

# Logos Proton Beam Ranger 300

Proton and X-ray Beam Metrology - Logos Systems Int'l

## Features and Benefits (Preliminary):

- **Fast Bragg peak measurement of Proton and heavy ion beams up to 30 mm in diameter**
- **50 – 225 MeV proton beam standard range**
- **70 – 235 MeV proton beam range with acrylic range shifter**
- **75 – 244 MeV proton beam range with PTFE range shifter**
- **Accuracy better than 0.5 mm**
- **Mounting options available for the XRV-3000 Eagle and XRV-4000 Hawk**
- **Easy handling for use at all gantry angles**
- **Automated image analysis and software measurement**
- **Excel analysis template provided**

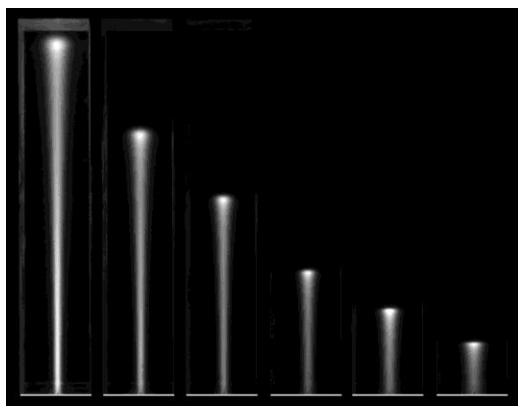


**Ranger 300 mounted on XRV-4000 Hawk Phantom**

The Ranger 300 is a module that mounts on to the XRV-3000 Eagle or XRV-4000 Hawk for the purpose of imaging the Bragg Peak of proton and heavy ion beams. The Ranger is oriented such that the hadron beam enters the end of a plastic scintillator block that is approximately 305 mm long and has a water equivalent thickness of approximately 1.04. As the ions slow down, light is generated and the beam image is reflected off the phantom mirror to the USB camera. The entire path of the beam from the scintillator entry point through the Bragg Peak region is captured by the camera at a resolution of approximately 0.3 mm per pixel. The resolution of the camera in that orientation is 1200 pixels.

The entry of the Ranger 300 is a 3 mm thick opaque window of acrylic (PMMA) upon which additional blocks of range shifting material may be added and held in place via thumbscrews. The standard water equivalent range of 320 mm can be extended to 350 mm with the included 25 mm acrylic (PMMA) insert. The optional 25 mm PTFE insert extends the water equivalent range to 360 mm. More energetic beams can be measured with custom inserts of either longer dimensions and/or denser composition.

The 55 mm width and height of the plastic scintillator allows the images of beams up to 30 mm in diameter to be captured and measured by the Eagle or Hawk. Existing owners of the XRV-3000 and 4000 will need new software to handle the Ranger 300 imaging and measurement requirements. Please contact us for custom configurations of the Ranger 300 design.



**Proton beam Bragg Peak images**



**Logos Systems Int'l – 175 El Pueblo Road - Scotts Valley, CA 95066**  
**Phone: 831-600-6101 Fax: 831-439-9440**  
**Email: [sales@logosvisionsystem.com](mailto:sales@logosvisionsystem.com) [www.logosvisionsystem.com](http://www.logosvisionsystem.com)**