



**ANDOVER CORPORATION**  
Quality Optical Filters and Coatings  
**2009 - 2010**

## ORDERING INFORMATION

### Four Ways to Order

<b>Online</b>	<b>www.andovercorp.com</b>
<b>Email</b>	<b>sales@andovercorp.com</b>
<b>Telephone</b>	<b>US toll-free 1.888.893.9992</b> <b>International +00.1.603.893.6888</b>
<b>Fax</b>	<b>603.893.6508</b>

### Pricing

Current prices are available at andovercorp.com by clicking on the part numbers for particular items. For a complete price list or a specific quote, please contact our sales department.

### Purchase Orders

Andover Corporation accepts e-mail, written, and online orders from customers with an open line of credit. New customers must confirm their orders in writing and supply credit references upon request.

### Blanket Orders

Andover Corporation can help reduce your inventory by scheduling automatic delivery of you order over time. Complete details are available here: <http://www.andovercorp.com/info>

### Payment Terms

Net 30 days from date of invoice for customers with established lines of credit. International customers should check with the sales department to determine if prepayment is required. All foreign orders are subject to shipping and banking fees. For blanket orders, please contact our sales department for special terms and conditions. Visa, MasterCard and American Express accepted.



### Shipping

Most standard items ship within two days of receipt of an order. All out-of-stock products are shipped within two weeks. For rush orders, one-day shipping may be available.

All prices are FOB Salem, New Hampshire, USA. Shipments are freight prepaid and billed to the buyer.

**Order online for free ground shipping within the US.**

### Return Policy

Andover Corporation accepts returns of defective items up to one year from the invoice date. Before returning any items, please contact our technical sales staff for a Return Goods Authorization (RGA) number and complete shipping instructions.

## LIMITED WARRANTY

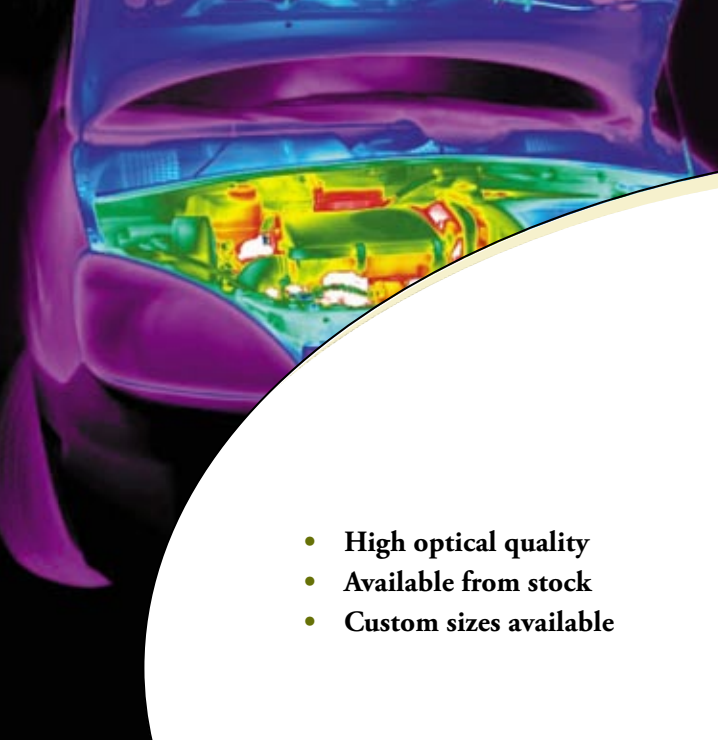
Andover warrants that all products shall conform to the product specifications and shall be free from defects in materials and workmanship for a period of one year from date of purchase. This Limited Warranty shall not apply in the event of any failure caused by accident, misuse, neglect, alteration or improper installation or repair by the purchaser.

*Disclaimer of other warranties.* The limited warranty set forth above is in place of other warranties, express or implied, and Andover expressly disclaims all other warranties, including warranties of merchantability and fitness for a particular purpose. Specifically, it is the purchaser's responsibility to test and determine the suitability of the products for purchaser's intended use, which shall be the sole responsibility of the purchaser.

*Limitation of remedies and damages.* Andover's sole obligation and the purchaser's sole and exclusive remedy under the Limited Warranty set forth above shall be limited to (a) replacement of defective products provided that written claim of the defect is sent to Andover within the Limited Warranty period, the original product is returned with transportation prepaid, and Andover's inspection establishes the existence of such defect; or (b) at the sole discretion of Andover, return of the original purchase price received by Andover from the purchaser. Andover shall in no event be liable for any damages, including without limitation, lost profits, incidental or consequential damages by reason of or in connection with the purchase or use of the products.

*Indemnification.* The purchaser agrees to indemnify and hold Andover harmless from and against any claim, loss, cost or expense resulting from purchaser's use of the products, whether such claim arises in contract, tort or otherwise.

*Governing law.* All matters arising under this Limited Warranty and other terms and conditions of sale shall be governed by the laws of the State of New Hampshire. The purchaser consents to the exclusive jurisdiction of the courts of the State of New Hampshire in all matters relating to the purchase, sale and use of the products.



## Infrared Windows & Substrates

Andover stocks a variety of optical-quality infrared-transmitting substrates. All substrates are polished to a transmitted wavefront of 2 waves or better and parallel to less than 10 arc minutes. A/R coatings are also available; see next page for details.

For your convenience and economy, we offer the windows in two standard sizes: 25 mm and 50 mm dia. However, we can produce custom sizes and shapes. Contact our technical sales department for a quotation.

- **High optical quality**
- **Available from stock**
- **Custom sizes available**

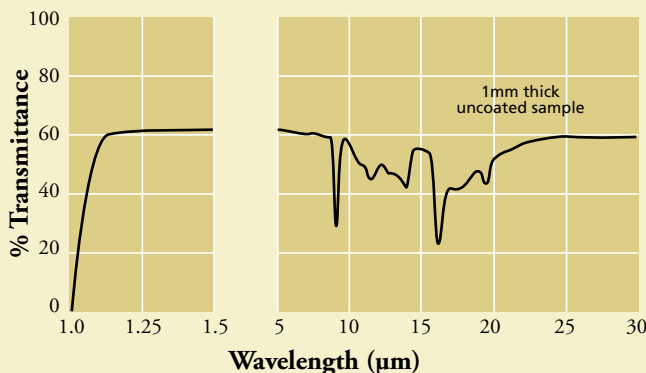
### GENERAL SPECIFICATIONS

Diameter tolerance	+0/- .1mm
Thickness	1.0 ±.2mm
Flatness:	2 waves at 632.8nm
Parallelism:	<10 arc minutes
Surface Quality:	60/40 per MIL-C-48497A
CTE:	Coefficient of Thermal Expansion (see tables)

### Applications

Thermal imaging  
Weapons systems  
Detector windows  
IR photography

Substrate Material	Size, Shape & Part Number	
	25mm Ø ○	50mm Ø ○
Silicon (Si)	IRWS100-25	IRWS100-50
Germanium (Ge)	IRWS200-25	IRWS200-50
Sapphire (Al <sub>2</sub> O <sub>3</sub> )	IRWS300-25	IRWS300-50
Fused Silica (SiO <sub>2</sub> )	IRWS400-25	IRWS400-50
Calcium Fluoride (CaF <sub>2</sub> )	IRWS500-25	IRWS500-50
Zinc Selenide (ZnSe)	IRWS600-25	IRWS600-50

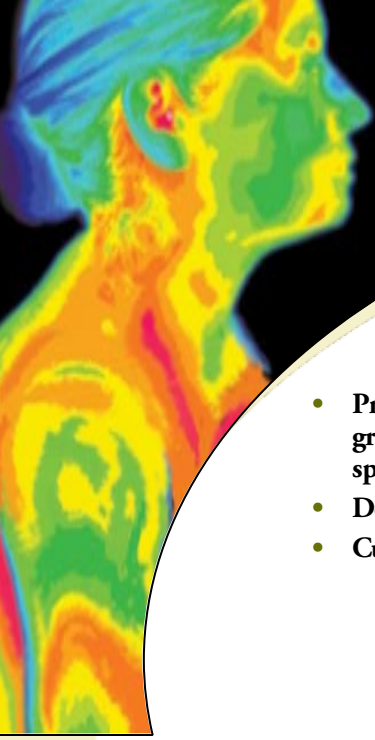


### SILICON

Silicon (Si) is an economical choice for many IR applications.

Refractive index: 3.43 at 3.0µm  
CTE (10-6/°C): 4.15  
Hardness (Knoop): 820





## Infrared Neutral Density Filters

Metallic-coated neutral density (ND) filters obtain their optical density from a metal alloy coating on a substrate determined by the wavelength region of interest. Unlike the all-dielectric or absorption type, the metallic type ND filter employs a combination of absorption and reflection to reduce the intensity of light.

- Provides attenuation with greater linearity over a wide spectral range
- Delivers superior durability
- Custom substrates available

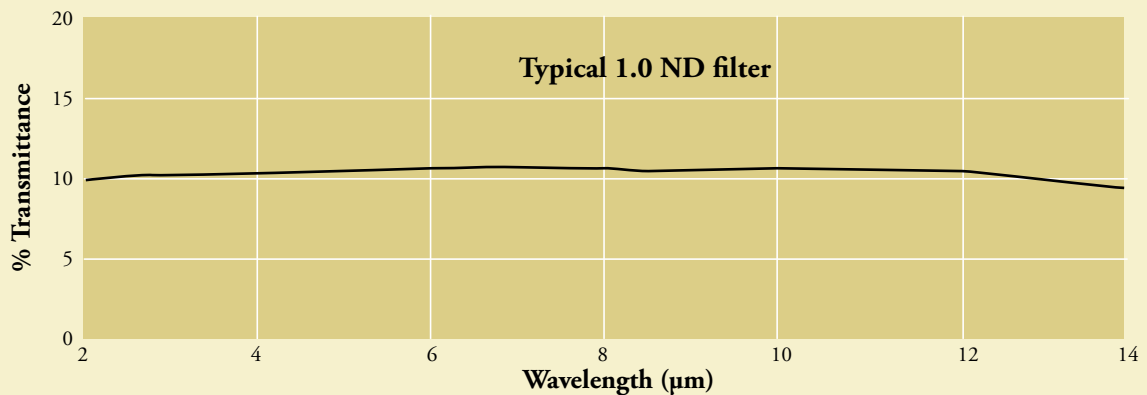
### Applications

Thermal imaging  
 Medical Imaging  
 IR test bench  
 IR photography

### GENERAL SPECIFICATIONS

Thickness	1.0mm
Dimensional Tolerances	±0.2mm
Clear Aperture	90% of outside dimension
Surface Quality	60/40 per MIL-0-13830B
Coating Adherence	Per MIL-M-13508C
Humidity	Per MIL-STD-810F
Substrate Material	Germanium
Optical Quality	Flatness of 3-5 waves per inch and parallelism of 10 arc minutes or better

Optical Density	Nominal Transmittance (%)	Max deviation from nominal	Size, Shape & Part Number	
			25mm Ø ○	50mm Ø ○
0.3	50.12	±3.0	030FNIR-25	030FNIR-50
0.5	31.62	±1.5	050FNIR-25	050FNIR-50
1.0	10.00	±1.0	100FNIR-25	100FNIR-50
2.0	1.00	±0.2	200FNIR-25	200FNIR-50



# HARDWOOD STORAGE CASES

- Hardwood construction
- Plated metal hardware
- Custom engraving available



These cases are a great way to store and organize your filters and optics. All cases are made from hardwood, and utilize sturdy plated hinges and clasps. Choose from a variety of case sizes and foam configurations. Custom laser engraving is also available.

## CASES WITH PRE-CUT FOAM INSERTS

Outside dimensions L x W x H (approx.)	Foam configuration accommodates:	Part Numbers
3.75" x 3.75" x 2.75"	Six filters up to 25mm dia.	CASE-6-25
4.75" x 4.75" x 2.75"	Eight filters up to 25mm dia.	CASE-8-25
4.75" x 4.75" x 2.75"	Twelve filters up to 25mm dia.	CASE-12-25
3.75" x 3.75" x 3.5"	Six filters up to 50mm sq.	CASE-6-50
6.75" x 3.75" x 3.5"	Eight filters up to 50mm sq.	CASE-8-50
6.75" x 3.75" x 3.5"	Twelve filters up to 50mm sq.	CASE-12-50

## CASES WITH FOAM BLANKS

Outside dimensions L x W x H (approx.)	Inside dimensions of base L x W x H (approx.)	Part Numbers
3.5" x 3.5" x 1.5"	2.75" x 2.75" x .5"	CASE-2x2
4.75" x 4.75" x 2.5"	4" x 4" x 1.5"	CASE-4x4
6.75" x 6.75" x 2.5"	6" x 6" x 1.5"	CASE-6x6
9.75" x 9.75" x 2.5"	9" x 9" x 1.5"	CASE-9x9