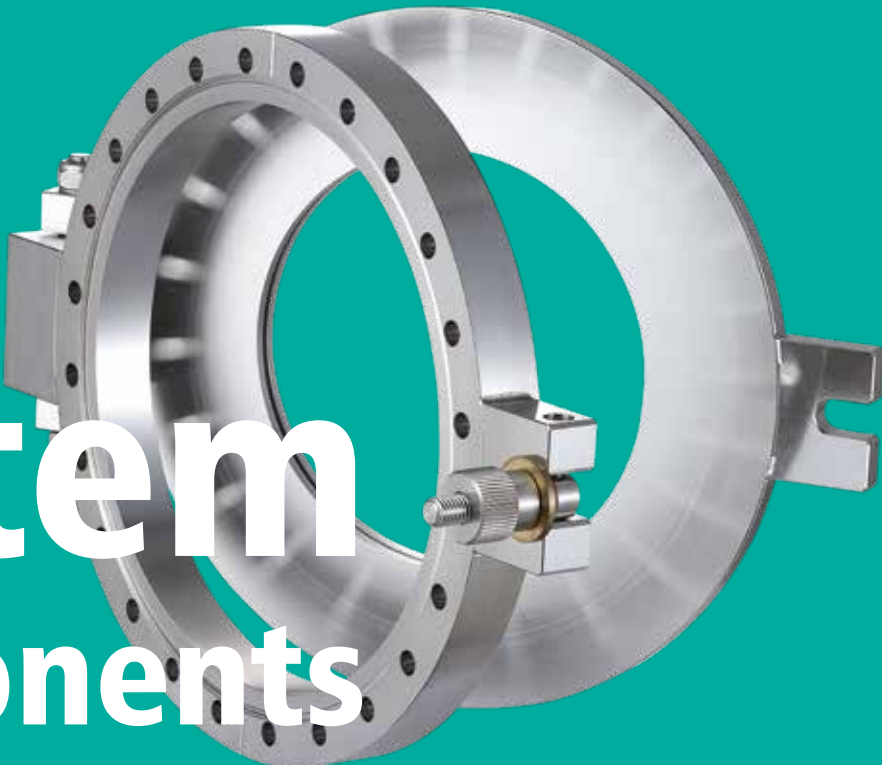


AdvanTorr[®]

VACUUM PRODUCT



System Components

Product Information

King Lai has a specialized vacuum chamber department equipped with state-of-the-art manufacturing and inspection equipment. With this advanced technology, we can create vacuum chambers in a range of sizes and shapes, up to 6 meters x 2.5 meters x 1.8 meters, using high-quality raw materials such as SS 304L, SS 316L, and aluminum alloy, commonly used in the fabrication of HV and UHV chambers.

King Lai offers a standard range of vacuum chambers, as well as customized designs that meet our customers' specific requirements. Through clear and thorough communication, our team of experienced designers understands the precise needs of our clients. We maintain careful control during every production process, and conduct rigorous inspections to ensure that our vacuum chambers exceed our customer's expectations.

Please Contact Us For Further Information.

Key Processes

- Water-Jet Cutting
- 5-Axis Machining Centre
- Bridge-Type Machining Centre
- Welding Platform
- CATIA 3D / Solid Works 3D
- Electro-polishing
- TIG Welding
- Class 10,000 Clean Room
- Ultrasonic Cleaning with DI Water

System Components

01. Vacuum Chambers



Geometry	D Type	Box Type	Tall Cylinder Type	
Vacuum Level	HV grade	HV grade	HV grade	UHV grade
Materials	SS 304L/316L	SS 304L/316L	SS 304L/316L	SS 304L/316L

Geometry	Short Cylinder Type		Spherical Type	Bell Type
Vacuum Level	HV grade	HV grade	UHV grade	UHV grade
Materials	SS 304L/316L	SS 304L/316L	SS 304L/316L	SS 304L/316L

02. Vacuum Quick Access Doors



Door Type	Viewport	Blank Flanges
Flange Type	CF Flanges	CF Flanges

03. Vacuum Viewports



Vacuum Level	UHV grade		HV grade		
Viewport Materials	Sapphire	Kodial		Fuse silica	Sapphire
Flange Type	CF Flanges	KF/ ISO-K Flanges	ISO-K Flanges	KF Flanges	
Viewport Bonding Method	Brazed	Brazed	O-ring sealed	Brazed	

04. Vacuum Viewport Shutters



Vacuum Level	UHV grade
Flange Type	CF Flange

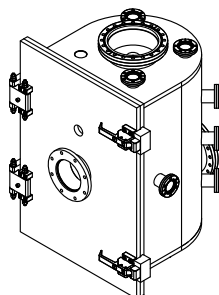
Vacuum Chambers

01. D Type Chambers

Material

SS 304

SS 316L



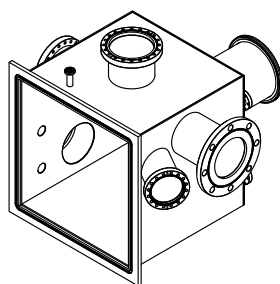
Part Number	Size	Product Description
DCH-500x450-X-X	500mm x 450mm	D-Chamber H500xW450
DCH-750x450-X-X	750mm x 450mm	D-Chamber H750xW450
DCH-1000x450-X-X	1000mm x 450mm	D-Chamber H1000xW450

02. Box Type Chambers

Material

SS 304

SS 316L



Part Number	Size	Product Description
BCH-500x450-X-X	500mm x 450mm	Box Chamber H500xW450
BCH-750x450-X-X	750mm x 450mm	Box Chamber H750xW450
BCH-1000x450-X-X	1000mm x 450mm	Box Chamber H1000xW450

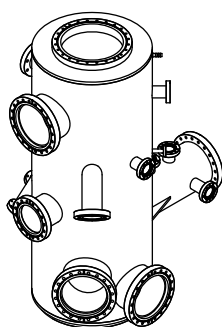
- 100mm Viewport with O-ring seal
- Customized port configuration CF/KF/ISO
- Optional water cooling
- Optional inner shielding plates
- Customized designs available on request
- Body wall thickness 6mm/10mm, plate wall thickness 20mm

03. Tall Cylinder Type Chambers

Material

SS 304

SS 316L

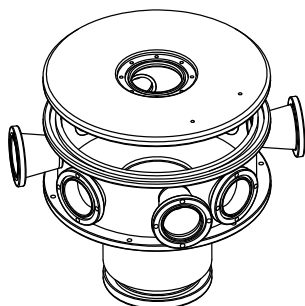


Part Number	Size	Product Description
TCCH-254x500-X-X	OD10" x 500mm	Tall Cylinder Type Stainless Steel Chamber 10" X 500mm
TCCH-254x750-X-X	OD10" x 750mm	Tall Cylinder Type Stainless Steel Chamber 10" X 750mm
TCCH-305x750-X-X	OD12" x 750mm	Tall Cylinder Type Stainless Steel Chamber 12" X 750mm
TCCH-305x1000-X-X	OD12" x 1000mm	Tall Cylinder Type Stainless Steel Chamber 12" X 1000mm
TCCH-356x750-X-X	OD14" x 750mm	Tall Cylinder Type Stainless Steel Chamber 14" X 750mm
TCCH-356x1000-X-X	OD14" x 1000mm	Tall Cylinder Type Stainless Steel Chamber 14" X 1000mm

- Customized port configuration
- Customized designs available on request
- Optional water cooling (double wall)
- Body wall thickness 6mm/10mm,
- Optional LN2 Cold Trap
- Top and bottom zero length flanges.

04. Short Cylinder Type Chambers

Material **SS 304** **SS 316L**

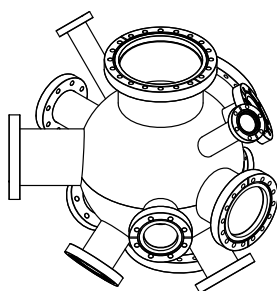


Part Number	Size	Product Description
SCCH-254x100	OD10" x 100mm	Short Cylinder Type Stainless Steel Chamber 10"x100mm
SCCH-305x200	OD12" x 200mm	Short Cylinder Type Stainless Steel Chamber 12"x200mm
SCCH-356x200	OD14" x 200mm	Short Cylinder Type Stainless Steel Chamber 14"x200mm
SCCH-457x250	OD18" x 250mm	Short Cylinder Type Stainless Steel Chamber 18"x250mm
SCCH-610x250	OD24" x 250mm	Short Cylinder Type Stainless Steel Chamber 24"x250mm

- Customized port configuration CF/KF/ISO
- Customized designs available on request (Up to 900mm OD, 500mm height)
- Body wall thickness 6mm / 10mm, top and bottom flanges are both gasket seal or O-ring seal.

05. Spherical Type Chambers

Material **SS 304** **SS 316L**

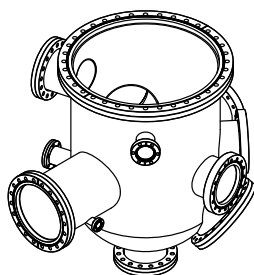


Part Number	Size	Product Description
SCH-254	10" Spherical	Spherical Type Stainless Steel Chamber 10"
SCH-300	12" Spherical	Spherical Type Stainless Steel Chamber 12"
SCH-457	18" Spherical	Spherical Type Stainless Steel Chamber 18"

- Customized port configuration
- Customized designs available on request
- Body wall thickness 6mm / 10mm

06. Bell Type Chambers

Material **SS 304** **SS 316L**



Part Number	Size	Product Description
BLCH-305x500-X-X	OD12"x 500mm	Bell Type Stainless Steel Chamber OD12" x 500mm
BLCH-305x750-X-X	OD12"x 750mm	Bell Type Stainless Steel Chamber OD12" x 750mm
BLCH-356x750-X-X	OD14"x 750mm	Bell Type Stainless Steel Chamber OD14" x 750mm
BLCH-356x1000-X-X	OD14"x 1000mm	Bell Type Stainless Steel Chamber OD14" x 1000mm

- Customized port configuration
- Optional water cooling (double Wall)
- Optional LN2 Cold Trap
- Customized designs available on request
- Body wall thickness 6mm / 10mm

Vacuum Quick Access Doors

Product Information

The Vacuum Quick Access Doors by **AdvanTorr®** are specifically designed to provide quick and easy access to load locks and chambers for loading and unloading substrates. These doors come in two styles: a blank door or a door with an integrated viewport, which allows for viewing access.

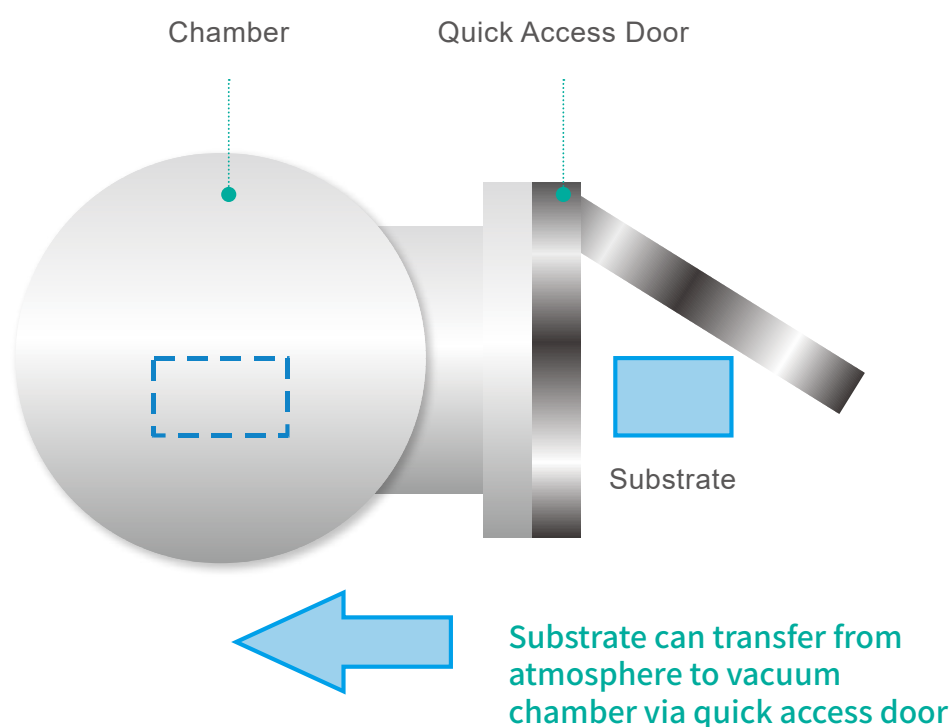
For applications that require higher purity and a low outgassing rate, optional high-grade SS316L material is available. This material can help maintain a high level of vacuum pressure within the chamber.

This product is ideal for use in a variety of industries, including semiconductor manufacturing, materials research, and vacuum coating.

Product Features

- Available in a range of flange sizes with and without integrated viewport.
- SS304L material as standard with option for higher-grade SS316L.
- Precision hinged door with reliable FKM O-ring seal.
- CF port mounts.
- Can be installed in any position.

Product Application



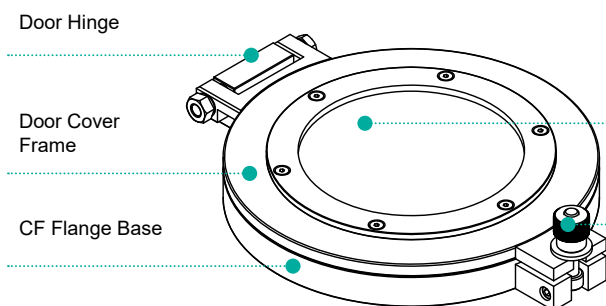
Vacuum Quick Access Doors



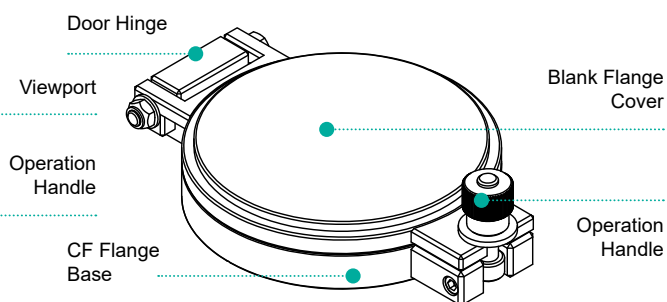
Technical Data for Quick Access Doors

Door Seal	FKM
Mounting Seal	OFHC gasket
Operate Pressure Range	760 Torr ~ 1×10^{-8} Torr 1,000 mbar ~ 1.33×10^{-8} mbar 100 kPa ~ 1.13×10^{-9} kPa
Leak Rate	1×10^{-9} Torr l/s, He 1.33×10^{-9} mbar l/s, He 1.13×10^{-10} kPa l/s, He
Temperature Range	-20°C (-4°F) ~ 150°C (302°F)
Bake Temperature	100°C (212°F)
Body Material	SS304L
Hinge Material	Optional high - grade SS316L material
Viewport Material	Glass (only with viewport version)
Mounting Position	Any

Viewport Type



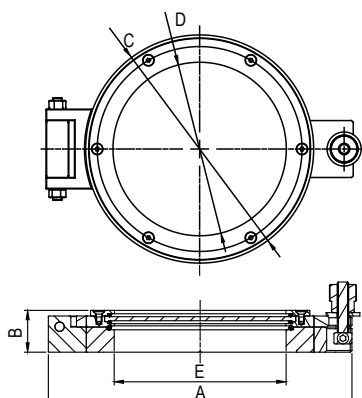
Blank Flange Type



Vacuum Quick Access Doors

01. Quick Access Door - Viewport Type

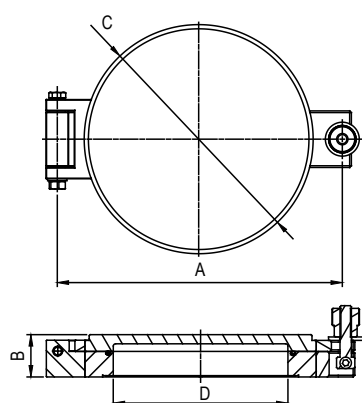
Material **SS 304**



Part Number	Flange Size	A	B	C	D	E
QDV-CF-450	CF4.5"	170.0	32.2	113.5	63.5	63.8
QDV-CF-600	CF6"	210.0	34.6	151.6	101.6	101.6
QDV-CF-800	CF8"	270.0	37.2	202.4	152.4	152.9
QDV-CF-1000	CF10"	320.3	39.4	253.2	152.4	203.7

02. Quick Access Door - Blank Flange Type

Material **SS 304**



Part Number	Flange Size	A	B	C	D
QDB-CF-450	CF4.5"	170.0	32.2	113.5	63.8
QDB-CF-600	CF6"	210.0	34.6	151.6	101.6
QDB-CF-800	CF8"	270.0	37.2	202.4	152.9
QDB-CF-1000	CF10"	320.3	39.4	253.2	203.7

▪ Dimension in mm

Vacuum Viewports

UHV and HV Viewports



Product Information

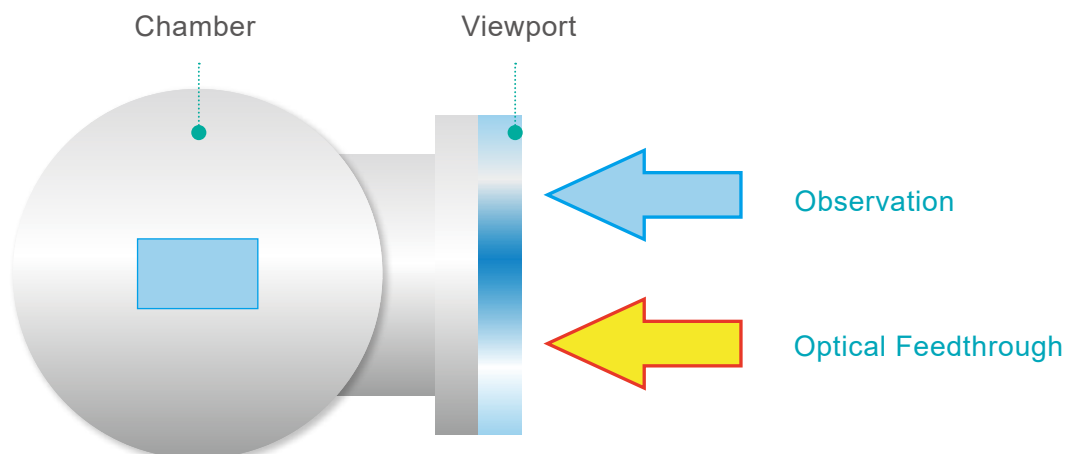
AdvanTorr® provides a comprehensive selection of HV and UHV viewports that serve the purpose of process observation in the visible spectrum and optical guidance. These viewports are manufactured to the highest standards of ISO 9001-2008 in contamination-free, class 10,000 clean room environments, utilizing the finest quality materials.

The majority of our viewports feature a zero-length profile, which not only offers a clear viewing angle, but also prevents the viewports from extending beyond the mounting flange, making them less vulnerable to damage.

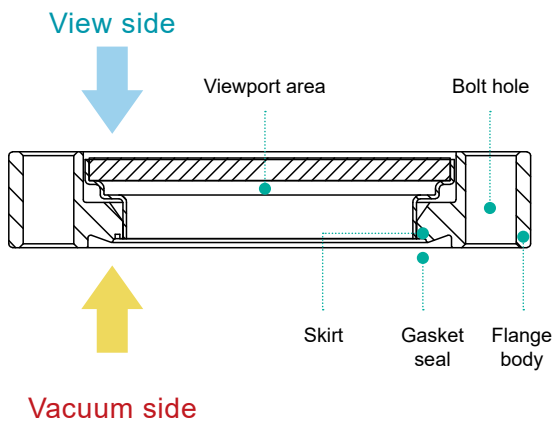
Product Features

- Both HV and UHV viewports offered in a wide range of CF, KF & ISO flange sizes.
- Available optic material: Kodial (visible spectrum), Fused Silica (Infra-red), Sapphire (Ultra-violet).
- UHV viewports offered in SS304L material as standard with option for high-grade SS316LN.
- HV viewports sealed via O-ring, UHV viewports vacuum brazed for high-temperature operation.
- Custom designs available on request.

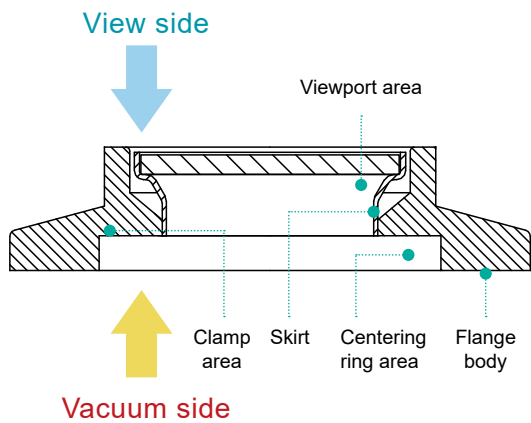
Product Application



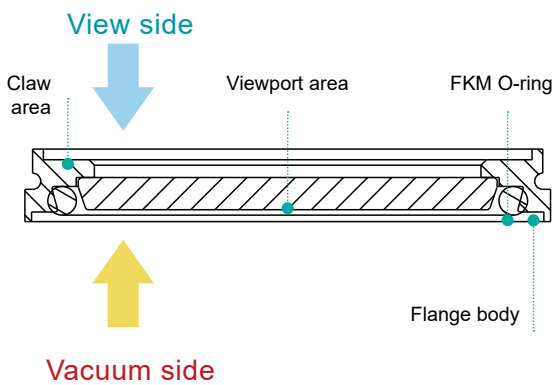
Vacuum Viewports



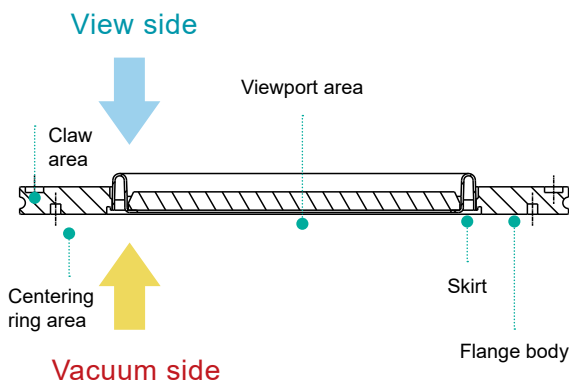
UHV Viewport



HV KF Viewport



HV ISO-K Viewport Type I

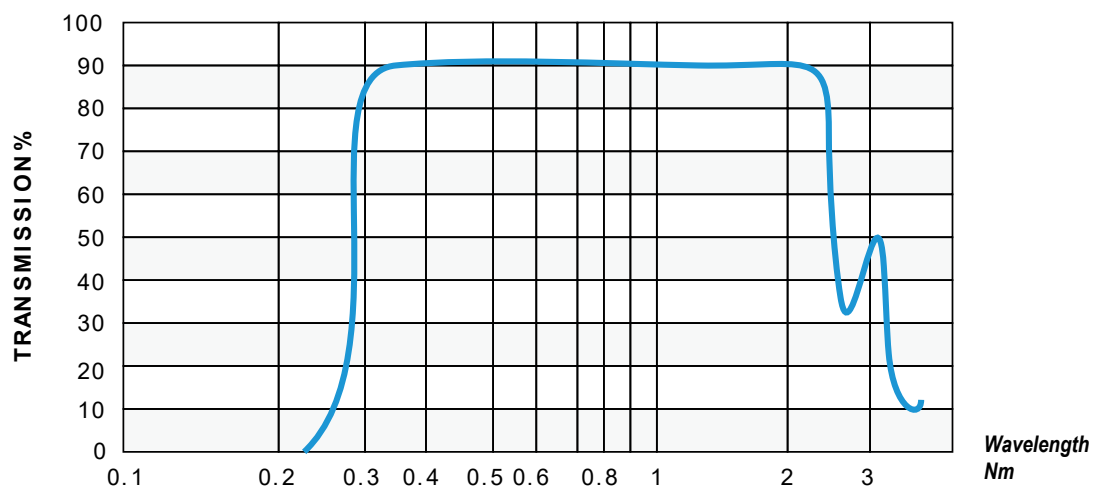


HV ISO-K Viewport Type II

Technical Data for Viewport

	UHV Kodial	HV Kodial
Viewport seal	Metal skirt	Metal skirt / O-ring seal
Mounting seal	OFHC gasket	Centering ring
Operate pressure range	760 Torr ~ 1×10^{-10} Torr 1,000 mbar ~ 1.33×10^{-10} mbar 100 kPa ~ 1.13×10^{-11} kPa	760 Torr ~ 1×10^{-8} Torr 1,000 mbar ~ 1.33×10^{-8} mbar 100 kPa ~ 1.13×10^{-9} kPa
Leak rate	760 Torr ~ 1×10^{-10} Torr 1,013 mbar ~ 1.33×10^{-10} mbar 101 kPa ~ 1.13×10^{-11} kPa	1×10^{-9} Torr l/s, He 1.33×10^{-9} mbar l/s, He 1.13×10^{-10} kPa l/s, He
Temperature range	-20°C (-4°F) ~ 350°C (662°F)	-20°C (-4°F) ~ 200°C (392°F)
Bake temperature	300°C (572°F)	150°C (302°F)
Maximum temperature change per minute	3°C (5.4°F)	3°C (5.4°F)
Body material	SS304L	SS304L
Viewport material	Kodial	Kodial
Mounting position	Any	Any

Transmission Curve Kodial



01. UHV Kodial Viewports, CF Flanges

Material **SS 304L**

Figure 1

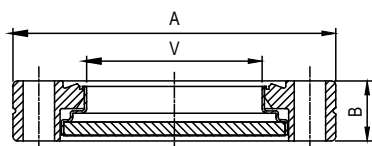
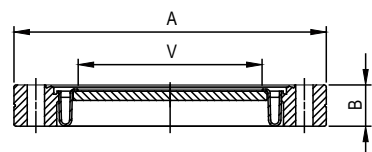


Figure 2



Part Number	Flange Size	Figure	A	B	V
VP-KD-CF-133	CF1.33"	1	34.1	8.0	15.9
VP-KD-CF-275	CF2.75"	1	69.9	13.0	38.0
VP-KD-CF-450	CF4.5"	1	113.5	17.5	63.6
VP-KD-CF-600	CF6"	2	151.5	20.0	89.2
VP-KD-CF-800	CF8"	2	202.5	22.0	137.0
VP-KD-CF-1000	CF10"	2	253.2	24.6	137.0

02. UHV Kodial Viewports, CF Flanges

Material **SS 316LN**

Figure 1

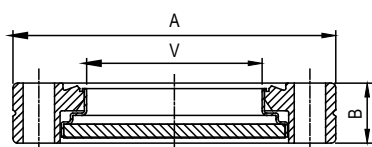
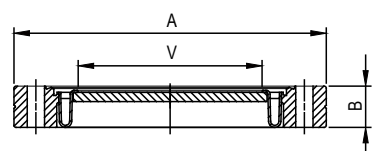


Figure 2

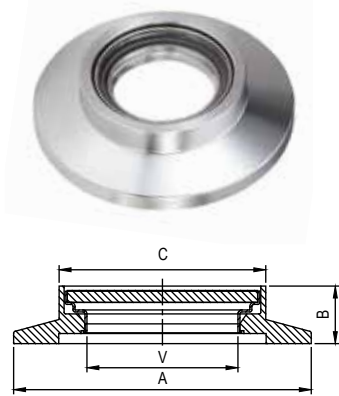


Part Number	Flange Size	Figure	A	B	V
VP-KD-CF-133-6LN	CF1.33"	1	34.1	8.0	15.9
VP-KD-CF-275-6LN	CF2.75"	1	69.9	13.0	38.0
VP-KD-CF-450-6LN	CF4.5"	1	113.5	17.5	63.6
VP-KD-CF-600-6LN	CF6"	2	151.5	20.0	89.2
VP-KD-CF-800-6LN	CF8"	2	202.5	22.0	137.0

▪ Dimension in mm

03. HV Kodial Viewports, KF Flanges

Material **SS 304L**



Part Number	Flange Size	A	B	C	V
VP-KD-KF-25	KF25	40.0	9.5	25.4	15.9
VP-KD-KF-40	KF40	54.9	14.5	52	38
VP-KD-KF-50	KF50	75.0	14.5	52.0	38.0

- Dimension in mm

04. ISO-K Welded Zero Length Viewports

Material **SS 304L**



Part Number	Flange Size	A	B	C	V
VP-KD-ISOK-63	ISO-K 63	95.0	11.9	12.0	38.0
VP-KD-ISOK-100	ISO-K 100	130.0	12.0	15.3	63.6
VP-KD-ISOK-160	ISO-K 160	180.1	11.9	17.8	89.2
VP-KD-ISOK-200	ISO-K 200	240.0	12.0	17.8	137.0
VP-KD-ISOK-250	ISO-K 250	290.0	12.0	18.8	137.0

- Welding sealed HV ISO-K viewports
- Dimension in mm

05. ISO-K O-ring Zero Length Viewports

Material **SS 304L**



Part Number	Flange Size	A	B	V
VP-KD-ISOK-63-O	ISO-K 63	95.0	13.5	72.0
VP-KD-ISOK-100-O	ISO-K 100	130.0	15.5	104.0
VP-KD-ISOK-160-O	ISO-K 160	180.0	17.2	153.0

- O-ring sealed HV ISO-K viewports
- Dimension in mm

Vacuum Viewport Shutters

Product Information

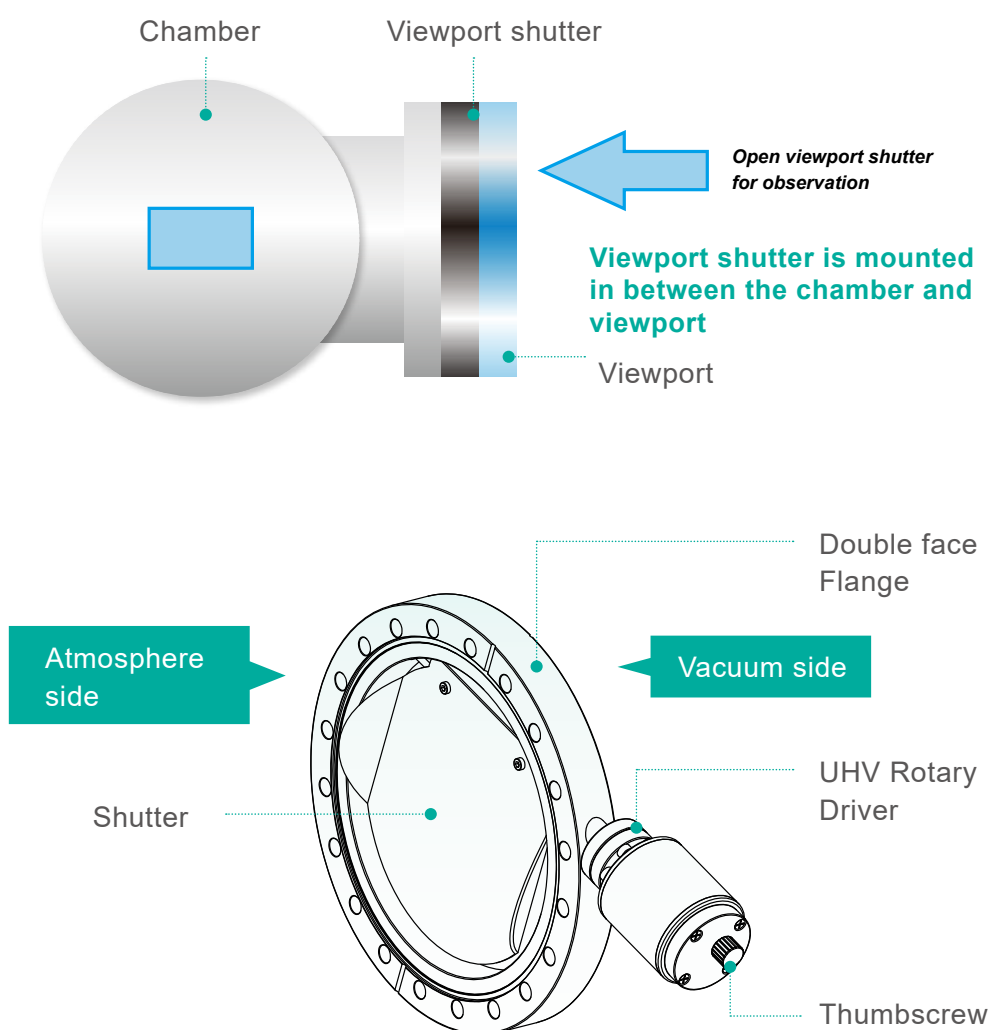
Vacuum Viewport Shutters are used in both HV and UHV coating applications to protect the viewport from the deposition of materials.

All shutters incorporate a double-sided flange so that they can be mounted in between the chamber and viewport which they are protecting. The swing mechanism, which is operated via a magnetic rotary drive, can 'swing' through 0° to 90° but can easily be locked at a set angle via a thumbscrew on the back of the drive. The viewport shutter can also easily be cleaned by bead-blasting the shutter plate.

Product Features

- Range of CF flange sizes from 2.75" to 10" OD.
- Double-sided flange mount.
- UHV grade rotary drive with thumbscrew for discrete angle positioning.
- Bakeable to 250°C.
- Wide range observation area.
- Easy installation in any orientation.

Product Application

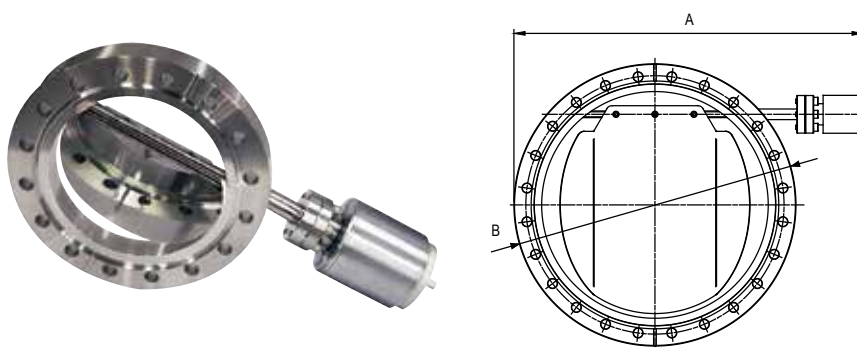


Technical Data for Quick Access Doors

Shutter	Stainless steel
Mounting Seal	OFHC gasket (both sides)
Operate Pressure Range	760 Torr ~ 1×10^{-10} Torr 1,000 mbar ~ 1.33×10^{-10} mbar 100 kPa ~ 1.13×10^{-11} kPa
Leak Rate	1×10^{-10} Torr l/s, He 1.33×10^{-10} mbar l/s, He 1.13×10^{-11} kPa l/s, He
Temperature Range	0°C (32°F) ~ 200°C (392°F)
Bake Temperature	250°C (482°F)
Body Material	SS304L
Feedthrough	UHV Rotary Drive
Mounting Position	Any

01. UHV Viewport Shutters, CF Flange

Material **SS 304L**



Part Number	Flange Size	A	B
VPS-CF-275	CF2.75"	166.0	69.3
VPS-CF-450	CF4.5"	202.0	113.5
VPS-CF-600	CF6"	235.0	151.6
VPS-CF-800	CF8"	281.0	202.4
VPS-CF-1000	CF10"	323.0	253.2

▪ Dimension in mm