ADC has manufactured the FC-204 unit which allows the user to view the position and profile of an incident X-ray beam. The full assembly of the fluorescent screen consists of three main components: a custom 4-way cross; a linear actuator mounted on top of the 4-way cross; and a water-cooled fluorescent screen. The upstream and downstream CF flanges of the custom 4-way cross can be sized to match the user’s beamline. On the bottom side of the 4-way cross is an angled port (60° from horizontal) with a tapped, non-rotatable 4 ½”CF for connecting a viewport. On the top side of the 4-way cross is another angled, non-rotatable 4 ½” CF for connecting the fluorescent screen actuator. The screen plates, which are available both cooled and un-cooled, are coated with a fluorescent material to convert X-rays to visible light and can be moved in and out of the beam by remote control. A CCD camera and motorised zoom lens looks up through a viewport directly onto the grid plate of the screen; camera magnification and focus can be controlled remotely. Equally spaced grooves are cut into the surface of the screen to provide a reference for imaging from below. The full assembly of the fluorescent screen consists of three main components: a welded vacuum chamber; a linear actuator mounted to one branch of the chamber; and a water-cooled fluorescent screen.
Pneumatic Cylinder with 50 mm nominal travel (adjustable) between hard stops

Pneumatic Manifold
1/4" Push-to-Connect Supply Port
Minimum 40 psi Air Supply

Cooling Water Supply
1/4" Push-to-Connect Ports
Minimum 0.29 gal/min at 20 °C

BNC Connector for Drain Current Measurement

Adjustable Hard Stop

Visible Light from Phosphor Screen

Quartz-glass View Port for CCD Camera

40 mm x 5 mm X-Ray Beam (~400 W)

Rotating DN100 Flange

Non-Rotating DN100 Flange

Notes:
1. System Mass/Weight: 30 kg (66.2 lb)
2. Screen Position Stroke: 50 mm Between Hard Stops
   (Lower hard stop adjustable for precise screen location)
3. Fluorescent Screen Specifications:
   - P22R Phosphor
   - Electrically Isolated with Connector for Drain Current
   - 20 mm x 45 mm Open Face with 5.8 mm Tall x 5 mm Wide Grid
4. Required Fluid Supplies:
   - Pressurized Air at 40 psi Minimum (1/4" Push-In Connector)
   - Water at 20 °C and Minimum Flow Rate of 0.29 gal/min (1/4" Push-In Connector)
5. End Flanges: DN100 (6" CF) with Clearance Holes
6. Water and Pneumatic Lines Omitted from Drawing

UHV

Fluorescent Screen, Electrically Isolated, Top Assembly

Notes:
1. System Mass/Weight: 30 kg (66.2 lb)
2. Screen Position Stroke: 50 mm Between Hard Stops
   (Lower hard stop adjustable for precise screen location)
3. Fluorescent Screen Specifications:
   - P22R Phosphor
   - Electrically Isolated with Connector for Drain Current
   - 20 mm x 45 mm Open Face with 5.8 mm Tall x 5 mm Wide Grid
4. Required Fluid Supplies:
   - Pressurized Air at 40 psi Minimum (1/4" Push-In Connector)
   - Water at 20 °C and Minimum Flow Rate of 0.29 gal/min (1/4" Push-In Connector)
5. End Flanges: DN100 (6" CF) with Clearance Holes
6. Water and Pneumatic Lines Omitted from Drawing