



# Plate Mounting Systems

## Flexomount™ Solid Printing Tape

## Cushion-Mount™ Solid Printing Tape

Flexographic Systems

FOD# 1588

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**Technical Data**

**February 1, 1999**

### Product Description

3M™ Flexographic Solid Printing tapes are double-coated tapes designed for mounting photopolymer and rubber printing plates to flexographic printing cylinders or sleeve systems. The adhesive systems are specifically formulated for clean removability from both the plate and the print cylinder.

The Flexomount solid vinyl carrier is designed for printing solids and line work. The Cushion Mount elastomeric foam carrier is designed for solid and line printing.

Product	Thickness*		Description
<b>Flexomount™ Solid Printing Foam Tapes</b>			
447DL	0.010 in.	0.25mm	Gray double coated tape with a soft rubber adhesive on each side of a vinyl carrier. Available in double or single liner.
411DL	0.015 in.	0.38mm	
412DL	0.020 in.	0.50mm	
	0.020 in.	0.50mm	
413DL	0.015 in.	0.38 mm	Black double coated tape with a firm rubber adhesive on each side of a vinyl carrier. Available in double or single liner.
414DL	0.020 in.	0.50 mm	
<b>Cushion Mount™ Solid Printing Tapes</b>			
929	0.060 in.	1.52 mm	Rubber adhesive on each side of a tan high density elastomeric foam.
933	0.015 in.	0.38 mm	
939	0.020 in.	0.50 mm	
949	0.020 in.	0.50 mm	Differential adhesive system on a tan high density elastomeric foam. Non-liner side: rubber resin adhesive. Liner side: acrylic adhesive.

\*All thicknesses are nominal performance thicknesses for which the products are targeted to perform during the flexographic printing operation.

**3M™ Plate Mounting Systems**  
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**Typical Physical Properties and Performance Characteristics**

**Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.**

Product	Flexomount™ Solid Printing Tapes					Cushion-Mount™ Solid Printing Tapes				
	411DL	412DL	413DL	414DL	447DL	929	933	939	949	
Adhesive	Rubber Soft	Rubber Soft	Rubber Firm	Rubber Firm	Rubber Soft	Rubber	Rubber	Rubber	Rubber/Acrylic	
Carrier	Solid Vinyl (Gray)	Solid Vinyl (Gray)	Solid Vinyl (Black)	Solid Vinyl (Black)	Solid Vinyl (Gray)	Elastomeric Foam (Tan)	Elastomeric Foam (Tan)	Elastomeric Foam (Tan)	Elastomeric Foam (Tan)	
Type of Printing	Solid and Line	Solid and Line	Solid and Line	Solid and Line	Solid and Line	Solid and Line	Solid and Line	Solid and Line	Solid and Line	
Type of Plate	Rubber & Photopolymer	Rubber & Photopolymer	Rubber & Photopolymer	Rubber & Photopolymer	Rubber & Photopolymer	Photopolymer	Photopolymer	Photopolymer	Rubber	
Thickness Tape	in. (mm)	±0.015 (0.381)	0.020 (0.508)	0.015 (0.381)	0.020 (0.508)	0.010 (0.254)	0.062 (1.575)	0.017 (0.432)	0.022 (0.599)	0.022 (0.599)
Paper Liner	in. (mm)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)
Poly Liner	in. (mm)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	0.004 (0.102)	NA	NA	NA	NA
Lot to Lot Tolerance	in. (mm)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)	± 0.0015 (± 0.038)
Typical Application Area Caliper Variation*	in. (mm)	± 0.0006 (± 0.015)	± 0.0006 (± 0.015)	± 0.0006 (± 0.015)	± 0.0006 (± 0.015)	± 0.0006 (± 0.015)	± 0.0008 (± 0.021)	± 0.0007 (± 0.018)	± 0.0007 (± 0.018)	± 0.0007 (± 0.018)
Roll Length	yd. (m)	36 (32.9)	36 (32.9)	36 (32.9)	36 (32.9)	36 (32.9)	50 ft. (15.2)	25 (22.9)	25 (22.9)	25 (22.9)
Master Width	in. (mm)	36 (914.4)	36 (914.4)	36 (914.4)	36 (914.4)	36 (914.4)	36 (914.4)	36 (914.4)	36 (914.4)	36 (914.4)
Slitting Tolerance	in. (mm)	± 1/32 (± 0.795)	± 1/32 (± 0.795)	± 1/32 (± 0.795)	± 1/32 (± 0.795)	± 1/32 (± 0.795)	± 1/32 (± 0.795)	± 1/32 (± 0.795)	± 1/32 (± 0.795)	± 1/32 (± 0.795)
Shelf Life (months)		12	12	12	12	12	12	12	12	12

\*Typical application area is 18 in. x 6 ft. = 1 square yard, 457.2 mm x 1828.8 mm = 0.8361 m<sup>2</sup> Caliper variation defined as ± 2 standard deviations.

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**Typical Physical Properties and Performance Characteristics cont.**

**Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.**

Product	Flexomount™ Solid Printing Tapes					Cushion-Mount™ Solid Printing Tapes			
	411DL	412DL	413DL	414DL	447DL	929	933	939	949
Density									
lb/ft <sup>3</sup> (kg/m <sup>3</sup> )	70 (1060)	70 (1060)	70 (1060)	70 (1060)	70 (1060)	50 (750)	50 (750)	50 (750)	50 (750)
Compression Deflection									
10% Compression	N/A	N/A	N/A	N/A	N/A	40 (275)	40 (275)	40 (275)	40 (275)
25% Compression	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Peel Adhesion ASTM-D3330									
Stainless Steel	50 (55)	50 (55)	40 (44)	40 (44)	50 (55)	20 (22)	20 (22)	20 (22)	20 (22)
Composite Sleeve	30 (33)	30 (33)	25 (27)	25 (27)	30 (33)	15 (16)	15 (16)	15 (16)	15 (16)
Photopolymer	40 (44)	40 (44)	30 (33)	30 (33)	40 (44)	30 (33)	30 (33)	30 (33)	N/A
Rubber	50 (55)	50 (55)	50 (55)	50 (55)	50 (55)	N/A	N/A	N/A	30 (33)
Solvent Resistance									
Water	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alkanes	Good	Good	Good	Good	Good	Good	Good	Good	Good
Alcohols	Fair	Fair	Good	Good	Fair	Fair	Fair	Fair	Fair
Acetates	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Heat Resistance									
°F (°C)	120 (49)	120 (49)	130 (54)	130 (54)	130 (49)	120 (49)	120 (49)	120 (49)	120 (49)

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**Product Selection Considerations**

		Type of Printing		Type of Printing	
		Solids and Line printing where maximum ink density is critical		Solids and Line printing where crisp type and reverse are critical	
Plate Type	Thickness	High Plate Side Adhesion	Medium Plate Side Adhesion	High Plate Side Adhesion	Medium Plate Side Adhesion
<b>Photopolymer</b>	0.010 in. (0.25 mm)	447DL			
	0.015 in. (0.38 mm)	411DL	413DL		933
	0.020 in. (0.50 mm)	412DL	414DL		939
	0.060 in. (1.52 mm)				929
<b>Rubber</b>	0.010 in. (0.25 mm)	447DL			
	0.015 in. (0.38 mm)	411DL 413DL			
	0.020 in. (0.50 mm)	412DL 414DL			949

There are four general considerations for selecting the right mounting tape: the thickness of the tape, the type of printing plate, the adhesion properties and the type of printing,

• **Tape Thickness:**

The Flexomount and Cushion-Mount Solid Printing Tape products range in thickness in order to meet undercut or pitch diameters that are common on flexographic printing presses. Tapes are available for 10, 15, 20 and 60 mil (0.25, 0.38, 0.50 and 1.52 mm) applications.

• **Type of Printing Plate:**

The adhesive systems on each tape have been developed for bonding to photopolymer or rubber printing plates. Some tapes are developed to be used specifically for photopolymer or rubber, since the composition and backside surface properties of these two plates are extremely different.

• **Adhesion Properties:**

Flexomount Gray and Black Adhesives

Flexomount Solid Printing tapes come in two different adhesion levels: standard (gray) and repositionable (black).

411DL, 412DL and 447DL come with the standard adhesive. These products have excellent adhesion to both rubber and photopolymer plates. The high adhesion makes it a good choice for long runs and helps reduce the tendency for plate edge lifting. 413DL and 414DL come with a firmer adhesive which provides easier plate repositioning and higher temperature and solvent resistance.

Cushion Mount Adhesives

The Cushion Mount products have two different plate side adhesives available. 933, 939 and 929 are designed for use with photopolymer plates with a medium level of adhesion. 949 is designed for use with rubber plates and also has a medium level of adhesion.

**Product Selection Considerations cont.**

• **Type of Printing:**

The Flexomount and Cushion-Mount product lines use different vinyl or foam carriers which are designed for specific printing requirements. 3M Solid Printing Tapes offer two different carrier types to meet print needs from solids and basic lines to high quality line work.

Flexomount™ Tapes (411DL, 412DL, 413DL, 414DL, 447DL)

The solid vinyl Flexomount products are designed for solid and line work. The non-compressible vinyl carrier provides the consistent solid ink coverage required for this type of work.

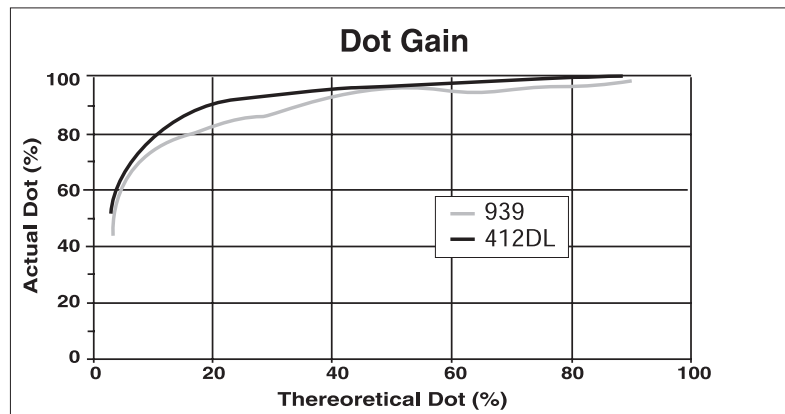
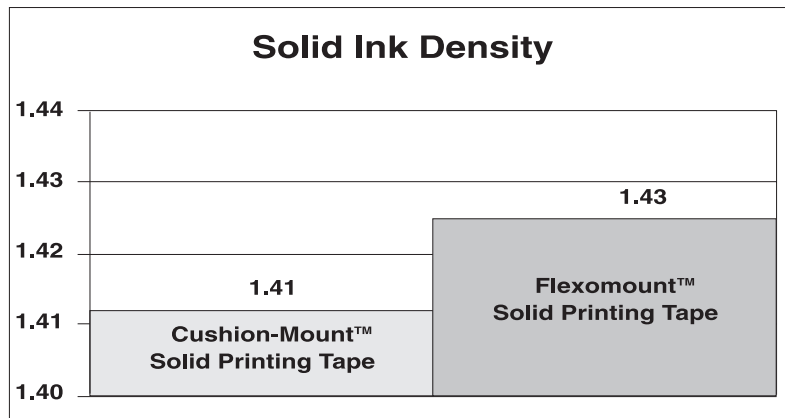
Cushion-Mount™ Tapes (929, 933, 939, 949)

The high density Cushion-Mount products are designed for solids and high quality line work. The high density elastomeric foam carrier provides solid ink coverage similar to the Flexomount products, while offering the benefits of a cushioned tape. The compression properties of the high density foam help reduce cylinder bounce and offer improved performance in high quality line work and reverses with excellent solid ink density.

**Typical Performance Characteristics**

This data is from print trials using photopolymer plates and a magenta solvent based ink printed on a polyethylene substrate. Press settings were 400 fpm @ 2 mil impression, 600 line anilox roll.

**Data is based on limited evaluations and should not be used for specification purposes.**



**Typical Performance Characteristics cont.**

Theoretical Dot (%)	ACTUAL DOT (%)	
	939 Cushion-Mount Solid Printing Tape	412DL Flexomount Solid Printing Tape
3%	19	23
5%	28	35
10%	45	51
20%	55	67
30%	72	77
40%	84	90
50%	94	96
60%	96	97
70%	99	98
80%	100	100
90%	100	100

**Technical Information and Data**

The technical information and data, recommendations, and other statements provided are based on tests or experience which 3M believes to be reliable, but the accuracy or completeness of such information is not guaranteed.

**Product Use**

Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

**Warranty and Limited Remedy**

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