3M

Scotchcal ™ ElectroCut ™
Graphic Film Series 7725

For Electronic Cutting, Screen Printing and Thermal Transfer

Description

3M™ Scotchcal™ ElectroCut™ Graphic Film Series 7725 is 2 mil, pressure sensitive film designed for permanent graphics that may be prespaced and electronically cut, screen printed or used in narrow width thermal transfer printing systems. A transparent synthetic liner resists moisture absorption and static buildup, lays flat for easier assembly of multicolor graphics, and allows superior cutting/weeding.

Advantages

- Gasoline resistant
- Film is the same color on both sides
- Good cutting and weeding characteristics

Applications and End Uses

Film series 7725 is intended for making permanent, durable graphics when used with the listed Compatible Products in the following applications. These applications are warranted by the 3M™ MCS™ Warranty.

- Prespaced, electronically-cut graphics
- Commercial and industrial graphic applications, including emblems, vehicle graphics, labels, striping, general signage, two way signage
- Thermal transfer printed graphics
- Screen printed 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 warrant this film for the following:

- Application to corrugated surfaces or surfaces with compound curves
- Backlit signage (use 3M™ Scotchcal™ Translucent Graphic Film Series 3630 instead)
- Thermoforming
- Use in Summa's SummaChrome™ or DuraChrome® printers or similar printers
- Graphics made for automotive Original Equipment Manufacturers (OEM); contact 3M Automotive Division at 1-800-328-1684, Ext. 444, for alternatives.

Compatible Products

- 3M™ Screen Printing Ink Series 1900
- 3M™ Screen Printing Ink Series 9700UV (line color only)
- 3M™ Prespacing Tape SCPS-2, SCPS-53X
- 3M™ Premasking Tape SCPM-3, SCPM-44X

Characteristics

This information is subject to change. Be sure this is the most current Product Bulletin. See 3M Related Literature at the end of this bulletin.

Characteristic	Description
Film	Opaque cast vinyl
Colors	See Color Chart on page 2.
Thickness	2 mil, (0.05 mm) *without adhesive* 2.5 to 3.6 mils (0.063 to 0.090 mm) *with adhesive*
Adhesive	Clear, pressure sensitive
Liner	Transparent synthetic
Minimum application temperature	40° to 100° F (4° to 38° C)
Application surfaces	For flat surfaces with and without rivets, or simple curved surfaces
Application substrates	Flexible signage, glass, metal, acrylic, polycarbonate, fiberglass, painted surfaces
Removability	Permanent

Color Chart -3M™ Scotchcal™ ElectroCut™ Film Series 7725
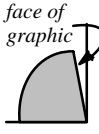
Note: All colors are glossy except 7725-20 and 7725-22.

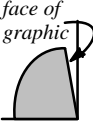| Number	Color	Number	Color	Number	Color	Number	Color
7725-10	White	7725-31	Medium gray	7725-77	Peacock blue	7725-139	Saddle brown
7725-11	Pearl gray	7725-37	Sapphire blue	7725-85	Vista yellow	7725-173	Salmon pink
7725-12	Black	7725-38	Royal purple	7725-86	Robin egg blue	7725-176	Aqua
7725-13	Tomato red	7725-39	Tan	7725-88	Violet	7725-177	Shadow blue
7725-14	Bright orange	7725-41	Dark gray	7725-89	Sandstone	7725-186	Bright green
7725-15	Bright yellow	7725-46	Kelly green	7725-90	Antique white	7725-187	Wedgewood blue
7725-17	Vivid blue	7725-47	Intense blue	7725-96	Teal	7725-193	Mauve
7725-19	Deep mahogany brown	7725-48	Purple	7725-98	Dark violet	7725-196	Apple green
		7725-49	Beige	7725-99	Fawn	7725-197	Light navy
7725-20	Matte white	7725-53	Cardinal red	7725-103	Magenta	7725-263	Perfect match red
7725-22	Matte black	7725-54	Light orange	7725-105	Harvest gold		
7725-24	Terra cotta	7725-56	Dark green	7725-114	Transparent	7725-273	Process magenta
7725-25	Sunflower	7725-58	Burgundy	7725-120	Satin aluminum	7725-276	Bottle green
7725-27	Indigo	7725-59	Putty			7725-307	Dark aqua
7725-29	Russet brown	7725-63	Geranium	7725-130	Eggshell	7725-357	Bermuda blue
		7725-64	Apricot	7725-131	Satin gold		
		7725-66	Forest green				

Effective Performance Life

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 3M recommendations, they should have the performance life shown in the charts below. The actual performance depends on the:

- correct combination of film, ink and screen print clear
- ink formulation
- drying methods
- selection and preparation of the substrate
- application methods
- exposure conditions
- cleaning methods

Warranted Durability

Unprinted Film							
Scotchcal Film Series 7725	**Vertical Exposure** *face of graphic* The face of the graphic is $\pm$ 10° from vertical.				**Non-Vertical Exposure** *face of graphic* The face of the graphic is greater than 10° from vertical.		
	Most Film Colors		**Film Colors** 7725-114 7725-120 7725-131		**Solid Colors** 7725-10 7725-15 7725-12 7725-20 7725-11 7725-22 7725-13 7725-53 7725-14		
Ink	**U.S.** *years*	**S.W.[1]** *years*	**U.S.** *years*	**S.W.[1]** *years*	**U.S.** *years*	**S.W.[1]** *years*	
Signs							
Unprinted	7	5	5	3	5	0	
Vehicles							
Unprinted	8	5	5	3	5	0	

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

Printed Film									
			face of graphic **Vertical Exposure** The face of the graphic is $\pm 10°$ from vertical.						*face of graphic* **Non-Vertical Exposure** The face of the graphic is greater than 10° from vertical.
			Film Colors **7725-10** **7725-12** **7725-20** **7725-22**		**Film Colors** **7725-114** **7725-120** **7725-131**		**All Other Colors**		**Film Colors** **7725-10 7725-15** **7725-11 7725-20** **7725-12 7725-22** **7725-13 7725-53** **7725-14**
Last Drying Pass[1]	**Screen Print Clear**	**Last Drying Pass[1]**	**U.S.** *years*	**S.W.[1]** *years*	**U.S.** *years*	**S.W.[1]** *years*	**U.S.** *years*	**S.W.[1]** *years*	**U.S. 4** *years*
Printed with 3M™ Screen Printing Ink Series 1900									
AD	1920DR	AD	5	3	5	3	5	3	0
	1930	AD	2 may haze	-	2 may haze	-	2 may haze	-	0
OB	1920DR	OB	6	4	5	3	6	4	5
	1930	OB	2 may haze	-	2 may haze	-	2 may haze	-	0
	9720UV	-	6	4	5	3	6	4	5
	9730UV	-	3	2	3	2	3	2	0
Printed with 3M™ Screen Printing Ink Series 9700UV - *line color only*									
None	None	-	2	-	2	-	2	-	0
	9720UV	-	6	4	5	3	6	4	5
	9730UV	-	3	2	3	2	3	2	0

[1] OB = Last pass oven baked
    AD = Last pass air dried

[2] Includes Arizona, New Mexico, and desert areas of California, Nevada, Utah, and Texas. A detailed map is available by request.

[3] Non-vertical applications can be used to identify commercial vehicles from the air. Horizontal applications expose the film to the maximum effect from sunlight and the environment. There are ink and film restrictions for horizontal applications. The film may change color, lose gloss and chalk. The following performance statements assume that only legibility is needed.

[4] No warranty coverage for the Desert Southwest (Arizona, New Mexico, and desert areas of California, Nevada, Utah, and Texas.) A detailed map is available by request.

Limitations of Product

Film series 7725 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.

With long exterior exposure, unprinted film 7725-10 may chalk. Where cleaning is not practical, sign graphics must have either screen print clear 1920DR or screen print clear 9720UV.

Printing

Use the correct combinations of ink, processing, and screen print clear to get the durability given in the Effective Performance Life section on page 2.

Screen print clears 1920DR and 9720UV are the only warranted screen print clears for horizontal applications. With ink series 1900, oven dry both the last color and the screen print clear for two hours at 150°F (65°C).

Film series 7725 may be used for narrow width thermal transfer printing.

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

Fabrication

This Bulletin does not contain detailed processing or application procedures. Refer to the 3M Related Literature on page 5 section for further information.

Cutting

> ⚠ **Caution**
>
> When using any equipment, always follow the manufacturers' instructions for safe operation.

For individual pieces, use one of these cutting methods.

- Hand cut
- Die cut
- Thermal kiss cut

    The face of the die should be maintained between 280° and 325°F (137° to 162°C), and a cutting dwell time of up to 1/2 second should be utilized. Large open areas of the thermal die should be covered with an adhesive backed foam tape to prevent the film from contacting the hot die.

- Electronically-controlled, friction-fed or flat-bed cutters

For multiple pieces, use one of these cutting methods.
- Guillotine
- Die cut

Based on cutting and weeding evaluations that used Helvetica medium upper and lower case copy, the recommended minimum cutting height for text is 0.250 inch (0.64 cm). Because of 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.

Application Tape

The application tape you use depends on the type of graphic produced and the screen print clear used.

- 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 or Ink	Prespacing Tape	Premasking Tape
Unprinted	SCPS-2 SCPM-3 with HVA	SCPM-3
1920DR 1930	SCPS-2 SCPM-3 with HVA	SCPM-3
9700, no clear 9720UV 9730UV	SCPS-53X	SCPM-44X

Removal

> ⚠ **Caution**
>
> Solvents may ignite near heat or an open flame. To reduce the risk of a flash fire and serious injury, do not use heat sources near solvents.

After removing film series 7725, there may be adhesive left on the surface. To remove the adhesive, use a solvent-based cleaner. Refer to Instruction Bulletin 6.5 for complete details.

Shelf Life, Storage, and Shipping

Follow these guidelines to store and ship this film and the processed graphics.

- 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 two years.
- Store the film in a clean, dry area, out of the direct sunlight, and at less than 100°F (38°C).
- Ship the finished graphic lying flat or roll it. To roll the graphic, wrap it film-side out onto a core that is 5 inches (13 cm) or larger in diameter. These methods prevent the liner from wrinkling or popping off.

Health and Safety

```
⚠ Caution
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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.

Product Data

Values given are typical for film series 7725 with or without ink and screen print clear and are not for use in specifications. The data given below are for film as purchased from 3M.

Physical Properties

Property	Typical Value
Tensile strength (minimum)	5 pound/inch at 73°F (0.9 kg/cm at 23°®
Applied shrinkage	0.010 inch (0.3 mm)
Service temperature range	-40° to +225°F (-40° to +107°C)

Adhesion Characteristics

Value 24 hours after application

Substrate	Typical Value
ABS	4 pounds/inch (0.7 kg/cm)
Acrylic	4 pounds/inch (0.7 kg/cm)
Acrylic enamel	4 pounds/inch (0.7 kg/cm)
Aluminum, alodine	8 pounds/inch (1.4 kg/cm)
Chrome	5 pounds/inch (0.9 kg/cm)
Fruehauf painted panels	4 pounds/inch (0.7 kg/cm)
Polycarbonate	4 pounds/inch (0.7 kg/cm)
Urethane paints	4 pounds/inch (0.7 kg/cm)

Chemical Resistance Characteristics

- Resists mild acids, alkalis, and salts
- Excellent water resistance

Warranty and Limited Remedy

*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 series 7725 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 materials charges.

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www.scotchprint.com, then *Login*

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

3M Related Literature

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

Listed below is related 3M technical literature that may be of interest. You may view and print these Bulletins from our Web site at www.scotchprint.com, or order them via our Fax-on-Demand (FOD) system. Call one of these phone numbers to order the desired bulletins, and specify the FOD document number provided in the chart.

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

Subject	Bulletin No.	FOD No.
Product Bulletins		
3M™ Screen Printing Ink Series 1900	1900	2501
3M™ Screen Printing Ink Series 9700UV	9700	2507
3M™ Scotchcal™ Translucent Film Series 3630	3630	3009
Instruction Bulletins		
Design of graphics	2.1	5501
Screen printing with ink series 1900	3.11	6011
Screen printing with ink 9700UV	3.4	6004
Using 3M application tapes;premasking and prespacing for films and sheetings	4.3	6503
Application, substrate selection, preparation and substrate-specific application techniques	5.1	7001
Application, general procedures for interior and exterior dry applications	5.5	7005
Storage, handling, maintenance, removal	6.5	8505
Warranties		
Worldwide 3M™ MCS™ Warranty Packet *(includes all Commercial Graphics MCS Warranties)*		9503
Worldwide 3M™ MCS™ Warranty Overview-Folder		9504
Scotchprint® Graphics Warranty *(includes overview)*		9505
Other 3M Literature		
Multi-Color Graphics Assembly	75-5100-0776-0	

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Bulletin Change Summary

Corrected metric conversion of film thickness without adhesive in the Characteristics table.

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