

Contents

• Important Warnings and Safety Information.....	1-2
• Introduction & Operation	3
• Dimensions & Head Loss Curves.....	3
• Installation.....	4-6
• User Maintenance Guide.....	7
• Winterization.....	8

IMPORTANT WARNINGS AND SAFETY INFORMATION

When installing and using this equipment, basic safety precautions should always be followed.

****READ, UNDERSTAND, AND FOLLOW ALL WARNINGS AND INSTRUCTIONS****
****SAVE THESE INSTRUCTIONS****

WARNING

Improper installation or use of this product can result in hair or body entrapment, leading to drowning. Install this equipment according to the provided instructions and only use components and hardware supplied by Blue Square Manufacturing. Failure to do so may cause improper suction outlet positioning or function, resulting in severe injury or death.

WARNING

Increasing pump size increases flow. If unsure, consult a pool and spa professional. NEVER use a pool or spa with a missing or broken suction outlet cover. Doing so can cause hair or body entrapment, leading to severe injury or death.

WARNING

Damaged, broken, cracked, missing, or unsecured suction outlets or covers create serious entrapment risks:

- **Hair Entrapment:** Hair can become tangled in the suction outlet cover.
- **Limb Entrapment:** Limbs inserted into damaged or unsecured outlets can become trapped or swollen.
- **Body Suction Entrapment:** Negative pressure on large areas of the body can cause entrapment.
- **Evisceration/Disembowelment Entrapment:** Direct suction to the intestines through unprotected outlets can cause fatal injuries.
- **Mechanical Entrapment:** Jewelry, clothing, or body parts may get caught in outlet openings.

Always ensure suction outlet covers are intact, secure, and in proper working condition to prevent these hazards.

Suction fittings must not be installed on seating areas or their backrests. The system's maximum flow rate must not exceed the flow rating of any suction outlet cover listed under ANSI/APSP/ICC-16 2017 (PA 2021).

WARNING

NEVER use a pool or spa with damaged, broken, cracked, missing, or unsecured suction outlet components. Replace such components immediately. When attaching PVC pipe to PVC-based sumps, use gray medium-set glue only. Do not use blue glue, hot glues, clear glues, or any fast-setting cement.

WARNING

Ensure all pressure test plugs and winterization plugs are removed from suction outlets to prevent suction entrapment hazards.

WARNING

Keep suction outlets clear of debris such as leaves, dirt, hair, or other material to avoid increased entrapment risks.

WARNING

Inspect suction outlet covers/grates before each use. Replace it if damaged, broken, cracked, missing, insecurely attached, or if screws are missing. Covers must also be replaced at least every seven (7) years.

NOTE

As the manufacturer, Blue Square Manufacturing, LLC, hereby certifies that their suction outlet and drain covers meet or exceed the requirements of the Virginia Graeme Baker Pool & Spa Safety Act, VGB 2008 and ANSI/APSP/ICC-16 2017 (PA 2021) standards and safety regulations as set forth by the Consumer Products Safety Commission. A copy of this certificate of conformity is also available on Blue Square Manufacturing's website under resources: [Failure to follow recommended installation methods could void warranties and cause injury.](#)

NOTE

This is an UNBLOCKABLE VGBA Suction Outlet that may be installed as the sole source of water for a single suction outlet.

NOTE

Any field modification made to the HydroFusion Drain is not authorized by Blue Square Manufacturing and any such modifications shall void the certification.

NOTE

No modifications shall be made to the HydroFusion Drain structure or flow path unless the new configuration has been certified.

INTRODUCTION & OPERATION

INTRODUCTION

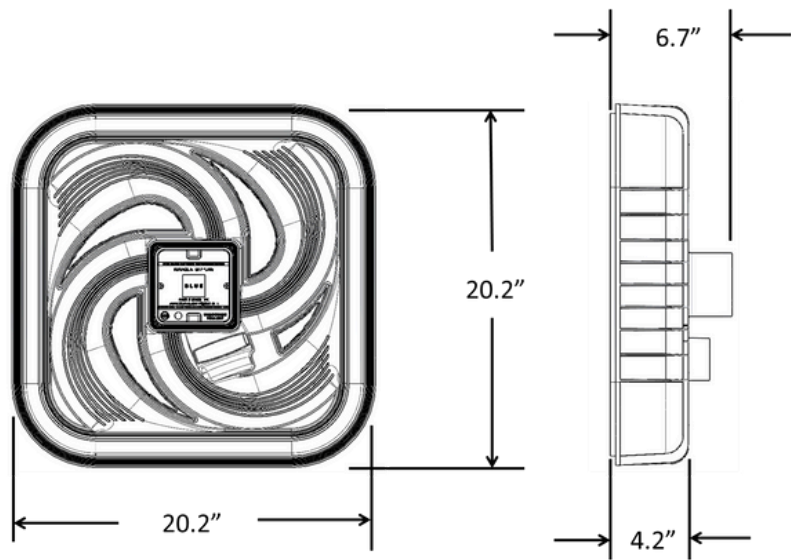
Introducing the HydroFusion Drain, the ultimate solution for safe and efficient pool drainage. Engineered as an UNBLOCKABLE VGBA Suction Outlet, the HydroFusion Drain is designed to meet and exceed industry safety standards, providing unparalleled peace of mind. Its innovative design allows it to be installed as a single VGBA Suction Outlet system in shotcrete or gunite pools, making it ideal for swimming pools of all sizes. With the HydroFusion Drain, you can ensure the continuous flow of water while prioritizing safety and reliability, setting a new standard for pool drainage solutions.

OPERATION

Blue Square's HydroFusion Drain is designed as a debris-catching drain and can be paired with our Q360 In-Floor cleaning system. When paired with our patented in-floor cleaning system, the HydroFusion Drain will play a vital role in maintaining a clean and debris-free pool environment. Its primary purpose is to capture and remove leaves, dirt, and other debris that accumulates in the pool. As the in-floor cleaning system circulates water and pushes debris toward the drain, the drain efficiently collects it, preventing clogs in the filtration system and reducing the need for manual cleaning.

The combination of our HydroFusion drain and the Blue Square Q360 system ensures that the pool remains clear and hygienic with minimal effort, as the debris is continuously directed to the drain and removed from the water. The debris-catching drain enhances the overall effectiveness of the in-floor cleaning system, contributing to a more efficient and low-maintenance pool experience.

DIMENSIONS & HEAD LOSS CURVES



Flow Rate (GPM)	42	105	147	210
2.5" Pipe Total Head Loss (inHg)	0.81	1.65	2.28	4.11
3.0" Pipe Total Head Loss (inHg)	0.63	0.98	1.57	2.54

INSTALLATION

1 Plan and Measure

- a. Determine Location:** Identify the optimal location for the drain, ensuring it aligns with the pool's drainage needs and the layout of the in-floor cleaning system. This should be the deepest point of the pool.
- b. Multiple Suction Fittings:** If you will have more than one suction fitting in the pool, be certain they are a minimum of 3' (0.9 m) apart. (See Figure 1).
- c. Measure and Mark:** Measure the length and width of the drain. Mark the area on the pool floor where the drain will be installed.
- d. String Line:** Stretch a tight string across the top of the bond beam forms, directly over the chosen drain location. Use this string as a reference to set the correct drain height.

2 Excavation

- a. Excavate the Trench:** Excavate an area in the pool floor to accommodate the drain. Ensure the excavated area is slightly wider and deeper than the drain to allow for proper leveling and positioning. (See Figure 2).
- b. Hydrostatic Valve Clearance:** If this drain will have a Hydrostatic Valve (HSV), dig an area an extra 8" of depth for the HSV Well Point and gravel. (See Figure 3).

3 Prepare the Plumbing

- a. Install Piping:** Lay the necessary plumbing (either 2.5" or 3") that will connect the drain to the pool's filtration system. Ensure the pipes are properly secured and aligned with the drain outlet. Using the same size pipe as the main suction line installed prior, create a riser by cutting a piece of pipe with a minimum length of 18". Use a level to ensure the riser is vertical on all sides. Glue in the riser and cap it. (See Figure 2).

4 Preliminary Pressure Test

- a. Run Pressure Test:** Verify there are no leaks before proceeding.

LAYOUT IF USING AN OPTIONAL SECOND SUCTION
HYDROFUSION IS AN APPROVED SINGLE SOURCE
SUCTION DRAIN

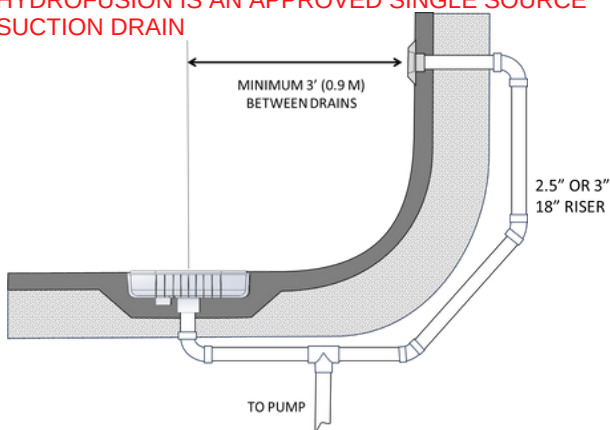


Figure 1

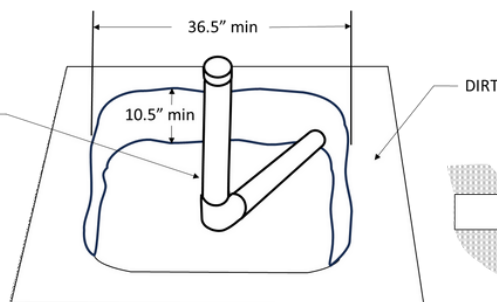


Figure 2

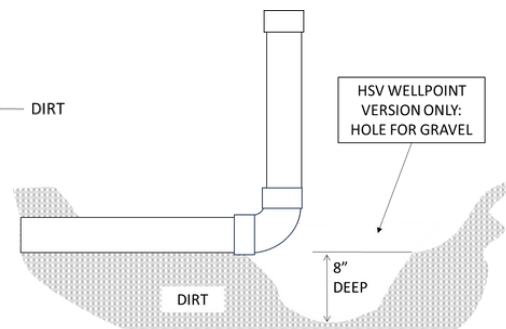


Figure 3

5

Install Rebar

a. Rebar Clearance to Drain: Steel rebar should be bent so that the steel runs half-way between the drain and the bottom of the trench. (See Figure 4).

6

Ready the Drain

a. Hydrostatic Valve Well Point: If this drain includes the Hydrostatic Valve, the well point must be glued into the HSV port on the bottom of the drain. (See Figure 5).

b. Orange Covers: Make sure orange covers are installed. (See Figure 6).

Figure 4

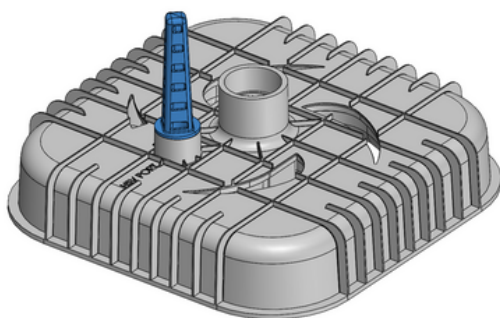
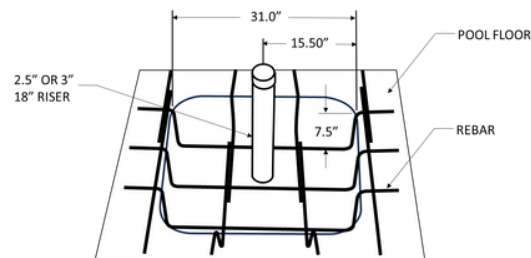


Figure 5

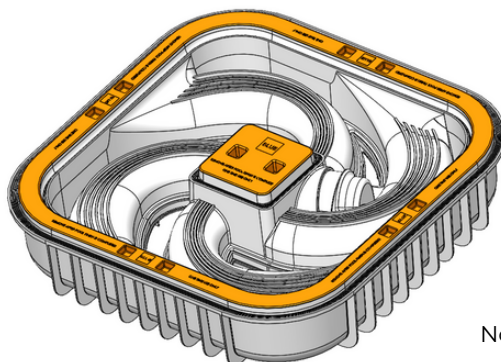
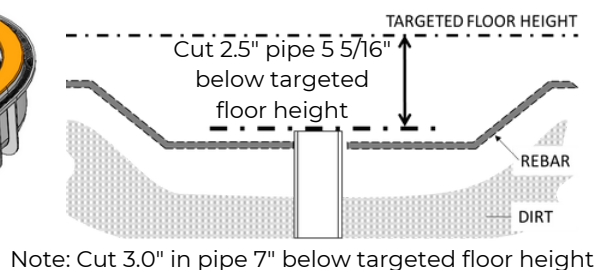


Figure 6

CUTTING PIPE TO LENGTH



Note: Cut 3.0\" in pipe 7\" below targeted floor height

Figure 7

7

Place the Drain

a. Finalize Height: From the string line set in Step 1, measure down the pool depth and add 5 5/16\" for 2.5\" pipe or 7\" for the 3\" pipe. (See Figure 7). Cut riser to this height. Note: Drain will mount to 3\" pipe with a coupler on outside of drain port.

b. Place the Drain (Use Schedule 40 PVC): Dry fit the pipe and the drain together in place. Ensure the drain is level and sits flush with the pool floor to avoid creating any tripping hazards. (See Figure 8). Cut down riser further if needed.

c. Align Hydrostatic Valve: Be certain Hydrostatic Valve Well Point is installed – be sure it is located in the area excavated for it in Step 2. (See Figure 9).

d. Glue the Drain: Glue the drain in place making certain the sides are aligned with the sides of the pool (See Figure 9; Diagram A) and the height is where it was in Step 6b.

e. HSV Backfill: Place gravel around Hydrostatic Valve Well Point. (See Figure 9).

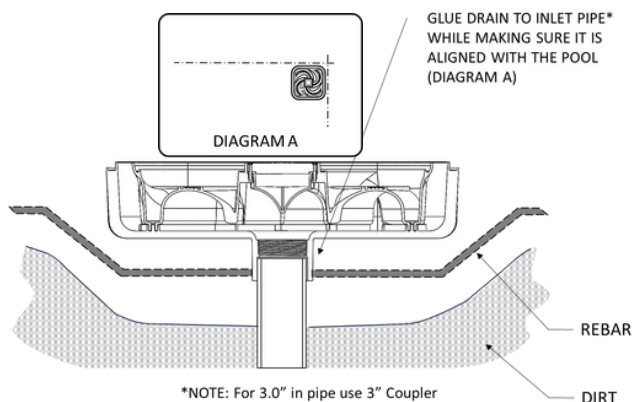


Figure 8

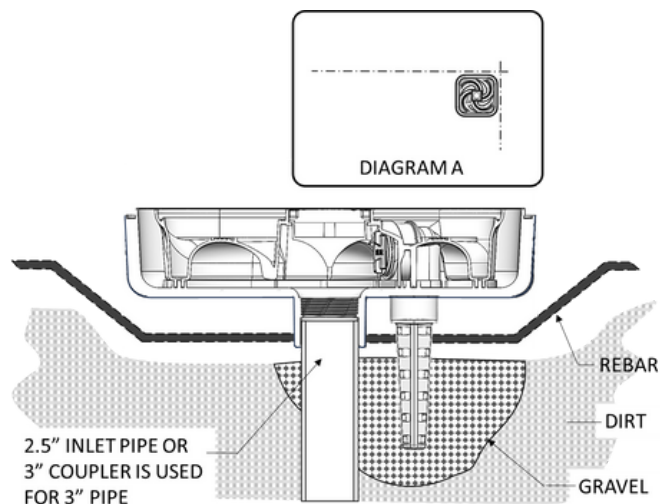


Figure 9

Shotcrete

- a. Pressure Test:** Before installing shotcrete or gunitite, run a pressure test at the center port of the drain. (See Figure 10).
- b. Reinstall Orange Covers:** Ensure the provided orange plastic cover is in place around the outer channel and the center to prevent shotcrete or gunitite from entering the drain during application. (See Figure 6).
- c. Apply Shotcrete/Gunitite:** Once the drain is secured, apply the gunitite around the drain, filling in the trench and blending the drain seamlessly with the pool floor. Create a void around the waterstop by making a 2-finger swipe to approximately ½ inch below the waterstop. This will ensure enough room for the final surface to be applied, creating a watertight seal around the drain. (See Figure 11).

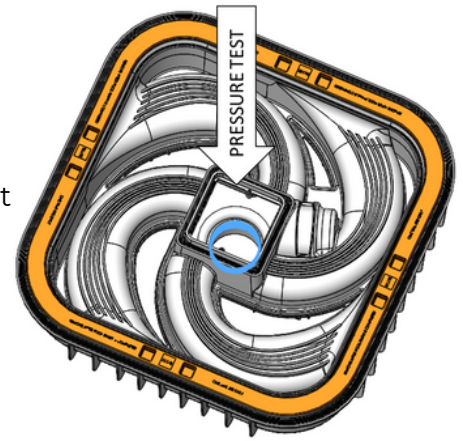


Figure 10

Final Surface

- a. Surface Finish:** Apply the selected surface material in a way to ensure a proper watertight seal with the waterstop. The final finished surface should be flush with the top of the drain. (See Figure 12).
- b. Remove Covers:** Remove orange construction covers.
- c. Install Center Cap:** Install the provided Center Logo Cap with the provided screws, hand tightened to 10 in-lbs torque max, prior to filling the pool with water. (See Figure 13).

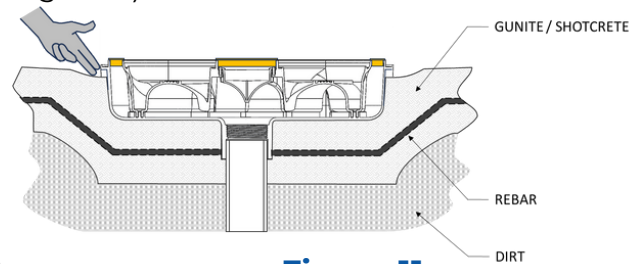


Figure 11

NOTE

Do not use power tools on fasteners.

NOTE

Use of adhesives or other attachment methods that prevent access to suction piping or SOFA components requiring periodic service is prohibited.

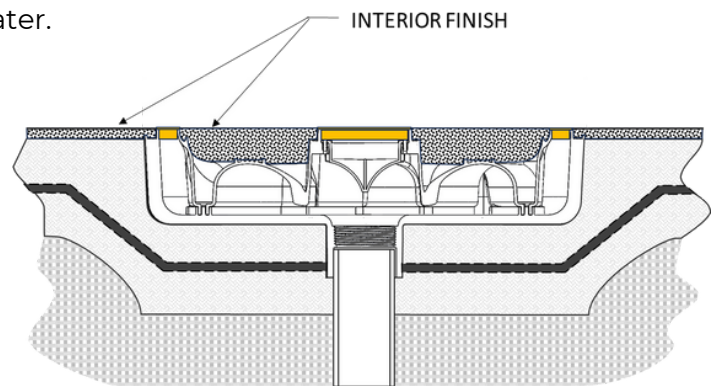


Figure 12

Test the System

- a. Fill the Pool:** Fill the pool with water and test the drain to ensure it effectively collects and drains water as intended.
- b. Inspect for Issues:** Check for any signs of improper drainage, leaks, or misalignment, and make any necessary adjustments.

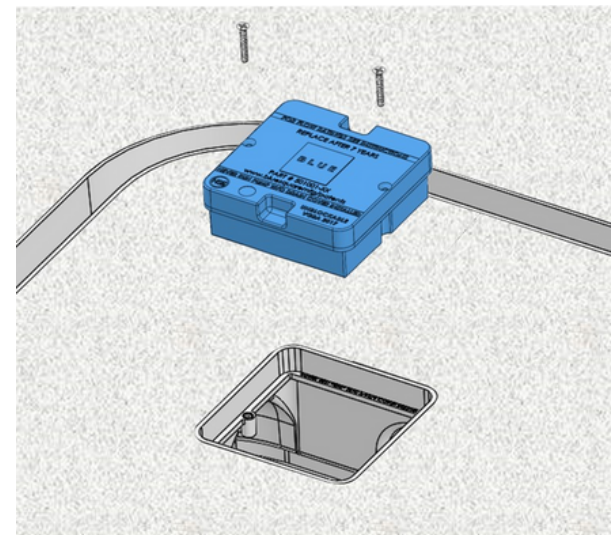


Figure 13

USER MAINTENANCE INSTRUCTIONS

NOTE

The HydroFusion Drain center logo cap will deteriorate over time due to exposure to sunlight and pool chemicals. This center logo cap must be replaced within seven (7) years from installation (or earlier if the cover becomes damaged in any way). The designated service life begins the month and year in which the drain is installed, with or without water.

NOTE

Hydrostatic Valve should be replaced every five (5) to seven (7) years, or if it appears damaged. It can be accessed under the center logo cap (see Figure 14).

NOTE

The drain center logo cap, including fasteners, shall be observed for damage or tampering each operational day.

CAUTION

Missing, broken, or cracked center logo caps shall be replaced before bathers are allowed to use the pool.

- **Color Changes:** Discoloration or fading may indicate UV degradation or material weakening. Replace components showing significant color changes.
- **Structural Integrity:** Inspect for brittle or deteriorating material. Replace immediately if chunks or pieces are missing.
- **Cracks and Damage:** Check for visible cracks or fractures on the drain cover, mud ring, or any associated parts. Replace components showing any cracking.
- **Interior Finish:** Ensure the interior pool finish holding the sump in place is free of deterioration and voids. Address any cracks or breaks in the finish to prevent instability or detachment.

NOTE

Loose center logo caps and associated fasteners shall be reattached before bathers are allowed to use the pool.

NOTE

Center logo cap, fasteners, and fastener receptacles shall be clean and free of debris or obstructions during installation of center logo cap and fasteners.

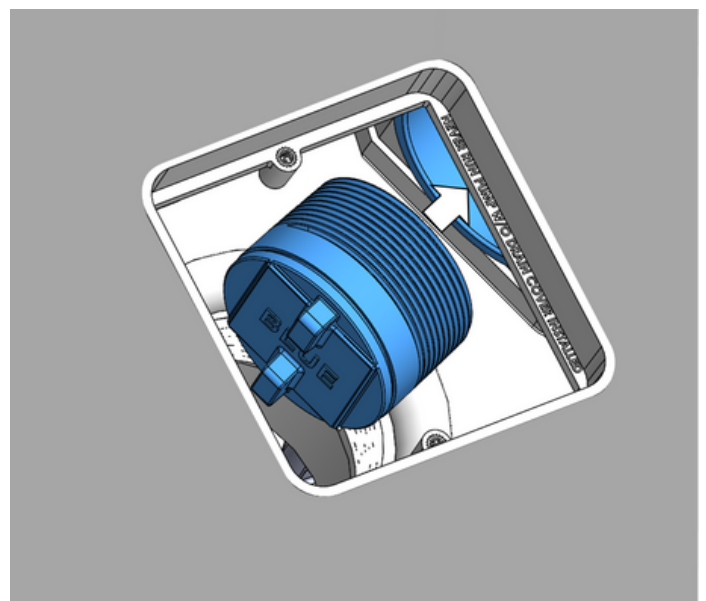


Figure 14

WINTERIZATION

- 1 To ensure sufficient draining of suction lines during the winterizing process, a 2-Way Shut-off Valve should be installed in each branch of the suction line leading to the filtration pump. (See Figure 15).
- 2 Between the valves and drain, install a Tee Fitting with a 2-inch Threaded Branch (A). (See Figure 16). This will allow a Threaded Plug (B) to be removed later in the setup.
- 3 Ensure the suction line, coming from the main drain, is closed.
- 4 Remove the Threaded Plug (B) and install a 1.5-inch Slip Reducer Bushing (C). (See Figure 17).
- 5 Install a Plug with an Air Valve (D) into the Reducer Bushing (C). (See Figure 17).
- 6 With the main-drain valve closed, blow out the main-drain line for a minimum of 30 seconds. This provides an airlock in the line and prevents water from freezing in the pipe.

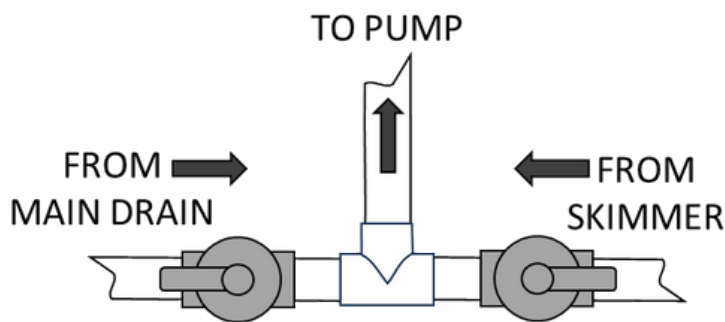


Figure 15

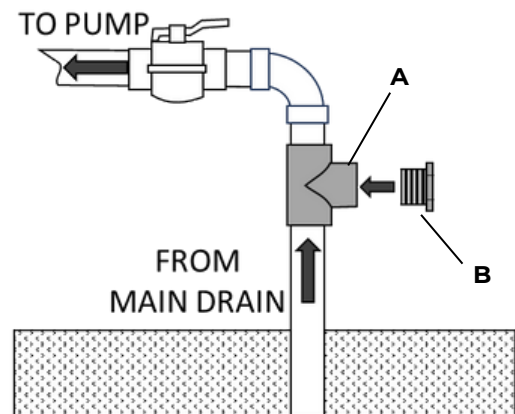


Figure 16

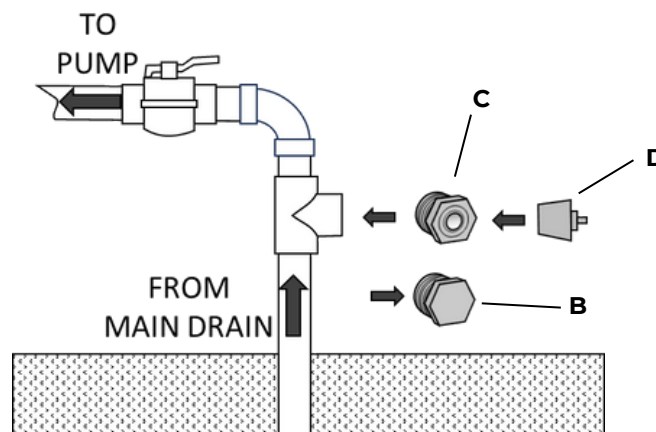


Figure 17

GENERAL CERTIFICATION OF CONFORMITY

AVSC DRAIN

Blue Square Manufacturing, LLC., 3344 N. Nevada St., Chandler, AZ 85225, (800) 277-4150, hereby certifies that the following model numbers meet or exceed the requirements of Section 1404b of the current Virginia Graeme Baker Pool & Spa Safety Act and ANSI/APSP/ICC-16 standards and safety regulation 16 CFR 1450 Virginia Graeme Baker Pool & Spa Safety Act Regulations set forth by the Consumer Products Safety Commission:

"xx" Defines Color Code			2.5" Pipe		3.0" Pipe	
Part No.	Sump Type	Open Area	Flow Rating Floor	Flow Rating Wall	Flow Rating Floor	Flow Rating Wall
501001-XX	Singe Port	55.6in ²	210 GPM	NA	210 GPM	NA

IAPMO CERTIFIED

These products were tested by IAPMO R&T Lab and certified to the aforementioned safety regulations, by IAPMO Research and Testing. 5001 E. Philadelphia St. Ontario, CA 91761 – USA +1 909.472.4100.

Product certification commenced in March 2025 and is re-certified annually through continuous compliance inspections.

Test results can be obtained from: <https://www.bluesquaremfg.com/> and/or <http://pld.iapmo.org/>

A copy of this certificate is available on the Blue Square website: <https://www.bluesquaremfg.com> and from David Spykerman, 3344 N. Nevada St., Chandler, AZ 85225.

DSpykerman@bluesquaremfg.com Tel: +1 (480) 612-6880.

Each product contains a circular date stamp on the top or bottom of the product showing the month and year of manufacture. These products are manufactured Premier Engineering Ltd. No.286-B, Huaide Blvd, Humen Town, Dongguan City, Guangdong Province, China 523926.

Installation Record

Note to installer/owner: Enter the information below: Please keep this page as a record of the installation date. Date of Manufacture (time stamp located on the product): _____

Description of Drain Location: _____

Date Installed: _____ Expiration Date: _____

(With or without water in pool or spa) (Seven (7) years from installation)

Installed by: _____

All indicated Blue Square trademarks and logos are property of Blue Square.

NOTES

Blue Square Manufacturing, LLC
3344 N. Nevada St.
Chandler, AZ 85225
Office 480.612.6880 Toll Free 800.277.4150
sales@bluesquaremfg.com