



Revolutionary Engine Cooling

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Improve Reliability

eliminate downtime caused by overheating,
burst hoses, corrosion and erosion ...

Maximise MPG & BHP

eliminate hotspots that cause pre-ignition ...

Extend Engine Life

Prevent corrosion, erosion and cavitation

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About Evans

Evans Global corporate headquarters are located in Connecticut with independent operations in the UK, China, Australia, India, South Africa and Europe. All products sold in Europe and the Middle East are manufactured by Evans in the UK.

Evans Waterless Engine Coolants were the brainchild of Jack Evans and Tom Light from Evans USA. Both have spent decades designing mechanical cooling systems for high performance and mass produced engines. During extensive trials they identified that water was the root cause of many engine cooling problems. Specifically water-based coolants regularly operate at or beyond their physical and chemical limits, compromising engine performance and reliability.

In 1992 Jack and Tom tested a prototype waterless coolant that eliminated film boiling around the combustion zone and prevented vapour (steam) escaping from solution where pressure drops (cavitation) occurred. By 1995 patent formulations existed for each engine sector.

Since 1995 more than 600,000 engines, operating in all sectors worldwide, have benefited from conversion to waterless coolants. There are currently fifty-plus specialist companies in the UK stocking the Cool 180° range. These distributors can provide a full conversion service or supply 'coolant only' for DIY enthusiasts. By 2015 there will be 200+ UK distributors and many more throughout Europe and the Middle East.

Evans Global Vision

Based on 20 years of successful conversions, backed up by hard scientific data, Evans Global believes the era of water-based coolants could soon be at an end. In addition to the major advantages detailed in this pamphlet, waterless coolants facilitate genuine opportunities to advance engine design. To wit, trials by several blue-chip fleet operators and OEM's have confirmed fuel consumption and CO₂ emissions can be significantly reduced by running with Evans at or above 110°C.





The Evans Advantage

Since the 1930's engine coolants have been based on a mixture of water, ethylene glycol (antifreeze) and corrosion inhibitors. All such mixtures are known to have inherent physical and chemical limitations that often affect performance and can lead to premature engine failure.

According to the British Testing Council - Testing Advisory Group...."up to 60% of engine failures can be attributed to cooling system failure"....confirming there are inherent flaws associated to water-based coolants and emphasising the need for something better! Evans Waterless Coolants represent a major step forward in engine cooling technology which, over the last 20 years, have been proven to increase engine reliability, reduce maintenance costs and improve performance.

No Water - No Overheating

Evans Waterless Coolants have a boiling point above 180°C, effectively eliminating overheating, boil-over and after-boil.

No Water - No Pressure

Evans Waterless Coolants have a very low vapour pressure, eradicating the danger of scalding and reducing the strain on engine components.

No Water - No Corrosion

Water contains oxygen and acts as an electrolyte which leads to corrosion. Evans Waterless Coolants eliminate these corrosion sources.

No Water - More BHP

Evans Waterless Coolants eliminate engine hotspots which lead to poor combustion and loss of power.

No Water - No Liner Erosion

Evans Waterless Coolants are proven to reduce liner pitting by 75% compared with water based coolants.

No Water - No Scaling

Water contains impurities and hardness salts that lead to scaling and poor heat transfer. Evans Waterless Coolants contain none of these impurities.



How Evans works

Consistent Cooling, Efficient Combustion

Within an engine cooling system the hottest surfaces are those adjacent to the combustion chamber, specifically the cylinder liners and cylinder head. Around these zones water-based coolants often vaporise, generating hot-spots and preventing efficient cooling. Overheating, boil-over, cavitation and poor combustion are all symptomatic of such coolant failures. Evans waterless coolants do not vaporise around the combustion zone or where pressure drops occur. Consequently using Evans ensures consistent cooling and efficient combustion, even when the engine is put under extreme load.

Lower Pressure, Less Stress, Increased Safety

When water turns to steam it puts additional stress on radiators, hoses and other engine components, and when high pressure steam escapes there is always a risk of scalding. Evans coolants have a much lower vapour pressure compared to water-based coolants, resulting in 75% reduced system pressure. Evans engineers often demonstrate this characteristic by removing the coolant cap immediately after a race....hey presto, no geyser!

Reduced Maintenance, Improved Preservation

Water contains dissolved oxygen which corrodes carbon steel and cast iron. It also facilitates electrolytic activity, leading to galvanic corrosion and pitting - a common source of failure in aluminium and copper components. Evans waterless coolants do not contain dissolved oxygen and are non-conductive. Hence, Evans removes the root cause of corrosion whilst improving reliability, reducing maintenance costs and preserving engine life.

A Non-Toxic Coolant, For Life

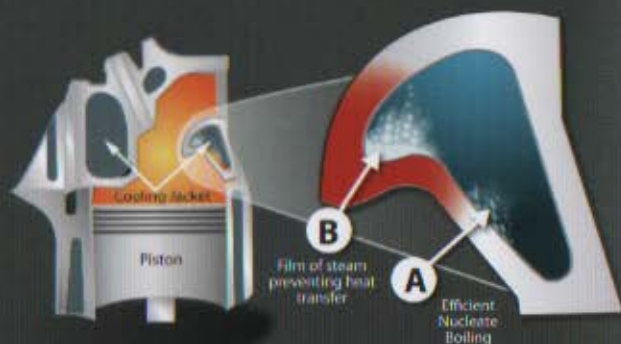
Water-based coolants must be changed-out at regular intervals, as corrosion inhibitors are neutralised through the oxidising actions of water. Evans waterless coolants do not entrain oxygen and are proven to last 20+ years. Standard car antifreeze is toxic and the documented cause of many domestic pet deaths. Evans coolants have been confirmed as Non-Toxic by an EPA certified laboratory. For more information on how to prevent poisonings please refer to www.bluedeath.org.uk, rspca.org.uk and fabcats.org.

Limitations of Water

Physical Limitations of Water

Traditional water based coolants regularly cross the thermal boundary that separates efficient Nucleate Boiling (A) from inefficient Critical Heat Flux. CHF is synonymous with the condition 'Departure from Nucleate Boiling'. When 'DNB' occurs a layer of steam bubbles form adjacent to the engine combustion zone (B). Steam dissipates less than 1/30th of the heat that water does, leading to rapid over-heating of local metal surfaces, resulting in inefficient combustion. The properties of Evans prevent 'DNB' and ensures the engine performs as designed.

Under atmospheric conditions water-based coolants will boil around 103°C. Additional (cap) pressure can raise the boiling point to 120°C but in a dynamic environment, such as a cooling system, there are other factors in play. Specifically, when fluids flow at speed through tortuous cooling channels and pumps, Eddy currents are formed and pressure drops are inevitable. At these locations steam vapour often escapes and cavitation occurs.



Chemical Limitations of Water

Water contains dissolved oxygen which when heated above 100°C is driven off. However, as the water cools it re-oxygenates. This process leads to a perpetual cycle of oxidation and corrosion. It also neutralises the corrosion inhibitors, necessitating regular coolant change-out. This problem is accentuated in vintage and classic vehicles where the coolant is in direct contact with air. Water also acts as an electrolyte when dissolved solids are present. This promotes galvanic corrosion where metals of low nobility sacrifice themselves to metals of high nobility - this is often manifested by pitting.



Products

Evans Waterless Coolants are available for a wide range of applications from pre-war vintage cars to high performance racing cars and modern aircraft. Evans Cool 180° products contain inhibitor formulations that are biased to the metals of construction used in different eras and different applications. For vehicles and engines that do not fit into a definitive sector please ask your local or preferred distributor for guidance on selection.

Vintage Cool 180°

Waterless Coolant for Pre-War/Vintage car engines that have pre-nodular cast iron blocks and many components made from copper and brass.

Heavy Duty

Waterless Coolants for commercial diesel engines, with large cast iron blocks and cylinder liners plus aluminium, steel and copper components.

Classic Cool 180°

Waterless Coolant for Classic Car engines that have nodular cast iron or aluminium blocks and fewer copper components.

Aero Cool 180°

Waterless Coolant especially for Rotax engines as per Rotax bulletin 912-043 RB & 914-029 R2.

Power Cool 180°

Waterless Coolant for performance car and bike engines primarily fabricated from aluminium plus some steel and copper components.

Prep Fluid

Hygroscopic flushing fluid formulated to remove residual water from the engine cooling system, prior to filling with the appropriate Evans Cool 180° product. Evans Prep Fluid can be used for all engine types and sectors.

Auto Cool 180°

Waterless Coolant for modern car engines fabricated from a mixture of cast iron, copper, steel and aluminium components.



VINTAGE COOL 180°

Waterless Engine Coolant
for *Vintage Cars*



Optimised for...

Pre WW2 vehicles with engines that have pre-nodular cast iron blocks and many components made from copper and brass.

Why is it good for Vintage cars?

Vintage cars are well known to accumulate layers of internal corrosion over the years and this often leads to overheating. Vintage Cool 180° has a much higher boiling point than water and effectively eliminates overheating, boil-over and after-boil. Many vintage car owners are concerned about changes to modern antifreeze inhibitor formulations and how effective they are at protecting vintage engines. Vintage Cool 180° is specifically formulated for vintage engines and proven to stop corrosion and erosion. It also allows engines to operate at lower pressure, putting less stress on hoses, radiators, pump seals etc.

Why do restoration experts use it?

Vintage car restorers put a lot of time, money and effort into repairing the extensive corrosive damage caused by water. Evans prevents corrosion and pitting and the damage caused by localised overheating.

There are many top-notch vintage restorers using and recommending Vintage Cool 180, a list of which can be found at the back of this pamphlet.

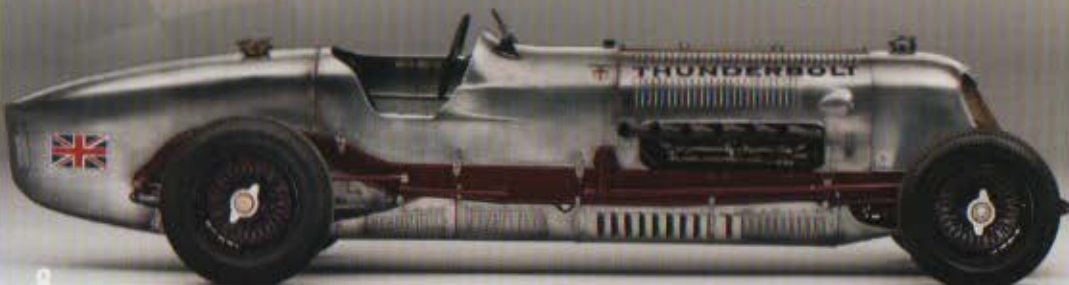
Thunderbolt

V12 27Litre Aero Bentley

Vintage and Classic Bentley restorer Graham Moss uses Vintage Cool 180° in Thunderbolt, a unique 27 Litre Aero powered Bentley. Graham designed and built Thunderbolt to replicate the feats of 1920's car designers and drivers.

“ I use Evans Waterless Engine Coolants in both my restorations and my own vintage vehicles. I now run the famous Thunderbolt Aero Bentley with Evans Vintage Cool 180°. I am very pleased with the performance and would recommend Evans Waterless Engine Coolants for protection, peace of mind and performance in all vintage vehicles ”

Graham Moss,
RC MOSS LTD



CLASSIC COOL 180°

Waterless Engine Coolant
for *Classic Cars*



Optimised for...

Post WW2 vehicles with engines that have nodular cast iron or aluminium blocks and fewer copper components than vintage engines.

Why is it good for classic cars?

Classic cars will very likely have built-up a layer of internal corrosion over the years and this often leads to overheating. Classic Cool 180°'s higher boiling point effectively eliminates overheating, boil-over and after-boil. Many classic car owners are concerned about modern antifreeze inhibitor formulations and how effective they are at protecting older engines. Classic Cool 180° is specifically formulated for classic engines and proven to stop corrosion and erosion. It also allows engines to operate at lower pressure, putting less stress on hoses, radiators, pump seals etc.

Restoration experts use and recommend it...

Reputation and credibility is everything when it comes to the restoration and preservation of classic cars. For this reason Evans policy is for all distributors to test our product first. Thus proving to themselves that Evans "does what it says on the drum" before recommending it to their customers. We do this on a marque-by-marque basis. The rapidly growing list of specialists now stocking Classic Cool 180° provides confirmation of its effectiveness and reliability.

Aston Martin DB2

Tim Stamper of Stamper Aston Martin first tried Classic Cool 180 in his racing DB2, which goes to prove he already had faith prior to conversion! Tim now recommends Classic Cool 180° to all his AM customers.



POWER COOL 180°

waterless engine coolant
for performance cars



Optimised for...

performance car engines primarily fabricated from aluminium plus some steel and copper components.

Why do racing teams use it?

To be competitive racing teams have to push their engines to the limit. This means delivering the greatest amount of fuel possible, without overheating the engine. Efficient heat dissipation is often compromised because water-based coolants boil inside the block, sometimes leading to catastrophic engine failure. Power Cool 180° has a much higher boiling point than water or water-based coolants and ensures the heat-energy is always being removed, no matter what the load. This enables tuners to squeeze the maximum BHP from their engines.

Lotus 101

1989 Lotus Judd F1 car

Racing an F1 car can be a problematic affair, particularly where cooling is concerned. The Lotus 101 was always boiling over if stationary for any length of time, spilling its coolant over the grid or pit lane. By converting to Power Cool 180° Steve Griffiths has overcome the overheating problems and can now enjoy his track-days without stress!

“ Evans has been superb, I no longer have any worries about overheating ”

Steve Griffiths
Owner



POWER COOL 180°

waterless engine coolant
for track and trail



Also ideal for...

performance bike engines primarily fabricated from aluminium plus some steel and copper components.

Why do racing teams use it?

MX and Enduro bikes have suffered for a long time with overheating problems. Riders like to keep the throttle open full most of the time, even when the bike is virtually stationary, ploughing around muddy corners etc. Ram air is in short supply and even with electric fans the water-based coolant often boils. As a tell-tale device riders often fit a hose extension from the radiator cap, which spurts steam and coolant over their visor when boil-over occurs. When this happens they are forced to throttle-back and often lose places. With Power Cool 180° installed riders are able to stay on the gas and this is the reason why most factory teams use Evans.

David Knight

KTM Team

KTM Team Riders, who rarely have mechanical DNFs, are not lucky they are smart. David Knight knows Evans Power Cool 180° will keep his bike running faster, for longer and give him a much better chance of finishing on the podium.

“ Evans gives me an extra edge through performance and reliability ”

David Knight
KTM rider



HEAVY DUTY ENGINE COOLANT



Formulated specifically for...

Commercial diesel engines with large cast iron blocks and cylinder liners plus aluminium, steel and copper components. As used in Plant, Generators, HGVs, Agricultural vehicles etc...

Reduce downtime...

Evans Heavy Duty Waterless Engine Coolant is proven to eliminate downtime associated with overheating, boil-over and after-boil.

Extend engine life...

Evans Heavy Duty Waterless Engine Coolants prevents corrosion, erosion and pitting.

Minors to Majors

Since Joe Umstead converted his Detroit Diesel Freightliner in 1992 (which has since completed more than 1,000,000 miles without coolant change) many thousands of American commercial diesel engines have been converted to Evans Heavy Duty Coolant. Veolia Waste, NFI, Perdue Chicken, UPS and thousands of independent owner-operators have since benefited from the unique characteristics of Evans Coolants.

Evans HDC is now being installed in engines throughout the UK haulage, plant and bus sectors.

Economax Engine Cooling System



What is Economax?

The Economax package combines the unique properties of Evans Waterless Coolants with a high temperature thermostat and Evans Fan-Miser Module to improve fuel economy and reduce exhaust emissions.

How does it work?

When using Evans coolant the running temperature of the engine is no longer restricted by the low boiling point of water. By increasing the coolant temperature to around 110°C the fan runs less frequently which significantly improves MPG.

Is it okay to run hotter?

Research, backed up by 1000's of successful conversions over the last 20 years has confirmed that higher coolant temperatures improve engine efficiency and reduce thermal stress.

Can any vehicle be converted?

Although any vehicle can be modified, hard working heavy duty vehicles or plant with reduced or zero ram-air cooling will see the greatest improvement.

Results

The fuel savings achieved through Economax conversion range from 2% to 8% depending on application. Many large operators are now upgrading their fleets to Economax, including Veolia Waste who proved the system for 2 years before committing to conversion of their entire fleet.



AERO COOL 180°

NPG+c Waterless Coolant
for Rotax Engines



Particularly suitable for...

Liquid cooled Rotax engines

Why is it good for aircraft?

Evans will not overheat even at high altitude. The unique properties keep the cooling system free from corrosion, pitting and other potentially catastrophic engine damage.

Why do Pilots use it?

Evans offers reliability and peace of mind.

ROTAX

Evans Waterless Coolants are specified by Rotax aircraft engines in special bulletin 912-043 RB & 914-029 R2

“ Evans Aero Cool 180° is the only engine coolant I trust. ”

Raymond Proost
Independent Rotax
Maintenance Technician



Prep Fluid

Most new customers wanting to use Evans will need to remove the existing water based coolant from their system. To gain the maximum benefit from Evans we recommend that no more than 3% residual water is present in the coolant. To help achieve this we have formulated a hygroscopic Prep Fluid designed to flush the system before adding Evans.

How does it work?

Fill the freshly drained cooling system with Evans Prep Fluid and run the engine up to normal operating temperature. The hygroscopic fluid will absorb any residual water and flush out any loose deposits.

What should I do with it then?

Once the Prep Fluid has been drained from the system, store it in an airtight container as it can be used several times.



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