

## **Air conditioning compressors can use as much fuel as a vehicle traveling at 35 mph.**

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The world's automakers are under increasing pressure to build more fuel efficient vehicles that emit fewer, less harmful emissions.

Those demands put the automakers in a quandary, however, as engine and exhaust technology is being pushed to its limit. However, AVL, an Austria-based powertrain and engineering company, has found a new approach to solving some perplexing problems.

At a recent industry conference hosted by AVL at its Plymouth location, automakers and suppliers around the world were shown the benefits of AVL's groundbreaking thermal management technology.

According to Dr. Albert Turtcher, chairman of the "Virtual Vehicle Thermal Management Conference," improved thermal management technology could save billions of gallons of fuel annually.

"Automakers and suppliers recognize that as emissions and fuel efficiency regulations become more stringent, a systems approach is required to effectively design the heating and cooling functions for vehicles," Turtcher explained.

"We waste literally millions of gallons of fuel on sub-optimized thermal management. This is a tremendous amount of fuel, and an extraordinary amount of money," he said.

To better thermal management and reduce costs, Turtcher said the automotive industry must stop looking at the individual thermal characteristics of a vehicle component and instead look at how those components interact and affect each other.

"You can look at the components isolated, but it's better that you look at them in a combined way," Turtcher said.

"When you look at the vehicle, all systems interact. If you look at one system by itself, you don't get the effects of interaction," he said.

Since the greatest mismanagement of thermal energy usually occurs within a vehicle's cooling system, AVL focused much of its attention on finding a way to create more efficient cooling.

**According to a study conducted by the U.S. Department of Energy's National Renewable Energy Laboratory, air conditioning compressors can use as much fuel as a vehicle traveling at 35 mph.**

"The government acknowledges that more efficient cooling could save up to 50 percent of the fuel used for air conditioning. This equates to over 3.5 billion gallons of gasoline," Turtcher said.

To assist automakers and suppliers in developing better thermal efficiency into their vehicles, AVL has created sophisticated computer simulation software that allows engineers to see virtual images of thermal dissipation.

Furthermore, AVL also touts the benefits of simple modifications that can be made. When combined with the computer simulation software, components such as sun-blocking window glazing can greatly enhance thermal management.

"It all works hand in hand with new engine technology, the message is don't look at one single party, you have to look at it as a system," Turtcher said.