

## Features & Benefits

- Very high strength
- Rapid cure
- Suitable for use with non-ferrous metals
- Excellent temperature resistance
- Excellent chemical resistance

## Description

Permabond HM135 is a fast curing, medium viscosity anaerobic adhesive for locking and sealing threads and retaining cylindrical components. It gives maximum torque strength on brass or plated brass components and provides excellent temperature and chemical resistance. The product is suitable for contact with potable water and is WRAS listed.

## Physical Properties of Uncured Adhesive

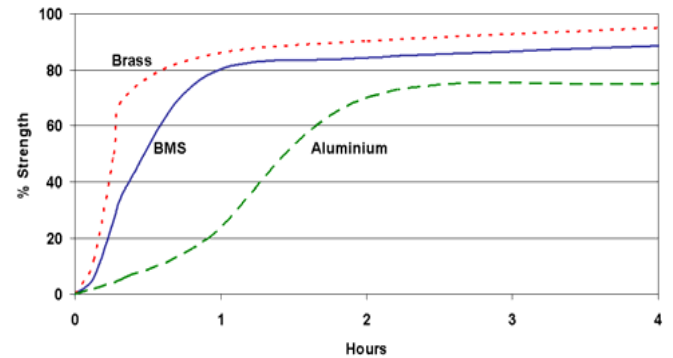
Chemical composition	Acrylic
Appearance	Green
Viscosity @ 25°C	500 mPa.s (cP)
Density	1.1
UV fluorescence	No

## Typical Curing Properties

Maximum gap fill	0.2 mm
Maximum thread size	M25 ¼"
Handling strength (steel)	5 minutes
Working strength	2 hours
Full strength	24 hours

*\*Handling time at 23°C / 73°F. Copper and its alloys will make the adhesive cure more quickly, while oxidised or passivated surfaces (like stainless steel) will reduce cure speed. To reduce curing time, use Permabond activator A905 or ASC10. Alternatively, increasing the curing temperature will reduce curing time.*

## Strength Development



*Cure times are typical at 23°C. Copper and its alloys will follow the faster cure while oxidised or passivated surfaces like stainless steel will tend towards the slower curve. Lower temperatures or large gaps will tend to extend the cure time. To reduce the cure time the use of Permabond A905, ASC10, or heat can be considered.*

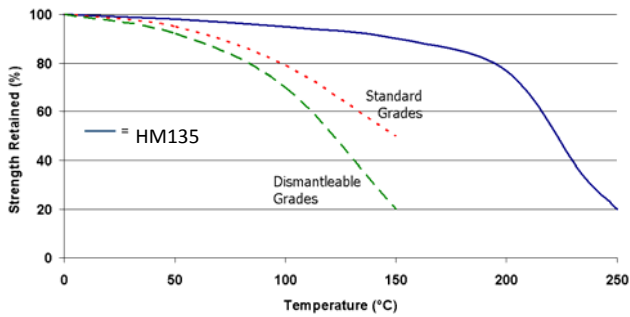
## Typical Performance of Cured Adhesive

Torque strength (M10 Zn plated ISO10964)	Break 38 Nm <b>330 in.lb</b> Prevail 65 Nm <b>570 in.lb</b>
Shear strength (steel collar & pin)	30 MPa <b>4400 psi</b>
Coefficient of thermal expansion	90 x 10 <sup>-6</sup> mm/mm/°C
Dielectric strength	11 kV/mm
Thermal conductivity	0.19 W/(m.K)

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## Temperature Resistance



"Hot strength" shear strength tests performed on mild steel. 24hr cure at room temperature and conditioned to pull temperature for 30 minutes before testing.

HM135 can withstand higher temperatures for brief periods (such as for paint baking and wave soldering processes) providing the joint is not unduly stressed. The minimum temperature the cured adhesive can be exposed to is -55°C (-65°F) depending on the materials being bonded.

## Chemical Resistance

Immersion (1000 hours)	Temperature (°C)	Strength retention (%)
Engine oil	125	100
Water/glycol	85	80
Unleaded petrol	23	95
Brake fluid	23	100
99% IMS	23	75
Acetone	23	95

This product is not recommended for use in contact with steam, strong oxidizing materials and polar solvents although will withstand a solvent wash without any bond strength deterioration.

## Surface Preparation

Though the anaerobic adhesives will tolerate a slight degree of surface contamination, best results are obtained on clean, dry and grease free surfaces. The use of a suitable solvent-based cleaner (such as acetone or isopropanol) is recommended.

In general, roughened surfaces (~25µm) give higher bond strengths than polished or ground surfaces.

To reduce the curing time, especially on inactive surfaces (such as zinc, aluminium and stainless steel), the use of Permabond A905 or ASC10 can be considered.

## Directions for Use

- 1) Apply a circumferential bead; preferentially to the female component. Assemble with a twisting action.
- 2) For larger components use thixotropic products to prevent run off.
- 3) Take care to ensure adhesive does not enter ball races or other mechanisms.

## Storage & Handling

Storage Temperature	5 to 25°C (41 to 77°F)
Users are reminded that all materials, whether innocuous or not, should be handled in accordance with the principles of good industrial hygiene. Full information can be obtained from the Material Safety Data Sheet.	

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