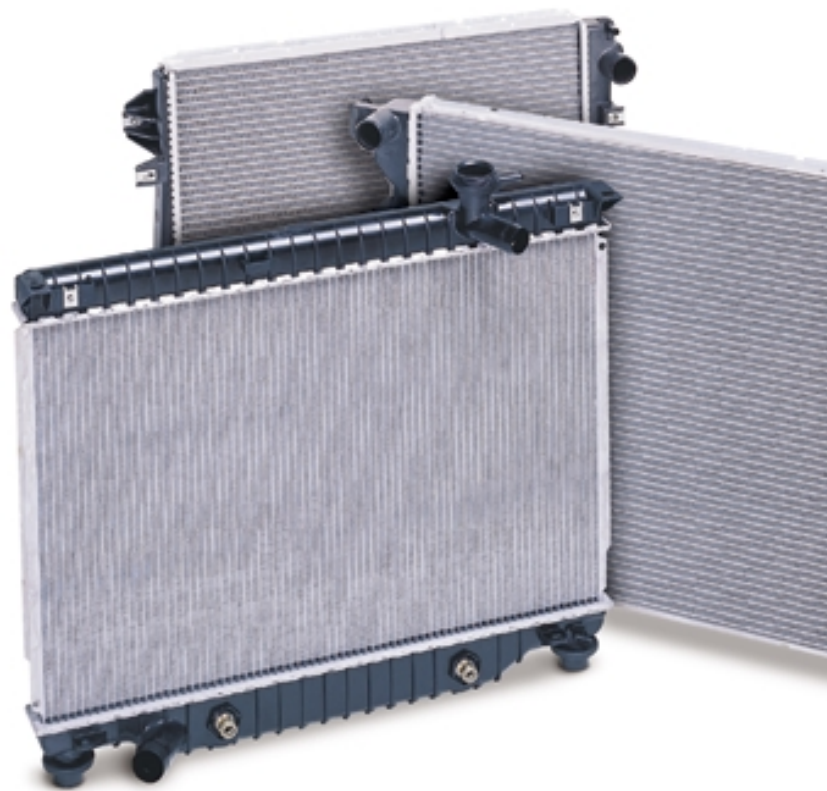


Visteon® Radiators

Featuring:

- ◆ OE Technology
Makes A Difference
- ◆ Visteon Plastic/
Aluminum Radiators
- ◆ The Risks of Using
Off-shore Radiators
- ◆ Radiator Service Tips



Aftermarket Source for OE Quality™

Visteon® Radiators: OE Technology Makes A Difference

It begins with systems experience and resources.

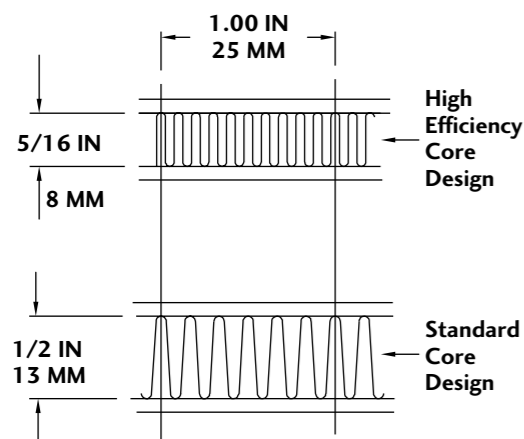
Raise the subject of automotive parts technology and people think you're going to talk about electronics. But, there's more to vehicle design than sensors and circuitry. The science involved in building radiators, for example, will surprise you.

Visteon engineers use OE heat transfer systems experience and resources to design more efficient radiators that are perfectly matched to their application. It's a level of technology that's rare in replacement radiators for the aftermarket.



Super-efficient core design increases heat transfer.

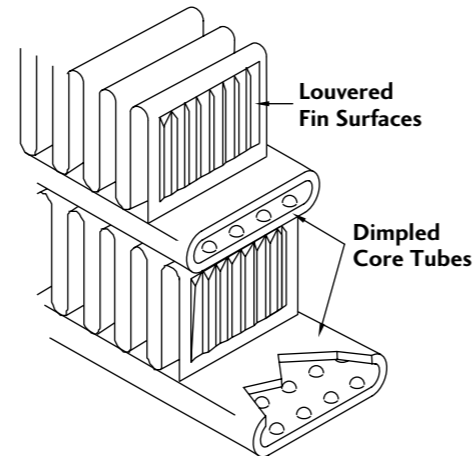
The Visteon radiator core is an excellent technology example. Because of the lower hoodlines of modern day front wheel drive cars, a radiator has less space and airflow to use. To keep engines and transmissions cool, it has to become more efficient and, at the same time, may have to be smaller.



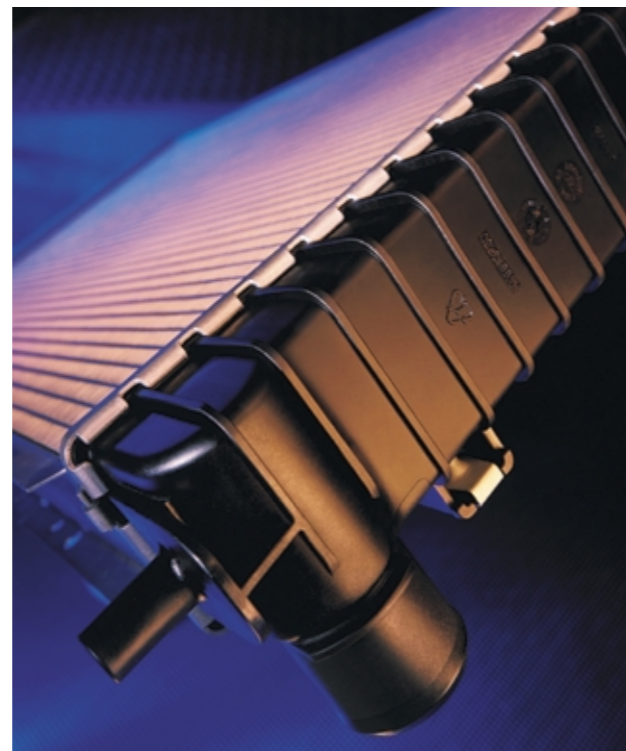
A typical copper/brass radiator core design has tubes spaced farther apart and has fewer fins. The new high efficiency aluminum core is thinner with more fins per inch. This core design lets engineers build more cooling capacity into a smaller space, and requires less airflow to transfer the same amount of heat as a standard design. Of course, there's more to this than just concentrating the fins.

Dimples, louvers and other racy engineering stuff.

For even more efficiency, Visteon product design engineers have created dimples inside the core tubes. As coolant flows through the tubes, the dimples increase the turbulence or swirling action, resulting in enhanced heat transfer. Plus, they've added louvers to the fin surfaces to increase the radiating area.

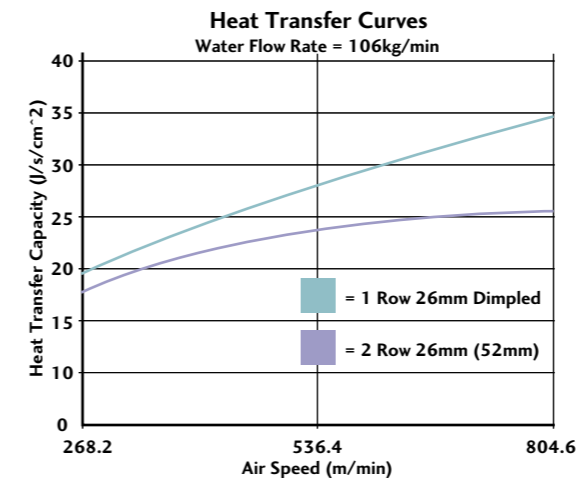


These and other innovations are why Visteon radiator cores are used in more than 90% of the cars in America's most popular motorsports series. No vehicle needs more cooling performance from less airflow than a closed body racecar traveling at 190 mph for three hours. Advanced design Visteon 36mm two-row cores get the job done every race weekend.



Look how Visteon® one-row core performance compares.

This chart shows a Visteon high efficiency one-row radiator core compared to a comparably sized standard two-row core. The water flow rate and airspeed reflect typical radiator operation. Note the efficiency of the one-row, even at lower airspeeds.



Can you get this level of OE technology in other aftermarket radiators? Maybe, and maybe not. But be assured that most every Visteon late model radiator has it.

Visteon® Plastic/Aluminum Radiators

They may be one-row or two-row, depending on their application, but plastic/aluminum radiators are designed and manufactured to meet original equipment specifications. Plus, they include the newest Visteon technology enhancements and quality features:

- ◆ Dimpled core tubes and louvered fins increase heat transfer
- ◆ OE-specified aluminum and plastic materials are used to reduce weight and increase durability
- ◆ OE quality standards for fit and performance are stringently observed
- ◆ Each is designed to meet the OE heat rejection specifications for its application
- ◆ Only premium grade tubes, fins, headers, tanks and other components are used to make Visteon radiators



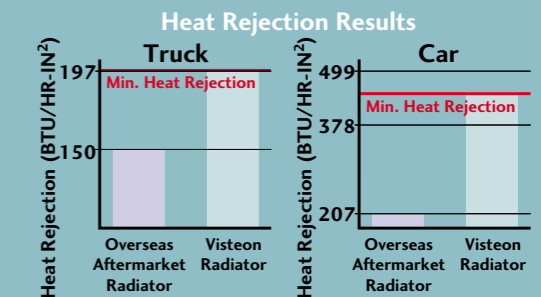
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The Risks of Installing Off-shore Radiators

They're out there—cheaply made no-name radiators with substandard cooling capacity. Are you willing to risk an engine or transmission to save a few bucks?

It's not uncommon to find a 20% reduction in total tubes and fins to lower their manufacturing costs. That's a pretty big compromise of the OE heat rejection specifications for a vehicle. And it's a huge gamble for a warehouse distributor or professional technician to take with their customers.

Visteon tested two typical off-shore radiators against Visteon units for the applications listed by the manufacturer. One is for a light truck and the other for a mid-size car. The results are real eye-openers:



If that's not scary enough for you, read on. Here is a rundown of the vehicle systems that face potential malfunction and eventual permanent damage from the lack of adequate cooling capacity:

Cooling System

- ▲ Less cooling capacity may increase risk of overheating
- ▲ Overheated coolant may deteriorate faster
- ▲ Reduced coolant pH level may risk increased corrosion in radiator and engine
- ▲ Radiator and heater hoses may degrade faster

Engine Control System

- ▲ Engine will tend to run lean, hesitate and spark knock
- ▲ Drivability can be adversely affected

Air Conditioning System

- ▲ Sensors may cut off prematurely due to higher coolant temperatures and system pressures
- ▲ Poor cooling performance may result

Engine Cooling Fans

- ▲ Fans will operate continuously and cycle frequently
- ▲ Vehicle charging system will have added load

No-name radiators are quite a chance for an aftermarket warehouse distributor or professional technician to take with customers. Now you have some insight and can decide—is it worth it?

Radiator Service Tips

Danger Signs of Radiator Failure

When replacing a malfunctioning radiator, check to see if any of these conditions may have contributed to its failure. This may help to correct a more serious problem, and will assure a successful replacement. Evidence of these conditions in a Visteon radiator returned for warranty may void the warranty.

Leaking Oil Cooler – Coolant shows a trace of oil contamination. Engine oil, normally amber in color, will turn a milky brown. Transmission fluid, normally red, will look milky pink. Severe engine or transmission damage will result if coolant and these oils are mixed.

Overpressurization – Excessive pressure in the cooling system caused by a failed pressure cap or engine combustion gas leaking into the cooling system. Look for bloated tanks, bowed side rails or warped tank-to-header seams.

Blown Tank-to-Header Seam – An indication that the radiator may have been subjected to extreme pressure resulting from a broken thermostat or combustion gas leaking into the cooling system.

One way to check this is to look at the hoses. Any hose that is expanded more than its normal size is a strong indication of a bad head gasket. **USE CAUTION AROUND A HOT ENGINE—COOLANT TEMPERATURES CAN REACH 240°F UNDER PRESSURE AND WILL CAUSE SEVERE BURNS!**

Steam Erosion – Steam will break down a plastic tank radiator internally and produce thinning of the tank wall and ultimately holes. Look for soft or melted places and white deposits at the filler neck and internal hose connections.

A thermostat stuck in the closed position is the chief cause of steam erosion in a cooling system. Also look for melted plastic tank residue which can plug the radiator tubes and lead to overheating.

Fan Damage – A failing water pump or a minor front end collision are the major causes of fan damage to the radiator fins and tubes. Weak or broken engine mounts can cause this damage, too. A semicircular mark in the center of the radiator opposite the fan is the indicator.

Electrolysis – This is caused by stray electrical currents in the vehicle chassis which are carried by the coolant. If allowed to continue, rapid deterioration and failure of the radiator follows. Evidence of electrolysis includes discoloration of the oil cooler and/or recurring pinhole leaks in the radiator or heater core.

pH – This is the balance of acidity and alkalinity in a cooling system, determined by the coolant and water mix. If not maintained, it can result in accelerated corrosion in the radiator and heater core.

Inspection Checklist

- Check coolant and water mix—50/50 or OE recommendation for optimum temperature control and corrosion resistance
- Inspect belts for cracks and wear—check tension
- Inspect hoses for cracks and deterioration—Hoses deteriorate from the inside out. Follow manufacturer's replacement guidelines
- Check radiator cap and gasket—use tester to check cap pressure
- Inspect water pump for leaks and bearing noise
- Check fan for operating speed and bent, cracked or loose blades
- Make sure radiator fins are free of damage, dirt and debris
- Check air dam or spoiler and fan shroud for damage, obstructions and tightness to assure proper airflow through radiator



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