

Guidelines for designing a mount for DuraBeryllium® x-ray windows



DuraBeryllium x-ray window



DuraBeryllium plus x-ray window

Mounting options

Moxtek offers these mounting services for DuraBeryllium windows.

- Epoxy adhesive (polymeric)
- Metal diffusion bond

Moxtek can supply mounts. Please provide a drawing with specific geometry detail.

| Guidelines for metal diffusion bonding | | | | | |
|--|--------------|---------------------------------------|----------------------|-----------------|------------------------------------|
| Window OD | | Counterbore Ø (mm) -B X.XX ±.05 | Counterbore depth -C | | Maximum thru hole ID (mm) -D |
| Thickness (µm) | Ø (mm) -A | | Maximum (mm) | Minimum (mm) | |
| 8.0 | 9.20 | 9.45 | 0.70 | 0.50 | 0.70 |
| 8.0 | 12.00 | 12.25 | | | |
| 12.5 | 12.00 | 12.25 | | | |
| 12.5 | 16.00 | 16.25 | | | |
| 25.0 | 9.20 | 9.45 | | | |
| 25.0 | 12.00 | 12.25 | | | |
| 25.0 | 16.00 | 16.25 | | | 13.00 |

| Guidelines for epoxy bonding | | | | |
|------------------------------|--------------|---------------------------------------|-----------------------------------|-----------------------------------|
| Foil dimensions | | Counterbore Ø (mm) -B X.XX ±.05 | Minimum counterbore (mm) -C | Maximum counterbore (mm) -C |
| Thickness (µm) | Ø (mm) -A | | | |
| 8.0 | 4.90 | 5.90 | 1.00 | 4.00 |
| 8.0 | 5.70 | 6.70 | | 5.00 |
| 8.0 | 7.90 | 8.90 | | 7.00 |
| 8.0 | 9.20 | 10.20 | | |
| 8.0 | 12.00 | 13.00 | | 8.00 |
| 12.5 | 12.00 | 13.00 | | |
| 12.5 | 16.00 | 17.00 | | 7.00 |
| 25.0 | 9.20 | 10.20 | | |
| 25.0 | 12.00 | 13.00 | | |
| 25.0 | 16.00 | 17.00 | | |

Window mount design guidelines

Please use the recommended design guidelines when designing a window mount for DuraBeryllium windows. See tables when designing either a mount for metal diffusion bonding or for epoxy bonding.

Moxtek® DuraBeryllium® windows are the highest performing beryllium x-ray windows available. DuraBeryllium windows are light tight, have high x-ray transmission, are vacuum tight, and corrosion resistant. DuraBeryllium windows can be attached with a high temperature metal diffusion bond or using a vacuum compatible epoxy. DuraBeryllium windows are used in a variety of applications including microanalysis, EDXRF, WDXRF, and XRD.

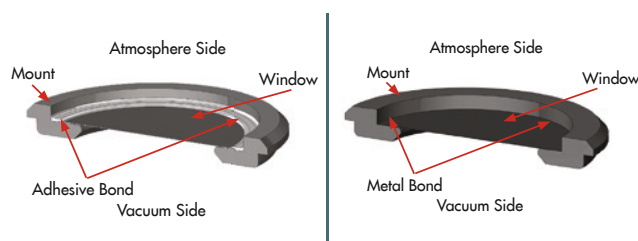
This Technical Note provides general guidelines for designing frames for Moxtek DuraBeryllium windows.

| Standard window sizes | |
|-----------------------|---------------|
| Thickness (µm) | Diameter (mm) |
| 8.0 | 4.9 |
| 8.0 | 5.7 |
| 8.0 | 7.9 |
| 8.0 | 9.2 |
| 8.0 | 12.0 |
| 12.5 | 12.0 |
| 12.5 | 16.0 |
| 25.0 | 9.2 |
| 25.0 | 16.0 |

For custom window sizes please contact us.

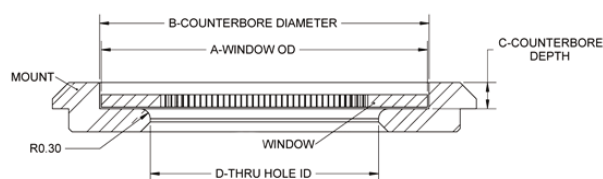
Mounting

Moxtek offers a mounting service for DuraBeryllium windows. Two types of bonding are used for mounting DuraBeryllium windows: epoxy adhesive and metal diffusion bond. Typical attachment of windows for both methods are shown in figures below.



Typical epoxy adhesive attachment of beryllium window

Typical metal diffusion bond attachment of beryllium window



Recommended window frame design guidelines