

# 24" x 24" GRATE AND FRAME OWNER'S MANUAL

For Model Number: 640-476x V (24" x 24" - Submerged Suction Outlet)

## VGBA WARNING:

**2017** WHEN INSTALLING AND USING THIS EQUIPMENT, BASIC SAFETY PRECAUTIONS SHALL ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING: "IMPORTANT SAFETY INSTRUCTIONS". READ, UNDERSTAND, AND FOLLOW ALL WARNINGS AND INSTRUCTIONS.

## SOFA INSTRUCTIONS

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.**

## IMPORTANT SAFETY INSTRUCTIONS



### **WARNING - SUCTION ENTRAPMENT HAZARD**

Suction 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 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.

## USE ONLY GENUINE WATERWAY REPLACEMENT PARTS.



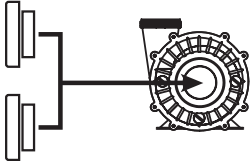
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- This is an “Unblockable” SOFA.
- Suction cover life is 7 years, the sump wall fitting life is 15 years, the rest of the components have 25 year life, cover and all SOFA components shall be replaced on or before the end of service life.
- The use of adhesives or other attachment methods that prevent access to suction piping or SOFA components is prohibited.
- Please refer to Head Loss Curve, suction head measured at the wall fitting.
- This is an unblockable SOFA as marked on the suction cover.
- **DO NOT USE POWER TOOLS TO INSTALL FASTENERS.** Ensure proper thread engagement to prevent cross-threading.
- Ensure proper flatness of installation surface.
- When mud-rings, sump and other components are held in place by the interior surface of the pool, the surface should be free of deterioration or voids
- Damaged Fasteners shall be replaced with original parts, and must be passive grade 316 stainless steel. The wall fitting shall be inspected for the presence of any CRACK or material loss. Cracked/damaged mud rings, sumps, or wall fittings shall be replaced.
- No unauthorized field modifications.
- This product is intended for use on gunite, vinyl, fiberglass, and roto-molded pools, spas and hot tubs.
- No modification shall be made to SOFA structure or flow path unless the configuration has been certified as a new SOFA.
- Service life begins the month and year in which SOFA components are installed with or without water.
- For winterization remove the cover and plug the inlet.
- Observe cover/grate/fasteners for damage each operational day.
- During installation ensure components and fastener receptacles are clean, free of debris and obstructions.
- Hand-check cover/grate for snugness to the sump/frame/wall fitting after installation.
- SOFA installation components with crack, chunks, or pieces broken off, stripped screw holes, brittleness, and/or unusual discoloration should be replaced.
- The mounting surface or interior surface of the pool should be free of deterioration.
- Start installation of screws by hand to ensure proper thread engagement and to prevent cross-threading.
- Do not exceed the safe flow rating of SOFAs as listed.
- All SOFAs should be installed in accordance with Waterway installation instructions.
- No modification shall be made to SOFA structure or flow path unless new configuration has been certified as a new SOFA.
- SOFA specific flow ratings are not to be exceeded while the pool is open.
- The capacity of secondary circulation system (skimmer, cutters, etc) should not be included when evaluating an individual suction system flow rating.
- For the flow rating for pools with multiple blockable SOFAs in one body of water without isolation valves: combine all SOFAs, minus the flow rate of one, if all are not equal use the larger flow rate.
- “Blockable” SOFAs in new pools shall be installed in multiple-SOFA system ONLY.
- “Blockable” SOFAs in existing pools with single SOFA systems shall be installed with an additional anti-entrapment device or system.
- This SOFA shall be used with Waterway sump or with Waterway mud-ring and field built sump per attached instructions.
- Unauthorized field modifications will void certification.
- Cover/grate, including fasteners, shall be observed for damage or tampering each operational day.
- The flow rating for pools with single or multiple unblockable SOFAs shall be the combined flow rate of all SOFAs piped together on one body of water.
- All SOFAs shall not be located on backrests or seats.

**Required Tools:** Philips screw driver bit and torque wrench. Hand tighten screws. DO NOT use power tools. Torque fasteners to a maximum of 20 in-lb.

## TO REDUCE THE RISK OF ENTRAPMENT HAZARDS:



- Installation of a vacuum release system, which relieves entrapping suction, is recommended.
- SOFA(s) should be chosen so that the individual suction system flow rate is > pumping system's MAX system flow rate.
- Never use a pool or spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replaced damaged, broken, cracked, missing, brittle, or not securely attached suction outlet components immediately.

**All other applicable National, State, and local codes and requirements shall be followed.**

## 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 on the previous page.**



**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 on the previous page.**



**Suction outlet components have a finite life. The cover/grate should be inspected frequently and replaced at least every seven years, or if found to be damaged, broken, cracked, missing, or not securely attached.**



**This fitting is rated at 2035 GPM for floor only installations. If the fitting is missing or broken, replace with a fitting of equivalent rating or higher. Use of a lower rated suction fitting could result in entrapment of the body which could result in serious injury including drowning.**



**Do not use or operate pool, spa, or hot tub if this suction fitting is missing, broken or not secured per instructions. The suction fitting is intended to prevent entrapment of the body. Use of the spa hot tub with a missing, broken or improperly secured suction grate may result in serious personal injury including drowning.**



**When the pool, spa or hot tub is in operation, suction is created at this fitting. Users of the spa or hot tub must be instructed not to come in contact with this fitting in such a way as to block its orifice. If a user of the spa or hot tub blocks this fitting with his/her body, serious personal injury or drowning may occur.**



**In order to remove the suction cover (for service or winterization), using a Phillips-head screw driver remove the screws. Inspect both the suction cover and suction fitting for any cracks or damages.**



**It is imperative to securely attach the suction cover to the wall fittings (use only the original supplied screws or obtain original replacements). Do not over tighten the screws. Inspection of fasteners and observation for damaged/tampered with suction fittings is required.**



**Any and all broken or missing parts must be replaced prior to starting spa or pool pump. Never operate spa or pool without drain cover in place and properly affixed, death or serious injury can result.**

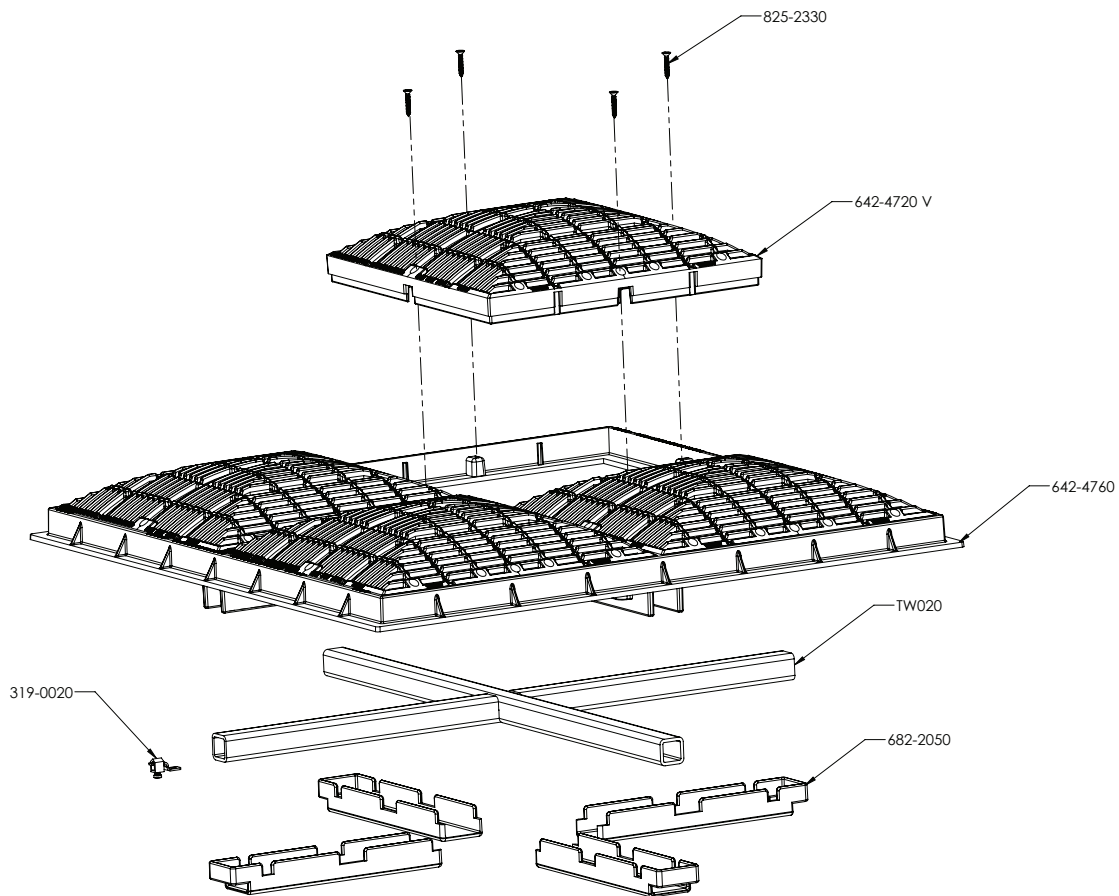


**Do not exceed the safe flow rate. Do not increase flow through system by increasing pump size or horsepower.**



**Do not allow children to sit, play or interact with main drains or suction outlet.**

## SAVE THESE INSTRUCTIONS.



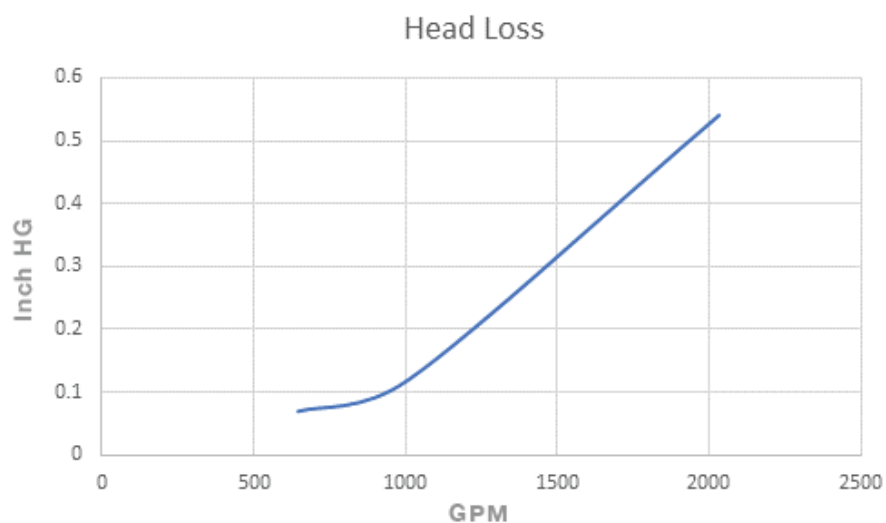
Using the bonding log shown, the stainless steel support shall be bonded according to NFPA 70, Article 680. The bonding connection and wire shall not be bather-accessible when the SOFA is fully assembled and installed in the pool. The bonding connection provided shall not be located within the SOFA flow path zone or where it may pose a hair entanglement/ entrapment hazard, nor prevent service access to suction piping.



**Hand tighten the screws using a Phillips screw driver. DO NOT use electrical or pneumatic tools for tightening the screws.**



**This submerged suction outlet is rated for floor (horizontal) installations ONLY.**

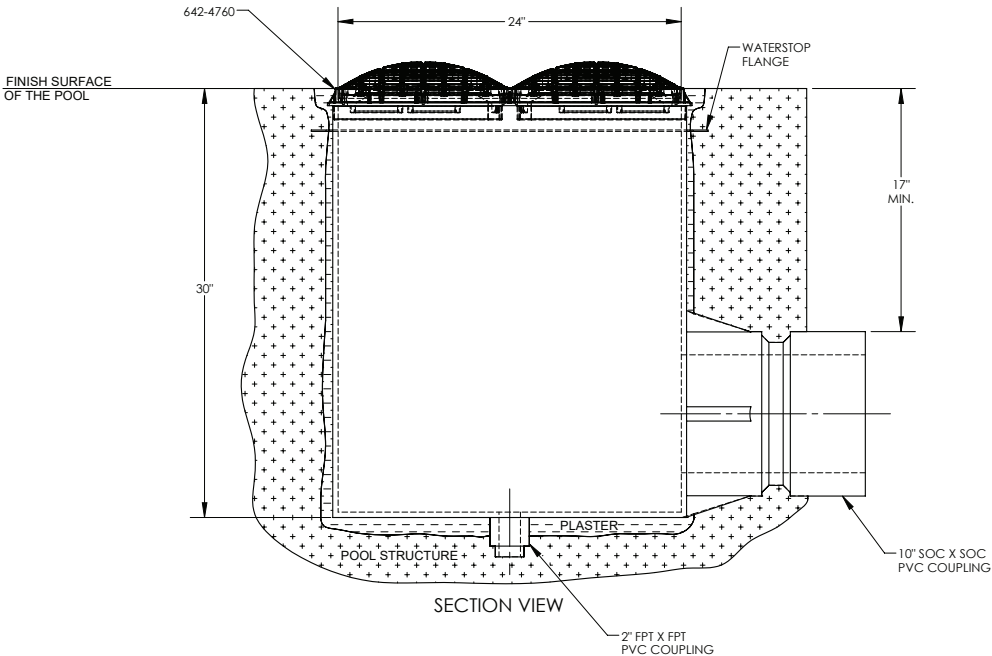


Flow Rate (GPM)	664.0	1008.0	2035.0
NSF Measure Total Head Loss ("Hg)	0.07	0.12	0.54

Pressure Tap located downstream of 2 schedule 40 10" elbows and an 8.25" length of straight 10" pipe.

## FIELD FABRICATED SUMP

PVC Pipe Size: 10" or less  
Min Sump Depth: 17"  
Min Ledge Depth: 1.20"  
Max Ledge Width: 25.5"  
Min Pipe Offset: N/A  
Min Length Before Reduction: 0



## FLOW PATH

