Double Coated Urethane Foam Tapes

4004 • 4008 • 4016 • 4026
4032 • 4052 • 4056 • 4085

Technical Data **February, 2005**

Product Description

3M™ Double Coated Urethane Foam Tapes are conformable foams that offer high shear strength and are available with either a high temperature holding acrylic adhesive system or a rubber adhesive system for bonding to various types of surfaces for mounting, joining and holding.

Products

Note: The user is responsible for determining whether the tape is fit for a particular purpose and suitable for user's method of application.

3M™ Double Coated Urethane Foam Tape Series 4000		
3M™ Double Coated Urethane Foam Tape 4004	1/4 in.	(6.4 mm) thick
3M™ Double Coated Urethane Foam Tape 4008	1/8 in.	(3.2 mm) thick
3M™ Double Coated Urethane Foam Tape 4016	1/16 in.	(1.6 mm) thick
3M™ Double Coated Urethane Foam Tape 4026	1/16 in.	(1.6 mm) thick
3M™ Double Coated Urethane Foam Tape 4032	1/32 in.	(0.8 mm) thick
3M™ Double Coated Black Urethane Foam Tape 4052	1/32 in.	(0.8 mm) thick
3M™ Double Coated Black Urethane Foam Tape 4056	1/16 in.	(1.6 mm) thick
3M™ Double Coated Urethane Foam Tape 4085	0.045 in.	(1.1 mm) thick

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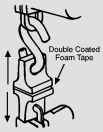
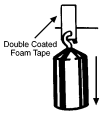
Typical Physical Properties

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

	Units	3M™ Double Coated Urethane Foam Tape 4004	4008	4016	4026
Adhesive Type:*		100	100	100	100
Adhesive Carrier:		Polyurethane Foam	Polyurethane Foam	Polyurethane Foam	Polyurethane Foam
Thickness: Nominal	inch (mm)	0.250 (6.4)	0.125 (3.2)	0.0625 (1.6)	0.0625 (1.6)
Thickness: Tolerance:	inch (mm)	0.215-0.285 (5.46-7.24)	0.110-0.150 (2.79-3.81)	0.045-0.080 (1.142-2.03)	0.045-0.080 (1.142-2.03)
Color:		Natural	Natural	Natural	Natural
Release Liner:	inch (mm)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)
Liner Color:		Green Plaid	Green Plaid	Green Plaid	Green Plaid
Approximate Density: (Foam Only)	lb/ft^3 (kg/m^3)	12 (190)	15 (240)	11 (175)	18 (290)
Standard Length:	yard (meter)	18 (16.5)	36 (32.9)	36 (32.9)	36 (32.9)
Maximum Length:	yard (meter)	25 (23)	50 (45.7)	100 (91)	100 (91)
Available Width:	inch (mm)	46 (1168)	46 (1168)	46 (1168)	46 (1168)
Normal Slitting Tolerance:	inch (mm)	± 1/32 (± 0.8)	± 1/32 (± 0.8)	± 1/32 (± 0.8)	± 1/32 (± 0.8)
Normal Tensile:  ("T" Block) 1 in^2 (6.45 cm^2) Jaw Speed 2 in/min (50 mm/min)	psi (kPa)	12 (85)	25 (170)	50 (345)	40 (275)
Static Shear:  Measured at various temperatures and gram loadings. (1/2 sq. in. overlap). Will hold listed weight for 100 hours.	gms	72°F (22°C) 1000 120°F (49°C) 500 150°F (66°C) 500 200°F (93°C) 250	1000 500 500 250	1500 1000 750 750	2000 1000 1000 750
Tensile Strength:	psi (kPa)	90 (620)	160 (1100)	140 (965)	180 (1240)
Elongation:	%	90	90	100	100
Temperature Resistance:					
Short Term (Minutes, Hours)	°F (°C)	380 (193)	380 (193)	380 (193)	380 (193)
Long Term (Days, Weeks)	°F (°C)	220 (104)	220 (104)	220 (104)	220 (104)
Solvent Resistance:		No apparent degradation when exposed to splash tests of most hydrocarbon solvents.			
UV Resistance:		No apparent degradation when exposed to 7 days in U.V. chamber.			
Cold Flex at -20°F (-30°C):		No cracking when flexed around a 1/4 in. (6.4 mm mandrel).			
Thermal Conductivity:	BTU/hr/°F/ft^2/ft (watt/metre Kelvin)	0.036 (0.062)	0.036 (0.062)	0.036 (0.062)	0.036 (0.062)
Dielectric Strength:	volts/mil (volts/0.025 mm)	200-300 (200-300)	200-300 (200-300)	200-300 (200-300)	200-300 (200-300)

*3M™ Adhesive 100 is a firm acrylic pressure sensitive adhesive system. It features high ultimate bond strength, very good high temperature and solvent resistance and very high shear holding power. Bond strength increases substantially with natural aging.

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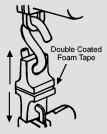
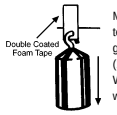
Typical Physical Properties

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

	Units	3M™ Double Coated Urethane Foam Tape 4032	4052	4056	4085
Adhesive Type:*		100	100	100	740
Adhesive Carrier:		Polyurethane Foam	Polyurethane Foam	Polyurethane Foam	Polyurethane Foam
Thickness: Nominal	inch (mm)	0.031 (0.8)	0.031 (0.8)	0.0625 (1.6)	0.045 (1.2)
Thickness: Tolerance:	inch (mm)	0.025-0.040 (0.64-1.02)	0.025-0.040 (0.64-1.02)	0.045-0.080 (1.142-2.03)	0.039-0.054 (1.00-1.45)
Color:		Natural	Black	Black	Natural
Release Liner:	inch (mm)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)	0.003 (0.08)
Liner Color:		Green Plaid	Green Plaid	Green Plaid	Tan
Approximate Density: (Foam Only)	lb/ft³ (kg/m³)	20 (320)	14 (225)	11 (175)	22 (352)
Standard Length:	yard (meter)	72 (65.8)	72 (65.8)	36 (32.9)	72 (65.8)
Maximum Length:	yard (meter)	175 (160)	175 (160)	100 (91)	100 (91)
Available Width:	inch (mm)	46 (1168)	46 (1168)	46 (1168)	46 (1168)
Normal Slitting Tolerance:	inch (mm)	± 1/32 (± 0.8)	± 1/32 (± 0.8)	± 1/32 (± 0.8)	± 1/32 (± 0.8)
Normal Tensile: ("T" Block) 1 in² (6.45 cm²) Jaw Speed 2 in/min (50 mm/min) 	psi (kPa)	60 (75)	75 (515)	50 (345)	45 (310)
Static Shear:  Measured at various temperatures and gram loadings. (1/2 sq. in. overlap). Will hold listed weight for 100 hours.	gms				
72°F (22°C)		2000	1500	1500	1000
120°F (49°C)		1500	750	1000	250
150°F (66°C)		1000	750	750	—
200°F (93°C)		1050	750	750	—
Tensile Strength:	psi (kPa)	240 (1655)	225 (1550)	140 (965)	140 (965)
Elongation:	%	90	110	100	100
Temperature Resistance:					
Short Term (Minutes, Hours)	°F (°C)	380 (193)	380 (193)	380 (193)	200 (93)
Long Term (Days, Weeks)	°F (°C)	220 (104)	220 (104)	220 (104)	125 (152)
Solvent Resistance:		No apparent degradation when exposed to splash tests of most hydrocarbon solvents.			
UV Resistance:		No apparent degradation when exposed to 7 days in U.V. chamber.			
Cold Flex at -20°F (-30°C):		No cracking when flexed around a 1/4 in. (6.4 mm mandrel).			
Thermal Conductivity:	BTU/hr/°F/ft²/ft (watt/metre Kelvin)	0.036 (0.062)	0.036 (0.062)	0.036 (0.062)	0.036 (0.062)
Dielectric Strength:	volts/mil (volts/0.025 mm)	200-300 (200-300)	200-300 (200-300)	200-300 (200-300)	200-300 (200-300)

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3M™ Adhesive 740 is a medium-firm rubber-resin pressure sensitive adhesive system. It features good holding power and adhesion to a wide variety of surfaces including many low surface energy plastics such as polyethylene and polypropylene.

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Features

- The natural colored urethane foam tape products vary in color from white to light yellow. The color will change to light yellow upon exposure to sunlight (ultraviolet radiation). This color change is normal and does not affect tape performance.
- 3M™ Double Coated Urethane Foam Tape 4026 is available in roll form and die-cut pieces. Die-cut pieces of 3M tape 4026 is available in 3/4" or 1" squares, either individual pieces double linered with an extended liner on one side or in pads of 48 squares.
- 3M™ Double Coated Urethane Foam Tape 4032 is also available in die-cut pieces as 3M™ Double Coated Urethane Foam Tape 4022. Die-cut pieces of 3M tape 4022 is available in 3/4" or 1" squares, either individual pieces double linered with an extended liner on one side or pads of 48 squares.
- 3M™ Double Coated Urethane Foam Tape 4085 combines conformability with high immediate adhesion to most plastics including ABS, polycarbonate, acrylic, polyethylene and polypropylene as well as metal and paint. 3M tape 4085 tears easily which makes it ideal for hand application.

Application Techniques

- Bond strength is dependent upon the amount of adhesive-to-surface contact developed. Firm application pressure helps develop better adhesive contact and improve bond strength.
- To obtain optimum adhesion, the bonding surfaces must be clean, dry and well unified. Typical surface cleaning solvents are isopropyl alcohol***** and water (rubbing 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.

***Note:** Be sure to follow the manufacturer's precautions and directions for use when using solvents.

Application Ideas

The urethane foam tapes are generally ideal for interior applications or for exterior applications where the tape will be protected from the environment. The urethane foam is open cell.

3M™ Double Coated Urethane Foam Tape 4004 – Bond mirrors to walls or furniture
3M™ Double Coated Urethane Foam Tape 4008 – Bond acoustic panels to walls
3M™ Double Coated Urethane Foam Tape 4016 – Mount interior signs and nameplates
3M™ Double Coated Urethane Foam Tape 4026 – Mount air fresheners and soap dispensers
3M™ Double Coated Urethane Foam Tape 4032 – Attach wire clips to various surfaces
3M™ Double Coated Urethane Foam Tape 4052 – Bond window to microwave oven doors
Mount electrical channel to wall surfaces
3M™ Double Coated Urethane Foam Tape 4056 – Mount wall corner protectors
3M™ Double Coated Urethane Foam Tape 4085 – Attach wire clips
Attach air fresheners