



# Double Coated Tapes

## with Adhesive 350

9500PC • 9593 • 3028EK

Technical Data

October, 2006

### Product Description

3M™ Double Coated Tapes 9500PC, 9593 and 3028EK feature a thin polyester film for dimensional stability and improved handling with ease of die-cutting and laminating. 3M™ Adhesive 350 is a medium-firm acrylic adhesive that provides a combination of high wet grab and initial adhesion and good shear holding power to a wide variety of materials, including many plastics.

### Construction

Product Number	Faceside <sup>1</sup> Adhesive Type/ Thickness	Carrier Type/ Thickness	Backside <sup>2</sup> Adhesive Type/ Thickness	Liner Color, Type, Print	Liner Caliper	Total Tape Thickness (w/o liner)
3M tape 9500PC	350/ 0.0023" (0.058mm)	Clear PET <sup>3</sup> 0.001" (0.025mm)	350/ 0.0023" (0.058mm)	Natural, Polycoated Kraft, no print	0.0045" (0.11mm)	0.0056" (0.14mm)
3M tape 9593	350/ 0.0015" (0.038mm)	Clear PET <sup>3</sup> 0.0005" (0.013mm)	350/ 0.0015" (0.038mm)	White, 55#, Densified Kraft	0.0032" (0.081mm)	0.035" (0.089mm)
3M tape 3028EK	350/ 0.0023" (0.058mm)	Clear PET <sup>3</sup> 0.001" (0.025mm)	350/ 0.0023" (0.058mm)	White, Extensible Kraft, no print	0.0055" (0.14mm)	0.0056" (0.14mm)

Note 1: Faceside adhesive is on the interior of the roll, exposed when unwound.

Note 2: Backside adhesive is on the exterior of the roll, exposed when liner is removed.

Note 3: PET (Polyester).

The caliper listed is based on a calculation from manufacturing controlled adhesive coat weights using a density of 1.012 g/cc.

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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 Number	3M™ Double Coated Tapes 9500PC, 3028EK	3M™ Double Coated Tape 9593
Adhesion to stainless steel ASTM D3330 - 90 degree	Oz/in (N/100mm)	Oz/in (N/100mm)
- 15 minute RT	71 (77)	69 (75)
- 72 hour RT	93 (101)	78 (85)
- 72 hour 158°F (70°C)	121 (132)	72 (79)
ASTM D3330 - 180 degree, 2 mil al foil		
- 72 hour RT	140 (153)	-
ASTM D3330 - 180 degree, 2 mil polyester, stainless steel		
- 72 hour RT	-	91 (100)
Adhesion to other surfaces ASTM D3330 - 90 degree, 2 mil al foil, 72 hour RT		
ABS	74 (81)	81 (89)
Polycarbonate (PC)	60 (65)	77 (84)
Polypropylene (PP)	44 (48)	-
Polyester (PET)	77 (84)	-
High Density Polyethylene (HDPE)	33 (36)	-
Shear Strength - ASTM D3654 modified - (.5 inch <sup>2</sup> sample size)		
1000 grams at 72°F (22°C)	10,000 minutes	10,000 minutes
500 grams at 158°F (70°C)	10,000 minutes	5,737 minutes
Relative High Temperature Operating Ranges:		
Long Term (days, weeks)	200°F (93°C)	200°F (93°C)
Short Term (minutes, hours)	350°F (177°C)	350°F (177°C)

## Available Sizes

Roll length, width, slitting tolerance, core size.	
Available Lengths, (Subject to Minimum order requirements)	<b>3M Tapes 9500PC, 9593 and 3028EK</b>
Standard	36 yd (33 m)
Maximum Length	
1/4" to 1/2"	144 yd (132 m)
1/2" to 48"	360 yd (329 m)
Available Widths	
Minimum	1/4" (6.35 mm)
Maximum	48" (1220 mm)
Normal Slitting Tolerance	± 1/32" (0.8 mm)
Core Size	3.0" (76.2 mm)

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## Features

- 3M™ Adhesive 350 is a firm acrylic adhesive that provides very high adhesion to a wide variety of materials, excellent shear holding power, high temperature resistance and excellent UV resistance.
- 3M adhesive 350 provides exceptional temperature and chemical resistance and withstands tough application environment.
- 3M™ Double Coated Tape 9500PC has a moisture resistant liner which can withstand high humidity conditions with minimal cockling or wrinkling.
- These tapes have a film carrier, which can add dimensional stability to substrates. The carrier also provides easier handling during slitting and die-cutting.
- 3M™ Double Coated Tape 3028EK has an extensible kraft liner which facilitates narrow slitting.
- 3M™ Double Coated Tape 9593 clear polyester carrier provides dimensional stability and improved handling with ease of die cutting and lamination compared to adhesive transfer tapes.

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## Application Techniques

Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improves bond strength.

To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Some typical surface cleaning solvents are isopropyl alcohol or heptane.\*

Ideal tape application temperature range is 70°F to 100°F (21°C to 38°C). Initial tape application to surfaces at temperatures below 50°F (10°C) is not recommended because the adhesive becomes too firm to adhere readily. However, once properly applied, low temperature holding is generally satisfactory.

\*Carefully read and follow the manufacturer's precautions and directions for use when working with solvents.

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## Application Ideas

- Dissimilar materials joining, such as metal to plastic.
- High performance joining and bonding.
- 3M tape 3028EK for applications which use narrow slit, level wound roll.

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## Application Equipment

To apply adhesives in a wide web format, lamination equipment is required to ensure acceptable quality. To learn more about working with pressure-sensitive adhesives please refer to technical bulletin, Lamination Techniques for Converters of Laminating Adhesives (70-0704-1430-8).

For additional dispenser information, contact your local 3M sales representative, or the toll free 3M sales assistance number at 1-800-362-3550.

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<b>Storage</b>	Store in original cartons at 70°F (21°C) and 50% relative humidity.
<b>Shelf Life</b>	If stored under proper conditions, product retains its performance and properties for two years from date of manufacture.
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**ISO 9001:2000**

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001:2000 standards.



**Industrial Business  
Converters Markets  
Industrial Adhesives and Tapes Division**

3M Center, Building 21-1W-10, 900 Bush Avenue  
St. Paul, MN 55144-1000  
800-223-7427 • 651-778-4244 (fax)  
www.3M.com/converter



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