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Development of an electromagnetic valve actuation system for high efficiency engines

Results in Brief

Innovative valve technology for greener motoring

The days of using mechanical valves in car engines may be numbered thanks to EU-funded research. The ELVAS project developed and tested an improved electromagnetic valve actuation system that gave better fuel efficiency and reduced carbon dioxide (CO₂) emissions.



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The initiative was funded under the EU's Growth programme and developed a high-tech alternative to conventional valves based on an improved electromagnetic actuation system. The new system employed lightweight materials to minimise power loss and maximise fuel economy.

Project partners created a valve actuation system that was 25\;% lighter than the conventional valve, used less electricity and was completely recyclable. Carbon dioxide emissions and fuel consumption were reduced by 15\;% while engine noise decreased by 10 decibels (dB) at 3\;000\;rpm. The consortium, which included manufacturers of valve actuation systems and engine intake and exhaust valves, also created guidelines for testing valve components and new manufacturing processes.

The ELVAS project successfully developed lightweight valves and materials that led to reduced valve actuation power losses and helped maximise fuel economy. Lower fuel consumption, less noise and fewer emissions will result in reduced environmental impacts, and more sustainable and cost-effective motoring. This in turn will make the European automobile industry more competitive in the global marketplace.

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Project Information

ELVAS

Grant agreement ID: G3RD-CT-2000-00363

Project closed

Start date

1 February 2001

End date

31 July 2004

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Programme for research technological development and demonstration on "Competitive and sustainable growth 1998-2002"

Total cost

€ 2 665 310,00

EU contribution

€ 1 203 013,00

Coordinated by

JOHNSON CONTROLS
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