



## Viewports

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\* Note: Transmission Chart pg. 172

### Operating Conditions

The thermal ratings specified are safe operating limits determined by various factors including material properties, mechanical design, and the intended operating environment. Temperature ratings for various mounting options may reduce the operating range of a window assembly. All assemblies have a maximum thermal gradient of 25°C per minute and may be damaged if this limit is exceeded.

# VIEWPORTS

**Viewports** are hermetically sealed optical components which are typically used for visual or broad band energy transmission into and out of vacuum systems. MPF offers several material options for various transmission ranges and applications. **Single and multi-layer coatings** can be added to viewports to optimize transmission performance. All viewports are suitable for UHV applications.

MPF offers several mounting options for viewports: Weldable, Quick Flange (QF), and Conflat Flange (CF). Custom adapters, plates and flange configurations are available by request.

## **Sapphire and Fused Silica**

Sapphire and Fused Silica viewports are produced using traditional vacuum brazing techniques. Sapphire viewports have view diameters up to 3 inches, and are bakeable to 450°C. Single crystal sapphire lenses with 0 or 90 degree orientation offer excellent transmission from 250 nm to 4 microns.

Fused Silica viewports have view diameters up to 8 inches, including zero length designs for low profile applications. They are bakeable to 200°C. Several standard grades of fused silica lenses offer excellent transmission from 193 nm to 2 microns.

## **Vacuum-Optics (Extended Range)**

These ultra-high vacuum compatible viewports use lens materials such as Zinc Selenide, Magnesium Fluoride, and Calcium Fluoride. These viewports are available with one inch and two inch view diameters with a combined transmission range of 120 nm to 20 microns.

Coatings enhance the transmission performance of many of these viewports, and MPF offers several standard coating options. If you prefer a material or coating which is not standard, we will be very happy to review and quote custom requirements.

MPF also offers a differentially pumped design utilizing a Zinc Sulfide (Cleartran) lens with a two inch view diameter. The **Geo-Optics** design is intended for Geochronology and other extreme high vacuum (EHV) applications.

## **Laser-Optics (AR Coated)**

MPF recently added a full line of viewports specifically designed for use with high powered lasers. Laser viewports utilize optimum lens and anti-reflective coating specifications to maximize performance at specific wavelengths for common types of high powered lasers. Standard types include: 193 nm ArF Excimer, 249 nm KrF Excimer, 780 Diode, and 1064 Yag laser viewports.

