# Neutral Density Filters

## Sunglasses for your system

Vision Light Tech
creating optical solutions

*Neutral Density filters reduce light intensity without affecting apparent color. They also allow for longer exposure times and reduced depth of field by using a wider iris opening, thus improving the separation of subject matter from background information.*

### Features

- Available in various optical densities
- UV/VIS/Near-IR
- Used with monochrome or color cameras operating in the visible and/or Near-IR spectrums
- Includes identical male and female filter threads on either end for stacking
- The sum of the optical density of two or more filters stacked together equals the total density
- Ni filters are unique in maintaining exceptional spectral neutrality over the full visible-to-near-IR range while greatly limiting undesirable back reflections over that same range.
- Excellent parallelism, optical flatness and surface quality
- Custom densities available upon request

**Useful for:** attenuating bright light; exposure control of images; system protection for low power laser applications

### Mount & Size Options

- Threaded Mount, C/CS Mount, Slip Mount, Unmounted
- Threaded Mount Sizes: M13.25 – M105
- Custom shapes and sizes available

### Definition

*Neutral density filters reduce transmission uniformly over a specific portion of the spectrum. They are defined according to their Optical Density (OD). The higher the OD, the lower the transmission. These filters can be stacked to create filters with custom ODs. They are useful when trying to image extremely bright subjects or when trying to separate subject matter from a background by reducing depth of field.*

**MidOpt Neutral Density Filters are divided into two series:**

**ND Series – VIS, Absorptive**

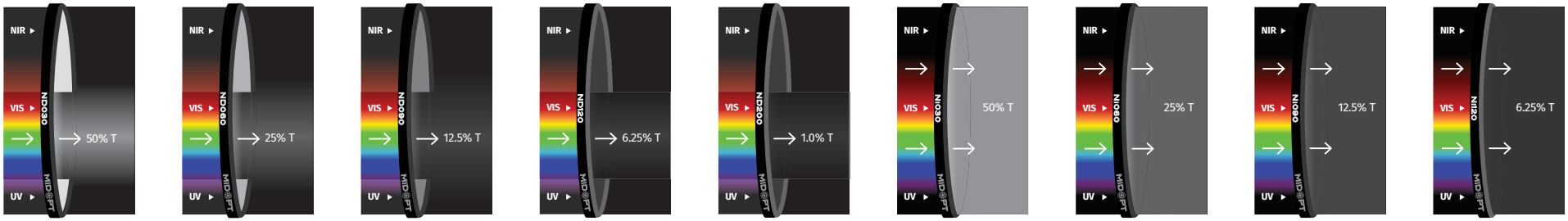
- *Reduce light intensity in the visible spectrum without affecting color and contrast*
- *Used with a monochrome or color camera working in the visible (VIS) spectrum*
- *Eliminate over-saturated images. ND filters transmit and block in the near infrared as well the visible spectrum, however specific neutrality is not controlled in the infrared.*

**Ni Series – VIS/NIR, Low-Reflectivity**

- *Reduce light intensity neutrally throughout the VIS and NIR spectrums*
- *Use with monochrome or color cameras, or can be placed over bright light sources*
- *Made with low-expansion, heat-resistant Borofloat® glass, Ni filters can be used to aid in thermal load reduction*
- *Superior parallelism and surface quality*

| Part # | Description | Useful Range | Optical Density | Tolerance | Surface Quality |
|---|---|---|---|---|---|
| **ND SERIES — VIS** | | | | | |
| **ND030** | Absorptive 50% Transmission | 425-675nm | 0.3 | +/- 5.00% | 40/20 |
| **ND060** | Absorptive 25% Transmission | 425-675nm | 0.6 | +/- 3.00% | 40/20 |
| **ND090** | Absorptive 12.5% Transmission | 425-675nm | 0.9 | +/- 1.50% | 40/20 |
| **ND120** | Absorptive 6.25% Transmission | 425-675nm | 1.2 | +/- 0.63% | 40/20 |
| **ND200** | Absorptive 1.0% Transmission | 425-675nm | 2.0 | +/- 0.15% | 40/20 |
| **ND300** | Absorptive 0.1% Transmission | 425-675nm | 3.0 | +/- 0.015% | 40/20 |
| **ND400** | Absorptive 0.01% Transmission | 425-675nm | 4.0 | +/- 0.003% | 40/20 |
| **NI SERIES — VIS/NIR** | | | | | |
| **Ni030** | Low Reflectivity 50% Transmission | 400-1100nm | 0.3 | +/- 5.00% | 40/20 |
| **Ni060** | Low Reflectivity 25% Transmission | 400-1100nm | 0.6 | +/- 3.00% | 40/20 |
| **Ni090** | Low Reflectivity 12.5% Transmission | 400-1100nm | 0.9 | +/- 1.50% | 40/20 |
| **Ni120** | Low Reflectivity 6.25% Transmission | 400-1100nm | 1.2 | +/- 0.63% | 40/20 |

**Due to continuous product improvement, specifications are subject to change without notice.*

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