



3M™ Controltac™ Graphic Film

- IJ160
- with Comply™ Adhesive IJ160C

For the most current 3M Technical Information available to successfully use this product, please view this Bulletin electronically and click on the blue underlined links to view the relevant documents.

For Solvent, UV and Latex Inkjet Printing Only

1. Product Description

A. Product Features

- 4-mil, opaque white, vinyl film with a matte finish
- Pressure-activated adhesive for easy sliding, tacking, snap up and repositioning
- Film IJ160C-10 also has Comply™ Adhesive air release channels for fast, easy, bubble-free graphic installations
- Excellent hiding power
- Removable with heat

B. Recommended Types of Graphics and End Uses

When constructed and used as described in this Bulletin, these types of graphics and end uses may be warranted by the [3M™ MCS™ Warranty](#) or the [3M Performance Guarantee](#). Please read the entire Bulletin for details.

- Graphics, emblems and striping for straight trucks, semi-tractors and semi-trailers
- Outdoor and indoor graphics and signs
- Vending or dispensing machine and cooler graphics

C. Performance Overview

3M tests the performance of both individual products and finished graphic constructions. This table shows the best performance expected from this product both without a Warranty Period and with a Warranty Period.

For detailed graphic construction and application options along with specific Warranty Periods, please see the Warranty Information, Section 5 on page 5.

Expected Performance Life. This is the estimated period of time the product should perform satisfactorily.	
Unprinted film with no graphic protection, applied to a flat vertical outdoor surface.	7 years Unwarranted Period
3M™ MCS™ Warranty. This is the maximum period of time 3M will warrant the finished graphic performance.	
Printed film with the best 3M ink and graphic protection option, applied to a flat, vertical, vehicle surface.	3 years Warranty Period
3M Performance Guarantee. This is the maximum period of time 3M will warrant the performance of the 3M materials used.	
Printed film with the best ink and graphic protection option, applied to a flat, vertical, vehicle surface.	2 years Warranty Period

D. Limitations of End Uses

(1) This film is not suitable for these uses

This 3M product is not designed or recommended for the following uses. Please contact us to discuss other options.

- Do not use for graphics applied to:
 - corrugated or highly-irregular surfaces or sharply raised areas.
 - stainless steel (we recommend using [3M™ Controltac™ Graphic Film IJ181](#) instead).
 - flexible substrates.
 - non-3M films.
 - substrate surfaces that are not clean and smooth (little or no variation in texture).
 - paint that is not thoroughly cured or dried.
- Do not use printed film without graphic protection when they are:
 - used for vehicle graphics.
 - exposed to abrasive conditions, harsh cleaners or chemicals.
- Do not use for graphics that require removal from:
 - applications with poor paint-to-substrate adhesion.
 - wallboard.
 - existing graphics that must remain intact; damage may occur during removal.
 - aged paint or metal that may have surface oxidation or chalking.
 - outdoor, horizontal surfaces.
- Do not use for graphics subjected to gasoline vapors or spills at gas pumps, automobile fuel-tank ports, or top-feeding petroleum tankers.

(2) Wall Graphics

Two-mil cast films are typically the best choice for indoor smooth surface wall graphics, although thicker films may be suitable for intermediate or short term applications. In any case, the user is responsible for determining the product's suitability, including adhesion and, if required, removal characteristics. Due to the wide variability of smooth indoor walls, neither finished graphics nor removal is warranted, even for removable or changeable films. [3M Instruction Bulletin 5.37](#) provides comprehensive information for the most successful wall graphics film selection and application.

(3) Important Information About Bus Applications

Film used on buses must not be applied so as to restrict the safe use of emergency window exits. See the most current version of [3M Instruction Bulletin 5.4](#) for details.

2. Compatible Products

The following products are approved by 3M for use with the base film covered in this Bulletin and used for the creation of a graphic that may be eligible for the 3M™ MCS™ Warranty or 3M Performance Guarantee. Click on the blue underlined text to view the Product Bulletin for that product.

See the **Warranty Information** section to determine which compatible products are approved for your graphic construction.

A. Inkjet Inks and Printers for 3M™ MCS™ Warranty

(1) Solvent Inkjet Inks

Ink Series

- [3M™ Piezo Inkjet Ink Series 1500v2](#)
- [3M™ Piezo Inkjet Ink Series 4400](#)
- [3M™ Piezo Inkjet Ink Series 4800](#)
- [SIIT GX 3M Ink Series](#)
- [SIIT SX 3M Ink Series](#)

Printer

- EFI™ VUTEK® 150, 2360/3360, 3300/5300 & 3000/5000 Printers
- HP XLJet 1200 and 1500 Printers
- HP Scitex TJ8300 & TJ8350 Industrial Presses
- Seiko I Infotech ColorPainter™ H Series H-74s, H2-74s, H-104s, H2-104s, W-54s & W-64s Printers
- Seiko I Infotech ColorPainter™ M-64s Printer

(2) Latex Inkjet Inks

- [HP 3M LX600 Specialty Latex Ink](#)
- [HP LX610 Latex Ink](#)
a 3M™ MCS™ Warranty Component
- [HP 792 Latex Ink](#)
a 3M™ MCS™ Warranty Component
- [HP 881 Latex Ink](#)
a 3M™ MCS™ Warranty Component
- HP 831 Latex Ink
a 3M™ MCS™ Warranty Component
- HP Designjet L65500; Scitex LX600, LX800, LX820 & LX850; Latex 820 & 850 Printers
- HP Designjet L65500, Scitex LX600, LX800, LX820 & LX850; Latex 820 & 850 Printers
- HP Designjet L26100, L26500 & L28500 Latex 210, 260 & 280 Printers
- HP Latex 3000 Printer
- HP Latex 360 Printer

(3) UV Inkjet Inks and Printers

- [3M™ Piezo Inkjet Ink Series 2200UV](#)
- [3M™ Piezo Inkjet Ink Series 2800UV](#)
- [EFI™ VUTEK® GS 3M™ Premium UV Inks](#)
- [EFI™ VUTEK® GSr 3M™ Premium UV Inks](#)
- [EFI™ R3225 3M™ UV Ink](#)
- [EFI™ VUTEK® GSLXr 3M Superflex UV Ink](#) *(excludes White Ink)*
- [Mimaki LF-200 Ink Series](#)
Manufactured by 3M
- [Mimaki UV Ink LUS-200](#)
Manufactured by 3M
- EFI™ VUTEK® PV200 Printer
- EFI™ VUTEK® QS2000, QS3200, QS3220 and QS220 Printers
- EFI™ VUTEK® GS2000, GS3200 & GS3250 Printers, including GS Pro Series
- EFI™ VUTEK® GS5000r & GS3250r Printers
- EFI™ R3225 UV Roll-to-Roll Printer
- EFI™ VUTEK® GS3250LXr and GS5500LXr Pro Printers
- Mimaki UJV-160, JFX-1631 & 1615R Printers
- Mimaki UJV500-160 Printer

B. OEM Inkjet Printers and Inks for the 3M Performance Guarantee

- For the most current information, please click here: [3M Performance Guarantee Matrix](#).

C. Graphic Protection

- [3M™ Scotchcal™ Gloss Overlaminates 8518](#)
- [3M™ Scotchcal™ Luster Overlaminates 8519](#)
- [3M™ Scotchcal™ Matte Overlaminates 8520](#)
- [3M™ Scotchcal™ Gloss Overlaminates 8528](#)
- [3M™ Scotchcal™ Ultra Matte Overlaminates 8915](#)
- [3M™ Inkjet Protective Clear 8530](#)
- [3M™ Screen Print Gloss Clear 1920DR](#)
- [3M™ Screen Print UV Gloss Clear 9740i](#)

D. Other Products

- [3M™ Edge Sealer 3950](#)
- [3M™ Prespacing Tape SCPS-2](#)
- [3M™ Prespacing Tape SCPS-55](#)
- [3M™ Prespacing Tape SCPS-53X](#)
- [3M™ Premasking Tape SCPM-3](#)
- [3M™ Premasking Tape SCPM-44X](#)

3. Characteristics

These are typical values for unprocessed product. Contact your 3M representative for a custom specification.

A. Physical Characteristics

Characteristic	Value
Material	Vinyl
Color	White, opaque
Gloss	Matte
Thickness	Without adhesive: 4 mils (0.10 mm) With adhesive: 4.5 – 5 mils (0.11 – 0.13 mm)
Adhesive type	IJ160C: Pressure-activated (slide, tack, snap up, reposition) with air release channels IJ160: Pressure-activated (slide, tack, snap up, reposition)
Adhesive color	Gray
Liner	Polyethylene-coated paper
Adhesion <i>24 hours after application</i>	ABS: IJ160: 3.5 pounds/inch (0.65 kg/cm) IJ160C: 3.3 pounds/inch (0.78 kg/cm) Fruehauf pre-painted panels: IJ160: 1.0 pounds/inch (0.18 kg/cm) IJ160C: 0.9 pounds/inch (0.16 kg/cm)
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water (<i>does not include immersion</i>)
Flammability	Call 1-800-328-3908, Option 1, for information
Tensile strength	13 pounds/inch at 73°F (2.3 kg/cm at 23°C), minimum

B. Application Characteristics

Characteristic	Value
Finished graphic application recommendation	Surface type: Flat, with and without rivets Substrate type: Acrylic, aluminum, glass (uncoated), painted metal, polycarbonate, and painted wood (smooth) Application temperature: 40° – 100°F (4.4° – 38°C) <i>air and substrate</i> Application method: Dry
Applied film shrinkage	0.032 inch (0.8 mm)
Finished graphic exposure temperature	-30° – +200°F (-34° – +93°C)
Graphic removal and temperature	Removable with heat at a minimum ambient and substrate temperature of 40°F (4°C)

4. Definitions

A. Exposure Types

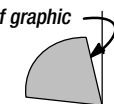
U.S. Vertical Exposure



face of graphic

The face of the graphic is +/- 10° from vertical.

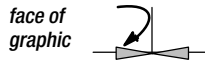
U.S. Non-vertical Exposure



face of graphic

The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal. This includes non-vertical surfaces of vehicle wraps or fleet truck and trailer graphics.

U.S. Horizontal Exposure



The face of the graphic is +/- 5° from horizontal.

U.S. Desert Southwest Exposure

Any outdoor graphic exposed to solar energy more than half of the daylight hours in Arizona, New Mexico and the desert areas of California, Nevada, Utah and Texas is subject to reduced warranties. Click here for a [detailed map](#).

B. Graphic Construction

The products used to make a graphic, which may include film and/or flexible substrate, graphic protection, ink, printer and application tape.

C. Graphic Protection

Overlaminates films or clear coats used to protect the graphic and/or change gloss.

5. Warranty Information

A. Warranty Coverage Overview

The Warranty coverage for each graphic is based on the user(s) both reading and following all applicable and current 3M Product and Instruction Bulletins. 3M will honor the Warranty Period stated in the base film's Product Bulletin that is current when the film was purchased. The Warranty Period may be reduced and stipulations may apply for certain constructions and applications, as covered in this Bulletin.

The following is made in lieu of all other express or implied warranties, including any implied warranty of merchantability or fitness for a particular purpose or implied warranty arising out of a course of dealing, custom or usage of trade.

B. 3M Basic Product Warranty

This Product is warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in this Product Bulletin and as further set forth in the [3M Graphics Warranties Brochure](#).

C. Limited Remedy

3M will replace or refund the price of any 3M materials that do not meet this Warranty within the specified time periods. These remedies are exclusive.

D. Limitation of Liability

Except where prohibited by law, 3M SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE TO PURCHASER OR USER FOR ANY DIRECT (EXCEPT FOR THE LIMITED REMEDY PROVIDED ABOVE), INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, LABOR, NON-3M MATERIAL CHARGES, LOSS OF PROFITS, REVENUE, BUSINESS, OPPORTUNITY, OR GOODWILL) RESULTING FROM OR IN ANY WAY RELATED TO SELLER'S PRODUCTS, SERVICES or THIS BULLETIN. This limitation of liability applies regardless of the legal or equitable theory under which such losses or damages are sought including breach of contract, breach of warranty, negligence, strict liability, or any other legal or equitable theory.

E. Additional Limitations

See the [3M Graphics Warranties Brochure](#) at 3Mgraphics.com, which gives the terms, additional limitations of the Warranty, if any, and limitations of liability.

F. 3M Performance Guarantee

Subject to Stipulations set forth in Section H, below

Graphics constructed with the 3M materials specified and in the exposure specified in the Warranty Period, Section F(1), are eligible for the 3M Performance Guarantee. This Warranty only covers the performance of the recommended 3M products used in the graphic construction when imaged with the printers and OEM inks listed in the most current version of the [3M Performance Guarantee Matrix](#). The Matrix may also list certain restrictions for using the film covered in this Bulletin. For Warranty Periods for other exposures, see Section H(1) on page 7.

(1) Warranty Period for 3M Product Performance in a Standard U.S. Vertical Exposure

VEH = Vehicles and Straight Trucks
 OUT = General Outdoor Sign
 IN = General Indoor Signs

Warranty Period for 3M Product Performance, in Years

Film	Graphic Protection	VEH, IN, OUT	Inks and Printers**
IJ160C-10	8518; 8519; 8520; 8528*;	2	See the 3M Performance Guarantee Matrix
IJ160-10	8915; 1920DR; 9740i		

*Overlaminates 8528 does not have a horizontal Warranty Period when used on film IJ160 or IJ160C.

** Some of the graphic protection products and graphic types may not be approved for this film on certain printing platforms. Always refer to the 3M Performance Guarantee Matrix.

G. 3M™ MCS™ Warranty

Subject to Stipulations set forth in Section H, below

Finished graphics constructed with the materials specified and the exposure specified in the Warranty Period tables, Section G(2), is eligible for the 3M™ MCS™ Warranty. For warranties for other exposures, see Section H(1) on page 7.

(1) Certificate of 3M™ MCS™ Warranty Requirement

Only graphics manufacturers having a current Certificate of 3M™ MCS™ Warranty are eligible to extend this Warranty to their customers.

(2) Warranty Period Table for Finished Graphics in a Standard U.S. Vertical Exposure

VEH = Vehicles and Straight Trucks
 OUT = General Outdoor Sign
 IN = General Indoor Signs

Warranty Period for Finished Graphics, In Years

Solvent Inks and Printers	EFI™ VUTEK® 150, 2360/3360, 3300/5300, 3000/5000 Printers			HP XLJet Series 1200, 1500 Printer			HP Scitex TJ8300 and TJ8350 Digital Presses		
	3M™ Ink Series 1500v2			3M™ Ink Series 4400			3M™ Ink Series 4800		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
8518, 8519, 8520, 8915	3	3	5	3	3	5	3	3	5
8528*	3	3	5	3	3	5	3	3	5
1920DR	3	3	5	—	—	—	3	3	5
9740i	3	3	5	3	3	5	3	3	5
8530	2	2	3	2	2	3	2	2	3
none	—	2	2	—	2	3	—	2	3

Solvent Inks and Printers	Seiko I Infotech ColorPainter™ H-74s, H2-74s, H-104s, H2-104s W-54s, & W-64s Printers			Seiko I Infotech ColorPainter™ M-64s Printers		
	GX 3M™ Ink Series			SX 3M™ Ink Series		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN
8518, 8519, 8520, 8915	3	3	5	3	3	5
8528*	3	3	5	3	3	5
1920DR	3	3	5	3	3	5
9740i	3	3	5	—	—	—
8530	—	—	—	—	—	—
none	—	2	2	—	2	2

Latex Inks and Printers	HP Designjet L65500 Printer and Scitex LX600, LX800, LX820 & LX850; Latex 820 & 850 Printers			HP Designjet L65500 Printer and Scitex LX600, LX800, LX820 & LX850; Latex 820 & 850 Printers			HP Designjet L26100, L26500, L28500, Latex 210, 260, 280 Printers		
	HP 3M LX600 Specialty Latex Ink			HP 3M LX610 Latex Ink <i>a 3M™ MCS™ Warranty Component</i>			HP 792 Latex Ink <i>a 3M™ MCS™ Warranty Component</i>		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
8518, 8519, 8520, 8915	2	2	4	2	2	4	2	2	4
8528*	2	2	4	2	2	4	2	2	4
1920DR	2	2	2	2	2	2	2	2	2

Latex Inks and Printers	HP Latex 3000 Printer			HP Latex 360 Printer		
	HP 881 Latex Ink <i>a 3M™ MCS™ Warranty Component</i>			HP 831 Latex Ink <i>a 3M™ MCS™ Warranty Component</i>		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN
8518, 8519, 8520, 8915	2	2	4	2	2	4
8528	2	2	4	2	2	4
1920DR	2	2	2	2	2	2

Warranty Period Tables continued on the next page

Warranty Period for Finished Graphics, in Years

UV Inks and Printers	EFI™ VUTEK® PV200 Printer			EFI™ VUTEK® GS5000r and GS3250r Printers			EFI™ VUTEK® GS2000, GS3200, GS3250 Printers, including GS Pro Series		
	3M™ Ink Series 2200UV			GSr 3M™ Premium UV Inks			GS 3M™ Premium UV Inks		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
8518, 8519, 8520, 8915	3	3	5	3	3	5	3	3	5
8528*	3	3	5	3	3	5	3	3	5
1920DR	—	—	—	—	2	3	—	2	3
9740i	3	3	5	3	3	5	3	3	5
none	—	3	3	—	2	3	—	2	3

UV Inks and Printers	EFI™ VUTEK® GS3250LXr and GS5500LXr Pro Printers			EFI™ VUTEK® QS2000, QS3200, QS3220, QS220 Printers			EFI™ R3225 UV Roll-to-Roll Printer		
	GSLXr 3M Superflex UV Ink <i>Warranty excludes white ink</i>			3M™ Ink Series 2800UV			EFI™ R3225 3M™ UV Ink		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
8518, 8519, 8520, 8915	2	2	4	3	3	5	3	3	5
8528*	2	2	4	3	3	5	3	3	5
1920DR	—	—	—	—	—	—	—	2	3
9740i	2	2	4	3	3	5	3	3	5
none	—	—	—	—	3	3	—	2	3

UV Inks and Printers	Mimaki UJV-160, JFX-1631 & 1615R Printers			Mimaki UJV500-160 Printer		
	Mimaki Ink Series LF-200 <i>Manufactured by 3M</i>			Mimaki UV Ink LUS-200 <i>Manufactured by 3M</i>		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN
8518, 8519, 8520, 8915	3	3	5	3	3	5
8528*	3	3	5	3	3	5
1920DR	—	—	—	—	2	3
9740i	—	—	—	3	3	5
none	—	—	—	—	—	—

*Overlaminated 8528 does not have a horizontal Warranty Period when used on film IJ160 or IJ160C.

H. General Warranty Stipulations for 3M™ MCS™ Warranty and 3M Performance Guarantee

These stipulations apply to the 3M™ MCS™ Warranty and 3M Performance Guarantee. General provisions for these stipulations are covered in the [3M Graphics Warranties Brochure](#).

(1) Reduced Warranty Period for Other Graphic Exposures

For other graphic exposures, multiply the Warranty Period (in years) for your graphic construction as shown in the applicable Warranty Period tables, Section G(2) on page 6, by the percentage shown for the intended graphic exposure.

If the Graphic Exposure is:	Use this Percentage of U.S. Vertical Exposure, Warranty Period	Calculation Examples
U.S. Non-vertical	50% (0.5)	0.5 x 3 years = 1.5 years
Desert Southwest Vertical	70% (0.7)	0.7 x 3 years = 2.1 years
Desert Southwest Non-vertical	35% (0.35)	0.35 x 3 years = 1.05 years
Horizontal	0%	0

(2) Removal Warranty with Heat

a. For the 3M™ MCS™ Warranty Only

Within the stated Warranty Period, if this film cannot be removed with heat, or if more than 30% of the adhesive residue remains on the substrate, 3M will reimburse a reasonable portion of extra removal costs.

b. For the 3M Performance Guarantee

Within the stated Warranty Period, if this film cannot be removed with heat and/or chemicals, or if more than 30% of the adhesive residue remains on the substrate, 3M will reimburse a reasonable portion of 3M material cost.

c. Removal Warranty Exceptions

The following exceptions are not covered by the Removal Warranty.

- Substrate damage due to:
 - removing film from a pre-existing graphic.
 - removing film that was applied to painted wallboard or unapproved substrates.
 - removing film from paint that is not firmly bonded to the substrate.
- No guarantee is made for:
 - paint staining. 3M does not warrant vehicle paint staining that may be visible after removing an inkjet printed graphic with an overlaminate. To reduce the risk of this problem, always remove the graphic by the end of the Warranty Period.
 - ease or speed of removal of any graphic.
 - removal from paint that is improperly cured.
 - removal from aged paint or metals, surface oxidation or chalking; user must test, approve and accept liability for such applications.
 - removal from horizontally-exposed outdoor applications.

(3) Paint Refurbishing Reimbursement Policy for Automobiles

This Policy applies to automobiles and specifically does not include Watercraft. Defects such as loose paint, dents, rough surfaces, fillers used for damage, and rusted or blistered paint may prevent the graphic from adhering properly or may cause damage to the vehicle paint during graphic removal. Paint damage or poor adhesion due to defects are not covered by any 3M warranty. Before applying a graphic, it is recommended that the vehicle be washed so that potential problem areas are easily seen. See [3M Instruction Bulletin 5.4](#) for details.

- A *Pre-Installation and Inspection Report* (in [3M Instruction Bulletin 5.36](#)) must be completed *prior to graphic installation* and submitted with any claim for paint damage sustained during the removal of 3M removable or changeable graphic film from vehicles.
- A separate report for each vehicle involved in a claim is required.

(4) Application Outside the U.S.

Contact the 3M organization for that country.

(5) Application to Glass

3M accepts no liability for glass breakage when using this film for window graphics. See [3M Instruction Bulletin 5.1](#) for details.

(6) Abrasion and Loss of Gloss

Abrasion damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear. However, to help maintain the appearance of your graphic, use the recommended graphic protection whenever:

- it is required for the construction and end use as shown in the Warranty Period tables.
- the graphic, **including printed vehicle graphics**, is exposed to abrasive conditions, harsh cleaners or chemicals.

(7) Graphics Made with Components Not Sold or Recommended by 3M

The 3M™ MCS™ Warranty does not, under any circumstances, cover graphics made with ink, film, graphic protection and/or application tapes not sold or recommended by 3M.

The 3M Performance Guarantee does not, under any circumstances, cover OEM inks, even those approved by 3M for this program, or any type of 3M product failure that results from their use.

The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include any non-recommended or non-qualified products.

6. Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by:

- combination of graphics materials used.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.

7. Graphics Manufacturing



CAUTION

Before using any equipment, always follow the manufacturers' instructions for safe operation.

A. Inkjet Printing

Always read and follow the ink manufacturer's written instructions on usage.

(1) Total Ink Coverage

The maximum recommended total ink coverage for this film is:

- **270%** when printed with all approved 3M solvent inkjet inks.
- **280%** when printed with all approved 3M UV inkjet inks and latex ink.
- **250%** when printed on the Mimaki JV5 Series printer with HS ink series (3M Performance Guarantee).

Do not exceed the recommended total ink coverage for the ink series used on this film. Too high a total physical ink amount on the film results in media characteristic changes, incomplete drying, overlamine lifting, and/or poor graphic performance. Refer to the Product & Instruction Bulletin for the ink system being used, or the [3M Performance Guarantee Matrix](#) for an OEM ink, for additional details about total ink coverage.

(2) Completely Dry Graphics

Important Note!

Incomplete drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty.

Do not exceed the recommended total ink coverage for the ink series used on this film. Too high a total physical ink amount on the film results in media characteristic changes, incomplete drying, overlamine lifting, and/or poor graphic performance. Refer to the Product & Instruction Bulletin for the ink system being used for additional details about total ink coverage.

B. Graphic Protection

Graphic protection can improve the appearance, performance and durability of your graphic. Always use only the graphic protection options recommended in this Bulletin for this film. See [3M Product Bulletin GP-1](#) for more details about these options.

- Clear 8530 must be applied with a liquid laminator.
- Overlaminates must be cold roll applied.

C. Cutting

The following are common cutting methods for this film. See [3M Instruction Bulletin 4.1](#) for details.

- Bandsawing
- Hot kiss cutting
- Drum-type electronic cutting
- Flat-bed electronic cutting
- Guillotine
- Hand cut

D. Application Tapes

(1) When to Use Premasking Tape

- Use as an application aid to increase stiffness, and prevent stretching and damage during application.
- Use when little or no liner is exposed.

(2) When to Use Prespacing Tape

- Hold cut and weeded letters or graphics in registration after removing the film liner.
- Protect cut graphic parts from scratching or damage during application.
- Use when large amounts of liner are exposed.

(3) How to Select a Tape

Determine whether you want to premask the graphic or prespace the film elements. Then locate the graphic protection on your graphic in the table below, and use the corresponding tape. See [3M Instruction Bulletin 4.3](#) for complete details.

EXAMPLE: If the film is protected by overlamine 8519 and you want to premask the film, use premasking tape SCPM-3. If it is protected by clear 9740i, use premasking tape SCPM-44X.

Select the tape based on what is on top of the graphic

Application Tape	None	8519 8520 8915	8530	1920DR	9740i	8518 8528
Premasking Tape SCPM-3	■	■	■	■	—	—
Premasking Tape SCPM-44X <i>Film IJ160 only</i>	—	—	—	—	■	—
Prespacing Tape SCPS-2 <i>Film IJ160 only</i>	■	■	—	■	—	—
Prespacing Tape SCPS-55 <i>Film IJ160C only</i>	■	■	—	■	■	—
Prespacing Tape SCPS-53X	—	—	—	—	■	—

— = No application tape is recommended for this construction.

8. Application and Installation

Install the film using the dry application method.

In addition to other Bulletins specified in this document, the following Bulletins provide details that you may need to successfully apply a graphic.

- Applying screen printing clear 1920DR. [3M Instruction Bulletin 3.12](#).
- Hot and cold roll lamination. [3M Instruction Bulletin 4.22](#).
- Application: Fleet Trucks, Flat Vehicle Graphics and Architectural Windows. [3M Instruction Bulletin 5.4](#).
- Application, general procedures for indoor and outdoor dry applications. [3M Instruction Bulletin 5.5](#).

A. Pressure-activated Adhesive

- The pressure-activated adhesive on this film offers:
 - smooth sliding into position on a substrate;
 - fast finger tacking to check position; and
 - easy snap up and repositioning when you need it.
- Snap up and repositionability is lost when:
 - firm pressure with a squeegee or other application tool is applied. This ensures a good adhesive bond while completing the installation.
 - at application temperatures above 100°F (38°C) even if only light finger pressure was used for tacking.
 - if any part of the film is removed from the original liner and reapplied to the same or another liner.
 - solvent from inkjet ink has not completely dried or cured, which affects both slideability and snap up.

B. Working with Air Release Channels

- Air release channels are a characteristic of 3M's Comply adhesive that allow fast, easy, virtually bubble-free installations.
- The channels will be damaged and effective air removal affected if you remove and attempt to change liners or reapply the same liner.
- For the best results, always work from the center out to the edges of the graphic to allow trapped air to exit through the air release channels. If the channels are closed off by firm pressure and air is trapped, use an air release tool to aid in removing air bubbles. See [3M Instruction Bulletin 5.4](#) for details.

Video

[See how 3M's Comply adhesive technology works](#)

C. Working with Rivets

- This film will tent when applied over rivets.
- If the rivets are closely spaced, the film will bridge between rivets.
- Tented or bridged film may fail prematurely, which is not covered by the 3M™ MCST™ Warranty or 3M Performance Guarantee.
- For the best appearance and durability, 3M recommends cutting around the rivet, removing the circle of film, and then re-squeegeeing around the rivet.

D. Graphics Printed with UV Inkjet Inks are Heat Sensitive!

UV inkjet inks may crack if too much heat is used during graphic application to complex curves and deep contours as well as around rivets. When using a heat gun or other heat source during application, make sure the film surface temperature does not exceed 212°F (100°C).

Using additional heat in the post-application process may also cause UV inkjet ink to crack. For the best results, always do a test application of a UV printed graphic to determine how much heat can be used without damaging the image.

E. Application to Vehicles

3M offers several detailed Instruction Bulletins to help you achieve a successful graphic installation. See [3M Instruction Bulletin 5.4](#) for details.

F. Application to Other Substrates

3M offers several detailed Instruction Bulletins to help you achieve a successful graphic installation. Please see Section 8, on page 10 above.

9. Maintenance and Cleaning

Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline.)

Refer to [3M Instruction Bulletin 6.5](#) for general maintenance and cleaning information.

10. Removal with Heat

This film can be removed with heat only. No other accessories or chemicals are needed. Most graphics can be removed and leave little or no adhesive residue on the substrate. The ease and rate of removal depends on several factors. See Instruction Bulletin 6.5 for details.

11. Shelf Life, Storage and Shipping

A. Shelf Life

Total shelf life: 3 years from the date of manufacture on the original box. If you do process the film, do so within 2 years and apply within 1 year. If you do not process the film, apply it within 3 years.

B. Storage Conditions

- 40° to 100°F (4° to 38°C)
- Out of sunlight
- Clean dry area
- Original container
- Bring the film to print room temperature before using

C. Shipping Finished Graphics

Flat (may be separated by paper), or rolled printed side out on 5 inch (13 cm) or larger core. This helps prevent the liner and, if used, the application tape from popping off.

12. Health and Safety



CAUTION

When handling any chemical products, read the manufacturers' container labels and the Safety Data Sheets (SDS) for important health, safety and environmental information. To obtain SDS sheets for 3M products go to 3M.com/MSDS, or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturers' instructions for safe operation.

13. Bulletin Change Summary

Modified and new content is marked with a black bar in the margin. Discontinued 3M Piezo Inkjet Ink Series 6200 for Agfa :Jeti 3312, 3318, 3324 & 5024 [Gandinnovations] Printers and 3M Piezo Inkjet Ink Series 2700UV for Durst Rho 160R & 351R Printers. Added SIIT SX 3M Ink Series for Seiko I Infotech ColorPainter™ M-64s Printer and HP 831 Latex Ink for HP Latex 360 Printer, EFI™ VUTEK® GSLXr 3M Superflex UV Ink (*excludes White Ink*) for EFI™ VUTEK® GS3250LXr and GS5500LXr Pro Printers. Added requirement for Certificate of 3M™ MCS™ Warranty for Inkjet Printed Graphics Warranty stipulations. The 3M Related Literature section has been replaced by direct links to the most current versions of Bulletins or warranty information you may need to successfully use this product. All links are blue underlined text.



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