



Scotchcal™ Translucent Graphic Film

IJ3630-20, RG3630-20 and FN3630-20

For Piezo Ink Jet Printing Only

Description

Films IJ3630-20, RG3630-20 and FN3630-20 are 2 mil films designed for piezo ink jet printing. Use these films for making flat, medium-term, backlit sign graphics. These films have consistent printed color, although the color may shift between reflected and transmitted light. The films also have a synthetic layflat liner that is not affected by water or humidity.

Recommended Types of Applications and End Uses

These end uses are recommended for this film and may be covered by the 3M™ MCS™ Warranty and/or the 3M Performance Guarantee. Certain restrictions may apply; please read the entire bulletin for details.

- For indoor or outdoor use on internally-illuminated vertical sign faces

Limitations of Uses

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

Unsuitable Applications for This Film

- Fleet graphics
- Graphic constructions with more than two layers of film, including the overlaminates
- Graphics that require the same color density in front lit and backlit graphics
- Graphics applied to:
 - surfaces with rivets or corrugations.
 - non-3M flexible substrates.
 - substrates with coatings such as silicone.
- Graphics made for automotive Original Equipment Manufacturers (OEM); contact 3M Automotive Division at 1-800-328-1684 for alternatives.

Compatible Products

Refer to the durability tables for 3M MCS warranty and the 3M Performance Guarantee (page 3) for the proper combination of printers, inks, films and graphic protection.

Inks and Printers for Film IJ3630-20

This film is forward wound on a 3-inch unnotched core.

- 3M™ Piezo Ink Jet Ink Series 2200UV
 - VUTEk PressVu® UV 200/600 printer
- 3M™ Piezo Ink Jet Ink Series 2600UV
 - 3M™ Printer 2500UV
- 3M™ Piezo Ink Jet Ink Series 2700UV
 - Durst Rho 160R Printer
- 3M™ Piezo Ink Jet Ink Series 1500
 - VUTEk UltraVu™ 150 Printer
 - VUTEk UltraVu™ 2360/3360 Printers
 - VUTEk UltraVu™ 3000/5000 Printers
 - VUTEk UltraVu™ 3300/5300 Printers
- 3M™ Piezo Ink Jet Ink Series 6000
 - Océ Arizona 30s Printer
- 3M™ Piezo Ink Jet Ink Series 4600
 - Scitex PressJet-W™ Digital Press*
- 3M™ Piezo Ink Jet Ink Series 4800
 - HP Scitex TJ8300 Series Digital Press*

*Order films for the Scitex printers on a forward wound 6-inch unnotched core.

Inks and Printers for Film RG3630-20

This film is reverse wound on a 3-inch, 4-notch core.

- 3M™ Piezo Ink Jet Ink Series 6800*
 - Océ Arizona 180 Printer
 - Océ Arizona 90 Printer

*May use Océ Piezo Ink Jet Ink Series 1700 for non-warranted graphics.

Inks and Printers for Film FN3630-20

This film is forward wound on a 3-inch, 4-notch core.

- 3M™ Piezo Ink Jet Ink Series 5500
 - Océ Arizona 600 Printer

Graphic Protection Options

- 3M™ Scotchcal™ Gloss Overlamine 8518
only for Performance Guarantee constructions
- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520
- 3M™ Scotchcal™ Luster Overlamine 8908
- 3M™ Scotchcal™ Matte Overlamine 8909
- 3M™ Screen Print Screen Print Clear 1920DR
- 3M™ Screen Print Screen Print Clear 9720UV

Light Control Films

- 3M™ Diffuser Films 3635-30
- 3M™ Diffuser Films 3635-70

Flexible Substrates

- 3M™ Panaflex™ Awning and Sign Facing 945GPS
- 3M™ Panagraphics™ II Flexible Substrate
- 3M™ Panagraphics™ III Wide Width Flexible Substrate

Other Products

- 3M™ Premasking Tape SCPM-3
- 3M™ Premasking Tape SCPM-44X
- 3M™ Prespacing Tape SCPS-2
- 3M™ Prespacing Tape SCPS-53X

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 help line at 1-800-328-3908.

Physical Characteristics

Characteristic	Description
Film	Vinyl
Colors	White, translucent
Thickness	Without adhesive: 2 mils (0.05 mm) With adhesive: 3 to 4 mils (0.08 to 0.1 mm)
Adhesive type	Pressure sensitive
Adhesive color	Clear
Liner	Polyethylene-coated paper
Roll sizes	54 inches x 50 yards (137 cm x 45 m)
Adhesion <i>24 hours after application</i>	Acrylic and uncoated, clear polycarbonate: 4 pounds/inch (0.7 kg/cm)

Characteristic	Description
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water <i>(this does not include immersion)</i>
Flammability	Call 1-800-328-3908 for information

Application Characteristics

Characteristic	Description
Finished graphic application recommendation	Surface type: Flat, without rivets Substrate type: 3M flexible substrates (see Compatible Products) Rigid substrates such as flat acrylic, polycarbonate*, high temperature copolyester sign sheet, glass Application temperature: 60°F (16°C) <i>minimum air and substrate</i> Application method: Wet, typical
Finished graphic exposure temperature	-50° to +170°F (-45° to +77°C)
Graphic removal	None, permanent

* Films IJ3630-20, RG3630-20 and FN3630-20 typically adhere to solar-grade polycarbonate substrate. However, some lots of this substrate may inhibit the adhesion of the film. Contact 3M Commercial Graphics Technical Service if you are having difficulty with this combination. See Instruction Bulletin 5.7 for additional information.

Polycarbonate substrates may require drying by oven drying before use because outgassing of moisture from the polycarbonate may cause the film to bubble. Refer to the manufacturers' instructions.

3M Flexible Substrates

The user is responsible for determining and complying with all applicable building codes that affect the use of materials in interior and exterior awning, banner and sign face applications, including flammability standards. For information on flammability requirements, contact your local building code officials. For information on the results of flammability testing on 3M flexible substrates, including the product covered in this Product Bulletin from 3M Commercial Graphics Division, call 1-800-328-3908.

Warranty Information

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.

3M™ MCS™ Warranty

for Finished Graphics

3M MCS Warranty Finished Graphic Constructions and Durability

Graphic Type	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
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U.S. Vertical Exposure ONLY (in years)

Ink Series	1500								4600								4800								6000													
Graphic Protection	Film IJ3630																																					
8519	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8		
8520	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8
8908	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3
8909	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3	1	3
1920DR	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8
9720UV	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8	4	8	3	8	4	8
none	3	3	3	3	2	3	3	3	3	3	2	3	3	3	3	3	2	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Ink Series	2200UV				2600UV				2700UV																															
8519	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8		
8520	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8
8908	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8909	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1920DR	—	—	4	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9720UV	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8
none	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Ink Series	Film FN3630				Film RG3620			
	5500				6800			
8519	4	8	4	8	4	8	4	8
8520	4	8	4	8	4	8	4	8
8908	1	3	1	3	1	3	1	3
8909	1	3	1	3	1	3	1	3
1920DR	4	8	4	8	4	8	4	8
9720UV	4	8	4	8	4	8	4	8
none	3	3	3	3	3	3	3	3

How to Determine Other 3M MCS Warranty Durabilities

Use the warranted durability for your construction if exposed in a U.S. vertical orientation and use the following formulas to determine other durabilities.

Formulas for Other U.S. Warranty Durabilities

Use the 3M MCS warranted durability for your construction if exposed in a U.S. vertical orientation and use the following formulas to determine other durabilities.

	Exposure		
	U.S. Non-Vertical	U.S. Vertical Desert Southwest	U.S. Non-Vertical Desert Southwest
Percentage of U.S. Vertical Exposure	50% (0.5)	70% (0.7)	35% (0.35)
Example	0.5 x 4 years = 2 years	0.7 x 4 years = 2.8 years	0.35 x 4 years = 1.4 years

3M Performance Guarantee

for Product Performance Only

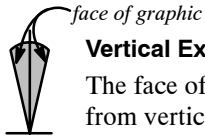
3M Performance Guarantee Graphic Constructions and Durability

Graphics constructed as described in the table below are eligible for the 3M Performance Guarantee warranty. This is not a finished graphics warranty; it covers product performance **only** for the 3M specified products when imaged with the printers and OEM inks listed in the most current version of **Product Bulletin PG Matrix**. That bulletin may also list certain restrictions for using this film.

Film	U.S. Vertical Exposure (in years)		
	Graphic Protection	Vehicle Outdoor Indoor	Inks and Printers
IJ3630	8518 8519 8520 1920DR 9720UV	2	See Product Bulletin PG Matrix

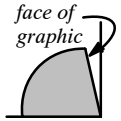
Warranty Details

Definitions



Vertical Exposure

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



Non-Vertical Exposure

The face of the graphic is greater than 10° from vertical.

Desert Southwest: Graphics exposed to solar energy more than half of the time in Arizona, New Mexico and the desert areas of California, Nevada, Utah and Texas. A detailed map is available upon request.

Vehicles. Refers to commercial fleet, buses, vans and automobiles unless otherwise noted.

Outdoor and Indoor. Indicates warranties for signs.

Graphic Performance Life

The actual performance life of a graphic depends on all of the following.

- Use of 3M recommended products and printers.
- Correct combination of film, ink and graphic protection (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.

Application Outside the U.S.

Contact the 3M organization for that country.

Graphics Made with Components Not Sold or Recommended by 3M

The 3M MCS warranty does not cover finished graphics made with other manufacturers' inks, film, graphic protection and/or application tapes. The user is solely responsible for the graphic appearance, performance and durability of graphic constructions that include non-3M graphic products.

The Performance Guarantee covers selected 3M graphic products when used with qualified printers and OEM inks. See page 3.

Graphic Protection

- For the best performance and appearance, an overlamine is strongly recommended when this film is used on an awning due to the effects of roof run-off.
- Screen print clears should be applied by standard screen printing.
- Overlaminates must be cold roll applied.

Application to Glass

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

Warranty and Limited Liability

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: all 3M products are 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. 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 Graphics Market Center Warranty Brochure, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

Printer Support Information

Ink

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

Total Ink Coverage for 3M MCS Warranty Constructions

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, 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.

Ink Series	Maximum Total Ink Coverage	Ink Series	Maximum Total Ink Coverage
1500	270%	6800	300%
4600	150%	2200UV	300%
4800	270%	2600UV	300%
5500	300%	2700UV	300%
6000	300%		

Total Ink Coverage for Performance Guarantee Constructions

We recommend a maximum total ink coverage of 270%. Make sure that the ink lay down is within the limits of what the drier can handle to prevent ink smearing.

Backlit Signs Require Special Consideration

Clear and translucent films tend to be more sensitive to shrinkage due to high total ink coverage. Film that is not sufficiently dried prior to creating an overlap may shrink and result in a light leak. Rather than increasing the total ink coverage to increase the density of the backlit image, we recommend printing two layers of film at lower ink levels. Refer to Instruction Bulletin 4.26 for details and construction options.

Backlighting any film, no matter how it is imaged, reduces the density of the colors on the image.

Drying

Caution

Inadequate 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 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.

Cutting

Caution

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

For the inside corners of cut out letters and symbols, and the pointed end of stripes, cut the largest radius consistent with an acceptable appearance. This technique helps avoid stress cracking due to age, and lifting of pointed ends during maintenance.

For individual pieces, use one of these cutting methods.

- Hand cut
- Die cut
- Kiss cut
- Electronic cutter

For multiple pieces, use one of these cutting methods.

- Guillotine
- Die cut

Application Tapes

The type of application tape to use depends on the type of graphic produced and the ink or graphic protection that was applied last. See Instruction Bulletin 4.3 for details.

NR= Not Recommended

Film IJ3630-20	Graphic Protection								
	Refer to the Warranty tables on page 3 to determine whether the Graphic Protection option listed is approved for the ink series you are using with these films.								
	None UV Ink Series only	None Other ink series	8519	8520	8908	8909	1920DR	9720UV	8518 & Options Listed in Product Bulletin: PG Matrix
Premasking Tape SCPM-3		■	■	■	■	■	■		■
Prespacing Tape SCPS-2		■	■	■	NR	NR	■		■
Premasking Tape SCPM-44X	■							■	
Prespacing Tape SCPS-53X	■							■	

Fabrication

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

Application

For application by hand, the detergent and water application method is recommended. Dry application by hand may leave some dark streaks or bubbles that could be visible in transmitted light.

For roll application, the dry method is acceptable.

Maintenance and Cleaning


Use a mild cleaner such as the kind used 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). See Instruction Bulletin 6.5.

Shelf Life, Storage and Shipping

Activity	Recommendation
Shelf life	Total shelf life: 2 years Up to 2 years unprocessed, OR process within 1 year and apply within 1 year of processing
Storage conditions	<ul style="list-style-type: none"> • Less than 100°F (38°C) • Out of sunlight • Clean dry area • Original container • Bring the film to print room temperature before using
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.

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:
<ul style="list-style-type: none"> • 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 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.

Attention:

Authorized Graphics Manufacturers

Visit our password-protected website for exclusive product information and services. Certain restrictions apply.

1. Go to www.scotchprint.com.
2. Select a country.
3. Click *Login* on upper left side of screen.
4. Click Register.
5. Enter authorization code: **CGD_SGN**.
6. Complete the information and submit.
An e-mail will be sent when your authorization is completed.

Related 3M Literature

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

The information in 3M bulletins is subject to change. Current bulletins, as well as a list of all bulletins updated within the last three months, are available at www.scotchprint.com or through our Fax-on-Demand system. Any warranty, if offered, is based on information in the bulletin that was current at the time you purchased the 3M products. The following bulletins provide the information and processes you need to properly make the graphics described in this bulletin.

Fax-on-Demand phone numbers:
United States or Canada: 1-800-364-0768
International: 1-651-732-6506

Subject	Bulletin No.	FOD No.
Product Bulletins		
3M™ Piezo Ink Jet Ink Series 2200UV	2200UV	4597
3M™ Piezo Ink Jet Ink Series 2600UV	2600UV	4594
3M™ Piezo Ink Jet Ink Series 2700UV	2700UV	4598
3M™ Piezo Ink Jet Ink Series 1500	1500	4578
3M™ Piezo Ink Jet Ink Series 4600	4600	4582
3M™ Piezo Ink Jet Ink Series 4800	4800	4602
3M™ Piezo Ink Jet Ink Series 5500	5500	4592
3M™ Piezo Ink Jet Ink Series 6000	6000	4560
3M™ Piezo Ink Jet Ink Series 6800	6800	4574
3M™ Screen Printing Ink Series 1900	1900	2501
3M™ Screen Printing Ink Series 9700UV	9700	2507
3M™ Light Control Film Series 3635	3635	3010
3M™ Scotchcal™ Overlamine 8518	8518	4600
3M™ Scotchcal™ Overlamine 8519 and 8520	8519/ 8520	4524

Subject	Bulletin No.	FOD No.
3M™ Scotchcal™ Luster Overlaminates 8908	8908	3554
3M™ Scotchcal™ Matte Overlaminates 8909	8909	3565
3M™ Panaflex™ Awning and Sign Facing 945 GPS	945GPS	4006
3M™ Panagraphics™ II Intermediate Flexible Substrate	P2	4010
3M™ Panagraphics™ III Wide Width Flexible Substrate	P3	4012
3M Performance Guarantee Printer Matrix	PG Matrix	4599

Instruction Bulletins

Printing with piezo ink series 2200UV	4.52	6552
Printing with piezo ink series 2600UV	4.50	6550
Printing with piezo ink series 2700UV	4.53	6553
Printing with piezo ink series 1500	4.45	6545
Printing with piezo ink series 4600	4.43	6543
Printing with piezo ink series 4800	4.51	6551
Printing with piezo ink series 5500	4.47	6547
Printing with piezo ink series 6000	4.39	6539
Printing with piezo ink series 6800	4.40	6540
Screen printing with ink series 1900	3.11	6011
Screen printing with ink series 9700UV	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
Making backlit signs with piezo printed films	4.26	6526
Application, substrate selection, preparation and substrate-specific application techniques	5.1	7001
Application, special applications and vehicles	5.4	7004
Application, general procedures for indoor and outdoor dry applications	5.5	7005
Storage, handling, maintenance, removal	6.5	8505
Wet application method	5.7	7007
Application and attachment of graphics	5.21	7021

Warranties

3M Graphics Market Center Warranty Brochure	9503
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 PressVu is a registered trademark and 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 owners.



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 www.scotchprint.com

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 Fax 52-55-52-70-22-77

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 787-620-3000
 Fax 787-750-3035

Bulletin Change Summary

Changes to the 3M Performance Guarantee program. Overlaminates 8518 has been added as a compatible product. Because we are continually testing and approving more platforms, the specific 3M-qualified printers and OEM inks are now listed only in the Product Bulletin PG Matrix. To obtain this bulletin from the web, go to www.scotchprint.com, select Technical Bulletins, select Product Bulletins, select Piezo Ink Jet Films, select Films for other printers. The **Product Bulletin PG Matrix** appears at the top of the page.

Other New Products. Added ink series 4800, 2200UV and 2700UV. Added Panagraphics II and Panagraphics II substrates as an approved substrate with the same warranty as for any other approved construction for this film.

Other changes.

- The bulletin has been updated to better show the differences between the 3M MCS Warranty and 3M Performance Guarantee durabilities.
- Specific maximum total ink coverage values, by ink series, have been added (page 5).
- Thermoforming is no longer recommended for piezo ink jet printed graphics.
- Clarification was added regarding the difference between consistent printed color and color shift for backlit graphics (page 1).
- All additions or changes to text are marked with a black bar in the margin.