Oil Mist Eliminator

Suitable for gas and diesel engines in marine, industrial and oil & gas applications

- **Eliminates all visible oil mist**
- **Removes sour gases from the crankcase, which can extend the life of the oil**
- **Discharges clean air to atmosphere**
- **Eliminates oil stains, reduces environmental pollution – improves site conditions**
- **Can be mounted away from the source at a convenient location**
- **Pressure balancing technology can be included to ensure perfect operation without the need for operator intervention**

Large volumes of lubricating oil are required to cool and protect the internal surfaces of engines.

These conditions result in the generation of oil mist, which traditionally was vented to atmosphere. However, this may now not meet increasingly stringent environmental legislation.

Failure to deal with oil mist can at worst represent a significant environmental hazard and at best will attract dust and dirt making the site an unpleasant place to work. Our oil mist eliminator systems have been designed to remove all visible oil mist.

Our fan assisted oil mist eliminators compensate for the differential pressure across the oil mist eliminator cartridge and can create a small depression within the machine if required. This eliminates unwanted pressurisation of the lubricating oil system itself. Fan assisted units are typically utilised for diesel / gas engine crankcase breather applications.

Our naturally vented oil mist eliminators are suitable for retrofit applications where fan assistance is already provided, or more unusually, where machines can operate with a positive back pressure.

Oil mist

Oil within an engine is subjected to high temperatures and pressures during operation, which can result in the creation of oil mist. In diesel engines this is compounded by compressed, burnt gases passing by the piston rings to pressurise the crankcase.

The oil mist typically consists of oil droplets ranging in size from 10µm down to 0.03µm and when vented into the atmosphere is normally visible as blue white smoke.

Generally some of this mist can be arrested using interceptor wire mesh, but this only catches the large droplets. Oil mist then settles and deposits itself on surrounding surfaces – resulting in an oily film on machinery, buildings and ships' superstructures which attracts dust and is unpleasant and potentially dangerous. In addition, the oil mist can be explosive if allowed to form unchecked.

We have researched the factors influencing oil mist emissions with the aim of satisfying ever tightening environmental legislation that frequently refers to 'no visible emissions.'

How the oil mist eliminator works

Our oil mist eliminator cartridges remove entrained oil by a coalescing process. The cartridge contains an oleophilic (oil attracting) media, which is designed to maximise oil removal while minimising differential pressure.

Oil droplets are attracted to the fibres

Oil droplets combine, become heavy and fall to the base of the eliminator

Droplet formation and breakdown

The contaminated air stream is directed through specially developed cartridges, which consist of multiple layers of dense coalescing media. The oil attracting characteristics of the media ensure that oil droplets passing through the cartridge are attracted to the fine fibres. The depth of media ensures that each droplet will find a fibre, even though the space between the fibres may be larger than the oil droplet itself. Further droplets attach themselves to the fibres, joining together to form larger droplets with the continued removal of oil from the air stream. Eventually, either due to the force of gravity, or the velocity of the air stream, these large droplets break away, drain through the coalescer and eventually accumulate as free oil at the bottom of the eliminator.

Cartridge saturation and equilibrium

During operation oil mist eliminator cartridges reach a state of saturation or equilibrium. This is the point at which the rate of oil removed from the air stream equals the rate at which it is drained away. Saturation is the normal

operating condition and will continue until the cartridge is blocked by particulate contaminants released by the machine into the oil mist stream.

Efficient operation and cost savings

The operating efficiency of gas and diesel engines is reduced when oil mist is sucked back into the air intakes. This can block the air filters and coat the internal surfaces with oil, as well as fouling turbo charger blades. Our oil mist eliminators improve the air quality in the vicinity of the air intake, which in turn helps to maintain power output and reduces the frequency of air filter replacement as a result of oil fouling.

Thousands of litres of oil can be lost from an installation over a period of a year due to oil mist emissions. The cost of replacing oil can be greatly reduced by returning the recovered oil back to the system.

Pressure balancing technology

This has been developed to eliminate the need for operator intervention. During start up and shut down, system airflow may vary dramatically. Pressure Balancing Technology is designed to ensure a constant and safe system by continually sensing the pressure and varying the oil mist eliminator ventilation to match. This ensures that the pressure remains constant, without the need for adjustment by operators. This system is particularly useful where power plants are subjected to frequent intermittent operation such as would be the case with ‘peak lopping’ stations. This is also useful for ship propulsion plants where load changes frequently through the power curve. Interfacing with the system can be completely automatic or set and modified by the monitoring staff. An electronic, menu driven pad provides immediate access for maintenance. This can also be electronically locked through passwords to prevent tampering.

Rated airflow (m3 / hr@82°C)	**Naturally vented oil mist eliminators**		**Fan assisted oil mist eliminators**	
	Model	**Part number**	**Model**	**Part number**
12	-	-	MMF12	A6373024
25	MM25	A6373185	-	-
50	MM50	A6373186	MMF50	A6371228
100	MM100	A6371211	MMF100	A6371218
250	MM250	A6371212	MMF250	A6371219
500	MM500	A6371213	MMF500	A6371220
850	MM850	A6371214	MMF850	A6371221
1275	MM1275	A6371215	MMF1275	A6371222
1700	MM1700	A6371216	MMF1700	A6371223
3000	MM3000	A6371217	MMF3000	A6371224

The sizing of our Oil Mist Eliminators is based on the airflow through the module. The required airflow for an application can be calculated by measuring the air velocity through a tube of known diameter exiting from the outlet to which the Oil Mist Eliminator is to be connected. For advice and assistance in selection and specification, please contact our Engineering team.