

# Picker PQ 6000 - Zap 180 Spiral Package

## Spiral Scanning

PQ 6000's Zap package (ZAP-180), using extended spiral interpolation technique, allows the full resolving power of conventional axial scanning to be available in the spiral mode. PQ 6000 offers the industry's highest spiral resolution of 21.5 Lp/cm for clear edge definition. Spiral acquisition allows precise lesion characterization, quantifiable organ perfusion and enhanced accuracy through single breath-hold scanning and continuous slice plane selection.

## Specifications

<b>Scan Time</b>	0.6 (230 degrees), 1, 1.5, 2, 3 & 4 second
<b>Slice Thickness</b>	1, 1.5, 2, 3, 4, 5, 8 & 10mm
<b>Scan Angle</b>	230, 360, 379 degrees
<b>Scan Plane</b>	Gantry tilt range of +/- 30 degrees
<b>Image Processing</b>	1,024 samples per view 512 x 512 image matrix 1,024 x 1,024 image display Pixel size: 0.04 to 0.47mm standard scanning CT number range: -2,048 to +6,143 Hounsfield units
<b>Reconstruction Times</b>	Axial & Spiral: 3 seconds
<b>Pilot Scan</b>	Half Field: 2 seconds (25cm) 512 matrix 2 seconds (51cm) 512 matrix Full Field: 3 seconds (51cm) 1,024 matrix 5 seconds (102cm), 1,024 matrix
<b>Image-to-Image Display Cycle Time</b>	3 seconds (Axial & Spiral)
<b>Spatial Resolution</b>	21.5 Lp/cm
<b>Low Contrast Resolution</b>	2.0 mm at 0.35% (1-second scan, 6-inch CatPhan phantom) and 4mm at 0.35% with 2.5 rads (1-second scan, 8-inch CatPhan phantom)
<b>Noise</b>	0.14% (2-seconds can, 6-1/4 inch water phantom) or 0.21% (1-second scan, 8-inch water phantom)

<b>5.0 MHU X-Ray Tube</b>	<p>Duplex graphite anode  Dual focal spot:  Small: 0.4mm c 0.5mm length (nominal)  Large: 0.6mm x 0.9mm length (nominal)  10,000 RPM  Anode heat storage capacity: 5.0 MHU  Anode cooling rate: 830 kHU/minute  Continuous anode cooling rate: 600 kHU/min.  Housing heat storage: 4.0 MHU  Housing heat dissipation rate: 550 kHU/min.</p>																				
<b>Generator</b>	<p>50kW maximum  High-frequency inverter generator mounted on a rotating scan frame  mA selections: 30, 50, 60, 100, 125, 150, 175, 200, 225, 250, 300, 325, 350, 375 &amp; 400  kV selections: 80, 100, 110, 120, 130, 140  Output specifications (480 VAC 10 percent, 3-phase rated output)  mA accuracy +/- 6 percent or 3 mA (whichever is greater)  kV accuracy +/- 6 percent  Efficiency: &gt;75 percent  Reproducibility: - long term: less than 0.25 percent during 24 hour period  -short term: 0.1 percent in 1 hour  line frequency ripple: less than 0.02 percent</p>																				
<b>Detectors</b>	<p>CSD (Continuous Spiral Detectors)  Cadmium tungstate crystal -99% photon conversion efficiency  Continuous calibration  Performs both angular and ray sampling  Dynamic range: &gt;1,000,000:1</p>																				
<b>Gantry</b>	<p>Length: 34 inches (86cm)  Width: 89 inches (226cm)  Height: 77 inches (196cm)  Weight: 3,550 lbs. (1,610kg)  The gantry will fit through a standard doorway for easy installation  +/- 30 degree gantry angulation  70cm aperture  Sagittal, coronal and z-axis laser positioning lights  Controls for gantry tilt, patient support system and laser lights are located on both sides of the gantry  Digital readout of gantry angle, patient support height and horizontal position</p>																				
<b>Software</b>	<table border="0"> <tr> <td>4.6B2</td> <td></td> </tr> <tr> <td>Zap180 Spiral Package</td> <td>SVIP</td> </tr> <tr> <td>MPR</td> <td>2.0 Pitch</td> </tr> <tr> <td>ADS</td> <td>Hyperlan I and Hyperlan II</td> </tr> <tr> <td>AutoVoice</td> <td>Dicom Store</td> </tr> <tr> <td>InstaView</td> <td></td> </tr> <tr> <td>MSSI (MultiSlice Spiral Interpolation)</td> <td></td> </tr> <tr> <td>QPro, QPro II</td> <td></td> </tr> <tr> <td>Spiral Pro</td> <td></td> </tr> <tr> <td>Ultra Image</td> <td></td> </tr> </table>	4.6B2		Zap180 Spiral Package	SVIP	MPR	2.0 Pitch	ADS	Hyperlan I and Hyperlan II	AutoVoice	Dicom Store	InstaView		MSSI (MultiSlice Spiral Interpolation)		QPro, QPro II		Spiral Pro		Ultra Image	
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## Site Requirements

Each PQ 6000 system is comprised of three components: a gantry, patient support and control console. Additional computer racks, X-ray cabinets and special rooms dedicated to climate control equipment are not required for PQ 6000.

- 480 nominal voltage at 75 kVA three-phase distribution source (US)  
400 nominal voltage at 75 kVA three-phase distribution source (Int'l)
- Ambient room requirements are 68 degrees to 75 degrees F at 30 percent to 60 percent R.H. (noncondensing). The BTU/hour ratings listed below are estimations based on an average hourly duty cycle and standby modes of equipment operation:
 

Extra Room	21,000
Control Area (integral console)	10,000
<u>Laser Imager</u>	<u>2,200</u>
	33,200 BTU/hour
- Recommended ceiling height 9'0" (2.77 m) minimum
- 270 square feet (25 square meters)  
225 square feet (21 square meters) minimum

Spiral Scanning Feature	PQ 6000 (Zap-180)
Single Run (seconds)	90 seconds (1 sec./rev) <i>Actual on time 91.5 seconds</i>
Single Run Coverage	180cm (162cm full scannable range of table)
# Spiral Runs/Study	10
Bidirectional Spiral	Yes, Multiphase
Vary intrastudy parameters	Yes, Load'N'Go
Nonlinear interpolation (extended spiral interpolation technique)	Yes
Spatial Resolution (Small FOV-0%MTF)	21.5 Lp/cm (0.23mm)
Maximum spiral spatial resolution (Hi Res Full Field)	21.5 Lp/cm (0.23mm)
Real-time signal processing	Yes, ARDAS
Standard protocols (MAS/REV)	175-750
Image display cycle time (minimum)	3 seconds
Prospective overlapped reconstruction	Yes
Online MPR image set capacity (512 <sup>2</sup> )	90

Scan Time (seconds)	Max mA (PQ 6000)
10	400
20	375
30	325
40	300
50	275
60	250
70	200
80	175
90	150
<b>Note: Assumes 120 kVP scans</b>	