

# Sapphire Optical Lenses Product Datasheet

Felix Glass Co., Limited

## 1. Material Property

Substrate: Single crystal sapphire ( $\text{Al}_2\text{O}_3$ ) Mohs Hardness: 9 Working Temperature:  $-70^\circ\text{C} \sim 1200^\circ\text{C}$  Transmission Waveband:  $0.15\ \mu\text{m} - 5.0\ \mu\text{m}$  Refractive Index (632.8nm): 1.768

## 2. Standard Product Series

### 2.1 Sapphire Half Ball Lens

- Diameter range: 2mm / 3mm / 5mm / 8mm / 10mm / 15mm / 20mm / 30mm / 50mm
- Curvature tolerance:  $\pm 0.002\text{mm}$
- Surface quality: 20/10 scratch/dig
- Application: Optical fiber coupling, collimation modules

### 2.2 Sapphire Ball Lens

- Full spherical solid sapphire ball
- Diameter tolerance:  $\pm 0.003\text{mm}$
- Optional single/double-side broadband AR coating
- Application: Light focusing, fiber alignment sensors

### 2.3 Sapphire Plano-Convex Lens

- Flat + single convex spherical surface
- Focal length custom from 3mm–200mm
- Edge chamfer optional (0.2mm / 0.5mm)
- Application: Precision instrument optical path, signal collimation

## 3. Custom Coating Options

1. Broadband IR AR coating ( $1\text{--}5\mu\text{m}$ ): Transmittance  $\geq 92\%$  per surface
2. Visible-NIR AR coating (400–1100nm)
3. Anti-scratch hard coating for harsh industrial environment

## 4. Machining Tolerance Standard

- Diameter:  $\pm 0.005\text{mm}$
- Surface flatness:  $\lambda/4$  @632.8nm
- Parallelism:  $\leq 0.01\text{mm}$
- Centration error:  $\leq 3$  arc minutes

**5. Packaging & Inspection** Each lens packed in clean nitrogen-sealed plastic tray; full interferometer & spectral transmittance test report attached for each batch.