

nano



F⁶ mist eliminator
user guide

Experience.

Our team is comprised of and supported by individuals spanning all disciplines from research & development, engineering & manufacturing, marketing & sales and service & support. Our backgrounds are in air and gas purification and our experience in this field spans a wide range of industries. We combine this knowledge and experience to ensure our products and services are designed and provided to meet the objectives and expectations of you - our Customer.



Customer.

We recognize that our Customers are not only our valuable distribution partners who sell and support our products or the machine builders who depend on them as protection for their equipment. They are the contractors who install them, the manufacturers who use them in their processes and the service people who maintain them. At nano we have developed our products, packaging and support materials to ensure they exceed all of our Customers' expectations.



Service.

At nano we recognize that world-class customer service is the most important component to any successful business. Your business needs to exceed your customers' expectations to stand out from your competitors and our service must positively impact your business so you can be successful in doing so. Our commitment is simple... we will stand behind our products and ensure that our customer service is unrivaled in the industry.



Experience. Customer. Service.

The logo for nano, consisting of the word "nano" in a bold, lowercase, sans-serif font. The letters are dark blue and are centered within a white circle that has a grey border.

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F⁶ mist eliminator

1.1 general information

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models: MEL 0250 - 5000
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1.2 manufacturers details and support

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annotations



CAUTIONS: indicate any situation or operation that may result in potential damage to the product, injury to the user, or render the product unsafe.



NOTES: highlight important sections of information where particular care and attention should be paid.



1.3 document introduction

This manual provides factory prescribed installation and maintenance procedures for a F⁶ mist eliminator. The procedures illustrated in this document are only to be performed by authorized personnel. For further information regarding the procedures outlined in this document contact the manufacturer before proceeding. Be sure to read this document carefully before attempting to install or operate the mist eliminator. This document should be permanently available at the mist eliminator installation site and be kept in an easily accessible place alongside the mist eliminator.

1

1.4 warranty guidelines

All products are supplied with an 18 months manufacturer's warranty from the date of shipment from the factory or 12 months from date of installation/start up, whichever occurs first and installed and maintained in accordance with the manufacturers guidelines. Only genuine service parts should be used and no modifications made.

1.5 packaging

All products are securely fastened to skid in horizontal position with inlet and outlet flanges covered. Differential pressure indicator and automatic float drain (where applicable) will be shipped loose for installation the field.

1.6 damage to packaging

Check immediately to establish whether damage has occurred to the external packaging and if the damage extends to the product inside. If there is damage to a product, contact the relevant supplier immediately.



In no circumstances must a damaged product be used in operation. Using damaged products can lead to irreparable functional faults or cause serious physical harm.

1.7 general safety

No modifications must be made to the product. Any modifications may reduce the operational safety of the product and invalidate the manufacturer's warranty. This could potentially result in damage to the product and serious personal injury.



For your own safety, when carrying out work on this product, all relevant national safety regulations must be complied with relating to pressurized and electrical systems.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.



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mist eliminator

1.8 intended use of the product

The mist eliminator is exclusively intended for the treatment of compressed air or some gases (consult factory) with the removal of bulk water, oil and solid matter constituents.

1

The mist eliminator must be operated only in accordance with the data on the rating plate. Any operations that do not comply with those stated on the product rating label will render the warranty void.



This product is only designed to operate at pressures stated in the technical specification. Do not exceed the maximum working pressure.



Ensure that mist eliminator has been evaluated and its materials of construction deemed suitable and safe for the type of gas being filtered.



Adhere strictly to rules for safe handling of gas to be filtered.

1.9 personnel

Only authorized, competent and trained personnel are permitted to work on this product. This user guide is intended solely for such personnel and is to be used only as a reference; it should not be used to replace conventional training.





1.10 safe handling

Please ensure the relevant safe engineering practices and handling procedures are employed when handling, installing and operating this product. Ensure that the equipment is depressurized prior to carrying out any of the scheduled maintenance instructions specified within this user guide.



In no circumstances must a damaged product be used in operation. Using damaged products can lead to irreparable functional faults or cause serious physical harm.



A suitable lifting aid must be used to minimize the risk of physical injury or damage to the product.



Do not remove, repair or replace any item on the mist eliminator housing while it is under pressure. Any faults or defects that could affect safety must be corrected before using the unit.



Do not loosen flange bolts while the mist eliminator is under pressure.



Do not operate if there is a leak in mist eliminator housing. Immediately remove pressure and repair leak.



Standard mist eliminator housings may contain combustible substances (grease) and are therefore not suitable for oxygen and oxygen rich service. Mist eliminators for oxygen service may be available upon request.





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mist eliminator

1.11 technical description

The mist eliminator is a heavy duty coalescing filter designed to remove oil, particulate and water from compressed air.

1

1.12 product contents

when ordering a F⁶ mist eliminator you will receive the following;

- 1 x F⁶ mist eliminator housing with element installed
- 1 x differential pressure indicator
- 1 x automatic float drain as appropriate
- 1 x user guide



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mist eliminator



2.1 technical specification

specifications

design operating pressure range	20 to 150 psig
recommended operating temperature range	68 to 180°F (20 to 82°C)
design operating temperature range	35 to 248°F (2 to 120°C)
initial differential pressure	less than 0.5 psig
recommended pressure differential for element change	1.0 psid
condensate drain(s) included	automatic float
differential pressure indicator	standard on all models
ASME VII & U stamp	standard

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F⁶ mist eliminator

2.2 flow rates

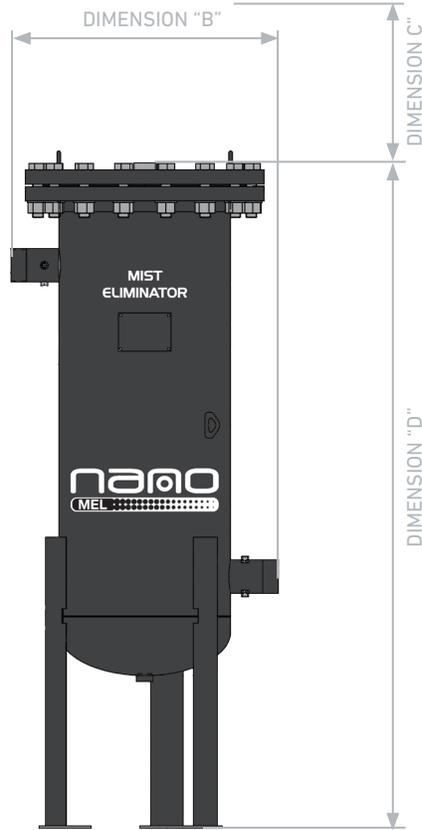
model	nominal flow		connection
	scfm	Nm ³ /hr	inlet & outlet
MEL 0250	250	425	2" NPT
MEL 0500	500	850	3" NPT
MEL 1000	1000	1699	3" NPT
MEL 1250	1250	2124	3" Flg
MEL 1500	1500	2549	4" Flg
MEL 3000	3000	5097	4" Flg
MEL 5000	5000	8495	6" Flg

2.3 correction factors

operating pressure	psig	20	30	40	60	80	100	120	150
	barg	1.4	2.1	2.8	4.1	5.5	6.9	8.3	10.3
correction factor		0.35	0.44	0.54	0.70	0.84	1.00	1.10	1.25



2.4 product dimensions



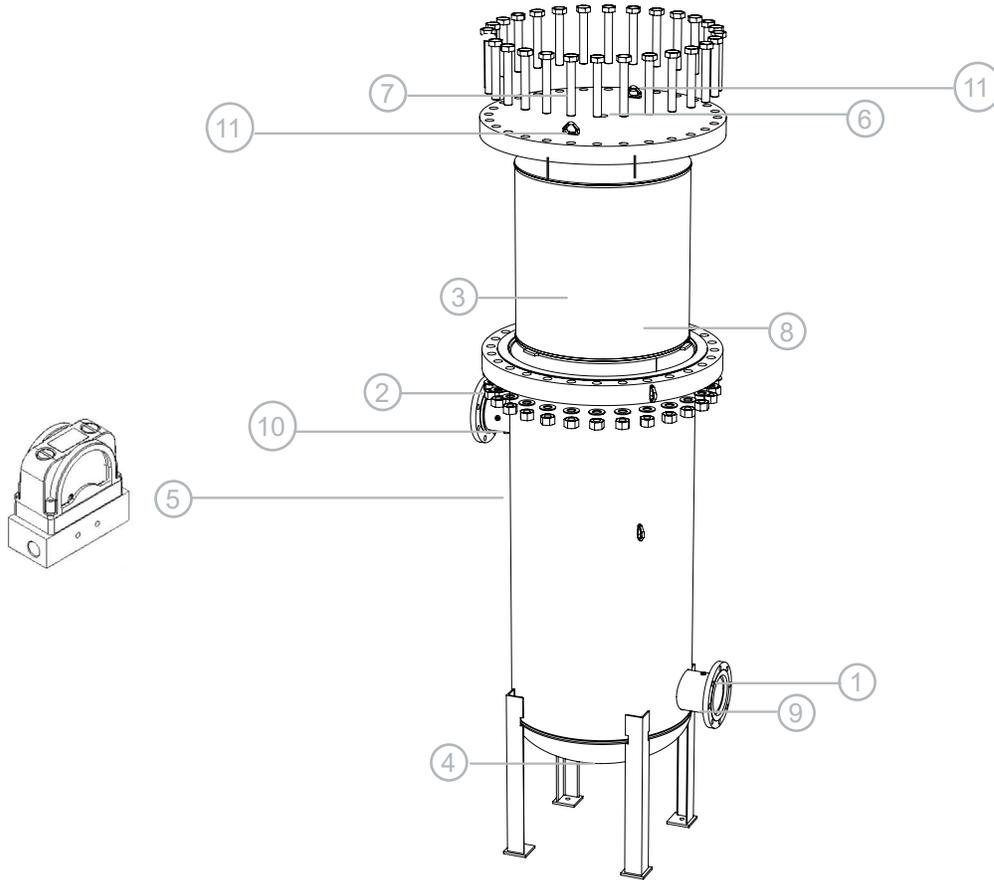
model	dimension						weight	
	A		B		C		lbs	kg
	inches	mm	inches	mm	inches	mm		
MEL 0250	54.0	1371.6	20.0	508.0	15.5	393.7	336	152
MEL 0500	61.0	1549.4	20.0	508.0	22.0	558.8	359	163
MEL 1000	69.0	1752.6	28.0	711.2	22.5	571.5	620	281
MEL 1250	71.0	1803.4	28.0	711.2	22.5	571.5	654	297
MEL 1500	71.0	1803.4	28.0	711.2	22.5	571.5	662	300
MEL 300	84.0	2133.6	36.0	914.4	29.5	749.3	1161	527
MEL 5000	90.0	2286.0	42.0	1066.8	29.5	749.3	2378	1079



F⁶ mist eliminator

2.5 product overview

2



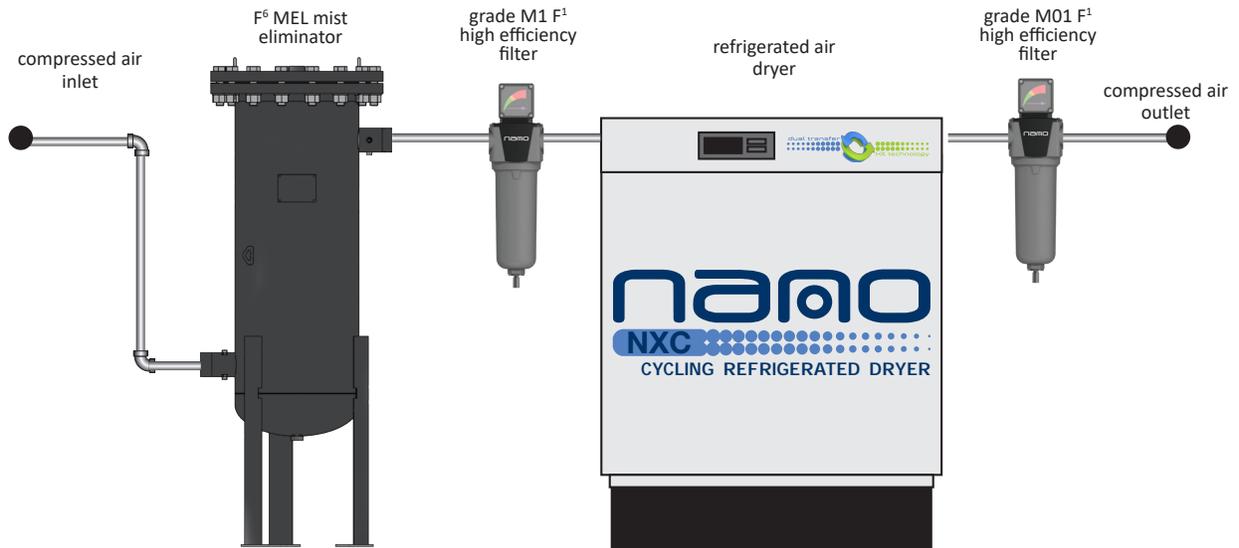
number	description	number	description
1	compressed air inlet	7	blind flange
2	compressed air outlet	8	element removal
3	element	9	inlet automatic drain port
4	drain port	10	automatic drain vent port
5	differential pressure indicator	11	lifting lugs
6	safety relief valve port		

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mist eliminator



2.6 typical system layout



2





F⁶ mist eliminator

2.7 site location

When selecting an installation site for the F⁶ mist eliminator, ensure the following conditions are met:

2

- Installation site is recommended for indoors. If installed in outdoor location, it must be protected from ambient conditions.
- The ambient temperature must not drop below 32°F (0°C). If installed where ambient temperature will reach 32°F (0°C) or below, the bottom of the housing must be heat traced to prevent mist eliminator and drain valve freeze ups.
- The installation site should be able to support the weight of the product.
- Ensure sufficient space around the product, to allow access for operation and maintenance.





2.8 mist eliminator housing installation

- Position mist eliminator in the air line at the point of lowest operating temperature to minimize the amount of water and oil that may condense after the mist eliminator.
- Place mist eliminator as close to the point of use as possible to keep pipe scale and dirt from re-contaminating the system.
- Take care to protect mist eliminator from reverse flow conditions. If a reverse flow cannot be avoided, check valves may be required.
- Check pressure, flow and temperature conditions at point of installation to verify that they are within the ranges specified on the mist eliminators' data label.
- If actual application flow rates exceed the rated flow capacity of the mist eliminator, the pressure loss across the mist eliminator will increase. Avoid using reducers to match mist eliminator inlet / outlet size to system piping. The resulting restriction may result in elevated pressure loss.
- Install inlet and outlet shut off valves to facilitate replacement of element. By-pass piping is recommended.
- Take care to install element so that air flows inside to outside.
- New mist eliminators are typically shipped from factory with element installed. If, for some reason, element is not installed, please refer to element replacement instructions (*see section 2.10*).
- Mist eliminators include two drain connections, one in the center of the bottom blind flange and one through the lower side. The side drain employs piping inside the vessel so that it can discharge all accumulated liquids.
- Carefully inspect mist eliminator housing before slowly reapplying pressure. It is recommended to slowly apply pressure while checking for leaks. If leaks are found, immediately depressurize and repair.



Do not remove, repair or replace any item on the mist eliminator housing while it is under pressure. Any faults or defects that could affect safety must be corrected before using the unit.





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mist eliminator

2.9 mist eliminator element installation



Fully depressurize mist eliminator housing before servicing.

2

- The blind flange, attached at the top of the mist eliminator housing, must be removed to provide access to the element. Please note that blind flanges are extremely heavy. Extreme care should be taken to safely support the blind flange as it is removed.
- Remove bolts from blind flange. The gasket may stick to freshly painted surfaces. If necessary, take care to safely support the blind flange as it is pried loose.
- Elements have threaded bottom endcaps. Twist the elements counter-clockwise to remove and clockwise to tighten. Take care to grease element o-ring so that it slips on the baffle plate as it is tightened. When removing elements, ensure that o-ring is attached to element and that it does not stick to the baffle plate.
- Reinstall blind flange using a fresh flange gasket (see section 3.5 for part number).
- Carefully inspect mist eliminator housing before slowly reapplying pressure. It is recommended to slowly apply pressure while checking for leaks. If leaks are found, immediately depressurize and repair.





3.1 shutdown, maintenance and element replacement procedure



Fully depressurize mist eliminator housing before servicing.

- Close isolation valve before and after mist eliminator.
- Open the valve on drain to relieve pressure from housing.
- Once pressure is relieved, remove nuts, bolts and blind flange to open housing.
- Ensure that accumulated liquids are removed from filters on a daily basis. Automatic drains are recommended.



Be sure to comply with all applicable regulations pertaining to the disposal of accumulated fluids.

- Welded mist eliminator housings come equipped with a differential pressure indicator. Elements should be replaced when the needle remains in the red area for an extended period during operation at normal flow or using element replacement service schedule (section 3.4), whichever comes first. Please note that the dial will not indicate unless there is flow passing through the filter.
- Inspect mist eliminator housing periodically. Immediately remove from service if any damage or excessive corrosion is found.





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mist eliminator

3.2 cleaning

Clean the equipment with a damp cloth only and avoid excessive moisture around any electrical connections. If required a mild detergent may be used, however do not use abrasives or solvents as these may cause damage.

3

3.3 daily checks

- Check the filters for any external damage. (*assess and eliminate any defects found*)
- Check the differential pressure indicator for excessive differential pressure.
- Check the automatic float drain.

3.4 servicing guidelines

- Maintenance operation should only be conducted when the system has been shut down and fully depressurized.
- Isolate the mist eliminator from the compressed air by closing the isolation valve before and after the mist eliminator ensuring the system is in a safe condition for maintenance to be carried out on.
- All connections must be removed with care, paying particular attention to the areas that become pressurized.
- All gasket seals removed during maintenance operations must be replaced with new gaskets.
- Only certified and approved replacement parts should be used.
- Always check all connections and sealing faces for cleanliness and secure seating prior to assembly.
- Ensure all components are re-fitted to the product before operation.
- Always check all connection and sealing faces for any leakage, if any found resolve and check again.
- Ensure the mist eliminator is left operating in a safe working condition after completion of maintenance.





3.5 service schedule and breakdown

service	monthly	quarterly	annually	year 5 (60 months)
A	✓			
B		✓		
C			✓	
D				✓

3



When contacting your service provider be sure to provide the part number and serial number of your filter, this can be found on the rating plate.

- **Service A**
Check auto drain function
- **Service B**
Check delta P gauge
- **Service C**
Rebuild or replace auto drain as necessary
- **Service D**
Replace element, element o rings and housing gasket





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mist eliminator

3.6 replacement elements and spares

model	replacement element	qty required
MEL 0250	E 0250	1
MEL 0500	E 0500	1
MEL 1000	E 1500	1
MEL 1250	E 1500	1
MEL 1500	E 1500	1
MEL 3000	E 3000	1
MEL 5000	E 5000	1

3



F⁶

mist eliminator



3.7 service record

part number serial number

installed by installation date

3

service interval	hours run (if applicable)	date	serviced by		comments / observations
			print	sign	

year 1

year 2

year 3

year 4

year 5

year 6

year 7

year 8

year 9

year 10

year 11

year 12





F⁶ mist eliminator

4.1 trouble shooting

4

problem	problem caused	solution
Poor filtration	Contaminant carryover	Check element and replace if necessary.
	Differential pressure indicator in red	Check element and replace.
	Contaminant carryover	Check autodrain operation.
	Automatic float drain clogged	Clean out and/or replace internals with service kit.





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