**ADDENDUM NO. 02** **DATE: August 20th, 2024**

**TO: ALL BIDDERS**
**FROM: The Walker Group Architecture, Inc.**

**RE: DACS- Tidewater Research Station- Swine Unit Replacement**
**SCO# 22-25072-01A**

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The following corrections, clarifications, or supplemental information is to be incorporated into the Contractor(s) bid to perform the Work:

1. "No manufacturer can supply a 500kW 120/240 Single Phase Generator. We propose using a 250kW for the 1000 Amp MDP 1 Load & a 150kW for the 600 Amp MDP 2 Load." Response: A 200KW generator shall be provided to serve the 1000A MDP1 and a second 200KW generator shall be provided to serve the 600A MDP2.

2. Is there any information you can obtain on the owner supplied evaporative coolers, pump, and appurtenances? Are the spray bars part of this scope? . Response: See attached installation manual. The spray bars are part of the unit to be installed.

3. Aluminum window specs 085113 What is the glass make up of the aluminum windows? There is no glazing specs? Response: See attached revised specification and added glazing specification.

4. Aluminum window specs 085113. Is there a base of design? Response: See attached revised specification.

5. Page A-601 Slider unit W2. There are no specs for this slider. Please give direction ? Response: See attached revised aluminum window specification.

**END OF ADDENDUM 02**

# SECTION 085113 - ALUMINUM WINDOWS

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section includes aluminum windows for exterior locations.

### 1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, glazing and fabrication methods, dimensions of individual components and profiles, hardware, and finishes for aluminum windows.

B. Samples: For each exposed product and for each color specified, 2 by 4 inches in size.

C. Samples for Initial Selection: For units with factory-applied finishes.

1. Include Samples of hardware and accessories involving color selection.

D. Product Schedule: For aluminum storm windows. Use same designations indicated on Drawings.

E. Color: Match existing window color and provide color selections for Architect's approval from full range of manufacturer's colors.

## PART 2 - PRODUCTS

### 2.1 SOURCE LIMITATIONS

A. Obtain aluminum windows from single source from single manufacturer.

### 2.2 WINDOW PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: AAMA certified with label attached to each window.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: CW.
2. Minimum Performance Grade: 30.

C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.35 Btu/sq. ft. x h x deg F.

D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.30.

E. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 45.

F. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.

G. Windborne-Debris Impact Resistance: Passes ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone 3 for basic protection.

## 2.3 ALUMINUM WINDOWS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Kawneer Company, Inc.
2. Arconic Corporation
3. OldCastle Building Envelope (OBE)
4. Peerless Products Inc
5. TRACO
6. YKK AP America Inc.

B. Types: Provide the following types in locations indicated on Drawings:

1. Double Hung
2. Sliding

C. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.

1. Thermally Improved Construction: Fabricate frames, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.

D. Glass: Clear annealed glass, ASTM C1036, Type 1, Class 1, q3.

E. Insulating-Glass Units: ASTM E2190.

1. Glass: ASTM C1036, Type 1, Class 1, q3.

a. Tint: Clear.

2. Filling: Fill space between glass lites with air.
3. Low-E Coating: Pyrolytic on second surface.

F. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

G. Hardware, General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, carbon steel complying with AAMA 907, or other corrosion-resistant material compatible with adjacent materials; designed to smoothly operate, tightly close, and securely lock windows, and sized to accommodate sash weight and dimensions.

1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.

H. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

I. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

## 2.4 ACCESSORIES

A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on Drawings.

B. Receptor System: Two-piece, snap-together, thermally broken, extruded-aluminum receptor system that anchors windows in place.

## 2.5 FABRICATION

A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.

B. Glaze aluminum windows in the factory.

C. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.

D. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.

E. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

2.6 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Class I, Color Anodic Finish: AA-M12C22A42/A44 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker) complying with AAMA 611.

1. Color: As selected by Architect from standard range of industry colors and color densities.

**PART 3 - EXECUTION**

3.1 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and operational clearances.

C. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure weathertight storm window installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing storm windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E2112.

B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

1. Keep protective films and coverings in place until final cleaning.

B. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

C. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION 085113

# SECTION 088000 - GLAZING

## PART 1 - GENERAL

### 1.1 SUMMARY

A. Section Includes:

1. Insulating glass.
2. Glazing tapes.
3. Miscellaneous glazing materials.

### 1.2 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters in accordance with ASTM C1036.

C. IBC: International Building Code.

D. Interspace: Space between lites of an insulating-glass unit.

### 1.3 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances to achieve proper safety margins for glazing retention under each design load case, load case combination, and service condition.

### 1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.

1. Tinted glass.
2. Coated glass.
3. Insulating glass.
4. Etched Glass Panels

C. Glazing Accessory Samples: For sealants, in 6-inch lengths.

D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials in accordance with manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

**PART 2 - PRODUCTS**

2.1 SOURCE LIMITATIONS

A. Source Limitations for Glass: Obtain glass from single source from single manufacturer.

B. Source Limitations for Glazing Accessories: For each product and installation method, obtain from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined in accordance with the IBC and ASTM E1300:

1. Design Wind Pressures: Determine design wind pressures applicable to Project in accordance with ASCE/SEI 7, based on heights above grade indicated on Drawings.

a. Wind Design Data: As indicated on Drawings.
b. Basic Wind Speed: 140 mph.
c. Importance Factor: 2.0.
d. Exposure Category: B.

2. Maximum Lateral Deflection: For glass supported on all four edges, limit

center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.

C. Windborne-Debris-Impact Resistance: Exterior glazing shall pass ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 for Wind Zone 1 for basic protection.

1. Large-Missile Test: For glazing located within 30 feet of grade.

D. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

1. For monolithic-glass lites, properties are based on units with lites of thickness indicated.
2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
3. SHGC and Visible Transmittance: Center-of-glazing values, in accordance with NFRC 200 and based on most current non-beta version of LBL's WINDOW computer program.
4. Visible Reflectance: Center-of-glazing values, in accordance with NFRC 300.

## 2.3 GLASS PRODUCTS, GENERAL

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

## 2.4 GLASS PRODUCTS

A. Fully Tempered Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.

## 2.5 INSULATING GLASS

A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified in accordance with ASTM E2190.

1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
2. Desiccant: Molecular sieve or silica gel, or a blend of both.

## 2.6 GLAZING SEALANTS

A. General:

1. Sealant shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
2. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range of industry colors.

## 2.7 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C1281 and AAMA 800 for products indicated below:

1. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.8 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, recommended in writing by manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks:

1. Type recommended in writing by sealant or glass manufacturer.

D. Spacers:

1. Type recommended in writing by sealant or glass manufacturer.

E. Edge Blocks:

1. Type recommended in writing by sealant or glass manufacturer.

2.9 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

**PART 3 - EXECUTION**

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when

installed, could weaken glass, impair performance, or impair appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. Provide spacers for glass lites where length plus width is larger than 50 inches.

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch- minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and in accordance with requirements in referenced glazing publications.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended in writing by gasket manufacturer.

## 3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not

stretch tapes to make them fit opening.

C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until right before each glazing unit is installed.

F. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

G. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to

prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

## 3.7 CLEANING AND PROTECTION

A. Immediately after installation, remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

1. If, despite such protection, contaminating substances do contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

## 3.8 INSULATING GLASS SCHEDULE

A. Low-E-Coated, Clear Insulating Glass Type for all exterior glazing:

1. Outdoor Lite: Annealed float glass.
2. Interspace Content: Air.
3. Indoor Lite: Annealed float glass.
4. Low-E Coating: Pyrolytic on second surface.

END OF SECTION 088000

# HSES Evaporative Cooling System Installation Manual

## (Includes Spanish Version - Incluye versión en español)

GrowerSELECT EVAP SYSTEMS

## Installation Information

# Contents

# GrowerSELECT Evaporative Cooling System

## General Installation Notes:

Make sure that power is disconnected from system prior to servicing.

Installation of this equipment and related OEM equipment should be in accordance with these instructions, OEM's installation instructions and local codes (if applicable). Failure to follow specified instructions may cause damage to equipment and/or personal injury or death.

Take special note of any Warnings or Safety Decals on the equipment and in manuals.

Always wear protective clothing and any applicable Personal Protective Equipment (Safety Glasses and/or Ear Plugs) when working with the equipment.

Discarded materials, equipment and boxes should be recycled in accordance with local and national codes.

Unless otherwise specified, all Feed Delivery Systems (Diameters) are installed similarly.

## Safety Instructions:

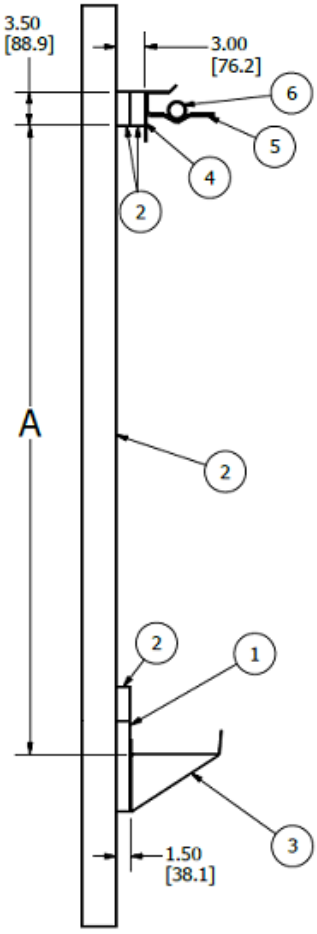
Read all safety messages in this manual and on equipment safety decals. Follow recommended precautions and safe operating practices.

Ground all electrical equipment for safety.
Ground all non-current carrying metal parts to guard against electrical shock.

Always keep safety decals in good condition and replace missing or damaged decals.

# *Framing Instructions*

**Figure 1**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | 844140 | Lumber 2" X 10" X 12' |
| 2 | 844090 | Lumber 2" X 4" X 8' |
| 3 | HSES-27 | TROUGH SUPPORT BRACKET |
| 4 | HSES-20 | TOP SUPPORT 10' ALUMINUM |
| 5 | HSES-19 | SPRAYBAR SUPPORT |
| 6 | HSES-09 | SPRAY BAR 10' |

| A | |
|---|---|
| Pad Height | Dimension |
| 2' | 30.0" |
| 3' | 42.0" |
| 4' | 54.0" |
| 5' | 66.0" |
| 6' | 78.0" |

**AIR FLOW MUST PASS THROUGH SYSTEM IN DIRECTION OF ARROW ABOVE. FAILURE TO DO SO CAN RESULTS IN ISSUES DURING INSTALLATION AND OPERATION**

**ACTUAL HEIGHT OF EVAPORATIVE COOLING PAD MAY VARY SLIGHTLY, THEREFORE PROPER HEIGHT OF THE SYSTEM SHOULD BE VERIFIED UTILIZING PADS TO BE INSTALLED**

***(LUMBER NOT INCLUDED)***

**Figure 1** above shows the typical installation dimensions for a wall mounted system. Table A provides appropriate dimensions for varying Pad heights.

- ***Please note that in Concrete Installation the 2"X10" and 2"X4" base boards should be replaced with a single run of 2"X8" baseboards.***

**Figure 2**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | 844140 | Lumber 2" X 10" X 12' |
| 2 | 844090 | Lumber 2" X 4" X 8' |
| 3 | HSES-27 | TROUGH SUPPORT BRACKET |

| B | |
|---|---|
| Drain/Feed | Dimension |
| Center | System Length |
| End | System Length |

| C | |
|---|---|
| Mount Style | Dimension |
| Brackets | 6" Minimum |
| Concrete | 0 |

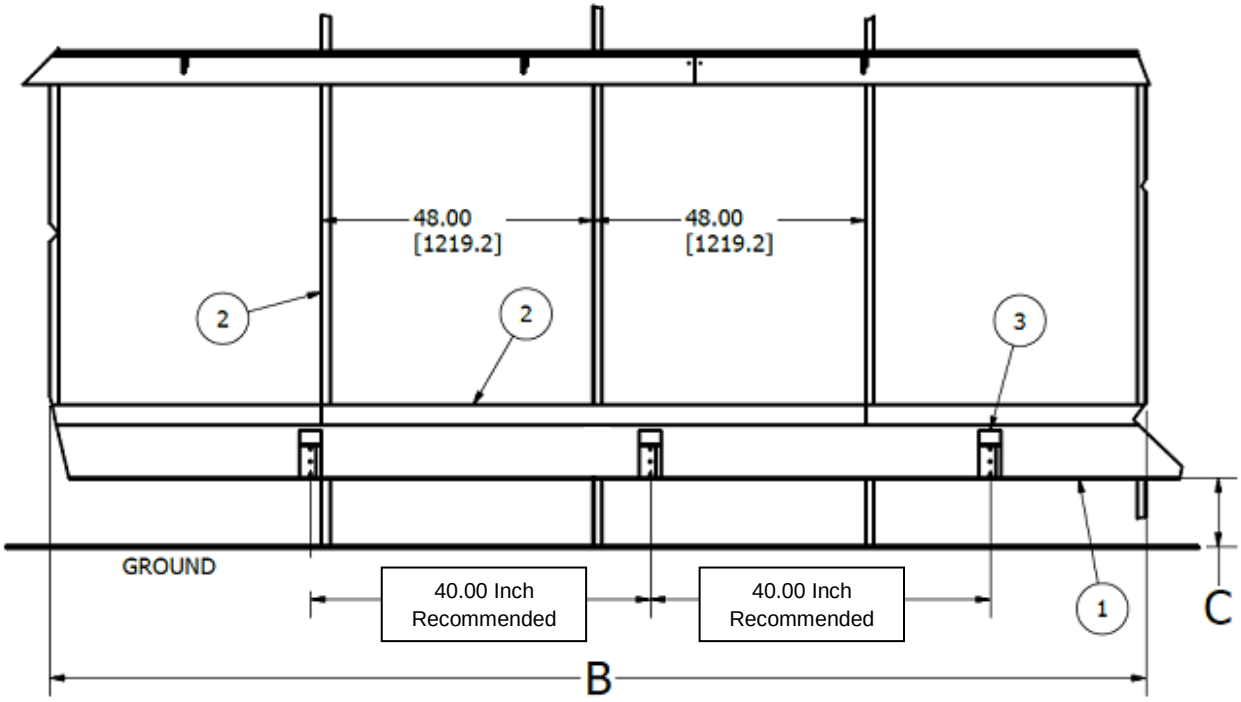



Figure 2 above shows the typical spacing for 2"X4" studs during framing along with typical spacing for the Trough Support Brackets (If Applicable). Table B and Table C provide the total framed opening requirement and minimum distance from the ground to the base of the Trough Support Bracket respectively.

- Beginning at the end of the system opposing the pump, the first bracket should be located to support the end cap with the extrusion. The second should be placed to support the trough halfway between the end cap and the coupler. The third should be located to support the trough coupler. This process should be repeated through the length of the system.

***(ENSURE ALL CONNECTIONS ARE SUPPORTED WITH MOUNTING BRACKETS BRACKETS SHOULD BE SPACED NO GREATER THAN 5 FEET APART, IN SOME INSTACES SMALLER SPACING MAY BE DESIRED AND CAN BE ACHIEVED BY ORDERING ADDITIONAL BRACKETS)***

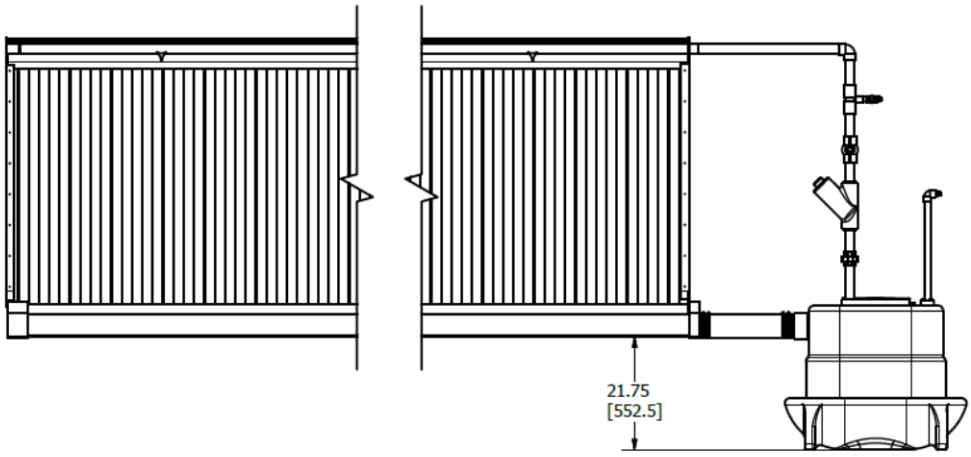
- If the system is wall mounted, the pump plate side brackets should be installed as shown in Figures 3 & 4. Figure 3 shows End Feed configuration, Figure 4 shows the center Feed Configuration.

## *SUMP ELEVATION*

Figure 3 below show the elevation requirement for installation of the sump tank. The tank may be installed in-ground or above ground.

- **REGARDLESS OF TANK INSTALLATION THE BOTTOM OF THE TANK MUST BE 21.75" BELOW THE BOTTOM OF THE TROUGH.**

**Figure 3**




- If in-ground installation is preferred, Figure 4 below depicts the overall size of the sump tank. Earth should be removed to allow the tank to sit level at the correct level.

- **THE DEPTH OF THE TANK IS DETERMINED BY THE ELEVATION OF THE TROUGH**

**Figure 4**

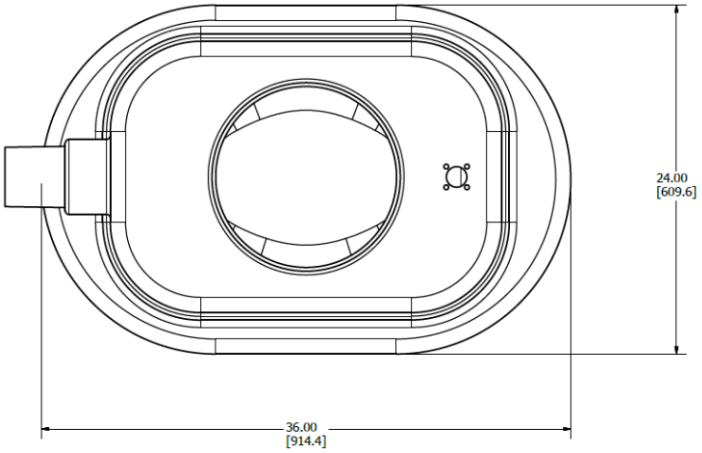


**Figure 5**

## END FEED/DRAIN

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | TBD | 844140 | Lumber 2" X 10" X 12' |
| 2 | TBD | 844090 | Lumber 2" X 4" X 8' |
| 3 | TBD | HSES-27 | TROUGH SUPPORT BRACKET |
| 4 | 2 | HSES-29 | PUMP MOUNTING SIDE PANEL |

| B | |
|---|---|
| Drain/Feed | Dimension |
| End | System Length |

| C | |
|---|---|
| Mount Style | Dimension |
| Brackets | 6" Minimum |
| Concrete | 0 |

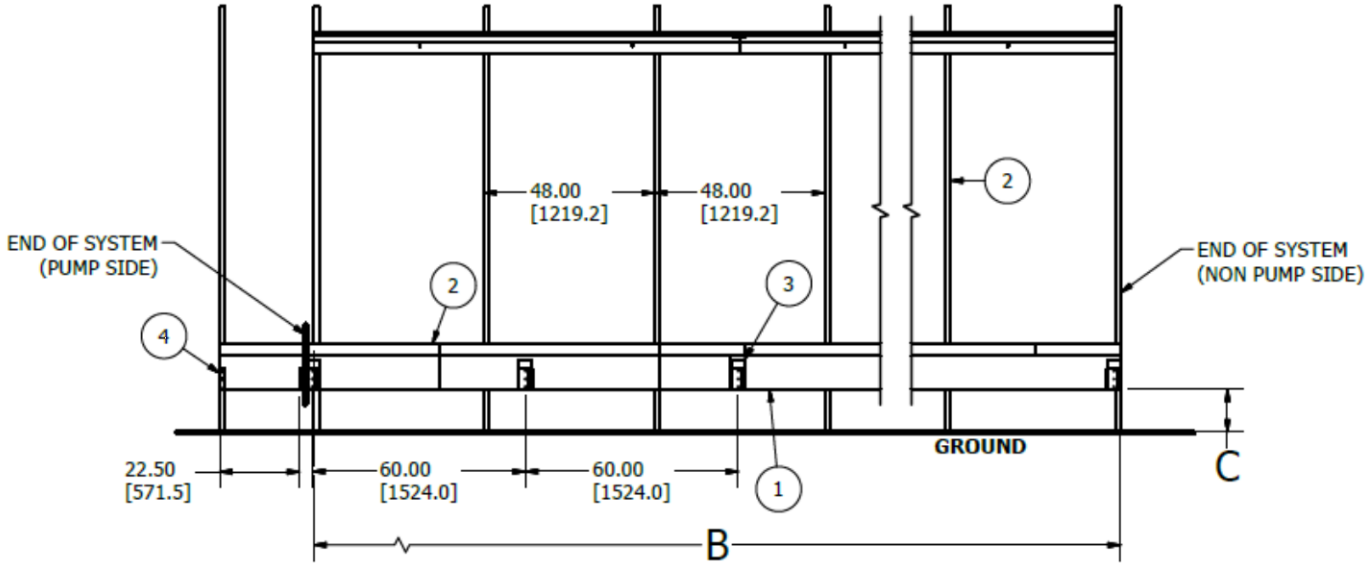


**Figure 6**

## CENTER FEED/DRAIN

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | TBD | 844140 | Lumber 2" X 10" X 12' |
| 2 | TBD | 844090 | Lumber 2" X 4" X 8' |
| 3 | TBD | HSES-27 | TROUGH SUPPORT BRACKET |
| 4 | 2 | HSES-29 | PUMP MOUNTING SIDE PANEL |

| B | |
|---|---|
| Drain/Feed | Dimension |
| Center | System Length |

| C | |
|---|---|
| Mount Style | Dimension |
| Brackets | 6" Minimum |
| Concrete | 0 |

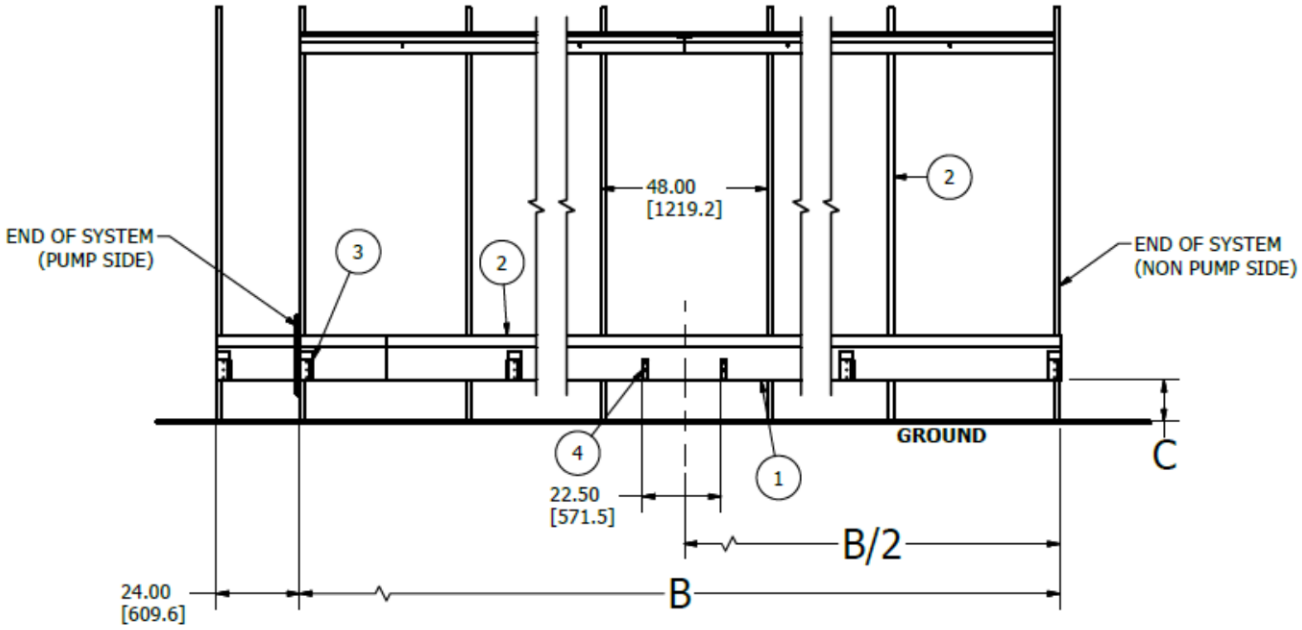
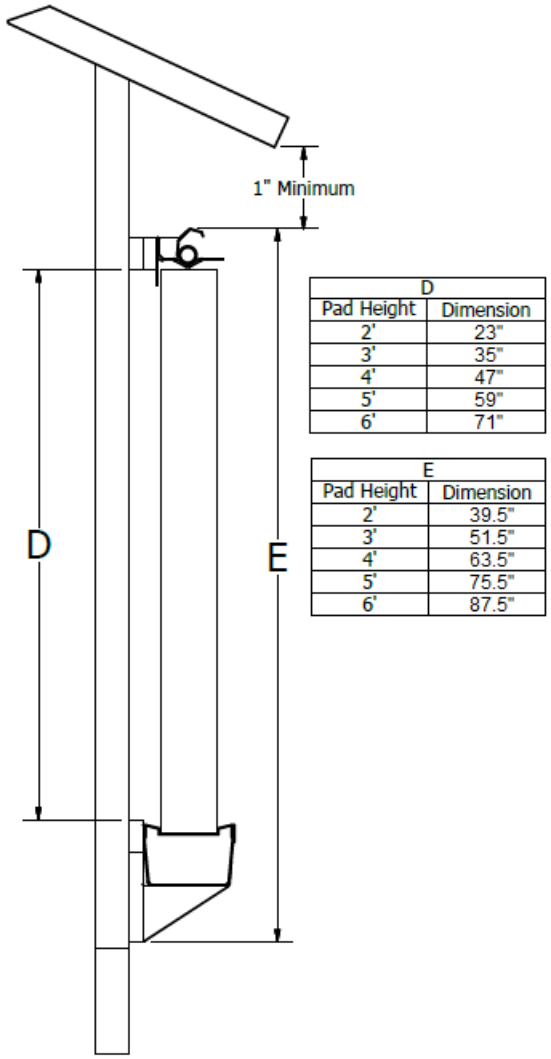


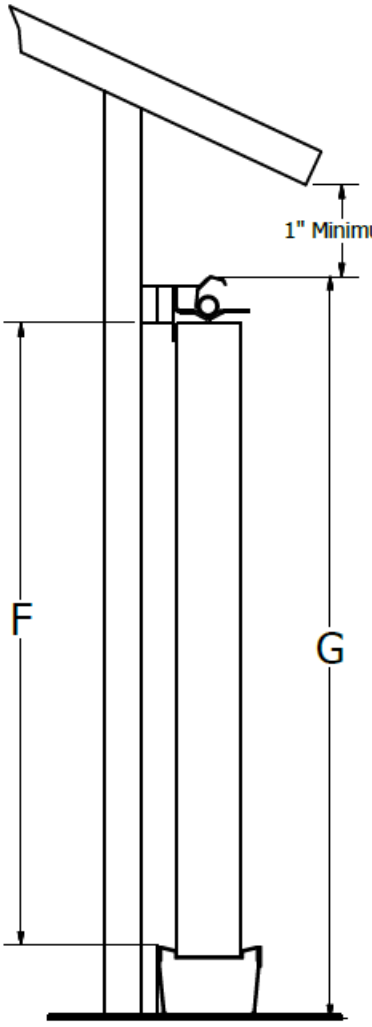
**Figure 7**




| D | |
|---|---|
| Pad Height | Dimension |
| 2' | 23" |
| 3' | 35" |
| 4' | 47" |
| 5' | 59" |
| 6' | 71" |

| E | |
|---|---|
| Pad Height | Dimension |
| 2' | 39.5" |
| 3' | 51.5" |
| 4' | 63.5" |
| 5' | 75.5" |
| 6' | 87.5" |

**Mounted System**




| F | |
|---|---|
| Pad Height | Dimension |
| 2' | 23" |
| 3' | 35" |
| 4' | 47" |
| 5' | 59" |
| 6' | 71" |

| G | |
|---|---|
| Pad Height | Dimension |
| 2' | 33.5" |
| 3' | 45.5" |
| 4' | 57.5" |
| 5' | 69.5" |
| 6' | 81.5" |

**System Resting On Concrete**

Figure 7 above shows the required rough opening height for wall mounted systems and systems resting on concrete. Tables D and E provide required rough opening height and total system height for wall mounted systems. Tables F and G provide required rough opening height and total system height for systems resting on concrete pads.

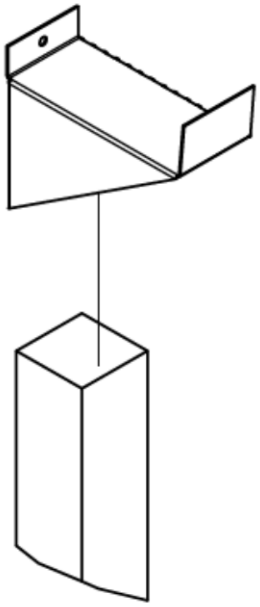
# *OFFSET BRACKETS*

Some applications of the H2 Cool System require the system to be installed a set distance from the exterior wall. In this event 4”X4” Treated lumber posts can be installed in the ground and leveled with the trough placed in the brackets. The GrowerSELECT trough brackets (HSES-27) can then be installed on top of the 4”X4” as shown below in Figure 8. Additional framing will be required to seal openings underneath system, along ends of system, and along the top assembly of the system.

- **This method can also be used if current house framing is unfit for evaporative system installation**

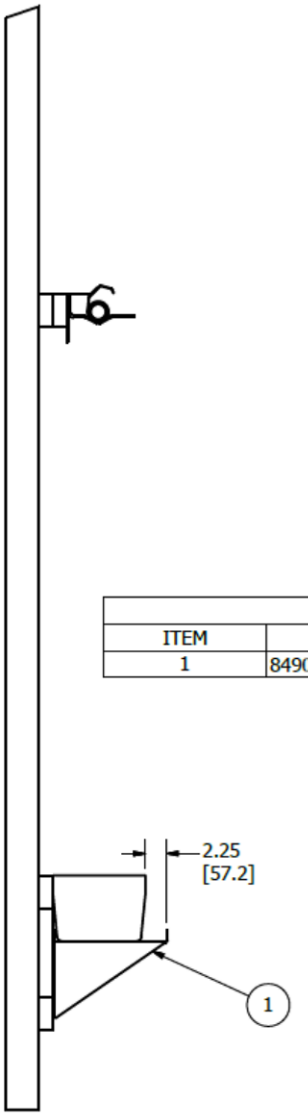
**Figure 8**

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-27 | TROUGH SUPPORT BRACKET |
| 2 | 1 | 4"X4" | 4" X 4" TREATED LUMBER |



## *OFFSET BRACKETS*

**Figure 9**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | 8490180700 | TROUGH SUPPORT 12" |

Some applications of the H2 Cool System require a 12” Offset Support Bracket to allow for movement of curtains either directly behind or directly in front of the cool cell system. Figure 9 above depicts the void that can be generated by utilizing the Offset Brackets (8490180700) over the standard brackets (HSES-27).

- **Due to the weight of the system being extended from the building a minimum on center bracket spacing of 4 feet is recommended.**
- **Additional wood supports may be required below recommended 2”X10” to allow for the extended length of the mounting section of offset brackets. A 2”X4” is shown installed below the 2”X10” in Figure 6 above.**

# *Top Assembly Instructions*

1. Install the Top Support Flush with the header boards as shown in Figure 1. As shown above in Figure 1 there should be a 2”X4” spacer located behind the Top Support. (Please note that this spacer should terminate when the Top Support ends). At this time the Top Support should be fastened to the header bar with two screws (**80509**) on the far ends. This should be replicated throughout the length of the system.

2. The Spray Bar Support should be fastened to the Top Support with two screws (**80509**) and two washers (**605791**) as shown in Figure 10 below. This process should be replicated throughout the length of the system.

3. The Spray Deflector should be fastened to the Top Support using self tapping sheet metal screws (**60926**) as shown in Figure 11 below. The Spray Deflector should be fastened to the Top Support first utilizing the middle two holes as well as on the two ends where End Panels reside.

4. The Deflector Splice should be fastened to the Spray Deflector anywhere there is a meeting of two Spray deflectors with sheet metal screws (**60926**) as shown below in Figure 12. This process should be replicated throughout the length of the system.

**Figure 10**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-20 | TOP SUPPORT 10' ALUMINUM |
| 3 | 80509 | Screw SS 10 X 1 1/2" |
| 4 | 605791 | Washer Fender SS 1/4" X 1" |
| 2 | HSES-19 | SPRAYBAR SUPPORT |

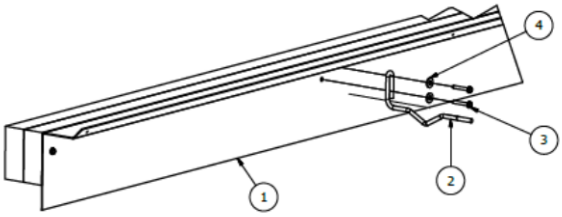
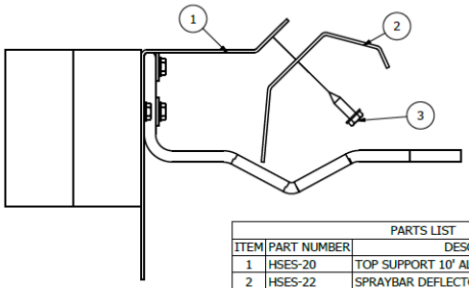


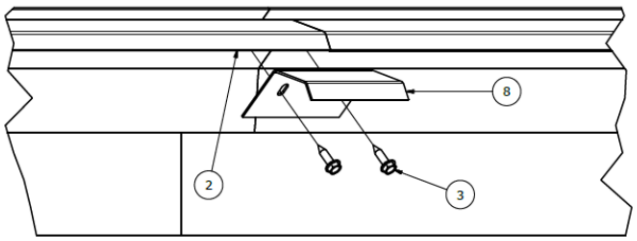

**Figure 11**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-20 | TOP SUPPORT 10' ALUMINUM |
| 2 | HSES-22 | SPRAYBAR DEFLECTOR 10' ALUMINUM |
| 3 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |

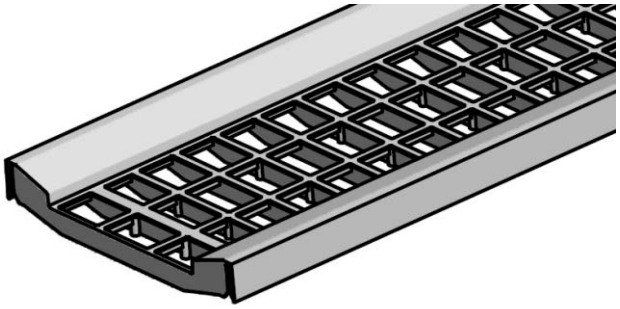
**Figure 12**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-22 | SPRAY BAR DEFLECTOR 10' ALUMINUM |
| 2 | HSES-24 | SPRAYBAR DEFLECTION SPLICE ALUMINUM |
| 3 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |



# HSES-06C Assembly Instructions

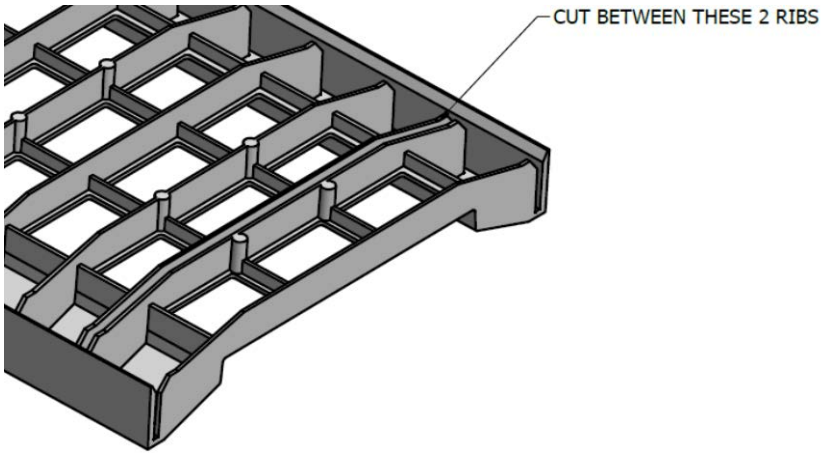
## *Image*



HSES-06C is a new version of the evaporative trough cover. The following steps highlight the differences in assembly if you receive the HSES-06C

For a 10” section of trough the only changes are (2) HSES-06C are required per 10’ section of trough. Each part measures 58” long while the HSES-06 (original 10’ trough cover) measured 116” long.

To use on a 5’ section of trough the new HSES-06C must be cut to size.
Each end of the tough cover has a cut guide (2 tightly spaced ribs) shown below. Using reciprocating saw cut between **EITHER** set of ribs. **DO NOT CUT BOTH ENDS!** With either end removed the cut HSES-06 measure 56” which is the same as HSES-07 (original 5’ trough section)



# IN LINE JET PUMP

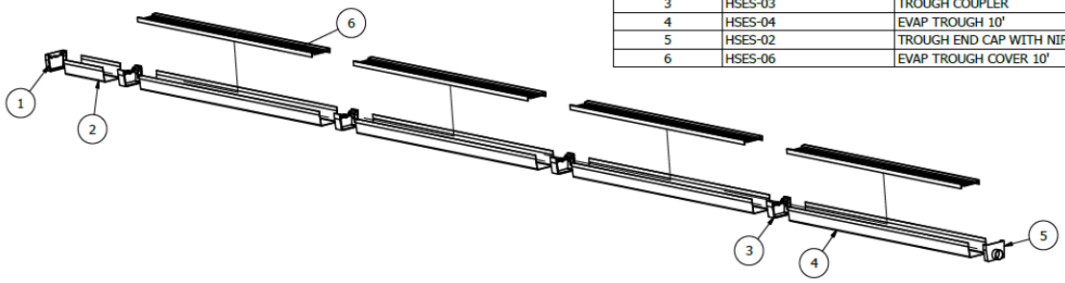
## Trough Assembly Instructions

- ***ALL TROUGH ASSEMBLY SHOULD TAKE PLACE IN FINAL RESTING PLACE OF TROUGH (ON BRACKETS OR ON CONCRETE)***
- ***ENSURE PVC CEMENT IS NOT ALLOWED TO POOL IN CORNERS OF COUPLERS AND GLUE IS NOT HEATED BEFORE APPLICATION, FAILURE TO DO THIS CAN RESULT IN TROUGH WARPAGE.***

1. Begin on the end of the system oriented away from the Pump/Float Housing and place a 10 foot section of trough onto the Trough Support Brackets or Concrete pad.
2. Using PVC Cleaner, clean the first and last 3” of the Trough both inside and out.
3. Using the supplied PVC cement, fill the channel of the Trough End Cap Nipple with the PVC Compound and slide onto the Trough.
4. Utilizing the same PVC cement and process, repeat for a Trough Splice and slide onto the opposing end of the 10’ Trough section.
5. Using the methods above, repeat cleaning and applying PVC cement to Trough sections and Trough Splices throughout the length of the system.
6. After the final section of 10’ (or 5’) trough has been installed, fill the channel of both sides of final Trough Splice and slide onto the end of the trough.
7. Following instructions above, insert the Trough Extension from the Plumbing Kit into the final Trough Splice.
8. Fill the channel of the Flush End Cap with PVC Cement then slide onto the Trough Extension closing the trough.
9. Finally place all Trough Covers onto the length of the Trough and Install 4” Mechanical Plug (**HSES-33**) into End Cap with Nipple.
    - Figure 13 below depicts a typical 40’ Trough Assembly with Float Tank Extension.

**Figure 13**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-01 | TROUGH END CAP FLUSH |
| 2 | HSES-13 | TROUGH EXTENSION |
| 3 | HSES-03 | TROUGH COUPLER |
| 4 | HSES-04 | EVAP TROUGH 10' |
| 5 | HSES-02 | TROUGH END CAP WITH NIPPLE |
| 6 | HSES-06 | EVAP TROUGH COVER 10' |



# SUBMERSIBLE PUMP

## Trough Assembly Instructions

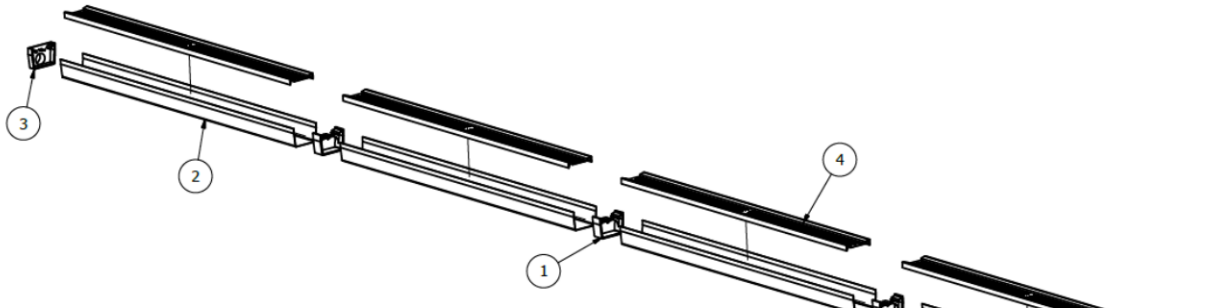
- ***ALL TROUGH ASSEMBLY SHOULD TAKE PLACE IN FINAL RESTING PLACE OF TROUGH (ON BRACKETS OR ON CONCRETE)***
- ***ENSURE PVC CEMENT IS NOT ALLOWED TO POOL IN CORNERS OF COUPLERS AND GLUE IS NOT HEATED BEFORE APPLICATION, FAILURE TO DO THIS CAN RESULT IS TROUGH WARPAGE.***

1. Begin on the end of the system oriented away from the Pump/Tank and place a 10 foot section of trough onto the Trough Support Brackets or Concrete pad.
2. Using PVC Cleaner, clean the first and last 3" of the Trough both inside and out.
3. Using the supplied PVC cement, fill the channel of the Trough End Cap Nipple with the PVC Compound and slide onto the Trough.
4. Utilizing the same PVC cement and process, repeat for a Trough Splice and slide onto the opposing end of the 10' Trough section.
5. Using the methods above, repeat cleaning and applying PVC cement to Trough sections and Trough Splices throughout the length of the system.
6. After the final section of 10' (or 5') trough has been installed, fill the channel of second Trough End Cap with Nipple and secure to trough.
7. Finally place all Trough Covers onto the length of the Trough and Install 4" Mechanical Plug (**HSES-33**) into End Cap with Nipple on opposite side of Tank.

- **IF CENTER FEED APPLICATION IS USED, PLACE 4" MECHANICAL PLUG INTO BOTH END CAPS**

- Figure 14 below depicts a typical 40' Trough Assembly

**Figure 14**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | HSES-03 | TROUGH COUPLER |
| 2 | 4 | HSES-04 | EVAP TROUGH 10' |
| 3 | 2 | HSES-02 | TROUGH END CAP WITH NIPPLE |
| 4 | 4 | HSES-06 | EVAP TROUGH COVER 10' |

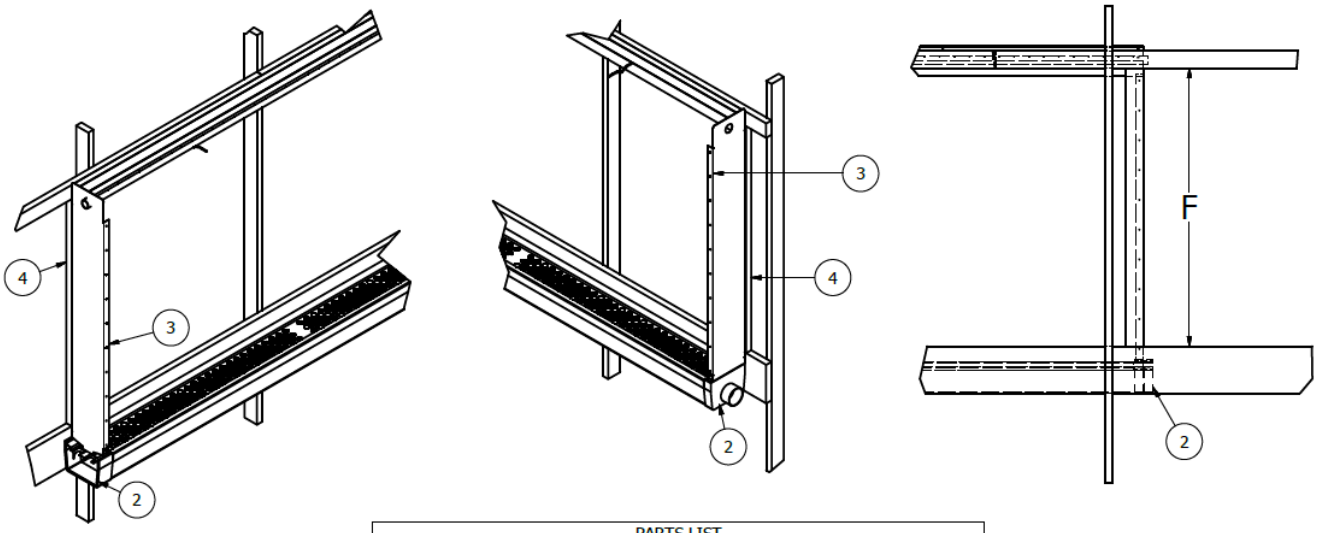
## Important

The supplied tube of PVC Cement (Weld·On® 719™) is a special **Extra Heavy Bodied Slow Setting PVC Plastic Cement** and is the only adhesive that should be used to assemble cooling system trough components together**.** It is a solvent based adhesive designed especially for gluing PVC components together. The substitution of other adhesives and/or silicon, acrylic, etc. (painter's type) caulks will result in leakage over time. They are sealants and not adhesives. The supplied cement should be sufficient to glue applicable components but if additional cement is required; it can be obtained at any Hog Slat retail outlet under part number HSES-34.

# *End Panel Assembly Instructions*

1. Using methods in section shown above, insert cement and place final Splice on the end of the trough as shown below in Figure 15.
2. Cut 2"X4" Cap to appropriate length according to Table F above.
3. Using screws (**80509**), toenail 2"x4" Cap into the rough opening ensuring it mounts flush to Trough End with Nipple and in the middle of the last Trough Splice as shown below in Figure 15.
4. Again using supplied screws (**80509**),fasten End Panels to 2"X4" Cap as shown below. Fasteners should be inserted through the holes in the side of the End Panel.

**Figure 15**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-02 | Trough End Cap With Nipple |
| 2 | HSES-03 | Trough Coupler |
| 3 | HSES-17 | End Panel 5' Aluminum |
| 4 | 2"X4" Cap | 2"X4" Cut To Dimension F |

# *Pad Assembly Instructions*

**(NOTE: THE EVAPORATIVE COOLING MEDIA SHOULD MATCH SYSTEM CHARACTERISTICS)**

**BEFORE BEGINNING, MAKE SURE PADS ARE ORIENTED CORRECTLY. REFERENCE CAN BE FOUND ON SIDE OF COOLING PADS.**

1. Begin on either end of the system by placing the Evaporative Cooling Pads into the channel on the Trough Cover against the End Panel.
2. Insert Evaporative Cooling Pad into Trough Cover channel for the length of the system ensuring pads are compacted against each other
3. With roughly 3 feet of void remaining, place Evaporative Cooling Pad against remaining End Panel.
4. Continue placing Pad until void is filled. If necessary cut a remaining pad to size to complete filling void.
5. Capture pad with Pad Retainer and Tri Knobs as shown below in Figure 16. Repeat for length of system.
6. Finally, Pad Retainer Clips should be installed on Pad Retainer joints to ensure Pad Retainers remain on the same linear plane as shown below in Figure 17.

**Figure 16**

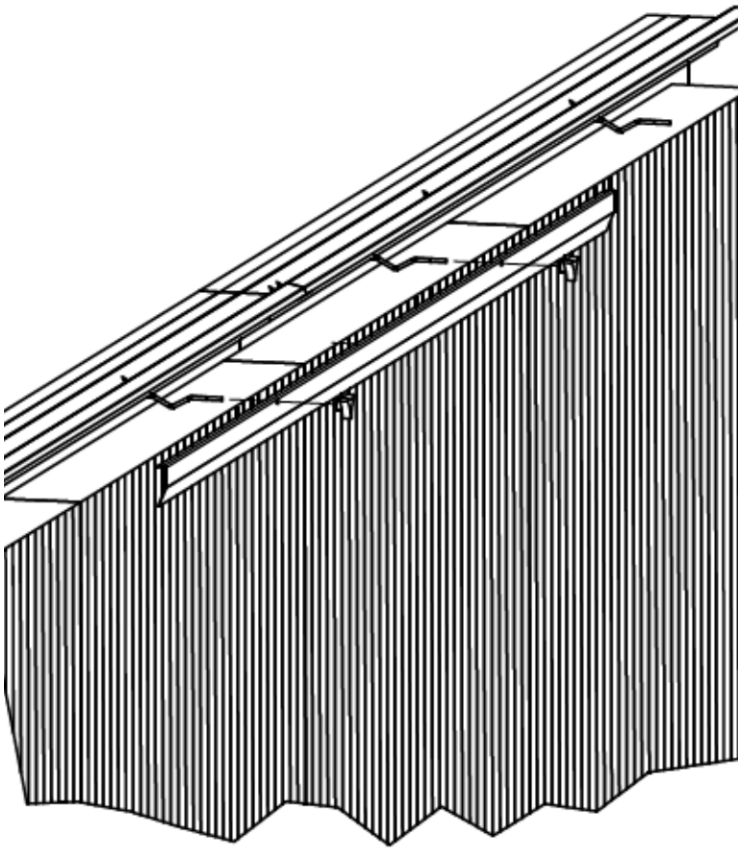
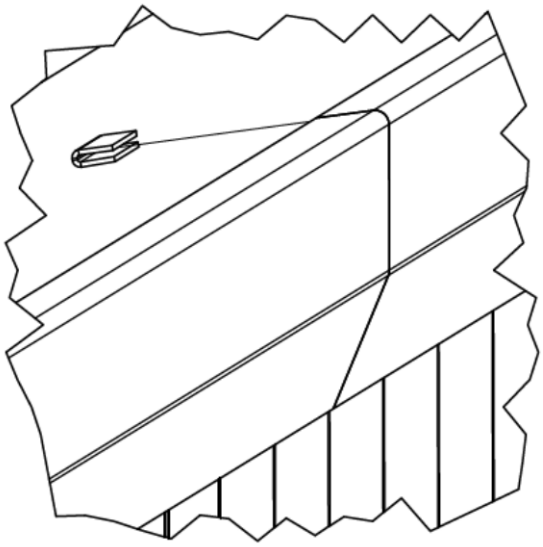


**Figure 17**



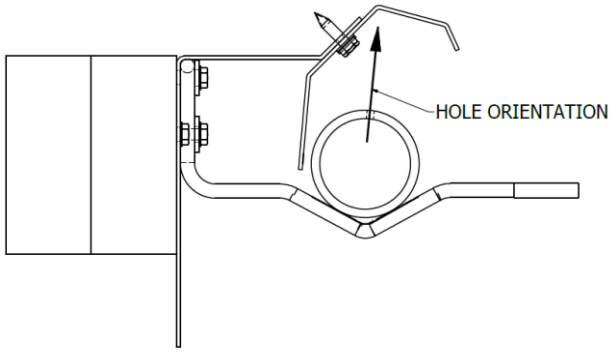
# Spray Bar Assembly Instructions

***ENSURE SUPPLIED TEFLON TAPE IS USED ANYWHERE A THREADED CONNECTION OCCURS***

## SPRAY BAR PLUMBING INSTRUCTIONS

1. Begin plumbing assembly by placing Spray Bars on Spray Bar Supports for the length of the system.
2. Align Spray Bar so holes are oriented as shown below in Figure 18.

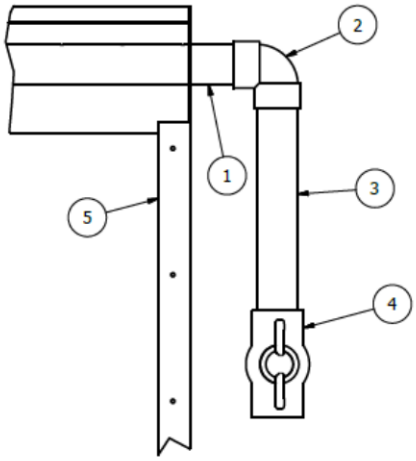
**Figure 18**




3. Using self tapping screws (**60926**), fasten spray pipe together to eliminate separation and rotation.
4. On the ends of the spray line install a dog leg assembly as shown below in Figure 19. (If system has dual pumps this step should be excluded)

**Figure 19**

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-09 | SPRAY BAR 10' |
| 2 | 1 | 60052 | Elbow 90* PVC S X S 1 1/2" (SCH 40) |
| 3 | 12.000 in | 603412 | 1 1/2" PVC PIPE (SCH 40) |
| 4 | 1 | 602190 | VALVE BALL PVC COMPACT 1 1/2" (SCH 40) |
| 5 | 1 | HSES-17 | END PANEL 5' ALUMINUM |



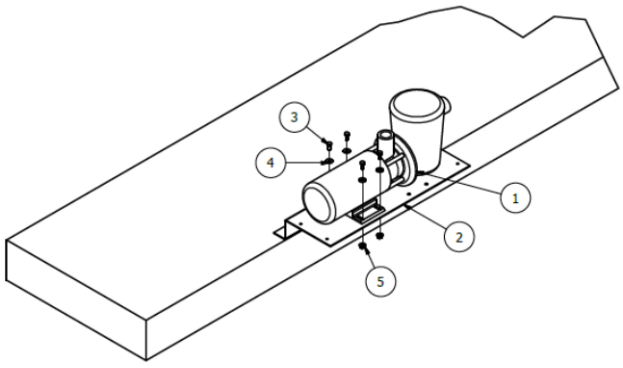
# IN LINE JET PUMP

## Pump Assembly Instructions

1. Begin by mounting the pump plate either to the Pump Plate Side Support Brackets or by anchoring the Pump plate to the concrete. Both methods are shown in Figures 20 and 21 below.
2. Place the Pump on the plates so the intake is oriented towards the system.
3. Utilizing supplied bolts (**605082**), lock washers (**60589**) and nuts (**60624**), secure the Pump to the Pump Plate.

**Figure 20**

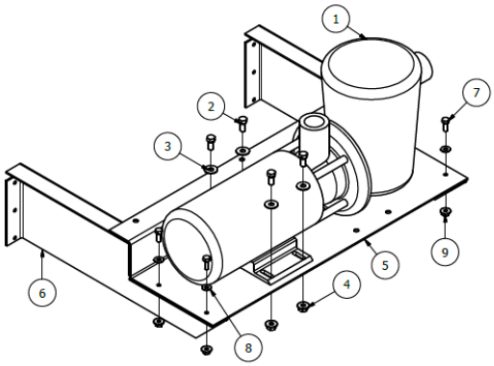
**CONCRETE MOUNTED**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XX | JET PUMP |
| 2 | 1 | HSES-28 | PUMP MOUNTING PLATE |
| 3 | 4 | 605082 | Bolt Ss 5/16" X 3/4" |
| 4 | 4 | 60589 | Washer Lock Ss 5/16" |
| 5 | 4 | 60624 | Nut Serrated Flange 5/16-18 Yellow Zinc Gr.2 |

**Figure 21**

**BRACKET MOUNTED**



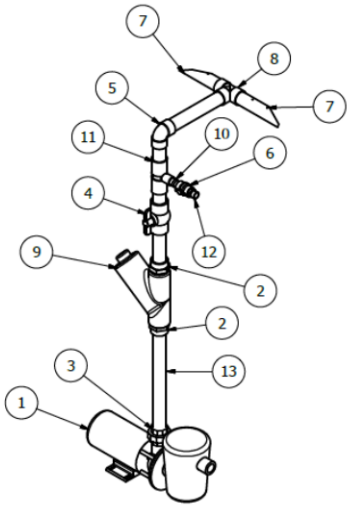

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XX | JET PUMP |
| 2 | 4 | 605082 | Bolt Ss 5/16" X 3/4" |
| 3 | 4 | 60589 | Washer Lock Ss 5/16" |
| 4 | 4 | 60624 | Nut Serrated Flange 5/16-18 Yellow Zinc Gr.2 |
| 5 | 1 | HSES-28 | PUMP MOUNTING PLATE |
| 6 | 2 | HSES-29 | PUMP MOUNTING SIDE PANEL |
| 7 | 4 | 60601 | Bolt Ss 1/4" X 3/4" |
| 8 | 4 | 60579 | Washer Flat Ss 1/4" |
| 9 | 4 | 60577 | Nut Serrated Flange 1/4-20 Zinc |

# IN LINE JET PUMP

## Exit Plumbing Instructions

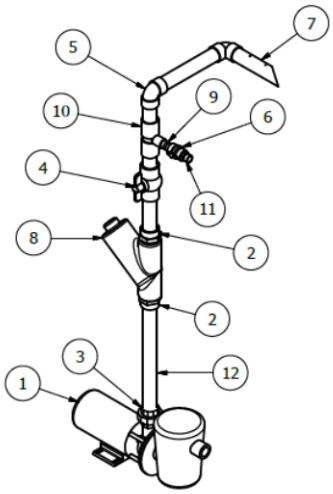
1. Starting with the pump exit, assemble the components as shown below in Figure 22 and 23, using the PVC pipe cleaner and PVC cement supplier with the Plumbing Kit. Both Center Feed and End Feed arrangements are shown below.

**Figure 22**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XXXJ | Pump 3/4 HP Jet H2 Evap System Grower Select |
| 2 | 2 | 60057 | Adapter Pvc Male 1 1/2" (SCH 40) |
| 3 | 1 | H2P-004 | Union Pump 2" X 1-1/2" S O-Ring & Gasket |
| 4 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 5 | 1 | 60052 | Elbow 90* PVC S X S X 1 1/2" SCH 40 |
| 6 | 1 | 6021602 | Valve Ball PVC 3/4" Female Threaded |
| 7 | 2 | HSES-09 | SPRAY BAR 10' |
| 8 | 1 | 600510 | Tee S X S X S 1 1/2" SCH 40 |
| 9 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 10 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 11 | 1 | 603750 | Tee Reducing 1-1/2" S X 1-1/2" S X 3/4" FPT PVC (SCH 40) |
| 12 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 13 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |

**Figure 23**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XXXJ | Pump 3/4 HP Jet H2 Evap System Grower Select |
| 2 | 2 | 60057 | Adapter Pvc Male 1 1/2" (SCH 40) |
| 3 | 1 | H2P-004 | Union Pump 2" X 1-1/2" S O-Ring & Gasket |
| 4 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 5 | 2 | 60052 | Elbow 90* PVC S X S X 1 1/2" SCH 40 |
| 6 | 1 | 6021602 | Valve Ball PVC 3/4" Female Threaded |
| 7 | 2 | HSES-09 | SPRAY BAR 10' |
| 8 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 9 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 10 | 1 | 603750 | Tee Reducing 1-1/2" S X 1-1/2" S X 3/4" FPT PVC (SCH 40) |
| 11 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 12 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |

**Please note:** 115 Volt pump installation may require a variation in installation.

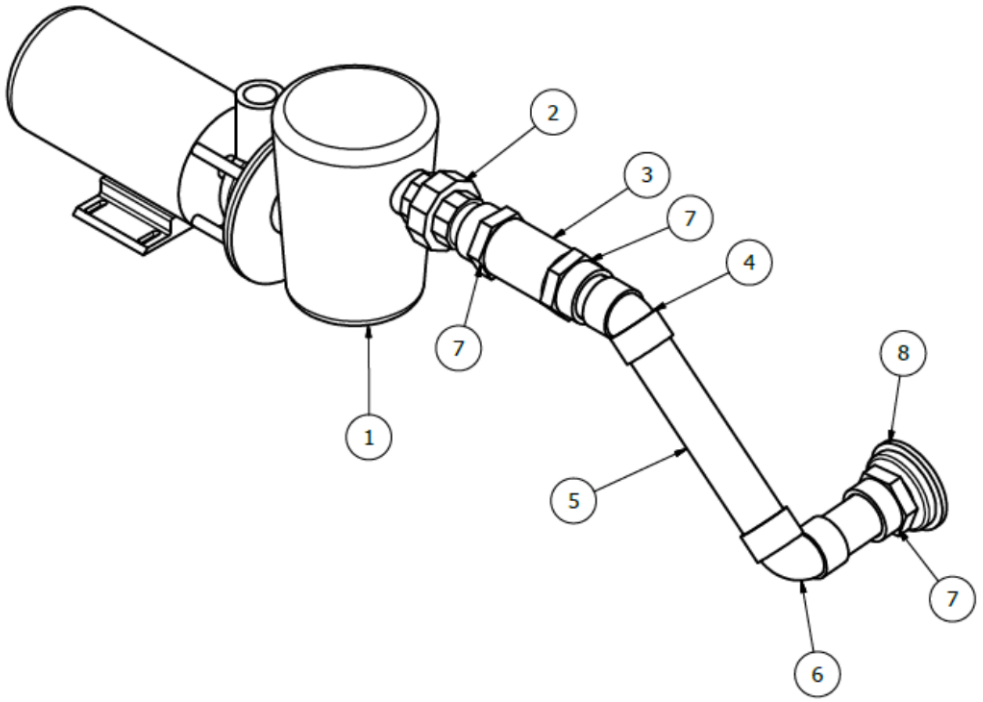
- In 115 Volt Pump installations, the 2" Pump Union (H2P-004) is replaced with a 1 ½" Pump Union (H2P-003).
- The required components are included in the corresponding pump kits.

# IN LINE JET PUMP

## Entrance Plumbing Instructions

1. Begin by marking the center point of the intake hole 1.75” from the bottom of the trough and **no less than** 18” from the end of the system for an end feed configuration. For a center feed configuration, the center point should be marked 1.75” from the bottom of the trough aligned on the linear center of the system.
2. Drill a 2.375” inch diameter hole centered on the point marked in the step before.
   - ***Make sure PVC shavings are cleaned from tank after fabrication***
3. Secure Bulk Head Fitting and tighten to create a water tight seal.
4. Beginning with the 1 ½” Male PVC Adapter exiting the tank assemble the plumbing to the Pump Intake as shown below in Figure 24.

**Figure 24**

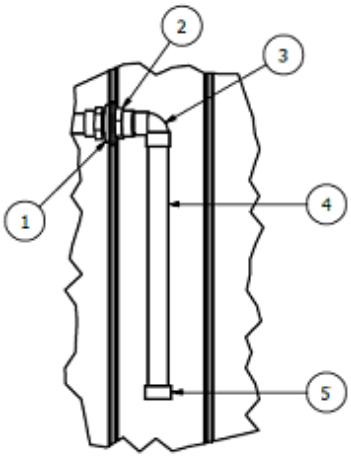



| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XXXJ | Pump 3/4 HP Jet H2 Evap System Grower Select |
| 2 | 1 | H2P-003 | Union Pump 1-1/2" S O-Ring & Gasket |
| 3 | 1 | S1520-15F | Valve PVC Check 1-1/2" Threaded |
| 4 | 1 | 60053 | Elbow, 45 Degree PVC S X S X 1 1/2" (SCH 40) |
| 5 | TBD | 603412 | Pipe PVC 1-1/2" X 5' Sch 40 Plain End |
| 6 | 1 | 60052 | Elbow, 45 Degree PVC S X S X 1 1/2" (SCH 40) |
| 7 | 3 | 60057 | Adapter, PVC Male 1 1/2" (SCH 40) |
| 8 | 1 | HSES-36 | Adapter Tank 1-1/2" |

5. Using Supplied PVC cement and PVC cleaner build the Intake assembly as shown below in Figure 25. Ensure that intake holes are oriented towards the bottom of trough and that the intake pipe is parallel to the bottom of the trough.

**To ensure pump water supply is not interrupted pick up pipe should be installed a minimum of 2 feet away from incoming water supply!**

**Figure 25**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-36 | Adapter Tank 1-1/2" |
| 2 | 1 | 60057 | ADAPTER, PVC MALE 1 1/2" (SCH 40) |
| 3 | 1 | 60052 | ELBOW, 90 DEGREE S X S 1 1/2" (SCH 40) |
| 4 | 1 | HSES-12 | PICK-UP PIPE |
| 5 | 1 | 60058 | CAP, PVC 1 1/2" (SCH 40) |

**Please note:** 115 Volt pump installation may require a variation in installation.

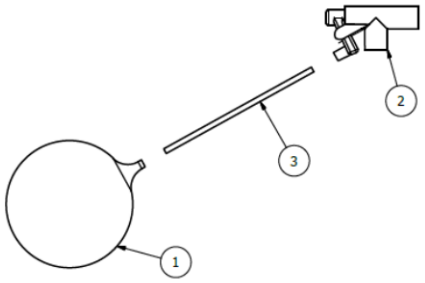
- Pumps should be able to be removed from the system completely for winterization.
- If required, install 1 ½" Union (603841) between 45 degree elbow and 90 degree elbow and the pump union (H2P-003) is replaced with a 1 ½" Male adapter.
- The required components are included in the corresponding pump kits.

# IN LINE JET PUMP

## Float Kit Assembly Instructions

1. Begin the float tank kit assembly by securely assembling the Ball, Rod, and Valve as shown below in Figure 26.

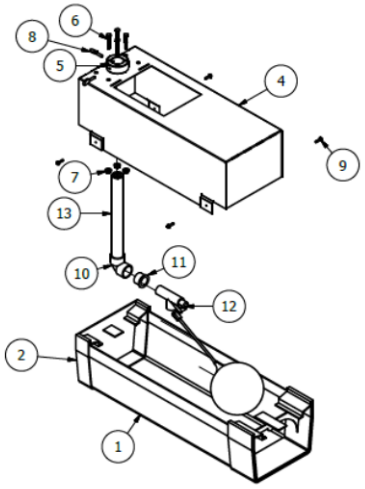
**Figure 26**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | KPF06 | Ball Float 6"Diameter 1/4" Thread |
| 2 | 1 | KPT75SS | Valve Float 3/4" Inlet/Outlet Tank Mount |
| 3 | 1 | KSR08 | Rod Float 1/4" X 8" SS |

2. Assemble float tank housing as shown below in Figure 27.

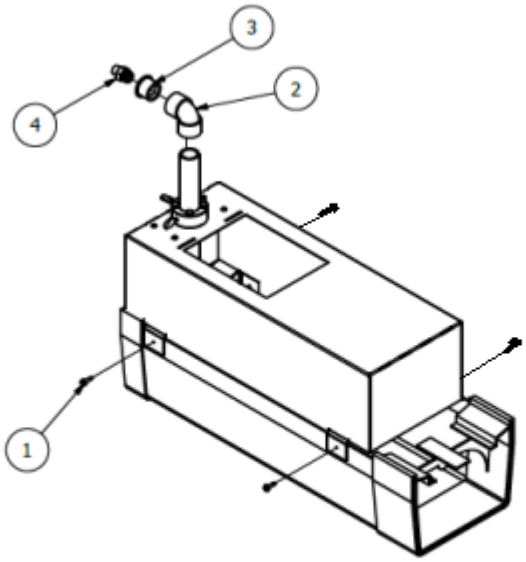
**Figure 27**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-13 | TROUGH EXTENSION |
| 2 | 1 | HSES-01 | TROUGH END CAP FLUSH |
| 3 | 1 | HSES-03 | TROUGH COUPLER |
| 4 | 1 | HSES-30 | FLOAT TANK ASSEMBLY |
| 5 | 1 | HSES-35 | Collar PVC |
| 6 | 4 | 6050411 | Bolt SS 1/4" X 1 3/4" |
| 7 | 4 | 60577 | Nut Serrated Flange 1/4-30 Zinc |
| 8 | 2 | 68834 | Screw Thumb 1/4"-20 X 1" SS |
| 9 | 4 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |
| 10 | 1 | 60032 | ELBOW 90 DEGREE PVC S X S 1" (SCH 40) |
| 11 | 1 | 60180 | BUSHING REDUCING 1" S X 3/4" FPT (SCH 40) |
| 12 | 1 | KPT75SS | FLOAT VALVE ASSEMBLY |
| 13 | TBD | 603432 | 1" PVC PIPE (SCH 40) |

3. Secure PVC pipe inside of the Float Collar with the thumb screws and attach the 1” Male PVC Elbow and 1” to ¾” PVC Reducing Bushing to the top of the 1” PVC Pipe.
4. If not already completed, attach Float Tank Assembly to the Trough extension with the supplied 10-16 self tapping screws (**60926**)
5. Finally, thread Male Brass Fitting into Reducer and attach supply line.
   These steps are shown below in Figure 28.

**Figure 28**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |
| 2 | 1 | 60032 | Elbow 90 Degree PVC S X S 1" (SCH 40) |
| 3 | 1 | 60180 | Bushing Reducing 1" S X 3/4" MHT |
| 4 | 1 | 60167 | Adapter Brass 3/4" MPT X 3/4" MHT |

**During set up of water level the Kerick Valve should be raised as high as possible inside the float tank housing. Any adjustments of water level should be executed by adjusting the lever arm of the Kerick Valve.**

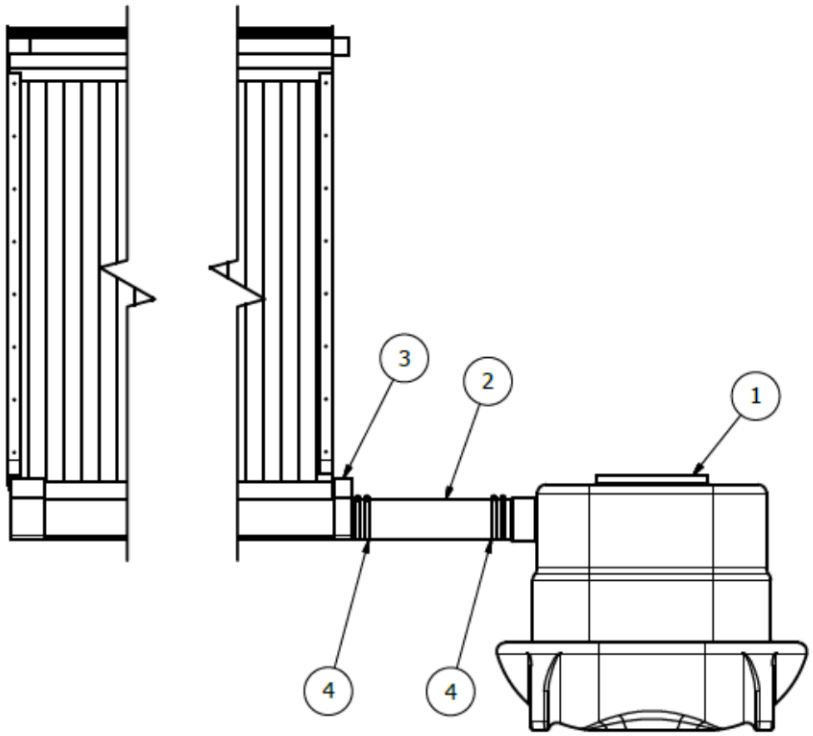
**Simply lowering the Kerick Valve will cause a restriction of incoming water!**

# ***SUBMERSIBLE PUMP***

## *Tank Installation (End Feed)*

1. Begin by connecting the Tank (HSES-40) to the trough using the supplied flexible hose (HSES-39). 5 feet of hose is supplied with each system. If additional hose is required please order separate. Using all (4) hose clamps (620-072), secure hose to the end cap with a nipple and to the entry of the Tank as shown below in Figure 29.

**Figure 29**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-40 | Tank Sump Grower Select Cool Cell System |
| 2 | 1 | HSES-39 | Hose 4" Flexible Black Grower Select Per Foot |
| 3 | 1 | HSES-02 | Trough End Cap With Nipple |
| 4 | 4 | 620-072 | Clamp Hose Ss 3" To 5" |

# ***SUBMERSIBLE PUMP END FEED***

## *Tank Installation (Center Feed)*

**The center feed kit is an additional installation option and requires a separate order of part number HSES-45.**

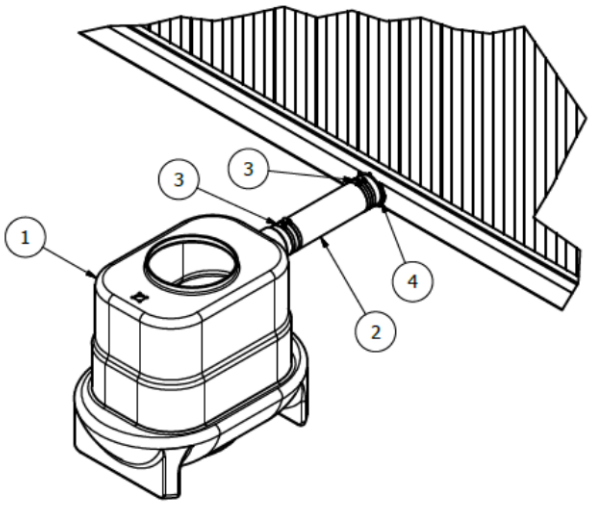
1. Select and mark the center of the trough where 4” bulk head (HSES-45) will insert. Drill a 4” hole in center of trough allowing room for lock nut of the tank adapter to fit. Insert the threaded end of the tank adapter with one rubber gasket on the exterior and one on the interior of the trough. Securely tighten lock nut inside trough.

- **HOLE SHOULD LEAVE A MINIMUM OF 2.75” FROM THE BOTTOM OF THE TROUGH**

- **A SMALL SECTION OF THE TROUGH COVER DIRECTLY OVER THE 4” TANK ADAPTER MAY HAVE TO BE REMOVED TO ALLOW TROUGH COVER TO SIT LEVEL ONTO TROUGH**

2. Connect the Tank (HSES-40) to the bulkhead using the supplied flexible hose (HSES-39). 5 feet of hose is supplied with each system. If additional hose is required please order separate. Using all (4) hose clamps (620-072) secure hose to the bulk head and to the entry of the Tank as shown below in Figure 30.

**Figure 30**



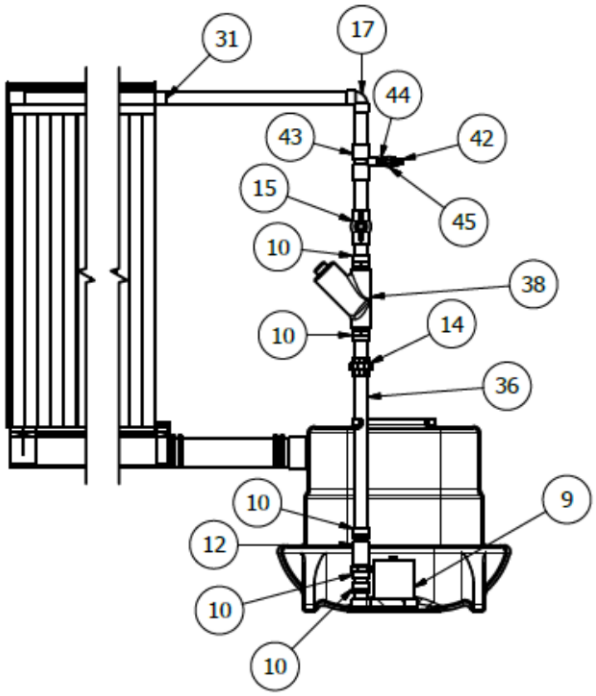

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-40 | TANK, SUMP HSES |
| 2 | 1 | HSES-39 | Hose 4" Flexible Black Grower Select Per Foot |
| 3 | 4 | 620-072 | Clamp Hose Ss 3" To 5" |
| 4 | 1 | HSES-45 | TANK APDATER ASSEMBLY, 3.5" THREADS |

# SUBMERSIBLE PUMP

## Exit Plumbing Instructions (End Feed)

1. Starting with the pump exit, assemble the components as shown below in Figure 31, using the PVC pipe cleaner and PVC cement supplier with the Plumbing Kit. End Feed arrangement is shown below.

**Figure 31**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 9 | 1 | H2P-230S | Pump 1/2 HP 230V Sump H2 Evap System Grower Select |
| 10 | 5 | 60057 | Adapter, PVC Male 1 1/2" (SCH 40) |
| 12 | 1 | S1520-15F | Valve PVC Check 1-1/2" Threaded |
| 14 | 1 | 603841 | Union Pvc 1 1/2" (SCH 40) |
| 15 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 17 | 1 | 60052 | Elbow 90* PVC S X S X 1 1/2" (SCH 40) |
| 31 | TBD | HSES-09 | SPRAY BAR 10' |
| 36 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |
| 38 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 42 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 43 | 1 | 603750 | Tee Reducing 1 1/2" S X 1 1/2" S X 3/4" FPT PVC (SCH 40) |
| 44 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 45 | 1 | 6021602 | Valve Ball PVC 3/4" Female Threaded |

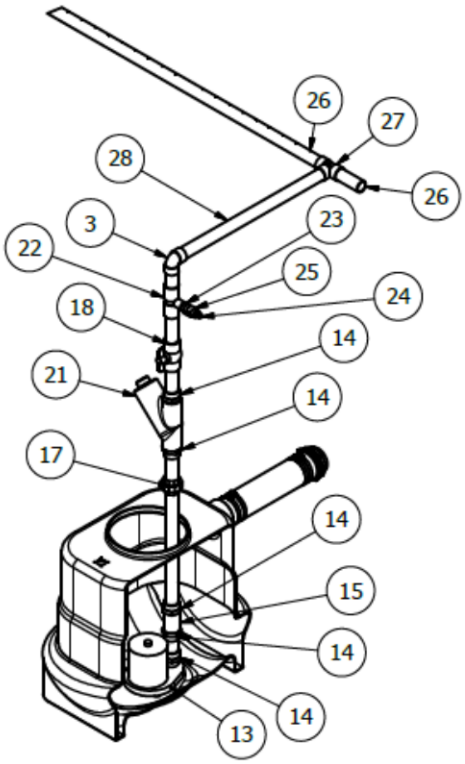
# SUBMERSIBLE PUMP

## *Exit Plumbing Instructions (Center Feed)*

1. Starting with the pump exit, assemble the components as shown below in Figure 32, using the PVC pipe cleaner and PVC cement supplier with the Plumbing Kit. Center Feed arrangement is shown below.

- **SPRAY BAR AND PAD RETAINER MAY HAVE TO BE CUT/MODIFIED TO ALLOW FOR ACCURATE FIT AND SPACING**

**Figure 32**



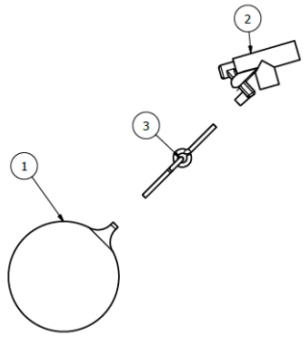

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 3 | 3 | 60052 | Elbow 90* PVC S X S X 1 1/2" (SCH 40) |
| 13 | 1 | H2P-230S | Pump 1/2 HP 230V Sump H2 Evap System Grower Select |
| 14 | 5 | 60057 | Adapter, PVC Male 1 1/2" (SCH 40) |
| 15 | 1 | S1520-15F | Valve PVC Check 1-1/2" Threaded |
| 17 | 1 | 603841 | Union PVC 1 1/2" (SCH 40) |
| 18 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 21 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 22 | 1 | 603750 | Tee Reducing 1 1/2" S X 1 1/2" S X 3/4" FPT PVC (SCH 40) |
| 23 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 24 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 25 | 1 | 6021602 | Valve Ball PVC 3/4" Femal Threaded |
| 26 | 2 | HSES-09 | SPRAY BAR 10' |
| 27 | 1 | 600510 | Tee S X S X S 1 1/2" (SCH 40) |
| 28 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |

# SUBMERSIBLE PUMP

## *Float Valve Assembly Instructions*

1. Begin the float tank kit assembly by securely assembling the Ball, Rod, and Valve as shown below in Figure 33.

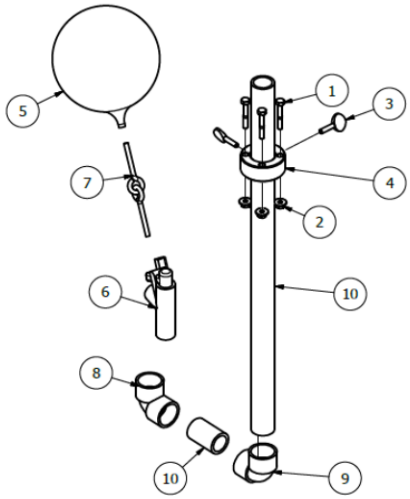
**Figure 33**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | KPF06 | Ball Float 6"Diameter 1/4" Thread |
| 2 | 1 | KPT75SS | Valve Float 3/4" Inlet/Outlet Tank Mount |
| 3 | 1 | HSES-RA11 | ASSEMBLY, EYE BOLT KERICK VALVE |

2. Assemble float valve assembly as shown below in Figure 34.

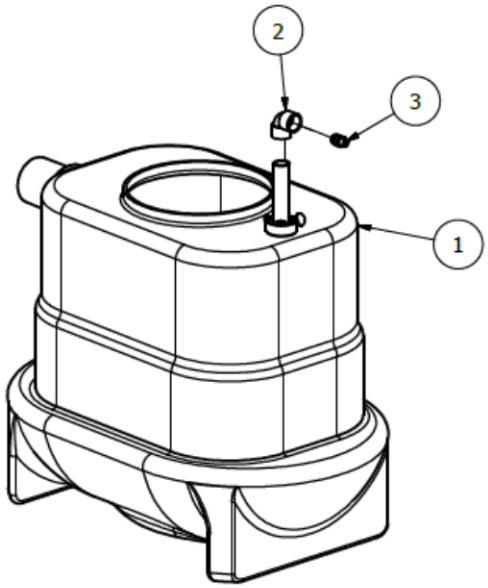
**Figure 34**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | 6050411 | BOLT SS 1/4" X 1 3/4" |
| 2 | 4 | 60577 | NUT SERRATED FLANGE ZINC 1/4-20 |
| 3 | 3 | 68834 | SCREW THUMB 1/4"-20 X 1" SS |
| 4 | 1 | HSES-35 | FLOAT VALVE COLLAR |
| 5 | 1 | KPF06 | BALL FLOAT 6" DIAMETER 1/4" THREAD |
| 6 | 1 | KPT75SS | VALVE FLOAT 3/4" IN/OUT TANK MOUNT |
| 7 | 1 | HSES-RA11 | INTERLOCKING EYE BOLTS |
| 8 | 1 | 604191 | Elbow Reducing 90 Degree 1" S X 3/4" FPT PVC (SCH 40) |
| 9 | 1 | 60032 | Elbow 90 Degree Pvc S X S 1" (SCH 40) |
| 10 | TBD | 603432 | Pipe PVC SCH 40 1" X 5' Plain End |

3. Secure PVC pipe inside of the Float Collar with the thumb screws and attach the 1” Male PVC Elbow and 1” to ¾” PVC Reducing Bushing to the top of the 1” PVC Pipe.

**Figure 35**



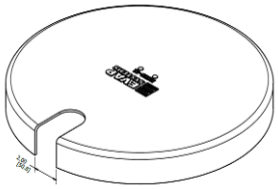

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-40 | Tank Sump Grower Select Cool Cell System |
| 2 | 1 | 604191 | Elbow Reducing 90 Degree 1" S X 3/4" FPT PVC (SCH 40) |
| 3 | 2 | 60167 | Adapter Brass 3/4" MPT X 3/4" MHT |

**During set up of water level the thumb screws should be used to set the height of the water by raising or lowering the entire valve assembly**

4. Finally, place the tank cap (HSES-41) onto the tank. A section of the cap will have to be removed. An example is shown below in Figure 36.

- **EXACT DIMENSION OF CUT SHOULD BE DETERMINED BY INSTALLER AS FEED PIPE AND SIZE MAY VARY**

**Figure 36**



# ***Level Rite***
## *Electronic Float Management System*
## *HSCC-1000, HSPK-JETLR*

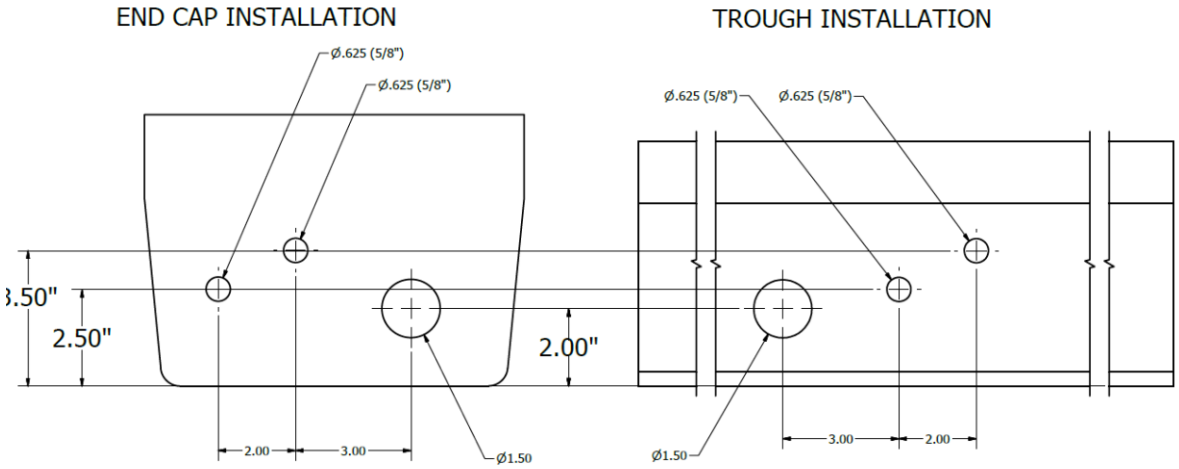
1. Determine installation position of incoming fill taking into account the following Incoming water supply should be closely located to the Assembly.

If possible it is recommended to install float switches on the flush end cap.

**! A DEDICATED POWER OUTLET IS REQUIRED FOR CORRECT OPERATION !**
**THIS POWER OUTLET SHOULD REMAIN "ON" CONTINUOUSLY.**
**THE FILL CONTROL SYSTEM SHOULD REMAINED POWERED ON ANYTIME THE SYSTEM HAS WATER IN IT.**

2. Open the control box (HSCC-1000) and remove the float switch assemblies. Weatherproof wire nuts are included in the float switch boxes.

3. Mark location for float switch installation on either the flush end cap or the trough itself. See image below for dimensions.

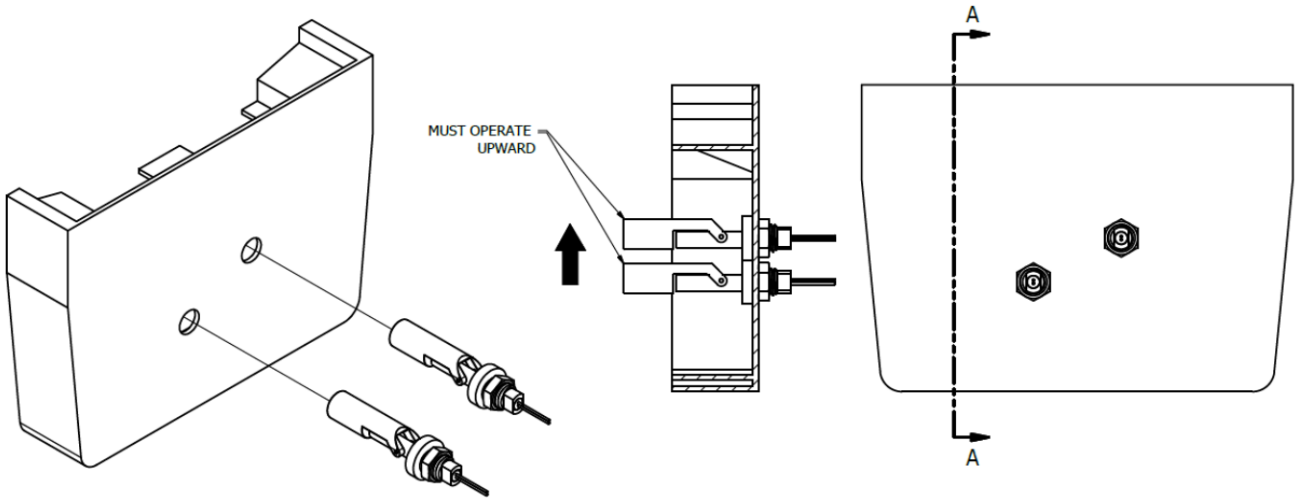



4. Drill float switch mounting holes to 0.625" (5/8")

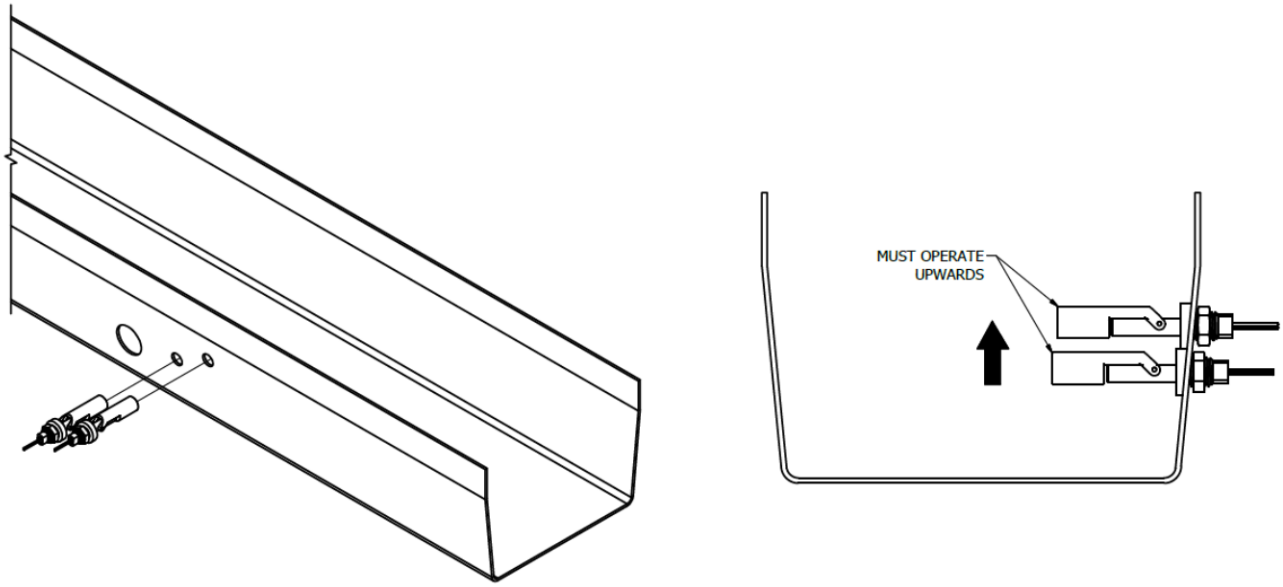
5. Insert and secure float switches with retaining nut and rubber washer.

**FLOAT SWITCH MUST BE INSTALLED SO THAT THE FLOAT TRAVELS UPWARD! SEE IMAGE BELOW!**

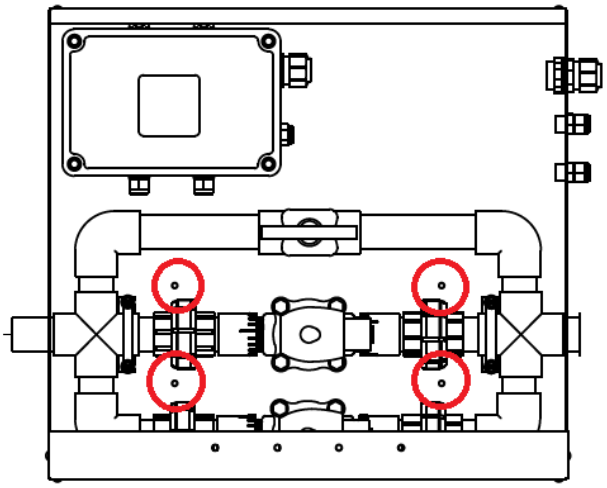
# END CAP INSTALLATION



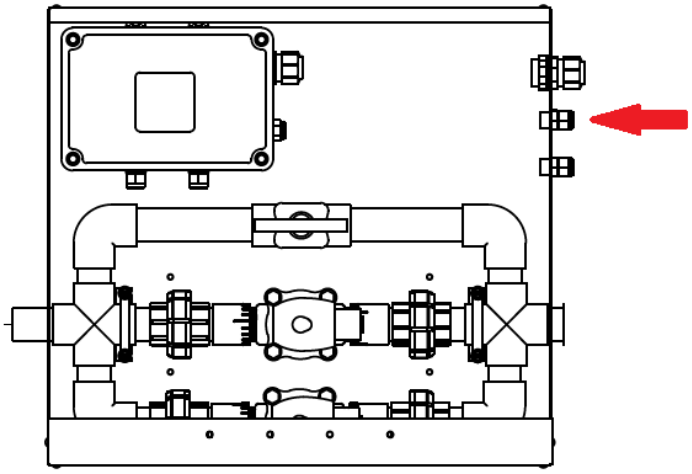

# TROUGH INSTALLATION



6. With door open mount Level Rite Assembly by attaching via 4 mounting holes shown below.



7. Using supplied weatherproof wire nuts connect the High Float Switch (Switch installed at 3.50” Height) to shielded wire lead identified with the colored sticker (If sticker is missing wire can be identified as the wire coming out of the top small liquid tight in the drawing below) Orientation is non critical.

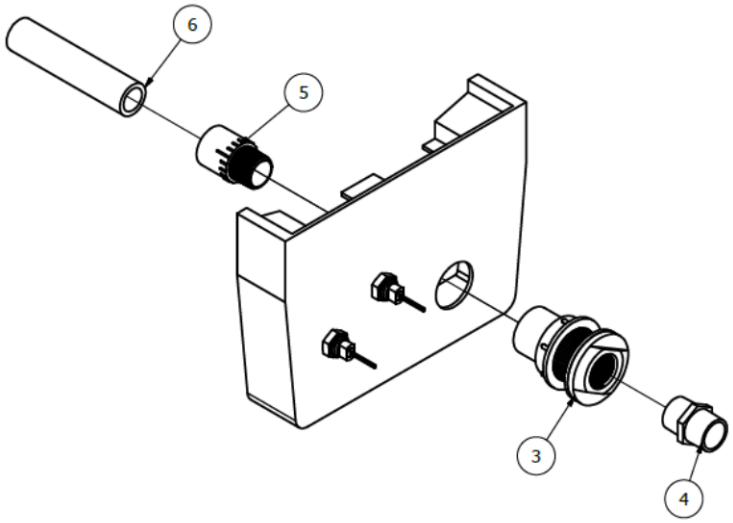


8. Using supplied weatherproof wire nuts connect the Low Float switch to the other shield wire exiting though the lower liquid tight.

9. Install the inlet bulkhead fitting and plumbing connections. A 5 foot hose is supplied with the Level rite float kit. Additional hose can be ordered and installed if a more remote location is required.
10.

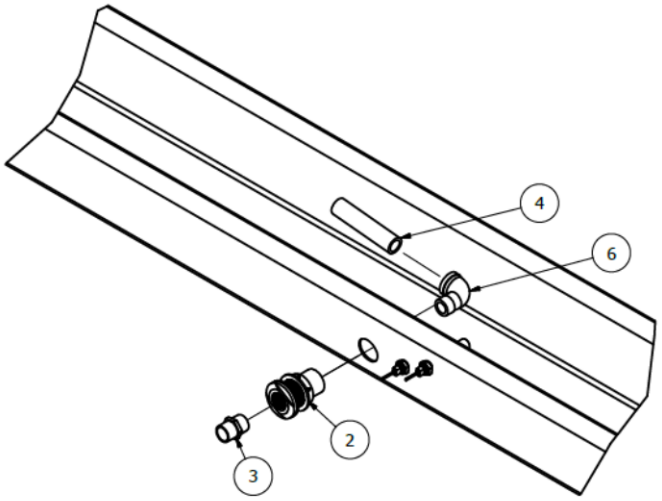
## END CAP INSTALLATION

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 3 | 1 | TF34NB | Bulkhead Fitting 3/4"FPT For 1-1/2" Hole Nylon |
| 4 | 1 | 60167 | Coupling 3/4" MGHT x 3/4" MPT Brass |
| 5 | 1 | 60027 | Adapter Pvc Male 3/4" (SCH 40) |
| 6 | 1 | 3/4" PVC SCH 40 PIPE | 24.00" LONG |



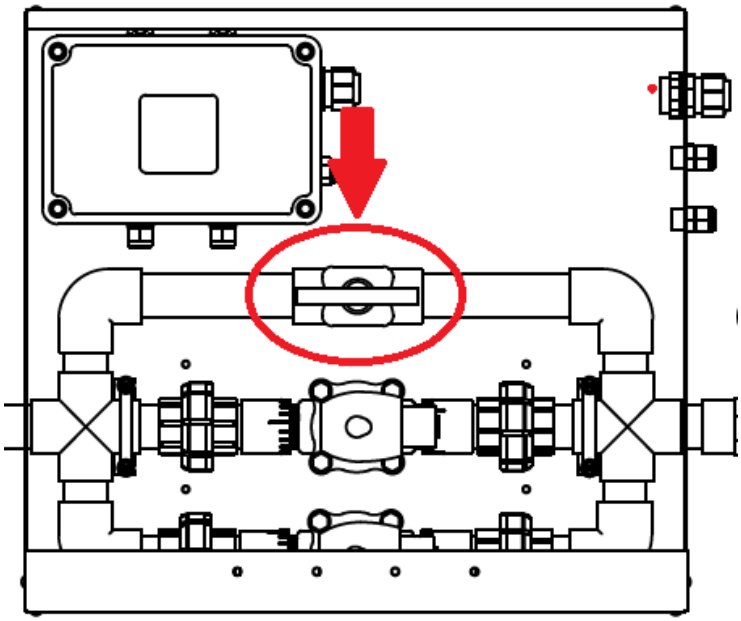

## TROUGH INSTALLATION

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 2 | 1 | TF34NB | Bulkhead Fitting 3/4"FPT For 1-1/2" Hole Nylon |
| 3 | 1 | 60167 | Coupling 3/4" MGHT x 3/4" MPT Brass |
| 4 | 1 | 3/4" SCH 40 PVC PIPE | 24.00" LONG |
| 6 | 1 | 602245 | Elbow 90 Degree PVC Sch 40 Street 3/4" S X 3/4" MPT |



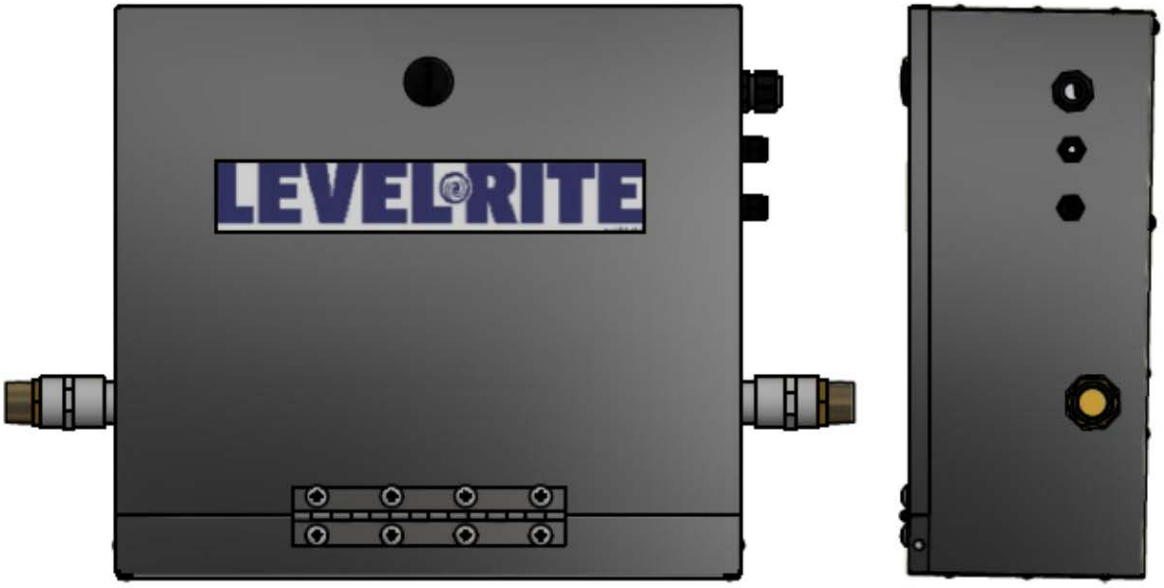
**See below for general routing diagram**

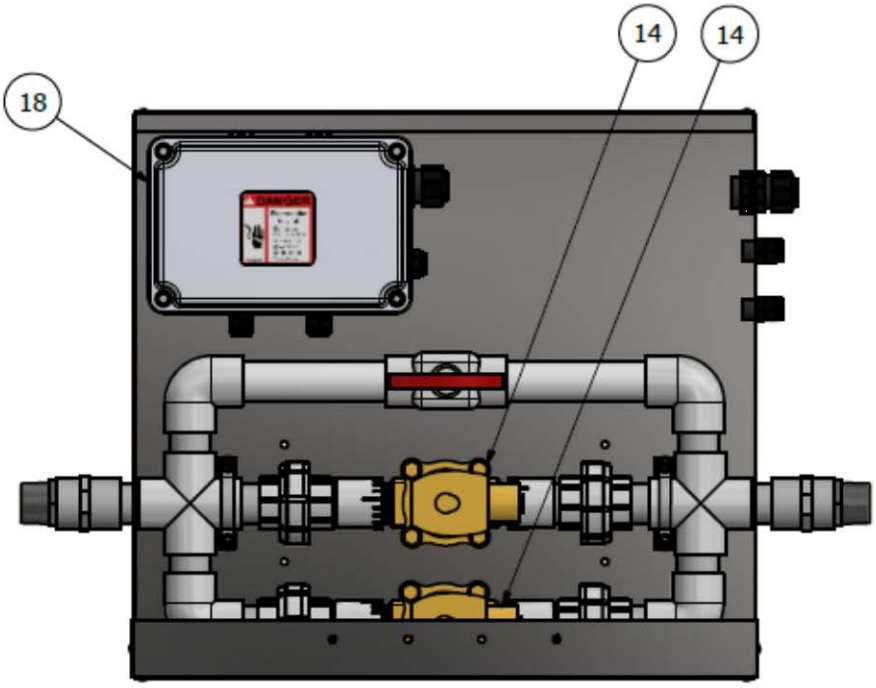

# IN THE EVENT OF A ELECTRICAL FAILURE OR OTHER UNFORESEEN ISSUES THE MANUAL BALL VALVE CAN BE OPEN AS A BYPASS TO ALLOW WATER TO ENTER THE SYSTEM!



# Level Rite (HSCC-1000) Replacement Part List

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| N/S | 1 | HSCC-01-SW | Switch Float Horizontal Mount Dwyer F6 |
| 14 | 2 | HSCC-S12LF | Solenoid 3/4" ASCO Red Hat 12VDC NC Lead Free |
| 18 | 1 | HSCC-3001 | Control Box, Wiring, Level Rite |



# *Pump Wiring Instruction*

## Wire Connection:

**Again, make sure that power is disconnected from system prior to servicing**.

This Power Unit is supplied prewired for 230 volt operation with the proper rotation direction for correct motor rotation. If 115 volt operation is required, please see wiring instruction on Motor Data Label for converting to 115 volt operation.

Black wire should be connected to L1(M1) and White wire should connect to L2(M2). Green should be connected to Ground (See Figure 37)

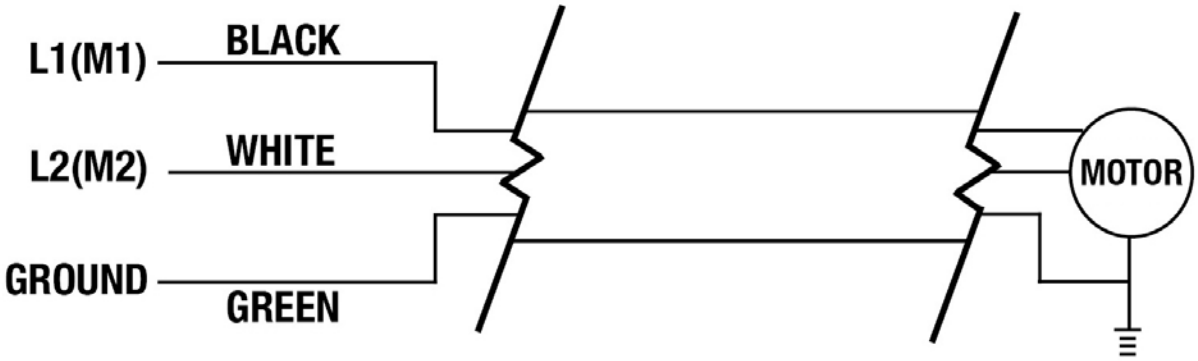



**Figure 37**

**WARNING**

**ELECTRICAL SHOCK HAZARD!**

- Motor replacement and the associated wiring changes should only be made by qualified and properly trained individuals.
- Failure to follow the above warning can cause improper equipment function, premature failure of equipment or electrical shock, leading to property damage or personal injury.

# *Operation Instructions*

**New System Operation / Annual Start Up**

Several inspections and procedures should take place/be completed for newly installed system.
(This process is also applicable for annual start up.

1. Before addition of water, remove any debris from the trough. This debris consists of but is not limited to PVC shavings, loose fasteners, trash, and leaves.
   - The trough should be kept clear of debris constantly.
2. Tighten Trough Plug and Fill trough with water.
   - Inspect Trough and Bulk Head connections for any leakage.
   - If there is any leakage, drain the Trough and correct joint where leakage was observed.
3. Ensure the strainer basket attached to the pump is full of water.
   - **FOR SUMP MAKE SURE TANK IS FULL BEFORE OPERATION**
   - Although the pump is self priming, it is highly recommended to fill the strainer basket with water.
4. Turn on the pump.
5. Adjust the flow of water through the spray bar by adjusting the PVC Ball Valve oriented vertically on the feed pipe for the Spray Bar.
   - A correctly adjusted system should provide an even coating of water across the front of the pad without excess water evacuating the system from the pads.
   - This adjustment should be done with facility operating at full tunnel as tunnel fans pull water into the pad and reduce the amount of water across the face of the pad.

**SEE MANUAL HSMANUAL-149 FOR H2 PAD MAINTENANCE INSTRUCTIONS (INCLUDED)**

**Winterizing the System**

1. Remove Trough plug from the trough and allow all water to exit the Trough.
   - During this process make sure all Ball Valves are completely open to evacuate the plumbing.
2. Remove plug for the strainer basket on the pump and allow all water to exit the pump.

IT IS HIGHLY RECOMMEND THAT THE PUMP BE UNHOOKED AND REMOVED FROM THE SYSTEM COMPLETLEY TO MINIMIZE DAMAGE TO THE PUMP AND OR THE SYSTEM DURING THE WINTER!

   - For sump system evacuate the tank of water.
   - During this process make sure all Ball Valves are completely open to evacuate the plumbing.
3. Replace all plugs and close all ball valves to eliminate any objects from entering the system.

**Normal Operation**

1. Please refer to Controller Manual for daily operation programming.
2. Ensure water levels are accurate and that the system is not over filled.
   - The water level should be roughly 1” below the pads for correct operation.
3. The pads should be allowed to completely dry daily.
4. The system should shut down 30 minutes before the tunnel fans in order for pads to completely dry

**Issues**

- **IF ADDITIONAL ISSUES ARISE, PLEASE REFER TO EVAPORATIVE COOLING CHECK LIST**

# *Emergency Operation*

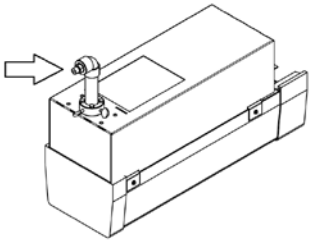
- In the event it is discovered that a pump is not operational or supplying water to the system, the H2 Evaporative system is equipped with an Emergency Operation override.

**Before taking any measures please follow steps below:**

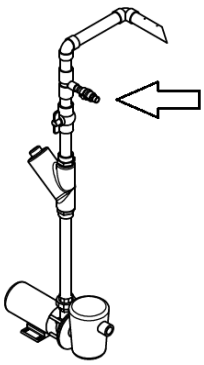
1. Ensure system has and is receiving water.
2. Ensure pump is receiving power (and Strainer Basket is not clogged for jet systems)
3. Ensure Filter is not clogged and preventing water from passing.

If the above steps have been completed and it is determined that there is a problem with the recirculation of water from the trough to the spray bar (pump, filter, cracked line, etc…) then follow below procedure to operate the system in emergency state.

1. Disconnect the incoming water line for the brass fitting on the float tank



2. Attach incoming water line to brass fitting on feed pipe (Extra hose may be required)



3. Close 1 ½" Ball Valve above filter and turn on water supply from the hose.
4. The length of the system determines the amount of water that will be distributed to the Evaporative Media.

**! THIS IS NOT A PERMANENT SOLUTION AND SHOULD ONLY BE USED WHILE A PERMANENT SOLUTION IN BEING IMPLEMENTED!**

# *Pad Retainer Installation*

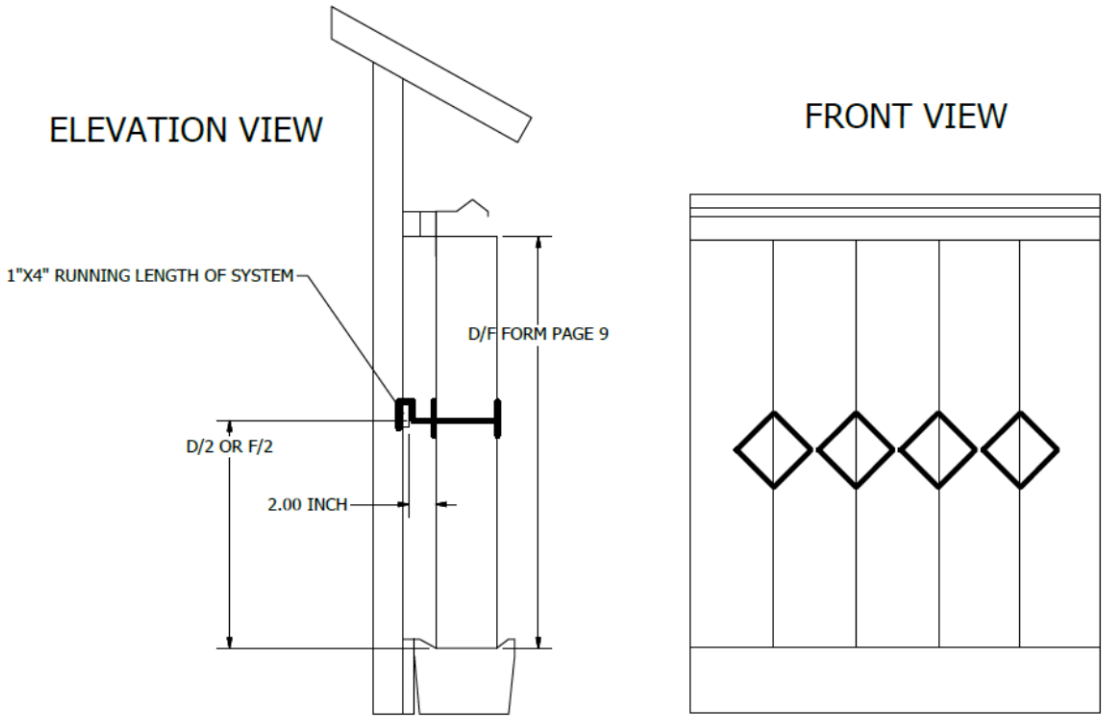
Pad retainers (HS756) Are recommend for any pads exceeding 5 feet in height. Pad retainers are sold individually (HS756) or in boxes of 20 (HS756-BX20)

Pad retainers may be used on any height of pad.

Pad retainers add additional rigidity to the center of pads to help maintain straightness over time.

To install pad retainers run 1”x4” lumber for length of system. Pad retainers should be installed to support pads at their midpoint.

See Figure Below.



# REPLACEMENT PARTS LIST

| Part Number | Description |
|---|---|
| LS150-12 | Strainer Filter Y 1-1/2” 12 Mesh |
| HS612 | Knob 3 Arm 1/4-20 X 1/2" Female Brass Insert |
| HSES-01 | Trough End Cap Flush |
| HSES-02 | Trough End Cap Nipple |
| HSES-03 | Trough Coupler |
| HSES-04 | Evap Trough 10' |
| HSES-05 | Evap Trough 5’ |
| HSES-06 | Evap Trough Cover 10' |
| HSES-07 | Evap Trough Cover 5’ |
| HSES-09 | Spray Bar 10' |
| HSES-11 | Spray Bar 5’ |
| HSES-12 | Pick Up Pipe |
| HSES-13 | Trough Extension |
| HSES-14 | End Panel 2' Aluminum Open Top |
| HSES-15 | End Panel 3' Aluminum Open Top |
| HSES-16 | End Panel 4' Aluminum Open Top |
| HSES-17 | End Panel 5' Aluminum Open Top |
| HSES-18 | End Panel 6' Aluminum Open Top |
| HSES-19 | Spray Bar Support |
| HSES-20 | Top Support 10' Aluminum |
| HSES-21 | Top Support 5' Aluminum |
| HSES-22 | Spray Bar Deflector 10' Aluminum |
| HSES-23 | Spray Bar Deflector 5' Aluminum |
| HSES-24 | Spray Bar Deflection Splice Aluminum |
| HSES-25 | Pad Retainer 10' Aluminum |
| HSES-26 | Pad Retainer 5' Aluminum |
| HSES-27 | Bracket Trough Support |
| 8490180700 | 12” Offset Trough Support Bracket |
| HSES-28 | Pump Mounting Plate |
| HSES-29 | Pump Mounting Side Panel |
| HSES-30 | Float Valve Cover |
| HSES-31 | Float Valve Access Hatch |
| HSES-32 | Pad Retainer Clip Aluminum |
| HSES-33 | 4" Mech Plug |
| HSES-34 | Adhesive For Cool Cell |
| HSES-35 | PVC Collar |
| HSES-36 | Tank Adapter |
| HSES-39 | Hose 4" Flexible Black Grower Select Per Foot |
| HSES-40 | Tank Sump Grower Select Cool Cell System |
| HSES-41 | Cap Sump Tank 13" Grower Select |
| HSES-45 | Assembly Tank Adaptor 3.5" Threads |
| KPF06 | Kerick Float |
| KPT75SS | Kerick Valve |
| KSR08 | Kerick Shaft |
| S1520-15F | Valve PVC Check 1-1/2" Threaded |
| 620-072 | Clamp Hose Ss 3" To 5" |

# Evaporative Cooling Pad Issue Checklist

***Before contacting a Hog Slat representative, please obtain checklist information***

**1. Check pad orientation and manufacturing logos.**
Ensure pads are H2 pads and they have a valid date code printed.
If applicable edge guard should be facing away from the house
Steeper flutes should also be facing away from the house
Most modern pads have an orientation logo on the side for reference

| 1. |
|---|

**2. Is there evidence of proper pad maintenance?**
Check for scale, mineral, or debris buildup on inner and outer faces of pad
Properly maintained pads will be clear of debris and allow air to pass freely
Pads should be cleaned regularly, seasonally for most pads.

| 2. |
|---|

**3. What is the condition of the system and contents?**
Check for clogged filters, strainer baskets, and header pipes
Check contamination and algae buildup in the trough and water reservoir
Properly maintained systems will be mostly clean with little or no build up.

| 3. |
|---|

**4. Is the system being routinely flushed?**
Check to see if the system is flushed on a regular schedule.
At a minimum the system including reservoir should be completely flushed monthly. Routine flushing of the system helps to clean the pads and eliminate minerals and scale build up from normal operation.

| 4. |
|---|

**5. What is the water level of the system?**
Check the water level of the system
Ensure there is no standing water around the base of the pads
A proper system will have a water level roughly 1” below the pads

| 5. |
|---|

**6. What is the pH and water quality of the system?**
Using disposable pH strips check the pH of the system.
A correct system pH is between 6 and 8.
If the pH is found to be out of range check the pH of the water supply.
Visually inspect the water in the system.
Properly maintained system water should be clear or slightly cloudy.

| 6. |
|---|

**7. Have any chemicals been added to the system.**
Check to see if any chemicals have been used for cleaning or algae control.
If chemicals have been used make sure they are approved.
Make sure no foreign substances have been introduced to the system.
Foreign substances include: Roundup, Bleach, Degreasers

| 7. |
|---|

**8. Are the pads being allowed to dry?**
Check on operation schedule of system
If possible pads should be allowed to dry completely at least once daily
Running the fans for 30 minutes longer than cool cell system aids in drying

| 8. |
|---|

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# Hog Slat Limited Warranty

Hog Slat warrants products to be free from defects in material or workmanship for a period of twenty-four (24) months from the date of **original purchase**. Hog Slat will credit, repair, or replace, at its option any product deemed defective within this time period. Labor costs associated with the replacement or repair of the product are not covered by the Seller/Manufacturer.

## Warranty Extension Coverage

The Limited Warranty period is extended for the following products:

| | |
|---|---|
| Cool Cell System | 5 Years (Less Pads and Pumps) |

## Warranty Exceptions Coverage

The Limited Warranty period for the following products is:

| | |
|---|---|
| Cool Cell Pads | 1 Year From Date of Purchase |
| Cool Cell Jet and Sump Pumps | 1 Year From Date of Purchase |

## Conditions and Limitations

1. The product must be installed by and operated in accordance with the instructions published by the **Seller/Manufacturer or Warranty will be void**.
2. Warranty is void if **all components** are not original equipment supplied by the **Seller/Manufacturer**.
3. This product must be purchased from and installed by an authorized retailer/distributor or certified representative thereof or the Warranty will be void.
4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under the Warranty.
5. This Warranty applies only to components/systems for the care of poultry and livestock. Other applications in industry or commerce are not covered by this Warranty.
6. This Warranty applies only to the Original Purchaser of the product.

The **Seller/Manufacturer** shall not be liable for any **Consequential or Special Damage** which any purchaser may suffer or claim to suffer as a result of any defect in the product. **"Consequential"** or **"Special Damages"** *as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.*
THIS WARRANTY CONSTITUTES THE SELLER/MANUFACTURER'S ENTIRE AND SOLE WARRANTY AND THIS MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD AND DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

Hog Slat Retailers/Distributors are not authorized to modify or extend the terms and conditions of this Warranty in any manner or to offer or grant any other warranties for Hog Slat products in addition to those terms expressly stated above. An officer of Hog Slat must authorize any exceptions to this Warranty in writing. The Seller/Manufacturer reserves the right to change models and specifications at any time without notice or obligation to improve previous models.

**This equipment must be installed in accordance with all State and Local Codes and applicable Regulations which should be followed in all cases. Authorities having jurisdiction should be consulted before installations are made.**

**Hog Slat, Inc.**
**PO Box 300**
**Newton Grove, NC 28366**

**Phone: (910) 594-0219**
**Fax: (910) 594-1392**

**www.hogslat.com**



**Part Number: HSMANUAL-019 Rev A15**
**Market - Hog & Poultry**
**Product Group: Grower Select**

**Rev A13 – Level Rite Added**
**Rev A14 – Added HSES-06C**
**Rev A15 – Added Warranty Exceptions**

# HSES Manual de Instalación del Sistema de Enfriamiento Evaporativo


## Información de la instalación

# Contenidos

# GrowerSELECT Sistema de enfriamiento evaporativo

## Notas generales de instalación:

Asegúrese de que la energía esté desconectada del sistema antes de realizar el mantenimiento.

La instalación de este equipo y del equipo relacionado del *FOE debe cumplir estas instrucciones, las instrucciones de instalación del FOE y los códigos locales (si corresponde). El incumplimiento de las instrucciones especificadas puede causar daños al equipo y daños personales o la muerte.

Preste especial atención a las calcomanías de seguridad o advertencias en el equipo y en los manuales.

Siempre use ropa de protección y cualquier equipo de protección personal aplicable (gafas de seguridad o tapones para los oídos) cuando trabaje con el equipo.

Los materiales, equipos y cajas desechados deben reciclarse en conformidad con los códigos locales y nacionales.

A menos que se especifique lo contrario, todos los sistemas de entrega de alimento (diámetros) se instalan de manera similar.

## Instrucciones de seguridad:

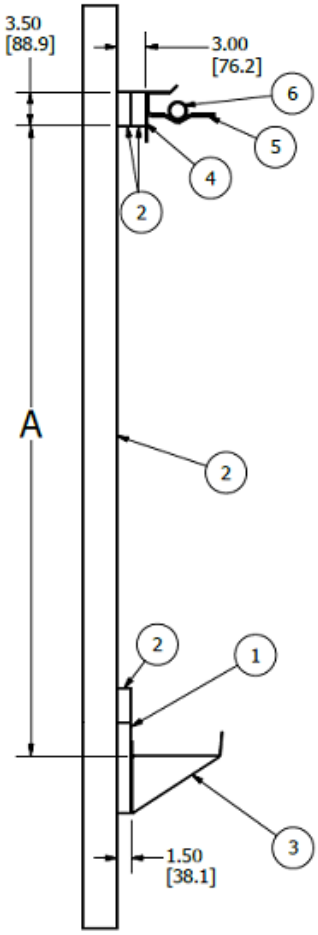
Lea todos los mensajes de seguridad en este manual y en las calcomanías de seguridad del equipo. Cumpla las precauciones recomendadas y las prácticas de operación segura.

Conecte a tierra todos los equipos eléctricos por seguridad.
Conecte a tierra todas las piezas metálicas no conductoras para evitar descargas eléctricas.

Mantenga siempre las calcomanías de seguridad en buenas condiciones y reemplace las calcomanías dañadas o faltantes.

# *Instrucciones de enmarcado*

**Figura 1**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | 844140 | Lumber 2" X 10" X 12' |
| 2 | 844090 | Lumber 2" X 4" X 8' |
| 3 | HSES-27 | TROUGH SUPPORT BRACKET |
| 4 | HSES-20 | TOP SUPPORT 10' ALUMINUM |
| 5 | HSES-19 | SPRAYBAR SUPPORT |
| 6 | HSES-09 | SPRAY BAR 10' |

| A | |
|---|---|
| Pad Height | Dimension |
| 2' | 30.0" |
| 3' | 42.0" |
| 4' | 54.0" |
| 5' | 66.0" |
| 6' | 78.0" |

**EL FLUJO DE AIRE DEBE PASAR A TRAVÉS DEL SISTEMA EN LA DIRECCIÓN DE LA FLECHA. DE LO CONTRARIO, SE PUEDEN EXPERIMENTAR PROBLEMAS DURANTE LA INSTALACIÓN Y LA OPERACIÓN**

## LA ALTURA REAL DE LA ALMOHADILLA DE ENFRIAMIENTO EVAPORATIVA PUEDE VARIAR LIGERAMENTE, POR LO TANTO LA ALTURA ADECUADA DEL SISTEMA DEBE VERIFICARSE UTILIZANDO LAS ALMOHADILLAS QUE SE INSTALARÁN

***(MADERA NO INCLUIDA)***

La **Figura 1** de arriba muestra las dimensiones de una instalación típica para un sistema montado en pared. La Tabla A brinda las dimensiones adecuadas para las alturas de almohadilla variables.

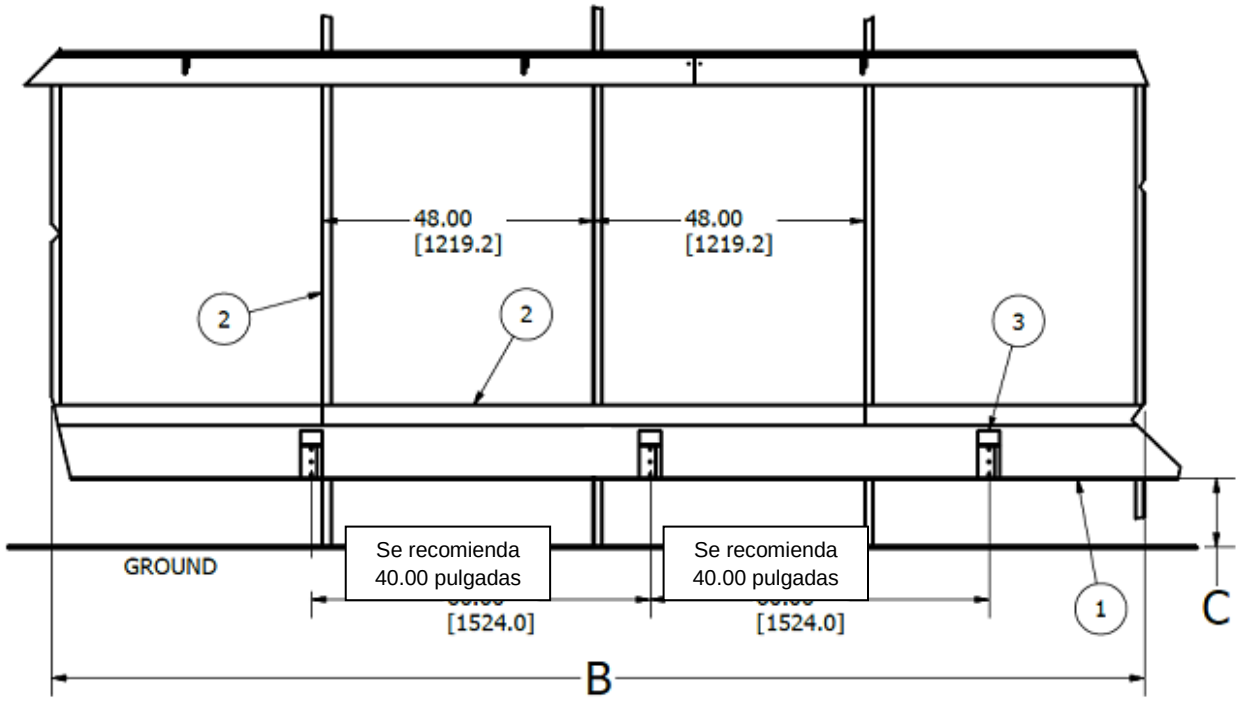
- ***Tenga en cuenta que en la instalación en concreto, las tablas de base de 2"X10" y 2"X4" deben reemplazarse con una sola tabla de base de 2"X8" .***

**Figura 2**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | 844140 | Lumber 2" X 10" X 12' |
| 2 | 844090 | Lumber 2" X 4" X 8' |
| 3 | HSES-27 | TROUGH SUPPORT BRACKET |

| B | |
|---|---|
| Drain/Feed | Dimension |
| Center | System Length |
| End | System Length |

| C | |
|---|---|
| Mount Style | Dimension |
| Brackets | 6" Minimum |
| Concrete | 0 |




La Figura 2 de arriba muestra el espaciado típico para montantes de 2"X4" durante el enmarcado junto con el espaciado típico para los soportes del canal (si corresponde). La Tabla B y la Tabla C brindan el requisito de abertura enmarcada total y la distancia mínima desde el suelo hasta la base del soporte del canal respectivamente.

- Comenzando en el extremo del sistema opuesto a la bomba, el primer soporte debería estar ubicado para sostener la tapa del extremo con la extrusión. El segundo debería estar ubicado sosteniendo el canal en el punto medio entre la tapa del extremo y el acoplador. El tercero debería estar ubicado sosteniendo el acoplador del canal. Este proceso debería repetirse a lo largo del sistema.

***(ASEGÚRESE DE QUE TODAS LAS CONEXIONES ESTÉN SOSTENIDAS CON SOPORTES DE MONTAJE. LOS SOPORTES DEBEN TENER UN ESPACIADO NO MAYOR A 5 PIES, EN ALGUNOS CASOS SE DESEARÁ UN ESPACIADO MENOR QUE SE PUEDE LOGRAR PIDIENDO SOPORTES ADICIONALES)***

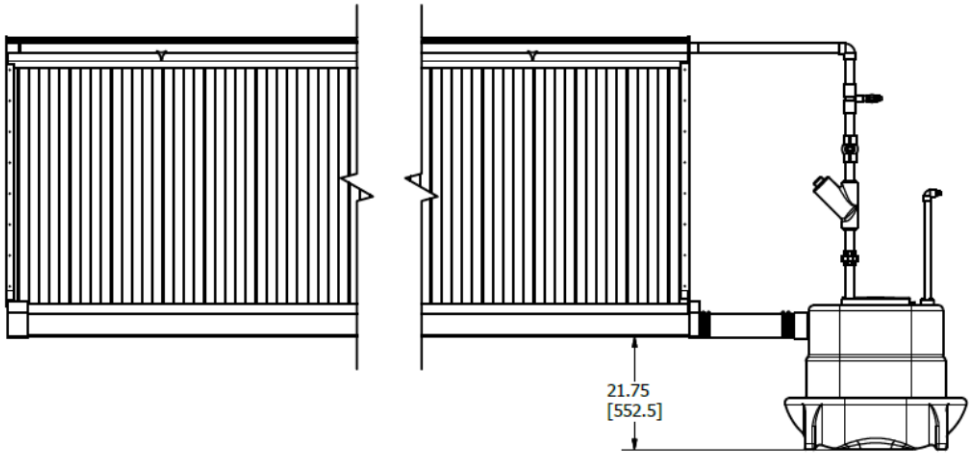
- Si el sistema se monta en pared, los soportes laterales de la placa de la bomba deben instalarse como se muestra en las Figuras 3 y 4. La Figura 3 muestra la configuración de la alimentación en el extremo. La Figura 4 muestra la configuración de la alimentación central.

# *ELEVACIÓN DEL SUMIDERO*

La Figura 3 de abajo muestra el requisito de elevación para la instalación del tanque sumidero. El tanque se puede instalar a nivel o por encima del suelo.

- **INDEPENDIENTEMENTE DE LA INSTALACIÓN DEL TANQUE, LA PARTE INFERIOR DEL TANQUE DEBE ESTAR 21.75" POR DEBAJO DE LA PARTE INFERIOR DEL CANAL.**

**Figura 3**




- Si se prefiere la instalación a nivel, la Figura 4 de abajo muestra el tamaño total del tanque sumidero. Se deberá quitar la tierra para permitir que el tanque se asiente al nivel correcto.

- **LA PROFUNDIDAD DEL TANQUE ESTARÁ DETERMINADA POR LA ELEVACIÓN DEL CANAL**

**Figura 4**

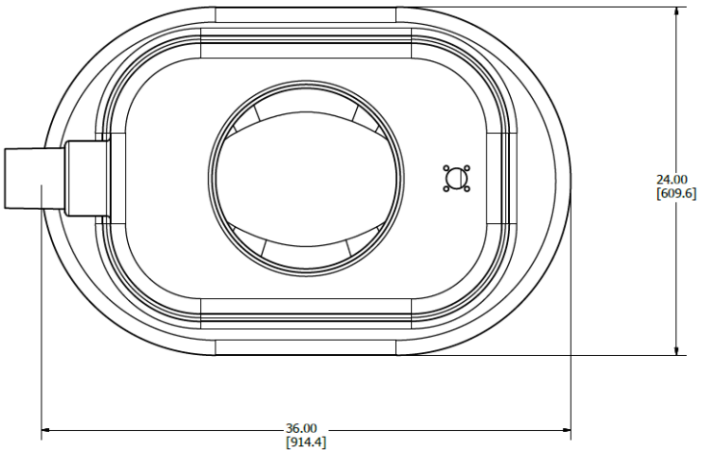


**Figura 5**

## END FEED/DRAIN

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | TBD | 844140 | Lumber 2" X 10" X 12' |
| 2 | TBD | 844090 | Lumber 2" X 4" X 8' |
| 3 | TBD | HSES-27 | TROUGH SUPPORT BRACKET |
| 4 | 2 | HSES-29 | PUMP MOUNTING SIDE PANEL |

| B | |
|---|---|
| Drain/Feed | Dimension |
| End | System Length |

| C | |
|---|---|
| Mount Style | Dimension |
| Brackets | 6" Minimum |
| Concrete | 0 |

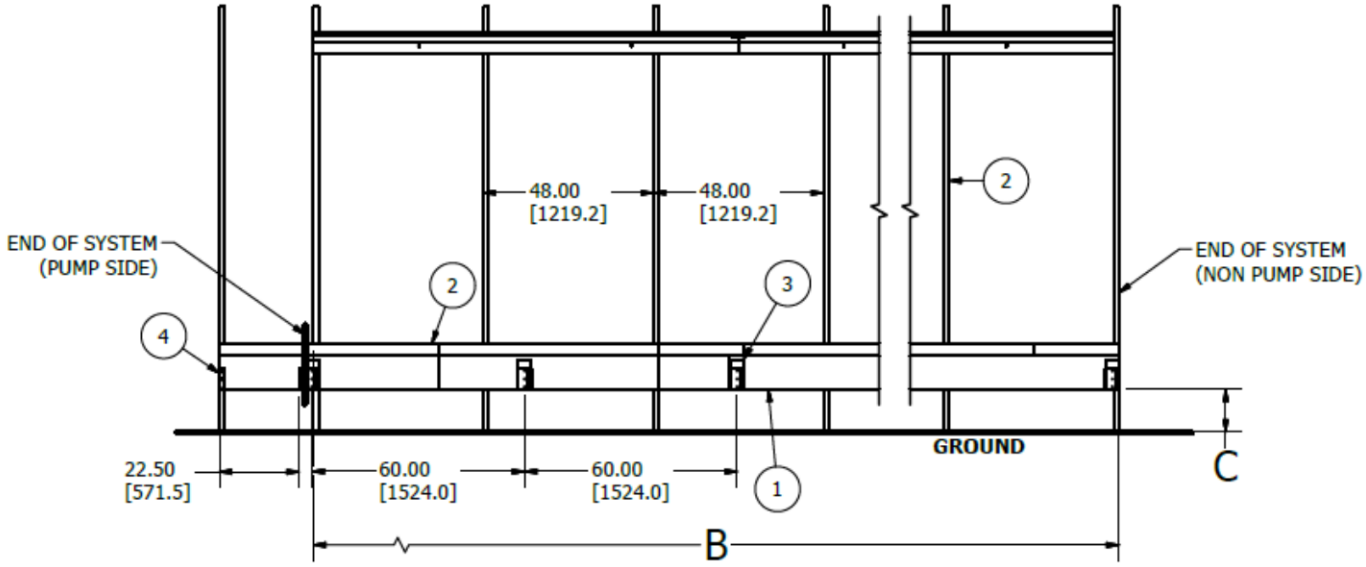


**Figura 6**

## CENTER FEED/DRAIN

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | TBD | 844140 | Lumber 2" X 10" X 12' |
| 2 | TBD | 844090 | Lumber 2" X 4" X 8' |
| 3 | TBD | HSES-27 | TROUGH SUPPORT BRACKET |
| 4 | 2 | HSES-29 | PUMP MOUNTING SIDE PANEL |

| B | |
|---|---|
| Drain/Feed | Dimension |
| Center | System Length |

| C | |
|---|---|
| Mount Style | Dimension |
| Brackets | 6" Minimum |
| Concrete | 0 |

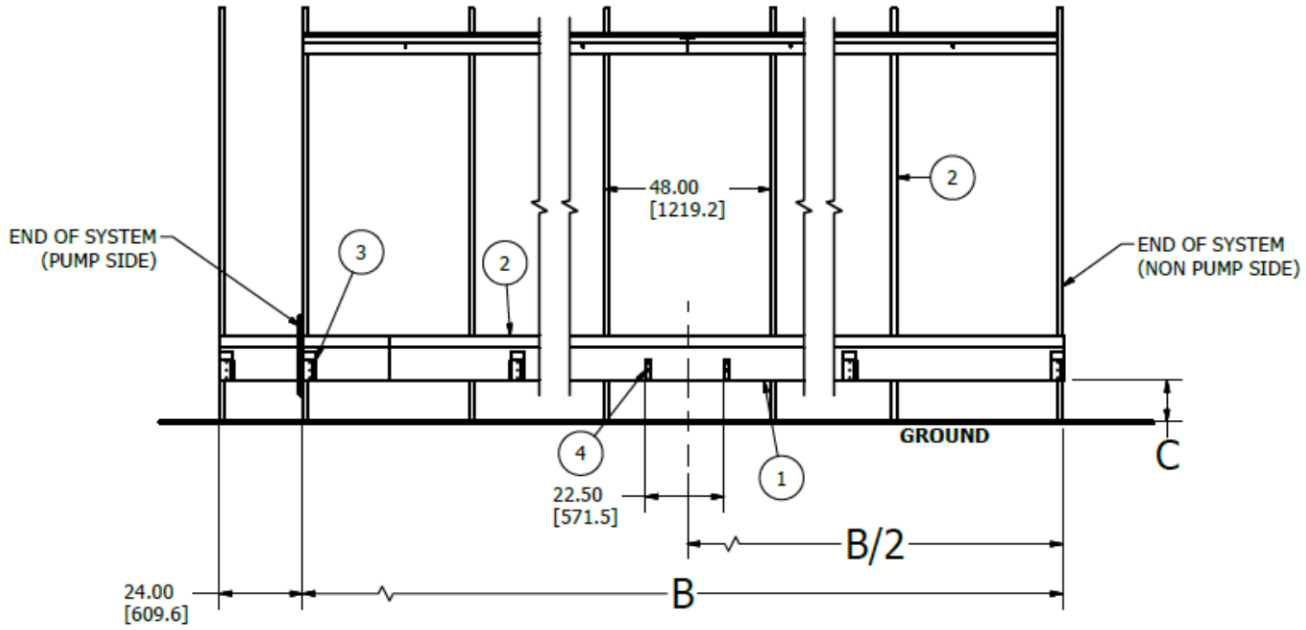
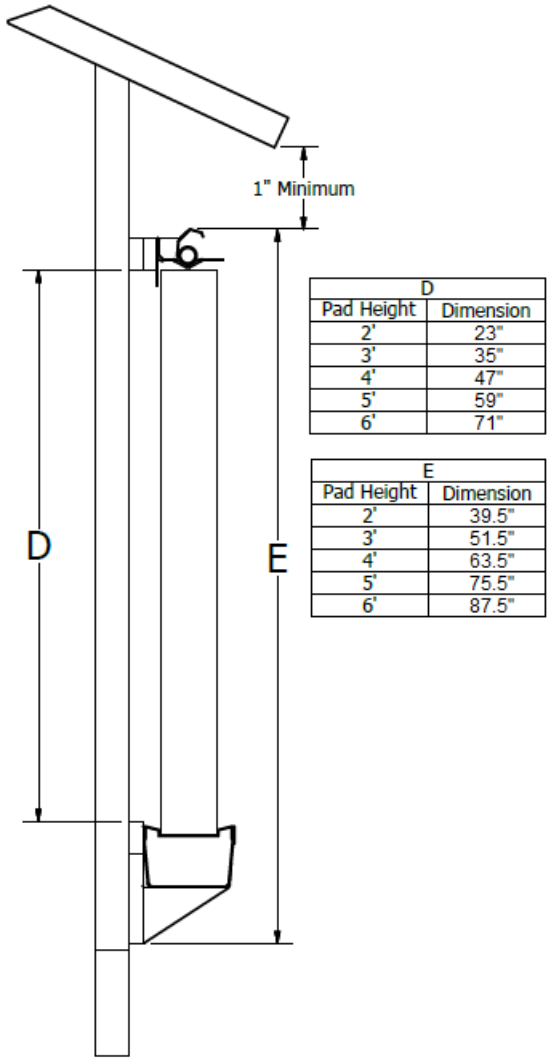


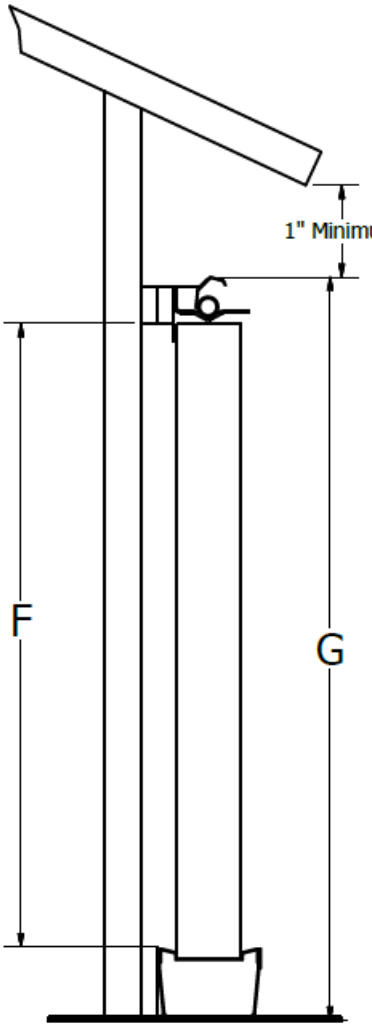
**Figura 7**




| D | |
|---|---|
| Pad Height | Dimension |
| 2' | 23" |
| 3' | 35" |
| 4' | 47" |
| 5' | 59" |
| 6' | 71" |

| E | |
|---|---|
| Pad Height | Dimension |
| 2' | 39.5" |
| 3' | 51.5" |
| 4' | 63.5" |
| 5' | 75.5" |
| 6' | 87.5" |

**Sistema montado**




| F | |
|---|---|
| Pad Height | Dimension |
| 2' | 23" |
| 3' | 35" |
| 4' | 47" |
| 5' | 59" |
| 6' | 71" |

| G | |
|---|---|
| Pad Height | Dimension |
| 2' | 33.5" |
| 3' | 45.5" |
| 4' | 57.5" |
| 5' | 69.5" |
| 6' | 81.5" |

**Sistema de apoyo sobre concreto**

La Figura 7 de arriba muestra la altura requerida de la abertura rústica para sistemas de montaje en pared y sistemas de apoyo sobre concreto. Las tablas D y E brindan la altura requerida de la abertura rústica y la altura del sistema total para los sistemas de montaje en pared. Las tablas F y G brindan la altura requerida de la abertura rústica y la altura del sistema total para los sistemas de apoyo en plataformas de concreto.

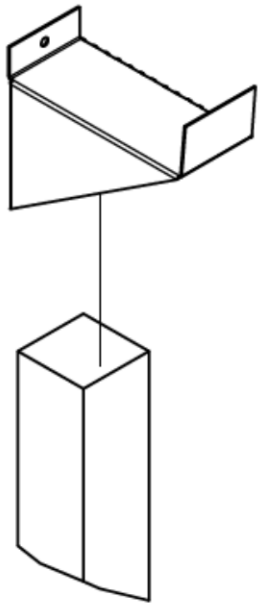
# *SOPORTES DE COMPENSACIÓN*

Algunas aplicaciones del Sistema de enfriamiento H2 requieren que el sistema se instale a una distancia fija de la pared exterior.
En este caso, se pueden instalar postes de madera tratada de 4”X4” en el suelo y nivelarlos con el canal colocado en los soportes. De esta manera, los soportes del canal GrowerSELECT (HSES-27) se pueden instalar sobre postes de 4”X4” tal como se muestra a continuación en la Figura 8. Se necesitará un enmarcado adicional para sellar las aberturas debajo del sistema, a lo largo de los extremos del sistema y a lo largo del ensamblaje superior del sistema.

- **Este método también se puede usar si el enmarcado actual no es apto para la instalación del sistema evaporativo.**

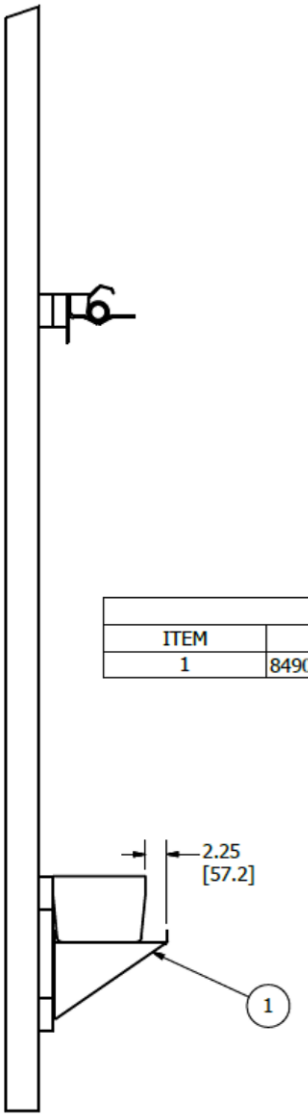
**Figura 8**

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-27 | TROUGH SUPPORT BRACKET |
| 2 | 1 | 4"X4" | 4" X 4" TREATED LUMBER |



## *SOPORTES DE COMPENSACIÓN*

**Figura 9**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | 8490180700 | TROUGH SUPPORT 12" |

Algunas aplicaciones del Sistema de enfriamiento H2 requieren un soporte de compensación de 12” para permitir el movimiento de las cortinas directamente detrás o directamente enfrente del sistema de celda de enfriamiento. La Figura 9 de arriba representa el vacío que se puede generar utilizando los soportes de compensación (8490180700) sobre los soportes estándar (HSES-27).

- **Debido al peso del sistema extendido desde la construcción, se recomienda un espaciado mínimo del soporte central de 4 pies.**
- **Se pueden requerir soportes de madera adicionales por debajo de los 2”X10” recomendados para permitir la longitud extendida de la sección de montaje de los soportes de compensación. En la Figura 6 de arriba se muestra un soporte de 2”X4” instalado debajo del soporte de 2”X10”.**

# *Instrucciones de ensamblaje superior*

5. Instale el soporte superior a ras de las tablas de cabecera tal como se muestra en la Figura 1. Tal como se observa en la Figura 1, debería haber un separador de 2”X4” ubicado detrás del soporte superior. (Tenga en cuenta que este separador debe terminar donde termina el soporte superior). En este momento, el soporte superior debe ajustarse a la barra de cabecera con dos tornillos (**80509**) en los extremos lejanos. Este proceso debería repetirse a lo largo del sistema.

6. El soporte de la barra rociadora debe ajustarse al soporte superior con dos tornillos (**80509**) y dos arandelas (**605791**) tal como se muestra en la Figura 10 de abajo. Este proceso debería repetirse a lo largo del sistema.

7. El desviador de rocío debe ajustarse al soporte superior con dos tornillos autorroscantes para chapa (**60926**) tal como se muestra en la Figura 11 de abajo. El desviador de rocío debe ajustarse al soporte superior usando los orificios del medio así como a los dos extremos donde se ubican los paneles del extremo.

8. El empalme del desviador debe ajustarse al desviador de rocío en cualquier lugar donde se unan los dos deflectores de rocío con los tornillos para chapa (**60926**) tal como se muestra en la Figura 12 de abajo. Este proceso debería repetirse a lo largo del sistema.

**Figura 10**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-20 | TOP SUPPORT 10' ALUMINUM |
| 3 | 80509 | Screw SS 10 X 1 1/2" |
| 4 | 605791 | Washer Fender SS 1/4" X 1" |
| 2 | HSES-19 | SPRAYBAR SUPPORT |

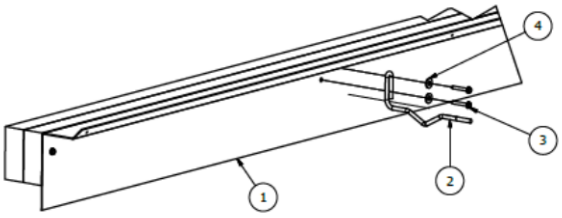
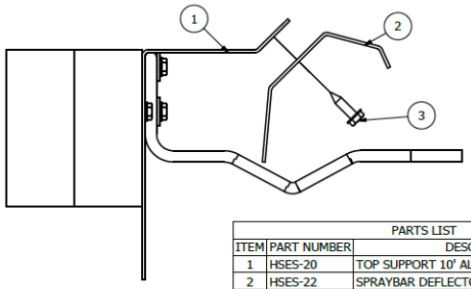


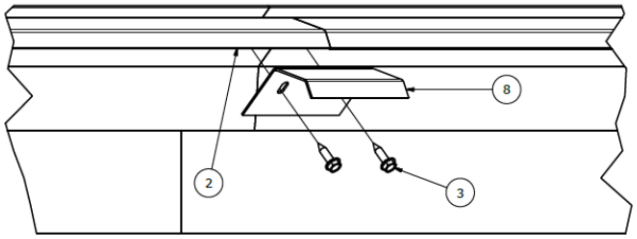

**Figura 11**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-20 | TOP SUPPORT 10' ALUMINUM |
| 2 | HSES-22 | SPRAYBAR DEFLECTOR 10' ALUMINUM |
| 3 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |

**Figura 12**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-22 | SPRAY BAR DEFLECTOR 10' ALUMINUM |
| 2 | HSES-24 | SPRAYBAR DEFLECTION SPLICE ALUMINUM |
| 3 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |



# BOMBA DE CHORRO EN LÍNEA

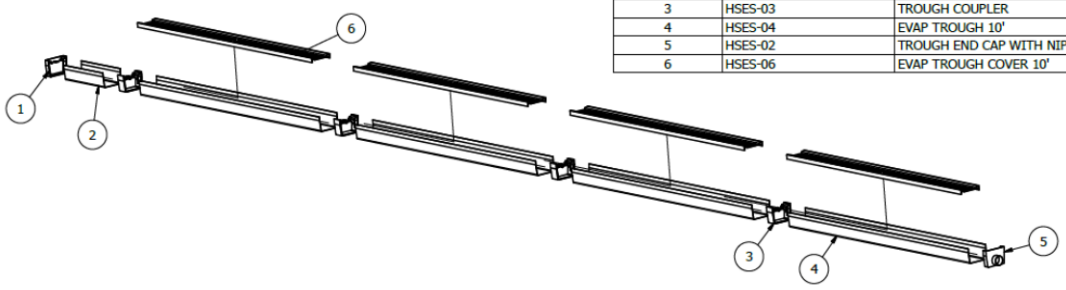
## *Instrucciones de ensamblaje del canal*

- ***TODO ENSAMBLAJE DE CANAL DEBE REALIZARSE EN EL LUGAR DE APOYO FINAL (EN SOPORTES O EN CONCRETO)***
- ***ASEGÚRESE DE QUE EL CEMENTO DE PVC NO SE ACUMULE EN LAS ESQUINAS DE LOS ACOPLADORES Y EL PEGAMENTO NO SE CALIENTE ANTES DE LA APLICACIÓN, DE LO CONTRARIO SE PUEDE PROVOCAR UNA DEFORMACIÓN EN EL CANAL.***

1. Comience en el extremo del sistema orientado lejos de la bomba/caja de alojamiento del flotador y coloque un tramo de 10 pies de canal sobre los soportes del canal o la plataforma de concreto.
2. Usando un limpiador de PVC, limpie la primera y las últimas 3” del canal por dentro y por fuera.
3. Usando el cemento de PVC proporcionado, llene la canaleta del canal de la boquilla de la tapa del extremo del canal con el compuesto de PVC y deslícelo en el canal.
4. Utilizando el mismo proceso y cemento de PVC, repita la operación en un empalme del canal y deslícelo en el extremo opuesto de la sección de 10’ del canal.
5. Usando los métodos anteriores, repita la limpieza y aplicación de cemento de PVC a los tramos del canal y los empalmes del canal a lo largo del sistema.
6. Una vez que el tramo final de 10’ (o 5’) del canal se haya instalado, llene las canaletas a ambos lados del empalme final del canal y deslice sobre el extremo del canal.
7. Siguiendo las instrucciones anteriores, introduzca la extensión del canal que trae el juego de plomería en el empalme final del canal.
8. Llene la canaleta de la tapa del extremo a ras con cemento de PVC y luego deslícelo sobre la extensión del canal cerrándolo.
9. Finalmente coloque todas las cubiertas del canal a lo largo del mismo e instale tapones mecánicos de 4” (**HSES-33**) en la tapa del extremo con boquilla.
    - La Figura 13 de abajo representa un ensamblaje de canal típico de 40’ con extensión de tanque de flotador.

**Figura 13**

| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-01 | TROUGH END CAP FLUSH |
| 2 | HSES-13 | TROUGH EXTENSION |
| 3 | HSES-03 | TROUGH COUPLER |
| 4 | HSES-04 | EVAP TROUGH 10' |
| 5 | HSES-02 | TROUGH END CAP WITH NIPPLE |
| 6 | HSES-06 | EVAP TROUGH COVER 10' |



# BOMBA SUMERGIBLE

## *Instrucciones de ensamblaje del canal*

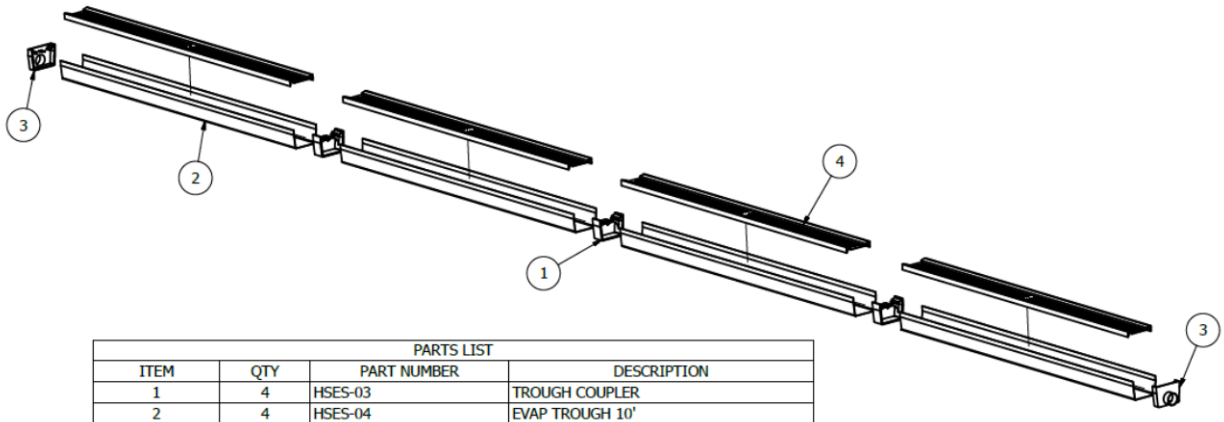
- ***TODO ENSAMBLAJE DE CANAL DEBE REALIZARSE EN EL LUGAR DE APOYO FINAL (EN SOPORTES O EN CONCRETO)***
- ***ASEGÚRESE DE QUE EL CEMENTO DE PVC NO SE ACUMULE EN LAS ESQUINAS DE LOS ACOPLADORES Y EL PEGAMENTO NO SE CALIENTE ANTES DE LA APLICACIÓN, DE LO CONTRARIO SE PUEDE PROVOCAR UNA DEFORMACIÓN DEL CANAL.***

1. Comience en el extremo del sistema orientado lejos de la bomba/tanque y coloque un tramo de 10’ de canal sobre los soportes del canal o la plataforma de concreto.
2. Usando un limpiador de PVC, limpie la primera y las últimas 3” del canal por dentro y por fuera.
3. Usando el cemento de PVC proporcionado, llene la canaleta de la boquilla de la tapa del extremo del canal con el compuesto de PVC y deslícelo en el canal.
4. Utilizando el mismo proceso y cemento de PVC, repita la operación en un empalme del canal y deslícelo en el extremo opuesto de la sección de 10’ del canal.
5. Usando los métodos anteriores, repita la limpieza y aplicación de cemento de PVC a los tramos del canal y los empalmes del canal a lo largo del sistema.
6. Una vez que el tramo final de 10’ (o 5’) del canal se haya instalado, llene la canaleta de la segunda tapa de extremo del canal y fíjelo al canal.
7. Finalmente coloque todas las cubiertas del canal a lo largo del mismo e instale tapones mecánicos de 4” (**HSES-33**) en la tapa del extremo con boquilla en el lado opuesto del tanque.

- **SI SE USA LA APLICACIÓN DE ALIMENTACIÓN CENTRAL, COLOQUE TAPONES MECÁNICOS DE 4” EN AMBAS TAPAS DE EXTREMO**

- La Figura 14 de abajo representa un ensamblaje de canal típico de 40’.

**Figura 14**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | HSES-03 | TROUGH COUPLER |
| 2 | 4 | HSES-04 | EVAP TROUGH 10' |
| 3 | 2 | HSES-02 | TROUGH END CAP WITH NIPPLE |
| 4 | 4 | HSES-06 | EVAP TROUGH COVER 10' |

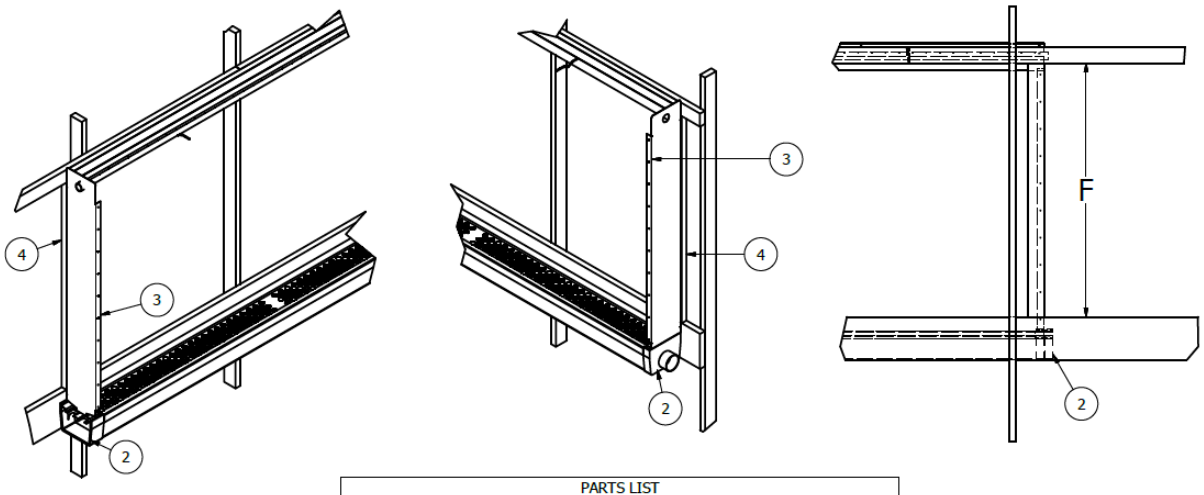
## Importante

El tubo de cemento de PVC proporcionado (Weld·On® 719™) es un **cemento plástico de PVC de fraguado lento extra resistente** y es el único adhesivo que se debe usar para ensamblar los componentes del canal del sistema de enfriado. Es un adhesivo a base de solventes diseñado especialmente para pegar componentes de PVC. El reemplazo de otros adhesivos o selladores de silicona, acrílico, etc. (del tipo que usan los pintores) ocasionarán derrames con el paso del tiempo. No son adhesivos, sino selladores. El cemento proporcionado debería ser suficiente para pegar los componentes, pero si necesitara cemento adicional, puede obtenerlo en cualquier punto de venta de Hog Slat con el número de pieza
HSES-34.

# *Instrucciones de ensamblaje del panel del extremo*

1. Usando los métodos de la sección anterior, introduzca cemento y coloque el empalme final en el extremo del canal, tal como se muestra abajo en la Figura 15.
2. Corte una tapa de 2”X4” a la longitud adecuada de acuerdo a la Tabla F de arriba.
3. Usando los tornillos (**80509**), clave oblicuamente la tapa de 2”x4” en la abertura rústica asegurándose de que quede montada a ras del extremo del canal con boquilla y en el medio del último empalme del canal, tal como se muestra abajo en la Figura 15.
4. Usando los tornillos proporcionados (**80509**), sujete los paneles del extremo a la tapa de 2”X4”, tal como se muestra abajo. Los sujetadores se deberían insertar a través de los orificios en el lateral del panel del extremo.

**Figura 15**




| PARTS LIST | | |
|---|---|---|
| ITEM | PART NUMBER | DESCRIPTION |
| 1 | HSES-02 | Trough End Cap With Nipple |
| 2 | HSES-03 | Trough Coupler |
| 3 | HSES-17 | End Panel 5' Aluminum |
| 4 | 2"X4" Cap | 2"X4" Cut To Dimension F |

# *Instrucciones de ensamblaje de la almohadilla*

**(NOTA: EL MEDIO DE ENFRIAMIENTO EVAPORATIVO DEBE COINCIDIR CON LAS CARACTERÍSTICAS DEL SISTEMA)**

**ANTES DE COMENZAR, ASEGÚRESE DE QUE LAS ALMOHADILLAS ESTÉN ORIENTADAS CORRECTAMENTE. LA REFERENCIA SE PUEDE ENCONTRAR EN EL LADO DE LAS ALMOHADILLAS DE ENFRIAMIENTO.**

1. Comience en cualquier extremo del sistema colocando las almohadillas de enfriamiento evaporativo en el canal de la cubierta del canal contra el panel del extremo.
2. Introduzca la almohadilla de enfriamiento evaporativo en el canal de la cubierta del canal en toda la longitud del sistema, asegurándose de que las almohadillas estén compactadas entre sí.
3. Con aproximadamente 3’ de vacío restante, coloque la almohadilla de enfriamiento evaporativo contra el panel del extremo restante.
4. Siga colocando la almohadilla hasta llenar el vacío. Si es necesario, corte una almohadilla restante para terminar de llenar el vacío.
5. Fije la almohadilla con un sujetador y roscas de triángulo tal como se muestra abajo en la Figura 16. Repita el proceso a lo largo del proceso.
6. Finalmente, deberá instalar los clips del sujetador de la almohadilla en las uniones del sujetador de la almohadilla para asegurarse de que los sujetadores se mantengan en el mismo plano lineal, tal como se muestra abajo en la Figura 17.

**Figura 16**

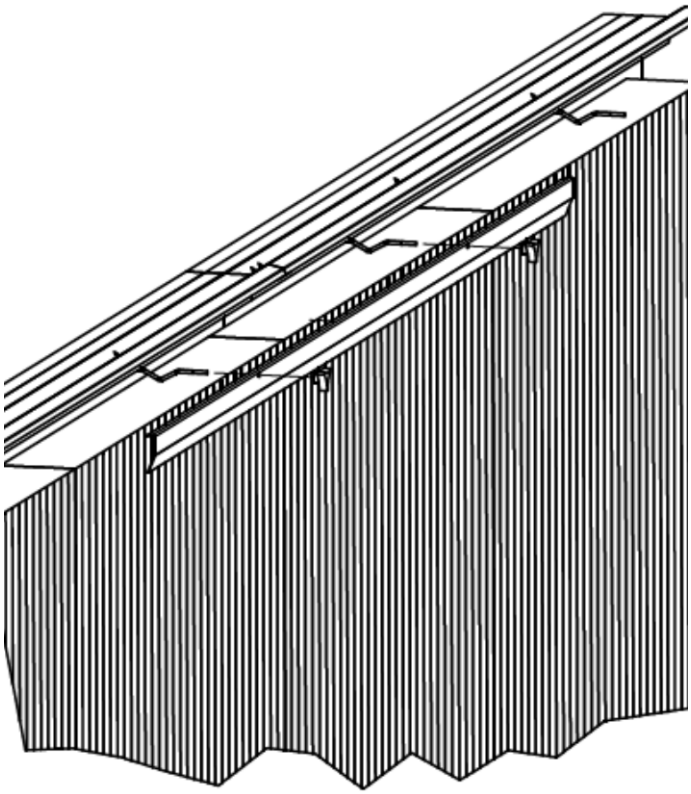
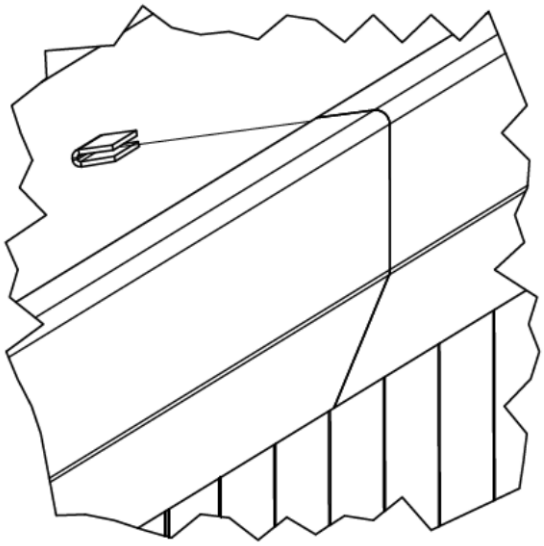


**Figura 17**



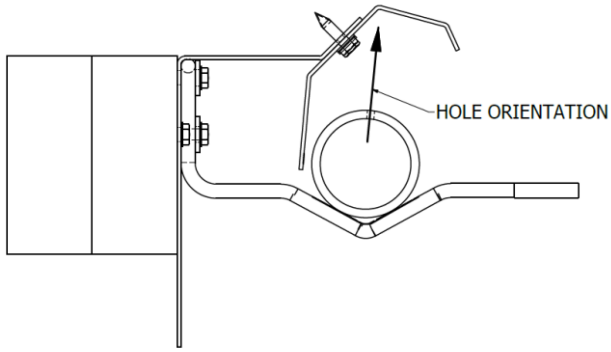
# *Instrucciones de ensamblaje de la barra rociadora*

***ASEGÚRESE DE USAR CINTA DE TEFLÓN EN CUALQUIER LUGAR DONDE HAYA UNA CONEXIÓN ROSCADA***

## *INSTRUCCIONES PARA REALIZAR LA PLOMERIA DE LA BARRA ROCIADORA*

1. Comience el ensamblaje de plomería colocando barras rociadoras en soportes de barras rociadoras a lo largo del sistema.
2. Alinee la barra rociadora de manera que los orificios queden orientados, tal como se muestra abajo en la Figura 18.

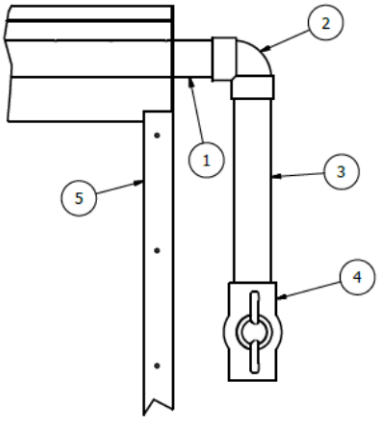
**Figura 18**




3. Usando tornillos autorroscantes (**60926**), ajuste la tubería para eliminar la separación y la rotación.
4. En los extremos de la línea del rociador, instale un ensamblaje de ángulo tal como se muestra abajo en la Figura 19. (Si el sistema tiene bombas dobles este paso se debe saltear).

**Figura 19**

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-09 | SPRAY BAR 10' |
| 2 | 1 | 60052 | Elbow 90* PVC S X S 1 1/2" (SCH 40) |
| 3 | 12.000 in | 603412 | 1 1/2" PVC PIPE (SCH 40) |
| 4 | 1 | 602190 | VALVE BALL PVC COMPACT 1 1/2" (SCH 40) |
| 5 | 1 | HSES-17 | END PANEL 5' ALUMINUM |



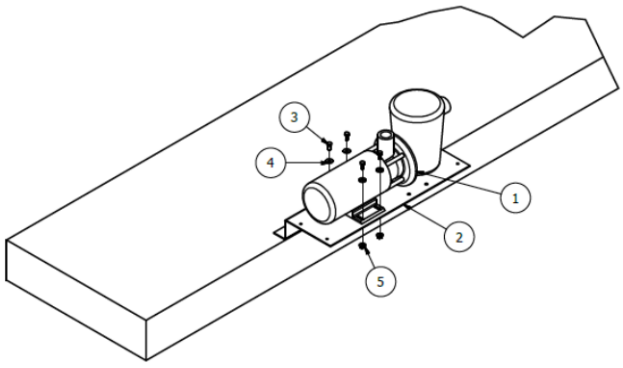
# BOMBA DE CHORRO EN LÍNEA

## *Instrucciones del ensamblaje de la bomba*

1. Comience montando la placa de la bomba a los soportes laterales de la placa de la bomba o anclando la placa de la bomba al concreto. Ambos métodos se muestran abajo, en las Figuras 20 y 21.
2. Coloque la bomba sobre la placa, de modo que la toma quede orientada hacia el sistema.
3. Utilizando los pernos (**605082**), las arandelas de fijación (**60589**) y las tuercas (**60624**) que se proporcionan, fije la bomba a la placa.

**Figura 20**

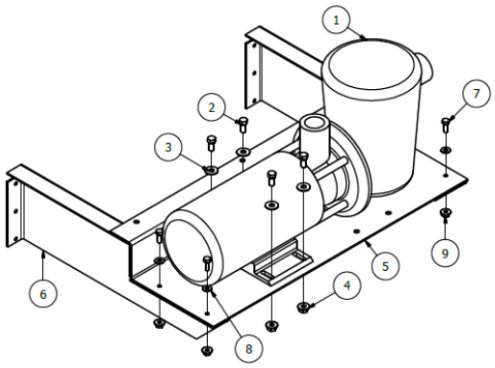
**CONCRETE MOUNTED**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XX | JET PUMP |
| 2 | 1 | HSES-28 | PUMP MOUNTING PLATE |
| 3 | 4 | 605082 | Bolt Ss 5/16" X 3/4" |
| 4 | 4 | 60589 | Washer Lock Ss 5/16" |
| 5 | 4 | 60624 | Nut Serrated Flange 5/16-18 Yellow Zinc Gr.2 |

**Figura 21**

**BRACKET MOUNTED**



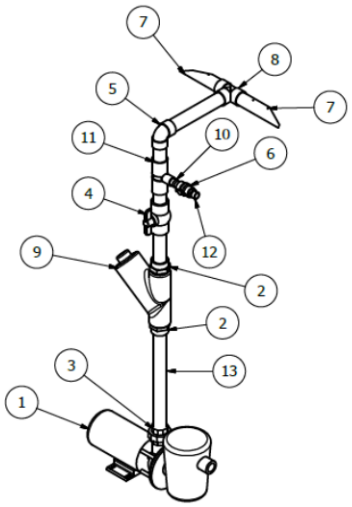

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XX | JET PUMP |
| 2 | 4 | 605082 | Bolt Ss 5/16" X 3/4" |
| 3 | 4 | 60589 | Washer Lock Ss 5/16" |
| 4 | 4 | 60624 | Nut Serrated Flange 5/16-18 Yellow Zinc Gr.2 |
| 5 | 1 | HSES-28 | PUMP MOUNTING PLATE |
| 6 | 2 | HSES-29 | PUMP MOUNTING SIDE PANEL |
| 7 | 4 | 60601 | Bolt Ss 1/4" X 3/4" |
| 8 | 4 | 60579 | Washer Flat Ss 1/4" |
| 9 | 4 | 60577 | Nut Serrated Flange 1/4-20 Zinc |

# BOMBA DE CHORRO EN LÍNEA

## Instrucciones de cañerías de salida

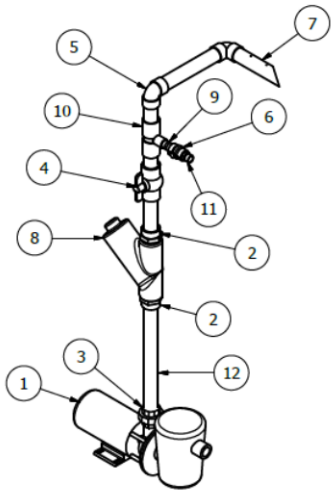
1. Comenzando con la salida de la bomba, instale los componentes tal como se muestra abajo en las Figuras 22 y 23, usando el limpiador de tuberías de PVC y el cemento de PVC proporcionado con el juego de plomería. Abajo se muestran las disposiciones de alimentación central y en el extremo.

**Figura 22**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XXXJ | Pump 3/4 HP Jet H2 Evap System Grower Select |
| 2 | 2 | 60057 | Adapter Pvc Male 1 1/2" (SCH 40) |
| 3 | 1 | H2P-004 | Union Pump 2" X 1-1/2" S O-Ring & Gasket |
| 4 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 5 | 1 | 60052 | Elbow 90* PVC S X S X 1 1/2" SCH 40 |
| 6 | 1 | 6021602 | Valve Ball PVC 3/4" Female Threaded |
| 7 | 2 | HSES-09 | SPRAY BAR 10' |
| 8 | 1 | 600510 | Tee S X S X S 1 1/2" SCH 40 |
| 9 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 10 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 11 | 1 | 603750 | Tee Reducing 1-1/2" S X 1-1/2" S X 3/4" FPT PVC (SCH 40) |
| 12 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 13 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |

**Figura 23**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XXXJ | Pump 3/4 HP Jet H2 Evap System Grower Select |
| 2 | 2 | 60057 | Adapter Pvc Male 1 1/2" (SCH 40) |
| 3 | 1 | H2P-004 | Union Pump 2" X 1-1/2" S O-Ring & Gasket |
| 4 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 5 | 2 | 60052 | Elbow 90* PVC S X S X 1 1/2" SCH 40 |
| 6 | 1 | 6021602 | Valve Ball PVC 3/4" Female Threaded |
| 7 | 2 | HSES-09 | SPRAY BAR 10' |
| 8 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 9 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 10 | 1 | 603750 | Tee Reducing 1-1/2" S X 1-1/2" S X 3/4" FPT PVC (SCH 40) |
| 11 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 12 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |

**Considere lo siguiente:** La instalación de la bomba de 115 voltios puede requerir una variación en la instalación.

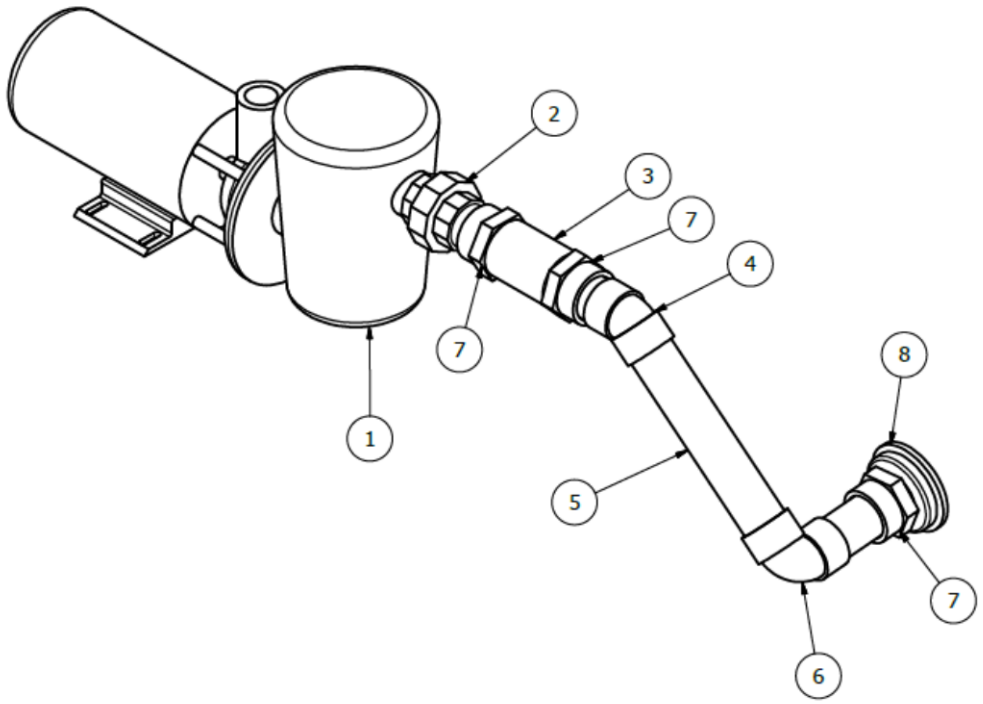
- En las instalaciones de bomba de 115 voltios, la unión de bomba de 2 pulg. (H2P-004) se reemplaza con una unión de bomba de 1 ½ pulg. (H2P-003).
- Los componentes necesarios se incluyen en los juegos de bomba correspondientes.

# BOMBA DE CHORRO EN LÍNEA

## *Instrucciones de cañerías de entrada*

1. Comience marcando el punto central del orificio de entrada a 1.75 pulg. desde la parte inferior del canal y **no menos que** 18 pulg. desde el extremo del sistema para una configuración de alimentación en el extremo. Para una configuración de alimentación central, el punto central debe marcarse a 1.75 pulg. desde la parte inferior del canal alineado en el centro lineal del sistema.
2. Perfore un orificio de 2.375" de diámetro centrado en el punto marcado en el paso anterior.
   - ***Asegúrese de limpiar las virutas de PVC del tanque después de la fabricación.***
3. Fije el herraje de tabique divisorio y ajuste para crear un sello impermeable.
4. Comenzando con el adaptador de PVC macho de 1 ½ pulg. que sale del tanque, instale la cañería a la toma del tanque tal como se muestra abajo en la Figura 24.

**Figura 24**



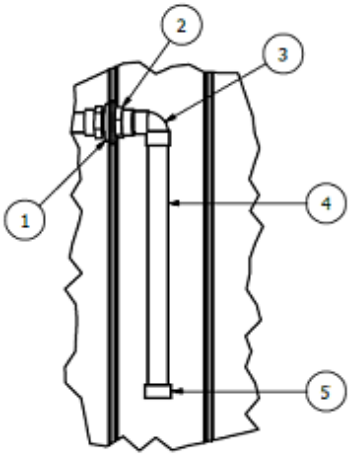

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | H2P-XXXJ | Pump 3/4 HP Jet H2 Evap System Grower Select |
| 2 | 1 | H2P-003 | Union Pump 1-1/2" S O-Ring & Gasket |
| 3 | 1 | S1520-15F | Valve PVC Check 1-1/2" Threaded |
| 4 | 1 | 60053 | Elbow, 45 Degree PVC S X S X 1 1/2" (SCH 40) |
| 5 | TBD | 603412 | Pipe PVC 1-1/2" X 5' Sch 40 Plain End |
| 6 | 1 | 60052 | Elbow, 45 Degree PVC S X S X 1 1/2" (SCH 40) |
| 7 | 3 | 60057 | Adapter, PVC Male 1 1/2" (SCH 40) |
| 8 | 1 | HSES-36 | Adapter Tank 1-1/2" |

5. Utilizando el cemento de PVC proporcionado y un limpiador de PVC construya el ensamblaje de toma tal como se muestra abajo en la Figura 25.

Asegúrese de que los orificios de la toma estén orientados hacia la parte inferior del canal y que la tubería de toma esté paralela a la parte inferior del canal.

**Para garantizar que no se interrumpa el suministro de agua de la bomba, debe instalarse una tubería de recolección a una distancia mínima de 2' del suministro de agua entrante.**

**Figura 25**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-36 | Adapter Tank 1-1/2" |
| 2 | 1 | 60057 | ADAPTER, PVC MALE 1 1/2" (SCH 40) |
| 3 | 1 | 60052 | ELBOW, 90 DEGREE S X S 1 1/2" (SCH 40) |
| 4 | 1 | HSES-12 | PICK-UP PIPE |
| 5 | 1 | 60058 | CAP, PVC 1 1/2" (SCH 40) |

**Considere lo siguiente:** La instalación de la bomba de 115 voltios puede requerir una variación en la instalación.

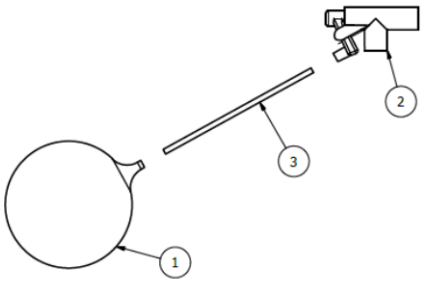
- Las bombas deben poder quitarse del sistema completamente a fin de acondicionarlas para el invierno.
- Si es necesario, instale una unión de 1 ½ pulg. (603841) entre el codo de 40 grados y el codo de 90 grados y reemplace la unión de la bomba (H2P-003) con un adaptador macho de 1 ½ pulg.
- Los componentes necesarios se incluyen en los juegos de bomba correspondientes.

# ***BOMBA DE CHORRO EN LÍNEA***

## *Instrucciones de ensamblaje del juego de flotador*

1. Comience la instalación del juego de tanque con flotador ensamblando la bola, la varilla y la válvula tal como se muestra abajo en la Figura 26.

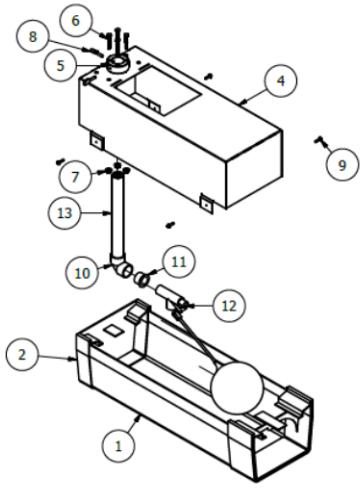
**Figura 26**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | KPF06 | Ball Float 6"Diameter 1/4" Thread |
| 2 | 1 | KPT75SS | Valve Float 3/4" Inlet/Outlet Tank Mount |
| 3 | 1 | KSR08 | Rod Float 1/4" X 8" SS |

2. Ensamble la caja de alojamiento del tanque con flotador tal como se muestra abajo en la Figura 27.

**Figura 27**

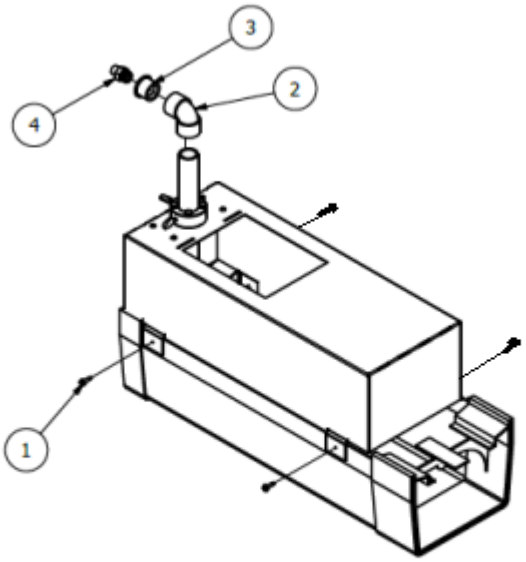



| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-13 | TROUGH EXTENSION |
| 2 | 1 | HSES-01 | TROUGH END CAP FLUSH |
| 3 | 1 | HSES-03 | TROUGH COUPLER |
| 4 | 1 | HSES-30 | FLOAT TANK ASSEMBLY |
| 5 | 1 | HSES-35 | Collar PVC |
| 6 | 4 | 6050411 | Bolt SS 1/4" X 1 3/4" |
| 7 | 4 | 60577 | Nut Serrated Flange 1/4-30 Zinc |
| 8 | 2 | 68834 | Screw Thumb 1/4"-20 X 1" SS |
| 9 | 4 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |
| 10 | 1 | 60032 | ELBOW 90 DEGREE PVC S X S 1" (SCH 40) |
| 11 | 1 | 60180 | BUSHING REDUCING 1" S X 3/4" FPT (SCH 40) |
| 12 | 1 | KPT75SS | FLOAT VALVE ASSEMBLY |
| 13 | TBD | 603432 | 1" PVC PIPE (SCH 40) |

3. Fije la tubería de PVC dentro del cuello flotador con los tornillos de mariposa y sujete el codo de PVC macho de 1 pulg. y el buje reductor de PVC de 1 pulg. a ¾" de pulg. a la parte superior de la tubería de PVC de 1 pulg.
4. Si aún no está completo, sujete el ensamblaje del tanque con flotador a la extensión del canal con los tornillos autorroscantes 10-16 (**60926**) proporcionados.
5. Finalmente, enrosque el accesorio macho de latón y fije la línea de suministro.

Estos pasos se muestran abajo en la Figura 28.

**Figura 28**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | 60926 | Screw SS 10-16 X 3/4" Hex Washer Head #3 |
| 2 | 1 | 60032 | Elbow 90 Degree PVC S X S 1" (SCH 40) |
| 3 | 1 | 60180 | Bushing Reducing 1" S X 3/4" MHT |
| 4 | 1 | 60167 | Adapter Brass 3/4" MPT X 3/4" MHT |

**Durante la configuración del nivel de agua, la válvula Kerick debe elevarse lo más alto posible dentro de la caja de alojamiento del tanque con flotador. Cualquier ajuste del nivel de agua debe realizarse ajustando el brazo de palanca de la válvula Kerick.**

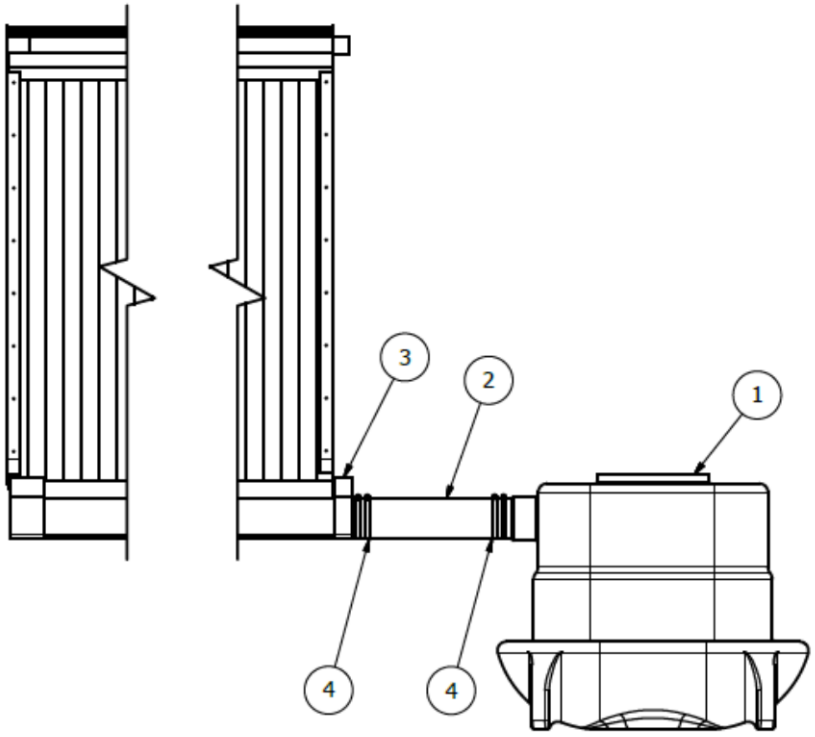
**Simplemente bajar la válvula Kerick causará una restricción en el ingreso de agua.**

# ***BOMBA SUMERGIBLE***

## *Instalación del tanque (alimentación de extremo)*

1. Comience por conectar el tanque (HSES-40) al canal usando la manguera flexible que se proporciona (HSES-39). Se suministran 5' de manguera con cada sistema. Si necesita una manguera más larga, realice el pedido por separado. Fije la manguera a la tapa del extremo con boquilla y a la entrada del tanque usando las (4) abrazaderas para manguera (620-072), tal como se muestra abajo en la Figura 29.

**Figura 29**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-40 | Tank Sump Grower Select Cool Cell System |
| 2 | 1 | HSES-39 | Hose 4" Flexible Black Grower Select Per Foot |
| 3 | 1 | HSES-02 | Trough End Cap With Nipple |
| 4 | 4 | 620-072 | Clamp Hose Ss 3" To 5" |

# ***ALIMENTACIÓN EN EL EXTREMO DE LA BOMBA SUMERGIBLE***

## *Instalación del tanque (alimentación central)*

**El juego de alimentación central es una opción de instalación adicional y requiere un pedido por separado del número de pieza HSES-45.**

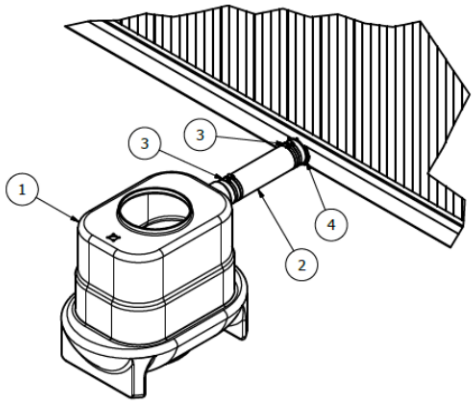
1. Seleccione y marque el centro del canal donde se insertará el tabique divisorio de 4 pulg. (HSES-45). Perfore un orificio de 4 pulg. en el centro del canal dejando lugar para colocar la tuerca de fijación del adaptador del tanque. Introduzca el extremo roscado del adaptador del tanque con un empaque de caucho en el exterior y uno en el interior del canal. Ajuste la tuerca de fijación firmemente dentro del canal.

- **EL ORIFICIO DEBE TENER UN MÍNIMO DE 2.75 PULG. DESDE LA PARTE DE INFERIOR DEL CANAL**

- **ES POSIBLE QUE SE DEBA RETIRAR UNA PEQUEÑA SECCIÓN DE LA CUBIERTA DEL CANAL DIRECTAMENTE POR ENCIMA DEL ADAPTADOR DEL TANQUE DE 4 PULG. PARA PERMITIR QUE LA CUBIERTA DEL CANAL QUEDE NIVELADA SOBRE EL CANAL.**

2. Conecte el tanque (HSES-40) al tabique divisor usando la manguera flexible que se proporciona (HSES-39). Se suministran 5’ de manguera con cada sistema. Si necesita una manguera más larga, realice el pedido por separado. Fije la manguera al tabique divisor y a la entrada del tanque usando las (4) abrazaderas para manguera (620-072), tal como se muestra abajo en la Figura 30.

**Figura 30**



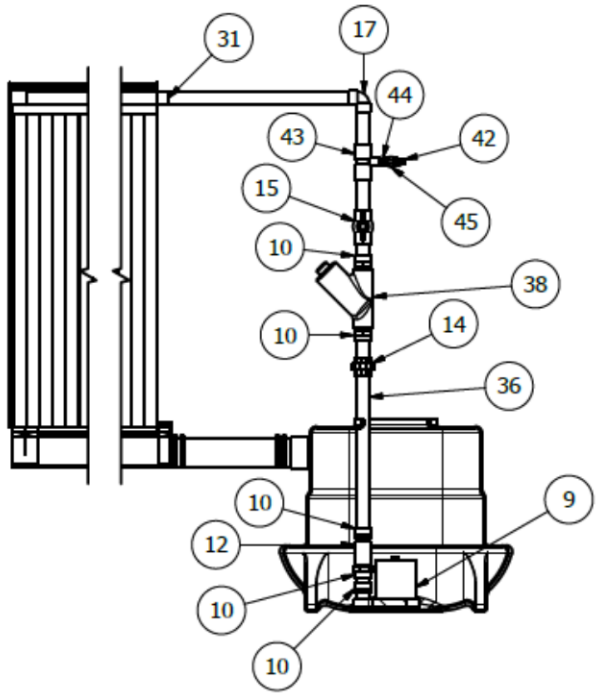

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-40 | TANK, SUMP HSES |
| 2 | 1 | HSES-39 | Hose 4" Flexible Black Grower Select Per Foot |
| 3 | 4 | 620-072 | Clamp Hose Ss 3" To 5" |
| 4 | 1 | HSES-45 | TANK APDATER ASSEMBLY, 3.5" THREADS |

# BOMBA SUMERGIBLE

## *Instrucciones de cañerías de salida (alimentación de extremo)*

1. Comenzando con la salida de la bomba, instale los componentes tal como se muestra abajo en la Figura 31, usando el limpiador de tuberías de PVC y el cemento de PVC proporcionado con el kit de plomería. A continuación se muestra la disposición de la alimentación de extremo.

**Figura 31**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 9 | 1 | H2P-230S | Pump 1/2 HP 230V Sump H2 Evap System Grower Select |
| 10 | 5 | 60057 | Adapter, PVC Male 1 1/2" (SCH 40) |
| 12 | 1 | S1520-15F | Valve PVC Check 1-1/2" Threaded |
| 14 | 1 | 603841 | Union Pvc 1 1/2" (SCH 40) |
| 15 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 17 | 1 | 60052 | Elbow 90* PVC S X S X 1 1/2" (SCH 40) |
| 31 | TBD | HSES-09 | SPRAY BAR 10' |
| 36 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |
| 38 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 42 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 43 | 1 | 603750 | Tee Reducing 1 1/2" S X 1 1/2" S X 3/4" FPT PVC (SCH 40) |
| 44 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 45 | 1 | 6021602 | Valve Ball PVC 3/4" Female Threaded |

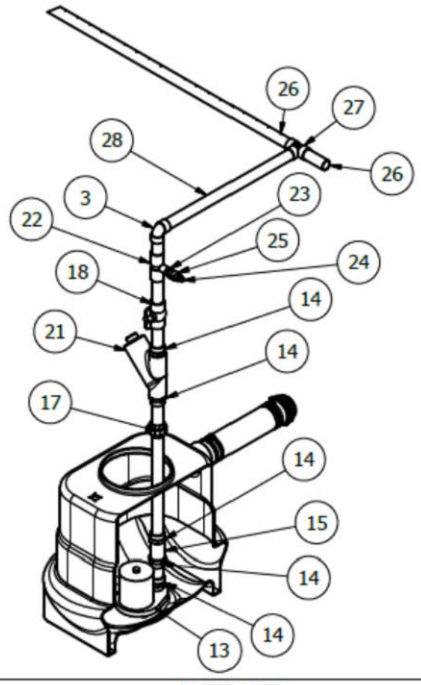
# ***BOMBA SUMERGIBLE***

## *Instrucciones de cañerías de salida (alimentación central)*

1. Comenzando con la salida de la bomba, instale los componentes tal como se muestra abajo en la Figura 32, usando el limpiador de tuberías de PVC y el cemento de PVC proporcionado con el kit de plomería. A continuación se muestra la disposición de la alimentación central.

- **ES POSIBLE QUE SE DEBA CORTAR/MODIFICAR LA BARRA ROCIADORA Y EL SUJETADOR DE LA ALMOHADILLA PARA PERMITIR UN AJUSTE Y ESPACIADO ADECUADOS.**

**Figura 32**



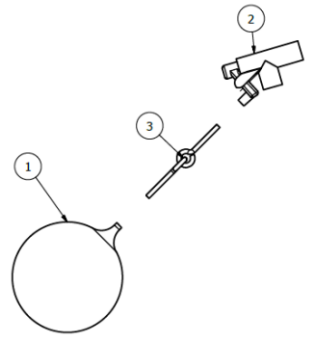

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 3 | 3 | 60052 | Elbow 90* PVC S X S X 1 1/2" (SCH 40) |
| 13 | 1 | H2P-230S | Pump 1/2 HP 230V Sump H2 Evap System Grower Select |
| 14 | 5 | 60057 | Adapter, PVC Male 1 1/2" (SCH 40) |
| 15 | 1 | S1520-15F | Valve PVC Check 1-1/2" Threaded |
| 17 | 1 | 603841 | Union PVC 1 1/2" (SCH 40) |
| 18 | 1 | 602190 | Valve Ball PVC Compact 1 1/2" |
| 21 | 1 | LS150-12 | Strainer Filter Y 1-1/2" 12 Mesh |
| 22 | 1 | 603750 | Tee Reducing 1 1/2" S X 1 1/2" S X 3/4" FPT PVC (SCH 40) |
| 23 | 1 | 384001 | Nipple PVC 3/4" X 3/4" Close Threaded |
| 24 | 1 | 60167 | Coupling 3/4" MWH C 3/4" MPT Brass |
| 25 | 1 | 6021602 | Valve Ball PVC 3/4" Femal Threaded |
| 26 | 2 | HSES-09 | SPRAY BAR 10' |
| 27 | 1 | 600510 | Tee S X S X S 1 1/2" (SCH 40) |
| 28 | TBD | 630412 | 5' 1 1/2" PVC Pipe (Cut to Length) |

# BOMBA SUMERGIBLE

## *Instrucciones de ensamblaje de la válvula de flotador*

1. Comience la instalación del juego de tanque con flotador ensamblando la bola, la varilla y la válvula tal como se muestra abajo en la Figura 33.

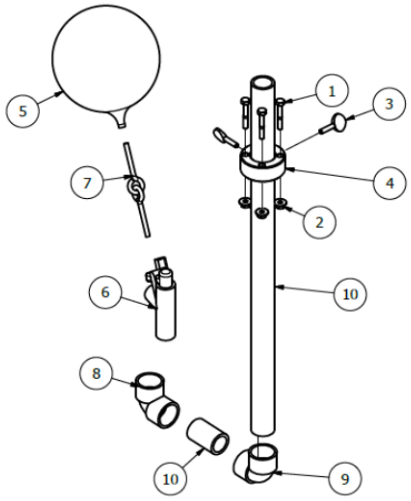
**Figura 33**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | KPF06 | Ball Float 6"Diameter 1/4" Thread |
| 2 | 1 | KPT75SS | Valve Float 3/4" Inlet/Outlet Tank Mount |
| 3 | 1 | HSES-RA11 | ASSEMBLY, EYE BOLT KERICK VALVE |

2. Instale el ensamblaje de la válvula de flotador tal como se muestra abajo en la Figura 34.

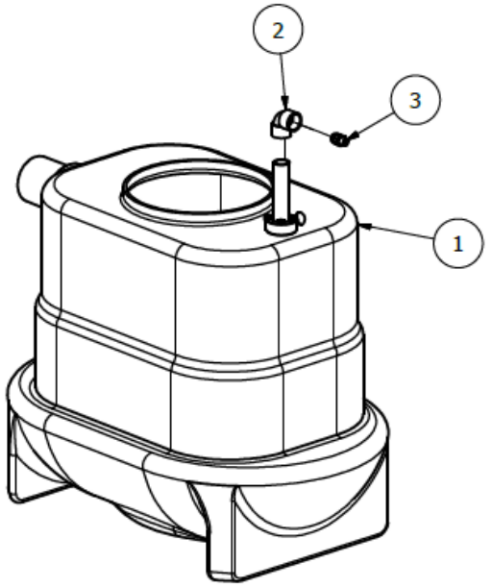
**Figura 34**




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | 6050411 | BOLT SS 1/4" X 1 3/4" |
| 2 | 4 | 60577 | NUT SERRATED FLANGE ZINC 1/4-20 |
| 3 | 3 | 68834 | SCREW THUMB 1/4"-20 X 1" SS |
| 4 | 1 | HSES-35 | FLOAT VALVE COLLAR |
| 5 | 1 | KPF06 | BALL FLOAT 6" DIAMETER 1/4" THREAD |
| 6 | 1 | KPT75SS | VALVE FLOAT 3/4" IN/OUT TANK MOUNT |
| 7 | 1 | HSES-RA11 | INTERLOCKING EYE BOLTS |
| 8 | 1 | 604191 | Elbow Reducing 90 Degree 1" S X 3/4" FPT PVC (SCH 40) |
| 9 | 1 | 60032 | Elbow 90 Degree Pvc S X S 1" (SCH 40) |
| 10 | TBD | 603432 | Pipe PVC SCH 40 1" X 5' Plain End |

3. Fije la tubería de PVC dentro del cuello flotador con los tornillos de mariposa y sujete el codo de PVC macho de 1 pulg. y el buje reductor de PVC de 1 pulg. a ¾" de pulg. a la parte superior de la tubería de PVC de 1 pulg.

**Figura 35**



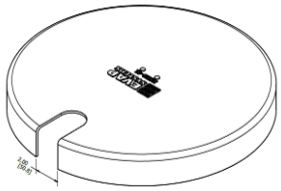

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | HSES-40 | Tank Sump Grower Select Cool Cell System |
| 2 | 1 | 604191 | Elbow Reducing 90 Degree 1" S X 3/4" FPT PVC (SCH 40) |
| 3 | 2 | 60167 | Adapter Brass 3/4" MPT X 3/4" MHT |

**Durante la configuración del nivel de agua, los tornillos mariposa deben usarse para fijar la altura del agua, subiendo o bajando todo el ensamblaje de la válvula.**

4. Finalmente, coloque la tapa del tanque (HSES-41) sobre el tanque. Una parte de la tapa deberá ser retirada. Abajo se muestra un ejemplo en la Figura 36.

- **LA DIMENSIÓN EXACTA DEL CORTE DEBE SER DETERMINADA POR EL INSTALADOR DADO QUE EL TAMAÑO Y LA TUBERÍA DE ALIMENTACIÓN PUEDEN VARIAR.**

**Figura 36**



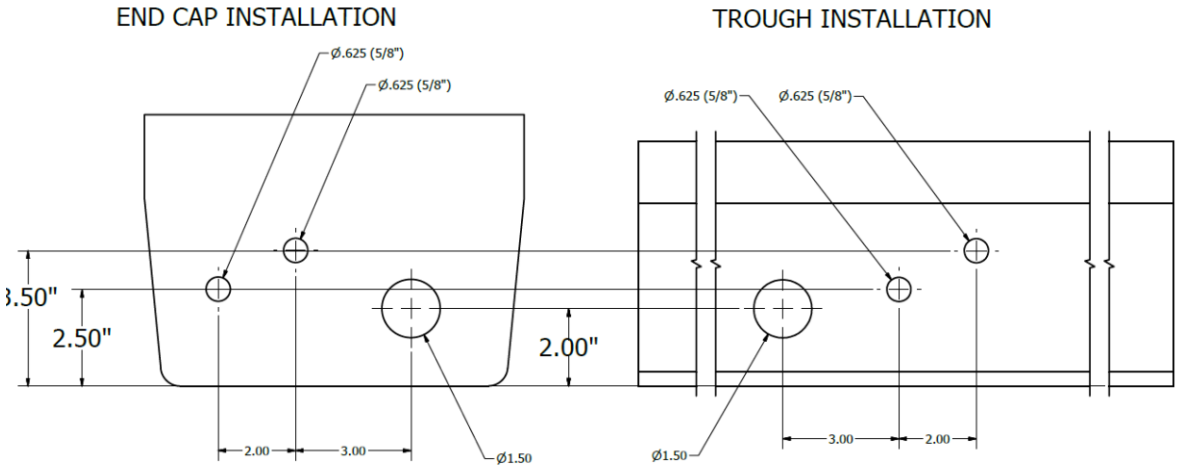
# ***Level Rite***
## *Sistema electrónico de manejo de flotación*
## *HSCC-1000, HSPK-JETLR*

1. Determine la posición de instalación del llenado entrante teniendo en cuenta que el siguiente suministro de agua entrante debe ubicarse cerca del ensamblaje/montaje.

Si es posible, se recomienda instalar interruptores de flotador en la tapa del extremo a ras.

¡SE REQUIERE UNA TOMA DE CORRIENTE PARA UNA OPERACIÓN CORRECTA! ESTA TOMA DE CORRIENTE DEBE PERMANECER “ENCENDIDA” CONTINUAMENTE. EL SISTEMA DE CONTROL DE LLENADO DEBE PODER ENCENDERSE EN CUALQUIER MOMENTO EN EL QUE EL SISTEMA TIENE AGUA

2. Abra la caja de control (HSCC-1000) y retire los conjuntos del interruptor de flotador. Se incluyen tuercas para cables resistentes a la intemperie en las cajas de interruptor de flotador.
3. Marque la ubicación para la instalación del interruptor de flotador, ya sea en la tapa del extremo de descarga o en el canal mismo. Ver imagen a continuación para dimensiones.

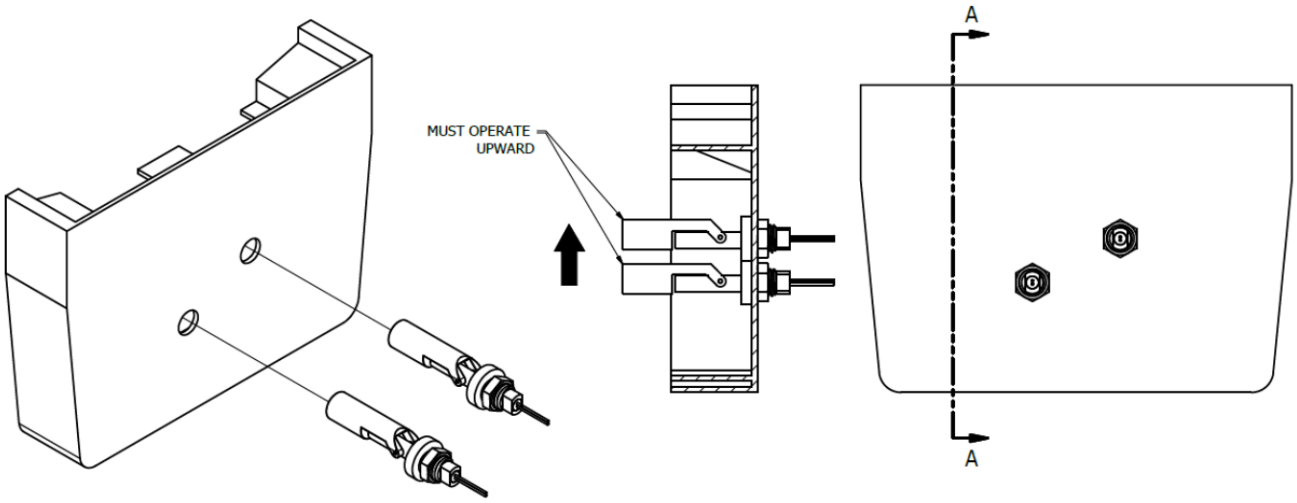



4. Taladre los agujeros de montaje del interruptor de flotador a 0.625 "(5/8")

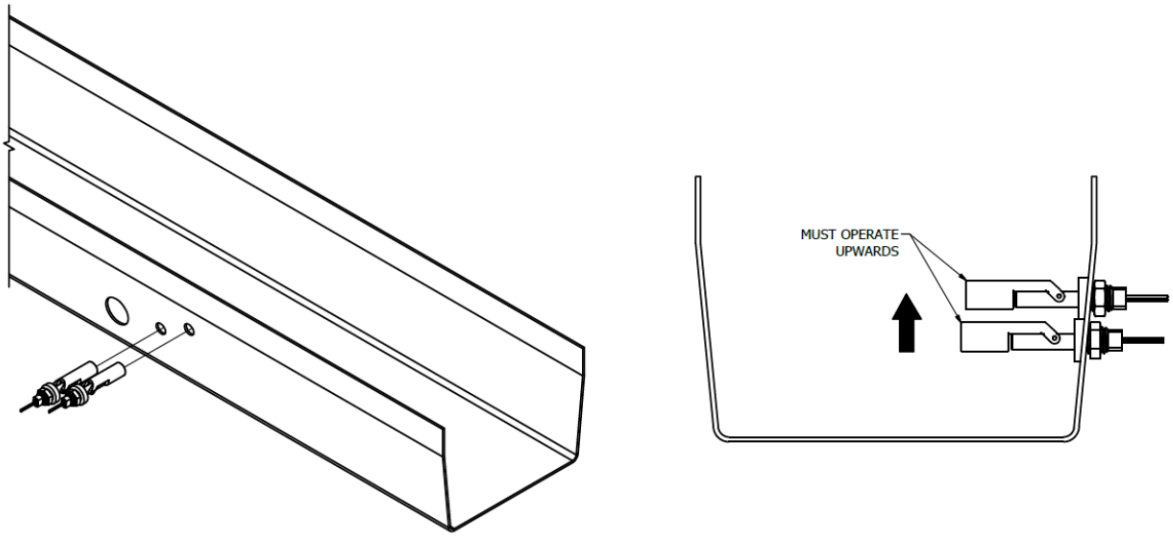
5. Inserte y asegure los interruptores de flotador con la tuerca de retención y la arandela de goma.

**¡EL INTERRUPTOR DE FLOTADOR DEBE INSTALARSE PARA QUE EL FLOTANTE VIAJE HACIA ARRIBA! ¡VEA LA IMAGEN ABAJO!**

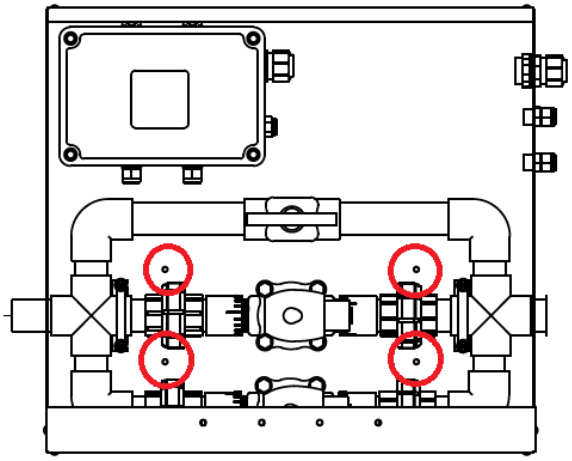
# INSTALACIÓN DE TAPA FINAL



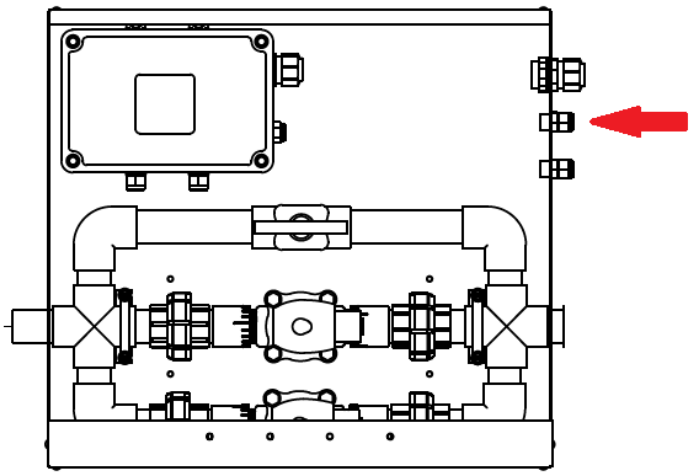

# INSTALACIÓN DE CANAL



6. Con la puerta abierta, monte el conjunto Level Rite uniéndolo a través de los 4 agujeros de montaje que se muestran a continuación.



7. Usando las tuercas de cable resistentes a la intemperie suministradas, conecte el interruptor de flotador alto (interruptor instalado a 3.50 ”de altura) al cable protegido identificado con la etiqueta de color (si falta la etiqueta, el cable se puede identificar como el cable que sale del orificio hermético pequeño en la parte superior mostrado en el dibujo a continuación) La orientación no es crítica.

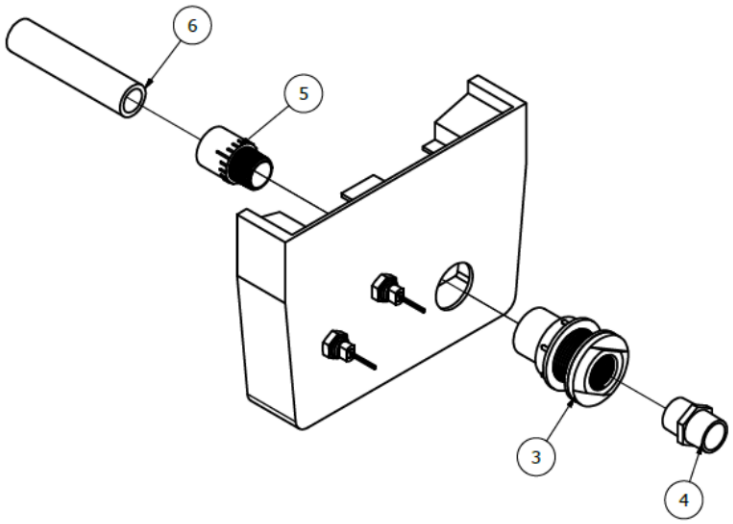


8. Usando las tuercas de cable a prueba de intemperie suministradas, conecte el interruptor de flotación baja al otro cable protegido que sale a través orificio hermético en la parte inferior.

9. Instale el accesorio de mamparo de entrada y las conexiones de plomería. Se suministra una manguera de 5 pies con el kit de flotación Level Rite. Se puede pedir e instalar una manguera adicional si se requiere una ubicación más remota.

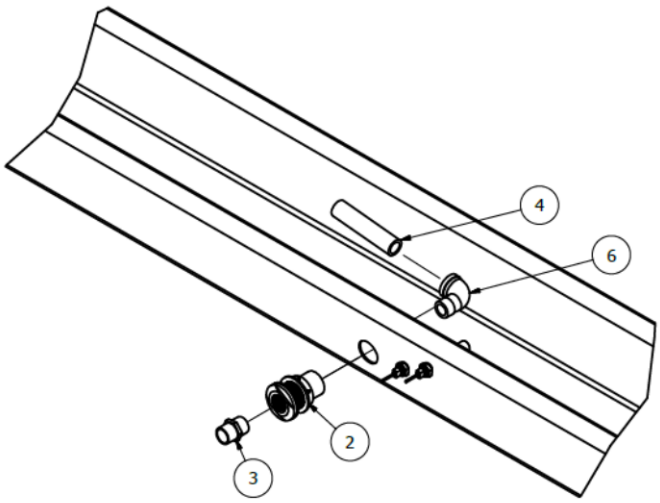
## INSTALLACION DE LA TAPA FINAL

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 3 | 1 | TF34NB | Bulkhead Fitting 3/4"FPT For 1-1/2" Hole Nylon |
| 4 | 1 | 60167 | Coupling 3/4" MGHT x 3/4" MPT Brass |
| 5 | 1 | 60027 | Adapter Pvc Male 3/4" (SCH 40) |
| 6 | 1 | 3/4" PVC SCH 40 PIPE | 24.00" LONG |



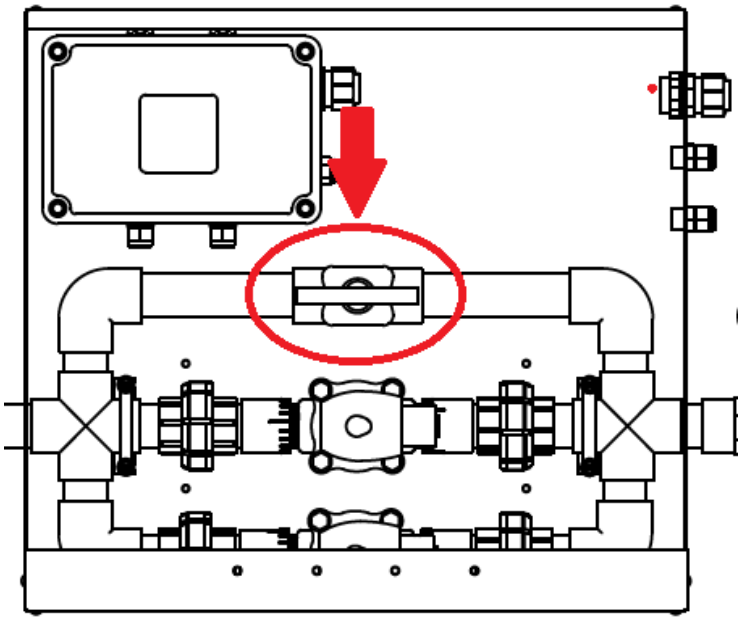

## INSTALLACION DEL CANAL

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 2 | 1 | TF34NB | Bulkhead Fitting 3/4"FPT For 1-1/2" Hole Nylon |
| 3 | 1 | 60167 | Coupling 3/4" MGHT x 3/4" MPT Brass |
| 4 | 1 | 3/4" SCH 40 PVC PIPE | 24.00" LONG |
| 6 | 1 | 602245 | Elbow 90 Degree PVC Sch 40 Street 3/4" S X 3/4" MPT |



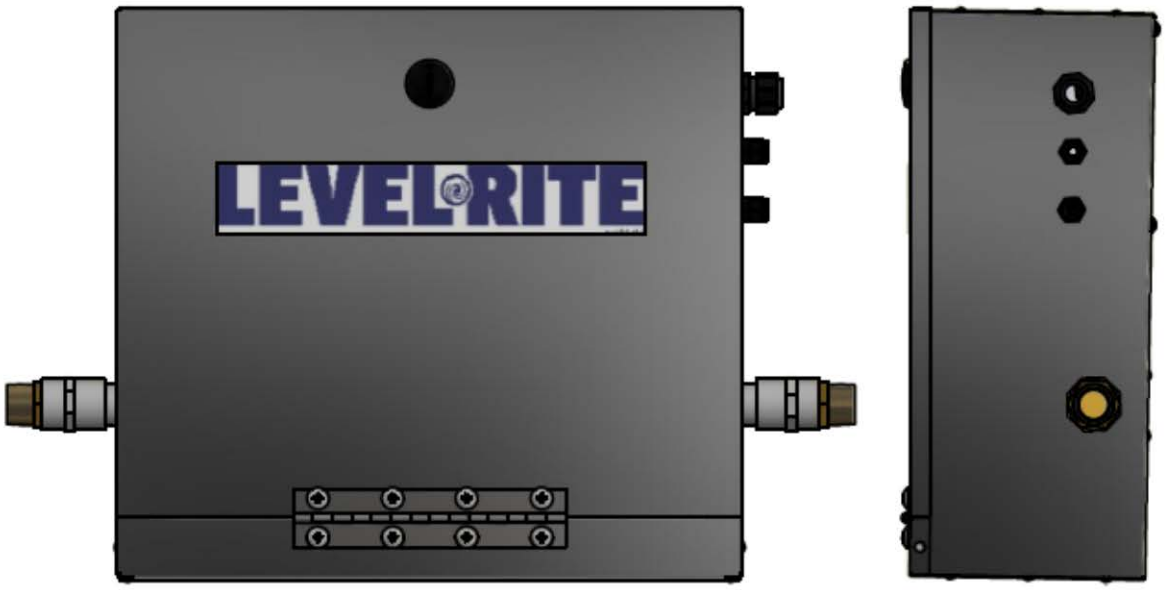
**Ver a continuación diagrama de ruta general**

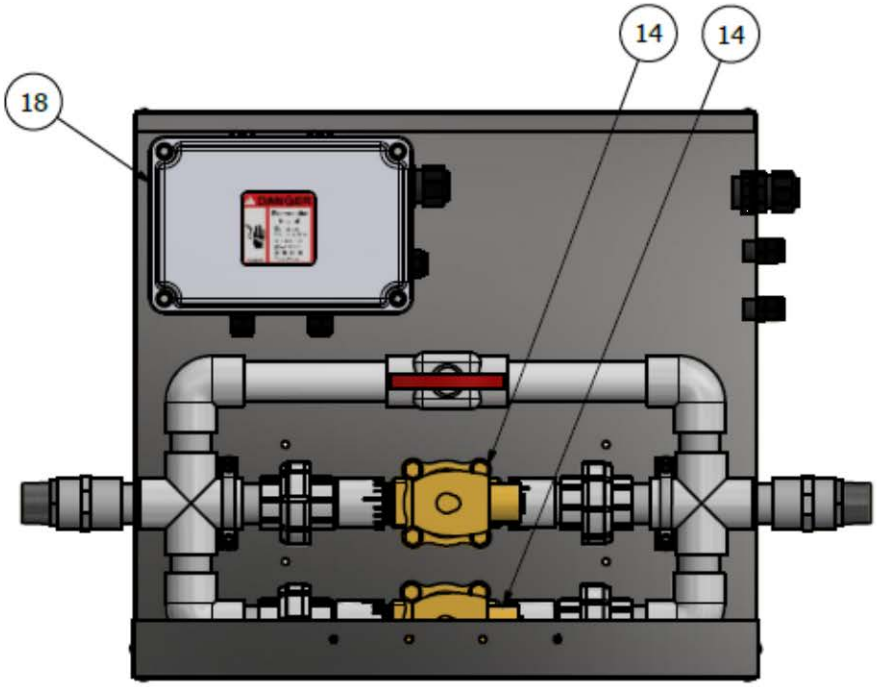

**¡EN CASO DE UNA FALLA ELÉCTRICA U OTROS PROBLEMAS IMPREVISTOS, LA VÁLVULA DE BOLA MANUAL SE PUEDE ABRIR COMO UN PASO PARA PERMITIR QUE EL AGUA ENTRE AL SISTEMA!**



# Lista de piezas de repuesto de Level Rite (HSCC-1000)

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| N/S | 1 | HSCC-01-SW | Switch Float Horizontal Mount Dwyer F6 |
| 14 | 2 | HSCC-S12LF | Solenoid 3/4" ASCO Red Hat 12VDC NC Lead Free |
| 18 | 1 | HSCC-3001 | Control Box, Wiring, Level Rite |



# *Instrucciones de alambrado de la bomba*

## Conexión del alambre:

**De nuevo, asegúrese de que la energía esté desconectada del sistema antes de realizar el mantenimiento**.

Esta unidad de potencia se suministra prealambrada para una operación de 230 voltios con la dirección de rotación adecuada para la rotación correcta del motor. Si se requiere una operación de 115 voltios, consulte las instrucciones de alambrado en la etiqueta de datos del motor para convertir a la operación de 115 voltios.

El alambre negro debe conectarse a L1(M1) y el alambre blanco debe conectarse a L2(M2). El verde debe conectarse a tierra (vea la Figura 37).

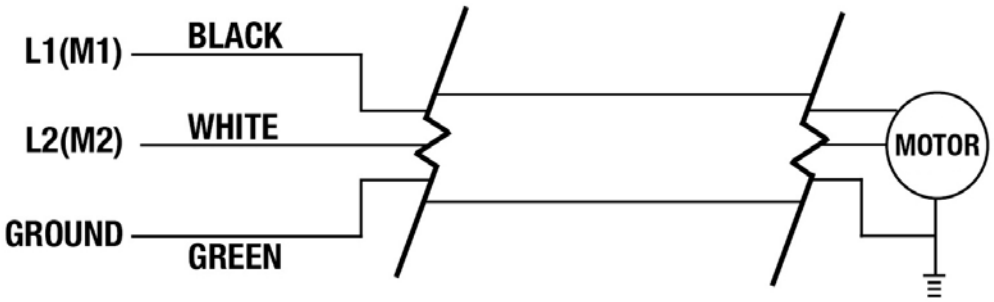



**Figura 37**

**ADVERTENCIA**
**¡RIESGO DE DESCARGA ELÉCTRICA!**

- El reemplazo del motor y los cambios de alambrado asociados solamente deben ser realizados por personal calificado y debidamente capacitado.
- No cumplir la advertencia anterior puede causar un funcionamiento incorrecto del equipo, una falla prematura del equipo o una descarga eléctrica que puede ocasionar daños a la propiedad o lesiones personales.

# *Instrucciones de operación*

**Operación del nuevo sistema / Arranque anual**

Se deben realizar / completar varias inspecciones y procedimientos para el sistema recién instalado.
(Este proceso también es aplicable para la puesta en marcha anual.

1. Antes de agregar agua, elimine cualquier residuo del canal. Estos desechos consisten, pero no se limitan a, virutas de PVC, sujetadores sueltos, basura y hojas.
   • El canal debe mantenerse libre de desechos constantemente.
2. Apriete el tapón del canal y llene el canal con agua.
   - Inspeccione el canal y sus conexiones para detector si hay fugas
   - Si hay fuga, drene el canal y repare la unión donde se observe la fuga.
3. Asegúrese de que la cesta del filtro unida a la bomba esté llena de agua
   - **PARA BOMBA DE SUMIDERO ASEGÚRESE DE QUE EL TANQUE ESTÉ LLENO ANTES DE LA OPERACIÓN**
   - Aunque la bomba se auto-prepara, se recomienda llenar la cesta del filtro con agua.
4. Encienda la bomba.
5. Ajuste el flujo de agua a través de la barra de rociado ajustando la válvula de bola de PVC orientada verticalmente en la tubería de alimentación para la barra de rociado.
   - Un sistema correctamente ajustado debe proporcionar una capa uniforme de agua a través del frente de la almohadilla sin que el exceso de agua evacue el sistema a través de las almohadillas.
   - Este ajuste debe realizarse con la instalación funcionando en el túnel completo, ya que los ventiladores del túnel introducen agua en la almohadilla y reducen la cantidad de agua a través de la superficie frontal o cara de la almohadilla.

**VEA EL MANUAL HSMANUAL-149 PARA LAS INSTRUCCIONES DE MANTENIMIENTO DE LA ALMOHADILLA H2 (INCLUIDO)**

**Preparando el sistema para el invierno**

1. Retire el tapón del canal y permita que salga toda el agua del canal.
   - Durante este proceso, asegúrese de que todas las válvulas de bola estén completamente abiertas para evacuar la tubería.
2. Retire el tapón de la cesta colador del filtro en la bomba y permita que salga toda el agua de la bomba.

**¡ES ALTAMENTE RECOMENDADO QUE LA BOMBA SE DESCONECTE Y SE QUITE DEL SISTEMA COMPLETAMENTE PARA MINIMIZAR EL DAÑO A LA BOMBA YA EL SISTEMA DURANTE EL INVIERNO!**

   - Para el sistema de sumidero vaciar el tanque de agua.
   - Durante este proceso, asegúrese de que todas las válvulas de bola estén completamente abiertas para vaciar la tubería.
3. Reemplace todos los tapones y cierre todas las válvulas de bola para eliminar cualquier objeto que ingrese al sistema.

**Normal Operation**

1. Consulte el Manual del controlador para la programación de operación diaria.
2. Asegúrese de que los niveles de agua sean precisos y que el sistema no se llene en exceso.
   - El nivel del agua debe estar aproximadamente 1 " debajo de las almohadillas para un funcionamiento correcto.
3. Las almohadillas deben dejarse secar completamente a diario.
4. El sistema debe apagarse 30 minutos antes que los abanicos del túnel para que las almohadillas se sequen por completo

**Complicaciones**

- **EN CASO DE PROBLEMAS ADICIONALES, CONSULTE LA LISTA DE VERIFICACIÓN DE ENFRIAMIENTO EVAPORATIVO**

# *Operación de emergencia*

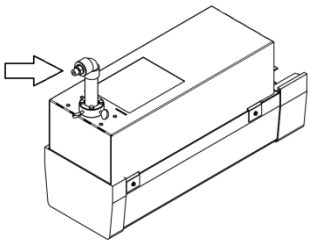
- Si se descubriera que una bomba no funciona o no suministra agua al sistema, el sistema evaporativo H2 estará equipado con una anulación de operación de emergencia.

**Antes de tomar cualquier medida siga los pasos siguientes:**

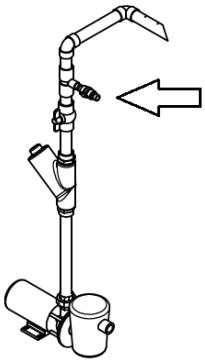
1. Asegúrese de que el sistema tenga y esté recibiendo agua.
2. Asegúrese de que la bomba tenga suministro de energía (y la cesta de tamiz no esté obstruida en el caso de los sistemas de chorro).
3. Asegúrese de que el filtro no esté obstruido e impida el paso del agua.

Si ha completado los pasos anteriores y ha determinado que existe un problema con la recirculación del agua desde el canal hasta la barra rociadora (bomba, filtro, línea agrietada, etc.) siga el procedimiento siguiente para operar el sistema en estado de emergencia.

1. Desconecte la línea de agua entrante al accesorio de latón en el tanque con flotador.



2. Sujete la línea de agua entrante al accesorio de latón en la tubería de alimentación (es posible que necesite una manguera adicional).



3. Cierre la válvula de bola 1 ½ pulgada por encima del filtro y abra el suministro de agua de la manguera.
4. La longitud del sistema determina la cantidad de agua que se distribuirá al medio evaporativo.

**¡ESTA SOLUCIÓN NO ES PERMANENTE Y SOLO SE DEBE USAR MIENTRAS SE IMPLEMENTA UNA SOLUCIÓN PERMANENTE!**

# *Instalación del retenedor de almohadilla*

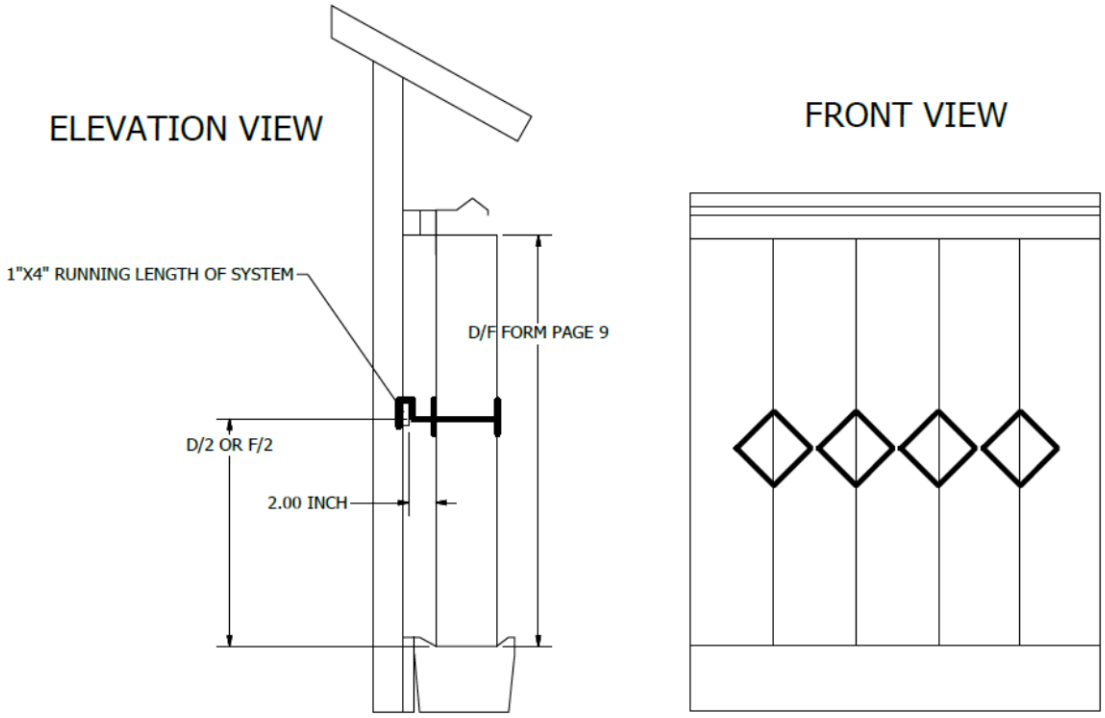
Retenedores de almohadilla (HS756) Se recomiendan para cualquier almohadilla que exceda los 5 pies de altura.
Los retenedores de almohadilla se venden individualmente (HS756) o en cajas de 20 (HS756-BX20)

Los retenedores de almohadilla se pueden usar en cualquier altura de la almohadilla

Los retenedores de la almohadilla agregan rigidez adicional al centro de las almohadillas para ayudar a mantener la rectitud con el tiempo.

Para instalar retenedores de almohadilla, coloque madera de 1 "x4" para la longitud del sistema. Los retenedores de almohadilla deben instalarse para soportar las almohadillas en su punto medio.

Ver la figura a continuación.



# *LISTA DE PIEZAS DE REPUESTO*

| Número de pieza | Descripción |
|---|---|
| LS150-12 | Filtro de tamiz y malla 12 de 1-1/2” |
| HS612 | Perilla de 3 brazos 1/4-20 X 1/2" inserción de latón hembra |
| HSES-01 | Tapa de extremo del canal a ras |
| HSES-02 | Tapa de extremo del canal con boquilla |
| HSES-03 | Acoplador del canal |
| HSES-04 | Canal evaporativo de 10’ |
| HSES-05 | Canal evaporativo de 5’ |
| HSES-06 | Cubierta de canal evaporativo de 10’ |
| HSES-07 | Cubierta de canal evaporativo de 5’ |
| HSES-09 | Barra rociadora de 10’ |
| HSES-11 | Barra rociadora de 5’ |
| HSES-12 | Tubería de recolección |
| HSES-13 | Extensión de canal |
| HSES-14 | Panel de extremo de 2' de aluminio y parte superior abierta |
| HSES-15 | Panel de extremo de 3' de aluminio y parte superior abierta |
| HSES-16 | Panel de extremo de 4' de aluminio y parte superior abierta |
| HSES-17 | Panel de extremo de 5' de aluminio y parte superior abierta |
| HSES-18 | Panel de extremo de 6' de aluminio y parte superior abierta |
| HSES-19 | Soporte de la barra rociadora |
| HSES-20 | Soporte superior de 10' de aluminio |
| HSES-21 | Soporte superior de 5'de aluminio |
| HSES-22 | Desviador de la barra rociadora de 10' de aluminio |
| HSES-23 | Desviador de la barra rociadora de 5' de aluminio |
| HSES-24 | Empalme del desviador de la barra rociadora de aluminio |
| HSES-25 | Sujetador de almohadilla de 10' de aluminio |
| HSES-26 | Sujetador de almohadilla de 5' de aluminio |
| HSES-27 | Soporte del canal |
| 8490180700 | Soportes desplazados de canal de 12" |
| HSES-28 | Placa de montaje de la bomba |
| HSES-29 | Panel lateral de montaje de la bomba |
| HSES-30 | Cubierta de la válvula de flotador |
| HSES-31 | Escotilla de acceso a la válvula de flotador |
| HSES-32 | Clip de sujetador de almohadilla de aluminio |
| HSES-33 | Tapón mecánico de 4" |
| HSES-34 | Adhesivo para la celda de enfriamiento |
| HSES-35 | Cuello de PVC |
| HSES-36 | Adaptador de tanque |
| HSES-39 | Manguera negra flexible Grower Select de 4" por pie |
| HSES-40 | Sistema de celda de enfriamiento Grower Select del tanque sumidero |
| HSES-41 | Tapa del tanque sumidero de 13"Grower Select |
| HSES-45 | Ensamblaje de adaptador del tanque de 3.5" con roscas |
| KPF06 | Flotador Kerick |
| KPT75SS | Válvula Kerick |
| KSR08 | Eje Kerick |
| S1520-15F | Válvula de retención de PVC de 1-1/2 pulg. con rosca |
| 620-072 | Abrazadera de manguera de 3" a 5" |

# Lista de verificación de problemas de la almohadilla de enfriamiento evaporativo

***Antes de comunicarse con un representante de Hog Slat, obtenga la información sobre la lista de verificación***

**1. Verifique la orientación de la almohadilla y los logotipos de fabri**

Asegúrese de que las almohadillas sean H2 y tengan un código de fecha válido impreso.Si corresponde, el protector de borde debe apuntar hacia el lado opuesto de la cubierta. Las ranuras más inclinadas también deben apuntar hacia el lado opuesto de la cubierta. La mayoría de las almohadillas actuales tienen un logotipo de orientación sobre el lateral para referencia.

**1.**

**2. ¿Existe evidencia de un mantenimiento de almohadilla adecuado**

Verifique si hay acumulación de costras, minerales o desechos en las caras interiores o exteriores de la almohadilla. Las almohadillas bien mantenidas estarán libres de desechos y permitirán que el aire fluya libremente.
Las almohadillas se deben limpiar de manera regular, según la estación.

**2.**

**3. ¿Cuál es el estado del sistema y los contenidos?**

Revise si los filtros, las cestas de tamiz y las tuberías de cabecera no estén obstruidos. Verifique si el canal y el depósito de agua tienen acumulación de algas o están contaminados. Los sistemas bien mantenidos estarán mayormente limpios con poca o nula acumulación.

**3.**

**4. ¿El sistema se lava habitualmente?**

Verifique si el sistema se lava de manera regular.
Como mínimo, se debería lavar el sistema completamente, con depósito Incluido cada mes. El lavado regular del sistema ayuda a limpiar las almohadillas y eliminar la acumulación de costras y minerales que se generan debido a la operación normal.

**4.**

**5. ¿Cuál es el nivel de agua del sistema?**

Revise el nivel de agua del sistema. Asegúrese de que no haya agua acumulada alrededor de la base de las almohadillas. Un sistema adecuado tendrá un nivel de agua de aproximadamente 1 pulg. entre las almohadillas.

**5.**

**6. ¿Cuál es el pH y la calidad del agua del sistema?**

Usando tiras indicadores de pH descartables, revise el pH del sistema.
Un pH de sistema correcto se sitúa entre 6 y 8.
Si el pH está fuera del rango, revise el pH del suministro de agua.
Inspeccione visualmente el agua en el sistema.
El agua de un sistema bien mantenido debe ser cristalina o ligeramente turbia.

**6.**

**7. Agregado de sustancias químicas al sistema.**

Verifique si se ha usado alguna sustancia química para limpiar o controlar las algas. Si se han usado sustancias químicas asegúrese de que estén aprobadas. Asegúrese de que no se hayan introducido sustancias extrañas al sistema. Las sustancias extrañas incluyen: Roundup, lejía, desengrasantes

**7.**

**8. ¿Las almohadillas se dejan secar?**

Verifique el cronograma de operación del sistema.
Si es posible, las almohadillas deben dejarse secar completamente por lo menos una vez al día. Hacer funcionar los ventiladores 30 minutos más que el sistema de celda de enfriamiento ayuda a secar las almohadillas.

**8.**

# Garantía limitada de Hog Slat

**Hog Slat garantiza que los productos** están libres de defectos de materiales o de mano de obra por un período de veinticuatro (24) meses a partir de la fecha de la **compra original**. Hog Slat emitirá una nota de crédito, reparará o reemplazará, según su criterio, cualquier producto considerado defectuoso dentro de este período de tiempo. Los costos de mano de obra asociados con el reemplazo o la reparación del producto no están cubiertos por el Vendedor/Fabricante.

## Cobertura de Extensión de Garantía

El período de garantía limitada se extiende para los productos siguientes:

| | |
|---|---|
| Sistema de celda de enfriamiento | 5 años (menos para las almohadillas y las bombas) |

## Excepciones de cobertura de garantía

El período de garantía limitada para los siguientes productos:

| | |
|---|---|
| Almohadillas de enfriamiento | 1 año Desde la fecha de compra |
| Bombas de sumidero y chorro | 1 año Desde la fecha de compra |

## Condiciones y limitaciones

7. El producto debe ser instalado y operado según las instrucciones publicadas por el **Vendedor/Fabricante o se anulará la garantía**.
8. La garantía es nula si **todos los componentes** no son los equipos originales suministrados por el **Vendedor/Fabricante**.
9. El producto debe ser comprado e instalado por un vendedor minorista/distribuidor autorizado o representante certificado del mismo o se anulará la garantía.
10. El mal funcionamiento o la falla que resulte del uso indebido, maltrato, negligencia, alteración, accidente o falta de mantenimiento adecuado no se considerarán defectos bajo la Garantía.
11. Esta Garantía se aplica solamente a los componentes/sistemas para el cuidado de aves de corral y ganado. Las demás aplicaciones en industria o comercio no están cubiertas por esta Garantía.
12. Esta Garantía se aplica solamente al Comprador original del producto.

El **Vendedor/Fabricante** no será responsable de ningún **Daño Consecuencial o Especial** que cualquier comprador pueda sufrir o reclamar haber sufrido como resultado de cualquier defecto en el producto. Los daños **"consecuenciales"** o **"especiales"** *como se usan en este documento incluyen, entre otros, productos o bienes extraviados o dañados, costos de transporte, pérdida de ventas, pérdida de pedidos, pérdida de ingresos, aumento de gastos generales, costos de mano de obra y costos incidentales e ineficiencias operativas*.
ESTA GARANTÍA CONSTITUYE LA GARANTÍA ÚNICA Y EXCLUSIVA DEL VENDEDOR/FABRICANTE Y ESTE FABRICANTE RECHAZA EXPRESAMENTE CUALQUIER OTRA GARANTÍA, INCLUSO, ENTRE OTRAS, LAS GARANTÍAS EXPRESAS O IMPLÍCITAS DE COMERCIALIZACIÓN, IDONEIDAD PARA UN PROPÓSITO ESPECÍFICO DE VENTA Y DESCRIPCIÓN O CALIDAD DEL PRODUCTO PROPORCIONADO.

Los Vendedores minoristas/Distribuidores de Hog Slat no están autorizados para modificar o ampliar los términos y las condiciones de esta Garantía en cualquier manera ni para ofrecer u otorgar cualquier otra garantía para los productos de Hog Slat además de los términos que se indican expresamente arriba. Un funcionario de Hog Slat debe autorizar cualquier excepción a esta Garantía por escrito. El Vendedor/Fabricante se reserva el derecho de cambiar modelos y especificaciones en cualquier momento sin aviso ni obligación de mejorar los modelos anteriores.

**Este equipo debe ser instalado de acuerdo con todos los códigos estatales y locales y reglamentos aplicables que deben cumplirse en todos los casos. Las autoridades competentes deben ser consultadas antes de que se efectúen las instalaciones.**

**Hog Slat, Inc.**
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**Newton Grove, NC 28366**

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**Fax: (910) 594-1392**

**http://www.hogslat.com**



**Número de pieza: HSMANUAL-019 Rev. A15**
**Mercado - Cerdos y aves de corral**
**Grupo de productos: Grower Select**

**Rev A11 – Added Spanish Versión**
**Rev A12 – Added Pad Retainer**
**Rev A13 – Added Level Rite**
**Rev A14 – Added HSES-06C**
**Rev A15 – Addd Warranty Exceptions**