Fits you like no other

Philips BrightView X and XCT specifications

The new BrightView X system is a fully featured variable-angle camera that is field-upgradeable to BrightView XCT without any increase in room size or power requirements. Designed to put patients first, the system is fast and easy to use with exceptional image quality. BrightView X is differentiated by exclusive CloseUp high resolution technologies.

Surprisingly compact given its capabilities, the heart of BrightView XCT is the unique integration of BrightView X with advanced Philips flat-panel X-ray technology. Substantial clinical advantages include co-planar SPECT and CT with no table index between acquisitions in many cases, flexible CT breathing protocols optimized for localization and attenuation correction, and high resolution at low CT dose levels.

All of this is possible without changing the way you like to work or your patients' comfort. Fully supported by the resources of Philips services, Philips offers you comprehensive support and training throughout the life of your system, giving you knowledge and experience to make the most of BrightView X and XCT from day one.

PHILIPS

sense and simplicity

BrightView X and XCT specifications

Camera characteristics	
Gantry dimensions	210 cm H x 212 cm W x 97 cm D
Weight (without collimators)	BrightView X: 1936 kg (4260 lb) BrightView XCT: 2045 kg (4500 lb)
Power requirements	480 VAC, 50A, three phase
Total heat dissipation (typical)	BrightView X: 2850 BTU/hr BrightView XCT: 6831 BTU/hr
Gantry aperture	36" (91.4 cm)
Caudal-cephalic tilt	± 15°
Co-planar CT and SPECT*	Axial fields-of-view overlap by 14 cm
Patient table	
Dimensions	243 cm L x 47.5 cm W
Pallet type	Carbon fiber
Thickness	0.38" (9.5 mm)
Attenuation	<7% @ 140 keV
Pallet dimensions	83.5" L x 15" W (212 cm x 38.1 cm)
Height (from floor)	23" to 40" (59.4 cm – 102.8 cm)
Weight capacity	500 lb (227 kg)
Total body	
Scan length + UFOV	78.7" + 16" (200 cm + 40.6 cm)
Scan speed	0.5–75 in/min. (1–190 cm/min.)
Emission tomography	
ECT rotation	540°
Angular sampling	1.4° to 90°
Speed of rotation	5.0 rpm
Scan diameter (with LEGP)	<4" – 29.5" (<10.2 cm – 75 cm)
ECT manual rotation speeds	0.5 and 1.33 rpm
Detector relative positions	90° and 180°
Detector	
True energy independence	Fixed high voltage
Universal flood calibration	One flood for all radionuclides (up to 300 keV)
Non-anger digital detector	1 ADC/PMT
Field of view (rectangular)	16" x 21.25" (40.6 cm x 54 cm)
Crystal thickness	0.375" (9.5 mm) or 0.75" (19.1 mm)
Photomultiplier tubes	59
Lead shielding	364 keV
Brain reach	2.9" (7.4 cm)
Cardiac dead space	0.9" (2.4cm)
Variable magnification	1.0x, 1.46x, 1.85x, 2.19x
Collimator exchange system and storage	
Exchanger type	Semi-automatic
Collimator storage	Cart based up to 11 units (5 pairs and 1 pinhole)
Collimator types	LE, ME, HE, pinhole

JETStream acquisition	
Mobile acquisition console	18" flat LCD monitor, keyboard and trackball or mouse
Spectrum analyzers	16 (with overlap)
Energy range	56 – 920 keV
Window adjustment	1% to entire energy range
Spectrum display	Color-coded, graphical, fully interactive
Count capacity	32K per channel
Preset count or time	1 ct. to 2 billion cts., l sec. to >1,000 min.
Image orientation	0°, 90°, 180°, and 270°
Patient position display	2 sec. to infinity, decay-based persistence or fixed refresh
Concurrent imaging	Up to 15 simultaneous data sets from a single acquisition
XCT physical assembly*	
Type of detector	Digital amorphous silicon, columnar CsI scintillator
Detector size	30 cm x 40 cm
Detector pixel	0.2 mm x 0.2 mm
Number of elements	3,145,728
Generator output	10 kW, pulsed (2 msec. to continuous)
kVp	120 rotating anode
mA	5 – 80
Max. anode storage capacity	600 kHU
Max. anode cooling rate	1350 HU/sec.
Focal spot	0.4 mm
XCT performance*	
Axial field-of-view	14 cm in a single 360° rotation
Maximum rotation speed	12 seconds for 360° rotation
Maximum axial range	172 cm
Transaxial field-of-view	47 cm
Spatial resolution	> 15 lp/cm @ 10% MTF
Low contrast resolution	5 mm @ 0.5% on 20 cm CATPHAN phantom with 40 mm slice thickness
Absorption range	-1000 to +3000 Hounsfield units
Number of slices	140 slices @ 1 mm thickness
Slice thickness	Variable from 0.33 mm to 2.0+ mm
Scan or display matrix	256 and 512
Reconstruction time	< 1 min for one CT field-of-view
$CTDI_{VOL}$ body dose levels (for typical patient)*	
Extremities	14.9 mGy
Body (localization)	6.8 mGy
Body (attenuation correction)	1.2 mGy

* Applies to BrightView XCT only. Note: Specifications subject to change.

BrightView X and XCT detector specifications 3/4" (19.1 mm) crystal					
		NEMA[1]		Typical[2]	
Intrinsic spatial resolution		**UFOV**	**CFOV**	**UFOV**	**CFOV**
	FWHM	4.3 mm	4.3 mm	4.1 mm	4.0 mm
	FWTM	8.2 mm	8.2 mm	7.3 mm	7.2 mm
Intrinsic energy resolution		**UFOV**		**UFOV**	
		9.8%		9.6%	
Intrinsic spatial linearity		**UFOV**	**CFOV**	**UFOV**	**CFOV**
	Absolute	0.6 mm	0.4 mm	0.23 mm	0.15 mm
	Differential	0.2 mm	0.15 mm	0.04 mm	0.04 mm
Intrinsic flood field uniformity[3]		**UFOV**	**CFOV**	**UFOV**	**CFOV**
	Integral	± 2.5%	± 2.2%	± 1.8%	± 1.7%
	Differential	± 2.0%	± 1.5%	± 1.4%	± 1.4%
System spatial resolution (LEHR) @ 10 cm		**NEMA**		**Astonish****	
	FWHM without scatter	7.9 mm		5.8 mm	
	FWTM without scatter	14.8 mm		10.3 mm	
	FWHM with scatter	8.3 mm		5.8 mm	
	FWTM with scatter	17.2 mm		11.0 mm	
SPECT reconstructed spatial resolution (LEHR) without scatter @ 15 cm radius		**NEMA**		**Astonish***	
	Central transaxial Central axial	10.7 mm 11.3 mm		5.2 mm 5.4 mm	
	Peripheral radial	10.9 mm		5.0 mm	
	Peripheral tangential	9.4 mm		5.1 mm	
	Peripheral axial	11.2 mm		5.4 mm	
Whole body system spatial resolution @ 10 cm without scatter, 10 cm/min scan speed		**FWHM**	**FWTM**	**Astonish****	**Astonish****
	Parallel LEHR	8.4 mm	15.5 mm	5.9 mm	10.9 mm
	Perpendicular LEHR	8.3 mm	15.3 mm	5.9 mm	10.9 mm
Volume sensitivity per axial centimeter (LEHR)		**UFOV**		**UFOV**	
	± 7%	11227 (cts/sec) (MBq/cm^2)		11227 (cts/sec) (MBq/cm^2)	
Intrinsic spatial resolution @ 75 Kcps		**UFOV**		**UFOV**	
	FWHM	4.8 mm		N/A	
	FWTM	9.1 mm		N/A	
Intrinsic detector count rate performance		**UFOV**		**UFOV**	
	Output 20% loss	300 Kcps		300 Kcps	
	Max count rate	350 Kcps		350 Kcps	
System sensitivity (LEGP) ± 7%		**UFOV**		**UFOV**	
		311 cpm/µCi		311 cpm/µCi	
Multiple window spatial registration		**UFOV**		**UFOV**	
		0.8 mm		0.8 mm	
Detector-detector sensitivity variation (LEHR,TC-99m)		**UFOV**		**UFOV**	
		5%		1%	

* Astonish – Reconstruction method with 2 iterations and 32 subsets. Values subject to change.

** Planar Astonish – calculated values

1 Specifications are NEMA NUI – 2001 method of measurement with a 20% energy window.Values to be used for acceptance testing.

2 Represents calculated values derived from measured 3.8" (9.5 mm) crystal values and/or limited sampling 3/4" (19.1 mm) crystal values. Values not to be used for acceptance testing.

3 Measured using a pixel size of 9.3 mm.

Note: Specifications subject to change.

BrightView X and XCT detector specifications 3/8" (9.5 mm) crystal					
		NEMA[1]		Typical[2]	
Intrinsic spatial resolution		**UFOV**	**CFOV**	**UFOV**	**CFOV**
	FWHM	3.3 mm	3.3 mm	3.1 mm	3.1 mm
	FWTM	6.3 mm	6.3 mm	6.0 mm	5.9 mm
Intrinsic energy resolution		**UFOV**		**UFOV**	
		≤ 9.6%		9.1%	
Intrinsic spatial linearity		**UFOV**	**CFOV**	**UFOV**	**CFOV**
	Absolute	0.50 mm	0.35 mm	0.21 mm	0.15 mm
	Differential	0.10 mm	0.09 mm	0.04 mm	0.04 mm
Intrinsic flood field uniformity[3]		**UFOV**	**CFOV**	**UFOV**	**CFOV**
	Integral	± 2.5%	± 2.2%	± 1.8%	± 1.6%
	Differential	± 2.0%	± 1.5%	± 1.3%	± 1.3%
System spatial resolution (LEHR) @ 10 cm		**NEMA**		**Astonish****	
	FWHM without scatter	7.4 mm		5.1 mm	
	FWTM without scatter	14.0 mm		9.0 mm	
	FWHM with scatter	7.8 mm		5.1 mm	
	FWTM with scatter	16.5 mm		9.8 mm	
SPECT reconstructed spatial resolution (LEHR) without scatter @ 15 cm radius		**NEMA**		**Astonish***	
	Central transaxial	10.3 mm		4.4 mm	
	Central axial	10.9 mm		4.6 mm	
	Peripheral radial	10.5 mm		4.2 mm	
	Peripheral tangential	9.0 mm		4.3 mm	
	Peripheral axial	10.8 mm		4.7 mm	
Whole body system spatial resolution @ 10 cm without scatter, 10 cm/min scan speed		**FWHM**	**FWTM**	**Astonish****	**Astonish****
	Parallel LEHR	8.0 mm	14.7 mm	5.3 mm	9.7 mm
	Perpendicular LEHR	7.9 mm	14.5 mm	5.3 mm	9.7 mm
Volume sensitivity per axial centimeter (LEHR)		**UFOV**		**UFOV**	
	± 7%	10000 (cts/sec) (MBq/cm^2)		10000 (cts/sec) (MBq/cm^2)	
Intrinsic spatial resolution @ 75 Kcps		**UFOV**		**UFOV**	
	FWHM	3.8 mm		3.6	
	FWTM	7.3 mm		6.9	
Intrinsic detector count rate performance		**UFOV**		**UFOV**	
	Output 20% loss	300 Kcps		300 Kcps	
	Max count rate	350 Kcps		350 Kcps	
System sensitivity (LEGP) ± 7%		**UFOV**		**UFOV**	
		277 cpm/µCi		277 cpm/µCi	
Multiple window spatial registration		**UFOV**		**UFOV**	
		0.6 mm		0.4 mm	
Detector-detector sensitivity variation (LEHR,TC-99m)		**UFOV**		**UFOV**	
		5%		1%	

* Astonish – Reconstruction method with 2 iterations and 32 subsets. Values subject to change.

** Planar Astonish – calculated values

1 Specifications are NEMA NUI - 2001 method of measurement with a 20% energy window. Values to be used for acceptance testing.

2 Same test conditions as NEMA specifications. Represents average factory test values.Values not to be used for acceptance testing.

3 Measured using a pixel size of 9.3 mm.

Note: Specifications subject to change.

BrightView X and XCT system performance

BrightView X and XCT camera and collimator specifications										
Type	Hole shape	Size (mm)	Septa (mm)	Length (mm)	Const.	Septa penetration (%)	Septa penetration (keV)	Sensitivity Cpm/µCi	Spatial resolution system[6] @ 0 cm	Spatial resolution system[6] @ 10 cm
LEGP	HEX	1.40	0.180	24.7	Foil	2.1	140	277[1]	3.9	8.9
LEHR	HEX	1.22	0.152	27	Foil	1.7	140	168[1]	3.7	7.4
CHR	HEX	2.03	0.152	48	Foil	1.1	140	165[1]	4.2	7.8
MEGP	HEX	3.40	0.86	58.4	Cast	6.1	300	212[2]	5.3	10.9
HEGP	HEX	3.81	1.73	58.4	Cast	4.2	364	106[3]	5.7	12.1
HEPH	ROUND	3.0	25.4	220.0	Cast	—	—[4]	83[5]	—	—
		4.0	25.4	220.0	Cast	—	—[4]	139[5]	—	—
		5.0	25.4	220.0	Cast	—	—[4]	222[5]	—	—

Collimators		Mass (kg)*
LEGP	Low energy general purpose	30
LEHR	Low energy high resolution	35
CHR	Cardiac high resolution	29
MEGP	Medium energy general purpose	88
HEGP	High energy general purpose	128
HEPH	High energy pinhole	131

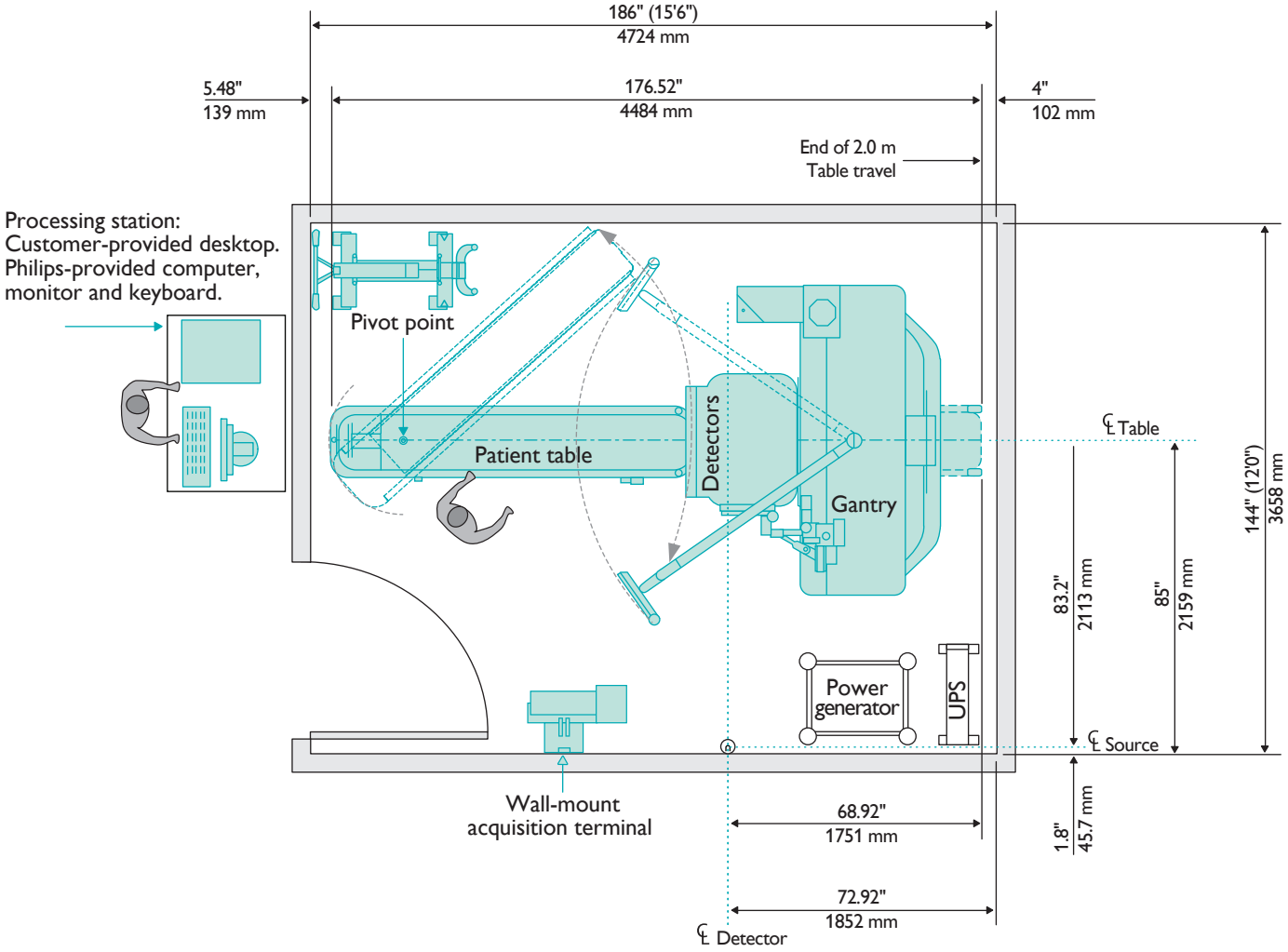
* These are the mass of the complete collimator.

1 Sensitivity is for Tc-99m with 20% window, 9.5 mm thick crystal.
2 Gallium-67 with 20% window 93 keV, 184 keV, 300 keV photo peaks.
3 Sensitivity is for I-131.
4 The pinhole collimator is rated for 364 keV and has 25.4 cm FOV at the crystal.
5 Relative sensitivity is for Tc-99m at 10 cm from the pinhole.
6 For 9.5 mm thick crystal.

Note: Sensitivity numbers are NEMA Class Standards and are ±7%.

Note: Specifications subject to change.

BrightView XCT minimum room layout



BrightView X has the same room requirements except the X-ray power generator is not included.

Environmental requirements for general equipment location

Throughout the SPECT suite, the HVAC system must maintain the temperature between 16°C (60°F) to 24°C (75°F) with less than 5°C (10°F) variation per hour. Humidity must be between 20% to 75%. These requirements are 24 hours per day, 7 days per week.

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