Adhesives & Tapes

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SERVING INDUSTRY FOR OVER 73 YEARS

3M

Adhesives and Tapes

Design Guide for Bonding, Attaching, and Fastening

One resource.

Hundreds of adhesives and tapes.

3M Industrial Adhesives and Tapes Division represents more than 50 years of helping companies worldwide improve product performance and appearance, and increase production efficiency.

Today you can rely on 3M for the most versatile and comprehensive line of adhesives and tapes available. On the following pages, you'll find 3M solutions for bonding or fastening materials ranging from metal and rubber to glass and low surface energy plastics. And you'll find all of the following:

- **Bond strength matched to the job**. That's the full range from repositionable to strength enough to replace rivets, screws, and welds.
- **Virtually invisible fastening.** In most applications, surfaces stay smooth and clean.
- **Increased material options.** Use thinner, lighter materials and even dissimilar materials as design and cost-saving solutions.
- **Increase manufacturing efficiency.** Reduce or eliminate operations such as riveting, drilling, welding, surface refinishing, and cleanup in many applications.
- **Bond, seal and fill gaps in one step.** Save time and work.

Solutions through service...

3M representatives are located throughout the United States, Canada, and 50 other countries for sales assistance.

For technical service, a highly trained team is ready to help you evaluate adhesives and tapes for specific applications.

A national authorized distributor network provides sales assistance and local product availability. Authorized converters can also help you adapt 3M adhesives and tapes to meet special requirements for shape, size, and production.

Unlimited solutions to help you design and build better products.

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Get connected to all 3M adhesives and tapes.
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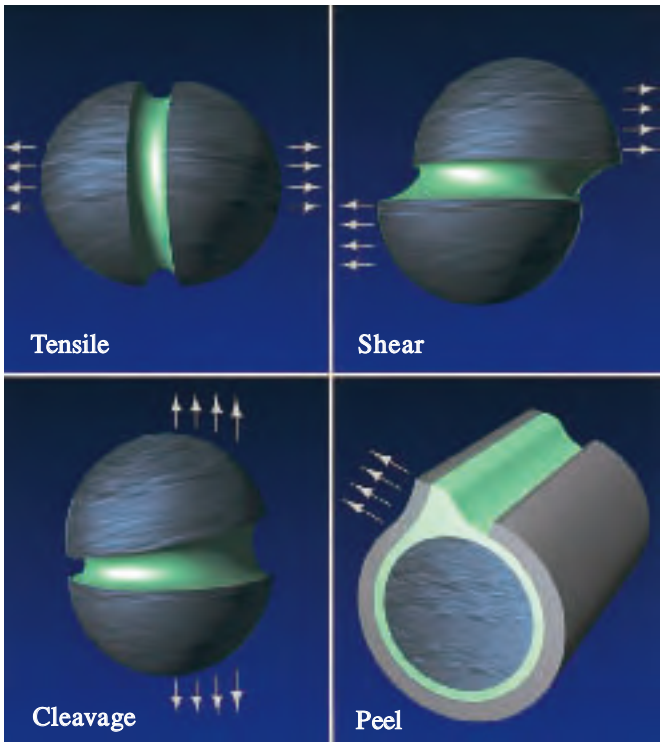
Knowing when to use 3M adhesives and tapes to improve your product and process

Based on your answers to the following questions, you can decide if it will be worth your time to evaluate specific 3M adhesives and tapes for your operation.

Q ***Can adhesives hold together the materials you want to join with the strength you need?***

Some materials are harder to bond than others. But with 3M adhesive and tape technologies, even many materials once defined as "hard-to-bond," such as low surface energy plastics, can be bonded with strength greater than the materials bonded. The list of potential substrates ranges from glass, wood, cardboard, and rubber to steel, concrete, foam, polycarbonate, and just about any other material you can name.

Strength can be readily matched to the substrate and stress characteristics to which the bond will be subjected. Most adhesives and tapes perform better when the primary stress is tensile or shear. In most industrial applications, however, a combination of stresses are involved that may include cleavage and peel.



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Tensile is pull exerted equally over the entire joint. Pull direction is straight and away from the adhesive bond.

Shear is pull directed across the adhesive, forcing the substrates to slide over each other.

Cleavage is pull concentrated at one edge of the joint, exerting a prying force on the bond. The other edge of the joint is theoretically under zero stress.

Peel is concentrated along a thin line at the edge of the bond where one substrate is flexible. The line is the exact point where an adhesive would separate if the flexible surface were peeled away from its mating surface. Once peeling has begun, the stress line stays out in front of the advancing bond separation.

Q ***Do you want to eliminate the stress concentration caused by spot welds, rivets, screws, or other mechanical fasteners and maintain surface integrity?***

Adhesives distribute stress evenly over the entire bonded area. A rivet or screw hole in the substrate concentrates stress at the hole and can decrease physical properties of the substrate. With uniform stress distribution of adhesives and tapes, lighter, thinner materials can be used without concerns about distortion, splitting, or crazing at the mechanically fastened site. Elimination of holes in metal also reduces the chances for rust and corrosion.

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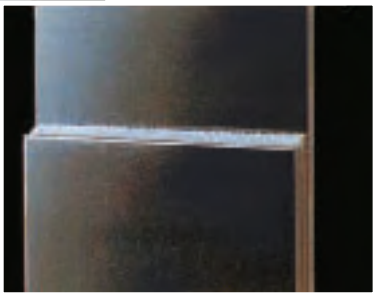

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Q *Would invisible fastening improve your products appearance?*

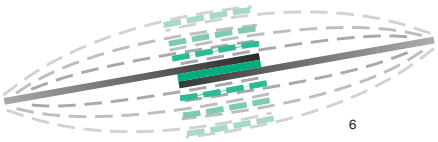
3M adhesives and tapes are generally hidden between the bonded substrates. Surfaces stay smooth and clean for a more attractive appearance and less surface refinishing.

Q *Do you want to attach dissimilar substrates?*

Laminates of dissimilar materials can often produce combinations superior in strength and performance to either substrate alone. The flexibility of many 3M adhesives and tapes compensates for differences in the coefficients of expansion between such materials as aluminum and wood.

Q *Will your part be subjected to vibration?*

The viscoelasticity of many 3M adhesives and tapes improves resistance to vibration fatigue by imparting flexibility to a joint or bonded area.



Q *Is the design of your part right for adhesive bonding?*

Adhesives perform better with some part configurations than with others. With the variety of 3M adhesive forms such as pastes, aerosol sprays, and tapes, you should be able to find an adhesive to meet the requirements of most parts that can be assembled with mechanical or fusion fastening. A spray adhesive would be effective, for example, to cover foam cushioning, but would not be a consideration for a part with a narrow bonding area. For cleaner, more efficient application, die-cut pressure sensitive adhesive foam tape can be precisely placed on smaller, irregularly-shaped bonding surfaces.

Q *Do you want to bond and simultaneously seal between the substrates?*

With many adhesives and tapes, continuous contact between mating surfaces effectively bonds and seals against dirt, dust, water, and other environmental conditions.

Adhesives and tapes also provide a film barrier to reduce or prevent bimetallic corrosion that often occurs in bonding two different types of metal.

Q *Will your finished assembly be exposed to harsh environmental conditions?*

Some adhesives do not hold well when exposed to very low or very high temperatures, high humidity, chemicals, or even water. Other adhesives are specially formulated to resist harsh environments.

Q *Do you need high speed bonding?*

In some instances, adhesive bonding can be slow and require critical processing. Some epoxies, for example, require heat, pressure and fixturing to bond metal to metal in structural strength assemblies. With the wide range of 3M adhesives and tapes, however, a variety of open times are available. Depending on your end use requirements, you can select 3M pressure sensitive adhesives that bond on contact or a 3M two-part paste adhesive with open times ranging from 2 to 90 minutes. Repositionable formulations are also available for repeated openings and closings.

Q *Does your part need to be disassembled for maintenance or service?*

When assembled with most adhesives or tapes, parts are generally difficult or virtually impossible to disassemble without damaging the part. As an exception, hot melt adhesives can be reheated and reused, but in most instances reuse would be messy and impractical. As already noted, repositionable adhesives are available, but application is restricted to lighter duty attachment or closure. Reclosable fasteners are a hybrid technology using mechanical fastening and pressure sensitive adhesive. The adhesive permanently bonds two reclosable mating strips to the substrates that need to be opened and closed. See pages 73 through 77 for details.

Q *Do you want to cut costs, increase production and simplify your operation?*

With 3M adhesives and tapes, you can see cost reduction through reduced material requirements, weight reductions, and elimination of drilling, welding, screwing, finishing, and similar operations. In most cases, adhesives require minimal training. And many adhesives require little or no investment in major equipment.

3M adhesive and tape classifications – you really can't say "glue" any more

At one time, adhesive and glue were used synonymously. In industry today, however, designers and engineers are using terms like two-part low-odor acrylic, very high bond tape, PUR systems, cyanoacrylate, and more. Glue is now considered to be something sticky which is no longer a characteristic of many adhesives.

3M adhesives can be classified in several ways.

Classify by form

3M adhesives are available as liquids, pastes, tapes, films, and shaped solids. Each has characteristics to be considered for application effectiveness and efficiency.

Liquids and pastes readily fill voids to enhance mechanical adhesion. Many liquids can be sprayed to cover large areas.

Films and pressure sensitive tapes offer advantages unique to their form:

- Uniform thickness throughout the joint.
- Confinement of the adhesive to the immediate bonding area.
- Clean bonding without dripping or overflow.
- Minimum adhesive waste.
- Die-cut into complex shapes to facilitate bonding of complex parts or parts with narrow bonding surfaces.

Hot melts are supplied as solid sticks, cartridges, pellets, or similar shapes. Handling and storage is easy and neat.

Classify by strength

Another classification for industrial applications is by relative strength and solidification process. Generally, those adhesives that bond through a chemical reaction are stronger than those that bond through a physical change.

Structural adhesives bond by chemical reaction.

3M™ Structural Strength Adhesives bond the load-bearing parts of a product. As a rule of thumb, structural strength adhesives reach a minimum of 1,000 psi overlap shear strength. 3M formulations include the following:

- *Epoxy adhesives* are available in one and two-part liquids and pastes. Of all 3M adhesives, these provide the highest strength and elevated temperature resistance.

- *Acrylic adhesives* are two-part liquids and pastes to bond the widest variety of substrates including hard-to-bond plastics and oily metals. The distinction is high strength bonding without the surface preparation needed for epoxies and urethanes.

- *Urethane adhesives* are generally lower cost two-part liquids and pastes that cure quickly to an elastic bond in applications requiring flexibility between dissimilar materials. Impact resistance is a distinctive characteristic.

- *Cyanoacrylate adhesives* are high strength liquid formulations known as instant adhesives. On rigid plastic, glass, metal, rubber, and other low porosity substrates, they harden in seconds through reaction with surface moisture.

- *Anaerobic adhesives* are liquids that cure to a tough plastic in the absence of oxygen and in the presence of metal. Typical applications include threadlocking, retaining, gasketing, and sealing.

Non-structural adhesives bond with a physical change.

Non-structural adhesives vary in strength from repositionable to strength equal to or greater than the strength of the substrate being bonded. These adhesives are typically less than 1000 psi and bond materials in cushions, gaskets, insulation, veneers, and general assembly. 3M formulations include the following:

- *Hot melt adhesives* melt and flow under heat to wet the substrates and make bonds quickly upon cooling. Products available with a variety of characteristics such as short set times, sprayable formulas, and permanent PSA properties. Applications range from sealing to bonding automotive interior trim.

- *Rubber adhesives* are solvent-based or water-based and solidify through evaporation of the carrier. Products are designed for adhesion to various substrates, application methods, and environmental resistance of the bonded product.

- *Contact bond adhesives* are usually rolled, brushed, or sprayed on the two surfaces to be mated and permitted to become dry to the touch with a variety of open times. When the surfaces are pressed together, near ultimate bond strength is achieved.

Pressure sensitive adhesives

Pressure sensitive adhesives (PSAs) found in 3M tapes grip immediately to mating surfaces. With dwell time, the adhesive conforms to surface irregularities.

3M hybrid classifications

- *Curing hot melts (Polyurethane Reactive [PUR] adhesives)* are moisture-curing urethanes that apply like a hot melt adhesive but cool to bond strength usually associated with two-part structural adhesives.

- *Structural bonding tapes* combine the bond-on-contact speed and convenience of a pressure sensitive adhesive tape with the ultimate strength of liquid epoxy. Cured with heat, the bond reaches high shear strength with leather flexibility.

- *Reclosable fasteners* combine adhesive and mechanical fastening principles. Pressure sensitive adhesive permanently bonds two reclosable mating strips to the substrates that need to be opened and closed multiple times.

Substrates and adhesion – a surface phenomenon, so know surfaces well

Adhesives attach to the surfaces of two substrates, unlike a process that fuses substrates into a unified whole such as welding metal or solvent activation of plastics. In selecting a 3M adhesive or tape, surface condition must be considered: roughness, smoothness, porosity, coated, uncoated, cleanliness, flexibility, size of the part, and surface energy of the part.

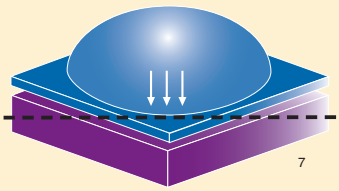
Adhesive paste, for example, flows readily into a rough surface for improved effective adhesion. Flexible materials such as paper or thin gauge metal can be bonded with a thin adhesive transfer tape. Large rigid parts with smooth clean surfaces can be bonded with a variety of 3M products ranging from double coated foam tapes to two-part structural adhesives. Some plastics have plasticizers which migrate to the surface and degrade the bond over time, so a plasticizer-resistant adhesive or tape is essential. If the substrate has been powder coat painted, the coating is the bonding surface rather than the substrate, and you would want to consider a 3M tape or adhesive developed specifically for that surface.

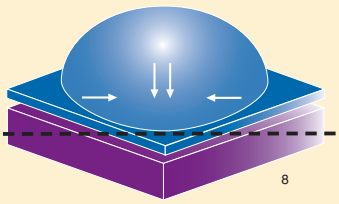
Surface energy ranges from high to low. To illustrate the concept of surface energy, think of water on the unwaxed hood of a car. The unwaxed hood has high surface energy and water on the hood flows into puddles. In comparison, a waxed hood has low surface energy and the water beads up rather than flows out. Similar to water, adhesive on a high surface energy surface flows and "wets out" the surface. "Wetting out" is required to form a strong bond.

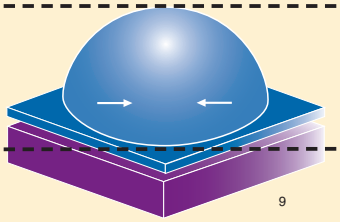
As a rule of thumb, the higher the surface energy, the greater the strength of adhesion.

Specially formulated adhesives are available for low surface energy surfaces. The following illustrations and surface rankings give you an idea of relative surface energy.

Regardless of surface energy, the substrate must be unified, dry, and clean to maximize adhesive contact.







Metal Surfaces (High Surface Energy)

mJ/m²	Surfaces
1103	Copper
840	Aluminum
753	Zinc
526	Tin
458	Lead
700-1100	Stainless Steel
250-500	Glass

High Surface Energy Plastics (*HSE*)

mJ/m²	Surfaces
50	Kapton® Industrial Film
47	Phenolic
46	Nylon
45	Alkyd Enamel
43	Polyester
43	Epoxy Paint
43	Polyurethane Paint
42	ABS
42	Polycarbonate
39	PVC Rigid
38	Noryl® Resin
38	Acrylic

Low Surface Energy Plastics (*LSE*)

mJ/m²	Surfaces
37	PVA
36	Polystyrene
36	Acetal
35	Polane® Paint
33	EVA
31	Polyethylene
29	Polypropylene
28	Tedlar® Polyvinyl Fluoride Film
18	Teflon® Fluoropolymer

NOTE: These values are provided as a guide. Formulation modifications can substantially alter surface energies.

Adhesive economics

In considering cost, consider more than just the cost per gallon or roll. The true value of a 3M adhesive or tape is determined by applied cost per unit. This includes adhesive coverage and the time and labor to apply it. Coverage is usually expressed in terms of adhesive thickness or weight.

For a true cost picture, there are a number of facts and questions to consider; questions not only about the adhesive itself, but also substrates, application methods, and more.

Q ***Has a realistic acceptance test conclusively screened out a lower cost bonding solution?***

A common error is excessive or meaningless test standards that might rule out satisfactory products. Use the lowest cost adhesive consistent with end use performance.

Q ***Has a minimum coverage been determined that consistently meets performance requirements?***

100% adhesive coverage is not always necessary. 50% may be completely satisfactory. Or even a single bead of adhesive or strip of high strength tape.

Q ***Have all physical properties of the substrate been considered?***

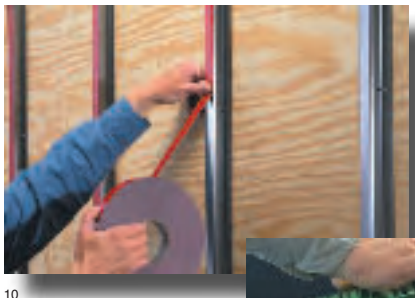
High absorption materials, for example, soak up low viscosity adhesives and need multiple coats. In that case, a higher viscosity product or spraying is needed.

Q ***Does the adhesive require special ventilation or safety equipment?***

Many adhesives are now low or no VOC's, or 100% solids, and require little or no special ventilation equipment. PSA tapes in application are solventless.

Q ***Can the adhesive or tape be applied with low cost equipment, or even no equipment?***

Equipment needs only be consistent with the desired production rate. A collapsible squeeze tube may be all that's necessary to bond plastic parts. Tape can be simply rolled on by hand. If more demanding equipment is needed for the application, 3M technical service will work with you to evaluate processes and equipment.



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Q ***Is the adhesive or tape easy to use to save training time?***

The level of training will vary. A one-part structural adhesive will require a more skilled operator than is necessary to seal a carton with a hot melt adhesive.

Q ***Does the adhesive or tape give the engineer greater flexibility in design and materials?***

Less expensive substrates and simplified designs can reduce overall cost and increase the market appeal of the end product.

An evaluation of your answers will indicate an appropriate selection of adhesives for the job and true cost. The final adhesive selection will be based on a comparison between applied cost per unit and specific required performance.

3M™ Structural Adhesives

The brand name “Scotch-Weld” is based on aircraft company conclusions made in the early 1950’s that this class of 3M load-bearing adhesive exhibited assembly strength comparable to welding.

Today, industries worldwide take advantage of the wide selection of 3M™ Scotch-Weld™ Adhesives and innovative dispensing for many applications. Examples include: bushing assembly in appliances, headlight assembly in cars, fiberglass decks in boats, relays and controls in electronic equipment, lawn sprinklers, POP displays, office partitions, pump casting components, golf clubs, and home furniture.

Each adhesive has high cohesive strength to bond high strength materials and potentially replace mechanical fasteners. Depending on the adhesive, you can bond metals, wood, rubber, ceramic, composites, engineering grade plastics, glass, and more.

Products include the following:

- 3M™ Scotch-Weld™ Epoxy, Acrylic, and Urethane Adhesives
- 3M™ Scotch-Weld™ Instant Adhesives
- 3M™ Scotch-Weld™ Anaerobic Adhesives
- 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives and Applicator

Load-bearing formulations for metals, rubber, glass and more

As an alternative to mechanical or fusion fastening, the reasons for 3M™ Scotch-Weld™ Epoxy, Acrylic and Urethane Adhesives are many: greater design latitude, cleaner lines, material substitution, less machining, lighter weight, more durability, and often less cost.

To meet application and end-use requirements, there are formulations for bonding steel, aluminum, copper, low surface energy plastics, rubber, glass, wood, masonry and more. Depending on adhesive, select from duo-pak cartridges, cans, tubes, pails, and drums.

Whatever properties you need – durable adhesion, flexibility, creep resistance, heat and environmental resistance, or void-filling – you'll likely find a 3M™ Scotch-Weld™ Structural Adhesive to meet your requirements and expectations.

13 With handling strength in 2 hours and full cure in 24 hours, 3M™ Scotch-Weld™ Epoxy Adhesive DP420 bonds the shaft into the head a golf club. Flexibility of the toughened two-part formulation helps absorb repeated impact for a secure bond. Available in 37ml, 200ml and 400ml duo-pak cartridges for use with any of the convenient hand-held 3M™ EPX™ Applicators.

14 With a 400ml cartridge, the 3M™ EPX™ Pneumatic Applicator applies 3M™ Scotch-Weld™ Two-Part Epoxy Adhesive to bond ABS components of an automotive breather valve. The toughened epoxy at the inlet port seals in the high pressure and air/fuel mixture.

15 With no surface preparation, 3M™ Scotch-Weld™ Structural Acrylic Adhesive DP8005 bonds the mitered corners of a simulated-wood composite plastic P.O.P. display, eliminating nails that would compromise appearance.

16 3M™ Scotch-Weld™ Low Odor Acrylic Adhesive DP810 requires minimal surface preparation for bonding metal hinges into awning frames. Reaches handling strength in only 10 minutes.

17 Brush-applied 3M™ Scotch-Weld™ Epoxy Adhesive 2216 B/A provides a tough, flexible bond between honeycomb and the framework in entry step panels of commuter aircraft.

18 3M™ Scotch-Weld™ Two-Part Epoxy Adhesive bonds steel couplings into aluminum tubing of a bicycle frame. Couplings are threaded for easy assembly and disassembly.

Product Information: 3M™ Scotch-Weld™ Adhesives in Duo-Pak Cartridges

	Product (Color)[1]	Description	Mix Ratio (Volume) B:A	Approximate[2] Viscosity 75°F (24°C) (CPS)	Approximate[3] Worklife At 75°F (24°C)	Average T-Peel[4] At 75°F (24°C) (PIW)	Overlap Shear Strength[5] (PSI)		
							-67°F (-55°C)	75°F (24°C)	180°F (82°C)
Epoxy	DP100 Clear	• Fast cure rigid epoxy • 15-20 min. handling strength	1:1	13,000	4 Min.	2	900	1500	300
	DP100Plus Clear	• Higher peel and shear strength version of 178-100	1:1	8,500	4 Min.	10	3000	3500	200
	DP100NS Translucent	• 25-30 min. handling strength • Low flow version of DP100	1:1	95,000	6 Min.	2	900	1500	300
	DP100FR White	• 25-30 min. handling strength • Meets UL94V-0 rating • Self-extinguishing version of DP100	1:1	80,000	6 Min.	2	800	1400	400
	DP105 Clear	• Fast cure epoxy • Very flexible • Excellent peel strength	1:1	6,500	5 Min.	35	3500	2000	150
	DP110 Gray	• Fast cure flexible epoxy • 30 min. handling strength	1:1	55,000	9 Min.	15	2000	2500	200
	DP110 Translucent	• 30 min. handling strength • Translucent version of DP110, gray	1:1	50,000	9 Min.	15	2000	2500	200
	DP125 Gray	• Good peel strength epoxy • Medium worklife	1:1	52,500	25 Min.	35	3400	3400	400
	DP125 Translucent	• Good peel strength epoxy • Medium worklife	1:1	15,000	25 Min.	35	4000	2500	150
	DP190 Gray	• Long worklife flexible epoxy • 8-12 hrs. handling strength • Bonds many dissimilar materials	1:1	80,000	90 Min.	20	1500	2500	400
	DP190 Translucent	• Long worklife epoxy • Good peel strength	1:1	10,000	90 Min.	30	3500	1700	150
	DP270 Black	• Long worklife potting compound • 8-12 hrs. handling strength • Rigid epoxy	1:1	12,000	70 Min.	2	1200	2500	300
	DP270 Clear	• Clear version of DP270 Black • Many electronic applications	1:1	12,000	70 Min.	2	1200	2500	300
	DP420 Off-White	• Medium worklife toughened epoxy • 1-2 hrs. handling strength	2:1	30,000	20 Min.	50	4500	4500	450
	DP420 Black	• Black version of DP420 Off-White • Tough, durable structural bonds	2:1	30,000	15 Min.	50	4500	4500	1260
	DP460 Off-White	• Long worklife toughened epoxy • 2-4 hrs. handling strength	2:1	30,000	60 Min.	60	4500	4500	700
	DP460NS Off-White	• Non-sag version of DP460 • Heat curable • High performance	2:1	125,000	60 Min.	60	4500	4500	1360
Urethane	DP601 Gray	• Self-leveling urethane • Fast cure	1:1	6,000	70 Sec.	-	-	2300	-
	DP601NS Gray	• Non-sag urethane • Fast cure	1:1	>250,000	50 Sec.	-	-	2300	-
	DP604NS Black	• Non-sag urethane • Flexible	1:1	>250,000	4 Min.	-	-	900	-
	DP605NS Off-White	• Fast cure semi-rigid urethane• Non-sag • Gap filler • 15-20 min. handling strength	1:1	150,000	4 Min.	15	1000	1250	150
	DP608 Gray	• Non-sag urethane	1:1	>250,000	8 Min.	-	-	2000	-
	DP620NS Black	• Non-sag urethane	1:1	>250,000	20 Min.	-	-	2500	-
	DP640 Brown	• Long worklife urethane • Non-sag • Tough, flexible bonds	1:1	25,000	40 Min.	25	2500	2000	300
Acrylic	DP805 Lt. Yellow	• High peel and shear strength acrylic • Bonds slightly oily material • High temp performance • Excellent plastic adhesion	1:1	110,000	4 Min.	25	2500	3500	2200
	DP810 Tan, Black	• Acrylic bonds many metals and plastics without surface prep • Fast strength buildup • Fully cured in 8 hours • Low odor	1:1	18,000 - 20,000	8-10 Min.	30	1200	3600	500
	DP810NS	• Non-sag version of DP810 • 10-15 min. handling strength	1:1	90,000 - 95,000	8-10 Min.	20	1200	4000	500
	DP820 Yellow	• Medium worklife acrylic • High shear strength • Bonds slightly oily metals • Tough, flexible bonds	1:1	55,000	15-20 Min.	15	2500	3100	900

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

(1) Color is mixed if two-part product.
(2) Brookfield viscometer viscosity values are typical values for the mixed product.
(3) The time during which an adhesive will adequately wet-out on a substrate.
(4) 180° peel tested on .030" aluminum per ASTM D 1876-61T.
(5) Tested per ASTM D 1002-64.

Product Information: 3M™ Scotch-Weld™ Adhesives in Duo-Pak Cartridges (continued)

	Product (Color)[1]	Description	Mix Ratio (Volume) B:A	Approximate[2] Viscosity 75°F (24°C) (CPS)	Approximate[3] Worklife At 75°F (24°C)	Average T-Peel[4] At 75°F (24°C) (PIW)	Overlap Shear Strength[5] (PSI)		
							-67°F (-55°C)	75°F (24°C)	180°F (82°C)
Acrylic	DP8005 Off-White	• Acrylic bonds low surface energy polyolefins without surface preparation • Excellent environmental resistance • 2-3 hour handling strength	10:1	27,500	2.5-3 Min.	16	–	2000	300
Acrylic	DP8010	• Acrylic bonds low surface energy polyolefins without surface preparation • Excellent environmental resistance • 1.5- 2 hr. handling strength • High shear and peel strength acrylic	10:1	17,000 - 22,000	10 Min.	30	-	1800	400
Acrylic	DP8010NS	• Non-sag version of DP-8010	10:1	27,000 - 45,000	10 Min.	30	–	2400	400

Product Information: 3M™ Scotch-Weld™ Two-Part Structural Adhesives

	Product (Color)[1]	Description	Mix Ratio (Volume) B:A	Approximate[2] Viscosity 75°F (24°C) (CPS)	Approximate[3] Worklife At 75°F (24°C)	Average T-Peel[4] At 75°F (24°C) (PIW)	Overlap Shear Strength[5] (PSI)		
							-67°F (-55°C)	75°F (24°C)	180°F (82°C)
Two-Part Epoxy	1751 B/A Gray	• Long worklife rigid epoxy • 8-12 hrs. handling strength • Excellent void filler and machinable for many "Body Solder" applications	3:2	700,000	45 Min.	4	1400	2000	500
Two-Part Epoxy	1838 B/A Green	• Long worklife rigid epoxy • 8-12 hrs. handling strength • Meets MIL-A-23941A • Excellent environmental resistance	4:5	400,000	60 Min.	4	1500	3000	500
Two-Part Epoxy	1838 B/A Tan	• Long worklife rigid epoxy • Tan version of 1838	6:5	250,000	60 Min.	5	1500	3000	500
Two-Part Epoxy	1838L B/A Translucent	• Long worklife rigid epoxy • Translucent, low viscosity version of 1838	1:1	10,000	60 Min.	5	2000	3000	300
Two-Part Epoxy	2158 B/A Gray	• Long worklife rigid epoxy • 8-12 hrs. handling strength • General purpose	1:1	375,000	120 Min.	4	1700	2000	400
Two-Part Epoxy	2216 B/A Gray	• Long worklife flexible epoxy • 8-12 hrs. handling strength • Bond plastic, metal, and other dissimilar materials	2:3	80,000	90 Min.	25	2000	2500	400
Two-Part Epoxy	2216 B/A Tan Non-sag	• Long worklife flexible epoxy • 8-12 hrs. handling strength • Tan version of 2216	2:3	350,000	90 Min.	25	2000	2500	400
Two-Part Epoxy	2216 B/A Translucent	• Long worklife flexible epoxy • 16-20 hrs. handling strength • Translucent version of 2216	1:1	10,000	120 Min.	25	3000	2000	150
Two-Part Epoxy	3501 B/A Gray	• Fast cure rigid epoxy • 20-30 minutes handling strength • Bond metal, wood, most plastics, and masonry products	1:1	500,000	7 Min.	5	1500	2400	300
Two-Part Urethane	3532 B/A Brown	• Fast cure semi-rigid urethane • 20-30 min. handling strength • Flexible bonds of many plastics, wood, and rubber	1:1	30,000	7 Min.	25	2500	2000	300
Two-Part Urethane	3535 B/A Off-White	• Very fast cure semi-rigid urethane • 15-20 min. handling strength • Faster setting version of 3532	1:1	30,000	3 Min.	25	2500	2000	300
Two-Part Urethane	3549 B/A Brown	• Long worklife semi-rigid urethane • 2-4 hrs. handling strength • Longer worklife version of 3532	1:1	30,000	60 Min.	25	2500	2000	300

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

(1) Color is mixed if two-part product.
(2) Brookfield viscometer viscosity values are typical values for the mixed product.
(3) The time during which an adhesive will adequately wet-out on a substrate.
(4) 180° peel tested on .030" aluminum per ASTM D 1876-61T.
(5) Tested per ASTM D 1002-64.

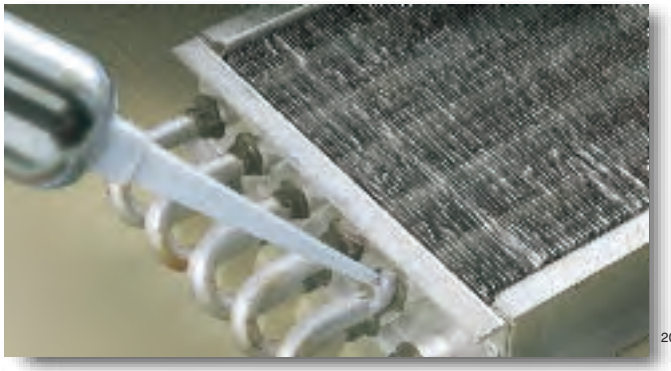
Product Information: 3M™ Scotch-Weld™ One-Part Epoxy Adhesives; Metal Primers

	Product (Color)	Description	Viscosity	Optimum Cure			Overlap Average[1] T-Peel At 75°F (24°C)	Shear Strength[2] PSI				
				Time (Min.)	Temp (°F/°C)	Pressure (PSI)		-67°F (-55°C)	75°F (24°C)	180°F (82°C)	250°F (121°C)	350°F (177°C)
One-Part Epoxy	1386 Cream	• 350°F (177°C) curing for metal to metal • High strength, impact resistant bonds • Meets MMM-A-134 Type III	150,000 CPS	60	350/177	10	10 (Alum.)	3000	5500	4500	2500	400
	1469 Cream	• 350°F (177°C) curing for elevated temperatures • Meets MMM-A-132 Type II, Class 3, Group 4	60,000 CPS	120	350/177	10	2 (Alum.)	3150	3700	3700	3600	–
	2086 Gray	• 350°F (177°C) curing similar to 1386 but filled flow control	Paste	60	350/177	10	5 (Alum.)	3000	5000	5000	2200	500
	2214 Regular Gray	• Aluminum filled heat curing (250°F, 121°C) • Paste for metals and many plastics	Paste	60	250/121	10	5 (Alum.) 50 (Steel)	3000	4500	4500	1500	400
	2214 Hi-Density Gray	• Similar to 2214 • Deaerated • Dense, void-free bonds	Paste	60	250/121	10	5 (Alum.) 50 (Steel)	3000	4500	4500	1700	400
	2214 Hi-Temp Original Gray	• Outstanding performance at elevated temperatures • Excellent sag control	Paste	60	250/121	10	2 (Alum.) 5 (Steel)	2000	2000	3000	2500	900
	2214 Hi-Temp New Formula Gray	• Version of 2214 with excellent performance under high temperature and high humidity • Resists hot ethylene glycol	Paste	60	250/121	10	5 (Alum.) 5 (Steel)	2800	2800	2800	2500	1200
	2214 Non-Metallic Filled Cream	• Cream colored non-metallic version of 2214 • Electrical insulating	Paste	60	250/121	10	7 (Alum.) 12 (Steel)	3000	4000	4500	1500	400
	2290 Amber	• 21% solids liquid epoxy • B-stageable • Laminating steel cores for motor stators and rotors • Thin metal stack laminations	60 CPS	30	350/177	50	10 (Alum.)	5000	5000	3500	1200	–

	Product Color	Description	Viscosity	Comments
Metal Primers	3901 Red	• Adhesion promoter • Organo-silane base • Brush or spray	5 CPS	A primer for film and liquid adhesives for improved metal and glass adhesion or improved resistance to environmental exposure with epoxy and urethane adhesives. Protects cleaned surfaces until bonding can be completed. Imparts improved corrosion protection to metal.
	1945 B/A Green	• 1:1 mix ratio 2-part primer • 8 hour potlife • Brush, spray or dip	500 CPS	Chemically curing, corrosion resistant primer to improve adhesion of urethanes and epoxies to many metals. Increases corrosion protection. Cures at room temperature.

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

(1) Tested per ASTM D 1876-61T.
(2) Tested per ASTM D 1002-64.



3M™ Scotch-Weld™ Epoxy Adhesive 2214 bonds and seals refrigerant coils with overlap shear strength of 4500 psi. One part eliminates metering and mixing.

Product Information: 3M™ EPX™ Applicators and Nozzles

Cartridge Size	35ml (10:1)	37ml (2:1)	50ml (1:1)	200ml (1:1 and 2:1)	250ml (10:1)	400ml (1:1 and 2:1)
3M™ EPX™ Applicators *Manual*	EPX Plus II Applicator with 10:1 Plunger	EPX Metal Applicator with 2:1 Plunger	EPX Metal Applicator with 1:1 Plunger	EPX 200ml Manual Applicator with Plunger*	None	None
		EPX Plus II Applicator with 2:1 Plunger*	EPX Plus II Applicator with 1:1 Plunger*			
Pneumatic	None	EPX 50ml Pneumatic Applicator**	EPX 50ml Pneumatic Applicator	EPX 200ml Pneumatic Applicator	EPX 200ml Pneumatic Applicator	EPX 400ml Pneumatic Applicator
					10:1 Conversion Kit for EPX 200ml Pneumatic Applicator	
3M™ EPX™ Nozzles	10:1 Mixing Nozzle for the EPX Plus Applicator	EPX Mixing Nozzle for 50ml Applicator	EPX Mixing Nozzle for 50ml Applicator	EPX 6mm Nozzle for 200ml/400ml Applicators**	10:1 Mixing Nozzle for the EPX 250ml Applicator	EPX 6mm Nozzle for the 200ml/400ml Applicator**
		EPX Plus II Mixing Nozzle - Square Gold	EPX Plus II Mixing Nozzle - Square Gold	EPX 10mm Nozzle for 200ml/400ml Applicators		EPX 10mm Nozzle for 200ml/400ml Applicators

*Included with the applicator.
**Recommended for all low viscosity products.

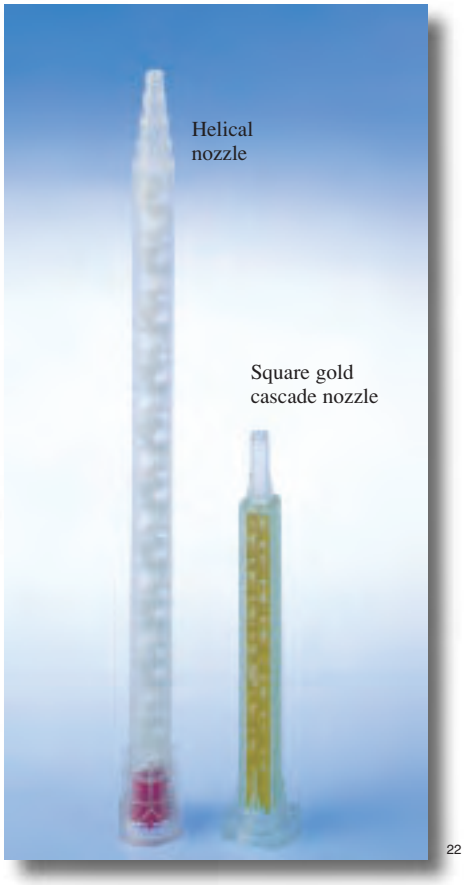
Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes.


21

To meet the performance requirements of your structural application, 3M doesn't just develop adhesives, but whole dispensing systems designed to facilitate production in low and high volume assembly operations.

For low volume applications and take-it-to the job convenience, the 3M™ EPX Plus II and EPX metal manual dispensers are engineered for comfortable grip and easy loading. With a choice of plungers, you can put any of the 3M™ Scotch-Weld™ Duo-Pak Structural Adhesives to work.

For higher volume, select the 200ml manual dispenser or pneumatic dispenser, or the 400ml pneumatic dispenser.



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Choice of helical or cascade nozzle

With the unique chambered design of the square gold nozzle, the two parts of the adhesive cascade through the nozzle with just low pressure. You mix and apply even higher viscosity adhesives with just an easy squeeze of the 3M™ EPX™ Applicator palm trigger.

The helical nozzle design is your choice whenever you want extended reach for convenience and access.


23


24

Both the helical and square gold 3M™ EPX™ Nozzles simultaneously mix, meter, and dispense 3M™ Scotch-Weld™ 2-Part Adhesives from Duo-Pak cartridges. Extended reach helical nozzle is used here in bonding ABS components of a pump housing.

3M™ Scotch-Weld™ Instant Adhesives

Fast bonding with the right combination of strength, cure time, and viscosity

For speed and performance, you'll likely find a product in this line with precisely the right combination of bond strength, cure time and viscosity.

These one-part cyanoacrylate adhesives rapidly reach handling strength at room temperature without a catalyst. On many applications, bonds reach handling strength in 5-10 seconds and 80% of full strength in an hour. A single drop per square inch can bond many plastics, rubber, metals and more with tensile strength up to 5,000 psi.

Application is easy from their own containers or through intermediate manual dispensers or automated systems. Curing requires no expensive equipment or fixturing.

25

3M™ Scotch-Weld™ CA40 Instant Adhesive works on many problem surfaces where other adhesives may fail, such as EPDM rubber.

26

For repair of fiberglass/concrete cast pottery, 3M™ Scotch-Weld™ Instant Adhesive CA50 Gel bonds with high tensile and shear strength. Non-sagging for neat application.

27

For wood and veneer repair, 3M™ Scotch-Weld™ Instant Adhesive CA40H is a high viscosity liquid for a fast void-filling bond.

28

3M™ Scotch-Weld™ Instant Adhesive CA8 is a multi-purpose product for use in a variety of assembly applications.

Product information: 3M™ Scotch-Weld™ Instant Adhesives

	Product	Description	Base	Time(1) To Handling Strength (Sec.)	Viscosity (CPS)	Average(2) T-Peel At 75°F (24°C) (PIW)	Overlap Shear Strength(3) @ 75° F (24°C) (PSI)					
							Steel	Alumi-num	Nitrile Rubber	Neoprene Rubber	ABS	Rigid PVC
Instant Adhesives	CA4	• Fast setting for a variety of plastics and rubbers	ethyl	5-40	150	1-2	2300	2800	35*	55*	800*	800*
	CA5	• Higher viscosity, slower setting version of CA4 for filling gaps • Meets CID A-A-3097, Type II, Class 3	ethyl	15-60	2000	1-2	2500	650	35*	55*	800*	800*
	CA7	• Very fast setting • Excellent adhesion to metals, plastics, and rubbers	methyl	1-30	15-40	2-4	2500	2400	35*	55*	900*	1000*
	CA8	• Slower setting than CA7 • Excellent adhesion to metals, plastics and rubbers • Meets CID A-A-3097, Type II, Class 2	ethyl	5-40	70-130	2-4	2000	2100	35*	55*	900*	1000*
	CA9	• Slower setting version of CA8 for wire tacking and coil terminating • Meets CID A-A-3097, Type II, Class 3	ethyl	20-70	1000-1700	2-4	2000	2400	35*	55*	900*	1000*
	CA40	• Very fast setting • Excellent adhesion to many substrates including flexible vinyl and EPDM rubber	ethyl	3-20	20	1-2	1700	2600	35*	55*	800*	800*
	CA40H	• Higher viscosity version of CA40 • Better void filling capabilities.	ethyl	5-40	400-600	1-2	1500	1500	35*	55*	900*	1000*
	CA50 Gel	• High-viscosity, non-sag gel • Less sensitive to acidic surfaces.	ethyl	60-120	45,000-85,000	1-2	2000	900	105*	130*	800*	600*
	CA100	• High peel and impact strength • High thermal shock and heat resistance	ethyl	20-70	2500-4500	15	2000	2900	95*	120*	600*	700*
	Surface Activator	• Clear, colorless organic-based liquid helps speed curing and prime surfaces • Comes with brush and spray pump										

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

(1) The time it takes assembled parts to reach a strength where further handling and processing can take place. Times will depend on surface to be bonded, temperature and humidity.

(2) Tested per ASTM D 1876-61T.
(3) Tested per ASTM D 1002-64.
* Substrate failure.

The easy choice for running a tight operation

To seal gaps and tighten the fit between metal surfaces, 3M™ Scotch-Weld™ Anaerobic Adhesives apply on target and cure quickly in the absence of air. The line represents the essentials for many industrial applications and making the right choice is easy.

- Easy-to-understand, color-coded packaging
- Simplified, streamlined inventory to reduce money tied up on the shelf
- Every product backed with 3M technical support

3M™ Scotch-Weld™ Threadlockers weld fasteners in place for blind holes and thru holes and prevent loosening from vibration.

3M™ Scotch-Weld™ Thread Sealants seal instantly to stop leaks when applied to the threads or compression fittings of most metal or certain plastic pipes.

3M™ Scotch-Weld™ Retaining Compounds bond and seal non-threaded cylindrical assemblies.

3M™ Scotch-Weld™ Gasket Makers fill voids between metal flanges and cure to a tight rigid or flexible seal.

29

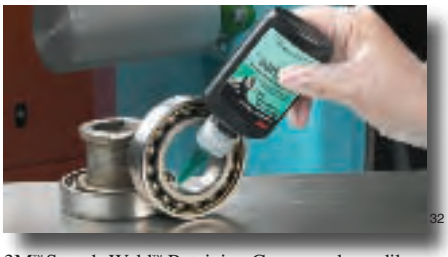
3M™ Scotch-Weld™ Threadlockers on threaded metal fasteners help keep production equipment up and running. You save the cost and time of disruptive, unscheduled downtime due to nuts, bolts, and screws that vibrate loose in such areas as gear housings and motor mounts.

30

3M™ Scotch-Weld™ Gasket Makers eliminate pre-cut or compression gaskets, or hold pre-cut gaskets in place during production. Seal without shimming effect or creeping.

31

3M™ Scotch-Weld™ Threadlockers fill and seal threads completely to help stop corrosion, rust, and leaks. Securely hold even dissimilar metals.



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3M™ Scotch-Weld™ Retaining Compounds readily tighten tolerances in worn bearing seats, keyways, splines, tapers, shims, gears, and shafts. Fill voids completely to seal out moisture.

33

To save the cost of leaking fluid or gas, 3M™ Scotch-Weld™ Thread Sealants cure quickly to a tight, continuous seal without the creep and shrinkage of pastes.

34

With a fast and easy squeeze, 3M™ Scotch-Weld™ Thread Sealants eliminate the cost and problems of shredding tapes, O-rings, and other mechanical sealants.

Product information: 3M™ Scotch-Weld™ Anaerobic Adhesives

3M™ Scotch-Weld™ Threadlockers

Product number	Removal (torque-break/prevail)	Bolt size	Description	Color	Size
3493	Low 50/30 lb. in.	Less than 5/16"	• Screw grade • Thixotropic to reduce flow after application to surface • Hand tools for disassembly	Purple	10, 50, 250 ml
3494	Medium 120/50 lb. in.	Up to 3/4"	• Nut grade • Thixotropic to reduce flow after application to surface • Oil tolerant • Hand tools for disassembly	Blue	10, 50, 250 ml
3495	Medium/high 200/100 lb. in.	Up to 1"	• Permanent, controlled torque • High breakaway, reduced prevailing torque • Heat and hand tools for disassembly	Red	10, 50, 250 ml
3496	High 230/330 lb. in.	Up to 1"	• Permanent • Low viscosity • High breakaway, high prevailing torque • Heat and hand tools for disassembly	Red	10, 50, 250 ml
3497	High 130/225 lb. in.	Up to 1-1/2"	• Permanent • High viscosity • Wide temperature range -65°F to 450°F (-55 to 232°C) • High breakaway, high prevailing torque • Heat and hand tools for disassembly	Red	10, 50, 250 ml
3498	Medium 85/250 lb. in.	Greater than 1/4"	• Wicks into pre-assembled bolts • Seals welds and porous metals • Locks and seals small compression and ferrule fittings • Service temperature to 400°F (204°C) • Heat and hand tools for disassembly	Green	10, 50, 250 ml

3M™ Scotch-Weld™ Thread Sealants

Product number	Removal torque	Pipe size	Description	Color	Size
3477	Low 15 lb. in.	Up to 2"	• Medium viscosity with no fillers • For all hydraulic and pneumatic fittings • No clogging of valves or filters • Hand tool disassembly for pipes under 1"; heat required for over 1"	Purple	50 ml
3478	Low 25 lb. in.	Up to 2"	• Faster cure than 3477 • Wide temperature range from -65°F to 400°F (-55°C to 204°C) • For stainless steel, Monel®, and other inactive surfaces • Hand tool disassembly	White	50 ml
3479	Medium 50 lb. in.	Up to 3"	• High lubricity for easy threading • Instant seal with slow cure • Re-adjustable for up to 24 hours • Wide temperature range from -65°F to 400°F (-55°C to 204°C) • Hand tool disassembly	White	50 ml

3M™ Scotch-Weld™ Retaining Compounds

Product number	Shear strength (psi)	Gap fill	Description	Color	Size
3434	2500	Up to 0.015"	• Medium-high strength • High viscosity • Thixotropic to reduce flow after application to surface • Temperature resistance to 450°F (232°C) for cylinder, heat exchanger, and other high temperature applications	Green	50 ml
3435	2500	Up to 0.005"	• Medium strength • Low viscosity general purpose compound for rigid cylindrical assemblies • Augments press fits	Green	50 ml
3436	3250	Up to 0.020"	• Medium strength • Gel formulation for repair of worn shafts, splines, keyways, and housings	Gray	50 ml
3437	3700	Up to 0.015"	• High strength • Medium viscosity • For rigid and slip fit assemblies	Green	50 ml.

3M™ Scotch-Weld™ Gasket Makers

Product number	Hardness	Gap fill primed/ unprimed	Description	Color	Size
3453	Rigid	Up to 0.020"/0.010"	• General purpose gasketing with wide temperature range from -65°F to 400°F (-55°C to 204°C) • Hand dispense or screen print • Instant low pressure seal	Red	50 ml
3454	Flexible	Up to 0.050"/0.010"	• Gasketing for aluminum flanges • Does not shrink or relax • Instant low pressure seal without priming	Red	50 ml
3455	Flexible	Up to 0.050"/0.010"	• General purpose gasketing for gearbox covers, pump flanges, fuel and water pumps • Provides instant low pressure seal	Purple	50 ml

3M™ Scotch-Weld™ Anaerobic Activator

Product number	Description	Size
3989 Anaerobic Activator	• Accelerates cure of all 3M anaerobic adhesive products • Helps assure cure on inactive metals • Dry time 30-60 seconds • 30 days on-part life • Solvent-based (flammable acetone)	4.5 oz.

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

Hot melt speed and structural strength performance in the palm of your hand

This single system combines many production benefits typical of hot melt adhesives and bond performance usually associated with two-part structural adhesives.

Fast initial set can help you reduce costs. Fast handling strength helps eliminate or minimize fixturing and speed up assembly.

One-component, moisture-curing formulation eliminates metering, mixing and curing equipment. And 100% solids give you a low-VOC adhesive system with no drying equipment and no attack on plastics.

With the long bonding range and initial repositionability, assembly of complex parts is easier. Bond lines are thin, flexible and tough for improved part fit, appearance and rugged performance.

Combine this versatility with the applicator's portability, and you have a system that can adapt readily to many of your production requirements.

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3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive Applicator and Adhesives put a powerful production capability into many assembly operations. Bond strength approaches the high end of the performance range, exceeding many conventional hot melts and PVA (polyvinyl acetate) adhesives. Bond wood, plastics, rubber, dissimilar materials, plasticized vinyls, and more. For example, in trade show booth assembly, bond an aluminum bracket to the laminate covering of a honeycomb pane.

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3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive performs multiple tasks including V-groove bonding at the table joints of decorator tables.

Photo courtesy of The Rose Hill Co., Inc.

37

To increase production, 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive System bonds fir reblock strips between hardboard door panels. Also improves the bond between weather stripping and a vinyl extrusion.

38

In speaker assemblies, flexible, tough bond lines of 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive hold dissimilar materials and multiple components.

Photo courtesy of Bose Inc.

39

With fast handling strength, 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive helps speed up the bonding of interior wood trim to the vinyl sash of high performance gliding windows.

Photo courtesy of Andersen Windows, Inc.

40

With 100% solids 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive, a manufacturer holds the aesthetic contours of unique bentwood furniture.

Photo courtesy of David Trubridge, designer

41

3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive is easily applied as a bead for bonding wood furniture and cabinet components. Fast handling strength helps speed up production.

Product Information: 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives

	Product	Description	Application temperature	Viscosity @250°F (CPS)	Color	Open time	Set time	Shore D	Tensile strength (PSI)	Elongation %	Modulus (PSI)
Adhesives	TE015	• Extrudable with very fast set time • Bond wood and selected plastics	250°F (121°C)	7,000	White/ Off-White	1.5 min.	15 sec.	65	3950	750	2500
	TE030	• Extrudable with fast set time • Bond wood and selected plastics	250°F (121°C)	16,000	White/ Off-White	1 min.	30 sec.	60	3800	725	11,200
	TE031	• Extrudable with fast set time • Bond a wide variety of plastics, including polystyrene and polyacrylic	250°F (121°C)	13,000	White/ Off-White	2 min.	30 sec.	50	3900	725	5600
	TE040	• Extrudable with fast set time • Low viscosity • Strong, flexible bonds • Bond plastics, wood, aluminum, and glass	250°F (121°C)	7,000	White/ Off-White	2 min.	40 sec.	35	2750	860	2850
	TE100	• Extrudable with medium set time • Bond wood and selected plastics • Thin bond lines	250°F (121°C)	7,000	White/ Off-White	2 min.	1 min.	61	4200	675	12,200
	TE200	• Extrudable with fast set time • Low viscosity • Bond wood and selected plastics • Thin bond lines	250°F (121°C)	3,000	White/ Off-White	4 min.	2 min.	60	4000	625	9700
	TS230	• Sprayable/extrudable with long set time • Bond variety of plastics, including polystyrene and polyacrylic • Bond aluminum and glass to plastic and wood	250°F (121°C)	9,000	White/ Off-White	4 min.	2.5 min.	45	3300	700	5400
	TS115 HGS	• Sprayable/extrudable/roll coatable with fast set time • Bond wood, fiber, reinforced plastic and other plastics to themselves, metal or glass	250°F (121°C)	16,000	White/ Off-White	10 min.	1 min.	47	3200	600	3300

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

Job-matched tips –

1) Threaded cap for sealing tip after use.
2) Extension tip for improved sight line in hard-to-reach areas.
3) .062" tip for low flow applications.
4) .125" tip for high flow applications.

.090" tip standard on 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive Applicator.

Container sizes to meet your production volume –

- 10 fl.oz. cartridges
- 2k foil packs
- 5 gallon pail
- 55 gallon drum

Production power of dual technologies in one self-contained system

The easy-to-use and maintain 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesive Applicator and moisture-curing polyurethane adhesives combine benefits typical of two technologies at a new low dispensing temperature (170°F/77°C):

1. Production benefits typical of hot melt adhesive technology.
   - Fast initial set and handling strength in as few as 5 seconds helps eliminate or minimize fixturing.
2. Performance benefits typical of structural adhesive technology.
   - Greater than 1000 lbs. of overlap shear strength within minutes exceeds strength of conventional hot melt.

Plastic disposable nozzle allows easy, quick changeover of cartridges.


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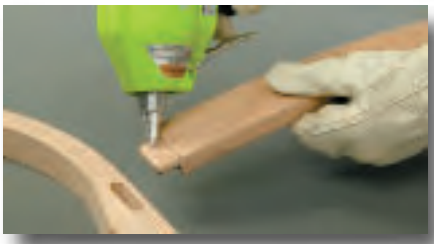
45

Bond wood or plastic rosettes to wood drawers without fixturing or drying time. Adhesive dispenses warm at 170°F (77°C) and can remain in the applicator at dispensing temperature for up to 40 hours.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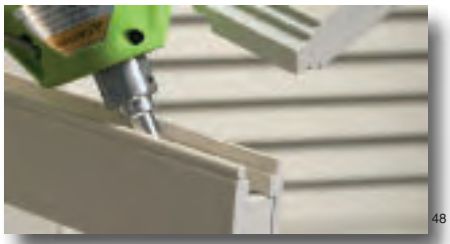
Trigger a fast, easy, and neat bead of adhesive from self-contained hand-held applicator at up to 11 pounds per hour.


47

Thin, flexible bond lines help improve the fit, appearance and durability.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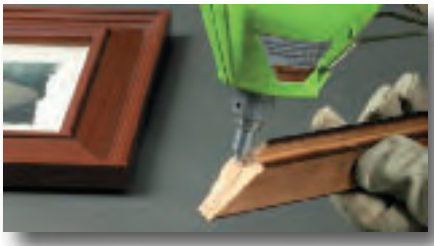
Up to 2.5-minute open time allows positioning of multiple or complex parts.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Assemble miter joints with a tough, flexible bond for long life durability.


50

Bond simulated-wood plastic trim to wood cabinet doors with an invisible bond line.


51

Assemble mirror components with hot melt adhesive speed and structural strength.

Product information: 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesives

Product	Description	Viscosity @ 121°C (CPS)	Open Time (Min.)	Set Time (Sec.)	Shore D	Tensile Strength (PSI)	Elongation (%)
17005	• Very fast set time • Thin glue line • Medium open time	28,600	0.75	5	65	3900	725
17010	• Fast set time • Best for bonding wood and plastics • Small-to-medium parts assembly	14,200	0.75	10	35	1055	750
17030	• Medium set time • Low viscosity • Best for bonding wood to select plastics • Thin glue line	15,700	1	30	60	4000	625
17060	• Long open time • Lower viscosity • Thin glue line	9600	2.5	60	30	1625	400

Terminology
Open times and set times are based on a room temperature environment. High temperatures will lengthen open times and set times while lower environmental temperatures will shorten open times and set times.

Adhesive Selection Guide

Substrates	Wood/ hard-board	MDF*	PVC	Poly-styrene (bead board)	Poly-carb-onate[4]	Mela-mine	ABS	FRP-epoxy	Poly-acrylic	Poly-styrene	Fabric/ felt/cork	Leather	SBR	Nitrile Rubber[3]	Neo-prene[3]	Glass/ ceramic	Alumi-num[1, 2]
Wood/ hardboard	17005 17030	17005 17030 17010 17060	17010 17060 17005 17030	17005 17030 17010 17060	17005 17030 17010 17060	17005 17030 17010 17060	17005 17030 17010 17060	17005 17030 17010 17060	17005 17030 17010 17060	17010 17060 17005 17030	17005 17030 17010 17060	17005 17030 17010 17060	17010 17060 17005 17030	17010 17060 17005 17030	17030 17010	17010 17060	17010 17060
MDF*		17005 17030 17010 17060	17010 17060 17005 17030	17005 17030 17010 17060	17030 17060	17030 17060	17005 17030 17010 17060	17005 17030 17010 17060	17005 17030 17010 17060	17010 17060 17005 17030	17005 17030 17010 17060	17005 17030 17010 17060	17030 17060	17005 17030 17010 17060	17030 17010	17010 17060	17010 17060
PVC			17010 17060 17005 17030	17010 17060 17005 17030	17005 17030 17010 17060	17010 17060 17005 17030	17005 17030 17010 17060	17010 17060 17005 17030	17030 17060	17010 17060 17005 17030	17005 17030 17010 17060	17005 17030 17010 17060	17030 17060	17005 17030 17010 17060	17030 17010	17010 17060	17010 17060
Polystyrene (Beadboard)				17005 17030 17010 17060	17005 17030 17010 17060	17010 17060 17005 17030	17005 17030 17010 17060	17005 17030 17010 17060	17030 17060	17010 17060 17005 17030	17005 17030 17010 17060	17005 17030 17010 17060	17030 17060	17010 17060 17005 17030	17030 17010	17010 17060	17010 17060
Polycarb-onate[4]					17005 17030 17010 17060	17010 17060 17005 17030	17005 17030 17010 17060	17005 17030 17010 17060	17030 17060	17010 17060 17005 17030	17005 17030 17010 17060	17030 17010	17030 17060	17005 17030 17010 17060	17030 17010	17010 17060	17010 17060
Melamine						17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17030 17060	17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17030 17010	17010 17060	17010 17060
ABS							17005 17030 17010 17060	17005 17030 17010 17060	17030 17060	17010 17060 17005 17030	17005 17030 17010 17060	17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17030 17010	17010 17060	17010 17060
FRP-epoxy								17005 17030 17010 17060	17030 17060	17010 17060 17005 17030	17005 17030 17010 17060	17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17030 17010	17010 17060	17010 17060
Polyacrylic									17030 17060	17010 17060 17005 17030	17030 17060	17030 17060	17030 17060	17030 17060	17030 17010	17010 17060	17010 17060
Polystyrene										17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17010 17060 17005 17030	17030 17010	17010 17060	17010 17060
Fabric/ felt/cork											17005 17030 17010 17060	17010 17060 17005 17030	17010 17060 17005 17030	17030 17060	17030 17010	17010 17060	17010 17060
Leather												17005 17030 17010 17060	17030 17060	17030 17060	17030 17010	17010 17060	17010 17060
SBR													17030 17060	17030 17060	17030 17010	17010 17060	17010 17060
Nitrile Rubber[3]														17030 17060	17030 17010	17010 17060	17010 17060
Neoprene[3]															17030 17010	17010 17060	17010 17060

1 Not recommended for bonding metal, glass and ceramic to itself or each other due to low moisture transmission of substrates.

2 Abrade uncoated aluminum. Not for use on uncoated aluminum subjected to hot/humid conditions.

3 Rubbers vary in composition. Adhesion to specific rubber must be evaluated by user.

4 Adhesive may partially delaminate from polycarbonate at elevated temperatures.

For polypropylene and polyethylene, corona or plasma treatment may improve adhesion.

*Medium Density Fiberboard

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

3M™ Non-Structural Adhesives

3M™ Non-Structural Strength Adhesives bond substrates used in insulation applications, cushioning, decorative trim, packaging, paneling, sealing, gasketing, countertops, furniture, woodworking, and general assembly. Materials include rubbers, plastics, fabric, leather, wood, metals, and glass. A range of bond strength is available to help meet specific requirements wherever structural strength is not required.

With 3M adhesives, you have a wide selection of products to help find the best balance of end-use performance, application ease and cost effectiveness.

Products include the following:

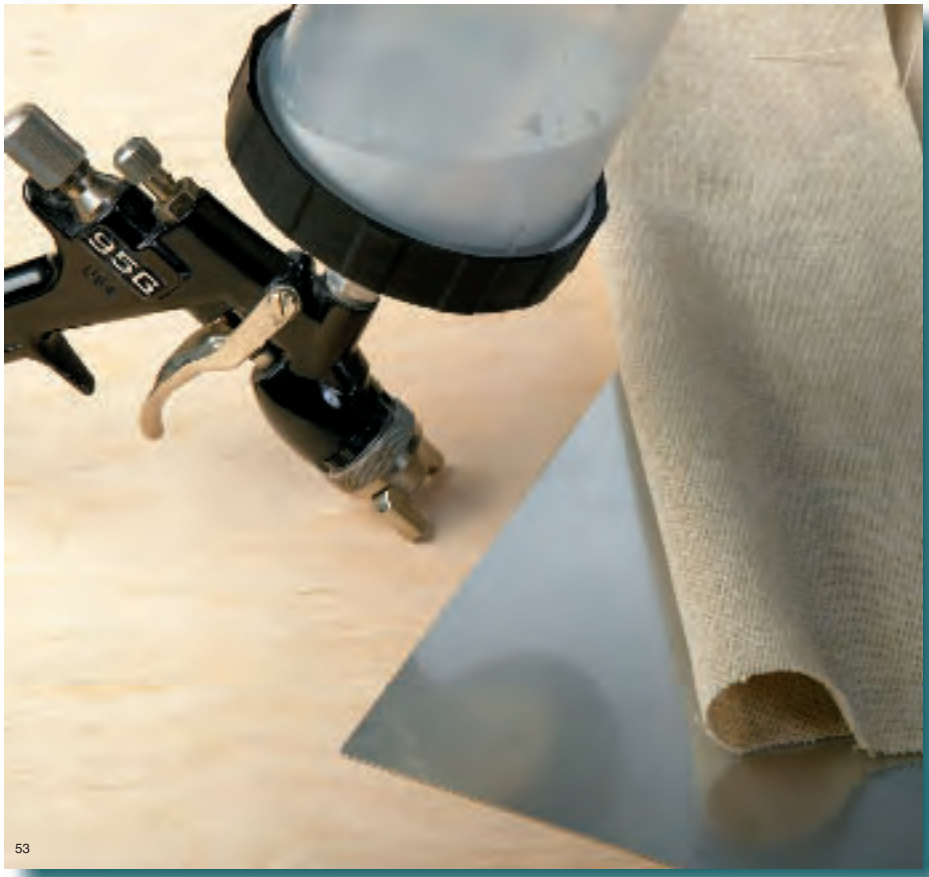
- 3M™ Fastbond™ and Scotch-Grip™ Industrial Adhesives
  - Insulation and Light-Duty Adhesives
  - Solvents
- 3M™ Fastbond™ and Scotch-Grip™ Contact Adhesives
- 3M™ Scotch-Weld™ Hot Melt Adhesives and 3M™ Scotch-Weld™ Applicators
- 3M™ Scotch-Weld™ Hot Melt Spray Adhesives
- 3M™ Scotch-Seal™ and 3M™ Weatherban™ Sealants
- 3M™ Aerosol Adhesives
- 3M™ Aerosol Chemicals
- 3M™ Concrete Repair Products

Innovative answers to a wide variety of non-structural bonding challenges

3M™ Fastbond™ and Scotch-Grip™ Adhesives are industrial tools designed to provide innovative answers to a wide variety of non-structural bonding problems.

Some formulations are tailored to specific types of applications such as 3M™ Scotch-Grip™ Plastic Adhesives. These high strength, fast drying elastomers bond polycarbonate, vinyl, and many other plastics to themselves and materials such as wood or metal. With 3M™ Scotch- Grip™ Rubber and Gasket Adhesives you can easily bond neoprene, EPDM, and many more.

Depending on the specific 3M industrial adhesive, you can select drums, cans, pails, or handy tubes. These collapsible squeeze tubes are self-contained, lightweight applicators to give you "take-it-to-the-job" convenience for multi-station or low volume assembly and field repairs.



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For a reliable non-structural adhesive, you're likely to find just what you need in the 3M™ Fastbond™ and Scotch-Grip™ lines backed with more than 50 years of 3M adhesives research and engineering. For example, 3M™ Fastbond™ Insulation Adhesive 49 is a fast tacking, pressure sensitive formulation for bonding fabric, insulation, and other lightweight materials to themselves, or to metal, wood, and other substrates.

54

When refurbishing a pinball machine, 3M™ Scotch-Grip™ Plastic Adhesive 4693H bonds and seals decorative translucent plastic inserts into the underside of the playing surface. Up to 60 minute bonding range with contact bond properties.

55

To prevent moisture penetration, a pressure flow gun applies 3M™ Scotch-Grip™ Rubber and Gasket Adhesive to bond a rubber gasket into a commercial light fixture cover.

56

With excellent resistance to fuel and oil, 3M™ Scotch-Grip™ Rubber and Gasket Adhesive 847 bonds and seals chemical drum gaskets in place.

57

HVAC duct insulation is easy and economical to apply with 3M™ Fastbond™ Insulation Adhesive 49. This single-component, water-based pressure sensitive formulation speeds up assembly with instant tack.

58

In washing machine repair, 3M™ Scotch-Grip™ Rubber and Gasket Adhesive 1300 bonds with high immediate strength and seals the doughnut ring seal in the outer tub. Bond line resists up to 300°F (149°C).

59

In bonding plastic feathers and nocks onto arrow shafts, fast-tacking 3M™ Scotch-Grip™ Plastic Adhesive 4475 dries quickly to a firm bond. Resists plasticizers, water, and heat up to 200°F (93°C).

Product Information: 3M™ Scotch-Grip™ Plastic Adhesives

	Product	Description	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI) 75°F (24°C)	Overlap Shear Strength (PSI) 180°F (82°C)	Peel Strength (PIW) 75°F (24°C)
Plastic Adhesives	826	• Fast drying for many plastic films • Resists aromatic and aliphatic fuels, water, oil	24%	35°F (3°C)	Thin liquid	Amber	Spray, brush	Up to 45 minutes	198 (1)	59 (1)	27 (3)
	1099	• Fast drying and heat curable • Resists weathering, water, oil, plasticizer migration, aliphatic fuels • Meets MIL-A-13883B, Type I and MMM-A-189C, Class 2	32%	0°F (-18°C)	Medium liquid	Light Tan	Brush, flow	Up to 40 minutes	1306 (1)(2)	643 (1)(2)	31 (3)
	1099L	• Sprayable version of 1099 Adhesive	24%	0°F (-18°C)	Thin liquid	Tan	Spray, brush	Up to 20 minutes	1306 (1)(2)	643 (1)(2)	31 (3)
	2262	• Quick tack, clear, non-staining • Resists plasticizer migration for bonding many flexible vinyls	25%	0°F (-18°C)	Thin liquid	Clear	Brush, flow	Up to 20 minutes	N/A	N/A	17(4)
	4475	• Clear, fast tacking, dries quickly • Resists water, plasticizers detergent, oils and grease	42%	20°F (-7°C)	Medium liquid	Clear	Flow	Up to 10 minutes	N/A	N/A	44 (3)
	4693	• Long tack range • Water and heat resistant bond for many plastics, including polyethylene and polypropylene	24%	1°F (-17°C)	Thin liquid	Clear	Spray, brush	Up to 60 minutes	N/A	N/A	22(3)
	4693H	• High viscosity version of 4693 Adhesive for collapsible tubes	36%	1°F (-17°C)	Medium liquid	Clear	Flow, brush	Up to 60 minutes	N/A	N/A	22(3)

(1) Aluminum to aluminum @ 0.1 inches/minute separation rate.
(2) Bonds heat cured for 15 minutes @ 325°F, 150 PSI
(3) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.
(4) Unsupported vinyl to steel @ 2.0 inches/minute separation rate.

Product Information: 3M™ Scotch-Grip™ Rubber and Gasket Adhesives

	Product	Description	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI) 75°F (24°C)	Overlap Shear Strength (PSI) 180°F (82°C)	Peel Strength (PIW) 75°F (24°C)
Rubber and Gasket Adhesives	847	• Quick drying and flexible with fuel and oil resistance • Heat and solvent reactivatable • Curable with heat	36%	0°F (-18°C)	Medium liquid	Brown	Flow, brush	Up to 15 minutes	200 (1)	9 (1)	40 (2)
	847L	• Lower viscosity version of 847 Adhesive for spray application	24%	0°F (-18°C)	Thin syrup	Brown	Spray, brush	Up to 20 minutes	200 (1)	9 (1)	40 (2)
	847H	• Higher viscosity version of 847 Adhesive	50%	0°F (-18°C)	Thick syrup	Brown	Flow, brush	Up to 10 minutes	200 (1)	9 (1)	40 (2)
	1300	• High immediate strength • Fast-drying and heat resistant for rubber and metal	37%	-14°F (-26°C)	Medium liquid	Yellow	Flow, brush	Up to 12 minutes	549 (1)	136 (1)	52 (2)
	1300L	• Lower viscosity version of 1300 Adhesive • Sprayable • Meets Mil Spec MMM-A-121	29%	-14°F (-26°C)	Thin liquid	Yellow	Spray, brush	Up to 8 minutes	549 (1)	136 (1)	52 (2)
	2141	• Easy brushing • General purpose with excellent water resistance	30%	-14°F (-26°C)	Medium liquid	Light Yellow	Flow, brush	Up to 15 minutes	377(1)	68(1)	32 (2)
	4799	• Brushable paste consistency with low soak-in on porous surfaces • Can bond EPDM rubber	36%	-14°F (-26°C)	Thin paste	Black	Brush, trowel	Up to 15 minutes	N/A	N/A	28 (2)

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

(1) Birch plywood to birch plywood @ 0.1 inches/minute separation rate.
(2) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.

Product Information: 3M™ Fastbond™ and 3M™ Scotch-Grip™ Insulation and Light-Duty Adhesives

	Product	Description	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Peel Strength (PIW)75°F (24°C)
3M™ Fastbond™ Adhesives	Insulation Adhesive 49	• Fast tacking, high performance pressure sensitive adhesive for lightweight materials • Low VOCs • UL component recognition MAGW2 file MH 6288	55%	None	Thin liquid	Clear	Spray, brush, roller	30 days plus	3.0 (3)
	Pressure Sensitive Adhesive 4213NF	• Resists staining and discoloration • Dries clear • Low VOCs	54%	None	Medium liquid	Clear	Brush, roller, trowel	5 minutes	12.0 (2)
	Industrial Adhesive 4224NF	• Permanently pressure sensitive with aggressive tack • Plasticizer resistant • Low VOC content	40%	None	Thick liquid	Blue, Clear	Spray, brush, roller, trowel, coater	30 days plus	4.4 (3)
3M™ Scotch-Grip™ Adhesives	Industrial Adhesive 1870	• Single surface application • Very long tack range • Flexible bond • Resists bleed through	26%	-7°F (-22°C)	Thin liquid	Tan	Spray, brush	Up to 40 minutes	7.0 (4)
	Construction Mastic 4323	• Resists wear, heat and dead load creep	66%	1°F (-17°C)	Mastic	Gray	Caulk, flow, trowel	Up to 20 minutes	N/A
	Industrial Adhesive 4550	• Fast tacking • Long bonding range	35%	Less than -20°F (-29°C)	Medium liquid	Clear/ trans-lucent	Low pressure spray	Up to 60 minutes	23.0 (1)

Product Information: 3M™ Scotch-Grip™ Solvents

	Product	Features	Base	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color	Application Method
Solvents	Solvent No. 2	• Contains petroleum distillate and toluene for removing many oil-soluble adhesives, coatings and sealers • Not recommended for surface preparation	Toluene aliphatic blend	0%	-14°F (-26°C)	Very thin liquid	Clear	Brush, dip, spray
	Solvent No. 3	• Contains methyl ethyl ketone for removing many oil-resistant adhesives, coatings, and sealers • Solvent reactivation of pre-applied adhesives • Cleans surfaces prior to bonding	Methyl ethyl ketone	0%	-20°F (-29°C)	Very thin liquid	Clear	Brush, dip, spray

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

(1) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.
(2) Supported vinyl to wood @ 2.0 inches/minute separation rate.
(3) Primed polyester to steel @ 2.0 inches/minute separation rate.
(4) Maple to itself @ 50% R.H. Test at 0.1 inches/minute separation rate.

A tradition of 40 years and the performance you'll want for a long time to come

This line offers a wide range of choices for contact adhesive applications. Select from bonding ranges, strengths, solids content, and solvent or water-based formulations to meet requirements for bonding laminate, foam, and more.

In the line, you'll find the water-based pioneer 3M™ Fastbond™ Contact Adhesive 30NF – proven for almost 40 years in cabinet shops and compliant with the stringent requirements of South Coast Air Quality Management District Rule 1168. Plus, there's 3M™ Fastbond™ Contact Adhesive 2000NF with handling speed exceeding most solvent-based systems and up to 350 psi in overlap shear.

The 3M™ Fastbond™ Water-Based Story

While competition pressures you to improve productivity, regulatory legislation demands that you move toward more environmentally-responsible technologies. Some local and regional regulations have made traditional solvent-based contact adhesives virtually obsolete.

By replacing solvent-based adhesives with a water-based 3M™ Fastbond™ Adhesive, compliance is getting easier in more and more applications. At the same time, you have a choice of production and end-use characteristics as you can see in the chart at far right.

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Fastbond is the 3M trademark on a continually growing line of water-based adhesives. For example, 3M™ Fastbond™ Foam Adhesive 100 is a one-part, water-dispersed formulation for bonding many porous substrates to porous or non-porous substrates with minimal dry time.

62

For tabletop lamination, 3M™ Fastbond™ Contact Adhesive 2000NF gives you three times the coverage of a typical solvent-based system. For production speed, you go from spray to trim in seconds.

63

In compound cushion assembly, 3M™ Fastbond™ Foam Adhesive 100 holds curves in seconds. Lighter density foam is adhered around the higher density core with a smooth rounded edge.

64

3M™ Fastbond™ Foam Adhesive 100 quickly bonds substrates throughout chairs and couches. Bond foam to foam and fiber fill, foam to wood, fiber fill to fabric, and more.

65

In cabinet assembly, 3M™ Fastbond™ Contact Adhesive 30NF is a formulation proven in shops for four decades. Combines open time of up to 4 hours with high immediate bond strength. Apply with roller, brush, or spray gun.

66

In bonding carpet to fiberglass flooring and steps, 3M™ Fastbond™ Contact Adhesive 2000NF helps withstand the foot traffic and moisture in boat cabins.

Photo courtesy of Grady White Boats Incorporated.

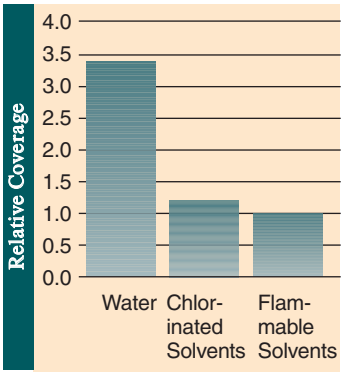
Product Information: 3M™ Fastbond™ Contact Adhesives, Water-Based

	Product	Description	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI) 75°F (24°C)	Overlap Shear Strength (PSI) 180°F (82°C)	Peel Strength (PIW) 75°F (24°C)
Contact Adhesives, Water-Based	30NF	• Long bonding range with high immediate bond strength • Economical high coverage • Meets MIL-A-24179A, Type I	50%	None	Thin liquid	Green, Clear	Spray, roller, brush	Up to 4 hours	480(1)	60(1)	5.9(2)
	30H	• High viscosity version of 30NF for roll coating	50%	None	Medium liquid	Green, Clear	Spray, roller, brush, roll coat	Up to 4 hours	480(1)	60(1)	5.9(2)
	2000NF	• Water-dispersed, activated adhesive • Immediate bonding and handling strength without forced drying	49%	None	Thin liquid	Blue, Light Orange, Clear	Co-Spray	Up to 2 hours	350(1)	50(1)	4.1(2)
	100	• One-part, fast setting with neoprene base • Bonds many porous substrates to porous or non-porous substrates	47%	None	Very thin liquid	Lavender, Clear	Spray	Up to 20 minutes	NA	NA	1.1(2)

Product Information: 3M™ Scotch-Grip™ Contact Adhesives

	Product	Description	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI) 75°F (24°C)	Overlap Shear Strength (PSI) 180°F (82°C)	Peel Strength (PIW) 75°F (24°C)
Contact Adhesives	5	• Rapid strength buildup • Heat and creep resistant bond • Meets mil spec MMM-A-121	19%	-14°F (-26°C)	Thin liquid	Green, Light Yellow	Spray	30 minutes maximum	482(1)	65(1)	19(2)
	10	• Similar performance to 5 • Brushable with higher coverage • Meets mil spec MMM-A-121	22%	-14°F (-26°C)	Thin liquid	Light Yellow	Brush, roller	30 minutes maximum	482(1)	65(1)	19(2)
	1357	• Rapid buildup to a very high strength bond for metal • Resists heat and continuous load stress • Meets MIL-A-21366A, MMM-A-121	25%	-14°F (-26°C)	Thin liquid	Gray-green, Light Yellow	Brush, spray	30 minutes maximum	536(1)	199(1)	42(2)
	1357L	• Lower solids, lower viscosity version of 1357 for automatic spray	18%	-14°F (-26°C)	Thin liquid	Gray-green	Spray	30 minutes maximum	536(1)	199(1)	42(2)

(1) Birch plywood to birch plywood @ 0.1 inches/minute separation rate. (2) Canvas to cold rolled steel @ 2.0 inches/minute separation rate.



Carrier	Water	Chlorinated Solvents	Flammable Solvents
% Solids	50%	15%	20%
Density (lbs/gal)	9.1	10.8	6.7
lbs. of adhesive/gal	4.6	1.6	1.3
Relative coverage	3.4	1.2	1.0
Issues		Toxicity	Flammability

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Buy only the quantity you need – Depending on the specific adhesive, you can select tubes, quart or gallon jugs for convenient handling, or 5-gallon pails and 55-gallon drums for large bulk dispensing.

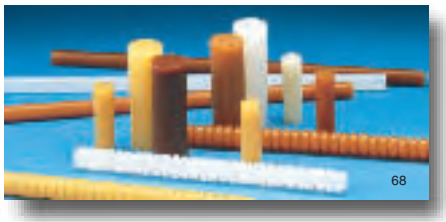
Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes.

The 3M systems approach to help you improve productivity and lower costs

3M™ Scotch-Weld™ Hot Melt Adhesives and Applicators are advanced hand-held systems to help you improve productivity, lower cost, and minimize waste.

Adhesives are 100% solids thermoplastic resins that become fluid when heated and quickly wet the bonding surface. They cool, harden, and reach bond strength in seconds. You can move assemblies immediately to keep production flowing. This helps eliminate clamps, fixturing and drying, and saves time, energy, and space.

Each adhesive is designed and precisely manufactured for efficient use in one of the portable 3M™ Scotch-Weld™ Hot Melt Applicators. Bond wood, plastic, foam, fabric, cardboard, and more.

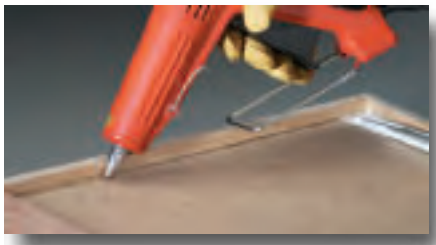


3M™ Scotch-Weld™ Hot Melt Applicator EC can be used with 3M low temperature (265°F/129°C) adhesive to effectively bond heat-sensitive substrates such as styrene foam.

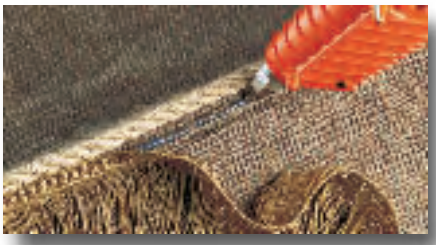
For bonding the guide to a drawer bottom, 3M™ Scotch-Weld™ Hot Melt Adhesive 3738 provides high delivery rate and long bonding range to meet production requirements.

For versatility in P.O.P. assembly, 3M™ Scotch-Weld™ Hot Melt Adhesives bond a variety of plastics, woods, and light gauge metals.

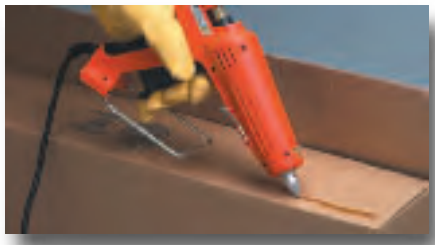
For economical package sealing 3M™ Scotch-Weld™ Hot Melt Adhesive 3762 is a versatile formulation with 35-second bonding range for production speed. Variety of tips for package types.



For great value, 3M™ Scotch-Weld™ Hot Melt Applicator AE II combines the best features of a high volume industrial system into a compact, self-contained applicator that delivers up to 4 pounds of adhesive per hour. Plugs into any 110V outlet for convenient portability.



3M™ Scotch-Weld™ Hot Melt Applicator LT and 3M™ Scotch-Weld™ Hot Melt Adhesives applied at low temperature (265°F/129°C) make quick work of welting, gimping, and bonding fabric to wood.



Combine 3M™ Scotch-Weld™ Hot Melt General Purpose Adhesive 3750 and the 3M™ Scotch-Weld™ Hot Melt Applicator AE II for a high volume system at a great value. Easily keep up with demanding packaging and wood assembly applications.

Product Information: 3M™ Scotch-Weld™ Hot Melt Applicators

These lightweight, easy-to-use units use 3M's innovative melt-on-demand or progressive feed technology.

3M™ Scotch-Weld™ Hot Melt Applicator	Weight[1]	Output[2] lb/hr	Temperature[3]	Adhesive Type	Adhesive Size dia. x length, inches	Accessories Available[4] (see keyed photos below)
 76 3M™ Scotch-Weld™ Hot Melt Applicator LT	10.0 oz.	2.6	265°F (129°C)	LM TC	5/8 x 2	Tips ①[4], Benchstand ⑥, Quadrack Converter ②, Palm Trigger③
 77 3M™ Scotch-Weld™ Hot Melt Applicator LT with Quadrack™Converter	13.8 oz.	2.6	265°F (129°C)	LM Q	5/8 x 8	Tips ①, Benchstand ⑥
 78 3M™ Scotch-Weld™ Hot Melt Applicator TC	10.0 oz.	3.5	385°F (196°C)	TC	5/8 x 2	Tips ①, Benchstand ⑥, Quadrack Converter ②, Palm Trigger③
 79 3M™ Scotch-Weld™ Hot Melt Applicator TC with Quadrack™Converter	13.8 oz.	3.5	385°F (196°C)	Q	5/8 x 8	Tips ①, Benchstand ⑥
 80 3M™ Scotch-Weld™ Hot Melt Applicator AE II	20.0 oz.	4.0	400°F (204°C)	AE	1/2 x 12	Includes stand
 81 3M™ Scotch-Weld™ Hot Melt Applicator EC	24.0 oz.	5.5	260°F-450°F (127°-232°C)	Q and LMQ	5/8 x 8	Tips ①, Benchstand ⑥
 82 3M™ Scotch-Weld™ Hot Melt Applicator PG II LT with Speedloader	4.3 lbs.	6.0	265°F (129°C)	LM PG	1 x 3	Tips ①, Magazine Feeder ⑦, Heavy-Duty Benchstand ⑤, Benchmount ⑧, Foot Pedal ④,
 83 3M™ Scotch-Weld™ Hot Melt Applicator PG II with Speedloader	4.3 lbs.	7.5	385°F (196°C)	PG	1 x 3	Tips ①, Magazine Feeder ⑦, Heavy-Duty Benchstand ⑤, Benchmount ⑧, Foot Pedal ④,

(1) Weight shown is for applicator only — does not include adhesive capacity.
(2) Adhesive output will vary with conditions and the adhesive used. Values are approximate and are based on maximum steady-state flow.
(3) Temperatures shown are nominal control values. Actual temperature will range slightly above and below this value.
(4) Accessory tips used will depend on applicator selected and adhesive used.

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

Accessories to improve your productivity

1 A general purpose tip (.090) is supplied with each 3M™ Scotch-Weld™ Applicator. To increase productivity, optional tips can provide multiple beads, flat ribbons, guided beads for carton sealing, and extended reach.

Tip No.	Description
9913	2 Hole Spreader (1/4" hole span)
9916	3 Hole Spreader
9917	3 Hole 1" Spreader for Scotch-Weld Applicator II only
9921	.090" Fluted Tip
9922	.063" Fluted Tip
9940	.125" Fluted Tip
9946	.072" Brass Extension for Scotch-Weld Applicator II only
9725	Mini Extension Tip .072" Opening for all Scotch-Weld Applicators
9726	"T" Tip (shown with valve and adapter) for all Scotch-Weld Applicators
9727	"L" Tip (shown with adapter and valve) for all Scotch-Weld Applicators
9729	High Viscosity Valve (TC, EC, PG-II)
9785	.070" Tapered Aluminum Extension for all Scotch-Weld Applicators
9777	1/4" Slotted Spreader (3755LM adhesive only)
9782	1/2" Slotted Spreader (3755LM adhesive only)
9764	3/4" Slotted Spreader (3755LM adhesive only)

Increase capacity and ease of operation with Quadrack™ Converter and Palm Trigger.

4 **Foot Pedal**

5 6

Heavy-Duty Benchstands provide added convenience.

Accessories (4, 7, 8) can provide high capacity, hands-free operation for 3M™ Scotch-Weld™ Applicator II and 3M™ Scotch-Weld™ Applicator II LT.

Magazine Feeder 7

Benchmount 8

Product Information: 3M™ Scotch-Weld™ Hot Melt Adhesives

	Product (Color)	FDA Listed Components[1]	UL 94 Listing	Features Application Ideas	Sizes	EC Temp Control Modules	Flash Point (°F/°C)	
Low Melt Technology: Applied 250°–270°F (127°–132°C)	3755LM Clear	Y	N/A	• "Delayed-tack" applied in thin-glue-line ribbon for bonding paper, corrugated, chipboard, P.O.P. displays and exhibits	5⁄8" x 2"TC	N/A	509/265	
	3762LM* Lt. Amber	Y	N/A	• Excellent "hot tack", fast setting • Bonds variety of corrugated packaging, beadboard, recouperage, repacking area • Economical, general purpose • Can bond chipboard and wood	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC	1	509/265	
	3776LM Tan	N/A	N/A	• Bonds variety of plastics, woods and light-gauge metals	5⁄8" x 8"Q 1" x 3"PG	1	460/238	
	3792LM* Clear	Y	V2	• Clear, multi-purpose for wood, coated paper, polyolefins and other heat-sensitive materials • P.O.P. displays	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC	1	550/288	
	3798LM Clear	Y	N/A	• Gummy glue removable adhesive • Strength in seconds, removes easily • A wide variety of substrates • No residual tack	5⁄8" x 2"TC	N/A	474/246	
Hot Melt Technology: Applied 350°–385°F (177°–196°C)	3731	N	N/A	• High heat resistance • Bonds a variety of plastics including polyethylene and polypropylene	5⁄8" x 8"Q 1" x 3"PG	5	N/A	
	3738* Tan	Y	V2	• High delivery rate and long bonding range • General purpose for foundry sand cores, wood bonding, corrugated, selected plastics and chipboard	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC 1⁄2" x 12"AE	4	550/288	
	3747 Tan	Y	N/A	• General purpose • Bonds wide variety of plastics, wood and lightweight metals	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC 1⁄2" x 12"AE	4	509/265	
	3748* Off-white	Y	V2	• Good thermal shock resistance • Non-corrosive to copper for many electronic applications • Bonds polyolefins	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC	4	536/280	
	3748 VO Light Yellow	N	VO	• Self-extinguishing version of 3748 • Meets UL 1410 requirements	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC	4	536/280	
	3750 Tan	Y	V2	• Low viscosity for high flow rate and increased production • Packaging and wood assembly • Good hot tack for quick grab	1/2" x 1/2"AE	N/A	495/234	
	3762 Tan	Y	V2	• Excellent "hot tack", fast-setting • Economical, general purpose for corrugated packaging, beadboard, recouperage, repacking area • Can bond chipboard and wood	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC 1⁄2" x 12"AE	3	500/260	
	3764* Clear	Y	V2	• Bonds variety of plastics including polycarbonate, polyethylene, and polypropylene • Flexible at low temperatures	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC 1⁄2" x 12"AE	4	514/267	
	3779* Amber	Y	VO	• High heat resistance • High strength • Good fuel and oil resistance	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC	5	550/288	
	3789* Brown	Y	V2	• High performance for plastics • Impact resistant • Bonds vinyl and wood • Good fuel and oil resistance	5⁄8" x 8"Q 1" x 3"PG	5	635/335	
	3792 Clear	Y	V2	• Clear, multi-purpose for wood, corrugated, fabric, furniture, upholstery, novelties, and other lightweight materials	5⁄8" x 8"Q 1" x 3"PG 5⁄8" x 2"TC 1⁄2" x 12"AE	4	450/232	
	3796 Lt. Tan	N	N/A	• High performance for plastics and light-gauge metals	1" x 3"PG 5⁄8" x 2"TC	N/A	480/249	
	3797 Off-white	Y	V2	• High ball and ring • Low viscosity • Good for electrical potting	1" x 3"PG 5⁄8" x 2"TC	N/A	570/299	
Bulk	3794 Hi Tack PSA Lt. Tan	Y	N/A	• Sprayable for plastic bonding, paper, metals, die-cut labels • Transportation, P.O.P.	2 lb. bricks	N/A	515/268	

(1) Made from components listed as indirect food additives under FDA regulations for adhesives (21 CFR 175.105). (2) Brookfield Thermosel Viscometer in Centipoise.
(3) ASTM E-28-6-7 (4) On canvas (5) On Douglas Fir (6) 1/8" semicircular bead, Douglas Fir to Douglas Fir.

	Viscosity CPS[2]	Delivery Time (sec) for 1" x 3" Cartridge**	Ball & Ring Soft Point[3] (°F/°C)	Heat Resistance (°F/°C)	Impact Resistance (in.-lbs.) 72°F (22°C)	Peel Strength PIW[4] 72°F (22°C)	Shear Strength PSI[5] 72°F (22°C)	Tensile Strength PSI 72°F (22°C)	Elongation %	Bonding Range 1/8" Bead (sec)[6]
	13,000 @250°F	N/A	157/70	120/49	14	13	500	380	400	120
	4000 @250°F	45	205/96	130/54	13	6	480	600	300	25
	8250 @250°F	47	184/84	140/60	13	9	600	270	600	40
	10,500 @250°F	57	178/81	140/60	62	13	350	547	125	40
	9500 @250°F	N/A	191/88	120/49	N/A	N/A	N/A	62	250	30
	12,000 @375°F	N/A	315/157	265/130	N/A	22	490	N/A	N/A	30
	2875 @375°F	35	186/86	130/54	36	13	375	360	1000	50
	4100 @375°F	45	220/104	145/63	25	20	430	750	1300	45
	5000 @375°F	65	292/144	175/79	24	18	250	375	1100	45
	5500 @375°F	65	305/152	175/79	50	15	275	200	1850	30
	1900 @375°F	30-40	200/93	125/52	N/A	6	500	N/A	N/A	N/A
	1870 @375°F	30	201/94	130/54	20	7	545	450	400	35
	6000 @375°F	55	190/88	140/60	58	14	390	650	625	40
	7000 @375°F	75	325/163	300/149	22	18	700	2100	300	25
	5200 @375°F	70	270/132	220/104	40	16	570	520	600	50
	5000 @375°F	45	179/81	140/60	42	13	250	400	750	50
	23,000 @375°F	120	240/116	200/93	29	29	550	363	930	40
	2650 @375°F	55	304/151	170/77	19	10	350	283	98	30
	15,000 @325°F	N/A	224/107	120/49	N/A	16	N/A	N/A	N/A	> 60

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

* Also available in bulk.

** Time to deliver the third consecutive cartridge through PG II or PG II LT @ 80 PSI.

N/A = Not available

3M™ Scotch-Weld™ Hot Melt Spray Adhesives

Solventless fast track for immediate bonding of foam and other lightweight materials

3M™ Scotch-Weld™ Hot Melt Spray Adhesive is a fast, neat alternative to solvent-based systems for bonding most foams, fabrics, plastics, particle board, and light-gauge metals. Applications range from furniture cushions to cushioning inserts, modular office panels to gym floor pads, and more. You simply spray a neat track of 100% solids adhesive right where you want it. Apply to one or both surfaces and bond substrates immediately.

Other features include:

- Up to 10-minute open time for handling convenience and bonding larger areas.
- One-part to eliminate the fuss of mixed systems.
- Designed for hand-held or bulk applicators.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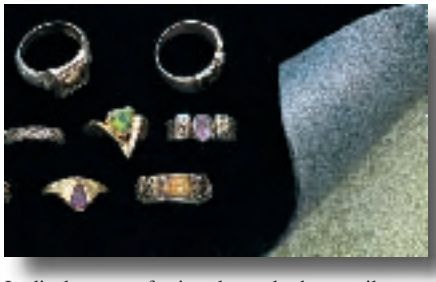
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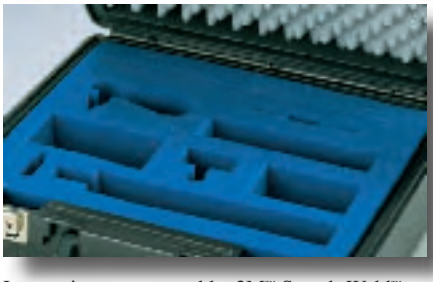
In display cases for jewelry and other retail items, foam is bonded to foam and fabric. Low temperature spray will not damage heat-sensitive substrates.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In carrying case assembly, 3M™ Scotch-Weld™ Hot Melt Spray Adhesive bonds foam to foam, plywood, metal or plastic.

Product Information: 3M™ Scotch-Weld™ Hot Melt Spray Adhesives

Adhesives Characteristics and Suggested Coverage

	6111/6111 Green	6111 HT/6111 HT Blue	6116
Description	Standard product	Higher heat resistance	Low viscosity
Color	Tan/Green	Tan/Blue	White
Open Time (1) One surface (Foam/PVC)	1 minute	3 minutes	2 minutes
Open Time (1) Two surface (Foam/Foam)	6 minutes	8 minutes	6 minutes
Heat Resistance (2)	145°F (63°C)	175°F (79°C)	160°F (71°C)
Peel Adhesion (PIW) (3)			
Fir	34.4	25.6	21.4
ABS	12.1	16.5	20.3
Polypropylene	46.3	14.4	16.4
PVC	9.9	16.3	N/A
Cold Rolled Steel	16.5	29.9	20.4
High Density Polyethylene	8.2	2.3	N/A

Typical Coverage	Smooth Surface	Textured Surface
2-Surface Application	1-2 grams per square foot	2-3 grams per square foot
1-Surface Application	3-5 grams per square foot	5-7 grams per square foot

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

(1) Bonds were made by spraying adhesive onto 3/4 in. thick, 2 lb. density polyester urethane foam. Open time will vary depending on substrate.

(2) Tested per 3M IATD test method C-3093 using 2 lb. dead load.

(3) According to 3M IATD test method C-3012. 180° peel strength was determined at a cross head speed of 2 inches/minute at 73°F (23°C).

Solutions for the elements from windows to ductwork

To help you keep air, water, dirt, fuel, cold, heat or other elements in or out, you'll find formulations from acrylic to polyurethane, and forms from liquids to tapes.


95


96

Product Information: 3M™ Weatherban™ and Scotch-Seal™ Sealants

	Product	Descriptions	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color (Dry)	Application Method	Cure or Dry Time	Service Temperature Range
3M™ Scotch-Seal™ Sealants	Adhesive Sealant 540	• Polyurethane • Moisture cures rapidly to flexible seal/bond for many plastics, metal, wood, and more • 250 psi tensile strength	90%	136°F (58°C)	Mastic	Black & Gray	Hand or pressure caulk	24 hours (3/16" dia. bead)	-40° to 194°F (-40° to 90°C)
	Adhesive Sealant 560	• Similar to 540 but with 580 psi tensile strength • May replace mechanical fasteners	90%	136°F (58°C)	Mastic	Black & Gray	Hand or pressure caulk	24 hours (3/16" dia. bead)	-40° to 194°F (-40° to 90°C)
	Industrial Sealant 800	• Flexible, rubbery • Resists weather, water, oils, fuel, detergent	51.5%	20°F (-7°C)	Heavy liquid	Reddish brown	Brush or flow	1-3 days	-65° to 200°F (-54° to 93°C)
	Duct Sealer 900	• Firm, rubbery with gap filling properties • Economical for HVAC ducts	66%	1°F (-17°C)	Mastic	Gray	Hand or pressure caulk	1-2 days	0° to 180°F (-18° to 82°C)
	Tamper-proof Sealant 1252	• Fire-retardant seal • Resists oil, gasoline, water, jet fuel and fungus • Will not corrode metal • Tack free in 20 seconds	70%	20°F (-7°C)	Thin paste	White	Pressure flow gun	24 hours (1/8" dia. bead)	-20° to 250°F (-29° to 121°C)
	Metal Sealant 2084	• Seals metal to glass in windows and doors • Resists weather, water, oil and gasoline	46%	0°F (-18°C)	Heavy liquid	Aluminum	Brush or flow	24 hours (1/8" dia. bead)	-30° to 250°F (-34° to 121°C)
	DP5001	• Fast cure urethane • Flexible belt repair	100%	>290°F (143°C)	2-part liquid	Black	Manual or pneumatic dispenser	12 hours	-60° to 250°F (-51° to 121°C)
	DP5003NS	• Controlled flow urethane for vertical applications • Flexible seal	100%	>290°F (143°C)	2-part paste	Black	Manual or pneumatic dispenser	24 hours	-60° to 250°F (-51° to 121°C)
	DP5005	• Urethane with flexibility at low temperature • Expansion joint sealant	100%	>290°F (143°C)	2-part liquid	Black, gray, beige	Manual or pneumatic dispenser	24-48 hours	-60° to 250°F (-51° to 121°C)
	DP5006	• High strength urethane • 40 minutes to handling strength	100%	>290°F (143°C)	2-part liquid	Gray	Manual or pneumatic dispenser	24 hours	-60° to 250°F (-51° to 121°C)
3M™ Weatherban™ Sealants	Sealant 606NF	• Smooth, weather resistant acrylic for metal, wood, painted or primed surfaces • Skins over in 20-40 minutes	78%	None	Non-stringing pumpable paste	White	Hand or pressure caulk	7 days (1/4" dia. bead)	-20° to 180°F (-29° to 82°C)
	Sealant Tape 5354	• High tack butyl adheres aggressively • Easy to compress, resists cold flow	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-65° to 190°F (-54° to 88°C)
	Ribbon Sealant PF5422	• Thread reinforced butyl • Dimensional stability, die-cutting • Repositionable with virtually no cleanup • Weather resistant	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-40° to 200°F (-40° to 93°C)
	Ribbon Sealant PF5423	• Nonreinforced thinner product similar to PF 5422 Ribbon Sealant	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-40° to 200°F (-40° to 93°C)

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

At the touch of a finger – bonding power for substrates from paper to metal

3M aerosol adhesives go to the job and are always ready when needed. Only a finger's touch puts a job-matched formulation to work on paper, plastic, cardboard, foam, metal, and more.

3M introduced the first industrial-grade aerosol adhesive over 40 years ago, and now you can select from a wide range of performance and application characteristics for production and maintenance jobs. Most 3M aerosol adhesives also have a controlled spray pattern to help minimize overspray and cleanup.

3M aerosol adhesives contain no methylene chloride, chlorofluorocarbons (CFCs), or 1,1,1-trichlorethane (methyl chloroform), and are California compliant.

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With fast tack, long bonding range, and little or no soak-in, 3M™ Super 77™ Multipurpose Spray Adhesive is a versatile tool for bonding lightweight materials that include fabrics, plastics, soft foams, paper, cardboard, and thin gauge metals.


98

With 3M™ FoamFast Cylinder 74 Spray Adhesive a fast light coat bonds quilted fabric to solid core mattress. High coverage reduces applied cost. Foam-tearing strength prevents cover spin.


99

Expanded polystyrene panels used for decorative trade show booth facings are easily bonded to plywood panels with 3M™ Insulation 78 Spray Adhesive. After assembly, the panels are textured and painted to resemble stone.


100

Clear spray 3M™ Shipping-Mate™ Labeling Adhesive permanently bonds labels to many problem surfaces such as glass, rubber, or metal where other adhesives or gummed labels may fail. Moisture-resistant formulation.


101

Low misting lace spray patterns of 3M™ 72, 74, 76, 78 and 90 Spray Adhesives target adhesive where you want it for clean, precise application. Adjust patterns from approximately 1" to 4" widths.


102

3M™ FoamFast 74 Spray Adhesive quickly bonds flexible urethane or latex foams to themselves and many other materials. Bond reaches foam-tearing strength with a soft, non-dimpling bond line.


103

3M™ Hi-Strength 90 Spray Adhesive typically bonds edge banding in 60 seconds compared to 15-20 minutes for many typical bulk contact adhesives. Strength increases to an ultimate 230 psi in shear and 25 piw in peel.

Product Information: 3M™ Aerosol Adhesives

	Product	Description	Spray Width	Bonding Range Surfaces One/Both	(PSI) Shear[1] Initial/ Ultimate	Relative Adhesion		Coverage Sq. Ft./ Container[5] (Typical)
						Peel Strength (PIW)[2]	Temperature Resistance[3]	
Aerosol Adhesives	Blue 72 Spray Adhesive	• Repositionable with aggressive tack • Bond polyethylene film • Foam and carpet • Blue color	1"- 4" variable	8 hr./7 days	20/85	8	120°F (49°C)	100
	FoamFast 74 Spray Adhesive	• Fast tack with foam-tearing strength • Soft, non-dimpling glue line • General upholstery foam bonding • Knife edge bonding, boxing, edge turning	1"- 4" variable	N/R/15 min.	40/205	20	120°F (49°C)	260
	Repositionable 75 Spray Adhesive	• Clear "tape-like" holds badges during stitching and patterns prior to cutting • No bleed, stain or wrinkle	1½"	1 hr./3 hrs.	15/65	5	120°F (49°C)	100*
	Hi-Tack 76 Spray Adhesive	• Multi-purpose with high temperature resistance • Strong one-surface bonds	1"- 4" variable	10 min./1 hr.	25/100	25	160°F (71°C)	100
	Super 77 Multipurpose Spray Adhesive	• Fast, aggressive tack for bonding many lightweight materials	1½"- 4" fan	15 min./30 min.	25/160	15	110°F (43°C)	220
	Polystyrene Foam Insulation 78 Spray Adhesive	• Bonds most insulation including expanded polystyrene and extruded polystyrene • Fast-drying will not attack foam board	1"- 4" variable	5 min./15 min.	7/67	15-20	140°F (60°C)	100
	Rubber & Vinyl 80 Spray Adhesive	• Neoprene-based contact adhesive with plasticizer resistance • Bond supported vinyl, leather, most rubber, most plastics, laminate and wood • Resists over 200°F (93°C)	3"	N/R/1 hr.	50/400	35	200°F (93°C)	75/30[4]
	Hi-Strength 90 Spray Adhesive	• High contact bond for decorative laminate • Adheres polyethylene and polypropylene to wood, metal, and more • One minute dry time	1"- 4" variable	N/R/15 min.	45/230	25	160°F (71°C)	100
3M™ Shipping-Mate™ Aerosols	Case Sealing Adhesive	• 10-second holding strength with carton-tearing strength in 5 minutes • Convenient for shipping room carton closure and warehouse reclosure after inspection	1"- 4" variable	N/R/15 min.	40/160	N/A	160°F (71°C)	100
	Labeling Adhesive	• Clear, fast-tacking • Holds labels to many corrugated cartons and problem surfaces such as glass, plastic and more • Moisture-resistant bond	2.5"	10 min./N/R	15/120	N/A	130°F (54°C)	90
	Palletizing Adhesive	• Nearly immediate tack permits bags to be stacked on pallets without slipping • Easy separation after shipment • Clear color	1.5"	10 min./N/R	10/10	N/A	110°F (43°C)	300

(1) IATD T.M. C-700: 1/8" birch veneer bonded to 1/8" birch veneer.
(2) IATD T.M. C-449.
(3) IATD T.M. C-483; 500 g load for 1 hr. at noted temp.
(4) Plastic laminate bonding @ 3-5 g/sq. ft. coverage
(5) Coverage based on container sizes 24 fluid ounce or *16 fluid ounce size cans.
N/R = Not Recommended

Product Information: 3M Adhesives in Bulk

3M's most popular aerosol adhesives are now available in bulk form. The following characteristics of interest to higher volume users supplement the chart above.

	Product	Features	% Solids	VOCs (g/liter)	Size
Bulk Adhesives	Super 77 Bulk Adhesive	• High coverage • Low soak-in for long lasting bonds	36–38%	495	55 Gal., 5 Gal.
	Hi-Strength 90 Bulk Adhesive	• High temperature resistance	22–24%	507	55 Gal., 5 Gal.
	Polystyrene Foam Insulation 78 Bulk Adhesive	• High coverage • Fast strength build-up	34-36%	435	55 Gal., 5 Gal.
Cylinder	FoamFast 74 Adhesive Cylinder	• Orange or clear	22%	563	28.8 lbs.
	Polystyrene Foam Insulation 78 Cylinder	• Does not dissolve polystyrene foam	19%	558	28.8 lbs.
	Hi-Strength Adhesive 90 Cylinder	• Temperature resistance up to 160°F (71°C)	13%	571	28.8 lbs., 15.6 lbs.

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

Convenience and a fistful of work power for maintenance and production

In thousands of factories and plants, these aerosol chemicals are proven daily to save time and effort in maintenance and production. Lubricating, cleaning, inhibiting rust, and other tough jobs become finger-touch easy.

Compact container fits in a tool box to go readily to any job site and can help you reduce storage space and cost. With targeted application you get more useable product for your money.

3M aerosol chemicals contain no methylene chloride, chlorofluorocarbons (CFCs), or 1,1,1-trichlorethane (methyl chloroform).

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105

3M™ Silicone Lubricant lubricates cutting tools and tables. Fast, easy application helps prevent buildup of adhesive, wax, inks, and paints. Won't stain or become gummy.


106

For fast, easy cleanup of gears, 3M™ Citrus Base Cleaner helps soften and loosen grease, oil and grime. After using this heavy-duty degreaser/cleaner, just wipe away with a shop towel.


107

Freeing rusted nuts, bolts, and frozen threaded parts are only a few of the many applications for 3M™ 5-Way Penetrant.

Product Information: 3M Aerosol Chemicals

	Product	Description	Temperature Resistance
Aerosol Chemicals	Silicone Lubricant	• Lubricates cutting tools and tables • Helps prevent buildup of glues, wax, inks, paints • Won't stain or become gummy • FDA listed ingredients*	350°F (177°C)
	5-Way Penetrant	• Penetrates, lubricates, demoisturizes, cleans and helps prevent rust • Frees rusted, frozen nuts • "Dries out" electrical apparatus • Inhibits corrosion and pitting of moulding dies and extension screws	N/A
	Citrus Base Cleaner	• Multi-purpose, citrus-scented cleaner removes grease, dirt, oil and adhesive overspray from equipment • Softens liquid adhesive and tape residue	N/A
	Adhesive Remover	• Specifically formulated to remove adhesive from many substrates with no residue • Citrus-scented	N/A
	Adhesive Remover Pen	• Same as aerosol Adhesive Remover but more precise application with pen tip	N/A

*FDA Listed Ingredients: The ingredients of this product, when dried after application, are listed as indirect food contact additives when used with minimal opportunity for exposure. See 21 CFR 178.3570, 178.3910, and 181.28

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

Fast, convenient crack and spall repair, expansion joints, custom threading and anchoring, and more

3M™ Concrete Repair Products offer a complete line of conveniently packaged and dispensed adhesives/sealants for every job from cracks and joints to spalls and more.

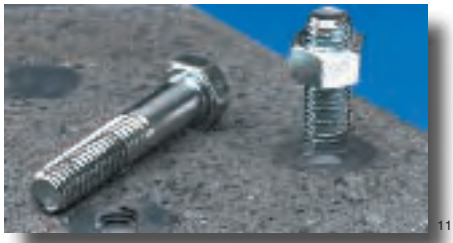
Repairs are long lasting with strong, flexible bonds that resist weathering, expansion, and contraction.

Fast setting allows you and your customers to drive on repaired surfaces in as few as five minutes. You can choose non-sag or self-leveling formulations for repairs on both vertical and horizontal surfaces. Non-sag formulation facilitates step and ledge repair.

50ml and 12 fl. oz. duo-pak cartridges, 5-gallon pails, and 55 gallon drums are available to meet your production volume requirements. Nozzle automatically and precisely meters, mixes, and dispenses two-part urethane formulation. Apply material precisely where needed to conserve material.

Self-leveling 3M™ Concrete Repair 600 flows smoothly into cleaned cracks and gaps and hardens in as little as 5 minutes.

Make fast work of lengthy expansion or control joints and other larger jobs with the heavy-duty manual applicator and 12 fl. oz. duo-pak cartridges.



3M concrete repair formulations harden to any depth without cracking for custom threading and anchoring.

Product Information: 3M™ Concrete Repair Products

Product/ Color	Size	Description	Work life	Handling time	Cure time
DP600 Gray Self-leveling	12 fl. oz.*	• Repair of cracks or spalls and setting anchors in floors or horizontal surfaces	70 sec.	5 min.	1 hr.
DP600 Gray Non-sag	12 fl. oz.*	• Repair of cracks in walls and setting anchors in vertical surfaces • Repair chipped or broken steps and ledges	50 sec.	4 min.	1 hr.
Concrete Repair 600 Gray Self-leveling	8.4 fl. oz.	• Flows smoothly into cleaned cracks and gaps • Hardens in as little as 5 minutes • Use in common caulking guns	70 sec.	5 min.	60 min.
DP5105 Gray**	12 fl. oz.*	• Helps seal and stress-relieve large concrete areas	5 min.	9 hrs.	24 hr.
DP5106 Gray	12 fl. oz.*	• Helps relieve stress in large segments of concrete floors	6 min.	40 min.	24 hr.
Manual Dispenser 6997-1	12 fl. oz.	• Heavy-duty applicator	-	-	-
Pneumatic Dispenser 6985-1	12 fl. oz.	• Applicator for high volume jobs	-	-	-
Blunt End Mix Tip 4901	12 fl. oz.	• General use tip	-	-	-
Tapered Mix Tip 4902	12 fl. oz.	• Fine or precise placement of adhesive and sealant	-	-	-
MIxing Nozzle	8.4 fl. oz.	• Mixes 600	-	-	-

*Also available in 50 ml cartridges, 5 gallon pails and 55 gallon drums **Also available in black (56623-3) and beige (96334-6)
Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes.

Adhesive/Substrate Selection Guide

Using this Guide

This guide can be used to assist in choosing a product or products to evaluate for a given application. The substrates that may be involved are listed in the first column. The 3M products that you may want to evaluate are grouped by type in the next seven columns. For example, you want to bond metal to ceramic and have structural strength. First, select the substrate heading "Metal to:", shown in the dark green area upper left of page 39. Then move down four lines to "Glass and Ceramics" and look across the columns under the heading "Structurals". There are candidate products in this example, available in the 3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives column.

	Structurals				Non-Structurals		
Wood and Hardboard to:	**3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives**	**3M™ Scotch-Weld™ Instant Adhesives**	**3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives**	**3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesives**	**3M™ Scotch-Grip™ and Fastbond™ Adhesives**	**3M™ Aerosol Adhesives**	**3M™ Scotch-Weld™ Hot Melt Adhesives**
Wood and Hardboard	2-Part Epoxies and Urethanes	CA50, CA100	TE015, TE100, TE030,	17005, 17030	F/B 30NF, 1357 (All), 4323, F/B 2000NF	80, 90	3738, 3747, 3776LM, 3789
Metal	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50, CA100	TS115, TS230, TE040	17010, 17060	1357 (All), 5, 10, F/B 2000NF	80, 90	3747, 3776LM, 3796
Rubber (except EPDM)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50, CA100	TS115, TS230, TE040	17030, 17060	1357 (All), 1300 (All), 2141, F/B 2000NF	80, 90*	3747, 3796
EPDM Rubber	–	CA40[3], CA40H	–	–	4799	–	–
Glass and Ceramics	Flexible 2-Part Epoxies	CA50, CA100	TS115, TS230, TE040	17010, 17060	1357 (All), 1300 (All), 2141	80, 90*	3747, 3796, 3764
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50, CA100	TE015, TE100, TE031, TS230	17010, 17060	847 (All), F/B 30NF, F/B 2000NF	80, 90	–
Plastics (Polyolefins)	DP8005, DP8010	–	–	–	4693	72, 76, 90	3748, 3764, 3796, 3792LM
Plastics (ABS, PVC, Acrylic, etc.)	Flexible , 2-Part Epoxies 2-Part Urethanes	–	TE031, TS230, TS115, TE040	17010, 17060	4693, 1099 (All),	76, 77, 80, 90	3748, 3764, 3796, 3792LM
Plastics (High Performance-Nylon)	DP460 DP190	CA50, CA100	All Products	All Products	1099 (All), 4693	76, 77, 80, 90	3796
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA50, CA100	TE100	–	1099 (All), 2262, 4475, F/B 2000NF	80	3789, 3796
Paper and Cardboard	2-Part Epoxies and Urethanes	–	All Products	All Products	F/B 30NF, F/B 100, 4550, F/B 2000NF	75*, 77	3762LM, 3762, 3792LM, 3755LM, 6111 Family
Fabric, Felt, Cork and Fibrous Glass	2-Part Epoxies and Urethanes	–	All Products	All Products	4550, F/B 49, F/B 2000NF	74, 75*, 76, 77, 80, 90	3738, 3747, 3792LM, 3778LM
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 100, F/B 2000NF	74. 76, 90	3738, 3747, 3764, 3792, 6111 Family
Rigid Foam (Beadboard, Styrene)	2-Part Urethanes, Flexible 2-Part Epoxies	–	All Products	All Products	F/B 30NF, F/B 2000NF, F/B 49	78	3762LM, 3792LM, 3776LM, 3755LM, 6111 Family
Rigid Foam (Urethane)	2-Part Urethanes, Flexible 2-Part Epoxies	–	All Products	All Products	F/B 30NF, 1357(All), 5, F/B 2000NF	74, 80	3747, 3764, 3792, 3776LM, 6111 Family

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

Metal to:	Structurals				Non-Structurals		
	3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives	3M™ Scotch-Weld™ Instant Adhesives	3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives	3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesives	3M™ Scotch-Grip™ and Fastbond™ Adhesives	3M™ Aerosol Adhesives	3M™ Scotch-Weld™ Hot Melt Adhesives
Metal	Acrylics, Epoxies	CA's All Products	–	–	1357 (All), 1099 (All) 1300 (All)	80, 90	3747[1], 3796, 3776LM[2]
EPDM Rubber	–	CA40, CA40H	–	–	4799	–	–
Rubber (except EPDM)	Flexible 2-Part Epoxies	CA's All Products	TS115, TS230, TE040	17030, 17060	2141, 1300 (All), 847 (All), F/B 2000NF[1]	80, 90*	3747, 3796, 6111 HT
Glass and Ceramics	Flexible 2-Part Epoxies	–	–	–	1357 (All)	80, 90 3796	3747, 3764,
Leather	Flexible 2-Part Epoxies 2-Part Urethanes	CA50, CA100	TS115, TS230, TE040	17010, 17060, 17030	847 (All), F/B 2000NF	80	3789, 3796
Plastics (Polyolefins)	DP8005, DP8010	–	–	–	4693, F/B 2000NF[1]	72, 76, 90	3796, 6111 HT
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, Acrylics	CA's All Products	TS115, TS230, TE040	17010, 17060	4693, 4475, 1357 (All), F/B 2000NF[1]	76, 77, 80, 90	3747, 3776LM, 3796 6111 HT
Plastics (High Performance-Nylon)	DP460, DP190	CA's All Products	–	–	1099 (All), 4693	76, 77, 80, 90	3796
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA40, CA40H, CA50, CA100	TS115, TS230, TE040	17010, 17060	1099 (All), 2262, 4475	80	3789, 3796
Paper and Cardboard	2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040	17010, 17060	10, F/B 49, F/B 100, 4550, F/B 2000NF	75*, 77	3747, 3776LM, 3796, 6111 Family
Fabric, Felt, Cork and Fibrous Glass	2-Part Epoxies	–	TS115, TS230, TE040	17010, 17060	F/B 42NF (All), F/B 100, 4550, F/B 49, F/B 2000NF	72, 74, 75*, 76, 77, 80, 90	3747, 3776LM, 6111 HT
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	TS115, TS230, TE040	17010, 17060	F/B 2000NF, F/B 100	74, 76, 90	3747, 3796, 6111 Family
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies	–	TS115, TS230, TE040	17010, 17060	F/B 30NF, F/B 2000NF[1], F/B 49	78	3776LM, 6111 Family
Rigid Foam (Urethane)	Flexible 2-Part Epoxies	CA's All Products	TS115, TS230, TE040	17010, 17060	1357(All), 5, 10, F/B 2000NF[1]	74, 80	3747, 3796, 3776LM, 6111
Rubber (except EPDM) to:							
Rubber (except EPDM)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA's All Products	TS115, TS230, TE031,TE040	17030, 17060	2141, 1300 (All), 847 (All)	80, 90*	3747, 3796
EPDM Rubber	–	CA40, CA40H	–	–	4799	–	3796
Glass and Ceramics	Flexible 2-Part Epoxies	–	TS115, TS230, TE040	17010, 17060	1300 (All), 2141	80, 90	3747, 3796
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50, CA100	All Products	All Products	847 (All), 2141, 1300, F/B 2000NF	80	3796
Plastics (Polyolefins)	DP8005, DP8010	–	–	–	4693	90	3796, 6111 Family
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA's All Products	TE031, TS230, TS115, TE040	17010, 17060	1099 (All), 847 (All), 1300 (All), 959	80, 90	3747, 3796
Plastics (High Performance Nylon)	DP460, DP190	CA's All Products	–	–	1099 (All)	80, 90	3796
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA40, CA40H, CA50, CA100	All Products	All Products	1099 (All)	80	3796

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds. * Produces a temporary bond on these materials.

(1) Adhesives *must* be forced dried and bonded while warm. (2) For best results, preheat the substrate to a minimum of 120°F (49°C). (3) Evaluate using surface activator.

Rubber (except EPDM) to:	Structurals				Non-Structurals		
	3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives	3M™ Scotch-Weld™ Instant Adhesives	3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives	3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesives	3M™ Scotch-Grip™ and Fastbond™ Adhesives	3M™ Aerosol Adhesives	3M™ Scotch-Weld™ Hot Melt Adhesives
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	1300 (All), 2141, F/B 2000NF, F/B 100	75*, 77	3747, 3796, 6111 Family
Fabric, Felt, Cork and Fibrous Glass	2-Part Urethanes	–	All Products	All Products	847, 1300 (All), 2141, F/B 2000NF	80, 90	3747, 3796, 6111, 3794
Flexible Foam (Latex, Urethane)	–	–	All Products	All Products	F/B 2000NF, F/B 100	74, 80	3747, 3796
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B 2000NF	–	3794
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	1300 (All), 1357(All), 2141	74, 80	3747, 3796
EPDM Rubber to:							
EPDM Rubber	–	CA40, CA40H	–	–	4799	–	3796
Glass and Ceramics	–	–	–	–	4799	–	3796
Leather	–	–	–	–	–	–	3796
Plastics (Polyolefins)	–	–	–	–	–	–	3796
Plastics (ABS, PVC, Acrylic, etc.)	–	CA40, CA40H	–	–	4799	–	3796
Plastics (High Performance-Nylon)	–	CA40, CA40H	–	–	4799	–	–
Plastics (Flexible Vinyl)	–	CA40, CA40H	–	–	–	–	–
Paper and Cardboard	–	–	–	–	4799	–	3796
Fabric, Felt, Cork and Fibrous Glass	–	–	–	–	4799	–	3796
Flexible Foam (Latex, Urethane)	–	–	–	–	–	–	3796
Rigid Foam (Beadboard, Styrene)	–	–	–	–	–	–	–
Rigid Foam (Urethane)	–	–	–	–	4799	–	3796
Glass & Ceramics to:							
Glass and Ceramics	Flexible 2-Part Epoxies	–	–	–	4475	80, 90	–
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	_	TS115, TS230, TE040	17010, 17060	847 (All), 1099 (All), F/B 2000NF	80, 90	3796
Plastics (Polyolefins)	–	–	–	–	4693	72, 76, 90	3764, 3796, 3792LM
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040	17010, 17060	4475	72, 77, 80, 90	3764, 3796
Plastics (High Performance-Nylon)	DP190 DP460	–	–	–	1099 (All), 4693	72, 77, 80, 90	3796

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

	Structurals				Non-Structurals		
Glass and Ceramics to: (cont.)	**3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives**	**3M™ Scotch-Weld™ Instant Adhesives**	**3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives**	**3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesives**	**3M™ Scotch-Grip™ and Fastbond™ Adhesives**	**3M™ Aerosol Adhesives**	**3M™ Scotch-Weld™ Hot Melt Adhesives**
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	–	TS115, TS230, TE040	17010, 17060	2262, 4475	80	3796
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040	17010, 17060	4550, F/B 2000NF, F/B 49	75*, 77	3764, 3796, 3792LM, 3794
Fabric, Felt, Cork & Fibrous Glass	Flexible 2-Part Epoxies	–	TS115, TS230, TE040	17010, 17060	4550, F/B 49, F/B 2000NF 90	72, 74, 76 75*, 77,	3764, 3796, 3794, 6111 Family
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	TS115, TS230, TE040	17010, 17060	F/B 2000NF	74, 76, 90	3764, 3796, All Spray Bond products
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040	17010, 17060	F/B 30NF,	77, 78	6111 Family, 3794
Rigid Foam (Urethane)	2-Part Urethanes	–	TS115, TS230, TE040	17010, 17060	1357 (All), 10, F/B 30NF	74, 80	3764, 3796, 6111
Leather to:							
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50	All Products	All Products	847, F/B 30NF, F/B 2000NF	80, 90	3789, 3796, 3779
Plastic (Polyolefins)	–	–	–	–	F/B 2000NF	76, 90	3796
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes	CA100	TE031, TS230, TE040	17010, 17030	847 (All), 1099 (All), F/B 2000NF	80, 90	3789, 3796
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA50, CA100	All Products	All Products	4475, 1099 (All), F/B 2000NF	80	3789, 3796, 3779
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B30NF, F/B 2000NF, F/B 100	75*, 77	3789, 3796, 3779
Fabric, Felt, Cork and Fibrous Glass	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B 30NF, F/B 100, F/B 2000NF, F/B 49	76, 80	3789, 3796, 3779
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	80	3789, 3796, 3779
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B 30NF, F/B 2000NF	–	–
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 30NF, F/B 2000NF	80	3789, 3796, 3779
Plastics (Polyolefins) to:							
Plastics (Polyolefins)	DP8005, DP8010	–	–	–	4693, F/B 2000NF[1]	72, 76, 90	3731, 3748, 3764, 3792LM, 3796, 6111 Family
Plastics (ABS, PVC, Acrylic, etc.)	DP8005, DP8010	–	–	–	4693, F/B 2000NF[1]	76, 90	3731, 3748, 3764, 6111 Family, 3792LM, 3796
Plastics (High Performance Nylon)	DP8005, DP8010	–	–	–	4693	76, 90	3796
Plastics (Flexible Vinyl)	DP8005, DP8010	–	–	–	–	–	3796
Paper and Cardboard	–	–	–	–	4693, F/B 100, F/B 2000NF	75*, 77	3748, 3764, 6111 Family
Fabric, Felt, Cork, & Fibrous Glass	–	–	–	–	4693, F/B 49, F/B 2000NF	72, 74, 76, 90	3748, 3764, 6111 Family, 3792LM, 3796

(1) Adhesive *must* be force dried and bonded while warm.

* Produces a temporary bond on these materials.

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

Plastics (Polyolefins) to: (cont.)	Structurals				Non-Structurals		
	3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives	3M™ Scotch-Weld™ Instant Adhesives	3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives	3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesives	3M™ Scotch-Grip™ and Fastbond™ Adhesives	3M™ Aerosol Adhesives	3M™ Scotch-Weld™ Hot Melt Adhesives
Flexible Foam (Latex, Urethane)	–	–	–	–	F/B 2000-NF, F/B 100	72, 74, 76, 90	3748, 3764, 3796, 6111 Family
Rigid Foam (Beadboard, Styrene)	DP8005, DP8010	–	–	–	F/B 2000NF[1]	–	3792LM, 6111
Rigid Foam (Urethane)	DP8005, DP8010	–	–	–	4693, F/B 2000NF[1]	74, 76, 90	3748, 3764, 6111, 3792LM, 3794
Plastics (ABS, PVC, Acrylic) to:							
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes, Acrylics	CA's All Products TE040	TE031, TS115 , TS230,	17010, 17060	1099 (All), 4475, F/B 2000NF[1]	76, 77, 90	3731, 3747, 3764, 3796, 3776LM, 3792LM
Plastics (High Performance-Nylon)	Flexible 2-Part Epoxies, 2-Part Urethanes, Acrylics	CA's (All)	–	–	1099, 4693	72, 77, 90	3796
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA40, CA50, CA100	TE031, TS115, TS230, TE040	17010, 17060	1099 (All), 2262, 4475	80*	3789, 3796
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	CA40H[3]	TE031, TS115, TS230, TE040	17010, 17060	4550, F/B 100, F/B 49, F/B 2000NF,	75*, 77	3764, 3792, 3792LM, 3776LM
Fabric, Felt, Cork & Fibrous Glass	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE031, TS115, TS230, TE040	17010, 17060	4550, F/B 100, F/B 49, F/B 2000NF,	76, 77, 90	3747, 3764, 3792, 3792LM, 3776LM
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	TE031, TS115, TS230, TE040	17010, 17060	F/B 2000NF, F/B 100	–	3747, 3764, 3792, 3792LM, 3776LM 6111 Family
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE031, TS115, TS230, TE040	17010, 17060	F/B 2000NF[1], F/B 100, F/B 49	77, 78,	3792LM, 3776LM, 6111 Family
Rigid Foam (Urethane)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE031, TS115, TS230, TE040	17010, 17060	1099, 4693, 4475, F/B 2000NF[1]	80	3747, 3764, 3792, 3792LM, 3776LM
Plastics (High Performance) Nylon to:							
Plastics (High Performance-Nylon)	DP190, DP460	CA's All Products	–	–	1099 All Products, 4693	76, 77, 90	3764, 3796
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA40, CA50, CA100	–	–	1099 All Products	80	3789, 3796
Paper and Cardboard	Flexible, 2-Part Epoxies, 2-Part Urethanes	–	–	–	4550, F/B 100	75*, 77, 90	3747, 3764,
Fabric, Felt, Cork & Fibrous Glass	Flexible, 2-Part Epoxies, 2-Part Urethanes	–	–	–	4550,4693, F/B 49	76, 77, 90	3747, 3764, 3796
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	–	–	F/B 2000NF, F/B 100	74, 76, 90	3747, 3764, 3796
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	–	–	F/B 2000NF	78	–
Rigid Foam (Urethane)	2-Part Urethanes	–	–	–	1099 All Products, 4693	80	3747, 3764, 3796

Note: The technical information and data on these pages should be considered representative or typical only and should not be used for specification purposes. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

Plastic (Flexible Vinyl) to:	Structurals				Non-Structurals		
	3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives	3M™ Scotch-Weld™ Instant Adhesives	3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives	3M™ Scotch-Weld™ Polyurethane (PUR) Easy Adhesives	3M™ Scotch-Grip™ and Fastbond™ Adhesives	3M™ Aerosol Adhesives	3M™ Scotch-Weld™ Hot Melt Adhesives
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	CA40, CA50, CA100	All Products	All Products	1099 All Products, 2262, 4475	80	3789, 3796, 3779
Paper and Cardboard	Flexible 2-Part Epoxies	–	All Products	All Products	1099 (All), 2262, 4475, F/B 2000NF	80	3789, 3796, 3779
Fabric, Felt, Cork and Fibrous Glass	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	1099 (All), 2262, 4475, F/B 2000NF	80	3789, 3796, 3779
Rigid Foam (Beadboard, Styrene)	Flexible, 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	–	–	–
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	1099 (All), 2262, 4475	80	3789, 3796
Paper and Cardboard to:							
Paper and Cardboard	2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	4550, F/B 100, F/B 30NF, F/B 49, F/B 2000NF	75*, 77	3762, 3762LM, 3792LM, 3778LM, 6111 Family, 3794
Fabric, Felt, Cork & Fibrous Glass	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	4550, F/B100, F/B4213NF, F/B 49, F/B 2000NF	75*, 76, 77	3762, 3762LM, 3792LM, 3778LM, 6111 Family, 3794
Flexible Foam (Latex,Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	77	3762, 3762LM, 3792LM, 3778LM, 6111 Family
Rigid Foam (Beadboard, Styrene)	2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B 30NF, F/B 2000NF	78	3755LM, 3762LM, 3792LM, 3778LM, 6111, 3794
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	4550, F/B 2000NF	77, 80	3762, 3762LM, 3792LM, 3776LM, 6111 Family
Fabric, Felt, Cork and Fibrous Glass to:							
Fabric, Felt, Cork & Fibrous Glass	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	4550, F/B 100, F/B 49, F/B 2000NF	72, 74, 75*, 76, 77, 90 3794	3755LM, 3762LM, 3792LM, 3776LM, 6111,
Flexible Foam (Latex,Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	74, 76, 77, 90	3755LM, 3762LM, 3792LM, 3776LM, 6111
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B 30NF, F/B 2000NF	77, 78	3755LM, 3762LM, 3792LM, 3778LM, 6111, 3794
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 30NF, F/B 2000NF	77, 80	3755LM, 3762LM, 3792LM, 6111, 3776LM, 3778LM, 3794

Note: This chart is intended only to indicate possible product candidates for your particular application requirements. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

(1) Adhesive *must* be force dried and bonded while warm.
(2) Evaluate using surface activator.
* Produces a temporary bond on these materials.

	Structurals				Non-Structurals		
Flexible Foam (Latex Urethane) to:	**3M™ Scotch-Weld™ Epoxy, Acrylic, Urethane Adhesives**	**3M™ Scotch-Weld™ Instant Adhesives**	**3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesives**	**3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesives**	**3M™ Scotch-Grip™ and Fastbond™ Adhesives**	**3M™ Aerosol Adhesives**	**3M™ Scotch-Weld™ Hot Melt Adhesives**
Flexible Foam (Latex,Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	74, 76, 80, 90	3747, 3792, 3792LM, 6111, 3776LM
Rigid Foam (Beadboard, Styrene)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	78	3762LM, 6111, 3792LM, 3778LM
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	74, 80	3792, 3792LM, 3776LM, 6111, 6114
Rigid Foam (Beadboard, Styrene) to:							
Rigid Foam (Beadboard, Styrene)	2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B 49, F/B 2000NF	78	3762LM, 6111, 3792LM, 3778LM, 3794, 3795, 6114
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 30NF F/B 2000NF	–	3762LM, 3792LM, 3776LM, 6111, 3778LM, 3794
Rigid Foam (Urethane) to:							
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	1357 (All), F/B 30NF, F/B 2000NF[1]	80	3747, 3792, 6111, 3792LM, 3794

Note: This chart is intended only to indicate possible product candidates for your particular application requirements. Final product selection should be made only after consideration of a variety of factors and evaluation of sample bonds.

3M™ Bonding Tapes

Enhanced appearance, improved performance, improved process...if you think these benefits can help you bring a better, more competitive product to market, you'll want to evaluate the many pressure sensitive adhesive bonding tapes from 3M.

Bonding tapes have pressure sensitive adhesive on two sides to bond mating surfaces with strength that ranges from permanent to permanently repositionable. Substrates range from metal to paper. Each tape represents more than 50 years of 3M leadership in providing design and production engineers with innovative adhesive formulations.

Today, you can rely on 3M for the most comprehensive and versatile line of bonding tapes available. You'll find solutions for any one of thousands of material combinations.

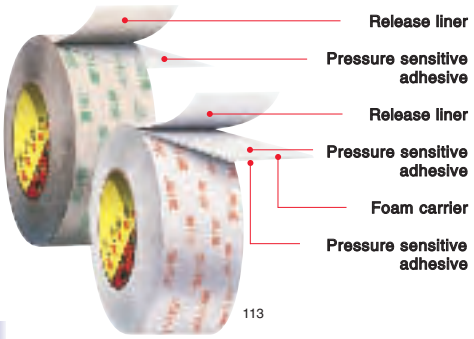
The line includes all of the following:

- 3M™ VHB™ Tapes
- 3M™ Structural Bonding Tapes
- 3M™ Double Coated Foam Tapes
- 3M™ Double Coated Tapes
- 3M™ Removable/Repositionable Tapes
- 3M™ Adhesive Transfer Tapes
- 3M™ Extended Liner Tapes
- 3M™ Adhesive Transfer Tapes on Different Liners
- 3M™ Membrane Switch Adhesives
- Scotch® ATG Adhesive Systems

Replace rivets, screws and other mechanical fasteners

For 25 years, industries worldwide have been using 3M™ VHB™ Tapes for high holding power in static and dynamic loads. Viscoelastic properties absorb shock and distribute stress evenly for bonding power that helps eliminate mechanical fastening in many jobs.

In the ever growing product line, there are 3M™ VHB™ Tapes for bonding and sealing aluminum, steel, glass, painted and powder coated surfaces, and plastics such as acrylic and polycarbonate. Flexibility compensates for differential thermal expansion so you can even bond many dissimilar materials with confidence.



113

114

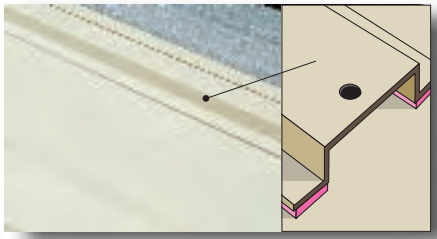
3M™ VHB™ Tapes bond the lens on contact in a fish finder and seal against water, moisture, salt, and more. Bonding power eliminates mechanical fasteners for a smooth, clean surface. Viscoelastic properties help absorb shock and vibration for bond reliability.


115

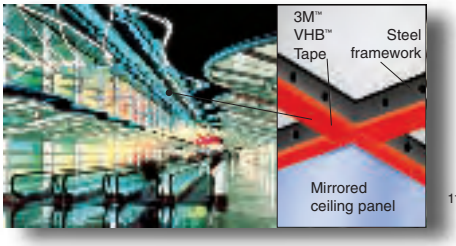
3M™ VHB™ Tapes replace rivets in bonding trailer side panels to stiffeners for a smoother, cleaner appearance and a strong bond. Viscoelastic properties of 3M™ VHB™ tapes can also help reduce vibration in the box.


116

For assembly efficiency, die-cut pieces of 3M™ VHB™ Tapes bond components in a water-resistant video camera case. The foam conforms to help seal the unit.

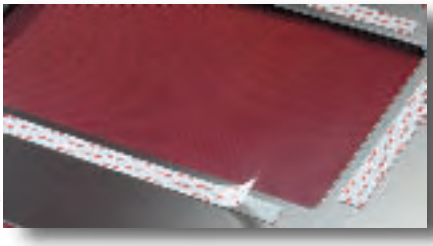

117

3M™ VHB™ Tapes bond panel stiffeners on contact to pre-painted metal cabinetry. Unlike welding, applying the tape does not damage the finish.



118

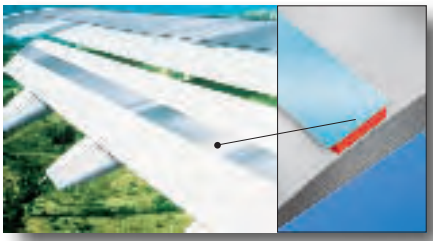
Mirrored ceiling panels are held in place with 3M™ VHB™ Tapes rather than screws. This helps maintain a clean, smooth appearance without distorting the reflective surfaces.


119

For a heat resistant bond, 3M™ VHB™ Tapes bond and seal stainless steel trim to the glass oven door with strength enough to replace mechanical fasteners. Door surface is smooth and attractive.


120

To bond muntin bars to window glass, 3M™ VHB™ Tapes conform to glass with high contact. The bond resists weathering and UV light.



121

3M™ VHB™ Tapes securely bond stainless steel scuff strips to aluminum wing flaps despite extreme ground-to-air temperature swings of 150°F to -40°F (65°C to -40°C).

122

Perforated stainless steel plates are bonded to I-beams with 3M™ VHB™ Tapes as they replace rivets or screws for a smooth surface envisioned by the architect.

123

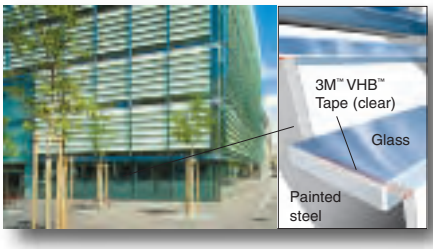
For ease of assembly and precise fit, die-cut 3M™ VHB™ Tapes bond and seal components throughout a GPS unit.

124

In assembling this sign with 3M™ VHB™ Tapes, lighter, thinner materials were used for easier installation, helping reduce labor and materials cost.

125

For assembly of an interstate highway sign in the mountains, sheets of 3M™ VHB™ Tapes were drilled and used to attach a precision mask to the LED array. The bond resists cold and extreme weather conditions.



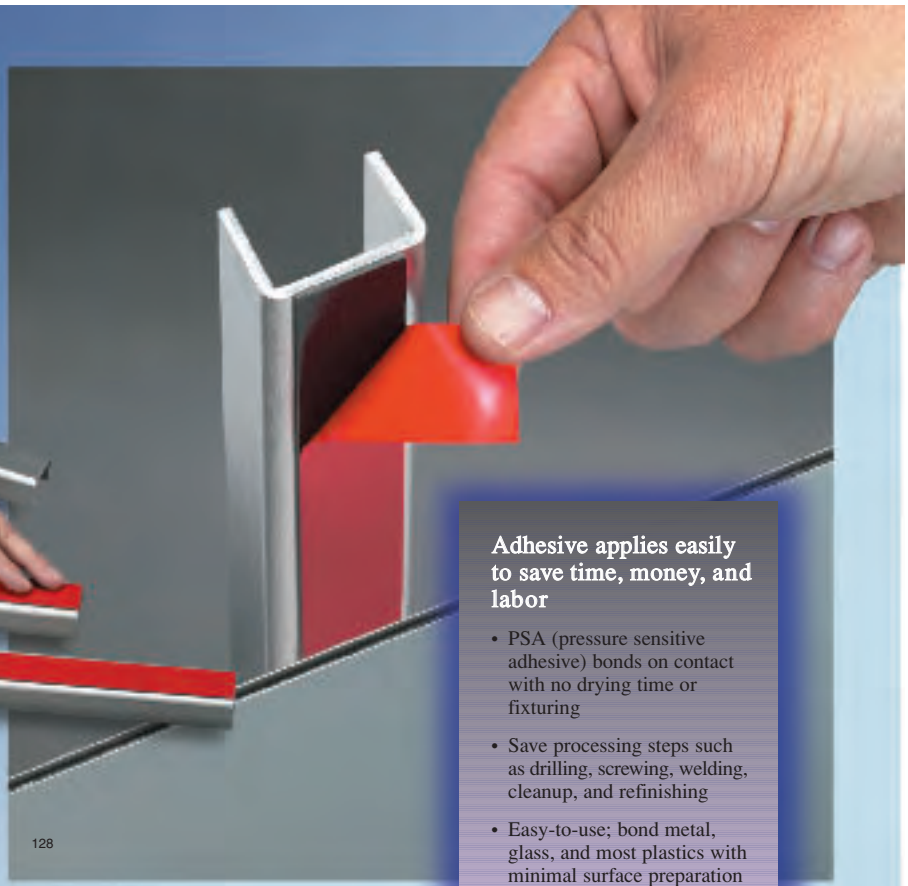
126

In bonding clear glass steps to a varnished steel frame, clear 3M™ VHB™ Tapes virtually disappear for an architectural effect.

To attach stiffeners to panels, simply clean the surfaces...

127

and apply 3M™ VHB™ Tapes



128

Adhesive applies easily to save time, money, and labor

- PSA (pressure sensitive adhesive) bonds on contact with no drying time or fixturing
- Save processing steps such as drilling, screwing, welding, cleanup, and refinishing
- Easy-to-use; bond metal, glass, and most plastics with minimal surface preparation

Product Information: 3M™ VHB™ Tapes

	Product Number	Tape Thickness w/o liner Mils (mm)	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas	Liner Type
					Minutes Hours	Days Weeks		HSE	LSE		
Conformable Foam Tapes	4926	15 (0.4)	• Gray, closed-cell acrylic foam carrier • Conformable • Good adhesion to many painted metals • Plasticizer resistant • UL 746C	Multi-purpose Acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Med.	Bond muntin bars to windows. Bond and seal polycarbonate lens over LCD. Bond pre-painted metals in truck assembly. Bond and seal plastic windows to pre-painted control panels/switch gear. Mount vinyl wiring ducts and conduit channels.	A
	4936	25 (0.64)									A
	4936F	25 (0.64)									B
	4941	45 (1.1)									A
	4941F	45 (1.1)									D
	4956	62 (1.6)									A
	4956F	62 (1.6)									B
	4919F	25 (0.64)	• Black version of 4936 tape								D
	4947F	45 (1.1)	• Black version of 4941 tape								D
	4979F	62 (1.6)	• Black version of 4956 tape								B
	4991	90 (2.3)			250˚F (121˚C)	200˚F (93˚C)					D
	5925	25 (0.64)	• Black, closed-cell acrylic foam carrier • Very conformable • Good adhesion to many painted surfaces, including powder coated paint • UL 746C	Modified Acrylic	300˚F (149˚C)	250˚F (121˚C)	High	High	Med.	Bonds to a variety of plastics and paint systems.	D
	5952	45 (1.1)									D
	5962	62 (1.6)									D
	4943F	45 (1.1)	• Gray conformable foam • Apply as low as 32°F (0°C)	Low-temp acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Low	Bond cellular phone antennas. Bond automatic toll tags to vehicle.	C
	4957F	62 (1.6)									C
Firm Foam Tapes	4611	45 (1.1)	• Dark gray, closed-cell acrylic foam carrier • High temperature resistance • UL 746C	General purpose acrylic	450˚F (232˚C)	300˚F (149˚C)	High	High	Low	Pre-powder coat paint applications: hat channels and stiffeners.	D
	4646	25 (0.64)									D
	4655	62 (1.6)									D
	4920	15 (0.4)	• White, closed-cell acrylic foam carrier • All-purpose adhesive • UL 746C	General purpose acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Low	Attach stiffeners in air conditioners, office furniture and telecommunications equipment. Bond aluminum skin to steel support of trucks, vans, ambulances. Bond architectural signs to frames.	A
	4930	25 (0.64)									A
	4950	45 (1.1)									A
	4929	25 (0.64)	• Black version of 4930								C
	4949	45 (1.1)	• Black version of 4950								C
	4955	80 (2.0)			400˚F (204˚C)	300˚F (149˚C)					C
	4959	120 (3.0)									C
	4945	45 (1.1)	• White, closed-cell acrylic foam carrier • Plasticizer resistant • UL 746C	Multi-purpose acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Low	Attach vinyl trim. Bond vinyl extrusions. Bond pre-painted truck and trailer skins.	A
	4946	45 (1.1)	• Film liner version of 4945								B
	4951	45 (1.1)	• White, closed-cell acrylic foam carrier • Apply as low as 32˚F (0˚C)	Low-temp acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Low	Mount panels to aluminum frames in buildings, trucks, and trailers. Mount trim to portable buildings.	C
	4932	25 (0.64)	• White, closed-cell acrylic foam carrier • Good adhesion to polypropylene and many powder paints	LSE	200˚F (93˚C)	160˚F (71˚C)	High	High	High	Bond powder painted metal stiffeners to office desks and file cabinets. Bond polypropylene and polystyrene.	A
	4952	45 (1.1)									A
Clear Tapes	4905	20 (0.5)	• Clear, acrylic construction for joining transparent material	General purpose acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Low	Seal skylight inner/outer dome. Mount backlit translucent signs. Edge-bond resin filled glass.	D
	4910	40 (1.0)									D
Transfer Tapes	F9460 PC	2.0 (0.05)	• Clear adhesive transfer tape • High shear strength adhesive • UL 746C	100MP	500˚F (260˚C)	300˚F (149˚C)	High	High	Low	Bond decorative metal trim. Bond flexible circuits to aluminum rigidizers or heat sinks.	E
	F9469 PC	5.0 (0.13)									E
	F9473 PC	10 (0.25)									E

NOTE: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Liner Types:
A – 3 mil 54# Densified Kraft Paper
B – 5 mil Clear Polyethylene Film
C – 2 mil Polyester Film
D – 5 mil Red Polyethylene Film
E – 4 mil 58# Polycoated Kraft Paper

Relative Adhesion:
HSE – High Surface Energy
LSE – Low Surface Energy

Multi Purpose Acrylic: Bonds to a wide range of materials including metals, glass, and high and medium surface energy plastics and paints. Resists migration of plasticizers in vinyl substrates.

Modified Acrylic: Bonds to medium low surface energy paints and plastics, including many powder coated paints in addition to the substrates listed with the multi-purpose acrylic adhesive (except plasticizes vinyl).

General Purpose Acrylic: Bonds to most higher surface energy substrates including metal, glass, and high surface energy plastics.

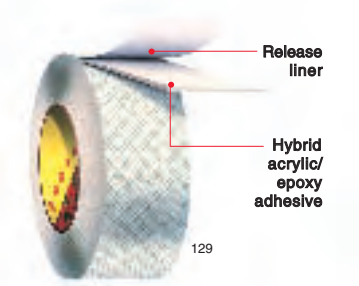
Low Temperature Acrylic: Bonds down to 32° F (0°C) compared to 50°F (10°C) for most acrylic adhesives. Bonds most high surface energy substrates including metal, glass, and high surface energy plastics.

Low Surface Energy: High performance synthetic adhesive bonds to many lower surface energy substrates, including many plastics and powder coated paints, plus smooth general purpose substrates.

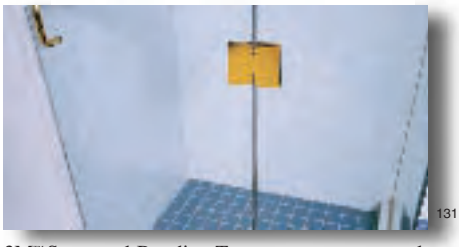
100MP: Bonds with higher peel strength than most other acrylic formulations. Up to 500°F (260°C) short term heat resistance.

All the advantages of pressure sensitive tapes and structural adhesives in one advanced product

3M™ Structural Bonding Tape uniquely combines the high bond strength of liquid epoxy with the convenience of 3M™ VHB™ Tape. It can replace liquid adhesives where aesthetics, uniform bond thickness, reduced cleanup, or improved throughput are important. Initially tacky, it is cured with a hot bar or oven to combine exceptional shear strength and leathery flexibility. It also provides significantly higher fixturing strength and less flow than adhesive bonding films.



The expense of drilling holes through glass is eliminated in bonding metal hardware to pickup top caps by using 3M™ Structural Bonding Tapes.



3M™ Structural Bonding Tape creates a structural bond and a cleaner look on shower doors than mechanical fasteners.

In range hood assembly, 3M™ Structural Bonding Tape replaces spot welding. The tape provides the strength of welding while sealing edges and preventing leaks. Tape also eliminates refinishing the steel after welding.

As the convenient way to bond boat latch hardware to glass, 3M™ Structural Bonding Tape eliminates messy sealants and provides a watertight structural strength bond.

Product Information: 3M™ Structural Bonding Tapes

	Product Number	Tape Thickness w/o liner Mils (mm)	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas	Liner Type
					Minutes Hours	Days Weeks		HSE	LSE		
Structural Bonding Tapes	9244	10 (0.25)	• High strength permanent bonds to glass, metals, ceramics, and engineered plastics	Acrylic/ epoxy hybrid	400˚F (204˚C)	300˚F* (149˚C)	High	High	Low	Bonds brackets, hinges, knobs, etc., to glass doors and windows. Weld-free stainless steel joining. Bonding to belts and wire mesh. Non-conductive plastic to metal bonds in electronics.	3 mil densified kraft paper w/green plaid print.
	9245	20 (0.5)									
	9246	40 (1.0)									

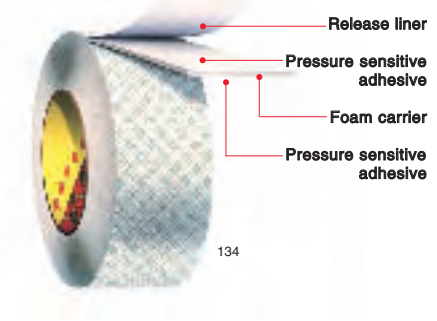
*Overlap shear strength drops below structural levels (1,000 psi) at temperatures above 150°F (66°C).

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy

Flexible foam carriers fill gaps and help bond irregular surfaces

In bonding rough or irregular surfaces, 3M™ Double Coated Foam Tapes fill gaps and distribute stress uniformly over the bonded area. Depending on the specific tape, the result is a bond line that seals, cushions and damps vibration, resists impact, withstands a wide temperature range, and provides good insulating qualities. To meet your requirements, select from rubber or acrylic adhesive, and a choice of different foam carriers: urethane, vinyl, elastomeric, polyethylene, or acrylic.



134


135

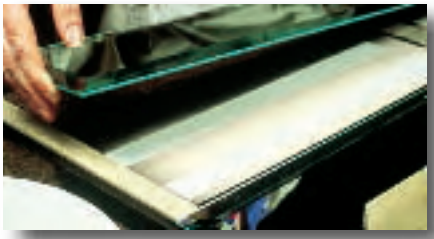
3M™ Removable Foam Tape 4658F bonds temporary signs to many surfaces. Unique clear adhesive can bond permanently yet allows removal with no adhesive residue. (Note: May delaminate substrates with low internal strength.)


136

To install plastic soap dispensers on tile, or other surfaces, 3M™ Double Coated Urethane Foam Tapes eliminate the need to drill holes and attach screws.


137

3M™ Double Coated Foam Tapes can be precisely die-cut and pre-applied to the back of any shape hook. Ready to mount to a variety of surfaces.


138

When mounting mirrors in furniture, 3M™ Double Coated Urethane Foam Tapes bond with high shear strength for reliable performance.

139

3M™ Double Coated Urethane Foam Tapes bond plastic signs to painted cinder block. The foam fills gaps between irregular surfaces. Various foam thicknesses are available for surface conformance based on the degree of roughness.

140

3M™ Double Coated Polyethylene Foam Tapes with high tack adhesive bond foam spacers between the planes of a 3-dimensional P.O.P. display.


141

3M™ Double Coated Polyethylene Foam Tapes effectively bond plastic extrusion price channels to grocery shelves.

Product Information: 3M™ Double Coated Foam Tapes

	Product Number	Tape Thickness Mils (mm)	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas	Liner Type
					Minutes Hours	Days Weeks		HSE	LSE		
Urethane	4004	250 (6.4)	• Off-white, open-cell urethane foam carrier • High shear adhesive with high temperature resistance	100	380˚F (193˚C)	220˚F (104˚C)	Medium	High	Low	Bond mirrors to walls or furniture. Bond acoustic panels to walls. Mount air fresheners. Mount soap dispensers. Mount interior signs and nameplates. Attach wire clips to various surfaces. Mount electrical channel to wall surfaces. Vibration damping for electronic components.	A
	4008	125 (3.2)									
	4016	62 (1.6)									
	4026	62 (1.6)									A
	4032	31 (0.8)									
	4052	31 (0.8)	• Black version of 4032 tape	100	380˚F (193˚C)	220˚F (104˚C)	Medium	High	Low	Bond window to microwave oven doors.	A
	4056	62 (1.6)	• Black version of 4016 and 4026 tapes								
	4085	45 (1.1)	• Off-white, open-cell urethane foam carrier • High tack adhesive	740	200˚F (93˚C)	125˚F (52˚C)	Medium	High	High		E
Vinyl	4408	125 (3.2)	• Black, closed-cell vinyl foam carrier	430	200˚F (93˚C)	150˚F (66˚C)	Medium	High	Low	Mount indoor signs, nameplates and wall corner protectors to irregular surfaces. Mount fiberglass trim panels in trailers. Hold polycarbonate panels in vending machines. Mount display screens in electronic scales.	A
	4416	62 (1.6)	• White or black, closed-cell vinyl foam carrier								
	4432	31 (0.8)									
Elastomeric	4921	16 (0.4)	• Translucent, closed-cell elastomeric foam carrier • Thin bond line	100	200˚F (93˚C)	150˚F (66˚C)	Medium	High	Low	Bond trim strips to computer printer housing.	A
Polyethylene	4462	31 (0.8)	• White or black, closed-cell polyethylene foam carrier • High tack adhesive	745	158°F (70°C)	120°F (49°C)	Medium	High	High	Attach hooks, wire clips and racks. Mount retail shelf price channels. Mount pen holders.	B
	4466	62 (1.6)									
	4492	31 (0.8)	• White or black, closed-cell polyethylene foam carrier • High shear adhesive with high temperature resistance	430	180°F (82°C)	158°F (70°C)	Medium	High	Low	Mount nameplates on awards and novelties. Point of purchase displays and signs. Window glazing.	C
	4496	62 (1.6)									
Acrylic	4658F	31 (0.8)	• Clear closed foam acrylic removable foam tape • Clean removability from many substrates	100	212˚F (100˚C)	175˚F (80˚C)	High	High	Low	Removable P.O.P. displays. Signs. Exhibits and trade shows. Nameplates.	D

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

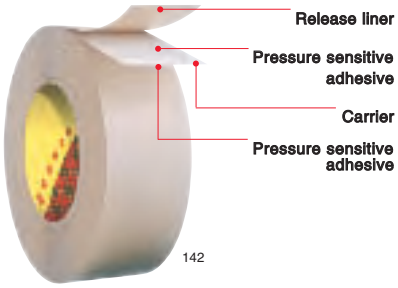
Liner Types:
A – 3 mil 62# Densified Kraft paper – Green plaid
B – 3 mil Densified Kraft paper – White
C – 4 mil 58# Polycoated Kraft paper – Tan
D – 2 mil Polyester film – Clear
E – 3 mil Densified Kraft paper – Tan

Relative Adhesion:
HSE – High Surface Energy
LSE – Low Surface Energy

A variety of carriers for easy handling and dispensing

3M™ Double Coated Tapes are engineered with adhesive on both sides of paper, film or tissue. This increases the dimensional stability of the adhesive for easy handling and application.

Depending on your production volume, you can apply tape by hand or with automatic high-volume dispensers. Select paper, polyester film or other synthetic carriers to help meet your special needs. Different adhesives – rubber, silicone or acrylic – can be on opposite sides of the carrier to join different materials. Your choice of properties include high temperature resistance, conformability to irregular surfaces, high initial adhesion, high shear strength, and more.



142

143

3M™ Double Coated Tape 9731, features differential adhesive for silicone rubber keypad assembly. The silicone adhesive side adheres to the silicone rubber keypad. The acrylic adhesive side adheres to a plastic base.


144

3M™ Double Coated Tape 9495B bonds LED windows to cellular phone housings and endures severe environmental conditions.


145

With high tack and good shear strength, 3M™ Double Coated Tape 9420 splices plastic film quickly and securely. Red carrier identifies the splice for later removal.


146

For precise fit, 3M™ Double Coated Tape is pre-applied to foam gasketing materials and then die-cut to size. This helps increase dimensional stability of the part to facilitate assembly.


147

In a self-test strip for diabetes, 3M™ Double Coated Tape bonds the chemical reagent material to the plastic stick.


148

3M™ Double Coated Tape 410B is the quick, convenient way to bond golf club grips to shafts. Adhesive sets up fast and bonds firmly for long-lasting performance.


149

The silicone adhesive side of 3M™ Double Coated Tape 9731 bonds a silicone rubber insulator. The acrylic adhesive side adheres to the metal band. The band mounts to a wall bracket in industrial equipment.

Product Information: 3M™ Double Coated Tapes

Adhesive Family	Product Number	Tape Thickness w/o liner Mils (mm)	Carrier Type*	Liner Type	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
						Minutes Hours	Days Weeks		HSE	LSE	
200MP High Perf	9492B	2.5 (0.06)	Black PET	58# PCK	• Black 2.5 mil version of 9495MP	300°F (149°C)	250°F (121°C)	High	High	Low	Graphic attachment.
	9492MP	2.5 (0.06)	PET	58# PCK	• 2.5 mil version of 9495MP						Automotive decorative trim attachment.
	9492MPF	2.5 (0.06)	PET	PET	• High perf thin double coat						Graphic attachment.
	9495MP	5.7 (0.14)	PET	58# PCK	• Excellent peel strength on high surface energy plastics and metals						Graphic attachment. High-pressure laminate bonding.
	9495B	5.7 (0.14)	Black PET	58# PCK	• 9495MP with a 0.5 mil black polyester carrier						LED lens attachment for cellular phones and pagers.
	9495BF	5.7 (0.14)	Black PET	58# PET	• 9495B with a 2 mil polyester liner						Automotive decorative trim attachment.
	9495FL	5.7 (0.14)	PET	58# PCK/ HDPE	• 9495MP with two liners						Automotive decorative trim attachment.
	9495MPF	5.7 (0.14)	PET	PET	• Film linered version of 9495MP						LED lens attachment for cell phones.
	9598BF	7.5 (0.19)	Black PET	PET	• 7.5 mil version of 9495B with a 2 mil clear polyester liner						LED lens attachment for cell phones.
300 High Strength	444	3.8 (0.10)	PET	55# DK	• High tack acrylic adhesive with densified kraft liner	180˚F (82˚C)	150˚F (65˚C)	Low	High	High	Gasket attachment. Good adhesion to most plastics.
	444PC	3.8 (0.10)	PET	58# PCK	• High tack acrylic adhesive with polycoated kraft liner						Gasket attachment.
	9009	1.9 (0.05)	PET	55# DK	• Thin double coat for applications where thickness is critical	250°F (121°C)	180°F (82°C)	Low	Med.	Med.	Gasket attachment in hand-held devices and laptops.
	9019	1.1 (0.03)	PET	55# DK	• Ultra-thin double coat for applications where thickness is critical						Plastic film lamination/bonding.
	9019HL	1.1 (0.03)	PET	55# DK	• Same as 9019 except with a heavier liner						Plastic film lamination/bonding.
300LSE High Strength	9490LE	6.7 (0.17)	PET	58# PCK	• 300MP adhesive on face side, 300LSE adhesive on the other	300˚F (149˚C)	200˚F (93˚C)	Medium	High	High	Gasket attachment to low surface energy surfaces.
	9495LE	6.7 (0.17)	PET	58# PCK	• 300LSE adhesive on both sides for low surface energy surfaces						Plastic extrusion attachment.
300MP High Strength	9609	9.0 (0.23)	PET	83# PCK	• Thick double coat. Provided on 6" core only	300°F (149°C)	150°F (65°C)	Medium	High	Med.	Foam lamination.
	9687	12.0 (0.30)	Clear PET	Clear PET	• Thick double coat for bonding to foam						Gasket attachment.
	9690	5.6 (0.14)	PET	83# PCK	• Excellent adhesion to most plastics and foams						Foam lamination. Gasket attachment.
	9690B	5.6 (0.14)	Black PET	83# PCK	• 9690 with a 0.5 mil black polyester carrier						LED lens attachment for cellular phones and pagers.
	9786	5.5 (0.14)	Non-woven	58# PCK printed	• Thin non woven carrier for dimensional stability and improved handling						LED lens attachment for cell phones.
	9786NP	5.5 (0.14)	Non-woven	58# PCK unprinted	• Same as 9786 except an unprinted liner						LED lens attachment for cell phones.
	9832	4.8 (0.10)	PET	58# PCK	• Excellent adhesion to most foams						LED lens attachment for cell phones.
	9832HL	4.8 (0.10)	PET	83# PCK	• Same as 9832 except with a heavier liner						LED lens attachment for cell phones.
330	469	5.5 (0.14)	Tissue	72# DK	• High temp, high tack, light red	350˚F (177˚C)	200˚F (93˚C)	Medium	High	Med.	High speed flying splices.
340 High Strength	9456	5.0 (0.11)	Tissue	55# DK	• Tissue carrier with high tack adhesive	180˚F (82˚C)	150˚F (65˚C)	Medium	High	Med.	Bond fabric to window blind valances.

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Relative Adhesion: HSE – High Surface Energy , LSE – Low Surface Energy

*PET is polyester, PP is polypropylene.

Product Information: 3M™ Double Coated Tapes (continued)

Adhesive Family	Product Number	Tape Thickness w/o liner Mils (mm)	Carrier Type*	Liner Type	Description	Temperature Resistance Minutes Hours	Temperature Resistance Days Weeks	Solvent Resistance	Relative Adhesion HSE	Relative Adhesion LSE	Application Ideas
340 High Strength (cont.)	9824	3.1 (0.08)	PET	55# DK	• High tack, general purpose acrylic adhesive	150˚F (65˚C)	120˚F (49˚C)	Medium	High	Med.	General purpose laminating. Foam lamination. Gasket attachment.
	9828	4.0 (0.10)	PET	55# DK	• High tack, acrylic adhesive with good adhesion to many foams						
	9828HL	4.0 (.10)	PET	132# Kraft	• Same as 9828 with different liner	180°F (82°C)	150°F (65°C)				Foam lamination. Gasket attachment.
	9828PC	4.0 (.10)	PET	74# PCK	• Same as 9828 with PCK liner						
350 High Holding	9500PC	5.6 (0.14)	PET	58# PCK	• High performance on a wide array of surfaces	350˚F (177˚C)	250˚F (121˚C)	High	High	High	LED lens attachment for cellular phones and pagers.
400 Acrylic	415	4.0 (0.1)	PET	55# DK	• High tack adhesion to paper and many other surfaces	180˚F (82˚C)	150˚F (65˚C)	Medium	Med.	Low	Splice papers, films and foils.
	9420	4.0 (0.1)	Red PET	60# DK	• 415 with a 0.5 mil red carrier						
	9576	4.0 (0.1)	PP	60# DK	• Transparent carrier	165˚F (75˚C)	125˚F (52˚C)	Medium	Med.	Low	Splicing, core starting, miscellaneous joint and bonding, hand tearable.
	9576B	4.0 (0.1)	Black PP	60# DK	• Black carrier						
	9576R	4.0 (0.1)	Red PP	60# DK	• Red carrier						
	9576Y	4.0 (0.1)	Yellow PP	60# DK	• Yellow carrier						
	9578	4.0 (0.1)	PP	60# DK	• Transparent carrier						
420 Acrylic	9795	5.6 (0.14)	PET	83# PCK	• Double coated version of 3M Tape 9695 for foam lamination and graphic attachment	300˚F (149˚C)	250˚F (121˚C)	Medium	Med.	Low	LED lens attachment for cell phones.
	9795B	5.6 (0.14)	Black PET	83# PCK	•Thin polyester film carrier for improved handling, die-cutting and laminating			Medium	Med.	Low	LED lens attachment for cell phones.
	9799	9.0 (0.23)	PET	83# PCK	• Thick double coat for cell phone lens attachment			Medium	Med.	Low	LED lens attachment with higher strength for cell phones.
700 Synthetic Rubber 700	919	5.0 (0.13)	Tissue	58# PCK	• Tissue carrier	180˚F (82˚C)	150˚F (65˚C)	Medium	High	High	General purpose laminating adhesives. Bonding plastic surfaces.
745	443PC	5.0 (0.1)	PET	62# PCK	• High tack with good adhesion to most plastics						Photopolymer printing plates.
760	9443NP	6.0 (0.15)	HDPE	62# DK	• High tack with good adhesion to most plastics						Assemble computer ink cartridges. Bonding polyethylene.
760	9579	9.0 (0.23)	HDPE	62# DK	• General purpose, high tack, hand-tearable film tape	150˚F (65˚C)	120˚F (49˚C)	Medium	High	High	Core starting on metal cores.
760	9589	9.0 (0.23)	HDPE	62# DK	• Aggressive adhesive with high initial tack						Carpet attachment.
800 Natural Rubber 860	401B	9.0 (0.23)	Paper	54# DK	• Thick flatstock paper carrier	180˚F (82˚C)	150˚F (65˚C)	Medium	High	Med.	Mount printing plates.
850	410B	5.0 (0.13)	Paper	54# DK	• Smooth adhesive on both sides	200˚F (93˚C)	150˚F (65˚C)	Medium	High	Med.	Core starting/end tabbing of papers, films and foils.
830	442F	4.0 (0.1)	PET	3 mil PET	• Same as 442KW with film liner	180°F (82°C)	150°F (65°C)	Med.	High	Med.	Mount polishing pads.
	442KW	4.0 (0.1)	PET	72# PCK	• Rubber adhesive removes from metals						
	456CR	4.0 (0.1)	PET	3 mil PET	• Easy release blue rubber adhesive						
900 Misc.	9851	3.5 (0.09)	PET	60# DK	• Moderate performance rubber adhesive	150˚F (65˚C)	100˚F (41˚C)	Low	High	High	Foam lamination.
Silicone	9731	5.5 (0.14)	PET	4.0/5.0 PET/PCK	• High performance acrylic adhesive/ silicone adhesive, double linered	350˚F (177˚C)	250˚F (121˚C)	Medium	High	High	Silicone keypad attachment. Printer toner cartridge refurbishing.

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Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy

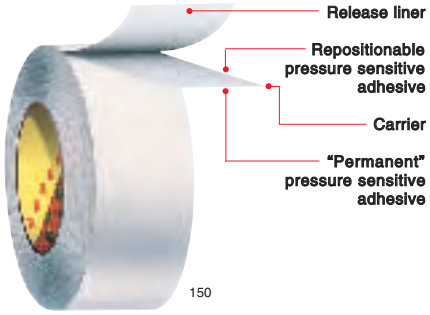
*PET is polyester, PP is polypropylene.

Strong adhesive on one side of the carrier; repositionable adhesive on the other

3M™ Removable/Repositionable Tapes feature a "permanent" adhesive on one side of a film or tissue carrier and a removable/repositionable adhesive on the other side.

With linered versions, you can initially join one side to a surface while the other side is covered with the liner, ready to be joined later to the second surface. Linerless versions are used for bonding both surfaces at the same time.

Different tapes in the line offer different levels of adhesion on each side of the carrier. You can join substrates that include glass, metals, wood, paper, painted surfaces, and many plastics.



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151

3M™ Removable/Repositionable Tape seals hosiery bags for shipment and display but also lets the customer open and reclose the bag as necessary.


152

High tack side of 3M™ Removable/Repositionable Tape 9415 "permanently" adheres to cores for winding up paper or film. Low tack side releases the paper or film when unwinding.

Product Information: 3M™ Removable/Repositionable Tapes

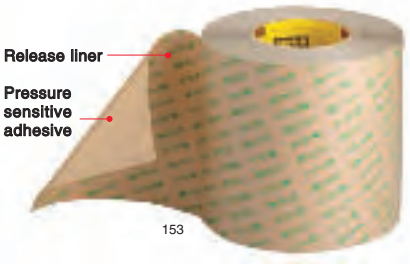
	Product Number	Adhesive Type	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Temperature Resistance		Solvent Resistance	HSE	LSE	Application Ideas
						Minutes Hours	Days Weeks				
Removable/Repositionable	665	1070	3.5 (0.09)	Linerless	• Clear UPVC film carrier • Slight differential tack	125˚F (52˚C)	100˚F (38˚C)	Medium	Med.	Med.	Close polybags. Attach bottle outserts. Attach microscope slides to holder.
	666	1070	3.5 (0.09)	LDPE	• Clear UPVC film carrier • Slight differential tack	125˚F (52˚C)	100˚F (38˚C)	Medium	Med.	Med.	Attach chemically sensitive film to test sticks.
	4658F	100	31 (0.8)	2 mil PET	• Clear, closed foam acrylic foam tape	212˚F (100˚C)	175˚F (80˚C)	High	High	Low	Removable P.O.P. displays, signs, exhibitions, and nameplates.
	560CR	300LSE/ 830*	4.3 (0.11)	Clear PET	• 300LSE on face side of CMP pad; 830 on back for attachment	250°F (121°C)	120°F (49°C)	Medium to High	Med.	Med.	Mount polishing pads.
	9415PC	400/1000*	2.0 (0.05)	78# PCK	• 1 mil polyester film carrier • High tack/low tack	180˚F (82˚C)	150˚F (65˚C)	Low	Med/ Low	Low	Core starting/end tabbing. Hold credit cards in mailers. Close envelopes.
	9416	400/1000*	1.5 (0.04)	78# PCK	• Translucent white tissue carrier • High tack/low tack	180˚F (82˚C)	150˚F (65˚C)	Low	Med/ Low	Low	Removable labels and photos.
	9425	420/1050*	5.5 (0.14)	58# PCK	• Clear UPVC film carrier • High tack/medium tack	125˚F (52˚C)	100˚F (38˚C)	Medium	Med/ Low	Low/ Low	Close polybags and envelopes. Core starting/end tabbing. Backlit signs. Attach labels, novelties, posters, P.O.P. displays.
	9425HT	420/1050*	5.4 (0.13)	58# PCK	• High tack/medium tack • PET film carrier	250°F (121°C)	200°F (93°C)	High	Med.	Med.	Same as 9425 but with higher temperature performance.
	9449S**	1000	0.4 (0.01)	55# DK	• Laminates to various substrates to make them repositionable	150°F (65°C)	120°F (49°C)	Low	Low	Low	Easy removal with little or no residue.
	9870	320/1000*	2.9 (0.07)	55# DK	• Removable adhesive on one side and high bond adhesive on the other	250°F (121°C)	150°F (65°C)	Low	High/ Low	High/ Low	Laminating adhesive for removable labels.
	9871	320/1000*	2.9 (0.07)	60# PCK	• Same as 9870 on moisture-stable, polycoated liner	250°F (121°C)	150°F (65°C)	Low	High/ Low	High/ Low	Same as 9870.

* Second number reflects removable/repositionable adhesive side. **3M™ Adhesive Transfer Tape

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Neat, precise application and high performance in a variety of applications

3M™ Adhesive Transfer Tapes are rolls of pressure sensitive adhesive pre-applied to a special release liner. For application, the tape is simply pressed, adhesive side down, to a surface and the liner is peeled off. A variety of adhesive properties are available including high tack, high temperature resistance, exceptional moisture or solvent resistance, and adhesion to low surface energy plastic. High performance laminating adhesives are also available. Each is specially engineered to provide a full range of performance characteristics meeting virtually any application need from adhering nameplates to high and low surface energy plastics, to keeping appliance faceplates intact at extremely high operating temperatures.



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154

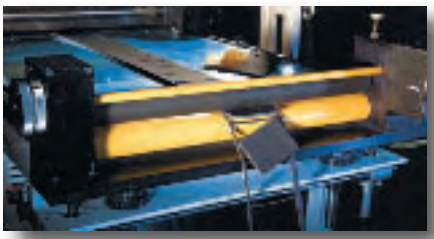
With high cohesive strength, 3M™ Adhesive 200MP bonds aggressively with excellent temperature resistance. Meets the non-fogging specifications of the automotive industry.


155

For bonding flexible vinyl in such applications as door gaskets, 3M™ Adhesive Transfer Tape F9465PC resists the effect of plasticizers that tend to migrate from the vinyl.


156

3M™ Laminating Adhesive 300LSE is the solution for low energy surfaces such as polyolefins and powder coat paint. Graphics hold securely and stand up to tough environmental conditions.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3M™ Adhesive Transfer Tapes provide conformability in a variety of foam laminating applications. The acrylic adhesive also provides high shear strength and good environmental aging properties.


158

3M™ Adhesive Transfer Tape 465 has the grab strength for many printing splices, including flying splices, zero speed and manual overlap. Can be used with a variety of paper grades.


159

3M™ Adhesive Transfer Tape 467MP is used to laminate metal foil to a circuit board to reduce interference on electronic circuitry.


160

For graphic beauty, 3M™ Acrylic Adhesive 100 attaches graphics in closed environments. With low odor, reduced outgassing and low fogging, it is used extensively in the automotive, aerospace, and appliance industries.

Product Information: 3M™ Adhesive Transfer Tapes

Adhesive Family	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
100 High Temp	9461P	1.0 (0.025)	55# DK	• High temperature, low outgassing	450˚F (232˚C)	300˚F (149˚C)	High	High	Low	Meets NASA Outgassing Specification. Flex Circuit attachment. Aerospace fuel line labeling.
	965	2.0 (0.05)	55# DK							
	966	2.0 (0.05)	62# DK							
100MP	F9460PC	2.0 (0.05)	58# PCK	• High shear strength, high temperature resistance • UL listing 746C	500˚F (260˚C)	300˚F (149˚C)	High	High	Low	Industrial joining and metal fabrication.
	F9469PC	5.0 (0.13)								
	F9473PC	10.0 (0.25)								
100HT	9082	2.0 (0.05)	White DK	• Excellent heat resistance in high temp environments • Thicker version of 9082	530°F (277°C)	350°F (177°C)	High	High	Low	For applications that require both higher processing and operating temperatures such as lead-free solder reflow processes.
	9085	5.0 (0.13)								
200MP High Perf	467MP	2.0 (0.05)	58# PCK	• High performance, high temperature formulation	400˚F (204˚C)	300˚F (149˚C)	High	High	Low	General industrial joining. Industry standard for graphic attachment and die-cut parts.
	468MP	5.0 (0.13)								
	467MPF	2.0 (0.05)	PET	• Rotary die-cuttable liner						
	468MPF	5.0 (0.13)								
	467MPR	2.3 (0.06)	Glassine	• Rotary die-cuttable liner available in 700 yd. length • Better lay-flat properties						Graphic attachment and general industrial joining.
	9668MPL	5.0 (0.13)	94# PCK							
220 Industrial Acrylic	9502	2.0 (0.05)	58# PCK	• Economical acrylic formulation	350˚F (177˚C)	250˚F (121˚C)	Medium	High	Low	Economical attachment of graphics and industrial joining.
	9505	5.0 (0.12)								
290 Low Out-gassing	501FL	1.0 (0.025)	PET	• Very low outgassing	450˚F (232˚C)	300˚F (149˚C)	High	High	Low	Hard disc drive seals, low odor and outgassing applications.
	502FL	2.0 (0.05)								
300FR Flame Retardant	9372DK	2.0 (0.05)	55# DK	• Flame retardant transfer tape with rotary die-cuttable liner	180°F (82°C)	150°F (65°C)	Medium	High	High	Automotive, aerospace, and building construction.
	9373	3.0 (0.08)	83# PCK	• Flame retardant transfer tape with moisture-stable liner						
	9375	5.0 (0.13)	83# PCK	• Thicker version of 9373						
300 High Strength	9458	1.0 (0.025)	55# DK	• High tack, excellent adhesion to LSE plastics and foams	250˚F (121˚C)	150˚F (65˚C)	Medium	High	High	High adhesion custom labels. Attach gaskets and a variety of industrial foam materials. Foam lamination to various surfaces.
	927	2.0 (0.05)	60# DK							
	950	5.0 (0.13)	60# DK							
	9459S	1.5 (0.04)	55# DK	• Silver adhesive • High opacity	250˚F (121˚C)	150˚F (65˚C)	Low	High	High	Gasket attachment, foam fabric and/or coated papers.
	9471	2.0 (0.05)	60# DK	• For smooth LSE plastics						
	9471PC	2.0 (0.05)	61# PCK	• Same as 9471 on moisture-stable liner						
	9472	5.0 (0.13)	60# DK	• 5.0 mil version of 9471 for textured surfaces						
	9671	2.0 (0.05)	83# PCK	• Heavy lined version of 9471.						
	9673	2.0 (0.05)	83# PCK	• Same as 9671 with unprinted liner						
	9674	5.0 (0.13)	83# PCK	• Same as 9673 but for textured surfaces						
300LSE High Strength	9453LE	3.5 (0.09)	58# PCK	• High bond to plastics with high temperature holding	300˚F (149˚C)	200˚F (93˚C)	High	High	High	Bond graphics to powder coatings, LSE plastics and oily metal. General industrial bonding of LSE materials.
	9471LE	2.0 (0.05)								
	9472LE	5.0 (0.13)								
	9453FL	3.5 (0.09)	PET	• Film lined version of 9453LE for rotary processing						
	9471FL	2.0 (0.05)	PET	• Film lined version of 9471LE for rotary processing						
	9472FL	5.0 (0.13)	PET	• A 5.0 mil version of 9471LE with liner for textured surfaces						

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Relative Adhesion:
HSE – High Surface Energy
LSE – Low Surface Energy

Product Information: 3M™ Adhesive Transfer Tapes (continued)

Adhesive Family	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
300MP High Strength	9770	2.0 (0.05)	58# PCK	• Good bond with moderate temperature range	250˚F (121˚C)	180˚F (82˚C)	Medium	High	Med.	General industrial foam bonding.
	9774	4.0 (0.1)								
	6032PC	2.0 (0.05)		• Low fogging for automotive interior applications						Bond anti-squeak fabric and foam. For automotive interior.
	6035PC	5.0 (0.13)								
	6038PC	8.0 (0.2)								
	964	13.0 (0.3)								
	6032PL	2.3 (0.06)	83# PCK	• Same as 6035PC with a heavier liner for steel rule die-cutting	250°F (121°C)	150°F (66°C)	High	Med.	High	Automotive, low fogging adhesive for fabric carpet.
	6035PL	5.2 (0.13)		• Heavy lined version of 6035PC for easy handling, lay-flat properties						
	6038PL	7.7 (0.20)		• Low fogging • For rough embossed surfaces with heavy liner for steel rule die-cutting						
	9774HL	4.0 (0.10)		• Heavy lined version of 9774 for easy handling, lay-flat properties						Foam lamination.
320	9447	1.0 (0.025)	55# DK	• High tack, cleaner rotary cutting than 300 adhesive	250˚F (121˚C)	150˚F (65˚C)	Medium	High	High	Economical protected graphics label.
350 High Holding	9482PC	2.0 (0.05)	58# PCK	• High tack, high shear and high temperature performance • Excellent adhesion to LSE plastics and foams	450˚F (232˚C)	300˚F (149˚C)	High	High	High	Laminate high performance plastics and difficult substrates. Splice metal coils.
	9485PC	5.0 (0.13)								
	9675	5.0 (0.13)	83# PCK	• Heavy lined version of 9485PC for easy handling, lay-flat properties	250°F (121°C)	350°F (177°C)				LED lens attachment for cellular phones and pagers.
400 Acrylic	465	2.0 (0.05)	60# DK	• High tack • Excellent adhesion to most paper stocks • Flexible to -60˚F	250˚F (121˚C)	180˚F (82˚C)	Medium	Med.	Low	Paper splicing and general office and commercial joining. Validation labels and parking permits on car windows.
	9457	1.0 (0.025)	55# DK							
	9464	2.0 (0.05)	60# DK	• Pink tinted adhesive • Industrial-grade adhesive transfer tape	180°F (82°C)	180°F (82°C)				Splicing tape.
	9498									
420	F9752PC	2.0 (0.05)	58# PCK	• High tack • Can be applied as low as 32˚F (0˚C)	450˚F (232˚C)	300˚F (149˚C)	High	Med.	Low	Bond gaskets and foams. Bond polycarbonate instrument panels.
	F9755PC	5.0 (0.13)	58# PCK							
430	9497	2.0 (0.05)	60# DK	• Pink • High temperature splicing • Clear version of 9497	350˚F (177˚C)	250˚F (121˚C)	Medium	Med.	Low	High temperature, zero speed splicing.
	9499									
Specialty	F9465PC	5.0 (0.13)	58# PCK	• Medium tack • Plasticizer resistant	200˚F (93˚C)	160˚F (71˚C)	Medium	Med.	Low	Bonding plasticized vinyl gaskets, decals and moldings.
	8056	5.0 (0.13)	58# PCK	• High tack, for hard to bond surfaces	150˚F (65˚C)	120˚F (49˚C)	Low	High	Med.	Splicing photographic papers.
	909	1.4 (0.04)	60# DK	• Assembly aid tape	180˚F (82˚C)	150˚F (65˚C)	Medium	Med.	Med.	Assembly aid for pick and place.

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Relative Adhesion:

HSE – High Surface Energy

LSE – Low Surface Energy

3M™ Extended Liner Tapes

Versatile pressure sensitive adhesive on easy-to-remove liners

3M™ Extended Liner Tapes offer the adhesive versatility of 3M tapes but with liners wider than the adhesive. This leaves an easy-to-grab edge for convenient and easy liner removal. With the variety of adhesives, you have a selection of performance characteristics such as high tack for coated papers and plastics, low tack for temporary attachment, high temperature resistance, and more. Apply manually or with equipment matched to your production volume requirements.

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3M™ Extended Liner Tapes are available with a release liner wider than the adhesive. This provides an easy-to-grab edge for convenient liner removal.

162

Depending on adhesive type, 3M™ Extended Liner Tapes are applied to envelopes, polybags, boxes, or tubes. User simply peels off liner to expose the adhesive for an immediate, secure closure.

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A variety of automatic and semi-automatic equipment is available for higher volume applications. For example, apply tape to business forms, literature, bounce back and business reply cards.

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3M™ Extended Liner Tapes 450XL, 450EK and 465XL immediately bond product information "outserts" to polyethylene bottles. Holds tightly but can be cleanly removed.

Product Information: 3M™ Extended Liner Tapes

Adhesive Type	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
340	466XL	2.0 (0.05)	62# DK white with black print	• High tack • Permanent	180˚F (82˚C)	150˚F (65˚C)	Medium	High	High	Coated papers and low surface energy (LSE) plastics. Overnight envelopes. Features an end-of-roll indicator tab for automated dispensing.
350	922XL	2.0 (0.05)	60# DK tan without print	• High performance	450˚F (232˚C)	300˚F (149˚C)	Medium	High	High	Seal flaps on overnight cartons/envelopes. Join a wide variety of similar and dissimilar materials where high shear strength and high temperature performance are required.
400	450EK	1.0 (0.025)	70# Extensible Kraft white without print	• General purpose	250˚F (121˚C)	180˚F (82˚C)	Medium	Med.	Low	Pharmaceutical outsert attachment. For applications requiring a more tear resistant liner.
	450XL	1.0 (0.025)	60# DK tan with green print							Pharmaceutical outsert attachment. General paper attachment.
	920XL	1.0 (0.025)	43# DK white with red print							Seal flaps on poly-bags and envelopes. Pressure sensitive edging on business forms, literature, photos, posters, and labels.
	9926XL	1.0 (0.025)	43# DK white with red print							Economical alternative for general paper-to-paper applications.
	465XL	2.0 (0.05)	60# DK tan with green print							Seal flaps on overnight envelopes. Pressure sensitive edging on business forms. General commercial joining applications. For attaching materials that require more adhesive thickness. Larger outsert attachments.
600	9934XL	4.0 (0.10)	60# DK tan without print	• High tack to LSE materials	150°F (65°C)	120°F (49°C)	Medium	High	High	P.O.P. displays. Difficult splicing applications, shelf talkers, price tags, polyethylene foam bonding. indirect food contact applications.[1] High tack to LSE materials.
760	476XL	6.0 (0.16)	62# DK white with red print	• High tack, double coated film	150˚F (65˚C)	120˚F (49˚C)	Medium	High	High	Heavy-duty sealing. Mounting of promotional items. Core starting. Closure of overnight boxes, tubes and envelopes. Indirect food-contact applications.[1]
770	9925XL	2.5 (0.065)	43# DK white with black print	• Tissue reinforced • High initial adhesion to a wide variety of materials	150˚F (65˚C)	100˚F (41˚C)	Low	Med.	Med.	General mounting. P.O.P. items. Attaching tags and labels. Core starting. Permanent bonding paper-to-paper, business forms, traffic tickets, novelty items and literature. Indirect food-contact applications.[1]

NOTE: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

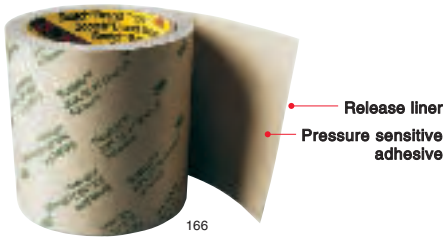
Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy

[1] FDA acceptable dry ingredients listed as indirect food-contact additives when used in food packing with minimal opportunity for exposure.

Additional 3M™ Adhesive Transfer Tapes On Different Liners

Precise application with tailor-made performance

Whatever your production needs, there's a 3M™ Adhesive Transfer Tape to match them precisely. 3M offers a variety of liners which gives the tapes a wide range of characteristics. They give you the flexibility you need to create products that perform better, look more attractive, and stand up under a variety of environmental conditions. Like all 3M™ Adhesive Transfer Tapes, these special varieties offer neat, precise application of pressure sensitive adhesive.



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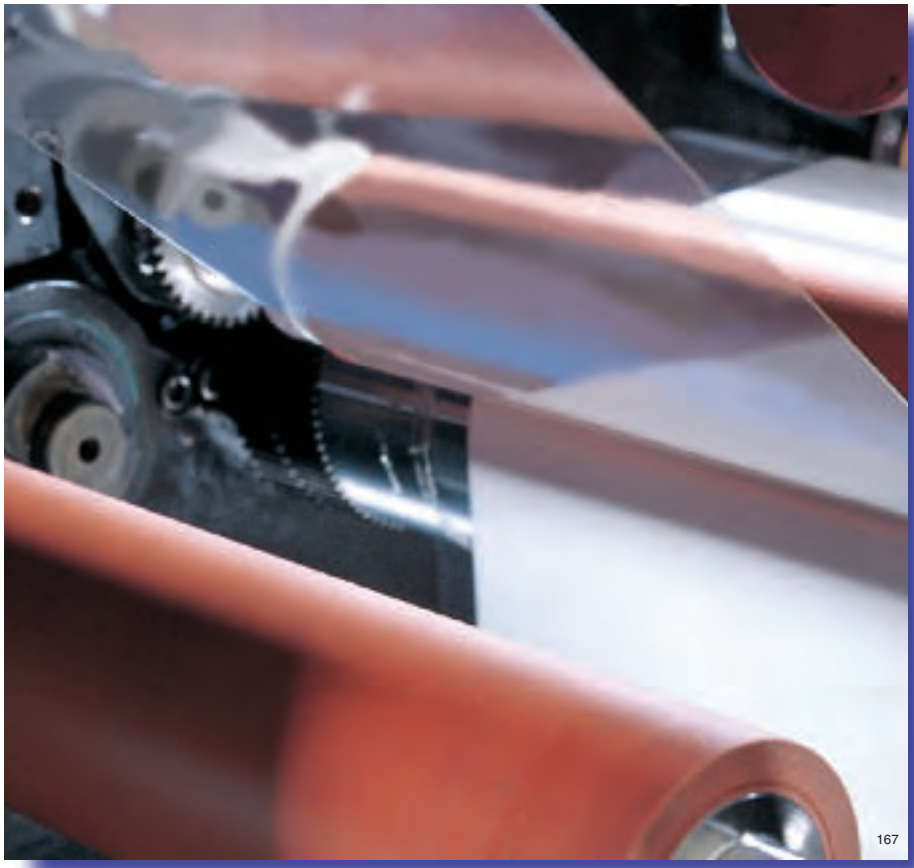
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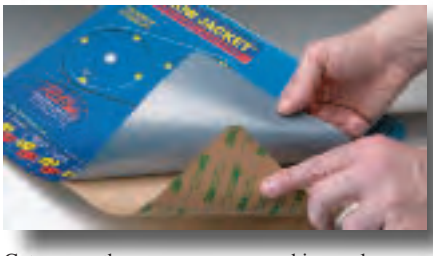
Polyester liners are the industry standard in cleanroom processing. They're ideal for rotary die-cutting, polycarbonate or polyester nameplates, high-speed processing and automatic dispensing. They won't curl or buckle with humidity changes.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Get a smooth appearance on graphic overlays with 58# polycoated kraft liner. This cost-effective alternative is moisture-resistant for less buckling and curling.


169

The 55# densified kraft liner features plain paper and a dense, uniform caliper for high-quality rotary die-cutting.


170

The 62# densified kraft liner is the product of choice for reduced edge burr when die-cutting metal nameplates. The liner offers excellent tear resistance.


171

The 83# polycoated kraft liner is ideal for "kiss-cutting" multiple nameplates on the same sheet. The thick 6.2 mil liner lies flat and offers excellent tear and moisture resistance.


172

HDPE (high-density polyethylene) is a clear liner that allows for easy inspection of backlit graphics. It's tear resistant for easy liner removal. It offers excellent moisture stability and can be thermoformed.


173

A liner on each side of the adhesive allows die-cutting prior to lamination. This "selective die-cutting" is used when full adhesive coverage is undesirable, like on the illuminated portion of backlit graphics.

Alternate Liner Configurations for Processing and Delivery

Adhesive Family	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Caliper Mils
100 High Temp	965	2.0 (0.05)	55# DK	3.2
	9462P	2.0 (0.05)	55# DK	3.2
	941	2.0 (0.05)	58# PCK	4.2
	941N	2.0 (0.05)	83# PCK	6.2
100MP	9437	2.0 (0.05)	PET/58# PCK	2.0/4.2
200MP High Perf	9172MP	2.0 (0.06)	HDPE/58# PCK	3.0/4.2
	9667MP	2.0 (0.06)	83# PCK	6.2
	7952MP	2.0 (0.06)	58#/58# PCK	4.2/4.2
	7962MP	2.0 (0.06)	83#/58# PCK	6.2/4.2
	9676MP	2.0 (0.06)	PP/58# PCK	3.5/4.2
	7955MP	5.0 (0.13)	58#/58# PCK	4.2/4.2
	7965MP	5.0 (0.13)	83#/58# PCK	6.2/4.2
	9185MP	5.0 (0.13)	HDPE/58# PCK	3.0/4.2
	9668MP	5.0 (0.13)	83# PCK	6.2
220 Industrial Acrylic	9502HL	2.0 (0.06)	83# PCK	6.2
	9505HL	5.0 (0.12)	83# PCK	6.2
	9552	2.0 (0.06)	58#/58# PCK	4.2/4.2
	9555	5.0 (0.13)	58#/58# PCK	4.2/4.2

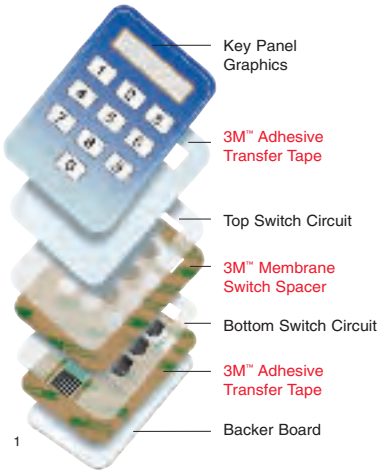
Adhesive Family	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Caliper Mils
300 High Strength	9428	1.0 (0.025)	55#/43# DK	3.2/2.5
	9459W	1.5 (0.04)	55# DK	3.2
	992	2.0 (0.05)	55# DK	3.2
	992U	2.0 (0.05)	55# DK	3.2
	9653	3.5 (0.09)	83# PCK	6.2
	950EK	5.0 (0.13)	78# EK	6.0
	9672	5.0 (0.13)	83# PCK	6.2
300LSE High Strength	8132LE	2.0 (0.05)	83#/58# PCK	6.2/4.2
	9653LE	3.5 (0.09)	83# PCK	6.2
	9671LE	2.0 (0.05)	83# PCK	6.2
	8153LE	3.5 (0.09)	83#/58# PCK	6.2/4.2
	9672LE	5.0 (0.13)	83# PCK	6.2
300MP High Strength	7951	2.0 (0.05)	58#/58# PCK	4.2/4.2
	9692	2.0 (0.05)	83# PCK	6.2
	9784	4.0 (0.1)	HDPE/58# PCK	3.0/4.2
	9695	5.0 (0.13)	83# PCK	6.2
350 High Holding	9442	2.0 (0.05)	55# DK	3.2
	9445	5.0 (0.13)	55# DK	3.2
	9485EK	5.0 (0.13)	78# EK	6.0
400 Acrylic	463	2.0 (0.05)	60# DK	3.8
	9665	2.0 (0.05)	58# PCK	4.2

Description	Caliper (mils)	Use
43# Densified Kraft paper (DK)	2.5	Inexpensive secondary liner, protects from humidity extremes.
55# Densified Kraft paper (DK)	3.2	Excellent liner for rotary die-cutting; reduces edge roll on metal parts, protects from humidity extremes.
60-62# Densified Kraft paper (DK)	3.7	General purpose liner, rotary or steel rule, protects from humidity extremes.
58# Polycoated Kraft paper (PCK)	4.2	Excellent liner for steel rule die-cutting, resists moisture.
83# Polycoated Kraft paper (PCK)	6.2	Improved handling (lay-flat), steel rule die-cutting, kiss-cutting, resists moisture.
78# Extensible Polycoated Kraft paper (EK)	6.0	Extra tough liner for increased tear resistance.
Polyester film (PET)	2.0	Rotary die-cuttable, cleanroom, clear for inspection of parts, humidity stable.
Clear, high density Polyethylene film (HDPE)	3.0	Clear for inspection of parts, thermo-formable, tear-resistant.
White Polypropylene film (PP)	3.5	Can be thermo-formed.

Long life formulations for top to bottom reliability

3M offers a full range of adhesives with application-specific configurations for die-cut laminations, circuit layer assembly, switch spacers, metal dome placement, lead protection, and switch mounting.

With exceptionally high cohesive strength, 3M adhesives resist slippage, oozing, lifting, channeling, and buckling for long-term resistance to the stresses of switch activation. Adhesives also reliably resist high humidity, chemicals, and other challenging conditions.



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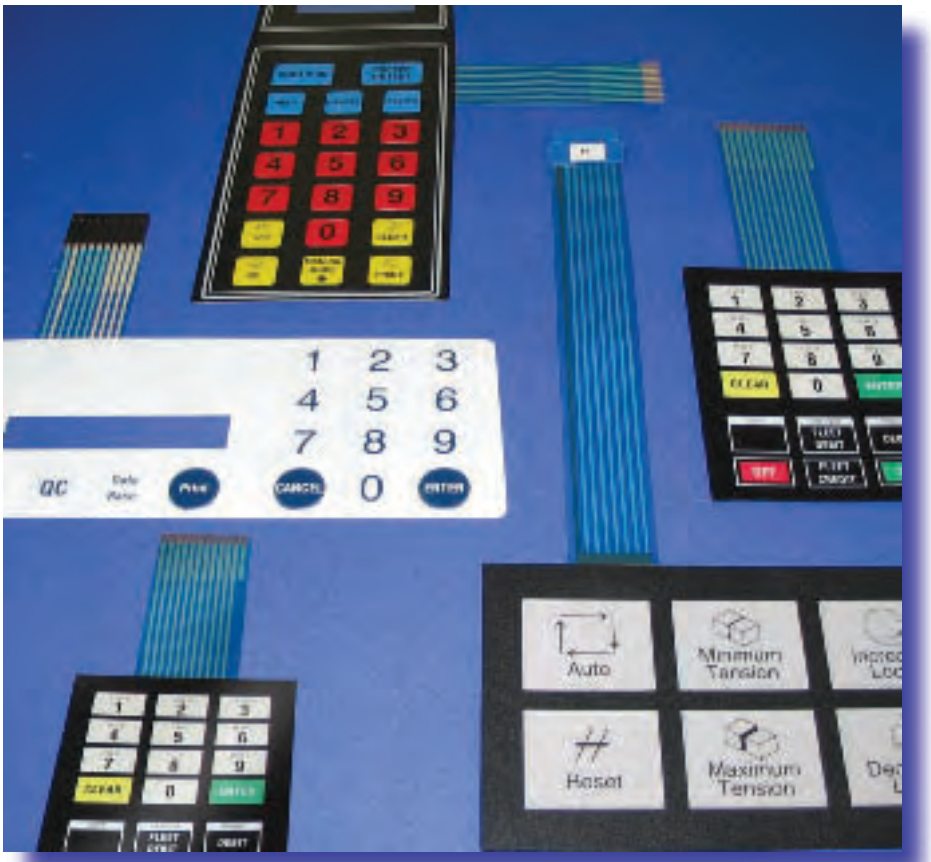

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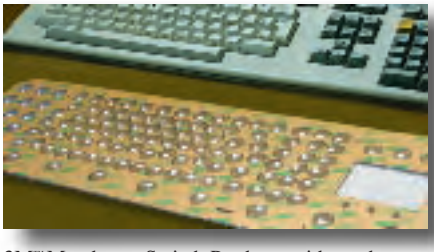
3M™ Membrane Switch Adhesives have been proven for over 20 years to resist high humidity and moisture, extreme temperature ranges, UV light, chemicals, household cleaners, and detergents.

175

3M single coated spacer materials perform reliably for lead protection and dome retainer layers in applications ranging from medical test systems to fish finders.



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3M™ Membrane Switch Products withstand heavy repetitive activations on keyboards.

177

With die-cut 3M™ Double-Lined Adhesive Transfer Tapes, adhesive transfers easily and precisely from the liner to the graphic or circuit.

178

3M™ Adhesive Transfer Tapes ensure strong attachment of switches to rough or textured surfaces, and low or high energy surfaces.

179

Durable 3M™ Membrane Switch Products perform reliably even with repeated heat cycle stresses in ovens and dishwashers.

180

With resistance to high temperatures and humidity, 3M single coated spacer materials effectively maintain registration of metal and polyester domes.

Product Information: 3M™ Membrane Switch Adhesives

	Product number	Adhesive family	Tape or spacer thickness	Liner type	Layer thickness (mils) Adhesive/ Carrier/Adhesive	Description
Double-lined Adhesive Transfer Tapes	7951	300MP	2 mils	58# PCK/58# PCK	2/0/0	Double-lined 300MP. High bond to low surface energy plastics.
	7952MP	200MP	2 mils	58# PCK/58# PCK	2/0/0	Double-lined 467MP.
	7955MP		5 mils	58# PCK/58# PCK	5/0/0	Double-lined 468MP.
	7962MP		2 mils	83# PCK/58# PCK	2/0/0	Double-lined 467MP with heavy lay-flat liner for added stiffness and ease of handling.
	7965MP		5 mils	83# PCK/58# PCK	5/0/0	Double-lined 468MP with heavy lay-flat liner for added stiffness, controlled kiss-cutting and ease of handling.
	9552	220	2 mils	58# PCK/58# PCK	2/0/0	Double-lined 3M laminating adhesive 9502 for selective die-cutting.
	9555		5 mils	58# PCK/58# PCK	5/0/0	Double-lined 3M laminating adhesive 9505 for selective die-cutting.
Double Coated Spacers	7979*	100MP	9 mils	58# PCK/58# PCK	2/5/2	Premium performance, particularly in temperature resistance and shear strength.
	7945MP	200MP	5 mils	58# PCK/58# PCK	2/1/2	Meet requirements of most keyboards and flex circuit laminations.
	7953MP		3.5 mils	58# PCK/58# PCK	1.5/0.5/1.5	Same as 7945MP but with printed primary liner.
	7953MS**		3.5 mils	58# PCK	1.5/0.5/1.5	Custom construction for specific thickness needs.
	7953HL		3.5 mils	83# PCK	1.5/0.5/1.5	Same as 7953MS except with heavy liner.
	7956MP		6 mils	58# PCK/58# PCK	2/2/2	Meet requirements of most keyboards and flex circuit laminations.
	7956MWS		6 mils	58# PCK	2/2/2	Metallized vapor coat and white color to eliminate floodcoats.
	7956WDL		6 mils	58# PCK/58# PCK	2/2/2	Sheet form of 7956MWS.
	7957MP		7 mils	58# PCK/58# PCK	2/3/2	Meet requirements of most keyboards and flex circuit laminations.
	7959MP		9 mils	58# PCK/58# PCK	2/5/2	
	7961MP		11 mils	58# PCK/58# PCK	2/7/2	
	7964MP**		14 mils	58# PCK/58# PCK	2/7/5	Custom construction for specific thickness needs; differential adhesive.
	7966MWS		9 mils	58# PCK	2/2/5	Thicker version of 7956MWS.
	7966WDL		9 mils	58# PCK/58# PCK	2/2/5	Sheet form of 7966MWS.
	7968MP**		8 mils	58# PCK/58# PCK	2/1/5	Custom construction for specific thickness needs.
	7970MP**		10 mils	58# PCK/58# PCK	2/3/5	
	7972MP**		12 mils	58# PCK/58# PCK	2/5/5	
	7973MP**		13 mils	58# PCK/58# PCK	5/3/5	
	7974MP**		13 mils	58# PCK/58# PCK	3/5/5	
	7975MP**		15 mils	58# PCK/58# PCK	5/5/5	
	7976MP**		12 mils	58# PCK/58# PCK	5/2/5	
	7978MP**		17 mils	58# PCK/58# PCK	5/5/7	
	7986MP**		14 mils	58# PCK/58# PCK	2/10/2	
	7987MP**		17 mils	58# PCK/58# PCK	5/7/5	
	8106HL**		6 mils	94# PCK/94# PCK	2/2/2	White polyester carrier for light management.
	9045MP		5 mils	94# PCK/94# PCK	2/1/2	The 9000 series of products has a lay-flat liner on each side which improves die-cutting and handling of intricate die-cut parts.
	9056MP		6 mils	94# PCK/94# PCK	2/2/2	
	9057MP		7 mils	94# PCK/94# PCK	2/3/2	
	9059MP		9 mils	94# PCK/94# PCK	2/5/2	
	9061MP		11 mils	94# PCK/94# PCK	2/7/2	
	9553	220	3.5 mils	58# PCK/58# PCK	1.5/0.5/1.5	Good cohesive strength resists switch actuation. Both liners printed.
	9557		6 mils	58# PCK/58# PCK	1.5/3/1.5	
	9559		8 mils	58# PCK/58# PCK	1.5/5/1.5	
	9561		10 mils	58# PCK/58# PCK	1.5/7/1.5	
	9563		13 mils	58# PCK/58# PCK	1.5/10/1.5	
Single Coated Spacers	7991MPW	200MP	2 mils	94# PCK	1/1/0	Adhesive on one side; white polyester carrier for light management.
	7992MP		4 mils	94# PCK	2/2/0	Adhesive on one side of clear polyester carrier.
	7992MPW		4 mils	94# PCK	2/2/0	Thick version of 7991MPW.
	7993MP		3 mils	94# PCK	2/1/0	Single side spacers aid in the construction of membranes with circuitry, i.e. to protect leads, hold domes in place, or build custom spacers.
	7994MP		4 mils	58# PCK	2/2/0	Adhesive on one side of clear polyester carrier.
	7995MP		5 mils	94# PCK	2/3/0	Single side spacers aid in the construction of membranes with circuitry, i.e. to protect leads, hold domes in place, or build custom spacers.
	7997MP		7 mils	94# PCK	2/5/0	

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* Products in this family are 3M™ VHB™ Tapes offering 3M's highest strength.

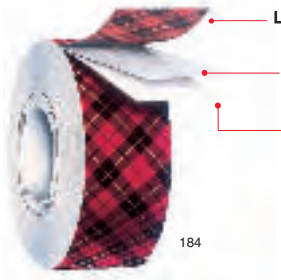
** Custom product.

Scotch® ATG Adhesive Systems

Finger touch application of pressure sensitive adhesive

Versatility, convenience and speed. That's what you get with the Scotch® ATG Adhesive System for assembly operations in businesses ranging from appliance and printing to P.O.P. and electronics. Readily bond, join, mount, or laminate materials such as paper, plastics, metal, foam and more.

With Scotch® ATG Adhesive Applicators, a touch of the finger triggers a quick, controlled application of Scotch® ATG Tape at the same time as the liner rewinds into the applicator. There is no mess and no cleanup. 3M advanced acrylic adhesive bonds on contact and is formulated with a choice of properties such as high temperature resistance, differential tack, adhesion to low surface energy plastic, and more.



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Save time and effort with the Scotch® ATG Adhesive System. You apply a precise strip of adhesive at the same time as the liner rewinds into the applicator.


182

Scotch® ATG 700 Applicator with Scotch® ATG Tape 924 makes fast work of folder assembly. Pressure sensitive adhesive bonds immediately and the folder pocket is ready to hold contents.


183

High performance Scotch® ATG Tape 926 bonds foam cushioning inside a portable power tool carrying case.

185

1. Scotch® ATG Applicator 700 for 3/4", 1/2", and 1/4" wide tape (1/4" adapter purchased separately).
2. Scotch® ATG Applicator 714 for 1/4" wide tape.
3. Scotch® ATG Applicator 752 for 3/4", 1/2", and 1/4" wide tape (1/4" adapter purchased separately).
4. Scotch® ATG Applicator 3662 for 2" wide tape.

Product Information: Scotch® ATG Adhesive Systems

Adhesive Type	Product Number	Tape Thickness w/o liner Mils (mm)	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas	Adhesive Transfer Tape Equivalent
				Minutes Hours	Days Weeks		HSE	LSE		
300 High Tack	976	2.0 (0.05)	• High tack • Excellent adhesion to most plastics	250˚F (121˚C)	150˚F (66˚C)	Med.	High	High	Attach fabric swatches in sample books.	927
	969	5.0 (0.13)							Assemble point-of-purchase displays. Bond trim strips to furniture or luggage. Bond labels to plastic toys. Attach gaskets or foams.	950
350 High Performance	926	5.0 (0.13)	• High performance • Excellent temperature and solvent resistance	450˚F (232˚C)	300˚F (149˚C)	High	High	High	Bond fabric or trim to window blinds. Splice aluminum coils. Bond foam insulation. Mount nameplates on award plaques.	9485PC
400 General Purpose	970XL	1.0 (0.025)	• General purpose • Excellent adhesion to most paper stocks	250˚F (121˚C)	180˚F (82˚C)	Med.	Med.	Low	Attach photos to layouts. Attach labels.	920XL
	924	2.0 (0.05)							Seal pocket in folders. Bond mat board in picture frames. Splice paper, films, foils. General purpose bindery attaching.	465
	987*	1.7 (0.040)								9498
400/1000 Repositional	928	2.0 (0.05)	• Differential tack • Repositionable	180˚F (82˚C)	150˚F (66˚C)	Med.	High/ Low	Low/ Low	Attach credit card in mailer. Core start/end tab paper, films and foils. Attach temporary labels.	9416

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Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy

* 3M brand

Tape Selection Guide

This matrix gives you a few of our most commonly used tapes for various surface combinations. Products shown represent only a small part of the total line.

	Surface A													
	Steel Aluminum Glass Ceramics		ABS, Acrylic, Enamel & Epoxy Paints, Kapton® Industrial Film, Noryl Resin, Nylon, Lexan® Polycarbonate, Polyester, Rigid Vinyl		Polystyrene Polypropylene Polyethylene Powder Paints		Plasticized Vinyl		Paper		Cloth		Rubber	
Surface B	**Thin**	**Thick**	**Thin**	**Thick**	**Thin**	**Thick**	**Thin**	**Thick**	**Thin**	**Thick**	**Thin**	**Thick**	**Thin**	**Thick**
Rubber	950/969* 9472LE		950/969* 9472LE		950/969* 9472LE		950/969*		950/969*		950/969*		950/969* 9472LE	
	444 9443 9495LE		444 9443 9495LE		444 9443 9495LE				444 9443		444 9443		444 9443	
Cloth	950/969 9485/926 9695		950/969 9485/926 9695		950/969 9485/926 9695		950/969		465/924 950/969 9485/926 9695		465/924 950/969 9485/926 9695			
	444 9443 9690		444 9443 9690		444 9443 9690		9443		444 9443 9690		444 9443 9690			
Paper	465/924 950/969		465/924 950/969		950/969		950/969 9465		465/924 950/969					
	410 415 9443		410 415 9443		444 9443				410 415					
Plasticized Vinyl	950/969 9465		950/969 9465		950/969		950/969 9465							
		4941		4941				4941						
Polystyrene Polypropylene Polyethylene Powder Paints	950/969 9485/926 9472LE	4462	950/969 9485/926 9472LE	4462	950/969 9472LE	4462								
	444 9443 9589 9495LE	4952 5952 (powder paint)	444 9443 9589 9495LE	4952 5952 (powder paint)	444 9443 9495LE	4952 5952 (powder paint)								
ABS, Acrylic, Enamel & Epoxy Paints, Kapton® Industrial Film, Noryl® Resin, Nylon, Lexan® Polycarbonate, Polyester, Rigid Vinyl	950/969 9469 9485/926 468MP	4046/4016 4462 4492	950/969 9469 9485/926 468MP	4046/4016 4462 4492										
	444 9443 9500PC 9495MP	4941 5952	444 9443 9500PC 9495MP	4941 5952										
Steel Aluminum Glass Ceramics	468MP 9469 9485/926	4046/4016 4462 4492												
	9495MP 9500PC	4941 4950												

*For temporary holding only.

NOTE: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

Easy access to the knowledge

For direct access to product data, downloadable product data pages, or to request sample product for evaluation:

www.3M.com/industrial

Finding the Optimum Tape

To help you make sure of finding the optimum tape for your particular application, you'll want to consider several factors: rubber or acrylic adhesive, surface energy (pg.7) and contact, stress conditions, end use environment, and substrate characteristics such as size, rigidity, thickness, and weight.

Rubber or Acrylic Adhesive

3M tapes and fasteners feature advanced 3M rubber or acrylic adhesive formulations. Each has characteristics that affect production and end use performance.

Rubber Adhesives	Acrylic Adhesives
High initial adhesion	Fair initial adhesion
Some adhesion buildup	Gradual adhesion buildup
Good shear strength	High shear strength
Moderate temperature resistance	High temperature resistance
Good solvent resistance	Excellent solvent resistance
Fair UV resistance	Excellent UV resistance
Moderate durability	Excellent durability

Rubber or Acrylic Adhesive

To make rubber adhesives, natural or synthetic rubbers are made tacky by mixing with various compounds. Individual elements do not change; components are simply mixed together to produce an adhesive.

To make acrylic adhesives, plastic compounds are synthesized to obtain specific chemical structures that are tacky. Acrylics can be formulated to produce specific performance characteristics.

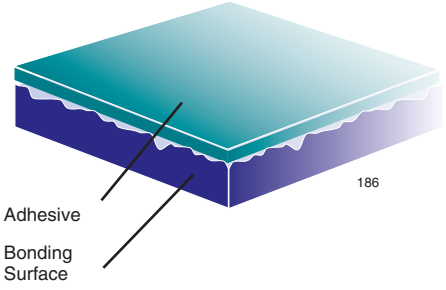
Rubber vs. Acrylic Adhesive
Bond Buildup On Metal Surfaces

Metal – Basic Surface

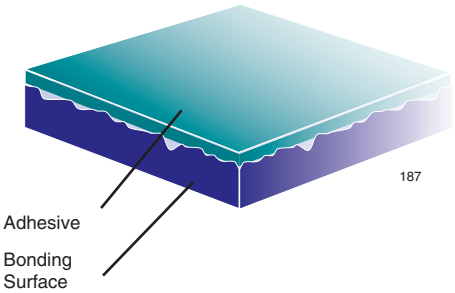
Adhesive Surface Contact

Applying firm pressure to the bond increases adhesive flow and contact for more secure bonding. Time and temperature will typically further increase contact and adhesion values.

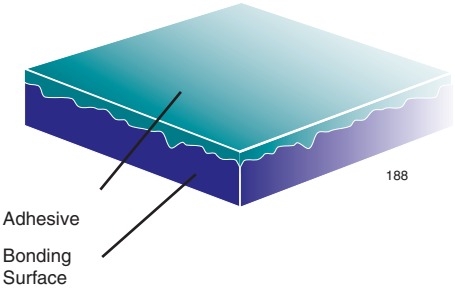
Initial Contact (Minimal Contact)



After Rubdown (More Contact)



After Dwell Time (Excellent Contact)



Substrate characteristics that determine thin or thick tape

You will find information on these two pages to help you narrow tape choices to two or three possibilities for evaluation and testing.

First of all, define the substrates you want to bond. All substrates have characteristics that determine how well a substrate can be bonded with a particular adhesive for performance in a specific environment. Substrate characteristics such as thickness, rigidity, size, and weight will help determine your choice between two general groupings of 3M tapes: thin or thick. Each group has general performance characteristics. Thin and thick tapes are then further categorized into product lines each differentiated by specific performance characteristics.

Substrate characteristics

- Thin material
- Flexible material or small rigid parts
- Lightweight

Thin Tapes

- Thick material
- Stiff or rigid material
- Medium to heavy weight
- Irregular surfaces

Thick Tapes

General performance characteristics of 3M tapes

- Thin bond line

- Gap filling
- Sealing

Specific performance characteristics by 3M product line

Depending on the tape line, a choice of 3M adhesive types is available to meet different design, production, and end use requirements.

3M™ Adhesive Transfer Tapes

- Thinnest bond lines
- High shear strength adhesive available
- Many can be dispensed with Scotch® ATG Applicator for convenience

3M™ Double Coated Foam Tapes

- Carrier for easier handling
- Dimensional stability
- Mounting and holding for indoor applications

3M™ Double Coated Tapes

- Carrier for easier handling
- Dimensional stability
- Many offer removability

3M™ VHB™ Tapes

- Carrier for easier handling
- Dimensional stability
- Mounting, holding and joining for outdoor applications
- High bond strength and environmental resistance

Adhesive types for 3M tapes

Type	Families	Description
Acrylic	100	High temperature
	200	High performance
	300	High strength
	350	High holding
	400	High tack
	900	Miscellaneous
	1000	Repositionable
Rubber	700	Synthetic
	800	Natural
	900	Miscellaneous

Adhesive Family Characteristics

100 High Temperature Acrylic

- Up to 450°F short-term heat resistance and excellent solvent resistance.
- High peel strength compared to other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.
- Exhibits low outgassing characteristics.

100MP High Performance Acrylic

- Up to 500°F short-term heat resistance and outstanding solvent resistance.
- Higher peel strength than most other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.

100HT Ultra High Temperature Acrylic

- Up to 550°F short-term heat resistance and outstanding solvent resistance.
- Higher peel strength than most other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.

200MP High Performance Acrylic

- Up to 400°F short-term heat resistance and excellent solvent resistance.
- Outstanding adhesion to metal and high surface energy plastics.
- Excellent shear strength to resist slippage and edge lifting.
- Short term repositionability for placement accuracy.

220 Industrial Acrylic

- Up to 350°F short-term heat resistance and good chemical resistance.
- Good shear strength and chemical resistance for general purpose industrial applications.
- Good adhesion to most metal and high surface energy plastics.

290 Low Outgassing Acrylic

- Up to 450°F short-term heat resistance.
- Exceeds most OEM specifications for outgassing and long-term performance.
- High peel strength compared to other acrylic formulations.
- Exceptional shear strength even at elevated temperatures.

300 High Tack Acrylic

- Up to 250°F short-term heat resistance.
- High initial adhesion especially to low surface energy plastics.
- Quick flowing to speed lamination of textured plastics, foams, fabrics, and coated papers.

300FR Flame Retardant

- Meets various flame retardancy standards such as UL94 V-O/2, F.A.R. 25.853, and FMVSS 302.
- Similar adhesive properties to adhesive 300 family.
- Good adhesion to a wide variety of surfaces including LSE plastics, foams, and fabrics.

300LSE Low Surface Energy Acrylic

- Up to 300°F short-term heat resistance.
- Outstanding adhesion to low surface energy plastics, powder coated paints, and lightly oiled metals.
- Good chemical and humidity resistance.

300MP High Tack Acrylic

- Up to 250°F short-term heat resistance for automotive interior applications.
- Designed especially to bond most plastics and foams.
- Economical attachment of graphics.

Adhesive Family Characteristics (continued)

320 High Tenacity Acrylic

- Up to 250°F short-term heat resistance.
- High bond strength to a variety of surfaces.
- Excellent flagging resistance on small diameter surfaces.

340 High Tack Acrylic

- Up to 180°F short-term heat resistance.
- Excellent bonding to foam and other substrates.
- High tack; medium shear.

350 High Performance Acrylic

- Excellent solvent resistance and adhesion to LSE materials.
- Up to 450°F short-term heat resistance.

400 Acrylic Adhesive

- Good low temperature performance and peel strength on many surfaces.
- Up to 250°F short-term heat resistance.
- Excellent adhesion to uncoated papers.
- Clarity and UV resistance for window label applications.

420 Acrylic Adhesive

- Up to 450°F short-term heat resistance.
- High tack adhesive.

430 Acrylic Adhesive

- Up to 350°F short-term heat resistance.
- Lead for high temperature splicing.

700 Series Synthetic Rubber

- Up to 200°F short-term heat resistance.
- Good adhesion to low surface energy substrates.
- For indoor and room temperature applications.

800 Series Natural Rubber

- Up to 200°F short-term heat resistance.
- Offers good adhesion to a variety of surfaces.
- For indoor and room temperature applications.

900R Miscellaneous Rubber Adhesive Group

- Excellent initial adhesion and high bond to a variety of foams.
- Utility rubber-based adhesive ideal for the foam fabricating industry.

1000 Series Repositionable Acrylic

- Good holding to many surfaces.
- Clean removal.

Screen Printable Adhesive

- For selective placement of pressure sensitive adhesive using screen print technology.
- Either UV curable or water-based are available.

Adhesive Family Selection Based on Surface Energy

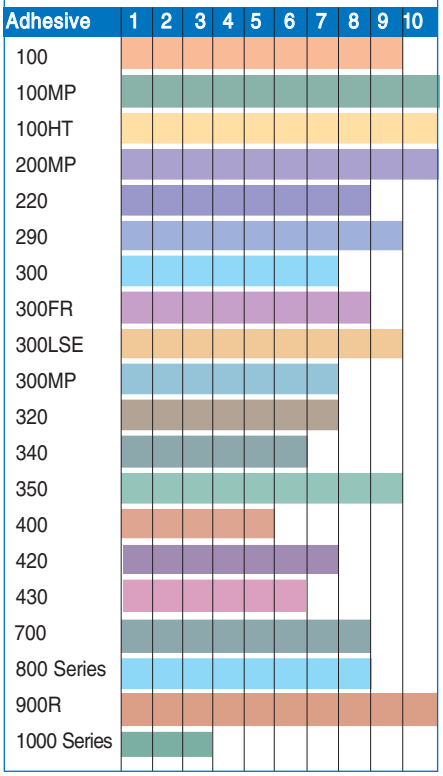
These charts are based on relative adhesion within each given surface energy category.

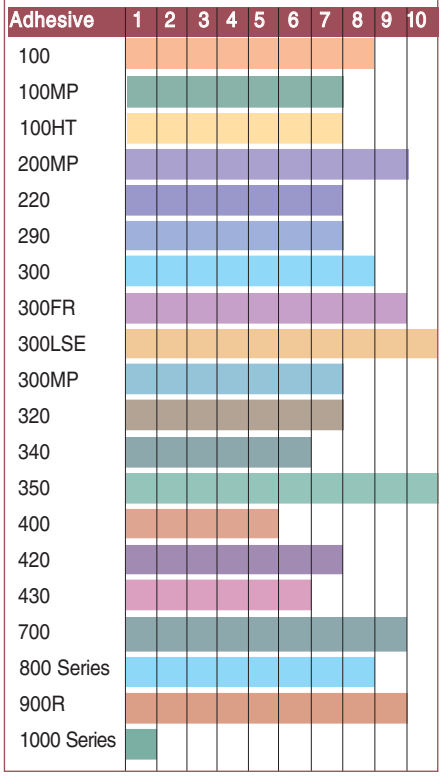
Metals	Surface Energy Dynes/cm
Copper	1103
Aluminum	840
Zinc	753
Tin	526
Lead	543

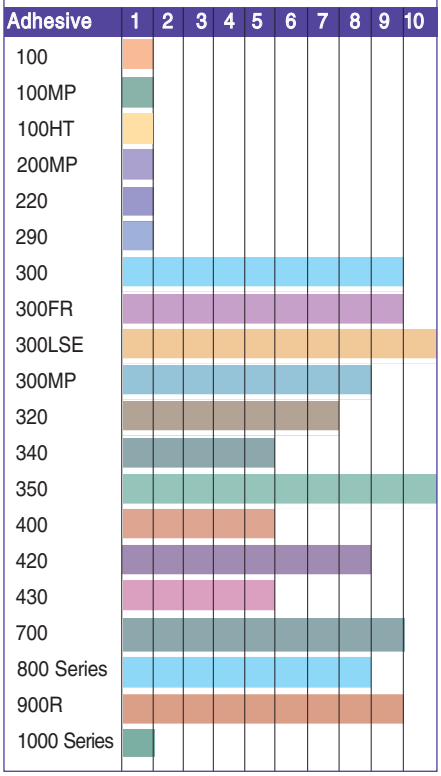
HSE Plastics	Surface Energy Dynes/cm
Kapton	50
Phenolic	47
Nylon	46
Alkyd Enamel	45
Polyester	43
Epoxy Paint	43
Polyurethane	43
ABS	42
Polycarbonate	42
PVC	39
Noryl	38
Acrylic	38
Polane Paint	38

LSE Plastics	Surface Energy Dynes/cm
PVA	37
Polystyrene	36
Acetal	36
EVA	33
Polyethylene	31
Polypropylene	29
Tedlar	28
Teflon	18
Powder Coatings	**

**Broad range of surface energy.



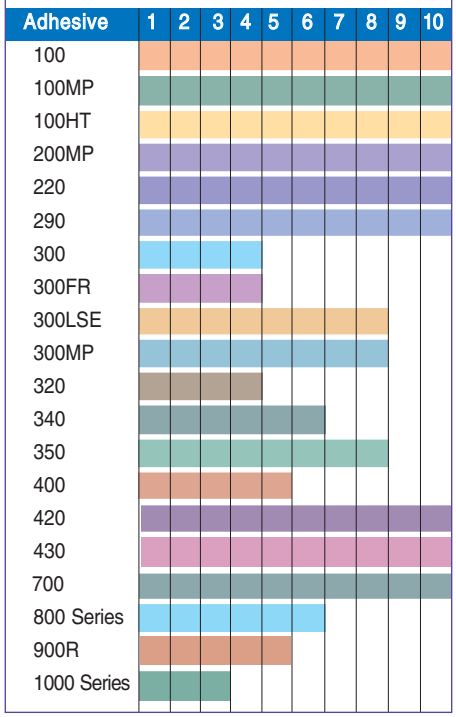




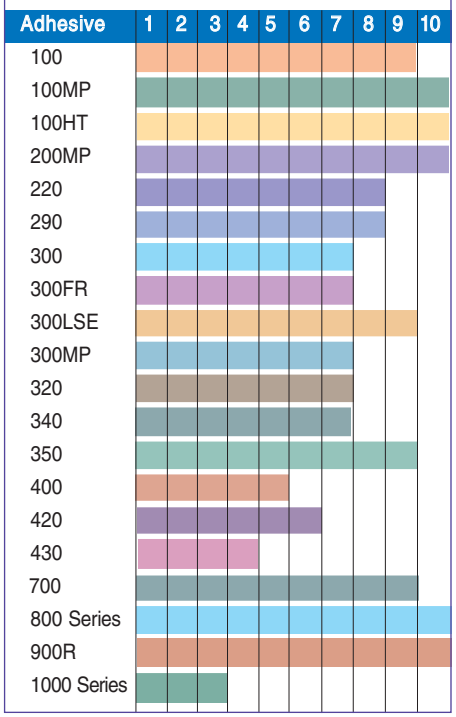
1=Lowest Performance 10=Highest Performance

Adhesive Family Selection Based on Other Service Conditions

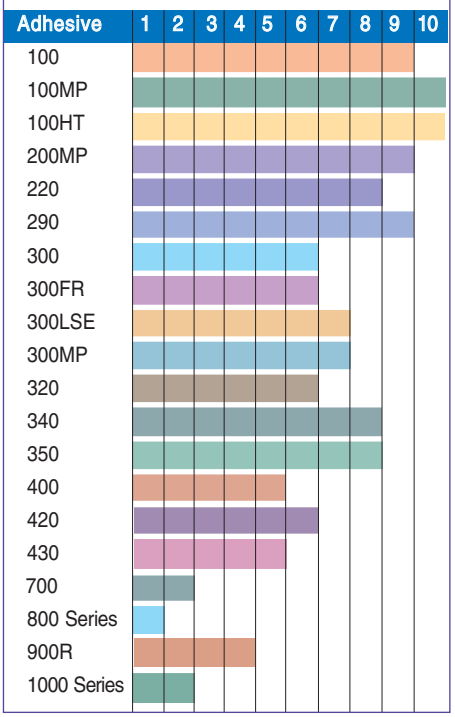
Shear Strength at Room Temperature



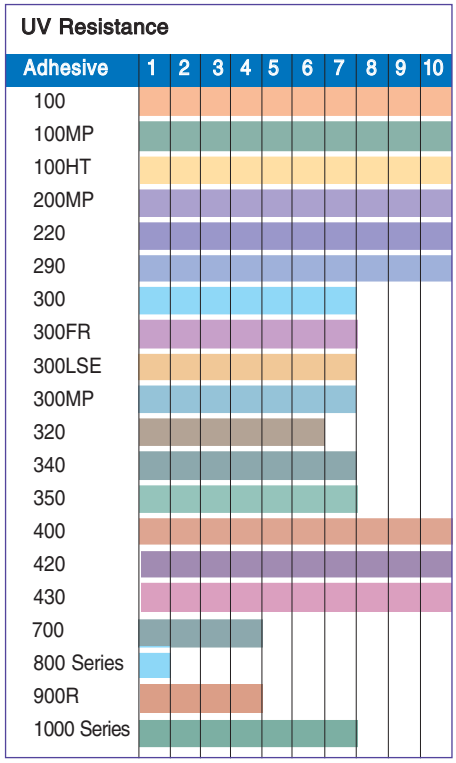
Ultimate Peel Strength



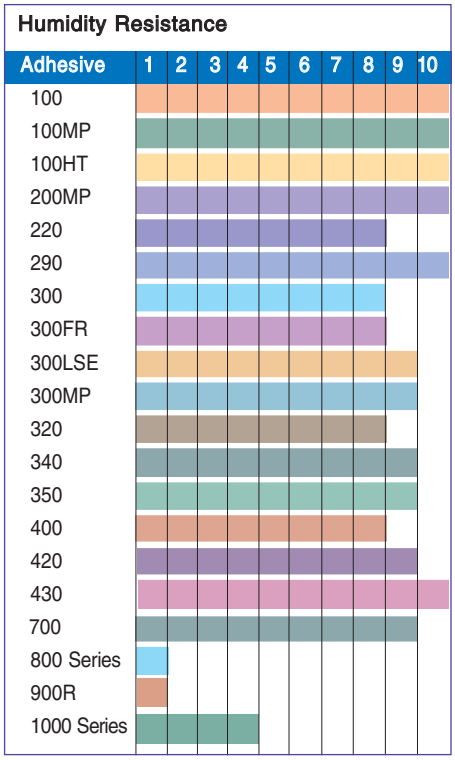
Chemical Resistance



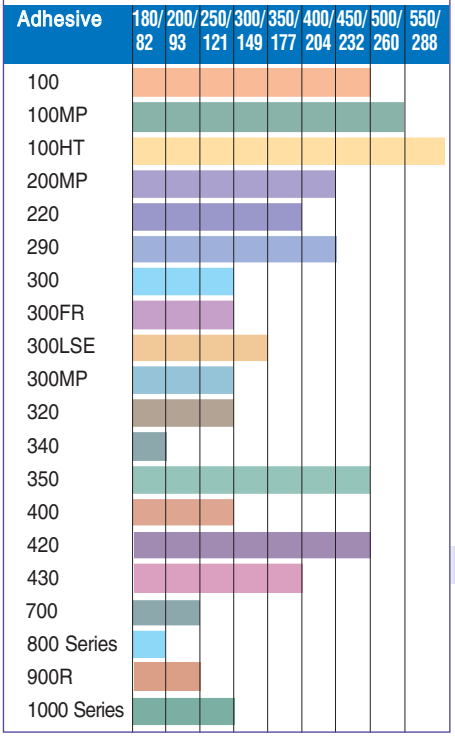
UV Resistance



Humidity Resistance



Temperature Resistance °F/°C*



* Low temperature resistance is -40°F (-40°C) for all adhesives except 1000 Series at -20°F(-29°C).

Reclosable Fasteners and Other Technologies

When your products require repeated openings and closings, 3M™ Reclosable Fasteners give you choices for closure strength and frequency. Pressure sensitive adhesive on the backside bonds on contact to a variety of surfaces to save production time. Depending on the specific fastener, the mating front side opens and closes hundreds or thousands of times.

Reclosable fasteners are just one example of how 3M combines adhesives with various backings for innovative solutions in such applications as masking, protecting, enhancing, quieting, color-coding, conducting, reflecting, and more.

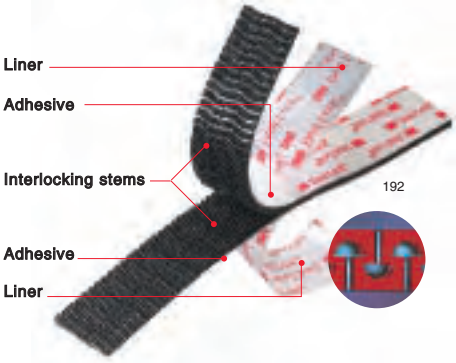
The product variety includes all of the following:

- 3M™ Dual Lock™ Reclosable Fasteners
- 3M™ Scotchmate™ Reclosable Fasteners
- 3M™ Single Coated Foam Tapes
- 3M™ Bumpon™ Protective Products
- 3M™ Accentrim™ Products
- 3M™ Vinyl Tapes
- 3M™ Protective Tapes
- 3M™ Crepe Masking Tapes
- 3M™ Metal Foil Tapes
- 3M™ Duct Tapes

3M™ Dual Lock™ Reclosable Fasteners

A reclosable system to replace unsightly mechanical fasteners

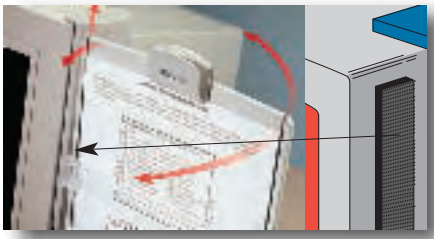
3M™ Dual Lock™ Reclosable Fasteners invisibly attach access doors and panels, signs, display components, and many other frequently removed parts. When the mushroom-shaped stems interlock, closure strength of the system is high enough to replace mechanical fasteners in many applications.* Yet, you can readily open and close 3M™ Dual Lock™ Reclosable Fasteners hundreds of times. Depending on your application, select non adhesive-backed or adhesive-backed versions. Adhesive-backed versions bond to bare or painted metal, sealed wood, glass, many plastics including plasticized vinyl, and more. 3M™ Dual Lock™ Reclosable Fasteners Low Profile is thinner than standard 3M™ Dual Lock™ Reclosable Fasteners, performs similar to the 250/250 combination, and is clear for color matching.



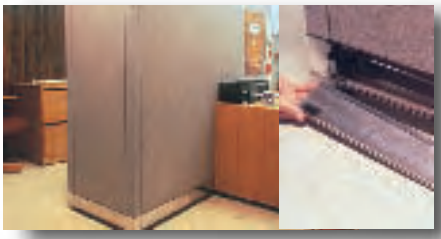
192


193

Removable plastic storage box for computer media attaches to the side of the CRT screen with strips of 3M™ Dual Lock™ Reclosable Fastener. Pressure sensitive adhesive backing bonds to many plastics on contact.


194

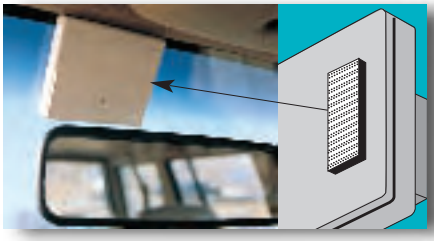
3M™ Dual Lock™ Reclosable Fastener secures a document holder to the side of a PC monitor. When not in use, the holder simply snaps off for storage.


195

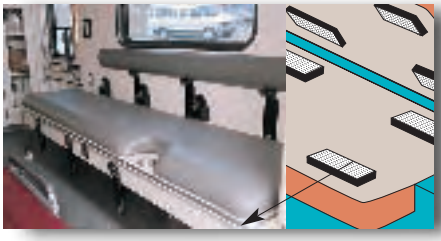
For convenient access to wiring in moveable office partitions, 3M™ Dual Lock™ Reclosable Fasteners attach metal cover plates over wiring channels for quick snap access.


196

To mute the sound of automated equipment, 3M™ Dual Lock™ Reclosable Fasteners attach acoustic control panels to the frame of an equipment enclosure. Panels remove for access or reconfiguration of the enclosure.


197

A 3M™ Dual Lock™ Reclosable Fastener attaches an automatic toll transponder to a windshield. Attachment is secure, yet the transponder can be easily removed to help prevent theft.


198

With 3M™ Dual Lock™ Reclosable Fasteners, the wall panels, cushions, and other components inside an emergency vehicle are easily removed without tools for cleaning and disinfecting.

*** Closure strength choices –** Types 170, 250, 400 are available types. Type refers to approximate stems per square inch on one side of the fastener. Type 400, for example, is 400 stems/square inch. You can mix different types as indicated below. Closure strength increases with the total number of stems that interlock or with increased area engaged.

Closure Strength:
250 to 400 > 250 to 250 ≥
170 to 400 > 170 to 250

Product Information: 3M™ Dual Lock™ Reclosable Fasteners

3M™ Acrylic Pressure Sensitive Adhesive (PSA)

Product Number	Product Type[1]	Color	Backcoating[2]	Liner	Engaged Thickness[3] Inches (mm)	Temperature Performance[4] Wt. in grams (Temp: °F/°C)	Comments
SJ3773 SJ3782	170 250	Black	Clear acrylic	B	0.16 (4.1)	500g 120°F (70°C)	Thin clear acrylic adhesive that bonds well to low surface energy substrates.
SJ3785	400	Black	Gray acrylic	C	0.18 (4.6)	1,000g 158°F (70°C)	Bonds well to most substrates, except low surface substrates. Certified to the requirements of Daimler Chrysler PF-8858, Ford WSB MI 5P35 Type III.
SJ3787	250						Certified to Ford WSB M15P35 Type III
SJ3534 SJ3535	250 400	Black	Clear acrylic	D	0.18 (4.6)	1,000g 200°F (93°C)	Aggressive, tacky adhesive for general bonding to most medium and high energy surfaces, providing for an "all black" look.
SJ3552	170	Black	White acrylic	D	0.23 (5.7)	1,000g 200°F (93°C)	Conformable, tacky adhesive adheres better to slightly textured or irregular surfaces. SJ3552V is packaged for clean room use. One roll (1" x 4.9 yd.) each of SJ3551 and SJ3552 can be ordered as MP3551/3552.
SJ3550	250						Product with high strength Scotchmate splice is SJ3550SM. SJ3550V is packaged for clean room use.
SJ3551	400						One roll (1" x 4.9 yd.) each of SJ3551 and SJ3552 can be ordered as MP3551/3552.
SJ3552CF	170	Black	Clear acrylic	D	0.23 (5.7)	1,000g 200°F (93°C)	Aggressive, tacky adhesive for general bonding to most medium and high energy surfaces, providing an "all black" look.
SJ3550CF	250						Similar to SJ3534 but engaged thickness is 0.05" (1.1 mm) thicker.
SJ3551CF	400						Similar to SJ3535 but engaged thickness is 0.05" (1.1 mm) thicker.
SJ3562	170	Clear	Clear acrylic	D	0.23 (5.7)	1,000g 200°F (93°C)	Translucent fastener with aggressive, tacky adhesive for general bonding to most medium and high energy surfaces.
SJ3560	250						Two rolls (1" x 4.9 yd.) of SJ3560 can be ordered as MP3560.
SJ3561	400						Product with continuous liner and product splice is SJ3560FS.
SJ3752	170	Black	White acrylic	C	0.23 (5.7)	1,000g 200°F (93°C)	Conformable, tacky adhesive for general bonding. Adheres better to slightly textured or irregular surfaces. Certified to GM3618M, Daimler Chrysler PF-8858, Ford WSB M15P35 Type III.
SJ3781	250						Certified to GM3618M, Daimler Chrysler PF-8543, PF-8858, Ford WSB M15P35 Type III.
SJ3751	400						Product with continuous liner and product splice is SJ3781FS. Certified to GM3618M, Daimler Chrysler PF-8543, PF-8858, Ford WSB M15P35 Type III.
SJ3554	170	Black	Gray acrylic	D	0.24 (6.1)	1,000g 200°F (93°C)	The adhesive looks black when attached to and viewed through transparent or translucent substrates.
SJ3553	400						Offers improved adhesion to high energy surfaces.
SJ3244	170	Black	Gray acrylic	E	0.24 (6.1)	1,000g 120°F (49°C)	Good adhesion to low surface energy substrates.
SJ3245	250						
SJ3246	400						
SJ3777	400	Black	White acrylic	C	0.24 (6.1)	1,000g 158°F (70°C)	Conformable, tacky adhesive for general bonding. Adheres better to slightly textured or irregular surfaces.
SJ3788	400	Black	Gray acrylic	C	0.27 (6.9)	1,000g 158°F (70°C)	Conformable, tacky adhesive for general bonding. Adheres better to slightly textured or irregular surfaces.
SJ3756	170	Black	White acrylic	C	0.31 (7.9)	1,000g 158°F (70°C)	Firm, thick adhesive for best adhesion to smooth high surface energy substrates. Good for large gaps between joined substrates. Certified to GM3618M, Ford WSB M15P35 Type III.
SJ3789	250						
SJ3757	400						

Footnotes and notes found on next page.

Product Information: 3M™ Dual Lock™ Reclosable Fasteners

	Product number	Product Type[1]	Color	Backcoating[2]	Liner	Engaged Thickness[3] Inches (mm)	Temperature Performance[4] Wt. in grams (Temp: °F/°C)	Comments
Synthetic Rubber PSA	SJ3542	170	Black	Synthetic rubber	A	0.23 (5.7)	500g 120°F (49°C)	For indoor use or attachment to low surface energy substrates. One roll (1" x 4.9 yd.) each of SJ3541 and SJ3542 can be ordered as MP3541/3542. SJ3542V is packaged for clean room use. SJ3540V is packaged for clean room use. One roll (1" x 4.9 yd.) each of SJ3541 and SJ3542 can be ordered as MP3541/3542. SJ3541V is packaged for clean room use.
	SJ3540	250						
	SJ3541	400						
Nonwoven	SJ3444	170	Black	White nonwoven	None	0.35 (8.9)	1,000g 200°F (93°C)	Nonwoven backing for easy attachment via use of liquid adhesives.
	SJ3443	400						
	SJ3754	170						Certified to Ford WSB M15P35 Type V.
	SJ3223	250						
	SJ3753	400						
	SJ3543	250	Clear					
No adhesive coating	SJ3442	170	Black	None	None	0.15 (3.9)	1,000g 200°F (93°C)	For attachment to fabrics via sewing, or to wood and similar substrates using staples. Certified to FMVSS 302, Ford WSB M15P35 Type IV.
	SJ3742							
	SJ3440	250						
	SJ3780							
	SJ3441	400						Certified to FMVSS 302, Ford WSB M15P35 Type IV. Product with marked splices: SJ3241.
	SJ3741							
	SJ3462	170	Clear	None	None	0.15 (3.9)	1,000g 200°F (93°C)	For attachment to fabrics via sewing, or to wood and similar substrates using staples. Excellent UV resistance in a translucent product, allowing substrate color to be easily seen through the fastener.
	SJ3460	250						
	SJ3461	400						
	SJ3799	170	Black	Polypropylene	None	0.23 (5.7)	1,000g 200°F (93°C)	For ultrasonic bonding to polypropylene. Certified to FMVSS 302, Ford WSB M15P35 Type IV.
	SJ3768	250						
	SJ3766	400						
	SJ3481	400	Black	Polypropylene	None	0.35 (8.9)	1,000g 200°F (93°C)	Rigid backing for mechanical attachment (screws, rivets, etc.). Only available in 4-foot strips. Certified to FMVSS 302.
3M™ Acrylic PSA	**3M™ Dual Lock™ Low Profile Reclosable Fasteners**							
	SJ4570	705	Clear	Clear acrylic	F	0.10 (2.5)	500g 158°F (70°C)	Thin adhesive bonds well to low surface energy substrates. One roll (5/8" x 10feet) of SJ4570 can be ordered as MP3541/3542.
	SJ4580	705	Clear	Clear acrylic	C	0.12 (3.0)	1,000g 200°F (93°C)	Aggressive, tacky adhesive for general bonding to most medium and high energy surfaces. Excellent for outdoor and high humidity conditions. Certified to Ford WSB M15P35 Type III.

Note: This information should be considered representative only, for help in narrowing the list of possible fasteners for further and more detailed evaluation, and should not be used for specification purposes. User is responsible for determining whether the 3M product is fit for the desired end use. Refer to specific product technical datasheets for more detailed product performance information.

Liners:
A - White 5.0 mil (0.13 mm) thick polyolefin with silicone release coating.
B - Brown 83# polykraft liner printed with "3M™" in green. Good for diecutting directly against liner.
C - Red 4.5 mil (0.11 mm) thick polyolefin with no silicone release coating.
D - Clear 4.0 mil (0.10 mm) thick polyolefin with silicone release coating with 3M™ Dual Lock™ printed in red.
E - White 5.0 mil (0.13 mm) thick polyethylene with silicone release coating.
F - Brown 83# polykraft liner printed with "3M™ Dual Lock™" in green. Good for diecutting directly against liner.

Footnotes:
1) Type 400 is not recommended to be engaged to other type 400 fasteners. As well, type 170 should not be engaged with type 170. Type 705 is recommended to be engaged only to other Type 705 fasteners.
2) Acrylic PSAs are best suited for outdoor or high humidity applications for medium to high surface substrates.
3) Engaged thickness is for products with the same backcoating engaged in the following combinations of increasing tensile strength: 170/250 < 250/250 < 170/400 < 250/400. You can mix products with different backcoatings to obtain an even greater variety of engaged thicknesses. Any of these 3M™ Dual Lock ™ Reclosable Fastener products can be engaged with 3M™ Scotchmate™ Loop Reclosable Fasteners providing a quick grab closure with high strength and limited cycle life.

4) Able to support indicated weight in a system static shear to aluminum for 10,000 minutes (approximately 1 week), at indicated temperature.

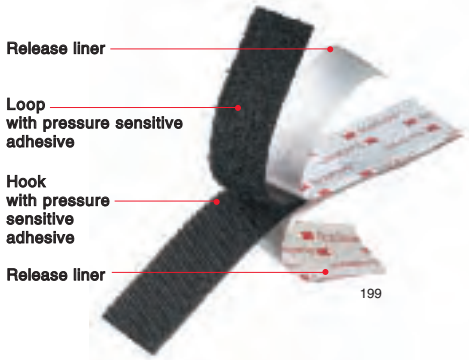
Notes:
Suggest 4 square inches of fastener per pound of load supported in long term shear. Suggest type 250 engaged to type 250 as a starting point for evaluations.
Maximum widths are 6". All products available on 50 yard rolls except 3M™ Dual Lock ™ Reclosable Fasteners SJ3756, SJ3789 and SJ3757 which are 45 yards and SJ3481 which comes in four foot strips.

3M™ Scotchmate™ Reclosable Fasteners

Industrial-strength fasteners for easy opening and closing

When your products require thousands of easy openings and secure closings, 3M™ Scotchmate™ Hook and Loop Reclosable Fasteners give you choices that improve your product and save production time. When closing, tiny, stiff hooks of one side of the fasteners mesh with pliable loops on the other. For opening, simply peel one side away.

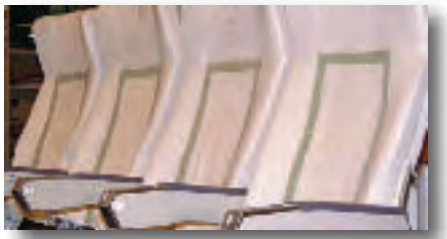
Choose adhesive-backed or plain-back fasteners. The pressure sensitive adhesives bond on contact to a variety of substrates. Adhesive formulations are designed with a wide range of performance characteristics including; flame resistance, high shear strength, low and high temperature resistance, and plasticizer resistance for use with most vinyls.



199

200

Remove and replace bicycle helmet straps and cushions easily. 3M™ Scotchmate™ Reclosable Fasteners allow simple positioning to fit the head, yet hold securely despite heat and dirt.


201

Aircraft seat assembly is quick and easy with 3M™ Scotchmate™ Reclosable Fasteners. Some products meet FAA flammability standards.


202

3M™ Scotchmate™ Reclosable Fasteners with pressure sensitive adhesive attach easily to plastic curtains on refrigerated displays. It resists low temperatures and moisture. Plasticizer-resistance assures long-term performance.


203

3M™ Scotchmate™ Reclosable Fasteners create readjustable braces to provide a comfortable fit that holds securely. The fasteners can be opened and closed thousands of times.


204

3M™ Scotchmate™ Reclosable Fasteners are available in rolls and can be easily fabricated to a wide variety of custom shapes to fit your product design and manufacturing needs.


205

Exhibit assembly is quick and easy. 3M™ Scotchmate™ Reclosable Fasteners attach styrene walls to the frame, creating a display that is lightweight, portable and allows rapid changing of graphics.


206

Die-cut 3M™ Scotchmate™ Reclosable Fasteners secure metal edge molding around an internally-illuminated sign. The molding holds the sign face in place and is readily removed for bulb replacement.

Product Information: 3M™ Scotchmate™ Reclosable Fasteners

	Product Number	Product Type	Material	Closure Life	Adhesive Type	Liner	Engaged Thickness[1] Inches (mm)	Temperature Performance[2] Wt. (grams) Temp: °F (C°)	Comments
Acrylic Adhesive	SJ3572 SJ3571	Hook Loop	Nylon	5,000+	High temperature	D, P	0.15 (3.8)	1,000g 200°F (93°C)	Certified to GM3618M and GM2743M Type II. Loop available with strong splice providing continuous product and liner when removed from roll. Order special splice as SJ3571FS or SJ3571FSR for splice marked with blue tape. Paper liner product ordered as SJ3571P or SJ3572P.
	SJ3576 SJ3577	Hook Loop	Polyester	1,000+	High temperature	D	0.15 (3.8)	1,000g 200°F (93°C)	Good for outdoor or high humidity conditions. Certified to GM 3618M.
	SJ3522 SJ3523	Hook Loop	Nylon	5,000+	Plasticizer resistant	B	0.15 (3.8)	500g 158°F (70°C)	Bonds well to many flexible plasticized vinyls, prevents adhesive oozing with aging.
Flame-resistant Adhesive	SJ3518FR SJ3519FR	Loop Hook	Flame resistant nylon	5,000+	Synthetic rubber	A	0.15 (3.8)	500g 100°F (38°C)	Flame resistant (meets FAR 25.853). Meets Boeing BMS 8-285G, Type III, Class 1.
	SJ3586FR SJ3587FR	Hook Loop	Flame resistant polyester	1,000+	Synthetic rubber	A	0.17 (4.3)	500g 100°F (38°C)	Good for outdoor or high humidity conditions. Flame resistant (meets FAR 25.853). Meets Boeing BMS 8-285G, Type IV, Class 1.
Synthetic Rubber Adhesive	SJ3532N SJ3533N	Hook Loop	Nylon	5,000+	Medium tack	C	0.15 (3.8)	500g 120°F (49°C)	Adhesive performance between SJ3530 and SJ3526N.
	SJ3526N SJ3527N	Hook Loop	Nylon	5,000+	Firm	A, P	0.15 (3.8)	500g 100°F (38°C)	One roll (1" x 5 yd.) each of SJ3526N and SJ3527N, order MP3526N/27N. Paper liner product ordered as SJ3526NP or SJ3527NP.
	SJ3530	Hook	Nylon	5,000+	Soft/ aggres-sive	C, P	0.15 (3.8)	500g 90°F (32°C)	SJ3530FS has a strong splice providing continuous product and liner when removed from the roll. Paper liner product ordered as SJ3530P.
	SJ3529 SJ3531	Loop Loop				C			Non-napped loop. Napped loop.
Plainback (No adhesive)	SJ3401 SJ3402	Loop Hook	Nylon	5,000+	None	None	0.13 (3.3)	1,000g 220°F (104°C)	Sew-on. Certified to GM2743M Type II. One roll (1" x 5 yd.) each of SJ3401 and SJ3402. Order MP3401/02.
	SJ3418FR SJ3419FR	Loop Hook	Flame resistant nylon	5,000+	None	None	0.13 (3.3)	1,000g 220°F (104°C)	Flame resistant (meets FAR 25.853). Certified to Boeing BMS 8-285G, Type II, Class 2, Sew-on.
	SJ3476 SJ3477	Hook Loop	Polyester	1,000+	None	None	0.13 (3.3)	1,000g 220°F (104°C)	Good for outdoor or high humidity conditions. Sew-on.
	SJ3486FR SJ3487FR	Hook Loop	Flame resistant polyester	1,000+	None	None	0.13 (3.3)	1,000g 220°F (104°C)	Flame resistant (meets FAR 25.853). Meets Boeing BMS 8-285G, Type IV, Class 2. Good for outdoor or high humidity conditions. Sew-on.
	3M™ Scotchmate™ Thin Reclosable Fasteners								
Acrylic Adhesive	SJ3506 SJ3507	Hook Loop	Polypro-pylene Polyester	<25	Acrylic	E	0.04 (1.0)	500g 120°F (49°C)	Only available in white. Limited cycle life.

Note: This information should be considered representative only, for help in narrowing the list of possible fasteners for further and more detailed evaluation, and should not be used for specification purposes. User is responsible for determining whether the 3M product is fit for the desired end use. Refer to specific product technical datasheets for more detailed product performance information.

Standard colors: Nylon - black, white and beige; Polyester - black and olive.
Maximum widths are 4", except for 3M™ Scotchmate™ Reclosable Fasteners SJ3506 and SJ3507 which are available in 6" widths. All products come in 50 yard rolls.

Liners:
A - White 3 mil polyethylene film printed with "3M™ Scotchmate™" in red.
B - Clear 3.5 mil polyolefin film with no printing.
C - Yellow 3.0 mil polyethylene film with no printing.
D - Clear 4.0 mil polypropylene film with white embossed 3M logo.
E - Brown 83# polykraft liner printed with "3M™" in green. Good for diecutting directly against liner.
P - Brown 83# polykraft liner with no printing. Good for die-cutting directly against liner.

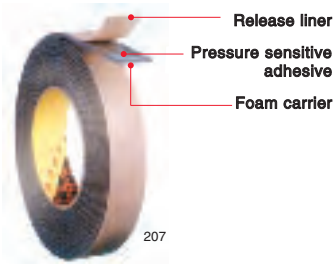
Footnotes:
1) Engaged thickness is for hook and loop with the same backcoating engaged to each other. Any of these 3M™ Scotchmate™ Loop Products can be engaged with 3M™ Dual Lock™ Reclosable Fasteners providing a quick grab closure with high strength and limited cycle life.
2) Able to support indicated weight in a system static shear to aluminum for 10,000 minutes (approximately 1 week), at indicated temperature.

3M™ Single Coated Foam Tapes

Roll-on protection against moisture, dust, noise, vibration, and impact

3M™ Single Coated Foam Tapes are strips of foam in a roll with high strength acrylic adhesive on one side of the foam. Cut to length, they seal, damp, insulate or cushion. For die-cut shapes, 3M™ Single Coated Foam Tape Series 4100, 4300, and 4700 is protected by a liner. With 3M™ Single Coated Foam Tape Series 4500, the liner is on the non-adhesive side to minimize foam stretching while placing the gasket.

Urethane foams seal, cushion, damp sound, and absorb vibration. Weather-resistant vinyl foams seal out light and dust when under compression and remain flexible even when exposed to variable temperatures and UV.

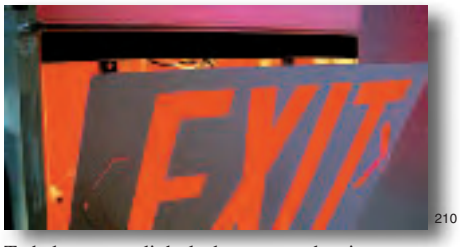



208

In a computer printer, 3M™ Urethane Foam Tape 4318 is a very soft, low density cushion that helps absorb impact and vibration.


209

When compressed 50%, the open cell construction of 3M™ Urethane Foam Tape 4314 provides an air barrier and cushion in electronic equipment.



210

To help prevent light leakage around a sign perimeter, 3M™ Vinyl Foam Tape 4726 attaches securely on contact.


211

In outdoor mailboxes, strips of 3M™ Vinyl Foam Tape 4504 helps seal the inside from rain and dirt. Vinyl provides excellent aging characteristics and remains flexible.

Product Information: 3M™ Single Coated Foam Tapes

	Product Number/Color	Description	Adhesive	Approximate Thickness	Density lb/cu ft (kg/cu m)	Tensile Strength (psi (kPa)	Compression Deflection 25% psi (kPa)	Compression Set % Loss	Temperature Tolerance	
									Short-Term	Long-Term
Urethane	4104* Natural White	• Firm, rigid, open cell urethane foam for cushioning • Allows air or gas vapors to pass through • Not recommended for outdoor use	350 Acrylic	0.250" (6mm)	12 (192)	115 (795)	4 (27.6)	8	350°F (176°C)	200°F (93°C)
	4108 Natural White		350 Acrylic	0.125" (3mm)	16 (256)	130 (895)	6 (82.8)	8		
	4116 Natural White		350 Acrylic	0.062" (1.5mm)	18 (288)	115 (795)	12 (82.8)	12		
	4314 Charcoal Gray	• Soft conformable, low density foam for sealing out air, dust and light when compressed 30% • Used to help damp sound and absorb vibration in electronics	430 Acrylic	0.250" (6mm)	2 (32)	25 (170)	0.3 (2.1)	5	250°F (121°C)	150°F (66°C)
	4317* Charcoal Gray		430 Acrylic	0.375" (9.5mm)	2 (32)	25 (170)	0.3 (2.1)	5		
	4318 Charcoal Gray		430 Acrylic	0.125" (3mm)	2 (32)	25 (170)	0.3 (2.1)	5		
Vinyl	4504* Black	• Durable, flexible, closed cell vinyl foams with excellent aging characteristics • Weather resistant • Application ideas include dust and moisture seal • Same as above except lower density • Liner over PSA	430 Acrylic	0.250" (6mm)	20 (320)	90 (620)	4 (27.6)	15	250°F (121°C)	150°F (66°C)
	4508* Black		430 Acrylic	0.125" (3mm)	20 (320)	100 (690)	4 (27.6)	15		
	4516* Black		430 Acrylic	0.062" (1.5mm)	25 (400)	130 (895)	4 (27.6)	15		
	4714* Black		430 Acrylic	0.250" (6mm)	14 (225)	75 (515)	2 (13.8)	5		
	4718* Black		430 Acrylic	0.125" (3mm)	20 (320)	100 (690)	4 (27.6)	15		
	4726* Black		430 Acrylic	0.062" (1.5mm)	20 (320)	130 (895)	3 (20.7)	15		

* Meets requirements of UL 94HBF.

Note: The technical information and data provided here should be considered representative or typical only and should not be used for specification purposes. User should evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of application.

212

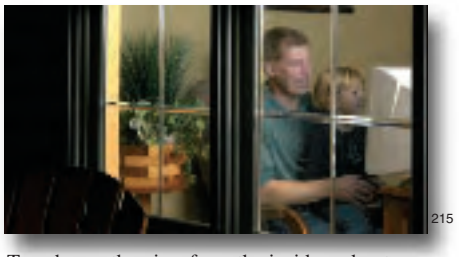
3M™ Bumpon™ Protective Products are convenient peel-and-apply resilient bumpers that quiet and cushion impact.

213

3M™ UHMW-PE Tape 5425 provides a "slip plane" effect between incompatible surfaces to help reduce squeaks and rattles.

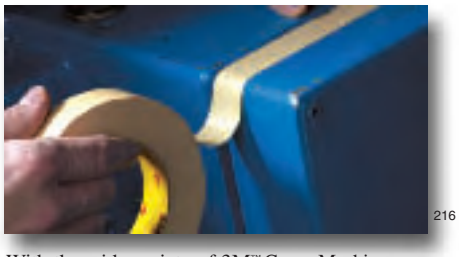
214

To help insure a scratch-free product, a short-term 3M™ Protective Tape is applied after final finishing to a sink, spa, or countertop prior to packaging. The co-extruded backing protects during shipping and installation, and the special acrylic adhesive releases for clean and easy removal by the end-user.



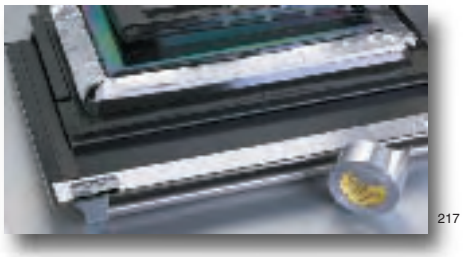
215

To enhance the view from the inside and out, day or night, window manufacturers can add 3M™ Accentrim™ Products into their existing operation simply and cost effectively.



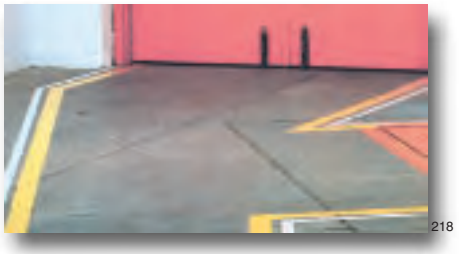
216

With the wide variety of 3M™ Crepe Masking Tapes, industrial customers have a selection of holding power, line sharpness, and removal characteristics that are matched to the job, ranging from critical part paint masking to bundling.



217

3M™ Aluminum Foil Tape bonds on contact as heat shielding inside an oven door. Helps keep the exterior cool to the touch behind the handle and around the window perimeter.

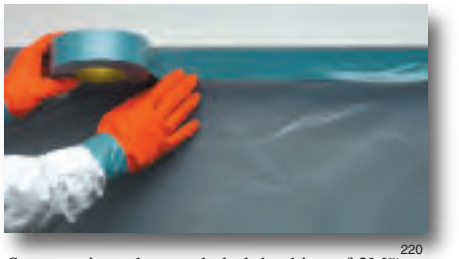


218

For aisle marking and hazard identification, 3M™ Vinyl Tape 471 simply rolls onto a surface, adheres on contact, outlasts paint, and peels off when ready to remark the area.

219

Self-fixturing 3M™ Damping Foil Tape combines a unique viscoelastic polymer with an aluminum constraining layer to damp vibration and help quiet metal and plastic.



220

Strong grip and rugged cloth backing of 3M™ Performance Plus Duct Tape 8979 perform reliably indoors and out for holding, wrapping, sealing, moisture proofing, hanging poly, and more. Removes cleanly for up to 6 months.

Product Index –Numerical

Product Index –Numerical

Product Index – Category

Product Index – Category

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3M

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