



Light Management Films

3M™ Dual-Colour Film Series 3635-200

Product Description

3M™ Dual-Colour Film Series 3635-200 is part of 3M's family of light management products. Two components of this unique film contribute to providing maximum colour clarity and backlit brightness both day and night: the dual-colour perforation pattern and the light management adhesive (patent pending).

Use dual-colour film to create the special effect of a colour/image by day (non lighted) and a different colour by night (backlit). This is achieved when a background colour/image glows through the perforations in the dual colour film. From a typical viewing distance for large format graphics, viewers will notice little or no perforation pattern. However, the colours and the construction option you use will affect on how visible the perforation pattern is.

Dual-colour film is available in black or white or a customer-specified colour. Contact your 3M sales representative for details. It is designed to be used with 3M™ Scotchcal™ Translucent Graphic Film Series 3630. The white dual-colour film can also be screen printed with 3M™ Screen Printing Inks 1900/9700UV to expand your options even further.

Several constructions options and the results they create are illustrated later in this bulletin.

Applications and Uses

3M™ Dual Colour Film Series 3635-200 is intended for use in creating durable, permanent dual-colour backlit channel letter, signs and displays. Any other applications are NOT warranted by 3M or covered by the worldwide 3M™ MCS™ Warranty unless 3M gives its prior written approval for the application.

- As a first or second surface application to acrylic, polycarbonate and PETG channel letters and sign faces
- As a first surface application to 3M™ Panaflex™ Awning and Sign Facing 945GPS

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 non-vertical surfaces
- Second surface application to Panaflex awning and sign facing 945GPS
- Use on any surface where an obstruction of view would present a hazard
- Thermoforming

Product Line

Please contact the 3M Sales Office for stock available and lead times.

Product Number	Colour / Pattern
3635-210	White
3635-222	Black

Custom colour matching is available on this product.

Compatible Products

- 3M™ Panaflex™ Awning and Sign Facing 945GPS
- 3M™ Scotchcal™ Translucent Graphic Film Series 3630
- 3M™ Diffuser Films 3635-30 and 3635-70
- 3M™ Light Enhancement Film 3635-100
- 3M™ Screen Printing Ink Series 1900
- 3M™ Screen Printing Ink Series 9700UV
- Flat acrylic, polycarbonate*, PETG (glycol-modified polyethylene terephthalate)

* Film series 3635-200 typically adhere to solar-grade polycarbonate substrate. However, some lots of this substrate may inhibit the adhesion of these films. Contact 3M Commercial Graphics Technical Service (see page 7) if you are having difficulty with this combination. See Instruction Bulletin 5.1 for additional information.

Polycarbonate substrates may require drying by baking before use. Refer to the manufacturers' instructions.

Main Characteristics

Property	Description
Film Type	Film 3635-210: white perforated film with a matte surface Film 3635-222: black perforated film with a matte surface
Adhesive type	Permanent pressure sensitive
Adhesive colour	Film 3635-210: white Film 3635-222: clear
Thickness (film plus adhesive)	0.152 to 0.165 mm
Thickness (film only)	0.14 mm
Liner	White kraft paper (78 pound)
Suitable application surface	Flat without rivets
Suitable application substrates	Acrylic, polycarbonate, PETG (glycol-modified polyethylene terephthalate); Panaflex awning and sign facing
Minimum application temperature*	16°C (60°F)

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

Chemical and Physical Properties

Values given are typical and are not for use in specifications. If a custom specification is desired, a request should be submitted through your sales representative. The data given below is for unprinted film

Physical Properties

Property	Metric Units
Tensile Strength (minimum)	0.9 kg/cm at 23°C
Service Temperature Range	-60° to +107°C
Applied Shrinkage	0.4 mm

Adhesion

Substrate	Metric Units
Acrylic	0.5kg/cm
Panaflex sign facing	0.5kg/cm

These adhesion values are 24 hours after application.

Chemical Resistance Characteristics

- Resists mild alkalis, mild acids, and salt.
- Excellent resistance to water.

Warranty

Only a Scotchprint® Graphics Authorised Manufacturer or 3M™ MCS™ Qualified Manufacturer can produce 3M™ MCS™ Warranted Graphics. The warranty period is based on field experience and exposure tests. 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 and ink
- Ink formulation
- Drying methods
- Selection and preparation of the substrate
- Application methods
- Exposure conditions
- Cleaning methods

Warranted Durability

The following tables show the warranties, in years, for exposure where the face of the graphic is vertical at 90° ±10°

Colour	Exterior Sign 1st Surface			Interior		
	1	2	3	1	2	3
Zones:						
3635-210	7	5	3	7	7	7
3635-222	7	5	3	7	7	7

Zone 1: Northern and Central Europe

Austria, Baltic States, Belgium, Bosnia, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greenland, Hungary, Iceland, Ireland, Italy (North of Rome), Liechtenstein, Luxembourg, Netherlands, Norway, Poland, Romania, Serbia, Slovakia, Slovenia, Sweden, Switzerland, UK

Zone 2: Mediterranean Europe

Albania, Bulgaria, Corsica, Crete, Greece, Italy (South of Rome), Macedonia, Malta, Portugal, Russia, Sardinia, Spain, Turkey

Zone 3: Middle East and Africa

Afghanistan, Bahrain, Cyprus, Dubai, Israel, Kuwait, Iran, Iraq, Jordan, Lebanon, Oman, Pakistan, Qatar, Saudi Arabia, Syria, UAE, Yemen
 Algeria, Angola, Benin, Botswana, Burkina, Burundi, Cameroon,
 CAR, Chad, Congo, Djibouti, Egypt, Eritrea, Gabon, Ghana, Guinea, Ivory Coast, Libya, Liberia, Madagascar, Mali, Mauritania, Morocco, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somali Republic, South Africa, Sudan, Togo, Tunisia, Uganda, Zaire, Zambia, Zimbabwe

Fabrication

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

Screen Printing

Because film series 3635-200 has perforations, or holes, the screen printer must periodically insert scrap paper to clear the screen of buildup when screen printing this film.

Light Enhancement Film 3635-100

Light enhancement film can be used to line the channel letters for increased sign luminance. Refer to the 3M Related Literature section for further information.

Construction Options

How Creative Can I Be?

The construction options provided here give the basic guidelines for creating effective backlit channel letters, signs and displays. You can expand the options by experimenting with these as well as creating your own unique ideas. Here are just a few additional ideas:

- Switch the position of the translucent film and diffuser film.
- Screen print an image on film 3635-210. The image is visible during the day but with the creative use of blockout film and an additional layer of translucent film, you can have a totally different looking sign when backlit at night.
- Substitute selected areas of a translucent 3M film with cut out letters of dual colour film series 3635-200. Place yet another colour behind the dual-colour film.

About the Colour in the Construction Option Illustrations

Some of the following illustrations have colour in them. To see the colour, which helps understand how 3M™ Dual-Colour Film works, please view the bulletin by opening it on the internet and then, if desired, printing to a colour printed.

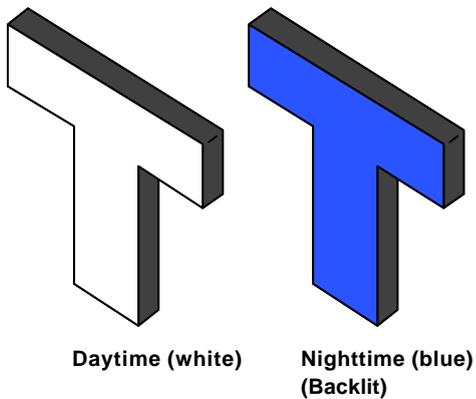
See 3M Related Literature on page 6 for how to get to our Internet site

Construction Option 1 with White Dual-Colour Film

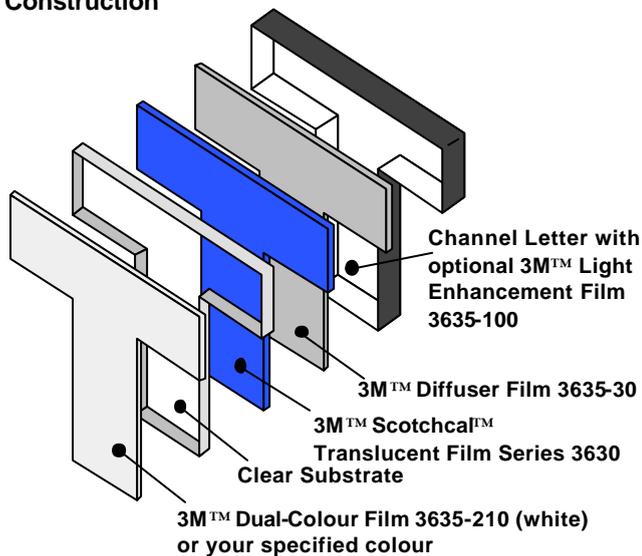
This construction typically provides the best daytime colour density using white or your specified dual-colour film.

Note: If you are not viewing this in colour, the Nighttime example shows the channel letter as glowing blue, which is created by using blue film from series 3630.

Effect



Construction

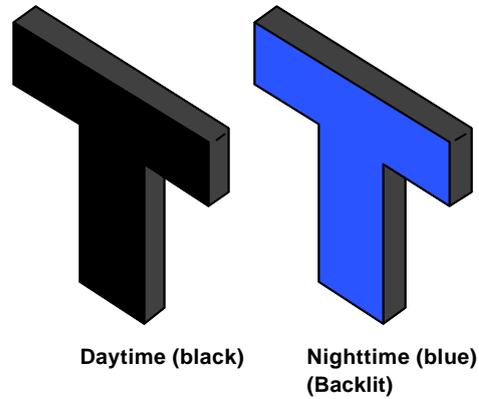


Construction Option 2 with Black Dual-Colour Film

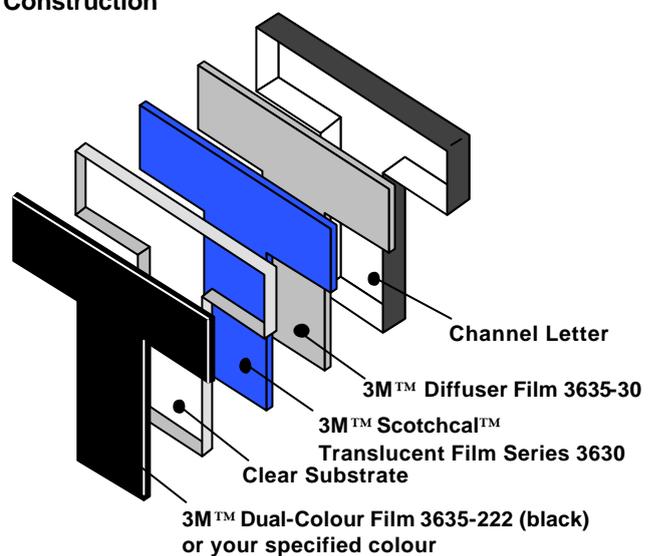
This is the same construction as Option 1 except it uses black or your specified dual-colour film.

Note: If you are not viewing this in colour, the Nighttime example shows the channel letter as glowing blue, which is created by using blue film from series 3630.

Effect



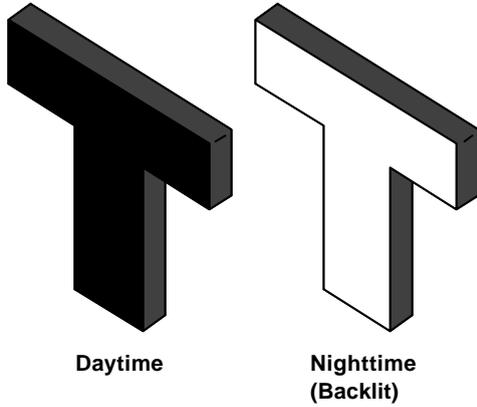
Construction



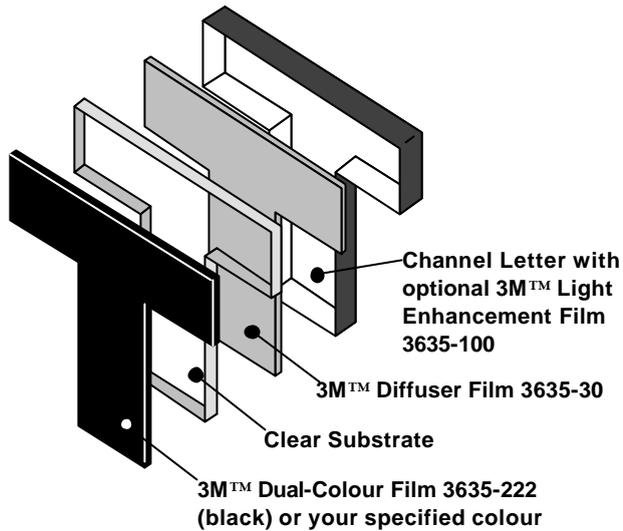
Construction Option 3 - No Colour

This is the simplest option for channel letters that appear black during the day and glow white at night.

Effect



Construction

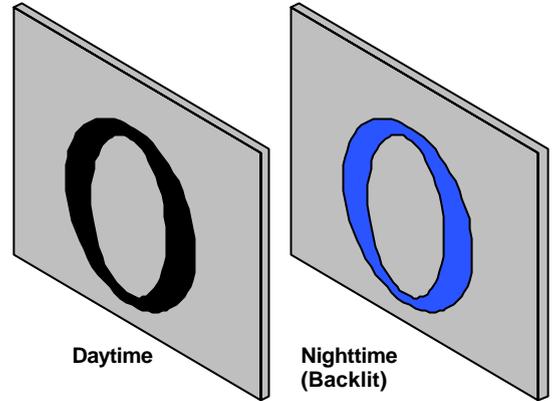


Construction Option 4 – Flexible Substrate

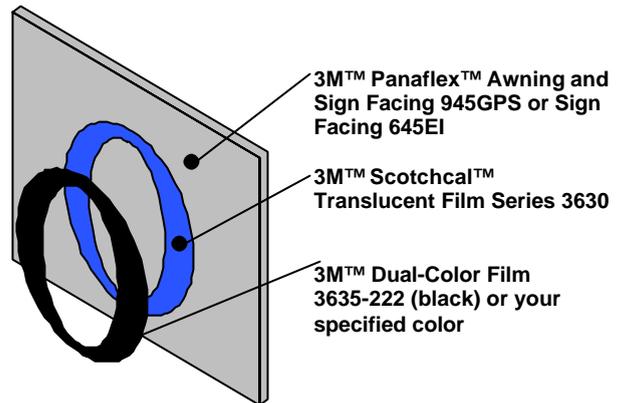
This option uses 3M™ Panaflex™ Awning and/or Sign Facing as a substrate. Film can be applied only to the first surface of this substrate.

Note: If you are not viewing this in colour, the Nighttime example shows the channel letter as glowing blue, which is created by using blue film from series 3630.

Effect



Construction



Thermoforming

Customer specified colours of dual-colour film series 3635-200 is not recommended or warranted.

Application Tapes

The 3M Prespace Tape or Premask Tape you use depends on the type of graphic produced and the overprint clear system. For graphics that have large amounts of exposed liner, use a prespacing application tape. If there is very little exposed liner, use a premasking application tape.

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).

Refer to the Instruction bulletin 6.5 for maintenance and cleaning details.

Shelf Life, Storage and Shipping

The shelf life of the film is 2 years and should be applied within 2 years of the receipt of film if unprocessed. Processed film should be applied within 1 year of processing and within 2 years of receipt of the film.

Film, sheeting and markings must be stored in a clean area, free from excessive moisture and direct sunlight, with ambient temperatures below 38°C.

Related 3M Literature

Listed below is related 3M Technical Literature which may be of interest:

Subject	Instruction Bulletin
Design of graphics	2.1
Design of cabinets for light boxes and channel letters	2.4
Screen printing with ink series 9700UV line colour 4 colour	3.4 3.13
Screen printing with ink series 1900 line colour 4 colour	3.11 3.12
Scoring and cutting	4.1
Using 3M application tapes: premasking and prespacing for films	4.3
Application, substrate selection, preparation and substrate-specific application techniques	5.1
Application, general procedures for interior and exterior dry applications	5.5
Application, flat rigid plastic signs, translucent pressure sensitive and changeable films	5.7

Application of translucent films to 3M Panaflex Awning and Sign Facing 945GPS	5.9
Storage, handling, maintenance, removal	6.5

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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