

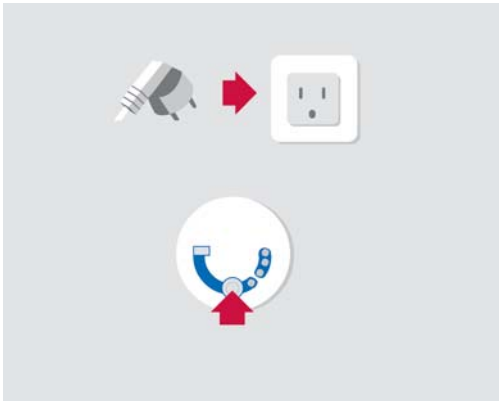
# OR SETUP

Software Versions: VectorVision fluoro<sup>3D</sup> 2.x



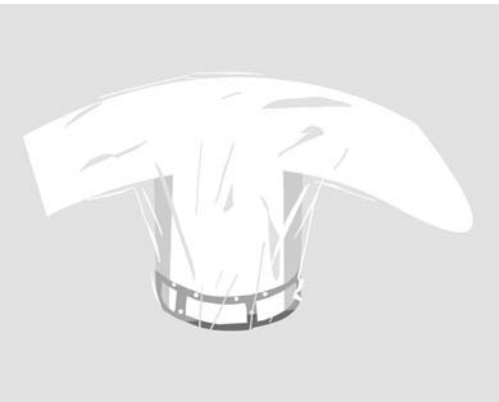
## STEP 1

- Prepare the patient (use carbon table)
- Position the patient so that the region of interest is accessible for 3D scanning
- Remove all metal parts from the scan region



## STEP 2

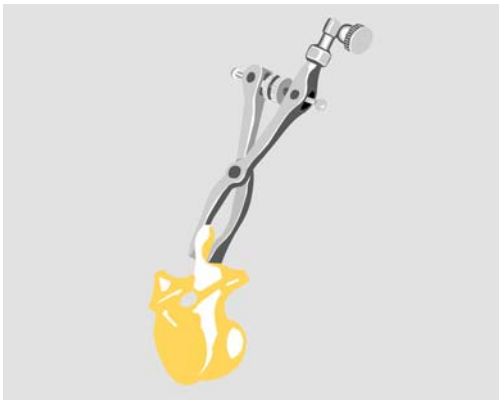
- Plug in the system
- Connect the network cable
- Switch on the system using the power switch
- In the selection screen that appears, press the **VectorVision fluoro<sup>3D</sup>** icon



## STEP 3

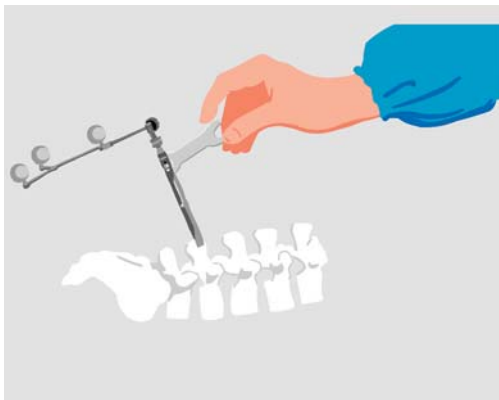
- Attach the **Fluoro 3D/2D Registration Kit** to the C-arm (without the 2D registration ring)
- Drape the C-arm using the sterile drape provided by Siemens
- Equip all instruments with reflective marker spheres

**NOTE:** For 2D image acquisition, mount the 2D registration ring before draping the C-arm.



## STEP 4

- Attach the bone connector (e.g., screw connector of the **MIRA** or the **Spine Reference X-Clamp** base) to the bone
- Ensure a stable fixation to the bone structure



## STEP 5

- Attach the reference array to the bone connector
- Lock all joints using the wrench provided
- Check that the reference array is correctly attached to the bone structures
- Make sure the camera has an unobstructed view of the reference array



## STEP 6

Position the system so that:

- The surgeon can easily view the monitor
- The camera is 5-7 feet (1.5-2.1 meters) away from the reference array
- The reference array and the navigated instruments are visible to the camera



## STEP 7

Verify instrument and reference array visibility:

- Green status field = array and instruments visible
- Green spheres = **Pointer**
- Yellow spheres = uncalibrated instrument or array before patient registration
- Red spheres = array after patient registration
- Gray spheres/circles= unidentified instrument

**NOTE:** Image acquisition can now be performed.

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# 3D IMAGE ACQUISITION

Applicable to: Siemens 3D C-arms and Software Versions VectorVision fluoro<sup>3D</sup> 2.x



## STEP 1

- Prepare the patient and the C-arm as described in the **OR Setup** leaflet of this Quick Reference Guide
- Position the region of interest in the isocenter
- Ensure visibility of the region of interest using AP and lateral 2D fluoroscopic images
- Bring the C-arm into the end position of the scan

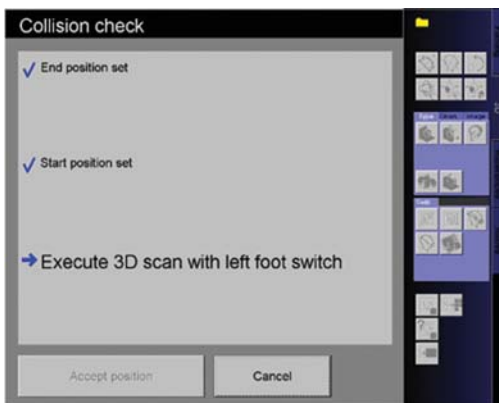
**NOTE:** If the 2D registration ring is attached to the registration kit, make sure to detach it before acquiring 3D images.



## STEP 2 (ON C-ARM)

- Select **Patient**, then **3D Acquisition**, or press the acquisition button at the bottom left
- Select **Slow scan**
- Define the image orientation
- Select **Brainlab** as navigation
- Select **Yes** for 3D navigation

**NOTE:** When using the Iso-C<sup>3D</sup> (instead of Arcadis Orbic<sup>3D</sup>) C-arm, the instructions above may vary.



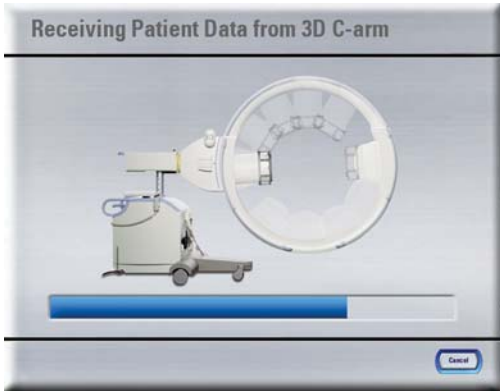
## STEP 3

- Perform a collision check
- The C-arm is now in the start position
- Adjust the camera so that the reference array and the **Fluoro 3D/2D Registration Kit** is clearly visible



## STEP 4 (ON NAVIGATION SYSTEM)

- Press **Scan Patient** in the **Input Selection** dialog
- Proceed to the **Execute Scan** dialog



## STEP 5

- Hyperoxygenate the patient
- Pause patient breathing at end-expiratory state
- Press the left foot switch and keep it pressed until the scan is completed
- Resume patient breathing



## STEP 6

If you are using the Iso-C<sup>3D</sup> arm:

- Open the **Patient Browser**
- Select the relevant 3D scan data
- In the **Transfer** menu, select **Send to...**
- Select **Brainlab** and press **Send**



## STEP 7

Verify image accuracy using the pointer:

- Hold the pointer on at least three landmarks and verify the position shown on the screen
- Check the accuracy for all directions and rotations

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# 2D IMAGE ACQUISITION

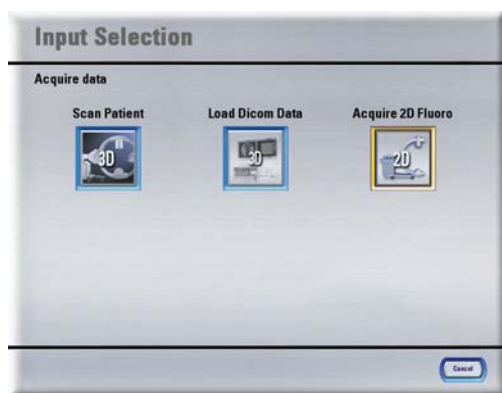
Software Versions: VectorVision fluoro<sup>3D</sup> 2.x



## STEP 1

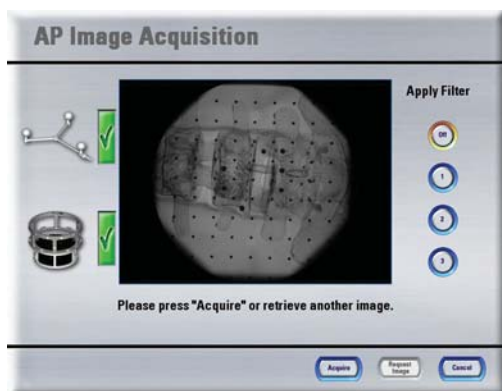
- Perform the OR setup as described in the **OR Setup** leaflet of this Quick Reference Guide

**NOTE:** Perform the setup for 2D image acquisition with the 2D registration ring attached to the registration kit.



## STEP 2

- Select **Acquire 2D Fluoro** on the navigation system
- Select the image type (AP, lateral or oblique)
- Make sure that the camera has an unobstructed view of the **Fluoro Registration Kit** and the reference array

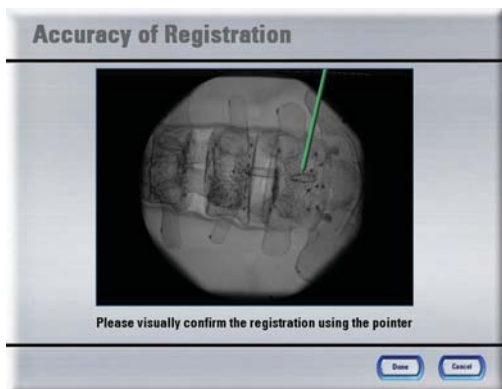


## STEP 3

Perform 2D image acquisition:

- Acquire fluoroscopic images until the image shows the required area

**NOTE:** If you would like to modify the acquired images on the C-arm, make sure to first press the **Acquire** button.



## STEP 4

Verify image accuracy using the pointer:

- Hold the pointer on at least three landmarks and verify the position shown on the screen

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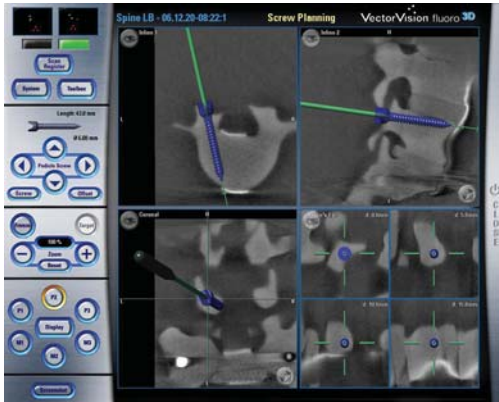
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# PLANNING & NAVIGATION

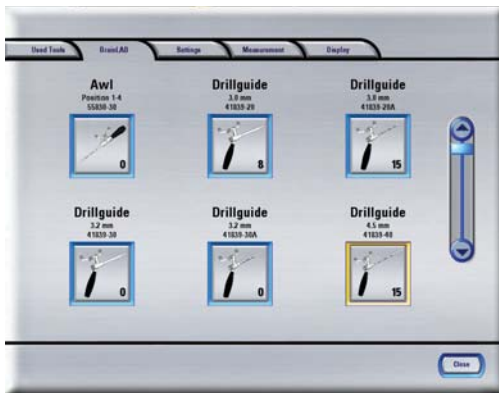
Software Versions: VectorVision fluoro<sup>3D</sup> 2.x



## STEP 1

Perform the trajectory or screw planning:

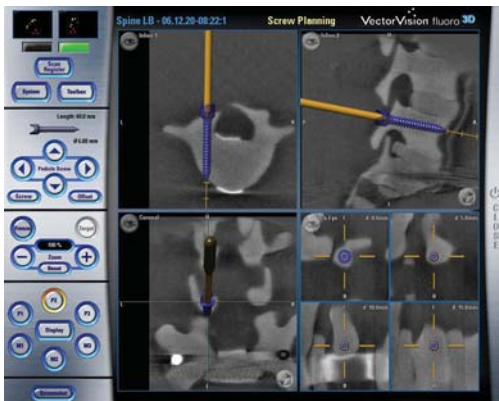
- Press **P2**
- Navigate to the required implant location
- Specify the implant dimensions in the menu bar
- Press **P3**
- Check the displayed implant position
- Press **Yes** to accept the planned screw



## STEP 2

Activate the instrument in the software:

- Open the **Toolbox**
- Select **Brainlab** (or other instrument manufacturer)
- Select the required precalibrated instrument
- Verify the accuracy of the selected instrument



## STEP 3

- Navigate the instrument
- Press **P2** to plan the next screw
- Press **P1** to return to the main screen

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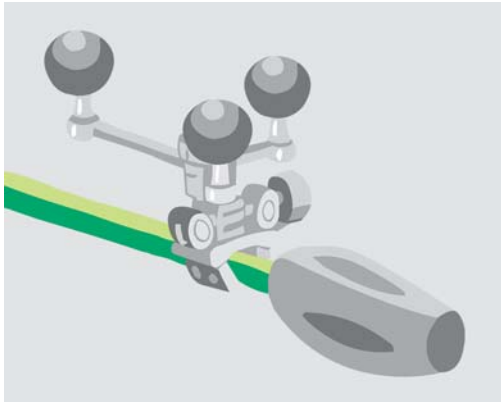
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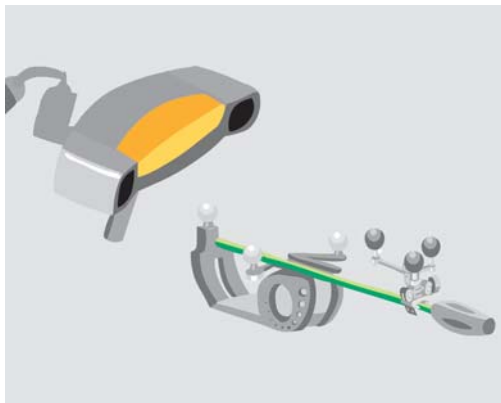
# TOOL CALIBRATION

Software Versions: VectorVision fluoro<sup>3D</sup> 2.x



## STEP 1

- Securely attach reflective marker spheres to a suitable tool adapter
- Mount the tool adapter to the instrument requiring calibration



## STEP 2

- Securely attach reflective marker spheres to the **Instrument Calibration Matrix Rev. 4 (ICM4)**
- Activate the calibration procedure by holding the **ICM4** and the selected instrument together in the camera's field of view



## STEP 3 (OPTION 1)

Performing V-inset calibration:

- First, calibrate the axis using the V-inset
- Select the instrument type (e.g., pointed, flat)
- Press the corresponding button again to perform a tip calibration (optional)

**NOTE:** The tip calibration is mandatory if the instrument tip does not touch the reference plane or if you would like to refine the calibration.



## STEP 3 (OPTION 2)

Performing receptacle calibration:

- Insert the instrument tip into the smallest receptacle possible and rotate the instrument
- A progress bar indicates the calibration status

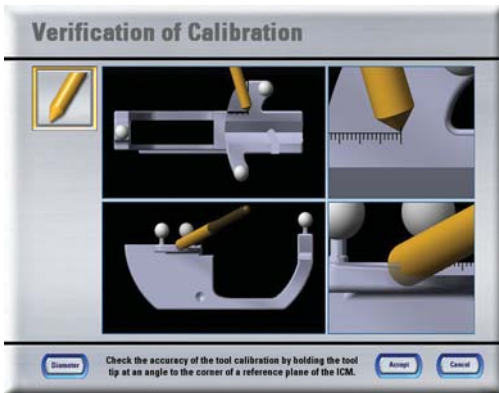
**NOTE:** The instrument tip must remain fully inserted into the calibration receptacle throughout this procedure.



### STEP 3 (OPTION 3)

Performing manual calibration:

- Press the **Manual** button
- Insert the instrument tip into the smallest receptacle possible
- Select the corresponding receptacle on the screen
- Hold the instrument still until the progress bar is complete



### STEP 4

- Visually confirm the calibration accuracy

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# PRECALIBRATED TOOLS

Software Versions: VectorVision fluoro<sup>3D</sup> 2.x



## STEP 1: If you are using a **Drill Guide**

Assemble the **Drill Guide**:

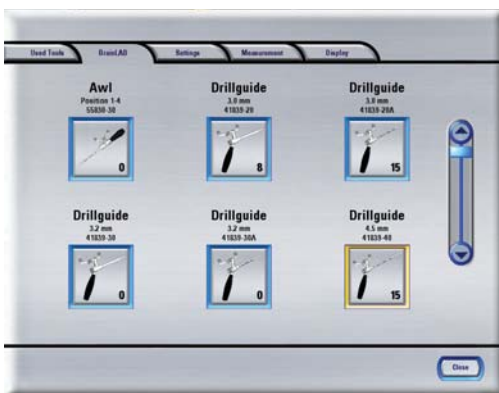
- Attach reflective marker spheres to the tracking array
- Attach the handle to the tracking array
- Attach the drill guide tube to the tracking array



## STEP 1: If you are using the **Spine Instrument Set**

Assemble the **Spine Instrument Set**:

- Attach reflective marker spheres to the tracking array
- Attach the required tip to the tracking array
- Attach the required handle



## STEP 2

Activate the instrument:

- Open the **Toolbox**
- Select **Brainlab** (or other instrument manufacturer)
- Select the required instrument (check product code)



## STEP 3

Verify the instrument:

- Instrument counter = 0 → Proceed to step 4
- Instrument counter > 0 → Verify the instrument or validate it (optional, see step 4)
- If you are using a **Drill Guide**, hold it in the indicated receptacle for verification
- If you are using the **Spine Instrument Set**, hold it in the pivot point for verification

Note: The Quick Reference Guides do not replace reading the user manuals



#### STEP 4

- Validate the instrument according to the instructions on the screen

**NOTE:** Instrument validation is mandatory if the instrument counter has reached zero.



#### STEP 5

If the validation was successful, the instrument is now activated

If the validation was not successful or if the verification appears to be inaccurate, check that:

- The correct instrument is selected
- The instrument is correctly assembled
- The reflective marker spheres of the instrument and the **ICM4** are clean, dry and completely mounted

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