



# SUBMERGED, MULTIPLE AND SINGLE SUCTION OUTLET INSTRUCTIONS

## IMPORTANT SAFETY INSTRUCTIONS FOR

8CCxxx, 8AVxxx, LP8AVxxx, RLP8AVxxx, 10AVxxx, RFS9xxx, LPRFS9xxx, RFS12xxx, WAV12xxx, RWAV12xxx, WAV9xxx, RWAV9xxx, WAV18xxx, 8CCxxx, WAV24xxx, 24xxx, SUN9xxx, RSUN9xxx, RSUN12xxx, SUN12xxx, SUN18xxx, 1216xxx, R1216xxx, 4RNDxxx, LP8MHxxx, 8PCxxx, 914xxx, R914xxx, A8xxx, (ON BACK PAGE: 6HPxxx, 4HPxxx, 8HPxxx, R8HPxxx, 4SPAxxx)

(xxx = COLOR SUFFIX)

MEETS OR EXCEEDS ASME/ANSI A112.19.8a-2008  
ANTI-ENTRAPMENT/ANTI-VORTEX



**READ AND FOLLOW ALL INSTRUCTIONS**

### ▲ WARNING!

IMPROPER INSTALLATION OR USE OF THIS PRODUCT MAY PRESENT A RISK OF HAIR OR BODY ENTRAPMENT AND DROWNING. Install this equipment in accordance with the instructions provided. Use only with the components and mounting hardware provided. FAILURE TO FOLLOW THESE INSTRUCTIONS AND/OR USE WITH COMPONENTS NOT PROVIDED BY AQUASTAR POOL PRODUCTS AND INTENDED TO BE USED WITH THIS PRODUCT MAY RESULT IN IMPROPER POSITIONING OR FUNCTIONING OF SUCTION OUTLET AND MAY CAUSE SEVERE PERSONAL INJURY OR DEATH.

### SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

- If not a single, unblockable outlet, in the event of one suction outlet being completely blocked, the remaining suction outlets serving the system shall have a flow rating capable of the full flow of the pump(s) or the specific suction system. If in doubt about the rating and/or head loss curve of your system, consult a qualified pool or spa professional and/or your respective equipment manufacturer(s). Also, double check with your local building/health authorities regarding single vs. multiple drain installations, etc.
- All sizes of connecting pipe are acceptable, pending velocity and GPM calculations. The larger, the better!
- Replace cover and screws within 5 years.
- SPECIAL NOTES:**
  - 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.
  - Take special notice when retrofitting into an existing frame where possible existing multiple layers of re-plastering have created a concave situation, either chip or grind down old surface or install new frame at higher level.

| MAXIMUM RECOMMENDED SYSTEM FLOW RATE BY PIPE SIZE |     |    |     |     |
|---|-----|----|-----|-----|
| Pipe Size   | 1½" | 2" | 2½" | 3"  |
| Flow Rate in GPM                                  | 45  | 80 | 110 | 160 |

### ALL MODELS LISTED BELOW = ANTI-ENTRAPMENT/ANTI-VORTEX AND FOR SINGLE OR MULTIPLE USE

#### MAX FLOW RATES (PER OUTLET) MOUNTING POSITIONS (xxx=COLOR SUFFIX)

| Model | WAV12xxx (and RWAV12xxx) | WAV9xxx (and RWAV9xxx) | WAV18xxx          | 8CCxxx            | 8AVxxx (and RFS9xxx, 8SBxxx, 8SACxxx, 8SBVxxx) | 10AVxxx (and RFS12xxx, 10AVDDBSxxx, 10AVRCFRxxx) | SUN9xxx (and RSUN9xxx) | SUN12xxx (and RSUN12xxx) |
|-------|--------------------------|------------------------|-------------------|-------------------|--|--|------------------------|--------------------------|
| Floor | 361 GPM @ 1.3 fps        | 224 GPM @ 1.6 fps      | 628 GPM @ 1.1 fps | 104 GPM @ 3.3 fps | 88 GPM @ 3.2 fps                               | 206 GPM @ 5.8 fps                                | 212 GPM @ 3.5 fps      | 280 GPM @ 2.5 fps        |
| Wall  | 361 GPM @ 1.3 fps        | 224 GPM @ 1.6 fps      | 628 GPM @ 1.1 fps | 76 GPM @ 2.4 fps  | 70 GPM @ 2.6 fps                               | 96 GPM @ 2.8 fps                                 | 128 GPM @ 2.1 fps      | 280 GPM @ 2.5 fps        |

#### MAX FLOW RATES (PER OUTLET) MOUNTING POSITIONS (xxx=COLOR SUFFIX)

| Model | WAV24xxx           | 24xxx              | 1216xxx (and R1216xxx) | 4RNDxxx          | 914xxx (and R914xxx) | SUN18xxx          | LP8AVxxx (and RLP8AVxxx, LPRFS9xxx, LP8SBxxx, LP8MHxxx, LP8SACxxx, LP8SBVxxx) | A8xxx             |
|-------|--------------------|--------------------|------------------------|------------------|----------------------|-------------------|---|-------------------|
| Floor | 1444 GPM @ 1.3 fps | 1531 GPM @ 1.4 fps | 460 GPM @ 1.46 fps     | 72 GPM @ 5.3 fps | 560 GPM @ 2.1 fps    | 405 GPM @ 1.6 fps | 96 GPM @ 4.0 fps  | 145 GPM @ 2.9 fps |
| Wall  | 1444 GPM @ 1.3 fps | 1531 GPM @ 1.4 fps | 445 GPM @ 1.4 fps      | 72 GPM @ 5.3 fps | 300 GPM @ 1.2 fps    | 405 GPM @ 1.6 fps | 70 GPM @ 2.9 fps  | 84 GPM @ 1.7 fps  |

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## INSTALLATION LAYOUTS

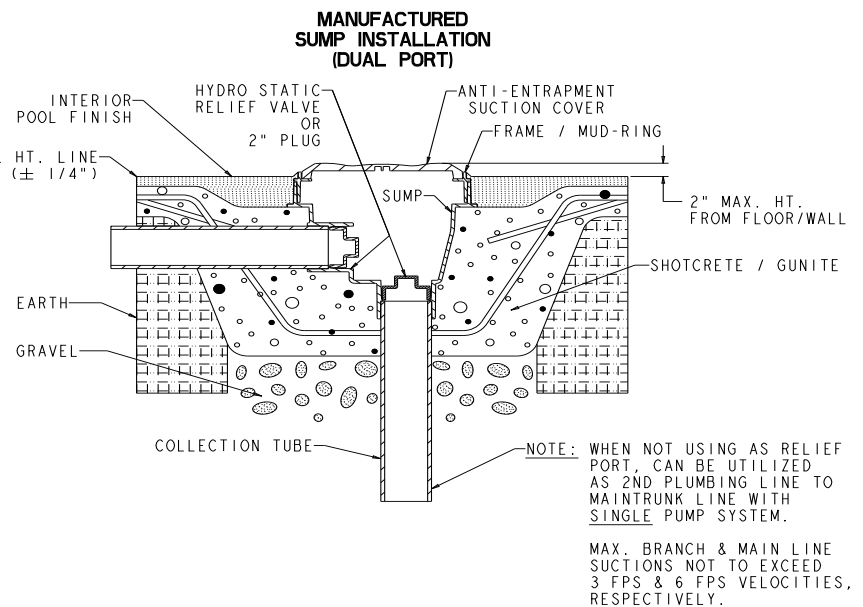
- Requires Phillips screw driver. Hand tighten only. Do not use electrical or air drills.
- See Fig. 1 for installation layout with manufactured sump
- See Fig. 2 for installation layout without manufactured sump (Field-fabricated sump)
- Measure from underside of high point of the cover to the top of pipe(s) to determine proper sump depth.
- Top of all suction outlets shall not exceed 2" above pool floor or wall.

## MANUFACTURED SUMP INSTALLATION (DUAL PORT)

### IMPORTANT

- Single or Multiple drain use.
- Models: 8SBxxx, LP8SBxxx or 10AVDDSB (SB = sump bucket) with 8CCxxx, 8AVxxx, LP8AVxxx, RLP8AVxxx, RFS9xxx, LPRFS9xxx, RFS12xxx, 10AVxxx, WAV12xxx, RWAV12xxx, WAV9xxx, RWAV9xxx, IDEAL HT. LINE (± 1/4") WAV18xxx, WAV24xxx, 24xxx, 1216xxx, R1216xxx, LP8MHxxx, RSUN9xxx, RSUN12xxx, 4RNDxxx, SUN9xxx, SUN12xxx, SUN18xxx, 914xxx, R914xxx, 8PCxxx, A8xxx (AV=Anti-Vortex)
- NOTE: 8SB or LP8SB available in 3 styles: (6" Deep)
  - Regular collar (frame)
  - Adjustable collar (frame) (AC),
  - Vinyl/fiberglass (V)
- NOTE: 9" and 12" square and 10" round SB available in 1 style: (12" Deep)
  - Regular Collar (frame) with ports on bottom only (No Side Port)

fig. 1

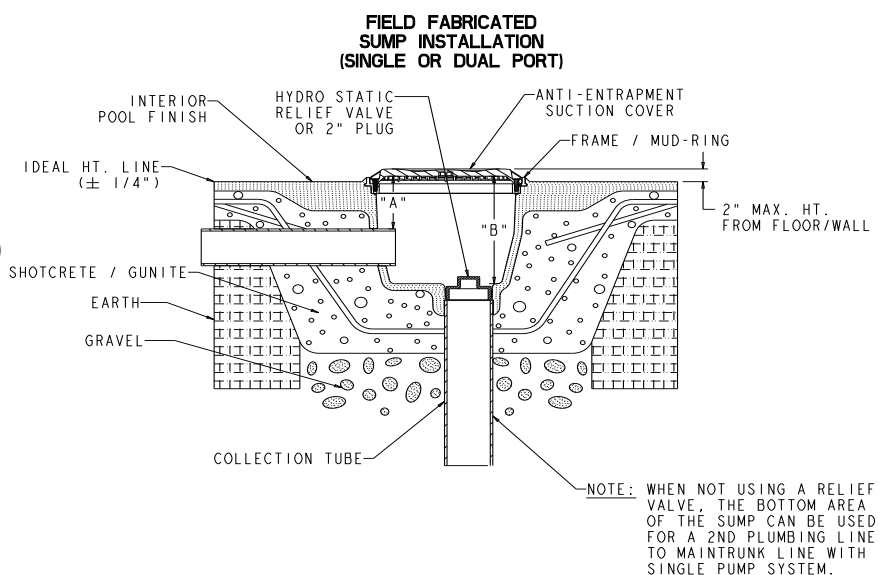


## FIELD FABRICATED SUMP INSTALLATION (SINGLE OR DUAL PORT)

### IMPORTANT

- At IAPMO (a nationally recognized testing lab), all Aquastar suction outlet covers have been tested with 3" deep sumps (unless otherwise indicated).
- "A" and/or "B" should be a min. 3" to bottom of cover. (except 4RNDxxx - Sumpless, WAV18xxx, SUN18xxx - 6", WAV24xxx and 24xxx - 12", A8xxx - 4")
- Second Line can be on bottom area.
- Single or Multiple drain use.
- Models: 8CCxxx, 8AVxxx, LP8AVxxx, RLP8AVxxx, RFS9xxx, LPRFS9xxx, RFS12xxx, 10AVxxx, 10AVRCFRxxx, WAV12xxx, RWAV12xxx, WAV9xxx, RWAV9xxx, WAV18xxx, WAV24xxx, 24xxx, 1216xxx, R1216xxx, SUN18xxx, SUN9xxx, SUN12xxx, RSUN9xxx, RSUN12xxx, LP8MHxxx, 8CCMHxxx, 914xxx, R914xxx, 4RNDxxx, A8xxx (AV=Anti-Vortex)

fig. 2



For additional information on proper drain installation refer to The Association of Pool & Spa Professionals ANSI/APSP-7 Standard and the US Consumer Product Safety Commission Guidelines for Entrapment Hazard.

## ▲ 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/disebowelment 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.

## ▲ WARNING! TO REDUCE THE RISK OF ENTRAPMENT HAZARD

If not an approved single, unblockable outlet, a minimum of two functioning suction outlets per pump must be installed. Suction outlets in the same plane (i.e. floor or wall) must be installed a minimum of three feet (3') (1 meter) apart, as measured from near point to near point. Dual suction fittings shall not be located on seating areas or on the backrest for such seating areas. If any suction outlets are located closer they shall be located on two different planes (i.e. one on the bottom and one on the vertical wall, or one each on two separate vertical walls). The maximum system flow rate shall not exceed the flow rating of any listed (per ASME/ANSI A112.19.8-2007) suction outlet cover installed. 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. In addition to two or more suction outlets per pump installed in accordance with latest APSP, IAF Standards and CPSC guidelines, follow all national, state and local codes applicable. Use only transitional (typically green) glues when attaching PVC pipe to ABS fittings. Use gray medium set glue when attaching PVC pipe to our PVC based skimmers and double deep sump buckets. In both cases, do not ever use blue glue or related hot glues, clear glues or any fast setting cement.

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 five (5) years or if found to be damaged, broken, cracked, missing, not securely attached or missing screws. DO NOT use facility until corrected!

As the manufacturer, AquaStar Pool Products, Inc., 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 ASME/ANSI A112.19.8a-2008 standards and safety regulations as set forth by the Consumer Products Safety Commission.

A copy of this certificate is available on AquaStar Pool Products Inc's website under news & information: [www.aquastarpoolproducts.com](http://www.aquastarpoolproducts.com)

# A Safe Drain is No Accident™





# SUMPLESS, BULKHEAD POOL & SPA SUBMERGED SUCTION OUTLET INSTRUCTIONS

## VGB SERIES

IMPORTANT ADDITIONAL SAFETY INSTRUCTIONS FOR  
4HPxxx, 6HPxxx, 8HPxxx, R8HPxxx  
(xxx = COLOR SUFFIX)



**READ AND FOLLOW ALL 4 PAGES  
OF INSTRUCTIONS**

**MEETS OR EXCEEDS ASME/ANSI A112.19.8A-2008  
ANTI-ENTRAPMENT/ANTI-VORTEX**



| MAX FLOW RATES (PER OUTLET) MOUNTING POSITIONS (xxx=COLOR SUFFIX) |                  |                     |                                 |                                     |                     |                            |
|---|------------------|---------------------|---------------------------------|-------------------------------------|---------------------|----------------------------|
| Model   | 4HPxxx           | 4HP TOTAL OPEN AREA | 6HPxxx (2") (& 8HPxxx, R8HPxxx) | 6HPxxx (1-1/2") (& 8HPxxx, R8HPxxx) | 6HP TOTAL OPEN AREA | 8HP & R8HP TOTAL OPEN AREA |
| Floor   | N/A              | N/A                 | 224 GPM @ 6.3 fps               | 177 GPM @ 5.0 fps                   | 11.4 sq. in.        | 15.8 sq. in.               |
| Wall  | 56 GPM @ 3.5 fps | 5.2 sq. in.         | 224 GPM @ 6.3 fps               | 122 GPM @ 3.4 fps                   | 11.4 sq. in.        | 15.8 sq. in.               |

## SPECIAL NOTES FOR HP FITTINGS

- 6HP, 8HP and R8HP max flow is 224 GPM allowed for both floor and wall with 2" or greater pipe sizes.
- When 1.5" pipe size is used, max flow rates allowed for the 6HP, 8HP and R8HP are 177 GPM and 122 GPM for floor and wall respectively.
- 4HP max flow is 56 GPM allowed only for wall applications.
- No sump is required. AquaStar's "sumpless series" is designed and tested for safe flush-mount installations to tile, fiberglass, acrylic, vinyl and steel as well as plaster, pebble, concrete, etc.
- ABS base plate bulkhead fitting must be securely attached to plumbing with proper glue. Use ABS to PVC transitional glues (such as Oatey®, Weld-On® or other green NSF glues).
- **Do not** use clear, "hot", "blue" or any fast-set glues with any AquaStar Pool Product.
- Especially when retro-fitting, extra-secure installations can be obtained by applying wet and dry epoxy (silicone, etc.) to underside of base plates.