



e-ORTHO  
SHOULDER

Preoperative  
protocol

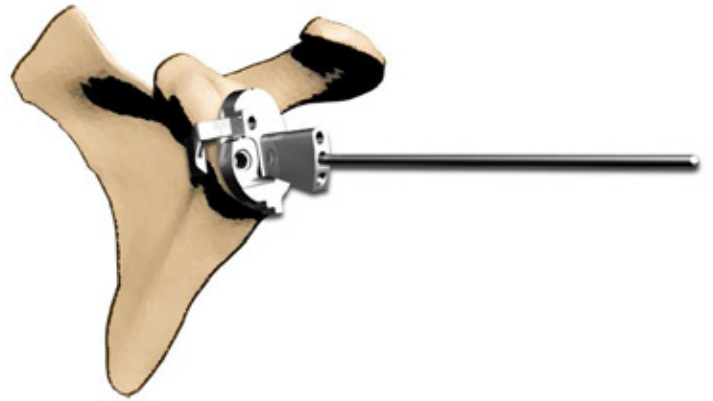
V 1.1, August 2021

## Introduction

This document describes the guidelines for a preoperative Shoulder CT-Scan intended to perform 3-D surgical planning by e-Ortho. (e-Ortho is a medical software intended to carrying out the planning and surgical visualization of an ARROW shoulder prosthesis, any other derived use can generate undesirable results).

Following these instructions allow us to obtain the scan quality requirements needed to identify bones edges to be processed by e-Ortho (3-D surgical planning software).

- **ONLY DICOM** images are accepted (ex. jpeg format cannot be used by e-Ortho).
- Please contact us for further information.



## Patient preparation

- Remove any non-fixed metal parts that might interfere with the images quality (ex: jewelry, zippers).

## Patient position

- The patient position should be as follow: supine, arms at sides of the body, shoulder in neutral rotation and cervical spine in neutral position.
- Request the patient not to move during the scan.

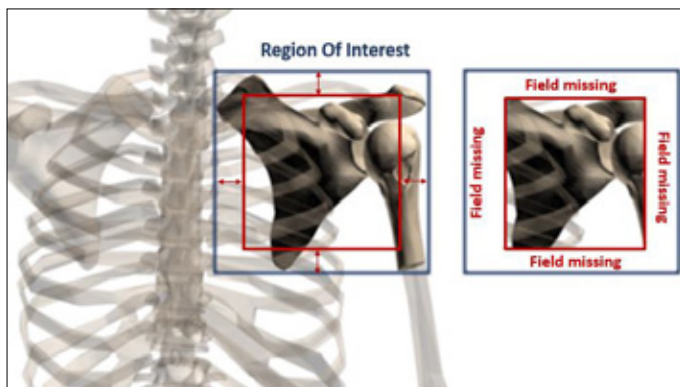
**Use:** HFS = Head First-Supine or FFS = Feet First-Supine  
**Please do not use:** HFDR / FFDR / FFP / HFDL / HFP

## Scanning Instructions

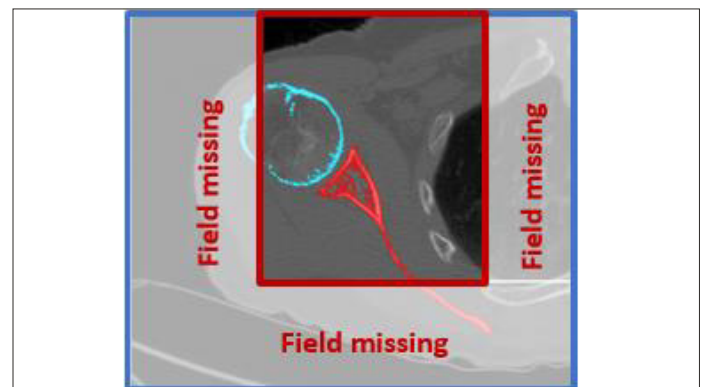
- Do not change patient's or table's position during the procedure.
- Maintain a single coordinate system, the Field Of View between the CT-Scan images.
- No Gantry Tilt / No Oblique Images.

Only raw axial images must be provided; please do not include sagittal/coronal or 3D reconstructions.

## Common scan errors



*Failure to scan the full Region Of Interest ROI*



*Failure to scan the full Field Of View FOV*

## Option 1: Scanning the elbow

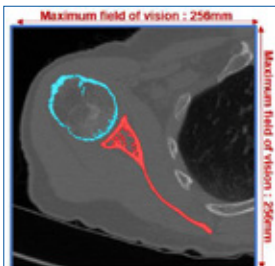


### Recommendations

#### Region Of Interest (RIO):

Set the RIO in order to capture all the scapular and the full humeral bone as shown in the figure (including elbow).

Set the table height so that the scapula and the humeral bone are centered in the scan field.



#### Field Of View (FOV):

Set the FOV in order to capture all the scapular and the full humeral bone as shown in the figure including elbow).

\* Please do not exceed 256mm of FOV, E-Ortho needs a pixel size maximum of 0.5 mm with a 512\*512 matrix.

Example: (Matrice size) X (Pixel size) = (FOV)  
(512\*512) X (0.5) = (256 mm)

It is highly recommended to verify that all the scapular and the full humeral bone are in the Region Of Interest prior to the CT-Scan acquisition. Failure on this requirement renders the scan unusable.

## Option 2: Scanning only the proximal humerus

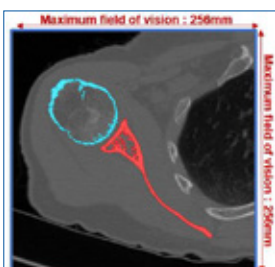
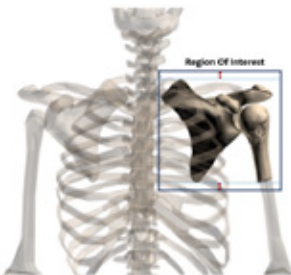
It is possible to perform a surgical planning without having the full humeral bone (**only the proximal humerus**) in the scan. Consequently, the humeral retroversion will not be calculated in these case

### Recommendations

#### Region Of Interest (RIO):

Set the RIO in order to capture all the scapular and the proximal humeral bone as shown in the figure.

Set the table height so that the scapula and proximal humeral bone are centered in the scan field.



#### Field Of View (FOV):

Set the FOV in order to capture all the scapular and the proximal humeral bone as shown in the figure.

\* Please do not exceed 256 mm of FOV, E-Ortho needs a pixel size maximum of 0.5 mm with a 512\*512 matrix.

Example: (Matrice size) X (Pixel size) = (FOV)  
(512\*512) X (0.5) = (256 mm)

It is highly recommended to verify that all the scapular and the proximal humeral bone are in the Region Of Interest prior to the CT-Scan acquisition. Failure on this requirement renders the scan unusable.

Scanning parameters		
Paramètre (Scanner hélicoïdal)	Preoperative	
Kernel/Algorithm	Smooth, Soft tissue or Moderate reconstruction algorithms. (avoid using a Bone or Sharp algorithms)	
kVp	120	
mAs	Automatic	
Slice	Slice thickness	1mm maximum
	Slice increments	0.5mm maximum (or 50% overlap) *Not overlapping the axial slices significantly reduce the quality of the reconstructions.
Pitch	1 or less	
Rotation time	1 second tour or less	
Resolution	Matrix size reconstruction 512*512	

This guideline is provided for informational purposes only. The chosen procedure is the responsibility of the healthcare professional, prior to any scan acquisition, healthcare professional should evaluate the appropriateness of the procedure to the specific patient based on his or her medical training.

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