

## Automotive Aftermarket Division

### 3M™ 08115 Panel Bonding Adhesive

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#### 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 (*)

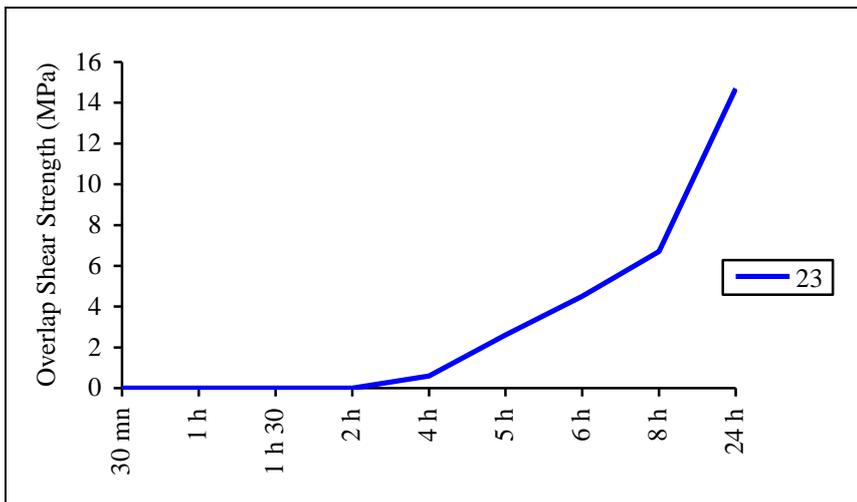
AF: Adhesive Failure

\*: 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

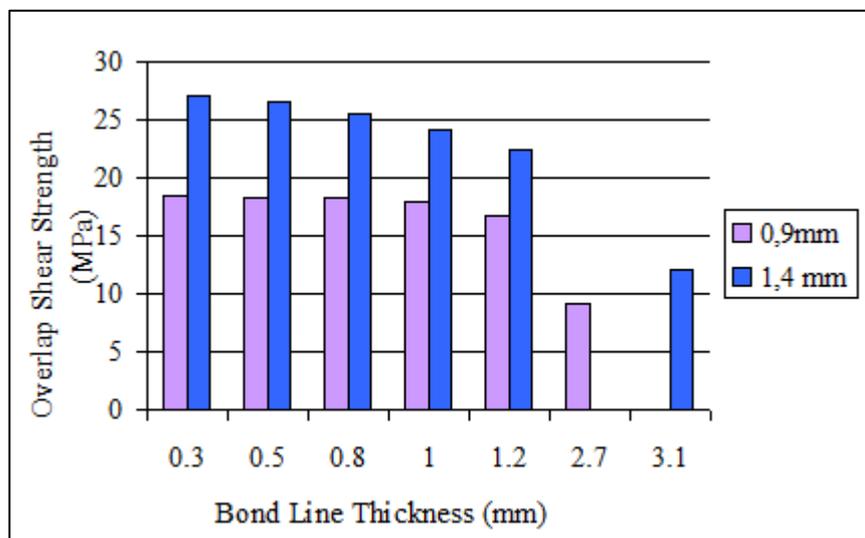
## C. T Peel Strength

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  $\mu\text{m}$
- Cure cycle: 14 days at 23 °C
- Temperature of testing: 23 °C
- Joint separation rate: 125 mm/min

## D. Influence of Bondline thickness

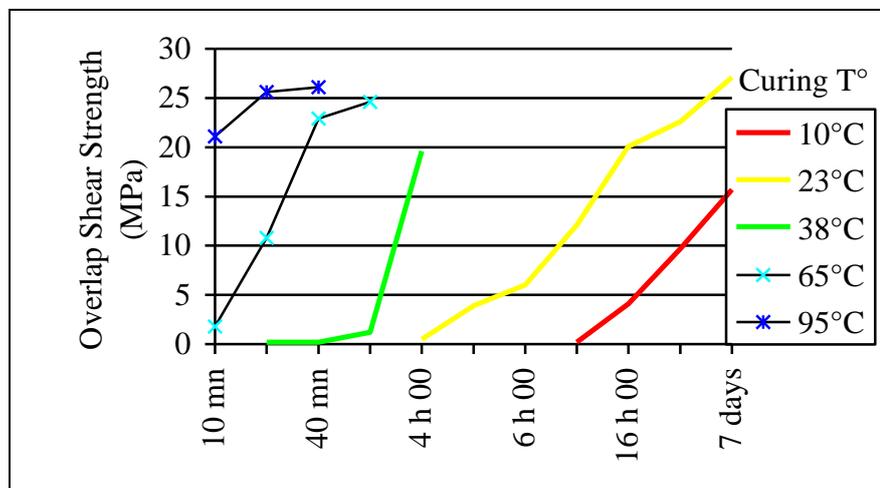


- Substrates: Steel (0.9 mm and 1.4 mm)
- Surface preparation:
  - Abraded with P50
  - Solvent wipe (08984)
- Curing cycle: 7 days at 23 °C
- Joint separation rate: 12.7 mm/min

## 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.

### For Additional Health and Safety Information

<b>3M United Kingdom plc</b> Automotive Aftermarket 3M Centre, Cain Road, Bracknell, RG12 8HT Tel: +44 (0)161 237 6391 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3Mbodyshop.co.uk">www.3Mbodyshop.co.uk</a>	<b>3M Ireland Limited</b> Automotive Aftermarket The Iveagh Building Carrickmines Park Carrickmines , Dublin 18  Tel: +353 12160301 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3Mbodyshop.co.uk">www.3Mbodyshop.co.uk</a>	<b>3M Denmark a/s</b> Automotive Aftermarket Hannemanns Allé 53 2300 København S  Tel: +45 43480100 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3MAuto.dk">www.3MAuto.dk</a>
<b>3M Finland, Suomen 3M Oy</b> Autotuotteet Keilaniementie 1 02151 Espoo Tel: 09 5252 1 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3M.fi/autotuotteet">www.3M.fi/autotuotteet</a>	<b>3M Svenska AB</b> Automotive Aftermarket Herrjärva torg 4 170 67 Solna Tel: 08-922100 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3M.se/bileftermarkad">www.3M.se/bileftermarkad</a>	<b>3M Norge AS</b> Automotive Aftermarket Kanalveien 2 2004 Lillestrøm Tel: 06384 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3m.no/auto">www.3m.no/auto</a>
<b>3M Latvija</b> K.Ulmana 5 Riga, LV-1004 Tel: +371 67066120 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3m.lv">www.3m.lv</a>	<b>3M Eesti OU</b> Pärnu mnt. 158 11317 Tallinn Tel: +372 6 115 902 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3m.ee">www.3m.ee</a>	<b>3M Lietuva</b> A.Goštauto str. 40 A LT-01112 Vilnius Tel: +370 5 2160780 <a href="mailto:aadukenquiries@mmm.com">aadukenquiries@mmm.com</a> <a href="http://www.3m.lt">www.3m.lt</a>

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