Vision™ DSX
TECHNICAL DATA

The VISION™ DSX open gantry extra large FOV Rectangular gamma-camera design combines mechanics, detection and control software optimally; thus providing easy to learn and swift operation, patient comfort and safety, clinical value, reliability, maintainability.

Its open gantry gives clinical scan versatility, patient contouring in SPECT and Whole Body scans, AUTO-LOOP™ automatic acquisition of anterior and posterior whole body scan and better patient access. It also enables the detector to be calibrated or checked in proper physical conditions.

VISION™ DSX uses a high PM-tube per cm^2 density detector, which, combined with SMV's **D**igital **D**econvolution **D**etection **S**ystem, posesses of the best intrinsic characteristics on the market.

VISION DSX acquisition console is used for acquisitions and system quality check. It may also be used for image hardcopy, transfer over the network or archiving onto optical disk. With The Processing workstation option, it offers a cost effective, yet comprehensive fully integrated nuclear imaging system.

The DSX offers the operational simplicity and ease of use given by the sopha touchscreen graphic console and dialogue software developed specially for nuclear medecine use. Acquisiton protocols are created in an instant entering parameters with the help of the touch-screen and the exclusive Sopha medical “point the box” system. Protocols of different acquisition types may be chained, thus meeting the needs of the most elaborate acquisition protocols. Patient care is improved through shorter preparation and scanning times with optimized gantry control software.

VISION™ DSX

Highly automated acquisition procedures insure consistently reliable results, yet non-routine, experimental use of the camera is possible.

The VISION™ DSX open gantry has been designed to ensure maximum flexibility, precision and stability in all its movements.The microprocessor controlled gantry motions are all independent, quiet and safe.

Gantry Motions

The gantry has 5 motorized independent movements that can be performed simultaneously. All rotational movements have an accuracy control of 0.1°, whereas rectilinear movements of 0.1mm .

Orbit motion:

Clockwise and counter clockwise, used for SPECT acquisitions.

Range: -35° to +565°

Speed: 0.4 turn/min to 1.5 turn/min

Radial motion

This motion is perfromed perpendicularly to the axis of rotation, allowing Patient contour following in SPECT and Whole body scan.

Range: -115 to 343 mm.

Speed: 16 to 40 mm/second

Lateral motion

Motor driven, used for whole body scan , Organ centered SPECT and imaging on hospital bed.

Range 230 cm

speed: 2 cm/minute to 200 cm/minute

Detector Angulation

Angle -100 to + 200°, 2°/sec or 10°/s. Used for cranial/ caudal view.

Patient bed

The scintibed I is a patient bed designed for use in SPECT (patient lies perpendicular to the gantry) as well as whole body imaging (the patient lies parallel to the gantry). Self-locking floor mounts in both positions guarantee total stability and accuracy. The panel supporting the patient is made of low-absorption carbon fiber.

Bed motions

Vertical range 72 cm to 97 cm

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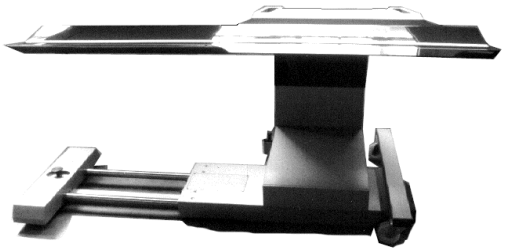
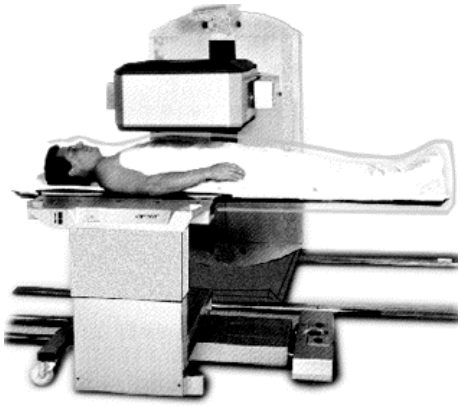
speed	50 and 100 cm/min
Manual Longitudinal range	110 cm

Patient Support Physical characteristics

Length	200 cm
With Head Extension	232 cm
Width (SPECT section)	350 mm
Width (whole body section)	580 mm
Thickness:	30 mm
Absorption:	5.5% (140 keV)
Panel flexion (160 kg load)	2 cm (SPECT)
Maximum load[1]	160 kg



Scintibed I



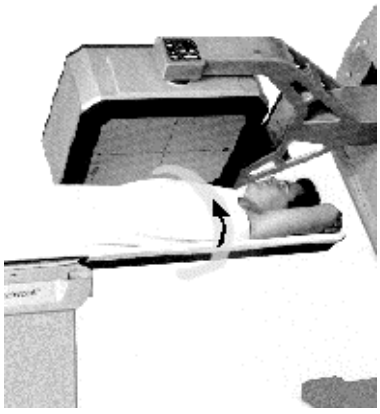
Whole Body Contouring & Autoloop™

VISION DSX Detector

Overall dimensions:	580x710x290 mm
Shielding	Up to 400 KeV

Sodium iodine crystal doped with thallium: NaI (Tl)

Cristal size	465 x 600 mm
thickness	9.5 mm (3/8") 12.5 mm (1/2")[2]
UFOV	540 mm x 400 mm
number of PMTs	94
Hexagonal	86 (2,3" acrooss flats)
circular	8 (1,5")



VISION DSX SPET body contouring

Collimators

The collimator storage unit can contain five collimators. The associated handling cart is parked within it, providing a very compact storage area.

Collimator changing position is programmable on the gantry .

LEAP140	Low energy All Purpose
LEUHR140	Pediatric, Bone, Brain SPECT
LEHS140	First Pass
MEAP 250	Indium General purpose imaging
MEAP 300	Gallium General purpose imaging
HEAP 360	Thyroid, Whole Body with I131
LE-PH 360	Low energy pin-hole for THYROID scans or Pediatrics scans
HE-PH 360	Highenergy pin-hole for THYROID scans
HR-FB 140	High resolution Fan Beam
UHR-FB	Ultra High resolution fan Beam

VISION DSX: Available collimator types[3]

[1] with a safety coefficient of 6, (i.e. 960 kg distributed over total surface area>2.5)

[2]Option

[3]see characteristics in appendix

DSX NEMA Detection Performance

Intrinsic Spatial (mm)		CFOV	UFOV
Intrinsic spatial resolution	FWHM FWTM	3.4 6.5	3.5 6.6
Intrinsic spatial resolution @75Kcps	FWHM FWTM	n/a	n/a
Intrinsic spatial linearity @ 20Kc/s	Diff. Integral	0.06 0.16	0.07 0.16
Intrinsic flood field uniformity		CFOV %	UFOV %
Without correction @ 140Kev, 20Kcps	Diff. Integral	1.4 1.7	1.5 1.8
With correction @ 140Kev, 20Kcps	Diff. Integral	1.4 1.5	1.5 1.6
With correction @ 140Kev, 75Kcps	Diff. Integral	1.4 1.9	2.0 2.2
Energy resolution @ 140keV , 20Kcps	FWHM	10.3%	
Energy resolution @ 140keV, 75Kcps	FWHM	10.5%	
Maximum Count Rate			
(w/o scatter)		250	Kcps
20% loss	Incident Observ.	270 220	Kcps Kcps
Energy Range	40	400	Kev
Multiple window spatial registration[4]	<	1.0	mm
Reconstructed SPET LEUHR @ 150mm without scatter	Tang radial Central	8.5 9.3 9.3	mm mm mm
Reconstructed SPET LEUHR @ 150mm with scatter	Tang radial central	9.9 12.3 11.3	mm mm mm

Vision DSX performances[5](Typical)

[4]Nema maximum displacement of x+, x-, y+ ,y-, measurements Ga67, Ba133

[5]Preliminary data

Room Requirements

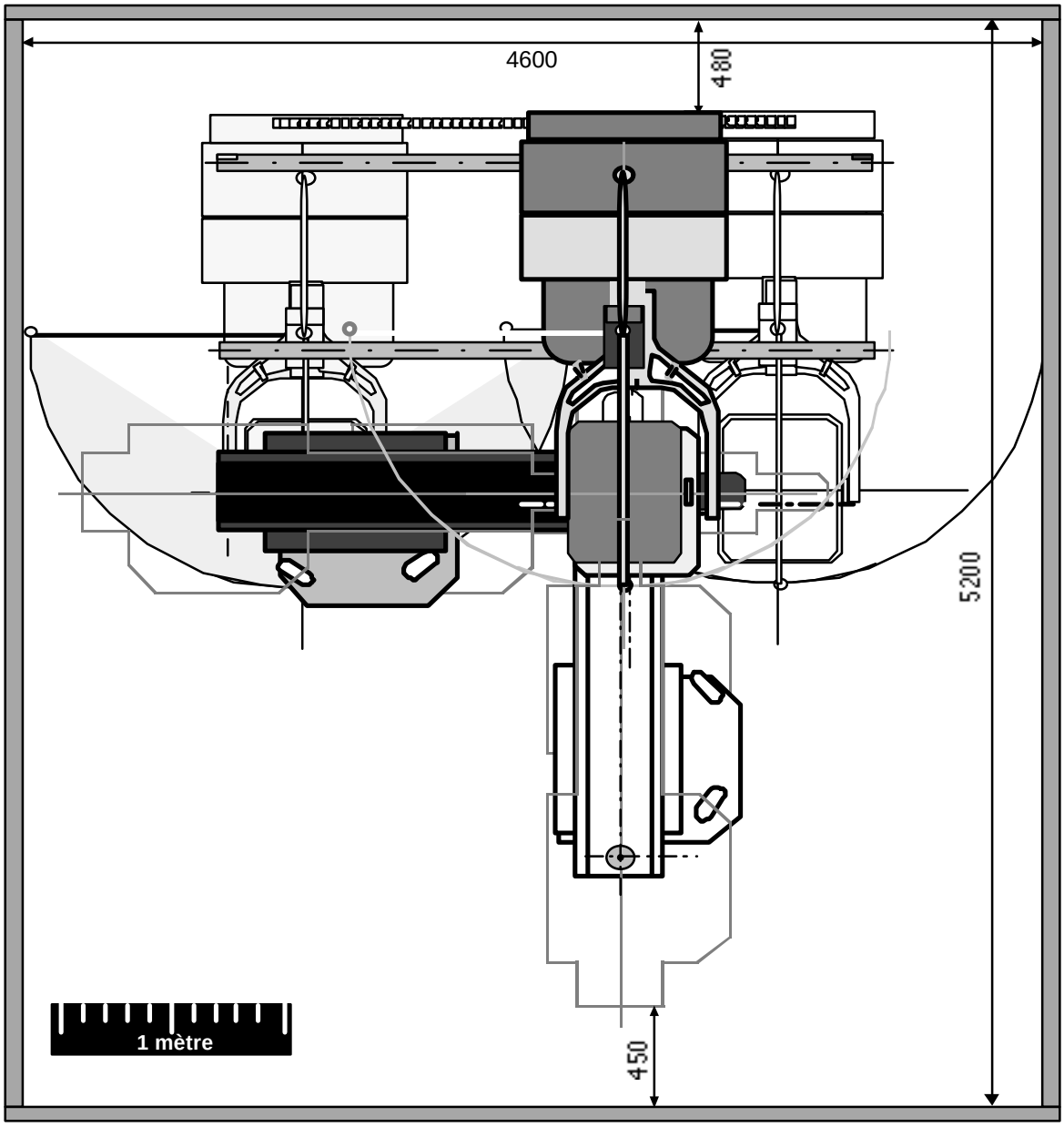
For more details refer to the installation manual.

Room size: recommended 490 x 460cm .

Minimum Height: 2,3 m

Gantry weight: 1700Kg with a high energy collimators. (1400 Kg on the front rail)

Required power: 2,5KVA nominal.



VISION DSX Recommended Room Requirements

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