



# Scotchcal™ Translucent Graphic Film

IJ3630-20, FN3630-20 and RG3630-20\*

## For Solvent, UV and Latex Inkjet Printing and Cut Graphics

### 1. Product Description

Films IJ3630-20 and FN3630-20 are 2-mil film for flat or thermoformed backlit graphics that have uniform color in both reflected and transmitted light. This white, translucent film has a synthetic layflat liner and clear, pressure-sensitive adhesive. It is approved for making permanent interior or exterior graphics.

\* Film RG3630-20 is available for purchase and use with only a 3M Basic Product Warranty on a customer test and approve basis.

### 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 or the 3M Performance Guarantee. Please read the entire Bulletin for details.

- For indoor or outdoor use on internally-illuminated vertical sign faces

#### A. Limitations of End Uses

This 3M product is not designed or recommended for the following uses. Please contact us to discuss other options.

- Not suitable for fleet graphics
- Not suitable for graphic constructions with more than two layers of film, including the overlaminates
- Graphics applied to:
  - surfaces with rivets or corrugations
  - non-3M flexible substrates
  - substrates with coatings such as silicone

### 3. 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. Solvent Inkjet Inks and Printers

Ink Series	Printer
• 3M™ Piezo Inkjet Ink Series 1500v2	EFI™ VUTEk® 150, 2360/3360, 3300/5300 and 3000/5000 Printers
• 3M™ Piezo Inkjet Ink Series 4400	HP XLJet 1200 and 1500 Printers
• 3M™ Piezo Inkjet Ink Series 4800	HP Scitex TJ8300, TJ8350 Series Digital Press*
• 3M™ Piezo Inkjet Ink Series 5500	Océ Arizona 600 Printer
• 3M™ Piezo Inkjet Ink Series 6200	Agfa :Jeti 3312, 3318, 3324, 5024 [Gandinnovations] Printers

#### B. Latex Inkjet Inks and Printers

• HP 3M LX600 Specialty Latex Ink	HP Designjet L65500, Scitex LX600 & LX800
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### C. UV Inkjet Inks and Printers

Ink Series	Printer
• 3M™ Piezo Inkjet Ink Series 2200UV	EFI™ VUTEk® PV200 Printer
• 3M™ Piezo Inkjet Ink Series 2600UVv2	3M™ Printer 2500UV
• 3M™ Piezo Inkjet Ink Series 2700UV	Durst Rho 160R, 351R Printers
• 3M™ Piezo Inkjet Ink Series 2800UV	EFI™ VUTEk® QS2000, QS3200, QS3220, QS220 Printers
• 3M™ Piezo Inkjet Ink Series 5400UV	HP Designjet H35000/45000 Printers
• Mimaki Ink Series LF-200	Mimaki UJV-160, JFX-1631, JFC-1615R Printers

### D. Graphic Protection

- 3M™ Screen Print UV Gloss Clear 9720i
- 3M™ Screen Print Clear 9720UV
- 3M™ Scotchcal™ Gloss Overlamine 8518
- 3M™ Scotchcal™ Luster Overlamine 3619
- 3M™ Scotchcal™ Matte Overlamine 3620
- 3M™ Scotchcal™ Luster Overlamine 8519
- 3M™ Scotchcal™ Matte Overlamine 8520
- 3M™ Scotchcal™ Luster Overlamine 8908
- 3M™ Scotchcal™ Matte Overlamine 8909
- 3M™ Scotchcal™ Ultra Matte Overlamine 8915

### E. Light Control Films

- 3M™ Diffuser Films 3635-30
- 3M™ Diffuser Films 3635-70
- 3M™ Blockout Film 3635-20B
- 3M™ Blockout Film 3630-22B

### F. Substrates

- 3M™ Panaflex™ Awning and Sign Facing 945GPS
- 3M™ Panagraphics™ III Wide-Width Flexible Substrate
- Flat, rigid substrates (see Application Characteristics)

### G. Other Products

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

## 4. 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	Value
Film	Vinyl
Colors	Translucent white
Thickness	<b>Without adhesive:</b> 2 mils (0.05 mm) <b>With adhesive:</b> 3 to 4 mils (0.08 to 0.1 mm)
Adhesive type	Pressure sensitive
Adhesive color	Clear
Liner	Polyethylene-coated paper
Adhesion <i>24 hours after application</i>	<b>Acrylic and uncoated, clear polycarbonate:</b> 4 pounds/inch (0.7 kg/cm)
Chemical resistance	Resists mild alkalis, mild acids, and salt Excellent resistance to water ( <i>not immersion</i> )
Flammability	Call 1-800-328-3908 for information

**B. Application Characteristics**

Characteristic	Value
Finished graphic application recommendation	<p><b>Application temperature:</b> 60°F (16°C) <i>minimum air, substrate</i></p> <p><b>Application method:</b> Wet, typical</p> <p><b>Surface type:</b> Flat, without rivets</p> <p><b>Substrate type:</b> 3M flexible substrates; Rigid substrates such as flat acrylic, polycarbonate, high temperature copolyester sheet, glass</p> <ul style="list-style-type: none"> <li>- These films typically adhere to solar-grade polycarbonate substrate. However, some lots of this substrate may inhibit film adhesion. Contact Technical Service if you are having difficulty. See Instruction Bulletin 5.7 for additional information.</li> <li>- Polycarbonate substrates may require oven drying before use because outgassing of moisture from the polycarbonate may cause the film to bubble. Refer to the manufacturers' instructions.</li> </ul>
Finished graphic exposure temperature	<p>-50° to +170°F (-45° to +77°C)</p> <p>Impact at low temperatures of film applied to flexible substrates may result in cracking of the film and/or substrate.</p>
Graphic removal	None, permanent

**C. 3M Flexible Substrates**

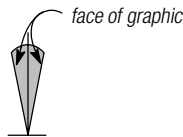
***Important Note!***

The user is responsible for determining and complying with all applicable building codes that affect the use of materials in interior and exterior awning, banner and sign face applications, including flammability standards. For information on flammability requirements, contact your local building code officials. For information on the results of flammability testing on 3M flexible substrates, including the product covered in this Product Bulletin from 3M Commercial Graphics Division, call 1-800-328-3908.

**5. Definitions**

**A. Exposure Types**

**U.S. Vertical Exposure**



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

**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. A detailed map is available at 3Mgraphics.com under Warranties.

**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. A detailed map is available at 3Mgraphics.com under Warranties.

**B. 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.

**C. Graphic Construction**

The products used to make a graphic, which may include film and/or flexible substrate, graphic protection, ink, printer and application tape.

**D. Graphic Protection**

Overlamine films or clear coats used to protect the graphic and/or change gloss.

## 6. Warranty Information

### A. Limitations and Disclaimers Applicable to All Warranties & Warranty Coverage Overview

Both the warranty coverage and the durability for each graphic is based on the user(s) reading and following all applicable and current 3M Product and Instruction Bulletins. 3M will honor the Warranted Durability stated in the base film or substrate Product Bulletin that is current when the film was purchased. Warranted durabilities 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. 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. **In no case shall 3M be liable for any direct, indirect, or consequential damages, including any labor or non-3M materials charges.**

See the *3M Graphics Market Center Warranty Brochure* at 3Mgraphics.com, which gives the terms, additional limitations of the warranty, if any, and limitations of liability.

### B. 3M Basic Product Warranty

All 3M products are 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 Graphics Market Center Warranty Brochure.

### C. 3M™ MCS™ Warranty

Subject to Stipulations set forth in Section E., below

Finished graphics constructed with the materials specified and the exposure specified in the Warranted Durability Tables, Section C.(1), is eligible for the 3M™ MCS™ Warranty. For warranties for other exposures, see Section E.(1).

OUT = Outdoor Signs  
IN = Indoor Signs

#### (1) Warranted Durability Table for Finished Graphics in a Standard U.S. Vertical Exposure

	HP VUTEK® 150, 2360/ 3360, 3300/5300, 3000/5000 Printers			HP XLJet Series 1200, 1500 Printers			HP Scitex TJ8300 and TJ8350 Digital Presses		
	SOLVENT Ink Series 1500v2			SOLVENT Ink Series 4400			SOLVENT Ink Series 4800		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
3619, 3620	—	6	8	—	6	8	—	6	8
8518, 8519, 8520, 8915	—	4	8	—	4	8	—	4	8
8908, 8909	—	1	3	—	1	3	—	1	3
1920DR	—	3	5	—	—	—	—	3	5
9720UV	—	—	—	—	—	—	—	3	5
9720i	—	4	8	—	4	8	—	4	5
none	—	2	2	—	2	3	—	2	3

	Agfa:Jeti 3312, 3318, 3324, 5024 [Gandiinnovations] Printers			Océ Arizona 600 Printer			Designjet L65500; Scitex LX600 & LX800 Printers		
	SOLVENT Ink Series 6200			SOLVENT Ink Series 5500			HP 3M LX600 Specialty Latex Ink		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
3619, 3620	—	6	8	—	6	8	—	3	5
8518, 8519, 8520, 8915	—	4	8	—	4	8	—	3	4
8908, 8909	—	1	3	—	1	3	—	—	—
1920DR	—	4	8	—	4	8	—	2	3
9720UV	—	—	—	—	4	8	—	—	—
9720i	—	4	8	—	4	8	—	—	—
none	—	3	3	—	3	3	—	—	—

	EFI™ VUTEk® PV200 Printers			3M™ Printer 2500UV			Durst RhoR & 351R Printers		
	Ink Series 2200UV			Ink Series 2600UVv2			Ink Series 2700UV		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
3619, 3620	—	6	8	—	6	8	—	6	8
8518, 8519, 8520, 8915	—	4	8	—	4	8	—	4	8
1920DR	—	—	—	—	4	8	—	—	—
9720i, 9720UV	—	4	8	—	4	8	—	4	8
none	—	3	3	—	3	3	—	3	3

	EFI™ VUTEk® QS2000, QS3200, QS3220, QS220 Printers			HP Designjet H35000/45000 Printers			Mimaki UJV-160, JFX-1631 & 1615R Printers		
	Ink Series 2800UV			Ink Series 5400UV			Ink Series LF-200		
Graphic Protection	VEH	OUT	IN	VEH	OUT	IN	VEH	OUT	IN
3619, 3620	—	6	8	—	6	8	—	—	—
8518, 8519, 8520, 8915	—	4	8	—	4	8	—	3	8
1920DR	—	—	—	—	—	—	—	—	—
9720i, 9720UV	—	4	8	—	4	8	—	—	—
none	—	3	3	—	3	3	—	—	—

Note: IJ3630 may be applied to Panagraphics III Substrate with all listed graphic protection options or Panaflex Substrate 945GPS with overlamine 3619, 3620, 8519, 8520 or 8915.

**D. 3M Performance Guarantee**

Subject to Stipulations set forth in Section E., below

Graphics constructed with the 3M materials specified and in the exposure specified in the Warranted Durability Table, Section D.(1) eligible for the 3M Performance Guarantee. This warranty only covers the performance of the recommended 3M products used in the graphic construction when imaged with the printers and OEM inks listed in the most current version of Performance Guarantee Printer and Ink Matrix at 3Mgraphics.com. The Matrix may also list certain restrictions for using the film covered in this Bulletin. For warranties for other exposures, see Section E.(1).

*Warranted Durability of 3M Product Performance, in Years*

**(1) Warranted Durability Table for 3M Product Performance Only in a Standard U.S. Vertical Exposure**

Film	Graphic Protection		Outdoor Indoor	Inks and Printers
IJ3630	8518 8519 8520 8915	1920DR 9720UV 9720i	2	See the <i>3M Performance Guarantee Printer and Ink Matrix</i> at 3Mgraphics.com, under Warranties

**E. General Warranty Stipulations for 3M™ MCS™ Warranty and 3M Performance Guarantee**

These stipulations apply to both the 3M™ MCS™ Warranty and 3M Performance Guarantee. General provisions for these stipulations are covered in the *3M Graphics Market Center Warranty Brochure* at 3Mgraphics.com.

**(1) Reduced Warranted Durability for Non-vertical Graphics**

For graphics oriented in a non-vertical, outdoor exposure, multiply the warranted durability years for your graphic construction as shown in the applicable Warranted Durability Tables, Section C.(1) or Section D(1), by the percentage shown for the intended graphic exposure.

<b>If the Graphic Exposure is:</b>	<b>Use this Percentage of U.S. Vertical Exposure, Warranted Durability</b>	<b>Calculation Examples</b>
U.S. Non-vertical	50% (0.5)	0.5 x 5 years = 2 years 0.5 x 3 years = 1 years
Desert Southwest Vertical	70% (0.7)	0.7 x 5 years = 2.8 years 0.7 x 3 years = 1.4 years
Desert Southwest Non-vertical	35% (0.35)	0.35 x 5 years = 1.4 years 0.35 x 3 years = 0.7 years
Horizontal	0%	0

**(1) 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.

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

Contact the 3M organization for that country.

**(3) Application to Glass**

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

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

3M does not warrant finished 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 other products.

The 3M Performance Guarantee covers selected 3M branded graphics products when used with qualified printers and inks. See the *3M Performance Guarantee Printer and Ink Matrix* at [www.3Mgraphics.com](http://www.3Mgraphics.com).

**7. Factors that Affect Graphic Performance Life**

The actual performance life of a graphic is affected by all of the following.

- The combination of graphics materials used
- Ink formulation
- Adequate ink drying or curing
- Selection, condition and preparation of the substrate
- Surface texture
- Application methods
- Angle and direction of sun exposure
- Environmental conditions
- Cleaning or maintenance methods

**8. Graphics Manufacturing**

Refer to the 3M Related Literature section for a list of the Product and Instruction Bulletins that may be needed to make a graphic.



**CAUTION**

Before using any equipment, always read the manufacturer's instructions for safe operation.

**A. Inkjet Printer Support Information**

**(1) Ink**

Always read and follow the ink manufacturer's written instructions on usage.

## (2) Total Ink Coverage

The maximum recommended total ink coverage for this film is:

**270%** when printed with all approved 3M inkjet solvent inks.

**280%** when printed with all approved 3M inkjet UV inks and latex inks.

**250%** when printed on the Mimaki JV5 Series printer with HS ink series (3M Performance Guarantee).

Too high a total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. Refer to the Instruction Bulletin for the ink system being used for additional details about total ink coverage.

## (3) Adequately Dry Graphics

### **Important Note!**

Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty.

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.

## B. Cutting

The following are common cutting methods. See Instruction Bulletin 4.1 for details.

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

### (1) Minimum Cutting Heights

Based on cutting and weeding evaluations that used Helvetica medium upper case, the recommended minimum cutting height for text is 1 inch (2.54 cm). Because of the differences in electronically-controlled cutting equipment and font characteristics, users should determine their own cutting and weeding capability.

### (2) Inside and Outside Corners

For inside and outside 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.

### (3) Factors that Affect Cutting Quality and Ability

- Sharpness of the knife blade. Dull blades create a serrated look to the cut edge of the film 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

## C. Application Tapes

### (1) When to Use Premasking Tape

- As an application aid to increase stiffness, and prevent stretching and damage during application.

### (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) How to Select a Tape

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

**EXAMPLE:** If the film is protected by overlamine 8519 and you want to premask the film, use premasking tape SCPM-3. If it is protected by clear 9720i, use premasking tape SCPM-44X.

**Graphic Protection** Refer to the Warranty table to determine what graphic protection is approved for your graphic construction.

Application Tape	None <i>UV ink series only</i>	None <i>Other ink series</i>	3619, 3620 8518, 8519, 8520, 8915	8908 8909	1920DR	9720i 9720UV
Premasking SCPM-3		■	■	■	■	
Prespacing SCPS-2		■	■	■	■	
Premasking SCPM-44X	■					■
Prespacing SCPS-53X	■					■

NR= Prespacing and/or premasking it not recommended when using this graphic protection option.

## 9. Application and Installation

For application by hand, the detergent and water application method is recommended for this pressure-sensitive film. 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.

## 10. 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 for general maintenance and cleaning information.

## 11. Shelf Life, Storage and Shipping

### A. Shelf Life

**Total shelf life: 3 years** from the date of manufacture on the original box. Up to 3 years unprocessed, **OR** process within 2 years **and** then apply within 1 year of processing.

### 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, or rolled printed side out on 6 inch (15 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, 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™ Piezo Inkjet Ink Series 1500v2	PB-IB	1500
3M™ Piezo Inkjet Ink Series 4400	PB-IB	4400
3M™ Piezo Inkjet Ink Series 4800	PB-IB	4800
3M™ Piezo Inkjet Ink Series 5500	PB-IB	5500
3M™ Piezo Inkjet Ink Series 6200	PB-IB	6200
3M™ Piezo Inkjet Ink Series 2200UV	PB-IB	2200UV
3M™ Piezo Inkjet Ink Series 2600UVv2	PB-IB	2600UV
3M™ Piezo Inkjet Ink Series 2700UV	PB-IB	2700UV
3M™ Piezo Inkjet Ink Series 2800UV	PB-IB	2800UV
3M™ Piezo Inkjet Ink Series 5400UV	PB-IB	5400UV
Mimaki Ink Series LF-200	PB-IB	LF200
3M Graphic Protection Products	PB	GP-1
3M™ Screen Print Gloss Clear 1920DR - Applying screen printing clear 1920DR	PB IB	1900 3.12
3M™ Screen Print UV Clears 9720i, 9720UV, 9730UV	PB-IB	Clears 9720
3M™ Panaflex™ Awning and Sign Facing 945GPS	PB	945
3M™ Panagraphics™ III Wide-Width Flexible Substrate - Application of 3M pressure sensitive films to Panagraphics substrate	PB IB	P3 5.30
3M Light Management Films from Series 3635	PB	3635
Cold roll lamination	IB	4.22
Scoring and cutting	IB	4.1
Using 3M application tapes; premasking and prespacing for films	IB	4.3
Making backlit signs with 3M digitally imaged graphics	IB	4.26
Application, substrate selection, preparation and application techniques	IB	5.1
Application, general procedures for indoor and outdoor dry applications	IB	5.5
Application, wet method for translucent screen printed and cut graphics	IB	5.7
Application, special applications and vehicles	IB	5.4
Storage, handling, maintenance, removal	IB	6.5
3M Graphics Center Warranty Brochure	go to <a href="http://www.3Mgraphics.com">www.3Mgraphics.com</a> , Warranties	

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## 14. Bulletin Change Summary

New Compatible Products: Added HP Scitex LX600 & LX800 and HP 3M LX600 Specialty LATEX inks; Added Mimaki JFX-1631 and JFC-1615R printers for ink series LF-200. Discontinued ink series 6000 and 6800 and films. Film RG3630-20 is available for purchase and use with only a 3M Basic Product Warranty on a customer test and approve basis.

**Commercial Graphics Division**

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