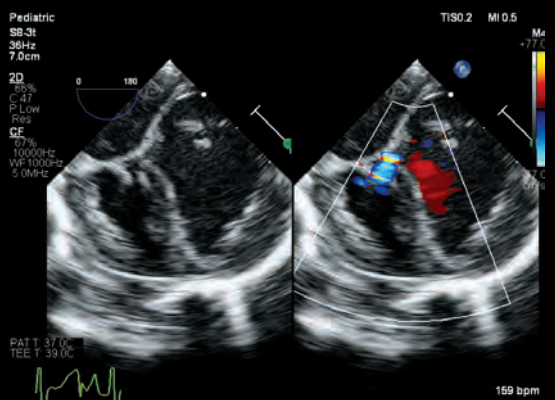
Live 3D Zoom of LAA



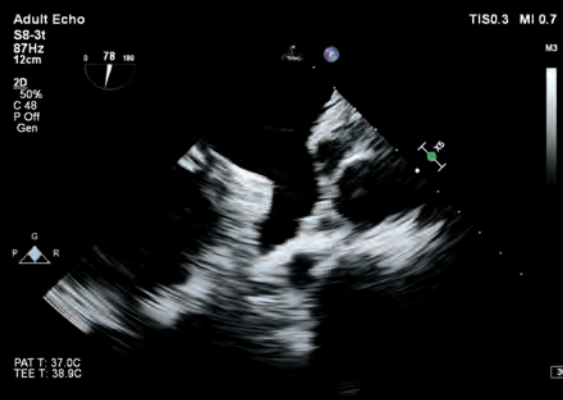
Carotid flow using MicroFlow Imaging



Live 3D Zoom with TrueVue of amplatzer devices



Color compare image of ASD using S8-3t transducer



LAA image in adult using S8-23t transducer

Advances for even the smallest patients



Philips offers the widest range of 2D and 3D transthoracic and transesophageal diagnostic transducers to meet your echo needs across your patient population, from fetal to adult congenital. A depth of imaging capability combined with streamlined cardiac workflow reduces the steps and time needed for these especially challenging exams.

PureWave comes to pediatrics

The next-generation pediatric 2D TTE PureWave S9-2 transducer allows you to visualize extraordinary levels of detail and contrast resolution with exceptional penetration at higher frequencies through ultra-wide bandwidth and

next-generation single crystal technology that reinforces exceptional tissue information at greater depths with less noise. The S9-2 transducer comes with a one-button coronary sub-mode designed for easier and faster evaluation of the coronary artery.

Advanced fetal echo imaging

In addition to curved array transducers C5-1 and C9-2, EPIQ CVx provides superb early echo imaging for the fetal exam through the X6-1 xMATRIX transducer, intelligent spatiotemporal image correlation (iSTIC) capability, and the eL18-4 PureWave linear transducer.

Exceptional performance

- 92% of clinicians who see pediatric patients and saw the new EPIQ CVx thought they would be able to detect disease states such as Kawasaki's, anomalous coronaries or coronary artery fistulas better with the EPIQ CVx coronary sub-mode than with their current systems.*¹
- 92% of clinicians who work with pediatric patients and saw the new EPIQ CVx thought the coronary sub-mode on EPIQ CVx would enable them to evaluate coronary arteries and flow more quickly and more easily.*¹
- 92% of clinicians who see pediatric patients and saw the new EPIQ CVx thought the new PureWave S9-2 transducer would allow for superior imaging in 2D mode.*¹

* Based on responses from 13 respondents.



From fetal to pediatric to adult congenital exams, Philips offers a transducer to meet your challenges.

Live 3D imaging

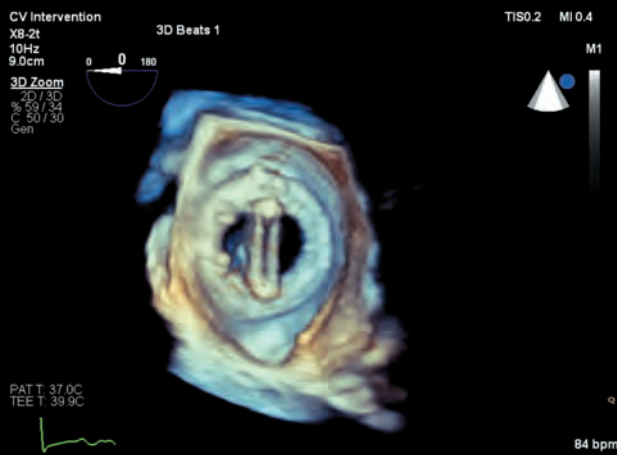
Philips xMATRIX performance becomes even more powerful with the X8-2t Live 3D transesophageal transducer. Its acoustic design provides higher frequencies and width, providing increased resolution and tissue filling in 2D and Live 3D.

Acquisitions in a single beat

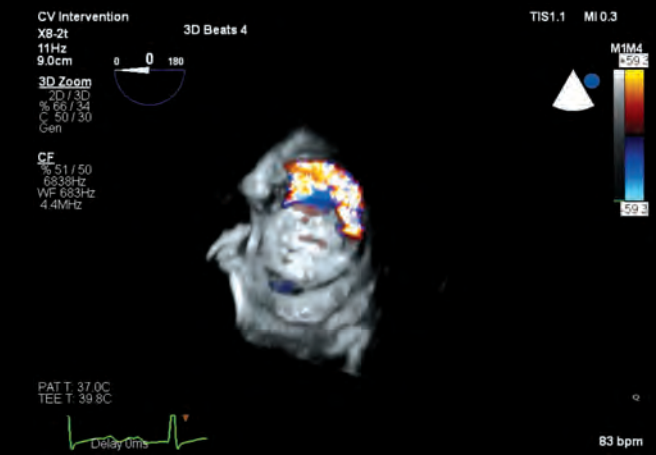
The X8-2t brings true one-beat acquisitions and our highest volume rates in Live 3D and Live 3D color flow to transesophageal imaging, without compromise to image quality. Its handle is designed with a real-time configurable function button, allowing for additional functionality while imaging.



X8-2t xMATRIX transducer for next-generation Live 3D TEE.



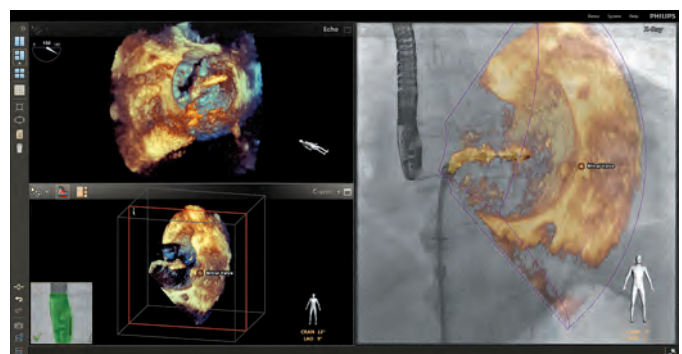
Live 3D Zoom of mitral valve replacement



Live 3D Zoom of perivalvular leak

EchoNavigator iXR integration

Connectivity to EchoNavigator via the digital network link enhances communication on modern structural interventions using 3D TEE. Users can appreciate anatomy with multiple views of Live 3D TEE, availability of virtual echo scanning, and echo target localization on fluoroscopy. The real-time integration of EchoNavigator between fluoroscopy and Live 3D TEE provides automatic registration and tracking, all controlled tableside.



Live 3D TEE and X-ray real-time fusion imaging during a MV repair procedure.

True illumination

Philips cardiac TrueVue, with its virtual light source, is a proprietary advanced 3D ultrasound display method that delivers amazing, lifelike 3D ultrasound images, and gives you the ability to move the light source anywhere in the 3D volume.

Better visualization of interventional devices

TrueVue photorealistic 3D rendering is designed for better visualization of interventional devices. TrueVue's virtual light source and the simulation of light interacting with tissue can make it simpler to visualize the location of catheters and devices relative to anatomy during interventional procedures. It can help with the communication of complicated echo images among caregivers in the interventional suite, providing viewing context for the echo image to enhance procedural confidence.

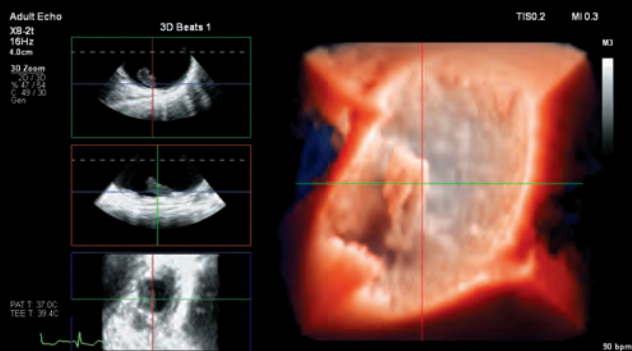
For all 3D volumes

TrueVue illuminates tissue detail and creates depth perception like never before with all 3D volumes, diagnostic or interventional, on TTE and TEE. It can help with the communication of complicated echo images among caregivers in the interventional suite, providing viewing context for the echo image to enhance procedural confidence. By combining Philips exceptional image quality with the photo-realistic echo imaging of TrueVue, EPIQ CVx brings your 3D images to life.

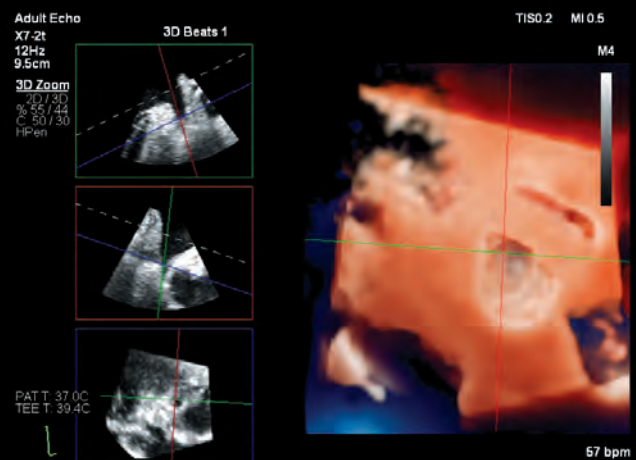
90% of clinicians who saw the new EPIQ CVx felt the new TrueVue 3D photorealistic rendering improved viewing of anatomical structures, thus increasing clinical confidence.*¹

Fingertip control with TouchVue

The touchscreen user interface has been designed to improve 3D workflow, and allows users to pinch, zoom and rotate the 3D data set via fingertip control.



Live 3D Zoom showing LA mass using TrueVue



Live 3D Zoom of LAA using TrueVue

* Based on responses from 42 respondents.



Quantification
that's easier than ever

Intelligence turns images into answers

EPIQ CVx is our most intelligent premium ultrasound system ever, offering a complete set of easy-to-use quantitative tools to turn reproducible data into information to guide treatment.

Anatomical Intelligence Ultrasound (AIUS)

More data is available than ever before, requiring tools for you to simplify and quicken the process of acquiring reproducible data and turning it into valuable information for your patients.

At the heart of this powerful architecture is Philips AIUS, designed to elevate the ultrasound system from a passive to an actively adaptive device. With automatic anatomical recognition, protocols for automatic functionality and proven quantification, exams are easier to perform and more reproducible, and deliver new levels of clinical information.

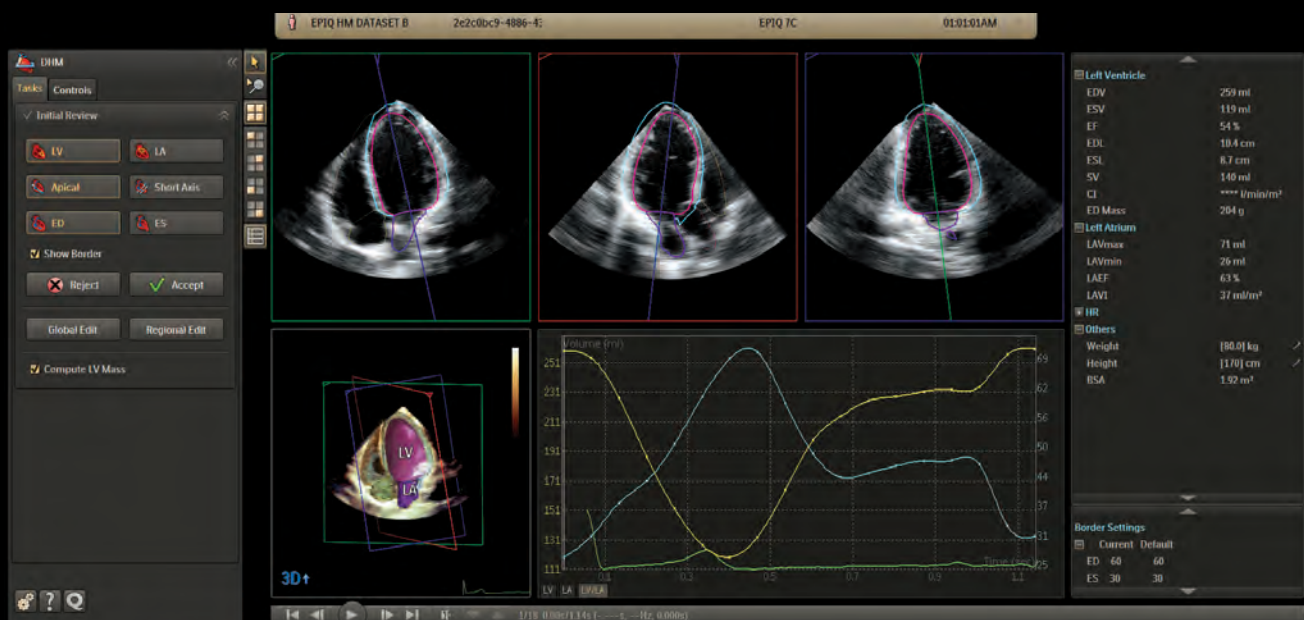
Built-in models drive exam simplification

The robustness of AIUS is driven through advanced algorithms built from multiple data points from many different heart shapes with various cardiac conditions. Sophisticated modeling adapts to certain atlas shapes to a patient's individual organ to help drive either automation of repetitive steps or more complete computer-driven analysis with minimal user interaction.

Dynamic HeartModel^{AI} full cycle cardiac quantification

HeartModel^{AI} is a 3D tool that can provide robust, reproducible ejection fraction (EF) in just seconds. This intuitive and validated application is designed to deliver the confidence of cardiac chamber quantification that fits into everyday workflow. Dynamic HeartModel^{AI} shows moving contours for left ventricle (LV) and left atrium (LA) volumes. It also offers measurement of LV mass, cardiac index, complete LA volumes, and index. A multi-beat analysis allows the user to analyze different beats from the same acquisition and average the results with one acquisition.

97% of clinicians who saw the new EPIQ CVx believed quicker left-heart quantification would result in increased lab throughput.*¹



Dynamic HeartModel^{AI}

Automated mitral valve measurement

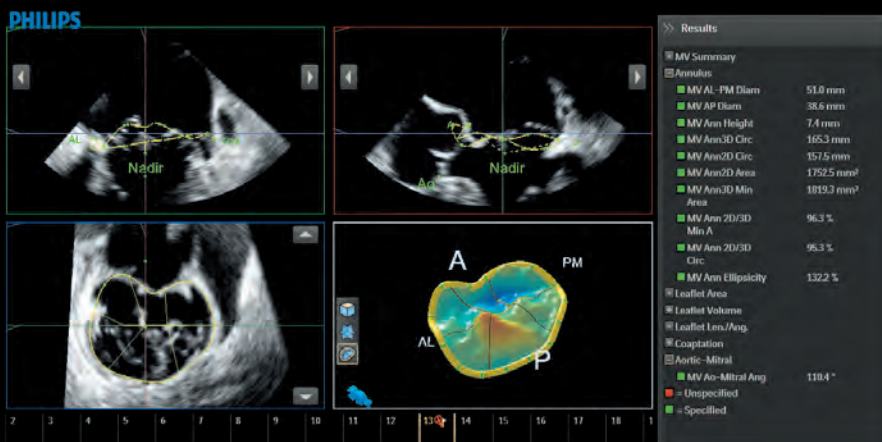
The Mitral Valve Navigator^{A.I.} (MVN^{A.I.}) is a Q-App designed to take a Live 3D volume of the mitral valve and turn it into an easy-to-interpret model in eight guided steps, providing access to a comprehensive list of MV measurements and calculations. Internal comparison of MVQ to MVN^{A.I.} Q-Apps measured 89% fewer clicks, meaning essential data can be captured more efficiently.

Automated speckle analysis

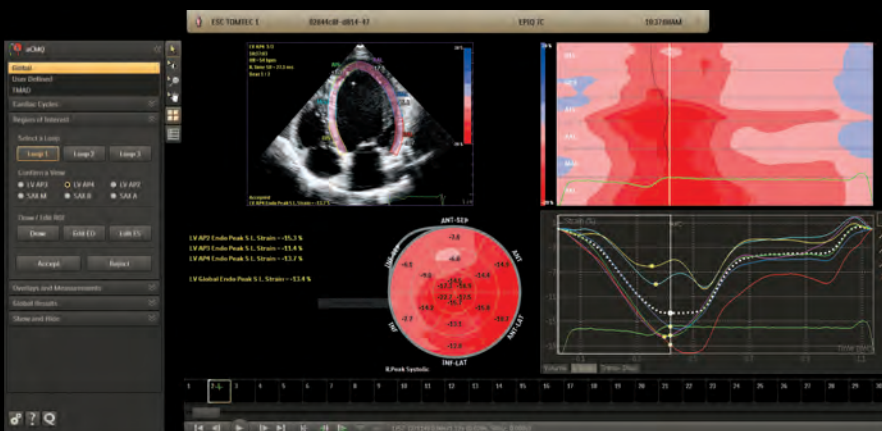
Automated Cardiac Motion Quantification^{A.I.} (aCMQ^{A.I.}) uses speckle mechanics to provide 2D global longitudinal strain (GLS) speckle measurements. An EF is also calculated for a holistic evaluation of the left ventricle function.

EF on all your patients

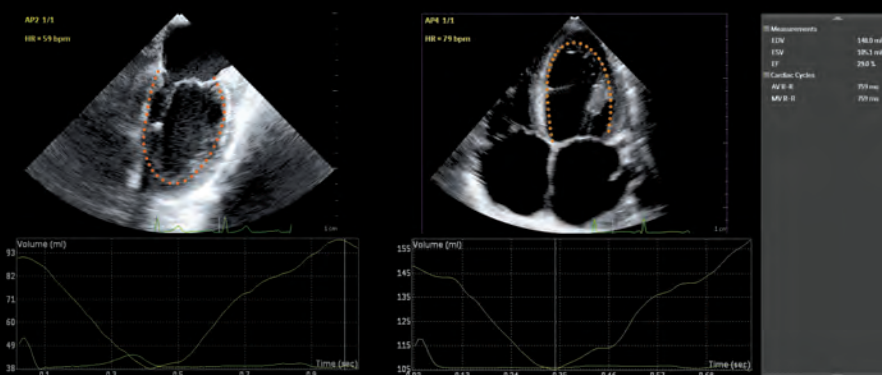
Automated 2D Cardiac Quantification^{A.I.} (a2DQ^{A.I.}) is the ideal tool for every echo lab and provides rapid access to proven 2D ejection fraction and volumes. AutoEF is available during the study, and so fits in with an everyday echo protocol.



MVN^{A.I.} takes a Live 3D volume of the mitral valve and turns it into an easy-to-interpret model in just eight guided steps.



aCMQ^{A.I.} with four-up display allows for easier reading of quantification data.



a2DQ^{A.I.} with ZeroClick technology for fast, reproducible EF on all your patients.

A smart investment

Built to withstand the rigors of daily use, EPIQ CVx offers low operating costs and is backed by Philips support and value-added services. The EPIQ CVx system boasts a low total cost of ownership, making it a smart investment.

Enhance uptime

- Modular design for enhanced reliability and rapid repair
- Philips remote services* monitoring, which corrects issues using a standard Internet connection, reducing the need for service calls
- Access to our award-winning service organization

Responsive relationships

The value of a Philips ultrasound system extends far beyond technology. With every EPIQ CVx system, you get access to our award-winning service organization, our competitive financing, and educational programs that help you get the most out of your system.

EPIQ CVx offers a defense-in-depth strategy, implementing a suite of security features designed to help clinical IT professionals and healthcare facilities provide additional patient data privacy and virus protection, as well as protection from unauthorized access via the ultrasound systems on hospital networks.



Support request button for immediate access to Philips support.



Philips OmniSphere data intelligence tools help you manage your department, maximize resources and improve workflow.



Exceptional serviceability

The system features a superb modular design for rapid repair.

* Not all services available in all geographies; contact your Philips representative for more information. May require service contract.

Count on us as your patients count on you

The value of a Philips ultrasound system extends far beyond technology. With every EPIQ CVx system, you get access to our award-winning service organization,* competitive financing and educational tools that help you get the most out of your system.**

Always there, always on

We work as one with your team to keep your EPIQ CVx system running smoothly.

Remote service capabilities maximize efficiency

Easy, rapid technical and clinical support through remote desktop enables a virtual visit with a Philips expert.

If you prefer to keep your know-how in-house, the OmniSphere Remote Technical Connect application† allows your BioMed team remote access to Philips systems on your network so that you can have remote service capabilities your way.

Proactive monitoring solutions maximize uptime

Philips proactive monitoring increases system availability by predicting potential system disruptions and proactively acting on them, letting you focus on what is most important – your patients.

Immediate support request at your fingertips

The support request button allows you to enter a request directly from the control panel, for a fast and convenient communication mechanism with Philips experts without leaving your patient, minimizing workflow interruption.

On-cart transducer test provides confidence in your transducer quality

On-cart transducer test provides a non-phantom method to test EPIQ transducers at any time, giving you confidence in your diagnostic information.

Sharing risk, increasing the return on your investment

Partner with us to maximize utilization and uptime of your EPIQ CVx system.

Utilization reports for confident decision-making

Data intelligence tools can help you make informed decisions to improve workflow, deliver quality patient care and decrease the total cost of ownership. The on-board utilization tool provides individual transducer usage data and the ability to sort by exam type. The OmniSphere Utilization Optimizer takes this a step further by providing easy-to-use charts and graphs for all of your applicable† networked Philips systems.

Understanding your needs, designed for you

Our flexible RightFit service agreements, education offerings and innovative financing solutions can be adapted to meet your needs and strategic priorities.

- **Technology Maximizer Program:** helps keep your system performing at its peak by continuously providing the latest software from Philips at a fraction of the cost of the same upgrades purchased individually over time.
- **Xtend Service Coverage:** lets you choose additional service coverage for your ultrasound equipment at the time of purchase to more easily calculate your total cost of ownership.
- **Clinical education solutions:** comprehensive, clinically relevant courses, programs and learning paths designed to help you improve operational efficiency and enhance patient care.

ISSL technology

- This industry-standard protocol meets global privacy standards and provides a safe and secure connection to the Philips remote services network using your existing Internet access point.

- Business optimization tools such as OmniSphere allow you to use the power of data and connectivity to generate actionable insights and enhance productivity to improve your return on investment.

* Philips is rated number one in overall service performance for ultrasound for 23 consecutive years in the annual IMV ServiceTrak survey in the USA.

** Optional. Not all services available in all geographies; contact your Philips representative for more information. May require service contract.

† Check with your Philips representative for system compatibility.



References

1. Results obtained during user demonstrations performed in December 2017 with the EPIQ CVx and the iE33 systems. The research was designed and supervised by Use-Lab GmbH, an independent and objective engineering consultancy and user interface design company. The tests involved 42 clinicians from 17 countries. The various types of cardiac customer segments represented were adult diagnostics and interventional, adult diagnostics, and pediatric diagnostics and interventional.
2. University of Colorado, Protocols Study, April 2007.