

3M™ Controltac™ Graphic Film with Comply™ v3; IJ180Cv3-10, Series 180Cv2, Series 180C; IJ180C-10 &

3M™ Controltac™ Graphic Film Series 180; IJ180-10

Product Bulletin

Product Description

Controltac Graphic Films Series 180 offer great versatility making them perfect for indoor and outdoor signs and fleet graphics.

3M™ Controltac™ Adhesive minimises the initial contact area of the adhesive and allows the applicator to reposition the film during application; allowing for easier installation of large format graphics in a wide temperature range.

Product variants with 3M™ Comply™ adhesive also have air release channels for fast and easy, bubble-free graphic installations.

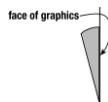
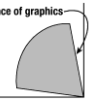
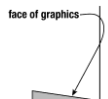
Product Line	Screen printing	180-X	X = colour code (Link to colour range: 3M™ Premium Films Colour Range), opaque, gloss, permanent adhesive. A wide selection of colours with custom colour matching available on request
		180C-X	X = colour code (Link to colour range: 3M™ Premium Films Colour Range), opaque, gloss, permanent adhesive with Comply™. A wide selection of colours with custom colour matching available on request
		180Cv2-X	X = colour code (Link to colour range: 3M™ Premium Films Colour Range), opaque, gloss, permanent adhesive with Comply v2. A wide selection of colours with custom colour matching available on request.
	Inkjet printing	IJ180-10	white, opaque, gloss, permanent adhesive (grey).
		IJ180C-10	white, opaque, gloss, permanent adhesive (grey) with Comply™.
		IJ180Cv3-10	white, opaque, gloss, permanent adhesive (grey) with Comply v3.

Product Characteristics

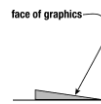
Physical & Application

These are typical values for unprocessed products. Contact your 3M representative for a custom specification.

Material	cast vinyl
Surface finish	gloss
Thickness (film)	50 µm (0.05 mm)
Adhesive type	solvent acrylic, pressure-sensitive, repositionable. In addition, product variants with Comply adhesive have air release channels
Adhesive appearance	grey, except for few light colours, metallic and transparent versions, see colour explanation: 3M™ Premium Films Colour Range
Liner	double-sided Polyethylene coated paper
Adhesion	approx. 18 N/25 mm FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
Application method	dry only

	Applied shrinkage	< 0.1 mm	FTM 14
	Application temperature	+4°C	for flat surfaces
	minimum (air and substrate)	+10°C	for curved to corrugated surfaces with and without rivets
	Notice!	The films can be applied at 4 - 38°C. 3M recommends application at 18 - 22°C for optimum ease of application.	
	Service temperature	-60°C to +107°C	
	Surface type	flat to curved, incl. rivets and corrugations	
	Substrate type	aluminium, glass, PMMA, PC*, ABS, paint	
		*May require drying with heat before use (see Instruction bulletin: Substrate Selection, Preparation and Substrate-specific Application Techniques)	
	Graphic removal	Removable with heat from supported substrates within the warranty period at 10°C (50°F) minimum (air and substrate). Use a removal angle of <90° for optimal results. No liability is given for ease or speed of removal of any graphic.	
Storage	Shelf life	The shelf life for unprocessed film is 2 years from the date of manufacture (i.e. the date marked on the original packaging). Process within 1 year of manufacture and apply within 1 year of processing.	
	Storage conditions	Store in the original container at temperatures of +4°C to +40°C, out of sunlight, in a clean and dry area. Bring the film to room temperature before use.	
Flammability	Flammability standards are different from country to country. Contact your local 3M representative for further details.		
Durability	Unprocessed film	The following durability data are given for unprocessed film only.	
	3M™ Performance Guarantee and MCS™ Warranty	In addition, 3M provides a guarantee/warranty on a finished applied graphic within the framework of 3M™ Performance Guarantee and/or 3M™ MCS™ warranty programs.	
		Visit www.3M.co.uk/graphicsolutions for details about 3M's comprehensive graphic solutions.	
	Climatic zones	Graphic durability is largely determined by the climate and the angle of exposure. Find below a table showing the durability of a product according to the angle of exposure and the geographical location of the application.	
		Zone 1	Northern Europe, Italy (north of Rome), Russia Mediterranean area without North Africa, South
		Zone 2	Africa
		Zone 3	Gulf area, Africa
	Exposure types	Vertical:	 <p>The face of the graphic is ±10° from vertical.</p>
		Non-vertical:	 <p>The face of the graphic is greater than 10° from vertical and greater than 5° from horizontal.</p>
		Horizontal:	 <p>The face of the graphic is ±5° from horizontal.</p>

Interior:



Interior means an application inside a building without direct exposure to sunlight.

Vertical outdoor exposure	Zone 1	Zone 2	Zone 3
white/black	10 years	8 years	6 years
colours	8 years	6 years	4 years
transparent	8 years	7 years	6 years
metallics	3 years	4 years	3 years
Non-vertical outdoor exposure	Zone 1	Zone 2	Zone 3
white/black	5 years	4 years	3 years
colours	4 years	3 years	2 years
transparent	4 years	3.5 years	3 years
metallics	2.5 years	4 years	1.5 years
Horizontal outdoor exposure	Zone 1	Zone 2	Zone 3
white/black	2.5 years	2 years	1.5 years
colours	2 years	1.5 years	12 months
The following films are suitable for horizontal applications: white -10, black -12, tomato red -13, bright orange -14, bright yellow -15, sunflower -25, cardinal red -53, gold metallic -54			
Interior application	Zone 1	Zone 2	Zone 3
interior	10 years	10 years	10 years

Limitations of End Uses

3M specifically does not recommend or warrant the following uses, but please contact us to discuss your needs to recommend other products.

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| Graphics applied to | <ul style="list-style-type: none"> - flexible substrates incl. 3M™ Panagraphics™ III and 3M™ Envision FS1 - low surface energy substrates or substrates with low surface energy coating. - other than flat or moderate curved/corrugated surfaces. - painted or unpainted wallboards, gypsum boards and wallpapers. - surfaces not clean and more than moderate textured. - surfaces with poor paint to substrate adhesion. |
| Graphic removal from | <ul style="list-style-type: none"> - signs or existing graphics that must remain intact. |
| Graphics subjected to Important Notice | <ul style="list-style-type: none"> - Petroleum vapours or spills. - 3M Commercial Solutions products are not tested against automotive manufacturer specifications! - To avoid colour variations all pieces of applied film of one coloured area should be processed out of one lot of material. - Metallic films have a directional characteristic in their appearance. For the best overall results, do not alternate between lengthwise and width-wise graphic panels. NB: film colours can vary slightly from lot to lot. For the most consistent looking wraps, use film from the same roll, or manufacturing lot number on adjoining panels. |

Graphics Manufacturing	Graphic protection can improve the appearance, performance and durability of printed graphics. Any printed graphic exposed to abrasive conditions (including vehicles), harsh cleaners or chemicals must include graphic protection in order to be warranted.
When to use an overprint clear or overlaminate	See instruction bulletin 3M UK Commercial Graphics Overlaminates for further information about selection and use of protective overlaminates and printable clears.
Shipping finished graphics	Flat, or rolled colour-side-out on a 15cm (6 inch) or larger core. This helps prevent the liner from wrinkling or application tape (if used), from popping off.
Converting InformationInkjet Printing	Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlaminate lifting, and/or poor graphic performance. The maximum recommended total ink coverage for this film is 270%.
Adequately Dry Graphics	Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty. Build enough time into your process to ensure adequate drying of the graphic.
	Poorly dried film becomes soft and stretchy, and the adhesive becomes too aggressive. 3M recommends at least a minimum drying time of 24 hrs before further processing. Dry the graphic unrolled or at least as a loose wound roll standing upright.
Converting Information	Formulations and processing conditions can affect ink durability. Refer to the 3M Product and Instruction Bulletins for your ink for limitations and proper usage. Graphic protection can improve the appearance, performance and durability of your graphic.
Screen Printing	A clear coat also prevents chalking on unprinted films. Use equipment designed to handle high viscosity materials and make sure the coating is evenly applied to the specifications given in the clear's Instruction Bulletin.
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.
Application	See product bulletin Application Tapes for information about selection and use of suitable application tapes for this product.
	Refer to Instruction Bulletin 5.1' Substrate Selection, Preparation and Substrate-specific Application Techniques , for general application information.
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 Instruction Bulletin 6.5 Storage, Handling, Maintenance and Removal of Films and Sheetings , for general maintenance and cleaning information.
Remarks	This bulletin provides technical information only.
Important notice	All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law. Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.
Additional Information	Visit the web site of your local subsidiary at www.3M.co.uk/graphicsolutions for more details about 3M™ MCS™ Warranty and 3M™ Performance Guarantee, product overview and and additional technical bulletins.

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.

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