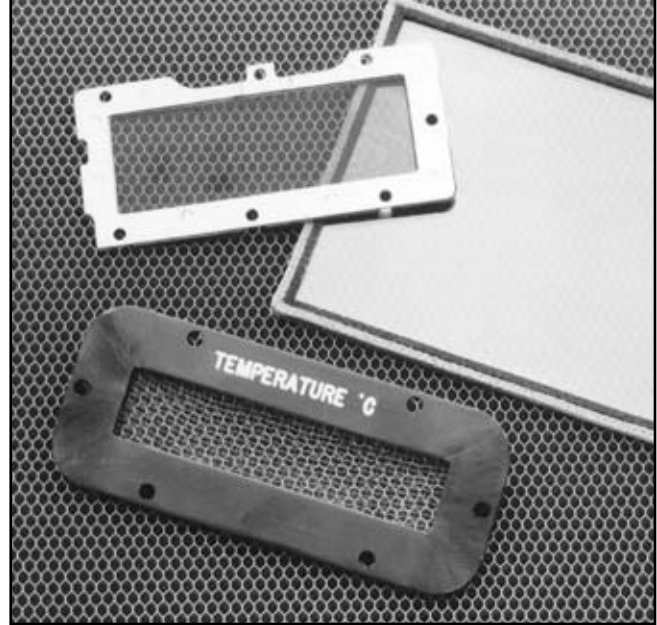


# EMI/RFI Shielded Windows (3500 Series)

MAJR Products provides a range of defined polycarbonate laminates that can be machined, bus barred and gasketed to meet your optical and EMI/RFI Shielding requirements within a short lead-time without compromising quality or performance.



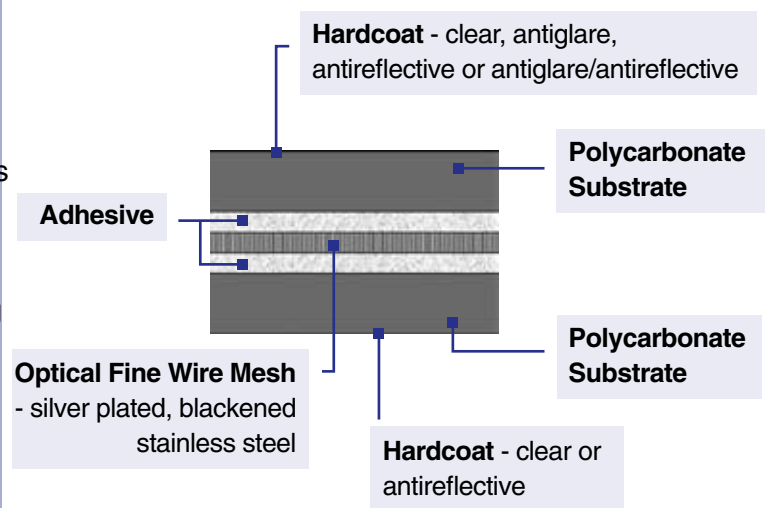
## Features

- **EMI/RFI Shielded Window Properties** – the materials and construction have been optimized to provide superior EMI/RFI shielding performance, optical clarity and environmental durability.
- **Hard Coatings** are designed to provide polycarbonate windows with improved chemical, scratch and abrasion resistance. Hard coatings are applied in a class 10000 clean room via a permanent, high durability UV curing process. Hard coatings are tested for chemical abrasion resistance using ASTM-D-1308 and for abrasion resistance using ASTM-D-1044.
- **Antiglare hard coatings** diffuse surface reflections but still maintain very good uniformity and image resolution for electronic display applications. The standard antiglare hard coating measures 60 gloss units via ASTM-D-523 using a gloss meter at 60 deg.
- **Antireflective hard coatings** improve light transmission and reduce reflection of polycarbonate windows. The antireflective coatings are broad band vapor deposited coatings which reduce surface reflections to less than 0.75% over the visible spectrum. The antireflective coatings are deposited over a clear or antiglare hard coating to combine improved durability with enhanced optical performance.
- **Optical Fine Wire** (OFW) or MEM-100 printed mesh provide excellent EMI/RFI attenuation and optical performance. Standard OFW mesh is 80

strands per inch and constructed from 0.0011" stainless steel wire that has been silver plated and conductively blackened. Resistance of the OFW or MEM-100 mesh is <0.05 ohms/sq. and light transmission is 75% to 80%.

- **Conductive Coatings** provide optical shielding for less demanding applications. A 10 ohms/sq. conductive coating will provide approximately 80% to 85% light transmission and 20-30 dB's of EMI/RFI attenuation from 100 MHz to 1 GHz.
- **Quality** – laminated panels are manufactured, inspected and tested to the S113 specification or as required by the customer.

## Laminated Polycarbonate Features:



# Technical Information\*

## ■ Dimensions (Industry Standards, Custom Available)

Laminate Thickness	Thickness Tolerance	Minimum Part Size	Maximum Part Size	Tolerance up to 200mm	Tolerance >200mm to 400mm	Tolerance >400mm to 650mm	Tolerance on Parts >650mm	Square Edge Profile?	Step Edge Profile?
1.5mm	(+/-) 0.2mm	6.0mm	400mm x 300mm	(+/-) 0.2mm	(+/-) 0.3mm	NA	NA	Yes, Available	No, Not Available
2.0mm	(+/-) 0.2mm	6.0mm	480mm x 650mm	(+/-) 0.2mm	(+/-) 0.3mm	(+/-) 0.5mm	NA	Yes, Available	Yes, Available
3.0mm	(+/-) 0.3mm	6.0mm	700mm x 1100mm	(+/-) 0.2mm	(+/-) 0.4mm	(+/-) 0.5mm	(+/-) 1.0mm	Yes, Available	Yes, Available
4.0mm	(+/-) 0.4mm	6.0mm	700mm x 1100mm	(+/-) 0.2mm	(+/-) 0.5mm	(+/-) 0.5mm	(+/-) 1.0mm	Yes, Available	Yes, Available

## ■ Machining Detail

Holes – Minimum Diameter: 2.0mm  
 90° Countersink: Yes  
 Gasket Grooves: Yes  
 Gasket Groove Minimum Dimensions (wxd): 3.0 x 0.3mm  
 Radius – Minimum Internal or External: 1mm  
 Other Details Available: Custom

## ■ Busbar – All Thicknesses

On Edge Only – “I” Shape: Yes  
 Edge and 1 Surface – “L” Shape: Yes  
 Edge and 2 Surfaces – “U” Shape: Yes  
 Edge, Step and 1 Surface – “Z” Shape: Custom  
 Minimum Width: 2.0mm  
 Busbar Conductivity: <0.2 ohms/100mm

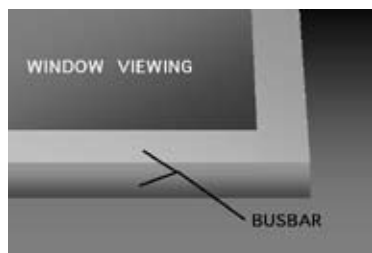
## ■ Optical Specifications

Color: Clear (Standard) / Colors (Custom)  
 Surface Finish: Clear or Non-Glare Hard Coat  
 Light Transmission: 80% - 85% (Standard)  
 Mesh Angle: 22.5°, 30°, 45°, 90° Tolerance +/-5°  
 Cosmetics: ISO 9001:2000 Visual Inspection Procedure

\*All technical information and specifications are based on industry standards and common application dimensions and finishes. If your needs fall outside these parameters, please contact our sales department. We have done many specialized designs for our customers and would welcome the opportunity to work with you on your requirements.

## ■ Silver Epoxy Busbar

Silver epoxy busbar is applied to the perimeter of machined windows for conductivity / connectivity to a metal bezel or the metal case, faceplate, door, etc. Ceramic busbars are also available but are more highly specialized to applications and not a typical standard solution.



## ■ Typical Bus Bar Shapes

### I-Shape

On outer edge of window only.



### L-Shape

On outer edge of window & one surface.



### U-Shape

On outer edge of window & two surfaces connecting



### Z-Shape

On outer edge of window & “step” & one surface.



## ■ Typical Busbar Widths (mm)

2.0mm | 3.0mm | 4.0mm | 5.0mm

6.4mm | 10.0mm | 12.7mm

15.0mm

\*Others by request / per custom design.