



Certified to
NSF/ANSI/CAN 50
ANSI/APSP/ICC-16 2017



UNBLOCKABLE SUCTION OUTLET FITTING ASSEMBLY (SOFA) INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS

FOR MODELS: 1824xxx and R1824xxx

(xxx = COLOR SUFFIX), MEETS OR EXCEEDS ANSI/APSP/ICC-16 2017

When installing and using this equipment, basic safety precautions shall always be followed, including the following:

IMPORTANT SAFETY INSTRUCTIONS

READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS

Any modification that increases the flow rate of the circulation system shall require re-evaluation of the cover/grate and sump to ensure that the flow rating of the Suction Outlet Fitting Assembly (SOFA) is not exceeded.

Missing, broken, or cracked cover/grates, sumps, mud-frames, or any other SOFA component shall be replaced before bathers are allowed to use the pool.

Loose cover/grates shall be reattached before bathers are allowed to use the pool.

SAVE THESE INSTRUCTIONS

INSTALLATION REQUIREMENTS AND LIMITATIONS

All SOFAs shall be installed in accordance with AquaStar's installation instructions.

No modification shall be made to a SOFA structure or flow path unless the new configuration has been certified to the original SOFA.

SOFA-configuration specific flow ratings are NOT to be exceeded at any time the pool is open to bathers.

Cover/grates marked unblockable are permitted for use in multiple SOFA systems, and single SOFA system.

The flow rating for pools with single, or multiple unblockable SOFAs shall be determined by combining the flow rating of all SOFAs piped together in one body of water.

Select and install a SOFA, or combination of SOFAs, such that the resulting individual suction system flow rating is greater than the pumping system's maximum system flow rate.

Skimmers, gutters, and other overflow systems may not always be operational and could divert all the pump(s) flow through the SOFA suction system, therefore the flow capacity of these systems shall not be included when evaluating an individual suction system flow rating.

SOFAs shall not be located on seats or the backrests for seats.

Pool finish should never exceed top of frame. Taper pool finish down and away from top (or lower) of frame. Top of grate should never be installed lower than the pool finish.

The use of adhesives or other attachment methods that prevent access to suction piping or SOFA components is prohibited.

Installation requires Phillips screwdriver. Hand tighten only. Start installation of screws by hand to ensure proper thread engagement and to prevent cross-threading. Use a hand-held Phillips screwdriver to hand tighten each screw until the screw and SOFA component fit snugly together. The parts and fasteners are snug when there are no visible gaps and they do not move when pulled or pushed by hand. DO NOT USE

POWER TOOLS TO INSTALL FASTENERS.

Covers, when installed, shall not protrude more than 2 in. (51 mm) from the finished surface of the pool in which the SOFA is installed.

MAINTENANCE INSTRUCTIONS

FIELD AND CONFIGURATION MODIFICATION

Any field modification made to this product not authorized by AquaStar Pool Products shall void the VGBA-2017 certification.

No modification shall be made to a SOFA structure or flow path unless the new configuration has been certified as a new SOFA.

SERVICE LIFE

Replace cover assembly and fasteners within ten years. Replace mud frame and sump within thirty years or if damaged. If cover or SOFA components become brittle, show significant color change, or are damaged in any way, remove and replace as it is an indication that they have reached the end of their service life.

Cover and all other SOFA components shall be replaced at or before the end of their service life and that service life begins the month and year in which a SOFA component is installed with or without water.

WINTERIZING

Covers and supports may be removed to access suction piping — Save and store these OEM components in a safe location for reinstallation when not immediately reinstalled after winterizing. Lost or damaged components must be replaced with components sourced from AquaStar for the VGBA-2017 certification of this product to remain valid.

SERVICE INSTRUCTIONS

Service tool required: Phillips screwdriver (*hand-tools only*).

SERVICE INSTRUCTIONS *(continued)*

Cover/grate, including fasteners, shall be observed for damage or tampering each operational day.

Missing, broken, or cracked covers/grates shall be replaced before bathers are allowed to use the pool.

Loose cover/grates and associated components shall be reattached before bathers are allowed to use the pool.

Mud frame, support components, and fastener receptacles shall be clean and free of debris or obstructions during installation of covers and fasteners.

Install drain covers in order of the assembly drawings provided in section "SOFA MODEL SPECIFIC FLOW RATES AND NSF ANSI/APSP/ICC 16-2017 CERTIFICATION DOCUMENTATION" of these instructions.

Start installation of screws by hand to ensure proper thread engagement and to prevent cross-threading, then continue to tighten using hand tools only. **DO NOT USE POWER TOOLS TO INSTALL FASTENERS.**

Hand-check cover/grate for snugness to the sump/frame after installation. Do not over-tighten screws.

Replace covers if components have become brittle, show significant color change, or are damaged in any way.

When any SOFA component is held in place by the interior finish of the pool, that surface shall be free of deterioration and voids.

If mud frame or manufactured sump have become brittle, show significant color change, are stripped, or damaged in any way, replace. If plastic anchor or brass anchor kit (BIK4) is stripped or damaged in any way, replace.

REPLACEMENT COVER FOR EXISTING POOLS

When installing covers on existing components ensure that the component is in good condition, and does not show signs of brittleness, significant color change, or damage in any way. If damaged, replace the component.

EXISTING FASTENER SECURITY CHECK

When installing fasteners ensure that the screw hole is not loose (see Fig. 1), has damaged threads (see Fig. 2), is the wrong thread size (see Fig. 3), or does not align with the cover screw hole. For each location that appears to be reusable, test fastener security by partially installing screw in each location and then pulling firmly by hand. If the screw cannot be installed or pulls out, the component is to be considered damaged and should be replaced. Drilling holes into an existing component is not permitted.

When properly secured, the screw shall have at least 3 threads of engagement (see Fig 4). Use a hand-held Phillips screwdriver to hand tighten each screw until the screw and SOFA component fit snugly together. The parts and fasteners are snug when there are no visible gaps and they do not move when pulled or pushed by hand. **DO NOT USE POWER TOOLS TO INSTALL FASTENERS.**



FIGURE 1
IF SCREW HOLE
IS LOOSE



FIGURE 2
IF SCREW HOLE
HAS DAMAGED
THREADS

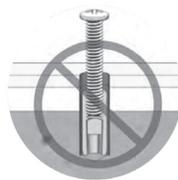


FIGURE 3
IF SCREW IS
THE WRONG
THREAD SIZE

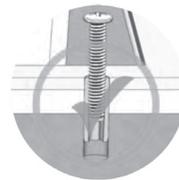
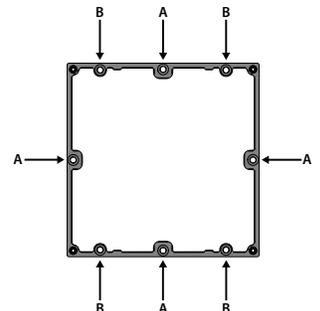


FIGURE 4
ENSURE AT LEAST
THREE THREADS OF
ENGAGEMENT AND
HAND CHECK TO
ENSURE SCREW IS
SECURE

FASTENERS FOR 18" STANDARD AND RETROFIT DRAIN COVERS

Aquastar's 1824xxx series square drains require four (4) screws per installed cover and square 9" standard and retrofit adapters, even for installations that offer additional (unused) screw holes to accommodate differing screw hole patterns.

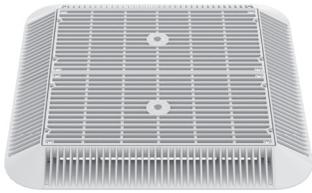
For 1" deep retrofit frame installation, the installer must identify the four screw holes that are needed based on the existing mud-frame to which the replacement cover is to be applied. Acceptable installation configurations include four (4) screws with one (1) screw located in the center of each side [A], or two (2) screws on two (2) opposite sides [B]. Also note that screw locations indicated by [A] or [B] have acceptable locations that are rotated 90-degree for locations [B]. Please refer to the example square drain cover pictured to the right.



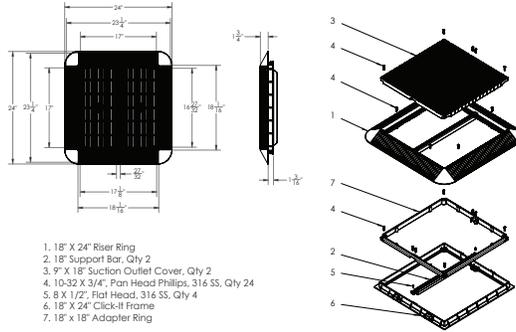
SOFA MODEL SPECIFIC FLOW RATES AND NSF ANSI/APSP/ICC 16-2017 CERTIFICATION DOCUMENTATION

Please use the QR code or link listed below to look up the SOFA-Configuration specific certification and flow rating of the cover that is to be installed. Please remember to fill out the VGBA DRAIN COVER IDENTIFICATION INFORMATION document that was included with the cover. Permanently post as near as feasible to the pump control and provide a copy of this information to the pool owner to be kept with other important pool-related documents.

24" Square Suction Outlet Cover For New Construction FOR CONCRETE INSTALLATIONS



Cover Model #
1824xxx

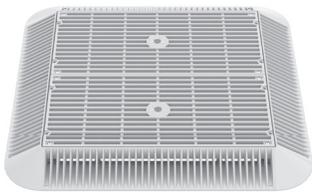


1. 18" X 24" Riser Ring
2. 18" Support Bar, Qty 2
3. 9" X 18" Suction Outlet Cover, Qty 2
4. 10-32 X 3/4" Pan Head Phillips, 316 SS, Qty 24
5. 8 X 1/2" Flat Head, 316 SS, Qty 4
6. 18" X 24" Click-It Frame
7. 18" x 18" Adapter Ring

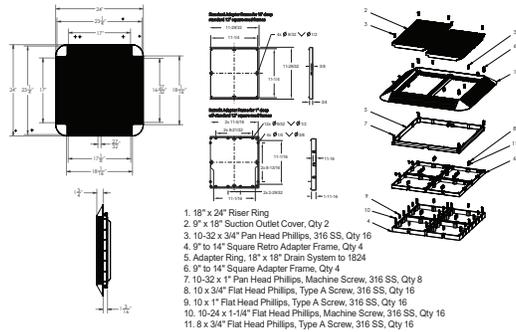
For SOFA Specific Flow Ratings
Please scan QR code or visit www.aquastarpoolproducts.com/flowcode



24" Square Universal Suction Outlet Cover For 18" Mud Frames and Lawson Aquatics®* Replacements FOR CONCRETE INSTALLATIONS



Cover Model #
R1824xxx



1. 18" x 24" Riser Ring
2. 9" x 18" Suction Outlet Cover, Qty 2
3. 10-32 x 3/4" Pan Head Phillips, 316 SS, Qty 16
4. 9" to 14" Square Retro Adapter Frame, Qty 4
5. Adapter Ring, 18" x 18" Drain System to 1824
6. 9" to 14" Square Adapter Frame, Qty 4
7. 10-32 x 1" Pan Head Phillips, Machine Screw, 316 SS, Qty 8
8. 10 x 3/4" Flat Head Phillips, Type A Screw, 316 SS, Qty 16
9. 10 x 1" Flat Head Phillips, Type A Screw, 316 SS, Qty 16
10. 10-24 x 1-1/4" Flat Head Phillips, Machine Screw, 316 SS, Qty 16
11. 8 x 3/4" Flat Head Phillips, Type A Screw, 316 SS, Qty 16

*Lawson Aquatics® is a registered trademarks of Neptune Benson, inc..

For SOFA Specific Flow Ratings
Please scan QR code or visit www.aquastarpoolproducts.com/flowcode



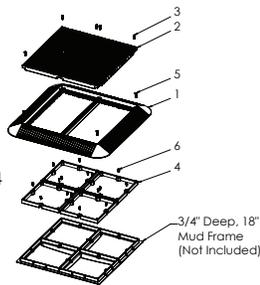
ALIGNMENT AND ASSEMBLY ORDER OF SOFA COMPONENTS

Please follow the alignment and assembly order of the SOFA components illustrated below for the selected application. The same size replacement screw should be used. Some existing mud frames and sumps use number 10 screws and others use the smaller number 8 screws.

DO NOT USE SCREWS THAT ARE TOO LARGE OR TOO LONG FOR THE EXISTING SCREW HOLES AS THEY MAY CRACK OR DAMAGE THE EXISTING COMPONENT.

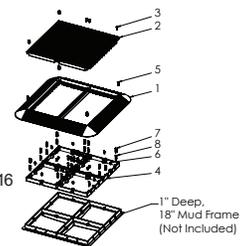
1824xxx 3/4" Deep Standard Frame Installation

1. 18" x 24" Riser Ring
2. 9" x 18" Suction Outlet Cover, Qty 2
3. 10-32 x 3/4" Pan Head Phillips, 316 SS, Qty 8
4. 9" to 14" Square Adapter Frame, Qty 4
5. 10-32 x 1" Pan Head Phillips, Machine Screw, 316 SS, Qty 4
6. 10 x 3/4" Flat Head Phillips, Type A Screw, 316 SS, Qty 16



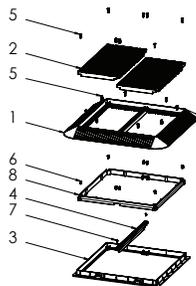
1824xxx 1" Deep Retrofit Frame Installation

1. 18" x 24" Riser Ring
2. 9" x 18" Suction Outlet Cover, Qty 2
3. 10-32 x 3/4" Pan Head Phillips, 316 SS, Qty 8
4. 9" to 14" Square Retro Adapter Frame, Qty 4
5. 10-32 x 1" Pan Head Phillips, Machine Screw, 316 SS, Qty 4
6. #10 x 3/4" Flat Head Phillips, Type A Screw, 316 SS, Qty 16
7. 10-24 x 1-1/4" Flat Head Phillips, Machine Screw, 316 SS, Qty 16
8. #10 x 1-1/2" Flat Head Phillips, Type A Screw, 316 SS, Qty 16



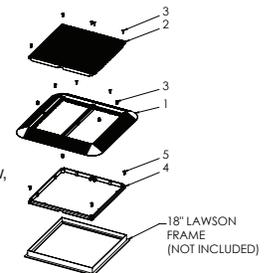
1824xxx New Construction Replacement

1. 18" x 24" Riser Ring
2. 9" x 18" Suction Outlet Cover, Qty 2
3. 18" x 24" Click-It Frame
4. 18" Support Bar
5. 10-32 x 3/4" Pan Head Phillips, 316 SS, Qty 16
6. 10-32 x 1/2" Pan Head Phillips, 316 SS, Qty 8
7. #8 x 1/2" Flat Head, Type A, 316 SS, Qty 2
8. Adapter Ring, 18" x 18" Drain System to 1824



1824xxx Lawson Aquatics® * Replacement

1. 18" x 24" Riser Ring
2. 9" x 18" Suction Outlet Cover, Qty 2
3. 10-32 x 3/4" Pan Head Phillips, 316 SS, Qty 16
4. Adapter Ring, 18" x 18" Drain System to 1824
5. 1/4"-20 x 7/8" Pan Head Phillips, Machine Screw, 316 SS, Qty 4



*Lawson Aquatics® is a registered trademarks of Neptune Benson, inc..

1824xxx Brass Anchor BIK4 Installation



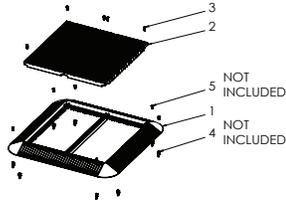
OPTIONAL BRASS ANCHOR KIT

For anchoring cover directly onto concrete finish. **P/N: BIK4***

*P/N BIK4 is sold in packs of four. Two packs required for a complete installation.

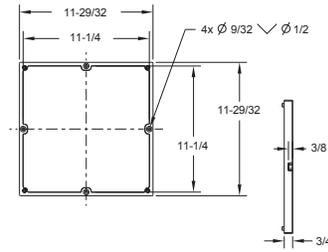
Mount the BIK4 brass anchors directly into the cement-based finish using a 5/16" masonry drill bit and two-part wet/dry epoxy.

1. 18" x 24" Riser Ring
2. 9" x 18" Suction Outlet Cover, Qty 2
3. 10-32 x 3/4" Pan Head Phillips, 316 SS, Qty 8
4. 10-32 Bass Anchor, Qty 8
5. 10-32 x 3/4" Pan Head Phillips, 316 SS, Qty 8

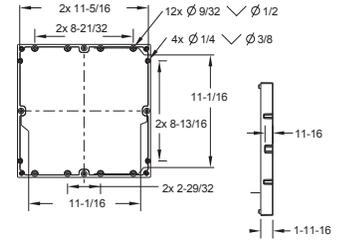


1824xxx 3/4" and 1" Adapter Frame Dimensions

3/4" Adapter Frame



1" Adapter Frame



THIS SPACE IS INTENTIONALLY LEFT BLANK

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WARNING! SUCTION ENTRAPMENT HAZARD

INCREASING PUMP SIZE WILL INCREASE FLOW. When in doubt, consult your pool and spa professional. NEVER use a pool or spa that has a missing or broken suction outlet cover. USING A POOL OR SPA WITH A MISSING OR BROKEN SUCTION OUTLET COVER CAN RESULT IN HAIR OR BODY ENTRAPMENT WHICH CAN CAUSE SEVERE BODILY INJURY OR DEATH. THE VACUUM IN SUCTION OUTLETS AND/OR SUCTION OUTLET COVERS WHICH ARE DAMAGED, BROKEN, CRACKED, MISSING, OR UNSECURED CAN CAUSE SEVERE INJURY AND/OR DEATH DUE TO THE FOLLOWING ENTRAPMENT HAZARDS: HAIR ENTRAPMENT – Hair can become entangled in suction outlet cover. LIMB ENTRAPMENT – A limb inserted into an opening of a suction outlet sump or suction outlet cover that is damaged, broken, cracked, missing or not securely attached can result in a mechanical bind or swelling of the limb. BODY SUCTION ENTRAPMENT – A negative pressure applied to a large portion of the body or limbs can result in an entrapment. EVISCERATION/ DISEMBOWELMENT ENTRAPMENT – A negative pressure applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is damaged, broken, cracked, missing, or unsecured can result in evisceration/disembowelment entrapment. MECHANICAL ENTRAPMENT – There is a potential for jewelry, swimsuit, hair decorations, finger, toe or knuckle to be caught in an opening of a suction outlet cover resulting in mechanical entrapment. AFTER INSTALLATION OF FITTINGS, IF A GAP EXISTS BETWEEN POOL FINISH AND BASE OF COVER IT MUST BE FILLED IN TO AVOID FINGER OR OTHER ENTRAPMENT.

WARNING! – Failure to remove pressure test plugs and/or plugs used in winterization of the pool/spa from the suction outlets can result in an increased potential for suction entrapment as described above.

WARNING! – Failure to keep suction outlet components clear of debris, such as leaves, dirt, hair, paper and other material can result in an increased potential for suction entrapment as described above.

WARNING! – Suction outlet components have a finite life. The cover/grate should be inspected before each use of facility and replaced at least every ten years or if found to be damaged, broken, cracked, missing, not securely attached or missing screws. **DO NOT** use facility until corrected!

WARNING! TO REDUCE THE RISK OF ENTRAPMENT HAZARDS

These are VGBA-2017 Unblockable SOFA approved for use in single or multiple outlet systems and for floor use only. Suction fittings shall not be located on seating areas or on the backrest for such seating areas. The maximum operating flow rate of a pump or pumps shall not exceed the flow rating of the SOFA Configuration. Never use pool or spa if any suction outlet component is damaged, broken, cracked, missing or not securely attached. Replace damaged, broken, cracked, missing or not securely attached suction outlet components immediately. This suction outlet must be installed in accordance with all applicable national, state, and local laws, codes, and ordinances. Using gray medium set glue is recommended when attaching PVC pipe to AquaStar's PVC-based sump buckets. The use of blue glue or related hot glues, clear glues, or any fast-setting cement is not recommended. The drain covers can be installed over AquaStar manufactured sumps that meet or exceed the SOFA Model-specific sump specifications. The flow rating of multiple outlet systems is calculated by summing the SOFA Model-specific flow ratings. The flow rating of a single outlet system is the SOFA Model-specific flow rating.

As the manufacturer, AquaStar Pool Products, Inc., hereby certifies that their suction outlet fitting assemblies and drain covers manufactured on or after May 24, 2021 meet or exceed the requirements of ANSI/APSP/ICC-16 2017. Products manufactured before May 24, 2021 meet or exceed the requirements of the Virginia Graeme Baker Pool & Spa Safety Act, ASME/ANSI A112.19.8-2007, VGBA 2008 and ANSI/APSP 16-2011 standards and safety regulations as set forth by the Consumer Products Safety Commission. A copy of this certificate of compliance is available on AquaStar Pool Products Inc.'s website, www.aquastarpoolproducts.com.



VGBA DRAIN COVER IDENTIFICATION INFORMATION

ATTENTION INSTALLER - Please carefully cut along the dashed line and remove from instructions. Fill in the blank spaces below upon installing drain cover. Permanently post as near as feasible to the pump control and provide a copy of this information to the pool owner to be kept with other important pool-related documents.

Manufacturers Name:
AquaStar Pool Products Inc.

Cover/Grate Part Number:
Please check the box () of the cover being installed:
 1824xxx R1824xxx

Service Life of the Cover Grate:
10 years from the date of installation

Certified Suction Outlet Fitting Assembly (SOFA) Flow Ratings:
Please use the QR Code or Link to find the SOFA Specific flow rate for your configuration.

SOFA Model #: _____

Orientation: _____ (wall or floor) **SOFA Flow Rating:** _____ GPM

Location of the Installed Suction Outlet Fitting Assembly:
Please describe the location of the suction outlet fitting assembly.

Location: _____

Installation Date:
Please mark the month and year that the drain cover was installed below.

Month						Year					
1	2	3	4	5	6	21	22	23	24	25	26
7	8	9	10	11	12	27	28	29	30	31	32



SOFA FLOW RATING
For SOFA flow rating please scan the QR code or visit www.aquastarpoolproducts.com/flowcode

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AquaStar Pool Products Inc.

Cover/Grate Part Number:
Please check the box () of the cover being installed:
 1824xxx R1824xxx

Service Life of the Cover Grate:
10 years from the date of installation

Certified Suction Outlet Fitting Assembly (SOFA) Flow Ratings:
Please use the QR Code or Link to find the SOFA Specific flow rate for your configuration.

SOFA Model #: _____

Orientation: _____ (wall or floor) **SOFA Flow Rating:** _____ GPM

Location of the Installed Suction Outlet Fitting Assembly:
Please describe the location of the suction outlet fitting assembly.

Location: _____

Installation Date:
Please mark the month and year that the drain cover was installed below.

Month						Year					
1	2	3	4	5	6	21	22	23	24	25	26
7	8	9	10	11	12	27	28	29	30	31	32



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VGBA Compliance Every Pool, Every Time

IMPORTANT SAFETY INFORMATION READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS

This VGBA Suction outlet has an installation specific flow rating and this product **SHALL NOT** be installed on a pumping system that is capable of exceeding this limit, which varies based on the number and location of installed suction outlets. **READ** and **FOLLOW** the section of the included installation instructions explaining how to calculate the suction system flow ratings and that of the installed pumping system.

This is an UNBLOCKABLE VGBA Suction Outlet that may be installed as the sole source of water for a single suction. Please check local building/health authorities regarding single versus multiple drain installations.

THIS LABEL IS TO BE REMOVED BY THE INSTALLER ONLY



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VGBA Compliance Every Pool, Every Time

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