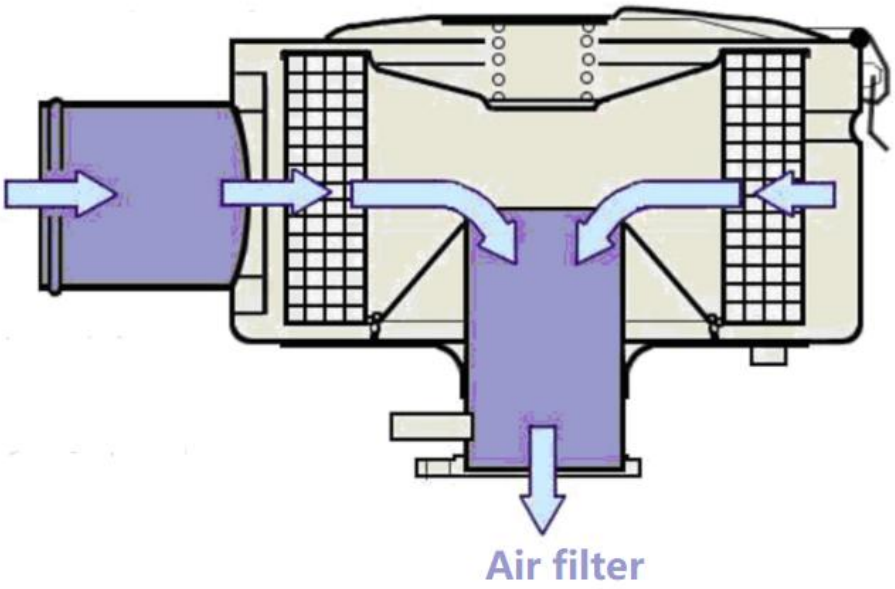
"The Lung of the Car" – Air Filter

Every vehicle requires protection for its engine, and the air filter is a product designed specifically for this purpose. To better help everyone understand the role of the air filter in automotive components, this article will introduce the principle and function of the air filter.

How does the air filter protect the engine? It’s quite simple. The air filter prevents particles in the air from entering the engine. When the engine is running, it needs to intake air, and the air filter blocks dust particles larger than 5 microns from entering, essentially protecting the engine like a "lung". Without the air filter, dust in the air would directly contact the engine, causing wear and tear. Over time, this would significantly reduce the engine's lifespan.



The air filter is a consumable part in a car. Over the vehicle’s entire lifespan, the air filter needs to be replaced many times. How do we know when it’s time to replace the air filter? One important indicator is the "dust capacity". The particles filtered by the air filter do not disappear but accumulate within it. Once the weight reaches the filter's maximum capacity, this weight is referred to as its dust capacity. When the dust in the air exceeds this capacity, the air filter will obstruct airflow, negatively impacting engine performance, fuel efficiency, and longevity.

So, how can we intuitively understand when the air filter needs to be replaced? In addition to checking the car’s mileage, the most direct way is to observe the color of the filter paper. A

new air filter has very clean paper, and when the color of the paper changes from light to dark, it indicates that it’s time for a replacement. Additionally, by comparing the weight before and after use, the weight of a new air filter and one that has been used for a long time will differ. When the weight difference reaches the dust capacity, it’s time to replace the air filter.

Air filters are mainly divided into dry and wet types. Air filters made from white wood pulp paper or non-woven fabric are dry-type filters. Wet-type air filters are usually made from polyester fibers and often coated with grease to enhance adsorption. Dry-type air filters are low-cost and have a shorter lifespan, while wet-type filters are more expensive but offer stronger adsorption and a longer lifespan. Fully understanding the principle and function of air filters will help us better choose the most suitable product to protect our beloved cars.