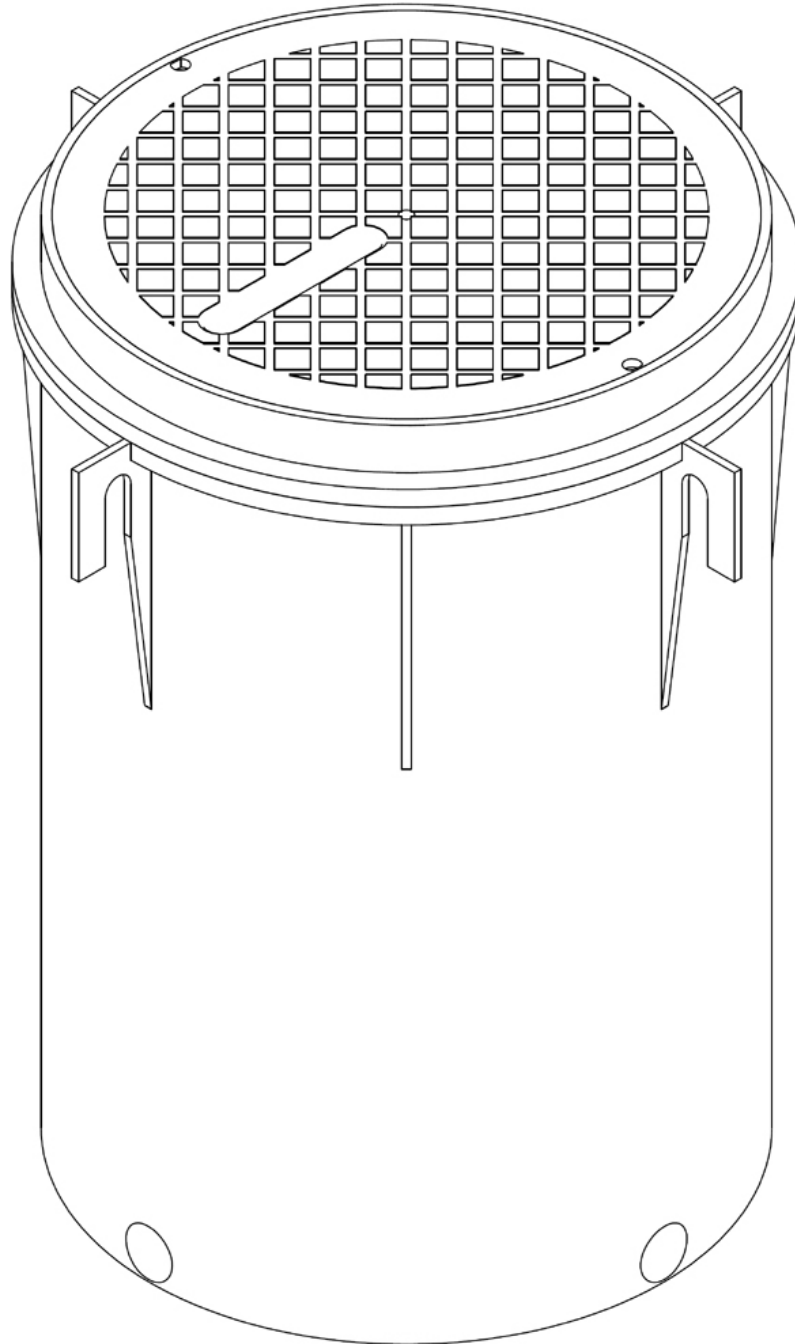


Fiberstars
Light Streams Large Laminar
Installation Manual
(LSLL)



3072091

ETL listed for installations within 5 ft. (1.5M) of outer edge of water



SAVE THESE INSTRUCTIONS!

These directions are provided to ensure the proper installation and operation of Fiberstars Light Streams™ Large Laminar. The maximum lighted distance of the laminar stream should be considered 8ft height and 8ft in distance. If the laminar arc is over 8ft there is a high degree of probability that the lighting will not travel the full distance to the bottom of the laminar flow. Also, if the throw distance is over 8ft, the lighting will also fail to go the full distance of the laminar stream.

IMPORTANT:

Read and follow all safety and installation instructions carefully.

The product must be installed in accordance with the applicable installation code by a person familiar with the construction and operation of the product and hazard involved.

IMPORTANT GENERAL SPECIFICATIONS:

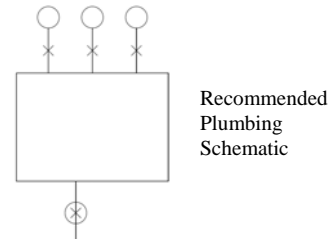
1. **The water supply to the Light Streams Laminar fountains should be filtered with a cartridge filter.** Sand filter and DE filters will likely produce small particles of debris that will clog the filter screens internal to the laminar flow fountains.
2. Water supply is dependent upon 3 important factors:
 - a. Pump size – if dedicated pump is used it must be a minimum of a ½ hp and supply proper flow rate at 16 ft of head.
 - b. Plumbing pipe size
 - c. Number of laminar flow fountains on system

**NOTE: GENERAL RULE OF THUMB IS THAT EACH LAMINAR REQUIRES A MINIMUM OF 10 GPM.
SEE FOLLOWING SECTION ON DESIGN CRITERIA**

THE LAMINAR FLOW DECK BOX IS MADE OF ABS MATERIAL. USE ONLY ABS-PVC GLUE WHEN MAKING ANY PLUMBING CONNECTIONS TO THIS DECK BOX

3. Each Fiberstars Light Streams Large Laminar flow fountain requires 12VAC. **Minimum sized conduit is 3/4"**. Run the supplied 100ft of 12VAC wire from the Light Streams LED driver through the conduit back to the location of your transformer (not included).
4. Fiberstars Light Streams Large Laminar flow fountains can be placed in most any location from concrete decks, raised bond beams or even soft scapes. Be sure that the distance from the interior pool wall to the laminar flow fountain is no further than 5 feet. This would allow the lighted laminar flow stream to be 3 feet into the pool interior.

5. **Each fountain requires a 1 ½" PVC water supply that is reduced to 3/4" to connect to the bottom of the deck box.**
6. Each lamina should also have a gate valve installed for flow adjustment. All gate valves should be located as close as possible to the equipment pad area to reduce water turbulence from entering the lamina fountain.
7. On main water supply line install a check valve.
8. A plumbing loop should be utilized.



INSTALLATION OF THE LAMINAR FLOW DECK BOX

1. Reconfirm that fountain is no further than 5 feet away from water surface interior.
2. Prepare location by digging hole 2 feet in diameter and depth.
 - A. For in deck applications – Level the lid to the finished grade level of decking.
 - B. For planter areas – Lamina lid should be 2 inches ABOVE the landscape area to prevent materials from intruding or washing into the fountain itself.
3. Remove the lamina flow fountain from the deck box assembly by undoing the hose connection at the bottom of the fountain.
4. Plug hose (with included plug), utilizing stainless steel clamp for pressure testing.
5. Place the deck box into the excavated hole with drain stand pipe pointing in the direction of the desired water flow (towards pool interior). Also this will place water connection at the very rear of the Lamina, opposite of the pool wall.
6. The bottom of the deck box can be supported by utilizing the 1" PVC support connection. The support pipe should be approximately 6" in length. You may also wire tie the deck box to any decking rebar using the 4 rebar support wings to help maintain the proper level.
7. Attach the ½" PVC Water supply line to the reduced ¾" water connection.
8. Install ¾" PVC pipe for 12VAC cable run
9. Install 1" PVC pipe to the drain line connection. **IT IS IMPERATIVE THAT ALL LAMINAR FLOW FOUNTAINS HAVE PROPER DRAINAGE.**
10. Fill excavated area with gravel until gravel reaches approximately 1" up on bottom of deck box.



11. Finish your deck material installation making sure that the Light Streams™ Large Laminar flow fountains remain level. Utilizing the Adjustable Deck Flange adjust to match your deck height.

After deck box has been installed and system has been pressure tested, the laminar flow fountain itself may be reinstalled.

IT IS EXTREMELY IMPORTANT THAT THE WATER SUPPLY TO EACH LAMINAR IS ALLOWED TO BE FLUSHED SO THAT ALL MATERIAL THAT MIGHT BE IN THE LINES ARE BLOWN FREE PRIOR TO BEING REINSTALLED INTO THE LAMINAR FLOW DECK BOX.

ADJUSTING WATER FLOW

The water flow is determined by two factors: GPM water flow and angle of laminar.

Set angle of your laminar flow by using the two adjustment knobs on the inside the deck box on either side of the laminar. Adjust your distance by opening or closing each respective gate valve until the desired distance is achieved. **MAXIMUM HEIGHT AND DISTANCE IS 8 FEET.**

Initial start up should be done gradually, allowing each laminar to fill with water slowly and allowing air to escape. Failure to do so may cause damage to unit and plumbing.

DO NOT EXCEED 20 GPM PER LAMINAR OR DAMAGE CAN BE DONE INTERNALLY.

IMPORTANT NOTES AND REMINDERS

Minimize the number of plumbing fittings in the water run to cut down flow restrictions and water turbulence.

Laminar flow fountains are susceptible to wind conditions and the higher the angle of your fountain the more they may be effected. If your area has regular amounts of high winds you may consider moving the laminars closer to the pool edge and decreasing the angle of the fountain.

For adjustment of Fiberstars Light Enhancement Device (Scratcher) please see attached direction sheet.



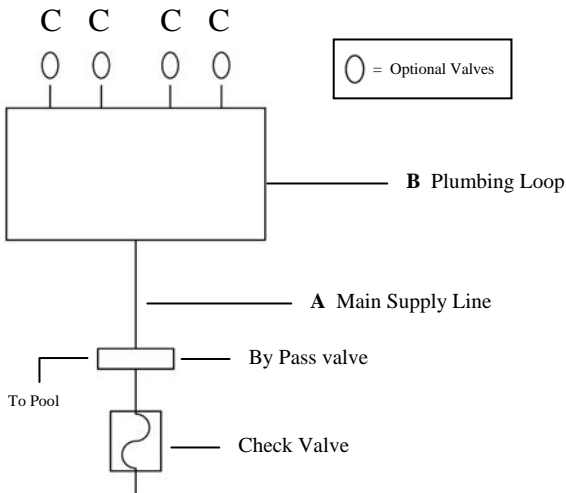
FOR WINTERIZATION, LOOSEN CLAMP ON WATER SUPPLY HOSE, REMOVE HOSE FROM BARBED FITTING, BLOW WATER LINES CLEAR AND INSTALL PLUG TO SEAL WATER HOSE.

If internal screens of the Light Streams™ Large Laminar become obstructed this will effect the laminar stream or light output. To correct this, please remove the Light Streams Laminar fountain from the deck box assembly and apply water pressure at the laminar fountain exit point. This will back flush the laminar and allow debris to be exited from the bottom.

After back flushing, reinstall the Light Streams laminar fountain and adjust water flow and angle for desired effect.

	# of Large Laminars			
	1	2	3	4
GPM	10	20	30	40
Head (FT)	18	21	31	42

# of units	Pipe Size		
	A	B	C
1	1.5"	1"	3/4"
2	1.5"	1.5"	3/4"
3	2"	1.5"	3/4"
4	2"	1.5"	3/4"



Fiberstars Light Streams Large Lighted Laminar Fountains Flow and Plumbing Chart

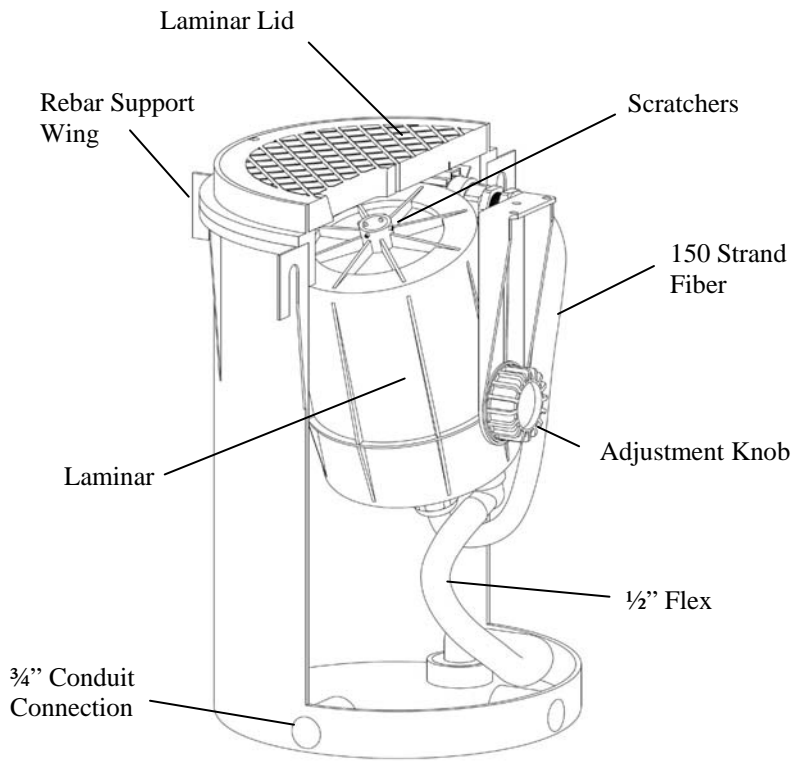


Figure A

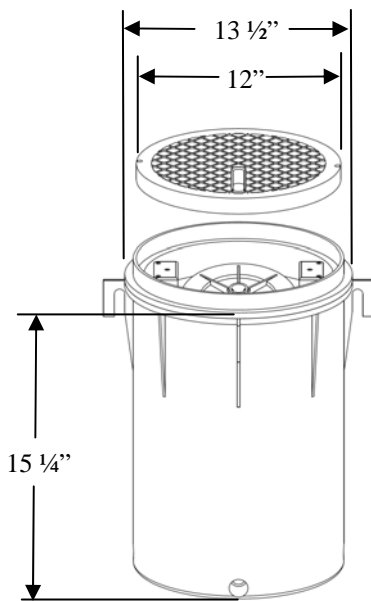
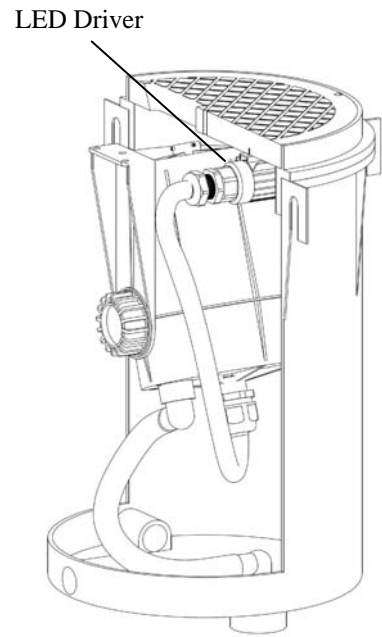


Figure B

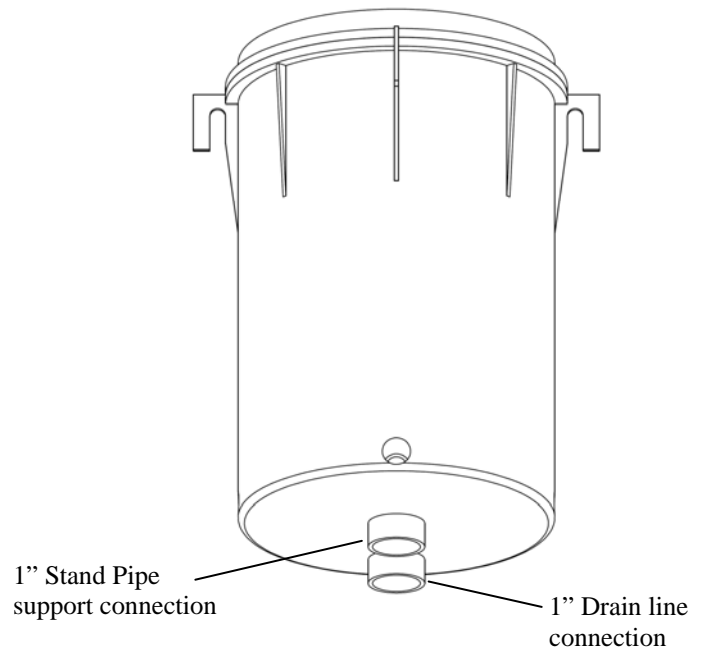


Figure C

BECAUSE OF THE LIGHT ENCHANCEMENT DEVICE ONLY 100 STRANDS OF FIBER IS NEEDED ON THE LAMINAR FLOW FOUNTAINS AND THEY WILL OPERATE ON A 6000 SERIES ILLUMINATOR

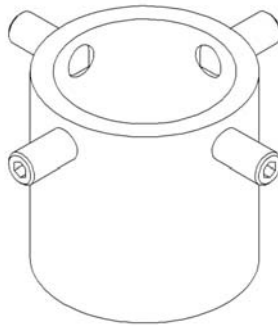
Lighted Laminar Light Enhancement Device

In order to achieve maximum light output, the Light Enhancement Device will need to be adjusted. Adjustment of the “scratcher” or Light Enhancement Device will increase the light output of the laminar flow stream and also will allow you to create water effects such as “pulsing” of the flow stream and light output.

NOTE: For best effects the following should be done in a dark or nighttime environment

Adjustment

1. Ensure that all connections and other installation requirements have been completed.
2. Turn on and operate system as per other directions. This will allow you to adjust the water direction and height properly along with the water flow (GPM) that you wish to achieve.
3. Once both of the above have been completed, turn off system.
4. Raise the laminar flow lid/fountain by the edge of the deck box approximately 4 inches.
5. Insert 1 – 2” x 4” board under each side of the lid, parallel with the slot in the lid, so that the lid is supported, yet raised up from the deck box base.
6. Turn back on the system and reestablish water flow to the fountain.
7. The “scratcher” has 4 adjustment screws. Adjust each screw so that the tip just touches the water flow. (See diagram below)



8. As you increase the contact area of each screw you can achieve different light effects, such as pulsing or burping of the light and water flow.
9. Once you have made the adjustments to achieve your desired effects, add a little drop of silicon or a non permanent thread locking compound on each screw. Turn off the system and remove the 2” x 4” braces and set the laminar/lid back into place on the deck box flange.
10. Turn on the system one last time as a final inspection to insure that the lighting effect you adjusted for in #7 is still there. You may have to do several adjustments to achieve the maximum lighting effect.