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50.8mm Dia., 3.18mm Thick, 2000-5000nm, High Durability AR Coated Sapphire Window



High Durability Anti-Reflection (AR) Coated Sapphire Windows

Stock **#18-472** **1 In Stock**

⊖ 1 ⊕ £556⁰⁰

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Volume Pricing

Qty 1-10	£556.00 each
Qty 11-25	£480.00 each
Qty 26-49	£472.00 each
Need More?	Request Quote

ⓘ Prices shown are exclusive of VAT/local taxes

Product Downloads

General

Protective Window **Type:**
Crystal **Type of Window:**

Physical & Mechanical Properties

Clear Aperture CA (mm):

45.72

Diameter (mm):

50.80 ±0.05

Thickness (mm):

3.18 ±0.05

Parallelism (arcmin):

≤3.5

Bevel:

Protective as needed

Clear Aperture (%):

90

Edges:

Fine Ground

Poisson's Ratio:

0.27

Young's Modulus (GPa):

435

Knoop Hardness (kg/mm²):

1,900.00

Optical Properties

Coating:

Hardened BBAR (2000-5000nm)

Substrate:

Sapphire (Al₂O₃)

Index of Refraction (n_d):

1.77

Surface Quality:

80-50

Abbe Number (v_d):

72.24

Birefringence (n_o-n_e):

0.008 for Visible Light Orthogonal to Optical Axis

Axis Orientation:

Random

Coating Specification:

R_{avg} <1.5% @ 2000 - 5000nm
R_{abs} <2.0% @ 2000 - 5000nm

Wavelength Range (nm):

2000 - 5000

Surface Flatness (P-V):

2λ (typical)

Coating Temperature (°F):

-80 to +160 per ML-M-13508C Paragraph 4.4.4

Material Properties

Density (g/cm³):

3.97

Coefficient of Thermal Expansion CTE (10⁻⁶/°C):

8.8

Environmental & Durability Factors

Coating Abrasion:

Severe, per ML-C-675C Paragraph 4.5.10

Coating Adhesion:

Per ML-M-13508C Paragraph 4.4.6

Coating Humidity:

≥24 Hours per ML-C-675C paragraph 4.5.8

Coating Salt Spray:

≥24 Hours per ML-C-675C paragraph 4.5.9

Coating Salt Solubility:

≥24 Hours Immersion per ML-C-675C paragraph 4.5.7

Regulatory Compliance

Certificate of Conformance:

[View](#)

Need different specs or modifications?

Edmund Optics offers comprehensive custom manufacturing services for optical and imaging components tailored to your specific application requirements. Whether in the prototyping phase or preparing for full-scale production, we provide flexible solutions to meet your needs. Our experienced engineers are here to assist—from concept to completion.

Our capabilities include:

- Custom dimensions, materials, coatings, and more
- High-precision surface quality and flatness
- Tight tolerances and complex geometries
- Scalable production—from prototype to volume

Learn more about our [custom manufacturing capabilities](#) or submit an inquiry [here](#).

Product Details

- Achieves Severe Abrasion Requirements of ML-C-675C
- Low Reflection Coatings for 400 - 1100nm or 2000 - 5000nm
- Ideal for Harsh Environments Requiring Thin Optics
- [Uncoated Sapphire Windows](#) are Also Available

High Durability Anti-Reflection (AR) Coated Sapphire Windows are designed for applications requiring the ruggedness of sapphire with AR coatings designed to survive severe abrasion. The AR coatings on these sapphire windows are designed to withstand temperature cycling from -80 to +160°F, salt spray for a continuous period of 24 hours, and salt solubility for an immersion period of 24 hours. Coating designs achieving the severe abrasion requirements of ML-C-675C for VIS-NIR and MMR applications are available, making them ideal for use in harsh environments. High Durability Anti-Reflection (AR) Coated Sapphire Windows are used in aerospace, defense, and industrial applications, as well as any optical application requiring thin, durable protective windows.