

# Windows



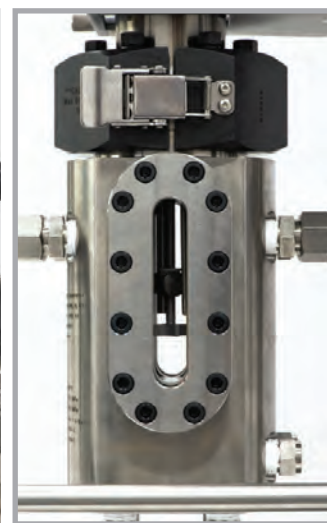
Round, screw-in window



Round, integral window



Custom window



Oblong window

**Windows can be installed** in Parr stirred reactors and pressure vessels for visual observations, light transmission and other purposes. They usually are installed in pairs so that light can be introduced through one window while the other is used for viewing. Our standard material for these windows is fused silica. Sapphire is also available for small diameter windows. Alternative window materials (with coatings, if requested) are available for specific transmission requirements. Windows can be mounted in several different ways.

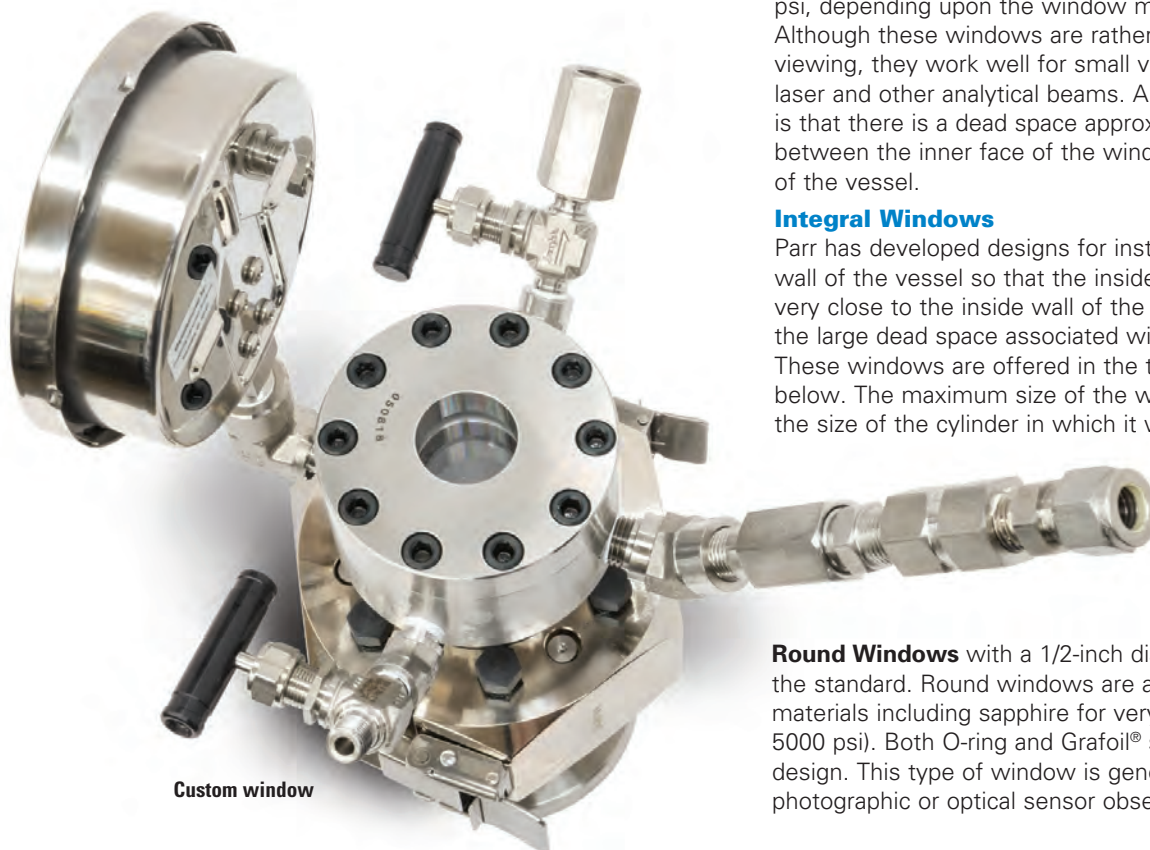
## Screw-in Circular Windows

The simplest window is a screw-in type with a 1/2-inch diameter viewing area. The windows in these assemblies are sealed in a fitting which screws into the vessel using a standard 1/2 inch NPT male pipe thread. Obviously, the vessel wall must be thick enough to provide full engagement for this thread. O-ring seals restrict the maximum operating temperature to 225 °C or less, depending upon the O-ring material. Alternatively, a Grafoil® gasket seal option is available to increase temperature rating up to 350 °C. Pressure ratings range from 1900 to 5000 psi, depending upon the window material and its thickness. Although these windows are rather small for straight optical viewing, they work well for small video systems and for laser and other analytical beams. A limitation of this design is that there is a dead space approximately 1.25 inches long between the inner face of the window and the inside wall of the vessel.

## Integral Windows

Parr has developed designs for installing windows in the wall of the vessel so that the inside face of the window is very close to the inside wall of the vessel. This eliminates the large dead space associated with screw-in windows. These windows are offered in the two styles described below. The maximum size of the window will depend on the size of the cylinder in which it will be installed.

**Round Windows** with a 1/2-inch diameter viewing area are the standard. Round windows are available in a variety of materials including sapphire for very high pressures (up to 5000 psi). Both O-ring and Grafoil® seals are available in this design. This type of window is generally used for visual, photographic or optical sensor observations.



Custom window