

# HDF Mist Eliminator

*Oil-Free Compressed Air With Ultra-Low Pressure Drop And Extended Element Life*

ZEKS HDF Mist Eliminators remove damaging oil mist carryover from oil-lubricated compressors before it flows through air system piping, pneumatic valves and tools, and process equipment. They provide essentially "oil-free" compressed air with the additional benefits of a .5 psid pressure drop and a 10-15 year element life. Conventional filtration used to achieve similar air quality typically has a pressure drop 6 psid higher than the Mist Eliminator and a service life that is much shorter. The Mist Eliminator provides protection in the event of catastrophic failure of the air compressor.

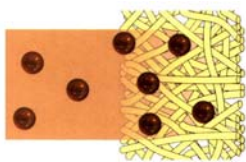
## Effective Depth Bed Filtration

Air contaminated with mineral or synthetic oil and water aerosols enters the Mist Eliminator housing and flows horizontally through a deep filter bed. Sub-micron particles collect on individual bed fibers and coalesce to form droplets. As the droplets move through the filter bed, they become larger and their resulting weight forces them to drop to the bottom of the housing. Low internal velocity prevents oil re-entrainment while large surface area keeps pressure drop very low over the life of the element. High coalescing efficiency results from long residence time through the deep filter bed. An automatic or a manual drain can be used to discharge lubricant and water that accumulates in the bottom of the housing.

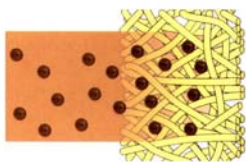
## Standard Features Include:

- ASME-Coded Pressure Vessel
- Differential Pressure Gauge
- Pressure Relief Valve

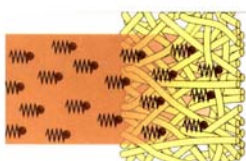
## Aerosol Particles Are Collected In Three Ways:



**Direct Interception** - Particles that are 3 microns or larger are too large to follow an airstream around the fibers. Instead, they collide with the fibers and are removed from the airstream.



**Inertial Impaction** - Particles between 1 and 3 microns in size follow the airstream through the random network of fibers until their pathways carry them close enough so that they collide with the fibers.



**Brownian Movement Interception** - Extremely fine particles have a random side-to-side motion caused by collisions with air molecules. This "Brownian Movement" increases as particles decrease in size, enhancing the probability of collision and interception by fibers.



*Deep filter element bed of special glass fibers is packed between carbon steel screens.*

## Air System Protection AND -

**Low Operating Cost** – Pressure drop less than 1 psid.

**Extended Element Life** – 10 -15 years in normal use.

**High Efficiency Filtration** – Solid particulate removal: to .5 ppm by weight. Particulate filtration greater than 3.0 microns at 100% efficiency. 0.1 - 3.0 microns at 99.98% efficiency.

Oil Removal: 2 ppm in = .01 ppm out  
10 ppm in = .05 ppm out

**Effective On Commonly Used Lubricants** - Mineral and synthetic.

**Minimal Maintenance** – Long element service life.

**36 Month  
Element Warranty**

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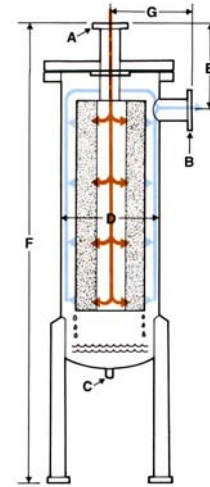
## Placement In Air System

Mist Eliminator placement is dependent upon the type and age of the air compressor, and the type of air dryer used in the air system.

*Use with refrigerated air dryers:* Though the condensate separator in a refrigerated air dryer efficiently removes moisture and oil from the airstream, some oil will remain in aerosol form. Placement of the Mist Eliminator after the dryer will capture the oil before it enters air system piping.

In air systems with compressors that consume excessive amounts of oil, placement of the Mist Eliminator ahead of the dryer keeps excess oil from building up in the dryer, to maintain good dryer performance and efficiency.

*Use with desiccant air dryers:* Protect desiccant in dryers from oil contamination by placing the Mist Eliminator ahead of the dryer.



## Technical Specifications

MODEL NUMBER	INLET PRESSURE psig CAPACITY scfm										CONN. SIZE (A)(B)	DRAIN SIZE (C) FPT	SHIPPING WEIGHT lbs.		DIMENSIONS Inches				
	50	60	70	80	90	100	110	120	130	140			150	HOUSING & ELEMENT	REPLACEMENT ELEMENT	(D)	(E)	(F)	(G)
125HDF	70	80	90	100	115	125	135	150	160	170	180	2" MPT	1"	455	20	14	14.5	42.3	13
250HDF	140	165	185	205	230	250	270	295	315	335	360	2" MPT	1"	455	25	14	14.4	42.3	13
500HDF	280	325	370	415	455	500	545	585	630	675	720	3" MPT	1"	520	35	14	14.4	68.3	13
800HDF	425	490	560	625	690	800	820	885	950	1020	1085	3" MPT	1"	530	60	14	14.5	68.3	13
1100HDF	620	715	810	910	1005	1100	1195	1290	1390	1485	1580	3" MPT	1"	660	70	16	15.5	72.3	14
1500HDF	845	975	1110	1240	1370	1500	1630	1760	1890	2025	2150	4" FLG	1"	775	100	18	15.6	72.4	15
1900HDF	1070	1235	1405	1570	1735	1900	2065	2230	2395	2565	2730	4" FLG	1"	1225	120	24	16.9	75.8	18
2400HDF	1355	1565	1770	1980	2190	2400	2610	2820	3030	3235	3450	4" FLG	1"	1245	140	24	16.9	75.8	18
3000HDF	1690	1955	2215	2475	2740	3000	3260	3525	3785	4045	4310	4" FLG	1"	1385	160	24	16.9	88.8	18
4500HDF	2540	2930	3325	3715	4110	4500	4890	5285	5675	6070	6460	6" FLG	1.5" FLG	1770	250	24	18.0	153.0	18
6000HDF	3385	3910	4430	4954	5475	6000	6525	7045	7570	8090	8610	8" FLG	2" FLG	2460	350	30	18.0	155.0	21
8000HDF	4515	5210	5910	6605	7305	8000	8695	9395	10,090	10,790	11,500	8" FLG	2" FLG	2850	375	30	19.0	181.0	21

NOTE: Maximum operating temperature is 220°F. Coalescing efficiency is reduced as temperature rises. Consult factory for application assistance when inlet temperature exceeds 125°F.

## Sizing Procedure

**Step 1:** From the chart, select the appropriate inlet air pressure column and proceed down the column until the capacity shown meets or exceeds the scfm flow requirement. (If inlet pressure and capacity are not shown, interpolate between columns).

**Step 2:** Read across the chart to the left column to determine the model that meets the requirement.

## Element Replacement

Pressure drop will be less than one pound differential at initial element installation.

**Replace element when pressure differential is 3 psid or greater.**

Requires depressurization of vessel and removal of lid and element.

## Drain Options

Consult factory for drain options to discharge compressor lubricant and contaminants from the Mist Eliminator.

## Mist Eliminators Provide Energy Savings

The cost of pressure drop is significant when accumulated over time. Typically, there is 6 psid less pressure drop in an air system with an HDF Mist Eliminator instead of conventional filtration.

### Annual Savings from 6 psi Pressure Reduction

KW	Air Compressor Horse Power		
	50	100	200
Cost			
\$.06	\$ 274	\$ 548	\$ 1096
.08	365	730	1460
.10	457	913	1826

(Savings calculations based on (2) 8 hour shifts/day, 5 days/week, 51 weeks/year = 4080 Hours)



Standard differential pressure gauge indicates element change time. Pressure relief valve provides safety.

# ZEKS

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