

MPI 2709 PWF

Perforated Window Film 40/60

Revision 4

Introduction

Avery Dennison® MPI 2709 PWF is a digital printable gloss white/black perforated calendered vinyl film for use in a wide range of promotional window graphics applications where one way vision, removability and value for money is required.

Used on commercial vehicles* for continuous, uninterrupted vehicle graphics covering painted and window areas, and large size graphics on building windows that still provide sufficient interior daylight and exterior viewing capabilities. The use of an optically clear, compatible overlaminate is recommended to prevent the holes from filling with water and/or dirt to ensure clear vision, suitable laminates can be found in ICS Warranty Documents for your printer.

*Not recommended for use on private passenger vehicles.

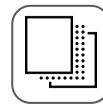
Common Applications

- Window graphics
- Vehicle & bus window graphics
- Building wraps
- Retail & commercial signage
- Bus shelters POP displays
- Other transparent surfaces



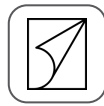
Face Film

150 micron, white/black perforated polymeric calendered PVC



Adhesive

Removable acrylic



Backing

One side PE coated non-perforated Kraft paper, 168g/m²



Outdoor life**

Up to 3 years unprinted

Features

- Excellent printability and handling on all latex, eco-solvent and solvent inkjet printers
- Perforated film with white print face, black on adhesive side for one way vision graphics
- High strength perforated film with gloss white print face, black on adhesive side for one way vision graphics
- 1.5 mm holes with 40% open perforated area
- Very good outdoor durability and dimensional stability
- Very good adhesion on glass and transparent substrates
- One side PE coated StaFlat liner for excellent printing and handling
- Removable with heat up to 1 year with little or no adhesive residue
- For solvent or eco solvent printed graphics, it is recommended to cure the ink for 5 days before applying an overlaminate or installing the material.

Conversion

- Flatbed cutters
- Friction fed cutters
- Die cutting
- Thermal transfer
- Screen printing
- Offset printing
- Cold overlaminate
- Electrostatic printing
- Eco solvent inkjet
- Solvent inkjet
- UV curable inkjet
- Latex inkjet

Certified for
HP Latex Inks

Applications

- Avery Dennison Graphics recommend a maximum ink limit of 250% to ensure optimal performance
- Refer to [Instructional Bulletin 1.01](#) for Substrate Cleaning and Preparation
- Refer to [Instructional Bulletin 4.06](#) for Processing Tips for Laminating Films (DOL)
- Refer to [Instructional Bulletin 4.14](#) for Introduction to Digitally Printed Graphics
- Refer to [Instructional Bulletin 1.5](#) for Application Instructions for Perforated Window Films

General

Caliper, face film	ISO 534	150 micron
Caliper, face film & adhesive	ISO 534	178 micron
Dimensional stability	FINAT FTM-14	1.0mm max
Elongation	DIN EN ISO 527 (Unprinted film)	Min 50% (MD/CD)
Tensile strength	DIN EN ISO 527 (Unprinted film)	Min 5 MPa (MD/CD)
Open area		40%
Perforation diameter		1.5mm
Adhesion, ultimate	FINAT FTM-1, Stainless steel	160 N/m
Adhesion, ultimate	FINAT FTM-1, Stainless steel	320 N/m
Flammability		Self extinguishing
Shelf life	Stored at 22° C/50% RH	2 years
Expected Durability**	Vertical exposure	Up to 3 years (unprinted)

Thermal

Application temperature	Minimum: + 10°C
Temperature range	-20°C to +65°C

Chemical

Avery Dennison® perforated window films are resistant to water, humidity, solvents, most mild acids, alkalies and salt. Due to the open structure of the film, exposure must be limited to an absolute minimum. To avoid damage to the printed image, Avery Dennison recommend that prints be protected with an appropriate overlamine. Over Laminated Avery Dennison® Perforated Window Film has the same resistance to chemical substances as the overlamine film. Avery Dennison® Perforated Window Films are also resistant to most commonly used cleaning detergents. Thorough rinsing and following the recommended use and exposure to the cleaning detergent is advised. Before use, always test to ensure that cleaning detergent will not damage un laminated prints.

Note

Materials have to be properly dried and cured before further processing, like laminating, varnishing, trimming, contour cutting or application. The residual solvents can otherwise change the products' specific features and properties.

Important

Information on physical characteristics is based upon tests we believe to be reliable. The values listed herein are typical values and are not for use in specifications. They are intended only as a source of information and are given without guarantee and do not constitute a warranty. Purchasers should independently determine, prior to use, the suitability of any material for their specific use.

All technical data is subject to change without prior notice.

**Expected Durability

The expected durability of Avery Dennison films are defined as the expected performance life of the Avery Dennison graphic film(s) within Zone 1 of the Avery Dennison zone system, in outdoor vertical exposure conditions. The actual performance life will depend on a variety of factors, including selection and preparation of substrate, angle and direction of exposure, application methods, environmental conditions and cleaning/maintenance of the films. In case of films used in areas of high temperatures or humidity, high altitudes and industrially polluted areas the performance will be further reduced.

Warranty

Avery Dennison® materials are manufactured under careful quality control and are warranted to be free from defect in material and workmanship. Any material shown to our satisfaction to be defective at the time of sale will be replaced without charge. Our aggregate liability to the purchaser shall in no circumstances exceed the cost of the defective materials supplied. No salesman, representative or agent is authorised to give guarantee, warranty, or make any representation contrary to the foregoing. All Avery Dennison® materials are sold subject to the above conditions, being part of our standard conditions of sale, a copy of which is available on request.

^^ Removability

Not removable when applied to nitrocellulose paints, fresh screen print inks, ABS, polystyrene & certain types of PVC.

Expected Durability and Warranted Period Definitions

Expected durability is the expected period of time defined in the product data sheet, the product should, but is not warranted to, perform satisfactorily when applied in vertical exposure conditions as defined in [Instructional Bulletin 1.30](#). The warranted period as defined in the appropriate ICS Performance Guarantee Bulletin, is the maximum period of time Avery Dennison will warrant the finished products performance in accordance with ICS Performance Guarantee Terms and Conditions 1.0, provided that the film is properly stored, converted and installed in accordance with Avery Dennison guidelines.

Testing Methods

Dimensional stability:

Is measured on a 150 x 150 mm aluminium panel to which a specimen has been applied; 72 hours after application the panel is exposed for 48 hours to + 70°C, after which the shrinkage is measured.

Adhesion:

(FTM-1, FINAT) is measured by peeling a specimen at a 180° angle from a stainless steel or float glass panel, 24 hours after the specimen has been applied under standardised conditions. Initial adhesion is measured 20 minutes after application of the specimen.

Flammability:

A specimen applied to aluminium is subjected to the flame of a gas burner for 15 seconds. The film should stop burning within 15 seconds after removal from the flame.

Temperature range:

A specimen applied to stainless steel is exposed at high and low temperatures and brought back to room temperature. 1 hour after exposure the specimen is examined for any deterioration. Note: Prolonged exposure to high and low temperatures in the presence of chemicals such as solvents, acids, dyes, etc. may eventually cause deterioration.

Chemical Resistance:

All chemical tests are conducted with test panels to which a specimen has been applied. 72 hours after application the panels are immersed in the test fluid for the given test period. 1 hour after removing the panel from the fluid, the specimen is examined for any deterioration.

Corrosion Resistance:

A specimen applied to aluminium is exposed to saline mist (5% salt) at 35°C. After exposure, the film is removed and the panel is examined for traces of corrosion.



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