



# Making the difference with Philips Live Image Guidance

Philips Interventional tools  
for Allura Cath Lab Systems

**PHILIPS**

# Making the difference with



# Philips Live Image Guidance



Together we make the difference in the treatment of cardiac diseases to improve patient outcomes and save lives. With our Live Image Guidance we aim to remove barriers to safer, effective and reproducible treatments, delivering relevant clinical value where it's needed most - at the point of patient treatment.

Intuitive, procedure specific tools and integration of live X-ray, multi-modality imaging and patient information are combined in an interventional or surgical suite. Quick and easy access to enhanced visualization and live navigation through soft tissue anatomy ultimately helps physicians to determine the optimal course of treatment with greater confidence. From routine coronary to the most complex structural heart disease, congenital, cardiac surgery and ablation procedures, our solutions from Allura Centron to the AlluraClarity family with ClarityIQ technology enable clinicians to deliver fast, effective and simplified procedures with an efficient clinical workflow. With AlluraClarity realize equivalent image quality at a fraction of the dose and as a result reduce staff exposure and contrast media.

Together, we drive growth and open doors to new procedures and techniques that truly make a difference in people's lives.

# Percutaneous Coronary Intervention

## Clarity for a confident decision

Successful revascularization relies on your ability to ascertain exact vascular morphology, minimize vessel foreshortening, and confirm the efficacy of your therapeutic solution. You may require more information than standard angiography can provide. How can you acquire critical insight without significantly increasing radiation exposure, lengthening procedures, or risking contrast induce nephropathy?

Philips provides you with innovative interventional tools that support you for every step of your procedure - from diagnosis to planning and actual execution of treatment.

### Allura 3D-CA

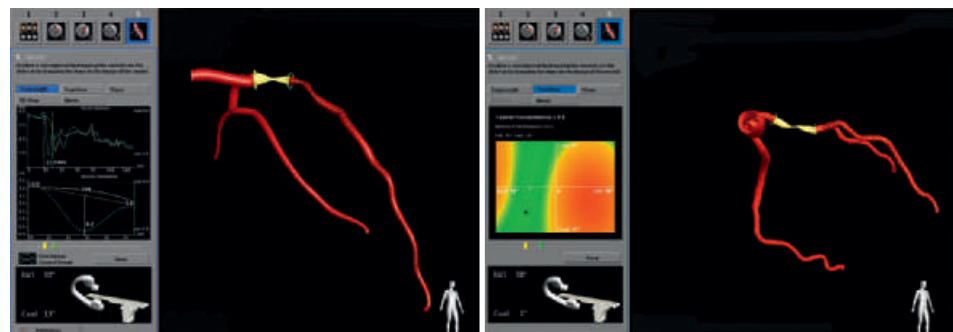
Timely, effective procedures demand fast, proper stent selection. Philips Allura 3D Coronary Angiography (3D-CA) software gives you high-quality, reconstructed 3D images of relevant vessel structure and data indications to support a more confident decision.

Using images acquired from a standard rotational scan or XperSwing, the 3D model provides a clearer view of tortuous vasculature, high-angle lesions and bifurcations,

with minimal foreshortening. You may assess the coronary anatomy, from any angle, for stent selection or intervention planning.

With just a click, the unique TrueView Map helps you choose the optimum viewing angle to quickly determine lesion length and bifurcation characteristics, without additional X-ray dose and contrast load. A real-time bi-directional link between TrueView Map and the C-arm keeps the 3D model synchronized with your live X-ray throughout the procedure, optimizing speed and accuracy.

The unique TrueView map provides a quick and good overview of optimal projections possibilities for the selected lesion. With a single click, the optimal projection with minimal foreshortening can be immediately obtained.







“Now we can see more data and make a more accurate determination of how to treat the patient without additional X-ray dose and contrast”

Dr. Mark Goodwin Medical Director of Cardiac Catheterization Lab  
Edward Heart Hospital, USA

“The availability of this information has positive implications for interventional procedures, making them more efficient.”

*Dr. H.S. Hecht, Lenox Hill Heart and Vascular Institute, USA*

“CT TrueView has changed my view ... This is an entire new approach for interventional cardiology”

*Prof. Dr. med. Ralph Haberl, Klinikum Munich-Pasing, Munich, Germany*

### CT TrueView

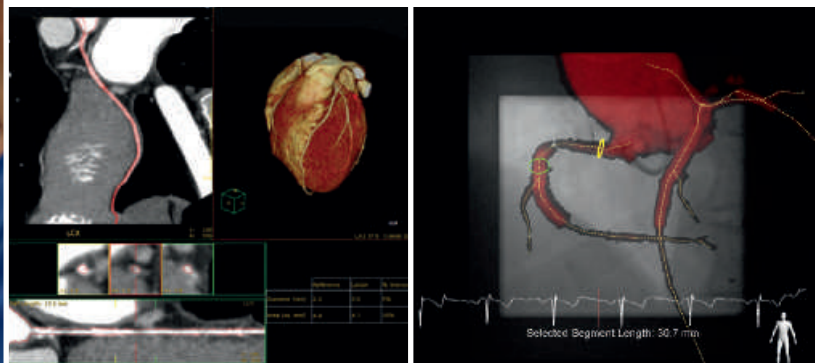
For any complex lesion you want to see important data from CT before intervention. With CT TrueView, 3D-CT images are available through your Allura system for additional vessel and lesion assessment. This may help reduce misrepresentation inherent in strict reliance on 2D images.

3D images provided by CT TrueView offer a more robust anatomical roadmap, giving you added perspective on vessel morphology such as tortuosity, plaque burden, etc. CT TrueView helps determine the length of the obstructive lesion, view all side branches, get the optimal projection angle (without superposition

of neighboring arteries), and to fit the proper stent – with no additional radiation and contrast medium.

CTO Navigator overlays a previously acquired X-ray image with the CT-based coronary tree for better catheter navigation through occluded vessels. This merged image serves as a second reference guide, positioned side-by-side with your live display.

Your C-arm orientation is linked to the CT-based 3D coronary tree in real-time, ensuring the C-arm and 3D model are always synchronized, for a truly integrated approach.



Coronary CTA provides additional information of lesion morphology for better assessments complementing the x-ray cathlab images.

CTO Navigator feature of the CT TrueView serves as a second reference image for better catheter navigation through vessels particularly in CTOs.

“We have had several cases of stent fractures that were only seen with StentBoost.”

*Dr. Van Langenhove, Interventional Cardiologist  
Middelheim Hospital Antwerp, Belgium*

“StentBoost is a great help in daily practice because it is easy to use. It’s non invasive, it takes only one acquisition and you have an instant picture of your stent.”

*Dr. Koolen, Head of Cardiology  
Catharina Hospital Eindhoven, the Netherlands*

### StentBoost for coronaries

#### Find and treat the problem with greater insight and confidence

StentBoost allows you to clearly see your stent in the interventional lab. So you can immediately check positioning, before and after deploying balloons and stents, and confirm stent expansion. This provides greater insight and confidence for cardiology interventions.

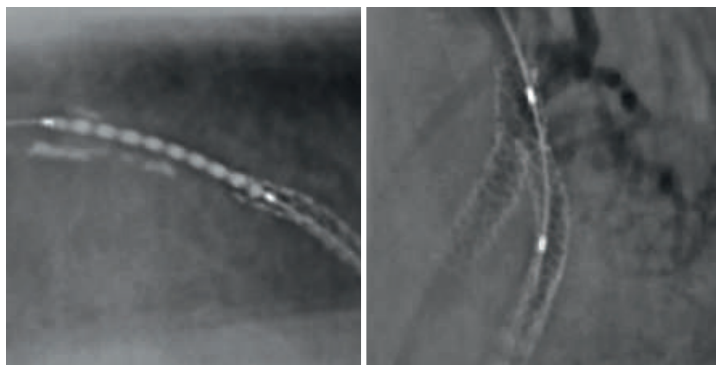
The full power of angiography becomes remarkably clear with StentBoost. Its enhanced visualization:

- Shows fine details of stent struts, and thinner and drug-eluting stents
- Supports precise pre- and post stent deployment, showing the enhanced stent image in relation to the vessel wall with StentBoost’s unique subtraction feature\*

- Allows enhanced positioning, especially critical during bifurcation and ostial stenting
- Enables fine control of pre-dilation, stent expansion, and post-dilation

This non-invasive tool has no impact on operational costs and procedural workflow. StentBoost is an excellent alternative to intravascular ultrasound (IVUS) when it is not available or when a quick result is required. Potential problems such as suboptimal positioning or under-deployment can be corrected immediately, without applying additional fluoroscopy.

\* Subtraction feature is available only with Allura Xper FD series.



SB with subtraction showed a good visibility of calcified presence and position of the undeployed stent in relation to the existing deployed stent.

SB with subtraction helps improve positioning and apposition with better visualization of the deployed stent in relation to vessel wall.



“We have had several cases of stent fracture that were only seen with StentBoost.”

Dr. Van Langenhove, Interventional Cardiologist,  
Middelheim Hospital Antwerp, Belgium



### StentBoost for vascular procedures

#### Remove barriers for minimally invasive interventions

In cardiac labs that also perform vascular procedures, you can now take advantage of Vascular StentBoost to enhance visualization of stents in larger vasculature. This unique tool is based on our proven StentBoost technology and works in the same non-invasive and intuitive way. By seeing the enhanced stent and

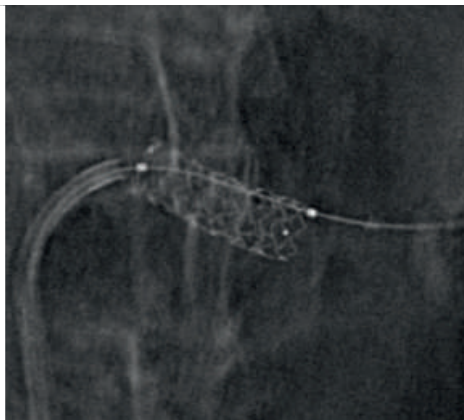
vessel in relationship to each other in a still frame, Vascular StentBoost supports you in proper stent placements and enhanced visualization of checking stent deployment.

Vascular StentBoost expands your existing clinical practice to applications beyond coronary interventions. It can be used for carotid, renal, iliac, and other vascular interventions.

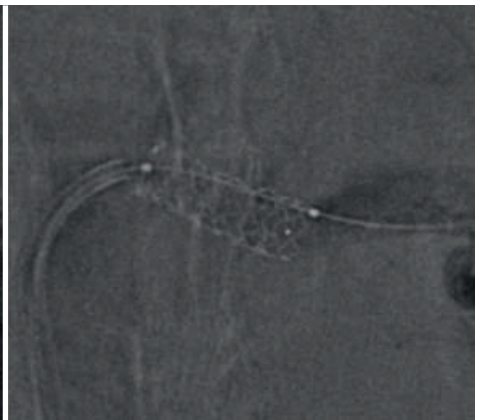
\*Subtraction feature is available only with Philips Allura Xper FD series onwards.



Vascular StentBoost of Renal Artery intervention showing boosted stent



Vascular StentBoost of Renal Artery intervention showing vascular lumen



Vascular StentBoost of Renal Artery intervention showing both vascular lumen and boosted stent



# Congenital Heart

## Focused on quality care

The diagnosis and treatment of congenital heart disease presents many challenges. Primary among them is the need to ensure that minimal contrast volume and radiation exposure be applied when imaging. Yet, this must be done without losing information critical to successful treatment planning and interventional outcome.

### Allura 3D-RA

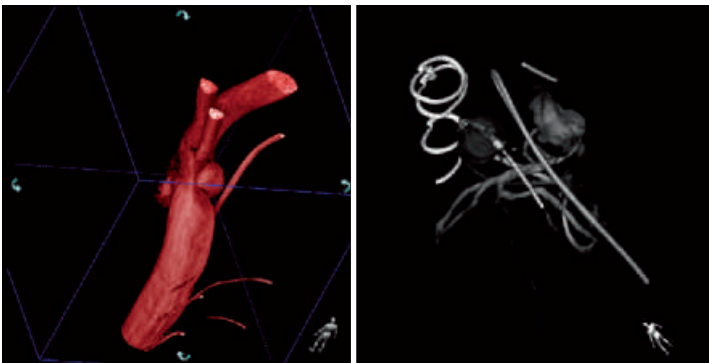
As an alternative to acquiring multiple stationary views, Philips Allura 3D-RA generates high-resolution 3D images from a single rotation angiography run. With just one contrast injection, it delivers a 3D reconstructed display in as little as four seconds, quickly providing actionable insight. Allura 3D-RA can help you reach a confident diagnosis with less X-ray radiation and contrast media.

Allura 3D-RA offers better visualization of the anatomical vessel structure, helping to clarify the complex spatial relationship between the critical and branching vessels. With easy navigation through a wide range of 3D viewing and manipulation possibilities, it can be used to select the optimal projection, a substantial benefit to support a swift diagnosis and treatment planning.

Reducing contrast load and radiation exposure are critical, particularly for those faced with a lifetime of recurring treatment therapy.

### Dynamic 3D Roadmap and MR/CT roadmap

Dynamic 3D Roadmap is based on the visualization of the vessel tree from a 3D-RA, CTA or MRA scan combined with a live 2D fluoroscopy image. Integrated 3D-RA functionality rapidly reconstructs the rotational angiography X-ray run into a 3D volume. A previously acquired CT angio or MR angio scan can be imported into the system and registered with a low dose 3D-RA scan. The “live” 2D fluoroscopy image is overlaid with the 3D volume of the vessel tree and is automatically displayed on the 3D roadmap monitor in both the examination and control rooms.



Aortic coarctation: the 3D-RA reconstructed image clearly showed an aneurysm and the circumscribed narrowing).

Melody valve placement: the 3D-RA reconstructed image provides a clear visual of the inflated balloon in relation to the adjacent coronary artery prior to the valve placement.

# Structural Heart Repair

## Guiding alternative therapies

Percutaneous transcatheter procedures for the treatment of valvular, congenital and structural heart disorders (e.g. transcatheter aortic valve implantation - TAVI), are considered an alternative to open-heart surgery. Having the right x-ray angle for approach, visualisation of anatomical constraints and facilitating correct deployment of device, are some of the essential factors to successful outcomes.

### HeartNavigator

A TAVI procedure is not without difficulty. Sizing is crucial for good deployment and care must be taken not to compromise the coronary ostia sinus or impede the motion of the aortic valve. Proper visualization is important for success.

Philips HeartNavigator is designed to simplify planning and device/projection selection. During the procedure it provides live image guidance for device positioning.

From previously acquired 2D CT datasets, HeartNavigator creates a 3D volumetric image which is overlaid with live fluoro to provide real-time 3D insight. One click segments the heart, identifying anatomical structures and landmarks.

Representation of aortic valve calcification, as an anatomical marker, helps to determine final device positioning. HeartNavigator provides fast and fully automated measurements for typical anatomical distances and suggests the most suitable plane for deployment. Additionally, you may choose from a variety of “virtual” device templates to assess and select the appropriate device size.

### Integrated Philips CX50 Ultrasound

Echocardiology is often used as an adjunct modality for accurate assessment of the heart function, for punctures and implants guidance during transcatheter structural heart repair procedures.

### Integration of the Philips CX50

CompactXtreme Ultrasound brings you not only premium ultrasound, excellent image quality but also seamless integration for optimal workflow and efficiency:

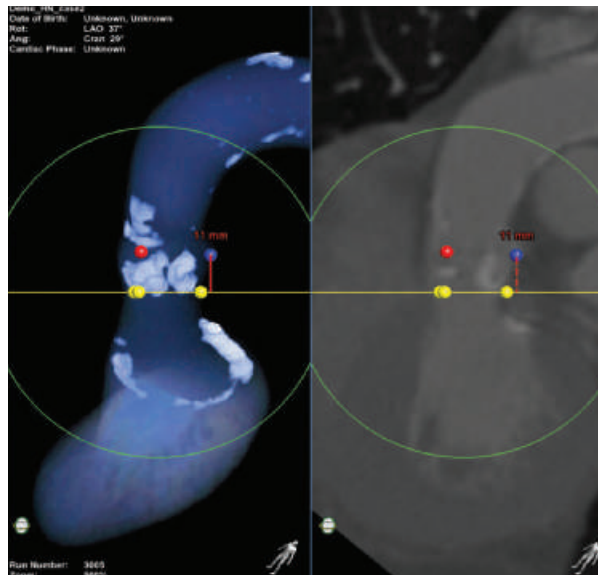
**Before:** Patient information is fed directly from your Allura Xper FD system, eliminating retyping and errors.

**During:** CX50 images are displayed on the X-ray monitors. All ultrasound imaging and viewing controls can be accessed from the Allura Xper Module at tableside.

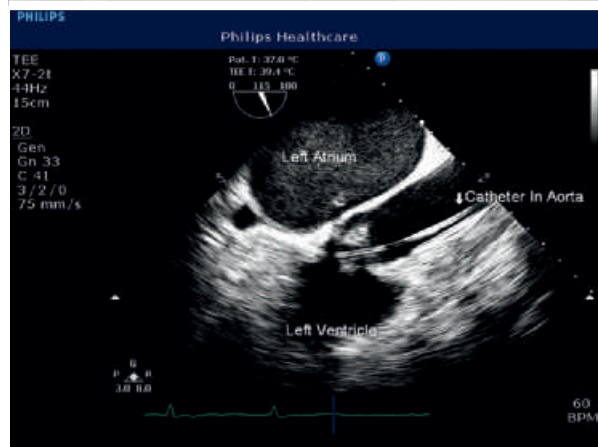
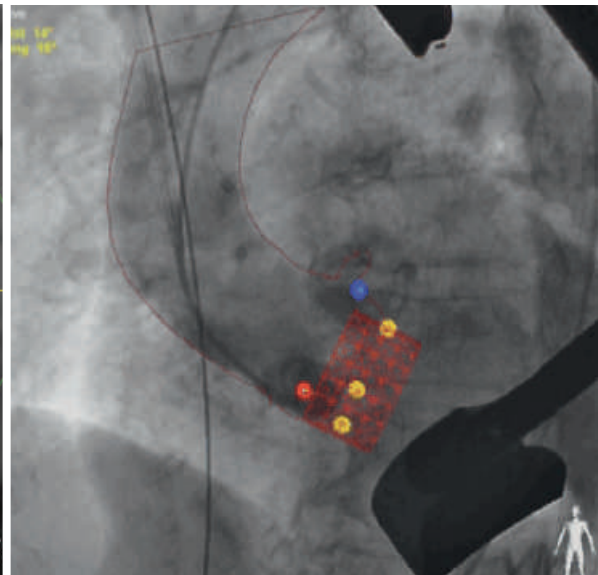
**After:** Both X-ray and ultrasound images are saved in the same study folder and sent to a DICOM node like PACS to simplify reading room activity.



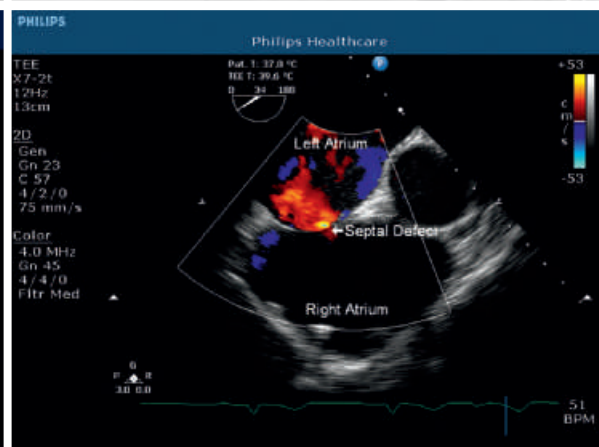
Automatic distance measurement between the coronary artery and the valve plane. Calcifications are visible in white.



Overlay of CT outline on live fluoroscopy. The three yellow landmarks indicate the bottom of the cusps. The virtual device template can be turned on/off for reference.



Catheter traversing over the stenotic aortic valve into left ventricle using the X7-2t transducer TEE probe.



Color flow Doppler showing septal defect between the right and left atria. The X7-2t transducer TEE probe was used here.

“We have found that the Philips HeartNavigator automatic measurements of the aortic root are reliable and accurate. They are more reproducible than manual measurements on CT and increased our confidence in transcatheter valve sizing.”

Prof. Wahlers - Herzzentrum der Universität zu Köln Germany

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