

# Automotive Adhesives

## Application: Gearboxes



There are a number of applications within the gearbox where Permabond adhesives excel:

- High strength bonding of gears to shafts - [Permabond HM162](#)
- Threadlocking nuts and bolts to prevent vibration loosening - [Permabond A1042](#) or [MM115](#)
- Gasketing gear box cover and sealing bolt holes - [Permabond MH196](#)

Adhesives are a lightweight method of joining most composites and plastic materials.



By replacing mechanical fasteners with adhesives, manufactured components are reduced in weight without sacrificing performance. Adhesives improve stress distribution and expand the choices of composites and dissimilar substrates throughout the vehicle.

Permabond adhesives are relied on for a wide variety of automotive applications, from the chassis to the rearview mirror, and most things in between.

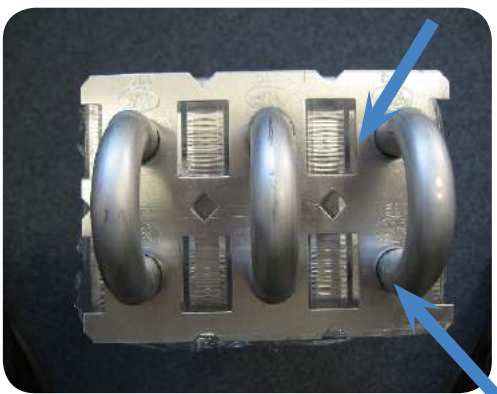
## Engine applications

- Fanbelt drive - threadlocking bolt tensioner, retaining fan drive bearing and bush. Bonding on heat sensor.
- Camshaft - threadlocking timing gear bolts, retaining camshaft spacer, locking chain tensioner studs or bolts.
- Lock engine mounting bolts, bonding rubber pads in mounting brackets.
- Sealing flywheel casing to crankcase and front plate to crankcase.



## Application: Sealing Heat Exchangers

Single part epoxy [Permabond ES558](#) is applied around the tubes and wicks in between tight fitting components. Use [Permabond ES550](#) to create a fillet where the tube meets the plate.



## Application: Brake wear sensors

Wear sensor wires are bonded into vehicle brake pads

- Requires a high pull out strength after 5 minutes
- Cables are dipped in Anaerobic Surface Conditioner ASC10 or A905 to activate the plastic surface.
- Adhesive can be applied manually or with automated equipment.
- No heat cure or mixing required

Adhesive used: [Permabond A1046](#) (or [HH040](#)) and [Permabond A905](#) (or [ASC10](#)) activator

# Automotive interior

Permabond offers a broad range of adhesives suitable for use in the construction of automotive interior parts and electronics. Products are formulated to optimise bonding performance on materials commonly found in the automotive industry. And careful consideration is given to the finished appearance of the cured adhesive. Bonded parts need to be high strength, offer good temperature resistance and be aesthetically pleasing.



## Application: Luggage Covers

Bonding special automotive grade "Green (recyclable) PVC" around a roller. This is seen in the rear of many hatch / estate-type vehicles for covering luggage.

- Green PVC is particularly difficult to bond due to slip additives migrating to the surface.
- Standard cyanoacrylate cannot bond green PVC so a special surface-insensitive grade was tested and approved instead.

Adhesive used: *Permabond 792*

Permabond has a number of products which combine these requirements *and* offer production line benefits (such as ease of application, speed of adhesive cure and cost reductions).

## Application: Bonding auto weather strips

Bonding clips to the ends of EPDM rubber strips which are used to seal around doors, vehicle bonnet and boot.

- High viscosity, high strength adhesive with good adhesion
- Easy to apply
- Flexible and toughened - will not go brittle and snap off
- Black colour to match the rubber

Adhesive used: *Permabond 737*



## Application: Sealing wiring harnesses

Sealing harness housing to prevent moisture ingress into the electronics of the vehicle.

- Sealing tin plated brass to Nylon 6
- Requires low viscosity wicking action to form a complete seal around the incoming wires
- Adhesive needs to survive extremes of temperature.

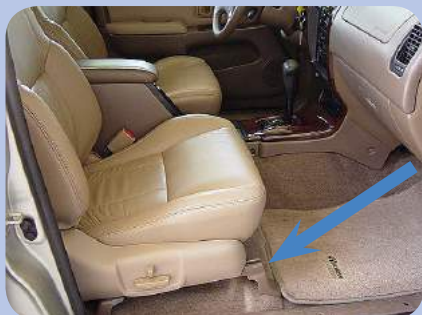
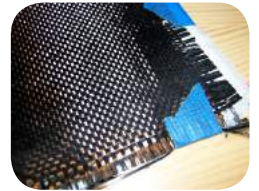
Adhesive used: *Permabond A126 and A905 activator OR*

*Permabond HLI26 and ASCIO activator*



Permabond offer adhesive solutions to bond many materials including:

- Carbon fibre
- Leather
- ABS
- Polypropylene
- Wood veneer
- Polyurethane
- Rubber
- Metal



## Application: Seat runner ends

Bonding polypropylene ends onto seat runners.

- Bonds Polypropylene - which is a very difficult to bond plastic.
- High peel strength - prevents detachment.
- Bond withstands extreme temperature range.

Adhesive used: *Permabond 737 and POP Primer*

# Product selector

Permabond manufactures a full line of adhesives & sealants along with custom formulations for unique requirements. Contact Permabond for all of your bonding and sealing needs.

Typical Applications	Features	Cure method	Viscosity (mPa.s) cP	Gap fill (mm) in	Max. shear strength steel (MPa) psi	Temp. range (°C) °F	Availability
Threadlocking and sealing hydraulics.	<b>Permabond A1042</b> Anaerobic threadlocker - prevents vibration loosening, corrosion, leakage	Anaerobic cure	8,000	(0.12) 0.005	(12) 1700	(-55 to +150) -65 to +300	Europe, Middle East, Australia
	<b>Permabond MM115</b> Anaerobic threadlocker - prevents vibration loosening, corrosion, leakage		1,300	(0.15) 0.006	(10) 1500	(-55 to +150) -65 to +300	Americas & Asia
	<b>Permabond LM012</b> Hydraulics grade - no fillers Anaerobic threadlocker - prevents vibration loosening, corrosion, leakage		2,000	(0.2) 0.008	(5) 750	(-55 to +177) -65 to +350	Americas & Asia
Bonding gears to shafts, bearings into housings.	<b>Permabond HM162</b> Low viscosity, high strength retaining adhesive	Anaerobic cure	800	(0.2) 0.008	(30) 4300	(-55 to +200) -65 to +390	Worldwide
Gasketing and flange sealing.	<b>Permabond MH196</b> High viscosity anaerobic sealant for making formed-in-situ gaskets and for sealing flanges and bolt holes	Anaerobic cure	150,000	(0.5) 0.02	(10) 1500	(-55 to +200) -65 to +390	Worldwide
Ideal for sealing wiring harnesses. Can also be used for sealing weld porosities.	<b>Permabond A126</b> Wicking grade sealant. Can be applied post-assembly.	Anaerobic cure	30	(0.05) 0.001	(21) 3000	(-55 to +150) -65 to +300	Europe, Middle East, Australia
	<b>Permabond HL126</b> Wicking grade sealant. Can be applied post-assembly.		12	(0.13) 0.005	(10) 1500	(-55 to +150) -65 to +300	Americas & Asia
Bonding gears to shafts, bearings into housings. Brake cables into pads in conjunction with A905 or ASC10.	<b>Permabond A1046</b> Toughened, rapid curing high strength retaining adhesive	Anaerobic cure	9,000	(0.25) 0.01	(25) 3600	(-55 to +150) -65 to +300	Europe, Middle East, Australia
	<b>Permabond HH040</b> Rapid curing high strength retaining adhesive		5,000	(0.25) 0.01	(14) 2000	(-55 to +150) -65 to +300	Americas & Asia
Ideal for use with Permabond anaerobics on inactive surfaces	<b>Permabond A905</b> Surface activator	-	0.55	-	-	-	Europe, Middle East, Australia
	<b>Permabond ASC10</b> Surface activator	-	-	-	-	-	Americas & Asia
Bonding interior trim, luggage covers.	<b>Permabond 792</b> Instant bonding cyanoacrylate for hard-to-bond materials	Moisture cure	70-90	(0.05) 0.001	(22) 3200	(-55 to +80) -65 to +175	Worldwide
Automotive weather seal.	<b>Permabond 737</b> Rubber toughened cyanoacrylate	Moisture cure	Paste	(2) 0.08	(22) 3200	(-55 to +120) -65 to +250	Worldwide
Bonding wire mesh into filter end caps	<b>Permabond ES550</b> Toughened epoxy, excellent chemical and temperature resistance	No mix, heat cure - oven or induction	Paste	(3.0) 0.12	(25) 3600	(-40 to +180) -40 to +350	Worldwide

**This is just a brief summary of some of our products, if you can't see the exact product you are looking for, or need more in depth technical information, Permabond's technical team would be more than happy to help.**

# Contact us

The experienced team of Permabond chemists is on hand to help you with custom formulations and fulfilling your technical data requests.



Permabond's sales engineers are available to assess your production line and find the best possible turnkey adhesive solution that will result in production efficiencies.

[www.permabond.com](http://www.permabond.com)

- **US Helpline - 800-640-7599**
  - **UK - 0800 975 9800**
  - **Asia + 86 21 5773 4913**
  - **Americas +1 732 868 1372**
- **General Enquiries +44(0)1962 711661**
- **Deutschland 0800 101 3177**
  - **France 0805 111 388**

[info.europe@permabond.com](mailto:info.europe@permabond.com)

[info.americas@permabond.com](mailto:info.americas@permabond.com)

[info.asia@permabond.com](mailto:info.asia@permabond.com)



## Permabond Worldwide

Wherever your manufacturing or R&D site may be located, Permabond representatives can be called upon to assist you. We have an extensive network of trained distributors worldwide.

---

# Permabond<sup>®</sup>

Engineering Adhesives

*Non-warranty: The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purposes under their own operating conditions. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principle of the Chemical Manufacturers Association's Responsible Care<sup>®</sup> program.*