



# Impact Resistant Structural Adhesive

07333 / 57333

Technical Data

April 2020

3M Part Numbers	3M Part Descriptor
07333	3M™ Impact Resistant Structural Adhesive – 200 ml
57333	3M™ Impact Resistant Structural Adhesive – 450 ml

## Product Description

3M™ Impact Resistant Structural Adhesive is a two-part epoxy adhesive designed to meet specific strength requirements for parts such as frame rails, strut towers, rocker panels, pillars and other members where impact resistance is important. This type of adhesive possesses a much greater ability than traditional bonding adhesives to absorb and manage energy under a variety of forces, especially peel and cleavage stresses in extreme temperature conditions. Typically impact resistant structural adhesive is used in conjunction with rivets, spot welds or mechanical fasteners.

There are of course many factors and variables that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process, including relevant vehicle, part and OEM guidelines, and determine what is appropriate for that repair.

## Features

- Higher impact strength versus traditional bonding adhesives
- Recommended by many OEMs
- Provides corrosion protection with lifetime warranty
- Room temperature curing (accelerated curing with heat)
- Can be weld bonded or rivet bonded within working time
- Adheres to a wide variety of properly prepared steel and aluminum substrates
- Dispenses silver, color changes to purple to indicate proper mixing and curing process has begun
- Glass bead technology protects against over-clamping and maintains a minimum bond line thickness
- Has excellent shelf life opened or unopened, reducing unused product replacement costs
- Designed for professional aftermarket collision repair use

# 3M™ Impact Resistant Structural Adhesive

07333 / 57333

## Initial Physical Properties

NOTE: The following technical information and data, while representative of current performance, should not be used for specification release or CAE purposes.

<b>Container</b>	200mL Duo-Pak Syringe or 450mL DMS Cartridge	
<b>Base</b>	Epoxy	Amine
<b>Density (approximately)</b>	9.5 lbs. / gallon	9.9 lbs. / gallon
<b>Color</b>	Off-White	Silver
<b>Solids</b>	100%	100%
<b>Consistency</b>	Viscous Liquid	Viscous Liquid
<b>Mix Ratio by Volume</b>	200	100
<b>Mixed Viscosity</b>	150,000–200,000 centipoise	

## Product Uses

This product is intended to augment, or in cases specifically identified by the OEM, replace welds/rivets used in the attachment of body panels, reinforcements, frame members, floor pans, etc., where strength is required to increase vehicle durability or stiffness. This product is NOT intended to be used for structural procedures that are “bond-only” unless specifically recommended by the vehicle manufacturer. As this product is anticipated to be used in “true” structural bonding applications, its selection in the repair process is to be strictly guided by the vehicle’s original manufacturer.

There are of course many factors and variables that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process, including relevant vehicle, part and OEM guidelines, and determine what is appropriate for that repair.

**For Industrial/Occupational Use Only. Not for Consumer Sale or Use.**

## Accessories

### 200mL Duo-Pak Syringe Format (07333)

#### Applicators:

PN08117 3M™ Manual Applicator, 200mL

PN09930 3M™ Pneumatic Applicator, 200mL

#### Mixing Nozzles:

PN08193 3M™ Static Mixing Nozzle (6/Bag)

PN08194 3M™ Static Mixing Nozzle (50/Box)

### 450mL DMS Cartridge Format (57333)

#### Applicators:

PN05846 3M™ DMS Applicator, Pneumatic

#### Mixing Nozzles:

PN55847 3M™ Dynamic Mixing Nozzle (50/Box)

PN58207 3M™ Nozzle Extension (12/Bag)

# 3M™ Impact Resistant Structural Adhesive

07333 / 57333

## Performance Properties

The values shown below are for test samples that were room temperature cured for 24 hours at ambient air temperature and substrate temperature at 73°F/ 23°C.

	Test Method	3M™ IRSA
Tensile Shear Strength	ISO 4587	20.8 MPa
Wedge Impact Peel	ISO 11343	20 N/mm
Elastic Modulus	ASTM D638	2.1 GPa
Elongation	ASTM D638	2–3%
Ultimate Tensile Strength	ASTM D638	35 MPa

## Accelerated Heat Cure

Note: The cure time may be accelerated by applying heat (maximum 175°F / 80°C for 30 minutes), if applied within 2 hours of adhesive application.

### Representative Accelerated Heat Cure Schedule: Tensile Shear Strength (% of Max)

Cure Time at Temperature	Cure Temperature				
	10°C	23°C	40°C	60°C	80°C
15 min.				0%	95%
30 min.				75%	100%
1 hour			5%	100%	
2 hours			80%		
4 hours		0%	100%		
8 hours		65%			
16 hours	25%	90%			
1 day	60%	95%			
2 days	75%	98%			
7 days	90%	100%			

## Storage and Handling

When stored at the recommended conditions in original, unopened containers, this product should have a shelf life in excess of 18 months from the date of manufacture. Store at room temperature. Rotate stock on a “first-in / first-out” basis.

**After use, leave the mix nozzle in place to seal the cartridge.**

# 3M™ Impact Resistant Structural Adhesive

07333 / 57333

---

## Directions for Use

### SURFACE PREPARATION

1. Wash surface with soap and water to remove water soluble contaminants. Follow the soap and water wash with an appropriate VOC compliant product for removal of surface contaminants.
2. Remove all rust, primer and paint from the areas to be bonded, welded or riveted using a grade 80 3M™ Roloc™ Grinding Disc or coarse Scotch-Brite™ File Belt. Galvanizing should be removed down to bright steel. Only bond to clean, rust-free, bare metal.
3. Test-fit all parts, including rivets or fasteners, and minimize large gaps between the flanges to ensure a uniform adhesive bond.
4. Remove the part from the vehicle.
  - a. All areas to be MIG welded should be coated with 3M™ Weld-Thru Coating II (PN05917) according to the directions on the can. Adhesive should **not** be applied to the areas that will be MIG welded.
  - b. Areas to be welded using Squeeze Type Resistance Spot Welding (STRSW) should be coated with 3M™ Impact Resistant Structural Adhesive (PN07333/PN57333) (See General Repair Process, Step 2). Weld-Thru coatings should **not** be applied to these areas.
  - c. Areas to be riveted should be coated with 3M™ Impact Resistant Structural Adhesive (PN07333/PN57333) (See General Repair Process, Step 2). Weld-Thru coatings should **not** be applied to these areas.

### PRODUCT PREPARATION

1. Place the adhesive cartridge in the applicator gun.
2. Remove the retaining collar and plug from the end of the cartridge. Discard the plug, but save the retaining collar.
3. Before attaching a mixing nozzle, “equalize” the cartridge by dispensing just enough product to be sure that both parts A and B are present at the outlet.
4. Attach a 3M™ Mixing Nozzle to the cartridge and lock in place with the retaining collar.
5. Dispense a small amount of material through the mixing nozzle onto a disposable surface and discard.

### GENERAL REPAIR PROCESS

1. Apply an adhesive bead to all bare metal surfaces of both pieces to be bonded. Using a plastic spreader or acid brush, tool out the adhesive to cover all bare metal surfaces.

# 3M™ Impact Resistant Structural Adhesive

07333 / 57333

---

## Directions for Use, cont.

2. Apply a 1/8" to 1/4" diameter adhesive bead to ONE part, centered on the flange (or as specified in the OEM Collision Repair Manual). Wide flanges, or flanges with small gaps, may require a larger bead. Apply a large enough bead to allow the adhesive to fill all voids and squeeze out of the flange seam, indicating that the joint is completely sealed.
3. Clamp or fixture parts together with any OEM recommended mechanical fasteners.
4. Tool any adhesive "squeeze out" to seal the outside of the seam along all bonded edges.
5. Perform Squeeze Type Resistance Spot Welding in appropriate areas while the adhesive is uncured. DO NOT attempt to MIG weld through the adhesive. Set rivets or other fasteners while the adhesive is still uncured, typically within 2 hours of adhesive application.
  - a. CAUTION: The adhesive may be combustible. Keep any MIG welding a minimum of 2 inches from the adhesive. As with any welding operation, keep the appropriate fire extinguisher within reach, and be alert to any smoke or flame that may be present.
  - b. Squeeze Type Resistance Spot Welding through uncured adhesive IS acceptable.
6. Spray the interior cavities with 3M™ Cavity Wax Plus (PN08852).
7. If the parts are bonded only, clamps may be removed after 8 hours at 73°F.
  - a. Parts should remain clamped longer if the temperature is below 73°F/23°C and/or if there is any tension on the part/bondline.
  - b. The cure time may be accelerated by applying heat (maximum 80°C for 30 minutes), if applied within 2 hours of adhesive application.
8. Parts that utilize rivets or STRSW can be unclamped immediately.
9. After top coats have been applied, spray the interior cavities with 3M™ Cavity Wax Plus (PN08852).
10. Allow 24 hours at a minimum of 73°F / 23°C before returning the vehicle to service.

NOTE: 3M™ Impact Resistant Structural Adhesive (PN07333 / PN57333) will change color from silver to purple, indicating that the curing process has begun. Excess heat will cause the adhesive to change color from purple to silver / gray.

## CLEAN-UP

Prior to curing, PN07333 / PN57333 may be cleaned from most surfaces with an appropriate VOC compliant product for removal of surface contaminants.

---

# 3M™ Impact Resistant Structural Adhesive

07333 / 57333

---

## Precautionary Information

Before using this product, please reference Product Label and/or Safety Data Sheet for Health and Safety Information. Note: Laws controlling the acceptable amounts of Volatile Organic Compounds (VOCs) vary by state, and in some cases by locality. For surface preparation and clean-up activities, consult federal, state and local regulations regarding use of products containing VOCs in your area. IMPORTANT NOTE: There are many factors that can affect an individual repair, so the technician and repair facility need to evaluate each specific application and repair process and determine what's appropriate. 3M recommends referring to relevant vehicle repair and OEM guidelines prior to starting all repairs.

---

## Technical Information

The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

---

## Product Selection and Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

---

## Warranty, Limited Remedy and Disclaimer

Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

---

## Limitation of Liability

Except for the limited remedy stated above, and except to the extent prohibited by law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.



Automotive Aftermarket Division  
3M Center, Building 0223-6-S-07  
St. Paul, MN 55144-1000  
1-877-666-2277 (1-877-MMM-CARS)  
3MCollision.com

3M, Roloc and Scotch-Brite are trademarks of 3M Company.  
Printed in U.S.A. © 3M 2020 All rights reserved (04/20)