

# LOCTITE®

## Structural Adhesives Selector Guide

**KRAYDEN, INC.**  
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THE IMMUTABLE LAWS OF  
**STRUCTURAL  
ENGAGEMENT™**

WE'RE WRITING THE LAW

**Henkel**



## Loctite® Structural Adhesives Selector Guide

### We're writing the law on Structural Adhesives

Henkel would like to introduce to you The Immutable Laws of Structural Engagement™. The laws were written to help you understand why structural adhesives are stronger, tougher and more reliable than traditional fasteners. Loctite® Structural Adhesives can allow manufacturers to eliminate or significantly reduce the fasteners or welds, while improving the strength and durability of your assembly. Put The Immutable Laws of Structural Engagement™ to work for you.

### 1<sup>st</sup> Law of Structural Engagement

#### Mechanical fasteners can't spread the load.

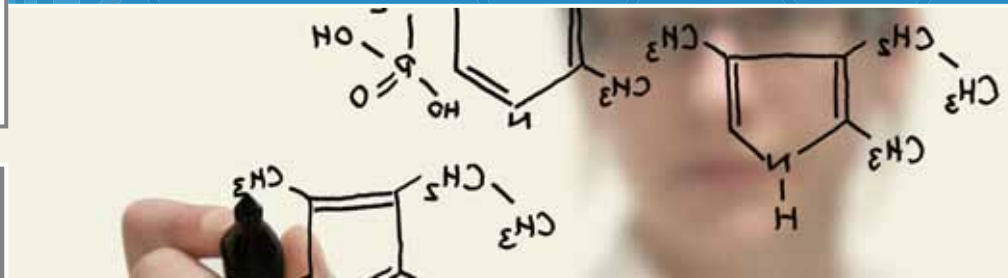
When forces are applied to a mechanically-fastened assembly, the stresses are concentrated at a single point rather than distributed evenly over a broader area. This may lead to premature failure of the joint. When forces are applied to an adhesive bonded assembly, the stresses are distributed across the entire area of the bonded joint. This results in an overall stronger assembly, which provides the opportunity to reduce substrate thickness and thus the cost and weight of the assembly.

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## From the Leader in Structural Adhesives



### Strength and Cost



Loctite® Structural Adhesives are nearly  
**2x stronger than spot welds and bolts**  
and easier on the bottom line

#### Before



Previous process. Note the through-bolts.

#### After



Loctite® H8600™ Speedbonder™ Adhesive process. Note the smooth finish.



Look for  
Professor McGlue's  
Clues throughout this  
brochure to learn  
tips about Loctite®  
Structural Adhesives.

Loctite® Structural Adhesives are available in a range of formulations, including one-part epoxy, two-part epoxy, acrylic and polyurethane, and two-step acrylic adhesives. They have been specially formulated to meet a variety of industrial bonding requirements and are available in four application categories:

**Magnet Bonding** – for the fastest, most durable bond strengths on ferrite, alnico and neodymium iron boron permanent magnets.

**Metal Bonding** – optimized to meet the demands of today's metal fabricating requirements.

**Multiple Surface Bonding** – for excellent bond strengths on a variety of surfaces.

**Plastic and Composite Bonding** – for the toughest, most durable bond strength on composites and plastics, including polyolefins.

Loctite® Structural Adhesives are available in easy-to-use packages for hand-held, manual and semi-automated applications, including caulking cartridges, syringes, soft-squeeze bottles and dual cartridges for two-part formulations. Loctite® Structural Adhesives are also offered in larger packages, such as 5- or 55-gallon pails, for high volume and automated assembly operations.

All Loctite® Structural Adhesives are easily dispensed through Loctite® dispensing systems. Systems are available in a full range of options, including manual or pneumatic versions, portable or stationary systems, small or large package systems, and pressure-time or volumetric dispense systems.

Most importantly, you can rely on the industry's most trusted brand – Loctite®. A name synonymous with the highest quality, superior technical support and the best overall value.

## TABLE OF CONTENTS

<b>Magnet Bonding</b> . . . . .	<b>4</b>
For the fastest, most durable bond strengths on magnets, including ferrite, alnico and neodymium iron boron permanent magnets.	
<b>Metal Bonding</b> . . . . .	<b>8</b>
Optimized to meet the demands of today's metal fabricating requirements.	
<b>Multiple Surface Bonding</b> . .	<b>14</b>
For excellent bond strengths on a wide range of surfaces.	
<b>Plastic / Composite / Polyolefin Bonding</b> . . . . .	<b>24</b>
For the toughest, most durable bond strength on plastics, composites and difficult-to-bond polyolefins.	
<b>Dispensing Equipment</b> . . . . .	<b>30</b>
A full line of adhesive dispensing equipment for manual, semi-automated or fully-automated assembly processes.	
<b>Index</b> . . . . .	<b>34</b>

## TOP CHOICE

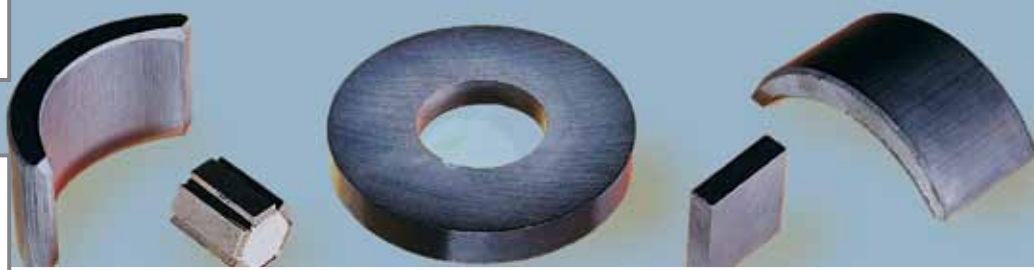
The Top Choice designation lets you know that this Loctite® product has demonstrated proven performance and/or represents the latest technology to handle a variety of customer applications, and is most often included in initial product testing and evaluation.

## Magnet Bonding

### 2<sup>nd</sup> Law of Structural Engagement

**If you want to prevent rust and corrosion, use an adhesive; if not, suffer the consequences.**

Due to structural adhesives' unique combination of sealing and joining properties, using an adhesive to assemble your parts will prevent moisture and contamination ingress that can lead to the build-up of rust and corrosion. And rust and corrosion between your parts can only lead to severe performance consequences and ultimate failure. So use an adhesive instead, and come out a winner!



Loctite® Structural Adhesives for magnet bonding combine the benefits of fast process speeds with tough, durable, environmentally resistant bond strengths, making them ideal for bonding ferrite, alnico and neodymium iron boron permanent magnets used in electric motors, small engines, speakers, transformers and other devices. Magnets assembled with adhesives provide a wealth of benefits, including:

- Ability to use lower cost components
- Decreased inventory cost
- Easier to automate
- Will not chip magnets
- Prevent vibrational noise
- Prevent corrosion
- Acid-free
- Higher impact strength
- Higher temperature resistance
- Lower odor

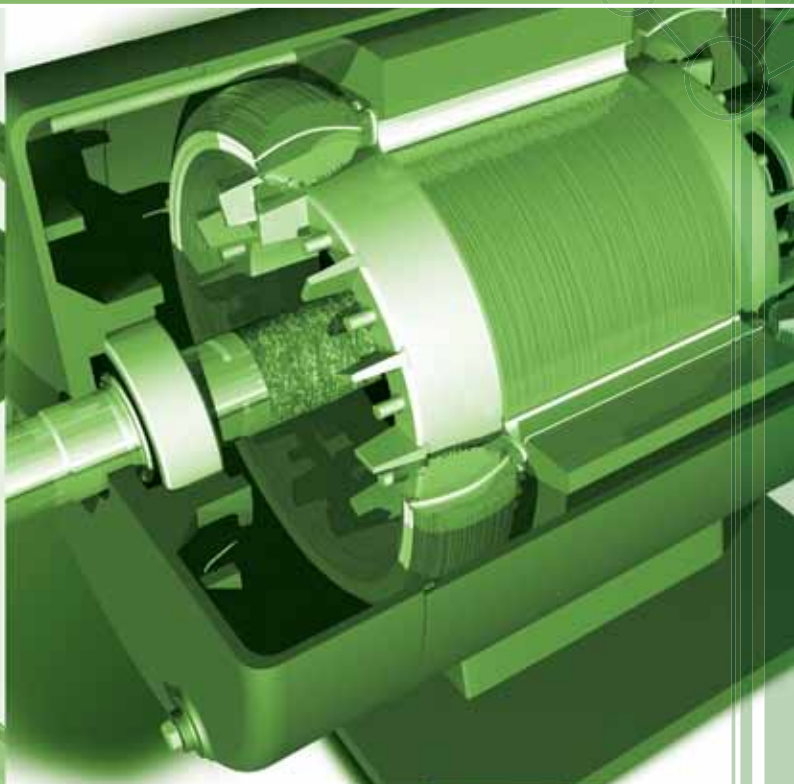


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## Magnet Bonding

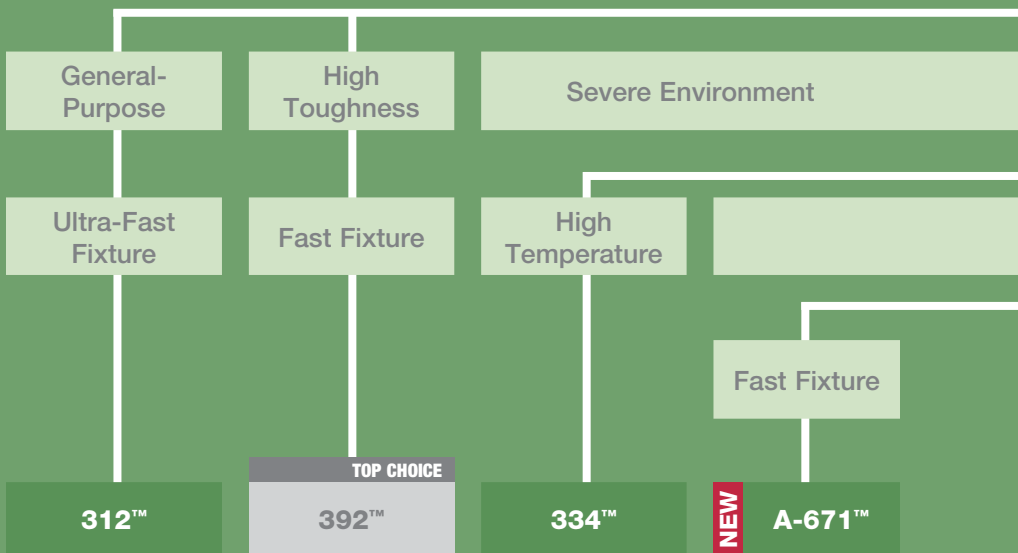
### Your Application

#### A Clue From Prof. McGlue



**Loctite® Magnet Bonders are available in Noncorrosive, Acid-Free formulations.**

#### Fast Fixture / No Mixing Required



### Solution

	312™	392™	334™	NEW A-671™
Chemistry	Two-Step Acrylic	Two-Step Acrylic	Two-Step Acrylic	External Mix Acrylic
Color	Clear to Amber	Amber	Yellow	Green
Viscosity (cP)	1,000	6,500	80,000	30,000
Gap Fill (in.)	.003	.025	.02	.1
Fixture Time (seconds)	30	60	90	30-60
Cure Time (hours)	24	24	24	1
Shear Strength <sup>1</sup> (psi)	>2,490	2,500	2,800	2,500
Impact Strength <sup>1</sup> (kJ/m²)	—	—	5.2	9
Temperature Resistance	250°F (121°C)	250°F (121°C)	350°F (177°C)	311°F (155°C)
Suggested Activator	Loctite® 736™ Primer NF™	Loctite® 7387™ Activator	Loctite® 7387™ Activator	N/A

### Product Description

#### Loctite® 312™ Speedbonder™ Structural Adhesive

##### Ultra-Fast Fixture

Single component, medium viscosity, activator-cure acrylic. Fixtures in 30 seconds with 75% of full strength developed in 10 minutes. Ideal for bonding a variety of close-fitting parts, including metal, glass and ceramic.

P/N	Package Size
03333	10 ml kit (10 ml bottle of Loctite® 312™ Speedbonder™ and 40 g aerosol can of Loctite® 736™ Primer NF™)
00144	50 ml kit (50 ml bottle of Loctite® 312™ Speedbonder™ and 6 oz. aerosol can of Loctite® 736™ Primer NF™)
31231	50 ml bottle
31243	1 liter bottle

#### Loctite® 392™ Structural Adhesive

##### Fast Fixture / Toughened

Single component, dual-cure acrylic. Provides fast fixture speed and tough, reliable bonds.

P/N	Package Size
39250	50 ml tube
39275	300 ml cartridge
39280	1 liter bottle

#### Loctite® 334™ Structural Adhesive

##### High Temperature

Single component, dual-cure acrylic. Forms tough, flexible bonds on gaps up to 0.02". Resists up to 350°F.

P/N	Package Size
33403	25 ml syringe
33470	300 ml cartridge

#### Loctite® A-671™ Structural Adhesive

(formerly National Adhesives Bondmaster™ 671)

##### Gap Filling

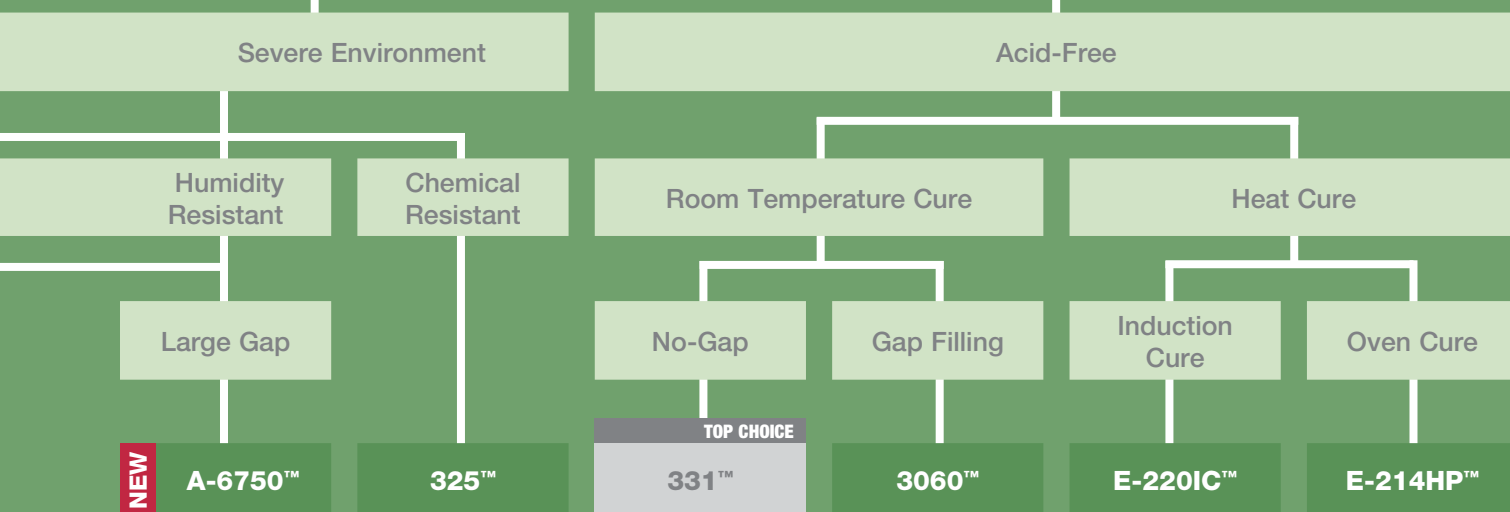
Two-component external mix acrylic requires no static mixing or activators. Excellent humidity resistance and gap filling capability. Fast fixturing.

P/N	Package Size
1256489	40 ml kit (adhesive/activator)
1256488	4,000 ml kit (adhesive/activator)
1256502	2 liter bottle, adhesive
1255708	2 liter bottle, activator
1256501	19 liter pail, adhesive
1255709	19 liter pail, activator

\* Made to Order Item

<sup>1</sup> Steel

## Fast Fixture / No Mixing Required



External Mix Acrylic	Two-Step Acrylic	Two-Step Acrylic	External Mix Acrylic	One-Part Epoxy	One-Part Epoxy
Green	Clear Brown	Cream	Green	Grey	Light Grey
30,000	20,000	20,000	15,000	Paste	Paste
.2	.04	.04	>.05	—	—
12 minutes	300	20	55	N/A	N/A
3	24	24	24	0.03 (induction) 1 (oven)	2
2,500	2,200	3,100	3,800	5,900	4,820
9	—	>13	>13	>13	—
311°F (155°C)	300°F (149°C)	350°F (177°C)	300°F (149°C)	300°F (149°C)	300°F (149°C)
N/A	Loctite® 7075™ Activator	Loctite® 7387™ Activator	N/A	N/A	N/A

**Loctite® A-6750™ Structural Adhesive**  
(formerly National Adhesives Bondmaster™ 675)

**Extended Work Life**

Two-component external mix acrylic requires no static mixing or activators. Excellent humidity resistance and gap filling capability. Extended 5-minute work life to allow added time to position parts.

P/N	Package Size
1256506	40 ml kit, (adhesive/activator)
1256503	2 liter bottle, adhesive
1255702	2 liter bottle, activator

**Loctite® 325™ Speedbonder™ Structural Adhesive**  
**Chemical Resistant**

Solvent resistant, activator-cured acrylic that fixtures in minutes. Forms flexible bonds on gaps up to 0.04". Designed for severe environments and temperatures to 300°F (149°C).

P/N	Package Size
32530	50 ml bottle
32586	1 liter bottle

**Loctite® 331™ Structural Adhesive**  
**Ultra-Fast Fixture**

Single component, toughened, activator-cure acrylic. Acid-free, noncorrosive to sensitive parts. Fixtures in 20 seconds and develops full strength in 30 minutes. Excellent high temperature resistance. Ideal for bonding close-fitting metals and magnets.

P/N	Package Size
1057673	25 ml syringe
1057674*	1 liter bottle
1062124*	5 gallon pail

**Loctite® 3060™ Structural Adhesive**  
**Gap Filling**

Two-component, acid-free toughened, external-mix acrylic requires no static mixing or activators. Turns green when mixed. Excellent high temperature resistance. Ideal for bonding large metal parts and ferrite or rare earth magnets. Noncorrosive to sensitive parts. Excellent gap filling capability.

P/N	Package Size
1087985	60 ml kit (2 - 30 ml syringes)
1087986	1 liter, resin
1087987	1 liter, activator
1087988*	10 liter, resin
1088035*	10 liter, activator

**Loctite® E-220IC™ Hysol® Epoxy Adhesive**  
**Induction Cure**

A one-component, acid-free, epoxy adhesive designed for induction cure operations. A fast curing paste that is formulated to reduce the risk of localized heating. Well suited for metal and magnet bonding. Noncorrosive to sensitive parts.

P/N	Package Size
1078250*	30 ml syringe
1078261*	1 liter bottle
1078499*	5 gallon pail

**Loctite® E-214HP™ Hysol® Epoxy Adhesive**  
**Oven Cure**

A one-component, acid-free, heat cure epoxy. Light grey, temperature resistant, high strength, non-sag. Noncorrosive to sensitive parts.

P/N	Package Size
29339	30 ml cartridge
29340	300 ml cartridge



## Metal Bonding

### 3<sup>rd</sup> Law of Structural Engagement

#### Vibration is everywhere. Vibrational loosening is not.

Metal fabricators like the benefits of pneumatic pins because of their fast processing speeds. Unfortunately, the pins can wallow out of their parts during transportation due to vibrational loosening. However, when used in combination with structural adhesives, not only are the assemblies able to withstand stronger forces, but the pins are bonded in place by the adhesive, thus preventing them from wallowing out.



Loctite® Structural Adhesives for metal bonding have been specially formulated to provide tough, long-lasting bonds to metal surfaces, such as steel, galvanized steel, aluminum, sheet metal and stainless steel. These adhesives are capable of reducing or replacing the need for threaded fasteners, welds or rivets, resulting in a higher quality assembly. As a result, structural adhesives are ideal for use in agriculture and construction equipment, specialty vehicles, commercial furniture, appliances, signage, tub and spa, and structural building components.

Loctite® Structural Adhesives have been formulated to withstand higher temperatures, provide excellent chemical resistance, survive aggressive pre-treating and high performance paint processes, and provide long-term corrosion resistance. Loctite® Structural Adhesives are available in a variety of cure speeds for any type of job. Our two-part epoxies have strengths close to heat cure epoxies, eliminating the need for an oven-cure process, thereby reducing bottlenecks and lowering costs.

Overall, Loctite® Structural Adhesives for metal bonding offer:

- High strength coupled with high impact and peel resistance
- Compatibility with oily/unclean metal surfaces
- Resistance to high temperatures, aggressive chemicals
- Squeeze-out prevention in clamped assemblies
- A variety of open times to meet processing needs
- Fast fixture time for handling strength in minimal amount of time
- Even stress distribution over bond line
- Cost benefits for replacement and/or reduction of welds, rivets and mechanical fasteners



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## Metal Bonding

### Your Application

#### A Clue From Prof. McGlue



**Loctite® 3050™ and  
Loctite® H8700™  
Speedbonder™ can  
be welded-through in  
their liquid states and  
still maintain their high  
performance properties.**

### Solution



**TOP CHOICE**

**H4500™**

**H4710™**

**H4720™**

**H3151™**

Chemistry	Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic
Color	Grey	Grey	Teal	Light Yellow
Viscosity (cP)	45,000	70,000	70,000	70,000
Mix Ratio	10:1	10:1	10:1	1:1
Work Life (minutes)	6	5	65	60
Fixture Time (minutes)	15	15	105	120
Cure Time (hours)	24	48	48	24
Shear Strength¹ (psi)	3,100	1,800	4,200	3,800
Impact Strength¹ (kJ/m²)	11.5	>14	8.5	7.7
Peel Strength⁴ (pli)	10.7	16	25.3	15
Hot Strength² (psi)	950	540	1,100	900

### Product Description

#### Loctite® H4500™ Speedbonder™ Structural Adhesive

##### Fast Fixture

High strength structural adhesive for metals. Fixtures in 15 minutes. Now with mix color indication.

P/N	Package Size
996512	50 ml dual cartridge
83041	490 ml dual cartridge

#### Loctite® H4710™ Speedbonder™ Structural Adhesive

##### Corrosion Resistant

Thixotropic, two-component, room temperature curing methacrylate adhesive designed for structural bonding of galvanized and galvanneal parts. Excellent environmental resistance. Its non-sag characteristics are well suited for filling gaps up to 0.375". Delivers excellent peel and impact strength with no surface preparation.

P/N	Package Size
1056941	50 ml dual cartridge
39317	490 ml dual cartridge

#### Loctite® H4720™ Speedbonder™ Structural Adhesive

##### Corrosion Resistant

Maintains superior strength in corrosive environments. Excellent general-purpose metal bonder.

P/N	Package Size
1296594	50 ml dual cartridge
913475	490 ml dual cartridge

#### Loctite® H3151™ Speedbonder™ Structural Adhesive

##### Extended Open Time

Extended open time allows for adjustment of parts. Excellent bond strength on aluminum and steel. Impact and peel resistant.

P/N	Package Size
83015	50 ml dual cartridge
83014	400 ml dual cartridge

\* Made to Order Item

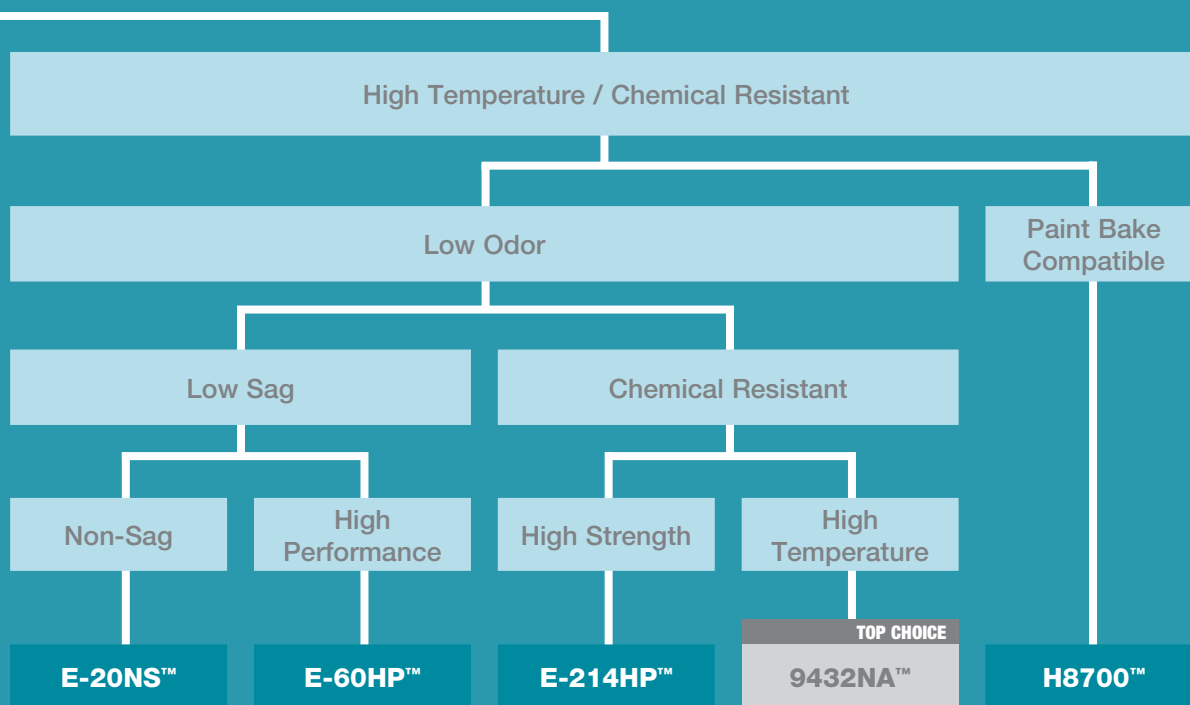
¹ Steel

² 220°F (104°C) Shear on Steel

³ Grit Blasted Mild Steel

⁴ Aluminum

⁵ Etched Aluminum



Two-Part Epoxy	Two-Part Epoxy	One-Part Epoxy	One-Part Epoxy	Two-Part Acrylic
Tan	Off-White	Grey	Grey	Blue
60,000	47,000	Paste	225,000	40,000
2:1	2:1	N/A	N/A	2:1
20	60	N/A	N/A	25
150 <sup>4</sup>	180 <sup>4</sup>	N/A	N/A	40 <sup>1</sup>
24	24	40 min. @ 218°F (120°C)	30 min. @ 218°F (120°C)	24
2,790 <sup>3</sup>	4,320 <sup>3</sup>	4,820 <sup>3</sup>	3,000 <sup>3</sup>	2,175
–	–	–	–	14
–	–	–	–	7
1,100	430 <sup>5</sup>	3,172 <sup>5</sup>	3,000 <sup>4</sup>	435

**Loctite® E-20NS™ Hysol®  
Epoxy Adhesive**  
*Non-Sag*

A light tan, non-sag, high peel, high shear epoxy with a 20-minute work life. Excellent on stainless steel, copper and bronze.

P/N	Package Size
29334	50 ml dual cartridge
29335	200 ml dual cartridge
29336	400 ml dual cartridge

**Loctite® E-60HP™ Hysol®  
Epoxy Adhesive**  
*Toughened*

A high strength epoxy with a 60-minute work life. Off-white, high peel and shear strength.

P/N	Package Size
29319	50 ml dual cartridge
29320	200 ml dual cartridge
29321	400 ml dual cartridge
29322*	5 gallon pail, resin
29323*	5 gallon pail, hardener

**Loctite® E-214HP™ Hysol®  
Epoxy Adhesive**  
*High Strength*

A one-component, heat cure epoxy. Grey, temperature resistant, non-sag.

P/N	Package Size
29339	30 ml cartridge
29340	300 ml cartridge

**Loctite® 9432NA™ Hysol®  
Epoxy Adhesive**  
*High Temperature*

A grey, one-component paste, heat cure epoxy. Excellent high temperature performance, excellent chemical resistance, surface insensitive.

P/N	Package Size
83217*	2 lb. can
83216	55 lb. pail

**Loctite® H8700™  
Speedbonder™  
Structural Adhesive**  
*Weld-Through Capable*

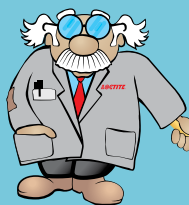
A weld-through capable, toughened, two-component acrylic adhesive designed for weld/rivet reduction. Exhibits high resistance to paint bake temperatures.

P/N	Package Size
1064166	50 ml dual cartridge
1064321	400 ml dual cartridge

## Metal Bonding

### Your Application

#### A Clue From Prof. McGlue



**All Loctite® Two-Part Acrylic Metal Bonders are formulated with glass spacer beads to prevent adhesive squeeze-out during clamping.**

#### Galvanized Bonding

Fast Room  
Temperature  
Fixture

Medium Room  
Temperature  
Fixture

Extended Room  
Temperature  
Fixture

Medium Room  
Temperature  
Fixture

TOP CHOICE

### Solution

**H8610™**

**H8600™**

**E-50GW**

**H8500™**

Chemistry	Two-Part Acrylic	Two-Part Acrylic	Two-Part Epoxy	Two-Part Acrylic
Color	White	Blue	Grey	Grey
Viscosity (cP)	105,000	86,000	37,000	60,000
Mix Ratio	2:1	2:1	4:1	10:1
Work Life (minutes)	5	25	50	20
Fixture Time (minutes)	20 <sup>1</sup>	55 <sup>6</sup>	75	17
Cure Time (hours)	48	48	24	72
Shear Strength <sup>1</sup> (psi)	1,800	3,355	1,900 <sup>6</sup>	2,899
Impact Strength <sup>1</sup> (kJ/m <sup>2</sup> )	>14	38	–	26.3
Peel Strength <sup>4</sup> (pli)	10	22.6	–	46.4
Hot Strength <sup>2</sup> (psi)	500	460	1,273 (500 hours)	960

### Product Description

**Loctite® H8610™  
Speedbond™  
Structural Adhesive  
Galvanized Steel Bonder**

A fast curing, two-component acrylic designed for bonding galvanized steel, galvaneal and galvalum. Excellent shear strength on steel and aluminum. Especially designed for long-term heat and humidity resistance.

P/N	Package Size
1055263	50 ml dual cartridge
1055839	400 ml dual cartridge

**Loctite® H8600™  
Speedbond™  
Structural Adhesive  
Galvanized Steel Bonder**

Excellent shear strength on steel and aluminum. Especially designed for severe environments.

P/N	Package Size
40875	50 ml dual cartridge
38762	400 ml dual cartridge
38760*	5 gallon pail, adhesive
38761*	5 gallon pail, activator

**Loctite®  
E-50GW™ Hysol®  
Epoxy Adhesive  
Galvanized Steel  
to Wood Bonder**

A grey, two-component epoxy designed to bond galvanized steel to wooden surfaces. Extended, 50-minute work life makes for easy adjustment of larger parts.

P/N	Package Size
1078249	50 ml dual cartridge
1077864*	400 ml dual cartridge

**Loctite® H8500™  
Speedbond™  
Structural Adhesive  
Ultra-Tough**

Excellent peel strength on steel and aluminum. Contains 30 mil spacer beads to prevent excessive squeeze-out of adhesive due to over-clamping. Provides fast fixturing.

P/N	Package Size
996514	50 ml dual cartridge
827608	490 ml dual cartridge
40888*	5 gallon pail, activator
40889*	5 gallon pail, adhesive

\* Made to Order Item

<sup>1</sup> Steel

<sup>2</sup> 220°F (104°C) Shear on Steel

<sup>3</sup> Grit Blasted Steel

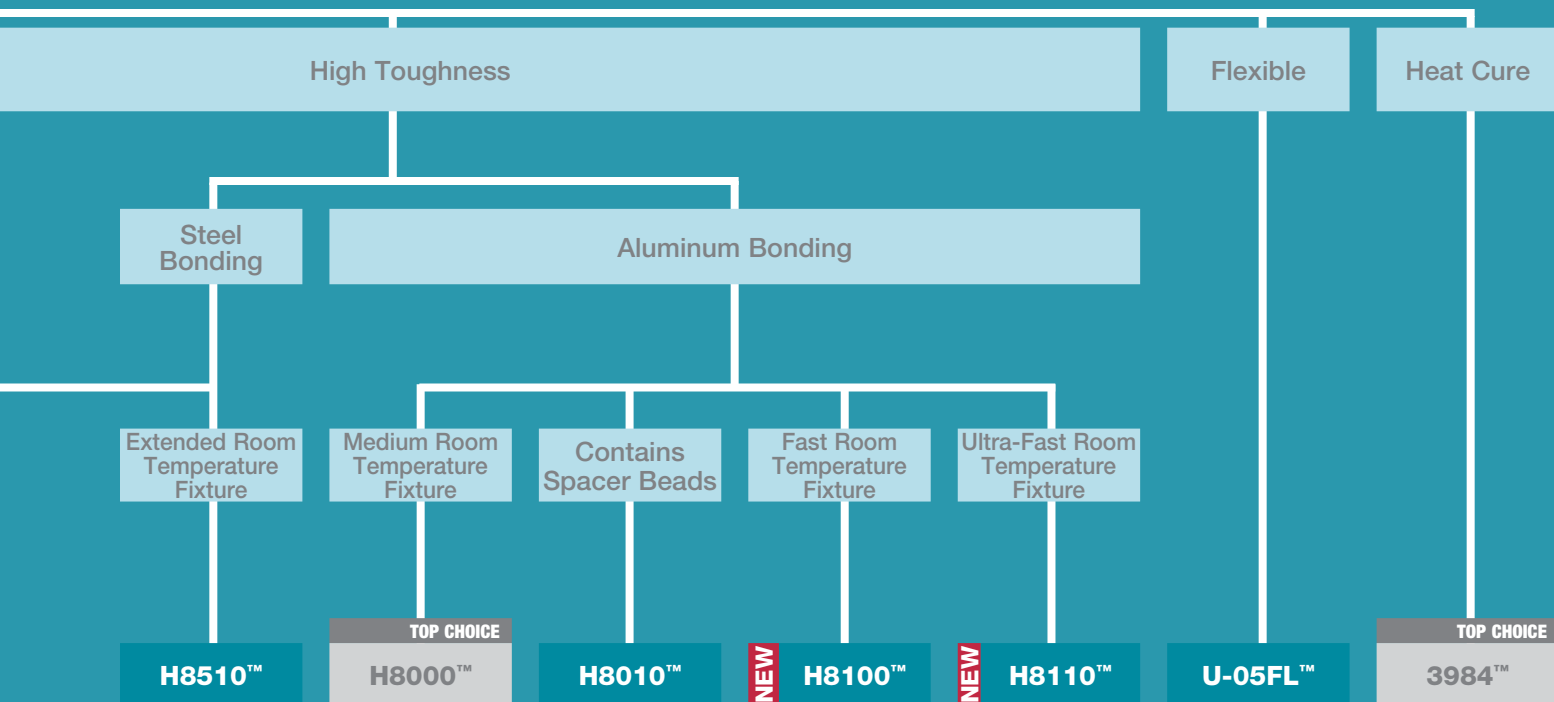
<sup>4</sup> Aluminum

<sup>5</sup> Etched Aluminum

<sup>6</sup> Galvanized Steel

<sup>7</sup> Abraded and Etched Aluminum





Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic	Two-Part Urethane	One-Part Epoxy
Grey	Green	Grey	Green	Green	Off-White	Light Grey
45,000	190,000	200,000	185,000	200,000	100,000	25,000
10:1	10:1	10:1	10:1	10:1	1:2	One Part
30	15	35	15	2-3	5	N/A
30	30	40	20	5	180	N/A
72	24	24	24	24	24	25 min. @ 212°F (100°C)
2,175	3,250	2,175	2,880	1,360	930 <sup>3</sup>	>2,000 <sup>5</sup>
>14	17.4	29	11	8	636 <sup>7</sup>	–
58	40	37	12	9	–	–
540	450	485	560	–	280	200

**Loctite® H8510™ Speedbonder™ Structural Adhesive**  
*Ultra-Tough*

Offers superior peel and impact strength on steel and aluminum. This grey, ultra-fracture toughened, two-component acrylic adhesive has an extended open time, making it ideal for the assembly and adjustment of larger parts. Contains 30 mil spacer beads to prevent excessive squeeze-out of adhesive due to over-clamping.

**P/N Package Size**  
996513 50 ml dual cartridge  
1107651 490 ml dual cartridge

**Loctite® H8000™ Speedbonder™ Structural Adhesive**  
*Tough Aluminum Bonder*

Exhibits excellent peel strength on multiple substrates, especially aluminum.

**P/N Package Size**  
996453 50 ml dual cartridge  
36160 490 ml dual cartridge  
35939\* 35 lb. pail, adhesive  
35940\* 45 lb. pail, activator

**Loctite® H8010™ Speedbonder™ Structural Adhesive**  
*Tough Aluminum Bonder*

Non-sag, two-component, room temperature curing, methacrylate adhesive, exhibits superior peel strength on multiple substrates, especially aluminum. Contains 5 mil spacer beads to prevent excessive squeeze-out of adhesive due to over-clamping.

**P/N Package Size**  
1056929 50 ml dual cartridge  
40594 490 ml dual cartridge

**Loctite® H8100™ Speedbonder Structural Adhesive**  
*Fast Fixture*

Exhibits excellent peel and shear strength on aluminum.

**P/N Package Size**  
1056942 50 ml dual cartridge  
1056943 490 ml dual cartridge

**Loctite® H8110™ Speedbonder Structural Adhesive**  
*Ultra-Fast Fixture*

Aluminum bonder fixtures in five minutes.

**P/N Package Size**  
1371355 50 ml dual cartridge  
1371361 490 ml dual cartridge

**Loctite® U-05FL™ Hysol® Urethane Adhesive**  
*High Strength*

A two-part, high performance urethane adhesive for metal bonding with a 5-minute work life. Off-white, highly flexible, impact and moisture resistant, high peel, high shear.

**P/N Package Size**  
29348 50 ml dual cartridge  
29349 200 ml dual cartridge  
29350 400 ml dual cartridge  
29351 5 gallon pail, resin  
29352 5 gallon pail, hardener

**Loctite® 3984™ Hysol® Epoxy Adhesive**  
*High Performance / Various Substrates*

Highly fluorescent, one-part, heat cure epoxy adhesive offering superior physical, environmental and performance properties.

**P/N Package Size**  
36768 30 ml syringe  
37299\* 1 liter bottle

## Multiple Surface Bonding

### 4<sup>th</sup> Law of Structural Engagement

**You can't weld plastic to glass, or metal to wood, no matter how hard you try.**

Unlike welding, soldering and brazing, adhesives are able to bond two dissimilar materials, whether it be steel to wood, plastic to glass, or composites to aluminum.



Loctite® Structural Adhesives for multiple surfaces bond a wide variety of materials, such as metal, ceramic and plastic. They are available in a variety of formulations and performance capabilities, including fast cure, superior water/humidity resistance, ease of dispense, excellent hot strength and resistance to a wide range of chemicals.

Overall benefits of Loctite® Structural Adhesives for multiple surfaces include:

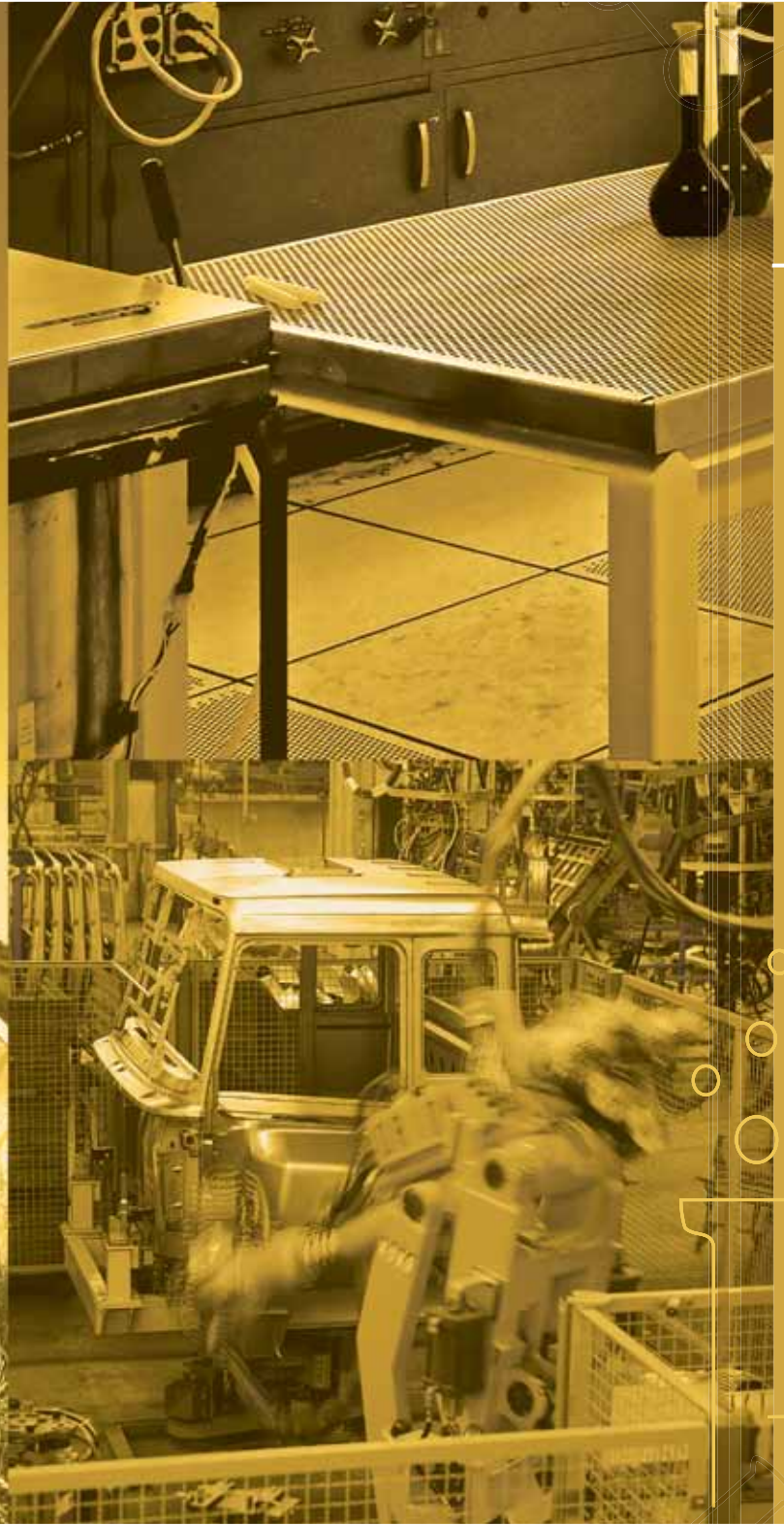
- Range of cure profiles
- Range of viscosities
- High-impact strength
- Peel strength
- Variety of colors
- Toughness on a wide variety of substrates
- Durability on a wide variety of substrates



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## Multiple Surface Bonding

### Your Application

#### A Clue From Prof. McGlue



**Loctite® E-30UT™ contains Kevlar® to provide ultra-tough performance properties. As a result, special Loctite® mix nozzles are required for dispensing.**

#### General Performance

#### No-Mix / No-Gap

Fast Fixture

General-Purpose

Ultra-Fast Fixture

TOP CHOICE

326™

330™

NEW

A-533™

#### Solution

Chemistry	Two-Step Acrylic	Two-Step Acrylic	Two-Step Acrylic
Color	Light Amber	Pale Yellow	Grey
Viscosity (cP)	17,000	67,500	15,000
Mix Ratio	N/A	N/A	N/A
Work Life (minutes)	N/A	N/A	N/A
Fixture Time (minutes)	1	5	0.5
Cure Time (hours)	24	24	1
Shear Strength <sup>1</sup> (psi)	3,500	3,300	3,500
Temperature Resistance	250°F (121°C)	250°F (121°C)	325°F (163°C)

#### Product Description

##### Loctite® 326™ Speedbonder™ Structural Adhesive

##### Fast Fixture

An all-purpose bonder. Offers the strength of an epoxy and the speed of an instant adhesive. Solvent resistant. Cures in minutes. Ideal for applications requiring fast fixturing. Use with Loctite® 7649™ Primer N™.

P/N	Package Size
32629	50 ml bottle
32685	1 liter bottle

##### Loctite® 330™ Depend® Adhesive General-Purpose

A general-purpose, high viscosity adhesive for a wide range of materials, including metal, wood, ferrite, ceramic and plastic. Use with Loctite® 7387™ Depend® Activator.

P/N	Package Size
20253	3 ml kit (2.5 ml tube of Loctite® 330™ Depend® Adhesive and .6 ml ampule of Loctite® 7387™ Depend® Activator)
20251	25 ml kit (25 ml syringe of Loctite® 330™ Depend® Adhesive and 25 g aerosol can of Loctite® 7387™ Depend® Activator)
20252	250 ml kit (250 ml tube of Loctite® 330™ Depend® Adhesive and 128 g of Loctite® 7387™ Depend® Activator)
33058	250 ml tube
33064	300 ml cartridge
33081	1 liter bottle

##### Loctite® A-533™ Structural Adhesive (formerly National Adhesives Bondmaster™ 533)

##### Ultra-Fast Fixture

A general-purpose adhesive for bonding magnets, metals and glass. Fixtures in seconds. Use with Loctite® A-534R™ Activator.

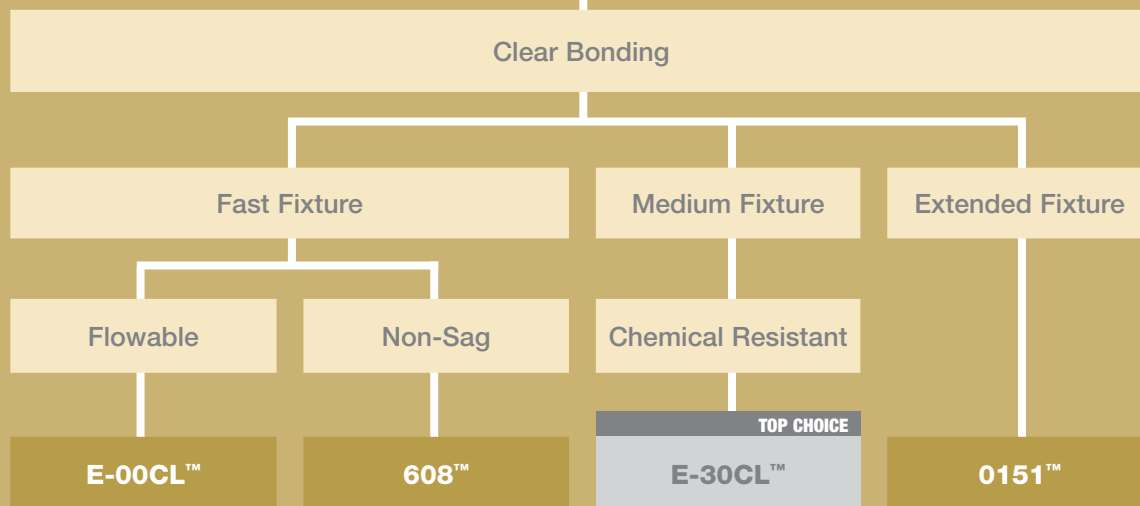
P/N	Package Size
1254145	50 ml bottle
1254144	1 liter bottle
1254143	14 liter pail

\* Made to Order Item

<sup>1</sup> Steel



## General Performance



Two-Part Epoxy	Two-Part Epoxy	Two-Part Epoxy	Two-Part Epoxy
Clear	Clear	Clear	Clear
10,000	100,000	10,000	60,000
1:1	1:1	2:1	2.7:1
5	5	30	60
15	15	>180	>180
24	24	24	24
2,160	2,080	3,100	2,675
180°F (82°C)	180°F (82°C)	350°F (177°C)	350°F (177°C)

**Loctite® E-00CL™ Hysol® Epoxy Adhesive**

**Flowable**

A clear, flowable, fast setting epoxy with a 5-minute work life.

P/N	Package Size
29289	50 ml dual cartridge
29290	200 ml dual cartridge
29291	400 ml dual cartridge

**Loctite® 608™ Hysol® Epoxy Adhesive**  
(Alternative: Loctite® E-00NS™ Hysol® Epoxy Adhesive)

**Non-Sag**

A fast-setting, low odor epoxy with a 5-minute work life. Cures at room temperature to form a clear bond line.

P/N	Package Size
83086	4 g foil pack
83075	50 ml dual cartridge
83082	EPK 2.8 oz. kit

**Loctite® E-30CL™ Hysol® Epoxy Adhesive**

**Chemical Resistant**

An ultra clear, low viscosity, impact resistant epoxy with a 30-minute work life. An excellent glass bonder. Exhibits exceptional chemical resistance.

P/N	Package Size
29329	50 ml dual cartridge
29330	200 ml dual cartridge
29331	400 ml dual cartridge

**Loctite® 0151™ Hysol® Epoxy Adhesive**

**Ultra Clear**

A general-purpose, thixotropic paste epoxy with a 60-minute work life. Allows for extended adjustment time.

P/N	Package Size
83069	50 ml dual cartridge
83176	EPK 3.3 oz. kit
83179	2.6 lb. kit
83178	10.7 lb. kit

## Multiple Surface Bonding

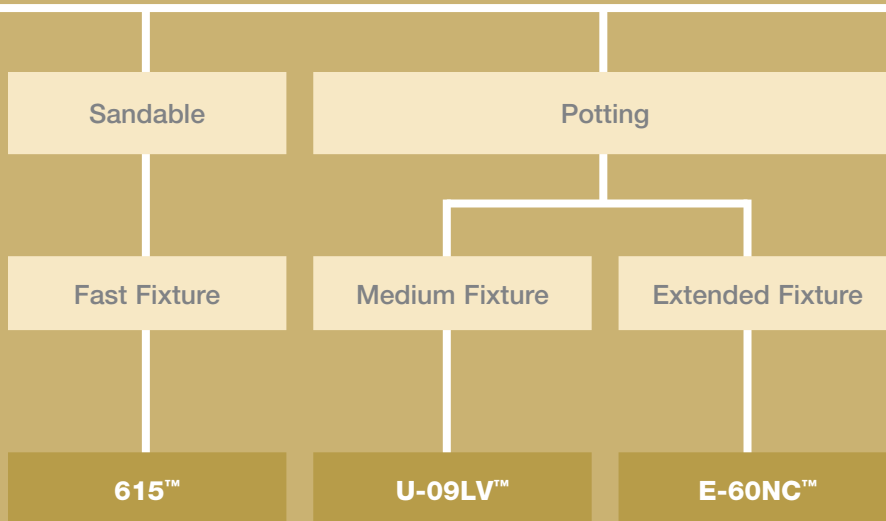
### Your Application

#### 5<sup>th</sup> Law of Structural Engagement

#### There are no pretty bolt heads.

While fit and function are important, style is often the difference in a successful product in today's marketplace. Fasteners protrude from the surface and can detract from the aesthetic styling of the assembly. Since adhesives are applied inside the joint, they are invisible within the assembly, resulting in a more cosmetically appealing product.

#### General Performance (Cont.)



### Solution

	615™	U-09LV™	E-60NC™
Chemistry	Two-Part Epoxy	Two-Part Urethane	Two-Part Epoxy
Color	Light Blue	Clear	Black
Viscosity (cP)	200,000	1,000	8,000
Mix Ratio	1:1	1:1	1:1
Work Life (minutes)	10	10	60
Fixture Time (minutes)	25	150	360
Cure Time (hours)	24	24	24
Shear Strength <sup>1</sup> (psi)	3,825 <sup>2</sup>	1,146 <sup>2</sup>	2,630 <sup>2</sup>
Temperature Resistance	350°F (177°C)	350°F (177°C)	250°F (121°C)

### Product Description

#### Loctite® 615™ Hysol® Epoxy Adhesive

##### *Sandable / Machinable*

A high strength, low odor epoxy with a 10-minute work life. Blue, fast cure, gap filling.

**P/N Package Size**  
 83094 EPK 3.2 oz. kit  
 83095\* 12 lb. kit

#### Loctite® U-09LV™ Hysol® Urethane Adhesive

##### *Low Viscosity*

A two-part, high performance urethane adhesive for plastic bonding with a 10-minute work life.

**P/N Package Size**  
 38588 50 ml dual cartridge  
 38589 200 ml dual cartridge

#### Loctite® E-60NC™ Hysol® Epoxy Adhesive

##### *Noncorrosive / Potting*

An electronics-grade potting compound with a 60-minute work life. Black, opaque, low viscosity with excellent cure-through depth.

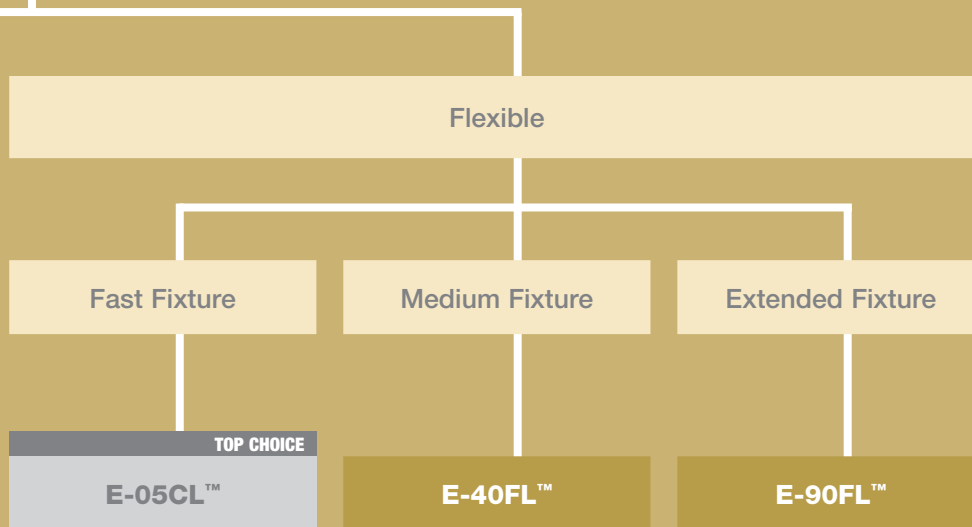
**P/N Package Size**  
 29324 50 ml dual cartridge  
 29325 200 ml dual cartridge  
 29326 400 ml dual cartridge

\* Made to Order Item

<sup>1</sup> Steel

<sup>2</sup> Grit Blasted Mild Steel

## General Performance (Cont.)



Two-Part Epoxy	Two-Part Epoxy	Two-Part Epoxy
Clear	Opaque Grey	Opaque Grey
2,500	70,000	40,000
1:1	1:1	1:1
5	40	90
30	180	180
24	24	24
1,430 <sup>2</sup>	640 <sup>2</sup>	810 <sup>2</sup>
300°F (148°C)	350°F (177°C)	350°F (177°C)

**Loctite® E-05CL™ Hysol® Epoxy Adhesive**

***Toughened***

An ultra-clear, high peel, low odor epoxy with a 5-minute work life.

P/N	Package Size
29299	50 ml dual cartridge
29300	200 ml dual cartridge
29301	400 ml dual cartridge
29302*	5 gallon pail, resin
29303*	5 gallon pail, hardener

**Loctite® E-40FL™ Hysol® Epoxy Adhesive**

***Flexible***

A grey, impact resistant, toughened epoxy with a 40-minute work life.

P/N	Package Size
29304	50 ml dual cartridge
29305	200 ml dual cartridge
29306	400 ml dual cartridge

**Loctite® E-90FL™ Hysol® Epoxy Adhesive**

***Impact Resistant***

A grey, impact resistant, toughened epoxy with a 90-minute work life.

P/N	Package Size
29309	50 ml dual cartridge
29310	200 ml dual cartridge
29311	400 ml dual cartridge
29312*	5 gallon pail, resin
29313*	5 gallon pail, hardener

## Multiple Surface Bonding

### Your Application

#### A Clue From Prof. McGlue



*Unlike most 5-minute epoxies, Loctite® E-05MR™ Hysol® has non-skinning properties, making it process friendly for bulk dispensing.*

### Solution

	E-05MR™	324™	E-30UT™	E-20HP™
Chemistry	Two-Part Epoxy	Two-Step Acrylic	Two-Part Epoxy	Two-Part Epoxy
Color	Ultra Clear	Amber	Purple	Off-White
Viscosity (cP)	25,000	17,000	12,200	30,000
Mix Ratio	1:1	N/A	2:1	2:1
Work Life (minutes)	5	N/A	35	20
Fixture Time (minutes)	15	5	180	120
Cure Time (hours)	24	24	24	24
Shear Strength <sup>1</sup> (psi)	3,200	3,600	4,200	3,270 <sup>2</sup>
Temperature Resistance	250°F (121°C)	300°F (148°C)	350°F (177°C)	350°F (177°C)

### Product Description

#### Loctite® E-05MR™ Hysol® Epoxy Adhesive

##### Moisture Resistant

Clear, two-component, fast room temperature curing epoxy adhesive provides excellent moisture resistance and exceptional toughness for a 5-minute epoxy. Its low odor and non-skinning properties make bulk dispensing possible.

P/N	Package Size
1087601	25 ml dual cartridge
1086598	50 ml dual cartridge
1086600	200 ml dual cartridge
1086599*	400 ml dual cartridge
1087602*	5 gallon pail, resin
1087603*	5 gallon pail, hardener

#### Loctite® 324™ Speedbond™ Structural Adhesive

##### High Impact

Ideal for larger gap applications. Offers the strength of an epoxy and the speed of an instant adhesive. Solvent resistant. Fixtures in minutes. Specially formulated for toughness and impact strength. Use with Loctite® 7075™ Activator.

P/N	Package Size
32430	50 ml bottle
32490	1 liter bottle

#### Loctite® E-30UT™ Hysol® Epoxy Adhesive

##### Ultra-Tough

A two-component room temperature curing epoxy adhesive that contains Kevlar® to provide exceptional fracture toughness characteristics for the most demanding structural bonding requirements. 35-minute work life.

P/N	Package Size
1078234	50 ml dual cartridge
1078235	400 ml dual cartridge

#### Loctite® E-20HP™ Hysol® Epoxy Adhesive

##### High Performance

A high strength epoxy with a 20-minute work life. Off-white, toughened, high peel, high shear.

P/N	Package Size
29314	50 ml dual cartridge
29315	200 ml dual cartridge
29316	400 ml dual cartridge
29317	5 gallon pail, resin
29318	5 gallon pail, hardener

\* Made to Order Item

<sup>1</sup> Steel

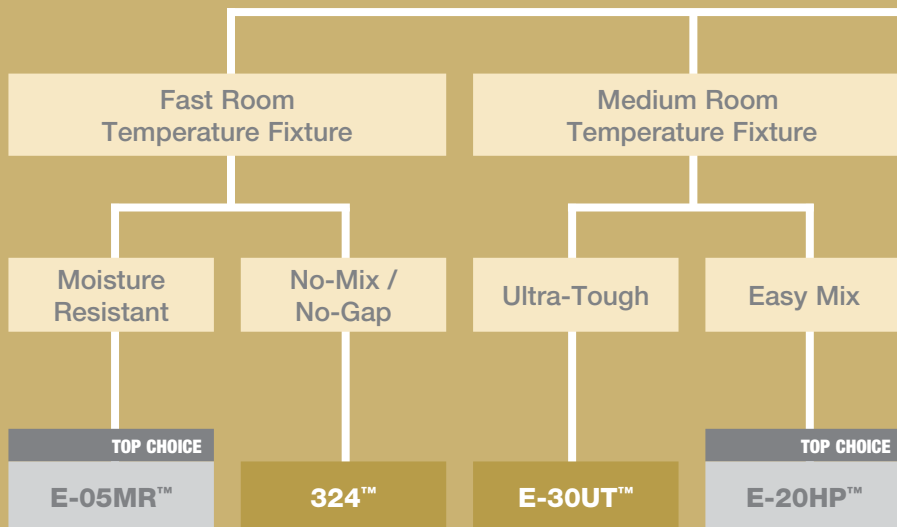
<sup>2</sup> Grit Blasted Mild Steel

<sup>3</sup> Grit Blasted Steel

<sup>4</sup> Block Grit Blasted Mild Steel

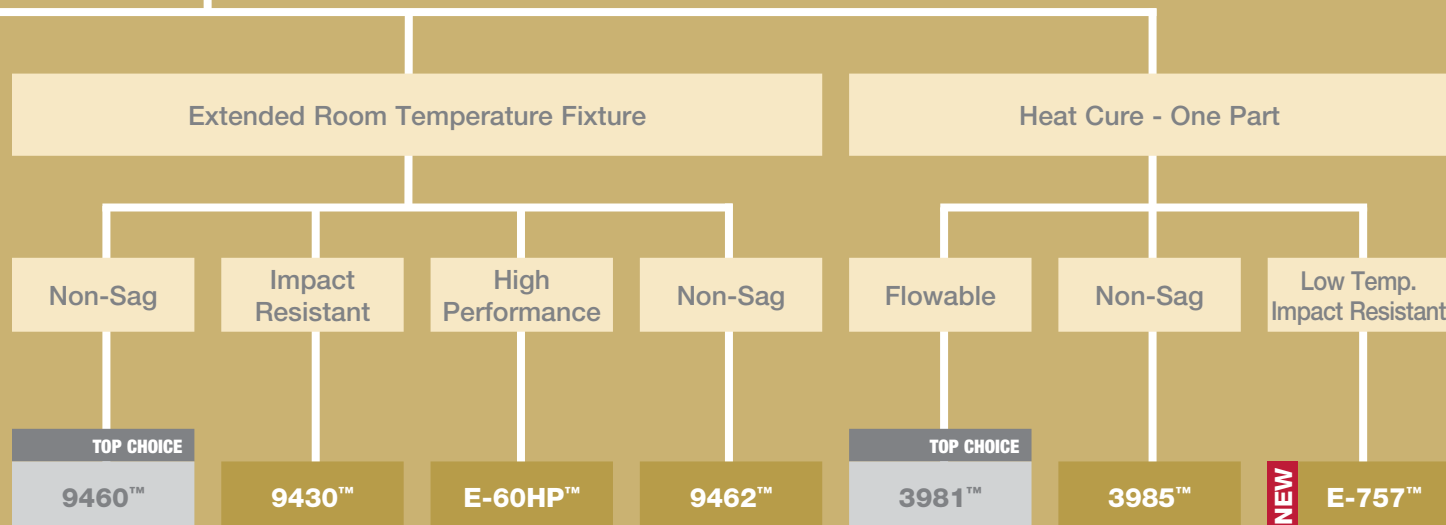


### High Toughness





## High Toughness



Two-Part Epoxy	Two-Part Epoxy	Two-Part Epoxy	Two-Part Epoxy	One-Part Epoxy	One-Part Epoxy	One-Part Epoxy
Grey	Off-White	Off-White	Beige	Transparent Yellow	Black	Grey
200,000	12,000	45,000	70,000	5,000	50,000	Paste
1:1	3.78:1	2:1	1:1	N/A	N/A	N/A
50	50	60	50	N/A	N/A	N/A
>180	>180	7,180	>180	N/A	N/A	N/A
24	24	24	24	30 min. @ 257°F (125°C)	30 min. @ 272°F (150°C)	40 min. @ 275°F (135°C)
3,500 <sup>4</sup>	4,230	4,320	4,180	4,930 <sup>3</sup>	–	1,500
350°F (177°C)	180°F (82°C)	350°F (177°C)	350°F (177°C)	250°F (121°C)	–	300°F (149°C)

### Loctite® 9460™ Hysol® Epoxy Adhesive

#### Non-Sag

A grey, impact resistant, high viscosity, high peel, high shear epoxy with a 50-minute work life.

P/N	Package Size
83129	50 ml dual cartridge
83128	200 ml dual cartridge
83127*	400 ml dual cartridge
83131	5 lb. kit
83130	20 lb. kit
83133	50 lb. pail, hardener
83134	50 lb. pail, resin

### Loctite® 9430™ Hysol® Epoxy Adhesive

#### Impact Resistant

An off-white, toughened, light paste, high peel, high shear strength epoxy with a 50-minute work life.

P/N	Package Size
83114	2 lb. kit
83113	10 lb. kit

### Loctite® E-60HP™ Hysol® Epoxy Adhesive

#### Flowable

A high strength epoxy with a 60-minute work life. Off-white, high peel, high shear.

P/N	Package Size
29319	50 ml dual cartridge
29320	200 ml dual cartridge
29321	400 ml dual cartridge
29322*	5 gallon pail, resin
29323*	5 gallon pail, hardener

### Loctite® 9462™ Hysol® Epoxy Adhesive

#### Non-Sag

A beige, toughened two-component room temperature cure epoxy with a 50-minute work life. Its medium viscosity, 1-to-1 mix ratio, and non-sag features make it very easy to apply. Excellent impact resistance for bonding a variety of surfaces, including metal, plastic and wood.

P/N	Package Size
83142	50 ml dual cartridge
83135*	200 ml dual cartridge

### Loctite® 3981™ Hysol® Epoxy Adhesive

#### High Performance / Various Substrates

Highly fluorescent, one-component, heat cure epoxy adhesive offers superior physical, environmental and performance properties.

P/N	Package Size
36766	30 ml cartridge
37297	1 liter bottle

### Loctite® 3985™ Hysol® Epoxy Adhesive

#### Non-Sag

A one-component, heat cure epoxy. Ideal for bonding wires to motor armatures.

P/N	Package Size
40870	1 liter bottle
34731*	5 gallon pail

### Loctite® E-757™ Epoxy Adhesive (formerly National Adhesives EccoBond® G-757)

#### Low Temperature Resistant

A one-component, heat cure epoxy, exhibiting excellent low temperature impact resistance.

P/N	Package Size
1386228	25 ml syringe
1215379	1 gallon pail
1215380	5 gallon pail

## Multiple Surface Bonding

### Your Application

#### 6<sup>th</sup> Law of Structural Engagement

#### When was the last time you heard a structural adhesive rattling around?

Many assemblies fastened together using screws and bolts can loosen over time, resulting in rattling noises as your assemblies go through their paces. Using an adhesive instead of fasteners not only can prevent loosening, but the adhesive's ability to absorb noise and damp vibrations also makes it an excellent sound deadener.

#### High Temperature / Chemically Resistant

Fast Room Temperature

Medium Room Temperature

No-Mix / No-Gap

Gap Filling

High Strength

TOP CHOICE

332™

1C™

E-40HT™

### Solution

Chemistry	Two-Step Acrylic	Two-Part Epoxy	Two-Part Epoxy
Color	Amber	White	Off-White
Viscosity (cP)	100,000	350,000	16,000
Mix Ratio	N/A	2.5:1	2:1
Work Life (minutes)	N/A	25	45
Fixture Time (minutes)	3	210	180
Cure Time (hours)	24	24	24
Shear Strength <sup>1</sup> (psi)	3,000	1,750 <sup>3</sup>	4,030
Temperature Resistance	400°F (204°C)	350°F (177°C)	350°F (177°C)

### Product Description

#### Loctite® 332™ Structural Adhesive Severe Environment

An activator-cured, no-mix adhesive that provides high temperature capability with thermal durability up to 400°F (204°C). Use with Loctite® 7387™ Depend® Activator.

P/N	Package Size
33201	25 ml syringe
33275	300 ml cartridge
33290	1 liter bottle

#### Loctite® 1C™ Hysol® Epoxy Adhesive Gap Filling

A high viscosity paste with a 25-minute work life. Excellent gap-filling capability and performance properties.

P/N	Package Size
83200	EPK 4 oz. kit
83202	4 lb. kit
83201	17 lb. kit
83206*	60 lb. pail, resin
83183*	43 lb. pail, hardener

#### Loctite® E-40HT™ Hysol® Epoxy Adhesive High Temperature

A two-component toughened adhesive, which combines high peel strength at room temperature with tensile lap shear strength at elevated temperatures. An off-white paste exhibiting exceptional high temperature performance.

P/N	Package Size
1086065	50 ml dual syringe
1086081	400 ml dual cartridge

\* Made to Order Item

<sup>1</sup> Steel

<sup>2</sup> Grit Blasted Mild Steel

<sup>3</sup> Etched Aluminum

## High Temperature / Chemically Resistant

Extended Room Temperature Fixture

Heat Cure - One-Part

Flowable

Non-Sag

Self-Leveling

**E-50CR™**

**9340™**

**9459™**

Two-Part Epoxy

Two-Part Epoxy

One-Part Epoxy

Black

Grey

Light Grey

5,000

Paste

40,000

2:1

1:1

N/A

50

90

N/A

300

>360

N/A

24

24

1 @ 250°F (121°C)

2,500<sup>2</sup>

2,300<sup>3</sup>

3,000<sup>3</sup>

350°F (177°C)

>180°F (82°C)

>300°F (148°C)

**Loctite® E-50CR™ Hysol®  
Epoxy Adhesive**

### *Chemically Resistant*

A flowable, two-component, extended room temperature curing epoxy with excellent chemical resistance properties. Black, 50-minute work life.

**P/N Package Size**  
1079594 50 ml dual syringe  
1079593 400 ml dual cartridge

**Loctite® 9340™ Hysol®  
Epoxy Adhesive**

### *Environmental Resistance*

A grey, high viscosity epoxy with a 90-minute work life. Excellent high temperature and chemical resistance.

**P/N Package Size**  
83104 EPK 2.7 oz. kit  
83105 5 lb. kit

**Loctite® 9459™ Hysol®  
Epoxy Adhesive**

### *High Temperature Resistance*

A one-component, heat cure epoxy. Low viscosity, self-leveling. Light grey, excellent high temperature performance, excellent chemical resistance.

**P/N Package Size**  
83126 10 lb. can

## Plastic / Composite / Polyolefin Bonding

### 7<sup>th</sup> Law of Structural Engagement

#### Less is more.

Assemblies bonded with adhesives often provide higher bond strength versus those assembled with mechanical fasteners. However, some manufacturers cannot completely eliminate the use of mechanical fasteners, sometimes due to fast processing speed requirements and the cure time needed for adhesives. In these cases, manufacturers are able to significantly reduce the number of mechanical fasteners by using just enough to help “fixture” the part during assembly while the adhesive cures. The adhesive still absorbs the brunt of the force once cured, but allows the manufacturer to reduce the number of fasteners, thus reducing material costs.



Loctite® Structural Adhesives for plastic, composite and polyolefin surfaces are capable of bonding a variety of materials, including fiberglass, gel coat, thermoplastics, polycarbonate, ABS, PVC, polyethylene and polypropylene. They have been specially formulated to provide UV resistance, high impact resistance and peel resistance.

Loctite® Structural Adhesives for plastic, composite and polyolefin materials are available with a variety of benefits, including the following:

- Non-sag
- High temperature resistance
- Flexible bond strengths
- Toughened bond strengths to polyolefins
- Fast fixture time
- Substrate failure on many composite materials
- Varying cure times



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## Plastic / Composite / Polyolefin Bonding

### Your Application

#### A Clue From Prof. McGlue



**Loctite® E-910™**  
low cure  
temperature  
makes it ideal  
for bonding  
most plastics.

#### High Toughness

#### Fast Room Temperature Fixture

#### Ultra-Fast Fixture

#### Impact Resistant

#### Non-Sag

### Solution

#### H4100™

#### H4200™

#### H4000™

Chemistry	Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic
Color	Pale Yellow	Pale Yellow	Pale Yellow
Viscosity (cP)	100,000	90,000	130,000
Mix Ratio	10 : 1	10 : 1	10 : 1
Work Life (minutes)	2	5	8
Fixture Time (minutes)	5	15	14
Cure Time (hours)	24	24	24
Shear Strength <sup>1</sup> (psi)	3,140	4,020	3,500
Impact Strength <sup>1</sup> (kJ/m²)	8	>42	20
Peel Strength <sup>2</sup> (pli)	13	55	45

### Product Description

#### Loctite® H4100™ Speedbonder™ Structural Adhesive *Ultra-Fast Fixture*

A non-sagging, two-component methacrylate adhesive ideal for bonding PVC, polycarbonate, acrylic, ABS and FRP. Ultra-fast adhesive develops handling strength in 3 to 5 minutes. Forms resilient bonds and maintains its strength over a wide range of temperatures.

**P/N** 83032 **Package Size**  
490 ml dual cartridge

#### Loctite® H4200™ Speedbonder™ Structural Adhesive *Toughened*

A plastic and composite bonder with high peel and impact resistance. Fixtures in 15 minutes.

**P/N** 83038 **Package Size**  
490 ml dual cartridge

#### Loctite® H4000™ Speedbonder™ Structural Adhesive *Non-Sag*

A medium fixturing structural adhesive for bonding various plastic and composite substrates, including epoxy coat and glass fiber reinforced polyester.

**P/N** 83025 **Package Size**  
490 dual cartridge

\* Made to Order Item

<sup>1</sup> Steel

<sup>2</sup> Aluminum

<sup>3</sup> Abraded Aluminum

<sup>4</sup> Etched Aluminum

<sup>5</sup> Block Shear Grit Blasted Steel

## High Toughness

### Medium Room Temperature Fixture

### Extended Room Temperature Fixture

### Heat Cure

#### UV Resistant

#### Impact Resistant

#### High Temperature / Chemical Resistant

#### Fluorescent

#### Carbon Fiber Composite Bonder

#### Low Cure Temperature

**H6051™**
**H4800™**
**E-120HP™**
**3982™**
**E-119HP™**
**NEW**
**E-910™**
**TOP CHOICE**
**TOP CHOICE**

Two-Part Acrylic	Two-Part Acrylic	Two-Part Epoxy	One-Part Epoxy	One-Part Epoxy	One-Part Epoxy
White	Light Yellow	Amber	Off-White	Beige	Green
100,000	50,000	30,000	8,000	Thixotropic	40,000
10 : 1	10 : 1	2 : 1	N/A	N/A	N/A
35	25	120	N/A	N/A	N/A
50	35	180	N/A	N/A	N/A
24	24	24	30 min. @ 257°F (125°C)	30 min. @ 252°F (122°C)	1 @ 176°F (80°C)
2,400	3,930	4,300	5,830 <sup>5</sup>	4,930 <sup>3</sup>	2,000 <sup>2</sup>
—	>42	—	—	—	—
35 <sup>4</sup>	50	20 to 50	—	—	—

**Loctite® H6051™  
Speedbond™  
Structural Adhesive**  
*UV Resistant*

A white UV resistant adhesive ideal for bonding gel-coated surfaces. Excellent non-sagging properties.

**P/N Package Size**  
83062\* 490 dual cartridge  
83047\* 38 lb. pail, adhesive  
83063\* 60 lb. pail, activator

**Loctite® H4800™  
Speedbond™  
Structural Adhesive**  
*Toughened*

Excellent peel and impact resistance. Provides high bond strengths on composites.

**P/N Package Size**  
83045 490 ml dual cartridge  
83047\* 40 lb. pail, adhesive  
83046\* 36 lb. pail, activator

**Loctite® E-120HP™ Hysol®  
Epoxy Adhesive**  
*Ultra Strength*

An amber, non-sag, aerospace grade epoxy with an extended open time to allow for the adjustment of large parts.

**P/N Package Size**  
29353 50 ml dual cartridge  
29354 200 ml dual cartridge  
29355 400 ml dual cartridge  
29356\* 5 gallon pail, resin  
29357\* 5 gallon pail, hardener

**Loctite® 3982™ Hysol®  
Epoxy Adhesive**  
*High Performance / Various Substrates*

Highly fluorescent, one-component, heat cure epoxy adhesive offering superior physical, environmental and performance properties.

**P/N Package Size**  
36767 30 ml syringe

**Loctite® E-119HP™ Hysol®  
Epoxy Adhesive**  
*Non-Wicking*

One-component, heat-cure epoxy adhesive exhibits very low wicking during cure when exposed to elevated cure temperatures. A thixotropic, non-sag, beige paste that bonds extremely well to carbon composite and aluminum materials.

**P/N Package Size**  
1078992 30 ml syringe  
1080008\* 300 ml cartridge

**Loctite® E-910™ Epoxy Adhesive**  
(formerly National Adhesives EccoBond® 910-22)

*Low Cure Temperature*  
One-component, heat-cure epoxy can be cured at low temperatures, making it ideal for bonding most plastics.

**P/N Package Size**  
1215342 5 gallon pail

## Plastic / Composite / Polyolefin Bonding

### Your Application

#### A Clue From Prof. McGlue



**Unlike most other adhesives, a primer or surface treatment is not required when using Loctite® 3032™ or 3034™ to bond polyolefins.**

#### General Bonding

#### Fast Room Temperature Fixture

#### High Strength

#### Fast Fixture

#### Clear

### Solution

#### H3000™

#### H3300™

**NEW**

#### H5004™

	H3000™	H3300™	H5004™
Chemistry	Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic
Color	Cream	Yellow	Clear
Viscosity (cP)	45,000	110,000	18,000
Mix Ratio	1:1	1:1	1:1
Work Life (minutes)	5	5	1
Fixture Time (minutes)	15	6	3
Cure Time (hours)	24	24	8
Shear Strength <sup>1</sup> (psi)	3,830	3,350	2,000
Impact Strength <sup>1</sup> (kJ/m²)	25	20	—
Peel Strength <sup>2</sup> (pli)	45	40	—

### Product Description

#### Loctite® H3000™ Speedbonder™ Structural Adhesive *High Strength*

A low viscosity adhesive ideal for bonding a variety of substrates.

P/N	Package Size
83001	50 ml dual cartridge
83000	400 ml dual cartridge

#### Loctite® H3300™ Speedbonder™ Structural Adhesive *Fast Fixture*

A non-sag, fast fixturing structural adhesive for bonding a variety of substrates.

P/N	Package Size
83020	50 ml dual cartridge
83019	400 ml dual cartridge
83024*	40 lb. pail, adhesive
83022*	40 lb. pail, activator

#### Loctite® H5004™ Speedbonder™ Structural Adhesive (Formerly National Adhesives Bondmaster® V5004)

#### *Low Odor*

A low odor, low viscosity adhesive, cures to a transparent color. Ultra-fast, this adhesive fixtures in 3 minutes.

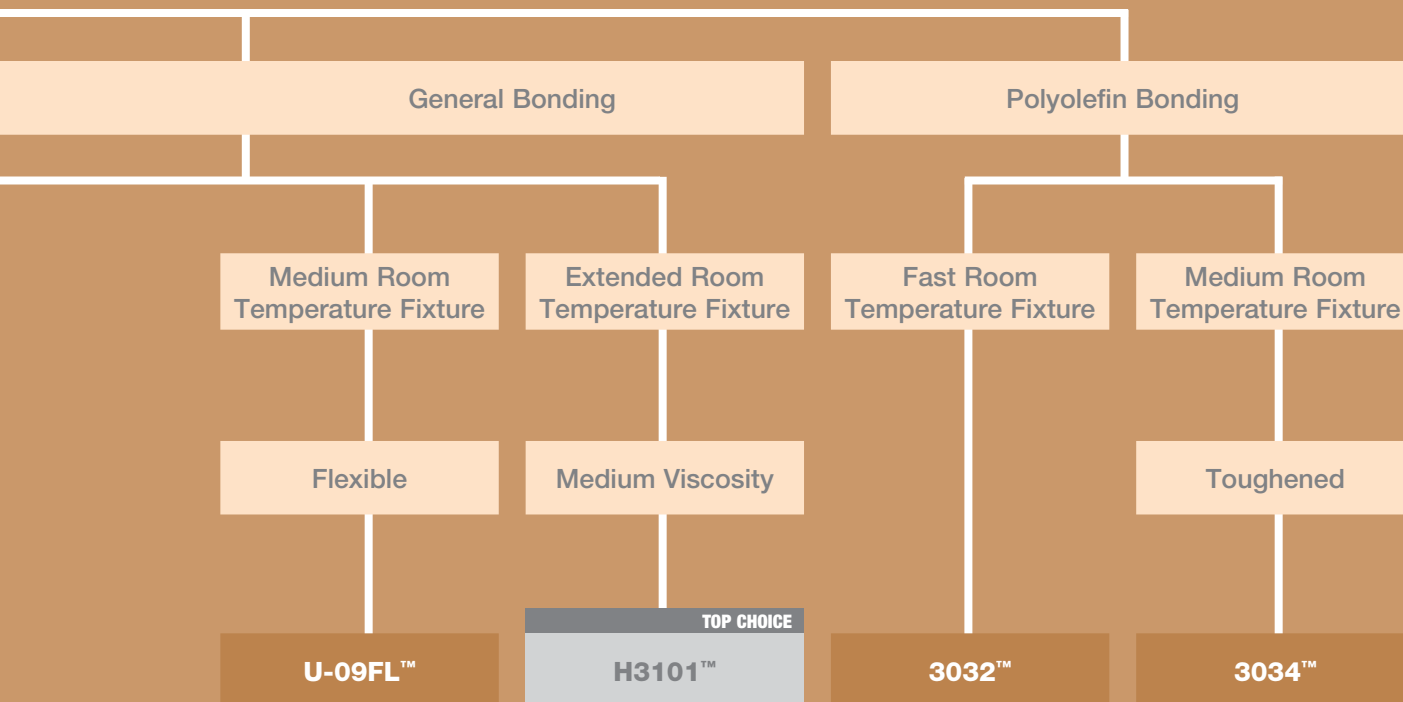
P/N	Package Size
1219217	50 ml dual cartridge

\* Made to Order Item

<sup>1</sup> Steel

<sup>2</sup> Aluminum

<sup>3</sup> Block Shear on High Density Polyethylene



	Two-Part Urethane	Two-Part Acrylic	Two-Part Acrylic	Two-Part Acrylic	
	Clear	Cream	Off-White	Translucent	
	5,000	75,000	14,000	63,000	
	1:1	1:1	10:1	10:1	
	10	20	3	14	
	120	25	25	55	
	72	24	72	72	
	1,459	2,510	2,275 <sup>3</sup>	2,450 <sup>3</sup>	
	5 to 30	20 to 25	6	14	
	–	35	3	6	

**Loctite® U-09FL™ Hysol®  
Urethane Adhesive**

**Highly Flexible**

A two-part, high performance urethane adhesive for plastic bonding with a 10-minute work life. Ultra-clear, impact resistant, high peel.

P/N	Package Size
29460	50 ml dual cartridge
29461*	200 ml dual cartridge
29462*	400 ml dual cartridge

**Loctite® H3101™ Speedbonder™  
Structural Adhesive**

**Extended Work Life**

A medium viscosity adhesive ideal for bonding a variety of substrates.

P/N	Package Size
83007	50 ml dual cartridge
83006	400 ml dual cartridge

**Loctite® 3032™  
Structural Adhesive**

**Fast Fixture**

A fast fixturing, thixotropic acrylic adhesive. Designed to bond low energy plastic substrates. Excellent polypropylene bonder.

P/N	Package Size
1051591	50 ml dual cartridge
40760*	490 ml dual cartridge

**Loctite® 3034™  
Structural Adhesive**

**Toughened**

Extended open time allows for adjustment of parts. Excellent peel and shear strength on polyethylene plastics.

P/N	Package Size
1051330	50 ml cartridge
960973	490 ml dual cartridge



## Dispensing Equipment

### 8<sup>th</sup> Law of Structural Engagement

#### Mechanical fasteners cost more to store.

If you are using nuts, bolts and screws to join your assemblies today, you're probably finding it difficult to keep track of everything and keep them all in stock. In most cases, you will need multiple mechanical fasteners for a single assembly and even more to cover all your assembly needs. These fasteners are costly to stock and take up a lot of room in your warehouse, not to mention the drain on your inventory control system. The versatility of adhesives to bond a wide variety of surfaces minimizes the number of SKUs you need to keep available and a drop of adhesive goes a lot further in satisfying your joining needs.

For more information on our complete equipment offering, visit our equipment website at [www.equipment.loctite.com](http://www.equipment.loctite.com) or call 1.800.LOCTITE (562.8483) in the US or 1.800.263.5043 in Canada to speak with a technical representative.

THE IMMUTABLE LAWS OF  
**STRUCTURAL  
ENGAGEMENT**<sup>™</sup>

WE'RE WRITING THE LAW

[www.henkelna.com/loctitestructurals](http://www.henkelna.com/loctitestructurals)



Since 1971, Henkel Corporation has designed, built and integrated high-quality equipment solutions. From simple handheld devices to fully automated systems and a broad range of accessories, Henkel offers a complete line of off-the-shelf and custom-built Loctite® brand dispensing equipment that can easily be integrated into your manufacturing process.

### Handheld Applicators

Product	P/N	Used to Dispense	Package Types & Sizes	Viscosity Range	Type	
Syringe Dispensing – Simple manual dispensers for low-volume syringe applications.						
	Loctite® 30 ml Manual Syringe Applicator	98026	Any fluid in a 30 ml syringe including 25 ml syringes	30 ml syringe	Low to High	Manual
	Loctite® 10 / 30 ml Syringe Manual Plungers	98192	Any fluid in a 10 ml syringe	10 ml syringe (3 pack)	Low to High	Manual
		98193	Any fluid in a 30 ml syringe	30 ml syringe (3 pack)		
Two-Part Dispensing – Simple and effective two-part dispensers to meet your lower precision dual cartridge application needs.						
	Loctite® 50 ml Dual Cartridge Manual Applicators	98472	Two-Component Epoxies, Urethanes, Methacrylates	50 ml dual cartridge, 1:1, 2:1	Low to High	Manual
		1034026		S50 Style, 50 ml dual cartridge, 10:1		
	Loctite® 50 ml Dual Cartridge Pneumatic Applicator	97042	Two-Component Epoxies, Urethanes, Methacrylates	50 ml dual cartridge, (excludes 10:1)	Low to High	Pneumatic
	Loctite® 50 ml S-Style Dual Cartridge Pneumatic Applicator	1493310	Two-Component Epoxies, Urethanes, Methacrylates, 10:1 ratio	50 ml dual cartridge	Low to High	Pneumatic
	Loctite® Caulking Gun Conversion Kits for 50 ml Cartridges	98466	Two-Component Epoxies, Urethanes, Methacrylates	50 ml dual cartridge, 1:1, 2:1	Low to High	Manual
		98415				
	Loctite® 200 ml / 400 ml Dual Cartridge Manual Applicators	983436	Two-Component Epoxies, Urethanes, Methacrylates	200 ml dual cartridge	High to Paste	Manual
		983438		400 ml dual cartridge		
		985246		400 ml dual cartridge		
	Loctite® 200 ml / 400 ml Dual Cartridge Pneumatic Applicators	983437	Two-Component Epoxies, Urethanes, Methacrylates	200 ml dual cartridge	High to Paste	Pneumatic
		983439		400 ml dual cartridge		
		985249		400 ml dual cartridge		
	Loctite® Universal Fixmaster® Dispenser	1372751	Two-Component Epoxies, Urethanes, Methacrylates	200 ml and 400 ml dual cartridges	High to Paste	Manual
Cartridge Dispensing – Manual and pneumatic applications for 300 ml cartridges.						
	Loctite® 300 ml Pneumatic Cartridge Dispenser	1294304	Epoxies and Acrylics	300 ml cartridges	Medium to High	Pneumatic
	Loctite® 300 ml Pneumatic Cartridge Dispensing Retainer	98319A	Epoxies and Acrylics	300 ml cartridges	Low to Medium	Pneumatic

## Automated Dispensing Systems and Components













**Loctite® Precision Syringe Dispense System**  
P/N 97006

A semiautomatic, pneumatically powered, pressure-time-vacuum dispensing system for 30 ml syringes. Precision regulator and digital controls ensure accurate dispensing.

### Loctite® Posi-Link™ Dispensing System



A programmable, volumetric system that provides the highest level of precision dispensing for pre-packaged 30 ml syringes or 50 ml, 200 ml or 400 ml dual cartridges. The modular components are each sold separately.

Complete Loctite® Posi-Link™ Dispense System						
For 30 ml Syringes:						
	Controller	+		Actuator	+	 Nest
For 50 ml Dual Cartridges:						
	Controller	+		Actuator	+	 Nest
For 200/400 ml Dual Cartridges:						
	Controller	+		Actuator	+	 Nest +  Pinch Tube



**Loctite® Posi-Link™ Controller**  
P/N 98377

Provides all operator interface and control signals to actuator.



**Loctite® Pinch Tube Valve**  
P/N 97141

Attaches to square mix nozzle to provide positive, no-drip shut off.

### Loctite® Posi-Link™ Nests

Connects actuator to syringe or cartridge.



Loctite® Posi-Link™  
25 ml Dual Syringe Nests



Loctite® Posi-Link™  
50 ml Dual Cartridge Nests



Loctite® Posi-Link™  
200/400 ml Dual Cartridge Nests



**Loctite® Posi-Link™ Actuators**  
P/N 98378, 98379, 98380

Drives movement of syringe or cartridge piston and displace programmable quantities of adhesives.

Nest Selection						
25 ml Syringe	1:1 / 2:1 – 50 ml Cartridge	10:1 – 50 ml Cartridge	1:1 / 2:1 – 200 ml Cartridge	1:1 / 2:1 – 400 ml Cartridge	10:1 – 400 ml Cartridge	Used With
98645*	N/A	N/A	N/A	N/A	N/A	Loctite® Posi-Link™ 5 - 25 Actuator
98640	98641	98642	N/A	N/A	N/A	Loctite® Posi-Link™ 10 - 50 Actuator
N/A	N/A	N/A	98662	98663	98664	Loctite® Posi-Link™ 200 - 400 Actuator

Product	Loctite® Posi-Link™ 5-25 Actuator	Loctite® Posi-Link™ 10-50 Actuator	Loctite® Posi-Link™ 200-400 Actuator
Part Number	98378	98379	98380
Application Type	Recommended for Handheld	Recommended for Mounted or Robotic	Recommended for Mounted or Robotic
Syringe Barrel Size	5, 10, 25 ml	10, 25 ml	All Dual 200 or 400 ml Cartridges 1:1/2:1/10:1 Ratio Adhesives

## Dispensing Equipment

### 9<sup>th</sup> Law of Structural Engagement

#### You can't fill gaps with a handful of screws.

No matter how many more fasteners you add to an assembly that has a large gap between its parts, you still won't be able to close the gap. One of the significant advantages of using an adhesive over a mechanical fastener is its ability to fill in gaps between mating parts, which yields a more reliable bond and makes the end-assembly much more aesthetically pleasing.

For more information on our complete equipment offering, visit our equipment website at [www.equipment.loctite.com](http://www.equipment.loctite.com) or call 1.800.LOCTITE (562.8483) in the U.S. or 1.800.263.5043 in Canada to speak with a technical representative.

**NEW**

### Loctite® DuraPump™ Meter Mix Dispense Systems

Offer superior operating performance and durability for a wide range of two-component adhesive chemistries up to 10:1 mix ratios. The innovative rod displacement pump design ensures excellent shot repeatability, low wear and allows direct connection to high pressure feed systems. Available in programmable and pneumatic versions. Contact your sales or technical customer support engineer to confirm pricing and availability. Lead time: 2 weeks or stock.



*Pneumatic Loctite® DuraPump™ Fixed Ratio Systems*



*Programmable Loctite® DuraPump™ Fixed Ratio Systems*



*Loctite® Integrated Semiautomatic Dispensers*

Pneumatic Loctite® DuraPump™ Fixed Ratio Systems		
Item Number	Mix Ratio	Shot Size Range
1041648	1:1	0.4 to 28 ml
1041643	2:1	0.4 to 21 ml
1041641	4:1	0.4 to 18 ml
1041637	10:1	0.4 to 15.5 ml
1041633	Custom*	Will vary based on ratio selected
For MMA Chemistry		
1041647	1:1	0.4 to 28 ml
1041636	10:1	0.4 to 15.5 ml
1041620	Custom*	Will vary based on ratio selected
Programmable Loctite® DuraPump™ Fixed Ratio Systems		
Item Number	Mix Ratio	Shot Size Range
1041649	1:1	0.4 to 28 ml
1041644	2:1	0.4 to 21 ml
1041639	4:1	0.4 to 18 ml
1041638	10:1	0.4 to 15.5 ml
1041635	Custom*	Will vary based on ratio selected

\* Custom ratios available from 1:1 up to 9.99:1.

### Loctite® Integrated Semiautomatic Dispenser

Combines a controller and reservoir into a single unit. Available in 0-15 psi or 0-100 psi versions with optional low-level sensors.

Part Number	Integrated Reservoir Controllers - Pressure Regulation
1390321	0-100 psi with low-level sensor
1390322	0-15 psi with low-level sensor

### Loctite® 300 ml Cartridge Pusher P/N 98022

Pneumatic powered system, designed for use with a separate controller and dispense valve for automatic applications. Equipped with low level sensor.



### Loctite® Stationary Applicator Valve P/N 97113 (≤ 15,000 cP) and 97114 (≤ 80,000 cP)

Pneumatic powered dispense valve, designed for semiautomatic and robotic applications in conjunction with semiautomatic dispenser or a cartridge pusher.



### Loctite® Poppet Valve P/N 986300 and 983914

### Loctite® Stainless Steel Poppet Valve – P/N 982621

Designed for dispensing high viscosity structural adhesives.



986300 and 983914 –  
Loctite® Poppet Valves



982621 – Loctite® Stainless  
Steel Poppet Valve

### Loctite® Spray Valve Digital Controller – P/N 1406023

Provides digital pressure control of both on/off timing and atomization air, for dispensing low viscosity activators.

### Loctite® Spray Valve – P/N 98520

An effective solution for automatic spraying of low viscosity activators with high precision and long-term reliability.



98520 – Loctite®  
Spray Valve

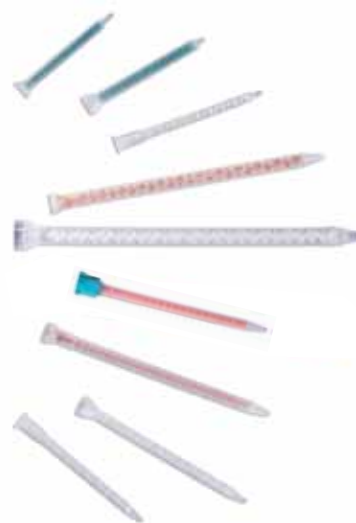
1406023 – Loctite® Spray Valve  
Digital Controller



### Loctite® Mix Nozzles

Disposable, plastic nozzles conveniently attach to Loctite® Speedbonder™ dual cartridges. Adhesive is automatically mixed as it travels through the static-mix nozzle. Sold in bags of 10.

Part Number	Package Quantity	Description
98473	10	50 ml Square Mix Nozzle, Luer/Stepped Combo Tip, 4.5" Overall Length, 5.3 mm Diameter, 24 Elements, 1:1, 2:1, 4:1 Mix Ratios.
98454	10	50 ml Mix Nozzle, Luer Tip, 6.0" Overall Length, 6.0 mm Diameter, 21 Elements, 1:1, 2:1, 4:1 Mix Ratios.
98474	10	200/400 ml Square Mix Nozzle, Stepped Tip, 5.1" Overall Length, 7.5 mm, 24 Elements, 1:1, 2:1 Mix Ratios.
98459	10	200/400 ml Mix Nozzle, Stepped Tip, 10.8" Overall Length, 10 mm Diameter, 24 Elements, 1:1, 2:1 Mix Ratios.
98461	10	200/400 ml Mix Nozzle, Stepped Tip, Keyed, 10.8" Overall Length, 10 mm Diameter, 24 Elements, 4:1, 10:1 Mix Ratios.
1034575	10	50 ml – S Mix Nozzle, Stepped Tip, 6.2" Overall Length, 6.5 mm ID, 20 Elements, 10:1 Mix Ratio.



### Loctite® Dispense Tips

Henkel offers a comprehensive line of Loctite® brand dispense tips, which include high precision stainless steel, tapered polyethylene and flexible polypropylene tips. Visit [www.equipment.loctite.com](http://www.equipment.loctite.com) for more details.





## 10<sup>th</sup> Law of Structural Engagement

**Adhesives can really help you slim down; fasteners go right to your waist.**

Fasteners limit a designer's ability to use thinner materials of construction since most fasteners pull through thin gauge metals and plastics under loaded conditions. Adhesives can help you distribute your load, thereby allowing you to use thin materials and lowering the weight and cost of your assemblies. And you won't even need any special diets to achieve these weight loss results!

## THE IMMUTABLE LAWS OF STRUCTURAL ENGAGEMENT™ PAGE No.

1 <sup>st</sup> Law of Structural Engagement . . . . .	2
Mechanical fasteners can't spread the load.	
2 <sup>nd</sup> Law of Structural Engagement. . . . .	4
If you want to prevent rust and corrosion, use an adhesive; if not, suffer the consequences.	
3 <sup>rd</sup> Law of Structural Engagement. . . . .	8
Vibration is everywhere. Vibrational loosening is not.	
4 <sup>th</sup> Law of Structural Engagement. . . . .	14
You can't weld plastic to glass, or metal to wood, no matter how hard you try.	
5 <sup>th</sup> Law of Structural Engagement. . . . .	18
There are no pretty bolt heads.	
6 <sup>th</sup> Law of Structural Engagement. . . . .	22
When was the last time you heard a structural adhesive rattling around?	
7 <sup>th</sup> Law of Structural Engagement. . . . .	24
Less is more.	
8 <sup>th</sup> Law of Structural Engagement. . . . .	30
Mechanical fasteners cost more to store.	
9 <sup>th</sup> Law of Structural Engagement. . . . .	32
You can't fill gaps with a handful of screws.	
10 <sup>th</sup> Law of Structural Engagement. . . . .	34
Adhesives can really help you slim down; fasteners go right to your waist.	



THE IMMUTABLE LAWS OF  
**STRUCTURAL  
ENGAGEMENT™**

WE'RE WRITING THE LAW

[www.henkelna.com/loctitestructurals](http://www.henkelna.com/loctitestructurals)

**STRUCTURAL ADHESIVES****PAGE No.**

Loctite® 0151™ Hysol® Epoxy Adhesive . . . . .	17
Loctite® 1C™ Hysol® Epoxy Adhesive . . . . .	22
Loctite® 312™ Speedbonder™ Structural Adhesive . . . . .	6
Loctite® 324™ Speedbonder™ Structural Adhesive . . . . .	20
Loctite® 325™ Speedbonder™ Structural Adhesive . . . . .	7
Loctite® 326™ Speedbonder™ Structural Adhesive . . . . .	16
Loctite® 330™ Adhesive . . . . .	16
Loctite® 331™ Structural Adhesive . . . . .	7
Loctite® 332™ Structural Adhesive . . . . .	22
Loctite® 334™ Structural Adhesive . . . . .	6
Loctite® 392™ Structural Adhesive . . . . .	6
Loctite® 608™ Hysol® Epoxy Adhesive . . . . .	17
Loctite® 615™ Hysol® Epoxy Adhesive . . . . .	18
Loctite® 3032™ Structural Adhesive . . . . .	29
Loctite® 3034™ Structural Adhesive . . . . .	29
Loctite® 3060™ Structural Adhesive . . . . .	7
Loctite® 3981™ Hysol® Epoxy Adhesive . . . . .	21
Loctite® 3982™ Hysol® Epoxy Adhesive . . . . .	27
Loctite® 3984™ Hysol® Epoxy Adhesive . . . . .	13
Loctite® 3985™ Hysol® Epoxy Adhesive . . . . .	21
Loctite® 9340™ Hysol® Epoxy Adhesive . . . . .	23
Loctite® 9430™ Hysol® Epoxy Adhesive . . . . .	21
Loctite® 9432NA™ Hysol® Epoxy Adhesive . . . . .	11
Loctite® 9459™ Hysol® Epoxy Adhesive . . . . .	23
Loctite® 9460™ Hysol® Epoxy Adhesive . . . . .	21
Loctite® 9462™ Hysol® Epoxy Adhesive . . . . .	21
Loctite® A-533™ Structural Adhesive . . . . .	16
Loctite® A-671™ Structural Adhesive . . . . .	7
Loctite® A-6750™ Structural Adhesive . . . . .	7
Loctite® E-00CL™ Hysol® Epoxy Adhesive . . . . .	17
Loctite® E-05CL™ Hysol® Epoxy Adhesive . . . . .	19
Loctite® E-05MR™ Hysol® Epoxy Adhesive . . . . .	20
Loctite® E-119HP™ Hysol® Epoxy Adhesive . . . . .	27
Loctite® E-120HP™ Hysol® Epoxy Adhesive . . . . .	27
Loctite® E-20HP™ Hysol® Epoxy Adhesive . . . . .	20
Loctite® E-20NS™ Hysol® Epoxy Adhesive . . . . .	11
Loctite® E-214HP™ Hysol® Epoxy Adhesive . . . . .	7, 11
Loctite® E-220IC™ Hysol® Epoxy Adhesive . . . . .	7
Loctite® E-30CL™ Hysol® Epoxy Adhesive . . . . .	17
Loctite® E-30UT™ Hysol® Epoxy Adhesive . . . . .	20
Loctite® E-40FL™ Hysol® Epoxy Adhesive . . . . .	19
Loctite® E-40HT™ Hysol® Epoxy Adhesive . . . . .	22
Loctite® E-50CR™ Hysol® Epoxy Adhesive . . . . .	23
Loctite® E-50GW™ Hysol® Epoxy Adhesive . . . . .	12
Loctite® E-60HP™ Hysol® Epoxy Adhesive . . . . .	11, 21
Loctite® E-60NC™ Hysol® Epoxy Adhesive . . . . .	18
Loctite® E-757™ Hysol® Epoxy Adhesive . . . . .	21
Loctite® E-90FL™ Hysol® Epoxy Adhesive . . . . .	19
Loctite® E-910™ Hysol® Epoxy Adhesive . . . . .	27
Loctite® H3000™ Speedbonder™ Structural Adhesive . . . . .	28
Loctite® H3101™ Speedbonder™ Structural Adhesive . . . . .	29
Loctite® H3151™ Speedbonder™ Structural Adhesive . . . . .	10
Loctite® H3300™ Speedbonder™ Structural Adhesive . . . . .	28

Loctite® H4000™ Speedbonder™ Structural Adhesive . . . . .	26
Loctite® H4100™ Speedbonder™ Structural Adhesive . . . . .	26
Loctite® H4200™ Speedbonder™ Structural Adhesive . . . . .	26
Loctite® H4500™ Speedbonder™ Structural Adhesive . . . . .	10
Loctite® H4710™ Speedbonder™ Structural Adhesive . . . . .	10
Loctite® H4720™ Speedbonder™ Structural Adhesive . . . . .	10
Loctite® H4800™ Speedbonder™ Structural Adhesive . . . . .	27
Loctite® H5004™ Speedbonder™ Structural Adhesive . . . . .	28
Loctite® H6051™ Speedbonder™ Structural Adhesive . . . . .	27
Loctite® H8000™ Speedbonder™ Structural Adhesive . . . . .	13
Loctite® H8010™ Speedbonder™ Structural Adhesive . . . . .	13
Loctite® H8100™ Speedbonder™ Structural Adhesive . . . . .	13
Loctite® H8110™ Speedbonder™ Structural Adhesive . . . . .	13
Loctite® H8500™ Speedbonder™ Structural Adhesive . . . . .	12
Loctite® H8510™ Speedbonder™ Structural Adhesive . . . . .	13
Loctite® H8600™ Speedbonder™ Structural Adhesive . . . . .	12
Loctite® H8610™ Speedbonder™ Structural Adhesive . . . . .	12
Loctite® H8700™ Speedbonder™ Structural Adhesive . . . . .	11
Loctite® U-05FL™ Hysol® Urethane Adhesive . . . . .	13
Loctite® U-09FL™ Hysol® Urethane Adhesive . . . . .	29
Loctite® U-09LV™ Hysol® Urethane Adhesive . . . . .	18

**DISPENSING EQUIPMENT****PAGE #**

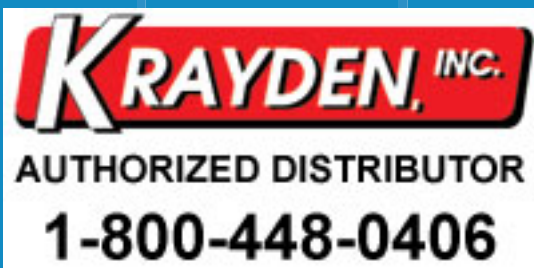
Loctite® 10 ml Syringe Manual Plunger . . . . .	30
Loctite® 30 ml Manual Syringe Applicator . . . . .	30
Loctite® 30 ml Syringe Manual Plunger . . . . .	30
Loctite® 50 ml Dual Cartridge Manual Applicator . . . . .	30
Loctite® 50 ml Dual Cartridge Pneumatic Applicator . . . . .	30
Loctite® 50 ml S-Style Dual Cart. Pneumatic Applicator . . . . .	30
Loctite® 200 ml Dual Cartridge Manual Applicator . . . . .	30
Loctite® 200 ml Dual Cartridge Pneumatic Applicator . . . . .	30
Loctite® 300 ml Cartridge Pusher . . . . .	32
Loctite® 300 ml Pneumatic Cartridge Dispenser . . . . .	30
Loctite® 300 ml Pneumatic Cartridge Retainer . . . . .	30
Loctite® 400 ml Dual Cartridge Manual Applicator . . . . .	30
Loctite® 400 ml Dual Cartridge Pneumatic Applicator . . . . .	30
Loctite® Caulking Gun Conversion Kit . . . . .	30
Loctite® Dispense Tips . . . . .	33
Loctite® DuraPump™ Meter Mix Dispense Systems . . . . .	32
Loctite® Integrated Semiautomatic Dispenser . . . . .	32
Loctite® Mix Nozzles . . . . .	33
Loctite® Pinch Tube Valve . . . . .	31
Loctite® Poppet Valve . . . . .	33
Loctite® Posi-Link™ Actuators . . . . .	31
Loctite® Posi-Link™ Controller . . . . .	31
Loctite® Posi-Link™ Dispense System . . . . .	31
Loctite® Posi-Link™ Nests . . . . .	31
Loctite® Precision Syringe Dispense System . . . . .	31
Loctite® Spray Valve . . . . .	33
Loctite® Spray Valve Digital Controller . . . . .	33
Loctite® Stainless Steel Poppet Valve . . . . .	33
Loctite® Stationary Applicator Valve . . . . .	32
Loctite® Universal Metal Dispenser for 200 / 400 ml . . . . .	30



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in Canada, or visit [www.henkelna.com/loctitestructurals](http://www.henkelna.com/loctitestructurals).

For more information about our line of dispensing equipment,  
visit [www.equipment.loctite.com](http://www.equipment.loctite.com).



### Contact us:

#### U.S.A.

Henkel Corporation  
Engineering Adhesives  
One Henkel Way  
Rocky Hill, Connecticut 06067  
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