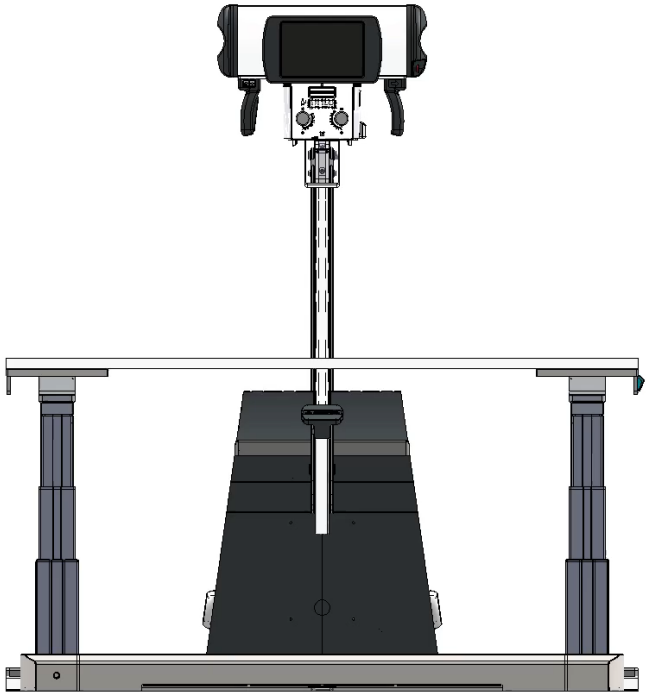
MultiVET

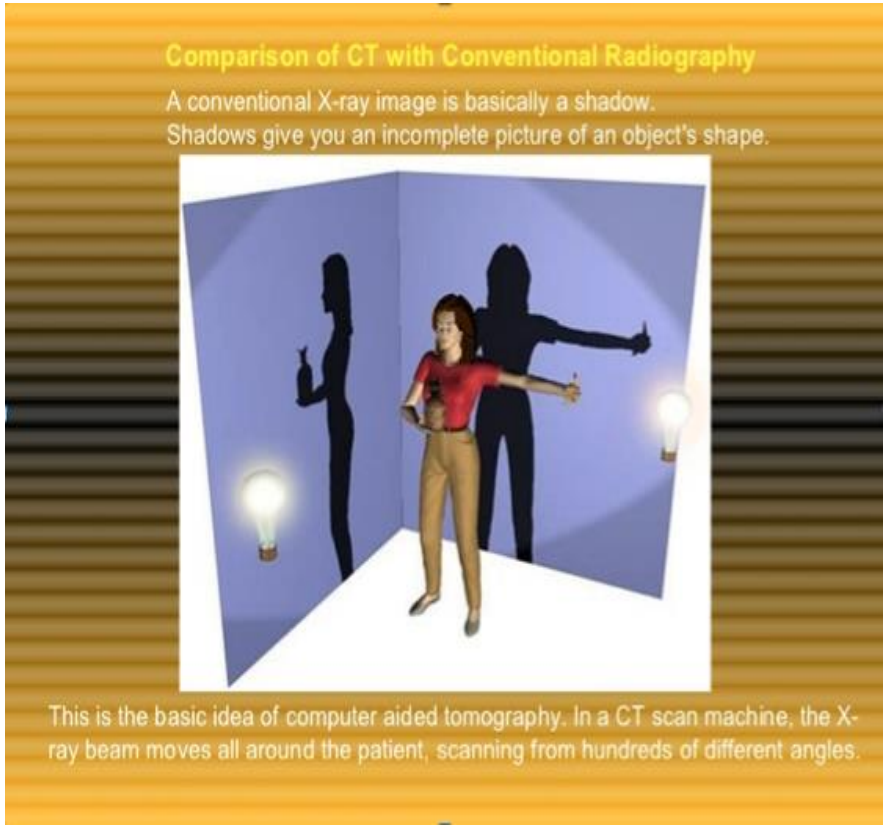
MultiVET multimodality system.

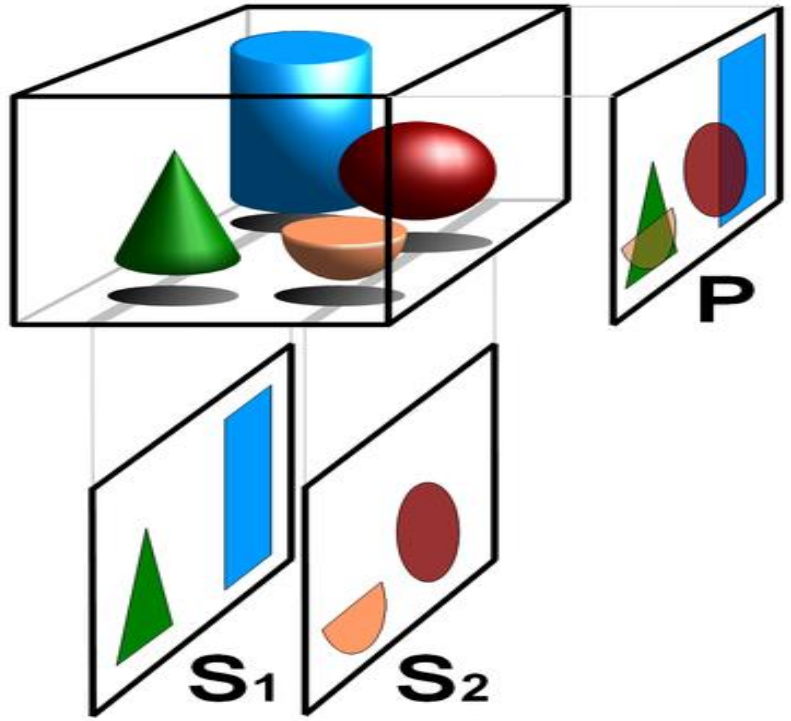
MultiVET has three working modes:



- **2D Rad X ray**
- **3D tomographic X ray**
- **2D Fluoroscopy X ray**

Radiography vs CT

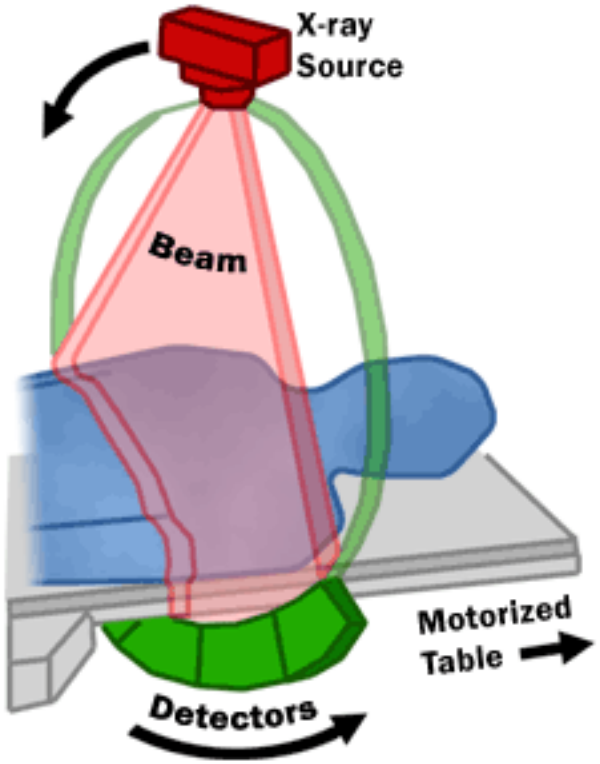


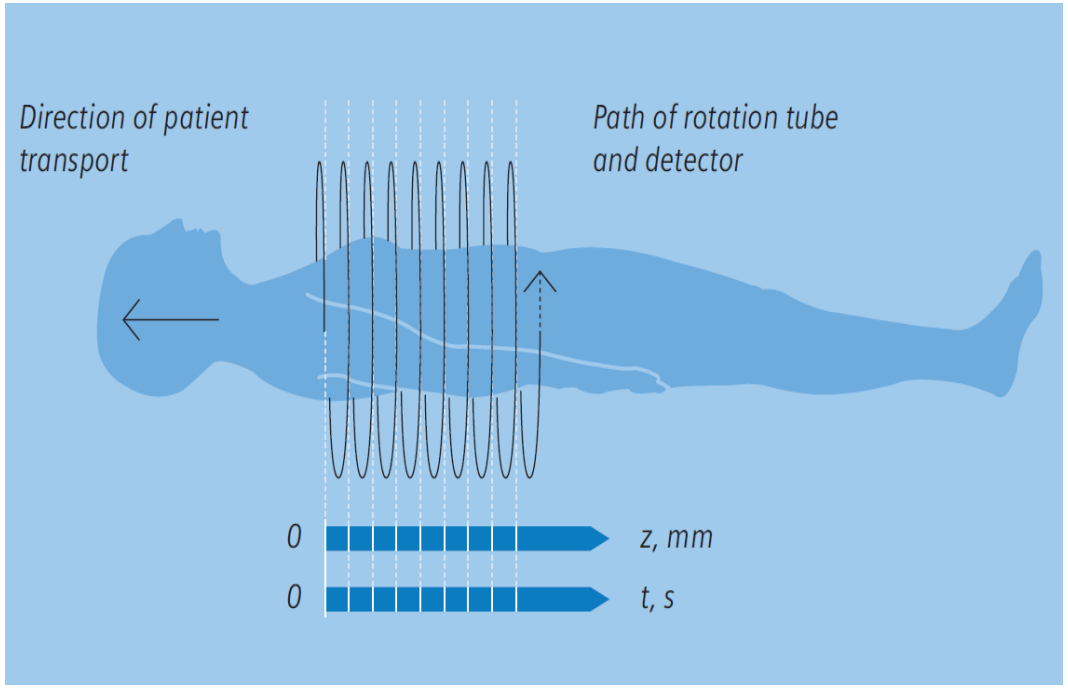


Superposition free tomographic cross sections S1 and S2 compared with the projected image P

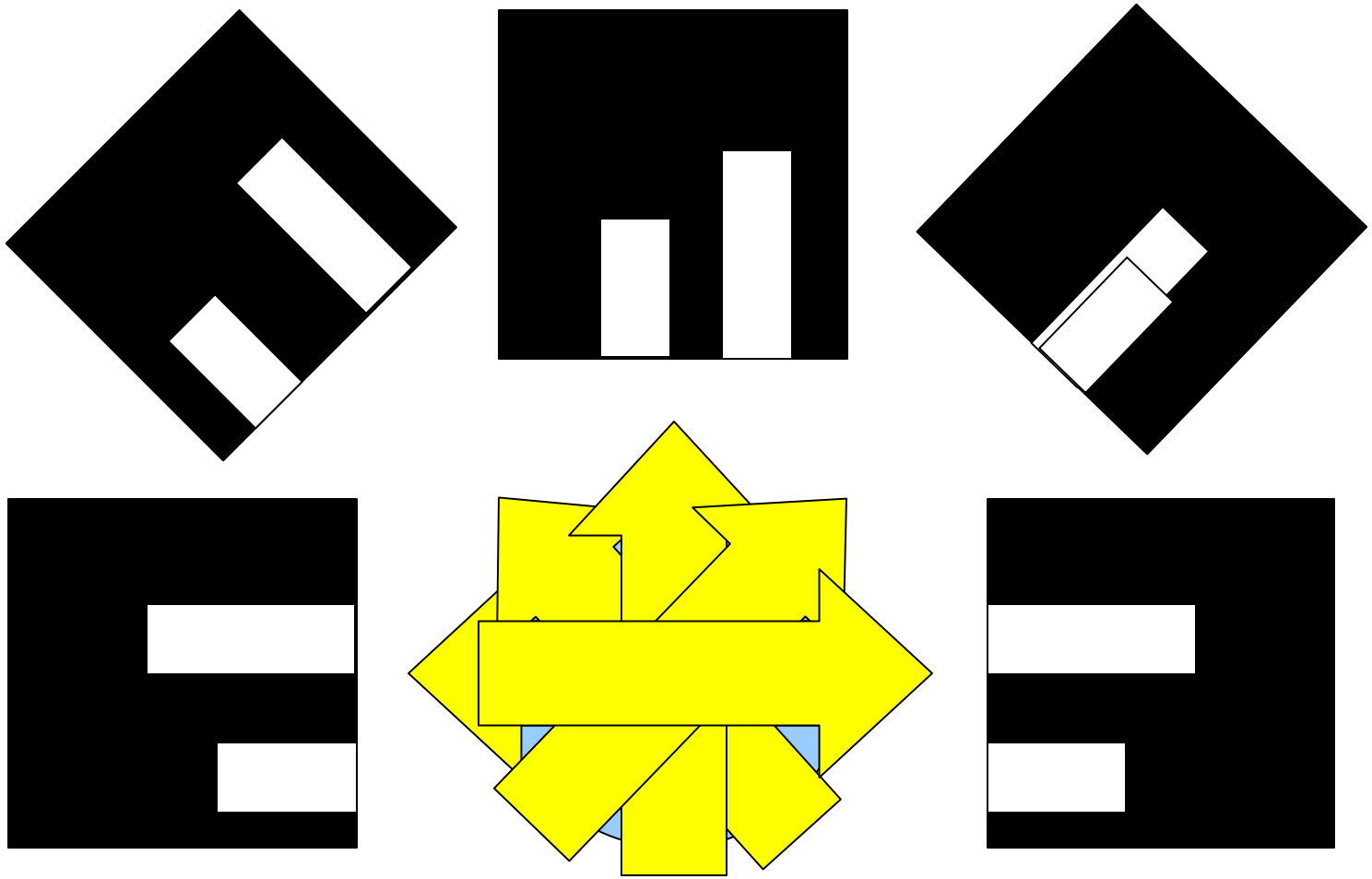
CT – Computed Tomography

CT scan machines use x-rays combined with radiation detectors coupled with a computer to create cross sectional images of any part of the body

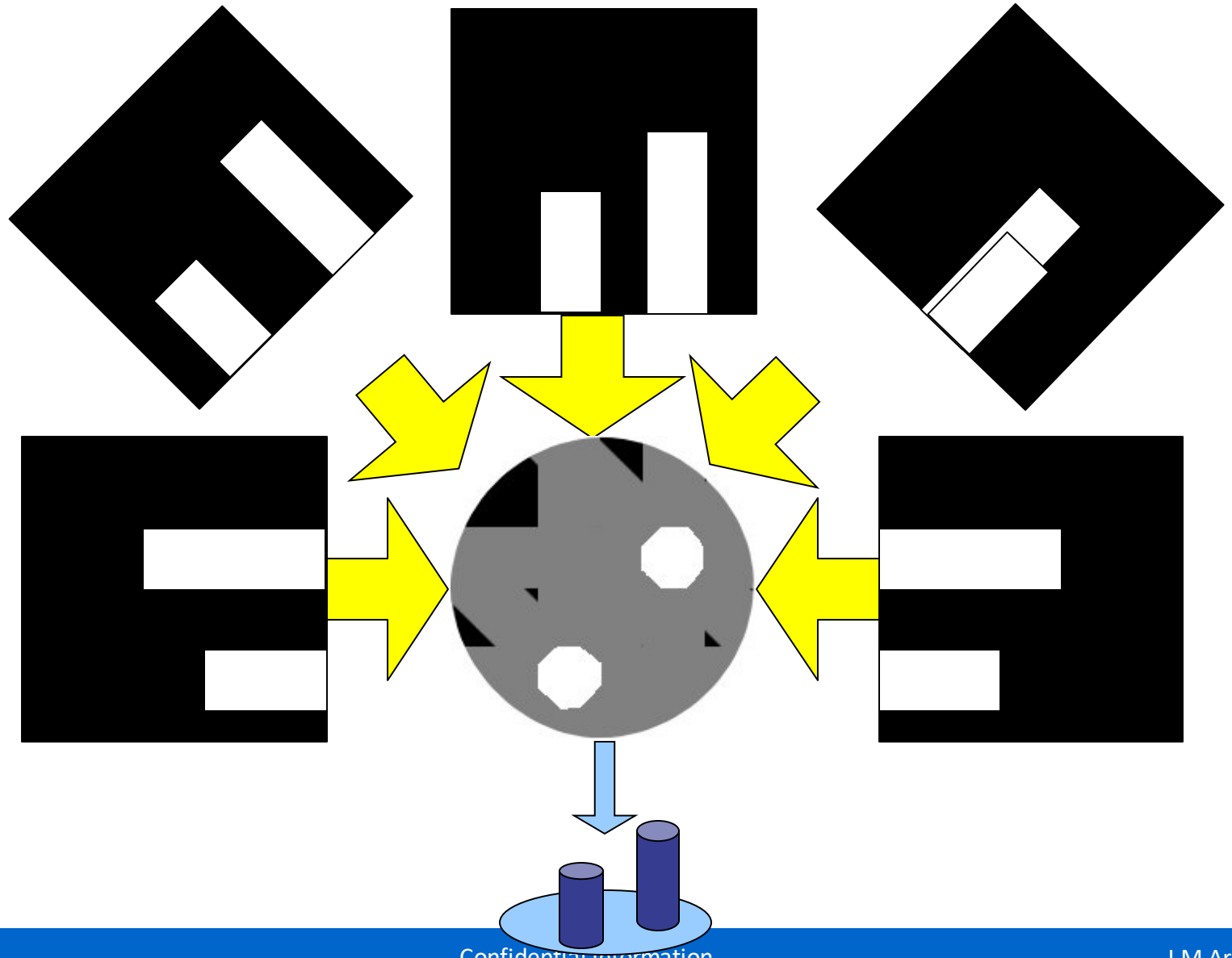




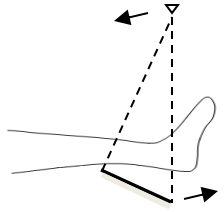
Acquisition – collecting projection images



Reconstruction–projecting the images

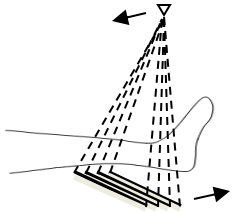


Conventional CT vs. Cone Beam CT



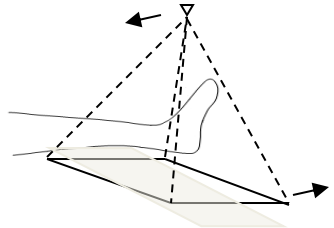
CAT scanner

one slice acquired per rotation. Patient table moves between rotations (conventional CT).



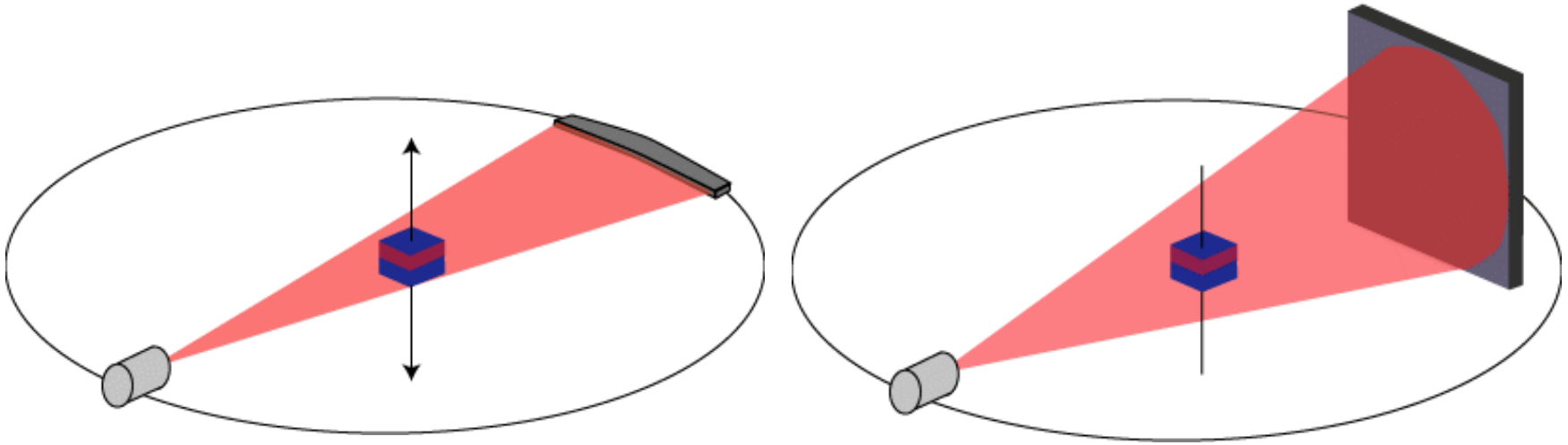
Multislice-CT

up to 640 slices acquired per rotation. Patient table moves during continuous rotation (helical CT).

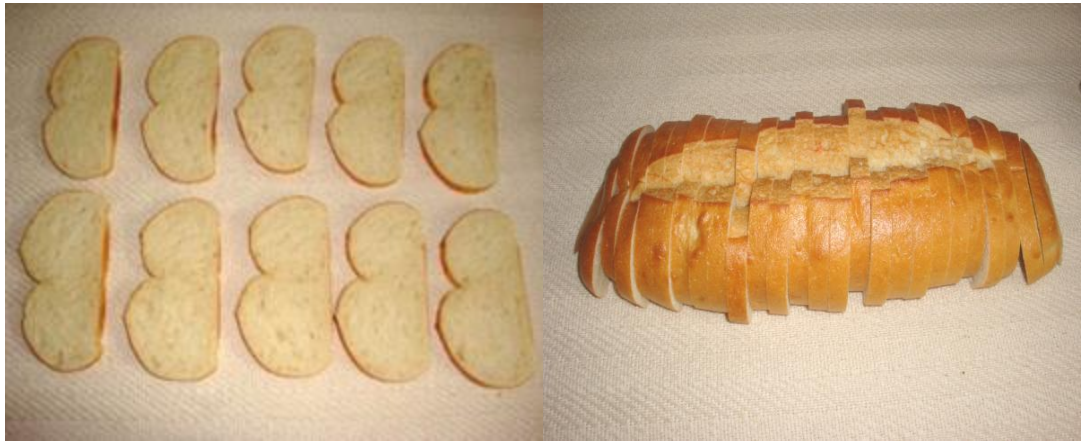


Cone Beam CT

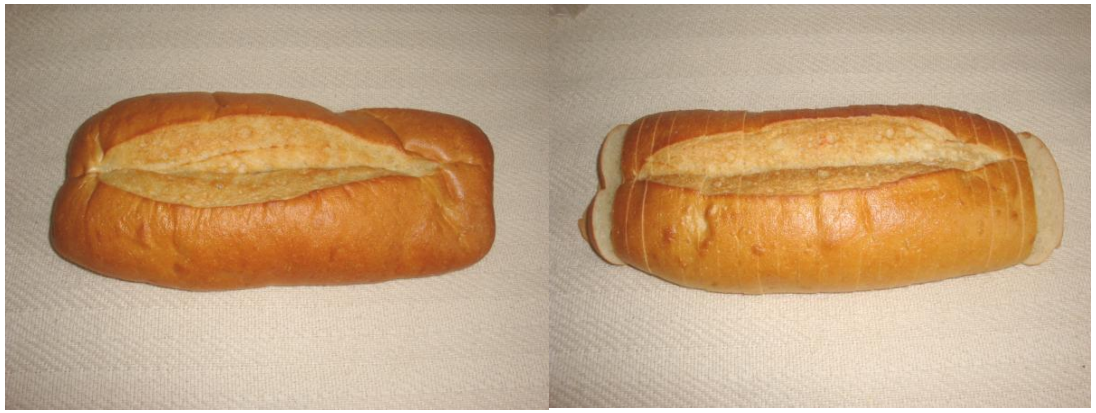
the whole FOV imaged during a partial rotation. No need for patient movement.



Conventional CT vs Cone Beam CT



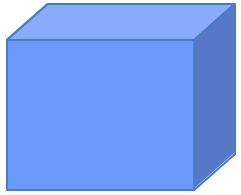
Conventional CT
Slices are acquired then reconstructed to create the volume



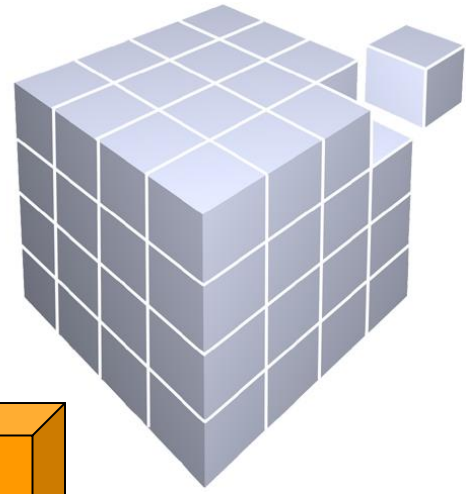
CBCT
The volume is acquired then slices are reconstructed from the volume

Cone Beam CT vs. conventional CT

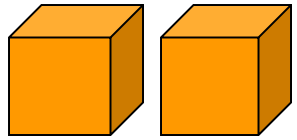
Pixel

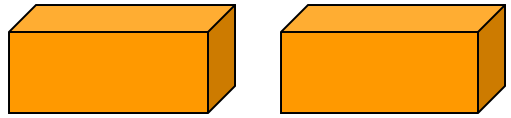


Voxel

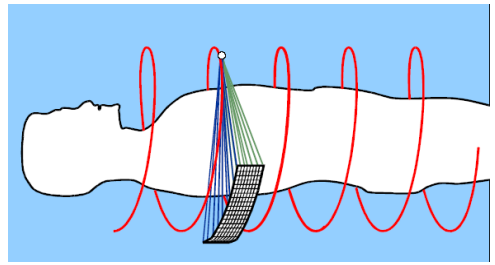


- CBCT has always an isotropic voxel
- The reconstruction can produce any size of voxel
- The voxel is always perfect cube
- Voxel size is typically 0.3 – 0.8 mm



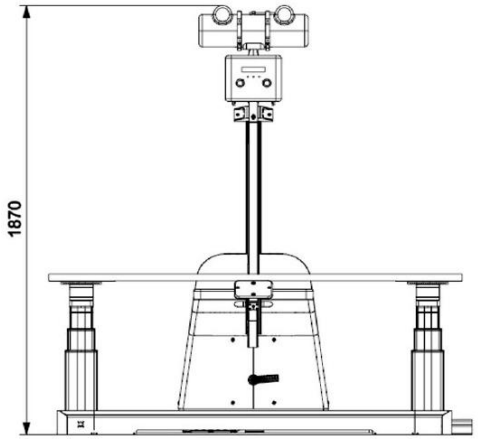


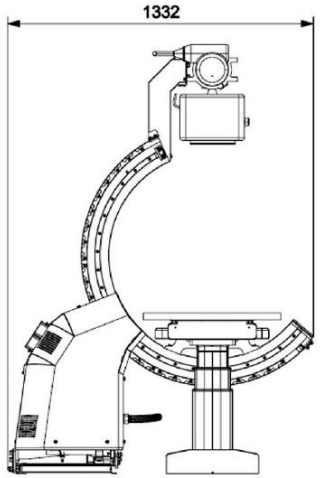
- CT had an anisotropic voxel
- The voxel is a “brick”
- The pitch (= distance between spiral rounds = layer thickness)
- The layer thickness is typically 0.5 – 1 mm

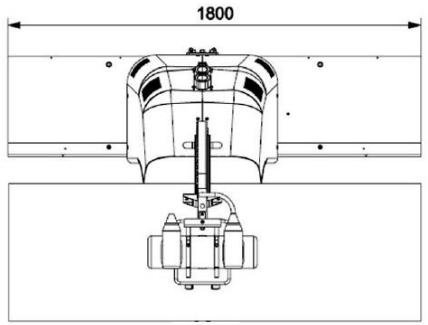


MultiVET

Similar overall dimensions and specifications than NeoVET.



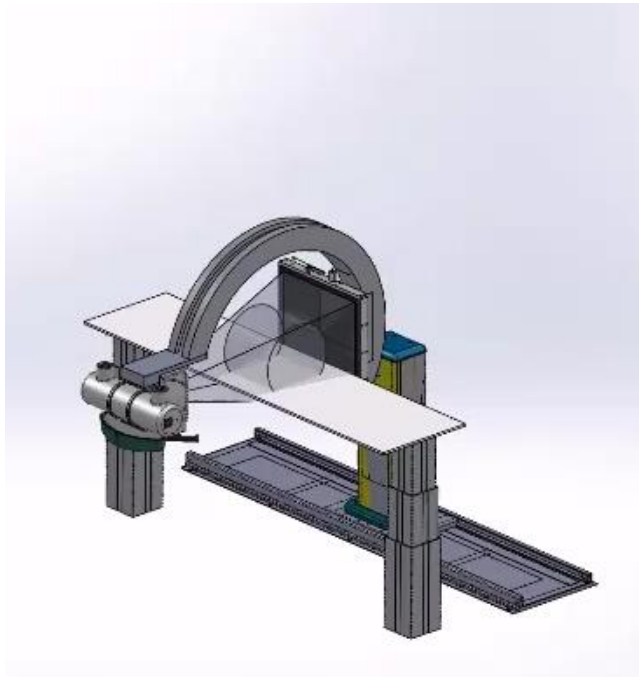


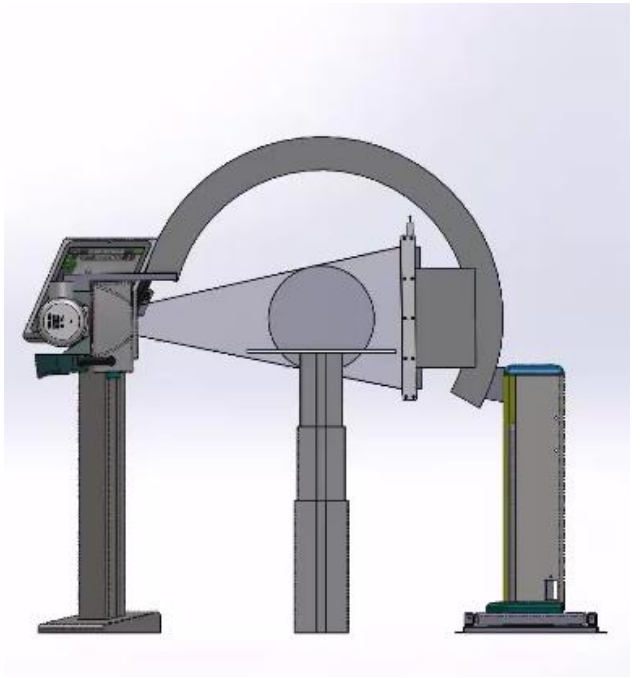


1. The table is an elevating four way floating carbon fiber tabletop.
2. The "column" has fix height and it is mounted in a rail
3. The X ray coverage is 120 cm in length by 55 cm wide
4. The X ray generator is 32 kW
5. The detector has 100 microns

MultiVET 3D tomographic working mode

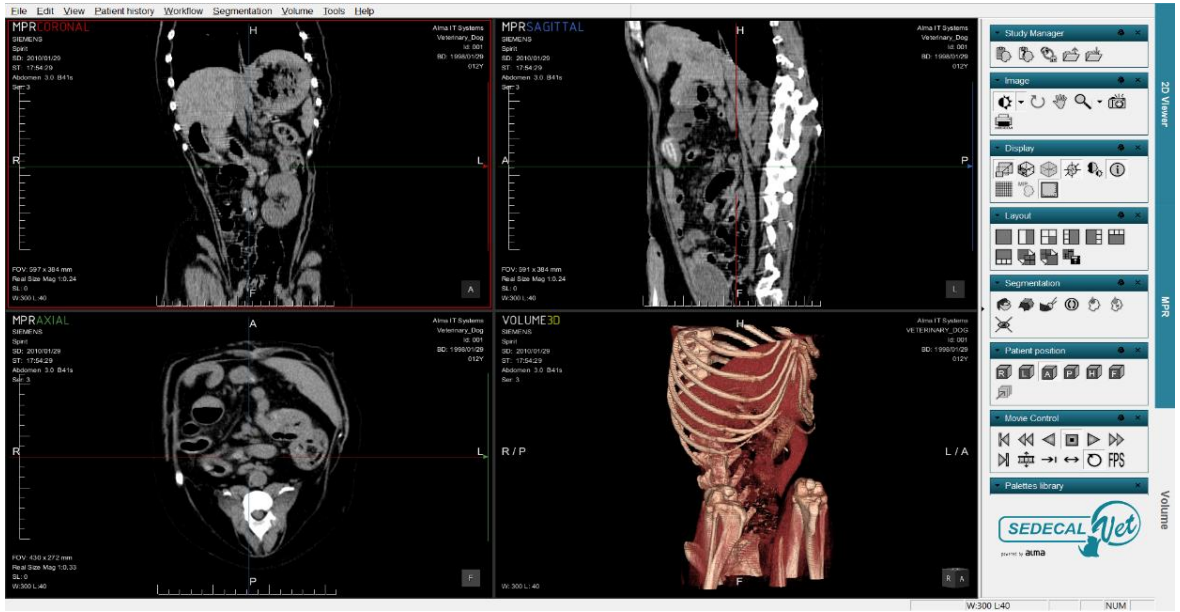
Rotates half-turn with the animal under sedation using a cuasi-dynamic flat panel.(8 fps)

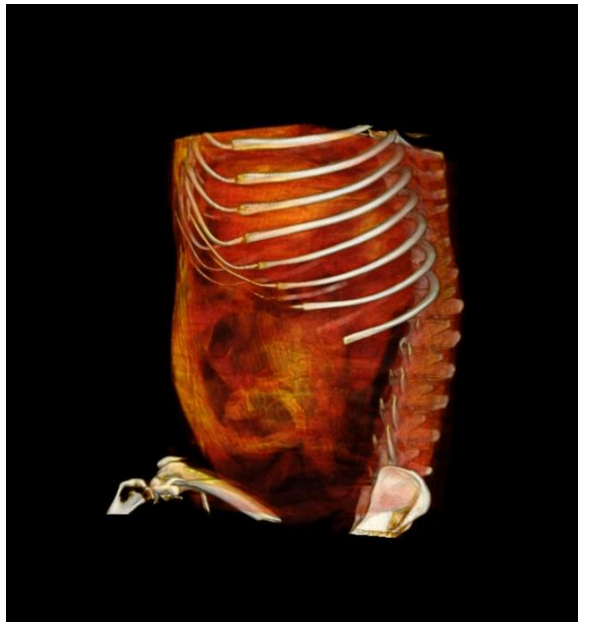




Once the rotation is done, the column moves longitudinal to the next rotation position up to 110 cm in length.

Common user Interface: 2D, 3D, fluoro

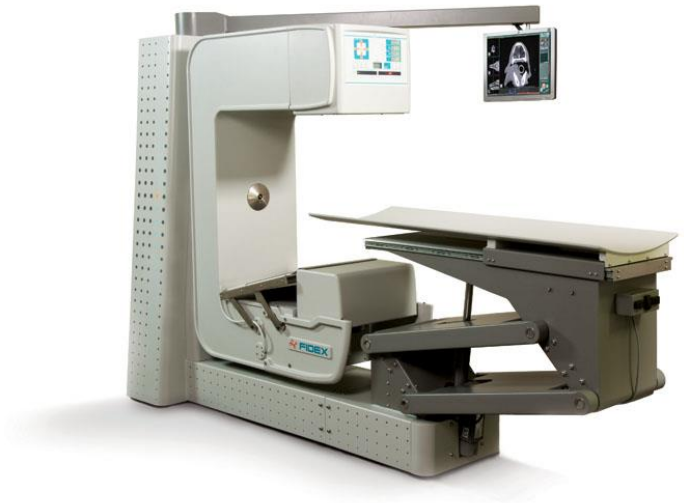




Alternative solutions to MultiVET system

Low end human CT, or dedicated veterinarian CT CT.

GEHC Brivo CT325



Fidex

Vimago

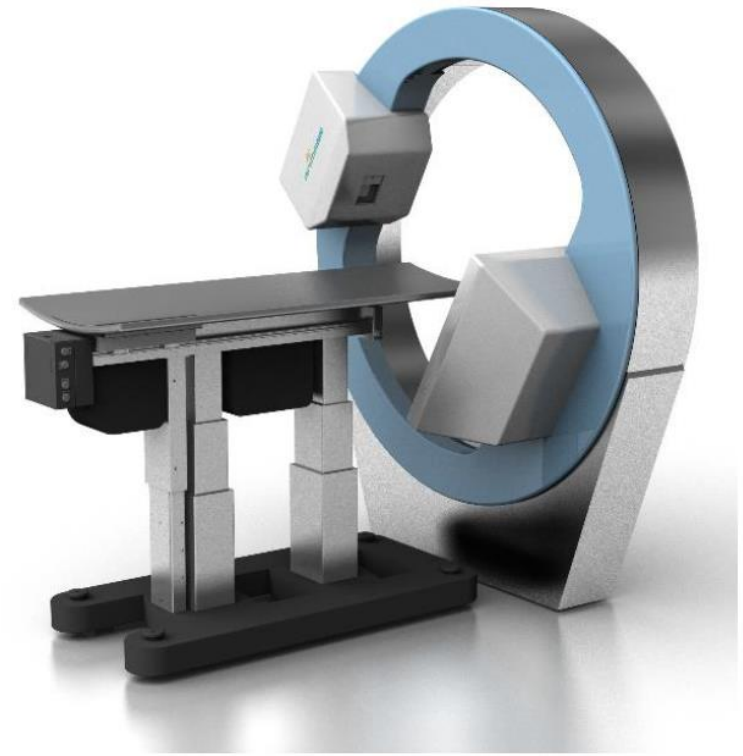
GEHC Brivo CT325 or similar

New or refurbished

Pros
- Low price
- Big FOV 43 cm in diameter by 120 cm in length
- Fast scanning

Cons
- Only human protocols
- Need investment in site preparation
- It needs a big room.
- Only one modality

Fidex -GT



Pros

- Multimodalit
- Single phas

e field of view (up to 23 cm diameter in volume CT mode)

V/50 Hz/60 Hz input. Average power consumption is less than 250 W

cm in diameter by 54

generator

: has anew model

Vimago

Pros

- Multimodality system
- Single phase electrical line
- Moveable

Cons

- Difficult access to the patient in 2D X Ray or fluoroscopy procedures
- Poor aesthetics

MultiVET advantages vs competitors.

System

- **Keep the existing Rad workflow, full access to the animal**
- **Elevating table with automatic loading process to adapt to any gurney for easy positioning**
- Lateral exposures.
- Compact system

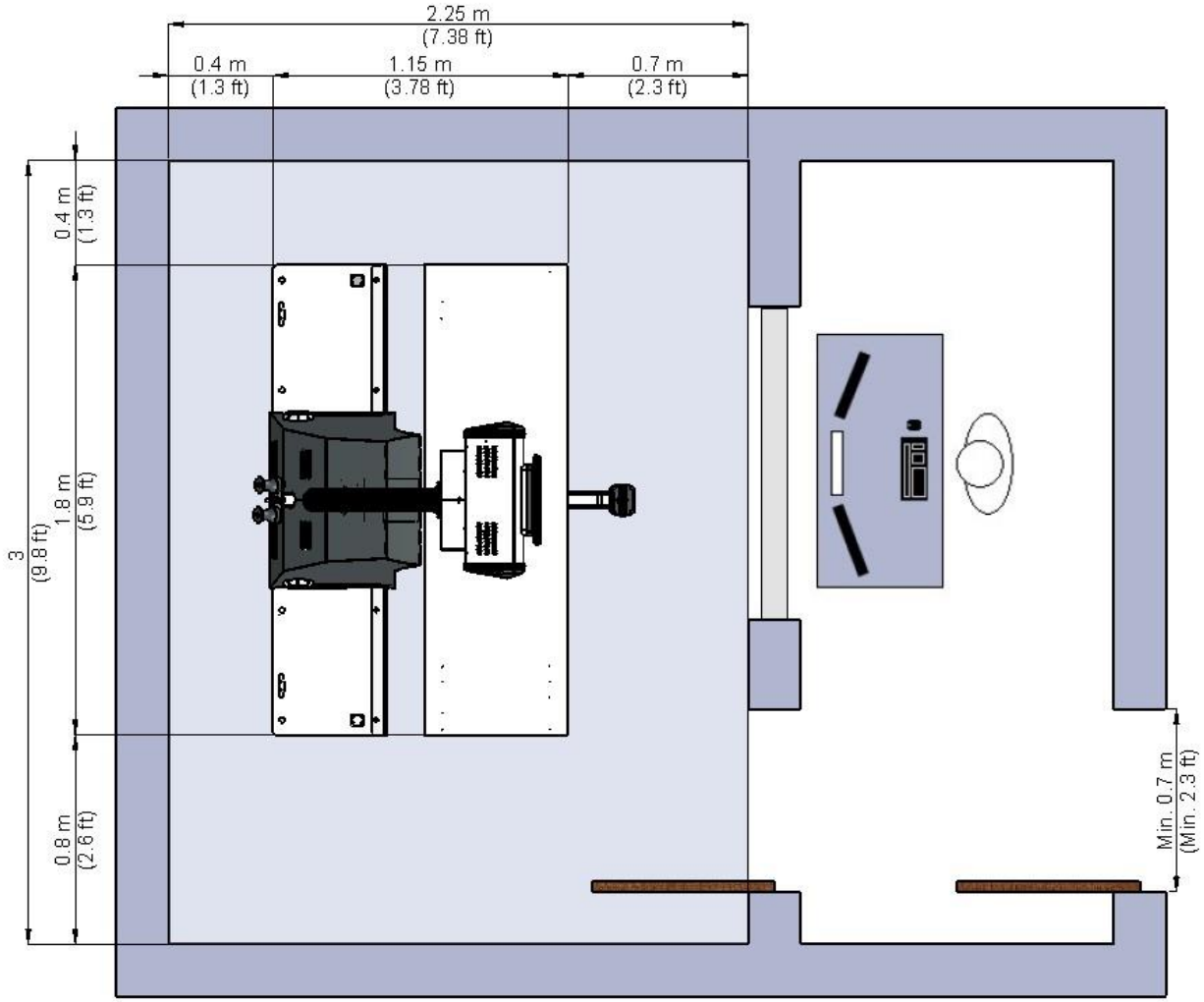
Rad

- Powerful generator 32 kW
- 100 microns resolution flat panel

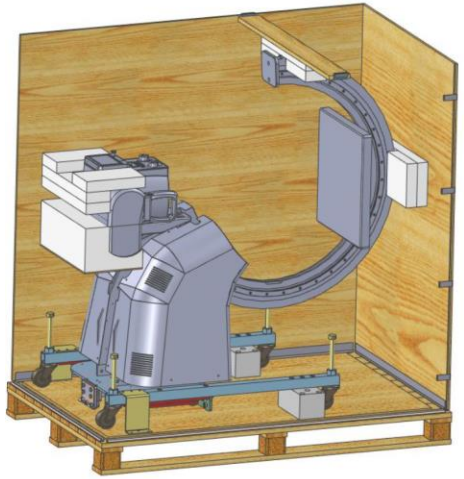
CT

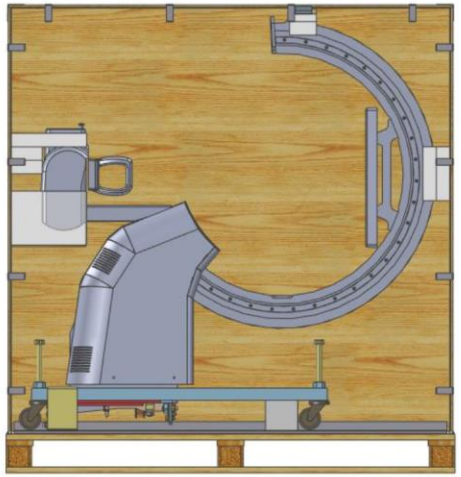
The biggest FOV of the market 32 cm by 110 cm

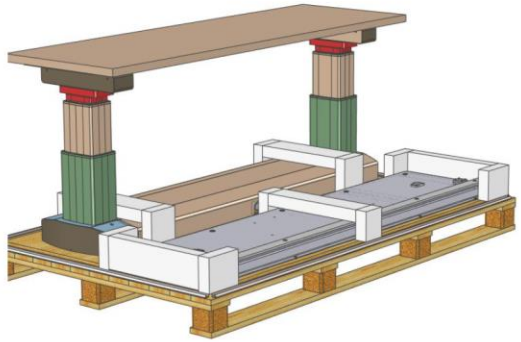
Site requirements



Shipment proposal







MultiVET Workflow

System Workflow

Parking

Lateral

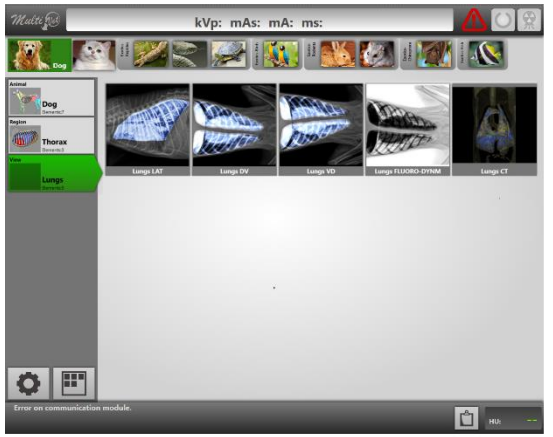
Patient Loading/Unloading Workflow

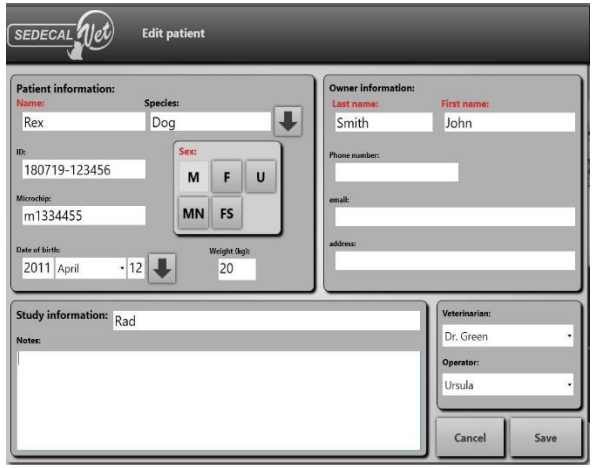
Stretcher above working height

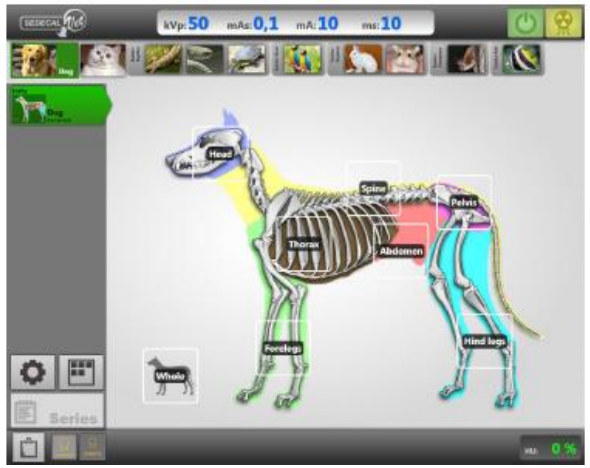
Stretcher above working height

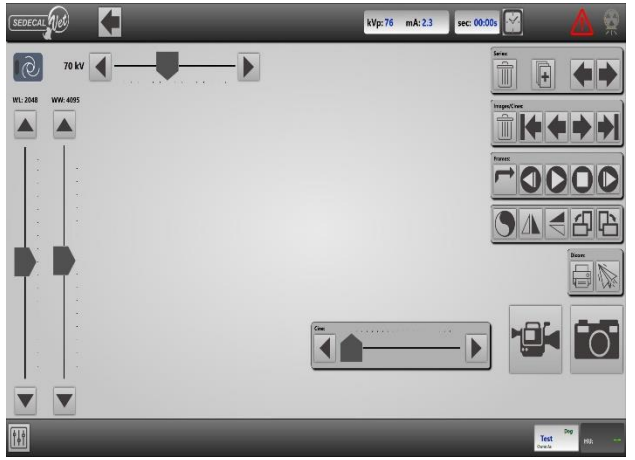
Rad Workflow

DynamiXr Workflow

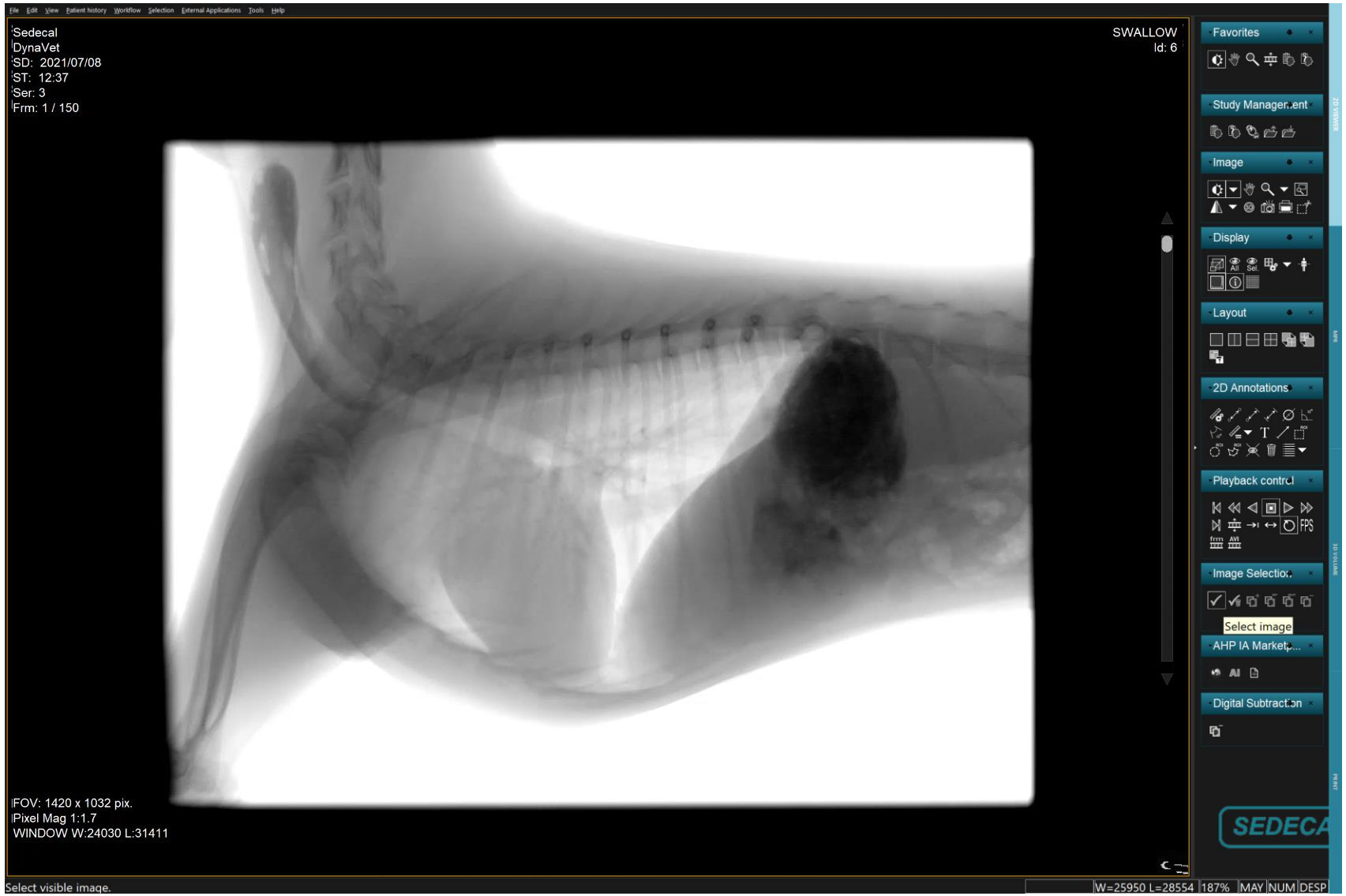








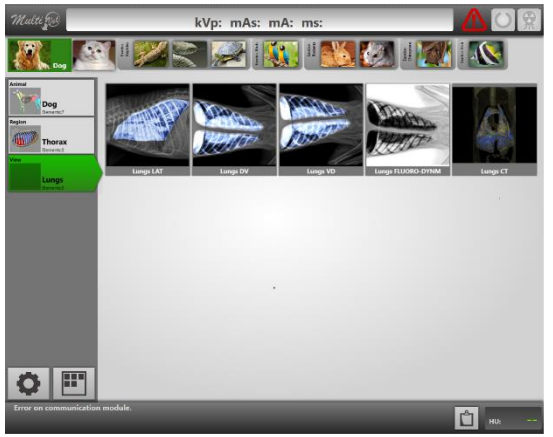
DynamiXr Workflow

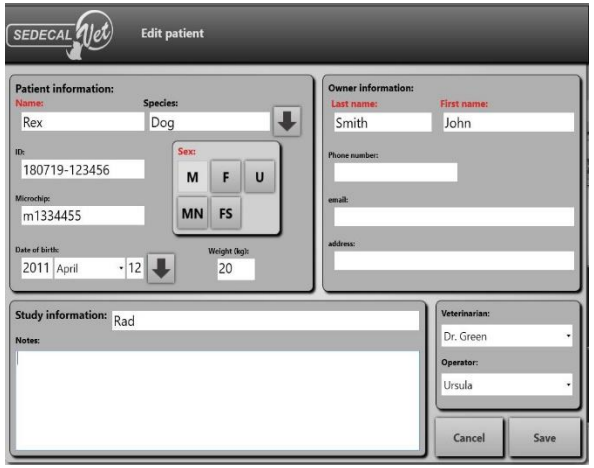


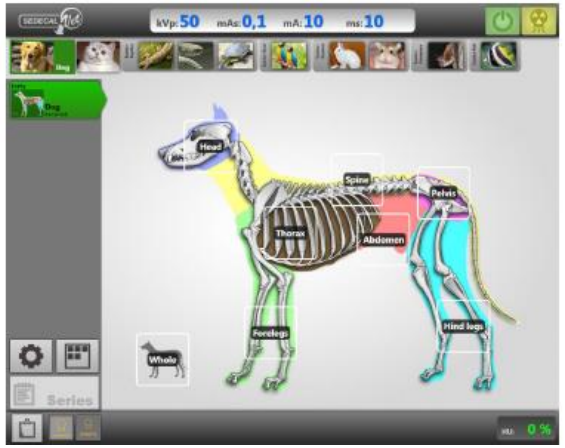
CT Workflow


SEDECAL
Daily list:
Test
Emergency
Query patient
New patient
Cancel


kVp:50 mAs:0,1 mA:10 ms:10
Dog
Cat

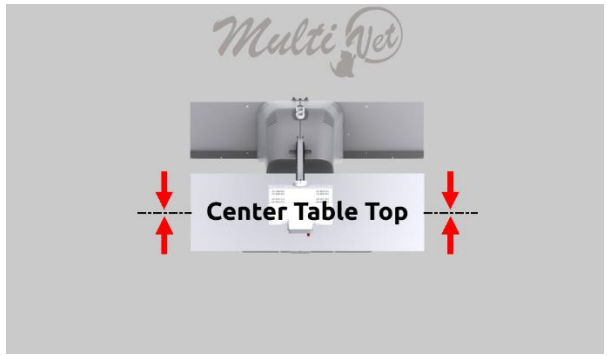

kVp: mAs: mA: ms:
Dog
Thorax
Lungs

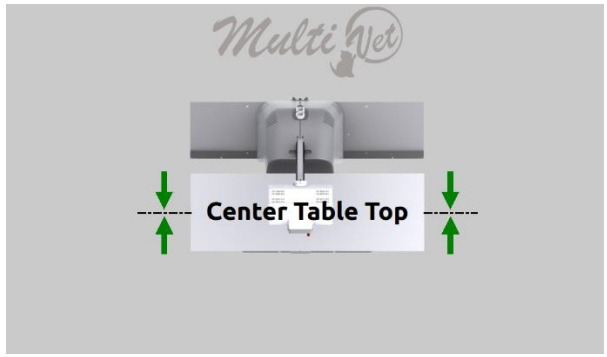

SEDECAL
Edit patient
Patient information:
Name:
Species:
Rex
Dog
ID:
180719-123456
Sex:
M
F
U
MN
FS
Microchip:
m1334455
Date of birth:
2011 April 12
Weight (kg):
20
Owner information:
Last name:
First name:
Smith
John
Phone number:
email:
address:
Study information:
Rad
Notes:
Veterinarian:
Dr. Green
Operator:
Ursula
Cancel
Save

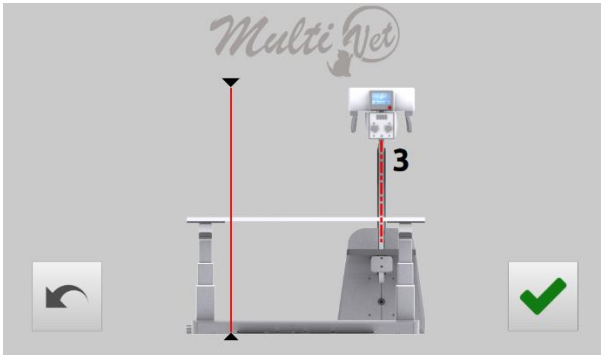

kVp:50 mAs:0,1 mA:10 ms:10
Head
Spine
Pelvis
Thorax
Abdomen
Forelegs
Hind legs
Whole
Series

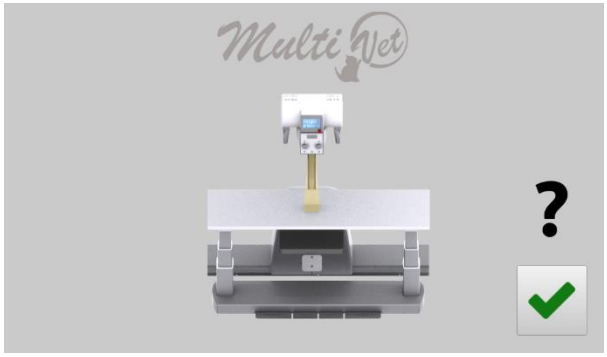

kVp: 50 mA: 200
PA view
LAT view
Select SCOUT...

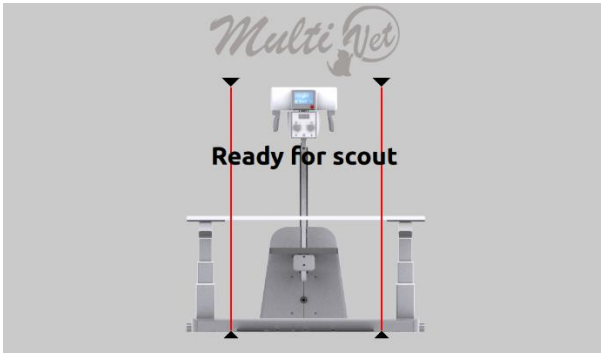
CT Workflow

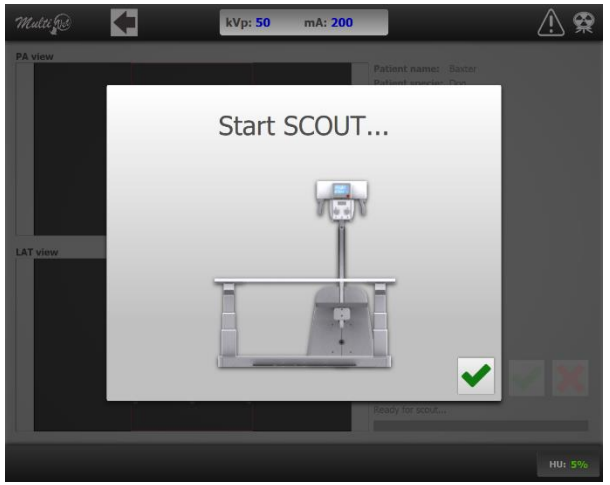

Center Table Top

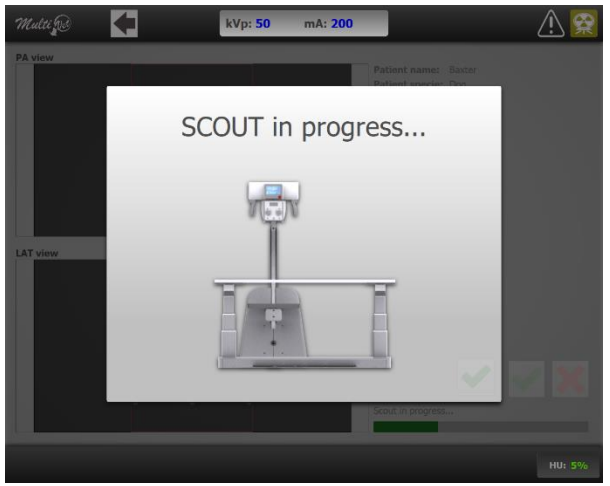

Center Table Top


3


?

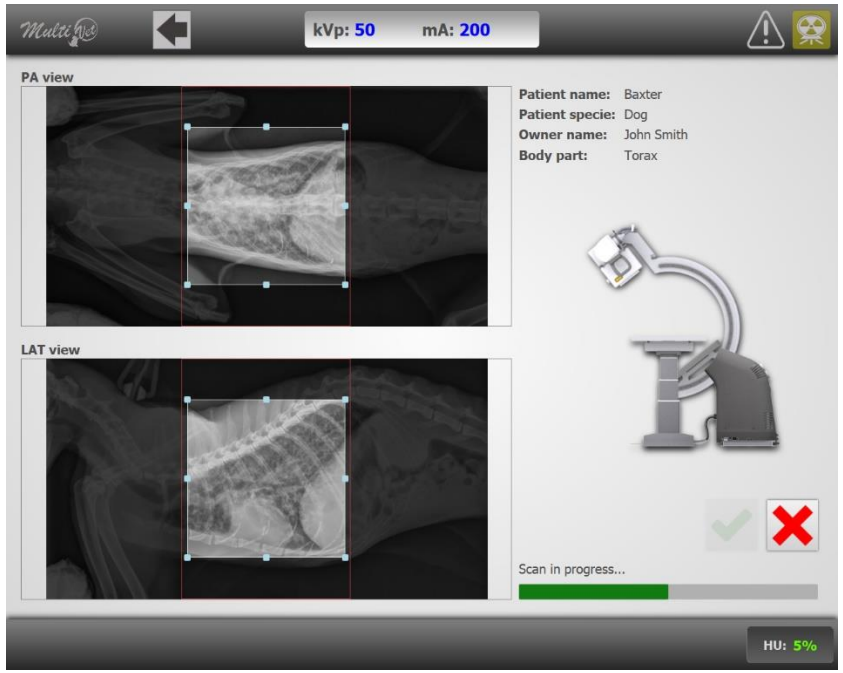

Ready for scout


kVp: 50
mA: 200
Start SCOUT...

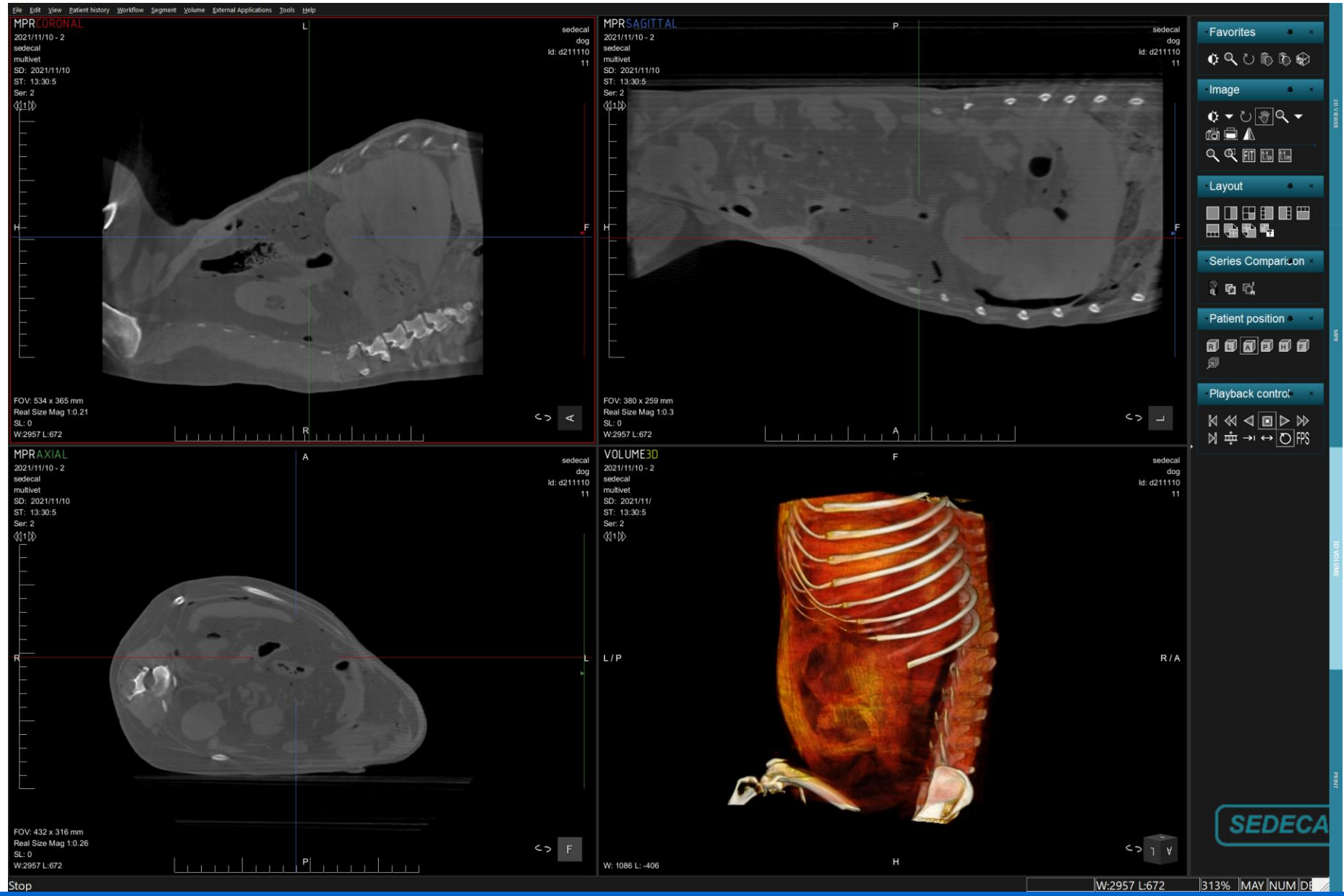

kVp: 50
mA: 200
SCOUT in progress...

CT Workflow


kVp: 50
mA: 200
PA view
LAT view
Patient name: Baxter
Patient specie: Dog
Owner name: John Smith
Body part: Torax
Ready for scan...
HU: 5%


kVp: 50
mA: 200
PA view
LAT view
Patient name: Baxter
Patient specie: Dog
Owner name: John Smith
Body part: Torax
Scan in progress...
HU: 5%

CT Workflow


File Edit View Patient history Workflow Segment Volume External Applications Tools Help
MPR CORONAL
2021/11/10 - 2
sedecal
multivet
SD: 2021/11/10
ST: 13:30:5
Ser: 2
sedecal
dog
Id: d211110
11
FOV: 534 x 365 mm
Real Size Mag 1:0.21
SL: 0
W:2957 L:672
MPR SAGITTAL
2021/11/10 - 2
sedecal
multivet
SD: 2021/11/10
ST: 13:30:5
Ser: 2
sedecal
dog
Id: d211110
11
FOV: 380 x 259 mm
Real Size Mag 1:0.3
SL: 0
W:2957 L:672
MPR AXIAL
2021/11/10 - 2
sedecal
multivet
SD: 2021/11/10
ST: 13:30:5
Ser: 2
sedecal
dog
Id: d211110
11
FOV: 432 x 316 mm
Real Size Mag 1:0.26
SL: 0
W:2957 L:672
VOLUME 3D
2021/11/10 - 2
sedecal
multivet
SD: 2021/11/
ST: 13:30:5
Ser: 2
sedecal
dog
Id: d211110
11
W: 1086 L: -406
Favorites
Image
Layout
Series Comparison
Patient position
Playback control
SEDECA
Stop
W:2957 L:672
313%
MAY
NUM

MultiVET advantages.

It is really a multimodal system focus on the user requirements and way to work

Dynamic movement studies

Video Workflow

https://youtu.be/NvFoWg6oAbg

Multivet Evolutions

DynaVet

MultiVet

NeoVet

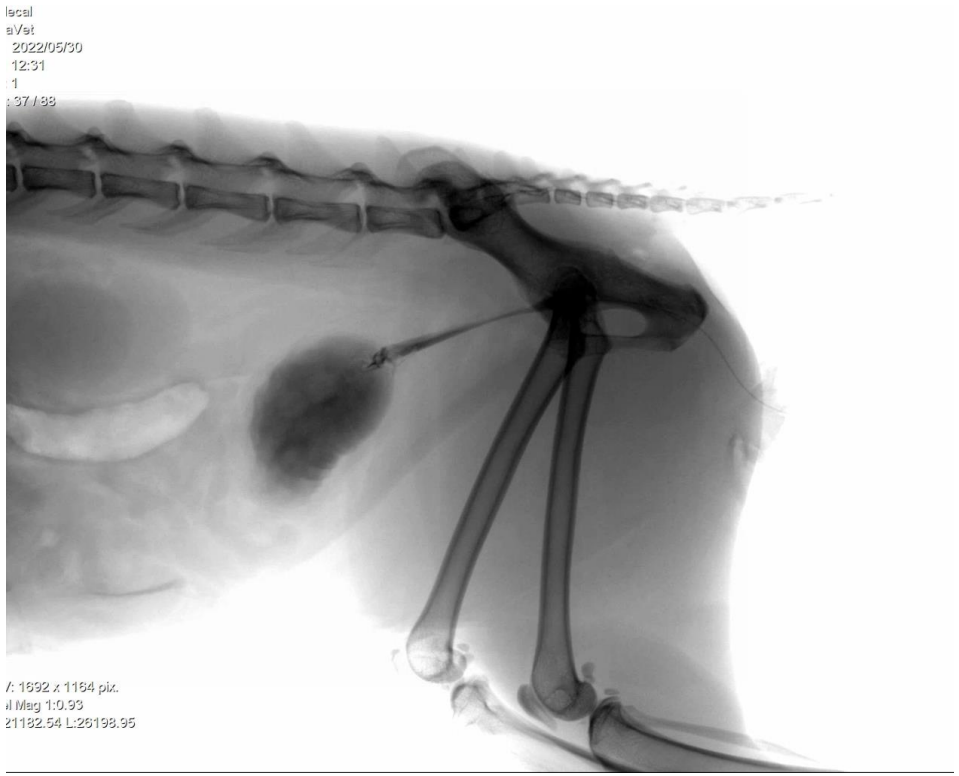
- Image Chain.
- Rad modality
- Fluoro modality

- System hardware

DynaVet

Both systems fully staged and tested at the factory

DynaVet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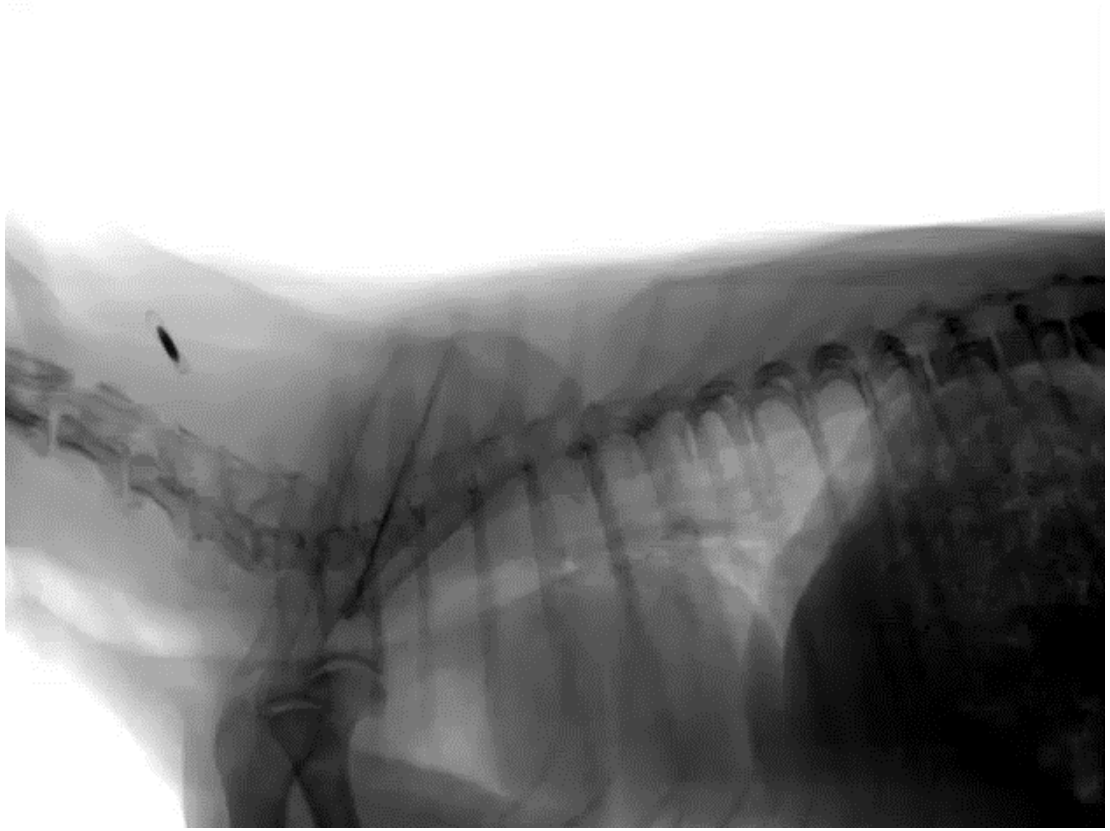


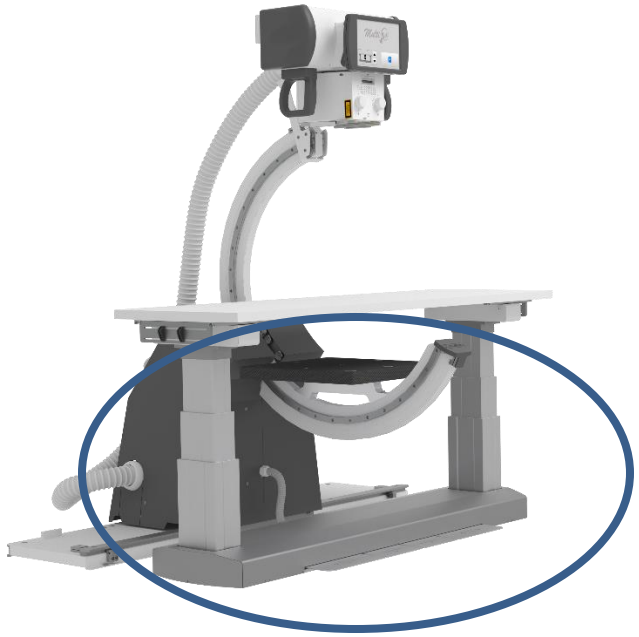
EleVet

MultiVet

NeoVet

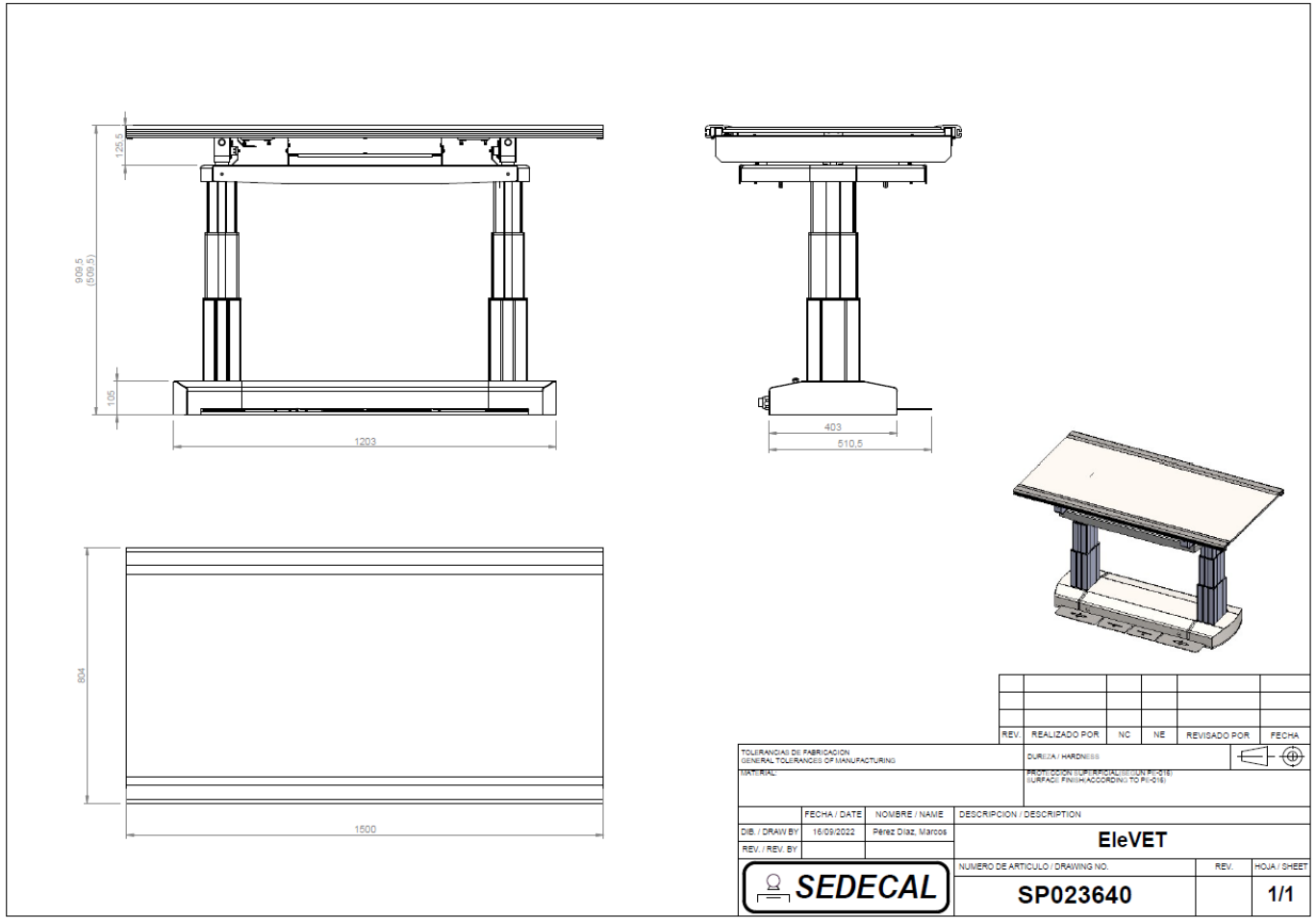
- Table base
- Table lifting mechanism.

- Floating Tabletop assy



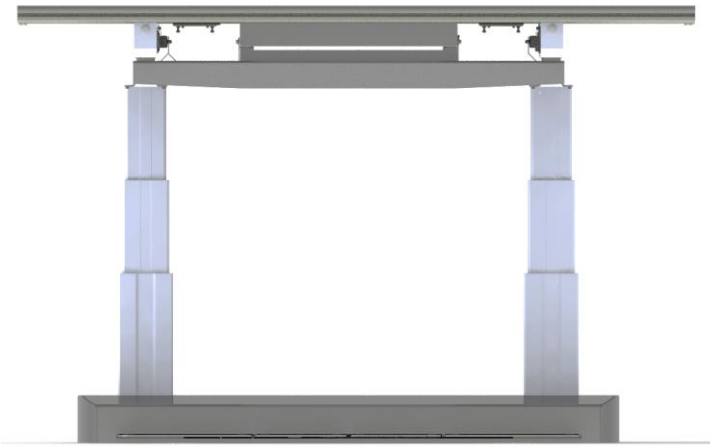
Elevet

EleVet



Key project challenges

- Fast Project: To be shown Orlando congress, January 23
- Ready for comercialization Q3-2023
- Cost effective
- Vet market oriented: Price, size, easy to use



Thanks.....

Any Question?