## Borosilicate Glass Viewports

*Borosilicate glass is fused to an expansion matched NiFe sleeve to produce a hermetic glass-to-metal seal.*

*Corning 7056 Borosilicate Glass*

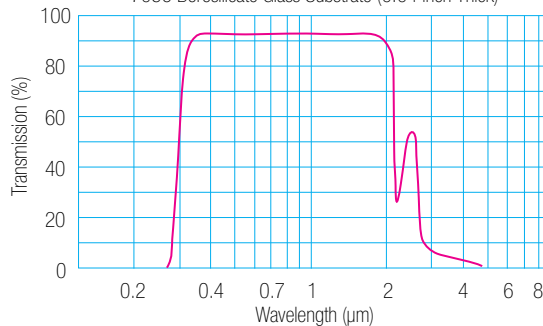*Ultrahigh Vacuum Compatible Materials*

*High temperature Fused glass-to-metal Seal*

### Features

- Corning 7056 borosilicate glass
- Nickel-Iron alloy low-expansion sleeve
- High temperature rated to 350°C
- UHV compatible construction
- Conflat® and ISO NW compatible mounts
- Stainless steel and NiFe construction
- Custom Solutions on Request

### Specifications

#### Material

| | |
|---|---|
| Flange | 304 Stainless Steel |
| Glass Substrate | Corning 7056 Borosilicate Glass |
| Seal | Fused Glass |

#### Vacuum Range [1]

| | |
|---|---|
| UHV, Ultrahigh vacuum | $1\times10^{-10}$ Torr |
| HV, High vacuum | $1\times10^{-8}$ Torr |

#### Temperature Range [2]
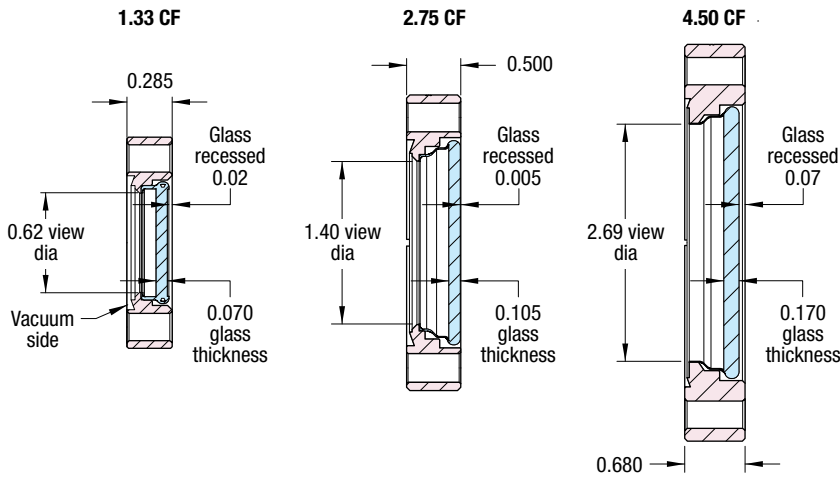
| | |
|---|---|
| Glass-to-metal interface (seal) | 350°C |
| Flange Mount, Conflat® | 450°C |
| Flange Mount, ISO | 150°C |
| Thermal Gradient | 20°C / Minute Maximum |

#### Transmission Range [3]

| | |
|---|---|
| 375~1900nm | >90% |
| 60-40 scratch-dig finish on both faces | |
| Flatness (per square inch) | .0002in |

### Notes

1. Leak tested to $5\times10^{-10}$ Standard cc/sec of He.
2. Overall assembly ratings must be adjusted to that of its lowest rated component. For cryogenic service, the lowest recommended temperature is -80°C
3. Transmission curves are provided for reference only. Transmission for individual viewports may vary based on glass substrate thicknesses, surface finish and/or other conditions.
§ Unless specified otherwise, dimensional units in all sections of this catalog are expressed in inches.

## Borosilicate Glass Viewports

Accu-Glass' borosilicate glass viewports are ideal for general purpose use such as the direct observation of processes inside a vacuum chamber. The window material is a Corning 7056 type borosilicate glass — one of the most common materials used in the construction of vacuum viewports. Our viewports are designed and built for both high and ultrahigh vacuum applications and employ the latest in glass-to-metal bonding technology to hermetically seal borosilicate glass to nickel-iron alloy sleeves. *Since glass is susceptible to scratching and inherently weak under point stresses, caution must always be exercised when handling these viewports. Proper handling of glass viewports and components will greatly minimize the chance of implosion hazard.*

**Transmission Curve**
7056 Borosilicate Glass Substrate (0.04 inch Thick)

**1.33 CF**

0.285

Glass recessed 0.02

0.62 view dia

Vacuum side

0.070 glass thickness

**2.75 CF**

0.500

Glass recessed 0.005

1.40 view dia

0.105 glass thickness

**4.50 CF**

Glass recessed 0.07

2.69 view dia

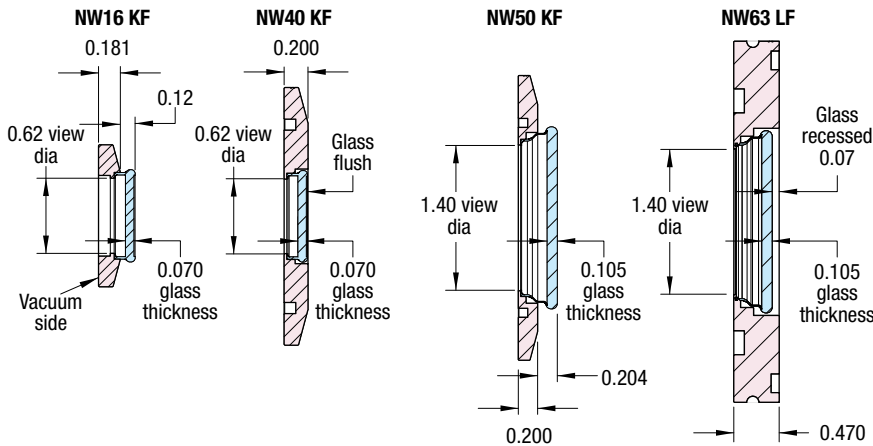0.170 glass thickness

0.680

## CF Flange[1] — Glass Viewports / 350°C / UHV to $1\times10^{-10}$ Torr

| View Diameter | Flange Type | Flange OD | Window Thickness | Spectral Range nm | Model Number | Part Number | Unit Price $ |
|---|---|---|---|---|---|---|---|
| **Corning 7056** — Borosilicate Glass Substrate | | | | | | | |
| 0.62 | 133 CF | 1.33 | 0.070 | 375-1900 | VPG-0.6-133 | **112401** | 115 |
| 1.40 | 275 CF | 2.73 | 0.105 | 375-1900 | VPG-1.4-275 | **112402** | 125 |
| 2.69 | 450 CF | 4.47 | 0.170 | 375-1900 | VPG-2.7-450 | **112403** | 235 |

1. Compatible with Conflat® flanges and hardware

**NW16 KF**

0.181

0.12

0.62 view dia

Vacuum side

0.070 glass thickness

**NW40 KF**

0.200

0.62 view dia

Glass flush

0.070 glass thickness

**NW50 KF**

1.40 view dia

0.105 glass thickness

0.204

0.200

**NW63 LF**

Glass recessed 0.07

1.40 view dia

0.105 glass thickness

0.470

## ISO KF/LF Flange[1] — Glass Viewports / 150°C / HV to $1\times10^{-8}$ Torr

| View Diameter | Flange Type | Flange OD | Window Thickness | Spectral Range nm | Model Number | Part Number | Unit Price $ |
|---|---|---|---|---|---|---|---|
| **Corning 7056** — Borosilicate Glass Substrate | | | | | | | |
| 0.62 | NW16 KF | 1.18 | 0.070 | 375-1900 | VPG-0.6-K16 | **112538** | 110 |
| 0.62 | NW40 KF | 2.16 | 0.070 | 375-1900 | VPG-0.6-K40 | **112539** | 120 |
| 1.40 | NW50 KF | 2.95 | 0.105 | 375-1900 | VPG-1.4-K50 | **112540** | 130 |
| 1.40 | NW63 LF | 3.74 | 0.105 | 375-1900 | VPG-1.4-L63 | **112541** | 180 |

1. Compatible with ISO 2861/1 specification flanges and hardware

**112401** / UHV Glass Viewport mounted on 1.33 CF Flange

**112402** / UHV Glass Viewport mounted on 2.75 CF Flange

**112538** / HV Glass Viewport mounted on NW16 KF ISO Flange

**112541** / HV Glass Viewport mounted on NW63 LF ISO Flange

Viewports