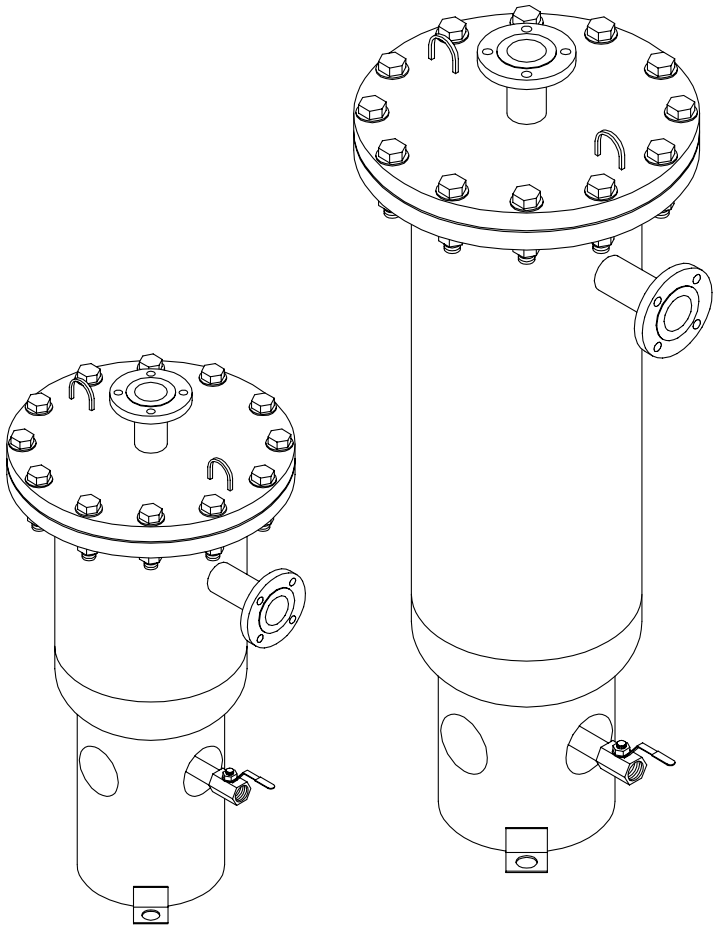
AUGUST 1998
P/N 32-0233 REVA

VAN AIR INC

INSTALLATION, OPERATION, & MAINTENANCE INSTRUCTIONS
FOR

MIST ELIMINATOR

VME-125 through VME-10,000



SECTION 1 SAFETY

WARNING

DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THE VESSEL WHILE IT IS UNDER PRESSURE. DEPRESSURIZE THE VESSEL COMPLETELY BEFORE ANY MAINTENANCE PROCEDURES. SERIOUS PERSONAL INJURY MAY RESULT IF THESE SAFETY RULES ARE NOT FOLLOWED.

DO NOT OPERATE THIS PRESSURE VESSEL ABOVE MAXIMUM WORKING PRESSURE (MWP) AT MAXIMUM OPERATING TEMPERATURE (°F) AS SHOWN ON THE ASME DATA PLATE.

THIS ASME CODE VESSEL MUST BE PROTECTED BY A PRESSURE RELIEF VALVE. Refer to OSHA 1910.169 Par. b, Sub. Par (3) and ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, UG-125 through UG-136. Also check government regulations, i.e., state and local codes.

DO NOT WELD, GRIND, OR SAND VESSEL, OR IT WILL NOT BE SAFE TO OPERATE. (Note: Any alteration to the vessel will void the ASME Code Certification and the warranty.)

ANY DAMAGE TO THE VESSEL CAN MAKE IT UNSAFE. INSPECT OUTSIDE AND INSIDE OF VESSELS REGULARLY FOR BULGES, CORROSION, DENTS, GOUGES, LEAKS OR SIGNS OF FIRE. IF DAMAGED, TAKE OUT OF SERVICE IMMEDIATELY AND NOTIFY YOUR CERTIFYING AUTHORITY.

USE THE PROPER SAFETY RULES FOR THE GAS BEING PROCESSED.

SECTION 2 HANDLING

2.1 HANDLING INSTRUCTIONS

If the unit is to be lifted by an overhead device, attach the lifting chains or cables to the vessel lifting lugs on the top head.

Models VME-5000 through VME-10000 are shipped without the elements installed. These elements are shipped separately in wooden crates. Use extreme caution when unloading or moving the elements with fork lifts. Always lift the crate from below the crate supports to prevent the element from being pierced or torn.

2.2 STORAGE INSTRUCTIONS

If the unit is to be placed in storage before it is installed, the location should be a clean, dry place. The ideal place to store the unit is indoors. The location should be free from corrosive gasses and extreme humidity. These conditions will cause damage to the unit. The unit should be covered with a tarpaulin to keep the it clean.

If the unit is to be stored outdoors, it MUST BE covered completely to prevent rain or snow from accumulating on the unit. The location must be free of standing water and mud. If the location is outdoors, a paved surface is recommended.

When storing the elements, they should be protected to prevent them from being contaminated or saturated with water. Provisions must be taken to prevent vermin from entering the elements and using the element fibers for nesting material.

The large crated elements should be stored horizontally. Do not stack them more than 4 crates high.

2.3 EQUIPMENT CHECK

Inspect the vessel and any elements for any damage that may have occurred during shipment. Check the packing list to insure that all items shipped with the unit are present.

IF EQUIPMENT HAS BEEN DAMAGED DURING SHIPMENT:

(1) NOTIFY CARRIER IMMEDIATELY.
(2) DO NOT OPERATE BEFORE CONSULTING FACTORY.

SECTION 3 SPECIFICATIONS AND DIMENSIONS

3.1 SPECIFICATIONS

VESSEL CONSTRUCTION

- Designed and manufactured to the ASME code plus current addenda.
- Models VME-125 through VME-500 stamped "UM" symbol.
- Models VME-1250 through VME-10000 stamped "U" symbol.
- All models designed with a vessel corrosion allowance of 0.0625".
- Exterior primed white enamel finish.
- All flanged bolt holes oriented to straddle centerlines.

VESSEL WEIGHT (without elements)

VME-125 ..... 420 LBS
VME-250 ..... 440 LBS
VME-500 ..... 480 LBS
VME-850 ..... 525 LBS
VME-1250 ..... 710 LBS
VME-1500 ..... 820 LBS
VME-2000 ..... 1040 LBS
VME-2500 ..... 1170 LBS
VME-3000 ..... 1300 LBS
VME-7500 ..... 2500 LBS
VME-10000 .... 2720 LBS

NOTE: Models VME-125 through VME-3000 are shipped with the elements factory installed.

ELEMENT WEIGHTS

EVME-125 ..... 20 LBS
EVME-250 ..... 20 LBS
EVME-500 ..... 35 LBS
EVME-850 ..... 50 LBS
EVME-1250 ... 60 LBS
EVME-1500 ... 70 LBS
EVME-2000 ... 90 LBS
EVME-2500 ... 120 LBS
EVME-3000 ... 150 LBS
EVME-5000 ... 235 LBS
EVME-7500 ... 400 LBS
EVME-10000 . 460 LBS

OPERATING PRESSURE RANGE (all models)

Minimum ..... 50 PSIG Maximum ..... 150 PSIG

OPERATING TEMPERATURE (all models)

Maximum ..... 300^{O}F

RATED FLOW AT 100 PSIG, 100^{O}F

VME-125 ..... 125 SCFM
VME-250 ..... 250 SCFM
VME-500 ..... 500 SCFM
VME-850 ..... 850 SCFM
VME-1250 ..... 1250 SCFM
VME-1500 ..... 1500 SCFM
VME-2000 ..... 2000 SCFM
VME-2500 ..... 2500 SCFM
VME-3000 ..... 3000 SCFM
VME-5000 ..... 5000 SCFM
VME-7500 ..... 7500 SCFM
VME-10000 .... 10000 SCFM

MULTIPLIERS FOR PRESSURES OTHER THAN 100 PSIG

Pressure	50	60	70	80	90	100	110	120	130	140	150
Multiplier	.56	.65	.74	.83	.91	1.00	1.09	1.17	1.26	1.35	1.44

MULTIPLIERS FOR TEMPERATURES OTHER THAN 100^{O}F

Temp.	50	75	100	125	150	175	200	250	300
Multiplier	1.10	1.05	1.00	.96	.92	.88	.85	.79	.74

ELEMENT PRESSURE DROP

- Element pressure drop will be less than 1 PSID at initial start up and throughout life.
- Element should be replaced when pressure drop reaches 3 PSID

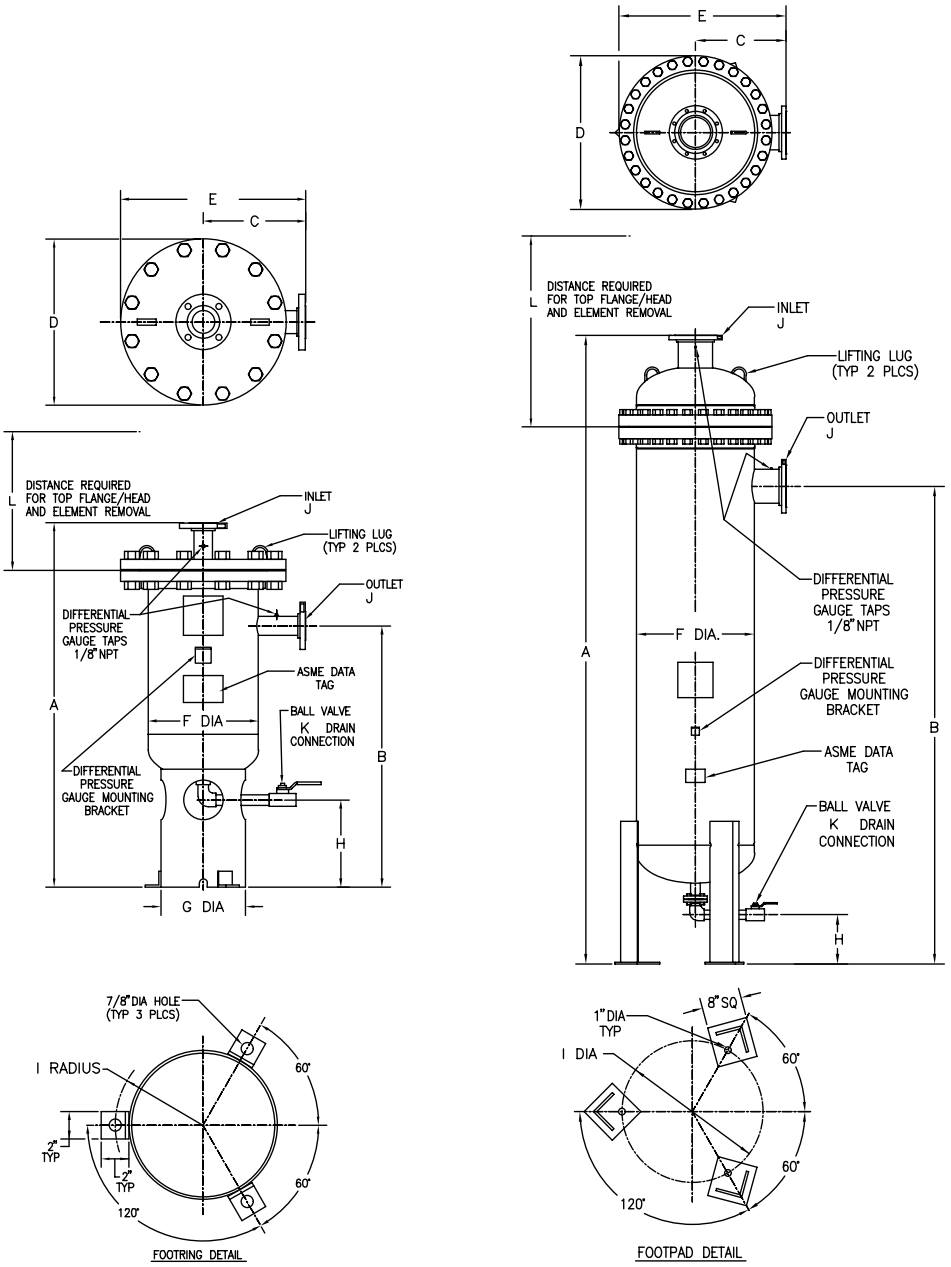
ELEMENT EFFICIENCY

- 100% efficiency for particles over 3 MICRONS
- 99.5% efficiency for particles 3 MICRONS and less

MAXIMUM MIST CARRYOVER

- Mist carryover < 1 PPM, assuming an inlet loading of < 200 PPM at 100^{o}F inlet temperature.

3.2 DIMENSIONS AND COMPONENT LAYOUT for VME-125 through VME-10000



MODELS VME-125 through VME-3000 **MODELS VME-5000 through VME-10000**

MODEL	A	B	C	D	E	F	G	H	I	J	K	L
VME-125	42-1/8"	29"	13"	21"	23-1/2"	14"	10-3/4"	11"	6-3/8"	2" RF FLG	1" NPT	23"
VME-250	46-1/8"	33"	13"	21"	23-1/2"	14"	10-3/4"	11"	6-3/8"	2" RF FLG	1" NPT	27"
VME-500	58-1/8"	45"	13"	21"	23-1/2"	14"	10-3/4"	11"	6-3/8"	2-1/2" RF FLG	1" NPT	39"
VME-850	72-1/8"	59"	13"	21"	23-1/2"	14"	10-3/4"	11"	6-3/8"	2-1/2" RF FLG	1" NPT	39"
VME-1250	78-3/8"	63-1/4"	14"	23"	25-3/4"	16"	12-3/4"	10-1/2"	7-3/8"	4" RF FLG	1" NPT	59"
VME-1500	79-3/4"	64-5/8"	15"	25"	27-1/2"	18"	12-3/4"	10-3/8"	7-3/8"	4" RF FLG	1" NPT	59"
VME-2000	71-5/8"	55-1/8"	18"	32"	34"	24"	16"	9"	9"	4" RF FLG	1" NPT	52"
VME-2500	84-5/8"	68-1/8"	18"	32"	34"	24"	16"	9"	9"	4" RF FLG	1" NPT	66"
VME-3000	97-5/8"	81-1/8"	18"	32"	34"	24"	16"	9"	9"	4" RF FLG	1" NPT	79"
VME-5000	161-5/8"	140-1/2"	18"	32"	34"	24"	-----	14-3/4"	21-18"	6" RF FLG	2" NPT	126"
VME-7500	178-1/4"	140"	23"	38-3/4"	42-3/8"	30"	-----	12-1/2"	24"	8" RF FLG	2" NPT	142"
VME-10000	202-1/4"	164"	23"	38-3/4"	42-3/8"	30"	-----	12-1/2"	24"	8" RF FLG	2" NPT	166"

4.1 ELEMENT INSTALLATION (VME-5000 and larger)

Models VME-5000 and larger were shipped WITHOUT the element installed. The element must be installed in the vessel before operation. All other models were shipped with the element installed inside the vessel.

IMPORTANT
THE ELEMENT MUST BE INSTALLED IN THE VESSEL BEFORE OPERATION.

CAUTION
USE CAUTION WHEN REMOVING THE TOP OF THE VESSEL. THE TOP FLANGE/HEAD IS VERY HEAVY.

PRECAUTIONS MUST BE TAKEN TO PREVENT THE VESSEL FROM TIPPING OVER WHEN IT IS IN THE UPRIGHT POSITION.

FAILURE TO HEED THESE CAUTIONS COULD RESULT IN SERIOUS PERSONAL INJURY AND DAMAGE TO THE UNIT.

To make element installation easier, the vessel can be laid down in the horizontal position. If attempting to install the element while the vessel is in the upright position, provisions must be taken to prevent the vessel from falling over.

The top flange/head and the inlet connection of the vessel must be removed to install the element. Use caution when removing the top of the vessel. The head and flange assembly is very heavy. Do NOT discard the fasteners or gasket.

IMPORTANT
WHEN HANDLING THE ELEMENT, EXTREME CARE MUST BE TAKEN TO PREVENT DAMAGE TO THE ELEMENT MEDIA. DAMAGE TO THE ELEMENT WILL CAUSE EXCESSIVE CARRYOVER.

Locate and uncrate the element, fasteners and gasket. Use care when handling the element. Damage to the element must be prevented to ensure proper operation. Damage to the element media will cause excessive carryover.

Attach the element to the internal flange on the flange/head assembly. Use the fasteners and gasket provided.

Carefully place the element and flange/head into the vessel. Reattach the flange to the vessel using the original fasteners and gasket. If the gasket was damaged during removal it must be replaced.

4.2 LOCATION

This vessel can be installed indoors or outdoors.

The vessel should be located on a level surface capable of withstanding the weight of the unit. The weights of the units are listed in SECTION 3.1. The weights listed are for the vessel only. Add the weight of the element for the total weight of the unit.

The location should allow for the removal of the element. The clearance listed in Section 3.2 should be allowed above unit for element removal. However, for the larger models, this distance might not be possible in some installations. If the distance is not available, allow enough space around the vessel so that it is possible to remove it from the piping and lay it down.

4.3 MOUNTING THE VESSEL

It is recommended that the vessel be attached to the mounting surface to prevent it from falling over. This is particularly important for models VME-1250 and larger. Mounting pads are provided on the footring or legs of the vessel. Reference SECTION 3.2 for dimensions and location.

4.4 PIPING AND ANCILLARY EQUIPMENT

Once the desired location has been determined and the vessel mounted in place, the inlet and outlet piping can be connected to the unit.

Make sure that all piping to the dryer is free of dirt and pipe scale. Excessive amounts of dirt or scale will be captured by the element, causing it to become plugged.

IMPORTANT
MAKE SURE THAT THE PROCESS PIPING IS PROPERLY CONNECTED TO THE UNIT. THE INLET CONNECTION IS THE TOP FLANGE ON THE VESSEL.

The inlet connection is the top flange. Make sure that the piping to the vessel is constructed to allow for the removal of the vessel top flange/head for element replacement. For models VME-1250 and larger, it may be necessary to construct the inlet piping so that the vessel can be removed from the process line.

An isolation valve should be installed at the inlet of the vessel. Make sure that the valve is located before any connections in the process piping that will require disconnection for the removal of the vessel top/head.

If desired a bypass loop with a bypass valve can be installed around the vessel. This will allow maintenance to be performed on the vessel without disrupting the process flow. NOTE: When the process is directed around the vessel, the process gas is NOT treated.

An isolation valve should be installed at the outlet of the vessel. For models VME-1250 and larger, it may be necessary to construct the outlet piping so that the vessel can be removed from the process line.

Use pipe supports on all piping runs as necessary.

4.5 PRESSURE DIFFERENTIAL GAUGE

To monitor the condition of the element in the vessel, a pressure differential gauge should be installed. An 1/8" NPT connection is provided on both the inlet and outlet connections of the vessel.

A pressure differential gauge, model PD-7 is available for installation on the vessel. The use of the PD-7 or a U-Tube manometer is recommended. The normal operating pressure differential across the vessel will vary between 0.5 to 1.0 PSID. To ensure a proper reading, the differential pressure indicating device must be very accurate. The use of two pressure gauges and subtracting the difference between the readings is NOT recommended. The element will require replacement at 3 PSID. If the device used to measure the differential is not accurate, the element might be replaced prematurely or beyond the point of efficiency.

Install the PD-7 or pressure differential measurement device on the vessel. Follow all instructions provided with the device. An angle clip was provided on the front of the vessel for attaching the PD-7.

If a PD-7 was not purchased with the unit, one can be ordered by contacting your local VAN AIR representative or the factory.

PD-7 P/N 84-0841

4.6 DRAIN LINE COMPONENTS

IMPORTANT
The drain solution may contain lubricants. Comply with all applicable regulations concerning the discharge or disposal of these chemicals.

The vessel was equipped with a manual drain valve on the drain line. The vessel will require periodic draining to remove the accumulated liquid from the sump area.

The drain solution from this vessel might contain lubricants and chemicals that require special handling. Make sure that all applications and procedures are complied with concerning the chemicals in the drain solution.

4.6-1 INSTALLING AN AUTOMATIC DRAIN VALVE

The installation of an electronic or demand drain valve will ensure that the vessel is properly drained without attendance.

Install the electronic or demand drain valve on the drain line following all instructions provided with the valve. Leave the manual drain valve on the drain line. This valve will allow the drain line to be shutoff if the automatic valve should require removal. If the manual valve is left in the piping, make sure that it is left in the open position during operation.

The following drain valves are available for installation on the MIST ELIMINATOR:

Electronic drain valves:
- Model EDV-2002 (1/2", 115V) ..... p/n 39-10105
- Model EDV-2002 (1/2", 230V) ..... p/n 39-10106

Demand drain valve:
- Model AS-120 ..... p/n 39-10044

These valves can be ordered from your local VAN AIR representative or the factory.

4.6-2 REMOTE DRAIN LINE CONNECTION

IMPORTANT
NEVER CONNECT THE DRAIN LINE TO A PRESSURIZED LINE. THE DRAIN LINE MUST BE VENTED TO PREVENT PRESSURIZATION WHEN THE DRAIN VALVE IS OPEN.

The drain line on the vessel can be remotely piped to a containment vessel or common disposal line. The line or vessel that the drain line is to be connected to must not be pressurized. It must be vented to prevent pressurization when the drain valve is open.

The drain line should be of the same size and level with or lower than the drain valve.

5.1 PRINCIPLE OF OPERATION

The VAN AIR MIST ELIMINATOR was designed to remove entrained oils and water mists from compressed air systems. The unit will provide a high efficiency removal of these particles including submicron particles.

The element is a cylindrical, fiber-packed unit. The element design will provide many years of operation.

The process gas containing the mist is directed into the top of the element. As the gas passes through the element, the entrained liquid mist is collected on the fibers. The liquid flows to the bottom of the element and drains into the sump of the vessel. The cleaned gas exits from the element's outer screen and flows through the outlet of the vessel.

The collected liquid in the sump area of the vessel must be drained regularly. A manual drain valve was provided on the vessel drain line. A regular draining schedule should be developed to insure that the vessel is being properly drained.

If an electronic drain valve was installed on the drain line, the timer setting should be adjusted to insure that the vessel is being drained properly.

The measurement of the pressure differential across the vessel is the key to assessing the operation of the MIST ELIMINATOR. As explained in the installation procedures, a highly accurate pressure differential measurement device should be installed on the vessel. A PD-7 pressure differential gauge or a U-tube manometer should be used. The use of two pressure gauges is NOT recommended.

During normal operation, the pressure differential across the vessel should measure 0.5 to 1.0 PSID. At start up, the differential will slowly increase as the element becomes saturated with liquid. The pressure differential reading should stabilize after several days of operation once the element is saturated.

The pressure differential measurement and the flow rate should be recorded regularly. The actual pressure differential will proportionally vary with the gas flow rate into the vessel. If the flow rate of the process gas is 50% of the vessel rating, the pressure differential across the vessel should be 50% of normal pressure differential at rated flow.

A drastic drop in the pressure differential (adjusted for the flow rate) will indicated that a problem may have developed with the element. The element should be inspected for ruptures in the fiber layer. The element also should be checked to insure that it is properly attached to the vessel.

A drastic increase in the pressure differential indicates the element has become clogged with solids, tars, or foreign materials that are not being removed from the element by the irrigation process.

When the pressure differential across the vessel reaches 3 PSID, the element should be replaced or repacked.

5.2 START-UP PROCEDURES

If inlet and outlet isolation valves were installed on the unit, make sure both are closed.

Pressurize the process piping. Slowly open the inlet isolation valve. Do not subject the unit with sudden pressurization.

Once the unit is pressurized, slowly open the outlet isolation valve. If a bypass loop and valve was installed around the unit, close the bypass valve.

The MIST ELIMINATOR is now ready for operation.

5.3 SHUTDOWN PROCEDURES

If a bypass loop and valve was installed around the unit, open the bypass valve.

If inlet and outlet isolation valves were installed on the unit, slowly close the outlet isolation valve and then the inlet isolation valve.

Open the drain valve and allow the unit to completely depressurize.

6.1 SCHEDULED MAINTENANCE

The Mist Eliminator requires little maintenance.

As outlined in the operation procedures, the pressure differential across the unit should be checked on a regular basis. When the pressure differential reaches 3 PSID, the element should be changed.

If the pressure differential suddenly drops below the normal range of 0.5 to 1.0 PSID, the element should be inspected for failure or possible disconnection from the vessel inlet.

The unit must be drained regularly to make sure that the accumulated liquid is being adequately removed from the sump area.

6.2 CHANGING THE ELEMENT

When the pressure differential across the unit reaches 3 PSID or if damage has occurred to the element, such as a rupture in the fibers, the element must be changed.

WARNING

COMPLETELY DEPRESSURIZE THE VESSEL BEFORE ATTEMPTING TO REMOVE ANY PART. FAILURE TO HEED THIS WARNING WILL RESULT IN SERIOUS PERSONAL INJURY AND DAMAGE TO THE EQUIPMENT.

6.2-1 REMOVAL

WARNING

TO PREVENT POSSIBLE PERSONAL INJURY, USE PROPER PERSONAL PROTECTIVE EQUIPMENT WHEN HANDLING THE USED ELEMENT.

FOLLOW ALL APPLICABLE PROCEDURES CONCERNING THE HANDLING OR DISPOSAL OF CHEMICALS THAT HAS BEEN COLLECTED IN THE ELEMENT AND VESSEL

To remove the element, the top flange/head must be disconnected from the vessel. The vessel must be completely depressurized before any part is removed. Follow shutdown procedures in Section 5.3.

The element is attached to the inside of the top flange/head. A distance of the top flange/head and element length is required above the vessel for element removal. Reference Section 3.2 for this dimension. If this distance is not available, the vessel can be removed from the piping and placed on its side to accommodate element removal.

Disconnect the vessel from the piping as necessary. Unbolt and remove the top flange/head and element from the vessel.

Disconnect the element from the top flange/head. Models VME-125 through VME-3000 have threaded connections. Models VME-5000 through VME-10000 have flanged connections for the element.

6.2-2 HANDLING THE USED ELEMENT

If the element bottom plate or packing ring is held in place with a machine bolt and a hex nut, the element is repackable. The element fibers can be removed and the element casing returned for fiber repacking.

If repacking is desired, contact the factory for procedures and rates.

Disposal of the element, element fibers or chemicals contained in the element or vessel must be done in accordance with all applicable regulations and procedures.

6.2-3 INSTALLING THE NEW ELEMENT

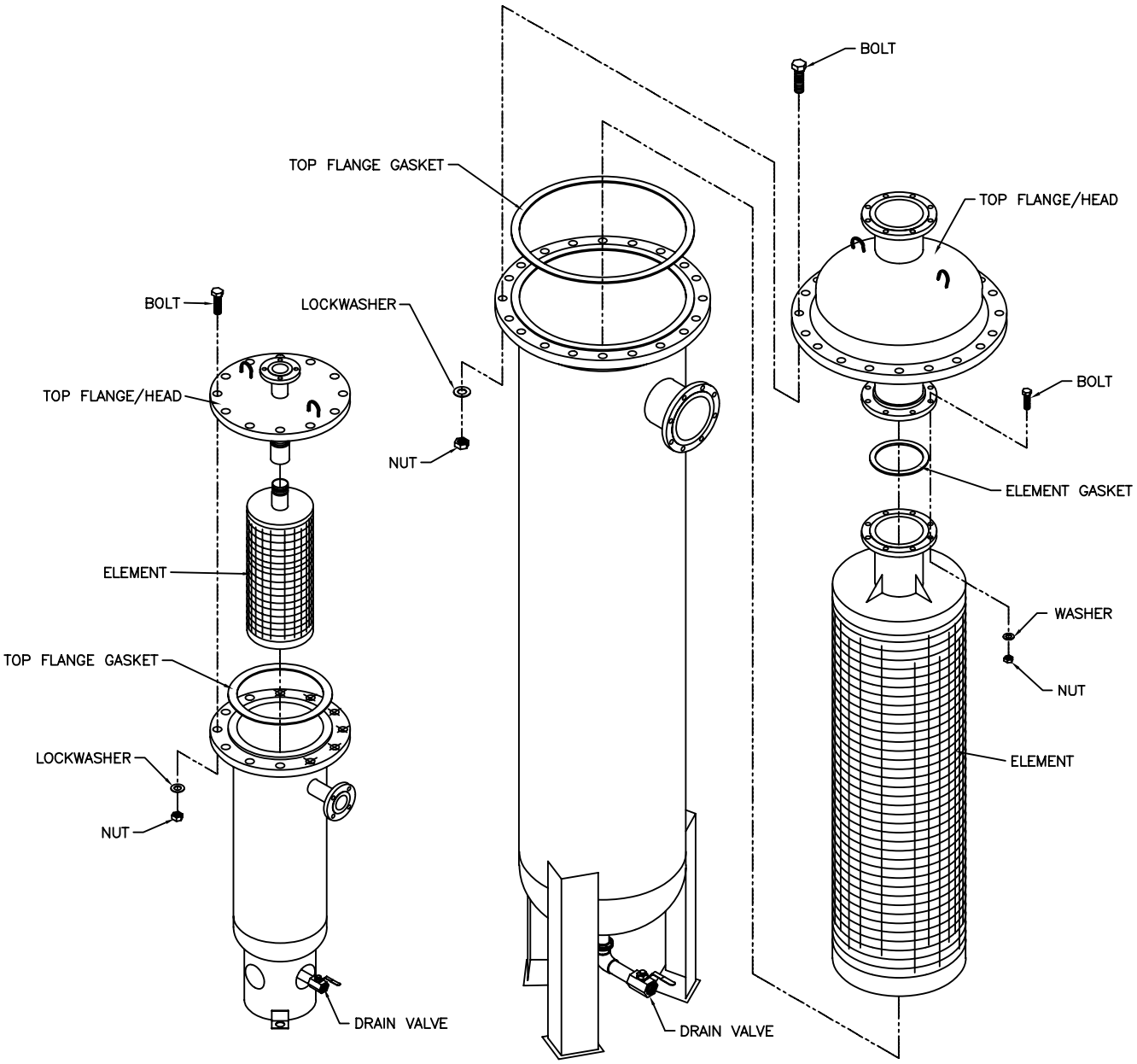
Uncrate the new element. Use care to prevent damage to the element.

Inspect the element connection on the flange/head. Check the threads or flange sealing surface. These surfaces should be cleaned to ensure proper sealing.

Attach the element to the top flange/head. Make sure that the element is securely fastened. Use PTFE (teflon) pipe tape on the threaded end of the element. If the element has a flanged connection, make sure that the gasket is installed between the flange and element. A new gasket should be used every time the element is replaced.

Once the element is properly attached to the top flange/head, the assembly can be mounted to the vessel. Carefully place the element into the vessel. Reattach the top flange/head to the vessel.

Reconnect the vessel to the process piping. Make sure all connections are properly installed. Once the unit has been properly setup follow the start-up procedures in Section 5.2.



MODELS VME-125 through VME-3000 **MODELS VME-5000 through VME-10000**

MODEL	PART NO.	TOP FLANGE GASKET	DRAIN VALVE	ELEMENT	PART NO.	ELEMENT GASKET
VME-125	84-0830	18-0368	14-0451	EVME-125	26-6039	-NA-
VME-250	84-0831	18-0368	14-0451	EVME-250	26-6040	-NA-
VME-500	84-0824	18-0368	14-0451	EVME-500	26-5974	-NA-
VME-850	84-0867	18-0368	14-0451	EVME-850	26-6549	-NA-
VME-1250	84-0833	18-0211	14-0451	EVME-1250	26-6046	-NA-
VME-1500	84-0834	18-0358	14-0451	EVME-1500	26-6052	-NA-
VME-2000	84-0835	18-0263	14-0451	EVME-2000	26-6054	-NA-
VME-2500	84-0836	18-0263	14-0451	EVME-2500	26-6056	-NA-
VME-3000	84-0837	18-0263	14-0451	EVME-3000	26-6057	-NA-
VME-5000	84-0838	18-0263	14-0452	EVME-5000	26-6058	18-0207
VME-7500	84-0839	18-0370	14-0452	EVME-7500	26-6059	18-0206
VME-10000	84-0840	18-0370	14-0452	EVME-10000	26-6060	18-0206

I. INSTALLATION.
Unless otherwise set forth in a quotation and/or acknowledgment, Seller shall not be responsible for installation. Cost of and all risks of damage to the equipment and/or components thereof caused by installation shall be the sole responsibility of Buyer. If supervision of installation and/or supervision of start up of the equipment is to be provided by Seller, Buyer shall assume all costs incurred by Seller in furnishing supervision. If supervision of installation and/or supervision of start up of the equipment is provided by Seller, Seller shall only be responsible for any loss or damage growing out of a direct negligent act or acts of Seller's supervisor.

SELLER SHALL NOT BE RESPONSIBLE FOR IMPROPER OPERATION OF THE EQUIPMENT DUE TO FAULTY ERECTION OR INSTALLATION.

II. PERFORMANCE.
Seller shall have no responsibility for the performance of its Goods when installed under conditions varying materially from those under which the product is usually tested or operated under existing industry standards.

III. WARRANTY
All filter housings are guaranteed to be free from defective materials and workmanship for a period of **five (5) years** from date of shipment when used in compressed air applications. This warranty does not include elements, drain line components, hatch covers, gaskets, o-rings, or any other types of seals, accessories or expendable items.

Elements for VME Series mist eliminators are warranted on a prorated basis against defective materials and workmanship for a period of **ten (10) years** from date of shipment when used in compressed air applications. The basis for prorating the life is as follows: years 1 through 5 - 100%; year 6 - 50%; year 7 - 40%; year 8 - 30%; year 9 - 20%; year 10 - 10%.

The above warranties for all products described do not cover misapplication, modification, neglect, lack of normal maintenance, or other exceptional circumstances.

Date of shipment will be defined as the date of departure from the factory or from distributor stock. A copy of the distributor invoice to the customer at time of shipment is required as verification of shipment from distributor stock Equipment start up will be verified by receipt of the warranty registration card

Seller's obligation under this warranty may, at its option, be discharged by refunding the price of, or furnishing or repairing, without charge, FOB its factory, a similar part to replace any part of its own manufacture which within the above specified periods, proves to have been defective, provided that within a reasonable time for inspection after delivery, Seller is notified of such defects and the equipment, material or part claimed to be defective is delivered pre-paid to Seller at Lake City, Pennsylvania with evidence that it has been properly maintained and used in accordance with instructions. If, in connection with such warranties, repairs are performed by the Buyer with the written authorization of Seller, then the expense in connection with such repairs shall not exceed the cost of material and direct labor If such repairs are performed by Buyer without the written authorization of Seller. Seller will not assume any of the expenses in connection with such repairs and will immediately void any remaining warranty on the Goods.

THE REPAIR OR REPLACEMENT WARRANTY HEREIN SET FORTH IS THE EXCLUSIVE WARRANTY GIVEN BY SELLER FOR ITS GOODS. THIS WARRANTY IS GIVEN IN LIEU OF ANY OR ALL WARRANTIES, WHETHER WRITTEN OR ORAL, EXPRESSED OR IMPLIED. ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE HEREBY EXPRESSLY EXCLUDED BY SELLER. SELLER NEITHER ASSUMES, NOR DOES IT AUTHORIZE ANY OTHER PERSON TO ASSUME ON ITS BEHALF ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS GOODS.

IV. LIMITATIONS OF LIABILITIES AND INDEMNITIES.
IN NO CASE, WHETHER AS A RESULT OF BREACH OF CONTRACT, BREACH OF WARRANTY OR TORT (INCLUDING SELLER'S OR BUYER'S NEGLIGENCE OR STRICT LIABILITY) SHALL SELLER BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES INCURRED BY BUYER, INCLUDING, BUT NOT LIMITED TO, LOSS OF SALES PROFIT, REVENUE, OR GOOD WILL; LOSS OF USE OF GOODS OR ANY ASSOCIATED EQUIPMENT OR MATERIAL; COST OF CAPITAL; COST OF SUBSTITUTE PRODUCTS, FACILITIES OR SERVICES; DOWN TIME COSTS; ATTORNEY'S FEES; OR LOSSES OR CLAIMS OF CUSTOMERS OF BUYER FOR SUCH DAMAGES BUYER HEREBY AGREES TO INDEMNIFY AND HOLD HARMLESS SELLER FROM ANY AND ALL SUCH DAMAGES BUYER FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS SELLER FROM ANY AND ALL CLAIMS, LIABILITY, DAMAGES OR EXPENSES (INCLUDING ATTORNEY'S FEES) DUE TO PERSONAL INJURIES OR DEATH, TO BUYER, ITS EMPLOYEES, AND THIRD PARTIES AND FROM PROPERTY DAMAGE RESULTING FROM THE NEGLIGENCE OR STRICT LIABILITY OF BUYER NOT WITHSTANDING THE PROVISIONS OF ANY WORKER COMPENSATION OR SIMILAR STATUTE

V. SERVICE, OPERATING PROCEDURE, WARNINGS.
Should Buyer request start up supervision by Seller, a maximum number of days required for this supervision may be included and specified in the quotation and/or acknowledgment as a separate price item. The specified days are only approximate, since start up, supervision is contingent upon equipment and work supplied by others and beyond the control of Seller, and Seller shall be paid for any days actually worked in addition to those specified on a pro-rata basis.

Start up supervision and warranty supervision and warranty service time will include all elapsed time during the standard working hours, as defined by Seller, or Seller's representative from the time Seller's representative leaves his operating base or another customer's plant.

Where the service to be performed is start up supervision. Seller should be notified approximately 30 days prior to start up Seller's representatives may be required to have standard time verification sheets approved by Buyer's authorized representative, and the name and title of this representative should be furnished to Seller with the notification.

Unless set forth in the quotation and/or acknowledgment, Seller shall not be obligated to provide special operating manuals or operating procedures for the operation of its equipment or supply special warning placards to be affixed to the equipment. If such manuals, procedures or placards are provided by Seller, Buyer shall be responsible for payment of cost of furnishing such items, for instructing any operator of the equipment as to the contents of such manuals and/or procedures, for requiring that such procedures be abided by, for insuring that warning placards remain affixed to the equipment and for requiring operators to abide by warning placards.

Any safety equipment required to be worn by any operator or maintenance person shall be provided by Buyer, and the failure to provide such equipment or the failure to require the use thereof shall be the Buyer's sole responsibility. Buyer shall indemnify and hold Seller harmless for any liability with respect thereto.

Seller shall not be responsible for providing safety devices and/or guarding of the equipment except as provided for in the quotation and/or acknowledgment, and Buyer specifically assumes all responsibility for supplying such safety devices and/or guarding necessary for the safe operation of the equipment. If safety devices and/or guarding are specified in the quotation and/or acknowledgment, Buyer shall be solely responsible for making certain that any operator of the equipment uses such safety devices and/or guarding and Buyer shall indemnify and hold Seller harmless with respect to any property damage and/or personal injury, including death, occasioned by any person by reason of such failure on the part of Buyer and/or its operator.

VAN AIR INC
MAKING COMPRESSED AIR AND GAS WORK BETTER SINCE 1944.
2950 Mechanic Street
Lake City, PA 16423-2095
Phone: 814/774-2631
Fax: 814/774-3482

