



GLASS COMPONENTS & CHAMBER ACCESSORIES





Glass Components and Chamber Accessories

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A&N Corporation

707 SW 19th Ave.
Williston, FL 32696
1(800) FLANGE1
FAX (352) 528-3441
www.ancorp.com

Glass Components and CHAMBER ACCESSORIES

This section is made up of a wide variety of helpful products. Add a window or door (or a combination of both) to your chamber. Transition from stainless steel to glass components. Add a valve to vent atmosphere or backfill gas into your chamber. In this section you will also find those little accessories to make your day easier like vacuum grease, anti-seize, flange caps to protect unused vacuum products and 12-point wrenches.

Overview

A&N provides a wide variety of borosilicate glass and fused quartz vacuum observation viewports (windows). You will find an option for vacuum chambers operating high and ultra-high levels of vacuum.

Weldable viewports provide a simple method of adding an observation window to coating systems and other applications that deposit materials onto the inner surfaces of the chamber. The window material (borosilicate glass or quartz) in these viewports is replaceable. The window material is captured between a pair of sealing fluoroelastomer rings. The assembly is compressed together by the aluminum retaining flange. Note that because this is a fluoroelastomer sealed assembly the ultimate pressure rating for this viewport is limited to high vacuum.

Add-a-doors are an excellent way to provide physical access to the interior of your vacuum system. Add-a-doors bolt onto an existing standard flange port on your chamber and can function as a viewing window as well as access point for your system. The body of an add-a-door is a CF flange generally capable of UHV pressures, but the door is sealed with a fluoroelastomer O-ring. Thus the ultimate vacuum pressure rating for this component is limited to high vacuum. NOTE: A&N's viewport add-a-doors have been designed to allow for the replacement of the windows.

Glass to metal adapters allow vacuum users to transition from glass to metal components within their vacuum system. An excellent solution is to pair a glass to metal adapter with a quick disconnect fitting. See Section 8 for more quick disconnect information.

Up-to-Air valves are a useful accessory. They are used to vent atmosphere or gas into a system. These valves are available with a wide variety of connection flanges and fittings to facilitate installation.

General vacuum accessories are the little things that you don't miss...until you need one. Vacuum grease, anti-seize, flange caps to protect unused vacuum products and 12-point wrenches.



TECH TIP

For optical transmission curves see pg. 10.4





ISO-OF Zero Length Viewport

Materials:

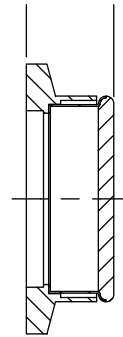
- Body – 304 stainless steel
- Viewing window – 7056 borosilicate glass
- Transition material - Kovar®
- Temperature: 150°c maximum
- Vacuum rating: below 1x10⁻⁸ Torr., High vacuum

Notes:

- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere

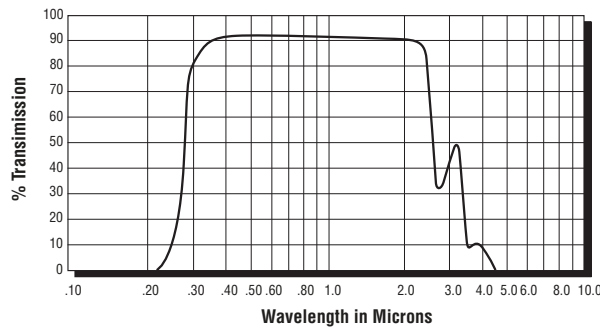
Options: Call for price and availability

- Alternative viewing window materials (quartz, sapphire)



| PART NUMBER | REFERENCE NUMBER | VIEW DIAMETER | A |
|-------------|------------------|---------------|------|
| 9110002 | QF25-ZVP | 1.0 | 0.51 |
| 9110000 | QF40-ZVP | 1.0 | 0.42 |
| 9110001 | QF50-ZVP | 1.5 | 0.47 |

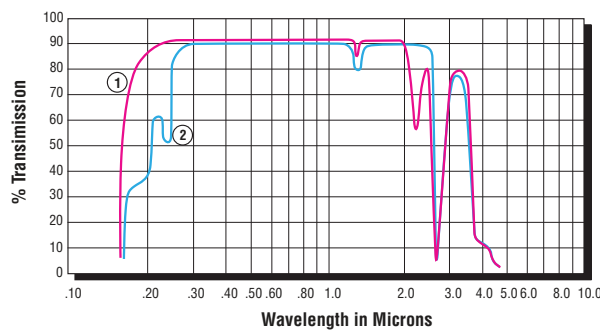
Glass Transmission Curve



Glass

- 1 mm thick reflection losses included
- Borosilicate glass

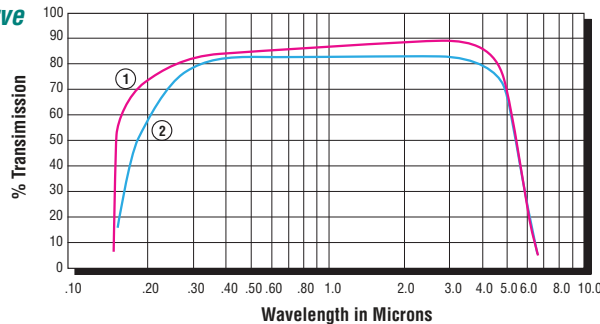
Quartz Transmission Curve



Quartz

- 10 mm thick reflection losses included
- (1) UV Grade Fused Silica
- (2) Regular Grade Fused Quartz

Sapphire Transmission Curve



Sapphire

- 1 mm thick reflection losses included
- (1) UV Grade
- (2) Regular Grade

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CF Zero Length Viewport

Materials:

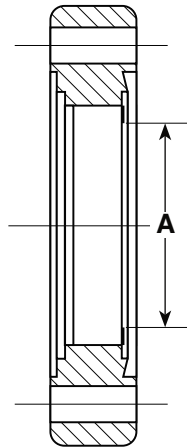
- Body – 304 stainless steel
- Viewing window – 7056 borosilicate glass
- Transition material - Kovar®
- Temperature: 400°C maximum
- Vacuum rating: below 1×10^{-10} Torr., Ultrahigh Vacuum

Notes:

- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere

Options: Call for price and availability

- Larger sizes
- Alternative viewing window materials (quartz, sapphire)



| PART NUMBER | REFERENCE NUMBER | FLANGE SIZE | A |
|-------------|------------------|-------------|------|
| 9110025 | 133-ZVP | 1.33 | 0.62 |
| 9110026 | 212-ZVP | 2.12 | 0.62 |
| 9110027 | 275-ZVP | 2.75 | 1.40 |
| 9110028 | 338-ZVP | 3.38 | 1.40 |
| 9110029 | 450-ZVP | 4.50 | 2.66 |
| 9110030 | 462-ZVP | 4.62 | 2.66 |
| 9110031 | 600-ZVP | 6.00 | 3.88 |
| 9110032 | 675-ZVP | 6.75 | 3.88 |
| 9110033 | 800-ZVP | 8.00 | 5.37 |
| 9110034 | 1000-ZVP | 10.00 | 5.37 |



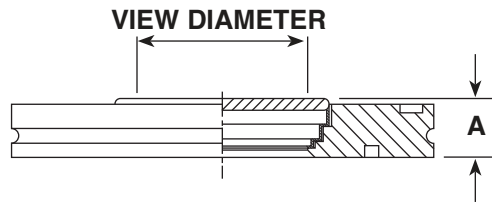
ISO-LF Zero Length Viewport

Materials:

- Body – 304 stainless steel
- Viewing window – 7740 borosilicate glass
- Transition material - Kovar®
- Temperature: 150°C maximum
- Vacuum rating: 1x10⁻⁸ Torr., High Vacuum

Notes:

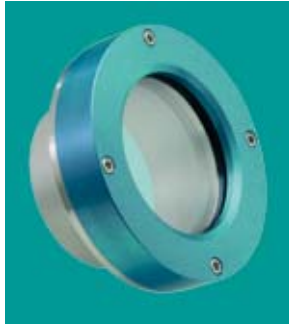
- Avoid thermal changes in excess of 10°C/minute
 - Do not expose to pressure above 1 atmosphere
- Options: Call for price and availability**
- Larger sizes
 - Alternative viewing window materials (quartz, sapphire)



| PART NUMBER | REFERENCE NUMBER | A | VIEW DIAMETER |
|-------------|------------------|-------|---------------|
| 9110005 | LF63-ZVP | 0.470 | 1.40 |
| 9110006 | LF80-ZVP | 0.470 | 1.40 |
| 9110007 | LF100-ZVP | 0.688 | 2.66 |
| 9110008 | LF160-ZVP | 0.790 | 3.88 |
| 9110009 | LF200-ZVP | 0.875 | 5.37 |

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Weldable Viewport

Materials:

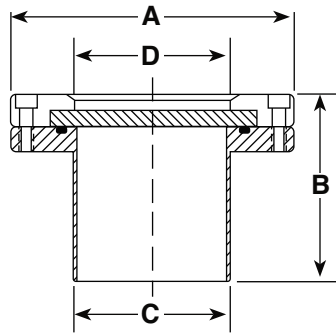
- Body – 304 stainless steel
- Viewing window
7740 borosilicate glass or quartz
- Seals – fluoroelastomer
- Retaining flange – stainless steel
- Bolts – stainless steel
- Temperature: 150°C maximum
- Vacuum rating: 1×10^{-8} Torr.,
High Vacuum

Notes:

- Avoid thermal changes
in excess of 10°C/minute
- Do not expose to pressure above
1 atmosphere

Options: Call for price and availability

- Larger sizes
- Custom lengths



TECH TIP

For optical
transmission curves
see pg. 10.4

| PART NUMBER | REFERENCE NUMBER | VIEWING MATERIAL | VIEW DIA | | | |
|-------------|------------------|------------------|----------|------|------|------|
| | | | A | B | C | D |
| 9118003 | 250-WVP | 7740 Glass | 4.47 | 2.88 | 2.50 | 2.37 |
| 9118005 | 250-WVP-Q | Quartz | 4.47 | 2.88 | 2.50 | 2.37 |
| 9118001 | 400-WVP | 7740 Glass | 5.97 | 2.88 | 4.00 | 3.83 |
| 9118010 | 400-WVP-Q | Quartz | 5.97 | 2.88 | 4.00 | 3.83 |
| 9118002 | 600-WVP | 7740 Glass | 7.97 | 2.88 | 6.00 | 5.83 |
| 9118015 | 600-WVP-Q | Quartz | 7.97 | 2.88 | 6.00 | 5.83 |



Replacement Parts

| REFERENCE NUMBER | DESCRIPTION |
|------------------|--|
| 250-PVP | Replacement Glass Disk |
| 250-PVP-Q | Replacement Quartz Disk |
| 250-WVP-RSK | Replacement fluoroelastomer seals (2) and bolt kit |
| 400-PVP | Replacement Glass Disk |
| 400-PVP-Q | Replacement Quartz Disk |
| 400-WVP-RSK | Replacement fluoroelastomer seals (2) and bolt kit |
| 600-PVP | Replacement Glass Disk |
| 600-PVP-Q | Replacement Quartz Disk |
| 600-WVP-RSK | Replacement fluoroelastomer seals (2) and bolt kit |



Add-A-Door

Materials:

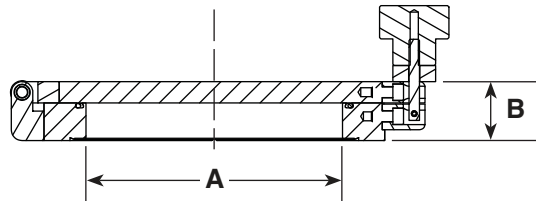
- Body – 304 stainless steel
- Door – 304 stainless steel
- Seals – fluoroelastomer
- Fastening knob - aluminum
- Temperature: 150°C maximum
- Vacuum rating: 1×10^{-8} Torr., High Vacuum

Notes:

- Do not expose to pressure above 1 atmosphere

Options: Call for price and availability

- Larger sizes



| PART NUMBER | REFERENCE NUMBER | FLANGE | A | B |
|-------------|------------------|--------|------|------|
| 9110101 | 275-AD | CF275 | 1.38 | 0.50 |
| 9110102 | 450-AD | CF450 | 2.44 | 0.69 |
| 9110103 | 600-AD | CF600 | 3.92 | 0.78 |
| 9110104 | 800-AD | CF800 | 5.88 | 0.88 |
| 9110105 | 1000-AD | CF1000 | 7.88 | 0.97 |

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Viewport Add-A-Door

Materials:

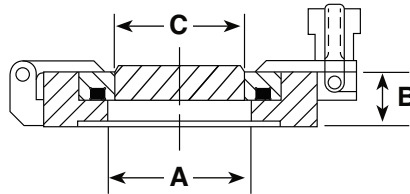
- Body – 304 stainless steel
- Door – 304 stainless steel
- Viewing window – 7056 borosilicate glass
- Seals – fluoroelastomer
- Fastening knob - plastic
- Temperature: 150°C maximum
- Vacuum rating: 1×10^{-8} Torr., High Vacuum

Notes:

- Avoid Thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere

Options: Call for price and availability

- Larger sizes
- Viewing window – quartz



| PART NUMBER | REFERENCE NUMBER | FLANGE | WINDOW MATERIAL | A | B | C |
|-------------|------------------|--------|-----------------|------|------|------|
| 9110223 | 450-ADVP | CF450 | 7056 Glass | 2.44 | 0.69 | 1.49 |
| 9110222 | 600-ADVP | CF600 | 7056 Glass | 3.92 | 1.00 | 2.65 |
| 9110224 | 800-ADVP | CF800 | 7056 Glass | 5.88 | 1.20 | 3.88 |
| 9110225 | 1000-ADVP | CF1000 | 7056 Glass | 7.88 | 1.30 | 5.60 |



ISO-QF to Glass Adapter

Materials:

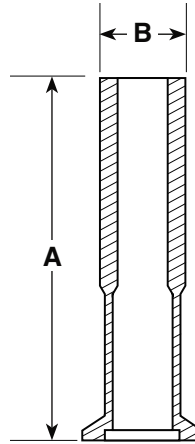
- Flange – 304 stainless steel
- Glass tube/transition – 7740 borosilicate glass/stainless steel
- Temperature: 150°C maximum
- Vacuum rating: 1×10^{-8} Torr., High Vacuum

Notes:

- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere

Options: Call for price and availability

- Larger sizes
- Custom lengths



| PART NUMBER | REFERENCE NUMBER | A | B |
|-------------|------------------|------|------|
| 9110015 | QF16-050-PT | 5.25 | 0.50 |
| 9110016 | QF16-075-PT | 5.25 | 0.75 |
| 9110017 | QF25-100-PT | 5.25 | 1.00 |
| 9110018 | QF40-150-PT | 5.50 | 1.50 |
| 9110019 | QF50-200-PT | 6.50 | 2.00 |

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CF to Glass Adapter

Materials:

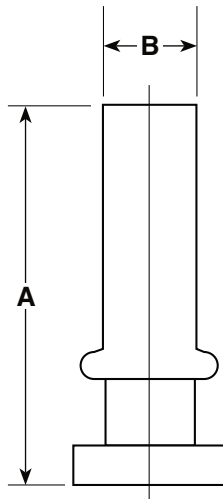
- Flange – 304 stainless steel
- Glass tube/transition – 7740 borosilicate glassKovar® or 7740 borosilicate glass/stainless steel (non-magnetic)
- Temperature: 400°c maximum
- Vacuum rating: below 1x10⁻¹⁰ Torr., Ultrahigh Vacuum

Notes:

- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere

Options: Call for price and availability

- Larger sizes
- Custom lengths



| PART NUMBER | REFERENCE NUMBER | GLASS TYPE | FLANGE O.D. | A | B |
|-------------|------------------|-------------------|-------------|-------|------|
| 9110050 | 133X075-KG | 7740 Glass/Kovar® | 1.33 | 5.75 | 0.75 |
| 9110040 | 133X075-PG | 7740 Glass/S.S. | 1.33 | 5.75 | 0.75 |
| 9110051 | 212X100-KG | 7740 Glass/Kovar® | 2.12 | 5.42 | 1.00 |
| 9110041 | 212X100-PG | 7740 Glass/S.S. | 2.12 | 4.92 | 1.00 |
| 9110052 | 275X150-KG | 7740 Glass/Kovar® | 2.75 | 5.46 | 1.50 |
| 9110042 | 275X150-PG | 7740 Glass/S.S. | 2.75 | 4.96 | 1.50 |
| 9110053 | 338X200-KG | 7740 Glass/Kovar® | 3.38 | 5.98 | 2.00 |
| 9110043 | 338X200-PG | 7740 Glass/S.S. | 3.38 | 5.48 | 2.00 |
| 9110054 | 450X250-KG | 7740 Glass/Kovar® | 4.50 | 7.75 | 2.50 |
| 9110044 | 450X250-PG | 7740 Glass/S.S. | 4.50 | 5.62 | 2.50 |
| 9110055 | 462X300-KG | 7740 Glass/Kovar® | 4.62 | 7.65 | 3.00 |
| 9110045 | 462X300-PG | 7740 Glass/S.S. | 4.62 | 5.53 | 3.00 |
| 9110056 | 600X400-KG | 7740 Glass/Kovar® | 6.00 | 10.44 | 4.00 |
| 9110046 | 600X400-PG | 7740 Glass/S.S. | 6.00 | 5.69 | 4.00 |
| 9110057 | 675X500-KG | 7740 Glass/Kovar® | 6.75 | 5.46 | 5.00 |
| 9110047 | 675X500-PG | 7740 Glass/S.S. | 6.75 | 5.71 | 5.00 |
| 9110058 | 800X600-KG | 7740 Glass/Kovar® | 8.00 | 11.25 | 6.00 |
| 9110048 | 800X600-PG | 7740 Glass/S.S. | 8.00 | 5.75 | 6.00 |



Up-to-Air Valves

Installation of an A&N up-to-air valve allows you to vent your chamber to atmosphere or backfill your chamber with the gas of your choice. Up-to-air valves are available in two mounting options: center or side mounting. Center mounted valves are welded to the flange, side mounted valves are sealed to the side port of a double sided CF flange with an NPT fitting and allow in-line installation of the valve in your system.

Features:

- Valve type: 1/4 inch, bellows sealed
- Actuation: manual
- Temperature range:
 - CF flange mount: 60°C up to 315°C
 - ISO-QF flange mount: -20°C up to 150°C
- Vacuum rating: High Vacuum 1×10^{-8} Torr

Product Notes:

- Vent or back fill your vacuum chamber

Options: call for price and availability

- Optional connections for valve port (VCR®, Swagelok®) standard is 1/4 inch tube end
- Valves with side mounting to CF flanges can also be provided with a double port CF flange for the addition of a vacuum gauge. See CF components section 4.

Up-to-Air Valve with CF flange port - Center Mount

| PART NUMBER | REFERENCE NUMBER | FLANGED PORT | DESCRIPTION |
|-------------|------------------|--------------|--|
| 9100105 | 133XUTAV | CF133 | Up-to-Air Valve with a CF133 Flange port |
| 9100106 | 275XUTAV | CF275 | Up-to-Air Valve with a CF275 Flange port |

Up-to-Air Valve with Double Sided CF flange port - Side Mount

| PART NUMBER | REFERENCE NUMBER | FLANGED PORT | DESCRIPTION |
|-------------|------------------|--------------|--|
| 9100107 | 133DXUTAV | CF133D | Up-to-Air Valve with a CF133 Flange port |
| 9100108 | 275DXUTAV | CF275D | Up-to-Air Valve with a CF275 Flange port |

Up-to-Air Valve with ISO-QF flange port - Center Mount

| PART NUMBER | REFERENCE NUMBER | FLANGED PORT | DESCRIPTION |
|-------------|------------------|--------------|---|
| 9100101 | QF16XUTAV | QF16 | Up-to-Air Valve with a QF16 Flange port |
| 9100102 | QF25XUTAV | QF25 | Up-to-Air Valve with a QF25 Flange port |
| 9100103 | QF40XUTAV | QF40 | Up-to-Air Valve with a QF40 Flange port |
| 9100104 | QF50XUTAV | QF50 | Up-to-Air Valve with a QF50 Flange port |

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Vacuum Grease

Features:

- Temperature Range: -40°C up to 260°C
- Size: 5.3 oz tube

Product Notes:

- Assist in elastomer gasket sealing
- Low vapor pressure
- Inert

| PART NUMBER | REFERENCE NUMBER | DESCRIPTION |
|-------------|------------------|----------------------------|
| 0600001 | GREASE-DC | Dow Corning® Vacuum Grease |



Anti-Seize

| PART NUMBER | REFERENCE NUMBER | DESCRIPTION |
|-------------|------------------|--|
| 0605208 | ASTL | Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |
| 0605113 | 12-POINT WRENCH | Fits CF 12-point bolts |



Flange Caps

| PART NUMBER | REFERENCE NUMBER | DESCRIPTION |
|-------------|------------------|--|
| 0600501 | PC-QF16 | 1 Plastic cap for ISO-QF16 flange or UF16 flange |
| 0600502 | PC-QF25 | 1 Plastic cap for ISO-QF25 flange or UF25 flange |
| 0600503 | PC-QF40 | 1 Plastic cap for ISO-QF40 flange or UF40 flange |
| 0600504 | PC-QF50 | 1 Plastic cap for ISO-QF50 flange or UF50 flange |
| 0600505 | PC-LF63 | 1 Plastic cap for ISO-LF63 flange |
| 0600506 | PC-LF80 | 1 Plastic cap for ISO-LF80 flange |
| 0600507 | PC-LF100 | 1 Plastic cap for ISO-LF100 flange |
| 0600515 | PC-CF133 | 1 Plastic cap for CF133 flange |
| 0600516 | PC-CF212 | 1 Plastic cap for CF212 flange |
| 0600517 | PC-CF275 | 1 Plastic cap for CF275 flange |
| 0600518 | PC-CF338 | 1 Plastic cap for CF338 flange |
| 0600519 | PC-CF450 | 1 Plastic cap for CF450 flange |
| 0600520 | PC-CF462 | 1 Plastic cap for CF462 flange |
| 0600521 | PC-CF600 | 1 Plastic cap for CF600 flange |
| 0600522 | PC-CF800 | 1 Plastic cap for CF800 flange |
| 0600523 | PC-CF1000 | 1 Plastic cap for CF1000 flange |
| 0600524 | PC-CF1200 | 1 Plastic cap for CF1200 flange |
| 0600525 | PC-CF1325 | 1 Plastic cap for CF1325 flange |

