



Technical Data Sheet

Effective: 17/6/16 Supersedes: 29/10/99

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)		30min
Working time (23°C)		90 min

4) Product Performance



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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 (0.7mm)	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 : 13mm/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 (*)

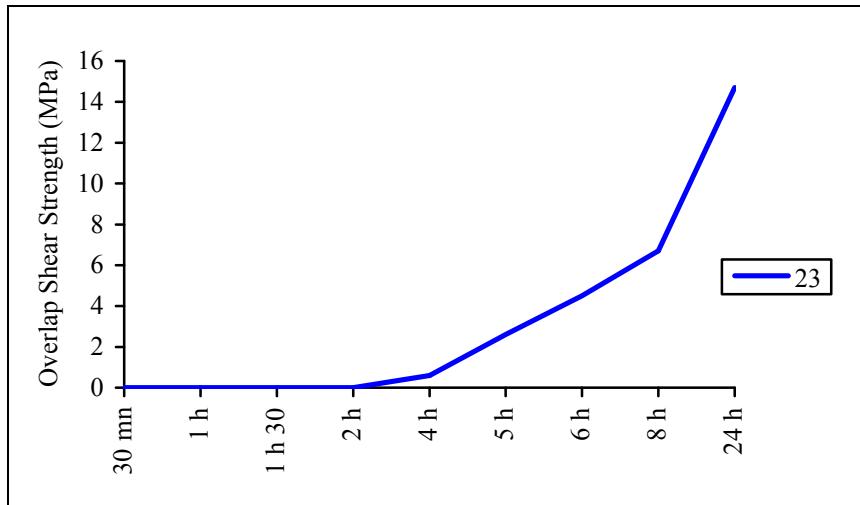
AF: Adhesive Failure

*: 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 \pm 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

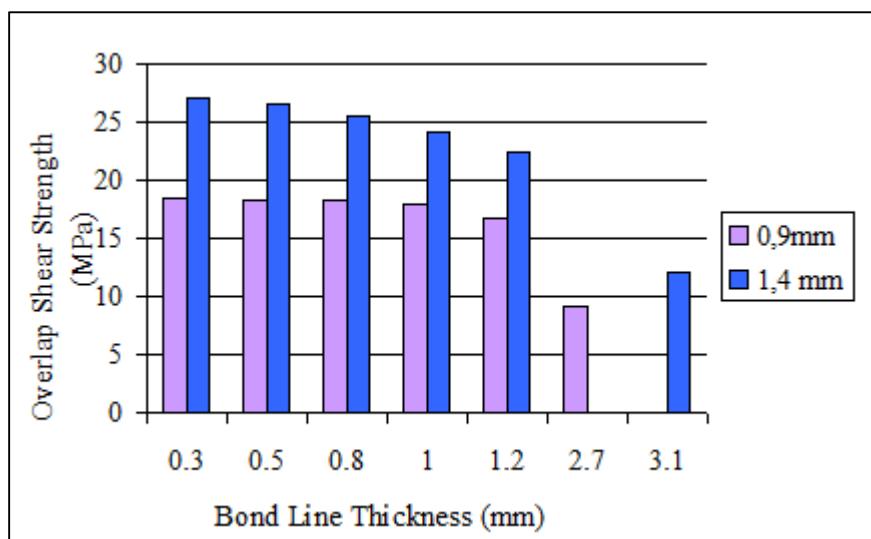
C. T Peel Strength

Substrates	T Peel N/25 mm
Cold RolledSteel (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

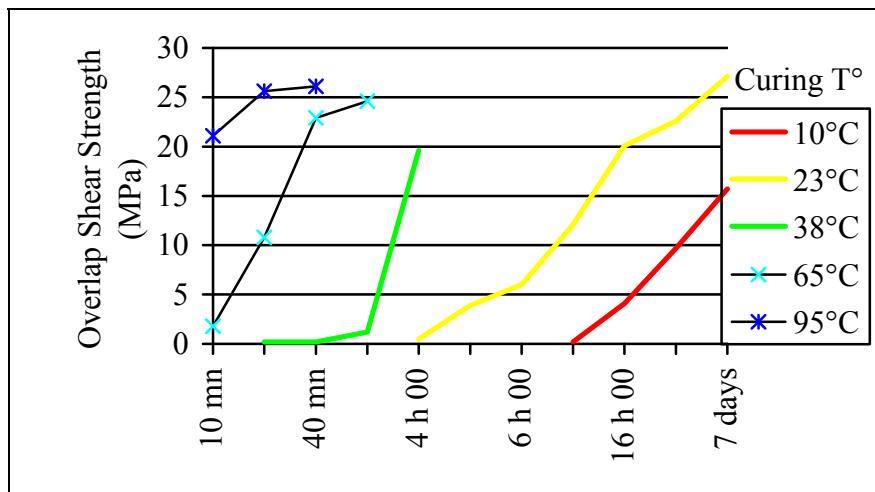


- Substrates : Steel (0.9 mm and 1.4 mm)
- Surface preparation :
 - Abraded with P50
 - Solvent wipe (08984)
- Curing cycle : 7 days at 23°C
- Joint separation rate : 12.7 mm/min

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			

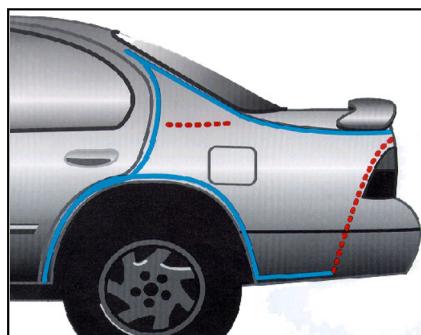


- Substrate : Steel (1.4mm)
- Surface preparation :
 - Abraded with P50
 - Solvent wipe (08984)
- Temperature of testing : 23°C
- Joint separation rate 12.7 mm/min

5) Directions for Use

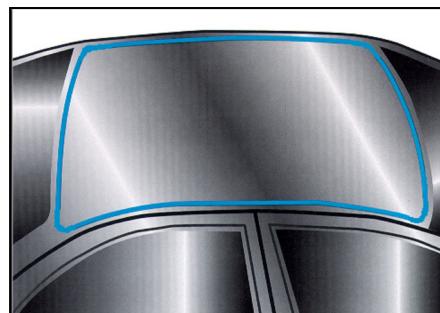
1. Remove all paint, rust and contaminants from surfaces to be bonded using a 3M 36 or 50 grit abrasive disc or a 3M Clean N Strip roll to bare metal.
When using new part, remove from the surface to be bonded, all pre-treatment to bare metal.
2. Straighten all metal, clamp part in place and check for 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.



— Adhesive Area
— Welding Area

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.



— Adhesive Area

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 05913 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 welding a minimum of five centimetres from the adhesive. As with any 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



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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 but the accuracy or completeness thereof is not guaranteed. Please ensure before using our product that it is suitable for your intended use. All questions of reliability relating to this product are governed by the Terms of Sale subject, where applicable, to the prevailing law.

For Additional Health and Safety Information

Denmark

3M a/s

Automotive Aftermarket

Hannemanns Allé 53
2300 København S
Tel: 43 48 01 00

3mkundeservicedk@mmm.com
www.3MAuto.dk

Finland

Suomen 3M Oy

Automotive Aftermarket

Keilaranta 6
02150 Espoo
Tel: 09 5252 1

tilaukset@mmm.com
www.3M.fi/autotuotteet

Norway

3M Norge AS

Automotive Aftermarket

Kanalveien 2
2004 Lillestrøm
Telefon: 06384

www.3m.no/auto
kundeservice@mmm.com

Sweden

3M Svenska AB

Automotive Aftermarket

Bileftermarknad
19189 Sollentuna
Tel. 08-922100

kundservice@mmm.com
3M.se/bileftermarknad