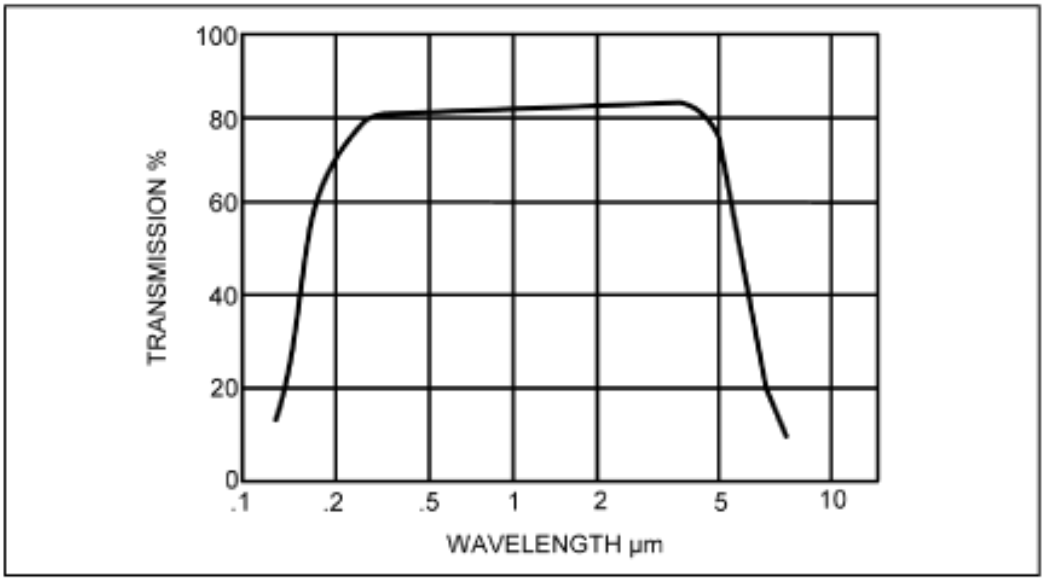
High Temperature Sapphire Zero Length Viewports

Specification	
Seal Type	**Braze**
Maximum Temperature	**450°C 304L, 600°C 316LN**
Minimum Temperature	**minus 20°C**
Maximum Rate of Temperature Change	**3°C per minute**
Leak Rate	**<1x10^{-10} atm-cc/sec (He)**
Pressure Range	**1 bar to 1x10^{-11} mbar**
Surface Quality	**60 /40 scratch/dig**
Flatness	**< 8λ**

Sapphire viewports are offered in CF flange styles. The viewports comprise a high-quality optic with precise flatness, parallelism, scratch and dig specifications. The single crystal sapphire windows have excellent optical, physical and chemical properties. The hardest of the oxide crystals, sapphire retains its high strength at high temperatures. Sapphire has a low coefficient of thermal expansion and low fluorescence, good resistance to thermal shock and scratching making this an excellent material for IR transmitting optics and robust applications. C-cut sapphire is selected sapphire to minimise the effects of birefringence. The ultra-high vacuum (UHV) CF versions are offered using high grade 304L (or 316LN) stainless steel flanges.
Viewports are manufactured in cleanroom conditions and helium leak tested, cleaned and packed to UHV standards. The rugged construction of the sapphire viewports allows repeated bake-out to 450°C with UHV performance, whilst the window offers broadband optical transmission through vacuum UV, visible to near infra-red.
Annealed copper gaskets are available.

Transmission Curve - Sapphire



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