

# CAN HAUL 208 TONS.

THE TRAIN IS PRETTY STRONG TOO.

## Introducing Limitless Bonding.

How tough are the new LOCTITE®  
Universal Structural Bonders?

**LOCTITE**®



# 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 Strength† (N/mm²)				
								Steel (Grit Blasted)	Aluminum (etched)	Polycarbonate	Nitrile	Temperature Resistance
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								

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



# LOCTITE® HY 4080™

## Tough and Versatile Structural Bonder.



Applicator and mixing nozzles sold separately



When your design calls for strong impact resistance, LOCTITE® HY 4080™ Structural Bonder is up to the challenge. Low odor and non-flammable, LOCTITE® HY 4080™ provides increased health and safety benefits over other traditional structural bonders. It's an ideal replacement for traditional 2-part Methyl Methacrylate Adhesives (MMA) and Acrylic structural bonding adhesives.

### Your Benefits:

- Rapid strength development—improve throughput
- Excellent resistance to shock loading—the bond will endure
- Excellent bond strength on many substrates and high strength on plastics—opens design possibilities
- Non-flammable, non-corrosive—increased health and safety for employees
- Good elasticity, for parts subject to relative movement
- 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)	Lap Shear Strength* (N/mm <sup>2</sup> )				Impact Strength @ 0mm gap (J)	Peel Strength (N/m)	Elongation
							Steel (Grit Blasted)	Aluminum (etched)	ABS	Nitrile			
LOCTITE® HY 4080™	2217141	50 ml	1573153	Opaque to Slightly Yellow Gel	1:1	9-11 minutes	25-28	22-25	††	††	17-19	6-8	80%
	2217611	400 ml	1573135										
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										

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

# 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 Bonders 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](http://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.**

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## LEARN MORE

Contact us to learn more about LOCTITE® HY 4090™ and LOCTITE® HY 4080™ and Henkel's broad array of structural bonding solutions — **visit [www.limitless-bonding.com](http://www.limitless-bonding.com).**



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*\*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.*

