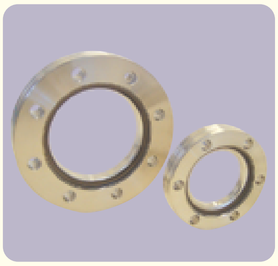
Viewports and Glass Components



Standard Viewports

The standard range of viewports mounted on CF, ISO-KF & ISO-LF flanges employ Kodial borosilicate glass as the window material. The window itself is sealed into a Kovar® carrier which is subsequently welded into the host flange. Due to the Kovar® alloy standard viewports are magnetic. Standard viewports can be baked to a maximum of 400°C (dependant upon host flange). Due to differing coefficients of thermal expansion of the materials used in construction, a maximum temperature gradient of 3°C per minute should be adhered to during heating and cooling.

Fused Silica Viewports

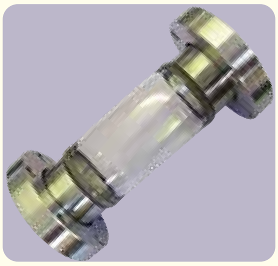
Fused silica viewports offer increased transmission of UV and IR wavelengths. We offer fused silica viewports in three grades; UV grade with window material HPFS® fused silica standard grade, DUV grade with window material HPFS® fused silica KrF grade, and Excimer UV with window material HPFS® fused silica ArF grade. We also offer a range of anti-reflection coated fused silica viewports which have an anti-reflective coating applied to both sides of the vacuum window, achieving maximised transmission for various laser types.

Sapphire Viewports

These viewports employ synthetic single crystal sapphire as the window material. Single crystal synthetic sapphire displays very different optical, physical and thermal characteristics depending upon the direction of the axis of the crystal structure. LewVac's UV grade sapphire viewports are offered with the crystal axis at either 0° or 90° (not specified) to the optical axis of the viewport. DUV grade viewports have a guaranteed 0° crystal orientation with respect to the optical axis

Extended Range Viewports

LewVac offer a range of UHV viewports with extended transmission range materials. Available materials are: calcium fluoride, magnesium fluoride, & zinc selenide.
Anti-reflective coatings can also be applied to order.



Glass Components

Our range of glass components includes glass to metal adapters, which allow connection of glass parts to stainless steel chambers and vice-versa, sealed domed end adapters, and double ended adapters.

LewVac Quality Components For Vacuum Technology

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Standard Kodial Borosilicate Glass

Specifications:

Materials

Window	Kodial borosilicate glass
Carrier	Kovar®
Flange	304 St.St.

Max Bakeout Temperature*

CF flanged viewport	400°C
KF flanged viewport	150°C

Max Thermal Gradient 3°C per minute

* - Assembly rating is reduced to that of the lowest rated component.

Features:

- General purpose for HV & UHV applications.
- Broad transmission range.
- Bakeable to 400°C.
- Lead glass shielded versions available.

Fig. 1.

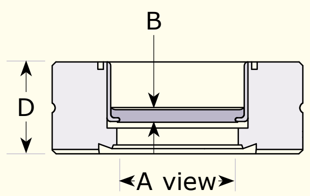


Fig. 2.

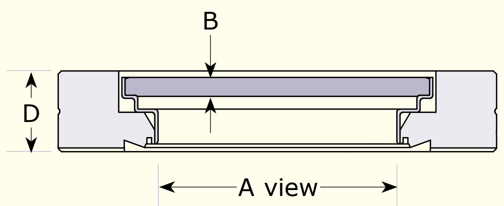


Fig. 3.

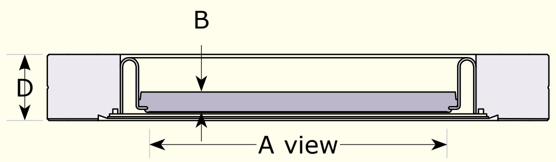


Fig. 4.

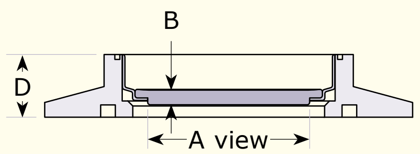


Fig. 5.

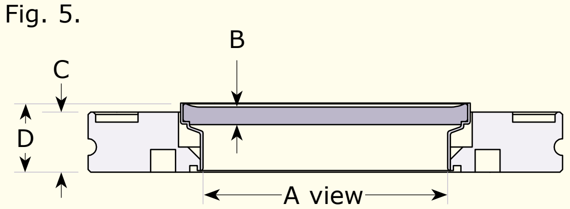
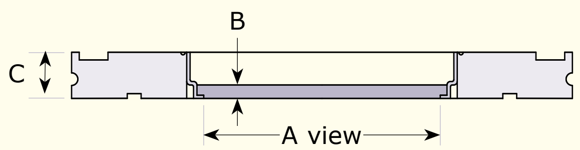


Fig. 6.



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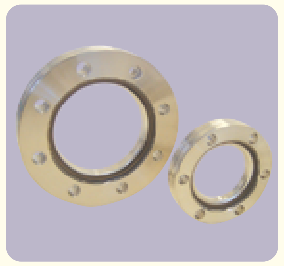
VIEWPORTS & GLASS COMPONENTS

CF Flanges

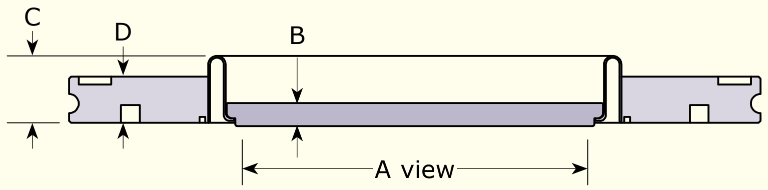


Flange	Fig.	A	B	D	Part Code	Price £	Price €
DN16CF	1	16	1.7	12.5	VP-16CF	£71	€82.00
DN16CF	1	16	1.7	7.8	VP-16CF-S	POA	POA
DN25CF	1	16	1.6	11.9.	VP-25CF	£77	€89.00
DN40CF	2	38	3.0	13.0	VP-40CF	£59	€68.00
DN50CF	2	49	3.5	15.8	VP-50CF	£128	€148.00
DN63CF	2	63	3.5	18.0	VP-63CF	£93	€107.00
DN100CF	3	90	6.0	20.0	VP-100CF	£179	€206.00
DN160CF	3	135	8.0	22.7	VP-160CF	£340	€391.00
DN200CF	3	135	8.0	25.0	VP-200CF	£487	€561.00

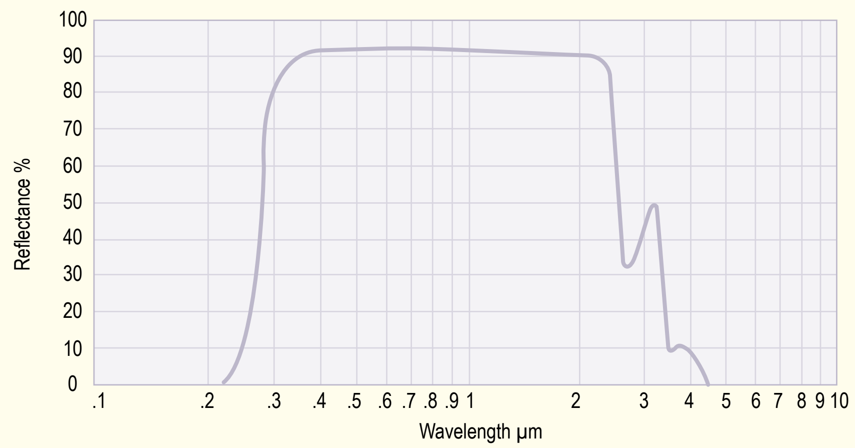
ISO KF & LF Flanges

Flange	Fig.	A	B	C	D	Part Code	Price £	Price €
DN16KF	4	16	1.6	-	12.7	VP-16KF	£65	€75.00
DN25KF	4	16	1.6	-	12.7	VP-25KF	£87	€101.00
DN40KF	4	32	3.0	-	12.7	VP-40KF	£83	€96.00
DN50KF	4	32	3.0	-	12.7	VP-50KF	£94	€109.00
DN63LF	5	49	3.5	14.0	12.0	VP-63LF	£103	€119.00
DN80LF	5	49	3.5	13.5	12.0	VP-80LF	£138	€159.00
DN100LF	6	63	3.5	12.0	-	VP-100LF	£140	€161.00
DN160LF	7	90	6.0	18.0	12.0	VP-160LF	£284	€327.00
DN200LF	7	135	8.0	18.0	12.0	VP-200LF	£485	€558.00

Fig. 7.



Optical transmission curve - Kodial borosilicate glass



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Email : sales@lewvac.co.uk - Tel : +44 (0)1444 233372 - Website : www.lewvac.co.uk

Fused Silica - UV Grade

Features:

- UHV compatible.
- Synthetic fused silica.
- Weldable versions available.

Specifications:

Materials

Window	Corning HPFS® 7980 fused silica
Carrier	St.St.
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C
KF flanged viewport	150°C
Weldable viewport	200°C

Max Thermal Gradient 25°C per minute

Optical properties

Surface finish	40/20 scratch-dig
Flatness	TWD < 10λ @ 632nm (peak to valley)
UV transmission @ 250nm (external)	>90%
Parallelism	<30 arc minutes
Homogeneity grade	F
Inclusion class	2

* - Assembly rating is reduced to that of the lowest rated component.

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Fig. 1.

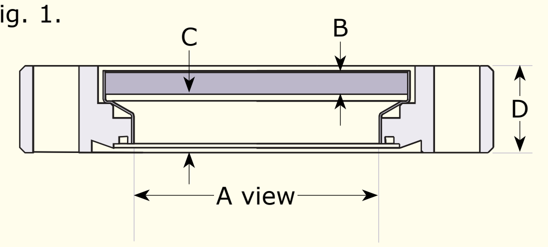


Fig. 2.

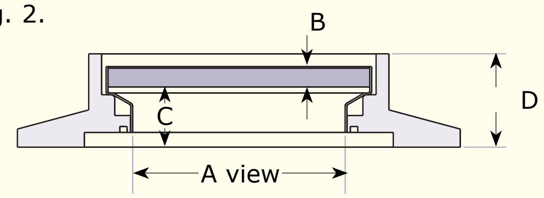


Fig. 3.

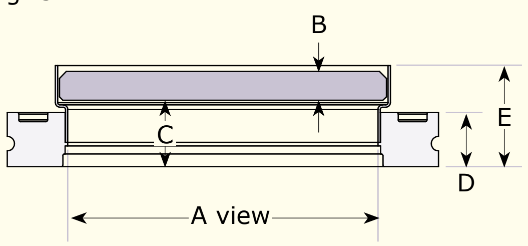
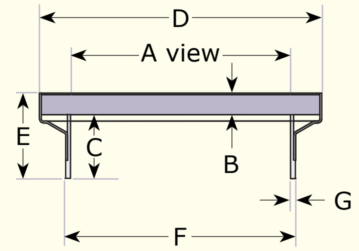


Fig. 4.



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

VIEWPORTS & GLASS COMPONENTS

CF Flanges - UV Grade

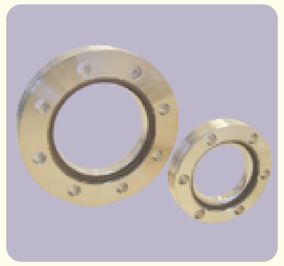


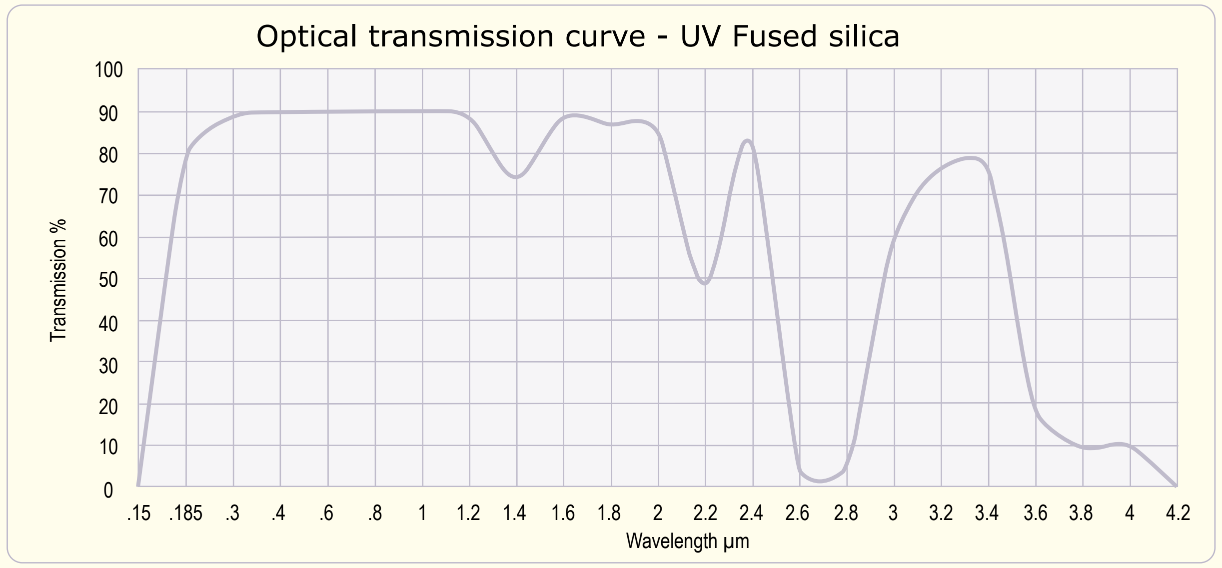
Fig.	Flange	A	B	C	D	Part Code	Price £	Price €
1	DN16CF	16.0	2.5	4.3	7.4	FSVP-UV-16CF	£183	€211.00
1	DN40CF	35.5	3.2	8.9	12.7	FSVP-UV-40CF	£203	€234.00
1	DN50CF	35.5	3.2	8.9	15.7	FSVP-UV-50CF	£223	€257.00
1	DN63CF	68.3	6.4	10.4	17.3	FSVP-UV-63CF	£659	€758.00
1	DN75CF	68.3	6.4	10.4	19.1	FSVP-UV-75CF	£675	€777.00
1	DN100CF	98.5	6.4	13.0	19.8	FSVP-UV-100CF	£811	€933.00
1	DN125CF	98.5	6.4	13.0	21.3	FSVP-UV-125CF	£862	€992.00
1	DN160CF	136.6	9.4	12.2	22.4	FSVP-UV-160CF	£1976	€2273.00
1	DN200CF	197.6	9.4	13.5	24.6	FSVP-UV-200CF	£2533	€2913.00

KF & LF Flanges - UV Grade

Fig.	Flange	A	B	C	D	E	Part Code	Price £	Price €
2	DN25KF	16.0	2.1	6.4	10.0	-	FSVP-UV-25KF	£209	€241.00
2	DN40KF	35.5	3.2	10.1	14.0	-	FSVP-UV-40KF	£209	€241.00
2	DN50KF	35.5	3.2	10.1	16.0	-	FSVP-UV-50KF	£254	€293.00
3	DN63LF	68.3	6.4	14.6	11.9	21.1	FSVP-UV-63LF	£656	€755.00
3	DN100LF	68.3	6.4	9.2	11.9	15.7	FSVP-UV-100LF-68	£714	€822.00
3	DN100LF	98.5	6.4	18.2	11.9	24.6	FSVP-UV-100LF	£927	€1067.00
3	DN160LF	98.5	6.4	11.8	11.9	18.3	FSVP-UV-160LF-98	POA	POA
3	DN160LF	136.6	9.4	10.1	11.9	19.8	FSVP-UV-160LF	£2335	€2686.00
3	DN200LF	136.6	9.4	10.1	11.9	19.8	FSVP-UV-200LF-136	£2480	€2852.00
3	DN200LF	197.6	9.4	12.4	11.9	21.8	FSVP-UV-200LF	POA	POA
3	DN250LF	197.6	9.4	12.4	11.9	21.8	FSVP-UV-250LF	£3299	€3794.00

Weldable - UV Grade

Fig.	A	B	C	D	E	F	G	Part Code	Price £	Price €
4	34.8	3.2	17.3	44.7	21.6	38.1	1.65	FSVP-UV-34.8-W	£244	€281.00
4	60.2	6.4	20.1	73.2	27.9	63.5	1.65	FSVP-UV-60.2-W	£634	€730.00



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Fused Silica - DUV Grade

Specifications:

Materials

Window Corning HPFS® 7980 fused silica

Carrier St.St.

Flange St.St.

Max Bakeout Temperature*

CF flanged viewport 200°C

KF flanged viewport 150°C

Weldable viewport 200°C

Max Thermal Gradient 25°C per minute

Optical properties

Surface finish 20/10 scratch-dig

Flatness TWD < λ/4 @ 632nm (peak to valley)

UV transmission @ 248nm (internal) ≥99.8%

Parallelism <10 arc seconds

Homogeneity grade A

Inclusion class 0

* - Assembly rating is reduced to that of the lowest rated component.

Features:

- UHV compatible.
- Synthetic fused silica.
- Weldable versions available.

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Fig. 1.

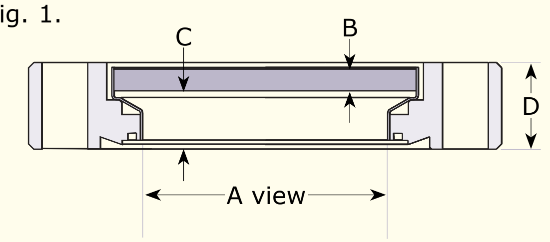


Fig. 2.

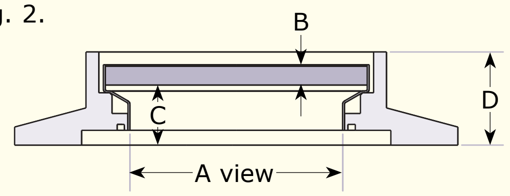


Fig. 3.

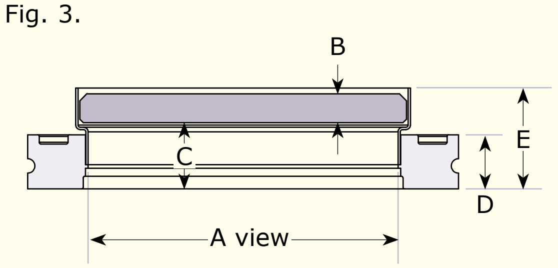
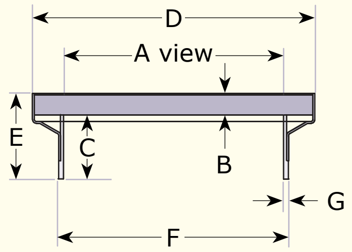


Fig. 4.



CF Flanges - DUV Grade

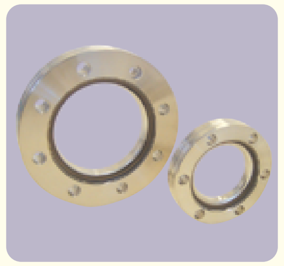


Fig.	Flange.	A	B	C	D	Part Code	Price £	Price €
1	DN16CF	16.0	2.2	4.3	7.4	FSVP-DUV-16CF	£310	€357.00
1	DN40CF	35.5	3.2	8.9	12.7	FSVP-DUV-40CF	£355	€409.00
1	DN50CF	35.5	3.2	8.9	15.7	FSVP-DUV-50CF	£406	€467.00
1	DN63CF	68.3	6.4	10.4	17.3	FSVP-DUV-63CF	£963	€1108.00
1	DN75CF	68.3	6.4	10.4	19.1	FSVP-DUV-75CF	£1039	€1195.00
1	DN100CF	98.5	6.4	13.0	19.8	FSVP-DUV-100CF	£1368	€1574.00
1	DN125CF	98.5	6.4	13.0	21.3	FSVP-DUV-125CF	POA	POA
1	DN160CF	136.6	9.4	12.2	22.4	FSVP-DUV-160CF	£2989	€3438.00
1	DN200CF	197.6	9.4	13.5	24.6	FSVP-DUV-200CF	£4389	€5048.00

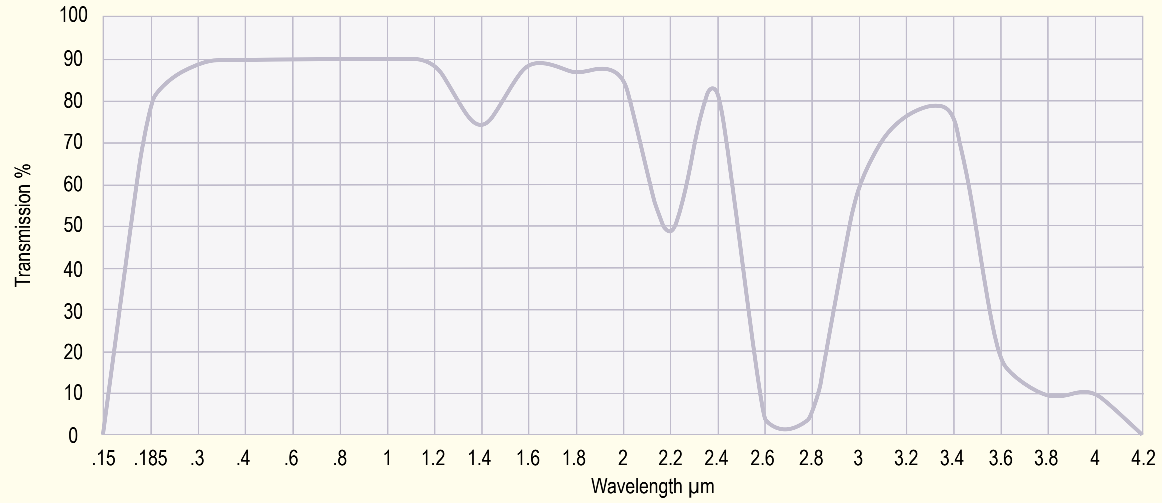
KF Flanges - DUV Grade

Fig.	Flange	A	B	C	D	E	Part Code	Price £	Price €
2	DN16KF	16.0	2.2	6.4	9.8	-	FSVP-DUV-16KF	POA	€0.00
2	DN25KF	16.0	2.2	6.4	10.0	-	FSVP-DUV-25KF	£360	€414.00
2	DN40KF	35.5	3.2	10.1	14.0	-	FSVP-DUV-40KF	£360	€414.00
2	DN50KF	35.5	3.2	10.1	16.0	-	FSVP-DUV-50KF	£406	€467.00
3	DN63LF	68.3	6.4	14.6	11.9	21.1	FSVP-DUV-63LF	£849	€977.00
3	DN100LF	68.3	6.4	9.2	11.9	15.7	FSVP-DUV-100LF-68	£907	€1044.00
3	DN100LF	98.5	6.4	18.2	11.9	24.6	FSVP-DUV-100LF	£1312	€1509.00
3	DN160LF	98.5	6.4	11.8	11.9	18.3	FSVP-DUV-160LF-98	£1447	€1665.00
3	DN160LF	136.6	9.4	10.1	11.9	19.8	FSVP-DUV-160LF	£3299	€3794.00
3	DN200LF	136.6	9.4	10.1	11.9	19.8	FSVP-DUV-200LF-136	£3444	€3961.00
3	DN200LF	197.6	9.4	12.4	11.9	21.8	FSVP-DUV-200LF	£4751	€5464.00
3	DN250LF	197.6	9.4	12.4	11.9	21.8	FSVP-DUV-250LF	£5156	€5930.00

Weldable - DUV Grade

Fig.	A	B	C	D	E	F	G	Part Code	Price £	Price €
4	34.8	3.2	17.3	44.7	21.6	38.1	1.65	FSVP-DUV-34.8-W	£396	€456.00
4	60.2	6.4	20.1	73.2	27.9	63.5	1.65	FSVP-DUV-60.2-W	£1115	€1283.00

Optical transmission curve - UV Fused silica



Fused Silica - Excimer Grade

Features:

- UHV compatible.
- Synthetic fused silica.
- Weldable versions available.

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Specifications:

Materials

WindowCorning HPFS® 7980 Excimer grade 193 fused silica

Carrier	St.St.
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C
KF flanged viewport	150°C
Weldable viewport	200°C

Max Thermal Gradient 25°C per minute

Optical properties

Surface finish	20/10 scratch-dig
Flatness	TWD < λ/4 @ 632nm (peak to valley)
UV transmission @ 193nm (internal)	≥99.5%
Parallelism	<10 arc seconds
Homogeneity grade	A
Inclusion class	0

* - Assembly rating is reduced to that of the lowest rated component.

Fig. 1.

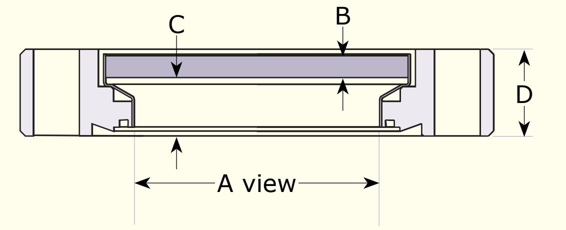


Fig. 3.

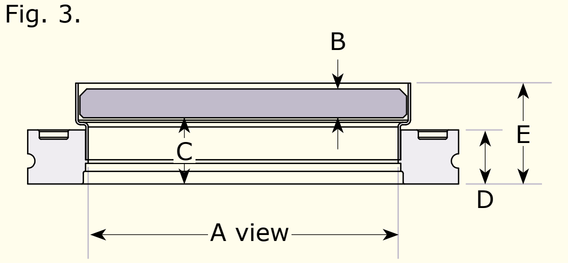
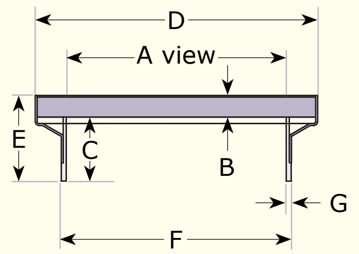


Fig. 3.



CF Flanges - Excimer UV Grade

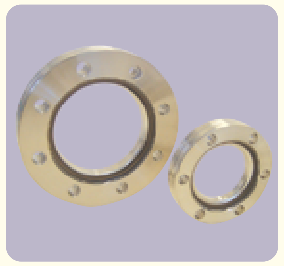


Fig.	Flange	A	B	C	D	Part Code	Price £	Price €
1	DN16CF	16.0	2.2	5.0	8.8	FSVP-EUV-16CF	£487	€561.00
1	DN40CF	35.5	3.2	8.9	12.7	FSVP-EUV-40CF	£659	€758.00
1	DN63CF	68.3	6.4	10.4	17.3	FSVP-EUV-63CF	£1470	€1691.00
1	DN100CF	98.5	6.4	13.0	19.8	FSVP-EUV-100CF	£2482	€2855.00
1	DN160CF	136.6	9.4	12.2	22.4	FSVP-EUV-160CF	£4071	€4682.00

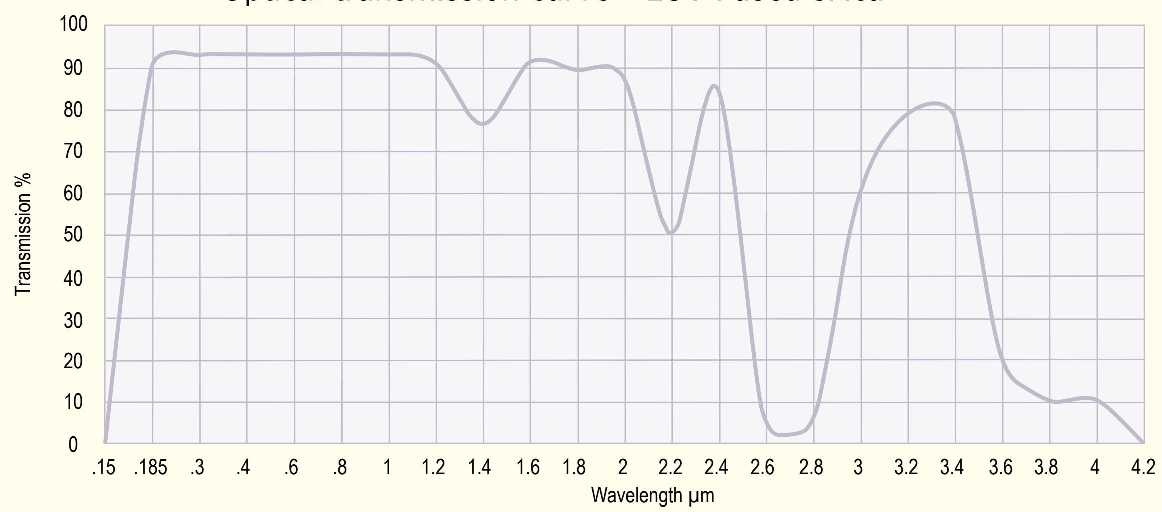
LF Flanges - Excimer UV Grade

Fig.	Flange	A	B	C	D	E	Part Code	Price £	Price €
2	DN63LF	68.3	6.4	14.6	11.9	21.1	FSVP-EUV-63LF	£1153	€1326.00
2	DN100LF	68.3	6.4	9.2	11.9	15.7	FSVP-EUV-100LF-68	£1211	€1393.00
2	DN100LF	98.5	6.4	18.2	11.9	24.6	FSVP-EUV-100LF	£2426	€2790.00
2	DN160LF	98.5	6.4	11.8	11.9	18.3	FSVP-EUV-160LF-98	£2562	€2947.00
2	DN160LF	136.6	9.4	10.1	11.9	19.8	FSVP-EUV-160LF	£4204	€4835.00
2	DN200LF	136.6	9.4	12.4	11.9	21.8	FSVP-EUV-200LF	POA	POA

Weldable - Excimer UV Grade

Fig.	A view	B	C	D	E	F	G	Part Code	Price £	Price €
3	34.8	3.2	17.3	44.7	21.6	38.1	1.65	FSVP-EUV-34.8-W	£619	€712.00
3	60.2	6.4	20.1	73.2	27.9	63.5	1.65	FSVP-EUV-60.2-W	£1581	€1819.00

Optical transmission curve - EUV Fused silica



Fused Silica - IR Low OH Grade

Features:

- UHV compatible.
- Synthetic fused silica.

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Specifications:

Materials

Window	Heraeus Suprasil 3001, Corning 8655, or equivalent, low OH
Carrier	St.St.
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C

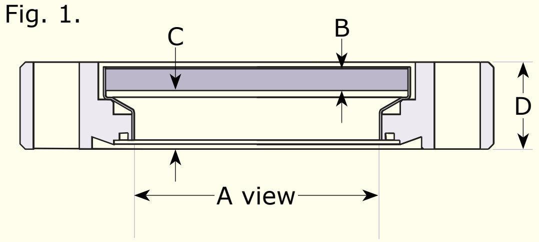
Max Thermal Gradient 25°C per minute

Optical properties

Surface finish	40/20 scratch-dig
Flatness	10λ @ 632nm (peak to valley)
Parallelism	<30 arc minutes
Homogeneity grade	A
Inclusion class	0

* - Assembly rating is reduced to that of the lowest rated component.

Fig. 1.



VIEWPORTS & GLASS COMPONENTS

CF Flanges - IR Low OH Grade

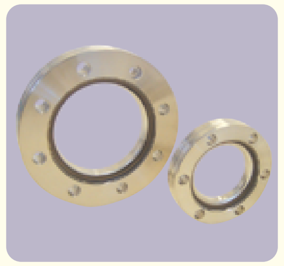
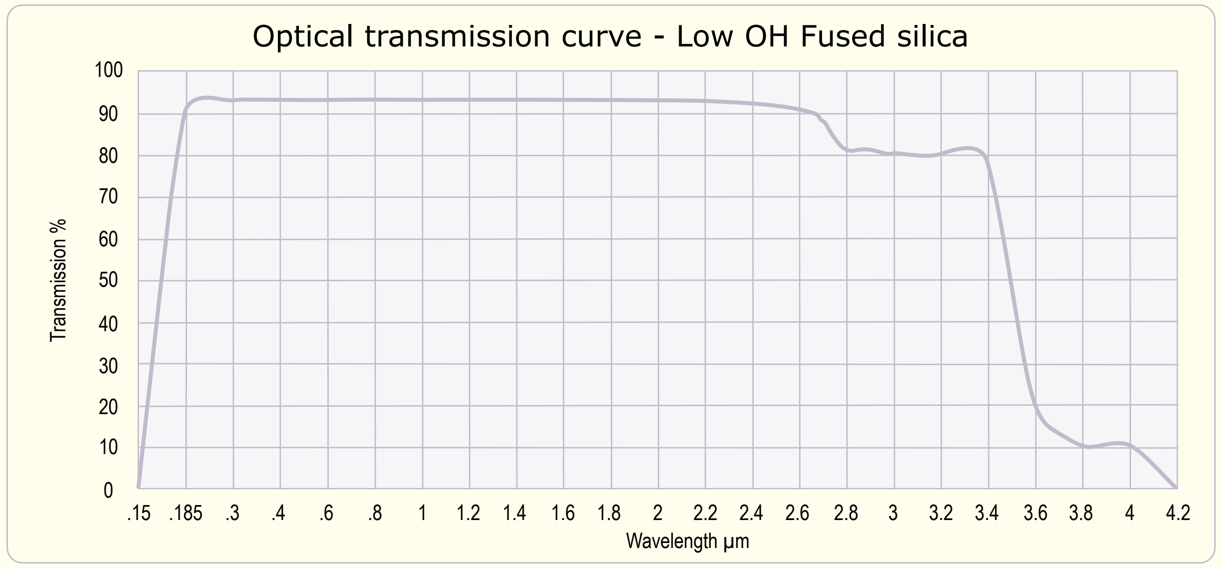


Fig.	Flange	A	B	C	D	Part Code	Price £	Price €
1	DN16CF	16.0	2.2	5.0	8.8	FSVP-IR-16CF	POA	POA
1	DN40CF	35.5	3.2	8.9	12.7	FSVP-IR-40CF	POA	POA
1	DN63CF	68.3	6.4	10.4	17.3	FSVP-IR-63CF	POA	POA
1	DN100CF	98.5	6.4	13.0	19.8	FSVP-IR-100CF	POA	POA



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

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Fused Silica - DUV Grade With Broadband Anti-reflection Coating

Specifications:

Materials

Window	Corning HPFS® 7980 fused silica
Carrier	St.St.
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C

Max Thermal Gradient 25°C per minute

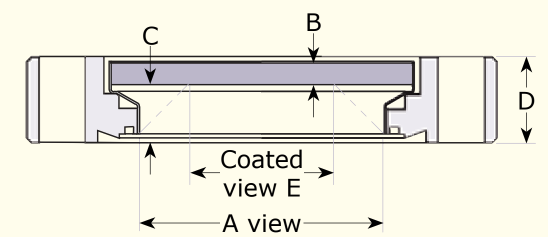
Optical properties

Surface finish	20/10 scratch-dig
Flatness	TWD < λ/4 @ 632nm (peak to valley)t
Parallelism	<10 arc seconds
Homogeneity grade	A
Inclusion class	0

* - Assembly rating is reduced to that of the lowest rated component.

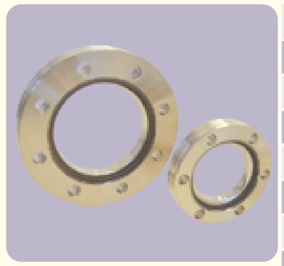
Features:

- UHV compatible.
- Synthetic fused silica.



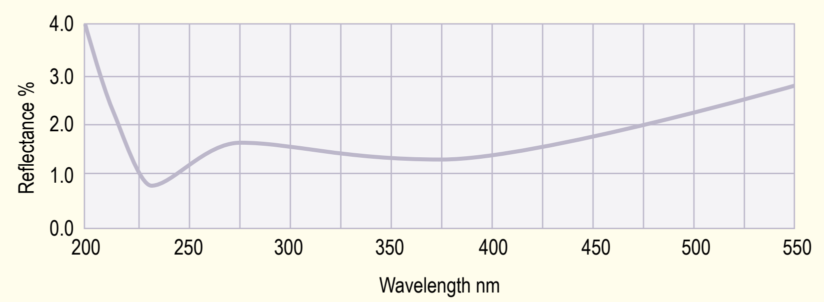
Window has AR coating both sides

CF Flanges - DUV Grade With Broadband Anti-reflection Coating

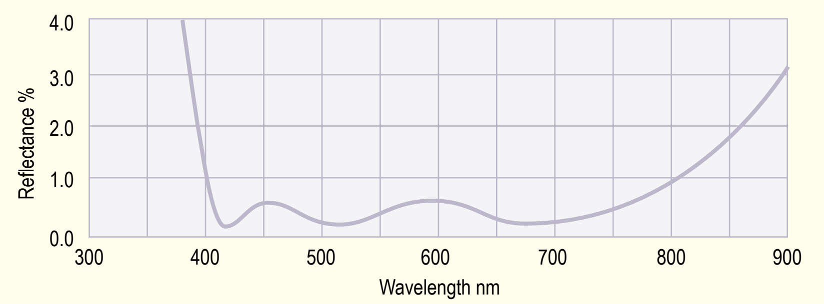


Wavelength	Flange	A	B	C	D	E	Part Code	Price £	Price €
225-450nm	DN16CF	16.0	2.2	5.0	8.9	10.5	FSVP-16CF-BAR-225-450	£634	€730.00
425-760nm	DN16CF	16.0	2.2	5.0	8.9	10.9	FSVP-16CF-BAR-425-760	£634	€730.00
550-1100nm	DN16CF	16.0	2.2	5.0	8.9	10.9	FSVP-16CF-BAR-550-1100	£634	€730.00
225-450nm	DN40CF	35.5	3.2	8.9	12.7	27.1	FSVP-40CF-BAR-225-450	£806	€927.00
425-760nm	DN40CF	35.5	3.2	8.9	12.7	27.1	FSVP-40CF-BAR-425-760	£705	€811.00
550-1100nm	DN40CF	35.5	3.2	8.9	12.7	27.1	FSVP-40CF-BAR-550-1100	£705	€811.00
225-450nm	DN63CF	68.3	6.4	10.4	17.3	57.6	FSVP-63CF-BAR-225-450	£1976	€2273.00
425-760nm	DN63CF	68.3	6.4	10.4	17.3	57.6	FSVP-63CF-BAR-425-760	£1262	€1452.00
550-1100nm	DN63CF	68.3	6.4	10.4	17.3	57.6	FSVP-63CF-BAR-550-1100	£1262	€1452.00
225-450nm	DN100CF	98.5	6.4	13.4	19.8	84.8	FSVP-100CF-BAR-225-450	POA	POA
425-760nm	DN100CF	98.5	6.4	13.4	19.8	84.8	FSVP-100CF-BAR-425-760	£1713	€1970.00
550-1100nm	DN100CF	98.5	6.4	13.4	19.8	84.8	FSVP-100CF-BAR-550-1100	£1882	€2165.00
225-450nm	DN160CF	98.5	9.4	13.4	19.8	84.8	FSVP-160CF-BAR-225-450	POA	POA
425-760nm	DN160CF	98.5	9.4	13.4	19.8	84.8	FSVP-160CF-BAR-425-760	POA	POA
550-1100nm	DN160CF	98.5	9.4	13.4	19.8	84.8	FSVP-160CF-BAR-550-1100	POA	POA

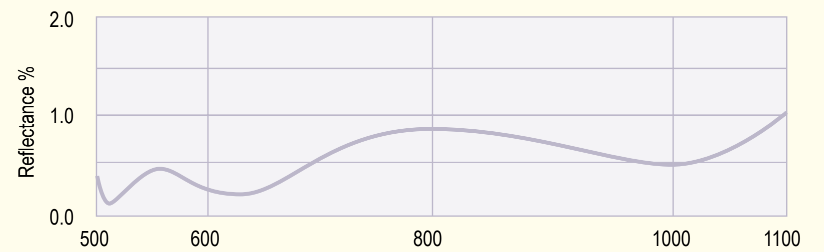
Reflectance curve - BBAR 225-450nm



Reflectance curve - BBAR 425-760nm



Reflectance curve - BBAR 550-1100nm



Fused Silica - Anti-reflective Coated For Laser Applications

Specifications:

Materials

Window Corning HPFS® 7980 fused silica

Carrier St.St.

Flange St.St.

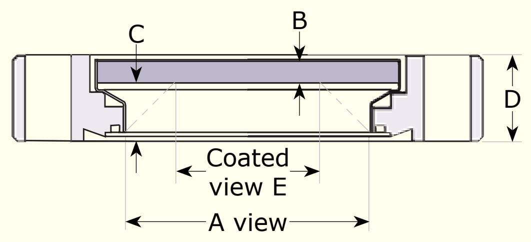
Max Bakeout Temperature*

CF flanged viewport 200°C

Max Thermal Gradient 25°C per minute

AR Coatings are non-hygroscopic

* - Assembly rating is reduced to that of the lowest rated component.



Window has AR coating both sides

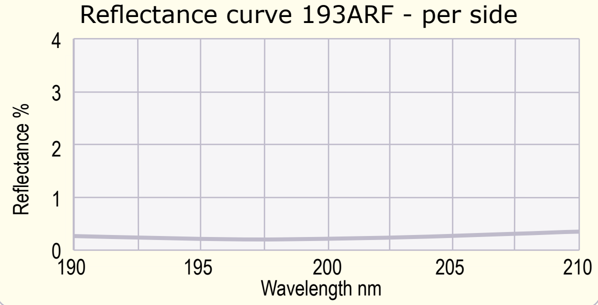
193nm & 248nm Excimer Laser

Material	Corning HPFS 7980 Excimer grade 193 fused silica
Flatness	TWD < λ/4 @ 632nm (peak to valley)
Parallelism	<10 arc seconds
Surface finish	20/10 scratch-dig
Transmission	>99.5% @ 193nm (internal)

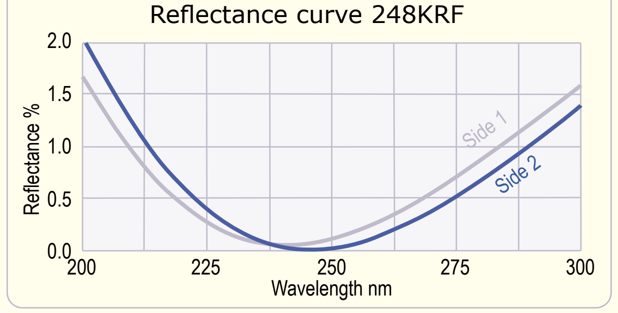
Homogeneity grade	A
Inclusion class	0
AR Coating both sides	193nm / 248 nm R<0.25% per surface
Laser damage threshold	1J/cm² for 10ns pulse

Flange.	A	B	C	D	E	Part Code	Price £	Price €
DN40CF	35.5	3.2	8.9	12.7	27.1	VPL-193ARF-40CF	£806	€927.00
DN40CF	35.5	3.2	8.9	12.7	27.1	VPL-248KRF-40CF	£1976	€2273.00
DN63CF	68.3	6.4	10.4	17.3	57.6	VPL-193ARF-63CF	£806	€927.00
DN63CF	68.3	6.4	10.4	17.3	57.6	VPL-248KRF-63CF	£1262	€1452.00

Reflectance curve 193ARF - per side



Reflectance curve 248KRF



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VIEWPORTS & GLASS COMPONENTS

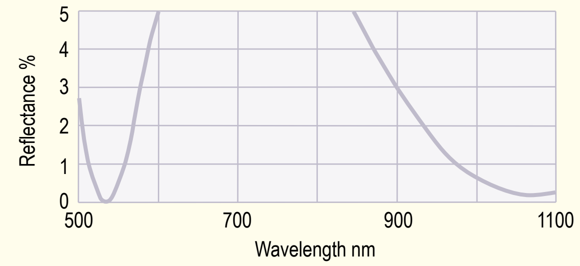
Dual Wavelength 532/1064nm & 780/1064nm

Material	Corning HPFS 7980 fused silica or equivalent
Flatness	TWD < λ/4 @ 632nm (peak to valley)
Parallelism	<10 arc seconds
Surface finish	20/10 scratch-dig

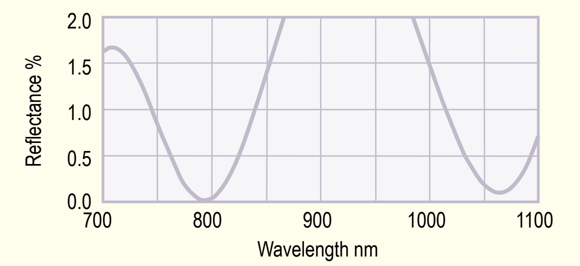
Homogeneity grade	A
Inclusion class	0
AR Coating both sides	532 & 1064nm / 780 & 1064nm R<0.25% per surface
Laser damage threshold	10J/cm² for 10ns pulse

Flange	A	B	C	D	E	Wavelengths	Part Code	Price £	Price €
DN16CF	16.0	2.2	5.5	8.9	10.9	532/1064nm	VPL-532/1064-16CF	POA	POA
DN40CF	35.5	3.2	8.9	12.7	27.1	532/1064nm	VPL-532/1064-40CF	£705	€811.00
DN63CF	68.3	6.4	10.4	17.3	57.6	532/1064nm	VPL-532/1064-63CF	£1262	€1452.00
DN100CF	98.5	6.4	13.0	19.8	84.8	532/1064nm	VPL-532/1064-100CF	POA	POA
DN16CF	16.0	2.2	5.5	8.9	10.9	780/1064nm	VPL-780/1064-16CF	£705	€811.00
DN40CF	35.5	3.2	8.9	12.7	27.1	780/1064nm	VPL-780/1064-40CF	£705	€811.00

Reflectance curve 532/1064nm - per side



Reflectance curve 780/1064nm - per side



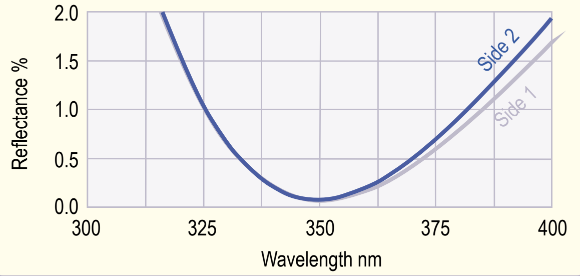
355nm & 532nm Laser

Material	Corning HPFS 7980 fused silica or equivalent
Flatness	TWD < λ/4 @ 632nm (peak to valley)
Parallelism	<10 arc seconds
Surface finish	20/10 scratch-dig

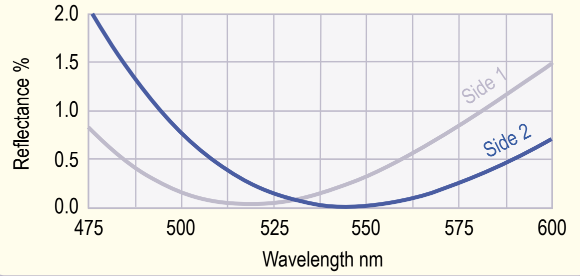
Homogeneity grade	A
Inclusion class	0
AR Coating both sides	335nm / 532nm R<0.25% per surface
Laser damage threshold	1J/cm² for 10ns pulse

Flange	A	B	C	D	E	Part Code	Price £	Price €
DN40CF	35.5	3.2	8.9	12.7	27.1	VPL-355LASER-40CF	£705	€811.00
DN63CF	68.3	6.4	10.4	17.3	57.6	VPL-532LASER-63CF	£1262	€1452.00

Reflectance curve 355nm



Reflectance curve 532nm



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Fused Silica - Anti-reflective Coated For Laser Applications

Specifications:

Materials

Window	Corning HPFS® 7980 fused silica
Carrier	St.St.
Flange	St.St.

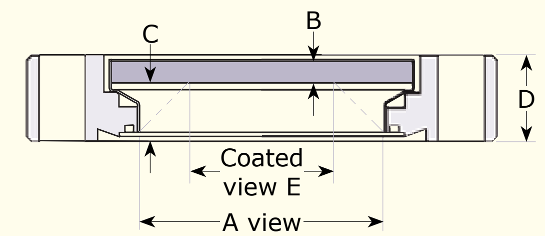
Max Bakeout Temperature*

CF flanged viewport	200°C

Max Thermal Gradient 25°C per minute

AR Coatings are non-hygroscopic

* - Assembly rating is reduced to that of the lowest rated component.

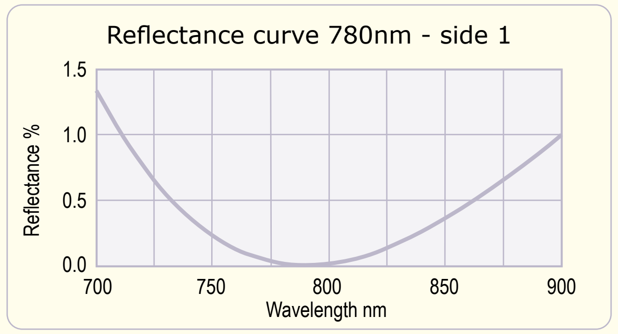


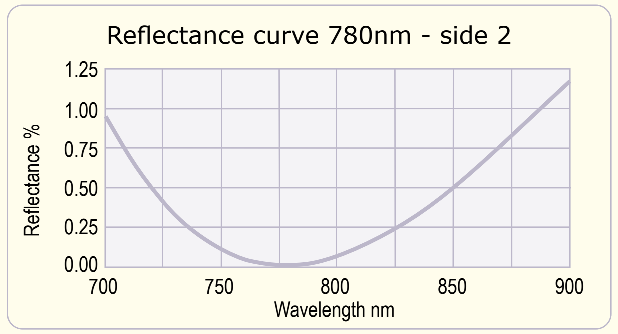
Window has AR coating both sides

780nm Diode Laser

Material	Corning HPFS 7980 fused silica or equivalent	Homogeneity grade	A
Flatness	TWD < λ/4 @ 632nm (peak to valley)	Inclusion class	0
Parallelism	<30 arc seconds	AR Coating both sides	780nm R<0.25% per surface
Surface finish	20/10 scratch-dig	Laser damage threshold	10J/cm² for 10ns pulse

Flange	A	B	C	D	E	Part Code	Price £	Price €
DN16CF	16.0	2.2	5.5	8.9	10.9	VPL-780DIODE-16CF	£659	€758.00
DN40CF	35.5	3.2	8.9	12.7	27.1	VPL-780DIODE-40CF	£705	€811.00
DN63CF	68.3	6.4	10.4	17.3	57.6	VPL-780DIODE-63CF	£1262	€1452.00



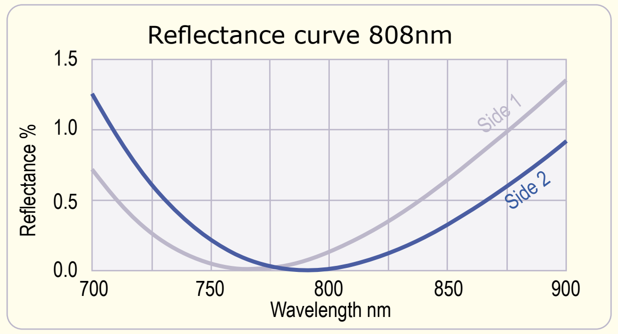


All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Material	Corning HPFS 7980 fused silica or equivalent	Homogeneity grade	A
Flatness	TWD < λ/4 @ 632nm (peak to valley)	Inclusion class	0
Parallelism	<30 arc seconds	AR Coating both sides	808nm R<0.25% per surface
Surface finish	20/10 scratch-dig	Laser damage threshold	10J/cm² for 10ns pulse

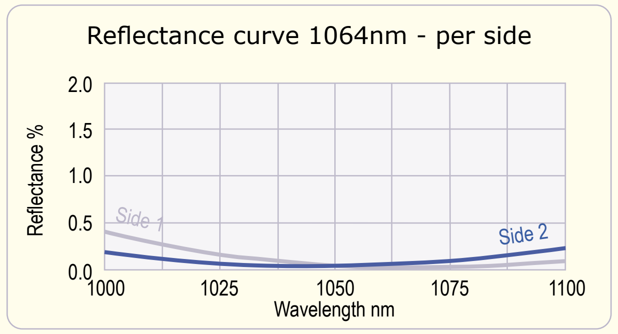
808nm Laser

Flange	A	B	C	D	E	Part Code	Price £	Price €
DN16CF	16.0	2.2	5.5	8.9	10.9	VPL-808LASER-16CF	£634	€730.00
DN40CF	35.5	3.2	8.9	12.7	27.1	VPL-808LASER-40CF	£705	€811.00



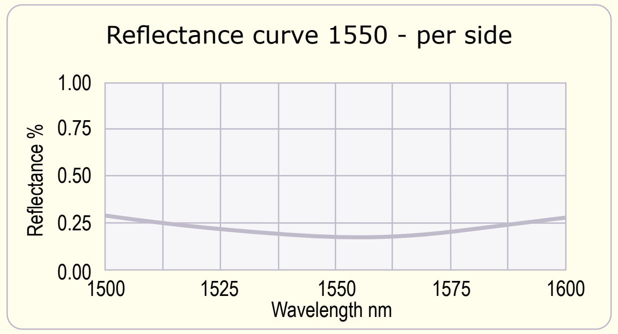
1064nm YAG Laser

Flange	A	B	C	D	E	Part Code	Price £	Price €
DN16CF	16.0	2.2	5.5	8.9	10.9	VPL-1064YAG-16CF	£659	€758.00
DN40CF	35.5	3.2	8.9	12.7	27.1	VPL-1064YAG-40CF	£705	€811.00
DN63CF	68.3	6.4	10.4	17.3	57.6	VPL-1064YAG-63CF	£1262	€1452.00
DN100CF	98.5	6.4	13.0	19.8	84.8	VPL-1064YAG-100CF	POA	€0.00



1550nm Laser

Flange	A	B	C	D	E	Part Code	Price £	Price €
DN40CF	35.5	3.2	8.9	12.7	27.1	VPL-1550LASER-40CF	£705	€811.00
DN63CF	68.3	6.4	10.4	17.3	57.6	VPL-1550LASER-63CF	£1262	€1452.00



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Fused Silica - Non Magnetic

Features:

- UHV compatible.
- Synthetic fused silica.

Specifications:

Materials

Window	Corning HPFS® 7980 fused silica
Carrier	Proprietary Alloy
Flange	316LN St.St.
Magnetic Permeability (μ)	<1.01

Max Bakeout Temperature*

CF flanged viewport	200°C

Max Thermal Gradient 25°C per minute

Optical properties UV grade

Surface finish	40/20 scratch-dig
Flatness	TWD < 10λ @ 632nm (peak to valley)
UV transmission @ 250nm (external)	>90%
Parallelism	<30 arc minutes
Homogeneity grade	F
Inclusion class	2

Optical properties DUV grade

Surface finish	20/10 scratch-dig
Flatness	TWD < λ/4 @ 632nm (peak to valley)
UV transmission @ 248nm (internal)	≥99.8%
Parallelism	<10 arc seconds
Homogeneity grade	A
Inclusion class	0

Optical properties EUV grade

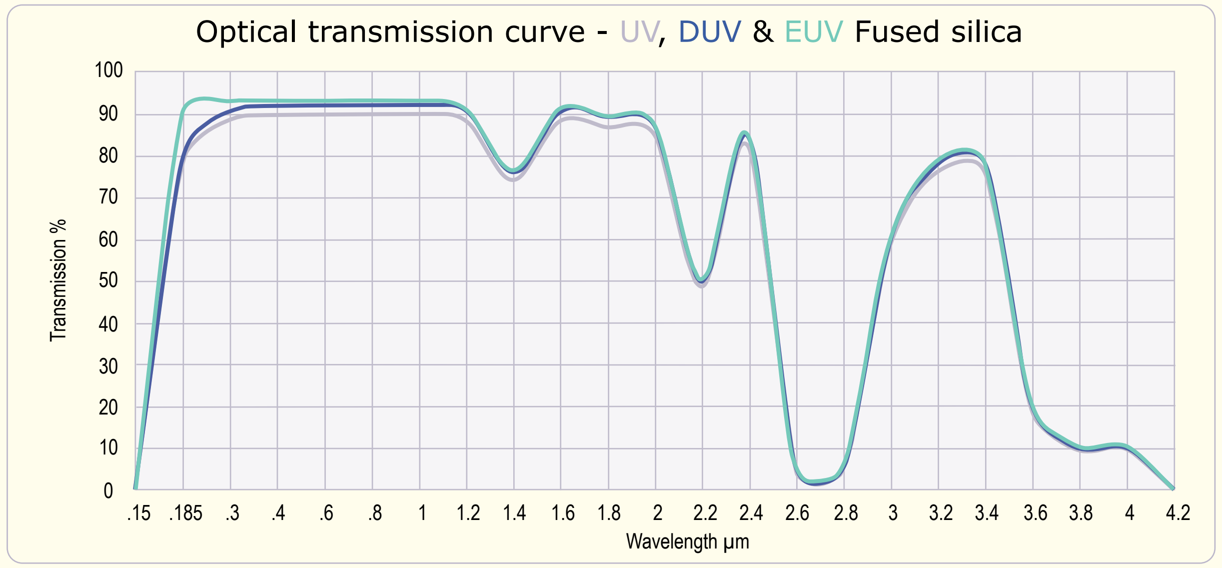
Surface finish	20/10 scratch-dig
Flatness	λ/4 @ 632nm transmitted wavefront
UV transmission @ 193nm (internal)	≥99.5%
Parallelism	<10 arc seconds
Homogeneity grade	A
Inclusion class	0

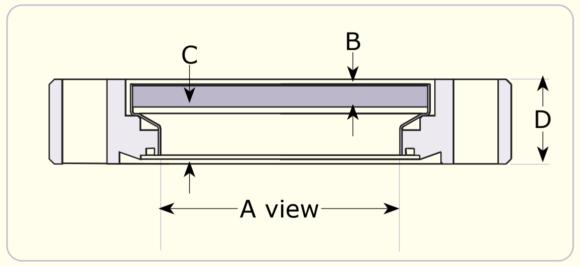
* - Assembly rating is reduced to that of the lowest rated component.

Anti-Reflective Coating

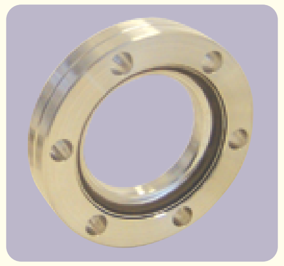
Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only





CF Flanges - UV Grade

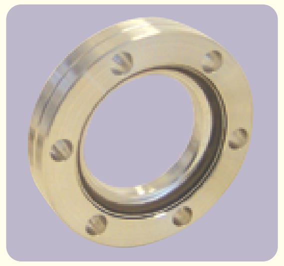


Flange	A	B	C	D	Part Code	Price £	Price €
DN16CF	16.0	2.5	4.3	8.9	FSVP-UV-16CFNM	£335	€386.00
DN40CF	35.5	3.2	8.9	12.7	FSVP-UV-40CFNM	£487	€561.00
DN63CF	68.3	6.4	10.4	17.3	FSVP-UV-63CFNM	£1196	€1376.00
DN100CF	98.5	6.4	13.0	19.8	FSVP-UV-100CFNM	£1470	€1691.00

CF Flanges - DUV Grade

Flange	A	B	C	D	Part Code	Price £	Price €
DN16CF	16.0	2.5	4.3	8.9	FSVP-DUV-16CFNM	£462	€532.00
DN40CF	35.5	3.2	8.9	12.7	FSVP-DUV-40CFNM	£639	€735.00
DN63CF	68.3	6.4	10.4	17.3	FSVP-DUV-63CFNM	£1499	€1724.00
DN100CF	98.5	6.4	13.0	19.8	FSVP-DUV-100CFNM	£1976	€2273.00

CF Flanges - EUV Grade



Flange	A	B	C	D	Part Code	Price £	Price €
DN16CF	16.0	2.5	4.3	8.9	FSVP-EUV-16CFNM	£639	€735.00
DN40CF	35.5	3.2	8.9	12.7	FSVP-EUV-40CFNM	£943	€1085.00
DN63CF	68.3	6.4	10.4	17.3	FSVP-EUV-63CFNM	£2006	€2307.00

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Fused Silica - Non Magnetic - Titanium

Features:

- All titanium construction
- UHV compatible.
- Synthetic fused silica.

Please Note :
Mounting Titanium viewports to Stainless steel flanges can be prooblematic, as differing material hardness & thermal expansion cause problems with the Copper gasket seal.

Specifications:

Materials

Window Corning HPFS® 7980 fused silica

Carrier Titanium

Flange Titanium

Max Bakeout Temperature*

CF flanged viewport 200°C

Max Thermal Gradient 25°C per minute

Optical properties **UV grade**

Surface finish 40/20 scratch-dig

Flatness TWD < 10λ @ 632nm (peak to valley)

UV transmission @ 250nm (external)>90%

Parallelism <30 arc minutes

Homogeneity grade F

Inclusion class 2

Optical properties **DUV grade**

Surface finish 20/10 scratch-dig

Flatness TWD < λ/4 @ 632nm (peak to valley)

UV transmission @ 248nm (internal) ≥99.8%

Parallelism <10 arc seconds

Homogeneity grade A

Inclusion class 0

Optical properties **EUV grade**

Surface finish 20/10 scratch-dig

Flatness TWD < λ/4 @ 632nm (peak to valley)

UV transmission @ 193nm (internal) ≥99.5%

Parallelism <10 arc seconds

Homogeneity grade A

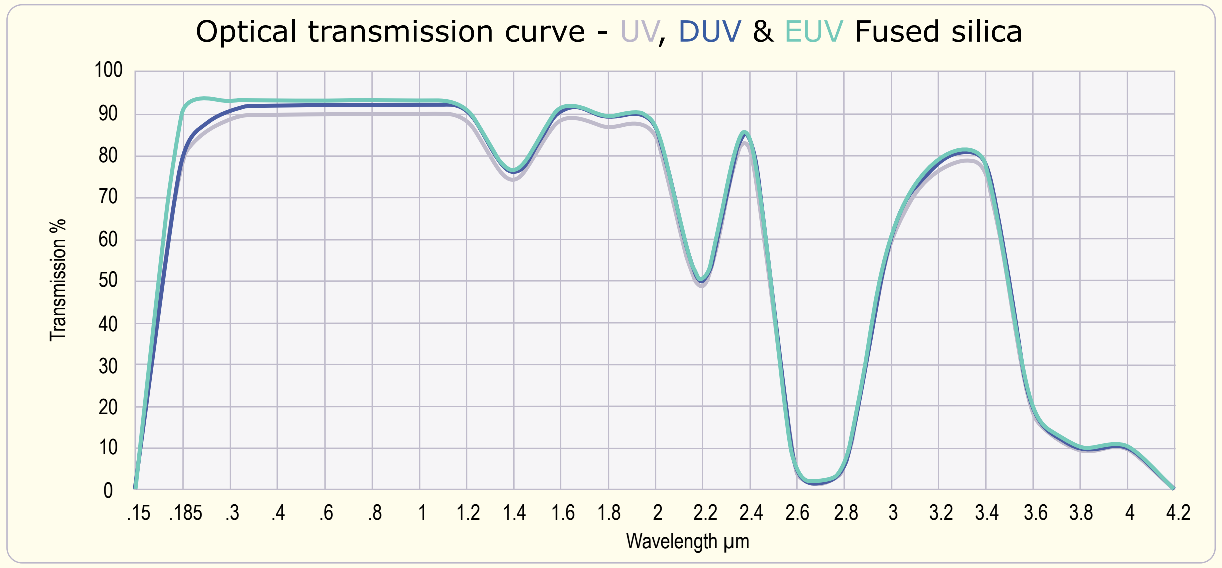
Inclusion class 0

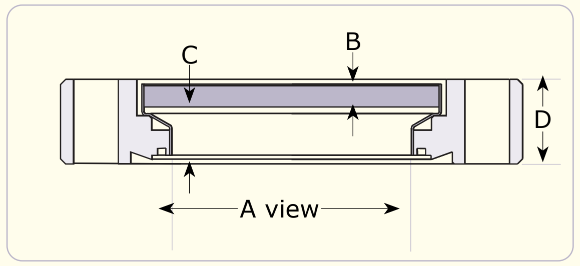
* - Assembly rating is reduced to that of the lowest rated component.

Anti-Reflective Coating

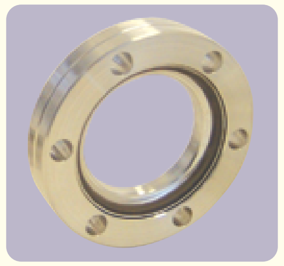
Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only





CF Flanges - UV Grade

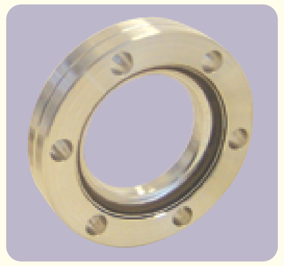


Flange	A	B	C	D	Part Code	Price £	Price €
DN16CF	16.0	2.2	5.0	8.9	FSVP-UV-16CF-TI	£436	€502.00
DN40CF	35.5	3.2	8.9	12.7	FSVP-UV-40CF-TI	£608	€700.00
DN63CF	68.3	6.4	10.4	17.3	FSVP-UV-63CF-TI	£1428	€1643.00

CF Flanges - DUV Grade

Flange	A	B	C	D	Part Code	Price £	Price €
DN16CF	16.0	2.2	4.3	8.9	FSVP-DUV-16CF-TI	£563	€648.00
DN40CF	35.5	3.2	8.9	12.7	FSVP-DUV-40CF-TI	£736	€847.00
DN63CF	68.3	6.4	10.4	17.3	FSVP-DUV-63CF-TI	£1732	€1992.00

CF Flanges - EUV Grade



Flange	A	B	C	D	Part Code	Price £	Price €
DN40CF	35.5	3.2	8.9	12.7	FSVP-EUV-40CF-TI	£1039	€1195.00
DN63CF	68.3	6.4	10.4	17.3	FSVP-EUV-63CF-TI	£2238	€2574.00

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Email : sales@lewvac.co.uk - Tel : +44 (0)1444 233372 - Website : www.lewvac.co.uk

VIEWPORTS & GLASS COMPONENTS

Sapphire - UV Grade

Specifications:

Materials

Window	Sapphire, single crystal
Carrier	Kovar®
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	450°C
KF flanged viewport	150°C
Weldable viewport	450°C

Max Thermal Gradient 25°C per minute

Optical properties

Crystal orientation	Random - not specified
Surface finish	50/20 scratch-dig
UV transmission @ 250nm (external)	50%
Parallelism	<3 arc minutes

* - Assembly rating is reduced to that of the lowest rated component.

Features:

- UHV compatible.
- Bakeable to up to 450°C

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Fig. 1.

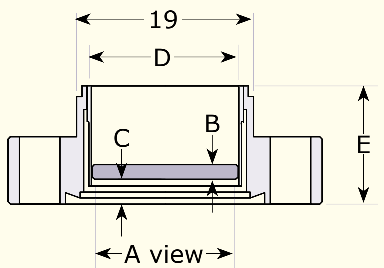


Fig. 2.

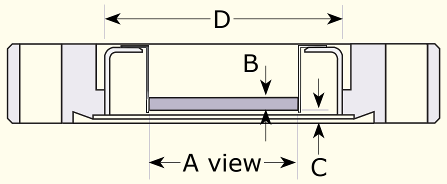


Fig. 3.

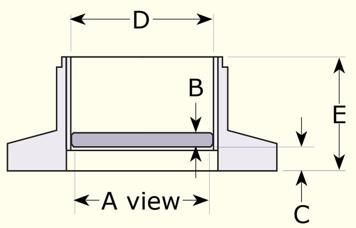


Fig. 4.

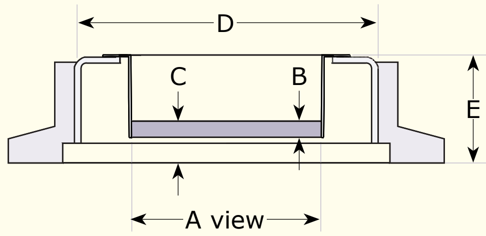


Fig. 5.

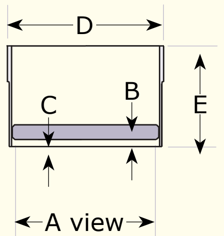
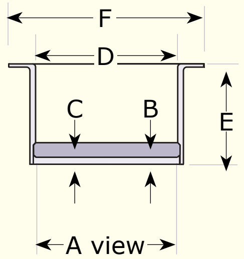


Fig. 6.



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

CF Flanges

Fig.	Grade	Flange	A	B	C	D	E	Part Code	Price £	Price €
1	UV	DN16CF	11.6	1.6	1.1	12.3	-	SVP-UV-11.6-16CF	£193	€222.00
1	UV	DN16CF	14.9	1.6	2.5	15.2	12.7	SVP-UV-14.9-16CF	£203	€234.00
2	UV	DN40CF	17.5	2.0	2.0	19.6	-	SVP-UV-17.5-40CF	£229	€264.00
2	UV	DN40CF	23.8	2.0	2.0	25.9	-	SVP-UV-23.8-40CF	£259	€298.00
2	UV	DN40CF	36.5	2.0	3.3	38.6	-	SVP-UV-36.5-40CF	£608	€700.00
2	UV	DN63CF	36.5	2.0	3.3	38.6	-	SVP-UV-36.5-63CF	£608	€700.00
2	UV	DN63CF	49.2	2.4	2.5	51.3	-	SVP-UV-49.2-63CF	£709	€816.00
2	UV	DN100CF	74.9	3.2	1.1	76.8	-	SVP-UV-74.9-100CF	£1773	€2039.00

KF Flanges

Fig.	Grade	Flange	A	B	C	D	E	Part Code	Price £	Price €
3	UV	DN16KF	14.9	1.6	3.3	15.2	12.7	SVP-UV-14.9-16KF	£203	€234.00
3	UV	DN25KF	15.2	1.6	7.8	15.9	9.7	SVP-UV-15.2-25KF	£244	€281.00
4	UV	DN40KF	17.5	2.0	3.3	19.6	12.7	SVP-UV-17.5-40KF	£229	€264.00
4	UV	DN40KF	23.8	2.0	3.3	25.9	12.7	SVP-UV-23.8-40KF	£254	€293.00
4	UV	DN50KF	23.8	2.0	3.3	25.9	12.7	SVP-UV-23.8-50KF	£259	€298.00

Weldable

Fig.	Grade	A	B	C	D	E	F	Part Code	Price £	Price €
5	UV	14.9	1.6	2.3	16.7	10.9	-	SVP-UV-14.9-SW	£168	€194.00
6	UV	8.6	1.6	0.8	9.6	7.9	15.6	SVP-UV-8.6-SW	£142	€164.00
6	UV	11.6	1.6	0.8	11.7	7.1	18.8	SVP-UV-11.6-SW	£168	€194.00
7	UV	17.5	2.0	19.5	24.8	11.2	-	SVP-UV-17.5-SW	POA	POA
7	UV	23.8	2.0	25.9	31.8	11.2	-	SVP-UV-23.8-SW	POA	POA
7	UV	36.5	2.0	38.6	44.5	11.2	-	SVP-UV-36.5-SW	POA	POA
7	UV	49.2	2.4	51.3	56.4	13.0	-	SVP-UV-49.2-SW	POA	POA
8	UV	17.5	2.0	19.5	38.1	11.2	-	SVP-UV-17.5-AW	£214	€247.00
8	UV	23.8	2.0	25.9	38.1	11.2	-	SVP-UV-23.8-AW	£239	€275.00
8	UV	36.5	2.0	38.6	63.5	12.4	-	SVP-UV-36.5-AW	£527	€607.00
8	UV	49.2	2.4	51.3	63.5	13.7	-	SVP-UV-49.2-AW	£558	€642.00
8	UV	74.9	3.2	76.7	88.9	14.0	-	SVP-UV-74.9-AW	£1418	€1631.00

Optical transmission curve - UV Sapphire

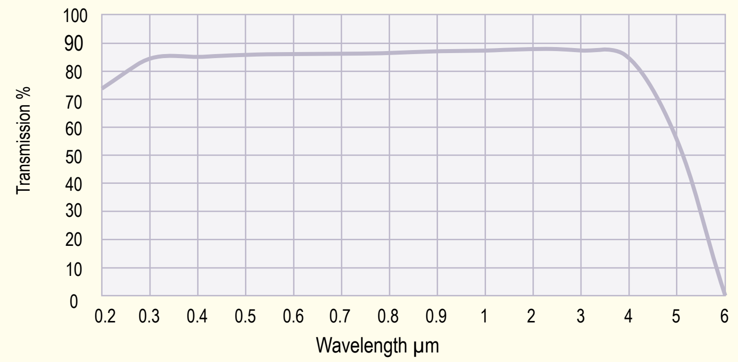


Fig. 7.

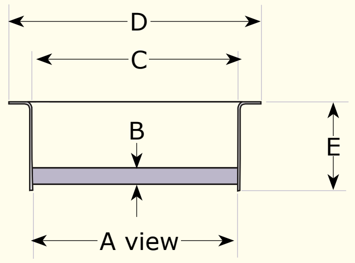
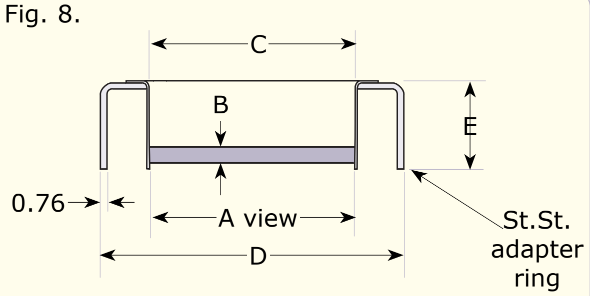


Fig. 8.



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Sapphire - DUV Grade

Features:

- UHV compatible.
- Bakeable to up to 450°C

Specifications:

Materials

Window	Sapphire, single crystal
Carrier	Kovar®
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	450°C
KF flanged viewport	150°C
Weldable viewport	450°C

Max Thermal Gradient 25°C per minute

Optical properties

Crystal orientation	0°
Surface finish	20/10 scratch-dig
UV transmission @ 248nm (internal)	99.8%
Parallelism	<10 arc seconds
Homogeneity grade	A
Inclusion class	0

* - Assembly rating is reduced to that of the lowest rated component.

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Fig. 1.

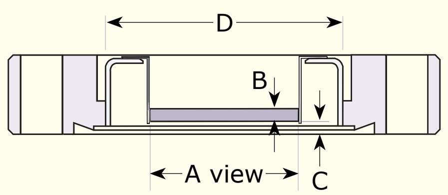
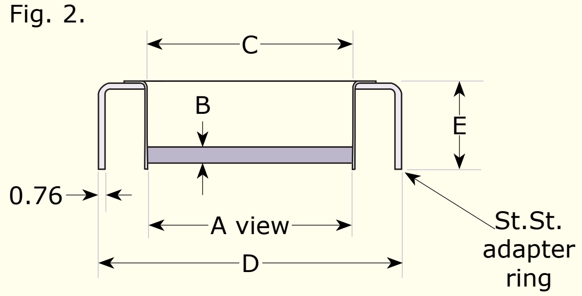


Fig. 2.



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

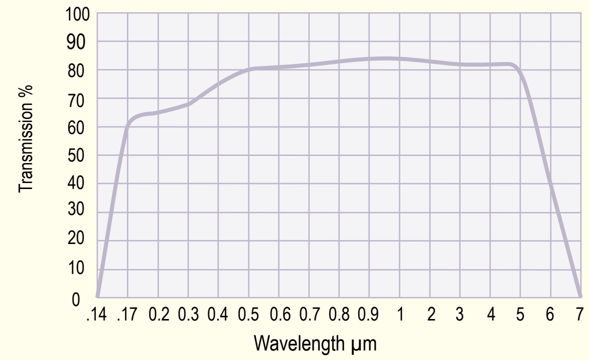
CF Flanges

Fig.	Grade	Flange	A	B	C	D	Part Code	Price £	Price €
1	DUV	DN40CF	17.5	2.0	2.0	19.6	SVP-DUV-17.5-40CF	POA	€0.00
1	DUV	DN40CF	23.8	2.0	2.0	25.9	SVP-DUV-23.8-40CF	£340	€391.00
1	DUV	DN40CF	36.5	2.0	2.5	38.6	SVP-UV-36.5-40CF	£689	€793.00
1	DUV	DN63CF	36.5	2.0	3.3	38.6	SVP-DUV-36.5-63CF	£821	€945.00
1	DUV	DN63CF	49.2	2.4	2.5	51.3	SVP-DUV-49.2-63CF	£988	€1137.00

Weldable

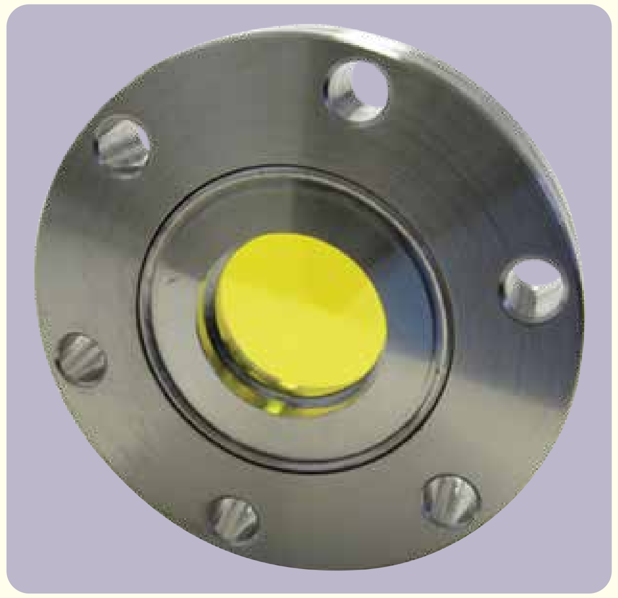
Fig.	Grade	A	B	C	D	E	Part Code	Price £	Price €
2	DUV	17.5	2.0	19.6	38.1	11.2	SVP-DUV-17.5-AW	POA	€0.00
2	DUV	23.8	2.0	25.9	38.1	11.2	SVP-DUV-23.8-AW	£320	€368.00
2	DUV	36.5	2.0	38.6	63.5	11.7	SVP-DUV-36.5-AW	£740	€851.00
2	DUV	49.2	2.4	51.3	63.5	13.7	SVP-DUV-49.2-AW	£837	€963.00

Optical transmission curve - DUV Sapphire



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Extended Range Viewports



Specifications:

Materials

Window	Various
Flange	304/316 St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C
AR coated viewports	150°C

Max Thermal Gradient 25°C per minute

* - Assembly rating is reduced to that of the lowest rated component.

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Fig. 1.

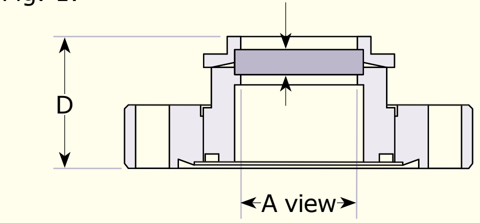


Fig. 2.

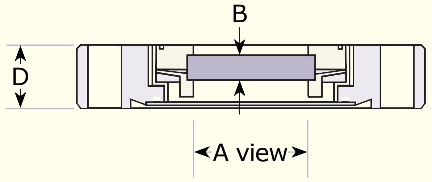


Fig. 3.

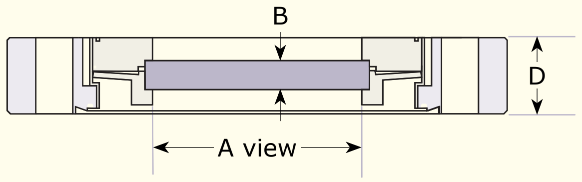


Fig. 4.

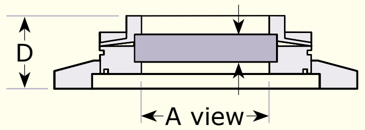
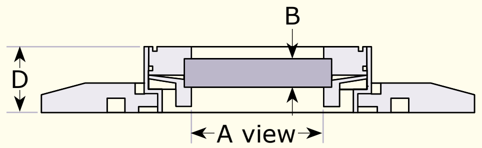


Fig. 5.



Calcium Fluoride

Parallelism	<3 arc minutes
Flatness	λ/2 @ 632nm transmitted wavefront
Surface Finish	20/10 scratch-dig (* - 40/20)

Fig.	Flange	A	B	D	Part Code	Price £	Price €
1	DN16CF	10.1	2.0	14.7	VOVP-CAFL-16CF*	£603	€694.00
2	DN40CF	22.8	2.5	12.7	VOVP-CAFL-40CF	£603	€694.00
3	DN63CF	47.7	3.8	17.3	VOVP-CAFL-63CF	£1976	€2273.00
4	DN40KF	22.8	2.5	14.2	VOVP-CAFL-40KF	£603	€694.00
5	DN50KF	22.8	2.5	11.3	VOVP-CAFL-50KF	£603	€694.00

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

157 Grade Calcium Fluoride

Parallelism	3 arc minutes
Flatness	λ/4 @ 632nm transmitted wavefront
Surface Finish	20/10 scratch-dig

Fig.	Flange	A	B	D	Part Code	Price £	Price €
2	DN40CF	22.8	2.5	12.7	VOVP-157CAFL-40CF	£1,66	€191.00
2	DN63CF				VOVP-157CAFL-63CF	£2410	€2772.00

157 grade gives transmission >80% @ 157nm

Magnesium Fluoride

Parallelism	3 arc minutes
Flatness	λ/4 @ 632nm transmitted wavefront
Surface Finish	20/10 scratch-dig

Fig.	Flange	A	B	D	Part Code	Price £	Price €
1	DN16CF	10.1	2.0	14.7	VOVP-MF-16CF	£603	€694.00
1	DN16CF-LN	10.1	2.0	14.7	VOVP-MF-16CF-NM	£765	€880.00
2	DN40CF	22.8	2.5	12.7	VOVP-MF-40CF	£603	€694.00
3	DN63CF	47.7	3.8	17.3	VOVP-MF-63CF	£2381	€2739.00
4	DN40KF	22.8	2.5	14.2	VOVP-MF-40KF	£603	€694.00
5	DN50KF	22.8	2.5	11.3	VOVP-MF-50KF	£603	€694.00

157 Grade Magnesium Fluoride

Parallelism	<3 arc minutes
Flatness	λ/2 @ 632nm transmitted wavefront
Surface Finish	20/10 scratch-dig

Fig.	Flange	A	B	D	Part Code	Price £	Price €
1	DN40CF	22.8	2.5	12.7	VOVP-157MF-40CF	£988	€1137.00

157 grade gives transmission >80% @ 157nm

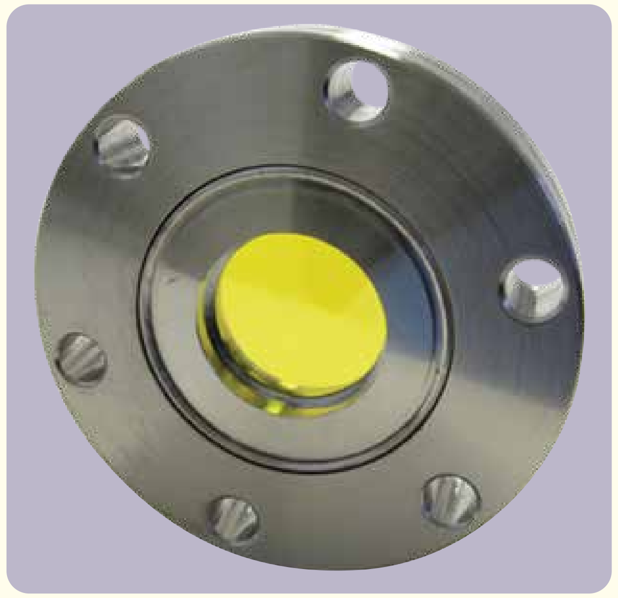
Zinc Selenide

Parallelism	3 arc minutes
Flatness	1λ @ 632nm transmitted wavefront (*1/20λ @10.6 microns)
Surface Finish	40/20 scratch-dig (*- 60/40)

Fig.	Flange	A	B	D	Part Code	Price £	Price €
1	DN16CF	10.1	2.0	14.7	VOVP-ZS-16CF*	£603	€694.00
2	DN40CF	22.8	2.5	12.7	VOVP-ZS-40CF	£603	€694.00
3	DN63CF	47.7	3.8	17.3	VOVP-ZS-63CF	£2381	€2739.00
4	DN40KF	22.8	2.5	14.2	VOVP-ZS-40KF	£603	€694.00
5	DN50KF	22.8	2.5	11.3	VOVP-ZS-50KF	£603	€694.00

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Extended Range Viewports



Specifications:

Materials

Window	Various
Flange	304/316 St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C
AR coated viewports	200°C

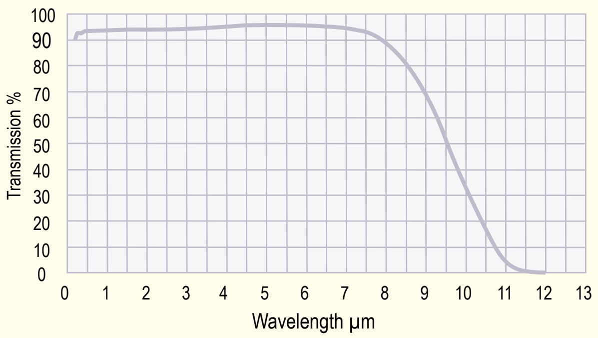
Max Thermal Gradient 25°C per minute

* - Assembly rating is reduced to that of the lowest rated component.

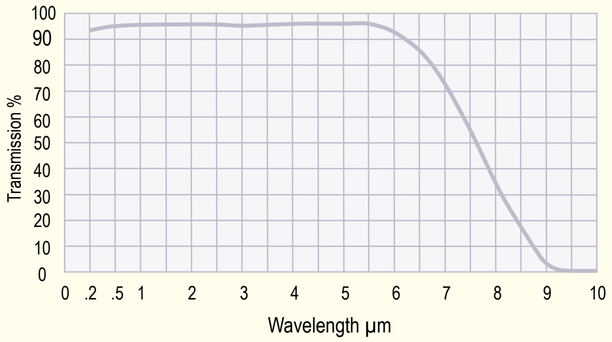
Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

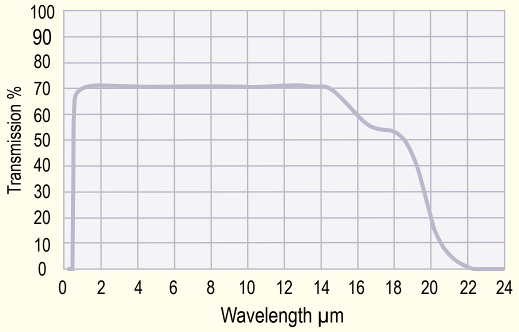
Optical transmission curve - Calcium fluoride



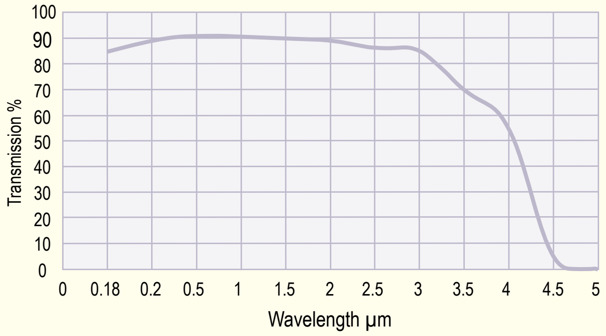
Optical transmission curve - Magnesium fluoride



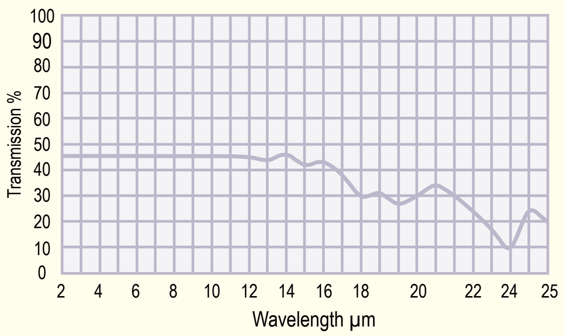
Optical transmission curve - Zinc selenide



Optical transmission curve - Crystal Quartz



Optical transmission curve - Germanium



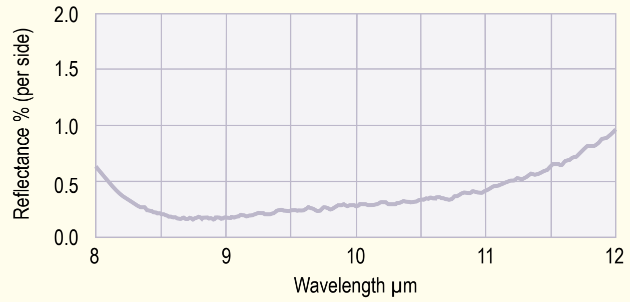
All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Zinc Selenide - AR Coated

Parallelism	3 arc minutes
Flatness	1λ @ 632nm transmitted wavefront (1/20λ @10.6 microns)
Surface Finish	40/20 scratch-dig (**- 60/40)
AR Coating	8-12 µm

Fig.	Flange	A	B	D	Part Code	Price £	Price €
1	DN16CF	10.1	2.0	14.7	VOVP-ZSAR-16CF**	£806	€927.00
2	DN40CF	22.8	2.5	12.7	VOVP-ZSAR-40CF	£806	€927.00
3	DN63CF	47.7	3.8	17.3	VOVP-ZSAR-63CF	£3242	€3729.00
4	DN40KF	22.8	2.5	14.2	VOVP-ZSAR-40KF	£806	€927.00
5	DN50KF	22.8	2.5	11.3	VOVP-ZSAR-50KF	£806	€927.00

Optical reflectance curve - AR coated Zinc selenide



Crystal Quartz

Parallelism	<3 arc minutes
Flatness	1λ @ 632nm transmitted wavefront
Surface Finish	40/20 scratch-dig

Fig.	Flange	A	B	D	Part Code	Price £	Price €
1	DN40CF	22.8	2.5	12.7	VOVP-CQZ-40CF	£1181	€1359.00
2	DN63CF	47.7	3.8	17.3	VOVPCQZ-63CF	£2381	€2739.00

Germanium

Parallelism	<3 arc minutes
Flatness	λ/10 @ 10 microns transmitted wavefront
Surface Finish	40/20 scratch-dig

Fig.	Flange	A	B	D	Part Code	Price £	Price €
1	DN40CF	22.8	2.5	12.7	VOVP-GE-40CF	£705	€811.00
2	DN63CF	47.7	3.8	17.3	VOVP-GE-63CF	£1976	€2273.00

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Differentially Pumped Viewports

Specifically designed for extreme high vacuum applications such as geochronology, LewVac's differentially pumped windows employ all-metal, dual seals, having a port that accesses the resulting cavity between the seals. The port can be attached to an auxiliary pump to extend the vacuum range beyond UHV.
This design has become the standard for geologists studying argon & helium dating.

Specifications:

Materials

Window	Zinc Sulphide (Cleartran™) 8-12 microns
Carrier	St.St.
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C

Max Thermal Gradient 25°C per minute

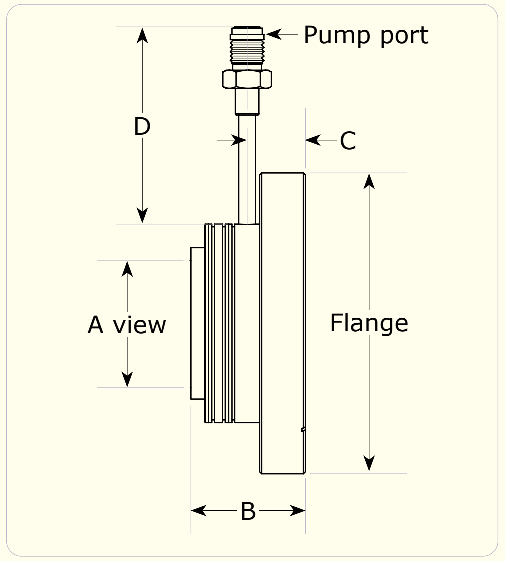
Optical properties

Surface finish	40/20 scratch-dig
Parallelism	<3 arc minutes
Flatness	λ/4
Coating	AR coated 8-12 microns

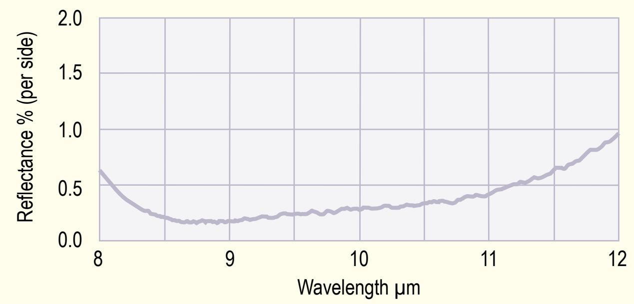
* - Assembly rating is reduced to that of the lowest rated component.

Zinc Sulphide Geo-Optics 50mm Differentially Pumped Viewport

Flange	Pump Port	A	B	C	D	Part Code	Price £	Price €
DN40CF	1/8" VCR	23.6	23.8	19.6	45.7	VPDP-ZSU-VCR-40CF	POA	POA
DN40CF	1/8" VCR - F	23.6	23.8	19.6	45.7	VPDP-ZSU-VCRF-40CF	POA	POA
DN40CF	DN16CF	23.6	23.8	19.6	45.7	VPDP-ZSU-CF-40CF	POA	POA
DN40CF	TUBE	23.6	23.8	19.6	45.7	VPDP-ZSU-T-40CF	POA	POA
DN63CF	1/8" VCR	47.7	43.2	22.1	73.7	VPDP-ZSU-VCR-63CF	POA	POA
DN63CF	1/8" VCR - F	47.7	43.2	22.1	73.7	VPDP-ZSU-VCRF-63CF	POA	POA
DN63CF	DN16CF	47.7	43.2	22.1	73.7	VPDP-ZSU-CF-63CF	POA	POA
DN63CF	TUBE	47.7	43.2	22.1	73.7	VPDP-ZSU-T-63CF	POA	POA

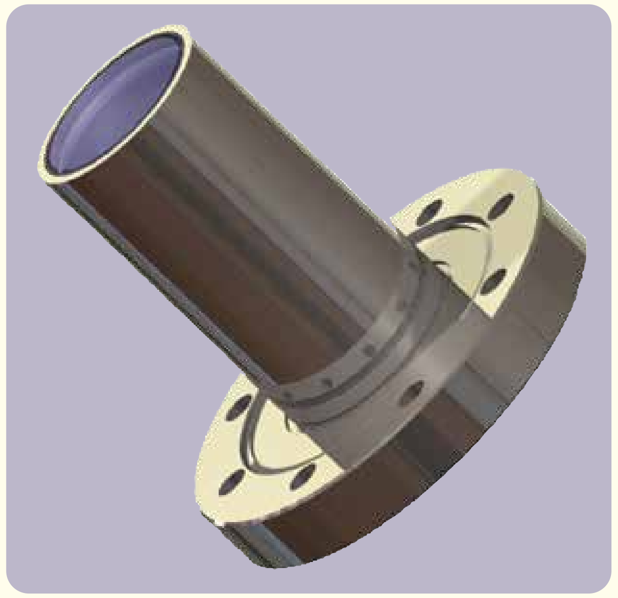


Reflectance curve - Zinc sulphide (Cleartran™) 8-12 microns



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Re-entrant Fused Silica Viewports



Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.

Specifications:

Materials

Window	Corning HPFS® 7980 fused silica
Carrier	St.St.
Flange	St.St.

Max Bakeout Temperature*

CF flanged viewport	200°C

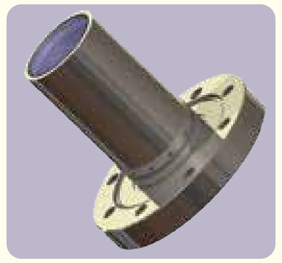
Max Thermal Gradient 25°C per minute

Optical properties

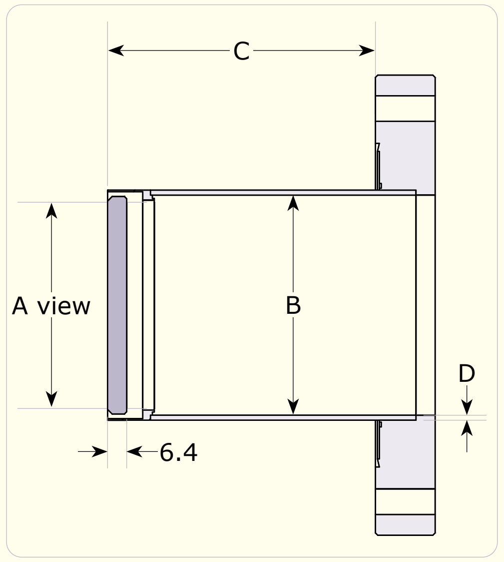
Surface finish UV grade	40/20 scratch-dig
Surface finish DUV grade	20/10 scratch-dig
UV transmission @ 250nm (external)	>90%
DUV transmission @ 248nm (internal)	≥99.8%
Parallelism UV grade	<30 arc minutes
Parallelism DUV grade	<10 arc seconds
Homogeneity grade UV / DUV	F / A
Inclusion class UV / DUV	2 / 0

* - Assembly rating is reduced to that of the lowest rated component.

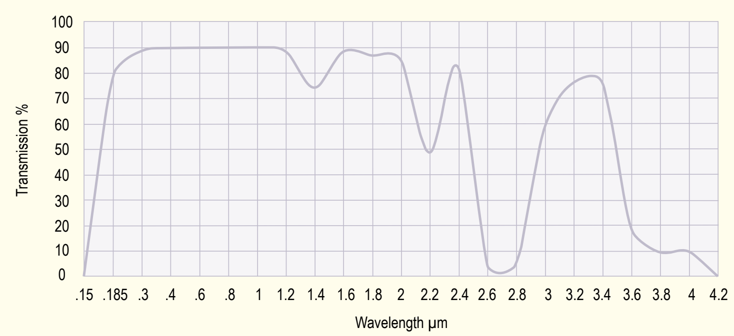
Re-entrant Fused Silica Viewport



Flange	Grade	A	B	C	D	Part Code	Price £	Price €
DN63CF	UV	35.5	48.2	88.9	1.3	FSVP-UV-63CFRE	£709	€816.00
DN100CF	UV	68.3	72.9	88.9	1.8	FSVP-UV-100CFRE	£1166	€1341.00
DN40CF	DUV	33.7	36.0	19.1	1.3	FSVP-DUV-40CFRE	£811	€933.00
DN63CF	DUV	35.5	48.2	88.9	1.3	FSVP-DUV-63CFRE	£862	€992.00
DN100CF	DUV	68.3	72.9	88.9	1.8	FSVP-DUV-100CFRE	£1470	€1691.00
DN63CF	EUV	35.5	48.2	88.9	1.3	FSVP-EUV-63CFRE	£1166	€1341.00
DN100CF	EUV	68.3	72.9	88.9	1.8	FSVP-EUV-100CFRE	£1976	€2273.00



Optical transmission curve - UV Fused silica



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Demountable viewports - Accu-Sol™

Demountable substrate vacuum viewport flanges are an economical "alternative" to fused and/or brazed viewport solutions. They are available with Accu-Sol™ high transmission glass or quartz (fused silica) substrate materials. Quartz versions are offered in coated and uncoated configurations. Substrate transmission varies by material and/or coating option. Accu-Sol™ glass has greater than 90% transmission over the 350-2200nm spectral range. Quartz substrates are available with specially formulated broadband (BBAR) anti reflection coatings for better than 99% transmission in the following discrete wavelength ranges 290-370nm (UV), 350-700nm (A), 650-1050nm (B), 1050-1620nm (C). Uncoated quartz transmission varies from 70-95% over the 200-2200nm range. The substrate removal (demountable) feature of these vacuum viewports allows optional (custom) optical coatings or for easy cleaning of the window substrate. For high temperature applications up to 250°C, Kalrez® O-rings can be used. LewVac demountable vacuum viewports employ a unique recessed zero profile substrate design, providing widest viewing angles while offering maximum protection.

Features:

- HV compatible.
- High transmission Accu-Sol™ glass.

Specifications:

Materials

Window	See Table
Flange	304 St.St.
Retainer	Aluminium
O-ring seal	Viton®

Max Bakeout Temperature*

CF flanged viewport†	150°C
KF flanged viewport†	150°C

Max Thermal Gradient 20°C per minute

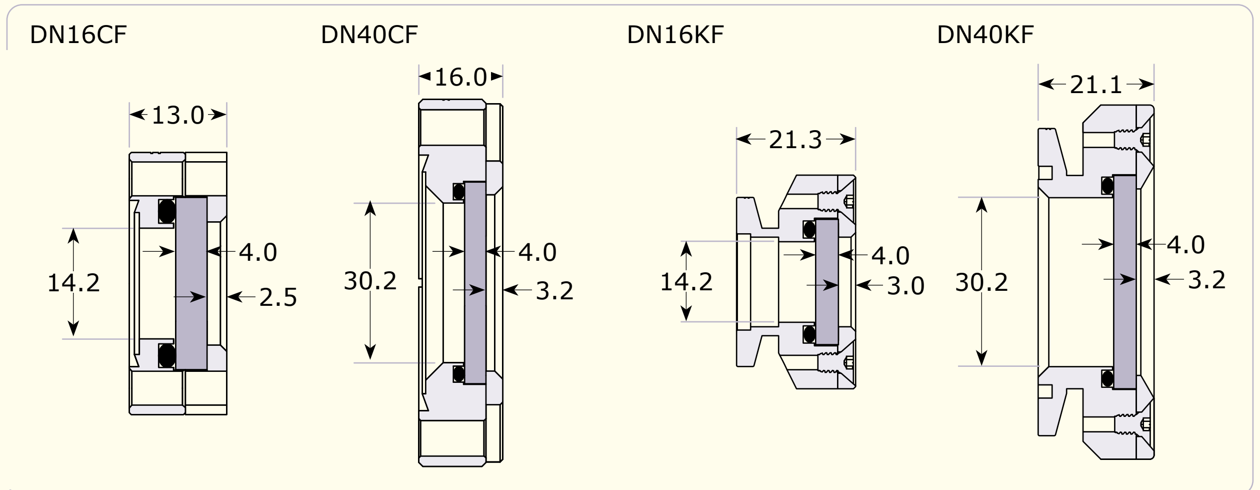
Transmission range

See curves

* - Assembly rating is reduced to that of the lowest rated component.
† - Bakeable up to 250°C with Kalrez® o-rings, call sales office for details.

Anti-Reflective Coating

Anti-reflective coatings are available, please call our sales office to discuss your specific requirements.



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

CF Flanged

Description	Part Code	Price £	Price €
DN16CF demountable viewport with Accu-Sol glass	VPD-AS-16CF	£90	€104
DN40CF demountable viewport with Accu-Sol glass	VPD-AS-40CF	£98	€113
DN40CF demountable viewport with uncoated fused silica	VPD-FS-40CF	£238	€274
DN40CF demountable viewport with UV coated fused silica 290-370nm	VPD-FSUV-40CF	£254	€293
DN40CF demountable viewport with type A coated fused silica 350-700nm	VPD-FSA-40CF	£271	€312
DN40CF demountable viewport with type B coated fused silica 650-1050nm	VPD-FSB-40CF	£271	€312
DN40CF demountable viewport with type C coated fused silica 1050-1620nm	VPD-FSC-40CF	£271	€312

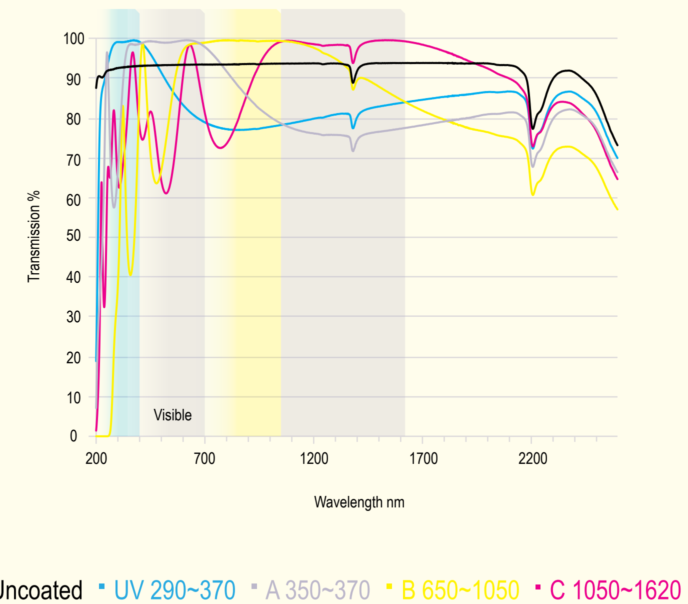
KF Flanged

Description	Part Code	Price £	Price €
DN16KF demountable viewport with Accu-Sol glass	VPD-AS-16KF	£86	€99
DN40KF demountable viewport with Accu-Sol glass	VPD-AS-40KF	£98	€113
DN40KF demountable viewport with uncoated fused silica	VPD-FS-40KF	£238	€274
DN40KF demountable viewport with UV coated fused silica 290-370nm	VPD-FSUV-40KF	£254	€293
DN40KF demountable viewport with type A coated fused silica 350-700nm	VPD-FSA-40KF	£271	€312
DN40KF demountable viewport with type B coated fused silica 650-1050nm	VPD-FSB-40KF	£271	€312
DN40KF demountable viewport with type C coated fused silica 1050-1620nm	VPD-FSC-40KF	£271	€312

Accessories

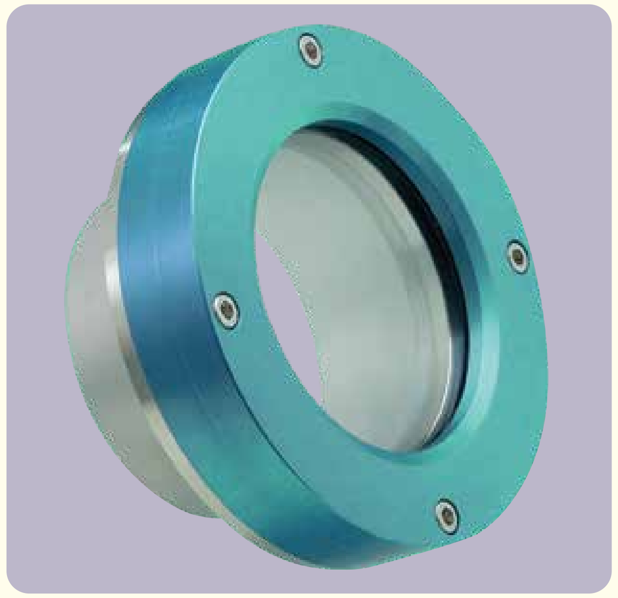
Description	Part Code	Price £	Price €
Replacement Accu-Sol™ glass Ø22.2mm (7/8") for DN16 demountable viewport	VP-RGAS-16	£34	€40
Replacement Accu-Sol™ glass Ø 38.1mm (1.5") for DN40 demountable viewport	VP-RGAS-40	£39	€45
Replacement uncoated fused silica optic for DN40CF/KF demountable viewport	VP-RFS-40	£94	€109
Replacement UV coated fused silica optic for DN40CF/KF demountable viewport - 290-370nm	VP-RFSUV-40	£106	€122
Replacement type A coated fused silica optic for DN40CF/KF demountable viewport - 350-700nm	VP-RFSA-40	£119	€137
Replacement type B coated fused silica optic for DN40CF/KF demountable viewport - 650-1050nm	VP-RFSB-40	£119	€137
Replacement type C coated fused silica optic for DN40CF/KF demountable viewport - 1050-1620nm	VP-RFSC-40	£119	€137
Replacement viton® o-ring for DN16CF demountable viewport	VP-RVO16	£4	€5
Replacement viton® o-ring for DN40CF demountable viewport	VP-RVO40	£4	€5

Optical transmission curves
AR coated Fused Silica substrate (4mm thick)



All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Weldable Demountable 7056 Glass Viewport



Specifications:

Materials

Window	7056 Kodial / quartz
Flange	304 St.St.
Retaining ring	Aluminium
Seals	Viton®
Bolts	St.St.

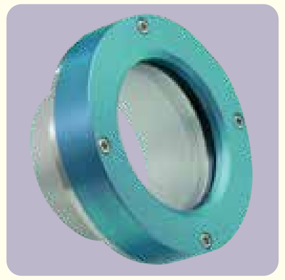
Operating Temperature Range*

-20 to 150°C

Max Thermal Gradient 10°C per minute

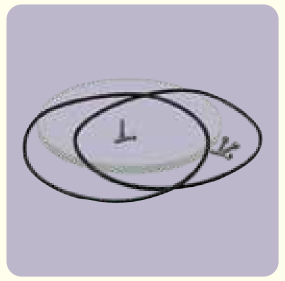
* - Assembly rating is reduced to that of the lowest rated component.

Weldable Demountable Viewports

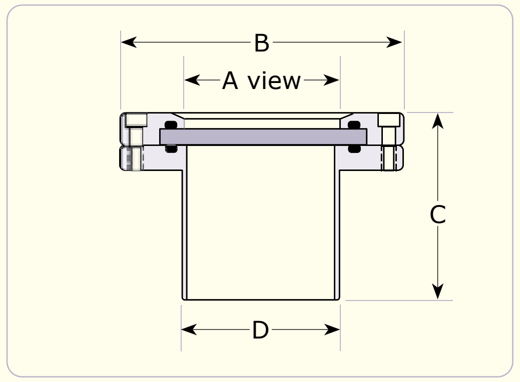


Window Material	A View	B	C	D	Part Code	Price £	Price €
7056 glass	60.1	113.5	73.2	63.5	VP-W-60	£444	€511
Quartz	60.1	113.5	73.2	63.5	VP-W-60-Q	£610	€702
7056 glass	97.2	151.6	73.2	101.6	VP-W-97	£516	€594
Quartz	97.2	151.6	73.2	101.6	VP-W-97-Q	£693	€797
7056 glass	148.0	202.4	73.2	152.4	VP-W-148	£616	€709
Quartz	148.0	202.4	73.2	152.4	VP-W-148-Q	£832	€957

Weldable Demountable Viewports - Spare Parts



Description	Part Code	Price £	Price €
Replacement glass window for VP-W-60	VP-RGW-60	POA	POA
Replacement quartz window for VP-W-60-Q	VP-RQW-60	POA	POA
Replacement seal & screw kit for VP-W-60(Q)	VP-RSK-60	POA	POA
Replacement glass window for VP-W-97	VP-RGW-97	POA	POA
Replacement quartz window for VP-W-97-Q	VP-RQW-97	POA	POA
Replacement seal & screw kit for VP-W-97(Q)	VP-RSK-97	POA	POA
Replacement glass window for VP-W-148	VP-RGW-148	POA	POA
Replacement quartz window for VP-W-148-Q	VP-RQW-148	POA	POA
Replacement seal & screw kit for VP-W-148(Q)	VP-RSK-148	POA	POA



Kodial Borosilicate Glass Viewports With Lead Glass Shield

Specifications:

Materials

Window	Kodial borosilicate glass
Flange	304 St.St.
Shield	Lead glass

Optical Properties (lead glass)

Refractive index @ 20°C	1.79
Luminous transmittance	85%

Chemical Properties (lead glass)

Lead oxide content	65%
Heavy metallic oxide content	70%

Mechanical Properties (lead glass)

Density (g/cm³)	5.05

Maximum Bakeout Temperature*

400°C

Max Thermal Gradient 3°C per minute

* - Assembly rating is reduced to that of the lowest rated component.

Features:

- 6mm thick lead glass x-ray protection disc offers the same protective effect as a 1.1mm thick lead wall at a voltage of 80 - 150kV.
- Resistant to solarization, gives very small loss in transmission after continuous exposure, invisible to the eye.

Viewport with Shield

Description	Part Code	Price £	Price €
DN16CF viewport Kodial borosilicate glass + lead glass shield	VP-16CF-LG	£111	€128
DN40CF viewport Kodial borosilicate glass + lead glass shield	VP-40CF-LG	£158	€182
DN63CF viewport Kodial borosilicate glass + lead glass shield	VP-63CF-LG	£207	€239
DN100CF viewport Kodial borosilicate glass + lead glass shield	VP-100CF-LG	£387	€446
DN160CF viewport Kodial borosilicate glass + lead glass shield	VP-160CF-LG	£589	€678
DN200CF viewport Kodial borosilicate glass + lead glass shield	VP-200CF-LG	POA	POA

Replacement Lead Glass Shield

Description	Part Code	Price £	Price €
Lead glass shield for VP-16CF-LG	VP-16CF-LGRS	POA	POA
Lead glass shield for VP-40CF-LG	VP-40CF-LGRS	POA	POA
Lead glass shield for VP-63CF-LG	VP-63CF-LGRS	POA	POA
Lead glass shield for VP-100CF-LG	VP-100CF-LGRS	POA	POA
Lead glass shield for VP-160CF-LG	VP-160CF-LGRS	POA	POA

Viewport Shutters

AccuFlex™ flexible viewport shutters offer 100% shielding for CF fitted viewports used in vacuum evaporation and coating applications. AccuFlex™ viewport shutters offer the largest port apertures on the market today. Their unique flexible shutter design offers a full 90° shutter swing angle, when mated with CF ports having the largest standard tube diameters.
The flexible stainless steel foil shutter is designed for fast & easy replacement - for when extended coating process build-up begins to reduce shutter flexibility. See our shutter replecement kits for more information.

Features:

- Full port aperture.
- 100% coverage.
- 90° swing angle.
- Replaceable / flexible shutter.
- Edge welded metal bellows.
- UHV compatible contruction.
- Temperature rated to 250°C.
- Double sided CF flange mount.

Specifications:

Materials	
Flange	304 St.St.
Seal	Bellow
Max Bakeout Temperature*	
CF flanged	250°C

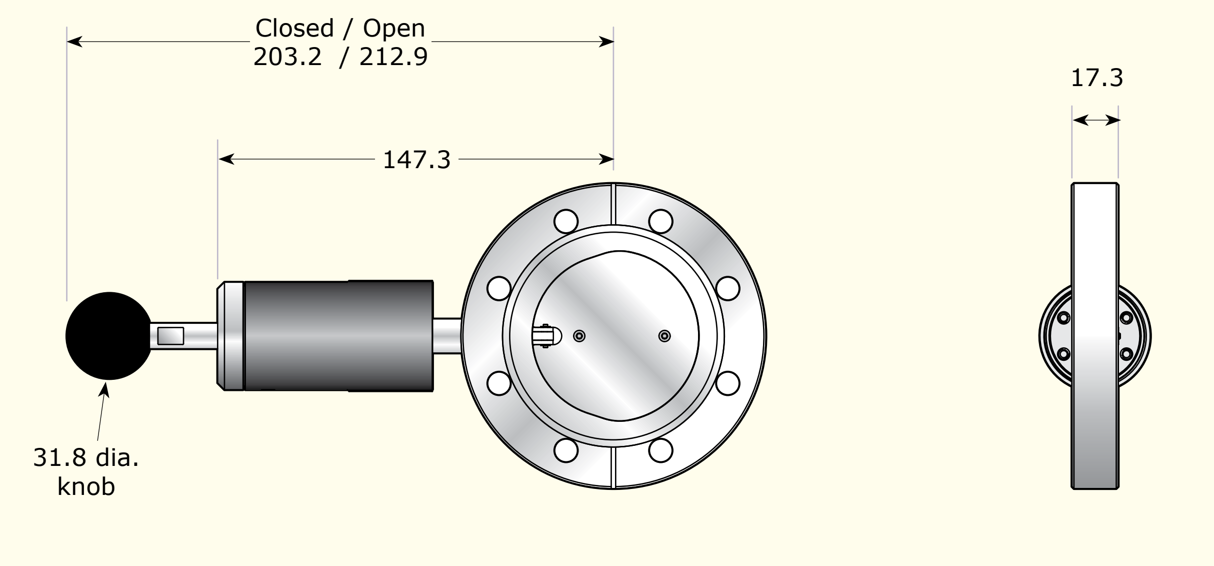
VIEWPORTS & GLASS COMPONENTS

CF Flanged

Description	Part Code	Price £	Price €
DN63CF viewport shutter 100% coverage manual push pull actuation	VPS-PPA-63CF	£844	€971

Accessories

Description	Part Code	Price £	Price €
DN63CF viewport shutter maintenance kit - 1 X STST foil shutter & 2 X Torx screws	VPS-MK-63CF	£34	€40



7740 Pyrex® To Stainless Steel Metal Adapters

Open ended, single-flange glass adapters are constructed with 7740 Pyrex® glass and stainless steel metal transitions. These open end adapters are ideally suited for high and ultrahigh vacuum applications where joining to other laboratory glass or apparatus is required. Available in various glass tube diameters.

Features:

- 7740 Pyrex®.
- Stainless steel sleeve.
- 304 stainless steel flanges as standard.
- Custom sizes and configurations available upon request.

Specifications:

Materials

Glass	7740 Pyrex®
Sleeve	Stainless steel
Flange	304 St.St.

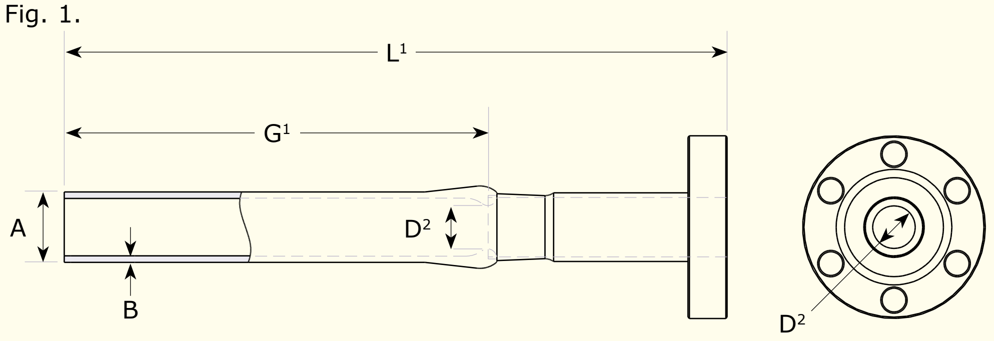
Max Bakeout Temperature*

CF flanged adapter	450°C
KF & LF flanged adapter	150°C
Weldable adapter	450°C

Max Thermal Gradient 10°C per minute

* - Assembly rating is reduced to that of the lowest rated component.

Fig. 1.



PLEASE NOTE :

¹ - Although a highly specialized technology, glass-to-metal sealing and fabrication is more of an art than a science. As such, glass dimensions are nominal and only provided for reference. Note that glass lengths, diameters, and/or wall thicknesses can vary significantly from part to part. For example, glass adapter lengths can vary by as much as +/- 3.3mm

² - Glass-to-metal interface diameter is smaller than that of metal or glass tube IDs. Objects inserted through this region must not exceed "D" diameter.

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

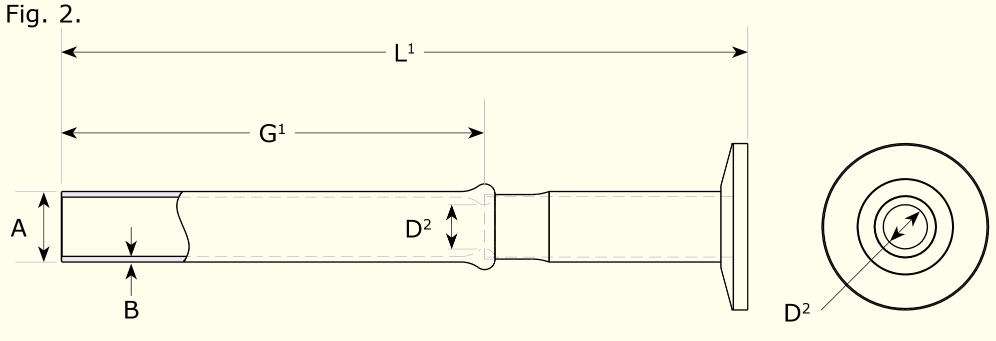
7740 Pyrex® To Stainless Steel - CF Flanged

Fig.	Flange	A	B	D²	G¹	L¹	Part Code	Price £	Price €
1	DN16CF	12.9	1.3	7.8	76	124	GA-SP13-16CF	£216	€249
1	DN16CF	15.9	1.3	11.1	76	124	GA-SP16-16CF	£251	€289
1	DN16CF	19.1	1.3	14.2	76	124	GA-SP19-16CF	£270	€311
1	DN40CF	22.1	1.5	17.5	76	124	GA-SP22-40CF	£301	€347
1	DN40CF	38.1	2.0	33.2	76	124	GA-SP38-40CF	£385	€443
1	DN63CF	63.5	2.3	55.6	76	137	GA-SP63-63CF	£686	€789

7740 Pyrex® To Stainless Steel - KF & LF Flanged

Fig.	Flange	A	B	D²	G¹	L¹	Part Code	Price £	Price €
2	DN16KF	12.7	1.0	7.8	76	124	GA-SP13-16KF	£216	€249
2	DN16KF	19.1	1.3	14.2	76	124	GA-SP19-16KF	£270	€311
2	DN40KF	38.1	2.0	33.2	76	124	GA-SP38-40KF	£405	€466
2	DN63LF	63.5	2.3	55.6	76	137	GA-SP63-63LF	£686	€789

Fig. 2.



PLEASE NOTE :

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² - Glass-to-metal interface diameter is smaller than that of metal or glass tube IDs. Objects inserted through this region must not exceed "D" diameter.

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Double Ended 7740 Pyrex® to Stainless Steel Metal Adapters

Dual flange glass adapters are constructed with 7740 Pyrex® glass and stainless steel metal transitions. These flanged adapters are ideally suited for high and ultrahigh vacuum applications where electrical break and/or isolation between components is required. Available in various glass tube diameters.

Features:

- 7740 Pyrex®.
- Stainless steel sleeve.
- 304 stainless steel flanges as standard.
- Custom sizes and configurations available upon request.

Specifications:

Materials

Glass	7740 Pyrex®
Sleeve	Stainless steel
Flange	304 St.St.

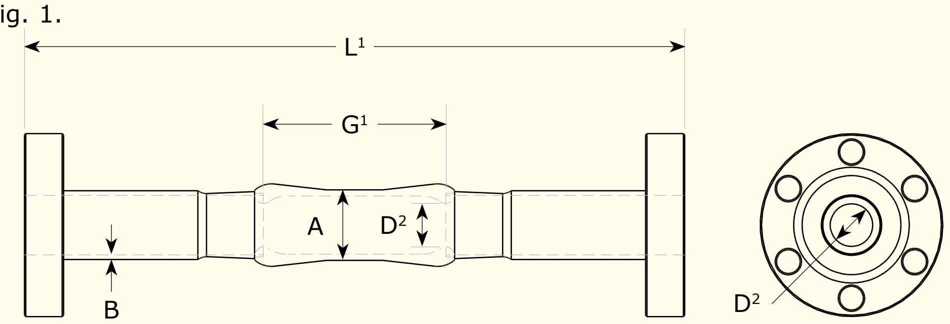
Max Bakeout Temperature*

CF flanged adapter	450°C
KF & LF flanged adapter	150°C
Weldable adapter	450°C

Max Thermal Gradient 10°C per minute

* - Assembly rating is reduced to that of the lowest rated component.

Fig. 1.



PLEASE NOTE :

1 - Although a highly specialized technology, glass-to-metal sealing and fabrication is more of an art than a science. As such, glass dimensions are nominal and only provided for reference. Note that glass lengths, diameters, and/or wall thicknesses can vary significantly from part to part. For example, glass adapter lengths can vary by as much as +/- 3.3mm

2 - Glass-to-metal interface diameter is smaller than that of metal or glass tube IDs. Objects inserted through this region must not exceed "D" diameter.

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

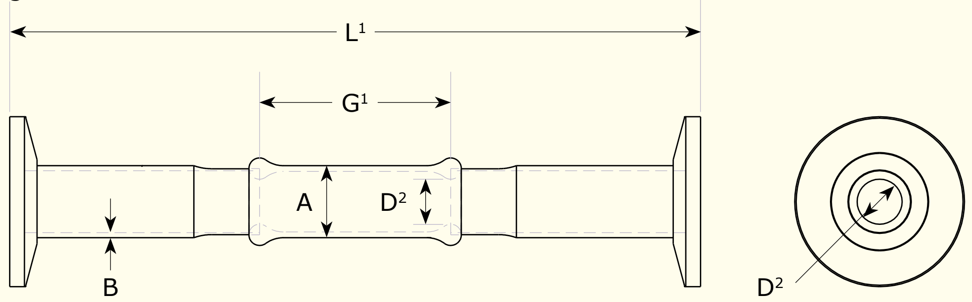
Double Ended 7740 Pyrex® To Stainless Steel - CF Flanged

Fig.	Flange	A	B	D[2]	G[1]	L[1]	Part Code	Price £	Price €
1	DN16CF	12.7	1.0	7.8	25	111	GA-PDE13-16CF	£393	€452
1	DN16CF	18.5	1.3	14.2	25	111	GA-PDE19-16CF	£405	€466
1	DN40CF	38.1	2.0	33.2	25	111	GA-PDE38-40CF	£624	€718
1	DN63CF	63.5	2.3	55.6	25	111	GA-PDE63-63CF	£847	€975

Double Ended 7740 Pyrex® To Stainless Steel - KF & LF Flanged

Fig.	Flange	A	B	D[2]	G[1]	L[1]	Part Code	Price £	Price €
2	DN16KF	12.7	1.0	7.8	25	111	GA-PDE13-16KF	£393	€452
2	DN16KF	18.5	1.3	14.2	25	111	GA-PDE19-16KF	£405	€466
2	DN40KF	38.1	2.0	33.2	25	111	GA-PDE38-40KF	£624	€718
2	DN63LF	63.5	2.3	55.6	25	111	GA-PDE63-63LF	£847	€975

Fig. 2.



PLEASE NOTE :

1 - Although a highly specialized technology, glass-to-metal sealing and fabrication is more of an art than a science. As such, glass dimensions are nominal and only provided for reference. Note that glass lengths, diameters, and/or wall thicknesses can vary significantly from part to part. For example, glass adapter lengths can vary by as much as +/- 3.3mm

2 - Glass-to-metal interface diameter is smaller than that of metal or glass tube IDs. Objects inserted through this region must not exceed "D" diameter.

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

Closed Dome End 7740 Pyrex® to Stainless Steel Metal Adapters

Domed, single flange glass adapters are constructed with 7740 Pyrex® glass and stainless steel metal transitions. These closed adapters are ideally suited for high and ultrahigh vacuum applications where an optically clear chamber is required is required. Available in various glass tube diameters.

Features:

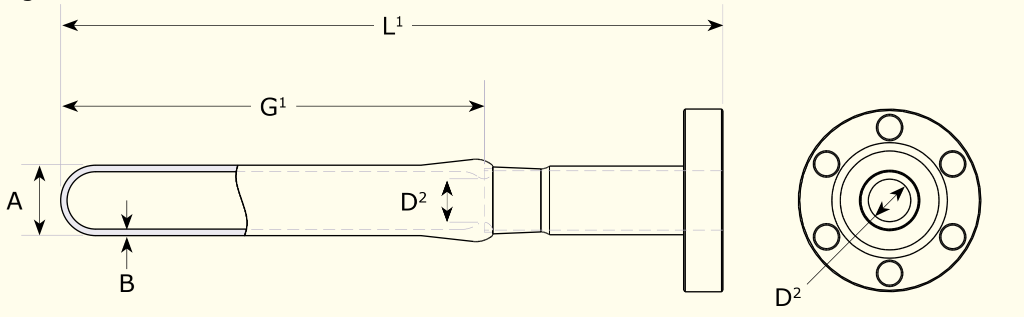
- 7740 Pyrex®.
- Stainless steel sleeve.
- 304 stainless steel flanges as standard.
- Custom sizes and configurations available upon request.

Specifications:

Materials	
Glass	7740 Pyrex®
Sleeve	Stainless steel
Flange	304 St.St.
Max Bakeout Temperature*	
CF flanged adapter	450°C
KF & LF flanged adapter	150°C
Weldable adapter	450°C
Max Thermal Gradient	10°C per minute

* - Assembly rating is reduced to that of the lowest rated component.

Fig. 1.



PLEASE NOTE :

[1] - Although a highly specialized technology, glass-to-metal sealing and fabrication is more of an art than a science. As such, glass dimensions are nominal and only provided for reference. Note that glass lengths, diameters, and/or wall thicknesses can vary significantly from part to part. For example, glass adapter lengths can vary by as much as +/- 3.3mm

[2] - Glass-to-metal interface diameter is smaller than that of metal or glass tube IDs. Objects inserted through this region must not exceed "D" diameter.

Email : sales@lewvac.co.uk - Tel : +44 (0)1444 233372 - Website : www.lewvac.co.uk

VIEWPORTS & GLASS COMPONENTS

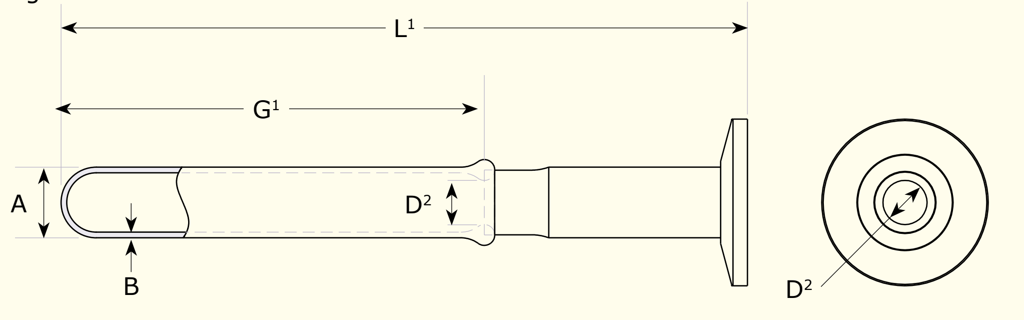
Closed Dome End 7740 Pyrex® To Stainless Steel - CF Flanged

Fig.	Flange	A	B	D^2	G^1	L1	Part Code	Price £	Price €
1	DN16CF	12.7	1.0	7.9	108	168	GA-DSP13-16CF	£335	€386
1	DN16CF	18.5	1.3	14.2	108	168	GA-DSP19-16CF	£339	€390
1	DN40CF	38.1	2.0	33.2	108	168	GA-DSP38-40CF	£578	€665
1	DN63CF	63.5	2.0	55.6	108	168	GA-DSP63-63CF	£646	€743

Closed Dome End 7740 Pyrex® To Stainless Steel - KF & LF Flanged

Fig.	Flange	A	B	D^2	G^1	L^1	Part Code	Price £	Price €
2	DN16KF	12.7	1.0	7.9	108	168	GA-DSP13-16KF	£332	€382
2	DN16KF	18.5	1.3	14.2	108	168	GA-DSP19-16KF	£339	€390
2	DN40KF	38.1	2.0	33.2	108	168	GA-DSP38-40KF	£536	€617
2	DN63LF	63.5	2.0	55.6	108	168	GA-DSP63-63LF	£1155	€1329

Fig. 2.



PLEASE NOTE :

[1] - Although a highly specialized technology, glass-to-metal sealing and fabrication is more of an art than a science. As such, glass dimensions are nominal and only provided for reference. Note that glass lengths, diameters, and/or wall thicknesses can vary significantly from part to part. For example, glass adapter lengths can vary by as much as +/- 3.3mm

[2] - Glass-to-metal interface diameter is smaller than that of metal or glass tube IDs. Objects inserted through this region must not exceed "D" diameter.

All dimensions are nominal in millimetres unless otherwise specified - Optical transmission curves are approximate and for reference only

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