

achates POWER CORPORATE FACT SHEET

Achates Power, Inc. has developed a radically improved internal combustion engine that increases fuel efficiency, reduces greenhouse gas emissions and is lower cost. Founded in 2004 with the mission to build cleaner, more efficient engines, the San Diego-based company has an experienced staff of engineers and scientists focused on applying their proven technical know-how and expertise, coupled with the industry's leading-edge testing, simulation and analysis tools.

INDUSTRIES SERVED

Within the more than \$590 billion global market for internal combustion engines, Achates Power is primarily targeting commercial and passenger vehicles. It also provides engine solutions for military, marine and stationary power applications.

Achates Power is currently designing engines for customers ranging from 50 to 5,000 horsepower.



CUSTOMERS

Achates Power customers produce and sell more than half of the cars, trucks and engines that are produced and sold today in global markets.

- Developing an opposed-piston gasoline compression ignition engine with Argonne National Laboratory and Delphi Automotive as part of a Department of Energy ARPA-E award.
- The U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC) selected Achates Power, partnering with Cummins Inc., to develop the Advanced Combat Engine following the successful Next-Generation Combat Engine project.
- Fairbanks Morse Engine has signed a joint development and licensing agreement with Achates Power to reduce emissions and fuel consumption of Fairbanks Morse proprietary diesel and dual-fuel opposed-piston engines.
- Multiple major OEM customers have retained Achates Power to design engines for various applications and geographies.

PROTOTYPES AND TEST RESULTS

- Fully functioning engine prototypes with more than 7,000 test hours
- Demonstrated fuel efficiency improvement of 30 percent compared to the leading light-duty diesel engines and 86 percent more efficient relative to gasoline engines
- Demonstrated ability to meet EPA 2010, Euro 6, CAFE 2025 GHG2 and Tier 3 / LEV 3 regulations

FACILITIES

- Fully equipped engine design and development facility
- A fuel lab rivaling those of OEM fuel injector manufacturers which includes laser Doppler anemometry, laser-induced fluorescence to characterize fuel spray and a state-of-the-art fuel bench for mapping fuel injectors
- Fully equipped dynamometers with instrumentation to record necessary engine parameters and test cell conditions

INTELLECTUAL PROPERTY

Achates Power's patent portfolio includes more than 2,500 unique innovations as well as:

- More than 90 patents from around the world, including patents in the U.S., China, France, Germany, Great Britain, Italy, Japan, Mexico, Russia and Sweden
- More than 140 pending patent applications

OWNERSHIP

The company is privately held and backed by leading venture capital firms Sequoia Capital Partners, RockPort Capital Partners, Madrone Capital Partners, InterWest Partners and Triangle Peak Partners. It was founded by Dr. James Lemke with investment from the late John Walton, son of Sam Walton, the founder of Wal-Mart.

ADVISORY BOARDS

Achates Power has a Technical Advisory Board and an Industry Advisory Board comprised of SAE International and ASME Fellows, members of the National Academy of Engineering (NAE) and several former presidents of SAE International.

- **Dr. James Lemke** – Founder and chief scientist of Achates Power and TAB chairman. He holds more than 100 patents.
- **Dr. David Foster** – Phil and Jean Myers professor emeritus at the University of Wisconsin. He is an expert in the field of internal combustion and fluid dynamics.
- **David Merrion** – Retired executive vice president of engineering at Detroit Diesel Corporation, currently serving as a consultant to DDC, GM and other companies.
- **Wallace Wade** – Retired technical fellow of Ford Motor Company, focusing on low-emissions engine technology.
- **Dr. Ward Winer** – Emeritus Chair of the Woodruff School of Mechanical Engineering at Georgia Tech. He is an expert in tribology and fluid mechanics.
- **Dr. Walter Bryzik** – Retired DeVlieg chairman and professor of mechanical engineering at Wayne State University. He is also the retired chief scientist of TARDEC.
- **Daniel Hancock** – Retired vice president, global powertrain engineering, who spent more than four decades at General Motors. He was also the 2014 SAE International president.
- **Bruno Linsolas** – Retired senior vice president of purchasing at Volvo Powertrain, former chairman of Volvo Group purchasing and former executive vice president of purchasing at Mack Trucks.
- **Dr. Karl Viktor Schaller** – Retired head of heavy-duty trucks, drivetrain, axles and transmissions as well as a former board member of MAN Truck & Bus AG.
- **Dr. S.M. Shahed** – Former vice president and corporate fellow of advanced technology at Honeywell Turbo Technologies, executive director of advanced technology at Cummins, Inc., director of engine research at Southwest Research Institute and 2002 SAE International president.

EXECUTIVE LEADERSHIP

- **President and CEO: David Johnson**
- **Founder and Chief Scientist: Dr. James Lemke**
- **Chief Technical Officer: John Koszewnik**
- **VP, Business & Strategy Development: Laurence Fromm**
- **Regional VP, Midwest Operations: John Major**
- **VP, Technology Development: Fabien Redon**
- **VP, Programs & Operations: Dr. Jérôme Paye**
- **VP, Mechanical Systems: Dnyanesh Sapkal**
- **VP, Performance & Emissions: Dr. Gerhard Regner**

BOARD OF DIRECTORS

David Johnson: President and CEO, Achates Power, Inc.

Dr. James Lemke: Founder and Chief Scientist, Achates Power, Inc.

Jamie McJunkin: Founder and General Partner, Madrone Capital Partners

David Prend: Managing General Partner, RockPort Capital Partners

Gary Convis: Senior Advisor, Bloom Energy and Former Chairman, Toyota North America

Hal Harvey: CEO, Energy Innovation

Frank Macher: Chairman and CEO, Continental Structural Plastics

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