

Shroud COVER

SPAL has invested over 25 years in the design of its axial fans and is today a world leading authority on cooling. Here SPAL Automotive UK MD Matthew Morris explains how the surrounding shroud plays a vital part in optimising performance.

Although we often talk about the design and technology behind our world leading fans, the humble shroud rarely gets a mention. Yet it's so much more than just a cover. On the contrary, it has a vital role to play in the extraordinary performance of our fans.

It might be the last part of a fan assembly build, but the shroud is just as important as the other elements of the unit in achieving optimum cooling.

Primarily it allows a round fan to be fixed to a square or rectangular radiator. However, because the shroud encloses the fan blades around the rim, it also promotes the smooth passage of airflow, while its ergonomic design ensures the most efficient air distribution across the radiator to its core, without creating excessive turbulence.



What's more, not only is the shroud along with the blade hub contributing to smooth and even distribution of airflow, once the fan blades have pulled the air through the radiator, it's the hub that can also be used to draw heat off the motor itself.

The cooling system is one of the largest and heaviest parts in a car and has to manage the internal temperatures to keep the engine at its most efficient. However, engine bay space, is always at a premium and so the profile of the shroud is key to achieving the best fit of the most powerful fan within the available space to prevent the potentially fatal issue of engine failure through undercooling.

The shroud also plays a role in the reducing the weight of the fan, which is particularly essential in motorsport. Any savings made to the overall weight of the vehicle improves the balance of the car and its handling. So, clearly a lightweight fan unit contributes to weight reduction at the front end of the vehicle where the heaviest components sit, and operates at greater efficiency while also reducing the emission of pollutants.

A robust piece of engineering formed in heavy duty moulds and subjected to enormous pressure so that the plastic raw material is evenly distributed around the mould for perfect balance, the simple shroud actually is a pretty cool customer.



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