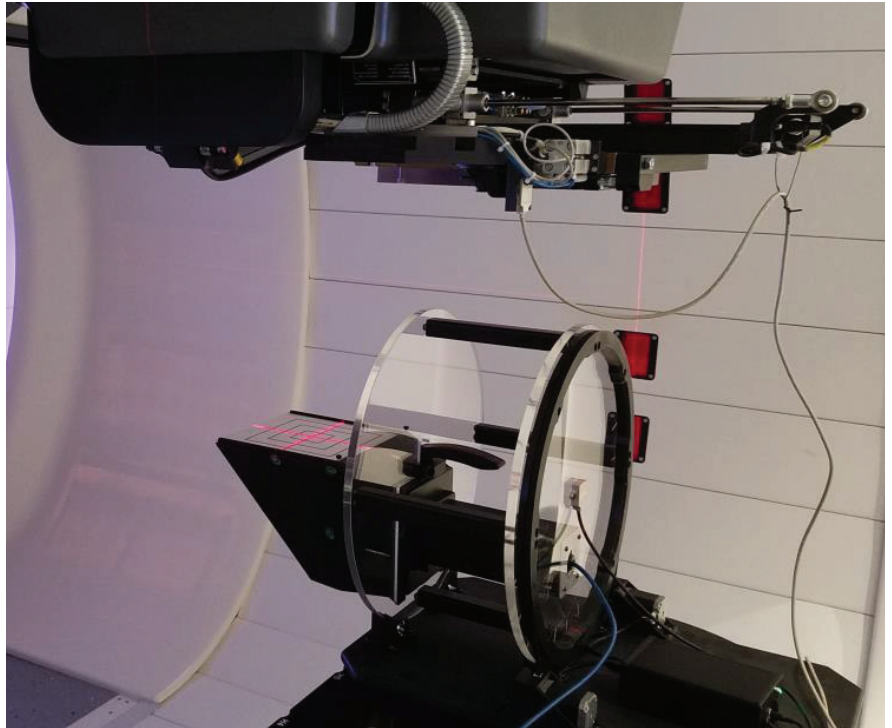


Motorized Gantry Cradle

Proton and X-Ray Beam Metrology – Logos Systems Int'l

Features and Benefits:

- Proton and X-ray beam profiling over 360° rotation
- Supports Logos Systems XRV-2000 Falcon and XRV-3000 Eagle
- Scintillator size up to 320x320 mm
- Remote control over 30 m CAT6 cable from laptop
- Automatic Gantry Following modes reduce QA time
- Motion control plan scripting
- Gantry angle data integrated with beam measurements
- MLC QA at any angle
- PBS XY spot analysis at any angle
- Proton range verification at any angle using LCW-200 or LCW-300 dual wedges



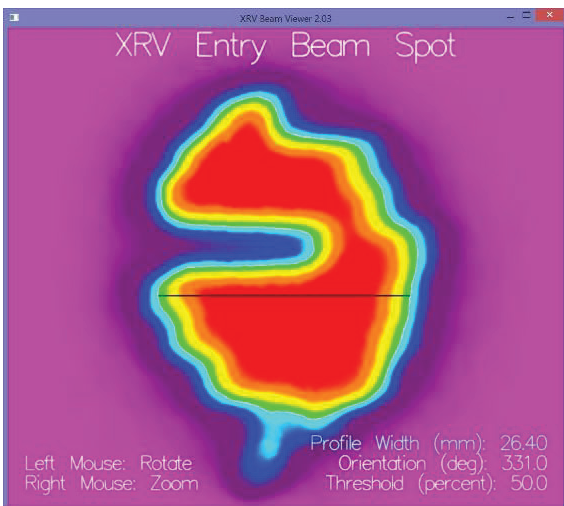
XRV-2000 Falcon Mounted in the Motorized Gantry Cradle

The Motorized Gantry Cradle option for the XRV-2000 Falcon and the XRV-3000 Eagle enables 0 – 360 degree measurements on fields up to 320x320 mm. Using advanced tracking algorithms and two inclinometers, the Motorized Gantry Cradle takes automated beam measurements continuously as the gantry moves. Because of the reduced time needed for human interaction, QA becomes faster and more efficient.

Coupled with the XRV-2000 Falcon or XRV-3000 Eagle, the Motorized Gantry Cradle can be set to automatically follow a moving gantry, stop for the delivery, and then continue to move with the gantry to the next desired gantry angle. The gantry inclinometer quickly attaches with a suction cup. Angle data is read from the inclinometers and is included in the output data. Gantry versus cradle angle following accuracy is typically within 0.5 degrees.

All operations are controlled by a laptop PC supplied with the Motorized Gantry Cradle and XRV detector phantom. The XRV comes with a 30 meter (100 feet) USB3 power-over-fiber extender cable so that the system PC and operator can be located safely away from the radiation source.

The Motorized Gantry Cradle comes with a separate CAT6 based USB 2.0 extender for the Motor Controller and two inclinometers. A precision calibration grid is provided with each phantom.



VMAT MLC Measurements

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Motorized Gantry Cradle Operation

After the Falcon or Eagle phantom is assembled in the Motorized Gantry Cradle, it may be CT scanned to allow targeting of the embedded fiducials in the treatment planning software. The Gantry Cradle can be manually turned if scanning at alternate angles is needed.

In the treatment room, the Phantom is placed on the treatment couch so the room lasers align the scintillator to the gantry isocenter. The Gantry Inclinator is attached to the Gantry using the included suction cup. Before delivery of the QA treatment plan, several Logos software applications must be running: BeamWorks Angle Server, BeamWorks Gantry Cradle Control, and Beam-Works Strata. For higher Gantry speeds (> 1 deg/sec) check the "enhanced" button on BeamWorks Angle Server.

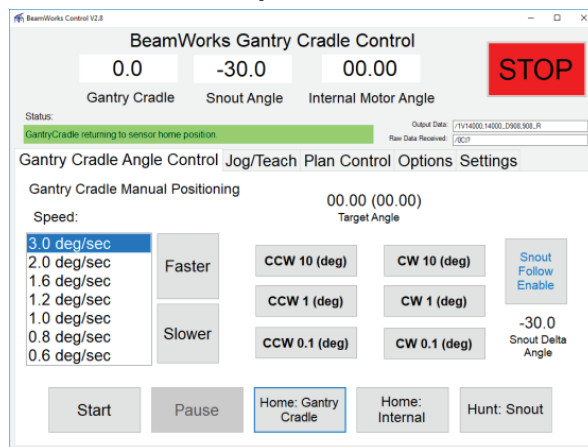
Home the Gantry Cradle, then enable Adaptive Follow Mode using the multifunction button on the right of BeamWorks Gantry Cradle Control. When the Start button is clicked, the phantom will align itself with the Gantry. In BeamWorks Strata, select the desired capture script and click Start Script. During the plan execution, the phantom will follow the Gantry around as the QA delivery proceeds. Angle data is captured in WinLVS at the same time as the beam data and is embedded into the measurements taken during delivery. Click Stop Script to complete the data capture.

Analysis of the captured data may be done using the included programs: BeamWorks Strata, Profile View, and WinLVS. Spot position, size, profile, and duration can be measured using these included programs. Measurements can be exported directly into an Excel template to perform trend analysis. Data is exported in formats that can be analyzed using third-party software programs such as MATLAB, Python, Excel or ImageJ.

XRV-2000 Falcon mounted in the Motorized Gantry Cradle, automatically follows the delivery Gantry.



BeamWorks Gantry Cradle Control



Motorized Gantry Cradle Specifications:

Gantry Cradle Properties:

Runout:	Max. \pm 1mm over 360 degrees
Angular Precision:	0.1 degrees (typical)
Deviation from Gantry:	0.2 - 0.5 degrees (typical)
Angle Period:	250 ms between acquisitions
Interface:	CAT6 USB 2.0 Extender

Phantom Accuracy: ¹

XY Beam Center:	0.22 – 0.3 mm
Repeatability:	\pm 0.04 mm (typical)
Beam Diameter:	0.1 mm
Repeatability:	\pm 0.04 mm (typical)

Phantom Optical System: ¹

Resolution:	1280x960 -1200 x 1200 pixels, 8 or 12 bits per pixel
Capture Rate:	1-30 frames/sec (max)
Scintillator Size:	200x200 mm - 320x320 mm
Camera Interface:	USB 3.0, fiber optic extender

Camera Shielding: ²

Camera top and sides:	12.7 bismuth composite
CCD Lifetime:	\sim 1,500 beam hours

Interface:

Capture Trigger:	Auto, GUI, Script, or Network watch-file
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General:

Electrical Power:	110-220V
Environment:	5 to 30 degrees C; 90% humidity, no condensation; minimal vibration

NOTES:

- Resolution accuracy dependent on phantom: 0.22 mm (1280x960) for Falcon, 0.3 mm (1200x1200) for Eagle. Max capture rate for the Eagle is 15 frames/sec.
- Contact us for custom shielding requirements. The camera may be replaced for a service fee after approximately 3 years as necessary.

5/17/2018