

## 0.9 OD 50mm Sq, Absorptive ND Filter

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Stock #46-221 **16 In Stock**

⊖ 1 ⊕ £87<sup>20</sup>

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### Volume Pricing

Qty 1-10	£87.20 each
Qty 11-49	£77.60 each
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ⓘ Prices shown are exclusive of VAT/local taxes

### Product Downloads

### General

Neutral Density Filter **Type:**

### Physical & Mechanical Properties

50.0 x 50.0 **Dimensions (mm):**

50.00	<b>Length (mm):</b>
2.50 ±0.5	<b>Thickness (mm):</b>
50.00	<b>Width (mm):</b>
±0.2	<b>Dimensional Tolerance (mm):</b>
<0.02	<b>Parallelism (mm):</b>

## Optical Properties

0.9 ±0.1	<b>Optical Density OD (Average):</b>
<a href="#">Hoya ND13</a>	<b>Glass/Filter Number:</b>
ND Filter Glass	<b>Substrate:</b> <input type="checkbox"/>
Uncoated	<b>Coating:</b>
1.51	<b>Index of Refraction (n<sub>d</sub>):</b>
80-50	<b>Surface Quality:</b>
12.5 (average)	<b>Transmission (%):</b>
400 - 700	<b>Blocking Wavelength Range (nm):</b>

## Material Properties

535	<b>Transformation Temperature (°C):</b>
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## Regulatory Compliance

<a href="#">Compliant</a>	<b>RoHS 2015:</b>
<a href="#">Compliant</a>	<b>REACH 201:</b>
<a href="#">View</a>	<b>Certificate of Conformance:</b>

## 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

- Attenuates Visible Light Via Absorption, Rather than Reflection
- Multiple Filters Can be Stacked for Increased Blocking
- Optical Densities from 0.1 to 4.0 are Available
- Also Available [Pre-mounted in C-Mount Housings](#)

Hoya Absorptive Neutral Density (ND) Filters possess level spectral transmittance characteristics in the visible region and attenuate light by absorption with minimal reflection. Typically, the neutrality and density of absorptive filters are a function of the material and the thickness. Since Hoya neutral density filters are held to a specific optical density, the thickness is only a function of the glass type. Hoya Absorptive Neutral Density (ND) Filters are useful in light control applications for measuring instruments and exposure control in imaging. Spectral variations occur as optical density increases.

Optical Density exhibits an additive relationship; for example, stacking filters with OD values of 0.6 and 0.9 yields a resultant density of 1.5. The optical density is related to the transmission by the following equation:  $T = 10^{-OD} \times 100 = \text{percent transmission}$ .

**Note:** Due to supply chain issues, our kits may be delivered with an alternative packaging solution in place of a wooden box. For any questions, please contact [kits@edmundoptics.com](mailto:kits@edmundoptics.com).

### Filter Simulation Software

[Click here](#) to download HOYA's colored glass filter simulation software which can be used to calculate the internal transmittance and external transmission of each HOYA glass type. The software can simulate the performance of individual filters with user specified thickness.

### Absorptive Neutral Density Filter Kits

[#55-222](#) includes 6 filters in optical density values of 0.15, 0.3, 0.4, 0.6, 0.9 and 2.5.

[#63-468](#), [#63-469](#), [#63-470](#) and [#66-155](#) each include 14 filters in optical density values of 0.1, 0.15, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.9, 1.0, 1.3, 1.5, 2.0 and 2.5. Please note that OD 3.0 is the only one not included in these kits.

## Technical Information



## Compatible Mounts