

Application

For X-ray tubes that have been in storage or inactive for a period of three months or more.

Description

After a period of not being used, typically three months or more, residual gasses are released from the internal surfaces of the X-ray tube and accumulate into the tube vacuum. If the maximum rated voltage (in kV) is applied after a period of storage without performing a conditioning procedure, permanent damage to the X-ray tube may occur due to the destructive nature of high voltage arcs in the ionized gas. The following conditioning procedure is appropriate for both “new tubes”, as there may have been a period of storage, as well as tubes that have been stored for three months or more.

Procedure

To prevent this damage the following special conditioning process should be followed:

- Adjust the kV to the lowest kV that your specific tube is rated for. Set the beam current to 0mA and if any instability is noted on the mA meter allow it to stabilize to display 0mA. Operate at this condition for a minimum of 15 minutes.
- While maintaining the kV set in the previous step, adjust the beam current to 20% of rated maximum. Maintain this setting for 5 minutes or longer, until no instability is noted on the mA meter.
- Increase high voltage in 5kV steps at 5 minute intervals until 50% of maximum rated kV is reached. Hold 5 minutes at these conditions.
- Increase beam current to maximum rated mA.
- Continue to increase high voltage as before, in 5kV steps every 5 minutes until maximum rated kV or your maximum operating kV is reached. Allow at least 5 minutes at full power to insure that the tube is operating correctly in your system.

Note

If instability (especially loud popping) is observed, lower the kV setting to the previous step. Allow mA to stabilize for at least 5 minutes before increasing settings again.

www.oxford-instruments.com/xt

The materials presented here are summary in nature, subject to change, and intended for general information only. Performances are configuration dependent. Additional details are available. Oxford Instruments X-Ray Technology is certified to ISO 9001:2008.

© Oxford Instruments plc, 2015. All rights reserved. Document part number: 3904007 – March 12, 2015



X-ray Technology
360 El Pueblo Road
Scotts Valley, CA 95066, USA

Phone: +1 (831) 439-9729
Fax: +1 (831) 439-6050
Email: xray-sales@oxinst.com



The Business of Science®