Reveal more

Philips iE33 xMATRIX echocardiography system

PHILIPS

sense and simplicity

Extraordinary

At Philips, we believe in meaningful revelations. Our product development decisions are based on your insights, and respond to your needs.

Not just a revolution, a revelation

This focus is what spurred the development of xMATRIX technology. Clinically advanced and thoughtfully designed, the iE33 xMATRIX system brings extraordinary clinical utility to every setting where echocardiography is used.

While many technology companies call their innovations revolutionary, we know that innovation means nothing if it doesn't help you. That's why we won't call the iE33 xMATRIX a revolution, despite its cutting edge technology. Instead, we call it a revelation. It will change how you see ultrasound. More importantly, it will change what you see with ultrasound.

xMATRIX

Philips xMATRIX provides the Philips iE33 xMATRIX with the power to bring exceptional clinical utility to every setting where echocardiography is used.

clinical utility

The iE33 xMATRIX Edition reveals

- Tiny structures, such as ASD, VSD, and thrombus in the left atrial appendage or the pulmonary veins
- Clear views of lateral walls and the myocardium with the X5-1, for sensitive EF calculations on patients with dilated cardiomyopathy
- Views of the heart previously attainable only during surgery, with Live 3D TEE
- Real-time views of cardiac structure in a single beat, with the X7-2, the only pediatric 2D and 3D transducer on the market
- Advanced assessment of global, regional and local function with QLAB quantification tools

3D proves value

In recent years, many studies have investigated the value of 3D imaging. Industry experts have declared that it is both complementary and supplementary to 2D imaging. In particular, 3D echocardiography appears to improve accuracy and reproducibility over 2D echo in LV volume and function calculation, as well as the derivation of mitral valve area in patients with mitral stenosis.

Innovations in image quality and workflow

You've come to expect image quality revelations from Philips. And with good reason. Philips innovations contribute to nearly every aspect of cardiac imaging. Now, we bring you a new revelation: changing imaging modes from 2D to 3D can be as easy as touching a button, without any compromise in image quality.

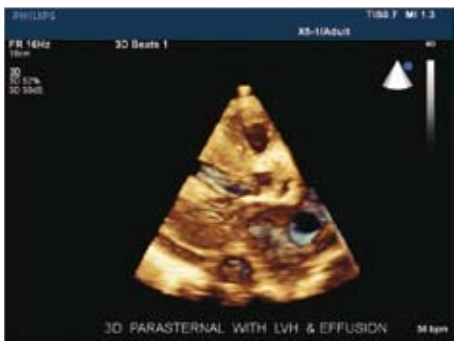
3D without 3D hassles

As the evidence mounts that volume imaging can provide highly relevant information, more and more clinicians are searching for a way to incorporate 3D imaging into their exams. The iE33 xMATRIX removes the barriers to 3D imaging, giving clinicians the power to choose 2D, 3D or combination imaging without disrupting workflow. With the highly-ergonomic new X5-1 transducer, a simple push of a button brings Live 3D imaging to any exam.

Focused on image quality

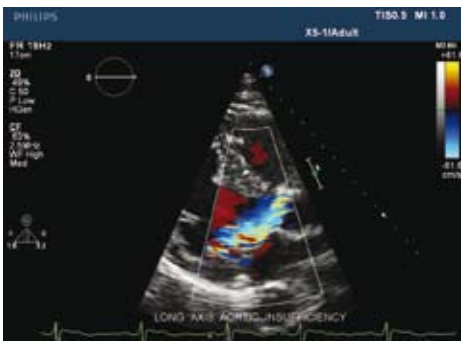
While much of the iE33 xMATRIX system is new, we've retained all the imaging advantages that have made the iE33 a best-in-class system:

- **PureWave Transducer Technology** is the foundation for a host of imaging advances. The iE33 leverages PureWave crystal's acoustic efficiency in transducer tuning and system optimization, facilitating imaging of a wide range of patients types with fewer artifacts and better penetration. PureWave technology also enables miniature crystals, which require less stimulation to achieve high image quality, and make it possible to incorporate the power of xMATRIX in ergonomically sized transducers that can perform both 2D and 3D exams.
- **Advanced XRES** performs 350 million calculations per frame of image data at rates of up to 500 frames per second, removing the noise from the LV cavity to make it easier to define the endocardial border.
- **Adaptive Broadband Flow** uses the entire broadband frequency range within color Doppler, automatically adapting the frequency to the ROI to enhance spatial resolution. This is particularly useful when imaging the pulmonary vein, aortic insufficiency, or mitral regurgitation flow.



Live 3D imaging enables clear visualization of thickened ventricular cardiomyopathy and pericardial effusion, while also providing valve, chamber and muscle detail.

Even in technically difficult heart failure studies, the myocardium and endocardium are displayed with superb detail and contrast resolution from the apex to the atria.



Eccentric aortic insufficiency can be clearly identified with excellent color sensitivity and resolution.

Workflow-driven exams

Advances that increase efficiency can be revelations as well.

- SmartExam protocols, on-screen guides based on exam types, increase consistency from exam to exam and clinician to clinician
- SmartExam automation can reduce exam time and key strokes – by up to 300 for some exams
- Clinical studies show time savings of up to 50%, and fewer missed views reduce the need for repeat scans

One-button solutions enhance ease of use

Ease of use is one of the top requirements for a premium performance ultrasound system, because it impacts both workflow and diagnostic confidence. That is why the iE33 xMATRIX is designed to operate via a small number of one-button controls that help you acquire high-quality images with the least amount of effort.

iSCAN one-button optimization quickly and automatically adjusts system parameters in both 2D and Doppler modes based on patient and exam types. It decreases keystrokes while allowing for the best image clarity possible in each exam.

iFOCUS Intelligent Focusing Technology automatically computes beam characteristics for a selected region of interest, and then provides the best detail resolution and tissue uniformity.

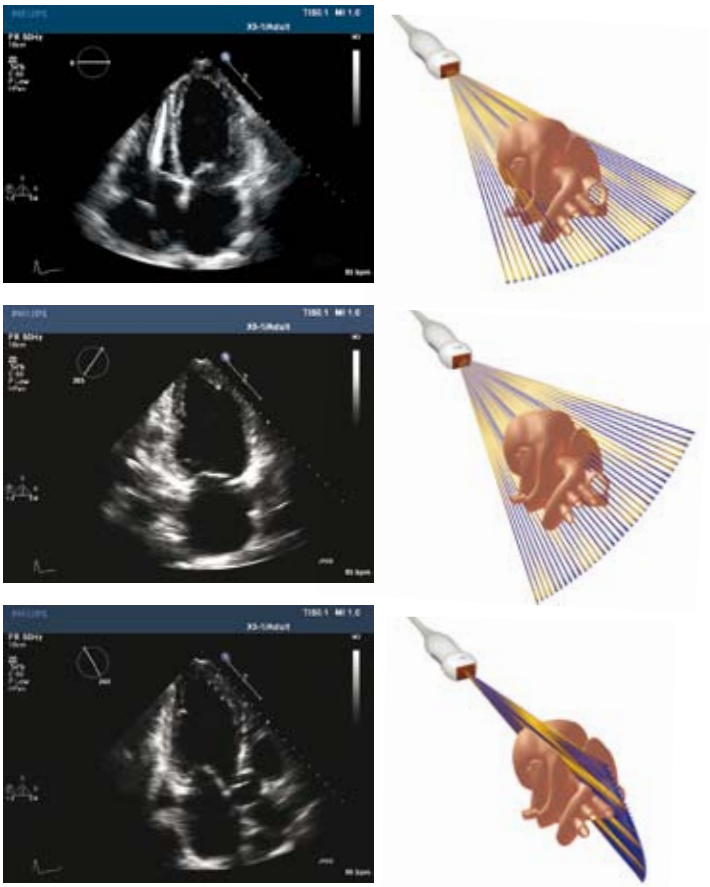
iOPTIMIZE Intelligent Optimization instantly adjusts system performance for different patient sizes, flow states, and clinical requirements.

Revealing new ways to speed echo lab workflow

As the utility of echocardiography grows, echo labs are faced with increased patient loads. The iE33 xMATRIX edition is designed to ease a demanding schedule without compromising quality.

X5-1 transducer delivers ease of use, effortless 3D

In many ways, the X5-1 transducer is a marvel. Inside this ergonomic, easy-to-handle tool is the technology that delivers outstanding 2D image quality on your most difficult-to-image patients, and then, with the touch of a button, converts to 3D imaging for applications such as evaluating a prolapsed mitral valve or biscuspid leaflets in the aortic valve. With another button, you can call on Live 3D color to assist with assessing blood flow. You can also obtain challenging views, such as apical two-chamber, more easily. Rather than manually rotating the transducer and searching for a window that isn't obscured by ribs, you can use iRotate to electronically get to the view within the acoustical window between ribs. This can increase accuracy in measuring LV volumes, because you are less likely to foreshorten the image. With 3,000 elements and breakthrough PureWave xMATRIX technology, the X5-1 supports 3D, 2D, color flow, M-mode, PW/CW Doppler, Tissue Doppler imaging, and contrast-enhanced exams.



iRotate electronic rotation

Rather than manually rotating the transducer to search for a non-obscured window, iRotate can electronically achieve the best view within the acoustical window between ribs.

With the iE33 xMATRIX edition, you can

- Incorporate 3D into any exam
- Move seamlessly among imaging modes
- Use Live 3D Color to assess blood flow
- Use iRotate to obtain challenging views, such as apical two-chamber, without manually rotating the transducer
- Increase accuracy in measuring LV volumes, as well as calculate the area and grade the severity of aortic stenosis
- Image the entire heart, in 3D in real time
- Easily enlarge and rotate ROIs within a volume with iCrop
- Provide strong overall clinical decision support to your colleagues in other cardiac sub-specialties, such as surgeons and interventionalists

Live xPlane supports improved 2D EF calculation

With Live xPlane, you can acquire two simultaneous orthogonal views without manually rotating the transducer. Because the views are from the same heartbeat, you can more accurately calculate ejection fraction by Biplane MOD.

Live Volume reveals the whole heart in real time

Live Volume images the entire heart in 3D, in real time. You can acquire volumes in one, two, or four beats, as needed. Because Live Volume eliminates the need to trigger acquisition, it is easier to image the whole heart or left ventricle even on patients with erratic heart rates.

iCrop zeros in on region of interest (ROI)

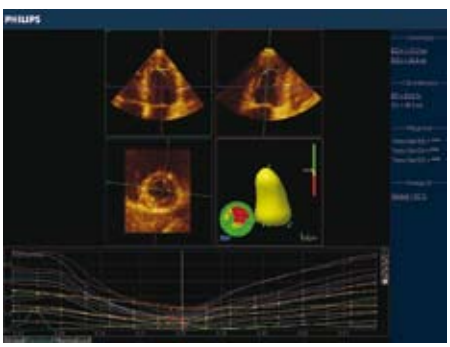
iCrop zooms in on the volume region of interest using two live MPR views. It instantaneously changes view direction, making it possible to evaluate the mitral valve followed by the aortic valve with just one touch.

Cardiac 3DQ Advanced provides true LV volume, helpful display of data

The first semi-automated, on-cart and off-cart analysis of true LV volumes, Cardiac 3D Quantification Advanced (3DQ Advanced) uses all the voxels to generate a full 3D endocardial border with greater accuracy and less dependency on LV shape assumptions than conventional methods, which make geometric assumptions. 3DQ Advanced waveform display provides accurate data for assessing global function based on LV volume, ejection fraction and stroke volume. Additionally, 3DQ Advanced allows simultaneous display of 17 regional waveforms, enabling temporal comparisons between segments.

Live Volume provides the versatility to capture a dilated left ventricle and eliminate foreshortening, supporting accurate volumetric analysis of dyssynchrony and ejection fraction.

Subtle valve leaflets can be visualized in 3D and seen in the 2D MPR previews by simply applying and sizing the iCrop region-of-interest, the zoomed volume display is automatically updated.



3DQ Advanced uses all the voxels to generate a full 3D endocardial border. Additionally, 3DQ Advanced allows simultaneous display of 17 regional waveforms, enabling temporal comparisons between segments.

Stress echo: making the most of that critical minute

In every stress echo exam, there comes that critical moment of peak stress when you have a minute or less to get quality images that replicate the angle of the resting images, and that will enable confident wall motion analysis.

The iE33 xMATRIX is designed to ensure that the moment of peak stress for the patients isn't one for the clinician as well. A host of thoughtful innovations work together to enhance speed and reproducibility.

With the iE33 xMATRIX edition, you can

- Save time and increase consistency
- Complete an entire stress echo protocol from the standard windows following peak exertion without rotating the transducer
- Quantify 2D stress echo studies and communicate global and regional LV function during each stage
- Add Live 3D Stress to your protocols with the touch of a button
- "Slice" the volume to find the best views and content for making diagnoses

Q-Station* software, which enables advanced quantification on any PC, can be added to the iE33 system. When used with Philips StressVue Stress Testing System, Q-Station can integrate stress echo and ECG ST elevation maps into one report, for easier diagnosis and communication with referring physicians. Q-Station also includes a smart wall motion scoring tool that is linked to stress stages and views.

*510(k) pending

Image challenging patients with the X5-1

The X5-1 transducer delivers high image quality in both 2D and 3D modes. Optimized for the most difficult-to-image patients, it features 3 harmonic and 2 fundamental 2D settings for the highest resolution and the deepest penetration. The touch of a button enables Live 3D Stress, making it easy to add 3D imaging to your stress protocols.

Automatic rotation with iRotate Stress

Used in combination with the X5-1, iRotate allows you to complete an entire stress echo protocol, including acquisition of 4-chamber, 2-chamber and 3-chamber 2D images, from the standard windows following peak exertion without rotating the transducer. Simply push the enter key to automatically rotate to the next required view. iRotate decreases wrist strain while also overcoming foreshortening of enlarged left ventricles in heart failure patients.

New quantification tools increase confidence

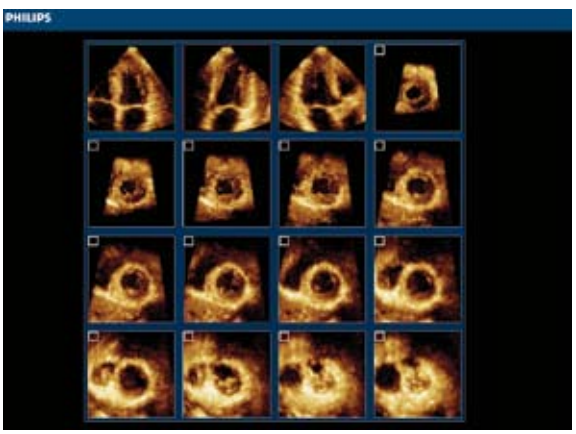
New QLAB "CMQ-stress" plug-in with improved speckle-tracking algorithm enables strain quantification of 2D images. With CMQ-stress, you can quantify 2D stress echo studies and communicate global and regional LV function during each stage. The new speckle-tracking algorithm makes stress echo more objective, because users can apply the algorithm to images acquired in the quad screen format to measure wall motion anomalies. The comprehensive summary page that displays side-by-side LV 17-segment bulls' eye plots from each stress stage is especially helpful when communicating results to referring physicians.

iSlice aids diagnosis

iSlice is another innovation that makes 3D imaging practical. With iSlice, you can "slice" the volume to find the best views and content for making diagnoses. Rotating the volume view also instantaneously updates the 2D view to match perspective. More than just a workflow enhancer, iSlice can aid decision making and diagnosis. In fact, one hospital reported using the 9-slice display because that slice thickness helped visualize the apical C planes, providing new information not previously attainable.

To make stress echo less stressful, the iE33 xMATRIX edition includes several additional features that save time and increase consistency:

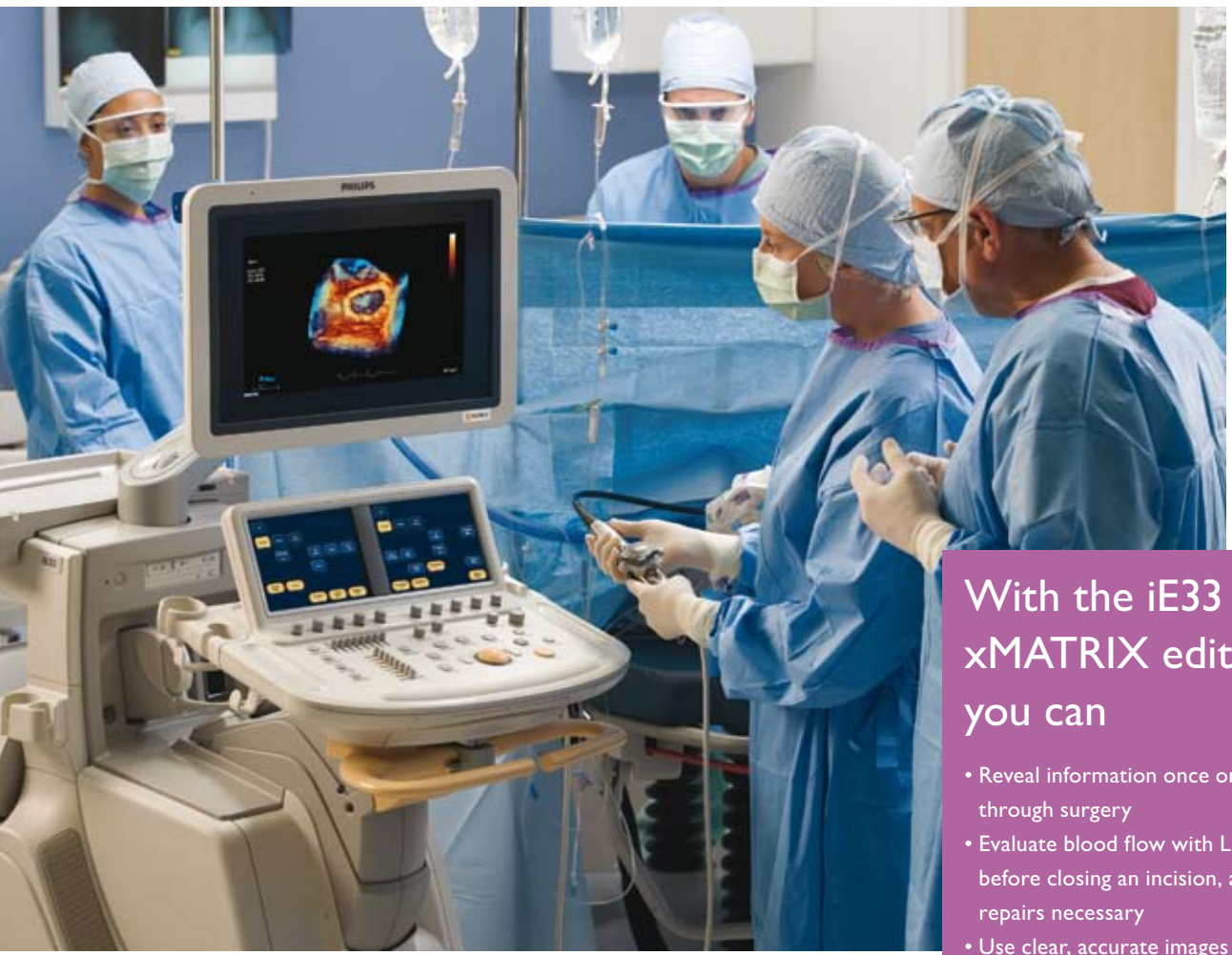
- A pre-loaded 2D/3D Stress protocol that ensures that 3D and 2D images are labeled and correlate with each other
- Defer Select, which provides the option of deferring selection of views until the end of the stage, saving valuable time
- Electronic steering to re-orient off-axis images
- Automatic saving of angle adjustments and changes in gain and depth setting for the next stage of the exam to increase consistency of views
- Easy re-slicing of images with iSlice, iCrop and Crop Box
- Ability to utilize contrast to enhance the LV borders of technically difficult patients
- Stress echo automation and quantification that provides more objectivity to exam reports



From one Live Volume captured during a stress echo exam, clinicians can use iSlice to derive standard 2D views, as well as a series of C plane short axis views from, from the apex to the base.

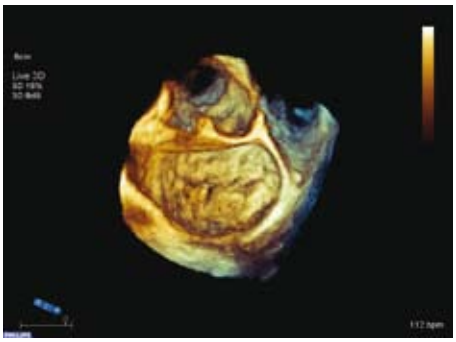
Clinical value for interventional cardiology

With the iE33 xMATRIX Edition, echocardiography now has more power than ever to eliminate surprises during and after interventional procedures. Live 3D TEE images combine with the advanced capabilities of QLAB Mitral Valve Quantification (MVQ) to reveal information once only available after an incision was made.

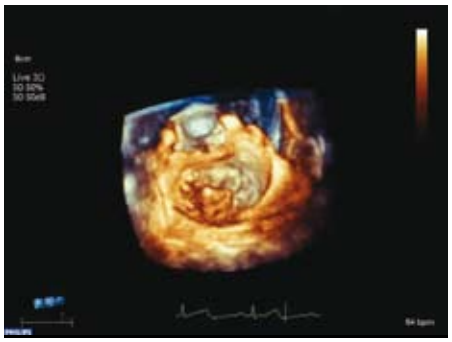


With the iE33 xMATRIX edition, you can

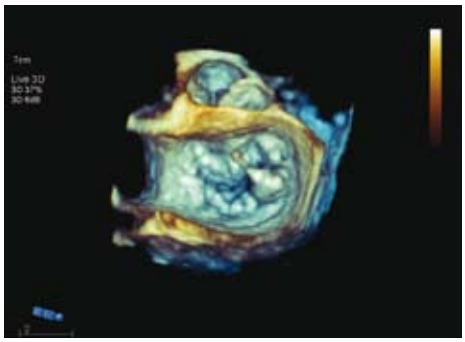
- Reveal information once only available through surgery
- Evaluate blood flow with Live 3D Color before closing an incision, and make any repairs necessary
- Use clear, accurate images and quantitative data to support care planning
- Use 3D modeling to help determine if a valve should be repaired or replaced



Real-time Live 3D TEE view of Barlow's Mitral Valve



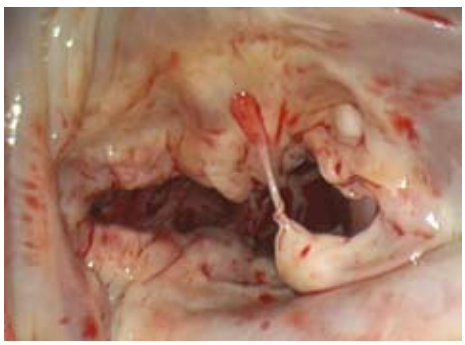
Real-time Live 3D TEE view of P2 Prolapse of Mitral Valve



Real-time Live 3D TEE view of P3 Prolapse/Flail of Mitral Valve

Surgical view of Barlow's Mitral Valve

Surgical view of P2 Prolapse of Mitral Valve



Surgical view of P3 Prolapse/Flail of Mitral Valve

More informed valvular procedures

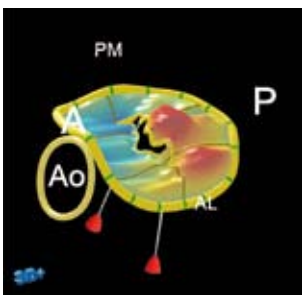
Philips Live 3D TEE and MVQ brings the value of 3D echo to transesophogeal imaging, without the complexity often associated with volume imaging.

- Surgeons can use Live 3D TEE to obtain multiple perspectives of the complete valve and perform quantification that aids decisions about valve repair or replacement.
- During surgery, anesthesiologists can use Live 3D TEE to perform analysis and assess procedure outcomes.
- Surgeons can evaluate blood flow with Live 3D Color before closing and make any repairs necessary.
- In the cath lab, increased visualization of structures and accurate, fast quantification enhances patient care.
- When patients are ready for follow-up, cardiologists have clear, accurate images and quantitative data from procedures to help with care planning.

MVQ reveals new ways of assessing valvular function

MVQ's 3D modeling provides measurements that can aid valve decision-making. With MVQ, you can:

- Build a 3D model of the mitral valve annulus, anterior and posterior leaflet, leaflet segmentation, coaptation line and potential coaptation defects, as well as mitral valve spatial relationship with the papillary muscles and aortic valve
- Manipulate the MVQ 3D model in the 3D space and overlay it on the anatomical 3D view of the mitral valve
- Create and display a measurement set, and generate a comprehensive report



QLAB MVQ 3D model allows objective assessment of mitral valve structural and functional defects.

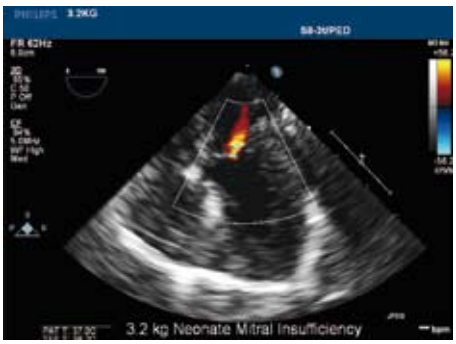
Operative images courtesy of Dr. David H. Adams, Mount Sinai Medical Center, New York

Capturing the pediatric heart

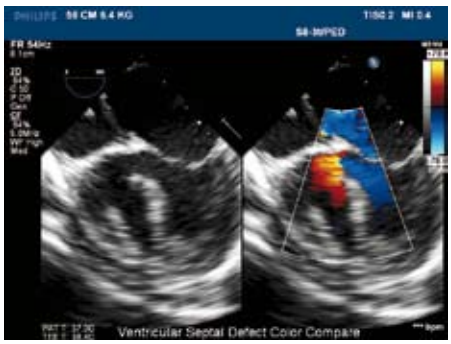
With pediatric echocardiography, speed rules. Inside and out, your patients are perpetual motion machines. Philips designed the iE33 xMATRIX edition with a suite of pediatric transducers that respond to your need to capture data for confident diagnosis.

With the iE33 xMATRIX edition, you can

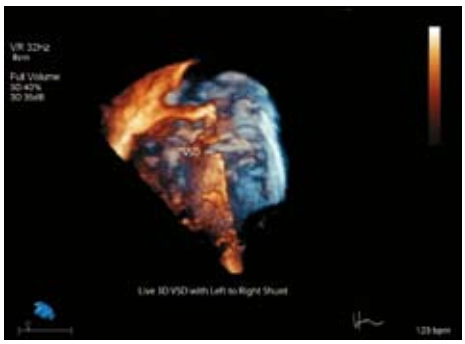
- Obtain real-time 3D views of cardiac structure in a single beat, with high frame rates
- Perform transesophogeal echo on patients weighing below 3.5 kg
- Use analysis packages designed specifically for the challenges of congenital heart disease



High image quality enables visualization of minute structures, as evidenced in this image of mitral insufficiency in a 3.2 kg patient.



View of ventricular septal defect from a 5.4 kg neonate. The S8-3t is a fully-functional multiplane TEE with color flow Doppler, HD zoom, and comparison capabilities, making it a critical tool for the care of tiny patients.



Live 3D Echo with the X7-2 transducer, elucidates structural relationships throughout the heart, including valves, walls, and interventional devices.

X7-2 transducer delivers versatility

The X7-2 transducer is the only pediatric 3D transducer on the market. It also provides real-time views of cardiac structure in a single beat. By benefit of 2500 element xMATRIX technology, the X7-2 delivers remarkable Live 3D Echo. PureWave crystal technology reveals the details of tiny structures, while advanced XRES imaging reduces artifacts. The X7-2 supports Live xPlane imaging, Live 3D, 3D iCrop, and 3D full volume imaging.

MicroTEE transducer brings the light of imaging to tiny patients

The benefits of transesophogeal echo are now available to the smallest patients, with the microTEE transducer. A miniaturized multiplane transducer designed specifically for patients weighing below 3.5 kg, the microTEE supports 2D, Doppler, color flow, harmonic imaging, M-mode, and 2D analysis.

The transducer can be used to identify residual defects in need of repair while patients are still in-suite. In a recent study of 42 patients, the microTEE transducer was used successfully to image 100% of the patients, with no complications or clinically significant changes in hemodynamic or ventilation variables. Information from microTEE assessment during surgery resulted in surgical revision for 6 of the 42 patients.*

Dedicated pediatric analysis

Our pediatric analysis package contains pediatric-tissue specific imaging (TSIs) designed for the challenges of pediatric imaging. Because we understand that children are not mini-adults, we've also designed fetal echo and pediatric analysis to separately measure inflow and outflow, making it easier to follow your patients' progress.

Shown actual size, the microTEE transducer brings transesophogeal echo to your smallest patients.

* Zyblewski SC, Shirali G, Graham E, et al. Initial Experience With a Miniaturized Multiplane Transesophageal Probe in Small Infants Undergoing Cardiac Operations. Annals of Thoracic Surgery. 2010; 89:1990–4

Reveal more uptime

Philips support services are designed to maximize uptime. Our Remote Services connectivity allows for many advanced service features, including virtual on-site visits for both clinical and technical support to provide faster resolution to issues and questions, remote clinical education, and remote log file transfer to minimize downtime by allowing faster diagnosis of problems by call center personnel.

Remote services include

Remote desktop
"Over the shoulder" system monitoring for faster technical and clinical troubleshooting and training options

iSSL technology
Easily and securely connect to Philips remote services using your existing internet connection

Online support request
Enter a support request right from your ultrasound system for faster, more convenient responses

Utilization reports
System and exam data analysis help you manage ultrasound utilization and productivity in your practice

Pro-active monitoring
Avoid system down time with continuous performance monitoring and alerts

Award-winning service

Whether you encounter Philips personnel through remote services or at your site, you can be assured of our commitment to your satisfaction. In fact, for 17 years IMV Limited, a prestigious independent healthcare research company, has rated Philips number one out of thousands of customers surveyed in its ServiceTrak Imaging-All Systems report for customer service satisfaction.

Innovative financing solutions

Philips Medical Capital delivers financial solutions to help you place a new iE33 xMATRIX system in your facility or practice. Our financial experts understand your unique financial needs and provide flexible solutions that optimize asset utilization, reduce costs, and increase financial flexibility.

A sound investment

The iE33 system's clinical performance and versatility pay off in the variety of applications you can perform, while its ergonomic design and workflow tools enhance departmental efficiency. In addition, our people will help you get the education and support that you need to get the most out of your ultrasound system.

Your purchase of an iE33 system also comes with our promise: to never stop innovating in ways that simplify and improve healthcare delivery.

asimpleswitch.com

The X5-1 transducer features a single computer chip and significant size reduction over previous xMATRIX transducers. Because it offers an environmental improvement, it has earned the Philips Green Product designation.

Philips Healthcare is part of Royal Philips Electronics

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Printed in The Netherlands.
4522 962 63211 * SEP 2010