



Panagraphics™ III

Wide Width Flexible Substrate

For Cut Film Decoration and Piezo Inkjet Direct Printing

Product Description

3M™ Panagraphics™ III has a smooth front surface and a semi gloss finish. Decorating options included direct printing with Piezo Inkjet inks before attaching it to an extrusion, or decorate it with printed or unprinted cut film before or after attaching it to a frame or extrusion. The substrate is a cost-effective choice for seamless, wide width backlit signs used in medium to long-term installations.

Advantages

- Can be attached to a variety of extrusions
- Direct Piezo Inkjet printing
- Decorate with cut or screen printed film before or after attaching to a frame or extrusion
- Flame-resistant. See Flammability on page 5.

Applications and Uses

Panagraphics substrate is intended for making durable, flexible signs when used with the listed Compatible Products in the following applications.

- Indoor and outdoor, day and night graphics for backlit signs

Limitations of Uses

3M specifically does not recommend or warrants the following uses, but please contact us to discuss your needs or recommend other products.

- Removing existing graphics and reusing the substrate
- Graphic decoration with more than three layers of film (base film plus overlamine)
- Using 3M™ Scotchcal™ Overlamine 3640GPS or SC3642GPS for graphic protection
- Second surface film decorating

Compatible Products and Equipment

Cut Film Decoration

- 3M™ Scotchcal™ Translucent Film Series 3630
- 3M™ Scotchcal™ Translucent Film Series IJ3630-20, RG3630-20 and FN3630-20
- 3M™ Scotchcal™ Translucent Film Series 2330

Direct Piezo Inkjet Printing

- VUTEk® 150, 2360/3360, 3300/5300
 - 3M™ Piezo Inkjet Series 1500v2
- 3M™ Printer 2500 UV
 - 3M™ Piezo Inkjet Series 2600UVv2
- Durst Rho 160R Printer
 - 3M™ Piezo Inkjet Series 2700UV
- VUTEk® QS2000/QS3200
 - 3M™ Piezo Inkjet Series 2800UV
- Mutoh Spitfire Extreme 65/90/100 and
- Mutoh Blizzard 65/90
 - 3M™ Piezo Inkjet Series 600

Graphic Protection Options

- 3M™ Screen Print Gloss Clear 1920DR
- 3M™ Screen Print UV Gloss 9720UV/9720i
- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520

Characteristics

These are typical values for unprocessed product.

Contact your 3M representative for a custom specification.

Characteristic	Value
Substrate	White-pigmented vinyl with a Polyester scrim
Thickness	0.054 cm ± 0.001
Roll sizes	A variety of widths ranging from 150 cm to 419 cm x 50 m (59 inches to 165 inches x 164 feet.)
Service temperature range	-30°C to +70°C (-22°F to +158°F)
Light transmission	21% ± 2 %
Tensile strength	<i>Typical</i>
Tear weft	15 kg/cm (85 pounds/inch)
Tear warp	13.4 kg/cm (75 pounds/inch)
Tensile weft	26.6 kg/cm (150 pounds/inch)
Tensile warp	26.6 kg/cm (150 pounds/inch)
Weight	650 g/m ² (19 ounces/sq. yd.)
Maximum finished size	58 m ² (625 square feet) per warranted face
Gloss	30 (typical) with 60° gloss meter
Whiteness index (reflective)	W.I. (E313) = 100 minimum
Approval Standards	NFPA 701.1 & NFPA 701.2 U.L.48 – Standard for Electrical Signs: Recognized Component ASTM E84, Class 1 DIN 4102 Part 1, class B 1

- NFPA = National Fire Protection Association
- ASTM = American Society of Testing and Material
- DIN = Deutsches Institut für Normung

Graphic Performance Life

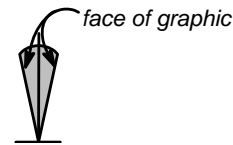
The actual performance life of a graphic depends on the:

- Use of 3M compatible products
- Decorating and imaging method
- Proper selection and preparation of the substrate
- Application methods
- Angle and direction of exposure
- Environmental conditions
- Cleaning methods

Warranty Notes Definition

Vertical Exposure

The face of the graphic is ± 10° from vertical.



Geographical Zones

- Zone 1:** Northern & Central Europe
- Zone 2:** Mediterranean Europe
- Zone 3:** Northern Africa and Middle East

3M™ MCS™ Warranty

Finished Graphics Construction

See the 3M Graphics Center Warranty Brochure for the complete warranty and remedy details. The warranty given in the Product Bulletin that is current at the time you purchased the film is the one that 3M will honor.

Vertical Outdoor Exposure Warranty in Years					
Film	Ink series	Graphic Protection	Geographical Zones		
			1	2	3
Unprinted Cut Film Decoration Applied to 3M™Panagraphics™ III Substrate					
3630	None	None	6	5	3
2330	None	None	5	4	3

Screen Printed Cut Film Decoration Applied to 3M™Panagraphics™ III Substrate					
3630	1900	1920DR	5	4	3
3630	9800 UV	9720 UV/9720i	5	4	3

Piezo Inkjet Printed Cut Film Decoration Applied to 3M™Panagraphics™ III Substrate					
IJ3630-20	Refer to Product Bulletin PIJ3630.				
FN3630-20	Protected with SC8519/SC8520/1920 DR/9720i		4	3	2
RG3630-20	Refer to Product Bulletin PIJ3630.				
	Without protection		3	3	2

Piezo Inkjet Direct print to 3M™Panagraphics™ III Substrate					
None	1500v2 *	8519 or			
	2600UVv2	8520	4	3	2
	2700UV				
	2800UV	none	3	3	2
	600				

* For Ink series 1500v2, when direct printing and no laminate, requires printing in double-strike mode to provide adequate back-lit color density and image durability

Warranty Exceptions

3M does not warrant the following for Panagraphics III substrate

- Graphic failures due to design requirements that exceed the stated specifications
- Film or ink cracking due to substrate flexing in cold temperatures
- Ripping, tearing, or damage due to the effects of inadequate cabinet construction, weather, environment or a force majeure
- Graphics used in a non-vertical exposure

Making Graphics with Film Series 3630 or 2330

Applying to Panagraphics III substrate, film series 3630 can be screen printed and/or electronically cut, and film series SC2330 can only be electronically cut. Apply the film to the substrate using the wet application method or dry/roll lamination for front-lit graphics.

No more than two layers of film may be applied to the substrate.

The minimum recommended decorating temperature is 15°C. Also see **Tensioning and Attachment Guidelines**.

Follow Instruction Bulletin 5.30 for details on preparing the substrate and wet application techniques.

Printing with Piezo Inkjet Printers

For the best results, follow the printing guidelines and procedures in Instruction Bulletins for the ink series you are using.

Panagraphics III substrate can be direct printed using ink series 1500v2, 2600UVv2, 2700UV, 2800UV and 600. To obtain a warranty, ink series 1500v2 must be printed in double-strike mode if graphic protection is not used.

You can also print films IJ3630, FN3630 or RG3630 as described in Product Bulletin PIJ3630 and apply it to Panagraphics III substrate in sheets or as cut graphics.

Total Ink Coverage

The ink coverage required for your graphic will be determined by whether the Panagraphics III substrate will be used for a banner or backlit graphic. Backlit images require greater density, which is achieved by using the printer's double strike input mode. When using this mode, you have exceeded the maximum total ink coverage when you can no longer obtain color consistency throughout the graphic and/or the graphic cannot be adequately dried after printing. Do not exceed 300% total ink coverage.

Adequate Dry Graphics

Always build enough time into your process to ensure adequate drying of the image before doing further processing. Refer to the ink's Product Bulletin for important details on drying.

When direct printing on Panagraphics III, an inadequately dried image may result in these problems, which are not covered by the warranty:

- Prevent the overlaminates from adhering well.
- Distort the image if the printed substrate is rolled immediately.

When printing on film that will be cut and applied to Panagraphics III, also refer to the film's Product Bulletin for details about drying.

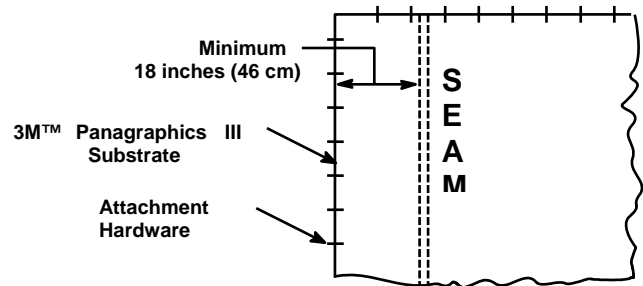
Fabrication

Graphic Protection

To maximize the performance of your sign, 3M recommends using one of the approved graphic protection options specified in this Product Bulletin to provide additional resistance to abrasion or wear due to frequent cleaning.

Planning for a Seam

Plan your sign face so that the seam is at least 46 cm (18 inches) away from any attachment hardware that is perpendicular (at right angles) to the seam.



Tensioning and Attachment Guidelines

Attaching and Tensioning

- 3M recommends attaching and tensioning this substrate in a cabinet at a temperature equal to or more than 7°C (45°F), whether the work is being done in a fabricator's shop or in the field.
- Any existing attachment system used currently should be tested prior to actual application.

Cold Temperature Field Installation

- Artificially warm the decorated substrate to at least 7°C (45°F) before attaching or tensioning the sign face in a cabinet or frame.
- Do not stress the decorated substrate by folding, crimping, creasing, or forming it around corners. In cooler temperatures, the films applied to the substrate become less flexible and may crack if handled roughly.
- Check and re-tension large sign faces as needed when the temperature warms to more than 15°C (60°F). A large sign face is one that is more than 25 m² (275 square feet) and has a height that exceeds 3.3 m (11 feet) or a width that exceeds 7.5 m (25 feet).

Cleaning

Use only mild detergent and water for cleaning. Clean the finished graphic annually. Clean the graphic more often in unusually dirty environments.

Shelf Life, Shipping and Storage

See Instruction Bulletin 6.5 for details.

Refer to the film's Product Bulletin for details on proper handling of the film.

Shelf Life and Storage

This substrate may be stored for up to 6 months undecorated and up to an additional 6 months decorated under the following conditions:

- Original container
- Away from direct sunlight
- In a cool, dry environment
- Bring all media to print room temperature before using.

Rolling a finished Sign Face for Shipping

Selecting a Core Size

- For a graphic with a single film layer, use a core that is at least 7.6 cm (3 inches) in diameter.
- For a graphic with multiple film layers, use a core that is at least 15 cm (6 inches) in diameter.

Rolling the Graphic

- Roll the graphics with the graphics facing out to help prevent damage.
- Do not use masking tape, which may stain the substrate, to secure the roll.

Health and Safety

Refer to the package label and the Material Safety Data Sheet for health, safety, and handling information on the products referenced in this bulletin. For 3M products, if necessary, you may contact our Toxicology/Product Responsibility Department.

Flammability

Panagraphics III substrate when printed with 3M inks and without any graphic protection passes NFPA 701 Test 1 and Test 2, "Standard Methods of Fire Tests for Flame-Resistant Textiles and Films."

Panagraphics III substrate when printed with 3M ink series 1500 passes the DIN 4102 Part 1 test with class B 1.

Substrate with graphics protection was not tested.

Important Notice

This bulletin provides technical information only.

All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law.

Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.

3M Related Literature

Listed below is related 3M technical literature that may be of interest.

Bulletins	Bulletin No.
3M™ Piezo Inkjet Ink Series 1500v2	PB-IB 1500
3M™ Piezo Inkjet Ink Series 2600UVv2	PB-IB 2600UVv2
3M™ Piezo Inkjet Ink Series 2700UV	PB-IB 2700UV
3M™ Piezo Inkjet Ink Series 2800UV	PB-IB 2800UV
3M™ Piezo Inkjet Ink Series 600	PB-IB 600
3M™ Scotchcal™ Translucent Graphic Film Series 3630	PB 3630
3M™ Scotchcal™ Translucent Graphic Film Series IJ3630-20 all versions	PB PIJ 3630
3M™ Scotchcal™ Translucent Graphic Film Series IJ3630-20 all versions	PB 2330
3M™ Scotchcal™ Luster Overlaminate 8519 and Matte 8520	PB 8519/8520
3M™ Screen Print Gloss Clear 1920 DR	PB 1900
Applying screen printing clear 1920 DR	IB 3.12
3M™ Screen Print Gloss Clear 9720UV and Matte Clear 9730UV	PB 9700
Applying screen printing clears 9720UV and 9730UV	IB 3.4
3M™ Screen Print UV Gloss Clear 9720i	PB-IB 9720 i
Scoring and cutting	IB 4.1
Using 3M application tapes; premasking and prespacing for films	IB 4.3
Cold roll lamination	IB 4.22
Substrate selection and preparation of Graphic Application	IB 5.1
Application, General procedures for indoor and outdoor dry applications	IB 5.5
Application of 3M pressure sensitive films to Panagraphics substrate	IB 5.30
Cleaning and repairing decorated awnings	IB 6.1
Storage, handling, maintenance, removal	IB 6.5

For Further Assistance

For help on specific questions relating to 3M
Commercial Graphics products, please contact your local
3M Technical Service person or contact:

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