



Scotchcal™

Translucent Graphic Film IJ3630-20

For Piezo Ink Jet Printing Only

Product Description

3M™ Scotchcal™ Translucent Graphic Film IJ3630-20 is 2 mil film designed for making both flat and thermoformed backlit graphics that have uniform color in both reflected and transmitted light. It has a synthetic layflat liner.

Key Features

- Approved for piezo ink jet printing
- Up to four year, exterior durability
- Superior lay-flat characteristics in all shop humidity conditions
- Liner is not affected by moisture; does not split if wet
- Dimensionally stable

Application and Uses

Film IJ3630-20 is intended for making both warranted and promotional applications. The following applications may be warranted by the 3M™ MCS™ Warranty. See page NO TAG.

- For interior or exterior use on internally-illuminated sign faces
- For thermoforming with rigid plastic surfaces under well-controlled conditions as described in Instruction Bulletin 5.16

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.

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

- Fleet graphics
- Graphic constructions with more than two layers of film, including the overlamine
- Graphics applied to:
 - surfaces with rivets or corrugations.
 - non-3M flexible substrates.
 - substrates with coatings such as silicone.

- 3M Commercial Graphics Division products are not tested against automotive manufacturers' specifications and are, therefore, not warranted for use in fabricating graphics for automotive Original Equipment Manufacturers (OEM).

Compatible Products for Warranted Graphics

Inks and Printer Platforms

- 3M™ Piezo Ink Jet Ink Series 4600
 - Scitex PressJet-W™ Digital Press
- 3M™ Piezo Ink Jet Ink Series 1500
 - VUTEk UltraVu™ 2360/3360 Printers
- 3M™ Piezo Ink Jet Ink Series 1500
 - VUTEk UltraVu™ 3000/3300 and 5000/5300 Printers
- 3M™ Piezo Ink Jet Ink Series 6000
 - Océ Arizona 30-s Printer
- 3M™ Piezo Ink Jet Ink Series 6800
 - Océ Arizona 180 Printer
- 3M™ Piezo Ink Jet Ink Series 5600
 - Océ Arizona 600 Printer
- 3M™ Screen Print Screen Print Clear 9720UV
- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520
- 3M™ Scotchcal™ Luster Overlamine 8908 ES
- 3M™ Scotchcal™ Matte Overlamine 8909 ES
- 3M™ Scotchcal™ High Gloss Overlamine 3640 GPS
- 3M™ Screen Print Gloss Clear 1920

Films

- 3M™ Diffuser Films 3635-30, 3635-70

Substrates

- 3M™ Panaflex™ Awning and Sign Facing 945GPS

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

Other Products

- 3M™ Premasking Tape SCPS-100
- 3M™ Prespacing Tape SCPS-2

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.

Physical Characteristics

Characteristics	Description
Film	Vinyl, White Translucent
Thickness	Without adhesive: 0.05 mm (50 micron) With adhesive: 0.08 to 0.1 mm (80-100 micron)
Adhesive type	Pressure sensitive, clear
Liner	Polyethylene-coated paper
Tensile strength*	8.8N (0.9 kg/cm at 23°C) (minimum)
Roll sizes	137 cm x 45 m (54 inches x 50 yards)
Adhesion* 24 hours after application	Acrylic and uncoated, clear polycarbonate 8.6N (0.7 kg/cm)
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water <i>(this does not include immersion)</i>

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

*Impact at low temperatures of film applied to flexible substrates may result in cracking of the film and/or substrate, which is not covered by the 3M MCS Warranty.

Application Characteristics

Characteristic	Description
**Finished graphic application recommendation	Surface type: Flat, without rivets Substrate type: 3M™ Panaflex™ Awning and Sign Facing 945GPS Rigid substrates such as flat acrylic, polycarbonate*, copolyester sign sheet, glass Application temperature: 16°C <i>air and substrate</i>
Applied film shrinkage	0.4 mm (40 micron)
Finished graphic exposure temperature	-45° to +77°C
Graphic removal	Permanent

* Some polycarbonate substrates have a scratch resistant coating on one side. This coating has a low surface energy and will discourage adhesion. In these cases, second surface application should be considered.

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

** For applications nearing the minimum temperature range, please contact your local technical service representative to confirm suitability of application

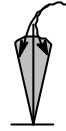
Effective Performance Life

Only a Scotchprint® Graphics Authorized Manufacturer or 3M Piezo Ink Jet Registered Fabricator can produce 3M™ MCS™ Warranted Graphics. The effective performance life is based on field experience and exposure tests conducted throughout the United States. When the graphics are processed and used according to the 3M recommendations, they should have the performance life shown in the table below. The actual performance depends on the:

- Correct combination of film, ink and screen print clear or overlaminate
- Adequate drying

- Selection and preparation of the substrate
- Application methods
- Exposure conditions
- Cleaning methods

Graphic Exposure Definition



face of graphic

Vertical Exposure

Face of graphic is +/- 10° from vertical

Warranted Durability

Film	Ink Series	Protective Clears	Fleet			Exterior Sign 1st Surface			Exterior Sign 2nd Surface			Interior		
			1	2	3	1	2	3	1	2	3	1	2	3
IJ3630-20 RG3630-20	4600, 1500, 6800, 5600	-	0	0	0	3	3	2	0	0	0	8	8	8
IJ3630-20 RG3630-20	4600, 1500, 6800, 5600	8519, 8520, 1920, 8908, 8909, 9720UV	0	0	0	5	4	3	0	0	0	8	8	8

When to Use an Overlamine or Screen Print Clear

An overlamine or screen print clear provides protection to a graphic as well as changing gloss. Typically, only graphics that are subjected to harsh conditions require this protection in order to be warranted. They include any graphic exposed to abrasive washing conditions, including automatic/power washing, harsh cleaners or chemicals.

Printing with Solvent-Based Piezo Ink Jet Inks

The ink Instruction Bulletin provides detailed information for successful printing and graphic application. You must follow these instructions to get the durability given in the Effective Performance Life. See **3M Related Literature** on page 6.

The operator who has an excellent understanding of pre-press operations, including color management and using software profiles, and who understands the relationship between film characteristics, printer setup, total ink coverage and drying time can produce graphics that achieve the performance expectations of the film and the customer.

The operator should work with the graphic designer and/or color conversion operator so there is a common understanding of print and media parameters.

The operator should also work with the film applicator so you are both aware of any special handling or application techniques that may be needed for the selected film construction.


Total Ink Coverage

Do not exceed a total ink coverage of 300% for film IJ3630-20. When used in the printers approved for the Performance Guarantee, we recommend a maximum of 270%. Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. Lifting on corrugations and tenting on rivets is possible with higher ink coverage.

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.

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.

Thermoforming

Refer to Instruction Bulletin 5.16 for detailed information.

 Caution
Film IJ3630-20 emits vapours during the thermoforming process. Be sure to read and follow the information contained in the Material Safety Data Sheet (MSDS), the box label and Instruction Bulletin 5.16 before thermoforming.

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 screen print clear that was applied last. See Instruction Bulletin 4.3 for details.

- Use a prespacing tape if the graphic has large amounts of the liner exposed.
- Use a premasking tape if very little of the liner is exposed.

Screen Print Clear	Prespacing Tape	Premasking Tape
Printed, uncleared	SCPS-100	SCPM-19
1920DR 9720UV 8519 8520	SCPS-100	SCPM-19
8908 ES 8909 ES	None	SCPM-19

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.

Removal

This film is not removable.

Shelf Life, Shipping, and Storage

- Unprocessed film 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 2 years.
- Store the film in a clean, dry area in the original container.
- Store the film out of direct sunlight and at less than 38°C.
- Ship the finished graphic lying flat or in a roll. To roll the graphic, roll it printed side out onto a core that is 13 cm or larger in diameter. These methods help prevent the film and application tape from wrinkling or popping off the liner.
- See Instruction Bulletin 6.5 for details. Related 3M Literature

Related Literature

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

Subject	Bulletin No..
Product Bulletins	
3M™ Piezo Ink Jet Ink Series 4600	4600
3M™ Piezo Ink Jet Ink Series 1500	1500
3M™ Piezo Ink Jet Ink Series 6000	6000
3M™ Piezo Ink Jet Ink Series 6800	6800
3M™ Screen Printing Ink Series 1900	1900
3M™ Screen Printing Ink Series 9700UV	9700
3M™ Light Control Film Series 3635	3635
3M™ Scotchcal™ Overlamine 8519 and 8520	8519/8520
3M™ Scotchcal™ Luster Overlamine 8908 ES	8908
3M™ Scotchcal™ Matte Overlamine 8909 ES	8909
3M™ Panaflex™ Awning and Sign Facing 945 GPS	945
Instruction Bulletins	
Design of graphics	2.1
Printing with piezo ink jet ink series 1600	4.30
Printing with piezo ink jet ink series 2300	4.35
Printing with piezo ink jet ink series 4000	4.27
Printing with piezo ink jet ink series 5600	
Printing with piezo ink series 6000	4.39
Printing with piezo ink series 6800	4.40
Screen printing with ink series 1900	3.11
Screen printing with ink series 9700UV	3.4
Cold roll lamination	4.22
Scoring and cutting	4.1
Using 3M application tapes; premasking and prespacing for films	4.3
Making backlit signs with piezo printed films	4.26
Application, substrate selection, preparation and substrate-specific application techniques	5.1
Application, special applications and vehicles	5.4
Application, general procedures for interior and exterior dry applications	5.5
Storage, handling, maintenance, removal	6.5
Wet application method	5.7
Application and attachment of graphics	5.21
Thermoforming	5.16

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 Pressjet-W is a trademark of Scitex Corporation Ltd.

Bulletin Change Summary

3M™ Scotchcal™ Luster Overlamine 8910 ES and 3M™ Scotchcal™ Matte Overlamine 8911 ES have been replaced by overlaminates 8519 and 8520, respectively with no difference in performance or warranty.

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 Pressjet-W is a trademark of Scitex Corporation Ltd.

Glossary of Terms

Matched Component System™ or MCS™

The system pursuant to which Finished Graphics are produced by a Graphic Manufacturer using only 3M Products and components and manufactured in accordance with 3M's Product or Instruction Bulletins, 3M Specification Document and using 3M Approved Technologies.

Permanent Adhesive

Films with a permanent adhesive can be difficult to remove and will often require heat and/or chemicals for effective removal.

Health & Safety

Refer to the package label and the Material Safety Data Sheet for health, safety, and handling information on the products referenced in this bulletin. For 3M products, if necessary, you may contact our Toxicology/Product Responsibility Department on 01344 858000.

Important Notice to Purchaser

The 3M products described in this publication are covered by a 3M warranty and limitation of liability.

3M's warranty provides that if 3M finds that goods are defective in material or workmanship they will be replaced or the price refunded at 3M's option but note that 3M does not accept liability for other direct losses (except for personal injury or death) or consequential losses relating to defective products or from information supplied by 3M.

Purchasers and users of 3M products, and not 3M supplying companies, are always solely responsible for deciding on the suitability of the 3M product for their required or intended use.

Technical Assistance

For help on specific questions relating to 3M Commercial Graphics Division Products, contact your local Technical Service Representative.

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