MV acquisition with

Vivid E9 4D TEE

Made Easy

4D Zoom Prepare

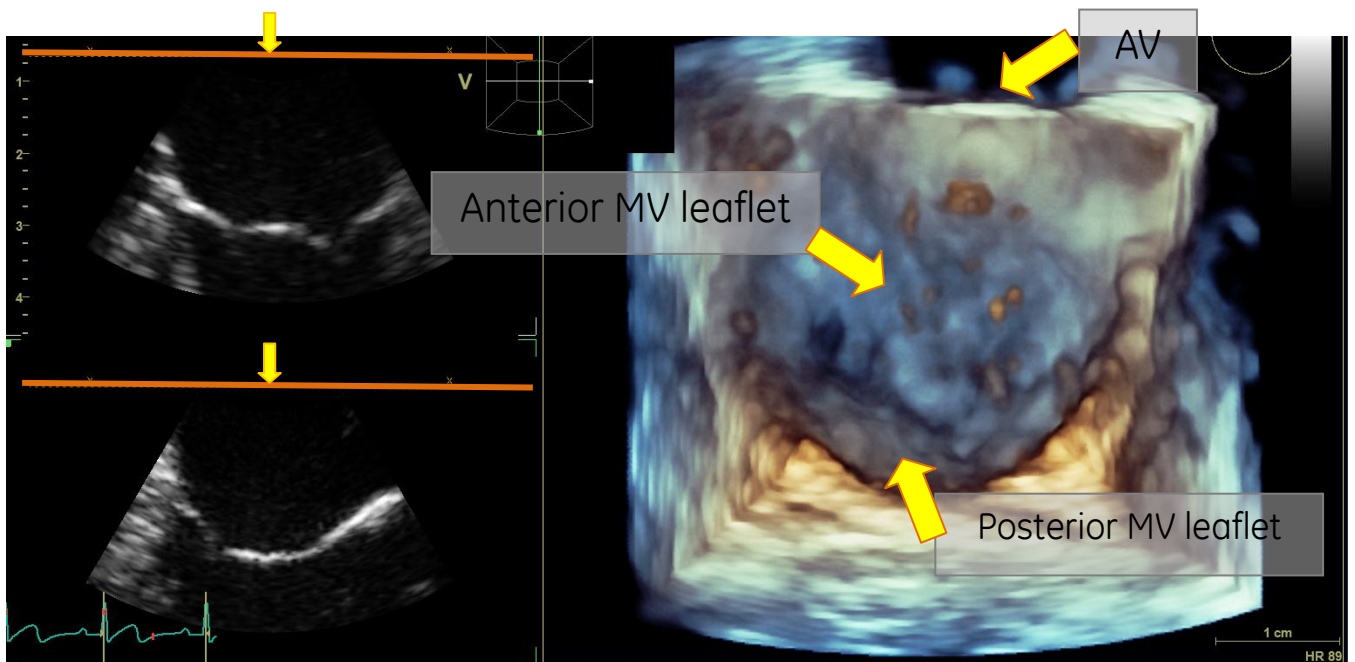Mitral Valve

AV

Anterior MV leaflet

Posterior MV leaflet

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NOTE
This hand out is additional training material.
For more information please refer to the user manual and/or reference manual.

GE imagination at work

MV acquisition on Vivid E9 4D TEE made Easy

General remarks

While scanning with VE9 BT12 and 4D TEE there is an easy way to get a quick acquisition of the Mitral valve in a surgical view.

By using the dedicated Mitral valve button the image will be displayed automatically in the position with view from left atrium towards the Mitral valve and Aortic valve placed on top of the screen at 12 o'clock position. This specific view is known as the surgeons view onto the Mitral valve.

In order for the system to position correctly, the software is making assumption about the heart orientation. It assumes that a 4Ch view would correspond to an angle of 0 degree.

This is just a geometrical assumption.

Using this information, the mitral valve will be shown in the surgeon orientation regardless of the starting angle (angles when being in the 4D prepare zoom).

Basically with Mitral Valve, the zoom acquisition can be started from any angle.

Getting started

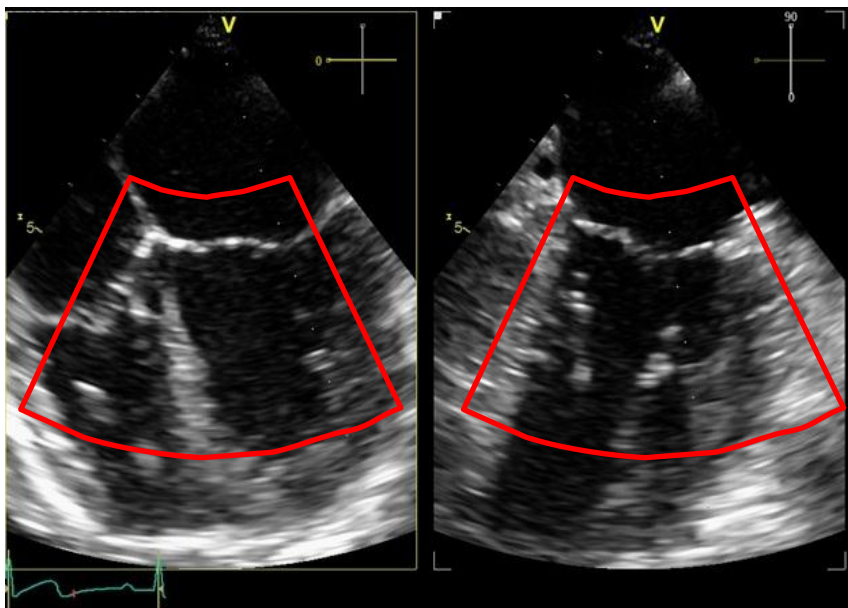**Select 6VT**-D probe with preset of choice.

Depending on the individual workflow, the user can start from either a single plane 2D image or from a Biplane Imaging mode.

Prepare your Zoom Region of interest

Press **4D Zoom Prepare** on touch panel

A biplane image appears on the screen.
The Zoom region of interest appears with a standard width in the middle of the planes.

## Adjust Zoom region of interest

Note

When adjusting the Zoom ROI, it's recommended to adjust the size not too tight. Adjusting the ROI very tight, landmarks for orientation can get cut i.e. the Aortic valve, which can make the orientation in the dataset a bit difficult at the end.

Adjust the zoom ROI with several Trackball operations
Default function on the trackball is to adjust the **Position** of the ROI in the Azimuth plane. The ROI in the elevation plane moves in the same way together with the azimuth plane.

GE imagination at work
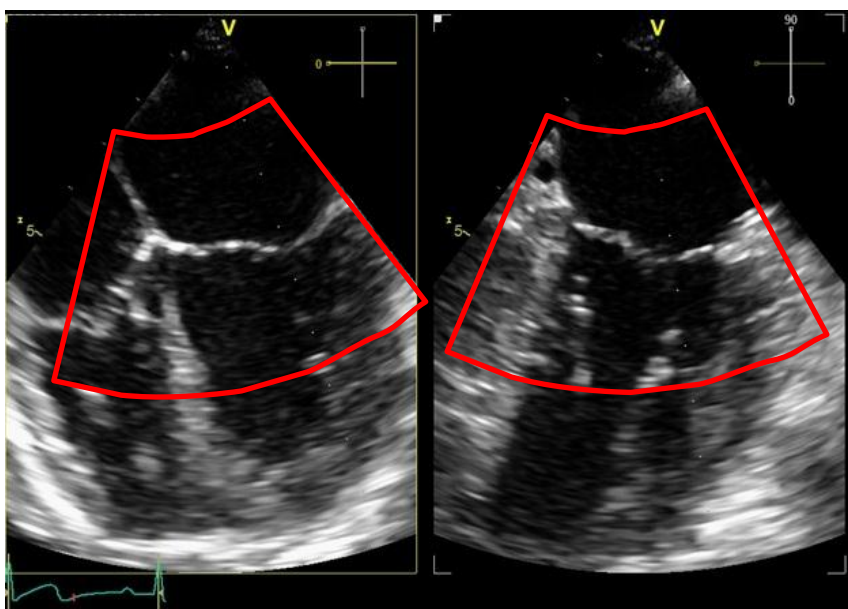
Press the **Set** button to change from Position to ROI **Size** and adjust accordingly.
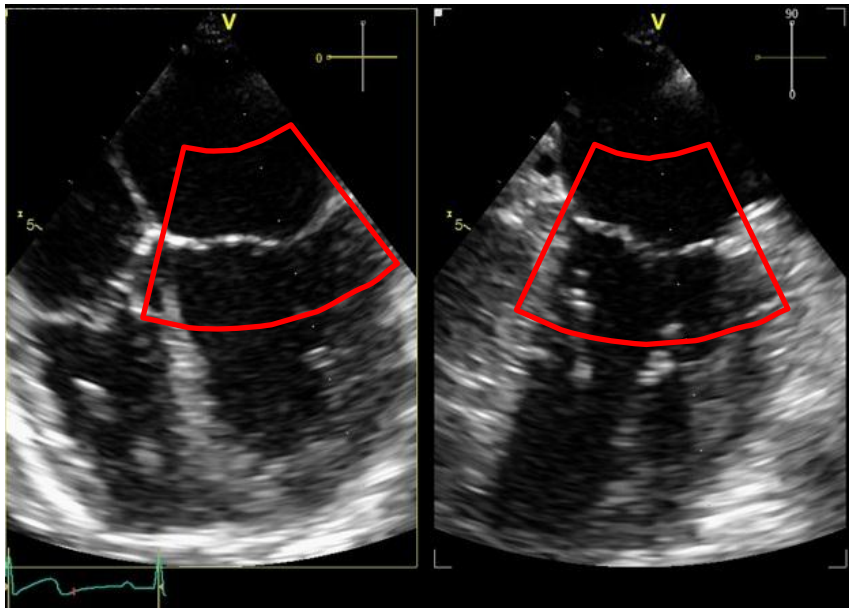
Use the **Set** button to change between **Position** and **Size** and optimize until satisfied.

To further adjust in Elevation plane, press the **Trackball** button or use the **Ref Plane** button on the touch panel.
Adjust **Width** and **Position** in the elevation plane (switch between those two functions with **Set** button)
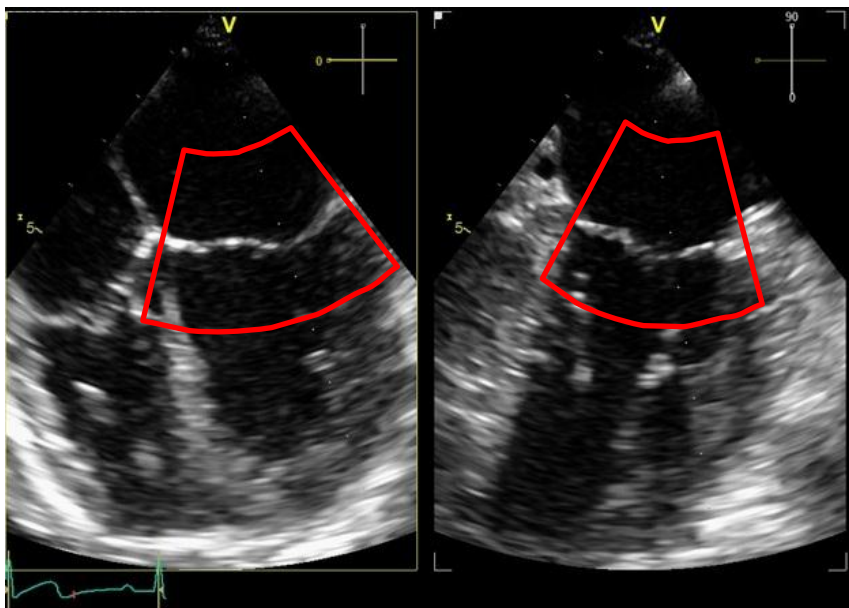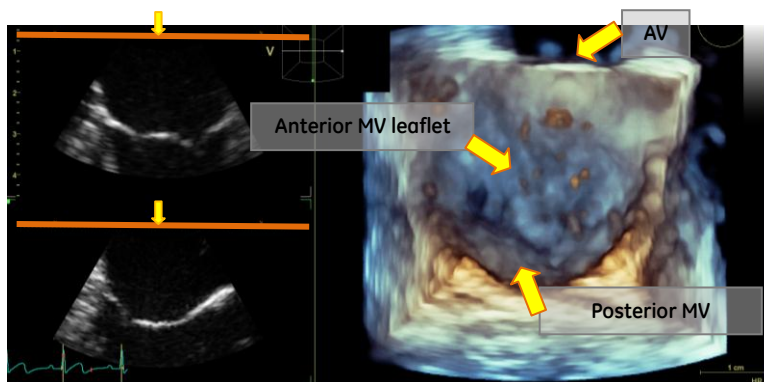
MV button

Once the Zoom ROI is set properly press **the Mitral valve** button on the touch panel

Rendered image

A rendered zoomed image of the MV is displayed in the rendered mode.
The viewing plane looks from the left atrium towards the Mitral Valve.
The dataset is rotated 90° counter clockwise to have AV in 12 o'clock position.

By moving the trackball with the **Rotation** function the dataset can be further optimized to the correct positioning.

Rotation clockwise/counter clockwise can be done by using the Rotate Z rotational Knob
Rotate Z is only available when in Relative Navigation Mode (Page 2 on the touchpanel)

Translation of the viewing plane can be used to move closer to the MV if needed.
Either use the **Translation** rotational knob on the touch panel (press on Rotate Z to change to Translation)
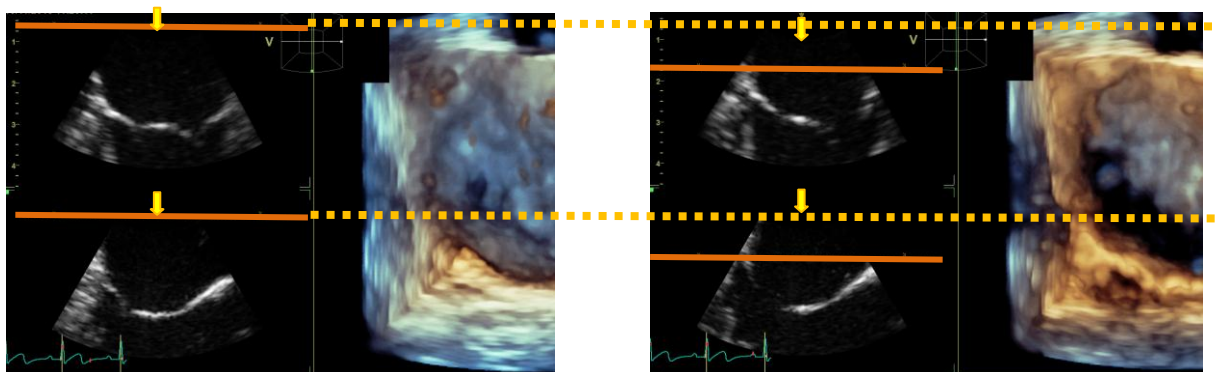 **or**
press the Set button to change the trackball function from **Rot**ation to **Transl**ation

GE imagination at work
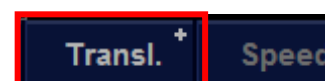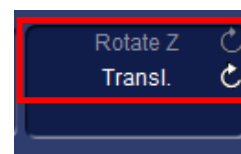
Translation of the viewing plane closer to MV:
Before   After

Press **Image Store** once satisfied with the image.

Temporal resolution

If higher temporal resolution is needed a multi-beat acquisition might be necessary. By splitting the entire volume into several sub volumes (by keeping the selected volume size from single beat), higher volume rates can be achieved, without losing spatial resolution

Adjust your single beat acquisition as describe above.
Then select the **number** of heart **cycles** you want to collect.
Possible settings are 2-3-4 or 6 cycles.

Note

The volume will be split in several sub volumes according to the selection of the number of heart cycles. This will increase the frame rate by 2 times, 3times, 4 or 6 times according to the number of cycles.

Press **Multi Beat** to start the stitched acquisition.

Press **Image store** whenever satisfied with the dataset.

4D Colour flow

By starting with a 2D image including Colour flow the same workflow as above can be applied.
Or
While already in a 4D Zoom Image, the colour flow can be applied by simply pressing the Colour button.

Colour flow can be added or removed while in 4D Zoom at any time, by pressing the **Colour** Mode button.