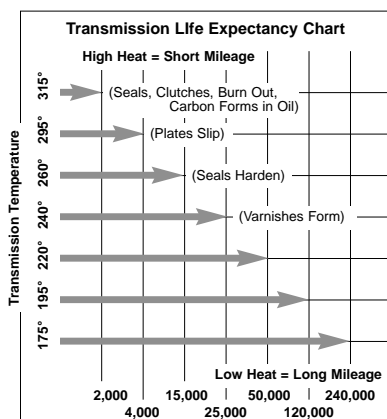


# TEMP-A-CURE™ RADIATEURS D'HUILE

## The TEMP-A-CURE™ Difference: Superior Design, Materials & Construction

### A Wise Investment...



OPERATING YOUR VEHICLE at the upper limits of its capabilities often overloads stock cooling systems. A properly chosen and installed TEMP-A-CURE cooler will cure your fluid temperature problems. The new downsized cars now operate at or near their upper temperature limits most of the time. The harder we work them, the hotter they get... meaning that to protect your investment—install a TEMP-A-CURE cooler.



Today's high performance car packs a lot of power in a smaller package. In order to save both weight and space, the typical OEM cooling system is designed for "normal" driving conditions. When driven hard for extended periods, the cooling system may prove less than adequate. Earl's offers the solution to marginal cooling systems—race proven lightweight and efficient oil coolers designed to fit in the smallest practical space.

Any performance vehicle can benefit from the TEMP-A-CURE difference. Tow vehicles, motor homes, passenger cars and even motorcycles can realize extended engine and/or transmission efficiency and life with an Earl's TEMP-A-CURE oil cooler.

Racing cars have always required oil coolers. Since World War II, most racing cars, world wide, have utilized brazed aluminum "modular" oil coolers. The basic design of the modular oil cooler dates back to the early 1930s when it was developed for use with the Rolls Royce Merlin engine that powered the Spitfires and Hurricanes that won the Battle of Britain. This type of cooler with its internal turbulator plates and dense air fins provides maximum liquid side and air side surface area. The large collector tanks ensure minimum flow restriction. The fully brazed construction results in the most efficient possible thermal transfer path between liquid and air. All of this adds up to the most thermally efficient liquid-to-air heat exchanger available.

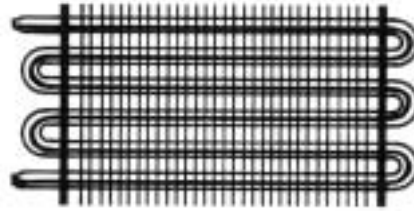
### EARL'S TEMP-A-CURE OIL COOLERS OFFER THE FOLLOWING ADVANTAGES:

1. Manufactured in the U.S.A. from aircraft spec aluminum alloy, using the latest vacuum brazing technology.
2. Corrugated screen internal turbulator plates increase both thermal efficiency and mechanical strength resulting in the most efficient, smallest and lightest practical package.
3. Manufactured from thin aluminum plates for fastest possible heat transfer.
4. Inlet and outlet fittings o-ring to the top plate assembly for maximum joint strength.
5. Designed for the range of oil flows and air speeds encountered in high performance automobiles.
6. Available in four widths with a variety of inlet and outlet fittings including male AN, female NPT or male BSP, and hose barb.
7. Every cooler is pressure checked to 175 psi. Periodic samples are burst tested to 350 psi.

# TEMP-A-CURE™ RADIATEURS D'HUILE

## Earl's Design

For many years, professional racers have been using modular style oil coolers almost exclusively. Virtually every Formula One, Indy and GTP or Trans-Am car depends on these type units for engine and transaxle cooling. Temp-A-Cure coolers have been developed specifically for use in all types of engines and transmissions subjected to temperature extremes, including competition and high performance uses. They are designed for the range of air speeds and oil flows normally encountered in automotive use, but built to aircraft standards of quality. They are constructed of high grade aluminum and are completely furnace brazed to insure the most thermally efficient joint possible between the oil tubes and air fins. The internal design of the oil tubes and the large area collector tanks provide maximum surface area with minimum pressure drop. The highly concentrated air fins offer maximum heat transfer to the outside air.



## Typical Tube & Fin Design

The tube and fin cooler has little to offer in the way of efficient oil cooling. Its typical serpentine design has a large pressure drop due to the tube length and to the restricted bends. The tube and fin cooler cannot approach the cooling efficiency of Earl's Fin density and oil side to air side mechanical bond. If the tube and fin serpentine style were the most efficient in terms of cooling, wouldn't you expect to see this design used for radiators on OEM installations and racing cars?

## Air Velocity: The Critical Factor in Heat Dissipation

EARL'S TEMP-A-CURE OIL COOLERS are designed to efficiently use all of the air that passes through them. The center chart below shows that a Temp-A-Cure cooler of comparable size is between two and three times more efficient in terms of heat rejection as a typical tube and fin type cooler. ("B")

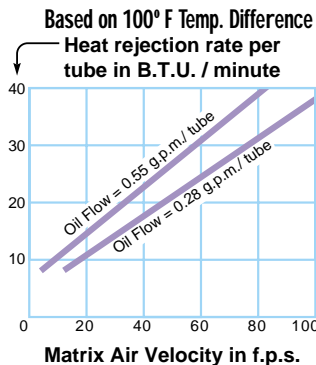
Cooler "A" in our chart below is of a popular stamped dish plate design; where the dish plates are the only components—no fins and no corrugated screen. This design, while extremely attractive to the manufacturer, sacrifices efficiency of heat transfer for ease of assembly.

The right hand chart below represents testing to determine pressure drop. It shows that the Temp-A-Cure cooler can handle a larger volume of oil (four times the volume!) with less than half the pressure

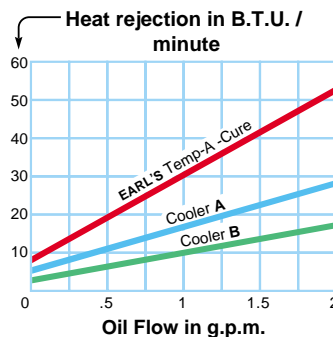
drop of a typical tube and fin style oil cooler.

Earl's Temp-A-Cure oil coolers are properly termed "air to liquid heat exchangers". In order to operate efficiently, they must be mounted in a stream of moving air at ambient temperature. It is not a good idea to mount the oil cooler behind the water radiator where it will receive only heated air. It is not enough to lead air to the cooler—the heated air must have somewhere to go after it passes through the core. Remember, air always obeys the immutable laws of fluid dynamics. Simply put, air will only flow from a region of relatively high pressure to a region of relatively low pressure. Any attempt on our part to convince it to do otherwise is doomed to failure.

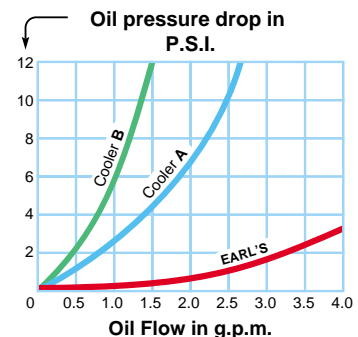
To obtain the heat rejection rate for a given Earl's Cooler, multiply the dissipation value from the chart by the number of tubes in the cooler.



Comparable heat rejection rates based on SAE 10 weight oil at 200° F. inlet temperature and 7 square inches of matrix area. Contact Earl's for specific comparison data.



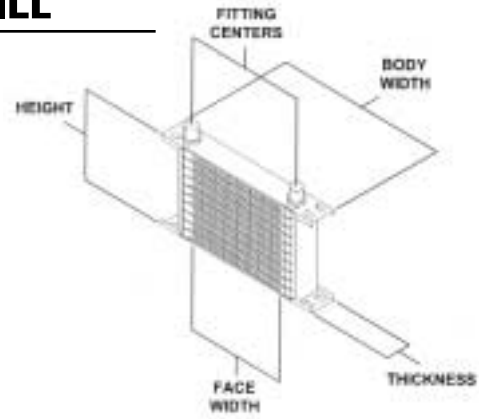
Comparable oil pressure drop across matrix with SAE 10 oil at 200° F. inlet temperature.



# TEMP-A-CURE™ RADIATEURS D'HUILE

TEMP-A-CURE oil coolers are designed to suit any application. The chart below will assist you in choosing the correct model for your needs.

**NOTE:** All of our Temp-A-Cure Coolers are available with a variety of fittings including hose barb (3/8 and 1/2), male AN fittings (-6 to -16), female pipe thread (1/4, 3/8 and 1/2) and B.S.P. (British Standard Pipe) threads in 1/2, 5/8, and 3/4.



<b>Face Width (Between Tanks)</b>	4"	9"
<b>Fitting Centers</b>	5-1/8"	9-3/4"
<b>Body Width</b>	8-1/4"	13"
<b>Thickness</b>	2"	2"

Row No. & Height	Fitting Size	Narrow	Wide
7 Row Height 2"	-6 AN Male	20706ERL	40706ERL
	-8 AN Male	20708ERL	40708ERL
10 Row Height 3"	-6 AN Male	21006ERL	41006ERL
	-8 AN Male	21008ERL	41008ERL
13 Row Height 4"	-6 AN Male	21306ERL	41306ERL
	-8 AN Male	21308ERL	41308ERL
	-10 AN Male	21310ERL	41310ERL
16 Row Height 5"	-6 AN Male	21606ERL	41606ERL
	-8 AN Male	21608ERL	41608ERL
	-10 AN Male	21610ERL	41610ERL
	-12 AN Male	21612ERL	41612ERL
19 Row Height 5-7/8"	-6 AN Male	21906ERL	41906ERL
	-8 AN Male	21908ERL	41908ERL
	-10 AN Male	21910ERL	41910ERL
	-12 AN Male	21912ERL	41912ERL
25 Row Height 7-3/4"	-8 AN Male	22508ERL	42508ERL
	-10 AN Male	22510ERL	42510ERL
	-12 AN Male	22512ERL	42512ERL
	-16 AN Male	22516ERL	42516ERL
34 Row Height 10-1/2"	-8 AN Male	23408ERL	43408ERL
	-10 AN Male	23410ERL	43410ERL
	-12 AN Male	23412ERL	43412ERL
	-16 AN Male	23416ERL	43416ERL

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