



Precision Marine Systems

Congratulations on the purchase of a state of the art protein skimmer manufactured by Precision Marine Systems. READ ALL INSTRUCTIONS and complete the warranty card and return within ten (10) days to benefit from the one (1) year limited warranty.

Bullet Series Models 2 & 3

Basics...

Take some time to acquainte yourself with the diagram on Page 3.
Please see below for water pump selection.

	Bullet-2	Bullet-3
Sedra 12000	♣	
Mag 18	♣♣	♣
Mag 24	♣♣♣	♣♣
GenX PCX40	♣♣♣♣	♣♣♣
Pan World 100PX	♣♣♣♣♣	♣♣♣♣
Pan World 150PS	♣♣♣♣♣♣	♣♣♣♣♣
Pan World 200PS		♣♣♣♣♣♣♣

~While other pressure pumps may work well with your skimmer, we know these will work well.~

Assembly & Installation...

- 1) Locate the threaded speedfittings (beige colored) and black insert nipple (for optional ozone use). Using the supplied teflon tape, wrap each of the threads in the opposite direction of tightening. This will keep the teflon tape from unraveling when you thread them into the injector body.
- 2) Thread one speedfitting into the female threaded opening on the back side of the injector and tighten. See image to right.
- 3) Thread the black insert nipple into the other female threaded opening on the front side of the injector and tighten. Be sure to leave the red cap on unless you are using ozone.
- 4) Locate the black air valve and place it into the injector base as shown in picture to right. Thread the other speedfitting into the bottom of the black air valve. Thread the white muffler on top of the valve as shown. Teflon tape is not needed here.
- 5) Locate the red polyethylene tubing and push into the speedfitting on the injector. Connect the other end to the speedfitting attached to the valve as shown. To remove the tubing, simply push the collar in the speedfitting while pulling the tubing out. Your injector is now assembled.
- 6) Please note that the lid of the injector is reverse threaded. Tighten to the left and remove to the right.
- 7) Position your Bullet Protein skimmer so the drain line (from skimmer to sump) does not rise. It must drain straight out or down. If it doesn't, it will impossible to maintain a low enough water level. In addition, if you plan to drain downward more than six inches, a vented drain is recommended. If you do not vent the drain, it will be very difficult to maintain a constant water level. See your dealer for vented drain details. Never reduce the size of this drain line. To raise your skimmer, consider using one of the Precision Marine Custom Skimmer Stands.





Precision Marine Systems

- 8) Whether you choose to place your skimmer in or out of the reservoir, always return water (from skimmer) ABOVE running water level in the sump. It is recommended to run the drain water over a sponge to break the fall of the water and remove any stray bubbles. After the initial break-in period (24-48 hrs.), less air will leave the skimmer's drain.
- 9) Wrap each side of the 1.5" threaded nipple with teflon tape no more than three wraps in the opposite direction of the threads. Thread one end into the gate valve, and the other end into the skimmer no more than three rotations. **HAND TIGHT ONLY! DO NOT OVER-TIGHTEN! OVER-TIGHTENING CAN CRACK PVC FITTINGS!**
- 10) Your injector is supplied with a 1" insert fitting (to adapt to flexible tubing) that can be glued into the union with pvc cement, or if you prefer, hard plumbed with 1" pvc. Once you have decided how you are going to couple the injector to your pump, proceed. NOTE: When gluing to the union, be sure not to let the pvc cement drip into union or injector.
- 11) Be sure o-rings and mating surfaces are clean prior to assembly to assure a good seal. Do not over-tighten thumb-screws holding down cup, hand tight is sufficient.
- 12) Connect a length of 5/8" flexible tubing from the cup drain to a Precision Marine Systems' Waste Collector. The only vent is the cup drain. If you are not using a Precision Marine Systems' Waste Collector, DO NOT immerse drain hose in liquid.

Operation

- 1) Before running your skimmer be sure positive connections are made between water source and skimmer input, return and sump, and cup drain and waste collector.
- 2) Open gate valve fully.
- 3) Close air valve on Bullet Injector.
- 4) Turn on water pump.
- 5) Close gate valve to achieve desired water level in reaction chamber (See diagram on page 3).
- 6) Slowly open the air valve until it is at the 11 or 5 o'clock position (depending upon which way you are looking at it). Look for the air/water interface and adjust the gate valve (skimmer drain) to maintain the water level where you started. After opening the air valve the water level will rise at first, then slowly drop. Tune the air valve for the finest bubble. Never run your skimmer with the air valve completely open.

Operating Tips

At first your skimmer will just "simmer" until it breaks in. You will probably find it hard to believe that the entire reaction chamber and neck will fill with foam, but it will. Please be patient, and remember...

- ☞ Freshly mixed saltwater can cause excessive wet foaming action. Lower water level in reaction chamber after water changes and/or if the tank is newly set up for 24-48 hours.
- ☞ Most foods, your skin, and some additives break surface tension in the water. For this reason your skimmer will run flat (simmer) after feeding, having your hands in the tank or using some additives. Don't worry, your skimmer will be back to work in no time.
- ☞ This protein skimmer requires 24 - 48 hours to "break-in", depending upon dissolved organic load. Be patient. After "break-in", the driest foam possible is most desirable. Using the gate valve (drain), raise or lower water level in the reaction chamber to achieve this.
- ☞ Be sure water level in reaction chamber is steady and consistent. Only small adjustments on the gate valve are necessary.
- ☞ A rising water level overnight can mean a big mess in the morning. If you are unsure, run the cup drain line back to the reservoir temporarily.



Precision Marine Systems

Maintenance...

Regular cup cleaning will keep your Bullet skimmer operating at peak efficiency. Simply loosen the thumbscrews, twist and remove the cup and clean with freshwater. The cleaner the neck of the cup is kept, the easier it is for foam to evacuate into the cup and to your waste collector.

Besides regular cup cleaning, your injector will need to be cleaned. Intervals are dependent upon prefiltration before the water hits the injector, and the additives you add to your tank, especially calcium hydroxide. Follow the simple instructions below...

Servicing your injector...

1. Do not attempt to remove the injector body from skimmer.
2. Simply twist clockwise to loosen the quik-lok injector lid. The lid is reverse thread/tightening.
3. Remove the lid. The black beckett injector will come out with the lid. Do not lose the o-ring on the end of the injector.
4. Remove the injector from the grey fitting and remove the o-ring.
5. The injector comes apart in 3 pieces. Note how pieces fit together for reassembly.
6. Dissolve salt deposits with hot water. If necessary, soak in straight vinegar overnight and rinse well.
7. Stretch the o-ring back onto the larger end of the black beckett injector.
8. Push the smaller end of beckett injector back into the fitting in the lid.
9. Replace the lid (with injector attached) back onto the injector body, taking care to keep both mating surfaces clean and free of dirt or debris.
10. Replace the lid (with injector attached) and firmly push the injector into receiving fitting at the bottom. Twist counter-clockwise to seal and you're done!

Note: The machining tolerances on the injector lid and receiving piece are very tight. The more you use lid, the better the two surfaces will mate.



Lastly, we at Precision Marine would again like to thank you for purchasing one of our products. All Precision Marine components are hand-built with pride in the U.S.A.



Precision Marine Systems

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New Braunfels, TX 78132

830-626-2401
830-626-2402
www.precisionmarine.com

Limited Warranty

Precision Marine Systems, Inc. warrants this product against leakage due to defective sealant and workmanship defects as follows:

For a period of one (1) year from the date of purchase, Precision Marine Systems, Inc., will at its option either replace or repair the defective product when used and installed within the guidelines of the instructions. After this one (1) year period, you must pay for all repair charges. All repairs must be performed by Precision Marine Systems, Inc.

Drilling holes anywhere in the filter or in any other way altering the filter after the original manufacture by Precision Marine Systems, Inc. at their home offices in New Braunfels, Texas will void all warranties. This warranty does not cover any damage due to accident, misuse, abuse, negligence, or your failure to follow FILTER INSTALLATION INSTRUCTIONS.

To be effective, warranty card must be signed by purchaser and dealer and mailed along with a copy of the original sales receipt to the address listed above within ten (10) days of purchase. We suggest that you retain the dealers dated bill of sale as evidence of the date of purchase.

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THIS WARRANTY CARD MUST BE SIGNED BY BOTH THE PURCHASER AND DEALER AND MAILED ALONG WITH A COPY OF THE ORIGINAL SALES RECEIPT WITHIN TEN (10) DAYS OF PURCHASE.

BUYER'S NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

STORE NAME: _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

FILTER TYPE/MODEL _____ DATE PURCHASED _____

I HAVE THOROUGHLY READ AND UNDERSTAND THE ABOVE WARRANTY AND FILTER INSTALLATION INSTRUCTIONS.

CUSTOMER'S SIGNATURE: _____

DEALER'S SIGNATURE: _____