**OPE Update** March 2013

# Frost & Sullivan Selects Achates Power for Product Innovation Award

Achates Power was recently selected as Frost & Sullivan's 2013 North American New Product Innovation Award winner in the medium- and heavy-duty commercial vehicle engine market.

"Strong, fundamental research and advanced engineering have enabled Achates Power to develop more than 1,000 unique engine innovations. It's these innovations that have produced a clean, significantly more fuel-efficient, opposed-piston, two-stroke engine that holds the potential for application in several medium- and heavy-duty commercial vehicle applications," said Sandeep Kar, global director of Commercial Vehicle Research, Frost & Sullivan. "With the volatility of fuel prices and the strengthening of global emissions regulations, the Achates Power engine is well-positioned for commercialization and growing market penetration."

David Johnson, Achates Power president and CEO, accepted the award at a ceremony in San Diego on March 12.

Frost & Sullivan Best Practices Awards recognize companies in a variety of regional and global markets for demonstrating outstanding achievement and superior performance in areas such as leadership, technological innovation, customer service and strategic product development.

# Oil Consumption in an OP2S Engine

Opposed-piston, two-stroke (OP2S) engines have been around since the late 1800s and were once widely used

## IN THIS ISSUE



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in ground, marine and aviation applications. However, with the advent of global emissions standards, production of these engines for on-road use was halted. Why? Despite the many advancements made to two-stroke powertrains, the OP2S engines of the 1970s suffered from high NOx and soot emissions and high oil consumption. Using the latest engineering methods and technologies, Achates Power has overcome these challenges and demonstrated less than 0.1% fuel-specific oil consumption. Watch the video to find out how we accurately measure and maintain low oil consumption in our OP2S engine.

## "Under the Hood"

### Turbocharger Efficiency: An Underappreciated OP2S Advantage

*By Dr. Gerhard Regner*
*VP, Performance and Emissions*
*Achates Power, Inc.*

There are a number of factors that contribute to the inherent thermal efficiency of the opposed-piston engine. Often, however, turbocharger efficiency is an overlooked and underappreciated advantage of opposed-piston, two-stroke engines like ours. Due to the two-stroke cycle, the OP2S has a natural fit to the high efficiency points of a turbocharger's compressor map. Read more.

## In the News

- Achates Power Opposed-Piston Diesel for TARDEC Will Demonstrate Multi-Cylinder Configuration
  *(Green Car Congress)*
- Liquid Hydrocarbon Still the Best Way of Storing Energy
  *(Auto Tech India)*
- Achates Claims Huge Gains in Fuel Efficiency of Opposed-Piston Design
  *(Xconomy)*
- U.S.-based Technology Company Achates Power Taps Indian Truck and Bus Makers for New Age Engine
  *(Times of India)*
- An Engine That Uses One-Third Less Fuel
  *(MIT Technology Review)*

- Achates Power, AVL Awarded $4.9 Million TARDEC Contract
  *(Detroit Auto Scene)*

- U.S. Army Tabs AVL and Achates Power for New-Generation Engine
  *(SAE Automotive Engineering International)*

- U.S. Army Awards $4.9M Contract to Achates Power and AVL for Next-Generation Combat Engine Based on Achates Two-Stroke, Opposed-Piston Technology
  *(Green Car Congress)*

## Upcoming Events

If you missed Achates Power at SIAT, Automotive Megatrends USA or the STEP Expeditionary Power and Energy Workshop, please stop by and see us at:

- CalHEAT Third Annual Forum
  March 26 at 1:30 p.m. in Sacramento, CA
  **Panel Discussion:** Proposed CalHEAT Pathway: Next Steps for Cleaner, More Efficient Over the Road Trucks

- SAE High Efficiency IC Engine Symposium
  April 15 at 5:00 p.m. in Detroit, MI
  **Presentation:** Opposed-Piston Engines for Light-Duty Applications

- SAE World Congress
  April 17 at 1:30 p.m. in Room W1-52 (Cobo Center) in Detroit, MI
  **AVL Technology Leadership Center Panel Discussion:** Advanced Propulsion - What Are the New and Innovative Technologies That Will Be the "Game Changers"?

- CALSTART Webinar
  April 24 at 11 a.m.
  *Information on how to register will be available soon; contact news@achatespower.com if you would like to attend*
  **Presentation:** Meeting Future Fuel Efficiency and Emissions Regulations with the Opposed-Piston Engine

- Emissions 2013
  June 18-19 in Ypsilanti, MI
  **Presentations:** Increasing Fuel Efficiency and Lowering Emissions through Rapid Catalyst Light-off of an Opposed-Piston Engine *and* Meeting Stricter Fuel Efficiency and Emissions Standards with the Opposed-Piston Engine

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