



# Scotchcal™ ElectroCut™ Graphic Film

## Series 7725

For Electronic Cutting, Thermal Transfer Printing and Screen Printing

### 1. Product Description

- 2-mil cast vinyl in 61 colors
- Pressure-sensitive, permanent adhesive
- Same color on both sides
- Transparent synthetic liner resists moisture absorption and static build up.
- Lays flat for easier assembly of multi-color graphics.
- Superior cutting as small as 0.25 inch (0.64 cm) and weeding.
- Ideal for prespaced and electronically cut, screen printed or used in narrow width thermal transfer printing systems

### 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](#). Please read the entire Bulletin for details.

- Prespaced and electronically-cut graphics
- Commercial and industrial graphic applications, including emblems, vehicle graphics, labels, striping, general signage, two-way window markings
- Thermal transfer printed graphics

### 3. Performance Overview

3M tests the performance of both individual products and finished graphic constructions. This table shows the best performance expected from this product 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 4.

<b>Expected Performance Life.</b> 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.	8 years Unwarranted Period
<b>3M™ MCS™ Warranty.</b> This is the maximum period of time 3M will warrant the finished graphic performance.	
Printed white film with the best 3M ink and graphic protection option, applied to a flat, vertical, vehicle surface.	6 years Warranty Period

### 4. Limitations of End Uses

#### A. Do not use the film for these end uses

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

- Non-vertical applications
- Application to corrugated surfaces or surfaces with compound curves
- Application to stainless steel for fleet applications
- Graphics exposed to petroleum products or fumes
- Thermoforming
- Backlit signage (Use one of the 3M™ Scotchcal™ Translucent Graphic Film Series instead)
- Use in Summa's SummaChrome™ or DuraChrome™ printers or similar printers

## 5. 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. Screen Printing Inks

- 3M™ Screen Printing Ink Series 1900 *line color only*
- 3M™ Screen Printing UV Ink Series 9800 *line color only*

### B. Graphic Protection

- 3M™ Screen Printing Gloss Clear 1920DR
- 3M™ Screen Printing Matte Clear 1930
- 3M™ Screen Printing Matte Clear 9730UV
- 3M™ Screen Printing Gloss UV Clear 9800CL
- 3M™ Screen Printing Gloss UV Clear 9740i

### C. Other Products

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

## 6. Characteristics

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

### A. Physical Characteristics

Characteristic	Description
Film	Cast vinyl, glossy finish
Opacity	Translucent
Thickness	<b>Without adhesive:</b> 2 mil (0.05 mm) <b>With adhesive:</b> 2.5 to 3.5 mils (0.063 to 0.09 mm)
Adhesive type	Pressure sensitive
Adhesive color	Clear
Liner	Transparent synthetic
Tensile strength	5 pound/inch at 73°F (0.9 kg/cm at 23°C) <i>minimum</i>
Adhesion <i>24 hours after application</i>	<b>ABS:</b> 4 pounds/inch (0.7 kg/cm) <b>Acrylic:</b> 4 pounds/inch (0.7 kg/cm) <b>Acrylic enamel:</b> 4 pounds/inch (0.7 kg/cm) <b>Fruehauf painted panels:</b> 4 pounds/inch (0.7 kg/cm) <b>Polycarbonate:</b> 4 pounds/inch (0.7 kg/cm) <b>Urethane paints:</b> 4 pounds/inch (0.7 kg/cm) <b>Aluminum, alodine:</b> 8 pounds/inch (1.4 kg/cm) <b>Chrome:</b> 5 pounds/inch (0.9 kg/cm) <b>Polypropylene:</b> 3 pounds/inch (0.5 kg/cm)
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water ( <i>this does not include immersion</i> )
Flammability	Flammability Test Reports on product catalog for 7725 films: ASTM E84 test report or go to the On-line Product Catalog at 3Mgraphics.com. All other test reports: call 1-800-328-3908.

## B. Color Chart

Number	Color	Number	Color	Number	Color
7725-10	White	7725-46	Kelly green	7725-99	Fawn
7725-11	Pearl gray	7725-47	Intense blue	7725-103	Magenta
7725-12	Black	7725-48	Purple	7725-105	Harvest gold
7725-13	Tomato red	7725-49	Beige	7725-114	Clear
7725-14	Bright orange	7725-53	Cardinal red	7725-120	Satin aluminum
7725-15	Bright yellow	7725-54	Light orange	7725-130	Eggshell
7725-17	Vivid blue	7725-56	Dark green	7725-131	Satin gold
7725-19	Deep mahogany brown	7725-57	Olympic blue	7725-139	Saddle brown
7725-20	Matte white	7725-58	Burgundy	7725-176	Aqua
7725-22	Matte black	7725-59	Putty	7725-177	Shadow blue
7725-23	Deep red	7725-63	Geranium	7725-186	Bright green
7725-24	Terra cotta	7725-64	Apricot	7725-187	Wedgewood blue
7725-25	Sunflower	7725-66	Forest green	7725-193	Mauve
7725-27	Indigo	7725-77	Peacock blue	7725-196	Apple green
7725-29	Russet brown	7725-85	Vista yellow	7725-197	Light navy
7725-31	Medium gray	7725-86	Robin egg blue	7725-263	Perfect match red
7725-37	Sapphire blue	7725-88	Violet	7725-273	Process magenta
7725-38	Royal purple	7725-89	Sandstone	7725-276	Bottle green
7725-39	Tan	7725-90	Antique white	7725-307	Dark aqua
7725-41	Dark gray	7725-96	Teal	7725-357	Bermuda blue
		7725-98	Dark violet		

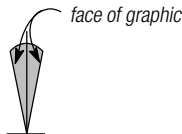
## C. Application Characteristics

Characteristic	Description
Finished graphic application recommendation	<p><b>Graphic orientation:</b> Vertical, non-vertical and horizontal</p> <p><b>Surface type:</b> Flat with and without rivets; Simple curves</p> <p><b>Substrate type:</b> Metal, glass, acrylic, polycarbonate, fiberglass, painted surfaces</p> <p><b>Application temperature:</b> 50° to 100°F (10°C to 38°C) <i>air and substrate</i></p> <p><b>Application method:</b> Wet</p>
Applied film shrinkage	0.010 inch (0.3 mm) <i>maximum</i>
Finished graphic exposure temperature	-40° to +225°F (-40° to +107°C)
Graphic removal	None, permanent

## 7. Definitions

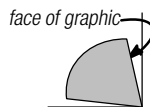
### A. Exposure Types

#### U.S. Vertical Exposure



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

#### U.S. Non-vertical Exposure



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** Overlamine films or clear coats used to protect the graphic and/or change gloss.
- D. Graphic Types**
  - Indoor Signs** Stationary graphics applied indoors and *not* exposed to the elements.
  - Outdoor Signs** Stationary graphics applied outdoors and exposed to the elements.
  - OEM** Labels and decorative graphics produced for and used by original equipment manufacturers. May also be called decals.
  - Vehicles**
    - Vehicle.** Buses, vans, passenger vehicles, delivery trucks, pickup trucks, enclosed trailers.
    - Straight Trucks. Semi-Tractors and Semi-Trailers.** Straight trucks, semi-tractors and semi-trailers used for commercial business purposes. Excludes air shields.

*As identified in Product Warranty Matrices*

## 8. 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 Commercial 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 Commercial Graphics Warranties Brochure](#) at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.
- F. 3M™ MCS™ Warranty**

Subject to Stipulations set forth in Section G., below

  - (1) Warranty Period**
    - for Finished Graphics
    - in a Standard U.S. Vertical Exposure

Veh = Fleet, Standard and Recreational Vehicle Graphics  
Out = Outdoor Signs  
In = Indoor Signs

*See Warranty Period tables on the next page*

Warranty Period in Years for Vertical Exposure												
Imaging	No Printing			Ink Series 1900			Ink Series 9800			Ink Series 9800 Metallic		
	Veh	Out	In	Veh	Out	In	Veh	Out	In	Veh	Out	In
<b>Graphic Protection</b>	<b>Film Colors: 7725-10, 12, 20, 22</b>											
1920DR, air dry	—	—	—	5	5	5	—	—	—	—	—	—
1920DR, oven dry	—	—	—	6 ■	6 ■	6 ■	—	—	—	—	—	—
1930	—	—	—	2	2	2	—	—	—	—	—	—
9740i	—	—	—	6	6	6	6	6	6	5	5	5
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None	8	7	7	—	—	—	—	—	—	—	—	—
<b>Graphic Protection</b>	<b>Film Colors: 7725-114, 120, 131</b>											
1920DR, air dry	—	—	—	5	5	5	—	—	—	—	—	—
1920DR, oven dry	—	—	—	5 ■	5 ■	5 ■	—	—	—	—	—	—
1930	—	—	—	2	2	2	—	—	—	—	—	—
9740i	—	—	—	5	5	5	5	5	5	5	5	5
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None	5	5	5	—	—	—	—	—	—	—	—	—
<b>Graphic Protection</b>	<b>Film Colors: All other colors of film series 7725</b>											
1920DR, air dry	—	—	—	5	5	5	—	—	—	—	—	—
1920DR, oven dry	—	—	—	6 ■	6 ■	6 ■	—	—	—	—	—	—
1930	—	—	—	2	2	2	—	—	—	—	—	—
9720i	—	—	—	6	6	6	6	6	6	5	5	5
9720UV	—	—	—	6	6	6	6	6	6	5	5	5
9730UV	—	—	—	3	3	3	3	3	3	—	—	—
9800CL	—	—	—	—	—	—	5	5	5	5	5	5
None	6	6	6	—	—	—	—	—	—	—	—	—

■ Warranty requires oven drying the last color of ink series 1900 and clear 1920DR for 2 hours at 150°F (65°C)

**(2) Legibility Warranty**

For Fleet Graphics ONLY for Horizontal Exposure and Selected Constructions

Applications subjected to maximum sunlight and environmental conditions used on rooftops of commercially-owned fleet vehicles where identification from the air is needed are warranted for legibility only for the following constructions. The graphic will change color, lose gloss and chalk, which is not covered by warranty.

		Warranty Period for Legibility, in Years	
Film Colors: 10, 11, 12, 13, 14, 15, 20, 22, 53		Horizontal Exposure	
Ink Series	Graphic Protection	U.S.	U.S. Desert Southwest
No printing	None	5	3

**G. General Warranty Stipulations for 3M™ MCS™ Warranty**

These stipulations apply to the 3M™ MCS™ Warranty. General provisions for these stipulations are covered in the [3M Commercial Graphics Warranty Brochure](#) at 3Mgraphics.com.

**(1) Reduced Warranty Period for Non-vertical Graphics**

For other graphic exposures, multiply the Warranty Period (in years) for your graphic construction as shown in the applicable Warranty Period tables, Section F.(1), by the percentage shown for the intended graphic exposure. See page 3 for the graphic exposure definitions.

<b>If the Graphic Exposure is:</b>	<b>Use this Percentage of U.S. Vertical Exposure, Warranted Durability</b>	<b>Calculation Examples Based on Indoor Warranty Periods</b>
U.S. Non-vertical	50% (0.5)	0.5 x 5 years = 2.5 years 0.5 x 8 years = 4.0 years
Desert Southwest Vertical	70% (0.7)	0.7 x 5 years = 3.5 years 0.7 x 8 years = 5.4 years
Desert Southwest Non-vertical	35% (0.35)	0.35 x 5 years = 1.75 years 0.35 x 8 years = 2.7 years
Horizontal	0%	0

**(2) Opacity**

This film can be used on opaque surfaces but has less hiding power than a film with a colored adhesive. Consider this characteristic when selecting and preparing the substrate.

**(3) 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.

**(4) Application to Glass**

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

**(5) Application Outside the U.S.**

Contact the 3M organization for that country.

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

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

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

**(7) Printed Vehicle Graphics**

Screen printed vehicle graphics require a clear to be warranted

**(8) Harsh Washing**

Graphics exposed to abrasive washing conditions, harsh cleaners or chemicals are not warranted.

**(9) Clears that Haze**

Clears 1930 and 9730UV may haze, which is not covered by the warranty.

**(10) Chalking**

Chalking for unprinted film colors 20, 263, 273 and 286 as they age is considered normal and acceptable wear. Chalking can be removed by normal graphic cleaning methods.

## 9. 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
- Ink formulation (screen printing)
- Adequate ink drying and/or UV curing
- Selection and preparation of the substrate
- Surface texture
- Application methods
- Angle and direction of sun exposure
- Environmental conditions
- Cleaning or maintenance methods

## 10. Graphics Manufacturing



### CAUTION

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

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### A. Thermal Transfer Printing

Formulations and processing conditions can affect ink durability. Refer to the Product and Instruction Bulletins for your ink for limitations and proper usage.

This film can be imaged with narrow width thermal transfer printing systems. Refer to the equipment manufacturer's literature for details.

### B. Screen Printing

Refer to the ink's Product and Instruction Bulletins.

### C. Cutting

Based on cutting and weeding evaluations that used Helvetica medium upper case, the recommended minimum cutting height for text is 0.25 inch (0.64 cm). Because of the differences in electronically-controlled cutting equipment and font characteristics, users should determine their own cutting and weeding capability.

These factors can affect cutting quality and ability:

- **Sharpness of the knife blade.** Dull blades create a serrated look to the cut edge of the film.
- **Weight on the knife blade.** The ideal weight slightly scores the liner. Too little weight does not cut completely through the film and the adhesive. Excessive weight cuts the liner. It also causes the blade to drag, accelerating wear and eventually creating a serrated cut edge on the film.
- Temperature and relative humidity are minor considerations, but avoid extreme or rapidly fluctuating conditions.
- Store the film in the same environment as the cutting equipment.
- Consider the stroke width of characters, style of serifs or extensions, and small details of scanned or digitized artwork.
- The minimum recommended stroke width is 0.040 inch (1.0 mm) when film is exposed to cleaning or other physical stress.

### D. Weeding

The excess film should be weeded (removed) as soon after cutting as practical. This is to minimize the effect of possible adhesive flow 24 or more hours after cutting.

### E. Application Tapes

The application tape to use depends on the type of graphic produced. See Instruction Bulletin 4.3 for more details.

Note: When using prespacing tape with film series 7725, do not use a Heat Vacuum Applicator to try improve adhesion to the liner. Doing so can cause problems when removing the film liner.

#### (1) When to Use Premasking Tape

- As an application aid to increase stiffness, and prevent stretching and damage during application.
- 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) **Use This Tape**

Determine whether you want to premask the graphic or prespace cut pieces of film such as letters. Then locate the graphic protection used on your graphic in the table below, and use the corresponding tape. See Instruction Bulletin 4.3 for complete details.

**EXAMPLE:** To premask a film that includes clear 1920DR, use premasking tape SCPM-3.

Application Tape	Graphic Protection			
	1920DR 1930	9730UV 9740i 9800CL	Ink 9800, no clear	Unprinted film
Premasking SCPM-3 with HVA use for prespacing	■			■
Premasking SCPM-3	■			■
Premasking SCPM-44X		■	■	
Premasking SCPM-53X		■	■	
Prespacing SCPS-2	■			■

## 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 Material Safety Data Sheets (MSDS) for important health, safety and environmental information. To obtain MSDS sheets for 3M products go to [3M.com/MSDS](http://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. 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](http://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™ Scotchcal™ Translucent Graphic Film Series 3630	PB	3630
3M™ Screen Printing Ink Series 1900 and Overprint Clear VIO402 Screen printing with ink series 1900 - line color - 4-color	PB	1900
	IB	3.12
	IB	3.11
3M™ Screen Printing UV Ink Series 9800 Screen printing with UV ink series 9800 - line color - 4-color	PB	9800
	IB	3.20
	IB	3.21
3M™ Screen Print UV Clears	PB-IB	UV Clears
Design of graphics	IB	2.1
Using 3M application tapes; premasking and prespacing for films	IB	4.3
Application, substrate selection, preparation and substrate-specific application techniques	IB	5.1
Application, general procedures for indoor and outdoor dry applications	IB	5.5
Application, wet method for translucent screen printed, thermal mass transfer and cut graphics	IB	5.7
Storage, handling, maintenance, removal	IB	6.5
3M Commercial Graphics Warranty Brochure		<a href="http://www.3Mgraphics.com/Warranties">www.3Mgraphics.com. Warranties</a>

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## 14. Bulletin Change Summary

Modified and new content is marked with a black bar in the margin. A Performance Overview summary was added to page 1. The Flammability information under Section 6.A has been updated. The Warranty Information section has been updated to more clearly reflect important details of the warranties that cover the 3M products mentioned in this Bulletin. 3M™ Panaflex™ Awning and Sign Facing Series 945GPS has been discontinued. There is no direct replacement at this time. Screen Print UV Clears 9720UV and 9720i have been directly replaced by 3M™ Screen Print UV Clear 9740i. Color 173 Salmon Pink has been discontinued.



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