

**Q: What's an E-drive cooling system?**

**A:** An electric fan drive cooling system (E-drive) is an innovative solution that replaces traditional hydraulic/viscous fan systems found on passenger service vehicles. Rather than the conventional singular hydraulic fan, the engine is cooled by smaller electric fans.

**Q: How does it work?**

**A:** The cooling system is made up of 2 heat exchangers: a radiator and a charge air cooler. During a vehicle's duty cycle, each heat exchanger will have different thermal settings. With a traditional hydraulic system the single fan covers the 2 heat exchangers, requiring more energy to be used when the system is not operational. Because the smaller, E-drive, electric fans are positioned in "banks" directly across the respective heat exchanger, surface coverage is improved and **energy consumption is reduced.**

**Q: How many fans will my E-drive cooling system require?**

**A:** Our highly experienced design team will provide you with a bespoke solution based on your specification. The E-drive is designed to your requirements, to include up to 20 fans, all of which only operate against thermal temperature settings. Requiring minimal maintenance, the E-drive system reduces servicing costs and vehicle downtime.

**Q: How much fuel consumption can be achieved?**

**A:** Our customers have reported **fuel savings of up to 15%**, with 5-10% being the average. However, the fuel efficiency is dependent on various factors such as operating conditions, vehicle loads and routes.

*If you have further questions, please get in touch on:*

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**Q: Can noise level also be reduced?**

**A:** Yes. **Reductions of up to 30% in noise levels**, whilst in service, have been reported. With the fan on full in a hydraulic system, we have measured as high as 104dB. In simulation, with the fan fully operating in the electric system, 101dB has been measured. And, in service, the fans on the charge air cooler ran at 30-40% capacity and the radiator at 50-60% capacity, recording a level of 78dB.

**Q: Does E-Drive reduce operating cost?**

**A:** The E-Drive is designed to reduce the amount of energy used to cool the engine, resulting in **lower running costs and reduced environmental impact.** Unlike a traditional hydraulic system, where the fan is constantly operational, electric fans only work when they need to. In addition, each fan on the E-drive can be reversed; reversing the fans helps to remove debris collected over a period of time.

**Q: What's the product life time?**

**A:** The product life with annual servicing is around 4-5 years. **The fans have 30,000 hour life** so this is dependant on duty cycle; this will offer 5 years minimum life.

**Q: Is it expensive to retrofit an E-drive system?**

**A:** As we are targeting vehicles which are out of manufacturer's warranty the cost of replacement systems would be **£2,000 on cost of the overall maintenance budget** per vehicle if you take into consideration that the original systems would need to be replaced around this time. The return on investment is targeted at 12-18 months, after this period the system should generate operation and fuel saving.

