

DID YOU KNOW

Pre-Cleaners are a great way to extend your filter life, but they are not a substitute for an air cleaner. They must not be used in place of an air cleaner.

PRE-CLEANERS

EXTEND AIR FILTER LIFE WITH THE RIGHT PRE-CLEANER

Engines are used in a variety of different environments, many of them where high or extreme amounts of dust are present. Dust and other contaminant needs to be removed before the air reaches the engine to prevent premature engine failure. Engines are fitted with air cleaners to remove this contamination from the incoming air. Sometimes, the amount of contamination or dirt being removed from the incoming air is so great, the air cleaner reaches capacity very quickly and requires servicing.

It is possible to extend this service interval greatly by using a pre-cleaner.

What is a Pre-Cleaner?

A pre-cleaner is a device which is installed in the intake system of an engine before the air cleaner. It removes much of the contamination and dirt from the incoming air. They are effective at removing the larger dirt particles and water droplets. As a result, they will greatly reduce the dirt reaching the air cleaner, resulting in extended filter life.

How does a Pre-Cleaner work?

There are many different types of pre-cleaners available. Most of them use some form of inertial separation process to remove dirt without using a replaceable filter.

Dirt particles are heavier than air and will try to continue traveling in the same

direction even if the air flow is made to change direction. Effectively, the flow of dirt splits from the flow of air. The heavier the particle, the more effective this process is.

Does the choice of Pre-Cleaner matter?

Yes. Apart from the different types of pre-cleaners, all pre-cleaners need the air flow to be moving at a reasonable speed for the separation process to work effectively. If the pre-cleaner is too large for the engine's air flow, the air will not be traveling rapidly enough for the dirt to separate. The dirt will stay mixed with the incoming air. If it is too small, the level of restriction of the intake system will be too high for the engine.

Air Rams

An air ram, is the simplest form of pre-cleaner and is effective in removing dust and water at high speeds and is most suited to highway operation. They have the added advantage of reducing restriction to the air system at high speeds. It is important that they are installed correctly. They are ineffective at low speed and on stationary equipment.



Inline Separators

Often used as a second pre-cleaner for on-highway vehicles these are effective at removing larger dirt particles and water at speed. They have a set of vanes that cause the air to spin as it passes through the unit with cleaner, dryer air continuing on to the air cleaner, with the dirt and water being expelled.



Full View Pre-Cleaners

These pre-cleaners have angled vanes that cause the incoming air to spin rapidly around the pre-cleaner. Dirt and water is collected in the outer bowl, while the cleaner air passes down the centre of the unit to the air cleaner. Once the bowl is full it needs to be emptied. Full view style pre-cleaners operate at about 75% efficiency. They are suitable in low speed and stationary applications. While they can be used on high speed vehicles, they will increase the level of restriction to the incoming air.



Top Spin Pre-Cleaner

This style of pre-cleaner works in a similar way to full view except they are self emptying.



Working at 85% efficiency, they have a rotating vane that expels the separated dust out the side of the pre-cleaner. Again, while they can be used on high speed vehicles, when used at highway speeds they will cause an increase to the level of incoming air restriction. They are best suited to slower moving and stationary equipment.

Strata Caps

Strata tubes are often used as an integral part of air cleaners used in high dust environments but are now also available in a new type of pre-cleaner called a Strata Cap. These contain small, vaned tubes that cause the air to spin very rapidly. These operate at a very high 95% efficiency, however, they usually need to be used in conjunction with an exhaust scavenge system to clear away the separated contamination.

