

X-RAY SYSTEM: THE 3 ESSENTIAL COMPONENTS

All three components work together to produce X-rays.

1. POWER SOURCE

Supplies high voltage (kV) and the electrical power (mA) needed to operate the X-ray tube.

2. CONTROL PANEL

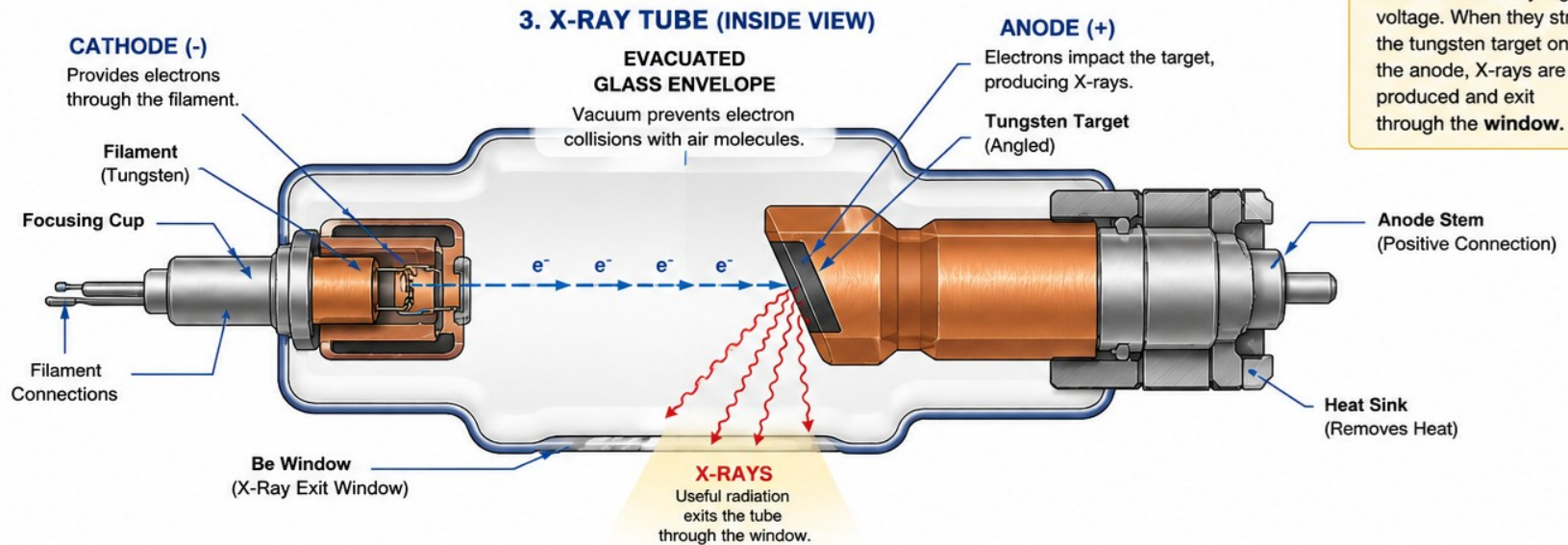
Allows the operator to set exposure parameters and safely control the X-ray system.

3. X-RAY TUBE

where X-rays are produced when electrons from the cathode strike the anode (target). X-rays exit the tube window.

X-RAY PRODUCTION IN THE TUBE

Electrons emitted by the cathode are accelerated across the tube by high voltage. When they strike the tungsten target on the anode, X-rays are produced and exit through the window.



1. POWER SOURCE (HIGH VOLTAGE GENERATOR)



- Converts input power to the high voltage (kV) and current (mA) required by the X-ray tube.
- Provides a stable, adjustable output for consistent exposures.
- Includes safety circuits and interlocks.
- Connects to the control panel and X-ray tube.

2. CONTROL PANEL (OPERATOR INTERFACE)



- Allows the operator to select and set exposure parameters: kV, mA, and time.
- Initiates and terminates the exposure.
- Provides system status indicators.
- Includes safety features and interlocks.

3. X-RAY TUBE



- Electrons from the cathode are accelerated by high voltage.
- Electrons strike the tungsten target on the anode.
- X-rays are produced and exit the tube window.
- The tube is shielded to protect personnel.



SAFETY FIRST: Only trained and authorized personnel should operate X-ray equipment. Always follow all radiation safety procedures and regulations.