



BX-1

The BX-1 X-ray window is Moxtek's premier window and successor to the AP windows series. The BX-1 window is the ideal choice for applications requiring high transmission of low energy X-rays. The BX-1 window is constructed entirely of low-Z materials and offers improved helium permeability performance and temperature tolerance as compared to the AP3 window.

Specifications

Open Area	77%
Helium Leak Rate	$< 1 \times 10^{-10}$ mbar • L/s *
Max Temperature (1 atm differential)	275° C
Max Temperature (No pressure differential)	275° C
Front Pressure Limit (Atmosphere side)	1.2 atm
Back Pressure Limit (Vacuum Side)	1.0 atm

*The Helium leak rate is tested by exposing the parts to a minimum of 0.5 SCFH helium sprayed immediately above and around the window on a calibrated helium leak detector for a minimum of 30 seconds.

Applications

- EDS
- XRF
- XRD

Features

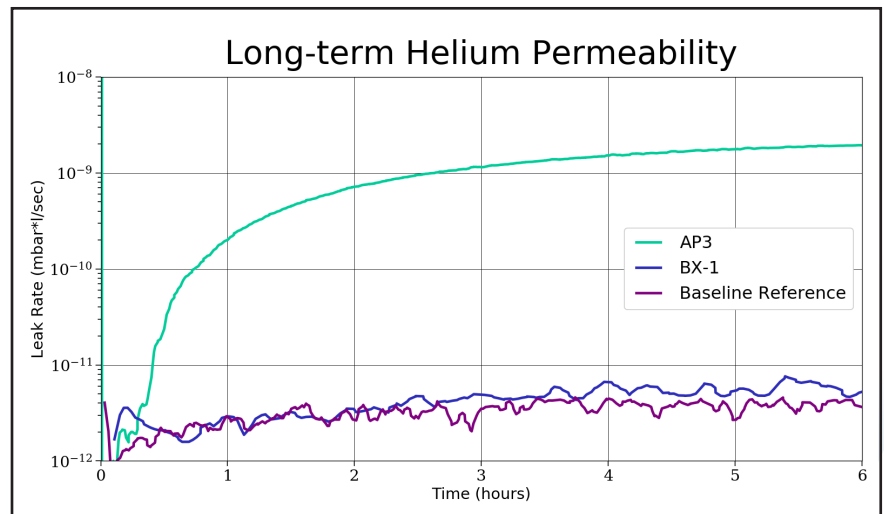
High transmission of low energy x-rays
High temperature tolerance
Corrosion resistant
Plasma resistant

Benefits

Decreased counting times for light element identification
Lithium identification possible
Improved bakeout opportunity

Light Rejection and Vacuum Tightness

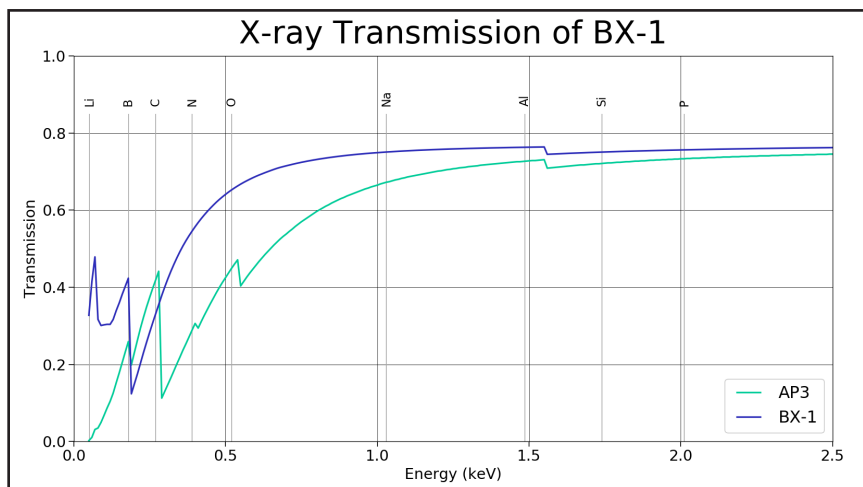
Window Composition	Proprietary ultrathin film with aluminium light rejection layer
Low Outgassing	Exceeds NASA criteria- ASTM E595



Mechanical Strength and Handling

The BX-1 window has been tested and shown to withstand over 3000g of acceleration/deceleration. It has also passed over 10,000 cycles between 0 and 1.2 atm of differential pressure. As with any light element x-ray window, the BX-1 window has an ultra-thin membrane that must be handled carefully to avoid damage.

BX-1 Transmission Curve and Chart



Atomic Number	Element	BX-1 Transmission(K α) (% of maximum)
14	Si	74%
13	Al	75%
11	Na	71%
8	O	54%
7	N	53%
6	C	32%
5	B	37%

Mounting Structure Requirements

Moxtek has qualified Kovar as the required mount material for BX-1 windows.

Availability

30mm² open area windows are currently available for sampling with mount design consultation.



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