



Scotch-Weld™
Structural Adhesive

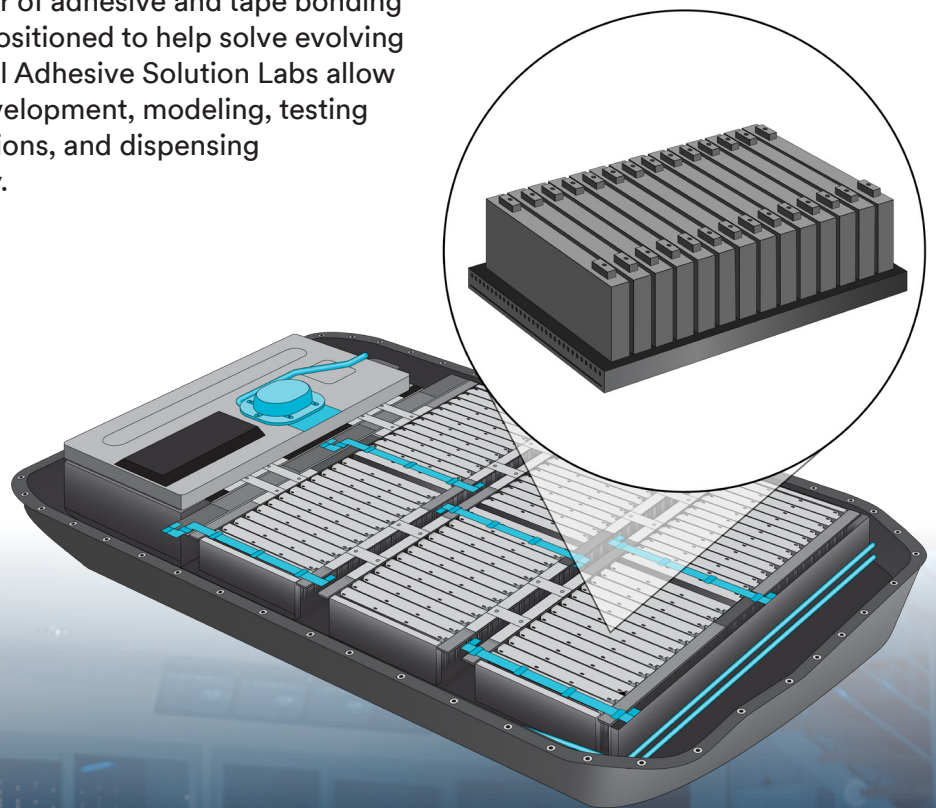


Battery Bonding Guide

Pushing beyond limits is what bonds us.

3M™ Scotch-Weld™ Structural Adhesives are what bond thousands of diverse and demanding applications in hundreds of industries, spanning more than 60 years. From aerospace to automotive, from electronics and appliances, manufacturing industries of transformative innovation have been fueled in part with the assured reliability of 3M™ Scotch-Weld™ Structural Adhesives.

As a global provider and innovator of adhesive and tape bonding solutions, 3M remains uniquely positioned to help solve evolving design challenges. Our 3M Global Adhesive Solution Labs allow us to help our customers with development, modeling, testing and technology for bonding solutions, and dispensing applications for manufacturability.



Advancing next-generation power supplies.

As technologies converge, requiring greater capacity, connectivity, transportability and sustainability, the demands for high-density portable power have never been greater. 3M understands the challenges facing customers, including reducing battery weight, enhancing reliability and life, managing thermal requirements, ensuring safety, and facilitating manufacturability. With decades of experience and a leading array of solutions, 3M is equipped to help deliver on your innovation.

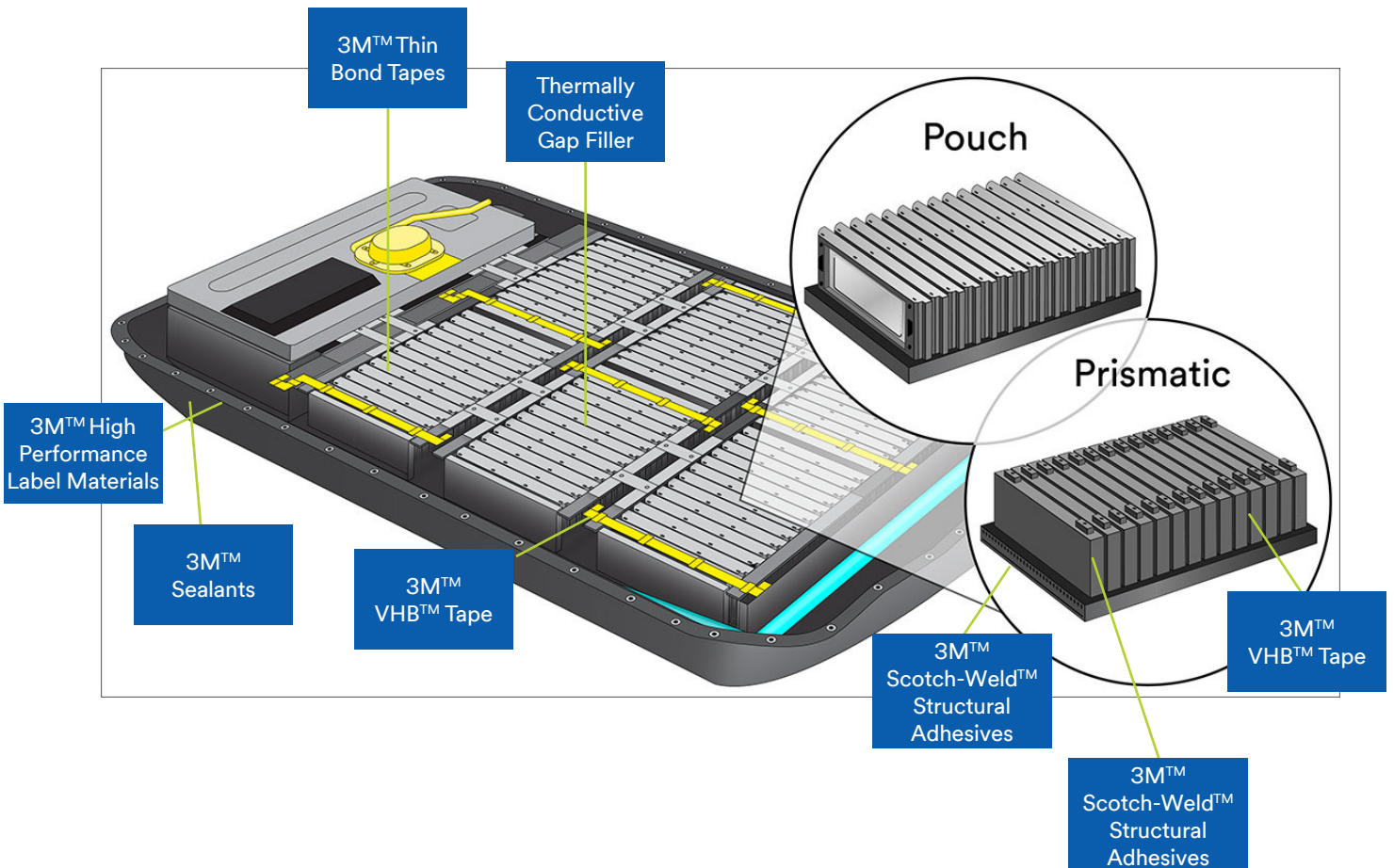


Elevate your design with proven bonding solutions.

From next-generation electrochemical cells for increasingly powerful mobile products to large-scale, high-voltage battery systems for Electric and Hybrid Electric Vehicles, few application areas are as demanding for adhesives as battery bonding. 3M™ Scotch-Weld™ Structural Adhesives offer advanced solutions for bonding dissimilar materials, and our expertise helps you apply them.

3M solutions for battery bonding offer:

- Product formulations ranging from low-viscosity adhesives, non-sag options, gap fillers, sealants, thin bond tapes and 3M™ VHB™ Tapes.
- High-performance characteristics such as faster cure times including no-heat cure cycles, reduced or zero surface preparation, low odor and non-flammable bonding.
- Application engineering, automation knowledge and testing capabilities, design lab resources to create better products, plus global supply chain availability to keep production flowing smoothly.



Key markets and applications.

Across battery pack and module designs for a variety of configurations, applications and operating conditions, 3M™ Scotch-Weld™ Structural Adhesives meet the most demanding bonding, filling and sealing requirements.

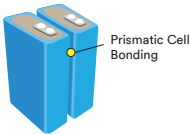
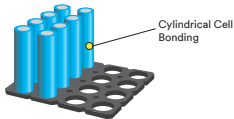
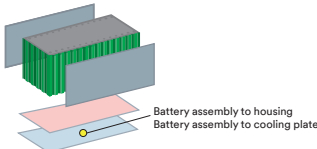
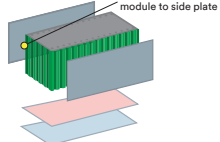
3M offers specialized understanding and experience for bonding of cells in cylindrical, prismatic and pouch configurations, and we meet requirements specific to your unique application and substrates to ensure reliable operation, durability and bond integrity.

Key Markets/Industries (Industrial/Electronics/Portable)

- General Industrial global battery/charger manufacturing
- Transportation: automotive, commercial vehicles, specialty vehicles (i.e. agricultural, forklifts, etc.)
- Telecommunications
- Energy Storage Systems
- Lawn, Garden & Tools
- Electronics: laptops, mobile, tablets

Type of applications

- Tension rod & pressure or end plate bonding
- Battery box bonding (from reinforcement bars to entire box)
- Crash box bonding
- Lid to battery box sealing
- Cell to frame bonding
- Battery tray bonding
- Bonding & encapsulating cells
- Potting cells
- Cell to cell bonding
- Bonding of thermal runaway materials
- Cell to cooling plate bonding

Application	 <p>Prismatic Cell Bonding</p>	 <p>Cylindrical Cell Bonding</p>	 <p>Battery assembly to housing Battery assembly to cooling plate</p>	 <p>Battery cell or module to side plate</p>
Products	3M™ Scotch-Weld™ Structural Adhesives Urethane: DP6310NS/ DP6330NS Flexible epoxy: DP125	3M™ Scotch-Weld™ Structural Adhesives Flexible epoxy: DP125	3M™ Scotch-Weld™ Structural Adhesives Toughened epoxy: DP420/DP460	3M™ Scotch-Weld™ Structural Adhesives Urethane: DP6310NS/ DP6330NS

Performance characteristics you can count on.

3M structural adhesive products offer industry-leading selection and the largest levels of consistent, reliable performance to satisfy a host of essential characteristics in battery bonding applications.

Application	Possible 3M Solutions	Features & Benefits
Battery Assembly		
Cell to cell (prismatic)	DP6310NS/DP6330NS	<ul style="list-style-type: none"> • High strength bonds • Excellent water, humidity and chemical resistance • Room temperature or accelerated heat cure • Excellent elongation & stress strain properties • Non-sag option • Bulk options for automated dispense
Module to module	DP125	<ul style="list-style-type: none"> • High strength bonds under expansion, contraction and limited movement • Flexible bond for vibration and shock resistance • Excellent water, humidity and chemical resistance • Bulk options for automated dispense
Battery Box Assembly		
Side plate and cover attachment	DP6310NS/DP6330NS	<ul style="list-style-type: none"> • High strength bonds • Excellent water, humidity and chemical resistance • Room temperature or accelerated heat cure • Excellent elongation & stress strain properties • Non-sag option • Bulk options for automated dispense
	DP8010/DP8010NS	<ul style="list-style-type: none"> • Limited surface prep • Low surface energy bonding • Resists many chemicals, water, humidity and corrosion • Non-sag option • Bulk options for automated dispense
	TS230	<ul style="list-style-type: none"> • Fast set time • High strength bonds that are plasticizer resistant • Bulk options for automated dispense
Battery cover trim assembly	TS230	<ul style="list-style-type: none"> • Fast set time • High strength bonds that are plasticizer resistant • Bulk options for automated dispense
	DP8010/DP8010NS	<ul style="list-style-type: none"> • Limited surface prep • Low surface energy bonding • Resists many chemicals, water, humidity and corrosion • Non-sag option • Bulk options for automated dispense
Stiffener and tension rod bonding	DP125	<ul style="list-style-type: none"> • High strength bonds under expansion, contraction and limited movement • Flexible bond for vibration and shock resistance • Excellent water, humidity and chemical resistance • Bulk options for automated dispense

Application	Possible 3M Solutions	Features & Benefits
Stiffener and tension rod bonding	DP420/DP420NS/DP420LH	<ul style="list-style-type: none"> • Excellent environmental, vibration and shock resistance • High peel & shear strength for lasting bond in high and low temp • Room temperature or accelerated heat cure • Non-sag & low halogen options • Bulk options for automated dispense
	DP8407NS	<ul style="list-style-type: none"> • Limited surface preparation • Strong bonds with broad temperature range • Fast cure time • Bulk options for automated dispense
Cell to Frame Bonding		
Prismatic cells	DP420/DP420NS/DP420LH	<ul style="list-style-type: none"> • Excellent environmental, vibration and shock resistance • High peel & shear strength for lasting bond in high and low temp • Room temperature or accelerated heat cure • Non-sag & low halogen options • Bulk options for automated dispense
	DP125	<ul style="list-style-type: none"> • High strength bonds under expansion, contraction and limited movement • Flexible bond for vibration and shock resistance • Excellent water, humidity and chemical resistance • Bulk options for automated dispense
Cylindrical cells	DP125	<ul style="list-style-type: none"> • High strength bonds under expansion, contraction and limited movement • Flexible bond for vibration and shock resistance • Excellent water, humidity and chemical resistance • Bulk options for automated dispense
Thermal Management Systems		
Battery tray bonding	DP420/DP420NS/DP420LH	<ul style="list-style-type: none"> • Excellent environmental, vibration and shock resistance • High peel & shear strength for lasting bond in high and low temp • Room temperature or accelerated heat cure • Non-sag & low halogen options • Bulk options for automated dispense
	DP8407NS	<ul style="list-style-type: none"> • Limited surface preparation • Strong bonds with broad temperature range • Fast cure time • Bulk options for automated dispense
	DP8010/DP8010NS	<ul style="list-style-type: none"> • Limited surface prep • Low surface energy bonding • Resists many chemicals, water, humidity and corrosion • Non-sag option • Bulk options for automated dispense

Battery Bonding Product Selection

Product Name	Product #	Color	Approx. Viscosity at 75° F	Approx. Mixed Work Life at 75°C	Size	UPC	Stock #
3M™ Scotch-Weld™ Multi-Material Composite Urethane	DP6310NS	Green	Non-sag paste	9 mins	48.5 mL 400 mL 5 gal - Part A 5 gal - Part B 50 gal - Part A 50 gal - Part B	00-076308-86407-1 00-076308-86398-2 00-076308-86782-9 00-076308-86748-5 00-076308-86783-6 00-076308-86749-2	7100109829 7100109830 7100143960 7100143915 7010415316 7010412199
3M™ Scotch-Weld™ Multi-Material Composite Urethane	DP6330NS	Green	Non-sag paste	30 mins	48.5 mL 400 mL 5 gal - Part A 5 gal - Part B 50 gal - Part A 50 gal - Part B	00-076308-86431-6 00-076308-86433-0 00-076308-86780-5 00-076308-86701-0 00-076308-86781-2 00-076308-86727-0	7100109828 7100109827 7100143961 7100143701 7010409611 7010366145
3M™ Scotch-Weld™ Toughened Epoxy	DP420	Black	30,000	20 mins	50 mL 200 mL 400 mL 1 gal kit 5 gal - Part A 5 gal - Part B 55 gal - Part A 55 gal - Part B	00-638060-08966-8 00-021200-41530-2 00-021200-41529-6 00-051115-25796-4 00-021200-41532-6 00-021200-41531-9 00-021200-41534-0 00-021200-41533-3	7100148731 7100007956 7100077148 7000046381 7000000834 7000000827 7010365967 7010309750
3M™ Scotch-Weld™ Toughened Epoxy	DP420NS	Black	180,000	20 mins	50 mL 200 mL 400 mL 5 gal - Part A 5 gal - Part B 55 gal - Part A 55 gal - Part B	00-638060-08987-3 00-021200-39286-3 00-021200-39287-0 00-021200-31309-7 00-021200-56587-8 00-048011-58133-0 00-048011-58132-3	7100148758 7100036943 7100010680 7000000857 7000000853 7100160352 7100160334
3M™ Scotch-Weld™ Toughened Epoxy	DP420	Off-White	30,000	20 mins	50 mL 200 mL 400 mL 5 gal - Part A 5 gal - Part B	00-638060-08978-1 00-021200-87832-9 00-021200-87833-6 00-021200-82239-1 00-021200-82238-4	7100148736 7100077136 7100002516 7100001144 7100001145
3M™ Scotch-Weld™ Toughened Epoxy	DP420LH	Off-White	30,000	20 mins	200 mL 400 mL	00-051111-07697-2 00-051111-07696-5	7010329550 7100075336
3M™ Scotch-Weld™ Flexible Epoxy	DP125	Gray	52,500	25 mins	48.5 mL 200 mL 400 mL 5 gal - Part A 5 gal - Part B	00-638060-08985-9 00-032300-87844-2 00-021200-87845-9 00-021200-87218-1 00-021200-87217-4	7100148735 7000121264 7100076727 7100084588 7100084538
3M™ Scotch-Weld™ Flexible Epoxy Clear	DP125	Trans-lucent	15,000	25 mins	48.5 mL 200 mL 400 mL	00-638060-08983-5 00-021200-87842-8 00-021200-87843-5	7100148734 7100025419 7000121262
3M™ Scotch-Weld™ Acrylic Adhesive	DP8407	Gray	20,000	7 mins	45 mL 490 mL 1 gal - Part A 1 gal - Part B 55 gal - Part A 55 gal - Part B	00-638060-14631-6 00-638060-14643-9 00-638060-14658-3 00-076308-86306-7 00-638061-14659-0 00-076308-98878-4	7100179482 7100179480 7100179264 7100105384 7100179442 7100104987
3M™ Scotch-Weld™ Acrylic Adhesive	DP8410NS	Green	70,000	10 mins	45 mL 490 mL 1 gal - Part A 5 gal - Part A 5 gal - Part B 55 gal - Part B	00-051115-70994-4 00-051115-70995-1 00-051115-68981-9 00-051115-70997-5 00-051115-68980-2 00-051115-71101-5	7100024055 7100024045 7100102180 7100084532 7100101506 7100084535

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Battery Bonding Product Selection, cont.

Product Name	Product #	Color	Approx. Viscosity at 75° F	Approx. Mixed Work Life at 75°C	Size	UPC	Stock #
3M™ Scotch-Weld™ LSE Acrylic Adhesive	DP8010	Blue	20,000	10 mins	45 mL 490 mL 1 gal - Part A 5 gal - Part A 5 gal - Part B 55 gal - Part B	00-051115-71600-3 00-051115-71601-0 00-021200-49113-9 00-051115-71669-0 00-021200-49115-3 00-076308-14203-2	7100036717 7100036719 7100050479 7100036720 7000046400 7100153259
3M™ Scotch-Weld™ LSE Acrylic Adhesive	DP8010NS	Blue	65,000	10 mins	45 mL 490 mL 1 gal - Part A 5 gal - Part A 5 gal - Part B 55 gal - Part B	00-051115-81451-8 00-051115-81453-2 00-021200-49113-9 00-051115-81454-9 00-021200-49115-3 00-051115-81461-7	7100036721 7100036723 7100050479 7010329562 7000046400 7100113670
3M™ Scotch-Weld™ PUR Adhesive	TS230	Black	9,000	4 mins	1/10 gal 2 kilo 5 gal 55 gal	00-051115-25166-5 00-048011-53273-8 00-021200-89583-8 00-638060-14675-0	7000000906 7000046541 7000121361 7100179521
3M™ Scotch-Weld™ PUR Adhesive	TS230	Off-White	9,000	4 mins	1/10 gal 2 kilo 5 gal 55 gal	00-051115-25165-8 00-048011-53271-4 00-021200-83640-4 00-021200-83639-8	7000000898 7000046534 7100024959 7100104259

Science. The 3M Difference.

The 3M legacy in structural adhesives is built upon listening and problem-solving. Our bonding solutions can help provide greater design freedom, reduce parts and weight, enhance performance while reducing labor and material costs.

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

These are just a few of the ways we connect our technology to your ideas. Science is what bonds us. Let us show you how 3M can help make your products better.



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