

Automotive Aftermarket Division

3M™ 08115 Panel Bonding Adhesive

1) Part Numbers

3M™ 08115 : 200ml Duo Pack cartridges (2:1 ratio by volume)

Applicators:

3M™ 08117: Manual applicator gun

3M™ 09930: Pneumatic applicator gun

2) Description and end uses

3M™ 08115 is a two-part epoxy adhesive which provides high performance bonding. 3M™ 08115 is designed to bond steel, aluminium and SMC. The Panel Bonding adhesive can be used in the replacement of automotive quarter panels, door panels, roof panels and other outer body sheet metal.

DO NOT USE on structural components such as pillars, sills, core support etc.

3) Physical Properties

	Base (B)	Hardener (A)
Chemistry	Toughened epoxy	Modified Amine
Color	Black	Butterscotch
Consistency	Viscous paste	Viscous paste
Specific gravity	0.96	1.20
Mix ratio by weight	172 parts	100 parts
Mix ratio by volume	200 parts	100 parts
Pot life (23 °C) 20g	60 min	
Mixer dwell time (23 °C)	30 min	
Working time (23 °C)	90 min	

4) Product Performance

The following product performance data was obtained in the 3M™ laboratory under the conditions specified. The following data show typical results obtained with 3M™ 08115 when applied to properly prepared substrates, cured and tested according to the methods indicated.

A. Overlap Shear Strength (OLSS)

Steel Substrates

Substrates	Overlap Shear Strength (Mpa)
Cold rolled Steel (1.4 mm)	27.1 (C)
Cold rolled Steel (0.7 mm)	16.7 (SD)
Hot Dip Galvanized Steel (0.8 mm)	16.7 (SD)
Alloyed Galvanized Steel (0.7 mm)	14.3 (SD)

C: Cohesive failure

SD: Steel deformation

- Surface preparation: Solvent wipe (MEK/Toluene)
Abraded with P80
Solvent wipe (MEK/Toluene)
- Bondline thickness: 250-300 µm
- Cure cycle: 14 days at 23 °C ± 2 °C
- Temperature of testing: 23 °C ± 2 °C
- Joint separation rate: 13 mm/min

Aluminium Substrate

Substrate	Overlap Shear Strength (MPa)
Aluminium 6111 (1.6 mm)	21.7 (C)

C: Cohesive failure

- Surface preparation: Abraded with 3M™ Scotch-Brite™ Rivet Cleaning Disc
Solvent wiped with General Purpose Adhesive Cleaner
3M™ 08984
- Bondline thickness: 250-300 µm
- Cure cycle: 7 days at 23 °C
- Temperature of testing: 23 °C ± 2 °C
- Joint separation rate: 12.7 mm/min

Plastics

Substrates	Overlap Shear Strength (MPa)
Polypropylene	2.5 (AF)
ABS	4.5 (AF)
SMC	6.2 (*)

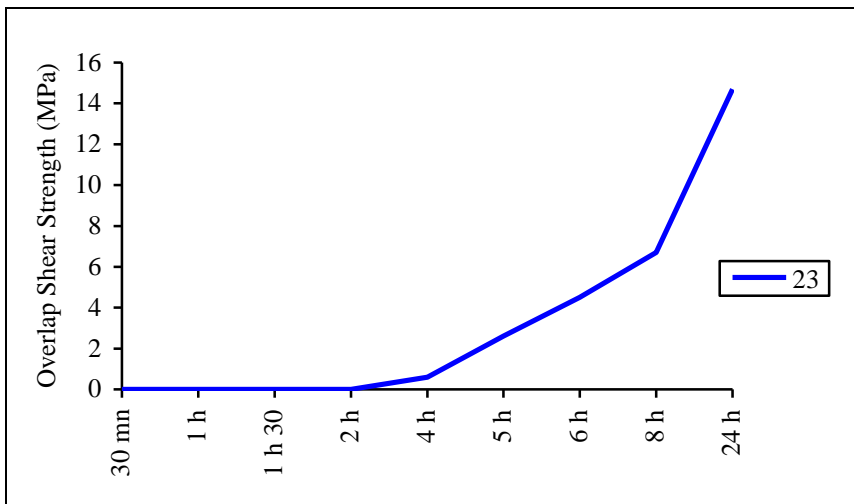
AF: Adhesive Failure

*: Delamination of the substrate

- Surface preparation: Sanding (P240), then cleaning with 3M™ 08985 Plastic Part Cleaner
- Bondline thickness: 250-300 μm
- Cure cycle: 1 hour at 80 °C
- Temperature of testing: 23 °C ± 2 °C
- Joint separation rate: 13 mm/min

B. Rate of cure - Strength build up

The rate of strength build-up was determined by pulling individual specimens left at 23 °C.



- Substrate: Cold Rolled Steel (0.7mm)
- Surface preparation:
 - Solvent wipe (MEK/Toluene)
 - Abraded with P80
 - Solvent wipe (MEK/Toluene)
- Temperature of testing: 23 °C
- Joint separation rate: 13 mm/min

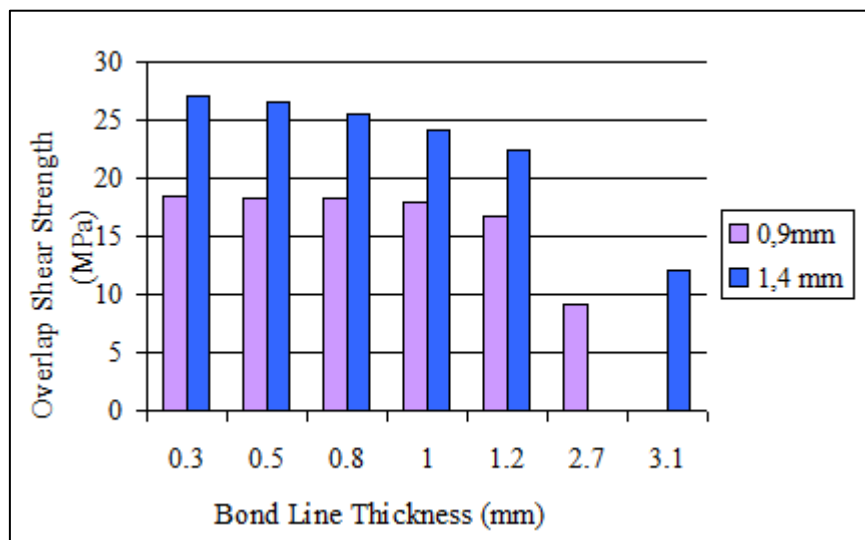
C. T Peel Strength

Substrates	T Peel N/25 mm
Cold Rolled Steel (0.7mm)	136 (CF)

CF: Cohesive Failure

- Surface preparation:
 - Solvent wipe (MEK/Toluene)
 - Abraded with P80
 - Solvent wipe (MEK/Toluene)
- Bondline thickness: 250-300 μm
- Cure cycle: 14 days at 23 °C
- Temperature of testing: 23 °C
- Joint separation rate: 125 mm/min

D. Influence of Bondline thickness

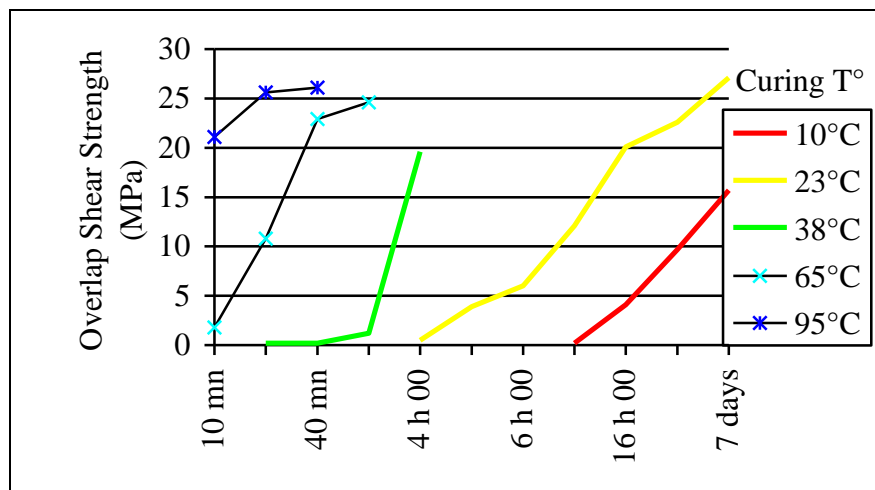


- Substrates: Steel (0.9 mm and 1.4 mm)
- Surface preparation:
 - Abraded with P50
 - Solvent wipe (08984)
- Curing cycle: 7 days at 23 °C
- Joint separation rate: 12.7 mm/min

E. Effect of Temperature on Curing

Overlap Shear Strength (MPa)

T° \ Cure time	10 °C	23 °C	38 °C	66 °C	93 °C
10 min				1.8	21.1
20 min			0.1	10.8	25.6
40 min			0.2	22.9	26.1
1 hr			1.2	24.6	
2 hr			9.5	26.4	
4 hr		0.5	19.6		
5 hr		3.9			
6 hr		6.0			
8 hr	0.2	12.1			
16 hr	4.1	20.1			
1 day	9.7	22.6			
7 days	19.1	27.1			



- Substrate : Steel: (1.4mm)
- Surface preparation:
 - Abraded with P50
 - Solvent wipe (08984)
- Temperature of testing: 23 °C
- Joint separation rate: 12.7 mm/min

5) Directions for Use

1. Remove all paint, rust and contaminants from surfaces to be bonded using a 3M™ 36 or 50 grit abrasive disc or a 3M™ Clean N Strip™ roll to bare metal.

When using new part, remove from the surface to be bonded, all pre-treatment to bare metal.

2. Straighten all metal, clamp part in place and check for fit and alignment.
3. Clean all the areas to be bonded with general purpose 3M™ Adhesive Cleaner 08984.
4. Place adhesive cartridge in applicator gun.
5. Unscrew the cap from the cartridge and dispense enough adhesive to check if both parts emerge.
6. Cut off the top of mixing nozzle to provide desired bead size.
7. Attach and lock the mixing nozzle to adhesive cartridge.
8. Apply adhesive to all areas to be bonded (all bare metal surfaces). Using a plastic spreader, tool out the adhesive to provide a base (“primer coat”) for an additional adhesive bead and to ensure corrosion protection. It is important to completely cover all bare metal surface.
9. Apply an additional adhesive bead to either the replacement panel or the inner structure.

Quarter panels: Adhesive should be applied to the lower edge, the wheel opening, the door jamb areas of the quarter and at the factory seam of the C pillar. The rear vertical portion of the quarter should be welded, as well as the C pillar if you have butt joints.

Roof panels: Adhesive should be applied around the perimeter of the roof panel. Apply 3M™ urethane seam sealer (08684, 08689, 08694, 08782, 08787, 08789) to the roof centre support.

Door skins: Adhesive should be applied to the hem flange area. Apply spots of 3M™ Urethane seam sealer (08684, 08689, 08694, 08782, 08787, 08789) at the side protection bar, if needed.

All areas to be welded should be sprayed with 3M™ Weld-Thru II coating, 50410, coating to provide corrosion protection. Do not apply adhesive to these areas.



10. Clamp the panel in its proper position.
11. Tool any adhesive “squeezed out” to seal the outside of the seam all along the bonded edge of the panel.
12. Weld appropriate areas (see specific panels after step 9). You may weld as soon as the panel is in place and fixture.

Caution: The adhesive is combustible.

Keep any form of welding a minimum of five centimeters from the adhesive. As with any, welding operation, or squeeze type/spot welding operation, keep the appropriate fire extinguisher within reach, and be alert to any smoke or flame to be present.

13. Spray the inside of the quarter and welded seams with 3M™ cavity waxes (08911 or 08901).

14. Clamps may be removed after 4 hours at 23 °C. Part will need to remain clamped longer if temperature is below 23 °C and/or if there is any tension on the part. Cure time may be accelerated by applying heat with heat gun or lamps (Do not exceed 120 °C at 45 minutes).

Allow 24 hours before returning vehicle to service.

6) Storage

Cool dry place. Best results are obtained when material is stored and applied at room temperature, 15 to 30 °C.

Shelf Life: 24 months from date of manufacture under normal storage conditions.

Refer to “Best Before Date” and “Lot Number” on the cartridges.

7) Safety

Please refer to the Material Safety Data Sheet or contact your local 3M Toxicological Department.

3M™ 08115 Panel Bonding Adhesive is designed FOR PROFESSIONAL INDUSTRIAL USE ONLY.



8) Disclaimer

All statements, technical information and recommendations are based on tests we believe to be reliable as at the date of hereof, but the accuracy or completeness thereof is not guaranteed. Please ensure before using the product that it is suitable for your intended use. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, other than for fraudulent misrepresentation, 3M expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.



Technical Data Sheet

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For Additional Health and Safety Information

3M South Africa & Sub-Saharan Africa, 146A Kelvin Drive, Woodmead, Sandton, South Africa, Tel: (0861) 225536
3M (East) AG Representation Office Tirane, Rruga Sami Frasherri, Pallati i Ri Perxhola Kati 2 Ap2, 1000 Albania
3M Arabia, LLC, Building 24-25 3M Saudi Arabia Zone C, Business Gate, Airport Road, Riyadh, Saudi Arabia
3M Bulgaria, Mladost 4, Business Park, bl.4, 2nd floor, Sofia 1766, Bulgaria
3M Česko, spol. s r.o., V Parku 2343/24, 148 00 - Praha 4, Czech Republic
3M (East) AG, Branch office Croatia, Avenija Većeslava Holjevca 40, 10 000 Zagreb, Croatia, Tel: +385 1 2499750, www.3m.com.hr
3M Egypt, Finance Center , New Cairo , Plot 140 , Banking Sector , 5th settlement , Cairo , Egypt
3M Hellas MEPE, Automotive Aftermarket Division, 20 Kifisias Avenue, 151 25 Marousi, Greece, Phone: +30 210 68 85 300, innovation.gr@mmm.com, www.3M.gr
3M Hungária Kft, Neumann János u. 1/E, 1117 Budapest, Hungary
3M Israel, 91 Medinat Hayehudim St., Herzliya, Israel
3M Kenya Ltd, Victoria Towers, 3rd Floor, Kilimanjaro Av, Upperhill, Kenya
3M Gulf Limited, Ein El Mreisseh, Saint Charles City Center, 4th. Floor, P.O.Box: 11-5025, Riad el Solh, Beirut 1107 2180 Lebanon
3M Minnesota Mining & Manufacturing Nigeria Limited, No 2 Sheraton Opebi Link Road, Ikeja, Lagos Nigeria
3M Pakistan, Islamic Chamber of Commerce Building, ST-2/A, Block 9, KDA Scheme 5, Clifton, Karachi, Pakistan
3M Poland, Al. Katowicka 117, Kajetany, 05-830 Nadarzyn, Poland, Telefon: +48 22 739 60 00, www.3m.pl/kontakt
3M Gulf (Representation Office), Suhaim Bin Hamad St., Al Mana Towers Tower B, 2nd Floor, Office No.4, Doha Qatar, P.O.Box 14685
3M Romania, 12 Menuetului St., Bucharest Business Park, Building D, District 1 013713 Bucharest, Romania
3M (East) AG, Representation Office Serbia, Airport City, Omladinskih brigada 90B, 11070 Belgrade, Serbia, Tel: +381 11 2209 400, www.3m.co.rs/3M/sr_RS/3m-south-east-europe/
3M Slovensko s.r.o., Polus Tower 2, Vajnorská 100/B, 83104 Bratislava
3M (East) AG, Branch office Slovenia, Cesta v Gorice 8, 1000, Ljubljana, Slovenia, Tel: +386 1 2003 630, www.3m.com/3M/sl_SI/3m-south-east-europe/
3M Sanayi ve Ticaret As, Barbaros Mah., Mor Sümbül Sok., No:7/3F, 27-51, Nidakule Ataşehir Güney, 34746 Ataşehir, İstanbul, Turkey
3M Gulf Limited, Dubai Internet City, Building No. 11, 3rd Floor, U.A.E

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