



**PHILIPS**

Ultrasound

CX50 xMATRIX

Premium  
**performance**  
compact ultrasound

Philips CX50 xMATRIX Compact Xtreme for cardiology



“While doing portable studies, I really need to be able to count on my compact ultrasound system when encountering large or difficult-to-image patients. I can’t afford time to redo the study with my premium echo system, or turn to a different modality. I need to be able to make quick and confident diagnoses at the bedside for these patients.”

# CX50 xMATRIX

## for cardiology

Philips, a leader in cutting-edge ultrasound development, has integrated premium, innovative technologies into the CompactXtreme family. CX50 xMATRIX has been designed specifically for diagnostic, interventional, surgical and pediatric echocardiography applications. We’re taking premium class compact echo performance to new levels and new arenas.



**Connect up to three transducers to the CX50 xMATRIX system and be ready for a variety of environments – bedside, CCU, NICU – anywhere portable premium performance is needed.**



### Field

CX50 xMATRIX travels easily to screening events, disaster sites, rural visits, and anywhere else you need premium image quality to deliver results efficiently and confidently.

### Satellite locations

CX50 xMATRIX is ideal for satellite offices that are supported on a rotational basis. The system is easily transported in its specially designed carry case, allowing you to use premium echo imaging for your entire patient population.



### Bedside

The compact size of CX50 xMATRIX allows you to have premium performance for your portable exams. Easily perform cardiac and vascular exams at the bedside, and take advantage of premium image quality for your critically ill patients.



### CCU

Because of its premium image quality, the CX50 xMATRIX system is the ideal choice for imaging your critically ill patients. Its lightweight, small, and highly mobile cart allows you to easily maneuver in the confined CCU environment.



### NICU

The neonatal capabilities of CX50 xMATRIX deliver speed and image quality for even the smallest critically ill patients. Users can easily navigate the CX50 xMATRIX system in the NICU, and the outstanding images delineate tiny structures for greater diagnostic confidence.



### Cath lab and hybrid rooms

The compact size and excellent image quality of the CX50 xMATRIX system, along with Philips Allura X-ray system integration, provide an outstanding solution for echocardiographic guidance of basic and complex structural interventions.



### OR

CX50 xMATRIX features Live 3D TEE imaging using the clinically proven X7-2t TEE transducer. The compact size of the system makes it easier than ever to deliver premium TEE imaging within the surgical suite for pre- and post-assessment of valvular and other procedures. Designed for clinical and operational efficiency, the CX50 X7-2t TEE may be shared with EPIQ 7 systems, allowing one transducer to be used for multiple systems and applications.

# Diagnostic excellence

Extreme performance is built into the CX50 xMATRIX system, making portable echo studies easier than ever. Philips has migrated clinically proven premium technologies to a highly mobile platform.

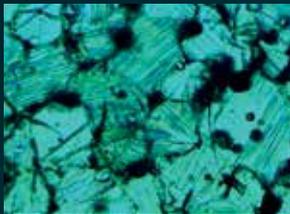
## Premium imaging performance

### PureWave everywhere

PureWave technology, originally available only on our premium cart-based systems, has been integrated into the CX50 xMATRIX system. The exceptional performance of the PureWave transducer technology results in improved diagnostic confidence, especially on technically difficult patients.

### Digital broadband beamforming on a compact

CX50 xMATRIX combines the broadband capabilities of a digital beamformer with the broadband signals produced by PureWave transducers. Now, even on a compact system, complete tissue signatures are captured, preserved, and displayed. The level of image quality is exceptional, allowing you to fully appreciate subtle anatomical details.

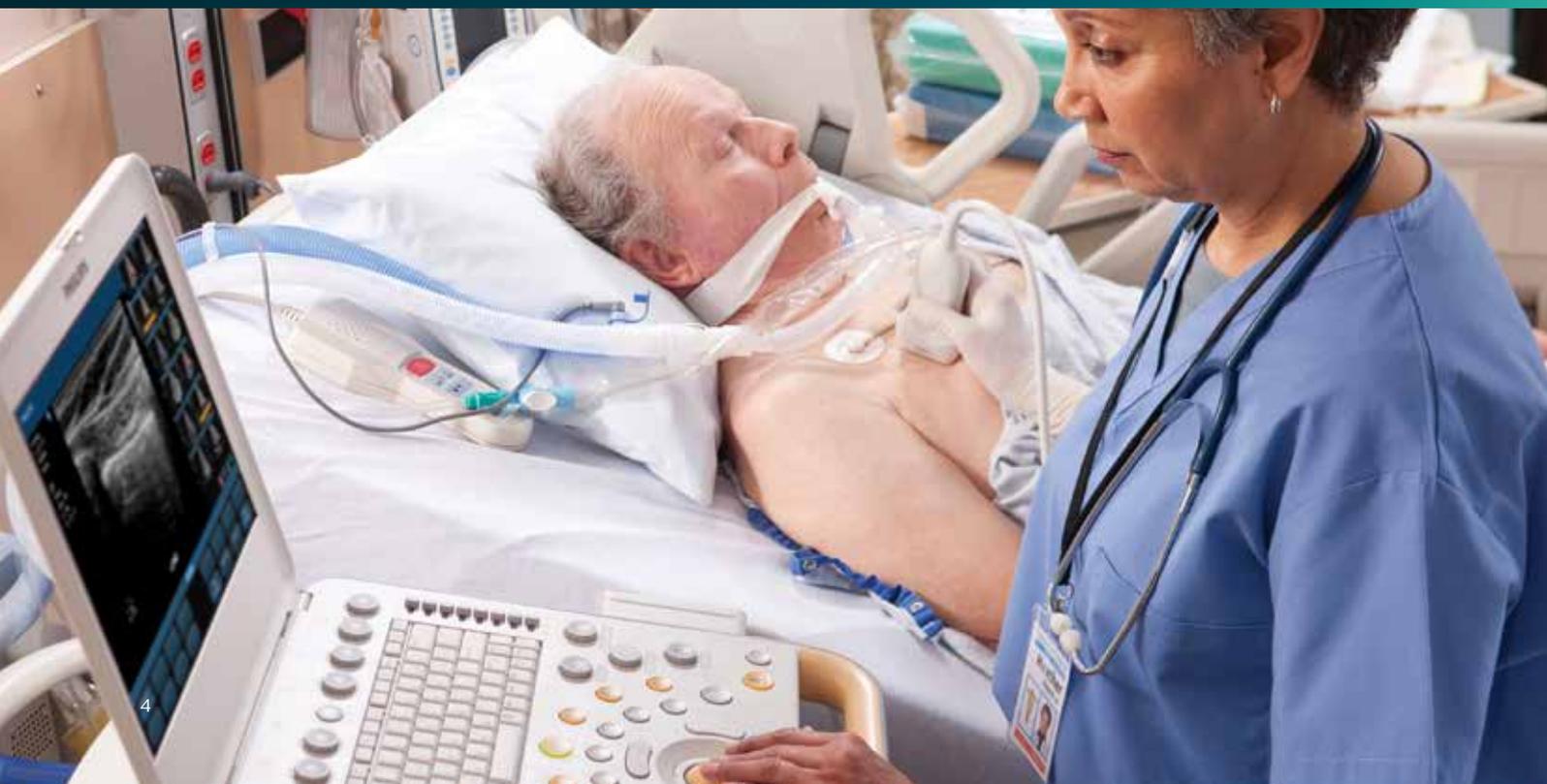


Conventional (x800)



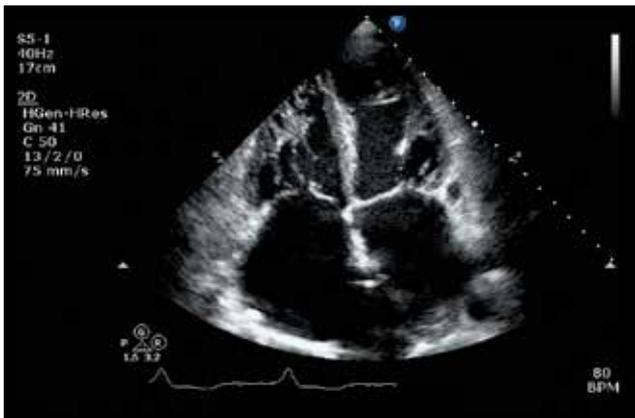
PureWave (x800)

PureWave crystals have virtually perfect uniformity for greater bandwidth and twice the efficiency of conventional ceramic materials. The result is excellent imaging and Doppler performance.



### SonoCT and XRES technologies bring a new level of clarity to compact ultrasound

Philips SonoCT is a clinically-proven premium technology that acquires up to nine lines of sight and combines the individual images into one well-defined image in real time. SonoCT displays striking levels of tissue differentiation that are virtually free of artifact.



Transthoracic imaging using the S5-1 demonstrates excellent visualization of the entire heart.

Advanced XRES adaptive image processing reduces speckle, haze, and clutter, resulting in images virtually free from noise, with extraordinary quality and edge definition. When SonoCT and XRES work in tandem, the subtlest of diagnostic features are enhanced, making it even easier to achieve high clinical accuracy in portable studies.



The fine resolution and highly sensitive color flow of the L15-7io compact linear array capture this abnormal vasculature.

### Elegant workflow solutions

#### Reduce exam time by up to 50% with SmartExam

SmartExam protocols are easy-to-use, customizable guides that help you perform complete studies. The on-screen menu guides you through the required views for a specific exam type, automatically enters annotation, and builds your report. Save time, reduce repeated moves, and increase efficiency and consistency of exams.

#### Compact ultrasound designed for your environment

The CX50 xMATRIX system features a high resolution monitor for exceptional viewing in the most difficult portable environments, and fast system start-up allows you to quickly begin your studies. Wireless and wired DICOM allow flexibility when connecting to your PACS. You can also export your data by DVD and USB media with integrated DICOM viewer.



One-button controls are logically placed on the CX50 xMATRIX control panel for quick selection and optimization during every exam.

#### Fine-tune exams with active native data

The CX50 xMATRIX system stores active native acoustic data, giving you the ability to adjust virtually all scanning parameters on single images, clips, or stored 2D and Doppler data. Images can be readjusted during or after the exam, enhancing diagnostic details and allowing for shorter exam times.

# Intelligence

turning images into answers

## Quantify and analyze

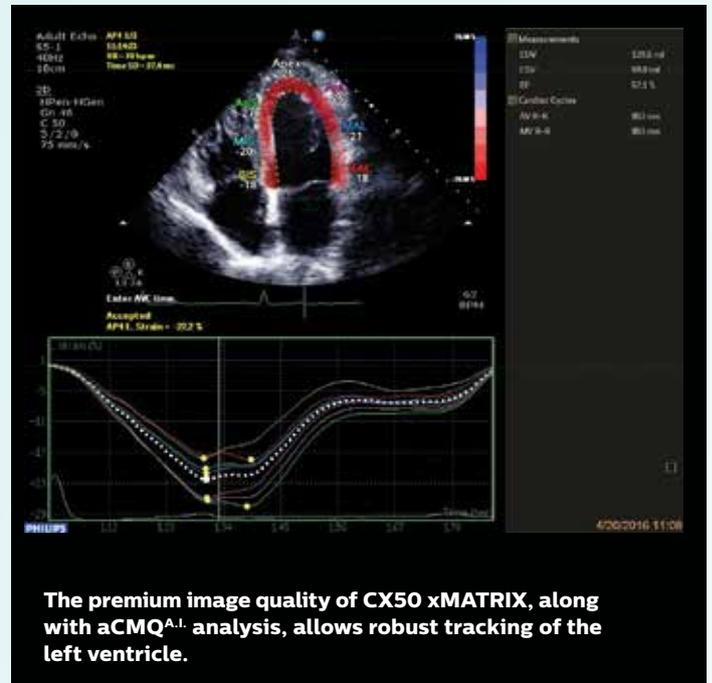
The CX50 xMATRIX system offers quantitative assessment of cardiac anatomy and function using clinically proven QLAB quantification software.

### Automated Cardiac Motion Quantification (aCMQ<sup>AI</sup>)

Automated Cardiac Motion Quantification (aCMQ<sup>AI</sup>) uses speckle mechanics to provide reproducible 2D Global Longitudinal Strain (GLS) speckle measurements. A proven EF is also calculated by using the Auto-ROI that drives the automation within the aCMQ<sup>AI</sup> Q-App.

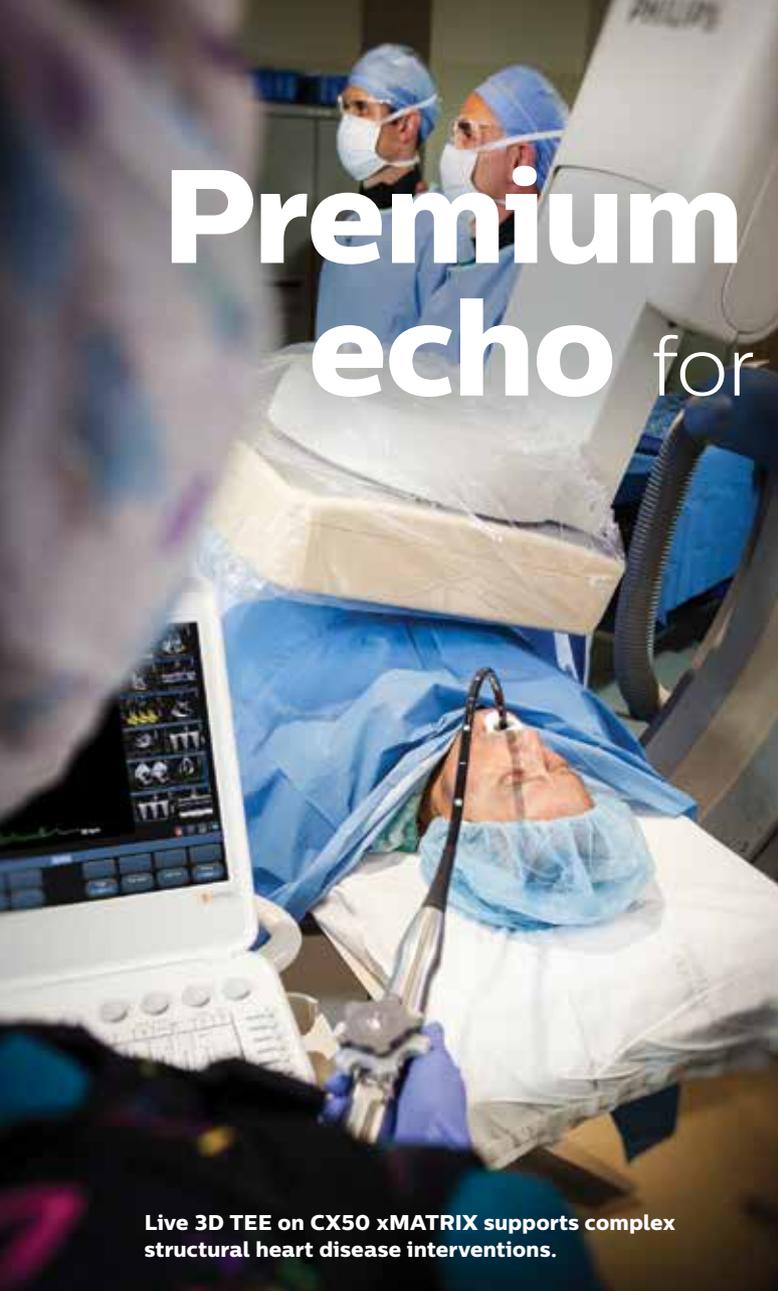
### Mitral Valve Navigator<sup>AI</sup> (MVN<sup>AI</sup>)

MVN<sup>AI</sup> is 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.



## The gold standard for security

Philips recognizes the importance of securing your ultrasound system and protecting your patient data. The security feature on CX50 is a defense-in-depth strategy that comprises five layers: firewall, operating system hardening, malware protection, access controls, and patient data encryption.



# Premium echo for

## interventional cardiology

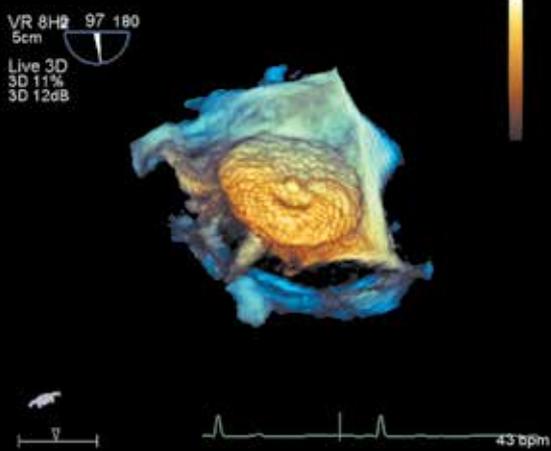
As a recognized leader in echocardiography, Philips continually advances the science with innovations and breakthrough technologies that extend the application of ultrasound to new clinical areas. Now premium performance is available on a portable system designed for the cath lab and hybrid OR.

### Live 3D TEE goes portable

Live 3D TEE is supported on the CX50 X7-2t TEE transducer, combining the 3D power of xMATRIX and the exceptional image quality of PureWave crystals to capture and display stunning views of the heart that are not available with 2D echo. Intuitive manipulation tools allow you to measure, rotate, crop and slice data to derive the views most appropriate for your diagnoses, planning, and follow-up.

With Live 3D TEE, you can diagnose, plan, assist, and assess patients with new levels of confidence. The 3D views and data provide more information than traditional echo, and may change how you manage some patients, including their treatment options. Rely on Live 3D TEE's exceptional image quality for increased visibility during guided catheter procedures, such as placement of closure devices for multi-fenestrated ASDs and left atrial appendage (LAA), mitral edge-to-edge repair, TAVR, and paravalvular leak (PVL) repair – and more.

Live 3D TEE on CX50 xMATRIX supports complex structural heart disease interventions.



Live 3D TEE image clearly showing deployment of ASD occluder device.

### Breakthrough 2D ICE solution for cath and EP labs

Interventional cardiologists and electrophysiologists who use 2D ICE require a catheter with thoughtfully designed ergonomics and providing great images of cardiac structures. CX50 xMATRIX supports the new ViewFlex Xtra catheter, which provides excellent imaging performance, four-way steering and offers the unique benefit of single-hand control. CX50 xMATRIX is a portable system that is very compact, designed to fit into crowded cardiac cath and EP labs. CX50 xMATRIX and ViewFlex Xtra together provide

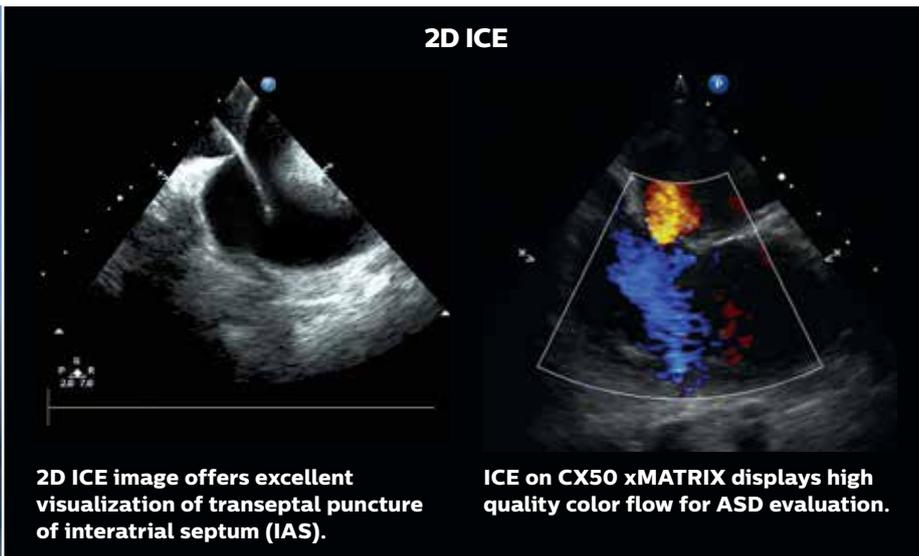
a powerful solution for imaging during atrial ablations, LAA closures, and structural heart interventions such as basic ASD and PFO closures.

### Premium vascular imaging

CX50 xMATRIX has a selection of linear transducers optimized for vascular imaging, including the L15-7io compact linear array transducer, designed specifically for superficial vascular imaging such as intrajugular (IJ access) and transradial interventions (TRI).

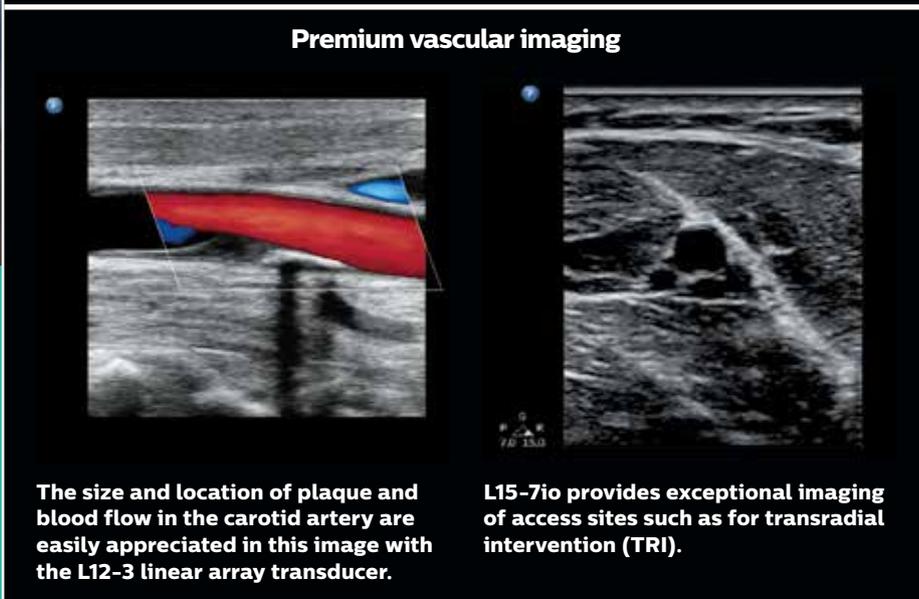


The St. Jude ViewFlex Xtra 2D ICE catheter can be controlled with one hand. Imaging can be controlled tableside using the Xper Module (Philips Allura Xper/AlluraClarity systems).



2D ICE image offers excellent visualization of transeptal puncture of interatrial septum (IAS).

ICE on CX50 xMATRIX displays high quality color flow for ASD evaluation.



The size and location of plaque and blood flow in the carotid artery are easily appreciated in this image with the L12-3 linear array transducer.

L15-7io provides exceptional imaging of access sites such as for transradial intervention (TRI).



**CX50 xMATRIX may be positioned away from the sterile field and operated with the lid closed.**



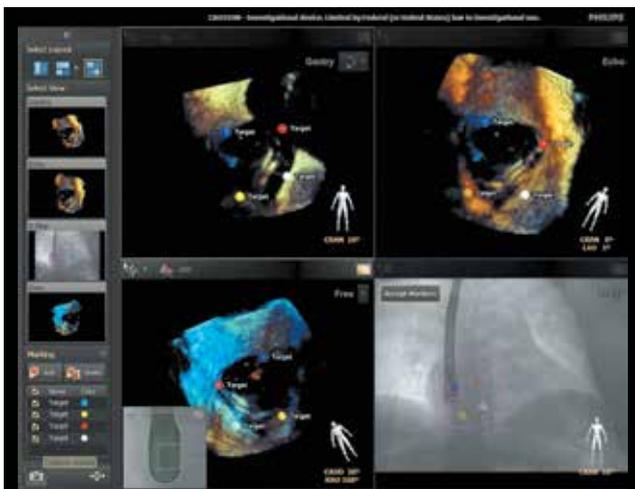
**Imaging can be controlled tableside using the Xper Module (Philips Allura Xper systems).**

### Fully integrated echo for your interventional lab

CX50 xMATRIX was designed specifically to improve workflow in interventional procedures. The system has been designed to be fully integrated with Philips Interventional X-ray systems. 2D imaging can be controlled tableside using the same Xper Module that controls Philips Allura Xper systems. In this application, CX50 xMATRIX may be positioned away from the sterile field and operated with the lid closed, tucked under the exam room monitor bank.

### EchoNavigator – advanced integration

Live 3D TEE and Live xPlane images have been integrated in a highly innovative way to support advanced structural repairs. The EchoNavigator option available for Allura Xper systems digitally links Live 3D or Live xPlane echo images with fluoroscopy images. The system then presents the interventionalist with real-time views of soft-tissue anatomy that may be viewed and controlled independent of what is presented by the echocardiographer. Anatomical markers may be placed on the Live 3D TEE image and they appear in the correct position on the fluoro screen of EchoNavigator.



**EchoNavigator offers multiple real-time 3D views of soft tissue anatomy and placement of anatomical markers, all carefully registered with fluoro images.**

### Interface to third-party systems

Digital video output in DVI-I format offers premium video quality to be delivered to interface with Philips or third-party cath and EP labs that have VGA, DVI-I, or HDMI inputs.

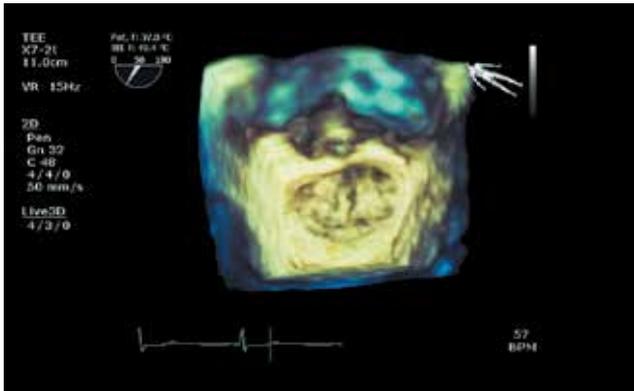


# Extreme imaging for surgery

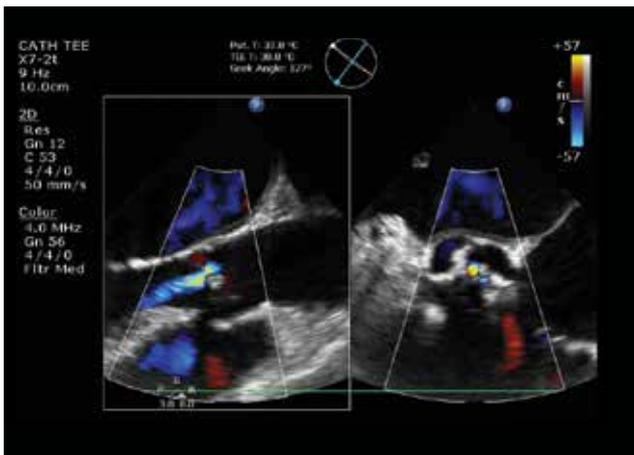
The CX50 xMATRIX system is ideal for many operating environments. Its size, maneuverability, ease of operation, and premium imaging performance are a great fit. Live 3D TEE and comprehensive quantification provide tools for planning, monitoring, and assessing cardiac surgeries.

## Live 3D TEE – wherever you need it

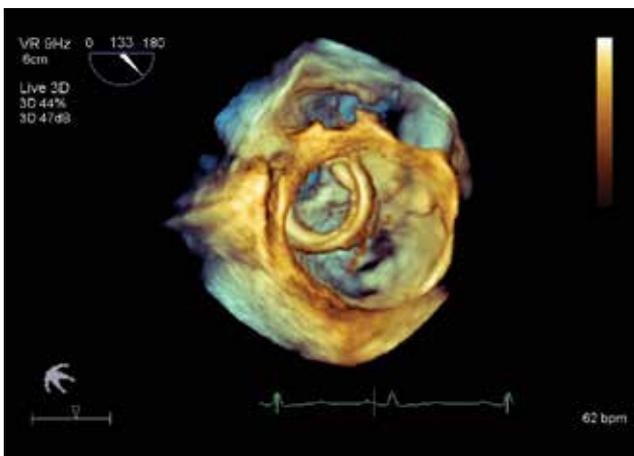
Since Philips introduced the Live 3D TEE, clinicians have trusted it in more than a million exams and procedures. Now Live 3D TEE is available on the CX50 xMATRIX system.



Live 3D TEE image of the mitral valve.



Live xPlane imaging provides real-time simultaneous longitudinal and short-axis views of this aortic insufficiency.



Live 3D TEE supports a clear appreciation of catheter positioning in this hybrid OR procedure.

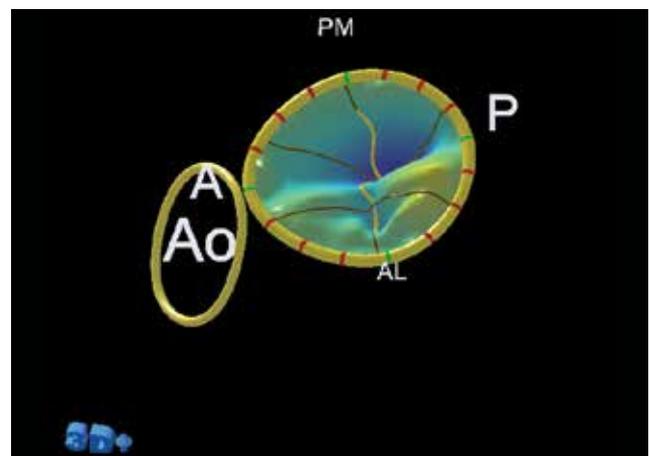
### More information for planning

Live 3D TEE provides extensive information to assist surgeons and anesthesiologists with planning.

The 3D heart can be viewed while it's beating to assess function. The 3D data can be sliced for multiple 2D images, providing incremental details of structural defects, such as valves and leaflets. Enface views and the view of the left ventricle (not available with transthoracic echo) provide more perspectives for planning. These views are not available once surgery begins.

### Quantify the mitral valve with new and objective data

Mitral Valve Navigator<sup>AI</sup> (MVN<sup>AI</sup>) provides precise 3D multiplanar reconstruction (MPR) measurements of the mitral valve anatomy and associated structures obtained with Live 3D TEE. The result is a clinical decision support tool for surgical planning. MVN<sup>AI</sup> offers protocols to assist in defining the 3D landmarks on the MPR views. And MVN<sup>AI</sup> helps build a 3D model of the mitral valve annulus, leaflets and aorta, showing the spatial relationship between the mitral valve, papillary muscles and aortic valve.



MVN model derived from Live 3D TEE of the mitral valve.

# Care cycle **communication**

Live 3D TEE and quantification provide important information for cardiologists, surgeons, anesthesiologists, and echocardiographers throughout the entire patient care cycle, including surgery follow-up and on-going care. As well, the 3D views may be more easily understood by patients and their families, facilitating communication of procedures.



**The CX50 X7-2t transducer is a fully functional TEE probe with 2D, Live 3D, Live xPlane, color flow, and Doppler modes.**



**Philips offers a choice of Live 3D TEE echo systems – portable and cart. Compact X7-2t TEE may be shared between CX50 xMATRIX and cart-based ultrasound systems such as EPIQ, Affiniti, and Sparq to increase clinical and operational efficiency.**

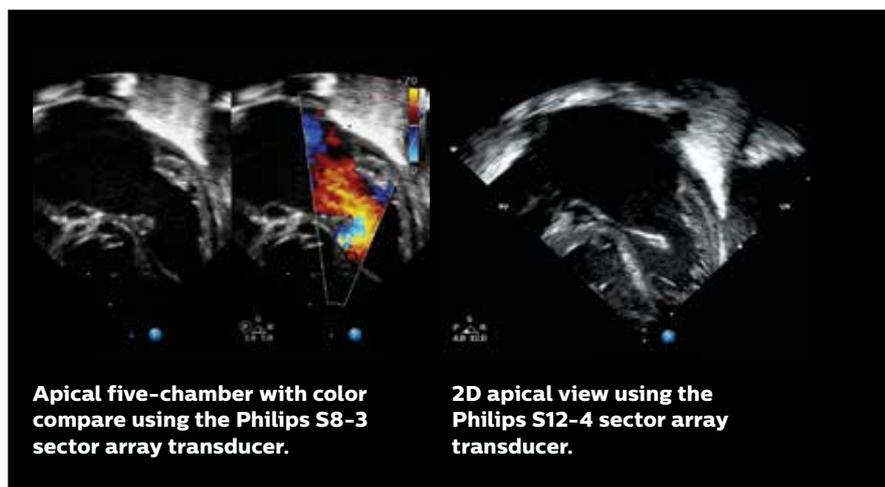


# Premium performance for every patient

Pediatric and neonatal echo is supported on the CX50 xMATRIX system with small footprint transducers facilitating access of small acoustic windows and the need to capture images quickly.

## Caring for your young patients

There are many challenges caring for patients in the NICU and PICU, but having access to premium performance echo is not one of them. You can easily maneuver the compact CX50 xMATRIX system around the bedside, crib, or isolette without interfering with support equipment. Sector array and transesophageal transducers provide the 2D image quality and Doppler performance you need to see minute details and subtle anomalies in these tiny hearts. Our dedicated pediatric analysis package is designed so you can separately measure inflow and outflow, making it easier to follow your patients' progress.



**Apical five-chamber with color compare using the Philips S8-3 sector array transducer.**

**2D apical view using the Philips S12-4 sector array transducer.**

# Transducers designed for performance and comfort

The CX50 family of transducers makes the system a complete solution for mobile imaging services in virtually all units throughout the hospital, addressing cardiac imaging across the patient population. Philips transducers are designed with extensive input from users like you to address imaging performance as well as comfort for you and your patients.

Transducer	Application
C5-1	Deep abdominal vascular
C8-5	Peripheral vascular
L12-3	Superficial and deep vascular
L12-5 50	Superficial vascular
L15-7io	Surgery and superficial
S5-1	Adult 2D echo
S7-3t	Pediatric and adult 2D TEE
S8-3	Pediatric 2D echo
S12-4	Neonatal 2D echo
X7-2t	Adult 2D/3D TEE



**Versatile CX50 xMATRIX offers a family of transducers for imaging adult and pediatric patients in nearly any environment.**



## Compact linear array for surgery

CX50 xMATRIX also supports the L15-7io compact linear array transducer. The L15-7io has been designed specifically for imaging vasculature with its extremely small footprint and unique handle. With SonoCT real-time compound imaging, the L15-7io provides images of exceptional quality.

**Philips L15-7io linear array transducer provides excellent imaging for cardiac and vascular surgery, as well as vascular access sites for percutaneous procedures in the hybrid OR.**

# Count on us

## as your patients count on you

The value of a Philips ultrasound system extends far beyond technology. With every CX50 xMATRIX 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 CX50 xMATRIX system running smoothly.

**On-cart transducer test** provides a non-phantom method to test CX50 xMATRIX transducers at any time, giving you confidence in your diagnostic information.

**Remote desktop** enables easy, rapid technical and clinical support through a virtual visit with a Philips expert.

**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.

**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.



### **Sharing risk, increasing the return on your investment**

Partner with us to maximize utilization and uptime of your CX50 xMATRIX system.

### **Utilization reports**

Data intelligence tools can help you make informed decisions to improve workflow, deliver quality patient care, and decrease the total cost of ownership. This ultrasound utilization tool provides individual transducer usage and the ability to sort by exam type.

### **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.

### **Bringing expertise and vision to your ultrasound education**

Philips offers a wide array of clinical and technical education, online resources, and training courses to meet the increasingly complex needs of healthcare professionals and staff members. Whatever your need, there is a medical education course or resource available that is specifically tailored to fulfill the learning requirements of you and your organization.

### **Innovative financial solutions**

Philips Medical Capital delivers flexible financial solutions to place state-of-the-art Philips medical products in healthcare facilities around the world. Our financial experts understand your unique financial needs and provide flexible solutions that optimize asset utilization, reduce costs, and increase financial flexibility.

\* 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.



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