



# Plate Mounting Systems

## Cushion-Mount™ Plus Combination Printing Tapes

## Cushion-Mount™ Plus Process Printing Tapes

Flexographic Systems

FOD# 1590

page 1 of 8

Technical Data

February 1, 1999

### Product Description

3M™ Flexographic Combination and Process Printing Tapes are double coated foam tapes designed for mounting photopolymer 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 foam carriers are designed for combination and process printing.

Product	Thickness*	Description
<b>Cushion Mount™ Plus Firm Combination Printing Tapes</b>		
1815M 1820M	0.015 in. 0.38mm 0.020 in. 0.50mm	Differential acrylate adhesive system on a blue colored, firm polyethylene foam.
<b>Cushion Mount™ Plus Standard Combination Printing Tapes</b>		
1015 1015M 1020 1020M 1020R 1040 1060	0.015 in. 0.38mm 0.015 in. 0.38mm 0.020 in. 0.50mm 0.020 in. 0.50mm 0.020 in. 0.50mm 0.040 in. 1.02mm 0.060 in. 1.52mm	Differential acrylate adhesive system on white colored, standard polyethylene foam.
<b>Cushion Mount™ Plus Soft Combination Printing Tapes</b>		
1915M 1920M	0.015 in. 0.38mm 0.020 in. 0.50mm	Differential acrylate adhesive system on a pink colored, soft density polyethylene foam.
<b>Cushion Mount™ Plus Process Printing Tapes</b>		
1115 1120 1120K	0.015 in. 0.38mm 0.020 in. 0.50mm 0.020 in. 0.50mm	Differential acrylate adhesive system on a cream colored, very soft polyethylene foam.

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

# 3M™ Plate Mounting Systems

## Cushion-Mount™ Plus Combination Printing Tapes

## Cushion-Mount™ Plus Process Printing Tapes

Flexographic Systems

### 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.

		Cushion-Mount™ Plus Firm Combination Printing Tapes		Cushion-Mount™ Plus Standard Combination Printing Tapes						
Product		1815M	1802M	1015	1015M	1020	1020M	1020R	1040	1060
Adhesive		Differential Acrylate		Differential Acrylate						
Carrier		Firm Polyethylene Foam (Blue)		Standard Polyethylene Foam (White)						
Type of Printing		Combination of Solid and Line with minimal tone production		Combination of solids and tone reproduction where solids and process are equally important						
Type of Plate		Photopolymer		Photopolymer	Photopolymer	Photopolymer	Photopolymer	Rubber	Photopolymer	Photopolymer
Thickness										
Tape	in. (mm)	±0.017 (0.432)	0.022 (0.599)	0.017 (0.432)	0.017 (0.432)	0.022 (0.599)	0.022 (0.599)	0.022 (0.599)	0.042 (1.067)	0.062 (1.575)
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)
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)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)
Roll Length	yd. (m)	25 (22.9)	25 (22.9)	25 (22.9)	25 (22.9)	25 (22.9)	25 (22.9)	25 (22.9)	16.6 (15.2)	16.6 (15.2)
Master Width	in. (mm)	54 (1371.6)	54 (1371.6)	54 (1371.6)	54 (1371.6)	54 (1371.6)	54 (1371.6)	54 (1371.6)	54 (1371.6)	54 (1371.6)
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
Density	lb/ft <sup>3</sup> (kg/m <sup>3</sup> )	30 (480)	30 (480)	28 (450)	28 (450)	28 (450)	28 (450)	28 (450)	28 (450)	28 (450)
Compression Deflection**										
10% Compression	lb/in <sup>2</sup> (kPa)	25 (175)	25 (175)	12 (82)	12 (82)	12 (82)	12 (82)	12 (82)	12 (82)	12 (82)
25% Compression	lb/in <sup>2</sup> (kPa)	39 (270)	39 (270)	21 (145)	21 (145)	21 (145)	21 (145)	21 (145)	21 (145)	21 (145)
Durometer ASTM-D2240 Shore A		63	63	58	58	58	58	58	58	58
Peel Adhesion ASTM-D3330 Stainless Steel	oz/in (N/100mm)	30 (33)	30 (33)	30 (33)	30 (33)	30 (33)	30 (33)	30 (33)	30 (33)	30 (33)
Composite Sleeve	oz/in (N/100mm)	25 (28)	25 (28)	25 (28)	25 (28)	25 (28)	25 (28)	25 (28)	25 (28)	25 (28)
Photopolymer	oz/in (N/100mm)	40 (45)	40 (45)	50 (55)	40 (45)	50 (55)	40 (45)	50 (55)	50 (55)	50 (55)
Rubber	oz/in (N/100mm)	N/A	N/A	N/A	N/A	N/A	N/A	30 (33)	N/A	N/A
Solvent Resistance										
Water		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alkanes		Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alcohols		Good	Good	Good	Good	Good	Good	Good	Good	Good
Acetates		Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
Heat Resistance	°F (°C)	150 (65)	150 (65)	150 (65)	150 (65)	150 (65)	150 (65)	150 (65)	150 (65)	150 (65)

\*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.

\*\* ASTM-1564 Value is the force required to compress a 1 square inch sample.

# 3M™ Plate Mounting Systems

## Cushion-Mount™ Plus Combination Printing Tapes

### Cushion-Mount™ Plus Process Printing Tapes

Flexographic Systems

FOD# 1590  
page 3 of 8

#### 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.

		Cushion-Mount™ Plus Soft Combination Printing Tapes		Cushion-Mount™ Plus Process Combination Printing Tapes			
Product		1915M	1920M	1115	1120	1120K	
Adhesive		Differential Acrylate		Differential Acrylate			
Carrier		Soft Polyethylene Foam (Pink)		Very Soft Polyethylene Foam (Cream)			
Type of Printing		Combination of process with minimal solids		High quality process and tone			
Type of Plate		Photopolymer		Photopolymer			
Thickness							
Tape	in. (mm)	±0.017 (0.432)	0.022 (0.599)	±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)	
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)	
Typical Application Area Caliper Variation*	in. (mm)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	± 0.0004 (± 0.011)	
Roll Length	yd. (m)	25 (22.9)	25 (22.9)	25 (22.9)	25 (22.9)	25 (22.9)	
Master Width	in. (mm)	54 (1371.6)	54 (137.6)	54 (137.6)	54 (137.6)	54 (137.6)	
Slitting Tolerance	in. (mm)	± 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	
Density	lb/ft. <sup>3</sup> (kg/m <sup>3</sup> )	26 (416)	26 (416)	24 (384)	24 (384)	24 (384)	
Compression Deflection**							
10% Compression	lb/in <sup>2</sup> (kPa)	10 (70)	10 (70)	6 (42)	6 (42)	6 (42)	
25% Compression	lb/in <sup>2</sup> (kPa)	15 (104)	15 (104)	10 (70)	10 (70)	10 (70)	
Durometer ASTM-D2240 Shore A		54	54	50	50	50	
Peel Adhesion ASTM-D3330 Stainless Steel		20 (22)	20 (22)	20 (22)	20 (22)	20 (22)	
Composite Sleeve		N/A	N/A	N/A	N/A	25 (28)	
Photopolymer		40 (45)	40 (45)	40 (45)	40 (45)	40 (45)	
Rubber		N/A	N/A	N/A	N/A	N/A	
Solvent Resistance							
Water		Excellent	Excellent	Excellent	Excellent	Excellent	
Alkanes		Excellent	Excellent	Excellent	Excellent	Excellent	
Alcohols		Good	Good	Good	Good	Good	
Acetates		Fair	Fair	Fair	Fair	Fair	
Heat Resistance	°F (°C)	120 (49)	120 (49)	120 (49)	120 (49)	120 (49)	

\*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.

\*\* ASTM-1564 Value is the force required to compress a 1 square inch sample.

**3M™ Plate Mounting Systems**  
**Cushion-Mount™ Plus Combination Printing Tapes**  
**Cushion-Mount™ Plus Process Printing Tapes**  
 Flexographic Systems

**Product Selection Considerations**

			Type of Printing			
Plate Type	Caliper	Plate Adhesion	Combination predominantly solids	Combination balanced solids and process	Combination predominantly process	High Quality process and tone reproduction
Photopolymer	0.015 in. (0.38 mm)	High		1015		
	0.020 in. (0.50 mm)	High		1020		
	0.040 in. (1.02 mm)	High		1040		
	0.060 in. (1.52 mm)	High		1060		
	0.015 in. (0.38 mm)	Medium	1815M	1015M	1915M	1115
	0.020 in. (0.50 mm)	Medium	1820M	1020M	1920M	1120 1120K
Rubber	0.020 in. (0.50 mm)	High		1020R		

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 Cushion-Mount Plus products vary in thickness in order to meet undercut or pitch diameters that are common on flexographic printing presses. Tapes are available for 15, 20, 40, and 60 mil (0.25, 0.38, 0.50, 1.02, 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**

*Photopolymer plate adhesion*

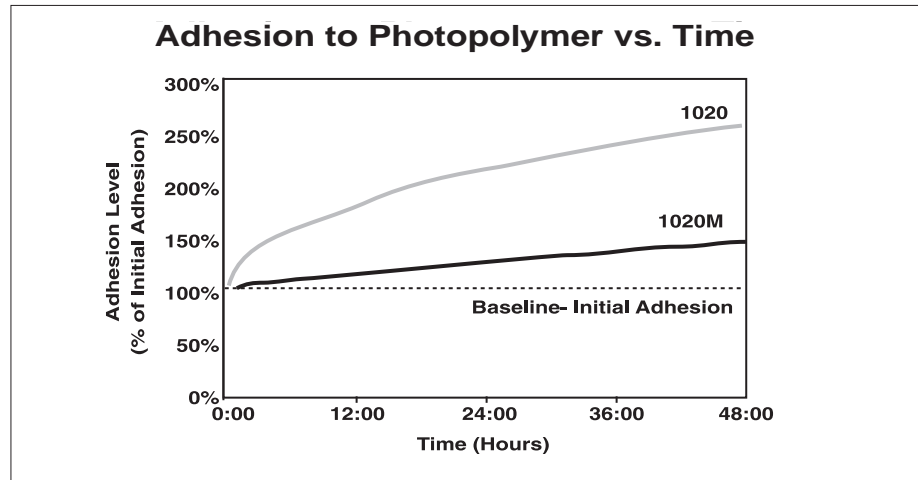
The Cushion-Mount Plus products have two different plate side adhesion levels to photopolymer plates. The standard plate side adhesive is designed to have the highest level of adhesion to photopolymer plates to hold the plate in place on press without edge lifting or flagging, yet still provide clean removal at the end of a press run.

M series adhesives are formulated to have a lower ultimate adhesion to photopolymer plates than standard adhesive. This facilitates clean, easier removal of plates at the end of each run. Products with the M designation offer an alternative to standard adhesive system where lower plate side adhesion is necessary. Consider the M series products where:

- Plate area is large (one or two plates covers majority of cylinder circumference).
- Thinner photopolymer plates are being used.
- Plate backsides are not coated with adhesion reducers.

**Product Selection**  
**Considerations cont.**

(Adhesion Properties cont.)



*Composite Sleeves*

1120K is specifically formulated to adhere to composite/fiberglass sleeves. Use 1120K only on these surfaces. All Cushion-Mount™ and Cushion-Mount™ Plus Standard Combination and Firm Combination tapes will adhere well to composite/fiberglass sleeves.

• **Type of Printing**

The Cushion-Mount Plus product line uses different foam carriers for a variety of printing requirements. 3M offers four polyethylene foams with different compression properties to meet printing needs from combination printing with predominantly solid and lines to high quality tone reproduction printing.

Cushion-Mount™ Plus Firm Combination Printing Tape (1815M, 1820M)

The Cushion-Mount Plus Firm Combination Printing Tapes are designed for a combination of solid, line and process or tone reproduction where improved solid ink density is required. The firm polyethylene foam carrier offers excellent solid ink density with clean edges on both type and reverses while still maintaining acceptable dot quality in tone reproduction. These products offer superior versatility to the flexographic printer for combination printing where bold solids are essential.

Cushion-Mount™ Plus Standard Combination Printing Tape

(1015, 1015M, 1020, 1020M, 1020R, 1040, 1040M, 1060, 1060M)

The Cushion-Mount Plus Standard Combination Printing Tapes are designed for a combination of solid, line and process or tone reproduction where the solid and process elements are equally important. The standard polyethylene foam carrier offers very consistent solid ink coverage in solid areas with less dot gain in tone reproduction. These products offer superior versatility to the flexographic printer for combination printing where both solids and process work is critical.

# 3M™ Plate Mounting Systems

## Cushion-Mount™ Plus Combination Printing Tapes

## Cushion-Mount™ Plus Process Printing Tapes

Flexographic Systems

### Product Selection Considerations cont.

#### (Type of Printing cont.)

##### Cushion-Mount™ Plus Soft Combination Printing Tape (1915M, 1920M)

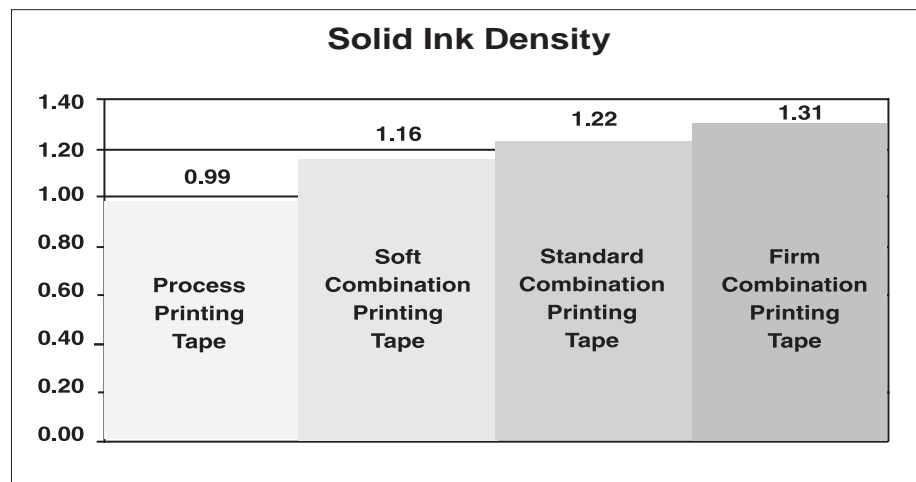
The Cushion-Mount Plus Soft Combination Printing Tapes are designed for a combination of process or tone reproduction with minimal solid printing. The soft polyethylene foam carrier offers very these least amount of dot gain in tone reproduction while stilling providing acceptable solid ink coverage. These products offer superior versatility to the flexographic printer for combination printing where process or tone reproduction is the most critical element.

##### Cushion-Mount™ Plus Process Printing Tape (1115, 1120, 1120K)

The Cushion-Mount Plus Process Printing Tapes are designed for high quality process work. The very soft polyethylene foam carrier provides the optimum compression and recovery properties for minimizing dot gain in high quality halftone printing.

This data is from print trials using photopolymer plates, 120 line screen, magenta water based ink printed on a polyethylene substrate. Press settings were 400 fpm @ 2 mil impression, 600 line anilox roll.

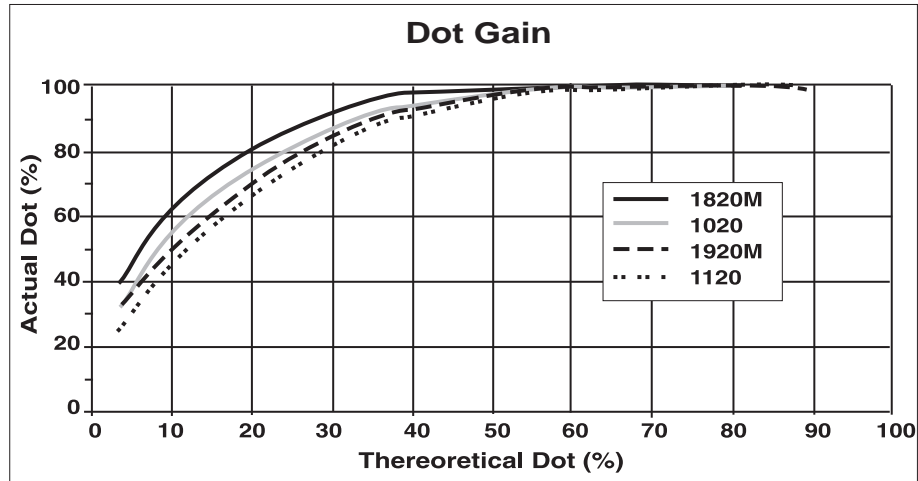
\* Data is based on limited evaluations and should not be used for specification purposes.



**3M™ Plate Mounting Systems**  
**Cushion-Mount™ Plus Combination Printing Tapes**  
**Cushion-Mount™ Plus Process Printing Tapes**  
 Flexographic Systems

Product Selection  
 Considerations cont.

(Type of Printing cont.)



Theoretical Dot (%)	ACTUAL DOT (%)			
	1120 Process Printing Tape	1920M Soft Combination Printing Tape	1020 Standard Combination Printing Tape	1820M Firm Combination Printing Tape
3%	24	32	32	40
5%	32	37	37	46
10%	48	50	55	63
20%	67	70	75	80
30%	82	84	88	92
40%	91	92	94	97
50%	97	97	98	99
60%	99	98	99	99
70%	100	99	99	99
80%	100	100	100	100
90%	99	100	100	100

**3M™ Plate Mounting Systems**  
**Cushion-Mount™ Plus Combination Printing Tapes**  
**Cushion-Mount™ Plus Process Printing Tapes**  
Flexographic Systems

---

**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**

The 3M product will be free from defects in material and manufacture for a period of one (1) year from the date of manufacture. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If the 3M product is defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

---

**Limitation of Remedies and Liability**

Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including contract, warranty, negligence, or strict liability.



This Industrial Tape and Specialties Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



**Industrial Tape and Specialties Division**

3M Center, Building 220-7W-03  
St. Paul, MN 55144-1000  
USA  
1 800 362 3550  
1 800 223 7427 Fax On Demand  
www.3M.com