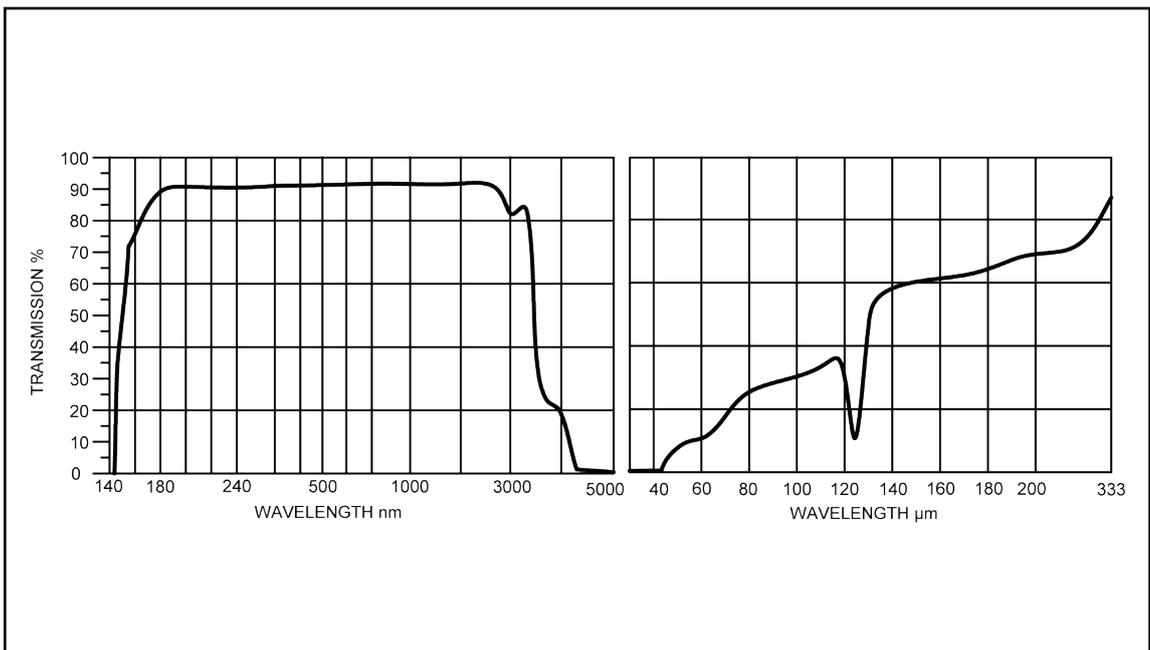




Specification	
Seal Type	Bond
Maximum Temperature	120°C
Minimum Temperature	minus 20°C
Maximum Rate of Temperature Change	3°C per minute
Leak Rate	$<1 \times 10^{-10}$ atm-cc/sec (He)
Pressure Range	1 bar $<1 \times 10^{-11}$ mbar
Surface Quality	20 /10 scratch/dig
Parallelism	$< 3$ arc minutes
Flatness	$\lambda/2$

Torr Scientific Z-Cut natural quartz viewports are offered in CF, ISO and KF flange styles. The viewports comprise a high quality natural quartz optic with precise flatness, parallelism, scratch and dig specifications. One of the best materials for transmission of wavelengths above 50  $\mu\text{m}$  is z-cut crystal quartz, so z-cut quartz windows are popular as THz windows. It is important that z-cut crystal quartz windows are also transparent in the visible spectrum allowing easy adjustment with a HeNe laser and do not change the state of light polarization. Z-cut quartz also has excellent transparency in the vacuum UV portion of the spectrum and is therefore a popular window material for use in UV spectroscopy and UV lithography. The ultra high vacuum (UHV) CF versions are offered using high grade 304L or 316LN stainless steel flanges. Non-magnetic viewports are offered for low energy applications or surface science applications needing low magnetic fields. The non-magnetic viewports use a tantalum weld ring instead of the regular kovar weld ring. Flanges in 316L stainless steel are used for the high vacuum KF and ISO viewports. TSL viewports are manufactured in cleanroom conditions and helium leak tested, cleaned and packed to UHV standards. The rugged construction of the quartz viewports allows bake-out to a maximum of 120°C with UHV performance. Options with anti-reflective coatings are also offered. Non-standard viewports can be manufactured on request, including re-entrant style microscope/camera viewports. Annealed copper gaskets and other component accessories are also supplied by TSL.

## Transmission Curve - Quartz Natural Z-Cut



Please note that the optical transmission curves are approximations and should be used for reference only

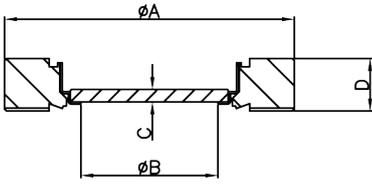


# Quartz Natural Z-Cut Zero Length Viewports

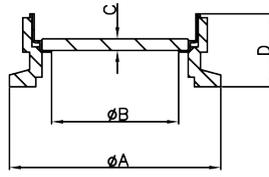


Quartz Natural Z-Cut Zero Length Viewports

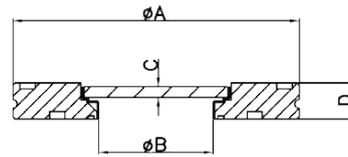
CF-1



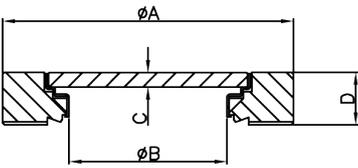
KF-1



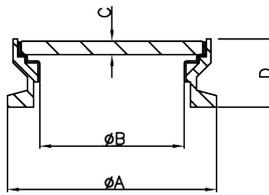
ISO-1



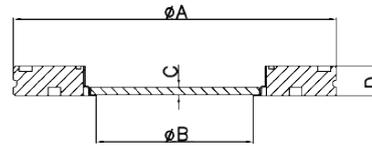
CF-2



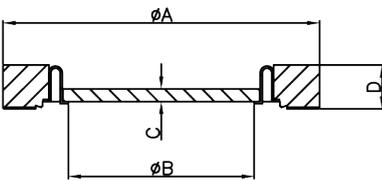
KF-2



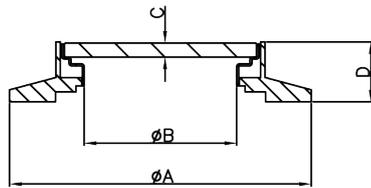
ISO-2



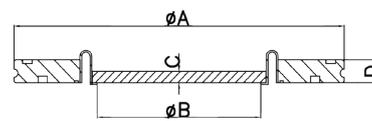
CF-3



KF-3



ISO-3



Part Number	Flange Type	A	B	C	D	Diagram	Flange Material	Weld Ring Material	Non-Magnetic
BVPZ16NQZ	NW16CF	34	15	1.5	12.7	CF-1	304L	Kovar	
BVPZ16NQZ-NM	NW16CF	34	15	1.5	12.7	CF-1	316LN	Tantalum	Yes
BKVPZ16NQZ	KF16	40	15	1.5	12.7	KF-1	304L	Kovar	
BKVPZ25NQZ	KF25	40	20	3	18.5	KF-1	304L	Kovar	
BVPZ38NQZ	NW35CF	70	32	3	12.7	CF-1	304L	Kovar	
BVPZ38LANQZ	NW35CF	70	38	3.5	12.7	CF-2	304L	Kovar	
BVPZ38NQZ-NM	NW35CF	70	32	3	12.7	CF-1	316LN	Tantalum	Yes
BKVPZ40/32NQZ	KF40	55	32	3	12.7	KF-1	304L	Kovar	
BKVPZ40NQZ	KF40	55	38	3.5	18.5	KF-2	304L	Kovar	
BKVPZ50NQZ	KF50	75	38	3.5	15	KF-3	304L	Kovar	
BVPZ64NQZ	NW63CF	114	63	4.5	17.4	CF-1	304L	Kovar	
BVPZ64NQZ-NM	NW63CF	114	63	4.5	17.4	CF-1	316LN	Tantalum	Yes
BISO63VPZNQZ	ISO63	95	38	3.5	12	ISO-1	304L	Kovar	
BVPZ100NQZ	NW100CF	152	89	6	19.9	CF-3	304L	Kovar	
BVPZ100NQZ-NM	NW100CF	152	89	6	19.9	CF-3	316LN	Tantalum	Yes
BISO100VPZNQZ	ISO100	130	63	4.5	12	ISO-2	304L	Kovar	
BISO160VPZNQZ	ISO160	180	89	6	12	ISO-3	304L	Kovar	