



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



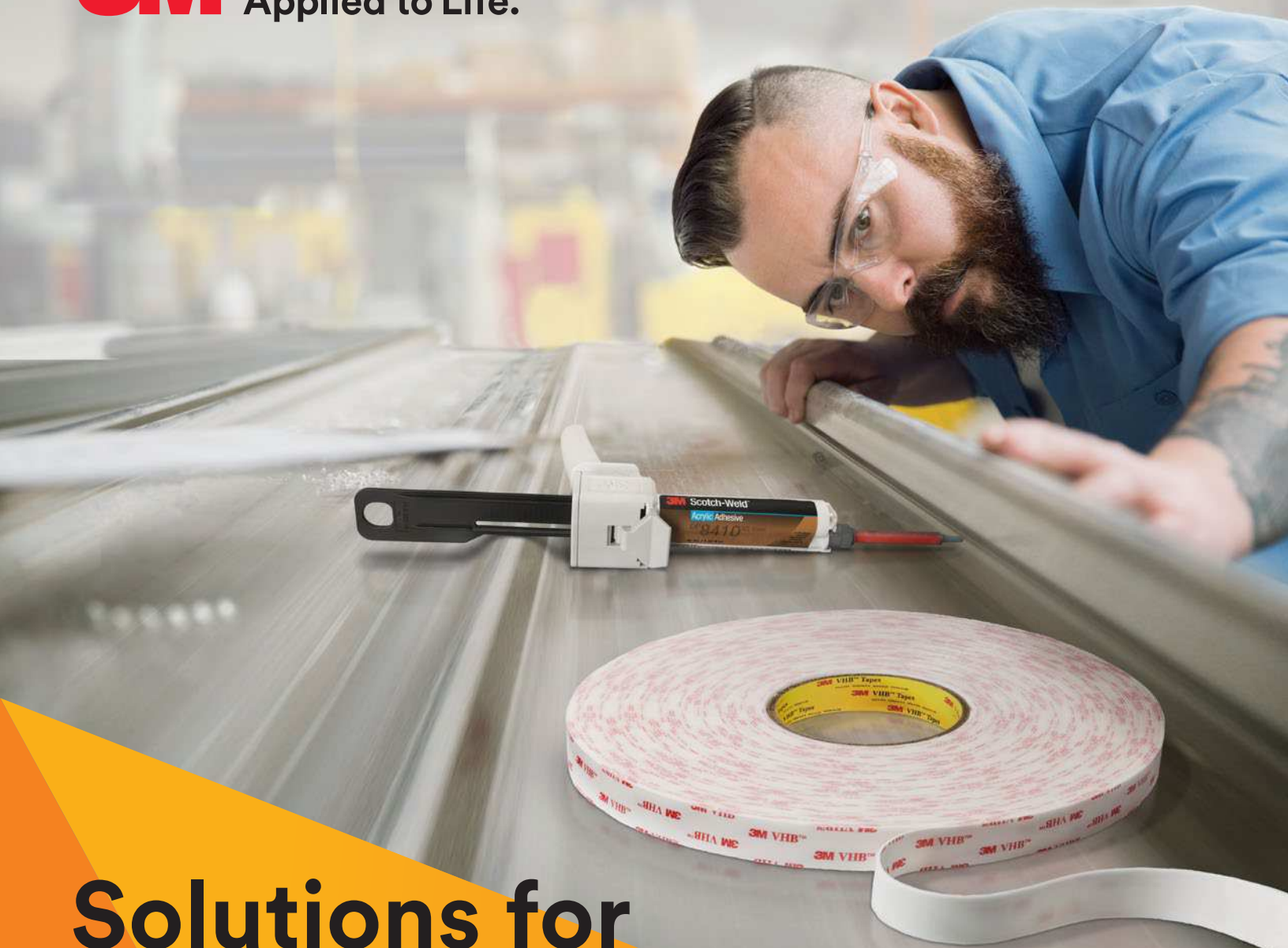
## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





# Solutions for your assembly challenges.

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**5,000+**  
adhesive and tape SKUs

**Do it your way.**

- 3M systems are built around *your* manufacturing processes, not the other way around.
- Whether it's structural or non-structural adhesives, bonding tapes or reclosable fasteners, 3M solutions ensure speed, convenience and ease of use.



**88,667**  
employees

**Do it together.**

- No matter what you need to bond, you can count on 3M's expertise, technologies and 88,667 dedicated employees to help you find solutions.
- From wood, metal, foil, insulation, foam, fabric and panel lamination to specialty high performance and multipurpose materials of every kind, solutions are one call away.



**100,000**  
patents

**Do it boldly.**

- 3M has been a world leader in bonding technology for decades and we have the patents to prove it.
- Quality, consistency and reliability—the attributes you look for in a bonding solution—help drive our quest for new innovations.



**1**  
chance to do it right



**Do it responsibly.**

- Sustainability is a natural extension of 3M's corporate values.
- We developed the first water-based contact adhesive ever — more than 40 years ago.
- We have a wide selection of Low VOC products that help contribute to LEED® credits and are GREENGUARD™ Certified.

# 3M™ Adhesives and Tapes for design, assembly and production.

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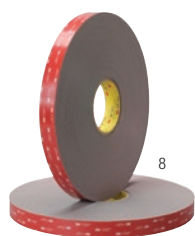
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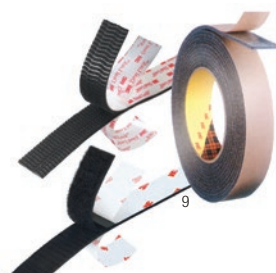
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# What can 3M™ Adhesives and Tapes do for your product and process?

## Build strong, durable products:

- From repositionable to permanent, 3M has an adhesive or tape that can be readily matched to the substrate and stress characteristics needed in the joint.

## Improve appearance and aesthetics:

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

## Lower production and material costs:

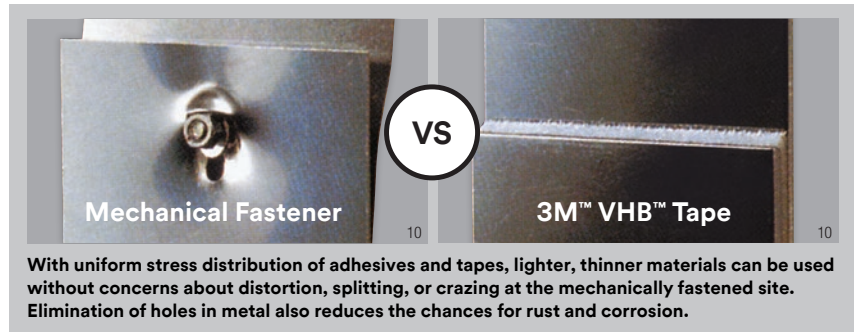
- Reduce process steps such as weld grinding and sealing individual penetrations from screws, nuts and bolts.
- Use thinner, lighter or less expensive materials that cannot be welded or fastened traditionally.
- Potentially lower capital investment. Many adhesives and tapes do not require major capital to use.
- Manage labor costs. Many tape and adhesive technologies require little operator training.

## Build products with a continuous bond line:

- Adhesives and tapes uniformly distribute stress along the entire joint. Nuts, bolts and other fasteners concentrate stress at a point which can decrease physical properties of the substrates being assembled.
- Bond and seal simultaneously. Many 3M adhesives and tapes will provide a strong bond, but are also an effective seal against dirt, dust, water and other environmental conditions.
- Good fatigue resistance. If your parts are subject to vibration or other movement, the viscoelastic nature of 3M adhesives and tapes will impart flexibility to a joint or bonded area.

## Wider material selection for assemblies:

- Lighter and thinner materials can be used. Welding and fastening weaken substrates and require a minimum thickness to retain integrity.
- Bond dissimilar materials. 3M adhesives and tapes bond to a wide range of substrates from metals, wood, glass, plastics and ceramics. This includes “hard to bond,” low surface energy materials.
- Prevent galvanic corrosion. 3M adhesives and tapes can provide a film barrier to reduce or prevent bimetallic corrosion that can occur when joining to different types of metals.



## 3M™ Adhesives and Tapes Product Family

 <p>8</p> <p>■ 3M™ VHB™ Tapes</p>	 <p>14</p> <p>■ 3M™ Contact and Spray Adhesives</p>	 <p>19</p> <p>■ 3M™ Scotch-Weld™ Gasket Makers</p>
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# Considerations when selecting 3M™ Adhesives and Tapes for your product and process.



## Assembly

What type of assembly is required? (Refer to 6 common assembly types in the right hand column.)

What are the overall performance needs of the assembly (flexibility, high peel strength, etc.)?



## Substrate

What are the materials that are being bonded together? (Refer to the substrate selectors for each assembly type on pages 4–15.)

Consider the surface condition texture of each material.



## Process

What is the current assembly and manufacturing process?

Does the solution need to fit into the current process/equipment or can the process/equipment change?

What are the various process steps and how quickly will the assembly be moved to each step?

At any time, might the assembly bond need to be repositioned? If so, why and when?

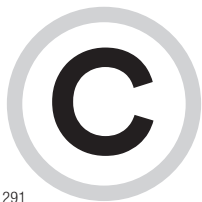
Are there any environmental, regulatory or workplace safety restrictions?



## End-Use

How and where is the final product used?

Will the assembly be exposed to harsh environmental conditions (UV, chemicals, high humidity, very high or low temperatures, etc.)?



## Cost

Where can improvements be made in the assembly process (labor, reduction of process steps, materials, workflow, etc.)?

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Assembly Solutions are made up of these common applications:



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**Panel to Frame/  
Stiffener to Panel**

pg 4



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**Small Joint  
Assembly**

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**Large Surface  
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**Mounting and  
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**Gasket Attachment**

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**Sealing**

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**Potting and  
Encapsulating**

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# What are Panel to Frame Assemblies? What are Stiffener to Panel Assemblies?



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*Panels are used in multiple markets, such as transportation, metalworking and construction.*

**Panel to Frame:** Decorative or load bearing panel that is applied to rigid frame or support. **Examples include trailer panels, elevator walls and sign boxes.**

**Stiffener to Panel:** Stiffeners are applied to panels to give extra support and rigidity. **Examples include trailer wall panels, traffic signs and large metal enclosures.**

**Possible Adhesive or Tape Requirements:**

- Dead load holding strength
- Flexibility for dynamic loads and thermal expansion mismatch
- Fill a gap or variation in fit from end to end
- Provide a water seal

## Best 3M Solutions for Panel to Frame/Stiffener to Panel Assemblies



■ **3M™ VHB™ Tapes** (pg 62–69)

High-strength bonding tapes are a proven alternative to screws, rivets, welds and other mechanical fasteners. 3M™ VHB™ Tape offers instant strength, a high ultimate bond and seals simultaneously. 3M™ VHB™ Tape’s viscoelasticity allows relative movement of parts for thermal expansion/contraction. Best for flat to flat applications with a consistent bondline thickness.



■ **3M™ Scotch-Weld™ Structural Adhesives** (pg 18–35)

Acrylic, epoxy and urethane structural adhesives hold over 1,000 psi in overlap shear strength. Best suited for thinner bondlines, irregular shapes and textured surfaces where load-bearing strength is needed. Provides the highest load-bearing strength and environmental resistance.



■ **3M™ Adhesive Sealants** (pg 58–59)

Acrylic, polyurethane, nitrile and hybrid are one component adhesive technologies with outstanding sealing properties. These products are capable of filling larger and irregular gaps including rough substrates. Highly flexible formulations allow for relative movement for thermal expansion/contraction.



■ **3M™ Reclosable Fasteners** (pg 86–89)

3M™ Dual Lock™ and 3M™ Hook and Loop Reclosable Fasteners for strong yet easily removable fastening solutions. These products are ideal to allow access for servicing or replacement of a panel. Generally backed with 3M™ VHB™ Tape or other 3M adhesive technologies.

## Performance Factors for Panel to Frame/Stiffener to Panel Assemblies

All 3M technologies in the table below are commonly used in panel applications. Use the table below as a relative comparison of product performance.

Good = + Better = ++ Best = +++

Attribute	3M™ VHB™ Tapes	3M™ Scotch-Weld™ Structural Adhesives	3M™ Adhesive Sealants	3M™ Reclosable Fasteners
Number of Steps to Apply and Ease of Application	+++	+++	++	++
Rate of Strength Build	+++	++	+	+++
Flexibility and Joint Expansion	+++	+	+++	+++
Holding Power	+	+++	++	+
Repair/Removal After Cure	+++	+	++	+++

## Panel to Frame/Stiffener to Panel Assembly Solutions

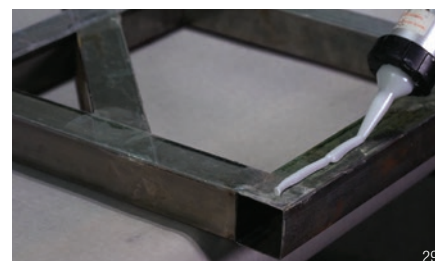
	Metals (Aluminum, Steel, Stainless, Galvanized)	Paints (Powder Coat, Painted Metal, Composite Panel)	Glass	Plastics: HSE, MSE (ABS, Acrylic, Polycarbonate, Nylon)	Plastics: LSE (Polypropylene, Polyethylene)
Metals	<ul style="list-style-type: none"> <li>■ 4941, RP45, 5952</li> <li>■ LSB60NS</li> <li>■ *550FC + AC61</li> <li>■ SJ3550/51/52, SJ3571/72</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, 5952</li> <li>■ LSB60NS</li> <li>■ *550FC + AC61</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ LSB60NS</li> <li>■ *590, *560, *760</li> <li>■ SJ3560/61/62, SJ3571/72</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, 5952</li> <li>■ LSB60NS</li> <li>■ *560, *760</li> <li>■ SJ3550/51/52, SJ3571/72</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ DP8010 Blue</li> <li>■ *560, *760</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> </ul>
		<ul style="list-style-type: none"> <li>■ *4941, *RP45, 5952</li> <li>■ DP8810NS</li> <li>■ *550, *560, *760</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ LSB60NS</li> <li>■ *590, *560, *760</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, 5952</li> <li>■ DP8810NS</li> <li>■ *560, *760</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ DP8010 Blue</li> <li>■ *560, *760</li> </ul>
Glass			<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ DP460</li> <li>■ *590</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, 5952</li> <li>■ DP100 Plus Clear</li> <li>■ *560, *760</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ DP8010 Blue</li> <li>■ *560, *760</li> </ul>
				<ul style="list-style-type: none"> <li>■ *4941, *RP45, 5952</li> <li>■ DP8405NS</li> <li>■ *560, *760</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ DP8010 Blue</li> <li>■ *560, *760</li> </ul>
					<ul style="list-style-type: none"> <li>■ *4941, *RP45, *5952</li> <li>■ DP8010 Blue</li> <li>■ *560, *760</li> </ul>

**Key**

- 3M™ VHB™ Tapes
- 3M™ Scotch-Weld™ Structural Adhesives
- 3M™ Adhesive Sealants
- 3M™ Reclosable Fasteners

\*Primers may also be required in some cases. See specific product pages for primer details.

**For 3M™ VHB™ Tape applications in the Commercial Vehicle market, refer to pages 66 for a selection of products.**



This guide lists products that are commonly used for this specific application. It is important that the customer evaluates these suggested products in their specific application.



# What are Small Joint Assemblies?

Small joint assemblies exist in multiple markets, such as sporting goods, electronics, furniture, motors and electrical.



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**Small Joint:** Small joints are typically irregularly shaped but only a few inches of overlap area. They may be insertion joints or overlap joints, or some combination. **Examples include sporting goods (e.g., golf club heads to shaft), plastic casings, lens mounting for instrumentation, mortise and tenon furniture joints, thread locking or shaft retailing, magnet bonding and jewelry making.**

**Possible Adhesive or Tape Requirements:**

- Low viscosity for tight fitting parts
- Vibration resistance
- Very high strength
- Bond dissimilar materials

## Best 3M Solutions for Small Joint Assemblies



**3M™ Scotch-Weld™ Structural Adhesives** (pg 18–35)

Acrylic, epoxy and urethane structural adhesives hold over 1000 psi in overlap shear strength. Best choice for highest strength, fatigue and environmental resistance especially for metal to metal bonds.



**3M™ Scotch-Weld™ Instant Adhesives** (pg 29)

One part solvent-free adhesive that reaches handling strength in 5–10 seconds. Best for small bondlines (<10cm<sup>2</sup>). Commonly used on rubbers and plastics. Very tight bondlines are achievable with near instant strength.



**3M™ Hot Melt Adhesives** (pg 44–45)

100% solid, thermoplastic resins that reach bond strength in seconds. Best for wood and plastic.



**3M™ Scotch-Weld™ PUR Adhesives** (pg 38–39)

One component, hot applied thermosetting adhesive with immediate strength and holding power. Final cured strength over 1,000 psi. Best for wood and plastic.



**3M™ Scotch-Weld™ Retaining Compounds** (pg 33)

One-part anaerobic adhesives cure between metal surfaces. Permanent and removable grades are available.



**3M™ Scotch-Weld™ Threadlockers** (pg 32)

One-part anaerobic adhesives cure between metal surfaces. Permanent and removable grades are available.

## Performance Factors for Small Joint Assemblies

All 3M technologies in the table below are commonly used in small joint applications.

Use the table below as a relative comparison of product performance.

Good = + Better = ++ Best = +++

Attribute	3M™ Scotch-Weld™ Structural Adhesives	3M™ Scotch-Weld™ Instant Adhesives	3M™ Hot Melt Adhesives	3M™ Scotch-Weld™ PUR Adhesives	3M™ Scotch-Weld™ Threadlockers
Shear and Peel Strength	+++	++	+	+++	++
Temperature and Solvent Resistance	+++	+	++	+++	++
Aesthetics	+	+++	++	++	++
Rate of Strength Build	+	+++	+++	++	++
Rework	+	++	++	+	+++

## Small Joint Assembly Solutions

	Metal (Unpainted)	Metal (Painted)	Glass, Ceramic, Stones	Rubber, Elastomers	Plastics: HSE, MSE (ABS, Acrylic, Polycarbonate, Nylon)	Plastics: LSE (Polypropylene, Polyethylene)	Wood
Metal (Unpainted)	<ul style="list-style-type: none"> <li>DP420NS</li> <li>3747, 3789</li> <li>RT09</li> <li>TL62</li> </ul>	<ul style="list-style-type: none"> <li>DP8805NS</li> <li>3747, 3764</li> </ul>	<ul style="list-style-type: none"> <li>DP420NS</li> <li>3747, 3789</li> </ul>	<ul style="list-style-type: none"> <li>2216</li> </ul>	<ul style="list-style-type: none"> <li>DP8805NS</li> <li>3764, 3747</li> <li>TE040, EZ250150</li> </ul>	<ul style="list-style-type: none"> <li>DP8010 Blue</li> <li>3748, 3764</li> <li>TE040, EZ250150</li> </ul>	<ul style="list-style-type: none"> <li>DP100 Plus</li> <li>3792</li> <li>EZ25150</li> </ul>
Metal (Painted)		<ul style="list-style-type: none"> <li>DP8805NS</li> <li>PR100</li> <li>3747, 3764</li> </ul>	<ul style="list-style-type: none"> <li>DP100 Plus</li> <li>PR100</li> <li>3764, 3792</li> </ul>	<ul style="list-style-type: none"> <li>DP620NS</li> <li>*PR100</li> </ul>	<ul style="list-style-type: none"> <li>DP8805NS</li> <li>PR100</li> <li>3748, 3764</li> <li>TE040, EZ250150</li> </ul>	<ul style="list-style-type: none"> <li>DP8010 Blue</li> <li>*PR100</li> <li>3748, 3764</li> <li>TE040, EZ250150</li> </ul>	<ul style="list-style-type: none"> <li>DP620NS</li> <li>SI100</li> <li>3764, 3792</li> <li>EZ25150</li> </ul>
Glass, Ceramic, Stones			<ul style="list-style-type: none"> <li>DP100 Plus</li> <li>PR100</li> <li>3792</li> </ul>	<ul style="list-style-type: none"> <li>DP100 Plus</li> <li>*PR100</li> </ul>	<ul style="list-style-type: none"> <li>DP100 Plus</li> <li>PR100</li> <li>3748, 3764</li> </ul>	<ul style="list-style-type: none"> <li>DP8010 Blue</li> <li>*PR100</li> <li>3748, 3764</li> </ul>	<ul style="list-style-type: none"> <li>DP420NS</li> <li>SI100</li> <li>3792</li> <li>EZ250120, EZ250150</li> </ul>
Rubber, Elastomers				<ul style="list-style-type: none"> <li>*PR100</li> </ul>	<ul style="list-style-type: none"> <li>DP620NS</li> <li>*PR100</li> </ul>	<ul style="list-style-type: none"> <li>*PR100</li> </ul>	<ul style="list-style-type: none"> <li>DP604NS</li> <li>*SI100</li> </ul>
Plastics: HSE, MSE					<ul style="list-style-type: none"> <li>DP8405NS, DP8805NS</li> <li>PR100</li> <li>3748, 3764</li> <li>EZ250150</li> </ul>	<ul style="list-style-type: none"> <li>DP8010 Blue</li> <li>*PR100</li> <li>3748, 3764</li> </ul>	<ul style="list-style-type: none"> <li>DP620NS</li> <li>SI100</li> <li>3764, 3792</li> <li>EZ250150</li> </ul>
Plastics: LSE						<ul style="list-style-type: none"> <li>DP8010 Blue</li> <li>*PR100</li> <li>3748, 3764</li> </ul>	<ul style="list-style-type: none"> <li>DP8010NS</li> <li>*SI100</li> <li>3764, 3792</li> <li>EZ250150</li> </ul>
Wood							<ul style="list-style-type: none"> <li>DP100</li> <li>SI100</li> <li>3792</li> <li>EZ250120, EZ250060</li> </ul>

**Key**

- 3M™ Scotch-Weld™ Structural Adhesives
- 3M™ Scotch-Weld™ Instant Adhesives
- 3M™ Hot Melt Adhesives
- 3M™ Scotch-Weld™ PUR Adhesives
- 3M™ Scotch-Weld™ Retaining Compounds
- 3M™ Scotch-Weld™ Threadlockers

\*Primers may also be required in some cases. See specific product pages for primer details.



This guide lists products that are commonly used for this specific application. It is important that the customer evaluates these suggested products in their specific application.

# What are Large Surface Lamination Assemblies?



Large surface bonds and laminations exist in multiple markets, such as transportation, appliance, furniture and construction.

**Large Surface Lamination:** Two surfaces (substrates) of similar size, either rigid or flexible, are bonded or laminated together where a majority of the surface is covered by the adhesive or tape in order to create the bond. **Examples include high pressure laminate to tabletops, fabric to foam for furniture, veneers on wood and flexible transportation flooring.**

**Possible Adhesive or Tape Requirements:**

- Cover full surface
- Flexible when dry; not stiff
- Allow for positioning parts
- Bonds quickly/little or no fixturing

## Best 3M Solutions for Large Surface Lamination Assemblies



**3M™ Scotch-Weld™ Structural Adhesives** (pg 18–35)

Acrylic, epoxy and urethane structural adhesives hold over 1,000 psi in overlap shear strength. Best suited for applications where high load-bearing strength is required.



**3M™ Contact and Spray Adhesives** (pg 54–57)

Solvent and water based adhesives can be sprayed, brushed or roll applied. Very fast and easy coverage of large areas including irregular and mildly textured shapes. Bonds the widest range of substrates.



**3M™ Hot Melt Adhesives** (pg 44–45)

100% solid, low VOC thermoplastic resins that reach bond strength in seconds. Long open-time formulations can be spray applied. Bonds irregular shapes and textured surfaces.



**3M™ Scotch-Weld™ PUR Adhesives** (pg 38–39)

One component, hot applied thermosetting adhesive with immediate strength and holding power. Final cured strength over 1,000 psi. Long open-time formulations can be spray applied.



**3M™ Adhesive Transfer Tapes** (pg 78–81)

A pressure sensitive adhesive on a liner. Can be laminated onto a surface by hand or by automation. Instant adhesion with no mess or waste and very thin bondlines.

## Performance Factors for Large Surface Lamination Assemblies

All 3M technologies in the table below are commonly used in large surface bonding applications. Use the table below as a relative comparison of product performance.

Good = + Better = ++ Best = +++

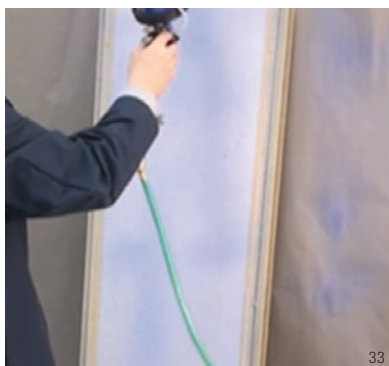
Attribute	3M™ Scotch-Weld™ Structural Adhesives	3M™ Contact and Spray Adhesives	3M™ Hot Melt Adhesives	3M™ Scotch-Weld™ PUR Adhesives	3M™ Adhesive Transfer Tapes
Shear and Peel Strength	+++	+	++	+++	++
Temperature and Solvent Resistance	+++	+	++	+++	+
Aesthetics and Read Through	+	+++	++	++	+++
Speed and Convenience of Application	+	+++	++	++	++
Rate of Strength Build	+	+++	+++	++	+++

## Large Surface Lamination Assembly Solutions

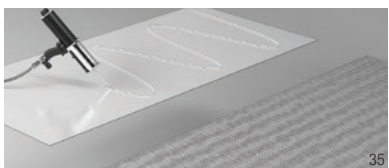
	Metals, Paints, Glass	Rubber (EPDM, Santoprene®)	Foam and Cloth (Urethane, Fabrics)	Plasticized Vinyl	Plastics (ABS, Acrylic, Polycarbonate, Nylon)	Wood
Metals, Paints, Glass	<ul style="list-style-type: none"> <li>■ LSB60</li> <li>■ 94 CA, 1357</li> <li>■ 6111/6111HT</li> <li>■ TS230, TS115HGS</li> <li>■ F9473PC, 9485PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 1300, 847</li> <li>■ *468MP, 950</li> </ul>	<ul style="list-style-type: none"> <li>■ 74, 100NF</li> <li>■ 6111/6111HT</li> <li>■ 6035PC, 950</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4491, 1000NF</li> <li>■ F9467U, F9465PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 94 CA, 4475</li> <li>■ 6111/6111HT, 6116</li> <li>■ TS230, TS115</li> <li>■ 468MP, 9472LE</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 94 CA, 1357</li> <li>■ 6111/6111HT</li> <li>■ TS230, TS115HGS</li> <li>■ 6035PC, 468MP</li> </ul>
		<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4799</li> <li>■ TS230</li> <li>■ *468MP, 950</li> </ul>	<ul style="list-style-type: none"> <li>■ 4799</li> <li>■ TS230, TS115</li> <li>■ 6035PC, 950</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4799</li> <li>■ TS230, TS115</li> <li>■ *F9467U, F9465PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4799</li> <li>■ TS230, TS115</li> <li>■ *468MP, 9472LE</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4799</li> <li>■ TS230, TS115HGS</li> <li>■ *468MP, 950</li> </ul>
			<ul style="list-style-type: none"> <li>■ 74, 100NF</li> <li>■ 6111/6111HT, 6116</li> <li>■ TS230, TS115</li> <li>■ 6035PC, 950</li> </ul>	<ul style="list-style-type: none"> <li>■ 4491, 1000NF</li> <li>■ TS230, TS115</li> <li>■ 950, F9465PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 77, 74</li> <li>■ 6111/6111HT, 6116</li> <li>■ TS230, TS115</li> <li>■ 950, 6035PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 77, 1000NF</li> <li>■ 6111/6111HT, 6116</li> <li>■ TS230, TS115HGS</li> <li>■ 950, 6035PC</li> </ul>
				<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4491, 1300</li> <li>■ TS230, TS115</li> <li>■ F9467U, F9465PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4491, 1300</li> <li>■ TS230, TS115</li> <li>■ F9467U, F9465PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 4491, 1000NF</li> <li>■ TS230, TS115HGS</li> <li>■ F9467U, F9465PC</li> </ul>
					<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 94 CA, 4475</li> <li>■ 6111/6111HT, 6116</li> <li>■ TS230, TS115</li> <li>■ 9472LE, 468MP</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 94 CA, 4475</li> <li>■ 6111/6111HT, 6116</li> <li>■ TS230, TS115HGS</li> <li>■ 9472LE, 468MP</li> </ul>
						<ul style="list-style-type: none"> <li>■ 2216</li> <li>■ 94 CA, 30NF</li> <li>■ 6111/6111HT, 6116</li> <li>■ TS230, TS115HGS</li> <li>■ 6035PC, 468MP</li> </ul>

Key
■ 3M™ Scotch-Weld™ Structural Adhesives
■ 3M™ Contact and Spray Adhesives
■ 3M™ Hot Melt Adhesives
■ 3M™ Scotch-Weld™ PUR Adhesives
■ 3M™ Adhesive Transfer Tapes

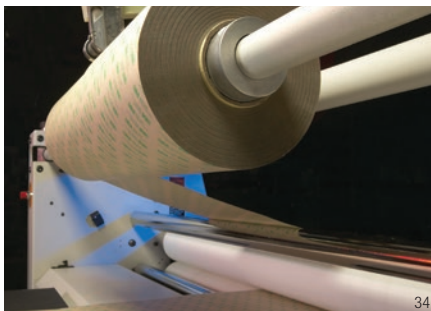
\*Primers may also be required in some cases. See specific product pages for primer details.



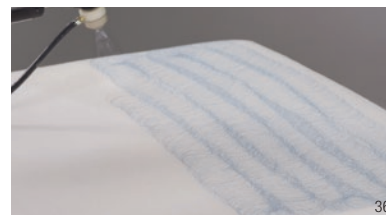
33



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This guide lists products that are commonly used for this specific application. It is important that the customer evaluates these suggested products in their specific application.

# What are Mounting and Trim Attachment Assemblies?



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*Mounting and trim attachment exists in multiple markets, such as transportation, appliance, furniture, construction and architecture.*

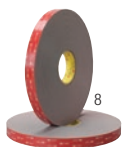
**Mounting:** Applying an object to a surface. Generally, static loads are prevalent and the mounted item is smaller than the surface to which it is bonded. **Examples include small signs, mirrors and white boards, and panel-over-panel with partial adhesive coverage.**

**Trim:** Decoration or identification added to a surface. **Examples include nameplates, edge banding, bezels, rosettes and muntin bars.**

**Possible Adhesive or Tape Requirements:**

- Dead load holding strength
- Aesthetics
- Removability
- Fast bonding/little or no fixturing

## Best 3M Solutions for Mounting and Trim Attachment Assemblies



**3M™ VHB™ Tapes** (pg 62–69)  
High-strength bonding tapes are a proven alternative to screws, rivets, welds and other mechanical fasteners. Can pre-apply to trim for production flexibility. Ideal for dissimilar substrates.



**3M™ Scotch-Weld™ Structural Adhesives** (pg 18–35)  
Acrylic, epoxy and urethane structural adhesives hold over 1,000 psi in overlap shear strength. Use for heavy dead-loads with smaller joint areas (Example: brackets on heavy panels, poorly matched parts with high spring-back forces).



**3M™ Scotch-Weld™ Instant Adhesives** (pg 29)  
One part solvent-free cyanoacrylate (CA) adhesive that reaches handling strength in 5–30 seconds. Best for small very tight bondlines (<10cm<sup>2</sup>). Commonly used on rubbers and plastics.



**3M™ Hot Melt Adhesives** (pg 44–45)  
100% solid, thermoplastic resins that reach bond strength in seconds. Best for wood and plastic.



**3M™ Scotch-Weld™ PUR Adhesives** (pg 38–39)  
One component, hot applied thermosetting adhesive with immediate strength and holding power. Final cured strength over 1,000 psi. Best for wood and plastic.

**3M™ Reclosable Fasteners** (pg 86–89)

3M™ Dual Lock™ and 3M™ Hook and Loop Reclosable Fasteners for strong yet easily removable fastening solutions. These products are ideal for quick mounting, trim or sign installation and change out.



**3M™ Adhesive Transfer Tapes** (pg 78–81)

A pressure sensitive adhesive on a liner. Can be laminated onto a surface by hand or by automation. Can be pre-applied to trim. Provides very thin, aesthetic bondlines. Special formulations for LSE plastics.



**3M™ Double Coated Tapes** (pg 71–76)

A paper, film or tissue carrier with pressure sensitive adhesive on both sides. Can be laminated onto a surface by hand or by automation. Can be pre-applied to trim. Provides very thin, aesthetic bondlines. Special formulations for LSE plastics.



## Performance Factors for Mounting and Trim Attachment Assemblies

All 3M technologies in the table below are commonly used in mounting and trim attachment applications. Use the table below as a relative comparison of product performance.

Good = + Better = ++ Best = +++

Attribute	3M™ VHB™ Tapes	3M™ Scotch-Weld™ Structural Adhesive	3M™ Scotch-Weld™ Instant Adhesive	3M™ Hot Melt Adhesives	3M™ Scotch-Weld™ PUR Adhesives	3M™ Reclosable Fasteners	3M™ Adhesive Transfer Tapes	3M™ Double Coated Tapes
Shear and Peel Strength	++	+++	++	++	+++	+	+	+
Temperature and Solvent Resistance	++	+++	+	+	+++	++	++	++
Aesthetics	+++	+	++	++	++	++	+++	+++
Repositionability During Application	+	+++	+	+	++	++	+	++
Rate of Strength Build	+++	+	+++	+++	++	+++	+++	+++
Removable After Cure	++	N/A	+	+	N/A	+++	++	++

## Mounting and Trim Attachment Assembly Solutions

	Metals (Aluminum, Steel, Stainless, Galvanized)	Paints (Powder Coat, Painted Metal, Composite Panel, Sealed or Painted Wood)	Glass	Plastics: HSE, MSE (ABS, Acrylic, Polycarbonate, Nylon)	Plastics: LSE (Polypropylene, Polyethylene)	Wood
Metals	<ul style="list-style-type: none"> <li>■ 4941, 5952, RP45</li> <li>■ DP8805NS</li> <li>■ 3789, 3747</li> <li>■ TE040, EZ250150</li> <li>■ SJ3550/51/52, SJ3571/72</li> <li>■ 468MP, F9473PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, 5952, *RP45</li> <li>■ DP8810NS</li> <li>■ 3764, 3747</li> <li>■ TE040, EZ250150</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 9485PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP420NS</li> <li>■ 3789, 3747</li> <li>■ SJ3560/61/62, SJ3571/72</li> <li>■ 468MP, F9473PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, 5952, *RP45</li> <li>■ DP8805NS</li> <li>■ 3764, 3747</li> <li>■ TE040, EZ250150</li> <li>■ SJ3550/51/52, SJ3571/72</li> <li>■ 468MP, 9472LE</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP8010 Blue</li> <li>■ 3764, 3747</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 9485PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ 3792</li> <li>■ EZ250150</li> </ul>
		<ul style="list-style-type: none"> <li>■ *4941, 5952, *RP45</li> <li>■ DP8810NS</li> <li>■ PR100</li> <li>■ 3764, 3792</li> <li>■ EZ250150</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 468MP</li> <li>■ 9832, 9500PC</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP420NS</li> <li>■ 3764, 3792</li> <li>■ EZ250150</li> <li>■ SJ3560/61/62, SJ3571/72</li> <li>■ 9472LE, 468MP</li> <li>■ 9832, 9500PC</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, 5952, *RP45</li> <li>■ DP8410NS</li> <li>■ PR100</li> <li>■ 3747, 3792</li> <li>■ EZ250150</li> <li>■ SJ3550/51/52, SJ3571/72</li> <li>■ 468MP, 9472LE</li> <li>■ 9832, 9500PC</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP8010 Blue</li> <li>■ *PR100</li> <li>■ 3748, 3764</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 9485PC</li> <li>■ 9832, 9500PC</li> </ul>	<ul style="list-style-type: none"> <li>■ 3764, 3792</li> <li>■ EZ25150</li> </ul>
Glass			<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP100 Plus</li> <li>■ DP100 Plus Clear</li> <li>■ 3792</li> <li>■ SJ3560/61/62, SJ3571/72</li> <li>■ 468MP, F9473PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, 5952, *RP45</li> <li>■ DP100 Plus</li> <li>■ 3748, 3792</li> <li>■ EZ250150</li> <li>■ SJ3550/51/52, SJ3571/72</li> <li>■ 468MP, 9485PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP8010 Blue</li> <li>■ *PR100</li> <li>■ 3748, 3764</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 9485PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ 3792</li> <li>■ EZ250120, EZ250150</li> </ul>
				<ul style="list-style-type: none"> <li>■ *4941, 5952, *RP45</li> <li>■ DP8405NS</li> <li>■ PR100</li> <li>■ 3748, 3792</li> <li>■ EZ250150, EZ250030</li> <li>■ SJ3550/51/52, SJ3571/72</li> <li>■ 468MP, 9472LE</li> <li>■ 9500PC, 9832</li> </ul>	<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP8010 Blue</li> <li>■ *PR100</li> <li>■ 3748, 3764</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 9485PC</li> <li>■ 9500PC, 9832</li> </ul>	<ul style="list-style-type: none"> <li>■ 3764, 3792</li> <li>■ EZ250150</li> </ul>
					<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP8010 Blue</li> <li>■ *PR100</li> <li>■ 3748, 3764</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 9485PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ 3764, 3792</li> <li>■ EZ250150</li> </ul>
					<ul style="list-style-type: none"> <li>■ *4941, *5952, *RP45</li> <li>■ DP8010 Blue</li> <li>■ *PR100</li> <li>■ 3748, 3764</li> <li>■ SJ3540/41/42, SJ3526N/27N</li> <li>■ 9472LE, 9485PC</li> <li>■ 9500PC, XP6114</li> </ul>	<ul style="list-style-type: none"> <li>■ 3792</li> <li>■ EZ250120, EZ250060</li> </ul>

**Key**

- 3M™ VHB™ Tapes
- 3M™ Scotch-Weld™ Structural Adhesives
- 3M™ Scotch-Weld™ Instant Adhesives
- 3M™ Hot Melt Adhesives
- 3M™ Scotch-Weld™ PUR Adhesives
- 3M™ Reclosable Fasteners
- 3M™ Adhesive Transfer Tapes
- 3M™ Double Coated Tapes

\*Primers may also be required in some cases. See specific product pages for primer details.



**For 3M™ VHB™ Tape applications in the Window and Door market, refer to page 68 for a selection of products.**

This guide lists products that are commonly used for this specific application. It is important that the customer evaluates these suggested products in their specific application.

# What are Gasket Attachment Assemblies?



Gaskets are used in multiple markets, such as electronics, transportation, fluid handling equipment and appliance.

**Gasketing:** Attachment of a substrate typically, foam, rubber or paper that acts as an interface or seal between two surfaces. 3M offers solutions for attaching preformed gaskets, and also solutions which can replace gaskets or bond and seal simultaneously. **Examples include air and liquid filters, fluid handling equipment, heat exchangers and ball joints.**

**Possible Adhesive or Tape Requirements:**

- Easy and fast to apply gaskets
- Resist fluids
- High adhesion to foams and rubber

## Best 3M Solutions for Gasket Assemblies



**3M™ VHB™ Tapes** (pg 62–69)

High-strength bonding tapes that can be die-cut into a variety of shapes to replace rubber or foam gaskets, providing an instant, simple solution. Their closed-cell construction provides a watertight barrier between flat parts.



**3M™ Scotch-Weld™ Instant Adhesives** (pg 29)

One part solvent-free cyanoacrylate (CA) adhesive that reaches handling strength in 5–30 seconds. Best for small very tight bondlines (<10cm<sup>2</sup>). Commonly used on rubbers and plastics.



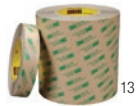
**3M™ Scotch-Weld™ Gasket Makers** (pg 33)

One-part anaerobic adhesives can be applied as a curing liquid gasket between complex metal shapes, replacing pre-formed gaskets.



**3M™ Contact and Spray Adhesives** (pg 54–57)

Solvent and water based adhesives can be sprayed, brushed or roll applied. Very fast, easy and economical coverage of multiple substrates, irregular shapes and mild textures.



**3M™ Adhesive Transfer Tapes** (pg 78–81)

Can be pre-applied to gasketing material which is then die-cut to provide parts. These products provide instant adhesion to flat, untextured substrates.



**3M™ Double Coated Tapes** (pg 71–76)

Can be pre-applied to gasketing material which is then die-cut to provide parts. These products provide instant adhesion.

## Performance Factors for Gasket Assemblies

All 3M technologies in the table below are commonly used in gasket attachment applications. Use the table below as a relative comparison of product performance. Good = + Better = ++ Best = +++

Attribute	3M™ VHB™ Tapes	3M™ Scotch-Weld™ Instant Adhesives	3M™ Scotch-Weld™ Gasket Makers	3M™ Contact and Spray Adhesives	3M™ Adhesive Transfer Tapes	3M™ Double Coated Tapes
High Strength and Rubber Bonding	N/A	+++	N/A	++	+	+
Temperature and Solvent Resistance	+++	+	+++	+++	+++	+++
Ease of Application	+++	++	++	+	+++	+++
Rate of Strength Build	+++	+++	+	+++	+++	+++

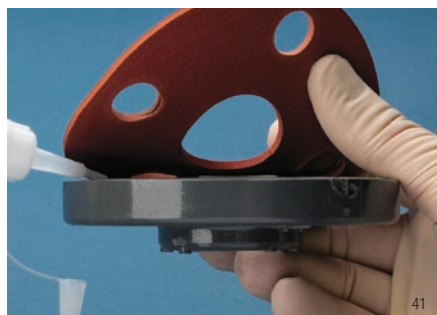
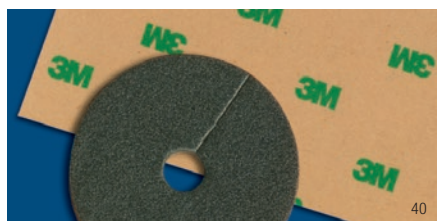
## Gasket Attachment Assembly Solutions

	Metal	Glass	Paint	Plastics: HSE	Plastics: LSE
Rubber (EPDM, Santoprene®)	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 4799</li> <li>■ *468MP, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ 4799</li> <li>■ *468MP, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 4799</li> <li>■ *468MP, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 4799</li> <li>■ *468MP, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 4799</li> <li>■ *9472LE, 950</li> <li>■ 9832, XT6110</li> </ul>
Silicone Gaskets	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ GM18 replace gasket</li> <li>■ 91022</li> <li>■ 9731, 96042</li> </ul>	<ul style="list-style-type: none"> <li>■ 91022</li> <li>■ 9731, 96042</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 91022</li> <li>■ 9731, 96042</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 91022</li> <li>■ 9731, 96042</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 91022</li> <li>■ 9731, 96042</li> </ul>
Neoprene	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 6035PC, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ 1300</li> <li>■ 6035PC, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 1300</li> <li>■ 6035PC, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 1300</li> <li>■ 6035PC, 950</li> <li>■ 9832, XT6110</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 90</li> <li>■ 6035PC, 950</li> <li>■ 9832, XT6110</li> </ul>
Nylon	<ul style="list-style-type: none"> <li>■ PR100</li> <li>■ 9472LE, XP2112</li> </ul>	<ul style="list-style-type: none"> <li>■ 1099</li> <li>■ 9472LE, XP2112</li> </ul>	<ul style="list-style-type: none"> <li>■ PR100</li> <li>■ 1099</li> <li>■ 9472LE, XP2112</li> </ul>	<ul style="list-style-type: none"> <li>■ PR100</li> <li>■ 1099</li> <li>■ 9472LE, XP2112</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 90</li> <li>■ 9472LE, XP2112</li> </ul>
PTFE	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ GM18 replace gasket</li> <li>■ 950</li> </ul>	<ul style="list-style-type: none"> <li>■ 9472LE, XP2112</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 9472LE, XP2112</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 9472LE, XP2112</li> </ul>	<ul style="list-style-type: none"> <li>■ *PR100</li> <li>■ 9472LE, XP2112</li> </ul>

**3M™ VHB™ Tape can replace gaskets on many substrates listed in the chart.**  
**3M™ Scotch-Weld™ Gasket Makers are suitable to replace gaskets in metal to metal applications.**

Key
■ 3M™ Scotch-Weld™ Instant Adhesives
■ 3M™ Scotch-Weld™ Gasket Makers
■ 3M™ Contact and Spray Adhesives
■ 3M™ Adhesive Transfer Tapes
■ 3M™ Double Coated Tapes

\*Primers may also be required in some cases. See specific product pages for primer details.



This guide lists products that are commonly used for this specific application. It is important that the customer evaluates these suggested products in their specific application.



# What is Sealing of Assemblies? What is Potting and Encapsulating of Assemblies?



Sealing and potting exists in multiple markets, such as transportation, metalworking, electronics, electrical, construction and MRO.

**Sealing:** Tape or sealant is applied over a seam to prevent fluid ingress or fluid egress. **Examples include roof seams on vehicles, seams on metal enclosures and pipe sealing.**

**Potting and Encapsulating:** Adhesive flows over and around a component or fills in a chamber to protect components therein. **Examples include heavy duty electrical cords and connectors, electronics in plastic cases, circuit boards and concrete repair.**

**Possible Adhesive or Tape Requirements:**

- Highly elongating/flexible
- Fast cure for painting
- Durability

## Best 3M Solutions for Sealing, Potting and Encapsulating



**3M™ Scotch-Weld™ Structural Adhesives** (pg 18–35)

Acrylic, epoxy and urethane structural adhesives are available in a variety of cure times and flow profiles for potting and encapsulation. Available in both rigid and flexible formulations.



**3M™ Hot Melt Adhesives** (pg 44–45)

Extrudable, 100% solid, thermoplastic resins designed for potting and encapsulating electrical components.



**3M™ Adhesive Sealants** (pg 58–59)

Acrylic, polyurethane and nitrile and hybrid are one component sealing technologies. Can be extruded in any shape on a substrate and are non-sag to fill gaps. Some formulations can be painted wet.



**3M™ Extreme Sealing Tapes** (pg 70)

Provides instant sealing and paint-ability when applied over seams or gaps. Conformable over rivets.

## Performance Factors for Sealing, Potting and Encapsulating

All 3M technologies in the table below are commonly used in sealing, potting and encapsulation applications. Use the table below as a relative comparison of product performance.

Good = + Better = ++ Best = +++

Attribute		3M™ Scotch-Weld™ Structural Adhesives	3M™ Hot Melt Adhesives	3M™ Adhesive Sealants	3M™ Extreme Sealing Tapes
Sealing	Flexibility	N/A	N/A	+++	+++
	Ease of Application	N/A	N/A	+++	++
	Time to Paint (or handle part)	N/A	N/A	+	+++
	Immediate Rework	N/A	N/A	+++	+
Potting and Encapsulating	Temperature and Solvent Resistance	+++	++	+	N/A
	Time to Paint (or handle part)	++	+++	+	N/A
	Flowability*	+++	++	+	N/A
	Adhesion to Substrates	+++	++	+	N/A

\* 3M™ Scotch-Weld™ Structural Adhesives and 3M™ Hot Melt Adhesives are used for potting and encapsulating where their flow and conformability allow them to fill into, or dome over, complex shapes. 3M™ Adhesive Sealants are thick and can be dispensed into wide vertical or horizontal gaps, as well as over seams. 3M™ Extreme Sealing Tape seals over seams and narrow gaps but does not flow into gaps. It can conform over low profile objects such as rivet heads.

## Sealing, Potting and Encapsulating Assembly Solutions

	Metals (Aluminum, Steel, Stainless, Galvanized)	Paints (Powder Coat, Painted Metal, Composite Panel)	Glass	Plastics: HSE, MSE (ABS, Acrylic, Polycarbonate, Nylon)	Plastics: LSE (Polypropylene, Polyethylene)
Metals	<ul style="list-style-type: none"> <li>■ 2216, DP270</li> <li>■ 3797, 3748 VO</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216, DP604NS</li> <li>■ 3797, 3748 VO</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ DP125 Gray, DP100 Plus Clear</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216, DP604NS</li> <li>■ 3797, 3748 VO</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ DP8010 Blue</li> <li>■ 3797, 3748 VO</li> <li>■ *540, *740</li> <li>■ *4411B, *4411N, *4411G</li> </ul>
		<ul style="list-style-type: none"> <li>■ 2216, DP604NS</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ DP125 Gray, DP100 Plus Clear</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ 2216, DP604NS</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ DP8010 Blue</li> <li>■ *540, *740</li> <li>■ *4411B, *4411N, *4411G</li> </ul>
			<ul style="list-style-type: none"> <li>■ DP125 Gray, DP100 Plus Clear</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ DP125 Gray, DP100 Plus Clear</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ DP8010 Blue</li> <li>■ *540, *740</li> <li>■ *4411B, *4411N, *4411G</li> </ul>
				<ul style="list-style-type: none"> <li>■ 2216, DP604NS</li> <li>■ 3797, 3748 VO</li> <li>■ *540, *740</li> <li>■ 4411B, 4411N, 4411G</li> </ul>	<ul style="list-style-type: none"> <li>■ DP8010 Blue</li> <li>■ 3797, 3748 VO</li> <li>■ *540, *740</li> <li>■ *4411B, *4411N, *4411G</li> </ul>
					<ul style="list-style-type: none"> <li>■ DP8010 Blue</li> <li>■ 3797, 3748 VO</li> <li>■ *540, *740</li> <li>■ *4411B, *4411N, *4411G</li> </ul>

**Key**

- 3M™ Scotch-Weld™ Structural Adhesives
- 3M™ Hot Melt Adhesives
- 3M™ Adhesive Sealants
- 3M™ Extreme Sealing Tapes

\*Primers may also be required in some cases. See specific product pages for primer details.



This guide lists products that are commonly used for this specific application. It is important that the customer evaluates these suggested products in their specific application.



**Adhesives**

# **The best formulas deliver the best performance.**

## **Powerful Adhesive Solutions**

3M offers a wide range of innovative adhesives and sealants designed for industrial markets. High quality, precision formulations with proven performance provide reliable, long-term durability for a variety of applications, indoors and out.

# 3M™ Scotch-Weld™ Structural Adhesives

## Improving product and process.

In today's world, successful new products demand advancements in both design and manufacturing processes. Industrial engineering and design professionals around the world depend on 3M™ Scotch-Weld™ Structural Adhesives to help them design beyond the limits of mechanical fasteners to create next generation products.

### Trusted innovations from aerospace to office space.

With over 50 years of experience developing innovative structural adhesives for aerospace, automotive and hundreds of other industries, 3M delivers the solutions you can trust. Our advanced formulations create durable bonds, even on challenging materials or in extreme conditions.



### Advanced product designs and process innovations.

The benefits of designing and building products with 3M Scotch-Weld Structural Adhesives help drive product success.

- **Freedom of Design:**  
Improve aesthetics, reduce weight and noise, enhance corrosion and fatigue resistance and more.
- **Process Efficiencies:**  
Speed production with quiet, fast and easy manufacturing processes.
- **Low Odor Advantages:**  
Improve your environment with 3M's low odor structural adhesives.
- **Dispensing Options:**  
Dispense by hand or with automated equipment.



### 3M global service and support.

3M supports our customers with the testing, technology and training needed to create better products. Our world-wide support staff has the experience you can rely on for everything from structural adhesive selection to process improvement.

Leverage 3M's proven selection of structural adhesives, deep industry expertise and technical support to your advantage.

**Design with Confidence.  
Build to Last.**



# Simplifying adhesive decisions for your application.

## What materials will be bonded?

Structural adhesives work by adhering to the top surface of the bonded parts, so it's important to know the exact material and condition on those surfaces. For metals, will the adhesive be applied to bare metal, or will there be a paint or coating on the surface? For plastics, exactly which base resin? Could there be residual release agents on the surfaces used for mold release?

## What is the preferred cure speed?

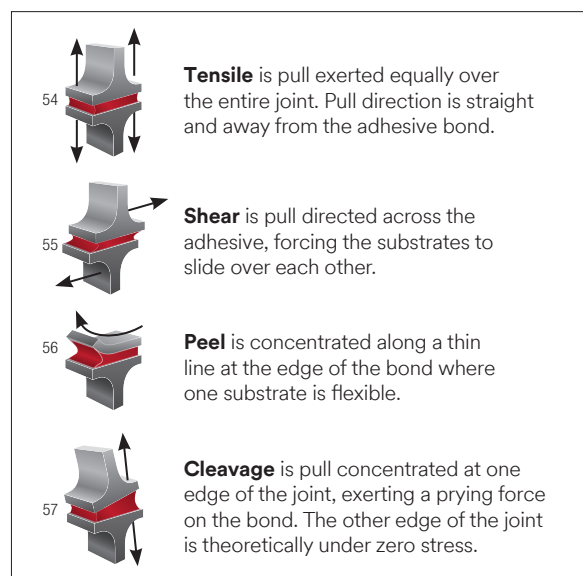
The chosen structural adhesive must have enough work life (open time, pot life) to allow proper mixing and application of the adhesive and assembling of the bonded parts. Smaller assemblies or shorter cycle time production processes may be able to use a faster curing adhesive with a work life of only five minutes or less, while larger assemblies that require alignment and clamping will probably need a work life of 20 minutes or more.

## What surface preparation will be required?

Structural adhesives generally prefer clean, rough, dry surfaces for highest bond strength. This typically means either light abrasion and solvent cleaning of the surface, or solvent cleaning followed by chemical etching or applying a primer. Adhesion tests should be performed to determine the adequate surface preparation for a specific application.

## What types of joints are best for structural adhesives?

Joint designs that put the adhesive bond under shear, tension, or compression forces will provide the highest strength. Designs that tend to apply peel or cleavage forces to the adhesive, where the applied stresses are not distributed over the entire bond area, will have lower bond strength, but the bond may still be sufficient for the needs of the application. In addition, optimum bond line thickness typically ranges from 0.005" to 0.020". The adhesive qualification process should always include testing of prototype assemblies to ensure the adhesive will provide enough performance.



## How are structural adhesives used and applied?

Structural adhesives come in many forms, including low viscosity liquids and non-sag pastes, one- and two-component formulations, short and long work lives, and various package sizes and shapes. Most two-part structural adhesives are available in both bulk containers and convenient, easy-to-use dispense cartridge mixing systems.

## What are the general characteristics of the different types of structural adhesives?

All structural adhesives provide at least 1,000 psi of overlap shear strength to aluminum, but each have various properties:

- **Epoxy adhesives** come in both two-part adhesives (that cure upon mixing the two components) and one-part adhesives (that cure with temperature). Generally, they have the highest strength and overall performance, and provide the best resistance to high temperatures, solvents and outdoor weathering. They adhere well to metals, woods and concrete, and flexible epoxy adhesives also bond to some plastics and rubbers. Epoxy adhesives usually require clean, abraded surfaces to obtain maximum bond strength.
- **Acrylic adhesives** are two-part adhesives that provide excellent bond strength and durability, although slightly lower than epoxy adhesives. However, they have several features that make them easier to use, including a much faster cure speed, higher tolerance for oily or unprepared bonding surfaces and the ability to bond a wide variety of materials, including nearly all plastics. Newer acrylic adhesive formulations are room temperature stable with a long shelf life, and some have much lower odor than regular acrylic adhesives.
- **Urethane adhesives** are two-part adhesives that are relatively flexible when cured, have excellent impact resistance and good adhesion to most plastics. They also bond well to woods, concrete and rubbers, but have reduced resistance to solvents and high temperatures. Uncured adhesive components are sensitive to moisture.
- **Cyanoacrylate adhesives** (instant adhesives) are one-component, lower viscosity liquids that cure extremely quickly with just contact pressure and surface moisture. They adhere well, with thin bond lines, to plastics, metals and rubbers. With the use of primers, they can also adhere to low surface energy plastics and elastomers. They have lower flexibility, peel strength and impact resistance compared to other structural adhesives. They are generally used for gasket bonding and smaller assemblies.
- **Anaerobic adhesives** are one-part adhesives that cure on active metal surfaces when oxygen gets excluded from the bond line. They keep your factory running efficiently, reducing maintenance and leakage. They do not bond well to glass, plastics or rubbers, and are primarily used for locking threads and sealing pipe connections.

# Key markets and applications for 3M™ Scotch-Weld™ Structural Adhesives.



## Aerospace

### Key Benefits

- Flame, smoke and toxicity compliance
- UL94 V-0 rated formulation
- Strong, yet flexible formulations

### Lead Products

2216 Gray, DP100FR, DP640



## Appliance

### Key Benefits

- Bonds powder coated materials
- Noise dampening
- Joins plastic and glass to metals

### Lead Products

DP125 Gray, DP8810NS, TL42



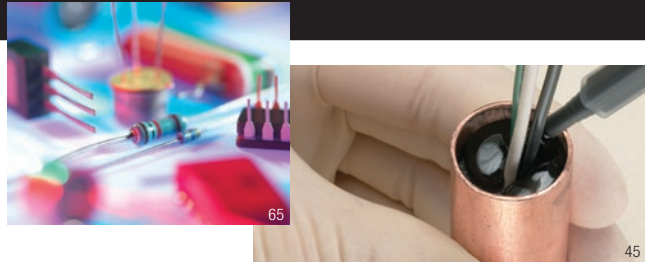
## Electronics

### Key Benefits

- Low halogen
- Fast curing
- Potting

### Lead Products

DP420LH, DP270, DP8805NS, PR100



## Metalworking

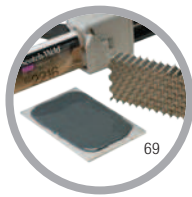
### Key Benefits

- High strength
- Reduces surface preparation
- Replaces mechanical fasteners

### Lead Products

DP420NS Black, DP8410NS, LSB60NS





## Plastic, Composite & Rubber

### Key Benefits

- Bonds low surface energy plastics without priming
- Impact resistant composite bonding

### Lead Products

DP8010 Blue, DP420NS, PR100



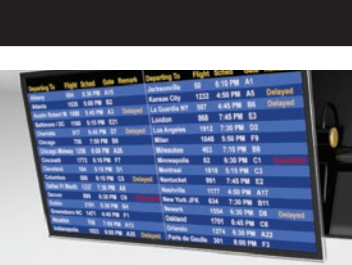
## Signage

### Key Benefits

- Bonds a variety of materials
- Weather resistant
- UL recognized

### Lead Products

DP8805NS, DP8405NS, DP100 Plus



## Specialty Vehicle

### Key Benefits

- Reduces weight
- High strength
- Vibration and fatigue resistant

### Lead Products

DP8810NS, LSB60NS, TL42



## Sporting Goods

### Key Benefits

- Excellent impact resistance
- High strength for small joints
- Bonds rubber, composites and metals

### Lead Products

DP420NS Black, DP8810NS, PR100





## 3M™ Scotch-Weld™ Structural Adhesives



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Product (Color)	Key Features	Mix Ratio (Volume) B:A	Approximate Viscosity at 75°F (24°C) (cP)	Approximate Mixed Work Life at 75°F (24°C)	Approximate Time to Handling Strength at 75°F (24°C)	Floating Roller Peel at 75°F (24°C)	Overlap Shear (psi)			Size	UPC	Stock #
							-67°F (-55°C)	75°F (24°C)	180°F (82°C)			
<b>3M™ Scotch-Weld™ Rigid Epoxies</b>												
* DP100 100 (Clear)	General purpose. Rigid bonds.	1:1	13,000	5 minutes	20 minutes	2	900	1,500	300	50mL	00-021200-22648-9	62-3575-1435-5
										200mL	00-021200-87260-0	62-3575-3830-5
										400mL	00-021200-87261-7	62-3575-3530-1
										5 gal. pail B	00-021200-82344-2	62-3575-8531-4
										5 gal. pail A	00-021200-82345-9	62-3575-8531-2
DP100FR 100FR (Cream)	Flame retardant. UL94 V-0 rating.	1:1	80,000	6 minutes	20 minutes	2	1,250	2,200	800	50mL	00-048011-56742-6	62-3531-1435-8
										200mL	00-048011-56744-0	62-3531-3830-8
										400mL	00-048011-56743-3	62-3531-3530-4
										5 gal. pail B	00-048011-57229-1	62-3531-8530-9
										5 gal. pail A	00-048011-57230-7	62-3631-8530-7
DP100NS 100NS (Translucent)	General purpose. Non-sag.	1:1	95,000	5 minutes	20 minutes	2	900	1,500	300	50mL	00-021200-82255-1	62-3265-1435-3
										200mL	00-021200-87264-8	62-3265-3830-3
										400mL	00-021200-87265-5	62-3265-3530-9
										5 gal. pail B	00-021200-82256-8	62-3265-8530-4
										5 gal. pail A	00-021200-82257-5	62-3365-8530-2
* DP190 (Gray)	High performance. Slightly flexible bonds.	1:1	80,000	90 minutes	10 hours	50	1,500	2,500	400	50mL	00-021200-22647-2	62-3553-1435-2
										200mL	00-021200-87840-4	62-3553-3830-2
										400mL	00-021200-87841-1	62-3553-3530-8
DP270 270 (Black)	Rigid potting compound. Non-corrosive.	1:1	12,000	60 minutes	3 hours	2	1,200	2,500	300	50mL	00-021200-82262-9	62-3266-1435-1
										200mL	00-021200-87836-7	62-3266-3830-1
										400mL	00-021200-87837-4	62-3266-3530-7
										1 gal. kit	00-021200-82263-6	62-3266-7430-6
										5 gal. pail B	00-021200-82264-3	62-3266-8530-2
DP270 270 (Clear)	Rigid potting compound. Non-corrosive.	1:1	12,000	60 minutes	3 hours	2	1,200	2,500	300	50mL	00-021200-82248-3	62-3262-1435-0
										200mL	00-021200-87834-3	62-3262-3830-0
										400mL	00-021200-87835-0	62-3262-3530-6
										5 gal. pail B	00-021200-82250-6	62-3262-8530-1
										5 gal. pail A	00-021200-82251-3	62-3362-8530-9
1751 B/A (Gray)	Excellent void filler. Rigid bonds.	3:2	700,000	45 minutes	10 hours	4	1,400	2,000	500	2 oz. tube kit	00-021200-20100-4	62-1751-0530-3
										1 pt. kit	00-021200-20101-1	62-1751-5430-1
										1 qt. kit	00-021200-20103-5	62-1751-6430-0
										1 gal. kit	00-021200-20105-9	62-1751-7430-9
										5 gal. pail B	00-021200-20108-0	62-1751-8530-5
1838 B/A (Green)	Multi-purpose. Rigid bonds.	4:5	400,000	60 minutes	8 hours	4	1,500	3,000	500	2 oz. tube kit	00-021200-20148-6	62-1838-0530-8
										1 pt. kit	00-021200-20150-9	62-1838-5430-6
										1 qt. kit	00-021200-20152-3	62-1838-6430-5
										1 gal. kit	00-021200-20154-7	62-1838-7430-4
										5 gal. pail B	00-021200-20155-4	62-1838-8530-0
1838 B/A (Tan)	Multi-purpose. Rigid bonds.	5:6	250,000	60 minutes	8 hours	4	1,500	2,000	500	1 qt. kit	00-021200-22599-4	62-1614-6435-9
										5 gal. pail B	00-021200-22600-7	62-1614-8535-4
										5 gal. pail A	00-021200-22603-8	62-1752-8535-2
										2 oz. tube kit	00-021200-22645-8	62-3520-0535-9
										1 qt. kit	00-021200-22646-5	62-3520-6435-6
1838L B/A (Translucent)	Multi-purpose. Rigid bonds.	1:1	10,000	60 minutes	8 hours	4	2,000	2,500	300	5 gal. pail B	00-021200-82634-4	62-3520-8531-0
										5 gal. pail A	00-021200-82635-1	62-3620-8531-8
										1 pt. kit	00-021200-20258-2	62-2158-5430-8
										1 qt. kit	00-021200-20260-5	62-2158-6430-7
										1 gal. kit	00-021200-20262-9	62-2158-7430-6
2158 B/A (Gray)	Multi-purpose. Rigid bonds.	1:1	375,000	2 hours	10 hours	3	1,500	2,000	400	5 gal. pail B	00-021200-20264-3	62-2158-8530-2
										5 gal. pail A	00-021200-20269-8	62-2159-8530-0
										2 oz. tube kit	00-021200-20842-3	62-3501-0530-0
										400mL	00-021200-45184-3	62-3501-3530-7
										1 pt. kit	00-021200-20843-0	62-3501-5430-8
3501 B/A (Gray)	Multi-purpose. Rigid bonds.	1:1	500,000	7 minutes	25 minutes	4	1,500	2,400	300	1 gal. kit	00-021200-20846-1	62-3501-7430-6
										55 gal. drum	00-051111-91639-1	62-3501-9530-1

DP = Duo-Pak NS = Non-Sag

\* Consider these products first when evaluating adhesives for your application.

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™ Scotch-Weld™ Structural Adhesives (cont.)



Product (Color)	Key Features	Mix Ratio (Volume) B:A	Approximate Viscosity at 75°F (24°C) (cp)	Approximate Mixed Work Life at 75°F (24°C)	Approximate Time to Handling Strength at 75°F (24°C)	Floating Roller Peel at 75°F (24°C)	Overlap Shear (psi)			Size	UPC	Stock #
							-67°F (-55°C)	75°F (24°C)	180°F (82°C)			
<b>3M™ Scotch-Weld™ Flexible Epoxies</b>												
<b>Lead Product</b> DP100 Plus 100 Plus (Clear)	Very flexible. Colorless.	1:1	8,500	4 minutes	20 minutes	55	3,000	3,500	200	50mL	00-021200-87195-5	62-3272-1435-9
										200mL	00-021200-87266-2	62-3272-3830-9
										400mL	00-021200-87267-9	62-3272-3530-5
										5 gal. pail B	00-021200-87197-9	62-3272-8530-0
										5 gal. pail A	00-021200-87198-6	62-3372-8530-8
DP105 105 (Clear)	Very flexible. Colorless.	1:1	6,500	5 minutes	20 minutes	50	3,500	2,000	150	50mL	00-021200-87203-7	62-3287-1435-7
										200mL	00-021200-87270-9	62-3287-3830-7
										400mL	00-021200-87271-6	62-3287-3530-3
										5 gal. pail B	00-021200-87205-1	62-3287-8530-8
										5 gal. pail A	00-021200-87206-8	62-3387-8530-6
DP110 110 (Gray)	General purpose. Flexible bonds.	1:1	55,000	8 minutes	20 minutes	40	2,700	3,500	250	50mL	00-021200-82470-8	62-3533-1434-7
										200mL	00-021200-87274-7	62-3533-3830-4
										400mL	00-021200-87275-4	62-3533-3530-0
										5 gal. pail B	00-021200-82471-5	62-3533-8531-3
										5 gal. pail A	00-021200-82472-2	62-3633-8531-1
DP110 110 (Translucent)	General purpose. Flexible bonds.	1:1	50,000	8 minutes	20 minutes	40	2,500	2,500	200	50mL	00-021200-82465-4	62-3563-1434-4
										200mL	00-021200-87846-6	62-3563-3830-1
										400mL	00-021200-87847-3	62-3563-3530-7
										5 gal. pail B	00-021200-82466-1	62-3563-8531-0
										5 gal. pail A	00-021200-82467-8	62-3663-8531-8
<b>Lead Product</b> DP125 125 (Gray)	High performance. Very flexible bonds.	1:1	52,500	25 minutes	2.5 hours	90	3,400	4,300	400	50mL	00-002100-87211-2	63-3291-1435-9
										200mL	00-002100-87842-8	62-3291-3830-9
										400mL	00-002100-87843-5	62-3291-3530-5
										5 gal. pail B	00-002100-87217-4	62-3293-8530-6
										5 gal. pail A	00-002100-87218-1	62-3393-8530-4
DP125 125 (Translucent)	High performance. Very flexible bonds.	1:1	15,000	25 minutes	2.5 hours	85	4,000	2,500	150	50mL	00-021200-87211-2	62-3291-1435-9
										200mL	00-021200-87842-8	62-3291-3830-9
										400mL	00-021200-87843-5	62-3291-3530-5
DP190 (Translucent)	High performance. Flexible bonds.	1:1	10,000	80 minutes	6 hours	60	3,500	1,200	150	50mL	00-021200-87219-8	62-3286-1435-9
										200mL	00-021200-87838-1	62-3286-3830-9
										400mL	00-021200-87839-8	62-3286-3530-5
<b>Lead Product</b> 2216 B/A (Gray)	High performance. Very flexible bonds.	2:3	80,000	90 minutes	10 hours	50	3,000	3,200	400	2 oz. tube kit	00-021200-20351-0	62-2216-0530-6
										1 pt. kit	00-021200-20354-1	62-2216-5430-4
										1 qt. kit	00-021200-20356-5	62-2216-6430-3
										1 gal. kit	00-021200-20358-9	62-2216-7430-2
										5 gal. pail B	00-021200-20360-2	62-2216-8530-8
										5 gal. pail A	00-021200-20365-7	62-2217-8530-6
										55 gal. drum B	00-021200-20361-9	62-2216-9530-7
										55 gal. drum A	00-021200-20366-4	62-2217-9530-5
2216 B/A (Translucent)	General purpose. Very flexible bonds.	1:1	10,000	2 hours	14 hours	70	3,000	1,700	140	2 oz. tube kit	00-021200-20851-5	62-3508-0530-5
										1 pt. kit	00-021200-20852-2	62-3508-5430-3
										1 qt. kit	00-021200-20854-6	62-3508-6430-2
										1 gal. kit	00-021200-20856-0	62-3508-7430-1
										5 gal. pail B	00-021200-64980-6	62-3508-8535-6
										5 gal. pail A	00-021200-64981-3	62-3608-8535-4
										55 gal. drum B	00-021200-20859-1	62-3508-9530-6
										55 gal. drum A	00-021200-20927-7	62-3608-9530-4
2216NS B/A (Tan)	High performance. Non-sag.	2:3	350,000	2 hours	10 hours	50	2,000	2,500	400	5 gal. pail B	00-021200-87179-5	62-3278-8530-7
										5 gal. pail A	00-021200-87180-1	62-3378-8530-5
LSB90 (Off-White)	General purpose. Very flexible bonds.	1:1	25,000	90 minutes	10 hours	40	3,500	2,500	400	400mL	00-051115-63419-2	62-3556-3532-7
										5 gal. pail B	00-051115-63420-8	62-3556-8532-2
										5 gal. pail A	00-051115-63421-5	62-3656-8532-0
										55 gal. drum B	00-051115-63423-9	62-3556-9532-1
										55 gal. drum A	00-051115-63425-3	62-3656-9532-9

DP = Duo-Pak

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