

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Optical Products Selector Guide

Enhanced Optical Filters, Glass or Plastic
Substrate Materials and EMI Shielding



Parker Chomerics Optical Products Selector Guide

Typical Properties

WIN-SHIELD™ P (Polycarbonate) EMI Shielded Windows														
Product Name	Substrate	Mesh Material	Openings per inch	Wire Diameter inches (mm)	Shielding Effectiveness (100 MHz)	Shielding Level	Maxium Sizes Inches (mm)		Thickness	*Visible light Transmission	Shielding Termination	Surface Finish Options	Design Options	Typical Applications
WIN-SHIELD™ P	Polycarbonate	Blackened Stainless	50 OPI	0.0012 (0.0305 mm)	86 dB	Medium	18"x24" (457.2mm x 609.6mm)		0.020" - 0.500" (0.508mm - 12.7mm)	80%	Silver Busbar, Adhesive, or Conductive Gasket.	Clear, Semi-Gloss, Matte Hardcoats, & Anti-Reflective Surfaces.	Screen Printing, Heat Shielding, Privacy Filters & Other Specific Designs are available.	Ruggedized displays, Military Aerospace, Industrial Applications, Medical, Test Instruments and EMI shielding for Touch Screens
			80 OPI		93 dB	High	48"x96" (1219.2mm x 2438.4mm)			75%				
			100 OPI		96 dB	High				77%				
		Blackened Copper	100 OPI	0.002" (0.0508mm)	94 dB	High				63%				

WIN-SHIELD™ G (Glass) EMI Shielded Windows																					
Product Name	Substrate	Mesh Material	Openings per inch	Wire Diameter inches (mm)	Shielding Effectiveness (100 MHz)	Shielding Level	Maxium Sizes Inches (mm)		Thickness	*Visible light Transmission	Shielding Termination	Surface Finish Options	Design Options	Typical Applications							
WIN-SHIELD™ G	Glass	Blackened Stainless	50 OPI	0.0012 (0.0305 mm)	86 dB	Medium	4'x 10' (1219.2mm x 3048mm)		0.075" - 0.50" (1.27mm - 12.7mm)]	80%	Silver Busbar, Adhesive, or Conductive Gasket.	Anti-Reflective, Anti-Glare, Hydrophobic, Oliophobic,	Screen Printing, Transparent Heaters, Circular Polarizers, Privacy Filters & Hot Mirror.	Ruggedized displays, Military, Aerospace, Industrial Applications, Medical, Test Instruments and EMI shielding for Touch Screens							
			80 OPI		93 dB	High				75%											
			100 OPI		96 dB	High				77%											
		Blackened Copper	100 OPI	0.002" (0.0508mm)	94 dB	High				63%											

WIN-SHIELD™ ITO (Coated) EMI Shielded Windows														
Product Name	Substrate	Material Types	Ohm/sq	Shielding Effectiveness (100 MHz)	Shielding Level	Maxium Sizes inches (mm)		Thickness inches (mm)	Visible light Transmission	Shielding Termination	Surface Finish	Design Options	Typical Applications	
WIN-SHIELD™ ITO	Glass	Clear float, Chemically strengthened, Tempered	4 Ohms	55 db	High	11"X11" (279.4 mm x 279.4 mm)		0.016" - 0.50" 0.4064mm-12.7mm	80%	Silver Busbar, Adhesive or Conductive Gasket	Anti-Reflective, Anti-Glare	Privacy Filter, Transparent heater, and Circular Polarizer.	EMI-shielding for touch screens, Military, Aerospace, and Medical	
			8 Ohms	49 dB	Medium				81%					
			10 Ohms	46 dB	Low				82%					
	Plastic	PET	4 Ohms	55 dB	High	23"x96" (584.2mm x 2438.4mm)		0.020" - 0.500" (0.508mm -12.7mm	78%		Clear, Semi-gloss, Matte hardcoats and Anti-Reflective surfaces	Screen printing, Heat shielding, Privacy filters and other specific applications available	Military, Aerospace, Display protection, Medical and Test instrumentation	
		PET	8 Ohms	49 dB	Medium				84%					

WIN-SHIELD™ A (Acrylic) EMI Shielded Windows																					
Product Name	Substrate	Mesh Material	Openings per inch	Wire Diameter inches (mm)	Shielding Effectiveness (100 MHz)	Shielding Level	Maxium Sizes Inches (mm)		Thickness	*Visible light Transmission	Shielding Termination	Surface Finish Options	Design Options	Typical Applications							
WIN-SHIELD™ A	Acrylic	Blackened Stainless	50 OPI	0.0012 (0.0305 mm)	86 dB	Medium	24" x 36" (609.6mm x 914.4mm)		0.020" - 0.500" (0.508mm - 12.7mm)	80%	Silver Busbar, Adhesive, or Conductive Gasket.	Clear, Semi-Gloss, Matte Hardcoats, & Anti-Reflective Surfaces.	Screen Printing, Heat Shielding, Privacy Filters & Other Specific Designs are available.	Ruggedized displays, Military, Aerospace, Industrial Applications, Medical, Test Instruments and EMI shielding for Touch Screens							
			80 OPI		93 dB	High				75%											
			100 OPI		96 dB	High				77%											
		Blackened Copper	100 OPI	0.002" (0.0508mm)	94 dB	High				63%											

WIN-SHIELD™ C (Cast) EMI Shielded Windows																				
Product Name	Substrate	Mesh Material	Openings per inch	Wire Diameter inches (mm)	Shielding Effectiveness (100 MHz)	Shielding Level	Maxium Sizes Inches (mm)		Thickness	*Visible light Transmission	Shielding Termination	Surface Finish Options	Design Options	Typical Applications						
WIN-SHIELD™ C	Cast	Blackened Stainless	50 OPI	0.0012 (0.0305 mm)	86 dB	Medium	17.7" x 17.7" (450mm x 450mm)		0.05" x 0.23" (1.5 mm - 6 mm)	80%	Silver Busbar with the Addition of a Conductive Adhesive, or Conductive Gasket.	Clear-Gloss or Medium Non-Glare Finish.	Screen Printing, Heat Shielding, and other Specific Designs are available.	High temperature applications, Ruggedized Displays, Military, Command and Control Screens, Aerospace, Industrial and Medical Applications.						
			80 OPI		93 dB	High				75%										
			100 OPI		96 dB	High				77%										
		Blackened Copper	100 OPI	0.002" (0.0508mm)	94 dB	High	18" x 24" (457 mm x 609 mm)			63%										

*Mesh Only

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

Parker Chomerics Optical Products Selector Guide

Typical Properties

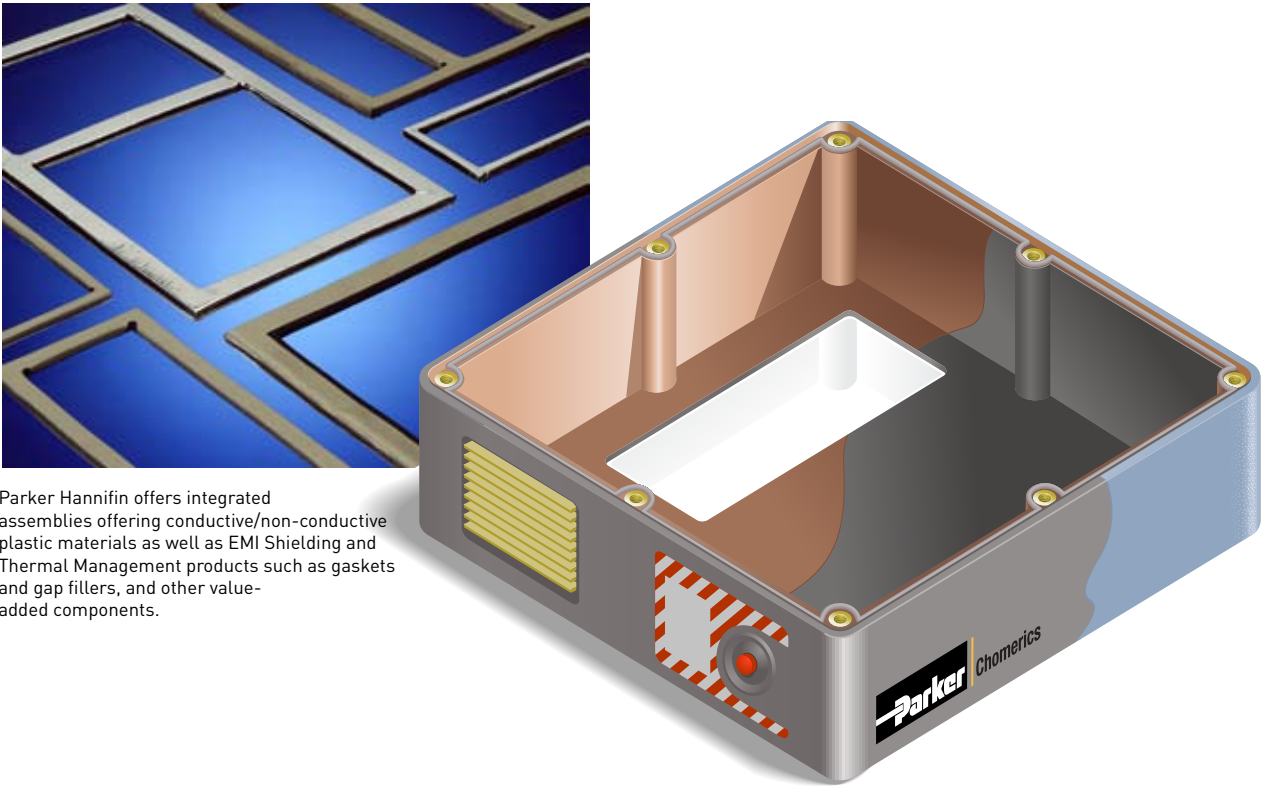
Duralan II™ Unshielded Windows										
Product Name	Substrate	Maxium Sizes inches (mm)	Thickness inches (mm)	Visible light Transmission		Surface Finish Options	Design Options	Typical Applications		
Duralan II™ P	Polycarbonate	48"x96" (1219.2mm x2438.4mm)	0.007" - 0.50" (0.177mm -12.7mm)	88-92%		Clear, Semi-gloss and Matte Hardcoats	Screen printing, Heat shielding, Privacy filters and other specific applications available	Military applications, Aerospace, Medical, Industrial, Display protection and Test Instrumentaiton.		
Duralan II™ AR		23"x96" (584.1mm x 2438.4mm)		90-95%		Clear anti-reflective or Textured Anti-reflective				
Duralan™ G	Glass	69" x 126" (1752.6mm x 3200mm)	.016" - 0.50" 0.4064mm-12.7mm	96-98%		Anti-reflective and Anti-glare	N/A			

WIN-SHIELD™ Mesh and Conductive Film Products										
Unlaminated Products										
Product Name	Substrate	Mesh Material	Openings per inch	Wire Diameter inches (mm)	Sheet Sizes inches (mm)		Thickness inches (mm)	Visible light Transmission	Design Options	Typical Applications
WIN-SHIELD™ Mesh 50	N/A	Blackened Stainless	50 OPI	0.0012" (0.0305 mm)	18"x24" (457.2mm x 609.6mm)		N/A	79.5%	Die-cut to size	Military applications, Aerospace, Display protection, EMI shielding, Medical and Test Instrumentation
WIN-SHIELD™ Mesh 80			80 OPI					75%		
WIN-SHIELD™ Mesh 100		Blackened Copper	100 OPI	0.002" (0.0508 mm)	23.6"x 47.2" (600mm x 1200mm)			63%		
WIN-SHIELD™ F	14 ohm/sq ITO/ Polyester	N/A	N/A	N/A	Sold by the ft (24" width)		0.002" (0.051mm)	74%		

EMI Shielding Comparison Table							
Material Composition	Openings per inch	Shielding Effectiveness (1 MHz)	Shielding Effectiveness (10 MHz)	Shielding Effectiveness (100 MHz)	Shielding Effectiveness (400 MHz)	Shielding Effectiveness (1 GHz)	Shielding Effectiveness (10 GHz)
Stainless Steel	50	108	107	86	66	48	28
Stainless Steel	80	117	109	93	73	56	37
Stainless Steel	100	127	123	96	76	67	46
Copper	100	105	100	94	73	64	38
4 ohm/sq ITO	N/A	108	75	55	45	34	37
8 ohm/sq ITO	N/A	106	71	49	37	30	35

Material Characteristics					
Value	*Polycarbonate	Glass	*Acrylic	Cast	ITO Polyester Film
Operating Temperature	-55° to +70°C	-60° to +110°C	-55° to +60°C	-60° to +100°C	-45° to +100°C
Hardness	M70, (Rockwell)	4.5 GPa (Vickers)	M80, (Rockwell)	M95, (Rockwell)	N/A
Scratch Resistance	Good	Excellent	Good	Good	Fair
Chemical Resistance	Good	Excellent	Good	Good	Fair
Impact Resistance	Excellent	Good with Tempering	Good	Good	Good

*All products supplied with hard coats



Parker Hannifin offers integrated assemblies offering conductive/non-conductive plastic materials as well as EMI Shielding and Thermal Management products such as gaskets and gap fillers, and other value-added components.

Parker Chomerics Optical Products Selector Guide

Parker Chomerics has a broad range of optical products that are offered within the market. This provides a custom design for all applications.

Parker Chomerics offers various accessories such as gaskets, bezels, & frames which offer our customers a complete optical solution. Our optical products consist of glass, polycarbonate, cast, acrylic & polyester substrates.

Glass products feature high light transmission, wear resistance, ability to accept special coatings, and are suitable for use in high-temperature applications.

Polycarbonate and acrylic products are lightweight, impact- and shatter-resistant, while permitting design flexibility.

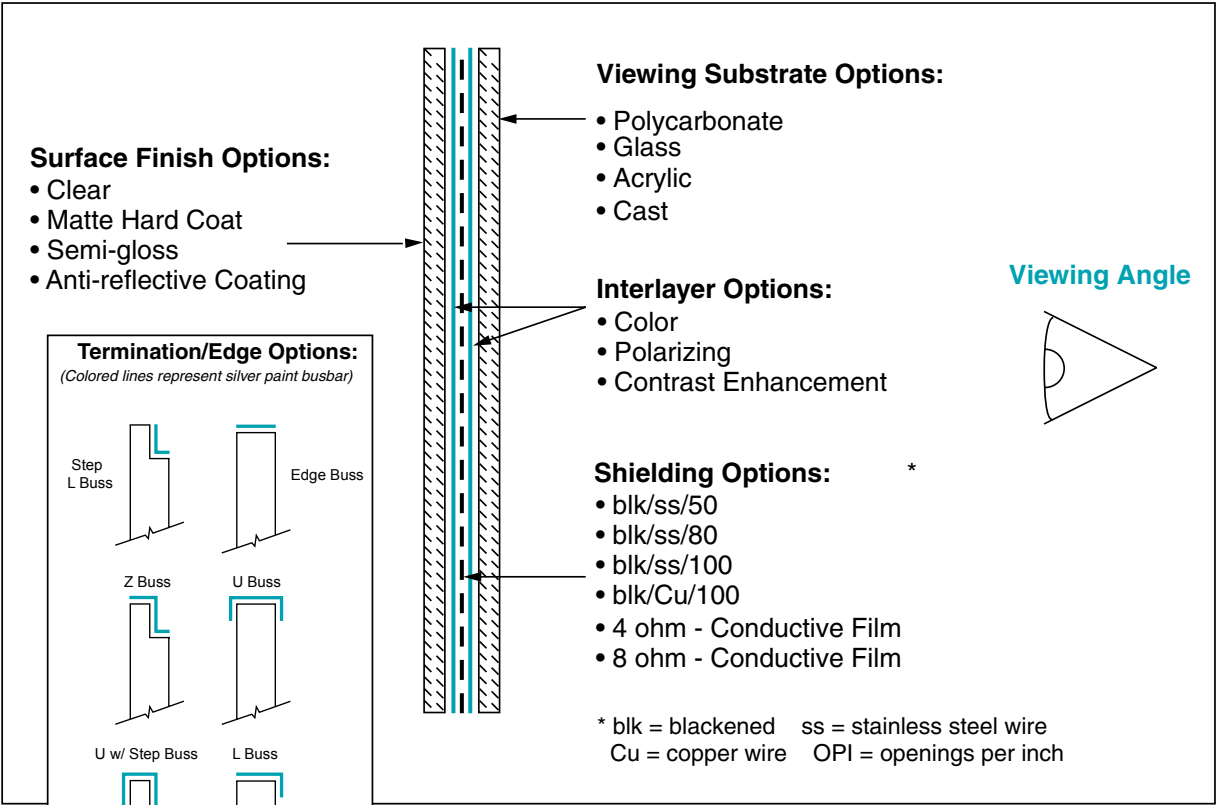
Cast products feature high level physical properties combined with the outstanding shielding performance & optical clarity.

We offer custom enhanced optical filters, hybrid laminated glass and plastic filters with integrated metal mesh for EMI shielding, hydrophobic, oleophobic, anti-reflective and anti-fogging coatings.

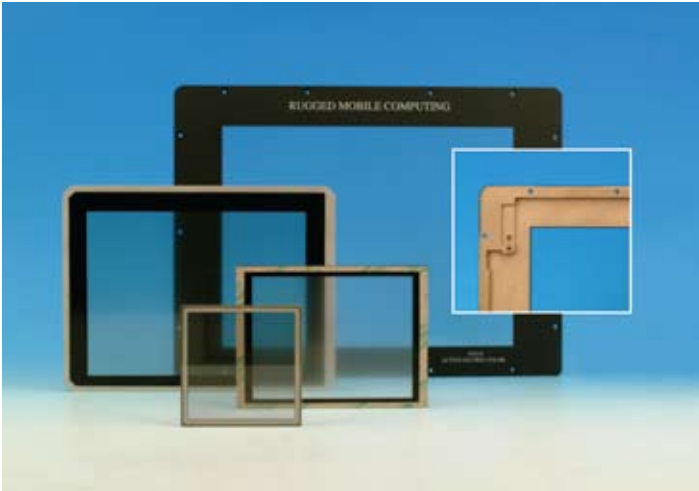
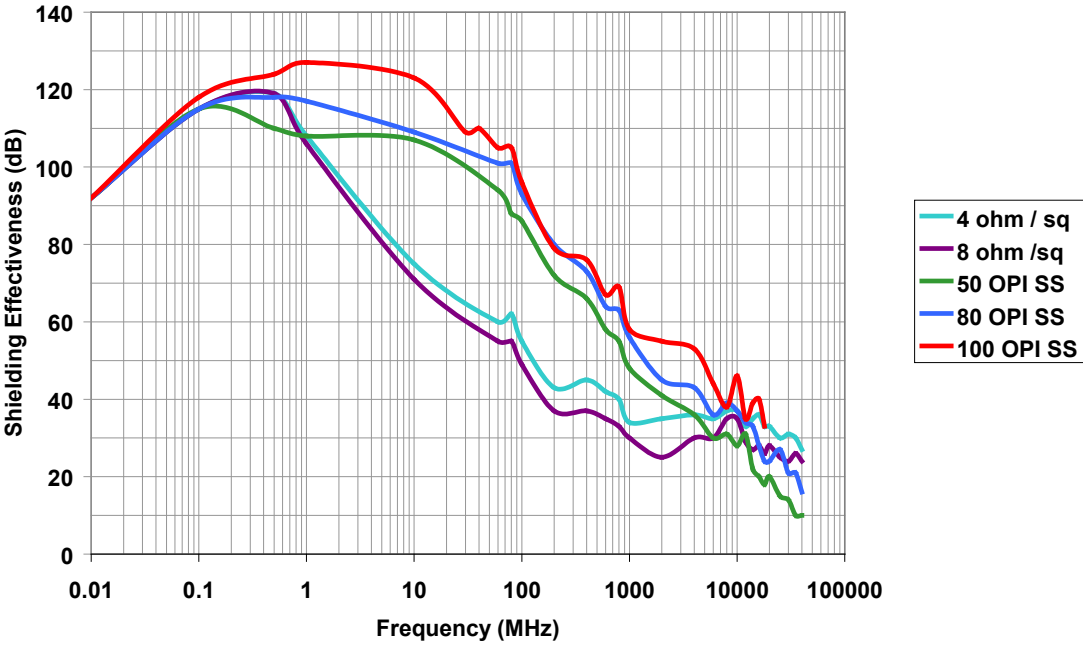
Product Features:

- Anti-Glare
- Anti-Reflective
- Integrated Assemblies
- Directional Viewing
- Flat Shape
- Hard coating
- IR Shield (Hot Mirror)
- Monolithic or Laminate Structures
- Multiple Color embedded graphics
- Printable Surface
- EMI Shielding

Standard Window Options



Windows EMI Shielding Effectiveness



Chomerics Worldwide

Corporate Facilities

To Place an Order Please Contact a Customer Service Representative at the Following Locations

North America

Division Headquarters

Woburn, MA

Phone +1 781-935-4850

Fax +781-933-4318

chomailbox@parker.com

Europe

High Wycombe, UK

Phone +44 1494 455400

Fax +44 14944 55466

chomerics_europe@parker.com

Asia Pacific

Hong Kong

Phone +852 2428 8008

Fax +852 2786 3446

chomerics_ap@parker.com

Cranford, NJ

Phone +1 908-272-5500

Fax + 1 908-272-2741

Saint Ouen l'Aumône, France

Phone +33 1343 23900

Fax +33 1343 25800

Manufacturing Facilities

Woburn, MA; Cranford, NJ ; Millville, NJ; Fairport, NY; Grantham, UK, Beijing; Shanghai; Shenzhen; Tokyo, Japan.

Additional Facilities:

Hudson, NH; Guadalajara & Monterrey, Mexico; Oulu, Finland; Sadska, Czech Republic; Tianjin, China; Chennai, India.

www.chomerics.com

www.parker.com/chomerics

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