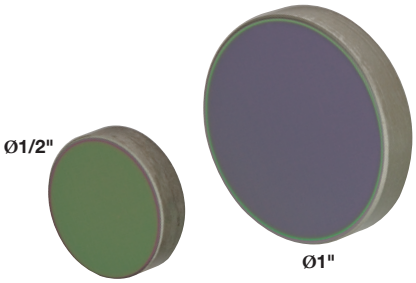
File Reviewed UPDATED to New Specs

# Germanium Windows

Thorlabs' Ø1/2" and Ø1" Germanium (Ge) PrecisionWindows are available either uncoated or with an AR coating for the 8 - 12 µm range on both sides. The AR coating greatly reduces the high surface reflectivity of the substrate.

Due to its broad transmission range and opacity in the visible portion of the spectrum, Germanium is well suited for IR laser applications. In addition, Ge does not react with air, water, alkalis, and acids (except nitric acid).

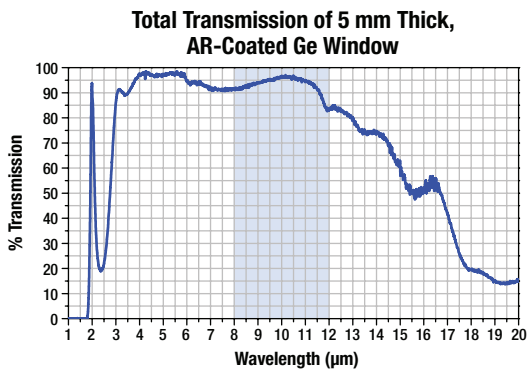
Germanium's transmission properties are highly temperature sensitive; in fact, the absorption becomes so large that germanium is nearly opaque at 100 °C and completely non-transmissive at 200 °C.




## Specifications

- **Material:** Germanium
- **Wavelength Range:** 2 - 16 µm
- **BBAR Coating:** 8 – 12 µm, $R_{avg}$ <2% @ 0° AOI
- **Diameter Tolerance:** +0.0/-0.2 mm
- **Thickness Tolerance:** ±0.3 mm
- **Surface Flatness:** λ at 633 nm
- **Surface Quality:** 40-20 Scratch-Dig
- **Parallelism:** ≤1 arcmin
- **Clear Aperture:** >90% of Diameter
- **Damage Threshold:** 0.5 J/cm² (10.6 µm, 100 ns, 1 Hz, Ø0.478 mm)

Please contact your local Thorlabs office for custom optical scans.



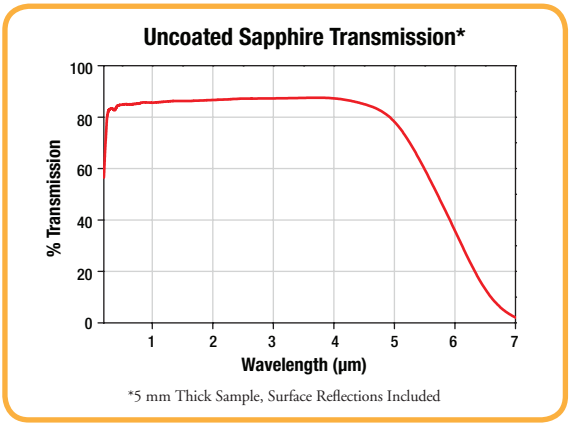

The shaded region in this graph denotes the AR coating range.

| ITEM # | AR COATING | DIAMETER | THICKNESS | $ | £ | € | RMB |
|---|---|---|---|---|---|---|---|
| WG91050 | Uncoated | Ø1" | 5.0 mm | $ 158.00 | £ 113.76 | € 137,46 | ¥ 1,259.26 |
| WG90530-F | 8 – 12 µm | Ø1/2" | 3.0 mm | $ 158.00 | £ 113.76 | € 137,46 | ¥ 1,259.26 |
| WG91050-F | 8 – 12 µm | Ø1" | 5.0 mm | $ 194.00 | £ 139.68 | € 168,78 | ¥ 1,546.18 |

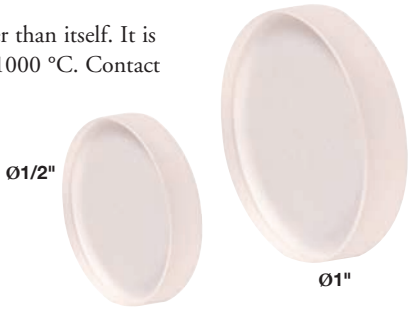
# Sapphire Windows

These Sapphire Precision Windows, which are available in Ø1/2" and Ø1" sizes, offer high transmission in the 150 nm to 5 µm range. Sapphire is the material of choice for very demanding applications that require reliability, strength, a broad transmission range, and/or low transmitted wavefront distortion at both high and low operating temperatures.

With exceptional surface hardness, sapphire can be scratched by only a few substances other than itself. It is chemically inert and insoluble to water, common acids, or alkalis for temperatures up to ~1000 °C. Contact technical support for custom coating options.




*5 mm Thick Sample, Surface Reflections Included




## Specifications

- **Material:** Sapphire
- **Wavelength Range:** 150 nm – 5 µm
- **Diameter Tolerance:** +0.0/-0.2 mm
- **Thickness Tolerance:** ±0.3 mm
- **Surface Flatness:** λ at 633 nm
- **Surface Quality:** 60-40 Scratch-Dig
- **Parallelism:** ≤3 arcmin
- **Clear Aperture:** >90% of Diameter

| ITEM # | DIAMETER | THICKNESS | $ | £ | € | RMB |
|---|---|---|---|---|---|---|
| WG30530 | 0.50" | 3.0 mm | $ 21.70 | £ 15.62 | € 18,88 | ¥ 172.95 |
| WG31050 | 1.00" | 5.0 mm | $ 59.00 | £ 42.48 | € 51,33 | ¥ 470.23 |