



# INSTALLATION INSTRUCTIONS

## E101/102 SERIES FILTER ELEMENTS

(FOR F101, F102 AND FHP SERIES FILTER HOUSING - ALL GRADES)

GRADE	DESCRIPTION	ENDCAP COLOR	GRADE	DESCRIPTION	ENDCAP COLOR
AA	Extra Coarse Coalescing	Black	RAA	Extra Coarse Particulate	Black
A	Coarse Coalescing	Green	RA	Coarse Particulate	Green
B	General Purpose Coalescing	Red	RB	General Purpose Particulate	Red
C	High Efficiency Coalescing	Blue	RC	High Efficiency Particulate	Blue
			HT	High Temperature Particulate	Zinc Plate
			RD	Vapor Adsorbing	Black

To reduce energy consumption from excessive pressure drop and minimize chance of contaminant carryover, install new elements before pressure drop reaches 10 psid (except grade RD). Install new RD elements when hydrocarbon vapors are first detected downstream or every six months, whichever comes first.

### WARNINGS

**BEFORE INSTALLING NEW ELEMENT(S), READ INSTRUCTION MANUAL CAREFULLY. NOTE SERIES OF FILTER HOUSING (F101, F102 OR FHP) AND CONSULT THE APPROPRIATE SECTION FOR SPECIFIC INSTRUCTIONS.**

## F101 SERIES

1. Close inlet and outlet shut-off valves (and open by-pass valve if provided); or lock out compressed air supply to filter housing.

### WARNING

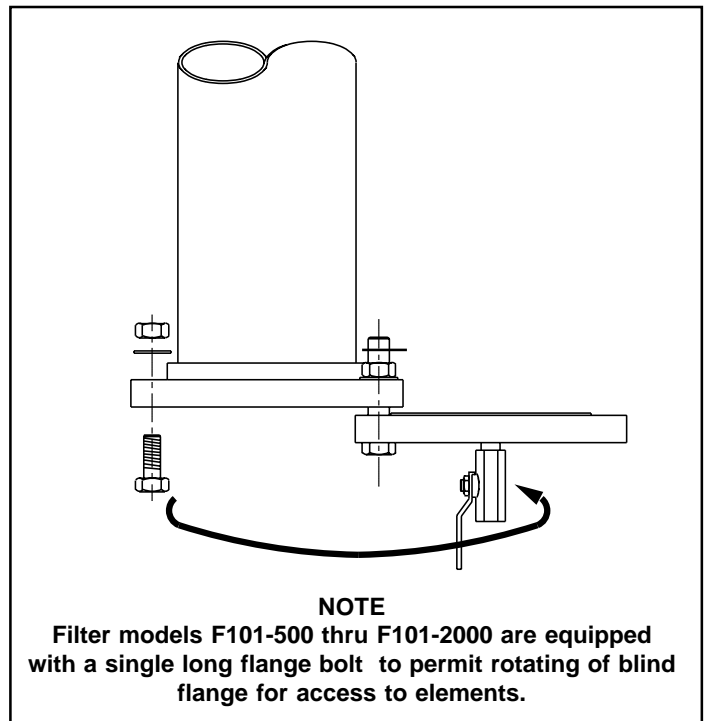
**DO NOT LOOSEN FLANGE BOLTS BEFORE THE VESSEL IS COMPLETELY DEPRESSURIZED.**

2. On units with manual drain valve, stand clear and turn manual valve until fully open. Leave valve open until all pressure is out of filter housing and bottom blind flange is removed. On units with automatic drain valves (timed electric type) allow valve to cycle until all pressure is out of filter housing.
3. Provide support under blind flange to prevent it from falling when bolts are removed.
4. Remove bolts from flange and lower blind flange for access to elements.
5. Remove hex fastener from tie rod and remove used element from housing. Discard used element properly.

**TABLE 1 BOTTOM BLIND FLANGE WEIGHTS (F101 Series)**

FILTER MODEL	BOTTOM BLIND FLANGE WEIGHT (LBS.)
F101-500	28
F101-1000	47
F101-1500	69
F101-2000	69
F101-3500	102
F101-5000	177

**FIGURE 1 LONG FLANGE BOLT (F101-500 thru 2000)**



### WARNING

**BLIND FLANGES ARE HEAVY AND COULD CAUSE INJURY IF ALLOWED TO FALL. SEE (TABLE 1) FOR BLIND FLANGE WEIGHTS.**

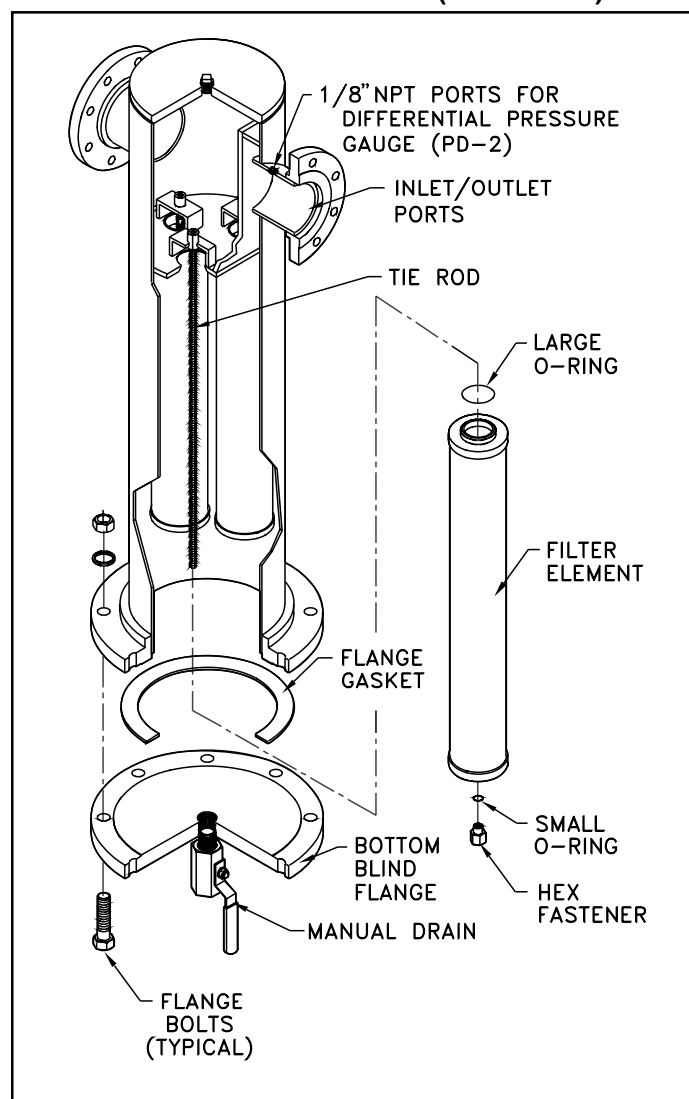
6. Remove new element from packaging. Remove small plastic bag (o-ring inside) and rubber band from element. Install new small o-ring in groove on hex fastener. Be sure that large o-ring is firmly and squarely positioned on top end cap.
7. Install element in housing so that the tie rod protrudes through the small hole in the bottom endcap.
8. Thread hex fastener onto the tie rod and tighten so that element is held firmly in place. Do not overtighten. (See Figure 2).
9. Repeat same procedure for each new element required. (See Table 2 for Element Replacement Data).
10. Before closing housing, inspect the interior to make certain all of the new elements have been installed.
11. With gasket in place, carefully raise blind flange and align bolt holes. Insert all bolts and completely tighten all nuts evenly.
12. Close drain valve; then slowly open inlet and outlet valves. Close by-pass valve if provided. Check for leaks.
13. Filter is now in service.

**TABLE 2 ELEMENT REPLACEMENT DATA (F101 Series)**

FILTER MODEL	REPLACEMENT ELEMENT MODEL NUMBER	NUMBER OF ELEMENTS IN HOUSING
F101-500-*	E101/102-500-*	1
F101-1000-*	E101/102-500-*	2
F101-1500-*	E101/102-500-*	3
F101-2000-*	E101/102-625-*	3
F101-3500-*	E101/102-625-*	5
F101-5000-*	E101/102-625-*	8

\*Insert appropriate filtration grades here; for example F101-3500-C uses replacement element E101/102-625-C (five required).

**FIGURE 2 TYPICAL ASSEMBLY (F101 Series)**



## F102 SERIES

1. Close inlet and outlet shutoff valves (and open by-pass valve if provided); or lock out all compressed air supply to filter housing.
2. On units with manual drain valves stand clear and turn both manual drain valves until fully open. Leave valves open until all pressure is out of filter housing and T-bolt/swing bolt closure is open. On units with automatic drain valves (timed electric type) allow valve to cycle until all pressure is out of filter housing.

### WARNING

**DO NOT LOOSEN SWING BOLTS BEFORE THE VESSEL IS COMPLETELY DEPRESSURIZED.**

3. Loosen swing bolt nuts until they will clear the tabs on the enclosure. It is not necessary to remove the nuts from the bolts. (See Figure 3).
4. Remove hex fasteners from tie rods and lift used elements from housing. Discard used elements properly.
5. Remove new element from packaging. Remove small plastic bag (o-ring inside) and rubber band from element. Install new

small o-ring in groove on hex fastener. Be sure that large o-ring is firmly and squarely positioned on the end cap with the large opening.

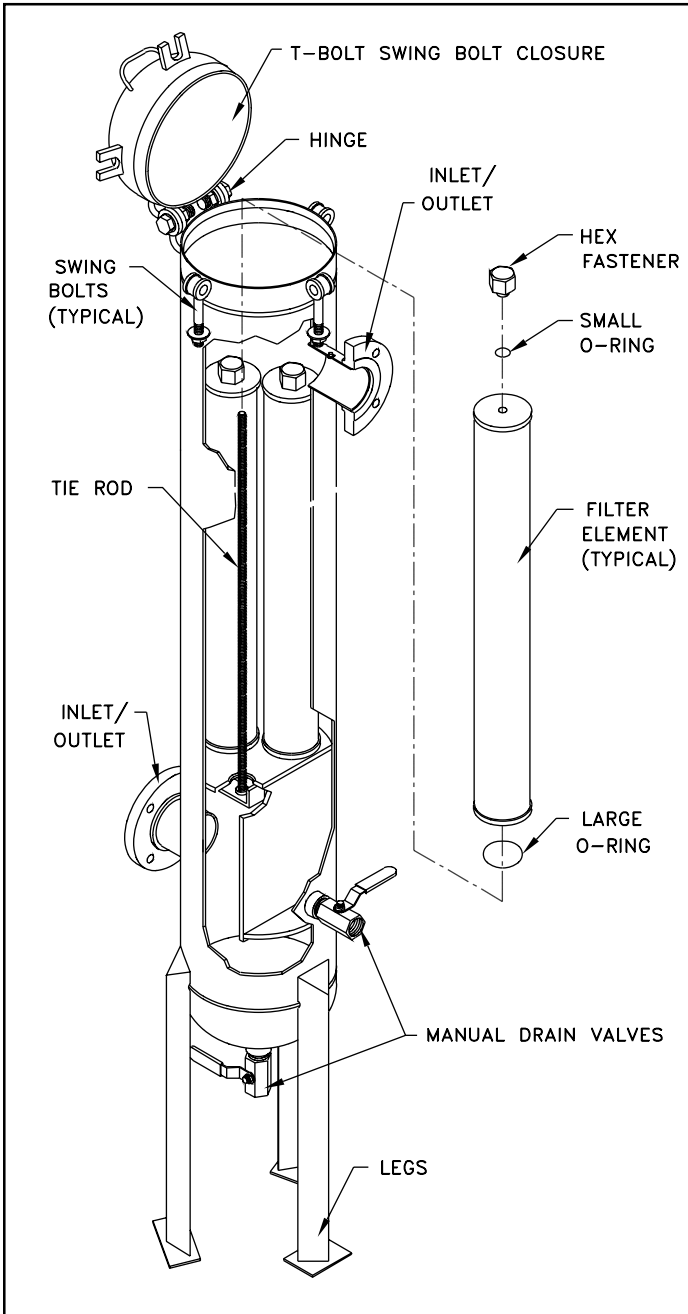
6. Install element in housing so that the tie rod protrudes through the small hole in endcap. End cap with large opening faces down.
7. Thread hex fastener onto the tie rod and tighten so that element is held firmly in place. Do not overtighten (See Figure 3).
8. Repeat same procedure for each new element required. (See Table 3 for Element Replacement Data).
9. Before closing housing, inspect baffle to make certain all the new elements have been installed.
10. With enclosure o-rings in place, carefully lower enclosure and raise all swing bolts over tabs. Tighten all nuts evenly.
11. Close drain valve; then slowly open inlet and outlet valves. Close by-pass valve if provided. Check for leaks.
12. Filter is now in service.

**TABLE 3 ELEMENT REPLACEMENT DATA (F102 Series)**

FILTER MODEL	REPLACEMENT ELEMENT MODEL NUMBER	NUMBER OF ELEMENTS IN HOUSING
F102-1500-(* )	E101/102-500-(* )	3
F102-2000-(* )	E101/102-625-(* )	3
F102-3500-(* )	E101/102-625-(* )	5
F102-5000-(* )	E101/102-625-(* )	8
F102-7500-(* )	E101/102-625-(* )	12
F102-10,000-(* )	E101/102-625-(* )	16
F102-12,500-(* )	E101/102-625-(* )	20
F102-15,000-(* )	E101/102-625-(* )	24
F102-20,000-(* )	E101/102-625-(* )	32

\*Insert appropriate filtration grades here; for example F102-3500-C uses replacement element E101/102-625-C (five required).

**FIGURE 3 TYPICAL ASSEMBLY (F102 Series)**



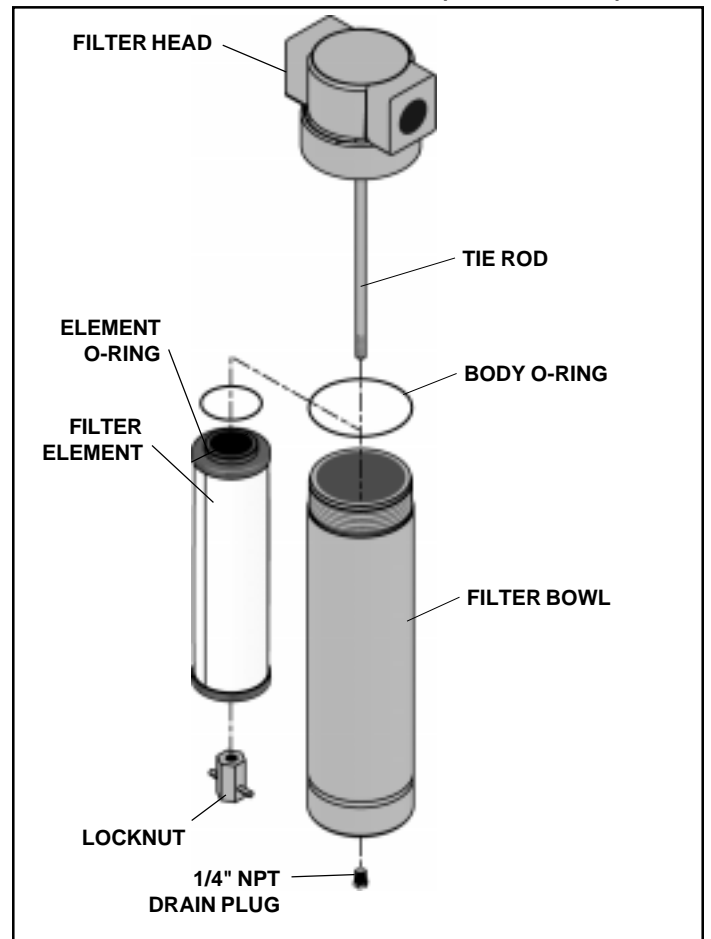
# FHP-670-7.25

1. Close inlet and outlet shutoff valves (and open by-pass valve if provided); or lock out all compressed air supply to filter housing.
2. Completely depressurize filter before removing filter bowl.
3. Remove filter bowl using a spanner or strap wrench, turning bowl counterclockwise.
4. Remove locknut from bottom of element and pull element down off of seat. **(See Figure 4).**
5. Lightly grease element o-ring and slide element onto tie rod. Thread the lock nut onto the tie rod and tighten hand tight.
6. Ensure body o-ring is seated inside filter head. Lightly grease filter bowl threads and thread it into filter head. Tighten with a spanner or strap wrench.
7. Tighten the drain plug then slowly open inlet and outlet shutoff valves. Close bypass valve (if provided).
8. Filter is now in service.

FILTER MODEL	REPLACEMENT ELEMENT MODEL NUMBER	NUMBER OF ELEMENTS IN HOUSING
FHP-670-7.25-(* )	E101/102-500-(* )	1

\*Insert appropriate filtration grades here; for example FHP-670-7.25-C uses replacement element E101/102-500-C (one required).

**FIGURE 4 TYPICAL ASSEMBLY (FHP-670-7.25)**



## WARRANTY

### 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 manufactured by Seller are guaranteed to be free of defective materials and workmanship for a period of five (5) years from the date of shipment. This warranty does not include elements, drain line components, gaskets, o-rings or any other types of seals, or any accessories

All goods manufactured by Seller are guaranteed to be free from defective materials and workmanship for a period of one (1) year from date of shipment. The equipment and accessories sold but not manufactured by Seller are guaranteed only to the extent that either Seller or Buyer is able to recover under the manufacturer's warranty. This warranty shall not be assignable to buyer, or expendable items.

The above warranties for all products described do not cover abuse, neglect, lack of normal maintenance, accidents 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 product registration card.

Seller's obligation under this warranty may, at its option, be discharged by 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; DOWNTIME 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 SYSTEMS INC

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2950 Mechanic Street  
Lake City, PA 16423-2095  
Phone: 814/774-2631  
Fax: 814/774-3482