

# Atlas Copco

## MaxLife Fiber Bed Mist Eliminator



The ultimate in protection – The ultimate in long life.



*Atlas Copco*

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## The ultimate in protection – The ultimate in long life.



The MaxLife Fiber Bed Mist Eliminator combines superior performance in particle elimination with unrivalled service lifetime – guaranteed. Typically placed in service as the main pre-filter to a dryer, MaxLife captures lubricant and condensed moisture carryover, even in the event of a compressor separator collapse. The MaxLife filter makes financial sense too, because it only creates 1/10th of the pressure drop of a regular coalescing filter and has a service life 20-30 times longer than conventional filters.

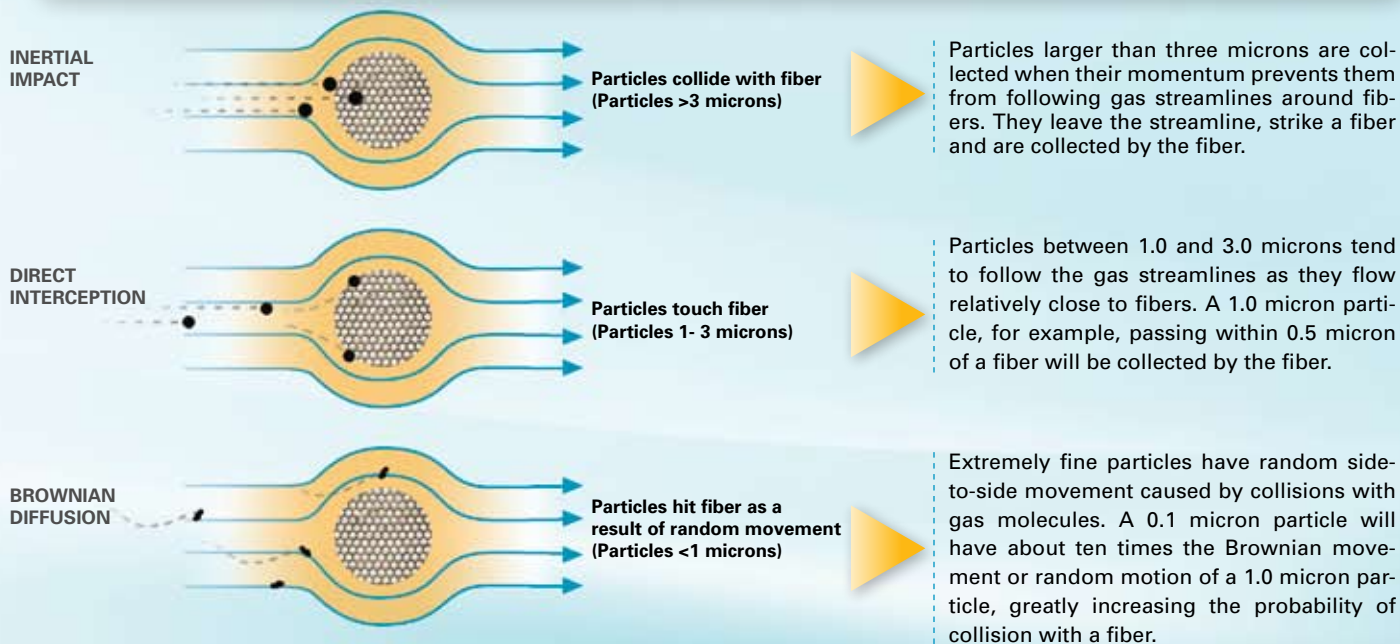
### THE PROBLEM – COMPRESSED AIR CONTAMINATION

With all lubricated air compressors, submicron oil and water particles are present in the compressed air output stream. These mist particles are formed during the compression cycle and after-cooling process. The water, oil and particles combine to form an acidic corrosive mixture that can damage downstream instruments, tools, airveying membranes and even contaminate final product. If a stand alone desiccant dryer is used, the oil and water particles will overload the desiccant bed and significantly reduce its life.

### THE EFFICIENT FILTRATION SOLUTION

MaxLife is more efficient because it does not use pressure differential as the primary means of coalescing. Instead, it utilizes the mechanisms described below along with sufficient bed contact time to remove the particles from the compressed air (gas) stream. By using homogenous-sized fibers packed to a specific density, MaxLife takes advantage of the properties of gas diffusion and traps contaminants in the interstitial space. By maintaining minimal velocities through the fiber bed, the terminal settling velocity is never exceeded. This allows the coalesced condensate to make its way to the outer layer of the element and ultimately to the bottom of the housing, where it can be drained away.

### COLLECTION MECHANISMS FOR THE ATLAS COPCO MAXLIFE MIST ELIMINATOR



# MaxLife Advantages

Instead of short-lived pleated filters or inefficient non-consistent sized fibers, MaxLife fiber beds employ consistent sized fibers that are hand-packed to a specific core-packed density.



## MaxLife's innovative design offers many important advantages:

- Removes 100% of all aerosol mist particles, 1 micron and larger
- Removes 99.5% of all aerosol sub-micron mist particles as standard with 99.95% optional
- The best protection available from air/oil separator collapse or condensate trap failure
- 10 year element lifetime warranty from Atlas Copco\*
- Low operating and energy cost, with payback often within 1 year
- Low pressure differential over element life, equals a life-time of energy savings
- Extends the life of a desiccant dryer bed, if installed upstream, thereby reducing maintenance cost
- Consistent performance, guaranteed by Atlas Copco

## PERFORMANCE GUARANTEED BY PARTICLE SIZE, NOT WEIGHT

Atlas Copco guarantees particle removal efficiency of MaxLife by the percentage of particle sizes collected, not by weight. Why is this an important distinction? A 0.5 micron particle has just 1/1000th the weight of a 5 micron particle. Collection claims based on weight can be misleading because small particles with greater Brownian movement tend not to be collected and pass downstream in the system. MaxLife collects smaller, lighter weight particles far more efficiently than conventional filtration media.

## INFINITE TURNDOWN

MaxLife has an infinite turndown ratio, so peak performance is available even at minimal flows. The efficiency curve actually improves as the flow decreases. This means that MaxLife can be over-sized for future expansion without compromising current performance. In contrast, filters based on pressure differential decline in performance as flow substantially decreases, and it is not advisable to over size this type of coalescing filter.

**Mechanical**  
Mist mean size  
is 2.5 microns  
(0.0025mm)



**Condensation**  
Mist mean size  
is 1.0 microns  
(0.001mm)




**Chemical Reaction**  
Mist mean size  
is 0.3 microns  
(0.0003mm)



**We have  
these covered!**

# Best Performance – Fastest Return

The MaxLife filters provide an astonishing return on your investment due to their continuous low pressure drop operation and incredibly energy efficient long service lifetime.



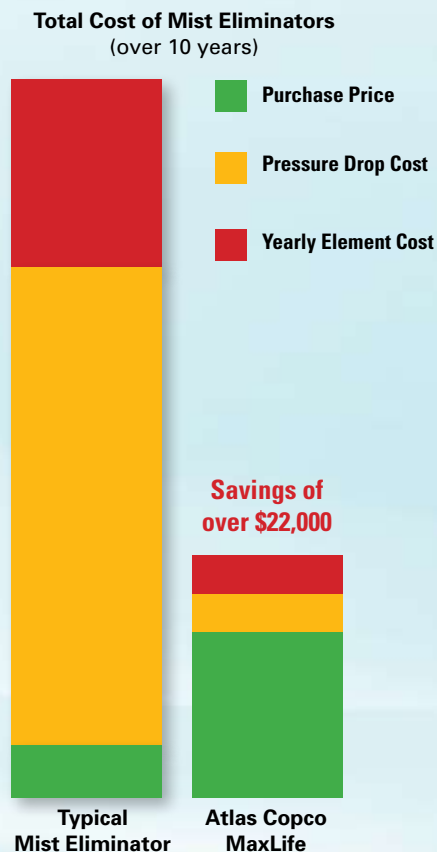
**As an example of the true cost of ownership, consider the following:**

- Initial cost – approximate cost to purchase a 1000 cfm complete filter
- Average pressure drop – over the lifetime of the element
- Average cost of pressure drop – assume that each cfm costs 0.19kW and each psi saves 0.5% of this power, price per kwhr = \$0.08 and the system runs 8000 hrs per year
- Yearly element replacement cost – all element and labor costs for 10 years, evenly spread

	REGULAR FILTER	MAXLIFE
INITIAL COST	\$1,200	\$6,000
AVERAGE PRESSURE DROP	4 PSI	0.5 PSI
AVERAGE COST OF PRESSURE DROP	\$2,432	\$304
YEARLY ELEMENT REPLACEMENT COST	\$900	\$160
TOTAL COST OVER 10 YEARS	\$34,520	\$10,640
MAXLIFE INVESTMENT PAYBACK		20 MONTHS

*Note: These figures are for guidance only and do not constitute a quote*

Over a 10-year period, this 1000 cfm system with a standard filter will cost the operator approximately \$21,280 more in energy and \$7,400 more in element replacements than the Atlas Copco MaxLife Mist Eliminator. This means that the extra investment for the Mist Eliminator will be returned in about 20 months. Larger systems will save significantly more energy and as a result will have an even faster payback. This example was used because 1000 cfm is a very popular system size.





# Design Considerations

Designing a filtration system that will last reliably for at least 10 years without maintenance is a complicated and technical design conundrum. The MaxLife filter has been especially designed to deliver market leading performance over the long term, guaranteed. The key design aspects that enable this performance include:

## VESSEL DESIGN

In order for the element to work efficiently, the compressed air needs sufficient contact time with the fiber bed. Therefore, proper vessel design is crucial to ensure the performance of the MaxLife Mist Eliminator. A common mistake is to supply a vessel that is too short, too small in diameter, or both. In such cases, the terminal settling velocity will be exceeded and the condensate will pass straight through the element, usually at the cost of an elevated pressure loss or “pressure drop” as the industry calls it.

## FIBER BED

By using homogenous-sized fibers, hand packed to a specific density, MaxLife takes advantage of the properties of gas diffusion and traps contaminants in the interstitial space. Unlike some designs using filter paper, MaxLife is able to offer a more reliable performance over the long term, and a guaranteed lifetime of at least 10 years.

## RATING

The MaxLife filter is nominally rated for use in a wet air stream before a dryer. In addition, the filter will withstand liquid slugging and in most cases a catastrophic failure of a compressor air/oil separator element. If the filter is to be used after a dryer, the inlet air flow can be increased beyond the nominal rating, as detailed in the technical data, without jeopardizing the warranty.



# Atlas Copco MaxLife Mist Eliminator—Technical Specifications

Model Number	Nominal Inlet Flow		Connections		Vessel Height	Vessel Diameter
	Upstream Of Dryer	Downstream Of Dryer	Inlet/Outlet	Drain		
MLME- 40	85	140	2	1	32"	14"
MLME – 85	180	252	2	1	36"	14"
MLME – 200	435	587	2.5	1	49"	14"
MLME – 370	785	1004	4	1	68"	16"
MLME – 480	1015	1,333	4	1	68"	16"
MLME – 615	1305	1,651	4	1	68"	18"
MLME – 685	1450	1,928	4	1	62"	24"
MLME – 1025	2175	2,790	4	1	75"	24"
MLME – 1365	2900	3,853	4	1	88"	24"
MLME – 2050	4350	5,527	6	1.5	135"	24"
MLME – 2905	6160	7,752	8	2	137"	30"
MLME – 3420	7250	9,752	8	2	157"	30"
MLME - 4100	8700	11,717	10	2	185"	30"
MLME – 7075	15,000	16,242	10	2	185"	36'
MLME - 8225	17,500	18,267	12	2	209"	36"

For larger sizes, alternative pressures and other gases consult factory  
Stainless steel elements and housings available on request

	NOMINAL CONDITIONS:	MAXIMUM CONDITIONS:
GAS	COMPRESSED AIR	COMPRESSED AIR
INLET PRESSURE	100 PSI(G)	150 PSI(G)
INLET TEMPERATURE	100°F	120°F

## Filtration performance at nominal conditions:

Inlet submicron mist removal efficiency = 99.5% as standard to a maximum of 99.95% as a special option

Inlet particle removal efficiency, 1 micron and bigger = 100%

Inlet particle removal efficiency, 0.1 - 3.0 micron = 99.98%

## CAPACITY CORRECTION FOR DIFFERENT INLET PRESSURE

INLET PRESSURE (PSI(G))	FILTER INLET CAPACITY CORRECTION FACTOR
70	0.74
80	0.83
90	0.91
100	1.0
110	1.09
120	1.17
130	1.26
140	1.35
150	1.44

# MaxLife Warranty

Atlas Copco warrants that the service life of any MaxLife Mist Eliminator element will be no less than ten (10) years when applied in compressed air, provided that the Buyer operates the element at an actual gas flow rate, temperature and pressure that does not exceed the design levels in the specified capacity charts. Acceptable service life will be determined by pressure loss across the element to be at or below five (5) PSI and removal of water and/or oil mist to remain at acceptable levels of 99.5% minimum during the time the element is in service.

If the pressure loss exceeds five (5) PSI or the mist removal drops below 99.5% within the first two (2) years of the element being placed in service, a replacement element will be provided at no charge by Atlas Copco. After this time if the pressure loss exceeds five (5) PSI or mist removal drops below 99.5%, replacement elements will be provided on a pro-rated basis.



*Full terms and conditions available upon request.*



Atlas Copco has a focus on exceeding customer needs with a culture built on ongoing interaction, long-term relationships, and a commitment to understanding each customer's process and objectives. As a result, every compressed air solution we create helps a customer operate with greater efficiency, economy, and productivity.

To better serve our customers, we have operations where our customers do business. Our Eastern, Central, Southern and Western regions each have their own direct Atlas Copco sales and service team, plus we have a nationwide network of Atlas Copco customer centers and authorized contracted independent distributors. We have four manufacturing facilities in the USA, including one in Wisconsin, two in Texas, and our state of the art manufacturing facility, distribution center, parts warehouse, and corporate offices in Rock Hill, South Carolina.

Satisfying customer needs with ground-breaking integrated compressed air technology, quality air accessories and 24/7 service support enhanced with remote monitoring tools positions Atlas Copco as a leading global compressor manufacturer. Our unwavering commitment is to be First in Mind – First in Choice® for all your compressed air requirements.

**We are committed to your superior productivity through interaction and innovation.**

