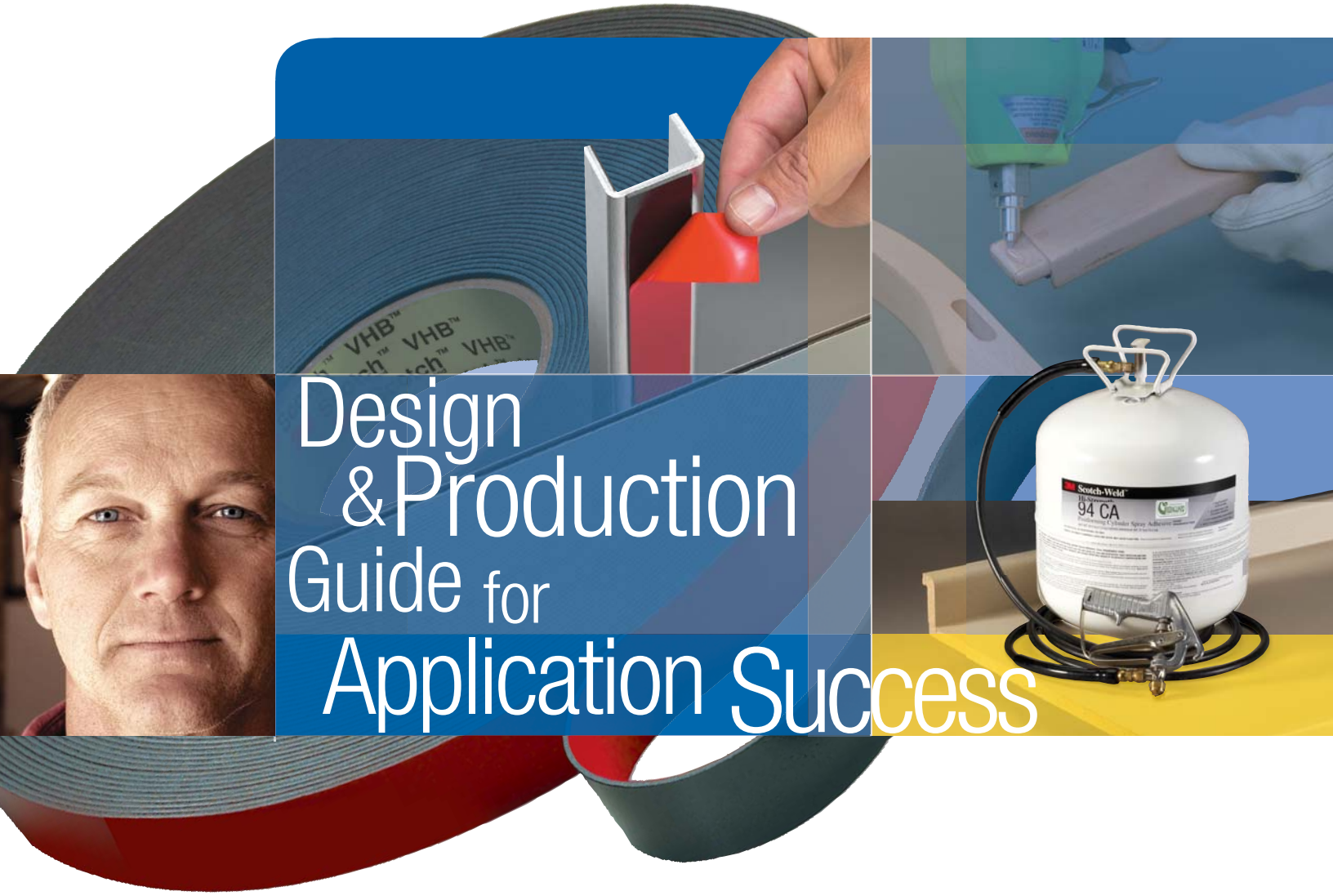
3M™ Adhesives and Tapes



Design & Production Guide for Application Success

Bonding, sealing, attaching,
mounting, laminating, and fastening

3M

Name your substrate combination…and read on for applications success

Steel to aluminum. Oak to pine. Decorative laminate to particle board. Vinyl to flexible foam. Glass to plastic. EPDM rubber to ceramic. Low surface energy plastic to oily steel. Styrene to concrete.

Name your combination.

Most likely you'll find what you need in this Guide to improve your product performance and appearance, and increase production efficiency. On the following pages, you'll find the results of more than 50 years developing and applying adhesive technology to solve the real world challenges of companies that need to design and build more competitive products.

From the most versatile and comprehensive line of adhesives and tapes available, you'll find all of the following for application success:

- **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.

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www.3M.com/adhesives

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Get connected with all 3M adhesives and tapes.
Download data pages and product-specific literature.
Request samples for evaluation.

Or call with questions: 1-800-362-3550

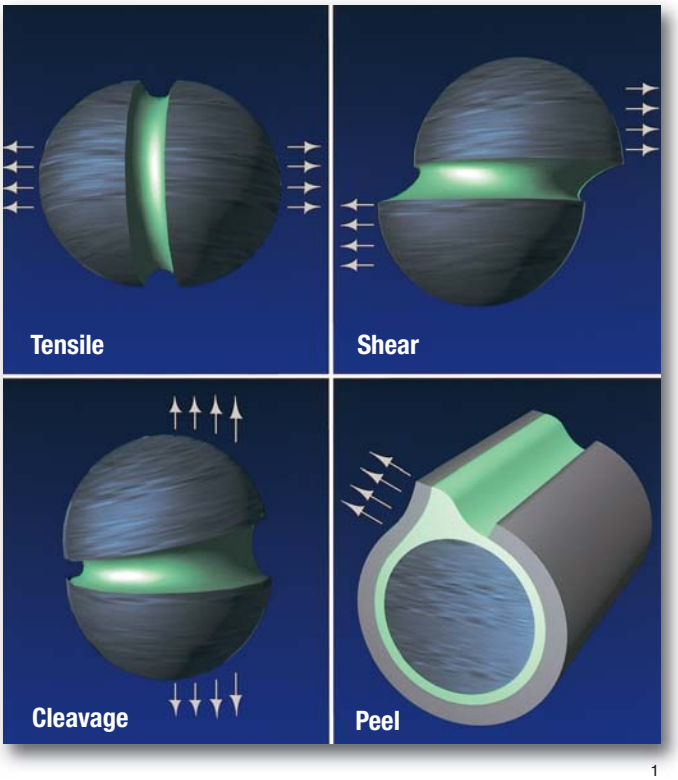
Knowing when to use 3M™ Adhesives and Tapes to improve your product and process

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.

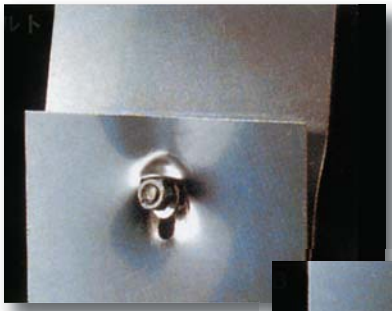
Shear is pull directed across the adhesive, forcing the substrates to slide over each other.

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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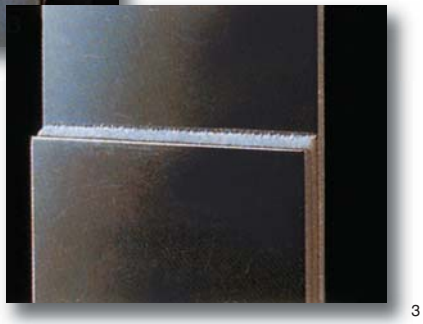

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Q *Would invisible fastening improve your products appearance?*

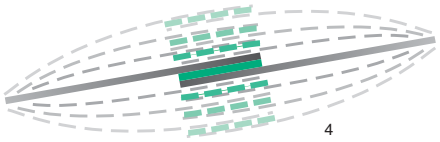
3M adhesives and tapes are generally hidden between the bonded substrates. Surfaces stay smooth and clean for a more attractive appearance and less surface refinishing.

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 85 through 91 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, 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 are 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.

- *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.

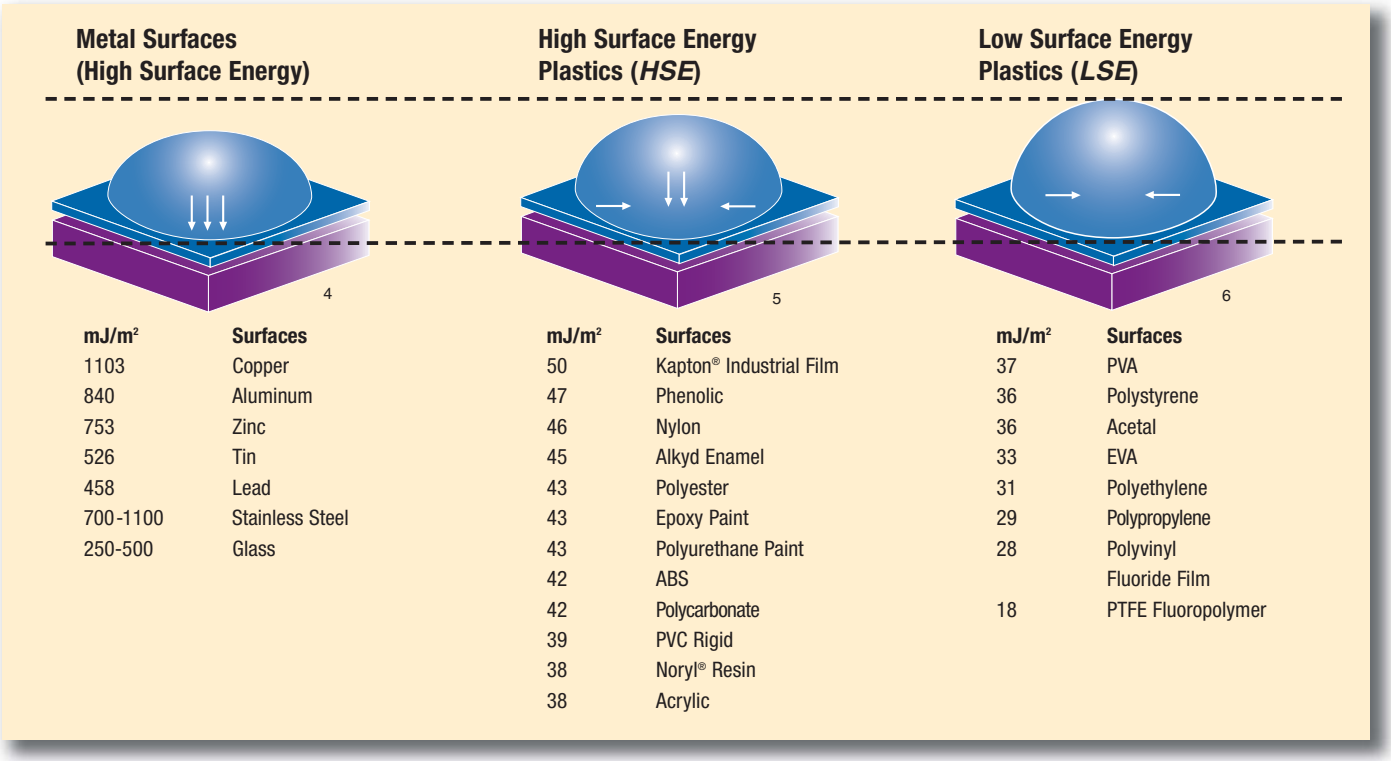
Adhesive paste, for example, flows readily into a rough surface for improved effective adhesion. Flexible materials such as paper or thin gauge metal can be bonded with a thin adhesive transfer tape. Large rigid parts with smooth clean surfaces can be bonded with a variety of 3M products ranging from 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.



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

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

mJ/m²	Surfaces
37	PVA
36	Polystyrene
36	Acetal
33	EVA
31	Polyethylene
29	Polypropylene
28	Polyvinyl Fluoride Film
18	PTFE 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.

7

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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


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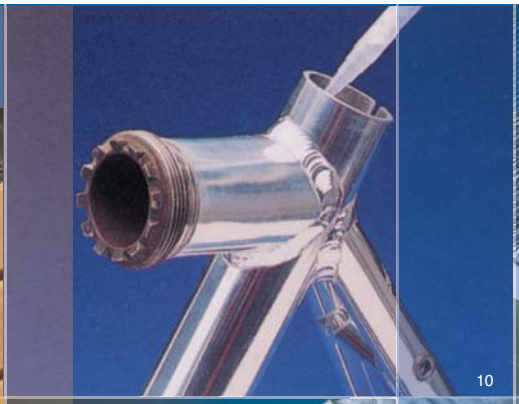
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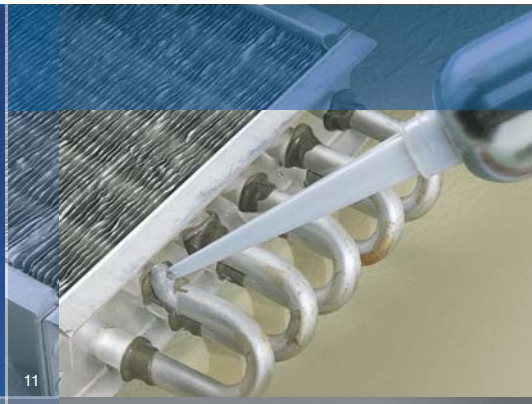
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With high cohesive strength, each 3M™ Structural Adhesive bonds high strength materials and potentially replaces mechanical fasteners and welds. Depending on the adhesive, you can bond metals, wood, rubber, ceramic, composites, engineering grade plastics, glass, and more.

Industries worldwide take advantage of the wide selection of adhesives and innovative dispensing for many applications, for example: bushing assembly in appliances, headlight assembly in cars, relays and controls in electronic equipment, lawn sprinklers, office partitions, pump casting components, golf clubs, and home furniture.

Products include the following:

- 3M™ Scotch-Weld™ Epoxy, Acrylic, and Urethane Adhesives
- 3M™ Scotch-Weld™ Instant Adhesives
- Rite-Lok™ Cyanoacrylate Adhesives
- Rite-Lok™ Anaerobic Adhesives
- 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive Systems

3M™ Scotch-Weld™ Epoxy, Acrylic, and Urethane Adhesives

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.

16 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.

19 With a 400ml cartridge, the 3M™ EPX™ Pneumatic Applicator applies 3M™ Scotch-Weld™ Epoxy Adhesive DP420 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.

17 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.

18 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.

20 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.

21 3M™ Scotch-Weld™ Epoxy Adhesive DP420 bonds steel couplings into aluminum tubing of a bicycle frame. Couplings are threaded for easy assembly and disassembly.

3M™ Scotch-Weld™ Structural Adhesives in Duo-Pak Cartridges and Bulk

	Product (Color)	Key Features	Mix Ratio (Volume) B:A	Approximate Viscosity 75°F (24°C) (cps)	Approximate Mixed Worklife at 75°F (24°C)	Approximate Time to Handling Strength at 75°F (24°C)	Average T-Peel at 75°F (24°C) (piw)	Overlap Shear (psi)		
								-67°F (-55°C)	75°F (24°C)	180°F (82°C)
Epoxy	DP100 (Clear)	General Purpose Rigid bonds	1:1	13,000	5 minutes	20 minutes	2	900	1,500	300
	DP100 Plus (Clear)	Very flexible Colorless	1:1	8,500	4 minutes	20 minutes	10	3,000	3,500	200
	DP100NS (Translucent)	General Purpose Non-sag	1:1	95,000	5 minutes	20 minutes	2	900	1,500	300
	DP100FR (White)	Flame Retardant UL94 V-0 rating	1:1	80,000	6 minutes	20 minutes	2	1,250	2,200	800
	DP105 (Clear)	Very flexible Colorless	1:1	6,500	5 minutes	20 minutes	35	3,500	2,000	150
	DP110 (Gray)	General Purpose Flexible bonds	1:1	55,000	8 minutes	20 minutes	20	2,700	3,500	250
	DP110 (Translucent)	General Purpose Flexible bonds	1:1	50,000	8 minutes	20 minutes	20	2,500	2,500	200
	DP125 (Gray)	High Performance Very flexible bonds	1:1	52,500	25 minutes	2.5 hours	35	3,400	4,300	400
	DP125 (Translucent)	High Performance Very flexible bonds	1:1	15,000	25 minutes	2.5 hours	35	4,000	2,500	150
	DP190 (Gray)	High Performance Flexible bonds	1:1	80,000	90 minutes	10 hours	20	1,500	2,500	400
	DP190 (Translucent)	High Performance Flexible bonds	1:1	10,000	80 minutes	6 hours	20	3,500	1,200	150
	DP270 (Black, Clear)	Rigid potting compound Non-corrosive	1:1	12,000	60 minutes	3 hours	2	1,200	2,500	300
	DP420 (Off-White)	Tough durable bonds High impact resistance	2:1	30,000	20 minutes	2 hours	50	4,500	4,500	450
	DP420 (Black)	Tough durable bonds High impact resistance	2:1	30,000	20 minutes	2 hours	50	4,500	4,500	1,250
	DP420NS (Black)	Tough durable bonds Non-sag	2:1	180,000	20 minutes	2 hours	50	4,500	4,500	1,250
	DP460 (Off-White)	Tough durable bonds High impact resistance	2:1	30,000	60 minutes	4 hours	60	4,500	4,500	700
	DP460NS (Off-White)	Tough durable bonds Non-sag	2:1	125,000	60 minutes	4 hours	60	4,900	4,650	1,350
	EC2216* (Gray)	High Performance Very flexible bonds	2:3	80,000	90 minutes	10 hours	25	3,000	3,200	400

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

* Available in Duo-Pak Cartridges only.

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3M™ Concrete Repair DP600 Self-Leveling sets quickly to anchor bolts.

23

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

24

3M™ Scotch-Weld™ Structural Adhesive EC2216 bonds honeycomb to aluminum for common applications in aerospace and transportation.

3M™ Scotch-Weld™ Structural Adhesives in Duo-Pak Cartridges and Bulk (cont.)

	Product (Color)	Key Features	Mix Ratio (Volume) B:A	Approximate Viscosity 75°F (24°C) (cps)	Approximate Mixed Worklife at 75°F (24°C)	Approximate Time to Handling Strength at 75°F (24°C)	Average T-Peel at 75°F (24°C) (piw)	Overlap Shear (psi)		
								-67°F (-55°C)	75°F (24°C)	180°F (82°C)
Urethane	DP600 (Gray)	Concrete repair Self-leveling	1:1	6,000	1 minute	4 minutes	–	–	3,580	–
	DP600NS (Gray)	Concrete repair Non-sag	1:1	Paste	1 minute	2 minutes	–	–	2,300	–
	DP601 (Gray)	Flexible Self-leveling	1:1	6,000	1 minute	4 minutes	–	–	2,300	–
	DP601NS (Gray)	Flexible Non-sag	1:1	Paste	1 minute	2 minutes	–	–	2,300	–
	DP604NS (Black)	Flexible Non-sag	1:1	Paste	4 minutes	20 minutes	–	–	900	–
	DP605NS (Off-White)	Semi-rigid Non-sag	1:1	150,000	5 minutes	20 minutes	–	–	1,250	–
	DP608 (Black)	Flexible Non-sag	1:1	Paste	10 minutes	90 minutes	–	–	2,000	–
	DP620NS (Black)	Flexible Non-sag	1:1	Paste	20 minutes	4 hours	–	–	2,500	–
	DP640* (Brown)	Tough flexible bonds Non-sag	1:1	25,000	40 minutes	8 hours	–	–	2,000	–
	DP5001 (Black)	Flexible Conveyor belt repair	1:1	100,000	1 minute	15 minutes	–	–	600	–
	DP5003 (Black)	Non-sag Vertical applications	1:1	Paste	3 minutes	60 minutes	–	–	500	–
	DP5105 (Gray)	Low temperature flexibility Expansion joint seals	1:1	32,000	5 minutes	9 hours	–	–	150	–
	DP5106 (Gray)	High strength Control joint seals	1:1	34,000	4 minutes	40 minutes	–	–	1,100	–
Acrylic	DP805 (Lt. Yellow)	Fast strength build-up Minimal surface prep	1:1	110,000	3 minutes	10 minutes	35	2,500	3,500	2,200
	DP807 (Lt. Yellow)	Fast strength build-up Minimal surface prep	1:1	50,000	5 minutes	10 minutes	20	–	2,500	–
	DP810 (Tan, Black)	Tough durable bonds High impact resistance	1:1	20,000	10 minutes	20 minutes	30	1,200	3,600	500
	DP8010NS (Off-White)	Bonds polyolefins and low surface energy materials	10:1	65,000	10 minutes	2 hours	30	–	2,400	400
	DP812 (Lt. Yellow)	Fast strength build-up Minimal surface prep	1:1	50,000	10 minutes	20 minutes	20		2,500	
	DP810NS (Tan)	Tough durable bonds Non-sag	1:1	95,000	10 minutes	20 minutes	20	1,200	4,000	500
	DP820* (Lt. Yellow)	Medium work life Minimal surface prep	1:1	55,000	15 minutes	40 minutes	20	3,100	3,150	1900
	DP825 (Lt. Yellow to Lt. Amber)	Medium worklife Minimal surface prep	1:1	50,000	25 minutes	40 minutes	20	–	2,500	
	DP8005 (Off-White, Black)	Bonds polyolefins and low surface energy materials	10:1	25,000	3 minutes	3 hours	17	–	2,400	300
	DP8010 (Off-White)	Bonds polyolefins and low surface energy materials	10:1	20,000	10 minutes	2 hours	35	–	1,800	400

* Available in Duo-Pak Cartridge only.

Rite-Lok™ 2-Step Structural Acrylic Adhesives*

Step 1: apply adhesive to one surface. Step 2: apply activator to second surface and reach handling strength in 3-5 minutes.

Product	Typical Use	Color	Chemical Type	Typical Viscosity (cps)	Temp Range	Time to Handling	Full Cure (hours)	Activator	Size
SA24	Impact resistant for a wide variety of dissimilar substrates	Amber	Acrylic	15,000	-65° to 275°F (-54° to 135°C)	3 min.	24	AC380D	50 ml btl.
SA30	High viscosity with superior peel and impact strength	Straw		22,000	-65° to 250°F (-54° to 121°C)	5 min.			300 gram cartridge
AC380D	Structural adhesive activator; solventless, non-flammable for use with SA24 or SA30								2 fl. oz. btl.

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

*** Other Rite-Lok™ Products on pages 16-21.**

3M™ Scotch-Weld™ Two-Part Structural Adhesives

	Product (Color)	Key Features	Mix Ratio (Volume) B:A	Approximate Viscosity 75°F (24°C) (cps)	Approximate Mixed Worklife at 75°F (24°C)	Approximate Time to Handling Strength at 75°F (24°C)	Average T-Peel at 75°F (24°C) (piw)	Overlap Shear (psi)		
								-67°F (-55°C)	75°F (24°C)	180°F (82°C)
Epoxy	1751 B/A (Gray)	Excellent void filler Rigid bonds	3:2	700,000	45 minutes	10 hours	4	1,400	2,000	500
	1838 B/A (Green)	Multi-purpose Rigid bonds	4:5	400,000	60 minutes	8 hours	4	1,500	3,000	500
	1838 B/A (Tan)	Multi-purpose Rigid bonds	5:6	250,000	60 minutes	8 hours	4	1,500	2,000	500
	1838L B/A (Translucent)	Multi-purpose Rigid bonds	1:1	10,000	60 minutes	8 hours	4	2,000	2,500	300
	2158 B/A (Gray)	Multi-purpose Rigid bonds	1:1	375,000	2 hours	10 hours	3	1,500	2,000	400
	2216 B/A (Gray)	High performance Very flexible bonds	2:3	80,000	90 minutes	10 hours	25	3,000	3,200	400
	2216 B/A (Translucent)	General purpose Very flexible bonds	1:1	10,000	2 hours	14 hours	25	3,000	1,700	140
	2216 B/A NS (Tan)	High performance Non-sag	2:3	350,000	2 hours	10 hours	25	2,000	2,500	400
	3501 B/A (Gray)	Multi-purpose Rigid bonds	1:1	500,000	7 minutes	25 minutes	4	1,500	2,400	300
	Fast Set Wood	Low viscosity with short time to handling strength	1:1	12,000	4 minutes	20 minutes	–	–	–	–
	Fast Set Non-Sag Wood	High viscosity with short time to handling strength	1:1	95,000	4 minutes	20 minutes	–	–	–	–
	Medium Set Wood	Low viscosity with longer time to handling strength	1:1	10,000	45 minutes	8 hours	–	–	–	–
Urethane	3532 B/A (Brown)	Multi-purpose Semi-rigid bonds	1:1	30,000	10 minutes	90 minutes	25	2,500	2,000	300
	3535 B/A (Off-White)	Multi-purpose Semi-rigid bonds	1:1	30,000	3 minutes	30 minutes	25	2,500	2,000	300
	3549 B/A (Brown)	Tough Flexible bonds Non-sag	1:1	30,000	60 minutes	8 hours	25	2,500	2,000	300

3M™ Scotch-Weld™ One-Part Epoxy Adhesives and Metal Primers

	Product (Color)	Key Features	Approximate Viscosity 75°F (24°C) (cps)	Cure Conditions			Average T-Peel at 75°F (24°C) (piw)	Overlap Shear (psi)			
				Time (min)	Temperature (°F/°C)	Pressure (psi)		-67°F (-55°C)	75°F (24°C)	180°F (82°C)	250°F (121°C)
Epoxy	1386 (Cream)	High temperature strength Impact resistance	150,000	60	350/177	10	10	3,000	5,500	4,500	2,500
	1469 (Cream)	High temperature strength Low viscosity	60,000	120	350/177	10	2	3,150	3,700	3,700	3,600
	2086 (Gray)	High temperature strength High viscosity	Paste	60	350/177	10	5	3,000	5,000	5,000	2,200
	2214 Regular (Gray)	High temperature strength Low temp curing	Paste	60	250/121	10	5	3,000	4,500	4,500	1,500
	2214 Hi-Density (Gray)	High temperature strength Deaerated, dense bonds	Paste	60	250/121	10	5	3,000	4,500	4,500	1,700
	2214 Hi-Temp Original (Gray)	High temperature strength and environmental resistance	Paste	60	250/121	10	2	2,000	2,000	3,000	2,500
	2214 Hi-Temp New Formula (Gray)	High temperature strength and environmental resistance	Paste	60	250/121	10	2	2,800	2,800	2,800	2,500
	2214 Non-Metallic Filled (Cream)	High temperature strength Higher insulation value	Paste	60	250/121	10	7	3,000	4,000	4,500	1,500
	2290 (Amber)	Low solids liquid coating for metal laminations	60	30	350/177	50	10	5,000	5,000	3,500	1,200

	Product (Color)	Description	Viscosity (cps)	Comments
Primer	3901 (Red)	Adhesion promoter Organo-silane base Brush or spray	5	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.

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™ EPX Applicators for Duo-Pak Cartridges

For low volume applications and take-it-to-the-job convenience, the 3M™ EPX Plus II and EPX metal manual applicators comfortably dispense any of the many 3M™ Scotch-Weld™ Duo-Pak Structural Adhesives.

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

For concrete repair, you also have manual or pneumatic options.

Manual Applicators


25

EPX Plus II Applicator
35ml with10:1 plunger
37ml with 2:1 plunger included
50ml with 1:1 plunger included


26

EPX Metal Applicator
with 2:1 plunger included


27

EPX 200ml Applicator
with 2:1 and 1:1 plunger included


28

Concrete repair 12-ounce
cartridge applicator

Pneumatic Applicators


29

EPX 50ml Applicator
for 50ml 1:1 and for 37ml 2:1 low viscosity products


30

EPX 200ml Applicator
for 200ml 1:1 and 2:1, and 250ml 10:1 (conversion kit)


31

EPX 400ml Applicator
for 1:1 and 2:1


32

Concrete repair 12-ounce cartridge applicator

3M™ Nozzles for EPX Applicators and Duo-Pak Cartridges

Choose either the square gold or helical nozzle.

With the unique chambered design of the square gold, the two parts of the adhesive cascade through the nozzle with just low pressure to mix and apply even higher viscosity adhesives.

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


33

Helical 35ml 10:1 and 250ml 10:1


34

Helical and square gold 37ml 2:1, 50ml 1:1, and 43ml 2:1


35

Helical and square gold 200/400ml 1:1 and 2:1


36

Concrete repair helical


37

Concrete repair square for 8.4 oz. cartridge


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3M™ EPX Nozzles simultaneously mix, meter, and dispense 3M™ Scotch-Weld™ 2-Part Adhesives or Concrete Repair from Duo-Pak cartridges. Extended reach helical nozzle is shown here bonding ABS components of a pump housing.

3M™ Scotch-Weld™ Instant Adhesives

Fast bonding combinations 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.

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

40

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

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
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*
Thin Instant Wood Adhesive	• Very fast handling strength for general furniture, cabinet, and veneer assembly	_	5	10	_	1550	1700	_	_	_	_
Medium Instant Wood Adhesive	• Short time to handling strength with some gap filling	_	10	450	_	2850	1950	_	_	_	_
Thick Instant Wood Adhesive	• Longer time to handling strength with additional gap filling • Some repositionability of parts on porous surfaces	_	60	2250	_	2850	2700	_	_	_	_
Surface Activator	• Clear, colorless organic-based liquid helps speed curing and prime surfaces • Comes with brush and spray pump										

(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.

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

Rite-Lok™ Cyanoacrylate Adhesives

Choices for instant performance and productivity...flexible bond line, low bloom, low odor, more

Known as instant adhesives, Rite-Lok™ Cyanoacrylate Adhesives offer more than a range of seconds-fast bonding for substrates ranging from metal to plastic, wood to rubber. These liquid and gel formulations give you a wide selection of other properties to help improve production and end use:

- Super fast curing
- Low odor
- Low blooming
- High temperature resistance
- Rubber-toughened for impact resistance
- Flexible to resist vibration
- Engineered grade for hard-to-bond plastics and rubbers
- Optimized metal bonding
- Bonding insensitive surfaces
- Gap filling

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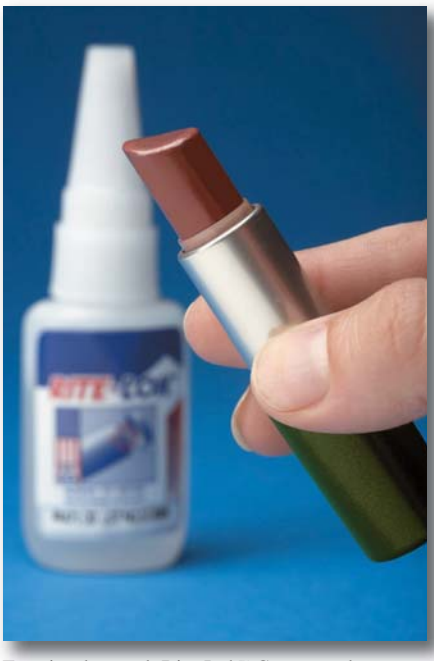
With a unique polymer, rubber-toughened Rite-Lok™ Cyanoacrylate Adhesives cure to a flexible bond line between dissimilar materials to maximize resistance to impact, peel, and thermal recycling. Choose low viscosity for close-fitting parts or high viscosity for gap filling.

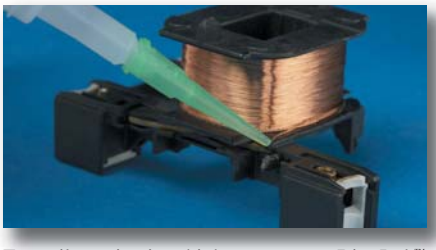


44

For visual appeal, Rite-Lok™ Cyanoacrylate Adhesive LO100 is a low blooming formulation that bonds the plastic riser into a lipstick casing without chlorosis (white residue at the joint). Low odor reduces the need for sophisticated ventilation equipment.

42

To speed production and reliably assemble plastic and rubber, super fast curing Rite-Lok™ Cyanoacrylate Adhesives reach handling strength in 3-30 seconds. Also bond EPDM and other hard-to-bond substrates with confidence.



43

For coil termination, high temperature Rite-Lok™ Cyanoacrylate Adhesive HT700 resists continuous temperature up to 223°F (106°C) and intermittent exposure as high as 250°F (121°C).

45

Consider one of the engineered grade Rite-Lok™ Cyanoacrylate Adhesives for productivity and performance in bonding difficult-to-bond plastics and rubbers to themselves or in combination with metals or composites.

46

With more than 30 Rite-Lok™ Cyanoacrylate Adhesives, you have choices for application success with surfaces that are dissimilar, porous, non-porous, rough, smooth, oily, clean, low surface energy, high energy, and more.

Rite-Lok™ Cyanoacrylate Adhesives

Product	Typical Use	Color	Chemical Type	Typical Viscosity (cps)	Temperature Range	Time to Handling	Full Cure (hours)	Markets
Super Fast Cyanoacrylate Adhesives								
SF20	Optimum performance on wide range of rubber and plastic	Clear	Ethyl Hybrid	20	-65° to 180°F (-54° to 82°C)	3-30 sec.	24	Automotive, appliance, leather working, hand tools, electronics, power tools
SF100	Fast cure, high strength with EPDM and other elastomers			100		3-30 sec.		
Low Odor Cyanoacrylate Adhesives								
LO5	Very low viscosity wicking grade	Clear	Methoxyethyl	5	-65° to 160°F (-54° to 71°C)	5-60 sec.	24	Cosmetic cases, appearance-critical applications, black substrates, close-up bonding
LO100	Low-medium viscosity for close fitting parts			100		10-60 sec.		
PR03	Medium-high viscosity for gap filling			1000		20-70 sec.		
Rubber-Toughened Cyanoacrylate Adhesives								
PR80	Low viscosity for close fitting parts	Black	Ethyl Hybrid	300	Continuous -65° to 200°F (-54° to 93°C) Intermittent -65° to 225°F (-54° to 107°C)	20-50 sec.	24	Automotive, appliance, electric motors, hand tools, electronics, power tools
PR10	High viscosity for gap filling			3500		20-90 sec.		
Flexible Cyanoacrylate Adhesives								
PR851	Medium viscosity with some gap filling	Clear	Ethyl Hybrid	300	-65° to 160°F (-54° to 71°C)	10-35 sec.	24	Automotive, appliance, hand tools, electronics, power tools
High Temperature Cyanoacrylate Adhesives								
HT40	Low viscosity for close fitting parts	Clear	Ethyl Hybrid	40	Continuous -65° to 223°F (-54° to 106°C) Intermittent -65° to 250°F (-54° to 121°C)	5-20 sec.	24	Appliance, electronics, electric motors, automotive, transformers
HT700	Medium viscosity with some gap filling			700	Same as HT40	15-40 sec.		
Engineered Grade Cyanoacrylate Adhesives								
PR5	Very low viscosity wicking grade for plastics/rubbers	Clear	Ethyl Hybrid	5	-65° to 180°F (-54° to 82°C)	1-10 sec.	24	Automotive, appliance, electronics, hand tools, power tools
PR40	Low viscosity for close fitting plastics/rubber parts			40		3-20 sec.		
SB14	General purpose, low viscosity plastic bonder			100		10-30 sec.		
PR600	Medium viscosity with some gap filling for plastics/rubbers			600		4-25 sec.		
SB16	General purpose, high viscosity for gap filling			1500		20-100 sec.		
PR54	Fast cure, gel viscosity for max gap filling			Gel		3-60 sec.		
PR600B	Black version of PR600	Black		600		4-25 sec.		

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

Rite-Lok™ Cyanoacrylate Adhesives (cont.)

Product	Typical Use	Color	Chemical Type	Typical Viscosity (cps)	Temperature Range	Time to Handling	Full Cure (hours)	Markets
Metal Cyanoacrylate Adhesives								
SB93	Low viscosity to penetrate between parts	Clear	Methyl	5	-65° to 180°F (-54° to 82°C)	15-35 sec.	24	Costume jewelry, treated metals, plated metals, metal working
SB30	Multi-purpose metal bonder			100		5-20 sec.		
Surface Insensitive Cyanoacrylate Adhesives								
SB20	Very low viscosity wicking grade	Clear	Ethyl Hybrid	2	-65° to 180°F (-54° to 82°C)	15-35 sec.	24	Woodworking, luggage and fabric, hobby, costume jewelry, leather
SB95	Low viscosity for close fitting parts			40		2-20 sec.		
SI100	Low-med viscosity for medium gaps			100		3-20 sec.		
SI1500	High viscosity for gap filling			1500		5-60 sec		
SI2500	Very high viscosity for gap filling			2500		15-40 sec.		
SB09	Fast cure, gel viscosity for max gap filling			Gel		3-60 sec.		
General Purpose Cyanoacrylate Adhesives								
EC40	General purpose, fast curing	Clear	Ethyl	40	-65° to 180°F (-54° to 82°C)	10-30 sec.	24	Automotive, general bonding, consumer products, toys, rubber/plastic assembly
EC100	General purpose, fast curing			100		10-40 sec.		
EC600	Higher viscosity to reduce migration from bond area			600		5-60 sec.		
EC2500	Slow cure for porous material or gap filling			2500		20-60 sec.		
ECIGEL	Industrial strength thixotropic gel for maximum gap filling			Gel		45-180 sec.		
Cyanoacrylate Primers, Activators, and Debonders								
AC12	Cyanoacrylate accelerator with isopropyl alcohol formulation for insensitive plastics, cosmetically critical bond lines, and medical applications.							
AC68	Cyanoacrylate debonder for cleanup.							
AC77	Cyanoacrylate polyolefin primer for very fast bonding of difficult-to-bond polyethylene and polypropylene.							
AC78	Adhesion promoter for use with silicone, Santoprene®, Viton® and EPDM.							
AC79	California compliant version of AC78 (acetone based).							
AC113	Cyanoacrylate general purpose accelerator will not attack plastics.							
AC452	Cyanoacrylate acetone-based accelerator flashes off rapidly; excellent adhesion; overspray may attack some plastics.							

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

Rite-Lok™ 2-Step Structural Acrylic Adhesives on page 12.

Rite-Lok™ Anaerobic Adhesives

The easy choice for running a tight operation

When you need secure tight fits and seals to keep production up and running, Rite-Lok™ Anaerobic Adhesives offer a wide selection of properties to help you save the time and cost of disruptive, unscheduled downtime due to leaks and loose fasteners.

For threadlocking, sealing, retaining, and gasketing, application is fast and easy with just a targeted squeeze of a bottle or tube. In the absence of oxygen and in the presence of metal, the anaerobic formulation cures quickly to a tough plastic that fills, seals, and secures.

Rite-Lok™ Threadlockers weld fasteners in place for blind holes and thru holes and prevent loosening from vibration.

Rite-Lok™ Pipe Sealants seal instantly to stop leaks when applied to the threads or compression fittings of most metal or certain plastic pipes.

Rite-Lok™ Retaining Compounds bond and seal non-threaded cylindrical assemblies.

Rite-Lok™ Gasket Makers fill voids between metal flanges and cure to a tight, rigid or flexible seal.

47

Rite-Lok™ 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.

50

Rite-Lok™ Gasket Makers eliminate pre-cut or compression gaskets, or hold pre-cut gaskets in place during production. Seal without shimming effect or creeping.

48

Rite-Lok™ Threadlockers fill and seal threads completely to help stop corrosion, rust, and leaks. Securely hold even dissimilar metals.

49

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

51

To save the cost of leaking fluid or gas, Rite-Lok™ Pipe Sealants cure quickly to a tight, continuous seal without the creep and shrinkage of pastes.

52

With a fast and easy squeeze, Rite-Lok™ Pipe Sealants eliminate the cost and problems of shredding tapes, O-rings, and other mechanical sealants.

Rite-Lok™ Anaerobic Adhesives

Product	Typical Use	Color	Typical Viscosity (cps)	Temperature Range	Time to Handling	Full Cure (hours)	Size
Threadlocker Anaerobic Adhesives							
TL22	Screwlock – Low removal torque for small fasteners less than a 1/4" (6mm) (HTR[1])	Purple	1200	-65° to 300°F (-54° to 149°C)	< 20 min.	24	50, 250 ml btl.
TL42	Nutlock – Medium strength, general purpose (HTR[1])	Blue	1200				1 ml pipette 10, 50, 250 ml btl. 1 liter pipette
TL43	Oil tolerant, medium strength general purpose (HTR[1])	Blue	3300				10, 50, 250 ml btl.
TL62	Studlock – High strength with controlled torque tension (HHR[2])	Red	1600				10, 50, 250 ml btl. 1, 14 liter btl.
TL71	Permanent studlock for bolts and studs up to 1" (25mm) (HHR[2])		500				1 ml pipette 10, 50, 250 ml btl. 1, 14 liter btl.
TL72	High temperature studlock with gap filling for larger diameter coarse threaded parts (HHR[2])		7000	-65° to 450°F (-54° to 232°C)			10, 50, 250 ml btl. 1 liter btl.
TL77	Heavy duty permanent for fasteners up to 1.5" (38mm) with coarse threads (HHR[2])		7000	-65° to 300°F (-54° to 149°C)	< 60 min.		10, 50, 250 ml btl. 1, 14 liter btl.
TL90	Penetrating adhesive for pre-assembled fasteners and porosity sealing of welds (HHR[2])	Green	20	-65° to 300°F (-54° to 149°C)	< 20 min.		10, 50, 250 ml btl. 1 liter btl.
Product	**Typical Use**	**Color**	**Typical Viscosity (cps)**	**Temperature Range**	**Time to Handling**	**Seal to Operating Pressure (hours)**	**Size**
Pipe Sealant Anaerobic Adhesives							
HP45	High pressure sealant for all hydraulic and pneumatic fittings; will not clog valve or filters	Purple	14,000	-65° to 300°F (-54° to 149°C)	NA	4	1 ml pipette 50, 250 ml btl.
HP54	Refrigerant sealant with excellent chemical resistance	Red	2500				50, 250 ml btl.
HP69	High pressure sealant for all fine threaded hydraulic and pneumatic fittings	Brown	500				50, 250 ml btl.
PS65	General purpose for applications requiring easy disassembly	White	Paste				50 ml tube 250 ml btl.
PS67	Fast curing paste sealant for inactive surfaces such as stainless steel		Paste	-65° to 400°F (-54° to 204°C)			50 ml tube 250 ml btl.
PS92	High temperature for sealing tapered and parallel threaded components		Paste				50 ml tube 250 ml btl.
Product	**Typical Use**	**Color**	**Typical Viscosity (cps)**	**Temperature Range**	**Time to Handling**	**Full Cure (hours)**	**Size**
Retaining Compound Anaerobic Adhesives							
RT09	For tight tolerances and press fit augmentation	Green	125	-65° to 300°F (-54° to 149°C)	10-30 min.	24	10, 50, 250 ml tube
RT20	For assembly of automotive/marine cylinder liners and heat exchanger tubes		7000	-65° to 450°F (-54° to 232°C)	30-40 min.		10, 50, 250 ml tube
RT35	High strength for slip fits		2000	-65° to 300°F (-54° to 149°C)	10-60 min.		50, 250 ml btl.
RT40	Secures all types and sizes of bearings, shafts and cylindrical parts		600	-65° to 400°F (-54° to 204°C)	10-15 min.		50, 250 ml btl.
RT41	Medium strength for disassembly for service and bearing re-use	Tan	600	-65° to 300°F (-54° to 149°C)	15-20 min.		250 ml tube
RT60	High strength, high viscosity paste	Grey	Paste		10-30 min.		10 ml btl.
RT80	High strength, high viscosity to bond rigid assemblies	Green	1600		5-15 min.		10 ml btl.
RT142	Seal core plugs in engines for assembly or repair of loose fitting parts	Blue	10,000		5-15 min.		250 ml btl.

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

[1] Hand tool for removal [2] Heat and hand tool for removal

Rite-Lok™ Anaerobic Adhesives

Product	Typical Use	Color	Typical Viscosity (cps)	Temperature Range	Cured Speed unprimed (primed)	Cured State	Size
Gasket Maker Anaerobic Adhesives							
GM04	Instant low pressure seal for gaps to .030"	Orange	Paste	-65° to 300°F (-54° to 149°C)	4-24 hours (30 min.-4 hrs)	Rigid	50 ml tube 250 ml tube
GM10	Making or dressing gaskets in rigid assemblies; can be screen printed; high temperature resistance	Red	Paste	-65° to 400° F (-54° to 204°C)	4-24 hours (30 min.-4 hrs)	Rigid	50 ml tube
GM15	General purpose; flexible to withstand vibration	Purple	Paste	-65° to 300°F (-54° to 149°C)	1-12 hours (15 min.-2 hrs)	Flexible	50, 250 ml tube 300 ml cartridge
GM18	Instant seal without a primer on mating aluminum flanges	Red	Paste	-65° to 300°F (-54° to 149°C)	4-24 hours (30 min.-4 hrs)	Flexible	50 ml tube 300 ml cartridge

Product	Typical use	Size
Anaerobic Adhesives Primers		
AC471	Fast-acting surface cleaner and primer for use with all anaerobic adhesives; seven day part life for pre-application	2 fl. oz. 1 gal. btl.
AC649	Acetone-based green primer for inactive or very cold surfaces; 30 day part life for pre-application	2, 8 fl. oz. 1 gal. btl.
3989	3M™ Scotch-Weld™ Anaerobic Activator to accelerate curing; dry time 30-60 seconds; solvent-based (flammable acetone)	4.5 fl. oz.

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

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3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive Systems

Dual power of speed and strength in the palm of your hand

Put a powerful production capability in your assembly operation.

Production typical of hot melt adhesive

- **Fast set** and handling strength in as few as 5 seconds help eliminate or minimize fixturing to speed assembly
- **Low VOCs and 100% solids** eliminate drying and ventilation equipment and will not attack plastics
- **Choice of open times and viscosities** depending on the applicator and adhesive
- **One-component and moisture-curing** adhesives eliminate metering, mixing, and curing time and equipment

Performance typical of structural adhesive

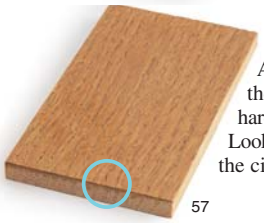
- **Greater than 1,000 lbs. holding strength within minutes** exceeds strength of conventional hot melt and PVA adhesives
- **Save finishing steps** with the elimination of nails and other mechanical fasteners in many applications

With either applicator and the variety of 3M™ Scotch-Weld™ PUR Polyurethane Reactive Adhesives, you have hot melt speed with structural adhesive benefits for bonding a wide range of substrate combinations: wood to wood, MDF to MDF, PVC to SBR, FRP to FRP, glass to wood, and much more. Both self-contained applicators are easy to use and maintain with disposable nozzles and no purging. Trigger a neat bead of adhesive at up to 11 lbs./hr. for many applications.

Thin, flexible bond line to improve fit, appearance, and durability

Two pieces of oak are edge spliced with 3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Adhesive System.

56



After staining, the bond line is hard to find. Look inside the circle.

57

The wood fails before the bond line in this test and many other applications.

58

59

For both PUR Easy and PUR Easy 250, an optional filter/pressure regulator is available to remove particulate material and water.

60

Bond mirrors to wood doors with immediate handling strength to keep assembly moving.

61

Choice of viscosities and open time to match application requirements for bonding wood to wood and other substrates.

62

Bond wood components throughout a hot tub enclosure. Durable bond resists temperature differentials, weathering, moisture, and chemicals.

3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy Adhesive Systems

Lower application temp for many substrates including heat sensitive

- Electrically-heated pneumatic green applicator dispenses adhesive at 170°F (77°C) with the squeeze of a trigger
  - – Adhesive can stay in applicator at dispensing temperature for up to 40 hours
- Four adhesives with a range of properties including adhesion to heat sensitive substrates
- Optional pre-heater to keep cartridges ready to use

63

Bond wood or plastic rosettes to wood drawers without fixturing or drying time.

64

65

Permanently and quickly bond wood and MDF (Medium Density Fiberboard) bottoms and side panels in drawers.

66

Adhesives are available for bonding a variety of wood sizes and configurations such as this mortise and tenon assembly.

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

Product	Description	Viscosity @ 170°F (77°C) (cps)	Open Time (Min.)	Set Time (Sec.)	Shore D	Tensile Strength (PSI)	Elongation (%)
17005	• Very fast set time • Excellent wood bonding adhesive • 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

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

Shelf Life
12 Months is the maximum amount of time an end-user has to use the product while stored within the conditions recommended by 3M.

Open Time
This is the maximum time between the application of the adhesive and when the parts must be joined together. This information is based on 1/8" bead and non-metallic substrates at 75°F (20°C).

Set Time
Also known as fixturing/clamping time. This is the minimum amount of time required for the adhesive to solidify and hold the parts together (able to support a tensile load of 5 psi).

3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy 250 Adhesive Systems

Higher application temp for longer open time and many difficult-to-bond applications

- Electrically-heated pneumatic yellow applicator dispenses adhesive at 250°F (121°C) with the squeeze of a trigger
  - Adhesive can stay in applicator at dispensing temperature for up to 16 hours
- Five adhesives with a range of properties including adhesion in difficult-to-bond jobs such as hardwood miter corners
- Optional dual temperature pre-heater to keep cartridges ready to use

A neatly applied bead of adhesive bonds the extruded plastic edge molding to the particle board core of a counter top.

68

67

69

With a thin bond line, PUR 250 adhesive makes a secure, aesthetically-pleasing crown molding assembly.

70

For furniture and upholstery, PUR 250 adhesive bonds leather or fabric gimping and seams.

3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy 250 Adhesives

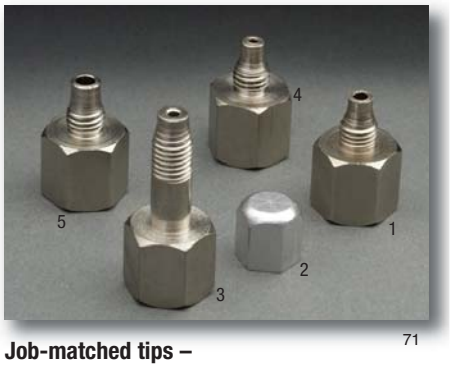
Product	Description	Viscosity @ 250°F (121°C) (cps)	Open Time (Min.)	Set Time (Sec.)	Shore D	Tensile Strength (PSI)	Elongation (%)
Wood Adhesives							
250015	• Fast set time for wood and select plastics	7000	1.5	15	65	3900	750
250060	• Medium set time for wood and select plastics	7000	2	60	60	4200	675
250120	• Medium set time • Low viscosity • Very thin bond line for wood	3000	4	120	60	4000	625
Plastic Adhesives							
250030	• Fast set time for many plastics including polystyrene and polyacrylic	13,000	2	30	50	3900	725
250150	• Long open and set times for wood, plastics, and material combinations such as aluminum or glass to plastics or wood	9000	4	150	45	3300	700

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

3M™ Scotch-Weld™ Polyurethane Reactive (PUR) Easy 250 Adhesives

Product	Description	Application temperature	Viscosity @250°F (cps)	Color(s)	Open time (min.)	Set time (sec.)	Shore D	Tensile strength (PSI)	Elongation %
TE015	• Extrudable with very fast set time • Bond wood and selected plastics	250°F (121°C)	7,000	White/ Off-White	1.5	15	65	3950	750
TE030	• Extrudable with fast set time • Bond wood and selected plastics	250°F (121°C)	16,000	White/ Off-White	1	30	60	3800	725
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, Black	2	30	50	3900	725
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	40	35	2750	860
TE100	• Extrudable with medium set time • Bond wood and selected plastics • Thin bond lines	250°F (121°C)	7,000	White/ Off-White, Black	2	60	61	4200	675
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	120	60	4000	625
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, Black	4	150	45	3300	700
TS115 HGS	• Sprayable/extrudable/roll coatable with fast set time • Bond wood, FRP, other plastics to themselves, metal, glass	250°F (121°C)	16,000	White/ Off-White	10	60	47	3200	600

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



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Job-matched tips –

1) Nozzle assembly (021200-89514) supplied with either PUR Easy or PUR Easy 250 applicator.
2) Threaded cap for sealing tip after use.
3) Extension tip for improved sight line in hard-to-reach areas.
4) .062" tip for low flow applications.
5) .125" tip for high flow applications.


72

Benchmount system with foot pedal activation for hands-free operation of either PUR Easy or PUR Easy 250 applicator.

Container sizes to meet your production volume –

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


73

3M™ Non-Structural Adhesives

74

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78

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.

Products include the following:

- 3M™ Fastbond™ and Scotch-Weld™ Industrial Adhesives
- 3M™ Fastbond™ and Scotch-Weld™ Contact Adhesives
- 3M™ Scotch-Weld™ Cylinder Spray Adhesives
- 3M™ Scotch-Weld™ Hot Melt Spray Adhesives
- 3M™ Aerosol Adhesives
- 3M™ Cleaners and Lubricants
- 3M™ Concrete Repair Products
- 3M™ Sealants

3M™ Fastbond™ and Scotch-Weld™ Industrial Adhesives

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

3M™ Fastbond™ and Scotch-Weld™ 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-Weld™ Rubber and Gasket 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- Weld™ 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-Weld™ 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.

80

When refurbishing a pinball machine, 3M™ Scotch-Weld™ Plastic Adhesive 4693H bonds and seals decorative translucent plastic inserts into the underside of the playing surface.

81

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

82

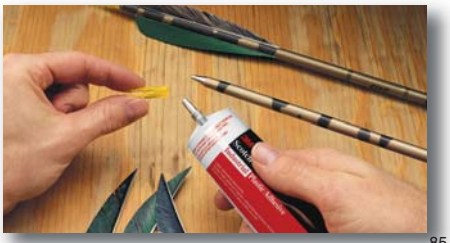
With excellent resistance to fuel and oil, 3M™ Scotch-Weld™ Nitrile High Performance Rubber and Gasket Adhesive 847 bonds and seals chemical drum gaskets in place.

83

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.

84

In washing machine repair, 3M™ Scotch-Weld™ Neoprene High Performance Rubber and Gasket Adhesive 1300 bonds with high immediate strength and seals the doughnut ring seal in the outer tub.



85

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

3M™ Scotch-Weld™ 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]	N/A
	1099	• Fast drying and heat curable • Resists weathering, water, oil, plasticizer migration, aliphatic fuels • Meets 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	Light 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]
	4491	• Resists weathering, water, fuels, oil, and plasticizers • HAPS-free and SCAQMD Rule 1168 compliant solvent-based adhesive	22-26%	0°F (-18°C)	Thin liquid	Light Tan	Spray	Up to 20 minutes	1306 [1] [2]	643	N/A
	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.

3M™ Scotch-Weld™ 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 • Meets MIL-C-4003	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 • Meets MIL-M-81288	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 • Meets MIL-A-5092B	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.

3M™ 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	49	• Fast tacking, high performance pressure sensitive adhesive for lightweight materials • Low VOCs • UL component recognition MAGW2 file MH 6288 • GREENGUARD™ Certified	55%	None	Thin liquid	Clear	Spray, brush, roller	30 days plus	3.0 (3)
	4213NF	• Resists staining and discoloration • Dries clear • Low VOCs	54%	None	Medium liquid	Clear	Brush, roller, trowel	5 minutes	12.0 (2)
	4224NF	• Permanently pressure sensitive with aggressive tack • Plasticizer resistant • Low VOC content • GREENGUARD™ Certified	40%	None	Thick liquid	Blue, Clear	Spray, brush, roller, trowel, coater	30 days plus	4.4 (3)
3M™ Scotch-Weld™ Adhesives	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)
	4323	• Resists wear, heat and dead load creep	66%	1°F (-17°C)	Mastic	Gray	Caulk, flow, trowel	Up to 20 minutes	N/A
	4550	• Fast tacking • Long bonding range	35%	Less than -20°F (-29°C)	Medium liquid	Trans-lucent	Low pressure spray	Up to 60 minutes	23.0 (1)

Other 3M™ Adhesives	Product	Features	Size	% Solids	Sq. Ft. Coverage @ 1 gram dry (per gallon)	SCAQMD Rule 1168 Compliant
	Super 77™	• High coverage, low soak-in for long lasting bonds • High temperature resistance • Clear and Red	5 gal., 52 gal.	37	1,092	No
	Polystyrene Foam Insulation 78	• Bonds most insulation, including expanded polystyrene and extruded polystyrene • Will not attack foam board • Clear	5 gal.	35	1,049	No

3M™ Solvent

Product	Features	Base	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color	Application Method
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

3M™ Adhesive Remover

Product	Features	Size	% Solids	Sq. Ft. Coverage @ 1 gram dry (per gallon)	SCAQMD Rule 1168 Compliant
Adhesive Remover	• Ideal for removal of adhesive residue or for surface preparation • Solvent-free • Also removes heavy oils, grease, silicone, tar and grime • Pale Yellow	1 gal., 5 gal., 52 gal.	NA	NA	No

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.

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3M™ Fastbond™ and Scotch-Weld™ Contact Adhesives

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 about 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.

87

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.

88

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.

89

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.

90

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.

91

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.

92

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.

3M™ Fastbond™ Contact Adhesives, Water-Based

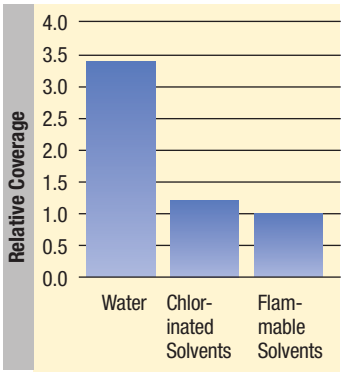
	Product	Description	Solids Weight (Approx.)	Flash Point (Closed Cup)	Consistency	Color Dry Film	Application Method	Bonding Range	Overlap Shear Strength (PSI) 75°F (24°C)	Overlap Shear Strength (PSI) 180°F (82°C)	Peel Strength (PIW) 75°F (24°C)
Contact Adhesives, Water-Based	30NF	• Long bonding range with high immediate bond strength • Economical high coverage • Meets MIL-A-24179A, Type I • GREENGUARD™ Certified	50%	None	Thin liquid	Green, Neutral	Spray, roller, brush	Up to 4 hours	480(1)	60(1)	5.9(2)
	30H	• High viscosity version of 30NF for roll coating • GREENGUARD™ Certified	50%	None	Medium liquid	Green	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 • GREENGUARD™ Certified	49%	None	Thin liquid	Blue, Light Orange, Neutral	Co-Spray	Up to 2 hours	350(1)	50(1)	4.1(2)
	100NF	• One-part, fast setting with neoprene base • Bonds many porous substrates to porous or non-porous substrates • GREENGUARD™ Certified	47%	None	Very thin liquid	Lavender, Neutral	Spray	Up to 20 minutes	NA	NA	1.1(2)

3M™ Scotch-Weld™ 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	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 requirements of MMM-A-121, MMM-A-130B, and A-A-1936A	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.

3M™ Hi-Strength 90 Bulk Adhesive is available in 5-gallon and 55-gallon containers. See page 43 for features and details.



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

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

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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.

3M™ Scotch-Weld™ Cylinder Spray Adhesives

Aerosol convenience with bulk productivity for bonding HPL, foam, rubber, and more

With these self-contained pressurized cylinders, you simplify many applications. No air, no waste, no costly maintenance,

- Helps increase productivity with fast application and no time-consuming equipment setup and cleanup
- Freedom from expensive capital equipment and maintenance of spray equipment and compressor
- Targets adhesive where you want with little waste
- High solids, high coverage gives you more usable adhesive for your money

95

For HPL countertop assembly, 3M™ Scotch-Weld™ Cylinder Spray Adhesive 94 CA dries quickly to reach postformable strength in 1-5 minutes. 1-15 minute open time provides flexibility in assembly speed. Formulated specifically with low telegraphing for thin veneers and glossy laminates.

96

With 3M™ Foam Fast 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.

97

When you want a water-based adhesive to bond rubber to metal flooring, insulation to duct work, and more, 3M™ Fastbond™ 30NF Cylinder Spray Contact Adhesive is SCAQMD Rule 1168 Compliant and GREENGUARD™ Certified.

99

For fast, easy foam board installation above and below grade, simply spray and stick with 3M™ Scotch-Weld™ HoldFast 70 Cylinder Spray Adhesive. Bonds foam to concrete, waterproofing, OSB, and more without damaging the foam.

100

With heavy web spray and low soak-in, 3M™ Scotch-Weld™ HoldFast 70 Cylinder Spray Adhesive attaches noise abatement foam to the plywood walls of an anechoic chamber.

101

In motor home construction, 3M™ Scotch-Weld™ HoldFast 70 Cylinder Spray Adhesive or Polystyrene Foam Insulation 78 ET not only bonds foam insulation to wall panels but also plastic panels to wood framing in shower enclosures.

102

3M™ Scotch-Weld™ Cylinder Spray Adhesives help improve speed and productivity for tilt-up contractors. Just spray and adhere reveal strips, shoe plates, chamfers and inlays to the casting slab without nailing or mechanical fasteners.

Equipment simplification with 3M™ Scotch-Weld™ Cylinder Spray Adhesives

Traditional compressor and drum equipment, tools, and maintenance


103


104

What you see here is all you need

105


106


107


108

9501 6501 4001 QSS


109

Hose swivel T-Fitting

3M™ Scotch-Weld™ Cylinder Spray Adhesive Equipment and Accessories
Cylinder Adhesive Applicator (includes 9501 Tip)
Cylinder Adhesive Applicator H (includes 4001 Tip)
Cylinder Adhesive Applicator EX w/18" Extension and 9501 Tip
Cylinder Adhesive 9501 Spray Tip
Cylinder Adhesive 4001 Spray Tip
Cylinder Adhesive 6501 Spray Tip
Cylinder Adhesive 250050 Spray Tip
Cylinder Adhesive 650050 Spray Tip
Cylinder Adhesive 730154 Spray Tip
Cylinder Adhesive QSS Spray Tip
Cylinder Adhesive Hose Swivel
Cylinder Adhesive T-Fitting
Cylinder Adhesive 6-Foot Hose
Cylinder Adhesive 12-Foot Hose
Cylinder Adhesive 25-Foot Hose
Cylinder Adhesive 50-Foot Hose

Uniform spray patterns with adjustable tip for economical use of adhesive


110


111


112


113

Left to right: Wide web for fast coverage and minimized overspray. Narrow web for neat targeted application. Lay-flat pebble pattern to reduce telegraphing even on thin laminates.

No wasteful “fire hosing,” puddling, and uneven stringing.

Product Information and Packaging

Product	Features	% Solids	Sq. Ft. Coverage @ 1 gram dry wt/sq.ft (per lb.)[1]	Spray Pattern	Bonding Range		Overlap Shear Strength[2] (PSI)	
					One Surface	Two Surface		
Fastbond™ Contact Adhesive 30 NF	• GREENGUARD™ Certified • High strength, non-flammable, water-based contact adhesive • Postformable adhesive that bonds particle board, plywood, plastic laminate, fabric and more • Green or Neutral	50	227	Mist	NR	15 min. - 4 hrs	up to 400	
General Purpose 60 CA	• Very high coverage • General purpose adhesive that bonds many foams, plastics and wood • Clear	43	195	Web	2 min - 30 min	2 min - 60 min	up to 300	
HoldFast 70	• Very fast tacking • Low soak-in on porous or irregular surfaces • Bonds polystyrene without degrading the surface • Clear	21	95	Web	1 min - 60 min	1 min - 60 min	up to 200	
Foam Fast 74	• Fast tack with foam-tearing strength • Soft non-dimpling glue line • Clear or Orange	22	100	Web	30 sec - 15 min	30 sec - 15 min	up to 200	
Non-Flammable Foam Fast 74 NF	• Non-flammable version of Foam Fast 74 • Contains Methylene Chloride • Clear	22	100	Web	1 min - 60 min	1 min - 60 min	up to 300	
Super 77™	• Fast, aggressive tack for bonding many lightweight materials • Versatile adhesive can be used on typical infusion materials: fiberglass fabrics, balsa and foam coring, flow media and peel ply • Clear or Red	27	123	Mist	15 sec - 15 min	15 sec - 30 min	up to 300	
Polystyrene Foam Insulation 78 ET	• Extended tack range version of 78 • Clear or Green	17	77	Web	1 min - 60 min	1 min - 60 min	up to 200	
Hi-Temperature Polystyrene Foam Insulation 78 HT	• High performance, high temperature polystyrene spray adhesive • Blue	15	68	Web	1 min - 10 min	1 min - 20 min	up to 500	
Hi-Strength 90	• Fast, high performance contact bond strength • Adheres wood, high pressure laminate, metal, polyethylene, polypropylene and more • Clear	13	59	Web	NR	1 min - 10 min	up to 600	
Hi-Strength Laminating 92	• High strength bonding of wood, laminate, foam and more • Clear or Red	23	104	Web	1 min - 20 min	1 min - 20 min	up to 400	
Hi-Strength Postforming 94 CA	• GREENGUARD™ Certified, solvent-based adhesive • High strength, postformable contact adhesive • Low telegraphing spray pattern • Clear or Red	28	127	Pebble	NR	1 min - 30 min	up to 500	
Hi-Strength Non-Flammable 98NF	• High strength bonding of wood, laminate, foam and more • Nonflammable • Contains Methylene Chloride • Clear or Red	20	91	Web	1 min - 60 min	1 min - 60 min	up to 300	

(1) 1 g/sq ft of adhesive coverage may not be enough for a some products. Higher strength applications may need as much as 2.5 grams dry wt/sq ft. Convert sq ft coverage by dividing by 2.5.
(2) Testing based on ASTM D3163 with birch plywood, 1 inch overlap, 1.5 - 2.5 gm/sq.ft (dry adhesive wt.)
(3) Testing based on ASTM D1876-01 with coated canvas, pulled at 12 in/mn.
(4) SAFT Shear Adhesion Failure Test with birch plywood, 1 inch overlap, 100 grams used, temperature start at 90F and ramped 10F every 10 mn. until complete failure.
(5) M=Mini; L=Large; I=Intermediate; J=Jumbo

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

	Peel Strength[3] (PIW)	Heat Resistance in °F. [4]	SCAQMD Rule 1168 Compliant	Size (Net weight)[5]
	20	300	Yes	L (28.5 lb, 12.9 kg)
	18	170	Yes	L (27.2 lb, 12.3 kg) I (129.2 lb, 58.6 kg) J (276.0 lb, 125.2 kg)
	23	190	No	M (8.5 lb, 3.9 kg) L (27.3 lb, 12.4 kg) I (139.0 lb, 63 kg) J (288.0 lb, 130.6 kg)
	9	160	No	L (28.8 lb, 12.0 kg) I (148.5 lb, 67.4 kg) J (297.0 lb, 134.7 kg)
	25	210	No	M (10.5 lb, 4.8 kg) L (37.0 lb, 16.8 kg) I (185.6 lb, 84.2 kg) J (371.7 lb, 168.6 kg)
	5	150	No	L (29.3 lb, 13.3 kg)
	16	200	No	L (29.3 lb, 13.3 kg) I (139.0 lb, 63 kg) J (298.0 lb, 135.2 kg)
	16	260	No	M (8.5 lb, 3.9 kg) L (28.5 lb, 12.9 kg) I (138.6 lb, 62.9 kg) J (287.1 lb, 130.2 kg)
	14	250	No	L (28.8 lb, 13.1 kg) I (141.6 lb, 64.2 kg) J (283.2 lb, 128.5 kg)
	14	250	No	L (29.3 lb, 13.3 kg) I (139.0 lb, 63.0 kg) J (279.0 lb, 126.6 kg)
	30	210	Yes	M (7.6 lb, 3.4 kg) L (26.2 lb, 11.9 kg) I (128.0 lb, 58.1 kg) J (266.0 lb, 120.7 kg)
	26	240	No	M (10.5 lb, 4.8 kg) L (37.0 lb, 16.8 kg) I (185.6 lb, 84.2 kg) J (371.7 lb, 168.3 kg)

Size Availability

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Product	Cylinder sizes (lbs.)				Bulk	
	Mini	Large	Intermediate	Jumbo	5-gal	55-gal
60 CA		X	X	X	X	X
70	X	X	X	X		
74		X	X	X		X
74NF	X	X	X	X		
77		X			X	X
78 ET		X	X	X		
78HT	X	X	X	X		
90		X	X	X	X	X
92		X	X	X	X	X
94 CA	X	X	X	X	X	X
30NF		X			*	*
98NF	X	X	X	X		

115
116
117

*** Other sizes**

118

3M™ Fastbond™ Contact Adhesive 30NF in pourable quart and one gallon plastic containers, 5-gallon pail, and 52-gallon drum

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.

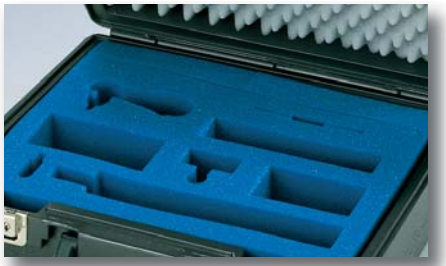
Other features include:

- 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.

119

120

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.

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).

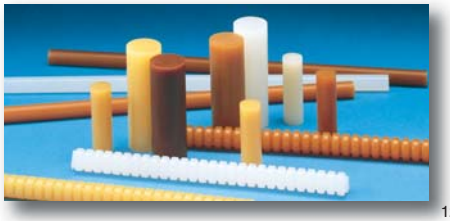
3M™ Scotch-Weld™ Hot Melt Adhesives and Applicators

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.



122

123

3M™ Scotch-Weld™ Hot Melt Applicator LT with 3M low temperature (265°F/129°C) adhesive effectively bonds heat-sensitive substrates such as styrene foam to itself, corrugated, or other surfaces without damaging the foam.

124

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.

125

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

126

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.

127

For great value, 3M™ Scotch-Weld™ Hot Melt Applicator AE II LT 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.

128

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.

129

Self-contained portable 3M applicators save the cost of bulk equipment for recouperage, manual random size case sealing, and many contract packaging situations.

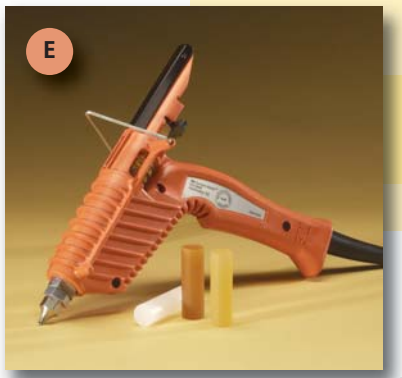
Selecting a 3M™ Scotch-Weld™ Hot-Melt Applicator to fit your needs

3M™ Scotch-Weld™ Hot Melt Applicator LT. Medium volume using low melt adhesive. 130

3M™ Scotch-Weld™ Hot Melt Applicator LT with Quadrack™ Converter. Medium volume using low melt adhesive. 131

3M™ Scotch-Weld™ Pneumatic Hot Melt Applicator PG II LT with Speedloader. High volume using low melt adhesive. 132

3M™ Scotch-Weld™ Hot Melt Applicator AE II LT. Low volume using low melt adhesive. 133

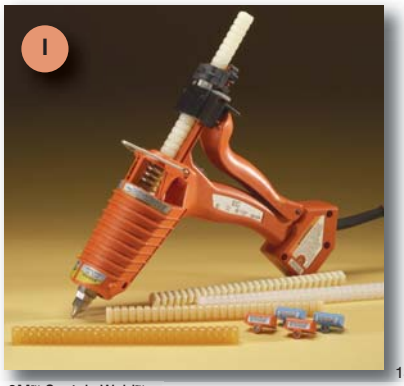


3M™ Scotch-Weld™ Hot Melt Applicator TC. Medium volume. 134

3M™ Scotch-Weld™ Hot Melt Applicator TC with Quadrack™ Converter. Medium volume. 135

3M™ Scotch-Weld™ Pneumatic Hot Melt Applicator PG II with Speedloader. High volume. 136

3M™ Scotch-Weld™ Hot Melt Applicator AE II. Low volume. 137



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3M™ Scotch-Weld™ Hot Melt Applicator EC. Medium volume; variable temperature control.

139

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

		3M™ Scotch-Weld™ Hot Melt Applicators	Weight[1]	Output[2] lb/hr	Temperature[3]	Power (120V)	Adhesive dia. x length, inches	Features	Warranty (Months)
Low Melt Applicators	A	LT	10.0 oz.	2.6	265°F (129°C)	150W	5/8 x 2 TC	For use with low melt adhesives	12
	B	LT with Quadrack Converter	13.8 oz.	2.6	265°F (129°C)	150W	5/8 x 8 Q		
	C	Pneumatic PG II LT with Speedloader	4.3 lbs.	6.0	265°F (129°C)	500W	1 x 3 PG	Pneumatic high output for low melt adhesives	12
	D	AE II LT	20.0 oz.	4.0	265°F (129°C)	100W	1/2 x 12 AE	All electric operation for low melt adhesives	6
Hot Melt Applicators	E	TC	10.0 oz.	3.5	385°F (196°C)	150W	5/8 x 2 TC	Easy to use with standard melt adhesives	12
	F	TC with Quadrack Converter	13.8 oz.	3.5	385°F (196°C)	150W	5/8 x 8 Q		12
	G	Pneumatic PG II with Speedloader	4.3 lbs.	7.5	385°F (196°C)	500W	1 x 3 PG	Pneumatic high output for standard melt adhesives	12
	H	AE II	20.0 oz.	4.0	400°F (204°C)	100W	1/2 x 12 AE	All electric operation for standard melt adhesives	6
Variable	H	EC	24.0 oz.	5.5	260°F-450°F (127°-232°C)	350W	5/8 x 8 Q	Temperature modules to operate with standard and low melt adhesives	12

(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.

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

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
9726	"T" Tip (shown with valve and adapter) for all 3M™ Applicators
9764	3/4" Slotted Spreader (3755LM adhesive only)
9777	1/4" Slotted Spreader (3755LM adhesive only)
9782	1/2" Slotted Spreader (3755LM adhesive only)
9727	"L" Tip (shown with adapter and valve) for all 3M™ Applicators
9916	3 Hole Spreader
9913	2 Hole Spreader (1/4" hole span)
9917	3 Hole 1" Spreader for 3M™ Applicator II only
9929	High Viscosity Valve (TC, EC, PG-II)
9946	.072" Brass Extension for 3M™ Applicators PG II and PG II LT only
9785	.070" Tapered Aluminum Extension for all 3M™ Applicators
9725	Mini Extension Tip .072" Opening for all 3M™ Applicators
9922	.063" Fluted Tip
9940	.125" Fluted Tip
9921	.090" Fluted Tip


141

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


142


143

Foot Pedal


144


145

Heavy-Duty Benchstands provide added convenience.

Foot pedal, magazine feeder, and benchmount accessories can provide high capacity, hands-free operation for 3M™ Scotch-Weld™ PG II and 3M™ Scotch-Weld™ PG II LT.

Magazine Feeder


146

Bench nozzle assembly


147

Benchmount

3M™ Scotch-Weld™ Hot Melt Adhesives

	Product (Color)	FDA Listed[1]	UL 94 Listing	Features Application Ideas	
Low Melt Technology: Applied 250°–270°F (127°–132°C)	3750LM Tan	N	N/A	• Excellent **"hot tack"**, fast setting for corrugated, beadboard, repack, recoup • **Economical, general purpose** • Use with **AE II LT** applicator only	
	3755LM Clear	Y	N/A	• **"Delayed-tack"** applied in **thin-glue-line** ribbon for paper, corrugated, chipboard, displays, exhibits • Use with low melt applicator only	
	3762LM* Lt. Amber	Y	N/A	• Excellent **"hot tack"**, fast setting for corrugated, beadboard, recouperage, repacking chipboard, wood • **Economical, general purpose** • Use with low melt applicator only	
	3776LM Tan	N/A	N/A	• Bonds variety of **plastics, woods and light-gauge metals** • Use with low melt applicator only	
	3792LM* Clear	Y	V2	• **Clear, multi-purpose** for wood, coated paper, **polyolefins** and other **heat-sensitive materials** • P.O.P. displays • Use with low melt applicator only	
	3798LM* Lt. yellow	Y	N/A	• **Removable "gummy glue"** for many substrates • Removes easily without residual tack • Use with low melt applicator only	
Hot Melt Technology: Applied 350°–385°F (177°–196°C)	3731* Tan	N	N/A	• **High heat resistance** • Bonds **plastics** including **polyethylene, polypropylene**	
	3738* Tan	Y	V2	• **High delivery rate and long bonding range** • General purpose for foundry sand cores, wood bonding, corrugated, selected plastics and chipboard	
	3747 Tan	Y	N/A	• **General purpose** for wide variety of plastics, wood and **lightweight metals**	
	3748* Off-white	Y	V2	• Good thermal shock resistance • **Non-corrosive** to **copper** for many **electronic applications** • Bonds polyolefins	
	3748 VO Light Yellow	N	VO	• **Self-extinguishing** version of 3748 • Meets UL 1410 requirements	
	3750 Tan	N	N/A	• **Low viscosity** for high flow rate, increased production • **Good hot tack**, quick grab for **packaging** and **woodworking**	
	3750 Clear	N	N/A	• **Low viscosity** for high flow rate, increased production • **Good hot tack**, quick grab for **packaging** and **woodworking**	
	3762 Tan	Y	V2	• **Excellent "hot tack"**, fast setting for corrugated, beadboard, recouperage, repacking chipboard, wood • **Economical, general purpose**	
	3764* Clear	Y	V2	• Bonds variety of plastics including **polycarbonate, polyethylene**, and **polypropylene** • Flexible at low temperatures	
	3779* Amber	Y	VO	• **High heat resistance** • High strength • Good fuel and oil resistance • **Electronics**	
	3789* Brown	Y	V2	• **High performance for plastics** • Impact resistant • Bonds vinyl and wood • **Good fuel and oil resistance**	
	3792* Clear	Y	V2	• **Clear, multi-purpose** for wood, corrugated, fabric,furniture, upholstery, novelties, and other lightweight materials	
	3796 Lt. Tan	N	N/A	• High performance for **plastics and light-gauge metals**	
	3797 Off-white	Y	V2	• High ball and ring • Low viscosity • **Good for electrical potting**	
Bulk Only	3794 Hi Tack PSA Lt. Tan	Y	N/A	• **Sprayable** high tack PSA for bonding **plastic, paper, metals,** die-cut labels	
	6111 Tan	N	N/A	• **Sprayable** 100% solventless adhesive for most foams, fabrics, plastics, particle board, and thin metal	
	6111 Green	N	N/A	• Same as 6111 tan but green in color.	
	6111HT Tan	N	N/A	• Similar to 6111 but has **higher heat resistance**.	
	6111HT Blue	N	N/A	• Similar to 6111 but has **higher heat resistance and blue in color.**	
	6116 Off-White	N	N/A	• Similar to 6111 but **lower than normal viscosity** and **mainly used on fabrics**.	

* Also available in bulk. (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) Temperature at which adhesive fails (5) On canvas (6) On Douglas Fir (7) 1/8" semicircular bead, Douglas Fir to Douglas Fir.

	Sizes	EC Temp Control Modules	Viscosity cps[2]	Delivery Time (sec) for 1" x 3" Cartridge	Ball & Ring Melt Point[3] (°F/°C)	Heat Resistance[4] (°F/°C)	Peel Strength PIW[5] 72°F (22°C)	Shear Strength PSI[6] 72°F (22°C)	Open Time 1/8" Bead (sec)[7]
	1/2" x 12"AE	N/A	4000 @250°F	45	200/95	128/54	6	475	25
	5⁄8" x 2"TC	N/A	13,000 @250°F	N/A	157/70	120/49	13	500	120
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG 1/2" x 12"	1	4000 @250°F	45	205/96	130/54	6	480	25
	5⁄8" x 8"Q 1/2" x 12" 1" x 3"PG	1	8250 @250°F	47	184/84	140/60	9	600	40
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG 1/2" x 12"	1	10,500 @250°F	57	178/81	140/60	13	350	40
	5⁄8" x 2"TC	N/A	9500 @250°F	N/A	191/88	120/49	N/A	N/A	30
	5⁄8" x 8"Q 1" x 3"PG	5	12,000 @375°F	N/A	315/157	265/130	22	490	30
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG 1⁄2" x 12"AE	4	2875 @375°F	35	186/86	130/54	13	375	50
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG 1⁄2" x 12"AE	4	4100 @375°F	45	220/104	145/63	20	430	45
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG	4	5000 @375°F	65	292/144	175/79	18	250	45
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG	4	5500 @375°F	65	305/152	175/79	15	275	30
	1/2" x 12"AE	N/A	1900 @375°F	30-40	200/93	125/52	6	500	N/A
	1/2" x 12"AE	N/A	4800 @375°F	35-45	178/81	135/57	12	250	N/A
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG 1⁄2" x 12"AE	3	1870 @375°F	30	201/94	130/54	7	545	35
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG 1⁄2" x 12"AE	4	6000 @375°F	55	190/88	140/60	14	390	40
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG	5	7000 @375°F	75	325/163	300/149	18	700	25
	5⁄8" x 8"Q 1" x 3"PG	5	5200 @375°F	70	270/132	220/104	16	570	50
	5⁄8" x 8"Q 5⁄8" x 2"TC 1" x 3"PG 1⁄2" x 12"AE	4	5000 @375°F	45	179/81	140/60	13	250	50
	1" x 3"PG 5⁄8" x 2"TC	N/A	23,000 @375°F	120	240/116	200/93	29	550	40
	1" x 3"PG 5⁄8" x 2"TC	N/A	2650 @375°F	55	304/151	170/77	10	350	30
	2 lb. bricks	N/A	15,000 @325°F	N/A	224/107	120/49	16	N/A	> 60
	.75"x.75" chips	N/A	3,000-5,000 @375°F	N/A	284/140	145/63	34	N/A	1 surface 60 2 surface 360
	.75"x.75" chips	N/A	3,000-5,000 @375°F	N/A	284/140	145/63	34	N/A	1 surface 60 2 surface 360
	.75"x.75" chips	N/A	2,500-4,500 @375°F	N/A	224/107	175/79	26	N/A	1 surface 180 2 surface 480
	.75"x.75" chips	N/A	2,500-4,500 @375°F	N/A	224/107	175/79	26	N/A	1 surface 180 2 surface 480
	.75"x.75" chips	N/A	1,300 @375°F	N/A	199/93	160/69	20	N/A	1 surface 120 2 surface 300

N/A = Not available

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™ Aerosol Adhesives

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 most are California compliant.

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With pushbutton convenience, 3M™ Polystyrene Foam Insulation 78 Spray Adhesive targets spray for efficient use of adhesive in bonding foam board to concrete walls for thermal protection.

149

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.

150

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.

151

3M™ Foam Fast 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.

3M™ Aerosols Adhesives		Net Weight (Oz.-Grams)	% Solids	Sq. Ft. Coverage @ 1 gram dry wt/sq.ft (per can)[1]	Spray Pattern	Bonding Range		Overlap Shear Strength[2] (PSI)	Peel Strength[3] (PIW)	Heat Resistance in °F [4]	CA Compliant [5]
Product	Features					One Surface	Two Surface				
Blue 72 Spray Adhesive	• Repositionable with aggressive tack • Bond polyethylene film, foam and carpet • Blue	17.33 - 490	15.1	74	Variable Web	1 min - 8 hrs	1 min - 1 wk	up to 100	11	170	Yes
Foam Fast 74 Spray Adhesive	• Fast tack with foam-tearing strength • Soft non-dimpling glue line • Clear or Orange	16.9 - 480	22	106	Variable Web	30 sec - 15 min	30 sec - 15 min	up to 300	9	180	Yes
Repositionable 75 Spray Adhesive	• "Tape-like" PSA bonds • No bleeding, staining or wrinkling • Clear	10.25 - 290	9.4	27	Mist	15 sec - 1 hr	15 sec - 3 hrs	up to 100	4	110	Yes
Hi-Tack 76 Spray Adhesive	• Multi-purpose with high temperature resistance • Strong one-surface bonds • Clear	18.1 - 515	13.5	70	Variable Web	2 min - 10 min	2 min - 1 hr	up to 300	10	230	Yes
Super 77™ Multipurpose Spray Adhesive	• High coverage, low soak-in • Fast, aggressive tack for bonding many lightweight materials • Clear	16.75 - 475	25	119	Mist	15 sec - 15 min	15 sec - 30 min	up to 300	5	150	Yes
Polystyrene Foam Insulation 78 Spray Adhesive	• Bonds most insulation, including expanded polystyrene and extruded polystyrene • Will not attack foam board • Clear	17.9 - 508	19.1	97	Variable Web	1 min - 5 min	1 min - 15 min	up to 300	7	190	Yes
Rubber & Vinyl 80 Spray Adhesive	• Neoprene-based contact adhesive with plasticizer resistance • Bonds supported vinyl, leather, most rubber, most plastics, laminate and wood • Yellow	19 - 539	12.9	70	Web	NR	3 min - 30 min	up to 600	16	300	Yes

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™ Aerosols Adhesives (cont.)		Net Weight (Oz.-Grams)	% Solids	Sq. Ft. Coverage @ 1 gram dry wt/sq.ft (per can)[1]	Spray Pattern	Bonding Range		Overlap Shear Strength[2] (PSI)	Peel Strength[3] (PIW)	Heat Resistance in °F[4]	CA Compliant[5]
Product	Features					One Surface	Two Surface				
Hi-Strength 90 Spray Adhesive	• Fast, high performance contact bond strength • Adheres wood, high preesure laminate, metal, polyethylene, polypropylene and more • Translucent	17.6 - 500	13	65	Variable Web	NR	1 min - 10 min	up to 600	13	250	Yes
Hi-Strength 94 Woodworking Laminate Spray Adhesive	• High strength wood to laminate bonding • Clear	14.8 - 420	18	76	Variable Web	NR	1 min - 30 min	up to 300	25	240	Yes
Industrial Spray Adhesive	• General purpose adhesive for bonding many lightweight materials • Clear	15.3 - 433	21.1	91	Mist	15 sec - 5 min	15 sec - 10 min	up to 100	4	150	Yes

(1) 1 g/sq ft of adhesive coverage may not be enough for a some products. Higher strength applications may need as much as 2.5 grams dry wt/sq ft. Convert sq ft coverage by dividing by 2.5.
(2) Testing based on ASTM D3163 with birch plywood, 1 inch overlap, 1.5 - 2.5 gm/sq.ft (dry adhesive wt.)
(3) Testing based on ASTM D1876-01 with coated canvas, pulled at 12 in/mn.
(4) SAFT Shear Adhesion Failure Test with birch plywood, 1 inch overlap, 100 grams used, temperature start at 90F and ramped 10F every 10 mn. until complete failure.
(5) California Compliant per California Air Resources Board Consumer Product Rules for Aerosol Adhesives
NR = Not Recommended

3M™ Specialty Aerosol Adhesives		Net Weight (Oz.-Grams)	% Solids	Sq. Ft. Coverage @ 1 gram dry wt/sq.ft (per can)[1]	Spray Pattern	Bonding Range		CA Compliant[2]
Product	Features					One Surface	Two Surface	
Case Sealing Adhesive	• Convenient for shipping room carton closure and warehouse reclosure after inspection • High heat resistance • Clear	17.33 - 490	14.3	70	Variable Web	NR	1 min - 15 min	Yes
Palletizing Adhesive	• Nearly immediate tack permits bags to be stacked on pallets without slipping • Easy separation after shipment • Clear	16.75 - 475	25	119	Mist	15 sec - 10 min	NR	Yes
Dry Lay-Up Adhesive	• Fast, aggressive tack for bonding many lightweight materials • Versatile adhesive can be used on typical infusion materials: fiberglass fabrics, balsa and foam coring, flow media and peel ply • Red	16.5 - 467	25	117	Mist	15 sec - 15 min	NR	No
Vac-U-Mount Spray Adhesive 6096	• Permanently mounts pictures, photos and other lightweight materials • pH neutral • Clear	15.9 - 450	15.1	68	Mist	NR	1 min - 5 min	Yes

(1) 1 g/sq ft of adhesive coverage may not be enough for a some products. Higher strength applications may need as much as 2.5 grams dry wt/sq ft. Convert sq ft coverage by dividing by 2.5.
(2) California Compliant per California Air Resources Board Consumer Product Rules for Aerosol Adhesives NR = Not Recommended

3M™ Aerosols and Cylinders in Bulk		Size	% Solids	Sq. Ft. Coverage @ 1 gram dry (per gallon)	SCAQMD Rule 1168 Compliant
Product	Features				
Fastbond™ Contact Adhesive 30NF	• GREENGUARD™ Certified, water-based • High strength, bonds particle board, plywood, plastic laminate, fabric and more • Green or Neutral	Quart through 270 gal. Tote*	50	2,066	Yes
General Purpose 60 CA	• Very high coverage • Temporary and permanent bonds • Clear	5 gal., 54 gal.	43	1,581	Yes
Super 77™	• High coverage, low soak-in for long lasting bonds • High temperature resistance • Clear and Red	5 gal., 52 gal.	37	1,092	No
Polystyrene Foam Insulation 78	• Bonds most insulation, including expanded polystyrene and extruded polystyrene • Will not attack foam board • Clear	5 gal.	35	1,049	No
Hi-Strength 90	• Fast, high performance contact bond strength • Adheres wood, high preesure laminate, metal, polyethylene, polypropylene and more • Clear	5 gal., 52 gal.	23	679	No
Hi-Strength Laminating 92	• High coverage • Clear or Red	5 gal., 54 gal.	34.4	1,109	No
Hi-Strength Postforming 94 CA	• High coverage • Clear or Red	5 gal., 54 gal.	34	1,235	Yes
Adhesive Remover	• Ideal for removal of adhesive residue or for surface preparation • Solvent-free • Also removes heavy oils, grease, silicone, tar and grime • Pale Yellow	1 gal., 5 gal., 52 gal.	NA	NA	No

* Refer to Non-Structural Adhesives, Contact Adhesives, for additional information.

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3M™ Cleaners and Lubricants

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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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.

154

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.

155

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

3M™ Aerosol Chemicals

Product	Description	Temperature Resistance
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 molding 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 • Also available in bulk (55, 5, and 1 gallon)	N/A
Sticker and Marker Remover	• Same as aerosol Adhesive Remover but more precise application with pen tip	N/A
Multi-Surface Wipes	• Convenient, pre-moistened, pleasant scent • Large, thick and durable for cleaning with little effort • No need to rinse or wash hands after use	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.

3M™ Concrete Repair Products

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.

156

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

157

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.

158

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.

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

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.

3M™ Sealants

Solutions for the elements from windows to ductwork

The elements – air, wind, water, dirt, sunlight, fuel, cold, heat – keeping them or others in or out is a design challenge for applications such as vehicle windows, trailer seams, HVAC ductwork, wood doors, boat deck fittings, and many more. With 3M™ Sealants, you have a wide selection of solutions based on more than 50 years of development and innovation.

As you can see on these pages, you'll find the 3M name on formulations from acrylic to urethane and forms from liquids to solids for manual or pneumatic application.

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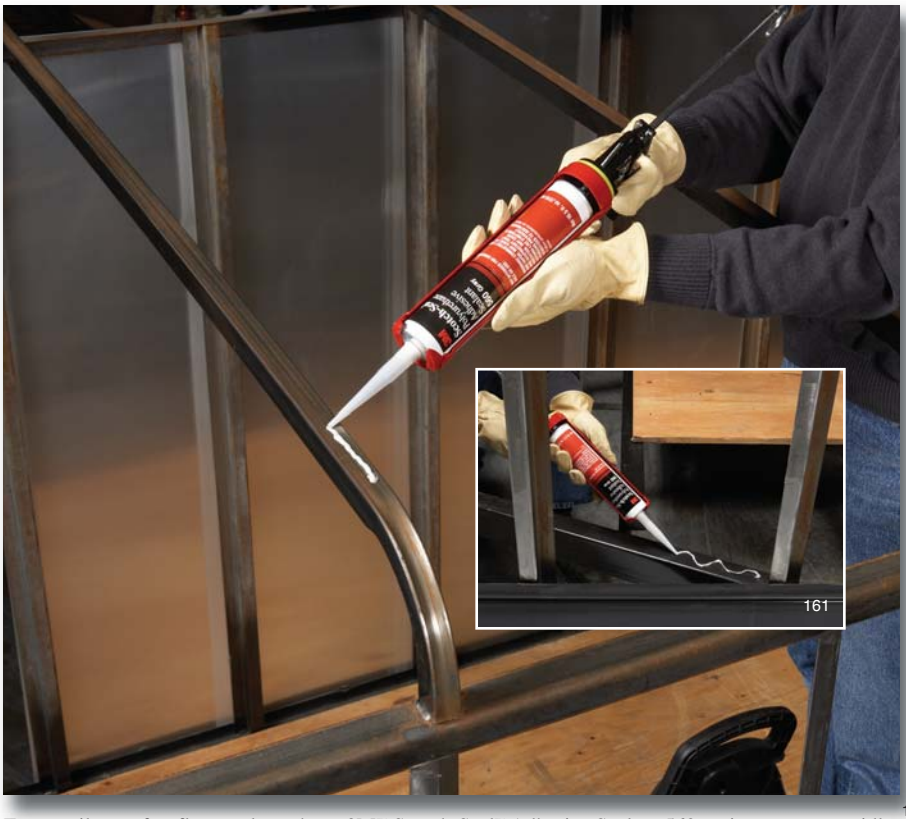
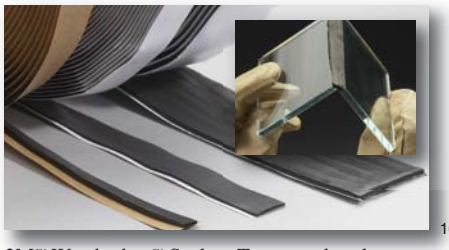


162

From trailer roof to floor, polyurethane 3M™ Scotch-Seal™ Adhesive Sealant 560 moisture cures rapidly to a flexible seal/bond between exterior skins and metal framework, and wood flooring and framework. Tensile strength of up to 580 psi is enough to replace mechanical fasteners in many situations.



163

3M™ Weatherban™ Sealant Tapes are butyl sealants available in a variety of widths and thicknesses for applications demanding high tack, aggressive adhesion, weather resistance, and flexibility.

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3M™ Marine Adhesive Sealant 5200 Fast Cure cures completely in only 24 hours to a strong flexible seal for applications above or below the waterline such as hull and stern joints, hull to deck seams, marine hardware and more.

To indicate that a valve setting is not to be changed and to know if it has, 3M™ Scotch-Seal™ Tamper-indicating Sealant 1252 clearly communicates before and after tampering.

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To seal vertical cracks in concrete walls, 3M™ Scotch-Weld™ Sealant DP5003NS is a two-part non-sagging urethane that flows to fill the space but but resists gravity to stay in place during application and long after.

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For ductwork seam sealing with 3M™ Scotch-Seal™ Sealant 540, a bead cures in about 24 hours to keep air and dust in or out. Flexible polyurethane resists vibration to hold tight.

For gaps and seams outside and inside of a trailer, 3M™ Scotch-Seal™ Sealant 540 stays flexible and secure at -40° to 194°F (-40° to 90°C) compensating for thermal expansion/contraction even between dissimilar surfaces.

3M™ 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	540	• Polyurethane • Moisture cures rapidly to flexible seal for many plastics, metal, wood, and more • 250 psi tensile strength	90%	136°F (58°C)	Mastic	Black, Gray, White	Hand or pressure caulk	24 hours (3/16" dia. bead)	-40° to 194°F (-40° to 90°C)
	560	• Similar to 540 but with 580 psi tensile strength for sealing and bonding • 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)
	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)
	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)
	1252	• Tamper-indicating • Fire-retardant seal • Resists oil, gasoline, water, jet fuel, fungus • 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)
	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)
3M™ Scotch-Weld™ Sealants	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)
3M™ Weatherban™ Sealants	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)
	5354	• High tack butyl adheres aggressively • Easy to compress tape, resists cold flow	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-65° to 190°F (-54° to 88°C)
	PF5422	• Thread reinforced butyl tape • 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)
	PF5423	• Nonreinforced thinner product similar to PF5422	100%	None	Solid tape	Black	Apply by hand	Non-drying or curing	-40° to 200°F (-40° to 93°C)
3M™ Marine Sealants	101	• High quality polysulfide bedding sealant • Chemically cures • Firm, rubbery watertight seal • Resistant to chemicals, weathering, saltwater and joint movement • Removable	98%	–	Medium paste	White	Hand or pressure caulk	2-3 weeks	–
	4000UV FC	• One part polyurethane • Seals above/below waterline • Superior UV resistance • Tack free in 22 minutes	100%	–	Medium Paste	White, Black	Hand or pressure caulk	24-48 hours (1/8" dia. bead)	-40° to 190°F (-40° to 88°C)
	4200 FC	• One part polyurethane • Seals above/below waterline • Creates strong, flexible bonds • Tack free in 1 hour	100%	–	Non-sagging paste	White, Black	Hand or pressure caulk	24-48 hours (1/8" dia. bead)	-40° to 190°F (-40° to 88°C)
	5200	• One part polyurethane • Excellent adhesion to wood, gelcoat, fiberglass • Seals above/below waterline • Long working time	97%	–	Medium Paste	White, Black, Tan, Mahogany	Hand or pressure caulk	7-14 days (1/8" dia. bead)	-40° to 190°F (-40° to 88°C)
	5200FC	• One part polyurethane • High-strength, non-shrinking, non-sagging bonds • Seals above/below waterline • Up to one hour open time	97%	–	Medium Paste	White	Hand or pressure caulk	24-48 hours (1/8" dia. bead)	-40° to 190°F (-40° to 88°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.

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 49. 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-Weld™ 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, EZ250015, EZ250060, EZ250120	17005, 17030	F/B 30NF, 1357 (All), 4323, F/B 2000NF	80, 90	3738, 3747, 3776LM, 3789, 3762LM, 3792LM, 3750LM
Metal	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50, CA100	TS115, TS230, TE040, EZ250150	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, EZ250150	17030, 17060	1357 (All), 1300 (All), 2141, F/B 2000NF	80, 90*	3747, 3796
EPDM Rubber	–	CA40[2], CA40H	–	–	4799	–	–
Glass and Ceramics	Flexible 2-Part Epoxies	CA50, CA100	TS115, TS230, TE040, EZ250150	17010, 17060	1357 (All), 1300 (All), 2141	80, 90*	3747, 3796, 3764, 3792LM
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50, CA100	TE015, TE100, TE031, TS230, EZ250060, EZ250150	17010, 17060	847 (All), F/B 30NF, F/B 2000NF	80, 90	3789, 3779, 3769
Plastics (Polyolefins)	DP8005, DP8010	–	–	–	4693	72, 76, 90	3748, 3764, 3731, 3792LM, 6111[1]
Plastics (ABS, PVC, Acrylic, etc.)	Flexible , 2-Part Epoxies 2-Part Urethanes	–	TE031, TS230, TS115, TE040, EZ250030, EZ250150	17010, 17060	4693, 1099 (All),	76, 77, 80, 90	3748, 3764, 3747, 3792LM 3776LM
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, EZ250060, EZ250150	–	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, 3750 3792, 3792LM, 3755LM, 6111[1], 3750LM, 3738
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, 3776LM, 3792LM, 6111[1]
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 100, F/B 2000NF	74. 76, 90	3738, 3747, 3764, 3792LM, 6111[1]
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, 3750LM, 3755LM, 6111[1]
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

[1] 6111 is a family of products that includes 6111, 6111HT, and 6111. [2] Evaluate using surface activator.
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-Weld™ 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, EZ250150	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, 3796, 3776LM
Leather	Flexible 2-Part Epoxies 2-Part Urethanes	CA50, CA100	TS115, TS230, TE040, EZ250150	17010, 17060, 17030	847 (All), F/B 2000NF	80	3796
Plastics (Polyolefins)	DP8005, DP8010	–	–	–	4693, F/B 2000NF[1]	72, 76, 90	3796
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, Acrylics	CA's All Products	TS115, TS230, TE040, EZ250150	17010, 17060	4693, 4475, 1357 (All), F/B 2000NF[1]	76, 77, 80, 90	3747, 3776LM, 3796
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, EZ250150	17010, 17060	1099 (All), 2262, 4475	80	3789, 3796
Paper and Cardboard	2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	17010, 17060	10, F/B 49, F/B 100, 4550, F/B 2000NF	75*, 77	3747, 3776LM, 3796
Fabric, Felt, Cork and Fibrous Glass	2-Part Epoxies	–	TS115, TS230, TE040, EZ250150	17010, 17060	F/B 100, 4550, F/B 49, F/B 2000NF	72, 74, 75*, 76, 77, 80, 90	3747, 3776LM, 3796
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	17010, 17060	F/B 2000NF, F/B 100	74, 76, 90	3747, 3796, 3776LM
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies	–	TS115, TS230, TE040, EZ250150	17010, 17060	F/B 30NF, F/B 2000NF[1], F/B 49	78	3776LM
Rigid Foam (Urethane)	Flexible 2-Part Epoxies	CA's All Products	TS115, TS230, TE040, EZ250150	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, EZ250030, EZ250150	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, EZ250150	17010, 17060	1300 (All), 2141	80, 90	3747, 3796
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	CA50, CA100	TS115, TS230, TE031,TE040, EZ250150	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 EZ250030, EZ250150	17010, 17060	1099 (All), 847 (All), 1300 (All)	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	TS115, TS230, TE031, TE040, EZ250150	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).

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-Weld™ and Fastbond™ Adhesives	3M™ Aerosol Adhesives	3M™ Scotch-Weld™ Hot Melt Adhesives
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040, EZ250030, EZ250150	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	–	TS115, TS230, TE040, EZ250030, EZ250150	All Products	847, 1300 (All), 2141, F/B 2000NF	80, 90	3747, 3796, 6111, 3794
Flexible Foam (Latex, Urethane)	–	–	TS115, TS230, TE040, EZ250030, EZ250150	All Products	F/B 2000NF, F/B 100	74, 80	3747, 3796
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040, EZ250030, EZ250150	All Products	F/B 2000NF	–	3794
Rigid Foam (Urethane)	2-Part Urethanes	–	TS115, TS230, TE040, EZ250030, EZ250150	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	3747, 3764, 3796, 3792LM
Leather	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	17010, 17060	847 (All), 1099 (All), F/B 2000NF	80, 90	3796
Plastics (Polyolefins)	–	–	–	–	4693	72, 76, 90	3764, 3748, 3792LM
Plastics (ABS, PVC, Acrylic, etc.)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	17010, 17060	4475	72, 77, 80, 90	3764, 3747, 3792, 3792LM
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.

Glass and Ceramics 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-Weld™ and Fastbond™ Adhesives	3M™ Aerosol Adhesives	3M™ Scotch-Weld™ Hot Melt Adhesives
Plastics (Flexible Vinyl)	Flexible 2-Part Epoxies	–	TS115, TS230, TE040, EZ250150	17010, 17060	2262, 4475	80	3796
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	17010, 17060	4550, F/B 2000NF, F/B 49	75*, 77	3764, 3796, 3792LM, 3747
Fabric, Felt, Cork & Fibrous Glass	Flexible 2-Part Epoxies	–	TS115, TS230, TE040, EZ250150	17010, 17060	4550, F/B 49, F/B 2000NF 90	72, 74, 76 75*, 77,	3764, 3796, 3747, 3792LM
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	17010, 17060	F/B 2000NF	74, 76, 90	3764, 3796, 3747, 3792LM
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	17010, 17060	F/B 30NF,	77, 78	3792LM
Rigid Foam (Urethane)	2-Part Urethanes	–	TS115, TS230, TE040, EZ250150	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, EZ250030, EZ250150	17010, 17030	847 (All), 1099 (All), F/B 2000NF	80, 90	3789, 3796, 3779
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, 6111[2]
Plastics (ABS, PVC, Acrylic, etc.)	DP8005, DP8010	–	–	–	4693, F/B 2000NF(1)	76, 90	3731, 3748, 3764, 6111[2], 3792LM
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, 3731, 6111[2], 3792LM
Fabric, Felt, Cork, & Fibrous Glass	–	–	–	–	4693, F/B 49, F/B 2000NF	72, 74, 76, 90	3748, 3764, 6111[2], 3792LM, 3731

(1) Adhesive *must* be force dried and bonded while warm.
* Produces a temporary bond on these materials. [2] 6111 is a family of products that includes 6111, 6111HT, and 6111.

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-Weld™ 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, 3731, 3792LM, 3796, 6111[1]
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, EZ250030, EZ250150	17010, 17060	1099 (All), 4475, F/B 2000NF[(1)]	76, 77, 90	3731, 3747, 3764, 3748, 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, EZ250030, EZ250150	17010, 17060	1099 (All), 2262, 4475	80*	3789, 3796, 3779
Paper and Cardboard	Flexible 2-Part Epoxies, 2-Part Urethanes	CA40H	TE031,TS115, TS230, TE040, EZ250030, EZ250150	17010, 17060	4550, F/B 100, F/B 49, F/B 2000NF,	75*, 77	3764, 3792, 6111[1], 3792LM, 3747, 3748, 3776LM
Fabric, Felt, Cork & Fibrous Glass	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE031,TS115, EZ250030, EZ250150 TS230, TE040, EZ250030, EZ250150	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, EZ250030, EZ250150	17010, 17060	F/B 2000NF, F/B 100	–	3747, 3764, 3748, 3792LM, 3776LM
Rigid Foam (Beadboard, Styrene)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE031,TS115, TS230, TE040, EZ250030, EZ250150	17010, 17060	F/B 2000NF[(1)], F/B 100, F/B 49	77, 78,	3792LM, 3776LM, 6111[1]
Rigid Foam (Urethane)	Flexible 2-Part Epoxies, 2-Part Urethanes	–	TE031,TS115, TS230, TE040, EZ250030, EZ250150	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

[1] 6111 is a family of products that includes 6111, 6111HT, and 6111. 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-Weld™ 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, 3798LM, 6111[1], 3755LM, 3750LM, 3793
Fabric, Felt, Cork & Fibrous Glass	Flexible 2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	4550, F/B 100, F/B 4213NF, F/B 49, F/B 2000NF	75*, 76, 77	3738, 3762LM, 3792LM, 3750LM, 3755LM, 3792, 3764
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	77	3762, 3762LM, 3792, 3792LM, 3750LM, 3755LM, 6111[1]
Rigid Foam (Beadboard, Styrene)	2-Part Epoxies, 2-Part Urethanes	–	All Products	All Products	F/B 30NF, F/B 2000NF	78	3755LM, 3762LM, 3792LM, 3750LM, 6111[1], 3794
Rigid Foam (Urethane)	2-Part Urethanes	–	All Products	All Products	4550, F/B 2000NF	77, 80	3762, 3762LM, 3792LM, 3776LM, 6111[1]
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	3738, 3747, 3792LM, 3776LM, 6111[1], 3794
Flexible Foam (Latex, Urethane)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	74, 76, 77, 90	3738, 3747, 3792LM, 3776LM, 6111[1]
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, 3750LM, 6111[1], 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] 6111 is a family of products that includes 6111, 6111HT, and 6111.

* 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-Weld™ 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	3738, 3764, 3792LM, 6111[1], 3747
Rigid Foam (Beadboard, Styrene)	2-Part Urethanes	–	All Products	All Products	F/B 2000NF, F/B 100	78	3762LM, 6111[1], 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[1], 3792LM, 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[1], 3792LM, 3794

[1] 6111 is a family of products that includes 6111, 6111HT, and 6111.

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

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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.

The line includes all of the following:

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

3M™ VHB™ Tapes

Replace rivets, screws and other mechanical fasteners

For more than 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.

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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.


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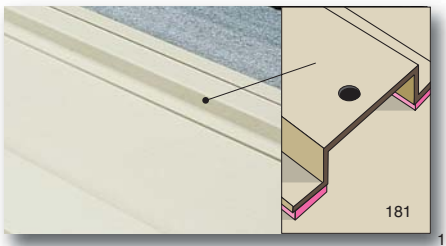
To join a variety of materials for high impact visual combinations throughout a refrigerator, 3M™ VHB™ Tape bonds painted and unpainted metal, HSE and LSE plastics, ceramics, and more

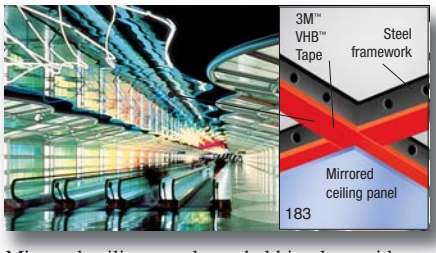

180

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.



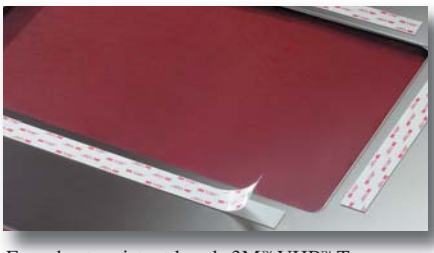
182

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



184

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.


185

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.

186

With high holding power and long-term reliability, 3M™ VHB™ Tape bonds dimensional letters to a painted wall for indoor or outdoor signage.

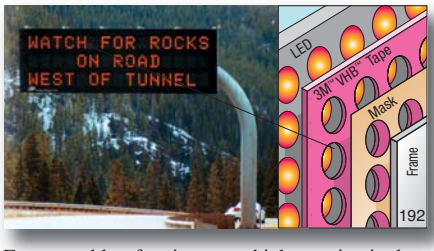
www.3M.com/vhb

188 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).

189 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.

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

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



193 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.

194 3M™ VHB™ Tape bonds on contact with no drying time or fixturing and saves processing steps such as drilling, screwing, welding, cleanup, and refinishing.

3M™ Primers

Product	Solvent	Active Ingredients	VOC's	Color	Flashpoint	Coverage	Application Ideas
AP 111	Isopropyl alcohol (IPA)	Less than 5% by weight	5.91 lbs. / gallon (708 g/l)	Clear	52°F (11°C)	19 m^2/l (800 ft^2/gal) based on .002" wet coating thickness depending on method of application.	Promote better adhesion for bare metals and painted surfaces.

Product	Solvent	Active Ingredients	VOC's	Color	Flashpoint	Coverage	Application Temp.	Application Ideas
AP 115	Isopropyl alcohol and water	Less than 1% by weight	6.08 lbs./gallon (728 g/l)	Clear	53°F (12°C)	20 - 25 sq. ft. per 4 fl. oz. bottle (1.8 - 2.3 sq. m per 118 ml bottle)	50°F - 100°F (10°C - 38°C)	Promote better adhesion for glass.

Product	Solids	VOC's	Color	Flashpoint	Coverage	Viscosity	Application Ideas
Primer 94	6%	Approx. 6.3 lbs./gal. (755 g/l) less H_2O and exempt solvents	Clear light yellow-clear dark orange	-4°F (-20°C) O.C.	600 sq. ft.(211 sq. m/l) per gallon	35 +/- 5 cps	Promote better adhesion for a variety of plastic surfaces such as polyethylene, polypropylene, ABS, PET/PBT blends.

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.

3M™ VHB™ Tapes

	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance Minutes Hours	Temperature Resistance Days Weeks	Solvent Resistance	Relative Adhesion HSE	Relative Adhesion LSE	Application Ideas
Conformable Foam Tapes	4926	15 (0.4)	A	• 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 and seal polycarbonate lens over LCD. Bond and seal plastic windows to pre-painted control panels/switch gear. Mount vinyl wiring ducts and conduit channels. Seam vinyl banners.
	4936	25 (0.64)	A								
	4936F	25 (0.64)	F								
	4941	45 (1.1)	A								
	4941F	45 (1.1)	D								
	4956	62 (1.6)	A								
	4956F	62 (1.6)	F								
	4991	90 (2.3)	F			250°F (121°C)	200°F (93°C)				
	4919F	25 (0.64)	F	• Black version of 4936F tape		300°F (149°C)	200°F (93°C)				
	4947F	45 (1.1)	F	• Black version of 4941F tape							
	4979F	62 (1.6)	F	• Black version of 4956F tape							
	5915	16 (0.4)	D	• 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. Various bonding applications for back-lit signs. Bond architectural signs to frames. Bond powder painted metal stiffeners to office desks and file cabinets.
	5925	25 (0.64)	D								
	5930	32 (0.8)	D								
	5952	45 (1.1)	D								
	5958FR*	40 (1.0)	D								
	5962	62 (1.6)	D								
	4943F	45 (1.1)	C	• 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 antennas. Bond automatic toll tags to vehicle.
	4957F	62 (1.6)	C								
Firm Foam Tapes	4611	45 (1.1)	D	• 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.
	4646	25 (0.64)	D								
	4655	62 (1.6)	D								
	4914	10 (0.25)	A	• 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.
	4920	15 (0.4)	A								
	4930	25 (0.64)	A								
	4950	45 (1.1)	A								
	4929	25 (0.64)	C	• Black version of 4930							
	4949	45 (1.1)	C	• Black version of 4950							
	4955	80 (2.0)	C	• White, closed-cell acrylic foam carrier • All-purpose adhesive • UL 746C		400°F (204°C)	300°F (149°C)				
	4959	120 (3.0)	C								
	4945	45 (1.1)	A	• White, closed-cell acrylic foam carrier • Plasticizer resistant	Multi-purpose acrylic	300°F (149°C)	200°F (93°C)	High	High	Low	Attach vinyl trim. Bond vinyl extrusions.
	4946	45 (1.1)	B	• Film liner version of 4945 • UL 746C							
	4951	45 (1.1)	C	• 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	Low temperature installed products.
	4932	25 (0.64)	A	• 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.
	4952	45 (1.1)	A								
Clear	4905	20 (0.5)	D	• Clear, acrylic construction for joining transparent material	General purpose acrylic	300°F (149°C)	200°F (93°C)	High	High	Low	Mount backlit translucent signs. Edge-bond resin filled glass.
	4910	40 (1.0)	D								
Transfer	F9460 PC	2 (0.05)	E	• 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.
	F9469 PC	5 (0.13)	E								
	F9473 PC	10 (0.25)	E								

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
F – 5 mil Red Printed Polyethylene Film

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 plasticized 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.

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.

* 5958FR meets FAR 25.853 (a) 12 sec – vertical burn, Appendix F, Part 1 (a) (ic).

www.3M.com/vhb

3M™ VHB™ Tapes for Commercial Vehicles and Trailers

Built tough with smooth sides to look good for the long haul

For durability and smooth sides on trailers, trucks, busses, and other commercial vehicles, 3M™ VHB™ Tapes are proven to go the distance.

3M sent two trailers to the Bosch Automotive Proving Grounds for independent testing to compare mechanically-fastened side panels to those attached with 3M™ VHB™ Tape.

After 36,000 simulated road miles, 31% of mechanical fasteners were loose. Without use of sealants, these mechanically-fastened seams leaked with water sprayed at less than 75 psi.

After 100,000 simulated road miles, 3M™ VHB™ Tape in an unconstrained panel design held securely without leaks at up to 3,200 psi. And even with extreme thermal cycling testing, the panels with 3M™ VHB™ Tape were water tight and aesthetically smooth.

With 3M™ VHB™, manufacturers also bond and seal panels in one step – helping build a better trailer faster.

195


196

197


198

For less fatigue and stress on horses, a trailer assembled with 3M™ VHB™ Tape is up to 41% quieter with up to 30% less vibration at highway speeds. Results based on independent testing.

199

Surfaces of truck panels assembled with 3M™ VHB™ Tape are aesthetically smooth. Graphics apply easily without the added effort of applying over rivets or screw heads.

200

3M™ VHB™ Tape permanently bonds and seals dissimilar metals while separating the surfaces to reduce potential for galvanic corrosion. Viscoelastic properties also resist vibration.

3M™ VHB™ Commercial Vehicle Tapes

Product Number	Tape Thickness w/o liner Mils (mm)	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Application Ideas
				Minutes Hour	Days Weeks		
CV45F	45 (1.1)	• Gray, closed-cell acrylic foam carrier • Conformable • Good adhesion to many painted metals	Acrylic	300°F (149°C)	200°F (93°C)	High	Bond overlap seams on vehicle side panels
CV62F	62 (1.6)						Bond vehicle side panels to posts

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™ VHB™ Tapes for Commercial Vehicles and Trailers are only available through authorized distributors and a warranty may be available on pre-approved applications.

www.3M.com/specialtyvehicle

3M™ VHB™ Structural Glazing Tapes

Application ease and immediate handling strength for increased productivity

3M™ VHB™ Structural Glazing Tapes have been proven in thousands of buildings worldwide since 1990 as an alternative to structural silicone and spacer tapes/gaskets.

Immediate handling strength results in faster throughput and delivery. No mixing or curing simplifies manufacturing.

A proven technology with over a 25-year history in construction, an application warranty is available for qualifying applications.

201


202

Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance		Solvent Resistance
					Minutes Hours	Days Weeks	
G23F	90 (2.3)	5 mil Red, Printed Polyethylene Film	• Gray conformable acrylic closed-cell foam carrier	High Performance Acrylic	300˚F (149˚C)	200˚F (93˚C)	High
B23F			• Black conformable acrylic closed-cell foam carrier				

3M™ VHB™ Structural Glazing Tapes are only available for structural glazing applications approved by 3M Technical Service through select distributors.

3M™ VHB™ Tapes for Architectural Panels

Proven for more than 25 years in applications from Denver to Duabi

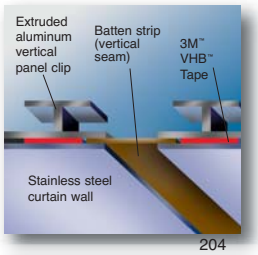
For quick permanent assembly of cladding and curtain wall panels, 3M™ VHB™ Tapes provide an ideal combination of performance, durability and application ease.

Bond to a wide range of architectural panel substrates including dissimilar materials. With design flexibility, create visibly stunning facades.

Application warranty available for qualifying applications.

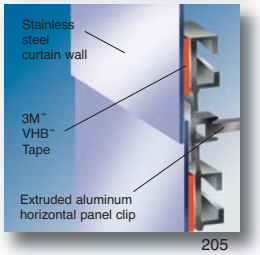

203

Vertical seam



204

Horizontal seam



205

Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion	
					Minutes Hours	Days Weeks		HSE	LSE
4941	45 (1.1)	3 mil 54# DK	• Gray conformable acrylic closed-cell foam carrier	Multi-purpose Acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Med.
4956	62 (1.6)								
4991	90 (2.3)	5 mil Red, Printed Polyethylene Film			250˚F (121˚C)	200˚F (93˚C)			
5952	45 (1.1)	5 mil Red, Polyethylene Film	• Black conformable acrylic closed-cell foam carrier	Modified Acrylic	300˚F (149˚C)	250˚F (121˚C)	High	High	Med.
5962	62 (1.6)								

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

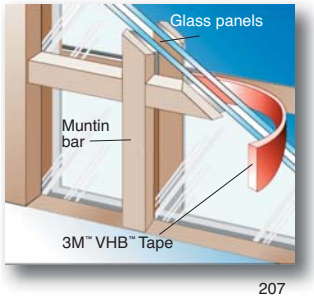
www.3M.com/vhb/structuralglazing

3M™ VHB™ Tapes for Windows and Doors

Attach wood, vinyl, composite or painted metal muntin bars to windows

These high strength tapes conform to glass with good wet-out and resistance to UV light, thermal expansion and contraction, solvents and cleaners. Tapes below are available only for approved window and door customers. Pre-approved applications may be eligible for a 10-year warranty.
See primers on page 57.


206



207

Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type	Description	Adhesive Type	Temperature Resistance		Solvent Resistance	Relative Adhesion	
					Minutes Hours	Days Weeks		HSE	LSE
G45P	45 (1.1)	3 mil White Paper	• Gray conformable acrylic closed-cell foam carrier	High Performance Acrylic	300˚F (149˚C)	200˚F (93˚C)	High	High	Med
G45F		5 mil Red PE							
B45F		5 mil Red PE	• Black conformable acrylic closed-cell foam carrier						

3M™ VHB™ Tapes for Signs

Reliable and immediate bonding

For indoor and outdoor signage, 3M™ VHB™ Tapes hold immediately without the work of screws and the mess and curing time of liquid adhesives.

- Bond metals, plastics, glass, foam board, and more
- Invisible fastening for smooth, attractive surfaces

208

209

3M™ VHB™ Tape provides durable bonding in outdoor applications.


210

Clear 3M™ VHB™ Tape permanently bonds aluminum letters to glass and appears almost invisible from behind the pane.


211

212

	Unpainted Aluminum and Steel	Acrylic, Polycarbonate	Expanded Rigid PVC Board	Flexible Vinyl
Unpainted Aluminum and Steel	5952	5952	5952	4941
Painted Surfaces (drywall, metal, wood, concrete)	5952	5952	5952	4941
Acrylic, Polycarbonate	5952	5952	5952	4941
Glass	5952	5952	5952	4941
Transparent Applications	4910	4910	-	-

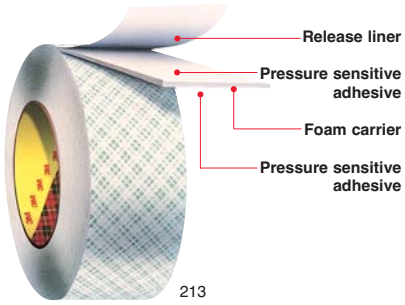
Note: This technical information and data should be considered representative or typical only and should not be used for specification purposes.

www.3M.com/vhb

3M™ Double Coated Foam Tapes for Mounting

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.



213

214

To replace screws and liquid adhesives, 3M™ Multipurpose Mounting Tape 4016 bonds immediately to many indoor surfaces, even permanently mounting a plastic soap dispenser to a mirror.

215

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.

216

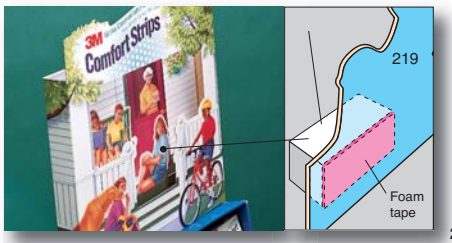
3M™ Double Coated Foam Tapes can be precisely die-cut and pre-applied to the back of any shape hook. Ready to mount to a variety of surfaces.

217

To permanently mount a coat rack to a textured wall, 3M™ Extra Thick Multipurpose Mounting Tape 4008 bonds on contact and fills gaps between the surfaces.

218

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.



220

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

221

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

3M™ Double Coated Foam Tapes for mounting

	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 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.	A
	4008	125 (3.2)									
	4016	62 (1.6)									
	4026	62 (1.6)									
	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		
	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.	A
	4416 4432	62 (1.6) 31 (0.8)	• White or black, closed-cell vinyl foam carrier								
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.	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

222

With a wide choice of adhesives and carrier types you can permanently mount on contact dispensers and signs made of a variety of materials.

3M™ Double Coated Tapes

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.

223

Simply roll on a strip or band of 3M™ Double Coated Tape 9832 for quick edge banding with no special equipment. Pressure sensitive adhesive tape grabs with immediate handling strength for improved productivity.

224

With differential adhesive, the silicone adhesive side of 3M™ Double Coated Tape adheres to a silicone rubber keypad. Acrylic adhesive side adheres to a plastic base.

225

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

226

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.

Adhesive Family[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Carrier Type*	Liner Type[2]	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
						Minutes Hours	Days Weeks		HSE	LSE	
200MP High Perf	9492MP	2.5 (0.06)	PET	58# PCK	• 2.5 mil version of 9495MP	300°F (149°C)	250°F (121°C)	High	High	Low	Automotive decorative trim 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.
	9495MPF	5.7 (0.14)	PET	PET	• Film linered version of 9495MP						LED lens attachment for cell phones.
	9495FL	5 (0.11)	PET	HDPE/ 58# PCK	• Double Linered version of 9495MP	300°F (149°C)	200°F (93°C)				LED lens attachment for cell phones.
	9495B	5.7 (0.14)	PET	58# PCK	• 9495MP with a 0.5 mil black polyester carrier	300°F (149°C)	250°F (121°C)				LED lens attachment for cellular phones and pagers.

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3M™ Double Coated Tapes

Adhesive Family[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Carrier Type*	Liner Type[2]	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
						Minutes Hours	Days Weeks		HSE	LSE	
300 High Strength	444	3.8 (0.10)	PET	55# DK	• High tack acrylic adhesive with densified kraft liner	250˚F 121˚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.
	9039	3.5 (0.09)	PET	55# DK	• Thin double coat where application thickness is critical						
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 (0.23)	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 (0.30)	PET	PET	• Thick double coat for bonding to foam with clear polyester carrier						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)	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 • Immediate handling strength for edge banding, veneering, refacing, and laminating • Excellent adhesion to most foams						Permanent bonds for many materials fused in woodworking and furniture.
	9832HL	4.8 (0.10)	PET	83# PCK	• Same as 9832 except with a heavier liner						
340 High Strength	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.
	9456	5 (0.11)	Tissue	55# DK	• Tissue carrier with high tack adhesive	180˚F (82˚C)	150˚F (65˚C)				Bond fabric to window blind valances. General purpose laminating.
	9824	3.1 (0.08)	PET	55# DK	• High tack, general purpose acrylic adhesive	150˚F (65˚C)	120˚F (49˚C)				Foam lamination. Gasket attachment.
	9828	4 (0.10)	PET	55# DK	• High tack, acrylic adhesive with good adhesion to many foams						
	9828HL	4 (.10)	PET	132# Kraft	• Same as 9828 with a heavier liner						Foam lamination. Gasket attachment.
	9828PC	4 (.10)	PET	74# PCK	• Same as 9828 with PCK liner						
350 High Holding	9500PC	5.6 (0.14)	PET	61.5# 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.
375 High Perform-ance	9086	7.5 (0.17)	Tissue	Glassine Paper	• Good initial tack	248°F (120°C)	185°F (85°C)	Medium	High	High	POP displays. Metal fabrication. Sports equipment. Indoor/outdoor signs.
	9087	10.2 (0.22)	PVC	Glassine Paper		185°F (85°C)	158°F (70°C)				
	9088	8.3 (0.22)	PET	Glassine Paper		300°F (150°C)	200°F (93°C)				
	9088FL	8.3 (0.22)	PET	PP							

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

*PET is polyester, PP is polypropylene. [1] More information on pages 80-81. [2] More information on page 71.

3M™ Double Coated Tapes (continued)

Adhesive Family[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Carrier Type*	Liner Type[2]	Description	Temperature Resistance Minutes Hours	Temperature Resistance Days Weeks	Solvent Resistance	Relative Adhesion HSE	Relative Adhesion LSE	Application Ideas
400 Acrylic	415	4 (0.1)	PET	60# 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 (0.1)	PET	60# DK	• 415 with a 0.5 mil red carrier						
	9576	4 (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 (0.1)	PP	60# DK	• Black carrier						
	9576R	4 (0.1)	PP	60# DK	• Red carrier						
	9576Y	4 (0.1)	PP	60# DK	• Yellow carrier						
	9578	4 (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)	PET	83# PCK	• Thin black polyester carrier for improved handling, die-cutting						
700 Synthetic Rubber	9377	11 (0.25)	PP	58# PCK	• Flame retardant with specially formulated black acrylic based adhesive on one side and rubber based adhesive on the other.	250˚F (121˚C)	180˚F (82˚C)	Medium	N/A	N/A	Carpet installation bonding carpet to interior floor boards.
760	9443NP	6 (0.15)	HDPE	62# DK	• High tack with good adhesion to most plastics	180˚F (82˚C)	150˚F (65˚C)	Medium	High	High	Assemble computer ink cartridges. Bonding polyethylene.
760	9579	9 (0.23)	HDPE	62# DK	• General purpose, high tack, hand-tearable film tape	150˚F (65˚C)	120˚F (49˚C)				Core starting on metal cores.
760	9589	9 (0.23)	HDPE	62# DK	• Aggressive high initial tack						Carpet attachment.
800 Natural Rubber 860	401M	9 (0.23)	Paper	54# DK	• Thick flatstock paper carrier	180˚F (82˚C)	150˚F (65˚C)	Medium	High	Med.	Mount printing plates.
850	410M	6 (0.06)	Paper	54# DK	• Smooth adhesive on both sides	200˚F (93˚C)	150˚F (65˚C)				Core starting/end tabbing of papers, films and foils.
830	442F	4 (0.1)	PET	PET	• Same as 442KW with film liner	180°F (82°C)	150°F (65°C)				Mount polishing pads.
	442KW	4 (0.1)	PET	72# PCK	• Removes from metals						
	456CR	4 (0.1)	PET	PET	• Easy release blue adhesive						
900 Misc.	9737	4 (0.1)	PET	55# DK	• Aggressive and versatile for many surfaces	300˚F (149˚C)	260°F (127°C)	High	Med.	Low	Double coated splicing tape.
	9737R	4 (0.1)	PET	55# DK	• Same as 9737 in Red						
	9738	5.6 (0.14)	Non-Woven Tissue	55# DK	• Aggressive and versatile for many surfaces						
	9738R				• Same as 9738 in Red						
	9740	4 (0.1)	PET	55# DK	• High temperature performance with high peel, tack, and shear for splicing applications	425°F (218°C)	N/A	Medium	Med.	Low	Double coated splicing tape.
	9741	7 (0.18)	PET	55# Glassine	• Thick, adheres to a wide variety of substrates	200˚F (93˚C)					
	9816L	3.5 (0.09)		60#	• General purpose, high tack, rubber-based adhesive.	150°F (65°C)	120°F (49°C)	Medium	High	Med	
	9816M			74# Kraft							
	9816H			14 pt board							
	9817L	3.3 (0.08)		60#	• Exposed side is acrylic, liner side is rubber-based. Excellent quick stick and adhesion to high and low energy surfaces.	Acrylic: 220°F (105°C) Rubber: 175°F (80°C)	Acrylic: 175°F (80°C) Rubber: 120°F (49°C)	Medium	High	Med	
	9817M			74# Kraft							
	9817H			14 pt board							
Silicone	9731	5.5 (0.14)	PET	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.
Misc.	9599	5 (0.2)	PP	DK White	• High adhesion to a variety of materials • Low VOC	200˚F (93˚C)	180˚F (82˚C)	Medium	High	High	Suitable for automotive interior applications.

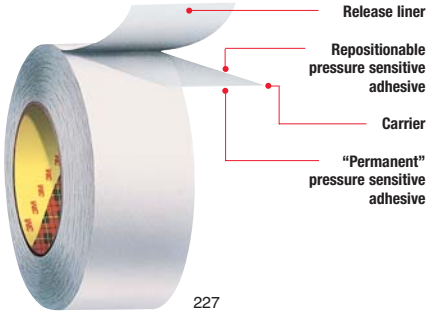
Relative Adhesion: HSE – High Surface Energy, LSE – Low Surface Energy
*PET is polyester, PP is polypropylene.
[1] More information on pages 80-81. [2] More information on page 73.

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.

3M™ Removable/Repositionable Tapes

Versatility for many substrates on on-off and open-close applications

Some 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.



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Other tapes in the line offer different levels of adhesion on each side. And others feature equal adhesive strength on each side for reliable attachment but with easy separation for repositioning or multiple openings and closings. You can join substrates that include glass, metals, wood, paper, painted surfaces, and many plastics.

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.

228

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

229

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.

3M™ Removable/Repositionable Tapes

	Product Number	Adhesive Type	Tape Thickness w/o liner Mils (mm)	Liner Type[2]	Description	Temperature Resistance Minutes Hours	Temperature Resistance Days Weeks	Solvent Resistance	HSE	LSE	Application Ideas
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.
	4451	700	32 (0.8)	60# PCK	• Polyethylene foam with synthetic rubber adhesive	150˚F (66˚C)	120˚F (49˚C)	Medium	High	Med.	Option of foam if you want removability. Temporary sign.
	4658F	100	31 (0.8)	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.
	9415PC	400/1000*	2 (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)	Low	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*	5.0 (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.

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.

* Second number reflects removable/repositionable adhesive side.

** 3M™ Adhesive Transfer Tape

[2] More information on page 71.

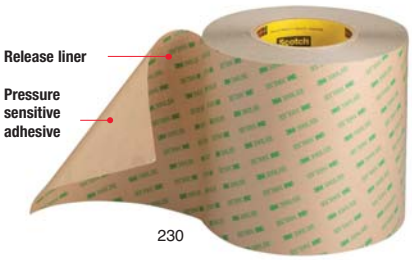
3M™ Adhesive Transfer Tapes

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 and liners are available to meet requirements for applications such as nameplate attachment to high and low surface energy plastics, appliance graphic overlays that perform in high temperatures, foam gasketing, web splicing, and more.



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231

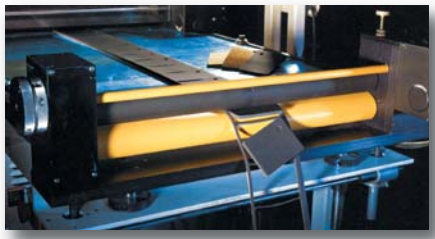
With high cohesive strength, 3M™ Adhesive 200MP bonds aggressively with excellent temperature resistance. Meets the non-fogging specifications of the automotive industry.


232

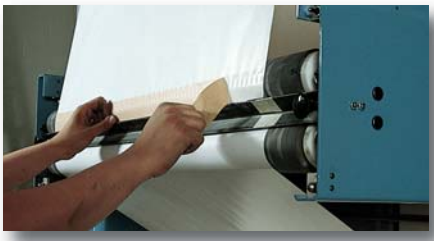
For bonding flexible vinyl in such applications as door gaskets, 3M™ Adhesive Transfer Tape F9465PC resists the effect of plasticizers that tend to migrate from the vinyl.


233

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.


234

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.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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.


236

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


237

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.

3M™ Adhesive Transfer Tapes

Adhesive Family[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type[2]	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
100 High Temp	941	2 (0.05)	58# PCK	• High temperature, low outgassing	450˚F (232˚C)	300˚F (149˚C)	High	High	Low	Graphic attachment for appliances.
	965	2 (0.05)	55# DK							Flex circuit attachment.
	966	2 (0.05)	62# DK							Aerospace fuel line labeling.
	9461P	1 (0.025)	55# DK							Meets NASA low volatility specs.
	9462P	2 (0.05)								
100MP	9437	2 (0.05)	PET/58# PCK	• Designed for harsh environments and outdoors	450˚F (232˚C)	300˚F (149˚C)	High	High	Low	Automotive and aerospace applications.
	F9460PC	2 (0.05)	58# PCK	• High shear strength, high temperature resistance	500˚F (260˚C)	300˚F (149˚C)	High	High	Low	Industrial joining and metal fabrication.
	F9469PC	5 (0.13)		• UL listing 746C						
	F9473PC	10 (0.25)								
100HT	9082	2 (0.05)	White DK	• Excellent heat resistance in high temperature environments	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 (0.13)								
200MP High Perf	467MP	2 (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 (0.13)		• Rotary die-cuttable liner						
	467MPF	2 (0.05)	PET							
	468MPF	5 (0.13)								
	9172MP	2 (0.06)	HDPE/58# PCK							
	9185MP	5 (0.13)	HDPE/58# PCK							
	9667MP	2 (0.06)	83# PCK							
	9668MP	5 (0.13)	83# PCK	• Rotary die-cuttable liner available in 700 yd. length • Better lay-flat properties						Graphic attachment and general industrial joining.
220 Industrial Acrylic	9502	2 (0.05)	58# PCK	• Economical acrylic formulation	350˚F (177˚C)	250˚F (121˚C)	Medium	High	Low	Attachment of graphics and industrial joining.
	9505	5 (0.12)								
290 Low Outgassing	501FL	1 (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 (0.05)								
300FR Flame Retardant	9372DKW	2 (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.
	9372W	5 (0.12)	83# PCK	• Flame retardant transfer tape with moisture-stable liner						
	9375W									
300 High Strength	927	2 (0.05)	60# 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.
	950	5 (0.13)	60# DK							
	950EK	5 (0.13)	78# EK							
	992U	2 (0.05)	55# DK							
	9458	1 (0.025)	55# DK							
	9459W	1.5 (0.04)	55# DK	• White adhesive • High opacity	250˚F (121˚C)	150˚F (65˚C)	Low	High	High	Gasket attachment, foam fabric and/or coated papers.
	9471	2 (0.05)	60# DK	• For smooth LSE plastics						
	9471PC	2 (0.05)	61# PCK	• Same as 9471 on moisture-stable liner						
	9472	5 (0.13)	60# DK	• 5.0 mil version of 9471 for textured surfaces						
	9671	2 (0.05)	83# PCK	• Heavy linered version of 9471						
	9672	5 (0.13)	83# PCK	• Heavy linered version of 9472						

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Relative Adhesion:

HSE – High Surface Energy LSE – Low Surface Energy

[1] More information on pages 80-81. [2] More information on page 71.

3M™ Adhesive Transfer Tapes (continued)

Adhesive Family[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type[2]	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
300 High Strength (cont.)	9673 9674	2 (0.05) 5 (0.13)	83# PCK	• Same as 9671 with unprinted liner • Same as 9673 but for textured surfaces	250˚F (121˚C)	150˚F (65˚C)	Low	High	High	Gasket attachment, foam fabric and/or coated papers.
300LSE High Strength	8132LE 8153LE 9453LE 9471LE 9472LE	2 (0.05) 3.5 (0.09) 3.5 (0.09) 2 (0.05) 5 (0.13)	83#/58# PCK 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.
	9453FL	3.5 (0.09)	PET	• Film lined version of 9453LE for rotary processing						
	9471FL	2 (0.05)	PET	• Film lined version of 9471LE for rotary processing						
	9472FL	5 (0.13)	PET	• 5.0 mil version of 9471LE with liner for textured surfaces						
	9653LE 9671LE 9672LE	3.5 (0.09) 2 (0.05) 5 (0.13)	83# PCK	• High bond to plastics with high temperature holding						
300MP High Strength	6035PC	5 (0.13)	58# PCK	• Low fogging for automotive interior applications	250˚F (121˚C)	180˚F (82˚C)	Medium	High	Med.	Bond anti-squeak fabric and foam. For automotive interior.
	6035PL	5 (0.13)	83# PCK	• Heavy lined version of 6035PC for easy handling, lay-flat properties			High	Med.	High	Automotive, low fogging adhesive for fabric carpet.
	6038PC	8 (0.2)	58# PCK	• Low fogging for automotive interior applications			Medium	High	Med.	Bond anti-squeak fabric and foam. For automotive interior.
	6038PL	8 (0.20)	83# PCK	• Low fogging • For rough embossed surfaces with heavy liner for steel rule die-cutting			High	Med.	High	Automotive, low fogging adhesive for fabric carpet.
	9772WL 9773WL 9774WL 9775WL	2 (0.05) 3 (0.075) 4 (0.10) 5 (0.13)	96# PCK	• Provides excellent bond to various fabricated foams, fabrics and substrates			Medium	High	Med.	General industrial foam lamination.
	9784	4 (0.1)	HDPE/58# PCK							
350 High Holding	9442 9445 9482PC 9485EK 9485PC	2 (0.05) 5 (0.13) 2 (0.05) 5 (0.13) 5 (0.13)	55# DK 62# PCK 78# EK 62# 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.
	9675	5 (0.13)	83# PCK	• Heavy lined version of 9485PC for easy handling, lay-flat properties						LED lens attachment for cellular phones and pagers.
400 Acrylic	463 465	2 (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 (0.025)	55# DK							
	9464 9498	2 (0.05)	60# DK	• Pink tinted adhesive • Industrial-grade adhesive transfer tape						Splicing tape.
	9665	2 (0.05)	58# PCK	• Thicker liner than 465 for moisture stability in kiss-cutting						

Relative Adhesion:

HSE – High Surface Energy

LSE – Low Surface Energy

[1] More information on pages 80-81.

[2] More information on page 71.

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.

3M™ Adhesive Transfer Tapes (continued)

Adhesive Family[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type[2]	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
420	F9752PC	2 (0.05)	58# PCK	• High tack • Can be applied as low as 32˚F (0˚C)	300˚F (149˚C)	250˚F (121˚C)	High	Med.	Low	Bond gaskets and foams. Bond polycarbonate instrument panels.
	F9755PC	5 (0.13)	58# PCK							
430	9497	2 (0.05)	60# DK	• Pink • High temperature splicing	350˚F (177˚C)	250˚F (121˚C)	Medium	Med.	Low	High temperature, zero speed splicing.
	9499			• Clear version of 9497						
Specialty	F9465PC	5 (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 (0.13)	58# PCK	• High tack, for hard to bond surfaces	150˚F (65˚C)	120˚F (49˚C)	Low	High	Med.	Splicing photographic papers.
	909	1.5 (0.04)	60# DK	• Assembly aid tape	180˚F (82˚C)	150˚F (65˚C)	Medium	Med.	Med.	Assembly aid for pick and place.

Relative Adhesion:
HSE – High Surface Energy
LSE – Low Surface Energy
[1] More information on pages 80-81.
[2] More information below.

Liner Characteristics

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.
58# Polycoated Kraft paper (PCK)	4.2	Excellent liner for steel rule die-cutting, resists moisture.
60# Densified Kraft paper (DK)	3.5	Hard dense liner reduces edge burr in hard tool processing of metal plates.
62# Densified Kraft paper (DK)	3.7	General purpose liner, rotary or steel rule, protects from humidity extremes.
78# Extensible Polycoated Kraft paper (EK)	6	Extra tough liner for increased tear resistance.
83# Polycoated Kraft paper (PCK)	6.2	Improved handling (lay-flat), steel rule die-cutting, kiss-cutting, resists moisture.
94# PCK	7	Excellent for lay-flat processing.
Polyester film (PET)	2, 3, 4	Rotary die-cuttable, cleanroom, clear for inspection of parts, humidity stable.
Clear, High Density Polyethylene film (HDPE)	3	Clear for inspection of parts, thermo-formable, tear-resistant.
White Polypropylene film (PP)	3.5	Can be thermo-formed.

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.

3M™ Release Liners and Printable Films

Product Group	Product	Description/Application Ideas	Construction		Master Size
			Caliper Mils	Liner	
Release Liners *Non-silicone*	4935	3M proprietary fluoropolymer release coat one side.	3.0	Polyester, Clear	40" x 360 yd
	5932	3M proprietary fluoropolymer release coat one side.	2.0	Polyester, Clear	54" x 360 yd
Release Liners *Silicone*	4986	High-density polyethylene is transparent for graphic inspection. Release coat one side. For delamination/ relamination only.	3.0	HDPE Film, Clear	48" x 360 yd
	4988	Neutral-colored, polycoated lay-flat kraft liner. Release coat one side.	6.2	83# Polycoated Kraft, Neutral color	48" x 360 yd
	4994	Caliper controlled liner for rotary die-cutting. Release coated two sides. Very low release for double linering #300 high-strength adhesive.	3.2	55# Densified Kraft, White	54" x 360 yd
	4996	Clear film is ideal for graphics inspection of backlit panels. Release coat one side.	1.4	Polyester Film, Clear	54" x 360 yd
	4997	Heavy liner ideal for kiss-cutting and lay-flat applications. Release coat one side.	4.0	70# Densified Kraft, Clear	54" x 360 yd
	4998	Release coat two sides (matte).	4.2	58# Polycoated Kraft, Tan	48" x 360 yd
	4999	Caliper controlled liner for rotary die-cutting. Release coat one side.	3.2	55# Densified Kraft, White	54" x 360 yd
	5002	Clear polyester film for rotary cutting. Release coat one side.	2.0	Polyester Film, Clear	60" x 360 yd
	5002D	Clear polyester film for rotary cutting. Release coat two sides.	2.0	Polyester Film, Clear	60" x 360 yd
	5004	Thick, clear polyester film for rotary cutting. Release coat one side.	4.0	Polyester Film, Clear	50" x 360 yd
	5051	Special PCK liner for double linering 300LSE tapes. Release coat one side.	4.2	58# Polycoated Kraft	48" x 180 yd
	7526L	Tan polycoated kraft. Release coat two sides (matte).	4.2	58# Polycoated Kraft	48" x 360 yd
	7527L	Cloudy high-density polyethylene. Release coat one side.	3.0	HDPE Film	48" x 360 yd

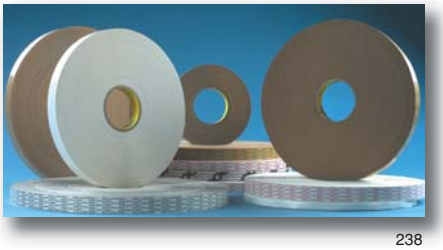
Product Group	Product	Description/Application Ideas	Construction		Master Size	Print Method	Specs
			Caliper Mils	Liner			
Printable Polyester Films - *Label Component Films*	8038	Top-coated film for use with standard printing inks. Top-coat is wound inside. Clear film allows for subsurface printing. Used for automotive, electronics, and other durable goods applications.	2.0	Polyester, Gloss Clear	48" x 720 yd	Press	
	8039	Non top-coated. Clear film allows for subsurface printing for protection of inks. Typical use in over-the-counter and pharmaceutical applications.	2.0	Polyester, Matte Clear (NTC)	48" x 720 yd	Press	UL
	8049	Matte top-coat for dot-matrix printing. Clear film allows for subsurface printing of inks.	2.5	Polyester, Matte Clear	54" x 720 yd	Dot Matrix	UL
	8050	Matte top-coat for dot-matrix printing. Excellent abrasion and chemical resistance.	2.5	Polyester, Matte White	54" x 720 yd	Dot Matrix	UL
	8053	Same as 8050, except matte silver.	2.5	Polyester, Matte Silver	54" x 720 yd	Dot Matrix	UL
	8057	Provides excellent durability. Used for automotive, electronic, and other durable goods applications.	2.0	Polyester, Gloss White	54" x 720 yd	Thermal Transfer	
	8058NT	Same as 8057, except bright silver. Top-coat is wound inside.	2.0	Polyester, Bright Silver	54" x 720 yd	Thermal Transfer	

NOTE: This technical information and data should be considered representative or typical only and should not be used for specification purposes.

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-lift 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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239

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.

240

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.

241

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.

242

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

3M™ Extended Liner Tapes

Adhesive Type[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Liner Type[2]	Description	Temperature Resistance		Solvent Resistance	Relative Adhesion		Application Ideas
					Minutes Hours	Days Weeks		HSE	LSE	
340	466XL	2 (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.
400	450EK	1 (0.025)	78# 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 (0.025)	60# DK tan with green print							Pharmaceutical outsert attachment. General paper attachment.
	920XL	1 (0.025)	40# 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 (0.025)	40# DK white with red print							Economical alternative for general paper-to-paper applications.
	465XL	2 (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 (0.10)	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.[3] High tack to LSE materials.
760	476XL	6 (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.[3]
770	9925XL[4]	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.[3]

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.

[1] More information on pages 80-81.

[2] More information on page 71.

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

[4] Non-liner side is adhesive coated full width.

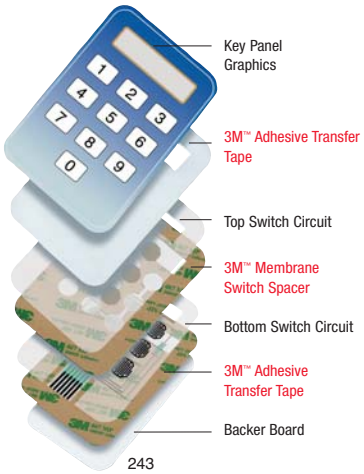
Relative Adhesion:
HSE – High Surface Energy,
LSE – Low Surface Energy

3M™ Membrane Switch Adhesives

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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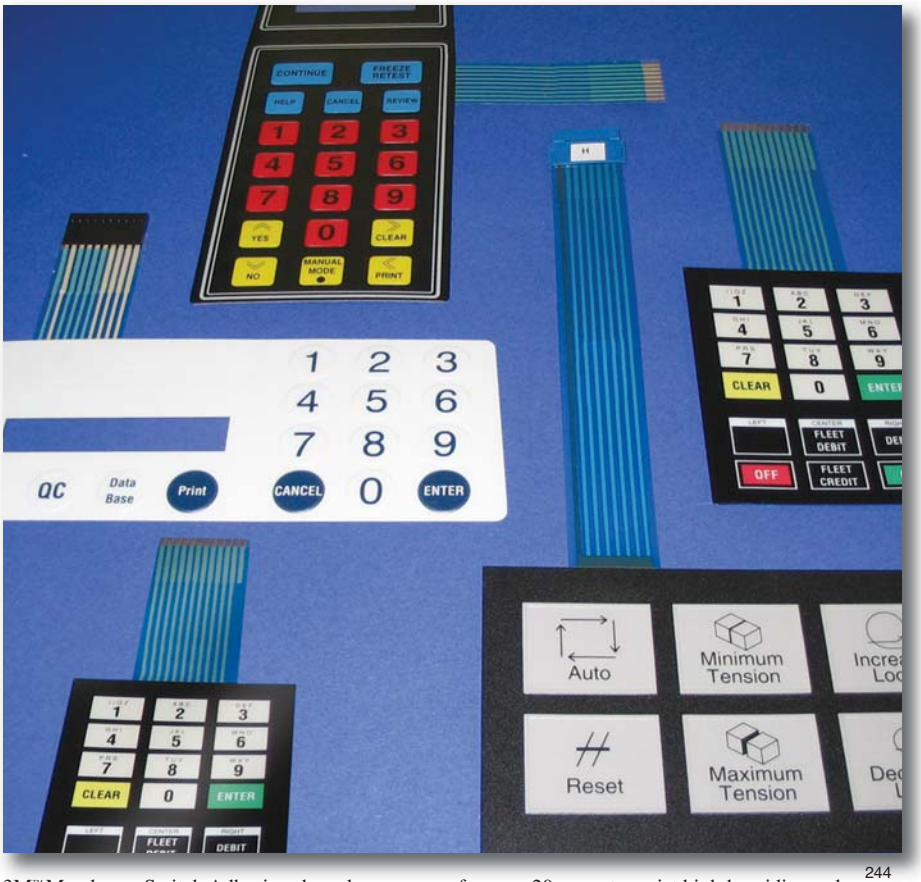

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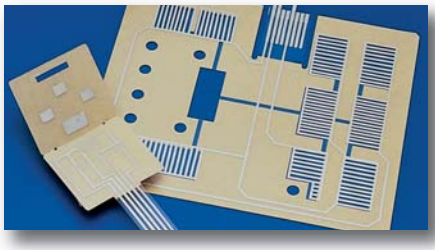
3M™ Membrane Switch Adhesives have been proven for over 20 years to resist high humidity and moisture, extreme temperature ranges, UV light, chemicals, household cleaners, and detergents.



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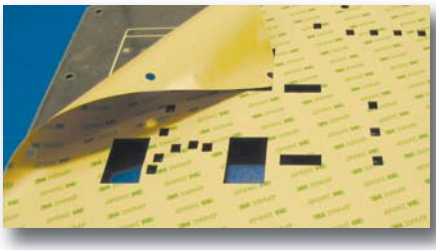
3M single coated spacer materials perform reliably for lead protection and dome retainer layers in applications ranging from medical test systems to fish finders.

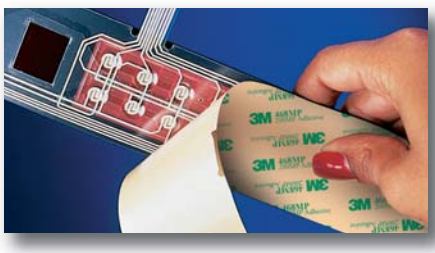
246

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



247

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



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

249

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

250

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

3M™ Membrane Switch Adhesives

	Product Number	Adhesive Family[1]	Tape or Spacer Thickness	Liner Type[2]	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.
Double Coated Spacers	7945MP	200MP	5 mils	58# PCK/58# PCK	2/1/2	Meets 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.
	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	
	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.
	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	
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.
	7995MP		5 mils	94# PCK	2/3/0	
	7997MP		7 mils	94# PCK	2/5/0	Single side spacers aid in the construction of membranes with circuitry, i.e. to protect leads, hold domes in place, or build custom spacers.

[1] More information on pages 80-81.

[2] More information on page 71.

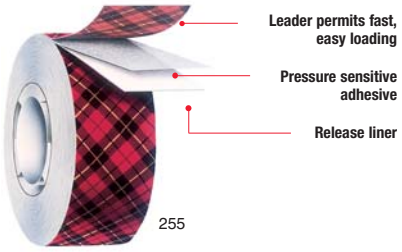
Note: Technical information and data should be considered representative or typical only and should not be used for specification purposes.

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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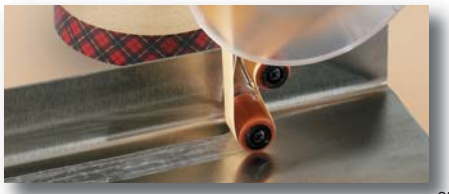

251

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.


252

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.


253

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

254

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.

Scotch® ATG Adhesive Systems

Adhesive Type[1]	Product Number	Tape Thickness w/o liner Mils (mm)	Description	Temperature Resistance		Resistance	Solvent Adhesion	Relative Adhesion	Application Ideas	Adhesive Transfer Tape Equivalent
				Minutes Hours	Days Weeks		HSE	LSE		
300 High Tack	976	2 (0.05)	• High tack • Excellent adhesion to most plastics	250˚F (121˚C)	150˚F (65˚C)	Med.	High	High	Attach fabric swatches in sample books.	927
	969	5 (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 (0.13)	• 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.	F9485PC
400 General Purpose	970XL	1 (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 (0.05)							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 (0.05)	• Differential tack • Repositionable	180˚F (82˚C)	150˚F (65˚C)	Med.	High/ Low	Low/ Low	Attach credit card in mailer. Core start/end tab paper, films and foils. Attach temporary labels.	9416

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] More information on pages 80-81.

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 B		Surface A: Steel, Aluminum, Glass, Ceramics		Surface A: ABS, Acrylic, Enamel & Epoxy Paints, Kapton® Industrial Film, Noryl Resin, Nylon, Lexan® Polycarbonate, Polyester, Rigid Vinyl		Surface A: Polystyrene, Polypropylene, Polyethylene, Powder Paints		Surface A: Plasticized Vinyl		Surface A: Paper		Surface A: Cloth		Surface A: Rubber	
		Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick
Rubber	Transfer	950/969* 9472LE		950/969* 9472LE		950/969* 9472LE		950/969*		950/969*		950/969*		950/969* 9472LE	
	Double coated	444 9495LE		444 9495LE		444 9495LE				444		444		444	
Cloth	Transfer	950/969 9485/926		950/969 9485/926		950/969 9485/926		950/969		465/924 950/969 9485/926		465/924 950/969 9485/926			
	Double coated	444 9690		444 9690		444 9690		9443NP		444 9690		444 9690			
Paper	Transfer	465/924 950/969		465/924 950/969		950/969		950/969 9465PC		465/924 950/969					
	Double coated	410M 415		410M 415		444				410M 415					
Plasticized Vinyl	Transfer	950/969 9465PC		950/969 9465PC		950/969		950/969 9465PC							
	Double coated		4941		4941				4941						
Polystyrene Polypropylene Polyethylene Powder Paints	Transfer	950/969 9485PC/ 926 9472LE	4462	950/969 9485PC/ 926 9472LE	4462	950/969 9472LE	4462								
	Double coated	444 9589 9495LE	4952 5952 (powder paint)	444 9589 9495LE	4952 5952 (powder paint)	444 9443NP 9495LE	4952 5952 (powder paint)								
ABS, Acrylic, Enamel & Epoxy Paints, Kapton® Industrial Film, Noryl® Resin, Nylon, Lexan® Polycarbonate, Polyester, Rigid Vinyl	Transfer	950/969 F9469PC 9485PC/926 468MP	4046/4016 4462 4492	950/969 F9469PC 9485PC/926 468MP	4046/4016 4462 4492										
	Double coated	444 9500PC 9495MP	4941 5952	444 9500PC 9495MP	4941 5952										
Steel Aluminum Glass Ceramics	Transfer	468MP 9085 9469 9485PC/ 926	4046/4016 4462 4492												
	Double coated	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

Tape Selection Guide

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.

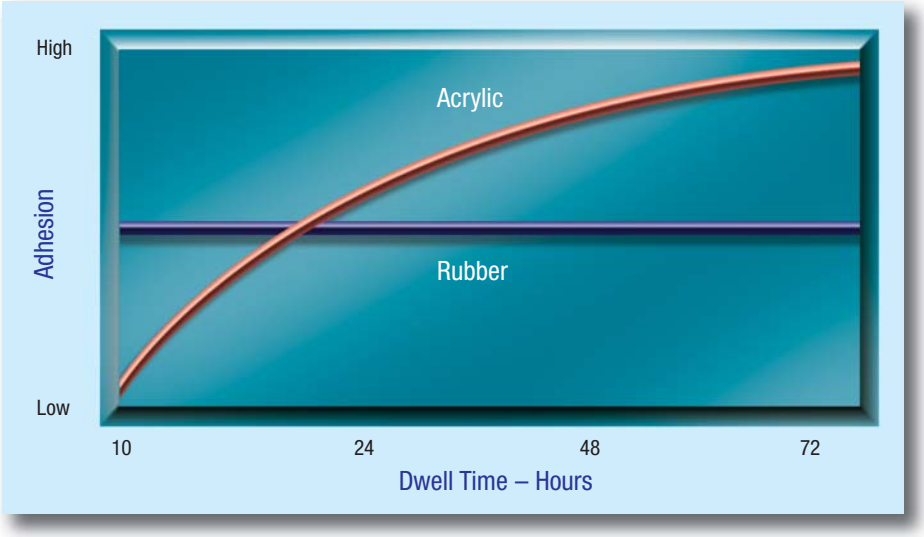
Rubber Adhesives	Acrylic Adhesives
High initial adhesion	Fair initial adhesion
Some adhesion buildup	Gradual adhesion buildup
Good shear strength	High shear strength
Moderate temperature resistance	High temperature resistance
Good solvent resistance	Excellent solvent resistance
Fair UV resistance	Excellent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



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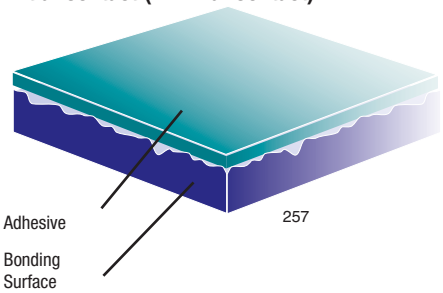
Metal – Basic Surface

Adhesive Surface Contact

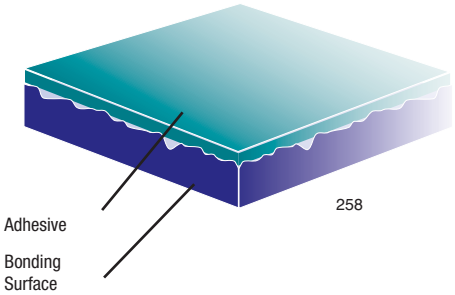
Applying firm pressure to the bond increases adhesive flow and contact for more secure bonding. Time and temperature will typically further increase contact and adhesion values.

Initial Contact (Minimal Contact)



257

After Rubdown (More Contact)



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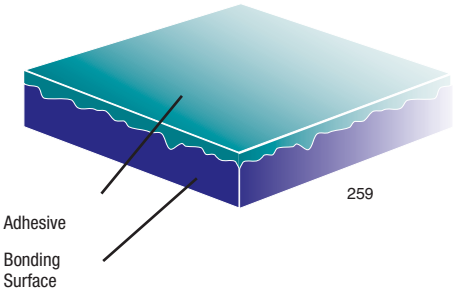
After Dwell Time (Excellent Contact)



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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.

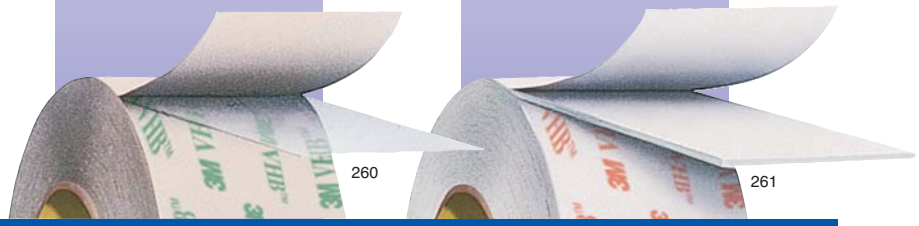
Substrate characteristics

- 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
- Select tapes 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

Tape Selection Guide

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

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

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

375 High Performance

- Up to 300°F short-term heat resistance
- Bonds a wide variety of substrates
- Good initial tack

400 Acrylic Adhesive

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

420 Acrylic Adhesive

- Up to 300°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.

Tape Selection Guide

Adhesive Family Selection Based on Surface Energy

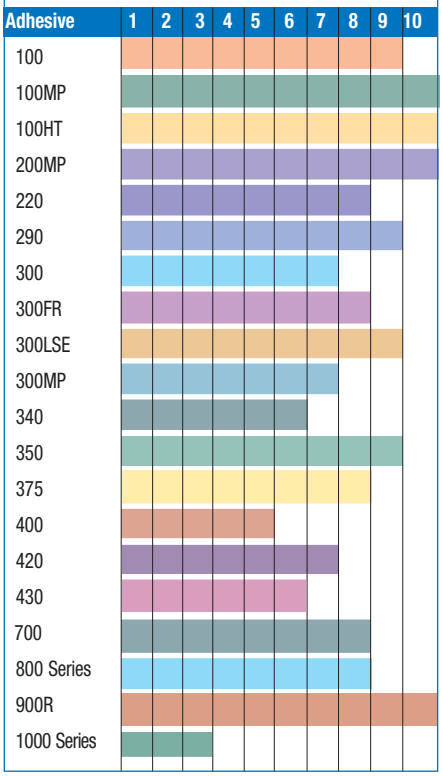
These charts are based on relative adhesion within each given surface energy category.

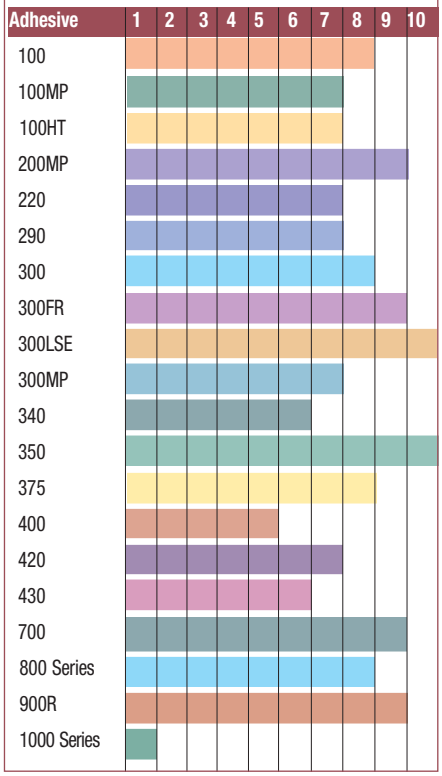
Metals	Surface Energy Dynes/cm
Copper	1103
Aluminum	840
Zinc	753
Tin	526
Lead	543

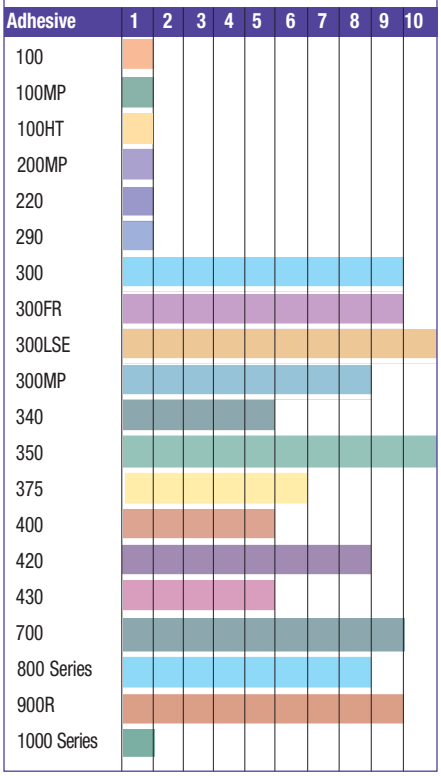
HSE Plastics	Surface Energy Dynes/cm
Kapton®	50
Phenolic	47
Nylon	46
Alkyd Enamel	45
Polyester	43
Epoxy Paint	43
Polyurethane	43
ABS	42
Polycarbonate	42
PVC	39
Noryl	38
Acrylic	38
Polane Paint	38

LSE Plastics	Surface Energy Dynes/cm
PVA	37
Polystyrene	36
Acetal	36
EVA	33
Polyethylene	31
Polypropylene	29
Polyvinyl Fluoride Film	28
PTFE Fluoropolymer	18
Powder Coatings	**

**Broad range of surface energy.





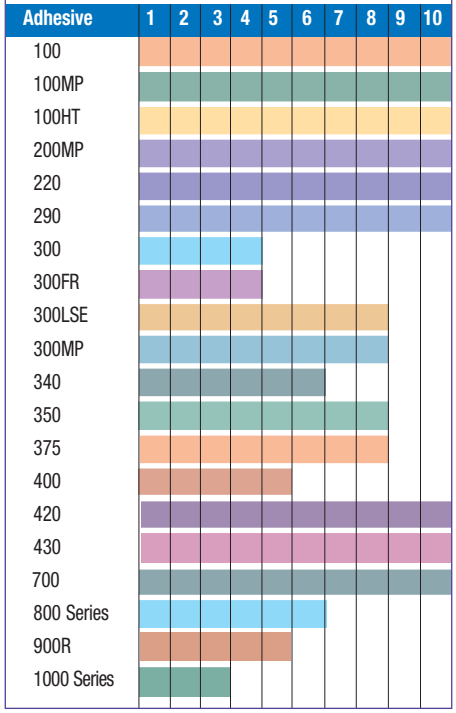


1=Lowest Performance 10=Highest Performance

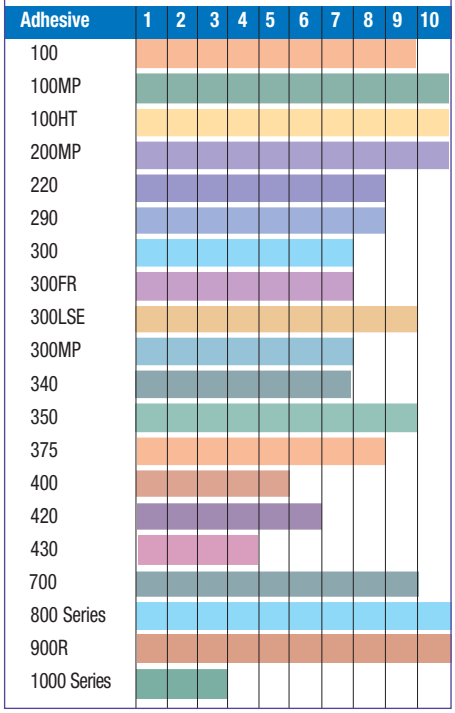
Note: Technical information and data should be considered representative or typical only and should not be used for specification purposes.

Adhesive Family Selection Based on Other Service Conditions

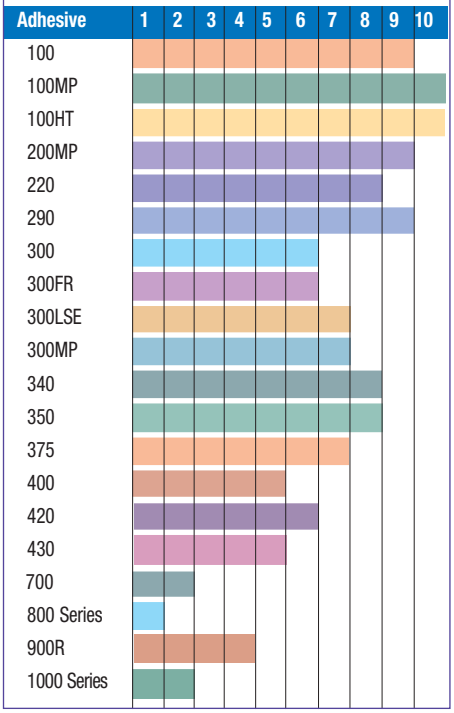
Shear Strength at Room Temperature



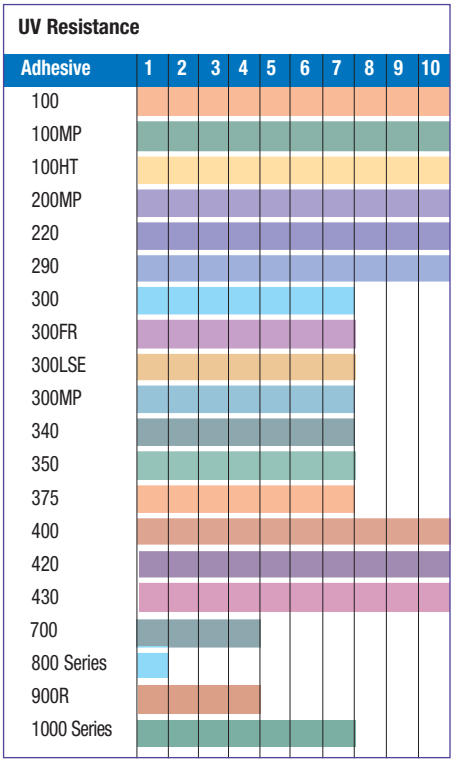
Ultimate Peel Strength



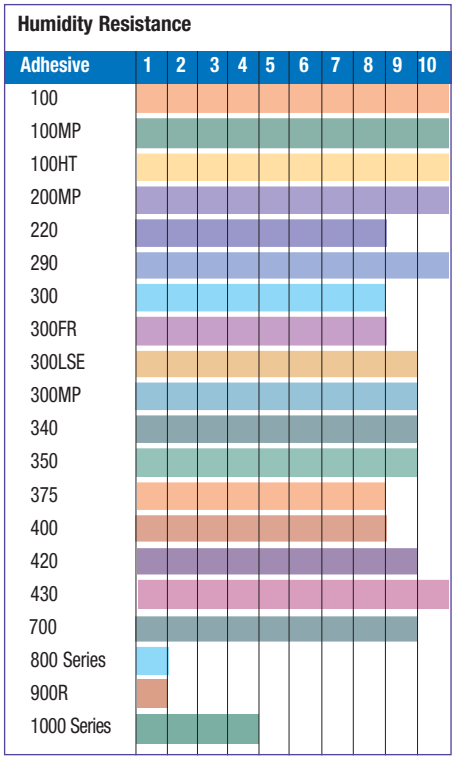
Chemical Resistance



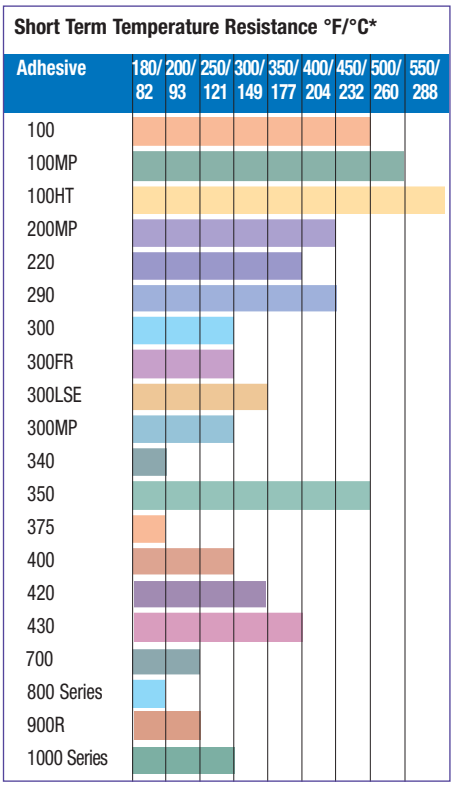
UV Resistance



Humidity Resistance



Short Term Temperature Resistance °F/°C*



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

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

3M™ Reclosable Fasteners and other technologies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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, labeling, conducting, reflecting, and more.

The product variety includes all of the following:

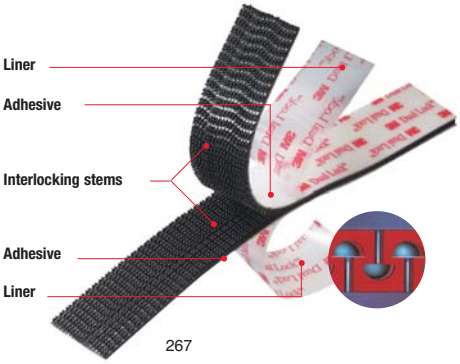
- 3M™ Dual Lock™ Reclosable Fasteners
- 3M™ Scotchmate™ Reclosable Fasteners
- 3M™ Single Coated Foam Tapes
- 3M Converter Markets Center
- Overview of other 3M Technologies

3M™ Dual Lock™ Reclosable Fasteners

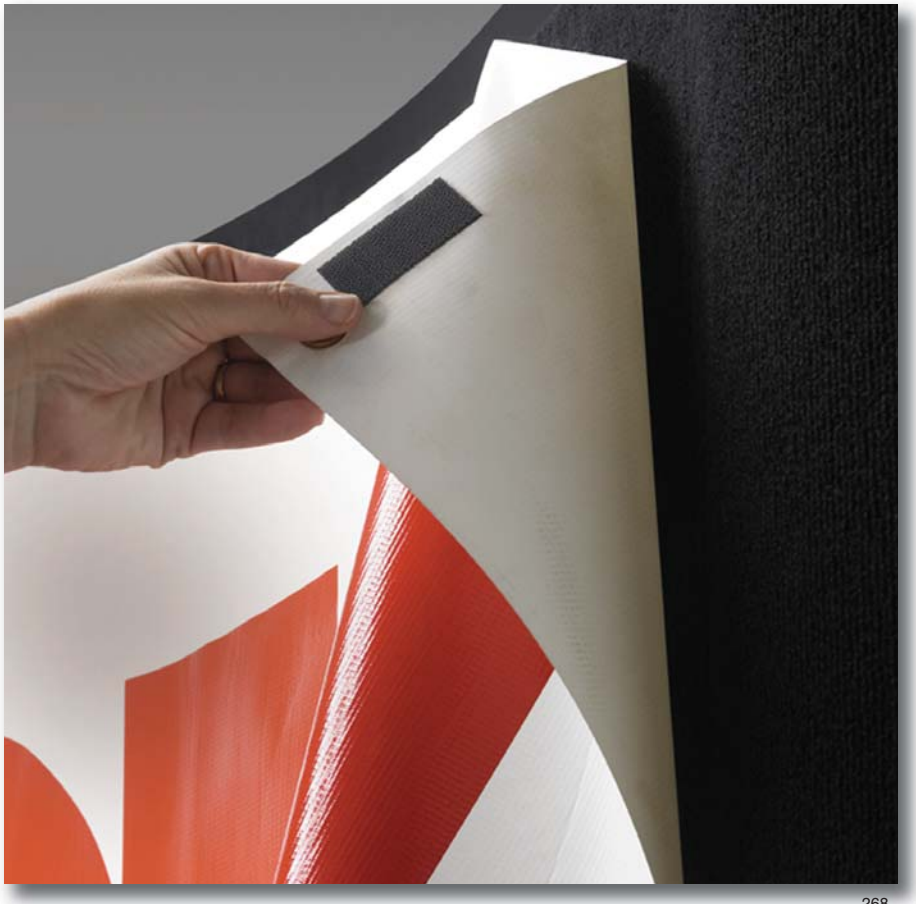
A reclosable system to replace unsightly mechanical fasteners

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 is high enough to replace mechanical fasteners in many applications.* Yet, you can readily open and close hundreds of times.

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.



267



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With one side of a 3M™ Dual Lock™ Low Profile Reclosable Fastener on a vinyl graphic, the stems mesh with the fabric panel of the booth for secure attachment.

269

For attaching carrying case cushioning, the versatile acrylic adhesive backing of 3M™ Dual Lock™ Low Profile Reclosable Fasteners holds permanently to the foam insert and the plastic case.

270

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.

271

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.

272

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.

273

Die-cut into precise circles, 3M™ Dual Lock™ Reclosable Fasteners attach removable speaker panels.

*** 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

3M™ Dual Lock™ Reclosable Fasteners

	Product Number	Product Type[1]	Color	Backcoating[2] Adhesive	Liner	Engaged Thickness[3] Inches (mm)	Temperature Performance[4] Wt. in grams (Temp: °F/°C)	Comments
Lead Acrylic PSA	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.
	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.
3M™ Acrylic Pressure Sensitive Adhesive (PSA)	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.
	SJ3787 SJ3785	250 400	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. 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.
	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.
	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. Offers improved adhesion to high energy surfaces.
	SJ3553	400						
	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. Standard roll length is 45 yards.
	SJ3789	250						
	SJ3757	400						
	SJ3758	250	Black	White acrylic	C	0.40 (10.2)	750g 140°F (60°C)	Conformable, thick adhesive for filling large gaps between joints. Standard roll length is 36 yards.

	Product number	Product Type[1]	Color	Backcoating[2] Adhesive	Liner	Engaged Thickness[3] Inches (mm)	Temperature Performance[4] Wt. in grams (Temp: °F/°C)	Comments
Lead 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.
	SJ3540	250						SJ3540V is packaged for clean room use.
	SJ3541	400						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.
Nonwoven	SJ3754	170	Black	White non woven	None	0.35 (8.9)	1,000g 200°F (93°C)	Certified to Ford WSB M15P35 Type V.
	SJ3223	250						
	SJ3753	400						
	SJ3543	250	Clear					Product appears white.
No adhesive coating	SJ3742	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.
	SJ3780	250						
	SJ3741	400						Certified to FMVSS 302, Ford WSB M15P35 Type IV. Product with marked splices: SJ3241.
	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 10') of SJ4570 can be ordered as MP4570.
	SJ4575	705	Black	Clear acrylic	F	0.10 (2.5)	500g 158°F (70°C)	Black, bonds well to LSE substrates.
	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.

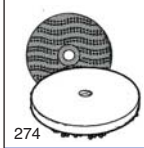
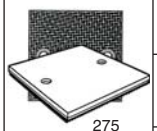
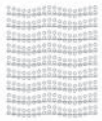
Liners:
A - White 5.0 mil (0.13 mm) thick polyolefin with silicone release coating
B - Brown 83# polykraft liner printed with "3M™" in green. Good for diecutting directly against liner.
C - Red 4.5 mil (0.11 mm) thick polyolefin with no silicone release coating
D - Clear 4.0 mil (0.10 mm) thick polyolefin with silicone release coating
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.
2) Acrylic PSAs are best suited for outdoor or high humidity applications for medium to high energy surfaces.
3) Engaged thickness is for products with the same backcoating. You can mix products with different backcoatings to obtain an even greater variety of engaged thicknesses. Any of these 3M™ Dual Lock™ Reclosable Fasteners can be engaged with 3M™ Scotchmate™ Reclosable Fasteners providing a quick grab closure with high strength and limited cycle life.
4) Able to support indicated weight in a one square inch system static overlap shear for 10,000 minutes, at indicated temperature.

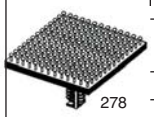
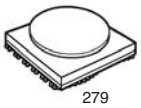
Notes:
Suggest 4 square inches of fastener per pound of load as a starting point for evaluation of long term performance. Suggest type 250 engaged to type 250 as a starting point for evaluations. Tensile strength increases in the following order: 170/250 < 250/250 < 170/400 < 250/400. Maximum widths 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.

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 data sheets for more detailed product performance information.

3M™ Dual Lock™ – Piece Parts

	Product number	Product Type[1]	Dimensions[2] (length x width) or diameter for circular parts inch (mm)	Functional Size/Area square inches (square cm)	Engaged Thickness[3] inches (mm)	Counter-bored hole diameter inches (mm)	Through hole diameter	Spacing (on centers) between holes inch (mm)	Comments Temperature Range from -20°F to 250°F (-29°C to 121°C)
Circle with a counterbored center hole									
 274	SJ3251	250	1 1/8" (28.5)	0.88 (5.68)	0.323 (8.20)	0.38 (9.5)	0.19 (4.9)	-	Attach using screws, rivets, etc. Circular profile reduces chance for edge lift.
	SJ3755	250		0.91 (5.87)	0.323 (8.20)	0.31 (7.9)	0.16 (4.1)	-	
	SJ3762	400		0.91 (5.87)	0.288 (7.31)	0.31 (7.9)	0.16 (4.1)	-	
	SJ3263	250	13/16" (20.6)	0.44 (2.84)	0.288 (7.31)	0.31 (7.9)	0.16 (4.1)	-	
	SJ3763	400						-	
	SJ3235	400	13/16" (20.6)	0.42 (2.71)	0.288 (7.31)	0.35 (9.0)	0.16 (4.1)	-	
	SJ3465	400	9/16" (14.3)	0.17 (1.10)	0.288 (7.31)	0.31 (7.9)	0.16 (4.1)	-	
Circle with no hole									
	SJ3238	250	1 1/8" (28.6)	.99 (6.39)	0.323 (8.20)	-	-	-	
Rectangle with two counterbored holes									
 275	SJ3252	400	1.5" x 1.5" (38.1 x 38.1)	2.08 (13.4)	0.288 (7.31)	0.33 (8.3)	0.16 (4.2)	1" (25.4)	
	SJ3261			2.11 (13.6)	0.288 (7.31)	0.29 (7.5)	0.14 (3.6)	1" (25.4)	15 mils (0.4 mm) thicker than SJ3767.
	SJ3767				0.273 (6.93)	0.29 (7.5)	0.14 (3.6)	1" (25.4)	15 mils (0.4 mm) thinner than SJ3261.
Rectangle with no holes									
 276	SJ3204	250	1" x 1" (25.4 x 25.4)	1.0 (6.45)	0.288 (7.31)	-	-	-	
	SJ3481	400	4 ft x 1" or 2" (1.22 m x 25.4 or 50.8)	Dependent on final length	0.288 (7.31)	-	-	-	Excellent for custom cutting rectangular pieces. See SJ3766, SJ3768 or SJ3799 for ultrasonic attachment version.
Rectangular slide-in (2 edges cut down forming a flange) for mounting into a bracket									
 277							Flange Width inch (mm)	Flange Thickness inch (mm)	
	SJ3736	170	1" x 1.22" (25.4 x 30.7)	1.0 (6.45)	0.288 (7.31)	-	0.079 (2.0)	0.049 (1.25)	Allows quick and easy installation or replacement.
	SJ3717	400				-	0.079 (2.0)	0.049 (1.25)	
	SJ3227	250	5/8" x 1" (16 x 25.4)	0.48 (3.10)		-	0.098 (2.5)	0.079 (2.0)	
	SJ3700	170	25/32" X 25/32" (20 x 20)	0.43 (2.77)		-	0.098 (2.5)	0.079 (2.0)	
	SJ3228	400	25/32" x 25/32" (20 x 20)	0.43 (2.77)		-	0.098 (2.5)	0.079 (2.0)	
	SJ3229	250	1" x 1" (25.4 x 25.4)	0.76 (4.90)		-	0.098 (2.5)	0.079 (2.0)	
	SJ3750	400	32 mm x 50 mm	1.95 (12.58)	0.303 (7.70)	-	0.079 (2.0)	0.049 (1.25)	
	SJ3248	250	1" x 1.1" (25.4 x 28)	0.79 (5.10)	0.298 (7.57)	-	0.137 (3.5)	0.52 (1.32)	
	SJ3249	400	1" x 1.1" (25.4 x 28)	0.79 (2.77)	0.298 (7.57)	-	0.137 (3.5)	0.52 (1.32)	

3M™ Dual Lock™ – Piece Parts with Functional Bases

	Product number	Product Type[1]	Dimensions[2] (length x width) or diameter for circular parts	Functional Size/Area square inches (square cm)	Engaged Thickness[3] inches (mm)	Comments
Pine tree shaped push-in stem for insertion into wood and similar substrates over a range of thicknesses.						
 278	SJ3209	250	26 x 26 mm	1.04 (6.7)	0.293 (7.44)	12 mm (0.49") long base stem, designed to fit a 7.9 to 8.4 mm diameter hole.
	SJ3749	400				
	SJ3222	250	26 x 26 mm	1.04 (6.7)	0.293 (7.44)	12 mm long base stem, designed to fit a 7 to 7.5 mm diameter hole.
	SJ3224	400				
	SJ3848	250	26 x 26 mm	1.04 (6.7)	0.293 (7.44)	16.5 mm long base stem, designed to fit a 7.9 to 8.4 mm diameter hole.
	SJ3748	400				
	SJ3266	170	26 x 26 mm	1.04 (6.7)	0.293 (7.44)	12.74 mm long base stem, designed to fit an 8.20 to 8.50 mm diameter hole.
	SJ3267	250				
	SJ3268	400				
	SJ3272	170				White version of SJ3266.
	SJ3273	250				White version of SJ3267.
	SJ3274	400				White version of SJ3268.
Single round cone shaped base for sliding into a key hole slot						
 279	SJ3743	170	20 mm x 20 mm	0.62 (4.0)	0.293 (7.44)	Fits key hole slot 3.1-3.25 mm thick panel that is 18 mm in diameter. The shaft (stem of the cone) is 3.25 mm tall and 4 mm wide.
	SJ3705	250				
	SJ3221	250	20 mm x 20 mm	0.62 (4.0)	0.272 (6.91)	Fits key hole slot in a 2.65 mm thick panel that is 18 mm in diameter. The shaft (stem of the cone) is 2.65 mm tall and 4 mm wide.
	SJ3731	400				
	SJ3277	170	26 mm x 26 mm	1,04 (6.7)	0.293 (7.44)	Fits key hole slot in a 3 mm thick panel that is 14 mm in diameter. The shaft (stem of the cone) is 3 mm tall and 4 mm wide.
	SJ3278	250				
	SJ3279	400				
Snap-in base for 6.5 x 10 mm rectangular hole						
 280	SJ3704	250	26 x 26 mm	1.04 (6.7)	0.293 (7.44)	Fits a 1.30 to 1.59 mm thick panel.
	SJ3713	400				
	SJ3825	170	26 x 26 mm	1.04 (6.7)	0.283 (7.19)	Fits a 0.71 to 0.91 mm thick panel.
	SJ3826	250				
	SJ3827	400				
Snap-in base for slotted hole in 0.70 to 1.20 mm thick panel						
	SJ3804	170	26 x 26 mm	1.04 (6.7)	0,293 (7.44)	Fits a 0.70 to 1.00 mm thick sheet metal 5.35 ± .05 mm x 21.25 + .00/- .15 mm slot. Fits a 1.00 to 1.20 mm thick sheet metal 6.00 ± .05 mm x 21.25 + .00/- .15 mm slot.
	SJ3805	250				
	SJ3806	400				

Notes:

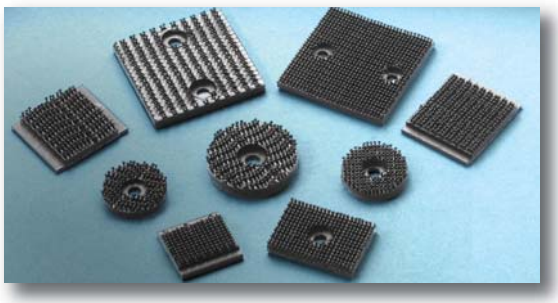
* Suggest 4 square inches of fastener per pound of load as a starting point for evaluation of long term performance. Suggest type 250 engaged to type 250 as a starting point for evaluations. Tensile strength increases approximately in the following order: 170/250 <250/250 ≤ 170/400 < 250/400.
* The information provided is considered representative only for use in narrowing the possibilities of 3M™ Dual Lock™ piece parts to be considered for further 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.
* All 3M™ Dual Lock™ Piece parts are comprised completely of black polypropylene

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. Engagement strength is dependent upon the area engaged and number of stems engaged.

2) The actual 3M™ Dual Lock™ area available for (dis)engagement may be less than the part dimension. This should be taken into consideration when designing how much 3M™ Dual Lock™ will be required for a specific application.

3) Engaged thickness is for the shown product engaged to 3M™ Dual Lock™ Reclosable Fasteners SJ3781 (a type 250 Dual Lock™ with an acrylic adhesive backcoating). You can mix products with different backcoatings (standard pressure sensitive adhesives or via our 3M™ Dual Lock Mix and Match Program) to obtain a greater variety of engaged thicknesses. Any of these 3M™ Dual Lock™ Reclosable Fasteners can be engaged with 3M™ Scotchmate™ Reclosable Fasteners, providing a quick grab closure with high strength and limited life.

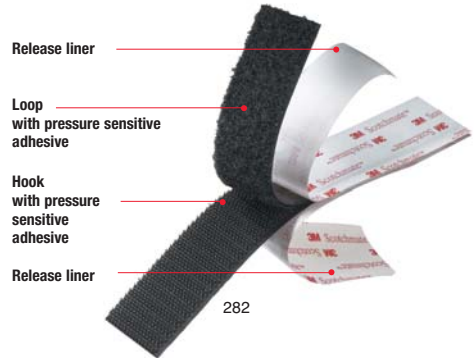

281

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.



282

283

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, moisture, and dirt.


284

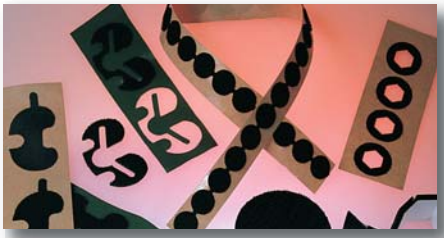
Aircraft seat assembly is quick and easy with 3M™ Scotchmate™ Reclosable Fasteners. Some products meet FAA flammability standards.


285

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.


286

Readjustable braces with 3M™ Scotchmate™ Reclosable fasteners fit securely and comfortably. The fasterners can be opened and closed thousands of times.


287

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.


288

When the hook side of 3M™ Scotchmate™ Reclosable Fastener SJ3000 meshes with its own loop side, you have a convenient and secure replacement for many bundling methods.


289

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.

3M™ Scotchmate™ Relosable Fasteners

	Product Number	Product Type	Material	Closure Life	Adhesive Type	Liner	Engaged Thickness[1] Inches (mm)	Temperature Performance[2] Wt. in grams Temp: °F (C°)	Comments
Acrylic Adhesive	SJ3572 SJ3571	Hook Loop	Nylon	5,000+	High temperature	D, F	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.
	SJ3546 SJ3547	Hook Loop		5,000+	Medium temperature	G	0.15 (3.8)	500g 180°F (82*C)	
	SJ3576 SJ3577	Hook Loop	Polyester	1,000+	High temperature	D	0.15 (3.8)	1,000g 200°F (93°C)	Excellent for outdoor or humid 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+	Synthetic rubber	C	0.15 (3.8)	500g 120°F (49°C)	Good adhesive performance at economic value.
	SJ3526N SJ3527N	Hook Loop	Nylon	5,000+	Synthetic rubber	A, F	0.15 (3.8)	500g 100°F (38°C)	One roll (1" x 4.9 yd.) each of SJ3526N and SJ3527N, order MP3526N/27N. Paper liner product ordered as SJ3526NP or SJ3527NP.
	SJ3530	Hook	Nylon	5,000+	Synthetic rubber	C, F	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.
	SJ3531	Loop				C			
Plainback (No adhesive)	SJ3401 SJ3402	Loop Hook	Nylon	5,000+	None	None	0.13 (3.3)	1,000g 220°F (104°C)	Certified to GM2743M Type II. One roll (1" x 4.9 yd.) each of SJ3401 and SJ3402. Order MP3401/02. Sew-on.
	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)	Excellent 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 PSA	SJ3506 SJ3507	Hook Loop	Polypro-pylene Polyester	<25	Acrylic	E	0.04 (1.0)	500g 120°F (49°C)	Available in white. Thin profile with high shear strength.
Plain-back	SJ3000	Back to Back Hook and Loop	Polypro-pylene Polyester	<25	None	None	0.06 (1.5)	500g 120°F (49°C)	Available in red and black. Good for bundling and cable ties.

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# PCK liner printed with "3M™" in green. Good for diecutting directly against liner.
F - Brown 83# PCK liner with no printing. Good for die-cutting directly against liner.
G - Silicone-treated polyolefin with 3M logo embossed.

Footnotes: 1) Engaged thickness is for hook and loop with the same backcoating engaged to each other. Any of these 3M™ Scotchmate™ Reclosable Fasteners also 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 one square inch system static overlap shear to aluminum for 10,000 minutes (approximately 1 week), at indicated temperature.

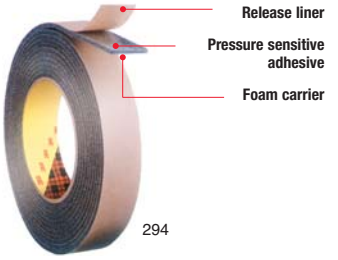
Note: This information should be considered representative only, for help in narrowing the list of possible fasteners for further and more detailed evaluation, and should not be used for specification purposes. User is responsible for determining whether the 3M product is fit for the desired end use.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

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.



294


290

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


291

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

292

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


293

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.

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	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	• Same as above except lower density and liner over PSA	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.

3M Converter Markets Center

Converting 3M technology into successful applications

3M Converters match 3M technologies to customer requirements with the exact form, fit, and functionality for application success in identifying, bonding, protecting, and electrical shielding or conducting.

Converter expertise includes part design, quick prototyping, laminating adhesives to various surfaces, printing labels and durable graphics, slitting, and die-cutting.

3M technologies include the following:

- 3M™ Performance Label Materials
- 3M™ Thin Attachment Tapes
- 3M™ Adhesive Transfer and Double Coated Bonding Tapes such as 3M™ VHB™ Tapes
- 3M™ Single Coated Tapes such as crepe masking tape
- 3M™ Reclosable Fasteners
- 3M™ Bumpon™ Protective Products
- And more

295

3M™ Performance Label Materials with Structured Adhesive – With unique microchannels throughout the structured adhesive, air flows freely from between the label adhesive and substrate. Hand-applied large labels go on smoothly and stay that way permanently without unsightly wrinkles and bubbles.

296

For permanent attachment of die-cut durable graphics, 3M™ LSE Low Surface Energy Acrylic Adhesive 300 bonds on contact and stays tight on low surface energy plastics, powder coated paints, and lightly oiled metals.

297

Dimensionally-stable 3M™ Double Coated Tapes are pre-applied to foam gasketing material and die-cut to precise shape and size for fast, easy application.

298

3M converters can slit 3M™ Masking Tapes to specified widths and roll lengths, as well as die-cut to unique shapes for specialized applications.

299

For hundreds to thousands of openings and closings, 3M converters customize 3M™ Reclosable Fasteners to meet exact customer requirements for form, fit, mating strength, and liner.

300

When you need a little touch of quiet and skid resistance for a PDA or other small product, custom 3M™ Bumpon™ Protective Products are scaled for the design. Adhesive is formulated to hold even a small bonding surface.

301

From the 150,000 possible combinations of 3M adhesives, facestocks, overlaminates, and liners, you have many choices for durable labels requiring UL and/or RoHS compliance.

An overview of other 3M Adhesive Technologies

302

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

303

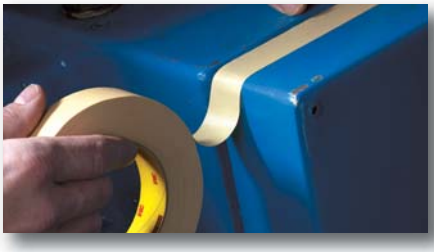
3M™ UHMW-PE Tape 5425 provides a "slip plane" effect between incompatible surfaces to help reduce squeaks and rattles.

304

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.

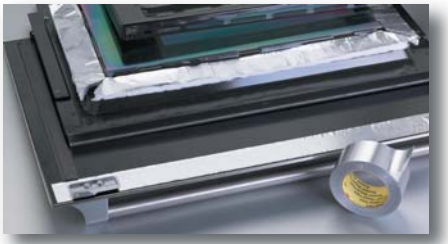
305

For box packing, sealing, and storage below 40°F, Scotch® Box Sealing Tape 3723 seals with a rubber adhesive modified for reliability in the cold.



306

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.



307

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.

308

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.

309

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.

310

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.

311

Versatile 3M™ Performance Flatback Tape 2525 provides high visibility for holding many materials, edge banding, and splicing.

312

3M™ UV Protective Tapes protect automotive mirror finishes from abrasion and marring. UV-stable backing resists the effect of UV exposure for up to 3 months.

313

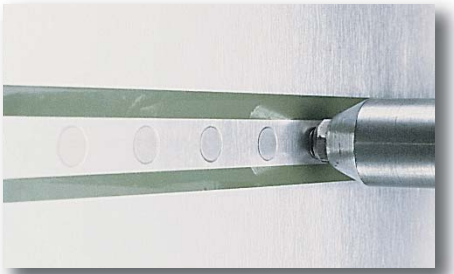
For a sharp paint line on curved fascia, 3M™ Fine Line Masking Tape 4737T adheres securely and removes cleanly even after exposure to 325°F (163°C) for one hour.

316

With permanent resiliency and high coefficient of friction, custom 3M™ Bumpon™ Protective Products provide a soft touch and sure grip for pliers.

314

With acrylic adhesive and nonwoven air-permeable backing, 3M™ Venting Tape 3394 keeps foam-in-place insulation inside appliance doors and cavities.



315

3M™ Riveting Tape 685 with tack-free window holds rivets during bucking without trapping. Low stretch polyester backing with dimensional stability maintains rivet position.

317

To seal fiberglass duct board and flexible duct systems, Scotch® Foil Tape 3326 meets the performance requirements for UL 181A-P and UL 181B-FX.

318

For finished mill overlap splicing, 3M™ Repulpable Permanent Tape provides high shear strength without adhesive oozing or bleed through.

Product Index – Numerical

Product Index – Category

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