

'We are evaluating engine design, research & development centre in India'

Achates Power was established in 2005 with venture funding from group of investors including John Walton (of Walmart founder family) to the tune of around \$50 million. It is focused on providing opposed piston engine technology for automotive and other applications with capabilities for engine development, designing and testing. In an interaction with President and Chief Executive Officer, Achates Power, **David Johnson** elaborates on the technology evolution roadmap for diesel engines and his company's future plans.

■ Abhishek Parekh

▶▶ What are the major technological changes that are likely to shape engine manufacturing and designing business?

The current economic and political environment seems to be focused on fuel efficiency and reduction of green house gases. We are currently focused on making the opposed piston engine a technology of choice for the diesel engine for automotive sector.

▶▶ Why has the opposed piston engine technology not been widely adopted in the automotive sector?

The major challenge in the 1930s and 40s, during the early part of the evolution of automotive powertrain technology, was that the opposed piston technology, despite its benefits, could never emerge as a clean technology. Moreover the technology was rather inefficient as the engine consumed too much oil, did not provide acceptable level of fuel efficiency and could not be relied upon to meet emission standards.

The opposed piston engine

technology allows the elimination of cylinder heads in the engine and thus there is no need for engine valves for intake and exhaust of air. This implies that the pistons perform the task of the engine valves. The technology splits the internal engine combustion into two events with pistons moving at slower speed compared to a conventional four-stroke combustion engine. Hence it is possible to churn out more energy and performance with a relatively longer combustion process. We are able to offer a more fuel efficient two-stroke engine with longer combustion cycle for better fuel economy and cleaner performance. The engine is lighter and smaller compared to a conventional four-stroke engine without compromising on any of its performance parameters.

The major challenge is to make the technology cleaner to enable wider adoption in the automotive sector. There is still some scepticism among our potential customers regarding the ability of the engine to meet performance and emission compliance expectations. The technology

allows for multiple options for fuel injection and we can reduce the size of the engine from five litres in case of conventional four-stroke to something like three-litre two-stroke ones without any compromises on the performance.

▶▶ What has been the major breakthrough in the technology and how has Achates Power involved in overcoming such technological hurdles?

There have been series of technological breakthroughs over a period of time not necessarily meant for opposed piston engine technology but rather more generic in nature, which has helped the technology evolution. More importantly, there are now multiple solutions to overcome many of the concerns over the technology for addressing specific market needs.

Over the last twelve to sixteen months, we have generated around 1,500 hours of testing based technical data based on this technology and that is our major contribution to its evolution. Initially, we were focused more on aviation sector and the efforts were directed to meet the requirements of that segment. But as the technology evolved, we realised that we could make the technology cleaner and efficient for targeting the automotive sector. This allowed us to address major issues connected to transportation segment including the automo-



David Johnson, President & CEO, Achates Power

most critical component in a vehicle.

We are looking to tap opportunities in tractors, construction equipments and gensets, mainly in the emerging markets in Asia and Latin America, where fuel efficiency and volume equation works in the favour of technology like ours. As opposed to engineering services companies, we work with our customers on technology licensing model as most customers would want to perform critical engine development work themselves.

▶▶ How has the downturn in the developed markets in Europe and North America affected your company and what is your outlook?

The downturn actually helped us because we could hire talented employees from OEMs and other engine manufacturers to support our growth objectives. Manufacturers with new vehicle development programme with newer engines are good prospects for us. Additionally, we are also looking to tap existing vehicle platforms with a newer and greener engine. Our immediate plan for India is evaluating a research & development facility for continuing our effort to make robust engines for automotive sector. The capability exists here but there are other factors like market access, infrastructure to be considered before making such a decision. ▶▶

▶▶ Which markets are you targeting in the medium to long term in transportation segment?

It is important that the engine is not heavier & larger and costs more than the engine currently in use for most automotive applications. We are looking to be a technology partner to vehicle and engine manufacturers rather making the engine ourselves. It would be an uphill task for any player aspiring to become an engine supplier or manufacturer to exiting or even new vehicle manufacturers as engine is the

Your Partner for Quality



Paint Supply System - Pneumatic



Auto Painting System with Rotary Automizer



Auto Painting System for wheel



Auto Painting System with Rotary Atomizer

- Paint Circulation System
- Cavity Wax Injection System
- Spray Guns – Conventional and Electrostatic
- Electric/Hydraulic/Pneumatic Paint Pumps
- Automatic Paint Applicator System
- Centralized Sealer Systems with Robotic Applicators
- Centralized Lubrication Systems for Oil & Grease
- Urethane Glass sealing Systems
- Diaphragm/Piston Transfer Pumps for Most Chemicals
- Automatic Color Change System

PATVIN ENGINEERING PVT. LTD.

Sales Office:

Patvin House, W-193, TTC Industrial Area, Koperkhairane, Navi Mumbai - 400 709
Tel: +91-22-27780310 Fax: +91-22-27780311
Email: sales@patvin.co.in, patvin@patvin.co.in

Service Office:

H-A-86, MIDC, Opposite Court, Pimpri, Pune – 411018
Tel: +91-20-46772731 Fax: +91-20-46772728
Email: service@patvin.co.in