

TOUGH ENOUGH TO HAUL
A FREIGHT TRAIN WITH 3 GRAMS
& 1 HOUR OF CURE.

The Challenge:

Prove the speed, strength and durability of LOCTITE® Universal Structural Bonders by pulling a 208-ton freight train.



The Method:

A connecting rig was designed by Henkel engineers. After cleaning and sanding the plates, 3 grams of LOCTITE® Universal Structural Bonder were applied to the plate, and allowed to cure for 60 minutes. The coupler was connected between the engine and the first car.

For the rest of this incredible story, watch the results at www.limitless-bonding.com

If LOCTITE® Universal Structural Bonders can handle this, imagine how it can handle your toughest design challenges.

The possibilities are limitless.

LEARN MORE

Contact us to learn more about LOCTITE® HY 4070™ and LOCTITE® HY 4060™ GY and Henkel's broad array of maintenance and repair solutions – visit www.limitless-bonding.com

U.S.A.
Henkel Corporation
Engineering Adhesives
One Henkel Way
Rocky Hill, Connecticut 06067
Tel: 1.800.LOCTITE (562.8483)
Tel: 860.571.5100
Fax: 860.571.5465

Canada
Henkel Canada Corporation
Engineering Adhesives
2515 Meadowpine Blvd.
Mississauga, Ontario L5N 6C3
Tel: 1.800.263.5043 (within Canada)
Tel: 905.814.6511
Fax: 905.814.5391

Henkel Corporation
Engineering Adhesives
www.na.henkel-adhesives.com/industrial

*As used herein, "Limitless" and "universal" refer to the number of applications in which LOCTITE® HY 4080™ and LOCTITE® HY 4090™ may be used. It is not intended to mean that LOCTITE® HY 4080™ and LOCTITE® HY 4090™ bond all substrates under all conditions of use, nor should such usage be implied by any statement made in this brochure. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. We recommend that each prospective user test their proposed application before use. This product may be covered by one or more United States or foreign patents or patent applications.

All marks used are trademarks and/or registered trademarks of Henkel and its affiliates in the U.S. and elsewhere. © = registered in the U.S. Patent and Trademark Office. © 2025 Henkel Corporation. All rights reserved. DSGN0045646 (7/2025)



Henkel Adhesive Technologies

CAN HAUL
208
TONS.

THE TRAIN IS PRETTY STRONG TOO.



Introducing
Limitless Bonding.

How tough are the new LOCTITE
Universal Structural Bonders?



Henkel Adhesive Technologies



Introducing
**LIMITLESS BONDING*.
FOR LIMITLESS DESIGN.**

LOCTITE® Universal* Structural Bonders—so strong, versatile and durable, the possibilities are limitless.

You’ve been there before: the inspiration strikes for a great new design, but the limitations of the real world—materials, technologies, systems—make it a challenge to bring to life.

Powered by innovative hybrid technology, LOCTITE® Universal Structural Bonders combine the **speed of instant adhesives** with the **strength and durability of structural adhesives**. The versatility of LOCTITE® Universal Structural Bonders make it possible to use structural bonders in more ways—and for more applications—than ever before.

Simplified production processes. Fast fixture. Safe application. **Bringing the dream of the perfect design to life.**



Expanding your Design Solutions.

With the addition of LOCTITE® Universal Structural bonding adhesives, Henkel offers the broadest portfolio of structural bonding products to meet virtually any design requirement.

LOCTITE® HY 4090™
**FAST AND VERSATILE
STRUCTURAL BONDER.**



With a powerful combination of speed and strength, LOCTITE® HY 4090™ solves a wide range of design and assembly challenges. LOCTITE® HY 4090™ delivers both performance and versatility, with high strength bonding on a variety of substrates. Cures faster and outperforms many traditional epoxy adhesives.

Your Benefits:

- Suitable for a variety of substrates, including metals, most plastics and rubbers—opening up your design possibilities
- Fast fixture time of 3-5 minutes—reduce production time and work-in-process (WIP)
- Good moisture, chemical, temperature (up to 150°C) and impact resistance—the bond will endure
- Non-flammable, non-corrosive—increased health and safety for employees
- HY 4090 is ISO 10993 compliant—suitable for the assembly of disposable medical devices
- Also available in grey color—provides visual confirmation of proper mix



| Product | Item Number | Pack | Recommended Mixing Nozzle (Item #) | Color/ Viscosity | Mix Ratio | Fixture Time (GBMS) | Working Time | Lap Shear Strength¹ (N/mm²) | | | | | Temperature Resistance |
|----------------------|-------------|--------|------------------------------------|-------------------------------|-----------|---------------------|--------------|-----------------------------|-------------------|---------------|---------|-------|------------------------|
| | | | | | | | | Steel (Grit Blasted) | Aluminum (etched) | Polycarbonate | Nitrile | | |
| LOCTITE® HY 4090™ | 2123350 | 50 ml | 1573153 | Off-white to Light Yellow Gel | 1:1 | 4-6 minutes | 3-5 minutes | 16-18 | 11-14 | 5-7 | †† | 150°C | |
| | 2060035 | 400 ml | 1573135 | | | | | | | | | | |
| LOCTITE® HY 4090 GY™ | 2205827 | 50 ml | 1573153 | Grey (mixed) Gel | | | | | | | | | |

¹ISO 4587, After 24 hours, 22°C | ††Bond exceeded strength of substrate | Contact your Henkel Representative for a Technical Data Sheet

LOCTITE® HY 4080™ GY
**TOUGH AND VERSATILE
STRUCTURAL BONDER.**



The go-to adhesive for general-purpose repair, offering both performance and durability. LOCTITE® HY 4060™ GY provides fast fixture, and excellent bond strength, regardless of temperature and moisture conditions. LOCTITE® HY 4060™ GY is an ideal replacement for traditional two-part, 5-minute epoxies.

Your Benefits:

- Fast fixture time even at low temperatures—reduces maintenance costs
- High gap filling capability—excellent for universal repairs
- Excellent bond strength on many materials such as metal, plastics, rubber, wood, paper, leather—opens repair possibilities
- Machinable on metals—reduces replacement costs
- Very good chemical and solvent resistance—increase repair reliability
- Color indication to ensure consistent, proper mix

| Product | Item Number | Pack | Recommended Mixing Nozzle (Item #) | Color/ Viscosity | Mix Ratio | Fixture Time (GBMS) | Lap Shear Strength¹ (N/mm²) | | | | Impact Strength @ 0mm gap (J) | Peel Strength (N/m) | Elongation |
|----------------------|-------------|--------|------------------------------------|------------------|-----------|---------------------|-----------------------------|-------------------|-----|---------|-------------------------------|---------------------|------------|
| | | | | | | | Steel (Grit Blasted) | Aluminum (etched) | ABS | Nitrile | | | |
| LOCTITE® HY 4080 GY™ | 2217129 | 50 ml | 1573153 | Grey (mixed) Gel | 1:1 | 9-11 minutes | 25-28 | 22-25 | †† | †† | 17-19 | 6-8 | 80% |
| | 2217130 | 400 ml | 1573135 | | | | | | | | | | |

¹ISO 4587, After 24 hours, 22°C | ††Bond exceeded strength of substrate | Contact your Henkel Representative for a Technical Data Sheet