



„A highly efficient and easily controllable fan for cooling electric motors? That’s when I called Elektrosil.“

Efficient cooling for axle motors: Elektrosil developed a highly efficient, quiet and reliable cooling solution that met the highest industry standards.

THE CHALLENGE

The requirements for a cooling solution for this type of fully electric industrial vehicle were high: operating temperature up to 100 °C, protection class IP 67, very high shock and vibration resistance and a service life of at least 100,000 hours.

THE SOLUTION

The customer initially wanted to use a classic solution for brush motors, and to control the fan speed using a clocked power supply (without smoothing).

In order to meet the customer’s requirements, a thorough analysis and optimisation of the fan was necessary. We used a Fourier analysis to determine the electrical effects and to be able to present a suitable low-pass design as a separate assembly.

After we presented our results, the customer decided in favour of a more suitable fan with a PWM input, which allowed the existing signal from the classic control to be fed directly to the fan input without the need for any major additional circuitry.

The advantages for the customer were compelling: a much wider speed range (1:10 instead of 1:2), guaranteed start-up at the lowest speed, an exactly adjustable cooling capacity, maximum noise reduction in the respective partial load range and an extension of the service life far beyond the desired 100,000 hours.

Thanks to our targeted analysis and optimisation, the fan was able to meet the customer’s high requirements. The design-in went smoothly, and the axle motor cooling works reliably, efficiently and quietly even under extreme conditions.

OUR STRENGTHS

- Expertise in cooling solution systems
- Customised solutions
- System integration
- Mechanical design
- Project management

Are you also looking for a custom-fit solution for your system and a competent partner? Then give us a call: +49 40 840001-0.

Project information

- Client: a German industrial truck manufacturer
- Industry sector: industrial trucks
- Project size: approx. 14,000 vehicles per year
- Product areas: cooling solutions
- Services: Consultancy, design, simulation, development, validation, production control, quality assurance

Elektrosil’s services

- Application consultation, development assistance, design-in support
- Quality assurance
- Engineering and production
- Completely customised applications