

V-22 Osprey windshields and windows



U.S. Navy Photo Mass Communication Spc. 2nd Class Tamara Vaughn

The transparencies for the V-22 Osprey tiltrotor aircraft are among the most sophisticated and technologically advanced, and PPG's aerospace business is the original designer and supplier. The large size and complex configurations of the V-22 transparencies and the coatings require precise manufacturing capabilities that PPG is uniquely able to provide. PPG has continued to supply transparencies with exceptional performance and design upgrades that incorporate the latest technologies. New designs are expected to provide a service life that is double the earlier configuration as a result of their improved coatings systems.

Military transparencies leader

A leading and experienced manufacturer of windshields, canopies, windows, blast barriers and specialty transparencies for military applications, PPG has a broad range of capabilities to design and produce advanced-technology transparencies that meet the demanding requirements of military air and surface operations.

PPG offers a variety of transparent structural materials tailored to aerospace applications.

Plastic substrate materials currently in production include acrylic that is strong and lightweight, and polycarbonate that has superior impact resistance and a high strength-to-weight ratio. PPG also is developing exciting, new transparent structural materials with superior structural properties that have the potential to replace both acrylic and polycarbonate.

For example, PPG OPTICOR™ Advanced Transparency Material provides unprecedented performance and unique design capabilities that meet the demanding needs of today's aerospace industry. This innovative high-performance, proprietary PPG plastic is superior to other commonly used aerospace plastics, offering exceptional resistance to abrasion, chemicals, ultraviolet degradation and fire. Because it resists crazing, PPG *Opticor* Advanced Transparency Material maintains optical clarity. It has lower density than stretched acrylic and low moisture absorption, and it is an excellent substrate for metallic and nonmetallic coatings. Unique non-uniform shapes can be created with PPG *Opticor* Advanced Transparency Material.

PPG proprietary interlayers bond the plies together and provide ballistic properties, bird-impact resistance and pressure "fail-safe" capability.

Proprietary electrical heating systems provide anti-ice/anti-fog protection.

Windshield and windows

Features	Benefits
Original-equipment supplier from program inception	<ul style="list-style-type: none"> • Proven reliability • Latest design and upgrades • Worldwide customer and technical support
Latest designs have new coatings technology	<ul style="list-style-type: none"> • Expected to double transparency service life over previous design

Windshield

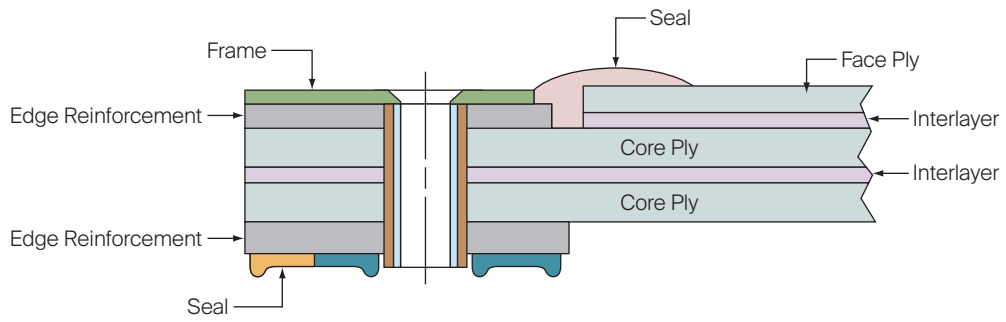
Features	Benefits
Acrylic-Polycarbonate Laminate	<ul style="list-style-type: none"> • Superior bird-strike performance • Superior optics • Superior environmental durability
Inboard protective Coating	<ul style="list-style-type: none"> • Enhances service life • Chemical, abrasion and scratch resistance
Proprietary heating system	<ul style="list-style-type: none"> • Uniform, full-coverage heating • Superior optics
Proprietary coatings	<ul style="list-style-type: none"> • Operational and environmental protection • Electromagnetic interference shielding

Fuselage windows

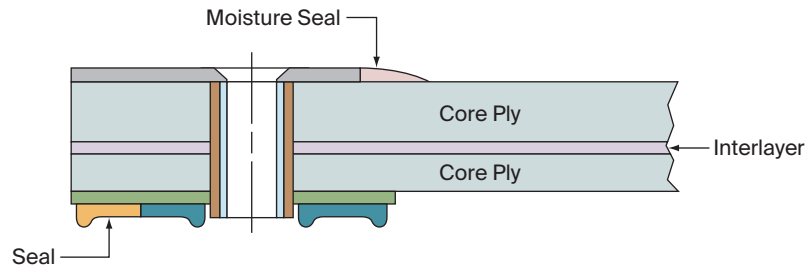
Features	Benefits
Polycarbonate core ply	<ul style="list-style-type: none"> • High strength-to-weight ratio
Proprietary coatings	<ul style="list-style-type: none"> • Operational and environmental protection • Electromagnetic interference shielding

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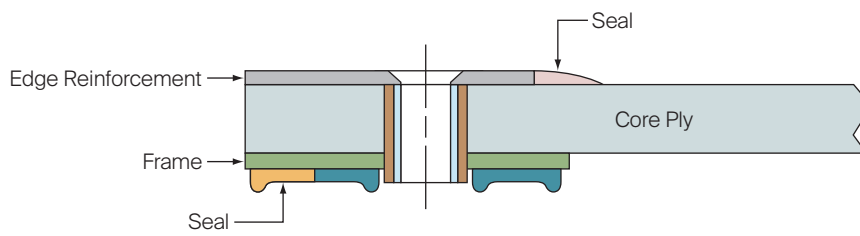
Windshield



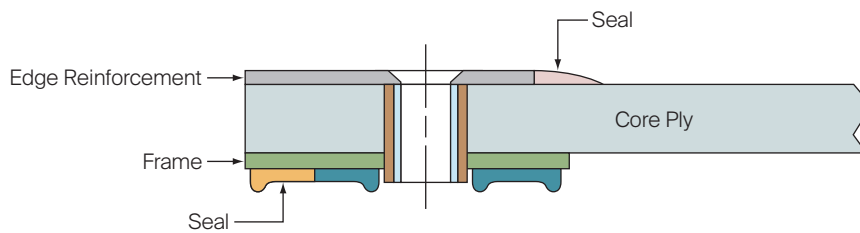
Pilot door window



Side window

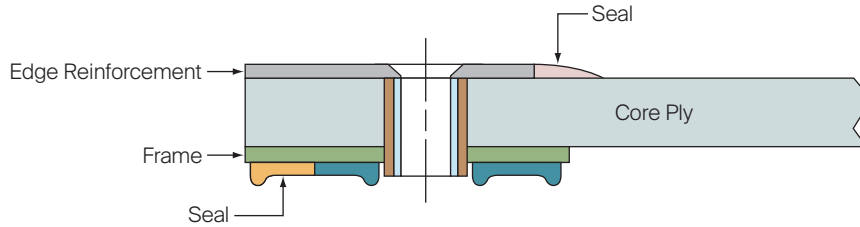


Overhead window

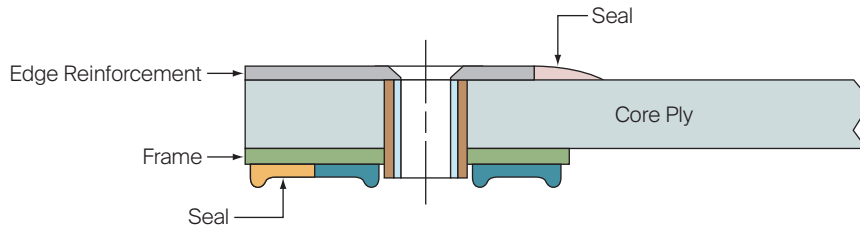


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Lower window



Cabin window



Part numbers

Current design	PPG part number	OEM part numbers	U.S. National stock number
Pilot main windshield	188000-01	901-947-756-301	1560-01-513-4332
Copilot main windshield	188000-02	901-947-756-302	1560-01-513-4333
Pilot side window	195700-01	901-947-756-327	1560-01-502-6129
Copilot side window	195700-02	901-947-756-328	1560-01-502-6111
Pilot overhead window	195900-01	901-947-756-303	1560-01-502-6124
Copilot overhead window	195900-02	901-947-756-304	1560-01-504-8888
Pilot lower window	196000-01	901-947-756-307	1560-01-502-6123
Copilot lower window	196000-02	901-947-756-308	1560-01-502-6126
Pilot door window	196100-01	901-947-756-312	1560-01-553-2995
Cabin window	195800-01	901-947-756-309	1560-01-504-6713
Next-generation design			
Pilot main windshield	188000-03	901-947-756-401	1560-01-615-9025
Copilot main windshield	188000-04	901-947-756-402	1560-01-615-9024
Pilot side window	195700-03	901-947-756-427	
Copilot side window	195700-04	901-947-756-428	
Pilot overhead window	195900-03	901-947-756-403	
Copilot overhead window	195900-04	901-947-756-404	
Pilot lower window	196000-03	901-947-756-407	
Copilot lower window	196000-04	901-947-756-408	
Pilot door window	196100-03	901-947-756-412	
Cabin window	195800-03	901-947-756-409	
Clarity Transparency Cleaning System	599306		

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PPG advanced coatings and technologies help protect transparencies and aircrews from operational or environmental threats, and provide a variety of performance enhancements. A few of these are solar heat reduction, laser protection, and electromagnetic interference (EMI) shielding. Such technologies are designed to be compatible with night vision systems and other optical requirements.

PPG transparencies have flown and participated in numerous air and surface military missions. The company is a leader in its transparency technical capabilities and infrastructure, OEM and operator support, and ability to supply parts worldwide on a timely and affordable basis.

CLARITY™ Transparency Cleaning System

PPG has developed *Clarity* Transparency Cleaning System for easy removal of debris on plastic transparencies while

adding protection to facilitate future cleanings and potentially increase service life. In a two-part process, a wet wipe saturated with a proprietary blend is applied to the substrate to remove superficial debris, and then a dry wipe is used to take off any haze. Kits containing both types of wipes are available. Contact your PPG aerospace sales representative for more information and to order *Clarity* Transparency Cleaning System.

Ordering information

Orders may be placed through PPG aerospace's worldwide network of application support centers (ASCs). For the ASC nearest you, visit www.ppgaerospace.com.

In North America, call toll-free +1 (800) AEROMIX.

Pricing, warranty and delivery details are available from your PPG Aerospace sales representative.

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