



# Controltac™ Graphic Film

## IJ162-10, IJ162-114, and RG162-10\*

### For Solvent, UV and Latex Inkjet Printing Only

#### 1. Product Description

A 4-mil, slideable and repositionable film designed for making short-term, easily removable, indoor floor graphics that meet certain NFPA (National Fire Protection Agency) requirements. The film available in opaque white, which has excellent hiding power and outstanding resistance to dirt and other environmental factors and wear from high foot traffic when protected by the recommended overlamine.

\*Film RG162-10 is available for purchase and use with only a 3M Basic Product Warranty on a customer test and approve basis.

#### 2. 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 on most indoor hard surface flooring

##### A. Limitations of End Uses

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

- Graphics that are not protected by the recommended overlamine
- Application to loose, broken or unsound flooring material
- Application to playing surfaces such as gymnasium floors
- Graphics used for purposes other than for indoor floors
- Graphics applied to substrates other than those recommended
- Graphics made of individually laminated cut numbers, letters and characters
- Damage due to pallets or heavy equipment such as fork-lifts over the graphics; minor edge chipping is unavoidable. Such damage is not warranted.



#### CAUTION

Any floor surface, including those with floor graphics, that is wet due to rain, snow, or other contaminants may become slippery. To avoid personal injury due to slipping:

- Place the floor graphic far enough away from entryways that they stay dry.
- Use doormats to reduce moisture at entryways.
- Clean up water, spills, or other contaminants immediately.



#### WARNING

The safety and performance of 3M-recommended film/overlamine when used as a floor graphic is recommended or warranted only on the substrates listed in Characteristics. Any other surface must be approved in writing by 3M Commercial Graphics Technical Service prior to application.

FLOOR GRAPHICS ARE FOR INDOOR USE ONLY.

#### 3. Compatible Products

This Bulletin provides details about the base film, **recommended construction options, warranted durability and warranty limitations for the constructions shown in the Warranted Durability Tables.** Additional specific information about compatible products can be found in the Product and Instruction Bulletins listed in **3M Related Literature** at the end of this bulletin.

## A. Solvent Inkjet Inks and Printers

### Ink Series

- 3M™ Piezo Inkjet Ink Series 1500v2
- 3M™ Piezo Inkjet Ink Series 4400
- 3M™ Piezo Inkjet Ink Series 4800
- 3M™ Piezo Inkjet Ink Series 6200

### Printer

EFI™ VUTEK® 150, 2360/3360, 3300/5300 and 3000/5000 Printers  
 HP XLJet 1200 and 1500 Printers  
 HP Scitex TJ8300 & TJ8350 Series Digital Press  
 Agfa :Jeti 3312, 3318, 3324, 5024 [Gandinovations] Printers

## B. Latex Inkjet Inks and Printers

- HP 3M LX600 Specialty Latex Ink

HP Designjet L65500, Scitex LX600 & LX800 Printers

## C. UV Inkjet Inks and Printers

- 3M™ Piezo Inkjet Ink Series 2200UV
- 3M™ Piezo Inkjet Ink Series 2600UVv2
- 3M™ Piezo Inkjet Ink Series 2700UV
- 3M™ Piezo Inkjet Ink Series 2800UV
- 3M™ Piezo Inkjet Ink Series 5400UV

EFI™ VUTEK® PV200 Printer  
 3M™ Printer 2500UV  
 Durst Rho 160R and 351R Printers  
 EFI™ VUTEK® QS2000, QS3200, QS3220 and QS220 Printers  
 HP Designjet H35000/45000 Printers

## D. Graphic Protection

- 3M™ Scotchcal™ Luster Overlaminates 3645
- 3M™ Scotchcal™ High Gloss Overlaminates 3648 (*for non-warranted solutions only*)

## 4. Characteristics

These are typical values for unprocessed product; processing may change the values. Contact your 3M representative for a custom specification.


### Physical Characteristics

Characteristic	Value
Film	Cast vinyl
Film color	<b>Film color -10:</b> white, opaque <b>Film color -114:</b> clear
Gloss	Matte
Thickness <i>nominal</i>	<b>Without adhesive:</b> 4 mil (0.10 mm) <b>With adhesive:</b> 4.5—5 mil (0.11—0.13 mm)
Adhesive	Pressure activated, positionable
Adhesive color	<b>Film color -10:</b> gray pigmented <b>Film color -114:</b> clear
Liner	Polyethylene-coated paper
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water ( <i>does not include immersion</i> )

### Application Characteristics

Characteristic	Value
Finished graphic application recommendation	<b>Surface type:</b> Flat, without rivets <b>Substrate type:</b> Most indoor floors, including sealed concrete, marble, terrazzo, ceramic, finished wood <b>Application temperature:</b> 50° to 100°F (4° to 38°C) <b>Application method:</b> Dry
Applied shrinkage	0.032 inch (0.8 mm)
Temperature range after application	-10° — +200°F (-34° — +93°C)
Graphic removal	Removable without heat or chemicals, with little or no residue

## 5. Definitions

- A. Exposure Types**      **U.S. Horizontal Exposure**            The face of the graphic is +/- 5° from horizontal.
- B. Graphic Types**      **Indoor Signs**      Stationary graphics applied indoors and *not* exposed to the elements.
- C. Graphic Construction**      The products used to make a graphic, which may include film and/or flexible substrate, graphic protection, ink, printer and application tape.
- D. Graphic Protection**      Overlamine films or clear coats used to protect the graphic and/or change gloss.

## 6. Warranty Information

- A. Limitations and Disclaimers Applicable to All Warranties & Warranty Coverage Overview**      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. 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. **In no case shall 3M be liable for any direct, indirect, or consequential damages, including any labor or non-3M materials charges.**
- See the *3M Graphics Market Center Warranty Brochure* at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.
- B. Performance Expectations for Floor Graphics**      When constructed as indicated in the following table and in accordance with 3M's written instructions, floor graphics will for the warranted durability period have the following expected performance: maintain original brightness, color, and image quality, excepting ordinary and expected wear and tear, and adhere to 3M-recommended floor surfaces and be removable without damage to the surface.
- C. Warranty Options**      For this film, 3M offers you three different levels of warranty coverage, depending on how you choose to use the product.
- (1) 3M™ MCS™ Warranty**      Warranty for finished graphics constructed with the materials specified and used in a horizontal exposure.
- Subject to Stipulations set forth in Section D., below

	HP VUTEK® 150, 2360/3360, 3300/5300, 3000/5000 Printers			HP XLJet Series 1200, 1500 Printers			HP Scitex TJ8300 and TJ8350 Digital Presses		
	<b>SOLVENT Ink Series 1500v2</b>			<b>SOLVENT Ink Series 4400</b>			<b>SOLVENT Ink Series 4800</b>		
<b>Graphic Protection</b>	vehicle	outdoor	indoor	vehicle	outdoor	indoor	vehicle	outdoor	indoor
3645	—	—	1	—	—	1	—	—	1
	Agfa :Jeti 3312, 3318, 3324, 5024 [Gandiinnovations] Printers			Designjet L65500; Scitex LX600 & LX800 Printers					
	<b>SOLVENT Ink Series 6200</b>			<b>HP 3M LX600 Specialty Latex Ink</b>					
<b>Graphic Protection</b>	vehicle	outdoor	indoor	vehicle	outdoor	indoor			
3645	—	—	1	—	—	1			
	EFI™ VUTEK® PV200 Printer			3M™ Printer 2500UV			Durst Rho 160R & 351R Printers		
	<b>Ink Series 2200UV</b>			<b>Ink Series 2600UVv2</b>			<b>Ink Series 2700UV</b>		
<b>Graphic Protection</b>	vehicle	outdoor	indoor	vehicle	outdoor	indoor	vehicle	outdoor	indoor
3645	—	—	1	—	—	1	—	—	1
	EFI™ VUTEK® QS2000, QS3200, QS3220, QS220 Printers			HP Designjet H35000/45000 Printers					
	<b>Ink Series 2800UV</b>			<b>Ink Series 5400UV</b>					
<b>Graphic Protection</b>	vehicle	outdoor	indoor	vehicle	outdoor	indoor			
3645	—	—	1	—	—	1			

- (2) **3M Performance Guarantee**  
 Subject to Stipulations set forth in Section D., below

Warranty for the performance of 3M materials (only) used in graphics printed with the inks and printers specified in the most current version of Performance Guarantee Printer and Ink Matrix at 3Mgraphics.com and used in a horizontal exposure are eligible for the 3M Performance Guarantee.

Film	Graphic Protection	3M Material Warranty <i>In years</i>	Inks and Printers
IJ162-10	3645	1	See the Performance Guarantee Printer and Ink Matrix at <a href="http://www.3Mgraphics.com">www.3Mgraphics.com</a>

- (3) **3M Basic Product Warranty**

Film series IJ162 may be suitable for printing with many digital printers and ink systems that have not been tested or qualified by 3M. The user is responsible for testing and approving such usage. To provide slip resistance, the printed graphic must have overlamine 3645 or 3648 applied. The 3M materials are covered by the 3M Basic Product Warranty and are only guaranteed to be free of physical and manufacturing defects.

Film	Graphic Protection	Expected Performance Life Only	Inks and Printers
IJ162-10	3645	12 months	User test and approve
IJ162-114	3648	3 months	

**D. General Warranty Stipulations for 3M Warranties**

These stipulations apply to both the 3M™ MCS™ Warranty and 3M Performance Guarantee but should also be noted by all users. General provisions for these stipulations are covered in the *3M Graphics Market Center Warranty Brochure* at 3Mgraphics.com.

- (1) **Application to Glass**

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

- (2) **Application Outside the U.S.**

Contact the 3M organization for that country.

- (3) **Normal Wear and Tear**

Normal wear and tear, edge chipping, damage from pallets or heavy equipment, highly abrasive cleaning, damage from use in frequently wet areas and similar damage is not covered by any 3M warranty.

**7. Factors that Affect Graphic Performance Life**

The actual performance life of a graphic is affected by all of the following.

- Correct combination of 3M-recommended graphics products
- Complete ink drying and/or UV curing
- Selection and preparation of the floor
- Condition and texture of floor
- Application methods
- Exposure and environmental conditions
- Cleaning or maintenance methods
- Damage from excessive abuse

**8. Printer and Printer Accessory Disclaimer**

With the exception of 3M branded products, 3M does not represent that any printer or printer accessory recommended in 3M literature will meet customer requirements, any federal, state or local regulations or any applicable safety standards. Such determination is the responsibility of the printer owner.

**9. Graphics Manufacturing**

Refer to the 3M Related Literature section for a list of the Product and Instruction Bulletins that may be needed to make a graphic.

- 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 inks.  
**250%** when printed on the Mimaki JV5 Series printer with HS ink series (Performance Guarantee) or with printers and inks not qualified by 3M.

Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. Refer to the Instruction Bulletin for the ink system being used 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.

Always build enough time into your process to ensure complete 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.

## 10. Cutting

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

- Bandsawing
- Hot kiss cutting
- Hot and cold steel rule
- Drum-type electronic cutting
- Flat-bed electronic cutting
- Guillotine
- Hand cut
- Cold and hot steel-rule die cutting

## 11. Application and Installation

Install the film using the dry application method. See Instruction Bulletin 5.19.

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.

### A. Adhesive

This film has a pressure-activated adhesive that allows the film to slide easily on the substrate, be positioned with light finger pressure, and repositioned if it is not in the right place. However, by design so that a good adhesive bond is established, the positionability feature is lost when firm pressure with a squeegee or other application tool is applied, at application temperatures above 100°F (38°C) even if only light finger pressure was used for tacking, and if any part of the film is removed from the original liner and reapplied to the same or another liner.

Solvent from inkjet ink that has not completely dried also affects slideability and positionability.

Always work from the center out to the edges of the graphic to minimize trapped air. Use an air release tool to aid in removing air bubbles. See Instruction Bulletin 5.4 for details.

### B. Application Tape

A premasking or prespacing tape is not required or recommended.

## 12. 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.)

## 13. Removal

The film is removable without heat or chemicals within the warranted durability period. See Instruction Bulletin 5.19. Removal is not warranted when graphics are made with printers and inks not qualified by 3M.

## 14. Shelf Life, Storage and Shipping

### A. Shelf Life

**Total shelf life: 3 years** from the date of manufacture on the original box. Up to 3 years unprocessed, **OR** process within 2 years **and** then apply within 1 year of processing.

### 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, or rolled printed side out on 6 inch (15 cm) or larger core. This helps prevent the application tape, if used, from popping off.

## 15. 3M Related Literature

**Before starting any job, be sure you have the most current Product and Instruction Bulletins.**

The information in 3M Product and Instruction Bulletins is subject to change. Current Bulletins are available at 3Mgraphics.com. The following applicable Bulletins provide information and processes you need to properly make the graphics described in this Bulletin. Additional Bulletins may be needed as indicated in the 3M Related Literature section of other 3M components you use.

Bulletin types: PB = Product Bulletin; PB-IB = Product & Instruction Bulletin; IB = Instruction Bulletin

Subject	Type	Bulletin No.
3M™ Piezo Inkjet Ink Series 1500v2	PB-IB	1500
3M™ Piezo Inkjet Ink Series 4400	PB-IB	4400
3M™ Piezo Inkjet Ink Series 4800	PB-IB	4800
3M™ Piezo Inkjet Ink Series 6200	PB-IB	6200
3M™ Piezo Inkjet Ink Series 2200UV	PB-IB	2200UV
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 5400UV	PB-IB	5400UV
3M Graphic Protection Products <i>overview of all graphic protection products</i> - Cold roll lamination	PB IB	GP-1 4.22
Scoring and cutting	IB	4.1
Floor graphics	IB	5.19
Storage, handling, maintenance, removal	IB	6.5
3M Graphics Market Center Warranty Brochure	go to <a href="http://www.3Mgraphics.com">www.3Mgraphics.com</a> , Warranties	

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## 16. Bulletin Change Summary

Compatible Products added: EFI™ VUTEk® QS3220 and QS220 Printers for ink series 2800UV; Agfa :Jeti 3312, 3318, 3324, 5024 printers with ink series 6200; HP Designjet L65500 and Scitex LX600 & LX800 with HP 3M LX600 Specialty Latex inks. Name change: HP Designjet 788 printer for ink series 5400UV is now called HP Designjet H35000/45000 Printers. \*Film RG162-10 is available for purchase and use with only a 3M Basic Product Warranty on a customer test and approve basis.



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