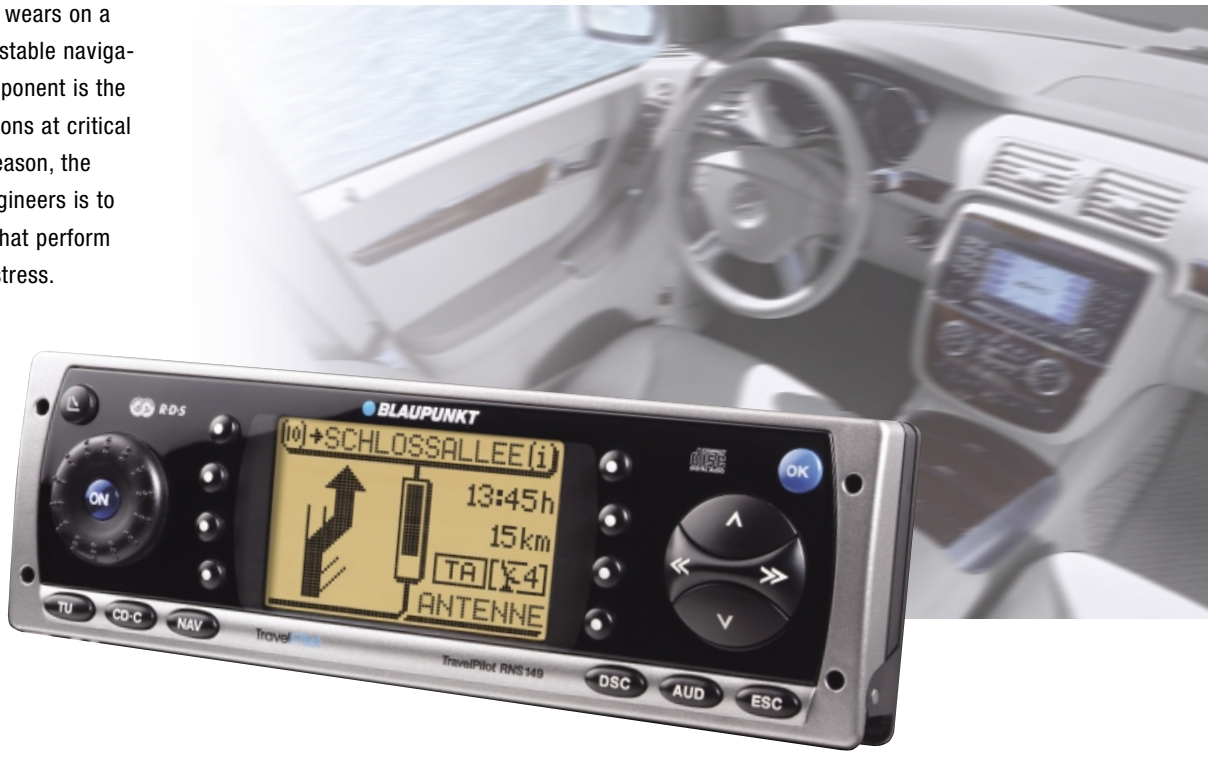
CASE STUDY

Navigation systems

Reliable cooling: arriving at your destination relaxed, without fail

Navigation systems can guide passengers to their destinations reliably – though only if they are dependable. When failures and malfunctions occur, overheating is most likely the cause. Cooling these sensitive hot spots and developing fail-safe systems requires great expertise in the area of fans.

As experience shows, nothing wears on a driver's nerves worse than unstable navigation electronics. No other component is the subject of such high expectations at critical moments. For precisely this reason, the challenge for development engineers is to build navigation instruments that perform reliably, even under extreme stress.



With high dissipated energy and extremely high component packing density: fan and blower components from ebm-papst.

This is why the cooling of navigation systems has become is a hot topic. In compact instrumentation, a large number of electronic components share an extremely tight space. High packing density and high-performance processors lead to critical temperatures. Active cooling is essential if the components are to remain unharmed. Having temperature regulation close to the source makes it possible to react to critical temperature ranges in a targeted way, and dynamically. For the entire life of the vehicle, active, extra-small fans guarantee the required level of function and the reliability of the electronic components. Increasingly, navigation instruments are developing into compact multi-functional units. Such units are expected to provide high dependability and robustness

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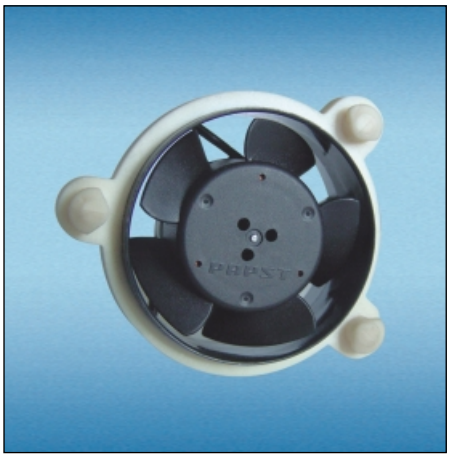

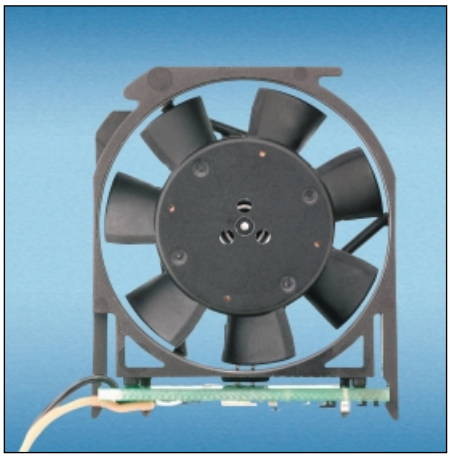

Extra-small fans from ebm-papst provide powerful and reliable cooling for sophisticated vehicle electronics.

under extreme ambient conditions. In particular, the ambient temperature and heat given off by the electronic components determine the thermal load during operation. To ensure that navigation instruments will not lack air at critical moments, ebm-papst makes full use of its in-depth expertise in fans.

A central requirement for the cooling application can be summed up as such: only as much vibration as necessary, and as much reliability as possible. The most readily apparent feature of the cooling solution developed by ebm-papst is the coupling of the fan. In cooling applications, depending on the installation situation, there may be danger that resonance will amplify the fan noise. ebm-papst development engineers have attacked this problem head-on, and have come up with a solution that is still groundbreaking: a fan suspension consisting of two different plastic materials guarantees that the fan runs extremely quietly and with minimal vibration. This cooling application, which is being used in many automobiles, proves that, with ebm-papst's expertise in fans, unreliable navigation electronics are a thing of the past.

Innovative ideas for electronics cooling in the automobile

In the development of the cars of the future, electronics are playing an increasingly important role. In collaboration with manufacturers and system suppliers, ebm-papst develops groundbreaking solutions for electronics cooling. Our many years of automobile fan expertise and complete product range of innovative system solutions are ideal qualifications for developing future automotive cooling applications.

High performance requires intelligent air applications

- Efficient cooling performance
- Precision heat removal, right at the origin
- Cooler temperatures prolong instrument life
- Extremely high operating reliability
- Reduced noise