



# Controltac™ Plus Graphic Film with Comply™ Performance IJ180C-10

## For Piezo Ink Jet Printing Only

### Description

3M™ Controltac™ Plus Graphic Film with Comply™ Performance IJ180C-10 is a 2 mil film that offers great versatility along with 3M's Comply performance feature and repositionable adhesive for the easiest graphic application. This medium to long term removable film is perfect for interior and exterior signs and fleet graphics, including surfaces with corrugations and rivets. It is designed for piezo ink jet printing.

### Advantages

- Can be used on several piezo ink jet printing platforms (See Compatible Products)
- Positionable and repositionable until firm pressure is applied
- Pressure-activated adhesive
- Fast, clean removal with little or no adhesive residue
- Excellent hiding power

### Application and End Uses

Film IJ180C-10 is intended for making both warranted and promotional applications. These types of applications are warranted by the 3M™ MCS™ Warranty with the Special Warranty Stipulations when used for automobile or vehicle graphics. See page 4.

- For piezo ink jet printed graphics
- Interior and exterior graphics and signs
- Commercial vehicle and fleet graphics, emblems or striping
- Bus graphics

### Limitations of End Uses

We do not normally warrant other applications, but please contact us to discuss your needs or let us suggest other 3M products.

Specifically, we do not recommend or warrant this film for the following:

- Graphics applied to:
  - Stainless steel vehicles.
  - Non-3M films (also see Removal on page 5).
  - Substrates that do not have a clean, smooth surface.

- Graphic removal from:
  - Applications with poor paint-to-substrate adhesion.
  - Existing graphics that must remain intact. Damage may occur during removal of film IJ180C-10.
- Graphics subjected to:
  - Gasoline vapors or spills at gas pumps, automobile fuel-tank ports, or top-feeding, petroleum tankers.
- Graphics printed with 3M Piezo Ink Jet Series 2500UV are for flat surfaces only. They are not recommended for rivets or corrugations.
- Graphics made for automotive Original Equipment Manufacturers (OEM); contact 3M Automotive Division at 1-800-328-1684, Ext. 444, for alternatives.

NOTE: Film used on buses must not be applied so as to restrict the safe use of emergency window exits. See Instruction Bulletin 5.4, Release G, July 2003 or later for details.

### Compatible Products

Note: This film may be used with inks and ink jet printing platforms not listed below. Please refer to the Warranted Durability section, page 3, for details.

#### 3M Inks and 3M Printer Platforms

- 3M™ Piezo Ink Jet Ink Series 2500UV
  - 3M™ Printer 2500UV

#### 3M Inks and Other Printer Platforms

- 3M™ Piezo Ink Jet Ink Series 1600
  - Scitex PressJet-W™ Digital Press
- 3M™ Piezo Ink Jet Ink Series 2300
  - VUTEk UltraVu™ 2360/3360 Printers
- 3M™ Piezo Ink Jet Ink Series 4000
  - VUTEk UltraVu™ 3000/3300 and 5000/5300 Printers
- 3M™ Piezo Ink Jet Ink Series 6000
  - Océ Arizona 30-s Printer

Note: For the full product names of the 3M products listed on this page, please see page 1.

### Overlaminates

- 3M™ Screen Print Gloss Clear 1920DR
- 3M™ Screen Print Gloss Clear 9720UV
- 3M™ Piezo Ink Jet Protective Clear 8530
- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520
- 3M™ Scotchcal™ Luster Overlamine 8908
- 3M™ Scotchcal™ Matte Overlamine 8909

### Other Products

- 3M™ Edge Sealer 3950
- 3M™ Prespace Tape SCPS-55

## Characteristics

All values given are typical for unprocessed film unless noted otherwise and are not for use in specifications. Processing film may change certain values. If you have questions about your construction, contact the Technical Service helpline at 1-800-328-3908.

### Physical Characteristics

Characteristic	Description
Film	Vinyl
Film color	White, opaque
Thickness	<b>Without adhesive:</b> 2 mil (0.05 mm) <b>With adhesive:</b> 3-4 mil (0.08-0.10 mm)
Adhesive	Pressure activated with Comply performance feature, positionable
Adhesive color	Clear
Liner	Polyethylene-coated paper
Tensile strength*	5 pounds/inch at 73°F (0.9 kg/cm at 23°C)
Adhesion* <i>24 hours after application</i>	<b>ABS:</b> 4.2 pounds/inch (0.75 kg/cm) <b>Acrylic enamel</b> 3.5 pounds/inch (0.63 kg/cm) <b>Aluminum, anodized:</b> 7.9 pounds/inch (1.42 kg/cm) <b>Aluminum, etched:</b> 5.2 pounds/inch (0.93 kg/cm) <b>Chrome</b> 4.8 pounds/inch (0.87 kg/cm) <b>Fruehauf pre-painted panels:</b> 4 pounds/inch (0.7 kg/cm)
Chemical resistance	Resists mild alkalis, mild acids, and salt  Excellent resistance to water <i>(this does not include immersion)</i>  Resists occasional fuel spills

Characteristic	Description
Flammability	Call 1-800-328-3908 for information
Roll sizes	24" x 50/100 yards (57 cm x 45/90 m) 36" x 50/100 yards (91 cm x 45/90 m) 48" x 50/100 yards (122 cm x 45/90 m) 60" x 50/100 yards (152 cm x 45/90 m)

\* Tensile strength and adhesion values are typical values and are not be used for specification purposes.

### Application Characteristics

Characteristic	Description
Finished graphic application recommendation	<b>Surface type:</b> - <b>Printed with ink series 2500UV:</b> Flat only  - <b>Printed with other ink series:</b> Flat, with and without rivets, corrugated*, simple curves, moderate compound curves  *Graphics printed on the ColorSpan DisplayMaker 72 and Seiko ColorPainter are not approved for application to corrugated surfaces.  <b>Substrate type:</b> ABS resins, aluminum, chrome, glass, fiberglass reinforced plastics, paint (check adhesion to powder-coated or water-based paints)  <b>Application temperature:</b> - <b>Flat surfaces without rivets:</b> 40° to 100°F (4° to 38°C) - <b>Flat, curved or corrugated surfaces with rivets:</b> 50° to 100°F (10° to 38°C)
Applied shrinkage*	0.015 inches (0.4 mm)
Service temperature range	-65° to +225°F (-60° to +107°C)
Graphic removal	<b>Method/terms:</b> Removable with heat and/or chemicals from most substrates within warranty period or up to 7 years, whichever comes first  <b>Temperature</b> 50° F (10°C) minimum (air and substrate)

Note: For the full product names of the 3M products listed on this page, please see page 1.

## Effective Performance Life

The graphic performance life is based on field experience and exposure tests conducted through out the United States. When the graphics are processed and used according to the 3M recommendations, they should have the performance life shown in the **Warranted Durability Tables**.

A special **3M Performance Guarantee** is offered for any graphics manufacturer using this film with the printers and material listed in the warranted durability section of this bulletin.

The actual performance depends on the:

- Use of 3M compatible products and recommended printers
- Correct combination of film, ink, and overlaminate or screen print clear (if required)
- Adequate ink drying
- Selection and preparation of the substrate
- Surface texture
- Application methods
- Angle and direction of sun exposure
- Environmental conditions
- Cleaning or maintenance methods

## Warranty Details

### 3M™ MCS™ Warranty

See the worldwide 3M™ MCS™ Warranty bulletin, which gives the terms and limitations of this warranty.

### 3M Performance Guarantee

The 3M Performance Guarantee covers product performance of 3M films and compatible 3M overlaminates and screen print clears for applications as specified in the corresponding 3M Product Bulletins.

Approved 3M films and overlaminates/screen print clears are guaranteed to be free of media induced artifacts that can cause misprints and are guaranteed to adhere to recommended substrates as referenced in this bulletin. The duration of any given durability varies according to the material combinations and applications described in this bulletin. Piezo inks may contain a high percentage of solvent. If the inks are not adequately dried during or shortly after printing, the residual solvent may have an adverse effect on product performance.

This 3M Performance Guarantee covers replacement cost of 3M materials only. The graphics must be fabricated and installed according to 3M recommendations. This guarantee does not cover image fade, cracking, peeling or any other performance issues.

## Graphic Exposure Definition



face of graphic

### Vertical Exposure

The face of the graphic is  $\pm 10^\circ$  from vertical.

## Warranted Durability

<b>3M™ MCS™ Warranted Constructions</b>											
For vertical constructions using approved 3M ink series, film IJ180C-10, specified overlaminates or clears and approved printers.											
<b>Film IJ180C-10 Construction and Usage</b>	<b>Overlaminate or Screen Print Clear</b>										
	<b>None</b>		<b>8519 8520</b>		<b>9720UV<sup>2</sup></b>		<b>8908<sup>1</sup> 8909<sup>1</sup></b>		<b>1920DR<sup>2</sup></b>		<b>8530</b>
	US <sup>3</sup> years	SW <sup>4</sup> years	US <sup>3</sup> years	SW <sup>4</sup> years	US <sup>3</sup> years	SW <sup>4</sup> years	US <sup>3</sup> years	SW <sup>4</sup> years	US <sup>3</sup> years	SW <sup>4</sup> years	
<b>Approved for vertical graphics printed with Ink Series 1600, 2300, 4000, 6000</b>											
<b>Fleet</b>	0	0	5	3	3	2	0	0	5	3	See Product Bulletin 8530
<b>Exterior Signs</b>	3	2	4	2	3	2	1	6 mos.	4	3	
<b>Interior Signs</b>	3	3	8	8	8	8	3	3	8	8	
<b>Approved for vertical graphics printed with Ink Series 2500UV - flat surfaces only</b>											
<b>Fleet</b>	0	0	2	1	2	1	0	0	0	0	0
<b>Exterior Signs</b>	2	1	2	1	2	1	0	0	0	0	
<b>Interior Signs</b>	3	3	5	5	5	5	0	0	0	0	

Note: For the full product names of the 3M products listed on this page, please see page 1.

### 3M Performance Guarantee Constructions

For vertical graphics using ColorSpan DisplayMaker® 72, Mimaki JV3-S, Mutoh Toucan, Mutoh Falcon II Outdoor, Roland SolJet Pro II EX Printers, and Seiko ColorPainter™ with OEM inks.

Film IJ180C-10 Construction and Usage	Overlamine	
	8519 8520	
	US <sup>3</sup> years	SW <sup>4</sup> years
Fleet and Commercial Vehicle	2	1
Exterior Signs	2	1
Interior Signs	2	2

- Overlaminates 8908 and 8909 are not warranted or recommended for use on fleet graphics.
- Clear 1920DR and 9720UV must be screen printed in order to be warranted. 9720UV must also be UV cured.
- For warranty periods outside the United States, contact the 3M sales organization for that country.
- The U.S. Desert Southwest includes Arizona, New Mexico, and the desert areas of California, Nevada, Utah and Texas. A detailed map is available by request. The warranty for this area is reduced because there is more solar energy. This warranty applies to graphics exposed to solar energy in the U.S. Desert Southwest more than 50% of the time.

## Special Warranty Stipulations for Automobile and Bus Graphics

When applied to an automobile, an Auto Graphics Pre-installation And Inspection Record (Instruction Bulletin 5.36) must be completed for each vehicle and readily available if a warranty claim is made.

When applied to a bus, a Bus Graphics Pre-installation And Inspection Record (Instruction Bulletin 5.36) must be completed for each vehicle and readily available if a warranty claim is made.

## Cleaning Face-side Idler Rollers

3M recommends cleaning face-side idler rolls before printing this film to ensure producing the highest quality image. Refer to the printer operating guide or to the printer manufacturer for specific instructions.

## Printer Support Information

### Ink

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

### 3M Printer 2500UV Only

- Technical support

Contact 3M Technical Support (1-800-328-3908) for questions about using 3M inks, printing media, color profiles, color calibration, temperature and machine settings or for machine service information. New color profiles for the 2500UV printer are available on the [www.scotchprint.com](http://www.scotchprint.com) website at extranet level.

- For managing the total physical amount of ink on media, please refer to Instruction Bulletin 4.41 for details.

### Other 3M-recommended Printers

- Total ink coverage

Do not exceed the recommended total ink coverage for this film. Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance.

Total Ink Coverage	Printer
270%	UltraVu 2360/3360 Printers
300%	UltraVu 3000/3300 and 5000/5300 Printers
300%	Pressjet-W™ Digital Press
300%	Arizona 30-s Printer
270%	Most other printers

### Color Profiles

Many color profiles are available on our website at [www.scotchprint.com](http://www.scotchprint.com).

## Drying

### Caution

Always build enough time into your process to ensure adequate drying of the graphic. Poorly dried film may become soft and stretchy, and the adhesive may become too aggressive. This can cause difficulty when applying an overlamine, rolling the graphic, and applying the film. See the ink's Instruction Bulletin for more details.

Note: For the full product names of the 3M products listed on this page, please see page 1.

## Cutting

### **Caution**

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

The following are common cutting methods for this film. See Instruction Bulletin 4.1 for details.

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

## Application Tapes

Do NOT remove film IJ180C-10 from its liner and then attempt to reapply the film to the original liner or any other liner. The liner on this film play an important role in how the films apply to a substrate. Key application features will be lost if you prematurely remove the liner.

Use only prespacing tape SCPS-55 with films with Comply performance where the liner is exposed.

Premasking tape SCPM-3 may be used to give the more stability during application, and where little or no liner is exposed..

See Instruction Bulletin 4.3 for details.

## Application and Installation

Install the film using the dry application method.

Refer to the **3M Related Literature** section, located at the end of this bulletin, for a list of the Instruction Bulletins that may be needed to apply or install this film.

### Adhesive

The pressure-activated adhesive on this film allows you to position and reposition it on the application substrate when tacked with light hand pressure. Applying firm pressure bonds the adhesive to the substrate, and by design, destroys the positionability feature.

Positionability, which is a mechanical feature, not an adhesive feature, is reduced under these conditions:

- The film has been removed from the original liner and reapplied to another liner.
- Application at higher than 100°F (38°C), which causes the film to lose its positionability even with light hand pressure.

### 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 warranty. For the best appearance and durability, 3M recommends cutting around the rivet, removing the circle of film, and then re-squeegeeing around the rivet.

Refer to the Instruction Bulletins listed in the **3M Related Literature** section, located at the end of this Bulletin, for more complete information.

The following application details are for film IJ180C-10.

### Method

Film IJ180C-10 has the Comply performance feature. This 3M technology is a mechanical feature, not an adhesive property. Channels in the adhesive allow air to be directed outward for easier application and fewer air bubbles. The film can be applied with time saving techniques such as larger squeegees. Refer to Instruction Bulletin 5.31 for additional information on the application of Comply performance products.

### Finishing

This film does not require edge sealing. However, certain applications, such as cut graphics, may benefit from using edge sealer. If needed, use edge sealer 3950.

## 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.)

## Removability

Film IJ180C-10 is warranted to be removable from vertical surfaces using heat, accessories, and/or chemicals for up to 5 years or the Warranted Durability, whichever comes first.

Removing film IJ180C-10 from a pre-existing graphic will damage that graphic. Refer to the Instruction Bulletin 6.5 for removal details.

A chemical remover system is available for graphics printed with solvent-based ink. Follow the procedures in Instruction Bulletin 6.5 for using film remover R-221 and adhesive remover R-231.

### Removal Details

The ease and rate of removal depends on a number of factors. See Instruction Bulletin 6.5 for details.

- Substrate type and condition
- Piezo ink series, amount and type
- Graphic age and weathering conditions
- Pull-off angle, which should be less than 90 degrees

Note: For the full product names of the 3M products listed on this page, please see page 1.

### Removal Exceptions

- A signed Pre-installation Review is required as a condition for warranty on automobiles and buses. See *Instruction Bulletin 5.36* and *Vehicle Graphics Warranty*.

Note: This film is not designed for short-term graphics and may cause damage upon removal from painted surfaces.

- Removability is not warranted for exterior, horizontal applications, or painted wallboard.
- Aged paint and metals must be tested to ensure removability. Surface oxidation or chalking may result in adhesive residue upon removal.
- Paint that is not firmly bonded to the substrate may be damaged when removing the film.
- Paint that is not properly cured may prevent the film from being removed.

### Shelf Life, Shipping, and Storage

- Unprocessed film IJ180C-10 has a shelf life of two years after receipt from 3M. Processed film has a shelf life of one year. However, the total shelf life of a graphic before and after processing cannot exceed two years.
- Store the film in a clean, dry area in the original container.
- Store the film out of the direct sunlight and at less than 100°F (38°C).
- Ship the finished graphic lying flat or in a roll. To roll the graphic, roll the film printed-side-out onto a core that is 5”es (13 cm) or larger in diameter. These methods help prevent the film and prespacing tape from wrinkling or popping off the liner.

Note: Processed film may block if wound too tightly.

- See Instruction Bulletin 6.5 for details.

### Health and Safety

#### **Caution**

When handling any chemical products, read the manufacturers' container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information.

To obtain MSDS sheets for 3M products:

- By fax, call 1-800-364-0768 in the US and Canada or 1-650-556-8417 for all other locations.
- Electronically, visit us at <http://www.3m.com/msds>.
- 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.

### Warranty and Limited Warranty

*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:* Film IJ180C-10 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. 3M will replace or refund the price of any 3M materials that do not meet this warranty within the specified time periods. See the worldwide 3M™ MCS™ Warranty bulletin, which gives the terms and limitations of the warranty.

**These remedies are exclusive. In no case shall 3M be liable for any direct, indirect or consequential damages, including any labor or non-3M material charges.**

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#### Attention:

#### Scotchprint® Graphics Authorized Manufacturers

Visit our password-protected website for exclusive product information, profiles and services.

[www.scotchprint.com](http://www.scotchprint.com), then *Login*

To register, login and click “Register” on the right side of the screen. Certain restrictions apply.

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## 3M Related Literature

**Before starting any job, be sure you have the most recent product and instruction bulletins.**

The following bulletins provide the information you need to properly use the 3M products that may be used in your graphic. You can find these bulletins on our Web site at [www.scotchprint.com](http://www.scotchprint.com). Or, call one of these phone numbers to order the desired bulletins via our Fax-on-Demand (FOD) system.

United States or Canada: 1-800-364-0768  
International: 1-651-732-6506

Subject	Bulletin No.	FOD No.
<b>Product Bulletins</b>		
3M™ Piezo Ink Jet Ink Series 1600	1600	4526
3M™ Piezo Ink Jet Ink Series 2300	2300	4538
3M™ Piezo Ink Jet Ink Series 2500UV	2500UV	4575
3M™ Piezo Ink Jet Ink Series 4000	4000	4515
3M™ Piezo Ink Jet Ink Series 6000	6000	4560
3M™ Screen Printing Ink Series 1900	1900	2501
3M™ Screen Printing Ink Series 9700UV	9700	2507
3M™ Piezo Ink Jet Protective Clear 8530	8530	4565
3M™ Scotchcal™ Overlaminates 8519 and 8520	8519/ 8520	4524
3M™ Scotchcal™ Luster Overlaminates 8908 ES	8908	3554
3M™ Scotchcal™ Matte Overlaminates 8909 ES	8909	3565
3M™ Scotchcal™ Luster Overlaminates 8910 ES	8910	3519
3M™ Scotchcal™ Matte Overlaminates 8911 ES	8911	3520

Subject	Bulletin No.	FOD No.
<b>Instruction Bulletins</b>		
Design of graphics	2.1	5501
Printing with piezo ink jet ink series 1600	4.30	6530
Printing with piezo ink jet ink series 2300	4.35	6535
Printing with piezo ink series 2500UV	4.41	6541
Printing with piezo ink jet ink series 4000	4.27	6527
Printing with piezo ink jet ink series 6000	4.39	6539
Screen printing with ink series 1900	3.12	6012
Screen printing with ink series 9700 UV	3.4	6004
Cold roll lamination	4.22	6522
Scoring and cutting	4.1	6501
Using 3M application tapes; premasking and prespacing for films	4.3	6503
Applying 3M graphic films with Comply™ Performance	5.31	7031
Application, substrate selection, preparation and substrate-specific application techniques	5.1	7001
Application: Special considerations for complex contours of automobiles, vans and buses and inspection forms	5.36	7036
Application, special applications and vehicles	5.4	7004
Application, general procedures for interior and exterior dry applications	5.5	7005
Storage, handling, maintenance, removal	6.5	8505
<b>Other Documents</b>		
Vehicle Graphics Warranty		9509

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*UltraVu is a trademark of VUTEK Inc.*

*Pressjet-W is a trademark of Scitex Corporation Ltd.*

*All other trademarks are the property of their respective companies.*

### Bulletin Change Summary

Added ColorSpan DisplayMaker 72 printer to list of printers qualified for the 3M Performance Guarantee.



#### Commercial Graphics Division

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Technical Info. 1-800-328-3908  
Fax 1-651-736-4233

Fax-on-Demand 1-800-364-0768 US/Canada or 1-651-732-6506 International  
Fax-on-Demand document: 4539  
[www.scotchprint.com](http://www.scotchprint.com)

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