MAZ: Mattei Absolute Zero

When compressed air is required to meet ISO 8573-1 Class 0 or Class 1 air quality via oil-free or oil-lubricated compressors, the Mattei Absolute Zero (MAZ) filter is an essential component of the compressed air treatment system.

MAZ filters are designed to reduce oil vapor and also overcome the issues of traditional loose filled carbon towers. The loose filled beds of carbon towers offer reduced contact time due to unrestricted air channeling, meaning they are prone to movement of the carbon adsorbent during operation; resulting in degrading performance, attrition of the adsorbent material, high particulate generation and blockage of downstream filters.

Manufactured from extruded aluminium, the MAZ filter is smaller and lighter than equivalent carbon towers. Compact, activated carbon cartridges utilize a unique filling technique to maximize packing density of the adsorbent bed. Retained to prevent movement, 100% of the activated carbon bed is then utilized during operation, guaranteeing performance, while the heavy attrition, dusting and blocked particulate filters associated with carbon tower designs is eliminated. The use of cartridges also provides trouble-free maintenance, thereby reducing system downtime.

Oil-free plant air can be affected by many factors such as pressure, temperature, air flow, oil concentration and humidity. The MAZ selection process considers all of these factors to ensure consistent outlet air quality over 12 months of continuous operation.

Benefits

- **Air quality guarantee:** MAZ is matched to all inlet parameters maintaining effective operation for 12 months. Correct sizing ensures seasonal variations in temperature do not affect delivered air quality.
- **Suitable for use with oil-lubricated and oil-free compressors:** MAZ provides oil-free air when used in conjunction with water separators and coalescing filters.
- **Delivers air quality to ISO 8573-1 Class 0 or ISO 8573-1 Class 1:** Tested in accordance with ISO 8573-5 and third-party performance validated by Lloyd's Register.
- **Plant scale or application-specific oil vapor removal**: Can be installed in the compressor room for plant scale protection, at point-of-use to protect critical applications (or both, if old, contaminated piping is in use).
- **FDA Title 21 compliant & EC 1935 exempt:** Materials of construction make MAZ suitable for use with applications in the food, beverage and pharmaceutical industries.
- **Unique adsorbent fill technique:** Providing maximum packing density, eliminating dusting, performance degradation and blocked outlet filters.
- **Modular construction:** Large-capacity bed reduces the number of units required but still offers a compact and lightweight design with flexible inlet / outlet connectivity.
- **Simple, easy maintenance:** Servicing of MAZ is easy as piping can remain in-situ, whilst use of active carbon cartridges offers quick, clean, simple maintenance.

MAZ Series - Plant Scale / Point of Use Oil Vapor Removal

Grade MAZ Filtration Performance

Filtration Grade	Filter Type	Particle Removal (inc Water & Oil Aerosols)	Max. Remaining Oil Content	Filtration Efficiency	Test Method Used	Inlet Challenge Concentration	Initial Dry Differential Pressure	Initial Saturated Differential Pressure	Adsorbent Life	Precede with MF Series
MAZ	Oil Vapor Removal	N/A	0.003 mg/m³ 0.003 ppm (w)	N/A	ISO 8573-5	0.05mg/m³	<350 mbar <5 psi	N/A	*12 months	MF1 + MF2

Product Selection Guide MAZ Series Adsorption Filter

Stated flows are for operation at 100 psig, 95°F

Model	Pipe Size	L/s	m³/min	m³/hr	CFM	Replacement Cartridge	No. Required
MAZ-300HNXX	2”	87	5.2	314	185	300OVR	1
MAZ-350HNXX	2”	177	10.6	637	375	350OVR	1
MAZ-400HNXX	2”	354	21.2	1274	750	400OVR	1
MAZ-450INXX	2 □”	531	31.9	1911	1125	450OVR	1
MAZ-500INXX	2 □”	708	42.5	2549	1500	500OVR	1
MAZ-550INXX	2 □”	885	53.1	3186	1875	500OVR	1

Correction Factors Temperature (CFT)

Oil-Lubricated Compressors		
°C	°F	Correction Factor
25	77	1.00
30	86	1.00
35	95	1.00
40	104	1.25
45	113	1.55
50	122	1.90

Correction Factors Temperature (CFT)

Oil-Free Compressors		
°C	°F	Correction Factor
25	77	1.00
30	86	1.00
35	95	1.00
40	104	1.02
45	113	1.04
50	122	1.05

Correction Factors Pressure (CFP)

bar g	psi g	Correction Factor
3	44	2.00
4	58	1.60
5	73	1.33
6	87	1.14
7	100	1.00
8	116	1.00
9	131	1.00
10	145	1.00
11	160	1.00
12	174	1.00
13	189	1.00
14	203	1.00
15	218	1.00
16	232	1.00

Correction Factors - Inlet Dewpoint (CFD)

CDD Dewpoint	°C	°F	Correction Factor
Dry	-70 to +3	-100 to +38	1.00
Wet	+3 and above	+38 and above	4.00

It is assumed inlet oil vapor concentration does not exceed 0.05mg/m³ at 35°C (95°F). For applications with higher oil vapor concentrations, please contact Mattei for accurate sizing.

Filter Selection - MAZ Series

To correctly select MAZ oil vapor removal filter, the flow rate of MAZ must be adjusted for the minimum operating pressure, maximum operational temperature and pressure dewpoint of the system.

1. Obtain the minimum operating pressure, maximum inlet temperature, maximum compressed air flow rate and dewpoint of the compressed air at the inlet of the filter.
2. Select correction factor for maximum inlet temperature from the CFT table to compressor type (always round up e.g. for 37°C use 40°C correction factor).
3. Select correction factor for minimum inlet pressure from the CFP table that corresponds type (always round down e.g. for 5.3 bar use 5 bar correction factor).
4. Select correction factor for pressure dewpoint from the CFD table.
5. Calculate minimum filtration capacity. Minimum Filtration Capacity = Compressed Air Flow x CFT x CFP x CFD
6. Using the minimum filtration capacity, select a MAZ Series model from the Product Selection Guide in conjunction with the appropriate Correction Factors tables. (MAZ model selected must have a flow rate equal to or greater than the minimum filtration capacity). If the minimum filtration capacity exceeds the maximum values of the models shown within the tables, please contact Mattei for advice regarding larger multi-banked units.

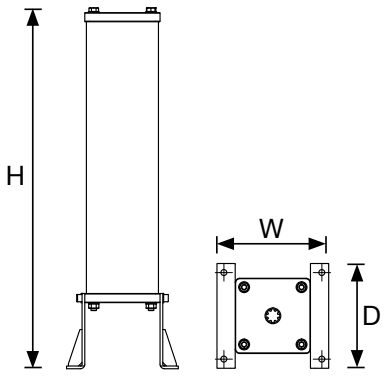
ISO 8573-1
CLASS ZERO
OIL-FREE AIR
AT THE POINT OF USE

Technical Data

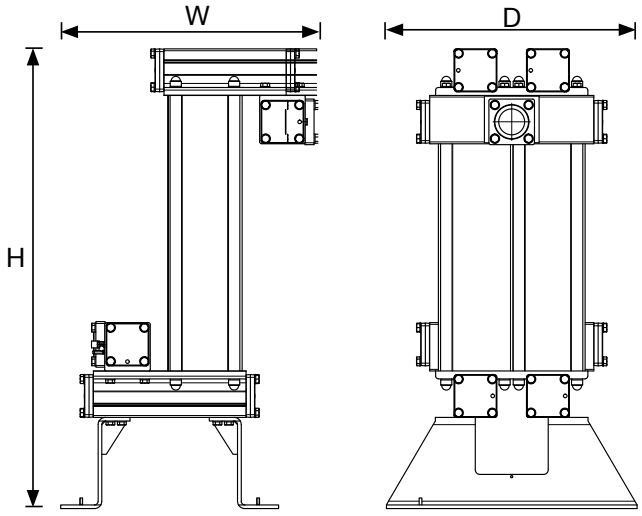
Filter Grade	Filter Models	Min. Operating Pressure		Max. Operating Pressure		Min. Operating Temp		Max. Operating Temp	
		bar g	psi g	bar g	psi g	°C	°F	°C	°F
MAZ Series	300 HNXX - 550 INXX	1	15	16	232	2	35	50	122

Weights and Dimensions

Models	Port Size	Height (H)		Width (W)		Depth (D)		Weight	
		mm	in	mm	in	mm	in	kg	lbs
MAZ-300HNXX	2"	792	31.2	245	9.6	230	9.1	28.5	62.8
MAZ-350HNXX	2"	1009	39.7	590	23.2	550	21.7	62.5	137.8
MAZ-400HNXX	2"	1009	39.7	735	28.9	550	21.7	71.5	157.6
MAZ-450INXX	2 1/2"	1009	39.7	888	35.0	550	21.7	92.8	204.6
MAZ-500INXX	2 1/2"	1009	39.7	1065	41.9	550	21.7	100.6	221.8
MAZ-550INXX	2 1/2"	1009	39.7	1234	48.6	550	21.7	122.0	269.0



MAZ 300



MAZ 350 - MAZ 550